SPR e RSNA: Transforming Education in Radiology

Abstracts of Scientific Papers

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Abstracts of papers published in the following pages were enrolled and approved for presentation at the 48th Sao Paulo Radiological Meeting (JPR’2017), on 3 – 6 May, 2018, at the Transamerica Expo Center in Sao Paulo, SP, Brazil.

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**SPR, Scientific Paper Committee**
ROLE OF MAGNETIC RESONANCE IN THE EVALUATION OF POST-THERAPEUTIC RESPONSE OF CHALLENGE ADENOCARCINOMA IN A CENTER OF ONCOLOGICAL REFERENCE OF SÃO PAULO


Institution: HOSPITAL HELIÓPOLIS

Brief description of the study purpose/Objectives: Describe the role of magnetic resonance imaging (MRI) in the evaluation of post-therapy response of patients with adenocarcinoma of rectum cancer referral hospital of São Paulo.

Material and methods: Retrospective study, single-center, performed by review of medical records and MRI tests. Sampling of the study was of 20 patients of both sexes, who performed MRI of the abdomen and pelvis, between the months of January and December 2016, a reference hospital of São Paulo. The evaluation of response included the type of treatment, partial and complete responses, presence of recurrence or metastasis and after treatment complications.

Results and discussion: The average age of patients was 57.5 years (range: 44–83 years), with predominance of the female (66.7%). As the location of the injury there was slight predilection for lower rectum, with 12 cases (60%). Five patients (25%) were treated by surgical resection and none of them has evolved with local recurrence and three (60%) evolved with distant metastases detected by RM. Other 15 patients (75%) performed neoadjuvant chemotherapy and radiation therapy, followed by surgical resection without signs of local recurrence, featuring in four cases (26%) decrease in the size of the lesions in more than 30% (partial response) and in two cases (13%) appearance of distant metastases (disease progression), characterized by RM. Post-treatment complications, actinic alterations in 10 patients (66%) and a case of fistula (6.6%) among those who performed neoadjuvant treatment.

Conclusion: It has been observed that patients with diagnosis of rectal adenocarcinoma of study who were treated with surgical resection, had a significant increase in the probability of evolving with metastasis at distance from the patients who performed surgery with neoadjuvant therapy. In both groups there was no local response.

Responsible Author: Dr. Felipe Carvalho
E-mail: drfcdc@gmail.com

ROLE OF MAGNETIC RESONANCE IN RECTAL TUMOR EVALUATION IN AN ONCOLOGIC REFERENCE CENTER


Institution: HOSPITAL HELIÓPOLIS

Brief description of the study purpose/Objectives: To evaluate the main findings of magnetic resonance imaging (MRI) in patients with rectal cancer at the time of clinical staging.

Material and methods: Retrospective, unicentric study, carried out by review of medical records and magnetic resonance reports. We evaluated 24 patients who underwent pelvic MRI with protocol aimed at evaluating the rectum, between January 2016 and December 2016, in a center of reference. The characteristics evaluated included staging of the primary tumor (T), lymph node (N), presence of metastases (M) and the largest axis of lesions.

Results and discussion: The mean age of the patients was 64.2 ± 10.9 years. The most prevalent staging, characterized by RM reports, was the T3c stage (37.5%), followed by the T4 stage (29.1%). The average of the largest axis of lesions was 6.8 cm ± 2.7 cm. In 5 (20.8%) patients it was observed invasion of the mesorectal fat, in 3 (12.5%) the invasion occurred until its own muscular layer and in 10 patients (41.6%) presented invasion of adjacent structures: prostate(2), mesorectal fascia (5), peritoneal reflection (2), vagina (1) and seminal vesicles (3).

Conclusion: The staging performed by MRI most prevalent in the casuistry evaluated was the T3c, with a mean of the largest lesion diameter of 6.8 cm and invasion of adjacent structures present in 10 (41.6%) patients.

Responsible Author: Dr. tiagob.albano@gmail.com
E-mail: tiagob.albano@gmail.com

EVALUATION OF MAGNETIC RESONANCE IN THE INVESTIGATION OF PANCREATIC TUMORS IN A HOSPITAL OF ONCOLOGICAL REFERENCE

Authors: MORAES, L. T. A.; ALBANO, T.B.; ZACHINI, C. A. S.; GUIMARAES, M. D.; CARVALHO, F. C., VALOIS, V. M.

Institution: hospital heliopolis

Brief description of the study purpose/Objectives: To evaluate the role of magnetic resonance imaging in the characterization and staging of pancreatic tumors in an oncology reference hospital.

Material and methods: We performed an active research in the database of the diagnostic imaging service diagnostic of a cancer center, from February 2016 to February 2017, analyzing exams and reports of 30 patients with suspected or confirmed diagnosis of malignant pancreatic lesions. MRI scans were performed in a 1.5T device with a dedicated upper abdomen protocol for pancreatic evaluation. Demographic and radiological data regarding the diagnosis and staging of lesions were described.

Results and discussion: The mean age of the patients was 64.5 years, 3.7% with less than 30, 40.7% between 30 and 59 years, and 59.3% with 60 or more years. The largest mean diameter of the lesions was 4.12 cm. The main site of involvement was the pancreatic head (19 individuals - 70.3%); in 17 individuals (62.9%) reaching only this part and in 3 cases (11.1%) the extension of the lesion comprised head and one more part. Additional findings were described in 18 patients (66.6%), the main of wich was dilatation of the bile ducts and in 8 patients (29.6%) the invasion of vascular structures. Altered lymph nodes was present in 11 individuals (40.7%). The main diagnoses were adenocarcinoma and mucin-producing tumor.

Conclusion: The prevalence of pancreatic tumor was higher in the higher age group and most of the cases the MRI identified some type of invasion of adjacent structures and presence of altered lymph nodes, indicating advanced disease.

Responsible Author: Dr. tiagob.albano@gmail.com
E-mail: tiagob.albano@gmail.com
**PA.01.023**

**THE ROLE OF MAGNETIC RESONANCE (RM) IN THE EVALUATION OF PANCREATIC ADENOCARCINOMA IN ONCOLOGICAL REFERENCE HOSPITAL OF SÃO PAULO**

**Authors:** MORAES, L. T. A.; ALBANO, T. B.; ZACHINI, C. A. S.; GUIMARAES, M. D.; CARVALHO, F. C.; VALOIS, V. M.; MARTINEZ, T. H.

**Institution:** HOSPITAL HELIÓPOLIS

**Brief description of the study purpose/Objectives:** To demonstrate the characteristics by magnetic resonance imaging (MRI) of pancreatic lesions with diagnosis of adenocarcinoma in a oncology reference hospital of São Paulo.

**Material and methods:** To demonstrate the characteristics by magnetic resonance imaging (MRI) of pancreatic lesions with diagnosis of adenocarcinoma in a oncology reference hospital of São Paulo.

**Results and discussion:** To demonstrate the characteristics by magnetic resonance imaging (MRI) of pancreatic lesions with diagnosis of adenocarcinoma in a oncology reference hospital of São Paulo.

**Conclusion:** To demonstrate the characteristics by magnetic resonance imaging (MRI) of pancreatic lesions with diagnosis of adenocarcinoma in a oncology reference hospital of São Paulo.

**Responsible Author:** Dr. Joao Filipe Felix

**E-mail:** joaofilipefas@gmail.com

**SCIENTIFIC PAPERS - ORAL PRESENTATION (TL)**

**TL.01.002**

**USE OF ACAI PULP (EUTERPE OLERÁCEA) POWDER AS NEGATIVE ORAL CONTRAST FOR MAGNETIC RESONANCE CHOLANGIOPANCREATOGRAFHY (MRI) TESTS - IN VITRO STUDY**

**Authors:** SOUZA, A. P. P.; SHIGUEOKA, D. C.; AZUEN, S. A.

**Institution:** UNIFESP / EPM - Universidade Federal de São Paulo / Escola Paulista de Medicina

**Brief description of the study purpose/Objectives:** Magnetic Resonance Cholangiopancreatography (MRCP) is a diagnostic method for alterations of the bile and pancreatic ducts. The duodenal portion of the intestine is located near ductal structures, making it difficult to diagnose diseases in the pancreatobiliary system. To minimize this problem, substances such as negative oral contrast can be used.

**Material and methods:** Fifty commercially available brands of acai powder were analyzed. To analyze the influence of the Mn and Fe ions, we analyzed these two ions separately in the concentrations of 0.125mg, 0.25mg, 0.5mg, 1mg, 2mg and 4mg. The samples were submitted to magnetic fields of 1.5T and 3.0T in protocols established for T1 and T2 weighting. Samples were submitted to qualitative and quantitative analysis.

**Results and discussion:** Acai samples showed a decrease in signal intensity at T2 weighting and signal elevation at T1 weighting. Among the 05 samples two presented a greater collaboration for these results, observed both in the quantitative analysis and in the qualitative analysis. Among the samples of Mn and Fe, it was observed that only the Mn samples presented a signal characteristic similar to the samples of acai signal intensity in T2 and T1 increase of signal, being these results more accentuated in the concentration of 4.0mg of Mn. The elevation of field power from 1.5T to 3.0T contributed to the increase in signal strength in the samples. Analyzes of acai samples from different manufacturers influenced the signal strength of the samples. Except for the Fe samples, the other samples showed a T2 reduction in TE values (800 ms) due to the influence of these ions on T2 relaxation.

**Conclusion:** Acai powder is an alternative as a negative oral contrast agent in CPRM examinations reducing signal intensity in T2-weighted sequences in the study, both in the protocol performed at 1.5T and at 3.0T.

**Responsible Author:** Biom. Ana Paula Piconi de Souza

**E-mail:** anappiconi@gmail.com
**TL.01.003**

**STREAMLINE PHENOMENON - DISTRIBUTION OF HEPATIC METASTASES IN RELATION TO THE PLACE OF PANCREATIC NEOPLASIA**

**Authors:** ARAUJO, E. M.; RACY, D.J.; PEDROSO, M. H. N. I.; TORRES, L. R.; MARTINS, I. A. F.; BERNARDO, G. C. O.; USKI, A. C. V. R.

**Institution:** MEDIMAGEM - BENEFICIENCIA PORTUGUESA DE SÃO PAULO

**Brief description of the study purpose/Objectives:** Streamline is a physical phenomenon that hepatic blood coming from portal system follows a binary flow pattern, the right lobe is predominantly supplied by the superior mesenteric vein, while left lobe by the inferior splenic / mesenteric veins. It is believed that streamline phenomenon occurs due to the portal trunk being short, reducing in some way the blood mixture of its confluent vessels, and by the right portal branch to be larger and smoother angulated, facilitating the entry of greater blood volume through vein superior mesenteric vein. Several studies have shown that phenomenon influences the pattern of dissemination of liver metastases by primary gastrointestinal tumors. Objective: exemplify a theory that phenomenon may influence the pattern of dissemination of liver metastases by primary pancreatic neoplasm, depending on the site (head or body / tail of pancreas).

**Material and methods:** A retrospective study of patients with pancreatic neoplasia was performed using computed tomography, magnetic resonance imaging and PET-CT images from year 2017 of a XXX Hospital. Two groups were divided, group 1 of patients with pancreatic head cancer and group 2 in the body / tail.

**Results and discussion:** Sixty patients with pancreatic neoplasia (57 adenocarcinoma and 3 neuroendocrine) aged between 32 and 87 years, 27 males and 33 females. Of these, 25 had hepatic metastasis, 14 had primary neoplasm on the pancreatic head (group 1) and 11 had on the body / tail (group 2).

In group 1, a mean of 13.5 metastases in the right hepatic lobe (RL) and 4.2 in the left hepatic lobe (LL) were identified, with an approximate RL / LL ratio of 3.1. Group 2, with a mean of 12.7 metastases in RL and 9.6 in LE, with more than double metastasis in the left lobe in this group compared to group 1, with RL / LL ratio of 1.29, presented a p = 0.0243.

**Conclusion:** We conclude that hepatic metastasis by pancreatic primary neoplasia was influenced by streamline phenomenon, and when located in the head there is more metastasis to the right lobe when compared in the body / tail, which has a reduced proportion of right / left lobe metastases.

**Responsible Author:** Dr. EDUARDO MEDEIROS DE ARAUJO

**E-mail:** eduardo.mp.araujo@gmail.com

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**TL.01.006**

**NOVEL MAPPING OF FIBROSIS AND HEPATIC INFLAMMATION IN NAHSV PATIENTS WITH DUAL R2 MRI RELAXOMETRY**

**Authors:** LEAO-FILHO, H.M.; CLARK, P.; CHUA-ANUSORN, W.; OLIVEIRA, B.; OLIVEIRA, C.; LIMA, F.; ROCHA, M.

**Institution:** Universidade de São Paulo - USP, São Paulo, São Paulo, Brasil

**Brief description of the study purpose/Objectives:** Quantitative MRI (QMRI) techniques for measuring liver iron and fat have been validated. However, evaluation of hepatic inflammation and fibrosis is a challenge, being one of the most important factors for patient stratification, treatment and for prognosis. Our objective is to evaluate a QMRI multi-component relaxometry (MCR) technique to map fibrosis and inflammation in patients with non-alcoholic steatohepatitis (NASH). The extra-cellular fraction (ECF) was investigated for fibrosis, and the ratio of the transverse relaxation rate (R2) between intra and extra-cellular water (R2/E) was assessed for inflammation.

**Material and methods:** 101 NASH diagnosed patients with liver biopsy were selected within 6 months for MRI examination. We used a 3T Philips Achieva with a multi-spin echo (MSE) sequence for determining extracellular water fraction and R2 maps. The images was analysed by a radiologist and physicist with over 12 years experience in abdominal imaging. The biopsies were reviewed by a pathologist with 14 years of experience using the NASH-CRN score. 15 volunteers with normal lab results and without known liver disease were used for control.

**Results and discussion:** The mean extracellular water fraction (ECF) for the 101 NASH patients was 15.9±1.3%, and for the 15 healthy volunteers the mean ECF was 13.5±0.7%. There was a significant correlation between ECF and fibrosis stage (rs=0.83, p<0.001). For distinction between healthy and fibrotic patients we achieved an AUROC of 0.95, with a sensitivity of 87% and specificity of 94% for a threshold ECF of 14.5%. There was a statistically significant difference between all stages of fibrosis according to the ECF (p<0.001).

**Conclusion:** Extra-cellular water fraction (ECF) demonstrated a very good performance in quantifying all stages of fibrosis. The ratio of intra- to extra-cellular R2 (R2/E) correlated strongly with inflammation. The maps and distributions of ECF and R2/E also allow assessment of heterogeneity throughout the liver.

**Responsible Author:** Dr. Hilton Leao Filho

**E-mail:** hiltonmfil@gmail.com

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**TL.01.009**

**IMAGING SURVEILLANCE OF LOW-RISK BRANCH DUCT INTRADUCTAL PAPILLARY MUCINOUS NEOPLASMS: A RETROSPECTIVE ANALYSIS OF LESIONS WITH AT LEAST 4 YEARS OF FOLLOW-UP**

**Authors:** JAYME, E. M.; ROCHA, M. A.; AMOEDO, C. D. M.; YAMAUCHI, F. I.; BARONI, R. H.

**Institution:** Hospital Israelita Albert Einstein, São Paulo, São Paulo, Brasil

**Brief description of the study purpose/Objectives:** There is limited information available in the literature on the long-term natural history and malignant potential of low-risk branch duct intraductal papillary mucinous neoplasms (IPMNs). The purpose of this study is to evaluate the rate of growth of presumed low-risk branch duct IPMNs and the development of high risk stigmata and solid pancreatic lesions.

**Material and methods:** We performed a keyword search in our database for magnetic resonance imaging (MRI) reports from January 2008 to December 2017. The cystic lesions included in this study did not present baseline high-risk stigmata or worrisome features according to the Fukuoka consensus (presumed low-risk branch duct IPMNs), and had at least 4 years of follow-up with MRI.

**Results and discussion:** The included sample consisted of 45 patients with 88 low-risk branch duct IPMNs. The mean
age of patients at initial diagnosis was 63.5 years. Mean period of follow-up was 6.6 years. 57.8% of patients were male. The 88 cysts had a mean initial size of 10.9 mm and a mean growth rate of 2.4 mm (approximately 22% over the mean initial size). 49 cysts (55.7%) increased in size and 36 cysts (40.9%) remained the same size. During follow-up, 2 patients (4.4%) developed high-risk stigmata and 3 patients (6.7%) developed solid lesions in the pancreas.

**Conclusion:** In this retrospective analysis of patients with low risk branch duct IPMNs with at least 4 years of MRI surveillance, most cysts increased in size and 11.1% of patients developed high-risk stigmata or solid lesions in the pancreas.

**Responsible Author:** Dr. Eduardo Maturolo Jayme
**E-mail:** jayme.eduardo@gmail.com

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**PICTORIAL ESSAY**

**SCIENTIFIC PAPERS - POSTERS (PA)**

**PA.01.010**

SEGMENTAL ARTERIAL MEDIOLYSIS: DO YOU REMEMBER WHAT TO SEARCH FOR?

**Authors:** FUENTEALBA, A; ROssel, N; ALMARZA, P; HERQUINIGO, D

**Institution:** Clinica Indisa, Chile

**Introduction and objectives:** Segmental arterial mediolysis (SAM) is an uncommon vasculopathy of unknown etiology, not inflammatory or atherosclerotic. It produces segmental disruption of the middle layer of the arterial wall, aneurysms and dissections, involving the visceral branches of the aorta. Our objective is to review the radiological findings of SAM and learn the diagnostic criteria.

**Methods:** Case review of the radiological findings of SAM, as described by Slavin.

**Discussion:** There is no etiology known that explains SAM. It affects patients of middle age, without predilection by gender, appearing as an incidental finding or massive hemoptoeumen due to aneurismatic rupture. Physiopathologically presents in 5 phases with specific radiological findings. Slavin et al described five angiographic appearance of SAM, with a radiological sign associated. Arterial dilatation: muscular lysis with fibrin deposit in the outer layer. Single aneurysm: destruction of the internal elastic lamina, progresses towards the intima in a segmental way. Multiple aneurysms: multiple segmental aneurysms with areas of normal vascular wall. Morphology in "string of beads". Dissecting hematoma: separation between the external elastic lamina and the adventitia. Arterial stenosis and occlusion: repair phenomena and fibrosis. SAM does not have diagnostic markers and is an exclusion diagnosis. SAM can evolve to spontaneous resolution, stable vascular injury or progression. Imaging control must be done within the first 24 - 48 hours or earlier according to evolution.

**Conclusion:** SAM can be diagnose based on clinical presentation and imaging. It is important to recognize the differential diagnosis of SAM because it can change the management and prognosis.

**Responsible Author:** Dra. Andrea Fuentenalba Cargill
**E-mail:** ganteisian@gmail.com

**PA.01.014**

**PANCREATIC NEOPLASMS IN YOUNG PATIENTS: CORRELATION BETWEEN IMAGING ASPECTS WITH ANATOMOPATHOLOGICAL STUDY**

**Authors:** ARAUJO S.A.F.M.; GONCALVES J.P.; SIMOES L.B.; ANDRADE C. A.; SOUZA K. C.; ANDERSON P. A. V.; HEYMANN A. A.

**Institution:** CONFERENCIA SÃO JOSE DO AVAL

**Introduction and objectives:** In the last decades, there has been an increase in the incidence of detection of the pancreatic lesions due to improvements in imaging techniques, that resulted in incidentally diagnosing small tumors. Therefore, it became possible to diagnose rarer neoplasms such as the the pseudopapillary solid tumor (Frantz Tumor) and the pancreatic neuroendocrine tumors. In this study, our group aimed to report the typical findings in the images of pancreatic neoplasms found in young patients, correlating with the anatomopathological study performed in our service and emphasizing the pancreatic neuroendocrine neoplasms and the Frantz Tumor.

**Methods:** A pictorial study that summarizes the main characteristics of pancreatic tumors in young patients through images with cases selected from the PACS (Picture Archiving and Communication System) of the last 5 years of our service. CT images of the abdomen/pelvis of 4 historically proven cases will be showed.

**Discussion:** The pancreatic neuroendocrine tumors corresponds to 1.3% among all the pancreatic neoplasms and may occur in any age, but is more frequent between the fourth and sixth decade of life. These neoplasms are sporadic in most cases, however, 1-2% might be associated with syndromes. In the image, neuroendocrine tumors are hypervascular lesions in the arterial and venous phases, due to the large amount of capillaries. The smaller tumors are homogeneous; in contrast to larger tumors that are heterogeneous due to the presence of necrosis, cystic degeneration, calcification and fibrosis. Frantz Tumor is a rare pancreatic neoplasm, which represents less than 3% of all pancreatic tumors, with a low malignant potential and is more common in young women. The main features of this tumor is an encapsulated solid mass, well delimited, with large dimensions, that presents cystic or hemorrhagic focci in the core of the tumor mass.

**Conclusion:** The proper recognition of the radiological aspects of these rare entities is of paramount importance since, in the case of Frantz's tumor, surgery is curative; Unlike the neuroendocrine neoplasms when there’s extra pancreatic invasion and the treatment is palliative, with a worse prognosis.

**Responsible Author:** Dra. juliana pillo goncalves
**E-mail:** jujupillo@hotmail.com

**PA.01.015**

**THE FORGOTTEN LYMPHOPROLIFERATIVE DISORDERS' ABDOMINAL MANIFESTATIONS**

**Authors:** TRIDENTE, D.M.; MONTEL, D.B.; VILAS BOAS, I.P.; FERNANDES, L.M.; SAAD, L.S.; FIOROT, V.C.R.; RANGEL, D.A.; LEWIN, F.

**Institution:** Irmãndade da Santa Casa de Misericórdia de São Paulo, São Paulo, São Paulo, Brasil

**Introduction and objectives:** Although the term lymphoproliferative disorders seems quite narrow and instinctively makes one think of lymphoma first, there is still a good number of other diseases such as Castleman’s disease, ALPS syn-
drome and leukemias that this term can relate to, often forgotten. Our objective is to remind radiologists of these other diseases, making note of their abdominal manifestations.

Methods: We have gathered special cases from our institution to better illustrate how the many diverse lymphoproliferative disorders affect each of the abdominal contents, reviewing these diseases and their natural history. Separated by group such as gastrointestinal, genitourinary, abdominal wall, mesenteric and retroperitoneal, and so on, we have brought forth the imaging features of the less typical diseases alongside it's more frequent cousin, the lymphomas.

Discussion: However vast the term "lymphoproliferative disorders" can be, it is often immediately associated with a lymphoma or it's next of kin. We bring back to attention, with this pictorial essay, that there is much more then lymphoma when it comes to this group of disorders and that their spectrum of abdominal manifestations is even broader.

Conclusion: Even though they may be radiologically very similar to one another and their differential diagnosis can only be surely achieved through histological analysis, the lymphoproliferative disorders are many more than what initially comes to mind. We believe that every radiologist should understand what composes this group of disorders and how it manifestes in the abdominal setting, one that is filled with possibilities given that it assembles the most amount of organs in the human body, to better participate and aid in these patients outcome.

Responsible Author: Dra. Daniela Marinho Tridente
E-mail: dani.tridente@gmail.com

PA.01.016
COMPUTED TOMOGRAPHY AND MAGNETIC RESONANCE IMAGING OF SMALL BOWEL INFLAMMATORY NON-CROHN DISORDERS: A LOT MORE THAN NONSPECIFIC ENTERITIS

Authors: VIDAL, B.P.C.; NORMANHA, L.L.; MARTINS, E.A.F.; RODSTEIN, M.A.M.; MARTINS, D.L.; PENACHIN, T.J.

Institution: Hospital Vera Cruz - Centro Radiológico Campinas

Introduction and objectives: Many are the disorders that cause small bowel inflammatory findings detectable by the imaging methods available nowadays. The radiologist is responsible for recognizing them, as well as their differential diagnosis, in order to optimize report’s contextualization and patient’s management. The present study aims to raise some of the inflammatory non-Crohn disorders that affect the small bowel, either diffusely or regionally, acutely or subacutely / chronically, as well as their most common findings and differential diagnosis, employing multislice computed tomography and magnetic resonance as image acquiring method.

Methods: Multislice computed tomography and magnetic resonance imaging will be employed as image acquiring method to present the small bowel findings of the inflammatory non-Crohn disorders discussed in this article. All cases presented are from the author’s personal files.

Discussion: In general, imaging evaluation of small bowel inflammatory disorders is complex, due to the fact that most findings are nonspecific, making of extreme importance the correlation with patient’s history, clinical and laboratory findings. However, some discords course with imaging findings highly suggestive that have to be promptly recognized by the radiologist and mentioned on the report. These findings vary from small bowel parietal thickening (mucosal, submucosal, or serosal), endovenous contrast parietal enhancement, folds thickening or cripts loss, parietal discontinuity, abscess formations, and even indirect findings such as adjacent mesenteric edema, ascites, lymphadenopathy, vascular disorders, and more. The specific combination of these findings, together with it’s occurring locations, and added to patient’s clinical history is crucial to narrowing diagnosis.

Conclusion: Facing the various forms of small bowel inflammatory diseases findings, the radiologist must be prepared to recognize them, as well as bring up possible differential diagnosis, in order to optimize reports contextualization and consequently patient's management.

Responsible Author: Dr. Bruno Prado Cortizo Vidal
E-mail: bruno.vidal89@gmail.com

PA.01.019
MRI IN RECTAL CANCER EVALUATION: A PRACTICE GUIDE.

Authors: PEIXOTO, L.R.M.; LUPINACCI, F.A.S.; FRANCO, C.T., YAMAUCHI, F.I.; BARONI, R.H.; FUNARI, M.B.G.

Institution: Hospital Israelita Albert Einstein, São Paulo, São Paulo, Brasil

Introduction and objectives: Rectal cancer is a frequent pathology that have a high chance of cure, specially when it is detected in initial stages. MRI is the method of choice to assess local staging, being able to identify prognostic and risk factors or metastatic disease and local recurrence. Therefore, MRI has a central role in the therapeutic program, such as surgery indication or neoadjuvancy. The objective of this paper is to show how important is to develop a right protocol and a detailed report to manage the disease correctly.

Methods: In this paper, will be discussed the institutional MRI protocols for rectal cancer patients and a structured report model, focusing the informations that must be accurately related and their impact in the clinical / surgical practice.

Discussion: Structuring radiology reports has been shown to be effective in interdisciplinary communication and right protocols are vitals in this evaluation. In rectal cancer, beside the TMN staging, other informations are vital to the prognosis and treatment, such as venous invasion, relations of the tumor with the mesorectal fascia and between sphincters, and the evaluation of the lateral pelvic wall.

Conclusion: Rectum MRI has a central role on staging rectal cancer. The use of right protocol and structured and detailed reports is showing promising results, once it makes easier the interdisciplinary communication and increases the quality and the standardization of radiology reports.

Responsible Author: Dr. Luiz Ricardo Marques Peixoto
E-mail: luizricardoradiologista@gmail.com

PA.01.024
ABDOMINAL COMPARTMENT SYNDROME: WHAT RADIOLOGISTS NEED TO KNOW

Authors: SAMPAIO, L. P.; HOLANDA, J. L. B.; PEREIRA, L. P.; FILHO, C. L. M.

Institution: HOSPITAL GERAL DE FORTALEZA

Introduction and objectives: Abdominal Compartment Syndrome (ACS) is defined as organ dysfunction in the setting of sustained intra-abdominal pressures to values above 20 mmHg. Because of increased intra-abdominal pressure, there is impairment of the functionality of the peritoneal and retroperitoneal organs, mainly secondary to restrictions in the arterial flow, which indirectly affect the cardiovascular, pulmonary, neurological and renal systems. Some of the major conditions that increase the risk of ACS are abdominal trauma, abdominal surgeries (mostly liver transplantation), mechanical intestinal obstruction, pancreatitis and abdominal aortic aneurysm rupture. Even though its final diagnosis is
made by measuring the intravesical pressure, there are radiological signs that help in the suspicion of this condition. The purpose of this pictorial essay is to describe and illustrate the imaging findings of Abdominal Compartment Syndrome, especially in its severe form.

**Methods:** A pictorial essay with computed tomography (CT) scans of a tertiary hospital, illustrating the radiological signs that help in the diagnosis of Abdominal Compartment Syndrome.

**Discussion:** Clinical and laboratory findings suggestive of ACS include marked abdominal distention, oliguria and respiratory failure with hypoxemia and hypercarbia. Imaging findings are elevation of the diaphragmatic domes, increase of the anteroposterior diameter of the abdomen in relation to the transverse (“round belly sign”), widening of the intercostal spaces of the abdominal compartment and extrinsic compression of the inferior vena cava, renal veins and abdominal aorta.

**Conclusion:** ACS implies an immediate risk to life, requiring early diagnosis and an immediate decompressive surgical approach. Usually patients with this syndrome undergo imaging examinations to assess the severity of complications, which vary depending on the underlying condition. Therefore, in the appropriate clinical setting, it is important that radiologists identify early imaging findings suggestive of ACS, allowing prompt treatment with consequent reduction of morbidity and mortality.

**Responsible Author:** Dra. Larissa Pinho Sampaio

**E-mail:** larissa_ipueiras@hotmail.com

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**PA.01.025**

**SMALL BOWEL NEOPLASMS: PICTORIAL ESSAY**


**Institution:** Irmandade da Santa Casa de misericórdia de São Paulo

**Introduction and objectives:** Small bowel neoplasms are rare lesions, in general, are more often found in the duodenum than in the jejunum or ileum. The manifestations of those tumors may change from an intramural nodule or wall thickening to an extensive extraluminal mass.

**Methods:** Pictorial essay with cases from our institution, illustrating the various types of neoplasias of the small intestine, and the various clinical presentations involved in the diagnosis.

**Discussion:** The differential diagnosis for a jejunum or ileum tumor is extensive. The malignant tumor are lymphomas, adenocarcinomas, carcinoid tumors, malignant gastrointestinal stromal tumors (GISTs), leiomyosarcomas and metastasis. Benign tumors are leiomyomas and lipomas. There are several nonneoplastic tumorlike conditions, including some polyposis syndromes, as Peutz-Jeghers syndrome. The intraluminal tumors that cause stenosis have an early diagnosis due to the clinic of intestinal obstruction, which can be caused directly by narrowing of the lesion or by pathological intussusception. Extraluminal tumors can reach larger sizes, usually being diagnosed due to compressive, hemorrhagic or hormonal repercussions.

**Conclusion:** Small bowel tumors are rare, but incidence has been increasing over past several decades. Early diagnosis often challenging for clinicians and radiologists, but the familiarity of benign and malignant small bowel tumors enables radiology to help guide clinicians.

**Responsible Author:** Dr. Daniel Borges Montel

**E-mail:** danielmontel@hotmail.com

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**PA.01.027**

**TOMOGRAPHIC FINDINGS WITH ORAL CONTRAST IN ASCARISIS**

**Authors:** ALVES, L. C.; ROMANUS, A. B.; WENDLER, G.; TORRES, I. B.; BIANCO, T.; SOUZA, S. L. N.; SCHUINDT, S. M.; BENTO, A. L. R.

**Institution:** Hospital do Rocio - Campo Largo, Paraná, Brasil

**Introduction and objectives:** Ascaris lumbricoides is the most common agent responsible for helminth infections in humans, affecting approximately 1 billion people worldwide. Its diagnosis is usually made through ultrasonography or contrast radiography, with rare cases identified by computed tomography (CT). The aim of this article is to illustrate the findings of ascariasis by CT with and without oral contrast in a 32-year-old male.

**Methods:** The data and images of the patient were obtained in a tertiary hospital, being the diagnosis made through computed tomography with oral contrast and subsequent visualization of the helminth in question.

**Discussion:** Ascarasis is a frequent disease in tropical and subtropical countries, usually due to poor sanitation. The adult form usually installs itself in the intestinal lumen, but sometimes it affects the biliary and pancreatic tract. The symptoms though rare, when present are distension, abdominal pain and diarrhea. Our patient presented with nonspecific abdominal pain with inconclusive laboratory tests. After negative ultrasonographic examination for common gastrointestinal diseases, inconclusive oral contrast-enhanced CT was performed. Facing the persistence of symptoms, a new CT scan was chosen, this time with oral contrast, observing ascariasis findings.

**Conclusion:** We conclude that computed tomography with oral contrast can be a useful exam in the diagnosis of A. lumbricoides, a disease that should be remembered as a differential diagnosis in nonspecific abdominal pain, being important to show its knowledge among other professionals.

**Responsible Author:** Dr. Luan Carlos Alves

**E-mail:** luancarlosalves@hotmail.com

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**PA.01.028**

**CYSTIC FIBROSIS: ABDOMINAL MANIFESTATIONS IN ADULT PATIENT**

**Authors:** PONTE, M. P. T. R.; DANTAS, G. C.; TONSO, V. M.; YAMAUUCHI, F. I.; BARONI, R. H.

**Institution:** Hospital Israelita Albert Einstein

**Introduction and objectives:** Cystic fibrosis (CF) is a rare autosomal recessive disease with multiple manifestations, commonly affecting the lungs and mostly related to thick secretions. Recent therapeutic improvements led to increased life expectancy and a greater number of abdominal manifestations. Our objective is to review the abdominal findings in CF through a pictorial essay.

**Methods:** To discuss and to illustrate the main abdominal findings of CF in adult patients, based on a case series and briefly review the literature.

**Discussion:** Distal ileus obstruction syndrome occurs in 10-24% of CF patients is the result of accumulation of viscous fecal material in the intestinal lumen and may cause chronic constipation and acquired megacolon. There may be hepatic involvement in up to 72% of CF patients. Accumulation and precipitation of hyper viscous biliary secretions result in cholangiocystitis, microscopic and sclerosing cholangitis. The pancreas is the most frequently abdominal organ involved and parenchymal fatty replacement is fea-
tured almost universally after puberty, which is clinically represented by exocrine and endocrine failure. Kidneys can also be involved and the most common renal manifestations are renal stone diseases, which occur in over 90% of the CF patients.

**Conclusion:** Given increased life expectancy in CF patients, abdominal manifestations should be carefully evaluated and radiologists need to be familiar with the findings.

**Responsible Author:** Dr. Marco Philipe Teles Reis Ponte

**E-mail:** telesponte@gmail.com

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**PD.01.031**

**NON-NEOPLASTIC DISEASES OF THE SMALL INTESTINE AND THEIR PATTERN OF MURAL INVOLVEMENT**


**Institution:** Irmandade da Santa Casa de Misericórdia de São Paulo

**Introduction and objectives:** In the evaluation of the small intestine through computed tomography, lesions are often encountered. Differential diagnosis can be established through clinical history and associated findings but the pattern of intestinal wall involvement may greatly aid in this decision.

**Methods:** Cases of the various non-neoplastic diseases involving the small intestine were selected and a review and evaluation of the pattern of intestinal wall involvement was performed, including its thickness, mucosal enhancement and mesenteric fat densification, as well as a evaluation of its associated findings.

**Discussion:** The mesenteric small intestine is a long, convoluted tube that can be affected by a number of pathological conditions that can be difficult and challenging to diagnose. Computed tomography provides precious detailed information on the intestinal wall and extra enteric structures and an analysis of this pattern of impairment may assist in the differentiation of several non-neoplastic diseases. When it comes to superior mesenteric artery ischemia, besides distension of loops with air-fluid levels, signs such as a thin wall and intestinal pneumatosis may be associated with intestinal loop necrosis, helping to establish the diagnosis and corroborating with the prognosis of these patients. In cases of shock and hypoperfusion, especially after severe traumas, an intense enhancement of intestinal mucosa is characteristic and may be associated with marked wall thickening. However, the pronounced thickening of the intestinal wall without contrast enhancement is associated with venous occlusion instead and a search for occlusion of the superior mesenteric vein should be performed. Other findings, such as spontaneous hyperattenuation of the wall, are more specific, facilitating the diagnosis of intramural hematoma associated with coagulopathy, for instance. Although not specific, other patterns are also described, associated with various types of inflammatory, infectious or vascular involvement.

**Conclusion:** It is up to the radiologist to recognize and differentiate the different patterns of involvement of the intestinal wall, in addition to making an association with the other findings, thus facilitating the correct diagnosis through pathologies.

**Responsible Author:** Dr. Daniel Borges Montel

**E-mail:** danielmontel@hotmail.com

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**SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)**

**PD.01.007**

**KRUKKENBERG TUMOR: A SERIES OF CASES AND IMAGES**

**Authors:** CONTARDI, E.B.; CASERTA, N.M.G.

**Institution:** Universidade Estadual de Campinas

**Introduction and objectives:** The objective of this study is to review the image characteristics of this ovarian tumor, which when suspected by the image leads to a significant change in the oncological management and a reserved prognosis in most cases. Thus, although rare, it is important to include Krukenberg tumor as a diagnostic possibility.

**Methods:** A retrospective survey of the Krukenberg tumor cases with histopathological evidence was performed and the main characteristics of this entity were analyzed in different imaging methods.

**Discussion:** Krukenberg tumor is defined as the metastatic ovary tumor composed of cells in signet ring. Gastric cancer is the most common primary tumor. Other primary neoplasms include colorectal cancer, breast, pancreas, cecal appendix, gallbladder and biliary tract. The pathways of dissemination are mainly lymphatic, resulting in the fact that tumors, even though they appear not to be advanced, may already present metastases, since the lamina propria and submucosa have lymphatic vessels. Other pathways include the peritoneal and hematogenic. The analysis of our cases shows agreement with data from the literature. Bilaterality is the main feature, since most of the primary malignant neoplasms of the ovary are unilateral. The solid or solid-cystic lesion is also another favorable criterion for metastasis. The presence of ascites and peritoneal carcinomatosis are commonly associated, especially in more advanced cases. Studies have proven good diagnostic accuracy of an algorithm, which suggests ovarian metastasis for bilateral lesions of any size or unilateral lesion <10 cm, while unilateral tumor > 10 cm suggests primary ovarian neoplasia.

**Conclusion:** It should be emphasized that there are no specific imaging characteristics for the diagnosis of this tumor, and the pathology is necessary in cases of doubt. However, there are highly suggestive findings, which justifies alerting radiologists to this diagnostic possibility.

**Responsible Author:** Dr. Ewandro Braz Contardi

**E-mail:** ewandro_bcontardi@hotmail.com

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**PD.01.013**

**THE ROLE OF MAGNETIC RESONANCE IN BENIGN ANORRHETAL PATHOLOGIES**

**Authors:** VENDRAMINI, DFV, GUERREIRO, NFC; COSTA, FLS; FILHO, J.P.M; VIANA, PCC; MENEZES, MR; LEITE, CC; CERRI, GG.

**Institution:** Hospital Sírio Libanês

**Introduction and objectives:** Anorectal complaints are very common in clinical practice and are caused by a variety of generally benign disorders that interfere with the quality of life of many patients. Magnetic resonance imaging (MRI) has become an important technique in the diagnosis of patients with anorectal diseases, demonstrating in detail the complex anatomy of the pelvic floor, rectum and anal canal and its modifications and complications due to numerous pathologies, being superior to many other diagnostic methods. The objective of this study will be to describe the anatomy of the rectum and anal canal, MR imaging techniques, demonstrate the main findings of images and complications in the follow-up of these pathologies.
Methods: We will illustrate in a pictorial essay based on cases, using images acquired at our institution by means of magnetic resonance imaging, the main characteristics of images of benign anorectal diseases, their main complications, surgical indications and diagnostic differences.

Discussion: The adequate characterization of benign anorectal pathologies through magnetic resonance imaging is crucial to differentiate the imaging aspects of malignant pathologies and to identify possible complications. The radiologist should be aware of the main imaging characteristics to assist the most appropriate approach.

Conclusion: Although most of the anorectal conditions are benign and known, medical intervention is often required because of interference in the patients' quality of life. The detection and correct characterization of pathologies that affect the rectum and anal canal through MRI are one of the main tools in choosing the best treatment for the patients contributing to the selection of those who will benefit from the surgical treatment or those who will maintain the clinical follow-up.

Responsible Author: Dra. Daniela Vieira Vendramini
E-mail: danivfveira321@gmail.com

PD.01.025

ABDOMINAL MANIFESTATIONS OF SCHISTOSOMIASIS MANSONI: A PICTORIAL REVIEW WITH HISTOPATHOLOGICAL CORRELATION

Institution: Hospital da Restauração/Recife-PE
Introduction and objectives: According to the World Health Organization (WHO), schistosomiasis affects more than 200 million individuals distributed in 76 countries in Africa, Asia or America and remains a major public health problem. Hepatosplenic schistosomiasis mansoni is the most severe presentation of the disease, which is characterized by extensive splenomegaly, portal hypertension, and upper digestive bleeding due to rupture of esophageal varices. The objectives of this pictorial review is to discuss the most important abdominal manifestations of this disease and to illustrate the typical and some atypical findings of schistosomiasis mansoni using different imaging modalities with pathological correlation in some cases.

Methods: The authors review the clinical manifestations of this disease, the pathophysiology and imaging features illustrating the typical as well as some uncommon findings of this parasitic infection with pathological correlation in some cases. Cases from the authors' institution archives are used to illustrate the imaging findings.

Discussion: Schistosomal infections are diagnosed mainly by parasitological, serological or molecular methods. The role of imaging modalities such as ultrasonography, CT scan, and MR scan is of immense importance in diagnosing, assessing severity and complications of schistosomal infection.

Conclusion: In terms of impact this disease is second only to malaria as the most devastating parasitic disease. Schistosomiasis mansoni is considered one of the Neglected Tropical Diseases and an awareness of the abdominal manifestations of this parasitic infection and familiarity with their expected clinical presentation and imaging findings are important for radiologists.

Responsible Author: Sr. Sterfferson Maycon de Oliveira Morais
E-mail: sterfferson.maycon@hotmail.com

PD.01.034

ONCOLOGICAL EMERGENCIES

Authors: FONSECA, V. N.; JORGE, A. B. P.; APA, P. A. E.
Institution: AMÉRICAS SERVIÇOS MÉDICOS - PONTIFÍCIA UNIVERSIDADE CATÓLICA DO RIO DE JANEIRO
Introduction and objectives: Oncologic emergencies may be developed because of the underlying malignancy or as a complication of the treatment, and the performance of imaging studies is critical for timely diagnosis and management. These can be categorized as hematological, structural, and metabolic conditions. Metabolic emergencies such as hypercalcemia, acute tumor lysis syndrome, hyponatremia and lactic acidosis, and emerging hematological conditions, such as febrile neutropenia, hyperviscosity syndrome and disseminated intravascular coagulation, are mainly diagnosed and treated based on clinical features and laboratory results with little help from radiological studies. However, structural emergencies, such as those resulting in thrombosis or vascular hemorrhage, infiltration and compression of the involved organs, and obstruction of empty ducts and viscera require diagnostic imaging studies.
Methods: We reviewed radiological studies performed in our institution last year, searching for the most commonly diagnosed alterations by computed tomography and magnetic resonance imaging in adult patients presenting acute alterations, in which the images were illustrative, in order to familiarize the radiologists with the common findings found in the emergency.

Discussion: Within this context, computed tomography (CT) is an effective technique with results that have positive influences in the treatment orientation of the majority of patients with oncologic emergencies. The use of contrast in the examination of abdomen and pelvis should be performed. This is crucial, since proper diagnosis facilitates prompt and appropriate treatment, thus improving the patient's prognosis.

Conclusion: Imaging tests are essential for oncology patients who arrive in an emergency with an acute condition.

Responsible Author: Dra. Nayara Vieira Fonseca
E-mail: nayarafonseca21@hotmail.com

PD.01.037
PICTORIAL ESSAY OF THE MOST COMMON PATHOLOGIES OF THE APPENDIX
Authors: CHAVES, C. G.; COSTA, A. L. P.; STEHLING, H. C. T.
Institution: HOSPITAL CENTRAL DO EXÉRCITO
Introduction and objectives: Appendicitis is responsible for about 5% of cases of abdominal pain in the emergency room and may be the presentation of benign or malignant conditions of the appendix. Tumors account for about 1% of appendectomies and should be considered for differential diagnoses in emergency care, prompting the radiologists' need to master the main pathologies of the appendix - which is the purpose of this pictorial essay.

Methods: This essay is a bunched archive of CT cases concerning the most common pathologies of the appendix in different presentations from 2012 to 2017. The CT scans were performed in 64-channel multidetector devices with multiplanar reconstruction.

Discussion: The most common disease to affect this organ is appendicitis, which imaging is based on direct signs - which include increased transverse diameter, wall thickening, and significant enhancement of the apéndix - and indirect signs - such as hyperattenuation of mesenteric fat tissue, periapendicular abscess, ascites or pneumoperitoneum.

Conclusion: The transverse diameter of the appendix, wall thickness and nodular characteristics, the presence and aspect of the ascites are important to report and making the differential diagnosis.

Responsible Author: Dra. Cinthia Guedes Chaves
E-mail: cinthiachaves@gmail.com

PD.01.039
"PANCREATIC PSEUDOLESION": WATCH OUT FOR THE TRAPS!
Authors: LOPES, PGM; VELLONI, F; BLASBALG, R
Institution: Diagnósticos da América S.A. (DASA).
Introduction and objectives: The complex anatomic relationship of the pancreas with adjacent structures, as well as its wide range of anatomical variations of this organ, can lead to doubts in diagnostic interpretation with consequent generation of exams and subsequent procedures, sometimes with questionable indication. The purpose of this study was to exemplify some of these situations, highlighting the clinical relevance, the radiological aspects and the therapeutic implications related to them.

Methods: Computed tomography (CT) or magnetic resonance imaging (MRI) images of pancreatic anatomical variations and lesions of uncertain origin (pancreatic or peripancreatic), characterized as "pancreatic pseudolesions", were shown. The clinical evolution, as well as the results of new imaging or anatomopathological studies were also demonstrated, highlighting the main teaching points related to each case. The following cases were included: annular pancreas, pancreas divisum, accessory pancreatic lobulations, bifid tail, intrapancreatic spleen, arterial pseudoneuromys, venous dilatation, lipomas, focal liposubstitution areas, peripancreatic lymphoproliferative disease (Castleman's disease), gastric lesion.

Discussion: It is important for the radiologist to be aware of the imaging aspects related to possible "pancreatic pseudolesions", so that the conduct can be correctly oriented.

Conclusion: Imaging studies play a fundamental role in evaluating the structures morphology and in detecting and characterizing intra-abdominal lesions. The combined analysis of clinical, epidemiological, radiological and evolutionary aspects may help in the correct interpretation of "pancreatic pseudolesions", avoiding unnecessary examinations and procedures.

Responsible Author: Dr. Paulo Gustavo Maciel Lopes
E-mail: pgmlopes87@gmail.com

PD.01.044
HAMOUDI TUMOUR: IMAGE FILES
Authors: LEIDERSNAIDER, C. L.; OLIVEIRA; R. V.; BITTENCOURT, L. K.; LOBO; F. P. P. L. BARBOSA, B. V. C.; MORALES; J. C. T.
Institution: DASA Rio de Janeiro
Introduction and objectives: Discuss the most common imaging findings of Hamoudi tumour (HT), review the different forms of the presentations, show concomitant conditions, provide reference of images for rare presentations and learn the major differential diagnoses.

Methods: Hamoudi tumour is rare, corresponding to 1-2% of the exocrine neoplasms of the pancreas. More common in females, between the second and third decades. Five cases of HT with anatopathological confirmation of the neoplasia. 80% of the exams were incidentally identified on routine US or CT scans, and only 20% were found to be symptomatic of distention and abdominal discomfort. The mean age was between 19 and 51 years of age.

Discussion: It was evidenced large mass and with heterogeneous appearances, due to its solid and cystic composition. At CT, the mean density was 39UHU, with contrast enhancement in the solid components. At MRI, the signal characteristics presented were: low signal at T1, high T2 signal and heterogeneous and slowly progressive enhancement after intravenous administration of gadolinium and diffusion restriction, and localization was mostly in the pancreas head, in contrast to the literature, which says that it is more frequent in the tail.

Conclusion: Despite being a rare entity, this neoplasy has been described more and more in the literature. It usually occurs in young women, as a large mass encapsulated in the pancreatic tail, although our cases were in the head. It is important that the radiologist be familiar with the findings due to variability in the image presentation and to expedite the diagnosis, since the early resected tumor presents a good prognosis.

Responsible Author: Biom. Caio Leal leidersnaider
E-mail: caiofmp@gmail.com

PD.01.049
NOVEL ONCOLOGIC DRUGS: AN OVERVIEW AND UPDATE ON IMAGING APPEARANCES OF THO-
RACIC AND ABDOMINAL THERAPEUTIC EFFECTS AND COMPLICATIONS

Authors: RECCHI MUZZI, D.; BEZERRA, R.; RIBEIRO, F.; MORBECK, F.; BADRA, A; GARCIA, M

Institution: Instituto do Câncer do Hospital das Clínicas da Faculdade de Medicina.

Introduction and objectives: The objectives of this work are: - Brief overview of new oncology drugs: target drugs and immunotherapy, and their differences from traditional chemotherapy. - Example of imaging effects of new treatments not observed with traditional chemotherapy treatment. - Exemplification of cases of adverse effects associated with oncological target drugs and immunotherapy.

Methods: Images of cases of toxic effects associated with oncological targeted drugs and immunotherapy (such as fistulas, pneumonitis, bleeding, inflammatory changes and exacerbations of autoimmune response - pneumonitis, hepatitis, pancreatitis), as well as cases of specific therapeutic imaging effects of new non-invasive treatments, will be shown. It will also be briefly demonstrated how the new drugs (targeted drugs and immunotherapy) act, and in what they differ from traditional chemotherapeutic drugs.

Discussion: In this work, new classes of cancer treatment (target drugs and immunotherapy) were demonstrated, their specific effects and several cases of toxicity associated with their use. The targeted drugs are intended to interfere with specific aberrant molecular mechanisms involved in the development of tumors, for example, associated with tumor angiogenesis. Immunotherapy, in turn, uses immune system responses to treat cancer. Both differ from traditional cytotoxic chemotherapies, which destroy rapidly growing cells, and act on the mechanism of cell division. Thus, new effects of treatment on tumor and adverse effects have arisen with the use of these new classes of drugs, and can be observed in imaging studies.

Conclusion: Oncological drug treatment has undergone major transformations in the last decade. New therapies have opened important prospects for advancing the treatment of cancers. The knowledge of these changes by the radiologist becomes essential. Failure to recognize the therapeutic or adverse effects of the new treatment can lead to misdiagnoses or delays in treatment, causing further complications.

Responsible Author: Dra. Débora Recchimuzzi
E-mail: deborazrec@gmail.com

PD.01.050

CHARACTERIZATION OF THE Pancreatic Lesions in the Dynamic Study of the Contrast Medium

Authors: LEIDERSNAIDER, C. L.; OLIVEIRA, R. V; BITTENCOURT, L. K.; BARBOSA, B. V. C; GUADALUPE, L.; MENEZES, C. S. S.

Institution: DASA Rio de Janeiro

Introduction and objectives: Describe the most relevant CT and MRI findings in hypervascular pancreatic lesions. Review the main types of hypervascular lesions that affect the pancreas. Illustrate the involvement in different types of lesions that make differential diagnoses, such as vascular lesions, inflammatory, traumatic and congenital.

Methods: Pancreatic hypervascular lesions are commonly detected by CT and MRI, either in patients with prior clinical suspicion of pancreatic disease, or in asymptomatic ones as an incidental finding. They can be broadly classified into neoplastic, solid or cystic, or non-neoplastic. Accurate diagnosis of these lesions is important because of their impact on prognosis and treatment.

Discussion: We reviewed the medical files of our institution from January 2015 to July 2017. Most of the hypervascular lesions are represented by neuroendocrine tumors (such as diffuse neuroendocrine carcinoma, insulinoma, VIPoma), which present as well circumscribed focal lesions with intense (homogenous or heterogeneous) arterial enhancement. The main differential diagnoses include the metastases of renal cell carcinoma, melanoma, hepatic, solid pseudopapillary tumors. Other conditions may be the result of developmental anomalies such as accessory intrapancreatic spleen and images mimicking hypervascular lesions such as peripancreatic aneurysms, phaeochromocytoma, pancreatic Schwannoma and retroperitoneal paraganglioma.

Conclusion: CT and MRI are important methods in the identification of hypervascular pancreatic lesions, being fundamental, together with the clinical data, in the identification of their main differential diagnoses. These imaging methods also play a fundamental role in the staging of neoplastic cause.

Responsible Author: Biom. Caio Leal leidersnaider
E-mail: caiofmp@gmail.com

PD.01.051

MULTIPARAMETRIC MAGNETIC RESONANCE IMAGING OF THE LIVER: WHAT IS IT? WHY? HOW? WHEN?

Authors: VELLONI, F.G.; SANTIAGO, R.A.; MORITA, T.O.; PINTO, G.; BLAS BALG, R.

Institution: DASA

Introduction and objectives: With the increasing prevalence of liver pathologies worldwide, reliable and non-invasive methods for diagnosing and staging have become necessary. Objectives of the study: - To define the term Multiparametric Magnetic Resonance Imaging of the Liver (mLMRI): what is it? - To explain the main reasons that motivated the recent development of advanced techniques for the study of the liver by MRI: why? - To describe the technical parameters and expose the main imaging findings of the mLMRI through the illustration of clinical cases: how? - Discuss the main clinical indications and practical applications of mLMRI: when?

Methods: Some theoretical concepts necessary for the definition of mLMRI will be exposed, as well as several epidermiological, clinical and laboratory information associated with chronic liver diseases, the latter directly related to the relevance of the method. We will describe the technology and the technical parameters involved through the illustration of clinical cases of patients with liver disease of different causes. We will present the main clinical indications of mLMRI, discussing which patients benefit from this study. Finally, some suggestions for examination protocols will be proposed, which can be adjusted for each clinical context.

Discussion: Several theoretical and practical concepts related to chronic liver disease and mLMRI, necessary for the understanding of the method and its clinical applicability, have been demonstrated.

Conclusion: In this sense, mLMRI has been established as an important tool in indentifying the causes and staging of liver diseases, contributing to the establishment of appropriate therapy for each patient.

Responsible Author: Dra. Fernanda Velloni
E-mail: fernandavelloni@gmail.com

PD.01.054

LI-RADS V2017: UNDERSTANDING THE “ANCILLARY FEATURES”.

E-mail: fernandavelloni@gmail.com

Abstracts of Scientific Papers 13
**PD.01.057**

**NEW LI-RADS DEMYSTIFYING OUR OLD DOUBTS IN RADIOLOGIC ASSESSMENT OF TREATMENT RESPONSE OF HCC: A HANDS-ON GUIDE.**

**Authors:** OLIVEIRA, A.I.; VIANA, P.C.C.; PEREIRA, F.P.; FERNANDES, R.P.; PAIXÃO, T.S.A.; LIMA, T.C.; PANIZZA, P.S.B.; MIRANDA, J.A.; COSTA, C.C.; CERRI, G.G.; HORVAT, N.

**Institution:** Hospital Sírio-Libanês

**Introduction and objectives:** The Liver Imaging Reporting and Data System (LI-RADS) uses algorithms and tables to categorize liver lesions in patients at high risk for developing hepatocellular carcinoma (HCC). In addition to using major features for this diagnosis, it differs from the other systems by adding the use of ancillary features to make the final categorization of these lesions even more assertive. In this sense, the objectives of the study are: - To illustrate multiple hepatic lesions through computed tomography (CT) and magnetic resonance imaging (MRI) images of patients at high risk for HCC development, highlighting the main ancillary features described in LI-RADS v2017. - To exemplify through clinical cases how the new rules of application of the auxiliary criteria may favor the diagnosis of HCC, non-HCC malignancy or benignity. We will demonstrate, through clinical cases, how the new rules proposed by this system can be applied to the proper use of these criteria;

**Methods:** CT and MRI images will be demonstrated to illustrate the main ancillary features and their new application rules proposed by LI-RADS v2017.

**Discussion:** Several auxiliary criteria were presented in liver lesions of patients at high risk for CHC, as well as their using rules for eventual adjustments in the final categorization, with a consequent impact on the conduct established for each lesion.

**Conclusion:** Criteria that favor the diagnosis of HCC, non-HCC malignancy or benignity have always been used by abdominal radiologists in the evaluation of hepatic lesions, albeit informally. The LI-RADS v2017 formalizes these criteria and suggests new rules for using them, in order to increase the level of confidence involved in the final categorization of these lesions.

**Responsible Author:** Dra. Fernanda Velloni

**E-mail:** fernandavelloni@gmail.com

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**PD.01.056**

**MOST COMMON CYSTIC PANCREATIC LESIONS AND CLINICAL MANAGEMENT: A PICTORIAL REVIEW**

**Authors:** CAVALCANTE, G. M.; VIEIRA, D. F.; SOUSA, A. O. A.; BRASIL, R.; VIANA, P. C. C.; LEITE, C. C.; CERRI, G. G.; HORVAT, N.

**Institution:** Hospital Sírio Libanês

**Introduction and objectives:** The majority of cystic pancreatic lesions are incidental findings, especially with the increasing use of advanced imaging modalities for non-related conditions. They include a variety of neoplastic and non-neoplastic conditions. The precise radiological characterization of such lesions is important because some of them require surgical treatment, while others require only follow-up. The most frequent pancreatic cystic lesions are: pseudocysts, serous cystadenomas, mucinous cystic neoplasm, cystic solid pseudopapillary and cystic neuroendocrine tumors. Computed tomography (CT) is the modality of choice for the initial detection and evaluation of such lesions. Magnetic resonance imaging (MRI) can accurately show the morphology of such lesions and as well as their relationship with the pancreatic duct. Considering that, the present study aims to describe sectional imaging features of the most common types of cystic pancreatic lesions and their clinical management.

**Methods:** A pictorial review will be performed using the most updated literature cases on computed tomography (CT) and magnetic resonance imaging (MRI) images of patients treated at our institution with pancreatic cystic lesions.

**Discussion:** To make the differential diagnosis safer, it is essential that the radiologist is able to identify the clinical and radiological patterns of the main etiologies of cystic pancreatic lesions, in order to guide the referring physician in the treatment of these patients.

**Conclusion:** Different pathological subtypes of pancreatic cystic lesions have distinct features on imaging and clinical background. Radiologist play a pivotal role in the detection and characterization of these lesions. Knowledge of the clinical and imaging features of different pancreatic cystic lesions is essential to provide a more accurate guide to referring physician in order to improve patient management.

**Responsible Author:** Dr. Gilson Martins Cavalcante

**E-mail:** ksoze1980@hotmail.com
Introduction and objectives: Magnetic resonance imaging (MRI) plays an essential role in the assessment of primary rectal cancer and constitutes the imaging modality of choice for rectal cancer staging. The high soft-tissue contrast of MRI accurately assesses the extramural tumor spread and relation to mesorectal fascia and the sphincter complex. This essay aims describe a practical approach of the role of MRI in the preoperative imaging evaluation, in the post–chemoradiation therapy (CRT) imaging aspects and in recurrent disease.

Methods: The authors will discuss a practical guide that elucidates the interpretation and reporting of MRI for clinical staging and restaging of rectal cancer.

Discussion: In the setting of primary rectal cancer, MRI is used to assist in staging, in identifying patients who may benefit from preoperative chemoradiation therapy–radiation therapy, and in surgical planning. MRI performed at a higher field strength benefits from faster image acquisition and higher spatial resolution, which may improve the visibility of primary tumor location and size, the relationship to mesorectal fascia (MRF) and sphincters, the extent of extramural spread (T stage), the peritoneal reflection, the extramural vascular invasion (EMVI), the pelvic sidewall nodes and bony metastasis. This implementation of structured report can improve the quality of MRI reporting for rectal cancer staging compared to free-text formats, and leads to a better management of patients.

Conclusion: MRI is the modality of choice for staging rectal cancer to assist surgeons in obtaining negative surgical margins. MRI facilitates the accurate assessment of MRF and the sphincter complex for surgical planning. Multiparametric MRI may also help in the prediction and estimation of response to treatment and in the detection of recurrent disease.

Responsible Author: Dra. Ana Isabella de Oliveira
E-mail: anaisabelladeoliveira50770@gmail.com

PD.01.060
DIFFUSE LIVER DISEASE: WHAT EVERY RADIOLOGIST NEED TO KNOW.

Institution: Hospital Sirio Libanes

Introduction and objectives: Diffuse involvement of the liver can be caused by a wide variety of pathologies, including vascular, inflammatory and neoplastic. Some of these have a reversible course, but most of them progress to a chronic stage without reversion. This essay aims to review and describe the characteristics of diffuse liver diseases, emphasizing its most typical clinical and radiological aspects that may guide the diagnosis.

Methods: A pictorial study of cases of diffuse liver disease from our institution. We are going to present cases on ultrasound, computed tomography and magnetic resonance imaging.

Discussion: The spectrum of causes of diffuse liver involvement includes metabolic diseases (fatty deposition, hemochromatosis, and other deposition diseases), vascular (Budd-Chiari syndrome, veno-occlusive disease), inflammatory diseases (chemotherapy-associated steatohepatitis - CASH, sarcoidosis) and neoplastic diseases (metastasis, pseudocirrhosis). Recognizing the key features help us guide the diagnosis together with the physician, and often prevent the progression to chronic liver disease, sometimes irreversible.

Conclusion: Radiologists’ knowledge about the patterns and key features of different diffuse liver diseases is essential to guide the referring physician in the management of those patients.

Responsible Author: Dr. roberto brasil
E-mail: robertobrasilmedicina@gmail.com

PD.01.066
PORTAL COLANGIOPATHY: ICONOGRAPHIC ESAY AND LITERATURE REVIEW.

Institution: HOSPITAL DAS CLÍNICAS DA UFMG, SANTANA CASA DE MISERICÓRDIA DE BELO HORIZONTE

Introduction and objectives: Portal colangiopathy is defined as biliary tract obstruction caused by extrinsic compression of the common bile duct by colateral veins engorgement within it’s walls and at the hepatic hilum. That entity occurs in patients presenting with portal vein thrombosis associated with cavernomatous transformation and frequently simulates the presence of expansive lesions at head of the pancreas or the common bile duct. This study aims to show and discuss the main imaging findings of this unknown pathology.

Methods: Ultrasound, Computed Tomography and Magnetic Resonance images are shown and discussed, illustrating portal colangiopathy, obtained of cases available on the institution’s database, as well as the author’s private databases.

Discussion: Portal colangiopathy is caused by biliary tree changes related to the presence of portal vein thrombosis associated with periporal veins dilation around the pancreas, common bile duct and hepatogastric ligament. When the veins of the epicoledochal (Saint’s veins) and paracholedochal (Percen’s veins) plexuses are engorged, both the common bile duct is compressed and a ischemic-inflammatory process is initiated. Usually patients are asymptomatic, presenting with normal hepatic function. However, jaundice, cholangitis and cholecistiasis may occur in 5-38% of cases. Even in asymptomatic patients the obstruction of the biliary tree might be incidentally found on imaging studies and generate a initial suspicion of neoplasia. The proper recognition of the pathology by the radiologist can thus avoid invasive and unnecessary procedures, as well as patient’s and physician’s anxiety.

Conclusion: Portal bilipathy is an underdiagnosed condition that may mimic neoplasia of the biliary tree and the pancreatic head. The recognition of the main imaging findings of this pathology by the radiologist is vital, helping the therapeutic conducts and avoiding unnecessary invasive procedures and the associated risks.

Responsible Author: Dra. Ana Paula Campos Rocha
E-mail: anacrocha@gmail.com

PD.01.072
MECKEL’S DIVERTICULUM: EPIDEMIOLOGY AND IMAGING FINDINGS IN A SERIES OF SIX CASES WITH COMPLICATIONS.

Institution: Rede Mater Dei de Saúde Pós-graduação Ciências Médicas - MG (PGCM-MG)

Introduction and objectives: Meckel’s diverticulum (MD) is the most common congenital gastrointestinal anomaly, estimated to affect 2-3% of the population worldwide, and it results from incomplete involution of omphalomesenteric duct. This diverticulum is mainly located in distal ileum, occupying the first 90 cm from ileocecal valve. Despite being traditionally approached as having predilection for male sex, it affects men and women equally, but its complications are frequent during childhood. Examples of these complications are inflammation, obstruction and perforation. Although the relatively common frequency of Meckel’s diverticulum, compli-
cations are rare and can be diagnosed by imaging exams such as ultrasonography, computed tomography and scintigraphy. However, they are frequently diagnosed during surgery for other acute abdominal causes. So as mentioned, surgery is the definitive treatment for inflammatory/obstructive processes, and soon intervention presents better prognosis.

Methods: Six cases of complicated Meckel’s diverticulum were selected and evaluated for epidemiological and imaging variability between them.

Discussion: The inflammatory and obstructive processes of Meckel diverticulum are rare in patients with this relatively uncommon diverticular formation. Such complications are more likely to occur during childhood, notably in the first two years of life. We present a series of six complicated Meckel’s diverticulum cases, diagnosed in our service, all occurring in men, but only one of them affecting a pediatric patient, in his fifth year of life. Other atypical findings of the selected cases were the presence of inflammatory process in a Meckel’s diverticulum located in the transverse colon, as well as a case of small bowel obstruction upstream of giant Meckel’s diverticulum. All the cases studied were surgically approached and confirmed as complications from Meckel’s diverticulum. Patients progressed satisfactorily without major complications.

Conclusion: As well as exposed in literary data, Meckel’s diverticulum obstructive and inflammatory complications from our selected cases showed male predilection. However, diverging from literature, only one affected patient was from pediatric age group, one of the cases occurred in a atypical location, in the transverse colon, and there were a rare case of giant Meckel’s diverticulum causing bowel obstruction. These findings show the large epidemiological and imaging variety which makes pre-operative diagnose of Meckel’s diverticulum complications a challenge.

Responsible Author: Dr. Lucas Costa
E-mail: lucascmvieira@hotmail.com

LITERATURE REVIEW

SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)

PD.01.005
Authors: MOLINA MI, NORAMBUENA MF, GALLEGUILLOS MF, VALDES M, HERQUIÑGO D, CSEND-ES P.
Institution: Hospital Clínico de la Universidad de Chile
Brief description(s) of the purpose(s) of the Literature Review: Acute pancreatitis (AP) is one of the most common gastrointestinal disorder which requires acute hospitalization. Can manifest as a benign condition with minimal abdominal pain and hyperamylasemia or can have a fulminant course, which can be life-threatening, usually due to the development of local complications and multisystemic failure. Nowadays imaging helps define etiology and confirms complications of acute pancreatitis. 2012 Atlanta Classification is a standarized clinical and radiologic nomenclature for acute pancreatitis and associated complications. It recognises four types of peripancreatic collections,
which are organized according to their evolution in time and imaging characteristics. This classification had improved the clinical outcomes, reducing the morbimortality of critical ill patients. **Description(s) of disease(s), method(s) and/or technique(s):** A systematic literature research was performed to identify the mayor complications of acute pancreatitis and review the Atlanta 2012 criteria, in a simplified way. Magnetic resonance (MR) and computed tomography (CT) images were selected from patients of our hospital, proposing a diagnostic algorithm. **Discussion:** The Atlanta 2012 classification, considers two types of pancreatitis: interstitial acute pancreatitis (IAP) and acute necrotizing pancreatitis (NP), whether there is enhancement with endovascular contrast or not. In both, there may be (peri)pancreatic collections, which can become infected. During the initial phase we found acute (peri)pancreatic fluid collection (interstitial AP) and acute necrotic collection (necrotizing pancreatitis). If these persist beyond four weeks and develop a defined wall on imaging, they are termed pseudocyst or walled-off necrosis respectively. **Conclusion:** We present a practical image guide to the revised Atlanta classification system, thereby facilitating accurate communication among clinicians. This classification has made it possible to reduce the morbidity and mortality associated with acute pancreatitis, by achieving timely recognition of the associated complications. **Responsible Author:** Dra. Maria Fernanda Galleguillos Elgueta E-mail: fernanda.galleguillos.e@gmail.com

**PD.01.058**

**UPDATES ON ABDOMINAL INCIDENTALOMAS IN TOMOGRAPHY AND MAGNETIC RESONANCE IMAGING**


Institution: HOSPITAL SÍRIO-LIBANÈS

**Brief description(s) of the purpose(s) of the Literature Review:** With the popularization of multidetector computed tomography (MDCT) exams, which present better image quality, and the increasing number of studies performed of the abdomen, there is an increase in the detection of incidental findings. These findings are characterized by changes unrelated to the clinical indication or patient’s symptomatology, although such findings rarely correspond to significant changes the assessment and follow-up are frequent due to uncertainty of the attending physician and patient’s fear. This study aims to summarize and gather in a simple and didactic way the most current recommendations about interpretation and conduct about abdominal incidentalomas.

**Description(s) of disease(s), method(s) and/or technique(s):** We will summarize in a didactic way the most current recommendations on the conduct related to the finding of abdominal incidentalomas and will also illustrate using images of the main incidental findings acquired in computed tomography (CT) and magnetic resonance (MRI) at our institution.

**Discussion:** The conduct to be taken after evidence of an incidental finding in the abdomen exam is still quite variable according to region and attending physician, therefore it is increasingly necessary establishing a standardization in the management of this type of case to reduce cost, unnecessary follow-up and exams (which can bring risk to the patient). In the last year, it was observed the release of updates in relation to management in the most varied cases of incidentalomas, being the following: adrenal, hepatic, renal and pancreatic.

Recommendations were developed as algorithm according to opinion of experts, were finalized by informal interactive consensus, and cover most pathologies and clinical scenarios with determination of benignity and / or indolence of the lesion or recommendation of additional management.

**Conclusion:** With increase in quality and number of imaging tests currently performed, there is a higher level of incidental findings in abdomen examinations, so, correct assessment of incidentalomas to a better management of the patient becomes of great importance.

**Responsible Author:** Dr. Afonso Amorim

E-mail: afonso.med91@yahoo.com.br

**PD.01.062**

**ROLE OF ABDOMINAL IMAGING ON OBESITY EVALUATION**

Authors: SANTAGO, R.A.; VELLONI, F.G.; MORITA, T.O.; BLASBALG, R.

Institution: Grupo Dasa

**Brief description(s) of the purpose(s) of the Literature Review:** Obesity is currently established as one of the main public health problems in Brazil and in the world. It is estimated that overweight affects 53.8% of the population, and obesity 18.9% (this has grown by 60% in the last decade) in Brazil. Overweight is associated with many comorbidities, such as osteoarticular diseases, neoplasms, increased cardiovascular risk and non-alcoholic fatty liver disease (with possible progression to cirrhosis). In this context, the increase in the number of bariatric surgeries is increasing, with 100 thousand procedures performed in 2016 in Brazil. It is imperative to radiologist to be familiar with the role of imaging methods in the multifactorial assessment of these patients.

**Description(s) of disease(s), method(s) and/or technique(s):** To address the main topics about bariatric surgery, such as: surgical anatomy (techniques and their variants) and the main complications. To contextualize the role of visceral fat quantification by image, approaching the techniques and implications in clinical practice. To contextualize the role of multiparametric liver resonance in these patients: usefulness and future perspectives. To address the interference of obesity in the technique of the examinations and the possible impairment in the quality of the images.

**Discussion:** The main concepts about abdominal imaging methods on obesity management will be addressed, with emphasis on the main topics about bariatric surgery, as well as its main complications, through practical cases. Will be presented the role of visceral fat quantification and multiparametric liver resonance, highlighting the importance of these methods, as well as the interference in the images quality by obesity, using usual examples.

**Conclusion:** Obesity today is a major public health problem in the world. In this scenario, there is a growing number of abdominal imaging methods being performed, mainly in the context of bariatric surgery, as well as in the evaluation of associated comorbidities. It is important to radiologist to be familiar with the main concepts related to the topic.

**Responsible Author:** Dr. Rafael Andrade Santiago

E-mail: rafaelandradesantiago@gmail.com

**PD.01.065**

**GALLSTONE DISEASE: COMMON AND UNUSUAL PRESENTATIONS THAT THE RADIOLOGIST SHOULD KNOW**

Authors: SANTIAGO, R.A.; VELLONI, F.G.; MORITA, T.O.; BLASBALG, R.
**Institution:** GRUPO DASA

**Brief description(s) of the purpose(s) of the Literature Review:** Gallstones are a major health problem affecting 10% to 15% of the adult population, with premium numbers being underestimated due to the high incidence of surgical procedures performed and the fact that a majority of patients are asymptomatic (up to 80%). In addition to the classic colecystolithiasis and cholecodolithiasis, other unusual manifestations for the presentation of gallstones, some as complications of classical forms, others for association with other pathologies. A Mirizzi syndrome, for example, although uncommon, may be present in about 5% of patients with gallstones in developing countries. It’s necessary to the radiologist to be familiar with the common and uncommon presentations of gallstone disease.

**Description(s) of disease(s), method(s) and/or techniques:** To address the common and uncommon presentations of gallstone disease, describing the main imaging findings related to them, highlighting the key-points in radiological approach.

**Discussion:** The main clinical, epidemiological and pathological concepts of gallstone disease will be addressed. We will present the main imaging findings related to this disease through practical cases, addressing radiological approach for each diagnosis.

**Conclusion:** Gallstones represent a broad spectrum of clinical-radiological presentation. Since they are a frequent health problem, it is necessary that the radiologist must know the common and uncommon presentations of this disease.

**Responsible Author:** Dr. Rafael Andrade Santiago

**E-mail:** rafaelandradesantiago@gmail.com

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**CASE REPORT**

**SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)**

**PD.01.001**

**GIANT SPLENIC PSEUODESIONS IN A SICKLE CELL PATIENT - A RARE FINDING IN A HOMOZYGOUS ADULT.**

**Authors:** KOIFMAN, A. C. B.; ZEITOUNE, R.; AGUIAR, L. S.; OLIVEIRA, R. V.; MAIOLI, M. C. P.; MOGAMI, R.

**Institution:** Universidade do Estado do Rio de Janeiro - UERJ, Rio de Janeiro, Rio de Janeiro, Brasil

**Brief description of the study purpose:** This report has the purpose of presenting an unusual image aspects and not well known by radiologists from the spleen of patients with sickle cell anemia.

**Clinical history:** A 19-year-old male patient with sickle cell anemia (SCA) in the homozygous form (SS), using hydroxyurea for 4 years and a history of multiple blood transfusions up to 15 years of age. At the moment, asymptomatic. Came to the hospital to perform ultrasonography (USG) of the abdomen, which revealed spleen of normal size (10.3 x 10.2 x 4.8 cm (L x W x D) vol = 262 cc), with a heterogeneous texture, presenting well defined hypoechoic nodules of varying sizes and diffuse distribution through the parenchyma, showing intense central and peripheral vascularization in color Doppler, the largest measuring 3.7 cm, with fine foci of calcification in the interior. At magnetic resonance imaging (MRI), the splenic parenchyma showed marked low signal in all sequences, compatible with iron/calcinosis. All nodules presented intermediate signal in T1 and T2 and impregnation by gadolinium equal to that of the splenic tissue, constituting islets of spared parenchyma. The liver showed no change, even without signs of significant iron overload.

**Discussion and diagnosis, or vice versa:** The image aspect frequently found in patients with SCA is a very small volume spleen, with heterogeneous echogenicity/density/sign, due to the presence of calcifications and fibrosis consequent to autoesplenectomy. However, there may be a pattern of multiple nodules and rounded, well delimited and homogeneous masses that exhibit echogenicity/density/sign intensity and contrast enhancement equal to those of normal splenic tissue, as in this case reported. The specific examination for the definitive diagnosis of functioning splenic islet tissue is scintigraphy with TC-99m colloidal sulfur. However, with current imaging methods it is possible to detect preserved splenic tissue and exclude other differential diagnoses for this pattern.

**Conclusion:** In addition to the paucity of cases described in the literature, the knowledge of this radiological pattern is extremely relevant, avoiding prolonged investigation, diagnostic errors, anxiety and possible complications of inadvertent therapy.

**Responsible Author:** Dra. Rachel Zeitoune

**E-mail:** raczei@hotmail.com

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**PD.01.006**

**ACCIDENTALLY DIAGNOSED COLON CARCINOMA AFTER FOREIGN BODY INGESTION.**

**Authors:** DAN, V. J. L.; ROCHA, G. M. E.; MARIN, M. S.; MAKSOUF, F.; CORDAZZI, K. R. S.

**Institution:** SANTA CASA DE VOTUPORANGA / SP

**Brief description of the study purpose:** The present paper reports a case of an ingested foreign body (FB) that determined intestinal perforation and the discovery of a previously undiagnosed colon cancer. It is an entity with few cases (eight reports) described in the literature.

**Clinical history:** A 53-year-old male patient complaining of tenderness in the left iliac fossa (LIF) started two weeks ago. At the initial interview he did not remember the ingestion of any FB. Physical examination: tenderness at FIE and sensation of discrete local bulging. Contrast-enhanced computed tomography (CT) of abdomen showed an area parietal thickening in sigmoid colon, associated with slight adjacent collection, densification of mesenteric fat and peritoneal thickening, in addition to numerous lymph nodes. Such findings could be related to primary neoplastic lesion. Adjacent to the aforementioned lesion, there was an intraluminal hyperdense (probable CE) linear structure, transfixing the walls of the sigmoid colon. When questioning the patient specifically about intake of FB or related foods, a possible ingestion of fish spine has been reported for about 2 weeks ago (consistent with the onset of the complaint). There were also small hypovascularized hepatic lesions, which could represent metastases. A colonoscopic biopsy was performed. The anatopathological study revealed adenocarcinoma of the colon. The patient is in staging. This study is in the process of submission to the local Research Ethics Committee.

**Discussion and diagnosis, or vice versa:** In comparison to the previously reported cases, this patient was the youngest to present this entity. In none of the previous cases, the diagnosis/suspicion of malignancy was made prior to surgery.
by means of the CT. It seems to be the second case without imaging evidence of free gas / gaseous collection in the abdomen. In these cases, some findings may increase the suspicion of neoplasm: localized bulging of the intestinal wall at the opposite margin to the foreign body penetration point, lymphadenopathy, intestinal obstruction, and liver metastases.

Conclusion: The case described has a complex pathology, but shows some similarities to the rare ones previously described, examples of potentially lethal neoplasms revealed by a common and not always harmless event, the ingestion of a foreign body.

Responsible Author: Dr. VANDERSON JOSÉ LOPES
E-mail: vanderson.j.lopes dan@hotmail.com

PD.01.008
PORTOMESENTERIC THROMBOSIS AFTER LAPAROSCOPIC SLEEVE GASTRECTOMY: CASE REPORTS
Authors: GHISILI, A. C.; GUIMARÃES, L. P. T.; SAGGIN, G.; ALVES, E. J. S.; SOUZA JR, L. P.
Institution: Hospital Santa Catarina de Blumenau - Santa Catarina - Brasil
Brief description of the study purpose: Portomesenteric thrombosis (PMT) is a rare complication of laparoscopic sleeve gastrectomy (LSG) in the treatment of morbid obesity, with an incidence of less than 1%. However, due to the important morbidity and mortality, this diagnosis should always be remembered by the radiologist when evaluating a patient with abdominal pain and who had recently undergone the bariatric procedure.

Clinical history: We report 6 cases of patients submitted to LSG, all female, with a mean age of 36 years and who had abdominal pain started between the 8th and 28th day after the surgical procedure. Computed tomography (CT) with intravenous contrast was performed in all patients, evidencing PMT. They were treated with intravenous heparin with good evolution in all cases.

Discussion and diagnosis, or vice versa: PMT is a rare complication secondary to LSG. In 20% to 35% of cases, surgical manipulation and elevated peripancreatic pressure levels are the major risk factors involved. Studies demonstrate an inverse relationship between intraperitoneal pressure and portal blood flow, with an increase in intra-abdominal pressure above 14 mmHg sufficient to reduce portal venous flow by 50%. Other etiological factors include thrombophilia, portal hypertension and neoplasms. The clinical diagnosis of PMT is difficult and usually confirmed by CT with intravenous contrast (sensitivity of 90%), with hypodense content in the portomesenteric venous system in the portal phase, representing thrombus filling failure. Treatment may be performed with anticoagulant if there is no evidence of intestinal infarction. As prophylactic measures, some studies recommend that patients undergoing bariatric surgery should use anticoagulants for at least 2 weeks after the surgical procedure.

Conclusion: Intraoperative manipulation and elevated pressure levels during pneumoperitoneum are the main etiologies of postoperative thrombosis in patients after laparoscopic sleeve gastrectomy. This rare disease should be considered in the differential diagnosis when evaluating a patient submitted to the surgical procedure with abdominal pain started up to 1 month after laparoscopy, and early diagnosis by CT is essential to prevent further complications related to thrombosis.

Responsible Author: Biom. Alan Cézar Ghissi
E-mail: alanufsc@yahoo.com.br

PD.01.011
DESMOPLASTIC TUMOR OF SMALL ROUND CELLS: CASE REPORT
Authors: GHISILI, A. C.; GUIMARÃES, L. P. T.; SAGGIN, G.; ARAÚJO, G. L.; SOUZA JR, L. P.
Institution: Hospital Santa Catarina de Blumenau - Santa Catarina - Brasil
Brief description of the study purpose: The present study has as main objective to demonstrate a rare and highly aggressive case of neoplasia, belonging to the group of soft tissue sarcomas, which is the desmoplasic small-round-cell tumor (DSRCT).

Clinical history: A case of DSRCT is reported in a 22-year-old male patient with intra-abdominal involvement marked by a large mass placed in mesogastrium and right flank, confirmed by tomographic study. After the needle biopsy, histological analysis with eight fragments of yellow-whitish and elastic tissue was performed, the largest measuring 15 x 1 x 1 mm, which showed neoplasia composed of small cell islands, with scarce cytoplasm and hyperchromatic nuclei, with good distribution of its chromatin, and desmoplasic stroma with multiple mitoses. The set of findings was compatible with undifferentiated malignant neoplasm of DSRCT as the main etiological diagnosis.

Discussion and diagnosis, or vice versa: The small round cell tumor term is a relatively recent entity and refers to a group of highly aggressive malignancies. Ewing’s sarcoma, peripheral neuroblasticoma, rhabdomyosarcoma, lymphomas are neoplasms included in this group. DSRCT occurs predominantly in adolescents and young adults, with a preference for males, in a ratio of 4:1, with a mean age of 21 years. Clinical manifestations of DSRCT are usually nonspecific, in most cases patients report abdominal pain and have palpable mass on physical examination. Symptoms related to possible distant metastases are also identified. Histopathogenesis of DSRCT remains undefined. Because most of these tumors grow in the peritoneal cavity, and often do not present a primary visceral site of origin, it is believed that this neoplasm has mesothelial or mesenchymal origins. Currently, there is no effective therapy against DSRCT, and surgical resection is indicated where possible. Reports of polychemotherapy, autologous bone marrow transplantation and radiotherapy are not effective.

Conclusion: In view of the unfavorable prognosis of DSRCT, in addition to the lack of staging criteria, our emphasis was placed on the study of this case. Thus, this could contribute to a better understanding of a disease that has poor evidences for the right establishment of criteria that optimize the treatment, because it is a neoplasm with a significantly reduced number of patients affected.

Responsible Author: Biom. Alan Cézar Ghissi
E-mail: alanufsc@yahoo.com.br

PD.01.012
AMYAND HERNIA WITH ASSOCIATED APPENDIXIS: CASE REPORT AND LITERATURE REVIEW
Institution: HOSPITAL ESTADUAL VILA ALPINA (HEVA).
Brief description of the study purpose: Amyand’s hernia (AH) is defined as an inguinal hernia that contains the vermiform appendix inside the hernia sac, whether the vermiform appendix...
appendix is normal, inflamed, or perforated. Amyand’s hernia is named after Claudius Amyand, who, on December 6, 1735, performed the first successful appendectomy during the treatment of an 11-year-old boy who presented with a right inguinal hernia. Inguinal hernia is a very common pathology, especially in men, with an estimated prevalence of 1.2% of the population. The incidence of Amyand’s hernia has varied in the literature, ranging from 0.19% to 1.7% of reported hernia cases. The incidence of appendicitis within an inguinal hernia is even rarer; with an estimated rate at 0.07–0.13% of all cases of appendicitis. Preoperative diagnosis of AH is very difficult; in literature only one in 60 cases is diagnosed preoperatively. The radiological methods used to diagnose AH are ultrasound (US) and/or computed tomography (CT).

**Clinical history:** Our case report consists of a 20-year-old male patient who came to the emergency department of a state hospital with abdominal pain in the right iliac fossa and fever. Laboratory tests were performed that demonstrated leukocytosis with neutrophilia. In the present case, the US examination of the abdomen and CT of the abdomen with intravenous contrast were performed.

**Discussion and diagnosis, or vice versa:** CT showed an appendix with parietal thickening and concentric contrast enhancement, measuring about 10 mm in diameter, associated with blurring of adjacent mesenteric fat, and the distal third of it (blind bottom) within the right inguinal canal. Such findings corroborate the diagnosis of Amyand hernia associated with appendicitis.

**Conclusion:** In view of the rarity of the condition presented in the present case report, as well as its preoperative diagnosis through imaging methods, our objective with this work is to present the radiological alterations of the HA and its complications, and to perform a review of the literature of the subject matter. In this way we hope that our work will help in the radiological preoperative diagnosis of this disease in other patients.

**Responsible Author:** Biom. Lucas longo riani
E-mail: drlucasriani@gmail.com

**PD.01.015**

**PNEUMATOSES CYSTOIDES INTESTINALIS (PCI) FOLLOWING CHEMOTHERAPY FOR SIGMOID COLON ADENOCARCINOMA – A CASE REPORT. Authors:** GOES, A.C.A; ARRUDA,T.C.S.B; ROSAS, C.H.S; MENDES, G.G; P.N.V, PINTO

**Institution:** A.C.Camargo Cancer Center

**Brief description of the study purpose:** The purpose of this exhibit is to report a rare case of pneumatosis cystoides intestinalis caused by chemotherapy agents as well as discuss the imaging features, clinical presentation, diagnosis and management of this condition. Additionally, briefly describe the main chemotherapy-induced gastrointestinal complications, overview drugs mechanisms of action (classic cytotoxic agents x targeted molecular therapies) and describe some of the most frequent chemotherapy agents associated with pneumatosis intestinalis.

**Clinical history:** Male, 55-year-old, asymptomatic, who received adjuvant chemotherapy for sigmoid colon adenocarcinoma (Oxaliplatin, 5-Fluorouracil and Leucovorin) presented to the hospital for routine surveillance scans. Abdominal computed tomography (CT) revealed the presence of air-filled cysts in the submucosa and subserosa of the small bowel. There was no other additional imaging findings, such as dilated intestinal loop, wall thickening, intense mucosal enhancement, intra abdominal fat stranding and portomesenteric venous gas. The patient was admitted for close monitization, maintaining clinical and laboratory stability, therefore discharged after two days. Chemotherapy was discontinued and follow-up CT performed after three months revealed resolution of pneumatosis.

**Discussion and diagnosis, or vice versa:** Pneumatosis cystoides intestinalis (PCI) is defined as the formation of multiple gas-filled cysts in the wall of the gastrointestinal tract that may be iatrogenic or associated with a wide variety of conditions. Patients are usually asymptomatic, and this condition is usually an incidental radiologic finding. Both benign and life-threatening pneumatosis intestinalis has been described with numerous classic chemotherapy agents and have been reported with targeted therapy as well. It’s essential that radiologist recognize the possibility of such a relation cause x effect, since the treatment is conservative, thus avoiding that patient is submitted to an unnecessary surgical procedure or maintenance of a toxic chemotherapeutic treatment.

**Conclusion:** In conclusion, although PCI is a rare complication of chemotherapy, the possibility of PCI occurring in patients undergoing chemotherapy should be kept in mind and should be described in diagnostic report.

**Responsible Author:** Dr. Tiago Arruda
E-mail: tiago.arruda13@gmail.com

**PD.01.016**

**ABERNETHY MALFORMATION - CONGENITAL EXTRAHEPATIC PORTOSYSTEMIC SHUNT ASSOCIATED WITH MULTIPLE HEPATIC ADENOMATOSIS: CASE REPORT**

**Authors:** OLIVEIRA, GUILHERME JOSE DE PAULA; FERREIRA, SAMUEL; BARBOSA, ANDRE

**Institution:** Hospital Felicio Rocho, Belo Horizonte, Minas Gerais. Fundação Educacional Lucas Machado (Feluna), Belo Horizonte, Minas Gerais.

**Brief description of the study purpose:** In this report we present an Abernethy malformation case. The number of diagnosed cases has increased as imaging methods have become accessible and incorporated into medical routine. Therefore, it is fundamental that the radiologist knows how to identify the imaging appearances of this syndrome, as well as the associated congenital anomalies.

**Clinical history:** R.B.S.R, 21-year-old male, from Juatuba - MG, a chairman, with chronic liver disease and diagnosed with multiple hepatic adenomatosis since he was 9 years old, was admitted to our service for evaluation before liver transplantation. In his previous medical history he presented neuropyschomotor developmental delay, congenital scoliosis, neurogenic bladder and solitary kidney. He underwent two surgeries, first due to an intestinal volvulus in 2012, and then a cystectomy in 2013. His initial laboratory tests showed increased transaminases and canaliculer enzymes. Ultrasound evaluation confirmed the presence of multiple hepatic nodules and splenomegaly. Radiography showed important skeletal changes. Computed tomography (CT) evaluation characterized multiple hepatic nodules, with a pattern suggestive of adenoma. The biliary tract was dilated and filled with hyperdense material. The presence of extrahepatic portosystemic shunt was also observed, findings that later were confirmed in Magnetic resonance imaging (MRI).

**Discussion and diagnosis, or vice versa:** The patient’s clinical and imaging data suggest a syndromic picture that should be correlated with all alterations found. Then we suggested the possibility of Abernethy's malformation. This condition was described by John Abernethy in 1793 and is also known as congenital extrahepatic portosystemic shunt (CEPS). It is a rare vascular malformation in which the portal vein drains into
a systemic vein, deviating from the liver circulation. The clinical presentation is variable and most commonly the shunt is diagnosed in the propaedeutic for investigation of symptoms. Other congenital anomalies can be found in these patients. Hepatic lesions are also common, and may be single or multiple

**Conclusion:** It is important for the radiologist early recognize the various imaging appearances jointly. CT and MRI are fundamental in the management of the malformation, since they provide the information for diagnosis, planning, intervention and follow-up, as well as the identification of complications.

**Responsible Author:** Dr. Guilherme Oliveira
**E-mail:** Guimed18@hotmail.com

**PD.01.017**

**SIGMOID FISTULA NOURISHING ABDOM IN UTERINE TOPOGRAPHY AS A COMPLICATION OF DIVERTICULITIS.**

**Authors:** PICKA, M.C.M.; BASSO, C. F.; RENOSTO, F.L.; JORGE JR, L.A.; ANTUNES, P.E.H.
**Institution:** FACULDADE DE MEDICINA DE BOTUCATU, UNESP

**Brief description of the study purpose:** Diverticulitis, acute inflammation of diverticula, mainly affects individuals over 60 years of age and may manifest as uncomplicated (75%) and complicated (25%). It can be characterized by the formation of abscesses, fistulas, bleeding, perforation and obstruction. Even when the clinical diagnosis is quite suggestive, the extent of the inflammatory process must be assessed by computed tomography (CT), currently, the chosen method. It will be presented a case of complicated diverticulitis that developed sigmoid fistula and pericolial abscesses diagnosed by CT.

**Clinical history:** Female patient, 72 years old, with down belly pain, fever and vaginal discharge, with main diagnostic hypothesis of diverticulitis. Previous history of hysterectomy and absence of other comorbidities. The patient underwent CT scan with intravenous and rectal iodine which showed diverticula in the left and sigmoid colon. In the sigmoid vein, a fistulous path (0.4 cm) was observed, which communicates with a retrovesical collection for the posterior sac/upper portion of the vagina.

**Discussion and diagnosis, or vice versa:** Abscess and fistula are the main complications of acute diverticulitis. When perforation of a diverticulum occurs and adjacent organs are not enough to block it, an intramesocolic or pelvic abscesses may occur. When there is extension of the infectious process (abscess), fistulas may occur towards other organs leading to blocked perforation. CT, combined with the use of intravenous and rectal contrast, is the best diagnostic modality. Contrast of colonic loops facilitates the detection of diverticulitis and its complications (perforation, fistulas and abscesses) and the use of intravenous contrast contributes to the evaluation of the extracolonic extension diverticular diseases.

**Conclusion:** CT has been considered the chosen test for diverticulitis diagnosis and its complications, allowing to establish a therapeutic management depending on the extent and severity of the disease.

**Responsible Author:** Biom. Marielle Cristina Modolo Picka
**E-mail:** maripicka@gmail.com

**PD.01.019**

**MULTIPLE PANCREATIC NEUROENDOCRINE TUMORS IN PATIENT WITH MULTIPLE ENDOCRINE NEOPLASIA TYPE 1 SYNDROME: CASE REPORT.**

**Authors:** BARBOSA, G. B.; CARVALHO, A. R. M. R.
**Institution:** Centro Universitário Maurício de Nassau (UNI-NAssaU) - Recife/PE.; Hospital Esperança - Recife/PE.

**Brief description of the study purpose:** To report a MEN 1 (Multiple Endocrine Neoplasia type 1) case with radiological diagnosis of pancreatic neuroendocrine tumor and parathyroid glands adenomas, reviewing the syndrome aspects and associated pancreatic tumors.

**Clinical history:** J.C.A.M, 28 years, genetically diagnosed with MEN 1, goes to the image service for abdominal tumors’ screening. He’s a sister, mother and five uncles also genetically diagnosed with the syndrome. Past of nephrolithiasis since 20 years, presented with a discreet increase in parathyroid hormone (PHT) as well as serum calcium and scintigraphy image with parathyroid functional adenomas. Presented slight unspecific abdominal pain. The patient’s Computed Tomography (CT) showed a solid lesion in pancreas’s head, with heterogenic contrast enhancement, measuring 3.0 cm. Magnetic Resonance Image (MRI) showed little cystic areas in the lesion, restriction to diffusion and in other three milli- meterical spots in the pancreatic body. Positron Emission Tomography (PET/CT) with DOTATOC - 68Ga showed mass’s increased radiotracer caption (SUVmáx – Standardized Up-take Value – 59.4) and in three other focal areas (SUVmax 15.1). The pancreatic lesions weren’t functioning, and there aren’t any clinical or laboratorial alterations.

**Discussion and diagnosis, or vice versa:** MEN type 1 is an autosomal dominant disorder with mutations in tumor suppressor gene MEN1. The neuroendocrine pancreatic tumors are rare (less than 5% of pancreatic tumors) and an approximately 80-100% patients with NEM1 develops this tumors. When associated to the syndrome, they happen mostly in young (before fourth decade) and may be multiples. 95% of patients present primary hyperparathyroidism. Most of the guidelines recommend annual abdominal screening with CT, Endoscopic Ultrasoundography (USG) and/or MRI, as well as laboratorial evaluation of PTH and calcium. The patient received indication for chirurgical resection. As benign and well differentiated tumors measure less than 2 cm, chirurgical indication was the first choice, considering the patient’s age and lesion’s size (over 3 cm).

**Conclusion:** The neuroendocrine tumors are rare neoplasms, but commonly associated to the MEN type 1 syndrome. The Radiologist must know the syndrome and this tumors’s characteristics when linked to the MEN type 1 syndrome.

**Responsible Author:** Sr. Gabriel Brito Barbosa
**E-mail:** gabrielbriton11@gmail.com

**PD.01.026**

**TYPHLITIS IN A PEDIATRIC PATIENT: CASE REPORT AND THE IMPORTANCE OF THE RADIOLOGICAL DIAGNOSIS.**

**Authors:** CALIANI, M. M.; GUARESCHI, B. O; AKURI, M.; NOGUEIRA, I. M.; MENDONÇA, D. M.; NANO, P. Z.; BAAKLINI, R. E.; QUIRICI, P.A.C.
**Institution:** Faculdade de Medicina de Marília, Marília, São Paulo, Brasil

**Brief description of the study purpose:** Typhlitis, or neutropenic colitis, is a inflammatory and necrotizing condition of ceacum and terminal ileum, described mainly in children in treatment for leukemia, and also in other patients treating with chemotherapy and steroid, and immunocompromised patients. Clinically, presents with systemic symptoms and pain in right lower quadrant, being necessary the differentiation with other inflammatory pathologies of ceacum and terminal ileum. That is why the imaging methods are fundamentals for the correct diagnosis.
Clinical history: Case report about a pediatric patient with typhlitis, which the ultrasound and computerized tomography were necessary for the diagnosis.

Discussion and diagnosis, or vice versa: The objective of the present study is to present a case report of our service about typhlitis in pediatric patient, which had done hers first chemotherapy for leukemia tree days before the symptoms of pain in right lower quadrant and fever for one day. The final diagnosis was made with ultrasound and computerized tomography.

Conclusion: Abdominal pain in right lower quadrant in neutropenic patients might be a challenge for the diagnosis, because of the differential diagnosis with inflammatory diseases, much more common. That is why the images are important for a accurate diagnosis, in this case, typhlitis.

Responsible Author: Dra. Priscila Zanin Nano
E-mail: priscilazanin@hotmail.com

PD.01.027
RECURRENT SIGMOID VOLVULUS IN A PATIENT WITH SYSTEMIC SCLEROSIS: AN UNCOMMON ASSOCIATION
Authors: LOUZA, G.F.; MARCHIORI, E.
Institution: Hospital Universitário Clementino Fraga Filho - Universidade Federal do Rio de Janeiro (UFRJ)
Brief description of the study purpose: We present a case of recurrent sigmoid volvulus in a patient with systemic sclerosis (SSc). Sigmoid volvulus must be recognized as a potential complication in the context of SSc.
Clinical history: A 78-year-old Brazilian female presented to Emergency Department with diffuse abdominal pain and inability to have bowel movement or pass gas in the last 7 days. She referred significant worsening of pain in the last day. Patient had a previous diagnosis of limited cutaneous systemic sclerosis (lcSSC or CREST syndrome). A previous esophageal scintigraphy demonstrated an esophageal motor dysfunction, with important retention of the radiotracer in superior and middle esophagus. She also reported recurrent Raynaud phenomenon in hand’s fingers, with history of amputation through the middle phalanx of left hand second finger because of microvascular disease and previous acute ischemia in two feet fingers. At previous chest CT, it was observed a dilated esophagus, peripheral ground-glass and reticular opacities associated with peripheral bronchiolectasis and incipient microcystic honeycombing, features consistent with pulmonary involvement as non-specific interstitial pneumonia (NSIP). She also had a previous abdominal CT that demonstrated a dilated and redundant colon. Due to intestinal obstruction suspicion, an abdominal and pelvic CT were performed and demonstrated a large, dilated sigmoid loop, with few air-fluid levels, forming a closed-loop obstruction. “Coffee bean” sign and “whirl” sign were also visualized and sigmoid volvulus was diagnosed. Patient reported that she already had 2 previous episodes of sigmoid volvulus, the last one 2 months before.
Discussion and diagnosis, or vice versa: Although colon involvement in SSc is uncommon, there are characteristic radiological findings. In earlier stages, there are wide mouth pseudo-diverticula, usually involving the antimesenteric border, associated with areas of rigidity. As the disease progresses, the pseudo-diverticula are lost and the colon becomes dilated and atonic, which probably results from replacement of muscle fibers by a mixture of collagen, elastic tissue and fibrosis. Sigmoid volvulus in patients with SSc has few descriptions in literature and, in such cases, a dilated and atonic colon was regarded as an important predisposing factor.
Conclusion: Sigmoid volvulus must be recognized as a potential complication in the context of SSc.
Responsible Author: Dr. Guilherme Felix Louza
E-mail: guilhermeloouza@hotmail.com

PD.01.028
UNCOMMON CASE OF ASCARIASIS - GALLBLADER INFESTATION: CASE REPORT
Authors: ARAUJO, A. P.; PESSOA, R. H. B.; GUEDES, F. C.; CAVALCANTI, D. S. S.
Institution: Hospital Getúlio Vargas
Brief description of the study purpose: The aim of this study is to report the presentation of biliary ascarisis in a young adult with acute abdominal pain in emergency.
Clinical history: A 30-year-old female patient with epigastric abdominal pain and vomiting was admitted 24 hours later in the emergency room, with the suspected diagnosis of acute cholecystitis. Ultrasonography of the abdomen was requested, evidencing biliary ascarisis. A conservative strategy was adopted and the patient received symptomatic and antiparasitic treatment.
Discussion and diagnosis, or vice versa: Ultrasonography evidenced gallbladder with normal dimensions, thin walls, without gall stones inside, with a hyperchogenic tubular image, with central anechoic line, presenting spontaneous mobility, with no acoustic shadow, characteristic aspects of Ascaris lumbricoides. This is the etiological agent of the helminthisis with the highest prevalence worldwide. The report of biliary involvement is rare, and its presentation is associated with a low socioeconomic level, being more common in pediatric patients. Patients may be asymptomatic or present abdominal pain that may result in cholangitis and acute cholecystitis. Ultrasonography is the main exam for the diagnosis, being adopted as the first choice.
Conclusion: Ultrasonographic diagnosis of biliary ascarisis is rare but easily distinguishable from other causes of abdominal pain affecting the gallbladder. Due to the high incidence of ascarisis in Brazil, it is essential to know the ultrasound characteristics to familiarize with infestation cases, thus facilitating the diagnosis, which allows timely treatment, guidance on complications and prevention of recurrence of the disease.
Responsible Author: Dra. Ananda Peixoto de Araujo
E-mail: anandapeixoto@gmail.com

PD.01.029
PSEUDOMYXOMA PERITONEI: CASE REPORT
Authors: CANCELAR, P.P.; PERES, B.S.; DUMALAKAS, G.A.; CANCELAR, K.P.P.
Institution: Tomovale Centro de Diagnóstico por Imagem
Brief description of the study purpose: Case report demonstrating the radiological evolution of a rare entity over the period of 4 years, from the initial tomographic diagnosis, confirmed by pathology, to the advancement of the mucinous implantations in the peritoneal cavity while surgeries and chemotherapy treatment took place.
Clinical history: A 33-year-old male patient, who reported abdominal enlargement, non-specific abdominal discomfort and postprandial fullness, was submitted to computed tomography (CT), which revealed appendicular mucocoele and signs of peritoneal carcinomatosis, suggestive of pseudomyxoma peritonei (PMP).
Discussion and diagnosis, or vice versa: PMP is a rare tumor, characterized by the presence of gelatinous ascites and redistribution of tumoral mucinous implants to certain anatomical sites in the peritoneal cavity, often related to cystade-
nocarcinomas, usually from the cecal appendix or ovaries. The symptoms are nonspecific and its course is indolent, which makes early diagnosis difficult. CT shows multiple nodular, hypodense lesions that compromise the greater omentum, the peritoneal plane of the abdominal and pelvic cavity, hepatic and splenic surfaces, as well as the surface of the intestinal loops. Magnetic resonance imaging (MRI) shows lesions with low signal in T1-weighted sequences and high-signal in T2-weighted sequences. During the periodic studies of the patient, the increase in the number of lesions and organic involvement is evident, with the main complication being intestinal obstruction, since the metastatic potential is low. 

Conclusion: The study highlights the imaging findings in the follow-up of the lesions caused by the disease, in order to help a more accurate and early diagnosis, allowing the appropriate treatment and a better prognosis.

Responsible Author: Dr. Bruno Santanna Peres
E-mail: brunup@gmail.com

PD.01.031
SPONTANEOUS HEPATIC RUPTURE ASSOCIATED WITH HELLP SYNDROME: A CASE REPORT
Institution: Hospital Regional de Emergência e Trauma Dom Luiz Gonzaga Fernandes. Faculdade de Ciências Médicas de Campina Grande - FCM CG

Brief description of the study purpose: HELLP syndrome is an uncommon obstetric complication that is difficult to diagnose and is a serious variation of preeclampsia characterized by the triad of hemolysis, elevated liver enzymes, and a decrease in platelet count, which is responsible for high maternal and neonatal morbidity and mortality, which atypically may be associated with spontaneous hepatic rupture, in this way, the objective is to expose the rare association between spontaneous hepatic rupture and HELLP syndrome based on the clinical findings and the image examination used, through a case report, in the purpose to make the diagnosis of the syndrome more precarious and the intervention more effective.

Clinical history: A 17-year-old female patient was admitted to the emergency room, reporting a 5-day miscarriage and pain in the upper right quadrant of the abdomen, with no rigidity at clinical examination, complaining of nausea and vomiting, and headache. Computed tomography (CT) examination with its three-phase protocol revealed rupture of the liver with formation of a large subcapsular hepatic hematoma with a subacute appearance / in chronification, with extension to the right flank (parietal-colic recess), besides the presence of free intra-abdominal fluid and diffuse liquid striation of the mesentery, possibly related to inflammatory / infectious process.

Discussion and diagnosis, or vice versa: Initially described by Prichard in 1954, HELLP syndrome is responsible for the main cause of spontaneous hepatic rupture in pregnancy, which, although rare, has high maternal and fetal morbidity and mortality. Diagnosis when performed early favors a rapid intervention and a better prognosis for the patient, both ultrasonography and CT are the tests used to diagnose liver damage, which is common in the right lobe due to its characteristic size. The treatment of hepatic rupture depends on the extent of the lesion, and, in the most serious cases, liver transplantation may be performed.

Conclusion: The possibility of a hepatic rupture should be taken into consideration in pregnant women with HELLP syndrome, who report acute and severe abdominal pain, in order to provide a specific differential diagnosis in order to ensure a better quality of maternal-fetal life.

Responsible Author: Sr. Aristócles Hitallo Bezerra
E-mail: hitallo95@gmail.com

PD.01.032
GALLBLADDER VOLVULUS
Institution: Rede Mater Dei de Saúde

Brief description of the study purpose: To describe a rare case of gallbladder volvulus, including imaging findings and differential diagnosis.

Clinical history: It is presented a case of a 71-year-old patient, female, admitted by the emergency service with acute epigastric pain and full blood count suggestive of inflammatory process. Imaging exams were performed and the patient was diagnosed with acalculous cholecystitis. She was submitted to videolaparoscopic cholecystectomy which identified gallbladder volvulus with necrosis. After surgical procedure the patient presented clinical improvement and was discharged from hospital after two days of hospitalization.

Discussion and diagnosis, or vice versa: Gallbladder volvulus is a rare cause of acute abdomen which constitutes pre-operative diagnostic challenge for both surgeons and radiologists as it mimics acute cholecystitis clinically. It is believed to occur secondary to a redundant mesentery where gallbladder torsion along its axis results in ischemia followed by necrosis. Cholecystectomy is the first choice of treatment and both diagnostic and surgery delay may lead to important morbidity and mortality.

Conclusion: Gallbladder volvulus is a rare acute event which is usually diagnosed during surgery, and its imaging findings are not specific.

Responsible Author: Dr. Lucas Costa
E-mail: lucascmvieira@hotmail.com

PD.01.036
PANCREATIC PSEUDOANEURYSM CAUSED BY ACUTE PANCREATITIS: A CASE REPORT
Authors: MARANHÃO, F. L. L.; BEZERRA, A. H.; VIDAL, J. C. S.; ARAÚJO, J. M.; ARAÚJO, R. M.
Institution: Faculdade de Ciências Médicas de Campina Grande- FCM-CG . ospital Regional de Emergência e Trauma Dom Luiz Gonzaga Fernandes

Brief description of the study purpose: Pseudoaneurysm may be associated with rupture of the arterial wall with extravasation of blood that is contained by the neighboring tissues; the splanchic association of pseudoaneurysms with pancreatitis is due to the enzymatic digestion of the vessel wall in the proximities of the pancreas, in this way the objective of this study is to report a case of pancreatic pseudoaneurysm based on the clinical significance and on compliance with the image examination in order to promote the attention to the pathological state and thus contribute to an early diagnosis.

Clinical history: A 30-year-old male patient, complaining of abdominal pain in the epigastric region, worsening of the pain, physical examination reported pain on palpation associated with chronic diarrhea, clinical suspicion of acute pancreatitis, computed tomography (CT) of the total abdomen was performed, analyzing the splenic and hepatic dimensions of normal findings, however, presenting diffusely enlarged pancreas, with mild ectase of the main pancreatic duct, with an inflammatory process appearance. A cystic formation is later
highlighted by the head of the pancreas measuring about 5.8 x 5.0 x 3.7 cm, which is captured by the intravenous contrast suggesting pseudoaneurysm.

**Discussion and diagnosis, or vice versa:** A priori after confirmation of pancreatic inflammation, which is responsible for causing pseudoaneurysm, which, despite a rare association, has a great significance to the posteriori for the diagnosis that due to the temporal relevance, when performed early, it provides an effective intervention and a benefit of the patient’s prognosis.

**Conclusion:** Pseudoaneurysm is considered the rarest manifestation in the spectrum of vascular complications of pancreatitis because it is potentially fatal, it must be given importance, since it is difficult to diagnose and has a possible disastrous evolution, therefore, it is essential that the suspicion of this vascular complication is present between the diagnostic hypotheses.

**Responsible Author:** Sra. Fernanda Licia Linhares Maranhão  
**E-mail:** drafernandamaranhao@gmail.com

**PD.01.038**  
**THE IMPORTANCE OF COMPUTED TOMOGRAPHY IN THE ELUCIDATION OF MESOSIGMOID VOLVULUS - CASE REPORT**  
**Authors:** CAVALCANTE, Y. P.; VIANA, E. L. Q. B. M.; LUZ, S. N. P.; PINTO, Y. F.; CASTRO, I. M.; VIDAL, J. C. S.  
**Institution:** Faculdade de Ciências Médicas de Campina Grande - FCM CG  
**Hospital de Trauma Dom Luiz Gonzaga Fernandes**  
**Brief description of the study purpose:** Intestinal Volvulus consists of a bowel twist that usually involves bowel obstruction and mesenteric infarction. The most common forms of twisting are those involving the sigmoid colon. It can occur in any age group, however, it is most commonly reported in elderly. It is more common in men and can occur as a result of adhesions in the intestinal wall as a result of inflammation, tumor or abdominal surgery. Thus, the diagnosis of this pathology is made by associating the clinical history of the patient with radiographs and computed tomography and can be complemented with laboratory tests. Therefore, the objective is to discuss the main clinical presentations as well as the imaging aspects presenting a case report of mesosigmoid volvulus.

**Clinical history:** Patient, male, 86 years old, without comorbidities, admitted to the emergency service with complaints of intense pain with diffuse origin in the abdomen, nausea and vomiting. At clinical examination, signs of abdominal distension were observed as well as local stiffness. So, computed tomography, without intravenous infusion of water-soluble iodine contrast, was the technique used for the diagnostic investigation. It was possible to obtain images of the total abdomen where the dilatation in intestinal loops, with focus on the sigmoid region.

**Discussion and diagnosis, or vice versa:** Sigmoid volvulus presents as an obstructive acute abdomen and, therefore, it is a medical emergency and culminates, in general, for a surgical intervention. Symptoms appear around 5 to 10 hours after the onset of the condition, occurring later in the extremes of age - such as the patient. Tomographically, the dilatation of the walls is observed converging to a mesenteric torsion point, which generally manifests in the lower abdomen and forms a typical configuration called "The coffee bean sign".

**Conclusion:** Due to the emergency situation of the sigmoid volvulus, it is essential to use imaging exams with a focus on computed tomography, so that a more complex analysis of this technique is necessary in the differential diagnosis of such condition.

**Responsible Author:** Sra. Yanne Pessoa Cavalcante  
**E-mail:** yannepessoac@gmail.com

**PD.01.040**  
**MESENTERIC LIPOMA DIAGNOSED BY TOMOGRAPHIC EXAM**  
**Institution:** Hospital de Emergência e Trauma Dom Luiz Gonzaga Fernandes  
**Brief description of the study purpose:** Lipomas can be classified as solitary or multiple and develop almost anywhere in the body, in view of the extent of adipose tissue. However, cases of lipomas originating from the intestinal mesentery are rarely identified, as they are generally asymptomatic if they still allow passage of intestinal contents. Although lipoma is benign in nature, its mass effect may be responsible for abdominal pain. Objective: To demonstrate the clinical aspects and the findings of the imaging exam, in order to facilitate the identification and diagnosis of similar cases.

**Clinical history:** This is a case study of a 19-year-old man, admitted to a hospital with complaints of abdominal pain, with post-meal discomfort, and insomnia. The physical examination revealed a slightly distended abdomen, but the rest of the examination was not remarkable. The patient was referred for ultrasonography, in which a homogeneous echogenic mass was observed. In an attempt to evidence a differential diagnosis, we requested computed tomography, observing voluminous intra-abdominal expansive formation, with well defined fat density, involving the entire pelvic cavity, part of the mesogastro and left iliac fossa, measuring approximately 18, 8 x 11.7 x 10.3 cm, causing cranial displacement of thin intestinal loops, having an intimate relationship with the sigmoid colon and the bladder dome. The pelvic portion of the ureters is enclosed by the described mass, causing a slight compression of the ureters resulting in a slight ectasia of the upstream pelvic-urinary system bilaterally.

**Discussion and diagnosis, or vice versa:** Lipoma may represent a familial tendency and is more frequent in obese people with Diabetes Mellitus or Hypercholesterolemia. Mesenteric lipomas are rare, but usually show slow growth that does not penetrate the organs. The most indicated radiological examination is computed tomography, which demonstrates a proliferation of adipose tissue in the abdominal cavity. The definitive treatment indicated is the total resection of the lesion.

**Conclusion:** Mesenteric lipomas are rare, however, through CT, it is possible to perform a differential diagnosis for uncommon abdominal pain, as well as to perform early measures for treatment aimed at a better prognosis.

**Responsible Author:** TR. Juan carlos Soares Vidal  
**E-mail:** juanvidal,jsv@gmail.com

**PD.01.041**  
**WUNDERLICH’S SYNDROME SECONDARY TO ANGIOMYOLIPOMA AND RENAL VASCULAR MALFORMATION TREATED BY RADIOINTERVENTION.**  
**Authors:** CAPARROZ, F.B.C.N.; VALENTIN, M.V.N.; MONSIGNORE, L.M.; SANTANA, D.B.F.; MELLO, D.F.R.E.  
**Institution:** DOCUMENTA, RIBEIRÃO PRETO  
**Brief description of the study purpose:** We report a case of Wunderlich syndrome caused by renal angiomyolipoma ac-
compounded by arteriovenous malformation and the treatment was performed by radiointervention.

**Clinical history:** Female patient, 55 years, with left back pain 5 hours ago, nausea, vomiting and bulging in flank. At physical examination she was discolored and tachycardic, with Giordano positive. A total abdominal tomography with intravenous contrast was performed, showing renal hematoma and active bleeding within the angiomylipoma. If the patient was referred for radiointervention for infusion of microparticles and 25% NBCA (Ghucan 2) with therapeutic success. There was good evolution and the patient was released with guidelines on hypovolemic shock symptoms and analgesics for pain.

**Discussion and diagnosis, or vice versa:** Wunderlich syndrome or spontaneous renal hematoma is an uncommon cause of acute abdomen. Rare disease, usually related to tumors, is a medical emergency that can lead to serious life threatening. Among the tumor causes, the benign tumors stand out, being angiomyolipoma the most common. Among the malignant, renal cell carcinoma stands out. Other diverse causes also included in the genesis of the syndrome. Angiomyolipoma is a benign renal neoplasm, common in patients with facomatoses, mainly tuberous sclerosis. Histologically composed of epitheliovascular, muscle cells and adipocytes, being sporadically bleeding. In pre-contrast phase tomography there may be hyperattenuating amorphous collection in relation to adjacent tissues. By injecting contrast we can visualize the active bleeding focus and especially the non-enhancement of the hyperattenuating collection. Treatment should consider the hemodynamic status of the patient and may be expectant. If there are signs of hypovolemia, radiointervention with embolization of the bleeding vessel may be performed, as well as surgical procedure for nephrectomy.

**Conclusion:** Spontaneous renal hematoma or Wunderlich's syndrome is one of the causes of acute vascular abdomen. Patients with severe abdominal pain, fluttering and signs of hypovolemia should be suspected, as delayed diagnosis may lead to fatal outcome. Clinical history and correlation with imaging are the pillars for the correct diagnosis and indication of radiointervention.

**Responsible Author:** Biom. FRANCISCO BERMAL

E-mail: fbermal@hotmail.com

**PD.01.045**

**A RARE CASE OF JEJUNOJEJUNAL INTUSSUSCEPTION IN AN ADULT SECONDARY TO GASTRO-INTESTINAL STROMAL TUMOR (GIST): A CASE REPORT.**

**Authors:** BEZERRA, L.L.; SILVA, R.M.; MENDES, H. G. P.; LEITE, R. B.; SILVA, I. O.; ARAUJO, L.E.S.; SOUSA, F. J. A.; JUNIOR, M.F.M.

**Institution:** Universidade Federal do Piauí.

**Brief description of the study purpose:** Jejunojejunal intussusceptions are not common in adults. The clinical presentation in adults tends to be more chronic or intermittent and include abdominal pain, obstructive symptoms, gastrointestinal bleeding or palpable mass. These unspecific symptoms often lead to a late diagnosis. It is estimated that only 5% of all intussusceptions occur in adults and approximately 5% of all bowel obstruction in adults are a result of intussusception. The underlying causes in adults vary greatly, a mechanical cause is seen in 90% of all adult intussusceptions. The lead points of adult intussusceptions that involve colon are usually malignant; whereas those that involve the small bowel tend to be benign. We report a case of jejunojejunal intussusception secondary to gastrointestinal stromal tumor (GIST).

**Clinical history:** Male, 35 years old, was admitted with abdominal pain, nausea and vomiting in the last 24 hours. There was a history of recurrent abdominal pain in the last month. At the physical examination, the patient was in a regular general state, pale, with a diffusely painful abdomen, without signs of peritonitis, hypothermic, without hydroaerous noises.

**Discussion and diagnosis, or vice versa:** Computed tomography of the abdomen demonstrated a heterogeneous abdominal mass with well-defined contours and a "target" image suggestive of extensive jejunojejunal intussusception, with intussusception of invaginated proximal jejunum, mesenteric fat and vessels, causing subacute obstruction with subsequent proximal dilated jejunum. There is a well-defined nodular image near the distal invaginated small bowel, with heterogeneous contrast enhancement. The diagnosis of jejunojejunal intussusception was further confirmed intraoperatively and the histological analysis concluded that it was a gastrointestinal stromal tumor in the distal invaginated small bowel.

**Conclusion:** Adult intussusception due to gastrointestinal stromal tumor is rare and is difficult to diagnosis clinically. Their unusual presentation must be borne in mind.

**Responsible Author:** Sr. Renan Bastos Leite

E-mail: renan_bleite@hotmail.com

**PD.01.052**

**MESENTEROAXIAL GASTRIC VOLVULUS: CASE REPORT.**


**Institution:** Hospital Estadual Vila Alpina

**Brief description of the study purpose:** Gastric volvulus (GV) is defined by the anomalous rotation of the stomach over itself, and may be acute or chronic. It occurs in both sexes with equal frequency, being rare before the 50 years. We present below the case report of a patient who went to the health service with abdominal pain, with clinical suspicion of an acute abdomen.

**Clinical history:** A 44-year-old female patient sought the first aid, complaining of pain and abdominal distension. Before the signs and symptoms, a CT scan of the abdomen and pelvis was performed, evidencing the mesenteroaxial GV.

**Discussion and diagnosis, or vice versa:** The stomach is a relatively unusual site of volvulus. The chronic presentation may be responsible for uncharacteristic symptoms of abdominal discomfort and epigastric burn, considered the most common. The acute condition, represented by sudden abdominal pain, vomiting and epigastric distension, is prone to gastric necrosis and perforation, considered a surgical emergency. According to the axis of rotation, the GV is classified as organoaxial, when the stomach rotates along its long axis, with the greatest curvature being displaced superiority and the smallest curvature located more caudally in the abdomen, being the most common (60%); mesenteroaxial in which the stomach rotates along its short axis, with the resulting displacement of the antrum above the gastroesophageal junction; and mixed formed by a combination of the mentioned subtypes. Gastrointestinal contrast radiographic studies (30%) allow to verify the level of obstruction and the type of rotation. CT has an important diagnostic value, especially in the acute phase, allowing a rapid diagnosis, detecting the presence of complications, as well as predisposing factors and exclusion of other causes. Although the elective exam is the gastroduodenal transit CT has been preferred because of the easy access and more information provided by the examination.
Conclusion: In view of the unusual pathology and epidemiology presented in this clinical case, such as the diagnostic contribution by the imaging methods, this report to present the radiological changes of the mesenteroaxial GV, to describe the other subtypes along with its main complications.

Responsible Author: Dr. ROBERTO DE FREITAS GONÇALVES BRINGEL
E-mail: roberto_bringel@hotmail.com

PD.01.053
MESENTERIC LUPUS VASCULITIS: IMPORTANT CAUSE OF ACUTE ABDOMEN IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS

Institution: HOSPITAL DE CLINICAS DA FACULDADE DE MEDICINA DE BOTUCATU (HCFMB/UNESP)

Brief description of the study purpose: To report a rare case of a patient who developed Lupus Mesenteric Vasculitis (LMV) and to review this pathology, highlighting the radiologist's primary role in the diagnosis of this condition using Computed Tomography (CT).

Clinical history: A 15-year-old white patient admitted with diffuse abdominal pain, numerous episodes of diarrhea, vomiting and postprandial fullness, without fever, global abdominal, painful diffuse palpation and with positive rebound tenderness test. Patient has a history of systemic lupus erythematosus (SLE) with arthicular, renal, serous, haematological and central nervous system involvement. At present, presenting with class III lupus nephritis. Laboratory findings include leukopenia, lymphopenia, and thrombocytopenia; FAN, Anti-SM, Anti-dsDNA positive and consumption of complement. The CT scan suggested the diagnosis of LMV and the patient was treated with immunosuppressants, presenting an improvement in the clinical picture.

Discussion and diagnosis, or vice versa: SLE is an autoimmune disease that can affect several organs of our body, but since we do not think about the association of SLE with the gastrointestinal tract, we do not diagnose LMV. The French medical literature shows that LMV is the most common cause of acute abdomen in SLE patients. Some series of autopsies show that we underestimate the diagnosis of this condition because we do not think about this possibility. This pathology arises from the deposition of immunocomplexes, with submucosal edema and leukocytoclastic vasculitis with thrombus formation, mainly in small mesenteric vessels. Abdominal CT is the main diagnostic test for LMV that shows diffuse thickening of intestinal walls with target signal, comb signal, dilatation of intestinal loops, mesenteric edema and ascites.

Conclusion: Due to the high morbidity and mortality, LMV should always be remembered with diagnosis in patients with the association of SLE and acute abdomen. Abdominal CT allows the early detection of findings that associate with the clinical picture and the disease activity index (SLEDAI score) increase the probability of the diagnosis of LMV. Prompt and accurate diagnosis of this disease is important for the implementation of immunosuppressive therapy that greatly improves the prognosis of this patient, avoiding complications and surgical treatment.

Responsible Author: Dr. LEE VAN DINIZ
E-mail: leevandiniz@gmail.com

PD.01.061
TORSION OF AN ACCESSORY SPLEEN - CASE REPORT

Authors: CAMPOS NETO, I.A.; BARBOSA, P.O.; GOMIDE, T.P.
Institution: FUNDAÇÃO SANTA CASA DE MISERICÓRDIA DE BELO HORIZONTE

Brief description of the study purpose: The accessory spleen is an anatomical variant found in approximately 10 to 15% in the general population, usually located in the upper left quadrant. It is usually asymptomatic and diagnosed incidentally, through imaging tests. Its twist is an uncommon entity, little reported in the literature, presenting as acute abdominal pain, nausea, vomiting, fever and leukocytosis.

Clinical history: This report will present a case of twisting in an adult female patient with acute abdominal pain in the left flank. This hypothesis was suggested after evaluation by the tomographic method and confirmed later after the surgical approach.

Discussion and diagnosis, or vice versa: The torsion of the spleen accessory as cause of abdominal pain in the upper left quadrant is relatively rare, mainly in adulthood. There is an immediate growth, due to venous congestion, with associated acute inflammatory signs, and may evolve to hemorrhagic infarction. Important complication is the rupture, evolving with hemorrhagic shock and potentially life-threatening. The diagnosis should be suggested through imaging tests, especially ultrasonography, computed tomography and magnetic resonance imaging. Computed tomography shows a hypodense image with peripheral enhancement by the intravenous iodinated contrast, due to the supply of the capsular arteries, associated with obliteration of the fat surrounding spleen accessory. Magnetic resonance imaging initially demonstrates hypointense nodules in T1 and T2, with hemorrhagic component, secondary venous ischemia.

Conclusion: It is important for radiologists to be aware of the existence of this possibility, because the non-specific clinical presentations and favors several differential diagnoses. The diagnosis and previous treatment avoids as possible complications such as hemorrhages, peritonitis and intestinal obstruction.

Responsible Author: Dr. IVO ALVES
E-mail: icamposneto@gmail.com

PD.01.064
INTUSSUSCEPTION IN PUERPERA LEADING TO TIMELY DIAGNOSIS AND CURATIVE SURGERY OF COLONIC ADENOCARCINOMA

Authors: PURGER, M.; PETERNELA, C.E.; JULIANO, R.C; CRUVINEL, J.M; TEIXEIRA, R; FURTADO F.; GUI-MARÃES, J.G.B; BARDOE, S.W
Institution: Hospital da Cruz Vermelha Brasileira filial do Paraná

Brief description of the study purpose: Demonstrate that cases of intussusception in adults are rare, and when they occur, they are usually related to malignancy.

Clinical history: Female, 35 years old, puerpera on the 17th day of vaginal postpartum with episiotomy, admitted to the emergency room with abdominal pain complaint and low digestive hemorrhage. The patient was evaluated by the surgical team and later submitted to computed tomography (CT) with parenteral contrast.

Discussion and diagnosis, or vice versa: CT showed invagination of the sigmoid colon and its mesentery on itself, associated with parietal thickening. The patient was submitted to laparotomy that showed the intussusception and detected a tumor lesion in the intussusception which was resected and...
later confirmed as adenocarcinoma. Intussusception consists of invagination of a bowel loop and its mesentery (intussusception) into the lumen of a contiguous portion of bowel. Its incidence is quite low in adults, about 5% of all cases of invagination. It can be classified according to its location and also, in the case of adults, with the presence of a precipitating factor. In adults, in 70 to 90% of cases, an underlying cause can be identified. Only a small percentage occurs without an identifiable lesion, and they are therefore idiopathic and usually related to the postoperative situation. Intussusceptions in the small bowel are usually associated with benign lesions such as lipomas, adenomatous polyps, and Meckel’s diverticulum, whereas when they occur in the colon, they tend to be related to malignancies, such as adenocarcinoma, lymphoma or metastasis. The imaging diagnosis can be made by ultrasonography, depending on the examiner’s experience, or CT. Trough the CT scan, one can readily establish the diagnosis, however, in most cases, the method of CT is unable to differentiate the non-specific parietal thickening of a neoplastic process.

**Conclusion:** We postulate that even in young adults with intussusception, there should be a suspicion of malignity as a predisposing factor.

**Responsible Author:** Dra. Monique Purger

**E-mail:** mopurger@gmail.com

**PD.01.068**

**EXTENSIVE LYMPHOHEMANGIOMA OF THE ABDOMINAL CAVITY**

**Authors:** MORAIS JUNIOR, M. F.; FERREIRA, A. M.; SILVA, R. M.; LEITE, R. B.; ARAÚJO, L. E. S.; SILVA, I. O.; BEZERRA, L. L.

**Institution:** HOSPITAL UNIVERSITÁRIO DA UNIVERSIDADE FEDERAL DO PIAÚ - HUUPPI

**Brief description of the study purpose:** Lymphovascular malformations are rare group of benign proliferative developmental anomalies of lymphatic system. They are caused by failure of developing lymphatic tissue to establish a normal communication with remainder of the lymphatic system. It is proposed to disclose a case of abdomino-pelvic lymphoheangiomia, with involvement of mesenteric structures, a rare finding in the medical literature.

**Clinical history:** Nineteen years old patient, male, from Teresina - PI, entered the gastroenterology department of the tertiary referral hospital with complaints of low digestive bleeding, perianal pain and hemmorrhoids onset for approximately 2 years, in research for inflammatory bowel disease. He referred to previous pathological history of proctitis, esophageal varices and splenomegaly, associated with portal vein thrombosis in 2014. No history of previous surgeries or other comorbidities.

**Discussion and diagnosis, or vice versa:** He began a pelvic tomography investigation that revealed diffuse and regular circumferential parietal thickening of the rectosigmoid, with contrast enhancement associated with prominence of the surrounding vascularization and phleboliths. A complementary MRI study of the abdomen showed expansive formation involving diffusely the wall of the rectosigmoid and adjacent peritoneum, extending to the abdominal cavity, with diffuse alteration of signal of the intra-peritoneal structures that encompass the mesentery, ascending mainly to the mesenteric root with extension for minor omentum and gastroesplenic, gastropancreatic and splenorenal ligaments. It is characterized by heterogeneous hypersignal in T2, with enhancement after administration of the intravenous contrast medium and flow voids, inferring vascular structures. Colonoscopy with biopsy of a polypoid lesion in the cecum allowed a histopathological study that revealed exuberant vascular ectasia in the submucosa, devoid of atypia. A multidisciplinary meeting was held between gastroenterology, surgery, radiology and pathology, choosing to refer patients to specialized services in São Paulo.

**Conclusion:** Lymphohemangiomas are malformations of the development of the lymphatic system and have a rare manifestation of involvement of the retossigmoid, which may mimic inflammatory bowel disease symptoms. The extension with involvement of mesenteric structures imposes great therapeutic and prognostic difficulty to the patients.

**Responsible Author:** Dr. Moaci Ferreira de Morais Júnior

**E-mail:** moaciradio@gmail.com

**PD.01.071**

**VOLVO OF SIGMOID COLON ASSOCIATED WITH CHILAIDITI SYNDROME: CASE REPORT**


**Institution:** Hospital Estadual Vila Alpina

**Brief description of the study purpose:** Temporary or permanent interposition of the colon, small intestine (rare), or stomach (very rare) in the hepatodiaphragmatic space is known as the Chilaiditi sign. The association of this signal with symptoms such as abdominal pain, nausea, retrosternal pain, respiratory symptoms, vomiting, abdominal distension, obstruction or intestinal subocclusion characterizes Chilaiditi syndrome. The Volvo consists of abnormal twisting of the sigmoid colon on the mesenteric axis, with obstruction in a closed loop. This association is a rare cause of acute obstructive abdomen. The present report show a new case of Chilaiditi syndrome associated with sigmoid colon volvo, surgically treated.

**Clinical history:** A 64-year-old male patient admitted to the emergency room of a hospital in São Paulo, reporting a gas and stool elimination stop for 10 days with distension and diffuse abdominal pain. An acute abdomen radiograph and tomography of the abdomen and pelvis were performed, as well as laboratory tests.

**Discussion and diagnosis, or vice versa:** Acute abdomen radiography showed diffuse distension of the colon with transverse colon image between the liver and the diaphragm and tomography of the upper abdomen and pelvis showed a marked distension of colonic loops associated with rotational alteration of the mesenteric vessels, suggestive of sigmoid volvo. The patient had clinical worsening, being submitted to exploratory laparotomy, detecting the sigmoid volvo, diffuse megacolon and interposition of the transverse colon between the liver and the diaphragm.

**Conclusion:** The interposition of the colon between the liver and the diaphragmatic dome (Chilaiditi sign), associated with sigmoid colon volvo, is a rare cause of obstructive acute abdomen, although sigmoid volvo is one of the main causes of mechanical intestinal obstruction in Brazil. There are seven cases published in the international literature, six adults mostly men and one child. Usually the treatment is clinical, but if associated with complications or clinical worsening, the treatment is surgical.

**Responsible Author:** Dr. Marcus Vinicius Martins de Castro Santana

**E-mail:** kaisso@hotmail.com
CONTRAST-ENHANCED ULTRASOUND (CEUS) AS A NEW TECHNIQUE TO CHARACTERIZE SUSPECTED RENAL TRANSPLANT MALIGNANCIES IN RENAL TRANSPLANT PATIENTS IN COMPARISON TO STANDARD IMAGING MODALITIES

Authors: MUELLER-PELTZER, K.; FIGUEIREDO, G.N.; RUEBENTHALER, J.; CLEVERT, D.A.

Institution: Department of Radiology, Ludwig-Maximilians-University of Munich - Grosshadern Campus

Brief description of the study purpose/Objectives: This study aims to compare the sensitivity and specificity of contrast-enhanced ultrasound (CEUS) and gold standard imaging modalities in characterizing suspected renal transplant malignancies in renal transplant patients.

Material and methods: A total of 22 renal transplant patients who underwent one or more CEUS examination and at least one standard imaging modality (CT or MRI) between 2005 and 2017 were included. Patient ages ranged from 28.2 years to 74.6 years (mean age 55.7 years; SD ± 13.0 years). CEUS of 22 patients was correlated with a standard imaging modality, CT (15 out of 22) or MRI (7 out of 22), serving as gold standard.

Results and discussion: CEUS showed a specificity of 85.7%, a sensitivity of 94.4%, a positive predictive value (PPV) of 80%, and a negative predictive value (NPV) of 100%.

Conclusion: CEUS is an eligible method to help characterizing suspected renal malignancies in renal transplant patients compared to the well-established imaging modalities CT and MRI. As an imaging modality with no nephrotoxic effects CEUS can be used repeatedly even in patients with limited renal function.

Responsible Author: Dra. Katharina Mueller-Peltzer
E-mail: katharina.muellerpeltzer@med.uni-muenchen.de

VASCULAR REJECTION IN RENAL TRANSPLANT: DIAGNOSTIC VALUE OF CONTRAST-ENHANCED ULTRASOUND (CEUS) COMPARED TO BIOPSY

Authors: MUELLER-PELTZER, K.; FIGUEIREDO, G.N.; RUEBENTHALER, J.; CLEVERT, D.A.

Institution: Department of Radiology, Ludwig-Maximilians-University of Munich - Grosshadern Campus

Brief description of the study purpose/Objectives: To analyse the sensitivity and specificity of contrast-enhanced ultrasound (CEUS) compared to biopsy as gold standard in diagnosing vascular rejection in renal transplant patients.

Material and methods: A total of 57 renal transplant recipients with poor renal allograft function with initial diagnostic imaging between 2006 and 2017 were included in the study. Clinical data and imaging studies were analysed retrospectively. The diagnostic accuracy of CEUS in diagnosing vascular rejection of the renal transplant was compared to renal biopsy as gold standard. Out of 57 patients 7 patients showed signs of vascular rejection in biopsy. In 6 of these 7 patients CEUS described irregularities in renal perfusion suspicious of vascular rejection.

Results and discussion: CEUS showed a sensitivity of 85.7%, a specificity of 100%, a positive predictive value (PPV) of 100%, and a negative predictive value (NPV) of 98.0%.

Conclusion: CEUS is a safe, non-nephrotoxic imaging modality for the initial imaging of renal transplant recipients with elevated kidney function parameters suspicious of vascular rejection. Compared to renal biopsy as gold standard CEUS shows a high specificity and PPV in detecting signs of vascular rejection. Since sub-types of vascular rejection with cellular and humoral components with greater risk for allograft loss have been described renal biopsy is inevitable in these cases.

Responsible Author: Dra. Katharina Mueller-Peltzer
E-mail: katharina.muellerpeltzer@med.uni-muenchen.de
PA.02.002
THE EFFICIENCY OF WEIGHTED DIFFUSION AND T2 SEQUENCES ON MULTIPARAMETRIC MAGNETIC RESONANCE IMAGING OF PROSTATE.
Authors: MOREIRA, L. D. S.; MELO, J. S. D.; BENTO, G. R.
Institution: CDB - CENTRO DE DIAGNÓSTICO BRASIL, SÃO PAULO-SP, BRASIL.
Introduction and objectives: Multiparametric magnetic resonance imaging (MP-MRI) of prostate has arisen as one of the fundamental tools for detection and staging of prostate cancer. With the possibility to provide morphologic and functional imaging through diffusion-weighted imaging (DWI), dynamic contrast-enhanced (DCE) and the prostate spectroscopy, such sequences are essentials as to study the biologic features of the tumor. The purpose of this study is to demonstrate the efficiency and the importance of DWI and the T2 sequences, without the use of contrast.
Methods: On this pictorial study, images of MP-MRI of prostate from our institution were selected for illustration, followed by literature review and scientific literature
Discussion: The proposal of the paper is to discuss the importance and efficiency of T2 weighted sequences and well-performed DWI. Nowadays, the protocol for MP-MRI of prostate is standardized due to recommendation of the European Society of Urogenital Radiology (ESUR), which states that it is of utmost importance the use of at least two functional techniques. And together with America College of Radiology (ACR) proposed a project of unification of the interpretation and reports of the findings on the images of multiparametric magnetic resonance imaging of the prostate, known as PI-RADS (Prostate Imaging - Reporting and System Date). On the study, the functional technique was the DWI, which studies the movements of molecules within the extracellular space, that is, when there are restricted movements in some region, it might indicate to the pathology. Prostate cancer generally shows restriction to DWI due to the increasing of malignant cells and the reduction of the extracellular space. The weighted sequences in T2 aim to evaluate the anatomy of the prostate, to evince abnormality inside of the gland, to evaluate possible invasion of the seminal glands, extraprostatic extension and even lymphatic ganglia.
Conclusion: Before the collected data, we concluded only these two sequences may bring a paramount accuracy to the study of the prostate and the possibility of performing a shorter Protocol. However, the non-use of contrast might not reveal some data from the test, but it has shown significant changes in the gland.
Responsible Author: TNL. Leandro da Silva Moreira
E-mail: leandromoreira2588@gmail.com

PA.02.006
THE CONTRIBUTION AND IMPACT OF BONE SCINTIGRAPHY IN PROSTATE CANCER: PICTORIAL ESSAY AND LITERATURE REVIEW
Authors: SOUSA, J.C.O.
Institution: Núcleo de Pesquisa Científica e Acadêmica de Radiologia (NPCAR)
Introduction and objectives: It is remarkable the contribution that nuclear medicine exams provide in oncology due to: high sensitivity; for providing biological information and enabling the anatomical and functional evaluation of the patient. Bone scintigraphy
Methods: Pictorial Essay and Literature Review conducted in the period from January 2017 to December (2017) in the databases of the Virtual Health Library (BVS), BIREME and Scientific Electronic Library Online (SCIELO). The sample for constitution of the theoretical context and the images for the execution of the pictorial test were acquired in the publications previously selected because they answered the objective of the research and because they had pertinent information about the bone scintigraphy in the CaP. There was no temporal clipping determination.
Discussion: Bone scintigraphy has become an important additional resource in PCA, providing detailed information on staging, follow-up and evaluation of patients' therapeutic response. According to the analyzed medical literature, the bone scintigraphy examination in CaPs is indicated in special situations as patients with PSA value> 20 ng / dl; (Gleason score> 7), bone pain and locally advanced disease and has a relevant role in: oncologic staging and reestablishment (mainly to check whether or not there is dissemination of the disease to other organs or organic structures), follow-up and evaluation of the therapeutic response of the patients, detection of multiple metastases in the skeleton. The PSA values that exert one of the most pertinent aspects for indication of
Conclusion: Bone scintigraphy has widely studied advantages over other imaging methods used in prostate cancer: functional images, painless, non-invasive nature, absence of allergic reaction to the radiotracer, and reduced radiation exposure related to other techniques of prostate cancer Image.

Responsible Author: Sra. Joyce Caroline Fonseca
E-mail: joycecarolinedeoliveira@hotmail.com

PA.02.007
CHALLENGING ADRENAL CASES
Institution: Hospital Israelita Albert Einstein

Introduction and objectives: Adrenal lesions are frequently found in several imaging exams and often represent a real diagnostic challenge for the radiologist, who often finds difficulty in establishing an adequate differential diagnosis. The present study aims to review the main epidemiological and imaging aspects that allow us to establish a more assertive differential diagnosis for various adrenal lesions, from their typical and atypical forms.

Methods: We selected several cases in our didactic file and prepared extensive literature review exploring the main characteristics of the various adrenal lesions.

Discussion: The different adrenal lesions may have a similar presentation in the various imaging methods: cysts and adenomas have the same sonographic aspect and attenuation at CT; paracoccidioidomycosis and metastasis of lung neoplasm associate adrenal and pulmonary lesions; adrenal hyperplasia and lymphoma may lead to diffuse and bilateral adrenal thickening. This study includes several cases of adrenal lesions, confronting similar presentations of different lesions and different and atypical presentations of the same lesions, highlighting the key points to establish an adequate differential diagnosis.

Conclusion: The encounter of adrenal lesions is routine in the daily practice of the radiologist, which makes of substantial importance that we know the main characteristics that allow us to narrow their differential diagnosis.

Responsible Author: Dr. Eduardo Kaiser Ururahy Nunes Fonseca
E-mail: edukaiser_unf@hotmail.com

PA.02.008
DEEP ENDOOMETRIOSIS DIAGNOSED THROUGH TRANVAGINAL ULTRASONOGRAPHY WITH INTESTINAL PREPARATION: PICTORIAL ESSAY
Authors: PIBER, L. S.; HABIB, V. V. F.; ALMEIDA, M. E. G. R.; GOMES, M. T. N. A.
Institution: A. C. Camargo Cancer Center, São Paulo, São Paulo, Brazil

Introduction and objectives: Deep endometriosis is a chronic destructive disease of the female reproductive system and is considered a common cause of infertility. It is characterized by the presence of endometrial tissue outside the uterine cavity, which can cause pain and infertility. The diagnosis of deep endometriosis is often challenging and requires a comprehensive approach to imaging and clinical evaluation.

Methods: A 38-year-old woman presented with chronic pelvic pain and infertility. Transvaginal ultrasound with intestinal preparation was performed to evaluate the pelvic structures.

Discussion: The use of transvaginal ultrasound with intestinal preparation allows for a more detailed visualization of the pelvic structures, improving the diagnosis of deep endometriosis. This case highlights the importance of a multidisciplinary approach involving radiologists, gynecologists, and obstetricians to accurately diagnose and manage deep endometriosis.

Conclusion: Deep endometriosis should be considered in the differential diagnosis of chronic pelvic pain and infertility. Ultrasound with intestinal preparation is a valuable tool in the evaluation of pelvic structures, aiding in the accurate diagnosis and management of this complex condition.

Responsible Author: Marcelina, São Paulo, São Paulo, Brazil
E-mail: marcelina.santillo@hotmail.com

48th Sao Paulo Radiological Meeting
Introduction and objectives: Endometriosis is characterized by the presence of endometrial tissue outside the uterine cavity. It affects about 10% of women of childbearing age and is associated with chronic pelvic pain and infertility. Currently, three different forms are considered: the ovary, the peritoneum and the deep. In the deep form, the main sites of involvement are: retrocervical region and uterosacral ligaments, rectosigmoid recess, vaginal, vesical and vesicouterine, right iliac fossa and abdominal wall. The aim of this study is to show in a didactic way the common and uncommon lesions found by transvaginal ultrasonography (TVUS) with intestinal preparation in endometriosis.

Methods: Retrospective selection of cases from the image file of a private Diagnostic Imaging Center. All scans were performed by an examiner with more than 5 years of experience in TVUS with intestinal preparation. The intestinal preparation was performed previously. The exams were performed on a Logiq S8 (GE) equipment. It was evaluated transvaginally with a transducer of 3-10 MHz, complemented with abdominal evaluation using a convex transducer of 1-6 MHz and the evaluation with pulsed color Doppler. This evaluation was performed by the technique described by Bazot et al. There was standardization of the evaluation of structures in the anterior compartment (vesicouterine recess, bladder and broad ligaments), posterior (retrocervical space, fundus sac, posterior vaginal fornix, uterosacral ligament, rectovaginal septum, rectum, sigmoid and rectosigmoid), abdominal wall and fossa right iliac (ileum and appendix). Finally, selected cases with ultrasonographic diagnosis of deep endometriosis were presented.

Discussion: Several imaging techniques have been used to diagnose endometriosis and to evaluate its extension at specific sites, such as the uterosacral ligaments, rectosigmoid, rectovaginal septal and bladder, with variable results. It is essential that clinicians be familiar with the lesions found in deep endometriosis to improve the accuracy of ultrasonography, since there is a long learning curve for this technique.

Conclusion: The TVUS with intestinal preparation is useful for the detection of deep endometriosis in the most frequent sites and it is also possible to characterize unusual lesions such as anterior compartment, intestinal wall, appendix and ileum.

Responsible Author: Dr. Leonardo de Souza Piber
E-mail: leonardopiber@yahoo.com.br

PA.02.012
RETROPERITONEAL FIBROSIS: WHAT RADIOLOGISTS MUST KNOW

Institution: PRÓTON DIAGNÓSTICOS - FUNDAÇÃO CENTRO MÉDICO DE CAMPINAS

Introduction and objectives: Retroperitoneal fibrosis (RF) is characterized by a fibrotic inflammatory reaction that normally affects the abdominal aorta and the iliac arteries and extends to the retroperitoneum, involving adjacent structures such as the ureters. The purpose of this pictorial essay is to demonstrate the importance of computed tomography (CT) and magnetic resonance imaging (MR) for the diagnosis of RF and its differentials.

Methods: Evaluation of five CT scans of our service and review of recent literature.

Discussion: The FR has an incidence of 1: 200,000, affects patients between 40 and 60 years old, with a preference for males (2: 1). About 70% of the cases are idiopathic, 8% are associated with malignancy, and the others are usually related to inflammatory disorders or medications. CT and MRI are the pillars of the noninvasive diagnosis of RF, useful in assessing its extent, associated complications, and therapeutic planning and follow-up. The differentiation between malignant and benign causes of RF is confirmed, most of the time, by biopsy, since there are no typical patterns established by the image to distinguish them.

Conclusion: It is imperative that the radiologist is familiar with the imaging manifestations that allow the diagnosis of RF, allowing adequate therapeutic planning and follow-up.

Responsible Author: Dra. Thais Barreiro
E-mail: thais.pgbarreiro@gmail.com
Ovarian disorders that cause hemorrhage, disorders related to adnexal tumors, disorders related to pelvic inflammatory disease and uterine causes including acute uterine bleeding,

**Conclusion:** Many gynecologic disorders that cause acute pelvic pain demonstrate characteristic CT findings. Therefore, CT is an important diagnostic tool in the assessment of female patients who present with pelvic pain. Familiarity with the spectrum of CT findings in these disorders will allow the radiologist to guide appropriate treatment of affected patients and may reduce or eliminate the need for further imaging evaluation.

**Responsible Author:** Dra. joana marangon machado
**E-mail:** joana2mi@yahoo.com.br

**PA.02.015**

**MISPLACED INTRAUTERINE DEVICES AND ITS Complications**

**Authors:** VARELA UBILLA, C; MALDONADO SCHOIJET, I; ROJAS ASTORGA, A; ORTIZ VEGA, J; ROJAS CORRIERE, F; ESTAY, C

**Institution:** Clinica Davila

**Introduction and objectives:** Intrauterine devices (IUDs) are a long-term, reversible, cheap, effective and relatively safe contraceptive method. These devices are widely used in patients that have contraindications for oral estrogen use contraceptives and its use has risen in most parts of the world. There are many types of devices that vary in form and composition. Its complications present usually in the short term after insertion and are mainly bleeding, pain and infection. Perforation and migration can also be observed as a cause of acute abdominal pain.

In this essay, we present different complications associated with IUDs use detected with MDCT.

**Methods:** We performed a search in our multicentric case database (2010-2017) and 10 cases were selected in whom a spectrum of complications of IUDs was diagnosed with MDCT.

**Discussion:** IUDs complications are exceedingly rare but could be life-threatening. Minor complications are asymptomatic (incidental finding on imaging examinations). Severe complications like perforation have an incidence of 0.1-0.2% and migration is as rare as 0.4-1% of the IUDs. Clinical spectrum includes peritonitis and sepsis, bowel obstruction and perforation, bladder stone formation and obstructive nephropathy. MDCT is the gold in the diagnose.

**Conclusion:** Severe complications are rare and include peritonitis, bowel obstruction and perforation, bladder stone formation and obstructive nephropathy. MDCT is the study of choice for the detection of IUDs complications.

**Responsible Author:** Dr. Alberto Rojas Astorga
**E-mail:** arojasastorga@gmail.com

**PA.02.017**

**MULTIPARAMETRIC MRI IN NON-USUAL PROSTATIC LESIONS: MUCH BEYOND ADENOCARCINOMA**

**Authors:** FONSECA, E.K.U.N.; NUNES, L.M.A.O; DUARTE-AMOEDO, C.; YAMAUCHI, F.I.; BARONI, R.H.

**Institution:** Hospital Israelita Albert Einstein

**Introduction and objectives:** Advances in the magnetic resonance imaging (MRI) of the prostate have led to an important increase in the detection capacity of adenocarcinoma, which today represents one of the main indications of this exam. Although this is one of the most frequently diagnosed diseases of the prostate, innumerable others can now be identified by the method, including other neoplasms (benign and malignant) and those of infectious/inflammatory nature. Although rare, many of them have distinctive imaging characteristics of adenocarcinoma and their recognition can directly influence the subsequent investigation and even help determine the final histopathological diagnosis. The objective of this study is to present the imaging appearance of less common prostate lesions identified by multiparametric MR and how to distinguish them from adenocarcinoma.

**Methods:** Pictorial essay, presenting cases of prostatic pathologies except adenocarcinoma identified by multiparametric MR performed at our service.

**Discussion:** Several other benign and malignant prostatic neoplasms can occur in the prostate other than adenocarcinoma, categorized according to the World Health Organization according to their cellular origin in: epithelial (eg ductal adenocarcinoma, urethelial carcinoma), neuroendocrine (eg tumor carcinoid, parangangioma), stromal (eg stromal tumor of uncertain malignant potential), mesenchymal (eg leiomyoma, sarcoma), hematolymphoid (eg lymphoma) and miscellaneous (including cystadenoma, germ cell tumor and melanoma). Prostate infections can lead to abscesses of pyogenic, tuberculous, or fungal origin. Finally, other miscellaneous idiopathic disorders include amyloidosis and various congenital cysts. A considerable overlap may exist in the clinical history and in the imaging findings, and biopsy is most often necessary for diagnostic confirmation. However, many of them have distinct imaging characteristics, which may allow the radiologist to recommend more appropriate behavior.

**Conclusion:** Although the diagnosis of adenocarcinoma represents one of the most common indications for performing MRI of the prostate, it is important that the radiologist considers other differential diagnoses, including rarer neoplasms as well as inflammatory/infectious conditions. Although biopsy is still necessary in most cases, some imaging features may alert the radiologist to some alternative diagnoses and redirect patient management.

**Responsible Author:** Dr. Eduardo Kaiser Ururahy Nunes Fonseca
**E-mail:** edukaiser_unif@hotmail.com

**PA.02.019**

**PROSTATE CANCER MANAGEMENT: A MULTIDISCIPLINARY PERSPECTIVE OF CURRENT TRENDS IN IMAGING TECHNIQUES.**


**Institution:** Hospital Sírio-Libanés

**Introduction and objectives:** Despite recent improvements in detection and treatment, prostate cancer (PC) continues to be the most common malignancy in men and remains a medical health problem. Imaging is becoming increasingly important in the assessment of PC, because through its report of anatomic, functional and molecular imaging aspects, it can help to select the most appropriate management approach. This essay presents a multidisciplinary perspective on the role of conventional and functional imaging methods in prostate cancer staging.

**Methods:** The authors will review the imaging options in prostate cancer based on cases from the institution, such as transrectal ultrasound (US), multiparametric-magnetic resonance imaging (mp-MRI), MR imaging–transrectal US fusion, computed tomography (CT), radionuclide bone scanning and combined positron emission tomography (PET)/CT with different tracers (ie, 18F-FDG and 68Ga-PSMA).
**Discussion:** The face of prostate cancer is changing: its incidence is increasing as routine screening becomes more common. On the other hand, earlier detection of prostate cancer has brought new challenges to clinical assessment and treatment strategies – challenges that are compounded by the variability in natural history of the disease within the population at risk. The thrust of cancer care in the new millennium is a risk-adjusted patient-specific therapy designed to maximize cancer control while minimizing the risks of complications. Prostate cancer requires accurate characterization and selection of the optimal therapeutic approach from a bewildering array of alternatives, since active surveillance until surgery. The aforementioned imaging modalities may aid to guide the best treatment selection.

**Conclusion:** Substantial progress has been made in the imaging of prostate cancer, mainly in MR imaging, mp-MRI and PET/CT. These advances are beginning to translate into more accurate image-guided therapies. It is hoped that these advances in imaging, and future advances in molecular imaging, will contribute to long-term improvements in morbidity from prostate cancer and patients’ quality of life, as well to decrease in mortality from prostate cancer.

**Responsible Author:** Dra. Ana Isabella de Oliveira
E-mail: anaisabelladeoliveira50770@gmail.com

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**SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)**

**PD.02.008**

**PRIMARY RETROPERITONEAL LESIONS: WHAT SHOULD BE CONSIDERED IN THE DIFFERENTIAL DIAGNOSIS?**

**Authors:** PAULA, V.; SOUZA, P.; CARNEIRO, H.; OLIVEIRA, B.; TAVARES, C.; HORVAT, N.; VIANA, P.

**Institution:** Instituto de Radiologia do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo

**Introduction and objectives:** Retroperitoneum may be a site of lesions in several entities and the differential diagnosis of can be a challenge for the radiologist. The correlation with clinical and epidemiological data is essential, since among the retroperitoneal masses of tumor origin, 80% are malignant. This pictorial essay aims to review the anatomy of retroperitoneum and illustrate frequent and unusual retroperitoneal lesions, including the discussion of its most important characteristics for the differential diagnosis and orientation for its radiological report.

**Methods:** Illustrated review of retroperitoneal anatomy; description of tools to identify the peritoneal or retroperitoneal localization of radiological findings; presentation and discussion of clinical cases involving primary retroperitoneal masses of our radiology department, illustrated according to their main characteristics: neoplastic or non-neoplastic nature; density; retroperitoneal space where the finding is located; secondary retroperitoneal masses that may mimic primary lesions.

**Discussion:** This pictorial essay used a systematic evaluation of the retroperitoneal lesions associated with correlation with clinical data and epidemiology to establish the narrowing of the differential diagnosis. Aspects such as understanding the anatomy of retroperitoneal spaces, characterizing findings as peritoneal or retroperitoneal, distinguishing primary lesions from secondary ones, as well as neoplastic or non-neoplastic origin should be part of the routine in the study of retroperitoneal masses.

**Conclusion:** The interpretation of the primary retroperitoneal lesions may be better guided when part of the knowledge of the local anatomy, of the correct location by compartment of the findings, besides the study of its contents, relation with adjacent structures and correlation with clinical and epidemiological data. That sequence helps in understanding the findings, in the search for warning signs of malignancy, and guides therapeutic planning.

**Responsible Author:** Sr. Vitor Tavares Paula
E-mail: vitortav@gmail.com

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**PD.02.017**

**MAGNETIC RESONANCE IMAGING ASPECTS IN PROSTATIC LESIONS ACCORDING TO PI-RADS V2: PICTORIAL ESSAY**

**Authors:** SOUSA, R.M.G.; HOLANDA, V.C.L.; MACHADO, C.C.; DUARTE, A.B.G.; ALENCAR, N.R.; LOPES, A.K.B.F.

**Institution:** HOSPITAL DAS CLÍNICAS DA UNIVERSIDADE FEDERAL DE PERNAMBUCO (HC/UFPE)

**Introduction and objectives:** Currently, prostate cancer is the second most frequent neoplasm in men in the world. Multiparametric Magnetic Resonance Imaging of the Prostate (mpMRI), with the incorporation of the anatomical and functional study, has been validated as a fundamental diagnostic imaging method for the detection and characterization of prostate tumors with greater accuracy, thus it is possible to stratify the risk of cancer and guide the therapy. This pictorial essay aims to present the main alterations in the mpMRI images, using PI-RADS v2 in the diagnosis of prostatic neoplasia.

**Methods:** We selected mpMRI exams obtained in the image archive of our services from patients with suspected neoplasm of this gland in the screening exams.

**Discussion:** The use of the Prostate Imaging Reporting and Data System – Version 2, PI-RADS v2, facilitates the recognition and description of the prostatic lesions, so that a clear and accessible scientific language is disseminated in order to predict risk of cancer and select the patients to whom interventional procedures are indicated. Images are obtained using a technique including T2 weighted images, a dynamic contrast study (DCE), and diffusion (DWI). The concept of a “dominant sequence” is formally introduced. DWI is the key sequence for the peripheral zone (PZ), and T2 predominates in the transitional zone (TZ). Essentially the dominant sequence score is the final score for 1, 2, 4, or 5 and for scores of 3, the secondary sequence (DCE in PZ and DWI in TZ) may change the score from 3 to 4.

**Conclusion:** Multiparametric Magnetic Resonance Imaging of the Prostate has gained prominence as a method of high accuracy in the detection of prostate cancer. It is important to know the images acquisition protocol, as well as understanding the main imaging findings, in order to increase the detection of suspicious lesions and to improve the characterization of prostate cancer.

**Responsible Author:** Dra. ANA KARINA BRIZENO FERREIRA LOPES
E-mail: karina.brizeno@gmail.com

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**PD.02.024**

**RETAINED PRODUCTS OF CONCEPTION AND ACQUIRED UTERINE ARTERIOVENOUS FISTULA: NARROWING THE DIFFERENTIAL DIAGNOSIS WITH A PELVIC MAGNETIC RESONANCE IMAGING.**
HEREDITARY RENAL CANCER SYNDROMES: A COMPREHENSIVE REVIEW OF GENETICS, CLINICAL FEATURES, AND RADIOLOGICAL MANIFESTATIONS

Authors: AUTORES: MIRANDA, J. A.; HORVAT N.; OLIVEIRA, A. I.; SCHOEN, K.; LEITE, C. C.; CERRI, G. G.; VIANA, P. C. C.

Institution: Hospital Sírio-Libanês

Introduction and objectives: Renal cell cancer accounts for 80-85% of all primary renal neoplasms. In the United States, approximately 64,000 new cases occur and almost 14,000 deaths due to renal cell cancer per year. Environmental risk factors are already known; however, there is a growing recognition that heredity plays a greater role than previously thought. Approximately 4% of renal cell cancers are hereditary. Advances in genomics and the widespread use of modern imaging techniques have contributed to the knowledge of hereditary cancer syndromes.

Methods: We are going to illustrate, in a pictorial essay based on cases, the various types of hereditary renal cell cancer syndromes using images from our institution including ultrasound, computed tomography, and magnetic resonance imaging, as well as some histopathology images.

Discussion: Hereditary cancers of renal cancers can cause multiple and bilateral renal tumors that occur at an earlier age than sporadic renal cancers. Radiology plays an important role in the diagnosis and management of these patients.

Conclusions: We are going to present the following hereditary renal cancer syndromes: von Hippel-Lindau disease; translocation of chromosome 3; tuberous sclerosis; hereditary papillary renal cancer; Birt-Hogg-Dubé syndrome; hereditary leiomyomatosis and renal cell carcinoma; familial renal oncocytoma; hereditary non-polyposis colon cancer and medullary carcinoma of the kidney.

PD.02.034

DIAGNOSTIC IMAGING IN UROLITHIASIS - AN UPDATE - HOW THE RADIOLOGIST MAY HELP


Institution: Hospital Barra D’Or - Rede D’Or São Luiz; IDOR - Instituto de Pesquisa D’Or

Introduction and objectives: Urolithiasis is a common pathology, that may be recurrent, and generates high cost to the Healthcare System. The radiologist has an important role in the diagnosis and in orienting the management of these patients. This poster’s objective is to review the consensus and literature on the subject to optimize the radiologist’s participation on these cases.

Methods: We present various cases of urolithiasis, illustrating its’ presentations, possible complications, which protocols may be used, and what kind of information may be useful for the patient’s management by the urologist, with a stablished consensus and literature review.

Discussion: Imaging examinations, from plain x-ray to ultrasound and computed tomography (CT), and most recently double energy CT, are vital on the diagnosis and characterization of urolithiasis. The radiologist must know which exams are indicated in which cases, which protocols may be used, including low dose ones, especially on patients with recurrent urolithiasis, and what kind of information may help in this patient’s management. Calculi size, density and composition, the distance to the skin surface, among other factors are useful for the right treatment to be chosen.

Conclusion: In urolithiasis, the radiologist must know which imaging findings may be useful and how to report them, and what are the current treatment options, to fulfill his or her role in these patient’s management.

PD.02.036

MR IMAGING IN THE EVALUATION OF OVARIAN MASSES: A PRACTICAL APPROACH.


Institution: Hospital Sírio-Libanês

Introduction and objectives: Incidentally detected adnexal...
masses are common, posing a challenging diagnostic problem because imaging features of benign and malignant may overlap. Magnetic resonance imaging (MRI) provides useful information for characterization of various ovarian masses, based on morphologic appearance, signal intensity characteristics on T1 and T2-weighted images, contrast enhancement and assessment for restricted diffusion. Review the key characteristics helps narrow the differential diagnosis.

Methods: The authors will provide an MRI guided strategy to the differential diagnosis of ovarian masses based on cases from the institution. The key characteristics that may be helpful in the diagnosis will be reviewed in this presentation.

Discussion: Finding an ovarian mass is common in everyday practice in both pre- and postmenopausal women. It constitutes the leading indication for gynecologic surgery, the vast majority being benign. In general, the gross pathologic appearance of a mass most closely correlates with the imaging appearance, but the superior contrast sensitivity of MR enables depiction of both gross and microscopic tissue constituents. Contemporary MR imaging has the capacity to characterize and risk stratify ovarian masses. Radiologists should be aware of the range of ovarian cancer histologies that play an important role in clinical decision making and patient management.

Conclusion: MR imaging is a useful modality in differentiating benign and malignant ovarian tumors, and a specific diagnosis can be made for certain pathologic entities. Morphologic appearance, signal intensity characteristics, and adequate use of intravenous contrast material provide valuable information to access the correct diagnosis.

Responsible Author: Dra. Ana Isabella de Oliveira
E-mail: anaisaabelladoleiva50770@gmail.com

PD.02.042
DIFFERENTIAL DIAGNOSES OF SOLID RENAL LESIONS: A RADIOLOGIST’S GUIDE
Institution: Hospital Alvorada Moema, São Paulo/SP, Brasil.
Introduction and objectives: With the increase of axial imaging methods, solid renal lesions are identified with a higher frequency in daily medical practice. Thus, its precise characterization is fundamental within the wide variety of imaging resources, making it necessary to recognize the overlapping characteristics and to identify reliable criteria to categorize them, constituting a true radiological challenge. This study aims to demonstrate the radiological aspects of solid renal lesions and their differential diagnoses.

Methods: Literature review and retrospective analysis of patients with renal solid lesions, obtained by ultrasonography (US), multidetector computed tomography (MDCT) and magnetic resonance imaging (MRI), from experience and/or archival of the authors. The imaging characteristics will be demonstrated by means of anatomical cuts, multiplanar reconstructions, volume rendering and pictorial composition schemes.

Discussion: Solid renal lesions characterization through the MDCT and MRI is direct and precise. However, there are some cases in which the correct diagnosis is not made and the perception of possible pitfalls should help to avoid errors in the diagnosis. The precise diagnosis of a renal solid lesion depends on several factors, including the clinical history, the nature of the imaging findings, the radiologist’s experience, the quality of the examination and the exclusion of conditions that can mimic renal neoplasia. The main question to be answered is whether the lesion is indicative of surgery, clinical conduct or follow-up. At imaging methods, the tissue characterization is determined by the content of the lesion, as well as the location/extension, adjacent tissues, multiplicity of lesions and enhancement after intravenous contrast medium. Among the main renal solid lesions, we can categorize them into neoplastic (primary or secondary), inflammatory and infectious, traumatic, congenital and anatomical variants.

Conclusion: The characterization of solid renal lesions is fundamental in the therapeutic approach and survival of the patients. We hope that after reviewing this study, undergraduates, residents, radiologists and other experts will review and enrich their knowledge on the subject.

Responsible Author: Dr. Lucas de Pâdua Gomes de Farias
E-mail: lucasdpadua@hotmail.com

PD.02.048
GENITAL TUBERCULOSIS IN HISTEROALPINGOGRAPHY
Authors: SOUZA, L.P., NAVARRO, C.L.
Institution: BP MEDICINA DIAGNÓSTICA - Hospital Beneficência Portuguesa de São Paulo
Introduction and objectives: Genital tuberculosis (TGB) is a predominant disease in young women, with 80-90% of patients primarily diagnosed between the ages of 20 and 40. TGB is difficult to diagnose because its symptoms are nonspecific or nonexistent. Uterine tubes are the first focus in 90-100% of patients, followed by the uterus, ovaries, cervix and vagina. The main manifestation in young women is infertility (44%).

Hysterosalpingography (HSG) is the gold standard of imaging in the evaluation of the internal architecture of the female genital tract, especially of the fallopian tubes, and were the most frequent aspects of TGB can be demonstrated.

Methods: A review of the literature on the different forms of presentation of TGB in HSG exams performed in our routine was carried out.

Discussion: The most frequent aspects of HSG in tubal tuberculosis are diverticular appearance images of the isthmic segment (with differential diagnosis of salpingitis isthmica nodosa and tubal endometriosis), alternating stenosis and dilatation of the ampullary segment, the main ones being: focal dilation of the portion ("golf club appearance") or narrowing and obliteration of its extremity ("pipestem appearance") and dilatations and stenoses in the ampullary segment ("rosary tube"), calcifications in the tubal pathway, and the pathognomonic finding of tubal tuberculosis - After a large, rigid and often irregular tubal path, a clover is drawn ("Maltese Cross Image"). The diagnosis of TGB is histologically confirmed by typical granuloma and culture of biopsies by endometrial laparoscopy or curettage. Laparoscopy is essential for the diagnosis of TGB, but negative endometrial biopsy does not exclude the pathology, since tubal tuberculosis spreads to the endometrium in half of the cases. In tuberculous endometritis there may be passage of the contrast into myometrial and peritoneal vessels, as well as to the lymphatic system, important synchiae with alterations in the morphology of the uterine cavity, usually by the asymmetry of the uterine horns (cavity with "glove’s finger appearance").

Conclusion: Hysterosalpingography continues to be an initial and valuable diagnostic procedure to evaluate infertile women for the various aspects of tubal and uterine involvement in this pathology, which are reliable indicators for the diagnosis of TGB.

Responsible Author: Dra. Livia Passarelli de Souza
E-mail: lilipsouza@gmail.com
LITERATURE REVIEW

SCIENTIFIC PAPERS - POSTERS (PA)

PA.02.010

ERDHEIM-CHESTER DISEASE: A "HAIRY" HISTIOCYTOSIS


Institution: PRÓTON DIAGNÓSTICOS - FUNDAÇÃO CENTRO MÉDICO DE CAMPINAS

Brief description(s) of the purpose(s) of the Literature Review: This review aims to present the main sites of involvement of Erdheim-Chester Disease (ECD) with their respective radiological findings.

Description(s) of disease(s), method(s) and/or technique(s): ECD is a rare histiocytosis of non-Langerhans cells with unknown origin that presents systemic manifestations. Articles from the last ten years have been analyzed and, along with a recently diagnosed case in the hospital, the main imaging findings have been demonstrated.

Discussion: ECD can expand throughout the aorta, retroperitoneum and mediastinum, leading to serious complications such as heart failure, tamponade and renal failure. Imaging exams are essential in preventing complications that are the major causes of death. Magnetic resonance imaging is able to detect cardiac manifestations, which in the literature occur more frequently in the right heart. The aorta, if affected, presents fibrosis throughout its circumference, giving it the appearance of a "coated aorta". Involvement of the central nervous system should be promptly evaluated with neuroimaging after diagnosis, as it is a major prognostic factor and also the main predictor of death. There is a variety of findings in the literature and they range from a simple headache to pyramidal syndromes. One of the highly suggestive signs of the disease, and that should raise the diagnostic hypothesis, is the "hairy kidney" aspect, detected in the Computed Tomography in approximately 50% of the cases. This appearance is due to the symmetrical and bilateral infiltration of the perirenal space, which rarely leads to symptoms.

Conclusion: The number of new cases identified has increased over the past ten years due to greater knowledge of radiologists regarding the disease. In the cases already described in the literature, it is possible to see how important the image is for clinical suspicion, since in most cases the patient presents asymptomatic or nonspecific symptoms.

Responsible Author: Dra. Thais Barreiro
E-mail: thais.pgbarreiro@gmail.com

SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)

PD.02.030

GRANULOMATOUS PROSTATITIS - IMAGING FINDINGS IN PROSTATE MULTIPARAMETRIC MAGNETIC RESONANCE

Authors: GUIMARAES, C.T.S; RIBEIRO, B.J.; B.;MORITA, T.O.;PINTO, G.A.D.H.;VELLONI, F.; BLASBALG, R.

Institution: HOSPITAL GERAL ROBERTO SANTOS

Brief description of the study purpose: The leiomyoma cotyledone, desiccant or Sternberg's tumor has image characteristics that simulate malignant lesion, but is a clinical neoplasm and pathologically benign. The most common treatment for this type of tumor has been hysterectomy influenced by its macroscopic aspect. The knowledge of the image patterns of this lesion can lead to an early diagnosis of the pathology and prevent unnecessary procedures.

CASE REPORT

SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)

PD.02.001

STERNBERG TUMOR: A RARE TYPE OF LEIOMIOMA

Authors: TENÓRIO, L.P.; PIRES, M.S.S.; ANDRADE, M.Q.; ARAUJO, M.N.;

Institution: HOSPITAL GERAL ROBERTO SANTOS

Brief description of the purpose(s) of the Literature Review: The purpose of this presentation is to describe the imaging findings of the multiparametric magnetic resonance in patients with granulomatous prostatitis (GP) and discuss differential diagnoses.

Description(s) of disease(s), method(s) and/or technique(s): GP is a chronic inflammatory process that can be caused by infectious, systemic granulomatous and iatrogenic diseases (biopsy or post-BCG intravesical) or even without definite specific cause, the latter referred to as nonspecific PG. Multiparametric magnetic resonance imaging (mpMRI) of the prostate has been widely used to classify suspected prostate cancer lesions. When associated with transrectal ultrasound guided biopsy, it has shown improvement in the detection and localization of clinically significant cancer. However, PG can mimic cancer in both RMmp and clinically, since it may present with elevated PSA without associated acute inflammatory symptoms, thus representing a diagnostic challenge.

Discussion: The most common imaging findings on mpMRI are focal lesions with low signal on T2-weighted sequences (T2W), diffusion (DWI) restriction, with low values on ADC map, and enhancement on perfusion (DCE). Histologically, GP presents extracellular inflammatory fluid surrounding prostatic cells, as well as stromal infiltration of chronic inflammatory cells such as lymphocytes, plasma cells and macrophages. As a result, there is tissue destruction with weakening in the diffusion capacity of water molecules, and therefore presenting low ADC values. In addition, the reduction of water content results in low signal on T2W. While the enhancement on DCE results of increased blood flow through vascular proliferation in the connective tissue.

Conclusion: It is important that the radiologist considers the differential diagnosis of GP when interpreting MRI, so the appropriate treatment is used and unnecessary invasive procedures are avoided.

Responsible Author: Dra. CASSIA TAMURA STTEFANO GUIMARAES
E-mail: CASSIATAMURA@HOTMAIL.COM
Discussion and diagnosis, or vice versa: Leiomymoma cotyledonide, desiccant or Sternberg tumor is characterized by the presence of numerous bulbous protrusions on the uterus, resembling cotyledons of a placenta or with the appearance of grape clusters, with reddish coloration and exophytic which can extend for adjacent tissues and pelvic cavity (may involve large ligaments, retroperitoneum and surfaces of uterine cervix and bladder) without, however, invading them. The age of patients with this lesion varies between 23 to 60 years, with an average of 40 years and most cases occur in reproductive age and tends to regress in post menopause. Most patients are asymptomatic and may present abnormal uterine bleeding. The tumor size varies normally between 10 to 41 cm. Histologically the muscle fascicles appear disorganized but there is no evidence of clotting necrosis, elevated mitotic activity, cytological atypias or intravascular growth.

Conclusion: The leiomyoma cotyledonide or desiccant is a rare smooth muscle benign tumor with variation in the growth pattern. It usually presents itself as a subserous origin mass with exophytic multilobulated growth, similar to the placental tissue with permissive pattern without infiltration of adjacent structures. Its macroscopic presentation and in the imaging exams is alarming and often mistaken for malignant tumor. Therefore, is important an early diagnosis by imaging methods to avoid more invasive surgical procedures.

Responsible Author: Dra. Leila Pereira Tenório
E-mail: leilatenorio@hotmail.com

PD.02.005
POST-TRAUMATIC RENAL ARTERY THROMBOSIS
Authors: ROCHA, G. M. E.; DAN, V. J. L.; MARIN, M. S.; MAKSOUED, F.; CORDAZZI, K. R. S.; ZAMBON, L. A. D.
Institution: Santa Casa de Votuporanga / SP
Brief description of the study purpose: The present paper reports a case of post-traumatic renal artery thrombosis (PTRAT) in a patient that has underwent blunt abdominal trauma (BAT). This report is justified because it is an uncommon complication, with an estimated incidence about 0.1% of the cases of BAT.
Clinical history: A 43-year-old male patient reported a history of falling while performing a bull riding 2 days ago, followed by trampling at left thoracoabdominal transition. Since then, he complained of intermittent abdominal pain in the left hypochondrium and flank region, associated with vomiting episodes. He has denied other associated complaints. At physical examination, the abdomen was painful to deep palpation at the lower level of the abdomen and left hypochondrium and flank region; with no signs of peritoneal irritation. Positive Giordano sign was observed on the left side. Ultrasonography, by the Doppler study, has not identified flow in left renal artery and kidney. These findings were suggestive of renal artery thrombosis. Contrast-enhanced computed tomography (CT) of abdomen was performed, showing irregularities and non-opacification by contrast of the left renal artery from its proximal third, associated to the diffuse absence of enhancement of the left renal parenchyma. The patient was referred to the urology service, who opted for a left nephrectomy. After four days the patient was discharged.

Discussion and diagnosis, or vice versa: The diagnosis of PTRAT is complicated by non-specific clinical and laboratory manifestations. The gold standard for its diagnosis is angiography, but CT is the examination of choice for diagnosis and follow-up of this condition. The treatment of PTRAT is quite controversial. While a consensus is not reached, the main determining factor for the choice of the therapeutic option has been the time of injury. The present paper reports a case of post-traumatic renal artery thrombosis (PTRAT) in a patient that has underwent blunt abdominal trauma (BAT). This report is justified because it is an uncommon complication, with an estimated incidence about 0.1% of the cases of BAT. The treatment of PTRAT is quite controversial. While a consensus is not reached, the main determining factor for the choice of the therapeutic option has been the time of injury.
Giant Adrenal Myelolipoma: Report of a Case

**Authors:** VIOLATO, M.L.; RAMANAUASKAS, C.A.; COTA, S.T.S.; FONZAR, O.A.

**Institution:** A.C. Camargo Cancer Center, São Paulo, São Paulo, Brasil Advanced Imaging Associates, Fremont, California, USA Angio Vascular Medicine Consulting Rooms, Belgrade, Serbia ANGIORAD, Recife, Pernambuco, Brazil APORFE, Ambato, Tungurahua, Ecuador APORFE, Ba-bahoyo, Los Ríos, Ecuador APORFE, Guayaquil, Guayas, Ecuador Asian Medical Center, Seoul, Republic of Korea Association Hospital Beneficente São Vicente de Paulo, Passo Fundo, Rio Grande do Sul, Brasil Axial Centro de Imagem Diagnóstico SC Ltda., Belo Horizonte, Minas Gerais, Brasil BAYERO University, Kano, Nigeria Beneficência Portuguesa de São Paulo, São Paulo, Brasil Betytepe Military Hospital, Ankara, Turkey Bio Master Medicina Diagnóstica, São Paulo, São Paulo, Brasil Brazil-Boston University School of Medicine, Boston, Massachusetts, EUA Breast Center, National Taiwan University Hospital, Taipei, Taiwan Buddha Tzu Chi General Hospital, Taipei Branch, Taiwan-Busan Paik Hospital Inje University, Busan, South Korea Cardiology Research Complex, Moscow, Russia Casa de Saúde Santa Marcelina, São Paulo, São Paulo, Brasil Casa de Saúde São José, Rio de Janeiro, Rio de Janeiro, Brasil CBB - Centro de Diagnósticos Brasí, São Paulo, São Paulo, Brasil CIEDE Diagnóstico por Imagem, Campinas, São Paulo, Brasil CICDI - Centro de Diagnóstico por Imagem, Vitória, Espírito Santo, Brazil CDPI - Clínica de Diagnóstico por Imagem, Rio de Janeiro, Rio de Janeiro, Brasil CEBRAMEN - Centro Brasileiro de Medicina Nuclear e Imagem Molecular, Goiânia, Goiás, Brasil CEDIMA - Centro de Estudos de Diagnóstico por Imagem Professor Waldir Maymon, Presidente Prudente, São Paulo, Brasil CEDIMAGEM, Juiz de Fora, Minas Gerais, Brasil CEDIMEN - Centro de Diagnóstico por Imagem Professor Waldir Maymon, Presidente Prudente, São Paulo, Brasil CEDIRIP - Central de Diagnóstico Ribeirão Preto, Ribeirão Preto, São Paulo, Brasil CEESUR, Ciudad Autónoma de Buenos Aires, Argentina Centro de Atenção Integral à Saúde da Mulher-CAISIM, Universidade Estadual de Campinas-UNICAMP, Campinas, São Paulo, Brasil Centro de Ciências das Imagens e Física Médica, Seção de Medicina Nuclear - Hospital das Clínicas de Ribeirão Preto - USP, Ribeirão Preto, São Paulo, Brasil Centro de Desenvolvimento da Tecnologia Nuclear, Belo Horizonte, Minas Gerais, Brasil Centro de Diagnóstico Dr. Enrique Rossi, Buenos Aires, Argentina Centro de Diagnóstico Schmillevitch, São Paulo, São Paulo, Brasil Centro de Ensino e Pesquisa do Hospital Pro Cardiaco/Procep, Rio de Janeiro, Rio de Janeiro, Brasil Centro de Estudos Medicina Feira de Santana, Feira de Santana, Bahia, Brasil Centro de Medicina Intervencionista, Hospital Israelita Albert Einstein, São Paulo, São Paulo, Brasil Centro de Medicina Nuclear da Guanabara, Rio de Janeiro, Rio de Janeiro, Brasil Centro de Medicina Nuclear do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, São Paulo, Brasil Centro de Medicina Nuclear do Instituto de Radiologia do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, São Paulo, Brasil Centro de Radioterapia Rio de Janeiro, Duque de Caxias, Rio de Janeiro, Brasil Centro de Reabilitação e Readaptação Dr. Henrique Santillo, Goiânia, Goiás, Brasil Centro de Tecnologia da Informação Renato Archer, Campinas, São Paulo, Brasil Centro Diagnóstico Radioterapia, Campinas, São Paulo, Brasil Centro Diagnóstico Lucilo Ávila Jr, Recife, Pernambuco, Brasil Centro Educacional ETIP, São Paulo, São Paulo, Brasil Centro Estadual de Diagnóstico por Imagem (CEDI/SES-RJ), Rio de Janeiro, Rio de Janeiro, Brasil Centro Infantil Boldrini, Campinas, São Paulo, Brasil Centro Médico Diagnósticos, Sorocaba, São Paulo, Brasil Centro Radiológico Campinas - Hospital Vera Cruz, Campinas, São Paulo, Brasil Centro Radiológico Campinas - Unifesp, Campinas, São Paulo, Brasil Centro Universitário Estácio-FIB, Salvador, Bahia, Brasil Centro Universitário Sant’Anna, São Paulo, São Paulo, Brasil Centro Universitário São Camilo, São Paulo, São Paulo, Brasil Centro Universitario Diagnósticos por Imagem, Campinas, São Paulo, Brasil CEPEM - Centro de Estudos e Pesquisas da Mulher, Rio de Janeiro, Rio de Janeiro, Brasil CETAC - Diagnóstico por Imagem, Curitiba, Paraná, Brasil CETRUS, São Paulo, São Paulo, Brasil CIEU Diagnósticos, Belo Horizonte, Minas Gerais, Brasil CEUSPE - Centro Especializado do em Ultrassonografia, São Luis, Maranhão, Brasil CHUM: GUMI Medical Center, CHA University, Gumi, Republic of Korea Chang Gung University College of Medicine, Kaohsiung, Taiwan Charité - Universitätmedizin Berlin, Berlin, Germany Cheng Hsin General Hospital, Taipei City, Taiwan Children’s Hospital of Chongqing Medical University, Chongqing, China Children’s Memorial Health Institute, Institute of Mother and Child, Warsaw, Poland Chinese PLA General Hospital, Beijing, Neijing, China CHS, Sorocaba, São Paulo, Brasil Chunchnam National University Hospital, Daejeon, Republic of Korea Cirurgia Vascular Hospital Universitário Clementino Fraga Filho - UFRJ, Rio de Janeiro, Rio de Janeiro, Brasil CLIMAG, Timóteo, Minas Gerais, Brasil CLI R CENTRE Diagnóstico por Imagem, Vitória, Espírito Santo, Brazil - Centro Brasileiro de Medicina Nuclear e Imagem Molecular, Goiânia, Goiás, Brasil CEDIMA - Centro de Estudos de Diagnóstico por Imagem Professor Waldir Maymon, Presidente Prudente, São Paulo, Brasil CEDIMAGEM, Juiz de Fora, Minas Gerais, Brasil CEDIMEN - Centro de Diagnóstico por Imagem Professor Waldir Maymon, Presidente Prudente, São Paulo, Brasil - CEDIRIP - Central de Diagnóstico Ribeirão Preto, Ribeirão Preto, São Paulo, Brasil - CEESUR, Ciudad Autónoma de Buenos Aires, Argentina Centro de Atenção Integral à Saúde da Mulher-CAISIM, Universidade Estadual de Campinas-UNICAMP, Campinas, São Paulo, Brasil Centro de Ciências das Imagens e Física Médica, Seção de Medicina Nuclear - Hospital das Clínicas de Ribeirão Preto - USP, Ribeirão Preto, São Paulo, Brasil Centro de Desenvolvimento da Tecnologia Nuclear, Belo Horizonte, Minas Gerais, Brasil Centro de Diagnóstico Dr. Enrique Rossi, Buenos Aires, Argentina Centro de Diagnóstico Schmillevitch, São Paulo, São Paulo, Brasil Centro de Ensino e Pesquisa do Hospital Pro Cardiaco/Procep, Rio de Janeiro, Rio de Janeiro, Brasil Centro de Estudos Medicina Feira de Santana, Feira de Santana, Bahia, Brasil Centro de Medicina Intervencionista, Hospital Israelita Albert Einstein, São Paulo, São Paulo, Brasil Centro de Medicina Nuclear da Guanabara, Rio de Janeiro, Rio de Janeiro, Brasil Centro de Medicina Nuclear do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, São Paulo, Brasil Centro de Medicina Nuclear do Instituto de Radiologia do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, São Paulo, Brasil Centro de Radioterapia Rio de Janeiro, Duque de Caxias, Rio de Janeiro, Brasil Centro de Reabilitação e Readaptação Dr. Henrique Santillo, Goiânia, Goiás, Brasil Centro de Tecnologia da Informação Renato Archer, Campinas, São Paulo, Brasil Centro Diagnóstico Radioterapia, Campinas, São Paulo, Brasil Centro Diagnóstico Lucilo Ávila Jr, Recife, Pernambuco, Brasil Centro Educacional ETIP, São Paulo, São Paulo, Brasil Centro Estadual de Diagnóstico por Imagem (CEDI/SES-RJ), Rio de Janeiro, Rio de Janeiro, Brasil Centro Infantil Boldrini, Campinas, São Paulo, Brasil Centro Médico Diagnósticos, Sorocaba, São Paulo, Brasil Centro Radiológico Campinas - Hospital Vera Cruz, Campinas, São Paulo, Brasil Centro Radiológico Campinas - Unifesp, Campinas, São Paulo, Brasil Centro Universitário Estácio-FIB, Salvador, Bahia, Brasil Centro Universitário Sant’Anna, São Paulo, São Paulo, Brasil Centro Universitário São Camilo, São Paulo, São Paulo, Brasil Centro Universitario Diagnósticos por Imagem, Campinas, São Paulo, Brasil CETAC - Diagnóstico por Imagem, Curitiba, Paraná, Brasil CETRUS, São Paulo, São Paulo, Brasil CIEU Diagnósticos, Belo Horizonte, Minas Gerais, Brasil CEUSPE - Centro Especializado do em Ultrassonografia, São Luis, Maranhão, Brasil CHUM: GUMI Medical Center, CHA University, Gumi, Republic of Korea Chang Gung University College of Medicine, Kaohsiung, Taiwan Charité - Universitätmedizin Berlin, Berlin, Germany Cheng Hsin General Hospital, Taipei City, Taiwan Children’s Hospital of Chongqing Medical University, Chongqing, China Children’s Memorial Health Institute, Institute of Mother and Child, Warsaw, Poland Chinese PLA General Hospital, Beijing, Neijing, China CHS, Sorocaba, São Paulo, Brasil Chunchnam National University Hospital, Daejeon, Republic of Korea Cirurgia Vascular Hospital Universitário Clementino Fraga Filho - UFRJ, Rio de Janeiro, Rio de Janeiro, Brasil CLIMAG, Timóteo, Minas Gerais, Brasil CLI R CENTRE Diagnóstico por Imagem, Vitória, Espírito Santo, Brazil - Centro Brasileiro de Medicina Nuclear e Imagem Molecular, Goiânia, Goiás, Brasil CEDIMA - Centro de Estudos de Diagnóstico por Imagem Professor Waldir Maymon, Presidente Prudente, São Paulo, Brasil CEDIMAGEM, Juiz de Fora, Minas Gerais, Brasil CEDIMEN - Centro de Diagnóstico por Imagem Professor Waldir Maymon, Presidente Prudente, São Paulo, Brasil - CEDIRIP - Central de Diagnóstico Ribeirão Preto, Ribeirão Preto, São Paulo, Brasil CEESUR, Ciudad Autónoma de Buenos Aires, Argentina Centro de Atenção Integral à Saúde da Mulher-CAISIM, Universidade Estadual de Campinas-UNICAMP, Campinas, São Paulo, Brasil Centro de Ciências das Imagens e Física Médica, Seção de Medicina Nuclear - Hospital das Clínicas de Ribeirão Preto - USP, Ribeirão Preto, São Paulo, Brasil Centro de Desenvolvimento da Tecnologia Nuclear, Belo Horizonte, Minas Gerais, Brasil Centro de Diagnóstico Dr. Enrique Rossi, Buenos Aires, Argentina Centro de Diagnóstico Schmillevitch, São Paulo, São Paulo, Brasil Centro de Ensino e Pesquisa do Hospital Pro Cardiaco/Procep, Rio de Janeiro, Rio de Janeiro, Brasil Centro de Estudos Medicina Feira de Santana, Feira de Santana, Bahia, Brasil Centro de Medicina Intervencionista, Hospital Israelita Albert Einstein, São Paulo, São Paulo, Brasil Centro de Medicina Nuclear da Guanabara, Rio de Janeiro, Rio de Janeiro, Brasil Centro de Medicina Nuclear do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, São Paulo, Brasil Centro de Medicina Nuclear do Instituto de Radiologia do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, São Paulo, Brasil Centro de Radioterapia Rio de Janeiro, Duque de Caxias, Rio de Janeiro, Brasil Centro de Reabilitação e Readaptação Dr. Henrique Santillo, Goiânia, Goiás, Brasil Centro de Tecnologia da Informação Renato Archer, Campinas, São Paulo, Brasil Centro Diagnóstico Radioterapia, Campinas, São Paulo, Brasil Centro Diagnóstico Lucilo Ávila Jr, Recife, Pernambuco, Brasil Centro...
PD.02.007
NEPHROTIC COLIC CAUSED BY SURGICAL CLIP
Authors: OLIVEIRA, G. H. N.; MAIA, D. F.
Institution: Hospital Madre Teresa
Brief description of the study purpose: The aim of this article is to discuss the image evaluation of urinary lithiasis and to present an unexpected differential diagnosis.
Clinical history: A 42-year-old patient attended the emergency room service with the complaint of left back pain and reported being a carrier of nephrolithiasis. Previous history of laparoscopic partial nephrectomy for 9 months due to clear cell tumor (T1a N0 M0) FURMANH 1. Abdominal tomography was requested. The examination showed bilateral calculus and calcineal microcalculi. In addition to post surgical findings of left partial nephrectomy, it was described a hyperdense elongated filiform area in the proximal third of the left ureter, measuring 7 millimeters and distant about 3.5 cm from the ureteropelvic junction, without conditioning dilation upstream of the collecting system, suggestive of calculus. Based on the characteristics of the possible calculus, endoscopic surgical treatment was indicated. During flexible ureteroscopy, it was found that this was not a calculus, but a surgical clip that unexpectedly migrated to the ureter. The object was removed without intercurrences and the patient was discharged.
Discussion and diagnosis, or vice versa: Urinary lithiasis presents a high prevalence, estimated at 10 to 14% in the population. The morbidity associated with urolithiasis includes renal colic and urinary obstruction, which can lead to kidney failure and severe urinary tract infections such as pyelonephritis and sepsis. Contrast-enhanced computed tomography (CT) of the abdomen and pelvis is the standard method for the evaluation of urinary calculi. This test is widely used because it is safe and has high sensitivity (95 to 98%) and specificity (96 to 100%). In addition, CT has the capacity to show urinary abnormalities, such as congenital malformations, infections and neoplasias, which are more clinically relevant than calculus diseases.
Conclusion: CT is now the imaging method of choice for the diagnosis and follow up of urolithiasis, because it presents high accuracy and wide availability. However, during the radiological evaluation in suspected cases of urinary calculi, it is essential to look at the clinical history of the past of surgical manipulation of the urinary tract, according the differential diagnoses, as exemplified by this case.
Responsible Author: Dr. guilherme henrique naves de oliveira
E-mail: guilherme.hno@gmail.com

PD.02.010
NUTCRACKER SYNDROME SECONDARY TO REDUCTION OF ADIPOSE TISSUE AFTER CHEMOTHERAPY
Authors: HOLANDA, V.C.L.; MACHADO, C.C.; SOUSA, R.M.G.; FERREIRA, P.N.C.; RODRIGUES, M.A.A.; LOPES, A.K.B.F.
Institution: HOSPITAL DAS CLÍNICAS DA UNIVERSIDADE FEDERAL DE UBERLÂNDIA
Brief description of the study purpose: To report the case of a patient with Nucracker syndrome and to value the importance of knowledge of their physiopathology.
Clinical history: A 66-year-old male patient, with adenocarcinoma in the esophagogastic transition with extension to the gastric fundus, underwent four cycles of neoadjuvant chemotherapy (CT), obtaining a good clinical-radiological response. A tomographic control study about 100 days after CT onset revealed luminal thrombus in the left renal vein, adjacent to the angle formed between the aorta and the emergence of the superior mesenteric artery (SMA), secondary to reduction of retroperitoneal adipose tissue and, consequent, SMA ptosis; found in comparative analysis with previous tomography.
Discussion and diagnosis, or vice versa: Nutcracker syndrome results from the narrowing of the angle formed between the origin of the SMA and the aorta, leading to compression and increased pressure in the territory of the left renal vein. This involvement is rare and difficult to diagnose due to the variability and lack of specificity of the symptoms and to the non-obvious biochemical characteristics. The clinical findings may simulate other pathologies, such as nephrolithiasis, thus delaying its diagnosis. It is usually more prevalent in healthy, skinny, 20-40 year old and female patients. Clinically, hematuria and pain in the left flank are the most common symptoms; however, when the imaging findings do not have clinical correlation, it is called the nutcracker phenomenon.
Conclusion: Knowledge of the physiopathology and the performance of imaging exams are essential in the suspicion of this pathology, reducing unnecessary procedures and avoiding complications, such as renal vein thrombosis.
Responsible Author: Dra. ANA KARINA BRIZENO FERREIRA LOPES
E-mail: karina.brizeno@gmail.com

PD.02.011
ADRENAL HISTOPLASMOSIS, A DIAGNOSIS TO BE REMEMBERED IN A CONTEXT OF BILATERAL ADRENAL MASSES.
Authors: GONCALVES, G. J. M.; MACEDO, T. A. A.
Institution: UNIVERSIDADE FEDERAL DE UBERLÂNDIA
Brief description of the study purpose: To report the case of a patient with bulky bilateral adrenal masses without diagnosis of primary neoplasia, with the purpose of reviewing the imaging aspects and correlating with the main differential diagnoses of expansive adrenal lesions.
Clinical history: Patient started a year with a history of dysphonia, hyporexia, and unintentional weight loss (45 kg), associated with episodes of fever, predominantly evening, and night sweats. It also reports recurrent postural hypotension. A computed tomography scan of the abdomen was performed, showing an expansive formation in both adrenals, with soft tissue density, presenting heterogeneous and discrete enhancement after contrast medium infusion, with fine septations.
Discussion and diagnosis, or vice versa: Histopathological diagnosis was histoplasmosis, a systemic mycosis that, in most cases, presents with a mild or even subclinical condition in immunocompetent patients. Adrenal involvement occurs relatively frequently and predominates in adult men with disseminated infection, tending to be asymptomatic, except when very large or bilateral, which may be associated with adrenal insufficiency. Its differential diagnoses include primary and secondary neoplasms and other granulomatous diseases.
Conclusion: The manifestation of adrenal histoplasmosis with bulky bilateral masses is a diagnosis to be considered in the context of disseminated infection and other equally important etiologies, especially metastatic lesions, should be excluded.
Responsible Author: Dr. Gustavo José
E-mail: gustavojm_goncalves@hotmail.com

PD.02.012
ENDOMETRIOSES OF THE ABDOMINAL WALL: CASE REPORT.
Authors: IRIA JÚNIOR, A. S.; MAZZUCCO, M.
Clinical history: A 37-year-old female patient, human immunodeficiency virus positive, with a history of previous cesarean, looked for the emergency room, complaining of pelvic pain for the past 3 months, which was more intense in the menstrual period. In addition, she reported bulging in the lower median region of the abdomen, and reported drainage of foul-smelling odor secretion from the umbilical scar. The investigation began with abdominal ultrasonography, which was not conclusive, and it was chosen to continue the investigation with computed tomography (CT) of the abdomen, which demonstrated the presence of an infiltrative mass with density of soft tissue in the subcu- taneous tissue of the anterior abdominal wall at the level of the hypogastrum. There were no signs of extension to the intra-abdominal cavity. It was then proceed with cirurgical excision of the tumor.

Discussion and diagnosis, or vice versa: The histological study demonstrated abdominal wall endometriosis. Endometriosis is defined as the presence of endometrial tissue outside the uterine cavity. In most cases it is located in the pelvis, however the presence of endometrial implants has already been reported in several less typical locations, including the abdominal wall. This usually occurs after surgical procedures that violate the uterine cavity (such as the cesarean section in the case described), allowing the endometrial tissue to be transported. CT and ultrasound are important for diagnostic investigation, but also to determine the degree of involvement of the abdominal wall. Abdominal CT generally demonstrates the presence of a heterogeneous mass that is not encapsulated, with contrast enhancement, and allows the identification of structures of the abdominal cavity that may be involved, information of extreme importance for surgical planning, which consists of definite treatment of abdominal wall endometriosis.

Conclusion: There is multiplets differential diagnoses that should be considered in the presence of a mass in the abdominal wall, such as desmoid tumor, sarcoma or abscesses. However, endometriosis should always be remembered and may be the main hypothesis in patients with mass near by the cesarean incision and before the clinical picture of cyclic pain.

Responsible Author: Dr. Aloisio dos Santos Iria Júnior
E-mail: aloisio_ria@hotmail.com

PD.02.015
MALIGNANT RETROPERITONEAL PARAGANGLIOMA: A CASE REPORT
Authors: LOPES, R. A. P.; GOMES, M. A. P.; BARBOSA, F. G., AITA, S. L. G., OLIVEIRA, J. A. A.
Institution: UDI HOSPITAL

Brief description of the study purpose: Paraganglioma is a chromaffin cell tumor that produces catecholamines. It differs from pheochromocytoma because of its extra-adrenal location. It has a rare incidence occurring in 1 to 2/1,000,000 inhabitants and is a rare cause of arterial hypertension, accounting for less than 1% of cases. This is an objective study to describe a case of a young patient diagnosed with retroperitoneal paraganglioma.

Clinical history: A 26-year-old male patient presented with paroxysmal hypertension for approximately 6 months. After a clinical and laboratory investigation, a computerized angiotomography was performed, showing a large expansive lesion located in the left para-aortic region, extending to the vertebral bodies of L2, L3 and L4 and promoting a pronounced collapse of L3. Subsequently a biopsy was performed, with histopathology confirming the diagnosis of retroperitoneal paraganglioma.

Discussion and diagnosis, or vice versa: The paraganglioma has a predilection for this topography presented by the patient, usually present in the retroperitoneum, but very rarely in the malignant form. Most paragangliomas are benign. Pacientes that have malignant presentation in this age group, usually have some genetic syndrome, however, our patient performed genetic analysis and nothing was found, which makes the case even more unique.

Conclusion: The retroperitoneal parangangioma is a rare tumor, and its malignant presentation is even rarer. Because of its symptomatology and location, it is mandatory to perform the early diagnosis of this pathology.

Responsible Author: Dra. Fernanda Gama Barbosa
E-mail: fernandagama_b@yahoo.com.br

PD.02.013
OVARIAN GRANULOCYTIC SARCOMA: A RARE INITIAL PRESENTATION OF ACUTE MYELOID LEUKEMIA
Authors: BUSSA, A. C. R.; PEREZ, M. K.; TORRES, U. S.; D’IPPOLITO, G.
Institution: Grupo Fleury

Brief description of the study purpose: Granulocytic sarcoma (GS) is an extramedullary neoplasm of immature myeloid cells. Ovarian involvement by this entity as the initial manifestation of acute myeloid leukemia (AML) is extremely rare, with only about ten cases in the literature.

Clinical history: A 41-year-old female patient under clinical investigation owing to thrombocytopenia presented with onset of pelvic pain. A pelvic ultrasound exam revealed a right solid-cystic adnexal mass. Further work-up with computed tomography (CT) and magnetic resonance imaging (MRI) which additionally showed ascites and peritoneal thickening in the rectouterine pouch, raised suspicion for an ovarian malignancy. The patient underwent a right oophorectomy with a final diagnosis of ovarian GS. Hematologic investigation and bone marrow biopsy carried out concomitantly to this same work-up diagnosed AML.

Discussion and diagnosis, or vice versa: Granulocytic sarcoma (originally called chloroma owing to its greenish coloration in myeloperoxidase) is a tumor composed of immature granulocytic precursors with extramedullary involvement. It affects most commonly the bones and nervous tissues, the involvement of the female genital tract (especially ovary) being unusual. Given its low prevalence and the nonspecific imaging features, GS generally is not among the differential diagnoses of ovarian tumors, although this can be suspected when there is a hematologic malignancy associated. An interesting image aspect to be highlighted is the T2-weighted low signal that these tumors exhibit on MRI, probably related to the high levels of the myeloperoxidase enzyme. It presents as an ovarian mass isodense to muscles on CT scans, and hyper-/iso- and hypointense on T1 and T2-weighted MR images, respectively, with variable degrees of contrast enhancement.

Conclusion: Although rare, ovarian GS may be the first manifestation of AML. These tumors may precede systemic leukemia, may denote disease progression, or even be present in nonleukemic patients.

Responsible Author: Dra. Ana Carolina Buissa
E-mail: carolbiussa@gmail.com
PD.02.018
ZINNER SYNDROME: UNUSUAL CLINICAL PRESENTATION. CASE REPORT AND LITERATURE REVIEW.
Institution: Hospital de Base de Bauru - FAMESP
Brief description of the study purpose: The present report describes a triad of Wolffian duct anomalies comprising unilateral renal agenesis, ipsilateral seminal vesicle cyst, and ejaculatory duct obstruction in a 18-years boy who presents with pain to evacuate and periprostatic mass to the touch. A detailed review of relevant literature is also presented.
Clinical history: The illustrated case is a 18-years boy who presented with pain to evacuate, intermittent pain in perineum since 7 days. Trans-abdominal ultrasound (US) showed non-visualization of right kidney suggested right renal agenesis. Well defined rounded anechoic lesions was also detected in the region of right seminal vesicle (cysts). The left seminal vesicle was normal. The Computed Tomography (CT) was also performed, the right renal agenesis and the seminal vesicle cysts was confirmed. In view of the above-mentioned radiological findings, the diagnosis of Zinner syndrome was made.
Discussion and diagnosis, or vice versa: Ureteral buds and seminal vesicles originate from the mesonephric (Wolffian) duct. Maldevelopment of the distal part of the mesonephric ducts leads to atresia of ejaculatory duct (leading to the obstruction and cystic dilatation of seminal vesicle) and abnormal ureteral budding (leading to renal agenesis). Most patients with this group of mesonephric duct anomalies are asymptomatic until the third or fourth decade of life and often manifest during the period of high sexual or reproductive activity. Patient illustrated in this report, however, presented at an early age of 18 years predominantly with pain in perineal regions. The diagnosis was facilitated with US e CT, which showed the cysts.
Conclusion: The Zinner syndrome, therefore, constitutes an uncommon but important diagnostic consideration in young age when the patient presents. The modern-day imaging techniques have facilitated the early diagnosis of this entity.
Responsible Author: Dra. joana marango machado
E-mail: joanac2m@yahoo.com.br

PD.02.019
PARACOCCIDIOIDOMYCOSIS WITH SCROTAL INVOLVEMENT: AN UNUSUAL CASE
Authors: LOUZA, GF.; MARCHIORI, E.; PARENTE, DB.
Institution: Hospital Beneficência Portuguesa de São Paulo - BP
Brief description of the study purpose: We present a case of Paracoccidioidomycosis with scrotal involvement.
Clinical history: We report a case of a 42-year-old Brazilian male with disseminated chronic form of PCM. Patient also had also positive serine anti-Paracoccidioides brasiliensis antibodies. Involvement of genital tract in PCM is very rare, occurring in the disseminated chronic form of disease. It’s thought that urogenital involvement is resultant of fungus hematogenous dissemination, being usually described in late-stage disease and associated with other organs lesions, usually along with pulmonary PCM. In the biggest series of genital tract involvement in PCM, described by Severo et col., the main affected sites were: epididymis, prostate, testicle, penis and scrotal pouch. Testicular, epididymal and prostatic lesions are, in majority of cases, expressed as tumoral lesions, leading to the initial presumed diagnosis of neoplasm. Exte
Conclusion: In resume, we reported a case of an adult Brazilian male with disseminated chronic form of PCM, with mediastinal, cervical and inguinal lymph nodes enlargement associated with extensive scrotal involvement, a rare clinical manifestation of PCM.
Responsible Author: Dr. Guilherme Felix Louza
E-mail: guilherme louza@hotmail.com

PD.02.021
BILATERAL SUPERNUMERARY KIDNEY
Authors: RACY, D. J.; NUNES, N. B.; NUNES JR, N. B.; NUNES, R. B.; SILVA, I. F. M. M.; NUNES, E.B.; DOS SANTOS, D.
Institution: Hospital Beneficiência Portuguesa de São Paulo - BP
Brief description of the study purpose: Supernumerary kidney is a rare urogenital anomaly with less than 100 cases reported. Bilateral supernumerary kidney is even more rare and to our knowledge there are six cases reported in the literature. Herein we present the computed tomography (CT) findings in a patient with bilateral supernumerary kidneys.
Clinical history: A 56-year-old male patient, referred to low back pain was suspicion of renal lithiasis. In non-contrast abdominal CT, four kidneys are identified, two of which are topical and two pelvis, the inferior ones with rotational anomaly (anterior pelvis). Small non-obstructive renal calculi and renal dimensions smaller than usual were observed, ranging from 5.8cm to 6.7cm. In CT scan with contrast, arterial and independent venous irrigation is noted. In addition, the trimensonal CT reconstruction image with excretory phase reveals bilateral bifid ureter. No other comorbidities or associated congenital anomalies have been identified.
Discussion and diagnosis, or vice versa: Supernumerary kidney is an extremely rare anatomic variation, and the presence of four supernumerary kidneys is even rarer with only six cases described in the literature as our knowledge. Embryological basis of supernumerary kidney is thought to be the abnormal division of the nephrogenic cord into two metanephric blastemas that then form two kidneys, in association with either a partially or completely duplicated ureteral bud. Incomplete division result in a divided kidney with bifid ureter, whereas complete division result in a double kidney with bifid ureter or separate ureters. Genuinely, supernumerary kidney that is an accessory organ has its own collecting system, blood supply and separate encapsulated tissue. The supernumerary kidney may be completely distinct from the usual renal tissue or linked to it by loose connective tissue.
In most of the patients with supernumerary kidneys, the pathologies of upper urinary tract have been reported. The ureter of the super-numerary kidney may have calculus disorder and hydronephrosi. Coarctation of the aorta, ectopic ureteral opening, duplication of the penis or female urethra, vaginal atresia and horseshoe kidneys are congenital anomalies associated with the super-numerary kidney.

**Conclusion:** If the patient is asymptomatic, no treatment is required, but regular follow-up may be advised. If the kidney is diseased or nonfunctional, nephrectomy is usually the preferred procedure.

**Responsible Author:** Dra. Natália Borges Nunes  
**E-mail:** nataliaborgesnunes@gmail.com

**PD.02.022**  
**VARICOCELE IN 12-YEAR-OLD CHILD RELATED TO NUTCRACKER SYNDROME: CASE REPORT**


**Institution:** Hospital Estadual Vila Alpina (HEVA)  
Centro de Ensino em Tomografia, Ressonância e Ultrassonografia (CETRUS)

**Brief description of the study purpose:** The purpose of the report is to demonstrate an unusual case report of secondary advanced-grade of varicocele in 12 year old, male, presenting as a consequence of left renal vein compression, by the narrow angle between aorta and superior mesenteric artery (Nutcracker Syndrome).

**Clinical history:** In this case the patient had a clinical urological diagnosis of varicocele for 5 years, evolving a year ago with pain and predominant weight sensation in the left anterior pelvic region. At the time of early symptoms, testicular ultrasound with Doppler study was requested, where was made the diagnosis of left side varicocele. It evolved in the last year with worsening of the symptoms, where it was requested ultrasound examination with Doppler of control, being identified bilateral varicocele, more evident to the left, with significant ectasia of the vessels of the pampiniform ipsilateral.

**Discussion and diagnosis, or vice versa:** Because of the findings are unusual at this age, the possibility of secondary varicocele was suggested, and a complementary study of the abdominal region was performed, in which 5 of the 6 classic criteria for the diagnosis of the Nutcracker Syndrome by ultrasonography were found (found in parentheses):

1. Stenosis diameter <2 mm (0.8 mm);
2. Peri-hilar diameter> 10 mm (7.9 mm);
3. Stenosis velocity peak > 110 cm / s (163.7 cm / s);
4. Peri-hilar diameters ratio (7.9 mm) / stenosis (0.8 mm)> 5.0 (9.875);
5. Stenosis velocity peak ratio (163.7 cm / s) / pre-stenosis (17.5 cm / s)> 5.0 (9.35);
6. Ratios results (diameters + velocity peaks) / 2> 5.0 (9.61);

In this way it was possible to determine the etiology of varicocele in this patient, because it is an unusual finding in male children.

**Conclusion:** Thus, the importance of considering differential diagnoses of varicocele possible causes, as Nutcracker Syndrome, should be emphatically remembered by the attending physicians and sonographers in order to avoid failure treatments for this morbidity, and finally can be performed the treatment of the primary cause, in this case, left renal vein decompression.

**Responsible Author:** Dr. Virgílio Oliveira Barreto  
**E-mail:** virgiliobarrreto@hotmail.com

**PD.02.023**  
**ZINNER SYNDROME: CASE REPORT**

**Authors:** SANTIN, L.A.; BALBINOTTI, M.; SANTOS, T.; AGOSTINI, D.C.

**Institution:** HOSPITAL GERAL DE CAXIAS DO SUL

**Brief description of the study purpose:** Zinner syndrome is characterized by the triad renal agenesis, cystic dilatation of the seminal vesicle and obstruction of the ejaculatory duct, being the product of a congenital alteration of the Wolff ducts. It is a rare condition affecting less than 0.003% of the population. Magnetic resonance imaging (MRI) is the method of choice for evaluating mesonephric duct malformations.

**Clinical history:** LM, 62 years old, diagnosed with poorly differentiated gastric adenocarcinoma, underwent computed tomography (CT) of the thorax and total abdomen for staging, being evidenced: Right kidney in anatomic topography, vicarious, density and normal contours, with preserved parenchymal thickness, concentrating and excreting the contrast medium symmetrically and satisfactorily. Left kidney not seen An expansive lesion with well-defined contours is seen in contact with the posterior wall of the bladder, measuring 4.6 x 4.5 cm. A pelvic MRI was performed, with the following findings: oval expansive lesion, cystic in appearance, located on the topography of the left seminal vesicle measuring approximately 5.5 x 4.8 x 4.4 cm (L x T x W), with estimated volume in approximately 60 cm³, determining anterior displacement of the left posterolateral wall of the bladder, without contrast enhancement, presenting hypersignal in T1, suggesting blood content, probably related to hemorrhagic cyst of the seminal vesicle. Other small cystic images of the seminal vesicles are observed adjacent to the one described above, also presenting high protein content. The patient remained asymptomatic, being only monitored.

**Discussion and diagnosis, or vice versa:** Most patients are asymptomatic until the second or third decade of life, and may present symptoms during the reproductive period. Ultrasonography is part of the initial diagnosis, serving to rule out other causes of pelvic pain in symptomatic patients, and MRI is the method of choice for diagnostic elucidation.

**Conclusion:** Zinner syndrome should be suspected in young patients with nonspecific pelvic symptoms and in asymptomatic patients with unilateral renal agenesis and cystic images in the pelvis. The diagnosis is made based on the clinical history associated with the imaging exams. In most cases the conduct is conservative, and invasive procedures are reserved for symptomatic cases.

**Responsible Author:** Dra. Taináe Santos  
**E-mail:** tainaesantos@gmail.com

**PD.02.025**  
**CASE REPORT: COMPLETE VAGINAL SEPTUM**

**Authors:** MARINHO,T.; ARCOVERDE, R.; MARINHO, E.  
**Institution:** A. C. Camargo Cancer Center, São Paulo, São Paulo, BrasilAdvanced Imaging Associates, Fremont, California, USAAngio Vascular Medicine Consulting Rooms, Belgrade, SerbiaANGIORAD, Recife, Pernambuco, BrazilAPROFE, Ambato, Tungurahua, EcuadorAPROFE, Babahoyo, Los Ríos, EcuadorAPROFE, Guayaquil, Guayas, EcuadorAsian Medical Center, Seoul, Republic of KoreaAssociação Hospitalar Beneficente São Vicente de Paulo, Passo Fundo, Rio Grande do Sul, BrasilAxial Centro de Imagem Diagnóstico SC Ltda., Belo Horizonte, Minas Gerais, Brasil-

**Responsible Author:** Dra. Taináe Santos  
**E-mail:** tainaesantos@gmail.com
Bayebo University, Kano, Nigeria Beneficiência Portuguesa de São Paulo, São Paulo, São Paulo, BrasílBeyetepe Military Hospital, Ankara, Turkey Bio Master Medicina Diagnóstica, São Paulo, São Paulo, BrasílBoston University School of Medicine, Boston, Massachusetts, EUAB Breast Center, National Taiwan University Hospital, Taipei, Taiwan Antíguo Temple Tzu Chi General Hospital, Taipei Branch, TaiwanBusan Paik Hospital Inje University, Busan, South Korea Cardiology Research Complex, Moscow, Russia Casa de Saúde Santa Marcelina, São Paulo, São Paulo, BrasílCasa de Saúde São José, Rio de Janeiro, Rio de Janeiro, BrasílICDB - Centro de Diagnósticos Brasíl, São Paulo, São Paulo, BrasílCDE Diagnóstico por Imagem, Campinas, São Paulo, BrasílCDI - Centro de Diagnóstico por Imagem, Vitória, Espírito Santo, BrasílCIDPI - Clínica de Diagnóstico por Imagem, Rio de Janeiro, Rio de Janeiro, BrasílCEBRAMEN - Centro Brasileiro de Medicina Nuclear e Imagem Molecular, Goiânia, Goiás, BrasílCEDIIMA - Centro de Estudos de Diagnóstico por Imagem Professor Waldir Maymone, Presidente Prudente, São Paulo, BrasílCEDIMAG, Juiz de Fora, Minas Gerais, BrasílCEDIMEN - Centro de Diagnóstico em Medicina Nuclear, São Paulo, São Paulo, BrasílCEDIRP - Central de Diagnóstico Ribeirão Preto, Ribeirão Preto, São Paulo, BrasílCEGYR, Ciudad Autónoma de Buenos Aires, Argentina Centro de Atenção Integral à Saúde da Mulher-CAISM, Universidade Estadual de Campinas-UNICAMP, Campinas, São Paulo, BrasílCentro de Ciências das Imagens e Física Médica, Seção de Medicina Nuclear - Hospital das Clínicas de Ribeirão Preto - USP, Ribeirão Preto, São Paulo, Brasíl Centro de Desenvolvimento da Tecnologia Nuclear, Belo Horizonte, Minas Gerais, BrasílCentro de Diagnóstico Dr. Enrique Rossi, Buenos Aires, Argentina Centro de Diagnóstico Schmillevich, São Paulo, São Paulo, BrasílCentro de En sino e Pesquisa do Hospital Pro Cardiaco/Procep, Rio de Janeiro, Rio de Janeiro, BrasílCentro de Estudos Medimag Feira de Santana, Feira de Santana, Bahia, BrasílCentro de Medicina Intervencionista, Hospital Israelita Albert Einstein, São Paulo, São Paulo, BrasílCentro de Medicina Nuclear da Guanabara, Rio de Janeiro, Rio de Janeiro, BrasílCentro de Medicina Nuclear do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, São Paulo, BrasílCentro de Medicina Nuclear do Instituto de Radiologia do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, São Paulo, BrasílCentro de Radioterapia Rio de Janeiro, Duque de Caxias, Rio de Janeiro, BrasílCentro de Reabilitação e Readaptação Dr. Henrique Santillo, Goiânia, Goiás, BrasílCentro de Tecnologia da Informação Renato Archer, Campinas, São Paulo, BrasílCentro Diagmed de Radioterapia, Campinas, São Paulo, BrasílCentro Diagnóstico Lucilo Avila Jr, Recife, Pernambuco, BrasílCentro Educacional ETIP, São Paulo, São Paulo, BrasílCentro Estadual de Diagnóstico por Imagem (CEDI/SES-RJ), Rio de Janeiro, Rio de Janeiro, BrasílCentro Infantil Boldrini, Campinas, São Paulo, BrasílCentro Médico Diagnósticos, Sorocaba, São Paulo, BrasílCentro Radiológico Campinas - Hospital Vera Cruz, Campinas, São Paulo, BrasílCentro Radiológico Campinas - Unifesp, Campinas, São Paulo, BrasílCentro Universitário Estácio-FIB, Salvador, Bahia, BrasílCentro Universitário Sant’Anna, São Paulo, São Paulo, BrasílCentro Universitário São Camilo, São Paulo, São Paulo, BrasílCentros Diagnósticos por Imagem, Campinas, São Paulo, BrasílCEPEM - Centro de Estudos e Pesquisas da Mulher, Rio de janeiro, Rio de Janeiro, BrasílCETAC - Diagnóstico por Imagem, Curitiba, Paraná, BrasílCETRUS, São Paulo, São Paulo, BrasílCEU Diagnósticos, Belo Horizonte, Minas Gerais, BrasílCEUSESPE - Centro Especializado em Ultrasoundography, São Luis, Maranhão, BrasílCHF GUMI Medical Center, CHA University, Gumi, Republic of Korea Chang Gung University College of Medicine, Kaohsiung, Taiwan Chariot - Universitätsmedizin Berlin, Berlin, Germany Cheng Hsin General Hospital, Taipei City, TaiwanChildren's Hospital of Chongqing Medical University, Chongqing, China Children's Memorial Health Institute, Institute of Mother and Child, Warsaw, Poland Chinese PLA General Hospital, Beijing, Neijiang, China CHS, Sorocaba, São Paulo, BrasílChungnam National University Hospital, Daejeon, Republic of Korea Cirurgia Vascular Hospital Universitário Clementino Fraga Filho - UFRJ, Rio de Janeiro, Rio de Janeiro, BrasílCIDIMAG, Teresópolis, Minas Gerais, BrasílCLIM

Brief description of the study purpose: Mullerian malformations represent a set of structural abnormalities. Among these abnormalities, we have the uterine septum, which occurs due to a defect in the reabsorption of the septum formed by the merger of Mullerian ducts. The uterine septum is the most common congenital uterine malformation, but only 14% of the patients have a complete septum with cervical involvement. More rare is the true cervical duplication associated with complete uterine septum and longitudinal vaginal septum. The purpose of this paper is to describe a rare change due to blood content from the vaginal compartment to the right, which does not communicate with the distal third of the vagina. An image suggestive of hematosalpinge was identified on the right.

Discussion and diagnosis, or vice versa: McBean and Brumsted suggest that the septate uterus with cervical duplication and longitudinal vaginal septum can be explained by the failure to merge two distal Mullerian ducts with normal development of the rest of the uterus, causing cervical duplication with the presence of a single uterine fundus. The hystersalpingogram displays an image, which can be confused with a bicornic uterus. In the first case, the fundus of the uterus is flat, which does not occur with a bicornic uterus, in which there is a furrow between the two horns. Persisting the doubt there is transvaginal three-dimensional ultrasound and, more accurately, magnetic resonance imaging. Hematosalpinge has been attributed to the theory of retrograde menses that happens when the menstrual blood, instead of exiting the uterus through the vagina, moves towards the fallopian tubes.

Conclusion: The adequate diagnostic evaluation by image and the increase of the diagnostic resources has helped a good diagnosis.

Responsible Author: Dra. Talitha Pastana
E-mail: tatha_ling@hotmail.com

PD.02.028
POST-TRAUMATIC ACTIVE RENAL BLEEDING SIMULATING PSEUDOANEURISMS
Institution: Hospital Regional de Emergência e Trauma Dom Luiz Gonzaga Fernandes, Faculdade de Ciências Médicas de Campina Grande- FCM-CG
Discussion and diagnosis, or vice versa: Pseudoaneurysms result from injury to one or more layers of the arterial wall, when adjacent tissues promote temporary containment of the hemorrhage. The rupture of the clot and degradation surrounding the necrotic tissue results in a recanalization between the intravascular and extravascular environment leading to the formation of pseudoaneurysm. The clinical picture is characterized with low back pain, macroscopic hematuria, hypertension and abdominal mass, but may also be asymptomatic. The diagnosis can be made by Doppler ultrasound, computed tomography, renal perfusion imaging or contrast angiography. In the case of lesions classified in grade IV by the AAST with risk of rupture of the PAR the surgical treatment is recommended.

Conclusion: In order to diagnose and treat patients early, the presence of pseudoaneurysm should be taken into account after abdominal trauma with active renal bleeding, as well as surgical intervention, since there is a possibility of early rupture.

Responsible Author: Sr. Filipe José Silva
E-mail: filipejsilvaa@gmail.com

PD.02.029
OVARY HERNIATION TO THE CANAL OF NUCK: CASE REPORT
Authors: CAMPOS, N.P.; ZORZETO, M.G.G.; ADABO, G.G.; MERCES, W.R.; CARMINATTI, P.; JUNQUEIRA, H.
Institution: Faculdade de Medicina de Jundiaí, Jundiaí, São Paulo, Brasil
Brief description of the study purpose: The canal of Nuck hernia presents a differential diagnosis of inguinal masses, including inguinal hernia, spermatic cord lipoma, metastases (for example, from a primary pancreas or prostatic adenocarcinoma, melanoma and Wilms tumor), cryptorchidism, varicocele, bruise and round ligament leiomyoma. This current study contributes to the differential diagnosis of inguinal hernias, ovary herniation, cysts, hydroceles and adherence of ectopic endometrial tissue.

Conclusion: Although uncommon in the radiologist routine, the differential diagnosis of inguinal bulges must be remembered, especially in infants, which have a poor clinical history and physical exam.

Responsible Author: Dra. Monique Purger
E-mail: mopurger@gmail.com

PD.02.045
HYDATIDIFORM MOLE WITH NEGATIVE CHORIONIC GONDOTROPIN DOSAGE: CASE REPORT
Authors: MATOS, B.P.; REZENDE, M.S.; DOMINGOS, A.M.; CARVALHO, A.C.; ALQUIMIM, A.F.; MAZON, G.; LIMA, F.G.; ATZINGEN, A.C.
Institution: Hospital das Clínicas Samuel Libânio

This canal is fund in females, formed by the evagination of the parietal peritoneum through the inguinal canal and extends from the round ligament of the uterus to the large lips. It closes until the end of the first year of life, and corresponds to the vaginal process of the men. The persistence of this canal may result in lips inguinal hernias, ovary herniation, cysts, hydroceles and adherence of ectopic endometrial tissue.

Inguinal hernias affect 1-2% of the newborns, more often in females. The sac contains ovary or tube in 15-20% of the females with inguinal hernia. The early diagnosis is crucial to avoid the risk of incarceration, torsion and ischemia.
**Brief description of the study purpose:** The hydatidiform mole (HM) is a complication of pregnancy with a potential for evolution to a malignant disease, occurring in a proportion of one case for 1,000 to 2,000 pregnancies, with more frequent gestational trophoblastic disease (GTD). The picture shows very high levels of chorionic gonadotrophin, being quite infrequent the negative result.

**Clinical history:** A 19-year-old woman, admitted with a menstrual delay, presented negative chorionic gonadotropin dosage and weight loss of 6 kg in the month. At the physical examination, abdominal mass located in the pelvis that extended to umbilical scar associated with pain was evidenced. Transvaginal ultrasonography showed heterogeneous endometrial content with multiple cystic images of permeation, with loss of the cleavage plane with the myometrium in all its extension. At color Doppler there was flow as well as free fluid in the pelvis. The dosage of chorionic gonadotrophin was then repeated, which remained negative. Magnetic resonance imaging of the pelvis revealed an enlarged uterus, with a heterogeneous image in its interior and cystic images. Patient underwent partial hysterectomy without intercurrences.

**Discussion and diagnosis, or vice versa:** HM encompasses two types: complete and partial or incomplete. The complete is the result of the fertilization of an ovule without active nucleus, being all the genes of paternal origin, already the partial one is associated or caused by triploidy and tetraploidy. Increased uterine volume, hyperemesis, pre-eclampsia, and cyhalutein cysts may occur. However, since most cases undergo ultrasound examination in the first trimester, this characteristic may not be observed. Other findings involve restriction of fetal growth and multiple malformations associated with the focally hydropic placenta. The dosage of chorionic gonadotrophins (hCG) may complement the ultrasound information, especially if the titers are higher than the expected value for gestational age. The levels of hCG are quite high and almost half of the patients have levels above 100,000 mIU / ml. When ultrasonographic or clinical suspicion is suspected, the contents of the uterine cavity should be emptied.

**Conclusion:** Thus, presenting a rare case in which there is disagreement of cynical picture and typical image, with a laboratory demonstrating dosage of negative chorionic gonadotropin.

**HEAD AND NECK**

**ORIGINAL PAPER**

**SCIENTIFIC PAPERS - POSTERS (PA)**

**PA.03.002**

**COMPARATIVE STUDY BETWEEN COILS FOR TEMPOROMANDIBULAR JOINT EVALUATION BY MAGNETIC RESONANCE.**

**Authors:** HORTEGÁ, F. S. M.; MARTINS, K. M.; SILVA, C. S.; PORTES, B.; SANCHESES, L. G.

**Institution:** Hospital Israelita Albert Einstein

**Brief description of the study purpose/Objectives:** Magnetic Resonance Imaging (MRI) it’s widely used as diagnosis method for temporomandibular junction (TMJ) disturbances. As a small and localized anatomical region, the choice of radiofrequency coil can impact in quality of images. We compared signal to noise ratio (SNR) of protocols with dedicated TMJ bilateral surface coil and standard head coil to verify if it’s possible to use this last one as routine for TMJ exams.

**Material and methods:** Twenty participants were invited to participate. A T1 sagital sequence were collected in a 1,5T magnet, using TMJ surface coil (2 channels) and Head coil (8 channels). With this last one were performed two different acquisitions: one using the same TMJ protocol (only change was the coil) and other with optimized parameters (increased FOV: from 120mm to 150 mm and number of excitations: from 2 to 3). For quantitative analysis, regions of interest (ROI) with same size were placed centered on mandibular condyle’s in both sides. The signal to noise result was used for t-test comparison.

**Results and discussion:** There are no significant differences between SNR on the right TMJ and left TMJ. There was a statistically
significant difference between groups as determined by one-way ANOVA ($F = 44.68, p < 0.001$). A Tukey post hoc test revealed no statistically significant differences between SNR for the head coil optimized protocol and the TMJ coil protocol ($p = 0.307$). The head coil protocol present statistically smaller SNR mean compared with the other protocols (TMJ and optimized head coil) ($p < 0.001$).

**Conclusion:** There is no statistical difference in SNR between TMJ coil and head coil. However this is real only for a optimized protocol, which means that only changing the coil for TMJ studies can lead to a poor SNR and consequent loss in image quality.

**Responsible Author:** Biom. Fernanda da Silva Magão Hertega E-mail: fernandamagao@yahoo.com.br

**PA.03.006**

**COMPUTED TOMOGRAPHIC STAGING OF ORAL CAVITY CANCER: EXTRANODAL EXTENSION EVALUATION IN THE NEW TNM-8**


**Institution:** INSTITUTO DO CÂNCER DO ESTADO DE SÃO PAULO (ICESP) - FMUSP

**Brief description of the study purpose/Objectives:** In the fall of 2016, the American Joint Committee on Cancer (AJCC) published the 8th edition of the TNM staging (TNM-8). For oral cavity cancers (OCC), extranodal extension (ENE) was added to the N pathological classification in addition to the number and size of metastatic lymph nodes. The aim of this study is to validate a pre-surgical tomographic evaluation criteria to oral cavity cancers based on the pathological ENE criteria.

**Material and methods:** A retrospective cohort study was carried out, including 80 patients with tongue and floor tumors, T1 and T2, followed from 2009 to 2015. Patients were initially classified according to the 7th edition of TNM (TNM-7) using pathological samples, and then reclassified based on the new TNM-8 criteria. The same was done radiologically, using a tomographic extrapolation of ENE based on the pathological criteria. The results of the pathological staging were compared to each other (TNM-7 Vs TNM-8), correlating them with the main clinical outcomes. The same was done with the radiological results. Finally, to evaluate the pre-surgical accuracy of the tomographic staging, radiological results were compared to the pathological ones.

**Results and discussion:** Independently of the criteria (TNM-7 or TNM-8), it was observed that computed tomography with venous contrast may be used to guide the initial staging and conduction. There was a strong positive correlation between tomographic and pathologic ENE. There was no significant difference between the tomographic evidence of ENE to tomography and the definitive anatomic-pathological examination (28.6% of ENE in patients without this characteristic to computed tomography vs. 58.3% for those with ENE $p < 0.001$ - Fisher).

**Conclusion:** Computed tomography may be used to evaluate the ENE of preoperative oral tumors.

**Responsible Author:** Biom. João Manoel Miranda Magalhães Santos E-mail: joao_ssa@hotmail.com

**PICTORIAL ESSAY**

**SCIENTIFIC PAPERS - POSTERS (PA)**

**PA.03.001**

**MR SIALOGRAPHY – WHAT RADIOLOGISTS NEED TO KNOW**

**Authors:** SARPI, M. O.; FRAGOSO, D.C.; SOUZA, S. A.; COSTA, E. A. V.; SILVA JR. N. A. S; INADA, B. S. Y.; GARCIA, M.R.T.
Introduction and objectives: MR sialography is a sensitive and non-invasive method that is growing in the analysis of salivary gland disease (parotid and submandibular glands). The main goal of this pictorial essay is to demonstrate technical and imaging characteristics of MR sialography and its clinical applicability.

Methods: To demonstrate anatomical and pathological aspects of this imaging method using exams performed in our institution.

Discussion: Heavily T2-weighted sequences used in MR sialography highlight the fluid signal inside primary and secondary salivary ducts, allowing their analysis similarly to the evaluation performed by conventional sialography. To intensify the ductal signal we use a natural sialogogue (lemon), optimizing the evaluation of the patients. Thus we can access the ductal involvement on salivary gland diseases in an assertive way.

Conclusion: As MR sialography is becoming a widely used method for ductal analysis in the major salivary gland diseases, especially for being a non-invasive technique, it is indispensable for the radiologist to acknowledge its characteristics and information provided to contribute to adequate diagnostic and clinical management of patients.

Responsible Author: Dr. Diego Fragoso
E-mail: dffragoso@hotmail.com

PA.03.005
CORRELATION BETWEEN AUDIOGRAM AND IMAGING FINDINGS OF PATIENTS WITH HEARING LOSS

Authors: TAMES, H.; FAJARDO, L.; PINNA, M. H.; SARPI, M. O.; MURAKOSHI, W. M.; GOMES, R. L. E; GEBRIM, E. M. M. S.; TOYAMA, C
Institution: Hospital Das Clinicas da Faculdade de Medicina da USP

Introduction and objectives: To review the basis and interpretation method of the audiogram, its role in diagnosing hearing loss, and correlate the findings between this method and the findings in computed tomography (CT) and magnetic resonance (MR) imaging of the temporal bone.

Methods: Patients with different types of hearing loss that were submitted to imaging studies and audiogram were retrospectively evaluated. Cases that presented altered CT or MR imaging were selected and its findings were correlated to the audiogram findings.

Discussion: Hearing loss can be classified in conductive, sensorineural or mixed. The type of hearing loss depends of the location of the causative factor in the ear compartments. Conductive hearing loss is associated with causes located in the external and middle ear, sensorineural hearing loss is associated with causes in the inner ear, while mixed hearing loss is associated with causes in the inner ear and at least in one of the other compartments. This poster assess imaging and audiograms findings of common and uncommon causes of hearing loss and demonstrates the correlation between these two studies.

Conclusion: Audiometry is an exam performed with the objective to evaluate hearing loss and provide information about the type of hearing loss the patient presents, assessing which compartment of the ear is affected. When an imaging study is required to evaluate a possible cause for the hearing loss, the correlation between image and audiogram is important to lead the radiologist in the search for the cause and helps to prevent misinterpretations of the imaging findings.

Responsible Author: Dr. Hugo Tames
E-mail: hugotames@hotmail.com

PD.03.002
IMAGING FINDINGS OF CALVARIAL AND SCALP NEOPLASTIC LESIONS: PICTORIAL ESSAY

Institution: INSTITUTO DO CÂNCER DO ESTADO DE SÃO PAULO (ICESP) - HCFMUSP

Introduction and objectives: Calvarial and scalp lesions are rare and usually incidental findings as a result of the great number of brain CT and MR examinations in our daily routine. These lesions can be found during the staging of other diseases or in the evaluation of local symptoms. The radiologists are challenged by a variety of diseases, some of them barely known and with nonspecific imaging findings. The lesions can be classified as congenital, inflammatory, infectious, and neoplastic. The aim of this study is to demonstrate the imaging findings of benign and malignant calvarial and scalp lesions that could be useful in the differential diagnoses.

Methods: We retrospectively evaluated CT and MR examinations of patients from our institution with neoplastic calvarial and/or scalp lesions describing the imaging findings that could be useful in narrowing the differential diagnoses.

Discussion: Recognition of calvarial and scalp neoplastic lesions requires a great knowledge of normal anatomy and its variants. The calvarium is composed of a cortical outer table, marrow space (diploë), and a cortical inner table. The calvarium comprises mainly the frontal bone, parietal bone, occipital bone, and temporal bone, and parts of the zygoma and the greater wing of the sphenoid bone. The scalp consists of the skin, connective tissue (subcutaneous), galea aponeurotica, and loose connective tissue (subgaleal). The outer table is covered by periosteum. Clinical history, evolution, and laboratory findings are important data in making radiological diagnosis. The most frequent lesions are osteoma, eosinophilic granuloma, fibrous dysplasia, osseous hemangioma, osteosarcoma, metastases, multiple myeloma, spinocellular and basocellular carcinomas, and rarer ones like lymphoma, cylindroma, trichoepithelioma and dermatofibrosarcoma.

Conclusion: We demonstrated the imaging findings of benign and malignant calvarial and scalp lesions pointing out some characteristics that allow the narrowing of the differential diagnosis or even the unequivocal diagnosis in some patients.

Responsible Author: Dr. JORGE TOMIO TAKAHASHI
E-mail: jorgetakahashi@gmail.com

PD.03.003
SINONASAL NEOPLASMS: PICTORIAL ESSAY

Institution: INSTITUTO DO CÂNCER DO ESTADO DE SÃO PAULO (ICESP) - HCFMUSP

Introduction and objectives: Sinonasal neoplasms are rare and account for 3% of all head and neck cancers. A large variety of neoplasms are possible, mainly of epithelial and mesenchymal origin; malignant lesions are more common than benign ones. Squamous cell carcinoma is the commonest of all the neoplasms in this region, and the maxillary sinus most frequently involved. Our aim is to demonstrate the imaging characteristics of benign and malignant neoplasms involving
the nasal cavities and/or paranasal sinuses that could be useful in the differential diagnosis.

**Methods:** We retrospectively evaluated CT, PET-CT, and MR examinations of patients with sinonasal neoplasms in our institution describing the imaging findings that could be useful in narrowing the differential diagnosis.

**Discussion:** The nasal cavities and paranasal sinuses are involved by a variety of diseases and conditions that can be collectively called sinonasal disease. Imaging evaluation of sinonasal tumors is most often conducted with CT, which excels at identifying the effects of these masses on adjacent osseous structures, and MR imaging that is ideal for a better tissue characterization, depicting extension of pathologic masses into the surrounding soft tissues, orbits, and intracranial compartment. Accordingly, the two studies are complementary exams and both are commonly utilized in the assessment of these masses. PET-CT can provide additional metabolic evaluation of potential metastatic disease in patients with malignant neoplasms. While these imaging modalities are excellent for the portrayal of an abnormality, there is considerable overlap in the imaging appearance of these tumors and specific imaging manifestations linked to a particular tumor are frequently lacking. Nevertheless, cross-sectional imaging plays an essential role in patient management and valuable guidance for successful biopsy or surgical resection in virtually all cases.

**Conclusion:** We demonstrated the imaging findings of benign and malignant sinonasal lesions pointing out some characteristics that allow the narrowing of the differential diagnosis or even the specific diagnosis in some patients.

**Responsible Author:** Dr. Jorge Tomio Takahashi

**E-mail:** jorgettakahashi@gmail.com

**PD.03.007**

**ORBITAL NERVES: A PICTORIAL ESSAY ABOUT TOPOGRAPHIC ANATOMY AND MAIN DISEASES BY COMPUTED TOMOGRAPHY AND MAGNETIC RESSONANCE.**

**Authors:** ARAÚJO, A.I.R.; FRAGOSO, D. C.; INADA, B. S. Y.; PACHECO, F. T.; SARPI, M. O.; SOUZA, S. A.; GARCIA, M. R. T.

**Institution:** Grupo DASA

**Introduction and objectives:** Orbital structures are innervated by the optic, oculomotor, trochlear, trigeminal and abducent nerves. The optic tracts and chiasm originate the optic nerves, which will pass through the suprasellar cistern and optical channels to reach both orbits. The other nerves present their nuclei in the mesencephalon or the pons and their intracranial pathways in cisterns and cavernous sinuses. These nerves and their branches reach the orbits through the optic channels and the superior and inferior orbital fissures. Some of them present intraorbital structures that can be also identified by imaging exams.

The objectives of this pictorial essay are to demonstrate the anatomical pathways of these nerves and their main branches, from their origins to the interior of the orbits, emphasizing their main topographic relationships with other structures, the main sites of lesions and the main intracranial or orbital diseases that affect them.

**Methods:** Schematic drawings and images of computed tomography (CT) and magnetic resonance (MR) tests performed in our service and stored in our digital archive will be used for illustration of anatomy and diseases.

**Discussion:** Although well known in the literature, intracranial and cranial nerves pathways responsible for orbital structures innervation are often not identified in the CT and MRI scans due to evaluators inexperience or adoption of inadequate protocols. The failure to identify and diagnose possible diseases is even more pronounced when we refer to the intraorbital segments of these nerves.

**Conclusion:** The detailed anatomical knowledge of the cranial nerve pathways responsible for orbital structures innervation from their origin to the interior of the orbits and the use of suitable examination protocols are fundamental for accurate diagnosis of orbital neuropathies and management of treatment.

**Responsible Author:** Dr. Alan Iuno Rios Araújo

**E-mail:** iun082@hotmail.com

**PD.03.008**

**OLD BUT GOLD? THE ROLE AND IMPORTANCE OF DIGITAL SIALOGRAPHY IN MODERN RADIOLOGY**

**Authors:** PAZINATO, L. V.; ANDO, S. M.; ACQUESTA, F. B.; BORDINI, A. L.; FERREIRA, D. L.

**Institution:** INSTITUTO DE RADIOLOGIA DA FACULDADE DE MEDICINA DA UNIVERSIDADE DE SÃO PAULO (InRad - HCFMUSP)

**Introduction and objectives:** Sialography or sialogram was first performed as a diagnostic exam in 1925 and, since then, digital sialography (DS) has been considered the gold standard for studying ductal disease of the salivary gland, as it can accurately depict the ductal anatomy and pathology up to 4th order branching.

**Methods:** Retrospective review of all 108 sialographies (from 101 patients) in a single health center between 2011 and 2017 was performed and the main findings such as calculi, strictures of the ducts, sialectasia (dilation of a duct) and fistulas are shown in this paper (8). The aim is also to discuss the importance of DS in the contemporary practice.

**Discussion:** The main indication for DS is in the diagnosis of chronic sialadenitis of the salivary glands. They are comprised of three pairs of glands: parotid, submandibular and sublingual glands, although the latter is rarely studied because of its numerous small ducts opening directly into the floor of mouth. Still, sublingual glands may be visualized in an anatomic variation where the Bartholin’s duct is outlined following injection of the contrast medium into the Wharton’s duct.

DS is performed by retrograde cannulation of the Stenson’s or Wharton’s duct (parotid and submandibular glands respectively), and injection of a contrast media that can be either iodinated water-soluble or oily. The ducts might be better visualized after administering a secretagogue (lemon drops).

Advantages of this method include radiation exposure, invasiveness and the need of contrast injection. Duct cannulation requires an experienced operator, especially in patients with calculus close to the ductal orifice and papillary stenosis. Duct trauma, calculus displacement, infection, and adverse reactions to contrast media are the main complications and DS is contraindicated during acute inflammation/infection.

**Conclusion:** Newer techniques of salivary gland imaging have been developed and reduced the indications for x-ray sialography. High frequency ultrasound, computerized tomography or magnetic resonance sialography have the advantage of also depicting the glandular parenchyma, however, the presented exam still provides a better spatial resolution and visualization of subtle salivary duct abnormalities.
PD.03.009
WAKE UP AND DON’T MISS THE POINT! EVALUATION OF OBSTRUCTIVE SLEEP APNEA (OSA) SYNDROME BY COMPUTED TOMOGRAPHY AND MAGNETIC RESONANCE SCANS.


Institution: Grupo DASA

Introduction and objectives: The prevalence of obstructive sleep apnea (OSA) syndrome is high in the Brazilian population and half of the individuals affected are in the moderate or severe stages of the disease. There are many clinical manifestations and the consequences can be very impacting to the quality of life. Although the diagnosis is based on clinical and polysomnography studies, computed tomography (CT) and magnetic resonance (MR) tests have been used to identify the causes of the syndrome and aid in the therapeutic planning.

The objectives of this pictorial essay are to demonstrate the nasosinus, craniofacial and pharyngeal changes that cause OSA, as well as to demonstrate the standard measurements of the most relevant structures and how to perform them.

Methods: Images of CT and MRI exams performed in our service and stored in our digital archive will be used. The protocols of examinations, the structured report model and the anatomical structures and air-column points to be measured, as well as their reference values, will be demonstrated.

Discussion: OSA syndrome occurs because of the tapering or collapse of the upper airway, and in most cases for more than one cause. The main causes are anatomical variations and inflammatory nasosinus processes, hypertrophy of pharyngeal lymphoid tonsils, alteration of the shape of hard palate and increased soft palate size, macroglossia, glossoptosis, retroglossathia, micrognathia, other craniofacial deformities, tumors and obesity, easily demonstrated by CT and MR scans. The CT should evaluate the entire face, from the glabella to the hyoid bone, being necessary the use of multiplanar reformations and some suitable three-dimensional reformations. MRI should evaluate the entire face and oropharynx, with multiplanar images acquired under quiet breathing and some dynamic images under forced inspiration and expiration.

Conclusion: Although polysomnography is the gold standard for the diagnosis of OSA syndrome, it does not determine the site or cause of airway obstruction. However, radiologists can demonstrate them with multiplanar images on CT and MR scans, contributing to more accurate diagnosis, appropriate therapeutic planning and follow-up in cases of failure after treatment.

Responsible Author: Dr. LUCAS VATANABE PAZINATO
E-mail: lucasvazinato@gmail.com

PD.03.011
ANATOMICAL VARIANTS OF THE UNCINATE PROCESS – CT SCAN IMAGING STUDY

Authors: VARANDAS, E.; Pacheco F. T.; Júnior, N. A. S.; Sarpi, M.; Souza, S. A.; Garcia, M. R. T.

Institution: DASA- Diagnósticos da Amêrica.

Introduction and objectives: The uncinate process is an important anatomical structure in endoscopic nasal surgery, which is the main anatomical barrier that prevents endonasal visualization of the frontal sinus ostium. It presents variability in its superior insertion related mainly to the vertical lamella of the average concha, lamina papyracea and ethmoidal roof. The purpose of this study is to identify the main insertions of the uncinate process proposed by the literature and its relation with the frontal recess.

Methods: We examined 500 craniofacial CT scans, we used exams from the archive of our institution, in order to reveal the various anatomical variants of the uncinate process.

Discussion: The uncinate superior insertion process can cover the frontal sinus ostium, alone or in association with other anatomical structures. Surgical removal of the upper segment of the uncinate process allows the surgical access to the frontal sinus by the identification of its natural ostium, which increases the chance of remaining patent.

Conclusion: The uncinate process is an important anatomical structure in endoscopic nasal surgery, which is the main anatomical barrier that prevents endonasal visualization of the frontal sinus ostium. It presents variability in its superior insertion related mainly to the vertical lamella of the average concha, lamina papyracea and ethmoidal roof. The purpose of this study is to identify the main insertions of the uncinate process proposed by the literature and its relation with the frontal recess.

Responsible Author: Dra. SORIA ALE SOUZA
E-mail: soriaale@gmail.com

PD.03.014
IMAGING EVALUATION OF THE UPPER AIRWAYS IN THE SLEEP-RELATED DISORDER.


Institution: Fleury Medicina e Saúde

Introduction and objectives: Sleep disorders are a group of diseases that are relatively common among the general population, including obstructive sleep apnea syndrome (OSAS), which is the main objective of this study. OSAS is defined as intermittent, complete, or partial upper airway obstruction (UA) occurring during sleep. The objective of this study is to describe the assessment of UA by imaging (Computed Tomography - CT, Magnetic Resonance - MR and nasofibroscopy).

Methods: We retrospectively examined nasofibroscopy, MR and CT scans performed with dedicated protocols, some of them with dynamic study during breathing in patients with clinical diagnosis of sleep-related disorder, as well as polysomnography studies in patients with OSAS. We evaluated the dimensions of the tongue, configuration of the mandible (retrognatia with glossoptosis), position of the hyoid bone, posterior space of the pharynx, thickness and length of the uvula, dimensions of the pharynx aerial column with further comparison to literature data.

Discussion: OSAS is a relatively common and more often asymptomatic sleep disorder that is related to various cardiovascular complications. The assessment of UA can be performed by nasofibroscopy, cephalometry by radiography, CT and MR, which may include dynamic protocol during respiration (fast-CT and cine-MR). There are anatomical factors in the pharynx described in patients with OSAS whose knowledge is crucial. The identification of the site of obstruction in UA can occur in short periods during breathing and can be detected in imaging examinations. However, the identification of this site and the degree of obstruction have a variable interpretation in the literature when comparing imaging tests during sleep. The Müller maneuver (inspiratory effort against closed nostrils and mouth) has been described in the literature for the analysis of pharyngeal dynamic collapse, which can be performed during endoscopy or during imaging, but its interpretation is also controversial to assist therapeutic decision.
Conclusion: The imaging examinations are able to identify the site and the degree of obstruction of the UA, although its interpretation is controversial for therapeutic decision, being concordant with literature data.

Responsible Author: Biom. WILSON RODRIGUES FERNANDES JUNIOR
E-mail: wilsonfernandesjr@gmail.com

PD.03.021
HAMMAN'S SYNDROME AND OTHER NON TRAUMATIC AND UNUSUAL ETIOLOGY OF HEAD AND NECK EMPHYSEMA: A PICTORIAL ISSUE
Authors: WOLOSKER, A.M.B.; ABREU JR, L.; TORRES, A.E; SOUZA, R.P.;YAMASHITA, H.K.; BORRI, M.L.
Institution: HOSPITAL SAO PAULO-UNIFESP
GRUPO FLEURY- REDE D'OR/HOSPITAL SAO LUÍZ

Introduction and objectives: Spontaneous pneumomediastinum with extension to deep and superficial tissues of head, face, orbit and neck is defined as the presence of free air in the absence of an obvious precipitating cause. It was first described by Louis Hamman in 1939.The goal of this study is to report many different cases of head and neck emphysema of unusual etiology, with no evidence of fracture, and discuss the most prevalent cause and its pathophysiology.

Methods: The authors report cases of Hamman's syndrome and others many different causes of head and neck emphysema, without any evidence of fracture, presented to the emergency department of three large hospitals. All patients have confirmed diagnosis with computed tomography (CT) and also the demonstration of precise extension of gas dissection. The causes were confirmed by correlation with clinical history data.

Discussion: Head and neck emphysema may occur with no evidence of trauma with fracture in a wide spectrum of conditions and is rare. It can arises when air is forced under pressure into the fascial spaces, dissecting the connective tissue and joining adjacent muscle planes. The medical literature cites as the most frequent causes: dental and otolaryngological procedures, tears in the pulmonary alveoli (Hamman's syndrome), tears in the gastrointestinal system, Valsalva manoeuvre (sneezing, nose blowing, shouting or coughing), cocaine inhalation and high pressure machine accidents, also identified in our cases. This study describes a series of cases of emphysema in head and neck not associated with fractures. Detailed anamnesis and careful physical examination are important. CT is also useful to diagnose and to detect the precise extension of gas dissection. Most important, CT can evaluate complications like infection, air embolism, visual loss and airway obstruction. In addiction it can guide clinical treatment decisions like the need of urgent tracheostomy or fasciotomy.

Conclusion: The management of head and neck emphysema is dependent in the extent and severity of the symptoms. Careful history taking and clinical examination, and the correct use of diagnostic imaging methods are paramount to diagnosing head and neck emphysema, extension and the main cause and to choose the better treatment

Responsible Author: Dra. angela wolosker
E-mail: ambwolosker@yahoo.com.br

PD.03.022
IMAGING OF INTRALABYRINTHINE SCHWANNOMAS: PICTORIAL ESSAY
Authors: TAKAHASHI, J. T.; DA SILVA, C. J.; TOYAMA, C.; DA SILVA, L. N.; GOMES, R. L. E.; GEBRIM, E. M. M. S.
Institution: INSTITUTO DE RADIOLOGIA (INRAD) - HCFMUSP

Introduction and objectives: Intralabyrinthine schwannomas are rare tumors that originate primarily within the membranous labyrinth: cochlea, vestibule or semicircular canals. The main symptoms related to the intralabyrinthine schwannoma are sensorineural hearing loss, tinnitus, imbalance, vertigo and aural fullness. In order to make this diagnosis, the radiologist must evaluate not only the cerebellopontine cistern and the internal auditory canal, but also the inner ear in all cases of sensorineural hearing loss. The key to the detection is in the appropriate magnetic resonance imaging protocol, as well as in the radiologist's awareness for interpretation of the findings.

Methods: We retrospectively evaluated computed tomography (CT) and magnetic resonance imaging (MRI) of patients with diagnosis of intralabyrinthine schwannomas and vestibular schwannoma with labyrinth extension

Discussion: The objectives of our study are to demonstrate the radiological characteristics of the intralabyrinthine schwannomas, as classified in the literature, and to locate these lesions. The classification of the intralabyrinthine schwannomas uses anatomy as the basic principle and defines the lesions by their location. They may be classified as intracochlear, intravestibular (with or without extension to the semicircular canals), vestibulocochlear, transmacular (with the major portion within the vestibule with additional extension through the macula cribrosa into the internal auditory canal), transmodiolar (tumor originated in the cochlea with extension by modiolus into the internal auditory canal) and transotic (when there is extension through the labyrinth to the internal auditory canal and middle ear). Control of our cases has shown slow growth.

Conclusion: Careful evaluation of the inner ear structures for the presence of filling defects (high-resolution T2 MR imaging) or focal enhancement (T1 enhanced MR imaging) will yield more frequent identification of this tumor. The growth of the cases was slow and similar image pattern during the controls, which may aid in the differential with labyrinthine. Treatment and prognosis depend on the appropriate location
of these tumors; therefore, a concise terminology that can be used by both otolaryngologists and radiologists is desirable. 

**Responsible Author:** Dr. JORGE TOMIO TAKAHASHI  
**E-mail:** jogettakahashi@gmail.com

**PD.03.024**

**ISOLATED CLIVAL AND SPHENOID SINUS LESIONS: A DIAGNOSTIC CHALLENGE**

**Authors:** SANTOS, R.M.; TAMES, H.L.V.C.; OLIVETTI, B.C.; TOYAMA, C; SILVA, C.J.; GARCIA, M.R.T; GOMES, R.L.E; GEHRM, E.M.M.S.

**Institution:** HOSPITAL DAS CLÍNICAS DA FACULDADE DE MEDICINA DA UNIVERSIDADE DE SÃO PAULO

**Introduction and objectives:** Clival and sphenoid sinus lesions have otherwise histological origin (bone, cartilage, notochordal residues), variable vascularization, as well as “pseudolesions” or “incipientomas”. The aim of this study is to demonstrate different imaging patterns that can help to narrow the differential diagnosis of solitary clival and sphenoid sinus lesions.

**Methods:** This is a retrospective study of lesions with historical evidence involving the clivus and sphenoid sinus of our case database. The characteristics of magnetic resonance imaging (MRI) and computed tomography (CT) will be described.

**Discussion:** In view of the variety of solitary lesions that may involve the sphenoid sinus and clivus, the definition of imaging patterns that narrow the differential diagnosis is important. Lesions with high signal on T2-weighted MRI, similar to cerebrospinal fluid (CSF), within the sphenoid sinus most commonly correspond to retention cysts/polyps, but in case of appropriate clinical suspicion, cephaloceles and CSF leaks should be suspected. In these cases, the identification of bone discontinuity, mainly by CT is fundamental. Expansive formations with low signal on T2-weighted MRI and lack of enhancement may be related to fungal infections and associated calcifications may corroborate this diagnosis. The presence of fatty component allows to consider the possibility of bone marrow in cases of fibrous dysplasia, arrested pneumatisation of the sphenoid or Paget's disease. Lesions with low signal on T2-weighted MRI and contrast impregnation have a wide differential diagnosis, from neoplasias such as plasmacytoma and fibromyxoid sarcoma to fibrous lesions such as fibrous dysplasia. The diffusion restriction and the pattern of bone involvement can sometimes narrow the differential. Lesions with high signal on T2-weighted MRI and contrast impregnation in the clivus can be seen in chondrosarcoma and classical chordoma and the values

**Conclusion:** The combination of CT and MRI findings helps to narrow the differential diagnosis in clival and sphenoid sinus lesions.

**Responsible Author:** Dr. Ramón Moura dos Santos  
**E-mail:** ramonmoura64@gmail.com

**PD.03.027**

**RADIOLOGY APPLIED TO CYSTS LESIONS OF THE HEAD AND NECK**

**Authors:** LEIDERSNAIDER, C. L.; OLIVERA, R. V.; BITS TENCOURT, L. K.; BARBOSA, B. V. CAMPOS; LOPES, F. P. L.; FELIPPE, R. A.  
**Institution:** DASA Rio de Janeiro

**Introduction and objectives:** Facilitate understanding of the complex anatomy of the head and neck. To illustrate the main cysts affecting the region of the head and neck identified through US, CT, and MRI. The methods discussed here will be US, CT and MRI, guiding the conduct.

**Discussion:** It presents as an encapsulated mass, containing numerous cystic spaces of different sizes. The LO presents mainly extracranial location, since the lesions grow slowly, an asymmetric enlargement of the orbit can be seen. The lesions are presented in CT as a cystic type mass, loculated and heterogeneous. There may be septations and variable impregnation after the injection of contrast medium, calcifications are rarely seen. MRI usually demonstrates a multilobulated and septate hyposignal lesion at T1, hypersignal at T2, and a characteristic liquid-liquid level corresponding to hemorrhages of different ages, giving rise to its description as a “chocolate cyst”. Variations in impregnation are observed by contrast, from annular to diffuse. It is characteristic of lymphangiomas to cross the borders between the orbital compartments (orbital septum and muscular cone). The main differential diagnosis is made with cavernous hemangioma, but also with rhabdomyosarcoma, orbital varices and orbital cellulitis. The clinical diagnosis of LO does not always imply a surgical approach, it can be conservative or surgical, depending on its location and visual repercussion.

**Conclusion:** LO is a disease that requires the support of imaging tests, with potential visual complications, besides the possibility of frequent recurrences, despite being a benign lesion.

**Responsibile Author:** Dra. Bruna Otilia Guareschi  
**E-mail:** brunaguareschi@gmail.com

**PD.03.025**

**ORBITAL LYMPHANGIOMA**

**Authors:** GUARESCHI, B. O.; CALIANI, M. M.; AKURI, M.; NOGUEIRA, I. M.; MENDONÇA, D. M.; NANO, P. Z.; SILVA, H. C.; BAAKLINI, R. E.

**Institution:** Hospital das Clínicas de Marília.

**Introduction and objectives:** Orbital lymphangioma (LO) is a rare veno-lymphatic lesion, which grows between normal structures. It is typically not related to the arterial or venous system. They usually affect children and young adults of the female gender. They may remain asymptomatic for several years until hemorrhagic episodes occur, resulting in sudden onset of proptosis and may be associated with palpebral hematoma, conjunctival, reduced visual acuity and leading to compression of the optic nerve. The lymphangioma can affect only the conjunctiva and eyelid, locate in the orbit or present with the two components. The diagnosis is essentially by imaging, through ultrasound, computed tomography (CT) and magnetic resonance imaging (MRI). The objective of this essay is to highlight the aspects of presentation of LO in imaging tests.

**Methods:** Noninvasive imaging tests that aid in the diagnosis of LO, such as CT and MRI, guiding the conduct.

**Discussion:** LO is a disease that requires the support of imaging tests, with potential visual complications, besides the possibility of frequent recurrences, despite being a benign lesion. The combination of CT and MRI findings helps to narrow the differential diagnosis in clival and sphenoid sinus lesions.

**Conclusion:** The combination of CT and MRI findings helps to narrow the differential diagnosis in clival and sphenoid sinus lesions.

**Responsible Author:** Dr. Ramón Moura dos Santos  
**E-mail:** ramonmoura64@gmail.com

**PD.03.027**

**RADIOLoGY APPLIED TO CYSTS LESIONS OF THE HEAD AND NECK**

**Authors:** LEIDERSNAIDER, C. L.; OLIVERA, R. V.; BITTENCOURT, L. K.; BARBOSA, B. V. CAMPOS; LOPES, F. P. L.; FELIPPE, R. A.

**Institution:** DASA Rio de Janeiro

**Introduction and objectives:** Facilitate understanding of the complex anatomy of the head and neck.

**Discussion:** It presents as an encapsulated mass, containing numerous cystic spaces of different sizes. The LO presents mainly extracranial location, since the lesions grow slowly, an asymmetric enlargement of the orbit can be seen. The lesions are presented in CT as a cystic type mass, loculated and heterogeneous. There may be septations and variable impregnation after the injection of contrast medium, calcifications are rarely seen. MRI usually demonstrates a multilobulated and septate hyposignal lesion at T1, hypersignal at T2, and a characteristic liquid-liquid level corresponding to hemorrhages of different ages, giving rise to its description as a “chocolate cyst”. Variations in impregnation are observed by contrast, from annular to diffuse. It is characteristic of lymphangiomas to cross the borders between the orbital compartments (orbital septum and muscular cone). The main differential diagnosis is made with cavernous hemangioma, but also with rhabdomyosarcoma, orbital varices and orbital cellulitis. The clinical diagnosis of LO does not always imply a surgical approach, it can be conservative or surgical, depending on its location and visual repercussion.

**Conclusion:** LO is a disease that requires the support of imaging tests, with potential visual complications, besides the possibility of frequent recurrences, despite being a benign lesion.

**Responsible Author:** Dra. Bruna Otilia Guareschi  
**E-mail:** brunaguareschi@gmail.com
to narrow the differential diagnosis in order to indicate ade-
quate therapy, surgical planning and adequate follow-up of
the disease. Ultrasonography continues to be the first diag-
nostic method and the most available technique, however it
is an operator-dependent method. For better soft tissue evalu-
ation, computed tomography was performed with contrast or
magnetic resonance.

**Responsible Author:** Biom. Caio Leal leidersnaider

**E-mail:** caiofmp@gmail.com

**PD.03.029**

**INTERACTIVE ANATOMY OF THE SKULL BASE AND ITS LESIONS ON CT AND MRI.**

**Authors:** KLEINA, W. K.; BRASIL, R. T.; SCHOEN, K.; SILVA, L.N.; PASSOS, U.L.; GODOY, L.F.; LEITE, C.C.; GEBRIM, E.M.S.

**Institution:** Hospital Sírio Libanes

**Introduction and objectives:** The base of the skull is an area of complex anatomy, which can bring frequent doubts to the radiologist. It can be affected by disorders inherent to the same and also secondarily by extension of lesions both intracranial as well as of the face and neck. The understanding of this anatomy is paramount to understand and identify the multiple pathological processes possible in this region.

The objective of this work is to present, using computed tomography (CT) and magnetic resonance imaging (MRI), the normal anatomy followed by pathological cases, such as schwannomas, meningiomas, paragangliomas, chordomas, perineural extension, and others.

**Methods:** We used images from our institution's digital archive, searching for normal anatomy exams with brief anatomical revision, followed by cases with images representative of some of the various possible lesions. We also carried out a brief review of the literature on each lesion presented.

**Discussion:** Understanding the anatomy of the base of the skull is necessary in the day-to-day of the radiologist, both to know how to recognize normality and to identify the abnormalities, so that it is possible to make correct diagnoses and assist in the therapeutic planning of patients.

**Conclusion:** The anatomical complexity of the skull base and the large number of possible injuries make it necessary to constantly review and update the radiologist, being of great contribution works like the present.

**Responsible Author:** Dr. Werner Weiss Kleina

**E-mail:** wemerkleina@gmail.com

**PD.03.030**

**VASCULAR ANOMALIES IN HEAD AND NECK: UN-
TANGLING THE CONCEPTS.**

**Authors:** DOREA, A. A; TAMES H.; MURAKOSHI R. W.; SUMI, D. V.; LOUREIRO, R. M.; GOMES, R. L. E.; SOARES, C. R.; DANIEL, M. M.; FUNARI, M. B. G.

**Institution:** HOSPITAL ISRAELITA ALBERT EINSTEIN - SÃO PAULO / SP

**Introduction and objectives:** To review the concept, clinical history and imaging findings of head and neck vascular anomalies, emphasizing its typical locations, differential diagnosis and how the imaging methods assist in its evaluation and diagnostic.

**Methods:** Computed tomography and magnetic resonance imaging exams of different patients diagnosed with vascular anomalies in head and neck were retrospectively evaluated.

**Discussion:** Diagnosis and assessment of head and neck vascular anomalies can be challenging due to its different imaging patterns and multiple sites. In 2014, ISSVA (International Society for the Study of Vascular Anomalies) published a new classification of vascular anomalies, aiming to group the clinically and histologically similar anomalies. The imaging pattern, if infiltrative or well delimited, the presence of calcifi-
cations, the enhancement pattern and location of the lesion help the radiologist to narrow the diagnosis. It is important to highlight the different roles of advanced MR techniques, that allow to evaluate the dynamic pattern of enhancement of vascular lesions, aiding its classification. The adequate clas-
sification of vascular anomalies determine important reperc-
cussions in the treatment, because high-flow vascular lesions are usually treated with embolization whereas low-flow les-
sions are generally treated with less aggressive methods, with sclerotherapy or imaging follow up.

**Conclusion:** It is important for the radiologist to recognize the different imaging patterns of vascular anomalies and un-
derstand the role that different imaging methods have in these lesions diagnosis. The adequate classification of vascular anomalies determine important repercussions in its treatment.

**Responsible Author:** Dra. ALINE DÓREA

**E-mail:** lidorea@hotmail.com

**PD.03.031**

**CLASSIFICATION AND IMAGING EVALUATION OF MAXILLECTOMIES**

**Authors:** LEMOS, M. D.; JUNIOR, W. R. F.; TOYAMA, C.; TAKAHASHI, J. T.; SILVA, C.; GOMES, R. L. E.; GEBRIM, E. M. M. S.

**Institution:** Hospital das Clinicas da Faculdade de Medicina da USP

**Introduction and objectives:** Maxillectomy is the surgical removal of all or part of the maxillary bone, indicated as part of the oncologic treatment. This topic is scant in radiologic literature, which may lead to difficulties in imaging interpre-
tation. The objectives of this work are to demonstrate normal maxillary bone anatomy and expected postoperative imaging findings in different types of maxillectomies, as well as the most common abnormalities, using illustrative cases and didactic images.

**Methods:** Retrospective study using maxillectomy cases in our institution. Cases were grouped into partial (including medial maxillectomy, infratectal and suprastructure max-
illectomy) and total maxillectomy. Both computed tomogra-
phy and magnetic resonance (MR) images were utilized.

**Discussion:** Types of partial maxillectomy differ primarily in the extent of removal of the maxilla, orbit floor, hard palate, maxillary sinus walls and alveolar process. Many types of cutaneous, musculo adipose and bony grafts can be used to reconstitute the surgical defect and reestablish facial contours as cosmetic as possible. 3D tomographic images with vol-
ume rendering technique are frequently useful to better com-
prehend the surgical procedure and its extent. The greatest concern when analysing postoperative images is to identify abnormalities suggestive of reminiscent/recurrent disease over the surgery-related inflammatory and fibrous changes. On postoperative images, there should be a soft tissue lin-
ing the surgical cavity and free margins of the grafts, with uniform thickness and smooth contours, without focal and nodular lesions. Evaluation with MR is useful because of its excellent spatial resolution. Signal and enhancement analysis may help differentiate fibrous tissue from viable neoplasia and the diffusion sequence may allow to identify areas with greater cellularity.

**Conclusion:** Imaging analysis of maxillectomies is a topic not sufficiently explored in radiologic literature. Knowledge of the main types of surgery, grafts and flaps, normal and abnor-
mal postoperative imaging aspect and potential pitfalls is important for the radiologist dealing with this subset of patients. **Responsible Author:** Dr. Marcelo Delboni Lemos E-mail: marcelodelbonilemos@gmail.com

**PD.03.032**

**REPORTING FACIAL TRAUMA: DO NOT FORGET THE TEETH!**


**Institution:** Hospital Israelita Albert Einstein

**Introduction and objectives:** Dental changes related to trauma are a challenge for the radiologist, mainly in the context of complex facial traumas. The objective of this trial is to provide relevant information on dental trauma.

**Methods:** Illustrative cases of different types of dental trauma from the digital archive were selected. The types of fractures and important associated changes were described, as well as a brief review of the dental anatomy.

**Discussion:** Dental trauma can be divided into fractures, dislocations and avulsions of permanent teeth and injuries of deciduous dentition, according to the International Association of Dental Traumatology. Knowledge of imaging findings in cases of dental trauma is important, so that patient receives an appropriate treatment and follow-up, reducing esthetic problems, avoiding tooth loss and related complications.

**Conclusion:** The knowledge of findings related to dental trauma makes a more accurate diagnosis possible and helps in definition of most appropriate medical decision.

**Responsible Author:** Dra. Mariana Athaniel Silva Rodrigues E-mail: mariahaniel@gmail.com

**PD.03.034**

**DEMystIFYING THE CERVICAL LYMPH NODE CHAINS: ANATOMICAL BASES FOR THE STUDY OF THE NECK.**


**Institution:** A. C. Camargo Cancer Center, São Paulo, São Paulo, Brasil

**Introduction and objectives:** In this study, illustrative cases of different types of dental trauma are presented. The purpose is to demonstrate the importance of dental trauma in patients with facial trauma.

**Methods:** The authors analyzed the medical records of patients who underwent dental trauma in the emergency department of Hospital Israelita Albert Einstein, São Paulo, Brazil. A total of 30 patients were included in the study.

**Discussion:** Dental trauma can be divided into fractures, dislocations and avulsions of permanent teeth and injuries of deciduous dentition, according to the International Association of Dental Traumatology. Knowledge of imaging findings in cases of dental trauma is important, so that patient receives an appropriate treatment and follow-up, reducing esthetic problems, avoiding tooth loss and related complications.

**Conclusion:** The knowledge of findings related to dental trauma makes a more accurate diagnosis possible and helps in definition of most appropriate medical decision.

**Responsible Author:** Dra. Mariana Athaniel Silva Rodrigues E-mail: mariahaniel@gmail.com
ty Hospital, Daejeon, Republic of Korea; Cirurgia Vascular Hospital Universitário Clementino Fraga Filho - UFRJ, Rio de Janeiro, Rio de Janeiro, Brasil; CLIMAG, Timóteo, Minas Gerais, Brasil.

Introduction and objectives: We will present a summary of the anatomical repairs, fundamental for the study of cervical anatomy of the neck by ultrasonography, making a fundamental correlation between ultrasonographic cuts and the locoregional anatomy of the neck. The objective is to systematize lymph node anatomy in a didactic form of the same, in levels I to VII, since this evaluation is fundamental in the preoperative cervical.

Discussion: The anatomical bases of the cervical ultrasound anatomy will be presented, based on ultrasound documentation of horizontal repairs - mandible, hyoid bone, thyroid cartilage, cricoid cartilage and sternal furcula.

Conclusion: The knowledge of anatomical repairs for the cervical lymph node study is of great importance in the ultrasound study of the neck. In this context, it is important to know the horizontal repairs, which act as markers for the limits, are easy to recognize and function as facilitators in the cervical study by ultrasonography in order to make the study systematized and reproducible.

Responsible Author: Dra. Juliana Camerim
E-mail: juliana.camerim@gmail.com

PD.03.036

ORBITAL IMAGES: ANATOMY, TRAUMA AND EMERGENCIES.

Authors: MEDEIROS, D. C.; SILVA, C. J.; GOMES, R. L. E.; GEHRIM, E. S.; TOYAMA, C.

Introduction and objectives: - Review anatomy of the orbit in CT and MRI images - Review and presentation of several cases and imaging findings on CT and MRI of ocular injuries and diseases.

Methods: Cases collected in our institutional database.

Discussion: - Traumatic (Acute perforation of the lens capsule; Lens dislocation; Penetrating injury; Vitreous hemorrhage; Foreign bodies; Thermal and chemical eye burns) - Detachments (Retinal; Chorioidal) - Inflammatory / Infectious (Endophthalmitis; Preseptal and postseptal cellulitis; Lyme disease; Catscratch disease) - Vascular (Anterior ischemic optic neuropathy). - Others (Vogt-Koyanagi-Harada syndrome, Ethambutolinduced optic neuropathy; Optic neuritis).

Conclusion: This review intends to familiarize the radiologist with orbital emergencies, considering the fundamental importance of precise early diagnosis and the ability to perform differential diagnoses of the main emergency pathologies. In this way, correct management can be performed promptly, avoiding the risk of visual loss or worsening of the clinical picture.

Responsible Author: Dr. Gilson Martins Cavalcante
E-mail: ksoze1980@hotmail.com

PD.03.037

PAROTID TUMORS: A PRACTICAL APPROACH TO THE DIFFERENTIAL DIAGNOSIS

Authors: PFLUCK, BPM.; YAMASHITA, HK.; SOUZA RP.; WOLOSKER AMB.

Introduction and objectives: To develop a practical approach of differential diagnosis of the parotid gland tumors.

Methods: To present a succinct overview of the normal anatomy and relevant findings in the conventional imaging and Magnetic Resonance (MR) advanced techniques, through the demonstration of typical imaging findings and literature review.

Discussion: The evaluation of parotid tumors is complex, involving a wide variety of benign and malignant lesions that are hard to distinguish clinically. They usually correspond, in decreasing order of frequency, to pleomorphic adenoma, Warthin’s tumor, or adenolymphoma and low, intermediate...
or high grade malignant tumor - whether mucoepidermoid carcinoma, cystic adenoid carcinoma, adenocarcinoma, squamous cell carcinoma, undifferentiated carcinoma or lymphoma are included. Indications for surgery depend on lesion histology, size and location. Parotid MR and fine-needle aspiration cytology are two important examinations to categorize and locate a parotid lesion. In addition to the typical imaging findings observed in conventional imaging studies, dynamic susceptibility contrast-enhanced perfusion-weighted MR imaging and diffusion-weighted MR imaging are non-invasive promising methods that are used for differentiation of malignant from benign parotid tumors and for characterization of some benign parotid tumors.

**Conclusion:** The understanding of the characteristic imaging findings of different types of parotid tumors is crucial to contribute for adequate preoperative evaluation.

**Responsible Author:** Dra. BARBARA PEÑA MUJICA

E-mail: barbaramujica@me.com

**CASE REPORT**

**SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)**

**PD.03.004**

**IMPORTANCE OF CINE-MODE MRI SEQUENCE IN THE EVALUATION OF EXTRAOCULAR MUSCLE RUPTURE: CASE REPORT**

**Authors:** GODOY, LL.; KUNIYOSHI, CH.; LEMOS, M.D.; TAKAHASHI, JT.; FERNANDES, WR.; DA SILVA, CJ.; TOYAMA, C.

**Institution:** Grupo Fleury

**Brief description of the study purpose:** To demonstrate the importance of cine-mode magnetic resonance imaging (MRI) in the evaluation of eye motility disorders, by reproducing the contraction of the extraocular muscles, in addition to the static MRI protocol of the orbits.

**Clinical history:** An 18-year-old male, in the immediate postoperative period for correction of nasal septum deviation, turbinoplasty and partial ethmoidectomy presented diplopia, with horizontal gaze palsy to the left and ocular pain. Computed tomography of the orbits evidenced discontinuity of the left lamina papyracea and morphological alteration of the homolateral medial rectus muscle. MRI of orbits demonstrated thickening and T2-hyperintense signal in the posterior segment of this muscle, which exhibited heterogeneous enhancement by gadolinium. An additional cine-mode MRI sequence was obtained with deviation of the horizontal gaze of the orbits. This sequence did not identify an effective contraction of the posterior segment of the left medial rectus muscle, which was relatively fix to the adjacent lamina papyracea, demonstrating the dyskinesia secondary to partial rupture of the posterior segment of this muscle.

**Discussion and diagnosis, or vice versa:** Cine-mode MRI, although poorly spread, is a complementary sequence easy-to-perform, that reproduces extraocular muscles excursion showing good correlation with clinical tests, providing functional information in cases of diplopia. A series of dynamic images is acquired on the horizontal or vertical axis depending on the motility disorder. This technique is complementary to conventional high-resolution MRI, which although useful for evaluating morphological and signal changes, does not present the same efficacy for the analysis of dyskinesias as the cine-mode MRI. Cine-mode MRI is useful in the evaluation of trauma-related dyskinesias, surgical procedures, diseases of the orbital muscles (thyroid orbitopathy, orbital pseudotumor) and in conditions of lesions of the innervation of eye muscles. In our patient, cine-mode MRI confirms the partial rupture of the left medial rectus muscle by demonstrating its dyskinesia, contributing to the therapeutic planning.

**Conclusion:** The cine-mode MRI is an important sequence to reproduce the eye movement, with a better characterization of structural and functional alterations of the extraocular muscles and it should be useful as a complement to the conventional MRI of orbit when there is suspicion of extrinsic ocular akinesia/dyskinesia.

**Responsible Author:** Dra. Laiz Godoy

E-mail: laiz.godoy@grupofleury.com.br

**PD.03.010**

**IMAGING FINDINGS OF INVASIVE LOBULAR CARCINOMA METASTASIS SIMULATING INFLAMMATORY PROCESS IN CAROTID, ANTERIOR AND POSTERIOR CERVICAL SPACES**

**Authors:** KUNIYOSHI, C.H.; GODOY, L.L.; LEMOS, M.D.; TAKAHASHI, J.T.; FERNANDES, W.R.; DA SILVA, C.J.; TOYAMA, C.

**Institution:** Grupo Fleury

**Brief description of the study purpose:** The extranodal metastases from breast cancer to the cervical region are uncommon, but when they occur, they most often have an aspect of expansive and infiltrative lesion. The purpose of this paper is to report a case of metastasis of invasive lobular carcinoma (CLI) involving cervical spaces and mimicking the inflammatory process.

**Clinical history:** An 82 year old patient complained of progressive volumetric increase of the right cervical region for 2 months. Clinical examination showed thickening and fixed and diffuse hardening of the neck muscles to the right, slightly painful and with no signs of associated inflammatory process. She reported quadrantectomy and local radiotherapy for treatment of ipsilateral breast carcinoma 10 years ago. CT scan of the neck showed infiltration and thickening of the right sternocleidomastoid muscle, as well as obliteration of the adipose planes of the anterior carotid, cervical anterior and posterior homolateral spaces, without nodules. Ultrasound examination identified thickening and increased echogenicity of subcutaneous fat in this region. The patient denied radiotherapy to the neck. Percutaneous biopsy was performed and the histopathological and immunohistochemical examinations were compatible with metastasis to the fibromuscular tissue of the pleomorphic CLI variant.

**Discussion and diagnosis, or vice versa:** Breast cancer is histologically heterogeneous. CLI is the second most common and is distinct both histologically and in its pattern of metastatic dissemination in relation to invasive ductal carcinoma. The loss of E-cadherin in CLI, a molecule of adhesion between cells, would be believed to facilitate the metastatic process with a tendency to infiltrate organs and tissues rather than to form nodules. This case illustrates this pattern of dissemination to the cervical spaces simulating an inflammatory process.

**Conclusion:** The metastatic spread of CLI may have a pattern of infiltration without the formation of nodules. In these cases, it is important to confirm the antecedent of CLI and ab-
sence of cervical radiotherapy for the suspicion of infiltrative metastatic disease in the neck.

**Responsible Author:** Dra. CRISTINA HIROMI KUNIYOSHI
**E-mail:** hiromick@yahoo.com.br

**PD.03.013**

**ODONTOGENIC MYXOMA OF THE MANDIBLE: CASE REPORT**

**Authors:** ARAUJO, L. E. S.; LEITE, R. B.; BEZERRA, L. L.; SILVA, I. O.; SILVA, R. M.; MARTINS, E. B. L.; JUNIOR, M. F. M.

**Institution:** Hospital Universitário da Universidade Federal do Piauí

**Brief description of the study purpose:** The odontogenic myxoma is a very rare benign mesenchymal tumor that usually involves the mandible or maxilla, corresponding to 3-6% of the odontogenic tumors. Due to its rarity and the diagnostic and behavioral dilemmas, we present the case of a patient complaining of a painful lesion in the left mandibular region, who underwent computed tomography in which an injury was characterized by parasympysis, body and mandibular angle. In the biopsy and the histopathological diagnosis was odontogenic myxoma.

**Clinical history:** We report the case of a 33-year-old female patient with a major complaint of painful lesion in the left mandibular region with gradually progressive increase in volume. There was no history of trauma. On physical examination, no local increase in temperature or change in underlying skin color was observed.

**Discussion and diagnosis, or vice versa:** Considered a benign intraosseous neoplasia, the odontogenic myxoma is more common in women between the second and third decades of life. It presents as an invasive mass, with local aggression and high rate of recurrence, that causes facial asymmetry, being able to be painless or cause pain and paresthesia more rarely. Radiologically its appearance is variable, usually presenting as a radiolucent point or multilocular. In the case reported, computed tomography evidenced an expansive inflatable, heterogeneous lesion, presenting a solid and cystic component, affecting the left hemimandible, with intense bone destruction. Histopathological findings (star, spindle or ovoid cells randomly arranged in a myxoid stroma) found in the material sent to the biopsy are typical of this type of lesion. The treatment of choice is surgery, with no consensus regarding its extension and presenting a high rate of recurrence.

**Conclusion:** The odontogenic myxoma is a benign, slow-growing tumor that may recur. Due to the diagnostic and operational dilemmas of these tumors, a solid knowledge, with adequate histopathological diagnosis, is necessary to characterize this type of lesion, aiding in its management.

**Responsible Author:** Biom. Fatima Machado Araujo
**E-mail:** fatimachadoaraujo@icloud.com

**PD.03.042**

**LATERAL SEMICIRCULAR CANAL DYSPLASIA: CASE REPORT**

**Authors:** MOTA, A.V.H; SANTANA, B.R.O; BISPO; A.K.O.M.; SANTANA, N.N.; CARNEIRO, L.G.L.C; FERNANDES, E.L.M; CRUZ, J.A; BRAGA, M.C.G; TEIXEIRA, B.S.; SANTOS, E.H.S.S.

**Institution:** Clímedi/ Liga Acadêmica de Diagnóstico por Imagem de Sergipe/ Universidade Federal de Sergipe/ Universidade Tiradentes

**Brief description of the study purpose:** Lateral Semicircular Canal Dysplasia is one of the most common congenital hearing disorders and may or may not be associated with sensorineural hearing loss. The most frequent involvement of the lateral canal is due to its later embryological formation when compared to the superior and posterior semicircular canals, which predisposes a greater vulnerability to the malformations. The typical presentation of the picture is characterized by the formation of a cystic space, broad and short between the semicircular canal and the vestibule.

**Clinical history:** J.S.O, male, age, was submitted to a Magnetic Resonance of temporal bones. Among the findings, a rudimentary left lateral semicircular canal with apparent fusion to the ipsilateral vestibule was described, forming a cystic cavity measuring 0.7 x 0.6 x 0.3 cm. The cochlea, other semicircular canals, contralateral vestibule and structures of the membranous labyrinth presented with usual signal intensity and morphology.

**Discussion and diagnosis, or vice versa:** Malformations of the lateral semicircular canal may occur in isolation or in association with other abnormalities of the middle ear, cochlea or vestibular area. Lateral semicircular canal dysplasia may also be associated with other abnormalities such as labyrinthisis and hyperacusis. In addition, this dysplasia, hearing levels may range from normal to severely impaired. In patients with isolated semicircular canal malformations, as in the case...
presented, no correlation was observed between the extent of the malformation seen under the radiological aspect and the level of hearing loss or vestibular symptoms. These dissociations indicate that isolated abnormalities in such bone parts do not necessarily indicate abnormality in the membranous part of the labyrinth. In addition, lateral semicircular canal dysplasia may not be seen in a simple inspection of radiological images, especially if there are no associated vestibular or cochlear malformations. Thus, nuclear magnetic resonance is a more accurate option for the observation of such findings. It is a common alteration in several syndromes such as the diastase-facial, craniofacial microsurgery and anencephaly.

Conclusion: Thus, the imaging findings allow the establishment of Lateral Semicircular Canal Dysplasia as the main diagnostic hypothesis. In addition, in the case analyzed, the occurrence of isolated deformation is confirmed, once the standard of normality was maintained.

Responsible Author: Sr. Allan Victor Hora Mota
E-mail: allanhoram@gmail.com

CARDIOVASCULAR

ORIGINAL PAPER

TL.04.001
CHARACTERIZATION AND CLINICAL IMPLICATION OF RIGHT VENTRICULAR MECHANICS IN PULMONARY HYPERTENSION BY CARDIAC MAGNETIC RESONANCE WITH THE FEATURE TRACKING METHOD


Institution: Mount Sinai Hospital

Brief description of the study purpose/Objectives: To determine the feasibility, clinical and prognostic value of RV strain and strain rate analysis by CMR-FT in PH.

Material and methods: We retrospectively enrolled 116 patients (age 52.2±12 years, 73.6% women) referred to CMR for PH evaluation who underwent right heart catheterization within 1 month. Using dedicated FT software, peak global longitudinal and circumferential RV strain and strain rate (GLS, GCS, GLSR, and GCSR, respectively) were quantified from standard cine images. Using multivariate regression analysis, we evaluated the associations of strain with a composite endpoint of death, lung transplantation, or functional class deterioration on long-term follow-up.

Results and discussion: RV strain analysis was feasible in 110 (95%) patients. Patients were classified into: Group A (no PH, normal RVEF; n=17), Group B (PH, normal RVEF; n=26), or Group C (PH, abnormal RVEF; n=67). All strain and strain rates values were reduced in Group C. Furthermore, GCSR was significantly reduced in Group B compared to Group A (-0.92 [-1.0 - (-0.7)]; p<0.001) vs (-1.12 [-1.3 - (-0.9)]; p<0.001). After adjustment for six clinically meaningful covariates, GLS (hazard ratio (HR) 1.06; CI 95% [1 a 1.12]; p = 0.026), GLSR (HR 2.52; CI 95% [1.03 a 6.1]; p = 0.04) and GCSR (HR 4.51; CI 95% [1.3 a 15.6]; p = 0.01) were independently associated with the composite endpoint. GCSR successfully discriminated patients with and without events (HR 4.51; CI 95% [1.3 a 15.6]; p = 0.01).

Conclusion: Quantification of RV strain with CMR-FT is feasible in the majority of patients, correlates with disease severity and is independently associated with poor outcome in PH.

Responsible Author: Dra. MARIA EDUARDA DE SIQUEIRA
E-mail: dadasiqueira@yahoo.com.br

TL.04.002
RISK OF ATHEROSCLEROTIC DISEASE IN POST-MENOPAUSAL BREAST CANCER SURVIVORS.

Authors: BRANCO, MT.; BUTTROS, D.; NAHAS-NETO, J.; VESPOLI, HML.; NAHAS, EAP.

Institution: Faculdade de Medicina de Botucatu / UNESP.

Brief description of the study purpose/Objectives: Evaluate the occurrence of atherosclerotic disease and its correlation with cardiovascular risk factors in postmenopausal breast cancer survivors compared to women without cancer.

Material and methods: A cross-sectional, comparative study with 288 postmenopausal women divided into two groups: the principal group with 96 women treated for breast cancer and the control group with 192 women without cancer. The principal group included women with amenorrhea> 12 months, age ≥45 years, histological diagnosis of breast cancer and no personal history of cardiovascular disease. The control group was established with the same criteria, but without breast cancer. The groups were matched by age, menopausal time and body mass index (BMI) in the proportion 1 case for 2 controls. The atherosclerotic disease was determined by the intima media thickness (IMT) of the carotid arteries evaluated by carotid ultrasound (scanner duplex). Subclinical atherosclerosis was defined as the increase in IMT thickness (> 1.0 mm) and/or the presence of atheromatous plaque. The occurrence of the metabolic syndrome (MS) was considered by the NCEP / ATPIII 2001 criteria. For statistical analysis, we used: Student’s t-test, Chi-Square test, Pearson’s correlation and Logistic regression.

Results and discussion: Patients treated with breast cancer had a higher occurrence of atheromatous plaques when compared to the control group (19.8% vs 9.4%, respectively / p = 0.013). In the risk analysis, women treated for breast cancer had a 2.4-fold higher risk for atheromatous plaque (OR = 2.42, 95% CI 1.18 - 4.93, p = 0.033) when compared to women without cancer. In the percentage distribution for diabetes, metabolic syndrome and hypertriglyceridemia, there was a higher occurrence among women treated for breast cancer compared to control (19.8% vs 6.8%, 54.2% vs 30.7% and 44 , 8 vs 27.1 respectively) (p <0.05).
Conclusion: Postmenopausal women treated for breast cancer presented a higher risk for the development of atherosclerotic disease, associated with a higher occurrence of cardiovascular risk factors such as metabolic syndrome, diabetes and hypertriglyceridemia, when compared to women in the same age group without cancer.

Responsible Author: Dr. MAURO BRANCO
E-mail: danielbuttos@hotmail.com

TL.04.003 INCIDENCE, GROWTH RATE AND COMPLICATIONS IN FOLLOWED SPLENIC ARTERY ANEURYSM IN PATIENTS WITH CHRONIC LIVER DISEASE
Authors: ROCHA, M. A.; LEÃO, L. R.; PAIVA, O. A.; MAGDALENA, T. R.; YAMAUCHI, F. I.; TACHIBANA, A.
Institution: Hospital Israelita Albert Einstein

Brief description of the study purpose/Objectives: To determine incidence, growth rate and complications of splenic artery aneurysm in patients with chronic liver disease.

Material and methods: Retrospective study of splenic artery aneurysm (SAA) identified in computed tomography (CT) or magnetic resonance imaging (MRI) of patients with chronic liver disease on radiology database from January 2009 until December 2016. Exclusion criteria were patients with a single exam or patients with less than 6 months of follow-up. Aneurysms features (size, presence of calcification and thrombus) were evaluated on initial imaging exams and were correlated to follow-up studies to determine growth and development of complications, which were divided into mild complications (thrombosis or splenic infarction) and major complications (hemorrhage or rupture). The impact of clinical variables of liver transplantation and portal hypertension (documented on Doppler ultrasound) were also evaluated.

Results and discussion: Final analysis included 46 patients and 76 aneurysms: 26 patients had a single aneurysm, 10 patients had two aneurysms and 10 patients had three aneurysms. Mean growth rate was 0.1 cm/year (0 - 0.7 cm/year) and mean follow up was 3 years (7 months – 9.5 years). Comparison of growth rate of patients submitted to liver transplantation and patients not transplanted showed no significant difference (0.10 vs 0.12 cm, p=0.39). No differences were observed in growth rate of patients with portal hypertension and no portal hypertension (0.10 vs 0.12 cm, p=0.57). Interestingly, aneurysms that demonstrated thrombus demonstrated also significant lower growth rates (0.009 vs 0.12 cm/year, p<0.005). Only two patients developed mild complications (aneurysm thrombosis) that did not warrant treatment (4.3%). No major complications were observed.

Conclusion: Growth rate of SAA in patients with chronic liver disease is low and complications are rare. Portal hypertension and liver transplantation did not interfere with growth rate in our analysis.

Responsible Author: Dr. Marcelo Assis Rocha
E-mail: massisrocha@gmail.com

TL.04.004 CORRELATION BETWEEN SCINTIGRAPHY AND COMPUTED TOMOGRAPHY OF MULTIPLE DETECTORS IN THE EVALUATION OF MYOCARDIAL ISCHEMIA: SIMULTANEOUS STRESS PROTOCOL
Authors: KER, W.; TINOCO, C.; NACIF, M.
Institution: HOSPITAL UNIVERSITÁRIO ANTÓNIO PEDRO (HUAP - UFF)

Brief description of the study purpose/Objectives: Objective: To evaluate the diagnostic capacity of computed tomography (CT) to detect significant perfusion defects identified by myocardial scintigraphy (SPECT).

Material and methods: Material and Methods: Prospective study, approved by the ethics committee, including all patients who met the criteria for inclusion, exclusion and signed the informed consent term of this protocol. Injection of 99mTc-sestamibi during dipyridamole stress was performed in the CT room. Multivariate analysis was performed by logistic regression and the significance criterion was P <0.05.

Results and discussion: Results: 35 patients were acquired and the mean age was 52 ± 5.9 years, 51% of which were women. We found an intermediate correlation between CT findings and scintigraphy, especially because there was a sensitivity of only 50% for the detection of perfusion defects on CT in relation to SPECT defects. The sensitivity of SPECT analysis to CT was slightly more sensitive than perfusion (66%). When the scan was considered normal by scintigraphy (15 patients) CT also had normal perfusion in most cases (12 cases), demonstrating a concordance for high normal tests. Differently when the SPECT test was changed (20 patients) in only 10 cases there was a CT with altered perfusion.

Conclusion: Conclusion: CT has good ability to detect perfusion defects identified by SPECT, and it can also provide important information about the coronary anatomy.

Responsible Author: Dr. WILTER DOS KER
E-mail: wiltersker@gmail.com

PICTORIAL ESSAY

SCIENTIFIC PAPERS - POSTERS (PA)

PA.04.001 VARIANT ANATOMY OF AORTIC ARCH BRANCHES
Institution: Hospital Estadual Vila Alpina

Introduction and objectives: The aortic arch emits three arterial branches in its convex portion, which normally emerge in this sequence, from proximal to distal: brachiocephalic or innominate branch, left common carotid artery and left subclavian artery. The embryonic development of the aortic arch branches occurs during the third gestational week, from the first, second and third pairs of aortic arches. Abnormal formation of these structures will be responsible for changes in the usual anatomy.

Methods: This study proposes to discuss the main anatomical variants of the aortic arch branches through the use of imaging examinations to illustrate each case.

Discussion: The variant known as bovine arch is the most frequent, and occurs when the brachiocephalic branch gives rise to both common carotid arteries, as well as the right sub-
clavian artery. Thyroid ima artery is an unusual branch of collateral supply for the thyroid gland, which originates from the aortic arch or one of its branches. The variant origin of the vertebral arteries occurs more frequently in the aortic arch between the branches of the left common carotid artery and the left subclavian artery. The aberrant right subclavian artery is also described, which due to its retroesophageal course can cause dysphagia lusoria.

Conclusion: It is important that radiologists are familiar with the imaging aspects of the anatomical abnormalities involving the branches of the aortic arch, so that these changes can be cited. Although they are oftentimes innocuous to the patient, may be of substantial knowledge in situations of local approach or symptomatology.

Responsible Author: Dra. Mariah Carneiro Wanderley
E-mail: mariah_wanderley@hotmail.com

PA.04.003
HOW TO IMAGE CARDIAC AMYLOIDOSIS
Institution: Hospital Israelita Albert Einstein
Introduction and objectives: Amyloidosis is a systemic disease characterized by the extracellular deposition of pathologic insoluble amyloid protein in organs and tissues. Cardiac involvement is a progressive disorder resulting in congestive heart failure and arrhythmias. Endomyocardial biopsy is considered the gold standard for definitive diagnosis, but involves risks and gives limited information on amyloid load and localization. Non-invasive imaging modalities play a central role in diagnosis and assessment of myocardial disease burden. The purpose of this essay is to highlight the major features of cardiac amyloidosis in different imaging techniques and to review the role of these methods in a optimized diagnostic evaluation.
Methods: The main imaging modalities used in the evaluation of cardiac amyloidosis are: (1) echocardiogram, (2) cardiac magnetic resonance (CMR), and (3) scintigraphy with bone tracers. Echocardiogram provides the mainstay for the noninvasive diagnosis of cardiac amyloidosis. Increased myocardial mass, ventricular function and other typical morphological features of restrictive cardiomyopathy can be imaged. It has high specificity in the appropriate clinical setting, but low sensitivity to the diagnosis of cardiomyopathy in patients with amyloidosis. CMR provides high spatial resolution and high signal to noise ratio images without the limitation of poor echocardiographic windows. Additional findings of amyloidosis on CMR imaging rely on tissue characterization: late gadolinium enhancement, prolonged T1 times and an expansion of the extracellular volume. CMR has great diagnostic value in cardiac amyloidosis but false-positive and false-negatives exams are not infrequent. Radionuclide bone scintigraphy with technetium-labeled bisphosphonates, such as 99mTc-pyrophosphate, may be remarkably sensitive and specific for imaging cardiac amyloidosis and may reliably distinguish other causes of cardiomyopathy that mimic amyloid such as hypertrophic cardiomyopathy.
Conclusion: There is a major unmet need to noninvasively diagnose and characterize cardiac amyloidosis at earliest opportunity, noting that cardiac amyloidosis is probably underdiagnosed and fast becoming a treatable cause of heart failure.
Responsible Author: Dr. Gustavo Teles
E-mail: gbsteles@gmail.com

SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)

PD.04.007
CARDIAC MAGNETIC RESONANCE IN CHAGAS DISEASE
Institution: Instituto do Coração (INCOR) - Faculdade de Medicina da Universidade de São Paulo (USP)
Introduction and objectives: Chagas' disease (DC) is an endemic disease in Latin America, with high mortality rates in Brazil. Although the highest incidence of the disease is observed in the Southern Region, the number of patients with severe cardiac sequelae is more prevalent in the Central West Region of the country, being related to public policies to encourage research, prevention and control, as well as treatment. Cardiac involvement will occur in approximately one-third of infected individuals and cardiac magnetic resonance (CMR) offers a wide variety of imaging tools to assess morphology, ventricular function, and tissue characterization, especially myocardial fibrosis (MF).
Methods: A pictorial essay containing the summary of the main findings in the CD through tables and images of CMR from selected cases of our health institution.
Discussion: Cardiac changes in patients with CD are associated with heart failure and arrhythmias secondary to macroscopic MF. The evaluation of MF from the late enhancement technique by CMR imaging was considered the most accurate method to detect MF in ischemic and nonischemic cardiomyopathy, including Chagas heart disease. This late enhancement in CD seems to have a predilection for the lateral and inferior wall and may be indistinguishable from myocardial infarction with a subendocardial or transmural pattern, or even with non-specific subepicardial distribution. The imaging interpretation of CD is shown to be a fundamental tool in clinical practice to evaluate this daily pathology and to identify its repercussions, thus determining a better treatment and prognosis for these patients.
Conclusion: We expect to present a didactic work of this important topic, citing the main characteristics that every radiologist should know when facing this pathology and its possible cardiac repercussions.
Responsible Author: Dr. José Roberto Pereira da Fonseca
E-mail: ze_ru@hotmail.com

PD.04.008
WHAT EVERY RADIOLOGIST SHOULD KNOW ABOUT CARDIAC MAGNETIC RESONANCE.
Scientific Papers - Digital Presentation (PD)
Pictorial Essay
Institution: Instituto do Coração (INCOR) - HC - USP.

Introduction and objectives: Cardiac magnetic resonance (CMR) is an exam that has been gaining more and more notoriety in cardiac paediatrics, and is currently one of the main methods for evaluating cardiac pathologies. The implementation of some techniques has improved its performance and indications of use in clinical practice, such as the conduction of examinations with respiratory and electrocardiographic synchronization, use of fast and high performance gradients and progressive advancement of the pulse sequences. The examination is basically composed of dynamic images made in classic cuts of cardiac imaging, in addition to the application of specific pulse sequences, such as evaluation of edema and tissue characterization.

Methods: Pictorial essay performed from tables and images selected in our service, demonstrating the main clinical indications and basic pediatrics of CMR evaluation.

Discussion: The evaluation of CMR exams is based on the following steps: Evaluation of the general anatomy of the patient's chest, from the axial sequence of the chest not coupled to the electrocardiogram; Evaluation of the cardiac anatomy, with analysis of the atria, ventricles, interatrial and interventricular septa, pulmonary trunk and proximal aorta; Realization of ventricular volumetrics and evaluation of systolic and diastolic functions; Evaluation of the atrioventricular and ventriculooaortal valves; Search of fibrosis or myocardial infarction through late gadolinium enhancement sequence; In specific cases, we can use some other sequences, such as myocardial edema and pericardial changes, presence of myocardial ischemia and valvular flow assessment.

Conclusion: The best understanding of the basic anatomy, classic cuts and pulse sequences in the RMC should be part of the training of the radiologist, however, this is a reality different from the current one, being important the dissemination of this knowledge to arouse the interest of the radiologist in the specialty of cardiovascular imaging.

Responsible Author: Dr. ROBERTO VITOR ALMEIDA TORRES
E-mail: roberto_vitor@hotmail.com

PD.04.009

ATYPICAL AORTIC DISEASES: ROLE OF MR IMAGING AND MULTIDETECTOR CT.

Scientific Papers - Digital Presentation (PD)
Pictorial Essay


Institution: Hospital Sírio-Libanês

Introduction and objectives: With the advent of new noninvasive imaging methods, particularly state-of-the-art magnetic resonance (MR) imaging and multidetector computed tomography (CT), evaluation of the aorta and its branches is possible with faster imaging times, fewer motion artifacts, and also the need of smaller contrast dose. Although most aortic disease is associated with atherosclerosis (ie, aneurysms and dissection), radiologists should also be familiar with uncommon aortic diseases and their findings at MRI and CT.

Methods: The authors describe the CT and MR imaging characteristics of uncommon aortic diseases and mortality. It includes common acquired potentially life-threatening disorders such as aneurysm and dissection secondary to atherosclerosis. Nevertheless, it also includes uncommon pathologic conditions such as infectious, inflammatory and neoplastic conditions of the aorta. Cross-sectional imaging with multidetector CT and MR imaging has largely replaced conventional angiography for initial diagnosis and follow-up of aortic diseases. Radiologists should be familiar with the clinical features and imaging findings associated with the different types of aortic diseases.

Conclusion: CT and MRI are robust tools for the evaluation of aortic diseases because these noninvasive techniques provide crucial information about the vessel size, wall, and relationship to surrounding structures. An understanding of the pathophysiology and natural history of aortic diseases and their characteristic imaging findings is key to successful diagnosis and proper management of affected patients.

Responsible Author: Dra. Ana Isabella de Oliveira
E-mail: anaissabelladeoliveira50770@gmail.com

PD.04.010

ABDOMINAL VASCULAR COMPRESSION SYNDROMES: WHAT SHOULD I REPORT?

Scientific Papers - Digital Presentation (PD)
Pictorial Essay

Authors: FARIAS, L.P.G.; MENEZES, D. C.; FERREIRA, R.H.Q.; FAÉ, I.S.; MORAIS, M.O.; RAIMUNDO, E.C.; MELLO, M.A.R; BAPTISTA, L.P.S.

Institution: Hospital Alvorada, São Paulo/SP, Brasil

Introduction and objectives: Although rare, abdominal vascular syndromes are relevant because they can often represent a diagnostic challenge for the attending physician. Depending on their etiology, they can be categorized as congenital or compressive. The purpose of this essay is to review structural imaging abnormalities on computed tomography (CT) and their correlation with the clinical, anatomy and pathogenesis of vascular abdominal compression syndromes, emphasizing their radiologic features.

Methods: Review of the literature and retrospective analysis of patients with abdominal compressive vascular syndromes, obtained through multidetector computed tomography (MDCT), from experience and/or archival of the authors. The imaging characteristics will be demonstrated by means of anatomical cuts, multiplanar reconstructions, volume rendering and simplified pictorial composition schemes.

Discussion: Symptoms resulting from such compressions can be nonspecific. If unrecognized and untreated, they can be associated with significant morbidity. When symptomatic, such compressions can result in a variety of uncommon syndromes in the abdomen and pelvis, including median arcuate ligament syndrome, May-Thurner (or Cockett) syndrome, nutcracker syndrome, superior mesenteric artery syndrome, ureteropelvic junction obstruction by crossing vessels and other forms of ureteral compression. Contrast-enhanced multidetector CT is the imaging modality of choice for many of these syndromes owing to its high accuracy in identifying the typical imaging findings and other related disorders.

Conclusion: It is important to know the most common locations of compressions, recognizing that they can be incidental findings in asymptomatic patients who undergo imaging for unrelated causes. Thus, caution should be exercised to avoid misinterpretation based on imaging findings alone.

Responsible Author: Dr. Lucas de Pádua Gomes de Farias
E-mail: lucaspadua@hotmail.com
CASE REPORT

SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)

PD.04.001
CASE REPORT: ANTERIOR SPINAL ARTERY SYNDROME DUE TO AORTIC DISSECTION
Authors: FONSECA, P.H.D.O.G.; MUNIZ, B.C.; RIBEIRO, B.N.F
Institution: Hospital Federal Cardoso Fonseca
Brief description of the study purpose: We report an atypical case of anterior spinal artery syndrome due to aortic dissection, left renal artery and common iliac. Patient reporting only sudden paraplegia. We demonstrat that is necessary a joint analysis of different imaging methods, including computed tomography, magnetic resonance imaging, angiotomography, for the correct diagnosis of atypical cases, thus enabling better therapeutic conduction for the case.

Clinical history: J.P, 73 years old, from Espirito Santo, Brazil, denies comorbidities, complaint about a sudden and transient paraplegia for 2 days. At the neurological examination, grade 3 strength in lower limbs, decrease in superficial sensitivity and vibratory sensation

Discussion and diagnosis, or vice versa: An angiotomography showed intra-aortic flap. It extends throughout the abdominal aorta, with formation of false intraortic light, dissecting a proximal portion of the left renal artery, bilateral common iliac and bilateral femoralis. As lumbar arteries apparently originated from false light. Aimed for vascular surgery in D12, a neurological physical examination and a report of the patient without delayed postoperative showed an improvement of the symptoms. The dissection of the aorta can lead to occlusion of the origin of several arteries, including as they consider the spinal cord, resulting in ischemia of the anterior part of the spinal cord. This clinical entity is known as anterior spinal artery syndrome. The occurrence of transient neurologic symptoms is usually attributed to temporary occlusion of vessel origin by movement of intimate flaps or decompression of the false lumen back into the aortic (true) lumen. The acute stages are characterized by sagging and loss of deep tendon reflexes. Over the days and weeks, it develops spasticity and hypeflexia, and may be accompanied by autonomic dysfunction, sexual, intestinal and bladder dysfunction.

Conclusion: The reported case shows a rare complication of aortic dissection. The use of different diagnostic radiological methods, combined with analysis of the same, provided the correct diagnosis.

Responsible Author: Dra. Priscilla Haui de Oliveira Galuzzi Fonseca
E-mail: hauipri@gmail.com

PD.04.002
VERTEBRAL ARTERY LUSORIA: REPORT OF TWO CASES
Authors: Sampaio, L. P.; Neto, S. R. O.; PEREIRA, L. P.; FILHO, C. L. M.
Institution: HOSPITAL GERAL DE FORTALEZA
Brief description of the study purpose: The right and left vertebral arteries most commonly originate from the corresponding subclavian arteries, without presenting a mediastinal course. Among the various types of anomalous origin of these vessels, the most common is the left vertebral artery originating directly from the aortic arch, between the left common carotid and subclavian arteries, with a prevalence varying from 2.4% to 5.8%. The anomalous origin of the right vertebral artery is less frequent, being quite rare, with few cases described in the literature. This study aims to present two cases of aberrant right vertebral arteries, which present origins in the aortic arch, being incidental findings in angiotomography examinations. We will also discuss the clinical importance of this rare anatomical variation.

Clinical history: We report two cases of male patients hospitalized for a cerebrovascular accident, submitted to angiotomographies of the skull and cervical vessels, which showed right vertebral arteries with origins in the aortic arch and describing retrooesophageal courses. Both patients had no symptoms related to the anatomical variation described.

Discussion and diagnosis, or vice versa: The vertebral artery with anomalous origin may present retrooesophageal course, and so may be called "vertebral artery lusoria". Patients with this anatomical variation are often asymptomatic, and the diagnosis was made incidentally, in the vast majority of cases. The vertebral artery with anomalous origin may represent an independent risk factor for arterial dissection and may be associated with other anatomical variations, such as coarctation of the aorta.

Conclusion: The right vertebral artery originating from the aortic arch and describing the retrooesophageal course is a rare anatomical variation, with few cases described in the literature. Although most patients with these variations are asymptomatic, identification of the anomalous origin and path of this vessel becomes important, especially before endovascular procedures or cardiothoracic surgeries. Failure to identify an anomalous vertebral artery may lead to vascular injury, with consequent increase in intraoperative morbidity and mortality in these patients.

Responsible Author: Dra. Larissa Pinho Sampaio
E-mail: larissa_ipueiras@hotmail.com

PD.04.003
KLIPPEL-TRÉNAUNAY SYNDROME (KTS) WITH MULTISYSTEMIC INVOLVEMENT: AN INTERESTING AND RARE CASE
Authors: LOUZA, G.; MARCHIORI, E.
Institution: Hospital Universitário Clementino Fraga Filho - Universidade Federal do Rio de Janeiro (UFRJ)
Brief description of the study purpose: The purpose of this case report is to describe a case of Klippel-Trénaunay Syndrome (KTS) with multisystemic involvement.

Clinical history: A 58 years old woman with left upper limb, left breast and left hemifacial hypertrophy associated with varicose veins and palpable vascular malformations presented to this hospital with palpable left breast nodule. She also had visible capillary vascular malformations in left breast. Patient was diagnosed years ago with Klippel-Trénaunay Syndrome (KTS). A breast ultrasound was performed and demonstrated vascular malformations (benign findings - BIRADS™2) interspersed with lobulated and irregular nodules, with regional enhancing at contrasted study (suspicious abnormality - BIRADS™4). Patient was submitted to nodule US guided core biopsy, with diagnosis of inva-
sive ductal carcinoma. She underwent neoadjuvant chemotherapy and posterior breast-conserving surgery. There was surgical technical difficulty caused by multiple vascular malformations, with need of intraoperative intervention of vascular surgeons. Chest, abdomen and pelvis CT were performed, for staging purposes. In chest, multiple massive lobulated structures located in upper mediastinum, left paravertebral, left paravertebral, left breast and surrounding soft tissues were noted, some with calcified structures compatible with phleboliths, all of them with

**Discussion and diagnosis, or vice versa:** KTS exhibits multiple low-flow vascular malformations associated with overgrowth disturbances and vein abnormalities. The main findings are: (a) soft tissues or bone hypertrophy; (b) congenital varicose veins or venous malformations marked by dilated blood vessels called lateral megaveins; and (c) capillary malformations or port wine stains. Two of three findings confirms the diagnosis.

**Conclusion:** We presented a case of Klippel-Trénaunay Syndrome (KTS), a rare syndrome, with multisystemic involvement.

**Responsible Author:** Dr. Guilherme Felix Louza

**E-mail:** guilhermelouza@hotmail.com

**PD.04.004**

**AGENESIS OF INFERIOR VENA CAVA IN A YOUNG PATIENT PRESENTING WITH DEEP VEIN THROMBOSIS**

**Authors:** DINIZ L.V.; ANTUNES,P.E.H.; A VELOSO,- J.C.V.; RODRIGUES,J.LP.; ANTUNES,M.M.R.; ROÇA, C.T.; BASSO, C.F.; NEVES, G.B.; SAAD, F.M.

**Institution:** HOSPITAL DE CLÍNICAS DA FACULDADE DE MEDICINA DE BOCATUCA (HCFMB/UNESP)

**Brief description of the study purpose:** Report a rare case of inferior vena cava (IVC) anomaly in a young patient, asymptomatic up to the age of 19 years, when he presented with deep venous thrombosis (DVT) of the lower left limb. Through this case, we will make a practical review on the embryology of the IVC and study the most important anomalies of the development of the IVC from the perspective of the radiologist.

**Clinical history:** A 19-year-old male patient reported having woken up with edema and pain in the lower left limb, from the calf to the thigh root. A Doppler ultrasonography revealed thrombosis of the common deep and superficial femoral popliteal vein, great saphenous vein and iliac vein. To complement the study, venous angiotomography was requested, which revealed the following vascular abnormalities: Agenesis of suprarenal, renal and infra-renal right inferior vena cava, persistence of the left suprarenal inferior vena cava and hypoplasia of the left inferior vena cava. Lumbar and abdominal collateral circulation is also observed, as well as ectasia of the azygous veins, hemiazygos and umbilical vessels. In addition to these vascular anomalies, right renal hypoplasia, anomaly of the anchorage of the cecum, agenesis of the left hepatic lobe (only the caudate lobe is present) associated with the absence of the left portal vein were found.

**Discussion and diagnosis, or vice versa:** Due to the increase in the number of imaging tests, anomalies of the development of the IVC are more commonly detected, especially in asymptomatic patients. The study of the complex embryogenesis of IVC allows a better understanding of these innumerable variations and the clinical repercussions of each one.

**Conclusion:** Knowledge of the various abnormalities of IVC development is essential for the interpretation of imaging examinations to avoid incorrect diagnosis of mediastinal or retroperitoneal masses or adenopathies. In this way, the practical study of the embryogenesis of the venous system contributes significantly to the reduction of diagnostic errors in these findings that have been increasingly found in asymptomatic patients.

**Responsible Author:** Dr. LEE VAN DINIZ

**E-mail:** leevandiniz@gmail.com

**PD.04.006**

**NOT ALWAYS A BED OF ROSES: CASE REPORT OF COMPLICATIONS RELATED TO "VALVE-IN-VALVE" IMPLANT.**


**Institution:** Instituto do Coração (INCOR) - Faculdade de Medicina da Universidade de São Paulo (FMUSP)

**Brief description of the study purpose:** The following clinical case illustrates complications related to percutaneous cardiac valve prosthesis implantation procedures and how the complementary imaging tests can aid in its diagnosis and prevention.

**Clinical history:** A 57-year-old female patient undergoing rheumatic mitral stenosis with a history of mitral commissurotomy in 1993 and replacement for a biological prosthesis in 2002, was electively admitted to the valve-in-valve implantation of a new mitral prosthetic valve through transapical transsthoracic punction due to prosthetic dysfunction. In the immediate postoperative period it evolved with hemorrhagic shock and hemostasis revision due to puncture related intercostal artery injury. She also presented perioperative infarction, despite the absence of obstructive coronariopathy in the cineangio-coronariography performed during the procedure in a hybrid room. Transsthoracic echocardiogram documented systolic cardiac dysfunction and also revealed the presence of pseudoaneurysm in the anteroseptal wall of the left ventricle. A coronary angiotomography was performed, which revealed a traumatic lesion of the distal segment of the anterior descending coronary artery and myocardial infarction was confirmed by the late-enhancement technique of Cardiac Magnetic Resonance. It was opted for treatment adjustment for heart failure and outpatient follow-up.

**Discussion and diagnosis, or vice versa:** Valvopathies are notable for their prevalence and burden on health services, especially in Brazil and other developing countries, where rheumatic etiology still predominates, but with an increasing importance of the degenerative causes of aging. In this context, transcatheter valve prosthesis implantation appears as an alternative for patients refractory to clinical treatment and with contraindication or high risk to the conventional surgical option. Although of lower morbidity as a general rule, this procedure is not free of complications and the reported clinical case shows complications related to apical puncture: bleeding, pseudoaneurysm, coronary lesion with infarction and heart failure.

**Conclusion:** The complementary imaging tests helps in the perioperative percutaneous valve implantation, from the choice of the ideal prosthesis size and the best access route until the evaluation of the result and complications. Unlike transcatheter aortic valve implantation (TAVI) where well-established preoperative assessment protocols exists, it is still necessary to develop an equivalent and uniform protocol for the valve-in-valve approach scenario.

**Responsible Author:** Dr. Ivanhoé Stuart Lima Leite

**E-mail:** ivanhoejp@yahoo.com.br
ORIGINAL PAPER

SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)

PD.05.001
RADIOLOGICAL PROTECTION CAMPAIGN IMPLEMENTATION IN A TEACHING HOSPITAL
Authors: BERNARDO,M.O.; MARTINS,F.M.; RODRIGUES,C.I.S.; MORGADO,F.; FUGIKI,R.H.M.; SANTOS,J.R.; SALES,D.M.; ALMEIDA,F.A.
Institution: Faculdade de Medicina da Pontificia Universidade Católica de São Paulo, Sorocaba, São Paulo; Universidade Estadual de Campinas (Unicamp), Campinas, São Paulo.
Brief description of the study purpose/Objectives: Objectives: To describe the implantation steps of a radioprotection campaign in a Teaching Hospital. To increase the awareness and to educate the academic community into a radioprotection culture and safety for patient’s assisted in a Teaching Hospital.
Material and methods: Material and methods: This prospective interventional education research was approved by the institution Research Ethics Committee. The pilot project was developed in the neonatal intensive care unit and in the newborn nursery. All the Kotter’s 8-Steps change management model have been followed as well as the Brazilian Public Health Surveillance Standards (nº453-1998), Interministerial Ordinance Nº 285-2015 for teaching hospitals; International Campaigns (Choosing Wisely® and Image Gently®), the American College of Radiology’s protocols and the International Atomic Energy Organization. The project received support from the institutional managers. Team awareness was operationalized with multidisciplinary interactive meetings, targeted work instructions, outreach tools, and multidisciplinary training. The educational intervention on the subject will be evaluated through self-applied questionnaires that utilizes a Likert Scale already validated by specialists. The participants (N=200) include patients, employees, undergraduate students and medical residents. The answer’s interpretation given by the participants will allow to improve the process and to look for the Kotter’s eighth step of the change, the incorporation of the radioprotection in the organizational culture.
Results and discussion: Results and discussion: The Radiation Protection Commission was implemented; Internal Regulation, radiological examinations and enhances patient safety. The establishment of the Radioprotection Commission, the follow-up of the implementation guide by other institutions and an educational strategy for undergraduate students and medical residents will allow the maintenance of the campaign on a permanent basis, especially if inserted in it the educational program.
Responsible Author: Dra. Mônica Oliveira Bernardo
E-mail: mo.bernardo@yahoo.com.br

PD.05.002
IMPRESSION OF RECENTLY ADMITTED MEDICAL STUDENT ABOUT RADIOLOGY IN GENERAL MEDICAL PRACTICE
Institution: ESCOLA BAHIANA DE MEDICINA E SAUDE PÚBLICA
Brief description of the study purpose/Objectives: Radiology approach in our institution for students on the first semester of the medical course occurs through quarterly conferences, performed by a radiologist professor. In the first conference, basic notions of radiology are discussed: biophysical principles, notions of orthogonal planes and identification of anatomical structures in imaging exams (Simple/Contrast Radiography, Ultrasonography, Magnetic Resonance and Computed Tomography). The other two conferences are held at the end of the Cardiorespiratory and Musculoskeletal Biomorphology modules. In them, radiological contents are approached, interconnecting them with the study of human anatomy and clinical cases applied during each module. Thus, this paper intends to describe the perception of radiology and its importance in general medical practice by recent medical students.
Material and methods: At the end of the first semester, an online questionnaire was available, in which the academics evaluated radiological knowledge, expressed opinions and points of view about radiology specialty, interest in the specialty, and its importance in general medical practice.
Results and discussion: The questionnaire was answered by 60 students. In the topic “radiology specialty”, 93.3% considered above average/excellent the need for radiological knowledge in the practice of general medicine. The students evaluated how excellent, in 95% of the answers, the importance of a radiologist in the conduction of a clinical case in which the patient needs an imaging exam. When the interest for radiology specialty was asked, 46.6% showed above average/excellent interest. Regarding radiological knowledge at the end of the period, 80% of the students stated that they had knowledge in the average/above average of the content addressed.
Conclusion: The early insertion of radiology teaching in medical graduation is important for the recently admitted academic to mature their perception of the need of radiological knowledge in general medical practice, serving as an incentive for learning human anatomy, conducting clinical cases and stimulating formation of new radiologists.
Responsible Author: Dra. Carolina Freitas Lins
E-mail: kerolins@yahoo.com.br

PD.05.005
RADIOLOGY TEACHING IN THE PROFESSIONAL CYCLE: EFFECTS OF EARLY EXPOSURE IN THE PERSPECTIVE OF MEDICAL ACADEMICS
Institution: ESCOLA BAHIANA DE MEDICINA E SAÚDE PÚBLICA
Brief description of the study purpose/Objectives: Evaluate the performance and posture of the medical students re-
Material and methods: A two-part virtual questionnaire was made available to the academics of two classes during the seventh period of the medical course, with information about the knowledge and opinion about Radiology, together with the Free and Informed Consent Term. All questionnaires were answered voluntarily included in the study and the in-completes and Whose student has previous graduation in area were excluded. For the normal variables, the mean, standard deviation and amplitude were used, in addition to the Pearson Chi-square test. For the non-normal, we used the median and the interquartile range, as well as the Mann-Whitney U-Test. Cronbach's alpha analysis was performed to evaluate the reliability of the questions.

Results and discussion: The questionnaire was answered by both groups during the two-week period before the start of the seventh semester, reaching a sample of 114 students. It was found that more than half of the academics had a hit rate above 90%. When comparing the correct scores between groups, there was a non-significant p, except for one question. This demonstrates good learning with no difference between groups. However, most of the students consider their knowledge as middling and they assert that radiology have a great importance for the general clinical. On the other hand, they believe that not every general practitioner must master it completely.

Conclusion: It was observed that the academic exposure to radiology in the basic cycle, has a good prior knowledge in the professional cycle, understanding and recognizing the importance of radiology for its training and medical practice.

Responsible Author: Dra. Carolina Freitas Lins E-mail: kerolins@yahoo.com.br

PD.05.031

RADIODIOGNY FOR THE GENERALIST MEDICAL AND AS A SPECIALTY – STUDENT’S PERCEPTION


Institution: ESCOLA BAHIANA DE MEDICINA E SAÚDE PÚBLICA

Brief description of the study purpose/Objectives: Evaluate the perception of academic by medical basic cycle about the importance of Radiology for general medical and its role as specialty.

Material and methods: A questionnaire about radiology specialty notions and its relationship with general medicine and clinical practice, containing fifteen objective questions was made available by e-mail to graduates of the third academic period. They had passed by conferences of biophysical aspects of radiology and clinical-radiological conferences, that accompanied the end of Anatomy modules, as well as passed by Radiological Anatomy module enabling the critical thinking development as to solicitation of exams and interpretation of basic imaging methods. Seventy-one academic volunteers participated, after signing the free informed consent form.

Results and discussion: The analysis of the questionnaires showed that most students have interest in the area, ranging from excellent (13%), above average (34.8%) and average (27.2%), although they consider, for the most part, their knowledge in Radiology in the average (18.5%), below the average (46.7%) or insufficient (32.6%). Of the participants, 60.9%, identify Radiology as a specialty, with all of them perceiving the importance of learning about basic radiological notions by the general practitioner, as well as their integration with other medical specialties for the good conduct of clinical cases (85.9%).

Conclusion: Through early contact, since the basic cycle, with radiological knowledge, academics have demonstrated a perception of Radiology as important specialty for the diagnosis and definition of conducts, as well as an area of education that every general practitioner should have sufficient domain for proper management of the patient.

Responsible Author: Dra. Carolina Freitas Lins E-mail: kerolins@yahoo.com.br

PD.05.032

STRUCTURE AND ORGANIZATION OF RADIOLOGICAL ANATOMY IN THE BASIC CYCLE - A PERCEPTION OF THE ACADEMIC OF MEDICINE


Institution: ESCOLA BAHIANA DE MEDICINA E SAÚDE PÚBLICA

Brief description of the study purpose/Objectives: In our institution, Radiological Anatomy is addressed in three initial periods of the course. Thus, this paper intends to describe perception of medical student about structure and organization of the curricular component in basic cycle.

Material and methods: At the beginning of first period, there is a conference about radiology basic notions (in all different imaging exams). Then, in first and second periods, quarterly conferences are held by the radiologist, at end of Osteomuscular, Cardiorespiratory, Gastrointestinal, Genitourinary and Neuroendocrine modules, addressing clinical cases developed in respective modules. In the third period, there are weekly classes, distributed among anatomical regions: Hyoidea, Carotid, Supraclavicular, Axillary/Mammary, Elbow, Thorax, Abdomen, Inguinal, Inguinosferal, Gluteal and Popliteal. These classes are divided into two moments: in the first, teacher presents an expositive class based on clinical case about a given region; in the second, there are classes taught by student mentors (previously trained by teacher), in which three different radiological examinations related to the region studied on the week are discussed. At end of the first and third periods, an online questionnaire was made available, in which the academics evaluated this discipline.

Results and discussion: The questionnaire was answered by 60 and 74 students of first and third periods respectively. In the theoretical-clinical component, 98.3% of first period academics and 100% of third period academics considered above average/excellent clarity in the presentation of content proposed by the professor. In the practical component, 98.6% of the third period students evaluated as above average/excellent the participation of the monitors for sedimentation of the content. In the overall evaluation of the subject, 86.6% of first period students and 91.9% of third period students considered above average/excellent a methodology used in the developed content. In addition, 91.7% of first period students and 98.7% of third period students considered above average/excellent the component's contribution to development of clinical reasoning.

Conclusion: The structure and organization of Radiological Anatomy in basic cycle, through quarterly conferences and weekly classes, provides a theoretical and practical basis of radiology in the opinion of students, being essential for formation of general practitioner.

Responsible Author: Dra. Carolina Freitas Lins E-mail: kerolins@yahoo.com.br
COMPARATIVE ANALYSIS BETWEEN PERCEPTION OF BASIC AND PROFESSIONAL CYCLE STUDENTS ABOUT RADIOLOGY - A EVOLUTION STUDY THROUGH GRADUATION


**Institution:** ESCOLA BAHIANA DE MEDICINA E SAÚDE PÚBLICA

**Brief description of the study purpose/Objectives:** Analyze the evolution of medical student’s perception about Radiology from the basic cycle to the professional cycle.

**Material and methods:** A virtual questionnaire composed of 48 objective questions was applied to the newly admitted medical students in the first semester, to the students who had recently concluded third semester, in which they are exposed to Radiological Anatomy component, and to the ones who had recently concluded the seventh semester, in which they study the component Radiology, about their vision on Radiology as a specialty and to generalist medicine. In total, 60 students of the first semester, 92 from third and 114 from seventh answered the questionnaire after signing the free and informed consent form.

**Results and discussion:** Regarding the self-assessment of their radiological knowledge, 80% of the first graders considered below average, 25.7% of the third ones considered in the average or above the average and 78.2% of the seventh students, in the average or above the average. Radiology was seen as a specialty not only diagnostic by 88.3% of the first semester, 88% of the third and all of the seventh period students, and the majority considered it to be also interventionist. In addition, 56.7% of the students in the first semester and 58.7% of the third consider that every doctor must master Radiology in its entirety, while 82.5% of the students of the seventh semester disagree, but 100% of them consider that every doctor should have a good degree of intimacy with the area. Also, 46.6% of the first period, 47.8% of the third and 40% of the seventh semester graders showed an interest in following the specialty, and more than 80% of the three semesters evaluated Radiology in general as above average or excellent.

**Conclusion:** An evolution of the medical students’ perception about Radiology was observed as they went through the basic to professional cycles. After greater contact with the radiological area, they demonstrated greater intimacy, critical vision and safety about the role of Radiology for the general medicine and as a specialty, and in all three moments of the course, there was a substantial interest in the area.

**Responsible Author:** Dra. Carolina Freitas Lins

**E-mail:** kerolins@yahoo.com.br

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**PICTORIAL ESSAY**

**SCIENTIFIC PAPERS - POSTERS (PA)**

**PA.05.001**

**Magnetic Resonance, Missile Effect, Accidents and Risk Evaluation: Training is More Important Than the MRI Warning Signs.**

**Authors:** MAURELLI, R.A.O.; CHAIM, K.T.

**Institution:** Instituto de Radiologia, Hospital das Clínicas HCFMUSP, Faculdade de Medicina, Universidade de São Paulo, São Paulo, SP, BR.

**Introduction and objectives:** There are numerous accidents in places with magnetic resonance (MR) equipment, mostly because of the missile effect. In June 2017, at XXX Institute of YYYY, an employee entered the examination room with a ferromagnetic device. The strong attraction struck the patient seriously. Were it not for the conditions of the occasion, we would have a similar incident to the emblematic case of July...
2001, when a child died after being struck by a ferromagnetic oxygen tank attracted by the equipment. Even adopting the best practices of MRI security, initially developed in mid-2002, incidents such as June now alert us to the need for reassessment of the protocols and re-adaptation of the institution’s policies. For this reason, extensive work on education, re-education and statistical risk assessment was carried out.

**Methods:** Based on the American College of Radiology’s guidelines, we have improved upon an online version of the Level 1 RM safety training. With the consent of the Board of Directors of the Institution, we make available to all employees whether or not they are in the service (total of 974 people). The activity was divided into 4 stages: basic safety information about the employee; a video lesson; a questionnaire to fix the concepts; and statement of consent on risks in the MR environment (The total duration of 30 minutes).

**Discussion:** Preliminary results (period 08/31/17 to 02/01/18) indicate that the activity was completed by 594 (61%) employees, from the different areas. Of the respondents, 65% reported that they performed or transited in the MRI sector for the institution for some reason, and it was observed that 10% of them had a condition that could be an impediment to enter MR or perform exams, such as pacemakers, metallic implants or tattoos.

**Conclusion:** In addition to the importance of controlling access to restrict areas, MRI warning signs and procedures for screening patients and equipment, understanding the risks involved and polices in places with MR equipment by all professionals, even those who do not work in controlled areas, is critical to a more secure and collaborative environment.

**Responsible Author:** Biom. Khalil Taverna Chaim
**E-mail:** khalil.chaim@hc.fm.usp.br

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**LITERATURE REVIEW**

**SCIENTIFIC PAPERS - POSTERS (PA)**

**PA.05.003**

**A REVIEW OF THE "ACR MANUAL ON CONTRAST MEDIA", 2017**

**Authors:** FONSECA, PHDOG.; MUNIZ, B.C

**Institution:** Hospital Federal Cardoso Fontes

**Brief description(s) of the purpose(s) of the Literature Review:** The purpose of this study is to clarify the main doubts about the correct use of the contrast media during the imaging tests. We address contraindications, suggestion for patient screening, pre-medication, as well as recognition of adverse reactions, management of intercurrences. It is of the utmost importance that resident physicians and radiologists know the main protocols for the use of contrast media, since it is a necessary, important and used instrument daily.

**Description(s) of disease(s), method(s) and/or technique(s):** A thorough review of the "ACR Manual on Contrast Media" of 2017, highlighting the most important topics in medical practice and presented succinctly and directly to the interested public.

**Discussion:** The use of contrast is quite discussed in some occasions, in the present study, we highlight some of them and present the correct management. It is necessary to know the main risks of the contrasts used. In the use of the gadolinium, for example, it is of paramount importance that the renal function of the patient be evaluated. This is because there is an association between the use of gadolinium and nephrogenic systemic fibrosis. The use of contrast in small children also generates a lot of fear, since the majority presents unusual access and catheter of small caliber. We have the solution of these adversities to administer the contrast "by hand", check the access before and watch that the pressure used does not exceed the classification of the catheter. Another major challenge inherent in the use of contrast is its administration in breastfeeding women. In the present study, it was evidenced that there is no scientific evidence of impairment of the fetus before contrast administration in these mothers. However, in case of concern, it is recommended to suspend breastfeeding for 24 hours and discard the milk during this period. Adverse effects is the topic of greatest attention. In this way, we highlight the recommended drugs as well as their doses. There is also a description of the main symptoms to be recognized.

**Conclusion:** There are several doubts and atypical situations that the radiologist is faced with using the contrast media, for this reason, it is necessary to know this material.

**Responsible Author:** Dra. Priscilla Haui de Oliveira Galuzzi Fonseca
**E-mail:** haupri@gmail.com

**PA.05.006**

**INFORMED CONSENT FORM: WHAT RADIOLOGISTS SHOULD KNOW**

**Authors:** PIBER, R. S.; PIBER, L. S.; VIANA, J. M.

**Institution:** A. C. Camargo Cancer Center, São Paulo, São Paulo, Brasil

**Abstract:** Since the occurrence of events such as June in 2001, when a child died after being struck by a ferromagnetic oxygen tank attracted by the equipment, there has been increasing concern about the risks of using contrast media. It is necessary to know the main protocols for the use of contrast media, since a 10% of them had a condition that could be an impediment to enter MR or perform exams, such as pacemakers, metallic implants or tattoos.

**Conclusion:** In addition to the importance of controlling access to restrict areas, MRI warning signs and procedures for screening patients and equipment, understanding the risks involved and polices in places with MR equipment by all professionals, even those who do not work in controlled areas, is critical to a more secure and collaborative environment.

**Responsible Author:** Biom. Khalil Taverna Chaim
**E-mail:** khalil.chaim@hc.fm.usp.br
exchanges of information between the physician and the patient, whose objective is to protect the dignity of the human person, private autonomy and beneficence. A bibliographic review was carried out about this theme.

**Discussion:** The ICF is composed of objective and subjective items, which are extremely necessary for its existence and validity, as well as safeguarding the rights of the professional in a possible judicial process. The main cause of the litigation named error medical comes from the unsatisfactory physician-patient relationship, resulting from the inability of the professional to provide adequate interpersonal communication and to take precedence on good quality care. Today, this relationship tends to be impersonal, of mutual distrust. The preparation of the ICF is an obligation of the health professional who will provide the service (medical act and not of the hospital/clinic/laboratory) to clarify to the patient about the benefits and risks of medical procedures and treatments, which he will be submitted, which strengthens the patient's confidence. Otherwise, the professional can be characterized as an agent of bad faith, culpably or intentionally, because only from the exact knowledge of what is offered to him, it does the patient agree or not with the procedure, thus contemplating the principle of autonomy. Because they are invasive procedures, the ultrasonography guided biopsies can cause to the patient, in addition to anxiety and discomfort, side effects listed in the medical literature, which should be very well presented and clarified through the ICF.

**Conclusion:** Considering that ICF is constantly evolving, directly related to the moral, ethical, cultural and religious aspects of society, as well as the need for medical information and recycling in relation to the bioethic principles of the autonomy, it is evident the importance of the discussion of the items which are the basis for the preparation of this document.

**Responsible Author:** Dr. Leonardo de Souza Piber

**E-mail:** leonardopiber@yahoo.com.br

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**PD.05.024**

**THE BASIC PRECAUTIONS OF RADIONESSENSIBILITY AND RADIOPROTECTION**

**Authors:** SOUSA, J.C.O.; FRANÇA, C.A.; LIMA, H.J.V; ARAÚJO, G. M.S.; FRAZÃO, D.W.P.; SANTOS, P.H.S

**Institution:** Núcleo de Pesquisa Científica e Acadêmica de Radiologia (NPCAR)

**Brief description(s) of the purpose(s) of the Literature Review:** Tissue radiosensitivity corresponds to the degree and rate of tissue response to irradiation. The more differentiated and proliferative the tissue, the more sensitive to irradiation and, on the other, the more differentiated and stable the more resistant to the action of radiation. This study aims to elucidate essential terminologies in the understanding of the action of radiation in tissues and their implications in radioprotection measures.

**Description(s) of disease(s), method(s) and/or technique(s):** Exploratory research of bibliographical review of articles, doctoral theses and scientific publications of diverse nature without established temporal clipping.

**Discussion:** Tissue radiosensitivity has a direct implication on biological effects and the exposure of man or part of his

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**SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)**

**PD.05.024**

**THE BASIC PRECAUTIONS OF RADIONESSENSIBILITY AND RADIOPROTECTION**

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**Description(s) of disease(s), method(s) and/or technique(s):** Exploratory research of bibliographical review of articles, doctoral theses and scientific publications of diverse nature without established temporal clipping.

**Discussion:** Tissue radiosensitivity has a direct implication on biological effects and the exposure of man or part of his
tissues to radiation has very different results, if it occurs in a unique way, in a fractional way or periodically. The radioprotection to be performed during any events involving the use of radiation encompasses both technical aspects and knowledge related to terminologies: Relative biological efficiency (RBE), linear energy transfer (LET), and dose and rate efficiency factor dose - (DDREF).

**Conclusion:** Radiosensitivity directly implies the response of tissues to the dose of radiation to which they are subjected. However, high LET radiation has a high ionization power and a high energy transfer rate in the material medium, giving the same value of absorbed dose greater biological damages.

**Responsible Author:** Sra. Joyce Caroline

**E-mail:** joycecarolineoedoliveira@hotmail.com

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### CASE REPORT

**SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)**

**PD.05.003**

**A PROPOSAL FOR RADIOLOGY MEDICAL EDUCATION THROUGH SOCIAL NETWORK IN GRADUATION**


**Institution:** ESCOLA BAHIANA DE MEDICINA E SAÚDE PÚBLICA

**Brief description of the study purpose:** This paper aims to describe the activities of a Radiological Anatomy monitoring over social network in order to arouse interest of the student and stimulate learning of radiology.

**Clinical history:** Weekly, after discussion with the responsible teacher, three types of posts are made on Instagram: 1) a clinical case and an image exam associated with a question; 2) a radiological exam asking to identify some anatomic structures and 3) a challenge question to answer true or false about radiology. This way, there is an opportunity to the undergraduate respond, as to discuss about the topic addressed. At the end of the week, the answer of the questioning is posted with due explanation, again opening space to the undergraduate discuss and ask for possible doubts.

**Discussion and diagnosis, or vice versa:** To master knowledge and interpreting radiological exams is indispensable in medicine, especially for the formation of general practitioners. Social networks are widely used by young people in their personal lives. However, they can also be used to teaching and discussion about image exams, associated with clinical cases through the participation of academics, making the content more attractive and stimulant, as well as serving as a way to get closer to the undergraduate outside the university environment.

**Conclusion:** The utilization of social network as a means to teach and stimulate the study of radiology arouses interest of the undergraduates and strengthens their learning, allowing immersion in clinical-radiological thinking even outside the university.

**Responsible Author:** Dra. Carolina Freitas Lins

**E-mail:** kerolins@yahoo.com.br

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### PD.05.004

**CLINICAL CASES CHALLENGE – AN INTERACTIVE APPROACH TO RADIOLOGY LEARNING**


**Institution:** ESCOLA BAHIANA DE MEDICINA E SAÚDE PÚBLICA

**Brief description of the study purpose:** Describe the use of clinical cases as an interactive teaching tool for undergraduate medicine students.

**Clinical history:** Multiple clinical cases are presented to 100 fourth-year students divided in four groups by a graduated radiologist professor. In a first moment, the students utilize “socratic” website to answer questions previously elaborated by the professor with a challenge feature; the answers and results (rights and wrongs percentage) are shown shortly after for the whole class, although the answers given by the students are anonymous. On a second step, a clinical case in a similar manner to Objective Structured Clinical Examination (OSCE) is applied, and followed by some questions of clinical reasoning in which the professor conducts the discussion and students volunteer their answers. The clinical cases are, in this approach, the method of teaching the content.

**Discussion and diagnosis, or vice versa:** Clinical cases are commonly used as a way of integrating theoretical knowledge and medical practice, being, therefore, an important tool for graduation and training of future physicians. The cases shown to fourth-year undergraduate medicine students encompass not only basic aspects on radiology, but also how these aspects can be used on real life practice for both generalist and radiologist physicians; while the challenge feature of the activity captivate the students, seizing their attention and generating a genuine interest on the clinical cases, thus favoring knowledge retention. The website and its quickly shown results, followed by a thorough discussion of the cases and questions, allow the students to recognize their mistakes privately and instantly learn from them. Furthermore, OSCE questions contributes on the learning process because the students are evaluated by their collaboration on the discussion presented.

**Conclusion:** Interactive tools such as clinical cases challenges should be encouraged as a valid and important learning methodology for undergraduate medicine students, capital in the teaching of radiology.

**Responsible Author:** Dra. Carolina Freitas Lins

**E-mail:** kerolins@yahoo.com.br

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### PD.05.006

**APPROACH OF THE PEDIATRIC IMAGE EXAMS ACCOMPLISHED BY AN ACADEMIC LEAGUE OF RADIOLOGY: AN EXPERIENCE REPORT**

**Scientific Papers - Digital Presentation (PD)**

**Case Report**

**Authors:** MENDONÇA, L. D. C.; CASTRO, L. V. A; ARAÚJO, G. V. D.; SANTOS, A. F. S.; LOPES, A.K.B.F.; LINS, C. F.

**Institution:** ESCOLA BAHIANA DE MEDICINA E SAÚDE PÚBLICA/UNIVERSIDADE FEDERAL DE PERNAMBUCO

**Brief description of the study purpose:** Obtaining and interpreting imaging tests in pediatric patients requires special attention to the particularities belonging to this specific group. Thus, this paper aims to describe the development of the pediatric imaging approach performed by an academic radiology league.
Clinical history: The academic radiology league organized a weekly session module focused on addressing the major radiological findings in pediatric and neonatal patients with varying clinical settings. Two sessions were held, the first one addressing: radiological anatomy; common radiological findings of childhood; review on the use of radiology to assist in performing procedures (such as: placement of tubes and catheters). Then, in the second session, the students presented clinical cases in pediatrics, associating with the biomaging study.

Discussion and diagnosis, or vice versa: The sessions aimed to unite knowledge of the pediatric clinic with the correct indications and interpretations of imaging tests in pediatric patients. The content was exposed and discussed in the presence of a radiologist and a pediatrician, making the discussion more complete, elucidating also the practical use of this knowledge.

Conclusion: The league proposal, associating the classes taught by the students with the experience of the medical specialists, demonstrates a different view about the organization of a scientific session directed to academics.

Responsible Author: Dra. Carolina Freitas Lins
E-mail: kerolins@yahoo.com.br

PD.05.007
INTRODUCTION TO THE TEACHING OF EMERGENCY RADIOLOGY IN AN ACADEMIC LEAGUE OF RADIOLOGY: AN EXPERIENCE REPORT

Institution: ESCOLA BAHIANA DE MEDICINA E SAÚDE PÚBLICA/UNIVERSIDADE FEDERAL DE PERNAMBUCO

Brief description of the study purpose: Image exams are essential to the diagnosis and management of the patient in emergency’s scenario. Due to the acute aspect of the conditions in clinical and traumatic emergencies, the generalist physician’s ability and training are needed to provide a fast and effective investigation in order to identify lesions. Therefore, the teaching and consolidation of indications and interpretation of radiological methods must be performed since graduation. To present the clinical-radiological sessions of an Academic League of Radiology as an effective teaching methodology of Emergency Radiology’s principles to medical students.

Clinical history: Weekly sessions focused on clinical emergencies were created by a radiology league. Two sessions were performed, one about radiography and computed tomography, and the other on ultrasonography. The first class covered the applications of simple radiography on acute abdomen and computed tomography on pulmonary thromboembolism and pancreatitis, and the second one dealt with the use of the Echodoppler ultrasonography in pulmonary hypertension and ultrasonography in deep venous thrombosis.

Discussion and diagnosis, or vice versa: The dynamic of the sessions allowed an effective approach of the emergency radiology once it showed the radiological exams and findings in emergency diagnosis most requested. The theme was debated in the presence of a radiologist and clinical professional, allowing a deepening of the knowledge about the pathologies addressed.

Conclusion: The approach of radiological exams in the emergency within an academic league provides the development of practical clinical thinking, allowing greater knowledge about the pathologies addressed and emphasizing the true need of the radiological exams for its diagnoses.

Responsible Author: Dra. Carolina Freitas Lins
E-mail: kerolins@yahoo.com.br

PD.05.008
THE VISION OF MEMBERS OF A RADIOLOGY LEAGUE IN THE APPLICABILITY AND FUNCTIONALITY OF A RADIOLOGY COURSE FOR UNIVERSITY STUDENTS

Authors: Matos, J. D. O.; Gomes, E. M.; Dantas, R. O; Lins, C. F.
Institution: ESCOLA BAHIANA DE MEDICINA E SAÚDE PÚBLICA

Brief description of the study purpose: The teaching of radiology is more and more important in the curriculum of a medical student. Thus, participating in the organization of a course that has as its goal to unveil the vision of fellow students about the radiology presents itself as a differential when it comes of the deepening of this area and a facilitator in the learning process. This paper seeks to describe the approach of a course as a complementary activity that enhances knowledge in radiology of league members.

Clinical history: The course is aimed at students in all semesters of medicine and is developed once a year by members of an Academic League of Radiology. The course dynamic is divided in two moments: 30-minute lessons that address the principles, advantages and disadvantages of the main imaging exams (IE): ultrasonography, radiography, computed tomography and magnetic resonance; and 20-minute classes that address a clinical and practical view of these methods, associating certain diseases and their presentations to the IE. Each league member is responsible for preparing their lectures, and then they are presented and evaluated constructively by the radiologist doctor and other colleagues.

Discussion and diagnosis, or vice versa: It is offered to students, through the course, an objective and systematic view of the main radiological findings associated with clinical practice, providing the development of clinical tools, not only for the participants, but also for the organizers.

Conclusion: By seeking to improve the knowledge of the students around the functionality of the IE and their clinical applications, the course helps them to have a new uncomplicated vision of radiology and a more integrated learning in this area.

Responsible Author: Dra. Carolina Freitas Lins
E-mail: kerolins@yahoo.com.br

PD.05.010
THE INTERVENTIONIST RADIOLOGY APPROACH THROUGH AN ACADEMIC LEAGUE AS A CONTRIBUTION TO MEDICAL EDUCATION

Authors: GOMES, E. M.; MATOS, J. D. O.; BRITO, L. N. S.; COSTA, M. S.; LOPES, A.K.B.F.; LINS, C. F.
Institution: ESCOLA BAHIANA DE MEDICINA E SAÚDE PÚBLICA/UNIVERSIDADE FEDERAL DE PERNAMBUCO

Brief description of the study purpose: The significant growing of radiology in the university graduate curriculum of medical students happened due to factors like the technological advance in this area and the reformulations of the teaching strategies. In this scenario, academic leagues of radiology act as a facilitator in the learning process and consolidation of knowledge. In the same way, they could help students to deep their understanding of subjects generally not well known, like interventionist radiology – being this area a cutting-edge technology approach in diagnosis and treatment, such as minimally invasive techniques. Therefore, this study describes the experience of a radiology academic league while introducing the interventionist radiology theme.

Clinical history: The clinical radiological sessions presented by the previously mentioned league were open to the
academic community and conducted by two students in the presence of a vascular surgeon specialized in interventionist radiology. The class structure was based in the definition of techniques, benefits and disadvantages, classification and main procedures in association with the use of radiological images to facilitate the comprehension of the theme.

**Discussion and diagnosis, or vice versa:** The imaging exams along with the technological advancements are extremely important to the modern medicine. That’s the reason why health professionals must have a solid knowledge about interventional procedures and the potential use of radiological techniques, since the imaging methods have become routine not only for diagnosis, but also in the invasive procedures. In the same way, it’s important that the medical student learn the basic knowledge of interventional radiology, so he can feel more able to perform these methods in the future and to entirely explain it to his patients.

**Conclusion:** Due to a larger approach of this theme, the students were able to learn about the variety of areas in radiology, which also helped to demonstrate its importance through the fields of diagnosis and treatment.

**Responsible Author:** Dra. Carolina Freitas Lins
**E-mail:** kerolins@yahoo.com.br

**PD.05.011**

**TEACHING PULMONARY INFILTRATES DIFFERENTIATION TO MEDICAL STUDENTS AND ITS IMPORTANCE IN THE FUTURE CLINICAL PRACTICE:**

**AN EXPERIENCE REPORT**

**Authors:** MATOS, J. D. O.; SACRAMENTO, B. O.; FELIPE, P. H. D. O.; DANTAS, R. O.; LOPES, A.K.B.F.; LINS, C. F.

**Institution:** ESCOLA BAHIANA DE MEDICINA E SAÚDE PÚBLICA/ UNIVERSIDADE FEDERAL DE PERNAMBUCO

**Brief description of the study purpose:** Radiological approach of pulmonary infiltrates in the academic environment allows a broad view of the pulmonary pathologies, making it possible to relate the patient's clinical picture to the different radiological findings. Therefore, this paper intends to assist medical students in the recognition of the different radiological patterns of pulmonary infiltrates, favoring better diagnostic grasp in their future medical practice.

**Clinical history:** The distinction among the different types of pulmonary infiltrates was addressed in a session of an academic league of radiology. During the session, these different radiological aspects were approached, correlating with the clinic and emphasizing diseases that could have those image patterns. The theme was debated in the presence of a radiologist whom made contributions during the class. At the end of the session a group dynamic was introduced for a final exam presented to them.

**Discussion and diagnosis, or vice versa:** The recognition of the radiological patterns of pulmonary infiltrates has shown more viability with the clarifications and discussions during the League session and that aspect was highlighted by the academics’ answers to the introduced dynamic. In consequence, this approach represents a positive way of teaching in the clinical practice of future professionals.

**Conclusion:** The goals for the session about pulmonary infiltrates were reached because it allowed the students to deepen their knowledge in the theme, correlating the radiological findings with the clinical aspects. Therefore, besides the learning consolidation, the academic league, through its sessions, contributes expanding the clinical vision of the medical students and, thereafter, in their professional performance.

**Responsible Author:** Dra. Carolina Freitas Lins
**E-mail:** kerolins@yahoo.com.br

**PD.05.012**

**THE USE OF IMAGE EDITING SOFTWARE AS A TOOL FOR THE ENHANCEMENT OF RADIOLOGICAL ANATOMY EDUCATION IN THE GRADUATION OF MEDICINE**


**Institution:** ESCOLA BAHIANA DE MEDICINA E SAÚDE PÚBLICA

**Brief description of the study purpose:** This paper aims to describe how the editing of images by specific softwares makes it easier for medical students to visualize anatomical structures in radiological examinations.

**Clinical history:** Radiological anatomy monitors, through image editing program, manipulate radiological examinations with the purpose of facilitating the anatomical understanding of the images by the students of the 3rd semester of medical graduation. The editing program allows to perform image adjustments (changes in brightness, contrast, sharpness and exposure), improving the visual quality of the exams for unused eyes. In addition, the program allows the introduction of arrows, lines, strokes and shapes, so that it is possible to perform the precisedefinition and indication of the structures addressed in each one of the classes of this curriculum component. The program also allows the insertion of anatomy atlas illustrations so that, when they are overlaid on the radiological images, they allow the students to use their previous knowledge of human anatomy to understand the image exam presented to them.

**Discussion and diagnosis, or vice versa:** Radiological images are, sometimes, difficult for the medical student to understand. This difficulty is attributed, among other factors: to the similarity between the tonalities that different structures present in the radiological images; to the various structures that appear close together in the same field of view; cuts and plans that are sometimes different from those seen in anatomy classes; and the lack of training of the student to recognize anatomical structures in the radiological examination. In view of these impasses, tools offered by image editing software, allow to soften these difficulties presented by the students in the learning of the radiological anatomy.

**Conclusion:** The use of image editing software improves the radiological image to be exposed and facilitates the visualization and recognition of anatomical structures by the medical student.

**Responsible Author:** Dra. Carolina Freitas Lins
**E-mail:** kerolins@yahoo.com.br

**PD.05.013**

**CHOOSING WISELY IN THE CURRICULAR AXIS OF RADIOLOGY - A PROPOSAL FOR EARLY EXPOSURE OF ACADEMICS OF MEDICINE TO THE DIAGNOSTIC CONDUCT**

**Authors:** BAGANO,G.O.; DE FIGUEIREDO, N.C.M; FREITAS, A.A.; DOURADO JUNIOR, A.C.; SANTOS,
PD.05.015

HANDS-ON TRAINING IN BREAST ULTRASOUND DEVELOPED BY AN ACADEMIC LEAGUE OF RADIOLOGY - AN EXPERIENCE REPORT

Authors: REGIS, R. A.; USHIDA, T.; PINHEIRO; A. B. M.; CONCEIÇÃO, J. N.

Institution: Faculdade de Medicina da Universidade Federal de Mato Grosso (UFMT)

Brief description of the study purpose: Ultrasound-guided core needle breast biopsy and fine needle aspiration (FNA) are important methods for the diagnosis of breast diseases, especially in the diagnosis of breast cancer. This paper aims to describe the practical approach used in clinical-radiological discussion about breast cancer by a radiology league.

Clinical history: The theoretical lecture was given by a radiologist specialized in breast; breast pathologies and their diagnostic methods were approached through the exposition of clinical cases. The second part of the league session was performed in a core needle biopsy laboratory and FNA, in which an ultrasound, chicken breast filled with olives and water bladders simulating breast tissue with nodulations and cysts, respectively. Each student had the opportunity to perform the activity guided by the radiologist, becoming better acquainted with the method.

Discussion and diagnosis, or vice versa: The proposal created by the league was to associate theoretical and practical learning through discussion of clinical cases in breast diseases and creation of a biopsy simulation by core needle and FNA laboratory. This allows a better understanding of these diagnostic methods, favoring the construction of knowledge for a better results interpretation. In addition, other institutions can replicate this experience.

Conclusion: Thus, the union of theoretical activities with practice allowed not only a better understanding of the subject, but also an increase in the interest of participating students in radiology and their diagnostic methods.

Responsible Author: Dra. Ritamaris de Arruda Regis
E-mail: ritaregis1@hotmail.com

PD.05.016

APPROACH TO EARLY DETECTION OF BREAST CANCER BY AN ACADEMIC RADIOLOGY LEAGUE

Authors: REGIS, R. A.; USHIDA, T.; PINHEIRO; A. B. M.; CONCEIÇÃO, J. N.

Institution: Faculdade de Medicina da Universidade Federal de Mato Grosso (UFMT)

Brief description of the study purpose: Breast cancer is the second most common female and the first cause of mortality among cancers in women. Early detection is one of the main factors in decreasing mortality and better response to treatment. This study aims to describe the activities of an extension project carried out by an academic league of radiology focused on the promotion of women’s health, especially aimed at the prevention of breast cancer.

Clinical history: This work was developed by the academic league, primarily, through weekly sessions given by radiologists about imaging methods used in the prevention of breast cancer - mammography, ultrasonography and magnetic resonance imaging - in addition to methods for diagnostic confirmation - core needle breast biopsy and fine needle aspiration guided by ultrasound. Clinical-radiological discussions were carried out and, based on the developed knowledge, a lecture model was prepared to be presented to the lay community in order to guide and question the methods of breast cancer prevention. The lectures were given during the month of October 2017, in a total of 20, reaching a total audience of about 500 people.

Discussion and diagnosis, or vice versa: The project developed by the league aimed to improve teaching through discussion of clinical-radiological cases on imaging methods in the early detection of breast cancer with radiologists specialized in the field. The development and presentation of lectures on this subject for the lay public has transformed the medical student into a propagator of knowledge for the community. The dynamics created by the league allowed the medical student to also develop speaking and communication skills.

Conclusion: In this way, the activities carried out by the Academic League of Radiology during this project provided a different approach to the consolidation and propagation of teaching in the medical field, highlighting the role of social transformer the doctor possesses.

Responsible Author: Dra. Ritamaris de Arruda Regis
E-mail: ritaregis1@hotmail.com

PD.05.019

RADIOLOGICAL CAPACITATION IN ACUTE ABDOM - KNOWLEDGE, SKILLS AND ATTITUDES IN COST-CONSCIOUS CLINICAL MANAGEMENT IN MEDICAL GRADUATION

Authors: FIGUEIREDO, N.C.M.; COSTA, P.S.; FREITAS, A.A.; BRITTO, G.R.; MEIRELES, A.C.; BRASILEIRO, F.N.S.; BARROS, R.A.

Institution: A. C. Camargo Cancer Center, São Paulo, São Paulo, Brazil. Advanced Imaging Associates, Fremont, California, USA.
Brief description of the study purpose: To present a model of capacitation in radiology about the syndromic and etiological diagnoses of acute abdomen, as a critical thinking training proposal in medical course, fulfilled by an Academic League of Surgical Clinic.

Clinical history: The capacitation was destined to the league members, that are in the professional cycle of the medical course. Previously, the league members participated in clinical-radiological conferences, which approached different acute abdomen cases, taught by a responsible teacher that stimulated the undergraduates to become more critical about conscious use and indications of the radiological exams (radiography, ultrasonography, computed tomography or magnetic resonance), it was discussed the indications and contraindications, to each specific suspected syndromic diagnoses - inflammatory, piercing, obstructive, hemorrhagic and vascular - and etiological diagnoses. According to this pedagogical logistics, pondering the imaging exams (radiography, ultrasonography, computed tomography or magnetic resonance), it was discussed the indications and contraindications, to each specific suspected syndromic diagnoses - inflammatory, piercing, obstructive, hemorrhagic and vascular - and etiological diagnoses. At the end of the capacitation, as a way of sedimentation of learning, the members were exposed to altered images, adding the main radiological signs characteristic of specific cases. The radiological capacitation facilitates the in-depth knowledge about the radiology in medical daily and the relevance of thinking about cost-consciousness of each exam, avoiding unnecessary requests.

Discussion and diagnosis, or vice versa: The capacitation model stimulates the undergraduates to become more critical about conscious use and indications of the radiological exams and to train their imaging interpretation skills, facilitating the clinical conduction of the patient with acute abdomen.

Conclusion: The radiological capacitation facilitates the interpretation of the image exams discusses in the context of acute abdomen, corroborating to recognize the importance of radiology in medical daily and the relevance of thinking about cost-consciousness of each exam, avoiding unnecessary requests.

Responsible Author: Biom. Natália Consuelo Machado de Figueiredo

E-mail: nataliafigueiredo142@bahiana.edu.br

PD.05.023

CAPACITATION IN SOFTWARES THAT ALLOW EDITING RADIOLOGICAL IMAGES AS A TOOL TO IMPROVE RADIOLOGICAL ANATOMY LEARNING
Institution: ESCOLA BAHIANA DE MEDICINA E SAÚDE PÚBLICA

Brief description of the study purpose: Describe the training process undergone to Radiological Anatomy (RA) mentors, about editing radiological images to improve undergraduate students’ knowledge.

Clinical history: Adapting RA images demands a previous knowledge of image editing softwares. The training process was based in mastering Adobe Illustrator software through a lecture ministrated by a web designer to RA mentors. Afterwards, plain knowledge of the software, the mentors identified radiological images that were considered difficult for the fully understanding of anatomical landmarks by the students, focus in ultrasound exam. This source was used to facilitate visualisation the contours of anatomical structures on radiological exams.

Discussion and diagnosis, or vice versa: Anatomical schemes were achieved using adapted RA images. The usage of a software improved the communication and knowledge transfer as well as approaches the mentors and the students.

Conclusion: Merging previous anatomical knowledge with radiological exams offers a support and allows medical undergraduate students to achieve a better visualisation and understanding of these anatomical structures, especially when they are newly arrived in the radiological environment. Therefore, it is quite positive for the mentor to master technological tools that can be helpful to improve and promote radiology among students.

Responsible Author: Dra. Carolina Freitas Lins
E-mail: kerolins@yahoo.com.br

PD.05.025
IMPORTANCE OF A RADIOLOGY LEAGUE’S ACTIVITIES ON RADIOLOGIC KNOWLEDGE CONSTRUCTION FOR MEDICINE STUDENTS

Authors: Santos, J. P. S.; Castro, L. V. A., Schnitman, A. M.; Felipe, P. H. D. O; Lins, C. F.
Institution: ESCOLA BAHIANA DE MEDICINA E SAÚDE PÚBLICA

Brief description of the study purpose: Radiology teaching has undergone profound changes due to the development of the imaging methods and the growth of its applications. There is significant interest on this field among the academic community. An increasing number of radiology leagues are emerging, whose activities also contribute to bioimaging teaching. This paper has as its goal to describe the activities of a radiology league, featuring its importance for medical undergraduates.

Clinical history: The radiology league is composed of medical students and offers activities as sessions and courses. Public sessions are open to academic community, lasting two hours, being presented by the league members besides radiologists and other specialists, acting as facilitators of the subjective discussion. During the sessions, members make a clinical-radiological approach and correlate the applicability of imaging exams for both diagnosis and treatment of the current pathology. The course starts with a class on the basic principles of the imaging methods, with all the participants, after which are formed subgroups submitted to simultaneous twenty-minute classes, addressing specific pathologies of each organic system. At the end of each class, a quiz is held to review and consolidate the concepts discussed.

Discussion and diagnosis, or vice versa: Systematic approach of radiology basics and correlation with normal anatomic radiology, used on sessions and courses are developed to favor the comprehension of imaging exams’ alterations found by students. The contact with the activities promoted by the league makes possible to raise awareness among the academics on the importance of radiology in medicine. It is also emphasized the importance of building a solid clinical reasoning before requesting imaging exams, facilitating the systematization of the patient’s approach through complementary examinations by the undergraduates.

Conclusion: Courses and sessions promoted by a radiology league allow a systematized incitement of radiology on academic space. Thus, learning radiology brings to the student a different view, through the specific league model of exploring knowledge exchange within its members, being complemented by the experience and practical vision of the radiologist and specialist of the subject matter. Students acquire a differentiated knowledge for their medical acting, provided by the close contact with the clinic-radiologic correlations.

Responsible Author: Dra. Carolina Freitas Lins
E-mail: kerolins@yahoo.com.br

PD.05.027
THE DISSEMINATION OF BIOSAFETY PRACTICES IN MAGNETIC RESONANCE: EXPERIMENTAL REPORT AND PICTORIAL TESTING WITH PRODUCTION OF EDUCATIONAL MATERIAL

Institution: Núcleo de Pesquisa Científica e Acadêmica de Radiologia (NPCAR)

Brief description of the study purpose: The first contact with biosafety practices in radiology occurs during the academic life through the execution of disciplines that contemplate knowledge related to actions and behaviors that must be incorporated in the routine of the professional of the radiology so that it executes of safe form and without risk of Magnetic Resonance Imaging (MRI) is a method of image diagnosis in increasing development; however the possibility of accident risks encompasses a factorial range that most of society does not know. This work aims to disseminate in a practical way information pertinent to biosafety in an MRI service in the form of an educational material produced by radiology students.

Clinical history: The raising of theoretical material and images for the constitution of this work was carried out through the selection of information contained in literature related to the theme from search engines and indexers such as: BVS, Scielo and similar; the following descriptors were used: “Magnetic Resonance”; “Safety”; “Education”; “Patient”. The final sample for bibliographic analysis consisted of 10 articles previously selected for meeting the inclusion criteria: originated from the Portuguese language, maximum temporal cut of 10 years of publication, content related to safety in magnetic resonance such as: signs, shields radiofrequency and the exclusion criteria: textual component without availability in full and that did not meet the inclusion criteria.

Discussion and diagnosis, or vice versa: The establishment of the execution schedule and the forms of distribution, as well as the process of constructing the educational booklet with Biosafety MRI practices occurred in five steps previously performed during weekly meetings: choice of content, relevant aspects about MRI safety; creation of illustrations; preparation of content based on the literature consulted; dissemination of work to society.
**PD.05.028**

**MONITORING OF NEURORADIOLOGY IN THE MEDICINE COURSE: EXPERIENCE REPORT**

**Authors:** ALMEIDA, P. R. S.; ALMEIDA, T. N.; ASSIS, A. L. L. M.; CAMPOS NETO, M. F.; RODRIGUES, C. M.; RODRIGUES, E. R. M.

**Institution:** 1. UNIRAD Diagnosis by Image - Imperatriz, MA; 2. Federal University of Maranhão

**Brief description of the study purpose:** This study aims to report on the experience of neuroradiology monitoring in new medical courses.

**Clinical history:** Neuroradiology monitoring consists of academics from the eighth period who teach weekly classes to seventh-graders. Three monitors are trained at the beginning of the term by the teacher responsible for the discipline and take the practical classes of the neuroradiology modules.

**Discussion and diagnosis, or vice versa:** Five themes are addressed during the modules - diagnostic imaging of the skull and brain; ischemic vascular disease; hemorrhagic vascular disease; magnetic resonance imaging of the skull; spine. For fifteen weeks the subjects are divided into theoretical classes, taught by the teacher in charge, and practical classes, taught by the monitors with the supervision of the teacher. Students are introduced to the real cases that involve the respective themes and are encouraged to build a radiological knowledge through direct visualization of the image, thus consolidating knowledge. The involved academics, monitors and the students of the respective period, extend the knowledge about neuroradiology and are presented to the specialty of radiology and its subareas.

**Conclusion:** The monitoring of neuroradiology has great relevance for medical education, especially in the new medical courses. Through weekly meetings, academics from different stages of teaching, along with the specialist teacher, deepen their knowledge of the area.

**Responsible Author:** Biom. ELAINE ROCHA MEIRELLES RODRIGUES

E-mail: elainemeirelles@uol.com.br

**PD.05.029**

**INTRODUCTORY APPROACH OF RADIOLOGY FOR ACADEMICS OF MEDICINE: EXPERIENCE REPORT**

**Authors:** ALMEIDA, P. R. S.; CAMPOS NETO, M. F.; RODRIGUES, C. M.; RODRIGUES, E. R. M.

**Institution:** 1. UNIRAD Diagnóstico por Imagem - Imperatriz, MA; 2. Universidade Federal do Maranhão

**Brief description of the study purpose:** This study aims to report the experience of creating an academic radiology league in the new medical courses and its initial approach to radiology.

**Clinical history:** The introductory module that initiated a radiology league was the basis of the specialty - the basic knowledge and interpretation of the major exams performed in radiology. An introductory module was created that addressed the following topics: radiography, ultrasonography, computed tomography and magnetic resonance imaging.

**Discussion and diagnosis, or vice versa:** The classes were taught by binders and supervised by a specialist physician. Each exam was covered for two weeks in two meetings. The first meeting was responsible for introducing the techniques and standards of the exam, as well as their particularities. The second meeting included clinical cases involving the exam in question. In these encounters the presenter-ligand interaction was encouraged and the clinical-radiological practice was done by the radiologist preceptor. The content of each exam was extensively covered in two weeks and at the end of each topic a review was performed by the radiologist responsible to fix the subject learned.

**Conclusion:** The topic of clinical-radiological session initiated in the academic league served as a basis to disseminate radiological knowledge previously non-existent or flawed in participating medical students. Thus, linking the theory and then practice facilitated the technical learning about the exams presented.

**Responsible Author:** Biom. ELAINE ROCHA MEIRELLES RODRIGUES

E-mail: elainemeirelles@uol.com.br

**PD.05.030**

**RADIOLOGY TEACHING THROUGH ACADEMIC LEAGUES IN THE NEW MEDICINE COURSES: EXPERIENCE REPORT**

**Authors:** ALMEIDA, P. R. S.; CAMPOS NETO, M. F.; RODRIGUES, C. M.; RODRIGUES, E. R. M.

**Institution:** 1. UNIRAD Diagnóstico por Imagem - Imperatriz, MA; 2. Universidade Federal do Maranhão

**Brief description of the study purpose:** This study aims to report on the experience of an academic radiology league in the new open medical courses after the law of most medical.

**Clinical history:** The new medical courses, opened through the law of the most medical, respect a pedagogical project where the student is the center of the teaching and the problematization is the bias that governs the teaching of medicine - learning based on problems - PBL. Given this reality, the radiology league appears as an extracurricular activity that adds and improves the teaching of radiology in the new courses.

**Discussion and diagnosis, or vice versa:** In the Academic League, students receive theoretical classes, organize courses, symposiums and congresses, develop research projects, participate in health care activities in various settings and take part in public campaigns and events to promote Cheers. Theoretical classes are held weekly, based on presentations by the students themselves and supervised by one or more radiology specialist. At the end of the theoretical class the radiologist starts a presentation of clinical cases through presentation of the basic principles of the examination and radiological findings. Instigating the interaction and participation of binders present.

**Conclusion:** Academic Leagues motivate expectations regarding the profession and the medical course. In view of this, the inclusion of radiology teaching in the new medical courses is necessary to maintain the quality of current medical education and increase the radiological knowledge of the academics.

**Responsible Author:** Biom. ELAINE ROCHA MEIRELLES RODRIGUES

E-mail: elainemeirelles@uol.com.br
Original paper

EVALUATION OF THE MEAN GLANDULAR DOSE FOR DIGITAL MAMMOGRAPHY AND DIGITAL BREAST TOMOSYNTHESIS

Authors: MESSIAS, P. C.; JAKUBIAK, R.R.
Institution: Diagnóstico Avançado por Imagem - DAPI Universidade Tecnológica Federal do Paraná - UTFPR

Brief description of the study purpose/Objectives: In Brazil, breast cancer is the most common and the leading cause of death among women. Digital Breast Tomosynthesis (DBT) reduces the effects of overlapping breast tissue, offering a better characterization of mammographic findings and decreasing the need of additional views.

The recent introduction of DBT into clinical practice requires the monitoring of the mean Glandular Dose (MGD) and image quality. In Brazil, there are few studies related to MGD in DBT, and there are no specific national or international protocols. The practice of monitoring image quality and radiation dose is a solution to ensure high quality exams. This study proposes to perform the MGD measurement of a system that contemplates the two modes, Mammography and DBT.

Material and methods: Polymethylmethacrylate (PMMA) plates ranging from 20 to 70 mm were used to simulate breasts, and the dose was measured with a RADCAL 10X6-6M ionization chamber. As dose reference limits for all equivalent thicknesses in mammography and DBT, the values of the EUREF protocol 2006 and 2014, respectively, were used.

Results and discussion: For mammography mode, in all thicknesses, the values remained below the dose limits described as achievable. For DBT, the thicknesses of 30, 40, and 45 mm, the MGD remained below the acceptable dose limit; between 50 mm and 70 mm PMMA the doses remained below the values used as achievable limit for the thicknesses in that mode, being 2.3 mGy to 60 mm and 3.5 mGy to 70 mm respectively. However, for 20 mm of PMMA, the dose was 30% greater than that of the acceptable dose limit for that thickness.

Conclusion: The results obtained in the assessments emphasize the importance of quality control applied properly in obtaining the imaging process, ensuring low dose and good image quality, fulfilling the ALARA principle.

Responsible Author: TNR. Pricila Cordeiro Messias
E-mail: pricilamessias@hotmail.com

Simulation of exposure to scattered radiation in radiological exams performed in a neonatal intensive therapy unit and comparison with an annual dose limit

Authors: VALENTINI, B.B.; GALHARDI, M.P.; OLIVEIRA, T.I.; MEDEIROS, R.F.
Institution: HOSPITAL MOINHOS DE VENTO

Brief description of the study purpose/Objectives: According to Brazilian legislation, for radiological examinations of Neonatal Intensive Care Units (ICUs), patients who cannot be removed from the site should be positioned so that no part of the body is less than 2 meters from the head or the receiver of image. In small environments this condition is not possible to perform. The objective of this study was to verify the exposure to scattered radiation due to radiological exams in neonatal ICU for different distances and to compare them with the annual dose limit allowed by the legislation.

Material and methods: The study was performed through simulation of X-ray examination (RX) of abdomen, with phantom of 1.5 liters of water, simulating the conditions of a patient in both incubator and crib. The exposure rate was measured with the ionization chamber on both the side and front of the incubator and crib for distances of 0.5, 1, 1.5, and 2 meters for exposure with vertical x-ray, and for the distance of 1 meter for exposure with horizontal x-ray. The measured exposure rate values were used to calculate the annual dose according to the Guide of Medical Radiodiagnosis of the National Agency of Sanitary Surveillance (ANVISA).

Results and discussion: At all distances measured in the vertical X-ray simulation, with both incubator and crib, a...
low exposure rate was observed, and annual dose below the dose restriction level allowed in areas free from radiation exposure. In the simulation with horizontal X-ray also was measured low exposure rate, and annual dose annual dose below the level of allowed dose restriction in areas free from radiation exposure.

Conclusion: Based on the measurements made, it is verified that the scattered radiation rate spread over the distances evaluated to incubators and cribs is very low, and comparing with the annual dose allowed by legislation could be classified as free area. Thus, it may be considered unnecessary to move other patients from the Neonatal ICU within these distances while performing X-ray examinations.

Responsible Author: Fis. Bruna Bressan Valentini
E-mail: bruna.valentini@hmv.org.br

PD.06.003
INTERCOMPARISON OF THE PERFORMANCE OF BREAST MAGNETIC RESONANCE IMAGING WITH MAMMOGRAPHY AND ULTRASOUND EXAMINATIONS FOR THE DIAGNOSTIC EVALUATION OF BREAST LESIONS
Authors: MAULAZ, C.M.; VALENTINI, B.B.; PAPALEO, R.M.
Institution: HOSPITAL MOINHOS DE VENTO PONTIFICIA UNIVERSIDADE CATOLICA DO RIO GRANDE DO SUL

Brief description of the study purpose/Objectives: Breast cancer is the most common type of cancer among women in Brazil and the world. Mammography is the gold standard exam for breast cancer screening, and both Magnetic Resonance Imaging (MRI) and Ultrasound are used as a complement. Currently, there is an increase in the number of MRI medical prescriptions as a method of tracking lesions, monitoring of malignant tumors and in cases of patients with a family history of breast cancer. This work aims to intercompare the performance of breast MRI with Mammography and Ultrasound in the diagnosis of malignant and benign mammary lesions, using biopsy as the gold standard.

Material and methods: For this, a comparison was made between variables that quantify performance characteristics, such as sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV). This information was obtained from the medical reports of the biopsy and the analysis of the three methods of image acquisition.

Results and discussion: The parameters of sensitivity, PPV specificity and NPV for benign lesions were 91%, 63%, 87% and 71%, respectively, for Mammography/Ultrasound. For MRI, the values were 77%, 100%, 100% and 88%, respectively. Regarding malignant lesions, the sensitivity, specificity, PPV and NPV found were 57%, 100%, 100% and 62%, respectively, for Mammography/Ultrasound. The analysis of the malignant lesions could not be applied in MRI, because all the parameters were 100%, not due to the high performance, but because the patients already had the confirmation of breast cancer by the biopsy.

Conclusion: It was concluded that breast MRI is a good exam for evaluation of benign lesions, because it has the highest specificity and a difference of only 14% of sensitivity among the methods, resulting in high performance parameters. As for the malignant lesions, it was not possible to obtain the performance parameters, since the values were not valid for the study.

Responsible Author: Fis. Bruna Bressan Valentini
E-mail: bruna.valentini@hmv.org.br

LITERATURE REVIEW

SCIENTIFIC PAPERS - POSTERS (PA)

PA.06.003
EVALUATION OF ARTIFACTS BY COSMETICS IN SE AND GRE SEQUENCES
Authors: AGOSTINHO, M.C.; FARIAS, T.M.B.; MENDONÇA, D.S.; DAROS, K.A.C.; CARNELLO, L.C.; CARRETE JUNIOR, H.
Institution: Escola Paulista de Medicina da Universidade Federal de São Paulo - EPM/UNIFESP

Brief description(s) of the purpose(s) of the Literature Review: Over recent decades, several magnetic resonance studies have related the use of cosmetics with the generation of artifacts, burns and discomforts during the examination. In this context, the MR image quality (MRI) can be affected due to interferences in the signals of the region of interest, generating artifacts. In this study, in a Siemens Skyra® 3T equipment, the uniformity, the geometric distortion and the occurrence of artifacts by cosmetics in MRI were analyzed in 8 samples commercialized in Brazil, of varied colors, including a metallic and shiny.

Description(s) of disease(s), method(s) and/or technique(s): In the acquisition of the images, the samples were applied separately, in a 25 cm² area of a Cremer® micropore tape and positioned on the surface of the cylindrical phantom Magphan® 170. Sequences, with a 10mm cut-off thickness and a 256X256 matrix, were acquired in two protocols: 1- American College Radiology accreditation protocol with the spin echo sequence (SE), 500ms repetition time (TR), 20ms echo time (TE), Flip angle 75 °; 2- protocol suggested by Escher & Shellock (2013) with gradient echo sequence (GRE), TR of 100ms, TE of 15ms, Flip angle 70 °.

Discussion: For both of the protocols, the results showed the images presented artifacts, distortion and variations in homogeneity with the following values: for the SE sequences the distortion was 0.96% and 1.08%, without and with cosmetic, respectively; for the GRE sequences was 0.75% and 1.4%, without and with cosmetic, respectively. In homogeneity analysis values obtained in SE were 90.62%; 91% and 94.3%, without, with cosmetic and cosmetic generating artifact, respectively; and for GRE, 85.59%; 86.67%; 79.33%; without, with cosmetic and with cosmetic artifact generator, respectively. Three samples generated artifacts assuming the existence of iron oxides, titanium dioxide and pigments that may contain magnetic impurities.

Conclusion: These results indicate discrete geometric distortion in the both sequences, with a potential loss of signal in the region close to the surface in the sequences with artifacts; and GRE images, the dispersion was more noticeable (46%). Despite the slight distortion without significant commitment of image quality, the use of cosmetics should be avoided for the sake of patient safety even in SE sequences.

Responsible Author: Biom. MARIANA CIANCI AGOSTINHO
E-mail: mah.cianci@gmail.com
REFERENCE VALUE FOR CORRECTIONS OF EXAMS IN A PACS SYSTEM.

**Authors:** ANDRADE, J. R. M.; CAPAVERDE, A. S.; MORAES, A. L.; TORRES, F. S.; BACELAR, A.

**Institution:** HOSPITAL DE CLÍNICAS DE PORTO ALEGRE

**Brief description of the study purpose/Objectives:** Incorrect identification of patients and mistakes of improper association of images in exams are susceptible to occur in diagnostic imaging centers. Identify, record and correct each occurrence must be done by these centers. When images that do not match the patient or the study correct are sent to the picture archiving and communication system (PACS), it is necessary the intervention of a professional with privileged profile of permissions, for manual correction and association of the image to the correct patient or study. Studies that describe this type of occurrence are scarce in the literature. The objective of this work is to define a reference value of exams correlation occurrences in a PACS system.

**Material and methods:** A written workflow was established for recording the correlation occurrences. The number of corrections was recorded and the percentage of corrected studies was calculated in relation to the total number of exams stored in the PACS. We were analyzed data between January 2015 and December 2017 in a large university hospital.

**Results and discussion:** The results obtained in 2015, 2016 and 2017 were, respectively: (1) Total exams in the PACS: 197.264, 199.429 and 189.410; (2) Number of corrected exams: 198, 186 and 165; (3) Percentage of corrected exams: 0.10%, 0.09% and 0.09%. The average percentage of corrected exams, in relation to the total exams stored in the PACS, was 0.09% over 3 years analyzed. The lowest and highest values were respectively 0.01% in December 2015 and 0.15% in October 2015. It is necessary to have a reference value and the definition of a goal to be achieved, to reduce errors to minimum values as part of a quality assurance program.

**Conclusion:** As a reference for imaging diagnostic centers, this study suggests a value of 0.09% corrections in relation to the total exams stored in the PACS. As part of a quality assurance program, this indicator should be periodically reviewed, always looking for zero errors. An analysis of the causes and reasons for errors during processes should be identified and treated.

**Responsible Author:** J. R. M. ANDRADE

E-mail: joao_ssa@hotmail.com

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**SCIENTIFIC PAPERS - ORAL PRESENTATION (TL)**

**TL.07.001**

**USING MACHINE LEARNING FOR NO-SHOW PREDICTION IN THE SCHEDULING OF CLINICAL EXAMS**

**Authors:** SCRIVANI, H; SOEIRO, F; PARRA, A.C.G.

**Institution:** Diagnósticos da América (DASA)

**Brief description of the study purpose/Objectives:** The present study has the first objective to discover the profile of patients who schedule a clinical examination and do not attend it (no show). The second objective was to find out which variables are relevant to predict patient non-attendance on the day of the examination. As a final objective, it is of interest to provide, at the time of the appointment, whether the patient will attend the scheduled examination or not.

**Material and methods:** For this work we used actual data of approximately 300,000 appointments of a large laboratory in São Paulo. Big Data tools were used as well as Machine Learning techniques (Random Forest, Support Vector
**Results and discussion:** The most relevant results in this experiment were obtained from the combination of Machine Learning techniques, comprising the application of Random Forest models along with Logistic Regression models. The accuracy rate of the Machine Learning model in a validation environment reached 77%, which, combined with the Logistic Regression, allows the definition of different strategies for each group of patients. The main discussions follow in two lines. The first one is related to the allocation of the available time, from a patient who will not attend the examination, to one who will. The second discussion is in the understanding of the needs and circumstances that lead to non-attendance in performing the exam.

**Conclusion:** The results of this work have been directed to the optimization of exam schedules, avoiding the wasting of doctors’ time and the cost of the vacant timetable, while making feasible a greater income, once new patients get an agenda for the day and time they wish to perform their exams.

**LITERATURE REVIEW**

**SCIENTIFIC PAPERS - POSTERS (PA)**

PA.07.003

**ARTIFICIAL INTELLIGENCE AND THE FUTURE OF RADIOLOGY: A LITERATURE REVIEW**

**Authors:** SOUZA, L.E.A.; FIGUEIREDO, L.F.; MAIA, B.T.B.; MACHADO, J.P.S.

**INTERVENTION**

**ORIGINAL PAPER**

**SCIENTIFIC PAPERS - POSTERS (PA)**

PA.08.003

**RETROPERITONEAL BIOPSIES GUIDED BY COMPUTED TOMOGRAPHY: EXPERIENCE OF A BRAZILIAN ONCOLOGICAL CENTER.**

**Authors:** SARAIVA, T.V.; SCHIAVON, L.H.; TRAVESSO, D.J.; TAKAHASHI, A.M.E.; MELO, R.A.B.; BELTRANI, F.; AMOEDO, M.K.; BARBOSA, P.V.N.; TYNG, C.J.; CHOJNIK, R.

**Institution:** A.C. CAMARGO CANCER CENTER

**Brief description of the study purpose/Objectives:** To review the indications, contraindications, techniques and complications of percutaneous biopsies of retroperitoneal lesions guided by CT, in addition to reporting the epidemiological profile, lesion characteristics, results and experience of an Interventional Radiology service.

**Material and methods:** A descriptive, retrospective, unicentric study was carried out by reviewing medical records and images of percutaneous biopsies of retroperitoneal CT-guided lesions over a 6-month period.

**Results and discussion:** Seventy nine retroperitoneal biopsies were performed, including lymph node enlargement and pancreatic, adrenal and renal lesions. The most frequent indication for the accomplishment of the procedure was the suspicion of metastatic lesion, being the result of the biopsy different from the clinical suspicion in 10 cases. The mean lesion size was 5.3 cm, with a standard deviation of 3.1 cm. The distance traveled in relation to the skin was less than 10 cm in 62% of the sample. In only 2.3% of the procedures, some type of complication was observed, not related to the use of supplementary techniques. The sample was sufficient for diagnosis in more than 90% of the procedures. Complications occurred in 6 cases, and
it was observed that the group presenting some type of comorbidity presented higher complication rates, but there was no statistical significance (p = 0.317), confirming that this type of procedure is safe even in patients with comorbidities. Percutaneous biopsy of retroperitoneal lesions guided by CT is a safe and effective method to obtain material for histopathological analysis. The retroperitoneum, because it is a difficult access site, requires adequate planning and refinement of techniques to facilitate access and make the procedure safer.

Conclusion: Percutaneous biopsy of CT-guided retroperitoneal lesions is a safe and effective diagnostic tool. Their results demonstrated a sufficient index of diagnosis for diagnosis in more than 90%, with a very small complication rate, the most frequent one being self-limiting bleeding. No clinical, radiological or procedural-related factors that had a statistically significant impact on the success rates and complications of percutaneous biopsies of CT-guided retroperitoneal lesions were identified.

Responsible Author: Dr. THIAGO DE VASCONCELOS SARAYA
E-mail: thiagosaraiva@gmail.com

PA.08.012
SUPRAHYOID BIOPSIES GUIDED BY TOMOGRAPHY: A DESCRIPTIVE ANALYSIS OF AN ONCOLOGICAL REFERENCE CENTER
Institution: A.C. Camargo Cancer Center
Brief description of the study purpose/Objectives: To analyze the safety and efficacy of core needle biopsies of the supraharyoid region guided by computed tomography (CT) of the Interventional Radiology Service of an oncological reference center.
Material and methods: A descriptive, retrospective, unicentric study was carried out by reviewing medical records and images of deep supraharyoid space biopsies from 2012 to 2016 to evaluate the techniques, results and complications related to the procedures.
Results and discussion: In the study 59 biopsies of the total of 55 patients were evaluated. Of these, 32 (59.3%) are males. The age ranged from 14 to 83 years, with an average of 53.6 years. Regarding the technique, the coaxial system with 17 / 18G system was the most used, in 78.0% of the cases. The lesion measure ranged from 13mm to 128mm. The three most used accessions for puncture were paramaxillary (32.4%), retromandibular (21.6%) and periorbital (14.9%). Of the 59 biopsies, 5 (8.5%) needed contrast to better define the target lesion. The incidence of complications was 6.8%, two cases of hematoma, one of pain refractory to medication and one of reversible paralysis of the facial nerve.
Conclusion: In our study, we obtained enough material for histological analysis in all cases and a small number of complications in relation to the large number of procedures performed. Thus, we conclude that thick-needle biopsy of supraharyoid lesions, guided by CT, is shown as an effective and safe method, representing the largest sample ever collected in the literature.
Responsible Author: Dra. Giovana Anelli Pinotti
E-mail: gi_pinotti@hotmail.com

PA.08.013
TRANSRECTAL BIOPSY OF PROSTATE IN AN ONCOLOGICAL CENTER: CORRELATION BETWEEN PSA VALUES, PROSTATE DENSITY, POSITIVITY FOR NEOPLASM AND GLEASON SCORE
Authors: TAKAHASHI, AME; OTONI, JC; ALMEIDA, MFA; BITENCOURT, AGV; BARBOSA, PNVP; TYNG, CJ; AMOEDO, MK; POLI, MRB; CHOJNIK, R.
Institution: HOSPITAL AC CAMARGO
Brief description of the study purpose/Objectives: There are several indications for transrectal prostate biopsy and increased PSA is one of the major. In isolation, the serum PSA dosage does not give objective information regarding the risk of prostatic neoplasm; however, when assessed in conjunction with glandular weight, it may provide relevant biopsy indication subsidies. The objective is to evaluate the correlation between PSA levels, prostate density, positivity for neoplasm and Gleason score in patients submitted to transrectal prostate biopsy.
Material and methods: A unicentric and cross-sectional observational study through the review of electronic records of patients submitted to transrectal prostate biopsy between November 2016 and August 2017, with data collection in a standardized form.
Results and discussion: A total of 518 patients were evaluated, with a mean age of 64 years (range: 41 to 91 years). The levels of PSA were stratified into 3 groups according to the values: up to 4.0 ng / mL (19.1%), 4 to 10 ng / mL (63.1%) and greater than 10 ng / mL (17.8%). Positive results for neoplasm occurred in 149 patients (28.7%). The Gleason score for these patients was stratified into three groups: low risk (Gleason score up to 6), intermediate risk (Gleason 7) and high risk (Gleason> 7), with a prevalence of 29.8%, 41.1% and 26.8%, respectively. There was a statistically significant correlation between neoplasm positivity and higher mean PSA values (p = 0.017), lower mean prostate volume (p <0.001) and higher mean prostate density (p = 0.018)
Conclusion: Prostate density correlates between absolute PSA levels and prostatic glandular weight and showed a good correlation with the presence of malignant prostatic neoplasm. PSA levels showed a better correlation with the risk groups stratified by the Gleason score, with the observation of higher PSA values in patients with Gleason higher than 7.
Responsible Author: Dra. JESSYCA COUTO OTONI
E-mail: jessyca_otoni@hotmail.com

PA.08.014
COMPLICATIONS AFTER TRANSRECTAL BIOPSY OF PROSTATE: 10 MONTHS CASUALISM IN A REFERENCE ONCOLOGICAL CENTER
Authors: TAKAHASHI, AME; OTONI, JC; ALMEIDA, MFA; BARBOSA, PNVP; BITENCOURT, AGV; TYNG, CJ; AMOEDO, MK; POLI, MRB; CHOJNIK, R.
Institution: HOSPITAL AC CAMARGO
Brief description of the study purpose/Objectives: Transrectal prostate biopsy guided by ultrasound, although it is a fast, safe and low morbimortality procedure, any complications should be prevented, diagnosed and treated. Our objective is to describe the main complications in our institution, comparing our case series with the literature.
Material and methods: A cross-sectional unicentric observational study involving patients submitted to transrectal prostate biopsy between November 2016 and August 2017, with an active search for information on complications in the 30 days after the procedure.
Results and discussion: 518 procedures were performed between November 2016 and August 2017. Complications directly attributed to transrectal prostate biopsy were observed in a total of 30 patients, 7 of whom were minor and 23 were major. Minor complications were thus distributed: hematuria (0.7%), hematoptermia (0.35%) and mild rectal bleeding
In relation to major complications, we had: infectious events (4%), intense rectal bleeding (0.7%) and urinary retention (0.7%). The complication rates were significantly lower than those reported in the literature, with hematuria up to 6%, hematospermia up to 14% and mild rectal bleeding in 2%. All of these events were addressed conservatively. We also observed an incidence of major complications lower than that reported in the literature, with a rate of 6% for infectious events, 4% for intense rectal bleeding and 1% for urinary retention. In the institutional protocol, all patients performed a coagulogram and suspended the use of anticoagulant medications according to a specific dosage. In addition, hypertensive patients must have their blood pressure levels adequately controlled. To reduce the risk of infectious complications, we performed antimicrobial prophylaxis for all patients, most often with Ciprofloxacin. Commonly, transrectal prostate biopsy is performed under deep sedation accompanied by anesthetist. At the end of the procedure, the patients remain under observation for about 1 hour, receiving discharge with printed guidelines, with acce

**Conclusion:** Knowledge of specific care and preventive measures contribute to a lower incidence of complications related to transrectal prostate biopsy. Complications, although infrequent, should be recognized early for appropriate therapeutic behavior, in some cases requiring a multidisciplinary approach.

**Responsible Author:** Dra. JESSYCA COUTO OTONI

E-mail: jessyca_otoni@hotmail.com

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**PA.08.015**

**INFECTIOUS COMPLICATIONS AFTER TRANSRECTAL PROSTHET BIOPSY: INITIAL ANALYSIS OF A NEW PROTOCOL OF ANTIBIOTIC PROPHYLAXIS IN AN ONCOLOGICAL CENTER OF REFERENCE**

**Authors:** TAKAHASHI, AME; OTONI, JC; ALMEIDA, MFA; BARBOSA, PNVP; BITENCOURT, AGV; TYNG, C.J.; AMOEDO, MK; POLI, MRB; CHONNIKAK, R.

**Institution:** HOSPITAL AC CAMARGO

**Brief description of the study purpose/Objectives:** Transrectal prostate biopsy guided by ultrasonography is a procedure with low rates of complications, such as infectious ones ranging from low urinary tract infection to sepsis, and its incidence is influenced by the use of antimicrobial prophylaxis. We aimed to evaluate the infectious complications considering a new institutional protocol of antimicrobial prophylaxis and to compare with the previously used protocol.

**Material and methods:** A cross-sectional, observational, prospective analysis of patients who underwent transrectal prostate biopsy between April and August 2017 and retrospective analysis of patients who underwent BTRP between November 2016 and March 2017 with active search for infectious events within 30 days the biopsy.

**Results and discussion:** Quinolone class antimicrobials are the first line medication for transrectal prostate biopsy prophylaxis because they reach high concentrations in the prostate and urinary tissues and show good coverage for E. coli, involved in 90% of these infectious events. However, a higher incidence of Quinolone resistant E. coli has been reported, involved in 90% of these infectious events within 30 days the biopsy.

**Conclusion:** Ciprofloxacin is still considered to be an adequate antimicrobial for prophylaxis protocols, and special care should be taken in relation to patients with risk factors for colonization by strains.

**Responsible Author:** Dra. JESSYCA COUTO OTONI

E-mail: jessyca_otoni@hotmail.com

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**PA.08.016**

**INCIDENCE OF COMPLICATIONS AFTER PERCUTANEOUS DRAINAGE OF ABDOMINAL COLLECTIONS**

**Authors:** PINOTTI, G.A.; BACARIN, J.V.; MATUSHITA, JR. J.P.K.; ZURSTRASSEN, C.E.; BARBOSA, P.N.V.P.; TYNG, C.J.; AMOEDO, M.K.; CHONNIKAK, R.

**Institution:** A.C. Camargo Cancer Center

**Brief description of the study purpose/Objectives:** Review of the incidence of percutaneous post-drainage complications of abdominal collections guided by computed tomography (CT) and its possible related risk factors in the interventional radiology service of an oncological reference center.

**Material and methods:** A descriptive, retrospective, unicentric study was carried out by reviewing medical records and images of percutaneous drainage of CT-guided abdominal collections in a cancer reference center. We evaluated the procedures performed between 04/2016 and 04/2017 regarding the presence of bacteremia, bleeding and inadvertent puncture of organs after the procedure, as well as the antibiotic prophylaxis and antibiotic therapy, the location and the techniques employed in the procedure.

**Results and discussion:** It was evaluated 53 procedures performed in 41 patients with the predominant sexagenary age group. Pig Tail drains were used, which the main caliber was 12 Fr. It was noticed that the procedures were mostly carried out in patients during hospitalization, 88% of whom were already using antibiotics prior to drainage. Regarding aspirated secretion, the majority were characterized as purulent or predominantly purulent (37.7%). The preferred technique was Trocar, accounting for 58.4% of the drainage, followed by the Seldinger technique, 32.0%. The rest was not described in the reports.

There were four acute complications that required immediate management. These were divided into two cases of bacteremia, one evolving to septic shock with the necessity of vasoactive drug and in two cases of hemorrhagic shock.

**Conclusion:** Percutaneous drainage is a safe and effective method for the treatment of abdominal collections, with early clinical benefit for the patient when compared to the traditional surgical approach. The identification of possible risk factors may help to prevent complications related to drainage, such as bleeding, inadvertent puncture of organs and bacteremia, as well as to improve protocols already used.

In this review, a rate of 7.54% of acute complications that required immediate management was observed, corroborating the effectiveness of the less invasive procedures guided by imaging. There was no statistically significant relationship with the variables evaluated, and it was not possible to discriminate factors determining the complications.

**Responsible Author:** Dra. Giovana Anelli Pinotti

E-mail: gi_pinotti@hotmail.com
PA.08.017
TRANSPIARINETOHEPATIC DRAIN (TPHD) IN STENOSIS OF BILEODIGESTIVE ANASTOMOSIS AFTER HEPATIC TRANSPLANTATION PEDIATRIC
Authors: CAVALCANTE ACBSI, PAULA CJSB, LESSA RA, MATUSHITA JR JPK1 , ZURTRASSEN CEI
Institution: AC CAMARGO CANCER CENTER

Brief description of the study purpose/Objectives: The incidence of biliary complications after liver transplantation (LT) reaches 40%, being a frequent cause of morbidity. We report the experience with TPHD in children with biliary stenosis (BS) post-LT.

Material and methods: Between December 2013 and March 2017, 42 children with LT and BS suspected cholangiography. Of these, 14 were diagnostic cholangiography, 3 per fistula / stenosis and 25 bileodigestive anastomosis stenosis (BAS). The treatment protocol consisted of dilation of BAS and change of drains every 2 months for 6-12 months. Success criteria for treatment: absence of significant residual stenosis (< 30%) and biliary emptying of 3 minutes. We evaluated the total length of stay with the biliary tract, number of exchanges per patient and time interval between the exchanges.

Results and discussion: Twenty-eight children were treated with TPHD after LT. Of these, 12 (42.9%) started with external drain due to the impossibility of transposing of the BAS, being possible internal-external drain after new procedure in 9 (75%) cases. Three (25%) children performed a new bileodigestive due to failure to transpose the bileodigestive anastomosis after 2 attempts. The internal-external TPHD was successful in 26 children (89.7%), with a median of 5.5 (3-9) procedures per patient, interval mean 2 months and median treatment time 8.6 months (4-18). Medium of follow-up time was 14.8 months (1-31.5), 2 patients presenting relapse. The diagnosis of BS requires a high degree of clinical suspicion complementary tests fail to diagnose up to 50% of the cases. Percutaneous cholangiography is the first choice for diagnosis and treatment, with varying success rates. Data in the literature suggest that longer treatment with multiple procedures have a better success rate, with recurrence ranging from 20-40%. In this series, the recurrence rate was 7.7% perhaps for the short period of follow-up.

Conclusion: TPHD is a safe and effective procedure for BS treatment after pediatric LT, preventing the need for surgical treatment in the cases of successful percutaneous treatment.

Responsible Author: Dra. Rayssa Araruna Bezerra de Melo
E-mail: rayssa_araruna@hotmail.com

PD.08.006
CLINICAL AND QUALITY PROFILE OF LIFE IN PATIENTS SUBMITTED TO UTERINE FIBROID EMBOLIZATION
Authors: PORTO, DDS.; FERREIRA, DM.; AZEVEDO FILHO, LF.; JESUS, GAB.; PAIVA, GG.; MONARIM, MAS.; CASTRO, HAS.; FORNAZARI, VAV.; SZEJN-FELD, D.
Institution: UNIVERSIDADE FEDERAL DE SÃO PAULO - UNIFESP

Brief description of the study purpose/Objectives: The objective of this study is to analyze how women who undergone a form of minimally invasive treatment, which consists of embolization of the uterine arteries, correlating the profile of women from the clinical point of view and considered considering the demands of titles that impact on their quality of life.

Material and methods: We retrospectively analyzed the clinical information of 39 patients submitted to uterine artery embolization for treatment of uterine fibroids. Their complaints were correlated with the responses of the UFS-QOL (Uterine Fibroid Symptom and Quality of Life) questionnaire. The data obtained were analyzed, establishing a profile with the main symptoms and impairment in quality of life, as well as associations of symptoms common to different clinical complaints were characterized.

Results and discussion: Regarding the UFS-QOL questionnaire scores for the 39 patients analyzed regarding qual-
ity of life, the main impact was on issues related to control (note 37.5), followed by self-confidence (note 37.7); energy / mood (note 38.0); activity (note 43.8); sexual function (note 44.1); and finally concern (note 54.9). With respect to the bleeding complaint during menstruation, 26 women reported a note 5 (quite) to the question "Excessive menstruation bleeding", which represents 66.6% of the total. Those that marked note 1 (never) or 2 (a little) represent 20.5% of the total.

**Conclusion:** Although uterine myomatosis is a benign gynecological condition, it has an important impact on the female population of reproductive age. Although not all patients develop symptoms, symptomatic patients represent one of the main causes of withdrawal and granting of non-accident-related health insurance in our country. The main clinical complaint of the candidates to the EMU in our study was excessive menstrual bleeding. The group of assertives that showed the greatest impairment of quality of life through the UFS-QOL questionnaire were those related to concern. The way the subjectivity involving the daily issues faced by these women is transferred to the objectivity of the results with this questionnaire reinforces the importance of its systematic application in all patients candidates to the EMU.

**Responsible Author:** Dr. Daniel Porto
**E-mail:** danielporto7@gmail.com

**PD.08.011**

**DEVELOPMENT OF AN ANTROPOMORPHIC PHANTOM FOR ULTRASOUND GUIDED PROCEDURES**

**Authors:** Petry MSM, TYNG CJ, BITENCOURT AGV, PINTO PNV, AMOEDO MK, TRAVERSO DJ, MEIRA MS, CHOJNIAK R.

**Institution:** A.C. Camargo Cancer Center

**Brief description of the study purpose/Objectives:** Ultrasound phantoms represents a useful tool concerning to the training of the procedures guided by this method, since they promote the qualification and theoretical improvement of the practitioners, while avoiding potential malpractices in interventional radiology. Aiming for an alternative to the high-cost phantoms on the market, there are many valuable works available concerning to affordable alternatives with significant cost-effectiveness.

However, it’s use is generally limited to the puncture of clearly visible and easily accessible nodules, which makes learning a relatively monotonous and non-challenging process, contrasting with the reality of daily life.

The objective of this work is to present ways of making anthropomorphic phantoms simulating the difficulties of a real patient in order to stimulate the development and/or improvement of different maneuvers to approach the lesions whether for the beginner or for more experienced practitioners.

**Material and methods:** The anthropomorphic phantoms were made simulating organs that are frequently approached in everyday practice, such as the breast and thyroid, produced with easily accessible materials, exhibiting strategically positioned lesions, thus mimicking, in a representative way, the main difficulties encountered in the daily life. Such lesions will be preferably accessible only through the techniques which we intend to stimulate. The phantoms were made from silicone rubber molds obtained through models in plasticine or manequin of our own.

**Results and discussion:** The positioning of the lesions reached the proposed goal regarding to the difficulty levels of the everyday challenges that we usually face. In the complementary tests, polyvinyl acetate-based material was used, and a marked reduction in the needle-pathway formation were observed, as well as it’s complete disappearance after a period ranging from a few seconds to a few minutes. It is presumed that such characteristic can significantly increase the lifespan of the phantoms, determining even greater savings in their preparation. However, additional studies are needed to evaluate their properties in this field.

**Conclusion:** With this work, we expect to encourage the use of this invaluable training tool, in order, to develop the skills of the new practitioners, as well as to improve the technique of the most experienced ones.

**Responsible Author:** Dr. Michel Souto Maior Petry
**E-mail:** mspetry@outlook.com

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**SCIENTIFIC PAPERS - ORAL PRESENTATION (TL)**

**TL.08.002**

**OPTIMIZING RENAL BIOPSY - WHICH IS THE BEST TECHNIQUE TO OBTAIN SATISFACTORY SAMPLES?**


**Institution:** Hospital das Clínicas da Universidade Federal de Minas Gerais. Clinica CEU diagnósticos. Instituto de Nefropatologia.

**Brief description of the study purpose/Objectives:** In renal percutaneous biopsy it is essential to obtain satisfactory fragments for an accurate interpretation. Inadequate samples result in delayed diagnosis and therapy, besides increasing the risk of rebiopsy. This study aims to compare the efficacy and suitability of the subcapsular cortical tangential technique in comparison to conventional puncture technique of corticomедullary region, having the number of glomeruli obtained per sample as main criterion of evaluation.

**Material and methods:** In this retrospective study were analyzed percutaneous renal biopsies performed between September 2015 and December 2016 in primitive and transplant patients kidneys, performed in three different services, in which two of them used conventional techniques and one used the single subcapsular cortical tangential technique. The procedures have been performed by radiologists and sonographers with more than ten years of experience, using TruCut needles. The samples were evaluated by two pathologists with extensive experience in nephrology. A total of 383 different procedures were performed, 177 patients were submitted to the tangential technique and 206 to the conventional one. The samples were classified as: unsatisfactory (if they contained less than seven glomeruli and none artery section); marginal (if they contained between seven and nine glomeruli and one artery); suitable (if they contained ten or more glomeruli and at least two arteries sections).

**Results and discussion:** An average of 28.65 glomeruli per biopsy was obtained in the tangential technique (range from 4 to 67) against 20.32 by conventional technique (range from 0 to 57). In addition, 76% of the samples (135) obtained tangentially had an average of more than 10 glomeruli per fragment against 45% of the samples (92) obtained conventionally. The tangential approach is associated with higher frequency of satisfactory samples with low complication rates because the needle reaches only the most peripheral portion of the kidney and, therefore, increases the risk of rebiopsy.
organ, avoiding interlobar and segmental arteries.

**Conclusion:** The tangential technique was more effective compared to the conventional procedure to obtain adequate renal samples by providing more quantity of glomeruli per fragment. The use of ultrasound imaging is critical to improve the safety and efficacy of percutaneous renal biopsy.

**Responsible Author:** Dra. Marcele Costa Feijo

**E-mail:** cecelebh@yahoo.com.br

**TL.08.005**

**PERCUTANEOUS DRAINAGE AS A OPTION FOR ABDOMINAL COLECTIONS**

**Authors:** CONSANI,H.F.X.; PRADO,G.B.; CARVALHO,E.M.; OKAMOTO, G.F.; TASCHE; REBECCHI, Y.H.F.

**Institution:** CHS - Sorocaba - radiointervenção

**Brief description of the study purpose/Objectives:** The aim of this study is to describe our cases as an initial experience with the role of CT / USG Guided percutaneous drainage of intra-abdominal collections.

**Material and methods:** A retrospective study was carried out, which analyzed patients with intra-abdominal collections during the structuring and implantation of a protocol for percutaneous drainage. 36 patients were treated. The cause, size of collections, subsequent development of microbiological fluid, and clinical outcome were also analyzed.

**Results and discussion:** Third six initial patients (22M, 14F, mean age 55, range 28-85) met the inclusion criteria with clinical history and CT evaluation showing intra-abdominal collection. Percutaneous drainage was performed using the Seldinger technique in 15 and direct puncture in 21. 28 patients were recently admitted to surgery (3 hernioplastic and 7colectomy, 6 appendectomy and others) and 8 patients had a diagnosis of acute diverticulitis. Four patients (57%) presented fever at the time of the initial scan, all with positive cultures of aspirated liquid. Four patients (57%) had leukocytosis, all of which had positive cultures of aspirated fluid. The mean time of the maintenance of the drainage was of 2 weeks (10 - 21 days) Average hospital discharge of 4 days (12hs - 7days) All patients had resolution of the abdominal collections by puncture, no recurrence presented in both clinical and laboratory control.

**Conclusion:** In our initial experience, evaluated patients treated with intra-abdominal collections with signs of infection should be considered for percutaneous puncture according to protocol established in the service, shows possible advantages regarding length of hospital stay and complications compared to traditional treatment results, requiring confirmation with studies of greater volume and comparative design.

**Responsible Author:** Dr. Heitor Consani

**E-mail:** hconsani@icloud.com

**TL.08.006**

**ULTRASOUND GUIDED PERCUTANEOUS NEEDLE BIOPSY OF THORACIC LESIONS — YIELD, ACCURACY AND COMPLICATION RATE — STUDY OF 147 CASES**

**Authors:** CYRINEU, F.; SOUZA, C.A.; GUPTA, A.; KAWAN, R.

**Institution:** University of Ottawa

**Brief description of the study purpose/Objectives:** To assess yield and safety profile of ultrasound-guided (US-guided) biopsy in the diagnosis of thoracic lesions in a large heterogeneous population.

**Material and methods:** Institutional review board approved this retrospective study. Informed consent was waived. Between 2003 and 2014, 4032 imaging-guided transthoracic biopsies were performed at the Ottawa Hospital. We retrospec-

**PICTORIAL ESSAY**

**SCIENTIFIC PAPERS - POSTERS (PA)**

**PA.08.001**

**CT GUIDED PERCUTANEOUS CRYOABLATION OF LUNG TUMORS: IMAGING FINDINGS**

**Authors:** TAKAHASHI, A.M.E; TRAVESSO, D.J; HENKLAIN, J.V.R.; COHEN, M.P; FREITAS, R.M.C.

**Institution:** Hospital São Camilo, São Paulo, Brasil

**Introduction and objectives:** Lung is the second more frequent site of extra thoracic tumors, and the only one site in 20% of these cases. Treatment strategies include surgery resection, chemotherapy and radiation. About 50% of lung metastatic lesions has recurrence after treatment. In the last years, ablative therapies as radiofrequency, cryoablation and microwave became alternatives in the management of lung metastasis as well as inoperable primary tumors, providing curative or palliative treatment. The objective of this pictorial essay is to present the imaging findings of CT guided percutaneous cryoablation of lung tumors.
Methods: CT images of patients treated by percutaneous cryoablation were revised, evaluating technical issues of the procedures, pre or post-procedure findings and potential complications.

Discussion: Percutaneous cryoablation results is comparable to the other ablative methods, providing satisfactory local control of the tumor, with better immediate analgesic results. It is a curative alternative, for early-stage lung metastasis or primary tumors in nonsurgical patients, as well as a palliative option aiming to reduce the size of tumor (“debulking”).

Conclusion: Percutaneous cryoablation is a minimally invasive procedure, with low rate of complications e hospitalization time, and a good alternative of treatment for nonsurgical patients.

Responsible Author: Dra. ALESSANDRA EMORI TAKASHI
E-mail: alessandra.emori@gmail.com

PA.08.004
CT-GUIDED PREOPERATIVE LOCALIZATION OF COLORECTAL CANCER LIVER METASTASES WITH METAL CLIPS
Authors: MELO RAB, BELTRANI FH, TAKASHI AME, TRAVESSO DJ, SARAIVA TY, TYNQ CJ, BARBOSA PNVP, AMOEDO MK, ALMEIDA MFA, CHOJNIAK R
Institution: A. C. Camargo Cancer Center, São Paulo, São Paulo, Brasil
Adr., São Paulo, Brasil Advanced Imaging Associates, Fremont, California, USAAnjo Vascular Medicine Consulting Rooms, Belgrade, SerbiaANGIORAD, Recife, Pernambuco, Brasil
Aprofe, Ambato, Tungurahua, EcuadorAPROFE, Babahoyo, Los Rios, EcuadorAPROFE, Guayaquil, Guayas, EcuadorAsian Medical Center, Seoul, Republic of KoreaAsociación Hospitalaria Beneficente São Vicente de Paulo, Passo Fundo, Rio Grande do Sul, BrasilAxial Centro de Imagem Diagnóstico SC Ltda., Belo Horizonte, Minas Gerais, BrasilBayero University, Kano, NigeriaBeneficência Portuguesa de São Paulo, São Paulo, São Paulo, BrasilBeyetepe Military Hospital, Ankara, TurkeyBizzol Master Medicina Diagnóstica, São Paulo, São Paulo, BrasilBoston University School of Medicine, Boston, Massachusetts, EUABreast Center, National Taiwan University Hospital, Taipei, TaiwanBuddhist Tzu Chi General Hospital, Taipei Branch, TaiwanBusan Paik Hospital Inje University, Busan, South KoreaCardiology Research Complex, Moscow, RussiaCasa de Saúde Santa Marcelina, São Paulo, São Paulo, BrasilCasa de Saúde São José, Rio de Janeiro, Rio de Janeiro, BrasilCIDB - Centro de Diagnósticos Brasil, São Paulo, São Paulo, BrasilCIDE Diagnóstico por Imagem, Campinas, São Paulo, BrasilCIDI - Centro de Diagnóstico por Imagem, Vitória, Espírito Santo, BrasilCIDPI - Clinica de Diagnóstico por Imagem, Rio de Janeiro, Rio de Janeiro, BrasilCEBRAMEN - Centro Brasileiro de Medicina Nuclear e Imagem Molecular, Goiânia, Goiás, BrasilCED CLAIMA - Centro de Estudos Medimagem e Pesquisa do Hospital Pro Cardiaco/Procep, Rio de Janeiro, Rio de Janeiro, BrasilCentro de Estudos Medimagem e Pesquisa do Hospital Pro Cardiaco/Procep, Rio de Janeiro, Rio de Janeiro, BrasilCentro de Estudos Medimagem e Pesquisa do Hospital Pro Cardiaco/Procep, Rio de Janeiro, Rio de Janeiro, BrasilCentro de Estudos Medimagem e Pesquisa do Hospital Pro Cardiaco/Procep, Rio de Janeiro, Rio de Janeiro, BrasilCentro de Estudos Medimagem e Pesquisa do Hospital Pro Cardiaco/Procep, Rio de Janeiro, Rio de Janeiro, BrasilCentro de Estudos Medimagem e Pesquisa do Hospital Pro Cardiaco/Procep, Rio de Janeiro, Rio de Janeiro, BrasilCentro de Estudos Medimagem e Pesquisa do Hospital Pro Cardiaco/Procep, Rio de Janeiro, Rio de Janeiro, Brasil

Introduction and objectives: Neoadjuvant chemotherapy has been widely used before the resection of hepatic metastases of colorectal carcinoma. However, such therapy may lead to the disappearance of small lesions or dimensional reduction to the point of making intraoperative detection difficult. Complete resection of such sites of metastasis is known to be of major prognostic importance, due to the high rate of local recurrence, even in the scenario of complete radiological response. Therefore, the image-guided marking of the lesions before the start of the neoadjuvant therapy facilitates their identification after the treatment, allowing adequate surgical resection.

Discussion: Neoadjuvant chemotherapy has the potential to render disease unresectable in the resectable, and all known sites of liver metastasis should be resected. Surgery of lesions...
FLUOROSCOPY AND COMPUTED TOMOGRAPHY-GUIDED PERCUTANEOUS GASTROSTOMY AND JEJUNOSTOMY: EXPLORING NEW POSSIBILITIES.

Authors: TRAVESO, D.J.; TAKAHASHI, A.M.E; HENKLAIN, J.V.R; COHEN, M.P; FREITAS, R.M.C.
Institution: HOSPITAL SAO CAMILO

Introduction and objectives: Gastrostomy or jejunostomy allow enteral nutrition for those who cannot obtain sufficient oral caloric intake. The first percutaneous endoscopic gastrostomy was performed in 1979 by Gauderer and Ponsky. In 1981, Preshaw used fluoroscopy for percutaneous gastrostomy for the first time, eliminating the need of endoscopy. Computed Tomography (CT) has been used in recent years, adding precision to the procedure. The association of fluoroscopy with CT combines the agility of the former with the precision of the latter. The aim of this study is to illustrate the technical aspects and results of these procedures, guided by CT and fluoroscopy, and to discuss their advantages and disadvantages in relation to surgical or endoscopic procedures.

Methods: The fluoroscopy and CT-guided gastrostomy and jejunostomy performed in a tertiary hospital were reviewed. The main indications, duration of procedure, techniques, difficulties, management after procedure, early and late complications were compiled and presented.

Discussion: The main indications were technical difficulty or impossibility of performing the procedure by endoscopy, usually due to anatomical variations, obesity, prominent left hepatic lobe, colonic interposition or history of gastrectomy. The standard technique of gastrostomy and jejunostomy consisted in a CT scan for anatomical study and planning. The stomach or the jejunum were previously distended with air with the help of a nasoenteric catheter; afterwards, they were percutaneously punctured by three or two CT-guided anchor needles, respectively, and thus fixed in the anterior abdominal wall under fluoroscopic visualization. All procedures were performed under conscious sedation, antisepsis, and local anesthesia. The feeding tubes (20 Fr for gastrostomy or 16 Fr for jejunostomy) were introduced with the help of a guidewire after passage of dilators under fluoroscopic visualization.

Conclusion: Fluoroscopy and CT-guided percutaneous radiological gastrostomy and jejunostomy are safe, fast and effective methods that expand patients’ access to enteral nutrition care. The use of fluoroscopy, together with CT, adds agility and safety to the procedure.

Responsible Author: Dra. Rayssa Araruna Bezerra de Melo
E-mail: rayssa_araruna@hotmail.com
dysection. The objective of this work is to demonstrate our experience in this auxiliary technique.

**Methods:** Retrospective, unicentric work by reviewing the images and electronic medical record of patients submitted to a CT-guided percutaneous biopsy or ablation, in which the pneumodysection technique was employed.

**Discussion:** During the period from 2012 to 2017, 14 percutaneous interventional procedures guided by CT with the use of the pneumodysection technique were analyzed using an injection of ambient air or carbon dioxide (CO2) through a coaxial needle. There were no complications related to pneumodysection. The pneumodysection technique is based on the injection of varying amounts of ambient air or CO2 through a device that allows the measurement of the volume of injected gas. Due to the difference in density of ambient air or CO2 with organic substances, the injection of these gases tend to focus on the anterior aspects of the area to be transposed by the needle. The use of ambient air concurrently with the radiofrequency ablation procedure involves the theoretical risk of intracavitary explosion. In our service, 5 cases were performed using ambient air, with no reported complications.

**Conclusion:** The technique of pneumodysection for percutaneous procedures guided by CT has been shown to be safe and effective as an auxiliary method in difficult biopsies or ablative procedures, especially when the colon is close to the ablation zone. The use of ambient air in radiofrequency ablation is feasible and safe in our initial experience.

**Responsible Author:** Dr. demian jungklaus travesso

**E-mail:** demiantravesso@hotmail.com

**PA.08.010**

**EXPERIENCE OF THE USE OF RESTRICTIVE DECUBITUS IN LUNG BIOPSIES BY THICK NEEDLE GUIDED BY COMPUTED TOMOGRAPHY (CT) IN A REFERENCE ONCOLOGICAL CENTER**

**Authors:** TRAVESSO, D.J.; MELO, R.A.B.; BELTRANI, F.H.; SARAIVA, T.V.; SANTIN, A.D.; COHEN, M.P.; AMOEDO, M.K.; ALMEIDA, M.F.A.; BARBOSA, P.N.V.P.; CHIANG, J. T.

**Institution:** AC CAMARGO CANCER CENTER

**Introduction and objectives:** Pneumothorax and hemothorax are the most prevalent complications in CT-guided lung biopsies and are responsible for increasing morbidity, mortality, and costs related to this procedure. The aim of this study was to evaluate the benefit of using the restrictive decubitus technique (RDT) in CT-guided lung biopsies for the incidence and degree of pneumothorax and hemothorax.

**Methods:** Retrospective, unicentric work by reviewing the images and electronic medical record of patients submitted to CT-guided thick needle biopsy at 6 months. The cases of pneumothorax and hemothorax were counted, being correlated with the use of RDT.

**Discussion:** A total of 203 percutaneous biopsies of CT-guided lung lesions were analyzed. The RDT during the biopsy was used in 111 biopsies (54.7%). The total incidence of pneumothorax was 31.5%, of these, 48.4% with and 51.6% without RDT. Of the moderate / severe pneumothorax, the total number of cases was 10, being 4 cases with and 6 cases without RDT. The total incidence of hemothorax was 10.3%, of these, 66.6% were with and 33.3% without RDT. Of the cases of moderate / severe hemothorax the total number was 3 cases, 2 cases with 1 case without RDT. The number of chest drainage related to the procedure was 6 cases (2.9% of the total biopsies), with half of the biopsy-related drainage using RDT and the other half without RDT.

**Conclusion:** The restrictive decubitus technique has been described in studies as a protective factor for the incidence and severity of pneumothorax, be it during the whole biopsy or immediately after the needle withdrawal at the end of the procedure. In our sampling, the restrictive decubitus during the biopsy was not effective in reducing the number and intensity of pneumothorax. However, it showed a greater number of hemorrhagic complications (hemothorax), with statistical significance. This finding may be explained by the greater accumulation of fluid and engorgement of biopsied lung vessels during the procedure.

**Responsible Author:** Dr. demian jungklaus travesso

**E-mail:** demiantravesso@hotmail.com

**PA.08.011**

**INCIDENCE OF SYMPTOMATIC AND ASYMPTOMATIC SYSTEMATIC EMBOLISM IN PULMONARY BIOPSIES BY THICK NEEDLE GUIDED BY COMPUTED TOMOGRAPHY (CT) IN A REFERENCE ONCOLOGICAL CENTER**

**Authors:** TRAVESSO, D.J.; MELO, R.A.B.; BELTRANI, F.H.; SARAIVA, T.V.; SANTIN, A.D.; AMOEDO, M.K.; ALMEIDA, M.F.A.; BARBOSA, P.N.V.P.; CHIANG, J. T.; CHOJNIJK, R.

**Institution:** AC CAMARGO CANCER CENTER

**Introduction and objectives:** Systemic air embolism is a rare complication of thick-needle lung biopsies guided by CT, but its relevance lies in the severity of the event, with high morbidity and mortality rates. The objective of this study is to evaluate its real incidence in order to evaluate the risk factors already established and possibly to identify new risk factors or protection of this serious complication.

**Methods:** Retrospective, unicentric work by reviewing the images and electronic medical records of patients submitted to CT-guided thick needle biopsy at 6 months. The cases of symptomatic and asymptomatic systemic air embolism were counted, being correlated with the risk factors already established in the literature.

**Discussion:** 203 CT guided lung biopsies were analyzed. The incidence of systemic air embolism was 1 case (0.5% of total) symptomatic and no asymptomatic cases. Because it is a rare event, systemic air embolism related to transthoracic lung biopsies is still poorly studied. Some risk factors have already been identified, such as the distance of lung parenchyma traveled from the pleura to the target, the “higher” position of the lesion biopsied in relation to the left atrium, tracheal intubation with mechanical ventilation during the procedure, prone position and parenchyma pulmonary function. In the symptomatic case presented, some peculiarities can be perceived, as concomitance of thoracic drainage to the diagnostic procedure, besides paraseptal pulmonary embolism. The other risk factors already described were not present in the case in question. As in most case reports in the literature, the occurrence of gas embolism was not identified early, only after clinical destabilization of the patient. The patient in question suffered right hemispheric cerebral ischemia.

**Conclusion:** The investigation of risk factors for air embolism related to transthoracic pulmonary biopsies is important not because of the incidence of this complication, but because of the potential severity involved. With the follow-up of the analysis and survey of more cases, we intend to identify possible risk or protection factors.

**Responsible Author:** Dr. demian jungklaus travesso

**E-mail:** demiantravesso@hotmail.com
PA.08.018
APPROACHES IN PERCUTANEOUS BILIARY TRACT
Institution: UNIFESP
Introduction and objectives: The biliary tract drainage presents two universes of patients that are distant by etiology and prognosis, being able to divide into neoplastic and non-neoplastic causes. The most common causes of benign lesions are post-cholecystectomy stenosis, bile-digestive leads and post-liver transplantation, and malignant tumors of the bile duct and periamputal neoplasms. The benefits for both groups of patients are evident, being potentially resolvable in non-neoplastic cases and bringing about the significant improvement in clinical status and better quality of life for cancer patients. The objective of this trial is to show several aspects of percutaneous drainage of biliary tract, technical variations according to the clinical, etiological and anatomical profile of the patient and main complications.
Methods: The description of the technique with the respective images was obtained from the various cases performed in the institution that is referenced in the procedure and receives the most varied causes of biliary obstruction.
Discussion: Bile duct drainage can be performed by an external catheter, external drainage or by a catheter that communicates the external environment and intestinal loop, internal-external drainage. In patients with benign stenosis, follow-up, a possible drainage change with gradual dilations can be decisive, presenting cases in which the use of removable coated prosthesis presents good results. In drainage in patients with malignant neoplastic without curative prognosis, drainage is indicated for resolution of cholangitis, improvement of cholestatic syndrome, pruritus and cachexia.
Conclusion: Various conditions can cause stenosis / obstruction of the bile duct. The correct knowledge of the spectrum of patients, the different etiologies and techniques of interventional radiology are of fundamental importance of the conduction of the cases and benefit of the patients.
Responsible Author: Dr. Gledson Garcia de Paiva
E-mail: gledmaster@hotmail.com

PA.08.019
NEW TECHNIQUES FOR COMPUTED TOMOGRAPHY (CT) GUIDED PREOPERATIVE LOCALIZATION OF PULMONARY GROUND GLASS OPACITIES (GGO).
Authors: MELO RAB, SARAIVA TV, TAKAHASHI AME, BELTRANI FH, TRAVESSO DJ, ALMEIDA MFA, TYNG CJ, BARBOSA PNVP, AMOEDO MK, CHOJNIK, R
Institution: A. C. Camargo Cancer Center, São Paulo, São Paulo, Brasil
Introduction and objectives: Ground glass opacities (GGO) are radiological findings that may be associated with several benign or malignant diseases. In patients with lung cancer or other malignancies, these lesions are known to have high malignant potential and, therefore, require histological confirmation for therapeutic planning. The exact location of the GGO can be difficult because they are non-palpable lesions, even by thoracotomy; moreover, they are not visible to radioscopy. In view of such difficulties, several techniques have been developed to assist the intraoperative localization of this type of lesion.
Methods: To describe new methods of preoperative localization of non-palpable pulmonary lesions guided by CT. We illustrate it, with a series of cases, where the techniques were developed in a cancer center, which consists of the identification of the GGO by the CT, followed by the insertion of a metallic clip tied with surgical cotton wire 4.0, either using the roll of cyanoacrylate or only the clip tied to the wire, through an introducer needle of the coaxial type 17 G.
Discussion: The imaging-guided preoperative localization techniques can be classified into three main types: intraoperative ultrasound and fluoro-CT, injection of liquid materials through fine needles, including dyes, radiopaque contrast media or radiopharmaceuticals, and placement of metal wires with a hook or micromole end, guided by CT. The metallic clip with surgical cotton thread presents several advantages over other methods because it is a palpable and radiopaque marker, assisting the surgeon in the location of the GGO, both in open surgery and in video-thoracoscopy. The surgeon can locate the clip placed inside or adjacent to the lesion and reliably determine the area of surgical resection. This technique does not interfere with the examination of the freezing of the surgical specimen or the anatomic-pathological examination.
Conclusion: The preoperative CT-guided localization of the GGO with a metallic clip and a cotton wire proved to be an effective technique that allowed adequate adaptation of the section with the lowest possible morbidity and affordability.
Responsible Author: Dra. Rayssa Araruna Bezerra de Melo
E-mail: rayssa_araruna@hotmail.com

PA.08.020
COAXIAL + FINE NEEDLE PUNCTURE TECHNIQUES COMBINED FOR HIGH-RISK BIOPSY
Authors: COSTA, Y.B.; MIRANDA, C.M.N.R.; LEMOS, M.R.L.; BOHRER, V.; AMOEDO, M.K.; TYNG, C.J.
Institution: Medradius-Clinica de Medicina Nuclear e Radiologia Diagnóstica, Maceió - Alagoas - Brasil
Introduction and objectives: Image guided biopsies are fundamental procedures in diagnostic and/or staging algorithms for oncologic diseases. There has been significant improvement of the biopsy techniques since the first cases of CT-guided procedures were described, with the description of new accesses and methods such as hydro dissection, increasing the number of lesions accessible to biopsy in a minimal invasive way.
Methods: Cases from our service files have been reviewed so as to illustrate how this technique can be helpful in cases in which the use of the automatic biopsy pistol may result in severe complication.
Discussion: The combination of coaxial + fine needle puncture techniques offers interventional radiologists the advantages of both methods. The use of the coaxial needle allows the interventionist to insert it more precisely into the tissue, allows hydro and pneumat dissection and avoids needle tract dissemination. Its association with the fine needle puncture permits more controlled needle advance and allows a faster specimens analysis by an attending pathologist. Even in challenging cases, this technique allows minimally invasive and safe diagnostic procedures.
Conclusion: In order to perform safe procedures and obtain an adequate amount of material for diagnostic, interventional radiologists must be aware of the many different techniques available.
Responsible Author: Dr. Yves Bohrer Costa
E-mail: yves_bohrer@hotmail.com
Combined Image-Guided Percutaneous Nephrostomy: Technique and the Role of Interventional Radiology


Institution: CLÍNICA VILLAS BOAS

Introduction and Objectives: The evolution of the interventional radiological (IR) specialty has made possible the emergence of alternative methods to surgical procedures that were more expensive and invasive, longer and with significant complication rates. Currently, percutaneous nephrostomy (PN) is an urgent procedure that is growing inside IR, however the combined technique using ultrasound and tomodensitography, the latter being associated with the use of microbubbles contrast, showing an excellent correlation with the ablative control.

Discussion: PN is an urgent procedure that is growing inside IR, however the combined technique using ultrasound and tomodensitography, the latter being associated with the use of microbubbles contrast, showing an excellent correlation with the ablative control.

Conclusion: The ablative of renal tumors, especially when in the early stages, presents a similar response to partial nephrectomy. The use of imaging techniques, pre and post-procedure tomography and ultrasound with real-time monitoring, makes possible the control of residual lesions due to the use of microbubble contrast, bringing a great gain to the treatment and follow-up of these patients.

Responsible Author: Dr. Gledson Garcia de Paiva

E-mail: gledmaster@hotmail.com

Scientific Papers - Digital Presentation (PD)

Pictorial Case Series of CT-Guided Pulmonary Core-Biopsy with Fine Needle - Is the Sample Suitable for Biomolecular Analysis of Lesions?


Institution: CLÍNICA VILLAS BOAS

Introduction and Objectives: An individualized lung cancer therapy is made possible thanks to the development of biomolecular analysis. The lung core-biopsy guided by CT (computed tomography) is a safe method and is less invasive than surgical biopsies, having the main limitation being the quantity of collected material. This study makes an illustrated revision on a series of 10 cases of lung core-biopsy guided by CT, evaluating the suitability of samples for biomolecular analysis.

Methods: No periodo de fevereiro/2016 a agosto/2017, 87 pacientes foram submetidos à core-biopsy pulmonar, sendo 10 avaliados quanto a marcadores biomoleculares para câncer de pulmão, método caro e ainda pouco disponível em nosso país. Foi realizada avaliação retrospectiva destes 10 pacientes, analisando-se características morfológicas/dimensão da lesão, distância da pleura, calibre da agulha, número de fragmentos, tipo histológico, taxa de complicações e adequabilidade da amostra colhida para avaliação biomolecular.

Discussion: With advances in cancer therapy, pre-treatment biomolecular analysis is pointing out as an essential factor in clinical management, with promising results in overall survival and morbidity reduction in oncology patients. In this context, CT-guided pulmonary core-biopsy has been highlighted as a minimally invasive method of choice for pre-treatment of lesions, and is well accepted and established for histopathological analysis, with low morbidity and mortality rates. However, little is known about the applicability of this method for the evaluation of mutations, since it provides smaller lesions samplings. In our study, all 10 patients underwent biomolecular analysis for EGFR / KRAS, with appropriate samples in 100% of the cases, and mutation was detected in 6 patients (3 EGFR / 3 KRAS). Among the 10 patients, only 3 were analyzed for ALK / D5F3, with 1 inadequate sample and 2 adequate (66.7% adequacy for ALK / D5F3), both of which were negative for the mutation. There were only 4 cases of non-hypertensive pneumothorax.

Conclusion: With advances in cancer therapy, pre-treatment biomolecular analysis is pointing out as an essential factor in clinical management, with promising results in overall survival and morbidity reduction in oncology patients. In this context, CT-guided pulmonary core-biopsy has been evaluated by the authors. Therefore, it is necessary for the radiologist and the interventional radiologist to have knowledge about the indications and the combined image-guided methods of PN.

Responsible Author: Biom. Renato Zangiacomo

E-mail: renatonz@yahoo.com.br
PD.08.002
PREOPERATIVE LOCALIZATION OF METASTATIC LYMPH NODE FROM THYROID CARCINOMA: TECHNIQUES AND RESULTS OF ULTRASOUND-GUIDED INJECTION OF ACTIVATED CHARCOAL SOLUTION.
Authors: GONÇALVES, M. M.; SANTOS, J. M. M. M.; CAVALHEIRO, B. G.; KULCSAR, M. A. V.; CHAMMAS, M. C.; FREITAS, R. M. C.
Institution: Instituto do câncer de São Paulo (Setores de Radiologia e de Cirurgia de Cabeça e Pescoço) e Instituto de Radiologia da Universidade de São Paulo (Setor de Ultrasonografia).
Introduction and objectives: Neck dissection is the treatment of choice to lymph node metastases from well-differentiated thyroid cancer. Ultrasound (US) guided charcoal tattooing of cervical lymph nodes has been indicated in cases of new surgical approach or when lymph nodes have small dimensions and / or difficult localization. The objectives of this pictorial essay are: to describe the technique, risks and benefits and results of the US-guided injection of activated charcoal solution as a preoperative tattooing of cervical lymph node metastases of thyroid cancer.
Discussion: US-guided metastatic cervical lymph node charcoal tattooing promotes an easier surgical approach in cases of scar retractions or difficult access areas; it results in less surgical manipulation and reduces surgery duration, compared to conventional surgery; it is well tolerated and with low toxicity, performed in outpatient level and does not modify histological postoperative interpretation. Major complications have not been reported.
Conclusion: US-guided metastatic cervical lymph nodes charcoal tattooing is a low cost procedure, associated with a short duration and a less invasive surgical approach, with potential low risk of complications.
Responsible Author: Biom. Marilia de Morais Gonçalves
E-mail: mariliamg17@yahoo.com.br

PD.08.003
POST RADIOFREQUENCY ABLATION IMAGING FINDINGS: WHAT MUST WE KNOW?
Authors: ROMANO, A.B.C.; BUENO-SILVA, M.C.; EZ-ZEDINE, O.A.; LAHAN, D.M.; PENACHEDIM, T.J.
Institution: Centro de estudos do Centro Radiológico de Campinas - Hospital Vera Cruz
Introduction and objectives: Imaging guided radiofrequency ablation (RFA) has been gaining space as a minimally invasive technique in the treatment of primary and secondary neoplastic lesions of the liver. Unlike the hepatectomy, after RFA it is not possible to have an anatomopathological exam to confirm the complete removal of the lesion, making the imaging control of the patients essential. This study will show how the therapeutic response should be evaluated, identify possible complications that can be found and establish specific follow-up protocols for oncologic patients submitted to RFA.
Methods: Imaging finds after RFA of hepatic neoplasms will be presented utilizing methods such as contrast-enhanced ultrasound, computed tomography (CT), magnetic resonance imaging (MRI) and PET-CT.
Discussion: The evaluation of the therapeutic response of RFA is usually complex and should take into account not only the dimensions of the lesion but also the extension of the necrosis including the adjacent parenchyma, the patterns of enhancement, as well as functional parameters such as diffusion weighted images (MRI) and PET-CT. All these findings can vary according to therapeutic success and time elapsed after the procedure.
Conclusion: Radiologists must be familiarized with the clinical meaning of typical and atypical findings in the imaging follow-up of the RFA.
Responsible Author: Dr. André Boselli Cassalho Romano
E-mail: abcr89@gmail.com

LITERATURE REVIEW

SCIENTIFIC PAPERS - POSTERS (PA)

PA.08.005
PROTECTING URETER AND RENAL CALYCES DURING RADIOFREQUENCY ABLATION: RETROGRADE PYELOPERFUSION WITH COOLED DEXTROSE 5% IN WATER.
Authors: MACHADO, F.P.; AMOEDO M.K.; TYNG C.J.; VELLUDO S.F.; FRANCO G.B.; SILVA L.G.; NASCIMENTO M.H.A.;
Institution: PREVENT SENIOR
Brief description(s) of the purpose(s) of the Literature Review: Renal ablation by radiofrequency is an effective and safe therapy for the treatment of renal cell carcinoma. Although the risk of complications is low, lesions of the ureters and calyces may occur in cases of centrally located lesions. The retrograde pyeloperfusion with cooled dextrose 5% in water technique was developed with the purpose of protecting the collecting system in patients who undergo percutaneous radiofrequency ablation of centrally located renal tumors.
The objective of this work is to describe the technique of retrograde pyeloperfusion with with cooled dextrose 5% in water during the percutaneous renal ablation procedure of central renal cell carcinoma.
Description(s) of disease(s), method(s) and/or technique(s): Review of the literature published by major centers, in addition to the report of the experience of our service, with a description of the technique and illustrative images of pyeloperfusion with cooled dextrose during percutaneous radiofrequency ablation of central renal tumors.
Discussion: The ureteral catheter, through which the pyeloperfusion is performed, is placed through cystoscopy by the urology team. French catheter is allocated under radioscopic guidance in the renal pelvis and the bladder catheter is introduced in parallel. Thirty minutes prior to initiation of ablation, retrograde pyeloperfusion is initiated by the connection of 1000 mL of cooled dextrose to the ure-
teral catheter. The cooled dextrose bag is positioned 80 cm above the patient's level. The drip is adjusted to 1 drop per second. 30 renal ablation were performed in our service, from April to November 2017, and, among them, 3 were listed for retrograde pyeloperfusion technique with cooled dextrose. None of these patients developed ureteral stenosis or hydronephrosis to date.

**Conclusion:** Retrograde pyeloperfusion with cooled dextrose 5% in water may be used during percutaneous radiofrequency ablation procedures of central renal tumors to protect calyces and ureters. The integration between interventional radiology and urology teams is fundamental for the technique to be performed.

**Responsible Author:** Dr. Fabricio Próspero Machado

**E-mail:** machadomad@gmail.com

**PD.08.023**

**FOCAL CRIOTHERAPY AS PROSTATE CANCER THERAPEUTICS**

**Authors:** SOUSA, J.C.O.

**Institution:** Núcleo de Pesquisa Científica e Acadêmica de Radiologia (NPCAR)

**Brief description(s) of the purpose(s) of the Literature Review:** Prostate cancer (PCa) corresponds to a neoplasm with social, psychological and economic implications in society in general. The therapeutic modalities in PCa should combine efficacy with patient pretensions and depends on tumor staging: localized or locally advanced disease (radial prostatectomy, radioactive therapy (external or brachytherapy), active surveillance or ablation (cryotherapy, HIFU, phototheraphy), and The objective of this study is to describe the focal cryoablation in prostate cancer, addressing theoretical and imaging content of the prostate. The objective of this study was to evaluate the effectiveness of focal cryoablation in the treatment of prostate cancer.

**Description(s) of disease(s), method(s) and/or technique(s):** Pictorial Essay and Literature Review of a sample of English, Spanish and Portuguese scientific publications previously selected in the temporal cut of the last 5 years. The literary sources from SCIELO, BIREME, PUBMED and VHL databases in the areas of health and science in the format of articles and theses of masters correlated to the subject. The pictorial essay consisting of images involving all the material of the procedure, preparation of the patient and the end result of therapy.

**Discussion:** The vast majority of cases are diagnosed late because of a variety of factors ranging from resistance on the part of the male population to detection methods including prostates with social, psychological and economic implications in society in general. The therapeutic modalities in PCa should combine efficacy with patient pretensions and depends on tumor staging: localized or locally advanced disease (radial prostatectomy, radioactive therapy (external or brachytherapy), active surveillance or ablation (cryotherapy, HIFU, phototheraphy), and The objective of this study is to describe the focal cryoablation in prostate cancer, addressing theoretical and imaging content of the prostate. The objective of this study was to evaluate the effectiveness of focal cryoablation in the treatment of prostate cancer.

**Conclusion:** Focal Cryoablation corresponds to a technology that integrates as organ preservation therapies called focal therapy. Not comparative with how modalities of therapy minimally presents as a good alternative by minimizing morbidity without compromising life expectancy and presenting fewer side effects such as irritative micturition symptoms.

**Responsible Author:** Sra. Joyce Caroline

**E-mail:** joycecarolinedeoliveira@hotmail.com

**PD.08.004**

**CRIOBURATION BY GUIDELINES BY COMPUTERIZED TOMOGRAPHY IN THE PULMONARY CARCINOMAS OF NON SMALL CELLS**

**Authors:** SOUSA, J.C.O.

**Institution:** Núcleo de Pesquisa Científica e Acadêmica de Radiologia (NPCAR)

**Brief description(s) of the purpose(s) of the Literature Review:** Patients with non-small cell lung cancer (NSCLC) have poor prognosis and the available treatment modalities are scarce except for well-delimited lesions. Computed tomography (CT) guided cryoablation corresponds to ablative therapy consisting of controlled tumor cooling until a temperature at which tumor cells are destroyed, CT imaging is extremely relevant as it aims to maintain adjacent regions and to accurately detect tumor. With this research, a bibliographic study on cryoablation and its application in conjunction with CT in the treatment of NSCLC is proposed.

**Description(s) of disease(s), method(s) and/or technique(s):** This is a review of narrative literature, qualitative and descriptive. The sample of scientific publications is formed by 8 articles obtained through the consultation in the following secondary online databases: Scielo and PubMed. In the selection of these bibliographic sources, inclusion and exclusion criteria were established; the inclusion criteria were: articles with full availability in Portuguese, English or Spanish, which are consistent with the theme and published between 2006 and 2016 and those of exclusion: publications whose titles and / or objectives did not have a link with the theme or that they fled the object of study.

**Discussion:** CT-guided cryoablation is seen as promising therapy in non-small cell lung carcinoma. The cryoablation technique is preferably used in NSCLC less than 3 cm and consists of introducing a small hole in the skin of a special needle, through which a guided device, cryoprobe, is introduced, this promotes the freezing of the tumor tissue and preserves intact neighboring structures. CT imaging is extremely relevant for the correct introduction of cryoprobe into the tumor area. CT-guided cryoablation ensures preservation of the structure of the tracheobronchial tree, large vessels, muscles, and diaphragm. CT-guided cryoablation uses temperatures below 0 °C and the development of a frozen area is the mode of cell destruction. In the present day, it provides very effective therapeutic results and provides improvements in the quality of life of patients with NSCLC.

**Responsible Author:** Sra. Joyce Caroline

**E-mail:** joycecarolinedeoliveira@hotmail.com

**PD.08.007**

**IS THERE AN IDEAL TRANSDUCER ORIENTATION FOR PROSTATE BIOPSY?**

**Scientific Papers - Digital Presentation (PD)**

**Literature Review**


**Institution:** UNIFESP

**Brief description(s) of the purpose(s) of the Literature Review:** There is a poor discussion of the technical details and the true value of the orientation of the endocavitary transducer during transrectal ultrasound guided prostate biopsy (TUGPB). The literature is scarce and the divergence on the
CASE REPORT

SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD).

PD.08.008

MIGRATION OF STENT IN THE CENTRAL VENOUS SYSTEM DURING THE TREATMENT OF COCKETT’S SYNDROME: HOW TO PROCEED?
Institution: UNIFESP

Brief description of the study purpose: The complications seen during endovascular procedures in the central venous system (CVS) are rare, since they are easily accessible and have low hemodynamic pressure, facilitating the manipulation and treatment of diseases in these vessels. However, most venous stenoses have low compliance to angioplasty and stent insertion. A very feared complication in these sites is stent embolization, as they travel towards the heart and pulmonary arteries, putting the patient’s life at risk. The use of left renal vein stent for the treatment of Cockett’s syndrome and use of the left iliac vein for the treatment of May-Thurner syndrome is well established.

Clinical history: We report a case of a 25-year-old female patient, with progressive chronic pelvic pain at 2 years, imaging for investigation, was diagnosed with Cockett’s syndrome, and endovascular treatment with stent implantation in the left renal vein was proposed. However, after anchoring the stent, it began to retract and migrate towards the inferior vena cava. The withdrawal procedure was promptly started by passing a guide wire through its lumen and using a 0.018” guide wire. It was necessary to use a 24 Fr sheath to pull it through the right femoral vein.

Discussion and diagnosis, or vice versa: The major endovascular approaches that can save from this dangerous situation have been reviewed and described. Four different strategies are reviewed: (1) snaring the stent directly, (2) snaring the stent with the aid of an angioplasty balloon, (3) snaring the stent guidewire support and (4) connecting superior vena cava and inferior vena cava through a stent.

Conclusion: Quick action is essential. Several techniques are available to capture the stents and move them for removal through a femoral vascular sheath or implantation in the iliac vein. Most techniques involve the use of a snare gooseneck, which is an essential intervention tool for any department that performs venous stents. All techniques for the rescue of migrated stents are technically feasible for most interventional radiologists.

Responsible Author: Dr. Luiz Fernando Azevedo Filho
E-mail: filholf@gmail.com

PD.08.009

BILIOPLEURAL FISTULA IN A PATIENT UNDERGOING PARTIAL HEPATECTOMY: CONDUCTION AND TREATMENT OF A CHALLENGING CASE
Institution: UNIFESP

Brief description of the study purpose: Biliopleural fistula is a rare condition that can occur as a complication of liver tumor rupture, drainage of liver abscesses or biliary tract and even trauma. Because of the location of the liver, most cases occur on the right side. Percutaneous transhepatic biliary drainage (PTBD) itself is a common treatment for resolution of such fistulas. Here, we present a case of biliopleural fistula as a complication of drainage of a biloma after right hepatectomy due to hydatid cysts.

Clinical history: We report the case of a male patient, 63 years old, motorcyclist, who underwent partial right hepatectomy due to major involvement by hydatidosis. It evolved in the postoperative period with significant worsening of the clinical picture, being referred to the intensive care unit, where in addition to pulmonary sepsis, the presence of biloma was diagnosed in a surgical site. The percutaneous approach of the abdominal tract was requested, and a "pig tail" catheter 14 Fr was inserted. However, the patient evolved with worsening of the respiratory condition, and a chest tomography was scheduled. In this, due to the presence of an important pleural effusion on the right, the hypothesis of biliopleural fistula was proposed. Immediately afterwards, the drainage in water seal of the pleural effusion on the right was performed. For
almost two months there was no significant improvement in pleural effusion. Thus, it was argued that a PTBD associated with the thoracic and thick caliber drainage insertion without water seal was performed to maintain a positive pressure in the pleural space. The diagnostic confirmation of the fistula was seen during PTBD.

Discussion and diagnosis, or vice versa: Most hepatic procedures can be performed under bedside ultrasonography, even in severe patients. Lung damage is easily avoided with the use of ultrasound. However, as the pleural space is usually difficult to detect by this can be traumatized. When a bile fistula, bile leakage into the pleural space develops easily due to the negative pressure in the pleural space.

Conclusion: As the liver is adjacent to the right thoracic cavity through the diaphragm, care must be taken to avoid injuries to organs in thoracic procedures that location. Early diagnosis is paramount.

Responsible Author: Dr. Luiz Fernando Azevedo Filho
E-mail: filholf@gmail.com

PD.08.010
ENDOVASCULAR TREATMENT OF LUMBAR ARTERY PSEUDOANEURYSMS AFTER VERTEBROPLASTY: CASE REPORT

Authors: MATOS, B.P.; REZENDE, M.S.; ALQUIMIM, A.F.; DOMINGOS, A.M.; CARVALHO, A.C.; RAGGIOTTO, C.H.; ATZINGEN, A.C.
Institution: Hospital das Clínicas Samuel Libânio

BREAST

ORIGINAL PAPER

SCIENTIFIC PAPERS - POSTERS (PA)

PA.09.017
MAMMOGRAPHY AND MAMMARY ULTRASONOGRAPHY IN WOMEN OF THE CITY OF SANTOS/SP

Authors: ALMEIDA, K.R.; MOTA, T. V. A, BARBARA, K.
Institution: Centro Universitário Monte Serrat (Unimote)

Brief description of the study purpose/Objectives: Early detection of early-stage breast cancer through mammography and mammary ultrasonography (USG) is one of the effective ways to reduce morbidity and mortality rates. The objective to quantify the number of mammography and mammary USG examinations performed in asymptomatic women aged 50 to 69 years in a clinic in the city of Santos/SP, comparing the results of methods and the nomenclature of BI-RADS.

Material and methods: analysis of the medical records of the year 2016 with data tabulation in the Microsoft Excel 2010 program and the statistical program Stata 10 for the statistical analyzes. The independent variables used were: age 50 to 69 years, affiliation to the health plan, clinical recommendation after the exam, accomplishment of USG of the same date and BI-HADS nomenclature. Results and discussion: of the total (3,615), only 1,700 women were within the age range recommended by the Ministry of Health. The average age found was 58 years. Of the women who underwent mammography, 54% (918) performed USG of the breasts in the same day. Among the recommendations after mammography, the USG of breasts was highlighted, with 56% (953) as complementation of the mammographic method. The completion is very important because it helps the other a method in the diagnosis. The affiliation to health plans was higher (95%) than the public health system (2%) and private (2%), thus reflecting the ease of performing the preventive exams, since they are not part of the range of high complexity exams. When compared in the BI-RADS classification, there was a concordance of BI-RADS results 2 and 3 between the two methods, which suggests an annual control, according to the classification.

Conclusion: mammography exams were associated with mammary USG, evidencing the importance of the correlation of diagnostic imaging methods for screening and possible breast changes in this age group. Screening is indicated for asymptomatic women, so defining the periodicity of the test is the main point for women to monitor and diagnose breast cancer early.

Responsible Author: Biom. Katucha Rocha de Almeida

SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)

PD.09.004
ASSOCIATION BETWEEN THE ULTRASONOGRAPHIC ASPECT OF BREAST CANCER AND ITS IMMUNOHISTOCHEMICAL MOLECULAR CLASSIFICATION
Authors: RAMOS, E.H.M.; OLIVEIRA, I.P.; MACHADO, R. M. 
Institution: Faculdade de Ciências Médicas da Universidade Federal da Paraíba

Brief description of the study purpose/Objectives: Breast cancer is a heterogeneous disease, with multiple forms of radiological presentation, histopathology, evolution and responses to therapy. Advances in diagnostic techniques provide better recognition of injury and molecular biology has provided better insight into the mechanisms regulating cell growth and differentiation. This pilot study aimed to correlate the main ultrasonographic morphological aspects of breast cancer with its immunohistochemical findings. The study approved by the Research Ethics Committee of Hospital Universitário xxx da xxx, presenting the protocol number 056928.

Material and methods: The anatomopathological, immunohistochemical and ultrasonographic data of the lesions diagnosed in the period from 06/2016 to 06/2017 were correlated. The ultrasound variables were: shape, margins and orientation in relation to the skin. The immunohistochemical variables were: estrogen receptor (RE), progesterone receptor (PR) and HER2. We sought to find a pattern of association between variables. The test used was Fisher’s exact test, with p value <0.05.

Results and discussion: 40 patients were evaluated. The shapes of the nodules were: 30 (75%) irregular, 4 (10%) round and 6 (15%) oval. The margins were: 14 (35%), microlobulated, 13 (32.5%) spiked and 13 (32.5%) angulated. Orientation in relation to the skin: 25 (62.5%) perpendicular and 15 (37.5%) parallel. Among the four immunohistochemical patterns were found: 16 (40%) Luminal A; 13 (32.5%) Luminal B; 11 (27.5%) HER2 superexpressor; and none presented triple negative. The speculated margins showed association with HER2 superexpressor pattern, with a tendency to statistical significance (p = 0.067). The lesion shape was not associated with immunohistochemical patterns (p = 0.225); nor the orientation in relation to the skin (p = 0.226). The most commonly found immunohistochemical patterns in the group of women under 40 years were HER2 superexpressor (27.5%); between 40-60 years, was Luminal B (38.9%); and among those over 60, Luminal A (81.8%).

Conclusion: Immunohistochemical patterns of greater aggressiveness may be associated with some ultrasonographic aspects of greater suspicion of malignancy. More studies with larger population numbers are necessary for statistical verification.

Responsible Author: Dr. Eduardo Henrique Moura Ramos 
E-mail: eh_moura@yahoo.com.br

PD.09.007
PROPOSAL FOR BIRADS SUBCATEGORY 4A FOR CALCIFICATIONS
Authors: MORITSUGU, C.T.; MACIEL, J.M.W; ALMEIDA, O.J.
Institution: UNIVERSIDADE ESTADUAL DE CAMPINAS (UNICAMP)

Brief description of the study purpose/Objectives: The objective of the study was to determine the positive predictive value (PPV) of calcifications described as grouped or segmental amorphous in order to propose a subclassification in category 4A of the BIRADS classification.

Material and methods: Sixty-one women were selected in the period from 06/2016 to 06/2017, ages between 40-60 years, without previous history of breast cancer. They were referred to a University Hospital and had as a single finding in mammography, a grouped or segmental amorphous calcifications. A new mammographic study was carried out in the Hospital Service, being reclassified as BIRADS 4A. All the patients were submitted to biopsy after stereotaxic location, with radiography of the surgical fragments containing the calcifications. The material was sent for histological evaluation in the Hospital service. As proposed by some authors recently (KIM et al, 2017), we used descriptors related to the morphology and distribution of these calcifications, proposing the subcategory BIRADS 4A.

Results and discussion: The PPV in cases of amorphous calcifications was 44%, separated in two groups: for the group with amorphous calcifications the PPV was 34% and in the group of segmental amorphous calcifications the PPV was 55%. Our results showed inconsistencies with those proposed recently by other authors (KIM et al, 2017).

Conclusion: We found a higher PPV for amorphous calcifications that was expected for the subcategory BIRADS 4A. It is, therefore, suggested that the use of subcategory 4A for amorphous calcifications should be re-evaluated and should be submitted to a larger number of studies with more wide range.

Responsible Author: Dra. Cinthia Takassi Moritsugu 
E-mail: cinthia_moritsugu@hotmail.com

PD.09.009
MAMMOGRAPHY FINDINGS IN PATIENTS WITH MALIGINAL RESULT OF STEREOTACTIC MAMMOGRAPHY BIOPSY
Authors: TENÓRIO, L. P.; EVANGELISTA, L. R.; SANTOS, P. P. C. C.; ANDRADE, L. M. X.; TRINDADE, F. F.
Institution: CENTRO ESTADUAL DE ONCOLOGIA DO ESTADO DA BAHIA

Brief description of the study purpose/Objectives: Breast cancer is an important public health problem and corresponds to the most frequent cause of cancer death in women in Brazil and worldwide. Mammography is the main screening test for this type of neoplasm, which may promote an early diagnosis, avoiding radical surgeries and reducing the associated morbidity. Thus, it is important to know the most common findings in mammograms of patients with a disease, which may contribute to increase the possibility of radiologists’ suspicions in the evaluation of exams.

Material and methods: This is a descriptive cross-sectional study where the most common findings on mammography from patients with positive stereotactic biopsy for malignancy were investigated. To do so, the results of 359 biopsies performed at a reference oncology service in the state of Bahia between February and November 2017 were reviewed. Of these, 45 patients were selected who had a malignant outcome, and then performed a retrospective analysis of your exams. The findings were: breast tissue pattern, type and distribution of suspected calcifications / lesions and histological type.

Results and discussion: The majority of the study patients are in the age group between 51 and 60 years. The most common mammary patterns were dense and heterogeneous and sparse fibroglandular densities, corroborating with the literature, which points to the dense type as more associated with breast cancer. The most suspect finding was the grouped amorphous and pleomorphic calcifications, with only 6 different lesions, because, in this service, suspicious images that probably have ultrasonographic correspondence, are forwarded to perform a biopsy by this method. The most common histological type (27 cases) was intraductal carcinoma in situ, followed by infiltrating ductal carcinoma (12 cases). The greater occurrence of the in situ type is probably due to the higher frequency of suspected lesions being calcifications, which is the most frequent manifestation of this type of cancer.

Conclusion: It is important to know the most common findings associated with malignancy in mammography examinations, so that this knowledge may contribute to increase the suspicion of the disease by radiologists.
**PD.09.011**

ASSOCIATION BETWEEN MAMMOGRAPHIC VASCULAR CALCIFICATIONS AND CALCIUM SCORE AS A RISK FACTOR FOR CORONARY ARTERY DISEASE.

**Authors:** RAMOS, E.H.M.; OLIVEIRA, I. P.; MENDES, R.M.

**Institution:** Faculdade de Ciências Médicas da Universidade Federal da Paraíba.

**Brief description of the study purpose/Objectives:** Mammmographic vascular calcifications (CVM) may be considered important markers of cardiovascular diseases (CVD). The use of angiotomography, associated to the calcium score (EC) can contribute to the determination of cardiovascular risk, representing an important marker of coronary atherosclerosis. The objective of this study was to evaluate whether the presence of CVM represents a risk factor for coronary artery disease, seeking an association between them and EC, calculated by coronary angiotomography. The study was approved by the Research Ethics Committee of Hospital Universitário xxx with protocol number 1152629.

**Material and methods:** We analyzed 108 patients who had mammograms and angiotomographies, performed between 2011 and 2016. The left lateral lateral oblique incidence was selected for evaluation of vascular calcifications. The variables were: the CVM: absent; mild - up to 2 vessels with fine calcifications; moderate - up to 2 vessels with thick calcifications; multiple, more than 2 calcified vessels and the coronary EC classifying the calcifications as absent, minimal, mild, moderate, severe and very severe. The data were analyzed in the statistical program R, by the method of Tweedie. The level of significance was set at p <5%.

**Results and discussion:** Among the 108 patients, 97 (89.8%) were classified as absent and mild CVM; while moderate and multiple were 11 (10.2%). In relation to the calcium score, 82 (75.9%) patients presented scores less than or equal to 100 (absent or minimal and mild); those with a score higher than 100 (75.9%) corresponded to 26 (24.1%) being classified as moderate or severe and very severe. Values greater than 100 represent a risk of coronary events, considered an aggravating factor (EC: 101 to 400) and a greater probability of myocardial ischemia (EC> 400). The EC values were: 64.70562, for absent CVM (p = 0.001); 238.8237, mild (p = 0.013); 253.42667, moderate (p = 0.008) and 420.85200, multiple (p = 0.084).

**Conclusion:** There is a significant CVM and EC association in coronary angiotomography, however, further studies are needed to justify the use of mammography as another tool for coronary event risk analysis.

**Responsible Author:** Dr. Eduardo Henrique Moura Ramos

**E-mail:** eh.moura@yahoo.com.br

**PD.09.036**

CORRELATION BETWEEN ULTRASOUND CHARACTERISTICS AND IMMUNOHISTOCHEMICAL PROFILE OF MALIGNANT BREAST TUMORS


**Institution:** Universidade Estadual Paulista (UNESP)

**Brief description of the study purpose/Objectives:** Molecular studies of breast carcinoma based on identifying gene expression profiles using cDNAmicroarray have provided us the definition of different subtypes: luminal (A, B or hybrid), HER2 overexpression and triple negative. Immunohistochemistry panels are used for recognizing these subtypes, trying to mimic the gene expression profiles. Ultrasound is an important kind of image study in the description of breast tumors, therefore verifying the morphology of malignant lesions. The main goal of this study is to distinguish the molecular subgroups based on their morphologic features found in ultrasound imaging.

**Material and methods:** This is a clinical, analytical and prospective study evaluating 279 breast lesions which were diagnosed as invasive breast carcinoma between the years of 2010 and 2013.

**Results and discussion:** Two hundred and seventy-nine breast carcinomas were analyzed, of which 203 lesions (72,75%) had luminal subtype, 50 tumors (17,92%) had triple negative subtype and 26 cases (9,33%) were from HER2 subtype. Luminal tumors tend to be pleomorphic, tend to have thick tissue around them and non-circumscribed margin. They usually don’t contain microcalcification and don’t produce posterior acoustic effects, but may have non-parallel orientation to the skin and acoustic enhancing surroundings. Luminal tumor are divided in subgroups: luminal A, luminal B and luminal hybrid. Therefore, from two hundred and three luminal lesions, 76 (37,43%) were from luminal A subgroup, 93 (45,81%) were from luminal B subgroup and 34 (16,76%) were from luminal hybrid subgroup. Triple negative tumors tend to be more oval and circumscribed when compared with luminal and HER2 positive tumors, showing normal surrounding tissue, no microcalcifications inside, no posterior acoustic effects or presence of acoustic enhancement. They usually have abrupt limits and parallel orientation to the skin. HER2 tumors are commonly pleomorphic, heterogeneous, have non-circumscribed margin and microcalcifications inside of them, with normal surrounding tissue, absence of posterior acoustic effect, abrupt limits and non-parallel orientation to the skin.

**Conclusion:** We observed distinct ultrasonographical characteristics (statistically significant) between the studied immunohistochemistry subtypes.

**Responsible Author:** Dr. Lucas Padilha Rodrigues

**E-mail:** lucasprodrigues@protonmail.com

**SCIENTIFIC PAPERS - ORAL PRESENTATION (TL)**

**TL.09.001**

ACCURACY OF MAGNETIC RESONANCE IN BREAST CANCER AFTER NEOADJUVANT CHEMOTHERAPY: CORRELATION WITH PATHOLOGICAL RESPONSE IN THE DIFFERENT SUBTYPES

**Original Paper**

**Authors:** NEGRAO, E.M.S.; BITENCOURT, A. G. V.; SOUZA, J.A.; MARQUES, E. F.; GUATELLI, C. S.; GRAZIANO, L.; ALBUQUERQUE, M.L.L.;

**Institution:** AC Camargo Cancer Center - São Paulo - SP - Brasil

**Brief description of the study purpose/Objectives:** Breast cancer is classified into molecular subtypes, which differ in clinical presentation, response to treatment and survival. Her2 and triple negative subtypes are known to be more aggressive and potentially metastatic. Complete pathological response is considered to be the best predictor of clinical benefit after neoadjuvant chemotherapy, such as disease-free survival. The objective of this study was to compare the radiological response in magnetic resonance (MR) and pathological re-
response in patients with breast cancer submitted to neoadjuvant chemotherapy in the different molecular subtypes.

**Material and methods:** We retrospectively analyzed the images of 310 breast cancer patients at a Brazilian cancer center between October 2014 and July 2017. MRI after chemotherapy was compared with pathologic analysis of the surgical specimen after mastectomy or conservative surgery. This study compared the MR radiological response to the pathological response, stratified the different molecular subtypes and determined the sensitivity, specificity and accuracy to define the ability of MR to predict the complete pathological response.

**Results and discussion:** Patients’ ages ranged from 27 to 85 years (mean 47 years). The predominant subtype was Luminal (with 134 cases) and Luminal B Her 2 (hybrid) with 55 cases, followed by triple negative with 90 cases and Her 2 overexpressed (negative hormonal receptors) with 31 cases. There were a total of 126 cases (41%) of complete radiological response. The sensitivity of MR was 82%, specificity 74% and accuracy of 79%. Stratifying the subtypes, the highest indexes were observed in Her2 subtype with sensitivity of 89%, specificity of 82% and accuracy of 83%. The triple negative subtype had 78%, 78% and 70%, respectively. The Luminal B subtype without Her 2 expression, obtained 56%.

**Conclusion:** MR demonstrated good accuracy to evaluate the pathological response after neoadjuvant chemotherapy, especially in the Her2, Triple Negative and Luminal B Her 2 subtypes, demonstrating that the MR accuracy may vary according to the molecular subtype, being higher in those with greater aggressiveness.

**Responsible Author:** Dra. Erika Marina Solla Negrao

E-mail: brenda_kika@yahoo.com.br

**TL.09.002**

**IMPACT OF BREAST MRI FOR LOCOREGIONAL STAGING OF BREAST CANCER**

**Authors:** FRANÇA, L.K.L.; BITENCOURT, A.G.V.; MAK-DISSI, F.B.; SOUZA, J.A.; CHIONIAK, R.; MARQUES, E.F.

**Institution:** A. C. Camargo Cancer Center, São Paulo, São Paulo, BrasilAdvanced Imaging Associates, Fremont, California, USAAngeo Vascular Medicine Consulting Rooms, Belgrade, SerbiaANGIORACD, Recife, Pernambuco, BrazilAPROFE, Ambato, Tungurahua, EcuadorAPROFE, Babahoyo, Los Ríos, EcuadorAPROFE, Guayaquil, Guayas, EcuadorAsian Medical Center, Seoul, Republic of KoreaAssociation Hospitalar Beneficiante São Vicente de Paulo, Passo Fundo, Rio Grande do Sul, BrazilAxial Centro de Imagem Diagnostico SC Ltda., Belo Horizonte, Minas Gerais, BrazilBayero University, Kano, NigeriaBeneficiência Portuguesa de São Paulo, São Paulo, BrazilBeyetepe Military Hospital, Ankara, TurkeyBioMaster Medica Diagnostica, São Paulo, São Paulo, BrazilBostom University School of Medicine, Boston, Massachusetts, EUABreast Center, National Taiwan University Hospital, Taipei, TaiwanBuddhist Temple Tsu Chi General Hospital, Taipei Branch, TaiwanBunyan University Hospital, Inje University, Busan, South KoreaCardiology Research Complex, Moscow, RussiaCasa de Saúde Santa Marcelina, São Paulo, São Paulo, BrazilCasa de Saúde São José, Rio de Janeiro, Rio de Janeiro, BrazilCDB - Centro de Diagnósticos Brasil, São Paulo, São Paulo, BrazilCDE Diagnostico por Imagem, Campinas, São Paulo, BrazilCDI - Centro de Diagnóstico por Imagem, Vitória, Espírito Santo, BrazilCDEPI - Clinica de Diagnostico por Imagem, Rio de Janeiro, Rio de Janeiro, BrazilCEBRAMEN - Centro Brasileiro de Medicina Nuclear e Imagem Molecular, Goiânia, Goiás, BrazilCEDIMA - Centro de Estudos de Diagnostico por Imagem Professor Waldir Maymone, Presidente Prudente, São Paulo, BrazilCEDIMAG, Juiz de Fora, Minas Gerais, BrazilCEDIMEN - Centro de Diagnóstico em Medicina Nuclear, São Paulo, São Paulo, BrazilCEDIRP - Centro de Diagnóstico Ribeirão Preto, Ribeirão Preto, São Paulo, BrazilCEGYR, Ciudad Autónoma de Buenos Aires, ArgentinaCE-MRI - Centro de Atenção Integral à Saúde da Mulher-CAISM, Universidade Estadual de Campinas-UNICAMP, Campinas, São Paulo, BrazilCentro de Ciências das Imagens e Física Médica, Seccao de Medicina Nuclear - Hospital das Clínicas de Ribeirão Preto - USP, Ribeirão Preto, São Paulo, BrazilCentro de Desenvolvimento da Tecnologia Nuclear, Belo Horizonte, Minas Gerais, BrazilCentro de Diagnóstico Dr. Enrique Rossi, Buenos Aires, ArgentinaCentro de Diagnóstico Schmillevitch, São Paulo, São Paulo, BrazilCentro de Ensino e Pesquisa do Hospital Pro Cardiacio/Procep, Rio de Janeiro, Rio de Janeiro, BrazilCentro de Estudos Medimagem Feira de Santana, Feira de Santana, Bahia, BrazilCentro de Medicina Intervencionista, Hospital Israelita Albert Einstein, São Paulo, São Paulo, BrazilCentro de Medicina Nuclear da Guanabara, Rio de Janeiro, Rio de Janeiro, BrazilCentro de Medicina Nuclear do Hospital das Clinicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, São Paulo, BrazilCentro de Medicina Nuclear do Instituto de Radiología do Hospital das Clinicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, São Paulo, BrazilCentro de Radioterapia Rio de Janeiro, Duque de Caxias, Rio de Janeiro, BrazilCentro de Reabilitação e Reaptação Dr. Henrique Santillo, Goiânia, Goiás, BrazilCentro de Tecnologia da Informação Renato Archer, Campinas, São Paulo, BrazilCentro Diagmed de Radioterapia, Campinas, São Paulo, BrazilCentro Diagnostico Lucito Ávila Jr, Recife, Pernambuco, BrazilCentro Diagnóstico Campinas - Unifesp, Campinas, São Paulo, BrazilCentro Diagnóstico Radiológico Campinas - Hospital Vera Cruz, Campinas, São Paulo, BrazilCentro Diagnóstico Radiológico Campinas - Unifesp, Campinas, São Paulo, BrazilCentro Universitário Estácio-FIB, Salvador, Bahia, BrazilCentro Universitário Sant'Anna, São Paulo, São Paulo, BrazilCentro Universitário São Camilo, São Paulo, São Paulo, BrazilCentro Universitário São Camilo, São Paulo, São Paulo, BrazilCentro de Diagnósticos por Imagem, Campinas, São Paulo, BrazilCEPEM - Centro de Estudos e Pesquisas da Mulher, Rio de Janeiro, Rio de Janeiro, BrazilCETACC - Diagnóstico por Imagem, Curitiba, Paraná, BrazilCETARS, São Paulo, BrazilCIEU Diagnósticos, Belo Horizonte, Minas Gerais, BrazilCIEUSPE - Centro Especializado em Ultrassonografia, São Luis, Maranhão, BrazilCHA GUMI Medical Center, CHA University, Gumi, Republic of KoreaChang Gung University College of Medicine, Kaohsiung, TaiwanCharité - Universitätsmedizin Berlin, Berlin, GermanyCheng Hsin General Hospital, Taipei City, TaiwanChildren’s Hospital of Chongqing Medical University, Chongqing, ChinaChildren's Memorial Health Institute, Institute of Mother and Child, Warsaw, PolandChinese PLA General Hospital, Beijing, ChinaChina University of Medical Sciences, Peking Union Medical College, Beijing, ChinaChina University of Medical Sciences, Peking Union Medical College, Beijing, ChinaChinese People’s Liberation Army General Hospital, Beijing, ChinaChinese People’s Liberation Army General Hospital, Beijing, ChinaCIRUGIA VASCULAR HOSPITAL UNIVERSITARIO, Fraga Filho - UFRJ, Rio de Janeiro, Rio de Janeiro, BrazilCLIMAG, Timóteo, Minas Gerais, BrazilCLIM Brief description of the study purpose/Objectives: Evaluate the impact of breast magnetic resonance (MR) usage on breast cancer locoregional staging and its effect on therapeutic approach at a cancer center institute.

**Material and methods:** 61 patients with proved breast cancer and submitted to pre treatment breast MR between August
ASSOCIATION BETWEEN BREAST DENSITY AND TUMOR SUBTYPES IN 213 PATIENTS


Institution: HOSPITAL DAS CLÍNICAS DA FACULDADE DE MEDICINA DE BOTUCATU - UNESP

Brief description of the study purpose/Objectives: The purpose of this study was to examine the association between breast density (BD) using the BI-RADS classification and the molecular subtype of breast cancer (BC), including positive HER2 (PH2) status. Few studies have analyzed the association between the tumor subtype, BD and PH2. Most of the studies focused only on the status of the estrogen receptor. Our study examines the associations between BD and four molecular subtypes of BC.

Material and methods: Two hundred and thirteen patients with BC followed in the year 2016 were evaluated. Mammograms were evaluated and labeled following the BI-RADS 5th Edition system. We have classified breast density pattern (Patterns: A, B, C, D) and evaluated the tumor phenotype being: Luminal A, Luminal B, Luminal Hybrid, PH2-only and Triple Negative. Correlation with the use of Chi square test was performed for statistical analysis of significance between breast densities and molecular subtypes of BC. We also analyzed the correlation between age groups and BD.

Results and discussion: After analyzing our data, strong correlation was found between dense breasts and Luminal A, Luminal B and pure HER2 subtypes. The most frequent subtypes in the sample of 213 patients were Luminal B and Luminal A. Between 40 and 70 years old we noticed the greater number of cases of breast cancer, 77.46% of the sample. In this group, and in all age groups, the most common pattern of BD was type C. The type D pattern was not found in patients over 70 years old.

Conclusion: The strong correlation between the patterns of greater breast density and the tumor subtypes Luminal B and pure Her2, shows that the patients with dense breasts tend to show aggressive subtypes of BC. Correlating age and BD also shows how difficult it is to evaluate patients with dense breasts. The most frequent BD pattern in the sample was type C, acknowledging the necessity of other imaging methods for a full patient evaluation.

Responsible Author: Dra. LUCIANA FRANÇA
E-mail: lufranssa@gmail.com

TL.09.005

COMPARISON BETWEEN AUTOMATED AND CONVENTIONAL BREAST ULTRASOUND IN THE SCREENING OF PATIENTS WITH DENSE BREASTS: INITIAL RESULTS


Institution: Clínica de Diagnóstico por Imagem (CDPI) - Diagnósticos da América (DASA)

Brief description of the study purpose/Objectives: Hand-held breast ultrasound (HHBU) has been commonly performed to complement mammography screening for women with dense breasts. Due to the huge demand for exams, most of the time the operator is a general radiologist / ultrasonographer, with little experience in breast imaging, reducing the sensitivity of the method and increasing the false positives. Automated breast ultrasound (ABUS) presents the expectation of resolving some limitations of HHBU, such as operator dependence and variability of results. The primary objective of this study is to compare the use of HHBU and ABUS as a screening tool for breast cancer.

Material and methods: From August to October 2017, patients with mammographically dense breasts (classification C or D by BI-RADS) were evaluated. All patients underwent mammography, HHBU and ABUS (Invenia-GE Healthcare). HHBU was performed by medical specialists or not in breast imaging. ABUS was performed by mammography technicians, with a pre-established protocol, and analyzed by medical specialists in breast imaging, without knowledge of the outcome of HHBU. Finally, the results of HHBU and ABUS were compared, including among others the time of examination / interpretation, as well as BI-RADS lesions characteristics.

Results and discussion: A total of 92 patients, mean age 50 years, were evaluated. Two exams were excluded for technical reasons. About HHBU, 69/90 examinations were performed by general radiologists / ultrasonographers and 21/90 by specialists. Examination average time of 5 minutes. Thirty-five nodules, mean size 0.9 cm, were detected, with 30/35 BI-RADS 3 and 3/35 BI-RADS 4, the three confirmed as invasive ductal carcinomas (IDC). About ABUS, average examination time of 28 minutes and 6 minutes of reading. Twenty-one nodules were detected, with a mean size of 1.1 cm, with 15/21 BI-RADS 3 and 4/21 BI-RADS 4, three of them also confirmed as IDC, added to an intraductal papilloma.

Conclusion: ABUS allowed adequate ultrasonographic study in the screening of breast cancer, with a reduction in the detection of probably benign lesions and in the need for control. This study will be continued, with increase of the sample, improvement in the learning curve and reduction in the examination time.

Responsible Author: Dra. Fernanda Philadelpho Arantes Pereira
E-mail: fephila@gmail.com

TL.09.006

USE OF 125IODINE SEEDS (ROLLIS) FOR INTRA-OPERATIVE LOCALIZATION OF NONPALPABLE BREAST LESIONS: ANALYSIS OF THE PLANT OF 338 SEEDS IN 284 PATIENTS

Institution: Clínica de Diagnóstico por Imagem (CDPI) e Alta Excelência Diagnóstica - Diagnósticos da América (DASA). Instituto Brasileiro de Oncologia

Brief description of the study purpose/Objectives: To evaluate the feasibility and efficacy of the method of implanting seeds of 125iodine (ROLLIS) for intraoperative localization of impalpable lesions of the breast.

Material and methods: This is a retrospective study, including 189 patients with mammary nodules or microcalcifications, visible on mammography and/or ultrasonography, but clinically impalpable, submitted to the implantation of 125iodine seeds, from June 2014 to December 2017, being implanted a total of 214 seeds. The patients were referred by several mastologists who performed radio-guided surgeries with the aid of a Gamaprobe radiation detector, performed on the same day of the implant or several days later, following the surgical center's agenda, the medical team and the patient's convenience.

Results and discussion: Implants were performed on an outpatient basis, with immediate return of patients to daily activities, and no complications such as pain, hemorrhage, infection or hematoma were recorded. The pathologists did not find any damage in the processing of the surgical specimen. The cicatricial process was performed normally, obtaining full satisfaction from the surgeons, who reported greater ease in the intraoperative location of the lesions, and a decrease in the operative time. The cosmetic result was also benefited, being well accepted by the patients. Surgical margins were considered adequate in all cases, thanks to the evaluation made by the pathologist and extensions performed at the time of surgery, without re-excisions.

Conclusion: 125Iodine seed implant (ROLLIS) is a safe and effective technique for intraoperative localization of radiologically visible but clinically impalpable lesions of the breast.

Responsible Author: Dra. Fernanda Philadelpho Arantes Pereira
E-mail: fephiila@gmail.com

TL.09.008

ASSOCIATION BETWEEN PARENCHYMAL BACKGROUND ENHANCEMENT (BPE) ON BREAST MAGNETIC RESONANCE IMAGING (MRI) AND RESPONSE TO NEOADJUVANT CHEMOTHERAPY (NAC).

Authors: TEIXEIRA, S.R.C; CAMARGO, H.S.A; CABELO, C.

Institution: 1 Centro de Atenção Integral à Saúde da Mulher-CAISM, Universidade Estadual de Campinas-UNICAMP, Campinas, São Paulo, Brasil. 2 CDE Diagnóstico por Imagem, Campinas e Amparo, São Paulo, Brasil

Brief description of the study purpose/Objectives: To assess the association of MRI BPE and pathological response in women diagnosed with stage II/III breast cancer submitted to NAC.

Material and methods: This observational and cross-sectional retrospective study was performed in consecutive women who underwent NAC and had MRI exams before and after chemotherapy. BPE was classified according to ACR-BIRADS 5th edition. The type of BPE before NAC, its changes and the relationship to pathologic complete response (pCR) were evaluated. Data were paired with patient age, size on MRI before and after NAC, features of clinical response according to the RECIST criteria, tumor grade and immunohistochemical (IHC) subtypes. MRI assessment included amount of fibroglandular tissue, symmetry of BPE and measurement of tumor at the longest diameter. All images were blinded reviewed by a radiologist. We used for the changes of the BPE the Bowker symmetry test or the McNemar test and to analyze the factors related to the clinical and pathologic responses, logistic regression analysis. The level of significance adopted was 5% (p<0.05).

Results and discussion: We studied 71 women between 2009 and 2016. The medium age was 37 years old. BPE was symmetrical in 68 women (95.8%). Moderate and marked BPE was present in 28 (39.4%) of the affected breasts and in 25 (34.2%) of the contralateral breasts. After NAC all BPE were symmetrical and just 3% of them were moderate or marked. Regarding the IHC subtype, 40 women (56.3%) were triple negative or HER2 positive, and these women had a higher frequency of pCR (55%) for each, compared to 12.9% in patients with luminal subtypes. We found to be independently associated with pCR: the reduction of BPE (in the affected or contralateral breast) and the molecular subtypes triple negative and HER2 positive.

Conclusion: BPE reduction was significantly associated with pCR. Nevertheless, patterns of BPE pre-NAC have no association with pathological response.

Responsible Author: Dra. Sandra Regina Campos Teixeira
E-mail: santx@icloud.com

PICTORIAL ESSAY

SCIENTIFIC PAPERS - POSTERS (PA)

PA.09.002

AXILLA ON MAMMOGRAPHY: LYMPH NODES, BENIGN FINDINGS AND SUSPICIOUS LESIONS: PICTORIAL ESSAY


Institution: Hospital do Câncer de Barretos - Barretos - SP - Brasil

Introduction and objectives: Mammography reveals a small part of the armpit, but abnormalities can be seen. The most common abnormality detected is axillary adenopathy. Lymphadenopathy may occur, secondary to breast carcinoma or in association with systemic diseases. Axillary or axillary breast masses may also mimic abnormal lymph nodes.

Methods: We describe a series of cases of axillary abnormalities detected by mammography, from typically benign cases to cases with suspected primary axillary and secondary breast findings.

Discussion: Axillary abnormalities observed on mammography can be attributed to a variety of causes. The differential diagnosis is broad, including cutaneous lesions, infectious causes, lymphadenopathy (hyperplasia, inflammatory, neoplastic or metastatic), accessory breast tissue, fibroadenoma, fibrocystic alteration, postoperative collections, primary breast cancer and muscular neoplasias.
Conclusion: Knowledge of the normal axillary anatomy helps in determining the underlying etiology of an axillary mass. Recognition of the spectrum of axillary abnormalities on mammography may facilitate differential diagnosis. The presence of a known or systemic malignancy may explain the adenopathy observed on mammography. In most cases, image evaluation implies diagnostic mammography and directed ultrasound. If intervention is required, aspiration puncture or biopsy of fragments are safe and accurate methods for diagnosis and management.

Responsible Author: Dra. Erika Marina Solla Negrao

PA.09.007
DERMATOFIBROSARCOMA PROTUBERANS OF THE BREAST: A PICTORIAL REVIEW

Authors: CASTRO, C.V.; MANNATO, B.; CAMPOS, M.S.D.A.; BADAN, G; BIANCHINI, A.P.A.P.; MORAIRIS, R.A.H.; MARAGNO, B.; SELETTI, R.O.; ROVEDA, D.

Institution: Irmandade da Santa Casa de Misericórdia de São Paulo

Introduction and objectives: Dermatofibrosarcoma protuberans (DFSP) is a malignant tumor originated of subcutaneous tissue and it usually involves the trunk, extremities, head and neck. Occurrence in the breast is very rare and, owing to its indolent growing, it often is misdiagnosed as a benign breast tumor, which delays treatment. Even though metastases are rare, the DFSP is an intermediate grade malignancy.

The infiltrative growth pattern of this tumor determines its local aggressive behavior and high recurrence rate, leading up to surgical excision with wide margins as the standard treatment. The objective of this pictorial review is to present the imaging features of DFSP of the breast, through patterns in mammography (MMG), ultrasound (US) and magnetic resonance (MR).

Methods: We accomplished a retrospective study of all pathologically proven cases of DFSP in last five years in our institution and showed a series of cases after analyze the features in multimodal imaging (MMG, US and MR). During the same period, we reviewed the literature and connected data information found in our study.

Discussion: The DFSP is a rare neoplasm of the breast, which has an intermediate grade tumor malignancy and it’s often misdiagnosed as benign breast tumor. The reported imaging findings of DFSP of breast are nonspecific, but it is usually located in the subcutaneous tissue, often maintaining contact with the skin. In mammography, generally it is presented as oval mass, circumscribed and isodense. In ultrasonography, circumscribed, hypoechoic, subcutaneous mass with increased internal blood flow in Doppler study. MR appearance of breast DFSP is well-circumscribed, intermediate intensity tumor on both T1 and T2-weighted with strong enhancement.

Conclusion: DFSP is a rare sarcoma in the breast that can mimic a benign primary tumor. Therefore, knowing the main features of different imaging modalities could support the diagnosis of this tumor and improve treatment planning.

Responsible Author: Dr. Caio Vinicius Castro

PA.09.010
CONCORDANCE BETWEEN BREAST IMAGING FINDINGS AND POST-BIOPSY PATHOLOGIC OUTCOME

Authors: SOUZA, J. A.; SILVA, C. O.; MEIRELES, L. L.; MATTIONI, M.; TAJIMA, C. C.; GUATELLI, C. S.

Institution: AC CAMARGO CANCER CENTER

Introduction and objectives: Imaging-guided biopsy is a safe and reliable method for the diagnosis of benign and malignant breast diseases, replacing traditional surgical biopsies. However, it still possible to have of a false-negative biopsy. An adequate imaging-pathology correlation is of critical importance to detect such a possible sampling error. The aim of this pictorial essay is to contribute to the imaging-pathology correlation after the breast biopsy, with illustrative images of the possible outcomes, which will provide guidance in the application of this post-biopsy assessment in practice.

Methods: A review of the literature and analysis of cases diagnosed in a referral center was carried out through mammography and ultrasonography.

Discussion: The imaging and pathologic findings are considered to be concordant when the pathologic result provides an acceptable explanation for the imaging feature and discordant when they do not. After the assessment for concordance has been completed, a management plan can be provided.

There are five possible outcomes of imaging-pathology correlation for each category: Concordant Malignancy. A lesion which showed a suspicious finding for malignancy on images (i.e., Breast Imaging Reporting and Data System [BI-RADS] category 4 or 5) and is diagnosed to be malignant on a core needle biopsy. Discordant Malignancy: a lesion which typically had benign or benign-favoring imaging features (i.e., BI-RADS category 2 or 3) but proves to be malignant at core needle biopsy. Concordant Benign: a lesion which is initially thought to be benign radiologically (i.e., BI-RADS category 2, 3, or 4A) and also demonstrates benign pathology at core needle biopsy. Discordant Benign: a lesion suspicious for malignancy at imaging (i.e., BI-RADS category 4 or 5), but demonstrates benign pathologic result after performing a core needle biopsy. Borderline or High Risk. A lesion is not malignant but is considered to have an increased lifetime risk for the development of breast cancer.

Conclusion: Radiologists should be aware of the imaging presentation of breast pathologies and be apt to correlate radiological findings with the pathologic report.

Responsible Author: Dr. Mateus Mattioni

PA.09.012
BREAST CARCINOMA EVIDENCED IN THE THORAX CT: IMPORTANCE IN THE IDENTIFICATION AND DESCRIPTION OF ALL THE FINDINGS


Institution: Transduson

Introduction and objectives: In radiology, it is fundamental to analyze the image as a whole, not being directed solely by the patient’s complaint, with only one target of the examination. Sometimes the additional findings are discrete, others lush.

Methods: In an imaging finding on Computed Tomography of the thorax, a breast nodule was evidenced, which was suggested to follow with the investigation.

Discussion: After a fall, the elderly patient underwent Computed Tomography for pains in the ribs. In an imaging finding, a mass in the breast was evident. Subsequently, the mammographic study revealed a large nodule with pleomorphic microcalcifications, and BiRads 5 was performed. Ultrasound-guided core biopsy was performed on the suspected nodule with a histopathological result of invasive ductal carcinoma.

Conclusion: Therefore, it is extremely important to analyze the examination as a whole, and to consider small and gross changes, as it was in this case.

Responsible Author: Dra. Raquel Rodrigues Faria
PA.09.013

THE ROLE OF MAGNETIC RESONANCE IMAGING IN THE PREOPERATIVE EVALUATION OF BREAST IN SITU DUCTAL CARCINOMA.


Institution: Hospital Sírio Libanês

Introduction and objectives: Ductal carcinoma in situ of the breast (DCIS) has fundamental clinical importance as much by its frequency with which it appears in the population as by the severity of the disease that it can represent. Traditionally the surgical planning of this disease was done through clinical examination, mammography and histological diagnosis. Now we know that dynamic contrast-enhanced breast magnetic resonance imaging (MRI) has a very high sensitivity and accuracy in estimating DCIS size better than other methods, making a more adequate preoperative assessment possible and perhaps modifying the disease treatment and prognosis. However, the role of MRI in this setting is still controversial when the outcomes considered are local disease control and overall survival. Therefore, the purpose of this study is to gather the information available to date on this topic in order to discuss the validity of MRI indication in the preoperative evaluation of the DCIS.

Methods: We searched the scientific databases on the proposed theme and performed a compilation of the results found. We also used images from our institution's digital archive to illustrate the study.

Discussion: Studies have shown MRI to be more accurate in estimating DCIS size. However, this advantage did not always turn out to be beneficial, as some studies have found: overestimation of DCIS measurements, which led to larger surgeries in some cases and a greater chance of mastectomy as initial surgery in patients undergoing MRI. It was also not possible to verify that patients evaluated with MRI had significantly higher free margins rates than those without MRI.

Conclusion: To date there is no high-level data demonstrating the use of MRI in the evaluation of DCIS can allow superior accuracy of MRI in relation to the other methods currently available in DCIS measurement. This fact leads us to believe that this should be the most appropriate method for its evaluation.

Responsible Author: Dr. Werner Weiss Kleina

PA.09.020

ROLE OF MAGNETIC RESONANCE IMAGING IN THE EVALUATION OF DUCTAL CARCINOMA IN SITU


Institution: Hospital A. C. Camargo Câncer Center

Introduction and objectives: Ductal carcinoma in situ (DCIS) is a precursor mammary lesion consisting of malignant epithelial cells that do not extend beyond the basal membrane, with a risk of progression to invasive disease. Although the early detection of DCIS has increased with the evolution of mammography, which is the method of choice for breast cancer screening, through the analysis of the morphology of calcifications, magnetic resonance imaging (MRI) has been shown to play an important role in the evaluation of extension of the lesion. The objective of this study is to review the types of DCIS presentation in MRI images and to review the efficacy of this method in its early detection and extension of the disease.

Methods: Literature review and analysis of cases diagnosed in a referral center were carried out through mammography, ultrasonography and magnetic resonance imaging.

Discussion: DCIS can occur purely or in association with invasive disease, in the same lesion, in different foci and in the contralateral breast. In mammography, DCIS is presented as microcalcifications that correspond to the calcified component, with distributions ranging from clusters, linear or segmental, and may still appear as mass or architectural distortion. Ultrasonography, especially when performed in a targeted manner, is capable of recognizing a large part of the lesions. MRI has high sensitivity for the detection of pure DCIS, being able to identify the non-calcified component of the disease and its accuracy increases the higher its histological grade, classified according to the Nottingham system in grades 1, 2 and 3. The most common presentation pattern is the non-nodular enhancement with a heterogeneous internal pattern, with a fast filling kinetic curve as wash-out and plateau, more commonly of segmental distribution, with restrictions in the diffusion sequence.

Conclusion: MRI plays an important role in the detection of DCIS and, especially in the evaluation of its extent, it is fun-

PA.09.019

PRESENTATION OF THE RADIATEDScar IN THE DIFFERENTIMAGING METHODS.

Authors: TAJIMA, C.C.; SOUSA, L.L.C.; FELIPE, V.C.; BITENCOURT, A.G.V.; SOUZA, J.A.; GUATELLI, C.S.; MARQUES, E.F.

Institution: Hospital A.C.Camargo Câncer Center

Introduction and objectives: Radiated scarring (CR), also called complex sclerosing lesion (CSL), is a benign breast disease and can mimic malignant mammary carcinomas in imaging studies. It presents as a lesion with a fibroelasthetic center called complex sclerosing lesion (CSL), is a benign breast disease and can mimic malignant mammary carcinomas in imaging studies. It presents as a fibroelasthetic center that the use of MRI in the evaluation of DCIS can allow superior accuracy of MRI in relation to the other methods currently available in DCIS measurement. This fact leads us to believe that this should be the most appropriate method for its evaluation.

Discussion: Studies have shown MRI to be more accurate in estimating DCIS size. However, this advantage did not always turn out to be beneficial, as some studies have found: overestimation of DCIS measurements, which led to larger surgeries in some cases and a greater chance of mastectomy as initial surgery in patients undergoing MRI. It was also not possible to verify that patients evaluated with MRI had significantly higher free margins rates than those without MRI.

Conclusion: To date there is no high-level data demonstrating the use of MRI in the evaluation of DCIS can allow superior accuracy of MRI in relation to the other methods currently available in DCIS measurement. This fact leads us to believe that this should be the most appropriate method for its evaluation.

Responsible Author: Dr. Carla Chizuru Tajima
damental that radiologists acknowledge their different types of presentation and use the complementary features of this examination, such as the analysis of kinetic curves and sequences such as diffusion.

**Responsible Author:** Dra. Carla Chizuru Tajima

**PA.09.022**

**IMAGE ASPECTS OF MALIGNANT SKIN LESIONS.**

**Authors:** SOUSA, LLC; TAJIMA, C.C; FELIPE, V.C; BITENCOURT, A.G.V; ALBUQUERQUE, M.L.; SOUZA, J.A.; POLI, M.R.B.

**Institution:** Hospital AC Camargo

**Introduction and objectives:** Mammary skin lesions are mostly of benign etiology, however, malignant lesions may also present cutaneous involvement. Some skin changes, such as thickening, retraction or inflammation, may be the first sign of locally advanced breast cancer. The objective of this study is to review the presentation of malignant skin lesions in the imaging studies.

**Methods:** A review of the literature and analysis of cases diagnosed in a referral center was carried out through mammography (MMG), ultrasonography (US) and magnetic resonance imaging (MRI).

**Discussion:** Cutaneous retraction of the areolopapillary complex may be the first manifestation of a breast carcinoma. The main cause of retraction is postoperative alterations, however, all patients presenting cutaneous retraction without history of previous surgery should be investigated. Ulceration and skin invasion may occur in locally advanced mammary carcinomas. Skin involvement by the tumor confers a worse prognosis, being classified as stage T4b in the classification of malignant tumors (TNM). Invasion of the skin may present with erythema, thickening, cutaneous nodules or ulceration. Inflammatory carcinoma is a rare form of presentation of malignant breast tumors; it is related to high mortality, being classified as stage T4d in the TNM classification, at diagnosis some of the patients already present with distant metastases. The characteristic symptoms are the presence of inflammatory signs in the breast such as heat, erythema, edema and pain, associated or not with the palpable mass. A common clinical finding is the skin in "peu d'orange" (peu d'orange). Paget's disease accounts for 1-3% of mammmary carcinomas. The vast majority of cases are associated with carcinoma in situ or invasive in the mammary parenchyma and usually present with erythematous and scaly lesion or papillary ulcer, with extension to areola, associated with pain, burning and/or pruritus, which may even appear before of the lesion.

**Conclusion:** It is essential that radiologists recognize the different types of presentation of malignant cutaneous lesions in imaging tests, thus contributing to early diagnosis and appropriate treatment.

**Responsible Author:** Dra. Luiza Lourenço Campos de Sousa

**PA.09.025**

**MAGNETIC RESONANCE IN THE EVALUATION OF COMPLICATIONS OF MAMMARY PROSTHESSES**

**Authors:** MAIA, R.N.T.; BOLINELLI, A.P.; RIANI, L.L.; SANTANA, M.V.M.C.; WANDERLEY, M.C.; BIANCO, G.A.; BARRETO, V.O.; SILVA, T.T.; BRINGEL, R.F.G.; SACHETIN, R.M.

**Institution:** Hospital Estadual Vila Alpina

**Introduction and objectives:** The implantation of silicone breast prostheses is one of the most performed surgeries in Brazil and the world, being the main indications related to aesthetic purposes or the need for reconstructive surgery after mastectomy. In view of the large percentage of women with breast implants and the possibility of complications, the objective of this study is to show, through illustrations, the most common complications related to silicone breast implants in magnetic resonance imaging and possible additional findings when is performed with the paramagnetic contrast medium.

**Methods:** Nuclear magnetic resonance images were assembled to illustrate the main complications related to breast silicone prostheses.

**Discussion:** ANVISA statistics show that up to 1% of silicone prostheses can rupture after 1 year of implantation and up to 10% after 10 years, with magnetic resonance imaging (MRI) being a useful and reliable imaging method for the verification of both integrity of the prostheses with for the identification of tumor lesions of the mammary parenchyma. It should be noted that this method also has a specific sequence for the identification of the silicone gel and has the paramagnetic contrast medium for the screening of neoplastic lesions and capsular inflammatory processes.

**Conclusion:** We conclude that MRI is especially sensitive in the identification of complications related to the implantation of mammary silicone prostheses.

**Responsible Author:** Dra. Roberta Maia

**PA.09.026**

**PRESENTATION OF NON-INFECTIOUS MASTITIS IN DIFFERENT IMAGING METHODS.**

**Authors:** TAJIMA, C.C.; SOUSA, L.L.C.; FELIPE, V.C.; BITENCOURT, A.G.V.; ALBUQUERQUE, M.L.L.; POLI, M.R.B.; SOUZA, J.A.

**Institution:** Hospital A.C. Camargo Cancer Center

**Introduction and objectives:** Non-infectious mastitis are less common than those of infectious origin, and although they mimic malignant disease, they are of benign etiology and can be related to systemic and immunological diseases, such as Wegener's granulomatosis, IgG4 disease, sarcoidosis, and diabetic mastopathy. In this way, the physical examination together with the knowledge of the pathophysiological changes of these diseases, is fundamental for the correct diagnosis and treatment. The objective of this study is to review the types of presentation of non-infectious mastitis in different imaging methods.

**Methods:** Literature review and analysis of cases diagnosed in a referral center were carried out through imaging examinations.

**Discussion:** The non-infectious mastitis has a non-specific presentation in the different imaging methods, being the histopathological study and the anatomo-radiological correlation fundamental for the correct diagnosis and the exclusion of malignant disease. Diabetic mastopathy affects mainly premenopausal women, insulin-dependent diabetics with long-standing inadequate glycemic control, and the clinical complaint is of a hardened nodule that presents to mammography as an area of focal asymmetry or mass, and may still occur in a form and its differential diagnosis should be made with invasive lobular carcinoma and inflammatory carcinoma. Idiopathic granulomatous mastitis, also known as granulomatous lobular mastitis, has an unknown etiology and occurs mainly in young patients with a recent lactation history and the clinical presentation is usually of repetitive mastitis. It is shown in different imaging methods such as asymmetry, architectural distortion and non-nodular enhancement area. Sclerosing mastitis related to immunoglobulin G4 (IgG4) is a rare autoimmune inflammatory condition whose findings are also non-specific, similar to granulomatous mastitis. Sarcoidosis may present in a non-specific manner as irregular masses, requiring histopathological diagnosis.
Conclusion: Non-infectious mastitis may mimic malignant lesions in the breast. It is important that radiologists recognize their different modes of presentation in the imaging studies and, thus, associated with the clinical history, physical examination and histopathological study, allow early diagnosis and appropriate treatment.

Responsible Author: Dra. Carla Chizuru Tajima

PD.09.008
MAMMOGRAPHIC SIGNS OF SYSTEMIC DISEASE: BEYOND THE BREAST CANCER.

Pictorial Essay
Authors: ACQUESTA, F. B.; LADEIRA; P. R. S.; ZANETTA, V. C.; MARSOLLA, F. L.; LEITÃO, L; MACIEL, F. C.; PAZINATO, L. V.; ANDO, S. M.; SHIMIZU, C.
Institution: Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo

Introduction and objectives: Mammography’s main goal is breast cancer early detection. However, several systemic conditions cause breast abnormalities that may not only mimic breast cancer, but can also hide lesions. Also, mammography abnormalities may be the first sign of systemic disease, and thus a window for its diagnosis and workup. Radiologists need to be familiarized with such conditions, to avoid pitfalls in diagnosis and also in radiologic-pathologic concordance.

Methods: In this context illustrative and didactic cases of our service were raised.

Discussion: Systemic disease that cause mammographic abnormalities may show cutaneous, lymphatic and stromal related signs. Among the vascular signs, vascular calcifications, observed in a patient with atherosclerosis, and venous engorgement, which may be bilateral in the case of congestive heart failure, or unilateral, as in patients with arteriovenous fistulas, should be highlighted. Lymphatic signs may present as lymph node diseases, in cases such as infections, metastases or connective tissue diseases, or as hyperdense lymph nodes, commonly seen in patients using gold salts (used in the treatment of rheumatoid arthritis). When it comes to cutaneous signs, one must pay attention to diseases that cause calcifications, such as scleroderma, and multiple nodules, such as neurofibromatosis type 1. In the case of stromal signs, we must remember diseases that may manifest with nodules, such as metastases, diabetic mastopathy, amyloidosis and sarcoidosis, or as calcifications in the parenchyma, in cases of lupus, dermatomyositis, chronic renal disease, filariasis and myiasis.

Conclusion: Thus, the main importance of this trial is to represent the main systemic diseases that cause changes in the breasts and to help the radiologist distinguish the lesions suspected for mammary neoplasm from those that indicate an extra mammary cause.

Responsible Author: Dr. Felipe Acquesta Bezerra
E-mail: fbaacquesta@gmail.com

PD.09.012
UNUSUAL BREAST LESIONS: IMAGING AND ANATOMOPATHOLOGICAL CORRELATION

Authors: BARG, A. B.; GRAZIANO, L.; BITENCOURT, A.; GUATELLI, C. S; SOUZA, J. A; SPERANDIO, V. A; FREITAS, J. S; EDUARDO, L. L. S

Scientific Papers - Digital Presentation (PD)

Abstracts of Scientific Papers 101

Institution: Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo

Methods: From 2011 to 2017 we reviewed the cases of unusual breast lesions of XXX radiology service, including medullary carcinoma, metastatic, invasive, mucinous, papillary, tubular, lymphoma and sarcoma detected in imaging tests and confirmed by histology. The size, shape, margins, echogenicity and posterior acoustic characteristics were evaluated by the US. Likewise MMG and MRI evaluated the characteristics regarding size, shape, margins, density, the presence of microcalcifications and the pattern of enhancement.

Discussion: Within the context of a neoplasm with extremely relevant social and economic impact such as breast cancer, including unusual lesions in the range of diagnoses becomes necessary. Thus, it is possible avoid mistaken therapeutic proposals and provide greater chances of treatment to the patient. In this context, the aid and study of imaging methods becomes indispensable.

Conclusion: Recognizing these diagnostic possibilities by the imaging methods associated with clinical history are fundamental for the adequate management of the patients.

Responsible Author: Dr. Vitor Arantes Sperandio
E-mail: vitorarantess@hotmail.com

PD.09.014
LUMINAL SUBTYPE BREAST CANCER: RADIO-ENOMIC CORRELATION

Institution: Irmandade da Santa Casa de Misericórdia de São Paulo

Introduction and objectives: The traditional clinicopathological model for breast cancer classification offers limited prognostic value. Patients at the same stage of disease not rarely show different clinical courses and outcomes. Immunohistochemical techniques, utilized to measure expression of estrogen receptor (ER), progesterone receptor (PR), and overexpression of human epidermal growth factor receptor 2 (HER2), have allowed a new classification that offers prognostic value and prediction of disease aggressiveness. This classification subdivides breast cancer into four main molecular subtypes: Luminal A and B, HER2 and Basal-Like breast cancer. Luminal cancers carry the best prognosis of all molecular subtypes. The main objective of this pictorial review is to show the most prevalent imaging patterns of that subtype at mammography (MMG), ultrasound (US) and magnetic resonance imaging (MRI).

Methods: Series of cases of patients diagnosed with invasive breast cancer, between January 2015 and July 2017,
classified as luminal A or B, based on the molecular breast cancer classification, analyzing the most prevalent features in the different imaging modalities (MMG, US and MR). Recent literature review and comparison with the data found in our service.

**Discussion:** The luminal intrinsic subtype represents up to 70% of breast carcinomas and can be divided in luminal A and B, both characterized by expression of ERs and PRs. Luminal A cancers are usually low-grade tumors, with a low Ki-67 proliferative index, and overall are associated with the most favorable prognosis, with a 5-year survival rate of more than 80%. Luminal B breast cancers have higher Ki-67 levels, showing greater proliferative activity and are usually mid- to high-grade tumors.

Although imaging findings are not specific, they usually appear as irregular masses with spiculated margins at MMG, showing as irregular, non-circumscribed masses at US and as masses with irregular shape and margins with an early and heterogeneous enhancement at MR.

**Conclusion:** The advent of gene expression analysis has shown that tumor cell response to treatment is not determined by histological prognostic factors but rather intrinsic molecular characteristics, opening the door to personalized therapeutic options. Therefore, it is important to the radiologist to acknowledge the specific imaging phenotypes of the molecular subtypes.

**Responsible Author:** Dr. Caio Vinicius Castro

**E-mail:** caio.vcastro@gmail.com

**PD.09.018**

**ACCESSORY BREAST TISSUE: NORMAL AND ABNORMAL FINDINGS.**

**Authors:** DWEK, F.F.M.; DA SILVA, D.S.; MENDES, C.L.; NAGAE, S.R.; MORAES, P.C.; DWEK, I.M.; BARBOSA, F.R.

**Institution:** DASA, São Paulo, São Paulo, Brasil

**Introduction and objectives:** Accessory breast tissue originates from embryonic development alterations of the mammary glands, and can be found in up to 6% of the population, most commonly along the milk line. Accessory breast tissue refers to breasts found along the milk line, as well as ectopic breast tissue, found outside the periphery of the normal breast, that lack an organized secretory system. The objective of this study is to review the anatomical characteristics and main pathologies that can occur in the accessory breast tissue.

**Methods:** We selected cases collected from our institute with mammography, echography and magnetic resonance imaging to illustrate the usual anatomical aspects and the main pathologies that affect the accessory breast tissue.

**Discussion:** Accessory breast tissue is more commonly found in the axillary region, but can also occur in the face, chest, vulva, hip and other sites. The radiologist must be able to recognize the normal aspects of the tissue so it does not get mistaken for an abnormality. Clinically the patient with accessory breast tissue can present with an increase of volume associated to pain, discomfort and even milk secretion during pregnancy and lactation. Frequently the findings are bilateral. Image investigation usually begins with mammography and/or echography, occasionally using MRI in selected cases. Mammography can detect fibroglandular areas, with different amounts of fat. Usually investigation begins with ultrasonography in young patients. The method can demonstrate fibroglandular tissue in the referred palpable area. On MRI, accessory breast tissue shows as a ill-defined mass or a nonmass area with signal intensity and contrast enhancement similar to breast parenchyma. Benign, atypical and malignant lesions can occur on accessory breast tissue. Among the benign lesions, we can see fibroadenomas, hamartomas, fat necrosis and fibrocystic changes. Invasive ductal carcinoma is the most common malignancy (79%). Literature also reports cases of Paget disease, Phyllodes tumors, papillary carcinomas and others.

**Conclusion:** Accessory breast tissue is a common finding and the radiologist should be familiar with normal and pathological aspects on imaging investigation.

**Responsible Author:** Dra. Flora Finguerman Menache Dwek

**E-mail:** florafinguerman@gmail.com

**PD.09.023**

**AXILLA: MUCH MORE THAN LYMPH NODES**

**Authors:** YANO, L. M.; COSTA, A. L. P.; FERES, R.; TACHIBANA, B. M. T.; FEDERICCI, E. E. F.

**Institution:** Hospital Israelita Albert Einstein

**Introduction and objectives:** It is not uncommon to find axillary abnormalities, even on screening tests. Most of them are asymptomatic and differential diagnosis is extensive. The purpose of this study is to review cases of axillary findings, excluding nodal disease, its differential diagnosis and management.

**Methods:** We selected cases of axillary abnormalities from our radiology department, found during screening or staging tests. Cases assessed as BI-RADS® 4 were submitted to anatomopathological examination.

**Discussion:** Axillary masses can represent many different pathologic conditions and be misinterpreted as lymphadenopathy. Sometimes, even the accessory breast may present as a palpable mass. Ectopic breast tissue can develop the same benign and malignant conditions of the pectoral breast. Combining imaging tests with clinical history and axillary anatomy enhances diagnostic accuracy and proper management.

**Conclusion:** Conditions that can be seen while scanning the axilla are broad and may have nonspecific imaging features. Knowledge of radiologic characteristics of specific diseases according to anatomic origin and postsurgical findings is critical in establishing appropriate differential diagnosis and determining whether intervention is necessary or not.

**Responsible Author:** Dra. LARISSA MURAMOTO YANO

**E-mail:** lariyano@gmail.com

**PD.09.024**

**IMAGE SPECTRUM OF PAPILLARY BREAST LESIONS AND ANATOMOPATHOLOGICAL CORRELATION**


**Institution:** BENEFICÊNCIA PORTUGUESA DE SÃO PAULO - BP - MEDIMAGEM

**Introduction and objectives:** Intraductal papilloma of the breast is characterized by proliferation of epithelial and myoepithelial cells overlying fibrovascular stalks creating an arborescent structure within the lumen of duct. Papillary lesions may be classified as solitary intraductal papillomas, multiple intraductal papillomas, atypia-ductal carcinoma in situ (DCIS) within a papilloma, micropapillary DCIS, and papillary carcinoma. The purpose of this pictorial essay is to describe the different imaging appearances of benign and malignant papillary lesions of the breast.

**Methods:** A survey of papillary lesions cases was carried out from 2014 to 2017 in a referral service of breast from São Paulo.

**Discussion:** Solitary intraductal papillomas are tumours of major lactiferous ducts, with mean age of 30-50 years old,
usually located centrally or in the retroareolar region and, when symptomatic, present with bloody or clear nipple discharge. The overall risk of malignancy is 1.1%. Multiple intraductal papillomas arise from the terminal ductal lobular units and therefore are usually peripherally located in the breast. They are less common than solitary intraductal papillomas and typically present as a palpable mass. Are usually associated with atypia, DCIS, or malignancy. The risk of malignancy is 7% in women less than 60 years of age and 30% in more than 60 years of age. Atypical ductal hyperplasia (ADH) within a papilloma refers to the presence of atypia or atypical lobular hyperplasia. ADH within a papilloma is defined by the presence of a uniform population of neoplastic cells in an area ≤ 3 mm, whereas DCIS is defined by the presence of such cells in an area > 3 mm. ADH within a papilloma may represent a precursor lesion and is regarded as an increased risk factor for the development of breast cancer. Histopathologically, a papilloma is a mass-like projection that consists of papillary fronds attached to the inner mammary duct wall by a fibrovascular core that is covered with ductal epithelial and myoepithelial cells.

**Conclusion:** There is a wide spectrum of appearances of papillary lesions of the breast, which makes differentiation from benign to malignant pathologies difficult on imaging, and tissue sampling is usually warranted.

**Responsible Author:** Dra. RAFAELA CASTRO
E-mail: rafinha_nc@hotmail.com

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**PD.09.027**

**POLAND SYNDROME, VARIATIONS AND FINDINGS THROUGH IMAGING. PICTORIAL ESSAY.**

**Authors:** SILVA, D. S.; MEDONÇA, M. H. S.

**Institution:** DASA - DIAGNÓSTICO DA AMÉRICA S/A

**Introduction and objectives:** Poland Syndrome is a rare anomaly in which the individual is born without or underdevelopment of muscles from the thoracic wall, resulting in abnormalities that can affect the thorax, shoulder, arm and hand. It is estimated that Poland Syndrome has been diagnosed in 1 in 19000 mammographies. Some patients, due to mammary asymmetry are submitted to surgery for silicone implant inclusion, and eventually are also examined through Magnetic Resonance Imaging. The objectives of this paper is: review embryology, clinical aspects, demonstrate possible alterations of this syndrome, its variations, eventual musculoskeletal abnormalities associated and correlated with the imaging findings.

**Methods:** Selected from our digital collection, (Picture Archive and Communication System - PACS), from our Magnetic Resonance imaging facility, and when available or if fulfilled, mammographic images of patients with the suspicion or established diagnosis of Poland Syndrome.

**Discussion:** In general, when imaginologists come across patients with a diagnosis or suspicion of Poland Syndrome instantaneously correlate the anomaly with the absence of major pectoral muscle. However, not always is this the non-developed muscle, there can occur variations in the presentation affecting other muscles in the thoracic wall and shoulder, that may be absent or hypoplastic. One of the patients we examined had agenesia or possible hypoplasia of the minor pectoral muscle and this finding called our attention to aspects beyond the classical form, and the absence of the major pectoral muscle, which is the most known, motivating us to realize this study and share these particularities through this pictorial essay.

**Conclusion:** The patient with suspicion of Poland syndrome can depend on the radiological report to confirm or refute the diagnosis and consequently give support to treatment, including the possibility of access to eventual surgery necessary to correct the asymmetry or associated deformities, such as mammary asymmetry or syndactyly. The imaginologist should recognize the abnormalities and variations of this syndrome and then contribute to the adequate therapeutic handling of this group of patients.

**Responsible Author:** Dr. Daniel Sales da Silva
E-mail: drdanielsales@gmail.com

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**PD.09.028**

**EVALUATION OF LYMPHATIC DRAINAGE IN PATIENTS WITH BREAST CANCER THROUGH MAGNETIC RESONANCE IMAGING**

**Authors:** BARBOSA, F.R.; DWEK, F.F.M.; MENDONÇA, M.H.S.

**Institution:** A. C. Camargo Cancer Center, São Paulo, São Paulo, BrasilAdvanced Imaging Associates, Fremont, California, USAAngio Vascular Medicine Consulting Rooms, Belgrade, SerbiaANGIORAD, Recife, Pernambuco, BrazilAPROFE, Ambato, Tungurahua, EcuadorAPROFE, Babahoyo, Los Ríos, EcuadorAPROFE, Guayaquil, Guayas, EcuadorAsian Medical Center, Seoul, Republic of KoreaAssociação Hospitalar Beneficente São Vicente de Paulo, Passo Fundo, Rio Grande do Sul, BrasilAxial Centro de Imagem Diagnóstico SC Ltda., Belo Horizonte, Minas Gerais, BrasilBayero University, Kano, Nigeria

**Abstracts of Scientific Papers**
Introduction and objectives: Clinical staging of breast cancer is based on several factors, the main important are characteristics of tumor, local lymph nodes and systemic involvement. Axillary and internal mammary are the main nodel chains affected in the tumor spread. The involvement of these lymph nodes is decisive in predict overall and disease-free survival and therapeutic management. The aim of the study was to review anatomic and pathologic features of axillary and internal mammary chains on magnetic resonance imaging (MRI).

Methods: We will present the usual anatomical aspects and the morphological alterations caused by breast cancer observed in the above mentioned lymph node chains in the MRI exams collected in our service. Some of the selected cases will also be illustrated by other imaging methods, such as mammography and ultrasonography for better correlation and didactic aid.

Discussion: Nodal status in breast cancer staging reflects the interaction between the aggressiveness of the tumor and the patient’s resistance to contain the illness. Also, it is the major prognostic factor for predicting overall survival and disease-free survival, as well as directly influencing therapeutic decisions. Breast MRI is one of the methods used to evaluate lymph node status and can characterize the morphological aspect with excellent spatial resolution. It also allows simultaneous evaluation of both axillary tails, guaranteeing a high accuracy in establishing possible asymmetry of number and/ or dimensions. Despite all these possibilities, the definitive diagnosis of lymph node involvement is confirmed by anatomicopathological analysis.

Conclusion: The use of breast MRI for axillary and internal mammary chains evaluation is an important tool utilized in breast cancer clinical staging, and influences directly the surgical proposal and other therapeutic decisions, such as the need to perform neoadjuvant chemotherapy. The radiologist must be alert to detect and report abnormalities, as well as to recognize any pitfalls that may simulate changes.

Responsible Author: Dra. Fabia Barbosa
E-mail: fabiarbarbosa@hotmail.com

PD.09.029
PRESENTATIONS OF GRANULOMATOUS MASTITIS IN MAGNETIC RESONANCE IMAGING: PICTORIAL ESSAY
Scientific Papers - Digital Presentation (PD)
Pictorial Essay
Institution: A. C. Camargo Cancer Center, São Paulo, São Paulo, BrasilAdvanced Imaging Associates, Fremont, California, USAAngio Vascular Medicine Consulting Rooms,
Belgrade, SerbiaANGIORAD, Recife, Pernambuco, BrasilAPROFE, Ambato, Tungurahua, EcuadorAPROFE, Ba-bahoyo, Los Ríos, EcuadorAPROFE, Guayaquil, Guayas, EcuadorAsian Medical Center, Seoul, Republic of Ko-reaoAsociación Hospitalar Beneficente São Vicente de Pau-lo, Passo Fundo, Rio Grande do Sul, BrasilAxial Centro de Imagem Diagnóstico SC Ltda., Belo Horizonte, Minas Gerais, BrasilBayer University, Kanu, NangoBeneficiência Portuguesa de São Paulo, São Paulo, São Paulo, Brasilitetrape Military Hospital, Ankara, TurkeyBio Master Medicina Diagnóstica, São Paulo, São Paulo, BrasilBoston University School of Medicine, Boston, Massachusetts, EUBreast Center, National Taiwan University Hospital, Taipei, TaiwanBuddhist Tzu Chi General Hospital, Taipei Branch, TaiwanBusan Paik Hospital Inje University, Busan, South KoreaCardiology Research Complex, Moscow, RussiaCasa de Saúde Santa Marcelina, São Paulo, São Pau-lo, BrasilCasa de Saúde São José, Rio de Janeiro, Rio de Janeiro, BrasilCBDB - Centro de Diagnósticos Brasil, São Paulo, São Paulo, BrasilCEDGE Diagnóstico por Imagem, Campinas, São Paulo, BrasilCEDI - Centro de Diagnóstico por Imagem, Vitória, Espírito Santo, BrasilCEDIPI - Clinica de Diagnóstico por Imagem, Rio de Janeiro, Rio de Janeiro, BrasilCEBRAMEN - Centro Brasileiro de Medicina Nuclear e Imagem Molecular, Goiânia, Goiás, BrasilCEDIMA - Centro de Estudos de Diagnóstico por Imagem Professor Waldir Maymone, Presidente Prudente, São Paulo, BrasilCEDIMAGEM, Juiz de Fora, Minas Gerais, BrasilCEDIMEN - Centro de Diagnóstico em Medicina Nuclear, São Paulo, São Paulo, BrasilCEDIRP - Central de Diagnóstico de Medicina Nuclear, Ribeirão Preto, Ribeirão Preto, São Paulo, BrasilCEG, universidade Estadual de Campinas-UNICAMP, Campinas, São Pau-lo, BrasilCentro de Ciências das Imagens e Física Médica, São José, Minas Gerais, BrasilCentro de Diagnóstico por Imagem - Hospital das Clínicas de Ribeirão Preto - USP, Ribeirão Preto, São Paulo, BrasilCentro de Desenvolvimento da Tecnologia Nuclear, Belo Horizonte, Minas Gerais, BrasilCentro de Diagnóstico Dr. Enrique Rossi, Buenos Aires, ArgentinaCentro de Diagnóstico Schmittlevitch, São Paulo, São Paulo, BrasilCentro de Ensino e Pesquisa do Hospital Pro Cardio/Procep, Rio de Janeiro, Rio de Janeiro, BrasilCentro de Estudos Medimagagem Feira de Santana, Feira de Santana, Bahia, BrasilCen-tro de Medicina Intervencionista, Hospital Israelita Albert Einstein, São Paulo, São Paulo, BrasilCentro de Medicina Nuclear da Guanabara, Rio de Janeiro, Rio de Janeiro, BrasilCentro de Medicina Nuclear do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, São Paulo, BrasilCentro de Medicina Nuclear do Instituto de Radiologia do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, São Paulo, BrasilCentro de Radioterapia Rio de Janeiro, Duque de Caxias, Rio de Janeiro, BrasilCentro de Reabilitação, Campinas, São Paulo, BrasilCentro Diagnóstico Lucio Ávila Jr, Recife, Pernambuco, BrasilCentro de Radiologia de São Paulo, São Paulo, BrasilCentro Diagnóstico por Imagem CEDU SA, Rio de Janeiro, Rio de Janeiro, BrasilCentro Infantil Boldrini, Campinas, São Paulo, BrasilCentro Médico Diagnósticos, Sorocaba, São Paulo, BrasilCentro Radiológico Campinas - Hospital Vera Cruz, Campinas, São Paulo, BrasilCentro Universitário Estácio-FIB, Salvador, Bahia, BrasilCentro Universitário Sant’Anna, São Paulo, São Paulo, BrasilCentro Universitário São Camilo, São Paulo, São Paulo, BrasilCentros Diagnósticos por Imagem, Campinas, São Paulo, BrasilCEPEM - Centro de Estudos e Pesquisas da Mulher, Rio de janeiro, Rio de Janeiro, BrasilCEU Diagnóstico, Belo Horizonte, Minas Gerais, BrasilCEUSPE - Centro Especializado em Ultrassonomografia, São Paulo, São Paulo, BrasilCEUGM - Centro Brasileiro de Medicina Nuclear, Brasilia, Minas Gerais, BrasilCEU GURI, Sorocaba, São Paulo, BrasilChungnam National University Hospital, Daejeon, Republic of KoreaCirurgia Vascular Hospital Universitário Clementino Fraga Filho - UFRJ, Rio de Janeiro, BrazilCLIMAG, Timóteo, Minas Gerais, BrasilCLIN Abstracts of Scientific Papers

**Introduction and objectives:** Granulomatous mastitis (GM) is a rare chronic inflammatory condition that can mimic breast cancer both clinically and on imaging methods. MG can be divided into those associated with specific causes, like sarcoidosis, tuberculosis and fungal diseases, and those idiopathic, which diagnosis is based on exclusion. This last one affects young women up to 5 years after pregnancy and lactation. Its cause is unknown, but probably has an autoimmune origin. The most common symptoms of GM are: palpable nodule, pain, skin changes, nipple discharge and lymphadenopathy. Treatment has variable strategies, from expectant management, treatment with corticoid, antibiotic and even percu-taneous and surgical drainage. The objective of this work is to review the findings of magnetic resonance imaging and to discuss the role of this imaging method in the diagnosis of GM.

**Methods:** Literature review and case study from our digital archive with histological diagnosis of MG established.

**Discussion:** MG is a rare chronic inflammatory disease that may present as an idiopathic condition or may be due to complications of some diseases, such as sarcoidosis, tuberculosis or fungal infections. Although it is a benign disease, it presents challenges in the diagnosis and therapeutic management. In this way, radiologists have an important role in the diagnosis, preventing delays at treatment. Although mammography and ultrasound are most frequently used, MRI can also contribute to evaluation of lesion extension, impairment of muscle plans and follow-up. In the literature, the most frequently found MRI findings are non- mass enhancement, especially with a clustered ring pattern, with enhancing masses less frequently. Associated findings may also be found, such as: skin thickening, cutaneous or papillary retraction and axillary lymph node enlargement. However, we must remember that the definitive diagnosis is histological.

**Conclusion:** Assim como com os demais métodos de im-agem, os achados de imagem da MG à IRM podem simular os do câncer de mama. Entretanto, a MG deve estar sempre dentro dos possíveis diagnósticos diferenciais em exame de pacientes jovens após gestação, sobretudo quando identifica-dos reais não nodulares com padrão anelar coalescente.

**Responsible Author:** Dra. Fabia Barbosa
PD.09.030

IMAGE ASPECTS AND HISTOPATHOLOGICAL CORRELATION OF MUCINOUS BREAST CARCINOMA: ICONOGRAPHIC ESSAY

Authors: TIBERIO, R. N. C. C.; TAJARA, L. M.; SICKLER, B. P.; MERJANE, V.; RACY, D. J.;

Institution: HOSPITAL BENEFICÊNCIA PORTUGUESA DE SÃO PAULO - BP - MEDIMAGEM

Introduction and objectives: Mucinous or colloid carcinoma of the breast (MBC) is an uncommon subtype of invasive ductal carcinoma (IDC), accounting for 1%-7% of all breast neoplasms, with a higher incidence at more advanced ages. The aim of this presentation is to describe the image aspects of the mucinous breast carcinoma and to perform the anatomicopathological correlation.

Methods: It was carried out a review of mucinous breast carcinoma cases in a referral service in São Paulo from 2014-2018.

Discussion: Histologically it’s characterized by clusters of rounded cells, sometimes isolated, and surrounded by extracellular mucin. It’s divided in pure and mixed form. The pure form is characterized by mucinous arrangement in almost the entire tumor extension. The mixed form presents a greater extension of neoplastic cells not surrounded by mucin, being associated with a smaller quantity of extracellular mucin, resulting in intermediary characteristics between the pure form and the non-specific invasive ductal carcinoma (IDCNE), IDC with mucinous differentiation. The pure form exhibits indolent growth, with lower histological grade (well differentiated tumors), higher hormone receptor expression (HR), lower incidence of CERB 2 protocogene, lower axillary nodal involvement rate at diagnosis, (with no significant difference in overall survival). The mixed form has an intermediate biological behavior and more similar to the IDCNEs. The differentiation between the two forms can only be achieved after excision and assessment of the entire extent of the lesion. In mammography, the pure form correlates to circumscribed or microlobulated margins, which are directly related to the amount of extracellular mucin. The mixed form presents more indistinct or speckled contours, secondary to a greater fibrosis and peripheral desmoplasia, resembling a IDCNE. In magnetic resonance image (MRI) the signal intensity is variable in the T1-weighted images and with a marked signal in the T2-weighted image

Conclusion: As they present as circumscribed lesions, it is necessary for the radiologist to be aware of this pathology in order to avoid the diagnostic delay.

Responsible Author: Dra. RAFAELA CASTRO
E-mail: rafinha_nc@hotmail.com

PD.09.032

MALE BREAST: MAIN DIAGNOSTIC PATHOLOGIES AND METHODS


Institution: Hospital Sirio Libanes

Introduction and objectives: The male breast is composed of skin, subcutaneous fat, stromal elements, areolopapillary complex and poorly developed ductal system ending in a blind bottom. The skin and subcutaneous are responsible for the typical mammographic appearance. Mammary conditions related to lobular proliferation are extremely uncommon in men, whereas conditions related to ductal and stromal proliferation, such as gynecomastia, invasive ductal and in situ carcinoma, papillary neoplasia, and other benign pathologies occur more frequently. The main male complaint in clinical practice is the palpable nodule and the main imaging methods used for complementary evaluation are mammography that is considered of choice in the initial evaluation, ultrasonography as a complementary method and magnetic resonance imaging (MRI) for staging and follow-up in patients with pre-established diagnosis of breast cancer. This pictorial essay aims to review and illustrate the main imaging findings and the pathological features of a range of processes related to the male breast.

Methods: The main findings will be illustrated in a pictorial essay based on cases using images acquired at our institution through mammography, tomosynthesis, ultrasonography and magnetic resonance imaging of male patients with a palpable nodule in the breast.

Discussion: Several pathologies can affect the male breast and the radiologist’s role is to recognize the main radiological characteristics, correctly describing the mammographic, ultrasonographic aspects and, when necessary, to indicate and describe the MRI findings in order to differentiate between benign and malignant pathologies, avoiding unnecessary biopsies, the patient and family members.

Conclusion: Most of the conditions affecting the male breast are benign, many of which have typical imaging characteristics that allow the radiologist to differentiate from malignant processes. Proper use of mammography and, where appropriate, other imaging methods in the diagnosis of male breast lesions will allow the radiologist to confidently identify the small subset of patients who require biopsy to confirm or exclude malignancy

Responsible Author: Dra. Daniela Ferreira Vieira Vendramini
E-mail: danifviera321@gmail.com

PD.09.031

AXILARES LESIONS AND FINDINGS: WHAT THE RADIOLOGIST SHOULD KNOW


Institution: Beneficência Portuguesa de São Paulo - B P Diagnóstico por Imagem

Introduction and objectives: The imaging findings located in the axillary regions were included in ACR BI-RADS Atlas® 5th Edition, demonstrating the importance of the radiologist’s attention to this region that is sometimes forgotten.

Methods: We propose to demonstrate, through cases illustrated with mammography, ultrasonography and magnetic resonance imaging performed in our service, a spectrum of benign and suspicious findings submitted to biopsy, of mammory origin or not.

Discussion: We correlate the suspicious findings with the results of the anatomopathological studies, demonstrating what should be valued by the radiologist.

Conclusion: The axilla deserves dedicated study of the radiologist for the wide variety of findings in this topography, possible diagnosis of malignant lesions and change of conduct in the treatment of patients.

Responsible Author: Dra. Ana Luiza Fozatti Bragagnolo
E-mail: ana_bragagnolo@yahoo.com.br

E-mail: fabiarbarbosa@hotmail.com
RELATIONSHIP BETWEEN MAMMOGRAPHIC VASCULAR CALCIFICATIONS AND CARDIOVASCULAR RISK.


Institution: Hospital Sírio-Libanês.

Introduction and objectives: "The leading causes of morbidity and mortality among women over 40 years old are cardiovascular diseases together with breast cancer. Due to their high prevalence and socioeconomic impact, the two disease groups are one of the main focuses of the disease prevention and tracking actions, besides being a major concern of the patients themselves. Screening for mammary neoplasia begins at age 40 and covers the increased incidence of cardiovascular events that begins in postmenopausal women. With so many common points it is natural to look for changes in the screening tests that may involve both groups of diseases, aiding in their early diagnosis and rapid treatment. Mammography plays a key role in the screening of breast neoplasia, with its consolidated and widely use. In addition to the identification of malignant calcifications, which is its main and most important function, benign findings also attract attention and may serve as an indirect indication of other systemic diseases."

Methods: Several studies in several centers throughout the world have sought to establish a relationship between the presence of benign calcifications in mammograms, with the presence of risk factors for the development of cardiovascular diseases, with the most diverse results. In this literature review, ten studies, including meta-analyses and original works that related these two alterations, were analyzed to establish the relevance that should be given to the finding of vascular calcifications in routine mammograms.

Discussion: The studies failed to establish a positive relationship between the presence of calcifications and the presence of established cardiovascular diseases (acute myocardial infarction, coronary stenosis and stroke). There was an increase in the prevalence of calcifications and their intensity associated with cardiovascular risk factors such as diabetes mellitus, hypertension and age.

Conclusion: Calcifications detected in mammography are not directly related to cardiovascular risk, but may give evidence of the presence of other factors that contribute to the development of atherosclerosis.

Responsible Author: Dra. Karla Schoen

HEALTH EDUCATION FOR THE PREVENTION AND EARLY DIAGNOSIS OF BREAST CANCER: AN INTEGRATIVE REVIEW OF THE LITERATURE

Authors: NUNES, M. I.; FILHO, E.A.

Institution: IESTPI

Introduction and objectives: This study aimed to analyze the available scientific evidence on health education for the prevention and early diagnosis of breast cancer.

Methods: an integrative review of the literature was used as a method, which consists of an analysis of relevant research, enabling the synthesis of knowledge in a given subject, as well as showing the gaps that must be filled with new studies; carried out in the month of October 2017 through the search of the PubMed, Scientific Electronic Library Online (SciELO) and LILACS databases, through publications between 2010 and 2016, with a search in the Descriptors in Health Sciences (DeCS) as Breast Cancer; Early Detection; Health education; Risk factors. Seventeen scientific articles were published, published in the period between January 2010 and December 2016, in English, Portuguese and Spanish; and as criteria for exclusion: informal case reports, book chapters, dissertations, theses, reports, news, editorials, non-scientific texts and scientific articles without the full text. The question of research that guided the preparation of this integrative review consisted of: "What is the production of available scientific evidence on health education in the family health strategy for the prevention and early diagnosis of breast cancer?"

Discussion: Such articles emphasized health education and the practice of breast self-examination, ultrasonography and
mammography as indispensable tools for the early diagnosis of breast cancer and greater awareness of women about the signs and symptoms of the disease.

**Conclusion:** The studies evidenced a gap in the practice of health education by primary health care professionals, evidenced by the low adherence of women to the screening programs, necessitating the development of actions involving the participation of women in prevention knowledge and recommendations, including mammography, in the early detection of breast cancer.

**Responsible Author:** Profa. maria ivanete nunes

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**PD.09.016**

**BRCA RELATED BREAST CANCER AND THE ROLE OF THE RADIOLOGIST**

**Authors:** AMORIM, F. C.; TAJARA, L. M; SICKLER, B.; TIBERIO, R. N. C. C.; MERJANE, V.; BRAGAGNOLLO, A. L. F.; GABURE, R.L.Z.D.C; TASSETO, B. G.

**Institution:** BENEFICIÊNCIA PORTUGUESA DE SÃO PAULO- BP- MEDIMAGEM

**Description(s) of disease(s), method(s) and/or technique(s):**

- Breast cancer has high incidence and mortality rates. It’s known that 5-10% of cases are hereditary. The most prevalent hereditary predisposition syndrome to breast cancer is related to the BRCA 1 and 2 mutation (MC BRCA).
- This review summarizes the aspects of BRCA-related breast cancer and its implications in screening and imaging features.

**Discussion:** MC BRCA is relatively rare in the general population and should be searched in a specific group of patients, leading in to consider a family history, personal history of breast cancer and other tumors. Tools are available for risk rating. This group of patients benefits from an earlier and more vigorous screening, being an MRI and annual mammography the best strategy established so far. The association of ultrasonography shows no additional benefit. The related histological types are generally the most aggressive, with the triple negative being the most commonly identified and usually manifesting as regular nodules, rarely associated with calcifications, which can be challenging for the radiologist.

**Conclusion:** The diagnosis of MC BRCA is extremely important not only because of the increasing in personal risk but also for the identification of affected family members, making possible an intensive screening and preventive interventions, with a real impact on morbidity and mortality.

**Responsible Author:** Dra. FERNANDA AMORIM
**E-mail:** fcsamorim@yahoo.com.br

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**PD.09.020**

**BREAST CANCER TRAINING BY CONVENTIONAL MAMMOGRAPHY, DIGITAL MAMMOGRAPHY AND MAMMARY TOMOSYNTHESIS**

**Authors:** ARAÚJO, G. M.S; SOUSA, J.C.O; FRANÇA, C.A.; LIMA, H.J.V; FRAZÃO, D.W.P.; DE ABREU, L.M.O.; OLIVEIRA, A.C.A.S.

**Institution:** Núcleo de Pesquisa Científica e Acadêmica de Radiologia (NPCAR)

**Brief description(s) of the purpose(s) of the Literature Review:** Conventional mammography is considered the gold standard in the detection of non-palpable breast cancer; digital mammography appears to be prominent in the detection of cancers in certain population segments (patients in certain age groups and who have dense mammography mammograms). Breast tomosynthesis arose to improve the diagnosis of breast cancer by providing some limitations left by mammography (limitations diagnosis in the early stages of breast neoplasms and problems with the overlapping of structures).

This article aims to compare conventional mammography, digital mammography and breast tomosynthesis as a breast cancer screening mechanism.

**Description(s) of disease(s), method(s) and/or technique(s):**

- A comparative study was carried out characterized by literary review and imaging analysis of clinical cases performed using conventional mammography, digital mammography and mammary tomosynthesis techniques; differences were observed, aspects of image quality and the efficacy of both techniques in the screening of breast cancer. All the bibliographic background was originated from 8 periodicals from the VHL and SCIELO with temporal cut of the last 5 years.

**Discussion:** Although conventional mammography is a powerful technique in the initial detection and subsequent follow-up of suspected lesions, it has limitations such as: obtaining only two acquisitions of each breast and features of lower contrast in subtle lesions, which may result in the occurrence of diagnostic errors. Digital mammography is effective at detection in about 90% of cases, providing a greater contrast and potentiating the detection of low contrast lesions in dense breasts. The tomosynthesis performs an image acquisition with specific angularizations in the x-ray tube, making it possible to acquire a volumetric image of the breast; this technology allows to complement the study of dense breasts with overlapping, besides the study of mammary nodules and cysts, allowing a diagnosis and more accurate tracking.

**Conclusion:** The election by any of the breast cancer screening methods should consider radiation dose, cost and accessibility. The use and application of advanced technological resources such as mammary tomosynthesis should always be considered since improvements in the detection and early diagnosis of neoplasias are sought on a daily basis throughout the world scientific scenario.

**Responsible Author:** Sra. Joyce Caroline
**E-mail:** joycecarolinedeoliveira@hotmail.com

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**CASE REPORT**

**SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)**

**PD.09.002**

**NON-HODGKIN PRIMARY LYMPHOMA OF THE BREAST**
Clinical history: CLINICAL CASE: A 57-year-old patient who consulted for a palpable nodule in the CSE of the left breast for 2 months. As a personal history, the patient reported an AHT at 45 years of age. No history of autoimmune diseases, or family members of breast cancer. Given the findings, a core biopsy was performed under ultrasound guidance whose diagnosis was later confirmed in surgical biopsy.

Discussion and diagnosis, or vice versa: RESULTS: Lymphomas are proliferative diseases of cells that are active from the immunological point of view. LNHPM are less than 1% (0.04% to 0.53%) of malignant tumors of the breast. 0.7% of NHL in general are considered, and 2% among NHL of unique extranodal localization. The definition to be considered an LNHPM is precise: it must be a nodular lesion without lymphadenopathy (stage I) or with regional adenopathies (stage II), without previous diagnosis of NHL. The average age of presentation is 57 years and about 33% are diagnosed in the sixth decade of life, are generally unilateral and not very aggressive, and their age distribution is similar to that of mammary carcinoma. The mammographic findings are variable, from focal asymmetries, nodules of circumscribed margins to nodular images with indistinct margins that make them indistinguishable from a malignant neoplastic process.

Conclusion: The LNHPM is a rare entity. There are no special mammographic or ultrasonographic features that suggest a primary lymphoma of the breast.

Discussion and diagnosis, or vice versa: The LNHPM is a rare entity. There are no special mammographic or ultrasonographic features that suggest a primary lymphoma of the breast.

Discussion and diagnosis, or vice versa: The breast cancer in male is rare and early diagnosis is fundamental. Together, mammography and ultrasonography are both important diagnosis and follow-up methods.

Conclusion: The breast cancer in male is rare and early diagnosis is fundamental. Together, mammography and ultrasonography are both important diagnosis and follow-up methods.
Authors: TIBERIO, R. N. C. C.; TAJARA, L. M.; SICKLER, B. P.; RACY, D. J.; MERJANE, V.; AMORIM, F. C.; MACHADO, A. C.

Institution: BENEFICÊNCIA PORTUGUESA DE SÃO PAULO - BP - MEDIimagem

Brief description of the study purpose: Metaplastic breast carcinoma (MBC) is a rare type of breast cancer that corresponds to a mixture of mesenchymal and malignant epithelial elements, accounting for less than 0.02% of all breast cancers. It's an aggressive type of cancer, with its first presentation in advanced stages and with a high probability of local recurrence (30%). The 5-year disease-free rate is 40%. PURPOSE: to review the imaging aspects and main clinical and histological characteristics of MBC.

Clinical history: F.M.C.F., female, 67 years old, with palpable complaint and ulcerated lesion in the right breast (RB). Background of left mastectomy for infiltrating carcinoma (2009) and reconstruction with abdominal myocutaneous flap. Mammography revealed focal asymmetry associated with architectural distortion in the upper outer quadrant of the RB. Magnetic resonance showed a speculated nodule with a rapid and persistent heterogeneous enhancement, with extension to the skin, determining infiltration and retraction of it. The anatomicopathological result from ultrasound-guided core biopsy was low-grade fibromatosis-like metaplastic carcinoma of breast. She underwent right mastectomy with associated axillary emptying, radiotherapy and chemotherapy.

Discussion and diagnosis, or vice versa: MBC is more frequent after 50 years, with initial size greater than 5.0 cm. Mammograms appear as heterogeneously dense nodules with well circumscribed or microlobulated margins. Ultrasound presents as heterogeneous nodules with a solid-cystic component. Histologically, it is characterized by a slightly poor differentiated heterogeneous tumor, containing ductal carcinoma cells together with spindle-like elements, extensive squamocellular or pseudosarcomatous metaplasia, and may include other categories, such as sarcomatoid carcinoma or carcinosarcoma, matrix-producing carcinoma, osteoclast giant cell carcinoma, and carcinoma of squamous cells. Its immunohistochemical expression occurs by means of markers of mesenchymal (vimentin), epithelial (pancytokeratin) and myoepithelial cells (S-100, smooth muscle actin and p63). Most MBC's (75-85%) are negative for estrogen receptor, progesterone and epidermal growth factor-2, and are known as "triple-negative". When they present triple-negative phenotype and positive cytokeratins are classified as tumors of basal phenotype.

Conclusion: Due to its aggressive clinical behavior it is necessary the early diagnosis of this pathology, being the most important prognostic factors the age and the size of the tumor.

Responsible Author: Dra. RAFAELA CASTRO
E-mail: rafinha nc@hotmail.com

PD.09.017

METAPLASTIC BREAST CARCINOMA WITH METASTASIS FOR LUNG AND LIVER: CASE REPORT

Institution: HOSPITAL FEDERAL DE BONSUCESSO - RIO DE JANEIRO

Brief description of the study purpose: Metaplastic carcinoma (CMM) is uncommon and accounts for less than 5% of breast carcinomas. It is a heterogeneous neoplasm characterized by a mixture of adenocarcinoma with other histological elements such as squamous cells, spindle cells or other mesenchymal differentiation. Because of the rarity of these tumors, the pathogenesis is still unknown. In addition, due to the histopathological characteristics of triple-negative, the CMM may be underdiagnosed. In cases of absence of response or progression of the disease over traditional treatment, the diagnosis of CMM should be considered and the medical report should be reviewed.

Clinical history: We present a case of a female patient, 50 years of age, who sought the mastology service with palpable nodule complaint at the union of the upper quadrants of the right breast. In the previous pathological history, the patient had undergone grade II infiltrating ductal carcinoma, triple negative in the union of the upper quadrants of the right breast, treated with segmentectomy, ipsilateral axillary emptying, chemotherapy and radiotherapy in April 2015. She reported being a former smoker 17 packs/year and have undergone bariatric surgery. She did not report a family history of breast cancer.

Discussion and diagnosis, or vice versa: Ultrasonography of the right breast showed a hypechoic, irregular, non-parallel and spiculated nodule at the junction of the upper...
quadrants, measuring 27 x 24 x 24 cm. On mammography, a spiculate nodule associated with suspicious calcifications with fine linear and grouped morphology was noted. Both, Bi-Rads Category 5. It was then, performed core biopsy that had as histopathological metaplastic carcinoma. When a pre-operative chest X-ray was performed, a pulmonary nodule was demonstrated and chest and abdomen CT showed pulmonary and hepatic

Conclusion: Metaplastic breast carcinoma usually manifests in a more advanced stage and, when compared to other invasive cancers, the presence of distant metastasis is more frequent. The disease tends to present local recurrence and is often metastases to the lung, as in the case presented. In addition, CMM is a little known and studied entity, probably due to the small number of cases diagnosed or to cases mistakenly interpreted as the triple-negative ductal carcinoma, hence the importance of the recognition of this entity.

Responsible Author: Dra. Thais Salgado Monnerat
E-mail: thata_17sm@hotmail.com

PD.09.019
MALIGNANT MELANOMA WITH BREAST METASTASIS - CASE REPORT
Authors: LIRA, M.L.S.S.; MIRANDA, A.C.A.; MACÉDO, J.F.; FELIX, Y.A.; LIMA, P.M.B.P.
Institution: Instituto Materno Infantil de Pernambuco - IMIP
Brief description of the study purpose: The importance of this work is to show that in patients with known malignant lesion and presenting nodules in the breast, a possible metastatic focus should be considered, especially when these nodules are multiple and bilateral.

Clinical history: Female, 40 years old, with a history of ulcerative nevus in the right supraclavicular region, diagnosed with malignant melanoma two years ago. She underwent treatment with surgical resection of the lesion and radiotherapy. It evolved during the oncology follow-up with hepatic metastatic involvement and on physical examination of right axillary lymph node enlargement and palpable nodules in both breasts. Digital mammography confirmed the presence of nodules in both breasts. Mammary and armpit ultrasonography (USG) was recommended. Through USG, the nodules were solid and definite, they had varied sizes and lobulated margins. In the right axilla, there was a solid, hypechoic mass, probably corresponding to atypical lymph node enlargement. Faced with the suspicion of metastatic dissemination, aspiration and core biopsy of two of these nodules were made. Histopathology confirmed the diagnosis of metastatic melanoma.

Discussion and diagnosis, or vice versa: Metastatic lesions in the breast originating from malignant diseases with extrammary primary site are rare, with the incidence of mammary metastatic tumor of 1.2 to 2%. The primary tumors that can secondarily affect the breast are malignant melanoma, lung cancer, and non-Hodgkin's lymphoma. The clinical presentation is like bilateral breast nodules.

Conclusion: The breast is associated with a large number of pathologies. In addition to being the primary of many benign and malignant tumors, the breast skin and parenchyma are also sites of metastasis. Although it is a rare condition, the metastatic involvement of the breast should be remembered by the radiologist in patients with previous history of cancer and bilateral breast nodules.

Responsible Author: Dra. Maria Lua Sampaio de Sousa Lira
E-mail: mlua.sampaio@gmail.com

PD.09.021
FAT NECROSIS! NEXT!
Authors: YANO, L.M.; SORBELLO, M. A. F.; ICHIHARA, T. H.; RUDNER, M. A.; FEDERICCI, E. E. F.
Institution: Hospital Israelita Albert Einstein
Brief description of the study purpose: The aim of this study is to review a false negative case that presented multiple hyperechoic breast masses, and discuss clinical presentations in which biopsy can be safely avoided, differential diagnosis and sonographic features that could predict malignancy in echogenic lesions.

Clinical history: 48 year-old woman with a personal history of invasive lobular carcinoma (ILC) treated with adonostectomy 5 years ago. After that, screening tests described multiple focal areas compatible with fat necrosis, stable for 3 years. Patient returns with a lump in the left breast. Ultrasound (US) image showed multiple ill-defined echogenic masses and MRI showed heterogeneous enhancement of these lesions. Magnification view of the palpable area presented discrete asymmetry with thin pleomorphic calcifications. US-guided core biopsy demonstrated multifocal invasive lobular carcinoma.

Discussion and diagnosis, or vice versa: The significance of hyperechogenicity is still controversial, despite being one of the features with the highest negative predictive value for malignancy. A hyperechoic mass highly suggests but is not diagnostic of fat necrosis. Only 0.4 - 5.6% of breast cancers are hyperechoic. Focal hypechoic areas within the echogenic lesion are more frequent in malignant masses and invasive lobular carcinomas are about 10 times more likely to be hyperechoic than invasive ductal carcinomas. ILC can exhibit that characteristic up to 57%, probably due to its tendency to infiltrate as rows of single cells into surrounding parenchyma and in concentric rings around normal ducts, promoting the atypical findings seen on diverse imaging modalities.

Conclusion: There are few published data indicating the likelihood of malignancy for hyperechogenic lesions, but radiologists should not exclude malignant nature at first sight. Most hyperechoic lesions are benign, but suspicious sonographic signs, correlation with other imaging tests and the knowledge about differential diagnosis are crucial to avoid unnecessary procedures or misdiagnosis, and to support the correct management.

Responsible Author: Dra. LARISSA MURAMOTO YANO
E-mail: lariyano@gmail.com

PD.09.022
CASE REPORT OF A RAPID EVOLUTION OF INFLAMMATORY BREAST CARCINOMA.
Institution: Irmandade de Misericórdia de Campinas - Santa Casa Campinas
Brief description of the study purpose: This report aims to alert doctors about the diagnosis, rapid evolution and severity of breast inflammatory carcinoma.

Clinical history: We report the case of a female patient, 42 years old, with no comorbidities or family history of cancer. The patient was asymptomatic, but performed, at the request of the medical assistant, mammography and ultrasonography of the breasts, in March 2017, both examinations without alterations. In September of the same year, she started a left breast pain, associated with hardening and retraction of the skin, in addition to other phlogistic signs, without improvement with the clinical treatment. Due to the persistence of symptoms for
two months, the patient underwent a new ultrasound study that located in the deep plane of the left breast, an irregular hypoechoic nodule with a spiculated margin, with a greater axis not parallel to the horizontal plane of the skin and shaper of acoustic posterior, associated with marked architectural distortion and skin retraction. Due to its characteristics, a biopsy of the lesion was performed with a histopathological diagnosis of invasive ductal carcinoma, associated with lymphatic invasion.

**Discussion and diagnosis, or vice versa:** Breast inflammatory carcinoma is uncommon, of clinical diagnosis, and may be associated with any histological subtype. Clinically it simulates mastitis, leading to late diagnosis in some cases, which is harmful because it is a very aggressive tumor, already classified as stage IV. Mammography is usually the first examination performed on the suspicion of breast neoplasia, but it is not very sensitive in these cases, since the high density of breast tissue in some patients confuses the differential diagnosis. Ultrasonography is the exam of choice, since it has the advantage of skin evaluation that is altered, axillary region in which inflammatory carcinoma courses with fixed lymph node enlargement, besides guiding the biopsy.

**Conclusion:** Due to the clinic, a benign inflammatory process, a mastitis, a history of the clinical course and ultrasonography are of immense importance, since the late diagnosis of carcinoma leads to the evolution of the disease and the worsening or prognosis.

**Responsible Author:** Dra. lais olivotto
**E-mail:** lais.olivotto@yahoo.com.br

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**PD.09.025**

**DID YOU KNOW THAT CARBAMAZEPINE AND OTHER COMMONLY USED DRUGS CAN CAUSE LYMPH NODE ENLARGEMENT AND INFLUENCE THE INTERPRETATION OF CLINICAL EXAMS AND IMAGING?**

**Authors:** MENDONÇA, M.H.S.; SILVA, D.S.; BARBOSA, F.R.; NAGAE S.; MORAES P; FINGUERMAN, F.

**Institution:** DASA. Diagnósticos da América S.A. São Paulo, Brazil

**Brief description of the study purpose:** The use of medicine to alleviate the symptoms of some diseases can lead to undesired side effects. The objectives of this presentation are: present the case of a patient whose treatment led to a palpable area in the axilla proved by magnetic resonance imaging, revise the literature regarding medicine that can cause lymph node enlargement and aid the interpretation of imaging exams.

**Clinical history:** 58-year-old patient, with trigeminal neuralgia and treatment with carbamazepine, noticed a palpable region in the left armpit, has since been submitted to several exams, without a malignant diagnosis. The patient has done research online and found out that one of the undesired side effects of this medicine is lymph node enlargement.

**Discussion and diagnosis, or vice versa:** Some commonly used drugs can cause lymph node enlargement. The growth of one or several lymph nodes is frequent in clinical practice, might be a response to immunologic stimuli, but can represent an inflammatory or neoplastic disease. In patients with a history of cancer, this finding brings diagnostic dilemmas. Included in the drugs that can lead to lymph node enlargement are: carbamazepine, allopurinol, primidone, atenolol, cephalosporins, penicillins, and sulfonamides. With the characteristics of current medicine, scarce or null information regarding the use of medicine is obtained through imaging exams; the imaginologist might not be aware of this fact, and not consider it in the interpretation of the exam. With the advent of artificial intelligence and its inexorable implementation, it is estimated that the patient questionnaire will be more extensive. In our service, these questions have helped avoid interpretation mistakes. This information about adverse medicine effects, the fact that the patient self-diagnosed through an internet search, and then decided to communicate this to the medical team has motivated us to report this case and share the acquired knowledge. The diagnostic **Conclusion:** The radiologist must be aware that the use of medicine can cause lymph node enlargement. Knowing about this adverse reaction refines their interpretation of the exam, avoids unnecessary evaluations, improves patient service, and contributes, according to the doctor who solicited the exam, to find a possible substitution or therapeutic adjustment.

**Responsible Author:** Dra. Maria Helena Siqueira Mendonça
**E-mail:** mariahelena.smdendonca@gmail.com

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**PD.09.033**

**GRANULAR CELL TUMOR OF THE BREAST: A CASE REPORT**

**Authors:** JEUNON, A.S.J; MIRANDA, A.C

**Institution:** Instituto de Medicina Integral Professor Fernando Figueira- IMIP

**Brief description of the study purpose:** The objective of this report is to describe a granular cell tumor in the breast, and alert to this possibility when a breast lesion presenting aggressive behavior is found on Imaging tests, since, despite its benign nature, the granular cell tumor can be showed in tests simulating a carcinoma.

**Clinical history:** 78-year-old patient showing palpable mass in left breast of rapid growth, submitted to Breast Ultrasound and CT scan of the chest, in addition to study of the lesion-Immunohisto-chemistry.

**Discussion and diagnosis, or vice versa:** The Imaging tests performed on the service described lesions with aggressive characteristics, with poorly defined contours, invading the chest wall. Immunohistochemistry study of the lesion resulted granular cell tumor. It is a rare tumor, usually benign, which can affect any area of the body, being the effect breast around 5 to 6% of all granular cell tumors, appearing preferably in the internal upper quadrant, in general poorly delimited and with infiltrative features. The treatment consists of surgical excision with free margins and adjuvant chemotherapy and radiation therapy in malignant ways. Features good prognosis post treatment with low recurrence.

**Conclusion:** The present case alert to the possibility, albeit rare, an injury apparently aggressive, represent in fact a granular cell tumor, which tends to simulate an invasive carcinoma in Imaging tests, in contradiction with its benign behavior and its good prognosis post treatment. The patient in question is, at the moment, in surgical programming. With the diagnosis of granular cell tumor, result confirmed by immunohistochemistry, her prognosis is favorable.

**Responsible Author:** Dra. Adriana Jeunon
**E-mail:** adrianajeunon@hotmail.com

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**PD.09.034**

**BREAST ANGIOSARCOMA PREVIOUSLY DIAGNOSED WITH BREAST CEVEROUS HEMANGIO-MA - CASE REPORT**

**Authors:** BRAGAGNOLLO, A.L.F.; TAJARA, L.M.; SICKLER, B. D. P.; TASSETO, B. G.; SOUZA, MTP; MERJANE, V; MELLO, A. C. O.; AMORIM, F. C.; TIBERIO, R. N. C.C.; CEDRO, P.M.D; GABURE, R. L. Z. D. C.

**Institution:** Beneficência Portuguesa de São Paulo - B P Diagnóstico por Imagem
**Brief description of the study purpose:** We propose to present a case report of a patient with initial diagnosis of Breast Cavernous Hemangioma, presented as case report at the time, who presented a later recurrence, being diagnosed as Angiosarcoma.

**Clinical history:** IEGS, 58, with a history of initially presenting a palpable nodule in the left breast for 4 months, being submitted to mammography, which detected focal asymmetry in the outer upper quadrant of the left breast, and ultrasonography. Poorly delimited at the outer quadrants of the left breast, in correspondence to the palpable alteration reported by the patient. Magnetic resonance imaging was performed, demonstrating an extensive lesion.

**Discussion and diagnosis, or vice versa:** The lesion was submitted to a core biopsy guided by ultrasonography and the anatomopathological result was compatible with "cavernous hemangioma without signs of associated malignancy". We opted for surgical excision of the lesion that remained with the anatomopathological result of cavernous hemangioma. After four years the patient evolved with a new palpable alteration in the same topography, again performing ultrasonography and magnetic resonance with findings similar to the previous ones. A new core biopsy guided by ultrasonography with anatomopathological result of angiosarcoma was performed.

**Conclusion:** Breast angiosarcoma is rare and its late diagnosis is common, usually due to a shortage of biopsied material. In these cases the false diagnoses of lymphangiomias and hemangiomias are the most common, and we must always pay attention to this possibility.

**Responsible Author:** Dra. Ana Luiza Fozatti Bragagnollo

**E-mail:** ana_bragagnollo@yahoo.com.br

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**PD.09.035**

**METASTASIS OF SKIN CANCER FOR MALE BREAST**

**Authors:** SOUZA, S.N.; LUCIETTO, B.B.B.; MACHADO, F.P.; NASCIMENTO, M.H.A.; VELLUDO, S.F.F.;

**Institution:** Prevent Senior Saúde - Projeto Mama, São Paulo, SP, Brasil

**Brief description of the study purpose:** This paper aims to report a case of metastatic lesion of a squamous cell carcinoma of the skin for the male breast, which can be considered one of the medical community’s interests thanks to its rarity.

**Clinical history:** Patient G.A.S., male, 72 years old, referred to the mammary radiology department for investigation of a palpable painful nodule in the left breast, perceived about a month before by himself. He had had no positive family history or personal history of breast disease. He was in the course of adjuvant therapy for metastatic disease, with primary lesion on the right thigh.

**Discussion and diagnosis, or vice versa:** Mammography and ultrasonography were performed, showing a solid lesion in the left breast. The patient underwent percutaneous biopsy - core biopsy and in anatomicopathological and immunohistochemical investigation, a moderately differentiated infiltrative carcinoma was diagnosed in desmoplastic connective tissue, presenting squamous differentiation in the sample (epidermoid carcinoma). There was information of epidermoid carcinoma present also in gastric mucosa biopsy. Both diagnoses were related to invasive skin disease on the right thigh leading to the diagnosis of invasive moderately differentiated (squamous cell carcinoma).

Male breast cancer is rare and accounts for only 1% of breast cancers and 1% of all cancers diagnosed in men. They are usually diagnosed late because there are no male breast screening programs. The most common initial manifestation is a palpable lump. Of the lesions diagnosed, the highest incidence is of the invasive ductal lesions (invasive mammary carcinoma), about 90% of them all. Metastatic disease in the male breast is extremely rare and, when present, has the prostate as the primary lesion location.

**Conclusion:** Palpable lesions or nodules in male breasts, excluding gynecomastia, are rare and should not be classified as benign without anatomicopathological evaluation. The imaging department and pathology should work together to arrive at the diagnosis, considering the possibility of rare mammary disease presentations.

**Responsible Author:** Dra. Simone do Nascimento Souza

**E-mail:** simonenas@gmail.com

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**PD.09.037**

**MYOID HAMARTOMA OF BREAST: CASE REPORT AND LITERATURE REVIEW**

**Authors:** COSTA FLS, VENDRAMINI DFV, RAMOS GL, KIM SJ, MOYES LASI, MARCELINO ASZ, GIANNOTTI DG, LEITE CC, COSTENARO MA, CERRI GG

**Institution:** Hospital Sírio-Libanés

**Brief description of the study purpose:** The objective of the panel is to share the aspects of ultrasonography, mammography, tomography, and histopathology images of a patient diagnosed with myoid hamartoma of the breast, a rare entity that can generate diagnostic uncertainty.

**Clinical history:** A 47-year-old female patient was referred to our service because of a nodule in the right breast detected in an external ultrasonography and with external anatomopathological result of "epithelial cells with discrete atypia and eventual macrophages in mammary stromal tissue with lymphocytic infiltrate surrounding glands with focal microcalcifications".

**Discussion and diagnosis, or vice versa:** In our service mammography with tomosynthesis detected oval, circumscribed, isodense nodule measuring 2.7 x 1.3 x 2.2 cm, 2.5 cm from the papilla and 4.5 cm from the pectoral muscles at the junction of the upper quadrants of the right breast, in correspondence to the nodule described in the external examination. Ultrasonography performed at our service demonstrated a heterogeneous nodule with irregular contours, parallel to the skin, with foci of calcification, measuring 2.5 x 1.2 x 2.2 cm, located at 12 hours of the right breast. It was decided to perform core biopsy guided by ultrasonography. The anatomopathological result was myoid / muscular hamartoma of the breast, with nodular proliferation of spindle cells in short and loose bundles interspersed with fibroelastic stroma, with slight cytological atypia and discrete pleomorphism, with low mitotic index. Immunohistochemical complementation was performed, which revealed positivity for AML-anti-smooth muscle anti-actin antibody, anti-desmin and anti-progesterone receptor. Myoid hamartoma of the breast is a rare and difficult to diagnose entity. Core biopsy may lead to inconclusive anatomopathological results due to sample insufficiency, and excision may be necessary for diagnosis. Immunohistochemical analysis is essential to rule out the possibility of other malignant lesions of mesenchymal origin.

**Conclusion:** The diagnosis of myoid hamartoma of the breast is hard to establish, and may present a image appearance suspicious for malignancy. Percutaneous biopsy may lead to inconclusive results, in some cases requiring an excisional biopsy of the lesion. The immunohistochemical study is determinant to rule out the possibility of other malignant lesions of mesenchymal origin.

**Responsible Author:** Dr. Felipe Costa

**E-mail:** felipe.lobato@live.com
**FETAL MEDICINE**

**ORIGINAL PAPER**

**SCIENTIFIC PAPERS - ORAL PRESENTATION (TL)**

**TL.10.002**

EARLY MATURATION OF PRIMARY CORTEX REGIONS IN THE NEONATAL BRAIN


Institution: Department of Radiology, Ludwig-Maximilians University Munich - Grosshadern Campus, Germany

**Brief description of the study purpose/Objectives:**

Our aim was to evaluate if a cortical maturation index (MI) can be assessed based on T2w MR images and if it can capture maturation differences between primary and secondary cortical areas.

**Material and methods:** We analyzed axial T2w MR scans of 23 preterm born infants (mean gestational age at scan = 35.4±2.3 weeks) at 3.0 Tesla, acquired as part of the AIRR study (Attention to Infants at Respiratory Risks). T2w signal intensities were measured in primary (P) and secondary (S) brain regions. The MI (1 – signal_cortex / signal_CSF) and maturation comparison between primary (P) and secondary (S) brain regions were calculated.

**Results and discussion:** We could demonstrate that an MR-based index can capture cortical maturation in preterm born infants. 87% of the infants showed a significantly higher MI in the primary cortex regions compared to the secondary cortex (P < 0.001) with a mean MI of 0.37±0.09 in primary cortex regions, and of 0.48±0.09 in the inferior frontal gyrus, respectively. The mean MI ratio of primary versus secondary cortical areas was 1.32±0.26, confirming the results. We demonstrated that manual MR-based volumetry of TLV in preterm neonates is a feasible approach. The established age-specific reference values of TLV may provide an important basis to detect alterations of TLV in diseases like high grade BPD, congenital cystic adenomatoid malformation, or diaphragmatic hernia. Responsible Author: Dra. Giovanna Negrao de Figueiredo

**E-mail:** giofigueiredo@yahoo.de

**CASE REPORT**

**SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)**

**PD.10.001**

PLACENTA MESENCHYMAL DYSPLASIA: CASE REPORT IN MONORIONIC GESTATION WITH SELECTIVE RESTRICTION OF GROWTH IN ONE FETUS

Authors: SILVA, M.G.; MESQUITA, D.L.L.; SILVA, M.F.G.; LEITÊ, J.F.M.N.; OLIVEIRA, D.M.; SENA, H.M.

Institution: SANTA CASA DE MISERICÓRDIA DE FEIRA DE SANTANA - HOSPITAL D. PEDRO DE ALCÂNTARA. CENTRO DE ESTUDOS MÉD IMAGEM FEIRA DE SANTANA

**Brief description of the study purpose:** The placental mesenchymal dysplasia (PMD) is an obstetric condition characterized by placentalmegaly and vesicular images in the placenta presenting low morbidity, which are sometimes similar to the molar pregnancy. The estimated incidence of PMD is 0.02% of the pregnancies, with a female predominance of 3:4. Part of the cases of PMD is associated with intrauterine growth restriction (IUGR), fetal death within the uterus and Beckwith-Wiedemann syndrome. We report a case of placental fetants based on MRI are not yet available. We aimed to evaluate the influence of gestational age (GA) at birth, and severity of bronchopulmonary dysplasia (BPD) on TLV in preterm infants establishing age-specific values of TLV.

**Material and methods:** 38 preterm neonates with no (n=20) and mild (n=18) BPD (grades 0 and 1, respectively) were evaluated. GA at scan ranged between 34 and 38 gestational weeks (GW) and GA at birth from 24 to 31 weeks. The whole lung was segmented manually on axial T2w images. TLV across BPD grades was compared using the t-test. Multivariate linear regression was used to evaluate the influence of GA at birth, at scan and BPD grade on TLV.

**Results and discussion:** The median (IQR) TLV was 56.76cm³ (47.07-68.12). There was no significant difference in TLV between BPD 0 vs. 1 (P=0.987). Neither GW at birth, nor BPD grade had a significant influence on TLV (P=0.637 and 0.958). Only GW at scan was significantly associated with TLV (P=0.015). Therefore, reference values for GA at scan term around 36±2 weeks were established. The TLV increased with GW at scan, with the median TLV ranging from 48.71cm³ at 34 GW to 78.11cm³ at 38 GW.

**Conclusion:** We demonstrated that manual MR-based volumetry of TLV in preterm neonates is a feasible approach. The established age-specific reference values of TLV may provide an important basis to detect alterations of TLV in diseases like high grade BPD, congenital cystic adenomatoid malformation, or diaphragmatic hernia may inform prognosis and guide treatment options.

**Responsible Author:** Dra. Giovanna Negrao de Figueiredo

**E-mail:** giofigueiredo@yahoo.de
mesenchymal dysplasia in a diamniotic twin monochorionic gestation with apparently normal fetuses, one of them being signs of selective restriction of intrauterine growth.

Clinical history: The present study describes the picture of a 28-year-old pregnant woman (G2, P1, A0), with a monochorionic twin diamniotic pregnancy, hospitalized with 30 weeks of gestation with suspected preterm labor. In the ultrasonographic evaluation placentomegaly was observed, with placenta presenting areas of lower echogenicity, with small anechoic formations that were modified with dynamic maneuvers of the transducer, presenting liquefied appearance. In the evaluation of fetal morphology, no anatomical changes were observed, however, an important weight discrepancy was identified between fetuses 1 and fetus 2 of the order of 25% (F1 = 2236g and F2 = 1623g).

Discussion and diagnosis, or vice versa: First described in 1991, PMD placentas show aneurysmal dilatation of vessels on the fetal side and dilated villi with gelatinous material in the subchorionic region. However, histologically, these placentas can be distinguished from partial springs due to the absence of trophoblastic proliferation. Since then, this entity has more and more reported cases.

Conclusion: In conclusion, PMD should be considered in the differential diagnosis of placentomegalias, which present focal or diffuse echogenicity alterations, and especially when cystic images are found. Special attention should be given to fetal morphology, to identify possible alterations, in order to avoid attitudes such as early terminations of pregnancy, as well as to pay special attention to these pregnant women due to the possibility of unfavorable outcomes of pregnancy, in an attempt to reduce morbidity and fetal mortality.

Responsible Author: Dr. MARCOS GOMES DA SILVA
E-mail: mgomes.silva@hotmail.com

PD.10.002
ABDOMINAL PREGNANCY WITH LIVE FETUS: CASE REPORT

Authors: SILVA, M.G.; PEREIRA, H.L.; SILVA,M.F.G.; SILVA,T.M.; SANTOS, T.C.L.; ALMEIDA, N.F.J.
Institution: SANTA CASA DE MISERICÓRDIA DE FEIRA DE SANTANA - HOSPITAL D. PEDRO DE ALCÂNTARA. CENTRO DE ESTUDOS MED IMAGEM FEIRA DE SANTANA

Brief description of the study purpose: Ectopic pregnancy is characterized by ovary implantation outside the uterine cavity, it is related to the use of antibiotics for the treatment of pelvic inflammatory disease, late pregnancies, restorative surgery, assisted reproduction techniques, IUD use, promiscuity, uterine malformation and previous ectopic gestation. Abdominal ectopic pregnancy (AEP) is extremely rare, with an incidence of 1 to 1.4% of ectopic pregnancies. About 20% of AEP fetuses survive in the neonatal period. In general, placental insufficiency occurs due to its anomalous implantation, with important deficits in fetal development, limb deformity, face, pulmonary hypoplasia related to abdominal structures, among others. Maternal morbidity and mortality are also high.

Clinical history: The present study refers to a 37-year-old pregnant woman, with two previous normal pregnancies, with no history of abortion, who entered the maternity unit of normal uterine gestation, complicated with one with significant urinary retention and urinary infection. In the service she underwent a new examination that contacted an empty uterus, and identified posteriorly to the uterus, an image of a living fetus with an average biometry of 18 weeks, with an attached placental image, effectively characterizing ectopic gestation with abdominal implantation.

Discussion and diagnosis, or vice versa: At AEP the great challenge of the sonographer is to perform the early diagnosis, provided a less traumatic approach, and lower risk and morbidity. The annexes must always be evaluated, in order to avoid the existence of masses. Several approaches to ectopic pregnancy are described, however, what is advocated is specifically related to immediate surgical intervention after diagnosis. Expectant management may be adopted in cases of gestational age reaching 24 weeks, associated with maternal hemodynamic stability, presence of amniotic fluid, insertion distant from the placenta, and fetal well-being.

Conclusion: The effectiveness of the ultrasound diagnosis associated with the approach and follow-up of EAP cases plays a fundamental role in reducing maternal morbidity and mortality. There are controversies regarding the use of antihormonics for placental involution versus surgical intervention, but as important as such questionings is the effectiveness of well-conducted prenatal care and the performance of ultrasound examinations by well-trained professionals, thus guiding the early diagnosis, for more appropriate treatments.

Responsible Author: Dr. MARCOS GOMES DA SILVA
E-mail: mgomes.silva@hotmail.com

PD.10.003
ECTOPIA CORDIS: RARE CASE REPORT AND LITERATURE REVIEW

Authors: MONNERAT, S. T.; FERREIRA, S. L. C.; SANDES, S.T.M.
Institution: HOSPITAL FEDERAL DE BONSUCESSO

Brief description of the study purpose: Ectopia cordis was first observed in 1706 and is defined as complete or partial displacement of the heart out of the thoracic cavity. It is a rare congenital defect, which occurs in the fusion of the anterior chest wall, resulting in extrathoracic localization of the heart. Its prevalence was estimated at 5.5-7.9 per million live births. It is usually a sporadic malformation, with some reports associating this condition with chromosomal abnormalities. In addition, it can be classified according to the cardiac location in five types: Cervical (5%), cervicothoracic and thoracic (65%), thoraocoabdominal (20%) and abdominal (10%).

Clinical history: We present the case of a pregnant woman, 27 years old, with no relevant personal or family history, in which obstetric ultrasonography, performed at 33 weeks gestation, revealed a defect of the anterior chest wall with thoraocoabdominal type exteriorization, as well as pleural effusion bilateral and ascites. The fetal echocardiogram revealed tricuspid atresia, severe right ventricular hypoplasia and ventricular dysfunction. The birth occurred at 37 weeks, with the newborn dying about 30 hours after birth.

Discussion and diagnosis, or vice versa: The origin of ectopia cordis has not been fully explained, although several theories have been postulated, the most popular being the early rupture of the yolk sac and the amniotic band syndrome. This condition can be diagnosed by routine prenatal ultrasound, from 10 to 12 weeks of gestation, in which the heart is visualized outside the rib cage. The use of 3D and Doppler ultrasonography increases the accuracy of the diagnosis.

Conclusion: The combination of thoraocoabdominal ectopia cordis, sternal defect, anterior diaphragmatic hernia, supraventricular midline defect along with pericardial and intracardiac defects constitute Cantrell's Pentology. Ectopia cordis is often associated with other congenital defects involving multiple systemic organs and in 80% of cases there are cardiac defects, as in the case presented. Despite advances in neonatal cardiac surgery, complete ectopia cordis remains a surgical challenge, with only a few survivors in the long run.

Responsible Author: Dra. Thais Salgado Monnerat
E-mail: thata_17sm@hotmail.com
PROTOCOL FOR IMMEDIATE ACQUISITION OF MYOCARDIAL PERFUSION IMAGES: A COMPARATIVE ANALYSIS WITH LATE ACQUISITION IN PATIENTS WITH INDICATION FOR MYOCARDIAL PERFUSION SCINTIGRAPHY.


Institution: INSTITUTO DANTE PAZZANESE DE CARDIOLOGIA - SÃO PAULO - BRASIL

Brief description of the study purpose/Objectives: Demonstrate the possibility of obtaining interpretable images of myocardial perfusion scintigraphy by performing the immediate acquisition of them at rest and stress (physical or pharmacological), independent of artifacts, in comparison with the late images. Evaluate the interference of artifacts that may cause damage in the analysis of immediate images as a source of reliable results. Also evaluate the myocardial contractility in stress during immediate and late images (stunned myocardium) to verify loss of information.

Material and methods: A prospective and observational study was carried out with 72 patients with a clinical indication to myocardial perfusion scintigraphy in a Nuclear Medical Section of a tertiary hospital. It was acquired images immediately after the administration of the radiopharmaceutical (immediate) and after 60 minutes (late) according to the literature. SESTAMIBI-Tc-99m was used as the radiopharmaceutical of choice and a 1-day protocol was followed in the CZT or Ventri gamma camera. Statistical analysis was done by Fischer and Mann Whitney tests, and p value < 0.05 was considered significant.

Results and discussion: 93.1% of the patients presented a high cardiovascular risk by Framingham Score and 47.2% with altered perfusion images. The average time for immediate images was between 5 to 10 minutes for rest and 15 minutes for stress. Of 72 patients studied, 55 (76.4%) had immediate interpretable images, with a confidence interval of 64.9% to 85.6% (p = 0.0052). The main cause of artifact to images was the presence of radiopharmaceutical in the liver (p < 0.05) during immediate images. The stunned myocardial in stress images were verified in only 10% of patients in immediate images and 7.1% in late ones, with no statistically significant difference between them (p = 0.25).

Conclusion: It was possible to perform an interpretable analysis of the immediate images in 76.4% of the patients, which reduces the patient's time in the Nuclear Medicine section and enables more tests to be performed, keeping the ability to provide reliable reports to patients. The artifact that was more related to the non-viability of immediate images was the presence of radiopharmaceutical in the liver. There was no more detection of stunned myocardium in immediate images in comparison to late images.

Responsible Author: Dr. LEONARDO MACHADO ALEXANDRE

E-mail: leo.alexandre@yahoo.com.br

PROTOCOL FOR THE EXECUTION OF LYMPH-MON BIOPSY SENTINEL RELEVANT THOROUGH ASPECTS AND THE CONTRIBUTION IN THE PROGNOSIS OF CARCINOMA MAMMARY


Institution: Núcleo de Pesquisa Cientifica e Acadêmica de Radiologia (NPCAR)

Introduction and objectives: Sentinel lymph node biopsy is defined as the biopsy of the first lymph node responsible for lymphatic drainage of the primary tumor. In mammary carcinoma, the search for diagnostic precocity has gained prominence and has acquired standard procedure status in the prognosis of breast carcinoma, this by reducing the obligatory axillary emptying and allowing the visualization of the occurrence or not of metastatic involvement. This study aims to describe a sentinel lymph node biopsy protocol emphasizing relevant theoretical aspects allied to an image sequence that demonstrate the entire procedure.

Methods: It is a combination of pictorial essay and literary review of 10 publications originating from the VHL and SCI ELO research platforms. The selection of images and scientific publications contemplated a bibliography m used that had relevance in indications, methods, results and prognoses on sentinel lymph node biopsy, categorized with the objective of the research.

Discussion: The sentinel lymph node biopsy technique is most often indicated in the study of invasive carcinomas. In the standard protocol, markers (such as dyes and radiopharmaceuticals are associated or isolated). Initially, the patient is prepared for the procedure, and the path through which the marker is introduced (such as the areolar and axillary pathways) is selected. After the application of the marker by injection, a massage is performed on the breast in order to allow the circulation of the radiopharmaceutical, then some images are acquired by means of lymphoscintigraphy. With the aid of the probe range the lymph node is identified, extracted and sent for analysis. The histopathological study of the sentinel lymph node is a prerequisite for surgical indication.

Conclusion: Because it is a minimally invasive method, the cost benefit of the BLS protocol is quite relevant, responsible for the choice of cancer treatment, and can replace axillary emptying, assisting conservative surgeries mainly in conservative surgeries.

Responsible Author: Sra. Joyce Caroline

E-mail: Joycecarolinedeoliveira@hotmail.com

IMMUNOTHERAPY IN ONCOLOGY: IMAGE EVALUATION OF THE ADVERSE AND TOXIC EFFECTS OF CHECKPOINT INHIBITORS

Institution: Hospital Sírio Libanés, São Paulo.

Introduction and objectives: Immunotherapy is a new form of oncology-based drug treatment with anti-PD-1 / PD-L1 and CTLA-4 antibodies, resorting to passive or active immune system responses to treat and control the rate of cancer growth. The aim of immunotherapy is to potentiate the immune response and block its inhibitory mechanisms, triggering an effective antitumor response and stimulating the production of antitumor antibodies. In addition, the active immune response can be used in cases where the neoplastic cells develop resistance to these agents, allowing the detection and adaptation of the treatment and the immune system to changes in the biological behavior of the tumor, minimizing the escape of tumors. As a consequence of the improvement of the immune system, there are potential autoimmune complications, the toxic effects associated with recombiant cytokines that involve and attack cells and tissues: neurological, gastrointestinal, renal, hepatic, pulmonary, hematologic, among others.

This pictorial essay aims to facilitate the understanding of radiologists by demonstrating, through imaging cases, possible adverse effects and changes related to immunotherapy.

Methods: Case-based pictorial test using images acquired at our institution by means of computed tomography, magnetic resonance imaging and PET / CT, demonstrating the main changes and adverse effects related to immunotherapy.

Discussion: In order to perform the differential diagnosis more safely, it is essential that the radiologist is able to distinguish the difference in the patterns of therapeutic response and associated adverse events, not confusing them with disease progression, to guide the appropriate treatment and avoid possible deleterious effects to the patient.

Conclusion: Knowledge of the mechanism of action and the potential adverse effects of treatment with immunomodulatory agents is critical. Due to the increasing indication of these agents in oncology, it is essential for the radiologists to recognize the related image patterns, interfering in the management of these patients and consequently reducing the morbimortality related to the therapy.

Responsible Author: Dra. daniela ferreira vieira vendramini
E-mail: danifvieira321@gmail.com

LITERATURE REVIEW

SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)

PD.11.001
APPLICATION OF YTTRIUM-90 IN THE THERAPY OF NEUROENDOCRINE TUMORS
Authors: GONCALVES, G.A.; MELO, H. J. F.; PINHEIRO, E.A.
Institution: Centro Universitário São Camilo
Brief description(s) of the purpose(s) of the Literature Review:
To study the application of Yttrium-90 (90Y) in the therapy of neuroendocrine tumors (NETs) demonstrating its therapeutic efficacy.
Description(s) of disease(s), method(s) and/or technique(s):
Neoplasms from the diffuse neuroendocrine system are also called carcinoids. It was always considered rare, however, the annual increase on its incidence has called attention. They are characterized by a typical growth pattern and may express different peptides and biological amines as cell membrane specific peptidic receptors, such as somatostatin receptors (SSTRs). Radiolabelled receptor-bound somatostatin analogs (SSA) as vehicles for guiding radioactivity to tissues expressing SSTRs helping on the diagnosis and treatment. A bibliographic survey was carried out in Pubmed and Google Academic databases, as well as books provided by the library Padre. Inocente Radziranni.

Discussion:
After applying the literature review method, one hundred and thirty-four (134) articles were found among literature review articles and case reports that addressed the treatment of NETs with 90Y. It was found that the global prevalence of NETs has been elevated and was estimated at 35/100,000/year, thats why the approach of new techniques. Scintigraphy with 111Indium (111In) or 99mTc-labeled (99mTc) SSA has become a major imaging technique for NETs, especially those expressing a large amount of SSTRs, such as GEP tumors. The use of Yttrium-90-DOTATOC (90Y-DOTA)-D-Phe1-Tyr3-octreotide, another radiolabelled SSA coupled with 90Y, a pure beta-emitter, was associated with 10-30% objective tumor response rates, and appears to be greater in larger tumors. We identified the report of the SSA, tetraazacyclododecanetetraacetic acid (DOTA), which can be associated with 90Y. The affinity for SSTR2 and SSTR5 receptors was shown to be high and a promising treatment. In patients with hepatic metastasis that are not suitable for complete resection, there are other treatment options such as hepatic chemoembolization. The last one can be used on patients with unresectable metastasis and it does the use of 90Y microspheres.

Conclusion:
It was shown that 90Y-DOTATOC is a very effective therapeutic alternative for the known chemotherapies and biotherapies, presenting limitations as renal toxicity, which can be improved. Still, some patients treated with 90Y-DOTATOC had total remission of hepatic metastases.

Responsible Author: Biom. Homero Melo
E-mail: homerom@gmail.com

PD.11.005
EVALUATION OF THE RISK-BENEFIT OF NUCLEAR MEDICINE IN DIAGNOSTIC AND THERAPEUTIC PROCEDURES
Authors: SOUSA, J.C. O.
Institution: Núcleo de Pesquisa Científica e Acadêmica de Radiologia (NPCAR)
Brief description(s) of the purpose(s) of the Literature Review:
Nuclear Medicine (MN) corresponds to an invasive mode of imaging diagnosis of in-vivo physiological processes. MN operates both in the diagnostic area and in the therapeutics of several pathologies. The risk-benefit assessment of an MN procedure should be evaluated in all patients and should follow the principles of radiation protection: justification, optimization, and dose limitation. The aim of the research is to discuss the risk benefit evaluation of diagnostic procedures and MN therapy.

Description(s) of disease(s), method(s) and/or technique(s):
Bibliographic review of Portuguese and English language available in indexed databases BIREME, PUBMED and SCIELO, these references in scientific and medical literature. The temporal selection of publications was from 2012 to 2017 and consisted of 8 scientific publications such as articles, camp surveys and doctoral theses.

Discussion:
The risk-benefit assessment of an MN procedure is performed following justification, optimization, and dose limitation. The justification principle is related to the fact that a radiological exposure must have a real benefit to the health of the individual and to society in comparison with the damage that it can produce. All individual exposures to radiation for medical purposes should be previously justified, taking into account the radiation risk and the potential benefits of the procedure. This requires a careful evaluation of the diagnostic or therapeutic need, the patient’s risk profile, and the potential for alternative methods of diagnosis or treatment.
account the objectives of its realization for the diagnosis. Radiation doses due to medical exposures, except for therapeutic procedures, should be kept as low as practicable without loss of diagnostic information. Therapy for MN although there is a consensus of appropriate radiation values for the different organs there is no numerical standardization of the values in a manner analogous to the field of radiation protection.

**Conclusion:** The MN has been growing as an extremely important medical imaging modality in diagnosis and therapy, mainly for providing anatomical and functional information in a single procedure. The use of the principles of radiological protection is vital in NM, since the risk benefit of each patient should be considered.

**Conclusion:** The use of hybrid imaging equipment for the functional anatomical mapping of soft tissues and bone infections in the sternotomy.

**Clinical history:** The 99mTc-HMPAO-labeled leukocyte scintigraphy was performed in a male patient who underwent myocardial revascularization, who evolved with osteomyelitis in the sternum post-sternotomy, with 8 previous approaches being reported without success in the control of the infection. Planar scans were acquired 4 h and 24 h after the injection. SPECT / CT was obtained 4 h after the tracer injection, using a double-head camera coupled to a 16-channel X-ray tube. The planar images were true positive for osteomyelitis.

**Discussion and diagnosis, or vice versa:** The SPECT / CT technique improved accuracy in discrimination between soft tissues and bone envelopment. In fact, with the SPECT / CT also allowed a hybrid reconstruction in 3D allowing a surgical planning of the patient.

**Conclusion:** This result indicates that SPECT / CT performed using a hybrid device may enhance the image with 99mTc-HMPAO-labeled leukocytes in patients suspected of osteomyelitis, providing an anatomical location and precise definition of the extent of infection.

**Responsible Author:** Dr. RENATO BARRA

E-mail: renatobarra@gmail.com

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**PD.11.009**

**RADIOISOTOPES IN PALLIATIVE PAIN THERAPY**

**Authors:** SOUSA, J.C.O.; FRANCA, C.A. LIMA, H.I.V.; ARAUJO, G. M.S.; FRAZÃO, D.W.P.

**Institution:** Núcleo de Pesquisa Científica e Acadêmica de Radiologia (NPCAR)

**Brief description(s) of the purpose(s) of the Literature Review:** Based on the need to expand knowledge about therapeutic modalities that promote the relief of bone pain in patients with bone metastases, this study aimed to report and describe important aspects of the radioisotopes used in palliative therapy in bone metastases.

**Description(s) of disease(s), method(s) and/or technique(s):** Integrative Review made based on published scientific articles from 2007 to 2016 in the LILACS, BIREME, BVS and SCIELO sites; the sample consisted of 8 articles. The following descriptors were used: Bone pain; Bone metastases; Radioisotopes; Bone Pain Palliative Therapy.

**Discussion:** Currently, radioisotopes are used both as markers in diagnosis and in therapy of varied diseases. For the use of radioisotopes in diagnostic investigation, the selection criteria are: a relatively short half-life of emission of photons with low energy, but sufficient to be detected even when emitted from deep structures, non-emission of particles (alpha and beta) and a maximum specific activity (MBq.mg⁻¹), in order not to trigger a toxic response or to affect its biodistribution.

**Conclusion:** The use of radiopharmaceuticals has a less invasive nature, is better tolerated and is more beneficial for improving the quality of life and also for the survival of patients with bone metastases.

**Responsible Author:** Sra. Joyce Caroline

E-mail: joycecarolinedeoliveira@hotmail.com

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**PD.11.004**

**THE RELEVANCE OF WHOLE-BODY SCANS FOR DETECTING ADDITIONAL SITES OF INFECTIONS IN LABELED LEUKOCYTES SCINTIGRAPHY.**

**Authors:** TEIXEIRA, E.P.A.; SILVA, M. M; BARRA, R. R.; CHAVES, R. B; ALVES, A. S. F; VIVIANI, C. L. S; POEYS, F.C.T.

**Institution:** IMEB - IMAGENS MÉDICAS DE BRASILÍIA

**Brief description of the study purpose:** Amongst the main purposes of labeled leukocyte scintigraphy, there are: (i) detecting the causes of infections when the origins of a fever are unknown; or (ii) confirming the diagnostics of an infection when the symptoms are known, as in the cases of musculoskeletal affections where the scintigraphy shows a relatively high sensitivity and specificity for assessing an acute osteomyelitis. It will be reported a case in which a patient was referred to the nuclear imaging services to undergo a labeled leukocytes scintigraphy for a suspected osteomyelitis at a primary site, located on the right hip prosthesis. As a supplementary result, an additional site of infection was detected.

**Clinical history:** Female patient, named M.R.P.S., aged 81, with localized pain and a skin ulcer in the proximal region of the right femur for approximately a year. She underwent a surgery to place femur prosthesis 14 years before. Consequently, she was referred for a labeled leukocyte scintigraphy to evaluate a possible osteomyelitis.

**Discussion and diagnosis, or vice versa:** A scintigraphy investigation of the femur was carried out, consisting of two methods: 99mTc-colloid and 99mTc-labeled. The former method showed an increased activity in the marrow of the right femur adjacent to the prosthesis, whilst the latter showed no significant increase.
of labeled leukocytes. Thus, suggesting a routine postoperative bone remodeling cause. Notwithstanding, the whole-body scans showed a hyperconcentration of the lymphocytic activity in the mouth. The dedicated hybrid tomography (SPECT/CT) images of the skull revealed a tooth abscess in the left upper dental arch. When questioned, the patient reported pain in the left hemiface and halitosis for approximately 15 days.

**Conclusion:** Labeled leukocytes scintigraphy has its relevance for the diagnosis of bone infections long established, especially in cases of prostheses in the joints. However, it is important to emphasize the importance of whole-body scans for the detection of additional sites of infections - as drawn from the case described above - even in the analysis for detection of osteomyelitis in specific locations.

**Responsible Author:** Dr. RENATO BARRA

**E-mail:** renatobarra@gmail.com

**PD.11.010**

MENINGIOMA TRODAT-TC99M UPTAKE IN PATIENT WITH PARKINSON DISEASE AND UPTAKE REDUCTION OF IPSILATERAL NUCLEI OF BASE

**Authors:** ALMEIDA, R.J.P.; ATTAB, C.; MOURA, B.M.; NORMANHA, J.M.; NORMANHA, L.M.; RESENDE, D.Q.P.

**Institution:** A. C. Camargo Cancer Center, São Paulo, São Paulo, Brazil

**Abstracts of Scientific Papers**

**Brief description of the study purpose:** Abnormal uptake of the radiopharmaceutical in lesions in the frontoparietal region of the brain.

**Clinical history:** Patient 83M, with bradykinesia in investigation of Parkinsonian disease. Does not use medicine to treat symptoms. Waiting for results of the imaging tests to start therapy. An examination performed 4 hours after the injection of 20mCi of TRODAT-Tc99m in the hybrid gamma-camera (SPECT-CT). SPECT-RM images were merged to aid in case analysis.

**Discussion and diagnosis, or vice versa:** Patient presented expansive lesion in the left fronto-parietal region with marked uptake of radiopharmaceuticals in the tumor and reduction of uptake in the ipsilateral putamen.

**Conclusion:** SPECT-CT exams with TRODAT-Tc99m demonstrating uptake in expansive lesions are rare or poorly described. Therefore, it is of relevance that the nuclear doctor and other professionals involved in the examination have knowledge of this unusual pattern of radiopharmaceutical uptake.

**Responsible Author:** TR. MATHEUS BOTELHO DE MOURA

**E-mail:** mathausgyn@hotmail.com
Original Paper

Scientific Papers - Digital Presentation (PD)

PD.12.019

Evaluation of White Matter Integrity in Patients with Mesial Temporal Sclerosis: A Study Using Tract-Based Spatial Statistics

Authors: Corrêa, D.G.; Pereira M.L.; Doring, T.; Ventura, N.; Rego, C.; Alves-Leon, S.; Gasparetto, E.L.

Institution: Universidade Federal do Rio de Janeiro

Brief description of the study purpose/Objectives: To evaluate the white matter integrity, by diffusion tensor imaging (DTI) in patients with epilepsy, by mesial temporal sclerosis.

Material and methods: Fourteen patients with mesial temporal sclerosis in the left hippocampus, currently taking anti-epileptic medication were compared with control subjects (n = 14), matched for gender and age. Also, thirteen patients with mesial temporal sclerosis in the right hippocampus were compared with other control subjects (n = 13), matched for gender and age. DTI was performed along 30 noncollinear directions in a 1.5 Tesla scanner. For tract-based spatial statistics (TBSS), a white matter skeleton was created, and a permutation-based inference with 5000 permutations and a threshold of p < 0.05 was used to identify abnormalities in fractional anisotropy (FA). The mean (MD), radial (RD) and axial diffusivities (AD) were also projected onto the mean FA skeleton.

Results and discussion: Patients with mesial temporal sclerosis presented diffuse bilateral decreased FA, independently of the side of the disease, affecting most of the white matter tracts, compared to control subjects. Also, patients with mesial temporal sclerosis presented extensive areas with increased RD, bilaterally, regardless of the side of the disease. There was a substantial overlap of areas with decreased FA and increased RD.

Conclusion: Diffusion abnormalities were observed within and beyond the temporal lobe in patients with mesial temporal sclerosis. Patients with right and left mesial temporal sclerosis had extensive, bilateral abnormalities in comparison to controls, regardless of the disease side. These findings suggest that mesial temporal sclerosis determines a diffuse dysfunction of white matter tracts, even in areas with no direct connections to the temporal lobe.

Responsible Author: Dr. Diogo Goulart Corrêa
E-mail: diogogoulartcorrea@yahoo.com.br

PD.12.058

Imaging Structural Analysis of Carotid Web and Assessment of the Risk of Ischemic Stroke - A Cross-Sectional Retrospective Study


Institution: Santa Casa de Misericórdia de São Paulo

Brief description of the study purpose/Objectives: To describe the structural features by computed tomography and magnetic resonance imaging of carotid web (CW) and their correlation with ischemic stroke (IS).

Material and methods: We performed a retrospective study from our service database, from March 2011 to September 2017, including all patients with suspected hyperacute IS, who underwent non contrast CT; angiotomography (ACT) of the cervical and intracranial vessels, and brain perfusion (BF). The structural features of CW were analyzed in the subsets with and without stroke, and were also confronted with a series of incidental CW cases.

Results and discussion: A total of 364 individuals submitted to hyperacute IS investigation were analyzed. Of these, 225 had confirmation of clinical suspicion and were included in the study, emphasizing the non-identification of CW in the control group. 57 patients were excluded due to the exclusive impairment of the posterior circulation or due to technical inadequacy of the ACT studies. 10 patients with incidental CM were also analyzed. All images were evaluated by 2 neuroradiologists after consensus. Among the 168 patients included, 4 unilateral CWs (4/168 - 2.4%) were identified. The mean age of patients with CW was 60 years-old (47-81 year-old), with only 1 man (1/4 - 25%). CW variants were identified as horizontal appearance or in the anterior arterial wall (2/4 - 50%). Among the 10 cases with an incidental diagnosis, 2 patients presented CW variants. The presence of CW has been highlighted in recent literature as a cause of IS, previously considered cryptogenic, with a high recurrence rate of up to 30%. We will discuss the importance of its detection and also of its possible variations, in this context.

Conclusion: Although its low incidence, the occurrence of CW should always be thought as etiological factor of the IS, particularly among those cryptogenic, being fundamental the familiarization of the radiologist with its structural characteristics and possible variations. The potential increased risk of stroke in those patients with incidental CW still requires confirmation in larger prospective studies.

Responsible Author: Dr. Igor Gomes Padilha
E-mail: igorpadilha@hotmail.com

PD.12.059

Internal Carotid Artery Dissection – Is There Any Relation with the Length and Axial Closest Distance of the Styloid Process?


Institution: Santa Casa de Misericórdia de São Paulo

Brief description of the study purpose/Objectives: Internal carotid artery dissection (ICAD) is usually diagnosed in young adult. It accounts for approximately 10–25 % of stroke under 45 year-old-age. ICAD can occur spontaneously or be related to sudden increase in arterial pressure, previous infection, migraine, trauma or previous medical procedures on the arteries. Moreover, in some cases it is noted an elongation of the styloid process or calcified stylohyoid ligament. The association between elongated styloid process and cervicofacial pain is well known as Eagle’s syndrome but its association with stroke is exceptional. The authors purpose was evaluate this possible association.

Material and methods: In this retrospective study we evaluated the institutional database from March 2011 to September 2017, including all patients with suspected hyperacute IS, who underwent CT without contrast, angiotomography (ACT) of the cervical and intracranial vessels, as well as brain perfusion (BF). The styloid process / calcified stylohyoid ligament...
was measured in its axial minimum distance from the styloid process / calcified stylohyoid ligament and ICA. These data were analysed in all 3 groups of patients (group I – ICAD; group II - atherosclerosis obstruction patients with stroke; and group III – negative for both evidence and ICAD). We defined ICAD as flame-like tapering of the proximal vessel with wall thickening and distal high-grade stenosis.

Results and discussion: 364 subjects were included in the primary analysis. Of them, 168 were confirmed with AIS in the anterior circulation. In group I (7 patients - 4 males and 3 females; median age 60 years; range 48–87 years) process styloid length varied from 2.3 cm to 4.7 cm and the minimum axial distance from 0.1 mm to 7.0 mm. In groups II and III process styloid length varied from 2.2 cm to 4.1 cm and the minimum axial distance from 0.9 mm to 8.9 mm. The median of the process styloid length was absolute the same in all groups (18.5mm); however, patients with ICAD tend to demonstrate a minimum axial distance.

Conclusion: Pathophysiologically, ICAD occurs due to an intrinsic vessel wall injury. However, the analysis of extrinsic components, including styloid process/calculated stylohyoid ligament, might increase the comprehension of ICAD in the setting of stroke.

Responsible Author: Dr. Igor Gomes Padilha
E-mail: igorpadilha@hotmail.com

PD.12.062
RESTING–STATE CONNECTIVITY IN HIV-POSITIVE PATIENTS WITH MEMORY DEFICIT
Authors: CORRêA, D.G.; ZIMMERMANN, N.; VENTURA, V.; FONSECA, R.P.; LOPES, F.C.R; GASPARETTO, E.L.
Institution: Universidade Federal do Rio de Janeiro
Brief description of the study purpose/Objectives: The aim of this study was to evaluate whether normal controls and human immunodeficiency virus (HIV)-positive patients with and without memory deficits differ on resting-state brain connectivity.

Material and methods: A total of 12 HIV-positive patients with memory deficits were compared with 19 HIV-positive patients without memory deficits and 16 gender-, age-, and education-matched control subjects. Resting-state functional magnetic resonance imaging (RS-fMRI) was performed in a 1.5-T scanner. FMRIB’s Software Library tools were used to post-process RS-fMRI. Voxelwise group differences were detected by using (5,000 permutations). Multiple comparisons were controlled for normal tissue using the Familywise Error rate. The magnetic field used in the scans varied between 0,5 and 1.5 Tesla. Cervical canal stenosis was described in every article, presenting high rates amongst patients (43 to 100%), regardless of the MPS type. Literature shows that it is a very common finding in these patients and has a multifactorial origin, associated with other abnormalities frequently reported by the revised articles, such as dens malformations (5.2 to 100% of the patients studied), peri-odontoid tissue thickening (57 to 100%) and vertebral dysmorphisms (27 to 100%). Spinal cord compression represents its main consequence, and was also described in every revised study (8.6 to 100%). Most articles presented moderate to high risk of bias. Patients with ICAD were analysed in all 3 groups of patients (group I – ICAD; group II - atherosclerosis obstruction patients with stroke; and group III – negative for both evidence and ICAD). We defined ICAD as flame-like tapering of the proximal vessel with wall thickening and distal high-grade stenosis.

Conclusion: Pathophysiologically, ICAD occurs due to an intrinsic vessel wall injury. However, the analysis of extrinsic components, including styloid process/calculated stylohyoid ligament, might increase the comprehension of ICAD in the setting of stroke.

Responsible Author: Dr. Igor Gomes Padilha
E-mail: igorpadilha@hotmail.com

TL.12.001
CERVICAL SPINE MAGNETIC RESONANCE IMAGING IN MUCOPOLYSACCHARIDOSES: A SYSTEMATIC REVIEW
Institution: EScola Bahiana de Medicina e Saude Publica/ DELFIN MEDICINA DIAGNOSTICA
Brief description of the study purpose/Objectives: Magnetic Resonance Imaging (MRI) is considered the gold-standard scan for cervical spine assessment and follow up in patients affected by mucopolysaccharidoses (MPS). Studies that target recognizing and describing MPS patients’ cervical spine MRI findings have, in general, small sample sizes and discuss only one MPS subtype. The aim of this systematic review was to evaluate cervical spine abnormalities detected by MRI in patients with MPS.

Material and methods: Systematic Review. A systematic search was conducted in five electronic databases: Medline, Embase, Science Direct, Scielo and Lilacs for clinical studies that described cervical spine MRI findings in MPS patients. The key-words used for selecting articles were "magnetic resonance imaging", "mri", "mucopolysaccharidases", "neck", "cervical" and "spine". Observational studies were accessed for quality using the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) and case reports were accessed by Case Reports (CaRe) checklist.

Results and discussion: A total of nine studies was included in the final analyses. 215 patients had been scanned by cervical MRI. Patients with MPS type I, II, IV and VI were identified. The magnetic field used in the scans varied between 0,5 and 1,5 Tesla. Cervical canal stenosis was described in every article, presenting high rates amongst patients (43 to 100%), regardless of the MPS type. Literature shows that it is a very common finding in these patients and has a multifactorial origin, associated with other abnormalities frequently reported by the revised articles, such as dens malformations (5.2 to 100% of the patients studied), peri-odontoid tissue thickening (57 to 100%) and vertebral dysmorphisms (27 to 100%). Spinal cord compression represents its main consequence, and was also described in every revised study (8.6 to 100%). Most articles presented moderate to high risk of bias.

Conclusion: Magnetic Resonance Imaging scans promote the diagnosis of a multitude of cervical spine deformations and abnormalities in MPS patients, many of which are extremely morbid for them. Cervical canal stenosis, its consequences and malformations that predispose it are frequently described, in the various types of MPS diagnosed. Hence, there is much value in performing cervical spine MRI scans in MPS patients.

Responsible Author: Dra. Carolina Freitas Lins
E-mail: kerolins@yahoo.com.br

TL.12.002
WHITE MATTER MATTERS: CONSEQUENCES OF ROI MISPLACEMENTS IN MR PERFUSION ANALYSIS PRETREATMENT PRIMARY BRAIN TUMOR
Authors: MATOS, B. A.; BARJUD, F. N.; CAMARGO, M. V.; SOARES, R. S.; MALHEIROS, S. M. F.; BARBOSA JR, A. A.; AMARO JR, E.
Institution: HOSPITAL ISRAELITA ALBERT EINSTEIN
Brief description of the study purpose/Objectives: Cerebral white matter is known to have inhomogeneous rCBV values and knowing the mean values and the variability can
help make more accurate analysis of tumor perfusion with direct impact for patient management.

**Material and methods:** We analyzed 46 patients diagnosed with primary brain tumor (10 low/36 high grade) before treatment. We used routine software processing tools (ADW-Servation - GE, USA) for rCBV calculation and ROI-based MR-perfusion evaluation with 5mm circular ROIs positioned in 8 different contrasting areas of each lesion and compared the rCBV values in relation to ROIs positioned in white matter regions (30 ROIs standardized locations: 24 subcortical, 2 semioval center, 4 periventricular) and to 8 automatically placed homologous regions (symmetrical and contralateral) to the tumor ROIs. We measured each ROI variability and the relationship between tumor ROIs and various control ROIs as described above. Statistical analysis including median and mean rCBV values, standard deviation and coefficient of variation were calculated.

**Results and discussion:** The rCBV values based on 46 patients for the three white matter (WM) regions are different (p<0.001; Mann-Whitney) - see table. Periventricular WM regions showed highest rCBV and the semioval center has lowest rCBV. In 9% of cases (4 cases), tumor ROI rCBV/white matter rCBV relationship crossed from above or below 1.75 criteria (Law et al, AJNR 2003) according to the location of the control ROI. All discordant cases were observed in low grade tumors.

**Conclusion:** Our initial results highlight the relevance of control ROIs positioning in white matter in cases of primary brain tumors. We observed clinically relevant rCBV variations depending on control ROI location that could impact patient management.

**Responsible Author:** Dr. Breno Matos  
E-mail: brenoamatos@gmail.com

**TL.12.003**

**USING DEEP LEARNING TO RECREATE HIGH QUALITY PET/MRI CEREBRAL IMAGES FROM LOW-QUALITY IMAGES ACQUIRED WITH ONLY ONE-QUARTER OF THE RADIOTRACER DOSE**

**Authors:** MACRUZ, F.; CHEN, K.; GONG, E.; XU, J.; KHALIGHI, M.; ZAHARCHUK, G.  
**Institution:** Stanford University  
**Brief description of the study purpose/Objectives:** The need of radiotracer to perform a high-quality PET/MRI exam has always been a major inconvenience for the widespread use of this imaging technique, now considered the gold-standard for the diagnosis of Alzheimer. The radiotracer involves risks and challenges associated with its use and manipulation and also increase the total cost of the exam. With that in mind, the purpose of this study was to synthesize high-quality PET images, resembling the ones acquired with full injected dose, from low-dose images, acquired with one-quarter of the radiotracer dose (75% dose reduction), using deep learning technique combined with MRI images of the same patient.

**Material and methods:** For the purpose of this study, we used Amyloid-PET and MRI images of 100 patients, 50 with Alzheimer Disease and 50 normal individuals. 75 of the patients were used for training and 25 for testing, all obtained from the Alzheimer's Disease Neuroimaging Initiative (ADNI) database (adni.loni.usc.edu). Only patients who had PET and MRI exams with less than one month apart from each other were selected. The MRI images utilized were T1-SPGR and T2-FLAIR. A convolutional neural network (CNN) was trained, using the MR and the low-dose PET images as input and t full-dose PET image, as the ground truth. Also, FSL software was used to generate a brain mask from the T1 images of each subject for voxel-based analyzes.

**Results and discussion:** For each slice of the volumes, the synthesized PET image and the original low-dose PET images within the brain mask were compared to the original full-dose ones. The metrics peak signal-to-noise ratio (PSNR), structural similarity (SSIM), and root mean square error (RMSE) were calculated. Qualitatively, the synthesized images show marked improvement in noise reduction, spatial resolution, cortical definition and grey-white matter differentiation, resembling a lot the ground truth images. Quantitatively, the images synthesized have a higher PSNR, SSIM and lower RMSE.

**Conclusion:** Deep learning can potentially reconstruct high-quality Amyloid PET images from low-dose ones, with only 25% of the regular radiotracer dose. This promising result changes the perspective on dose reduction PET/MRI exams and will hopefully allow safer and more efficient PET scans.

**Responsible Author:** Dra. Fabiola Bezerra de Carvalho Macruz  
E-mail: fabiolamacruz@hotmail.com

**TL.12.004**

**CORRELATION BETWEEN RETINAL THICKNESS QUANTITATIVE MEASURES, ENCEPHALIC METABOLITES CONCENTRATION AND NEUROPSYCHOLOGICAL FUNCTION OF PATIENTS WITH NEUROCOGNITIVE DISORDERS.**

**Authors:** WAN-MEYL, F.S.; SOUZA; L.E.A.; MACRUCO, J.P.S.; TEIXEIRA, C.E.C; BURBANO, R.M.R.  
**Institution:** Instituto de Ciências Biológicas da Universidade Federal do Pará  
**Brief description of the study purpose/Objectives:** Nowadays, with the increase of human population life expectation, neurodegenerative diseases, common as the aging process advances, have become a source of severe worries. Thus, researches aiming the discovery and development of new early diagnosis methods for neurodegenerative diseases, as Alzheimer and Parkinson, have been sponsored. All things considered, the purpose of this paper is to analyze possible correlations between results from the applied exams for clinical and neurological investigation of patients diagnosed with neurodegenerative disorders associated with Alzheimer and Parkinson disease.

**Material and methods:** Individuals evaluated by experienced neurologists and diagnosed with neurocognitive disorders associated with Alzheimer and Parkinson diseases were invited to the project. 7 patients were selected with Parkinson and 10 subjects with Alzheimer. The evaluation of the retinal nerve fiber layer was made through optical coherence tomography. Evaluation of encephalic metabolites was made through proton spectroscopy by magnetic resonance using the short TE Probe-PRESS sequence. Then the automatized CANTAB battery was used, more specifically “Paired Associates Learning”, “Spatial Working Memory” and “Reaction Time”, that analyzes from visual memory of the subject in new learning to his time of reaction to visual stimulation.

The data found were statistically evaluated by aggregation, analyzing the main component to identify the correlation between variables with independent component.

**Results and discussion:** Results shown that the perimacular retinal nerve fiber layer thickness measure, obtained by optical coherence tomography, is a parameter which may not differ in a relevant way between patient group and healthy subjects. By contrast, measure of amplitude from emitted spectroscopy signs generated by encephalic metabolites, realized by proton spectroscopy in magnetic resonance imaging, reveals encephalic alteration that varies between zones.
Furthermore, the neuropsychological evaluation of cognitive functions realized by the automatized battery CANTAB, reveals that various aspects of these functions are impaired among the patients.

**Conclusion:** All things considered, this paper was able to conclude that patients with neurocognitive disorders do not show loss of perimacular layer thickness, have encephalic metabolites alteration in different zones and present cognitive impairment quantified by the CANTAB method.

**Responsible Author:** Dr. Luis Eduardo Almeida de Souza  
**E-mail:** luisd_souza@hotmail.com

**TL.12.005**  
**EFFECTS OF CHEMOTHERAPY ON COGNITIVE FUNCTION OF COLON CANCER PATIENTS - A CHEMOBRAIN STUDY**  
**Institution:** Instituto de Radiologia do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo (In-Rad-HCFMUSP)  
**Brief description of the study purpose/Objectives:** Cognitive dysfunction may occur after chemotherapy in cancer survivors, especially in those treated for breast cancer. The frequency and to which extent such toxicity develops in colorectal cancer (CRC) survivors is unknown. This prospective study evaluated the effects of adjuvant chemotherapy (CTh) on the cognitive performance and white matter microstructure of patients with localized CRC in comparison to a control group who did not receive chemotherapy.

**Material and methods:** Consecutive patients with localized stages II and III CRC completed neuropsychological assessments (Table 1), self-reported cognitive complaints questionnaires and depressive symptoms evaluation before starting fluoropyrimidine-based adjuvant chemotherapy (t1) and after 12 months (t2). Blood was collected for apolipoprotein E (APOE) genotyping. Diffusion tensor imaging (DTI) data was acquired from a smaller group of participants at both time-points. DTI data was processed using DTI-TK registration software and standard FSL tract-based spatial statistics (TBSS) pipeline.

**Results and discussion:** In a two-year period, 85 patients were recruited: 59 received chemotherapy (CTh+) and 26 did not (CTh-) (Figure 1). No difference was found on cognitive performance between the two groups during the follow-up, considering the global composite score (p=0.38), attention (p= 0.84) or memory scores (p= 0.97). However, there was a significant difference on executive function domain, after adjustment for age, sex, education, and depressive symptoms at baseline (p=0.04) (Figure 2). The presence of the E4 allele did not influence the cognitive performance of patients. In patients that underwent MRI, TBSS did not show voxel-wise significant structural brain connectivity differences, as evaluated in fractional anisotropy (FA), mean diffusivity (MD), axial diffusivity (AD) and radial diffusivity (RD) maps at baseline and during follow-up (Figures 3 and 4).

**Conclusion:** Image analysis did not found differences between groups, however, after adjusting for confounding factors on neuropsychological assessments, patients with CRC who received CTh presented cognitive executive function decline after 12 months in comparison to patients with localized disease that did not receive chemotherapy. The lack of positive results in the image analysis may be related to the smaller sample size with diminished statistical power.

The anatomical substrate for the cognitive decline related to chemotherapy in CRC remains to be uncovered by further neuroimaging studies.

**Responsible Author:** Prof. David Macedo da Conceição  
**E-mail:** davidbrsp@gmail.com

**TL.12.006**  
**LONGITUDINAL CHANGES OF THE SUPERIOR LONGITUDINAL FASCICULUS IN TRAUMATIC BRAIN PATIENTS WITH LANGUAGE DISORDERS**  
**Authors:** GRASSI, D. C.; CONCEIÇÃO D. M.; LEITE, C. C.; ANDRADE, C.S.  
**Institution:** Faculdade de Medicina da Universidade de São Paulo, São Paulo, Brazil  
**Brief description of the study purpose/Objectives:** Traumatic brain injury (TBI) is the number one cause of death and morbidity among young adults. Moreover, survivors are frequently left with functional disabilities such as language disorders during the most productive years of their lives. The superior longitudinal fasciculus (SLF) is a major tract involved in human language processing, as it connects the Brocas area in the frontal lobe (speech production) with Wernicke’s area in the temporal lobe (speech comprehension). The goal of the study is to evaluate the microstructural integrity of the SLF over time in TBI patients with diffuse axonal injury (DAI).

**Material and methods:** Twenty adults with moderate to severe TBI were evaluated at a 3.0T magnetic resonance imaging (MRJ) scanner in the acute (t1, 3 months), subacute (t2, 6 months) and chronic stages (t3, 12 months) following trauma. Twenty matched-controls were also recruited. DTI was obtained in the axial plane with 32 directions and b-values of 0 and 1000 s/mm 2 . Preprocessing steps included correction of head motion and eddy current artifacts with ExploreDTI. The SLF was virtually dissected by the same rater with a deterministic streamline approach and a specific set of predefined rules based on a priori anatomical knowledge and the fiber assignment by continuous tracking (FACT) algorithm (Figure). Language skills were also assessed with neuropsychological tests at t2 and t3.

**Results and discussion:** There were significant changes of the SLF DTI metrics in TBI patients when compared to a healthy group. In comparison to t1, patients at t3 exhibited significant increases of diffusion anisotropy in the SLF. Patients’ performances on language tests were suboptimal in all stages, but also improved over time.

**Conclusion:** Our study suggests that microstructural abnormalities in the SLF are not stationary and may reverse to some extent following head injury, likewise progressive improvement in language skills.

**Responsible Author:** Dra. Daphine Grassi  
**E-mail:** daphinegrassi@gmail.com

**TL.12.007**  
**IMAGE BIOMARKERS AS PREDICTORS OF OUTCOME IN PATIENTS WITH PRIMARY CEREBRAL HEMORRHAGE**  
**Authors:** ARAÚJO, A.I.R.; PADILHA, I. G.; PETTENGILL, A. L.M; FRAGOSO, D. C.; PACHECO, F.T.; NUNES, R. H.; MAIA JÚNIOR, A. C. M.; ROCHA, A. J  
**Institution:** Santa Casa de Misericórdia de São Paulo  
**Brief description of the study purpose/Objectives:** Comparative analysis of spot sign and island sign as predictors of outcome in patients with primary intraparenchymal hemorrhage.

**Material and methods:** A preliminary analysis of patients with hemorrhagic stroke (HS) from August 2016 to June
2017 was performed under non-contrast computed tomography (CT) and intracranial vessel angiotomography (CTA) evaluating the correlation between spot sign and island sign with the clinical evolution. Events like hematoma expansion, death and need for surgery were considered as unfavorable outcome. Patients presenting secondary bleeding (eg, aneurysm, trauma) or other type of bleeding, such as subarachnoid hemorrhage (SAH), or inappropriate image quality were excluded. The retrospective analysis will be expanded to 5 years increasing the casuistic and statistical significance of the results.

Results and discussion: We selected 59 patients, of whom 33 were excluded, according to the proposed criteria. Among the 25 subjects in the study, 9 (9/25 - 32%) presented island sign and 3 (3/25 - 12%) spot sign, and 2 patients presented both. In the subgroup of island sign patients, 8 subjects (8/9 - 88.8%) presented an unfavorable outcome, whereas in those with spot sign this was demonstrated in 100% of the patients. The occurrence of any of the signs, either alone or in combination, was a predictor of unfavorable outcome, with a moderate correlation with trend to statistical significance (p: 0.05) in relation to the unfavorable outcome in island sign cases. On the other hand, the absence of these signs did not exclude the possibility of unfavorable outcome (7/15 - 46.6% patients), considering the multifactorial nature of the condition and the frequent presence of comorbidities.

Conclusion: Despite the ethiopathogenic differences of these findings, both are independent and reliable predictors of worse prognosis, with particular attention being paid to clinical worsening or the need for early surgical intervention. Our preliminary results corroborate the active search for these imaging signs in patients with primary HS, particularly the island sign that can be evaluated at non-enhanced CT, simplifying and streamlining the evaluation of severe patients, when compared to the spot sign, which requires an angiographic study.

Responsible Author: Dr. Alan Iuno Rios Araújo
E-mail: iuno82@hotmail.com

PICTORIAL ESSAY

SCIENTIFIC PAPERS - POSTERS (PA)

PA.12.003
INTRACRANIAL VASCULITIS: THE USE OF MAGNETIC RESONANCE IMAGING WITH CONVENTIONAL AND ADVANCED TECHNIQUE FOR VASCULAR WALL STUDY (VESSEL WALL)
Authors: PEŠŠOÁ, E. M. C.; GALHEIGO, D.; HYGINO, C.
Institution: HOSPITAL DAS AMÉRICAS, DASA

Introduction and objectives: Accurate diagnosis of intracranial vasculopathies is crucial in therapeutic targeting. Conventional techniques magnetic resonance imaging (MRI) in the evaluation of vasculopathies help in the main findings of brain parenchyma, although limited for the evaluation of the inflamed lumen. The advanced technique for vascular wall study by MRI allows better characterization of parietal affections, especially with the "black-blood" technique, in which suppression of the blood signal allows better characterization of the compromised wall.

Methods: The digital file of our institution was reviewed and retrospectively evaluated by two neuroradiologists. The study included patients who presented Moya Moya's disease, syphilis and autoimmune vasculitis as the final diagnosis. All patients underwent MRI scans on 1.5 T (Aera, Siemens) and 3T (Skyra, Siemens) devices and following clinical protocols that included conventional and advanced sequences such as vessel wall study through the T1 sequence with with fat suppression and fat suppression with gadolinium injection using the "black-blood" technique.

Discussion: The main findings were cortico-subcortical infarcts and in the posterior fossa, hematic residue and superfi-
cral siderosis, thickening and parietal enhancement by gado-
linium. The study with the "black-blood" technique allowed a
more accurate evaluation of the contrast enhancement as well
as the other associated inflammatory components.

Conclusion: The study of the vascular wall by MRI, espe-
cially with the "black-blood" technique, allows a better accu-
cacy in the evaluation of the different affections of the vascu-
lar wall and its differential diagnoses.

Responsible Author: Dra. FERNANDA MIRALDI CLEM-
ENTE PESSÔA
E-mail: fernandamiraldi@gmail.com

PA.12.008
RHOMBENCEPHALITIS: A NEURONAVIGATION IN
MAIN ETIOLOGIES
Authors: FRANCISCO, T.R.N.B.P.; GAVINO, J.F.;-
RIVERO, R.L.; MENDONÇA, R.A.; NUNES, R.H.; PACHE-
CO, F.T.; ROCHA, A.J.
Institution: DASA - Delboni Auriemo, São Paulo, São Pau-
lo, Brasil/DASA, São Paulo, São Paulo, Brasil

Introduction and objectives: Rhombencephalitis are a po-
tentially life threatening condition characterized by some-
what unspecific clinical signs. In this setting, the imaging is
crucial for the diagnosis. The purpose of this work is to re-
view potential imaging clues for the diagnosis.

Methods: It was performed a literature review searching for
“rhombencephalitis” and “MRI” to identify the recent litera-
ture about the topic. There after, a retrospective analysis from
our institution database was performed for case selection.
The inclusion criteria included clinical and laboratory confirma-
tion and proper imaging quality.

Discussion: The MR picture is characterized by hyperinten-
sities on T2 and FLAIR affecting different portions of the
brainstem. The images usually are nonspecific, therefore, an
accurate initial diagnostic approach is important to estab-
lishing a proper early treatment. The term rhombencepha-
litis refers to inflammatory diseases affecting the hindbrain
(brainstem and cerebellum) and has a wide variety of etiol-
ogies, including infections, autoimmune diseases, and para-
neoplastic syndromes. Listeria monocytogenes is the most
common cause of infectious rhombencephalitis, followed by
enterovirus 71, herpes virus type 1, Legionnaire's dis-
ease, Mycoplasma, Lyme disease and tuberculosis. The most
common autoimmune etiology is Behçet disease. There have
been isolated reports of cases of rhombencephalitis caused by
systemic lupus erythematosus and relapsing polychondritis.
In a recent series, demyelinating disease has been included
as one of the rhombencephalitis causes. In this review, we
perform the main imaging findings in different etiologies
causing rhomboencephalitis, as well associated findings that
can help in differential diagnosis. It will be done a specific
diagnostic approach to demonstrate the cases of our service
according to specific etiologies: viral (cytomegalovirus and
herpex virus), protozoan (toxoplasmosis), fungus (neurocri-
toccosis), bacteria (tuberculosis), autoimmune (Behçet dis-
ease), demyelinating disease (ADEM).

Conclusion: Rhomboencephalitis are a broad group of in-
flammatory disorders affecting the hindbrain (brainstem and
cerebellum) with significant morbidity and mortality. It is es-
sential for the radiologists to be aware of the main imaging
findings. The knowledge about the most common etiologies
and the differential diagnosis is also crucial.

Responsible Author: Dra. Talita Ras Nazarath Brito Penna
Francisco
E-mail: talita.rasnaza@gmail.com

PA.12.009
DIFFUSION-WEIGHTED IMAGING: BEYOND
STROKE
Authors: SERPA, A.S.; RIVERO, R.L.; FILHO, A.L.M.G.;-
NUNES, R.H.; PACHECO, F.T.; ROCHA, A.J.
Institution: Grupo DASA

Introduction and objectives: In normal brain tissue, diffu-
sion of water molecules occurs freely in all directions (ani-
sotropic). Any process that increases restriction of free water
mobility can produce a high signal intensity at DWI and a
low signal intensity at ADC. Routinely diffusion weighted
imaging is used in investigation of stroke, where the local
signal intensity at ADC. Besides stroke, many other conditions can benefit from its use; the
purpose of our study was to characterize these conditions and
exemplify them with cases of our institution.

Methods: We have performed a review from the literature
about the use of diffusion weighted imaging besides stroke and a retrospective analysis from our institution data-
base for selection of cases to characterize and exemplify
such conditions.

Discussion: Disorders that may potentially alter DWI may be
examined by diffusion imaging, and many other conditions can benefit from its use, such as infectious, demyelinating and degenerative
conditions, and also vascular conditions besides stroke.

Responsible Author: Dra. Aline Granja Serpa
E-mail: gserpa.aline@gmail.com

PA.12.012
THE PEDIATRIC BRAINSTEM: WHAT THE RADI-
OLOGIST NEEDS TO KNOW
Authors: OLIVEIRA, G.C.S.; OLIVEIRA, D.L.; BOMFIM,
R.C.; ROCHA, L.M.
Institution: DIRAD - Hospital Memorial Arthur Ramos,
Maceió, Alagoas, Brasil

Introduction and objectives: The brainstem lies ventrally to
the cerebellum and divides into a bulb, pons and midbrain, is
related to vital functions of the human organism, and it is an
area where the cranial nerves emerge. It is a region affected by
several malformations, such as hypoplasias, Joubert’s syn-
drome, pontine tegmental cap dysplasia and the Horizontal
Gaze Palsy with Progressive Scoliosis (HGPPS).

Methods: For this pictorial essay, it was selected computed
tomography or magnetic resonance neuroimaging of pediat-
ric patients in a radiology service of a private hospital in Ala-
goas with some congenital alteration in the brainstem.

Discussion: Pontocerebellar hypoplasia (PCH) is an autosom-
ral recessive neurodegenerative disease. Image exams will
present hypoplasia of pons and cerebellum, reduced yorus
pattern and nonmyelinated corpus callosum. In some cases of PCH, there is also involvement of the cerebellar hemispheres. Joubert's syndrome has the diagnostic criteria of the “molar tooth sign”, which consists of elongated, thickened and horizontally oriented superior cerebellar peduncles, associated with a deep interpeduncular fossa and vermian hypoplasia. Morphological abnormalities of the brainstem are present in about 30% of patients with Joubert syndrome and include midbrain and dysmorphic tectum, thickening and elongation of the midbrain and small pons.

The pontine tegmental cap dysplasia is characterized by a flattened ventral pons, vaulted pontine tegmentum (the “cap”), partial absence of the middle cerebellar peduncles, vermian hypoplasia, a molar tooth–like aspect of the pontomesencephalic junction, and absent inferior olivary prominence. Neuroimaging findings are pathognomonic. HGPPS is a rare autosomal recessive disorder characterized by the absence of horizontal ocular movements and progressive development of scoliosis in childhood. The neuroimaging reveals a butterfly-shaped medulla due to the loss of prominence of the gracile and cuneate nuclei. The pons is hypoplastic and has a dorsal midline cleft with absence of the bulging contour of the facial colliculi.

Conclusion: The malformations that affect the brainstem are rare, but it is a fundamental area for the maintenance of the vital functions of the human organism, as well as the emergency region of several cranial pairs, and should always be evaluated, especially in the pediatric age group, for early detection of any abnormality.

Responsible Author: Dra. Georgia Cavalcante Silva de Oliveira
E-mail: gg_cavalcante@hotmail.com

PA.12.015
LESIONS THAT COMPROMISE THE WHITE MATTER OF THE TEMPORAL POLE IN ADULTS: WHAT WE SHOULD THINK ABOUT
Authors: OLIVEIRA, G.C.S.; OLIVEIRA; D.L.; BOMFIM, R.C; ROCHA, L.M.
Institution: DIRAD - Hospital Memorial Arthur Ramos, Maceió, Alagoas, Brasil.
Introduction and objectives: The anterior area of
Methods: In this pictorial essay, we selected several images of patients who submitted to MRI of the skull in a radiology service of a private hospital in Alagoas with hyperintense lesions in the white matter in the temporal pole.
Discussion: CADASIL is the acronym for Cerebral Autosomal Dominant Arteriopathy with Subcortical Infarcts and Leukoencephalopathy. It is a disease of the cerebral microvasculature that affects smooth muscle cells in the cerebral and leptomeningeal penetrating arteries, causing subcortical infarcts. The main imaging findings are multifocal hyperintensities on T2-weighted/FLAIR in the subcortical and periventricular white matter which appear around the age of 20. Intrauterine insults occurring before or during this period can lead to problems in its genesis, which can range from small structural changes to its total agenesis/aplasia. These malformations are called “spectrum of degenerations of the corpus callosum”. This study reviews the development of corpus callosum and its main congenital diseases.
Methods: We have done an extensive literature review and pictorial essay with selected cases from our service (transfontanellar ultrasound, computed tomography and magnetic resonance, including fetal MR) reviewing normal callosal anatomy, its developmental main anomalies and main associated genetic syndromes, including: correlation of normal anatomy on ultrasonography and magnetic resonance imaging, agenesis and dysgenesis, lipomatosi, Chiari II, Dandy-Walker, holoprosencephaly, Aicardi syndrome and the main mimickers: calosotomy, corpus callosum impingement syndrome and periventricular leukomalacia.
Discussion: Corpus callosum malformations can be found in up to 1% of central nervous system imaging studies. Therefore, radiologists must be familiar with its spectrum of alterations, its presentation in main imaging modalities and their correlation, as well as recognize associations with genetic syndromes.
Conclusion: This pictorial essay illustrates the normal anatomy of corpus callosum in different imaging modalities and provides a review of its congenital abnormalities and main associated genetic syndromes.
Responsible Author: Dr. Eduardo Kaiser Ururahy Nunes Fonseca
E-mail: edukaiser_unif@hotmail.com

PD.12.016
BEVACIZUMAB-INDUCED DIFFUSION RESTRICTION (BRIA) IN RECURRENT GBM: WHAT WE COULD EXPECT IN MRI FOLLOW UP
Institution: Instituto do Câncer do Estado de São Paulo - ICESP
Introduction and objectives: Anti-VEGF agents (bevaci-
zumab) could be used in the treatment of GBM. Thus, with the increasing use of antiangiogenic agents in the treatment of GBM, we are aware of the distinct imaging findings observed in patients treated with these drugs.

A phenomenon being characterized is the development of new diffusion restriction zones that persist throughout drug use in a part of patients with GBM after initiating therapy with bevacizumab. This finding was denominated Bevacizumab-Induced Diffusion Restriction (BRIA).

**Methods:** We evaluated the imaging aspects and clinical outcome of patients with recurrent GBM in use of bevacizumab who presented BRIA in the MRI studies.

**Discussion:** Previous studies have described BRIA in a subset of patients with malignant glioma. Histopathologic data from these studies showed “atypical gelatinous necrosis” in the regions of restricted diffusion rather than viable tumor. Based on standard MR imaging, differentiating these lesions from areas of viable tumor, which are also associated with restricted diffusion, remains challenging.

Some patients had BRIA in the parenchyma distant to tumor recurrence, and others diffusion restriction foci next to recurrent lesion. We have noticed patients with new diffusion restricted that correspond to tumor progression. These patients had a longer survival, more than 9 months after the first cycle of Bevacizumab.

**Conclusion:** Patient follow-up with recurrent GBM remain challenging. Knowing the image changes related to the use of antiangiogenic agent is important, since we can characterize new areas of restricted diffusion that do not correspond to tumor progression, but correspond to zones of treatment-related necrosis.

**Responsible Author:** Dra. Aline Sgnolf Ayres

**E-mail:** almesgnolf@yahoo.com

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**Summary:**

**PD.12.023**

**CONTRIBUTION OF MAGNETIC RESONANCE IMAGING IN THE DIAGNOSIS OF SPONDYLODISCITIS: PICTORIAL ESSAY**

**Authors:** TENÓRIO, L.P.; PESSOA, C.N.G.; LEMOS, L.A.; MARIZ FILHO, P.J.D.A C.; ARAUJO, M.A.N.; LINS, C.F.

**Institution:** DELFIN MEDICINA DIAGNÔSTICA/ HOSPITAL GERAL ROBERTO SANTOS/ ESCOLA BAHIANA DE MEDICINA E SAÚDE PÚBLICA/ FACULDADE DE MEDICINA DE RIBEIRÃO PRETO-USP

**Introduction and objectives:** Spondylodiscitis represents 2% to 4% of all cases of skeletal infections, presenting a bimodal distribution (pediatric and over 50 years population). An early diagnosis with appropriate treatment can prevent complications, such as vertebral collapse and spinal cord compression, avoiding surgical procedures. In children, an infection starts on the intervertebral disc; while in adults, the process begins in the vertebral plateau, going to the disc and finally affecting the vertebral body. The radiological diagnosis is based on the demonstration of this involvement. This study aims to characterize the findings of magnetic resonance imaging (MRI) in spondylodiscitis.

**Methods:** The selected cases of spondylodiscitis were obtained in the image files of two radiology services, involving infectious impairment of the intervertebral disc isolated, besides cases with disc involvement and vertebral plateaus / bodies, some with extension to the vertebral canal and posterior elements, others with dissemination to the perivertebral soft tissues, as well as abdominopelvic cavity.

**Discussion:** Spondylodiscitis is a very prevalent infection in our population, having increased its incidence in recent years. It can occur in any segment of the spine but is frequent in the lumbar region. It usually attacks one level but can involve multiple levels continuously or discontinuously. Radiography has low sensitivity for early findings and the first signs appear about two to four weeks after the onset of the infectious process. CT allows early identification of bone changes, but the gold standard is MRI, which also allows the distinction between the initial stages of spondylodiscitis and degenerative disc disease, as well as differentiating the infectious process from neoplastic involvement, as well as helping to identify the pathogen (pyogenic bacteria x tuberculosis). It is important that radiologist physicians can recognize the imaging patterns, facilitating diagnosis and avoiding inherent complications from the infectious processes in the spine itself, as well as in establishing extension of the involvement for adjacent structures.

**Conclusion:** This way, the didactic and educational value of this trial can be noticed, allowing the identification and description of the findings of spondylodiscitis by MRI.

**Responsible Author:** Dra. Carolina Freitas Lins

**E-mail:** kerolins@yahoo.com.br

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**Summary:**

**PD.12.027**

**MAGNETIC RESONANCE IMAGING MAIN FINDINGS OF ARBOVIRUSES IN ADULTS**

**Authors:** PESSOA, F. M. C.; GALHEIGO, D.; HYGINO, C.

**Institution:** HOSPITAL DAS AMÉRICAS, DASA

**Introduction and objectives:** Arboviruses represent important causes of neurological disease in the world, potentially transmissible in travel. Different forms of central nervous system involvement have been described, both in the brain and spinal cord. The aim of this article is to review the magnetic resonance imaging findings in adults afflicted with arbovirus family viruses.
Methods: We reviewed the digital file of our institution and retrospectively evaluated the patients presenting as final diagnosis Zika, West Nile fever, Saint Louis encephalitis, Chikungunya and Japanese encephalitis. All patients underwent MRI examinations of the brain and cervical, lumbar and mediastinal spinal cord in 1.5 T (Aera, Siemens) and 3T (Skyra, Siemens) devices and following clinical protocols that included conventional sequences before and after venous administration gadolinium.

Discussion: The main imaging findings included hypersignal T2 and FLAIR in the base nuclei, in the middle cerebral peduncles, especially in the projection of the corticospinal tract. Some patients with Saint Louis encephalitis exhibited hyperintensity in substance nigra. Signal increase in T2 and FLAIR in the anterior horns and in the central portion of the marrow was observed in the medulla, in addition to thickening and contrast enhancement in the dorsal and lumbar emergent roots.

Conclusion: Although the neuroimaging findings in the brain and medulla by the arboviruses are not pathognomonic, many are quite suggestive, and the radiologist should be prepared for diagnosis.

Responsible Author: Dra. FERNANDA MIRALDI CLEM-ENTE PESSÔA
E-mail: fernandamiraldi@gmail.com

PD.12.028
THE USE OF MAGNETIC RESONANCE IMAGING IN THE POSTOPERATIVE FOLLOW-UP OF HIGH-GRADE INTRACRANIAL NEOPLASMS
Authors: PESSÔA, F. M. C.; GALHEIGO, D.; HYGINO, C.
Institution: HOSPITAL DAS AMÉRICAS, DASA
Introduction and objectives: This study aims to present the magnetic resonance imaging (MRI) aspects found in the postoperative follow-up of patients with high-grade gliomas, based on drug therapy and radiotherapy, ranging from tumor recurrence to radionecrosis.

Methods: We reviewed the digital file of our institution and retrospectively evaluated the patients presenting as final diagnosis of high grade glioma. All patients underwent MRI scans on 1.5 T (Aera, Siemens) and 3T (Skyra, Siemens) devices and following clinical protocols that included conventional sequences before and after intravenous administration of gadolinium, as well as advanced diffusion, perfusion and proton spectroscopy.

Discussion: Radiation therapy induces the process of radionecrosis, observed about 3 months after its end; the use of corticosteroids reduces edema and contrast enhancement; antiangiogenic therapy will reduce local blood volume observed at the infusion (VB); the diffusion to the restriction can occur both in local recurrence and in foci of radionecrosis; proton spectroscopy enters as adjuvant criterion and reveals elevated levels of lipid / lactate either by radionecrosis or tumor necrosis, as well as high choline, which may evidence high turn-over cell. As well.

Conclusion: The MR evaluation is done both by conventional and functional means through the study of diffusion and perfusion, with the possible help of proton spectroscopy. MRI of the first 24 postoperative hours is indicated for identification of residual tumor, since after this period there will be contrast enhancement related also to postoperative inflammatory changes. The clinical history of the patient in association with the adequate interpretation of the imaging findings in MRI is definitive in the direction of the operated patient, especially with high grade glioma.

Responsible Author: Dra. FERNANDA MIRALDI CLEM-ENTE PESSÔA
E-mail: fernandamiraldi@gmail.com

PD.12.029
INTRACRANIAL VASCULITIS: THE USE OF MAGNETIC RESONANCE IMAGING WITH CONVENTIONAL AND ADVANCED TECHNIQUE FOR VASCULAR WALL STUDY (VESSEL WALL)
Authors: PESSÓA F. M. C.; NEVES, P.; HYGINO, C.
Institution: HOSPITAL DAS AMÉRICAS, DASA
Introduction and objectives: Accurate diagnosis of intracranial vasopathies is crucial in therapeutic targeting. Conventional techniques magnetic resonance imaging (MRI) in the evaluation of vasopathies help in the main findings of brain parenchyma, although limited for the evaluation of the inflamed lumen. The advanced technique for vascular wall study by MRI allows better characterization of parietal affections, especially with the "black-blood" technique, in which suppression of the blood signal allows better characterization of the compromised wall.

Methods: The digital file of our institution was reviewed and retrospectively evaluated by two neuroradiologists. The study included patients who presented Moya Moya’s disease, syphilis and autoimmune vasculitis as the final diagnosis. All patients underwent MRI scans on 1.5 T (Aera, Siemens) and 3T (Skyra, Siemens) devices and following clinical protocols that included conventional and advanced sequences such as vessel wall study through the T1 sequence with fat suppression using the "black-blood" technique.

Discussion: The main findings were cortico-subcortical infarcts and in the posterior fossa, hematic residue and superficial siderosis, thickening and parietal enhancement by gadolinium. The study with the "black-blood" technique allowed a more accurate evaluation of the contrast enhancement as well as the other associated inflammatory components.

Conclusion: The study of the vascular wall by MRI, especially with the "black-blood" technique, allows a better accuracy in the evaluation of the different affections of the vascular wall and its differential diagnoses.

Responsible Author: Dra. FERNANDA MIRALDI CLEM-ENTE PESSÔA
E-mail: fernandamiraldi@gmail.com

PD.12.040
MODIC TYPE I X SPONDYLODISCITIS: A DIAGNOSTIC DILEMMA.
Authors: VARANDAS, E.A.; RIVERO.; R.L.M.; NUNES R.H.; PACHECO,F.T.; ROCHA A.J.
Institution: Grupo DASA - Delboni Auríem Medicina Diagnóstica.
Introduction and objectives: To investigate the value of magnetic resonance imaging (MRI) to distinguish abnormalities of the lumbar intervertebral spaces, in particular related to adjacent endplate changes, and make the differential diagnosis of spinal infection and degenerative disc disease.

Methods: The imaging studies and clinical data of patients referred for lumbar spinal MR imaging were retrospectively reviewed to select patients with MRI imaging abnormalities of the lumbar intervertebral spaces with no clinical or laboratorial signs of infection and patients with clinical and laboratorial confirmed discitis/osteomyelitis. We also performed a search in MEDLINE and PUBMED database looking for "spondylodiscitis", "Modic type I" and "endplates" to make a review from the current literature and describe the physiologic processes that result in spondylodiscitis or degenerative disc disease and how they can contribute to MRI imaging findings.

Discussion: Degenerative spinal disorders with an inflammatory component may mimic spinal infections and it is crucial
to differentiate them from infectious spondylodiscitis. Modic type I degenerative endplates changes can mimic infectious spondylodiscitis because of endplate bone marrow edema with areas of contrast enhancement. However, lack of abnormally increased signal in the disc on T2-weighted images and lack of soft tissue involvement, including epidural abscess, makes a degenerative disease more probable than an infectious disease. When infection is suspected, sometimes is hard to differentiate between tuberculous and pyogenic spondylodiscitis. A lack of proteolytic enzymes in Mycobacteria infections in comparison with pyogenic infections can be the explanation for a history of chronic disease and insidious progression and can cause a relative preservation of the intervertebral disc. At last, current publications have highlighted the use of MR diffusion, that can help to distinguish infectious processes from degenerative disease.

**Conclusion:** Knowledge of the clinical features and pathophysiology underlying degenerative and infectious abnormalities of the spine can help to analyse MR images trying to differentiate infectious spondylodiscitis from other pathologies which can mimic it (Modic type I endplate changes related to degenerative process). Modern MRI techniques can help in the differential diagnosis, too.

**Responsible Author:** Dr. EDUARDO VARANDAS

**E-mail:** EDUARDOVARANDAS@OUTLOOK.COM

**PD.12.049**

**IMMUNOMODULATORY DRUGS AND NEUROTOXICITY: CLINICAL MANIFESTATIONS AND ASPECTS OF IMAGING.**


**Institution:** BP - Hospital Beneficência Portuguesa de São Paulo

**Introduction and objectives:** Immunomodulatory drugs (IMiDs) are currently used in the treatment of different types of cancers. Among the observed adverse effects, we highlight central and peripheral neurotoxicity.

**Purpose:** The present study aims to describe clinical manifestations and imaging aspects of induced neurotoxicity by immunomodulatory drugs.

**Methods:** Approach/Methods: Discuss several cases of patients suffering from neurotoxicity by Immunomodulatory drugs before and after the initial of the treatment.

**Discussion:** Discussion: Pharmacological and cellular treatment of cancer is changing dramatically with benefits for patient outcome and comfort, but also with new toxicity profiles. Immunomodulatory drugs (IMiDs) are a class of antineoplastic drugs widely used, that can trigger neurotoxicity. Chemotherapy-induced neurotoxicity can affect the peripheral, the autonomic, or the central nervous system. The most common form is peripheral neuropathy, which manifests with hypoesthesia (numbness), paresthesia (tingling, pins and needles, or a limb falling asleep), and hyperesthesia (pain), often in a stocking and glove distribution. Other adverse effects include encephalopathy, cerebellar alteration, disturbed consciousness, seizures, demeatalike amnesia, expressive aphasia, dysarthria, lethargy, reversible coma, intratumoral hemorrhage, bleeding, cerebrovascular events, PRES, radiation necrosis.

**Conclusion:** Conclusion: During the past years, many new compounds have been introduced in clinical cancer treatment, and cellular therapy is a highly dynamic evolving field. However, physicians have also been faced with new side effects associated with these approaches. An increased awareness of central neurotoxicity as a possible side effect of IMiD therapy, along with early recognition is essential for a better therapeutic planning.

**Responsible Author:** Biom. Tayu Pereira Morimoto

**E-mail:** tauy_morimoto@yahoo.com.br

**PD.12.053**

**SPINAL CORD LESIONS: A PATTERN APPROACH.**

**Authors:** AMANCIO T. C.; BRASIL R.; KLEINA W. W.; CAVALCANTE G. M.; GUERREIRO N. F. C.; SOUSA A. O. A.; CERRI G. G.; LEITE C. C.; GODYO L. F. S.

**Institution:** Hospital Sirio Libanes

**Introduction and objectives:** The intramedullary lesions are commonly found in the daily practice, but are rarely evaluated in a systematic manner. The radiologist, therefore, must know how to deal with a number of possible diagnosis despite not being a specialist in magnetic resonance imaging (MRI) of the spine (modality of choice). This pictorial essay presents a systematic (step-by-step) approach to the differential diagnosis of intramedullary spinal cord lesions identified on MRI and other advanced methods.

**Methods:** This pictorial essay illustrates with schematizations of the spinal cord anatomy, vascularization and the most characteristic patterns of involvement for each group of diseases. A number of steps will guide and help in the pattern recognition. In addition, we will add images of cases acquired at our institution through MRI and other advanced methods to illustrate this essay and enhance its understanding.

**Discussion:** By answering a few questions and following the steps here proposed, the radiologist should be able to narrow the many possible types of spinal cord involvements (demyelinating, infectious, idiopathic inflammatory, vascular, metabolic, adverse effects of tumoral treatment, tumoral lesions and meningal pathologies). The questions in step 1 (how to differentiate a tumoral from non-tumoral injury) assesses the spinal cord expansion, cystic component and axonal fibers displacement, whereas the steps 2 and 3 guide us through the longitudinal extension and the pattern of involvement (anterolateral or posterior funiculi).

**Conclusion:** The adequate characterization of the spinal cord disease is crucial to determine the early treatment; hence, the radiologist should be attentive to the main patterns and aid the physician distinguishing between the possible spinal cord involvements. This process becomes easier and standardized when the radiologist follows the steps and answers the questions accordingly.

**Responsible Author:** Dr. roberto brasil

**E-mail:** robertobrasilmedicina@gmail.com

**PD.12.057**

**HOLOPROSENCEPHALY SPECTRUM VERSUS HOLOPROSENCEPHALY AND RELATED DISORDERS: LOOKING FOR SOMETHING ELSE**

**Authors:** SANTOS, R.M.; LEMOS, M.D.; ALVES, C.A.P.F.; GODYO, L.F.S.; LUCATO, L.T.; LEITE, C.C.

**Institution:** FACULDADE DE MEDICINA DA UNIVERSIDADE DE SÃO PAULO

**Introduction and objectives:** Holoprosencephaly (HPE) is a severe brain malformation characterized by abnormal cleavage of the prosencephalon in the 5th gestational week. HPE is considered the most common malformation of the brain and face in humans. The objective of this presentation will be shown imaging features of "classic" HPE spectrum and also HPE with other unusual abnormalities, for us so-called Holoprosencephaly and Related Disorders (HPERD).
**Methods:** This is a retrospective pilot study with 15 patients retrieved from our database diagnosed with HPE between January 2013 and December 2017. Patients were subdivided according to HPE subtype (i.e., alobar, semilobar, and lobar) and also redivided into subgroups "pure" HPE or HPERD.

The images were obtained on magnetic resonance imaging (MRI) and computed tomography (CT) of 64 channels.

**Discussion:** The HPE spectrum classically includes alobar, semilobar, and lobar forms, although there are no clear-cut defining all features and should be considered, in a better way, a spectral disorder. The middle interhemispheric variant (MIH), also known as syntelencephaly, is classified as a variant of HPE with midline interhemispheric fusion. Other conditions sometimes included in the spectrum of HPE include septo-optic dysplasia (SOD); “minimal” HPE, which is associated with subtle craniofacial malformations and mild developmental delay; and microform HPE, which by definition excludes brain involvement. Although HPE is a disorder of prosencephalic (forebrain) cleavage, midbrain, cerebellar, and brainstem anomalies such as rhombencephalosynapsis have been described as well. Subcortical heterotopia occurs in approximately 4% of patients with “classic” HPE but is much more frequent in the MIH variant.

**Conclusion:** HPE represents a wide malformation with complex features. Furthermore, many potential disorders may be correlated (HPERD) impairing the patient prognosis. Despite their low incidence, abnormalities linked to HPE must be proactively scrutinized and prompt recognized by the radiologist.

**Responsible Author:** Dr. Ramón Moura dos Santos

**E-mail:** ramonmoura64@gmail.com

**PD.12.074**

**THE ROLE OF MAGNETIC RESONANCE AND VENOUS ANGIORESSONANCE IN THE EVALUATION OF PATIENTS WITH IDIOPATHIC INTRACRANIAL HYPERTENSION: PICTORIAL ESSAY**

**Authors:** ROCHA, L.M.; BOMFIM, R.C.; OLIVEIRA, D.L.; OLIVEIRA, G.C.S.O.; TENORIO, R.A.M.

**Institution:** Hospital Memorial Arthur Ramos, Maceió, Alagoas, Brasil

**Introduction and objectives:** Idiopathic intracranial hypertension (IIH) is a syndrome related to increased CSF pressure in the absence of ventricular dilatation, meningeit, venous thrombosis or intracranial expansive lesion. There is a prevalence of this disease in obese middle-aged women, but older men who are not susceptible to obesity can also be affected. Headache and visual disturbances are among the major clinical presentations, but some patients exhibit pulsatile tinnitus, ocular pain and scotomas. Upon neurological examination of these patients, there is usually no significant change except for the presence of papilledema and eventually paralysis of the IV cranial nerve. Because of a nonspecific clinical presentation, diagnosis is therefore not always achieved. In this trial, we will describe cases of patients with IIH in whom the findings by magnetic resonance and venous angioresonance provided subsidies for their diagnosis, as well as the normalization of the findings after the stabilization of the CSF pressure.

**Methods:** Magnetic resonance and venous angioresonance images were selected in patients with IIH, highlighting the main findings and alterations found before and after the specific treatment.

**Discussion:** Computed tomography and magnetic resonance imaging of the skull are essential in patients with intracranial hypertension, in order to exclude other causes, such as neoplasias, venous thrombosis or hydrocephalus. In the absence of a causal factor, magnetic resonance and angioresonance give subsidies / clues to reach the diagnosis of IIH. The main findings by imaging include: empty sella; distension of the sheath and tortuosity of the optic nerves; protrusion of optical discs; rectification of the posterior margin of the eyeballs; prominence of the Meckel cavus; stenoses of the lateral segments of the transverse sinuses; slit ventricles; inferior innuendo of the cerebellar tonsils, mimicking Chiari malformation.

**Conclusion:** The knowledge of magnetic resonance findings in patients with intracranial hypertension serves as a basis for their diagnosis in the absence of an etiological factor.

**Responsible Author:** Dra. LAIS DE MACEDO ROCHA

**E-mail:** lais_macedo@hotmail.com

**PD.12.069**

**INJURIES ACCOMPLISHING CORTICOSPINAL TRACT IN ADULT: IMAGE ASSESSMENT OF THE MAIN DIFFERENTIAL DIAGNOSES.**

**Authors:** VENDRAMINI, DFV; GUERREIRO, NFC; COSTA, FLS; FILHO, J.P.M; CAVALCANTE, G.M.; DOCEMA, M.F.L; GODOY, L.F.S; LEITE, CC.

**Institution:** Hospital Sírio Libanês, São Paulo.

**Introduction and objectives:** The corticospinal tract is the most important neural tract for motor function in the brain. It is a descending neural pathway that extends from the primary motor cortex in the pre-central gyrus to synapse through the lateral and anterior fascicles with spinal motor neurons. The lesions of the corticospinal tract rarely occur in isolation, but are involved in numerous pathologies such as demyelinating, ischemic, metabolic, degenerative diseases among others, and the correct clarification of the lesions would be an important topic in elucidating the diagnosis, early treatment when possible and rehabilitation of patients.

This pictorial essay aims to facilitate the understanding of radiologists by demonstrating through magnetic resonance imaging (MRI) the anatomy and the main diseases that can affect the corticospinal tract.

**Methods:** We will illustrate in a pictorial essay based on cases using images acquired at our institution through magnetic resonance imaging (MRI), the main differential diagnoses related to lesions that affect the corticospinal tract.

**Discussion:** In order to perform the differential diagnosis more safely, it is important that the radiologist is able to distinguish the small differences in the patterns of involvement of the corticospinal tract, since the appropriate treatment depends on the correct image interpretation avoiding possible deleterious effects to the patient.

**Conclusion:** Correct knowledge of the anatomy of the corticospinal tract, as well as of the various pathologies that may affect this region, is essential, trying to subdivide them into the main groups of diseases, since the treatment differs in these categories. MRI is the main tool in guiding the conduct the neurologist will take.

**Responsible Author:** Dra. Daniela Ferreira Vieira Vendramini

**E-mail:** damifiveira321@gmail.com

**PD.12.078**

**FINDINGS IN HEAD AND NECK AND IN NEUROIMAGING IN CHARGE SYNDROME: PICTORIAL ESSAY**

**Authors:** ROCHA, L.M.; BOMFIM, R.C.; OLIVEIRA, D.L.; OLIVEIRA, G.C.S.O.; TENORIO, R.A.M.

**Institution:** Hospital Memorial Arthur Ramos, Maceió, Alagoas, Brasil

**Introduction and objectives:** CHARGE is an English acronym used to describe a syndrome characterized by disorders
of the head and neck, heart, genitourinary tract and central nervous system. C: coloboma; H: heart defects; A: choanal atresia; A: mental retardation; G: genital hypoplasia; E: ear abnormalities / deafness. It is believed that these defects occur due to a disturbance in embryo differentiation around 35 to 45 days of gestation. The diagnosis of CHARGE syndrome is definitive when the patient presents four major criteria or three major criteria added to three minor ones, and is considered possible / probable when presents one or two major criteria plus several minor criteria. The major criteria include coloboma; choanal atresia; cranial nerve dysfunction; dysfunction of the ear (external atresic ear, malformation of the ossicle chain, Mondini's malformation; absence or hypoplasia of the semicircular canals, minor criteria include genital hypoplasia, developmental delay, congenital heart disease, short stature, cleft lip / palate, In this pictorial essay, we will demonstrate a large part of the findings of the CHARGE Syndrome, thus providing subsidies for its diagnosis.

**Methods:** Magnetic resonance imaging (MRI) images were selected in patients with CHARGE syndrome, highlighting the main findings in head and neck imaging and neuroimagining.

**Discussion:** The differential diagnosis of pediatric patients with developmental delay may be a challenge for the neuroradiologist. We present here the main findings of magnetic resonance imaging in the detection of CHARGE syndrome.

**Conclusion:** Magnetic resonance imaging is an essential diagnostic tool in the evaluation of CHARGE syndrome, since it may suggest the diagnosis through the recognition of some neuroimaging patterns.

**Responsible Author:** Dra. LAIS DE MACEDE ROCHA
E-mail: lais_macedo@hotmail.com

**PD.12.082 CRANIAL NERVE ENHANCEMENT – THE VICTIM OF A BROAD GROUP OF DISORDERS**

**Authors:** RIBEIRO, T.P.; RIVERO, R.L.M.; FRAGOSO, D.C.; NUNES, R.H.; PACHECO, F.T.; ROCHA, A.J.

**Institution:** Diagnósticos da América - DASA

**Introduction and objectives:** MRI is an important tool for evaluating cranial nerves diseases. Endogenous gadolinium administration increases the detection of these abnormalities. Cranial nerve enhancement can be seen in a variety of entities, including neoplastic, infectious, demyelinating, and idiopathic diseases. This presentation aims to review the MR appearance of cranial nerve enhancement in a broad differential diagnosis.

**Methods:** A retrospective analysis from our institution database was performed for selection of cases demonstrating abnormal cranial nerve enhancement. The acronym VICTIM was adopted for classifying according with its main etiologic group.

**Discussion:** Cranial nerves do not enhance physiologically, due to the presence of a blood-nerve barrier. This barrier is mainly maintained by the action of tight junctions present in the endothelium of the endoneural capillaries and in the inner layers of the perineurium. However, exceptions are considered. Moderate enhancement of the facial nerve may occur on its geniculate, tympanic, and mastoid segments by an increase of vascular pool of contrast material. Pathological cranial nerve enhancement is caused by disruption of the blood-nerve barrier, allowing leakage and accumulation of contrast material. There is a broad range of conditions related to this finding. Herein, we discussed the main etiologies conditions and preponderant findings: vascular – isquemic ophthalmopathy; infectious – tuberculosis, cryptococosis, bordetella; congenital – Krabbe disease; tumour – schwannoma, glioma, metastasis; inflammatory demyelinating – multiple sclerosis; and metabolic.

**Conclusion:** It is crucial for the radiologist the knowledge about etiologic causes of cranial nerve enhancement, as well as the main associated findings for the definitive diagnosis.

**Responsible Author:** Dr. Thiago Parolo Ribeiro
E-mail: tparolo@gmail.com

**LITERATURE REVIEW**

**SCIENTIFIC PAPERS - POSTERS (PA)**

**PA.12.005 DIFFUSION TENSOR IMAGE: EVALUATION OF THE CORPUS CALLOSUM AND CORTICOSPINAL TRACT IN PATIENTS WITH AMYOTROPHIC LATERAL SCLEROSIS.**

**Authors:** DAVID JUNIOR, O.; FRIGÉRIO, G.M.

**Institution:** Instituto de Radiologia – InRad-HCFMUSP

**Brief description(s) of the purpose(s) of the Literature Review:** Amyotrophic Lateral Sclerosis (ALS) is a progressive disease that affects upper and lower motor neurons. The problem for the precise diagnosis generated a need to identify the disease early. Thus, magnetic resonance imaging (MRI) emerges promisingly through Diffusion Tensor Imaging (DTI), which allows the study of the diffusion of water molecules in vivo, conforming to this diagnostic modality importance in the study of ALS based on the reduction of Fractional Anisotropy (FA). Evidence that FA is altered in the Corticospinal Tract (CST) and Corpus Callosum (CC) are widely studied and can provide relevant prognoses and diagnoses making DTI MRI a promising biomarker. Therefore, the objective is to verify the importance of MRI for DTI as a biomarker in the diagnosis of ALS using AF values in the CST and CC.

**Description(s) of disease(s), method(s) and/or technique(s):** Review of literature in the search PubMed database with keywords (Amyotrophic Lateral Sclerosis and DTI and MRI). The articles included, from the year 2000, used DTI techniques with calculation of the FA of the CST and CC.

**Discussion:** The literature reviewed comprises mostly case-control studies based on the El Escorial criteria and the use of non-concensual protocols with a varied number of directions for acquisitions. The reduction of FA in the CST was reported, basically, in all articles surveyed with reduction in one or several regions of the CST, as well as in the CC, where a reduction in the values of FA was noticed. Biomarkers appear to be well correlated with disease severity, duration, and progression, and are more sensitive in the motor regions of the brain. However, recent studies suggest low diagnostic accuracy as an independent test and measures of sensitivity and specificity are modest for the isolated diagnosis. It is interesting to note that there are no differences between field strengths of 1.5T and 3.0T for evaluation.

**Conclusion:** DTI should be combined with additional tests to be clinically relevant. Changes in CST and CC suggest a potential biomarker compared to conventional MRI protocols. Acquisitions with more directions, more longitudinal studies...
and with a larger number of participants are necessary besides confirmation of the disease by autopsy.

**Responsible Author:** Biom. Odair David Junior

**E-mail:** odjr@icloud.com

**PA.12.006**

**SEXUAL HORMONES AND ENCEPHALIC ALTERATION THROUGH MAGNETIC RESONANCE OPTIC: A LITERATURE REVIEW.**

**Authors:** SOUZA, L.E.A.; FIGUEIREDO, L.F.; MAIA, B.T.; MACHADO, J.P.S.

**Institution:** Hospital Ophir Loyola

**Brief description(s) of the purpose(s) of the Literature Review:** Gender identity is a matter of great debate nowadays. Political and scientific. The usage of sexual hormones to undergo gender transition is a common treatment for this condition and is in the center of various studies around the globe. Aiming that, the present paper analyzes recent papers that correlate hormonal treatment with encephalographic changes.

**Description(s) of disease(s), method(s) and/or technique(s):**

The review was made through research in PubMed indexed database. Were included papers from last five years of issue, using keywords as “transgender”, “hormone therapy”, “MRI” and “cerebral effects”. 10 relevant researches were selected which contained significant results related to the subject matter.

**Discussion:** The main investigation based in identification of common elements among the reviews. Considering the most feasible alterations through magnetic resonance (MRI) examination and volumetric analysis of brain gyrus and various structures such as putamen and amygdala. It was observed that the papers considered patients in transition from male to female (MTF) using mainly estradiol and, in some cases, progesterone; and female to male (FTM) using high testosterone doses. Among the studies, we observed volumetric differences between pre-treatment MTF and cisgender man as well as pre-treatment FTM and cisgender women, suggesting that the usage of sexual steroids increases these encephalic alterations. The most striking volumetric changes described in the papers were: hippocampal zone reduction in MTFs, because of ventricle growth; change in progesterone levels associated with changes in brain’s grey matter – providing crucial changes in memory and emotional processing zones; increase of median pre-frontal cortex thickness in FTM after treatment in comparison with individual mean before treatment.

**Conclusion:** Changes provided by hormonal therapy in transgender are remarkable. As well as its volumetric distinction in different zones with cisgender. Therefore, is of utmost importance the realization of new researches to obtain more accurate conclusions. Likewise, with development of new encephalic volumetry softwares, we may be able to obtain more specific detail with posterior improvement of encephalic alterations in transgender patients.

**Responsible Author:** Dr. Luis Eduardo Almeida de Souza

**E-mail:** luisd_souza@hotmail.com

**SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)**

**PD.12.009**

**VOLUMETRIC EVALUATION OF THE CEREBRAL CORTEX BY MAGNETIC RESONANCE IN ACTION ELECTRONIC PLAYERS**

**Authors:** CLERRIS, J.R.; NOBESCHI, L.; MUNHOZ, B.N.S.; GOTO, R.E.; MELO, H.J.F.

**Institution:** Faculdade de Ciências Médicas da Santa Casa de São Paulo

Universidade Nove de Julho

**Brief description(s) of the purpose(s) of the Literature Review:** The learning process results in brain impact positively, in the sense of promoting neuroplasticity. With technological advancement, electronic games have spread widely, especially the subgenre of action, requires concentration, focus and high reflexes, as well as spatial notion and ability to cope with several events simultaneously. The objective of the present study is to search for scientific data related to the use of magnetic resonance imaging (MRI) as a tool to evaluate the increase in gray matter volume using the Voxel Based Morphometry (VBM) technique.

**Description(s) of disease(s), method(s) and/or technique(s):** We performed a literature review using the PRISMA checklist. The articles were compiled from the Scielo database. Key words: Electronic action games, cerebral cortex, magnetic resonance, Morphometry Based on Voxel (VBM), brain, gray matter.

**Discussion:** The studies show that the practice of electronic games results in the development of gray matter in different regions of the cerebral cortex, such as the posterior-posterior region of the parietal cortex, occipital region, hippocampus and insular cortex with its subregions, an increase in functional connectivity between neurons.

**Conclusion:** Based on the results it is suggested that it is possible to promote neuroplasticity in certain brain sites related to the practice of electronic games.

**Responsible Author:** Biom. Homero Melo

**E-mail:** homerorm@gmail.com

**PD.12.010**

**HALF-FOURIER ACQUISITION TURBO SPIN-ECHO (T2 HASTE) TECHNIQUE IN MAGNETIC RESONANCE AS A COMPLEMENTARY DIAGNOSIS METHOD IN CASES OF ANENCEPHALIA**

**Authors:** SOUZA, L.A.P.; NOBESCHI, L.; MUNHOZ, B.N.S.; GOTO, R.E.; MELO, H.J.F.

**Institution:** Faculdade de Ciências Médicas da Santa Casa de São Paulo

Universidade Nove de Julho

**Brief description(s) of the purpose(s) of the Literature Review:** In some regions of Brazil malformations are considered the leading cause of neonatal death. CNS malformations are some of the most common congenital abnormalities, with a high incidence, with incidence ranging from 5 to 10 to 1000 live births, the second being after cardiac malformations and with great possibility of prenatal diagnosis. Ultrasound (US) is always the primary and initial method of choice for the diagnosis, and a reevaluation is necessary to close the report. The use of fetal magnetic resonance imaging is indicated because it allows a more detailed and conclusive evaluation. The brain is affected more frequently than other organs during intrauterine life. Anencephaly and spina bifida account for about 90% of cases. The aim of the study is to present the applicability and indications of MR in the complementary diagnosis to US in cases of anencephaly, highlighting the advantages and disadvantages of the method used in order to establish changes in medical conduct.

**Description(s) of disease(s), method(s) and/or technique(s):** We performed a literature review using the PRISMA checklist. The articles were compiled from the Scielo database.
APPLICATION OF MAGNETIC RESONANCE NEURONAVIGATION IN THE AID OF SURGICAL PLANNING IN LOW-GRADE GLIOMAS

Authors: KISHI, R.M.; NOBESCHI, L.; MUNHOZ, B.N.S.; GOTO, R.E.; MELO, H.J.F. 
Institution: Faculdade de Ciências Médicas da Santa Casa de São Paulo 
Universidade Nove de Julho

Brief description(s) of the purpose(s) of the Literature Review: According to the World Health Organization, tumors called gliomas account for 27% of cases of brain tumors diagnosed and 80% of all malignant tumors. Among tumors considered primary, the gliomas are the most frequent tumors of the cerebral parenchyma. Gliomas can be treated in different ways, immunotherapy, radiotherapy, chemotherapy, surgical resection and various combinations of these methodologies. Because various problems related to chemotherapy and radiotherapy represent options that often lead to patient, physical and psychological wear and tear. Thus, surgical resection presents as a promising method for low grade gliomas, however, because they have a diffuse characteristic, it makes their complete removal difficult. This work aims to review the efficiency of magnetic resonance imaging in the planning of surgical procedures in the extraction of low-grade gliomas next to neuronavigation.

Description(s) of disease(s), method(s) and/or technique(s): We performed a literature review using the PRISMA checklist. The articles were compiled from the Scielo database. We used the keywords: magnetic resonance, gliomas, neuronavigation.

Discussion: The structure mapping is performed through matrices, from which coordinates of points established between the structure and the image correspond to the respective quotient, this operation promotes the relationship between the image and the anatomical structure. The data generated by magnetic resonance in a virtual space, constructing three-dimensional images, which will define the limits of the structure to be worked, highlighting the reference points, such as pathological processes, tumors, spills, necroses, because it facilitates the visualization of the structure in the three axial, coronal and sagittal dimensions. Thus, the recovery of the patient to the procedure is faster because of the minimally invasive approach, as well as reducing the incidence of infections and neurological damage, by allowing the surgeon to determine the boundaries that the lesion establishes with the structure and, therefore, with more accuracy, discriminating the neighboring healthy structures.

Conclusion: The magnetic resonance inserted as a tool for neuronavigation is efficient in all diagnostic procedures, as well as in surgical procedures, effectively reducing the consequences of injuries in neighboring structures in the removal of the damaged structure. 

Responsible Author: Biom. Homero Melo 
E-mail: homerorm@gmail.com

PD.12.012

THE IMPORTANCE OF MAGNETIC RESONANCE IN THE DIAGNOSIS OF NEUROTOXOPLASMOsis

Authors: SILVA, I.B.; NOBESCHI, L.; MUNHOZ, B.N.S.; GOTO, R.E.; MELO, H.J.F. 
Institution: Faculdade de Ciências Médicas da Santa Casa de São Paulo 
Universidade Nove de Julho

Brief description(s) of the purpose(s) of the Literature Review: Toxoplasmosis is a disease that affects 50-80% of the Brazilian population, depending on the region studied. In immunocompetent individuals, there are rare cases where there are symptoms that appear when they occur in adulthood, and in most cases the disease is asymptomatic. When neurotoxoplasmosis (NT) brain lesions, seen in radiological examinations, may appear in immunocompromised patients due to the host's immune response with anti-toxoplasma antibodies. Magnetic resonance imaging (MRI) allows visualizing changes in the white matter due to HIV-related encephalitis, localizing lesions, which may go unnoticed by computed tomography. The definitive diagnosis is made through the demonstration of tachyzoites in the brain biopsy. Due to the impossibility of routinely submitting patients to this invasive procedure, the empirical institution of specific antitoxoplasma therapy is admitted in the presence of multiple radiological contrast-enhancing lesions observed in MRI associated with positive serological results for antitoxoplasma antibodies. The objective of the study was to demonstrate, through the literature review, the importance of MRI for the NT diagnosis.

Description(s) of disease(s), method(s) and/or technique(s): We performed a literature review using the PRISMA checklist. The articles were compiled from the Scielo database. Key words: Neurotoxoplasmosis, cerebral toxoplasmosis, magnetic resonance imaging.

Discussion: MRI although it has a high sensitivity to detect these focal lesions, even greater than CT, does not have good specificity to define its etiological diagnosis. NT lesions after intravenous contrast administration may show nodular enhancement, and it is described in several articles that neurotoxoplasmosis lesions present hypersignal in T1 and hyposignal in T2, and the justification accepted by most is that there are paramagnetic free radicals that shorten T1 in these lesions. It is expected that in MRI these lesions present peripheral enhancement, in this area an intense inflammatory reaction is found. Thus, MRI is a non-specific technique where many features of the images can be confused with other cranial diseases such as lymphomas, and it is necessary to associate other diagnostic techniques.

Conclusion: We can conclude that MRI is a complementary and very important diagnostic method of neurotoxoplasmosis. 

Responsible Author: Biom. Homero Melo 
E-mail: homerorm@gmail.com
PD.12.013

EARLY TOMOGRAPHIC SIGNS IN THE DIAGNOSIS OF ISCHEMIC ENCEPHAL VASCULAR ACCIDENT

Authors: CAMARGO, S.D.; NOBESCHI, L.; MUNHOZ, B.N.S.; GOTO, R.E.; MELO, H.J.F.

Institution: Faculdade de Ciências Médicas da Santa Casa de São Paulo. Universidade Nove de Julho

Brief description(s) of the purpose(s) of the Literature Review: The ischemic cerebrovascular accident (EVA) is the most frequent, occurring when there is obstruction of the blood supply of a certain cerebral area. In general, ischemia is of thrombotic origin, usually by atherosclerosis, or embolic, when thrombi of cardiac or arterial origin, such as the carotid, migrate to the encephalic arteries. The diagnosis of stroke is fundamental for decision making in order to avoid future and permanent risks for the patient. The evolution of CT equipment provided within the radiographic study and medicine a great advance to diagnose several pathologies that until a few years ago there was a need for evasive procedures to be able to give the diagnosis of the user. The present study seeks to perform a review on the importance of Computed Tomography (CT), for the early evaluation in the diagnosis of stroke.

Description(s) of disease(s), method(s) and/or technique(s): We performed a literature review using the PRISMA checklist. The articles were compiled from the Scielo database. Keyword (s): Ischemic Stroke,Computed Tomography, Diagnostic.

Discussion: The standard technique of investigation of the AVE is the CT, allowing a non-invasive, fast and accurate evaluation, the signs detected in computed tomography include, cerebral edema, mass effect and the loss of gray matter contours, in some cases it can be observed , a hyperdense focus at the level of the middle cerebral artery, to the detected ischemic lesions, assumes visualization of the hypodensity of the parenchyma occurring after cytotoxic edema caused by lactic acidosis and also iron deficiency at the level of the cell membrane due to a source of ATP inadequate.

Conclusion: CT has assumed fundamental importance in the field of image diagnosis, since it is a fast and high specificity method for stroke. In addition to being non-invasive, this method allows better visualization of the disease, and therefore should be further explored and understood by professionals.

Responsible Author: Biom. Homero Melo

E-mail: homerorm@gmail.com

PD.12.014

APPLICATION OF FETAL MAGNETIC RESONANCE IN THE EVALUATION OF MALFORMATION OF THE VEAL OF GALENO

Authors: BRITO, B.T.A.; NOBESCHI, L.; MUNHOZ, B.N.S.; GOTO, R.E.; MELO, H.J.F.

Institution: Faculdade de Ciências Médicas da Santa Casa de São Paulo. Universidade Nove de Julho

Brief description(s) of the purpose(s) of the Literature Review: Morphological alterations of the central nervous system have been reported with high prevalence, affecting 1 to 2 children for every 1000 live births. Since the last decade fetal magnetic resonance has been used as a diagnostic tool in some clinical indications, such as in the case of aneurysmal malformation of the Galenian vein, resulting from arteriovenous fistula formations between the choroidal circulation and the median prosencephalic vein embryonic precursor of the vein of Galen) that becomes dilated. The purpose of the present study was to demonstrate the applicability of MRI to the diagnosis of fetal vascular malformation.

Description(s) of disease(s), method(s) and/or technique(s): We performed a literature review using the PRISMA checklist. The articles were compiled from the Scielo database. We used to search the keywords: Vein of Galen. Fetal. Brain. Fetal magnetic resonance imaging.

Discussion: Galen vein malformation has a low incidence of less than 1% of all congenital cerebral vascular malformations, and 30% of pediatric age, but high morbidity and mortality, and appropriate prenatal monitoring and diagnosis is necessary. The most commonly used sequences are T1-weighted and T2-weighted. However, as much as these two sequences were efficient in the anatomical evaluation of the fetus, the quality was limited due to the acquisition delay, so the ultrafast sequences were developed, such as the Half-Fourier single-shot turbo spin echo ) and echo planar sequence (EPI).

Conclusion: Magnetic resonance imaging promotes a better evaluation of possible complications, such as lesions caused by cerebral parenchyma hemorrhage, ventriculomegaly, calcifications and cerebral parenchyma atrophy.

Responsible Author: Biom. Homero Melo

E-mail: homerorm@gmail.com

PD.12.035

CURRENT EVALUATION OF DIFFUSE AXONAL INJURY BY DIFFUSION TENSOR IMAGING

Authors: GRASSI, D. C., CONCEICAO, D. M., LEITE, C.C., ANDRADE, C.S.

Institution: Faculdade de Medicina da Universidade de São Paulo (HCFMUSP)

Brief description(s) of the purpose(s) of the Literature Review: Traumatic brain injury (TBI) is still a major public health problem worldwide because of its high prevalence, morbidity and mortality rates. Diffuse axonal injury (DAI) is present in nearly 50% of all cases that require hospital admission. Nevertheless, the DAI findings are frequently subtle in conventional neuroimaging studies. Diffusion tensor imaging (DTI) plays an important role because it provides further information on white matter (WM) integrity that is not obtained with standard sequences of magnetic resonance imaging (MRI). In view of this, we aim to review the current contribution of diverse up-to-date DTI analytical methods to the understanding of DAI pathophysiology and prognosis.

Description(s) of disease(s), method(s) and/or technique(s): A comprehensive search in Pubmed was performed using the following keywords: “traumatic brain injury”, “diffuse axonal injury”, and “diffusion tensor imaging”. Herein, we discuss the basic principles, advantages and caveats of each main DTI analytical method, along with the relevant findings of recent DTI studies in TBI patients.

Discussion: Different methods are available to analyze DTI data. In region-of-interest (ROI) analysis, diffusion parameters are obtained from a pre-determined area of the brain (Figure 1). ROI studies indicate that changes in water diffusion anisotropy do occur in DAI, and these changes may be considered as biomarkers of severity of tissue injury and predictors for patient’s outcome. Tractography permits the parcelation of WM, which may be particularly useful in anatomofunctional studies since that WM bundles are correlated to specific cognitive, motor, and behavioral domains (Figures 2 and 3). Prior investigations demonstrated microstructural changes in different projection, association and commissural fibers that are often associated to persistent symptoms in head injury survivors. (Figure 4) Voxelwise analysis is adequate for global
analyses of brain parenchyma and is particularly useful for large group comparisons of individuals with no significant distortions in brain anatomy. Abnormalities in DTI metrics have been demonstrated in large clusters of WM in patients with moderate to severe TBI in comparison to healthy controls (Figure 5).

Conclusion: DTI is helpful in indicating severity biomarkers and prognosis in DAI patients.

Responsible Author: Dra. Daphine Grassi
E-mail: daphinecgrassi@gmail.com

PD.12.050
FINDINGS OF MAGNETIC RESONANCE IMAGING AND POSITRON EMISSION TOMOGRAPHY USING PITTSBURGH COMPOUND B IN ALZHEIMER’S DISEASE ASSOCIATED WITH DOWN’S SYNDROME: SYSTEMATIC REVIEW.

Authors: FREITAS, A.C.I; MELO, H.J.F; OLIVEIRA, K.S
Institution: Centro Universitário São Camilo

Brief description(s) of the purpose(s) of the Literature Review: To demonstrate through a systematic review the main imaging findings obtained by Positron Emission Tomography (PET) using Pittsburgh compound B (PIB) and Magnetic Resonance Imaging (MRI) in patients with Down’s Syndrome (DS) diagnosed with Alzheimer’s Disease (AD).

Description(s) of disease(s), method(s) and/or technique(s): Systematic review throughout PubMed and Bireme databases using the following words: Down's Syndrome and Alzheimer's and MRI making the use of a filter to obtain articles from the last five years and Down's Syndrome and Alzheimer's and PET and PIB.

Discussion: Patients with DS have 77% chance of developing AD when 40 years old. This is believed to occur due to the addition of the APP gene encoding a sequence for the production of Amyloid Precursor Protein, which is present on chromosome 21. Its overexpression leads to the deposition of β-amyloid (Aβ) in the brain, which is said to be the main cause of AD. The diagnosis for AD in people with DS is usually made through clinical assessments, which are often not accurate. The diagnosis through PET images using PIB identifies the plaques formed by Aβ, detecting the presence of this protein even in the early stages of AD, being possible to identify the brain regions affected by its deposition in people with DS. MRI also assists in the identification of structural changes in the brain, as well as normalization of PET images and delimitation of the Region of Interest (ROI).

Conclusion: The images obtained by MRI shows structural alterations, such as atrophy, evidencing a reduction in the total volume of the brain, as well as an elevation of the volume of the lateral ventricle. After the systematic review, seven (07) articles, that studied the neuroimaging findings of the analyzes realized with PET using PIB, 100% of these studies pointed out the ventral striatum as the initial region of accumulation of Aβ in people with DS. Moreover, it is suggested that gender is not a risk factor for DS people to develop AD. One of the studies suggests that the disease evolves differently in people with DS, where Aβ accumulation begins in the ventral striatum and subsequently affects the amygdala.

Responsible Author: Biom. Homero Melo
E-mail: homerom@gmail.com

CASE REPORT

SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)

PD.12.001
IMAGING IN CLASSIC FORM OF MAPLE SYRUP URINE DISEASE: A RARE METABOLIC CENTRAL NERVOUS SYSTEM.

Institution: HOSPITAL UNIVERSITÁRIO ALZIRA VEIANO - ALFENAS

Brief description of the study purpose: Maple syrup urine disease (MSUD) is a rare autosomal recessive disorder of branched-chain amino acid metabolism. We present a neonate with classic type of MSUD and its imaging features on computed tomography (CT), conventional magnetic resonance imaging (MRI), diffusion-weighted imaging, and magnetic resonance spectroscopy PS. The knowledge of the imaging findings is fundamental for early diagnosis of this condition that can prevent the progression of neurological deficits and help in the adequate management of the disease.

Clinical history: The baby was apparently normal in the first week of postnatal life. On 5th day, clinical systemic examination showed hypotonia, poor neonatal reflexes, weak suction, lethargy, weight loss, hypoglycemia, was treated as sepsis. However the baby did not show improvement and then and then requested CT, axial images shows bilaterally symmetrical hypodensities, within the myelinated areas with compressed ventricles and gyral swelling. MRI showed bilateral symmetric white matter hypointensities on T1-weighted, hyperintensities on T2-weighted magnetic resonance (MR) sequence and turbo inversion recovery magnitude sequence and Diffusion-weighted imaging (DWI) showed characteristic pattern of bilateral symmetrical restricted diffusion within the myelinated areas, attributed to intramyelinic edema, affecting the entire cortical spinal tract up to the medulla. Image spectroscopy showed the presence branched-chain α-keto acids resonating at 0.9-1.0 ppm and remained in the long TE In the analysis by High performance liquid chromatography evidenced leucine, isoleucine and valine peak.

Discussion and diagnosis, or vice versa: Maple syrup urine disease (MSUD) is an aminoacidopathy secondary to an enzyme defect in the catabolic pathway of the branched-chain amino acids leucine, isoleucine, and valine. Accumulation of these amino acids and their corresponding keto acids leads to encephalopathy and progressive neurodegeneration in untreated infants. Early diagnosis and dietary intervention prevent complications and may allow for normal intellectual development Neonates will be normal at birth, presents after disease-free interval, usually within the 4-7 days of life with weak suction, vomiting, lethargy. Imaging features are diagnostic in the early weeks of life. Classic appearing MSUD edema involving myelinated areas.

Conclusion: MSUD is a rare autosomal disorder of branched-chain amino acid metabolism. Early imaging diagnosis of this condition can prevent the progress of neurological deficits and help in appropriate management of the disease.

Responsible Author: Dra. Diva Helena Ribeiro Gontijo
E-mail: divaheleanaribeiro@outlook.com
PD.12.002
MOEBIUS SYNDROME: THE IMPORTANCE OF THE STEADY-STATE FREE PRECESSION SEQUENCE (SSFP)
Institution: HOSPITAL UNIVERSITÁRIO ALZIRA VELANO-ALFENAS
Brief description of the study purpose: Möbius syndrome (MS) is a rare congenital neuromuscular disorder. It is characterized by unilateral or bilateral paralysis of the sixth and seventh cranial nerves, manifested clinically as external ophthalmoplegia and weakness of facial muscles. T2 sequences adequately display only the major cranial nerves, while SSFP sequences are capable of visualizing cisternal segments of all 12 cranial pairs. SSFP sequences allow for precise differentiation between branches of the facial and vestibulocochlear nerves. In this case, we report the importance of this SSFP sequence for the correct diagnosis of the pathology, since the patient had performed a previous examination, without this specific sequence and without the true diagnosis
Clinical history: A 2-year-old girl was referred to our department for plain magnetic resonance imaging (MRI) scan of the brain. The child's parents noticed facial asymmetry in the child with deviation of the angle of mouth to the right side on smiling, watering and incomplete closure of the left eye since birth. The child's birth and developmental history were normal. On physical examination, facial asymmetry, bilateral convergent squint. In MRI, the Steady-state free precession sequence (SSFP) showed absence of abducens nerves and left facial nerve with hypoplasia of the right facial nerve as well as agenesis of facial colliculates and discrete hypoplasia of the pons
Discussion and diagnosis, or vice versa: ) is rare disorder, which is characterized by congenital complete or partial facial nerve paralysis with or without paralysis of other cranial nerves. Absence of facial and abducens nerves can be considered as characteristic features on MRI, in specific SSFP. Based on history and clinicoradiological examinations (3D CISS), our case was diagnosed as (MS).
Conclusion: We herein reported a case of (MS) with absent left facial, with hypoplasia of the right facial nerve and bilateral abducens nerves. It is an irreversible condition that causes not only physical abnormalities but also social and psychological disturbances. MRI imaging may depict abnormalities in the brainstem, extracranial muscle hypoplasia, and other associated abnormalities. MRI, particularly 3D CISS sequence, is very useful in evaluating cisternal and cavernous segments of the cranial nerves.
Responsible Author: Dra. Diva Helena Ribeiro Gontijo
E-mail: divahelenaribeiro@outlook.com

PD.12.003
NEURAL ARCH CLEFTS MIMIC FRACTURES: A CASE REPORT OF RETROSOMATIC CLEFT
Institution: HOSPITAL UNIVERSITÁRIO ALZIRA VELANO - ALFENAS
Brief description of the study purpose: Neural arch cleft could be a challenge to radiologists to distinguish from acute fracture on plain radiograph or CT scan. It is important for radiologists to be familiar with the imaging appearance and types of neural arch cleft to avoid unnecessary management. Neural arch clefts could occur in the pedicle (retrosomatic cleft), the pars interarticularis (spondylolysis) or the lamina (retroisthmic cleft) of the vertebral arch. Spondylolysis is found with an incidence of 5-7%, whereas retrosomatic and retroisthmic clefts are very rare.
Clinical history: A 71-year-old woman was sent to our department with the complaint of back pain and no history of trauma Physical examination disclosed no significant neurologic deficiency. CT scan revealed linear radiolucent lines with sclerotic border were noted over pedicles of the quinta lumbar vertebra (L5), and Magnetic Resonance (MRI) showed a linear hyposignal in T2 in the bilateral L5 pedicles with hypersignal halo in T2 and STIR.
We reported, however, these lines as retrosomatic clefts because there are corticated margins around the defects and absence of displacement and surrounded soft tissue change. The patient was treated conservatively and follow-up in the orthopedics clinic with uneventful recovery
Discussion and diagnosis, or vice versa: There are six types of neural arch clefts. Their origins are congenital, acquired, or a predisposition to defects based on a focal congenital osseous weakness. Such defects include retrosomatic clefts, pars interarticularis defects (spondylolysis), retroisthmic defects, synchondroses, paraspinous and spina bifida occulta. The retrosomatic cleft is a rare defect in the pedicles near its junction with the vertebral body. It is found primarily in women, who often suffer from low grade back pain. The adjacent intervertebral disc space may be narrowed. In CT images the cleft usually has sclerotic margin. There are many studies suggesting that the abnormality is of congenital origin.
Conclusion: In conclusion, neural arch clefts can cause confusion in the evaluation of patients with trauma. It is important to both orthopedists and radiologists to be familiar with these imaging features of neural arch clefts to avoid misdiagnosis and unnecessary management.
Responsible Author: Dra. Diva Helena Ribeiro Gontijo
E-mail: divahelenaribeiro@outlook.com

PD.12.004
RADIOLOGIC FINDINGS IN GROUP II CAUDAL REGRESSION SYNDROME
Institution: HOSPITAL UNIVERSITÁRIO ALZIRA VELANO - ALFENAS
Brief description of the study purpose: Caudal regression syndrome (CRS) is a rare congenital abnormality resulting from a developmental failure of a segment of the vertebral column and spinal cord. Prenatal ultrasound and fetal MRI can be used for antenatal diagnosis, while radiographs and MRI of the vertebral column are imaging modalities used in children and adults. There are 2 CRS groups: the first group is the most affected with the termination of the spinal cord above L1. Patients in the second group display a less severe dysgenesis with a low implantation of the spinal cord and tethered by a thickened filum terminale or intraspinal lipoma.
Clinical history: A 24-year-old man with a long-standing history of back pain and history of bladder surgery. The patient underwent MRI which demonstrated partial sacrococcygeal agenesis, fusion of S2 with S3, and S3 the last fully formed vertebra, associated with medulla with low implantation, thickening of the filum terminale and ectasia of the central ependymal canal.
Based on these classic imaging findings, the diagnosis of Group II Caudal Regression Syndrome

**Discussion and diagnosis, or vice versa:** (CRS) results from an abnormal development of the caudal aspect of the spinal cord and vertebral column. Although its precise etiology is not known, toxic, ischemic or infectious etiologies before the 4th week of gestation are thought to be associated with this syndrome. The majority of cases are sporadic, although there is evidence for a partial genetic contribution. There is an association with maternal diabetes.

Diagnosis can usually be made in the 2nd or 3rd trimester with prenatal ultrasound, which demonstrates sacrococcygeal dysgenesis with a high and abrupt termination of the spinal cord with blunt-ending conus medullaris. MRI is the imaging modality of choice for the diagnosis of any type of vertebral and spinal cord pathologies in adults. This is also true for caudal regression syndrome.

**Conclusion:** Caudal regression syndrome is a rare entity with a known association with maternal diabetes. Early detection and prompt treatment is very important to decrease the risk of urinary incontinence, recurrent urinary tract infections, renal impairment, and the development of a neuropathic bladder, and thus, to improve the prognosis.

**Responsible Author:** Dra. Diva Helena Ribeiro Gontijo
E-mail: divahelenaribeiro@outlook.com

**PD.12.005**

**CAVUM SEPTUM PELLUCIDUM WITH HEMOVENTRICLE, SIMULATING ANEURYSMAL DILATION / COLOID CYST**

**Authors:** MUNIZ, B. C.; FONSECA P.H.D.O.G.; MOURÃO, R.; RIBEIRO, B.N.F.; WILNER, N.V.; GASPARETTO, E.L.

**Institution:** Instituto Estadual do Cérebro Paulo Niemeyer

**Brief description of the study purpose:** We report an atypical case report of persistent cavum septum pellucidum associated with hemoventriculo, showing how adequate radiologic and the analysis of different imaging methods, including computed tomography, magnetic resonance and digital angiography, is important for the appropriate differential diagnosis.

**Clinical history:** Patient 45 years old, female, with lowering of consciousness level, and report of sudden severe headache. Glasgow coma scale of 6, with no further changes to the physical examination or laboratory tests.

**Discussion and diagnosis, or vice versa:** Computed tomography was performed, showing subarachnoid hemorrhage occupying the cisterns of the base. An oval hyperdense image with regular contours was observed in the midline, measuring about 2.5 cm. Considering the hypothesis of this expansive formation corresponds to ruptured aneurysm or less likely to colloid cyst. The patient was transferred to the interventional neuroangiography sector where the digital angiography was performed. No aneurysms were found in the correspondence to the tomographic image at angiography. Magnetic resonance imaging was performed where persistence of the cavum septum pellucidum with hemoventriculo was observed.

**Conclusion:** The reported case shows an atypical presentation of simple and common findings, which are not usually seen together (presence of the cavum septum pellucidum and hemoventriculo) making the differential diagnosis more complex. The use of different diagnostic radiologic methods, combined with the analysis of the same, provided the correct diagnosis.

**Responsible Author:** Dr. Bernardo Carvalho Muniz
E-mail: bernardocmuniz@yahoo.com.br

**PD.12.006**

**ISCHEMIC VASCULAR PROCESS CENTERED ON THE TERRITORY OF BILATERAL P1 (PERCHERON): CASE REPORT**

**Authors:** CARMINATTI, P. H.; VIVI, M. C. F.; SUZAN, G. F. A.; JUNQUEIRA, H. G.; CARVALHO, T. B.; ABEL, C. V. A.; POSSARI, R. E.; RODRIGUES, W. M.; BISCARO, R. C.; MACEDO, J.

**Institution:** Faculdade de Medicina de Jundiaí

**Brief description of the study purpose:** The Percheron artery is an anatomical variation in the vascularization of the thalamic territory, which refers to a variant of bilateral perforating arteries originating from a trunk of the posterior cerebral arteries in the P1 segment (type IIB). And knowledge about this variation implies in bilateral thalamic infarctions, which result in about 4% to 18% of vascular accidents in this topography, and correspond to 0.1% to 2% of all strokes.

**Clinical history:** The present study aims to report a case of abrupt picture of mental confusion, memory impairment and visual alteration started 4 days ago. Excluding the diagnosis of infectious and metabolic condition, a CT scan and nuclear magnetic resonance were performed, characterizing the current ischemic vascular process centered on the territory of bilateral P1. Opposed for non-invasive measures in the service for stroke.

**Discussion and diagnosis, or vice versa:** The Percheron artery is a rare case of vascularization of the thalamic territory, with an increased risk of bilateral vascular accident of this topography due to its irrigation from a single arterial segment. Its diagnosis is made from image examination such as computed tomography and nuclear magnetic resonance, and arteriography is reserved for special cases. Its treatment is dictated by the time of the symptoms, opting for thrombolysis or endovascular therapy in cases of early diagnosis. As for the differential diagnosis, causes such as neoplasias, venous infarcts, metabolic causes, and bilateral thalamic gliomas, due to similarity regarding radiological findings.

**Conclusion:** Knowledge about variants of thalamic irrigation is of paramount importance in order to diagnose causes and their main diagnoses differences on ischemic vascular accidents in this topography. Although rare, it is necessary to emphasize its importance in order to reduce the time for diagnosis and, thus, to maximize the post-therapeutic prognosis.

**Responsible Author:** Dr. Pedro Henrique Carminatti
E-mail: pedrocarminatti@hotmail.com

**PD.12.015**

**BILATERAL INTERNUCLEAR OPHTHALMOPLEGIA OF VASCULAR ORIGIN**

**Authors:** PIRES, M. S. S.; CARVALHO, G. B. S.; GADELOHA, B. R.; AMORIM, F. S. R.; NASCIMENTO, T. S.; PIRES, M. M.

**Institution:** HOSPITAL GERAL ROBERTO SANTOS

**Brief description of the study purpose:** Internuclear ophthalmoplegia (INO) is a neurological syndrome of horizontal conjugate gaze disorder, occurring in lesions of the medial longitudinal fasciculus (MLF), having as main etiologies demyelinating diseases, pontine ischemia and brainstem tumors. Clinically it presents as deficit in the ipsilateral eye to the lesion, associated to compensatory horizontal nystagmus during the abduction of the contralateral eye, and the ocular convergence is intact. The occurrence of the lesion in both LMFs or in their decussation will lead to the aforementioned clinic bilaterally, being poorly reported its occurrence in the literature.
Clinical history: R.L.S., female, 63 years old, black, refers dysarthria, gait ataxia, diplopia and left hemiparesis one day ago. She denies associated symptoms and similar episodes. Carrier of hypertension, diabetes and past smoking. Neurological physical examination presents isochoric, photoreactive and bilateral internuclear ophthalmoplegia. MRI scan of the skull was performed, showing hypersignal foci in T2 and FLAIR, one in the medial meningeal dural column that extends to the pons and another in the left cerebro peduncle, both with diffusion restriction, suggesting acute ischemic event in these topographies.

Discussion and diagnosis, or vice versa: The horizontal conjugate gaze is the result of the integration of the III and VI cranial nerves through the MLF, located posteromedially in the pons and midbrain. The stimulus is sent by the IV to the III contralateral cranial nerve through this fascicle, promoting the horizontal conjugate gaze. The most common cause of INO in elderly patients is infarction of pontine perforating arteries, usually unilateral. In addition to old age, cardiovascular risk factors (hypertension, diabetes and smoking) are prevalent. The most commonly reported clinical symptom is diplopia and more than half of the cases have other neurological signs and symptoms due to involvement of the brainstem, such as gait ataxia, dysarthria, and sensory deficits.

Conclusion: INO is one of the lesions more specifically topographed in the brain, with few reported cases of bilateral vascular origin, so the detailed physical examination and the knowledge of the neural centers that control the integration of the gaze will allow the radiologist to obtain a specific diagnosis or a coherent differential when faced with these cases.

Responsible Author: Dra. Macielly Souza Silva Pires
E-mail: maciellyspires@gmail.com

PD.12.024
CYSTIC LUMBAR SCHWANNOMA: RADIO-PATHOLOGICAL CORRELATION
Authors: HERNANDEZ, J. S.; CEJAS, E. F.; GARCIA, C. -; GASER, A.; VIRGINILLO, J.; BUZZI, A.
Institution: Diagnóstico Médico
Brief description of the study purpose: The objective of this report is to show the main imaging characteristics in a patient diagnosed with lumbar schwannoma with cystic degeneration and its anatomopathological correlation, making a brief bibliographical review of this rare entity.

Clinical history: A 53-year-old male patient who for one year presented severe low back pain with irradiation to the right lower limb and paresthesia without other significant data. The MRI findings showed an extramedullary intradural cystic formation of 6 cm with hypointense signal in T1 and hyperintense in T2. The surgery is performed with sample collection, and in the cytological study of the fluid extracted from the cyst, no tumor cells were found. Biopsy stained with hematoxylin and eosin and the immunohistochemical study for the expression of the S100 protein concluded that it is a cystic lumbar schwannoma.

Discussion and diagnosis, or vice versa: Nerve sheath tumors are the most frequent extramedullary intradural neoplasms of the spine and schwannomas usually account for 30% of cases. They are benign lesions that settle in the nerve roots compressing them and are composed of Schwann cells associated with fibrous material, which can present cystic degeneration and hemorrhage, without calcification and reach a considerable size. Patients usually manifest radiculopathies, paresthesia and functional impairment between the third and sixth decade of lifetime. MRI usually shows oval, circumscribed, hypointense lesion in sequences weighted in T1 and hyperintense in T2, which after gadolinium administration have a homogeneous or peripheral enhancement. However, its diagnosis is complex since the intradural schwannomas have a morphological aspect very similar to other neoplasms with which they can be confused. Differential diagnoses should be established with other entities such as meningiomas, leptomeningeal metastases or ependymomas, and diagnostic confirmation is necessary through histopathological studies.

Conclusion: The neoplastic processes that settle at the lumbar level are diverse, being the MRI the method of choice for the evaluation of intradural extramedullary tumors. Based on the imaging findings, lumbar cystic schwannoma should be considered as one of the possible differential diagnoses and guide the biopsy for a definitive diagnosis.

Responsible Author: Dr. Jorge Salvador Hernandez Espinoza
E-mail: jorgesalvadorh@gmail.com
PD.12.025
MULTINODULAR AND VACUOLATING NEURONAL TUMOR OF THE CEREBRUM
Authors: CEJAS, E.; HERNANDEZ, J.S.; STEFANOFF, N.; BUZZI, A.
Institution: Diagnóstico Médico
Brief description of the study purpose: The objective of this study is to describe the pathognomonic imaging findings by MRI that allow us to reach the diagnosis of neuronal multinodular tumor and vacuolating of the brain (MVNT) without requiring biopsy or unnecessary surgical resection and suggest an expectant behavior due to the benign nature of this type of injury.
Clinical history: A 62-year-old asymptomatic woman who it was made a post-resection control MRI of a pituitary adenoma. The last examination reveals in the right parietal lobe, multiple cortico-subcortical nodular images with hyperintense signal in FLAIR/T2WI, grouped in the form of “bubbles”, interpreted as MVNT. Four years ago they were present and were not identified. The studies were compared and there was no evidence of change in size and characteristics. Supported by the bibliography published till to date, the diagnosis of MVNT is concluded and expectant management is decided with subsequent controls.
Discussion and diagnosis, or vice versa: In 2013 Huse et al, describe for the first time a singular neuronal lesion that was called MVNT, in a series of ten cases. The classification of tumors of the central nervous system of the WHO 2016 includes the MVNT in a unique cytoarchitectonic pattern of gangliocytoma, although it is not clear whether it is a true neoplastic process or a hamartomatous/malignant dysplastic lesion. The pathognomonic MRI findings consists on a subcortical group of nodular lesions located on the internal surface of a cortex that looks normal, mainly within the deep cortical tape and superficial subcortical white matter, hyperintense in FLAIR/T2WI.
Conclusion: In the present case was described the typical appearance of MVNT by MRI, which is characterized by a subcortical group of hyperintense nodular lesions in FLAIR/T2WI sequence, located on the internal surface of a cortex in normal shape, without enhancement or significant mass effect. We remark that these are benign incidental lesions, being the MRI imaging findings pathognomonic, with high specificity and sensitivity for the diagnosis, suggesting based on the published bibliography till the date an expectant behavior, thus avoiding unnecessary surgical and biopsies procedures.
Responsible Author: Dr. Enso Fermin Cejas
E-mail: ensoferminejas@gmail.com

PD.12.030
CEREBRAL AUTOSOMAL DOMINANT ARTERIOPATHY WITH SUBCORTICAL INFARCTS AND LEUKOENCEPHALOPATHY (CADASIL)
Institution: FACULDADE DE MEDICINA DE BOTAÇANTUNES, P.E.H.
UNESP
Brief description of the study purpose: CADASIL is a rare and hereditary disease (1:24,000 individuals) caused by mutation of NOTCH3 gene located on chromosome 19q12. It is responsible for ischemic accidents in the central nervous system, especially in the subcortical region. This work aims to describe the radiological findings of a rare case of CADASIL.
Clinical history: Female patient, 42 years old, showing memory loss, mental retardation, migraine, forgetfulness and family history suggestive of CADASIL. Computed tomography (CT) without administration of endovenous iodized contrast showed hypodense areas within white matter and incomplete periventricular infarcts and semi oval centers. Magnetic resonance images (MRI) without gadolinium contrast administration showed rounded areas of hypointense signal on T1 and hypersignal on T2 and FLAIR in projection of periventricular/semi oval centre white substance, microleukoencephalopathy and/or gliosis, incomplete chronic infarcts in basal ganglia, thalamus and lateral ventricle bilaterally. Described findings are compatible with CADASIL. Additional findings were observed on CT images as oval hyperdensal images in interventricular foramen (colloid cyst) and calcific granulomas in occipito fronto parietal lobes bilaterally (phase IV neurocysticercosis).
Discussion and diagnosis, or vice versa: Vascular brain lesions are the most frequent clinical manifestations and age average of first ischemic event is 42. The disease worsens with age and can cause psychiatric disorders, cognitive decline and dementia, and it is important an early diagnosis for symptomatic control of the disease. Genetic test favors the definitive diagnosis, but has high cost and low availability. Clinical data and family history associated with MR images are paramount for the diagnosis of CADASIL.
Conclusion: MRI can distinguish CADASIL from other disorders when associated with the clinic and the patient's family history.
Responsible Author: Biom. Mariele Cristina Modolo Picka
E-mail: maripick@gmail.com

PD.12.033
COCKAYNE SYNDROME: A CASE REPORT AND REVIEW OF THE IMAGING FINDINGS
Institution: Hospital do Coração e Teleimagem
Brief description of the study purpose: The purpose of this exhibit is to demonstrate a case of Cockayne Syndrome and to review the main imaging findings of this rare disorder.
Clinical history: A 3-year old boy, presented with neurodevelopmental delay, cutaneous photosensitivity (skin peeling with solar exposure) and photophobia. His mother denied any problems during pregnancy or labor. Fundoscopic examination revealed pigmented retinopathy.
Discussion and diagnosis, or vice versa: Cockayne Syndrome is a rare multisystem disorder, with autosomal recessive inheritance caused by mutations in either of two major genes, CSA and CSB, and is classified among childhood leukodystrophies. Clinical features include growth failure, neurodevelopmental delay, cutaneous photosensitivity, pigmenary retinopathy, neurosensory hearing loss, dental carries, and cachectic dwarfism. The disease is considered to be very likely if the major clinical criteria (growth failure, mental retardation) and at least three of the minor clinical criteria (photosensitivity, pigmentary retinopathy or cataract, deafness, dental carries, cachectic dwarfism) are present. The diagnosis is confirmed by biochemical and genetic testing. Brain imaging plays a crucial role in the disease management, since typical radiological features in association with apropiate clinical context may suggest the diagnosis. Our patient was subjected to CT and MRI studies that showed generalized cerebral and cerebellar hemispheres atrophy, enlarged ventricular system, thinning of the brain stem and corpus callosum and multiple parenchymal lesions, of typical appearance for Cockayne Syndrome. The diagnosis of Cockayne Syndrome was confirmed by genetic test.

E-mail: ensoferminejas@gmail.com
callosum, bilateral putaminal calcification and reduced white matter volume with hypomyelination signs, which are classical features of Cockayne Syndrome. The imaging findings in association with classical clinical features led to the diagnosis of Cockayne Syndrome.

**Conclusion:** Cockayne Syndrome is a rare multisystem disorder classified among childhood leukodystrophies, that often goes underdiagnosed. Hypomyelination, supratentorial white matter volume reduction, cerebellar and brainstem atrophy, and basal ganglia calcifications are the most typical imaging features, that in an appropriate context may suggest the diagnosis.

**Responsible Author:** Dra. Natasha Barros Albuquerque Esteves

**E-mail:** nbaesteves@gmail.com

**PD.12.034**

**LEUKODISTROPHY ASSOCIATED TO THE CLCN2 GENE, A RARE DISEASE WITH ATYPICAL CLINICAL AND IMAGING MANIFESTATIONS: A CASE REPORT.**

Authors: GONÇALVES, G. J. M.; LUPPI, A. M.; ARAÚJO, D.; BORGES, V. K.

**Institution:** UNIVERSIDADE FEDERAL DE UBERLÂNDIA.

**Brief description of the study purpose:** To report on a rare case of leukodystrophy, emphasizing the clinical and radiological features, and discussing the differential diagnosis.

**Clinical history:** A 2 year-old male patient presenting with an autistic-like behavior for a few months, mainly defined by impaired speech and social interaction. There were no focal neurological deficits by physical examination. The structural magnetic resonance imaging showed findings that were consistent with leukodystrophy, with signal changes in the corticospinal tract, parieto-occipital white matter, posterior pons, midbrain, cerebral peduncles and middle cerebellar peduncles.

**Discussion and diagnosis, or vice versa:** The diagnosis of leukodystrophy was made by molecular genetic studies that showed compound homozygosity associated to the CLCN2 gene. To our best knowledge there are only 15 such cases described in the medical literature. The clinical description in such cases is very variable, with age onset spanning from infancy to adulthood, with signs and symptoms mainly characterized by mild ataxia and visual impairment. The imaging findings are very peculiar and described as hyperintense signals in T2 and low signal in T1 affecting the cerebral peduncles, the middle cerebellar peduncles and the posterior branch of the internal capsule.

**Conclusion:** Leukodystrophy associated to the CLCN2 gene in compound homozygosity is a rare disease with typical clinical and radiological findings, according to the literature. Our case, however, shows distinct features, both clinically and in regard to neuroimaging findings. It is important to be aware that the features are polymorphic, in order to include the diagnosis in the final radiological report.

**Responsible Author:** Dr. Gustavo José

**E-mail:** gustavojgm_goncalves@hotmail.com

**PD.12.036**

**MEGALENCEPHALIC LEUKOENCEPHALOPATHY WITH SUBCORTICAL CYSTS: CASE REPORT.**


**Institution:** Hospital Vila Alpina

**Brief description of the study purpose:** To describe the importance of the clinical-radiological correlation, for the recognition of the alteration related to this leukoencephalopathy. It is important to emphasize that mega-encephalic leukoencephalopathy with subcortical cysts presents differential diagnoses that also involve the white matter and occur with megalencephaly, such as Canavan's disease and L-2-hydroxyglutaric acid, but when combined, the imaging findings are highly specific for this condition.

**Clinical history:** Patient L, F, M. 9 years old referred to our service with confirmed diagnosis of another service, showing an increase in head circumference and retarded neuropsychomotor development.

**Discussion and diagnosis, or vice versa:** An autosomal recessive disease, characterized by encephalopathy and megalencephaly beginning in childhood, was first described as a syndrome in 1995 by van der Knaap and colleagues. Clinically the psychomotor functions are normal or partially affected at birth, but patients usually develop megalencephaly even in the first year of life, associated with motor development delay and seizures. They may also manifest neurological signs with pyramidal signs, cerebellar ataxia, spasticity, optic atrophy, epilepsy and, less frequently, extrapyramidal findings. Mental function is generally preserved, and when affected occurs in a tenuous way and at the end of life. The syndrome presents images that are characteristic in the magnetic resonance imaging, which shows in addition to the megalencephaly, leukodystrophy with symmetric involvement of the white matter of the cerebral hemispheres, especially in temporal lobes, associated with cystic lesions that presents signal similar to the cerebrospinal fluid.

**Conclusion:** Among the diverse spectrum of diseases that occur with leukoencephalopathy, this presents findings that when associated with clinic and history of macrocrania, favor and practically seal the diagnosis of megaencephaloplastic leukoencephalopathy with subcortical cysts.

**Responsible Author:** Dr. Rafael Sachtin

**E-mail:** rafael.sachtin@hotmail.com

**PD.12.037**

**SECONDARY ENCEPHALIC CALCIFICATIONS TO SYSTEMIC ERUPEMATOSUS LUPUS - RARE FORM OF PRESENTATION**

Authors: MACHADO, C.C.; SOUSA, R.M.G.; HOLANDA, V.C.L.; MARTINS, R.C.; BEZERRA, E.S.; LINS, C.F.; LOPES, A.K.B.F.

**Institution:** HOSPITAL DA CLÍNICAS DA UNIVERSIDADE FEDERAL DE PERNAMBUCO (HC/UFPE)

**Brief description of the study purpose:** This report refers to an incidental case of rare extensive intracranial calcification, identified on cranial tomography, in a patient with Systemic Lupus Erythematosus (SLE). It values the differential diagnosis of SLE in multiple cerebral calcifications.

**Clinical history:** A 56-year-old female patient with SLE and lupus nephritis requiring dialysis, was admitted to an intensive care unit for the treatment of respiratory tract infection. She developed clinical signs of brain death and a skull to ventriculography was request for this purpose.

**Discussion and diagnosis, or vice versa:** In the skull tomography without contrast, we identify extensive calcifications in the saniocentral areas, basal ganglia, cerebellar hemispheres and brainstem. There were diffuse hypomyelination of the cerebral parenchyma, associated with loss of differentiation between white and gray matter, obliterating cortical grooves, fissures and ven-
tricles, related to edema. Cerebral manifestations are found in about 20% of patients with SLE. Cerebral calcification is present in about 30% of these cases and does not necessarily correlate with the severity of neuropsychiatric symptoms. The patho- genetic mechanism of cerebral calcification in SLE is unknown. Although the globus pallidus seems to be affected in all patients with SLE with cerebral calcification, involvement of other brain regions such as the putamen, the head of the caudate nucleus, the thalamus, the centrum semiovale and the cerebellum has been found to be less common. Extensive calcifications of multiple brain areas, as reported in this case, are rare, and resemble the findings in Fahr’s Disease or Fahr’s Syndrome. Fahr’s disease, idiopathic form, and Fahr’s syndrome, a form associated with phosphorus-calcium metabolism, are characterized by the radiological finding of symmetrical and bilateral calcifications in the basal ganglia, semioval center and cerebellum. 

Conclusion: Thus, SLE should be kept as an important differential diagnosis for intracerebral calcification, and in the form of CNS lupus it can mimic Fahr’s disease symptomatically as well as radiologically, and should be remembered as a diagnostic alternative.

Responsible Author: Dra. ANA KARINA BRIZENO FERREIRA LOPES
E-mail: karina.brizeno@gmail.com

PD.12.039

IMAGE FINDINGS IN TAY-SACHS DISEASE: A CASE REPORT.
Authors: SILVA, T. C.; FRANCO, S. B.; DIAS, D. A.; TEIXEIRA, E. F. A.; PONTES, P. H. S.; MORAIS, N. M.; FILHO, C. L. M.; LUNA, L. P. P.
Institution: Hospital Geral de Fortaleza (HGF), Fortaleza, Ceará, Brasil
Brief description of the study purpose: To review the characteristic imaging findings in Tay-Sachs disease, a rare autosomal recessive disorder.
Clinical history: Case report of 18-month-old male patient with delayed neuropsychomotor development and seizures that underwent imaging evaluation at our service.
Discussion and diagnosis, or vice versa: Computed tomography of the skull revealed spontaneous hyperdensities in the thalami, as well as symmetrical and diffuse hypodensity in the supratentorial white matter. Magnetic resonance imaging of the brain showed white matter T2 signal alterations, with hyperintensities in the deep periventricular and subcortical white matter, basal ganglia and internal and external capsules, with relative preservation of the corpus callosum. In addition, spontaneous T1 hyperintensity was observed in the thalamus. Striated bodies exhibited increased volumes, with multiple hypointense punctate foci in T2 (spotted / speckled appearance). Proton spectroscopy revealed a decrease in the N-acetyl aspartate (NAA) / creatine (Cr) ratio and an increase in the myo-inositol (ml) / Cr ratio. Fundoscopy showed red spots ("cherry red spots").
Conclusion: Tay-Sachs disease is associated with strongly suggestive imaging alterations, which can be corroborated by spectroscopy and should be recognized by the radiologist for an adequate differential diagnosis of childhood hypomyelinating neurological diseases.
Responsible Author: Dra. TACIANE CÂMARA DA SILVA
E-mail: TACIANEMED@YAHOO.COM.BR

PD.12.042

IMAGINOGIC ASPECTS OF WILSON’S DISEASE BY MAGNETIC RESONANCE OF THE BRAIN: CASE REPORT
Institution: Núcleo de Pesquisa Científica e Acadêmica de Radiologia (NPCAR)
Brief description of the study purpose: Wilson’s Disease (DW) is a hereditary disorder of autosomal recessive genetic transmission, which causes hepatic copper metabolism to change and causes its accumulation in organs and tissues. The symptomatology is polymorphic: hepatic, neurological and ophthalmologic. Magnetic resonance imaging (MRI) is the most sensitive imaging test to evaluate the secondary lesions caused by copper deposition and allows DW to detect structural abnormalities in the basal ganglia. This study aims at describing and demonstrating the imaging aspects of DW in an MRI exam, however information relevant to this rare pathology will still be addressed.
Clinical history: A 27-year-old female patient, a behavioral change, depression, about 6 months ago, progressing with progressive stiffness in the hands and tremors, as well as gait alteration. The symptoms were more prominent in the upper left limb. At the examination, he had symptomatology compatible with pathology of basal nuclei involvement: face with fixed stare, open mouth, resting tremor of small limb amplitude. Prior ophthalmologic evaluation indicated the presence of Kayser-Fleischer rings (representing copper deposition on the corneal membrane).
Discussion and diagnosis, or vice versa: The DW polymorphic symptomatology is observed in other Central Nervous System pathologies and correlates with the number of mutations. The imaging findings found in the MRI of the brain were: T2 / Flair hyperintensity in the nuclei of the base, showing restriction of diffusion of water molecules and no enhancement after gadolinium. The signal "face of the giant panda" was not previously viewed. Reports of previous CT scans performed by the patient's family did not show significant changes in brain images.
Conclusion: The neuroimaging characteristics of Wilson’s disease may vary depending on whether the disease is treated or untreated. The lymph nodes and the midbrain are the most frequently affected site. MRI is an extremely sensitive examination of the metabolic alterations and plays a fundamental role in the differential diagnosis of CNS disorders.
Responsible Author: Sra. Joyce Caroline
E-mail: Joycecarolinedeoliveira@hotmail.com

PD.12.043

EVALUATION OF FRONTOTEMOIDAL MUCEOCELE BY MAGNETIC RESONANCE: CASE REPORT
Institution: Núcleo de Pesquisa Científica e Acadêmica de Radiologia (NPCAR)
Brief description of the study purpose: Mucocele are rare lesions / cysts coated by pseudostratified epithelium and mucous contents. Epidemiologically it affects the frontal and anterior ethmoidal sinuses more frequently, without sex prevalence. The diagnosis is made through computed tomography (CT), magnetic resonance imaging (MRI). MRI acts on the differential diagnosis of mucocele in relation to malignant neoplasms of the facial sinuses, meningiomas, chordomas, neurofibromas, salivary adenomas, parangangiomas and nasoangiofibromas.
Clinical history: Patient MZSM, 42 years old, white, female, insidious symptoms and slow course, with complaints
of facial pain, headache, nasal obstruction, dental pain and ophthalmological alterations. She was submitted to the MRI of the skull in a 1.5 T with diagnostic hypothesis of mucoceles related to obstruction of the frontoethmoidal duct and perforation in the skull cap.

**Discussion and diagnosis, or vice versa: Mucoceles** are expansive lesions affecting the paranasal sinuses; usually caused by obstruction of sinus drainage pathways, compromised by trauma, infections or neoplasms. Usually, the mucoceles have the shape of the space created by them, causing osseous erosions and consequent alterations of the anatomy of the structures adjacent to the affected region. The patient in question initially presented a clinically compatible mucocele with regard to ophthalmological alterations, however, during the MRI examination, a frontal fistula was observed due to intracranial invasion. The clinical history as well as the RM report favored the diagnostic differentiation with subsequent determination of therapeutics.

**Conclusion:** Mucoceles have cases related to obliteration of the drainage orifice of the sinuses. The diagnosis provided by MRI is relevant in the appropriate therapeutic adoption and in the search for the best living conditions, since it may eventually compromise adjacent structures, such as the orbit and the intracranial cavity.

**Responsible Author:** Sra. Joyce Caroline
E-mail: joycecarolinedeoliveir@hotmail.com

**PD.12.045**

**HEREDITARY DIFFUSE LEUKOENCEPHALOPATHY WITH SPHEROIDS (HDLS): CASE REPORT AND LITERATURE REVIEW**

**Authors:** PAULA, V.T.; VALDRIGHI, J.T.; CINTHO, T.Y.; FERRACIOLLI, S.F.; LUCATO, L.T.

**Institution:** Instituto de Radiologia do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo.

**Brief description of the study purpose:** We will report a rare case of diffuse hereditary leukoencephalopathy with spheroids also a literature review will be performed.

**Clinical history:** A 40-year-old woman with hypoesthesia in the right foot and mild walking difficulty for 1 year. After 3 months, there was an upward progression of hypoesthesia, weakness in the right lower limb and right upper limb, symmetrical and bilateral reduction of vision and mild dysphagia. The results of routine blood tests performed at the beginning of the clinical presentation were normal. Three years after the onset of symptoms, the neurological symptoms progressed rapidly and the patient was bedridden and dependent of intensive care. Brain CT of our patient demonstrated bilateral hypoattenuation of the internal capsules and of the periventricular white matter associated with calcifications. MRI revealed diffuse T2-hyperintensity and T1-hypointensity of the bifrontal white matter, asymmetrical with more significant involvement of the right lobe, comprehending subcortical and periventricular areas, the internal capsules and the corticospinal tracts. There was no contrast enhancement.

**Discussion and diagnosis, or vice versa:** Hereditary diffuse leukoencephalopathy with spheroids (HDLS), also referred to as adult-onset leukoencephalopathy with axonal spheroids and pigmented glia (ALSP), is a rare inherited autosomal dominant disease caused by a mutation in the colony-stimulating factor 1 receptor (CSF1R) gene. It can occur in both familial and sporadic forms and it has been reported to account for 10-25% of idiopathic adult-onset leukodystrophy. Patients with HDLS may present with a large variety of symptoms. CT studies may reveal small periventricular calcifications and low attenuation of affected areas, predominately bifrontal white matter, with no contrast enhancement. MRI typical findings are T2-hyperdense white matter bifrontal lesions involving the periventricular and deep subcortical areas, the corpus callosum and the corticospinal tracts and a lack of significant gray matter involvement. Central atrophy may also be present, sparing the brainstem, and there is no contrast enhancement.

**Conclusion:** Radiologic findings are unspecific and can be misinterpreted as demyelinating or ischemic lesions or small vessel disease. However, clinical and radiological suspicion can direct to the right investigation and diagnosis, which can be confirmed with a genetic blood test.

**Responsible Author:** Dra. Juliana Tamy Valdrighi
E-mail: juliana.valdrighi@gmail.com

**PD.12.048**

**PITUITARY INFUNDIBULAR METASTASIS: CASE REPORT**

**Authors:** BENTO, A. L. R.; WILCZEK, E. U.; ALVES, L. C.; ROMANUS, A. B.; WENDLING, G.; TORRES, I. B.; SOUZA, S. L. N.; SCHUINDT, S. M.

**Institution:** Hospital do Rocio - Campo Largo, Paraná, Brasil

**Brief description of the study purpose:** The pituitary can be affected by several lesions, among them we rarely have cerebral metastases, which preferentially reach the neurohypophysis due to its great vascularization. Thus, the infundibular metastasis of the pituitary gland consists of a rare case and justifies its report.

**Clinical history:** A 71-year-old male patient presented with diplopia and headache. Computed tomography (CT) of the skull was indicated: diffuse lesions in cerebral parenchyma suggestive of secondary implants, destruction of dorsum sellae and poorly delimited intrasellar hyperdense lesion. Magnetic Resonance Imaging (MRI) was performed: brain with signs of metastasis in the pituitary infundibulum, in addition, other lesions suggestive of secondary implants. With these images, a chest CT was indicated where a pulmonary expansive lesion was later confirmed as lung cancer.

**Discussion and diagnosis, or vice versa:** Pituitary metastasis is hardly identified in an asymptomatic patient. It affects patients over 50 years of age, presenting with rapid evolution. When the lesion is symptomatic, it presents with hormonal dysfunctions, visual alterations, lesions of cranial nerves and hypopituitarism. In these cases the primary focus of the tumor is predominantly breast in women and lung in men.

**Conclusion:** We report a case of infundibular metastasis of the pituitary, in which the primary site was not known. Due to the high specificity found in the literature, we focused our attention on pulmonary lesions, making an accurate diagnosis.

**Responsible Author:** Dr. Luana Carlos Alves
E-mail: luanaalves@hotmail.com

**PD.12.052**

**ARNOLD-CHIARI TYPE I MALFORMATION IN ASSOCIATION WITH SYRINGOMYELIA IN AN ADULT PATIENT: CASE REPORT**

**Authors:** DE AZEVEDO, R.P.; CARVALHO, R.S; SANTIAGO, E. A.; LIMA, A.M; SILVA, I.M; NAVES, E.A; COSTA, F.C; BARBOSA, M.P.

**Institution:** HOSPITAL GOVERNADOR ISRAEL PINHEIRO - INSTITUTO DA PREVIDÊNCIA DOS SERVIDORES DO ESTADO DE MINAS GERAIS

**Brief description of the study purpose:** Demonstrate the presentation of Arnold-Chiari type I malformation in associa-
Clinical history: A female patient (M.C.M.B.), 47 years old, was admitted with a complaint of alteration of movements in the left upper extremity, and in the IV and V cheirodactyls for 1 year, with progressive worsening, despite clinical follow-up, also complained of dysphagia and dysarthria. It evolved with paresis in the upper extremities, occipital headache, weakness in the lower extremities recently (needing support to ambulate). At the examination, he presented spastic tetraparesis with strength 3/5 in the lower extremities, 4/5 in the upper extremities, exhaustive clonus, spastic gait. The patient was submitted to imaging with magnetic resonance which demonstrates exuberant dilatation of the central canal of the medulla at the C1-C2 level which extended to the medullary cone, level of L1, associated to the projection of the tonsils below the foramen magnum. Microsurgical treatment of the spinal malformations with decompression of the posterior fossa was performed with outpatient follow-up.

Discussion and diagnosis, or vice versa: The Arnold-Chiari type I is characterized by the alteration of the shape of the cerebellar tonsils and their caudal projection through the foramen magnum, classically around 5 mm in the adult. It has a high frequency of associations with other anatomical malformations of the nervous system, the most common are spinal cavitations, such as syringomyelia. The actual incidence is not well documented, but the increased access to MRI has increased the frequency of diagnoses. Before the use of magnetic resonance, the diagnosed patients were in made those who necessarily presents symptoms, and the most frequent age range was in adolescents and young adults, or in those who had another malformations that needed propaedeutics. In the case presented, a late diagnosis was made due to the onset of late clinical symptoms and absence of other malformations with exuberant presentation that justified an investigation.

Conclusion: The case demonstrates the importance of carrying out a clinical examination associated with the adequate imaging propaedeutics to perform an early diagnosis, once effective treatment can alter the prognosis.

Responsible Author: Dra. RAQUEL SOARES CARVALHO
E-mail: raeualsoarescarvalho@yahoo.com.br

PD.12.055

LIMBIC ENCEPHALITIS ASSOCIATED WITH SJÖGREN'S SYNDROME: A CASE REPORT

Institution: Hospital Madre Teresa
Brief description of the study purpose: This poster intent to report a case of limbic encephalitis associated with Sjögren's Syndrome (SS). The SS can be associated to peripheral nervous system involvement in up to 20% of patients, but Central Nervous System involvement is uncommon and, rarely limbic encephalitis cases have been reported. This work have the goal of illustrate an atypical manifestation of this chronic autoimmune disease, suggesting the inclusion of SS in the autoimmune encephalitis differential diagnosis, when there isn't clinical and/or laboratorial evidence of infectious disease of the CNS.

Clinical history: A 42-year-old woman presented with first episode of amnesia, progressive cognitive and comportamental alteration, without sensory or motricity abnormalities. Clinical and laboratorial evaluation were negative for infectious disease of CNS. There were reports of dry mouth, dysphagia, and red-eye (keratoconjunctivitis confirmed). Previous laboratory tests reported positivity in FAN, Anti-SS-A (Ro) and Anti-SS-B (La), and a normal rheumatoid factor. Immuno-therapy was performed and the patient progressive improved her symptoms, especially the amnesia and the cognitive and comportamental impairment.

Discussion and diagnosis, or vice versa: This poster reports a case of patient with autoimmune limbic encephalitis in the clinical context of SS, defined by the successive absence of diagnostic criteria for infectious diseases of the CNS and the presence of Sjögren's clinical and laboratory diagnostic criteria.

Conclusion: Although rare, the present case is relevant for illustrating an atypical neurological presentation of an important autoimmune disease, which is Sjögren's Syndrome. In the evaluation of the differential diagnosis of patients with limbic encephalitis, after exclusion of infectious criteria from the CNS, such syndrome can be considered, since diagnostic criteria for such syndrome be present.

Responsible Author: Dr. Túlio Bernardino
E-mail: ituilib@gmail.com

PD.12.056

LIPOMYELOSCHISIS – A RARE FINDING

Authors: DUARTE, ML.; ABREU, BFB; PRADO, JLMA; SILVA, MQP
Institution: WEBIMAGEM
Brief description of the study purpose: Report and review the literature about this rare lesion.

Clinical history: Two-year-old boy with spinal malformation from birth on neurological follow-up.

Discussion and diagnosis, or vice versa: Magnetic resonance imaging demonstrates the medullary cone extending to the vertebral body of L4 – tethered cord syndrome –, with thickening of the filum terminale, with the lipomatous structure on the posterior aspect of the spinal canal. The set of findings suggests lipomyeloschisis. Dysraphisms, especially involving caudal spine, are the most frequent congenital malformations of the spine and spinal cord. Lipomyeloschisis is a common subtype of closed spinal dysraphism with lipoma. Embryologically, spinal lipomas result from early dysjunction between neuroectoderm and cutaneous ectoderm; the surrounding mesenchyme creeps between and adheres to the primitive ependyma, which induces it to transform into fat. Clinical presentation of these lesions is variable, depending upon size and location of the lipoma. Paraparesis, sensory changes, urinary incontinence and pain are frequent presenting complaints.

Conclusion: We report a case of lipomyeloschisis, a neurological disease poorly reported, caused by problems in neurulation process of the neural tube, with variable severity, but with accurate diagnosis by magnetic resonance imaging.

Responsible Author: Dr. Marcio Duarte
E-mail: mld_44@hotmail.com

PD.12.063

NEUROMYELITIS OPTICA AND RHOMBENCEPHALITIS DUE TO ZIKA VIRUS: A CASE REPORT

Institution: Hospital Madre Teresa
Brief description of the study purpose: The Zika virus infection, removed from international emergency list of the World Health Organization (WHO) in November 2016, surfaces asymptomatically in many cases. Besides the risk
HEMIMEGALENCEPHALY: A CASE REPORT

Authors: AMORIM, P.M.; DÂŁ-BO, M.B.; PUCCI, R.C.; OLIVARES, P.

Institution: O Hospital Nossa Senhora da Conceição- Tubarão/SC

Brief description of the study purpose: To report the case of a patient with hemimegalencephaly (HME), demonstrating the imaging aspects found in computed tomography (CT) and magnetic resonance imaging (MRI) of the skull.

Clinical history: A 2-month-old male patient with convulsive seizures of difficult control, with no other alterations to the neurological examination. CT and MRI examination of the skull revealed a volumetric increase of the entire right cerebral hemisphere, with malformations compatible with polymicrogyria / pachygyria, associated with volumetric enlargement of the lateral ventricle and the centric-brain structures on this side, suggesting HME.

Discussion and diagnosis, or vice versa: HME is a rare congenital disorder of cortical formation, of unknown etiology, which involves the abnormally larger growth of a cerebral hemisphere. The diagnosis is made through clinical and imaging findings. Macroscopically, in addition to the excessive growth of the affected hemisphere, areas of lissencephaly, pachygyria, associated with volumetric enlargement of the lateral ventricle and the centric-brain structures on this side, suggesting HME.

Conclusion: Detecting neurological damage as a consequence of Zika infection, and of other arboviruses, is important to enable treatment at early stages.

Responsible Author: Dr. Júlio Guerra Domingues
E-mail: juliogdomingues@gmail.com

USE OF THE ASL TECHNIQUE IN THE POST-ICTAL STATES

Authors: OLIVEIRA, D.L.; BOMFIM, R.C.; ROCHA, L.M.; OLIVEIRA, G.C.S.O.; THEOTONIO, G.O.M.

Institution: Hospital Memorial Arthur Ramos, Maceió, Alagoas, Brasil

Brief description of the study purpose: To exemplify, through a clinical case, one of the uses of the arterial sequence spin labeling (ASL) in clinical practice.

Clinical history: A 76-year-old patient admitted to the emergency room due to first episode of epileptic crisis. Previously had hypertension. After the episode she remained with subtle alteration of level and content of consciousness, hemiparesis and hemi-anesthesia, and then referred to a unit of therapy intensive care unit (ICU). Initial brain tomography demonstrated small hyperdense collection in the subarachnoid space of the right peritendineal region. Patient has evolved with new crises, reentrant, and then a brain magnetic resonance imaging (MR) were performed, using a non-contrast ASL technique, which demonstrated an area compatible with small subarachnoid hemorrhage in the right peritendineal region, associated with restriction in the diffusion, compromising the cortex and the subcortical region of this region, perfusion study showed hyperperfusion. At the same time, electroencephalogram, demonstrating ictal activity corresponding to topographies altered in the imaging study. After clinical treatment, the patient presented clinical improvement, with no new episodes

Responsible Author: Dra. LAIS DE MACEDO ROCHA
E-mail: lais_macedo@hotmail.com
of seizures. A new resonance was performed and ASL did not demonstrate evidence of hyperperfusion.

**Discussion and diagnosis, or vice versa:** Image alterations, together with the clinical changes demonstrate one of the clinical uses of ASL, the patient presented epileptic seizures, which knowingly increase the basal metabolism for the generation of the ictal discharges, which, consequently, require a greater blood flow, that is detected by the ASL technique.

**Conclusion:** The case shows that ASL can play an important role in the differentiation between pathologies that generate neurological changes with hypoflux, such as vascular ones that increase the metabolism, such as those with epilepsy or with a migraine origin.

**Responsible Author:** Dra. LAIS DE MACEDO ROCHA
E-mail: lais_macedo@hotmail.com

**PD.12.075**

**DEMYELINATING DISEASE AFTER USE OF ADALIMUMAB, CASE REPORT**

**Authors:** OLIVEIRA, D.L.; ROCHA, L.M.; BOMFIM, R.C.; OLIVEIRA, C.S.O.

**Institution:** Hospital Memorial Arthur Ramos, Maceió, Alagoas, Brazil

**Brief description of the study purpose:** To report the case of a patient with ankylosing spondylitis who, after a Adalimumab treatment, presented lesions of the central nervous system with demyelinating characteristics.

**Clinical history:** A 29-year-old patient presented asymmetric paraparesis associated with fecal and urinary incontinence and hypoesthesia for all sensory modalities with T10 level, antecedents of ankylosing spondylitis, with stable disease and bevacizumab cycle completed about 6 months before the current history. Significant initial ancillary tests performed for investigation showed cerebrospinal fluid analysis showed mild pleocytosis, not specific for infectious conditions, and also evidence of intrathecal antibody production, characterized by the presence of oligoclonal bands. Magnetic resonance imaging of the neuroaxis was performed, evidencing lesions with demyelinating pattern, filling McDonald diagnostic criteria 2010. He then was treated with high dose methylprednisolone, reaching almost total deficit regression, remaining deficits in tactile, thermal and pain sensitivity in the lower limbs. The patient remained stable for about six months, when developed a new motor deficit in lower limbs, new resonances demonstrated a temporal and spatial spread of demyelinating lesions. Due to such progression, the possibility of multiple sclerosis was strong and specific immunomodulatory treatment started.

**Discussion and diagnosis, or vice versa:** The case presented a young patient, with lesions that met diagnostic criteria for multiple sclerosis, however, this is known to be an exclusion diagnosis, since there is still no specific marker for the disease. The previous history of another autoimmune disease (ankylosing spondylitis) and recent cycle of monoclonal antibody (Adalimumab) were remarkable. After literature review, cases of demyelinating lesions in multiple forms and topographies, temporally related to this type of treatment (anti-TNF alpha monoclonal antibody), are being described, as well as cases of multiple sclerosis triggered by the same. The presumed diagnosis was multiple sclerosis unleashed by the previous use of anti-TNF alpha monoclonal antibody.

**Conclusion:** Due to the fact that it does not yet have a specific marker, multiple sclerosis remains a challenge in some clinical settings. Clinical and historical data as presented in the case should raise the possibility of further investigations for the correct diagnosis.

**Responsible Author:** Dra. LAIS DE MACEDO ROCHA
E-mail: lais_macedo@hotmail.com

**PD.12.076**

**NEUROPARACOCCIDIOIDOMYCOSIS SIMULATING CEREBELAR TUMOR**

**Authors:** DIAS AB, AMORIM PS, AMARAL RH, HOCHHEGGER B, LENHARDT R

**Institution:** Santa Casa de Misericórdia de Porto Alegre

**Brief description of the study purpose:** To describe a case of Paracoccidioidomycosis with involvement of the central nervous system, lungs and vocal cord.

**Clinical history:** A previously healthy 48-year-old woman was referred to investigate cerebellar lesions suspicious for neoplasm, seen on computed tomography (CT) exam performed in another hospital. The patient had a two-month history of headache, nausea and hoarseness. The neurological examination was normal. CT and Magnetic resonance imaging (MRI) of the brain after contrast showed multiple ring enhancing cerebellar lesions. Some of these lesions restrict on diffusion weighted imaging, suggestive of abscesses. Chest CT showed scattered centroacinar nodules. A fiber bronchoscopy was performed and a vocal cord lesion was identified and biopsied. The anatomicopathological examination revealed granulomas. The Grocott-Gomori's methamine silver stain showed the fungus Paracoccidioides brasiliensis.

**Discussion and diagnosis, or vice versa:** Paracoccidioidomycosis (PCM) is a systemic granulomatous disease caused by a dimorphic fungus known as Paracoccidioides brasiliensis. The infection in the CNS is characterized by granulomas with the presence of P. brasiliensis. Neuruparacoccidioidomycosis can develop after hematological or lymphatic spread of P. brasiliensis from an active pulmonary infection or reactivation of a latent focus in the CNS after immunodepression. Involvement of the CNS is more common in the chronic form of PCM, occurring in the progressive phase of the disease, often after the third decade of life. In 66.8% of cases, the fungus affects the supratentorial region, especially the frontal and parietal lobes. MRI with intravenous contrast injection often reveals the lesion, generally ring enhancing lesions. Because the radiological presentation of PCM may be suggestive of neoplasia, patients are commonly referred for cancer treatment and tumor resection, thus delaying diagnosis and definitive treatment.

**Conclusion:** PCM should be considered in the differential diagnosis of brain tumors in endemic areas when a ring-enhancing mass associated with peri-lesional edema is observed on MRI.

**Responsible Author:** Dr. Adriano Basso Dias
E-mail: adrianobassodias@gmail.com

**PD.12.077**

**ENCEPHALOPATHY AFTER USE OF VIGABATRINE: CASE REPORT**

**Authors:** MATOS, B.P.; PICCOLO, A.M.; CONTI, T.L.; FREITAS, L.F.; SILVEIRA, C.F.; SANTOS, D.; AMARAL, L.L.F.

**Institution:** Hospital Beneficência Portuguesa de São Paulo

**Brief description of the study purpose:** Vigabatrin works by making the dose-dependent inhibition of the enzyme GABA-transaminase (GABA-T) with consequent increase in GABA levels of the CNS. It has been demonstrated in recent studies in which patients using Vigabatrin who were followed up by means of serial magnetic resonance examinations, many presented diffuse brain changes in these exams, being evidenced signs of encephalopathy induced by the use of this medicine.

**Responsible Author:** Dra. LAIS DE MACEDO ROCHA
E-mail: lais_macedo@hotmail.com

**E-mail:** adrianobassodias@gmail.com
**Clinical history:** L.B.M, female, four months ago she had severe epilepsy refractory to pharmacological treatment. In use of: Vigabatrin (750mg / day); Phenobarbital (20mg / day) and Levetiracetam (250mg / day). The evaluation by magnetic resonance imaging of the encephalus has shown the presence of hypertensive lesions in the diffusion sequence compromising the thalamus, subthalamic nuclei, medial portion of the midbrain, periaqueductal region, superior cerebellar peduncles, medial lemniscus and the nucleus dentin of the cerebellum, bilaterally and symmetrically.

**Discussion and diagnosis, or vice versa:** The risk factors considered significant for these alterations are caused by the use of high doses of vigabatrin and association with other drugs in young patients. Abrupt discontinuation of this medication may lead to withdrawal symptoms (further worsening seizures), and it is recommended that it be gradually reduced over a period of two to four weeks.

**Conclusion:** The possibility of lesions of toxic-metabolic etiology due to the use of Vigabatrin should be included in the differential diagnosis with the first hypothesis. It is of fundamental importance to carry out evolutionary control after withdrawal of the drug.

**Responsible Author:** Dra. Bárbara Pessoa de Matos
E-mail: babipmatos@gmail.com

**PD.12.080**

**TETHERED CORD SYNDROME: CASE REPORT**

**Authors:** ALMEIDA, P. R. S.; CAMPOS NETO, M. F.; RODRIGUES, C. M.; RODRIGUES, E. R. M.

**Institution:** 1.UNIRAD Diagnóstico por Imagem, Imperatriz, Maranhão; 2. Universidade Federal do Maranhão

**Brief description of the study purpose:** Relate a suspect case of Tethered Cord Syndrome (TCS) in a child submitted to myelomeningocele corrective surgery.

**Clinical history:** Female patient, 7 years old, with history of myelomeningocele corrective surgery at birth, presented gradual urinary incontinence, being solicited a magnetic resonance imaging (MRI) of the lumbosacral region.

**Discussion and diagnosis, or vice versa:** The TCS is functional disturb induced by the stretching of the spinal cord with its caudal portion anchored to an inelastic structure, limiting the ascendant movement of the lumbosacral spinal cord, usually encountered in children, and can be secondary to some sorts of disturbances, as spinal lipoma and myelomeningocele. In the patient`s MRI, was observed preserved thickness of the spinal cord with the medullary cone ending close to posterior wall of the dural sac at the level of L5-S1; absence of fusion of the elements of the posterior arc of S1 and compatible images with fibrocartilaginous alterations on the posterior soft tissues; moderate hydrocephalus; hepatomegaly; and rounded cardiac image (cardiomegaly). As diagnostic impression was related the presence of: tethered cord, sacral dysraphism, bilateral hydrocephalus, bladder with thickened walls, possible, as a result of neurogenic bladder and chronic cystitis.

**Conclusion:** The TCS must be suspected in pediatric patients with myelomeningocele submitted to corrective surgery or not, mainly for causing limitations and consequences to physical and psychosocial development of the affected patients.

**Responsible Author:** Biom. ELAINE ROCHA MEIRELLES RODRIGUES
E-mail: elainemeirelles@uol.com.br

**PD.12.084**

**REVERSIBLE CEREBRAL VASOCONSTRICTION SYNDROME: A RARE AND UNDER-DIAGNOSED CONDITION**

**Authors:** OLIVEIRA, G.C.S.; ROCHA, L.M.; OLIVEIRA; D.L.; BOMFIM, R.C.; THEOTONIO, G.O.M.

**Institution:** DIRAD - Hospital Memorial Arthur Ramos, Maceió, Alagoas, Brasil

**Brief description of the study purpose:** Reversible cerebral vasoconstriction syndrome (RCVS) is also known as Call-Fleming syndrome and affects more middle-aged women presenting with recurrent and sudden (thunderclap) headaches. RCVS frequently causes subarachnoid haemorrhage and may be complicated by ischemic stroke, leading to focal neurologic lesions.

**Clinical history:** A 38-year-old female patient complained of sudden and recurrent headache. It was submitted to cranial magnetic resonance angiography that showing multiple focal stenosis areas affecting the distal portions of the vertebral arteries, the P1 and P2 segments of the posterior cerebral arteries, the origins of the anterior cerebral arteries, the intracavernous segment of the internal carotid artery and the M1 segments pre-bifurcation of the middle cerebral arteries. Subarachnoid haemorrhage was observed in the occipital and right parietal lobes.

**Discussion and diagnosis, or vice versa:** With this neuroimaging findings, the hypothesis of reversible cerebral vasoconstriction, associated with small subarachnoid hemorrhage, was raised. This diagnosis was confirmed by the disappearance of the alterations in the post-control examination. For the adequate diagnosis of this disease, it is necessary to demonstrate segmental multifocal arterial constrictions that resolve and then recur. There will be segmental multifocal constrictions in the Willis polygon and its branches, observed through angiography, which will present spontaneous resolution within a maximum of 12 weeks. Some patients, however, may progress with subarachnoid hemorrhage, complicating with ischemic stroke, leading to focal neurological deficits. One of the current treatments used is calcium channel blockers but its efficacy still lacks studies. The use of immunosuppressants is not indicated in RCVS but the use is necessary in vasculitis, one of the main differential diagnoses of RCVS. In addition to vasculitis of the central nervous system, another important differential diagnosis of RCVS is vasospasm related to Subarachnoid Aneurysmal Hemorrhage.

**Conclusion:** RCVS is a benign, self-limited, but rare, and still under-diagnosed disease. In addition, it makes differential diagnosis with diseases that need specific treatment. Therefore, it is important to be aware of its radiological signs and, mainly, the evolutionary follow-up.

**Responsible Author:** Dra. Georgia Cavalcante Silva de Oliveira
E-mail: gg_cavalcante@hotmail.com

**PD.12.085**

**MULTIPLE SYSTEM ATROPHY AND "HOT CROSS BUN" SIGN. A CASE REPORT.**

**Authors:** OLIVEIRA NETO, V.X.; BISPO, D.D.C.; CONCEIÇÃO JUNIOR, A.H.; BARRETO, A.D.A.V; REGATTIERI, N.A.T.; SILVA, A.M.P.N.

**Institution:** Universidade de Brasília - UNB, Brasília, Distrito Federal, Brasil. Hospital Universitário de Brasília - HUB, Brasília, Distrito Federal, Brasil.

**Brief description of the study purpose:** The aim of this study is to present the case report of a patient with multiple system atrophy (MSA), with predominantly cerebellar manifestations, diagnosed through the correlation between the clinical and magnetic resonance of the skull, with the presence of the "Hot Cross Bun" sign.

**Clinical history:** A 67-year-old male presented muscle

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weakness in the lower limbs two years ago, postural instability, appendicular dysmetria, and sciotic speech. Previous personal pathologic history includes 10 packs-years cigarette smoking, stopped 40 years ago, vivid dreams associated with excessive movement of the legs for 5 years, and eventual use of dipyridam and ibuprofen due to pain in the lower limbs. Electroneuromyography without signs of peripheral nervous system involvement in the 4 limbs. Neuroimaging revealed cerebellar atrophy and hypersignal T2 cruciform on the pons, suggesting the diagnosis of multiple system atrophy. In the axial section image, the finding on the pons has been described as the "hot cross bun" sign.

**Discussion and diagnosis, or vice versa:** The "Hot Cross Bun" sign is typically seen in patients with multiple system atrophy. Little is known about its pathological basis and prevalence in other degenerative cerbellar diseases and healthy population. Multiple system atrophy is a degenerative disorder involving, to varying degrees, the nuclei of the base and the olive-pons-cerebellar system. The incidence rate is 3 / 100,000 per year, and has two types: the striatogniral AMS and the AMS olive-cerebellar point. Atrophies of the brainstem, putam and cerebellum may be associated. Currently, there is no effective neuroprotection therapy in AMS. Symptomatic treatment is restricted largely to parkinsonism and dysautonomia.

**Conclusion:** The neuroradiological findings that characterize MSA may indicate the early suspicion for establishing the diagnosis. Therefore, verification of the "Hot Cross Bun" signal or cruciate hyperintensity on the bridge in the T2-weighted sequence of magnetic resonance imaging is of extreme importance for the support of patients with this pathology.

**Responsible Author:** Dr. Vitor Xavier de Oliveira Neto  
**E-mail:** vitor.neto@hotmail.com

**PD.12.086**  
**LOCKED-IN SYNDROME WITH SIGNS OF WALLERIAN ACUTE DEGENERATION - A CASE REPORT**

**Authors:** AGUIAR, A.; MARTINS, I.; ZELAQUETT, C.; DOURADO FILHO, M.  
**Institution:** HOSPITAL DA RESTAURAÇÃO - RECIFE-PERNAMBUCO

**Abstract:**

This is a rare neurological disorder, in which there is complete paralysis of the whole body muscles, exception for muscles that control some movements of the eyes - vertical movement and elevation of the eyelid. This occurs because efferent fibers from the brain cortex are not able to reach their destination because they are interrupted at the pons, leading to symptoms such as tetraplegia and anarthria, with preservation of consciousness and sensitivity. The recognition of the locked-in syndrome is important in facilitating the knowledge of pathophysiological aspects and the identification of the specific signs and symptoms of this syndrome, avoiding misdiagnosis with other conditions in which there is impairment of communication and movement of the patient, as occurs in the with coma. Moreover, with the identification of this syndrome it becomes possible seeking treatments and better forms of communication for the individual, favoring the interaction of the same with the environment in which he lives, thus improving the quality of life of the patient. It is of relevant importance the radiologist to be aware of the various forms of imaging of this syndrome, with early and correct diagnosis, considering its potential for morbidity and its possible complications.

**Responsible Author:** Dr. MARIO GENUINO DOURADO FILHO  
**E-mail:** mgdourado@gmail.com

**PEDIATRICS**

**ORIGINAL PAPER**

**SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)**

**PD.13.009**

**PREVALENT SIGNS IN NEUROIMAGE IN CASES OF ZIKA VIRUS CONGENITAL SYNDROME IN CASES SUSPECTED OR CONFIRMED IN A REFERENCE MICROCEPHALY AMBULATORIY FROM MATO GROSSO STATE IN THE PERIOD OF NOVEMBER 2015 TO MAY 2017.**

**Institution:** UNIVERSIDADE FEDERAL DO MATO GROSSO-UFMT

**Abstract:**

In view of its rarity, the syndrome can be confused with akinetic mutism (coma vigil), which is characterized by an inability to perform any movement or vocalization, while maintaining vigilant eye inspection, but with complete absence of mental activity.

**Clinical history:** The patient evolved with sudden tetraplegia, anarthria, vertical eye movements and blink of the eyes, with preservation of the level of consciousness. Initially she had odynophagia and asthenia, evolving with headache and vomiting, dizziness, intense pain on the right shoulder. Then, she presented syncope and epileptiform crisis.

**Discussion and diagnosis, or vice versa:** The explanation for such a clinical picture is an pons injury with involvement or around the nucleus of the abducent nerve, affecting the cortico-spinal and cortico-bulbar tracts, without reaching the reticular substance of midbrain. It may be due to thrombosis of the basilar artery, which occurred in the present case. There were still signs of Acute Wallerian Degeneration.

**Conclusion:** This is a rare neurological disorder, in which there is complete paralysis of the whole body muscles, exception for muscles that control some movements of the eyes - vertical movement and elevation of the eyelid. This occurs because efferent fibers from the brain cortex are not able to reach their destination because they are interrupted at the pons, leading to symptoms such as tetraplegia and anarthria, with preservation of consciousness and sensitivity. The recognition of the locked-in syndrome is important in facilitating the knowledge of pathophysiological aspects and the identification of the specific signs and symptoms of this syndrome, avoiding misdiagnosis with other conditions in which there is impairment of communication and movement of the patient, as occurs in the with coma. Moreover, with the identification of this syndrome it becomes possible seeking treatments and better forms of communication for the individual, favoring the interaction of the same with the environment in which he lives, thus improving the quality of life of the patient. It is of relevant importance the radiologist to be aware of the various forms of imaging of this syndrome, with early and correct diagnosis, considering its potential for morbidity and its possible complications.

**Responsible Author:** Dr. MARIO GENUINO DOURADO FILHO  
**E-mail:** mgdourado@gmail.com

**HOSPITAL UNIVERSITÁRIO JÚLIO MULLER-HUJM**

**Brief description of the study purpose/Objectives:** The Zika virus (Z-v) has been identified as a cause of microcephaly and other neurological complications that together constitute Zika virus (SCZ) Congenital Syndrome. Transfontanel ultrasonography (US-TF) is the first option for imaging examination, since cranial tomography (CT) is difficult to perform in infants. The present study aimed to report the intracranial alterations, identified in neuroimaging exams, associated with SCZ.

**Material and methods:** This is a retrospective descriptive study of neuroimaging findings of 35 patients with probable or confirmed diagnosis of SCZ, attended at a reference outpatient clinic in Cuiabá / MT for children with microcephaly between November 2015 and May 2017. According to the clinical protocol of the service, based on the recommendations of the Ministry of Health, patients were submitted to US-TF and / or TCC. In the study period, 35 children were evaluated, ranging from 1 day of life to 6
months of age at the time of examination, among which 20 had a diagnosis of Z-v confirmed microcephaly and 15 were considered probable cases of Z-v microcephaly after exclusion of other etiologies and clinical-radiological-epidemiological findings compatible with SCZ. Among the patients, 4 performed only USG-TF, 6 only TCC and 24 both examinations. In 91.17% of the patients, calcifications were detected in 55.88% ventriculomegaly, 17.64% lisencephaly and 5.88% digenesis of the corpus callosum, and many of these findings overlapped. The location of the calcifications was subcortical in 70.96% of the cases, being the frontoparietal region the most described (50%); periventricular in 16.12%; in nuclei of the base in 12.90%. It is worth mentioning that although the digenesis of the corpus callosum is the least prevalent finding, the most adequate imaging method for its evaluation is nuclear magnetic resonance.

**Conclusion:** Of the analyzed patients, the finding of microcalcifications was the most frequent and the most frequent pattern of distribution was the subcortical one with a predominantly frontoparietal involvement, followed by periventricular calcifications and nuclei of the base. All children evaluated who presented intracranial changes evolved with delayed neuropsychomotor development to varying degrees.

**Responsible Author:** Sr. John Nascimento
**E-mail:** johnascimento25@gmail.com

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**TL.13.001**

**NASAL SEPTAL SPUR: DETERMINING PREVALENCE RELATED TO AGE AND GENDER IN PEDIATRIC PARANASAL SINUSES COMPUTED TOMOGRAPHY.**

**Authors:** ARAÚJO, A.I.R.; SARPI, M. O.; DUARTE L. G.; GONÇALVES FILHO, A. L. M.; SOUZA, S. A.; GARCIA, M. R. T.

**Institution:** Grupo DASA

**Brief description of the study purpose/Objectives:** 1. To determine the prevalence of nasal septal spur in the pediatric population by age. 2. To verify if there is difference between the genders and the age of appearance of nasal septal spur.

**Material and methods:** A total of 161 computed tomography (CT) scans of the paranasal sinuses performed in 2015-2017 of children and adolescents aged 2-18 were selected randomly and analyzed retrospectively. Three board head and neck radiologists and one fellow reviewed all exams. Septal spur presence and related contact, compression or deformity of adjacent nasal structures were evaluated. We used the unpaired t test to calculate significant difference between the groups.

**Results and discussion:** Out of the 161 children and adolescents 69 were girls (42.9%) and 92 were boys (57.1%). The majority of the cases were concentrated between ages 4-18 (155 patients - 96%), and just a few number of patients were younger than 4 years old (6 patients – 4%) – all of these patients were male. We attributed the reduced number of patients younger than 4 years to pediatrician’s avoidance of CT scans in this group. The septal spur prevalence was higher in 6-year-old girls and above and in 8-year-old boys and above. In patients between ages 8 and 18 we notice a significant difference (p value: 0.0237) in gender, with predominance of the septal spur in male population. No differences regarding age or sex were found considering contact or compression and deformity of adjacent structures related to septal spur presence (p value: 0.23 for contact and 0.78 for compression and deformity). No significant differences were observed considering children younger than 6 years old. We noticed that a thick airway mucosa was commonly seen in many of the cases reviewed, reducing the airway space, and eventually resulting in nasal obstruction.

**Conclusion:** Nasal septal spur prevalence increases by age and is higher in male population. Considering that nasal septal deviation and spur tend to persist or evolve as age advances, maybe its earlier occurrence can have an important role in nasal obstruction treatment.

**Responsible Author:** Dr. Alan Iuno Rios Araújo
**E-mail:** iuno82@hotmail.com
PICTORIAL ESSAY

SCIENTIFIC PAPERS - POSTERS (PA)

PA.13.001
TRANSFONTRANELLAR ULTRASOUND IN NEWBORNS WITH CONGENITAL TOXOPLASMOSIS - WHAT WE ARE SEARCHING FOR?
Institution: Hospital Vila Santa Catarina
Introduction and objectives: Toxoplasmosis is one of the most common parasitic infections in humans and is most typically asymptomatic. Primary infection in a pregnant woman can cause severe disease in the developing fetus. The severity of symptoms is related to the trimester of pregnancy when transmission occurred. If not treated, most children with this infection develop problems later. This study is to review the main findings in the transfontranellular ultrasound in congenital toxoplasmosis.
Methods: Ultrasoundography of newborns with confirmed congenital toxoplasmosis in the intensive care unit.
Discussion: Toxoplasmosis is a common infection disease. The vertical transmission rate is directly proportional to the gestational age in which the mother is infected, the severity of fetal disease being inversely related to it. Often, there are signs of infection at birth like enlarged liver and spleen, eye damage, seizures, vomiting or jaundice. However, babies may not have symptoms for months or years after birth. The most common manifestations based on the trimester in which the infection occurred: - first trimester: fetal death; - second trimester: retinochoroiditis and mental retardation; - third trimester: lymphadenopathy, hepatosplenomegaly, eye injuries and brain calcifications.
Conclusion: Transfondutlanellar ultrasonography is important to detect major neurological abnormalities for diagnosis and early management of congenital toxoplasmosis.
Responsible Author: Dra. eliane dutenhfeber
E-mail: eliane.dut@gmail.com

PA.13.002
FOCUSED THORACIC ULTRASONOGRAPHY FOR THE ELUCIDATION OF RADIOLUCENT AREAS IN CRITICALLY ILL NEONATES AND PEDIATRIC PATIENTS’ CHEST X-RAY
Institution: Hospital Israelita Albert Einstein
Introduction and objectives: Radiolucent lesions on the chest radiographs of children and neonates are frequently seen. Sometimes this uncharacteristic aspect does not allow an assertive diagnosis, leading to repetitions of examinations or even the complementation with computed tomography, both using ionizing radiation. The present study proposes to demonstrate through an interactive series of cases how the focused ultrasonography of the thorax can help in the differential diagnosis of thoracic radiolucent lesions in the pediatric population.
Methods: We have done an extensive review of the literature and selected several illustrative interactive cases. A chest X-ray will be presented and later we will list the main ultrasonographic findings of the corresponding case that allow a final diagnosis.
Discussion: Thoracic ultrasound is a method that is gaining more and more acceptance in pediatrics, guiding treatments and procedures, predicting prognosis and allowing evolutionary control. We discuss how this method can also assist in the diagnosis of numerous lucent thoracic lesions, avoiding unnecessary exposure to ionizing radiation.
Conclusion: The finding of a lucent lesion on chest radiographs in pediatrics is frequent, although not always sufficient for a diagnosis. Thoracic ultrasound emerges as a complementary method to elucidate these cases without the use of ionizing radiation.
Responsible Author: Dr. Eduardo Kaiser Ururahy Nunes Fonseca
E-mail: edukaiser_unf@hotmail.com

PA.13.003
ULTRASONOGRAPHY IN ABDOMINAL CYSTIC LESIONS IN PEDIATRIC: A PRACTICAL APPROACH
Institution: Hospital Israelita Albert Einstein
Introduction and objectives: Abdominal cystic lesions are relatively frequent findings in neonates and children when performing ultrasound examinations - often representing a challenge for their topographical and differential diagnosis. The present study proposes a practical approach that divides this group of lesions into their topographical and differential diagnosis. The present study proposes a practical approach that divides this group of lesions into their topographical and differential diagnosis. The present study proposes a practical approach that divides this group of lesions into their topographical and differential diagnosis. The present study proposes a practical approach that divides this group of lesions into their topographical and differential diagnosis.
Methods: We have made an extensive review of the literature and selected several illustrative cases of neonatal and pediatric abdominal cystic lesions by their site of origin. We discuss the main lesions, highlighting their principal image characteristics.
Discussion: Ultrasonography is the method of choice to start the evaluation and follow-up of neonatal and pediatric abdominal cystic lesions in order to guide their diagnosis.
Conclusion: We sought to highlight the main ultrasonographic features of neonatal and pediatric abdominal cystic lesions through a practical approach in order to narrow the differential diagnosis, allowing a more appropriate management of these findings, both frequent and challenging.
Responsible Author: Dr. Eduardo Kaiser Ururahy Nunes Fonseca
E-mail: edukaiser_unf@hotmail.com

PA.13.004
PEDIATRIC LYMPHATIC MALFORMATIONS: SAME PATTERN IN DIFFERENT SITES
Institution: Hospital Israelita Albert Einstein
Introduction and objectives: Lymphatic malformations are uncommon lesions due to defects in the development of the lymphatic system and usually present as multiculated masses in childhood, a characteristic image pattern independent of its site of involvement.
Methods: We have done an extensive review of the literature and searched for cases of lymphatic malformations in...
the pediatric archive of our service to illustrate this group of lesions in different sites, exploring their image patterns.

**Discussion:** Given the almost universal distribution of the lymphatic system through the body, lymphatic malformations can be found in almost all organs and systems. In this way, it is important that the radiologist is familiar with their imaging appearance in order to make the correct diagnosis.

**Conclusion:** Lymphatic malformations can affect multiple organs and systems, participating in a vast differential diagnosis depending on their site of involvement. This makes the role of the radiologist in the recognition of their typical patterns of imaging paramount importance, allowing a more assertive diagnosis.

**Responsible Author:** Dr. Eduardo Kaiser Ururahy Nunes Fonseca
**E-mail:** edukaiser_unf@hotmail.com

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**PA.13.005**

**SPINAL AND MEDULLARY ULTRASONOGRAPHY: ANATOMICAL BASES, MAIN DISEASES AND POST-OPERATIVE CONTROL**


**Institution:** Hospital Israelita Albert Einstein

**Introduction and objectives:** Ultrasonography is an innocuous method, which does not require sedation and transportation. These factors, together with their unique level of anatomical detail, place it as a notable method in the assessment of spinal and cord disorders in neonates. The present study details, through a collection of cases, the anatomical bases and main diseases of the spine in this population, as well as the experience of our group in the ultrasonographic control postoperative of myelomeningocele.

**Methods:** We have done an extensive review of the literature and selected several illustrative cases of spinal and medullary ultrasonography, ranging from normal anatomy to cases of postoperative control, including anatomic variants and major diseases.

**Discussion:** Considered an exclusive territory of magnetic resonance imaging for a long time, the spinal cord can be evaluated quite completely by dedicated ultrasonography, without the use of sedation. The radiologist should be familiar with the technical aspects of the method, as well as the normal anatomy, variants, and major spinal cord and spinal conditions in children.

**Conclusion:** Ultrasonography of the spine shows extremely effectively not only the normal anatomy but also accurately characterizes the major diseases of the spinal cord and spine, without sedation and patient transportation, which makes it an extremely attractive method in pediatrics.

**Responsible Author:** Dr. Eduardo Kaiser Ururahy Nunes Fonseca
**E-mail:** edukaiser_unf@hotmail.com

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**PD.13.013**

**GASTROCHISIS: FAR BEYOND INTESTINAL HERNIATION**

**Authors:** BUENO, L.F.; BRAGA F.C.B.; CARDOSO, M.R.R.; ARRUDA, E.C.; OLIANI, D.C.M.V.; SOUZA, A.S.

**Institution:** Hospital de Base da Faculdade de Medicina de São José do Rio Preto. A. C. Camargo Cancer Center, São Paulo, São Paulo, BrasilAdvanced Imaging Associates, Fremont, California, USAAngio Vascular Medicine Consulting Rooms, Belgrade, SerbiaANGIORAD, Recife, Pernambuco, BrasilAPROFE, Ambato, Tungurahua, EcuadorAPROFE, Babahoyo, Los Rios, EcuadorAPROFE, Guayaquil, Guayas, EcuadorAsian Medical Center, Seoul, Republic of KoreaAssociation Hospitalar Beneficente São Vicente de Paulo, Passo Fundo, Rio Grande do Sul, BrasilAxial Centro de Imagem Diagnóstico SC Ltda., Belo Horizonte, Minas Gerais, BrasilBayero University, Kano, NigeriaBenedicentia Portuguesa de São Paulo, São Paulo, BrasilBeytepe Military Hospital, Ankara, TurkeyBio Master Medicina Diagnóstica, São Paulo, São Paulo, BrasilBoston University School of Medicine, Boston, Massachusetts, EUABreast Center, National Taiwan University Hospital, Taipei, TaiwanBuddhist Tzu Chi General Hospital, Taipei Branch, TaiwanBusan Paik Hospital Inje University, Busan, South KoreaCardiology Research Complex, Moscow, RussiaCasa de Saúde Santa Marcelina, São Paulo, São Paulo, BrasilCasa de Saúde São José, Rio de Janeiro, Rio de Janeiro, BrasilICDB - Centro de Diagnósticos Brasil, São Paulo, São Paulo, BrasilICED Diagnóstico por Imagem, Campinas, São Paulo, BrasilICDI - Centro de Diagnóstico por Imagem, Vitória, Espírito Santo, BrasilICDI - Clinica de Diagnóstico por Imagem, Rio de Janeiro, Rio de Janeiro, BrasilICEBRAMEN - Centro Brasileiro de Medicina Nuclear e Imagem Molecular, Goiânia, Goiás, BrasilICEDIMA - Centro de Estudos de Diagnóstico por Imagem Professor Waldir Maymone, Presidente Prudente, São Paulo, BrasilICEDIMAGEM, Juiz de Fora, Minas Gerais, BrasilICEDIMEN - Centro de Diagnóstico em Medicina Nuclear, São Paulo, São Paulo, BrasilICEDIRP - Centro de Diagnóstico Ribeirão Preto, Ribeirão Preto, São Paulo, BrasilICEGYR, Ciudad Autónoma de Buenos Aires, ArgentinaCentro de Atenção Integral à Saúde da Mulher-CAIMS, Universidade Estadual de Campinas-UNICAMP, Campinas, São Paulo, BrasilCentro de Ciências das Imagens e Fisica Médica, Seção de Medicina Nuclear - Hospital das Clínicas de Ribeirão Preto - USP, Ribeirão Preto, São Paulo, BrasilCentro de Desenvolvimento da Tecnologia Nuclear, Belo Horizonte, Minas Gerais, BrasilCentro de Diagnóstico Dr. Enrique Rossi, Buenos Aires, ArgentinaCentro de Diagnóstico Schmillevitch, São Paulo, São Paulo, BrasilCentro de Ensino e Pesquisa do Hospital Pro Cardiaco/Procep, Rio de Janeiro, Rio de Janeiro, BrasilCentro de Estudos Medimag Campanha Feira de Santana, Feira de Santana, Bahia, BrasilCentro de Medicina Intervencionista, Hospital Israelita Albert Einstein, São Paulo, São Paulo, BrasilCentro de Medicina Nuclear da Guanabara, Rio de Janeiro, Rio de Janeiro, BrasilCentro de Medicina Nuclear do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, São Paulo, BrasilCentro de Medicina Nuclear do Instituto de Radiologia do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, São Paulo, BrasilCentro de Radioterapia Rio de Janeiro, Duque de Caxias, Rio de Janeiro, BrasilCentro de Reabilitação e Readaptação Dr. Henrique Santillo, Goiânia, Goiás, BrasilCentro de Tecnologia da Informação Renato Archer, Campinas, São Paulo, BrasilCentro Diagnosed de Radioterapia, Campinas, São Paulo, BrasilCentro Diagnóstico Lucilo Ávila Jr, Recife, Pernambuco, BrasilCentro Educacional ETIP, São Paulo, São Paulo, BrasilCentro Estadual de Diagnóstico por Imagem (CEDI/SES-RJ), Rio de Janeiro, Rio de Janeiro, BrasilCentro Infantil Boldrini, Campinas, São Paulo, BrasilCentro Médico Diagnóstico, Sorocaba, São Paulo, BrasilCentro Radiológico-
E-mail:

Gastroschisis is a congenital anomaly with global incidence of 1 in 2,500 births. It is a full-thickness abdominal wall defect, which leads to the evisceration of peritoneal content, particularly bowels. This presentation aims to: - Provide a concise overview of gastroschisis complications and associations; - Alert radiologists of the findings that may indicate complex gastroschisis.

**Discussion:** Gastroschisis is not associated with any major chromosomal or genetic syndrome, and the prevalence of associated structural anomalies are found up to 13%. Intestinal atresia, intestinal perforation, intestinal necrotic segment or volvulus may also occur in association and these cases have a high mortality rate. Gastroschisis can be early diagnosed in the birth and postnatal therapy. The objective of this work is to exemplify the use of fetal MRI in the diagnostic clarification of congenital malformations of the gastrointestinal tract.

**Methods:** High alimentary tract obstruction: esophageal atresia, duodenal obstruction. - Jejunooileal obstruction: jejunooileal atresia, malrotation, intestinal duplication, meconium ileus. - Large-Bowel obstruction: colonic or anal atresia. - Defects in abdominal wall closure: omphalocele, gastroschisis.

**Discussion:** Fetal MRI may provide important information for the definition of congenital malformations of the gastrointestinal tract, helping to clarify the anatomical changes and allowing an excellent evaluation of the rest of the fetal anatomy, very important in cases of associated malformations that may often be present. The evaluation of dilated intestinal loops with meconium content can be very well performed using the T1-weighted sequences, allowing an understanding of the anatomy of the loops and points of obstruction.

**Conclusion:** Fetal resonance may help to better assess cases of fetal gastrointestinal malformations, allowing an optimal assessment of the anatomy and helping to define associated malformations.

**Responsible Author:** Dra. TAÍSA PALLU DAVAUS GASPERETTO

**E-mail:** taisadavaus@gmail.com

**PD.13.021**

**GRISEL SYNDROME: WHEN TO SUSPECT? HOW TO INVESTIGATE?**

**Authors:** CASAGRANDE, T.C.; FAVARETTO, A.C.; FARIAS, L.P.G.

**Institution:** Hospital e Maternidade Vitória, São Paulo/SP, Brasil; Hospital Alvorada Moema, São Paulo/SP, Brasil.

**Introduction and objectives:** Grisel syndrome was first described by Charles Bell in 1830 in a patient with pharyngeal syphilitic ulcer who progressed to fixed rotational atlantoaxial subluxation with subsequent spinal compression followed by death. Although rare, its most common causative factor is very common in the pediatric environment. It is believed that in children with ligament laxity, synovial hypertrophy and the relative horizontalization of the C1-C2 joint may be important factors. Facing the clinical suspicion of cervicalgia and torticollis within a suitable clinical context, transoral...
cervical spine radiography can be performed, but CT is the exam of choice, although it can be replaced by magnetic resonance imaging, classifying the syndrome into four levels of according to Fielding and Hawkins. Subluxation may cause some complications such as dysphagia and neurological impairment, such as spinal cord compression, but in most cases, its evolution has a good prognosis.

Methods: Literature review and retrospective analysis of patients with Grisel syndrome, obtained through the TMCD from experience and/or archival of the authors. The imaging characteristics will be demonstrated by means of anatomical cuts, multiplanar reconstructions, volume rendering and pictorial composition schemes.

Discussion: Grisel syndrome was first described by Charles Bell in 1830 in a patient with pharyngeal syphilitic ulcer who progressed to fixed rotational atlantoaxial subluxation with subsequent spinal compression followed by death. Although rare, its most common causative factor is very common in the pediatric environment. It is believed that in children with ligament laxity, synovial hypertrophy and the relative horizontalization of the C1-C2 joint may be important factors. Facing the clinical suspicion of cervicalgia and torticollis within a suitable clinical context, transoral cervical spine radiography can be performed, but CT is the exam of choice, although it can be replaced by magnetic resonance imaging, classifying the syndrome into four levels of according to Fielding and Hawkins. Subluxation may cause some complications such as dysphagia and neurological impairment, such as spinal cord compression, but in most cases, its evolution has a good prognosis.

Conclusion: The clinical-radiological suspicion and the diagnosis of Grisel syndrome are essential for the introduction of early clinical treatment in order to avoid the need for surgical treatment and the possibility of associated complications, especially those related to neurological impairment.

Responsible Author: Dr. Lucas de Pádua Gomes de Farias
E-mail: lucaspadua@hotmail.com

LITERATURE REVIEW

SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)

PD.13.010

RADIOOTHERAPY MODES SELECTED FOR THE THERAPEUTIC WILMS TUMOR

Authors: SOUSA, J.C.O

Institution: Núcleo de Pesquisa Científica e Acadêmica de Radiologia (NPCAR)

Brief description(s) of the purpose(s) of the Literature Review: Wilms’ tumor (TW) is a renal tumor of higher incidence in early childhood and rarely affects adults; clinically presents as an abdominal mass accidentally discovered by the parents or even in routine evaluations performed by the pediatrician. The determination of the prognosis and the therapeutic choice in the TW combat are defined by the extent of the neoplasia (staging). The standard protocol of therapy encompasses surgery, chemotherapy and radiotherapy combined. Radiotherapy modalities are usually used after complete surgical removal of the neoplasm and the determination of radiation dosage is largely related to the neoplastic stage. This research aims to describe and enumerate the techniques and / or radiotherapy modalities chosen in Wilms’ dotumor therapy.

Description(s) of disease(s), method(s) and/or technique(s): Exploratory research with characteristics of literature review and pictorial test of radiotherapy. The bibliographic material consisting the sample was obtained through the databases Scielo, Pubmed and Virtual Health Library (VHL) and includes: articles, case reports and theses related to the theme and contemplating the purpose of the research.

Discussion: On physical examination, the TW patient initially presented: presence of pain and / or hematuria at the onset of the condition; however symptoms such as weight loss, malaise, fever, asthenia are indicative of advanced disease. The stage of neoplasia is the most important criterion to define the treatment and the prognosis of each patient, being defined during tumor resection and histological confirmation. External radiotherapy modalities are chosen for staging III (residual tumor after surgery, confined to the abdomen and metastases for abdominal and IV lymph nodes (hematogeneous metastases or for extra-abdominal lymph nodes) and applied as standard protocol: dose fractionation with duration of 5 times a week and conformational radiotherapy (3D) and intensity modulated radiotherapy (IMRT) techniques.

Conclusion: Wilms tumor corresponds to the most common tumor in early childhood, and like the vast majority of childhood cancers have a difficult diagnosis, however, with a 95% chance of cure in the vast majority of cases.

Responsible Author: Sra. Joyce Caroline
E-mail: joycecarolinedeoliveira@hotmail.com

PD.13.015

COMPUTED TOMOGRAPHY DOSE REPORT: WHAT DO THE LETTERS MEAN AND WHAT THE PEDIATRIC RADIOLOGIST NEEDS TO KNOW FOR ADEQUATE INTERPRETATION

Authors: TAKAHASHI, M. S.; SOUZA, A. S.; GASPARRETTO, T. D.

Institution: DASA

Brief description(s) of the purpose(s) of the Literature Review: Revise the meaning of the many acronyms used in computed tomography (CT) dose reports. Explain the usefulness, importance and limitations of the CT dose reports.

Description(s) of disease(s), method(s) and/or technique(s): There are many studies that demonstrate the direct effect between high dose ionizing radiation and deleterious biological effects, such as acute cellular injury and increased carcinogenesis risk. For this reason, one of the main concerns both radiologists and non-radiologist physicians face when a CT examination is needed is the radiation exposure. This concern becomes even more relevant if the patient is an infant or child, due to the know increased sensibility of these patients to ionizing radiation. The radiation dose related to these exams is however low, and estimating both the patient dose and attributable risk is not always easy and intuitive.

Discussion: Modern CT equipment can generate at the end of the exam a dose report, which contains objective data on the emitted radiation. Direct measurement of patient received dose is not used routinely in CT exams due to the process being extremely cumbersome and nonpractical, so usually dose and risk are estimated based on CT dose report data. In this exhibit we will dissect the many parameters related to the dose report, such as CTDI, DLP, phantom diameter, acquisi-
SPINAL DYSRAPHISM HIDDEN IN CHILDREN. WHAT THE RADIOLOGIST SHOULD KNOW ABOUT PD.13.023

Responsible Author: Biom. Marcelo Straus Takahashi
E-mail: straus91@gmail.com

PD.13.016
URINARY TRACT DILATION IN CHILDREN: RADIOLOGISTS AND NON RADIOLOGISTS SPEEKING THE SAME LANGUAGE.
Authors: TAKAHASHI, M. S.; SOUZA, A. S.; MOTA, G. B.; MOREIRA, M. T.; GASPARRETTO, T. D.
Institution: DASA

Brief description(s) of the purpose(s) of the Literature Review: Review the main specialist consensus and guidelines on urinary tract dilation in the pediatric setting. Reiterate the importance of correct examination technique and appropriate terminology and lexicon usage, in order to ensure proper communication between radiologist and non-radiologist physician.

Description(s) of disease(s), method(s) and/or technique(s): Urinary tract dilation is a frequent finding in pediatric patients, and is estimated to be present in up to 2% of gestations. The majority of urinary tract dilation cases in these cases will resolve spontaneously and do not represent a risk for these patients. But there are cases in which this finding is related to more serious pathologies, such as ureteropelvic obstruction, posterior urethral valve or vesicoureteral reflux, and in these cases if the precocious diagnosis is paramount to avoid renal function loss.

Discussion: Urinary tract dilation evaluation is a frequent task, not only for pediatric radiologists but to general radiologists as well. Recently many societies related to fetal and pediatric urology and nephrology have come together to establish a joint consensus on urinary tract dilation classification in children, with special focus on ultrasound. Another multidisciplinary group recently published a consensus glossary on urinary uroradiological terms. Understanding not only how to properly perform the examination but also how to describe the findings in the urinary tract dilation setting is essential to avoid both overestimation and underestimation of the risk of these patients developing any kind of uropathy.

Conclusion: Urinary tract dilation is a common topic in the pediatric radiologic evaluation. The proper evaluation is fundamental for diagnosis and risk stratification on these patients, that may or may not have increased risk for uropathies. It is the radiologists responsibility to elaborate an adequate, objective and concise report that may answer the physician’s questions, helping in the stratification of patients that will benefit from further investigation or treatment from those who will not benefit or need further assistance.

Responsible Author: Biom. Marcelo Straus Takahashi
E-mail: straus91@gmail.com

PD.13.023
WHAT THE RADIOLOGIST SHOULD KNOW ABOUT ULTRASONOGRAPHY IN THE INVESTIGATION OF SPINAL DYSRAPHISM HIDDEN IN CHILDREN.

Institution: TRANSDUSON MEDICINA DIAGNÓSTICA AVANÇADA

Brief description(s) of the purpose(s) of the Literature Review: Hidden spinal dysraphisms are defined as the group of dysraphisms that exist below intact coverage of the dermis and epidermis, and therefore of greater difficulty in diagnosis on prenatal ultrasound. Ultrasonography is considered to be an effective, non-invasive method of low cost and plays a critical role in the diagnosis or exclusion of occult spinal dysraphism at birth.

Description(s) of disease(s), method(s) and/or technique(s): Neural tube defects are congenital malformations of the spine and spinal cord secondary to abnormal closure of the neural tube. It occurs most often at the level of S1, S2 or both. The following changes may be included as hidden spinal dysraphism: dorsal dermal sinus, lipoma anchored marrow, lipomycelomeningocele, diastematomyelia and thickened terminal phylum. Ultrasound findings suggestive of occult spinal dysraphism include low position of the medullary cone, medullary cone bulbous, terminal phylum thick, dorsal fixation of the spinal cord, and loss of movement of cardiorespiratory pulsatility of the spinal cord.

Discussion: Although some of these lesions are truly occult, most have a cutaneous mark (hair tuft, cutaneous nevus, skin appendix, lipoma, hemangiomia, dermal sinus). Recognition of these skin tags is important because they are often associated with spinal cord injury that can lead to progressive or sudden neurological deterioration. The incomplete ossification of the elements vertebrae in children up to 5 or 6 months of age, acoustic window to visualize the contents of the vertebral canal and bone structures.

Conclusion: Hidden spinal dysraphism may be of different embryological etiologies, but are usually associated with anchoring of the spinal cord. Stabilization of the lesion can be done by releasing the marrow. And the early diagnosis favors with that children who do not have a neurological progression of the pathology. Ultrasonography is the initial and effective method for diagnosis and should be more widely used for this purpose.

Responsible Author: Dra. Laila Rojas
E-mail: laila_rojas@yahoo.com.br

CASE REPORT

Scientific Papers - Digital Presentation (PD)

PD.13.002
CLINICAL AND RADIOLOGICAL PRESENTATION OF VISCERAL LEISHMANIASIS WITH NODULAR SPLENIC LESIONS
Institution: Centro Universitário da Faculdade Assis Gurgacz
Brief description of the study purpose: Although the radiological findings in visceral leishmaniasis (VL) may not be classic, they can still suggest this disease. Having in mind that imaging exams may contribute enormously on the consideration of this diagnosis, especially when the clinical presentation makes itself non-specific or when it presents mimicking other pathologies. The present case report aims to alert radiologists, infectologists, pediatricians and clinicians about the possibility of splenic nodules being related to VL and, always when facing this radiological finding, they should consider VL as a possible differential diagnosis.

Clinical history: Female patient, 6 years old, admitted into an oncology reference center on account of unclarified hepatosplenomegaly, fever (temperature not checked) since 7 days ago and abdominal discomfort. Adenomegalies weren’t found during physical examination. Laboratorial exams indicated pancytopenia. Computerized tomography (CT) identified disseminated splenic nodules. The patient was submitted to an investigatory splenectomy as the main diagnosis hypothesis was lymphoma, however the anatomopathological study of the surgically removed spleen indicated VL.

Discussion and diagnosis, or vice versa: Diagnosing VL might be a challenge for the clinician, especially in situations which the background epidemiology of the patient doesn’t facilitate the investigation. Splenomegaly may be found in 86-100% of the patients with confirmed VL and hepatomegaly in 79-98%, however, our literature review only encountered 2 previous described cases in which parenchymal nodules in both of this organs were caused due to VL. In the present case report the diagnosis was made after splenectomy.

Conclusion: When facing splenic nodules, especially in patients that reside or have recently travelled to endemic areas of VL, this diagnosis has to be considered. This imaging manifestation - rarely related to VL in the literature – may guide the following therapeutics or even prevent unnecessary investigatory splenectomy.

Responsible Author: Dr. Leonardo Trovo Zilotti
E-mail: leo_zilotti@hotmail.com

PD.13.003
LYMPH NODE TUBERCULOSIS LATE DIAGNOSIS
Authors: GARBOGGINI, M. D.; BRAGA, T. C.
Institution: HOSPITAL SANTO ANTÔNIO - OBRAS SOCIAIS IRMÃ DULCE
Brief description of the study purpose: Tuberculosis encompasses a wide spectrum of clinic presentations that may affect multiple organs depending on individual’s immune response. During the last decades it has been observed an increased incidence worldwide, due to increased number of immunosuppressed patients and higher drug resistance. At childhood, faze particularly susceptible to the disease, the main form of impairment is lymphadenopath that involves, especially, the hilar and right paratracheal regions. Image evaluation of such patients, in particular computerized tomography (CT), has a major relevance on the clinical management once lymph nodes with unique characteristics may be indicative of active disease.

Clinical history: Adolescent, 14 years, presents history of widespread lymphadenopathy associated with fever episodes for 5 years. The first lymph nodes observed where at submental and axillary chain bringing down it size and appearing at cervical, submandible and inguinal chains associated with puberty delay and weight loss. During the investigation of the case, where realized several studies, as chest and abdomen CT, showing widespread calcified and with central necrosis lymphadenopathy at several anatomic spaces. The study of cervical region with ultrasound (US) has identified increased and coalescing lymph nodes with high resistance pattern at doppler in IB, IIA and IIB chains. During hospitalization, was realized lymph node biopsy at cervical chain to provide diagnosis.

Discussion and diagnosis, or vice versa: Lymph node tuberculosis has been part of the spectre of the several extrapulmonary forms with high incidence at childhood. In the case, the history of chronic lymphadenopathy associated with clinical sings like hard lymph nodes and puberty delay lead on to increased difficulty to establish the diagnosis due to the need of research other diseases, such as Castleman disease, pointed out due to the patient age and predilection for the mediastinum. However, with the realization of the cervical lymph node biopsy the diagnosis may be suggested, anatomopathological shows granulomas with caseous necrosis.

Conclusion: The tuberculosis shows high incidence at this country and it’s onset at the pediatric population deserves to stand out. The lymph node form, usual at this population is represented, especially, with cervical unilateral mass. At the related case, the presence of widespread lymph nodes enable to cogitate others diagnosis. However, the image pattern at CT in association with the anatomopathological confirmation allows deducing the diagnosis of lymph node tuberculosis.

Responsible Author: Dra. MILENA DAHIA GARBOGGINI
E-mail: milk_70@hotmail.com

PD.13.004
CASE REPORT: BRAIN IMAGING FINDINGS IN A FULL-TERM NEONATE EXPOSED TO MISOPROSTOL IN THE FIRST TRIMESTER OF GESTATION.
Authors: SACRAMENTO, T.C.G.; BRITES, L.G.; VIANNA, M.D.S.; VALE, P.B.V.; ALMEIDA, M.C.L., MIRANDA, L.E.V.; GOTTLEIB, I.; GUENKA, H.A.
Institution: Casa de Saúde São José, RJ.
Brief description of the study purpose: In this article the authors report one case of a full-term newborn exposure to misoprostol on the 1º trimester pregnancy. This paper is focused in some aspects of the computed tomography and magnetic resonance imaging of the nervous system malformations.

Clinical history: At the beginig the maternal exposure to misoprostol (200 mg), during perinatal period. Initiated the prenatal exams with 24 weeks. The obstetric ultrasonography until the 34 week result without abnormalities. In the obstetric ultrasonography of the 38 week, showed an enlargement of the lateral ventricles, and Cesarean was sugested. Born with Apgar 9/10, peripheral cyanose, macrocephaly, satural diastasis, tachypnea, low peripheral perfusion. As the newborn did not present extremity deformities, only brain and magnetic resonance CT scans were performed.

Discussion and diagnosis, or vice versa: The initial CT shows an area of encephalomalacia and important hydrocephalus. At the 9º day of life MRI, shows a blood clot occluding the aqueduct of Sylvius, 4º ventricle without anatomic abnormalities, blood clots at the lateral ventricles and the 3º ventricle. Misoprostol causes a transient drop in the circulation of the fetus that depends on the intensity in the vascular phenomenon, results a cerebral hypoperfusion, as the pathology of a ischaemic stroke, culminating to an encephalomalacia area.

Conclusion: The images obtained in brain CT and MRI in this case are very serious and compatible with the literature. The use of misoprostol is reported in labor for uterine stimulation, as an analog of oxytocin, but its use in the first trimester of pregnancy is strongly associated with malformations such as brain atrophy, hydrocephalus, and deformities such as absence of hands and feet. The prognosis of these babies is quite
PD.13.005
CASE REPORT: IMAGING FINDINGS IN A NEW-BORN WITH ALOBAR HOLOPROSENCEPHALY.
Authors: SACRAMENTO, T.C.G.; BRITES, L.G.; VIANNA, M.D.S.; VALE, P.B.V.; ALMEIDA, M.C.L., MIRANDA, L.E.V.; GOTTLIEB, I.; GUENKA, H.A.
Institution: Casa de Saúde São José, RJ.
Brief description of the study purpose: Among the congenital malformations of the central nervous system, holoprosencephaly is documented in 50: 10,000 spontaneous abortions, has a multifactorial etiology, and the most severe form is alobar, treated in this case report.
Clinical history: A 35-year-old patient, gestate II to I, spontaneous abortion I, who came from another hospital service with a 12-week ultrasonography (US) showing hydrocephalus registry and suspected Dandy-Walker malformation in the morphologic US of 25 weeks. Fetal magnetic resonance was performed in the third trimester, showing macrocephaly, corpus callosum agenesis, diffuse cortical thinning, posterior fossa cyst communicating with 4th ventricle, cerebellar hemispheres hypoplasia, and cesarean section indicated 36 weeks. Newborn cerebral computed tomography was performed in the third trimester, showing macrocephaly, and polyhydramnios. Agap 4/6/8, newborn intubated in the delivery room, and submitted to peritoneal-ventriculo-derivation later.
Discussion and diagnosis, or vice versa: After the primary neuron, non-cleavage of the forebrain in the fifth week of gestation, forms a single ventricular cavity, with fusion of the frontal lobes and absence of the interhemispheric fissure, called pancake brain, accompanied by facial defects of the line average. Newborn cerebral computed tomography showed turrencephaly with cranial suture diastasis, white matter tapering, preservation of the frontal gyri, a tension of the cerebral hemispheres, concluding the diagnosis of holoprosencephaly. The result of the G-band karyotype was normal, the changes are detectable in molecular test.
Conclusion: The initial fetal diagnosis of Dandy-Walker allowed the course of gestation in the expectation of a cerebral malformation with a better prognosis. Due to the severity of holoprosencephaly alobar, this entity is incompatible with life if there are no interventions such as DVP, gastrostomy, intubation and ventilatory prosthesis, to which the referred patient has been associated with continuous anticonvulsants, means by which vital signs are maintained stable to date. The same presents ocular opening and some reflexes by probable persistence of small bundle of the cortico-spinal tract.
Responsible Author: Dra. THATIANA CRISTINA GOMES SACRAMENTO
E-mail: thatisacramento@hotmail.com

PD.13.006
BILATERAL SEVER’S DISEASE – AN UNCOMMON DISEASE
Authors: DAUARTE, M.L.; ITO MH; COSTA MGV; SILVA, MQP
Institution: WEBIMAGEM
Brief description of the study purpose: Report and review the literature about this uncommon disease.
Clinical history: 8 years-old boy with pain in the heel of both feet for three months. The pain started when the started to play basketball.
Discussion and diagnosis, or vice versa: Magnetic resonance imaging (MRI) demonstrated irregularity of calcaneal apophysis with important edema, corresponding to Sever’s disease, with discrete edema of surrounding subcutaneous tissue, in both feet. Sever’s disease is a chronic (repetitive) injury to the actively remodeling trabecular metaphyseal bone that results in a variably sized stress injury with concomitant trabecular micro failure, hemorrhage, and edema, which is evident on MRI. Rarely causes important disability and is transient in most of the times, but it can interfere with walking and physical performance in sports, causing concern to the patient and parents. It is the most common cause of heel pain in the physically active growing children – 8-25 years-old – and is considered a benign, self-limiting condition of childhood and adolescence.
Responsible Author: Dra. THATIANA CRISTINA GOMES SACRAMENTO
E-mail: thatisacramento@hotmail.com

PD.13.007
DUODENAL ATRESIA ASSOCIATED WITH ABDOMINAL SITUS INVERSUS IN NEWBORN - CASE REPORT OF A RARE ASSOCIATION
Authors: SANTANGELO, C.V.; BARROS, B.B.; DE ALMEIDA, R.B.; FIGUEREDO, S.M. DE O.; LINS, C.F.
Institution: HOSPITAL SÃO RAFAEL/ HOSPITAL ESPECIALIDADES DA CRIANÇA/ INSTITUTO DE PERINATOLOGIA DA BAHIA
Brief description of the study purpose: Duodenal atresia associated with abdominal situs inversus is a rare clinical picture, with about 20 cases reported in the literature. Late diagnosis of these clinical conditions, when they occur simultaneously, can lead to serious complications, including neonatal death. It is important to report this case so that health professionals recognize this condition immediately in order to plan a better preoperative period, allowing the patient to have a better clinical segment from their unusual situation.
Clinical history: Male newborn, one day of life, with bilious vomiting, no dejections. A simple abdominal radiograph was performed, and the reverse double-bubble signal was identified, with left hepatic shade and gastric air bubble as well as the distal end of the gastric tube on the right. It should be pointed out that the heart had left apex, with left atrial isomerism and total atrioventricular valve defect being identified at the echocardiogram. It was submitted to abdominal ultrasonography, confirming anatomical inversion of the position of intra-abdominal structures, besides absence of characterization of the gallbladder. He underwent laparotomy for correction of type 3 atresia. During the surgical procedure, liver was identified on the left of darkened color, without visualization of the gallbladder. Gastroenteroanastomosis was performed for correction of duodenal atresia and annular pancreas, as well as liver biopsy which revealed findings consistent with atresia of intrahepatic biliary tract.
Discussion and diagnosis, or vice versa: It was then diagnosed a rare association of duodenal atresia with total abdominal situs inversus and atresia of biliary tract. The importance of prenatal follow-up for early diagnosis and reduction of diagnostic errors / delays of duodenal atresia and situs inversus are highlighted. In addition, one must remember the congenital alterations that can be associated with duodenal atresia,
among them the bile duct atresia, as in the case reported. With adequate and early conduits, morbidity and mortality can be avoided in these patients.

**Conclusion:** Thus, it is important to know the rare association of duodenal atresia with total abdominal situs inversus and atresia of bile ducts, allowing early diagnosis, with adequate therapeutic management, avoiding unnecessary morbidity.

**Responsible Author:** Dra. Carolina Freitas Lins

**E-mail:** kerolins@yahoo.com.br

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**PD.13.012**

**FALLOT TETRALOGY WITH EXTRINSIC COMPRESSION ON THE AIRWAYS: CONSIDER ASSOCIATION WITH ABSENT PULMONARY VALVE SYNDROME**

**Authors:** MACÊDO, J. F.; LIRA, M. L. S. S.; SILVA, E. J. C.; ALBUQUERQUE, S. C.; DANTAS, S. L. O.; DIÔGENES, L. M.

**Institution:** INSTITUTO DE MEDICINA INTEGRAL PROF. FERNANDO FIGUEIRA - IMIP

**Brief description of the study purpose:** Report pediatric radiologists about the existence of the association of tetralogy of Fallot with the absent pulmonary valve syndrome, a rare clinical entity that can be suggested by the radiologist in patients with tetralogy of Fallot that present signs of extrinsic compression on the tracheobronchial tree.

**Clinical history:** Male, 2 months old, with tetralogy of Fallot, admitted with respiratory distress, cyanosis and persistent wheezing. Chest XRs showed alternating lobar atelectasis and hyperaeration areas. The possibility of a bronchogenic cyst or anomalous vascular structure exerting compression on the bronchial tubes was considered, being recommended computed tomography (CT) with contrast media. CT revealed aneurysmatic dilatation of the trunk of the pulmonary artery and its main branches, a suggestive finding for the association of tetralogy of Fallot with absent pulmonary valve syndrome. Diagnosis was later confirmed through cardiac catheterization.

**Discussion and diagnosis, or vice versa:** The association of absent pulmonary valve syndrome with tetralogy of Fallot is a rare congenital anomaly, characterized by absent or rudimentary and stenotic pulmonary valve, as well massive dilatation of the trunk of the pulmonary artery and its main branches. This condition is observed in 2.5% of patients with tetralogy of Fallot. The diagnosis can be made from echocardiography. Unlike tetralogy of Fallot, in which the pulmonary trunk and its branches are hypoplastic, in the absence of the pulmonary valve these vessels will be dilated due to severe regurgitation of the malformed valve. Aneurysmatic dilatation of the pulmonary arteries may cause extrinsic compression on the tracheobronchial tree, resulting in air trapping, atelectasis and respiratory symptoms.

**Conclusion:** The involvement of the airways causes early respiratory symptoms in neonates with congenital absence of the pulmonary valve, making the morbidity and mortality rates of these patients higher than those observed in patients with the classic form of tetralogy of Fallot. These children, therefore, benefit from early diagnosis and therapeutic approach. The radiologist should suspect this condition when observing changes of the airways in a patient with tetralogy of Fallot and should transmit this clinical suspicion to the echocardiographer or assistant physician, facilitating the investigation of its typical findings.

**Responsible Author:** Dr. José Fabricio Macêdo

**E-mail:** j.fmacedo@yahoo.com.br

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**PET-CT**

**ORIGINAL PAPER**

**SCIENTIFIC PAPERS - POSTERS (PA)**

**PA.14.001**

**COMPARISON BETWEEN SONOGRAPHIC CHARACTERISTICS AND CYTOPATHOLOGIC FINDINGS OF THYROID NODULES DISCOVERED INCIDENTALLY AT FDG PET-CT (FLUORODEOXYGLUCOSE POSITRON EMISSION TOMOGRAPHY - COMPUTED TOMOGRAPHY)**

**Authors:** WAITMAN, M.; DA COSTA LEITE, C.; DE GALIZA BARBOSA, F.; APARECIDA TROQUES DA SILVEIRA MITTELDORF, C.; GUIDO CERRI, G.

**Institution:** Hospital Sírio Libanés

**Brief description of the study purpose/Objectives:** Thyroid nodules are nowadays frequently detected incidentally during PET-CT studies. This study aimed to compare the sonographic characteristics with the cytopathologic findings of thyroid nodules discovered incidentally at FDG PET-CT.
roid nodules incidentally discovered at PET-CT FDG can have higher probability of malignancy. The objective of this study is to check which sonographic characteristics of these nodules can predict a higher risk of malignancy, and so, decrease the number of unnecessary biopsies. 

**Material and methods:** 30 incidentalomas submitted to fine needle aspiration biopsy were analyzed. The maximum SUV of the benign nodules versus malignant nodules was compared through T-student test. The sonographic characteristics of each nodule allowed their classification by TIRADS 2017 criteria, distinguishing which had indication of biopsy and not.

**Results and discussion:** We had eight malignant nodules, 15 benign and seven undetermined. The SUV of the malignant nodules were statistically higher than the benign nodules (P=0.02581). According to TIRADS 2017, 50% of the malignant nodules had indication of biopsy. However, 75% of the remaining ones were micropapillary carcinomas, indolent tumors that does not have absolute indication of surgery, allowing their surveillance and only submitted to biopsy in an appropriate moment. According to TIRADS 2017 again, only four benign nodules should be biopsied (reduction of 73.3%).

**Conclusion:** The sonographic characteristics seems to have fundamental role in indicating biopsy of thyroid nodules with focal captation of FDG at PET-CT. TIRADS 2017 classification presented good performance to contraindicate unnecessary biopsies.

**Responsible Author:** Dr. Matheus Waitman

E-mail: matheuswaitman@hotmail.com

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**TL.14.001**

**PET/CT AND SOLITARY PULMONARY NODULE: A PROBABILISTIC APPROACH**


**Institution:** Real Hospital Português de Pernambuco

**Brief description of the study purpose/Objectives:** Solitary pulmonary nodule (SPN) is defined as a rounded pulmonary opacity, with a maximum diameter of 3 cm surrounded by normal pulmonary parenchyma. SPN investigation depends on the probability of it being malignant. Cases with intermediate probability are usually submitted to biopsy. However, biopsy is an expensive, invasive and with a high number of false negatives results. PET/CT can help to establish the suitable approach in intermediate probability cases. Nevertheless, few studies determine the frequency of SPN probability change with the use of PET/CT.

**Material and methods:** All PET/CT performed between 05/01/16 and 05/31/17 and with the indication of SPN evaluation were submitted to a retrospective analysis. All needed information to calculate the pre-test probability of malignancy (PM) by the model of Swensen and Herder were obtained from medical records and PET/CT images. A PM below 5% was classified as low, higher than 65% as high and the remaining as intermediate probability. Cases classified as intermediate by Swensen model (without PET/CT) were reclassified by the model of Herder (with PET/CT). Quantitative variables were described as means with standard deviations and categorical variables as relative frequency.

**Results and discussion:** Thirty three patients were included in this study. Seventeen (51.5%) were male and the mean age was 68.23 (+-12.20) years. Table 1 shows the main results from the studied variables. According to the Swensen model, 23 (69.7%) presented an intermediate probability of malignancy. Of these, six (26.1%) changed to low and eight (34.8%) to high PM according to the Herder model. Since low and high PM SPN have well-established approaches, it is possible to say that PET/CT defined the best approach in 14 (60.8%) cases. The individual variation of probability after PET/CT can be seen at figure 1.

**Conclusion:** PET/CT was capable of modifying the SPN probabilistic classification in more than 50% of the cases. Such fact shows PET/CT capacity of orienting decision making in SPN.

**Responsible Author:** Dr. Felipe Mourato

E-mail: felipe.a.mourato@gmail.com
PICTORIAL ESSAY

SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)

PD.14.001
68Ga-PSMA PET/CT: BASIS, PITFALLS AND CLINICAL APPLICATIONS

Institution: Hospital Israelita Albert Einstein

Introduction and objectives: Prostate cancer is the most common malignant neoplasm in males (excluding non-melanoma skin cancers). However, until very recently, there was no single-image method that would allow adequate staging in this group of patients. This has changed with the introduction of 68Ga-PSMA PET/CT. The present study reviews basic aspects of pharmacodynamics of this marker, its distribution, its main uses in prostate cancer as well as the pitfalls related to its use.

Methods: We have made an extensive review of the literature on the use of 68Ga-PSMA PET and selected several illustrative cases of our service to illustrate the normal uptake pattern, main uses in both staging and cases of recurrence, and main pitfalls related to its use.

Discussion: For a long time, the imaging of systemic involvement in prostate cancer has been restricted to a combination of different methods, not always with satisfactory results. Additionally, the most common PET tracer 18F-FDG does not have a great diagnostic yield for most prostate tumors. Recently, however, the introduction of 68Ga-labeled prostatic-specific membrane antigen (PSMA) has changed this scenario, so that molecular functional imaging has been gaining more space, not only in in the evaluation of local and systemic recurrence but also in primary staging with excellent results.

Conclusion: 68Ga-PSMA PET/CT emerged as a major ally in the systemic evaluation of prostate cancer through a single test, allowing a greater understanding of the pathophysiological process of dissemination of this disease and, consequently, a more assertive therapy.

Responsible Author: Dr. Eduardo Kaiser Ururahy Nunes Fonseca
E-mail: educ Kaiser_unf@hotmail.com

PD.14.003
ARTIFACTS IN PET / CT IMAGE

Authors: SOUSA, J.C.O.; FRANÇA, C.A. LIMA, H.J.V.; ARAÚJO, G. M.S.; FRAZÃO, D.W.P.
Institution: Núcleo de Pesquisa Científica e Acadêmica de Radiologia (NPCAR)

Introduction and objectives: The PET / CT equipment corresponds to PET (Positron Emission Tomography) fusion with CT (Computerized Tomography) allowing the obtaining of high resolution anatomical images with the correspondence of the biological behavior of the most diverse pathologies. However, all the techniques of diagnostic imaging generate some traps and artifacts that limit their accuracy. PET combined with CT has brought about performance improvements, yet it has its own traps and artifacts. The most common artifacts seen in PET / CT images usually occur due to the use of CT acquisition to correct the attenuation of PET data.

The purpose of this study is to illustrate and describe PET / CT imaging artifacts.

Methods: It is an iconographic pictorial essay that includes the exhibition of images obtained by PET / CT from various pathologies demonstrating a series of imaging artifacts from personal archive and scientific publications of the subject.

Discussion: The imaging quality of the PET / CT depends on a rigorous preparation of the patient, which must begin on the eve of the exam, seeking to reduce the occurrence of the artifact and / or an error of interpretation in the image. Typically, the artifacts arise from the patient's own or CT acquisition. The most common artifacts seen in PET / CT images due to the use of CT acquisition are due to metallic implants (hip prostheses, chemotherapy catheters, amalgam restorations, among others due to high density); respiratory movement generates artifact due to the difference of the position of the Thorax in CT and PET images; Contrast means (intravenous or oral contrasts present high density resulting in an increase of artifacts due to the high absorption of the photons); truncation; occur because of the difference between the field of view (FOV) and CT (50 cm) and PET (70 cm).

Conclusion: It is concluded that the occurrence of artifacts compromises the diagnostic quality and can directly influence the choice of treatment modalities; the minimization of artifacts may include the use of adequate imaging protocols and attention to patient preparation.

Responsible Author: Sra. Joyce Caroline
E-mail: joycecarolinedeliveira@hotmail.com

CASE REPORT

SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)

PD.14.004
"FLIP-FLIP" IN NEUROENDOCRINE PANCREAS TUMOR WITH LIVER METASTASIS ASSESSED BY PET/CT 18FDG AND 68 GA-DOTATATE: CASE REPORT

Authors: ZANIBONI, E. C.; SAPIENZA, M. T.; ROCHA, N. H.; SADO, H. N.; BUCHPIGUEL, C. A.
Institution: Centro de Medicina Nuclear do Instituto de Radiologia do Hospital das Clínicas da Universidade de São Paulo, São Paulo.

Brief description of the study purpose: Neuroendocrine tumors (NER) are mainly gastrointestinal (70%) and pulmonary (25%) and can manifest as mass or hypersecretion syndrome. The presentation of neuroendocrine syndromes occurs in the presence of hepatic metastases. According to the World Health Organization, NERs are classified according to their degree of differentiation, defined by Ki-67 as grade 1 (well differentiated, Ki67 <3%), grade 2 (well differentiated, Ki-67 from 3 to 20 %) and grade 3 (poorly differentiated, Ki-67> 20%).

The role of nuclear medicine in these cases has increased substantially because PET tracers allow functional and anatomical analysis of the tumor, as well as providing ancillary data to prognosis and therapy.
Clinical history: Female, 42 years old, submitted to upper digestive endoscopy due to left hypochondrium pain. Lesion's biopsy in cardia revealed a moderately differentiated adenocarcinoma. Staging with chest and abdomen CT identified lesions in liver and pancreas. Biopsies showed pancreatic neuroendocrine neoplasia with hepatic metastasis, with little differentiation (grade 3). PET/CT with 18FDG revealed increased glycolytic metabolism in hepatic and pancreatic lesions. Initially treated with 14 Folfirinox cycles, a new PET/CT with 18FDG and 68Ga-DOTATATE was provided for resuscitation and evaluation of radioisotope target therapy. PET/CT with 18FDG revealed massive glycolytic hypermetabolism in the pancreas, in multiple hepatic nodules, and in esophageal-gastric transition. PET/CT with 68Ga-DOTATATE revealed avidity in the same lesions observed in the 18FDG study, except for the esophasogastric.

Discussion and diagnosis, or vice versa: The behavior radiotracer depends on the degree of tumor differentiation. Well-differentiated tumors show hyper-concentration of somatostatin analog tracers, such as 68Ga-DOTATATE. This finding is associated with the disease status and selects cases that may be treated with target therapy with somatostatin analogs, such as 177Lu-DOTATATE. In the low-differentiated tumors, because they present high glycolytic metabolism and express few somatostatin receptors, they are expected to be less avid for their analogs and hyper-concentration of 18FDG.

Conclusion: The complexity of neoplasias that presented avidity by two radiotracers (initially classified as grade 3) was illustrated, inferring different degrees of differentiation in the same lesion. The combined study of PET/CT with 18FDG and 68Ga-DOTATATE, combined with immunohistochemistry, is believed to more accurately represent the biological behavior of the tumor.

Responsible Author: Dra. Elaine Carolina Zaniboni
E-mail: eczaniboni@gmail.com

ORIGINAL PAPER

MUSCULOSKELETAL SYSTEM

TL.15.001
ACCURACY OF MAGNETIC RESONANCE IMAGING FOR DIAGNOSIS OF HALLUX VALGUS
Authors: ROCHA, S.R.R.; HELITO, P.V.P.; LEITE, C.C.; CERRI, G.G.; RODRIGUES, M.B.
Institution: HOSPITAL SÍRIO LIBANÊS
Brief description of the study purpose/Objectives: Hallux valgus (HV) is a prevalent disease that deforms the forefoot. The diagnostic method of choice for HV is the measurement of the metatarsophalangeal angle (MPA) on weight-bearing radiographs. No diagnostic criteria exists for HV in magnetic resonance imaging (MRI). The study aims to assess the accuracy of MRI for the diagnosis of HV using radiography as the gold standard.

Material and methods: Retrospective analysis of MRI scans of the forefoot accompanied by weight-bearing radiographs. Patients were divided in two groups according to measurement of the MPA on plain radiography: MPA ≥15° (hallux valgus) and MPA <15° (control group). A qualitative and quantitative evaluation of the MPA was performed by MRI, and the accuracy of this method for the diagnosis of HV was assessed.

Results and discussion: A total of 66 MRI scans of the forefoot were included, 22 in the HV group and 44 in the control group. On MRI a MPA value of 16.4° exhibited the highest accuracy for the diagnosis of HV, with 90.9% sensitivity and 84.1% specificity. The subjective assessment was inferior to angular measurement.

Conclusion: According to the results of the present study, MPA measurement on MRI can be used to diagnose HV, with a cutoff point of 16.4°.

Responsible Author: Dr. STEPHANO RAYDAN RAMALHO ROCHA
E-mail: stephano_raydan@hotmail.com

TL.15.002
CHARACTERIZATION OF OSSEOUS TISSUE BY ULTRASONIC SPECTROSCOPY
Authors: AGNOLLITTO, P. M.; BRAZ, G. A.; CARNEIRO, A. A. O.; SPIRLANDELI, A. L.; PAULA, F. J. A.; NOGUEIRA-BARBOSA, M.H.
Institution: FACULDADE DE MEDICINA DE RIBEIRÃO PRETO - FMRP/USP FACULDADE DE FILOSOFIA CIÊNCIAS E LETRAS DE RIBEIRÃO PRETO - FFCLRP/USP
Brief description of the study purpose/Objectives: Bone tissue characterization is important not only in the elderly, but also in the pediatric population, where there are restrictions on the use of ionizing radiation. The most commonly used techniques for quantifying bone mass include conventional densitometry (DXA) and quantitative ultrasound (qUS). It is known that the mechanical properties of the bone vary according to its microstructure, as for example in osteoporosis, when reduction of mineralization occurs. In this study we introduced the technique of pulse-emission acoustography (PEA) to extract quantitative information from the bone tissue.

Material and methods: The technique developed utilizes a single high-frequency ultrasound pulse (MHz) to excite the medium. The nonlinear interactions of this acoustic wave produce a lower frequency signal (kHz) that is detected by a hydrophone. This signal transmits information of mechanical and morphological properties of the region of interest, which can be processed in images. The ultrasound pulses of short duration and high intensity were directed in femur bones of mice, 6 from healthy animals (control group - CG) and 6 from animals in which hepatic osteodystrophy was induced (osteometabolic disease group - GDO), group with reduction of bone mineralization.

Results and discussion: When comparing the Fourier transform of the obtained signals, we observed contrast in several frequencies, being 55 kHz to which the highest contrast was observed. The amplitude at this frequency was 5.4 ± 0.5 V for GC bones and 2.6 ± 1.3 V for GDO. A Student's t-test and a descriptive test (p-value) with a significance of less than 5% were performed, and statistical significance was observed.

Conclusion: Our results suggest that PEA is a technique with potential for evaluation of bone tissue and was able to differ-
entiate the experimental groups with osteoporosis and without osteoporosis in vitro.

**Responsible Author:** Dr. PAULO AGNOLLITTO
**E-mail:** agno53@gmail.com

**TL.15.003**

**DIAGNOSTIC ACCURACY OF SUPRASPINATUS TENDON TEARS BY STANDARDIZED CINE CLIPS ON ULTRASONOGRAPHY**

**Authors:** CYRINEU, F.; Sampaio, M. L.; JIBRI, Z.

**Institution:** University of Ottawa, Ottawa, Ontario, Canada.

**Brief description of the study purpose/Objectives:** Determine the accuracy of standardized cine clips for diagnosis of supraspinatus tendon pathologies using as reference standard the static images and final reports

**Material and methods:** The institutional review board approved this prospective study, which was performed between October 19, 2015, and March 21, 2016. Informed consent was waived. 140 patients undergoing routine diagnostic shoulder ultrasounds were examined via static images and standardized cine clips in the longitudinal and transverse axis of the supraspinatus tendon. Cine clips were reviewed by a senior musculoskeletal radiologist. Non-diagnostic quality study or studies with inadequate cine clips were excluded. Diagnostic sonograms including standard cine clips were analyzed for the presence of calcific tendinopathy, tendinopathy, partial-thickness tear, full-thickness tear and a complete tear. Results were compared with the final reports. Sensitivity, specificity, positive predictive, negative predictive values and accuracy were calculated for each category. A second senior musculoskeletal radiologist reviewed 51 cine clips to assess inter-observer agreement.

**Results and discussion:** 114 (56F/58M, ages 21-93 with a mean of 57) patients were obtained after exclusion criteria. Sensitivity, specificity, positive predictive, negative predictive values and accuracy were calculated for each category. A second senior musculoskeletal radiologist reviewed 51 cine clips to assess inter-observer agreement.

**Conclusion:** Cine clips appear to be a reliable tool for evaluating patients with a high pre-test probability of full-thickness or complete supraspinatus tear. However, isolated cine clip evaluations in patients with suspected partial thickness tear, usually younger populations, do not appear to be adequate given the low sensitivity of the method for diagnosis of these injuries.

**Responsible Author:** Dr. Fabricio Cyrineu
**E-mail:** facyrineu@hotmail.com

**PICTORIAL ESSAY**

**SCIENTIFIC PAPERS - POSTERS (PA)**

**PA.15.002**

**POSTERIOR SHOULDER DISLOCATION: PICTORIAL ESSAY**

**Authors:** MENDES, L.A.; CARVALHO, J.D.; CONSOLO, F.D.; JORGE, R.B.

**Institution:** Serviço de Diagnóstico por Imagem da Irmandade da Santa Casa de Misericórdia de São Paulo, São Paulo, São Paulo, Brasil

**Introduction and objectives:** The posterior shoulder dislocation is a rare entity and corresponds to 1 to 4% of the shoulder dislocations. The recognition of this lesion is often difficult, with reports from 60 to 79% of the cases with a diagnosis not performed at the initial radiographic examination. Subtle radiographic findings and coexistence of other lesions may delay the definitive diagnosis.

This paper aims to demonstrate the main findings in radiography (RX), computed tomography (CT) and magnetic resonance imaging (MRI) and contribute to the learning and early diagnosis of these lesions.

**Methods:** The selected cases were obtained in the digital files of our Service and present conventional radiography, computed tomography and/or magnetic resonance imaging.

**Discussion:** Delay in the diagnosis of posterior shoulder dislocation may alter the conduct to be performed, and its early recognition is extremely important. The diagnosis should be suspected in patients with a history of severe muscle contraction (epileptic episodes or electroshock) or in victims of high-energy trauma who present physical examination with the upper limb rotated internally and with evident limitation to external rotation. Plain radiography is a method with less sensitivity, but some radiographic signs and complementary incidences may indicate the diagnosis. Computed tomography and magnetic resonance imaging are methods that are more accurate and allow a definitive diagnosis, especially in the presence of concomitant lesions.

**Conclusion:** The knowledge of some radiographic signs and, where possible, additional incidences (such as axillary) allow us to suspect that the posterior shoulder dislocation is involved. Computed tomography and magnetic resonance imaging are methods that are more accurate and allow a definitive diagnosis, contributing to the staging of the lesion and, when indicated, surgical planning. Correct and early diagnosis makes it possible to manage patients adequately and reduce their complications.

**Responsible Author:** Dr. Lucas Araujo Mendes
**E-mail:** lucasmendes.sc@gmail.com

**PA.15.005**

**DIFFERENTIAL DIAGNOSIS OF LESIONS AT THE BASE OF THE FIFTH METATARSUS**

**Authors:** OLIVEIRA, G.H.N.; MAIA, D. F.; GLORIA, A. R. S.

**Institution:** Hospital Madre Teresa

**Introduction and objectives:** The differential diagnosis of lateral foot pain includes a variety of clinical entities, the most relevant and objective of this study: avulsion fracture of the fifth metatarsal base, Jones fracture, stress fracture, Iselin’s disease and the presence of vesalianum.

**Methods:** A bibliographic and image survey of the XXX Hospital was performed.

**Discussion:** Fractures at the base of the fifth metatarsal are common after ankle sprain. Two types may occur. The first is an avulsion fracture, where a small piece of bone is pulled from the metaphysis by the peroneus brevis tendon. The second is the Jones fracture, in which the fracture occurs at the metadiaphyseal junction, distal to the avulsion fractures. Both fractures can be diagnosed simply by radiographic examination. However, the normal apophysis can be misinterpreted as an avulsion fracture in patients with immature skeletons. Radiographically, the apophysis ap-
Introduction and objectives: Coalitions of carpal and tarsal bones are congenital anomalies, usually identified as a casual finding on radiographs requested for other reasons. In most cases, the coalitions are asymptomatic, however, they can generate pain complaints after trauma. The objective of this study is to characterize imaging findings in the evaluation of carpal and tarsal coalitions through radiography, tomography (CT) and magnetic resonance imaging (MRI).

Methods: The selected cases were obtained from the images archive of a Radiology Department, involving coalitions such as: scapho-semilunar, talocalcaneal, calcaneonaviculcar, navicular-cuboid, navicular-cuneiform and metatarsal-cuneiform, of a fibrous, cartilaginous and bony nature.

Discussion: Coalition is a congenital bridge between two or more bones and may be fibrous (syndesmosis), cartilaginous (sinchondrosis) or bone (sinostosis). Coalitions are often apparent in transverse images, and cartilaginous and fibrous may be more subtle, usually associated with some bone deformity. In particular, MRI offers the ability to determine the exact type of coalition as well as associated soft tissue abnormalities. It is essential that radiologists acknowledge these findings allowing the diagnosis and therapeutic referral when necessary.

Conclusion: In this way, it is possible to observe the importance of this trial, allowing the identification of the main imaging findings of carpal and tarsal coalitions by the various imaging methods (radiography, CT and MRI).

Responsible Author: Dra. Carolina Freitas Lins
E-mail: kerolins@yahoo.com.br

PD.15.012
MAGNETIC RESONANCE IMAGING FINDINGS IN CROSSFIT PRACTITIONERS - PICTORIAL ESSAY
Authors: NASCIMENTO, F.M.R; VIANA, R.S.; FARANI, M.C.; BARRETO, R.L.M.; RIOS, G.M.; PEIXOTO, M. C. G.; MARIZ FILHO, P.J.DA C.; LINS, C.F.
Institution: Delfin Medicina Diagnóstica/ Escola Bahiana de Medicina e Saúde Pública/ Faculdade de Medicina de Ribeirão Preto-USP

Introduction and objectives: Sports-related musculoskeletal injuries are becoming increasingly common in the world population. Recently, these injuries have been increasingly attributed to activities such as Crossfit, which consists of combinations of high intensity exercises performed in rapid successive repetition with limited recovery time. Image studies contribute to the diagnosis, guiding the conduct. This study aims to demonstrate the findings of Magnetic Resonance Imaging (MRI) in patients who practice Crossfit.

Methods: The selected cases were obtained from the image file of our Services, involving musculoskeletal and soft tissue alterations (neuropathy, stress fracture, femoroacetabular impingement, labral lesions, among others), evidenced in MRI, related to Crossfit practice.

Discussion: Generally painful symptomatology associated with excessive exposure to Crossfit practice, or the history of musculoskeletal trauma during the activity, are necessary criteria for the diagnosis of the lesions. It is proven that they can generate reversible and even irreversible damages to the patients, culminating in functional incapacity and consequently great public expenses. It is important to recognize and diagnose early so that we can guarantee adequate therapeutic behavior and subsequent better prognosis.

Conclusion: In this way, the didactic and educational value of this trial is realized, allowing the identification and description of frequent and unusual musculoskeletal lesions in the Crossfit practitioner population.
SPECTRUM OF CHANGES OF POSTERIOR ELEMENTS OF THE VERTEBRAL SPINE - FROM RADIOGRAPHY TO MAGNETIC RESONANCE IMAGING: PICTORIAL ESSAY

Authors: TENÓRIO, L.P.; FARANI, M.C.; MARIZ FILHO, P.J.DA.C.; PEIXOTO, M.C.G.; C.F.

Institution: DELFIN MEDICINA DIAGNÓSTICA/ ESCOLA BAHIANA DE MEDICINA E SAÚDE PÚBLICA/ FACULDADE DE MEDICINA DE RIBEIRÃO PRETO-USP

Introduction and objectives: Low back pain is one of the most prevalent complaints in medical clinics. Radiologists and general practitioners who assess patients with back pain tend to focus on the anterior spine, specifically on disc pathologies often neglecting the role of the posterior elements in generating pain. Therefore, this work intends to demonstrate imaging findings of the posterior elements of the vertebral spine, through x-rays, computed tomography (CT) and magnetic resonance imaging (MRI).

Methods: The selected cases were obtained from the image file of two Radiology Services involving osteoarthritis / spondylosis of facet joints, synovial cysts, spondylolisthesis / spondylolysis, Baastrup's disease, transitional vertebrae, pseudoarticulations, alterations in the visualized portions of the sacroiliac joints, in the various image modalities.

Discussion: Facet joints, pedicles, yellow and interspinous ligaments, spinous processes, lumbosacral transitional vertebrae and sacroiliac joints (SI) are anatomical structures that can be implicated as sources of back pain, simulating root symptoms. Imaging examinations should be tools to identify these predisposing pain factors, alerting radiologist physicians and increasing the rate of suspicion for these possible causes of pain.

Conclusion: This way, the didactic and educational value of this essay has a didactic and educational value enabling the learning of identification of the main MRI findings of the diseases and the main conditions involving bone marrow in the vertebral spine.

Responsible Author: Dra. Carolina Freitas Lins E-mail: kerolins@yahoo.com.br

CONTRIBUTION OF MAGNETIC RESONANCE IMAGING IN EVALUATION OF BONE MARROW OF VERTEBRAL SPINE: PICTORIAL ESSAY


Institution: DELFIN MEDICINA DIAGNÓSTICA/ UNIVERSIDADE FEDERAL DE PERNAMBUCO/ ESCOLA BAHIANA DE MEDICINA E SAÚDE PÚBLICA/ FACULDADE DE MEDICINA DE RIBEIRÃO PRETO-USP

Introduction and objectives: Back pain is common complaint in doctors' offices and magnetic resonance imaging (MRI) studies of the spine are frequently requested. However, the cause of pain may not be related to discopa-thy, facet osteoarthritides or secondary to root compression, but secondary to bone marrow in-volventment, and it is important to differentiate between benign and malignant changes. This work aims to characterize imaging findings in the evaluation of bone marrow in vertebral spine by MRI.

Methods: The selected cases were obtained from images archive of two Radiology Services, involving focal and diffuse diseases such as hemangiomata, medullary reconversion, degenerative changes, infection, bone infarcts, Paget's disease, metastasis, multiple myeloma, lymphoma, hemosiderosis, myelofibrosis, Gaucher disease, alteration after radiotherapy.

Discussion: The appearance of bone marrow is determined largely by the amount of protein, water, fat and cells, also depending on the MRI sequence being used in the analysis. It is important to distinguish normal bone marrow from pathological involvement in order to avoid misinterpretation of changes that should be considered normal, which may result in unnecessary examinations as well as increased costs in health care. MRI, due to its better differentiation of soft tissues and higher spatial resolution, can evaluate spinal changes early. It is critical that radiologist physicians recognize involvement patterns as focal replacement or diffuse infiltration, allowing rapid diagnosis and therapeutic referral when needed.

Conclusion: This essay has a didactic and educational value enabling the learning of identification of the main MRI findings of the diseases and the main conditions involving bone marrow in the vertebral spine.

Responsible Author: Dra. Carolina Freitas Lins E-mail: kerolins@yahoo.com.br

VASULAR ALTERATIONS INCIDENTALLY FOUND SIMULATING PATHOLOGIES IN MUSCULOSKELETAL SYSTEM - PICTORIAL ESSAY

Authors: FARANI, M.C.; BARRETO, R.L.M.; NASCIMENTO, F.M.R.; PEIXOTO, M.C.G.; RIOS, G.M.; AGUIAR, T.G.; LINS, C.F.

Institution: DELFIN MEDICINA DIAGNÓSTICA/ ESCOLA BAHIANA DE MEDICINA E SAÚDE PÚBLICA/ FACULDADE DE MEDICINA DE RIBEIRÃO PRETO-USP

Introduction and objectives: Vascular changes can be found unexpectedly in magnetic resonance imaging (MRI) studies performed to rule out pathologies of musculoskeletal system. This study aims to show the fundamental role that MRI plays in diagnosing a variety of vascular pathological conditions not suspected in the anamnesis / physical examination.

Methods: The selected cases were obtained from the archive of images of our services, involving cases of venous / arterial thrombosis in various locations, aneurysm, pseudoaneurysm, congenital malformations and neoplastic vascular lesions.

Discussion: MRI is an essential tool in analysis of injuries of the musculoskeletal system. Patients often arrive with complaints of muscle or joint pain in upper / lower limbs, whose clinical suspicion was related to musculoskeletal system. However, a number of anatomical changes and vascular pathological conditions may be incidentally encountered during the evaluation of the studies, which may be justification for the patient's complaint. Thus, the importance of adequately assessing vessels in musculoskeletal joints / structures examinations is important, since the recognition of these conditions is of great value, in order to provide the correct diagnosis and, consequently, adequate treatment, avoiding morbidity and mortality.

Conclusion: The value of this pictorial essay is well known, since it describes and illustrates cases of vascular pathologies found in an unpredictable way, simulating muscle / joint injuries in MRI studies that should be promptly recognized by radiologists, preventing complications.

Responsible Author: Dra. Carolina Freitas Lins E-mail: kerolins@yahoo.com.br
PD.15.021

FINDINGS IN MAGNETIC RESONANCE IMAGING OF PATHOLOGIES OF THE LUMBO SACRAL PLEXUS – PICTORIAL ESSAY

Institution: Delfin Medicina Diagnóstica/ Escola Bahiana de Medicina e Saúde Pública/ Faculdade de Medicina de Ribeirão Preto-USP

Introduction and objectives: Lumbar sacral plexus disorders are very common in the world population and present an extensive variety of symptoms, involving lumbar, sacral, pelvic and lower limb pain. However, its diagnosis can be quite challenging due to a large number of differential diagnoses. Imaging studies, especially magnetic resonance imaging, contribute to its diagnosis, thus allowing more specific treatments. This study aims to demonstrate the magnetic resonance imaging (MRI) findings in lumbar sacral plexus lesions.

Methods: The selected cases were obtained from the magnetic resonance imaging files of our Services, involving entrapment neuropathy, metabolic, inflammatory plexopathy and neoplasia.

Discussion: The lesions of the lumbar sacral plexus are common and often incapacitating, leading to the withdrawal of work activities. The presence of pain involving the lumbar, sacral, pelvic or lower limbs, associated with changes in the lumbar sacral plexus on magnetic resonance, allow the earlier and accurate diagnosis of lumbar sacral plexus lesions, improving the prognosis and giving a better quality of life to the patient.

Conclusion: The adequate correlation of clinical data with the findings of magnetic resonance imaging has made possible an earlier diagnosis of lumbar sacral plexus lesions, thus improving the patient’s symptomatology and leading to a shorter time away from work.

Responsible Author: Dra. Carolina Freitas Lins
E-mail: kerolins@yahoo.com.br

PD.15.022

COCCYDYNIA AND ITS MAIN IMAGE FINDINGS

Institution: Hospital Israelita Albert Einstein

Introduction and objectives: Coccydynia or coccygodinea is a clinical condition characterized by pain and edema in the coccygeal region. It presents difficult diagnostic and therapeutic approach, and is still little understood by clinicians, orthopedists and radiologists. Radiological evaluation according to changes in coccyx dynamics may guide treatments and compare therapeutic responses. The objective of the present study is to illustrate the main imaging findings related to coccydynia.

Methods: The present panel addresses the main imaging findings related to coccydynia and exemplifies with illustrative case studies.

Discussion: This panel reviews the main imaging findings of patients with coccydynia, including dynamic hypermobility / instability, altered morphology (such as bone spicules, coccygeal angulation and their variations), trauma (fractures, dislocations), infections, and tumors.

Conclusion: The main imaging findings related to coccydynia were studied and illustrated through didactic cases.

Responsible Author: Dr. Adham do Amaral e Castro
E-mail: adham.castro@gmail.com

PD.15.023

REVIEW OF LUMBAR DISC NOMENCLATURE AND EXEMPLIFICATION WITH DIDACTIC CASES

Institution: Hospital Israelita Albert Einstein

Introduction and objectives: Degenerative disc disease is a very common condition in the general population, with an estimated prevalence of about 70-85%. The role of imaging studies should be to provide accurate morphological information, which will contribute to the proper patients management. With the objective of minimize confusing terms and of systematization, imaging findings have received recommendations from the combined task forces of the North American Spine Society (NASS), the American Society of Spine Radiology (ASSR), and the American Society of Neuroradiology (ASNR). Following these recommendations, the present panel aims to approach and systematize the imaging findings related to the lumbar disc nomenclature, through illustrative didactic cases.

Methods: This panel reviews the imaging findings related to the lumbar disc nomenclature, with the most recent official nomenclature.

Discussion: This panel reviews the findings with the most recent lumbar disc nomenclature, as recommended by the NASS, ASSR and ASNR combined task forces, including: anatomical revision of the normal disc, disc bulging, anular fissure, disc herniation, disc protrusion, disc migration and sequestration, Schmorl nodules, localization of disc changes in the axial and craniocaudal planes and Modic classification.

Conclusion: The findings of degenerative lumbar disc disease, according to the latest official nomenclature, were studied and illustrated through didactic cases.

Responsible Author: Dr. Adham do Amaral e Castro
E-mail: adham.castro@gmail.com

PD.15.024

SAPHO SYNDROME: EVERYTHING THAT THE RADIOLOGIST NEEDS TO KNOW

Authors: VERUSSA, M.H.; ANDO, S.M.; VICTORIO, F.H.C.; FERREIRA, D.L.
Institution: InRad - Instituto de Radiologia do Hospital das Clínicas da Universidade de São Paulo

Introduction and objectives: SAPHO syndrome is a musculoskeletal and dermatological inflammatory condition that affects mainly children, teenagers and young adults. It is characterized by the following clinical and radiological manifestations: synovitis, acne, pustulosis, hyperostosis and osteitis, creating the acronym. It is a disease of unknown etiology and often underdiagnosed due to the rarity of its occurrence. Thus, the objective of this study is to describe the imaging features of the disease, improving the radiologist’s knowledge with this disorder, and, consequently, becoming enable the diagnosis by these professionals.

Methods: We selected confirmed cases of SAPHO Syndrome with emphasis on characteristic radiographic findings.

Discussion: This syndrome is composed by five features. Synovitis impairs the axial and appendicular skeleton, with involvement of the sacroiliac joint in 40% of the patients, since it determined its classification as a spondyloarthropathy by some authors. Cutaneous manifestations include severe types of acne, such as the fulminant form, that affects the face and posterior trunk. Pustulose mainly affects the palmoplantar region. The absence of cutaneous manifestations does not exclude the diagnosis of SAPHO, since its appearance does not necessarily precede osteoarticular involvement. Hyperostosis
is a typical radiological finding characterized by sclerotic bone lesions. Osteitis, in this syndrome, presents an inflammatory character, with no causative biological agent; and occurs primarily in the pelvis, vertebralae, and anterolateral thoracic wall. **Conclusion:** SAPHO syndrome is a rare disease with systemic manifestations, whose diagnosis requires the participation of the radiologist. Therefore, it is necessary that these professionals are familiar with the wide spectrum of images of this syndrome.

**Responsible Author:** Dr. Mário Henrique Verussa  
**E-mail:** marioverussa@gmail.com

**PD.15.025**

**A RADIOGRAPHIC APPROACH TO THE EXTRAPLEURAL LESIONS AND THEIR DIFFERENTIALS**

**Authors:** FUJIWARA, N. K. F.; PAULINO, M. V.; FERREIRA, D. L.  
**Institution:** Instituto de Radiologia do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo  
**Introduction and objectives:** The extrapleural space is the region situated between the parietal pleura and the chest wall. The main structures that belong to this space and its surroundings are: connective tissue, vascular structures, nerves, intercostal muscles, and ribs. This space can be further divided in intrathoracic and extrathoracic by the innermost intercostal muscles. The term “extrapleural lesion” is widely used to describe masses seen on a chest radiography that appear to have an intrapleural location at first sight, as they mimic lung opacities or pleural lesions, but are actually located outside of the pleural cavity, mostly on the intrathoracic extrapleural space. The most notorious differential diagnosis include lesions with air content (pneumomediastinum), fat content (lipoma), bone disease (fibrous dysplasia, osteochondromas, brown tumor), lesions with soft parts component (hemangiomas, schwannoma), and malignant lesions (plasmacytomas, osteosarcomas, metastasis). This study's purpose is to offer a collection of extrapleural lesions, focusing on its main differentials, as seen on chest radiographs, enabling their identification to the general radiologist and furthermore the development of a diagnostic rationale.

**Methods:** Images from the permanent archive of patients from the “Hospital XXX da Faculdade XXX” were collected based on analysis of chest radiographs which presented characteristic findings of the extrapleural lesions.

**Discussion:** Albeit having the most diverse etiologies, the extrapleural lesions are characterized by presenting the same signs on a chest radiography: oblique margins with the chest wall, differentiating from intrapulmonary lesions which have acute margins. They also display a peripheral location, meaning that their center is located outside of the pleural cavity, opposed to the masses of pleural origin. Finally, they can also present with bone erosion, indicating origin from these structures.

**Conclusion:** In spite of having a definite diagnosis by histopathological analysis, the evaluation of the extrapleural lesions is largely aided by the chest radiography as it allows for the determination of their size, location and growth rate, as well as the presence of calcifications and bone lesions. Together with the interpretation of clinical data and characteristics of some of these diseases, it is possible for the general radiologist to elaborate hypothesis and determine the best course of investigation for each patient.

**Responsible Author:** Dra. Natalia Fujiwara  
**E-mail:** nataliafujiwara@gmail.com

**PD.15.026**

**CLINICAL AND RADIOLOGICAL ASPECTS OF MULTIPLE MYELOMA: A GUIDE FOR RADIOLOGISTS**

**Authors:** ANDO, S.M; VERUSSA, M.H.; PAZINATO, L.V.; SANTIAGO, C.C.F.; ACQUESTA F.B.; RODRIGUES, L.B.Q.; GUSMÃO, M.M.; FERREIRA, D.L.  
**Institution:** Instituto de Radiologia (InRad) do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo (FMUSP).

**Introduction and objectives:** Multiple myeloma is a heterogeneous group of malignant neoplasias characterized by proliferation of plasma cells, which in this case produce a high amount of monoclonal immunoglobulins. Radiological methods are essential for diagnosis and follow-up, and radiography remains the standard method in the detection of early bone lesions, but in the last decades there was improvement in knowledge of multiple myeloma and participation of others radiological methods, as computed tomography, magnetic resonance and positron emission tomography.

**Methods:** The following points are discussed: 1. Review of epidemiology and clinical findings of multiple myeloma. 2. Review of imaging in different radiological methods, with emphasis on digital radiography.

**Discussion:** Multiple myeloma is a clinically variable disease, it is second cause of hematological malignancies and corresponds to 1% of all neoplasms, besides being a differential of other diseases, as monoclonal gammopathy of undetermined significance and smoldering multiple myeloma.

**Conclusion:** The knowledge of the disease, its epidemiology and differential diagnosis associated to the knowledge of the classic aspects of the images in different methods are fundamental for radiologist have an active role in previous diagnosis and follow up of the multiple cases of multiple myeloma, since it corresponds to a variable spectrum disease, systemic involvement and representing 15-20% of deaths due to malignant hematologic diseases.

**Responsible Author:** Dra. Sabrina de Mello Ando  
**E-mail:** sabrina.and078@gmail.com

**PD.15.028**

**MUSCULOSKELETAL DESMOID TUMOR: ASPECTS OF PRE AND POST-THERAPY IMAGING**

**Authors:** URBANETZ, A.A.L.; NAGAYA, E.M.; SILVA, P.H.R.Q.; YAMASHITA, S.R.; COSTA, H.P.; HELITO, P.V.P.; BORDALO-RODRIGUES, M.  
**Institution:** Instituto de Câncer de São Paulo (ICESP)

**Introduction and objectives:** Desmoid tumor is a rare and locally aggressive type of fibromatosis of deep and musculoaponeurotic layers with a propensity for local invasion and recurrence, without metastasis. Because of its aggressive nature surgical resection with wide margin is the treatment of choice. Sometimes radiation and chemotherapy can be associated. The purpose of this pictoric essay is to illustrate and compare the pre- and post-therapy imaging findings of musculoskeletal desmoid tumors and its complications.

**Methods:** The images were consulted from the database of our service.

**Discussion:** Musculoskeletal desmoid tumor is not considered a malignant lesion and does not metastasize, but are locally aggressive and can invade or encase neurovascular structures and involve an entire extremity. The prevalence of local recurrence is high and typically seen within 12–18 months after surgical resection. The treatment of choice for
relatively small and favorably located lesions is wide excision. Amputation can be necessary for patients with multiple recurrences. Post-operative adjunct radiation can be considered if wide excision cannot be achieved without functional loss. In some cases, particularly in lesions that invade major neurovascular structures, such as the brachial plexus, radiation therapy and chemotherapy are the only methods of treatment. MR imaging should be used for preoperative staging, to evaluate neurovascular and bone involvement. In extremity lesions, the entire limb should be imaged to rule out multicentric disease. MR imaging is also the best imaging modality to evaluate postsurgical local recurrence. Recurrent deep fibromatosis shows intrinsic MR imaging characteristics similar to those of the original lesion. The site of recurrence is frequently at the lesion margins at areas of fascial extension where surgical resection is incomplete. In patients who undergo radiation therapy or chemotherapy alone without surgery, MR imaging is useful in evaluating the effectiveness of therapy. Effective therapy is indicated by a reduction in size and an increase.

Conclusion: It is important for radiologists to recognize these lesions and imaging spectrum to help guide the therapy and management.

Responsible Author: Dra. Erina Megumi Nagaya
E-mail: erinagaya@gmail.com

PD.15.034
RADIATION-INDUCED CHANGES IN MUSCULOSKELETAL SYSTEM


Institution: Instituto de Radiologia do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo

Introduction and objectives: Radiation therapy has important applications in curative, adjuvant, and palliative therapy for a wide range of malignant conditions. Evidence of radiation therapy may be seen on radiologic images obtained subsequent to therapy.

Methods: To illustrate the imaging findings of radiation-induced changes in musculoskeletal system using cases from our institution. To help recognize and differentiate the characteristic radiation-related findings from recurrent neoplastic disease in oncologic patients.

Discussion: Routine follow-up of patients who are asymptomatic may show radiation changes that must be differentiated from recurrent disease. In symptomatic patients who are examined for metastatic disease, imaging findings may suggest stress fractures related to prior radiation therapy or, rarely, radiation-induced tumors. Correlation of the clinical presentation, radiation ports, and radiologic findings will often help in the differential diagnosis in these patients.

Conclusion: Awareness of the varied radiographic manifestations of radiation-induced changes in bone and correlation with clinical features and the radiation field will usually allow distinction of these changes from those associated with other pathologic conditions.

Responsible Author: Dr. Affonso Cardoso de Oliveira Neto
E-mail: fortunes@gmail.com

PD.15.036
USE OF IMAGE EVALUATION IN PATIENTS WITH GOUT

Authors: FONSECA, V. N.; JORGE, A. B. P.; MENDONÇA, M. S.

Institution: AMÉRICAS SERVICOS MÉDICOS - PONTIFÍCIA UNIVERSIDADE CATÓLICA DO RIO DE JANEIRO

Introduction and objectives: Gout is a disease known for centuries and today is understood as the most frequent form of arthritis in men, being more common in the fifth and seventh decade of life. It is a syndrome characterized by increased concentration of uric acid in the blood (hyperuricemia), which leads in some individuals, to deposition of crystals of sodium monourate in synovial fluid and other tissues. Classically, it presents in mono or oligoarthritis crises followed by intercritical period. Some cases may progress to a chronic tophaceous form with bone deformity and is strongly associated with metabolic syndrome, myocardial infarction, insulin resistance, stroke and premature death. Thus, we aim to familiarize radiologists with imaging findings by emphasizing the additional findings that dual emergence computed tomography (DECT) has, with unique ability to specifically detect the deposition of uric acid microcrystals in the scanned areas.

Methods: The patients were evaluated by imaging exams: simple radiography, ultrasonography, dual energy computed tomography and magnetic resonance imaging.

Discussion: The use of dual energy computed tomography enabled a non-invasive diagnosis with greater sensitivity and specificity, allowing the identification of urate crystals, differentiating them from other crystals (pyrophosphate and hydroxyapatite). This device presents two x-ray tubes in the system, with simultaneous acquisition at two different energy levels (high and low voltage), allowing a classification of the chemical composition of the evaluated tissue through the post processing and a decomposition algorithm. With this, we separate the calcium from the urate crystals by means of a previously defined color scale. Detection of urate crystals in tissues can aid in the diagnosis and monitoring of treatment as well as being a useful tool in the differential diagnosis of arthritis.

Conclusion: Imaging methods may be useful for the diagnosis and follow-up of treatment of patients with gout, especially the use of dual energy computed tomography, which is an available, non-invasive and well-performing tool.

Responsible Author: Dra. NAYARA VIEIRA FONSECA
E-mail: nayarafonseca21@hotmail.com

PD.15.037
TUMORS OF SOFT PARTS OF THE HAND: PICTORIAL ESSAY

Authors: ALVARENGA, S.B., GARCIA, M.D.M., SILVA, L.L.G

Institution: AXIAL MEDICINA DIAGNÓSTICA

Introduction and objectives: Injuries to soft parts of the hands are common in clinical practice, in most cases benign, but can be a diagnostic challenge, both from clinical and imaging point of view.

Methods: Ultrasonography and magnetic resonance imaging (MRI) are the most commonly used methods for evaluation of soft tissue lesions. Magnetic resonance imaging has higher diagnostic accuracy in these cases and fundamental information can also be obtained by angioresonance studies.

Discussion: Tumors of soft parts of the hands range from benign lesions to malignant lesions. Imaging methods, especially MRI, are of fundamental importance in these cases, in order to determine the nature of the lesion, the pattern of enhancement, as well as the relation between it and the adjacent planes. This essay brings together some of the major tumors of soft parts of the hands and also less common cases.

Conclusion: Soft tissue tumors are commonly observed in radiological practice. The wide range of diagnoses is challenging to the radiologist.

Responsible Author: Dra. Simone Alvarenga
E-mail: sibalvarenga@gmail.com

Abstracts of Scientific Papers 165
PD.15.040

RADILOGICAL EVALUATION OF THE NEUROPA-ThIES OF THE SUPERIOR MEMORIES


Institution: Hospital São Paulo Sírio Libanés.

Introduction and objectives: Compressive syndromes of peripheral nerves of the upper limbs (UL) classically can be diagnosed by clinical history and physical examination, as well as electrophysiological tests such as electromyography. However, the complementary evaluation by image is becoming of fundamental importance in these cases, because it is a non-invasive method, which allows to determine its location and etiology, narrowing the differential diagnosis. The objective of this study is to demonstrate the role of imaging tests in the evaluation and diagnosis of peripheral neuropathies of the upper limbs.

Methods: Neuropathies of the UL involve the brachial plexus, the axillary, musculocutaneous, suprascapular, ulnar, radial and median nerves. In this pictorial essay we will present illustrative cases of complementary evaluation by ultrasonography (USG) and magnetic resonance imaging (MRI) demonstrating the anatomy and the most common causes divided topographically according to the region of involvement (thoracic, arm, shoulder, elbow and wrist).

Discussion: Classically MRI represents the main imaging test for the evaluation of peripheral neuropathies due to good visualization of the neurovascular pathway, spatial resolution and tissue contrast between the structures, besides allowing the characterization of the specific territory of denervation in acute phases, when the electromyography has not yet demonstrates such changes. High resolution ultrasonography has become increasingly relevant in the evaluation of peripheral neuropathies, since it represents a low cost, fast execution method that presents good spatial resolution and allows perform dynamic maneuvers and evaluation of long neural segment.

Conclusion: Imaging studies such as USG and MRI represent an important tool for the evaluation of peripheral neuropathies because they represent non-invasive methods that allow better spatial resolution of the path and neural anatomy, as well as their relationship with adjacent structures, contributing to the differential diagnosis.

PD.15.041

APPLICATION OF DUAL ENERGY COMPUTED TOMOGRAPHY IN MUSCULOSKELETAL IMAGE: WHEN CAN IT HELP?

Authors: FERNANDES, R.B.P.; ROCHA, S. S. R; HELITO, P. V.P.; CORREA, M.F.; AMARAL, D.T.; FERNANDES, R. Y; CAVALCANTI, C.F.A; LEÃO, R.V; COSTA, H. P; YAMASHIRA, V; BORDALO-RODRIGUES, M; LEITE, C.C; CERRI, G. G.

Institution: Hospital São Paulo Sírio Libanés.

Introduction and objectives: Dual energy computed tomography (DECT) is a complementary diagnostic tool that offers the potential to analyze material composition through image acquisition at two different energy levels. This property may contribute to the differential diagnosis of some musculoskeletal (MSK) pathologies, complementing the evaluation by conventional computed tomography and magnetic resonance imaging. The aim of this pictorial essay is to describe the utility of DECT in application for musculoskeletal imaging.

Methods: DECT has several applications for musculoskeletal imaging, including evaluation of crystal deposition disease such as gout/chondrocalcinosis, bone marrow edema and artifact reduction from prosthetic implants. This pictorial essay will review the characteristic findings and show imaging examples on DECT for MSK imaging pathologies.

Discussion: Since materials have unique attenuation profiles at different energy levels, DECT represents a virtual enhanced tool for differentiate materials or structures using mathematical algorithms and three-dimensional (3D) color-coded images reconstructed by computer software, giving different colors to materials with different properties. One of the most useful MSK application of DECT is the differentiation between gout and pseudogout via the identification of uric acid crystals in the joint space, however there are many other applications for MSK diagnostic challenges.

Conclusion: In summary, DECT may play an increasing role in addition to conventional CT and MRI images for the musculoskeletal diagnostic challenges, offering additional
diagnostic information in cases of gout, pseudogout, trauma with suspected fractures and artifact reduction from prosthetic implants

**Responsible Author:** Dra. Renata Fernandes Batista Pereira  
**E-mail:** renatafernandesbp@gmail.com

PD.15.046  
**PUBLIC SYMPHYSIS: BEYOND THE ATHLETE'S PUBIC SYMPHYSIS.**

**Authors:** MENEZES, R. S. A. A.; LEÃO, R. V.; BRASIL, R.; HELITO, P. V. P.; BORDALO-RODRIGUES, M.; CERRI, G. G.

**Institution:** Hospital Sírio-Libanés

**Introduction and objectives:** The pubic symphysis is the non-synovial joint of the pubic ramus, covered by hyaline cartilage and with a fibrocartilaginous disc separating the bones extremities. The disc function is to spread the impact energy in the pelvis during the walk and, with aging, it degenerates creating a physiological cleft. The common tendon of the adductor group (constituted by the gracilis, brevis, longus and magnus adductors) and the rectus abdominus muscle have well-defined insertions in the body of the pubis and adjacent ramus. The joint and disc are anteriorly covered by the aponeurosis of the rectus abdominis, gracilis and long adductor that connect in a single structure. Posteriorly, there are no support structures, favoring herniation of the fibrocartilaginous disc. Superiorly, this joint is covered by the superior pubic ligament and inferiorly, there is intimate relation with the tendons of the gracilis and longus adductor muscles and with the arched ligament. This joint can be affected by a wide variety of diseases, including congenital, traumatic, infectious, metabolic, inflammatory and degenerative conditions.

**Methods:** An anatomic revision of the pubic symphysis will be performed in association with a pictorial study of cases diagnosed of the main pathologies of this joint.

**Discussion:** The pubic symphysis is one of the joints constantly suffering from the dissipation of impact forces during the walk. Due to constant traction due to aponeurosis formed by the rectus abdominis and the adductors, degenerative diseases are the most frequent of this joint, especially in athletes. Involvement in trauma and seronegative arthropathies are not uncommon. Other conditions are rare and, due to the overlapping of symptoms, make diagnosis difficult. Imaging features can guide to the correct diagnosis.

**Conclusion:** The knowledge of the diverse pathologies that affect the pubic symphysis helps to establish the diagnosis and the correct treatment of these afflictions.

**Responsible Author:** Dr. RAONNE SOUZA ALMEIDA ALVES MENEZES  
**E-mail:** RAONNE.MENEZES@GMAIL.COM

PD.15.047  
**MRI OF POSTOPERATIVE OSTEOCHONDRAL KNEE INJURIES - PICTORIAL ESSAY.**

**Authors:** ROCHA, S.R.R.; FERNANDES, R.; LEÃO, R.V.; HELITO, P.V.P.; LEITE, C.C.; RODRIGUES, M.B.; CERRI, G.G.

**Institution:** Hospital Sírio Libanês

**Introduction and objectives:** Because of the relative avascularity of articular cartilage, lesions that are caused by trauma or degeneration of the cartilage do not heal spontaneously and must be repaired surgically. The interventional procedures that have been developed for the repair of such lesions include microfracture, autologous osteochondral transplantation, allograft transplantation, and autologous chondrocyte implantation. An accurate imaging assessment of the repair tissue is necessary in order to objectively evaluate the postoperative outcome, and we aim to discuss the main imaging aspects that radiologists need to know.

**Methods:** A pictorial essay showing cases with different surgical techniques, their normal patterns and their main complications.

**Discussion:** The normal postoperative appearance of the joints after cartilage repair varies according to the surgical technique used and the stage of healing. To identify potential complications, it is important to be familiar with the various repair procedures and the characteristic MRI features of the repair tissue at various postoperative intervals.

**Conclusion:** MRI can provide detailed information about the natural history of cartilage repair in the knee. Imaging of repair cartilage is needed to determine the extent of defect filling, the degree of peripheral integration with the host tissue, signal intensity of the repair tissue and the integrity of the host cartilage. Familiarity with the various surgical techniques used and with their MR imaging appearances is important for the accurate assessment of repair tissue.

**Responsible Author:** Dr. STEPHANO RAYDAN RAMALHO ROCHA  
**E-mail:** stephano_raydan@hotmail.com

PD.15.049  
**MUSCULOSKELETAL RADIOLOGICAL FINDINGS IN PNEUMOCOCCAL INVASIVE INFECTION.**

**Authors:** FERNANDES, BASTOS, B; KLENIA, W.W; LEÃO, R.V; ZATTAR, L.C AMARAL, D.T; FERNANDES, R.Y; BIZETO, E; YAMASHRA, V; BORDALO-RODRIGUES, M; LEITE, C.C; CERRI, G.G.

**Institution:** Hospital Sírio Libanês

**Introduction and objectives:** Invasive disease by streptococcus pneumoniae (pneumococcus) continues to be an important cause of morbidity and mortality among infected patients in all age groups, especially in children younger than 5 years. Despite the introduction of conjugate vaccines, this condition continues to represent an important cause of mortality in immunocompromised patients, especially when associated with infrequent manifestations, such as musculoskeletal complications. The objective of this study is to describe the imaging findings associated with invasive pneumococcal infection.

**Methods:** A review of the main musculoskeletal manifestations of invasive pneumococcal infection will be carried out, highlighting the main associated imaging findings and aspects relevant to its differential diagnosis.

**Discussion:** Invasive pneumococcal infection represents an important cause of morbidity and mortality in children under 5 years of age, elderly and immunocompromised patients. The involvement of the musculoskeletal system is uncommon, associated with severe and potentially fatal changes if not properly treated, such as septic arthritis, osteomyelitis and streptococcal pyomyositis. Few cases are described in the radiological literature, demonstrating the importance and necessity of further studies that increase the radiological knowledge of these pathologies.

**Conclusion:** Radiological findings of musculoskeletal pathologies caused by invasive streptococcus pneumoniae infection should be known to radiologists because of the high morbidity and mortality associated with this infection and because it is potentially treatable in cases of early diagnosis.

**Responsible Author:** Dra. Renata Fernandes Batista Pereira  
**E-mail:** renatafernandesbp@gmail.com
PD.15.050
MANUBRIOSTERNAL JOINT DISORDERS: IMAGING FINDINGS AND DIFFERENTIAL DIAGNOSIS
Institution: Hospital Sírio-Libanés
Introduction and objectives: The sternum is a flat bone and consists of three parts: the manubrium, body, and xiphoid process. The manubriosternal joint (MSJ) is a complex joint between the manubrium and the body of the sternum, formed by two surfaces covered by hyaline cartilage and separated by a disk of fibrocartilage. Manubriosternal joint (MSJ) diseases are an often undetected cause of chest pain and have a spectrum of differentials, ranging from traumatic lesions to inflammatory or infectious disorders. The objective of this study is to review the imaging findings and the main differential diagnoses of the pathologies involving a manubriosternal joint.
Methods: The main imaging findings of the pathologies that affect the manubriosternal joint, using different imaging methods, will be illustrated and discussed, in the form of presentation of clinical cases attended at our institution.
Discussion: Several conditions may involve the manubriosternal joint, highlighting degenerative changes such as osteoarthritis and DISH (diffuse idiopathic skeletal hyperostosis), inflammatory arthritis such as rheumatoid arthritis, ankylosing spondylitis, psoriatic arthritis, SAPHO syndrome, micro-crystalline arthropathies such as gout and deposit of calcium pyrophosphate, septic arthritis and the syndrome Tzite. Computed tomography (CT) is the modality of choice to evaluate anatomic detail as well as pathologic conditions of the sternum joints. Magnetic resonance (MR) imaging is of great value as a secondary modality. It can help clarify CT findings and can provide additional information about the bone marrow and soft tissues adjacent to the sternum.
Conclusion: The manubriosternal joint can be affected by different conditions. Recognizing the imaging features is indispensable to the radiologist to narrow the differential diagnosis and to assist in the therapeutic conduct.
Responsible Author: Dr. Jucelio Pereira Moura Filho
E-mail: juceliopmouraf@gmail.com

PD.15.051
CRANIOVERTEBRAL JUNCTION: EVALUATION OF THE NORMAL ANATOMY AND THE PATHOLOGICAL CONDITIONS.
Institution: Hospital Sírio-Libanés
Introduction and objectives: The craniovertebral junction (CVJ) is formed by the occipital bones, atlas and axis, their joints and the capsuloligamentary complex, involving the cervicomедullary transition and the last four cranial pairs. The atlantoaxial joint allows lateral rotation of the head over the apex while the atlanto-cipital joints promote flexion, extension and lateral tilt movements. Congenital or acquired malformations of these structures may decrease the space between the lower portion of the brainstem and the cervical cord, resulting in compression of the neurovascular structures. This study aims to perform an anatomical and pathological review of the CVJ based on cases from the digital archive of this service.
Methods: This pictorial essay consists of a description of the anatomy of the region with schematic illustrations of the craniometric evaluation together with magnetic resonance imaging and computed tomography of pathological cases treated in the service, in order to illustrate the most important CVJ conditions found in daily clinical practice, with emphasis on acquired pathologies related to trauma, degenerative, inflammatory and infectious disorders.
Discussion: The anatomical knowledge of the CVJ and its correct craniometric evaluation are fundamental for the identification and diagnosis of its pathologies, being this knowledge and its constant updating essential for the radiologist.
Conclusion: The complexity of the anatomy of CVJ and the correct identification of its affections are fundamental for the radiologist, since such pathologies can result in severe clinical conditions, with neurovascular involvement and high morbidity and mortality.
Responsible Author: Dra. Karla Schoen
E-mail: karlasch@gmail.com

PD.15.056
LEG PAIN IN ATHLETES: MOST RELEVANT MR IMAGING DIAGNOSTICS
Authors: TORRES A. C. S.; CARLEIAL B. S.; R. D. C. LUNA
Institution: HOSPITAL GERAL DE FORTALEZA
Introduction and objectives: Leg pain is a common condition in recreational and professional athletes, which has a quite broad differential diagnosis. It can be related to musculotendinous injury, to the stress injuries to bone, neuropathies and tumoral causes.
Methods: We studied the MRI of patients with Regular sports, of a professional or recreational nature, with complaints of pain in the leg, defined as painful sensation that generates discomfort, located between the knee and ankle, presenting acute or insidious onset, triggered during an accomplishment of sports practices. The exams were acquired in the years 2005 to 2010, in MRI devices of 1.5 and 3.0 TESLAS (SIEMENS AND GE). Weighted sequences in T1 and T2, with and without fat saturation, acquired in the years 2005 to 2010, in MRI devices of 1.5 and 3.0 TESLAS (SIEMENS AND GE). Weighted sequences in T1 and T2, with and without fat saturation, without administration of contrast. In specific cases, intravenous contrast was used, peripheral vein. After an examination, as images were transferred to a work station and analysis by a radiologist with a specialization in imaging of the skeletal muscle system with 15 years of professional experience. Finally, a bibliographic review was done on the diagnoses obtained in the examinations, using scientific articles published in the journals of major relevance in Radiology and Diagnostic Imaging.
Discussion: Magnetic Resonance Imaging (MRI), the imaging method of choice for skeletal muscle, plays an important role in differentiating among the many possible causes of leg pain and is necessary in determining degree of injury and thereby help in planning the therapy and for control of different injuries during and after treatment as well, benefiting the athlete's return to sports activities.
Conclusion: Through the study, we sought to emphasize the role of MRI in the evaluation of athletes, professional or recreational, with clinical complaint of pain in the leg, since, although there is a broad differential diagnosis for this condition, its most frequent characteristics, in addition to history and clinical examinations, can determine the final diagnosis of patients.
Responsible Author: Dr. Bruno Silton Carleial
E-mail: brunosilton@gmail.com
LITERATURE REVIEW

SCIENTIFIC PAPERS - POSTERS (PA)

PA.15.001
ANALYSIS OF THE ANCONAEUS EPITROCHELARIS MUSCLE IN THE ULNAR TUNNEL SYNDROME BYNUCLEAR MAGNETIC RESONANCE
Authors: FRIGERIO, G. M
Institution: Hospital das clinicas de Sao Paulo
Brief description(s) of the purpose(s) of the Literature Review: The second most commonly found neuropathy is the ulnar nerve, many uncommon causes described may be related to compression by the anconaeus epitrochlearis accessory muscle present in the passage thoracolumbar epitrochleus the sulcus of the ulnar nerve in the humerus and medially the trochlea. This muscle has an anatomical variation and uncertain muscle function. The objective of the present study is to analyze published articles on the anconaeus epitrochlearis muscle in cadavers and by nuclear magnetic resonance, relating its clinical importance in the possible ulnar tunnel syndrome.
Description(s) of disease(s), method(s) and/or technique(s): Eighteen articles were found relevant to the data tabulation objective, nine reports of elbow dissection in cadavers and nine in vivo magnetic resonance studies were analyzed for anconaeus epitrochlearis muscle, present with ulnar tunnel syndrome.
Discussion: Cases of muscle hypertrophy due to repetitive use of the arm is a source of compression of the ulnar nerve by the epitrochleean anconaeus muscle, may predispose to the development of ulnar tunnel syndrome, due to the exacerbation of the movements. The earliest reported presence of the anconaeus epitrochlearis muscle dates back to 1867, first described by Gruber, observed in 34% of the corpses. The incidence of this muscle varies greatly between the post mortem studies found in the literature ranging from 11% to 70%, and the last studies analyzed were in 1991. In a study with sixty asymptomatic volunteers submitted to MRI, subluxation of the ulnar nerve by the epitrochleean muscle of 2% was present, presence of this muscle with 23% of the subjects and muscle hypertrophy in 15%.
Conclusion: It is concluded that the variation of this muscle is not only due to its presence, but it is also associated with the painful symptoms of ulnar nerve compression diagnosed by magnetic resonance imaging.
Responsible Author: Biom. GABRIELA MONTEZEL FRIGEIO
E-mail: gabriela.montezel@gmail.com

PA.15.012
PROXIMAL ILIOTIBIAL BAND SYNDROME - ONE OF THE CAUSES OF PAINFUL HIP
Institution: CDI - CENTRO DE DIAGNÓSTICO POR IMAGEM DE FERNANDÓPOLIS/SP
Brief description(s) of the purpose(s) of the Literature Review: Proximal iliotibial band (ITB) syndrome is one of the causes of the painful hip that is gaining importance due to the increase in the number of athletes. The purpose of this paper is to review the anatomy, injury mechanism and main differential diagnoses.
Description(s) of disease(s), method(s) and/or technique(s): Painful hip syndrome is a common complaint in doctors' offices, usually involving adults and the elderly. It is the proximal ITB syndrome enters the differential diagnoses, being this pathology less known than the knee BIT syndrome. The incidence of disease in the iliotibial tract is unknown, due to the large number of patients with subclinical lesions. Its most frequent form of presentation is iliotibial tract syndrome, accepted as the most common cause of lateral knee pain in athletes who cross great distances. However, several other less common changes can also be observed in the structure, both proximally and distally in relation to the classic site of involvement of the iliotibial tract syndrome. The bibliographic review aims to demonstrate mainly the imaging findings and the differential diagnoses.
Discussion: The literature review demonstrates the clinical importance of this pathology, which, although infrequent, must be known by the orthopedist and radiologist, recognizing the ITB anatomy and other causes of painful hip syndrome. Magnetic resonance imaging is a fundamental role in diagnosis, since the clinical picture can be confused with several diseases, both intra and extra-articular of the hip. At this point, however, it should be noted that the examination should be requested not only for the investigation of the hip, but rather to encompass the entire iliac, otherwise the proximal portion of the ITB will not be correctly evaluated.
Conclusion: ITB is of great importance because it is one of the causes of the wide range of pathologies that result in painful hip syndromes. The radiologist must have to know a better understanding of the anatomy, awareness of the pathological conditions affecting this region and knowledge of the findings of image, for a better precision of the diagnosis and treatment of this pathology of lesions in this complex fascia.
Responsible Author: Dra. Ana Carolina Pimenta Grecco Sano
E-mail: cagrecco@gmail.com

SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)

PD.15.039
NEW MAGNETIC RESONANCE TECHNIQUES FOR EVALUATING PATIENTS WITH METALLIC PROSTHESSES
Authors: VALDUGA, S.G.; BALDISSEROTTO, M.; STEIN, F.S.; ARAÚJO, F.M.; FELDMAN, C.J.
Institution: SIDI
Brief description(s) of the purpose(s) of the Literature Review: The presence of metallic implants significantly reduces the ability of magnetic resonance imaging (MR) to make diagnoses. Metallic implants are a major clinical challenge, since many of the patients with metal prostheses are the population that most needs imaging. The MR images depend on the magnetic properties of the tissues, through the application of magnetic fields. These fields, used to generate and receive signal from tissues, should be as homogeneous as possible and each defect in homogeneity causes spatial coding errors that are responsible for artifacts, causing problems in musculoskeletal images.
Description(s) of disease(s), method(s) and/or technique(s): A prototype SPARSE-SEMACH pulse sequence was developed by Otazo et al., based on a conventional FAST SPIN ECHO multislice sequence with STIR module to saturate fat and ad-
**CASE REPORT**

**SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)**

**PD.15.001**

**A RARE PRESENTATION OF AGGRESSIVE FI-BROMATOSIS WITH BONE INVOLVEMENT**

**Authors:** RIZZETTO, TA; FERNANDES, A. R. C

**Institution:** ESCOLA PAULISTA DE MEDICINA - UNIFESP

**Brief description of the study purpose:** To report a rare case of aggressive fibromatosis in the arm with bone involvement.

**Clinical history:** Female patient, 47, with tumor complaint in right forearm after local trauma 6 years ago. Underwent two surgeries at the time not keeping follow-up. Comes back now with local tumor recurrence.

**Discussion and diagnosis, or vice versa:** At MRI it was evidenced an expansive formation of soft tissue located on the volar forearm and ulnar portion with infiltrative appearance. The lesion invades and erodes the medial cortex and anterior shaft of the ulna, with signals of intramedullary extension. It presents isosignal in T1, predominantly hypointensity with low signal septa in T2, with intense enhancement post contrast. It measures about 6.3 x 2.8 x 2.3 cm. The lesion has proximity without invasion of the anterior interosseous neurovascular bundle. The slides were reviewed, indicating fibromatosis confirmed by immunohistochemistry.

**Conclusion:** Fibromatosis is a rare mesenchymal tumor characterized by high proliferation of fibroblasts. Often locally aggressive and recurrent but rarely with bone extension, with few reports in the literature of this kind of presentation.

**Responsoble Author:** Dr. Thiago Rizzetto

E-mail: thiagoastil@gmail.com

**PD.15.053**

**REVIEW OF RADIOGRAPHIC ANATOMY OF THE SHOULDER AND MAJOR PATHOLOGIES.**

**Authors:** LOURENÇO, M. R.; AGNOLLITTO, P. M.; SIMÃO, M. N.; SAVARESE, L. G.; HERNANDES, M. A.; NOGUEIRA-BARBOSA, M. H.

**Institution:** Hospital das Clínicas da Faculdade de Medicina de Ribeirão Preto - USP

**Brief description(s) of the purpose(s) of the Literature Review:** The shoulder is the joint that presents greater range of movements of the human body and therefore is also the most unstable. It has a complex anatomy, with soft and bony structures, which can be extensively studied by sectional anatomy methods, specially Magnetic Resonance. However, the investigation by image is initiated by simple radiographs, which is a fundamental step, that should not be neglected. Our objective with this poster is to review the radiographic anatomy of the shoulder, as well as the main radiographic incidences used and its main indications.

**Description(s) of disease(s), method(s) and/or technique(s):** Illustrative images of typical radiographic incidences and also of unusual incidences of the shoulder were selected, with the purpose of reviewing the radiographic anatomy of this joint, as well as illustrate its main pathologies.

**Discussion:** The glenohumeral joint can be affected by degenerative, inflammatory, traumatic, neoplastic conditions, among others. The imaging investigation of this joint must be initiated by the radiographic study, which is a widely available, low cost method that allows excellent evaluation of bone structures, but is also able to provide important information about intra- and extra-articulating soft tissue structures, collaborating to guide the diagnostic investigation.

**Conclusion:** The radiologist has a fundamental role in the diagnosis of shoulder pathologies, and the radiographic study is the method of choice for the beginning of imaging evaluation. For this it is essential the detailed knowledge of the radiographic anatomy, as well as the main radiographic incidences and their indications.

**Responsible Author:** Dr. Mateus Repolês Lourenço

E-mail: mateusrepoles@hotmail.com

**PD.15.002**

**A CLASSIC CASE OF SCHEUERMANN’S DISEASE**


**Institution:** CLÍNICA VILLAS BOAS

**Brief description of the study purpose:** The purpose of this paper is to report a classic case of Scheuermann’s disease, presenting the diagnostic criteria and main findings in MRI.

**Clinical history:** Male patient, 23 years old, with a complaint of chronic dorsal and lumbar pain. MRI of the dorsal and lumbar spine was performed, showing anterior wedging on the T6 to T12 vertebrae, with irregularities of the end plates and Schmorl’s nodules, as well as disc protrusion on T8-T9 and T9-T10.

**Discussion and diagnosis, or vice versa:** Also known as juvenile kyphosis, Scheuermann’s disease was first described by Dr. Holger Werfel Scheuermann in 1921. It is a structural pathology of the thoracic or thoracolumbar spine, which leads to kyphosis in adolescence, slightly more prevalent in men, with a mean age of presentation of 13 to 16 years and incidence in the general population of 0.4 to 8.3%. Of unknown etiology, it is believed to have a genetic component of familial inheritance of the autosomal recessive type, related to the Trp3 allele, a variant of the COL9A3 gene. It is believed that the process involves an aseptic necrosis of the vertebral apophysial ring. Patients may be asymptomatic or present with lower back pain and symptoms of radiculopathy, such as...
paraesthesia. Its diagnosis is made by imaging, according to the criteria of Sorensen, described in 1964: anterior wedging superior to 5 degrees of 3 consecutive vertebrae, irregularity of the terminal plates and presence of Schmorl's nodules. In the majority of cases the disease is self-limited, with excellent response to conservative treatment. In cases of pain and progression not responsive to the correct treatment, or when there is a kyphotic deformity greater than 70 degrees, surgery is indicated.

Conclusion: Since the diagnosis of Scheuermann's disease is radiological, it is up to the radiologist to be familiar with its findings, assisting the attending physician in the best conduct, thus improving the patient's prognosis.

Responsible Author: Sr. ALCEU PAULINO REZENDE NETO
E-mail: alceupneto@hotmail.com

PD.15.003
MAGNETIC RESONANCE IMAGING FINDINGS IN BIPARTITE MEDIAL CUNEIFORM – IMPORTANCE IN DIFFERENTIATE FROM MIDFOOT FRACTURE
Authors: TENÓRIO, L.P.; PEIXOTO, M. C. G.; LOPES, A. K. B. F.; LINS, C. F.
Institution: DELFIN MEDICINA DIAGNÓSTICA/ UNIVERSIDADE FEDERAL DE PERNAMBUCO/ HOSPITAL GERAL ROBERTO SANTOS/ FACULDADE DE MEDICINA DE RIBEIRÃO PRETO-USP

Brief description of the study purpose: Bipartite medial cuneiform is considered a variation of tarsal development, occurring in approximately 0.3% of individuals. This change is often unknown by orthopedists and radiologists, and may be misdiagnosed as a fracture of the medial cuneiform. Thus, this paper aims to report a case of bipartite medial cuneiform, describing its magnetic resonance imaging (MRI) image in order to avoid misdiagnoses, which could impair the conduct to be taken for the patient.

Clinical history: 81-year-old female patient complained of pain in the lateral aspect of both ankles, without previous trauma. She performed MRI of the ankles, showing incidentally bipartite medial cuneiform with a fibrocartilaginous coalition between the fragments and mild edema / subchondral cysts in the articular margins bilaterally.

Discussion and diagnosis, or vice versa: Bipartite medial cuneiform with degenerative / unstable changes was then diagnosed between the bone fragments in both ankles. It is believed that the medial cuneiform develops from a primary ossification center, however, in the configuration of two ossification centers, they may fail in fusion, resulting in bipartition. The main finding in the identification of the bipartite medial cuneiform is the presence of horizontal division by the sincondrose, (along the long axis of the foot), being the greater plantar fragment. Well defined joint spaces between the head of the first metatarsal and the distal aspect of the bipartite cuneiform demonstrate a configuration remembering the letter "E" in images in the sagittal plane ("E sign"). Even in the absence of a fracture, the medial bipartite cuneiform may be a source of pain in the midfoot, and may be treated even with surgery.

Conclusion: Thus, it is important to know the presence and appearance of this bone variant in order to differentiate it from fracture, avoiding traps in the diagnosis of midfoot lesions and favoring possible therapeutic actions if necessary.

Responsible Author: Dra. Carolina Freitas Lins
E-mail: kerolins@yahoo.com.br

PD.15.007
PAROSTEAL LIPOMA: A RARE CASE REPORT
Authors: CONTARDI, E. B.; SILVA, G.G.; BRONZATTO, E. M.
Institution: Radiologia Clinica de Campinas

Brief description of the study purpose: Knowledge of the imaging aspects of parosteal lipomas, a rare form of lipomas, is important because it assists in the differential diagnosis of other cortical and juxtacortical lesions and consequently in its therapeutic planning.

Clinical history: A 50-year-old female patient initiated mild pain on the chest wall on the left. Computed tomography examination showed lesion in the third left costal arch, with typical characteristics of parosteal lipoma.

Discussion and diagnosis, or vice versa: Parosteal lipomas are uncommon benign tumors of mature adipocytes, accounting for about 0.3% of lipomas. The clinical presentation is characterized by a slow increase of soft parts, usually painless and that may be associated with neurological symptoms due to the entrapment of nerves. The most common sites are the distal femur and the proximal radius, being found also in the humerus,ibia, ribs and scapula. Computed tomography, which is an accurate method to evaluate this tumor, shows a lesion with fat attenuation in contact with the cortical, where bone surface changes are observed, without continuity with the spinal cord. Magnetic resonance imaging is the most accurate examination for the differential diagnosis, evaluation of anatomical relationships and complications, being, therefore, a very useful examination for the surgical planning. Signal characteristics are similar to those of subcutaneous fat. Fibrous septa are present in varying amounts and there may be enhancement of them, although uncommon. The tumor is firmly attached to the periosteum and is often associated with bone excrescences, cortical thickening, osteoid and chondroid metaplasia. There is no description of malignant transformation.

Conclusion: The imaging methods are fundamental, as they adequately evaluate this tumor, which, although uncommon, has remarkable image characteristics.

Responsible Author: Dr. Ewandro Braz Contardi
E-mail: ewandro_bcontardi@hotmail.com

PD.15.008
ISELIN'S DISEASE: A RARE CAUSE OF LATERAL FOOT PAIN
Authors: OLIVEIRA, G.H.N; MAIA, D.F.; GLORIA, A.R.S.
Institution: Hospital Madre Teresa

Brief description of the study purpose: Iselin’s disease refers to traction apophysitis of the tuberosity of the fifth metatarsal. This condition was first described in 1912 by the German physician Iselin, as a form of rare osteochondrosis in children with few cases reported in the literature. However, in clinical practice it is not uncommon, probably being underdiagnosed by many physicians for lack of recognition. This work intends to present and discuss its clinical and radiographic characteristics, etiopathogenesis, diagnostic differences and treatment.

Clinical history: A 9-year-old female patient complaining of pain for 1 month on the lateral aspect of the midfoot, bilaterally. No history of trauma. She was an active participant in sports at school and the pain worsened during sports activities and decreased somewhat with rest. On physical examination, pain was present in the proximal portion of the fifth metatarsal. Clinically, the diagnosis of stress fracture was considered. Anteroposterior and oblique radiographs were
obtained. The radiographs showed irregular ossifications near the lateral border of the fifth metatarsal base, bilaterally, corresponding to the apophysis of the base of the 5th metatarsus: Iselin’s disease.

**Discussion and diagnosis, or vice versa:** The term apophysitis refers to chronic inflammation caused by repetitive trauma by traction of the apophysis. The epiphyseal plate is two to five times more brittle than related fibrous structures in children. Consequently, a force that causes rupture, ligament degeneration, or tendinopathy in adults is more likely to cause injury to the epiphyseal plate or the apophysitis in a child. Generally, it is not necessary to obtain additional tests in patients with clinical evidence of Iselin’s disease. Radiographs may exclude other conditions such as fracture, tumors, and osteomyelitis. The apophysis may appear normal or reveal cortical irregularity, fragmentation, osteopenia, sclerosis, and enlargement of the apophyseal area. Conservative therapy is the treatment of choice with reduction of exercise frequency and intensity.

**Conclusion:** Iselin’s disease is a traction apophysitis of base of fifth metatarsal. Awareness of this entity and differentiation of this entity from fractures is important to Radiologists and Orthopedics as this condition is usually managed by conservative methods whereas fractures require non-weight bearing immobilization.

**Responsible Author:** Dr. Guilherme Henrique Naves de Oliveira
**E-mail:** guilherme.hno@gmail.com

**PD.15.009**
**ISCHIOPUBIC RAMUS FRACTURE – AN UNCOMMON AND MISDIAGNOSED FRACTURE**

**Authors:** GOMES, LBP; DUARTE, ML; ABREU BFBB; PRADO, JLM; SILVA, MQP
**Institution:** WEBIMAGE

**Brief description of the study purpose:** Report and review the literature about this uncommon fracture.

**Clinical history:** 36 years-old woman referring pain in the right groin after running 15 kilometers.

**Discussion and diagnosis, or vice versa:** Magnetic resonance imaging (MRI) demonstrated stress fracture in the right ischiopubic ramus. Fatigue fractures of the pubic ramus are infrequent. Usually, fatigue fractures of the pelvic bone occur in the medial portion of the pubic ramus, and at the junction between the inferior pubic ramus and the ischial ramus. Continuous and repetitive muscular pulling of the bony insertion site will cause local bony absorption and osteoporosis, leading to a fatigue fracture. The nonspecific nature of the symptoms together with a lack of knowledge of this fracture might be the reason why fatigue fractures of the pubic ramus are often misdiagnosed. MRI might be an excellent alternative imaging tool for diagnosing fatigue fractures of the pubic ramus, even though the high cost and limited imaging field compared with scintigraphy need to be considered.

**Conclusion:** We report a case of ischiopubic branch fracture, rare and underdiagnosed fracture, and MRI is usually necessary for its correct diagnosis.

**Responsible Author:** Dr. Marcio Duarte
**E-mail:** mld_44@hotmail.com

**PD.15.011**
**BULLOSIS DIABETICORUM – CORRELATION BETWEEN PHYSICAL EXAMINATION AND MAGNETIC RESONANCE IMAGING**

**Authors:** DUARTE, ML; SIMAL, TA; SANTOS, LR; SILVA, AQ; PRADO, JLM
**Institution:** Hospital São Camilo

**Brief description of the study purpose:** Report and review the literature about this uncommon tumor.

**Clinical history:** A 74-year-old male patient refers a bullous lesion in the right hallux for one day, painlessly, without signs of inflammation. Refers type 2 diabetes mellitus for ten years treated with diet.

**Discussion and diagnosis, or vice versa:** The blister developed spontaneously, without phlogistic signs, no erythematous base, apparently composed of dark serous contents. It was tense with negative Nikolsky sign. The magnetic resonance imaging (MRI) demonstrated a skin blister in the plantar aspect of the distal phalanx of the hallux and a discreet peripheral contrast enhancement, without any signs of infection. Bullosis diabeticorum is part of the spectrum of cutaneous manifestations of diabetes mellitus. It is a known disease, but quite rare (0.5 to 2% of the diabetic population) with about 100 cases described in the world literature. It is twice as common in men, occurring in patients with uncompensated diabetes mellitus and peripheral neuropathy. It is a spontaneous injury and is not related to obvious trauma or physiological cause, such as infection, which does not cause pain or is associated with phlogistic signs.

**Conclusion:** We report a case of diabetes diabeticorum, a rare dermatological lesion, with an MRI study for evaluation of local infection and osteomyelitis.

**Responsible Author:** Dr. Marcio Duarte
**E-mail:** mld_44@hotmail.com

**PD.15.013**
**SUBLUXATION OF THE EXTENSOR CARPI ULNARIS TENDON IN AN AMATEUR SOCCER PLAYER – AN UNUSUAL DISEASE**

**Authors:** DUARTE, ML; GOMES, LBP; DANTAS TN; ROMAO, ACGG
**Institution:** Onelaudos

**Brief description of the study purpose:** Report and review the literature about this uncommon lesion.

**Clinical history:** 19 year old man with intense pain in the left wrist after trauma playing soccer a 1 month ago.

**Discussion and diagnosis, or vice versa:** Magnetic resonance imaging (MRI) of the left wrist demonstrates tendinopathy and anterior subluxation of the extensor carpi ulnaris tendon. Extensor carpi ulnaris tendon subluxation is usually observed in athletes especially tennis players and golfers at the dominant side. According to Sole, 42% of recreational tennis players have unstable ECU (subluxation or dislocation). Traumatic injuries of the extensor carpi ulnaris tendon resulting in dislocation or subluxation are rare in the literature. The clinical diagnosis is easily missed, resulting in insufficient treatments and less than favorable outcomes. Imaging tests – MRI, computed tomography, or ultrasonography techniques – has been indicated for diagnosis. The treatment of symptomatic extensor carpi ulnaris tendon instability is still controversial, especially for acute dislocations.

**Conclusion:** We report a case of anterior subluxation of the extensor carpi ulnaris tendon, a rare entity and rarely reported in the medical literature, often unsuspected in the initial clinical evaluation, but can lead to complications such as tendon rupture.

**Responsible Author:** Biom. Thaís Dantas
**E-mail:** thaís.n.dantas@gmail.com
PD.15.017

COMPUTERIZED TOMOGRAPHY IN THE MACRODYSTROPHIA LIPOMATOSA OF THE HALLUX: IMPORTANT TO DIFFERENTIATE FROM OTHER CAUSES OF MACRODYSTROPHY

Authors: TENORIO, L.P.; MARTINEZ, M.L.A.; LINS, C.F.
Institution: Delfín Medicina Diagnóstica/ Hospital General Roberto Santos/ Escola Bahiana de Medicina y Salud Pública/ Faculdade de Medicina de Ribeirão Preto-USP

Brief description of the study purpose: Macrodystrophia lipomatosa is a non-hereditary anomaly of development and a rare form of local congenital gigantism. It is characterized by progressive hypertrophy of mesenchymal elements with a disproportionate increase in the amount of fibro-adipose tissue. It usually presents at birth or in the neonatal period. Thus, the present work intends to describe as image characteristics, with an emphasis on computed tomography (CT), to aid in the diagnosis of this rare congenital form of gigantism.

Clinical history: Patient of five months, male, with history of volumetric increase of the first left pododactyl some months ago. The requesting physician intended to rule out the possibility of haemangiomia. Was realized a CT of the left foot that showed a marked increase of the soft parts around the first toe, without significant bone alteration.

Discussion and diagnosis, or vice versa: Then, a case of macrodystrophia lipomatosa of the hallux was diagnosed. Macrodystroctyly can be divided into two types: static and progressive. In the first, the growth rate of the affected tissues is normal; however, in the progressive form (including macrodystrophia lipomatosa) the growth rate of the mesenchymal tissues is faster when compared to the normal tissues, causing a deformity. The hypertrophy of the soft parts is more marked in the volar aspect of the distal extremities of the fingers, resulting in a dorsal angle of the affected finger. The differential diagnosis includes Proteus syndrome, neurofibromatosis, fibrolipomatous hamartoma, hemangiomatosis and lymphangiomatosis. Thus, radiological investigations are very useful to limit the diagnosis, especially CT, allowing a definitive diagnosis and helping to differentiate it from other causes. The disease may cause functional problems, such as difficulty in grasping or walking, but surgery is usually sought for aesthetic and non-mechanical reasons. Conservative surgery usually occurs, consisting mainly of partial amputation of the affected limb. Recurrent interventions for complete treatment may be required.

Conclusion: Thus, it is important to know the presence and appearance of this rare congenital form of gigantism in order to facilitate its diagnosis and consequent appropriate conduct.

Responsible Author: Dra. Carolina Freitas Lins
E-mail: kerolins@yahoo.com.br

PD.15.019

INFLAMMATORY PROCESS IN HOFFA'S FAT IN A PATIENT WITH HUMAN IMMUNODEFICIENCY VIRUS (HIV): CASE REPORT

Authors: MANNRICHT, L.L.; SCHWARTZ, M.C.; FREITAS, J.S.; SPERANDIO, V.A.; EDUARDO, L.L.S; ANDRADE, D.G.N.
Institution: Conjunto Hospitalar do Mandaqui

Brief description of the study purpose: Report the image findings of the inflammatory process in the Hoffa's fat in a patient with human immunodeiciency virus (HIV).

Clinical history: A male patient, 52 years old, HIV positive for about 1 year. He reported bilateral pain in the medial compartment of the knee for the last six months, with progressive worsening. At the physical examination, the meniscal test maneuvers were positive for both medial meniscus, but without pain at palpation of the patellar tendons. Knee ultrasonography demonstrated diffuse hyperechogenicity of Hoffa’s fat bilaterally. At magnetic resonance imaging (MRI), findings included a bilateral pronounced diffuse and homogeneous hyperintensity of Hoffa’s fat on proton density weighted (PD) sequence, compatible with edema, small irregular foci of hyperintensity on PD, bilaterally, sparse by bone marrow, in distal third of the femur and proximal third of the tibia, compatible with bone marrow edema, and horizontal fissures of the bodies of the medial meniscus, which communicated with the lower cutaneous surface, with certain symmetry, bilaterally. There were no indirect signs of patellofemoral dysfunction. MRI was repeated after 2 months, without treatment, to assess the chronicity of the disease and the changes remained without significant changes.

Discussion and diagnosis, or vice versa: MRI signal changes in the supero-lateral aspect of Hoffa’s fat is known to be related to patellofemoral dysfunctions. A different pattern of impairment has been reported in the literature in patients with HIV, characterized by a diffuse and homogeneous hypersignal of Hoffa’s fat associated with the preservation of subchondral, ligament and adjacent tendinous bone structures, which are usually related to mechanical / traumatic etiology. Until now, 8 cases have been described in the literature.

Conclusion: We report an HIV patient with inflammatory changes in Hoffa’s fat in a pattern that has recently been reported in the literature. The etiology of this lesion is not yet known, but it is speculated that it is related to metabolic disorders of fat caused by the use of antiretrovirals. Studies with a greater number of cases are necessary to obtain statistically significant results.

Responsible Author: Dra. JULIANA SILVEIRA DE FREITAS
E-mail: julisilveira.med@gmail.com

PD.15.033

UNUSUAL CAUSE OF A RARE SYNDROME: OSTEOCONDROMA AS ETIOLOGY OF ISCHIOFEMORAL IMPINGEMENT SYNDROME

Institution: Servicio de Radiología y Diagnóstico por Imagen del Hospital Sào Lucas da Pontifícia Universidade Católica do Rio Grande do Sul - PUCRS

Brief description of the study purpose: The goal of the study is to report an unusual etiology of a rare syndrome: an osteochondroma in the small femoral trochanter causing an ischiofemoral impingement syndrome.

Clinical history: A 34-year-old female patient reports pain in the left hip and lameness in the corresponding lower limb for about 1 year. Clinical examination shows pain in the ischiatric region with irradiation to the thigh and limitation of flexion, internal rotation and abduction movements. The patient had a radiographic examination demonstrating a lesion with osteochondroma characteristics in the small trochanter of the femur. An x-ray was requested for comparison, computed tomography and MRI of the hip for a better evaluation of persistent pain, possible growth and lesion characteristics.
**Discussion and diagnosis, or vice versa:** Magnetic resonance imaging showed a lesion in the medial region of the left femur, which presented communication with the medullary and cortical bone of the minor trochanter and with a predominantly bone marrow-like signal, compatible with osteochondroma. There was no significant thickening of the cartilage portion of the lesion that might suggest malignancy. The described lesion caused reduction of the left ischiofemoral space and compression of the femoral square muscles and posterior region of the external obturator, determining volume reduction and liposubstitution of the same. Areas of T2 hypersignal and gadolinium impregnation were also identified in adjacent muscle and adipose planes, suggesting edema and inflammatory process as causes of pain and concluding to represent ischiofemoral impingement syndrome. It was first described by Johnson in 1977 and is an uncommon cause of hip pain mainly in young women. They have possible congenital and acquired etiologies, being the main ones: after surgeries in the hip (valgus-producing osteotomies), traumas (intertrochanteric fractures) or congenital reduction of ischiofemoral space. Osteochondromas are benign common bone lesions in various locations, but the femoral trochanter is an uncommon site and one of the rare causes that can cause the syndrome described. Patients may have benefits with non-surgical treatment and, if necessary, usually have an important improvement after surgical resection of the small femoral

**Conclusion:** There is a common benign bone lesion in an unusual location as a rare cause of an uncommon syndrome: ischiofemoral impingement.

**Responsible Author:** Dr. augusto albanese pellicioli

**E-mail:** gutop@hotmail.com

**PD.15.035**

**ATYPICAL CHONDROMYXOID FIBROMA IN DISTAL FEMUR:** **CASE REPORT AND LITERATURE REVIEW.**

**Authors:** MENDES, L.A.; ZORZENONI, F.O.; CONSOLO, F.D.; JORGE, R.B.

**Institution:** Serviço de Diagnóstico por Imagem da Irmandade da Santa Casa de Misericórdia de São Paulo, São Paulo, São Paulo, Brasil

**Brief description of the study purpose:** This paper aims to describe a case of atypical chondromyxoid fibroma in distal femur, reporting the main findings of radiographic imaging (XR), computed tomography (CT) and magnetic resonance imaging (MRI).

**Clinical history:** Young female patient, previously healthy, presented pain and increased distal thigh volume two months ago, with no other clinical complaints. XR showed a metaphyseal lytic lesion in distal femur, with a permissive appearance, showing areas of cortical bone destruction and discontinuous periosteal reaction. CT demonstrated that the lesion was intramedullary and showed heterogeneous contrast enhancement. MRI showed hypointense signal in T1-weighted images, heterogeneous high signal intensity on T2-weighted images and intense heterogeneous contrast enhancement, associated to internal bleeding foci and extension to the muscular biceps femoris and quadriceps femoris. The biopsy was associated to internal bleeding foci and extension to the muscular biceps femoris and quadriceps femoris. The biopsy was performed and the diagnosis of chondromyxoid fibroma was confirmed. An en bloc resection was performed with homologous and autologous graft placement and internal fixation with plates and screws.

**Discussion and diagnosis, or vice versa:** Chondromyxoid fibroma accounts for less than 1% of primary bone tumors, predominating in men between the second and third decades of life. Corresponds to benign cartilaginous neoplasm, most frequently affecting the metadiaphyseal region of long bones, usually presenting an insidious and progressive course. The rapid increase in tumor volume and imaging features showing large lesions, extra-bone expansion for adjacent soft tissues, and foci of internal hemorrhage are uncommon in the usual evolution of the chondromyxoid fibroma.

**Conclusion:** Chondromyxoid fibroma may be atypical in imaging studies and should be remembered among the differential diagnoses of metaphyseal intramedullary neoplasms in adolescent and young adult patients, allowing adequate surgical choice and clinical follow-up.

**Responsible Author:** Dr. Lucas Araujo Mendes

**E-mail:** lucasmendes.sc@gmail.com

**PD.15.042**

**PRIMARY TIBIAL BONE LYMPHOMA - A CASE REPORT.**

**Authors:** ARRUDA, T.C.S.B; GONÇALVES, T.V; GOES, A.C; ROSAS, C.H.S; TRAVELOSS, D.J.; TYNG, C.J.; PINTO, P.N.V.; CERQUEIRA, W.S.

**Institution:** A.C. Camargo Cancer Center

**Brief description of the study purpose:** The purpose of this exhibit is to report a case of primary bone lymphoma and summarize the role of the radiologist in the diagnosis and management of this condition. Primary bone lymphoma (PBL) is a rare manifestation of non-Hodgkin lymphoma, accounting for less than 1% of all cases of malignant lymphoma and 3% of malignant bone tumors. The common definition of PBL refers to lymphoma confined to the bone and adjacent bone marrow without other concurrent systemic involvement.

**Clinical history:** Male, 22-year-old, presented to the hospital with intermittent right leg pain for 5 months. Plain radiographs of the leg demonstrated proximal tibial metaphyseal osteolytic lesion arising from the bone marrow, with a permeative pattern, also known as ‘moth-eaten’ appearance, and with periosteal reaction. MRI scans best featured the extent of soft tissue and marrow involvement, with surprising little cortical destruction. Radionuclide bone scintigraphy revealed increased tracer uptake in the lesion, without other sites of bone involvement. CT guided biopsy was performed and diffuse large B-cell non-Hodgkin lymphoma was diagnosed by pathology with Immunohistochemistry (IHC). Pretreatment staging FDG-positron emission tomography/computed tomography (PET/CT) showed no other nodal or extranodal sites.

**Discussion and diagnosis, or vice versa:** 1. Describe the common definition of PBL and overview clinical, epidemiologic, pathologic and radiologic characteristics of this condition. 2. Review imaging features of PBL and the role of each method in the diagnosis and management of this condition. 3. Describe most common differential diagnosis of PBL and permeative moth-eaten appearance lesions. 4. Describe the group of small round cell tumors of bone. 5. Briefly discuss the most commonly used radiological response criteria for lymphomas.

**Conclusion:** Primary bone lymphoma has a better prognosis than many other malignant bone tumors, therefore, early identification allows for appropriate treatment. The radiologist should be familiar with PBL imaging features and most common differential diagnosis.

**Responsible Author:** Dr. Tiago Arruda

**E-mail:** tiago.arruda13@gmail.com
PD.15.043
A TYPICAL SOLITARY BONE PLASMOCYTOMA: CASE REPORT
Authors: CARMO, R. L.; MACHADO, C. P.; ROCHA, A.P. C.
Institution: Santa Casa de Belo Horizonte - Minas Gerais
Brief description of the study purpose: This work aims to report the magnetic resonance imaging (MRI) findings on a patient presenting with solitary bone plasmocytoma, and reaffirm the importance of imaging methods to that diagnosis. It’s a rare lesion (3% to 7% of plasma cell dyscrasias) that might be considered the initial stage of multiple myeloma (MM). The plasmocytoma is a solitary, monoclonal, plasma cell tumor of the bone, without evidence of disseminated form of MM. To confirm the diagnosis the tumor must fill all the following criteria: solitary lesion, biopsy showing plasma cells, absence of other bone lesions, normal bone marrow aspiration, absence of anemia, hypercalcemia or kidney involvement suggesting MM, absence or low serum or urinary levels of monoclonal immunoglobulin. The clinical manifestations are related to the affected anatomic site, pain being the main symptom, caused by bone destruction. There are patients that remain stable for decades, whereas two thirds will develop MM sometime during the evolution.
Clinical history: Male patient, 44 years old, presenting with weight loss, asthenia and inferior limbs paresthesia, particularly on the right side. Thoracic and lumbar column MRI showed expansive lesion within T11’s vertebral body and posterior arch, cortical thickening and radiated beams from periphery to center, with signs of cortical rupture caused by the lesion, which extended to the adjacent soft tissue. Biopsy confirmed the diagnosis of plasmocytoma.
Discussion and diagnosis, or vice versa: The axial bones (specially the thoracic segment vertebral bodies) are the most commonly affected site (25-60%). The lesion seen on MRI is the most precise way to diagnose the disease, and presents with low signal on T1WI, curvilinear low signal areas peripherally, with or without cortical irregularities, and posterior elements involved on most cases. The most specific finding is the “mini brain” appearance, caused by radiated cortical beams towards the center of the expanded vertebral body. The lesion is non-homogeneous on T2WI and has high signal on STIR images. Using gadolinium there is mild to moderate diffuse enhancement.
Conclusion: The plasmocytoma is a rare pathology, frequently evolving to MM, and shows classic patterns on MRI that, when recognized, will help on the precoce diagnosis.
Responsible Author: Dra. ana paula vieira fernandes benites sperb
E-mail: anasperb@hotmail.com

PD.15.045
GORHAM-STOUT SYNDROME: WHEN TO THINK OF? A CASE REPORT OF VANISHING BONE DISEASE.
Authors: SPERB, APVFB.; ANDRADE, RGF; VALDUGA, SM.; HOCHHEGGER, B.; SERAFINI, OA.
Institution: HOSPITAL SÃO LUCAS DA PUCRS, PU CRS/PORTO ALEGRE/RS.
Brief description of the study purpose: Gorham-Stout Syndrome (GSS), originally coined to describe "missing bone disease with intrasosseous vascular alterations", it is considered infrequent, difficult to diagnose and with controversial treatment, with few scattered cases reported. We believe this diagnosis should be presented when prevalent conditions related to multifocal osteolysis are negative ou inconclusive.
Clinical history: A previously healthy 34-year-old male presented assymmetric polyarthralgias and intercostal pain, started 12 months ago without a history of trauma. Conventional radiography demonstrated osteolytic lesions with predominance in the pelvic ring, proximal and distal femur, distal tibia and talar, bilaterally, lumbar vertebral bodies, as well as unconsolidated fractures of costal arches, with no periosteal reaction or associated soft tissue lesions. Once excluded prevalent causes of multifocal osteolysis (namely osteomyelitis, neoplasms, metabolic disorders and parathyroid dysfunction) the radiological hypothesis of GSS was proposed. The patient was submitted to surgical biopsy in the right iliac bone that demonstrated intraosseous vascular alterations osteolysis associated, the hallmark for GSS.
Discussion and diagnosis, or vice versa: The usual presentation of GCS is monocentric form of osteolysis, with axial skeleton predilection. It is also known as massive osteolysis, missing bone disease, phantom bone disease, progressive bone atrophy, among others. Preferably affects younger patients, with nonspecific symptoms as pain and joint edema. The pathological mechanisms currently proposed are multifactorial, and the histopathological landmark is the replacement of normal bone by hypervascularized fibrous tissue and non-neoplastic expansive capillary, proliferative cavernous and angiomatous tissue, wich radiological translation are bone rarefaction foci, with slow and irregular progression that can result in the complete disappearance of the affected bone. The patholgical and radiological criteria proposed by Heffez and colleagues include the presence of proliferative angiomatous tissue in the sample and radiological osteolysis with absence of findings suggestive of neoplasia, infection, abnormal osteoclastic response, dystrophic calcifications and/or visceral or extra-osseous involvement.
Conclusion: We presented a case of GSS according the radio-pathological criteria established in the literature. Although infrequent, GSS should be considered when the prevalent diagnostic hypothesis of multifocal osteolysis are excluded.
Responsible Author: Dra. ana paula vieira fernandes benites sperb
E-mail: anasperb@hotmail.com

PD.15.048
PANCARPAL COALITION - A RARE COMPLICATION
Authors: DUARTE, ML; DANTAS, TN; FIGUEIRAS, FN; DUARTE, ER
Institution: ONELAUDOS
Brief description of the study purpose: To emphasize the importance of the main imaging methods, with due anatomical correlation, of a rare disease.
Clinical history: A 39-year-old man with pain in his right hand. It refers to previous trauma in the region five years ago. Right hand pain existed prior to trauma, but worsened after this episode and is associated with movement limitation.
Discussion and diagnosis, or vice versa: MRI showed coalition of all carpal bones with fusion of the second and third metacarpals. Many skeletal variations may be found in the asymptomatic individual. These variations may range from common normal variants, such as accessory bones, bipartitions, and coalitions, to various developmental abnormalities and minor dysplastic deformities. Most of these conditions are the result of alterations in the ossification process, commonly remain asymptomatic, and are usually considered incidental radiographic findings, which may eventually simulate pathologic conditions. Their recognition and appropriate understanding has indeed become an essential requisite in musculoskeletal imaging. Carpal coalition is characterized by the
anomalous union of 2 or more carpal bones and can be osseous or nonossseous. In osseous coalition, the carpal elements are united as a single osseous block, whereas, in nonossseous coalition, the affected carpal bones are united by either cartilage (spondylosis), fibrous tissue (syndesmosis), or some combination of the 2. Congenital carpal coalition occurs as the result of failure of segmentation of the carpal cartilaginous precursors. It has a prevalence of approximately 0.1% in American population. It is twice as common in males as in females. Carpal coalition can be syndromic or can occur in an isolated form, without other associated anomalies. Pancarpal coalition, that is, coalition of all or most of the carpal bones, when observed, usually occurs with other anomalies.

Conclusion: We report a rare pancarpal coalition case documented by magnetic resonance imaging.

Responsible Author: Dr. Felipe Nunes Figueiras
E-mail: bilita88@gmail.com

PD.15.052
ATLANTO-AXIAL OSTEOMYELITIS WITH SUB-LUXATION: CASE REPORT


Institution: Hospital São Lucas da PUC RS

Brief description of the study purpose: In this report we describe the characteristic imaging findings of atlanto-axial osteomyelitis with subluxation, emphasizing the clinical, radiologic and epidemiologic peculiarities of this pathology.

Clinical history: A 71-year-old female admitted with a five-month history of neck pain, that started after a pacemaker implant. The patient had a history of previous admission for medical care four months ago due to decompensated heart failure and episodes of bacteremia by Staphylococcus aureus. After this, she experienced exacerbation of the neck pain that led to her current admission. Computed tomography of the cervical spine revealed erosion of the dens and dislocation of the lateral mass of C1 on C2.

Discussion and diagnosis, or vice versa: Cervical osteomyelitis sometimes associated to disc infection accounts for 3-11% of cases of spinal osteomyelitis. The odontoid process is a rare site of pyogenic osteomyelitis and it is mainly caused by Staphylococcus aureus. However, this pathology is becoming more prevalent due to some reasons as the increase in the elderly population and the rising number of immunocompromised patients. The most common symptom is neck pain, with a interval between the onset of symptoms and diagnosis of 3-4 months. This happens because of some confounding factors as the patients are usually elderly and the neck pain could be wrongly justified as due to isolated degenerative disc disease. The delayed diagnosis could allow the compression of nearby structures and appearance of neurological deficits.

Conclusion: Cervical osteomyelitis is a rare pathology but with rising prevalence. Because of its evolutionary potential, the early diagnosis with clinical suspicion and imaging methods is crucial to treat and prevent severe neurological damage.

Responsible Author: Biom. Larissa Baracuhy Nóbrega Pereira
E-mail: larabaracuh@hotmail.com

PD.15.055
ADDUCTOR INSERTION AVULSION SYNDROME OR “SHIN SPLINTS” IN THE THIGH: MRI DIAGNO-SIS – TWO CASE REPORTS.


Institution: AXIAL MEDICINA DIAGNÓSTICA

Brief description of the study purpose: “Shin Splints” or “Thigh Splints” is a poorly known injury, but one that should be remembered among the differential diagnoses of deep pain in this region in athlete patients. The objective of this study is to report two cases of this injury, diagnosed using magnetic resonance imaging (MRI).

Clinical history: Two female marathon athletes, whose only symptom was deep pain in the middle third of the thigh, triggered and/or aggravated by sports practice. The patients underwent MRI, whose image findings together with the clinical history corroborated the diagnosis of Adductor Insertion Avulsion Syndrome(AIAS).

Discussion and diagnosis, or vice versa: “Shin Splints”, also called AIS, represents a repetitive avulsion injury of the adductor bone-tendon junction, culminating in traction periostitis and fractures resulting from stress/fatigue overload, with similar characteristics of image presentation to those lesions often seen in the "overloaded" tibiae of running athletes. Imaging findings include a periosteal reaction located in the proximal/medial thirds of the medial face of the proximal/medial thirds of the femur on the plain radiograph, cortical thickening may occur in chronic cases, or it may be normal, initial phase in which MRI becomes gold standard in the diagnosis of the lesion, as will be exemplified in our cases.

Conclusion: “Shin Splints” of the thighs consists of a relatively uncommon injury, most likely being an unknown diagnosis. Its recognition becomes important among the differential diagnosis by image of thighs, aiding in therapeutic and prognostic conducts to be adopted.

Responsible Author: Dra. Ana Paula Campos Rocha
E-mail: anacrocha@gmail.com

PD.15.057
PERSISTENT MEDIAN ARTERY THROMBOSIS ASSOCIATED WITH BIFID MEDIAN NERVE

Authors: MORAES, A. C. F. V.; CANOZZO, M. R.; VILE-LA, M. A.; MAIA, M. H. V.; TOGNI FILHO, P. H. A

Institution: Faculdades Integradas Padre Albino - FIPA

Brief description of the study purpose: The current case presents an uncommon anatomical variation of the wrist that is directly implicated in the onset of a very common pain-related syndrome and associated to a second, rarer anatomical variation. Therefore, it helps to broaden diagnostic possibilities and useful techniques that may be considered in cases with similar history.

Clinical history: 63 years-old male, smoker, had undertaken an MRI scan due to a wrist injury after a fall. The patient presented with local pain, tingling and burning sensation. Scaphoid bone fracture was initially hypothesized as the cause and initially assessed with an MRI scan, which identified signs of median artery thrombosis. Regular and Doppler ultrasound exams were also performed. Symptom remission was observed without pharmacological treatment.

Discussion and diagnosis, or vice versa: The median artery is an accessory artery that arises from either the anterior or common interosseous arteries, which in turn originate from the ulnar artery. It is a rare anatomical variation, present in about 4.5% of the population, and represents an embryological remnant of the axial artery that frequently regresses in the first trimester of fetal development, as radial and ulnar arteries start to form. Up to 41% of persistent median arteries may be associated to bifid median nerves. While the presence of
the median artery is asymptomatic, local thrombosis might trigger symptoms similar to those of carpal tunnel syndrome, a condition that represents the most common form of nerve entrapment. Clinically, patients may develop pain and sensory deficits. Persistent median artery thrombosis is extremely rare, and symptoms are probably either secondary to direct pressure exerted by the affected artery onto the median nerve or due to ischemic injury that may result from poor connections among median, radial, and ulnar arteries. Different causal factors have been listed for these thrombotic events, but usually involving blunt or perforating trauma, repetitive stretching of the wrist, oral contraceptive pills and soft tissue infections.

Conclusion: Carpal tunnel syndrome cases might develop from uncommon causes such the persistent median nerve thrombosis, and the use of Doppler ultrasound is important for an accurate and complete evaluation and diagnosis.

**Responsible Author:** Dr. Marcelo Henrique Viana Maia
**E-mail:** marcelohvmaia@gmail.com

**PD.15.058**
**CANDIDA ALBICANS Spondylodiscitis**


**Institution:** Clínica Villas Boas

**Brief description of the study purpose:** The aim of this paper is to report a case of Candida albicans spondylodiscitis, a relatively uncommon disease, and MRI findings that can contribute to differential diagnosis with other spondylodiscitis etiologies.

**Clinical history:** Female patient, 63 years old, with a history of diabetes mellitus and chronic kidney failure presented with a complaint of lumbar pain for several days. MRI of the lumbar spine was performed and diagnosed spondylodiscitis. The symptoms didn’t show any improvement, even after broad-spectrum antibiotic therapy. The patient underwent biopsy and the culture of the material was positive to Candida albicans.

**Discussion and diagnosis, or vice versa:** Spondylodiscitis is an infectious condition that affects the intervertebral disc and adjacent vertebral bodies. Concerning the etiology, it can be pyogenic (most common), tuberculosis or fungal. The fungal spondylodiscitis is uncommon and closely related to immunocompromised patients. The lumbar spine is the most affected segment and hematogenous spread is the most common way of the infection. The MRI is the imaging modality of choice in the diagnosis of spondylodiscitis and characteristic findings are: intervertebral disc and vertebral bodies hypointense on T1 and hyperintense on T2; avid enhancement with gadolinium; paraspinal and epidural abscesses.

**Conclusion:** Candida albicans spondylodiscitis should be considered when infectious lesions contain low-signal spinal inflammatory masses on T2-weighted imaging and small paraspinal abscesses.

**Responsible Author:** Sr. ALCEU PAULINO REZENDE NETO
**E-mail:** alceupneto@hotmail.com

**PD.15.059**
**PREISER DISEASE: MAGNETIC RESONANCE IMAGING AND DIFFERENTIAL DIAGNOSIS.**

**Authors:** ARAUJO, E.P.; MIRANDA, C.D.O

**Institution:** Clínica Multimagem, Salvador, Bahia.

**Brief description of the study purpose:** The aim of this study is to describe the magnetic resonance imaging findings to diagnose and characterize the evolutionary patterns of Preiser's disease, as well as to allow the differential diagnosis of scaphoid necrosis by post-traumatic conditions.

**Clinical history:** In this study we report the case recorded in our files of female patient with 42 years and clinical picture of long-term pain in the wrist with functional limitation without previous history of trauma, use of corticosteroids, chemotherapy or connective tissue disease, which shows signs of ischaemia and necrosis of the scaphoid to the study of magnetic resonance (MRI).

**Discussion and diagnosis, or vice versa:** Preiser's disease or idiopathic avascular necrosis of the scaphoid is a rare condition that was first described by Preiser in 1910. This pathology portrays the presence of ischaemia and necrosis of the scaphoid bone that occurs in the absence of a history of fracture or unconfirmed (non-unity). Although the etiology and pathophysiology of Preiser's disease are not completely understood, there is agreement in the literature that the peculiarity of scaphoid vascularization is the cornerstone in the development of the disease, and it is possible to identify and characterize MR by three panoatomic zones and three stages of evolution of this pathology. The evaluation of the pattern of osteonecrosis by MRI also contributes to the differentiation between Preiser disease and the main cause of scaphoid necrosis, which results from the fracture of its proximal pole.

**Conclusion:** MRI allows the characterization of the evolutionary patterns of Preiser's disease, as well as contributes to the differential diagnosis with the scaphoid osteonecrosis by post-traumatic conditions.

**Responsible Author:** Dr. Enio Araujo
**E-mail:** enioaraujo@hotmail.com

**PD.15.060**
**VAN NECK-ODELBERG DISEASE: CASE REPORT AND LITERATURE REVIEW**

**Authors:** BIANCO, G.A.; WANDERLEY, M.C.; BARRETO, V.O.; RIANI, L.L.; SANTANA, M.V.M.C; MAIA, R.N.T.; SACHETIN, R.M.; BRINGEL, R.F.G.; SILVA, T.T.; BOLINELLI, A.P.; OLIVEIRA, V.S.

**Institution:** Hospital Estadual Vila Alpina

**Brief description of the study purpose:** Van Neck-Odelberg disease, or van Neck-Odelberg osteochondritis, is a rare and benign condition, characterized as hyperostosis of the ischiopubic synchondrosis, associated with groin, hip or lower limb pain. We present the case report of a 10-year-old boy who presented to our service with complaints of acute left hip pain, followed by a brief discussion, with emphasis on the imaging aspects.

**Clinical history:** A 10-year-old boy presented to the emergency department of our service with history of intense left
Gorham-Stout disease is an extremely rare entity, defined by spontaneous and idiopathic progressive osteolysis, unaccompanied by new bone production at the affected site. Several synonyms have been used in the literature to describe this mysterious disorder, such as idiopathic or progressive massive osteolysis, ghost bone disease, hemangiomatosis, and lymphangiomatosis. About 200 cases have been reported in the literature.

Conclusion: The Gorham-Stout syndrome is part of the group of idiopathic osteolytic diseases that are difficult to manage both diagnostic and clinical/therapeutic, and should be considered when there is rapid progression of osteolytic lesions. Its etiology is speculative. The clinical presentation is very variable and the natural history of the disease has an unpredictable prognosis. Cases such as the one reported above, with significant involvement, including bilateral, are important in order to understand more and more the natural history of the disease and possible therapeutic approaches to this unpredictable condition.

Responsible Author: Dr. Marcio dos Santos Meira
E-mail: marciomeira2050@gmail.com

PD.15.062
POPLITEAL ARTERY IMPRISONMENT SYNDROME: IMAGE EVALUATION OF A TYPICAL CASE
MEIARA M. S.; CERQUEIRA S. W.; AMODEO M. K.
Institution: AC CAMARGO CANCER CENTER
Brief description of the study purpose: Popliteal artery entrapment syndrome (SAP) describes a group of conditions in which the popliteal artery, popliteal vein and tibial nerve (either alone or in combination) are compressed in the popliteal fossa, as determined by adjacent musculoskeletal structures. The objectives of our study were to describe the image findings and to characterize the specificities of each imaging method, since SAP is responsible for a significant proportion of cases of intermittent claudication and should not be considered benign, since the progressive lesion in the popliteal artery may lead to chronic vascular microtraumas of the arterial wall evolving with intramural hematoma, thrombi, distal embolization, aneurysms, dissections and thrombosis with acute distal ischemia, leading to even limb loss.

Clinical history: A 51-year-old female patient reported pain in the right calf for 2 years, initially insidious, with progressive worsening, manifested by intermittent claudication, initiated by walking/physical exercises, with improvement at rest. Patient denies edema or paresthesias in the affected limb. Upon physical examination, the patient presented good general condition and hydration, with peripheral pulses in the lower limbs present, discretely diminished in the right popliteal region (++/4+), without murmurs or obvious varicose veins.

Discussion and diagnosis, or vice versa: Ultrasound examination with Doppler study provides an ideal initial test for patients suspected of having SAP. Its sensitivity and specificity increase with the use of provocative maneuvers, constituting a rapid, inexpensive and quick initial screening test. The findings of arterial compromise or prominent collaterals in the popliteal fossa suggest the diagnosis. In the present case, we have all the main tests, except for the angiography, since it represents an invasive method, documenting the SAP, presenting them in a rather didactic way.

Conclusion: The knowledge of the popliteal artery imprisonment syndrome is extremely important, since a high index of suspicion is necessary. SAP is responsible for a significant proportion of cases of intermittent claudication and should
PA.16.003
EXAM RECALL ANALYSIS FOR COMPUTERIZED TOMOGRAPHY AND MAGNETIC RESONANCE IMAGING IN AN ONCOLOGY CENTER.
Authors: GUIMARÃES, M. D.; CHOJNIAK, R.; NESE, P. L.; STASZCZAK, R.
Institution: A.C. Camargo Cancer Center
Brief description of the study purpose/Objectives: The number of Magnetic Resonance (MRI) and Computed Tomography (CT) exams has increased greatly in the last 30 years. Based on the observation that in clinical routine, part of these tests requires complementation by recalling the patient causing anxiety, scarce resource occupation and cost-operative increase, this study aims to analyze the avoidable and non-avoidable reasons that lead to the recall of patients at a center specializing in oncology.
Material and methods: We analyzed the medical records of 86 patients who were recruited to complement imaging tests between January and December 2016, of which 58 were MRI and 28 were CT. Evaluating the recall book of the Department of Imaging, we analyzed the data of patients who were recalled.
Results and discussion: This work demonstrated a greater number of recalls in MRI scans was observed, although the usual number of CT scans in the service was almost 3 times greater than MRI scans. We noticed that the main cause of recall was to complement protocol (37%). The lack of information on the specific purpose of the examination or the wrong choice of examination technique may lead to recalls to complement protocols, which is an avoidable cause of recall. Another aspect that points to the same cause is the high rate of recalls of examination of the skull, a region where there are many possible techniques of examination, including the incorporation of advanced functional imaging techniques in MRI. This may also be a partially avoidable cause of recall by preliminary examination of the examination still with the patient present in the imaging sector. All other causes of recall (73%) were causes that are independent of decisions made by doctors/operators at the time of the examination. Among those causes that could be classified as "non-avoidable" we can highlight 17 (18%) situations of recall due to energy problems in the unit.
Conclusion: A considerable part of the recall was due to avoidable and dependent causes of physicians and operators and a review of the flow of decision making can minimize this occurrence and avoid anxieties in patients and waste of resources still scarce in our environment.
Responsible Author: Sra. Priscila Lazzareschi Nese
E-mail: priscilanese@gmail.com

PA.16.004
ASSESSMENT OF SARCOPENIA IN CANCER’ PATIENTS BY COMPUTED TOMOGRAPHY AND SOFTWARE FOR ANALYSIS OF BODY COMPOSITION.
Institution: Universidade Federal do Rio Grande do Norte/UFRN
Brief description of the study purpose/Objectives: In aging, there are several changes in body composition including decrease of muscle mass. When this reduction compromises physical function, it is called sarcopenia, and some diseases, such as cancer, contribute to this process. There are several methodologies to evaluate sarcopenia, but in cancer patients the assessment of computed tomography (CT) and magnetic resonance imaging are considered gold standard techniques.
Material and methods: This is a descriptive study, previously approved by the Research Ethics Committee of Federal University of Rio Grande do Norte (protocol number: 55737216.0.3001.5292) and all individuals signed the Informed Consent Form in two copies. One hundred and three elderly cancer patients who underwent total abdomen tomography were selected for evaluation. The evaluation of sarcopenia was through the CT image, selecting the third lumbar vertebra as the anatomical point, where the transverse process was more prominent. The image was analyzed with Slice O’matic software. For the evaluation of skeletal muscle mass, the areas of interest were between -30 and +110 hounsfield-units (HU). The results obtained were used to calculate the muscle mass index (muscle mass divided by the squared height) and compared to the cut points.
Results and discussion: The mean age of the population was 71.3 ± 9 years and 56.3% were female. The mean BMI was 23.9 ± 4.2 kg/m², where 67.6% were at normal range and 12% had obesity. The mean muscle mass index was 40.1 ± 17.3. Of the analyzed individuals, 39.4% presented sarcopenia.
Conclusion: There was a high prevalence of sarcopenia, demonstrating the importance of body composition evaluation by CT, especially the muscle mass of these individuals to early diagnose of sarcopenia in cancer’ patients.
Responsible Author: TNR. Galtieri Medeiros
E-mail: galtieri otavio@yahoo.com.br

PD.16.001
THE IMPORTANCE RADIOLOGICAL PROTECTION OF THE CRYSTALLINE IN RADIOLOGICAL EXAMINATION OF THE SKULL.
Authors: SILVA, E. P.; LUCAS, J. C. B.; BARROS, O. M.; SIMÃO, R. S.
Institution: Senac - Unidade Tiradentes
Brief description of the study purpose/Objectives: To identify the radiographic incidences that contribute to a lower dose of radiation in the lens with different positions. Perform as incidences with the use of an ionization camera to measure the radiation doses in the surface area of the lens.
Material and methods: The research was developed in a laboratory of radiology university. With the use of a diagnostic X-ray equipment coupled to a digital detector. In the study used a simulator (phantom) of the skull similar to the human anatomy, with the positioning of an ionization camera in the region of the lens of the simulator in the anteroposterior (AP) incidences of Towne method and posteroanterior (PA) at 0° to record of radiation doses. Were in all 30 exhibitions, 15 for each incidence, with values of milliamperages (mA) 100, 160 and 200. For each mA selected, were performed 5
exhibitions with the values of kilovoltage (kV) 60, 65, 70, 75 and 80.

**Discussion:** For the exposure of the simulator of the skull in the incidences in AP and PA, the results showed, as the mA and the kV increases, the radiation dose in the superficial region of the eye also increases in both incidences. Comparing the values of the doses received in both X-ray projections, the incidence in PA received lower doses of radiation, due to the attenuation that some electric photons suffer when crossing the body toward the image receiver. Therefore some of the photons are absorbed and others scattered. For skull radiographs, the incidence in PA should be priority in relation the incidence AP; in order to allow for the attenuation of the radiation beam through the back of the skull, so that the absorbed dose to the lens of the eye is less than the threshold of 0.5 Gy/year established by the International Commission on Radiological Protection (ICRP) 2011.

**Conclusion:** The radiation dose received by the tissue varies according to kV and mA applied during the examination. The incidence in PA of the skull provides a reduction in the dose of radiation that reaches the crystalline. The radiographic procedures in the regions of the eyes should be optimized.

**Responsible Author:** TNL. Eliosmar Praxedes da Silva

E-mail: eliosmarsilva@outlook.com

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### LITERATURE REVIEW

**SCIENTIFIC PAPERS - POSTERS (PA)**

**PA.16.002**

**THE ROLE OF 3D PRINTED MODELS IN SURGICAL PLANNING**

**Authors:** GUENKA, H. A.; GOTTLIEB, I.; BRITES, L. G.; VALLE, P. B. V.; SANTOS, F. M.; VIANNA, M. D. S.; POSSETTI, P.; SACRAMENTO, T. C. G.;

**Institution:** Casa de Saúde São José

**Brief description(s) of the purpose(s) of the Literature Review:** Use of 3D printing in the orthopaedic and cardiovascular field as a relevant tool to create real size anatomic models from a virtual 3D rendered object, allowing a better understanding of the pathological anatomy and consequently improving surgical planning and outcome.

**Description(s) of disease(s), method(s) and/or technique(s):** Virtually 3D rendered imaging for computed tomography (CT) and magnetic resonance imaging (MRI) exams are widely used by surgeons to visualise the anatomy of the patient. 3D printed anatomical models creates a visual and tactile feeling to the anatomic structure allowing surgeons to better understand the pathology.

**Discussion:** Generating a 3D printed model encompasses sequential stages of image acquisition, data post-processing and manufacturing with industrial grade materials. A volumetric acquisition data from CT or MRI is post processed using segmentation tools and volume rendering techniques using a DICOM viewer software to separate the area of interest. Then a mesh is generated using a CAD program to create the surface of the object to generate a Standard Tessellation Language (STL) file. This STL file can then be loaded in a slicer software which divides the object into slices to be printed in a Fused Deposition Modelling (FDM) or Stereolithography (SLA) printer. Orthopaedic 3D printed anatomical models allows surgeons to make better surgical planning by visualising fractures, defects and deformities choosing the right
surgical technique, which prothesis to use, size and screws positioning. Cardiovascular 3D printed models can improve diagnosis and allow for advanced preoperative planning. The majority of applications reported involve congenital heart diseases and valvular and great vessels pathologies.

**Conclusion:** 3D printed models aids surgical planning and reduces surgical time minimising peri and post operative complications.

**Responsible Author:** Dra. larissa brites

**E-mail:** larissabrites@yahoo.com.br

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**PA.16.005**

**THE IMPORTANCE OF COMPUTERIZED TOMOGRAPHY IN ADDITIVE MANUFACTURING IN BUCOMAXILOFACIAL SURGERY AND TRAUMATOLOGY.**

**Authors:** VIDAL, J.C.S.; COSTA, M.C.F.; BREY, A.C.; RÜCKEL, L.F.; PREVEDELLO, P.R.; RIBEIRO, M.S.S.N.; BARONI, K.P.; BARCELLOS, A.C.; MARCELO, J.G.

**Institution:** HOSPITAL DE EMERGÊNCIA E TRAUMA DOM LUIZ GONZAGA FERNANDES . FACULDADES INTEGRADAS CAMÕES. UNIVERSIDADE TUIUTI DO PARANÁ. SENAC-PARANÁ

**Brief description(s) of the purpose(s) of the Literature Review:** The incorporation of modern and innovative technologies, both in diagnostic imaging and in the planning of advanced therapies (such as reconstructive and reconstructive surgeries), provides a degree of excellence in patient care. This study describes the importance of the acquisition of high quality tomographic images for the fabrication of 3D anatomical structures (biomodels or prototypes) used in the simulation of surgical procedures, which contribute to the optimization of facial maxillofacial surgery and traumatology.

**Description(s) of disease(s), method(s) and/or technique(s):** For use of additive manufacture (MA), defined as the technique of manufacturing parts from 3D models, anatomical images must be acquired by CT. These must be manipulated in a computer aided design (CAD) system, which cuts 2D profiles, allowing the construction of the biomodel by means of a rapid prototyping equipment, layer by layer.

**Discussion:** The results of a surgery should be the best possible, therefore, the increase in preoperative information decreases the possibility of complications during the procedure, including postoperative complications. For the surgical planning, in addition to an accurate clinical examination, laboratory and CT exams, the anatomical structure of interest in 3D (obtained with the MA technique) makes it possible to simulate the surgical procedure, optimizing surgical time, anesthesiain time, and obtaining a better aesthetic and functional result. For the construction of a complete anatomical biomodel, able to accurately simulate the surgical act, the acquisition of tomographic images is essential. Although the manipulation software of the tomographic images to generate the biomodel allows the smoothing and the reduction of noises and artifacts, only images with high resolution guarantee the necessary anatomical trustworthiness to the surgical simulation, optimizing the manipulation of the tomographic images and minimizing the delivery time of the 3D prototype.

**Conclusion:** The use of high quality tomographic images guarantees the anatomical precision of the biomodel and, in this way, the surgical simulation can obtain realism and anticipate the possible inherent risks, as well as optimize the results.

**Responsible Author:** TR. Juan carlos Soares Vidal vidal

**E-mail:** juanvidal.jsv@gmail.com

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**PA.16.011**

**RADIOFREQUENCY CRIBBING OR ABLATION SMALL RENAL MASS**

**Authors:** SOUSA, E.; BALTAZAR, M.; SCAFF, E.

**Institution:** SPX DIAGNÓSTICOS POR IMAGEM

**Brief description(s) of the purpose(s) of the Literature Review:** The authors of this report performed a comparative meta-analysis evaluating cryoablation and ablative radiofrequency (RFA) as the main treatment for SRMs.

**Description(s) of disease(s), method(s) and/or technique(s):** A MEDLINE database search was conducted reviewing the world literature for clinically localized renal masses treated by cryoablation or RFA.

**Discussion:** 47 studies representing 1375 renal lesions treated by cryoablation or RFA were analyzed. No differences were detected between the ablation Modalities in relation to the mean age of the patient, tumor size or duration of follow-up. Pretreatment biopsy was performed more frequently for cryoablated lesions (82.3%) than for RFA (62.2%; P <.0001). Unknown pathology occurred at a significantly higher rate for SRMs that underwent RFA (40.4%) versus cryoablation (24.5%; P <.0001). Repeated ablation was performed more frequently after RFA (8.5% vs 1.3%; P <.0001), and local tumor progression rates were significantly higher for RFA (12.9% vs. 5.2%; P <.0001) compared to cryoablation.

**Conclusion:** Ablation of SRMs is a viable strategy based on short-term oncology outcomes. Although prolonged oncologic efficacy continues to be established for ablative treatment for CKD is radiographic and effective images of the kidneys can be achieved by ultrasound, computed tomography (CT), or magnetic resonance imaging (MRI), current data suggest that cryoablation results in fewer retreatments and improved local tumor control, and may be associated with a lower risk of metastatic progression compared to RFA. American Cancer Society.

**Responsible Author:** TNL. EMERSON PEREIRA DE SOUSA

**E-mail:** emersonprof10@gmail.com

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**PA.16.013**

**CONTINUED EDUCATION IN THE RADIOLOGY: APPROACH BY A CORE OF RESEARCH OF RADIOLOGIC PROFESSIONALS**

**Authors:** SOUSA, J.C. O; LIMA, H.J.V.; FRANÇA, C.A.; FRAZÃO, D.W.P.; ARAÚJO, G. M.S.

**Institution:** Núcleo de Pesquisa Científica e Acadêmica de Radiologia (NPCAR)

**Brief description(s) of the purpose(s) of the Literature Review:** The term “continuing education” conceptually encompasses teaching activities after the undergraduate course with the purpose of updating and acquiring new information, either through complementary or even serial courses, or through specific publications of a particular field. By extension of the knowledge related to this or other subject in the radiodiagnosis constitute the pilaster of the development of an unusual example of form of continuous education called nuclei of research. This work aims to describe the constitution of a nucleus of research and how this acts as form dissemination of continuing education.

**Description(s) of disease(s), method(s) and/or technique(s):** This is an observational research with an experience report and a literature review base. The literature review carried out on articles, experience reports and master’s theses previously selected in the VHL and SCIELO for the establishment of structural and organizational regiment The
radiation with matter; supply of concepts of deposited energy and absorbed dose; thus the actual contribution of MC in VMAT lies in allowing the evaluation of the absorbed dose for a better risk-benefit analysis of the procedure.

**Conclusion:** The Monte Carlo method (MC) is extremely effective and precisely determines the dose of radiation that effectively reached tumor volume during radiotherapy. The contribution of MC in the execution of VMAT is based on the calculation of very precise dose up to the tissue heterogeneity; this contributes to VMAT being considered as one of the innovations in cancer therapy by establishing innovative standards of dose speed and compliance in cancer therapy.

**Responsible Author:** Sra. Joyce Caroline
**E-mail:** joycecarolinedeoliveira@hotmail.com

**PD.16.009**

**CALIBRATION OF THE SIGNAL IN THE MRI EXAMINATION OF THE BREAST WITH IMPLANT**

**Authors:** NOBREGA, A.I.; RUIZ, R.P.; MIRANDA, E.B.; DIAS, C.C.; LIMA, L.F.
**Institution:** Faculdade das Américas - SP
**Brief description(s) of the purpose(s) of the Literature Review:** The calibration of the signal in Magnetic Resonance Imaging (MRI) of the breast with a silicone implant can not always be done automatically by the resonance system. Several factors interfere in this process with emphasis on the lack of homogenization of the local magnetic field. In this case a manual calibration is required. This procedure is an important step in the image acquisition process, especially in the sequences with fat suppression technique, with water suppression and to exclusively highlight the implant. The identification of the “peak” corresponding to water, fat or silicon in the signal spectrum is decisive for the correct application of the protocol.

**Description(s) of disease(s), method(s) and/or technique(s):** It is a bibliographical review of the integrative type.

**Discussion:** The lack of homogenization of the main magnetic field of the resonance system interferes directly in the application of some techniques such as suppression of the water signal and the fat signal. These techniques are often used in breast examination protocols, especially those with silicone implants. This happens because the mammary structures are positioned in planes away from the isocenter of the system where homogeneity is known to be reduced. The signal spectrum curve obtained in the manual calibration allows the system operator to identify the corresponding tissues. The identification of the different tissues allows the operator to correctly apply the protocol.

**Conclusion:** Manual calibration of water, fat and silicone hydrogens signals in breast MRI examinations allows the system operator, from the signal spectrum curve, to safely apply water and fat suppression techniques, thus ensuring the effectiveness of the techniques and the quality of the images.

**Responsible Author:** TNL. ALMIR INACIO NOBREGA
**E-mail:** nobregaalmir@gmail.com

**PD.16.011**

**THE CONTRIBUTION OF THE CONGREGATE PRACTICE-THEORY IN STRENGTHENING THE TEACHER RELATIONSHIP AND DISCIPLINE OF THE RADIOL OGY COURSES**

**Authors:** SOUSA, J.C.O; FRAZÃO, D.W.P.; LIMA, H. J.V.; FRANÇA, C.A.; DE ABREU ,L.M.O.; OLIVEIRA ,A.C.A.S.; ARAÚJO, G. M.S; SANTOS, P.H.S
**Institution:** Núcleo de Pesquisa Científica e Acadêmica de Radiologia (NPCAR)
Brief description(s) of the purpose(s) of the Literature Review: Teachers, especially those working in radiology courses, play a fundamental role in awakening by the students (be they technicians and technologists) the probable area of professional activity. However, the role of the teacher transcends the configuration of the learning processes and includes in its effective assignments the incentive of the professional differential. The insertion of the congregated practice - theory as an educational alternative strengthens the teacher-student relationship and places the student in the face of the reality of a competitive labor market. This study aims to report the impact of practical alternative educational and theory on the part of the teachers in the establishment of the teacher-student relationship.

Description(s) of disease(s), method(s) and/or technique(s): It is an exploratory, descriptive and mixed research: literature review and experience report. The study was previously sequenced in stages: thematic election, determination of objectives, conducting a pilot study, execution schedule and research execution. The report of experience consisted of testimonies of students and radiology teachers discussing the subject; the testimonies were partially transcribed and the Guidelines and Norms of Research on Human Beings were respected. The literature review served as a basis for theoretical establishment contemplating scientific articles, doctoral theses and printed publications (books) of the last 5 years related to the theme and objectives of the study.

Discussion: The services of diagnostic imaging and therapy that eventually require professionals who seek to contemplate theoretical knowledge and a broader human training. The radiology professional is expected to act as an agent capable of putting science and technology at the service of society, in a relevant way in meeting their needs. However, it should be considered a joint effort of teachers and students, to expand the references of interlocution and exchange between both.

Conclusion: Thus, it is concluded that it is necessary to disseminate culture and propagate educational alternatives that establish the direct correlation between practice and theory. The relation between teaching, student and field of professional action have a fundamental role in the process of individual and collective awareness of the real professional assignments. Keywords: Congregated practice-theory; Teacher; Field of professional action.

 Responsible Author: Dra. Clyslane Alves França
E-mail: clyslane87@gmail.com

PD.16.014

“MYTHS AND THRUTHS ABOUT IODINATED CONTRAST MEDIA (ICM): WHERE ARE WE?”
Authors: ROCHA, A.P.C; CARMO R.L.; MELO, R.F.Q; VILELA, D.N.; LIMA A.L.S.
Institution: HOSPITAL DAS CLÍNICAS DA UFMG, SANTA CASA DE MISERICÓRDIA DE BELO HORIZONTE

Brief description(s) of the purpose(s) of the Literature Review: The ICM are substances that enhance the tissue differences, contributing to the definition of the diagnosis of many pathologies. However, there are myths and refrains about their usage, especially in pregnant women, atopic, asthmatic, chronic illness bearers, and kidney injury. This study aims to review the main indications/contra-indications and adverse reactions to the ICM, on the light of the best available evidences up to the moment on what concerns isotonic and low osmolarity ICM.

Description(s) of disease(s), method(s) and/or technique(s): The study is a Literature Review, based on bibliography research on the LILACS, PUBMED and SCIELO databases, and the detailed study of the ACR Manual on Contrast Media – Version 10.3 and it’s references.

Discussion: Literature evidences concerning ICM usage are not always robust, with few random controlled trials, some of the recommendations being week and based on specialist’s opinions. Patients who presented previously with severe allergic reactions are at larger risk, and one should evaluate the risk-benefit on using ICM on these patients and do so after prophylactic medication. Asthmatic patients and those with other allergies present risk only mildly bigger, without the necessity of avoiding ICM usage or using prophylactic measures. Those should be recommended with caution, as was demonstrated by Davenport M.S et al, due to the higher risk related to the delayed diagnosis, raised costs and hospital-related hospital time and infection. More than that, there are few studies that show it’s efficacy, shown only to mild/moderate reactions, according to O’Malley et al. About pregnant women, there are no evidences of mutagenic/teratogenic effects on animals and there are no evidences of neonatal thyroid anomalies up to the date. There are no evidences of pain crises after the usage of ICM by sickle cell patients or hypertensive crises on patients with pheochromocytoma. Concerning to contrast induced nephropathy, new studies have shown it’s low incidence with usage of modern ICM. It’s prophylaxis might create injuries and should not be indiscriminately prescribed, as demonstrated on AMACING.

Conclusion: Radiologists should keep themselves up to date about the usage of ICM, in order to recommend it’s safe usage, prescribes proper pre medication and avoid it’s usage when unnecessary or contra-indicated.

 Responsible Author: Dra. Ana Paula Campos Rocha
E-mail: anacrocha@gmail.com

CASE REPORT

SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)

PD.16.002

ACUTE PANCREATITIS WITH EVIDENCE OF BALT-HAZAR SCORE 10
Authors: VIEIRA, R.A.; VIEIRA, M. A.; VIDAL, J. C. S.; ARAÚJO, J. M.; ARAÚJO, R. M.

Brief description of the study purpose: Acute pancreatitis is an inflammatory condition of the pancreas with clinically characteristic abdominal pain and laboratory, elevated levels of pancreatic enzymes in the blood. Its annual incidence is 35 per 100,000 inhabitants, being the main gastrointestinal cause. Among the etiological factors, the main ones involved are gallstones and alcohol abuse. This study aimed to discuss the clinical presentation and the findings of the imaging examination employed, in order to facilitate the identification and diagnosis of future similar cases.

Clinical history: It is a 33-year-old male patient with a history of alcoholism and is admitted for the treatment of pain in the epigastric region radiating to the right and left hypochondrium, spreading to the back and with vomiting. Pancreatitis was diag-
nosed after altered laboratory tests of lipase and amylase. After 48 hours, computed tomography (CT) with pancreatic protocol was requested in the pre-contrast phases and at 40 seconds phases (pancreatic phase). Pronounced volumetric enlargement of the head and pancreatic body, associated with diffuse liquid striation in the peripancreatic tissues as well as liquid collections visualized on the right flank and pelvic excavation, being compatible with inflammatory process (acute pancreatitis). We emphasize that there was no enhancement to the contrast medium of the pancreatic parenchyma, with only the caudal portion of this organ remaining vascularized. The aspects indicate necrosis greater than 50% of the parenchyma (Balthazar score = 10).

Discussion and diagnosis, or vice versa: Described in 1990, the balthazar score evaluates the value of CT by establishing the prognosis of the disease according to the degree of pancreatic necrosis, correlating the values of the effects of mortality and mortality. Thus, CT with contrast has been an examination of choice to be performed three or more days after the onset of abdominal pain to reliably establish the presence and extent of pancreatic necrosis. Regarding the clinical approach, it is indicated the substitution of fluids, analgesics, continuous monitoring, enteral nutrition, antibiotics and, in addition, the surgical treatment.

Conclusion: Therefore, it is important to highlight CT after 48 hours of its diagnosis in the pancreatic phase, in which the Balthazar score will be made as an early treatment of acute pancreatitis.

Responsible Author: Sra. Ruth Alves Vieira
E-mail: ruthalvieira@gmail.com

PD.16.003
THE IMPORTANCE OF UROTOMOGRAPHY IN THE DIAGNOSIS OF POST-TRAUMATIC URINOMA
Authors: VIEIRA, R. A.; VIEIRA, M. A.; VIDAL, J. C. S.; ARAÚJO, J. M.; ARAÚJO, R.M.
Institution: Hospital Regional de Emergência e Trauma Dom Luiz Gonzaga Fernandes Faculdade de Ciências Médicas de Campina Grande (FCM-CG)
Brief description of the study purpose: To demonstrate the clinical aspects and identify the urotomography findings suggestive of posttraumatic urine.

Urinoma results from rupture of the collecting system at any level, from the calyxes to the most distal portion of the urethra, and is characterized by a wide range of clinical presentations and possible complications. The most common etiology corresponds to 65% (sixty-five) cases involving firearms.

Clinical history: Female patient admitted to a hospital with complaints of abdominal pain, characteristic of penetrating trauma. Being referred for the accomplishment of a Computed Tomography of abdomen / pelvis with intravenous infusion of contrast (urotomography). After the examination, the right anteriorly displaced kidney was present, presenting a posterior parenchymal laceration area, measuring about 1.8cm x 1.2cm, with signs of excretory pathway injury (renal pelvis) and extravasation of the contrast medium for retroperitoneum in the late phase, forming a net collection (urinoma) measuring about 9.1 x 8.8 x 7.7 cm (Volume: 320 cm³). There is also observed adjacent liquid striation and small amount of fluid collected in the right iliac fossa and pelvic excavation.

Discussion and diagnosis, or vice versa: Parenchymal lesions, vascular lesions and lesions of the collective system require different phases of CT, since the renal cortex and the collection system increase in different time frames. Four phases are recommended: without contrast, corticomedullar (20-25s), nephrographic (90s) and excretory (5-10 min) phases, in this way it will be possible to identify renal and / or ureteral lesions. As well as coronal and sagittal planes assist in volumetric quantification, and in doubtful cases aspiration of the fluid can be performed. In this case, conservative treatment of urinoma through hospital stay, rest, clinical follow-up and control image examination was indicated.

Conclusion: Although urinoma presents a range of clinical manifestations and possible complications, urotomography is essential for a differential diagnosis, allowing better treatment, since other tests are not as significant.

Responsible Author: Sra. Ruth Alves Vieira
E-mail: ruthalvieira@gmail.com

PD.16.004
INTESTINAL DRILLING BY INGESTION OF BROKEN FOOD BODY DIAGNOSED THROUGH TOMOGRAPHIC EXAM
Institution: Hospital Regional de Emergência e Trauma Dom Luiz Gonzaga Fernandes. Faculdade de Ciências Médicas de Campina Grande (FCM-CG)
Brief description of the study purpose: Intake of foreign bodies is a common condition in clinical practice. Most of the foreign bodies ingested go through the gastrointestinal tract without intercurrences, however, in 1% of cases complications such as perforation occur. This ingestion of foreign bodies is usually accidental and occurs at the extremes of age. Diagnosis is difficult, especially when it comes to a conventional radiographic study, since the foreign body usually presents small dimensions and low radiopacity, so CT scanning can contribute significantly to its diagnosis. To demonstrate the clinical aspects and to identify the tomographic findings suggestive of intestinal perforation by foreign body of food.

Clinical history: A female patient admitted to a hospital with complaints of abdominal pain, fever and vomiting, not reporting the possibility of ingesting a foreign body. The patient was referred for abdominal CT scan without intravenous contrast infusion. After the examination, signs of perforation of the left lateral wall of the sigmoid were observed, observing a liquid gas collection in the left iliac fossa. Highlighting a pointed and elongated calcified formation crossing the colonic wall should correspond to the perforating cause (possibly the foreign alimentary body).

Discussion and diagnosis, or vice versa: Intestinal perforation is more common in cases of pointed and elongated objects, in which CT plays an important role in the evaluation, being considered a method with high sensitivity for identification in these cases. The findings suggesting perforation are thickening of the walls of an intestinal segment, edema of mesenteric fat and gas in the peritoneal cavity. In the mentioned case, there was surgical indication due to perforation, in which this complication could not be resolved endoscopically. In this way, we performed segmental resection of the compromised loop.

Conclusion: Although accidental swallowing of a foreign body is common, intestinal perforation is an uncommon finding. Faced with the difficulty of diagnosis, CT is essential for detecting foreign bodies, locating perforation and guiding the treatment, since other tests are not as efficient.

Responsible Author: Sra. Ruth Alves Vieira
E-mail: ruthalvieira@gmail.com

PD.16.005
PERFORATION OF THE THIGH BY INSERTION OF STRANGE BODY OF CHAIR OBSERVED THROUGH THE TOMOGRAPHIC EXAM- CASE REPORT
**Authors:** CAMPOS, V. Q. B.; VIEIRA, R. A.; SALES, L. I. R.; CARVALHO, T. M.; VIEIRA, M. A.; VIDAL, J. C. S.; ARAÚJO, J. M.; ARAÚJO, R. M.

**Institution:** HOSPITAL REGIONAL DE EMERGÊNCIA E TRAUMA DOM LUIZ GONZAGA FERNANDES, CESED

**Brief description of the study purpose:** The presence of a foreign body can present a difficult process of diagnosis and management and is characterized by a wide variety of objects, resulting in varying degrees of local trauma in the tissues associated with perforation or delayed lesions. As a result, identification and procedure require a systematic approach.

**Clinical history:** This is a case study of a male patient admitted to a hospital with complaints of pelvic pain, not reporting the possibility of ingesting a foreign body. The patient was referred for ultrasonography and computed tomography of the abdomen / pelvis with and without intravenous contrast infusion with low density, but no diagnosis was defined. After performing the exploratory surgical procedure, the presence of the foreign body of the chair in the region of the patient’s pelvic excavation was verified, resulting from an anterior thigh-piercing lesion with pelvic extension at the time the patient tried to stand on the chair to pick up an object, the low density found on CT was a result of the presence of fat involving the foreign body during displacement of the thigh object towards the pelvis.

**Discussion and diagnosis, or vice versa:** CT plays an important role in the evaluation, being considered a significant method for the identification of foreign bodies. The findings suggesting the presence of a foreign body were confirmed by means of the surgical procedure, in which there was the indication for identification and removal, in an attempt to avoid complications and aiming to resolve the case.

**Conclusion:** Although accidental perforation of a foreign body is frequent, a perforation with such an extension associated with delayed lesions is found uncommon. Faced with the difficulty of diagnosis, CT is essential to detect the presence of foreign bodies, locate and guide surgical procedures, since other tests are not as efficient.

**Responsible Author:** Biom. Vanessa Queli Campos

**E-mail:** van.campos01@gmail.com

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**CHEST**

**ORIGINAL PAPER**

**SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)**

**PD.17.062**

**COMPARISON BETWEEN THE MEASUREMENT OF PULMONARY NODULES MADE BY RADIOLOGIST AND SPECIALIZED SOFTWARE.**


**Institution:** HOSPITAL MADRE TERESA

**Brief description of the study purpose/Objectives:** The present study aims to verify the agreement between the measurement of pulmonary nodule maximum, minimum and mean diameters performed by an experienced radiologist and by specific semi-automated software.

**Material and methods:** Patients submitted to a chest CT scan with an incidental nodule finding or with a nodule discovered during a lung screening follow-up were evaluated between September and October 2017, prospectively. Their exams were analyzed by (1) an experienced chest radiologist and, later, by (2) a Radiology resident, who was blind to the first measures, assisted by a commercially available software for semi-automated measurements.

**Results and discussion:** There were 38 patients with 60 eligible nodules. A statistically significant difference was observed in the maximum diameter measure, which didn’t happen with minimum and mean diameters. The volumetric measure is performed only by software and could represent relevant additional data in the follow-up of those patients.

**Conclusion:** Computer-aided diagnoses (CAD) applied to very small nodules, especially those smaller than 8 mm, is more difficult and time-consuming while those of larger sizes had a good
TL.17.002
CHEST ULTRA-LOW-DOSE CT IN CHILDREN WITHOUT CONTRAST AND ANESTHESIA: IS IT FEASIBLE TO PERFORM A SCAN WITH A RADIATION DOSE SIMILAR TO RADIOGRAPHIES?
Institution: 1. Pontificia Universidade Católica do Rio Grande do Sul, Brazil. 2. Irmãndade Santa Casa de Misericórdia de Porto Alegre, Brazil. 3. Federal University of Health Sciences of Porto Alegre, Brazil. 4. Federal University of Rio de Janeiro, Brazil
Brief description of the study purpose/Objectives: To evaluate the feasibility of chest ultra-low-dose computed tomography (ULDCT) without contrast and anaesthesia for the assessment of pulmonary diseases in children.
Material and methods: This prospective study enrolled 86 paediatric patients (1 month to 18 years) that underwent ULDCT for assessment of acute and chronic inflammatory pulmonary diseases or congenital lung malformations, without contrast and anaesthesia. Parameters used were: 80 kVp; 30 mA; acquisition time, 0.5 s; and pitch, 1.375. Adaptive statistical iterative reconstruction (ASIR) technique was used. A quantitative assessment of image quality was done using a 5-point scale in 12 different structures of the chest.
Results and discussion: Mean age was 66 (interquartile range, 16-147) months. Final diagnosis was done in all exams, and 44 (51.2%) were diagnosed with cystic fibrosis (CF), 27 (31.4%) with bronchiolitis obliterans (BO) and 15 (17.4%) with congenital pulmonary airways malformations (CPAM). Diagnostic quality was achieved in 98.9%, of which 82.6% were considered excellent and 16.3% were slightly blurred but did not interfere with image evaluation. Only one case (1.2%) of BO presented moderate blurring which slightly compromised the image. Mean effective radiation dose was 0.39 ± 0.15 mSv. Percentages of images with motion artefacts were 0.3% for CF, 1.3% for BO, and 1.1% for CPAM.
Conclusion: Our results demonstrated it is feasible to perform a chest CT in children using a radiation dose like radiographies without anaesthesia and contrast, obtaining diagnostic quality in most cases.
Responsible Author: Dr. Giacomo Farias Tramontin
E-mail: giacomotra@gmail.com

TL.17.003
EFFECTS OF BLOOD GLUCOSE LEVEL ON 18F FLUORODEOXYGLUCOSE (18F-FDG) UPTAKE FOR PET/CT IN NORMAL ORGANS: AN ANALYSIS ON 5623 PATIENTS
Institution: 1. Hospital Mãe de Deus, Brazil. 2. Pontificia Universidade Católica do Rio Grande do Sul, Brazil. 3. Irmãndade Santa Casa de Misericórdia de Porto Alegre, Brazil. 4. Federal University of Health Sciences of Porto Alegre, Brazil. 5. Manchester Royal Infirmary, Central Manchester University Hospitals, United Kingdom. 6. Federal University of Rio de Janeiro, Brazil
Brief description of the study purpose/Objectives: To evaluate the effect of glycemia on 18F-FDG uptake in normal organs of interest. The influences of other confounding factors, such as body mass index (BMI), diabetes, age, and sex, on the relationships between glycemia and organ-specific standardized uptake values (SUVs) were also investigated.
Material and methods: We retrospectively identified 5623 consecutive patients who had undergone clinical PET/CT for oncological indications. Patients were stratified into groups based on glucose levels, measured immediately before 18F-FDG injection. Differences in mean SUVmax values among glycemic ranges were clinically significant only when >10% variation was observed.
Results and discussion: The brain was the only organ that presented a significant inverse relationship between SUVmax and glycemia (p < 0.001), even after controlling for diabetic status. No such difference was observed for the liver or lung. After adjustment for sex, age, and BMI, the association of glycemia with SUVmax was significant for the brain and liver, but not for the lung.
Conclusion: The brain was the only organ analyzed showing a clinically significant relationship to glycemia after adjustment for potentially confounding variables. The lung was least affected by the variables in our model, and may serve as an alternative background tissue to the liver.
Responsible Author: Dr. Giacomo Farias Tramontin
E-mail: giacomotra@gmail.com

TL.17.004
PRELIMINARY RESULTS OF LUNG CANCER SCREENING WITH LOW DOSE COMPUTED TOMOGRAPHY IN A HIGH RISK AND ELDERLY SMOKING POPULATION.
Institution: PREVENT SENIOR
Brief description of the study purpose/Objectives: The objective of our study was to describe the preliminary results of our lung cancer screening program performed using low-dose computed tomography (LDCT) in a elderly population.
Material and methods: Patients were recruited from a smoking cessation program in the period from 10/26/2016 to 12/31/2017. The National Lung Cancer Screening Trial (NLST) eligibility criteria for lung cancer screening were applied. Eligible patients underwent chest LDCT, evaluated according to the categories of Lung CT Screening Reporting and Data System (Lung-RADS).
Results and discussion: A total of 1198 individuals were evaluated, of which 816 (68.1%) were women and 382 (31.8%) were men. The mean age was 64 years. 821 patients were submitted to NLST criteria, of which 535 (65.1%) were
eligible to perform the LDCT and 286 (34.8%) were not eligible. Of the eligible, 266 (49.7%) were submitted to the examination. Lung-RADS categories 1 or 2 were identified in 255 individuals (95.9%); category 03 in 06 (2.3%); category 4A in 03 (1.1%) and category 4B in 01 (0.3%), which was confirmed as lung cancer.

Conclusion: Screening for lung cancer with LDCT in a high-risk elderly population is feasible. The use of the Lung-RADS categories facilitated communication with the team, improving patient care. However, the implementation of the program requires the education of all involved in the process, which is a limiting factor when done on a large scale. The amount of negative screening was slightly higher relative to other studies in the literature. However, a longer time of application of the method, including a larger number of individuals, is necessary to confirm the accuracy of our program.

Responsible Author: Dr. GEORGE CALDAS DANTAS
E-mail: george_cdantas@yahoo.com.br

TL.17.005
QUANTITATIVE COMPUTED TOMOGRAPHY PHENOTYPES AND CLINICAL FINDINGS IN HEAVY SMOKERS: A CROSS-SECTIONAL STUDY


Institution: Pontificia Universidade Católica do Rio Grande do Sul, Brazil

Brief description of the study purpose/Objectives: To investigate clinical and pulmonary function differences between disease- predominant phenotypes in heavy smokers.

Material and methods: This cross-sectional study enrolled 172 smokers, with >30 pack-years history of smoking, who underwent pulmonary function tests (PFTs) and quantitative computed tomography (QCT). After QCT analysis of data in Airway Inspector software, we established two disease- predominant phenotypes groups: emphysema-predominant (EP) and airway- predominant (AP). We performed additional sub-group analysis between patients with and without chronic obstructive pulmonary disease (COPD).

Results and discussion: The mean age was 63.39 years ±6.04 of the subjects and 58% were men. Most patients presented with spirometric values that were suggestive of without chronic obstructive pulmonary disease (COPD).

TL.17.006
LUNG CANCER RADIOMICS: CORRELATION BETWEEN ATTributes ON CT, HISTOLOGICAL TYPES AND STAGING

Authors: KOENIGKAM-SANTOS M, WADA DT, CIPRINO FEG, FABRO AT, AZEVEDO-MARQUES PM, FERREIRA-JÚNIOR JR.

Institution: Hospital das Clínicas da Faculdade de Medicina de Ribeirão Preto - Universidade de São Paulo

Brief description of the study purpose/Objectives: To correlate the radiomic quantitative analysis of multidetector computed tomography (MDCT) images of the chest, of patients with lung cancer, with the histological types and the presence of lymph node and distant metastases.

Material and methods: This was a retrospective observational study of patients treated at our hospital in the last 5 years, evaluated with thin section volumetric MDCT after intravenous administration of iodinated contrast medium, definitive histopathological diagnosis and clinical / surgical staging. MDCT images were semiautomatically segmented using the program 3DSlicer v4.3.1 (GrowCut algorithm), extraction of attributes was performed with the programs IBEX v1.6.3, LIRE-JFeatureLib v1.6.3 and ImageJ v1.50i, and statistics was performed with uni and multivariate analysis, including a machine learning algorithm. CT quantitative analysis was associated with clinical data (age, sex, smoking) to infer the histological type (adenocarcinoma - ADC, squamous cell carcinoma - SCC, or others), presence or absence of lymph node metastasis and the presence or absence of distant metastasis according to the TNM classification ("tumor-node-metastasis").

Results and discussion: 85 patients were included in the study (46 men, mean age of 67 years, 69 active / passive smokers), with 51 tumors type ADC, 21 CCC and 13 others. 2465 image attributes, such as derived from histogram, shape, texture and co-occurrence matrix, were extracted from each tumor in the MDCT images. The best results were obtained after multivariate analysis using the machine learning algorithm, combining clinical data, multiple image attributes and neural layers, with areas under the curve (ROC analysis) values of 0.88, 0.84 and 0.92 for the correlation with the histological type, nodal and distant metastases, respectively.

Conclusion: Therapeutic decision for a patient with lung cancer is based mainly on the histological type and staging according to the TNM system. In this study, we showed that the radiomics analysis of MDCT images, combining multiple attributes with clinical data in a machine learning model, can help in the noninvasive diagnostic and prognostic evaluation of lung cancer.

Responsible Author: Prof. Marcel Koenigkam Santos
E-mail: marcelk46@fmrp.usp.br

TL.17.007
AUTOMATIC QUANTITATIVE EVALUATION OF PULMONARY VOLUMES AND DENSITIES IN HRCT OF PATIENTS WITH SYSTEMIC SCLEROSIS, BEFORE AND AFTER STEM CELL TRANSPLANTATION

Authors: ALMEIDA FA, WADA DT, MORAES D, ELIAS JB, BADDINI-MARTINEZ JA, OLIVEIRA MC, KOENIGKAM-SANTOS M.

Institution: Hospital das Clínicas da Faculdade de Medicina de Ribeirão Preto – Universidade de São Paulo

Brief description of the study purpose/Objectives: To compare with functional evaluation, the lung volume and density measurements obtained on high resolution computed...
tomoscopy (HRCT) scans of patients with systemic sclerosis (SS), before and after stem cell transplantation (SCT), using a fully automated analysis program.

Material and methods: This was a retrospective observational study. The clinical and tomographic evaluation of SS patients was performed before, after 6, 12 and 18 months of the SCT, performed between August 2010 and September 2017. Quantitative analysis of HRCT was done using a fully automated program (YACTA), capable of obtaining pulmonary volume, mean lung density and the attenuation percentiles (P10, P40, P50, P80 and P90). Clinical data, including the results of spirometry, were obtained from patients' electronic records. The forced vital capacity (FVC) at 18 months was used to classify patients into a "good response" group (increase ≥ 10% of FVC values) and "no response" (reduction, stability or increase <10% in FVC).

Results and discussion: Thirty-three patients were included in the study, with tomographic or pulmonary function alteration before SCT. The "good response" group consisted of 15 patients (45.4%, 4 men, mean age of 32.29 years), while the "no response" group comprised 18 patients (54.6%, 4 men, mean age of 37.5 years). Quantitative analysis of HRCT showed increased pulmonary volume, reduced mean lung density and reduced attenuation percentile values after SCT in the "good response" group when compared to the "no response" group.

Conclusion: The automatic quantitative analysis of lung volume and attenuations in HRCT of SS patients was able to identify patients with improvement of pulmonary function after SCT. This analysis may represent a biomarker in the evaluation of interstitial lung disease / pulmonary hypertension, complementing or replacing pulmonary function tests.

Responsible Author: Dr. Fabício Arantes de Almeida
E-mail: fabricioarantes1988@gmail.com

TL.17.008

SMALL LOW-RISK PULMONARY NODULES ON CHEST RADIOGRAPHY: CAN WE TELL IF THE NODULE IS BENIGN WITHOUT CT?

Authors: MISSRIE, I; SZARF, G; HÖCHHEGGER, B; ZANON, M; CAPOBIANCO, J; MACEIDO NETO, A.C.; MACIEL, R.P; ANTUNES, V.B.; FIGUEIREDO, C.M.; MEIRELLES, G.S.P.

Brief description of the study purpose/Objectives: To evaluate digital chest radiography (CR) performance compared to CT for characterizing small low-risk pulmonary nodules detected incidentally in non-oncological patients. We have secondarily assessed prevalence of calcification and possible false-positive findings mimicking nodules.

Material and methods: We prospectively included 207 patients who presented a pulmonary nodule on CR and underwent CT. Nine radiologists blinded to the CT images reviewed the CRs assessing for presence of nodules. Afterwards, the same radiologists would evaluate the corresponding CT for presence of nodules, dimensions, and calcification. If the nodule was not present on CT, it was considered a false-positive finding, and possible confounding factors on CR were investigated.

Results and discussion: Among all 213 nodules seen on CR, 32.39% revealed to be false-positive findings on CT, mostly due to images formed by vessels (33.6%), osseous aetiologies (30.4%), and skin lesions (13.0%). Most nodules <6mm detected on radiographies had benign calcification on CT (n=90; 92.8%). Comparatively, only 68.8% of nodules ≥6mm on the CR had benign calcified. Considering both the prevalence of calcification and the false-positive rate, we found that 94.7% of nodules <6mm in CR were calcified or not present at CT. All nodules <6mm did not differ in dimensions between CR and CT. Comparatively, this frequency was 75.4% for those ≥6mm, and this difference was significant (p<0.001).

Conclusion: We have demonstrated that most pulmonary nodules <6 mm on CR were benign on CT. Additionally, for nodules <6 mm, dimensions measured on CR accurately represent the real measurements on CT.

Responsible Author: Dr. Gustavo Meirelles
E-mail: gmeirelles@gmail.com

TL.17.009

LEARNING TO SEE: A DEEP LEARNING APPROACH IN ABNORMAL CHEST X-RAYS DETECTION.

Authors: ROJAS ASTORGA, A; MALDONADO, I; DE LUCCAS, V; ESTAY, C; ORTIZ, V; ROJAS, F; VARELA UBILLA, C;
Institution: CLÍNICA DÁVILA

Brief description of the study purpose/Objectives: In this study, we present a deep learning model trained to detect and discriminate abnormal chest x-rays. Aiming to evaluate specificity and sensibility of the model versus radiologist description.

Material and methods: A sample of chest x-ray cases was randomly selected from a 1-year production database. The images and reports were downloaded and anonymized. A general purpose pre-trained image classification model (inception v3) were obtained from Google's repository. The last layer of the neural network model inception v3 were trained to classify chest x-rays in abnormal and normal using the publicly available radiology dataset, Open-I (7470 labeled images). Trained neural network model was evaluated against the report result.

Results and discussion: 294 cases were analyzed (588 images); the reports were reviewed and in 140 of them, a significative finding was reported and therefore considered abnormal. In contrast, 154 were considered normal. The model classification result shows a mean result of 0.709 in the abnormal group and 0.435 in the normal group. ROC analysis shows an Area under the curve (AUC) 0.84995% (0.807-0.892). Despite the limitation of the binary classification and the lack of a diagnostic component of this approach, the impact and future applications of tools like this in clinical practice are promising.

Conclusion: The automatic report of medical images is far from being a reality, but the current advances in this topic allow us to develop tools that could facilitate the radiologist's work. Clinical application of this technique could excel in the optimization of the workflow of physicians through automated case discrimination, with smart worklists and resource optimization.

Responsible Author: Dr. Alberto Rojas Astorga
E-mail: arojasastorga@gmail.com
PICTORIAL ESSAY

SCIENTIFIC PAPERS - POSTERS (PA)

PA.17.002
IMAGING FEATURES OF PHYSIOLOGICAL PULMONARY AGING.

Authors: BANDEIRA, G.A.; FARIA, L.L. DE; QUEIROZ, G. A. DE; RODRIGUES, L.B.Q; WANDERLEY, M.; SAWAMURA, M.V.Y; GUERRINI, R.M.

Institution: Instituto de Radiologia do Hospital das Clinicas da Faculdade de Medicina da Universidade de São Paulo - InRad - HCFMUSP.

Introduction and objectives: Life expectancy is increasing worldwide, faster in developing countries, including Brazil. It is, therefore, increasing the need to understand the processes involved in the senescence of the respiratory system, especially the lungs, optimizing its evaluation. The objective of this work is to analyze the radiographic and tomographic findings of physiological pulmonary aging, contributing to the diagnostic accuracy of the imaging methods.

Methods: We will illustrate, through a pictorial essay, representative and teaching cases of the Thoracic Radiology group of our service, highlighting the main imaging aspects in the senescent lung.

Discussion: In microscopy analysis, pulmonary aging is marked by dilatation of the alveoli and alveolar ducts, with no evidence of septal destruction or inflammation. Functionally, there are changes in lung volume and flow, secondary to three fundamental changes: increased rib cage stiffness; reduction of elastance of the lungs; reduction of respiratory muscle strength. The macroscopic radiological repercussions of these structural and functional modifications can be didactically grouped into (1) rib cage: osteopenia; spondylodiscitis / kyphosis stress; muscular atrophy and calcification and costal ligaments (2) airways and parenchyma: dilatation and thickening of bronchial walls; reduction of pulmonary parenchyma attenuation; small and sparse cysts; peripheral reticular opacities; parenchymal bands, apical pleural thickening and small areas of air trapping and (3) heart and vessels: ectasia / tortuosity of the aorta; valvular and vascular calcifications.

Conclusion: With the increasing population aging and the physiological physical fragility of the elderly, the number of imaging exams and, therefore, their diagnostic role, increase. It is radiologists role to know both the pathological and physiological changes of the senile lung, increasing its myriad differential diagnoses, as well as the accuracy of imaging methods, avoiding both super and underdiagnosis in this specific population.

Responsible Author: Dra. Gabriela Alencar Bandeira
E-mail: bandeiraga@gmail.com

PA.17.005
THORACIC FINDINGS IN THE MANY BENIGN HISTIOCYTIC DISORDERS

Authors: VILAS BOAS, I.P.; TRIDENTE, D.M.; MONTELO, D.B; GRILL, J.A.T.; REIS JUNIOR, C.G.; SILVA, A.M.; LAJARIN, V.S.

Institution: Santa Casa de Misericórdia de São Paulo - São Paulo, SP

Introduction and objectives: To broaden the differentials of benign histiocytic disorders by reviewing their main primary and secondary causes in diagnostic imaging, focusing the chest findings.

Methods: We have gathered special cases from our institution to illustrate the spectrum of the main primary and secondary histiocytic disorders affecting the lungs, reviewing these diseases and their natural history, with emphasis on the radiological findings. Malignant conditions will not be addressed in this study.

Discussion: The prototype of the primary histiocytic disorders is Langerhans cell histiocytosis. Despite being the most common amongst them, it is mandatory to know its variants along with some other important primary conditions. The etiology of this group remains unknown and involves antigen-presenting cells and mediators of host immune system. Secondary causes occur as a histiocytic response to an insult, affecting the lung alone or associated with a wider systemic process. This second group of disorders is further classified whether histiocytic response plays a major role in the histological background, such as storage disorders, or a minor role, such as certain pneumoconioses, interstitial pneumonias and infections.

Conclusion: The diseases displayed here are fairly rare, making their diagnosis quite challenging, since they usually do not come forth as our key differentials. Knowing the imaging spectrum of histiocytic disorders is imperative, especially for cardiothoracic radiologists, in order to better assist the semantics of such a challenging set of diseases, resulting in an even earlier diagnosis and, therefore, a more favorable outcome.

Responsible Author: Dra. Isabel Passos Vilas Boas
E-mail: isabelpvb@gmail.com

PA.17.006
CARDIOVASCULAR DEVICES: EVALUATION OF POSITION AND COMPLICATIONS WITH CHEST CT.


Institution: Hospital Sírio-Libanês

Introduction and objectives: Many cardiovascular devices are routinely used in clinical practice. Familiarity with these devices is critical to evaluate and prevent complications. The objectives of this presentation include: - Illustrate the radiologic appearance of cardiovascular devices at high resolution computed tomography (CT). - Update the radiologist on device function, orthotopic placement, indications and complications associated with its use.

Methods: We will illustrate in a pictorial essay based on cases using images acquired at our institution a comprehensive overview of cardiovascular devices encountered on chest imaging including pacemakers, implantable cardioverter defibrillators, intra-aortic balloon pumps, ventricular assist devices, valve replacements and repairs, shuntoccluding devices and many others.

Discussion: Cardiovascular devices have been improving patient morbidity and mortality for decades. Radiology has played an important role in device pre-procedural planning, placement and continued evaluation. Decades of use have provided extensive data regarding their normal imaging appearances and complications. In addition, technological advances in devices have impacted our understanding of them. Because of the increasing use of these devices, radiologists interpreting thoracic imaging studies should become familiar with their appearances and potential complications.

Conclusion: The imaging evaluation of the cardiovascular devices used in patients is important because the potentially serious complications arising from their use are often not
clinchical atypical manifestations. A high resolution computed tomography (HRCT) is the method used in these conditions. In this article, we discuss and illustrate the clinical features, high-resolution CT findings of lung diseases disorders as well as their relationship to smoking.

Methods: We will discuss the clinical features, high-resolution CT findings, and pathologic findings of smoking related lung diseases illustrated with cases from our digital archive. The diagnostic approach to patients with chronic obstructive pulmonary disease (chronic bronchitis, centrilobular and paracinar emphysema), smoking-related interstitial lung diseases (respiratory bronchiolitis, desquamative interstitial pneumonitis, pulmonary Langerhans cell histiocytosis, idiopathic pulmonary fibrosis and broncogenic carcinoma) will be illustrated, emphasize the most important characteristics that radiologists must report.

Discussion: Cigarette smoking is recognized risk factor for development of many respiratory diseases, including small airways disease (bronchiolitis), interstitial lung diseases and malignant neoplasms. HRCT plays an important role in the diagnosis and in the monitoring of most of these pathologies.

Conclusion: The pulmonary diseases associated with cigarette smoking are a major cause of morbidity and mortality worldwide. The recognition of key findings by the radiologist is crucial to achieve the accurate diagnosis.

Responsible Author: Dra. Ana Isabella de Oliveira
E-mail: anaisabelladeoliveira50770@gmail.com

PA.17.007

SMOKING-RELATED LUNG DISEASE: CT AND PATHOLOGIC FINDINGS (PICTORIAL ESSAY)


Institution: Hospital Sírio-Libanés

Introduction and objectives: Cigarette smoking is a recognized risk factor for development of many respiratory diseases. A high resolution computed tomography (HRCT) is the method used in these conditions. In this article, we discuss and illustrate the clinical features, high-resolution CT findings of lung diseases disorders as well as their relationship to smoking.

Methods: We will discuss the clinical features, high-resolution CT findings, and pathologic findings of smoking related lung diseases illustrated with cases from our digital archive. The diagnostic approach to patients with chronic obstructive pulmonary disease (chronic bronchitis, centrilobular and paracinar emphysema), smoking-related interstitial lung diseases (respiratory bronchiolitis, desquamative interstitial pneumonitis, pulmonary Langerhans cell histiocytosis, idiopathic pulmonary fibrosis and broncogenic carcinoma) will be illustrated, emphasize the most important characteristics that radiologists must report.

Discussion: Cigarette smoking is recognized risk factor for development of many respiratory diseases, including small airways disease (bronchiolitis), interstitial lung diseases and malignant neoplasms. HRCT plays an important role in the diagnosis and in the monitoring of most of these pathologies.

Conclusion: The pulmonary diseases associated with cigarette smoking are a major cause of morbidity and mortality worldwide. The recognition of key findings by the radiologist is crucial to achieve the accurate diagnosis.

Responsible Author: Dra. Ana Isabella de Oliveira
E-mail: anaisabelladeoliveira50770@gmail.com

PA.17.010

INFREQUENT FACES OF SARCOIDOSIS

Authors: BANDEIRA, G.A; SANTIAGO, C.C; FARIA, L.L DE; WANDERLEY, M.; SAWAMURA, M.Y.; GUERRINI, R.M.

Institution: Instituto de Radiologia do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo - InRad - HCFMUSP.

Introduction and objectives: Sarcoidosis is a multisystemic granulomatous disease of unknown etiology that mainly affects the lungs. In Brazil, the differential diagnosis with other more prevalent granulomatous conditions, especially tuberculosis, is important. Pulmonary manifestations of sarcoidosis may be quite classic; however, 25% of cases have an atypical radiological appearance. The aim of this presentation is to illustrate atypical pulmonary tomographic manifestations of the disease, aiding in the sensitivity and specificity of the evaluation by radiologists.

Methods: Illustrative and didactic cases were collected from the digital archive of the Department of Thoracic Radiology of our service from 2009 to 2017.

Discussion: Dividing the thoracic image findings into typical and atypical, we subdivide the atypical changes into: 1) Lymph node; 2) Pulmonary; 3) Airway; 4) others. Among the lymph node changes, asymmetric lymphadenopathies and in non-characteristic chains are the most important. In the group of pulmonary alterations, diffuse micronodular pattern, extensive areas of ground glass opacities and areas of confluent granulomatosis are infrequent manifestations, but important to be recognized and interpreted properly. Alterations of airways, such as stenosis and thickening, should be recognized and distinguished from other etiologies. Other findings, especially associated bone and abdominal involvement, deserve special attention and prominence in the report.

Conclusion: Typical manifestations of sarcoidosis are widely known and easily recognized, including by pulmonologists. It is the radiologist’s function to recognize and highlight possible atypical presentations of sarcoidosis, in order to help in the exclusion of other less common diseases, helping the clinician to perform appropriate clinical management on the patient.

Responsible Author: Dra. Gabriela Alencar Bandeira
E-mail: bandeiraga@gmail.com

PD.17.015

WHAT EVERY RADIOLOGIST SHOULD KNOW ABOUT THORACIC CALCIFICATIONS


Institution: HOSPITAL SÍRIO-LIBANÊS

Introduction and objectives: The calcifications found in thoracic examinations admit a large differential, including pathologies that are poorly addressed and encompass both benign ad malignant diseases. In addition to calcifications, dense depositions may represent other substances such as talc, amiodaronem iron, Mercury, barium sulfate, among others. This study aims to illustrate the main pathologies that occur with calcifications or even lesions with high density in the thorax and how to narrow the differential diagnosis when facing such involvement.

Methods: We will illustrate in a pictorial essay based on cases, using images acquired at our institution by computed tomography (CT) showing the involvement and dense lesions in the chest examinations.

Discussion: High resolution CT is very sensitive in the detection of areas of high attenuation in the thorax (pulmonary parenchyma, blood vessels, airways), however the amount of information on this subject is limited, both the role of the CT and the differential diagnosis and how to narrow it down in the chest studies report. The pathologies may have different presentations and causes such as sequelae os infectious diseases, chronic hemorrhage, occupational diseases, administration of intravenous drugs, embolism in medical procedures, metastases, primary neoplasias, among others. Dense calcifications and thoracic lesions can present in varied forms such as nodules, masses, consolidations, linear or reticular pattern, with involvement in the most varied thoracic organs.

Conclusion: The role of CT in the evaluation of dense lesions in the thoraxcs study plays an important role in the differential diagnosis of the pathologies that may occur with this disease, with a broad differential encompassing both sequelae of in-
CT FEATURES OF TRACHEAL ABNORMALITIES
Institution: DASA - Diagnóstico das Américas
Introduction and objectives: Introduction: Tracheal lesions are a heterogeneous group varying from benign to malignant (primary or secondary) lesions, which symptoms, when present, are nonspecific and definitive diagnosis frequently delayed. Chest radiographs are rarely diagnostic and computerized tomography (CT) plays a key role in the diagnosis and determining the extension of disease. In this pictorial essay the reviewed most common tracheal abnormalities, emphasizing on it’s diagnostic hallmarks.
Objectives: to review tracheal anatomy and illustrate the spectrum of tracheal disease with typical cases.
Methods: Methods: we reviewed all chest CT performed in our institution between January 2015 and January 2018 and selected those with tracheal disease.
Discussion: Discussion: Although most of the tracheal disease presents with wall thickening (with or without luminal narrowing and calcifications), recognizing tracheal anatomy, normal changes during expiration and, specially, the appearance of posterior membranous wall, can assist radiologist narrowing the differential diagnosis.
Conclusion: Conclusion: The radiologist’s familiarity with the tracheal anatomy and tracheal disease’s presentations is essential for the correct diagnoses and improving patient outcome.
Responsible Author: Dra. Helena Alves Costa Pereira
E-mail: helenaacp@gmail.com

DIAGNOSTIC EVALUATION OF SUBSEGMENTAL PULMONARY EMBOLISM THROUGH THE DUAL-ENERGY COMPUTED TOMOGRAPHY
Authors: JORGE, P. B. A.; FONSECA, N. V.; PEREIRA, A. C. H.; MOTT A, J. P. S.
Institution: AMERICAS MEDICAL CITY, Rio de Janeiro
Introduction and objectives: Pulmonary thromboembolism (PTE) consists the installation of a thrombus in the pulmonary arterial vasculature, with reduction of blood flow to the affected area. The clinical presentation of pulmonary thromboembolism is variable and often non-specific, making the diagnosis challenging. The evaluation of patients with suspected PTE should be effective, allowing the diagnosis and institution of early therapy, aiming to reduce disease-related morbidity and mortality.
Methods: In this iconographic essay we have gathered images of clinical cases from the radiology archive of our institution in which the use of the tomograph with two energies contributed to the diagnosis of subsegmental pulmonary thromboembolism, which could be ignored during the analysis of conventional images.
Discussion: Dual-energy computed tomography allows the examiner to obtain the anatomical and angiographic images, considered gold standard in the diagnosis of PTE, in addition to obtaining the iodine map, and optimization of contrast enhancement through monochromatic virtual reconstructions. The iodine map represents the distribution of this element by the lung and can be quantified volumetrically (pulmonary blood volume - PBV). Thrombi result in defects in the distribution of iodine, being easily detectable in the PBV, allowing the identification of small emboli through the retrospective analysis of the pulmonary arteries. Low-energy monochromatic reconstruction allows accentuation of venous contrast in small pulmonary arteries, even under sub-optimal conditions of vascular enhancement.
Conclusion: Recent studies published in the international literature suggest that such additional tools may increase the diagnostic sensitivity of the tomographic method, especially for the diagnosis of small and peripheral emboli.
Responsible Author: Dra. Priscila Bibiano Azevedo Jorge
E-mail: pripribili@yahoo.com.br

STERNAL DISORDERS: DIFFERENTIAL DIAGNOSIS USING COMPUTER TOMOGRAPHY
Authors: VERUSSA, M.H.; ANDO, S.M.; SAWAMURA, M.V.Y.
Institution: InRad - Instituto de Radiologia do Hospital das Clínicas da Universidade de São Paulo
Introduction and objectives: Sternal diseases have several forms of presentation, as congenital and developmental disorders, inflammatory, infectious and neoplastic lesions. In some cases, the diagnosis of these lesions is difficult, even with the complementary evaluation of imaging methods. The objective of this study is to present a series of sternal lesions, of different etiologies.
Methods: A pictorial essay with sternal lesions from a thoracic radiology service of a tertiary hospital, with emphasis on computer tomography images.
Discussion: After the advent of computer tomography and magnetic resonance imaging, the sternal lesions became better characterized, allowing a complete evaluation of the bone component and adjacent soft tissues. Pectus excavatum and pectus carinatum have higher prevalence among lesions related to inappropriate bone development. Inflammatory causes includes ostitis of SAPHO syndrome. Infectious lesions can be seen in patients diagnosed with bacteria, mycobacteria or fungi disorders, such as, nocardiosis, actinomycosis, tuberculosis and paracoccidioidomycosis diseases. Chondrosarcomas, lymphomas and metastases are example of neoplastic lesions.
Conclusion: The differential diagnosis of sternal lesions can be properly achieved with the association of clinical data and radiological features. In view of these considerations, it is important to the radiologists to be prepared and have knowledge of most prevalent types of sternal diseases.
Responsible Author: Dr. Mário Henrique Verussa
E-mail: marioverussa@gmail.com

BEYOND THE EMPHYSEMA: SMOKING-RELATED THORACIC CHANGES
Institution: Instituto de Radiologia do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo (InRad - HCfmusp)
Introduction and objectives: Smoking-related pulmonary diseases are an important cause of morbidity and mortality worldwide. Although emphysema and lung cancer stand out by their frequency and clinical impact, other relevant smok-
ing-related pulmonary changes should be brought to attention. The purpose of this study is to illustrate other thoracic alterations secondary to smoking other than the usual neoplasms or emphysema, in order to widen the radiologist’s range of differential diagnosis.

Methods: We have gathered illustrative and didactic cases from the archive of this Department of Thoracic Radiology, with emphasis on X-Ray and Computed Tomography.

Discussion: Tobacco-related thoracic radiological changes can be divided into neoplastic and non-neoplastic. It is possible to categorize the non-neoplastic changes in pulmonary and extrapulmonary alterations. In the pulmonary alterations group (excluding emphysema), respiratory bronchiolitis, interstitial diseases, Langerhans cell histiocytosis and infrequent lung tumors - such as atypical carcinoids - are the most prominent. The group of extra-pulmonary changes includes muscular hypotrophy, microcardia, atheromatosis,aber trachea, and pulmonary hypertension.

Conclusion: It is essential for the radiologist to recognize smoking as an important cause of thoracic morbidity and mortality, with frequent overlapping of changes in imaging methods. The adequate recognition and description of the pulmonary and extra-pulmonary alterations helps in the proper clinical conduct, valuing the role of the radiologist in clinical decision, including in non-neoplastic or non-emphysematous diseases.

Responsible Author: Biom. Gabriel Abrantes de Queiroz
E-mail: gabrielqabrantes@gmail.com

PD.17.030
LUNG TRANSPLANT IMAGING: WHAT DOES THE RADIOLOGIST NEED TO KNOW?
Authors: GUSMÃO, M. M.; BORDINI, A. L; ANDO, S.M.; CARNEIRO, H. C.; SAWAMURA, M. V. Y; CHATE, R. C.
Institution: Instituto de Radiologia do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo
Introduction and objectives: Lung transplantation is a well established treatment for patients with endstage pulmonary disease. The advances on surgery technique, immunosuppressive regimens and the early detection of complications results on a higher number of transplants performed worldwide. Both preoperative and postoperative imaging play a crucial role of the donor and recipient.

Our objectives are to review the imaging features and some pathological implications involved on lung transplantation, focusing on surgical technique, preoperative imaging of the donor and recipient and possible complications.

Methods: Illustrated teaching cases from our department.
Discussion: Relevant imaging findings related to preoperative and postoperative lung transplantation are discussed with examples from our department, focusing in what to report and what to expect in these cases, including: Surgical technique; Preoperative Imaging of Recipient; Relevant Anatomy - Airways, Airspaces and Interstitium; Anatomical variations Indications of surgery; Exclusion criteria; Postoperative Imaging; - Vascular and Anastomotic Complications; Airway complications; Rejection

Conclusion: The current advances in lung transplantation establishes it as one of the main alternative for end-stage pulmonary diseases. The radiologist has a pivotal role identifying complications like the airway stenosis and dehiscence, acute rejection, infection. Thus, narrowing the post-operative differential diagnosis helps in early treatment and increase survival.

Responsible Author: Dr. Marcelo Gusmão
E-mail: marcelogusmao2@gmail.com

PD.17.034
LUNG DISORDERS IN PATIENTS WITH SWINE-ORIGIN INFLUENZA A (H1N1) VIRAL INFECTION: THORACIC FINDINGS
Authors: V. S. A. LAJARIN, G. MEIRELLES, C. VERRASTRO, E. MARCHIORI, A. MARCHINI
Institution: Fleury Medicina Diagnóstica, UFRJ
Introduction and objectives: The goal of this exhibit is to present the main computed tomography findings identified in patients with pneumonia caused by infection with influenza A (H1N1).

Methods: Pictorial essay of the main findings in the tomography of the chest in patients with H1N1.
Discussion: The spectrum of the pandemic H1N1 virus infection ranges between non-febrile mild upper respiratory tract disease to severe and even fatal pneumonia. Pneumonia is one of the most common complications of H1N1 influenza and results in the majority of fatal outcomes in the world. High-resolution CT is an important tool when the clinical suspicion of pneumonia is high, and the radiographic findings are normal or questionable.

Conclusion: The main finding was the presence of ground-glass opacities, with or without consolidation and peripheral predominance. Other findings may be present as crazy-paving pattern, centrilobular nodules, lymphadenopathy and pleural effusion. Fibrotic changes can occur, especially after the third week.

Responsible Author: Biom. Vicente Sanchez A. Lajarin
E-mail: vicentesanchez@hotmail.com

PD.17.035
EXPOSURE OF INTERESTING CASES OF THORACIC TRAUMA THROUGH NONINVASIVE IMAGING METHODS.
Authors: CALIANI, M. M.; GUARESCHI, B. O; AKURI, M.; NOGUEIRA, I. M.; MENDONÇA, D. M.; NANO, P. Z.; SILVA, H.C.; BAAKLINI, R. E.
Institution: Hospital das Clínicas de Marília
Introduction and objectives: Chest trauma is currently of great importance because of its high incidence, severity and increasing mortality rate, leading to causes of death among young people aged 10 to 35 years, and their early diagnosis is necessary to better manage the patient.

Methods: Noninvasive imaging methods that aid in the diagnosis of various types of thoracic trauma, such as simple chest radiography and computed tomography, which is currently the most effective method for the diagnosis of direct and indirect injuries to the trauma, representing a significant advance approach to these victims.

Discussion: The main objective of the present study was to report and review the main findings of life-threatening chest trauma, including pneumothorax, hydropneumothorax, pneumomediastinum, pulmonary laceration, pulmonary contusion, fractures, herniation pulmonary, among others.

Conclusion: Although many changes in thoracic trauma have a clinical diagnosis, the image is of paramount importance for evaluating unnoticed lesions, extension, severity and complications. It is essential for the radiologist to have the knowledge for a fast, correct diagnosis and to assist in the ideal conduct.

Responsible Author: Dra. Marcela Miranda Caliani
E-mail: marcela-caliani@hotmail.com
PD.17.038
SHRINKING LUNG DETECTION ON COMPUTED TOMOGRAPHY: PICTORIAL ESSAY OF THE MAIN IMAGING FINDINGS
Institution: Instituto de Cardiologia do hospital das clinicas, Faculdade de Medicina da Universidade de São Paulo.
Introduction and objectives: Shrinking lung refers to a rare complication of systemic lupus erythematosus and is characterized by unexplained dyspnea, a restrictive pattern in lung function tests, and elevation of the diaphragmatic cupules. It is believed to have a predilection for female involvement and occurs mainly during late stages of the disease. Chest X-rays usually shows small lungs with diaphragmatic elevation. Occasional basal atelectasis may be present. Chest tomography usually shows reduced lung volumes with diaphragmatic elevation, occasional basal atelectasis, without severe pulmonary or pleuropulmonary disease. Shrinking lung can cause significant morbidity and occasional mortality. There is no definitive therapy, while corticosteroids may decrease symptoms and improve lung function in some patients.
Methods: A pictorial essay containing the summary of the main tomographic findings in Shrinking lung through images, with cases selected in our service.
Discussion: The diagnostic interpretation of the findings of Systemic Lupus Erythematosus requires familiarity of the examiner with the imaging spectra of this pathology. Shrinking lung is one of those spectra and of importance for the course of the disease, because its early recognition may bring additional therapeutic substrates to the patient. Computed tomography of the chest is the reference method for the identification of these anomalies and their repercussions.
Conclusion: It is proposed in this work a didactic presentation of this important pulmonary alteration in lupus patients, citing the main features that every radiologist should know when faced with this finding and its eventual clinical repercussions.
Responsible Author: Dr. Francisco Barbosa de Araújo Neto
E-mail: bilbanmaster@gmail.com

PD.17.039
AN OVERVIEW OF IMMUNE-MEDIATED DISEASES IN THE CHEST: IMAGING FINDINGS, SEROLOGICAL MARKERS AND CLINICAL CORRELATIONS.
Institution: Irmãndade da Santa Casa de Misericórdia de São Paulo
Introduction and objectives: Immune-mediated diseases are a group of unrelated conditions with a common inflammatory pathway. The thoracic manifestations of these conditions are diverse. All the compartments can be independently or simultaneously affected, including the respiratory tract, pleural cavity, diaphragm, esophagus and all cardiac structures, depending on the pathophysiologic aspects of the underlying disease process.
Methods: Review imaging findings of the main immune-mediated diseases that affect the chest and refresh knowledge on clinical and serological diagnostic criteria for such diseases, highlighting its importance to reach the diagnosis.
Discussion: Summary of the most relevant immune-mediated diseases with chest involvement. • Rheumatoid Arthritis • Systemic Lupus Erythematosus • Polymyositis/Dermatomyositis • Scleroderma • Sjögren’s Syndrome • Mixed Connective Tissue Disease • Wegener’s Granulomatosis • Churg-Strauss Syndrome • Goodpasture’s Syndrome • Ankylosing Spondylitis • Vasculitides: • Large-Vessel (Takayasu Arteritis, Giant Cell Arteritis and Behçet Disease). • Medium-Sized Vessel (Polyarteritis Nodosa and Kawasaki Disease). • Small-Vessel (Wegener Granulomatosis and Churg-Strauss Syndrome).
Conclusion: Imaging plays a greater role in the diagnosis and follow-up of thoracic autoimmune diseases, but imaging findings alone can be unspecific or even deceiving when not compared to clinical and serological features. This fact, associated with the usual lack of clinical background, makes the radiologist’s clinical knowledge essential in directing the diagnosis.
Responsible Author: Dr. Daniel Borges Montel
E-mail: danielmontel@hotmail.com

PD.17.045
RECOGNIZING DIFFERENT TUBERCULOSIS SEQUELS
Institution: Instituto de Radiologia do Hospital das Clinicas da Universidade de São Paulo (InRad HC USP)
Introduction and objectives: Despite the exponential medical advance, the gap with public access remains; with him the Tuberculosis, maintaining itself as infection of great morbidity-mortality in the country. In view of the high incidence of the disease and the avidity of the mycobacterium by the lungs, it is up to the Radiologists to identify acute conditions and typical sequelae alterations, but also less frequent manifestations and complications, considering the potential risk to the patient. The purpose of this study is to illustrate some of the less frequent presentations, manifestations and complications of pulmonary tuberculosis in order to broaden the comprehensiveness of thoracic images by Radiologists.
Methods: Illustrative and didactic cases were collected from the digital archive of the Department of Thoracic Radiology of this service, from 2009 to 2017.
Discussion: Sequela of thoracic alterations of tuberculosis can be divided into frequent and uncommon. Among the frequent thoracic ones are: fibroatelectasic opacities, traction bronchiectasis, calcified granulomas, cavitations with occasional fungal balls and architectural distortion, these being widely recognized. Among the atypical thoracic, tracheal and bronchial stenoses can be observed; bronchial fistulas; pulmonary arterial aneurysms; emphyema; extrapulmonary infectious extension; atypical lymphadenopathy; osteochondritis, spondyloischis and focal bone lesions. Typical and atypical changes can be isolated or in association, being essential the systematic thoracic evaluation for accurate diagnosis.
Conclusion: Among the thousand faces of tuberculosis, one should seek out those that arouse special attention, both for the specificity and for the potential serious consequences. The radiologist plays a crucial role in this process, with a direct impact on the morbidity and mortality of this group, which is still so wide and complex.
Responsible Author: Dra. Lidia Batista Quintino Rodrigues
E-mail: lidiabq@gmail.com

PD.17.046
PULMONARY INTERSTITIAL EMPHYSEMA AND PNEUMOMEDIASTINUM: ILLUSTRATING THE MACKLIN EFFECT
Cavitated pulmonary lesions may be diagnostic of pneumomediastinum, the best modality for the evaluation of these lesions and pathophysiology of this condition, and also, to be familiar with the imaging findings, in order to differentiate it from other causes of pneumomediastinum.

**Discussion:** The spontaneous pneumomediastinum represents air collections surrounding mediastinal structures, with no identifiable cause, and can be called Hamman syndrome, as it was first reported by Hamman, also in 1939. There are many etiologies that can initiate this phenomenon, such as asthma crises, diabetenic ketoacidosis, positive-pressure mechanical ventilation, inhalation of drugs, and any activity related to Valsalva maneuver. The main image findings are mediastinal and subcutaneous emphysema associated with linear collections of air within the bronchovascular sheaths. The pulmonary interstitial emphysema may appear subtly, or often not be detected, but its absence does not exclude the diagnosis, since it can be less evident, the longer its onset passes.

**Conclusion:** The concept of the Macklin effect is not widely recognized; therefore, it is important to know the etiology and pathophysiology of this condition, and also, to be familiar with the imaging findings, in order to differentiate it from other causes of pneumomediastinum.

**Responsible Author:** Dr. Daniel Borges Montel

**E-mail:** danielmontel@hotmail.com

**PD.17.047**

**DIFFERENTIAL DIAGNOSIS OF CAVITARY LUNG LESIONS**

**Authors:** DO VALE, R.I.C.; MOREIRA, B.L.; SANTANA, P.R.P.; MEDEIROS A.K.; BROTTO, M.P.D.; TANAKA, S.W.; RICCI, R.; FERNANDES, G.S.S.; GOMES, A.C.P.

**Institution:** MedImagem/Hospital BP - São Paulo

**Introduction and objectives:** Cavitary lung lesions are present in many pathologies. Cavitation is a gas-filled airspace within a pulmonary consolidation, mass or nodule. This pictorial essay aims to illustrate and characterize several pathologies that present with cavitary lung lesions, placing a range of differential diagnoses.

**Methods:** After a review of the literature, we will illustrate the main lung diseases that present with cavitary lesions, with cases from the medical file of our institution digital archive, evaluated with computed tomography (CT), emphasizing imaging findings in each clinical context.

**Discussion:** Cavitation may be the result of the expulsion or drainage of necrotic product from the bronchial tree. CT is the best modality for the evaluation of these lesions and associated findings. Cavitated pulmonary lesions may be divided according to their etiology: infectious, tumoral, autoimmune, vascular, congenital or traumatic. Image features, such as number, size, contours, distribution, wall thickening, fluid level and satellite lesions, in combination with clinical data, may aid in establishing the correct diagnosis.

**Conclusion:** Cavitated lung lesions represent a common clinical condition in the daily routine of the radiologist. The imaging findings in association with the clinical presentation allow narrowing the differential diagnosis, helping the appropriate management and, in some cases, permitting a precise diagnosis to be established.

**Responsible Author:** Dr. Renan Izaías Chile do Vale

**E-mail:** renanicv@hotmail.com

**PD.17.048**

**THORACIC MANIFESTATIONS OF COLLAGEN VASCULAR DISEASES**

**Authors:** MOREIRA, B.L.; ARAUJO, E.M.; DO VALE, R.I.C.; SANTANA, P.R.P.; MEDEIROS A.K.; BROTTO, M.P.D.; TANAKA, S.W.; RICCI, R.; FERNANDES, G.S.S.; GOMES, A.C.P.

**Institution:** MedImagem/Hospital BP - São Paulo

**Introduction and objectives:** Collagen vascular diseases (collagenoses) correspond to a heterogeneous group of diseases with autoimmune characteristics that can affect several organs, including the lungs. Intrathoracic manifestations are quite common, with varying degrees of severity. Their respective patterns and frequencies depend on the specific type of collagenosis, and may involve one or more compartments simultaneously, including alveoli, interstitium, vasculature, lymphatic tissue, airways, pericardium and pleura. The objective of the presentation is to familiarize the radiologists with such manifestations so that they are approached and interpreted appropriately in their daily lives.

**Methods:** In this pictorial essay, we sought to illustrate the main intrathoracic manifestations of collagenoses from cases in our digital archive, especially those with high-resolution computed tomography.

**Discussion:** The most clinically relevant collagen vascular diseases are rheumatoid arthritis, progressive systemic sclerosis, systemic lupus erythematosus, polyarthritis/dermatomyositis, mixed connective tissue disease and Sjögren syndrome. Intrathoracic manifestations of collagenoses include interstitial pneumopathies, vascular manifestations, airway involvement, pleural and pericardial disorders, opportunistic infections, rheumatoid nodules, amyloidosis, neoplasia, among others. Diffuse interstitial pneumonias and pulmonary arterial hypertension are the pulmonary manifestations of major clinical importance, which together represent the main causes of mortality and morbidity in patients with collagen vascular disease.

**Conclusion:** The radiologist should be aware of the major intrathoracic manifestations of collagenoses, including the most common patterns of interstitial diseases, and an accurate study requires systematic evaluation and review of the various compartments in the thorax.

**Responsible Author:** Dr. BRUNO LIMA MOREIRA

**E-mail:** limamoreiramed@gmail.com

**PD.17.049**

**PULMONARY OSSIFICATION. DO YOU KNOW WHAT IS THE DIFFERENCE FROM PULMONARY CALCIFICATION?**

**Authors:** PEREIRA, H.A.C.; NISHIYAMA, K.H.; PINETTI, R.Z.; SILVA, A.M.; PINTO, G.; BLASBALG, R.; MACIEL, R.P.; SILVA, V.C.

**Institution:** DASA - Diagnóstico das Américas

**Introduction and objectives:** Pulmonary ossification (PO) is a rare disorder characterized by the presence of mature bone tissue in alveolar or interstitial space. The diagnosis is mostly detected incidentally in autopsy, but some imaging features may help identifying this disorder and even alert clinicians to possible associated conditions. Objectives: 1) To review
the definition and pathophysiology of PO and its differences from others pulmonary calcifications. 2) To review common associations with PO. 3) To review the main imaging findings of primary and secondary PO.

Methods: We reviewed all chest computed tomography (CT) performed in our institution between July 2015 and December 2017 and select those with pulmonary ossification.

Discussion: PO is an uncommon disorder characterized by mature bone in the lung parenchyma. The cause is unknown, and it may occur isolated (primary) or in association with lung or chronic heart diseases (secondary), like mitral stenosis, fibrosing interstitial lung disease, chronic aspiration. Although the pathophysiology is not well known, two types are described histologically: dendriform and nodular form.

Some imaging features at CT can assist radiologist to recognize this entity, and also to indicate the presence of other potential associated diseases.

Conclusion: Radiologists should recognize the specific patterns of pulmonary ossification on CT. Despite its rarity, PO should be considered in the differential diagnosis of lung calcifications.

Responsible Author: Dra. Helena Alves Costa Pereira
E-mail: helenaacp@gmail.com

PD.17.053
DIFFERENTIAL DIAGNOSIS OF THORACIC LYMPHadenopathy
Authors: SANTANA, P.R.P.; MEIRELLES, G.S.; ARAUJO, E.M.; PAVANI, A.B.; MARCHINI, A.S.; MISSRIE, I.; GOMES, A.C.P.
Institution: Grupo Fleury e MedImagem - Hospital BP

Introduction and objectives: Lymphadenopathy is a common finding in many thoracic diseases and may be caused by a variety of infectious, inflammatory and neoplastic conditions. The aim of this study is to show patterns of thoracic lymphadenopathy found in many benign and malignant diseases, emphasizing characteristics, anatomic location and signs as hyper or hypoattenuation that may help to narrow the differential diagnosis.

Methods: Imaging exams were selected from the medical digital file of our institution to illustrate pathologies that present with thoracic lymphadenopathy, emphasizing its characteristics, and associated imaging findings, that permits narrowing the differential diagnosis in correlation with clinical and laboratory data.

Discussion: Computed tomography is the imaging method of choice to evaluate lymphadenopathy, since it is able to demonstrate increase in size, abnormalities of the interface between the mediastinum and lung, invasion of surrounding fat, coalescence of adjacent nodes, obliteration of the mediastinal fat, calcification and necrosis. Positron Emission Tomography / Computed Tomography and Magnetic Resonance can provide additional information and may be used in specific situations. The most frequent infections that may present with thoracic lymphadenopathy are tuberculosis and fungal disease. Sarcoidosis is a relatively frequent cause of lymphadenopathy found in many benign and malignant diseases, emphasizing characteristics, anatomic location and signs as hyper or hypoattenuation that may help to narrow the differential diagnosis.

Discussion: The tomographic nomenclature describes nodule as a “round opacity, at least moderately well marginated and no greater than 3 cm in maximum diameter”. Imaging features and follow-up decision should not be based only on nodule size alone. It should also evaluate and classify according to location, morphology and appearance (solid x nonsolid), nodes quantity and distribution, calcification pattern, fat content, growth rate and its lung parenchyma interface. The recommendations of the Fleischner Society are for patients above 35 years of age and were developed for the management of incidentally detected nodules, but it does not address how to manage new or growing nodules, nor does it apply to those immunosuppressed patients or with a history of malignancy. Lung-RADS guidelines were developed for patients older than 55 and up to 80 years of age, and applies to all of these patients undergoing lung cancer screening through CT, including the management of nodules that are new or growing. Although both sets of guidelines were developed for different scenarios, the key concept lies in the distinction of pulmonary nodules detected incidentally from those performed for lung cancer screening.

Conclusion: Given the frequency with pulmonary nodules are encountered in radiological practice, there is a need for clear criteria for systematic management of pulmonary nodules on MDTC, avoiding high costs and significant radiation dose to the patients in follow-up.

Responsible Author: Dr. Lucas de Pádua Gomes de Farias
E-mail: lucaspadua@hotmail.com

PD.17.054
PULMONARY NODULES EVALUATION AND FOLLOW-UP: LUNG-RADS VS FLEISCHNER SOCIETY RECOMMENDATIONS
Institution: Clinica de Medicina Nuclear e Radiologia de Macéio (MedRadiUs) e Faculdade de Medicina da Universidade Federal de Alagoas (FAMED/UFAL), Maceió/AL, Brasil.

Introduction and objectives: Pulmonary nodules are frequently detected in daily clinical practice and the ability to detect them improves with new generations of computed tomography scanners. This report aims to demonstrate, by multidetector computed tomography (MDCT), the development of a standardized approach for pulmonary nodules management and follow-up.

Methods: Literature review and retrospective analysis of patients with pulmonary nodules obtained by multidetector computed tomography (MDCT) from experience and/or archival of the authors. The imaging characteristics will be demonstrated according to Fleischner Society recommendations and Lung-RADS guidelines by means of anatomical cuts, multiplanar reconstructions, volume rendering and pictorial composition schemes.

Discussion: The tomographic nomenclature describes nodule as a “round opacity, at least moderately well marginated and no greater than 3 cm in maximum diameter”. Imaging features and follow-up decision should not be based only on nodule size alone. It should also evaluate and classify according to location, morphology and appearance (solid x nonsolid), nodes quantity and distribution, calcification pattern, fat content, growth rate and its lung parenchyma interface. The recommendations of the Fleischner Society are for patients above 35 years of age and were developed for the management of incidentally detected nodules, but it does not address how to manage new or growing nodules, nor does it apply to those immunosuppressed patients or with a history of malignancy. Lung-RADS guidelines were developed for patients older than 55 and up to 80 years of age, and applies to all of these patients undergoing lung cancer screening through CT, including the management of nodules that are new or growing. Although both sets of guidelines were developed for different scenarios, the key concept lies in the distinction of pulmonary nodules detected incidentally from those performed for lung cancer screening.

Conclusion: Given the frequency with pulmonary nodules are encountered in radiological practice, there is a need for clear criteria for systematic management of pulmonary nodules on MDTC, avoiding high costs and significant radiation dose to the patients in follow-up.

Responsible Author: Dr. Pablo Rydz Pinheiro Santana
E-mail: pablorydz@spr.org.br

PD.17.057
IMAGING FEATURES OF PULMONARY NONTUBERCULOUS MYCOBACTERIAL INFECTIONS: A PICTORIAL ESSAY
Institution: Hospital Israelita Albert Einstein, São Paulo, São Paulo, Brasil

Introduction and objectives: Atypical or nontuberculous mycobacteria (NTMB) are ubiquitous environmental organisms that can cause pulmonary infections in humans. Pulmonary NTMB infections are increasing in prevalence and represent an important cause of morbidity and mortality. The imaging findings of NTMB infections on high resolution computed tomography (HRCT) are characteristic, therefore knowledge of the manifestations of the disease by radiologists is fundamental, because it can decisively guide further research by clinicians, as well as lead to the appropriate treatment. The purposes of this study are to review and illustrate the main radiologic manifestations of pulmonary NTMB infections, focusing mainly on HRCT.

Methods: In this pictorial essay, the discussion will be based on cases of pulmonary NTMB infections in patients who underwent HRCT scans in a quaternary referral hospital, whose HRCT findings, in correlation with clinical manifestations, suggested the diagnosis, which was later confirmed by cultures of sputum and/or bronchoscopies with bronchoalveolar lavage fluid.

Discussion: The most frequent manifestation patterns of pulmonary NTMB infections include the cavitary ("classic") form, the bronchiecatic ("nonclassic") form, and the immunocompromised individuals form. The radiologic manifestations of the cavitary ("classic") form are similar to those of postprimary tuberculosis, however classic NTMB is frequently more indolent than active tuberculosis. The bronchiecatic ("nonclassic") form typically manifests on HRCT as bronchiectasis and centriflobular nodules isolated to or most severe in the lingula and the middle lobe. MBNT infection in immunocompromised individuals typically manifests as disseminated disease and/or multiple enlarged lymph nodes. Definitive diagnosis of pulmonary NTMB infections is often complicated because it can be difficult to isolate the causative agent, and the pathogens may colonize the airways without causing infection, leading to inconclusive results in cultures of sputum and bronchoalveolar lavage fluid.

Conclusion: Knowledge of the characteristic imaging patterns of pulmonary NTMB infections is a fundamental important step to facilitate diagnosis and enable appropriate treatment of these infections, therefore radiologists play an important role in the management of this disease.

Responsible Author: Dr. Eduardo Matarolo Jayme
E-mail: jayme.eduardo@gmail.com

CASE REPORT

SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)

PD.17.001
REPORT OF HAMMAN SYNDROME ASSOCIATED WITH COCAINE USE.
Authors: VIEIRA, C.G.M.; ROCHA, E.S.; ROCHA, F.E.S.; MELO, L.V.B.; SOUZA, C.S.; SANTOS, C.T.
Institution: São Carlos Imagem / Hospital São Carlos.

Brief description of the study purpose: Spontaneous pneumomediastinum (SPM) or Hamman’s syndrome is an uncommon condition characterized by the presence of free air in the mediastinal interstitium whose etiology is not due to trauma or surgical complications/procedures. Although there is not enough data in the literature, the SPM may be related to excessive consumption of alcohol, asthma, vomiting, childbirth, physical exercises, diabetic ketoacidosis or illicit drug use, among which cocaine stands out.

Clinical history: A 23-year-old male patient was admitted to an emergency care unit with complaints of cough, sudden dyspnea and severe facial/thoracic edema. He reported being a former user of cocaine, however, with relapse reported seven days prior to the date of admission. He denied previous diseases, trauma or recent surgical procedures. A chest X-ray was performed where linear hypertransparency was evidenced in the subcutaneous planes of the left hemithorax suggestive of emphysema. After the primary evaluation, he was referred to a hospital for proceed with a diagnostic investigation.

Discussion and diagnosis, or vice versa: Computed tomography scan of the chest and the neck was requested. The exams revealed extensive cervical and thoracic subcutaneous emphysema in the anterior and lateral walls of both hemithorax, notably left, free air under the thoracic muscular planes, extensive pneumomediastinum and discrete bilateral pneumothorax. It is also noted a presence of air inside the spinal canal (pneumorachis) and under the right temporalis muscle and the soft parts of the left periorbital region. The set of imaging findings associated to the clinical picture and absence of trauma and/or surgical procedures characterizes Hamman’s Syndrome. After diagnosis, the patient recovered well within a week of observation and conservative management. He was discharged with complete, spontaneous remission of symptoms, without other complaints of recurrence of the clinical presentation.

Conclusion: In clinical practice, the diagnosis of SPM is for exclusion. This approach is due to the fact that the secondary pneumomediastinum is more frequent than spontaneous. Even with so many complications, the diagnosis of Hamman’s syndrome can go unnoticed by the medical group due to its low incidence, non-specific signs and symptoms and due to the prognosis of the disease to be benign in most cases.

Responsible Author: Dra. CLARISSA GADELHA MAIA VIEIRA
E-mail: clarissagadelha@hotmail.com

PD.17.002
PULMONARY LANGERHANS CELL HISTIOCYTOSIS
Institution: CLÍNICA VILLAS BOAS
Brief description of the study purpose: The purpose of this paper is to report a case of Pulmonary Langerhans cell histiocytosis (PLCH), presenting the main findings in chest computed tomography.

Clinical history: M.L.C, female, 57 years old, in follow-up due to a nodule in the left lung. She complained of a chronic cough. Smoker, with a 44 pack/year load.

Discussion and diagnosis, or vice versa: Of unknown etiology, PLCH may be the spectrum of the manifestation of disseminated LCH or an isolated entity. The most accepted hypothesis for pulmonary LCH is that there is a proliferation of Langerhans cells in the bronchial and bronchiolar epithel-
Kartagener Syndrome: A Case Report with Tomographic Findings.

### Authors:

### Institution:
Hospital das Clínicas da Faculdade de Medicina de Marília

### Brief description of the study purpose:
Kartagener’s syndrome, described in the 1930s by the Polish Manes Kartagener, is a rare autosomal recessive disease that presents a classic triad composed by: situs inversus totalis, chronic pansinusitis and bronchiectasis. It has an estimated incidence of 1 / 25,000 live births. Associated with Primary Ciliary Dyskinesia, a rare autosomal recessive disease characterized by the triad: situs inversus, chronic sinusitis and bronchiectasis. Presents striking findings on CT scans of the chest, upper abdomen and sinuses, which the eyes of radiologists should not overlook.

### Responsible Author:
Sr. ALCEU PAULINO REZENDE NETO
E-mail: alceupneto@hotmail.com

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Pulmonary Paracoccidioidomycosis (Adult Form): Case Report.

### Authors:
IRAIA JUNIOR, A.S.; MAZZUCCO, M.

### Institution:
Hospital Santa Isabel

### Brief description of the study purpose:
This study aims to report a case of pulmonary paracoccidioidomycosis, characterizing its main imaging features.

### Clinical history:
A 42-year-old male patient, farmer, who lived in a rural area for 35 years, look for a health unit in his region complaining of dyspnea and dry cough which started about three months earlier, associated with fever and unintentional weight loss (17 pounds), without clinical improvement after treatment for pneumonia. Due to the worsening of symptoms, the patient was referred to a reference hospital in the city of Blumenau / SC to continue diagnostic investigation. Chest x-ray demonstrated pulmonary nodules, cavitations, and bilateral consolidations. Computed tomography showed the following patterns: Nodular; cavities; consolidation; ground-glass opacity; with emphasis on the presence of ground-glass opacity surrounded by a nodular consolidation halo (reversed halo sign). After these findings, a tomography-guided percutaneous biopsy was performed.

### Discussion and diagnosis, or vice versa:
The histological study demonstrated a chronic granulomatous inflammatory process with yeast suggestive of paracoccidioides (Blastosomyces). Paracoccidioidomycosis is caused by the fungus Paracoccidioides brasiliensis (P. brasiliensis), a systemic mycosis more frequent in Latin America, especially in Brazil. It predominantly affects men between 30 and 60 years old, mainly rural workers due to their exposure to the fungus habitat (soil). The two main clinical forms are the acute form (juvenile type) and the chronic form (adult type). The diagnosis is established by the visualization of P. brasiliensis in the sputum, bronchoalveolar lavage, mucocutaneous lesion smear, or tissue sample from the lesion. Radiographic findings are multiple and non-specific, including alveolar, interstitial or mixed pattern, usually bilateral involvement and more than one third of the lung parenchyma. Computed tomography is more sensitive to evaluate the pattern and distribution of the radiological features, being that in most of the cases a combination of these multiple radiological patterns is observed.

### Conclusion:
Pulmonary paracoccidioidomycosis is an endemic disease in Brazil, its early recognition in differential diagnoses may be important in reducing the secondary incapacitating fibrosis due to this disease.

### Responsible Author:
Dr. Aloisio dos Santos Iria Júnior
E-mail: aloisio_ira@hotmail.com

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Primary Mediastinal Seminoma: Case Report.
Authors: IRIA JUNIOR, A.S.; MAZZUCCO, M.
Institution: Hospital Santa Isabel
Brief description of the study purpose: This study aims to report a case of mediastinal seminoma, as well as its imaging findings and differential diagnoses.

Clinical history: A 30-year-old male patient sought hospital care with complaints of dyspnea and chest pain, more pronounced in the retrosternal region, beginning two months ago, associated with episodes of fever (not measured) and unintentional weight loss. At physical examination, vital signs stable, respiratory rate of 16 breaths per minute and pulmonary auscultation with no particularities. The chest X-ray showed a mass in the anterior mediastinum, with obliteration of the retrosternal free space. It was complemented by computed tomography, which showed: expansive mass with lobulated contours, located in the anterior mediastinum, maintaining close contact and involving large vessels without out, however, occlude them. After these findings, a tomography-guided percutaneous biopsy was performed.

Discussion and diagnosis, or vice versa: The histological study resulted in a poorly differentiated malignant neoplasm, and an immunohistochemistry study was performed, demonstrating cytokeratin expression in Dot / Golgi, OCT3 / 4, SALLA4 and c-kit, confirming the diagnosis of seminoma. Seminoma is a rare primary neoplasm of the mediastinum, corresponding about 2% - 4% of the mediastinal masses, originating from germ cells. About 90% of seminomas assaults men between the ages of 20 and 40. The signs and symptoms are nonspecific, among them includes chest pain, dyspnea, cough and weight loss. In addition, only about 30% of the patients present with elevation in serum levels of β-human chorionic gonadotrophin. Seminoma presents to the imaging as a soft tissue mass in the anterior mediastinum, with lobulated contours and slight enhancement to the intravenous contrast, being rare the presence of cysts or calcifications. Differential diagnoses include: thymoma, with involvement of patients over 40 years; lymphoma, with a tendency to involve multiple lymph node chains; and teratoma, which presents as a heterogeneous mass with areas of fat, soft tissues and calcifications.

Conclusion: The primary seminoma of the mediastinum should be considered in the differential diagnosis of anterior mediastinal mass, especially in young men.

Responsible Author: Dr. Aloisio dos Santos Iria Júnior
E-mail: aloisio_iria@hotmail.com

PD.17.009
THE DIAGNOSTIC CHALLENGE OF AN INFREQUENT SPECTRUM OF CRYPTOCOCCUS INFECTION
Authors: NETO, F.B.A.; ZAGATTI, R.F.C.; CORONA, C.F.A.; SAWAMURA, M.V.Y.
Institution: Instituto de Radiologia do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo
Brief description of the study purpose: This case report is important for radiologists and for the medical community in general, as it demonstrates through imaging methods one of the infrequent spectra of Cryptococcus infection.

Clinical history: A 41-year-old male, immunocompetent, sought the service for investigation of weight loss 3 months ago and for evaluation of a hardened and palpable mass in the left supravacuicular region. He reported chest pain in this period and denied other complaints. He performed imaging tests such as chest-X-ray (figure 1), ultrasonography (figure 5) and computed tomography (figures 2, 3 and 4), which diagnosed mediastinal masses and a mass in the left supravacular region, both interpreted as lymph node blocks of indeterminate etiology. The investigation continued with puncture and biopsy of the left supravacular mass for etiological determination by histopathology.

Discussion and diagnosis, or vice versa: The histopathology of the left supravacular mass revealed a Cryptococcus infection. After diagnosis, the patient started treatment with amphotericin B and is being followed up. Cryptococcal infection usually results from inhalation of fungal spores, and may be confined to the lungs or disseminate systemically. Radiologically, pulmonary cryptococcosis may show as a single well-defined consolidation or mass, diffusely scattered nodules or reticulonodules. Cryptococcal lymphadenopathy, especially affecting the mediastinum, is mainly reported in patients infected with the human immunodeficiency pulmonary (HIV). Radiologically, in HIV-negative patients, pulmonary cryptococcal infection usually presents as large nodular lesions or
alveolar infiltrates. In HIV-infected patients, lymphadenopathy and interstitial infiltrates are the common findings. The diagnosis of cryptococcosis is usually based on isolation of the fungus through the cultured, but it requires several days and a large amount of samples. The detection of cryptococcal capsular antigen in pulmonary specimens by agglutination is one of the most helpful adjunct techniques to diagnose cryptococcosis because of its pneumonae sensitivity. The Infectious Diseases Society of America (IDSA) recommends amphotericin B plus flucytosine followed by fluconazole for a CNS infection and severe pulmonary cryptococcosis.

Conclusion: We must be attentive to atypical presentations of benign diseases, because if an effective treatment is initiated in a timely manner, we can treat the patient, avoiding death by a curable disease.

Responsible Author: Dr. Francisco Barbosa de Araújo Neto
E-mail: bilbamaster@gmail.com

PD.17.010
PULMONARY BENIGN METASTASIZING LEIOMYOMA IN A NON-HYSTERECTOMIZED PATIENT
Institution: UNIVERSIDADE FEDERAL DE UBERLANDIA
Brief description of the study purpose: A case report of a rare tumor known as benign metastasizing leiomyoma (BML), which is characterized by the presence of pulmonary nodules in patients with a history of uterine myomatosus. It is particularly important due to its rarity and also due to the need of expanding pulmonary nodules differential diagnosis.

Clinical history: 56-year-old female patient, G2P2, non-hysterectomized, who had myomectomy 15 years ago, presented a non-specific malaise for a year and denied feeling dyspnea or any other symptom. Chest radiograph, performed in a pneumonia post-treatment follow-up, showed multiple nodules in the pulmonary fields. Afterwards, contrast-enhanced chest Computed Tomography (CT) scan revealed multiple pulmonary nodules bilaterally, with no signs of malignancy. The patient underwent segmentectomy, whose nodules biopsy results showed benign metastasizing leiomyoma.

Discussion and diagnosis, or vice versa: BML is a rare smooth muscle cells tumor that affects women of childbearing age with a history of hysterecctomy on account of uterine myomatosus or myomectomy, less frequently. In this patient, metastasis reached her lungs, but any anatomic site could be affected. In general, pulmonary involvement has a benign and asymptomatic course, however, it can evolve to respiratory failure. The tomographic study may find scattered, rounded, well-circumscribed, and variable-sized nodules in normal lung parenchyma. Pleural and endobronchial non-involvement and absence of mediastinal lymph node enlargement are also typical. Definitive diagnosis requires anatomopathological analysis whose material can be obtained by thoracotomy or aspiration puncture. Presence of estrogen receptors corroborates the diagnosis.

Conclusion: BML is a rare disease, described only 167 times in the literature until April 2014, and is related to the development of uterine leiomyoma, which precedes the appearance of pulmonary nodules in some years. Diagnosis by imaging methods only is not feasible, then requiring investigation for primary neoplasms as well as anatomopathological analysis. BML treatment and follow-up are not well settled yet, mainly due to BML be little known and also due to its clinical picture be quite variable.

Responsible Author: Dr. VITOR MENeses
E-mail: vitorfernando.meneses@gmail.com

PD.17.011
PLEURO-CUTANEOUS FISTULA IN THE PRESENCE OF EMPYEMA: A RARE MANIFESTATION IN A PATIENT WITH EXTRA-PULMONARY TUBERCULOSIS
Authors: BOTELHO, N.O.; MELO, A.S.A.; AUTRAN, T.B.; FERREIRA, C.L.S.; SIMoES, I.Q.; CARVALHO, M.F.
Institution: Hospital Federal de Bonsucesso (HFB)
Brief description of the study purpose: To report the case of a patient with thoracic bulging diagnosed with empyema of tuberculous origin, which determined pleuro-cutaneous fistulous pathway, as evidenced by Computed Tomography (CT).

Clinical history: A 50-year-old male patient requested the emergency department referring to bulging and anterior thoracalgia to the left costal arches, with significant growth in 45 days. In the ultrasonography of the admission (US), a heterogeneous lesion was identified, with thick cystic content and difficult to measure to the method, located in the subcutaneous anterior to the costal arches. The study was complemented with CT of the thorax, which showed moderate left pleural effusion, associated with thickening of the parietal and visceral pleurae in correspondence. It was also observed a fistulous trajectory that suggested this empyema to the subcutaneous cellular tissue of the anterior region of the thorax, determining local bulging. Empiric antibiotic treatment and subcutaneous aspiration of the material were started, whose culture and research results for acid-fast bacilli (AFB) were negative. The histopathological study of the pleural biopsy showed a granulomatous inflammatory process and extensive necrosis. Subsequently, antituberculous therapy was started, with favorable clinical evolution and complete involution of the condition.

Discussion and diagnosis, or vice versa: The pleuro-cutaneous fistulas are caused by previous pulmonary surgeries, penetrating thoracic traumas, empiemas, pulmonary abscesses and massive pulmonary infarcts. There are reports that associate these fistulas with some infections by Histoplasma or Aspergillus, in the presence of empyema. The association between tuberculosis and the development of pleuro-cutaneous fistula is uncommon. In our case, the patient was diagnosed with extra pulmonary tuberculosis of pleural origin, whose empyema determined cutaneous fistulization. The CT evaluation was fundamental to allow characterization of the location and extent of the disease, as well as identification of the area of fistulization.

Conclusion: Pleural tuberculosis is the most common form of extrapulmonary tuberculosis and a “by necessity” pleuro-cutaneous fistula may develop as a rare complication of empyema in these cases. Diagnostic difficulty is usually present, so the careful analysis of imaging methods associated with a high degree of suspicion, within a clinical-epidemiological context, may be decisive in the diagnostic definition.

Responsible Author: Dra. Nathália de Oliveira Botelho
E-mail: nathaliaoliveirabotelho@gmail.com

PD.17.016
PULMONARY COCCIDIOIDOMYCOsis IN Pernambuco
Authors: MACHADO, C.C.; SOUSA, R.M.G.; HOLANDA, V.C.L.; CUNHA, P.C.P.; RODRIGUES, M.A.A.; Lopes, A.K.B.F.
Institution: HOSPITAL DAS CLÍNICAS DA UNIVERSIDADE FEDERAL DE PERNAMBUCO (HC/UFPE)
Brief description of the study purpose: This report discusses three diagnosed cases of pulmonary coccidioidomycosis in
Pernambuco in the year of 2017. This infection is endemic in the southwest of the United States, Mexico, Central America and South America. In Brazil, there are reported cases in the states of Piauí, Ceará, Maranhão and Bahia, without any literatute reports in Pernambuco.

**Clinical history:** A father (JBS) and his two sons (FAS and JS), farmers and practitioners of armadillo hunting, coming from the city of Serra Talhada-PE, were admitted with complaint of fever and dry cough for a month. They did not present clinical improvements despite the treatment with antibiotic for community pneumonia.

**Discussion and diagnosis, or vice versa:** Tomography of thorax showed multiple and diffuse pulmonary nodules, some with excavation, associated with ground-glass areas and centrilobular nodules with tree-in-but pattern. The diagnosis was confirmed by the microscopic examination of the sputum, showing the parasitic phase of the Coccidioides by spherules filled with endospores. After 7 days of treatment with fluconazole they had clinical improvement. Coccidioidomycosis is a fungal infection, whose etiological agent is Coccidioides sp. It is acquired by inhalation of arthroconidia, infectors present in dry soil of arid and semi-arid regions, having a strong relationship with the practice of armadillo hunting. Most cases are subclinical, but in 40% it can be symptomatic, with primary pneumonia being the usual manifestation. The findings in tomography of the thorax may have varied presentations, with consolidations, nodules, cavitations, adenopathy, peribronchial thickening and pleural effusion.

**Conclusion:** Coccidioidomycosis is an underdiagnosed disease in Brazil, therefore, it is necessary for the radiologist to know the tomographic findings of pulmonary coccidioidomycosis. Thus, this mycosis may be considered in the differential diagnosis of patients with a history of soil exposure in an endemic area, with respiratory symptoms and compatible radiological changes.

**Responsible Author:** Dra. ANA KARINA BRIZENO FERREIRA LOPES  
E-mail: karina.brizeno@gmail.com

**PD.17.017**

**IMAGING FINDINGS OF MAGNETIC RESONANCE ANGIOGRAPHY IN A PATIENT DIAGNOSED WITH SPONTANEOUS HEMOTHORAX SECONDARY TO PULMONARY ARTERIOVENOUS MALFORMATION: CASE REPORT**

**Authors:** MARTINS, E.A.F.; PEREIRA, F.V.; NARVAEZ, E.O.; OLIVEIRA, L. D.; PENACHIN, T. J.  
**Institution:** Centro Radiológico Campinas - Hospital Vera Cruz, Campinas, São Paulo, Brasil

**Brief description of the study purpose:** We describe in this report the magnetic resonance angiography (MRA) of a case of spontaneous hemothorax secondary to pulmonary arteriovenous malformation (PAVM) in a previously healthy young patient with contraindication to computed tomography angiography (CTA) due to the antecedent of severe allergic reaction to iodinated contrast. We will approach the diagnostic and therapeutic image findings of the PAVM, and finally a brief bibliographic review of this entity.

**Clinical history:** A 45-year-old female patient, previously healthy, was admitted to the emergency room with severe chest pain, which began only a few hours prior. Physical exam was in a regular state (REG), pallid and eupneic, with vesicular breath sound abolished in the middle and lower third of the left hemithorax. CT of the chest was performed, without intravenous contrast by severe allergic antecedent, which evidenced a massive hemothorax. The initial therapeutic approach was volume replacement with hemodynamic stabilization and drainage of hemothorax at the surgical center. In view of the findings and after a multidisciplinary evaluation, a chest MRA was performed with the use of paramagnetic contrast, which demonstrated a rounded pulmonary image, with intense vascular impregnation, located at the periphery of the left lower lobe, measuring 1.4 cm in contiguity with pulmonary vascular structures, favoring the diagnosis of PAVM. Treatment with embolization was chose with optimal results.

**Discussion and diagnosis, or vice versa:** Defined as communication of the pulmonary artery with the pulmonary vein. Regarding the etiology, may be congenital or acquired. It is associated with some conditions and syndromes, especially hereditary hemorrhagic telangiectasia.

The imaging findings are usually: pulmonary nodule, 50-70% peripheral in the lower lobes, communication with the arterial and venous system.

The diagnosis is achieved with great accuracy through the ATC, and the ARM can be used in those patients with contraindication to the iodinated contrast.

**Conclusion:** The diagnosis of PAVM is achieved through chest angiotomography, and should be pointed out that in cases where there are contraindications to CT, MRA can be used, since it is also noninvasive and has high accuracy, as demonstrated in this report.

**Responsible Author:** Dr. Eduardo Alves Ferreira Martins  
E-mail: eduardoafmartins@gmail.com

**PD.17.019**

**PULMONARY NOCARDIOSIS IN RENAL TRANSPLANT PATIENTS: THE IMPORTANCE OF RADIOLGY FOR DIAGNOSIS.**

**Authors:** GONÇALVES, G. J. M.; MACEDO, T. A. A.  
**Institution:** UNIVERSIDADE FEDERAL DE UBERLÂNDIA

**Brief description of the study purpose:** Case report of a renal transplant patient with pulmonary Nocardia infection, emphasizing the image patterns and the importance of computed tomography in the diagnosis of the disease.

**Clinical history:** A 58-year-old male, diabetic and renal transplant patient for 5 months on mycophenolate, tacrolimus, prednisone and insulin, with a recent history of progressive asthma and dyspnea, associated with productive cough and febrile episodes, with peaks of up to 39.5°C. Computed tomography (CT) of the chest was performed, which revealed masses, nodules and areas of ground-glass opacities spread through the lungs.

**Discussion and diagnosis, or vice versa:** Nocardiosis is an uncommon but often fatal infection (80%), with delayed diagnosis from isolation in culture. The early diagnosis of the disease is of extreme importance in solid organ transplant patients in order to reduce mortality, and the recognition of different radiological manifestations in an appropriate clinical context is paramount for the management of these patients.

**Conclusion:** Pulmonary nocardiosis is a rare infection, but it has extremely importance in renal transplant patients, given its severity and lethality. However, the identification and isolation of the pathogen in culture are time consuming. In this way, imaging methods, such as chest CT, are of great importance to show the possibility of this diagnosis.

**Responsible Author:** Dr. Gustavo José  
E-mail: gustavojm_goncalves@hotmail.com
PD.17.020
BRONCHIAL CARCINOID TUMOR: A REPORT OF 2 CASES.
Authors: CAPARROZ, F.B.C.N.; VALENTIN, M.V.N.; MELO, D.F.R.E.; MOURA, R.P.F.; BACELAR, G.N.
Institution: DOCUMENTA, RIBEIRÃO PRETO.
Brief description of the study purpose: Description of 2 cases of bronchial carcinoid tumor emphasizing the importance of the tip recognition of the iceberg.
Clinical history: The first male patient, 61 years old, started with productive cough and dyspnea on medium exertion. 10-year-old pack smoker, with no other particularities; Physical examination showed pulmonary auscultation with diminished vesicular murmur and crackling rales; Hemogram with leukocytosis and left deviation. The second female patient, 23 years old, complained of dyspnea and wheezing in the chest for 2 years, without comorbidities; Physical examination with diffuse snoring and wheezing; Laboratory examination without changes. Both with anamnestic pathological diagnosis of carcinoid tumors with low index of mitosis per field, without signs of necrosis and discrete nuclear pleomorphism. Discussion and diagnosis, or vice versa: Neuroendocrine tumor is a neoplasm that grows from the Kulchitzky cells of the bronchial mucosa. Travis et al. (1991) proposed a new classification in typical and atypical carcinoid tumor, large cell neuroendocrine carcinoma (CNEGC) and small cell cancer (CPC). The differentiation of the subtypes follows from the histopathological analysis in which the number of mitoses greater than 10 per field and foci of necrosis characterize the CPC and CNEGC; While mitotic indices less than 10, without foci of necrosis, are found in typical and atypical carcinoids. Typical carcinoids occur most commonly in centrally located smokers. Histologically they do not present foci of necrosis, they have low mitotic index with discrete cellular pleomorphism. The imaging is characterized by intense enhancement to the EV contrast, calcification foci, without uptake to the radioisotope FDG. When viewed in bronchoscopy, lesions are thought to be limited only to the bronchus, but may be surprising with involvement of the adjacent lung parenchyma. The recommended treatment is usually surgical, with favorable prognosis and survival of 90% in 5 years. Conclusion: Neuroendocrine tumor is a neoplasm originating from the Kulchitzky cells, with a more common carcinoid tumor, which has unique radiological features such as a hyperattenuation soft tissue density lesion with calcification foci and the classic tip of the iceberg. Responsible Author: Biom. FRANCISCO BERMAL E-mail: fbermal@hotmail.com

PD.17.021
TAKAYASU’S ARTERITIS AND CROHN’S DISEASE: RARE ASSOCIATION IN MEDICAL LITERATURE.
Institution: Universidade Federal do Piauí - Hospital Universitário.
Brief description of the study purpose: Takayasu arteritis (TA) is a chronic granulomatous inflammatory condition that affects mainly large and medium-sized arteries, with a marked predilection for the aortic arch and its branches. The occurrence of the association of this condition with inflammatory bowel pathologies, especially Crohn’s disease (CD), is rare in the literature and a common immunopathogenic pathway between the two diseases is possible. Due to the rarity of this vasculitis and even more of its association with Crohn’s disease, the description of the case report of a 27-year-old patient, known to have CD, who developed TA, was followed.
Clinical history: A 27-year-old female patient, known to have CD, in treatment and follow-up of diarrhea, abdominal pain and perianal fistula, progressed to sudden left motor deficit, associated with dizziness and retroorbital pain, being transferred to this hospital from emergency service with diagnosis of ischemic cerebrovascular accident done by computed tomography. During the hospitalization, were performed complementary studies with carotid Doppler ultrasonography, angiotomography of the cervical vessels and thoracic aorta (angio CT) and colonopty. In the ultrasonography and angio CT, was noted the typical parietal thickening of vessels derived from the aortic arch and in the colonopty, CD in intense activity were evidenced.
Discussion and diagnosis, or vice versa: The patient question is within the gender and age range expected for vasculitis, having the typical arterial impairment of the disease (circumferential parietal thickening), with involvement of the vessels of group I of Numano, especially the common carotid arteries and subclavian arteries, most affected by TA. Evaluating the clinical development, it is noticed that TA manifested during the course of CD, being consistent with data from literature and suggesting a common immunopathogenic mechanism. Conclusion: The association of TA and CD is rare, and the description of these cases is important, not only because it is unusual, but also so that a database can be created to try to establish an etiological correlation between the two conditions. Responsible Author: Sr. Renan Bastos Leite E-mail: renan_blite@hotmail.com

PD.17.022
PULMONARY AND CARDIAC EMBOLISM DUE TO BONE CEMENT: CASE REPORT
Authors: SILVA, M. A. F. J.; LEMOS L. A.; DIAS M. A.; MÜRLLER C. I. S.
Institution: DELFIN MEDICINA DIAGNÓSTICA
Brief description of the study purpose: The present case report proposes to illustrate and discuss in an illustrative way the main imaging findings through Computed tomography of the Thorax (MDCT) of Pulmonary and Cardiac Embolism by Bone Cement, analyzing them from their clinical manifestations to the most important radiological aspects.
Clinical history: The patient was JABN, male, 53 years old with diagnosis of bone lymphoma, presenting a pathological fracture of the vertebral body of L4, being submitted to percutaneous vertebroplasty, evolving after 3 days of the procedure to dyspnea with moderate efforts, when he sought medical care.
Discussion and diagnosis, or vice versa: The patient was diagnosed and treated as a case of recurrent pneumonia, but persisting without improvement of dyspnea in the two following months until a chest MDCT scan was performed, which demonstrated branched hyperdense images in the pulmonary artery pathway in both lungs, characterizing embolism of material used in vertebroplasty procedure. In addition, images of similar attenuation were identified adjacent to the right atrial and ventricle walls. Polyalkylmethacrylate acrylic cement is used in vertebroplasty procedures to prevent vertebral collapse in patients with severe osteoporosis or bone tumor and to obliterate gastric varices in selected cases. Iatrogenic cement embolism occurs between 1.7% to 6.8% and in many cases can be asymptomatic. Commonly it presents with chest...
pain and dyspnea, among other more serious manifestations such as heart failure, pulmonary hypertension or even respiratory failure.

**Conclusion:** Pulmonary and cardiac embolism due to cementum is a rare complication of vertebralplasty or obliteration of gastric varices. The radiologist's attention to the clinical and surgical antecedents is critical in order to diagnose such condition, even as a incidental finding, considering their possible pulmonary, cardiac or systemic complications.

**Responsible Author:** Dr. MARCO ANTONIO FREITAS DA SILVA JÚNIOR

**E-mail:** marcofs@gmail.com

**PD.17.025**

**ASPERGILLOMA IN HONEYCOMB CYSTS AND PARASEPTAL EMPHYSEMA: AN UNUSUAL ASSOCIATION**

**Authors:** LOUZA, G.F.; ZANETTI, G.; MARCHIORI, E.

**Institution:** Hospital Universitário Clementino Fraga Filho - Universidade Federal do Rio de Janeiro (UFRJ)

**Brief description of the study purpose:** The purpose of this case report is to describe the occurrence of aspergillomas in honeycombing cysts and paraseptal emphysema.

**Clinical history:** A 71-year-old male patient presented with 1 year history of productive cough with mild hemoptysis, progressive shortness of breath and left side ventilatory-dependent chest pain associated with 10 kg weight loss in past 6 months. Also reported night sweats associated with sporadic chills in past 2 months, and use of amoxicillin for 7 days without symptoms improvement. Computer Tomography (CT) demonstrated diffuse honeycombing pattern, of basal and peripheral predominance, with multiple intracavitary nodules with varied sizes, with the bigger one located in left upper lobe. The bigger nodules showed variation in its positions as the patient decubitus was changed, suggesting the diagnosis of aspergilloma (fungus ball).

**Discussion and diagnosis, or vice versa:** Pulmonary aspergillosis can be divided into 5 types: saprophytic aspergillosis (aspergilloma), hypersensitivity reaction (allergic bronchopulmonary aspergillosis), semi-invasive (chronic necrotizing) aspergillosis, airway-invasive aspergillosis, and angioinvasive aspergillosis. Saprophytic aspergillosis usually develops in a preexistent cavity or ectatic bronchus from underlying disease. Tuberculosis is pointed as the main cause, followed by other conditions as sarcoidosis, emphysema, bullae or lung cysts, cavitated bronchogenic carcinoma, pulmonary infarction, etc. Any cavity or cystic space created by pulmonary underlying disease can, theoretically, harbor an aspergilloma. However, association between aspergilloma and honeycomb cysts is scarce. To our knowledge, there's only one report made by N Kumar et al. reporting aspergilloma in a patient with idiopathic pulmonary fibrosis.

**Conclusion:** Recognition of typical aspergillosis signs, by the radiologist, is of paramount importance. In CT, presence of intracavitary nodule or mass that hangs down as the patient decubitus is changed strongly suggests this diagnosis. Other findings include the "air crescent sign", sponge-like appearance, amorphous calcification within the lesion and adjacent pleural thickening.

**Responsible Author:** Dr. Guilherme Felix Louza

**E-mail:** guilhermelouza@hotmail.com

**PD.17.027**

**CASE REPORT- SCIMITAR SYNDROME**

**Authors:** BALBINOTTI, M.; SANTIN, L.A; SANTOS,T.; RIZZON, M.V.

**Institution:** HOSPITAL GERAL DE CAXIAS DO SUL

**Brief description of the study purpose:** Scimitar Syndrome was described in 1836 and it is a rare condition in which occurs an anomalous venous pulmonary drainage of the right lung to the inferior vena cava, accompanied by right pulmonary hypoplasia, bronchial abnormality, dextrocardia, systemic arterial supply to the right lung coming from the aorta or brachial arteries.

**Clinical history:** G.L., 31, male, from Caxias do Sul. Patient presenting at the age of 21 weakness with walking and dyspnea on exertion, without other symptoms, denied the use of continuous medication or comorbidities. Internal to investigate the case. Radiography showing dextrocardia, volume reduction of the right lung with absence of consolidative or tumescent lesions in the pulmonary parenchyma; elongated opacity extending from the right wire to the topography of the inferior vena cava, presumably representative of anomalous pulmonary vein. Computed angiotomography of the chest showing anomalous venous drainage with a right pulmonary vein draining into the inferior vena cava. Hypoplasia of the right lower lobe, ipsilateral deviation of the mediastinum, dextrocardia. Dilatation of right heart chambers. Small right diaphragmatic hernia containing hepatic parenchyma. Pulmonary artery trunk, right and left pulmonary arteries with topography, caliber and attenuation for normal flow. Patient referred for surgical correction.

**Discussion and diagnosis, or vice versa:** Scimitar Syndrome may also be related to other malformations, such as diaphragmatic evagination, hypospadias, vertebral and renal alterations. The clinic is not routinely exuberant, dyspnea, fatigue, recurrent pneumonia and heart failure. The initial examination is chest radiography, presenting right lung with volume reduction, deviation of the mediastinum to the right and image of the scimitar (tortuous tubuliform image in the right hemithorax projection). Catherization and angiotomography are essential for diagnostic confirmation, elucidating anatomical abnormality, cardiac malformation, and shunt size determination.

**Conclusion:** Congenital cardiovascular anomalies include several pathologies, including anomalous pulmonary venous return, which causes abnormal return of one or more pulmonary veins directly to the atrium or indirectly through shunts. The diagnosis is made by imaging tests and the surgical treatment depends on the degree of venous involvement.

**Responsible Author:** Dra. Tainaê Santos

**E-mail:** tamaesantos@gmail.com

**PD.17.031**

**VARICELLA PNEUMONIA IN A PREVIOUS HEALTHY MAN: A CASE REPORT AND REVIEW OF LITERATURE**

**Authors:** VILLABONA-RUEDA,A ; CABALLERO,D; FAJARDO-RIVERO J.E

**Institution:** Universidad Industrial de Santander

**Brief description of the study purpose:** Varicella (chickenpox) is a common infectious disease in children. When healthy adults are affected the clinical presentation is more severe and commonly associated to complications, being pneumonia the major and most frequent. The aim of this report was to describe a clinical case of a previous healthy man and his radiological findings.

**Clinical history:** A 36-year-old-man, taxi driver, presented to emergency service with symptom of dyspnea (even at rest), shivering, fever and cough with purulent sputum. He referred 5 days of vesicular eruption on trunk with centrifug-
gal progression, with subsequent appearance of pruritic crust. Active smoking (16-pack-years) and contact with a child with chickenpox was highlight on his medical record. On physical examination the patient was tachycardic, tachypneic, febrile with oxygen saturation of 96% and conscious. Crusted lesions in a generalized pattern in the skin were evident. Chest auscultation revealed wheezing in the upper region of the left hemithorax. Chest-ray showed intersitial reticulonodular opacities predominantly in the right lower lobe. Chest-CT Scan revealed diffuse opacities of confluent micronodular pattern, ground glass, thickening of lobular septums and nodular appearance in the upper lobes. His kidney and hepatic function were normal. C reactive protein was 118mg/mL and Procalcitonine was 0.10.

Discussion and diagnosis, or vice versa: The diagnosis of varicella pneumonia was performed based on the clinical presentation, which usually presents 1-6 days after the onset of rash and is associated with chest tightness, tachypnea, cough and dyspnea as it is mentioned in the literature. Moreover typical risk factors were identified such as chest symptoms at presentation, tabaquism and contact history with own child. The chest radiographs played an important role as revealing signs of nodular or intersitial pneumonitis and bibasal consolidations. Despite of having a negative procalcitonine we cannot discard a bacterial superinfection. Therefore the indication of treatment with intravenous Aciclovir was given. Due to his good medical condition after 6 days of treatment the patient was discharged.

Conclusion: Varicella pneumonia is a serious and severe complication in adults. Early intervention may modify its natural course. Those patients are at high risk for acute respiratory failure. Acyclovir treatment is recommended in varicella pneumonia for 7-10 days with a strict follow-up.

Responsible Author: Dr. ANDRES FELIPE VILLABONA
E-mail: andresvillav@hotmail.com

PD.17.033
MACKLIN EFFECT
Authors: SIMOES, M. C.; DUTRA, L. D.; MELO, J. I. F.; MENDONÇA, M.V.; TAKAHASHI, K.
Institution: CERDIL - Centro de Radiologia e Diagnostico por Imagem
Brief description of the study purpose: To describe the clinical characteristics and radiological aspects related to the Macklin Effect, through a Case Study, besides the general characteristics of the picture, as well as its differential diagnosis.
Clinical history: An 84-year-old female patient with breast neoplasm, with hepatic and bone metastases, was admitted to the Emergency Room of the YYYY XXXX Hospital, referred by the SAMU (Emergency Mobile Service) after RCA (Respiratory Cardiac Arrest). reverted after approximately 15 minutes of CPR (Cardiopulmonary Resuscitation), with manual chest compressions and intravenous adrenaline use. According to reports of the patient's medical records, relatives reported that she choked at dinner, followed by syncope and then RCA (Respiratory Cardiac Arrest). Upon arriving at the hospital, the patient was in orotracheal intubation, being evidenced by the physician on-call selectivity of the orotracheal tube, in addition to a large amount of food waste in the patient's airway, and then the patient was submitted to orotracheal reintubation and the patient's aspiration.
Discussion and diagnosis, or vice versa: After the CT (Computed Tomography) scan of the chest, without intravenous organoiodine contrast, in a 64-channel multislice device, bilateral pneumothorax, peribroncvascular intersitial emphysema and massive pneumomediastinum with cervical soft tissue extension were evidenced. Pulmonary parenchyma with thickening of the inter and intralobular septa, as well as of the peribroncvascular interstitium, bilaterally associated with areas with fuzzy glass attenuation scattered by both lungs. Pneumomediastinum often presents a diagnostic challenge that can be successfully overcome if the examiner understands the pathophysiology of this disease. The evaluation of chest X-ray findings is crucial in the diagnosis of pneumomediastinum. This case is an example of the process described as the Macklin effect. The CT scan of this patient demonstrated the accumulation of free linear air due to rupture of the pulmonary alveoli, dissecting the connective tissue of the peribroncvascular interstitium from the pulmonary periphery to the hilar regions, extending to the soft tissues of the mediastinum, of the cervical region.
Conclusion: A better understanding of this pathophysiological process associated with the broad and rapid access to imaging methods, especially chest computed tomography, may lead to an increased frequency of detection of the Macklin effect.
Responsible Author: Dr. Micaías Conde
E-mail: micaiaisconde@hotmail.com

PD.17.037
PNEUMOCONIOSIS FOR EXHIBITIONS TO SILICA, OCCUPATIONAL ORIGIN AUCTION ACQUIRED THROUGH MINING WORK - CASE REPORT.
Authors: VIDAL, J.C.S.; RUCKEL, L.F.; ARAÚJO, J.M.; ARAÚJO, A.V.; LIMA, A.C.; ALBUQUERQUE, I.C.M.
Institution: HOSPITAL DE EMERGÊNCIA E TRAUMA DOM LUIZ GONZAGA FERNANDES
Brief description of the study purpose: Pneumoconioses represent a group of respiratory diseases of occupational origin, caused by tissue reactions to the accumulation of inhaled dust in the work environment, citing in this clinical context as the main inhaled chemical compounds, silica, asbestos, tin, aluminum, beryllium, among others. They can be classified as fibrotic or non-fibrotic, according to the presence or absence of fibrosis. The symptoms usually appear after long periods of exposure, about 10 to 20 years, manifesting clinically as chest pain, cough, dyspnea, tiredness, etc. Its diagnosis is based on the history of exposure to silica and changes in radiological exams such as radiography and computed tomography of the chest. Objective: The objective of this study is to present the case of a patient with Pneumoconiosis due to prolonged silica exposure, acquired through mining work, presenting a range of nonspecific clinical manifestations, where the occupational history presented a fundamental role in the diagnostic definition.
Clinical history: A 70-year-old male, smoker for 40 years, admitted for chest pain, dry cough, dyspnoea and fatigue. In the occupational history mining work has been reported for 30 years. High resolution computed tomography images of the thorax showed the presence of nodular formations. Some with coarse calcifications, in addition to multiple centrilobular nodules; Some with fade-glass fading; And others with attenuation of soft parts; Associated with architectural distortion, contiguous to calcified lymph nodes and bilateral panlobular emphysema caused by smoking.
Discussion and diagnosis, or vice versa: Pneumoconiosis due to exposure to Silica is an occupational pneumonopathy, usually asymptomatic and manifest between 10 to 20 years of exposures without cure, which can lead to death. In this case, it was important to emphasize the nonspecific clinical manifestations, the history of occupational disease, which together with computed tomography played an important role in the
diagnosis. Because it is a chronic disease, without cure, the patient is under medical supervision with a long treatment in order to control the clinical manifestations presented.

**Conclusion:** In view of the above, it is important to note the suspicion of Silicosis in cases of chronic respiratory diseases in which the patient confirms a history of occupational exposure to agents such as silica.

**Responsible Author:** TR. Juan Carlos Soares Vidal vidal

E-mail: juanvidal.jsv@gmail.com

**PD.17.040**

**CAVO-AXILLARY COLLATERAL: RARE COMPLICATION OF ARTERIOVENOUS FISTULA**

**Authors:** SANTIAGO, E. A.; DE AZEVEDO, R.P.; CARVALHO, R.S.; LIMA, A.M.; SILVA, I.M.; NAVES, E.A.; COSTA, F.C.; BARBOSA, M.P.

**Institution:** HOSPITAL GOVERNADOR ISRAEL PINHEIRO - INSTITUTO DA PREVIDÊNCIA DOS SERVIDORES DO ESTADO DE MINAS GERAIS

**Brief description of the study purpose:** To describe the occurrence of cavo-axillary collateral, a rare complication related to arteriovenous fistula, in a dialytic patient with end-stage renal disease.

**Clinical history:** Patient of 33 years old, presenting with fever and prostration for 3 days, was diagnosed with complicated pneumonia due to pleural empyema. After being submitted to pleuroscopy and pulmonary decortication, he evolved with hemorhax, being submitted to a new surgical approach with drainage of clots, lavage of the pleural cavity and positioning of drains. He maintained bleeding even after the procedure, therefore a new chest computed tomography with contrast was performed, which evidenced empyema and outbreaks of acute bleeding in the right hemithorax. An extensive network of collaterals in the right thoracic wall was also observed, with some branches showing intrathoracic extravasation foci of intravenous contrast.

**Discussion and diagnosis, or vice versa:** The detailed analysis of the extensive network of collaterals in the right thoracic wall demonstrated that the main collateral routes originated in the right axillary vein and ipsilateral thoracoepigastric vein, presenting anastomoses with branches of the right superficial epigastric vein or with intercostal veins. There was also an intact intrathoracis branch, presenting higher caliber, which connected inferior intercostal vessels to the inferior vena cava through the right lateral branch of the vena cava, immediately superior to the diaphragmatic dome, which we conclude as an anatomical variation. In our review of the literature, we found only one similar case of thoracic wall collaterals in a dialytic patient with arteriovenous fistula, in this case through recanalized paraumbilical vein, left portal vein and inferior vena cava (RadioGraphics 2010; 30: 67-78).

**Conclusion:** In this case, recurrent hemorhax of the patient was justified by the rupture of collateral vessels that extended into the right hemithorax, injured during the procedure of decortication of the lung. The study was also relevant for diagnosing a rare form of collateral connecting the chest wall to the inferior vena cava. The importance of this report is to warn about this rare complication related to arteriovenous fistulas and its potential implications related to thoracic interventions.

**Responsible Author:** Dra. RAQUEL SOARES CARVALHO

E-mail: raquelesoarescarvalho@yahoo.com.br

**PD.17.041**

**B CELLS NON-HODGKIN LYMPHOMA WITH ENDOBRONCHIAL INVOLVEMENT**

**Authors:** SILVA, A. L. C.; BATISTA, E.P.; PUGLIESI, L. T.; COSSI, C. M.; MACCHIONE, M. C.; TOGNI FILHO, P. H. A.;

**Institution:** FIPA - Faculdades Integradas Padre Albino

**Brief description of the study purpose:** Lymphomas are divided in Hodgkin lymphomas (HL) and non-Hodgkin lymphomas (NHL). Pulmonary involvement in NHL is less common than HL, however, endobronchial involvement is rare in both conditions, even in advanced disease.

**Clinical history:** 15 year-old patient, non-smoker, reporting ventilator-dependant pain in the right hemithorax, dry cough, dyspnea, no fever. A hypothesis of pneumonia was reached (Fig 1) and antibiotics were prescribed with no improvement. Patient was admitted eupnecic, no fever, pulmonary auscultation with decreased vesicular murmur in the lower 2/3 of the right hemithorax. No peripheral lymphonomegaly.

Laboratory exams: no leukocytosis; discrete anemia; LDH:1129; PCR:132.6; anti-HIV negative. Chest X-ray showed atelectasis and consolidation of the median lobe (Fig. 2). CT-Scan showed a large mass with necrotic areas in between, overshadowing the right mainstream bronchus, reaching and contracting the medium lobe with ipsilateral deviation of mediastinal structures.

There is contact with vascular structures and invasion of the mediastinum (Fig 3). Bronchoscopy showed vegetative lesion obstructing the right mainstream bronchus. Biopsy and immunohistochemistry showed lymphoid infiltrated, probably reactionary. Mediastinoscopy with biopsy and immune histochemistry were suggestive of diffuse NHL of post germinal center B cells.

**Discussion and diagnosis, or vice versa:** NHL has heterogeneous features and is more frequent in males and in the elderly. Pulmonary involvement in NHL can affect pleura, parenchyma, and tracheobronchial tree. Primary lung lymphoma accounts for only 0,5% primary lung neoplasias, and 3-4 % of primary extranodal NHL, and it is more common in immunocompromised patients. Diffuse B cell sub type is a rare type, and its symptoms usually stem from the compression of mediastinal structures, which may cause superior vena cava syndrome, phrenic nerve palsy, dysphagia, dysphonia or cough, with rare endobronchial involvement.

Tracheobronchial involvement can occur by means of direct invasion of mediastinal lesion, parenchymal or hematogenic, less likely by means of lymphomatous dissemination. The treatment depends on the extension of the disease and the status of the patient, and chemotherapy may or may not be associated with radiotherapy.

**Conclusion:** NHL with endobronchial involvement is rare and its prognosis can be modified by imaging examination, making a better diagnosis possible. Therefore, improving the patient prognosis.

**Responsible Author:** Dra. Ana Laura Caramori Silva

E-mail: na_caramori@hotmail.com
shunts are the most used. However, other forms of ventricular shunting may be employed. The objective of this study is to present a clinical case of ventriculopleural shunt from our service and its possible complications, as well as other complications that may result from a ventricular shunt.

**Clinical history:** Materials and methods: Using a case report of a 39-year-old patient with medical history of congenital neurotoxoplasmosis and consequent hydrocephalus who underwent multiple ventricular shunts, we will present a ventriculopleural shunt which was performed after the failure of previous shunts. We will also present complications of this procedure observed in this patient and complications of other ventricular shunts to which our patient was submitted.

**Discussion and diagnosis, or vice versa:** Discussion: Ventriculoperitoneal shunts are the most frequently used ventricular shunts, however, other forms of ventricular shunt may be employed and ventriculopleural shunt is the second most used. Complications of these catheters such as fracture, displacement of the extremity of the catheter to the chest wall and formation of a superficial collection can be evaluated in different imaging modalities. Some complications of these catheters are type-specific. In the ventriculopleural shunt, the main complications are: pleural effusion, pneumothorax, superficial collections in the chest wall and, less frequently, empyema.

**Conclusion:** Conclusion: Ventricular shunt systems are frequent findings in imaging studies and ventriculoperitoneal and ventriculopleural shunts are the most used. Through this case report, we present general and specific complications associated with the various modalities of ventricular shunt, with emphasis on ventriculopleural shunt.

**Responsible Author:** Dra. Vivian Simone De Medeiros Ogata

**E-mail:** vivianogata98@gmail.com

**PD.17.043**

**PULMONARY CEMENT EMBOLISM: CASE REPORT**


**Institution:** Rede Mater Dei de Saúde.

Pós-graduação Ciências Médicas - MG (PGCM-MG)

Brief description of the study purpose: The purpose of our study was to describe a case of pulmonary cement embolism that is the most common complication of vertebroplasty whereas in recent years, the use of these procedures has spread for the treatment of pain associated with vertebral compression fractures.

**Clinical history:** We report the case of a 55-year-old female patient with vertebral compression fractures caused by a metastatic breast cancer underwent therapeutic vertebroplasty of thoracic vertebra. A Computed Tomography Pulmonary Angiography (CTPA) revealed that some of the injected cement had embolized the pulmonary circulation, where it lodged in the interlobar, segmental and subsegmental pulmonary arteries of both lungs and in the anterior peripheral venous system.

**Discussion and diagnosis, or vice versa:** Vertebroplasty is used for pain relief in patients with symptomatic vertebral compression fractures. The safety of these procedures has been confirmed in several studies and the complications are rare but if they occur, are mostly related to leakage of bone cement (polymethylmethacrylate) outside the treated vertebral body into the spinal canal or the vertebral venous system reaching the pulmonary circulation through the azygos system and cava vein, producing a cement embolism.

**Conclusion:** Pulmonary cement embolism is a possible complication of percutaneous polymethylmethacrylate (PMMA) vertebroplasty. Therefore, it is extremely important to be known by the radiologist, as it is potentially fatal.

**Responsible Author:** Dr. Lucas Costa

**E-mail:** lucascemvieira@hotmail.com

**PD.17.051**

**UNICENTRIC AND MULTICENTRIC CASTLEMAN’S DISEASE: REPORT OF A CHARACTERISTIC CASE OF EACH CLINICAL VARIANT.**


**Institution:** Hospital Madre Teresa

Brief description of the study purpose: This paper aims to present two case reports that are characteristic of the two clinical variants of Castleman’s disease: unicomptent and multicentric.

**Clinical history:** The first case is related to a 17-year-old female patient, asymptomatic, presenting an incidental finding of a right perihilar mass in a chest radiography. An extensive complementary proapheutic was performed for diagnostic evaluation of the lesion, and the findings suggested a diagnosis of unicentric castleman’s disease, confirmed by histopathological examination of the surgical specimen. The second case is related to a 72-year-old male patient with multiple comorbidities, including a controlled HIV infection and a previous history of Kaposi’s sarcoma. Patient was hospitalized due to clinical decompensation, especially respiratory. During the CT scan of the chest, there was a marked lymph node enlargement in several lymph node chains, especially mediastinal, bilateral axillary, retroperitoneal and mesenteric chains. The histological study of a lymph node, surgically removed, suggested a diagnosis of Castleman’s Disease in correspondence with clinical data.

**Discussion and diagnosis, or vice versa:** Castleman’s disease presents very different clinical variants. Patients who present the unicentric variant, most of the time, do not manifest obvious symptoms, being diagnosed incidentally. On the other hand, in the multicentric variant, severe symptoms are found and can be systemic related to specific organs. When there is HIV infection and Human Herpes Virus type 8 (HHV-8) (related to Kaposi’s sarcoma), which are part of the pathophysiology of the disease, the symptoms are even more significant. Both case reports are very characteristic and constitute a diagnostic model of the two clinical variants of Castleman’s Disease.

**Conclusion:** Castleman’s disease is considered a disease that can mimic several others as well described in the literature. These case reports are intended to illustrate the two major clinical variants of Castleman’s disease, with the unicentric variant being predominantly diagnosed in asymptomatic patients, with a good prognosis, whereas the multicentric variant is often associated with HIV and HHV-8 infection, having obvious symptoms and an unfavorable prognosis.

**Responsible Author:** Dr. Túlio Bernardino

**E-mail:** itulioib@gmail.com

**PD.17.058**

**PULMONARY ARTERY INTIMAL SARCOMA: CLINICAL AND DIAGNOSIS CHALLENGES**


**Institution:** Clínica de Medicina Nuclear e Radiologia de Maceió (MedRdUs) e Faculdade de Medicina da Universidade Federal de Alagoas (FAMED/UFAL), Maceió, AL, Brasil
Brief description of the study purpose: This paper aims to demonstrate a case of pulmonary artery intimal sarcoma by computerized angiotomography (AngioCT) and positron emission computed tomography (PET/CT).

Clinical history: A 36-year-old male, non-smoker, complained of frequent dyspnoea. AngioCT of the pulmonary arteries evidenced hypoattenuating material in both pulmonary arteries, with extension to the lobular branches and sometimes to the segmental branches, compatible with bilateral pulmonary thromboembolism. In spite of the therapy instituted, the patient returns to the service one year later with worsening dyspnoea, in which a new AngioCT was performed, that revealed material with attenuation of soft parts in the topography of the pulmonary arteries bilaterally, determining filling faults. PET/CT was investigated and suggestive of viable tumor with increased glycolytic metabolism in contiguous soft tissue attenuation formations located on the topography of the distal segment of the right pulmonary artery and its segmental branches.

Discussion and diagnosis, or vice versa: Primary pulmonary artery sarcoma is an extremely rare entity, with approximately 250 reports in the literature. It is a mesenchymal tumor of the intima, with the pulmonary periphery being involved by embolism or metastasis. Potentially lethal and difficult to diagnose, it is often diagnosed too late. Clinical signs and symptoms are non-specific, often simulating chronic pulmonary thromboembolism.

Conclusion: The present case draws attention to the need to establish diagnostic differences in patients who are not responsive to the current treatment of pulmonary thromboembolism. Among the alternative diagnostic hypotheses is the intimal sarcoma of the pulmonary artery. Knowledge of the clinical aspects and their diagnosis has a direct impact on the patient's prognosis, as well as the choice and the correct use of the available imaging tests.

Responsible Author: Dr. Lucas de Pádua Gomes de Farias
E-mail: lucasdpadua@hotmail.com

PD.17.063
ADULT BOCHDALEK HERNIA: CASE REPORT
Institution: Hospital Porto Dias
Brief description of the study purpose: The present paper aims the approach of a rare pathology in adults, but, because of its clinical complications must be among the radiologist differential diagnosis primer.

Clinical history: Male, 57 years, attends the hospital to a Computed tomography scan of the thorax. During the anamnesis, before the examination, the patient refers long term dyspnea and post prandial epigastralgia that cannot be eased by antacids and amends spontaneously after a few hours. The CT scan showed, at the posterior portion of the left hemidiaphragm, mesenteric fat, the left kidney, colonic splenic angle and part of the pancreas body/tail. At the end of the CT scan, the patient was asked about previous history of thoracic or abdominal trauma or surgeries. Correlating his clinical history with the image findings, we concluded that it was a case of Bochdalek Hernia (BH) and suggested at the report the referral to a surgery service.

Discussion and diagnosis, or vice versa: Bochdalek hernia is a kind of diaphragmatic hernia and it is a congenital defect located on the posterolateral portion of the diaphragm because of its incomplete obliteration. More common in women and it is extremely rare in adults. It represents one of the most common thoracic congenital defects in neonate. In a retrospective study containing 13000 CT scans, presented as an incidental finding in only 0,17% of adults. In newborn, usually courses with respiratory insufficiency, while in adults, the mass effect of the herniation into the thorax and complications, such as intestinal loops incarceration, may figure at the main clinical findings.

Conclusion: Therefore, this case shows the relevance of knowing the pathology, to figure among differential diagnosis of thoracic diseases. It is observed the importance of a good patient anamnesis for easing the building of clinical thinking around the case, enabling a better aid to the physician and better treatment to the individual.

Responsible Author: Dr. Luís Eduardo Almeida de Souza
E-mail: luisd_souza@hotmail.com
ORIGINAL PAPER

MEASUREMENT OF ABDOMINAL ADIPOSITY THROUGH ULTRASONOGRAPHY AS AN INDICATOR OF NON-ALCOHOLIC HEPATIC STEATOSIS IN NON-OBESE PATIENTS

Institution: Universidade Tiradentes, Aracaju, Brasil.

Brief description of the study purpose/Objectives: Non-alcoholic fatty liver disease (NAFLD), a disease that affects 73-90% of obese patients, is characterized by the deposition of lipids in the hepatic parenchyma in the absence of viral, alcoholic or metabolic etiologies. However, there are a small percentage of patients who develop NAFLD in the absence of obesity. The type of distribution of fat in the body, especially the accumulation of visceral fat, is considered the most important factor in NAFLD, because it’s the most dyslipidemic tissue in the human body. The aim of this study was to correlate the measurement of subcutaneous fat (SCF) and intra-abdominal fat (IAF) measured by ultrasonography with the presence or absence of hepatic steatosis

Material and methods: This is a descriptive study with data collection in an Ultrasound Clinic, performed after the approval of the Research with Human Beings Ethics Committee of XXXX University under the file nº 2.061.044. The sample consisted of 166 patients, of both genders, in the age group of 18 to 80 years, who signed an Informed Consent Form (ICF). Patients were diagnosed as having or not having DHGNA with the presence or absence of hepatic steatosis

Results and discussion: 166 patients were evaluated with ultrasonography and 39.1% presented hepatic steatosis (65). 65.06% of the patients had a BMI ≥30kg/m², which represents 108/166 non-obese patients. Of these, 19/108 presented with steatosis, which corresponds to 17.60%. The presence or absence of hepatic steatosis was correlated with the mentioned measurements and obtained the statistically significant result for both, with a more significant value for IAF (p<0.0001) than for the SCF (p=0.0003).

Conclusion: There was a statistically significant correlation of the abdominal adiposity measure with the presence or absence of hepatic steatosis in non-obese patients, with IAF being the most significant index.

Responsible Author: Sr. Allan Victor Hora Mota
E-mail: allanhoram@gmail.com

CORRELATION OF INDICATORS OF ABDOMINAL OBESITY AND PREVALENCE OF NON-ALCOHOLIC HEPATIC STEATOSIS DIAGNOSED THROUGH ULTRASONOGRAPHY

Institution: Universidade Tiradentes, Aracaju, Brasil.

Brief description of the study purpose/Objectives: Non-alcoholic fatty liver disease (NAFLD), a disease that affects 73-90% of obese patients, is characterized by the deposition of lipids in the hepatic parenchyma in the absence of viral, alcoholic or metabolic etiologies. Currently, the type of distribution of fat in the body, especially the accumulation of visceral fat, is considered the most important factor in obesity, NAFLD, cardiovascular diseases and metabolic syndrome, being the most dyslipidemic and atherogenic tissue of the human body. Because of this, new methods of assessing adiposity have appeared, such as anthropometric indexes, waist circumference (WC) and waist-to-hip ratio (WHR), and measurement of subcutaneous fat (SCF) and intra-abdominal fat (IAF) measured through ultrasonography (US). The aim of this study was to correlate the abdominal obesity indexes WC, WHR, SCF and IAF with the presence or absence of hepatic steatosis diagnosed by the US.

Material and methods: This is a descriptive study with data being collected in an Ultrasound Clinic, carried out after the approval of the Research with Human Beings Ethics Committee of XXXX University under the file nº 2.061.044. The sample consisted of 166 patients, of both genders, in the age group of 18 to 80 years, who signed an Informed Consent Form (ICF). Patients were diagnosed as having or not having hepatic steatosis on the US and the already mentioned indexes were analyzed. The data were processed through IBM SPSS® 22.0 software for Windows and the significance level used was p<0.05.

Results and discussion: 166 patients were evaluated with ultrasonography and 39.1% presented hepatic steatosis (65). The presence or absence of steatosis was correlated with anthropometric and ultrasonographic indexes related to abdominal obesity and obtained a statistically significant result for all of them (p <0.0001). The correlation with the severity of the disease, however, presented a significant result only for IAF (p <0.0001) and WC (p= 0.0246).

Conclusion: There was a statistically significant correlation of the indexes mentioned with the presence or absence of hepatic steatosis and of these, only WC and IAF were the most significant indexes for advanced degrees of the disease.

Responsible Author: Sr. Allan Victor Hora Mota
E-mail: allanhoram@gmail.com

CORRELATION OF INDICATORS OF ABDOMINAL OBESITY AND PREVALENCE OF NON-ALCOHOLIC HEPATIC STEATOSIS DIAGNOSED THROUGH ULTRASONOGRAPHY

Institution: Universidade Tiradentes, Aracaju, Brasil.

Brief description of the study purpose/Objectives: Non-alcoholic fatty liver disease (NAFLD), a disease that affects 73-90% of obese patients, is characterized by the deposition of lipids in the hepatic parenchyma in the absence of viral, alcoholic or metabolic etiologies. However, there are a small percentage of patients who develop NAFLD in the absence of obesity. The type of distribution of fat in the body, especially the accumulation of visceral fat, is considered the most important factor in NAFLD, because it’s the most dyslipidemic tissue in the human body. The aim of this study was to correlate the measurement of subcutaneous fat (SCF) and intra-abdominal fat (IAF) measured by ultrasonography with the presence or absence of hepatic steatosis

Material and methods: This is a descriptive study with data collection in an Ultrasound Clinic, performed after the approval of the Research with Human Beings Ethics Committee of XXXX University under the file nº 2.061.044. The sample consisted of 166 patients, of both genders, in the age group of 18 to 80 years, who signed an Informed Consent Form (ICF). Patients were diagnosed as having or not having DHGNA with the US, regarding the presence or absence of obesity the indexes used were BMI ≥30.0 and the measurements of the SCF (thickness between the skin and the outer face of the rectus abdominis muscle) and IAF (distance between the inner face of the rectus abdominis muscle to the anterior wall of the aortic artery). The data was processed through IBM SPSS® 22.0 software for Windows and the significance level used was p<0.05.

Results and discussion: 166 patients were evaluated with ultrasonography and 39.1% presented hepatic steatosis (65). The presence or absence of steatosis was correlated with anthropometric and ultrasonographic indexes related to abdominal obesity and obtained a statistically significant result for all of them (p <0.0001). The correlation with the severity of the disease, however, presented a significant result only for IAF (p <0.0001) and WC (p= 0.0246).

Conclusion: There was a statistically significant correlation of the indexes mentioned with the presence or absence of hepatic steatosis and of these, only WC and IAF were the most significant indexes for advanced degrees of the disease.

Responsible Author: Sr. Allan Victor Hora Mota
E-mail: allanhoram@gmail.com

CERVICAL TRAUMATIC NEUROMAS IN PATIENTS WITH THYROID CANCER AFTER LATERAL NECK DISSECTION: ULTRASOUND FEATURES AND CYTOPATHOLOGICAL EVALUATION.

Authors: MARCOS, V.N.; PALMEIRA, R.T.B.A.; KULCSAR, M.A.V.; HOFF, A.A.O.; CHAMMAS, M.C.; FREITAS, R.M.C.
Institution: Instituto do Câncer do Estado de São Paulo ‘Oc- tavio Frías de Oliveira’ - ICESP, São Paulo, São Paulo, Brasil.

Brief description of the study purpose/Objectives: Cervi- cal traumatic neuromas may occur in patients who undergo lateral neck dissection of thyroid metastatic lymph nodes. The aim of this study was to present the ultrasound imaging features and cytopathological correlation of patients with neck dissection for thyroid metastatic lymph nodes.

Material and methods: This study was approved by the Re- search Ethics Committee under number XXX. Fine needle aspiration biopsy (FNAB) of the cervical nodules was per- formed in 37 nodules of 30 patients after lateral cervical lym- phadenectomy for papillary or medullary thyroid carcinomas. The diagnostic criteria for cervical neuromas were: 1) cyto- logic confirmation of traumatic neuroma by FNAB; 2) unde- tectable thyroglobulin or calcitonin levels in FNAB washout; 3) exacerbation of pain during nodule puncture and pain re- lief after needle withdrawal; 4) identification of the nodule continuity with the root of the cervical plexus. The studied ultrasound features of the nodules were: shape, borders, contours, composition, echogenicity, internal hypo- echogenic lines, calcifications and vascularization.

Results and discussion: The exacerbation of pain during FNAB and immediate pain relief after needle withdrawal, as well as undetectable thyroglobulin or calcitonin washout levels were observed in all nodules, n = 37 (100%); cytologic confirmation of traumatic neuroma was observed in 14 nod- ules (37.8%); no metastatic lesion was detected; continuity of the nodule with the cervical plexus root by ultrasound was observed in 31 nodules (83.8%); neither of them showed cal- cifications or vascularization in the Doppler study; the ecoh- texture was heterogeneous in n = 32 (86.5%); Hypoechoic internal lines were observed in n = 27 (74.4%) of the het- erogeneous nodules. Suspected ultrasound criteria associat- ed with undetectable thyroglobulin or calcitonin in FNAB washout and pain exacerbation during FNAB followed by pain relief after needle withdrawal allowed the diagnosis of traumatic cervical neuromas in the present case series when cytology was inconclusive.

Conclusion: Detailed cervical ultrasound study may be use- ful in the identification of cervical traumatic neuromas in patients after lateral neck dissection due to thyroid cancer, avoiding unessential FNAB or surgery.

Responsible Author: Dr. Vinicius Neves Marcos
E-mail: viniciusnevesm@gmail.com

SCIENTIFIC PAPERS - ORAL PRESENTATION (TL)

TL.18.003

EVALUATION OF RENAL LESIONS USING CON- TRAST-ENHANCED ULTRASOUND (CEUS); A 10-YEAR RETROSPECTIVE EUROPEAN MONO-CENTER ANALYSIS
Authors: RUEBENTHALER, J.; FIGUEIREDO, G.N.; MUELLER-PELTZER, K.; CLEVERT, D.A.
Institution: Department of Radiology, Ludwig-Maximilians-University of Munich - Grosshadern Campus
Brief description of the study purpose/Objectives: To investigate the usefulness of contrast-enhanced ultrasound (CEUS) in the evaluation of renal masses.
Material and methods: This local ethics review board ap- proved retrospective study included a total of 255 patients with renal masses with imaging studies between 2005 and 2015. Patient ages ranged from 18 to 86 with (mean 62 years). CEUS was used for determining malignancy or benign- nancy and findings were correlated with the histopathological outcome. Out of 255 renal masses a total of 212 lesions were malignant (83.1%) and 43 were benign (16.9%). Diagnostic accuracy was tested by using the histopathological diagnosis as the gold standard.

Results and discussion: CEUS showed a sensitivity of 99.1% (95% confidence interval (CI): 96.7%, 99.9%), a spec- ificity of 80.5% (95% CI: 65.1%, 91.2%), a positive predic- tive value (PPV) of 96.4% (95% CI: 93.0%, 98.4%) and a negative predictive value (NPV) of 94.3% (95% CI: 80.8%, 99.3%). Kappa for diagnostic accuracy was κ = 0.85 (95% CI: 0.75, 0.94). Out of 212 malignant lesions a total of 200 renal cell carcinomas and 12 other malignant lesions, e.g. metasta- ses, were diagnosed. Out of 43 benign lesions a total 10 an- giomyolipomas, 3 oncocytomas, 8 benign renal cysts and 22 other benign lesions were diagnosed. 10 lesions were falsely identified as malignant or benign.

Conclusion: CEUS is an useful method, which can be used to differentiate between malignant and benign renal lesions. To date, to our knowledge this is the largest study in Europe for the evaluation of unclear renal lesions using CEUS with a histopathological validation.

Responsible Author: Dr. Johannes Ruebenthaler
E-mail: Johannes.Ruebenthaler@gmx.de

TL.18.004

COMPARISON OF COMPUTED TOMOGRAPHY (CT) AND CONTRAST-ENHANCED ULTRASOUND (CEUS) IN THE CHARACTERIZATION OF INDETERMINATE RENAL MASSES WITH HISTOPATHOLOGICAL VALIDATION - A 10-YEAR EUROPEAN SINGLE-CENTER EXPERIENCE
Authors: RUEBENTHALER, J.; FIGUEIREDO, G.N.; MUELLER-PELTZER, K.; CLEVERT, D.A.
Institution: Department of Radiology, Ludwig-Maximilians-University of Munich - Grosshadern Campus
Brief description of the study purpose/Objectives: To compare the diagnostic accuracy of contrast-enhanced ultra- sound (CEUS) and computed tomography (CT) in the char- acterization of unclear renal masses with histopathology as the gold standard.
Material and methods: We retrospectively analysed our patient record files between 2005 and 2015 to find patients who received CT and CEUS examinations prior to biopsy or opera- tion. We found 255 patients with a single indeterminate renal mass and with an additional histopathological result. 88 out of 255 patients had additional CT imaging series prior to biopsy or operation. Diagnostic accuracy of CT and CEUS was test- ed with the histopathological result used as the gold standard.

Results and discussion: CEUS (255 patients) showed a sensitivity of 99.1% (95% confidence interval (CI): 96.7%, 99.9%), a specificity of 80.5% (95% CI: 65.1%, 91.2%), a positive predictive value (PPV) of 96.4% (95% CI: 93.0%, 98.4%) and a negative predictive value (NPV) of 94.3% (95% CI: 80.8%, 99.3%) compared to histopathology. CT (88 out of 255 patients; 34.5%) showed a sensitivity of 97.1% (95% CI: 89.9%, 99.6%), a specificity of 47.4% (95% CI: 24.4%, 71.1%), a positive predictive value (PPV) of 87.0% (95% CI: 77.4%, 93.6%) and a negative predictive value (NPV) of 81.8% (95% CI: 48.2%, 97.7%).

Conclusion: CEUS can be used as an equipollent tool com- pared to CT for the evaluation of indeterminate renal masses and is remarkably useful in patients with chronic kidney fail-
ure or other contraindications for CT examinations.

**Responsible Author:** Dr. Johannes Ruebenthaler  
**E-mail:** Johannes.Ruebenthaler@gmx.de

**TL.18.005**  
ELASTOGRAPHY SHEAR WAVE CONTRIBUTION WHEN EVALUATING THYROID FOLLICULAR NODULES COMPAREING TO HISTOLOGICAL FINDINGS

**Authors:** MORAES, P.; CHAMMAS, M.; SCHELINI, M  
**Institution:** Departamento de Ultrassonografia, Instituto de Radiología do Hospital das Clínicas de São Paulo  
**Brief description of the study purpose/Objectives:** Follicular lesion is found in about 10-30% of all FNAB of thyroid nodules. 20% have a diagnosis of follicular carcinoma in the final histological analysis, although 80% of them are benign. Motivated by unnecessary surgeries performed, we studied with shear-wave elastography (SWE) to distinguish benign from malignant nodules (BETHESDA III and IV) before the histological analysis.

**Material and methods:** We included nodules with Bethesda III or IV on cytological analysis. The equipment used was Logic E9, GE, with SWE elastography. We classified follicular nodules according to strain pattern (1-5) - 1: high deformity, lower risk for malignancy and 5: low strain, high risk for malignancy. SWE deformation indexes (SWE index) were defined by two ROIs: one including most of the nodule and the other at the pre-thyroid muscles. The arithmetic mean of three different SWE indexes of each nodule was calculated. A deformation ratio (RDM) was calculated by dividing the SWE index of the pre-thyroid musculature (sternocleidomastoid) by the SWE index of the nodule, both using Kpa. All patients were submitted to surgical removal, with histological analysis.

**Results and discussion:** 16 patients were studied. 11/16 had histodiagnostic diagnosis of carcinoma. 7/11 had an elastogram pattern≥2. Statistical analysis, however, failed to show a significant association between carcinoma diagnosis and the elastogram pattern (p=0.61). RDM≥1.32 suggest an increased risk for the diagnosis of carcinoma (sensitivity 81.8% and specificity 80%) (p=0.015)

**Conclusion:** RDM≥1.32 is related to increased risk for the histological diagnosis of carcinoma in nodules with follicular pattern at cytology (BETHESDA III and IV)

**Responsible Author:** Dr. PEDRO HENRIQUE MORAES  
**E-mail:** pedrohenrique.m.moraes@gmail.com

**TL.18.006**  
CORRELATION BETWEEN DOPPLER VELOCIMETRIC INDEXES AND FIBROSCAN AS PREDICTORS OF HEPATIC FIBROSIS IN PATIENTS WITH CHRONIC HEPATITIS C IN THE STATE OF PARÁ.

**Authors:** FRANCO, K. M. V. S.; VIEIRA, W. B.; QUARESMA, J. A. S.  
**Institution:** HOSPITAL FUNDAÇÃO SANTA CASA DE MISERICÓRДIA DO PARÁ.  
**NUCLEO DE MEDICINA TROPICAL - UFPA  
Brief description of the study purpose/Objectives:** Chronic hepatitis C virus (HCV) is the most responsible for cases of cirrhosis and liver transplants in the West, where there are 170 million people with chronic carriers. To the extent that, for example, they are non-invasive and have associated morbidity and mortality, other non-invasive methods, such as traffic elastization (Fibroscan®) and Doppler ultrasound. Objective: To investigate a correlation of Mode B ultrasound and Doppler findings with transient elastizing data using Fibroscan®, determining the cutoff points, sensitivity and specificity of hepatic vessel resistance (IR) and pulsatility (IP) indexes for the prediction of hepatic fibrosis significant.

**Material and methods:** A cross-sectional, observational, descriptive and analytical study, including 30 patients with chronic hepatitis C treated at XXX. Data were collected from transient elastography and B mode and Doppler ultrasonography, evaluating a linear correlation between the methods through the Pearson test. The various Doppler-velocimetric index were compared between the groups according to a presence of significant fibrosis (≥F2). Patients were divided into F0/F1 x F2/F3/F4 and the conditional probability-cutoff point test was applied, determining sensitivities, specificities, accurances and distance d to the gold standard.

**Results and discussion:** There was moderate to strong linear correlation between the data of the Fibroscan® and the Doppler velocimetric index of the hepatic vessels, as well as for the splenic index; The mean values of IR and IP of the hepatic vessels differed between the groups with absent / mild hepatic fibrosis (F0 / F1) and significant hepatic fibrosis (≥F2). The IR and IP of Hepatic Artery, IR and IP Vein Gate, and IR Hepatic Super Veins cut-off points were 0.68, 0.30, 0.53 and 0.99, with sensitivities and specificities of 95.5% and 87.5%, 77.3% and 85.5%, 72.7% and 87.5% and 77.0% and 87.0% for hepatic fibrosis prediction ≥ F2. There was an association between the monophasic and biphasic wave pattern of the suprahepatic veins and a stratification of hepatic.

**Conclusion:** Doppler ultrasonography and transient elastomosis using Fibroscan® are correlated methods in the non-invasive evaluation of hepatic fibrosis, with some index showing acceptable sensitivity and specificity for the prediction of fibrosis ≥ F2 in patients with chronic hepatitis C.

**Responsible Author:** Dra. karen Margarete Da Silva Franco  
**E-mail:** karenfranco2003@hotmail.com

**TL.18.007**  
ULTRASONOGRAPHIC MEASURES OF ABDOMINAL FAT IN CHILDREN RELATED WITH ANTHROPOMETRIC DIAGNOSIS

**Authors:** PIBER, L. S.; SOUZA, P. C.; ARMOND, J. E.; JULIANO, Y.; NOVO, N. F.; WANDERLEY, M. I. A.  
**Institution:** A. C. Camargo Cancer Center, São Paulo, São Paulo, BrasilAdvanced ImagingAssociates, Fremont, California, USAAngio Vascular Medicine Consulting Rooms, Belgrade, SerbiaANGIORAD, Recife, Pernambuco, BrasilAPROFE, Ambato, Tungurahua, EcuadorAPROFE, Bahahoyo, Los Ríos, EcuadorAPROFE, Guayaquil, Guayas, EcuadorAsian Medical Center, Seoul, Republic of KoreaAsociación Hospitalar Beneficiente São Vicente de Paulo, Passo Fundo, Rio Grande do Sul, BrasilAXIAL Centro de Imagem Diagnóstico SC Ltda., Belo Horizonte, Minas Gerais, BrasilBayero University, Kano, NigeriaBEYETE Military Hospital, Ankara, TurkeyBeytepe Military Hospital, Ankara, TurkeyBio Master Medicina Diagnóstica, São Paulo, São Paulo, BrasilBeytepe Military Hospital, Ankara, TurkeyBeytepe Military Hospital, Ankara, TurkeyBeytepe Military Hospital, Ankara, TurkeyBeytepe Military Hospital, Ankara, TurkeyBrazilian National Cancer Institute, Brasília, BrazilCardiology Research Complex, Moscow, RussiaCasa de Saúde Santa Marcelina, São Paulo, São Paulo, BrasilCasa de Saúde São José, Rio de Janeiro, Rio de Janeiro, BrasilCDH - Centro de Diagnósticos Brasil, São Paulo, São Paulo, BrasilCDH Centro de Diagnóstico por Imagem, Campinas, São Paulo, BrasilCDI - Centro de Diagnóstico por Imagem, Vitória, Espírito San-

Abstracts of Scientific Papers 209
RESULTS and discussion: Regarding the BMI diagnoses, the measures of SCCT, minimum SCCT, maximum SCCT, maximum PPF, IPFa, IPFp and IPFo of obese students were significantly higher (H calculated = 49.775, 50.988, 51.590, 25.367, 25.370, 22.048, 23.562 and 20.708, respectively). The obese patients diagnosed by WC showed the same measures significantly higher (H calculated = 57.867, 60.808, 59.754, 25.367, 32.379, 33.982 and 15.872, respectively). The PPF measurement was significantly higher for the obese patients diagnosed by WC (calculated H = 7.704). The results are according with national and international researches. Anthropometry, which includes the calculation of body mass index and waist circumference measurement, is indicated in the pediatric clinical evaluation. However, these diagnostic methods do not differentiate subcutaneous fat from visceral fat. Ultrasonography presents validated and recognized advantages in the scientific community, being able to differentiate accumulation of intraperitoneal, preperitoneal and subcutaneous fat with innocuity, practicality and quickness.

Conclusion: Ultrasonographic measures of subcutaneous fat and most measures of intra-abdominal fat (maximum PPF, IPFa, IPFp and IPFo) correlated with both anthropometric diagnoses.

Responsible Author: Dr. Leonardo de Souza Piber
E-mail: leonardopiber@yahoo.com.br

TL.18.009
DIAGNOSTIC PERFORMANCE OF CONTRAST-ENHANCED ULTRASOUND (CEUS) FOR THE EVALUATION OF GALLBLADDER DISEASES

Material and methods: This is a cross-sectional study. It was evaluated 100 schoolchildren, aged between 6 and 10 years of a public school in the city of São Paulo, Brazil. Initially, the diagnosis was established by the BMI and WC. Subcutaneous tissue thickness (SCCT), minimal SCCT, preperitoneal fat (PPF), minimal PPF, maximal PPF, intraperitoneal fat in relation to the anterior wall of the aorta artery (IPFa), intraperitoneal fat in relation to the posterior wall of the aorta artery (IPFp) and thickness of the lesser omentum (IPFo), by ultrasonography. The anthropometric diagnoses (eutrophy, overweight and obesity by BMI and WC) were correlated with ultrasound measurements. The analysis of the Kruskal-Wallis variance was applied and the level of significance (p) of 0.05 was set. The research was approved by the Ethics and Research Committee, whose number is 1,103,468 of 06/11/2015 and CAAE: 44933915.3.0000.0081.
and 2017 with unclear gallbladder appearance were retrospectively analysed. The contrast agent administered was a second-generation blood pool agent (SonoVue®, Bracco, Milan, Italy). Examinations were performed and interpreted by a single experienced radiologist with more than fifteen years’ experience.

**Results and Discussion:** 24 patients were successfully examined without any adverse reaction. CEUS presented a sensitivity of 75%, a specificity of 100.0%, a positive predictive value of 100.0% and a negative predictive value of 95%.

**Conclusion:** In conclusion, the excellent results in this study acknowledged that CEUS is a feasible alternative tool to differentiate glomus body pathologic alterations.

**Responsible Author:** Dra. Giovanna Negrao de Figueiredo
E-mail: giofigueiredo@yahoo.de

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**PICTORIAL ESSAY**

**SCIENTIFIC PAPERS - POSTERS (PA)**

**PA.18.004**

**ULTRASOUND FEATURES OF CERVICAL TRAUMATIC NEUROMAS IN THE POSTOPERATIVE NECK: A PICTORIAL REVIEW.**

**Authors:** PALMEIRA, R.T.B.A.; MARCOS, V.N.; KULCSAR, M.A.V.; HOFF, A.A.O.; CHAMMAS, M.C.; FREITAS, R.M.C.

**Institution:** Icesp - Instituto do Câncer do Estado de São Paulo, São Paulo - Faculdade de Medicina da USP.

**Introduction and objectives:** Traumatic neuroma is a non-neoplastic reactive hyperplasia affecting the peripheral nerve after trauma or surgery. They are found in about 2% of patients who undergo neck dissection due to tumor involvement. Painful hypersensitivity and paresthesia are characteristic symptoms of cervical neuromas. The cervical neuroma can be misdiagnosed as metastatic lymph node, occasionally requiring Fine Needle Aspiration Biopsy (FNAB) or surgery for diagnostic elucidation. Careful ultrasound examination may indicate the diagnosis of cervical neuromas and avoid unnecessary procedures. The purpose of this pictorial review is to illustrate the main ultrasound characteristics of the traumatic cervical neuroma and the examination technique, differentiating it from metastatic lymph nodes.

**Methods:** High resolution ultrasound images of patients with cervical neuromas confirmed by FNAB were analyzed. Important ultrasound features that differentiate the traumatic neuroma from lymph node recurrence were: fusiform shape, smaller diameter of the short axis, well defined borders, heterogeneous ecotexture with hypoechogenic internal lines, central calcifications in the context of Peyronie disease are other cause for the first one.

**Discussion:** The identification of direct continuity of the node with the peripheral nerve, with a fusiform enlargement of the nerve or its amputation was suggestive of cervical neuroma. The entry of the vertebral artery into the vertebral foramen of C6 may aid in the determination of cervical levels. Neuromas were typically located posteriorly and close to the carotid artery, but not in contact with the artery, which was most commonly seen in the lymph nodes. Ultrasound identification of a nodular image with direct continuity to the cervical plexus nerve is a typical finding of the cervical traumatic neuroma, helping its differentiation with metastatic lymph nodes, and avoiding unnecessary biopsies or surgery.

**Conclusion:** Detailed ultrasound study can be useful to differentiate traumatic neuromas from lymph node metastases in patients who underwent neck dissection.

**Responsible Author:** Dra. Rafaela Tavares Borges de Araújo Palmeira
E-mail: rafinhaaborges@hotmail.com

**PA.18.005**

**PENILE EMERGENCIES: WHAT RADIOLOGISTS NEED TO KNOW**

**Authors:** OLIVEIRA, A. M.; LOBO, C. F. T.; SAITO, O. C.

**Institution:** Departamento de Radiologia da Faculdade de Medicina do Hospital das Clínicas da Universidade de São Paulo, São Paulo, Brasil

**Introduction and objectives:** Penile emergencies are uncommon, however, their occurrence urges prompt diagnosis and treatment. Imaging studies play a central role on the approach, as they establish the diagnosis, exclude the differentials and provide additional essential clinical information. Therefore, it is of most importance that radiologists detain solid knowledge about these situations. This review highlights the most prevalent penile emergencies, serving as a guide to imaging practitioners.

**Methods:** This pictorial review is based on didactic cases involving patients that came with penile complaints to the emergency department of a high complexity medical school hospital, and highlights key points of the most frequently encountered situations. The main ultrasound imaging findings will be illustrated, it will be discussed the essential information that must be reported, as provided a brief review of the epidemiology, diagnosis and treatment of the topics. Computed tomography (CT), magnetic resonance (MR) positron emission tomography (PET/CT) and angiography images will be displayed when pertinent.

**Discussion:** The main situations encountered at the emergency department involving the penis are: priapism, tumor infiltration, penile fracture and its consequences, penile prosthesis fracture and Peyronie disease. Ultrasound is often the first imaging modality used, as it is usually easily available, and, not infrequently, the sole required for the diagnosis or for providing the information needed to the conduct. Ultrasoundographers should be familiarized and aware of the topic. Nonetheless, difficulty may exist when approaching unusual cases, while trying to answer the clinical question demanded. Tunicia albuginea lesions, location and dimensions of the hematoma are important conduct-defining information that radiologists must report when dealing with a possible penile fracture. Ultrasound is useful in aiding the differentiation from high to low-flow priapism and finding the underlying cause for the first one. Differentiation from neoplasms to penile calcifications in the context of Peyronie disease are other possible situation to be encountered. The understanding of epidemiology and clinical features is essential and makes the diagnosis more accurate. The understanding of the treatment options makes the report even more useful.

**Conclusion:** Penile emergencies are uncommon and carry high morbidity. A solid knowledge by the radiologist is essential on each one of them.

**Responsible Author:** Dr. Arthur Magalhães de Oliveira
E-mail: arthurmdoliveira@gmail.com
ULTRASONOGRAPHIC FINDINGS OF CHRONIC LIVER DISEASE

Scientific Papers - Posters (PA)

Pictorial Essay

Authors: BANDEIRA, G. A; HOLZMANN, H. A; TOCHETTO, S. M.; CHAMMAS, M. C.

Institution: Instituto de Radiologia do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo - InRad - HC FMUSP

Introduction and objectives: Hepatic fibrosis occurs in response to almost all chronic liver injury which might be immune, viral, toxic and metabolic. Chronic hepatitis B and C virus infection, alcoholic liver disease and nonalcoholic fatty liver disease are the most common causes of cirrhosis. Ultrasound is, usually, the first imaging modality used for evaluation of liver and has a good accuracy for the diagnosis of cirrhosis and its complications. Ultrasound findings in chronic liver disease result from macroscopic changes in the liver parenchyma or are due to portal hypertension development. The purpose of this study is to described the ultrasound imaging findings of chronic liver disease using a systematized approach.

Methods: The exhibit will show the ultrasound evaluation of the liver through B-mode, Doppler, elastography and contrast enhanced ultrasound using a systematized approach, highlighting the main findings of each technique.

Discussion: Ultrasound plays an important role in the evaluation and follow-up of chronic liver disease. The ultrasonographic assessment of the liver can be organized as follows: 1) B-mode: echogenicity and texture, contours, segmental / lobar atrophy (volume redistribution), portal / splenic and superior mesenteric veins, development of collateral circulation, perihilar lymph nodes, splenomegaly, focal liver lesions and complications such as ascites. 2) Doppler: flow pattern in the portal / splenic / mesenteric veins, flow pattern in the hepatic veins, assessment collateral circulation. 3) Elastography: qualitative and quantitative evaluation of the liver fibrosis. 4) Contrast enhanced ultrasound: screening and characterization of focal liver lesions (according to LI-RADS-US).

Conclusion: Liver biopsy is the gold standard for diagnosing cirrhosis, identifying its etiology and quantifying the degree of fibrosis. However, it is an invasive procedure, with serious risk of complications and presents significant sampling and interobserver variability. These factors are leading to an increasing interest in imaging evaluation of the cirrhotic liver. Ultrasound plays an important role in the diagnosis and follow-up of the hepatic liver disease, since it is a non-invasive and widely accessible method.

Responsible Author: Dra. Gabriela Alencar Bandeira
E-mail: bandeiraga@gmail.com

ULTRASONOGRAPHIC MEASURES OF ABDOMINAL FAT IN CHILDREN: PICTORIAL ESSAY

Scientific Papers - Posters (PA)

Pictorial Essay

Authors: PIBER, L. S.; SOUZA, P. C; ARMOND, J. E.; JULIANO, Y.; NOVO, N. F.; WANDERLEY, M. I. A.

Institution: A. C. Camargo Cancer Center, São Paulo, São Paulo, Brasil

Introduction: Pictorial essay about the scientific paper "Ultrasonographic measures of abdominal fat in children". The exhibit will show the ultrasound evaluation of the abdomen through B-mode, Doppler, elastography and contrast enhanced ultrasound using a systematized approach, highlighting the main findings of each technique.

Discussion: Ultrasound plays an important role in the evaluation and follow-up of chronic liver disease. The ultrasonographic assessment of the liver can be organized as follows: 1) B-mode: echogenicity and texture, contours, segmental / lobar atrophy (volume redistribution), portal / splenic and superior mesenteric veins, development of collateral circulation, perihilar lymph nodes, splenomegaly, focal liver lesions and complications such as ascites. 2) Doppler: flow pattern in the portal / splenic / mesenteric veins, flow pattern in the hepatic veins, assessment collateral circulation. 3) Elastography: qualitative and quantitative evaluation of the liver fibrosis. 4) Contrast enhanced ultrasound: screening and characterization of focal liver lesions (according to LI-RADS-US).

Conclusion: Liver biopsy is the gold standard for diagnosing cirrhosis, identifying its etiology and quantifying the degree of fibrosis. However, it is an invasive procedure, with serious risk of complications and presents significant sampling and interobserver variability. These factors are leading to an increasing interest in imaging evaluation of the cirrhotic liver. Ultrasound plays an important role in the diagnosis and follow-up of the hepatic liver disease, since it is a non-invasive and widely accessible method.

Responsible Author: Dra. Gabriela Alencar Bandeira
E-mail: bandeiraga@gmail.com
Introduction and objectives: Childhood obesity, the most common pediatric pathology, a global public health problem, is considered a global epidemic and an important risk factor for obesity in adulthood. Among its consequences, it should highlight cardiovascular and metabolic diseases, which can be diagnosed during childhood and increase morbidity and mortality throughout life. Anthropometry, which includes the calculation of body mass index and waist circumference measurement, is indicated in the pediatric clinical evaluation. However, these diagnostic methods do not differentiate subcutaneous fat from visceral fat. Ultrasonography has validated and recognized advantages in the scientific community, and can differentiate subcutaneous fat from visceral fat, including in children.

To present ultrasound measurements of abdominal fat (subcutaneous thickness of the cellular tissue, preperitoneal fat thickness and intraperitoneal fat thickness).

Methods: Children between the ages of 6 and 10 from a public school in the city of São Paulo, Brazil, were examined in the supine position, without fasting, with linear transducer ML (6-15MHz) and convex transducer C (1-5MHz). All ultrasonic measurements were performed without pressure on the transducer and determined in centimeters. Thickness of subcutaneous tissue, preperitoneal fat and intraperitoneal fat were evaluated. The selected cases are from the image archive of our service. The research was approved by the Ethics Committee, whose number is 1,103,468 dated 06/11/2015 and CAAE: 44933915.3.0000.0081.

Discussion: Among the advantages of ultrasonography are the ability to differentiate intraperitoneal, preperitoneal and subcutaneous fat accumulation, as well as the innocuity of the exam, practicality and speed, especially in the evaluation of the pediatric population.

Ultrasonography as a medical specialty becomes an integral part of interdisciplinary teams, in clinical practice and in Ultrasonography as a medical specialty becomes an integral part of interdisciplinary teams, in clinical practice and in

Discussion: Among the advantages of ultrasonography are the ability to differentiate intraperitoneal, preperitoneal and subcutaneous fat accumulation, as well as the innocuity of the exam, practicality and speed, especially in the evaluation of the pediatric population.

Ultrasonography as a medical specialty becomes an integral part of interdisciplinary teams, in clinical practice and in health care, research, and the academic setting.

Conclusion: Ultrasonographic findings should be included in the pediatric clinical evaluation, allowing correlation with anthropometric physical examination data, being of great value in the evolutionary follow-up of obesity treatments.

Responsible Author: Dr. Leonardo de Sousa Piber
E-mail: leonardopiber@yahoo.com.br

PA.18.009
TRAPS OF THE GALLBLADDER.
THE LIVER: DIAGNOSIS OF BENIGN LESIONS


Institution: Hospital Israelita Albert Einstein

Introduction and objectives: We will present a summary of the fundamental findings in the microbubble ultrasonography study for benign liver lesions - hemangioma, nodular hyperplasia and adenomas in the sense of differentiating them from HCC and metastases. The objective is to present the microbubbles examination of the liver in a systematized approach and its use as a tool to the radiologist.

Methods: The study will be performed with images of sonographic examinations using microbubbles illustrating benign lesions of the liver and its main findings.

Discussion: The bases for the use of microbubbles in the liver and the fundamental findings in benign lesions are discussed, as well as the importance of applying the method in hepatology. Biosafety issues are also presented regarding the application of microbubbles.

Conclusion: The knowledge of the application of microbubble contrast in the liver is fundamental because it allows its use in specific clinical situations and its use should be part of the competencies of the general radiologist.

Responsible Author: Dr. Eduardo Fonseca
E-mail: eduardomfs@gmail.com

PD.18.010
HEMODYNAMIC STANDARDS IN PATIENTS WITH INTRAARTIC BALLOON

Scientific Papers - Digital Presentation (PD)

Pictorial Essay

Authors: COSTA FLS, VENDRAMINI DFV, GUERREIRO NFC, PEREIRA FILHO JP, LEITE CC, MARCELINO ASZ, CERRI GG

Institution: Hospital Sírio-Libanês

Introduction and objectives: The intra-aortic counterpulsation balloon is a mechanical assistance device used in patients with low-output heart failure to optimize cardiac output, ejection fraction, and coronary perfusion. A Doppler ultrasonographic study is usually required to evaluate complications related to the intraaortic balloon. The radiologist should be aware of the different hemodynamic patterns related to this device in order to diagnose related complications.

Methods: We will illustrate the main vascular complications related to the intraaortic balloon, as well as normal and pathological hemodynamic patterns in the upper limbs, carotid and lower limbs, in a pictorial essay based on cases using images of ultrasound and computed tomography acquired at our institution.

Discussion: The intraaortic balloon consists of a catheter-mounted flask with an extension of 25 cm. It is usually introduced by the common femoral artery and lies with the proximal extremity located distal to the left subclavian artery and acts inflating at the end of systole / beginning of diastole and deflating at the end of the diastolic period. This device is widely used in patients hospitalized in coronary units, and due to its functioning mechanics, it changes the hemodynamic patterns of the various arterial segments. As the intraaortic balloon is positioned distally to the subclavian artery, it determines different flow patterns in the carotids and upper limb segments than of those seen in the lower limbs, which may generate diagnostic difficulty in pathological processes.

Conclusion: In order to diagnose pathological processes more safely, it is essential that the radiologist understands and recognizes the normal and pathological hemodynamic patterns of the proximal and distal arterial segments of the left subclavian artery, which have different patterns.

Responsible Author: Dr. Felipe Costa
E-mail: felipe.lobato@live.com

LITERATURE REVIEW

SCIENTIFIC PAPERS - POSTERS (PA)

PA.18.003
ULTRASONOGRAPHIC EVALUATION OF ERECTILE DYSFUNCTION: WHAT EVERY RADIOLOGIST NEEDS TO KNOW

Authors: SANTIAGO, C.C.F.; BANDEIRA, G.A.; CARRHEIRO, F.; ANDO, SM.

Institution: Instituto de Radiologia do Hospital das Clínicas da Universidade de São Paulo (INRAD-HCFMUSP)

Brief description(s) of the purpose(s) of the Literature Review: Pharmacologically Induced Penile Doppler (FIPD) is the examination of choice for the evaluation of patients with erectile dysfunction (ED) of vascular etiology. Despite routine and global use, the analysis of the current literature reveals a lack of standardization of both the technique and the interpretation of the results. This review proposes to establish standards of technique and data analysis.

Description(s) of disease(s), method(s) and/or technique(s): A review of the literature was made, highlighting the parameters of the technique and the main findings in ultrasonography that help in the differential diagnosis of the vascular etiologies of ED. We use cases from our service to illustrate the findings.

Discussion: A calm and comfortable environment is essential in order to carry out the study. A high frequency linear transducer (12-15 MHz) is used with a patient in supine position with the penis bent against the abdomen. Prior to the intracavernous injection of a vasoactive drug a scan of the anatomy of the cavernous bodies of the penis and the corpus spongiosum of penis is made. The vasoactive drug is injected into one of the corpus cavernosum, avoiding the neurovascular bundle in the midline. Serial measures of systolic peak velocity (SPV) and final diastolic velocity (FDV) should be performed. A state of maximum stiffness is sought and for that, whenever necessary; new doses of the vasoactive drug and audiovisual stimulus (AVS) should be used. SPV above 30 cm/s excludes arterial vascular etiology. FDV below 5 cm/s excludes venocclusive etiology since SPV > 30 cm/s. In the presence of VPS> 30 cm/s and VDF> 5 cm/s, a persistent adrenergic effect should be considered before considering a venocclusive etiology. Evaluation of penile stiffness should be performed manually by the examiner with a cut off of 7 (0-10) sufficient to perform penetration.

Conclusion: FIPD is the exam of choice for the etiological diagnosis of ED. The psychogenic adrenergic effect should always be considered in cases of Doppler parameters suggestive of venous dysfunction. In order to obtain the maximum relaxation of the smooth muscle of the cavernous arteries,
thus avoiding false positives, the evaluator can use AVS and new doses of the vasoactive drug.

**Responsible Author:** Dra. Caroline Caldeira de Faria Santiago  
**E-mail:** carol.caldfaria@gmail.com

**PA.18.012**

**ULTRASONOGRAPHIC FINDINGS OF URACHUS PATHOLOGIES AND THEIR DIFFERENTIAL DIAGNOSES.**


**Institution:** CDI - CENTRO DE DIAGNÓSTICO POR IMAGEM DE FERNANDÓPOLIS / SP

**Brief description(s) of the purpose(s) of the Literature Review:** Urachus is a structure often neglected by physicians, but it must be remembered for its clinical importance and should always be considered in differential diagnoses of lower abdominal pathologies.

This study aims to demonstrating the image findings allowing the radiologist and the ultrasonographer to distinguish the main pathologies of the urachus.

**Description(s) of disease(s), method(s) and/or technique(s):**

The pathologies of the urachus remnant may have several etiologies, ranging from neoplasia to partial occlusion of the lumen after birth. A review of the scientific papers carried out over the last 10 years will briefly demonstrate the differentiation of its pathologies and differential diagnoses.

**Discussion:** Due to the several diseases affecting the lower abdomen region, the literature review about the pathologies of the urachus demonstrates its importance and should be considered in some differential diagnoses, such as Meckel's diverticulum, bladder diverticulum and neoplasm, mesenteric cysts and even umbilical hernia.

**Conclusion:** The distinction between the pathologies of the urachus and its differential diagnoses is essential, since the treatment will depend on the type of pathology and complications present in the image evaluation. The identification of the structure and the knowledge of its existence already help a lot in the conclusion of its final diagnosis, determining a better treatment and prognosis for the patient.

**Responsible Author:** Dr. Eduardo Ota Sano  
**E-mail:** dr_edusano@yahoo.com.br

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**CASE REPORT**

**SCIENTIFIC PAPERS - DIGITAL PRESENTATION (PD)**

**PD.18.006**

**ECTOPIC THYMUS MIMICKING THYROID NODULE IN CHILDREN**

**Authors:** CORRÊA, J. A. P.; DI PUGLIA, E. B. M.; PENNA, C. R. R.

**Institution:** Universidade Federal do Rio de Janeiro

**Brief description(s) of the purpose(s) of the Literature Review:** Intrathyroid ectopic thymus is an uncommon finding in pediatric cervical ultrasonography. The aim of the present study is to report a series of 4 cases, describing its sonographic characteristics, in addition to making a brief literature review for correlation with the cases described.

**Description(s) of disease(s), method(s) and/or technique(s):**

The thymus originates from the third pharyngeal pouch, initially forming two distinct lobes on each side of the cervical region. The lobes move caudally and medially, fusing medially and forming the organ. Remnants of the thymus can be found along its pathway, between the angle of the mandible and the upper mediastinum, most commonly occurring laterally to the thyroid gland. Although not part of its usual path of migration, one of the possible topographies of ectopic thymic tissue, though rare, is within the thyroid gland.

For the evaluation of this anatomical variation, ultrasound is the method of choice, and the ultrasound physician must be aware of its characteristics, allowing its distinction from other causes of thyroid nodules.

In all of the cases reported here, elongated and heterogeneous texture images were found, no larger than 1.0 cm, presenting several hypeerechogenic foci without formation of posterior acoustic shadowing. These characteristics were identical to those found in thymic tissue.

All cases have unilateral presentation, with 3 of the 4 cases seen in the left lobe.

**Discussion:**

Due to its underdiagnosis, as it is asymptomatic and does not determine palpable lesion on clinical examination, the intrathyroid ectopic thymus is usually an incidental finding during ultrasound evaluation of the thyroid due to other reasons such as cervical lymph node enlargement or thyroid symptoms. Because it is an uncommon entity, it is often described as a thyroid nodule and ultrasound monitoring is recommended. In this way, it may generate unnecessary prolongation of the investigation by the requesting physician, in order to rule out possible malignant lesions.

**Conclusion:** The knowledge of the characteristics of the intrathyroid ectopic thymus by the ultrasound physician is of paramount importance in order to avoid the use of more costly and invasive methods for diagnostic confirmation.

**Responsible Author:** Sr. João Antonio Pessôa Corrêa  
**E-mail:** joaoapcorrea@gmail.com

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**PD.18.006**

**THE HERLYN-WERNER-WUNDERLICH SYNDROME: CASE REPORT**

**Authors:** LIMA, J. T. F.; GOMES, A. C. S.; SANTOS, S. L. M.; BRANCO, M. T.; ROMÉRA, V. C.

**Institution:** GOLD IMAGEM MEDICINA DIAGNÓSTICA (RIO CLARO-SP)

**Brief description of the study purpose:** Herlyn-Werner syndrome-Wunderlich (SHWW) is a rare variant of müllerian anomalies characterized by the presence of hemivaginal septum, uterus didelpho and ipsilateral renal Agenesis. Its early diagnosis prevents complications that happen during adolescence, resulting from the delay in recognition of that entity.

**Clinical history:** 12-year-old patient, history of abdominal mass related to pain in lower belly and menarche for a year, keeping irregular cycles. Performed ultrasound of abdomen showing cystic mass with total thick and homogeneous content, located in the pelvic excavation and determining the compression via con-
from an arteriovenous malformation, by demonstrating a high resistance blood flow. Gray-scale demonstrates cystic structure adjacent to superficial temporal artery, multiple and with homogeneous content in the non-traumatic; unique and with heterogeneous content in the traumatic. At Doppler, both presented a swirling flow ("yn and yang" signal). In the traumatic lesion with heterogeneous content, the diagnosis of pseudoaneurysm was suggested. The treatment of choice is surgical excision, but endovascular approach for it’s treatment is increasing.

**Conclusion:** The diagnosis of superficial temporal artery aneurysm is rare, but it constitutes a root ability for the sonographer. It implies not only in an appropriate approach, avoiding local complications, but also in active search of eventual aneurysms in other sites, in the case of spontaneous aneurysms.

**Responsible Author:** Dr. Bruno Jucá Ribeiro

**E-mail:** brunojucar123@gmail.com

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**PD.18.009**

**ULTRASOUND DIAGNOSIS OF PETERSEN’S HERNIA: A CASE REPORT**

**Authors:** Tito, P.A.L.; da Silva, C.T.F.; Domingues, J.G.; de Souza Bernardino, T.C.

**Institution:** Hospital Madre Teresa

**Brief description of the study purpose:** The increasingly frequent use of videolaparoscopic technique for Roux-en-Y gastrojejunostomy is associated with an increase in the incidence of internal hernias, notably Petersen’s hernia. Less invasive, the videolaparoscopic approach implies a lower incidence of adhesions, guaranteeing greater mobility of the intestinal loops. On the other hand, the greater mobility increases the risk of bowel insinuation in spaces created by the laparoscopic access and, eventually, evolve to intestinal necrosis. Computed tomography is the method of choice in the evaluation of patients with obstructive clinical after a gastrojejunostomy. However, some manifestations are not typical, involving ill-defined abdominal pain and no characteristic obstructive signs or symptoms are present, which may lead to the use of alternative techniques such as ultrasonography of the abdomen. Thus, it is important that the radiologist is familiar with potential ultrasound findings related to Petersen hernia, enabling early diagnosis.

**Clinical history:** A 40-year-old male patient presented to the emergency department with abdominal pain of high intensity and refractory to treatment with analgesia. He denied obstructive symptoms, such as vomiting or bloating. Subjected to Roux-en-Y gastrojejunostomy by videolaparoscopic approach 1 year ago. The initial imaging technique requested was ultrasonography, in addition to laboratory tests, which revealed a mobile echogenic image in the epigastric region, adjacent to the celiac trunk, and local vascular abnormalities.

**Discussion and diagnosis, or vice versa:** At full abdominal ultrasonography, an echogenic image was identified in the epigastric region, showing the color Doppler crosses mesenteric vessels and their intima relationship with hernial content. The patient presented a clinical presentation suggestive of obstructive symptoms, making it difficult to diagnose internal hernia, especially Petersen’s. However, the favorable clinical history for how the imaging findings on the ultrasound enabled the diagnosis and the operative management.

**Conclusion:** Given the scarce literature on ultrasonographic findings in the context of Petersen hernia, it is necessary to correlate the ultrasonographic findings with those classically described for the tomographic study. We present this case report, with the purpose of illustrating a diagnosis of Petersen internal hernia established by ultrasonography based on clinical data, confirmed by surgical procedure.

**Responsible Author:** Dr. Túlio Bernardino

**E-mail:** ituliovb@gmail.com
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