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PE 001. LUNG MASS IN A PATIENT WITH CHRONIC LYMPHOCYTIC LYMPHOMA: A CASE REPORT

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Introduction: Chronic lymphocytic lymphoma (CLL) is the most common form of chronic lymphoproliferative disease, prevalent especially at advanced ages. These patients are at increased risk of developing second malignancies. About 2% of CLL patients develop lung cancer, with adenocarcinoma being the most common histological subtype.
Case report: We report the case of a 74-year-old male retired agronomist who has been a smoker for 15 years (40 UMA), performance status 0, with known diagnoses of hyperuricemia, essential hypertension, dyslipidemia, and benign prostatic hyperplasia, which was medicated. History of CLL diagnosed in 2018 by guided biopsy of retroperitoneal bulky adenopathic conglomerate and root of the mesentery. Thoracic CT scan with mass in the apical segment of the right upper lobe with spiculated contours, air bronchogram and slight contact with the mediastinal pleura, initially attributed to lymphoma. The patient underwent chemotherapy with good response of the supra and infradiaphragmatic adenopathic component, maintaining the thoracic mass with the same dimensions and characteristics, so he was referred to Pulmonology consultation. Patient without significant symptoms and without relevant alterations at the objective exam. Analytically without changes. Negative viral serologies. Videobronchofibroscopy without alterations, with negative cultural exams, transbronchial lung biopsies and bronchial lavage negative for neoplasia. Endobronchial echoendoscopy was performed with mass aspiration with negative cytology. The case was discussed with the assistant hematologist and given the low probability that the lesion was lymphoma infiltration and given the patient's smoking history, the suspicion of neoplastic lesion was maintained, and fluoroscopic controlled videobronchofibroscopy and transbronchial pulmonary mass biopsy were repeated and was positive for lung adenocarcinoma.
Discussion: Given the asymptomatic patient and the permanence of the lung injury, the appreciation of the antecedents, the clinical suspicion and the multidisciplinary discussion are fundamental to justify the accomplishment and eventual repetition of complementary exams until the final diagnosis is clarified. Follow-up of CLL patients should include screening for solid tumors, including lung cancer, given the increased risk of second malignancies in these patients.

Keywords: *Chronic lymphocytic lymphoma. Lung cancer. Adenocarcinoma.*

PE 002. PULMONARY NEOPLASIA: LOOKS LIKE, BUT IT ISN'T

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Introduction: Technological advances in medical field represent a valuable tool for proper diagnosis and pathological staging - namely, lung cancer. Even so, the cases of false positives and negatives are not negligible, being several the conditions capable to mimic neoplastic lesions imagiologically. We present 2 clinical cases.
Case reports: Case 1: Male patient, 60 years old, professional electrician, active smoker (35 UMA), followed by COPD under combined inhalation therapy (LAMA + LABA) who, following hospitalization for infectious respiratory acutization, underwent thoracic high-resolution computed tomography (HRCT), identifying soft tissue mass, 50 mm in diameter, in the apical segment of the right upper lobe (LSD), mediastinal adenopathy and right pleural effusion. Positron Emission Tomography (PET-CT) showed hyper-uptake with a maximum late SUV of 9.3 and videobronchofibroscopy identified enlargement to the right of the upper lobe bronchus insertion spur and thickening of the posterior segment folds. After an anatomopathological result of negative bronchial biopsies for neoplastic cells, the patient underwent control thoracic HRCT, which showed a clear imaging improvement with almost total resolution of the mass previously described in the LSD, and only residual fibrotic stria was evident. Maintaining follow-up in consultation, repeated thoracic HRCT at

6 months, showing complete imaging resolution. Case 2: A 71-year-old male former smoker (55 UMA) and retired, followed by COPD with bilateral panlobular emphysema. Due to left pneumonia, he underwent antibiotic therapy, with clinical resolution of the condition. When the imaging alteration persisted, the patient underwent thoracic HRCT, identifying an irregular area of nodular aspect with 2.5 cm in the LSD. It was PET/CT, presenting discrete uptake in the areas of LSD densification (late maximum SUV of 1.3). We opted for lesion control with repeated thoracic HRCT at 3 months, with evidence of complete resolution.
Discussion: We present the cases due to the high clinical-imaging suspicion of pulmonary neoplasia in patients with regular COPD follow-up and its atypical evolution, highlighting the importance of serial evaluations for a correct diagnostic and therapeutic approach.

Keywords: *Pulmonary injury. Imaging resolution.*

PE 003. LUNG CANCER PATHWAY MODELING: CROSS-SECTIONAL ANALYSIS THE PROCESS OF DIAGNOSIS, STAGING AND THERAPEUTIC DECISION

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Introduction: Pathway modeling of patients with suspected lung cancer, from admission in a specialized clinic to all clinical investigation, allows for an individualized analysis of each step of the present protocol, showing all possible configurations to the same system.
Objectives: Analysis of the current process in a Pulmonology Department, using mathematical simulation techniques. Modeling of the system is based in a sample of data collected in the first phase of a joint research project to optimize the process of diagnosis, staging and therapeutic decision, included in a Biomedical Engineering Masters. This model analyzes the Department as a system, predicting all possible configurations starting from the observed sample.
Methods: System modeling was based in data from a sample (2016-2017) relative to waiting times in the workflow of patients within the Pulmonology Department, until the start of first-line therapy. We used empirical distributions and defined probability distributions based on a priori observation. We applied mathematical modeling techniques for simulation of discrete events, generating fictitious patients in a sequence of 1,000 hospitals, each with 77 patients, like the initial sample and protocol. Statistical analysis of the generated scenarios was compared with the results of the base sample and with published guidelines.
Results: Starting from a sample of 77 patients, predominantly male (72.7%), with a mean age of 66 ± 12, with a mean time from admission to start of therapy of 68 days (± 55.2), we searched all possible configurations to the same system. Simulation generated a mean time from admission to the first pathological exam of 14 days. Pathology waiting times were 31 days (± 27.2), assuming a maximum of 3 biopsies as observed in the initial sample. Mean time to therapy decision was 10 days (± 17.8), adding 7 more days (± 21.6) until start of treatment. Mean time of all simulated patients was 76 days (± 51.6), significantly worse than the initial sample, at the expense of third quartile deviation and increase in maximum time (420 days). In the simulated patients, 25% had a waiting time under one month.
Conclusions: The simulation presents a conservative scenario with a worse global performance than the initial sample, with lower adherence to guidelines, but representing possible scenarios in a more realistic way. In the next steps of the research project we will optimize the process in order to improve its performance, proposing and simulating a new clinical protocol. This applied methodology can be a useful tool to analyze complex hospital systems.

Keywords: *Lung cancer. Mathematical modeling. Waiting times.*

PE 004. PULMONARY BENIGN METASTASIZING LEIOMYOMA IN A POSTMENOPAUSAL WOMAN

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Case report: We report a case of a woman, 66 years old, who was referred to our department because of a routine chest X-ray that had revealed a right nodule. She was asymptomatic at the time and examination was normal. Her known medical conditions were asthma, hypertension and she had underwent hysterectomy for benign leiomyoma 26 years previously. She has never smoked. Her laboratory analysis were normal. CT chest scan revealed a homogeneous nodule in the middle lobe. PET/CT scan demonstrated an abnormal FDG uptake in this solitary nodule, without any other significant sites of abnormal FDG uptake. Flexible bronchofibroscopy was normal, and cytological examination of the bronchial brush, bronchial washing and bronchial secretions were negative. The lesion was not accessible by transthoracic needle biopsy, so after multidisciplinary meeting the patient was referred to thoracic surgery. It was performed middle lobe resection. Histopathology report was consistent with pulmonary benign metastasizing leiomyoma from a primary benign lesion in uterus. CT chest 6 months after surgery has not any lesion and until now, in a period of 1 year follow-up, the patient keeps asymptomatic and with a normal Chest X-ray.
Discussion: Benign metastasizing leiomyoma (BML) is an extremely rare disease. Even though they have a benign histology, it is known that benign leiomyomas can metastasize to distant sites, and the lung is one of the most affected organs. Their pathogenesis remains unknown and a consensual explanation for this metastatic behavior is still lacking. Radiological tests are not specific, meaning the only way to confirm this diagnosis still remains histopathological examination. As matter of fact, in this case, the patient had a solitary nodule with abnormal FDG uptake in PET/CT scan, which could suggest a primary lung tumor. Although this benign neoplasm is even more unusual in postmenopausal women, it should be suspected in any patient with a history of hysterectomy, no matter when it happens, as our current case, of a 66-years-old woman who underwent hysterectomy for benign leiomyomas 26 years ago. There are no guidelines for BML treatment, but surgery for diagnostic and therapeutic purposes has widely performed. Concerning prognosis, BML has a favorable outcome.

Keywords: *Metastasizing leiomyoma. Pulmonar metastasis.*

PE 005. MEDIASTINAL MASS IN A YOUNG ADULT: IS THAT ALWAYS SIMPLE TO RECOGNIZE?

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Introduction: Anterior mediastinal tumors represent 50% of all mediastinal masses and include thymoma, germ cell neoplasms, thyroid disease and lymphoma. Diagnosis can be difficult; however, factors such as age, clinical examination, laboratory studies and imaging findings can help identify the disease.
Case report: An 18-year-old Mozambican man arrived at the emergency department with history of weight loss and right anterior chest pain with pleuritic features for the previous 6 months; and cough with purulent sputum, dyspnea on exertion and fever for

1 month. Upon examination, he presented with face, neck and left arm edema, with collateral venous circulation on the anterior thorax. He could not tolerate dorsal decubitus, but was eupneic at rest. He had decreased vocal fremitus, dullness to percussion, and decreased vesicular murmur in the lower third of the right hemithorax. Non-tender hepatomegaly was detected. Splenomegaly or palpable peripheral adenopathies were absent. He was admitted to the Pulmonology department. The initial blood analysis documented C-reactive protein and LDH elevation. Chest radiography (CXR) showed mediastinal enlargement and right pleural effusion. A large heterogeneous anterior-medium mediastinal mass, with significant caliber reduction of the superior venous cava and left venous brachiocephalic trunk, bilateral pleural effusion and mild pericardial effusion were seen in the chest computed tomography (CT). A diagnostic and therapeutic thoracentesis drained pleural liquid with exudate features. CT-Guided Transthoracic Needle Biopsy was then performed. The histopathological examination of the biopsy sample and the absence of bone marrow infiltration set the diagnosis of T-cell lymphoblastic lymphoma (T-LBL). He was transferred to the Hematology Department for intensive treatment, but lymphoma was radio and chemoresistant. An allogenic bone marrow transplant was proposed; yet, no donors were found in time and the patient died.

Discussion: Although thymoma is the most common primary neoplasm of the anterior mediastinum, the typical occurrence on patients over 40 years of age and the absence of Myasthenia Gravis' signs made this diagnosis less probable. Regarding age itself, germ cell tumors were probable. Lymphomas represent 20% of all mediastinal tumors in adults and 50% in children. Non-Hodgkin lymphoma is responsible for only 15-25% of the cases, with T-LBL accounting for approximately 2%, typically occurring in children and adolescents, with a male predominance. Mediastinal involvement may be associated with pleural and pericardial effusion, vena cava syndrome, as observed in our patient. We present the case of a young man with mediastinal T-LBL, with bilateral pleural effusion and superior vena cava syndrome, demonstrating how CXR, an inexpensive and easy exam, can help guide the diagnosis. Differential diagnosis of mediastinal masses should include all its causes and be guided by prevalence, location and age.

Keywords: *Mediastinal mass. T-cell lymphoblastic lymphoma. Pleural effusion. Superior vena cava syndrome.*

PE 006. PERITONEAL CARCINOMATOSIS, A RARE CONDITION IN PULMONARY ADENOCARCINOMA

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Introduction: Lung cancer is the most common type of cancer in the world and accounts for the majority of cancer deaths. Lung adenocarcinoma is the most common type of lung cancer. Preferred metastatic sites are the liver, adrenal glands, brain and bones. Peritoneal carcinomatosis is a rare clinical event in patients with lung cancer. Clinical manifestations of these metastases are uncommon and include perforation and intestinal obstruction. These patients progress unfavorably.

Case report: Male, 58 years old, smoking 37 UMA. T4 stage pulmonary adenocarcinoma diagnosed (no PDL1 expression, no ALK translocation, no EGFR mutation, no ROS1 gene translocation) in October 2018. Positron tomography revealed: "Intense glycolytic hypermetabolism in two upper lobe masses of the left lung, slight FDG avidity in small nodules in both lungs, mediastinal-hilar adenopathy and a small right cervical adenopathy, suggesting malignant neoplastic infiltration". Decided in group consultation, perform 4 cycles of carboplatin + pemetrexed chemotherapy with reevaluation for possible radiotherapy. The reassessment CT after 3 cycles revealed signs of progression of the cancer disease. Discussed again in a group meeting and decided to conduct 2nd line treatment with docetaxel + nintedanib. He underwent revaluation CAT after the 2nd treatment cycle, which revealed stable disease, maintaining the treatment. At the 5th cycle of treatment the patient reported complaints of pain and increased waist circumference. Still drumstick fingers with altered nail texture. He underwent reassessment CT which revealed: "Signs of progression of the disease at the abdominal level, with peritoneal carcinomatosis, unmatched in the previous study." Given the complaints, the patient was hospitalized. PET repeated: "In the abdominal-pelvic region, there is intense FDG avidity in tissue densifications, some nodular, at the peritoneal/mesenteric level. These aspects are compatible with peritoneal carcinomatosis. " Discussed again at a group meeting and decided to perform 3rd line treatment with nivolumab. During the hospitalization period, the patient maintained abdominal complaints, being observed by general surgery and submitted to paracentesis with 4L ascites fluid drainage, but with no notion of symptom improvement. She presented general state degradation, presenting gait imbalance and oral loss. Requested collaboration from the palliative care team for symptomatic therapeutic optimization. The patient died in July 2019.

Discussion: This case report aims to expose a rare condition of peritoneal carcinomatosis in a patient with lung adenocarcinoma. In this clinical case, the patient presented rapid progression of the neoplastic disease and was submitted to three unsuccessful treatment lines. Peritoneal carcinomatosis is a diagnosis that should be considered in the presence of abdominal symptoms in a patient with lung adenocarcinoma.

Keywords: *Peritoneal carcinomatosis. Lung adenocarcinoma.*

PE 007. PNEUMOPERICARDIUM, A RARE COMPLICATION, IN A PATIENT WITH LUNG ADENOCARCINOMA

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Introduction: Pneumopericardium is a rare clinical condition. Possible causes include chest wall trauma, invasive pulmonary or cardiac surgical procedures, pericardial fistulae (resulting from carcinoma or suppuration), barotrauma, and pericarditis caused by gas-forming microorganisms. Clinical findings include: hypophonesis of heart sounds and Hamman's sign. Chest X-ray can confirm the diagnosis. Treatment depends on the underlying cause and is determined by clinical severity.

Case report: Patient 67 years old, smoker. History of hypertension, dyslipidemia and chronic alcoholism. He resorted to the emergency department for a month-long, slurred clinic of pleuritic pain, loss of strength and sensation in the left upper limb, productive cough and weight loss of 8 kg. From the investigation, stage IV pulmonary adenocarcinoma was diagnosed (PDL-1 expression in 78% of cells, absence of ALK gene translocation), with brain, bone, liver and ganglion metastasis. During the investigation period, the patient presented several complications, including: acute and occlusive deep venous thrombosis in the peroneal axes of the right lower limb, occlusive arterial disease in the femoropopliteal axes of the left lower limb and dysphagia for solids. Also during hospitalization, the patient reported an episode of pain related to the left shoulder, with radiation to the neck and feeling of aggravated dyspnea. He underwent an electrocardiogram that was unchanged. Analyzes with negative myocardial necrosis markers. Chest X-ray revealed hypertransparency around the cardiac silhouette, suggestive of pneumopericardium. Chest CT scan for diagnostic clarification confirming pneumopericardium due to the presence of a fistula between the neoplastic lesion and the pericardium (pericardio-bronchial fistula): Chest CT: "there is an extensive lesion in the left upper lobe, at least 7.7 cm, with pleural contact and contact with the hilum as well as the mediastinum. The lesion is partially cavitated and probably invades the me-

diastinum, with a lush pneumopericardium. It is assumed that the fistulization area is close to the hilum". The clinical case was discussed with Cardiology and Thoracic Surgery, which considered a poor prognosis situation, so conservative treatment was chosen. The patient eventually died three weeks later.
Discussion: Pneumopericardium is a serious clinical condition. In this clinical case, it is intended to portray its relationship with lung cancer. Treatment of pneumopericardium depends on the underlying cause and clinical severity. Usually the resolution is spontaneous within a few days. Pericardiocentesis or thoracic surgery may be necessary in cases of cardiac tamponade and/or hemodynamic instability. In this case, we opted for conservative treatment given the clinical stability of the patient and his poor prognosis.

Keywords: *Pneumopericardium. Lung adenocarcinoma.*

PE 008. PULMONARY MALT LYMPHOMA: 8 YEARS AFTER DIAGNOSIS

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Introduction: Primary lung Mucosa Associated Lymphoid Tissue (MALT) lymphoma is a rare malignant entity with unspecific clinical and imaging characteristics that are poorly defined in the literature and, therefore, can easily lead to a misdiagnosis.
Case report: We describe the case of a 72-year-old female patient with no relevant pathological history who had a right chest pain and asthenia with 3 weeks of evolution. During the course of the study, the patient underwent a chest X-ray showing heterogeneous, oval opacity and regular contours at the right paracardiac level. Computed tomography showed a large mass of 75 mm in diameter in the anterior segment of the middle lobe and also identified a 15 mm nodular formation of diaphragmatic location. Both lesions were PET-capturing and no involvement of regional ganglia was detected. After bronchofibroscopy, which excluded endobronchial lesion, and inconclusive transthoracic biopsies, the definitive diagnosis was only possible through surgical approach of the lesions and their immunohistochemical study, confirming a primitive MALT-type extranodal marginal zone lymphoma of the lung. The patient underwent right inferior and middle lobectomy, remaining for 8 years without evidence of disease recurrence.
Discussion: Pulmonary MALT lymphoma tends to evolve insidiously and may present as a large solid mass. The immunohistochemical diagnosis is fundamental to exclude other types of neoplasms with similar appearance but more aggressive evolution, as well as to adapt the treatment and thus contribute to a favorable prognosis in terms of long survival without relapses.

Keywords: *Primary pulmonary lymphoma. Pulmonary malt lymphoma. Survival.*

PE 009. TIME MATTERS: DELAYS IN THE PROCESS OF DIAGNOSIS, STAGING AND THERAPEUTIC DECISION IN LUNG CANCER

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Introduction: The study of the workflow of patients with suspected lung cancer, from admission to a specialized clinic to all clinical investigations, is complex and time-consuming. Delays in the process of diagnosis and staging can result in worst patient outcomes. There is no consensus about minimum recommended times for each stage of the process and there is very little data about the Portuguese situation.
Objectives: To analyze the present process in a Pulmonology Department, identifying its critical steps and comparing times in each stage with existing guidelines. These data consist in the first phase of a joint research project to optimize the process of diagnosis, staging and therapeutic decision, included in a Biomedical Engineering Masters.
Results: From a pool of 161 medical records we included 77 patients, with male predominance (56; 72.7%) and mean age of 66 ± 12 years. Mean time from admission to start of therapy was 68 days (± 55.2). Mean time to first biopsy was 12 days (± 23.7). Most patients underwent bronchoscopy (71.4%), which was conclusive in 54.6% of cases; 39 patients (50.6%) needed a second exam and 14 (18.2%) a third one. Transthoracic biopsy was most frequently performed as a second exam (13 patients) or third (5). Most frequent histology was adenocarcinoma (36; 46.8%) and 50 patients (63.7%) presented as advanced disease (stage IIIb or IV). Mean time from multidisciplinary decision to start of therapy was 14 days (± 25.6); however, there were great differences between modalities: 6 days (± 8) to chemotherapy, 5 days (± 2) to radiation therapy and 63 days (± 33) to surgery. Adherence to guidelines varied between 36.4% and 50.6% concerning total time and between 44.2% and 58.4% for time from diagnosis to start of treatment.
Conclusions: Total time of the process exceeded the main guidelines in 6 to 26 days; however, there was considerable heterogeneity and these results do not differ greatly from other published data. Time until therapy had a better performance but we found a serious obstacle in referral to surgery. Proposing an optimized workflow may shorten some critical stages and improve global performance, allowing for improvements in prognosis and in patient and multidisciplinary team's expectations.

Keywords: *Lung cancer. Waiting times. Staging.*

PE 010. SMALL CELL LUNG CARCINOMA. PROPHYLACTIC CEREBRAL IRRADIATION: LET'S PERSONALIZE?

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Introduction: The incidence of Small Cell Lung Carcinoma (SCLC) has been declining in recent years, but remains a major global public health problem. Small Cell Lung Carcinoma is characterized by its high aggressiveness and propensity for early metastasis. Patients with localized disease and complete response to systemic therapy or stable disease are candidates for Prophylactic Brain Irradiation (PCI), as about 38% end up with brain metastasis. PCI reduces the incidence of brain metastasis, increasing the survival of these patients.
Case report: Male, 76 years old, self-employed, retired (judge), former smoker, with a history of COPD and diagnosed with a SCLC, stage II-b (T2b, N0, M0). As the patient was not eligible for surgical therapy, a multidisciplinary meeting proposed concomitant chemotherapy and radiotherapy. Given the good response to therapy, PCI was performed (25 Gy dose in 10 daily fractions without saving the hippocampus). Two months after the end of PCI, the patient turned to the emergency service due to a progressive attention deficit, confusion and psychomotor slowing down. It evolved with depression of consciousness (Glasgow 10), akinetic mutism but no focal neurological deficits present. Infectious causes, brain metastasis, leptomeningeal carcinomatosis, catatonia and encephalitis were excluded with collaboration from colleagues from Neurology, Psychiatry and Radioncology. Of the exams performed, we highlight: head CT and MRI without secondary deposits; therapeutic trial with lorazepam was negative; negative anti-neuronal antibody screening; lumbar puncture without neoplastic cells or other alterations and electroencephalogram (EEG) with diffuse slow activity. Head

MRI revealed small vessel vascular disease with leukoencephalopathy, that despite of being a nonspecific pattern of changes, are changes consistent with PCI toxicity. Once other etiologies were excluded, supported by clinical history, further examination and multidisciplinary discussion of the neurocognitive toxicity of PCI became the most likely diagnostic hypothesis.
Discussion: Neurocognitive changes, in the context of PCI, are of multifactorial cause. All factors involved in its development should be considered and weighted in each patient to make the most appropriate decision (PCI vs expectant and vigilant attitude) according to risk-benefit and morbidity/mortality. This case report highlights the current discussions of the scientific community regarding the indication of PCI. Its safety has been much questioned, especially for its potential toxicity in neurocognitive functions, not questioning the associated benefits. In the previously presented patient, the neurocognitive toxicity of PCI was very important, without reversing the clinical picture initially described, resulting in the impossibility of continuing antineoplastic treatment. Based on current scientific evidence, PCI in localized CPPC disease, in response to systemic therapy or stable disease persistence, has significant gains in survival and reduced incidence of brain metastasis compared with the side effects present in most patients. The authors leave an alert that the decision to initiate ICP is judicious and personalized to each potential candidate.

Keywords: *SCLC. PCI. Neurotoxicity.*

PE 011. OBSTRUCTIVE SLEEP APNEA: RESORTS TO HEALTH CARE

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Introduction: Obstructive Sleep Apnea (OSA), with variable prevalence according to series, underdiagnosed, is predominantly associated with obesity and its comorbidities.
Objectives: To evaluate the resort to the Emergency Department (ED) and hospitalizations for cardiorespiratory causes of patients with OSA and to verify the association of symptoms with the treatment.
Methods: Retrospective study based on the analysis of patients' processes referred for Sleep Pulmonology consultation from the Inpatient Service or ED, diagnosed with OSA, between January 2017 and July 2018. Hospitalizations and resorts at ED were evaluated since 12 months before until 12 months after diagnosis. Continuous variables were expressed as mean and standard deviation and categorical variables as frequency and percentage. For the comparative analysis of continuous variables the Spearman correlation was used. For the comparative analysis of continuous and categorical variables, the Mann-Whitney U test and ANOVA were used. The significance level was defined as $p < 0.05$.
Results: 47 patients were included, of which 57.4% were male (n = 27), aged between 38 and 86 years (mean age: 68.2). Regarding comorbidities, 100% (n = 47) of the patients were overweight or obese, 89.4% (n = 42) had hypertension, 74.5% (n = 35) had dyslipidemia, 38.3% (n = 18) were diagnosed with type 2 DM and HF was present in 53.2% (n = 25) of the cases. 27.7% (n = 13) of the patients had COPD and 17% (n = 8) had asthma. Regarding symptoms, 83.8% (n = 31) reported fragmented sleep, 97.1% (n = 34) snoring, 60% (n = 21) witnessed apnea, 48.6% (n = 17) had nasal congestion and 34.4% (n = 11) morning headache. After diagnosis, 80.4% (n = 38) of the patients started treatment, and only 55.3% (n = 26) of the cases had AHI corrected. In the 12 months prior to diagnosis, 31.1% (n = 14) of patients were hospitalized at least once and 79.5% (n = 35) had at least one resort to ED. Over the next 12 months, 21.3% (n = 1) of the patients were hospitalized and 31.9% (n = 15) resorted to ED. Statistically significant associations were found between age and resorts to ED ($p = 0.023$) and hospitalizations ($p = 0.022$), between BMI and resort to ED ($p = 0.028$) and between the number of symptoms and hospitalizations in the 12 months after diagnosis ($p = 0.037$). It was also found that a greater number of attempts to adapt to CPAP is associated with a higher number of visits to the ED ($p = 0.042$) and hospitalizations ($p = 0.026$) in the 12 subsequent months.
Conclusions: As described in the literature, older age, higher BMI and more symptoms at diagnosis are associated with the need for more frequent resort to health care. In addition, better adaptation to CPAP treatment is associated with fewer emergency episodes and hospitalizations. Contrary to expectations, no statistically significant differences were found in the use of healthcare between patients who started and those who did not start treatment, probably due to the small sample size.

Keywords: *Sleep pathology. OSA. Health care.*

PE 012 OBSTRUCTIVE SLEEP APNEA IN PATIENTS WITH HEART FAILURE: WHAT ARE THE DIFFERENCES?

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Introduction: Obstructive sleep apnea syndrome (OSAS) and heart failure (HF) are common pathologies. The relationship between the two entities appears to be bidirectional, with prognostic impact, both being affected by other cardiovascular risk factors.
Objectives: To evaluate the prevalence of HF in OSAS patients and to characterize these patients.
Methods: Prospective study of patients referred to the Sleep Breathing Disorders (SBD) consultation of the University Hospital São João with suspected OSAS who performed level 3 polysomnography (PSG) and symptom based questionnaires in the first 6 months of 2019.
Results: There were 380 first SBD consultations, with confirmation of OSAS in 326 patients. The prevalence of HF in these patients was 16.6% (n = 54). Patients with OSAS and HF were mostly male (74.1%) and had a higher mean age than patients without HF (69 ± 12 vs 56 ± 12; $p = 0.000$). All patients with OSAS and HF had other cardiovascular risk factors, such as hypertension (83.3%), dyslipidemia (72.2%) and obesity (64.8%). There was a statistically significant association between the presence of more comorbidities and HF ($\chi^2 = 62.4$; $p = 0.000$). Concerning the etiology of HF, ischemic cardiomyopathy ranked first (38.9%), followed by hypertensive cardiomyopathy (24.1%) and multifactorial HF (18.5%). Most cases of HF had preserved ejection fraction (70.6%), with no association between ejection fraction and OSAS severity. The mean Epworth Sleepiness Scale (ESS) score was lower in HF patients (6.9 ± 4.4 vs 8.6 ± 5.5; $p = 0.037$). These patients also had less snoring (64.4% vs 68.1%) and more frequent complaints of nocturia (45.8% vs 36.8%), but the difference was not statistically significant. The proportion of cases of mild and severe OSAS in HF patients was identical (38.9% each), but with slightly higher mean AHI (29.2 ± 22.1/hour). Although the percentage of central apneas in PSG was higher in HF patients (8.1 ± 16 vs 3.2 ± 5.7; $p = 0.043$), this value is too low to have clinical significance. 67.8% of HF patients started treatment with positive pressure, more than those without HF ($\chi^2 = 12.96$; $p = 0.000$). There was no difference in the choice between continuous positive pressure (CPAP) or bi-level.
Conclusions: In this study, patients with OSAS and concomitant HF were older and had more comorbidities, which increases the complexity of their approach. Although the presence of HF revealed no impact on the severity of OSAS, it was associated with a higher proportion of patients in need of treatment. HF patients had less daytime sleepiness when assessed by the ESS, allowing to question the role of the questionnaire in these cases.

Keywords: *OSAS. Heart failure. Cardiovascular risk.*

PE 013. ARE ANIMALS OUR BEST FRIENDS IN THE BEDROOM?

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Introduction: Sleep-related disorders, particularly Obstructive Sleep Apnea Syndrome (OSAS), and the presence of extrinsic factors, such as pets in certain contexts, may influence sleep quality, and there has been growing interest of the scientific community on this theme over the last few years.
Objectives: To assess whether a pet in the bedroom or bed disturbs sleep.
Methods: Data were collected through a survey conducted in October 2017 and November 2018 at the Oriente metro station in Lisbon and April 2018 at the Oeiras' marina. Sleep quality and risk of OSAS were assessed using the Pittsburgh Sleep Quality Index (PSQI) and the STOP BANG questionnaire respectively. Animal-related data were collected by a questionnaire designed with the collaboration of a veterinarian.
Results: A total of 346 individuals randomly selected at the screening sites answered the survey. The mean age of the participants (70.5% women) was 48.4 years (SD 18.8) and body mass index was 21.7 kg/m^2 (SD 4.4). Of the sample, 59.8% of the individuals presented a low risk for OSAS and only 8.7% presented a high risk. In 47.4% of the participants, the quality of sleep was classified as poor. The mean score for STOP BANG was significantly higher in subjects with poor sleep quality ($p = 0.001$). In the PSQI, the mean number of sleep hours and the median of the latency time were 6.7h and 20 min, respectively. Regarding the number of mid-night awakenings per week, 22% did not wake up, 44.6% woke up more than 3 times and the remaining (33.4%) woke up 1 to 2 times a week. When asked if they had animals (dogs or cats), 49.4% answered yes. The animals slept in the bedroom in 55.5% of the sample and slept concomitantly in the bed in 78%. In the classification of the benefit of the animal sleeping in the room/bed, the majority (38.9%/40.6%) gave maximum rating. When asked if they would sleep better if the animal was not in the room/bed, 86.8% and 80% answered negatively to this question. We found a statistically significant association between having an animal and sleep quality ($p = 0.003$), that is, people who sleep with an animal have an Odds Ratio 0.49 (95%CI: 0.33-0.81), showing that sleeping with an animal may have a positive impact in sleep quality. When comparing the number of hours of sleep, the latency time and the number of night awakenings between people with and without animals in the room/bed, we did not find any statistically significant difference ($p = 0.933$; $p = 0.857$; $p = 0.280$, respectively).
Conclusions: In our country, a large proportion of the population sleeps with their animals in the bedroom. Although the scientific evidence regarding the impact of this behaviour in human sleep's quality is very scarce, in our study there seems to exist a statistically significant benefit of sleeping with domestic animals. More objective studies will be needed to evaluate the real effects of animals in the bedroom on human sleep.

Keywords: *OSAS. Animals.*

PE 014. VALUE OF APNEA-HYPOPNEA INDEX ON TYPE I POLYSOMNOGRAPHY VERSUS TYPE III POLYSOMNOGRAPHY

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Introduction: Hypopnea is defined as an oronasal airflow decrease of more than 30% for more than 10 seconds associated with an oxygen desaturation greater than or equal to 3% or associated with an arousal detected by electroencephalogram. Type III polysomnography (PSG), although indicated for the diagnosis of obstructive sleep apnea (OSA), does not allow for the detection of arousals, and for this reason, it is likely that in the same patient the apnea-hypopnea index (AHI) is lower in type III PSG when compared to type I PSG. The aim of this study is to compare, in the same patient, the oxygen desaturation index (ODI) and AHI between type III and type I PSG.
Methods: Retrospective study, which included all patients who, after performing a type III PSG, performed between January and April 2018 at the Coimbra Sleep Medicine Center a type I PSG to better characterize the clinical picture, with an interval between the two exams never exceeding one year.
Results: Included 51 patients, 54.9% male (n = 28), with a mean age (± SD) of 55.0 ± 12.9 years and mean BMI of 29.4 ± 4.5 kg/m^2. Mean interval between type III and type I PSG of 66.8 ± 40.8 days. Of these patients, 49.0% had associated cardiovascular disease, 27.5% excessive daytime sleepiness characterized by Epworth sleepiness scale ≥ 11 and 23.5% had none of these situations. 52.9% met OSA diagnostic criteria after type III PSG, increased to 70.6% after type I PSG. There was a statistically significant difference in mean AHI between the two exams, 8.8 ± 5.4/h in type III PSG vs 18.3 ± 13.8/h in type I PSG, $p < 0.001$; no difference was found in mean ODI value, 9.4 ± 5.4/h in type III PSG vs 8.5 ± 9.4/h in type I PSG, $p = 0.486$.
Conclusions: Since ODI was similar in the two exams and there was a significant difference in AHI, we can assume that the difference in AHI was essentially due to the different definition of hypopnea in these two exams. The association between arousals and cardiovascular risk is not as robust as ODI. This study comes to reinforce the need to better assess the impact of arousals as a cardiovascular risk and to question arousals as a criterion in defining hypopnea so as not to overvalue the diagnosis of OSA.

Keywords: *Type I polysomnography. Type III polysomnography. Hypopnea. Sleep.*

PE 015. SEVERE OBSTRUCTIVE SLEEP APNEA AND ORTHOGNATHIC SURGERY: A CASE OF SUCCESS

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Introduction: The first-line treatment for severe obstructive sleep apnea is CPAP. Recently, it has been reported that maxillomandibular advancement surgery can improve or eliminate obstructive sleep apnea in severe cases, however the results between studies are conflicting.
Case report: The authors describe the case of a 39-year-old man, BMI 27.1 kg/m^2, with history of arterial hypertension and anxiety and depressive syndrome. He had complaints of snoring, excessive daytime somnolence (Epworth 19/24) and witnessed apneas. He presented class II retrognathism and class III Mallampati. He performed polysomnography (PSG) that revealed a disturbance respiratory index (RDI): 79.6 events/h, compatible with the diagnosis of severe OSAS and started CPAP. Due to marked nasal obstruction, he was observed by a ENT specialist and because of the associated presence of tonsillar hypertrophy, redundant flaccid soft palate with long uvula, was submitted to septoplasty, bilateral partial inferior turbinectomy and uvulopalatopharyngoplasty. After surgery, the patient presented an improvement of diurnal somnolence (Epworth 10/24) and performed a new non-CPAP PSG that showed a RDI 27.8 events/h. After ENT surgery, the patient was referred to our Sleep Unit. PAP therapy was again proposed and despite the optimization of its parameterization and correction of adverse effects, CPAP adherence has not improved. Due to refusal of the first line treatment and due to class II retrognathism, he was referred to the Plastic and Maxillofacial Surgery Unit and was submitted to or-

tognathic surgery with bimaxillary advancements – Le Foret I and osteotomy plus bilateral sagital split osteotomy of rams of mandibula. Before surgery, the anteroposterior dimensions of airway levels (palate, tongue base and hyoid bone) were 15.5 mm, 14.8 mm and 15.7 mm, respectively. After surgery, all suffered a positive variation (2.1 mm, 1.5, and 1.1 mm, respectively). There was a significant symptomatic improvement (absence of snoring or daytime somnolence- Epworth 2/24) and a reevaluation sleep study, without CPAP, presented an AHI 1.4 events/h. The patient only reported paresthesia of the lower lip as adverse effect of surgery.
Discussion: This clinical case showed that an approach by a multidisciplinary team is essential for the therapeutic success of severe patients who can't adapt to CPAP, thus allowing a more personalized medicine.

Keywords: *Apnea. Sleep. Orthognathic surgery.*

PE 016. CHOOSING THE INTERFACE- NASAL OR ORONASAL MASK IN OBSTRUCTIVE SLEEP APNEA?

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Introduction: Obstructive sleep apnea (OSA) is a highly prevalent condition associated with obesity and specific craniofacial features, such as retrognathia. Given the increasingly recognized adverse consequences of OSA, optimizing treatment is an important goal. In moderate and severe cases, positive pressure therapy is the best treatment option. The choice of the interface is largely based on the clinician's personal experience and patient preference. However, oronasal masks may cause or exacerbate upper airway obstruction in some anatomically susceptible patients, directly by displacing posteriorly the mandible, and consequently the tongue and the soft palate.
Objectives: To evaluate the residual apnea-hypopnea index (AHI) after changing the oronasal mask to nasal mask with chin strap in OSA patients with obstructive respiratory events not completely controlled with positive pressure therapy.
Methods: We describe a case series of eight patients, previously diagnosed with OSA (alone or combined with other ventilatory conditions such as chronic obstructive pulmonary disease or obesity hypoventilation syndrome), who presented with a significant residual apnea-hypopnea index under positive pressure therapy applied by an oronasal mask. In this study, we excluded all the cases in which insufficient pressure settings or excessive air leak were suspected to be responsible for the worse results. In addition, we carefully assessed and denied other potential explanatory factors like changes in body weight or in sleeping position, as well as, alcohol or sedatives consumption.
Results: The eight patients (5 females; mean age: 72.9 ± 9.1 years; mean basal AHI: 40.6 ± 23.4 events/h) had a mean residual AHI of 13.9 ± 8.9 events/h. By changing the interface to a nasal mask associated with chin strap, the mean residual AHI was reduced to 4.4 ± 3.7 events/h. This beneficial effect was demonstrated on both ventilator modes - three subjects were under automatic continuous positive pressure (APAP) and five subjects under bilevel positive pressure (BiPAP). An additional decrease in pressure requirements on three patients on the BiPAP group, that were requiring very high values, was demonstrated. In all cases, the patients reported higher confort and a better sleep quality with the use of nasal mask.
Conclusions: We suggest that in patients with OSA, incompletely controlled by positive pressure therapy, with evidence of residual obstructive events and/or requiring high pressures to control OSA, the choice of the mask should be reviewed and considered a trial of nasal mask with chin strap.

Keywords: *OSA. Interface. Residual AHI. Oronasal. Nasal.*

PE 017. SLEEP APNEA IN CEREBRAL PALSY: AN OFTEN UNDERESTIMATED AGGRAVATING FACTOR

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Introduction: Perinatal hypoxic-ischaemic encephalopathy occurs in one to three per 1,000 live full-term births. Fifteen to 20% of affected newborns die in the postnatal period, and 25% develop severe long term sequelae, such as mental retardation, visual dysfunction, epilepsy and cerebral palsy. These patients have a higher prevalence of sleep disturbances than the general population, due to several factors. Visual impairment can suppress the normal secretion of melatonin, hindering the initiation of sleep. Nocturnal epilepsy disrupts sleep, and antiepileptic drugs diminish sleep quality. Cerebral palsy is characterized by reduced muscular tone in the upper airways, leaving them prone to collapse during sleep.
Case report: The authors present the case of a 19-year-old male patient, diagnosed with perinatal hypoxic-ischaemic encephalopathy, with the following sequelae: dyskinetic cerebral palsy, with a Gross Motor Function Classification System (GMFCS) score of V; epilepsy, well controlled under levetiracetam, with no seizures in the previous five years; and gastroesophageal reflux, treated with esomeprazole. Due to oropharyngeal dysphagia, he was fed through gastrostomy. He was admitted in the Pulmonology ward due to complaints of diurnal labored breathing and excessive sleepiness, nocturnal snoring, and apnea episodes during sleep witnessed by his mother. He presented with marked retrognathism and abundant sputum in the upper airway, which needed frequent aspiration. Breathing became significantly less labored during manual protrusion of the mandible. Polysomnography showed an apnea-hypopnea index (AHI) of 68 events/h (63 hypopneas and five apneas, mostly obstructive). It also showed long periods of desaturation, with oxygen saturation inferior to 90% during 83% of the time of study. Thus, the diagnosis of severe obstructive sleep apnea (OSA) was established. After titration during three nights, he was discharged, well adapted to nocturnal continuous positive pressure ventilation, in Auto-adjusting Positive Airway Pressure (APAP) mode, programmed for pressures between 10 and 14 cmH2O. He was reevaluated in Sleep clinic, presenting with a residual AHI of three events/h and controlled air leak. Adherence to treatment was adequate. Significant clinical improvement was achieved: increased alertness and improved humor during the day and a deeper, more peaceful sleep at night, with no snoring or apneas.
Discussion: OSA is a frequent comorbidity in patients with cerebral palsy, especially those with higher GMFCS scores. It has a significant impact on their lives and can be corrected. Dysphagia should raise suspicion of decreased tonus in the oropharynx, which increases risk of OSA. This case illustrates the gain in quality of life that can be achieved by treating OSA in such patients, bettering not only their lives, but their caretakers' as well.

Keywords: *Cerebral palsy. Obstructive sleep apnea. Non-invasive ventilation.*

PE 018. EXPLORATORY STUDY OF THE IMPACT OF HUMIDIFICATION ON THERAPEUTIC EFFICIENCY IN ADHERENT PATIENTS UNDER APAP THERAPY

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Introduction: The high pressures and flows used in PAP therapy may oppress the physiological mechanisms of upper airway and affect the respiratory system. Humidification makes this process more

physiological, improves the elimination of secretions and decreases the dryness and inflammatory response of the mucosa, decreasing the upper airway resistance.
Objectives: The aim of this study is to verify if the presence of humidification has an impact on the therapeutic efficiency in adherent patients under the APAP therapy.
Methods: Observational, retrospective and longitudinal study, held at Centro Hospitalar de São João. The sample consist in individuals with age between 35 and 85 years with diagnosis of OSAS, under APAP therapy with and without humidification, in the first phase of the treatment. Data from the first medical appointment before and after the therapy were analyzed, as well as the respective therapeutic report of the PAP equipment.
Results: The sample consists of 73 individuals distributed in two groups: the group without humidification (35 elements) and the group under humidification (38 elements). Statistically significant differences were found in the therapeutic efficacy between the groups, being this superior in the group with humidification.
Conclusions: The results of this study allow us to understand that humidification has a positive impact in the therapeutic efficiency in adherent patients under PAP therapy.

Keywords: *Ventilotherapy. Auto-CPAP. Obstructive sleep apnea syndrome. Humidification. Therapeutic efficiency.*

PE 019. RESOLUTION OF RESIDUAL CENTRAL SLEEP APNEA (CSA) AND CHEYNE-STOKES RESPIRATION (CSR) WITH SACUBITRIL-VALSARTAN THERAPY IN A SEVERE HEART FAILURE PATIENT UNDER CPAP TREATMENT

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Case report: The patient was a 67 years-old Caucasian male with severe chronic heart failure, NYHA class II-III, that was diagnosed with ischemic heart disease secondary to acute myocardial infarction (2006), with major cardiovascular risk factors. In the year 2010, a cardioverter-defibrillator was implanted, and four years after had an acute renal venous thrombosis episode and a Stage 3 kidney failure diagnose with significant right kidney hypertrophy. Echocardiogram performed in 2017, showed ischemic heart disease, apex akinesia and hypokinesia of left ventricular segments, grade 1 left ventricular diastolic dysfunction, severe left ventricular systolic impairment (LVEF = 20%), severe left ventricular dilation, moderate to severe left atrium dilation. N-terminal prohormone of brain natriuretic peptide (NT-proBNP) level 5,307 pg/mL. Pulmonary function tests performed were within normal values (FEV1 = 112.3%, FEV1/VC = 82.9%, DLCO/VA = 112.6%) and despite the absence of daytime excessive sleepiness (ESS = 4), screening for sleep disordered breathing was performed in 2017, with home respiratory polygraphy. Severe CSA was diagnosed, AHI = 35.3/h (59% of central events), ODI = 32.6/h, 55.1% snoring time, mean O2 saturation = 93%, minimum O2 saturation = 85%, T < 90% = 3.2%. Auto-CPAP (6/16 cmH20) with facial mask was initiated because adaptive servo-ventilation was contraindicated. Four days later the pressure was fixed at P90% and adjusted in the next appointment to 12 cmH20. Over 115 days of CPAP treatment, AHI was reduced from 35.3/h to 13.7/h and CSR was 28.6%, with approximately 8 hours/night compliance. There was no improvements with LVEF, NT-proBNP levels and symptoms. After medical reevaluation with a internal medicine appointment, the drug Sacubitril/Valsartan (Entresto) was prescribed to stabilize and optimize heart failure. In the next appointment the patient referred reduction of fatigue and dyspnea and there were also an immediate and sustained AHI reduction under CPAP treatment. Over 221 days under CPAP and Entresto, there were a mean AHI reduction from 13.7/h to 1.7/h, CSR mean reduction from 28.6% to 5.7%, with more than 8 hours/night compliance and 100% of CPAP use. The Echocardiogram performed after showed 2% improvement in LVEF but worse left ventricular diastolic dysfunction, right ventricular systolic function, and there were also an increase in NT-proBNP levels to 8,944 pg/ml.
Discussion: Under CPAP treatment, AHI was reduced from 35.3/h to 13.7/h and after Sacubitril/Valsartan initiation an immediate and sustained response over 221 days occurred with AHI reduction to < 5/h (mean 1.7/h) and CSR reduction from 28.6% to 5.7%. Despite initial symptom improvements and a 2% LVEF improvement, over time, progressive worsening of LV diastolic dysfunction and right ventricular systolic, and also an increase in NT-proBNP levels (from 5,307 to 8,944 pg/ml).

Keywords: *Central sleep apnea. AHI. Cheyne-stockes breathing. CPAP. Severe heart failure. Sacubritil/valsartan (Entresto). Echocardiogram. NT-proBNP.*

PE 020. BULLOUS EMPHYSEMA OR BULLOUS LUNG DISEASE?

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Introduction: Bullous lung disease is characterized by the presence of unilateral or bilateral bullae, surrounded by normal lung parenchyma. These bullae emerge from destruction, dilatation and confluence of airspaces distal to the terminal bronchioles. Bullae are bigger than 1 centimeter in diameter, and its walls are composed of compressed lung parenchyma. It is distinguished from bullous emphysema occurring with COPD (chronic obstructive pulmonary disease), the latter being characterized by the presence of centrilobular emphysema in a non-bullous parenchyma. Bullae originate in a variety of clinical and pathogenic contexts, including smoking, intravenous toxifilia, chronic destructive inflammation present in centrilobular emphysema, hereditary connective tissue disorders, traction by fibrosis or alfa-1 antitrypsin deficiency. Manifests primarily as dyspnea, and may complicate with pneumothorax, infection or bleeding. The treatment is preferentially surgical, and its outcomes are clinical improvement, improved tolerance to exercise and respiratory capacity.
Case report: The authors present the case of a 40 years old man, leukodermal, former smoker, smoking load of 24 pack-years, no history of heavy drugs abuse, suffered a spontaneous pneumothorax of the left lung by 2011. Followed in pulmonology consultation since 2016, presenting with rapid deterioration of lung architecture in relation to 2011, documented by thoracic CT (computed tomography) scan, on which one could observe complete air filling of the right hemithorax, conditioning contralateral deviation of mediastinum, and scattered microemphysema in the left lung with upper predominance, apical and paramediastinic parasseptal bullae that reach 5 centimeters. Under these circumstances it was investigated for surgical treatment. It stands out in the diagnostic examinations performed hypoxemia on arterial blood gas analysis, laboratory analysis documented normal alfa-1 antitrypsin and no alterations on serologic and connective tissue disease studies. Lung function tests (LFT) were not performed due to complication risks. Ventilation/perfusion scintigraphy documented almost total functional outbreak of the right lung, with a thin functioning parenchymal layer on the posterointernal edge, relative pulmonary perfusion on the right of 8% and on the left of 92%. It was performed resection of the right emphysematous bullae by toracotomy. The histological result revealed distal bullous emphysema. One year post-resection he presented with a remarkable evolution, a clear improvement was imagiologically documented with complete re-expansion of the right lung, maintaining small emphysematous changes. The LFTs documented no obstruction, FEV1 (forced expiratory volume in 1 second) of 3.89 liters, 101%, FVC (forced vital capacity) of 4.71 liters, 115% e DLCO (diffusing capacity for carbon monoxide) of 70%.

Discussion: This case reports a young individual with bullous destruction of lung architecture that is not proportional to that expected in the presumed diagnosis of COPD, with no other clinical context associated. It is then considered to be a bullous lung disease, which is defined as primary and rare, characterized by bullae occupying more than one third of the hemithorax, predominantly in the upper lobes, and more commonly seen in male smokers. There is not always a surgical therapy indication, which is more beneficial in younger patients with heterogenous emphysema. This is a rare case with notable results after surgical intervention.

Keywords: *Bullous emphysema. Bullous lung disease. Smoking. Resection. Thoractomy.*

PE 021. TRACHEOESOPHAGEAL FISTULA. A CASE REPORT

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Introduction: Tracheoesophageal fistulas are a pathological connection between the esophagus and the trachea, and may occur after surgical procedures, radiotherapy, chemotherapy, or airway compression. The placement of esophageal prostheses is an integral part of the risk factors for the development of tracheoesophageal fistulae, so the increase in their number of placements represents an increase in the number of associated complications. We present a case study of a tracheoesophageal fistula due to erosion of the esophageal prosthesis.
Case report: A 46-year-old, non-smoking woman with a history of stage IV non-Hogkin's lymphoma - conditioning esophageal obstruction due to extrinsic compression, requiring esophageal prosthesis placement and multiple replacements due to previous failure. The patient underwent chemotherapy and radiotherapy, and the last treatment was completed approximately one year ago. She resorted to the emergency department, 30 days after the last replacement of the esophageal prosthesis, due to dyspnea at rest and coughing during swallowing, with associated dysphagia. From the imaging evaluation performed by chest axial computed tomography (CT), tracheoesophageal fistula was documented and, therefore, submitted to esophageal prosthesis replacement and tracheal prosthesis placement. Due to multiple previous esophageal interventions, the trachea presented multiple deformities in its posterior wall, observable during videobronchofibroscopy with tracheoesophageal fistula 3 cm from the carina. In this context, she underwent rigid bronchoscopy with the placement of a 16/40 mm prosthesis. The fistula was covered and the main bronchi fully permeable. The clinical course was gradually favorable and the tracheal prosthesis was reviewed after one week without any complications.
Discussion: Tracheoesophageal fistulas are a serious complication of multiple factors, in particular from invasive esophageal procedures. In patients with esophageal prostheses, or with other risk factors associated with the possibility of formation of tracheoesophageal fistulas, it is of paramount importance to pay attention to alarm signals for early and effective intervention to resolve them.

Keywords: *Tracheoesophageal fistula. Tracheal prosthesis. Neoplasia.*

PE 022. ENDOBRONCHIC TUBERCULOSIS: AN ENDOSCOPIC TRIP

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Tuberculosis remains a global health problem. It affects millions of people each year and is a leading cause of death in developing countries. Endobronchial tuberculosis (EBTB) is defined as tracheobronchial tree tuberculous infection with microbial or histopathological evidence. The incidence of EBTB is not known, as bronchoscopy was not routinely implemented in all cases of pulmonary tuberculosis. In 1943, a study conducted at a tuberculosis sanatorium, EBTB was observed in 15% of cases by rigid bronchoscopy and in 40% of autopsy cases. Since the availability of antituberculosis therapy, the reported incidence of EBTB in patients with pulmonary TB varies widely from 6% to 54% in various studies. EBTB can affect any part of the tracheobronchial tree. The main bronchi, bilaterally superior lobar bronchi and right middle lobar bronchus are the commonly affected sites. The clinical manifestations of EBTB vary according to the location, extent of involvement or stage of the disease and may be acute or insidious onset. Symptoms may be secondary to the disease itself or related to complications of the disease such as endobronchial obstruction. Localized wheezing and decreased vesicular murmur may occur if there is stenosis from the endobronchial lesion. However, these symptoms and signs may simulate other diseases such as malignancy, bronchial asthma, foreign bodies, and recurrent pneumonia. EBTB is difficult to diagnose because the lesion is not always evident on chest X-ray often and therefore delaying treatment. Additional investigations such as chest computed tomography and bronchoscopy are often needed to diagnose and evaluate bronchial lesions such as stenosis or obstruction. Bronchoscopy is the most valuable method for establishing early diagnosis and assessing prognosis in EBTB. Ancillary procedures such as biopsy, brushing, needle aspiration, bronchoalveolar lavage, and endobronchial ultrasound may be used to establish the diagnosis and rule out any other underlying or concomitant disease, such as malignancy. Endoscopic findings range from mucosal hyperemia and edema, granulomatous elevations, irregular mucosa covered with caseous secretions, ulcerations, intraluminal mass, luminal fibrostenosis, fistula formation with suppuration of caseous material from the mediastinal or hilar ganglia. EBTB treatment is similar to pulmonary tuberculosis. Corticosteroids have been used as adjunctive therapy in the treatment of EBTB, but their role is still controversial. Corticosteroids may be useful in the early stages of EBTB, when hypersensitivity is the predominant mechanism, but in later stages they are less likely to be useful. Corticosteroids have shown improvement in clinical outcomes when used in children. The main objectives of EBTB treatment are eradication of infection and prevention of tracheobronchial stenosis. The evolution and prognosis are mainly related to the degree, extent and duration of lesions before treatment. Therefore, early diagnosis and proper treatment are required to avoid complications. The authors present as endoscopic images some cases of endobronchial tuberculosis diagnosed at the Pulmonology Unit of the Sagrada Esperança Clinic in Luanda-Angola.

Keywords: *Endobronchial TB. Tuberculosis. Bronchofibroscopy.*

PE 023. ULTRASOUND GUIDED TRANSTHORACIC NEEDLE ASPIRATORION BIOPSY. THE EXPERIENCE OF A SERVICE

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Introduction: Lung cancer is one of the leading causes of death worldwide and is increasing each day. Transthoracic Needle Aspiration Biopsy (TNAB) guided by Thoracic Ultrasound is an alternative to avoid invasive surgical procedures in the diagnosis of thoracic pathologies.
Objectives: Review the results and complications of five Ultrasound-guided TNAB performed at Hospital Santa Maria, Intervention Pulmonology Unit and to correlate their data with bronchofibroscopy biopsy results.
Methods: We evaluated a total of five patients, all with a mass (between 5-15 cm) with pleural contact visible by thoracic ultra-

sound (40% with left lower lobe mass, 40% with right lower lobe mass and 20% with right upper lobe mass). Eighty percent of the patients were male, average age was 71 years (between 57-78) and 80% were smokers or former smokers. At the time of the procedure 100% had PS 1 and no coagulation changes. All patients underwent bronchofibroscopy with collection of bronchial secretions, bronchoalveolar lavage, and bronchial biopsies before TNAB.
Results: One hundred percent of the patients had histological diagnosis by TNAB compared to zero percent by bronchofibroscopy. The most common histological type was adenocarcinoma (40%) followed by cell pavement carcinoma (20%), undifferentiated pleomorphic sarcoma (20%) and pleural fibrous tumor (20%). All examinations occurred without complications during the exam and in the first 48h.
Conclusions: This study concludes that thoracic ultrasound-guided TNAB is an excellent ally in obtaining the histological diagnosis of patients with thoracic masses. The diagnosis is made quickly, safely, with low risk of complications and low economic cost.

Keywords: *Transthoracic needle aspiration biopsy. Ultrasound. Cancer.*

PE 024. METASTATIC MELANOMA - INAUGURAL DIAGNOSIS BY EBUS-TBNA AND EUS-B

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Introduction: Endobronchial ultrasound-transbronchial needle aspiration (EBUS-TBNA) is currently a mainstay of the mediastinal and hilar staging of non-small cell lung cancer. This technique also allows the diagnosis of mediastinal and hilar involvement due to extrapulmonary primary neoplasms and infectious and inflammatory diseases. Regarding metastatic melanoma, scientific literature recognizes that the samples obtained by EBUS-TBNA are adequate for its diagnosis and/or staging. We report a clinical case in which this procedure led to the inaugural diagnosis of this neoplasm, in a clinical context primarily suspicious of metastatic primary lung cancer.
Case report: A 67-year-old male, 50 pack-years smoker, with a previous history of obesity, hypertension and diabetes mellitus and no history of oncologic disease, is referred to Oncologic Pulmonology outpatient consultation due to two-month long intermittent chest pain and involuntary weight loss. Chest CT scan showed two left lower lobe lung masses, multiple left mediastinal and hilar lymph node enlargement suspicious of malignant involvement, multiple hypodense liver nodules and lytic lesions on multiple ribs suggestive of bone metastases; 18F-FDG PET-CT scan showed hypermetabolism of these lesions (lung masses with SUVmax 16.5). No endobronchial lesions were identified through fiberoptic bronchoscopy. Considering the location of the lung parenchymal lesions, not safely accessible by transthoracic lung biopsy, and the absence of biopsy endobronchial lesions by bronchoscopy, the decision to perform diagnostic EBUS-TBNA was taken after multidisciplinary discussion of the case. Thus, EBUS-TBNA and EUS-B were performed under general anesthesia. 4L (10 mm short axis), 7 (conglomerate, 20 mm short axis) and 11L (conglomerate, 34 mm short axis) lymph node stations were identified and sampled. Rapid on-site cytological evaluation was not performed due to the unavailability of this technique in our institution. No postprocedural complications happened. In histopathological analysis, populations of markedly pleomorphic cells, with vesicular nuclei with prominent eosinophilic nucleoli and amphophilic cytoplasm, often containing brown pigment, with cell areas of necrosis, were identified in all lymph node stations; the immunohistochemical study revealed strong and diffuse immunoreactivity of neoplastic cells for S100, SOX10 and HMB45, with no immunoreactivity for CAM5.2, BerEP4, CD34, desmin and OCT4. Thus, the investigation led to the diagnosis of metastatic melanoma (mutated NRAS, BRAF wild-type) in the absence of any skin lesions compatible with primary cutaneous melanoma. Systemic palliative treatment with pembrolizumab was started, however the patient's general condition rapidly declined, which led to the discontinuation of the therapy. The patient eventually died approximately 7 weeks after the establishment of the histological diagnosis.
Discussion: Melanoma commonly has mediastinal and/or hilar lymph node metastases, which can be found in up to 55% of patients at autopsy. However, the inaugural mediastinal diagnosis of this neoplasm is rare, particularly in the absence of identifiable primary skin lesion. This case report exemplifies the clinical utility of EBUS-TBNA in the diagnosis of extrapulmonary primary neoplasms with primary or metastatic mediastinal and/or hilar involvement, namely melanoma.

Keywords: *Endobronchial ultrasound. Mediastinal and hilar ganglionic stations. Metastatic melanoma.*

PE 025. HAEMOSTATIC TAMPONADE IN THE CONTROL OF SEVERE HEMOPTYSIS ABOUT THREE CLINICAL CASES

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Introduction: Hemoptysis is a common and severe clinical symptom that when not treated in time can lead to death. Several methods are used for the treatment of acute hemorrhage such as surgery, bronchial artery embolization and bronchoscopic treatments. We describe three clinical cases of patients with severe hemoptysis, whose control was performed by rigid bronchoscopy with regenerated oxidized cellulose hemostatic tamponade (Surgicell®).
Case report: The first case concerns an 80-year-old female patient with a history of left breast cancer who had undergone chemotherapy and radiotherapy 30 years ago. The patient was referred to the emergency department with moderate hemoptysis. The chest CT scan showed changes in the left upper lobe (LUL) compatible with radial pneumonitis. Due to the increase amount of blood loss, she underwent rigid bronchoscopy with the placement of a Surgicell® tampon on the apical segment of the LUL with control of the bleeding. The second case is a 48-year-old female patient with right lower lobe bronchiectasis (RLL) sequelae to severe complicated empyema pneumonia. The patient resorted to the emergency department due to massive hemoptysis with hemodynamic compromise with the need for intubation for airway protection and necessity of using rigid bronchoscopy and placement of Surgicell® at the RLL bronchus to control the bleeding. Due to massive bleeding with difficulty in control, the patient underwent right middle and lower bilobectomy. The last case is an 18-year-old female patient with bronchiectasis in the left lower lobe (LLL) sequelae to pulmonary tuberculosis. The patient resorts to the emergency department due to moderate hemoptysis with hemodynamic stability. Videobronchofibroscopy was initially performed, which documented active and voluminous hemorrhage at the level of the left basal pyramid impossible to contain by topical measurements and was subsequently submitted to rigid bronchoscopy with Surgicell® placement. Due to extensive pulmonary destruction, the patient underwent left lower lobectomy without any complications. All patients are stable, without any new episodes of haemoptysis since the hospital discharge.
Discussion: Hemoptysis remains an important and sometimes challenging medical issue. No therapeutic form is universally superior and each case needs to be addressed. Oxidized cellulose hemostatic plugging is a safe, effective and easy-to-perform technique for controlling severe hemoptysis without removing material as it is completely resorbable. Even though this treatment is mostly used as a temporary procedure (clinical case 2 and 3) it can also be used as a definitive treatment (clinical case 1).

Keywords: *Hemoptysis. Rigid bronchoscopy. Surgicell®.*

PE 026. TRACHEAL STENOSIS AS INITIAL MANIFESTATION OF VASCULITIS

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Introduction: Granulomatous polyangiitis (GP) is a necrotizing granulomatous vasculitis that predominantly involves small and medium-sized vessels. The upper airway, lung and kidney are the most frequently involved organs. Initial signs and symptoms of GP are usually nonspecific and the time until diagnosis can be relatively prolonged. In GP, tracheobronchial involvement is less common, particularly with tracheobronchial tree stenosis, but it may be potentially severe and life-threatening.
Case report: A 49-year-old former smoker with no other relevant history presented with a 1-month history of dysphagia, bilateral otalgia, progressive worsening dyspnea, and haemoptoic sputum, with later onset of stridor. Laryngoscopy demonstrated subglottic stenosis. In this context, the patient performed chest CT scan that showed irregular and circumferential thickening of the larynx and upper trachea. Spirometry had a flow/volume curve with fixed upper airway obstruction morphology. In bronchofibroscopy, an ulcerated and irregular tracheal mucosa was observed and the biopsy revealed an inflammatory process with ulceration and granulation tissue. Initially, the suspicion of vasculitis was raised, but since the patient had no other suggestive complaints and had no alterations in the immunologic study and given several respiratory infections, it was assumed that the etiology of the stenosis was more likely to be postinfectious. Thus, she was treated with corticosteroid and antibiotic therapy and had improvement of dyspnea and stridor. Half a year later, she had an episode of dyspnea at rest and stridor, and bronchoscopy showed worsening of stenosis with a reduction of the tracheal lumen of about 90%, requiring urgent endoscopic intervention. Subsequently, the patient was followed up with repeat bronchoscopy and the stenosis remained stable. However, cutaneous lesions (purpuric) appeared in the region of the legs and buttocks, whose biopsy was compatible with leukocytoclastic vasculitis. She repeated the immunological study, this time positive for PR3-ANCA. Thus, the diagnosis of granulomatosis with polyangeitis was established, with otorhinolaryngological, cutaneous, renal and tracheal involvement. The patient started induction treatment with corticosteroids and cyclophosphamide and then maintenance treatment with azathioprine. At the time of writing, the patient was clinically stable with no evidence of tracheal stenosis, even though maintenance treatment was discontinued about a year earlier.
Discussion: Tracheal stenosis can have several causes and represents a diagnostic and treatment challenge. We present this case due to the difficulty in diagnosing vasculitis as a cause of tracheal stenosis, given the initial absence of other symptoms and alterations, namely in the immunological study. If vasculitis is suspected, the absence of changes in the immunological study should not exclude the diagnosis and prevent initiation of treatment as these changes may appear later. In this patient, the diagnosis of GP was made one year after the inaugural manifestation of tracheal stenosis, which led to a delay in treatment outset.

Keywords: *Tracheal stenosis. Vasculitis.*

PE 027. TRACHEOBRONCHOPATHIA OSTEOCHONDROPLASTICA: A RARE ENTITY

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Introduction: Tracheobronchopathia osteochondroplastica is a rare disease, characterized by the presence of small bone and cartilaginous nodules in the submucosa of the trachea and bronchi. Its etiology is not known, nor are any risk factors reported. It is often an incidental find during bronchoscopy and it presents a benign evolution. In rare cases it may symptomatic, with airway obstruction (dyspnoea and stridor) or haemoptysis.
Case report: A 79 year-old woman, with exposure to biomass fuel, and history of chromophobe renal cell carcinoma, with bilateral nephrectomy, under haemodialysis (HD) for 2 years, hypertension and hypothyroidism. She had also contact with a tuberculosis patient, several decades before. The patient complained of a 2-3 month non-productive cough and anorexia. A thoracic CT scan showed consolidative areas and a tree-in-bud pattern, mostly on the right upper lobe. There were also middle lobe and lingular atelectasis, and incipient bronchiectasis. Thus a flexible bronchoscopy and a pulmonology appointment were requested. On the bronchoscopy a tracheal diameter reduction was observed, alongside with multiple vegetative lesions on its entire circumference, except the posterior wall. These lesions were also present in the right main, intermediary and lobar bronchi. There were no lesions in the left bronchi, only abundant purulent secretions. The biopsy revealed unspecific inflammation and the microbiologic analysis was negative for mycobacteria, and a piperacillin/tazobactam, trimetoprim/sulfametoxazol and ceftazidime resistant Pseudomonas aeruginosa was identified. She was assyptomatic at the pulmonology appointment. An initial eradication attempt with high-dose quinolone as performed, without success, followed by i.v. amicacyn and ceftazidime, and finally with inhaled colistin for 3 months. In between, during and after the different antibiotic regimens the identification of Pseudomonas aeruginosa persisted, although with a variable resistance pattern. There were no exacerbations during this period and now she is under surveillance.
Discussion: This case represents the paradigm of this entity. An immunosuppressed patient which, due to complains of cough and thoracic image suggestive of pulmonary infection, undergoes a bronchoscopy, where this disease was an incidental finding. The incidence of this disease is estimated between 0.01% and 0.41%, although it may be underestimated, since it is usually asymptomatic, and identified as an incidental finding during an endoscopic exam. This case is useful to remind the benign nature of these lesions, and the need to exclude other differential diagnosis such as cancer, sarcoidosis and amyloidosis. Tracheobronchopathia osteochondroplastica does not require any treatment, except when there is airway obstruction or haemoptysis. The therapeutic strategy on this patient was limited to the eradication of Pseudomonas, which was not effective. An apparent bronchial extension of these alterations and the immunosuppressive status may have contributed to the lack of success.

Keywords: *Tracheobronchopathia osteochondroplastica. Pseudomonas aeruginosa.*

PE 028. BENIGN SUBGLOTTIC STENOSIS: A CLINICAL REPORT

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Introduction: Benign subglottic stenosis is a rare entity, mainly found in women. Delay in diagnosis and misdiagnosis are common. There are several known causes of subglottic stenosis which need to be excluded for establishment of the definitive diagnosis.
Case report: We report the case of a 73-year-old female patient with known medical history of obesity, hypertension, dyslipidaemia, depressive disorder and epilepsy. She had past history of a total hysterectomy and a bilateral anexectomy 30 years ago with post procedure complications demanding mechanical invasive ventila-

tion. Patient complained about chronic cough, episodic dyspnoea and wheezing for 8 months. There were no known triggers and she denied consumptive symptoms. Due to symptomatic worsening, patient consulted her family doctor who prescribed her with bronchodilator, diuretic and a vasodilator therapy attaining a slight improvement of her symptomatology. Blood analysis showed no modification of acute inflammatory parameters. In a follow-up consultation, pulmonary function testing was executed and the spirometry showed a suggestive pattern of upper airway obstruction. A neck and thoracic CT scan was performed, however, no relevant conclusions were found. Patient was referred to the thoracic surgery clinic and, by then, stridor was noted by the physician. Thence, patient was subjected to a flexible bronchoscopy where a membranous eccentric circumferential stenosis on the subglottic area reducing the lumen in 80% was revealed. On the interventional bronchoscopy department, airway dilatation with cold cuts and sequential debridement was achieved, retrieving 85% of lumen permeability. A day after the procedure, sudden respiratory distress and stridor motivated observation in the emergency department where flexible bronchoscopy revealed vocal cords oedema and a proximal tracheal eccentric stenosis determining a lumen permeability of 50%. It was assumed as post-procedure complication. Patient was treated with oral corticosteroid during 5 days with complete clinical resolution. Four weeks later, re-evaluation bronchoscopy showed a preserved lumen.
Discussion: Benign subglottic stenosis may arise decades after tracheal manipulation. Exclusion of a number of entities is required. This demands an adequate exhaustive diagnosis study. Re-establishment of lumen permeability is well achieved using endoscopic procedures. Nevertheless, more complex stenosis probably benefits from multidisciplinary management and may require surgical intervention.

Keywords: *Stenosis. Stridor. Interventional bronchoscopy. Endoscopic procedures.*

PE 029. A LUNG SEALED BY WEGENER GRANULOMATOSIS

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Introduction: Wegener granulomatosis is a multisystem disease of unknown cause characterized by a necrotizing granulomatous vasculitis, affecting predominantly the upper respiratory tract, lung, and kidneys. Pulmonary involvement occurs at some stage of the disease in about 80% of patients, with a wide spectrum of patterns. The classic respiratory feature is multiple pulmonary nodules which may cavitate. Concentric wall thickening is another possible manifestation and may lead to airway stenosis. The etiology of the stenosis is still unclear and difficult to determine. Bronchoscopy is a useful tool to further characterize the bronchial stenosis resulting from the disease.
Case report: 24 year old patient, male, working in private security. Non smoker. Personal history of Wegener granulomatosis with pulmonary (cavitated pulmonary nodules), nasal, renal, cardiac and immunologic manifestations. Medicated with prednisolone, torasemide, bisoprolol, Trimethoprim/sulfamethoxazole, esomeprazole, ramipril, ivabradine and rituximab every 6 months. Treated with Cyclophosphamide in 2018. Observed in a Pneumology consultation after a Chest CT-Scan revealed "condensations in both upper lobes, more evident in the left lobe, with a slight homolateral deviation of the mediastinum, suggesting a probable bilateral atelectasis" The bronchoscopy revealed a complete occlusion of both upper lobes and yellow plates in the main right bronchus posterior external wall. Several biopsies were collected which showed unspecific chronic inflammation. Afterwards, a rigid bronchoscopy was performed to collect more biopsies and to try to reopen both upper lobes. In the rigid bronchoscopy, the operators could see a complete closure of both upper lobes, with a membranous area in the center, which was punctured using a bronchoscopy probe in both upper lobes, followed by a balloon dilatation. Operators managed to progress with the bronchoscope in the left upper lobe, the same was not possible in the right upper lobe. After puncture, the distal left tree contained pus of elastic consistency in moderate quantity. There was also a concentric stenosis in the branches of both upper lobes containing granulation tissue. The patient stayed in the Hospital for monotorization and was discharged after 1 day, with a Pneumology appointment scheduled. In the follow up chest X-ray there was no significant improvement of the atelectasis in both upper lobes.
Discussion: Bronchial stenosis are possible manifestations of Wegener granulomatosis which can cause severe functional deterioration. These lesions must be researched in any case of pulmonary abnormality in the course of the disease. In this clinical case, a total occlusion was found in both upper lobes. The bronchoscopy assumed an important role not only in the diagnosis, but also in the attempt of reopening the upper lobes which, at the moment, was only possible in the proximal branches.

Keywords: *Wegener granulomatosis. Bronchoscopy. Bronchial stenosis.*

PE 030. RECURRENT RESPIRATORY PAPILLOMATOSIS IN A LARYNGECTOMIZED PATIENT

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Introduction: Recurrent respiratory papillomatosis (RRP) is a rare condition caused by human papilloma virus (HPV) characterized by the presence of benign papillomatous (wartlike) growths within the respiratory tract. Its incidence is estimated at 2 per 100,000 in adults and 4 per 100,000 in children. Bronchoscopy is the most reliable method for the diagnosis with direct visualization of lesions and collection of biopsy samples for definitive histopathological diagnosis. Authors present a case of RRP in a patient with a history of larynx epidermoid carcinoma.
Case report: Caucasian male, 53 year-old, ceramic worker, presented with haemoptysis. Former smoker (50 pack-year) on remission of larynx epidermoid carcinoma (T4N0) for 7 years (2003), after a total laryngectomy, tracheotomy and radiotherapy in follow-up with ENT specialist. He had had two previous myocardial infactions and was on aspirin, clopidogrel, carvedilol, ramipril, atorvastatin and pantoprazole. On auscultation, diffuse in- and expiratory wheezing was found. Chest X-Ray had no alterations and laboratory analysis only noted for haemoglobin level of 12.0 g/dl. Flexible bronchoscopy showed multiple tracheal polypoid formations associated with two large nodular lesions on the carina and right main bronchus resulting in significant obstruction. Rigid bronchoscopy was conducted with lesion biopsy and also neodymium yttrium aluminum garnet (Nd:YAG) lasertherapy for airway clearance. Biopsy revealed epidermoid metaplasia and squamous papilloma. Rigid bronchoscopies that followed found similar lesions and YAG laser was performed recurrently. The diagnosis of tracheal papillomatosis was assumed as repeated biopsies were negative for malignant cells and had positive p16 expression, being negative in the previous larynx epidermoid biopsies. After application of topic mitomycin, there was a decrease in the rate of papilloma recurrence as well as the need for lasertherapy. However patient died in 2018 due to myocardial infarction.
Discussion: RRP have a benign nature, however, lesions tend to grow causing severe airway obstruction and are liable to recurrence after resection. Distal spreading to the pulmonary parenchyma occurs in about 1% of cases and malignant degeneration has been described at a rate of 3-7%. Expression of p16 is correlated with highly oncogenic HPV type 16 but also associated with improved survival comparing to negative p16 epidermoid carcinomas. In this case, p16 expression showed to be focal in the papillomas (and

negative for the larynx epidermoid carcinoma), raising the challenge when sampling may be misleading for final diagnosis/prognosis. RRP is a relatively rare disease that can cause life-threatening airway compromise and being a challenge for clinicians as there is no definitive curative treatment available.

Keywords: *Recurrent respiratory papillomatosis. HPV. P16 expression. Epidermoid carcinoma.*

PE 031. GOLDEN BRONCHOALVEOLAR LAVAGE

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Introduction: Hereditary spherocytosis is a red blood cell disorder that courses with hemolytic anemia. Intravascular hemolysis leads to hyperbilirubinemia because bilirubin is one of the heme degradation products. When bilirubin enters the alveolar space it may inactivate the pulmonary surfactant. There is still not much information about these findings and changes.
Case report: A 70-year-old man, independent, non-smoker, with a history of hereditary spherocytosis, atrial fibrillation under anticoagulation, is referred to Pulmonology for imaging findings. He had a history of pneumonia diagnosed in the context of yellow-green productive cough, which resolved with empirical antibiotic therapy; later, he presented episodes of wheezing predominantly at night and reappearance of scarce yellowish productive cough. Chest CT scan revealed adenopathies in the right aorto-pulmonary and hilar window; consolidation associated with ground glass opacities in the right basal posterolateral segment, and ground glass opacities at the right upper lobe and middle lobe level, suggestive of pneumonic process; solid-shaped fusiform lesion with homogeneous enhancement in left paravertebral topography 34 × 20 mm. At the pulmonology consultation, due to maintenance of symptoms, without constitutional symptoms, crackles in the right base to pulmonary auscultation, he underwent a bronchofibroscopy that revealed "Yellowish plaques throughout the bronchial tree, predominantly in the regions of the cartilage rings. Mucous secretions, in scarce amount, scattered throughout the bronchial tree, predominantly right basal"; bronchoalveolar lavage (BAL) revealed a canary yellow liquid. Biochemical analysis showed increased bilirubin; microbiology had mixed bacterial flora; lymphocyte subpopulation count showed lymphocytic alveolitis with low CD4/CD8 ratio; the liquid cytology didn´t have hemosiderocytes, and the sample presented essentially lymphocytes. Subsequently, he underwent a transbronchial lung biopsies that showed only signs of infection. The patient underwent antibiotic therapy with improvement of symptoms. Throughout the follow-up, the patient keeps coughing and yellowish sputum, in scarce amount, but without any radiological or functional aggravation.
Discussion: With this case report we intend to highlight a rare change in BAL. Bilirubin is known to cross the alveolar-capillary barrier and it is understood that elevated serum bilirubin levels lead to jaundiced BAL staining. However, there is scarce data on bilirubin in BAL, and the cases described refer to patients with sickle cell anemia with acute pulmonary pathology, making this case even more peculiar.

Keywords: *Bronchofibroscopy. Bronchoalveolar lavage. Hyperbilirubinemia. Hereditary spherocytosis.*

PE 032. EVALUATION OF THE ROLE OF FLEXIBLE BRONCHOSCOPY IN THE MANAGEMENT OF CHRONIC COUGH

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Introduction: Chronic cough is one of the most important respiratory symptoms and a major cause of referral for evaluation by a pulmonologist. The algorithms utilised in the diagnosis of chronic cough support sequential investigations and treatment trials for the most common causes: asthma, post-nasal drip and gastro-oesophageal reflux disease (GERD). However, the role of flexible bronchoscopy (FB) in the management of chronic cough – which patients benefit most from the procedure and the best time to perform it – has not yet been fully clarified.
Objectives: To evaluate the role and clinical utility of FB in the diagnostic investigation of patients with chronic cough.
Methods: Retrospective analysis of the clinical records of patients undergoing FB with the indication of chronic cough between 2014 and 2019.
Results: A total of 46 patients underwent FB. Before the procedure, 44 (95.6%) patients had already some radiologic evaluation – 21 by chest X-ray and chest computed tomography, 17 patients by X-ray only, and 6 by chest CT only –, and 39 (84.8%) patients had performed pulmonary function tests. On visual inspection, 13 (28.3%) FB were described as normal and 33 (71.7%) were abnormal. The majority of abnormal findings were signs consistent with chronic bronchitis in 16 (48.5%) patients, bronchomalacia in 7 (21.2%) and signs of chronic bronchitis plus bronchomalacia in 5 (15.1%). Microbiologic assessment of the bronchial aspirate (BA) or the bronchoalveolar lavage (BAL) was performed in 45 patients; 5 had potentially pathogenic organisms on culture but antibiotic treatment based on antimicrobial susceptibility testing did not result in improvement in cough. Cytologic examination was performed in specimens from 45 patients; 3 had signs of inflammation and 1 signs of colonization with Actinomyces spp. In the study population, 24 individuals were eventually diagnosed with one of the three main causes of chronic cough (11 with asthma, 9 with post-nasal drip and 4 with GERD). Other diagnoses were bronchial hyperreactivity (5 patients), psychogenic cough (3), sarcoidosis (2), COPD (1) and Sjögren's syndrome (1). In 9 patients, there was no clinical information regarding the final diagnosis.
Conclusions: FB has a role in certain patients with chronic cough, especially those with unexplained persistent cough. Even when considered inconclusive/non-diagnostic, its realization allows the exclusion of potentially fatal causes. Local protocols for the diagnostic approach to chronic cough may help to select the patients who will benefit most from the examination, and to avoid it in those where it will add little diagnostic value.

Keywords: *Chronic cough. Flexible bronchoscopy. Diagnosis.*

PE 033. CT-GUIDED TRANSTHORACIC BIOPSY: RESULTS AND COMPLICATIONS

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CHUC.

Introduction: CT-guided transthoracic biopsy (CT-TTB) is often used in the diagnosis of lung masses with a reported diagnostic accuracy of 92.1%. This study aims to determine the diagnostic accuracy at the Centro Hospitalar e Universitário de Coimbra, the most prevalent diagnoses and their complications, as well as looking for predictors of diagnostic success.
Methods: Retrospective study, selected all patients who underwent a CT-TTB on nodules and masses, solid or cavitated, between January and June 2019 in a tertiary hospital.
Results: 34 CT-TTB were performed in 28 patients, 53.6% male with a mean age (± SD) of 66.2 ± 11.8 years. 29 solid nodules/masses and 5 cavitated nodules/masses. Diagnostic accuracy was 38.2% with detection of six lung adenocarcinomas, three squamous cell carcinomas, one large cell neuroendocrine carcinoma of the lung, one carcinoid, one fibroelastosis and one tuberculosis. In the remaining exams, the histological result was undetermined, not representative or normal parenchyma. No predictors of success in diagnostic accuracy were found, namely maximum SUV in 18F-FDG PET/CT (5.9 ± 6.9 vs 4.8 ±

5.7 when confirmed histological diagnosis, p = 0.621), lesion diameter (33.4 ± 25.0 vs 43.3 ± 24.9 mm, p = 0.273), distance to the lesion (60.3 ± 18.3 vs 58.9 ± 11.6 mm, p = 0.804) or age of the patient (65.1 ± 11.3 vs 68.1 ± 12.9 years, p = 0.499). The complication rate was 32.4%, with 3 patients requiring a chest tube placement for iatrogenic pneumothorax; the remaining complications were thin lamina of pneumothorax, alveolar hemorrhage and limited hemoptysis.
Conclusions: The diagnostic accuracy was lower than that described in the literature. The most frequent diagnoses were malignant neoplasia. No predictors of success in diagnostic accuracy were found. Major complication rate was 8.8%.

Keywords: *CT-guided transthoracic biopsy.*

PE 034. PARA ALÉM DA NEOPLASIA INICIAL

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Case report: A 65 year old male previously diagnosed with a lung adenocarcinoma in 2011 submitted to a lobectomy after chemotherapy and radiotherapy, develops a primary adenocarcinoma of the colon 7 years after the first diagnose, unrelated with the first neoplasm. This case shows the importance of the maintenance of the appropriate screening programs in all patients.

Keywords: *Colon adenocarcinoma.*

PE 035. A RARE FORM OF PRIMARY INTRATHORACIC TUMOUR: A CHALLENGING APPROACH

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Introduction: Solitary fibrous tumours of pleura are primary neoplasia derived from pluripotent cells of fibrous mesenchyme; their occurrence is relatively rare. Possible differential diagnoses range from primary tumours of mediastinum to pleural sarcoma and mesothelioma.
Case report: We present a clinical case of a non-smoker seventy-one-year-old female that was referenced to pulmonology department, reporting left posterior chest pain and exertion dyspnoea. Thirteen years ago, she was submitted to thyroidectomy for a multinodular goitre, being medicated accordingly since then. On physical examination, she had no external chest abnormalities. A decrease of respiratory sounds at the lower two thirds of left hemithorax was evident on pulmonary auscultation. The chest Computorized Tomography (CT) scan demonstrated a contrast-enhanced bulky mass, with extensive necrosis and sketch of calcifications, occupying most of left hemithorax; the mass conditioned partial collapse of adjacent lung and contralateral mediastinum deviation; pleural thickness and effusion coexisted. Any suspected bronchial lesions were identified on flexible bronchoscopy. Magnetic Resonance Imaging (MRI) of the chest confirmed a pleural-based, encapsulated tumour, causing compression but not direct invasion of adjacent structures. Diagnostic investigation was pursued through transthoracic cutting needle biopsy of the referred mass, whose histological examination demonstrated fibrosclerotic tissue, with foci of spindle cell density. Immunohistochemical analysis was supportive of a pleural solitary fibrous tumour. We defined a presumable solitary pleural tumour with features of connective tissue origin, low proliferative index and absence of lymphadenopathy or distant metastasis. The patient was accepted for surgical resection of tumour, which comprised the removal of a pleural nodule, the bulky mass and three mediastinal nodules. Unexpectedly, the subsequent pathological examination demonstrated a multinodular tumour with well-differentiated component "lipoma like" and high-grade sarcoma component, with foci of osteosarcoma and chondrosarcoma. A complete exeresis of tumour and pulmonary re-expansion were achieved through surgery. Regardless institution of appropriate treatment, her clinical status deteriorated, requiring hospitalization and ventilatory support. One aspect that favours a pleural origin of tumour is the fact that the mediastinum is compressed and dislocated, contrary to what occurs in the presence of a mediastinal mass.
Discussion: The surgery allowed a curative-intent treatment; the close collaboration from thoracic surgeons was of significant impact. This case illustrates an unusual form of chest neoplasm whose management is both challenging and remarkable.

Keywords: *Pleura solitary tumour sarcoma.*

PE 036. NIVOLUMAB INDUCED BULLOUS PEMPHIGOID IN THE TREATMENT OF LUNG CANCER

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Introduction: Treatment with immunologic checkpoint inhibitors has arisen in recent years as an alternative treatment or complement to chemotherapy in several cancers, including in lung cancer. With the increasing use of this kind of therapies, different toxicities have also emerged. Bullous pemphigoid it's an autoimmune dermatologic disease, extremely pruritic, characterized by the development of tense bubbles and more frequently observed in the elderly. It is a potentially severe dermatological toxicity induced by immunotherapy.
Case report: This is a case of 77 years male, ex-smoker, with excellent general status (ECOG's Performance Status of 0). He was diagnosed with a lung adenocarcinoma in August of 2017, in T2b N3 M1c (pleural metastization and in both adrenal glands) stage, with PD-L1 expression in 10% and without EGFR or ALK mutations. He was submitted to two lines of chemotherapy. After bone, lymph node and adrenal progression, the treatment with nivolumab was started in October 2018. He was treated with nivolumab with good tolerance and stable disease until the end of June of 2019, when she started having pruritus in the thorax (anterior and posterior) and lumbar region, initially isolated, without skin lesions. A few days after the onset of pruritus appeared small vesicles on forearm that sprawled to the rest of the upper limbs and back, despite being medicated with a low dose of corticoid and antihistaminic. On this point, treatment with nivolumab was postponed, with a short-term clinical evaluation scheduled. In the re-evaluation, the patient presented blisters and vesicules almost in the totality of his tegument, with several healing phases. In With the worsening of the lesions and symptomatology, the patient was referred for a dermatology urgent observation in which was performed a skin biopsy. Nivolumab was maintained suspended and the patient was medicated with a high dose of systemic corticoid. Skin biopsy confirmed the initial suspicion that we were facing a case of bullous penfioid. The lesions presented a total regression and after the reduction of the corticoid, Nivolumab was restarted.
Discussion: The present case is a grade III adverse reaction (by the CTCAE 5.0 scale), of gradual evolution and considerable impact on the patient's quality of life. Dermatological toxicity secondary to treatment with immunologic checkpoint inhibitors is most often reflected in mild adverse reactions, but in certain cases can be developed serious, life-threatening diseases as Stevens-Johnson syndrome, erythema multiforme, drug rash with Eosinophilia and Systemic Symptoms (DRESS) and Bullous pemphigoid. These reactions imply a multidisciplinary approach with the discontinuation of immunotherapy, sometimes definitively. Early detection and appropriate guidance are essential in order to minimize consequences.

Keywords: *Immunologic checkpoint inhibitors. Bullous penfioid. Cutaneous iatrogeny. Lung cancer.*

PE 037. LUNG MASS IN A SMOKING YOUNG PATIENT

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Introduction: Association of multiple myeloma with lung plasmacytoma and primary plasmacytomas of the lung are both exceedingly rare. The most typical thoracic manifestations of MM are bony involvement of the thoracic cage. Radiographs usually demonstrate hilar or mid lung mass, but peripheral lesions can occur. Sheets of plasma cells usually form a solitary nodule.
Case report: We present a case history of a 32-year-old Caucasian male admitted in our department with complaints of right hip pain for 6 months and right-sided chest pain of 2 weeks duration with intermittent moderated pain. He had no history of fever, cough, weight loss, anorexia, shortness of breath or hemoptysis. The patient was a regular smoker and an occasional drinker. His past recent medical history included a lumbar hernia surgical procedure and a metatarsal fracture. Physical observation showed no significant abnormality except pain to limb mobilization. Laboratory results revealed a white blood count of 12 × 10^9/L, haemoglobin of 139 g/L, creatinine of 0.082 mmol/L and c-reactive protein of 95.2 nmol/L. Urine analysis revealed traces of proteins. His chest radiograph showed a rounded and homogeneous opacity in the upper lobe of the right lung. A computed tomographic scan of the thorax confirmed the presence of a lobulated mass with a 6 cm diameter in the right apex with a contiguous invasion of the chest wall. It also showed micronodules in the upper lobe of the right lung and in the inferior left lobe. Multiple vertebral and rib osteolytic lesions were also present. Brain CT scan revealed multiple osteolytic lesions scattered around the base and skullcap. Pet-TC scan with FDG-F18 confirmed the presence of a proliferative process in the upper lung alongside multiple osteolytic lesions with low metabolic activity (3.5 SUV), not typical of lung cancer. Bronchoscopy with transbronchial biopsy was negative. Later a transthoracic needle biopsy was made, revealing the presence of atypical plasma cells, compatible with plasmacytoma. Serum immunoglobulin revealed increased IgG (292.9 µmol/L) and decreased IgM (0.144 µmol/L) and IgA (0.438 µmol/L). Tumour markers were negative, except for beta-2 microglobulin (2603.9 nmol/L). Electrophoresis showed a monoclonal spike in the gamma zone. Urinary and serum immunofixation revealed the presence of Kappa light chains. Immunohistochemical profile was positive for CD138. Bone Marrow biopsy revealed 55% plasmocytes. A diagnosis of Multiple Myeloma (MM) was made. Dexamethasone, bortezomib, thalidomide was started.
Discussion: Despite the rarity of MM presentation with pulmonary plasmacytoma, especially in young patients, this diagnostic hypothesis has been suggested (and later confirmed), based on the high measurement of total blood proteins and a PET-TC scan not compatible with a metastatic pulmonary neoplastic disease with bony involvement. Pulmonary involvement of MM is associated with rapid progression and poor prognosis, with an overall 5-year survival rate of 40%.

Keywords: *Lung mass. Chest pain. Plasmacytoma.*

PE 038. STAGE IV NON-SMALL CELL LUNG CARCINOMA (NSCLC) UNDER TYROSINE KINASE INHIBITORS (TKI) WITH PROGRESSION-FREE SURVIVAL ABOVE AVERAGE

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Introduction: Currently about 40-50% of NSCLC patients are in stage IV when diagnosed. The 5-year survival rate is only 6%, however due to new targeted therapies this number has increased. In a subset of patients with NSCLC and EGFR mutation it has been consistently shown that tyrosine kinase inhibitors such as Erlotinib, Gefitinib and Afatinib promote superior progression-free survival compared to conventional chemotherapy.
Case report: We present a 63-year-old non-smoking woman, with background of asthma, was referred to our consult with complains of right chest pleuritic pain, without cough, sputum, loss of weight or anorexia. No abnormalities were found in her physical examination. A computed tomography(CT) scan and latter a positron emission CT (PET-CT) revealed a 42-mm opacity in the apical region of right lower lobe (SUV 5.0), a 14 and 19-mm opacities in the median lobe (SUV 1.1), a 12-mm pulmonary nodule (SUV 2.4) and two 16-mm mediastinal lymphadenopathies, lower paratraqueal and subcarinal (G7 station: SUV 2.4). Bronchofibroscopy showed signs of extrinsic compression on right middle bronchus and lower lobe medial bronchus. Transbronchial biopsy revealed an adenocarcinoma poorly differenciated with genetic studies showing c.2235_2249 deletion13InsC (p.Glu746_Ala750dei) in exon 19 of EGFR gene, with negative ALK and PDL1 0%. Transbronchial needle aspiration (G7 station) was negative. It was also performed a magnetic resonance imaging of the brain which presented a 6 mm isolated superficial lesion on cortical region of the brain, posterior margin of right precentral gyrus, compatible with secondary lesion, without neurologic symptoms associated. There weren't any bone, abdominal or pelvic lesions. So the patient was diagnosed with right lung adenocarcinoma with brain metastasis on stage IVA, T4N0M1b, PS 0. Brain metastases were successfully submitted to brain radiosurgery (RS). While waiting for genetic studies, the patient started chemotherapy, Platino and Pemetrexed, completing 3 courses, with minimal changes in each lesion. With genetic results it was made a switch to Erlotinib, although due to intolerance and sustained neutropenia, it was switched to Afatinib (after 2-months). It was observed a volumetric reduction of 50% on pulmonary lesions and regression of mediastinal lymphadenophaties, within 3-months of therapy with TKI, and after 5-months, a right lung bilobectomy was performed (median and inferior lobes), ypT1aN0. Adverse effects (AE), such as grade 1 diarrhea and ocular toxicity, were noted with Afatinib that were allayed with dose reduction. After surgery we kept therapy with Afatinib until nowadays.
Discussion: It hasn't been observed any recurrence after 27 months of brain RS and 21 months of thoracic surgery. Thus, we underline the importance of an aggressive approach in oligometastatic disease, namely thoracic surgery and brain RS, which contributed to a longer than expected survival rate. Thus, we also question the extent to which therapy with TKI should be maintained since the patient has not had any visible disease for 21 months.

Keywords: *Oligometastic disease. Afatinib. NSCLC.*

PE 039. PROGRESSION FREE SURVIVAL AFTER STEREOTACTIC BODY RADIATION THERAPY: RETROSPECTIVE STUDY

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Introduction: Early-stage clinical diagnosis of lung cancer has become increasingly true, with surgical resection remaining the main therapeutic approach in the absence of contraindications. If contraindications are present stereotactic body radiation therapy (SBRT) is a good alternative, given its' safety and low risk for adverse effects. Empirical treatment with SBRT has become an eventual concern for overtreatment of potentially benign lesions in patients with multiple pulmonary co-morbidities.
Objectives: To compare progression-free progression (PFS) of patients undergoing SBRT empirically for treatment of the solitary lung nodule with those also undergoing SBRT who were diagnosed after biopsy.
Methods: We retrospectively selected the patients followed at Pulmonology consultation for solitary lung nodule that, after decision

at a multidisciplinary meeting, and regarding the diagnostic probability of lung cancer associated with radiological changes and the value of SUV on positron emission tomography (PET), underwent SBRT between January 2016 and January 2019, and documented their evolution until July 2019.
Results: We included 10 patients submitted to SBRT with a mean dose of 47 Gy (12 to 60 GY) and a mean number of 5 fractions (3 - 8). They were 90% men (N = 9), average age 74 years (min 61; max 83). All had heavy smoking habits (mean 79.4 UMA) and moderate to severe chronic obstructive pulmonary disease. Three patients had a history of nonpulmonary neoplasia. 90% (N = 9) were in stage I or II and 10% (N = 1) in stage III (T ≤ 30 mm). Average follow-up was 17 months (6-39 months). About 40% (N = 4) were diagnosed by biopsy (N = 3 - pulmonary adenocarcinoma; N = 1 - pavement-cell carcinoma), while 60% (N = 6) underwent SBRT empirically. Recurrence was observed in 2 patients. No adverse effects were in either group. PFS was compared between the group of patients who underwent SBRT empirically and those who had a histological diagnosis proven by biopsy. The Kaplan-Meier method was used. It was found that there is no statistically significant value between the two groups (mean PFS in the group without diagnosis: 23 months (95%CI: 9.45-37.66) and mean PFS in the group with diagnosis: 17 months (95%CI: 3.56-30.44, p value = 0.316)).
Conclusions: Thus there is no statistically significant difference in PFS between patients who underwent SBRT empirically and those who had a diagnosis proven by biopsy. Although the sample size is small, the results are in accordance with the results described in the literature. It is noteworthy the need to obtain a diagnosis given the possibility of performing targeted therapy in case of neoplastic recurrence.

Keywords: *Stereotactic body radiation therapy. Progression-free survival. Solitary lung nodule.*

PE 040. ANOMALOUS ORIGIN OF THE LEFT PULMONARY ARTERY FROM THE AORTA: HEMODYNAMIC AND RESPIRATORY FUNCTIONAL CONSEQUENCES

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Introduction: Congenital heart diseases include a large range of cardiovascular alterations, some of them more common and others rarer. Anomalous origin of the right pulmonary artery from the ascending aorta is a rare anomaly, but anomalous origin of the left pulmonary artery from the ascending aorta is even rarer (especially if without any other associated cardiac malformation).
Case report: We present the case of a 34 years old female patient. She had been previously diagnosed with pulmonary hypertension due to large patent ductus arteriosus). She was medicated with sildenafil but she decided to interrupt treatment and abandon follow-up appointments. Years later, after a spontaneous abortion (16 weeks) she was referred to a Pulmonary Hypertension Centre. On physical examination she had an increased pulmonary component of the second heart sound, continuous heart murmur in left sternal border, no cyanosis (saturation of upper and lower limbs was 100%), no jugular engorgement, hepatomegaly nor lower limbs edema. The performed echocardiograms (both transthoracic and transesophageal) showed an estimated systolic pulmonary artery pressure of 125 mmHg with right ventricular systolic dysfunction. The left pulmonary artery branch was not seen and a right patent ductus arteriosus was confirmed. Associated congenital cardiac defects were excluded. The thoracic computed tomography showed mosaic perfusion pattern, with distal airspace hyperinflation, suggesting ventilation/perfusion anomalies. Since pulmonary artery left branch was not visualized a cardiac magnetic resonance was performed, revealing right aortic arch and a right patent arterial duct connecting the right pulmonary artery to the descending aorta. The pulmonary artery left branch had its origin on the ascending aorta. The right side catheterization showed mean pulmonary artery pressure of 86 mmHg, and pulmonary vascular resistance of 11 Wood Units. A large persistent arterial duct to the right pulmonary artery was confirmed with persistent left to right shunt (shunt fraction 1.2). The left branch was visualized when injection was performed in the aortic root. The pulmonary function testing revealed a mild restrictive syndrome with total lung capacity (TLC) of 3.40 liters (74.5%). The forced vital capacity (FVC) was 1.62 liters (50.9%) and the forced expiratory volume in one second (FEV1) was 1.46 liters (50.3%). The FEV1/FVC ratio was 0.90. The patient also had a mild reduction in carbon monoxide diffusion capacity (DLCO): 60.5%, which became 86.7% when corrected to alveolar volume. The arterial blood gases revealed pH 7.423, carbon dioxide tension (pCO2) 34.9 mmHg, oxygen tension (pO2) 68.2 mmHg, bicarbonate 23.1 mmol/L and oxygen saturation (sO2) 95.5%.
Discussion: The present case exemplifies an extremely rare combination of congenital heart disease and its hemodynamic and respiratory functional consequences.

Keywords: *Pulmonary hypertension. Congenital heart disease. Hypoxemia.*

PE 041. WHEN LUNG AND HEART GET ENTANGLED

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Introduction: Partial anomalous pulmonary venous connection (PAPVC) is a rare congenital anomaly reported to be between 0.4-0.7%. PAPVC describes the connection of at least one pulmonary vein but not all, to the systemic venous system or right atrium. Many patients escape diagnosis until adulthood. Depending on the magnitude of the left-to-right shunting, symptoms may include exertional dyspnea, palpitations associated with atrial arrythmias, and symptoms of right-sided heart failure and pulmonary hypertension. The management of isolated PAPVC is controversial given the rarity of this anomaly, the limited data and complexity of surgical repair.
Case report: A 51-year-old Caucasian woman with a past medical history of epilepsy and depressive syndrome. Referred to pulmonology because she presented a 1-year history of productive cough with mucous sputum and progressive dyspnoea on exertion. She had no fever, weight loss or other symptoms. On examination, she had a systolic murmur II/VI audible throughout the precordium in cardiac auscultation. She had done a thoracic CT scan that revealed "asymmetric thorax, with decreased left pulmonary field and homolateral deviation mediastinum probably in relation to pleural thickening involving the costal basal pleura (...) enlargement of the pulmonary artery trunk in relation to pulmonary hypertension." As a child she had contact with a family member with tuberculosis, so she had a sputum culture for tuberculosis, that was negative. For a complementary study the patient had respiratory functional study with small airway obstruction only, arterial blood gas with hypocapnia (paCO2-29.7 mmHg and paO2-84.2 mmHg), transthoracic echocardiography with "right atrial dilatation, PSAP 36 + 3 mmHg, mild inferolateral pericardium effusion, without functional impairment and normal left heart function". Her blood tests had negative autoimmunity study and viral serologies and NTproBNP 215 pg/ml. She had a thoracic Angio-CT that revealed "congenital heart anomaly translated as an abnormal partial venous return of the right upper lobe with double drainage to the superior vena cava and left atrium, with no images suggestive of pulmonary thromboembolism". Currently, she is awaiting right cardiac catheterization to confirm the diagnosis of Pulmo-

nary Arterial Hypertension Group 1 (Associated with congenital heart disease) and assess the possibility of surgical correction.
Discussion: Anomalous pulmonary venous drainage (APVD) is the drainage of one or more pulmonary veins outside the left atrium. Its detection is critical due to the strong association with congenital heart disease as well as other cardiac and respiratory anomalies, which have significant implications for patient management. On top of volume loading to the right ventricle, APVD is one of the treatable causes of pulmonary hypertension in adults

Keywords: *Congenital heart disease. Pulmonary arterial hypertension group 1. Abnormal partial pulmonary venous return.*

PE 042. TB OR NOT TB: THAT'S THE QUESTION

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Introduction: Tuberculosis is an important public health problem, with a considerable socioeconomic impact in Portugal, a medium incidence country nowadays. Clinical picture is variable – it ranges between non-specific complaints (fever, constitutional symptoms) to organ-specific ones (cough, hemoptysis, pleuritic chest pain) and the epidemiologic context is fundamental to identify the index case. These general symptoms might be present in other pulmonary diseases, such as lung cancer.
Case report: The authors present a case of a non-smoker, 67-year-old male gardener, without any previous relevant medical history. He was observed in the emergency room for progressively worsening asthenia lasting for a week, and weight loss of 10 Kg (14%) in 3 months. On physical examination, he was hemodynamically stable, had no fever and peripheral oxygen saturation of 86% in room air. He presented superficial painless cervical adenomegaly (< 1 cm), decreased breath sounds and crackles on the base of the right lung. Blood tests showed increased inflammatory parameters and negative HIV serology. Blood gas analysis showed hypoxemia with normocapnia. The chest radiograph revealed diffuse micronodular reticular infiltrate (miliary pattern) and bilateral blunting of costophrenic angles. To better characterization of the findings of chest X-ray a CT scan was performed, revealing a large volume pericardial effusion and pleural effusion, bilateral perihilar ground glass lesions and a consolidation on the upper right lobe. Therefore, the diagnosis of complicated micronodular pneumopathy was assumed, with probable infectious (Pulmonary tuberculosis/pneumonia) or neoplasic aetiology. He was admitted for IV therapy with Amoxicillin-clavulanate and Clarithromycin. On the 5th day of admission, due to the worsening hypoxemia and fever, antituberculous therapy was empirically started. The patient underwent Pericardiocentesis, with drainage of sero-hematic fluid, which cytology was positive for Pulmonary Adenocarcinoma (CK-BerEP4, CK7 and TTF-1 positive and Calretinine, CK20 and CDX2 negative). Bronchial biopsy revealed Pulmonary Adenocarcinoma and cultures for Mycobacterium tuberculosis were negative, so antituberculous therapy was suspended. Staging study revealed osteoblastic lesions suggesting secondary involvement in several vertebrae (T3-T4, T7, L1-L4 e S2), iliac bone, costal grid and left femur. Multidisciplinary debate concluded that palliative rachis radiotherapy should be performed. Genetic study revealed EGFR exon 19 deletion, and the patient started target therapy with Osimertinib.
Discussion: The authors' aim was to highlight that, in spite of tuberculosis significant incidence in Lisbon metropolitan area, different aetiologies should be considered on the approach of a radiological miliary pattern. Therefore, it is necessary to consider atypical microorganisms, occupational diseases and malignancy.

Keywords: *Pulmonary tuberculosis. Miliary pattern. Lung adenocarcinoma.*

PE 043. CUTANEOUS ATYPICAL MYCOBACTERIOSIS IN AN IMMUNOCOMPETENT HOST: FROM CLINICAL SUSPICION TO DIAGNOSIS

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CHBV.

Introduction: Mycobacterium scrofulaceum is a non-tuberculous mycobacterium (NTM) that is ubiquitous within our environment, commonly found in soil, vegetation and water. It's an uncommon pathogen that causes disease with pulmonary or extrapulmonary involvement. Cases of cervical lymphadenitis to this agent in the pediatric population are the best described in the literature.
Case report: We present a Caucasian male patient, 41 years old, smoker, with no other relevant medical history, reporting the appearance of an indurated skin lesion, ulcerated, at the medial malleolus of the left lower limb after trauma and subsequent contact with tank water; concomitantly, he referred the appearance of multiple scaling lesions on the same limb, cutaneous xerosis and inflammatory signs on the knee and heel joints, as well as asthenia and anorexia. He was medicated with oral antifungal with very slight improvement and slow healing of the described lesion. After 7 months, new erythematous-violet papular lesions appear on the trunk. Medicated with amoxicillin/clavulanic acid and subsequently with minocycline and topical ozenoxacin, the lesion had spread to the upper limbs, some ulcerated, with necrotic background. Laboratory study, including viral serologies, revealed no changes. Chest computed tomography revealing emphysema without other changes. Skin lesion biopsy: negative bacteriological and mycobacteriological cultures; histological examination showing histiocyte-rich mixed inflammatory response, without morphological specificity - alterations were interpreted as possible cutaneous atypical mycobacteriosis. The analysis of the tank water revealed the presence of Mycobacterium scrofulaceum. Given the probable diagnosis of cutaneous atypical mycobacteriosis, a treatment regimen with azithromycin, rifampicin and ethambutol was initiated. After two weeks of treatment, there was significant improvement on the skin lesions, with flattening and progressive healing, without the appearance of new lesions.
Discussion: This patient was a diagnostic challenge that implied a high index of suspicion. Analysis of the tank water was extremely important for the diagnosis definition, since direct inoculation of Mycobacterium scrofulaceum, after trauma and contact with contaminated water, is considered as a potential mechanism of soft tissue infection. Although we have not identified this agent on the biopsied fragment collection, the histological pattern, compatible with NTM infection, and associated with a favorable clinical response after the initiation of treatment, favors a probable diagnosis of cutaneous atypical mycobacteriosis.

Keywords: *Atypical mycobacteriosis. Cutaneous mycobacteriosis. Mycobacterium scrofulaceum. Non-tubercula mycobacteria. Immunocompetent host.*

PE 044. IS THE REVERSED HALO SIGN SPECIFIC OF ORGANIZING PNEUMONIA?

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Introduction: The reversed halo sign (RHS) is defined as a focal rounded area of ground-glass opacity surrounded by a more or less complete ring of consolidation. It is a relatively rare sign and it was initially considered specific of OP however, it was subsequently described in a variety of pulmonary disease.
Case report: 53 year-old female, unemployed, with an active smoking history of 30 pack-years. She had history of arterial hyperten-

sion, diabetes mellitus type 2 and epilepsy for which she was medicated. She was referred to our pulmonology department by her general practitioner due to complaints, with 6-month duration, of chronic rhinitis and evidence of a 6 mm nodule on thoracic CT in the right upper lobe, for vigilance. A second re-evaluation CT, performed 18 months later showed, besides a stable 6 mm nodule on the right upper lobe, an heterogeneous and irregular 36 mm mass, with a central hypodense zone, surrounded by an area of consolidation, on the left upper lobe. She had no respiratory or constitutional symptoms, denied night sweats and complaints suggestive of connective tissue disease. Her husband had been treated, 6 months earlier, for a pulmonary tuberculosis but her contact screening was negative. On examination, besides a pale nasal mucosa, the general examination was unremarkable. She had no elevation of inflammatory markers on her laboratory analysis, tumour markers (CEA, CA 19.9, CA 15.3, CA 125, CYFRA-21, NSE and SCC) were normal and autoimmune antibodies (anti-CCP, ANAs and ANCAs) were also within normal values. Pulmonary function tests revealed small airway obstruction with a normal DLCO. The case was discussed in a multidisciplinary team meeting and, given the lack of symptoms, the appearance of a relatively big mass over a short period of time and the presence of the inverted halo sign, the most likely diagnosis should be Organizing Pneumonia, and initiation of corticotherapy was proposed. To confirm the diagnosis, a bronchofibroscopy with bronchoalveolar lavage (BAL) and a percutaneous CT-guided transthoracic needle biopsy of the lung were performed. The result of the lung biopsy revealed necrotic tissue and the BAL findings were nonspecific. However, bronchial secretions collected during the bronchofibroscopy isolated a Mycobacterium tuberculosis, susceptible to all first-line drugs. The patient had the final diagnosis of pulmonary tuberculosis and not organizing pneumonia, as initially suspected due to the presence of the reversed halo sign. The patient was referred to a specialized center in tuberculosis and initiated the recommended treatment for pulmonary tuberculosis with four drugs, with imagiological improvement.
Discussion: The RHS is considered an important clue to the diagnosis of organizing pneumonia in immunocompetent patients however, it mislead our multidisciplinary team into thinking that the final diagnosis was organizing pneumonia when, in fact, the patient had pulmonary tuberculosis. Thoracic CT is, nowadays, a very helpful tool in the diagnosis of several pulmonary diseases however, this case reflects the importance of diagnostic confirmation even in the presence of an image very suggestive of a particular disease.

Keywords: *Reversed halo sign. Organizing pneumonia. Tuberculosis.*

PE 045. RENAL TUBERCULOSIS AND PULMONAR INFECTION BY MYCOBACTERIUM GORDONAE

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Introduction: The high rate of co-infection of mycobacteria and HIV is widely known. Mycobacterial infection is a frequent opportunistic infection in the HIV-infected patient, but the slow growth of the bacillus and the systemic symptoms lead to diagnostic difficulties.
Case report: A 49-year-old woman from Mozambique, a domestic worker with no history or significant home medication was sent to the immunodeficiency consultation for HIV-positive serology (November 2014) requested in the context of afternoon-unquantified fever. She had CD4 + 284/mm^3 and started antiretroviral therapy (ABC/3TC and RAL) in April 2015. She maintained good medication tolerance, virologic suppression and immunological stability since July 2015. The patient started multiple episodes of sub-febrile temperatures (T: 37-37.5 ºC) in August 2015. Blood and urine cultures were performed, which were negative for mycobacteria. Thoracic-abdominal-pelvic CT scan revealed in the thoracic study small areas of ground-glass parenchymal densification predominantly in the lower lobes and rare right superior lobe micronodules. She mantained episodes of chills and night sweats with maximum temperatures of 37 ºC and started in March 2016 dry cough. A sputum sample was positive for Mycobacterium gordonae. She repeated sputum cultures in July 2016 and August 2016 which were negative for mycobacteria. IGRA test was negative. A thoracic CT was repeated in June 2016 that maintained heterogeneous parenchymal opacifications in the left inferior lobe. The patient was evaluated by Pulmonology to study imaging changes and underwent bronchofibroscopy. The direct examination and culture for mycobacteria in bronchoalveolar lavage were negative. Bronchial aspiration was positive for M. gordonae in January 2018. The patient was clinically stable and clinical vigilance was maintained. Thoracic CT was performed again in November 2018, which showed infracentimetric nodules in the right superior lobe, middle lobe and left inferior lobe, with subsequent fibrotic pleural thickening related to fibrosis zones. In the left inferior lobe there were areas of air incarceration. In November 2018 she presented with fever and underwent screening. She also strated cough with mucopurulent sputum without new isolates in sputum culture. Urine culture was positive for Isoniazid resistant Mycobacterium tuberculosis. Genitourinary tuberculosis and respiratory infection by Mycobacterium gordonae were assumed due to the worsening of the respiratory clinic, pulmonary imaging changes and previous isolation in sputum and bronchial aspirate. She started therapy with rifampicin, ethambutol, pyrazinamide and levofloxacin with good tolerance. She presented negative urine culture after one month of treatment and clinical improvement, without new episodes of fever or respiratory symptoms.
Discussion: The diagnosis of mycobacterial infection involves repeated biological samples for culture in order to identify the microorganism. Nonspecific, slow-progressing symptoms contribute to a delay and diagnostic doubts that may aggravate the underlying infection.

Keywords: *Renal tuberculosis. Mycobacterium gordonae.*

PE 046. MALABSORPTION OF ANTIMYCOBACTERIAL DRUGS: A CAUSE OF THERAPEUTIC FAILURE IN TUBERCULOSIS

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Introduction: Most patients with tuberculosis (TB) have a good response to treatment. Resistance and lack of adherence to therapy are the main causes of therapeutic failure. In patients with good adherence to directly observed therapy (DOT) and sensitivity to the antimycobacterial drugs in use, therapeutic failure may occur due to malabsorption of orally administered drugs.
Case report: Male, 21 year-old, Caucasian, copy center employee. It presents a two-month evolution, characterized by dry cough, fever, nocturnal hypersudoresis, anorexia and weight loss (8 kg), without changes in gastrointestinal transit. He denied drug, smoking, alcoholic or toxicophilic habits. History of poor height-weight progression since childhood (BMI 16.49 kg/m^2) and two episodes of renal colic. Clinical, radiological and microbiological evaluation supported the diagnosis of pulmonary, cavitated, bacilliferous TB. She started weight-adjusted oral daily antibacillary therapy with isoniazid (H) 300 mg, rifampicin (R) 600 mg, pyrazinamide (P) 1,500 mg and ethambutol (E) 1,200 mg. The medication was taken fasting and with good adherence, being supervised by the mother with whom she lives. No vomiting or diarrhea. The serological study for HIV, HCV and HVB was negative. Cultural examination of sputum confirmed Mycobacterium tuberculosis (MT) infection sensitive to all first-line antimycobacterial drugs in use. After one month of

therapy, symptoms recur in association with radiological worsening and direct examination and positive sputum culture of the fifth month. Upon direct observation of the dose at the time under the fixed combination (HR) and E, it appears that the patient chews on pills, and therapeutic failure was admitted and HRZE restarted. The antibiotic sensitivity test was repeated and showed sensitivity to all first line drugs in use. At the same time, some comorbidities that reduce drug absorption (HIV infection, hypoalbuminemia, infectious gastroenteritis, renal, hepatic or thyroid disease) have been excluded and the remaining study (noninfectious gastrointestinal diseases and cystic fibrosis) is awaiting study. Meanwhile, the patient presents clinical and radiological improvement, with three negative bacilloscopies, however, still without recovery of his usual weight (50 kg).
Discussion: Oral malabsorption of antimycobacterial rugs is one of the possible causes of therapeutic failure, although it is poorly described. In patients under TOD who show no clinical, radiological and microbiological improvement, malabsorption should be considered. Malabsorption of one or more antimycobacterial drug may justify treatment failure, disease progression, and drug resistance acquisition.

Keywords: *Malabsorption. Therapeutic failure. Tuberculosis.*

PE 047. SPECIFIC TUBERCULOSIS PRESENTATION OF TUBERCULOSIS: A CASE REPORT

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Case report: Patient aged 15 years, male, black, student, native and resident of Luanda. History of hospitalization in 2012 due to prolonged febrile syndrome and anemia with blood transfusion criterion family history of neoplasia. She started with symptoms of about 6 months of evolution characterized by unquantified weight loss, febrile sensation without predominance of time, asthenia, dry cough associated with right-sided pleuritic chest pain. He was hospitalized in January 2017 with increased dizziness and dejections. Pasty diarrhea, with TP hemoptysis, reent travels, complaints of other devices and systems. On objective examination o weight loss, with pale skin –mucosa, without signs of difficulty breathing decreased vesicular murmur in the upper 2/3 of the left hemithorax. Analytically: leukocytosis, with neutrophilia, platelet- nitrite, nitrite, proteinuria. Chest X-ray (PA) heterogeneous opacity in the upper left third (LSE), with nodular lesion outlime.Thoracic CT was requested which revealed was requeted which revealed pulmonary mass. Occupying the apical and anterior segment of the LSE measuring about 71 mm of greater axis causing a slight lateral deviation of thee trachea with no evidence of invasion of adjacent bone structures. A hyperdense speculated contorns nodule, located in the ipsilateral anterior basal segment, measuring approximately 34 mm, has pervascular and peribronchial mediastinal adenomegalies without pleural effusion the upper abdomen showed slight hepatomegaly. He started empirical antibiotic therapy with ceftriaxone and clarithromycin without improvement. To clarity lung mass, bronchofibroscopy was performed with biopsy the histological result of which was compatible with epithelioid granulomas with giant Langerhans cells with caseification necrosis. In this context he started antibacterial therapy (HRZE). However the clinical, laboratory and radiological evolution were satisfactory at the end of treatment.
Discussion: The authors present this clinical case due to its evolution and peculiar presentation. The suspicion of pulmonary tuberculosis in endemic areas is fundamental. Its prevalence justifies always considering this differential diagnosis. Early diagnosis and early initiation of treatment define the prognosis of these patients.

Keywords: *Tuberculosis. Tuberculosis presentation forms.*

PE 048. TUBERCULOSIS. CASUISTIC OF A PULMONOLOGY SERVICE

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Introduction: Tuberculosis remains one of the main infectious diseases in the 21st century, being considered a risk to public health. Despite efforts to reduce its prevalence the number of tuberculosis patients is considerable, especially in large urban centers.
Objectives: To characterize tuberculosis cases of patients in a Pulmonology Service of a Central Hospital.
Methods: Retrospective study among patients diagnosed with pulmonary and pleural tuberculosis evaluated at the Pulmonology Service of Centro Hospitalar Lisboa Ocidental from January 2011 to June 2019. Data collection through consultation of clinical files. Descriptive analysis using Microsoft Excel® 2017 and IBM SPSS Statistics v.25®.
Results: Total of 81 patients; 58% (n = 47) male; mean age 49 years (minimum 18, maximum 88 years). Regarding the origin of the patients, 79% (n = 64) were from Pulmonology outpatient clinic and 21% (n = 17) were hospitalized in Pulmonology Department. 93.8% (n = 76) had pulmonary tuberculosis, 2 of which had extrapulmonary involvement (1 had pericardial tuberculosis and 1 peritoneal tuberculosis). 6.2% patients (n = 5) had pleural involvement only. Microbiological diagnosis of pulmonary tuberculosis was obtained by sputum collection in 26.3% of cases (n = 20) and by bronchofibroscopy and bronchial secretion/bronchoalveolar lavage in 73.7% (n = 56). There were 2 cases of multi-resistant tuberculosis. The main comorbidities were chronic obstructive pulmonary disease (n = 10), asthma (n = 2), cardiovascular disease (n = 16), diabetes mellitus (n = 5), chronic kidney disease under hemodialysis (n = 2), lung cancer (n = 5), other malignancies (n = 3). Also noteworthy there were patients on systemic corticosteroid therapy due to rheumatologic disease (n = 3) and on anti-TNFα therapy due to Crohn disease (n = 2), and these two patients had been screened for latent tuberculosis. All patients were referred to the Pulmonary Diagnostic Center after diagnosis. The evolution of the number of cases diagnosed over the years was also analyzed, with 13 cases diagnosed in 2011, 11 in 2012, 8 in 2013, 12 in 2014, 8 in 2015, 12 in 2016, 6 in 2017, 7 in 2018 and 4 during the first 6 months of 2019.
Conclusions: Tuberculosis can affect individuals with widely varying clinical profiles. Rapid diagnosis is one of the ways to control the spread of this disease. Analysis of our sample shows that, despite occasional decreases in the number of cases diagnosed per year, tuberculosis is still quite prevalent and diagnosis is often only possible through invasive techniques. It is therefore crucial that the different entities, namely primary health care and hospital units, are in close contact and involved in the control of this disease.

Keywords: *Tuberculosis. Casuistic. Comorbidities.*

PE 049. PULMONARY TUBERCULOSIS: A DIFFICULT CASE TO DIAGNOSE

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Introduction: The incidence of pulmonary tuberculosis in Portugal is decreasing, however, in urban centers it is still high. Clinical presentations are varied so that clinical suspicion should be early in order to initiate the diagnostic tests and therapy rapidly, reducing the risk of transmission and drug resistance.
Case report: Male patient, 57 years old. Natural and lives in Lisbon. Former smoker (20 UMA smoking) with prior exposure to inhaled zinc oxide. We highlight the previous diagnoses of non-Hodgkin lymphoma DGCB for 19 years, submitted to CHOP, mediastinal radio-

therapy and autologous transplantation; pleurodesis in 1999 by recurrent malignant right pleural effusions. He had had two community-acquired pneumonias without an isolated agent, medicated, in the previous two months. The patient was referred to the Emergency Department for a productive cough with abundant viscous whitish sputum, with slight two-month-old evolution, associated with a feeling of fever (not quantified) in the afternoon, progressive tiredness and dyspnea for moderate exertion in the last year. He was febrile and on pulmonary auscultation had a decreased vesicular murmur in the right hemithorax with ipsilateral crackles. The patient did some complementary diagnostic tests included: absence of leukocytosis, CRP 7.36 mg/dL, serum creatinine 1.21 mg/dL and hyponatremia; partial respiratory failure (PRI); Chest X-ray with heterogeneous hypotransparency of the entire right pulmonary field, denser in the lower half, overlapping with previous examinations. The patient underwent a CT scan the previous week which revealed fibrosis of the right superior lobe (RSL) and middle lobe with homolateral parenchyma with large areas of heterogeneous ground glass; left lung with slight compensatory hyperinflation and incipient clear glass in the upper lobe. The patient was admitted for PRI, community-acquired pneumonia, acute kidney injury and mild hyponatremia. The patient presented negativity for microbiological exams (microbiological examination of sputum, blood cultures, urine culture) and antigenuries to Pneumococcus and Legionella performed. He underwent a videobronchofibroscopy (VBFC) which revealed: globally swollen and engorged mucosa with convergence of folds, enlarged spurs, reduced segmental holes preferably in the URL. Bronchial biopsies, bronchoalveolar lavage (BAL) and harvested bronchial secretions were negative for neoplastic cells. BAL had a predominance of macrophages (83%, 10% neutrophils and 8% lymphocytes). Viral serology, autoimmunity and tumor markers were also negative. Empirical antibiotic therapy with levofloxacin 750 mg was started. In view of the clinical and PRI worsening associated with URL atelectasis on chest teleradiography, a new VBFC was performed with aspiration of hematic secretions, and an organized clot was seen occluding the URL which was partially removed, keeping the posterior segment occluded. Subsequently there was a progressive clinical and imaging improvement. Microbiological results of secretions and bronchial biopsies were negative, but the BAL collected in the second VBFC was positive for multisensitive Mycobacterium tuberculosis. The patient started therapy with subsequent outpatient follow-up.
Discussion: The relevance of the case stands out because in the clinical suspicion of PT, although in the absence of imaging findings most frequently found in PT and in the absence of microbiological confirmation, this diagnosis should not be totally excluded.

Keywords: *Pulmonary tuberculosis. Mycobacterium tuberculosis.*

PE 050. A LOOK AT RESPIRATORY DISEASES IN A PRIVATE HOSPITAL IN LUANDA-ANGOLA

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The profile of infectious and noninfectious lung diseases in Africa reflects as the predominant socio-political and economic forces. The lung, perhaps more than any other organic system, is influenced by poverty, occupation, and personal habits. A global forecast for developing countries and the coming decades, such as respiratory diseases (including infections), represents a large majority of deaths and a considerable burden of disability-adjusted life years. The 2002 Pulmonary Health Survey conducted in Cape Town allowed disease prevalence and identified complex interactions between causal factors and disease. Consistent and biologically plausible substances have been reported between smoking and susceptibility to tuberculosis and pneumonia in HIV-infected patients. These findings are relevant to both public health planners and researchers exploring disease mechanisms and possible drugs. It is estimated that 235 million people suffer from asthma, over 200 million people have chronic obstructive pulmonary disease (COPD), 65 million suffer from moderate to severe COPD, 1 to 6% of the adult population (over 100 million people) suffer from sleep-disordered breathing, 8.7 million people develop tuberculosis annually, and more than 50 million people struggle with occupational lung disease, totaling over 1 billion people with chronic respiratory disease. Nine million children under the age of 5 die each year and lung disease is the most common cause. Pneumonia is the leading cause of death in young children. Lung cancer is one of the most lethal, which kills over 1.4 million people each year. It has become quite clear that countries economic development is closely linked to the health of their citizens. Poor health, both individual and public, coupled with lack of education and a lack of a favorable policy framework, are the main impediments to a country's development and are the roots of poverty. Poor health impoverishes nations and poverty causes health problems, in part related to inadequate access to quality health care. Even more distressing is the enormous suffering that the disease causes. Those who are most disadvantaged suffer most from health problems. Tuberculosis is one of the endemics with the greatest impact on the economically active population in Angola. The country's national health policy and drug policy clearly express the still lazy position regarding this major endemic. The magnitude of pulmonary tuberculosis in Angola, as well as other respiratory diseases, is not well known, but the high number of treatment dropouts and poor treatment success make it difficult to control. Embedded in the concern about scarce data on respiratory pathology in Angola, the authors performed a filter of the ICD code-based computer system of the most frequent respiratory diseases from June 2016 to June 2019 at the Sagrada Esperança Clinic in Luanda. The results are intended to be presented in poster form at the 35th Congress of the Portuguese Society of Pulmonology.

Keywords: *Tuberculosis Angola. Post-tuberculosis sequelae.*

PE 051. CLINICAL AND FUNCTIONAL OUTCOMES OF PATIENTS WITH SEVERE ASTHMA IN TREATMENT WITH OMALIZUMAB

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Introduction: Omalizumab is an anti-IgE monoclonal antibody indicated for the treatment of severe atopic asthma.
Objectives: To evaluate the clinical and functional outcomes of patients receiving Omalizumab.
Methods: Retrospective observational study of patients with severe asthma followed in a Pulmonology - Asthma outpatient clinic who completed 6 months of treatment with Omalizumab. Pulmonary function, FeNO (exhaled nitric oxide), chronic systemic corticosteroid therapy, peripheral eosinophils and ACT (Asthma Control Test) were evaluated at baseline and after 6 months of treatment.
Results: We included 28 patients with severe asthma, with a mean age of 46.5 ± 10.8 years and a mean BMI of 29.1 ± 6.2. Most patients were female (n = 22; 78.6%). Regarding smoking habits, 82.1% (n = 23) of the patients were non-smokers and 10.7% (n = 3) maintained active smoking. The tables attached show the comparative analysis of clinical, analytical and lung function variables before and after 6 months of treatment with Omalizumab.
Conclusions: After 6 months of treatment with Omalizumab there was a significant improvement in asthma control (assessed by ACT) and a decrease in chronic oral corticosteroid therapy, even allowing its suspension in three patients. There was also a decrease in peripheral eosinophils and an improvement in pulmonary function and FeNO (the latter without statistical significance). These data are in

agreement with what is described in the bibliography, validating their effectiveness in clinical practice.

Keywords: *Severe asthma. Omalizumab.*

PE 052. BIOLOGICAL CHANGE IN SEVERE ASTHMA. THE EXPERIENCE OF A PULMONOLOGY DEPARTMENT

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Introduction: There are several phenotypes described in severe asthma. Severe allergic asthma and severe eosinophilic asthma are distinct but often concomitant phenotypes. Severe allergic asthma is characterized by low age at diagnosis, high levels of serum immunoglobulin E (IgE) and high fractional exhaled nitric oxide (FeNO), allergen sensitization and eosinophilic inflammation. Severe eosinophilic asthma is characterized by later age at diagnosis, peripheral eosinophilia and frequent exacerbations.
Case reports: We present the four clinical cases of patients under omalizumab (anti-IgE antibody) who changed treatment to mepolizumab (anti-IL5), from the Severe Asthma appointment of CHUC Pulmonology Department's. These are 4 adult patients, 3 men and 1 woman, diagnosed with severe asthma requiring systemic corticosteroid therapy despite optimal inhaled therapy. Two patients diagnosed at childhood/teens, and 2 patients diagnosed at adult age. Three patients had allergen sensitization (all male) with high IgE values. Nasal polyposis and chronic rhinosinusitis were also present in 3 patients. All patients had peripheral blood eosinophilia. The 4 patients started omalizumab, 3 with formal indication (allergenic sensitization, frequent exacerbations and regular need for systemic corticosteroid therapy) and 1 off-label (marked clinical symptoms, frequent exacerbations and systemic corticosteroid therapy, although not allergenic). Although some patients presented clinical and functional improvement after introduction of omalizumab, all 4 patients discontinued omalizumab due to clinical worsening (maintenance of the need for systemic corticosteroid therapy, frequent exacerbations), respiratory function (FEV1 decrease) or both. All patients had eosinophilia and started mepolizumab after some time without any biological treatment (between 2 and 12 months). In the reassessment of 4-6 months (and one patient for one year) of mepolizumab treatment, there was improvement in the CARAT and ACT questionnaires (in all patients), and improved respiratory function in 3 patients (one patient is still awaiting reevaluation function after initiation of mepolizumab).
Discussion: Severe asthma phenotypes may co-exist, and sometimes it is difficult to elect the best biological treatment for each patient. Failure to achieve disease control with a biological medication should not prevent the switch to another monoclonal agent. Recently, information has emerged that simultaneous treatment with two biologics may be advantageous by acting on different but adjuvant pathophysiological mechanisms in disease control.

Keywords: *Omalizumab. Mepolizumab. Severe asthma.*

PE 053. EFFECT OF BIOLOGICAL THERAPY ON SEVERE ASTHMA PATIENTS

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Introduction: Patients with severe asthma, despite optimal therapy including bronchodilators and inhaled corticosteroids in full-dose and oral corticosteroid therapy, may exhibit severe symptoms, frequent exacerbations, and adverse effects of therapy with consequent increased morbidity and mortality.

Objectives: Evaluate the dose of oral corticosteroid therapy in patients with severe asthma before and after starting complementary biological drug therapy (omalizumab and mepolizumab).
Methods: Retrospective case study of patients on biological therapy in July 2019 at Hospital de Santa Marta.
Results: Eighteen patients were evaluated, of which 77.8% (n = 14) were female, with a mean age of 50.3 years old. Among these, 15 were under omalizumab and 3 under mepolizumab. 61.1% (n = 11) were found to be overweight and 38.9% (n = 7) were obese. The mean dose of oral corticosteroid therapy before treatment was 15.2 mg (n = 16) and after 12 months was 12.5 mg (n = 15). Decreased oral corticosteroid dose was observed in 60.0% (n = 9) of patients, of whom 55.5% (n = 4) were overweight. The number of hospitalizations for asthma exacerbations in the 12 months before and after initiation of therapy was also evaluated. The average number of hospitalizations before the beginning of biological therapy was 2.57 and 1.14 after. In cases with hospitalizations prior to initiation of treatment [38.9% (n = 7)], the number of hospitalizations decreased 85.7% (n = 6) within 12 months after (4 under omalizumab and 2 under mepolizumab). In cases without previous hospitalization, there was no record of hospitalizations in the following 12 months. Regarding pulmonary function, there was an increase of FEV1 by 50.0% (n = 8) and FEV1/FVC by 57.1% (n = 8), and a reduction of ITGV in 71.4% of the patients (n = 10). In addition, in patients in whom oral corticosteroid dose reduction was possible, FEV1 increased by 77.8% (n = 7). After initiation of biological therapy, eosinophilia reduced by 66.7% (n = 10), with a mean eosinophil count of 579 cells/µL prior to initiation of therapy and of 243 cells/µL after.
Case reports: In this group of patients, biological therapy was effective in reducing the dose of oral corticosteroid therapy and the number of hospitalizations for asthma exacerbations, as well as an improvement in respiratory function.

Keywords: *Asthma. Biological therapy. Oral corticosteroid.*

PE 054. THE IMPORTANCE OF CLINICAL SUSPICION IN THE DIAGNOSIS OF ACUTE PULMONARY EMBOLISM

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Introduction: Acute pulmonary embolism (PE) is defined as an obstruction of any branch of the pulmonary artery, and it is a major cause of mortality, morbidity and hospitalization in Europe. The clinical presentation is widely variable, and frequently the differential diagnoses are pneumonia, asthma, chronic obstructive pulmonary disease and pneumothorax. The most common symptoms are dyspnoea, pleuritic pain, syncope and haemoptysis. The Gold standard imaging exam for the diagnosis is angio-CT, but it may not be conclusive when the embolus is located at more peripheral arteries. Ventilation-perfusion pulmonary scintigraphy (V/Q) is indicated when there is a contraindication to the performance of the angio-CT or when it is not enlightening.
Case reports: A 32-year-old woman with history of congenital right aortic arch, allergic asthma and cylindrical bronchiectasis. During pulmonology consultation she reported tiredness for small efforts, with a few days of evolution. She had no notion of deterioration of basal respiratory symptoms such as cough, wheezing, thoracic oppression or dyspnoea. Without fever, sputum or recent history of infectious exacerbations. She denied palpitations, thoracalgia or syncope. The physical examination was normal. Because of the higher pro-thrombotic risk, it was performed a V/Q scintigraphy that revealed a small extension PE with a commitment of 14% of the overall pulmonary perfusion. She subsequently performed an Angio-TC that didn't present any signs of PE. However, due to the sustained symptoms, anticoagulant therapy was initiated. The patient presented significant clinical improvement, and perfusion recovery,

reassessed by scintigraphy after 6 months. A 71-year-old woman, with history of chronic lymphocytic leukaemia, that went to the emergency room with a 2 days evolution of productive cough of purulent sputum, pleuritic right thoracalgia and progressive dyspnoea. She had hypocapnia, partial respiratory insufficiency and D-dimers raise, so it was performed an angio-CT that excluded PE and showed a ground glass Glass pattern in both lungs, sparing the peri-hilar region. After complementary study, it was admitted an infectious pneumonitis and initiated antibiotic and corticotherapy. She underwent clinical and gasometric worsening, leading to the performance of a V/Q scintigraphy, which revealed a small bilateral EP compromising17% of pulmonary perfusion. The echo-doppler of the lower limbs showed a deep venous thrombosis of the left femoral vein. Anticoagulant therapy was initiated with clinical resolution.
Discussion: Pulmonary embolism can lead to death or cause chronic pulmonary impairment if not treated. Given the inspecificity of signs and symptoms, its presentation may be camouflaged by concomitant acute pulmonary conditions, such as respiratory infections, and may be mistaken for exacerbations or symptomatic poor control of baseline pathologies such as asthma. These cases also demonstrate the disagreement between the results of the V/Q scintigraphy and the CT angiography. Despite being the chosen test for the diagnosis of PE, it may present false negatives, highlighting the importance of clinical suspicion in the diagnostic algorithm.

Keywords: *Pulmonary embolism. Differential diagnosis. Ventilation-perfusion scintigraphym. Asthma.*

PE 055. CRITICAL ASTHMA SYNDROME: TWO CLINICAL CASES

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Introduction: Critical Asthma Syndrome (CAS) describes a severe acute deterioration of the asthmatic patient that may progress to respiratory failure and death. Most of these patients require admission to an Intensive Care Unit (ICU). We present two illustrative clinical cases.
Case reports: Case 1. 57-year-old woman diagnosed with allergic asthma (mite sensitization) since the age of 27, with sporadic exacerbations related to respiratory infections and no previous history of severe exacerbations, medicated with salbutamol in SOS. She is a former smoker of 20 pack year for 10 years. She presented with productive cough, myalgias and arthralgias for 12 days, which partially improved after azithromycin. Recurrence on the 9th day, she started levofloxacin without improvement and worsening with dyspnea, feeling of chest oppression and "imminent death". She visited the Emergency Department (ED) presenting with tachypnea, tachycardia, use of accessory thoracic muscles, marked bronchospasm and partial respiratory failure (P/F 180). Analytically she presented a slight elevation of inflammatory parameters; chest radiography without relevant changes. She started bronchodilator therapy, high-dose ev corticotherapy and magnesium sulfate. She was admitted to the medicine department but due to clinical worsening she was transferred to ICU. We optimized bronchodilator therapy and oxygen therapy, and maintained levofloxacin and corticotherapy at a high dose. Slow but sustained improvement of clinical, analytical and blood gas parameters were observed. Influenza virus screening, blood cultures and bacteriological examination of sputum were negative. The patient was discharged after 6 days, with weaning corticosteroid therapy and the remaining supportive therapy. Case 2. 23-year-old woman without known diagnosis of asthma, with unquantified smoking and active toxicophilic (cannabinoid) habits. She presented with mucopurulent productive cough, dyspnea, wheezing, chest tightness and fever for 3 days, which motivated a visit to the ED. The first evaluation revealed dyspnea, wheezing, use of accessory thoracic muscles and marked bronchospasm, with partial respiratory failure (P/F 62.5). She was admitted to the hospital but requested to be discharged on the next day. She returned to the ED a day later for worsening of symptoms. Analytically she presented a slight elevation of inflammatory parameters; chest radiography revealed a heterogeneous infiltrate in the left pulmonary base. Due to increased oxygenation need and eventual indication for invasive ventilation, she was admitted to our ICU. We maintained bronchodilator therapy, high-dose corticosteroid therapy, and started antibiotic therapy with amoxicillin/clavulanic acid and azithromycin as well as respiratory functional rehabilitation to help in the elimination of secretions. The patient showed progressive clinical, analytical and blood gas improvement. Bacteriological examination of sputum, blood cultures, urine antigens, influenza virus screening, Mycoplasma and Chlamydia serology were all negative. She was transferred to the Respiratory Ward after 5 days at the ICU.
Discussion: In the initial approach to CAS, it is essential to be alert to the unpredictability of clinical evolution, requiring inhaled bronchodilator therapy and systemic corticosteroid therapy at high doses. Patients refractory to initial therapy often develop respiratory failure and should be rapidly transferred to an ICU to ensure continuous monitoring, high inhaled oxygen concentrations and noninvasive or invasive ventilation when warranted.

Keywords: *Critical asthma. Respiratory failure. Respiratory intensive care.*

PE 056. BAD LUCK NEVER WALKS ALONE

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Introduction: Irritant-induced asthma (IIA) results from exposure to one or more airways irritant products. This leads to the development of respiratory symptoms. Reactive airways dysfunction syndrome (RADS) is the development of respiratory symptoms beginning in minutes or hours after a single exposure to chemical substances on high environmental concentration in patients with no previous respiratory medical history. Pulmonary function testing may or may not show airflow obstruction. Afterwards asthmatic symptoms and airway hyperresponsiveness may become persistent overtime. Therefore the term RADS means acute onset IIA.
Case report: We report a 27-year-old female patient, with no smoking habits and working as physiotherapist at a rehabilitation medical centre. There was no known medical or allergic past history. On a water aerobics session, she was accidentally exposed to high chlorine calcium concentration on the water. This event led to an episode of intense shortness of breath, wheezing and desaturation. Supplemental oxygen and bronchodilator urgent therapy was needed. By this time she was started on inhaled corticosteroids and an inhaled long-acting bronchodilator and was referenced for respiratory rehabilitation after a Pulmonology consultation where the patient complained about dyspnea and general weakness after she restarted to work. Pulmonary function testing and computed tomography were performed – no relevant data was found. The therapy was stopped and, on a subsequent appointment, she revealed a discrete although permanent symptoms improvement. Thus normal daily living was recommended. Then again she was exposed to naphtha while she was at work. A new shortness of breath and wheezing episode took place. On an emergent pulmonology consultation bilateral wheezing on pulmonary auscultation were de-

scribed. Inhaled and systemic corticosteroids therapies were started. On the reassessment, complaints of nocturnal wheezing and dyspnea episodes were registered along with rhinitis symptoms. A pulmonary function testing revaluation was performed and a mild airflow obstructive pattern was found. Bronchodilator test was positive. According to this, patient was started on budesonide/formoterol, montelukast, cetirizine and nasal momethasone. For a second time respiratory rehabilitation program was started and clinical and functional improvement was achieved. Meanwhile, the patient got pregnant and as she presented with uncontrolled asthma, a therapeutic review was required and the need for higher doses was accomplished. After delivery we attained symptom control.
Discussion: This clinical report reveals a presentation of RADS after single exposure to high chlorine calcium concentration and second exposure to a petroleum derivative which resulted on persistent respiratory symptoms and chronic treatment. Therefore, we conclude that IIA may have its beginning on single episodes of intense exposure to chemical components and the initial development of RADS.

Keywords: *Asthma. Irritant-induced asthma. RADS. Irritant.*

PE 057. CLINICAL RELEVANCE OF TH2 AND NON-TH2 PHENOTYPES FOR LATE-ONSET ASTHMA

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Introduction: Adult-onset or Late-onset asthma (LOA) has increased in recent years due to population aging. Its diagnosis is often delayed, which may account for poorer outcomes. To manage the disease effectively and because treatment options may differ, it is important for clinicians to distinguish among the clinical phenotypes Th2 and Non-Th2.
Objectives: Characterize Th2 and non-Th2 clusters of LOA patients from our outpatient asthma clinic and compare pulmonary function and frequency of exacerbations these groups.
Methods: We retrospectively collected clinical, functional and laboratorial data from all adult asthmatic patients undergoing follow-up at our asthma clinics between June and September 2016. We defined LOA as onset of asthma symptoms after 18 years old. Pregnant women, as well as patients diagnosed with asthma/COPD overlap, granulomatosis with poliangeiitis, ABPA and those under diagnostic work-up were excluded from our study. We defined LOA when symptom onset occurred after 18 years old. Th2 phenotype was assumed when patients showed evidence of Th2-mediated inflammation, defined as either an elevated peripheral eosinophil count (≥ 150 Eo/uL) or evidence of eosinophilic airway inflammation with FeNO ≥ 25 ppb. IBM SPSS v.25 was used to data statistical analysis.
Results: We included 122 patients with LOA, mainly women (n = 108 (88.7%)), mean age of 54.94 ± 12.73. Thirteen patients were excluded from cluster analysis due to lack of data. Th2 cluster (n = 90) and non-Th2 cluster (n = 19). Th2 phenotype patients showed lower body mass index and higher prevalence of rhinosinusitis. We also noticed a trend towards lower age at symptoms onset and lower frequency of air trapping in Th2 phenotype patients. The two phenotypes did not showed differences concerning lung function parameters. In non-Th2 cluster, none of the individuals have suffered exacerbations during the previous year. Yet, the frequency of exacerbations and the prevalence of severe asthma were similar between groups.
Conclusions: As previously described, Th2 phenotype for LOA is commonly associated to rhinosinusitis and non-Th2 phenotype is more frequently associated with obesity. Interestingly, we found a trend towards higher frequency of airtrapping in non-Th2 LOA patients, although not statistically significant. We would expect Th2 phenotype to be more associated with poorer lung function and higher prevalence of severe asthma. Even so, for our sample, both Th2 and non-Th2 LOA phenotypes showed relatively preserved and homogenous lung function, frequency of exacerbations and prevalence of severe asthma. The reduced sample size of non-Th2 LOA patients is doubtless a major limitation in this work, conditioning statistical significance.

Keywords: *Late onset asthma. Asthma phenotypes. Th2. Clinical features.*

PE 058. ASTHMA AND BLOOD EOSINOPHILIA: A VIEW BEYOND ASTHMA

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Introduction: Eosinophilic granulomatosis with polyangiitis is defined by an eosinophil-rich granulomatous inflammation that often involves the respiratory tract in the form of necrotizing vasculitis of small to medium vessels. In this rare autoimmune disease, associated asthma is classically severe and cortically dependent, preceding the onset of the vasculitic phase in the natural history of the disease. Currently, a diagnostic challenge remains, particularly during the eosinophilic phase of the disease, by the existence of other rare entities with common pathophysiology regarding eosinophil-mediated inflammation.
Case report: A 69-year-old man diagnosed with non-stratified obstructive ventilatory syndrome, non-smoker, receiving budesonide + formoterol two puffs twice daily for about 3 years, but noncompliant. During the last, he came several times to the ER due to bronchospasm attacks resolved after symptomatic therapy with short systemic corticoids regimens. In June 2019, new episode of acute dyspnea on small exertion, bilaterally diffuse whizzing on auscultation and analytically peripheral eosinophilia (25.1% eosinophils, 2,410 cells/L), with no further changes in blood count. Patient denied fever, asthenia, anorexia, myoarthralgia, chest or abdominal pain, de novo skin or sensory changes, drug or toxin use. No images of parenchymal condensation on chest radiograph. Given the clinical context, we conducted a directed etiological study: VS 19 mm/h; normal vitamin B12; Increased IgE (257 U/L); negative ANAs, rheumatoid factor and ANCA; HIV negative; stool's parasitological examination negative; IgE, IgG, precipitin and sputum culture for Aspergillus fumigatus were negative. HRCT: "Areas of densification in ground glass mainly at the superior poles, peripherally. Thickening of the bronchial walls and centrilobular nodules more evident in the lower lobes. No areas of pulmonary condensation. Aspects suggestive of pulmonary eosinophilic infiltration." Sinus CT: "Signs of sinusitis and/or bilateral, sphenoid and ethmoid maxillary polyposis. Hypertrophy of the lining of the inferior nasal turbinate. Filling of the maxillary ostia and frontoethmoidal recesses. Right septal deviation". Novel spirometry confirmed severe obstructive ventilatory change with positive bronchodilation test and FeNO 70. No bronchoscopy with BAL or lung biopsy were performed.
Discussion: Despite diagnostic limitations due to the absence of BFC with BAL and lung biopsy, diagnoses such as neoplasia, helminth infection, iatrogeny, ABPA or chronic eosinophilic pneumonia were excluded. Differential diagnosis with the latter entity is particularly challenging due to the existence of common diagnostic criteria. However, given the presence of 4 out of 6 ACR/EULAR criteria: asthma, peripheral eosinophilia > 10%, pulmonary infiltrates and parasinusal abnormalities, we assumed an eosinophilic granulomatosis with polyangiitis ANCA -, without multiorganic disease stigma (FFS 1), and with indication for prednisolone 1 mg/kg/day for a

month. After induction therapy, the patient showed clinical and analytical improvement (2.1% eosinophils, 250 cells/L), maintaining clinical stability during the current tapering period. In the ANCA-patient subgroup, which comprises about 60% of individuals with EGPA, the advantage of using mepolizumab as a steroid-sparing therapy has already been demonstrated.

Keywords: *Asthma. Eosinophilia. Lung. Eosinophilic granulomatosis with polyangiitis. Vasculitis. ANCA.*

PE 059. RELATIONSHIP BETWEEN INHALER TECHNIQUE, LITERACY AND ASTHMA CONTROL IN ANGOLAN ADULT

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Introduction: The aim of the treatment of asthma is to get and keep control of symptoms of the disease, with the use inhaler medication which is fundamental in acute episodes, as in maintenance treatment. The incorrect use of inhalation devices is associated to low drug bronchial deposition and can contribute to the poor disease control. The aim of this study was to evaluate the inhalation technique errors and your relationship with the asthma knowledge and asthma control in asthmatics, followed up at pulmonology outpatient clinics in Luanda.
Methods: Cross-sectional study, performed at Military Hospital, from April 2018 to March 2019, with ≥ 18 year-old patients, followed up at pulmonology outpatient clinics for asthma. Asthma control was assessed in accordance with GINA (Global Initiative for Asthma) criteria, we used a standardized questionnaire that included questions about socio-demographic data and questions related to asthma and a check list on an inhalation technique errors observed during the demonstration of the use of inhalers by patients. Asthmatic patients with previous pulmonary tuberculosis or Chronic Obstructive Pulmonary Disease (COPD) were excluded. Data were analysed using SPSS Statistics v25.0, through univariate and multivariate analysis.
Results: The sample consisted of 305 asthmatic patients [mean age 41.3, median 41.0 (18 to 86) years], 56.1% female. Of these 28.2% had controlled asthma, 36.4% partially controlled and 35.4% uncontrolled, without significant differences between sexes, age, Body Mass Index (BMI) and asthma knowledge. Patients without literary qualifications (5.5%) had worse asthma control, while patients with I to III GRAFFAR classification (55.0%) had better control. About 64% of patients used some type of inhaler, the most commonly used were pMDIs (pressurized metered dose inhalers) and turbuhaler device, DPI (dry powder inhalers). Only 39.0% of patients used controller medication but irregularly and 53.1% only used rescue medication. Most patients (94.3%) replied that he had inhaler training by the attending physician (67.8%) or by the nurse (24%); however, only 21.3% of them stated that they had regular verification of the technique. The inhaler technique in pMDIs and in DPIs, was incorrect in 65.7% and 54.4%, respectively. The main major errors observed were related to inadequate preparation (empty device, out of expiration date, failure to shake the inhaler and failure to load the DPI device or start pMDI) in 64.9% of patients, failure to hold the breath for 10 seconds (18%) and inadequate inspiratory technique (4.6%). The main minor errors were failure to discard air before inhalation (89.7%), failure to tilt the head backwards (58.6%) and failure to expire slowly with half-closed lips (5.2%). The frequent use of pMDIs was associated with non asthma control and the use of DPIs for better asthma control.
Conclusions: Most Angolan asthmatics in Luanda have their asthma partially controlled or uncontrolled, with incorrect inhalation technique related to the non asthma control.

Keywords: *Inhaler technique. Asthma. Angolan adults.*

PE 060. RESPIRATORY ARREST AFTER WHEAT FLOUR EXPOSURE: RARE PRESENTATION OF A COMMON DISORDER

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Introduction: Baker's asthma is one of the most common forms of occupational disease in developed countries, generating a high socioeconomic burden. The onset of bronchoconstriction symptoms months or years after the beginning of exposure to baking flour is the most common form of disease presentation. The inaugural episode responds to conventional therapy in most cases. Nevertheless, the authors describe a clinical case in which bronchospasm severity required orotracheal intubation.
Case report: A 21-years-old female, non-smoker, with a past of left nephroblastoma excised at 2, was working at a bakery shop since 6 months ago, with continuous exposure to wheat flour powder. She came to the emergency department for acute dyspnea and wheezing one hour after the start of her bakery shift. On physical examination with tachypnea, bilateral decreased of vesicular murmur and wheezing. Arterial blood gas had no evidence of respiratory failure (pH 7.417; pO2 99.9 mmHg; pCO2 35.3 mmHg; bicarbonates 22.7 mmol/L) or hyperlacticaemia. There was no evidence of inflammatory parameters elevation or eosinophilia. Rhinoviruses where isolated in nasopharyngeal secretions. Chest X-ray presented signs of hyperinflation. Ipratropium/salbutamol nebulization, as well as intravenous methylprednisolone 125 mg and intravenous 2 g magnesium sulfate were initiated with no clinical response. Patient status evolved to stridor and ventilatory failure requiring orotracheal intubation under videolaryngoscopy, with no evidence of obstruction or edema. She was admitted to the intensive care unit and extubated after 48h still under systemic corticotherapy, with no complications. She was then transferred to the general ward and undergone respiratory kinesiotherapy, progressive weaning from systemic corticosteroid therapy and initiation of inhaled bronchodilator therapy (budesonide/formoterol) with verification of inhalation technique. Additional research study with negative IgE and phadiatop and slight decrease of C4, with no other complement or immunological study changes. No alterations were detected on chest, neck and rhinolaryngeal computed tomography. The patient was observed by otorhinolaryngology excluding vocal cord dysfunction or pharyngolaryngeal neoformations. At the time of discharge, asymptomatic and without any changes on objective exam. The patient decided to leave work at the bakery following this event. Spirometry and nonspecific inhalation challenge test performed in stable phase and under inhalation therapy, 7 weeks after admission, without major changes. The patient remained asymptomatic during the follow-up period. Inhalated therapy was stepped down, with no symptoms recurrence.
Discussion: When clinical suspicion is high, baker's asthma should be treated empirically, especially in the presence of a life-threatening acute crisis. Early recognition and subsequent removal of exposure are the best predictor of a favorable prognosis. The bronchial hyperreactivity phenomena of an occupational asthma may resolve after the avoidance of occupational exposure, making the definitive diagnosis challenging. In these cases, when the causal relationship is unclear and the therapeutic strategy is dependent on

the definitive diagnosis, a specific bronchial challenge for these allergens may ultimately be necessary.

Keywords: *Asthma. Occupational. Baker's asthma. Respiratory arrest.*

PE 061. DIFFERENTIAL DIAGNOSIS OF PRIMITIVE TUMOR VS METASTASIS

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Introduction: Pulmonary metastasis is seen in 20-54% of extrathoracic malignancies. Lungs are the second most frequent site of metastases from extrathoracic malignancies. In face of lesions that raise doubts as to whether they correspond to second primary tumors or metastases, biopsy plays a fundamental role for histological characterization and correct diagnosis. Additionally, immunohistochemistry (IHC) plays a complementary role in the differentiation of benign and malignant lesions, identification of cell type, degree of tumor differentiation and origin of metastasis/primary tumor determination.
Case report: The authors bring the case of a 49-year-old female patient, smoker with a smoking load of 30 PY, with a diagnosis of schizophrenia. After episode of right upper lobe pneumonia (RUL) having undergone antibiotic therapy with clinical and analytical improvement. However, due to persistence of right atelectasis in chest X-ray, underwent a videobronchofibroscopy that revealed a complete occlusion of the right upper lobar bronchus by infiltrated mucosa. Bronchial biopsies were positive for poorly differentiated non-small cell carcinoma with IHC positive for CK7, CK8/18 and negative for TTF1, p40, CK5, CD56, napsin A and PAX8. Staging thoracoabdominopelvic CT scan has documented collapse of the RUL by central lesion with dimensions of approximately 8.3 × 4.5 cm with right upper paratracheal adenopathy and 10 mm nodule in the external segment of the left lower lobe (LLL). PET scan revealed a large area of pulmonary parenchymal condensation in a central topography of the right lung with an SUV of 20.4; a 10 mm right upper paratracheal adenopathy with SUV 8.3 and a nodular image of 9 mm in LLL with SUV 1.6. Additionally, it revealed hypermetabolic uptake adjacent to the pancreas tail with SUV 6.9 and those alteration suggests malignancy. The case was discussed at a multidisciplinary team meeting and given the various hypotheses of pancreatic lesion etiology (primary tumor/metastasis/inflammation) and considering the expected difficulty of approaching the lesion by invasive gastroenterology techniques, the patient underwent distal pancreatectomy. Anatomopathological examination of the surgical specimen revealed a moderately differentiated ductal adenocarcinoma, with IHC positive for CK7, CK19, S100P, IMP3 and negative for CK20, napsin, TTF1 and GATA 3, favoring the pancreatic origin of the tumor. The lung biopsy slides were reviewed and the IHQ study with CK19, IMP3 and S100p was found to be positive and it was concluded that the lung lesion corresponded to a metastasis of the pancreatic carcinoma. The patient was referred to Medical Oncology with the diagnosis of Stage IV Pancreatic Adenocarcinoma and started chemotherapy with gemcitbine + NAB-placlitaxel. Response evaluation after three cycles of chemotherapy revealed partial response with reduced lung lesion size and partial RUL re-expansion.
Discussion: The present case is a diagnostic challenge due to its presentation with non-typical symptoms of pancreatic carcinoma and the early sites of distant metastasis, highlighting the central role of biopsy for the correct diagnosis and subsequent therapeutic orientation.

Keywords: *Primary tumor. Metastases. Immunohistochemistry.*

PE 062. HYPERTROPHIC PULMONARY OSTEOARTHROPATY WITH PRIMARY LUNG CANCER: A CASE REPORT AND LITERATURE REVIEW

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Introduction: Hypertrophic pulmonary osteoarthropathy (HPOA), also known as the Pierre Marie-Bamberger syndrome, is a rare paraneoplastic syndrome that most commonly occurs secondary to lung cancer. HPOA occurs in 1-5% of all patients with non-small cell lung cancer (NSCLC). The usual clinical presentation is painful, swollen joints, digital clubbing, and pain in tubular bones. Periostitis is the hallmark of HPOA and can be revealed on whole- body bone scintigraphy (WBBS), being the typical scintigraphic presentation a diffuse, symmetrically increased uptake in the diaphysis and metaphysis of tubular bones, with a distinctive double stripe or parallel track sign.
Case report: The authors did a literature review of HPOA and present a case report of a 37-year-old woman without any significant past medical history, non- smoker. In June 2018 she presented with complaints of bilateral tibial tenderness and swelling painful knees bilaterally, and a month after, progressive weakness, dyspnea and hemoptysis. It was performed a chest-CT that revealed a lung mass (measuring 11.3 cm) located on right superior lobe with intense F-FDG uptake on 18F-FDG PET-CT (SUVmax = 18.5) and also on vertebral body of D11 and posterior portion of right iliac bone. It was performed a bronchoscopy that revealed an endobronquial tumour at the level of anterior segment of right main bronchus, being the biopsy diagnostic of adenocarcinoma. Bone scintigraphy showed an increased uptake on D11 and a heterogeneous increased uptake bilaterally on the cortical of femur and tibia, suggestive of hypertrophic osteoarthropaty. Molecular testing revealed an EGFR positive adenocarcinoma stage IV, so it was started targeted therapy with Erlotinib. WBBS showed an improvement following the first 6 months of treatment, with reduction of the signs of periostitis.
Discussion: Authors reported this case to draw attention to a rare paraneoplastic syndrome associated with lung cancer. To the best of our knowledge, few studies have investigated the incidence of HPOA and the clinical characteristics of patients with lung cancer and HPOA.

Keywords: *Hypertrophic pulmonary osteoarthropathy. Paraneoplastic. Lung cancer.*

PE 063. SAFETY OF COMPUTED TOMOGRAPHY GUIDED LUNG BIOPSY AND PREDICTIVE FACTORS OF COMPLICATION

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Introduction: CT guided transthoracic lung biopsy (CT-TTLB) is an established diagnostic procedure for pulmonary lesions. It has high diagnostic yield, but published data show frequent complications, namely pneumothorax.
Objectives: To evaluate the safety of CT-TTLB and identify predictive factors of complication.
Methods: Retrospective review of CT-TTLB performed at a hospital dedicated to thoracic pathology from February 2013 to January 2019. Data regarding demographics, lesion features, procedure and complications were collected. Factors associated with complication on univariate analysis were evaluated in multiple logistic regression analysis to identify independent risk factors (IRF).
Results: During 6 years, 503 patients underwent CT-TTLB. The majority of patients (72%) were male, with a mean age of 66.6 years. An 18G needle was used in the majority of procedures. Complication rate was 39.8%, with major complications being rare. Pneumothorax

rate was 22.7%, but requirement for chest tube drainage was low (1.2%). Alveolar hemorrhage (HA) was identified in 23.1%, mostly mild (95.4% of cases). 6.6% of patients presented hemoptysis. There was no procedure related mortality. IRF for overall complications were smaller size ($p < 0.001$), spiculated margin ($p = 0.032$) and fissure proximity ($p = 0.003$). Smaller size ($p = 0.006$), fissure proximity ($p = 0.018$) and marked emphysema ($p = 0.02$) were IRF for pneumothorax. Smaller size ($p < 0.001$), absence of pleural contact ($p = 0.001$) and central location ($p = 0.031$) were IRF for HA. Smaller size ($p = 0.01$) was an IRF for hemoptysis.
Conclusions: CT-TTLB is a safe procedure, rarely associated with relevant morbidity, despite frequent minor complications. Lesion size and location, margin characteristics, pleural contact and pulmonary emphysema are the main predictors of complication in our experience.

Keywords: *Lung biopsy. Computed tomography.*

PE 064. ANGIOLYMPHOID HYPERPLASIA WITH EOSINOPHILIA (ALHE): A COMPLEX BUT HARMLESS NAME?

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Introduction: Angiolymphoid hyperplasia with eosinophilia (ALHE), also named epithelioid hemangioma, is an uncommon benign vascular tumor characterized by well formed but often immature vessels and by the proliferation of epithelioid endothelial cells with prominent lymphocityc and eosynophilic infiltration. The majority of the ALHE lesions affect the subcutaneous tissue of the head and neck. Reported cases of the pulmonary involvement are extremely rare. Due to the scarcity of published cases, no ideal treatment is defined.
Case report: A 59-year-old Caucasian man, current smoker (CT 48 UMA) and former drug addict had performed a Thoracic computed tomography (CT) that revealed "left peripheral pulmonary mass with 4 cm (...) bilateral diffuse emphysema (...)". For that reason he was referred to our hospital. He presented a 2-3 months history of weight loss, asthenia and exertion dyspnea. Blood tests revealed eosinophilia (540), a normal Total IgE are normal (22.9 U/ml) and negative serologies. PET-CT revealed mild pulmonary radiopharmaceutical uptak, of an undetermined nature, that led to a Transthoracic Biopsy revealing "Histological picture suggestive of Angiolymphoid Hyperplasia with Eosinophilia, although it is not a complete decision in parasitic". The fiberoptic bronchoscopy was normal and the bronchoalveolar lavage showed negative neoplastic cells as well as negative microbiological exams. He did a parasitological examination of his feces, that were also negative, excluding parasitic infection. Given the rarity of pulmonary involvement by ALHE, and to assess the possibility of surgical resection of the mass, he performed a Respiratory Functional Study with severe obstruction (FEV1 post-bronchodilation 48%) and moderate decrease in diffusing capacity of lung for carbon monoxide (DLCO, DLCO/VA-44%) and the case was discussed with Thoracic Surgery that accepted him for surgery after integration into a pre-operative rehabilitation program.
Discussion: We report one rare case study of pulmonary involvement by ALHE, a diagnosis that must be added to the large list of differential diagnoses of lung nodules, also extending the spectrum of vascular and lymphoid lesions that can occur within the lung. To the best of our knowledge, there are only four published cases describing the pulmonary involvement by ALHE and that's why we believe that, even smaller number of cases or individual experiences of pulmonary involvement by ALHE are important to improve our understanding and management of this rare entity.

Keywords: *Pulmonary involvement by angiolymphoid hyperplasia with eosinophilia. Epithelioid hemangioma. Vascular tumour.*

PE 065. LUNG CANCER AND PULMONARY TUBERCULOSIS: A SOLE LESION, TWO DIAGNOSIS

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Introduction: The association between lung cancer and pulmonary tuberculosis is well known and has been reported in recent studies. It occurs in only 2% of lung cancer patients, more often in squamous cell carcinoma and typically in the upper lobes.
Case report: 87 year-old male, current smoker, with previous history of COPD and pulmonary tuberculosis, diagnosed in 2006 and treated with first-line tuberculostatic agents. The patient was referred to our department in February 2019 by his family physician due to a six months evolution left pleuritic chest pain irradiating to the back – with no further complaints – and imaging findings in a chest CT performed last year showing extensive lesion with calcifications and cavitated areas in the posterior region of the apicoposterior segment of the left upper lobe (LUL), conditioning significant parietal thickening and extensive lytic lesion of at least one adjacent rib. Sputum was collected for examination: acid-fast bacilli (AFB) smear revealed 1-9 AFB/100 fields and nucleic acid amplification test of M. tuberculosis DNA was positive. Tuberculostatic therapy with Isoniazid, Rifampin, Pyrazinamide and Ethambutol was initiated. Repeated chest CT showed a massive cavitated lesion in the LUL with partial invasion and destruction of the 2nd and 3rd dorsal vertebrae, the posterior arch of the 2nd and 3rd ribs and invasion of the left subscapularis muscle; secondary pulmonary nodules of the left lung; no lymphadenopathies. Bronchoscopy showed no significant findings and no malignant cells were found in the bronchial aspirate. Ultrasound-guided transthoracic needle biopsy was performed, presenting histological features compatible with non-small cell lung carcinoma, still pending complementary immunohistochemical testing.
Discussion: The authors intend to present a rare case of association between lung cancer and pulmonary tuberculosis. The causal relationship between them remains unclear: the most consensual hypothesis relates lung cancer development with chronic inflammation, structural changes in the bronchial tree and epithelial metaplasia of old tuberculosis lesions (scar carcinoma). On the other hand, lung cancer might play a role triggering the reactivation of old lesions of pulmonary tuberculosis.

Keywords: *Lung cancer. Tuberculosis.*

PE 066. BLACK BRONCHOFIBROSCOPY: A CASE REPORT

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Introduction: The presence of black pigmentation in the bronchial tree is not a rare occurrence and could be translated as infectious process, environmental exposures, iatrogeny and neoplastic causes.
Case report: A 54-year-old, non-smoking woman with a history of malignant melanoma in the left axilla who underwent surgical treatment with ganglion dissection six years before. She developed dry cough, asthenia and dyspnea on exertion (mMRC 1), with about 1 month of evolution. In addition, she mentioned neck pain with painful right supraclavicular adenopathy. She denied fever or other constitutional symptoms. After a chest X-ray showing hypotransparency in the right upper hemithorax, she was empirically medicated for community-acquired pneumonia with ceftriaxone and azithromycin, which was completed without clinical or imaging improvement. On admission to the emergency department, the patient was sub-febrile (37.7 ºC), with decreased vesicular murmur in the right upper lung and right supra-clavicular adenopathy of hard consistency, adhering to the deep planes. Laboratory data presented ane-

mia (Hb 12.4 g/dL), PCR 14mg/dL and pro-calcitonin 0.05 ng/mL. Given the personal history and unfavorable radiological evolution, the patient underwent CT-scan showing: a massive right upper lobe neoformation, with 9 × 12 cm and invasion of the right upper lobe bronchus (RULB) and the right pulmonary artery, causing extrinsic compression of the brachiocephalic trunk; multiple contralateral nodular lesions; exuberant mediastinal, hilar, supraclavicular and axillary adenopathies, and right pleural effusion of moderate volume. Bronchofibroscopy revealed black infiltrating and petria mass, causing almost complete occlusion of the RULB entrance, not allowing distal progression (photo). Bronchial biopsies and brushing of the described lesion were performed and pathological results were compatible with pulmonary metastasis of melanoma (Melan-A and HMB45 expression). The patient progressed unfavorably with worsening dyspnea, facial and cervical edema as a result of extensive tumoral occlusion of the brachiocephalic trunk. The patients was referred for emergent palliative radiotherapy, but died 1 month after the onset of the symptoms.
Discussion: Malignant melanoma is the cutaneous neoplasia with the highest mortality rate and potential for distant dissemination, and the lung is one of the most common metastasis sites, right after the ganglia. Pulmonary metastasis of melanoma is often asymptomatic but this condition is associated with a poor prognosis. This case illustrates the aggressiveness of melanoma even after a long period free of disease, so any new symptomatology requires a targeted investigation for tumor recurrence.

Keywords: *Malignant melanoma. Lung mass. Metastasis.*

PE 067. GIANT SOLITARY FIBROUS TUMOR: CASE REPORT

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Introduction: Solitary fibrous tumor is a rare neoplasm, originated from mesenchymal tissue with fibroblast differentiation. Its incidence is estimated to be around 2.8 cases per 100,000 hospitalizations. This tumor commonly involves the pleura, peritoneum, meninges or lower extremities but it can occur in any part of the body. Malignant forms are histologically defined as hypercellular, mitotically active (> 4 mitoses/10 high power field (HPF)), cellular atypia, presence of necrosis and/or infiltrative margins. Around 10 to 20% of the cases described in the literature are malignant. Surgery is the first line treatment in cases of local disease and 10-year survival rates are reported to be between 54% and 89%.
Case report: The authors report a case of a 60-year-old woman, active smoker, with previous diagnosis of COPD with emphysema, mitral valve prolapse, post-thyroidectomy status (macro nodular and microfollicular hyperplasia). The patient turned to her general practitioner, reporting a history of recurrent respiratory infections over the last six months, dyspnea, productive cough and significant weight loss (8 kg in one year). A chest X-ray was performed showing an opacity located to the lower half of the left hemithorax. The computed tomography (CT) revealed a solid vascularized mass, with 21 cm long axis, containing calcifications inside, contacting the left border of the mediastinum and involving the pulmonary artery. The mass conditioned contralateral deviation of the mediastinum and complete collapse of the left lower lobe. The patient was referenced for the pulmonology department and in this setting she was hospitalized for further clinical investigation. On admission, she had partial respiratory failure and in objective examination digital clubbing was evidenced. CT-guided transthoracic biopsies were performed and the results were compatible with myofibroblast tumor. The PET-scan confirmed the presence of a single lesion with SUV of 3.1. The patient was submitted to surgery with giant pleural tumor block excision and left inferior lobectomy by thoracotomy. The postoperative period was prolonged especially due to the need of re-intervention for hemostasis. After this, clinical evolution was favorable for the remaining hospitalization. The result of the pathological anatomy was compatible with a pleural solitary fibrous tumor with uncertain incident biological behavior: mitotically poorly active (2 mitoses/10HPF), but presence of necrosis and hypercellularity. The patient maintains clinical and imaging surveillance, with no signs of local recurrence or distant metastasis after one-year follow-up.
Discussion: This case shows the exuberance of the presentation of this type of slow growing tumors with onset of symptoms in later stages of the disease. On the other hand, it reflects the difficulty that sometimes exists in clinical practice to distinguish benign from malignant disease using histological criteria. Surgery is the first-line treatment. The patient had a good clinical evolution with no signs of relapse after one-year follow-up.

Keywords: *Pleural tumors. Solitary fibrous tumor.*

PE 068. MULTIPLE LUNG NODULES: AN UNEXPECTED DIAGNOSIS

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Introduction: Differential diagnosis of multiple lung nodules may be challenging. The main diagnostic hypothesis to be considered are primary lung cancer with bilateral metastasis, secondary lesions from an extra-thoracic tumour and interstitial lung disease. Very often, a lung biopsy is mandatory to get the final diagnosis.
Case report: 81-year-old male patient, non-smoker, former worker of the sawmill industry and agriculture, with clinical history of type 2 diabetes, arterial hypertension, dyslipidemia and deep vein thrombosis. The patient searched medical assistance due to dyspnea, dry cough, anorexia, weight loss (unquantified) for the past month. He referred no fever. Objective clinical examination was normal. As such, he performed chest-computed tomography (CT) which showed multiple nodular formations spread through the lung parenchyma, the larger ones on the right inferior lobe (RIL) with 30 mm and irregular borders and on the left inferior lobe (LIL) with 24 mm and irregular borders- suggestive of pulmonary metastasis, though primary lung tumour may not be excluded. The patient was then referred to the Pneumology department for complementary study. He performed arterial gasometry with hypoxemic respiratory insufficiency and plethysmography with an increase on airway resistance. The patient also performed bronchofibroscopy with no endobronchial lesions (microbiological studies were negative; bronchoalveolar lavage, bronchial aspirate and bronchial biopsies showed no cancer cells); positron emission tomography-CT (PET-TC) showed, spread through the lung parenchyma, multiple nodular formations of varied dimensions, the larger ones on the LIL (with 34 × 22 mm and SUVmax 3.1), right superior lobe (with 25 × 21 mm and SUVmax 2.2) e RIL (with 31 × 24 mm and SUVmax 1.6), as well as multiple mediastinal lymphadenopathies, and any other organ lesions; CT-guided transthoracic biopsy of the LIL pulmonary mass showed amorph eosinophilic material with green-apple refringence on Congo-red coloration, compatible with amyloid substance, with no cancer cells. CT-guided transthoracic biopsy was repeated with similar histologic result. The patient was submitted to surgical resection of the RIL mass which presented amorph eosinophilic material and amyloid substance, compatible with nodular amyloidosis. The patient was referred to the Haematology department, in order to study any possible lymphoproliferative underling condition. He keeps follow-up consultations on the Pneumology department.
Discussion: Pulmonary amyloidosis is a rare disease that is caused by deposition of amyloid microfibril material in the lung parenchyma. Amyloidosis can be systemic or localised ad it affects the

lung in three different forms: nodular pulmonary amyloidosis, diffuse alveolar-septal amyloidosis and tracheobronchial amyloidosis. The authors present a clinical case of Nodular Pulmonary Amyloidosis. The exclusion of metastatic and primary lung disease is pertinent and, after histologic confirmation of amyloidosis, study for possible underling condition should be performed - inflammatory conditions, such as Sjögren's disease, as well as lymphoproliferative disorders, like lymphoma, MALT lymphoma (mucosa-associated lymphoid tissue) and multiple myeloma. The preferable treatment is surgical resection of lung nodules, which is not feasible on this specific case due to multiple lung nodules.

Keywords: *Amiloidosis. Nodule.*

PE 069. PREDICTIVE FACTORS FOR IATROGENIC PNEUMOTHORAX AFTER CT-GUIDED PERCUTANEOUS CHEST BIOPSY

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Introduction: CT-guided transthoracic core-needle biopsy has been shown to be safe and effective in the diagnosis of lung nodules. However, pneumothorax is a well-known complication of this technique.
Objectives: Identify predictive factors for pneumothorax.
Methods: Retrospective observational study of patients submitted to percutaneous chest biopsy (18F dual spring system) under CT guidance, in a one-year time period. The factors evaluated were: age, gender, emphysema, tobacco use, lesion size, distance from pleura to target lesion (mm), previous history of pneumothorax and Bio-Seal use.
Results: The study included 217 patients (average age 67 ± 13 years-old; 67.3% were male). According to radiological criteria 49 (22.6%) patients had pulmonary emphysema. Sixty-one patients (28.1%) had post-procedure complications. Pneumothorax was the most frequent complication occurring in 49.2% (30/61). Of these 30 pneumothoraxes, 14 (46.7%) required no treatment, 11 (36.7%) were treated with manual aspiration immediately after biopsy and a chest tube had to be placed in 5 (16.7%) cases.
Conclusions: No association was proven between iatrogenic pneumothorax and evaluated factors, however patients with emphysema were more prone to have iatrogenic pneumothorax. The fact that trained and experienced physicians performed the techniques and low number of patients with emphysema might influence the results.

Keywords: *Pulmonary biopsy. Iatrogenic pneumothorax. Bio-seal.*

PE 070. GROUND-GLASS SOLITARY NODULE: A RADIOLOGICAL FINDING NOT TO BE LOST SIGHT OF

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Introduction: Ground glass opacifications usually present non-uniformity and less density than solid nodules. This subset of pulmonary nodules require follow-up for a longer period of time, due to the risk of actually being a manifestation of adenocarcinoma.
Case report: 64-year-old female patient, non-smoker, former worker of the textile industry and with contact with birds, with clinical history of rheumatoid arthritis (under therapy with rituximab, salazopyrine, methotrexate, corticotherapy), secondary Sjögren syndrome, Hashimoto thyroiditis and degenerative osteoarticular disease. The patient was referred to the Pneumology–Diffuse Lung Disease consultation, in order to study a possible lung involvement of rheumatoid arthritis. She referred progressive worsening dyspnea and dry cough. Objective clinical examination was normal. The patient performed chest-computed tomography(CT) which showed a ground-glass area with 25 mm of diameter on the anterior segment of the left superior lobe (LSL), with no lymphadenopathies nor pleural effusion; functional respiratory study which was normal; 6 minute walk test with no desaturation; bronchofibroscopy with no endobronchial lesions (microbiological, mycobacteriological and cytological studies were negative; immunophenotypical study of the broncho-alveolar lavage showed a cellularity of 68 cel/mm^3, 5% neutrophils, 87% macrophages and 5% lymphocytes). Due to the diagnostic hypothesis of organizing pneumonia secondary to rheumatoid arthritis, the case was discussed with the Interventional Radiology department, which considered that the nodule was not accessible through CT-guided transthoracic biopsy. Surgical lung biopsy was proposed, but the patient declined and agreed only on radiologic control of the lesion. The patient repeated chest-CT with evidence of a vaguely nodular area with 25 mm of diameter on the LSL, mainly with ground-glass density but presenting a denser inside area (with 4.4 × 3.6 mm). As such, she performed positron emission tomography-CT (PET-TC) which showed a ground-glass area on the LSL with no FDG-F18 uptake, unsuspicious of high-degree cancer lesion. Control chest-CT (about 24 month after the first CT) showed a nodular area with 26 × 21 mm on the LSL, mainly with ground-glass density but with larger dimensions then previously and with a denser larger inside area (with 7 × 6 mm), with no lymphadenopathies or other identifiable lesions. Surgical lung biopsy was proposed once more, which the patient finally accepted. Extemporaneous examination of the surgical biopsy material was compatible with adenocarcinoma in situ/minimal invasive lung adenocarcinoma, so left upper lobectomy with complete lymphadenectomy (stations 5, 10 e 11). Resection piece confirmed minimal invasive lung adenocarcinoma with central invasion area with a diameter inferior to 5 mm, with no other identifiable lesions, as well as, alterations in the nodule-surrounding lung parenchyma consistent with constrictive bronchiolitis, in relation with lung involvement by rheumatoid arthritis/Sjögren syndrome.
Discussion: The authors present a clinical case of ground glass opacifications which turn out to be a minimal invasive lung adenocarcinoma, with a gradual evolution for a period of 24 months. Minimal invasive lung describes solitary nodules with < 3 cm, predominant lepidic growth, ≤ 5mm invasion and without lymphatic, vascular, or pleural invasion. If resected, it is associated with near 100% disease-free survival.

Keywords: *Solitary lung nodule. Ground-glass. Rheumatoid arthritis.*

PE 071. CHARACTERIZATION OF PULMONARY NODULES SUBMITTED TO STEREOTACTIC BODY RADIATION THERAPY (SBRT) AFTER LUNG BIOPSY: IS THERE ANY POSSIBLE RECURRENCE?

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Introduction: Stereotactic body radiation therapy (SBRT) is considered an alternative therapy for lung cancer in early stage (I/II and III, in selected cases and T ≤ 3 cm), when there is no possibility for surgical resection. The prediction of cancer recurrence in patients undergoing SBRT is not well established and it is important to recognize possible morphological characteristics of the pulmonary nodules that may infer the possibility of recurrence.
Objectives: Characterization of pulmonary nodules submitted to SBRT and prediction of local recurrence in a sample of patients followed at in Pulmonology consultation.

Methods: We, retrospectively, selected patients followed for solitary lung nodule who, after decision at a multidisciplinary meeting, underwent SBRT, between January 2016 and January 2019, and documented their evolution until July 2019. Ten patients were selected of which we only included those who had a histological diagnosis (n = 4).
Results: Four patients were submitted to SBRT with a mean dose of 57Gy (min 48 Gy; max 60 Gy) and a mean number of 4.6 fractions (3-7.5). They were all men with an average age of 76 years (min 71; max 83). They had heavy smoking habits (mean 77.5 AU) and moderate to severe chronic obstructive pulmonary disease. Two patients had a history of non-pulmonary cancer. 75% (N = 3) were in stage I or II and 25% (N = 1) in stage III (T ≤ 30 mm) lung cancer. In 3 patients, pulmonary nodules were found to be peripheral and located in the right upper lobe; while in the other patient it was central and located in the perihilar region of the lingula. Morphologically, they were solid nodules, irregular or lobulated contours, mean axis of 24.5 mm (min 17; max 30), and had a positron emission tomography (PET) mean value 10.88 SUV (min 2.83; max 18). After SBRT only two patients were re-evaluated with PET, with a decreased metabolic uptake in both. No adverse effects were observed after SBRT. Diagnostics obtained: adenocarcinoma (N = 3) and squamous cell carcinoma (N = 1). There was no cancer progression in any of the patients keeping up follow-up (mean 17 months; 6 - 36 months) in our consult.
Conclusions: SBRT is an excellent therapeutic option in patients with evidence of solitary lung nodule. Since all patients are being followed up with no evidence of recurrence since SBRT, it was not possible to demonstrate plausible criteria for the possibility of recurrence. The sample size may also have conditioned the results obtained.

Keywords: *Stereotactic body radiation therapy. Cancer recurrence. Solitary lung nodule.*

PE 072. COMPLICATIONS OF TRANSTHORACIC CT GUIDED LUNG BIOPSY: A RETROSPECTIVE STUDY

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Introduction: CT guided lung biopsy is a frequent diagnostic procedure in Oncologic Pneumology. It is used mainly for peripheral lung lesions. This technique implies pleural e lung puncture and consequently, an increased risk of complications. According to the most recent literature, the overall rate of complications is approximately 40% and major complications of 6%.
Objectives: Observational, retrospective study with the goal of analysing the complication rate and associated risk factors of lung biopsies in a sample of patients from our department.
Methods: It was selected a sample of 61 patients aged 25 to 84 years old, that underwent lung biopsy in the period of August 2016 to June 2018 in the Pneumology department. It was analysed the rate of major complications (pneumothorax with the need of intervention, haemothorax, gas embolism and mortality) and minor complications (pneumothorax without the need for intervention, transient haemoptysis and alveolar haemorrhage). Furthermore, the risk factors with potential contribution for these complications were analysed (age, gender, presence of lung emphysema, bullous emphysema, size of the lesion, presence of cavitation, distance of the lesion to the pleura, number of biopsies for each procedure. For statistical analysis the software SPSSv25 was used.
Results: In the considered sample, the rate of major complication was 9% (n = 6) and minor complication rate was 39% (n = 24). After statistical analysis, it was observed an association between the presence of lung emphysema and the occurrence of alveolar haemorrhage (p = 0.020). It was found that there is an association between a larger distance between the lesion to pleura and pneumothorax with the need for intervention (p = 0.023). This variable was also associated with pneumothorax without the need for intervention (p = 0.012) and haemoptysis (p = 0.014), however for smaller distances. Lesions with cavitation were associated with more occurrence of haemoptysis (p = 0.045). It appears that there is more pneumothorax with the need for intervention (p = 0.021) and alveolar haemorrhage (p = 0.046) in the group with the highest number of biopsies per procedure.
Conclusions: This study gives strength to some of the data already described in previous studies. In this analysis, the only factors patient-related in which there was a positive association with the number of complications was the presence of lung emphysema and lesions with cavitation. About the procedure-related factors, it was observed a more frequent occurrence of pneumothorax with the need for intervention in the cases of biopsy of lesions with larger distances to pleura and more occurrence of minor complications for smaller distances. It was found that more biopsies per procedure is associated with more complications (both major and minor). More studies with a larger sample of patients are necessary to corroborate this finding.

Keywords: *Ct guided lung biopsy. Lung cancer. Lung nodule. Pneumothorax.*

PE 073. SMALL CELL LUNG CARCINOMA (CPPC): A CASE REPORT

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Introduction: Small Cell Lung Carcinoma (CPPC) represents 10% to 13% of all lung cancers. The etiology is fundamentally due to smoking habits. Clinically, it has rapid tumor growth and early metastatic spread, with a good response to chemotherapy and radiotherapy, but with frequent development of therapeutic resistance in metastatic disease. Only 33% have limited disease. When left untreated, it has a median survival of 1.3 months in disseminated disease and 2.5 months in limited disease. When treated, or prognosis is somewhat favorable, it has a 5-year survival of 20% to 25% in limited disease, and in 12-month disseminated disease, a 1% to 2% survival rate.
Case report: It presents a case of a self-contained 75-year-old man, followed by an external consultation of COPD Pulmonology and Obesity and Hypoventilation Syndrome, with a history of hypertension, a smoker of 50 UMA. The patient, due to the worsening of the disease pattern, resorted to the Emergency Department, performing thoracic X-ray and thoracic CT aiming at dispersed pulmonary modules associated with hepatic nodules. A month later, the external thoracic abdominal control pelvic thoracic CT scan revealed worsening findings, with lower familial lung mass (not previously identified), hepatic, adrenal, and bone lesions with peritoneal carcinomatous hearing. The patient, due to poor clinical control, was admitted to a Palliative Care Unit. He underwent CT-guided transthoracic biopsy, which revealed stage IV small cell carcinoma. Because of the progressive and rapid worsening of the signs and symptoms of disseminated severe cancer, he is unable to start chemotherapy and has failed after 7 days.
Discussion: Despite therapeutic advances, with significantly increased conjugation with improved quality of life, such as long survivals and eventual cures are very rare. In this case, we want to highlight the rapid evolution of cancer disease, without the possibility of chemotherapy and the need for symptomatic control of patients. In conclusion, tabular prevention is the most important preventive intervention without reducing the CPPC mortality rate.

Keywords: *Lung carcinoma. Tobacco.*

PE 074. LONG SURVIVORS IN SMALL CELL LUNG CARCINOMA

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Introduction: Small cell lung carcinoma (SCLC) belongs to the group of high grade lung neuroendocrine tumours and characteristically presents with rapid growth, early metastasis and initial sensitivity to chemotherapy (CTX) and radiotherapy (RT). SCLC represents approximately 13% of all lung cancers and prognosis strongly depends on the tumour stage.
Objectives: To assess the population of patients with SCLC who survived 24 months or longer in a tertiary hospital.
Methods: An analysis of the patients followed in Pulmonary Oncology Unit of the Centro Hospitalar Universitário Lisboa Norte Hospital Pulido Valente with a survival of 24 months or longer, was carried out from January 2013 to December 2017. An analysis of the main demographic, clinical, imaging and therapeutic data was performed.
Results: From the selected period, 100 patients with SCLC were diagnosed and followed, and 15 (15%) had a survival of 24 months or more. Eleven patients were male (73%) and the mean age was 61 ± 11 years. All had smoking habits with 57 ± 29 pack-year, and 40% were former smokers. The body mass index was 26 ± 6 kg/m^2, all patients had a performance status (PS) of 0-1 and a Charlson Comorbidity Index between 2 and 9. Twelve patients (80%) had limited disease (IIIA, IIIB, IIIC). Three patients had extensive disease, none had central nervous system metastasis and only 1 had metastasis in two organs (adrenal and bone). The onset of CTX since the date of diagnosis was 25 ± 13 days, with 80% of patients receiving combination therapy with RT. All patients underwent first-line CTX with platinum doublet and etoposide, with a partial response rate of 80% (n = 12) and a complete response of 20%, with no progression record. 40% of patients progressed with a time to progression since the last CTX cycle of 13.2 months (n = 5) and 1 patient after 3 months. Five patients repeated the 1st line CTX regimen and 1 underwent 2nd line topotecan. Four patients had 3a or more lines therapies. Of the 6 patients who died (40%), median survival since diagnosis was 40 months.
Conclusions: In this group, patient and disease characteristics are favorable in relation to age, comorbidities, PS, disease stage and response to therapy, which may explain the greater survival compared to the general population of SCLC patients.

***Keywords**: Lung cancer. Small cell lung carcinoma. Long survivors.*

PE 075. RARE METASTASIS FROM LUNG ADENOCARCINOMA: A CASE REPORT

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Introduction: Lung cancer remains a major cause of cancer-related death worldwide. The most common sites of extra thoracic metastasis of lung cancer are adrenal glands, liver, bones and central nervous system.
Case report: A 67-year-old female, smoker (25 pack/years), with past medical history of stage VI lung adenocarcinoma with pulmonary and left adrenal gland metastasis, diagnosed 1.5 years ago. She had been treated with cisplatin/pemetrexed in 1st line with partial response. Because the disease was progressing (growth of the primary lesion of the left lower lobe and appearance of a new lesion in the left upper lobe), she was waiting for a 2nd line therapy. She presented to the emergency department with progressive dysphagia, abdominal pain, nausea and vomiting in the last 15 days. She was apyretic and hemodynamically stable. Polyneic, with decreased breath sounds on the left hemithorax. No pain on abdominal examination. Gasometry with hypoxemic respiratory failure. Analytically with hypochromic and microcytic anemia (haemoglobin 7.4 g/dL) and creatinine elevation (1.68 mg/dL). The patient performed: chest X-ray with hypotransparency in the lower third of the left pulmonary field, suggestive of pleural effusion; abdominal ultrasound revealed nodular formation (58 mm) in the left suprarenal gland and adenopathy (21 mm) in the hepatic hilum region; esophagogastroduodenoscopy showed an ulcerative lesion (5 cm) in the posterior wall of the gastric body and a subepithelial lesion (3 mm) on the gastric fundus. Biopsies from the ulcerative lesion were obtained and pathological examination of specimens demonstrated poorly differentiated invasive adenocarcinoma. In the immunohistochemical studies, tumour cells were positive for thyroid transcription factor 1 (TTF1) and cytokeratin 7 (CK7); and negative staining for cytokeratin 20 (CK20). Therefore, the diagnosis of gastric metastasis from primary lung cancer was made. Subsequently, the patient's general condition was deteriorated and, accordingly of her poor overall performance status, best supportive care management was recommended. She died 21 months after the initial diagnosis.
Discussion: Metastasis to gastrointestinal tract from lung cancer are uncommon with reported incidence ranging from 0.5% to 10%, whereas the incidence of gastric metastasis ranges from 0.2 to 0.5% thus representing a rare event. Because most gastric metastasis are submucosal, the majority remain asymptomatic. However, they can cause epigastric pain, digestive bleeding, anaemia, or even acute complications such as gastric perforation or pyloric obstruction. In general, the presence of gastrointestinal metastasis in lung cancer is associated with an advanced or end-stage disease and should be considered in the differential diagnosis of lung cancer patients presenting with an acute abdominal or gastrointestinal bleeding. Immunochemistry is very useful tool in differentiating between primary gastric cancer from gastric metastasis from primary lung cancer in equivocal cases.

***Keywords**: Lung cancer. Adenocarcinoma. Gastric metastasis.*

PE 076. NIVOLUMAB TOXIDERMIA: ABOUT A CASE REPORT

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Introduction: Immunotherapy with nivolumab, human anti-PD-1 monoclonal antibody, has revolutionized the treatment of various neoplasms, including lung cancer. The safety profile of this drug appears to be better than that of chemotherapy. However, the number of immunomediated adverse effects is significant, with severe or fatal cases being rare. Skin adverse effects are usually grade 1 or 2, with an incidence of 20.1% and 5.1% respectively. More advanced grades are quite rare, usually leading to discontinuation of the drug.
Case report: We report the case of 63-year-old women, former smoker, with a 40 pack-year smoking history. In March 2015 she presented with left pleuritic thoracalgia. Imaging revealed a solid 18 mm nodule near the left hilum. The etiological investigation was inconclusive and, therefore, in April 2015 she underwent diagnostic/therapeutic surgery. The evaluation of the anatomical specimen revealed a moderately differentiated acinar lung adenocarcinoma (PD-L1 negative, without EGFR and BRAF mutation, and no ALK and ROS1 rearrangement) with intranodal hilum metastasis, with lymphatic, vascular, visceral pleura and pericardium invasion and tumor presence at the edge of perihilar tissues: pT3N1M0. Adjuvant QT with 4 cycles of cisplatin and vinorelbine was administered, with progression of bilateral suprarenal metastatic disease at 18 months,

the restaging: pTxNxM1b. She had first-line QT with carboplatin and pemetrexed (6 cycles) with partial response (PR) and later progression of pulmonary and adrenal gland disease at 5 months. She proceeded to second-line QT with docetaxel (6 cycles) with PR and subsequent progression of adrenal disease at 9 months. There were no serious adverse reactions to any of the chemotherapy regimens. She started 3rd line with nivolumab (3 mg/kg) in March 2018. The patient presented PR to immunotherapy at 3 months with disease stabilization since then. At 4 months therapy asymptomatic secondary hypothyroidism was diagnosed and controlled with medical therapy. At 7 months, after 16 cycles of nivolumab, the patient begins with progressive eczematiform disease with injuries to the forearms, trunk and cervical region (> 30% of body area), accompanied by pruritus. She was observed at a dermatology consultation and had a skin biopsy that revealed a slight superficial perivascular inflammatory infiltrate with rare eosinophils. Late-onset immunomediated grade 3 nivolumab toxidermia side effect was admitted. Treatment was initially discontinued, but in April 2019 persistence and worsening of symptoms prompted discontinuation of nivolumab definitively. Prednisolone therapy was instituted (1.5 mg/kg/day), with subsequent gradual dose reduction along with progressive but incomplete resolution of symptoms requiring maintenance of low-dose corticosteroids.
Discussion: Nivolumab is associated with a good therapeutic response with tolerable adverse effects. Skin toxicity is one of the most common problems but it's usually well managed. We present this case to highlight the importance of timely recognition and proper treatment, sometimes requiring temporary or definitive discontinuation of the drug.

Keywords: *Nivolumab. Human anti-PD-1 monoclonal antibody. Side effect. Immunotherapy. Toxidermia.*

PE 077. LUNG CANCER WITH PERITONEAL CARCINOMATOSIS: AN INFREQUENT PRESENTATION

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Introduction: Lung cancer is among the most prevalent worldwide, demonstrating one of the highest mortality rates. It is a silent disease presenting in stage IV at the time of diagnosis in about 50% of cases. Preferred extrapulmonary sites of metastasis are lymph nodes, liver, adrenal glands, bone and brain. Peritoneal carcinomatosis, representing neoplastic involvement of the peritoneum, is rare, around 2-3% (16% according to autopsy reports) and clinical manifestations associated with this entity are uncommon. The form of dissemination for intra-abdominal localization is believed to occur through the hematogenous and lymphatic pathways. Several studies suggest that they occur more frequently in lung adenocarcinoma, but not exclusively.
Case report: We present the case of a 47-year-old autonomous, healthy, female, smoker (22 pack-year), with relevant neoplastic family history (mother with colon cancer), who experienced weight loss, anorexia, increased abdominal perimeter, diffuse abdominal cramps, and diarrhoea (no blood, mucus, pus, steatorrhea or acholia). Initially interpreted as constipation and medicated symptomatically. Because she maintained complaints she consulted a Gastroenterologist and performed an abdomen-pelvic-CT that showed "portal thrombosis, moderate ascites and bilateral pleural effusion". She was them referred to the emergency department of HSFX. On admission, she was jaundiced, analytically had elevated PI and hyperbilirubinemia with cytocholestasis pattern and a large right pleural effusion on chest X-ray. From the investigation carried out in the hospital, we highlight: ERCP, where we could visualize a closed stenosis of the CBD (selective cannulation of the right hepatic branches), without unequivocal infiltrative lesion. Negative CBD brush cytology; Diagnostic thoracentesis whose cell block revealed "pleural metastases of lung adenocarcinoma"; Thoracic CT: "suspicious occlusive image in the middle bronchus and some mediastinal adenopathies" and BF with marked infiltration of the intermediate bronchial wall, apparently permeable, but unable to progress (...)". Thoracic drainage was performed with two chemical pleurodesis (the last after ascites evacuation) with partial response. Because of maintenance of elevated IP, a TAP-CT was repeated and documented "liver abscesses", so she was started on empirical antibiotic therapy with Piperacillin/Tazobactam (13 days) which was escalated to Meropenem (33 days) and Gentamicin (15 days) due to K. pneumoniae bacteremia admitted to have an abdominal origin. Because of a massive ascites with clinical repercussion, she performed a total of 4 evacuating paracenteses during hospitalization, with identification of neoplastic cells (lung adenocarcinoma). Cranial-CT and Bone Scintigraphy didn't show the presence of secondary deposits. She was discharged for consultation of Onco-Pulmonology but died 2 weeks later.
Discussion: Clinical manifestations associated with peritoneal carcinomatosis are rare, although in advanced stages it may be related to nausea, vomiting, bloating, ascites and ileus. CT, PET/CT and paracentesis are important diagnostic tools, and the latter also allows symptomatic relief. Collaboration between different specialties is critical in managing the disease, but the palliative treatment of these patients tend to have a poor outcome. The factors leading to the development of abdominal spread and peritoneal carcinomatosis are not known, but the histological type, degree of differentiation, and biological markers appear to play an important role.

Keywords: *Lung cancer. Peritoneal carcinomatosis.*

PE 078. SOLITARY FIBROUS TUMOUR: A GIANT MASS

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Introduction: Solitary fibrous tumour (SFT) is a rare, usually benign, mesenchymal tumour. Although most of these tumours originate from the pleura, they may occur in other thoracic (mediastinal, pericardial and lung) and extrathoracic regions. These tumours are frequently observed in middle-aged adults, with greatest occurrence in the 6th to 7th decades of life, without gender predilection neither identified risk factors.
Case report: A 74-year-old female, non-smoker, retired (worked in agriculture) was admitted to the hospital for a blunt trauma of the right hemithorax. She also reported progressive dyspnoea (mMRC 2), cough with poor mucoid sputum, anorexia and weight loss of 10 kg in the last year. She reported a history of left-sided thoracic trauma following an occupational accident 50 years ago. Without past medical history and no usual medication. The physical examination revealed digital clubbing and decreased breath sounds over the right hemithorax. Chest radiography showed total opacification of the right hemithorax, with slight contralateral mediastinal shift. Laboratory data only revealed hypoglycemia. Without respiratory failure. Contrast-enhanced CT scan revealed: a large mass, 20 × 10 × 15 cm, with ovoid and lobulated morphology, but with well-defined margins, occupying practically the whole left hemithorax. The lesion displayed intense and heterogeneous contrast uptake and central areas of calcification; no invasion of adjacent structures, mediastinal or hilar lymphadenopathy. She was submitted to a videobronchofibroscopy showing slight deviation of the trachea and carina to the right side and signs of extrinsic compression throughout the left bronchial tree. The bronchial lavage cytology was negative. A transthoracic CT-guided biopsy was then performed and the anatomopathological result was compatible with a solitary fibrous tumour, composed of spindle cells with slight atypia arranged in a fibrocollagenous stroma; immunohistochemical staining was intense and diffusely positive for CD34, vimentine and Bcl2. Considering the

dimensions and characteristics of the lesion, the patient was proposed for surgical recession.
Discussion: SFT are slowly growth tumours, usually asymptomatic, and in one third of cases constitute an incidental finding on routine chest radiography. Occasionally, and more often in malignant SFT, patients have refractory hypoglycemia known as Doege-Potter Syndrome. The treatment of choice for these tumours is complete resection, usually with favourable prognosis. However, malignant recurrence may occur and a careful follow-up evaluation is mandatory.

Keywords: *Solitary fibrous tumour. Pleura. Lung.*

PE 079. NOT ALL LUNG MASSES ARE LUNG CANCER!

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Introduction: Pulmonary nodules/masses remain a challenge for pulmonologists. We focus on the basic principle of its nature: benign (requiring no specific approach) or malignant, requiring prompt and precise intervention. The differential diagnosis of pulmonary nodules/masses is vast, contributing predominantly the patient's clinical symptoms, analytical study, radiographic characteristics, dominated always by histological characterization, given the different treatment and prognosis of each clinical entity.
Case report: We report the case of a 63-year-old autonomous HIV-1 man undergoing therapy, who went to the ED of HSFX because of episodes of lipothymia associated with dizziness, tunnel vision, tinnitus and hearing loss experienced in the last month, and weight loss (5 kg in 10 days) with anorexia, nausea and vomiting in the previous days. Observation showed paresthesia in the lower lip with left predominance associated with deviation of the contralateral lip commissure and a palpable mass of approximately 5cm in the hypogastrus, painless and immobile. The complementary study showed: analytically PCR 2.61 mg/dL; Chest X-ray with left parahilar hypotransparency; Abdominal-pelvic ultrasound highlighting three suspicious pancreatic nodular lesions (neoformation vs adenopathy?). Admitted for investigation. On TAP-CT he had "a large mass with probable starting point in the LUL, which invades the mediastinum infiltrating the aortopulmonary window, the left pulmonary artery, part of the main bronchus and involving the parietal pericardium; Contralateral adenopathies in the pre-tracheal space; Cervical lymph nodes, left supraclavicular and left axillary adenopathies. Asymmetry of glottic aperture due to recurrent laryngeal nerve involvement? and two nodules, one in each adrenal gland, heterogeneous". Observed by ENT, with indirect laryngoscopy without alterations. Cranial-CT unchanged. Because he maintained episodes of lipothymia, mentonean hyposthesia and the appearance of left ptosis with ipsilateral lip commissure deviation and diplopia at the extremities of the left gaze, he performed cranial-MRI which showed: hypointense lesions in the cervical vertebrae, multiple areas compatible with secondary deposits in the skullcap; asymmetry of the superior rectus muscles, thicker on the left, with apparent lesion inside. Bone lesion in the clivus. Cavernous sinus asymmetry due to possible secondary deposit". LP was performed, without pathological cells in the cerebrospinal fluid. In BF there were prominent lesions at the entrance of the LUL, with hyperemic mucosa but without signs of infiltration. Biopsies at this level revealed stage IV non-Hodgkin B lymphoma (translocation (8; 14) c-MYC).
Discussion: Burkitt's lymphoma is a rare and extremely aggressive form of B-cell lymphoma. HIV-associated Burkitt's lymphoma is the most common form in Western countries, typically with ganglion and bone marrow involvement. It is characterized by an extremely high proliferation rate, with c-MYC overexpression being the characteristic mutation. The authors underline this case given the need to integrate all clinical data as well as to obtain a histological diagnosis of suspected pulmonary nodules/masses, aiming at the most appropriate therapeutic approach. We emphasize the differential diagnosis of pulmonary nodules, which do not all correspond to pulmonary neoplasms. Maintaining a critical spirit and teamwork are crucial to the diagnostic and therapeutic success of all clinical conditions.

Keywords: *Mediastinal masses. Burkitt's lymphoma.*

PE 080. RESPIRATORY FAILURE: THYROID IS ALSO TO BLAME!

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Introduction: Mediastinal masses constitute a diverse group of tumours that affect individuals of all ages, representing a diagnostic challenge. In the mediastinum, the aetiologies are numerous, predominating the malignant aetiologies. Given the size of the mediastinum, the presence of tumours in this location often leads to compression of adjacent structures or even to life threatening situations. About 40% of tumours with this location remain asymptomatic until they reach considerable dimensions, which contributes to mass effect, invasion of nearby structures and hinders early etiological determination.
Case report: We present the case of a 64-year-old woman, PS 0, with a personal history of smoking, COPD, obesity and diabetes mellitus who went to the emergency department of HSFX with a 2 day right earache, tinnitus and dizziness. Observation showed right otorrhea, pyrexia and hypoxemia. From investigation stands out: leukocytosis with neutrophilia, PCR 27.6 mg/dL and D-Dimers 0.9 ug/mL; ABG with global respiratory failure (FiO2 21%: pO2 50 mmHg, pCO2 50 mmHg); Chest X-ray with bibasal hypotransparency, obliteration of the right costophrenic sinus and deflection of the air column from the trachea to the left; Urine Antigen positive for Streptococcus pneumoniae; Thoracic CT-angiography: "Well-delimited high right paratracheal mediastinal hypodense lesion with hypercaptant walls, compatible with abscess/necrotizing adenopathy with mass effect (over trachea and esophagus). Contiguous adenopathy. Bibasal atelectasis. Adrenal nodule". Bilateral CAP was assumed and treatment with Piperacillin/Tazobactam and topical Ofloxacin for suppurative otitis media was initiated. The case was discussed in a multidisciplinary meeting, and the diagnostic hypothesis of euthyroid goiter (TSH 0.37uUI/mL) was presented. She underwent FNAC, whose interpretation was limited by follicular cell scarcity. For complementary study of global respiratory failure she did a nocturnal oximetry (21%) which revealed significant desaturation (min 72%) and a cardiorespiratory sleep study that showed mild OSA (IAH 13.9/h; ODI 14.3), assumed to be secondary to the mass effect and overweight. She was discharged under LTOT (2 L/min) waiting for a new FNAC. She returned to the ED 3 months after discharge due to progressive 5-day dyspnoea. She presented with worsening respiratory failure, increased IPs and, again, right-sided hypotransparency. She was empirically medicated for CAP with Levofloxacin. Due to unfavourable evolution with development of respiratory acidemia she was transferred to the Pulmonology nursery - Non-Invasive Ventilation Unit. Haemophilus Influenzae was isolated in the sputum and the antibiotic changed to Amoxicillin/Ac. Clavulanic. In chest-CT, she maintained thyroid mass (...); banded atelectasis in the RLL with focal reduction of the caliber of the bronchi, which had some calcifications. Performed BF with BAL that revealed no major changes. Currently, the patient remains under LTOT and awaits a new FNAC. The possibility of surgical indication has been placed, given tracheal compression and mediastinal extension.
Discussion: The authors present this clinical case in order to alert to the importance of the correct differential diagnosis of intrathoracic tumours and their consequences. Chest-CT and multidisciplinary team discussion play an important role in diagnosis and therapeutic decision making, being the histological diagnosis a priority for the correct therapeutic approach.

Keywords: *Anterior mediastinal masses. Diagnosis mediastinal masses. Benign mediastinal masses.*

PE 081. NODULAR PULMONARY AMYLOIDOSIS WILL NOT ALWAYS WALK ALONE

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Introduction: Amyloidosis comprises a group of protein misfolding disorders characterized by extracellular deposition of insoluble amyloid fibrils. Amyloidosis may be systemic or localized, and may also occur along with other inflammatory diseases. Pulmonary involvement develops in essentially 3 clinicopathologic types: tracheobronchial, diffuse alveolar septal and nodular. Nodular amyloidosis is typically a sign of localized amyloidosis. In this context, the authors describe a case where inflammatory pathology concomitant with a localized pulmonary amyloidosis was confirmed.
Case report: A 57-years-old man, non-smoker, with no relevant medical history was referred to Pulmology consultation for left lower lobe (LLL) pulmonary nodule, an incidental finding on abdominal computed tomography (CT) performed due to mild hepatosplenomegaly. No respiratory clinic was found, as the patient referred xerophtalmia as his only symptom, denying other systemic or autoimmune evocative complaints. Chest CT identified multiple bilaterally disperse cysts with peribroncovascular distribution, a discrete ground-glass pattern, as well as two nodular lesions with spiculated contours in the upper segment of the LLL and a solid lingular nodule. Positional emission tomography (PET) presented discrete uptake in nodular lesions (maximum SUV 2.4). Blood analyzes revealed elevated serum amyloid A (1.01 mg/dL), while a negative autoimmune study. CT-guided transthoracic aspiration biopsy (BAT) turned out inconclusive. Bronchofibroscopy without relevant morphological changes. Bronchoalveolar lavage unveiled hypercellularity (2.49×10^5/mL) and significant lymphocytosis (61%), with a CD4/CD8 ratio of 3.4. Cytology of bronchial aspirate with foci of necrosis, some lymphocytes and neutrophils. Follow-up chest CT exhibited coalescence of the two nodular areas forming a single spiculated lesion with 33 mm of major axis and central cavitation. BAT was performed again, revealing deposition of amorphous, acellular, eosinophilic material, positive for Congo red stain, confirming the diagnosis of amyloid tumor. Respiratory functional study revealed moderate DLCO impairment (52.4%) with no other changes. Electrocardiogram, echocardiogram, proteinogram and urinalysis were normal. Salivary gland biopsy revealed no changes. Therefore, systemic amyloidosis was excluded. Although Schirmer test evidenced a decrease of basal tear production, the patient did not meet criteria for Sjögren's syndrome diagnosis. The patient undergone left inferior lobectomy and lingula wedge resection. Histological examination revealed nodular lesions compatible with amyloid tumor (positive Congo red stain). The remaining pulmonary parenchyma was fulfilled by interstitial lymphocytic infiltrate, occasionally forming small peribronchiolar lymphoid aggregates. The diagnosis of pulmonary amyloid tumor with lymphocytic intersticial pneumonia (LIP) was established.
Discussion: Nodular pulmonary amyloidosis usually arises as an incidental finding on an imaging study. Although asymptomatic and characterized by indolent growth lesions, its excision warrants cure in case of localized lesions. Association with LIP, although previously described, is rare. Considering the possibility of these pathologies being associated with lymphoproliferative or autoimmune diseases, such as Sjögren's syndrome, it is important to provide clinical-imaging follow-up in this case.

Keywords: *Pulmonary amyloidosis. LIP. Interstitial lymphocytic pneumonia. Amyloid tumor.*

PE 082. DRUG-INDUCED LUNG DISEASE IN A RENAL TRANSPLANT PATIENT: ABOUT A CLINICAL CASE

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Introduction: Multiple drug formulations, including immunosuppressing agents, have been described as capable of provoking pulmonary injury. Interstitial disease is a recognized manifestation of drug-induced disease. Diagnostic is established in patients exposed to medication with known association to lung injury with diffuse imagological changes that can regress after drug suspension in which other causes of interstitial lung disease were excluded.
Case report: 74 year-old male with a history of smoking (25 pack-years) and renal transplant, taking mycophenolate mofetil and tacrolimus, was admitted because of a 4-day clinical picture of dyspnea with hypoxemic respiratory failure. In spite of broad-spectrum antibiotics coverage and non-invasive ventilation, worsening of respiratory failure with increasing need of supplementary oxygen delivery (pO2/fiO2 = 100 mmHg) ensued. Chest CT-scan showed diffuse ground glass areas and septal thickening, as well as focal consolidations on the dependent portions of the superior lobes and especially on the inferior lobes. The patient underwent bronchoscopy with bronchoalveolar lavage immunology revealing linfocitosis (26%) and a CD4/CD8 ratio of 3.273. Because of lung toxicity suspicion, usual immunosuppressant drugs were substituted by cyclosporine. Systemic corticosteroids were initiated (boluses of 500 mg metilprednisolone followed by a 1 mg/kg/day scheme for posterior weaning). The patient showed improved clinical condition, with non-invasive ventilation withdraw and gradual decrease in oxygen supplementation. Functional respiratory tests showed a severe decrease in DLCO (34%). Further investigation revealed type-II cryoglobulinemia with two monoclonal components (IgG/lambda and IgM/kappa), positive serology for rheumatoid factor and anti-SRP (probably false positive results) and negative remainder immune study. There was no clinical, laboratorial or image evidence of lymphoproliferative disease. Hepatitis, HIV and parvovirus infections were discarded. There was also no positivity for pathogen cultures. For further clarification, the patient underwent cryobiopsy, unveiling unspecific morphologic changes. This biopsy was done after treatment initiation, given the severity of presentation. Revaluation chest CT-scan showed some regression of ground glass pattern, supporting favorable response to therapy. There was also an improvement in diffusing capacity for carbon monoxide (DLCO) –49%. Given clinical, image and functional improvement, this presentation probably corresponds to a case of drug-induced lung injury.
Discussion: Drug-induced lung disease frequently constitutes a diagnostic challenge as it presents with clinical, laboratorial and image findings similar to those of infectious complications. In an immunosuppressed patient, the most common and more frequently suspected diagnosis is that of infection. Nevertheless, upon therapeutic failure it is very important to actively pursue differential diagnosis and keeping in mind drug-induced toxicity hypothesis.

Keywords: *Drug-induced lung disease. Interstitial lung disease. Type II cryoglobulinemia. Cryoglobulinemia.*

PE 083. PRIMARY PULMONARY OSSIFICATION: CASE REPORT

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Introduction: Pulmonary ossification is a rare lung disease in which mature bone is present in the alveolar or interstitial spaces. It can occur with either a focal or diffuse distribution and can be idio-

pathic or secondary to chronic lung, cardiac or systemic disorders. There are two types of pulmonary ossification, nodular and dendritic. Nodular pulmonary ossification is characterized by lamellar deposits of bone material in the alveolar spaces, where bone marrow elements are usually absent. Dendritic pulmonary ossification is characterized by formation of branching bone tissue that often contains marrow elements in the interstitial spaces which can extend to the alveoli.
Case report: The authors present the case of a 70-year-old Caucasian woman, non-smoker, no relevant occupational and environmental exposure and with clinical diagnoses of neck and face eczema, venous insufficiency of the lower limbs, cervicarthrosis and osteopenia. She was referred our pneumology clinic 15 years ago for a single nodular image at the base of the left hemithorax on chest-X-ray. The patient reported a non-productive cough with nocturnal predominance and dyspnea on exertion. Chest CT scan showed bilateral bullous emphysema and multiple calcified granulomas equally dispersed in both lung fields. Blood tests included negative autoimmunity study, sedimentation rate of 5 mm/h, negative serology for HIV 1 and 2. Bronchofibroscopy was normal and transbronchial lung biopsies revealed mild fibrosis and moderate inflammatory infiltrate. Bronchoalveolar lavage showed lymphocytosis with 62% CD4+ cells, 30% CD8+ cells and significant count of CD1 activated cells; cytomorphological exam was negative for neoplastic cells. The respiratory functional tests was within normal limits. In the absence of a conclusive diagnosis, surgical lung biopsy was performed and revealed an altered pulmonary parenchyma due to the presence of extensive areas of pulmonary interstitial calcification with scattered ossification foci involving the bronchiolar wall. On the periphery of the lesions there was mild parenchymal fibrosis, chronic inflammatory infiltrate and emphysematous changes. The study for secondary causes was inconclusive: normal calcium and serum phosphorus, normal calciuria, normal B2-microglobulin; normal cell marrow myelogram with deviated leukoerythroblastic ratio in favor of the erythroblastic series by series hyperplasia; normal electrocardiogram and echocardiogram. Thus, the diagnosis of primary dendritic pulmonary ossification was established, and the patient was referred to the Interstitial Lung Disease Clinic. Over the years, the patient developed respiratory failure requiring long-term oxygen therapy. Low-dose systemic corticosteroid therapy was initiated without significant improvement. In more recent CT scans, a pattern of non-specific interstitial pneumonia appeared in parenchyma areas not involved by pulmonary ossification and it was decided at the multidisciplinary team meeting to start mycophenolate mofetil.
Discussion: Pulmonary ossification is a rare entity that may be associated with other pulmonary diseases such as interstitial pneumonia or pneumoconiosis. However, its' diagnosis is most commonly made post mortem, and the follow-up and therapeutic strategy in this patients remains a challenge.

***Keywords**: Ossification. Pulmonary interstitial pathology.*

PE 084. SPONTANEOUS PNEUMOMEDIASTINUM IN DERMATOMYOSITIS: AN UNUSUAL OUTCOME

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Introduction: Dermatomyositis is an inflammatory myopathy characterized by proximal muscle weakness, myalgias and typical skin manifestations. The majority of the patients have specific antibodies that correlate with clinical evolution e disease prognosis. The Anti-melanoma differentiation antigen 5 antibody (anti-MDA5) is associated with rapidly progressive interstitial lung disease, which is an independent predictor of a worse prognosis.
Case report: Women, 71 years old, a retired seamstress, non-smoker. In January 2019 she was diagnosed with dermatomyositis with multisystemic involvement: 1) skin (Gottron papules and suggestive skin biopsy), 2) muscle (myalgias, muscle weakness and subtle increase in muscle enzymes), 3) pulmonary (ground-glass opacities and discreet reticulation, mainly subpleural, in the high-resolution CT, and linfocitosis of 32% with predominantly CD8 considering the cytological and immunological studies of the bronchoalveolar lavage), 4) cardiac (impairment of left ventricular systolic function, with an ejection fraction of 32%). Anti-MDA5 and anti-Ro52 antibodies were positive. She initiated 60 mg prednisolone daily. In April 2019, she was admitted with progressive worsening and life-limiting dyspnea and hypoxemic respiratory failure. Imagiological progression of lung disease in CT was observed, with worsening of ground-glass opacities and pneumomediastinum. She progressed unfavorably during the first 48 hours, requiring noninvasive ventilatory support and worsening of the pneumomediastinum. Progressive aggravation of pulmonary involvement was suspected and, after excluding infection and impaired heart function, she started 500 mg of daily prednisolone for 3 days, followed by 2 days of immunoglobulin therapy (1 g/kg/day), with progressive clinical and gasometrical improvement.
Discussion: Antibody anti-MDA5 positivity on dermatomyositis is typically associated with mucocutaneous manifestations, discreet muscle involvement and rapidly progressive interstitial lung disease, which can be complicated with spontaneous pneumomediastinum, as described above. So, considering the strong relation with a worse prognosis, it is essential to pay close attention to pulmonary involvement and start high doses of immunosuppressive therapy at an early stage.

***Keywords**: Dermatomyositis. Pneumomediastinum. Anti-MDA5 antibodies. Interstitial lung disease.*

PE 085. PET/CT IN THE MANAGEMENT OF SARCOIDOSIS

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Introduction: Sarcoidosis is a chronic granulomatous systemic disease of unknown etiology. The organs most commonly involved include the lungs and lymph nodes. Histopathology is characterized by non-necrotizing granulomas and symptoms presentation may vary. Although most cases are acute forms, it can develop chronically and a specific curative treatment does not exist. On patients with serious illness, organ failure and declining quality of life, it is used systemic steroids, methotrexate or azathioprine (immunomodulators) and anti-TNF alfa as 1st, 2nd and 3rd therapeutic choice, respectively.
Case report: The authors report a case of a 50 year old male, smoker (> 10 pack-year), with a past medical history of chronic gastritis, psoriasis and pulmonary sarcoidosis stage II with cutaneous involvement, followed-up on pulmonology department since 2014. Although asymptomatic for 2 years, was put on steroids due to radiological worsening and 9 months later on methotrexate. In spite of immunosuppression, CT-scan revealed massive pulmonary fibrosis with asymmetric nodular area on left apex, which raised the possibility of a malignant lesion. After multidisciplinary discussion, the patient was submitted to PET, revealing a diffuse uptake of fludeoxyglucose F 18 on the various pulmonary lesions, more significant and symmetric on both apex (SUVmax = 7.9), suggestive of inflammatory activity from sarcoidosis. Considering the PET result, since it is a potentially reversible condition and due to inflammatory activity, patient was proposed for infliximab therapy, assuming neoplastic lesion was less probable on the differential diagnosis regarding its symmetry.
Discussion: This case highlights the complexity of this systemic disease, the varying severity degrees and different development patterns, such as the importance of a dynamic therapeutic management with specific objectives depending on the phase. In case of

patients refractory to conventional treatment, PET can be a useful tool in therapeutic management.

Keywords: *Sarcoidosis. Infliximab. PET/CT.*

PE 086. A NOT SO OBVIOUS DIAGNOSIS...

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Introduction: Pleuro-pulmonary masses are a diagnostic challenge in current clinical practice, and metastatic disease is the main etiology.
Case report: The authors present a case of a 76-year-old man, ex-smoker (50 pack-year) with past medical history of arterial hypertension and diabetes mellitus, who was referred to our pulmonology clinic due to tiredness for medium efforts, on the past three years (mMRC 1) and abnormal chest radiological exams. No changes on physical exam. He had performed chest x-ray, followed by computed tomography (CT) scan showing bilateral pleural nodular thickening, predominantly in the upper two thirds, bilateral parenchymal masses and hilar, mediastinal, mesenteric and retroperitoneal adenopathies. Lung function tests with mild obstructive pattern consistent with chronic obstructive pulmonary disease. For etiological study, bronchoscopy was performed with cytological (secretions, bronchoalveolar lavage and bronchial brushing) and histological (transbronchial lung biopsy) examinations negative for neoplasia. Bacteriological, mycobacteriological and mycological tests were negative He performed two inconclusive CT-guided transthoracic biopsy, the second complicated by pneumothorax, solved with conservative therapy. Subsequently, the patient was submitted to echoendoscopy, with fine needle aspiration of mediastinal adenopathies revealing reactive lymph nodes. In the absence of a definitive diagnosis, a surgical biopsy of a lung mass was performed, which showed a slight chronic inflammatory infiltrate and eosinophilic amorphous material, positive to Congo red stain combined with polarized light, consistent with amyloidosis. Additionally, normal urinary and serum immunofixation, and serum immunoelectrophoresis did not reveal monoclonal gammopathy. A review of the samples previously collected (lung and pleura) was requested, confirming amyloid, AL type. From the remaining tests, involvement of other organs, namely renal and cardiac, were excluded.
Discussion: Amyloidosis is a heterogeneous group of diseases characterized by extracellular deposition of amyloid substance, with an overall incidence of 8 cases/million/year. Although rare, pulmonary amyloidosis corresponds to 20% of these cases and should therefore be considered in the differential diagnosis of pleuro-pulmonary masses. This case highlights the complexity of the approach of patients with pleuro-pulmonary masses and the importance of a multidisciplinary approach to reach an earlier diagnosis.

Keywords: *Pleuro-pulmonary masses. Amyloidosis.*

PE 087. A CASE OF SARCOIDOSIS AND A SURPRISE IN A MEDIASTINOSCOPY

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Introduction: Several diseases, benign and malignant, can be identified as the cause of lymphadenopathies. When this find occurs at the level of pulmonary hilum, bilaterally, the first diagnostic hypothesis that comes to mind is sarcoidosis.
Case report: Here we report a case of a 68 years old patient, former smoker, usually medicated for his hypertension, with no other comorbidities. He was sent to a pulmonology appointment after two months of presenting respiratory symptoms (non-productive cough and dyspnea for small efforts). He had no other complains (as anorexia, weight loss, fever or others). He underwent a chest radiography that revealed bilateral hilar lymphadenopathy and diffuse reticular interstitial reinforcement. Due to these findings, he was also submitted to a thoracic CT scan that documented multiple mediastinal, laterotracheal, prevascular, aortopulmonary and hilar lymphadenopathies (the largest measuring 22 mm), and parenchymal micronodules with centrilobular distribution. Bronchofibroscopy revealed 37% lymphocytes on bronchoalveolar lavage (BAL), with a CD4/CD8 reason of 6.3. Blood tests revealed an augmented angiotensin converting enzyme (67 U/L). Microbiologic specimens, including acid fast stain and cultures from sputum and bronchial lavage were negative for Mycobacterium tuberculosis detection. Polymerase chain reaction detection of M. tuberculosis DNA was also negative. A mediastinoscopy was executed for histological diagnosis. In this procedure two lesions were identified and submitted to biopsy: right paratracheal lymph node was almost totally transformed by non caseating necrosis, with a few focus of fibrosis. Right pretracheal lymph node presented the structure of a lymph node, but was replaced by thyroid tissue – suggesting papillary thyroid carcinoma. Due to these findings, patient was sent to an Endocrinology appointment. One cervical thyroid ultrasound was planned, where a hypoechogenic nodule measuring 7 mm was found at the level of the isthmus/right lobe of the thyroid. Fine needle aspiration biopsy was performed and histopathology documented a suspected papillary carcinoma of thyroid. At this time, patient was already under corticosteroids with good symptomatic response.
Discussion: This clinical report highlights the particularity of encountering a second diagnosis, firstly not suspected. We managed to find a thyroid neoplasm as an incidental finding throughout a sarcoidosis investigation. Thyroid neoplasms, particularly papillary thyroid carcinoma, has tendency to metastasize to regional lymph nodes, more frequently for central lymph nodes, followed by lateral lymph nodes and mediastinal ones. Sometimes there is overlap of causes of lymphadenopathies in the same patient, thus being very important the differential diagnosis between those entities. In this particular case, there was no suspicion of thyroid neoplasm and if it wasn't for the lymphadenopathy biopsy we wouldn't achieve the secondary diagnosis.

Keywords: *Lymphadenopathies. Sarcoidosis. Mediastinoscopy.*

PE 088. PULMONARY ALVEOLAR MICROLITHIASIS: A RARE DIAGNOSIS

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Introduction: Pulmonary alveolar microlithiasis (PAM) is a rare autosomal recessive disease caused by an inactivating mutation in the SLC34A2 gene encoding sodium-dependent phosphate cotransporter of alveolar epithelial type 2 cells promoting the intra-alveolar accumulation of minute calculi.
Case report: We present a case of a 30-year-old Nepalese woman who presented at the emergency room with a 2 month history of worsening dyspnea and dry cough. She denied fever, nocturnal sweating, weight loss, thoracalgia or haemoptysis. She was living in Portugal for 3 years and had no history of occupational inhalation exposure or smoking habits. From her past medical history, a suspicion of pulmonary tuberculosis (TB) years ealier led her to do antibacilar treatment for 6 months. She denied any therapy or pulmonary diseases in the family. During clinical examination the patient only presented diminished and rude vesicular sounds. Blood tests were unremarkable, as well as HIV serology, erythrocyte sedimentation rate, angiotensin converting enzyme (ACE) and autoimmune study. Chest radiograph showed a bilateral dense micronodular pattern with

non-specific reticulation with basal predominance. Considering the history of TB, the first suspicion was a reactivation of the disease and she was admitted to the Infectious Diseases ward. She collected numerous samples of sputum smear for acid-fast bacilli (AFB) and nucleic acid amplification tests (NAAT) that were persistently negative. A thoracic computed tomography scan revealed a high-density and extensive micronodular pattern with subpleural and peribronchial predominance. The patient underwent flexible bronchoscopy that showed an unspecific hyperaemia of the mucosa and bronchoalveolar lavage (BAL) samples showed 5% lymphocytes (with index CD4/CD8 2.1) with no neoplastic cells. BAL direct exam, NAAT and cultures were negative. Afterwards, pulmonary function tests showed a restrictive pattern with a marked decrease of diffusing capacity. The case was discussed in a multidisciplinary meeting within the interstitial lung diseases group and pulmonary alveolar microlithiasis (PAM) was considered due to the characteristic radiologic pattern. Currently the analysis of the SLC34A2 mutation is ongoing.
Discussion: This clinical case illustrates a rare genetic disease that can be underestimated, especially in endemic areas of tuberculosis. Differential diagnosis includes diseases with a miliary pattern of distribution, such as tuberculosis, sarcoidosis or pneumoconiosis. We emphasize the role of CT scan in the diagnosis, thus avoiding the need for invasive procedures. Therapeutic options remain limited and lung transplant is the only definitive treatment.

Keywords: *Pulmonary alveolar microlithiasis. Micronodular. Interstitial lung disease. Genetic disease.*

PE 089. EXTENSIVE PULMONARY FIBROSIS WITH DESTRUCTION OF THE PULMONARY PARENCHYMA SECONDARY TO ANTHRACOSIS

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Case report: RNF, female, 226 years old, black, single, student, native and resident of Luanda. Symptomatology about 3 months of evolution characterized by dry cough, dyspnea and easy tiredness of progressive aggravation. He denied fever, chest pain, weight loss, excessive night sweats, haemoptysis, orthopnea, wheezing, nasal obstruction. He denied complaints of the gastrointestinal forum. Referenced to Pulmonology consultation on 09/25/2017 after chest radiography. Background: Bronchitis in adolescence, sic. No smoking or ethylic habits, no history of atopy. No history of contact with people with tuberculosis. No history of contact with birds. No usual medication. No recent travel history, no risky behaviors. Examination: Conscious, oriented, collaborative. Apparent age not coincident with actual age. Fair general condition and nutrition, skin and mucosa stained and hydrated. Anicteric and acyanotic, eupneic at rest, without jugular engorgement, without palpable adenomegalies. Max.: 36.5 ºC, PA: 112/83 mmHg, FC: 97 bpm, SpO2: 96% in room air. Thorax: normal inspection and palpation. AP: MV decreased to the lower 1/3 level of both lung fields with "velcro" crackling dry fervors. AC: normal. Abdomen, limbs and neurological examination without alterations. Chest X-ray: diffuse heterogeneous opacity with more pronounced reticulo-interstitial pattern on both bases. Diagnostic hypotheses: Interstitial pneumonia/Pulmonary fibrosis of etiology to be clarified/Cystic fibrosis? Pulmonary Tuberculosis? Testing required: General rheumatoid factor analysis, autoimmunity study, sweat test, echocardiogram, CFTR gene mutation scan, chest CT failed. Clinical development: After the 2017 consultation the patient came to another hospital where she was treated for pulmonary tuberculosis for 9 months without improvement. She has flocked to several other institutions in recent months for dyspnea, and has been treated with several drugs she does not know she needs without improvement. She again came to the emergency department of our institution on 06/23/2019 with a hypoxemic respiratory failure and was admitted to the ICU due to respiratory failure during hypertensive spontaneous pneumothorax due to cystic/emphysematous bubble rupture. Cardiorespiratory arrest reversed with chest compressions. The patient underwent pneumothorax drainage, subsequently identified bronchopleural fistula and was approached by thoracic surgery, placement of biological glue and chemical pleurodesis. Chest X-ray (06/23/2019): diffuse heterogeneous opacity with hypertransparent oval image occupying the upper 2/3 of the right hemithorax. Chest CT showed abnormalities compatible with bilateral extensive pulmonary fibrosis, traction bronchiectasis and almost total right lung parenchyma destruction, with large emphysematous and cystic bullae, sparing only part of the lower lobe that is also fibrous. Microbiological studies of bronchial secretions, TB-PCR were negative. Pulmonary biopsy: "marked peribronchial and interstitial fibrosis, bronchial dilations and lymphohistiocytic infiltrate with lymphoid aggregates. Mild antrancosis and macrophages with anthracotic pigment ". Currently at home with chronic hypoxemic respiratory failure requiring long-term oxygen therapy. Prednisolone medication, bronchodilators... Lung transplantation candidate. diagnosis: Extensive pulmonary fibrosis with destruction of the pulmonary parenchyma secondary to anthracosis. Another associated unclear etiology is to be considered.

Keywords: *Pulmonary fibrosis.*

PE 090. FROM BIOPSY TO AUTOPSY: DIAGNOSTIC CHALLENGE OF DIFFUSE PULMONARY AMYLOIDOSIS

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Case report: A 71-year-old female with a medical history of asthma, bronchiectasis, atrial fibrillation and a mass in the left lung presented with severe exercise intolerance, orthopnea and small volume hemoptysis. She complained about progressive dyspnea, peripheral edema, abdominal swelling, fatigue, xerostomia, xerophthalmia and unintentional weight loss over the past year. Fever, nocturnal sweating and pain were denied. The patient was admitted for diagnostic workup. Investigations: Laboratory tests showed a low level of total proteins (54 g/L) and a mild increase in C-reactive protein (10.9 mg/L) and brain-type natriuretic peptide (182 pg/mL). Chest computed tomography showed a mosaic attenuation of the lung parenchyma with interlobular septal thickening, mainly in the upper lobes; tubular bronchiectasis in the right lower and middle lobes; 5 cm mass in the lower left lobe causing its complete atelectasis, appearing to be formed by multiple distended bronchoceles; 8 mm nodular ground glass opacity in the upper right lobe; and moderate cardiomegaly. Transthoracic needle biopsy (TNB) of the nodular lesion revealed fibrotic areas with lymphoplasmacytic infiltration and thickening of vessel walls and interalveolar septa. Two TNB of the left mass showed mild and nonspecific signs of inflammation. All microbiological analysis were negative. Serological autoimmunity was negative except for ANA 1:1000. Due to the maintenance of dyspnea and leg swelling despite diuretic therapy, an echocardiography was performed that documented left atrial dilation, mild hypertrophy of the interventricular septum, left ventricular ejection fraction of 60% and an estimate pulmonary blood pressure of 40 mmHg. Peritoneal fluid was collected and characterized as transudative. The patient presented with melena and underwent an upper gastrointestinal endoscopy. A 2 cm gastric ulcer in the lesser curvature with an adherent clot was detected. Histological analysis showed signs of chronic gastritis with focal erosion. A salivary gland biopsy identified a discrete lymphoplasmacytic infiltration and periductal and peri-acinar fibrosclerosis (negative for Congo red and polarized light). Results and treatment: Hemoptysis didn't recur; the apparent hypervolemia was refractory to treatment. 37 days after admission, the patient suffered a fatal sudden cardiac arrest. Clinical autopsy was performed and a mul-

tiple myeloma associated with systemic amyloidosis was diagnosed. Amyloid deposits were present in the vessel walls of every organ system, except the nervous system. There was a diffuse involvement of the lung (amyloid deposition in the interalveolar septa) and of the heart (thickening of the ventricular walls and aortic and tricuspid valvopathy). The cardiac amyloidosis caused restrictive cardiomyopathy, heart failure and atrial fibrillation that eventually lead to an episode of ventricular fibrillation and cardiac arrest.
Discussion: Systemic amyloidosis is a rare disease and may lead to death if left untreated. In particular, pulmonary interstitial involvement associated with cardiac amyloidosis can contribute to cardiopulmonary failure. Herein, the echocardiogram and the salivary gland biopsy weren't diagnostic of amyloidosis and the biopsied pulmonary nodule wasn´t stained with Congo red, highlighting the importance of actively search for amyloidosis and the diagnostic challenges inherent to it.

Keywords: *Diffuse pulmonary amyloidosis. Systemic amyloidosis.*

PE 091. RECURRENT PNEUMONIA CAUSED BY FOREIGN BODY ASPIRATION

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Introduction: Foreign body aspiration is significantly more frequent in children but can occur in the adult population. Clinical presentation depends on the aspirated material, time lapse and obstruction location and it may present as a medical emergency or gradually with the onset of chronic complications.
Case report: 54 year-old male, with a history of COPD and hypertension, presented to the Emergency Room with an 8-day clinic of productive cough and dyspnea for moderate exertion. On admission, he had no relevant findings on physical examination. Subsequent study revealed a right basal hypotransparency on chest X-ray and elevated C-reactive protein (CRP). He started empiric antibiotic therapy for community pathogens with favorable response. Upon reviewing previous lung images, it was consistently found a hypotransparency in the same location. Following CT-scan showed endoluminal content on the intermediate bronchus and right inferior lobe consolidation and bronchiectasis. The patient proceeded to do flexible bronchoscopy, where an immobile foreign-body was found on the entrance of the right main bronchus, along with granulation tissue. Downstream permeability in the segmentar and subsegmentar bronchi was preserved. Rigid bronchoscopy granted foreign body removal, retrieving and object resembling dental prosthetic material. Ensuing CT-scan revealed consolidation resolution.
Discussion: Foreign body aspiration is a diagnostic that requires high-level of suspicion. Presentation may occur only years after the aspiration episode and the delay in the recognition of this entity may favor the onset of chronic and irreversible complications. Recurrent respiratory infections on the same location should induce clinical suspicion and subsequent investigation.

Keywords: *Foreign body aspiration. Recurrent pneumonia. Flexible bronchoscopy.*

PE 092. PULMONARY EMBOLISM ASSOCIATED TO INFECTION BY MYCOPLASMA PNEUMONIAE

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Introduction: Infection by Mycoplasma pneumoniae is an underdiagnosed cause of community acquired pneumonia, with a low rate of hospitalization and complications. Despite this fact, an association between Mycoplasma pneumonia and higher rates of pulmonary embolism has been proposed, particularly in the young patient, suggesting that this infection could be involved in the pathophysiology of a subset of cases.
Case report: A 44-year-old female of Brazilian descent was admitted to urgent care for progressive complaints of right chest pain of pleuritic nature, non-productive cough and orthopnoea of two-weeks duration. For the suspicion of a respiratory tract infection, she had undergone an empirical course of amoxicilin + clavulanic acid without improvement. She presented prior history of a hemoptoic cough and unilateral right lower limb oedema days after a 10-hour flight, which resolved spontaneously. The physical examination showed no relevant changes. She exhibited a mild elevation of peripheral inflammatory markers and D-dimers of ng/mL (~4xULN), without fibrinogen consumption. The arterial blood gas sample showed respiratory alkalaemia with a PaCO2 of 28.1 mmHg. The chest radiograph showed a bilateral interstitial pattern, a homogenous opacity in the left costophrenic angle compatible with pleural effusion, and ipsilateral triangular opacities of juxtapleural base. Based on the suspicion of pulmonary embolism, a chest CT angiogram was attained which confirmed the presence of emboli in the lobar and interlobar arteries with regions of infarction in the right upper and lower lobes. The patient was admitted for investigation of the aetiology of the mpulmonary embolism. No risk factors were found for deep venous thrombosis with the exception of the relative immobilisation period during the patient's flight and the taking of an oral contraceptive drug for 3 weeks, 6 months prior to the onset of symptoms. Pregnancy was excluded by immunologic testing. Ultrassound with venous Doppler study of the lower extremities and the pelvis, performed separately on two occasions, excluded the presence of deep vein thrombosis.
Testing for anti-phospholipid, anti-nuclear and anti-neutrophilic cytoplasm antibodies was negative. Quantification of alpha-2 antiplasmin and plasminogen was normal. The molecular study for FV Leiden and FII and FV variants showed no changes. Quantification of C3 and C4 was normal. There was no reactivity for hepatitis B or C viruses nor for HIV. Therapeutic hypocoagulation was started. For lack of a full symptomatic remission, with persistence of exertional dyspnoea and cough, as well as absent radiological improvement, serology for M. pneumoniae was tested and was confirmatory of the infection.
Discussion: We present a case of pulmonary embolism in the setting of M. pneumoniae infection in a patient for whom the diagnoses of both illnesses were equated by recognition of protracted symptoms and refractoriness to therapeutic. Infection by M. pneumoniae may have been an adjuvant pathophysiological factor in this patient's embolism. The mechanisms linking both illnesses are, to this moment, unknown. Vascular aggression directly by Mycoplasma or secondary to systemic inflammation caused by the infection may produce local thrombosis. A yet unidentified cryoglobulin- or prothrombotic antibody-mediated state is also a promising field for future research.

Keywords: *Pulmonary embolism. Mycoplasma pneumoniae.*

PE 093. CHRONIC FIBROSING PULMONARY ASPERGILLOSIS. CLINICAL CASE

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Introduction: Aspergillus is a fungus that can cause variable lung disease. Aspergillus fumigatus is the most frequently involved specie but other species such as Aspergillus flavus or Aspergillus niger can be identified. Chronic pulmonary aspergillosis (CPA) is an uncommon but potentially complicated lung disease. CPA usually affects middle-aged men with previous pulmonary pathology, having

as main risk factors a history of tuberculosis, non-tuberculous mycobacterial infection, chronic obstructive pulmonary disease and allergic bronchopulmonary aspergillosis (ABPA). The most common form of CPA is chronic cavitated pulmonary aspergillosis (CCPA) which when left untreated can progress to chronic fibrosing pulmonary aspergillosis (CFPA). CFPA is characterized by severe fibrotic destruction complicating previous CCPA, with marked degradation of lung function; fibrosis usually manifests by consolidation, but cavities with surrounding fibrosis can be observed. The clinic is non-specific, usually presenting with constitutional symptoms associated with chronic productive cough and dyspnea. Radiographically, it is common to find pulmonary cavities, infiltrates and pulmonary or pleural fibrosis of diverse degrees. Diagnosis of the disease requires identification of IgG for Aspergillus or precipitins and evidence of Aspergillus on sputum culture or PCR, or identification of the fungus on biopsy. CPA is associated with high morbidity and mortality. Given the high frequency of relapse, treatment is usually continued for long periods of time or even throughout life. The prognosis of the disease varies with the degree of immunosuppression of the patient.
Case report: 56-year-old male patient with a history of asthma, ABPA, pulmonary tuberculosis, bilateral cylindrical and varicose bronchiectasis and chronic respiratory insufficiency. He was admitted to the emergency department for prolonged fatigue, dyspnea, productive cough, fever and acute respiratory insufficiency. Analytically with an elevation of the acute phase parameters and extensive fibrotic alterations in the chest X-ray, similar to previous exams. Antibiotic therapy was started and kept for 14 days, with no significant response. The patient underwent computed tomography of the chest that showed marked subpleural interstitial thickening, bronchiectasis of the entire pulmonary parenchyma with marked peribroncovascular interstitial thickening, marked distortion of the pulmonary architecture, cavities and consolidations - aspects compatible with diffuse interstitial fibrosis. Aspergillus flavus was isolated on sputum's mycological examination, without other microbiological isolations. Previous result of Aspergillus precipitins positive. CFPA was admitted and medication with Voriconazol was started with progressive clinical improvement, having been decided to maintain therapy. The patient is listed for lung transplantation.
Discussion: Aspergillus is responsible for a wide spectrum of diseases, with CFPA being a rare complication of CPA. Overlap and progression in the spectrum of Aspergillus-related diseases is possible particularly when the patients' immune status varies, as with prolonged administration of corticosteroids in ABPA. The development of some degree of immunosuppression in patients with prior structural pathology and other associated risk factors for CPA may lead to the development of the disease. CPA has a significant impact on patients' quality of life, so being alert for an early diagnosis and treatment initiation is important.

Keywords: *Aspergillus. Chronic pulmonary aspergillosis. Chronic cavitary pulmonary aspergillosis. Chronic fibrosing pulmonary aspergillosis.*

PE 094. NO LOCAL NÃO EXPECTÁVEL - A PROPÓSITO DE UM CASO DE PAPILOMATOSE LARINGOTRAQUEOBRÔNQUICA

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Introdução: A papilomatose laringotraqueobrônquica é uma doença caracterizada pela presença de lesões epiteliais de aspecto verrucoso ou papiloides, únicas ou múltiplas, mas geralmente recorrentes. Esta doença é maioritariamente limitada à laringe, mas em casos mais raros pode-se estender para a árvore traqueobrônquica e eventualmente para o parênquima pulmonar.

Caso clínico: Mulher de 46 anos, ex-fumadora desde há 10 anos com carga tabágica de 8 UMA, medicada apenas com venlafaxina por episódio depressivo. É referenciada à consulta de Pneumologia, após o diagnóstico de papilomatose laríngea, por persistência de tosse seca com saída de 2 massas brancas e expectoração raiada de sangue. Por suspeita de papilomatose traqueo-brônquica e para esclarecimento do quadro foi realizada uma videobroncofibroscopia onde se observou uma lesão papilomatosa esbranquiçada no 1/3 proximal da traqueia com cerca de 2 cm de altura e múltiplas lesões papilomatosas milimétricas em toda a árvore brônquica (direita e esquerda). Foi submetida a laserização da lesão traqueal por broncoscopia rígida. Devido à grande extensão do acometimento brônquico não foi possível realização de laser nas restantes lesões. Os resultados anátomo-patológicos foram todos positivos para Papiloma virus Humano. Foi ainda realizada uma Tomografia do Tórax para descartar acometimento do parênquima pulmonar, que não mostrou qualquer alteração. A doente mantém seguimento e vigilância apertada na consulta de Pneumologia.
Discusão: A papilomatose laringotraqueobrônquica é uma doença rara, com poucos casos relatados. Embora histologicamente seja uma proliferação benigna do epitélio, usualmente limitada à laringe, ocasionalmente pode tornar-se agressiva e resultar num envolvimento persistente e recorrente da nasofaringe, laringe e da árvore traqueobrônquica. Sublinho, por isso, a necessidade do estadiamento endobrônquico nos doentes com o diagnóstico de Papilomatose laringea com o intuito de reduzir a sua disseminação. Reforço ainda a necessidade de vigilância por TC do Tórax, pela possibilidade de acometimento do parênquima pulmonar.

Palavras-chave: *Papilomatose laríngotraqueobrônquica. Papilomavirus humano. Broncoscopia rígida. Laser.*

PE 095. CRAZY PAVING: IS IT PULMONARY ALVEOLAR PROTEINOSIS?

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Introduction: Pulmonary alveolar proteinosis (PAP) is a rare diffuse lung disease characterized by the accumulation of surfactant in the distal air spaces. Since it can be caused by a spectrum of disorders, treatment varies depending on etiology and severity.
Case report: Male, 51 years old, smoker (35 pack-years). Personal history of beta thalassemia minor and high level exposure to silica dust in the last mouth, without airway protection. Patient presented in the ER after 2 weeks of productive cough, dyspnea and fever – with no improvement after 4 days of amoxicillin/clavulanic acid. On physical examination signs of respiratory distress were evident and pulmonary auscultation had audible bilateral crackles and diminished breath sounds. Blood tests showed leukocytosis, elevated CRP (19.29 mg/dl) and type 1 respiratory failure. Chest X-ray revealed bilateral opacities located centrally in mid and lower lung zones with "bat wing" distribution. Thorax CT revealed ground-glass densification and thickened intralobular septa ("crazy-paving"). After patient admission azithromycin was added to the therapeutic plan, later changed to piperacillin/tazobactam. Secondary PAP was considered and flexible bronchoscopy with bronchoalveolar lavage (BAL) was performed. The results did not confirm the diagnosis – BAL was PAS-negative with no opaque or milky appearance; there were no microbiological isolations. Later serologic testing were positive for Chlamydia pneumoniae. Patient recovery, with clinical, analytical and radiological improvements, did not justified further etiologic study. After 8 weeks chest CT revealed complete resolution of imagological changes.
Discussion: "Crazzy paving" appearance is typically associated with PAP, however the search for other causes is always important.

Keywords: *Pulmonary alveolar proteinosis. "Bat wing" distribution. "Crazy paving".*

PE 096. DISSEMINATED MYCOBACTERIUM ABSCESSUS INFECTION: THE CHALLENGE OF TREATMENT

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Introduction: Pulmonary and extrapulmonary non-tuberculous mycobacteria (NTM) infections have been increasingly reported worldwide in the last few years. Mycobacterium abscessus is a rapidly growing and extremely pathogenic NTM, which accounts for 5-20% of NTM infections. It is usually associated to respiratory tract, skin and soft-tissues infections caused by contamination of a wound with non-sterile material (surgeries, injections, introduction of foreign bodies).
Case report: A 59-year-old non-smoker female has a history of atrial fibrillation, pacemaker, hypothyroidism and rheumatic valvular heart disease having undergone a mitral valve annuloplasty in 2002 with resurgery in 2015. Medicated with warfarin. In March/2018 she was admitted to the emergency department after one month of fever, chills, excessive sudoresis, headaches, asthenia, loss of appetite and fatigue for physical activity. She presented with C-PR 3.86 mg/dL, erythrocyte sedimentation rate 120 mm and LDH 700U/L. She was hospitalized and began treatment with vancomycin, gentamicin and ceftriaxone for the suspect of infective endocarditis, which was not confirmed by transesophageal echocardiogram. Blood and bone marrow cultures were positive for M. abscessus, therefore she started treatment with clarithromycin, levofloxacin and ethambutol. She performed a PET-CT that confirmed infective endocarditis of the mitral prosthesis with hepatosplenic and CNS embolisms. Because she maintained positive blood cultures and there was yet no antibiotic sensibility test (AST), after 2 months of treatment the scheme was changed to levofloxacin, clarithromycin and amikacin and afterwards to cefoxitin, imipenem, amikacin and clarithromycin. The patient underwent mitral valve prosthesis replacement after having negative blood cultures. She had no more positive cultures for M. abscessus. Only after surgery, AST was known and revealed macrolide, moxifloxacin and sulfamethoxazole resistance; amikacin, cefoxitin and linezolid sensibility; and moderate sensibility for ciprofloxacin. Afterwards, her treatment was changed to cefoxitin, ciprofloxacin, amikacin and linezolid. Subcutaneous nodules appeared de novo in the right popliteal region and a biopsy was performed, without a conclusive result. Due to the worsening of the subcutaneous lesions and their probable relation with M. abscessus infection, treatment was changed to cefoxitin, imipenem, amikacin, tigecycline e linezolid. There was a total resolution of the subcutaneous lesions. When she was discharged, cefoxitin was stopped due to prolonged use as well as amikacin because she could not have intramuscular injections due to being hypo-coagulated. She maintained treatment at CDP do Lumiar. There the treatment was adjusted to clofazimine, doxycycline, linezolid and ciprofloxacin. However, linezolid was stopped after 4 months of use due to axonal polyneuropathy confirmed by electromyography. Treatment was administered for thirteen months after negative blood cultures and clinical cure of disseminated M. abscessus infection was achieved.
Discussion: The authors present a case of disseminated M. abscessus infection, without pulmonary involvement. Generally, these situation are associated to immunosuppression, however it was not present in our patient. M. abscessus is the NTM with the highest resistance to most antituberculosis drugs and several other antibiotics as well as having limited therapeutic options, being a challenge in the treatment of these patients. Therefore, recurrence rates are observed in 20-40% of the cases.

Keywords: *Disseminated Mycobacterium abscessus.*

PE 097. GHOST TUMOR

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Introduction: Heart failure leads to an increase in fluid in the interstitial spaces of the lung generating positive hydrostatic pressure through the visceral pleura leading to the formation of bilateral pleural effusions. However, although uncommon, it may present with septal pleural effusion in the horizontal cleft. This presentation simulates a mass on the chest x-ray that disappears with the treatment of the underlying disease and has been termed a phantom tumor or evanescent pseudotumor.
Case report: A 77-year-old man, autonomous with previous diagnoses of ischemic and hypertensive heart disease, atrial fibrillation, and type 2 DM. Hospitalized with cough with sputum, dyspnea for small/medium efforts, orthopnea, and progressive edema of the lower limbs with 10 days of evolution. On objective examination he is apyretic, tachypneic and 88% saturated with 21% FiO2. Cardiac auscultation presents hypophonetic sounds; and at pulmonary auscultation a murmur abolished at the right base with scattered crackles. Analytically highlighting increased NTProBNP (1.324 pg/dL), leukocytosis with neutrophilia (14.30 × 10^9/L; 87.6% N), elevated serum CRP levels (4.5 mg/dL) and culture and antigen tests for Pneumococo and Legionella. negative. Chest X-ray shows increased ICT, rounded hypotransparency (mass type), well-defined contours on the right hemithorax and parahilar reinforcement. Decompensated CHF was assumed in the context of respiratory infection and antibiotic and diuretic therapy was made with clinical and radiological improvement, with disappearance of oval hypodensity.
Discussion: The radiological appearance of the phantom tumor varies, depending on the volume of septate fluid and its location. Early recognition of this radiological finding related to CHF is important to avoid unnecessary diagnostic procedures, since the main differential diagnosis is nodule and/or lung mass.

Keywords: *CHF. Pleural effusion. Imaging.*

PE 098. A CASE OF EMPYEMA TO STAPHYLOCOCCUS HAEMOLYTICUS AFTER TALC PLEURODESIS IN A MALIGNANT PLEURAL EFFUSION

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Introduction: Malignant pleural effusions (MPE) are a common complication of advanced malignancies (mostly lung, breast and colon cancer) with a poor prognosis. Since systemic treatment does not control the disease, the local approach to MPE is to control the recurrence by pleurodesis. Complications from pleurodesis have been reported in several studies, being empyema one of the most serious complications, reported in 0-4% of procedures.
Case report: The authors report the case of a 62 year-old man, exsmoker, with a personal history of diabetes mellitus type 2 and dorsal fybrosarcoma excised in November 2015. In May 2017 he was admitted with complaints of dyspnea, left- sided chest pain and hemoptysis for two weeks. Upon physical examination the patient was eupnoic (SpO2 95%, FiO2, 21%), with diminished breath sounds throughout the left hemithorax and absent vocal vibrations on pulmonary auscultation and dullness to percussion. The relevant laboratory findings were a mild normochromic normocytic anemia (hemoglobin 11.8 g/dL) with normal renal function (creatinine 0.8 mg/dL), normal C-reactive protein and normal D-dimer levels. Chest X-ray revealed a hypotransparency in the lower thirds of the left hemithorax and multiple bilateral pulmonary nodular hypotransparencies. It was performed a chest CT scan that revealed a left-sided massive pleural effusion with heterogeneous density. It was performed a thoracentesis with drainage of 2,000 mL of sero-hemorrhagic fluid (pH 7, 340) and pleural biopsy

(PB), compatible with an exsudate and the cytology was negative for malignancy. Histological results were inconclusive and microbiological results (PE and PB) negative. The chest X-ray performed four days after the procedure was concordant with recurrence of PE, a loculated effusion on chest ultrasound. It was performed a second thoraconcentesis (fluid pH 7.1) and PB and it was placed a 24 Fr chest tube. Citological and histological results were concordant with pleural metastasis of fybrosarcoma. After 6 days it was performed a talc slurry pleurodesis (with 4 g of talc in 100 mL of sodium chloride after local anaesthesia). Three days after, the patient had a new onset of fever and worsening dyspnea. It was started empiric piperacilin-tazobactam and vancomicin after blood samples to cultural analysis. At this time, the chest CT showed a large loculated left-sided PE (empyema) and pleural thickening. It was also performed a chest ultrasound and a thoracocentesis with aspiration of only 35 mL of pleural fluid compatible with an empyema, but it wasn't possible to place a chest tube. The microbiological culture of pleural fluid identified a Staphylococcus haemolyticus penicilin-resistant, sensible to vancomicin, what guided the change on the antibiotic spectrum to Meropenem plus vancomicin (after 8 days of previous antibiotherapy). Two days after, patient´s clinical status declined with impairment of respiratory exchange, acute respiratory insufficiency and death.
Discussion: The authors emphasized this case considering that, although data from literature support fever and chest pain as the most common side effects of talc slurry pleurodesis, empyema although less frequent could be one of the most serious, having a great impact in outcomes and prognosis of these patients.

Keywords: *Pleural effusion. Malignant. Pleurodesis. Empyema. Staphylococcus haemolyticus.*

PE 099. LUNG ABSCESS IN A PATIENT WITH ACHALASIA

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Introduction: Gastroesophageal motility disorders are a risk factor for aspiration pneumonia and polimicrobian lung abscesses.
Case report: The authors present the case of a 34-year-old male patient, non-smoker and with no significant environmental exposures, proposed for surgical treatment of achalasia diagnosed in 2016. In preoperative study, chest X-ray showed an opacity in the upper third of the right lung field, bullous areas, one of them with thickened walls (20 × 18 mm) and gas bubble with apparent fluid level. He presented dysphagia for solids and liquids with frequent choking episodes and productive cough with mucopurulent sputum for the last year. Chest CT showed a heterogeneous thick-walled lesion with 52 × 35 mm and central necrosis area. Lung abscess was suspected and the patient was admitted to a pulmonology ward for further study and empiric antibiotic therapy was started. Flexible bronchoscopy was performed. Purulent aspirate and inflammatory lesions in right upper lobe were seen and bacteriological study was positive for Klebsiella pneumoniae. Mycobacteriological and mycological cultures were negative, cytological and histological analysis presented no suspicious features of malignancy. He completed Piperacillin/Tazobactan for 7 days and then 16 days of Amoxicillin/Clavulanic Acid at home with significant improvement of cough and sputum. Two weeks after clinical discharge and end of antibiotic therapy he was submitted to Nissen fundoplication with symptomatic improvement. Follow-up chest CT showed an apparently inhabited cavitated lesion in the right upper lobe and a thin-walled cavity with superior location in the same lobe. Due to absence of symptoms he maintained clinical and imagiological surveillance.
Discussion: This case report enlightens the importance of chronic microaspiration secondary to achalasia, with prevalence of pulmonary complications greater than 50%. It is a rare condition with an incidence of 1.6 per 100,000 individuals. It arises from progressive degeneration of myenteric plexus ganglion cells with absence of lower esophageal sphincter relaxation and loss of distal esophageal peristalsis. The main symptoms are dysphagia for solids and liquids and regurgitation of undigested food and saliva, a predisposing factor for microaspirations. Parenchymal lung changes are described nearly in 17% on chest X-ray and 41% on chest CT in achalasia, mostly ground-glass opacities. Serious pulmonary complications such as aspiration pneumonia, lung abscesses and empyema occur in less than 10%. Respiratory symptoms in achalasia should be valued and promptly managed in order not to delay diagnosis and treatment and decrease complication rate.

Keywords: *Lung abscess. Achalasia.*

PE 100. LUNG ABSCESS: RETROSPECTIVE STUDY IN A DISTRICT HOSPITAL

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Introduction: Lung abscess is defined as necrosis of the pulmonary parenchyma caused by microbial agents, which results in the development of a cavity within the lung itself.
Objectives: Study of the clinical, epidemiological, microbiological and treatment features of patients admitted with the main diagnosis of lung abscess.
Methods: A retrospective analysis of medical records from patients admitted in Beatriz Ângelo Hospital diagnosed with Lung abscess, between January 2016 to July 2019, excluding the ones with cavitated pulmonary tuberculosis.
Results: 17 patients were included, 9 of them were male and 13 of them were Caucasian. The average age was 53.1 years (23 to 88 years). 58.8% of the patients had smoking habits and 17.6% known drinking habits. Gingival crevice disease was reported in 41.1% of patients. From the 17 patients, 5 had some degree of immunosuppression and 2 lung cancer diagnosed. The most frequent complaints were cough (94.1%, with sputum production in 64.7% of the cases), chest pain (76.4%) and fever (70.5%). Every patient did a CT scan, as part of the radiologic diagnosis, and most of the abscess were in the right lung (58.8%), being the inferior lobe the most affected one (50%). Besides that, 12 patients were submitted to bronchofibroscopy. Regarding microbiological features, in 11 of the cases there was no isolated microbiologic agent, although there were some isolations we can highlight: MRSA strain in blood cultures of two patients; Klebsiella pneumoniae strain in bronchial cultures of one patient; Pseudomonas aeruginosa strain in the bronchial cultures of one patient; and Streptococcus agalactiae strain and Candida tropicalis strain in the sputum cultures of two patients. All of the patients were submitted to medical treatment with empirical antibiotic, as amoxicilin-clavulanate in association with clindamycin, the most used combination (50%). According to the clinical response of patients, 29.1% had to switch to piperacillin-tazobactam. The average duration of ambulatory treatment was 5 weeks (2 to 12 weeks), and one patient had to be submitted to percutaneous drainage plus three patients were submitted to surgery because of medical treatment failure. No patient died while admitted to the ward.
Conclusions: Lung abscess continues to be a not frequent disease. Even though the sample was small, the findings are according to those described in literature, as seen in risk factors like gingival crevice disease and alcohol abuse.

Keywords: *Lung abscess. Pulmonary infection.*

PE 101. BILATERAL ISOLATED PHRENIC NEUROPATHY: A RARE CAUSE OF DYSPNEA

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Introduction: Diaphragmatic dysfunction is an uncommon and often misdiagnosed cause of dyspnea. It can be caused by diseases that

affect the central and peripheral nervous system, neuromuscular junction and muscle. In patients with low lung volumes on imaging exams, hypercapnia and orthopnea, diaphragmatic paralysis should be considered. The main goal of the treatment is the maintenance of adequate ventilation in order to avoid the consequences of chronic hypoventilation.
Case report: 65 year-old ex-smoker, male, with no relevant previous medical history, including for thoracic trauma, referred to Pulmonology clinic due to history of orthopnea and mMRC1 dyspnea, with an acute onset one year before. Besides a history of nocturnal episodes of numbness of the right hand he denied persistent numbness or weakness of upper limbs or the presence of shoulder or cervical pain at the onset of his respiratory complaints. He had an ambulatory thoracic radiography showing low lung volumes and bilateral diaphragmatic elevation. At the physical examination he had desaturation while on supine (SpO2 93%) and normal saturation (SpO2 99%) while standing. The pulmonary auscultation showed bibasal muffled sounds with no adventitious sounds). The thoracic CT showed symmetric elevation of both hemidiaphragms, leading to decreased expansibility in the basal lungs and consequent atelectasis, vascular and broncohilar crowding. There were no lung lesions. The ambient arterial blood gas was normal. The spirometry showed a restrictive pattern: functional vital capacity (FVC) of 1.92 Litters corresponding to 51.9% of the predicted for race, height, sex and age, forced expiratory volume (FEV1) of 1.5 Litters (51.9%), FEV1:FVC ratio of 0.79, total lung capacity (TLC) of 78% predicted, residual volume (RV) of 124% predicted and maximum inspiratory pressures (MIP) of 43% predicted. Blood analysis showed normal erythrocyte sedimentation rate and normal values for rheumatoid factor antinuclear antibody and angiotensin converting enzymes. Screening for HIV and Treponema pallidum infection was negative.
Discussion: The neurography of the phrenic nerve showed absent responses on the left and severely reduced amplitudes on the right, with moderately increased latencies. Needle electromyography of the diaphragm was not performed. Electroneuromyography revealed signs compatible with mild carpal tunnel syndrome and excluded the presence of other mononeuropathies in upper limbs, brachial plexopathy, polyneuropathy, motor neuropathy and myopathy. Repetitive nerve stimulation excluded significant end plate dysfunction. We diagnosed our patient as having bilateral isolated phrenic neuropathy (BIPN). He underwent respiratory muscle training with some improvement of the symptoms. After that, we prescribed him noninvasive mechanical ventilation with BIPAP® in the nocturnal period, which is a comfortable and practical ventilator modality. Bilateral diaphragm paralysis due to BIPN is a very rare cause of unexplained respiratory failure. This condition is generally chronic and has a poorer prognosis, compared to other cases of phrenic nerve involvement. NIV can restore near-normal daily function.

Keywords: *Phrenic nerve. Diaphragm. Dyspnea. Noninvasive ventilation.*

PE 102. LONG-TERM PULMONARY REHABILITATION: FOR WHOM?

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Introduction: Pulmonary Rehabilitation (PR) is a beneficial intervention for patients with chronic respiratory disease, reducing symptoms and increasing exercise tolerance and quality of life. PR program guidelines refer to 8 weeks as the minimum period to reach benefit but safeguard that gains from longer programs appear to be higher. Given the impossibility of offering extended programs to all patients, it is essential to understand who will benefit most from the extension of PR. This paper aims to illustrate the benefit of an extended PR program through a case report. Emphasis is placed on clinical evaluation, program structure and clinical and functional outcome throughout treatment.
Case report: 55-year-old male patient, worked as a merchant, former smoker (70 pack-years), diagnosed with stage 4 COPD, GOLD D, having been referred to PR program in 2005. Initial evaluation: Chest CT: diffuse centrilobular emphysema. Respiratory functional study: severe obstruction and severe decrease in CO diffusion capacity (FVC 71%, FEV1 36%, DLCO 39%). Arterial blood gases without respiratory failure. 6 Minute Walk Test (6MWT): 504 meters (85%), no desaturation. Echocardiogram: moderate pulmonary hypertension, without other relevant alterations. Cardiopulmonary exercise test: 60 Watts, maximum HR 117 bpm (67%), VO2 860 ml/min. The patient started a formal PR program, including exercise training (endurance, resistance, upper limb training), therapeutic and nutritional optimization, and health education. Between 2005 and 2012, he maintained biweekly periodic PR, having performed 12 training periods, with a median duration of 10 weeks per period (4-18). Throughout these 7 years, the patient maintained a gradual but slow decline in respiratory function (FEV1 in 2005: 36%; in 2012: 27%) with preserved functional capacity (distance covered in 6MWT in 2005: 504m; in 2012: 570m); decreased frequency and severity of exacerbations were observed. From 2013, due to functional and symptomatic worsening, he started continuous bi-weekly PR, in an attempt to maintain work activity and functional autonomy. He worked as a merchant until 2015. In 2017, he started being followed in the Palliative Care clinic and, due to severe impairment of respiratory function, suspended exercise training, maintaining only neuromuscular stimulation of the lower limbs. Currently, at age 69, 14 years after joining the PR program, the patient maintains partial autonomy in self-care, which he performs under energy conservation techniques.
Discussion: The inclusion of this patient in a long-term PR program allowed the maintenance of respiratory functional stability, reduction in the number and severity of exacerbations and a much higher functional capacity than expected for the severity of his condition, which allowed him to maintain social and work activity until a very late stage of his disease. A program of this magnitude will not be feasible for a significant number of patients, but it will certainly be beneficial for patients who wish to maintain socio-occupational activity despite the difficulties inherent with their disease.

Keywords: *Pulmonary rehabilitation. COPD.*

PE 103. COMMUNITY-BASED PULMONARY REHABILITATION PROGRAM

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Based on the recently published guidelines for the implementation of Community-based pulmonary rehabilitation programs, we aim to show the struggles and successes of trying to build a program in primary care.

Keywords: *Community-based pulmonary rehabilitation program.*

PE 104. INHALED THERAPY: THE REALITY OF THE PULMONOLOGY SERVICE AT HOSPITAL SOUSA MARTINS

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Introduction: Inhalation is currently the choice route for administration of drugs to treat respiratory diseases. This fact led to prescription increase and investment in the development of new drugs

and devices. International and national consensus and recommendations have been developed to promote good practice in this area. However, several studies continue to demonstrate/highlight the incorrect use of inhalation devices and non-adherence to therapy, with a clearly negative influence on the efficacy of inhaled drugs and consequently on patients quality of life.
Objectives: The aim of this study was to identify inpatient's real difficulties regarding the manipulation of devices and inhalation technique.
Methods: Descriptive cross-sectional study. Non-probabilistic sample for convenience. Inclusion criteria: admission to the Pulmonology Department of the hospital Sousa Martins during the 2019 year; diagnosis of COPD or asthma undergoing inhalation therapy at home; ability to realize the objectives of the study and consented to participate. Data collection: form (with socio-demographic and clinical questions), and observation grids (inhalation device manipulation and inhalation technique checklists). **Results:** Sample: 29 patients, 23 male and 6 female. Ages range from 20 to 81 years, with an average value of 68 years. Clinical diagnosis: asthma-8 patients and COPD -21 patients. Inhalers prescription time: 20 patients have been using inhalers for more than 24 months; 4 patients between 12-24 months; 3 patients between 6-12 months and 2 for less than 6 months. Type of Inhalers: 23 patients were using Dry Powder Inhalers; 3 patient Pressurized Metered Dose Inhaler; 3 patients Dry Powder Inhalers and also inhalation solution for nebulization. Number of inhalation devices: 1 patient handles 3 different inhalation devices, 16 users 2 inhalation devices, and 12 users 1 inhalation device. Inhalation instruction: 27 patients reported having received previous counseling and training on inhaler technique and inhaler devices, however only 2 patients correctly prepared their devices and respected all steps of the inhalation technique; 25 inpatients made at least one error while demonstrating devices preparation and inhalation technique. The most common errors were: not releasing the device tabs after piercing the capsule; no full or near full slow exhalation, and no apnea after inhalation (technique); 2 patients reported that they have never had any education or instruction about inhalation therapy. One of them admits not to comply with the prescription, and in practical evaluation does not properly prepare the device or perform the inhalation technique correctly. The other reports complying with the prescription, properly prepares the device but does not perform the inhalation technique correctly.
Conclusions: Despite some limitations, the results of this study, still underway, seem to confirm the need for awareness of this theme, and allow to know in more detail some difficulties of users. In the future, they will form the basis for the planning and implementation of concrete strategies that favor adherence and optimize device learning/inhalation therapy.

Keywords: *Inhaled therapy. Asthma. Chronic obstructive pulmonary disease. Optimization.*

PE 105. INSPIRATORY MUSCLE TRAINING IN NEUROMUSCULAR PATIENTS: A PILOT STUDY

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Objectives: Neuromuscular diseases represent a group of disorders that includes muscular dystrophy, spinal cord injuries or atrophy, amyotrophic lateral sclerosis and paralysis of the phrenic nerve. It can affect 1 in 3,500 people, manifesting during childhood or later in the course of life. Patients have increased risk of morbidity and mortality, mainly related with the impact in the respiratory system. Weakened diaphragmatic and respiratory muscles is a major problem, since it leads to severe respiratory complications, including decreased lung volumes (vital capacity), decreased chest wall expansion and mobility, impaired alveolar ventilation, decreased coughing capacity and secretions clearance with greater risk of lung infections and atelectasis, and also leads to chronic respiratory failure with premature death. With this pilot study, we aimed to assess the benefits of inspiratory muscle training (IMT) in neuromuscular patients and their compliance to the training. We also wanted to assess the feasibility of developing a larger prospective study.
Methods: We conducted a prospective study with two neuromuscular patients with decreased maximal inspiratory pressure (MIP) (< 60 cmH2O), selected from pulmonology consultation. We developed an IMT protocol with 6 months duration, using Powerbreathe Medic Classic® devices to perform the training. Both patients started training with low resistance (20% MIP) and progressed according to their tolerance. Pulmonary muscle function (maximal inspiratory and expiratory pressures (MIP and MEP) and peak cough flow (PCF)) was evaluated at the beginning of protocol, after 3 and 6 months of training, for comparison. Patients had monthly follow-up consultations and were asked to keep a training diary to register the training completion and symptoms.
Results: MIP and PCF improved in both patients after 3 months of training, and patient 2 also had improvement in MEP. However, after 6 months of training, only patient 1, who had higher compliance (96% of training completion), finished protocol training at 80% MIP and increased MIP (+38.6%) and PCF (+34.3%). Patient 2 completed 81.9% of training, finished protocol training at 50% MIP and only had benefits in PCF (+30.8%). Arterial blood gas parameters had some minor variations, with no significant clinical impact. This protocol was safe and had no adverse outcomes.
Conclusions: This pilot study showed that IMT is a safe adjunct to these patients' treatment and had promising results in the rehabilitation of pulmonary muscles function. A larger study is required and feasible to validate these benefits.

Keywords: *Inspiratory. Training. Neuromuscular. Rehabilitation.*

PE 106. A RARE DISEASE DISGUISED AS ASTHMA: A COMMON "DISGUISE" OF CHRONIC COUGH

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Case reports: We present two cases of chronic cough misdiagnosed as asthma, a disease confused with many common entities. But the following cases belong to a rare situation, for which we want to raise the alert. The first refers to a non-smoking woman diagnosed with poorly controlled asthma who, following pneumonia at age 58, underwent a chest CT scan. This revealed a mosaic attenuation pattern and multiple scattered nodules. She underwent bronchofibroscopy, whose products were negative for neoplastic cells. She maintained surveillance with annual CT, remaining stable for the next 5 years, when the number and size of pulmonary nodules increased. She performed a wedge resection of the 2 largest nodules, whose histological result was atypical carcinoid tumor. She completed 4 cycles of adjuvant octreotide chemotherapy and maintained surveillance with serial CTs. Despite presenting imaging stability, she maintained daily cough. Respiratory function tests (RFT) were normal. It wasn´t until the last CT, 3 years after surgery, that the hypothesis of diffuse idiopathic pulmonary neuroendocrine cell hyperplasia (DIPNECH) was raised. Histological revision of the resected lung was made, which confirmed this diagnosis, showing constrictive bronchiolitis and neuroendocrine cell hyperplasia. The second case concerns an ex-smoking woman, with chronic cough since 53 years of progressive worsening, diagnosed as asthma. In the RFT she had an obstructive ventilatory deffect. At 58 years of age, following hepatitis, she underwent thoracoabdominal CT scanning that revealed scattered micronodules in both lungs and mosaic pattern. She repeated CT after 2 months, which showed a new ground glass nodule. This was resected and histology revealed to be a car-

cinoid tumor surrounded by foci of neuroendocrine cell hyperplasia and constrictive bronchiolitis compatible with DIPNECH.
Discussion: DIPNECH is a rare benign condition first described by Aguayo et al in 1992. It is defined by the WHO as widespread proliferation of isolated scattered cells, small nodules or linear proliferation of pulmonary neuroendocrine cells that may be confined to the bronchial epithelium, develop extraluminal invasion (tumorlets), or develop carcinoid tumors (diameter > 5 mm). Only a minority of carcinoid tumors are associated with DIPNECH. It is assumed to be a premalignant lesion. It is often accompanied by constrictive bronchiolitis due to chronic inflammation and fibrosis. The diagnosis is histological. Most cases occur in non-smoking women in their sixth decade of life. It is manifested by exertional dyspnea and chronic dry cough -often leading to the diagnosis of asthma or gastro-oesophageal reflux disease. RFT may be normal, obstructive, restrictive or mixed. In some patients the diagnosis is incidental. In many, it is made in the context of carcinoid tumor. Typical CT findings are mosaic attenuation pattern, air trapping, and multiple disseminated nodules. In general it has a good prognosis. There are no established treatment recommendations. In asymptomatic patients surveillance is recommended. In symptomatic patients, the most effective seems to be systemic corticosteroid therapy and somatostatin analogues. Bronchodilators generally have little effect.

Keywords: *DIPNECH. Carcinoid. Chronic cough.*

PE 107. OCCUPATIONAL HYPERSENSITIVITY PNEUMONITIS TO DIISOCYANATES. REFINING THE PREVIOUS DIAGNOSIS OF OCCUPATIONAL DISEASE

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Introduction: Hypersensitivity Pneumonitis (HP) is a complex syndrome triggered by prolonged and recurrent inhalation of multiple antigenic particles in previously sensitized individuals. Its clinical polymorphism often makes its diagnosis a real challenge. Although some forms of HP are attributable to recreational or domestic exposures, most diagnoses today result from occupational exposures.
Case report: A 57-year-old woman with a history of excised carcinoid tumor of the colon in 1996, nephrolithiasis and type 2 DM. She worked in a ceramic tile and flooring factory between 1991 and 2017, initially as a press operator and then applying glues and silicones on floors. The patient was referred in 2011 to Pulmonology consultation and reported insidious exertional dyspnea throughout 12 years, associated with dry cough and occasional wheezing, with an auscultatory presence of bilateral basal inspiratory crackling fervors. The HRCT scan showed a diffuse mosaic attenuation pattern, with areas of ground glass hyperattenuation and changes in lobular air entrapment and some aspects of subpleural reticulation. Restrictive functional limitation with 49.2% FVC and 49.3% DLCOSB. The BAL showed a total count of 480,000 cells/mL with 55% lymphocytosis (CD4/CD8 ratio 0.67). Lung biopsy showed granuloma of ill-defined multinucleated giant cells, BALT hyperplasia, histiocytes with anthracotic pigment, and small birefringent particles. The initial diagnostic framework turned out to be Chronic Silicosis, and the case was validated by the DPRP. In the subsequent 2 years, there was progressive clinical and functional deterioration, maintaining the same radiological pattern of mosaic attenuation, being treated under a systemic anti-inflammatory therapeutic regime. It was eventually referred to the CHBV Pulmonology/Interstitium consultation. The radiological pattern, immunological data and histological findings were considered to be inconsistent with the previous diagnosis of Silicosis. After integrative review of the complementary study, pulmonary histology and safety data sheet of the glue used and after multidisciplinary discussion, its diagnosis was rectified to HP (Subacute) to diisocyanates. The inhalation exposure component to silica has been interpreted as a secondary phenomenon. The patient was removed from her workplace, the recertification of her occupational disease was proceeded and was made adjustment of her immunomodulatory therapy (prednisolone and mycophenolate mofetil) with activation of supplemental oxygen therapy and referral for respiratory rehabilitation program.
Discussion: We illustrate the case of a factory worker with several and simultaneous inhalation exposures, initially managed under an incorrect diagnosis of fibrogenic pneumoconiosis. Despite exposure to silicates, simultaneous exposure to diisocyanates (polyurethane glues) had primacy as a disease-inducing agent, in this case in the form of occupational HP. As a frequent respiratory disease in industry but often underdiagnosed, the hypothesis of HP should be considered in cases of diffuse disease in workers. In this context, the detailed collection of the occupational, domestic and recreational history of the patient is essential in order to fully assess the full range of possible correlated exposures, in parallel with the complementary examinations usually considered necessary for confirmation.

Keywords: *Hypersensitivity pneumonitis. Diisocyanates.*

Withdrawn abstract

PE 109. SANDSTORM LUNG

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Introduction: Pulmonary alveolar microlithiasis (PAM) is a genetic lung disorder that is characterized by the accumulation of calcium phosphate deposits in the alveolar spaces of the lung. It is a rare disease, with less than 800 cases reported worldwide. As it progresses, symptoms such as dyspnea on exertion and dry cough may develop. The diagnosis can usually be established radiographically, not needing any invasive procedures. Authors present a case of pulmonary alveolar microlithiasis diagnosed at the age of 85 years.
Case report: An 85-year-old Caucasian male, former farmer, presented with a four-week history of irritating cough and dyspnea. His past medical history was relevant for high blood pressure and prostatic hyperplasia. He never smoked but had past contact with resin. He was chronically under perindopril and tansulosin, and had no known allergies. On physical examination he showed bilateral crackles on auscultation and swollen legs. Laboratory analyses revealed hyponatremia, while chest X-Ray exposed diffuse dense bilateral micronodular opacities obscuring the cardiac and diaphragmatic borders. Arterial blood gas was normal. High resolution CT scan revealed ectasia of the pulmonary trunk (32 mm), small areas of lung emphysema and innumerous bilateral calcifications with intra-alveolar and septal distribution and confluence, suggesting alveolar microlithiasis. Lung function tests revealed a mixed pattern with very low diffusing capacity for carbon monoxide. Invasive procedures were not conducted due to the typical radiologic appearance. The patient was medicated with fluticasone furoate/vilanterol and is currently under follow-up, maintaining sporadic cough.
Discussion: Pulmonary alveolar microlithiasis (PAM) is a rare disease that can be diagnosed by its radiologic features. Typically reveals a fine, sandlike micronodular pattern mainly in the lung bases. In literature, the diagnosis has been determined by lung biopsy in 46.9% of cases, most likely because the disease is unfamiliar to many physicians. Differential diagnosis includes pulmonary alveolar proteinosis, sarcoidosis, silicosis, pulmonary hemosiderosis, amyloidosis and metastatic calcification in chronic renal failure. The prognosis of PAM is unclear and treatment remains supportive, including supplemental oxygen therapy. Authors hope to raise awareness to this rare condition, its typical radiological appearance as well as its differential diagnosis.

Keywords: *Pulmonary alveolar microlithiasis. Lung calcifications.*

PE 110. TRIPLE POSITIVE ANTIPHOSPHOLIPID SYNDROME: AN UNEXPECTED DIAGNOSIS

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Case report: Male, 20 years old, smoker. Personal history: irrelevant. He first came to the emergency room (ER) complaining of vomiting, diarrhea and right low back pain irradiating to the right groin that began a week before. He also had leukocytosis (13,700 × 10^3/µL) and elevation of CRP (15.84 mg/dL). Gastroenteritis and acute renal colic were assumed. He received symptomatic treatment and ciprofloxacin. 3 days later he returned to the ER with productive cough, hemoptoic sputum and thoracic pain that began 2 days before. He had worsening of CPR (29.90 mg/dL) and the chest X-ray showed an opacity in the right lung base. Community acquired pneumonia (CAP) was assumed and ciprofloxacin switched to levofloxacin. He returned to the ER after a week because he developed fever, dyspnea, fatigue and loss of appetite. He was subfebrile and had diminution of breath sounds in the right lung base. Chest CT showed "several areas of consolidation in the right lung with a subpleural peripheral distribution, some of them with atoll sign." CAP was again assumed and doxycycline and cefuroxime initiated. The patient didn't get any better and, meanwhile, he recurred to a private doctor and began corticotherapy with clinical improvement. Considering the absence of response to antibiotics and the clinical improvement with corticotherapy, a diagnosis of organizing pneumonia was assumed and the treatment maintained. Nonetheless, after 15 days, in spite of clinical improvement, new opacities appeared in the chest X-ray, reason why he underwent bronchofibroscopy with bronchoalveolar lavage (BAL) and lung biopsy. About 10 days later, he was again evaluated in ambulatory consultation. In this occasion, he reported pain in the left popliteal area for one week, making him unable to walk without crutches. Additionally, BAL didn´t show any relevant findings and lung biopsy showed focal lesions of necrosis in the lung parenchyma. Given the new symptoms and the findings of the lung biopsy, the patient was sent to the ER and underwent angio-CT that showed "filling defects of the distal portion of the right pulmonary artery and its lobar and segmental branches in the inferior, middle and superior right lobes, compatible with non-recent pulmonary thromboembolism (PE). Irregular densifications with central cavitation in the right lobes, probably areas of pulmonary infarction". Inferior limb eco doppler was also performed and showed "left deep vein thrombosis with visible clot filling the lumen of the superficial femoral, popliteal posterior tibial and the external saphenous veins, probably not recent." Anticoagulation was initiated and the patient was later diagnosed with triple positive antiphospholipid syndrome (APS) - persistent positivity (12 weeks apart) for lupus anticoagulant, anti-cardiolipin and anti- β2glycoprotein I antibodies.
Discussion: It is paramount to keep in mind that PE and APS can have unexpected presentations and that the former can occur at any age and the latter, although is more common in women, can also occur in men. Thus, it is critical to maintain a high level of suspicion so that clinically relevant cases are not missed.

Keywords: *Antiphospholipid syndrome. Pulmonary embolism.*

PE 111. A RARE CAUSE OF PLEURAL EFFUSION

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Introduction: Several hypotheses should be considered in the investigation of pleural effusions, which may be caused by intrinsic pulmonary and pleural pathology or be a manifestation of systemic diseases. Determining its etiology is essential as it will determine the therapeutic strategy. The authors present the case of a patient with a rare cause of pleural effusion.
Case report: Male, 77 years old, history of hypertension and benign prostate hypertrophy. He was admitted to the Cardiac Surgery Unit in November 2018 due to cardiac pre-tamponade and was submitted to pericardiocentesis with an output of 1250 mL of serohematic fluid. Pericardial fluid cytology was negative for malignant cells; bacteriological and mycobacteriological tests were also negative. Post-procedure echocardiography revealed no changes in function and no recurrence of pericardial effusion. Six months later he re-

turns to the emergency department for progressive worsening dyspnea, but without fever, cough or sputum. Blood tests without relevant changes. Chest X-ray: hypotransparency in the lower half of the left hemithorax compatible with pleural effusion (not present at hospital discharge date). We performed diagnostic and evacuating thoracentesis. Cytochemical examination of the pleural fluid revealed an exudate. Negative bacteriological and mycobacteriological tests. Cytological examination: 13,590 cells/µL: 4% neutrophils, 6% lymphocytes, 5% eosinophils, 17% monocytes/macrophages, other cells 68% (irregularly lymphoid morphology cells, characterization required by Immunophenotyping/Pathological Anatomy). Immunophenotyping: 83.6% of pathological cells, with phenotype that may be compatible with primary serous lymphoma. Pleural fluid cytology: Atypical lymphoid cells, compatible with large non-Hodgkin B lymphoma, primary serous lymphoma. Pleural biopsies were also performed, but only showed signs of chronic pleuritis. The patient was then referred to a Hematology Consultation. They requested cervico-thoraco-abdominopelvic CT, which excluded lymph nodes or other organ involvement by malignant cells. Bone biopsy: representation of the three series without significant alterations; no pathological infiltrates. Of the remaining etiological study: HIV and hepatitis B and C serologies were negative. Given the diagnosis of serous primary lymphoma, he started chemotherapy with R-CHOP (rituximab, cyclophosphamide, doxorubicin, vincristine, prednisolone). Until definitive diagnosis and initiation of chemotherapy, we performed 2 additional thoracenteses for symptomatic relief. After starting chemotherapy, the pleural effusion remained stable. The patient maintains follow-up in Hematology consultation.
Discussion: Primary serous lymphoma is an individualized pathological entity, and its diagnosis is essentially based on serous cavity fluid analysis (in this case pleural) by immunophenotyping and pathological anatomy, excluding lymph nodes or other organ involvement by malignant cells. Primary serous lymphoma is an uncommon type of non-Hodgkin's lymphoma and is more common in immunocompromised patients. The authors describe this case because it is a rare cause of pleural effusion and it is a rare pathology in immunocompetent patients with only few cases described in the literature.

Keywords: *Pleural effusion. Primary serous lymphoma. Immunocompetent.*

PE 112. UNUSUAL ETIOLOGY OF CHYLOTHORAX

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Introduction: Chylothorax results from the accumulation of lymph in the pleural space due to injury or obstruction of the thoracic duct, and accounts for about 2-3% of all pleural effusions. Lymphoma is the most common oncologic cause, but in rare cases other cancers may be at its origin.
Case report: 56-year-old woman, autonomous in daily life activities, with a history of high-grade poorly differentiated serous carcinoma of the ovary diagnosed in 2014, with epiploic and peritoneal metastasis. She underwent several cycles of chemotherapy and finished a Nab-Paclitaxel cycle in December 2018. A follow-up Magnetic Resonance Imaging on February 2019 showed progression of the disease, with an increase in a retroperitoneal adenopathic conglomerate. A chemotherapy regimen with carboplatin was initiated, but suspended in April due to allergic reaction, and Nab-Paciltaxel therapy was resumed due to the lack of alternatives. In early June, she is admitted to the hospital due to worsening dyspnea for minor efforts. Thoracic CT showed, besides multiple supraclavicular, axillary, mediastinal, and bilateral hilar adenopathies, a massive left pleural effusion. Blood tests showed increased inflammatory parameters. Pulmonology collaboration was requested, and a diagnostic thoracentesis was performed, with aspiration of a milky and very thick fluid. It was not possible to characterize the pH or the differential cell count due to the liquid thickness, so a chest tube was immediately inserted, with a total drainage of 2,700 mL on the other hand, the biochemical study of the liquid showed an exudate with glucose: 89 mg/dL, LDH: 252 mg/dL, total proteins: 42 g/dL and triglycerides: 3,614 mg/dL (seric value: 210 mg/dL), compatible with the diagnosis of chylothorax. Due to the impossibility of performing a new chemotherapy regimen, support therapy was initiated, with a diet rich in medium chain triglycerides and low in fat, as well as octreotide therapy. On the following day, the patient presented with marked lethargy and later desaturation, discomfort and agitation, so it was decided to optimize comfort measures. The patient died a few days later.
Discussion: Chylothorax secondary to ovarian carcinoma is a rare entity, with few cases described in the literature. The treatment of the underlying disease, when possible, is essential to its resolution, and may be complemented by other measures such as special diet, chest drainage, somatostatin or octreotide therapy or even surgical treatment.

Keywords: *Chylothorax. Support therapy. Ovarian carcinoma.*

PE 113. PLEURAL LIPOMA: A RARE FINDING

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Introduction: Lipomas are benign and solid mesenchymal tumors, often seen in adults. Nevertheless, the pleural localization of these tumours is extremely rare. Lipomas are usually stable, slow-growing, asymptomatic, and accidentally discovered lesions.
Case report: A 54-year-old man former smoker, who underwent elective axillary lipoma excision surgery in January 2019, was referred to the pulmonology department for presenting a well-defined mass on the preoperative chest roentgenogram contiguous to the surface pleura in the right mid-thoracic region. Chest computed tomography (CT) showed low density pleural lesion, size 4.5 × 3.8 × 3.5 cm, in the right mid-thoracic region, suggestive of pleural lipoma, without parenchymal component or invasion of intercostal spaces. The patient has no constitutional or respiratory symptoms or local complaints. Revaluation chest CT was performed in May 2019, confirming the lesion and showing its morphological and dimensional stability. Therefore, the diagnosis of pleural lipoma has been established. As the patient is asymptomatic, after multidisciplinary discussion, clinical and thoracic follow-up of the lesion and its potential complications were recommended.
Discussion: A definitive diagnosis of pleural lipomas usually requires histopathological confirmation. However, in asymptomatic individuals who fulfill CT criteria for pleural lipoma, histological confirmation may be obviated. Nonetheless the multidisciplinary discussion plays an important role, as it helps in the differential diagnosis of lesions and avoidance of invasive procedures and their complications.

Keywords: *Pleural lipoma. Benign. Radiological diagnosis.*

PE 114. SECONDARY PNEUMOTHORAX. A CASE OF THORACIC ENDOMETRIOSIS

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Introduction: Endometriosis is a disease characterized by the presence of ectopic endometrial tissue. Chest involvement is the most

common extra-pelvic location. Catamenial pneumothorax is a rare entity that occurs within the first 72 hours of the menstrual period.
Case report: A 36-year-old female patient, social worker, non-smoker, with a personal history of symptomatic bradycardia with episodes of syncope under investigation. G1P1A0. For some years, with monthly complaints during menstruation of right omalgia associated with effort intolerance. Medicated with contraceptive pills. The patient went to the emergency department (ED) with respiratory distress of sudden onset, on the first day of the catamenial period, easy fatigue, and right omalgia, of increasing intensity (9/10), intermittent, with irradiation to the anterior and posterior thoracic wall. It aggravated with decubitus and improved with oral anti-inflammatories, complaints with 4 days of evolution. She denied fever, cough, depletion, hemoptysis and trauma. At the physical exam: feverless, blood pressure 130/70 mmHg, pulse 90 bpm, eupneic, at room air SpO2 97%. Pulmonary auscultation, with right diminished vesicular sounds and hyperresonant to percussion. No other relevant changes. Blood tests had no relevant changes. Chest X-ray: hyper transparency of the upper 1/3 of the right hemithorax, without tracheal deviation, compatible with pneumothorax. She was submitted to insertion of a chest tube drain on the 8th right intercostal space in the axillary midline. Performed thorax CT that revealed a thin blade of apical pneumothorax to the right. Right pleural drainage and small subcutaneous emphysema on the homolateral thoracic wall. Area of nodular thickening of the right diaphragmatic pleura with 16 mm. No pleural effusion or other changes. At 48h of drainage, the right lung was fully expanded, and the thoracic drainage was removed. She was discharged, clinically and imagiologically improved. After 4 months, at the first 24h-48h of her menses, the previous complaints recurred and she returned to the ED. She presented imaging changes compatible with the recurrence of the right pneumothorax. She refused drainage placement, was transferred to the Department of Thoracic Surgery and underwent video-assisted thoracic surgery (VATS), which observed multiple pleural diaphragm fenestrations and pleural adhesions, without pleural implants, compatible with catamenial pneumothorax. She was submitted to pleurodesis with talc and started continuous and uninterrupted oral contraceptive therapy. Subsequently, she started three month GnRH analog, with menstrual spotting and the appearance of previously reported complaints and diagnosis of new multiloculated pneumothorax on the right. She was transferred to the Thoracic Surgery service and submitted to new pleurodesis by VATS. Due to adverse effects, progestogen therapy was altered, with a new spotting, with recurrence of chest complaints and imaging alterations compatible with small pneumothorax, in the right hemithorax that cures with conservative therapy. Currently, in pharmacologically induced menopause, without new episodes.
Discussion: Thoracic endometriosis is a rare and underdiagnosed entity, for which a high level of suspicion for recurrent pneumothoraces is crucial in women of childbearing age. Diaphragmatic fenestrations are one of the characteristic lesions of catamenial pneumothorax.

Keywords: *Pneumothorax. Catamenium. Endometriosis.*

PE 115. PYOPNEUMOTHORAX: A RARE INFECTIOUS COMPLICATION

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Introduction: A pyopneumothorax is defined by the accumulation of purulent fluid and gas in the pleural cavity. In the absence of bronchopleural fistula and previous surgery or thoracentesis, its presence suggests anaerobic or mycobacterial infection and is associated to significant morbidity and mortality. Prevotella melaninogenica and Streptococcus constellatus are commensal anaerobic and aerobic agents, respectively, usually present in the mouth and upper respiratory tract. They are only occasionally isolated in empyematous pleural effusions.
Case report: We present the case of a 58-year-old patient that recurred to the Emergency Room (ER) complaining of productive cough, fatigue and dyspnoea at rest for 6 days. As relevant medical history, he had suspected epilepsy with history of head trauma, peptic ulcer, alcoholic liver disease with maintained alcohol consumption and active smoking (> 100 pack-years). He had furosemide 40 mg and phenobarbital 100 mg as usual medication, with doubtful compliance. Physical examination revealed fever (38.4 ºC), icteric conjunctivae, poor oral hygiene and diminished breath sounds on the left hemithorax. Lab testing showed leukocytosis (20.1 G/L with 87.9% neutrophils), C-reactive protein of 20.3 mg/dL, hyperbilirrubinemia (total bilirrubin of 9.9 mg/dL, direct bilirrubin of 6.6 mg/dL) with slight hepatolysis and prolonged clotting times. Homogeneous opacity of the inferior two thirds of the left hemithorax, with air-fluid levels, could be seen on chest radiograph, suggesting complicated pleural effusion. Chest CT confirmed the presence of a large hydropneumothorax, with collapse of the adjacent lung and areas of parenchymal densification. Intravenous piperacillin-tazobactam and clindamycin were started, and a chest tube (24 Fr) inserted, with drainage of brownish, foul-smelling, purulent fluid. The patient had alcohol withdrawal syndrome as complication during admission, but presented good clinical progression. Several pleural washings with iodopovidone were performed and a total drainage of 2,400 cc of fluid was observed, whose cultures revealed the presence of Streptococcus constellatus and Prevotella melaninogenica. The patient was discharged at day 19 after admission, overall clinically improved, under respiratory kinesiotherapy program, with no need for surgical intervention. He later changed his lifestyle with clear improvement in his overall health status.
Discussion: With this case, the authors describe the favourable outcome of a patient with a rare complication of respiratory infection and isolation of agents usually associated with poor outcome. The good response to a program of kinesiotherapy and multiple pleural washings, with broad spectrum antibiotics, should be emphasized, as this approach frequently avoids more invasive interventions, with greater morbidity and mortality risk.

Keywords: *Pleural empyema. Pneumothorax. Respiratory tract infections. Microbiology.*

PE 116. CHYLOTORAX AS THE INITIAL MANIFESTATION OF A SIGNET RING-CELL GASTRIC CARCINOMA

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Centro Hospitalar Lisboa Norte.

Introduction: Chylothorax is a rare entity related to traumatic and non traumatic causes. It is characterized by leakage and accumulation of lymphatic fluid in the pleural cavity, and it is usually caused by lesion of the thoracic duct, mainly from external compression or flux obstruction. The traumatic etiology is verified usually in accidents or surgeries, corresponding to an important cause of thoracic lesion duct. For that reason, patients with chylothorax as solo presentation at an emergency room should be considered to multiple other diagnostic options, mainly malignant, congenital, infectious, subclavian vein thrombosis, or pancreatitis and mediastinal irradiation associated causes.
Case report: This case reports a 54 years old women, with no medical history to report, was observed for asthenia and dyspneia for basic efforts with a one-month evolution, reporting progressive aggravation evolving with right thoracalgia, peripheral edema and abdominal ascites. Thoracic radiography revealed a considerable right pleural effusion, which was identified after thoracocentesis as a milky and sterile fluid, without malignant cells and with an abnormally high quantity of triglycerides, which motivated the placement

of chest tube. After thoracic tomography it was identified infracentrimetric bilateral axillary and left mammary adenopathy, as well as the right pleural effusion. For further investigation, it was performed an abdominal and pelvic tomography that identified parietal thickening of cardia, as well as asymmetrical thickening of the gastric and rectal wall, and oversized ovaries bilaterally. Later, and for dorsalgia, she was submitted to a vertebral column tomography that identified metastatic lesions in vertebral bodies from D11 to L4 with pathologic fracture at D4 level. It was performed an echocardiogram and a mammary echography with no abnormalities. It was later confirmed by digestive endoscopy the presence of a massive gastric infiltrative lesion of nodular and ulcerative characteristics, compatible after biopsy with a poorly cohesive cells carcinoma (signet ring-cell). Due to the clinical status, tumoral aggressiveness and low tumoral response to standard therapy, there were no conditions to perform attempts of curative therapy. During hospitalization the patient maintained pleural drainage during ten days with further effusion resolution, however it was registered progressive aggravation of the clinical status, with prostration and severe caquexia. The patient died in the hospital ward 8 weeks after admission.
Discussion: Cancer is the main cause of non-traumatic chylotorax, namely neoplasms like lymphoma, chronic lymphoid leukemia, lung or esophageal tumors have been implied as the most frequent etiologies. Surprisingly, it has been noted a decreasing number of cases related to lymphoma, given its timely diagnosis. The demonstration of triglyceride above 110mg/dL or the presence of quilomicrons in the collected pleural fluid is the gold-standard for diagnostic. The therapeutical management depends naturally on the cause, and includes one or several interventions such as diet modifications, pleurodesis our thoracic duct ligation. Despite the negative outcome, given the aggressiveness of the disease, this case reveals unusual pleural presentation, as a first manifestation of a non mediastinal cancer.

Keywords: *Chylotorax. Pleural effusion. Lymphoma. Mediastinal masses. Gastric signet ring cell carcinoma.*

PE 117. THORACIC ENDOMETRIOSIS AND RECURRENT PNEUMOTHORAX. A CASE REPORT

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Introduction: Endometriosis is a reproductive-aged women characterized by the presence of endometrial tissue outside the uterine cavity and commonly associated with chronic pelvic pain and infertility. Thoracic endometriosis, a rare form of the disease, is characterized by the presence of distinct clinical entities: catamenial pneumothorax; catamenial hemothorax; hemoptise and pulmonar nodules.
Case report: We present the case of a 35 year old patient, born and resident in Angola, since March 2019 in Portugal, with the previous diagnosis of thoracic and abdominal endometriosis, submitted only to hormonal therapy, with dienogest and etinilstradiol. The patient was also submitted to two intestinal resections with a colostomy in 2014 and 2018, without further clinical information. With a history of recidivant pneumothoraxes on the right since 2013, which were only treated through pleural drainage. She arrives to the emergency room on June 2019 with an episode of thoracalgia and non-productive cough with a 4-day duration accompanied by asthenia. Recurring to imagiology, a new pneumothorax on the right was diagnosed, and the patient was hospitalized in the Pneumology ward. She was submitted to passive pleural drainage initially, and later to active drainage, which was maintained for 25 days, without complete pulmonary re-expansion. It was finally confirmed, through abdomino-pelvic magnetic resonance a profound endometriosis with pelvic freezing, right hematosalpingis and infiltration of the anterior abdominal wall. In a thoracic MR, multiple implants on the right were observed, confirming the diagnosis of thoracic endometriosis. The patient was submitted to pleural talcage, identifying the presence by direct observation of diaphragmatic fenestrations in the tendinous centre and the absence of pulmonary and pleura lesions. There are many physiopathological theories for the genesis of the catamenial pneumothorax in thoracic endometriosis.
Discussion: This case reveals the importance of diaphragm involvement and the presence of diaphragmatic fenestrations, verified in only 20-30% of thoracic endometriosis cases. This shines light on the possible translocation and further implantation of gland elements from the pelvic cavity in the thoracic cavity. These episodes occur mostly on the right given the existence of congenital defects most commonly in this region of the diaphragm.

Keywords: *Catamenial pneumothorax. Thoracic endometriosis. Diaphragmatic fenestrations.*

PE 118. SÍNDROME SWYER-JAMES-MACLEOD: A CASE REPORT

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Introduction: Swyer-James-McLeod syndrome is a rare entity associated with postinfectious bronchiolitis obliterans that occurs in childhood. It is an acquired pulmonary condition that occurs in the early years of life, and is associated with “air trapping”, hypoplasia and/or agenesis of the pulmonary arteries, resulting in hypoperfusion of the pulmonary parenchyma; and in some cases bronchiectasis. The evolution of the disease varies according to the extension of the pulmonary involvement.
Case report: A 31-year-old man, leukodermal, who was born at Lisbon (Portugal), with a history of presumptive viral infection at 3 years-old that caused unilateral bronchiolitis obliterans and bilateral sequelae bronchiectasis; and several respiratory infections in childhood and adolescence. The patient has no other significant medical history, and his family history was noncontributory. He had mo consumption of tobacco, alcohol or recreational drugs. The patient had a dyspnea mMRC1, and he was medicated with LAMA + LABA + ICS, having already performed preventive pneumococcal immunization, as also influenzae immunization. The clinical history, who had recurrent respiratory infections, and the immunological study without detected abnormalities have led to the need for a chest CT scan. A small-sized left pulmonary artery and a diffuse whitening, as also cystic bronchiectasis were detected on both bases of the lungs. The respiratory function was verified with a moderate obstructive pattern and it was also found to be analytically negative for the deficit of alpha-1-antitrypsin. All these findings led to the diagnosis of Swyer-James-McLeod syndrome.
Discussion: Although treating a relatively uncommon entity, most patients who carrier this syndrome are asymptomatic. However, they have a higher incidence of recurrent respiratory infections and dyspnea to medium efforts. To sum up, we reinforce the importance of an appropriate imaging study for faster diagnosis when this pattern is observed.

Keywords: *Swyer-James-McLeod. Bronchiolitis obliterans. Recurrent respiratory infections. Air trapping.*

PE 119. PASTEURELLA MULTOCIDA AND BRONCHIECTASIS: AN UNCOMMON ASSOCIATION?

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Introduction: Pasteurella multocida is a Gram-negative bacteria that is part of the oropharynx microbiome of many animals. P. mul-

tocida infection in humans is often associated with an animal bite or scratch resulting in skin and soft tissue infections, however, deeper dissemination for other tissues and organs is a possible complication. Less commonly, it can affect the respiratory tract, with most cases occurring in patients with underlying chronic pulmonary diseases or elderly, through inhalation of contaminated aerosols.
Case report: Women, 73 years old, non-smoker, owner of a dog, two cats and a parrot. Previous history of partial gastrectomy to treat a gastric ulcer, resulting in chronic anaemia and low body mass index. She was being followed by Pulmonology for bilateral varicose bronchiectasis classified as idiopathic, with a background of isolation of Pseudomonos aeruginosa from sputum; functionally, she had a very severe obstructive ventilatory defect and global respiratory failure, requiring long-term oxygen therapy. In the context of progressive worsening in dyspnea associated with an increased sputum volume and purulence, bilateral rhonchi and prolongation of expiratory time on chest examination, a sample of sputum was collected for microbiological examination. After isolation of P. multocida, sensitive to penicillins, tetracyclines and quinolones, she was medicated with amoxicillin and clavulanic acid, with subsequent clinical improvement.
Discussion: P. multocida is typically a commensal organism of the respiratory tract, isolated in individuals with underlying pulmonary impairment. However, it can be associated with a severe respiratory infection, with a frequent history of animal exposure, mostly dogs and cats, without reference to cutaneous inoculation, as presented in this case. P. multocida infections prognosis is variable, with a mortality rate of 30% regarding bacteremia. The authors enhance the importance of detailed patient history, such as animal exposure, when approaching patients with chronic respiratory pathology.

Keywords: *Pasteurella multocida. Bronchiectasis.*

PE 120. AN UNEXPECTED DIAGNOSIS OF CYSTIC FIBROSIS

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Introduction: Cystic fibrosis (CF) is an autosomal recessive, multisystemic, disease with clinical heterogeneity. Can present with different manifestations, ranging from classic to "atypical" phenotypes, which can difficult the diagnosis. Previously, CF was mostly exclusively to pediatric patients; however, given the increase of survival and diagnosis of atypical forms in adulthood, the percentage of adult patients has been increasing. The authors describe a case of a late diagnosis of CF.
Case report: Twenty-two years old male, with a history of allergic asthma and rhinitis since childhood, with no current follow-up. No smoking history. No relevant family history. He was admitted in the Neurology Department for four-month complain of tetraplegia with a predominance of upper limbs and cramps. Associated, he had fever, cough and sputum (more than usual). Objective exam was unremarkable. Analytically showed elevation of infection markers (neutrophilia leukocytosis; VS 37 mm, PCR 91 mg/L). He underwent thoracic CT, which showed cylindrical bronchiectasis with wall thickening associated with a tree-in-bud micronodular pattern. According to the findings, suspicion of tuberculosis was raised, and airborne precautions were instituted. Advice from Pulmonology was requested: no previous history of tuberculosis or contacts; recurrent respiratory infections since childhood, with cough symptoms and chronic bronchorrhea. Isolation of methicillin-susceptible Staphylococcus aureus (with negative mycobacterial cultures) in bronchial secretions. The sweat test was performed and revealed a value of 129 mMol ClNa. Of the remaining study, which included a brain and cervical MRI and EMG, no changes were found, so neurological symptoms were interpreted in an infectious context (antibiotic therapy with complete resolution). Subsequently, the genetic study identified in p.Val232Asp in exon 6 and p.Phe508del in exon 11 in heterozygous, confirming the diagnosis of cystic fibrosis.
Discussion: Given the diversity and versatility of CF presentation, the diagnosis may go unnoticed for years. The authors intend to show a case of a late diagnosis of the disease and demonstrate that it is essential to maintain high suspicion regarding the association of certain clinical characteristics in order to make a timely diagnosis of CF.

Keywords: *Cystic fibrosis. Bronchiectasis.*

PE 121. IMMUNOGLOBULIN A DEFICIENCY AND BRONCHIECTASIS. RETROSPECTIVE STUDY

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Introduction: Immunoglobulin A deficiency (IgAD) is the most common immunodeficiency, known as a humoral primary immunodeficiency. In order to make a diagnosis, patients must have an isolated deficiency of serum immunoglobulin A (IgA) with normal serum immunoglobulin G and M levels, be over 4 years old and have other causes of hypogammaglobulinemia excluded. The majority of patients are asymptomatic and less than a third has one or more of the following conditions: recurrent sinopulmonary infections, autoimmune disease, bowel disease, atopy, or anaphylactic reaction to transfusions. Some of these patients have associated chronic respiratory conditions such as bronchiectasis. Studies characterizing this association are limited.
Objectives: To study a sample of adult patients with IgAD and its impact in bronchiectasis.
Methods: Retrospective study of adult patients with IgAD followed-up in outpatient appointments over a ten-year period. Demographic, clinical and diagnostic data was collected for all patients. Patients with available thoracic computerised tomography (T-CT) scan images were selected and divided in two groups according to the presence of bronchiectasis (BQ and N groups). For these patients, lung function tests results were also included in the study. The statistical analysis was conducted using SPSS version 22.0.
Results: The initial sample included 115 patients with a median age of 36 years, of which 62.6% were females. Median IgA serum levels were 0.43 g/L. Approximately two thirds had associated sinopulmonary diseases, including recurrent respiratory infections, asthma, rhinitis, and pulmonary sarcoidosis (five cases). Additionally, 28.6% of patients had a diagnosis of atopy and 4.3% of autoimmune diseases, such as Erythematous Systemic Lupus, Graves' disease, and Sjögren Syndrome. Out of the 36 patients with available T-CT images, 11 had bronchiectasis (BQ). Patients with bronchiectasis were generally male (72.7% vs 20%; $p = 0.006$) and presented with lower residual volumes (RV) (83.30% vs 109.40%; $p = 0.045$) in comparison with patients without bronchiectasis. The patients' median age (53 vs 44 years; $p = 0.220$) and IgA levels (0.26 vs 0.29 g/L; $p = 0.161$) were similar in both groups. There were no statistically significant differences in the incidence of sinopulmonary and autoimmune diseases and atopy between the two groups. However, all patients with bronchiectasis had both atopy and an autoimmune disease, in comparison to only 20% and 8%, respectively, of patients without bronchiectasis. Bronchiectasis mainly affected the right lung, including medial and right lower lobes. Apart from RV, other lung function tests results showed no statistically significant difference between groups, though the values were overall lower in patients with bronchiectasis.
Conclusions: In this study, patients with bronchiectasis and IgAD were mostly males with lower RVs. Further studies with larger samples and additional variables are needed. It would also be important to systematically measure serum immunoglobulin levels for the aetiological study of patients with bronchiectasis because it alters the management of these patients.

Keywords: *Bronchiectasis. Immunoglobulin A deficiency.*

PE 122. THE E-FACED SCORE: ASSESSMENT OF THE SEVERITY OF NON-CYSTIC FIBROSIS BRONCHIECTASIS

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Introduction: Non-cystic fibrosis bronchiectasis (NCFB) is a chronic respiratory disease, characterized by abnormal and irreversible dilation of the airways. Due to the multidimensional and etiologically diverse nature of this disease, no single parameter can be used to determine its overall severity and prognosis. Being one validated score in use for the assessment of NCFB severity and prognosis, the FACED score evaluates five parameters: functional (FEV1% predicted), physiological (age), microbiological (chronic colonization by pseudomonas aeruginosa), radiological (number of pulmonary lobes affected by NCFB) and clinical (dyspnea, which is evaluated by the mMRC scale). By assessing these 5 parameters, the FACED score determines the probability of mortality in a 5-year follow-up, independently of the NCFB etiology. In order to also predict the future risk of exacerbations, one more variable was added to this score, the number of severe exacerbations in the last year, compose the final E-FACED score.
Objectives: To evaluate the severity and prognosis of NCFB through the E-FACED score and investigate the possibility of a statistically significant correlation between the parameters covered by the E-FACED score and the severity of NCFB.
Methods: A retrospective study including NCFB patients from a sample of patients attending the "Functional Breathing Re-adaptation" appointment at the Pneumology B Unit (CHUC). All patients underwent evaluation of the variables incorporated in the E-FACED score. Statistical analysis was performed using IBM SPSS® software v20.
Results: The sample included 39 patients (24 females and 15 males, aged 37 to 87 years). Most patients (56.4%) had bronchiectasis classified as mild, 33.3% classified as moderate and 10.3% as severe. A statistically significant difference was observed between the number of severe exacerbations in the last year, the age, the degree of dyspnea of patients and the severity of bronchiectasis (Kruskal Wallis test $p < 0.001$, Anova $p < 0.001$ and Kruskal Wallis test $p = 0.017$, respectively). Furthermore, no significant differences were found between the FEV1% predicted, the colonization by pseudomonas aeruginosa, the radiological extension of the bronchiectasis and the severity of bronchiectasis (Anova $p = 0.133$, Fisher's Exact test $p = 0.151$ and Kruskal Wallis test $p = 0.278$, respectively).
Conclusions: In this study, most patients have bronchiectasis classified as mild by the E-FACED score. Moreover, for our sample, the number of severe exacerbations in the last year, the age and the degree of dyspnea assessed by the mMRC scale were the most important variables in the classification of severity of NCFB. Thus, this study reinforces the importance of evaluating severe exacerbations of bronchiectasis in the stratification of the disease and follow-up of these patients.

Keywords: *E-faced. Non-cystic fibrosis bronchiectasis. Exacerbations..*

PE 123. CATAMENIAL RECIDIVANT PNEUMOTHORAX WITH DIAPHRAGMATIC PUNCHING. CASE REPORT

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Introduction: Endometriosis is a condition in which endometrial-like tissue proliferation occurs outside the uterine cavity. It can affect virtually any organ or tissue, with the pelvic cavity being the most frequently affected site. Among the least commonly affected sites are the lungs and pleura. In these cases, patients present with cough, chest pain and catamenial hemoptysis and/or pneumothorax (recurrent manifestation, usually beginning within 24 hours before catamenium and 72 hours after the onset of menstrual flow).
Case report: We report the case of a 32-year-old woman with a history of asthma, hypothyroidism, polycystic ovary syndrome, and exhibited right pneumothorax in 2016 having undergone surgical pleurodesis. In March 2019 the patient was admitted in the Emergency Department (ED) with dyspnea and right side thoracalgia. Detailed anamnesis identified relationship between catamenium with the above symptoms. On objective examination, a diagnostic hypothesis of right pneumothorax was presented. A chest X-ray confirmed pneumothorax on the inferior part of right lung. Due to the described situation, the patient was referred to the Thoracic Surgery Department, where she underwent right-sided video-assisted surgery. Multiple plaques of brownish coloration were identified in the parietal and diaphragmatic pleura, and a diaphragmatic orifice of circa 1 cm (liver was seen by the orifice). Right lower pleurectomy was performed and the orifice was closed. After 5 days of hospitalization the patient was discharged. However, 3 days later, she came back to the ED with complaints of thoracalgia and dyspnea, and the right basal pneumothorax was again diagnosed. The patient was admitted for drainage and chemical pleurodesis, with imaging control, at discharge date, showing a thin pneumothorax lamina at the right base. Anatomopathological report described nonspecific pleuritis. Three weeks after the last recurrence, she was admitted again to the ED due to thoracalgia, presenting X-ray with vestigial pneumothorax, which was stable compared to previous images. Given the absence of a histological diagnosis, despite the high clinical and macroscopic intraoperative suspicion of endometriosis, a review of the laminae was requested to a different laboratory, which confirmed the diagnosis of pleural endometriosis. The patient was referred for gynecology consultation, which is still awaiting at the time of this abstract.
Discussion: Pleural/thoracic endometriosis should be part of the knowledge of the pulmonologist. Although this is a rare finding, it is a cause of thoracalgia and recurrent hemoptysis, which may, as in this case, be accompanied by relapsing pneumothorax. The diagnosis provides a clear example of the pivotal importance that a complete clinical history, complemented by a detailed physical examination, have as essential tools in formulating an unusual diagnosis, such as described above, but of particular importance given the potential clinical and prognostic implications.

Keywords: *Pneumothorax. Relapse. Endometriosis. Thoracalgia.*

PE 124. GIANT MEDIASTINAL MASS. A CASE REPORT

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Introduction: Mediastinal masses are relatively uncommon. Most occur in the anterior mediastinum and include a variety of different entities, from benign to neoplastic lesions, with a broad spectrum of clinical, radiological, and pathological features. Its diagnosis is a challenge in clinical practice.
Case report: A 63-year-old male, a former smoker with type 2 diabetes mellitus and arterial hypertension. With a mediastinal mass known since 2015, discovered incidentally on echocardiogram. Chest CT-scan revealed a multiloculated cystic lesion measuring about 16 × 13.5 × 11.7 cm in the anterior mediastinum, lateralized on the left, compressing adjacent mediastinal structures and determining a left upper lobe atelectasis; the lesion was well-demarcated, it had a slightly irregular wall with contrast enhancement, extensive parietal calcification and a small area of lipomatous

low-density core. After diagnosis, the patient was lost to follow-up. He was hospitalized in December 2018 and January 2019 due to infection of the lesion. The subsequent study highlights: chest CT with lesion of overlapping dimensions, but with air-fluid level inside; January's chest CT scan showed air level increased, which, along with the fact that the patient to maintain abundant sputum, suggested a fistulation of the mediastinal lesion into the tracheobronchial tree, although not to be visible on CT; bronchofibroscopy revealed a decrease in the diameter of the left upper and lower lobar bronchi by extrinsic compression, without findings of bronchial fistula. The patient completed 41 days of antibiotic therapy, was discharged asymptomatic and was referred to thoracic surgery for resection of the mediastinal mass. He underwent a left thoracotomy; the lesion presented calcified wall adhering to the left lung and adjacent mediastinal structures. Eight hundred milliliters of dark green aqueous intracystic content was aspirated and the capsule of the lesion was dissected. The lesion presented a rough brownish surface and heterogeneous tissues with multiple areas of solid consistency; in one of the specimen's flaps were visible structures compatible with hair suggesting the diagnosis of cystic teratoma. Pathologically, no preserved tissues were found to confirm the suspicion, only aspects compatible with organizing hematoma; there was no evidence of malignancy. The patient had no history compatible with chest trauma. He is currently awaiting additional study for better diagnostic/therapeutic guidance.
Discussion: We present a patient with a large cystic lesion, with clinical, radiological and macroscopic findings suggestive of teratoma, which histologically was not confirmed. Although the lesion presents histological characteristics of benignity, the study will be maintained to confirm/exclude germ cell tumor and to assess the need for additional therapies.

Keywords: *Anterior mediastinal mass. Cystic lesion.*

PE 125. COSTAL "VOLET". CASE REPORT

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Introduction: The movable costal or "volet" costal flap is anatomically defined by the presence of two or more fracture points in 2 or more consecutive ribs, with the presence of a free and floating segment that moves independently producing paradoxical respiration and preventing intrathoracic negative pressure during inspiration and positive airway pressure upon exhalation which leads to a decrease in tidal volume and cough mechanism and predisposes to pneumonia and atelectasis.
Case report: The authors present a case report of an 82-year-old male patient with a history of arterial hypertension and dyspipidemia, a victim of thoracic trauma due to a traffic accident with fracture of the left costal arches and pneumothorax that resolved after chest tube placement. The patient had paradoxical breathing in the infra-clavicular pectoral region, but without functional impairment. She remained under surveillance with compressive dressing and analgesic therapy. He underwent computed tomography of the chest that allowed the anatomical definition of the costal "volet" (3rd, 4th and 5th left ribs fractured in more than one point). He underwent surgical treatment, which consisted of placing a polypropylene mesh (Marlex) to stabilize the costal grid. He was discharged 4 days after surgery, with significant improvement in pain complaints and resolution of the clinical condition.
Discussion: Initial treatment of costal "volet" consists of medical treatment with compression of the affected area, analgesia and physical therapy. Surgical indications are controversial and there is no consensus. Surgical fixation may be chosen in the first week after trauma or only when there is respiratory failure or mechanical ventilation weaning is not possible. The authors present the case by the technique used (stabilization of the costal grid with a Marlex net), which, although unconventional, led to a rapid improvement in pain complaints and resolution of the clinical condition.

Keywords: *Costal volet. Chest trauma.*

PE 126. LATE PRESENTATION OF CONGENITAL DIAPHRAGMATIC HERNIA: A CASE REPORT

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Introduction: Diaphragmatic herniation usually occurs in the diaphragm's posterolateral segments, more often on the left side (80-85%). The defect is due to the non-closure of the pleuroperitoneal canal during embryonic development (Bockdaleck's Foramen). This type of hernia was initially described by Bochdalek in 1848. It affects 1:2,200 newborns and it is rare in adults (0.17% to 6%).
Case report: Female patient with 81 years old, with past history of heart failure, atrial fibrillation and chronic kidney disease, among other cardiovascular risk factors and medicated for those diseases. Admitted to the emergency department with acute heart failure with type 1 respiratory insufficiency (pO2 51.0 mmHg), probably resulting from poor compliance to diuretic therapy. Chest x-ray showed an opacity at the right side of the heart, which was already visible since 2009, now presenting elevated hemidiaphragm. For a better understanding of this finding a CT scan was performed revealing a large Bochdalek hernia with fat content, extending from the posterior mediastinum to the carina, involving oesophagus and causing pulmonary left lower lobe atelectasis. A transthoracic echocardiogram was performed and showed aspects of pulmonary hypertension but preserved both left and right ventricular systolic function.
Discussion: The late presentation of Bochdalek hernia is rare and, therefore, a diagnostic challenge, since it has no specific signs or symptoms. Herniation of abdominal organs may occur and may cause complications. On the other hand, the presence of only adipose tissue content seems to be unusual. A large hernia can cause cardiac impairment due to extrinsic compression, which didn't happen in this case. The computed axial tomography confirms the diagnosis and some cases may require surgery.

Keywords: *Bochdalek's hernia. Late presentation.*

PE 127. HEMORRHAGIC BULLAE, AN UNUSUAL PRESENTATION OF CHICKENPOX

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Introduction: Chickenpox is an infection caused by varicella zoster virus, has a peak of incidence between 1 and 6 year old children. It results in a characteristic maculopapulovesicular disseminated skin rash. It is usually a benign but in immunocompromised individuals can lead to clinical complications.
Case report: Male, 52 years, 20 pack-year smoker, alcohol consumption of 100 g/day and a previous history of pulmonary tuberculosis 10 years in the past. He presented to the emergency room with cough and mucous sputum for the last 7 days, fever for 3 days and abdominal pain and pruriginous skin rash that started in the thorax but hastily disseminated to the entire body. At admission the patient presented pain and dyspnea, polypnea, fever, dispersed ronchi bilaterally at chest auscultation and dispersed vesicular lesions in the skin and oral mucosa with hematic content, pustules and papules. A thoracic CT scan showed peribronchovascular parenchymatous densifications with ground-glass areas suggesting an infectious

process with endobrochial dissemination. Blood tests showed cytolytic hepatitis and rhabdomyolysis. Due to the fast clinical decay, with ARDS criteria, the patient was transferred to the ICU where he started mechanical ventilation, hemodialysis for acute kidney injury and aminergic support for the septic shock. Despite these measures and treatment with acyclovir, ceftriaxone and azithromycin, the patient needed to be started on ECMO which he continued for 15 days. A bronchofibroscopy revealed scattered ulcerated lesions, septic workup from admission was sterile for bacteria, fungi and mycobacteria, serology studies for HBV, HCV and HIV were negative, immunoglobulin and immunologic study were normal, and no relevant immunosupresion factors could be identified. Blood tests showed severe kidney, liver and hematological failure. The patient had a favorable response at day 30 of admission and was transferred to the medical wards. At hospital discharge he had no respiratory failure, had improved kidney function without the need of hemodialysis.
Discussion: This was a case of varicella zoster virus pneumonia, with severe ARDS in a young immunocompetent patient, with an uncommon severity, with no history of diseased contacts, and an unusual skin rash. In conclusion, chickenpox is an infection with a clinical diagnosis and should not be forgotten in the adult. Because of its potential medical complications it should have an adequate clinical surveillance.

Keywords: *Pneumonia. Chickenpox. ARDS. Immunocompromised.*

PE 128. IF IT IS IN THE BLOOD, IT IS EVERYWHERE. NOSOCOMIAL NECROTIZING PNEUMONIA CAUSED BY METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS

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Centro Hospitalar de S. João.

Introduction: Methicillin-resistant Staphylococcus aureus (MRSA) is an important and growing cause of nosocomial infections and remains a public health priority. In the last few years, we have seen a large increase in cases of MRSA pneumonia in the health care setting. These infections affect mainly older patients with multiple comorbidities and prior exposure to health care facilities, including surgery. Early diagnosis and appropriate treatment are key factors for better prognosis but can be challenging. MRSA pneumonia still carries an unacceptably high morbidity and mortality rate besides considerable economic costs.
Case report: Woman, 74 years old, no relevant medical history except arterial hypertension. Transferred from the hospital in her area of residence to a tertiary hospital due to Gliosarcoma wild-type for surgical removal. On the fifth postoperative day, the patient has inflammatory signs and purulent drainage at the peripheral venous catheter insertion site, in the right upper limb. Collects blood cultures and pus for culture, removes the catheter and initiates flucloxacillin. Given MRSA isolation in the samples collected, after 3 days antibiotic therapy is adjusted for vancomycin. The patient completes 15 days of vancomycin (already with a pair of negative blood cultures collected three days before the end of the antibiotic). Transthoracic echocardiography (TTE) is performed and excludes the presence of vegetations. Two days after vancomycin withdrawal, patient re-initiates fever and elevation of inflammatory markers (C-reactive protein (CRP) goes from 79 mg/L to 203 mg/L). Without infection focus and without new microbiological isolations (including four pairs of blood cultures and urine culture), patient is transferred to the Internal Medicine service for further study. On the 49th day of hospitalization, a computed tomography (CT) of the chest reveals a cavitated lesion with nonspecific features in the left upper lobe measuring 25 mm and a left pleural effusion of moderate volume. The diagnostic hypothesis of pulmonary tuberculosis is excluded through a mycobacteriological study collected by flexible bronchoscopy. Thoracentesis is performed, which excludes empyema, and pleural effusion is compatible with transudate, with negative cytological study for malignant cells. On the 55th day of hospitalization, the remaining bacteriological results are reported, showing MRSA isolation in the samples of bronchial lavage, bronchoalveolar lavage and bronchial secretions collected by sputum. Therefore, MRSA necrotizing pneumonia is assumed and vancomycin re-initiated. All subsequent blood cultures are negative (four pairs). New TTE is performed (with good ultrasound window) that excludes infectious endocarditis. Patient presents no respiratory insufficiency, sustained apyrexia and decrease in inflammatory markers (CRP 33 mg/L). Repeats thoracic CT after 4 weeks of antibiotic documenting a reduction in the cavitated lesion (18 mm) with a predominance of fibrosis, thus suspending vancomycin. The patient is discharged after 84 days of hospitalization oriented to consultations in Pulmonology and Radiation oncology.
Discussion: MRSA is an increasing cause of nosocomial pneumonia carrying a high morbimortality rate. Improving health care is crucial to reduce selection of antimicrobial resistant strains and prevent their transmission, thereby reducing the risk of nosocomial infection and its adverse consequences.

Keywords: *Methicillin-resistant staphylococcus aureus (MRSA). Nosocomial necrotizing pneumonia. Vancomycin.*

PE 129. BENIGN TRACHEAL STENOSIS: CLINICAL CASE

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Introduction: Benign tracheal stenosis occurs in all age groups in about 1 to 4% of patients undergoing mechanical ventilation. Many factors considered are cited among them laryngeal abnormality, traumatic intubation, intubation by inexperienced professional, repeated intubations, mobilization of the endotracheal tube (ETT), decreased mucociliar transport with accumulation of secretions, infection site, gastroesophageal reflux disease, chronic or acute diseases that lead to decreased tissue perfusion, prolonged intubation time and particular characteristics of ETT.
Case report: We describe the case of a 31-year-old patient, male, diabetic, insulin-treated observed at the emergency department by diabetic ketoacidosis, hospitalized in the intensive care unit in coma, where was intubated and subjected to mechanical ventilation. On the fifth day of hospitalization was extubated and evolve with respiratory failure, intubated again having stayed for six more days. Later was extubated and transferred to the medicine room. On the sixth day of hospitalisation in the room has evolved with respiratory failure and stridor. Performed bronchoscopy which showed vocal cords and trachea wall covered with whitish thick plate and adhered to the mucosa, making reduction of tracheal lumen. The mycological examination of secretions, as well as biopsies revealed to be numerous hyphae and spores of Candida albicans. Was medicated with fluconazole and nistantin with endoscopic and clinical improvement but, about of 30 days after hospital discharge is readmitted by respiratory failure and stridor, having been emergency tracheostomized. Bronchoscopy revealed concentric stenosis of about 90% of the tracheal lumen. He remained with the tracheostomy cannula and referenced for treatment outside the country.
Discussion: The stenosis post intubation, are the most frequent. In adults are caused not only by the time of intubation, but especially by ischemia to the tracheal mucosal necrosis following tracheal cartilage and crushed by high pressure cuff of the cannula. In addition to ischemic injury there are also other factors like the tracheal infections. The strictures may originate from the action of germs gram positive or negative, specific germs as the tubercle bacilli, fungi or parasites. However these strictures are very rare and diagnosed with clinical history, chest X-ray and imaging tests for the presence of the bacterium, bacillus, fungus or parasite in

sputum, bronchial or tracheal secretions or biopsy the strictured area. Confirmed the diagnosis and if there are signs and symptoms of obstructive respiratory failure, in addition specific treatment, patients have to undergo endoscopic treatment. We believe that our patient had several risk factors for tracheal stenosis, repeated intubations, the extended time of intubation, as well as the fungal infection and no completion of endoscopic treatment for local technical difficulties on approach of these patients. Tracheal stenosis is a complication with high morbidity, but that can be prevented. In countries with few resources this complication is severe and can often be fatal. Its incidence can decrease with your knowledge of pathophysiology and care to avoid.

Keywords: *Trachea. Stenosis. Candidiasis.*

PE 130. A VIEW ON LUNG ABSCESSES AT A DISTRICT HOSPITAL

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Introduction: Lung abscesses are cavities in pulmonary parenchyma with necrotic content that occur after microbial infection. They can be classified as acute or chronic, primary or secondary. Prolonged antibiotic therapy and predisposing factors treatment are the basis of therapy.
Methods: We accessed all clinical files that were in pulmonary ward patients from 2012 to 2018 with lung abscess as main diagnosis. We selected all information related to epidemiology, symptomatology, comorbidities and treatments made.
Results: We found 23 patients, 73.9% male, mean age of 61.0 ± 18.2 years. From these, 91.3% were hospitalized through the emergency department and 87% of patients were independent in daily living activities. Cough with sputum, chest pain and fever were the most common symptoms. There were 39.1% smokers, 26.1% former smokers and 34.7% had alcoholic habits. In order of frequency the most common comorbidities were previous pulmonary pathology, diabetes mellitus, arterial hypertension and the presence of active neoplasms. Radiologically, lesions were more frequent in the right lung field (56.5%) and the most frequent analytical changes were leukocytosis and elevated CRP, which were both present in 43.7% of patients. In 4 patients a microbiological agent was isolated by culture of bronchial lavage and in 7 patients in sputum culture. Regarding treatment, the most commonly used antibiotic classes were penicillins and derivatives, followed by macrolides, carbapenems and aminoglycosides, being that 47.8% of patients were treated with 4 or more antibiotics.
Conclusions: Lung abscesses are rare, however, they remain responsible for significant morbidity and mortality, which justifies the relevance of our study.

Keywords: *Lung abscesses. Pulmonary parenchyma. Epidemiology.*

PE 131. OSTEOCHONDROPLASIC TRACHEOBRONCHOPATHY: TWO RARE CASES

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Introduction: Osteochondroplastic tracheobroncopathy (TO) is a rare, benign large airway disorder of unknown etiology characterized by an abnormal growth of numerous cartilaginous and/or bony submucosal nodules, often protruding into the tracheal lumen. They present as round osteocartilaginous projections or polypoids that cover the rough portion of the surface of the tracheobronchial mucosa and the narrow and rigid area in the respiratory tree. They are characterized by slow, progressive, focal or diffuse growth, covered by metaplastic or normal epithelium, extending from the pericondrio to the tracheal lumen along the ring path, with active hematopoietic inclusion in the nodular neoformations. Patients are commonly asymptomatic, but the TO may present clinically with sneezing, dyspnea, hemoptysis, cough or obstructive pneumonia, CT scan and bronchoscopic examination with lesion biopsy, essential for the correct diagnosis.
Case reports: Two cases are presented for their rarity and their diagnosis in a Pulmonology service in a short time. A 75-year-old man with no relevant pathological history who referred to the Emergency Department for pleuritic chest pain with cough and haemoptoic sputum. From the complementary exams of diagnoses performed, we highlight analytically increased inflammatory markers; gasometric with respiratory failure type 1 and radiographically with a condensation at the right base. He was admitted with the diagnosis of community-acquired pneumonia, initiating empirical antibiotic therapy. During his hospital stay, he underwent a chest CT scan, which showed a diffuse irregularity of the trachea and the two main bronchi. Bronchofibroscopy examination revealed several polypoid lesions with apparently normal mucosa. Bronchial biopsies showed non-specific inflammation and epidermoid metaplasia. The patient was then submitted to rigid bronchoscopy, where larger biopsies of the polypoid lesions were obtained. Histological examination showed cartilage and mature bone fragments, confirming the diagnosis of osteochondroplasic tracheobronchopathy. Autonomous 51-year-old man with a history of hypertension and obesity, nonsmoker, Septoplasty in 2009 and facial paralysis in 2016 of unknown etiology. He was referred for outpatient pulmonology consultation for progressive worsening snoring and sleep apnea episodes. The objective of the study was thoracic CT "... slight deformation of the trachea, especially at the level of the superior mediastinum with a reduced transverse diameter not exceeding 12 mm with a clear thickening and irregularity of the mucosa..." Performed Alveolar Wash Bronchofibroscopy, revealing a negative cytology for malignant cells. At the anatomopathological level, the biopsy fragment of a tracheobronchial polypoid lesion turned out to be a subacute inflammatory process, with abundant lymphocyte infiltration, reactive mucinous cell hyperplasia, and partially calcified cartilage ring. The patient remains in consultation, under surveillance, without any treatment. TO is a benign condition and often no intervention is required in asymptomatic cases. In this case treatment of underlying pneumonia resulted in resolution of all symptoms. Direct upper airway treatment was not required and the patient remains asymptomatic, with subsequent clinical surveillance and follow-up at the Outpatient Consultation.

Keywords: *Dyspnea. Tracheal diseases. Bronchoscopy.*

PE 132. WHEN PECIES DON'T MATCH

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CHBV-Aveiro.

Introduction: The major causes of refractory hypoxemia (hypoxemia without response to high oxygen flows) are usually secondary to pulmonary pathology (pulmonary thromboembolism and respiratory distress syndrome) or less frequently due to heart disease, with right-left shunt.
Case report: The authors present a case of a 71 years old men, admitted in orthopaedics to elective left hip arthroplasty, on spinal anaesthesia. As medical history he had hypertension and type 2 mellitus diabetes, without previous pulmonary or heart disease. Seven days after surgery he started with dyspnea, cough and expectoration, with hypoxemia and rise of inflammatory parameters (leukocytes 29.1×10^9/L and reactive C protein 34 mg/dL). Was assumed a health care associated respiratory infection and was initiated piperacillin/tazobactam with resolution of the infection. Although

he maintained hypoxemia with elevated shunt fraction (arterial-alveolar gradient of 538, paO2 43 mmHg, paCO2 28 mmHg with FiO2 0.85-0.90), needing high flow oxygen (30 L/min). Complementary exams were preformed: chest radiography doesn't show alterations; angiothomography excluded pulmonary thromboembolism or fat emboly; ventilation/perfusion scintigraphy also excluded pulmonary embolism but revealed a dubious sign of right-left shunt; transthoracic echocardiography didn't show intracardiac shunt, with normal ventricular systolic function and without signs of pulmonary hypertension. Due to persistent hypoxemia he was submitted to a transesophageal echocardiography that showed an interauricular septum aneurism. The agitated saline test demonstrated the presence of the right-left shunt (with or without Valsava manoeuvre) and a patent foramen ovale (PFO) was diagnosed. Right heart catheterisation confirmed the absence of pulmonary hypertension and he was submitted to percutaneous closure of interatrial defect with complete resolution of the hypoxemia. Transesophageal echocardiography didn't present residual shunt. The patient was discharged, maintaining follow up in cardiology.
Discussion: The differential diagnostic of intracardiac shunt is of the utmost importance in the study of refractory hypoxemia. This diagnostic can be facilitated by the presence of platypnea, but due to the fact that the patient was submitted to orthopaedic surgery it was impossible to evaluate that clinical sign. The definitive treatment of the intracardiac shunt is the percutaneous closure of the PFO.

Keywords: *Refractory hypoxemia. FOP.*

PE 133. SHRINKING LUNG SYNDROME: A RARE MANIFESTATION OF SYSTEMIC LUPUS ERYTHEMATOSUS

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Introduction: Respiratory involvement in systemic lupus erythematosus (SLE) is common, consisting mainly of pleural involvement, alveolar hemorrhage, pulmonary thromboembolism (PTE), pulmonary hypertension, and diffuse pulmonary disease. Shrinking lung syndrome (SLS) is a rare manifestation of SLE (1% of patients). It is manifested by progressive dyspnea and chest pain, with reduced lung volumes -associated with diaphragm elevation and restrictive ventilatory deffect- in the absence of parenchymal changes and other causes of restriction. The pathophysiology is unclear. There are several hypotheses: inhibition of diaphragmatic activation reflexes due to pleuritic pain; diaphragmatic myopathy; surfactant deficit; pleural adhesions; chest wall dysfunction; and phrenic nerve paralysis. The treatment is not well established, but is based on immunosuppression - corticosteroids, azathioprine, cyclophosphamide and methotrexate. The prognosis is good, with clinical and functional improvement, although elevation of the diaphragm persists. There is a long delay in diagnosis due to lack of alertness for the syndrome.
Case report: We present the case of a 76-year-old female patient with SLE diagnosed at 38 years of age, manifested by arthritis, pericarditis and pleural effusion. She started therapy with prednisolone and azathioprine achieving disease control. At the age of 73, she started dyspnea on moderate exertion. She underwent thoracic CT, without pleuro-parenchymal alterations, and respiratory function tests, which revealed restrictive ventilatory deffect (TLC 72% of predicted), which was not explained by other causes. Azathioprine dose was increased, with clinical improvement. At 74 years old, she underwent aortic valve replacement because of stenosis. Posterior radiographs remained similar, excluding iatrogeny. At age 75 dyspnea aggravated, arising to minimal exertion. The echocardiogram showed preserved ejection fraction. Spirometry again revealed a pattern suggestive of restrictive defect; however, it was not possible to perform plethysmography, CO diffusion study or measurement of maximal inspiratory pressure due to the patient's inability to collaborate. Thoracic CT was repeated, which only showed elevation of the right diaphragmatic hemicupula, with no other alterations. Abdominal ultrasound excluded hernia or organomegaly to justify this elevation. Inspiratory and expiratory chest radiography confirmed absence of right hemidiaphragm mobility, also corroborated by chest ultrasound. Bronchodilator therapy was optimized and physiotherapy was instituted, with significant reduction in dyspnea. Due to PTE she started anticoagulation. She is awaiting diaphragmatic electromyography to check for the presence of phrenic neuropathy, which is described in some cases of SLS. At the moment, we are considering more aggressive immunosuppression, which was delayed due to her age and recent PTE.
Discussion: This is a case of SLE with typical pulmonary manifestations - pleuritis and PTE -but also with a rare manifestation- SLS - which constitutes a diagnosis of exclusion and to which clinicians should be alert. This case demonstrates that it is always important to exclude the different manifestations of a disease that is already diagnosed, integrating the different clinical, functional and imaging data, before considering other diagnostic hypotheses.

Keywords: *Lupus. Shrinking lung syndrome. Pulmonary restriction.*

PE 134. COPD EXACERBATION WITH ACUTE GLOBAL RESPIRATORY FAILURE: THE ONE-YEAR EXPERIENCE IN A NONINVASIVE VENTILATION UNIT

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Introduction: Chronic obstructive pulmonary disease (COPD) is a major cause of morbidity and mortality worldwide. It is a systemic disease, which is usually associated with various comorbidities, with frequent exacerbations that have a significant impact on patients' quality of life and survival. Exacerbation of COPD with acute global respiratory failure is an indicator of increased risk of death and noninvasive ventilation (NIV) is the recommended treatment.
Objectives: To characterize patients with acute global respiratory failure due to COPD exacerbation admitted to a NIV unit of a central hospital during 2018.
Methods: Retrospective study of patients admitted to the NIV unit of the Pulmonology Service of a central hospital diagnosed with COPD exacerbated with acute global respiratory failure during 2018. Patients with other causes of respiratory failure were excluded. Data collection through review of the clinical computer process. Subsequent descriptive analysis of the data using SPSS Statistics v23.
Results: Sample of 43 patients (mean age 72 years, 56% male); 40% active smokers and 53% former smokers (average smoking load 50 UMAs). The most frequently found comorbidities were: hypertension (49%), heart failure (46%), dyslipidemia (42%), Diabetes mellitus (31%), atrial fibrillation (31%) and anxiety/depression disorder (22%). The average age-adjusted Charlson comorbidity index was 5 points. The mean FEV1 of the patients was 47%, the mean baseline peripheral eosinophils was 2% (144 µL) and 78% had at least 1 exacerbation requiring hospitalization in the previous year. Most exacerbations (73%) were infectious, with a mean CRP of 10mg/dL. The average APACHE score on admission was 12 points. The mean arterial pH of the sample prior to the introduction of NIV was 7.29, with paCO2 78 mmHg and pO2/FiO2 ratio of 210. In 29% of patients NIV was the therapeutic ceiling, with no indication for intubation/resuscitation. The observed mortality rate was 14% at 30 days, with predicted mortality (according to the APACHE score) of 15%.
Conclusions: The data obtained are consistent with the literature regarding the high prevalence of smoking, reinforcing the need to

continue investing in smoking cessation. The association of COPD with multiple comorbidities (resulting in a high Charlson comorbidity index) is also highlighted, which emphasize the need for the physician to investigate and treat not only COPD exacerbation but also associated comorbidities. The observed mortality was lower than expected, suggesting the quality of care provided.

Keywords: *Global respiratory failure. Exacerbation. COPD. Comorbidities. Mortality.*

PE 135. COMMON VARIABLE IMMUNODEFICIENCY AND ALPHA-1-ANTITRYPSIN DEFICIENCY

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Case report: This case is about a woman, with a history of childhood asthma whose symptoms ceased spontaneously during adolescence. At the age of 32, a tobacco smoker for 10 years, she was hospitalized for pneumonia with pleural effusion. Since then, respiratory symptoms (dyspnea and cough with sputum production), have become recurrent and frequent. Multiple respiratory infections were diagnosed within a few years and after measuring her immunoglobulins levels, she was found to have common variable immunodeficiency (CVID), treated with subcutaneous immunoglobulin replacement. At age 57, she was tested for alpha-1 antitrypsin deficiency (AATD). The analysis showed that she had very low levels of this protein in the blood (18.7 mg/dL by nephelometry). Given that the initial genetic diagnosis of AATD was inconsistent with serum levels, a sample was sent to IPATIMUP. The reevaluation included the protein analysis by isoelectric focusing, genotyping of 4 polymorphic sites including S and Z mutations and sequencing of SERPINA1 coding region, which revealed Mmalton homozygosity (p.Phe52del in a M2 allele) as the cause for AATD. Since the patient stopped smoking more than six months earlier, and she was found to have obstructive ventilatory defect on lung function tests (FEV1 of 53%), she began A1AT augmentation therapy immediately after confirmation of the AATD diagnosis. Despite having IgA deficiency, levels were not much low and she never developed antibodies against IgA, tolerating augmentation therapy without any adverse reaction. The patient underwent a chest tomography scan (CT scan), which revealed bilateral bronchiectasis, mostly in basal regions, and centrilobular and paraseptal emphysema, mainly in superior lobes. Liver disease was assessed by FibroScan® in which the patient was found to have a liver stiffness value of 7.9kPa, a score compatible with significant fibrosis in the absence of liver cirrhosis. Another curious finding is that lung functions tests showed a remarkable increase in forced expiratory volume in one second after three years of augmentation therapy. This finding has not been described elsewhere, and it might be explained by simultaneous optimization of inhaled bronchodilators, by the fact the patient had stopped smoking only three months before the first lung function tests, inter operator dependent differences in test execution and by the variability in the capacity of execution of the tests by the patient (depending if he is in a flare of disease or in a stability period).
Discussion: Despite previous studies have attempted to find a link between CVID and AATD, there is still limited evidence that these might be somehow correlated in rare cases of lung disease. Both genes are in the same chromosome and some studies suggest that there is a genetic segregation effect for both diseases. This report emphasizes the singularity of combining two uncommon disorders, and the fact that AATD is itself caused for an extremely rare genotype (PI*Mmalton/Mmalton).

Keywords: *Alpha-1-antitrypsin deficiency. COPD. Commom variable immunodeficiency. Mmalton.*

PE 136. MEASURING PATIENT EXPERIENCE IN THE CONTEXT OF HOME RESPIRATORY THERAPIES: A REVIEW OF INSTRUMENTS

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Introduction: The increasing number of patients receiving home respiratory therapies (HRT) in Portugal is a challenge to maintain the quality of care. Healthcare providers, administrators and policy-makers agree that the integration of patient experience with healthcare delivery is a cornerstone of personalized and high-quality healthcare. Yet it is still unknown which instruments are adequate to collect patients' perceptions of their personal experience of the healthcare received - patient-reported experience measures (PREMs)- in the context of HRT. Thus, we aimed to identify existent PREMs and check their suitability to evaluate the performance of HRT provision.
Methods: This review included searches in electronic databases (PubMed, Medline, ISI Web of Knowledge and Google Scholar), as well as hand searches (expert consultation and a review of the reference lists of related papers). The search was conducted between July and December 2018 with no time restriction, although limited to English, Portuguese, or Spanish.
Results: We have found 14 instruments assessing the patient's experience with the provision of care in different clinical settings (n = 6), hospital (n = 4), primary care (n = 2), intermediate care and community (n = 3). The majority of PREMs were generic and designed to be used for a diverse range of health conditions. However, two were specifically developed for patients with chronic diseases and one was intended particularly for patients with chronic obstructive pulmonary disease (COPD). The majority of PREMs were developed to target adult patients and tested in patients who were at least 15 years old. Only two developed instruments were tested with carers of children. English was the most common language, with some instruments also in Norwegian (n = 3), Italian (n = 2), and Spanish (n = 1). None of the instruments above were available in Portuguese neither were specifically designed to assess experience with HRT.
Conclusions: Different PREMS, used at distinct levels of healthcare, are available and some might be suitable to evaluate patient's perception of the HRT received. Nevertheless, there is a need for translation/cultural adaptation of existent PREMs to the Portuguese population and/or the development of a specific PREM for patients on HRT; and these should constitute research priorities in the upcoming years. These instruments could then be used to monitor patient experience and be integrated as quality indicators of HRT delivery.

Keywords: *Patient experience. Quality of care. Patient-centred care. Long-term oxygen therapy. Home mechanical ventilation. Home respiratory therapies.*