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PC 001. DISTINGUISHING BENIGN FROM MALIGNANT LUNG DISEASE ASSOCIATED WITH ASBESTOS EXPOSURE - THE RADIOLOGICAL PERSPECTIVE

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Introduction: Asbestos refers to a group of naturally-occurring fibrous silicate minerals which have been traditionally used in manufacturing, mining and construction. When inhaled, asbestos dusts may be eliminated by the mucociliary system of the upper respiratory tract, but once the fibers reach the alveoli, a local immune response is triggered. This inflammatory reaction, mediated by macrophages and fibroblasts, is perpetuated as a chronic inflammatory process inducing lung fibrosis and increased risk of malignancy. Nowadays, the adverse health effects of inhalation of asbestos fibres are well-recognized, with the most severe consequences being lung cancer and mesothelioma. Although its usage has been banned or strongly restricted in more than 50 countries, owing to the long latency period from exposure to the disease presentation (up to 60 years), it is predicted that asbestos-related disease will not decrease in the next 10-15 years.
Objectives: The goals of this work were: 1) to provide a brief pictorial review of the most frequent lung parenchymal and pleural diseases related to asbestos exposure on chest X-ray and computed tomography (CT) and 2) to present discriminatory features that help distinguishing benign from malignant disease.
Methods: We have reviewed the cases of benign and malignant lung asbestos-related disease that have been seen in Pneumology consultation or admitted in the Pneumology Ward at the Centro Hospitalar Universitário do Algarve during a 10-year period. From these, we have chosen the most representative cases (n = 7) in order to provide a clear pictorial review of the most frequent pleuro-pulmonary diseases and most important radiographic findings that help clinicians distinguishing between benign and malignant disease.
Results: Benign disease radiologically displays as pleural effusions, pleural plaques, diffuse pleural thickening, round atelectasis (Blesovsky syndrome), fibrotic bands and asbestosis (diffuse interstitial fibrosis of the lungs). Neoplastic disease related to asbestos exposure manifests as malignant mesothelioma of the pleura, although it may arise in the peritoneum and pericardium (among other tissues), and bronchogenic carcinoma. Although the chest X-rays may suffice the diagnosis (namely for the diagnosis of benign pleural effusion and calcified pleural plaques), conventional and high resolution CT are generally more sensitive and specific. The most discriminatory features to differentiate benign from malignant pleural thickening are: presence of a pleural rind, pleural nodularity, pleural thickening greater than 1 cm and mediastinal pleural involvement.
Conclusions: Recognition of the radiological manifestations of the pleuro-pulmonary asbestos-related diseases is essential for all clinicians that follow patients with respiratory complaints and known (or unknown) previous asbestos exposure. Moreover, differentiation criteria between benign and malignant conditions, namely diffuse pleural thickening vs mesothelioma, should always be kept in mind.

Keywords: *Asbestos. Imaging. Pleural diseases. Lung parenchymal diseases.*

PC 002. TREATMENT OF IDIOPATHIC PULMONARY FIBROSIS WITH ANTIFIBROTICS: BRAGA HOSPITAL EXPERIENCE

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Introduction: Idiopathic pulmonary fibrosis (IPF) is a progressive chronic idiopathic interstitial pneumonia with a median survival after diagnosis of 2 to 5 years. It is characterized by a radiological and histopathological pattern of usual interstitial pneumonia. rate of disease progression as well as decreasing serious events such as acute exacerbation. In this sense, the introduction of pirfenidone and nintedanib offered a significant advance in the treatment of IPF.
Objectives: To retrospectively evaluate IPF patients undergoing treatment with pirfenidone and nintedanib at the Pulmonology Department of the Hospital de Braga.

Methods: Included in the study were patients with IPF followed by pulmonary interstitial consultation who started therapy with pirfenidone or nintedanib. The sample characterization was based on demographic, clinical, laboratory and pulmonary function tests. Results were recorded at baseline and at baseline. subsequent periodic evaluations (T0, T1, T2eT3), with respiratory function tests and frequency of side effects reported.
Results: Forty-one patients with IPF were identified, of whom 22 started antifibrotic treatment: pirfenidone (6) or nintedanib (16); 16 men and 6 women, with a mean age at diagnosis of 67.2 ± 9.2 years. Dyspnea was the most commonly reported symptom (86.4%) and 54.5% of patients reported dry cough. Most patients were former smokers (64%), with an average of 28 months between symptom onset and diagnosis. The mean interval between evaluations (T0-T1-T2-T3) was 6 months. Stability of FVC, FEV1, TLC and DLCO was observed after initiation of treatment throughout the three evaluations performed on patients receiving antifibrotic therapy. In patients treated with pirfenidone, CVF stability was observed (64.5%, 70.4%, 73.3%, 68%) and progressive decrease in DLCO (53.7%, 35.7%, 23.7%, 29.3%), in the respective evaluations. Similar results were recorded in the nintedanib treated group, but with DLCO stability: FVC (75.3%, 85.1%, 83.7%, 80.8%) and DLCO (35.7%, 33%, 31.1%, 38%). The main side effects reported were nausea, diarrhea, abdominal pain, weight loss and liver changes. Side effects were reported in 50% of patients. These effects were more frequent in patients receiving nintedanib therapy. In the nintedanib group, the following side effects were reported: diarrhea (7 patients), nausea (5 patients), weight loss (3 patients), liver toxicity (3 patients), abdominal pain (2 patients).In the treatment group with pirfenidone nausea (1 patient) and weight loss (1 patient). Therapy was discontinued in 5 patients receiving nintedanib; definitely in 4 patients (for diarrhea and liver toxicity) and temporarily in one patient. Pirfenidone was not discontinued in any patient. The average treatment time recorded was 19.7 ± 14.8 months. From the study sample there were 9 deaths as a result of acute exacerbation, an average of 16.5 months after initiation of treatment. As n < 30, it was not possible to establish comparisons between both drugs.
Conclusions: This study corroborates that both drugs appear to be a good therapeutic choice with regard to functional stability of patients with IPF. The higher number of side effects reported in patients receiving nintedanib therapy may be related to a larger sample of patients receiving nintedanib compared to the pirfenidone patient sample.

Keywords: *Idiopathic pulmonary fibrosis. Antifibrotics. Pirfenidone. Nintedanib.*

PC 003. ELECTRICAL CARDIOVERSION: AN ALMOST UNKNOWN CAUSE OF DIFFUSE ALVEOLAR HEMORRHAGE

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Introduction: Electrical cardioversion is a medical procedure used to treat arrhythmias with a low complication rate. Diffuse alveolar hemorrhage after cardioversion is a very rare event. To the best of our knowledge there is only one case-report published about this issue.
Case report: The present case report is about a 47-year-old male with history of dyslipidemia and paroxysmal atrial fibrillation with a past history of hemoptysis after electrical cardioversion in 2016. He presented to the emergency department with complaints of palpitations and fatigue. Electrocardiogram showed atrial fibrillation with tachycardia. After 4 unsuccessful electrical cardioversion attempts the patient was discharged with oral anticoagulation (apixaban) and amiodarone. A few hours later, he was readmitted due to orthopnea and moderate volume hemoptysis. Chest X-ray showed bilateral heterogeneous opacities. Chest CT scan revealed diffuse bilateral parabronchial ground glass opacities suggestive of diffuse alveolar hemorrhage and small bilateral pleural effusion. Transthoracic echocardiography revealed severe left ventricular dysfunction with diffuse hypokinesis and ventricular ejection fraction of 25%. Bronchoscopy was not performed due to severe cardiac dysfunction. Anticoagulation was stopped and aminocaproic acid was infused with resolution of hemoptysis. Secondary causes of hemoptysis were excluded such as bronchiectasis, vasculitis or infection. Control chest CT scan performed 2 weeks after the event showed a significant radiological improvement.
Discussion: Diffuse alveolar hemorrhage is a subset of diffuse pulmonary hemorrhage when bleeding is diffuse and directly into the alveolar spaces. In the present case the patient had an increased risk of bleeding due to anticoagulation therapy. Differential diagnosis included pulmonary edema due to severe cardiac dysfunction. However, hemoptysis is not a feature of pulmonary edema. In this case, hemoptysis was central for the clinical suspicion of alveolar hemorrhage. Perhaps the association between electrical cardioversion and alveolar hemorrhage is underreported in the absence of overt blood losses. To conclude, alveolar hemorrhage should be considered as a differential diagnosis in a patient with hemoptysis after electrical cardioversion.

Keywords: *Hemoptysis. Diffuse alveolar hemorrhage. Electrical cardioversion.*

PC 004. IDIOPATHIC PULMONARY HEMOSIDEROSIS IN AN ADULT WITH ALPHA-1 ANTITRYPSIN DEFICIENCY – COINCIDENCE OR AN UNKNOWN ASSOCIATION?

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Case report: We present the case of a 47-year-old woman, cleaning worker, with previous history of depression. She presented to the emergency department with small-volume hemoptysis for one week. The patient also mentioned two other self-limited similar episodes several months before. Physical examination, blood tests and chest radiography were unremarkable. She was discharged with a cough suppressant medication and was subsequently followed on a Pulmonology consultation. During the following months the patient maintained small but persistent hemoptysis. Bronchofibroscopy did not show any morphological abnormalities, but bronchoalveolar lavage was compatible with alveolar hemorrhage. Chest HRCT scan showed a few scattered non-specific ground glass opacities. Screening tests for autoimmune diseases, including anti-neutrophil cytoplasmic antibodies (ANCA), were negative. Due to family history of alpha-1 trypsin (AAT) deficiency (brother diagnosed with severe emphysema), the patient was tested and had a PiZZ genotype. Liver tests and echography were normal. The only abnormality on pulmonary function tests was a diminished DLCO (40% of the predicted). Due to worsening of the hemoptysis the patient was admitted in the hospital. At this time, she had a severe iron deficiency anemia. Iron supplementation was initiated, and the patient underwent a bronchial artery angiography, in which a small arterio-arterial fistula was embolized. In the two following months the patient maintained persistent small-volume hemoptysis, but she recovered from the anemia. A second angiography failed to show any abnormalities in the bronchial circulation. The patient was then submitted to a cryobiopsy, that showed blood-filled alveolar spaces but no features of vasculitis or other etiologies of alveolar hemorrhage. After the procedure the patient had a worsening of her clinical status, with aggravated dyspnea and diffuse ground glass opacities on chest HRCT scan. High dose glucocorticoids were initiated with a great clinical and radiological improvement after the first pulse. Due to the described results, in the absence of a specific etiology, the diagnosis of Idiopathic pulmonary hemosiderosis (IPH) was assumed and pulsed intravenous cyclophosphamide treatment was initiated.

Discussion: Although AAT deficiency is associated with ANCA-positive systemic vasculitis, its association with IPH has not been reported. It is unlikely that these two rare disorders would coexist without a physiopathological link. Although the exact etiology of IPH is still unknown, the response to immunosuppressive therapy suggests an immune mediated process. AAT has been demonstrated to have a relevant immune-modulating role by reducing production of pro-inflammatory cytokines, inhibiting apoptosis, blocking leukocyte degranulation and migration, and modulating local and systemic inflammatory responses. Further research is needed to help clarify this possible interaction and understand the pathogenesis of IPH.

Keywords: *Idiopathic pulmonary hemosiderosis.*

PC 005. OCCUPATIONAL CHRONIC BRONCHIOLITIS SECONDARY TO METALLURGICAL PICKLING WITH NITRIC ACID

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Introduction: Pulmonary toxicity after inhalation may result from exposure to a variety of chemical compounds. In the metallurgical industry, various substances used in galvanizing processes can cause severe effects on airway and lung parenchyma. The clinical course, pathophysiology and treatment of pulmonary toxicity induced by nitric acid are poorly documented in the literature.
Case reports: Female, 50 years-old, non-smoker and without relevant medical history. Complaints of grade 2 mMRC exertional dyspnea and unproductive, contumacious and refractory chronic cough even with the prescriptions of antitussives, bronchodilators and inhaled corticosteroids (Leicester Cough Quest: total 10.6 (physical-3.75; phycological-3.57; social-3.25). She worked as a metallurgical factory worker in the chrome plating section, handling nitric acid for pickling metals. Radiographically with diffuse reticulo-micronodular interstitial pattern with subsegmental alveolar consolidation foci in the middle levels. Chest CT showed areas of tree-in-bud opacification, foci of peribronchial alveolar densification and bronchiectasis in the right upper lobe, middle lobe, and lingula. Functionally with Tiffeneau-Pinelli Index-0.86, FEV1-109%, FVC-106%, TLC-104%, RV-107%, DLCOSB-77%, KCO-93%. Autoimmune workup was negative. Bronchofibroscopy without endoscopic abnormalities and the invasive microbiological study was negative. Under the suspicion of inhalation bronchiolitis and for documentation, she underwent VATS surgical lung biopsy (right upper and lower lobe). The biopsy showed preservation of the parenchymal architecture, lymphoplasmocyte infiltrate in the bronchiolar wall with polymorphonuclears, bronchial muscular layer hypertrophy and bronchiolar wall fibrosis, without foci of organizational pneumonia/myofibroblastic polyps or aspects of interstitial inflammation. After multidisciplinary discussion she was diagnosed with chronic inhaled bronchiolitis induced by nitric acid/NO2, caused by contact of nitric acid with metals. She began therapy with prednisolone and azithromycin (immunomodulation regimen), in parallel with palliative cough medication. She presented progressive improvement of dyspnea and cough resolution. HRCT showed partial resolution of the lesions. She is currently on maintenance dose of prednisolone (5 mg), with inhalation therapy and is being followed up at medical consultation of Pulmonology/Interstitial lung diseases.
Discussion: Inhalational lung toxicity depends on weight, structure and molecular concentration, as well as duration and narrowness of exposure. Nitric acid is often used in the metallurgical industry for chemical pickling prior to the chemical/electrochemical coating of metals (plating with chrome, nickel or zinc). In addition to its high solubility, it generates NO2 vapors in contact with metals, which can be inhaled, especially under inadequate ventilation or without the use of protective equipment. Exposure to toxic/irritants is a known cause of bronchiolitis probably resulting from oxidative damage to terminal bronchioles/alveoli, with some reports of nitric acid/NO2 toxicity in the literature. Bronchiolitis is usually the constrictive type and poorly responsive to corticosteroids. Clinically, it may have an acute or more insidious onset, like this case, and it´s frequent the diagnostic delay due to premature interpretations of possible asthma/COPD. This case illustrates a situation of diffuse parenchymal disease where a meticulous occupational history is crucial to final causal recognition. Despite the correct initial diagnostic suspicion, histological confirmation was useful for recognizing the disease as occupational (and facilitating the compensation of the injured worker), as well as contributing to the prognosis/expectation of responsiveness to corticosteroids.

Keywords: *Bronchiolitis. Nitric acid. NO2. Lung toxicity. Occupational.*

PC 006. THE IMPORTANCE OF BRONCHOALVEOLAR LAVAGE IN APPROACH OF INTERSTITIAL LUNG DISEASES

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Introduction: Bronchoalveolar lavage (BAL) is commonly used in diagnostic approach of interstitial lung diseases (ILD), in conjunction with clinical history and imaging findings, that may confirm or support the differential diagnosis. In patients with ILD with pulmonary fibrosis, its contribution may be important, given the challenging diagnosis of this pathology.
Objectives: To access the diagnostic value of BAL in different ILD, comparing the alveolar cellular profile. To evaluate the cytologic differences between different groups of ILD with pulmonary fibrosis.
Methods: Retrospective analysis of cases undergoing BAL on suspicion of ILD, between January 2017 and December 2018. We included all patients with BAL immunophenotyping and with definitive diagnosis of ILD established.
Results: We included 165 patients, with average age of 64 years old, of whom 60.6% were male. The following pathologic groups were analyzed: hypersensitivity pneumonitis (HP; n = 70), 18.8% of which corresponded to chronic hypersensitivity pneumonitis (CHP); pneumoconiosis (n = 36), 6.1% of which had massive fibrosis; sarcoidosis (n = 20), 1.8% of which belonged to stage IV; connective tissue diseases associated to ILD (CTD; n = 13), 1.2% of which had fibrosing pattern; idiopathic pulmonary fibrosis (IPF; n = 7); other idiopathic interstitial pneumonia (IIP) that included non-specific interstitial pneumonia, cryptogenic organizing pneumonia, respiratory bronchiolitis interstitial lung disease and desquamative interstitial pneumonia (n = 19), 21.2% of which were fibrosing. BAL cellular analysis revealed lymphocytosis in HP, sarcoidosis, CTD and pneumoconiosis groups, with significant difference between their mean values (36%, 35.2%, 22% and 15%, respectively, with p = 0.001). We also observed a higher neutrophil percentage in IPF (14%), IIP (7%) and CTD (6.5%). However, there was no significant statistical difference between the studied groups (p = 0.407). The analysis of the cellular profile of ILD with fibrosis (n = 57) and without fibrosis (n = 108) showed increased neutrophilia in the first group (5% versus 3%), with statistical significance (p = 0.026). Patients with acute/subacute HP had higher lymphocyte count compared to CHP (p = 0.009), with no difference in neutrophil count (p = 0.413). Comparing with IPF (16.6%), we also verified a difference in lymphocyte count percentage in CHP (26.7%), pneumoconiosis with massive fibrosis (20%) and sarcoidosis stage IV (45%), but only with statistical significance for the latter (p = 0.009).
Conclusions: In this study, BAL had an important role in approach of different ILD, verifying lymphocytic alveolitis in HP and sarcoidosis, and mixed alveolitis in CTD. ILD with fibrosis, as well as IPF, have demonstrated a significant increase in neutrophil count, in accordance with literature. By comparing acute/subacute HP with CHP, we observed a significant decrease in lymphocyte count with the chro-

nicity of the disease. This fact may difficult the differential diagnosis, namely with IPF, often leading to more invasive procedures.

Keywords: *Interstitial lung diseases. Bronchoalveolar lavage. Pulmonary fibrosis.*

PC 007. FAMILIAR PULMONARY FIBROSIS: DESCRIPTION OF A FAMILY CLUSTER OF TERT GENE MUTATION

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Introduction: Idiopathic pulmonary fibrosis (IPF) represents the most common form of idiopathic interstitial pneumonia. Although mostly sporadic, familiar clusters are identified in about 10% of cases -denominated familiar pulmonary fibrosis (FPF). More frequent mutations observed in FPF comprises telomerase complex -TERT and TERC genes- being also associated to haematological, hepatic and cutaneous manifestations.
Case report: We present the case of a 60-year-old female (proband), with past work in aviary, non-smoker and with no previous history of autoimmunity; she was diagnosed FPF. The patient presented usual interstitial pneumonia (UIP) –probable pattern– and moderate reduction of alveoli capillary diffusion of carbon monoxide at diagnosis. Her family history was full of confirmed/suspected cases of fibrotic pulmonary disease, including a maternal uncle and five brothers, all already dead with a mean age of 58 years (interval from 45 to 75 years), by cause attributed to complications of pulmonary fibrosis. The more complete information available was relative to the maternal uncle, who died at 75 years, by an exacerbation of disease, only 2 months after confirmation of IPF diagnosis. In his first evaluation, he presented a three-month clinical picture of dyspnea with efforts and dry cough, radiological pattern of definite UIP at chest computerized tomography and broncoalveolar lavage with high score of neutrophils and eosinophils. Genetic study was proceeded through NGS multigenic panel (clinical exome) of proband, in which was detected a pathogenic variant of TERT gene c. 1630T > C on exon 3. Due to reports of consanguinity between the proband and her husband (grandson of maternal uncle of proband), he was evaluated on screening consultation, presenting himself asymptomatic, however equally carrier of radiological changes of probable UIP pattern. Currently, his genetic study is ongoing. Both proband and her uncle presented obstructive sleep apnea syndrome, without other manifestations (including extrapulmonary) frequently described in association with FPF. Empty sella and Joubert syndromes' associated encephalopathy had been previously documented in proband.
Discussion: Even present only in a small percentage of IPF cases, pathogenic changes in TERT gene have been identified mainly in FPF cases. Genetic counseling becomes important in affected families, allowing an early diagnosis and beginning of appropriate treatment. Besides being risk factor for IPF, genetic variants may influence natural course of disease. Further studies should consider the presence of these variants, in order to establish a connection between genotype and therapeutic response, and then develop personalised medicines.

Keywords: *Familiar pulmonary fibrosis. Telomerase. TERT.*

PC 008. DISSIMILAR PRESENTATIONS OF SARCOIDOSIS

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Introduction: Imagiology is central in sarcoidosis diagnosis and following. The typical presentation on CT scan is the symmetrical bilateral hilar lymphadenopathies and well defined, with peribronchovascular predominance, in the upper lobes. However, several atypical presentations are documented, considering sarcoidosis as the "great pretender"
Case reports: Case 1. Female, 33 years old, with dyspnea and chest pain for about 5 years. Assumed the sarcoidosis diagnosis in private consultation. She was under corticotherapy for two years, with good response. Referenced to hospital five years later due to worsening. Thorax CT revealing diffuse ground-glass areas in both lungs and micronodular opacities with perilymphatic distribution, highly diffused, without sparing the lower lobes. The transthoracic biopsy (TTB) was compatible with sarcoidosis. Due to large pulmonary involvement and symptoms, immunosuppression was started. Case 2. Male, 29 years old, was sent to hospital for investigation of adenopathies. Thorax CT showed bilateral disseminated millimetric nodules. Cervical adenopathy biopsy revealed non-specific chronical granulomatous lymphadenopathy. Positron-emission tomography (PET) showing exuberant fixation with widespread bone involvement (column, pelvis, sternum, clavicle, scapula, ribs, humerus and femur) with high metabolical activity, suggesting as first possibility lymphoproliferative disease. However, considering symptoms, biopsy, BAL and the absence of malignant cells, diagnosis of sarcoidosis was assumed. Due to extensive involvement and asthenia, corticotherapy was started. Case 3. Male, 38 years old, antiphospholipid syndrome history. Constitutional symptoms and dry cough with 6 months evolution. Thorax X-ray with bilateral diffuse micronodular opacifications. CT evidenced several miliary micronodules, with upper lobe predominance. He was admitted on suspicion of tuberculosis, which was excluded. TTB showed a non-necrotizing granulomatous inflammation. The diagnosis of sarcoidosis was assumed; he remains under surveillance. Case 4. Male, 52 years, was attended in consultation for large volume mediastinal adenopathies, diffuse opacities in both lungs and hepatosplenomegaly. He was sent on suspicion of sarcoidosis. EBUS-TBNA, TTB and BAL were performed and were inconclusive, so he underwent transthoracic biopsy, revealing granulomas consistent with sarcoidosis. No improvement with immunosuppression, despite the disease activity. Two years later, thorax CT with diffuse distortion of pulmonary architecture and a nodule with air crescent sign, suggesting mycetoma, septal thickening and bronchiectasis, indicting an evolution to fibrosis. Currently, under portable oxygen therapy.
Discussion: In the first case, the parenchymal diffuse involvement, with inclusion of the lower lobes do not show sarcoidosis as main differential diagnosis. About one third of patients with sarcoidosis have palpable peripheric lymphadenopathies. Attention is drawn to the differential diagnosis between sarcoidosis and lymphoma, considering that both of them involve mediastinal lymph nodes and may have similar parenchymal presentations. The bone involvement is uncommon and it is believed to indicate a chronical and long clinical course. Miliary opacities constitute a rare pattern on sarcoidosis (< 1% of the cases), mimics other differential diagnosis. Multifocal opacities due to pulmonary sarcoidosis occur on about 10-20% of the patients. Cavitation of these lesions is a very rare finding. Thus, sarcoidosis mimics a wide variety of diagnosis with different etiology, being as such, considered an exclusion diagnosis.

Keywords: *Sarcoidosis. CT scan. Radiology. Pulmonary presentations.*

PC 009. PLEUROPARENCHYMAL FIBROELASTOSIS AND EPITELIAL REMODELLING: RECOGNITION AND PITFALL

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Introduction: Pleuroparenchymal fibroelastosis has been referred as rare and with unclear pathogenesis and acute lung injury or in-

terstitial inflammation repair has been recognized with reduplication of elastic fibers. There is a predilection for the upper lobes, predominantly in younger and nonsmoking patients. Although cases of older and smoker individuals have been diagnosed, associated with better prognosis and without relevant symptoms.
Case report: 29-years-old woman presented right pneumothorax, submitted to surgery due to complications of residual disease. Pulmonary tissue was collected during surgical procedures. At gross appearance, pulmonary tissue with 5.5 × 2.9 × 2.5 cm, revealed emphysema and sub-pleural congestion/densification. Histopathological study showed central broncho-vascular lesions with retention of birefringent particles and constrictive bronchiolitis. Lobular remodellation with sub-pleural fibroelastosis, fibrosis of alveolar septae and epitelial remodelling as well as scant and patchy lymphoplasmacytic infiltrate were also present. Imunohistochemistry allowed the clear understanding of pleuroparenchymal fibroelastosis envolving epithelial spaces where CK5 expression, along with TTF1, CK7 and vimentin were relevant, correlating with bronchialization of peripheral lung and bronchioli epithelium.
Discussion: Pleuroparenchymal fibroelastosis diagnosis is well defined by clinical, radiologic, and pathologic consensus of American Thoracic Society Documents (2013). Usual interstitial pneumonia causes effacement of the original parenchymal architecture - not present in our case. Fibroelastosis prognosis is poor with recurrent complications like pneumothorax. No effective therapy is available and particular attention should be driven in younger patients as the actual case report. Also important and relevant for clinical and pathology routine stands the recognition of epithelial remodelling raising pools of eventual carcinogenesis and may be a pitfall in frozen sections of lesions under 3 cm diameter.

Keywords: *Pleuroparenchymal fibroelastosis. Epithelial remodelling. Usual interstitial pneumonia.*

PC 010. MIXED CONNECTIVE TISSUE DISEASE IN A PATIENT WITH SPONTANEOUS PNEUMOTHORAX

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Introduction: Mixed Connective Tissue Disease (TCDM) is a systemic autoimmune connective tissue disease characterized by elevated anti-U1-ribonucleoprotein (RNP) antibody titers and clinical manifestations of systemic lupus erythematosus, scleroderma, polymyositis, dermatomyositis and rheumatoid arthritis. The authors present a case of a 28-year-old male patient with no past medical history and sporadic smoking habits since twelve years old.
Case reports: He complained of dyspnea and chest pain. On physical exam he was eupneic and had no breath sound in the left pulmonary field. Chest x-ray showed a left pneumothorax requiring a chest tube. On the second day of hospitalization, empiric antibiotic therapy was started for persistent fever and consistent elevation of inflammatory parameters. Chest CT presented pneumothorax and moderate left pleural effusion with bilateral severe para-septal emphysema in the upper lobes. Due to the persistence of fever and pleural effusion, a more detailed study of the medical history was conducted. The patient had a several months previous history of inflammatory and additive polyarthralgias with functional impotence associated with morning stiffness lasting more than one hour and improvement throughout the morning and sporadic episodes of Raynaud's phenomenon and intermittent diarrhea. Analytical evaluation showed normal alpha-1 antitrypsin, negative viral serology, positive ANA 1/1280, anti-SM negative and strongly positive RNP. Echocardiogram was normal and capillaroscopy suggested changes compatible with secondary Raynaud phenomenon. Diagnosis of Mixed Connective Tissue Disease was established.
Discussion: The relationship between pulmonary changes and connective tissue diseases is known. Given the severity of pulmonary changes in this young man we may be in the presence of a new entity with pulmonary and systemic involvement that can contribute to emphysema and pneumothorax.

Keywords: *Mixed connective tissue disease. Autoimune disease.*

PC 011. PARANEOPLASTIC EOSINOPHILIA, SUFFICIENT CAUSE OF PULMONARY DYSFUNCTION?

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Introduction: Eosinophilia can be associated with a wide variety of clinical conditions. Solid tumors are occasionally associated with peripheral eosinophilia and organ damage by tissue infiltration of eosinophils. This association usually reflects an aggressive course and poor prognosis.
Case report: We report a case of a 79-year-old non-smoker, Caucasian female. No known risk exposures or allergies. Retired accountant. The patient had hypertension under treatment with an angiotensin-converting-enzyme inhibitor and diuretic. Avaliated in medicine consultation after retinal vein thrombosis to study systemic causes. She had 6 month history of dry cough, dyspnea on moderate exertion and weight loss, 5 Kg. Physical examination revealed inspiratory crackles, diffuse wheezing and bilateral edema of lower limbs. Initial blood and cord tests showed eosinophilia (18.6%; 1.88 × 10^9/L) and elevated erythrocyte sedimentation rate (94 mm). Chest radiography showed diffuse interstitial densification and computed tomography (CT) showed fibrosis. Lung function tests revealed reduced diffusing capacity for carbon monoxide (DLCO). and moderate hypoxemia. No endobronchial lesions were detected by bronchoscopy. Bronchoalveolar lavage differential cell counts reveals eosinophilic alveolitis (16%). No microorganisms or malignant cells were detected. Autoimmunity and parasite research were negative. An abdominopelvic CT scan reveal a possible hydrometra with uterine enlargement. She underwent total hysterectomy and bilateral oophorectomy, with a pathologic diagnosis of endometrial adenocarcinoma, subtype endometrioid. At six month follow up with no evidence of eosinophilia. Large fibrose areas remitted to a long course disease. Could paraneoplastic eosinofilia alone cause this aggressive dysfunction? The patient continued to deteriorate, and died two years after the diagnosis.
Discussion: Peripheral eosinophilia in a malignant context is usually a sign of disseminated disease, and associated with a poor prognosis. Lung is one of the main target organs of eosinophilic disease. In all events, the presence of hypereosinophilia demands an extensive work-up, and paraneoplastic phenomena must be considered.

Keywords: *Eosinophilia. Paraneoplastic. Diffuse disease.*

PC 012. CHARACTERIZATION OF INTERSTITIAL LUNG DISEASE OUTPATIENT CLINIC OF VILA FRANCA DE XIRA HOSPITAL (HVFX)

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Introduction: HVFX interstitial lung disease outpatient clinic (ILDO) began in 2013. Appointments occur weekly and are conducted by two pulmonologists. On the day before cardiopulmonology technicians perform respiratory function tests. ILDO main goal is to provide differentiated and individualized care to each patient, with regular follow-up and systematic evaluation, optimizing their approach and treatment.
Objectives: Characterization of patients evaluated on ILDO.
Methods: a Retrospective cohort study of ILDO between 2012 and 2018. Data was collected using clinical files. Were considered for

analysis: age, gender, main diagnosis, origin of reference and death. Results are presented using descriptive statistics through SPSS® v 20.0.
Results: During this period were evaluated 117 patients (54.7% males), with a mean age of 69.1 ± 14.2 years. The majority were referred from general pulmonology and primary health care consultations (both 23.1%). The most frequent diagnosis was non-specific interstitial pneumonia (27.4%), followed by hypersensitivity pneumonitis (18.8%), sarcoidosis (16.2%) and idiopathic pulmonary fibrosis (12.8%). At the time of analysis, 67.5% of patients were still alive.
Conclusions: The multiplicity and specificity of interstitial lung disease reinforce the need for a differentiated approach of these patients, with regular and individualized follow-up, in a proper appointment consultation, and in a systematic way.

Keywords: *Interstitial lung disease.*

PC 013. MONOCLONAL ANTIBODY THERAPIES AS TARGETED TREATMENT FOR EOSINOPHILIC GRANULOMATOSIS WITH POLYANGIITIS

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Introduction: Eosinophilic granulomatosis with polyangiitis (EGPA) is a rare but potentially life-threatening systemic small-to-medium vessel vasculitis of unknown cause associated with prominent eosinophilia. Conventional treatment of EGPA consists of high doses of systemic steroids and immunosuppressive therapies in patients with severe or refractory diseases. Recent studies suggested treatment benefit with monoclonal antibodies (anti IgE and anti IL-5) however none of these drugs are formally indicated for EGPA.
Case report: A 52-year-old overweight (BMI 31 Kg/m^2) female patient with history of severe non allergic asthma, rhinosinusitis, bronchiectasis colonized by P. aeruginosa (under inhaled colistin) and breast cancer in 2014 (without relapse and under Letrozol) was diagnosed with Eosinophilic granulomatosis with polyangiitis (EGPA) in 2013. A pruritic macular erythematous rash in the tights associated with a marked elevation of eosinophil count (38.6%; 4,250/uL) and history of severe asthma/rhinosinusitis triggered the diagnostic hypothesis of EGPA, later confirmed by further laboratory tests and histology (skin and lung). The patient was treated with systemic corticosteroids (gradual tapering to 10 mg id), but still with frequent asthma exacerbations. In June 2017 she was started on omalizumab (Xolair® 375 mg every 2 weeks), with improvement of symptoms, decreased frequency of exacerbations and lower doses of systemic and inhaled corticosteroids. Due to ENT and respiratory symptoms, total withdrawal of systemic corticosteroids was not possible. In August 2018 the patient relapsed from EGPA (Five-Factor Score < 2; ground-glass opacities on chest CT), and was proposed to anti-IL5 treatment with mepolizumab (300 mg), with marked symptomatic and radiological improvement. Furthermore, it allowed total withdrawal of systemic corticosteroids after six months of treatment.
Discussion: This case shows evidence that monoclonal antibody therapies can improve asthma control in patients with EGPA with uncontrolled asthma by reducing asthma exacerbations and doses of oral steroids. Mepolizumab presented as the most efficacious therapy compared with omalizumab. In previous studies Mepolizumab has been shown as a steroid sparing agent in EGPA. Our case presents new data, since the patient not only spared the steroid treatment but also achieved its total withdrawal after only 6 months of mepolizumab.

Keywords: *Eosinophilic granulomatosis with polyangiitis. EGPA. Mepolizumab.*

PC 014. MICROBIOLOGICAL FINDINGS IN INTERSTITIAL LUNG DISEASE

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Objectives: To evaluate fiberoptic bronchoscopy microbiological results in patients with interstitial lung disease.
Methods: Retrospective analysis of patients with interstitial lung disease who underwent fiberoptic bronchoscopy at Pulmonology Department of Coimbra's University Hospital from January to December of 2014.
Results: 93 patients (44 male and 49 female), aged between 27 and 91 years old and mean age of 61 years old were identified. 32.3% (n = 30) of the procedures were performed during hospital admission and 67.7% (n = 63) in outpatient regimen. All the procedures were performed as part of a diagnostic workup: for sarcoidosis (35.5%; n = 33), usual interstitial pneumonia (16.1%; n = 15), hypersensitivity pneumonitis (14%; n = 13), non-specific interstitial pneumonia (9.7%; n = 9), ground glass opacities in thoracic ct scan (8.6%; n = 8), vasculitis (5.4%; n = 5), cryptogenic organizing pneumonia (4.3%; n = 4), pulmonary involvement in systemic lupus erythematosus (2.2%; n = 2) and pneumoconiosis (2.2%; n = 2). Finally, in one case (1.1%) it was used for respiratory bronchiolitis interstitial lung disease diagnosis and in another case in rheumatoid arthritis. Bronchial aspirate culture was carried out in all patients and Mycobacterium agents were screened in all but one. Bronchial washings cultures and Mycobacterium tests were carried out in 86 cases (92.5%). In 84 cases (90.3%), bronchial aspirate showed a polymicrobial or negative culture, in 4 patients (4.3%) a Staphylococcus aureus was identified (in 3 cases multidrug-resistant Staphylococcus aureus) and in 5 cases other agents were found: Enterobacter cloacae, Streptococcus pneumoniae, Klebsiella pneumoniae, Haemophilus influenzae and Pseudomonas aeruginosa. Bronchial lavage culture was positive in only 5 cases (5.8%), with two multidrug-resistant Staphylococcus aureus identifications, one Enterobacter cloacae, one Klebsiella pneumoniae, and one Pseudomonas aeruginosa. In all cases of positive bronchial lavage culture, the same agent identification was made on bronchial aspirate. In only one case a Mycobacterium avium was identified in bronchial aspirate of a patient with rheumatoid arthritis.
Conclusions: The studied population was heterogeneous but showed that interstitial lung disease microbiology is similar to general population (polymicrobial culture with commensal flora). Bronchial aspirate was superior to bronchial washings in microbiological identification of these patients. Staphylococcus aureus was the most frequent identified agent in this population.

Keywords: *Microbiology. Interstitial lung disease. Fiberoptic. Bronchoscopy.*

PC 015. DIAGNOSTIC CONTRIBUTION OF CONVENTIONAL TRANSBRONCHIAL LUNG BIOPSIES IN THE DIAGNOSIS OF A COHORT OF PATIENTS WITH HYPERSENSITIVITY PNEUMONITIS

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Introduction: Hypersensitivity Pneumonitis(HP) is a group of pulmonary granulomatous inflammatory diseases resulting from inhalation exposure and immune sensitization to antigens. Although more limited with chronic/fibrosing forms of HP, transbronchial lung biopsy (TBLB) has a recognized value in bronchiolocentric granulomatous diseases. Several factors may limit diagnostic acuity: sample size, artifacts, distribution/profusion of changes and difficulty in obtaining peripheral material.

Objectives: Retrospective study of the contribution of conventional TBLB in the diagnosis of HP cases followed at the Pulmonology/Interstitium consultation (June/2015-August/2019) of Centro Hospitalar Baixo Vouga and evaluated/discussed at Multidisciplinary Meeting.
Methods: Data collection of information from the clinical files of patients diagnosed with HP, with subsequent computer processing.
Results: It was identified 78 patients (mean age-66.6 years) with 59.0% women. About 61.5% had chronic/fibrotic HP, followed by subacute HP (25.6%). The most frequently identified antigens were: avian antigens (59.0%), fungi (20.5%) and other antigens (isocyanates, bacteria, antigen combination and cases without identifiable antigen). Of the 72 patients who underwent bronchofibroscopy, 36.1% (n = 26) underwent TBLB, most of them in the right lower lobe and an average of 3.9 biopsies/patient. Of these 26 patients, 26.9% of the samples were inadequate due to insufficient material or artefacts, 23.1% showed normal parenchyma, and the remaining 50.0% showed representative material with abnormally (and diagnostic input). The most frequent findings were: lymphoplasmacytic inflammatory infiltrate (58.3%); fibrotic changes (38.5%); presence of intralveolar macrophages (30.8%); alveolar septal thickening (30.8%), cellular bronchiolitis (15.4%) and with 7.7% each: poorly formed granulomas, foci of organizing pneumonia/Masson bodies, multinucleated giant cells, fibroblastic foci and hyperplasia of type-II pneumocytes. In 50.0% of the cases submitted to TBLB, a multidisciplinary diagnosis with a high level of confidence was reached, considering the histological contribution. For patients whose TBLB results were found to be devoid of contribution or cases where they were not performed: 73.1% had a diagnosis of (based on history, HRCT-pattern, bronchoalveolar lavage profile(BAL), specific IgG, visit/home sampling) without the need for surgical biopsy/cryobiopsy; 15.4% were diagnosed after surgical biopsy/cryobiopsy; in the remaining 11.5%, considered as unacceptable risk or didn't allow surgical biopsy/cryobiopsy, a multidisciplinary diagnosis was established with a satisfactory confidence level. As complications there were two cases of moderate bleeding and one pneumothorax.
Conclusions: TBLB were performed only in 36.1% of the cases, probably because they were dispensed: in cases of chronic/fibrotic HP due to the additional low value (if necessary, referred for surgical biopsy/cryobiopsy) and in cases with an initial clinical-radiological context of very high probability. It was concluded that half of the cases in which TBLB were performed they had a diagnostic contribution. In cases of interstitial disease where histological analysis is indispensable for diagnosis, surgical lung biopsy remains the "gold standard". Cryobiopsy, although an alternative to surgical biopsy, does not replace it, requires readjustment of resources, is associated with a relevant percentage of complications, and is not a technique available in most centers. This study supports that TBLB may still play a role in the diagnosis of HP, especially in acute/inflammatory forms, with the advantage of being a universally available, low-risk technique that can be obtained simultaneously with BAL.

Keywords: *Hypersensitivity pneumonitis. Transbronchial lung biopsy. Interstitial. Multidisciplinary.*

PC 016. CURRENT PRACTICES ON ANTIFIBROTIC APPROACH IN THE TREATMENT OF IDIOPATHIC PULMONARY FIBROSIS (IPF) AND NON-IPF INTERSTITIAL LUNG DISEASES: A SINGLE CENTER EXPERIENCE

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Introduction: Interstitial Lung Diseases (ILDs) represent a heterogeneous group of diseases. While IPF is a primarily fibrosing ILD, other ILDs, although primarily inflammatory in nature, often shift toward a fibrosing disease course, including entities as nonspecific interstitial pneumonia (NSIP), connective tissue disease (CTD)-associated ILDs such as rheumatoid arthritis (RA-ILD) and systemic sclerosis (SSc-ILD), chronic hypersensitivity pneumonitis (cHP) and pneumoconiosis. Anti-fibrotics have initiated a new era in the treatment of fibrosing ILD, with consistent benefits on IPF. The treatment of other fibrosing interstitial lung diseases (ILD) remains challenging with some recent and uncontrolled studies investigating anti- fibrotics in non-IPF ILDs, suggesting potential benefits.
Objectives: To characterize one center experience and describe the results on a group of patients under anti-fibrotic treatment due to IPF or non-IPF ILDs. To do a literature review on the most recent experience from observational studies, reported RCTs and other data on anti-fibrotics in non-IPF ILDs.
Methods: A retrospective study was performed on a group of 23 patients with pulmonary fibrosis secondary to IPF on non-IPF interstitial lung disease under anti-fibrotic therapies, followed on Outpatient Clinic of Pulmonology, Interstitial Lung Diseases. Clinical data were collected from baseline and during the follow-up. The assessment included age, gender, ILD, clinical behavior, lung function test parameters, exacerbations and adverse effects.
Results: 23 patients were enrolled on this study, mostly men (81.8%, n = 18) with a median age of 69 years old (min 48, max 86). With regards to the diagnosis, 73.9% (n = 17) had a definitive diagnosis of IPF, four patients had a CTD-associated lung fibrosis secondary to SSc (n = 1), Sjögren syndrome (n = 1), Overlap SSc/Sjögren syndrome (n = 1) and rheumatoid arthritis (n = 1). The others were cases of hypersensitivity pneumonitis with UIP-like pattern and combined pulmonary fibrosis and emphysema (CPFE). Pirfenidone was the anti-fibrotic chosen on 52% (n = 12) of patients (being 8 of these from IPF group) and the other 11 patients were under Nintedanib (9 of them from IPF group). The 2 patients with SSc and overlap SSc/Sjögren were under micophenolate mofetil and rituximab respectively, in addition to antifibrotics. The most common adverse reactions of nintedanib were diarrhea (n = 2) and nausea (n = 1) (with need to dose reduction to 100 mg in 1 patient); with pirfenidone, upper abdominal pain (n = 2), weight loss (n = 2) and nausea (n = 1). There was 1 case of angioedema with pirfenidone with permanent discontinuation of treatment. At the beginning of treatment, 14 patients had a restrictive pattern, in the most of the cases moderate (n = 8) to severe (n = 3). The lung function remained stable in 12 patients, 6 from the pirfenidone group and 6 in nintedanib group. There were 4 deaths on IPF group, 2 for disease progression, 1 for acute exacerbation and the other for unknown cause.
Conclusions: Recent studies showed consistent benefits on IPF patients under anti-fibrotics but on non-IPF ILDs the data is weak. A number of randomized controlled trials are currently enrolling or planned. The emergent findings could bring a new hope in the treatment, regarding the reported lack of efficacy of other treatments.

Keywords: *Interstitial lung diseases. Idiopathic. Connective tissue disease. Anti- fibrotics.*

PC 017. ILD-GAP INDEX PREDICTING MORTALITY IN CHRONIC HYPERSENSITIVITY PNEUMONITIS

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Introduction: The pathological mechanisms of chronic hypersensitivity pneumonitis (CHP) are currently not fully understood and its clinical evolution tends to be heterogenous and hard to predict. ILD-GAP index was validated as a score predictive of mortality in chronic interstitial lung disease.
Objectives: To characterise the clinical outcome of patients with CHP according to their corresponding ILD-GAP score at the time of diagnosis.
Methods: Retrospective analysis of clinical records of patients with CHP followed on interstitial lung disease outpatient clinic of ULS

Guarda. Demographic, clinic, imaging and functional data were retrieved and analysed. Follow-up time inferior than one year was an exclusion criterium. Statistical analysis was performed using IBM SPSS v23.
Results: Twenty-three patients were diagnosed with CHP. Four patients were excluded due to insufficient follow-up time. The nineteen patients included had a mean age of 66.5 ± 8.6 years old and were mostly female (57.9%). Inhaled antigen exposure was suspected in 89.5%, though serum precipitins were only identified in 57.9% (more commonly avian proteins). Radiologically, a typical UIP was found in 15.8% of patients. Additionally, 10.5% presented a probable UIP pattern. The mean follow-up time was 43.8 months. At diagnosis, 13 (68.4%) patients had an ILD-GAP index of 0-1, 5 (26.3%) scored 2-3 and one patient scored 4-5. No patient had a score higher than 5. When a UIP pattern was present, patients scored higher at ILD-GAP, 60% of these having an index equal or higher than 2, contrasting with 27.3% of those without this radiological finding. Overall mortality at 1-year was 5.3%, at 2-year 11.8% and 3-year 33.3%. At the group scoring 0-1 in ILD-GAP index, the 1, 2 and 3-year mortality was 7.7%, 7.7% e 18.2% respectively. Those with an ILD-GAP index equal or higher than 2 had 0%, 25.0% and 75.0% mortality respectively.
Conclusions: In our experience, despite a small sample size, a higher score at ILD-GAP was associated with higher mortality, in line with previously published data. There seems to exist a higher prevalence of high ILD-GAP in patients with UIP pattern, which is a known independent predictive factor for mortality in these patients.

Keywords: *Chronic hypersensitivity pneumonitis. ILD-GAP.*

PC 018. ORGANIZING PNEUMONIA AND CHRONIC EOSINOPHILIC PNEUMONIA. SIMILARITIES AND DIFFERENCES IN A CASE SERIES

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Introduction: Chronic Eoninophilic Pneumonia (CEP) and Organizing Pneumonia (OP) are types of rare diffuse parenquimatous diseases that present with respiratory and non-specific constitutional symptoms in the presence of de novo radiologic findings, with frequent diagnostic delay due to initial presumption of community-acquired Pneumonia (CAP). Both have a variable prognosis with some patients following a remission-relapse course.
Objectives: Characterization of a series of cases of OP and CEP regarding clinical presentation, demography, diagnostic delay, laboratorial findings, bronchoalveolar lavage (BAL) profile, treatment and longitudinal behavior of the disease.
Methods: Query of electronic clinical records of patients diagnosed with OP or CEP followed at the external consult of Pulmonology/Interstice at Baixo Vouga Hospital Centre from 01/2015 to 06/2019.
Results: A total of 10 patients with OP and 3 with CEP were identified. In the OP group, 60% were male with a mean age of 71 years; 40% of OP cases were cryptogenic and 60% were secondary: 3 to amiodarone, 1 to nitrofurantoin, 1 to dermatomyositis and 1 to antisinthetase syndrome. 3 cases were identified as AFOP (Acute Fibrinous OP). In CEP, 100% were female with mean age of 42 years. The most frequent presenting symptoms were cough and dyspnea followed by fever (on CEP) and asthenia (on OP). All cases of CEP had peripheral eosinophilia (mean 3.51×10^9/L) with a higher erythrocyte sedimentation rate (69 vs 52 mm). OP patients had lymphopenia (mean 1.37×10^9/L) with higher C-reactive protein (7.32 vs 3.03 mg/dL). 100% of patients with CEP and 70% with OP were initially treated with antibiotics based on the first hypotheses of CAP. Mean diagnostic delay was 5 months for both diseases. In High-resolution CT scan, the most frequent patter found in CEP was peripheral alveolar consolidation with upper predominance; in OP it was ground-glass hyperattenuation and alveolar consolidation with lower predominance, with 2 cases of a "peri-lobular" radiological variant. In CEP the BAL showed a mean total cell count of 290 cels/µL with 60% eosinophils; in OP it showed 355 cels/µL with 40% lymphocytes (CD4/CD8 ratio of 1.1), 10% neutrophils and 4% eosinophils. Transbronchial lung biopsies were done in 4 cases of OP, all contributing to the diagnosis. All patients with CEP were started on systemic corticosteroids vs 70% in patients with OP. In CEP, 2 cases showed relapse after prednisolone suspension or reduction. In OP, relapses occurred in 33% of cases, after which some were started on azathioprine (n = 1), mofetil mycophenolate (n = 2) or cyclophosphamide (n = 1). Mortality rate during follow-up was 0% in CEP and 20% in OP.
Conclusions: CEP and OP are rare diseases that require an elevated suspicion index for a correct and timely diagnosis. The OP group was the only one with associated mortality, probably due to more aggressive variants (AFOP) and fulminant clinical presentation. The BAL proved to be a differentiating tool between both entities.

Keywords: *Organizing pneumonia. Chronic eosinophilic pneumonia. Community-acquired pneumonia. Peripheral eosinophilia. Bronchoalvelolar lavage. AFOP. Acute fibrinous organizing pneumonia. Corticosteroids.*

PC 019. PLEUROPARENCHYMAL FIBROELASTOSIS AS ANOTHER LUNG TOXICITY INDUCED BY AMIODARONE

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Introduction: Pleuroparenchymal fibroelastosis (PPFE) is a rare condition showing typically pleural thickening and subpleural fibrosis in the upper lobes, with the involvement of lower lobes being less marked or absent. It is often associated with a multiplicity of clinical entities namely other interstitial lung diseases (ILD), bronchiectasis, connective tissue disorders, recurrent infections, bone marrow/organ transplant, or ambient exposure. PPFE can also be associated with toxicity induced by drugs, such as chemotherapy either associated or not with radiation and methotrexate. Here we present a case of PPFE diagnosed in a patient under amiodarone prescription, an association not previously described.
Case report: A 68-year-old Caucasian woman with recurrent episodes of a dry cough and consolidations in both upper lobes in thoracic HRCT scan. She had atrial fibrillation diagnosed five years before, under amiodarone and warfarin since that time. Chest radiograph shows subpleural thickening at upper lobes; these findings are more evident in the chest HRCT scan, associated with parenchymal reticulation and peripheral traction bronchiectasis at upper lobes, with no abnormalities at lower lobes. Chest radiographs performed previously and during the amiodarone prescription did not show any relevant features. The histology obtained by CT-transthoracic biopsy showed fibrosis, with dense collagen and elastic fibers, compatible with PPFE. After discussion in a multidisciplinary meeting, since clinical, imaging and histology all were compatible with PPFE, this diagnosis was established. After a careful evaluation did not found any of the potential causes previously described, amiodarone was than considered as a likely cause. After a cardiac revaluation and based on this hypothesis, amiodarone was suspended. After that, a significant decrease in the frequency and intensity of cough episodes was reported by the patient, and during 12 months of follow-up, a clinical, functional and imaging stability was noticed.
Discussion: Association of PPFE with amiodarone has not yet been described but given the amount of lung toxicity cases induced by amiodarone, the multiplicity of clinical presentations observed, added to the description of PPFE as a possible pattern associated

with lung toxicity induced by drugs, sustain the hypothesis that PPFE can be the expression of lung toxicity caused by amiodarone. Moreover, the symptom regression after the amiodarone suspension and the absence of radiologic alterations before the amiodarone prescription support the hypothesis of the association between PPFE and amiodarone intake in this clinical case.

Keywords: *Pleuroparenchymal fibroelastosis. Amiodarone. Lung toxicity.*

PC 020. EVALUATION OF PATIENTS WITH RADIOLOGICAL UIP (USUAL INTERSTITIAL PNEUMONIA) PATTERN - DIFFERENCES BETWEEN IPF (IDIOPATHIC PULMONARY FIBROSIS) AND OTHER INTERSTITIAL FIBROTIC LUNG DISEASES

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Introduction: UIP pattern on high-resolution chest CT may exist in different interstitial lung diseases (ILD) and is usually associated with a worse prognosis.
Objectives: To evaluate differences between UIP-IPF patients and UIP-non IPF patients concerning pulmonary function, exacerbations and mortality during a 2 year follow up.
Methods: Retrospective cohort study of patients with UIP pattern.
Results: A total of 33 patients were evaluated, 16 with a diagnosis of IPF (all treated with anti-fibrotic drugs). In the IPF group, 87.5% (n = 14) were men with a mean age of 72.88 ± 8.59 years. In the non-IPF group, 94.1% (n = 16) were men with a mean age of 67.76 ± 9.46 years.
Conclusions: Although functional deterioration was observed in both groups, it seems there was a greater decline in non-IPF patients. A higher percentage of hospitalizations were observed in non-IPF patients, which may be related to the use of immunosuppressive therapy. These results may also reflect the positive effect of anti-fibrotic therapy in IPF patients.

Keywords: *UIP. IPF.*

PC 021. ATYPICAL PRESENTATION OF A CHRONIC EOSINOPHILIC PNEUMONIA MIMICKING A PULMONARY NEOPLASM

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Introduction: Chronic eosinophilic pneumonia is a rare form of interstitial lung disease, characterized by eosinophilic accumulation in the lung. Despite being a clinical diagnosis, characteristic analytical and radiologic features are highly suggestive of this illness but are not always present, at times exhibiting mimicking illnesses of a different nature, such as neoplasms.
Case report: An 85-year-old female patient, non-smoker and with no relevant history, was referred to the pulmonology practice for the suspicion of a lung neoplasm identified in a chest CT ordered for protracted respiratory symptoms. On inquiry, a slowly resolving flu-like illness in the six months prior was emphasized, with residual symptoms of dyspnoea for mild efforts, productive cough with mucoid sputum, anorexia and involuntary weight loss of over 10% of her usual weight. No history of atopy, asthma, or environmental exposure to parasites was elicited. There was no prior administration of drugs typically associated to pulmonary or systemic eosinophilia. Arterial blood gas sampling showed mild hypoxaemia. A normochromic normocytic anaemia, peripheral eosinophilia (~400/mL) and thrombocytosis were found. Additionally, there was elevation of inflammatory markers. The chest radiograph showed a large right upper lobe opacity of ill-defined borders. By chest CT, a 7-cm mass surrounding the right upper lobar bronchus was apparent, absent of a plane of cleavage with the right branch of the pulmonary artery and extending towards the mediastinal pleura. The patient was admitted for investigation and an abdominal ultrasound and bone scintigraphy were attained, with no evidence of metastasis. No significant elevation of tumour markers was found. The comprehensive parasitology stool test was negative. Bronchoscopy showed an infiltrative lesion on the right upper lobe, with gross characteristics of a neoplasm, producing segmental stenosis. Microbiology of both bronchoalveolar lavage fluid and bronchial aspirate were negative, including for mycobacteria and fungi. No eosinophilia in the lavage fluid was observed. Multiple lesional biopsies were obtained, which showed non-specific bronchial inflammation. The bronchial aspirate cell-block cytology, however, was compatible with squamous cell carcinoma of the lung, thus prompting transthoracic CT-guided biopsy. Of three biopsies, only the third yielded a diagnosis, exhibiting inflammatory cell infiltration containing eosinophils on a collagenous matrix. The patient was put on systemic corticosteroids with near-immediate improvement. Complete remission of peripheral eosinophilia and radiologic infiltrates was observed. With time, the patient's anaemia became sideropaenic and the radiologic infiltrates bilateral and migratory. Despite an initial favourable response and prognosis, this patient's illness was punctuated by periods of exacerbations and corticodependence.
Discussion: The diagnosis of chronic eosinophilic pneumonia was confounded by an atypical age of presentation and absence of comorbidities associated with eosinophilic inflammation, which had little expression in the peripheral blood. Initial analytic and radiologic findings were uncharacteristic and suggested a neoplastic process, as did the aspirate cytology. Complete response to corticotherapy, compounded by arisal of typical findings during follow-up substantiated the diagnosis. We report a case of chronic eosinophilic pneumonia that mimicked, until the moment of histological diagnosis, a lung neoplasm, thereby emphasizing the necessity for a low threshold of suspicion to achieve a successful diagnosis.

Keywords: *Chronic eosinophilic pneumonia. Pulmonary neoplasm.*

PC 022. PLEUROPARENCHYMAL FIBROELASTOSIS ORIGINATING IN A SITE OF PULMONARY TUBERCULOSIS SEQUELAE

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Introduction: Owing to its inclusion in the most recent classification consensus of interstitial lung disease as a rare form of idiopathic interstitial pneumonia, pleuroparenchymal fibroelastosis stands as a controversial nosologic entity. Its aetiology and pathophysiology remain, to an appreciable extent, obscure. Recently, a relation between pleuroparenchymal fibroelastosis and recurrent infectious stimuli has been put forward.
Case report: A 62-year-old female patient with a known history of osteoarthritis and pulmonary tuberculosis with sequelae treated successfully 15 years prior was studied in outpatient setting for complaints of anorexia and involuntary weight loss of over 10% of her usual weight in a 2-month period. She further exhibited a history of asthenia, progressive exertional fatigue and sporadic nonproductive cough. Lung auscultation revealed inspiratory crackles in the right apex. The remainder physical examination was inconspicuous. The blood work-up showed no significant alterations and the arterial blood gas sampling in ambient air was normal. In the chest radiograph a juxtapleural heterogenous opacity could be observed in the apicoposterior segment of the right upper lobe, with roughly nodular and with spiculated contours. The chest CT, already obtained by the pa-

tient, corroborated the suspicion of neoplasm, describing in that location an irregular 36 mm mass. The patient was admitted for evaluation of these findings, based on the suspicion of primary lung neoplasm originating in cicatricial sequelae of tuberculosis. The study of the airway by bronchoscopy showed no endobronchial lesions. Bronchial aspirate and bronchoalveolar lavage fluid, the latter of RB1, was sent for bacteriology and mycobacteriology testing, both yielding negative results. No neoplastic cells were found in the cytologic examination of either sample. The diagnostic investigation was further complemented with obtainment of a 18F-FDG PET/CT, which pointed to the presence of two additional nodules in the left lung's lower lobe, uncharacterizable on account of their low dimensions, besides the mild uptake of isotope by the already known mass suspected of being the primary. Lastly, a CT-guided core biopsy of the mass was attained. The biopsy's histology surprisingly was deemed compatible with pleuroparenchymal fibroelastosis, consisting of a lung fragment 9 mm in diameter characterized by a fibroelastic matrix with anthracosis, surrounding macrophage-containing airspaces, also discolored by anthracosis.
Discussion: We report a case of pleuroparenchymal fibroelastosis with a clinical and radiological presentation suggestive of a lung neoplasm or reactivation of pulmonary tuberculosis. In this case, the prior infection by Mycobacterium tuberculosis consists of a widely accepted risk factor for malignization but a less commonly equated factor favorable to the diagnosis of pleuroparenchymal fibroelastosis. It is expected that, with the increasing recognition of pleuroparenchymal fibroelastosis as a distinct pathologic entity in its own merit, prospective studies will arise in the tuberculosis-ridden population, thus providing a more accurate understanding of this infection's role as a risk factor for this pleuroparenchymal fibroelastosis. This case emphasizes the need for a long term follow-up of the patients successfully treated for lung tuberculosis in virtue of their accrued lifelong risk for respiratory illness of various nature, namely neoplastic or interstitial.

Keywords: *Pleuroparenchymal fibroelastosis. Pulmonary tuberculosis.*

PC 023. HYPERSENSITIVITY PNEUMONITIS. CASE SERIES

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Introduction: Hypersensitivity Pneumonitis (HP) is a heterogeneous interstitial lung disease (ILD) both in its clinical and radiological presentation and also in its geographical distribution, since it depends on weather conditions, socio-cultural habits, work activity and others. For this reason, its prevalence is thought to be underestimated as well as its real clinical impact, which underlines the relevance of case series such as the one we present.
Objectives: To characterize the population of patients with HP from ILD consultation in the Local Health Unit of Guarda.
Methods: Retrospective analysis of patients' clinical records followed at the ILD consultation between January 2015 and July 2019, being included patients with the diagnosis of HP. Data of demographics, environmental and smoking exposures, laboratory results, histology, functional respiratory tests, therapy and follow-up were collected.
Results: From a total of 255 patients followed during the study period, HP was the second most prevalent diagnosis in this consultation with 26 patients (10.2%), mostly presenting the chronic form of the disease (84.6%). Patients were predominantly female (57.7%), mean age of 67.7 ± 8.1 years and non-smokers (61.5%). Suspected exposure to environmental agents was identified in 88.5%, most often to avian proteins (73.1%), and was documented with serum specific IgGs in 50.0% of patients. Of the respiratory functional study, 57.7% had a restrictive pattern. Imagologically, 19.2% had a typical usual interstitial pneumonia (UIP) or probable UIP pattern; histology was obtained in 46.2%. Half of the patients were discussed in multidisciplinary meeting and diagnosis of HP was definite in 30.8%, 3.8% confident clinical diagnosis of HP, 38.5% probable and 26.9% possible. Systemic corticotherapy was undertaken in 76.9%, with an association of another immunosuppressant in 23.1%. Currently 65.4% of the patients are still being followed, with a mean time of 36.1 months, and there were 6 deaths (23.1%).
Conclusions: From our experience, HP is a more frequent diagnosis than published in international series, although in line with data presented by other national centers. It is a heterogeneous disease in its presentation and evolution, and the prevalence of progressive disease culminating in death is not negligible.

Keywords: *Hypersensitivity pneumonitis. Interstitial lung disease.*

PC 024. CHRONIC HYPERSENSITIVITY PNEUMONITIS: ASSESSMENT OF THE CORRELATION BETWEEN BRONCHOALVEOLAR LAVAGE FINDINGS AND RADIOLOGICAL PATTERN

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Introduction: Chronic Hypersensitivity Pneumonitis (HP) is one of the main challenges in the context of the diagnosis of interstitial lung diseases, particularly given the overlap of imaging changes with fibrosing chronic pneumonia. The presence of lymphocytosis above 30% in the bronchoalveolar lavage (BAL) a hallmark of cHP, above 30%, is a good marker of differentiation. However, there is a significant number of cases, never properly quantified, in which BAL has the same characteristics as chronic fibrosing pneumonia, with no lymphocytosis or mild lymphocytosis.
Objectives: To evaluate the presence and degree of lymphocytosis in chronic HP and evaluate its correlation with the usual imaging patterns.
Methods: Retrospective analysis of a group of patients diagnosed with chronic HP followed by consultation of pulmonary interstitial diseases.
Results: From the 69 patients included, 43 (62.3%) were female, with a mean age of 60.8 ± 11.2 years. The most frequently implicated environmental exposure was avian antigens (63.8%, n = 44) and fungi (11.6%, n = 8). Only 51% (n = 35) of the cases presented BAL lymphocytosis, being mild/moderate in 7.2% and intense in 42%. Regarding the imaging pattern, 33% (n = 23) had features suggestive of chronic PH, namely the combination of ground glass opacities, mosaic attenuation pattern and peripheral cross-linking; In 38% (n = 26), the imaging alterations showed a greater overlap with the fibrosing chronic pneumonia, namely by the presence of cross-linking and honeycomb, forming a pattern commonly called UIP-like. Of the 26 patients with UIP-like imaging, only 9 (34.6%) had lymphocytosis, 6 (23%) severe, and 3 (11.5%) mild/moderate. In the group of 23 patients with predominantly ground-glass alternating mosaic and crosslinking pattern, all had lymphocytosis, being severe in 21 (91.3%) and mild in 2 (8.69%). The existence of a UIP-like imaging pattern was significantly associated with the absence of BAL lymphocytosis (p = 0.011).
Conclusions: BAL lymphocytosis is globally a relevant component in the differential diagnosis of HP, even in chronic forms, according to the analysis of this cohort of patients. However, in those with greater imaging overlap with fibrosing chronic pneumonia, intense lymphocytosis was present in only about ¼ of the patients, thus proving its scant influence on the differential diagnosis of this subgroup of patients with chronic HP.

Keywords: *Hypersensitivity pneumonitis. Lymphocytosis. UIP-like.*

PC 025. CHRONIC THROMBOEMBOLIC DISEASE, AN ENTITY TO KNOW

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Introduction: Chronic Thromboembolic Disease (CTED) results from incomplete resolution of pulmonary thromboemboli. The thromboembolic material undergoes organization into fibrous tissue resulting in similar symptoms and perfusion defects of Chronic Thromboembolic Pulmonary Hypertension, but without pulmonary hypertension (PH) at rest. Selected patients with CTED benefit from pulmonary endarterectomy (PEA). Balloon pulmonary angioplasty (BPA) may also be considered a treatment option for patients with inoperable CTED.
Case report: The current case discusses a 68-year-old man, referred to our pulmonary hypertension unit in October 2016 for investigation of fadiga and exercise dyspnea (functional class WHO – II). He was clinically stable until 2013, when he was diagnosed with an unprovoked pulmonary embolism, he was submitted to fibrinolysis at the time, being discharged with anticoagulation therapy. In 2015 warfarin was stopped. The NT-ProBNP was 113 pg/mL, paO2 (FiO2 21%) was 82.7 mmHg and the ECG showed sinus rhythm, without right axis deviation. The transthoracic echocardiogram showed very mild tricuspid regurgitation (RV/RA gradient 9 mmHg, TAPSE: 19 mm). The stress echocardiogram revealed mild tricuspid regurgitation (RA/RA gradient 66 mmHg, TAPSE 26 mm, estimated PASP 70 mmHg). V/Q scan showed multiple and bilateral segmentar and subsegmentar perfusion defects, even after 3 months of anticoagulation. Pulmonary angiography CT presented minimal caliber irregularities of lobar and segmental branches, membrane like images involving apical segmental branch of right upper lobe, right inferior lobar artery and posterior basal segmental branch of left inferior lobe, and periphery oligaemia of all lung lobes. Coronary angiogram didn't show coronary lesions. Cardiopulmonary exercise test (CPET) revealed VO2max 29.9 mL/min/kg (99%), PETCO2: 30 mmHg at rest and 37 mmHg at peak exercise. Ventilatory class II, VE/VCO2 slope 35, no desaturation during exercise. Right heart catheterization at rest revealed mean PAP 17 mmHg, mean PAWP: 10 mmHg, cardiac index of 2.13 L/min/m^2 and pulmonary vascular resistance of 4.1 UWood. We assumed the diagnosis of CTED. The patient was accepted for PEA, but he refused. He was included in a BPA program and submitted to a total of 5 sessions, technically complicated for the existence of proximal disease. In functional revaluation, the patient was in functional class I, with good criteria to exercise in CPET. The echocardiogram kept signs of PH at exercise (estimated PASP 61 mmHg), without improvement of global systolic function of right ventricle.
Discussion: This case highlights CTED as a recently described entity, with a challenging recognition, whose natural history and treatment approach aren't known yet. BPA may emerge as a treatment option, however in patients without indication for PEA and with distal disease.

Keywords: *Chronic thromboembolic disease. Ballon pulmonary angioplasty.*

PC 026. CHRONICLE OF AN ANNOUNCED DIAGNOSIS

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Case report: 69-year-old man, ex-smoker (80 pack-year-unit) with COPD GOLD 2, group B (FEV1 post-bronchodilaton-65.3%, DLCO/VA60.2%) and Obstructive Sleep Apnea under ventilatotherapy with automatic positive airway pressure (APAP). He had partial chronic respiratory failure under long-term oxygen therapy (at rest and nocturnal - 4 L/min). On exertion he showed a significantly deterioration with peripheral dessaturation of 80% in 6-minute walk test with supplemental oxygen at 8 L/min. Transthoracic echocardiography showed low probability of pulmonary hypertension and a normal left ventricle function. He was referred to our Pulmonary Hypertension Reference Center for evaluation. The Ventilation/Perfusion Scintigraphy showed low probability of pulmonary embolism, angioCT scan revealed an enlarged pulmonary artery trunk (transverse diameter 41 mm), repeated transthoracic echocardiography confirmed previous results. Due to the unjustified severe respiratory failure, the patient underwent Right Heart Catheterization that revealed a mean pulmonary arterial pressure (mPAP) of 49 mmHg, pulmonary artery wedge pressure (PAWP) 19 mmHg, pulmonary vascular resistance (PVR) 6.27 Wood Units, transpulmonary pressure gradient (TPG) 30 mmHg, Cardiac Index (CI) 2.26 L/min/m^2 and a right atrium pressure (RAP) of 12 mmHg. Despite the PAWP > 15 mmHg, TPG was elevated and the patient's congestive status justified this value. He was treated with sildenafil and bosentan assuming precapillary PH was predominant, with clinical improvement of exertional dyspnoea. Currently, he is awaiting reevaluation catheterization at 3 months of dual therapy.
Discussion: The authors report this case to highlight the importance of a high level of suspicion of pulmonary hypertension in patients with other pathologies. Delay in diagnosis worsens prognosis.

Keywords: *Pulmonary hypertension. Chronic lung disease.*

PC 027. OMALIZUMAB AND RESPIRATORY FUNCTION STUDY IN SEVERE ASTHMA PATIENTS

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Introduction: Few studies had evaluated Omalizumab efficacy on respiratory function for a long follow-up period.
Objectives: Evaluate respiratory function evolution in patients medicated with Omalizumab, at baseline and after 1 and 4 years of therapy.
Methods: Retrospective analysis of clinical data from 10 adult patients, medicated with Omalizumab, followed in a severe asthma clinic, in relation to forced expiratory volume on the first second (FEV1), forced vital capacity (FVC), residual volume (RV), total lung capacity (TLC) and resistance (Raw), statistically comparing baseline with results after 1 and 4 years of Omalizumab therapy. We performed a correlation between spirometry and plethysmography data and oscillometry at 4 years of treatment, evaluating total resistance (R5) and peripheral capacitance (X5).
Results: In 10 patients, 80% were female, mean age 48 years old (minimal 31, maximal 78). All had initially an obstructive respiratory syndrome. Between baseline and 1 year of treatment, there was a significant improvement (p 0.007) on mean FEV1 (56% to 77%). At 4 years of treatment, there was also a significant improvement (p 0.036) comparing to baseline (56% to 66%) and a non significant decrease (p 0.6) in relation to 1 year of treatment (77% to 66%). Mean FVC had a significant improvement between baseline and 1 year (86% to 112%, p 0.018) and 4 years of therapy (86% to 108%, p 0.018). The decrease on FVC at 4 years of treatment in relation to 1 year was not significant (p 0.394). Mean RV had a significant reduction between baseline and 4 years (p 0.034) and a non significant decrease between baseline and 1 year (p 0.063) and between 1 year and 4 years (p 0.867). Mean TLC had a non significant decrease between baseline and 1 year (p 0.446), baseline and 4 years (p 0.176) and between 1 year and 4 years (p 0.553). Mean Raw variation was not significant, decreasing between baseline and 1 year (p 0.063) and between baseline and 4 years (p 0.091), with an improvement between 1 year and 4 years (p 0.866). Oscillometry at 4 years showed a strong positive correlation between FEV1 and X5 (Co 0.745, p 0.010), strong negative correlation between FEV1 and R5 (Co -0.613, p 0.03), moderate positive correlation between Raw and R5 (Co 0.547, p 0.04), moderate negative correlation between Raw and X5 (Co -0.514, p 0.04) and strong negative correlation between RV and X5 (Co -0.674, p 0.01).

Conclusions: The results show a significant improvement in mean FEV1 and FVC in relation to baseline. This improvement holds up at 4 years (although there is a non significant decrease) on Omalizumab therapy. Data from comparison between oscillometry and spirometry/plethysmography at 4 years need more validation.

Keywords: *Asthma. Respiratory function. Omalizumab.*

PC 028. EXPLORING THE POTENTIAL OF A MEPS/UHPLC-BASED METHODOLOGY ON THE ANALYSIS OF LIPID PEROXIDATION BIOMARKERS RELATED TO ASTHMA

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Asthma is a heterogeneous disease characterized by chronic inflammation and long term irreversible remodeling of the airways. The enzymatic peroxidation of the arachidonic acid is part of the pathophysiology of this disease and leads to the formation of powerful inflammatory mediators, characteristic of asthma. The present work aimed to develop an easy-to-use ultra-high pressure liquid chromatography (UHPLC)-based strategy in order to characterize lipid peroxidation biomarkers: leukotrienes E4 (LTE4) and B4 (LTB4) and 11β-prostaglandin F2α (11βPGF2α), eicosanoids present in the urine of asthmatic patients and healthy individuals (control group). A semi-automatic eVol®-microextraction by packed sorbent (MEPS) format was developed in order to isolate the target analytes. The method was fully validated under optimal extraction (R-AX sorbent, 3 conditioning-equilibration cycles with 250 µL of ACN-H2O at 0.1% FA, 10 extract-discard cycles of 250 µL of sample at a pH of 5.1, elution with 2 times 50 µL of MeOH and concentration of the eluate until half of its volume) and chromatographic conditions (14-min analysis at a flow rate of 300 µL min-1 in an UHPLC-PDA equipped with a BEH C18 column). Our results indicated good recoveries (> 95%) in addition to excellent extraction efficiency (> 95%) at three concentration levels (low, mid and high) with precision (RSDs) less than 11%. The lack-of-fit, goodness-of-fit and Mandel's fitting tests, revealed good linearity within the concentration range. Good selectivity and sensitivity were achieved with limits of detection ranging from 0.04 ng mL-1 for LTB4 to 1.12 ng mL-1 for 11βPGF2α, and limits of quantification from 0.10 ng mL-1 for the LTB4 to 2.11 ng mL-1 for 11βPGF2α. The developed method was successfully applied to the urine of asthmatic patients and healthy individuals. On average, the urine of asthmatic patients present significantly higher concentrations of 11βPGF2α (112.96 ng mL-1 vs 62.56 ng mL-1 in control group), LTE4 (1.27 ng mL-1 vs 0.89 ng mL-1 in control group) and LTB4 (1.39 ng mL-1 vs 0.76 ng mL-1 in control group). These results suggest the potential of the target eicosanoids and the developed method on asthma diagnosis and on the follow-up of the therapeutic response.

Keywords: *Asthma. Biomarkers. Eicosanoids. MEPS. UHPLC.*

PC 029. CLINICAL FEATURES OF ASTHMA IN ANGOLANS ADULTS

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Introduction: Asthma is one of the most common chronic diseases and affects all ages. It is also one of the most frequent causes of visits to emergency services. Epidemiological studies on asthma in adults in Africa are scarce and, in Angola, there is none. Thus, the objective of this study was to evaluate the clinical features of asthma in adults 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 was assessed in accordance with GINA (Global Initiative for Asthma) criteria, lung function (spirometry) was performed and analysed in accordance with ATS/ERS criteria, and sensitisation to aeroallergens was determined by skin prick test (SPT) positivity. Asthmatic patients with previous pulmonary tuberculosis or Chronic Obstructive Pulmonary Disease (COPD) were excluded. Data were analysed using SPSS Statistics v25.0. Descriptive analysis was used for sample characterization and univariate and multivariate analysis were made. A p-value < 0.05 was used to characterise statistically significant results.
Results: The sample consisted of 305 asthmatic patients [mean age 41.3, median 41.0 (18 to 86) years], 56.1% female. Of these 6.9% had intermittent asthma, 62.0% mild persistent, 26.9% moderate and 4.3% severe asthma, without significant differences between sexes and Body Mass Index (BMI); However, the moderate and severe asthma was significantly more frequent in patients older than 50 years old. In 56.1% of patients asthma was associated with allergic rhinitis. Regarding asthma control, 28.2% had controlled asthma, 36.4% partially controlled and 35.4% uncontrolled, without significant differences between sexes, age and BMI. Only 39.0% of patients used controller medication but irregularly and 53.1% only used rescue medication. The inhaler technique showed major errors in pressurized inhalers (65.7% of cases) and in dry powder inhalers (54.4% of cases). About 30% of patients had more than five exacerbations in the previous year and 44.6% had taken oral corticosteroids. Spirometry was normal in 21.6% of patients, showed mild obstruction in 47.9% and moderate to very severe obstruction in 30.5% of patients. About 67% were sensitised to aeroallergens, most frequently dust mites (D. pteronyssinus, D. farinae, B. tropicalis), cat and dog epithelia and fungi (C. herbarum, M. mucedo, A. alternata, A. fumigatus), without significant differences between sexes, age and BMI. Either gravity or the poor asthma control, were related to the irregular use of inhaled controller medication, frequent use of short action beta 2 agonist (SABA), oral corticosteroids and incorrect inhaler technique.
Conclusions: Most asthmatics Angolans living in Luanda have your asthma partially controlled or uncontrolled, and are not on or irregularly use inhaler controller medication. Monitoring measures of these patients will be needed.

Keywords: *Clinical features. Asthma. Angola.*

PC 030. OMALIZUMAB IN PREGNANCY

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Introduction: Asthma is one of the most common chronic conditions that occur during pregnancy. Poor asthma control has adverse effects upon maternal and fetal outcomes. In severe illness, there is a greater likelihood of exacerbations. Generally, treatment is similar in pregnant and non-pregnant women.
Case report: Woman, 40-years-old, non-smoking with asthma symptoms since the age of 5 and crises that motivated going to the emergency department (ED). In addition to pharmacological therapy, she was given mite-specific immunotherapy for 4 years with disappearance of symptoms. At the age of 14, at the time of menarche, there was a worsening of the symptoms, when she

started being followed in Pulmonology consultation. Skin sensitivity tests were positive for mites, respiratory function tests showed moderate obstruction and she was considered to have moderate persistent allergic asthma. She was treated with inhaled corticosteroids and bronchodilators. Despite therapy, she maintained a difficult-to-treat asthma. From 14 to 24 years old, she had an irregular medical follow-up, therapeutic non-compliance and exacerbations of the disease, with several visits to the ED. She had two pregnancies, at 24 and 26 years. After the first pregnancy, at 25, she started oral corticosteroid therapy with variable doses for uncontrolled asthma. During the first pregnancy there was a need to increase bronchodilator therapy and during the second to increment the oral corticosteroid dose. The deliveries were eutocic and full term and were uneventful from the respiratory point of view. Up to 31 years of age, she had grade 5 poorly controlled asthma with frequent exacerbations and several visits to the ED. Tests of respiratory function revealed progressive worsening of pulmonary function with severe obstruction and pulmonary insufflation, and IgE of 1778 IU/mL. Therapy with anti-IgE monoclonal antibody was then initiated with clinical improvement and decreased severity of exacerbations but no prednisolone dose decrease. At the age of 36, she became pregnant for the third time, five years after starting omalizumab. She was also taking prednisolone, salmeterol/fluticasone propionate, ipatropium bromide, montelukast and aminophylline and decided to keep anti IgE given the severity of the clinical condition. Noting that there was a diagnosis of gestational diabetes, and a respiratory infection during pregnancy treated with antibiotics and increased oral corticosteroid therapy. She had an uneventful eutocic delivery at 38 weeks of a healthy newborn (weight 3.1 kg). The three children were breastfed during the first year of life. The two oldest, currently 14 and 16, have been diagnosed with asthma. The youngest, 4 years old, has no symptoms of allergic pathology to date.

Discussion: The decision to continue or discontinue anti-IgE treatment should be made on a case-by-case basis, taking into account the balance between benefits and potential risks. To date, reported cases of pregnant asthmatics receiving omalizumab have shown favourable results.

Keywords: *Asthma. Pregnancy. Omalizumab.*

PC 031. THE POWER OF IMAGING IN THE ASSESSMENT OF INFLAMMATION IN ASTHMA. FIRST STEPS

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Introduction: Air trapping is common in obstructive pulmonary diseases with small airway involvement, such as in asthma. High resolution computed tomography (HRCT) is important for identification and characterization of these alterations. However, being known the dynamic effects of obesity on respiratory function, namely the reduction of lung compliance, with consequent reduction of airway caliber, predisposing to air trapping and dynamic hyperinflation, obesity may be a confounding factor.

Objectives: To evaluate the relevance of airway trapping identified by HRCT as a biomarker of disease in asthmatic individuals.

Methods: Retrospective study, which included patients with body mass index (BMI) ≥ 25 Kg/m^2 followed at the Severe Asthma/Difficult Control consultation (2014-2019), with available chest HRCT. These were grouped in two radiological patterns: with and without air trapping. Results from pulmonary function tests (PFT), radiological findings, peripheral eosinophilia, symptom questionnaire, comorbidities and therapy were collected. COPD patients were excluded. Statistical analysis was performed through IBM-SPSS (significance level 0.05).

Results: Thirty-seven patients were included, with a mean age of 57.8 ± 14.3 years and female predominance (n = 26, 70.3%). Air trapping was found in 17 (45.9%) patients, with no statistically significant difference in BMI when compared to patients without air trapping (p = 0.117). Patients without air trapping had a higher peripheral eosinophilia value (p = 0.009) when compared to patients with air trapping. This finding was maintained when peripheral eosinophilia cut-offs were established: ≥ 150 and ≥ 300 cells/µL, p = 0.022 and p = 0.020, respectively. Regarding to PFT, patients with air trapping had greater small airway obstruction (MMEF75/25, %), p = 0.05. No statistically significant differences were observed on comorbidities (rhinosinusitis and nasal polyps), radiological changes (bronchiectasis and bronchial thickening), atopy, FeNO, symptoms questionnaire (CARAT and ACT), inhaled corticosteroid dose or biological therapy.

Conclusions: In this study, we found that air trapping is common in obese and overweight asthmatic patients. Patients with air trapping on HRCT showed lower peripheral eosinophil values. Knowing that different types of airway inflammation may be related to different patterns of response to therapy, that the eosinophilic pattern is associated with better response to inhaled corticosteroids and that neutrophilic airway inflammation is related to higher corticorresistence, there may be a neutrophilic predominance in asthmatics with air trapping. As noted by Busacker et al. this factor, being associated to a reduced therapeutic response, may lead to a lower reversibility of small airway obstruction. Thus, additional studies will be needed, designed to evaluate the relationship between air trapping and inflammatory profiles, which may be a new disease biomarker.

Keywords: *Asthma. Air trapping. HRCT.*

PC 032. CLINICAL PROFILE OF LATE ONSET ASTHMA PATIENTS

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Introduction: Adult-onset or Late-onset asthma (LOA) is a specific asthma phenotype that requires particular attention - its prevalence is increasing as the population ages and it shows more adverse outcomes, comparatively to early-onset asthma. Particularly, individuals with onset of asthma symptoms at or after the 60 years-old frequently show delayed diagnosis and remain a clinical challenge.

Objectives: To describe the clinical profile of patients with LOA, followed at a tertiary hospital asthma clinics.

Methods: We retrospectively collected clinical, functional and laboratorial data from clinical files of adult asthmatic patients under follow-up at a specialized asthma clinics between June and September 2016. As we were interested in LOA, we excluded from our analysis patients with onset of asthma symptoms prior to 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 also excluded. We finally obtained a sample of 122 patients. The precise age of symptoms onset was not recorded for 35 patients (28.7%). IBM SPSS v.25 software was used to analyse the data and to perform the adequate statistical tests.

Results: Our sample showed a mean age of symptoms onset of 38.63 ± 13.25 years, with a female predominance (n = 108 (88.5%)). Confirmed atopy was present in half of patients. The most common co-morbidity was rhinosinusitis (30.3%), followed by obesity (22.1%). Smoking history was common (22.1%). Airtrapping was observed in 24.6% of patients, while mean FEV1, FVC and TLC were relatively preserved. A positive bronchodilator response was observed in 37.7% of patients and 43.8% showed FeNO > 25 ppb. Elevated eosinophil count in peripheral blood was common (69.7%). More than half of

patients were classified as suffering from severe asthma (60.7%). We further analysed our LOA patients in two subsets: the subset with early-adult onset of asthma symptoms (≤ 59 years) and elderly onset (> 59 years). We observed elderly onset asthma (> 59y) had a significantly lower predominance of female gender ($p < 0.001$). We also show a trend towards a lower FEV1 for elderly onset (MD FEV1 1.44 L (0.91-2.1) vs 2.11 (1.64-2.52)), a higher residual volume (MD RV 2.61L (2.28-2.96) vs 2.05 (1.77-2.51)) and fewer patients with blood eosinophilia (n Eo > 150 = 3 (42.9%) vs 59 (73.8%)).
Conclusions: For our sample, the predominance of female gender for LOA fades when we consider only patients with symptoms onset after 59y. The remaining of our results are aligned with previous literature. Although we show a relatively preserved lung function in both subsets of LOA, there is a trend towards poorer function and less eosinophilic inflammation for patients with elderly onset of asthma.

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

PC 033. A RARE CASE OF EOSINOPHILIC GRANULOMATOSIS WITH POLYANGEITIS ASSOCIATED WITH INVASIVE PULMONARY ASPERGILLOSIS AND ALLERGIC BRONCHOPULMONARY ASPERGILLOSIS

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Introduction: Eosinophilic granulomatosis with polyangiitis (EGPA) is a necrotizing systemic vasculitis that affects small and medium vessels and is associated with extravascular eosinophilic granulomas, peripheral eosinophilia, rhinosinusitis, and asthma.
Case report: Male patient, 27 years old, Indian, resident in Portugal since 2017, with history of chronic rhinosinusitis and asthma since childhood. In April 2019, the patient developed dyspnea, nonproductive cough, and sudden progressively worsening right sternal chest pain. During the initial evaluation, cardiovascular pathology was excluded and the simple chest X-ray revealed the presence of right parahilar condensation area. Analytically, he had leucocytosis 13.1G/L and CRP 9.4 mg/dL. During hospitalization, the patient developed fever and progressive worsening of the general condition, so started empirical antibiotic therapy with Piperacillin-Tazobactan. Aspergillus niger was isolate in the expecotration culture. Considering his poor clinical and analytical response to antibiotic therapy and the suspicion of invasive pulmonary aspergillosis, antifungal therapy with Voriconazole 300 mg 2id was started and, due to hepatotoxicity, was later changed to Itraconozaol 200 mg 2id. In D7 of hospitalization, bronchial fibroscopy was performed, which revealed the presence of Charcot-Leyden crystals in the bronchial aspirate. The culture of tracheobronchial aspirate, bronchoalveolar lavage and bronchial biopsy were positive for Aspergillus niger. Considering the complementary study, we highlight positive skin prick test for Aspergillus fumigatus, total IgE = 7,252 g/L, specific Aspergillus fumigatus IgE = 9.16 KU/L, peripheral eosinophilia = 1,570 cells/µl, anti-Myeloperoxidase and anti P-ANCA antibodies positives, pulmonary HRCT with diffuse lobar and hilar opacities, cavities with multiple hypodense loci, and cylindrical bronchiectasis with mucoid impaction of the airways. The hypothesis of EGPA and allergic bronchopulmonary aspergillosis was hypothesized, so it was decided to initiate corticosteroid therapy with prednisolone 1 mg/kg/day on D30. Progressive improvement was observed with sustained apyrexia and resolution of respiratory symptoms associated with improvement of inflammatory parameters. Patient discharge on D51 under itraconazole 200 mg 2id and corticosteroid therapy 1 mg/Lg/day which has been maintained for 6 weeks until the date, with progressive reduction and no relapse. Subsequent study in consultation showed imaging confirmed rhinosinusitis and spirometry with obstructive pattern.
Discussion: The relationship between EGPA and invasive pulmonary aspergillosis and allergic bronchopulmonary aspergillosis is still controversial, however some rare reports describe its temporal association, although without causal clarification.

Keywords: *Eosinophilic granulomatosis with polyangiitis. Asthma. Rhinosinusitis. Invasive pulmonary aspergillosis. Allergic bronchopulmonary aspergillosis.*

PC 034. OSAS AND SEVERE ASTHMA: CASUALITY OR COMORBIDITY?

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Introduction: It has been observed that symptoms of sleep-disordered breathing, especially obstructive sleep apnea syndrome (OSAS), are common in asthmatics. In addition, they are associated with the severity of asthma. Investigation of OSAS in patients with asthma should be performed whenever there is no adequate control of nocturnal asthma symptoms with the recommended treatment.
Methods: Prospective study based on a convenience sample containing patients diagnosed with severe asthma (according to GINA guidelines), followed at the Pulmonology Department of the Centro Hospitalar e Universitário de Coimbra – Hospital Geral. Collected socio-demographic and clinical data, completed questionnaires (Pittsburgh, EQ-5D, Epworth, STOP-BANG, ACT and CARAT) and performed level 3 polysomnography.
Results: A sample of 30 individuals, 36.7% male, mean age 53.2 (± 14.5) years, with an average FEV1 of 66.2% (± 16.7). Of the total, 43.3% with rhino-sinusitis, 13.3% with nasal polyposis, 23.3% with diabetes, 16.7% with cardiovascular disease, 10.0% with thyroid disease and 3.3% with obesity. 70.0% were or had been on biological therapy. OSAS was identified in 30.0% of patients (3 severe) with a mean AHI of 9.5 events/h (± 11.9) and in supine position of 26.7 events/h (± 26.9), mean SpO2 values of 93.2% and minimum SpO2 82.6%. A total questionnaire completion rate of 40% was obtained (at the time of submission, the remaining patients in consultation still need to be evaluated, which justifies the response rate to the questionnaires. Final data will be available at the congress). From the available data, the average Epworth questionnaire score was 8.4 (± 6.1), with 50.0% of patients with excessive daytime sleepiness. With regard to STOP-Bang, 41.7% of patients were at high risk for OSAS. As for asthma control, a mean total ACT of 20.3 (± 2.5) was obtained, with 63.6% of controlled patients and a mean total CARAT of 19.8 (± 7.4) with 33.3% of controlled patients. The average upper airway CARAT was 6.8 (± 4.1) and the lower 13.0 (± 4.0), with 41.7% with controlled nasal complaints and 33.3% with controlled bronchial complaints. The presence of OSAS correlates with gender (45.5% of severe asthmatic men with OSAS vs 21.1% of women) and the presence of CV pathology but not with asthma control (either ACT or CARAT), neither with excessive daytime sleepiness. Age correlates with AHI (moderate positive correlation, $p < 0.005$, rs 0.626).
Conclusions: In our sample, the prevalence of OSAS is much higher than that described in the general population and does not appear to be related to asthma control and may suggest that it is more of a coincidence than a comorbidity, however, due to the size of the sample, drawing conclusions of this kind is daring. In this population, STOP-Bang did not appear to be a good tool to predict the presence or absence of OSAS neither excessive daytime sleepiness.

Keywords: *Severe asthma. Obstructive sleep apnea.*

PC 035. THERAPEUTIC RESPONSE ASSESSMENT AT 12 MONTHS OF MEPOLIZUMAB - THE REALITY OF A PORTUGUESE HOSPITAL CENTER

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Introduction: The severe eosinophilic asthma phenotype is characterized by eosinophilic airway inflammation. Mepolizumab, an anti-IL5 monoclonal antibody, is effective in symptomatic control of these patients.
Objectives: Evaluate the clinical, analytical and functional response of patients with severe eosinophilic asthma at 12 months of treatment with mepolizumab.
Methods: Retrospective study including patients followed in CHUC with severe eosinophilic asthma under mepolizumab for at least 12 months. Symptom questionnaires, exacerbations, respiratory functional tests and eosinophilia were analysed. Statistical analysis was performed through IBM-SPSS (significance level 0.05).
Results: In a total of 16 patients under mepolizumab, 10 were under this treatment for over 12 months. Mean age 54.1 (± 16) years and female predominance (90%; n = 9). In 50% (n = 5) the diagnosis was obtained over 40 years of age. It is also noteworthy that 50% (n = 5) had nasal polyposis, 70% (n = 7) overweight/obesity (mean BMI = 27.8 kg/m^2) and 1 smoking habits in the past. Three patients had positive skin allergy tests, 1 with clinical correlation; 8 patients had negative IgE values. Regarding radiological findings, 60% (n = 6) had bronchial thickening and 40% (n = 4) air trapping. All patients were on STEP 5 (GINA 2019), 3 under systemic corticosteroid therapy (average 16 mg). At 12 months it was possible to reduce the daily dose, to an average of 7 mg, with a statistically significant difference (p = 0.035). In the 12 months prior to treatment, on average, patients had 4.5 (± 2.9) exacerbations and 1.1 (± 1.4) hospitalizations. After 12 months of treatment, in the same group, there were 1.3 (± 2.5) exacerbations and 0.1 (± 0.3) hospitalizations. The difference found was statistically significant for both variables (p = 0.023; p = 0.032). Regarding the CARAT questionnaire, in the evaluation prior to treatment, the mean value for the upper airways (UA) was 6.25 (± 2.4) and for the lower airways (LA) 4 (± 2.7). In the assessment performed at 12 months, the average obtained in this questionnaire was 8.25 (± 2.6) and 11.1 (± 5.9), respectively, showing statistically significant difference for LA (p = 0.002). Concerning peripheral eosinophilia, the mean pre-treatment value was 623.3 (± 234.3) cel/µL and at the annual assessment was 83.3 (± 40.6) cel/µL; this parameter differed significantly (p = 0.000). Regarding pulmonary function, the FEV1 value, in liters and percentage, pre-treatment, was 1.54 (± 0.69) and 74.4 (± 30.8%), respectively. After 12 months, the same group had FEV1 of 1.86 (± 0.78) and 86.3 (± 30.9%), respectively. For both parameters, the difference found was statistically significant (p = 0.001; p = 0.026). For FEV1/FVC, the previous value was 64.6 (± 6.7) and at 12 months 72.6 (± 10.2). Once again, the difference found, had statistical significance (p = 0.002). RV, RV/TLC, DLCO and FeNO, before and after treatment, did not differ significantly (p > 0.05).
Conclusions: We can conclude that there was a clear improvement at 12 months of treatment with mepolizumab, in reported bronchial symptoms and exacerbations, with reduction in systemic corticosteroid therapy. It is also noted that the significant decrease in eosinophilia accompanied the functional improvement in terms of FEV1 and FEV1/FVC.

Keywords: *Asthma. Mepolizumab. Anti-IL5 monoclonal antibody.*

PC 036. MISFORTUNES NEVER COME SINGLY!

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Case report: Woman, 50 years old, biologist (on medical leave), divorced, Brazilian (in Portugal for 15 years), non-smoker. Followed by severe asthma. Past medical history: bronchiolitis in the childhood (< 2 years old), persistent moderate to severe rhinitis, chronic sinusitis, penicillin/NSAIDs hypersensitivity, grass pollen allergy, GERD (conditioning laryngospasm), vocal cord dysfunction, suspected gluten/lactose intolerance, depressive syndrome, dyslipidaemia, obesity, DM, Cushing and cataract secondary to systemic corticosteroid therapy. The asthma was diagnosed in childhood, asymptomatic in adolescence and recurrence in adulthood, with multiple hospitalizations, 4 of them requiring intubation and invasive mechanical ventilation. Medicated in step 5 (GINA 2019), including all available add-ons and high dose of corticosteroid (deflazacort 60-90 mg id) with complete therapeutic adherence, adequate inhalation technique and appropriate comorbidities management, although not achieving complete control of the laryngospasm and rhinitis. Investigations: history of eosinophils 300 cells/µL; Skin allergy tests (SATs) positives to grass pollens; Pulmonary function test: spirometric curve with normal spirometric values, not completed due to marked hyperreactivity; arterial blood gases (FiO2 2 L/min, at rest) pH 7.40, pO2 96 mmHg, pCO2 38 mmHg; 6 minute walking test (for oxygen calibration) suspended by low peripheral oxygen saturation (89%) and tachycardia 125 bpm (walking distance 25 meters); Thorax-CT with thickening of bronchial walls and air trapping, excluding tracheomalacia; PNS-CT with ethmoidal sinusitis; V/Q scintigraphy with small peripheral perfusion defects, preserved ventilation; Bronchofibroscopy without any changes; endobronchial biopsy with inflammatory polymorphic infiltrate of lamina propria and basal cell hyperplasia. Results and treatment: Initially medicated with anti-IgE biological treatment (omalizumab 300 mg bimonthly), suspended at 16 weeks due to lack of efficacy and clinical decline. Subsequently medicated with mycophenolate mofetil 1G, bid, as a corticosteroid-sparing agent, but with only partial response that suspended after 8 weeks. Then started mepolizumab, 100 mg monthly, suspended at 2nd month for suspected drug hypersensitivity, manifested by worsening of dyspnoea and cough. SATs were performed with positive pricks to mepolizumab, polysorbate and omalizumab, and negative control in 4 patients. Immunosuppressant (azathioprine) trial not tolerated by gastrointestinal complaints. The benralizumab option was excluded because of the polysurbate. In September 2018, although not meeting the eosinophil count criteria, initiated, in an early access program, the anti-IL5 reslizumab (250 mg monthly) with symptomatic improvement since the 3rd dose.
Discussion: With this exposure, the authors intend to highlight the clinical case of a patient with severe asthma, with multiple comorbidities that are difficult to control and indicated for treatment with biological therapy. Nevertheless, other conditions beside the treatable traits may contraindicate the use of these therapies, such as excipient hypersensitivity, making essential the existence of alternatives among biological agents.

Keywords: *Asthma. Hypersensitivity. Biological treatment.*

PC 037. OMALIZUMAB IN THE INTENSIVE CARE UNIT: A CLINICAL CASE

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Introduction: Asthma is a chronic and heterogeneous disease affecting 5-10% of the population and corticosteroids are a fundamental therapy for these patients. In rare cases of corticosteroid allergy, treating asthma can be challenging. Omalizumab has clinical efficacy in patients with allergic asthma. It acts by binding to the free serum IgE, preventing its binding to the high affinity receptors (FcεRI) and a subsequent decrease in their expression in mast cells and basophils and thus reducing the allergic inflammation.
Case report: Female patient, 37 years old, non-smoker, with a history of mechanical valvuloplasty in 2001 and 2015 due to congenital

heart disease with aortic stenosis and ventricular septal defect. She had the diagnosis of asthma and allergic rhinitis since childhood. In 1999, she began with episodes of immediate hypersensitivity to intravenous hydrocortisone and inhaled steroids (fluticasone and beclomethasone), so she discontinued her usual medication. Due to consequent clinical worsening, she was referred to the Immunoallergology Consultation. The allergic study showed allergy to inhaled corticosteroids, tolerating only low dose beclomethasone and to systemic corticosteroids except deflazacort. For this reason, she was proposed for treatment with Omalizumab that she did from 2009 to 2013 and stopped when she was absent from the country. She also stopped beclomethasone, but continued on medication with formoterol, tiotropium bromide, montelukast and aminophylline. In January 2018, she went to the emergency department after a day of productive cough with mucus-purulent sputum, progressive dyspnea and wheezing. On admission, she presented respiratory failure with bronchospasm and respiratory acidemia (pH 7.14, paCO2 70 mmHg, paO2 61.6 mmHg), requiring immediate invasive mechanical ventilation. She had no other laboratory abnormalities and was admitted to the intensive care unit. The patient's ventilatory support was greatly hampered by severe airway resistance, requiring curarization for 5 days, as well as aminophylline infusion and deflazacort treatment. After 10 days of ventilatory support, without improvement, a first dose of Omalizumab was administered and a desensitization protocol for intravenous dexamethasone was performed. The patient presented with progressive improvement of bronchospasm and ventilatory mechanics and was extubated after 9 days of administration. A second dose of Omalizumab was administered in the intensive care unit 15 days after the first. The patient was discharged 10 days after extubation and inhaled beclomethasone was reintroduced with good tolerance. Since discharge, the patient has been receiving monthly treatment with Omalizumab without exacerbations and with adequate symptom control.
Discussion: The authors present the case of a patient with allergic asthma with status asthmaticus and corticosteroid allergy in whom Omalizumab played a key role. Omalizumab may be an important treatment in severe asthmatic patients under invasive mechanical ventilation. To the knowledge of the authors there is no similar case described in the literature.

Keywords: *Omalizumab. Severe asthma. Intensive care.*

PC 038. MEPOLIZUMAB: CLINICAL, FUNCTIONAL AND LUNG AGE ASSESSMENT AFTER ONE YEAR OF TREATMENT

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Introduction: Severe asthma represents 5-10% and is responsible for most asthma morbidity and associated costs. Mepolizumab is a specific monoclonal antibody with high affinity to IL-5, that prevents its binding to IL5 receptor in eosinophils, approved for the treatment of severe asthma. Lung age is a tool developed by Morris and Temple, useful for monitoring patients.
Objectives: To evaluate clinical, lung function, lung age and quality of life responses to mepolizumab. To assess whether lung function response can predict a clinical response in the short-term.
Methods: Patients within the first year of mepolizumab treatment were included. All had severe asthma with high blood eosinophil count, treated with high dose ICS+LABA. Demographic, clinical data, lung function test, number of exacerbations and systemic steroid use in the years before and after treatment were assessed. Patents answered the recently validated Severe Asthma questionnaire (SAQ). Based on lung function tests and the patients' age and height, lung age and lung age deficit were calculated according to Morris and Temple formula.
Results: A total of six patients were evaluated, treated with mepolizumab 100 mg, every 30 days for a mean time of 14.5 ± 3.2 months. The majority of patients were female (5/6) with mean age 56.6 years. Mean initial oral eosinophil count of 576.7 cels/µL and eosinophil percentage 6.5%. Within 4 months of treatment, there was an eosinophil decrease in all patients, with a mean count of 86.6 cells/µL and 5.7%. Five out of six patients had an improvement in lung function in the first year after treatment. Mean initial FEV1% of 75% increased to 95.5%. SAQ score, after treatment, based on the average of the 16 questions was 5.1 and global SAQ score of 60. The number of exacerbations/year treated with oral corticoid decreased from 2.7 to 0.3.4 patients had 1 exacerbation leading to hospital stay in the previous year, 1 had 2 and 1 none. After treatment, no patient needed a new hospital stay for respiratory problems. Mean initial was Lung Age 80.5 years (IQR 50.7), mean lung age deficit of 28.8 years (IQR 77). After treatment, mean lung age reduced to 57.4 and lung age deficit to 2.1 years. One of the patients, despite lung function improvement, had clinical deterioration with increased necessity of rescue bronchodilators, and mepolizumab was stopped after 7 months.
Conclusions: Most patients improved asthma symptoms, clinical stability, less exacerbations and need for systemic corticoids, with a related improvement in quality of life. There was a decrease in eosinophils number in peripheral blood, which relates to literature, as eosinophils seem to correlate to clinical response. It is still necessary to establish whether functional response can predict clinical response to treatment and whether it is long-term and sustained. The benefits reported in lung age and lung age deficit can be useful tools in motivating and improving treatment adherence.

Keywords: *Severe asthma. Mepolizumab. Eosinophil. Lung function. Lung age.*

PC 039. TREATMENT WITH MEPOLIZUMAB IN SEVERE EOSINOPHILIC ASTHMA PATIENTS WITH NASAL POLYPS

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Introduction: Nasals polyps are a frequent comorbidity in patients with severe asthma and it's associated with less symptom control and worse quality of life. In the literature, the use of mepolizumab in patients with severe eosinophilic asthma and nasal polyps has revealed a reduction in exacerbation and an improvement in quality of life.
Objectives: To assess the impact of mepolizumab treatment in severe eosinophilic asthma patients with nasal polyposis.
Methods: Retrospective multicentric study including severe eosinophilic asthmatic patients treated with mepolizumab and followed over 6 months period. The study population was divided into two groups: presence or absence of nasal polyps (presence of clinical and radiological criteria). The corticosteroids dosage, corticosteroid cycles, lung function, eosinophils and Asthma Control Test (ACT) were compared using SPSS software (descriptive and comparative analysis).
Results: We included 16 patients (9 non-NP/7 NP), mainly female (12-75.0%) with a mean age of 55.5 ± 10.2 years. Descriptive and comparative analysis before mepolizumab revealed no differences between the groups. The analysis of each group after 6 months of treatment showed that NP patients had a statistically significant improvement in the number of corticosteroids cycles (3.0 ± 3.5/0.6 ± 0.8; p = 0.039), exacerbations (2.7 ± 1.4/0.9 ± 1.1; p = 0.016) and eosinophils (957.1 ± 846.1/81.7 ± 81.6; p = 0.027); while the non-NP group had a statistically significant reduction in the number of corticosteroids cycles (3.6 ± 1.6/1.8 ± 1.3; p = 0.036), eosinophils (815.6 ± 414.8/72.9 ± 38.6; p = 0.017) and ACT (8.0 ± 2.2/18.6 ±

3.2; p = 0.018). After 6 months of therapy, the comparative analysis demonstrated that the non-NP group needed more CCT cycles (1.8 ± 1.3/0.6 ± 0.8; p = 0.047).
Conclusions: There are a few studies in the literature that evaluate the impact of nasal polyps in the treatment with mepolizumab for severe eosinophilic asthma. Despite being a small sample, in patients with or without nasal polyps, we verified an improvement in the number of corticosteroids cycles and eosinophils with mepolizumab. Moreover, the non-NP group seems to need more CCT cycles during the first 6 months of treatment. More studies are needed to corroborate these findings.

Keywords: *Severe asthma. Mepolizumab. Nasal polyps.*

PC 040. THORACIC COMPUTED TOMOGRAPHY IN ASTHMA

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Introduction: Asthma is a relatively common disease, leading to heterogeneous and variable obstruction of airways. For monitoring the disease doctors use mostly clinical history, physical exam and lung functions tests. Although chest radiography was the most commonly used imaging method in the evaluation of these patients, chest computed tomography (CT) has gained an increasingly important role in this regard.
Objectives: To evaluate the reasons that lead to request thoracic CT scan in patients with asthma from General Pulmonology and Severe Asthma appointments and the obtained information from those requests.
Methods: We conducted an analytic retrospective study. We studied a period of 12 months (year of 2018), selecting the clinical processes of patients as described above, who had one thoracic CT scan request with "asthma" at the patient information. We evaluated demographic data, expiration and inspiration imaging acquisitions, the presence of air-trapping, other imaging alterations and presence of excessive dynamic airway collapse.
Results: We analyzed 75 clinical processes, the majority of which of female patients (84%), with a medium age of 61.8 years. 45% of the patients were followed in Severe Asthma appointments and 55% in General Pulmonology appointments. Exams were initially requested by the following reasons: in 50.7% of cases for the follow up of imaging alterations already documented previously in chest radiography or CT scan (as solid and ground glass nodules, etc.); in 13.3% for screening the existence of new imaging changes (emphysema – 4%, diffuse interstitial diseases – 2.7%, Allergic bronchopulmonary aspergillosis – 1.3%, etc.) In 10.7% of cases, the exam was requested for bronchiectasis screening due to recurrent infections, in 6.7% for evaluating asthma that was difficult to treat and in 5.3% for severe asthma. In 12% there was no information concerning the reason for requesting the exam. In 69.3%, CT scan images were acquired in both inspiratory and expiratory times, while in 30.7% of the cases CT scan was performed only in inspiratory time. In 17% of the exams executed in both respiratory excursions, it was possible to detect air-trapping, but this finding was already detectable at inspiratory acquisitions (thus expiratory images were unessential). It was possible to distinguish bronchiectasis and bronchial wall thickening in 35% of the exams. Centrilobular nodules and excessive airway collapse were a rare finding, both occurring only in one patient. In six patients there was no observable imaging alterations.
Conclusions: CT scan availability aloud its usage in diseases where traditionally it was not performed. This work highlights that the reason for CT scan requests in this reversible obstructive disease is mainly for screening for other radiological changes (emphysema, bronchiectasis, follow-up of nodules, etc.) rather than evaluation of the disease itself. Expiration imaging does not appear to be beneficial in detecting air-trapping, which is already noted in inspiration acquisitions in the vast majority of patients.

Keywords: *Asthma. Bronchiectasis. CT scan. Air-trapping.*

PC 041. CHARACTERIZATION OF LUNG CANCER PATIENTS UNDERGOING SURGICAL APPROACH IN A DISTRICT HOSPITAL

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Introduction: Lung cancer is the fourth most common cancer and the first cause of cancer-related death and its incidence continues to rise. Surgical approach remains the gold standard at an early stage and can be used in patients with advanced stage disease selected after discussion in a multidisciplinary board.
Objectives: The aim of this study is to characterize the outcomes of patients with lung cancer diagnosis and surgical indication in a district hospital, comparing them with those described in the literature.
Methods: Retrospective descriptive study of patients diagnosed with lung cancer between March 2012 and June 2019 at Hospital Beatriz Ângelo, who underwent surgical treatment. Data was collected and analyzed using MS Excel. Patients operated for diagnostic or staging purposes were excluded.
Results: Out of 573 patients diagnosed with lung cancer, 96 patients were operated (16.8%). Mean age was 63.6 (± 9.7) and 65.6% were male. Smoking habits were present in 78.1% of patients. The most prevalent comorbidities were: COPD in 34.4%, emphysema in 15.6%, diabetes in 12.5% and previous history of cancer in 9.4%. Adenocarcinoma was the most frequent histological subtype, present in 68.5% of patients. Concerning stage, 38.5% of patients were stage cIA (pIA in 40.6%), 18.8% were cIB (pIB in 15.6%), 8.3% were cIIA (pIIA in 9.4%), 6.3% were cIIB (pIIB in 7.3%) and 21.9% were cIIIA (pIIIA in 17.7%). 22.9% were operated after neoadjuvant treatment. The most common surgical procedures were: lobectomy (72.9%) and wedge resection (15.6%). 45.8% of cases were approached using VATS techniques. Adjuvant therapy was used in 44.8% of patients, including chemotherapy in 34.4%, radiotherapy in 2.1% and chemotherapy plus radiotherapy in 8.3% of cases. Perioperative mortality was 1% (n = 1) and 22.9% had postoperative complications, such as pneumonia (n = 10), prolonged air leak (n = 1) and suture dehiscence (n = 1). Mean length of stay time was 9.6 days (± 6.6). Overall survival at 24 months was 80.9%.
Conclusions: These outcomes are comparable with those reported in the literature, demonstrating an increasing use of minimally invasive techniques (VATS), a low perioperative mortality and a reduced number of postoperative complications. These factors, coupled with the high survival of patients eligible for surgical therapy, demonstrate the relevance of a multidisciplinary approach and investment in early diagnostic strategies to improve the outcomes of lung cancer patients.

Keywords: *Lung cancer. Outcomes. Surgical approach.*

PC 042. DRUG REACTION WITH EOSINOPHILIA AND SYSTEMIC SYMPTOMS SYNDROME ASSOCIATED TO OSIMERTINIB. A CASE REPORT

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Introduction: Drug reaction with eosinophilia and systemic symptoms (DRESS) syndrome is a rare and severe adverse drug reaction, occurring generally about two to six weeks after the introduction

of a causative drug. Cutaneous phenotype is diverse, usually without mucosal involvement and can be accompanied by different systemic symptoms including fever, haematological abnormalities or visceral involvement (kidney and liver). DRESS syndrome can be a life-threatening situation, with an associated mortality up to 10% caused by organ failure.
Case report: A sixty-year-old woman was initially admitted to the hospital with seizures. Brain scan showed intracranial space-occupying lesions. She started levetiracetam on December, 28 2018 and carbamazepine on January, 25 2019. The investigation revealed a stage IV EGFR mutated (deletion on exon 19) lung adenocarcinoma with involvement of central nervous system. She was submitted to radiosurgery on February, 28 2019 and she started systemic therapy with osimertinib (80 mg daily), on March, 6 2019. After eight days, on March, 14 2019, she was admitted at the hospital with a painful and itchy generalized skin rash on face, neck, trunk and lower limbs, with preserved skin integrity and with no systemic symptoms. Osimertinib induced skin toxicity was assumed and the drug was stopped. She was discharged from the hospital with topic steroid therapy. But, twenty-two days after osimertinib suspension, on April, 4 2019, she was readmitted to the hospital with a widespread erythema and skin integrity impairment, without mucosal affectation, accompanied by fever. Blood tests revealed eosinophilia with no leukocytosis, acute kidney failure (AKIN II) with ionic changes and elevation of alkaline phosphatase and lactate dehydrogenase, suggesting DRESS syndrome. She started systemic corticoid therapy (methylprednisolone 1 mg/kg day), teicoplanin and fluid therapy, with clinical improvement. As toxicoderma had worsen after osimertinib suspension, it was thought it could be related with carbamazepine, which was permanently suspended. Thus, after clinical improvement, and under systemic corticoid de-escalation, osimertinib was reintroduced on April, 18 2019, with no evident adverse reaction. The patient stayed hospitalized for two weeks for surveillance. But, eighteen days after osimertinib reintroduction, on May, 6 2019, she was readmitted to the hospital with a severe generalized rash all over the body with epidermal detachment and erosions greater than 30% of body surface area and no mucosal involvement. At that time, her blood tests revealed again a slight eosinophilia with no leukocytosis and acute kidney failure (AKIN II). Osimertinib was stopped again and systemic corticoid was escalated until prednisolone 40 mg days. Skin biopsy was compatible with DRESS syndrome. Three months after, she is de-escalating systemic corticoid, with resolution of skin lesions and normalized kidney function. Multidisciplinary board decided to definitely stop osimertinib.
Discussion: In phase III trials, third-generation EGFR-TKI Osimertinib showed better efficacy and lower adverse event rate than standard EGFR-TKIs, namely with less skin toxicity. To the best of our knowledge, this is the first case of Dress syndrome induced by osimertinib described in literature till now.

Keywords: *Osimertinib. Dress syndrome. Skin toxicity. TKI toxicity. Lung cancer.*

PC 043. LUSH BILATERAL LUNG MASSES. THE SAME PROTAGONIST?

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Introduction: Multiple primitive neoplasms occur in the same individual and involve one or more organs. They are classified as synchronous or metachronic. The differentiation between synchronous primary lung neoplasms and intrapulmonary metastases is fundamental from both the therapeutic and prognostic points of view.
Case report: Female, 62 years old, smoker (75 UMA), performance status (PS) 0, without relevant personal history. She resorted to the emergency department due to effort dyspnea and productive cough (purulent sputum) with 4 weeks of evolution without consumption syndrome. The key findings at examination were: reduction of vesicular murmur and upper half snores on both hemithoraces. Chest radiography showed upper third hypotransparency of both hemithoraces. Thoracic CT scan: left upper lobe bronchial amputation without bronchogram, left upper lobe consolidation and atelectasis, identifying an area of captive walls with hydroaerial level (in relation to the ablated focus) and a mass of 64 × 39 mm; right upper lobe with, heterogeneous and suspected parenchymal uptake, which is equally atelectatic, without air bronchogram and has a mass of 55 × 53 mm. Multiple mediastinal and hilar adenopathies; suspected rounded nodular image (8 mm) in the lingula. In this context she was admitted to the Pulmonology Service for investigation and treatment. From the complementary diagnostic exams, were highlighted: bronchofibroscopy - right upper lobar bronchus complete occlusion due to neoformable lesion that conditioned reduction of the right main bronchus caliber and neoformative lesion occluding the left superior lobar bronchus (cytology and bronchial biopsies: without neoplastic cells); CT-guided transthoracic aspiration biopsy - inconclusive; Rigid bronchoscopy with bilateral biopsies: epithelial cell morphology, poor differentiation, p40 positive and TTF1 negative compatible with pavement-cell carcinoma; TC-CE - two small secondary deposits. Integrating imaging and anatomopathological findings, a bilateral pavement-cell carcinoma (T3N3M1c) - stage IVB was assumed. The patient started systemic chemotherapy (platinum and vinorelbine) and chose not to wait for the results of the mutational study. It was also decided in the multidisciplinary meeting to start holocranial radiotherapy. Afterwards, PDL1 expression study revealed positivity in 20% and 90% of the sample in right and the left, respectively; KRAS positive and ROS, ALK, BRAF, EGFR negative.
Discussion: The concomitant presence of bilateral lung masses is a real diagnostic challenge. Their etiological investigation is often dependent on multiple invasive examinations until a definitive histological diagnosis is obtained. Histological diagnosis of the bilateral masses and detailed analysis of the immunohistochemical characteristics of each one are perentory to distinguish a primary tumor with contralateral metastasis from two distinct tumors. Thus, achieving a diagnosis becomes even more challenging and has clear implications for treatment and prognosis. In this case, we highlight the discrepancy of the PDL-1 values obtained in the two masses, which clearly affect important therapeutic implications. In short, this is a case with silent clinical evolution until the moment of presentation (PS 0), when it appears as a lush, systemic disease, advanced stage and with large lung masses.

Keywords: *Bilateral lung masses. Silent. Exuberant. Pavement-cell carcinoma.*

PC 044. SURVIVAL OF PT1N0 STAGE LUNG CANCER IN PATIENTS UNDERGOING SURGICAL TREATMENT

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Introduction: Lung cancer has a high mortality rate, with an overall survival of 17% at 5 years. Its treatment in early stages can be curative, and surgical anatomical resection with mediastinal ganglion dissection is the standard therapeutic approach in these stages.
Objectives: To analyze the survival of patients with lung cancer staging pT1a-c who underwent curative surgery.
Methods: We conducted a retrospective study of patients undergoing thoracic surgery at our center over a period of 8 years (between 2010 and 2017). Patients with pT1a-c staging and N0 ganglionic staging were included. Survival was calculated using the Kaplan-Meier test using the SPSS® software, version 24.

Results: We included 110 patients with a mean age of 64.1 ± 11 years and male predominance (57.3%, n = 63). The most common histological diagnosis was adenocarcinoma (62.7%, n = 69). Regarding the surgical technique, there was a slight predominance of thoracotomies (59.1%, n = 65) versus thoracoscopy. Of the 11 deaths (10%), disease progression occurred in 7 (63.6%) patients, but only in 3 (42.9%) the cause of death was directly attributed to neoplastic disease. The overall survival at 5 years was 87%. In the comparative analysis of 5-year survival between thoracoscopy and thoracotomy, no statistically significant difference was found (80.4% vs 86.2%, p > 0.005).
Conclusions: With this study, we were able to demonstrate a high 5-year survival rate in patients with surgically treated early-stage lung cancer. Overall these patients represent a small proportion of the reality of patients with lung cancer. In this sense, these data should motivate the development of screening programs to increase the proportion of patients diagnosed at this stage of disease.

Keywords: *Lung cancer. Early stages. Surgery. Survival.*

PC 045. CHEMORADIOTHERAPY IN STAGE III LUNG CANCER. 6 YEARS REVIEW

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Introduction: The therapeutic decision in patients with locally-advanced non-small cell lung cancer (IIIA and IIIB NSCLC) should be made in a multidisciplinary manner and depends on several factors. Currently, standard treatment for patients with inoperable stage III is chemoradiotherapy (CRT), which can be performed concomitantly and sequentially. Concomitant CRT treatment showed improved survival compared with sequential treatment, although it carries a higher rate of acute toxicities.
Objectives: Characterize patients with locally-advanced NSCLC (stage IIIA and IIIB) and to determine the efficacy and toxicities of concomitant CRT compared with sequential.
Methods: A retrospective analysis of patients with stage III NSCLC between 2012 and 2018 who performed treatment with CRT. Clinical data, treatment, overall survival (OS), progression-free survival (PFS), and treatment-related toxicities were analyzed. Survival was estimated by the Kaplan-Meier method and the curves were compared using the log-rank test.
Results: We identified 42 patients with stage III NSCLC (64% stage IIIB and 36% stage IIIA), 88% of whom were male and 90% were smokers or former smokers. The average age at diagnosis was 64 ± 10 years. Most of the patients were classified as ECOG 0 or 1 (97.6%). Of the total patients, 24 (57%) received concomitant CRT treatment and 18 (43%) underwent sequential CRT. The most commonly used chemotherapy regimen was carboplatin and vinorelbine (38%). More than half of the patients (57%) had some treatment-related toxicity. Hematologic toxicity was the most frequent (48%), with no differences between the two groups, followed by dysphagia/esophagitis (24%), which was more frequent in the concomitant CRT group (p = 0.03). Of the 6 patients (14.3%) who complicated with radiation pneumonitis, 5 (83%) had undergone concomitant CRT treatment. The OS of these patients was 59.4 months (95%CI 43.7-75.0). When comparing the two groups, the one submitted to concomitant CRT tended to have a higher SG (64.1 vs 46.0 months), although this value was not statistically significant (p = 0.63). Overall PFS was 45.1 months (95%CI 29.4-60.8), with no significant difference in PFS between the two groups (p > 0.693).
Conclusions: Patients undergoing concomitant CRT treatment tended to have a higher OS and FPS, which was in agreement with literature. Even though concomitant CRT treatment increased survival it also bore a greater risk of acute toxicity, especially through radiation esophagitis. Adverse effects may compromise patient's prognosis and quality of life and generate significant morbidity, which makes it important to properly select candidates for concomitant treatment.

Keywords: *Chemoradiotherapy. Non small cell lung cancer. Stage III.*

PC 046. PULMONARY SPLENOSIS, A CHALLENGING DIAGNOSIS

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Introduction: Splenosis is a benign condition characterized by the presence of ectopic splenic tissue following traumatic rupture of the spleen or splenectomy. The most frequent locations are the abdominal and pelvic cavities, and thoracic splenosis is much rarer. In thoracic splenosis, the nodules are found almost exclusively in the left hemithorax, commonly accompanied by abdominal splenosis. It is usually asymptomatic, and in most cases, it is an incidental finding. The average time between initial trauma and diagnosis is about 20 years, which makes splenosis a challenging diagnosis.
Case report: A 66-year-old male, former smoker, emigrant in France, with a history of dyslipidemia and hypertension underwent splenectomy after a car accident at age 20. About a year ago, he performed respiratory tests, which showed a moderate obstructive ventilatory syndrome and a chest x-ray with ovoid and peripheral opacities in the left hemithorax. Chest CT revealed several nodules located in the pleura adjacent to the left upper and lower lobes, in the lower extremity of the left lung fissure, adjacent to the mediastinal pleura in the right lower lobe, and adjacent to the costal arches of the left posterior chest wall, underlying the muscles. At the former splenic site, two small hyperdense nodular formations of irregular contours were visualized. These imaging findings, along with the patient's clinical history, raised the suspicion of splenosis. After research, complementary exams performed 20 years earlier already showed the presence of the previously described nodules. A 99mTc-labeled red blood cell scintigraphy was performed to confirm the diagnosis of thoracic splenosis. Given the persistent asymptomatic state, we adopted a conservative approach with vigilance.
Discussion: Despite being a benign pathology, thoracic splenosis can radiologically mimic several pathological entities, namely neoplasms. Therefore, while investigating pulmonary nodules in patients with a history of splenic trauma or splenectomy, it is important to include splenosis in the differential diagnosis. The importance of a detailed anamnesis, as well as knowledge about this entity should be noted, which in this case led to an early diagnosis and avoided the performance of more invasive diagnostic tests and treatments, which would not bring additional benefit.

Keywords: *Pulmonary nodules. Splenosis.*

PC 047. DIFFUSE IDIOPATHIC PULMONARY NEUROENDOCRINE CELL HYPERPLASIA (DIPNECH). AN ENTITY WITH CARCINOGENIC POTENTIAL NOT TO BE FORGOTTEN

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Introduction: Diffuse idiopathic pulmonary neuroendocrine cell hyperplasia (DIPNECH) is a widespread proliferation of pulmonary neuroendocrine cells that may be confined to the airway mucosa, locally invade - tumourlets, or form invasive neuroendocrine tumors (carcinoids). Tumourlets are foci of hyperplasia < 5 mm without involvement of the basement membrane and carcinoid tumors are > 5mm in size and invade the basement membrane. Due to the frequent presence of neuroendocrine tumourlets and hyperplasia in

the periphery of typical carcinoid tumors, DIPNECH is considered by WHO as a precursor of pulmonary neuroendocrine tumors. The percentage of patients with DIPNECH who will eventually develop a carcinoid tumor is unknown. Most patients with DIPNECH are middle-aged, non-smoking women with longstanding respiratory symptoms, airway obstruction, air trapping, and histological evidence of bonchiolitis obliterans.
Case reports: We describe two clinical cases: the first of a 35-year-old woman without smoking habits, with sputum cough and exertional dyspnea with 3 years of evolution. Pulmonary function tests revealed a decrease in forced expiratory flow at 75%. Chest CT scan initially revealed no changes. About 4 years later the patient reported a 10 kg loss in 8 months and dry cough. Chest CT scan revealed two solid nodules in the right lower lobe of 5 and 2 mm and in the left lower lobe an 18 mm solid nodule with well-defined contours. Bronchofibroscopy revealed no changes. After a multidisciplinary meeting, it was decided to perform a 68Ga-DOTANOC PET that showed a slight fixation in the lesion of the left lower lobe (carcinoid tumor with low expression of the somatostatin receptors 2.3 or 5). The patient underwent left lower lobectomy (2013) and histology revealed the presence of a typical carcinoid tumor with multiple foci of endocrine cell hyperplasia and tumourlets. Surveillance was maintained with 6/6 months chest CT. The nodules remained stable until 2015 when one of the nodules grew. PET 68Ga-DOTANOC was performed - without metabolic evidence of malignancy. The nodule maintained an indolent growth (0.97 cm) and despite negative 68Ga-DOTANOC and 18F-FDG PET, atypical resection was performed in August 2019, awaiting anatomopathological results. The second case is a 74-year-old woman without smoking habits, with an important family history of cancer. Chest CT scan revealed incidental multiple nodules in both lung fields. Bronchofibroscopy had no changes. The nodules remained stable in 6 months. However, given family history, it was decided to perform nodules biopsy in the right inferior lobe and middle lobe by thoracoscopy (2012). The pathological diagnosis was of tumourlets and typical carcinoid. The patient maintained vigilance in Oncology Pulmonology consultation for 6 years.
Discussion: There are few cases described in the literature regarding the etiology, treatment and follow-up of these patients. Most series report a 5-year survival rate of 80-90%. However, given the potential for malignant transformation, questions arise regarding the monitoring and treatment of these patients.

Keywords: *DIPNECH. Tumourlets. Carcinoids. Neuroendocrine cells.*

PC 048. STAGE IV LUNG CANCER. IS THE CURE POSSIBLE?

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Introduction: Therapies used in patients with advanced non-small cell lung cancer (NSCLC) are considered palliative. The goals are to preserve quality of life and prolong survival with minimal side effects. Immunological checkpoint inhibitors that target programmed cell death protein 1 (PD-1) or programmed cell death ligand 1 (PD-L1) have been considered in the therapeutic approach of lung cancer. Nivolumab is an immunoglobulin G4 (IgG4) monoclonal antagonist antibody to programmed cell death protein 1 (PD-1). It is not yet used as a first line but is approved for use in progression after chemotherapy.
Objectives: To evaluate patients with complete response and no evidence of disease treated with Nivolumab at a central hospital in the Oncology Pulmonology consultation.
Methods: Review of the clinical records of patients with complete response to Nivolumab followed at Egas Moniz Hospital until July 2019. Collection of data on smoking habits, tumor histological type, stage at time of diagnosis, metastatic sites, previous therapies, presence of adverse effects, duration of therapy, reasons for discontinuation, and disease-free time since discontinuation of the drug.
Results: Five patients with complete response to Nivolumab therapy were identified: 4 with no current evidence of disease and 1 of them had very doubtful mediastinal adenopathy and no evidence of active disease in another location. All patients were male, mean age 64 years old, smokers (mean smoking rate of 63 pack years), 4 with adenocarcinoma and 1 with squamous cell carcinoma, 4 in stage IV and 1 in stage III-a who progressed to stage IV, with the following metastatic sites: cervical adenophaties (n = 2), peritoneal adenopathies (n = 1), bone (n = 1) and pericardial fluid (n = 1). All patients had previously received conventional chemotherapy and 1 of the patients had surgery initially. Three discontinued treatment due to side effects (severe skin reaction, autoimmune encephalitis and severe asthenia). The patient with autoimmune encephalitis has completed 7 months of therapy and has been on surveillance for 32 months with no evidence of relapse; the patient with toxidermia discontinued treatment 4 months ago and has no evidence of active disease (has received 8 months of therapy) and the patient with severe asthenia has been without therapy for 15 months and has no evidence of disease (completed 18 months). One patient has been on therapy for 12 months with no active disease and no side effects and the patient with dubious mediastinal adenopathy has been on Nivolumab for 6 months.
Conclusions: Recent data from clinical trials show increased survival with Nivolumab therapy in patients with advanced NSCLC - about 58% of patients alive after 4 years of diagnosis (previously 5% at 5 years). We have witnessed in recent years a change in the paradigm of this cancer disease with the emergence of new therapeutic lines that make a priori deadly disease potentially chronic and perhaps curable even in advanced stages.

Keywords: *Cancer. Nivolumab. Stage IV.*

PC 049. PEMBROLIZUMAB THERAPY IN NON-SMALL CELL LUNG CANCER. CENTRAL HOSPITAL EXPERIENCE

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Introduction: Pembrolizumab is a highly selective immunoglobulin G4 (IgG4) antibody of programmed cell death protein 1 (PD-1), blocking ligands PD-L1 and PD-L2. When used in first-line it is associated with longer overall survival and progression-free survival than conventional chemotherapy in patients with non-small cell lung cancer (NSCLC) with PD-L1 expression ≥ 50%.
Objectives: To characterize the patient population and the experience of using Pembrolizumab in an Oncology Pulmonology consultation of a central hospital.
Methods: Retrospective analysis performed by consulting the clinical files of pembrolizumab-treated NSCLC patients from March 2017 at Egas Moniz Hospital until July 2019. Data were collected about demographic characteristics, smoking habits, tumor histological type, initial stage, metastization sites, age at initiation of pembrolizumab therapy, drug line therapy, presence of adverse effects, response to therapy and reasons for discontinuation. Descriptive data analysis was performed using Microsoft Excel 2013 and IBM SPSS Statistics v.23.
Results: The sample consisted of 24 patients, mostly male (54.2%), mean age 66.3 years (age of onset of Pembrolizumab). There was a high rate of smoking (83.3%) with the following distribution: 50% former smokers and 33.3% smokers. Histologically the majority corresponded to adenocarcinomas (n = 21), with 2 cases of squamous cell carcinoma and 1 case of mixed tumor (adenocarcinoma and large cell carcinoma). At the time of diagnosis, regarding staging, the sample was distributed as follows: 17 in stage IV, 1 in

stage IIIc, 2 in stage IIIb, 2 in stage IIIa, 1 in stage IIa and 1 in stage Ia. The most frequent metastatic sites were bone (41%), pleura (41%), adrenal glands (23.5%) and lung (23.5%). Nine patients have done Pembrolizumab in 1st line of treatment, ten in 2nd line and 5 in 3rd line. Of those who performed in the first line, one corresponded to squamous cell carcinoma and eight to adenocarcinoma, mean age 71.4 years. In 2 of these cases there was a partial response and in 2 other cases progression. Remaining without evaluation at study date. Adverse effects were reported in 54.1% of the cases and asthenia was the most common. Regarding response, progression occurred in 12.5% of patients at 8 months on average and partial response in 29.2% at 17 months on average. 58.3% of patients had no evaluation at the time of the study. Six patients discontinued the drug: 3 due to side effects (2 due to severe skin reaction and 1 due to the development of diabetes mellitus), 2 due to disease progression and 1 due to general state degradation.
Conclusions: Pembrolizumab was recently introduced in our hospital which is reflected in a limited experience. When associated with serious adverse effects may lead to its permanent or temporary discontinuation. Identification of other biomarkers that can accurately predict tumor immune response may in the future improve therapeutic outcomes.

***Keywords**: Cancer. Pembrolizumab.*

PC 050. PULMONARY NODULES. FOLLOW-UP PROTOCOL: MAKES SENSE IN ALL PATIENTS?

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Introduction: Pulmonary nodules are defined as focal, round or oval areas in the lung parenchyma with a diameter of less than 30 mm. They are frequently detected accidentally on chest radiography or computed tomography (CT), and although most are benign, sequential temporal surveillance is required.
Objectives: To characterize the population of patients with pulmonary nodule (s) and to evaluate the diagnostic profitability of the screening protocol proposed by the National Comprehensive Cancer Network (NCCN).
Methods: Retrospective analysis of demographic and clinical data a convenience sample of patients followed in consultation pneumology by single or multiple pulmonary nodules since its detection, evaluating its morpho-dimensional evolution.
Results: Including 53 patients, 71.7% males, with mean age 62.3 years (maximum: 80; minimum: 40). Of the total, 66% were smokers or former smokers, and 67.9% had occupational inhalation exposure at risk. Regarding the comorbidities presented, 13.2% had chronic obstructive pulmonary disease (COPD) and 11.3% had previous history of extrapulmonary neoplasia. In terms of classification, the majority (86.8%) had solid nodule characteristics, 50.9% had multiple nodules and 75% had no associated adenopathies in the first CT-thorax performed. As to morphology, 77.4% of the nodules presented benign characteristics, the majority (38.2%) of diameter less than 6 mm, 25.5% greater than 8 mm, of which 3 were above 15 mm. The preferred location was the right lung (67.5%) and the upper lobe (28.9%). After the first computed tomography scan, 22.6% of the patients were submitted to positron emission tomography - Fluorodeoxyglucose 18 (PET-CT-FDG18), and only 3 with discrete metabolic acceptance. After the first CT-thorax control, 88.7% of the nodules maintained the stability of their characteristics, 14 patients ceased the follow-up and 2 where submitted to biopsy chirurgical (benign tumor). Of the patients submitted to the second CT-thorax, 79.5% of the nodules remained stable, only 2 presented growth and 1 in the transthoracic lung biopsy presenting an adenocarcinoma. Of the 22 patients who remained on follow-up, all nodules remained stable or reduced your size. On average, each patient performed 3.9 TC-thorax and maintained an average follow-up of 23.5 months.
Conclusions: We conclude that in our sample, the majority of patients are male, have exposure to tobacco smoke and/or other inhaled risk factors and have millimetric nodules. Most have maintained morpho-dimensional stability in the serial evaluation, so the diagnostic viability of this approach is questioned considering the risk/benefit of radiation exposure, since the national availability of low dose CT scans is reduced. Of no less importance adds the unnecessary anxiety instilled to the users.

***Keywords**: Nodules. Lung. Cancer. Diagnosis.*

PC 051. SMALL CELL TRANSFORMATION AS A MECHANISM OF RESISTANCE IN EGFR-MUTATED NON-SMALL CELL LUNG CANCER TREATED WITH TYROSINE KINASE INHIBITORS: TWO CASES REPORTS

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Introduction: Advanced non-small cell lung cancer (NSCLC) with epidermal growth factor receptor (EGFR) mutations are highly sensitive to tyrosine kinase inhibitors (TKIs). After disease progression, it is essential to understand the mechanism of resistance involved to guide further treatments. Small cell (SCLC) transformation, identifiable by tissue biopsy, although rare, has been associated with TKI therapy resistance. The authors describe two clinical cases.
Case reports: Case report 1: A 47-year-old woman, non-smoker, previous history of tuberculosis, with stage IV lung adenocarcinoma (bone and adrenal metastasis) and EGFR exon 19 deletion was treated with gefitinib and bone radiotherapy (RT). After 13 months, the patient presented oligoprogression with brain metastasis and underwent cerebral RT, maintaining gefitinib. At 24 months, presented systemic progression and a re-biopsy revealed SCLC combined with adenocarcinoma. Unfortunately, the patient suffered a rapid neurological deterioration and required hospitalization, dying 29 months after de initial diagnosis. Case report 2: A 35-year-old man, non-smoker, with lung adenocarcinoma (cT2aN0M0, stage IB) was submitted to right upper lobectomy. Pathological staging revealed a stage IIA (pT2aN1R0) adenocarcinoma and the patient completed 4 cycles of adjuvant chemotherapy (carboplatin/navelbine). After 16 months of follow-up the patient experienced relapse with pleural metastasis. Pleural biopsy revealed an EGFR exon 19 deletion. Erlotinib was started with a partial response. After 12 months of treatment, the patient presented asymptomatic pleural progression and maintained erlotinib for more 6 months, when further pleural progression occurred associated with significant pain. A re-biopsy was performed revealing exon 20 T790M mutation. Osimertinib was started and a complete response was observed. After 20 months of osimertinib, the patient presented with brain metastasis (without systemic progression) and underwent cerebral RT. After 4 months, developed thoracic progression and a re-biopsy revealed persistence of exon 20 T790M mutation. The patient began chemotherapy (carboplatin/pemetrexed) but had rapid disease progression. Because of suspected endobronchial involvement underwent a bronchoscopy and bronchial biopsies showed phenotypic transformation to SCLC. A new line of chemotherapy was proposed; however, the patient suffered a rapid deterioration requiring hospitalization and dying, with overall survival of 6.5 years after the initial diagnosis.
Discussion: Tissue re-biopsy, after treatment with TKIs, allowed the identification of SCLC transformation as a resistance mechanism.

This mechanism can be responsible for progression to 1st/2nd generation TKIs, but also, to 3rd generation TKIs, being, as illustrated in these two cases, severe and rapidly progressive.

Keywords: *Non-small cell lung cancer. EGFR mutation. Small cell transformation.*

PC 052. EFFICACY AND RESISTANCE PROFILE OF OSIMERTINIB IN PRETREATED PATIENTS, WITH 1ST/2ND GENERATION TYROSINE KINASE INHIBITORS, WITH EGFR T790M-MUTATED NON-SMALL CELL LUNG CANCER

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Introduction: For non-small cell lung cancer (NSCLC) patients with epidermal growth factor receptor (EGFR) mutations tyrosine kinase inhibitors (TKIs) are the therapy of choice. However, tumors acquire resistance mechanisms, with the T790M exon 20 mutation being the most frequent, occurring in about 50-60% of the cases. Third generation TKIs, such as osimertinib, has shown efficacy in clinical trials; however, real-world data, particularly from the resistance profile, remains limited.
Methods: A retrospective analysis of T790M-mutated NSCLC patients, who initiated osimertinib between August 2016 and April 2019, was done to investigate osimertinib´s efficacy and resistance profile. Statistical analysis was performed with SPSS® v.25.
Results: Twenty-one patients were included, 12 (57.1%) female, mostly non-smokers (n = 18; 85.7%), mean age 65.9 ± 11.9 years. Exon 19 deletion and exon 21 L858R mutations were present in 17 (85%) and 3 (15%) cases, respectively. In all cases the first-line treatment was 1st/2nd generation TKI. Erlotinib was the most common TKI received prior to osimertinib (n = 16; 76.2%), followed by gefitinib (n = 4; 19%) and afatinib (n = 1; 4.8%). In most cases, osimertinib was started in 2nd line (n = 16, 76.2%) and 3rd or more lines in 5 cases (23.8%). In these cases, the 2nd line treatment was chemotherapy (ChT) (n = 4) and another TKI (n = 1). The median duration between 1st line treatment and osimertinib was 27.0 (IQR 28.7) months. An objective response and disease control were observed in 47.7% (9 partial responses; 1 complete response) and 81% (7 with stable disease), respectively. The median duration of osimertinib treatment was 10.9 (IQR 19.8) months. Of the 17 cases showing an objective response/disease control, 7 (43.7%) subsequently progressed, of which 6 underwent re-biopsy. The T790M mutation became undetectable in 3 of these cases (50%). In the T790M-persistent group, there was one case of newly developed exon 20 C797S mutation. Other molecular changes were also found, MET amplification (n = 1), PIK3CA mutation (n = 1) and in one case, histological transformation in small cell carcinoma. After disease progression, osimertinib was continued in three patients, two in association with local treatment. In four cases a new treatment was started: ChT (n = 2) and another TKI (n = 2). Median progression-free survival (PFS), since osimertinib, was 20.3 (95%CI: 12.0-28.5) and median overall survival (OS) was 29.6 months (95%CI: 0.0-60.9). Nine (42.9%) patients died during follow-up. Median OS since diagnosis was 76.5 months (95%CI: 19.6-133.4).
Conclusions: In pre-treated patients with T790M-mutated NSCLC, osimertinib had a good efficacy profile, comparable to the observed in clinical trials. Re-biopsy after the acquisition of resistance to osimertinib is extremely important to understand the mechanism of resistance involved and to direct further treatment strategies and thus contributing to increase patient's survival.

Keywords: *Non-small cell lung cancer. EGFR mutation. Tyrosine kinase inhibitors. Osimertinib.*

PC 053. METASTATIC TYPICAL PULMONARY CARCINOID. A RARE ENTITY

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Introduction: Bronchial carcinoids, well-differentiated neuroendocrine tumors of the lung, are rare neoplasms that are usually characterized by an indolent behavior. Typical carcinoids account for about 2% of primary lung neoplasms and are low-grade malignant neuroendocrine tumors, figuring in the most benign end of the spectrum.
Case report: 66-year-old woman, former smoker, with history of Steinert myotonic dystrophy who conditioned pacemaker implantation due to atrioventricular block. Previously asymptomatic, she describes involuntary weight loss with loss of about 13 kg in one year, associated with increasing asthenia, diurnal hypersolence, epigastric pain and heartburn. She underwent abdominal ultrasonography that showed liver nodular lesions suspected of malignancy. A complementary abdominal CT study showed nodular, solid, hypoechogenic liver and pancreatic lesions suggestive of a neoformative etiology. Thoracic CT identified, in the middle lobe in paramediastinal topography, a dense nodule with irregular contours, suspected of primary neoplasia. A liver biopsy was performed, identifying well-differentiated hepatic parenchyma with infiltration by a neuroendocrine tumor, with no necrosis foci, with less than 2 mitoses/2 mm^2 and positive immunophenotypic study for chromogranin, synaptophysine, CD56 and TTF-1, compatible with hepatic metastasis. typical lung carcinoid. Serum elevation of chromogranin A (420 ng/mL). Negative 5-HIAA in urine assay. She underwent PET Gallium that documented malignant pulmonary neoplasia with moderate-expression of somatostatin receptors, without other foci of somatostatin receptor hyperexpression. She started systemic palliative treatment with lanreotide 120 mg SC every 28 days. Stable disease under treatment with decreased chromogranin A levels.
Discussion: This case, metastasized at the time of the diagnosis, corresponds to a small percentage of typical carcinoids. Typical carcinoids are the neuroendocrine tumors of the lung with the lowest mitotic index, with low rates of metastasis that, when occur, are mostly limited to regional lymph nodes. The most common clinical findings are nonspecific respiratory signs and symptoms; however, most patients are asymptomatic at presentation, and the diagnosis is the result of imaging findings. As mentioned before, cases like this with distant metastasis are rare, and this clinic presentation can be justified by the metastization pattern found. Given the age, smoking burden, clinical presentation and metastasis pattern identified, the most likely differential diagnoses would be epithelial tumors, namely adenocarcinomas, reinforcing the fundamental importance of the anatomopathological evaluation. Although they generally have a good prognosis, in the rare cases of typical lung carcinoids metastasized at diagnosis, the expected survival rate at 5 years is only 27%.

Keywords: *Neuroendocrine tumors. Typical carcinoid. Metastasis.*

PC 054. INTRATHORACIC DESMOID FIBROMATOSIS: A RARE TUMOUR

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Introduction: Desmoid tumours (DTs) are rare mesenchymal neoplasms, accounting for 0.03% of all neoplasms. In general population the estimated incidence is 2-4 cases/million/year. Despite of being locally invasive, the histological findings are bland without meta-

static potential. DTs can rise at any body site and the first line of treatment is the surgical resection. DTs can be sporadic, whose aetiology remains unclear, localized extra-abdominally or in the abdominal wall. On the other hand, the hereditary type occurs in patients with familial adenomatous polyposis (FAP) and causes intra-abdominal DTs. Approximately two-thirds of all DTs are intra-abdominal.
Case report: A 20 years old woman, born in Saint Tome Island, without any medical records, referred to our Hospital with clinical history of tiredness, epigastric pain and iron deficiency anaemia, during the last 4 months. Upper endoscopy was normal. X-ray and Computed Tomography (CT) scan revealed a large, homogeneously expansive mass with 13.3 × 9.2 cm, occupying anterior mediastinum and left hemithorax. The resected tumour mass weighted 1,419 g and measured 17.5 × 10.5 × 10 cm. Microscopically, the tumour was composed by paucicellular spindle cell proliferation in predominant hyaline collagenous stroma, supporting distinctive subtle vascular pattern. The spindle cells expressed vimentin and beta-catenin, were negative for CD34 and MUC4. This histologic and immunohistochemical findings were suitable with desmoid tumour.
Discussion: Intra-thoracic DTs are extremely rare, approximately 40 case reports have been published. We report a case of intrathoracic DTs, presenting as a large unique intrathoracic mass in a young woman. Intra-thoracic DTs are typically clinically silent until they are incidentally discovered or until they begin to compromise mediastinum structures. In our case, the tumour was clinically silent until it grew large enough to begin to compressing the mediastinum, reducing the pulmonary area and pressing neuro-vascular structures.
We thank Professor Jeffrey Myers for his diagnosis complement.

Keywords: *Desmoid tumour. Fibromatosis. Thorax. Mediastinum.*

PC 055. INFLAMMATORY MYOFIBROBLASTIC TUMOUR OF THE LUNG: A CLINICAL CHALLENGE

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Introduction: Inflammatory myofibroblastic tumor (IMT) of the lung (also known as plasma cell granuloma) includes a spectrum of pulmonary lesions and is a rare benign lesion. Such lesions most commonly present as solitary pulmonary nodules, but can also be locally invasive. It is currently unclear whether these lesions represent a primary inflammatory process versus a low-grade malignancy with a prominent inflammatory response.
Case report: A 70-year old woman, non-smoker presented in pulmonology consultation with an 8-month history of progressive exertional breathlessness, asthenia and cough. No major changes at physical examination were observed. Blood analysis showed hypochromic and microcytic anemia; chest radiograph revealed a left lower lobe lung mass with regular shaping. Follow-up chest computed tomography revealed a persistent 47 × 40 mm left lower lobe mass with a PET scan showing a metabolically active lesion and areas of fludeoxyglucose F18 uptake in both pulmonary hila, suggestive of lung cancer with ganglionar metastization. The flexible bronchoscopy revealed an obstructive lesion in the left inferior lobar bronchus. The bronchial biopsies and CT-guided transthoracic biopsy of the lung mass showed an inflammatory lesion. A rigid therapeutic and diagnostic bronchoscopy was performed and the larger biopsy specimen yielded a diagnosis of pulmonary plasmacytoma. In order to obtain a precise and definite diagnosis, the patient was submitted to a surgical biopsy. The histology of the surgical biopsy revealed a mesenchymal neoplasm with mixed inflammatory infiltrate, composed predominantly of lymphocytes and plasma cells. Neoplastic cells were positive for vimentin, CD68 and caldesmon and negative for ALK, CK7, CD34, CK5.6 and pS100. These pathological features were compatible with inflammatory myofibroblastic tumour (IMT). The patient was submitted to an inferior lobectomy and remains asymptomatic with no recurrence or residual disease in follow-up imaging.
Discussion: IMT is a rare disease that represents 1% of lung neoplasms. Due to the heterogeneous population of plasma cells, lymphocytes, eosinophils, histiocytes, and mesenchymal cells, definite diagnosis by needle biopsies is difficult. It was previously considered to be a type of inflammatory pseudotumor but is currently described as a clonal neoplasm with myofibroblastic differentiation and anaplastic lymphoma receptor tyrosine kinase (ALK)-1 overexpression. Surgical resection is the recommended treatment. However in unresectable cases, steroids, radiotherapy, and chemotherapy have been tried, with limited success. Crizotinib, an ALK tyrosine kinase inhibitor, showed good response in unresectable cases with ALK rearrangement.

Keywords: *Inflammatory myofibroblastic tumour. Rigid bronchoscopy. Lobectomy.*

PC 056. AN UNLIKELY DIAGNOSIS IN A YOUNG ADULT

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Case report: An 18 year old male patient, non smoker, with no significant personal or familiar medical history, presented at our Emergency Department with a clinical picture of productive cough with bloody sputum, over a period of 3 days. There were no report of fever, night sweats, wheeze or chest pain. At physical examination the patient was hemodynamically stable and without signs of respiratory distress. Baseline investigations were done, which included a chest X-ray, revealing an intrapulmonary nodular structure behind the heart, suggesting a posterior left lower lobe mass. A Thoracic CT confirmed an endobronchial lesion with origin in the apical segment of the left lower lobe, with slightly irregular contours, and 5.5 cm of largest diameter. The patient was submitted to rigid bronchoscopy, under general anesthesia, with visualization of the bloody mass infiltrating the superior segmental bronchus of the left lower lobe (B6). Directed bronchial biopsies were performed, as well as, laser therapy with reduction of the lesion. The anatomopathological study revealed a malignant biphasic tissue with epithelial and mesenchymal components, with positive immunohistochemistry to cytokeratin AE 1/3 and TTF1 (confirming the epithelial component) and to vimentin and muscle actin (confirming the mesenchymal component), suggesting the diagnosis of high grade pulmonary blastoma. Following the realization of all staging investigations, the clinical TNM group was considered to be cT3N0M0 (Stage IIB) according to the 8th edition TNM Classification for Lung Cancer, and the patient was submitted to left lower lobectomy, sleeve resection of the bronchus, partial pleurectomy and mediastinal lymphadenectomy. The histological type of blastoma was confirmed, and the involvement of pleural tissue with tumor implants was documented. The pathological TNM classification (pT3N0M1a) included the patient into a higher staging group (Stage IVA) than was previously expected. In this context, the patient was proposed to adjuvant chemotherapy with cisplatin and etoposide.
Discussion: Pulmonary blastoma is a rare, aggressive tumor that accounts for 0.25 to 1% of all primary lung tumors. It was named for its microscopic similarity with the fetal lung at 10th-16th week stage of development. Despite its assumed embryonal origin, about 80% of pulmonary blastomas occur in adults, with a peak incidence in fourth decade of life. It can present with symptoms of cough, dyspnea, hemoptysis and/or chest pain. However, nearly half of the cases are asymptomatic, and discovered incidentally. On imaging studies, pulmonary blastomas appear as large, solitary masses with smooth margins, most commonly located at the lung periphery. Invasion of pleura is possible, and endobronchial growth is present in

25% of cases. Microscopically, the classic pulmonary blastoma is biphasic in nature, comprising both primitive epithelial and mesenchymal malignant components. Complete surgical resection is the only known curative therapy although adjuvant chemo and/or radiotherapy may be applied in selected cases. The prognosis is generally poor with an overall 5-year survival around 15-30%.

Keywords: *Endobronchial lesion. Blastoma. Lobectomy.*

PC 057. TRANSFORMATION FROM LUNG ADENOCARCINOMA TO SMALL CELL LUNG CANCER AS A MECHANISM OF RESISTANCE TO TKIS THERAPY: REPORT OF TWO CASES

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Introduction: EGFR-tyrosine kinase inhibitor (TKI) therapy is the mainstay treatment for patients with EGFR mutant non-small cell lung carcinoma (NSCLC) but drug resistance invariably emerges with a median time to disease progression of about 12 months. There are several documented mechanisms of resistance to EGFR TKIs. The most common is the occurrence of T790M mutation, followed by amplification of the MET receptor tyrosine kinase. Transformation to small cell lung carcinoma (SCLC) is considered to be a rare resistance mechanism of EGFR-TKI therapy. The authors report two cases of acquired EGFR-TKI resistance through transformation to small cell lung carcinoma.
Case reports: Case 1: 65-year-old women, with no smoking history, presented with a right pleural effusion. Pleural biopsy revealed lung adenocarcinoma with a predominantly micropapillary pattern and negative PDL1 expression. Genotyping revealed EGFR deletion mutation. Stage IV (T4N2M1c) lung cancer with brain metastasis was detected. First line therapy with Afatinib was started with good initial response. However, after 9 months of treatment, progression was detected and CT guided percutaneous pulmonary biopsy was performed to search for EGFR TKI resistance mutations. The biopsy sample was histologically and immunohistochemically compatible with SCLC leading to therapy change to carboplatin and etoposide with good response. Case 2: 73-year-old women, with no smoking history, presented with hemoptysis. Thorax CT scan identified a lung mass and bronchial biopsy performed by bronchoscopy revealed lung adenocarcinoma with positive PDL1 expression in 5% of the cells. At diagnosis, cancer was at stage IV (T3N3M1c) with bone and liver metastasis. Genotyping revealed EGFR deletion and therefore patient started with first line therapy with Gefitinib with good initial response. After 6 months, progression was detected, and the patient was re-biopsed to search for EGFR TKI resistance mutations. The biopsy sample revealed SCLC and therefore the patient started chemotherapy with carboplatin and etoposide with good response.
Discussion: Among the different pathways of resistance to EGFR-TKIs, the switch to SCLC histotype is described, however, the underlying mechanism remains unclear. Although it is considered rare, Sequist et al. showed a fundamental histology transformation from NSCLC to SCLC at the time of TKI resistance in 5 (14%) of the 37 patients studied. After the histological switch to SCLC, chemotherapy consisting of platinum and etoposide is effective initially, but overall survival is short. Moreover, there are not enough data to determine whether continued EGFR-TKI treatment brings any further clinical benefit. Transformed SCLC may represent a new subgroup with previous NSCLC, an EGFR mutation, no standard treatment and short overall survival compared to classic SCLC. The authors aim to raise awareness of the value of re-biopying the tumor throughout the course of a patient's disease, especially while managing drug resistance to determine the best treatment regimen.

Keywords: *Lung adenocarcinoma. EGFR mutation. EGFR TKI resistance. Small cell lung cancer switch.*

PC 058. THE EXPERIENCE WITH ALECTINIB IN CONTROLLING BRAIN METASTASIS OF NSCLC ALK +

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Introduction: Lung cancer is one of the leading causes of death worldwide. Investigation of epidermal growth factor receptor (EGFR) and anaplastic lymphoma kinase (ALK) mutations has led to the establishment of targeted therapy with tyrosine kinase inhibitors (TKI), thus ushering in a new era in lung cancer therapy. ALK translocations are observed in approximately 5% of patients with non-small cell lung cancer (NSCLC). These patients have a higher risk of developing brain metastases compared to other sub-types of CPNPC, which dramatically influences the patient's quality of life.
Objectives: To evaluate the therapeutic response of the central nervous system (CNS) to Alectinib in CPNCP ALK + patients with initial metastasis or following therapy with another TKI.
Results: Twelve patients with adenocarcinoma and brain metastasis were treated with Alectinib. The average age was 50.08 years (min. 32 and max. 76). Regarding smoking, eight patients were non-smokers (66.7%), two smokers (with a mean smoking load (SL) of 55 PY) and the other two former smokers (with a mean SL of 12.5 PY). Regarding the performance status (PS) of these patients, four had a PS 0, six with PS 1 and two with PS 2. In six patients, the initial clinical condition was adenocarcinoma with brain metastasis and Alectinib was used as the first line of TKI. In the remaining six patients, brain metastasis appeared following treatment with Crizotinib with Alectinib being used as the second line of therapy. Regarding local therapy, two patients had whole-brain radiation therapy; one underwent surgical resection and another stereotactic radiosurgery. The remaining eight patients had no neurological symptoms and were not subjected to local therapy. So far, ten patients had imaging re-evaluation (MRI/CT-CE) after three cycles, with imaging improvement being observed in all patients; five patients with complete response and five patients with partial response. Of the three deceased patients, only one had CNS disease progression.
Conclusions: Our data corroborate the medical literature regarding CNS disease control with the use of Alectinib, which is an important factor to take into account in the therapeutic proposal for these patients. It is important to emphasize the early detection of brain metastasis in ALK+ patients.

Keywords: *NSCLC. Brain metastasis. ALK. Alectinib.*

PC 059. PEMBROLIZUMAB FIRST-LINE TREATMENT OF PATIENTS WITH NON-SMALL CELL LUNG CANCER

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Introduction: The treatment with pembrolizumab is recent and is currently indicated as first line in patients with stage IV non-small cell lung cancer (NSCLC) with PDL1 expression greater than 50%. In this group of patients, pembrolizumab was shown to be superior to conventional chemotherapy.
Objectives: The aim of this study is to verify the clinical results of first line pembrolizumab treatment in patients with non-small cell lung cancer.
Methods: Review of the clinical files of patients followed at Hospital Pulido Valente Oncology Pulmonology consultation treated with pembrolizumab as 1st line treatment from September 2017 to August 2019. Statistical analysis was performed using SPSS® v24 and progression-free survival (PFS) using Kaplan Meier curves was analyzed.

Effects on patients' quality of life, side effects and impact of pembrolizumab were also analyzed according to the different levels of PD-L1 expression.
Results: Forty-one patients were included in this analysis, 61% male (n = 25). The average age was 64 years (44-77 years). In this sample, 19.5% (n = 8) were non-smokers, 39% (n = 16) were former smokers and 41.4% (n = 17) active smokers and at the beginning of the treatment, 75.6% (n = 31) of the patients had Performance Status (PS) between 0 and 1, with the remaining 24.4% PS ≥ 2. There were 16 patients in stage IVA and from the 25 patients in stage IVB, 9 had metastasis at one site, 7 at two sites and 9 at three or more extrapulmonary sites. The median progression free survival (PFS) was 7.8 months (95%CI 5.2-9.2). Only two patients discontinued pembrolizumab, both due to grade 3 maculopapular rash. Regarding effects on quality of life, 56% of patients (n = 23) showed symptomatic improvement at the end of the first course of treatment. Regarding the impact of different levels of PD-L1 expression, median PFS was found to be longer (10.7 months) in patients with expression level ≥ 90% (n = 11) compared to patients with 50-89% (n = 30), where the median PFS is 6.9 months (p = 0.01), and these results are independent of patients' PS at initiation of therapy, as well as the number of metastatic sites.
Conclusions: In this study it was found that among patients treated with first-line pembrolizumab, significantly better results were obtained in the subgroup of patients with PDL1 expression level ≥ 90% regardless of the degree of metastasis or Performance Status of patients at the beginning of the treatment.

Keywords: *Pembrolizumab. PDL-1. Cancer. Lung.*

PC 060. QUALITY OF LIFE AS PRIORITY: INDWELLING PLEURAL CATHETER IN MALIGNANT PLEURAL EFFUSION

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Introduction: Malignant pleural effusion (PE) is a frequent complication in cancer patients and may become recurrent despite active antineoplastic therapy. It is usually symptomatic (dyspnea; chest pain), bulky and implies functional limitation, with severe repercussions on patients' quality of life. It corresponds to the manifestation of advanced and systemically disseminated malignant disease, and its palliative treatment (symptomatic relief) is based on the survival expectation, ability to perform daily activities, symptomatology and underlying disease. The approach to PE involves evacuating thoracentesis, pleuro-peritoneal shunts, pleurodesis (not always possible/successful) or placement of an indwelling pleural catheter. The latter allows a different approach of recurrent PE, being less invasive, allowing the drainage of the effusion at home by the patient, obviating successive thoracocenteses, and bringing the possibility of inducing spontaneous pleurodesis (up to 50%). With the initiation of anti-neoplastic therapy, including chemotherapy, questions are raised regarding safety and increased risk of infection, given the immunosuppression associated with therapy.
Case report: The authors present a case report of a 70-year-old male, active smoker (50 pack-year), who went to the ED because of dyspnea, asthenia, anorexia and weight loss. From the initial investigation a left PE stands out. He underwent thoraco-abdominal-pelvic-CT which showed: occlusion in its division of the LMB with consequent collapse of practically the entire left pulmonary parenchyma and bulky left PE. He underwent thoracentesis that was compatible with neoplastic PE and bronchofibroscopy, where occlusion of all segmental bronchi of LMB was seen by apparent extrinsic compression, with suspected unconfirmed tumour infiltration of the LUL bronchial mucosa. On recurrence of PE, he underwent pleural biopsy and new thoracentesis, compatible with lung adenocarcinoma. The remaining staging showed unchanged Cranial-CT and PET/CT with abnormal left pleural metabolism. He was discharged to the Onco-Pulmonology Consultation, but returned to the ED because of worsening dyspnea and cough with mucopurulent sputum. The study highlighted increased PE and inflammation parameters. An obstructive pneumonia was assumed, treated with meropenem with clinical resolution. Because of the relapsing PE a thoracic drainage was placed although without complete pulmonary expansion. In this context, he underwent a Chest-CT that showed broncho-pleural fistula. Long-term drain placement was chosen, given the low probability of pulmonary expansion and follow-up in Onco-Pulmonology Consultation was maintained, having completed 4 QT cycles without infectious complications. Initially, there was a need for frequent evacuations of the effusion, currently neither with need of drainage nor with radiological aggravation on follow-up, being considered the removal of the catheter.
Discussion: Placement of long-term drains represents a new and less invasive approach to malignant PE, predominantly aimed at controlling dyspnea, evacuating the fluid at home comfort, avoiding multiple health services visits and preserving the patient's quality of life. The possibility of spontaneous pleurodesis represents one of the advantages of this technique, which also allows the simultaneous performance of systemic antineoplastic therapy, adding the infectious risk for which special attention should be paid. The authors highlight the increasing use of this type of drainage, promoting the sharing of experience among pulmonologists, in order to extend it to more patients and possible indications.

Keywords: *Indwelling pleural catheters. Recurrent pleural effusion.*

PC 061. PULMONARY PLEOMORPHIC CARCINOMA, A RARE AND AGRESSIVE SUBTYPE OF NON-SMALL CELL LUNG CANCER: CASE REPORT AND LITERATURE REVIEW

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Introduction: Pulmonary pleomorphic carcinoma (PC) is a rare malignant tumor of the lung and its incidence has been estimated to be 0.1% to 0.4% of all lung cancer. According to the revised 2004 World Health Organization (WHO) classification, PC was grouped as a specific type of lung cancer with pleomorphic, sarcomatoid, or sarcomatous elements. PC has a more aggressive clinical course and a worse outcome than other nonsmall cell lung cancer (NSCLC).
Case report: We report the case of a 56 year-old-male, former smoker (60 pack years). He presented with a left cervical tumefaction since November 2017 with a progressive size increase. In May 2018 he was admitted for asthenia and dyspnea with 2 months of evolution, without fever, thoracalgia, cough, hemoptysis or nocturnal hypersudoresis. He underwent cervical ultrasound (27-08-2018) showing left cervical adenopathy and an adenopathic conglomerate. On chest CT (29-08-2018) it was seen a left mediastinal mass (12 × 7 cm) with left hilar involvement and apical extension with strong invasive mediastinal component with atelectasis. Admitted to IPO Porto in early September 2018, at that time with complaints of anorexia and significant weight loss (about 10 kg in 2 months) and abdominal pain in left superior quadrant, with left thoracic and back-lumbar irradiation. He also present a new onset of dysphonia since late August. On physical examination it was seen a left cervical adenopathic conglomerate; he was eupneic, with abolition of respiratory sounds through the upper two thirds of the left hemithorax, with no signs of thoracic collateral circulation, edema or flushing of the face or limbs. It was performed an aspiration biopsy of the left cervical adenopathy, whose histological result was inconclusive (unrepresentative sample). During diagnostic investigation he was admitted in the Oncology Ward due to worsening of general condition and uncontrolled thoracalgia. The Chest CT performed on 06/11/2018 showed a significant dimensional increase of the lung mass (18.5 × 10 × 19.2 cm), contralateral mediastinal deviation, pleural effusion, and nodular thickening of the

pleural leaflets. It was requested a pulmonary biopsy that was diagnostic for poorly differentiated carcinoma- pulmonary pleomorphic carcinoma (EGFR, ALK and ROS negative; PDL1 < 10%). The clinical course of hospitalization was favorable, with pain control and improvement of dyspnea, so he was discharged and it was planned to start systemic treatment with carboplatin and paclitaxel. Unfortunately, two days after discharge the patient was admitted in cardiopulmonary arrest and he died.
Discussion: The authors highlight this case because of the exuberance of the clinical and imaging presentation. There was a sharp dimensional increase of the tumor, which dictated an unfavorable final evolution prior to the beginning of systemic therapy, confirming the aggressiveness of the clinical behavior of these tumors.

Keywords: *Pleomorphic carcinoma. Rare histological subtype.*

PC 062. SYNCHRONOUS TUMORS. THE METASTASES AT THE CENTER OF DISCUSSION

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Introduction: Synchronous tumors diagnosis is essential to define the therapeutic approach and to establish prognosis. In some cases, malignancies from different origins may be diagnosed. The authors present the case of a patient diagnosed with lung adenocarcinoma and thyroid papillary carcinoma. The malignancies were not diagnosed simultaneously which led to alteration of the therapeutic strategy and prognosis.
Case report: Female, 56 years old, non-smoking, asymptomatic. Chest X-ray: nodular hypotransparency in the right pulmonary base. Chest CT: ground glass nodular lesion in the right pulmonary lobe of 3.4 × 2 cm. Multiple secondary micronodules in the middle lobe, lingula and left lower lobe. Transthoracic lung biopsy (29/11/2017): Lepidic-predominant adenocarcinoma of the lung. PET CT (12/15/2017): "Nodular lesion in the right lover lobe with increased metabolism compatible with the diagnosis of lipid adenocarcinoma; micronodular pulmonary metastases. Hypermetabolic thyroid mass in the left lobe requiring proper study". Stage IV lung adenocarcinoma (T4N0M1 - pulmonary metastasis) was diagnosed; EGFR exon 21 positive; PD-L1 negative. The patient started tyrosine kinase inhibitor (TKI - erlotinib, which was changed to gefitinib due to severe dermatological toxicity), with decrease of the size of major lung lesion, but the number and size of the pulmonary micronodules increased. She maintained a performance status of 0. The patient choosed to investigate the thyroid mass at another institution. She was diagnosed a papillary thyroid carcinoma and underwent total thyroidectomy; no need for adjuvant therapy. However, elevated follow-up thyroglobulin was detected (28.130 - cut-off 77 ng/mL). Given the increase of the number of pulmonary micronodules (despite the response of the larger lesion to TKI therapy) and elevated thyroglobulin in a thyroidectomized patient, it was hypothesized that these micronodules could be secondary to the papillary thyroid carcinoma and not the lung adenocarcinoma. The case was discussed in a multidisciplinary meeting. The patient underwent thoracic surgery for extemporaneous examination of the micronodules which were compatible with thyroid carcinoma metastases. Therefore, she underwent right inferior lobectomy at the same surgical time to treat lung adenocarcinoma. Therefore, we considered: Stage I-A3 lung adenocarcinoma (T1cN0M0) - surgically treated, no evidence of relapse to date, follow in Pulmonology Consultation; Stage IV papillary thyroid carcinoma, under lenvatinib and followed in Oncology Consultation.
Conclusions: Papillary thyroid carcinoma is one of the most common endocrine cancers, but with a low rate of metastasis. Secondary pulmonary lesions can be easily confused with other pathologies or attributed to other cancers, in this case the lung adenocarcinoma that has a high rate of metastasis. The good response of lung adenocarcinoma to TKI at an early stage is also to be emphasized, which reinforces the question of its use as adjuvant therapy after surgery as has been investigated in some clinical trials.

Keywords: *Synchronous tumors diagnosis. Non-small cell lung carcinoma. Thyroid papillary carcinoma. Tyrosine kinase inhibitor.*

PC 063. OSIMERTINIB SAFETY PROFILE EVALUATION IN PATIENTS WITH NON-SMALL CELL LUNG CARCINOMA PREVIOUSLY TREATED WITH 1ST/2ND GENERATION TYROSINE KINASE INHIBITORS

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Introduction: Tyrosine kinase inhibitors (TKI) treatment changed the prognosis of patients with non-small cell lung cancer (NSCLC) in advanced stage with an epidermal growth factor receptor (EGFR) gene mutation. However, tumors tend to develop resistance to these agents, in 40.55% of cases with T790M mutation. Osimertinib, a 3rd generation TKI, has proven efficacy in patients that acquire this mutation.
Methods: A retrospective analysis of patients with NSCLC with T790M mutation of EGFR gene, which initiated osimertinib after treatment with 1st/2nd generation TKI. Safety and efficacy data is presented. Data was analysed in SPSS® 25th ed.
Results: Twenty-one patients were included, 57.1% female (n = 12) with a mean age at diagnosis of 65.9 ± 11.9 years. Osimertinib was initiated in 2nd line in 16 cases (76.2%) and in 3rd or more lines in 5 cases (23.8%). Adverse events (AE) were observed in 9 patients (42.9%), grade 1 in 6 patients (28.6%), grade 2 in one (4.8%) and grade 3 in two (9.5%). Rash (n = 4, 19%), diarrhea (n = 2, 9.5%) and paronychia (n = 1, 4.8%) were observed. The grade 3 AE were pneumonitis and osimertinib was definitely suspended. No hepatic, renal or cardiac abnormalities were found. Between patients with AE, an objective response was observed in 4 patients (44.4%) and progression in 2 (22.2%). Disease control rate in this group was 77.8% (3 patients with stable disease). Four patients died, none of them related to the AE. Comparing patients with and without AE, significant statistical differences were observed in age (74 vs 64.5 years; p = 0.03). This group presented, so far, a superior follow-up time to patient without AE (21.84 vs 6.83 months; p = 0.02), making the comparison between overall survival (OS) ans progression free survival (PFS) between these groups not possible. The group with AE presented a median OS since the beginning of osimertinib of 21.9 months (min-max, 8.4-35.7) and PFS of 20.3 months (min-max, 8.4-35.7). No diferences with statistical significance were found in other compared features (sex, smoking status, performance status at osimertinib initiation, response, death).
Conclusions: In this group of patients treated with osimertinib, AE were already reported in the clinical trials. Osimertinib is a safe and effective therapy and the occurrence of AE didn't have a negative impact in prognosis.

Keywords: *Non small cell lung carcinoma. Tyrosine kinase inhibitors.*

PC 064. DABRAFENIB AND TRAMETINIB. AN INNOVATIVE, EFFECTIVE AND WELL TOLERATED THERAPY

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Introduction: Advanced non-small-cell lung cancer (NSCLC) remains a challenging disease. The limited utility of chemotherapy indicates

the need for additional therapeutic options. Targeted therapy remains an important tool in the treatment of NSCLC with genetic changes. Mutations in the RAS-RAF-MEK-MAPK pathway, specifically the BRAF V600E mutation, have become an important target for the NSCLC patient subgroup with this mutation.
Case report: A 69-year-old, non-smoking woman with a personal history of lung adenocarcinoma who underwent right lower lobectomy in 2005. She was admitted on August 17, 2017 for recurrent right pleural effusion of unknown etiology. He underwent diagnostic and evacuating thoracentesis, and the pleural fluid was an exsudate and revealed negative microbiological exams. The cytology was positive for adenocarcinoma cells. Bronchofibroscopy was performed with evidence of bronchial stump with pearly tissue (granulation?) And swollen and hyperemic surrounding mucosa (infiltration?). She underwet bronchial and distal biopsies at B2 and B4 levels. Bronchoalveolar lavage for cytology that did not reveal alterations and thoracoabdominal-pelvic computed tomography showed right pleural effusion with pleural enhancement and thickening and pre-tracheal retrograde adenopathy with 16 mm shorter axis. She underwent a new thoracentesis with 350 cc drainage of serofibrinous fluid and pleural biopsies that established the diagnosis of lung adenocarcinoma (CK7 and TTF1 +) with mutation V600 in exon 15 of the BRAF gene. Due to increased abdominal volume and evidence of ascites associated with densification of mesenteric fat and micronodular outline translating peritoneal dissemination in a new computed tomography, paracentesis with 2,100 cc outflow of serohematic fluid was performed. He started therapy with Dabrafenib and Trametinib on 11/30/2017 with good tolerance and evidence of clinical and imaging response at the 4th cycle, with clear reduction of pleural thickening, no pathological mediastinal adenopathy or no signs of peritoneal carcinomatosis or ascites. Currently the patient is in the 20th cycle maintaining response.
Discussion: As the case report illustrates, BRAF mutation research is important since targeted therapy controls the disease more effectively and provides a better quality of life.

***Keywords**: Lung adenocarcinoma. BRAF. V600 mutation. Dabrafinib. Trametinib.*

PC 065. ADENOCARCINOMA METASTASIS. LUNG IS NOT ALWAYS THE BAD GUY

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Introduction: Lung adenocarcinoma natural history has changed since the use of epidermal growth factor receptor (EGFR) tyrosine kinase inhibitors (TKI) has begun. The possibility of identifying the 1st/2nd generation TKI resistance mutation increased the relevance of histological revaluation of the tumor. A case highlighting this is presented.
Case report: A 75 year-old woman, in September 2010, was diagnosed with a stage IVA lung adenocarcinoma with contralateral pulmonary metastasis, presenting with de novo hypoxemic respiratory insufficiency. An exon 19 deletion was identified and gefitinib was initiated in 1st line with complete resolution of respiratory symptoms and a partial response. She remained clinical and imagiologically stable over several years. In June 2017, presented with clinical deterioration and dyspnoea and thoracic disease progression was verified. Liquid biopsy was done without conclusions and a T790M mutation was identified in a transthoracic lung biopsy, with exon 19 deletion maintenance. Osimertinib was initiated and the patient returned to basal performance status (ECOG 0) and presented a partial response. In June 2018, following hematochezia was diagnosed with rectal adenocarcinoma. Anterior rectal resection was performed in January 2019 and adjuvanteradiotherapy was proposed, but refused by the patient. In June 2019, she was asymptomatic (ECOG 0) and in a follow-up CT scan multiple hepatic lesions were observed. The liver biopsy proved an adenocarcinoma compatible with a rectal cancer metastasis, so the therapy with osimertinib was maintained.
Discussion: This case illustrates the excellent response to TKI therapy of lung adenocarcinomas with EGFR mutation and the importance of histological revaluation, on the one hand for switching for osimertinib, on the other hand confirming the absence of lung cancer progression, confirming the maintenance of osimertinib therapy.

***Keywords**: Non small cell lung carcinoma. Tyrosine kinase inhibitors.*

PC 066. NIVOLUMAB EXPERIENCE IN NON-SMALL CELL LUNG CARCINOMA PATIENTS

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Introduction: Non-small cell lung carcinomas (NSCLC) represent more than 80% of lung cancer and are associated to important mortality rates. Immune checkpoint inhibitors have been gaining importance in the last years in NSCLC patients. Nivolumab is a IgG4 monoclonal antibody that targets the programmed death-1 (PD-1) receptor. Its use is approved after progression disease with standard chemotherapy.
Methods: Retrospective and statistical analysis (IBM-SPSS v25) was conducted on patients with advanced NSCLC, observed at Hospital de Dia de Pneumologia Oncológica do Hospital Pulido Valente and treated with Nivolumab (3 mg/Kg, every 2 weeks) from April 2015 until December 2018. PD-L1 expression was routinely determined since January 2018. RECIST criteria 1.1 was used to define treatment response at the 5th/6th cycle of Nivolumab. Progression-free survival (PFS) was determined from the first administration of Nivolumab until progression disease or the 31st December 2018 (in patients still undergoing treatment).
Results: Ninety-four patients were identified, of which 73.4% (n = 69) were male, with a mean age of 64.8 ± 10.6 years old. Most patients had smoking history (n = 76; 80.9%). The performance status (PS) was 0-1 in 73.4% (n = 69) of the patients and it was 2 in 26.6% (n = 25). Histologically, 60.6% (n = 57) of the patients had adenocarcinoma and 36.2% (n = 34) had epidermoid carcinoma. PD-L1 expression was unknown (n = 62; 65.6%) or negative (n = 29; 30.9%) in most patients. 93.6% (n = 88) of the patients had stage IV disease. Nivolumab was used as second-line treatment in 55.3% (n = 52), as third-line in 33.0% (n = 31), as fourth-line in 7.4% (n = 7) and as fifth/sixth-line in 4.2% (n = 4) of the cases. The median value of Nivolumab administrations was 6.0 [3.0-16.0]. The analysis of best treatment response to Nivolumab was performed in 76.6% (n = 72) of the cases: 43.1% (n = 31) had stable disease, 11.7% (n = 11) had partial response, 1.1% (n = 1) had complete response and 30.6% (n = 29) had progressive disease. The median value of PFS was 2.5 [1.1-8.2] months for all patients, 2.2 [0.9-6.8] months for adenocarcinoma patients and 3.0 [1.8-8.9] months for epidermoid carcinoma patients. There was no statistical significance (p = 0.14) in PFS between adenocarcinoma and epidermoid carcinoma. Twelve or more cycles of Nivolumab were used in 29 patients (30.9%) with a median PFS of 11.3 [8.2-23.4] months. There was no statistical significance (p = 0.17) in PFS between patients who underwent ≤ 2 previous treatments when compared to those who underwent > 2 previous treatments. The total number of deaths was 54 (57.4%), by the time of the analysis. Adverse effects were documented in 25.5% (n = 24) of the patients and in the most cases the grade was ≤ 2. Suspension of Nivolumab was only needed in five (5.3%) patients.

Conclusions: In spite of there being an important number of PS 2 patients and patients having > 2 previous treatments, in our study Nivolumab contributed to disease control. The overall survival wasn't analyzed because there were was still a significant number of alive patients at the time of analysis.

Keywords: *Nivolumab. Non-small cell lung carcinoma.*

PC 067. A RARE RHEUMATOLOGIC MANIFESTATION OF LUNG CANCER

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Introduction: Paraneoplastic syndromes (PS) are common manifestations in cancer, being more prevalent in lung cancer (10-20%). PS develop in parallel with the underlying cancer but sometimes may appear as the first clinical manifestation.
Case report: We present a case of a man, 69years-old, autonomous. Active smoker (80 pack-year unit). No known occupational exposure or drug allergies. He had history of diabetes and retroauricular surgery for skin cancer. Admitted in the emergency department, in April 2019, for a 5-month-old clinical expression of macula-papular erythematous rash (initially on the back and later on the face, right upper limb (UL), trunk and lower limbs (LL)), bilateral loss of strength (3/3) in both LL and myalgia. He reported fatigue for medium-high exertion (mMrc 1) associated with anorexia and weight loss (20 kg). In March he started coughing with mucous expectoration, odynophagia and dysphagia for solids. He denied fever, night sweats, chest pain, dyspnea, haemoptysis, dysphonia, vomiting, gastrointestinal or urinary changes, arthralgia or headache. At hospital admission, he was hemodynamically stable and conscious, exhibit a facial, cervical and anterior thorax rash (in the sun exposure regions) with apparent skin thickening; bilateral eyelid edema; erythematous desquamative plaques in the right UL, back, abdomen and LL. Oropharynx without changes. Bilateral axillary lymphadenopathy. No changes in cardio-pulmonary auscultation. A whole body computed tomography showed a pulmonary mass in the right upper lobe (20 mm) and several hepatic nodular lesions. Laboratory evaluation revealed a CK > 1,000 Ul/L and LDH 598 Ul/L. Study of autoimmunity and complement as well as thyroid, liver and renal function had no changes. It was performed a bronchofibroscopy and bronchial biopsies, where cytological and histological results were negative; and positron emission tomography which showed metabolic evidence on the lung mass, mediastinal and abdominal lymph nodes, liver and bone lesions. It was observed by the department of Rheumatology highlighting an erythematous maculopapular exanthema, Gottron's papules, heliotrope rash, erythematous plaques on the posterior face UL and anterior thighs, decreased muscle strength in the neck, deltoids and thighs, compatible with dermatomyositis. It was performed a magnetic resonance imaging of the thighs which was suggestive of myositis. Subsequently, the patient underwent ultrasound-guided endobronchial biopsy of the mediastinal lymph having been obtained the diagnosis of Small Cell Lung Cancer (SCLC) - pT4N2M1c – Stage IVB. In this context, dermatomyositis(DM) was admitted as PS in SCLC. The patient underwent intravenous immunoglobulin (IG) 1 g/kg (iv) for two days, with improvement of the exanthema extension and exuberance, peri-orbital edema and muscle strength, with a concomitant decrease in CK value (1,000 to 222 Ul/L). In June, he started Carboplatin/Etoposide chemotherapy (CT) and maintained IG monthly administration, with progressively improvement of muscle strength and skin changes.
Discussion: We want to draw attention in this case report to the extensive and exuberant musculoskeletal manifestations of a paraneoplastic DM that emerged as the first manifestation of a SCLC, highlighting the importance of rheumatological syndromes as PS. Given the advanced stage of DM, we chose to start treatment with IG, which although is not 1st line therapy, it has a good response rate in this type of patients, concomitantly with the use of directed CT.

Keywords: *Paraneoplastic syndrome. Dermatomyositis. Lung cancer.*

PC 068. PD-L1 EXPRESSION SELECTS PATIENTS FOR TK INHIBITORS TREATMENT IN PULMONARY CARCINOMAS

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Introduction: EGFR-mutant pulmonary carcinomas are an important molecular group of patients together with efficacy of PD-1/PD-L1 monoclonal antibodies treatment as clinically demonstrated. The NCCN guidelines do not recommend immunotherapy when EGFR mutations are present. Although some studies suggest EGFR-mutant lung cancer patients cannot benefit from PD-1/PD-L1 monoclonal antibody monotherapy probably because the activation of the EGFR signaling pathway in effective immune cells may create an immunosuppressive microenvironment in lung cancer resulting in no response of this type of lung cancer to anti-PD-1/PD-L1 treatment. Other studies suggest that PDL1 positivity in EGFR mutant metastatic pulmonary carcinoma cancer is known to portend poor prognosis due to resistance to TKIs.
Methods: Formalin-fixed paraffin-embedded microdissected tumoural tissue of 175 cases with represented tumoural cells analyzed for EGFR mutations by IdyllaTM EGFR Mutation Test (exons 18/19/20/21), ALK/ROS1 rearrangements screened by FISH with ZytoLight SPEC ALK/EML4 Tricheck e ZytoLight SPEC ROS1 probes, were compared with PD-L1 antibody 22C3 Dako expression applied with manufacturer validated protocol for Anatomical Pathology.
Results: In 10% of cases, there were simultaneous EGFR mutations or ALK/ROS1 rearrangements together with PD-L1 expression, comprising 13 cases with mutant EGFR and 4 cases with ALK or ROS1 rearrangements.
Conclusions: Based on preclinical studies, ERK pathway inhibitors, PD-L1/PD-1 inhibitors or combination strategies should be considered to overcome the TKI resistance and improve outcomes in lung cancer patients, thereby it is important to understand the heterogeneity of EGFR mutant tumors for establishing the benefit and moment of use of PD-L1 therapies.

Keywords: *EGFR. ALK. Ros1. PD-l1. Lung carcinomas.*

PC 069. ADENOID CYSTIC CARCINOMA OF THE LUNG AND TRACHEA: REVIEW OF 8 CASES

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Introduction: Cystic adenoid carcinoma is a type of salivary gland tumor that is characterized by its indolent growth and tendency to relapse. It is a rare type of primary lung and tracheal cancer, and as such there are few guidelines for the management of these patients.
Objectives and methods: To characterize patients with primary cystic adenoid carcinoma of the lung and trachea followed at our

hospital from 2007 to 2018. To this end, the clinical files of patients with this diagnosis were reviewed during the mentioned period.
Results: Eight cases of primary cystic adenoid carcinoma of the lung and trachea were identified. Patients had a mean age of 67 years at diagnosis, 6 (75%) were female and 2 were smokers. The clinical presentation was cough, dyspnoea and wheezing in most cases (5 patients), in one case the disease manifested as obstructive pneumonia and in 2 patients chest nodules were identified on thoracic CT performed for other reasons. 4 of the lesions were in the left lung, 2 in the right and 2 were tracheal neoplasms. In addition to tracheal tumors, there was endobronchial invasion in 3 of the other cases. At the time of diagnosis most patients had localized disease, there was only one case of N1 disease for hilar adenopathy (stage IIb) and one stage IV (bone metastasis). Five patients underwent surgical treatment (1 left pneumectomy, 1 lower bilobectomy, 2 atypical pulmonary resections (RPA) and 1 segmental excision of the trachea). One patient with primary tracheal neoplasia did not meet the conditions for surgical treatment, so bronchial deobstruction was performed with palliative intent followed by radiotherapy. The stage IV patient underwent vinorelbine chemotherapy (QT) with progression at 9 months. All patients who underwent surgical treatment had pulmonary recurrence of the neoplasia within an average of 24 months. 3 of these were reoperated (RPA metastasectomy) and 2 underwent QT with vinorelbine. The median follow-up was 5 years (one patient with unrelated death before starting treatment was excluded). Two patients died, one with an initial presentation in stage IV after 2 years of follow-up and another in stage IIb at 3 years.
Conclusions: Analysis of our population showed a higher average age compared to other studies but is consistent with respect to the most common clinical presentation in the form of obstructive symptoms and high relapse rates after surgery. Given the limitation of chemo and radiotherapy, surgery is the best therapeutic option and should be privileged in eligible patients even in cases of relapse. These are rare tumors that need multicenter analysis to define therapeutic guidelines.

Keywords: *Adenoid cystic carcinoma. Thoracic surgery.*

PC 070. LUNG CARCINOID TUMORS. 2005-2018 ANALYSIS OF A TERTIARY HOSPITAL

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Introduction: Well-differentiated lung neuroendocrine tumors, commonly known as carcinoid tumors, represent 1-2% of lung primary tumors and often have an indolent behaviour. The pathological discrimination between a typical carcinoid tumor (or low grade well-differentiated lung neuroendocrine tumor) or atypical carcinoid tumor (or intermediate grade well-differentiated lung neuroendocrine tumor) is only accurate in the surgical specimen.
Methods: Retrospective analysis of all cases of lung carcinoid tumors submitted to surgery in a tertiary hospital between 2005 and 2018.
Results: Ninety-three patients were included, 59.1% female with a mean age at diagnosis of 58.3 (22-79). Most of the patients were asymptomatic at diagnosis (56.5%) and the most frequent symptoms were cough and hemoptysis. Lung nodule was the principal presentation in imaging (70.1%), followed by mass (18.4%). In bronchoscopy, the majority have endobronchial lesions and bronchial biopsy (BB) was the sample which made the diagnosis more often (44%), followed by CT-guided transthoracic biopsy (TTB) (38.5%) and in 17.6% of the cases the diagnosis was only possible in the surgical specimen. Lobectomy was the principal surgical approach (71%). The final diagnosis of typical carcinoid was made in 67 patients (72%), atypical carcinoid in 25 (26.9%) and in one patient (1.1%) the histological discrimination was not possible. In 3 patients with typical carcinoid in BB/TTB, the surgical specimen revealed an atypical carcinoid, the reverse situation was not observed. Most frequent TNM staging was IA (59.1%), node involvement was rarer (N0- 83.3%, N1- 7.8%, N2- 8.9%) and 94.6% present with free margins. Six patients (6.5%) presented progression with extra-thoracic metastasis with a mean progression free survival (PFS) of 4.1 years (± 3.4), being mostly atypical carcinoids (n = 4), without node involvement (n = 5) and with free surgical margins (n = 5). Four of these patients are currently under somatostatin analogue, presenting overall survivals between 2 and 11 years and PFS between 1 and 9 years. Eight patients deceased (8.6%) and only in two of them the death was tumor related, both were atypical carcinoids.
Conclusions: Well-differentiated lung neuroendocrine tumors or carcinoid tumors differ substantially from other lung primary neoplasms. The long follow-up is important, since progression over five years post surgical resection is observed, regardless of stating; however, it is still a good prognosis lung neoplasm.

Keywords: *Carcinoid tumors. Neuroendocrine tumors.*

PC 071. QLQ-LC29 ADAPTATION FOR PORTUGUESE LANGUAGE AND POPULATION

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Introduction: Lung cancer (LC) is usually diagnosed in advanced stages and is the first cause of cancer-related mortality worldwide. The comparison between treatments for lung cancer is made by response rates, progression-free survival and overall survival but the side effects and quality of life impact are also crucial points to have in count. Considering the quality of life (QoL) growing importance, the European Organization for Research and Treatment of Cancer (EORTC) has been developing several quality of life questionnaires, like the QLQ-C30, the most widely used instrument in patients with cancer. The first EORTC questionnaire for LC (QLQ-LC13) was published in 1994 but since then major advances have been made. Recognizing the developments, the EORTC QoL group decided to update the QLQ-LC13 to QLQ-LC29, in a four-phase project. During phase1, a comprehensive list of QoL issues relevant to LC patients was generated, using different sources of information. Upon phase2 the issues identified as relevant in phase I was transformed into questionnaire items according to the EORTC QLQ format, which was refined by phase3. A total of 308 patients participated in the 3 phases. Currently, it's in the fourth step, aimed for the validation of the psychometric properties of the QLQ-LC29.
Objectives: To adapt the QLQ-LC29 for Portuguese language and population.
Methods: This is a prospective study made in cooperation with EORTC Translation Unit. It followed EORTC translation guidelines, involving the translation for Portuguese and style uniformization with the EORTC Portuguese portfolio. The final questionnaire was distributed to a LC population. All patients could read and answered the questionnaire by themselves. In the end, the participants were individually asked about potential problems for each question. 10 participants were included in this study, 5 females, with a median age of 56.5 years (50-70 years). They presented the diagnoses of lung adenocarcinoma (n = 5), small cell lung cancer (n = 2), lung squamous cell carcinoma(n = 1), large cell neuroendocrine carcinoma(n = 1) and typical carcinoid tumor (n = 1). Half of the cases (n = 5) were in advanced stages (> IIIA). 2 participants were on the third line of treatment while the majority of the rest (n = 7) were on the first line. 8 patients were submitted to chemotherapy

(in 3 cases as adjuvant therapy) and 1 patient was submitted to immunotherapy. Surgery was performed to 3 patients. Radiotherapy was included in the treatment of 2 patients (one of them as adjuvant).
Results: The participants answered to 100% of the questionnaire and did not present any problem concerning the difficulty or the understanding of the questions or the choice of words. Two patients asked to confirm the answer of the 54 question in their cases that were gaining height, but they had answered properly.
Conclusions: The population included in the study was diversified in age, sex, histology, stage, and types of treatments reinforcing the value of this adaptation. The participants provided excellent feedback about the comprehension and applicability of the questionnaire, making no modifications necessary. This was the first step for the Portuguese utilization of this high-value instrument for measuring the health-related QoL of LC Portuguese patients.

Keywords: *Quality of life. Lung cancer.*

PC 072. CARDIAC METASTASES OF LUNG CANCER. A RARE BUT OMINOUS DIAGNOSIS

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Introduction: Although lung cancer is the most common malignancies worldwide, cardiac metastasis is rarely described in literature. In the majority of patients (pts), cardiac metastases are silent and entail a poor prognosis. Even when present, symptoms may be masked by the clinical manifestations of advanced lung cancer. Echocardiography is the imaging exam of choice, with transesophageal echocardiogram (TEE) granting better visualization of the atria and the great vessels than transthoracic echo (TTE), computed tomography (CT) or magnetic resonance imaging (MRI). Purpose: To review patients (pts) with lung carcinoma and echocardiographic findings of cardiac metastases, either by TTE or TEE, in a tertiary center between 1997 and 2019.
Methods: Retrospective analysis of clinical data from the digital files, echocardiographic assessment of cardiac metastases location, dimensions and morphology, CT assessment of lung carcinoma location and dimensions, as well as histology results and survival outcomes.
Results: A total of 4 cases of cardiac metastases were diagnosed: 3 cases of primary lung carcinoma, and 1 case of bladder cancer with lung metastases. The mean age of pts at time of diagnosis was 66 ± 11 years, 75% male gender, all with a history of heavy smoking habits (75 ± 18 pack years). The most frequent presentation was persistent cough, chest pain or weight loss. No significant arrhythmias, symptoms of heart failure or valve obstruction were noted. The most common histological types of primary lung cancer were adenocarcinoma (2 cases) and squamous cell carcinoma (1 case), located in the left hilum, left upper lobe and left lower lobe, respectively. The mean dimensions of lung carcinoma on CT were 59 ± 23 × 63 ± 49 × 55 ± 37 mm. The most common locations of cardiac invasion were the pericardium (2 pts, by direct extension from the adjacent lung) and left atrium (2 pts, by transvenous invasion through the left superior pulmonary vein), with mean dimensions of 23 ± 4 × 30 ± 3 mm in TTE or TEE. 75% of pts had a preserved left ventricular ejection fraction and 75% had mild or no pericardial effusion. Only 1 pt had severe pericardial effusion (33 mm) with hemodynamic compromise. Concomitant distant metastatic and lymph node involvement at presentation was also common, namely central nervous system (2 pts), mediastinal lymph nodes (2 pts) and contralateral lung (1 pt). Only 1 pt did not have other organ metastases at presentation. Regarding treatment options, only 1 pt was submitted to lung resection surgery, 2 pts to chemotherapy and 1 pt to radiotherapy. The authors found a mortality rate of 75% (the remaining pt had a recent diagnosis of stage IV lung cancer), with a median time to mortality of 7 months (minimum 24 days, maximum 23 months).
Conclusions: A high index of suspicion is necessary for the diagnosis of cardiac metastases and echocardiographic imaging is of paramount importance. Cardiac metastases represent a rare source of morbidity and mortality in pts with lung cancer and generally reflect widespread disseminated malignancy. Unfortunately, despite the evolution of diagnostic and therapeutic options, the prognosis remains dismal.

Keywords: *Lung cancer. Metastases. Cardiac metastases. Echocardiography.*

PC 073. LENT SCORE IN PROGNOSTIC ASSESSMENT OF MALIGNANT PLEURAL EFFUSION. THE IMPACT OF TKI THERAPY

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Introduction: The LENT score was developed as a risk stratification system to predict the survival of patients with malignant pleural effusion (MPD), calculated based on pleural fluid LDH, ECOG PS, serum neutrophil-lymphocyte ratio and tumor type. However, following the discovery of molecular markers and a new era of personalized therapy, prognostic estimation became a challenging exercise.
Objectives: Evaluate the performance of LENT score in predicting prognosis in patients with MPD and pulmonary adenocarcinoma.
Methods: Retrospective study of patients with MPD followed at the Pulmonology Department from 2008 to 2018. LENT score (L = pleural fluid LDH, E = ECOG PS, N = neutrophil-serum lymphocyte ratio and T = tumor type) was calculated at the time of diagnosis of MPD and patients classified into risk group. Survival was considered from the date of diagnosis of MPD until the date of death or the date of the last visit.
Results: A total of 152 patients with MPD secondary to lung adenocarcinoma were identified, but only the necessary analytical information could be obtained in 42 patients (mean age 76.4 ± 12.6 years, 52% female). Of these patients, 28.6% exhibited EGFR gene mutation or ALK gene translocation and received tyrosine kinase (TKi) inhibitor therapy, in contrast to 71.4% of patients without identification of mutational factors and receiving QT therapy. In the group of patients without identification of mutational factors, the average LENT score was 4 (3-6) and overall survival 77 (1-33116) days. About 33% of these patients were classified as high risk and 66.7% as moderate risk, with an overall survival of 37.5 (8-474) and 109 (1-33116) days, respectively, similar to that reported literature, 44 and 134 day. In the subgroup of patients receiving TKI therapy, the average LENT score was 3 (2-6), overall survival 430 (27-4243) days, with 7 patients still alive at the time of cut-off and with a median survival of 529 (197-1726) days. Of these patients, about 25% were classified as high risk and 75% as moderate risk, with an overall survival of 238 (27-529) and 1033 (177-4270) days, respectively, much higher than reported for 44 and 134 days. All risk groups of patients receiving TKI therapy had a longer survival than patients receiving conventional QT therapy ($p < 0.05$).
Conclusions: Overall survival in patients with MPD due to lung adenocarcinoma was similar to that predicted by the LENT score, except for patients with EGFR mutation or ALK translocation. In this subgroup, the LENT score seems to underestimate the prognosis of patients. Although this study has limitations regarding sample size,

it does reveal some limitations of the LENT score, demonstrating that it needs to be reviewed and revalidated in view of recent therapeutic advances.

***Keywords**: Malignant pleural effusion. Lent score. Adenocarcinoma.*

PC 074. ANALYSIS OF THE HEADING RATIO N/L AND SURVIVAL IN PATIENTS TREATED WITH IMMUNOTHERAPY IN LUNG CANCER

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Introduction: Systemic inflammation response can be characterized by changes of peripheral blood cell amounts. The neutrophil-lymphocyte (N/L) ratio is a marker of general immune response in different stress situations, having shown a relationship between the quotient and the evolution of patients treated with immunotherapy, emphasizing the importance of inflammation in these patients. The aim of this study was to evaluate this relationship in a context of usual clinical practice.
Methods: We retrospectively reviewed patients with pulmonary neoplasia who received immunotherapy in the first line or successive, between 2016 and 2018. Data were collected from the clinical history, with attention to baseline neutrophil and lymphocyte numbers, response to therapy and overall survival, defined from the beginning of treatment until death.
Results: Forty-three patients were included (40 men, mean age of 64 ± 10 years) who received at least one cycle of immunotherapy. Predominant histologies were adenocarcinoma (58%) and squamous-cell carcinoma (33%). Median number of cycles was 10 (1-63). Two stretches of baseline N/L ratios ≤ 5 (low) and > 5 (high) were defined. Low ratio N/L was identified in 35 (81%) of patients and high ratio N/L in 8 (19%) of the patients treated. Of the 35 patients with a low ratio: 24 (69%) had disease progression, 10 (29%) had some type of response and one patient had PS reorientation. Among the patients with high N/L ratio, 6 (75%) presented progression and 2 patients responded to therapy. No statistically significant differences were observed on overall survival between the low N/L ratio group (34 weeks) and high N/L ratio group (39 weeks).
Conclusions: The N/L ratio has been identified in some studies as an adverse prognostic factor in patients treated with immunotherapy. Our data from the usual clinical practice don't support this theory, pointing out that other determinants may be involved.

***Keywords**: Lung cancer. Immunotherapy.*

PC 075. EXTRANODAL MARGINAL ZONE LYMPHOMA OF THE LUNG. A LOW FREQUENCY DIAGNOSIS

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Introduction: Primary lymphomas of the lung are rare and in about 70% of the cases they are extranodal marginal zone lymphomas related to the bronchial mucosa-associated lymphoid tissue (MALT). MALT lymphomas with a pulmonary origin show a low incidence, corresponding to only about 0.1% of all the pulmonary neoplasms. Studies show a possible association between the development of this type of lymphoma and a chronical state of bronchial inflammation, although a specific causative agent has not been identified. It typically shows a slow evolution, with transformation into secondary forms of lymphoma, like diffuse large B-cell lymphoma, occurring in a minority of the cases.

Case report: 65 year-old male patient, admitted to the Pneumology Department after going to the ER with substantial worsening of his basal dyspnea. He denied any change in his basal pattern of cough and sputum, as well as fever or chest pain. In concerns with his past medical history, he was diagnosed with Idiopathic Pulmonary Fibrosis and lung emphysema, followed in Interstitial Lung Disease consultations and was under treatment with pirfenidone since 2017; in 2011 was submitted to a surgical procedure for a bronchial MALT lymphoma (it was performed a left superior lobectomy + lymphadenectomy, without adjuvant chemotherapy treatment). Ex-smoker since 2011 (25 pack-year), retired (pottery selling company), under treatment with Tiotropium Bromide/Olodaterol, Pirfenidone, Deflazacort, Esomeprazole and Ivabradine, long-term and ambulatory oxygen-therapy. During his hospital stay, for further work-up on his clinical situation, performed a chest CT, showing not only large areas of fibrosis, traction bronchiectasis and centrilobular emphysema, but also multiple areas of parenchymal densification, bilaterally, some of them nodular, with the biggest one (55 mm) located at the medial segment of the lower right lobe. Cytology study of the bronchial aspirate showed neoplastic cells, compatible with a B-cell lymphoma. PET-scan presented multiple nodular densifications, bilaterally, with intense hyper-metabolism, with the biggest one on the right middle lobe with 125 × 85 mm, and changes suggestive of gastric, intestinal and brain involvement. One of the right nodular lesions was approached by transthoracic biopsy, with the histological results confirming the diagnosis of diffuse large B-cell lymphoma. The patient was then submitted to chemotherapy with the R-CHOP scheme, showing positive clinical response after 6 months of treatment.
Discussion: This case-report pretends to portray a case of atypical evolution of a pulmonary neoplasm that has inherently a low incidence. We highlight the fact that even though a possible link between this diagnosis and a basal bronchial inflammatory state has already been suggested, it is mandatory, in the future, to further investigate the appearance of this type of neoplasm, its evolution and its link with other lung diseases.

***Keywords**: Bronchial malt lymphoma. Diffuse large b-cell lymphoma. Idiopathic pulmonary fibrosis.*

Withdrawn abstract

PC 077. THE USE OF STOP-BANG QUESTIONNAIRE IN HYPERTENSE PATIENTS

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Introduction: Obstructive Sleep Apnea (OSA) is typically manifested by marked snoring, excessive daytime sleepiness, and apnea periods usually seen by others, and often is associated with hypertension (AHT) and obesity. Polysomnography is the goldstandard exam for OSA diagnosis; and the STOP-BANG questionnaire (S - Snoring; T - Tiredness during the day; O - Observed apnea; P - high blood Pressure (BP); B - body mass index (BMI) > 35 kg/m^2; A - Age > 50 years; N - Neck circumference (NC) > 43 cm in males or > 41 cm in female; G - Gender male) has been used as a screening tool for these patients, increasing the likelihood of diagnosis. This survey consists of a set of 8 easily asked questions classified into yes/no answers rated 1/0. The patient is at low risk of OSA if score ≤ 2 and at high risk if ≥ 5.
Objectives: To determine the risk of OSA, through the application of the STOP-BANG questionnaire, in patients followed on AHT consultation in a Health Unit (HU).
Methods: Observational and descriptive study. Population: patients followed on AHT consultation at a HU during an established period. Convenience sample: patients with AHT submitted to STOP-BANG questionnaire, being the only exclusion criterion OSA diagnosis already established. Variables: gender, age, BMI, BP, NC, snoring, tiredness, observed apnea, questionnaire result, Pulmonology referral and anti-AHT medication. Questionnaires were administered for 3 weeks and analyzed in SPSS.
Results: From a population of 95 patients, a sample of 89 was obtained and 6 were excluded due to OSA diagnosis already established. It was found: 43.8% male, 93.3% aged > 50 years and mean (± SD) age of 66.7 ± 10.8 years, 9% with BMI > 35 and average of 23.19 ± 12, 65.2% snoring, 11.2% tiredness, 11.2% observed apnea, 100% with high BP and 22.5% increased NC. 21.3% (n = 19) had a result ≤ 2 and 14, 6% (n = 13) had ≥ 5. In this last group, 13 patients had snoring, 5 tiredness, 7 observed apnea, 4 BMI > 35 Kg/m^2, 13 age > 50 years, 9 with increased NC, 10 male, 7 were referred to the Sleep Pathology consultation and 10 patients used 2 or more anti-AHT drugs. We found no difference in the number of anti-AHT drugs in low-risk patients in the STOP-BANG questionnaire compared to high-risk patients, 2.05 ± 0.78 vs 2.15 ± 0.90, p = 0.744.
Conclusions: Of the initial population, 6.3% had a diagnosis of OSA with instituted ventilotherapy and 14.6% had a high risk of OSA at STOP-BANG questionnaire. More than half of these were referred to the Sleep Pathology consultation, as they scored practically all the characteristics surveyed, and mostly were male. This study biases the type of sampling and the limited time period, which made the final sample consisted of a higher percentage of women than men. Although the relationship between AHT and OSA is established, we did not find a relationship between the number of anti-hypertension drugs and higher risk for OSA on STOP-BANG questionnaire.

Keywords: *AHT. OSA. STOP-BANG questionnaire.*

PC 078. CELLULAR AND MOLECULAR AGING MECHANISMS IN OBSTRUCTIVE SLEEP APNEA

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Introduction: Obstructive Sleep Apnea (OSA) is one of the most common sleep disorders worldwide and its prevalence is expected to continuously increase. Still, it is estimated that 80 to 90% of the OSA cases are undiagnosed. Untreated, OSA has been associated to functional decline, increased predisposition to several diseases and increased mortality. OSA-associated alterations resemble the typical physiological and functional decline observed along the aging process, however, untreated OSA patients seem to exhibit similar alterations at younger ages. We propose that OSA might promote/aggravate aging by inducing cellular and molecular aging mechanisms. Understanding OSA putative effect on aging and aging-related diseases may not only guide into new strategies to improve OSA diagnosis and treatment but also to counteract aging, a current global epidemics.
Objectives: To investigate whether OSA patients show peripheral aging-related cellular and molecular impairments and if OSA treatment can ameliorate such alterations.
Methods: A cohort of 6 Portuguese male patients [age: 53 ± 4 years; BMI: 32.1 ± 2.5] diagnosed with severe OSA [60.9 ± 12 apneas/hypopneas per hour - AHI] was followed from the moment of diagnosis with polysomnography - PSG (t0), up to 4 months (t4M) and 2 years (t24M) of treatment with standard continuous positive airway pressure (CPAP). In each phase (t0, t4M and t24M), blood was collected from enrolled subjects and peripheral blood mononuclear cells were isolated. Hallmarks of cellular and molecular aging were evaluated, namely, genomic instability (phosphorylated γH2AX, Chk1 and Chk2 protein levels), loss of proteostasis (mRNA and protein levels of autophagy-related proteins and ubiquitin levels) and telomere shortening. Results were compared to age-matched controls [age: 47 ± 7 years; BMI: 25.6 ± 0.5; AHI: 4.7 ± 0.8], validated by PSG, and younger controls [age: 24 ± 2 years; BMI: 23.5 ± 2.8]. This study was approved by the ethical committee of the Faculty of Medicine of the University of Coimbra and of Coimbra Hospital and University Centre.
Results: OSA patients show increased levels of phosphorylated Chk1 at t0 and t4M in comparison with age-matched and young controls ($p < 0.05$), an effect that was no longer observed at t24M. Regarding proteostasis impairments, OSA patients show a tendency of decreased beclin-1 levels at t0 and t4M that increase at t24M ($p < 0.05$). By opposite, at the mRNA level, there is an upregulation of Beclin-1, p62 and mTOR mRNA levels at t24M in comparison with patients at t0 ($p < 0.05$) and controls ($p < 0.05$). OSA patients telomeres also showed to be shorter than in controls ($p < 0.05$), at all the assessed phases and did not changed along treatment.
Conclusions: Our results show that OSA promotes/aggravates aging-related cellular and molecular impairments. OSA induces genomic instability, as evidenced by Chk1 increased phosphorylation, a re-

sponse to DNA damage. OSA may also compromise autophagy, as beclin-1 is a key regulator of autophagosome formation. Short-term treatment does not seem enough to recover from OSA consequences while long-term CPAP treatment might partially re-stablish some alterations. OSA-telomere attrition might be irreversible. The bidirectional interplay between OSA and aging will considerably help to increase OSA public awareness and the importance of healthy sleep, current society issues.

Keywords: *OSA. Aging. Genomic instability. Proteostasis impairments. Telomere attrition.*

PC 079. EVALUATION OF NIGHT-SHIFT THERAPY IN POSITIONAL OSA

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Introduction: Obstructive Sleep Apnea Syndrome (OSA) is a highly prevalent respiratory disease. In the subgroup of patients with positional OSA (POSA) positional therapy, which aims to prevent the supine position, appears as a therapeutic option.
The aim of this study was to evaluate the role of Night-Shift® electronic positional therapy devices in the treatment of POSA.
Methods: Prospective epidemiological study of patients with POSA who were prescribed with Night-Shift® in patients followed at our Sleep Medicine outpatient clinic. 29 patients with vibrating electronic devices placed in the posterior cervical region, with position detection algorithm and sleep efficiency (Night-Shift ®) were included. Devices have a validated algorithm. All Patients underwent level 2 polysomnography with Alice PDx tm (Philips®), which were manually staged by experienced technitions. In patients in whom positional POSA was detected and clinically indicated for treatment, positional therapy was proposed, among others: Positive pressure (PAP) or mandibular advancement devices. All patients agreed to experiment with positional therapy with Night-Shift® for 1 month, but 6 patients did not return to the reevaluation consultation and were not included. After placement of the positional device, patients were re-evaluated with reading Night-Shift® software and assessing sleep quality by the Pittsburg questionnaire. The reevaluations were made at 1, 3 and 6 months.
Results: We evaluated 23 patients, 13 men and 10 women, with a mean age of 50.7 years (± 13.4). The RDI on polysomnography averaged 22/hour (± 12), with AHI in the supine position averaging 40.9/hour (± 14). The prevalence of supine position was 50.6% (± 20.5). Clinical evaluation was performed in the first month in all patients, at 3 months in 13 patients and at 6 months in 8 patients, using the Pittsburg Questionnaire and Epworth Sleepiness Scale (EE). In the clinical evaluation of the patients the initial EE was on average 11.4 (± 5.4) and after the use of Night-Shift® 2.7 (± 0.8). 74% of patients reported good sleep quality and the device software showed an average of 84.4% sleep efficiency on the WASO scale. We had a good fit in 14 patients (61%) and 9 dropped out of therapy or switched to APAP (1 patient). Differences were found between sleep efficiency assessed by the device and that assessed in the Pittsburg questionnaire. We found as peculiarities that in shift workers there is recognition of the benefit of therapy but daytime sleepiness remains the same before and after therapy.
Conclusions: In patients with confirmed diagnosis of POSA, the use of positional therapies should be considered. In this study, Night-Shift® was considered by patients to be able to correctly avoid the supine position during sleep, which accompanied by a specific medical consultation, also allowed us to understand its influence on sleep efficiency. Further studies, preferably in the longer term, are needed to confirm the data disclosed herein.

Keywords: *Night-shift. Positional OSA.*

PC 080. ACCURACY AND USABILITY COMPARISON OF THE ALICE NIGHT ONE VERSUS ALICE PDX PORTABLE MONITORING DEVICE

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Objectives: To evaluate the accuracy and usability of the Alice Night One portable monitoring device compared to other portable device Alice PDx. To evaluate the accuracy and usability of the Alice NightOne ambulatory monitoring device compared to another portable device (Alice PDx) and the ability of Alice Night One to be used as another diagnostic tool, since it is easier to use than AlicePDX as it involves fewer sensors and the placement method is simpler.
Methods: Observational study in thirty three participants from the sleep consult who required a diagnostic sleep study. Once included in the study, patients undergo 2 diagnostic tests on 2 consecutive nights (first night - Alice PDx, second night - Alice NightOne) after receiving operating instructions and placement of both equipment, having performed the same at home. After these studies were completed, both were centrally classified.
Results: Sensitivity, specificity and correlation analysis were made. Comparisons between sensitivity and specificity were plotted using ROC curve analysis. Correlation analysis was made using Pearson coefficients and comparison between scored respiratory variables. Of the 33 patients recruited, only 31 were considered, which were those with analyzable results from both devices. Demographics: 5 women and 26 men, with a mean age of 50.55 and a mean BMI of 31.66 (20.3-43.8 kg/m^2). Alice Night One was in diagnostic agreement with Alice PDx in 71% of studies. In 19% of Alice Night One studies underestimated the Hypnopnea Apnea Index (AHI), and in 10% overestimated the AHI. Although there is a difference in diagnostic agreement there was no statistically significant difference in the comparison of AHI between equipments ($p = 0.287$). There was also a good intraclass correlation of 0.961 ($p < 0.001$) with an average bias of 1.43/h.
Conclusions: Of the 33 patients included in the study, after instructions, 31 were able to correctly configure both handheld devices at home, with Alice Night One being considered to be the easiest to configure. Despite the difference in diagnostic agreement, there were no significant differences in AHI. The results suggest that the Alice Night One portable monitoring device is highly accurate in its ability to detect and capture respiratory events during sleep and is easy for patients to use.

Keywords: *Sleep disturbances. Diagnosis. Ambulatory monitoring.*

PC 081. EVALUATING SLEEP APNEA PATIENTS USING A MOBILE APPLICATION. THE ESAMOBAPP STUDY

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Introduction: Obstructive sleep apnea (OSA) is associated with several serious health complications. Continuous positive airway pressure (CPAP) is an effective therapy for OSA, but adherence is a challenge. In the current technological era, strategies to improve adherence are necessary. We tested a mobile App designed to improve adherence to CPAP therapy.
Objectives: The aim of this study was to evaluate CPAP adherence in individuals who could access the mobile App.
Methods: Individuals were prospectively recruited by two national sleep centers within a 4-month period (September to December of 2018). Inclusion criteria were: adults with newly diagnosed OSA and Apnea-hypopnea-index (AHI) ≥ 15/h (moderate/severe OSA).

Fifty patients (n = 50) were included in the study. They were split into two groups based on a cut-off value of 50% mobile App usage (> or < 15 days of usage/month): The High App Use (HAU) and Low App Use (LAU) groups, respectively. After one month of treatment, adherence data was retrieved, and a satisfaction survey was applied.
Results: 26 patients (52%) were included in HAU group and 24 patients (48%) in LAU group. Both were homogeneous relative to age, Body Mass Index (BMI), Epworth Sleepiness Scale (ESS) and AHI. Women showed a higher App usage (p = 0.02; Wilcoxon). There was a significantly higher CPAP adherence in the HAU compared to the LAU group (73% vs 25%; p = 0.001; Fisher's exact). Comparing HAU and LAU groups, there was a lower percentage of patients with residual AHI > 5 (19% vs 29%) despite no significant difference. Adaptation to CPAP treatment was superior in the HAU group (85% vs 50%; p = 0.01; Fisher's exact). 96% of patients in the HAU group considered the mobile App helpful and only 25% of patients in the LAU group considered it unnecessary (p = 0.04; Fisher's exact). 73% of the patients considered that the mobile App increased self-confidence while using CPAP (p = 0.001; Fisher's exact). Air leaks were lower with App use, without statistical significance. In the HAU group, 73% of patients learned about OSA through the App usage.
Conclusions: Mobile App usage significantly increased CPAP adherence. The App was considered to be helpful, increased self-confidence and knowledge about the disease and respective treatment. It also significantly increased CPAP adaptation and seemed to help to control air leaks, contributing to a lower residual apnea-hypopnea-index.

Keywords: *Obstructive sleep apnea. Adherence. Mobile app.*

PC 082. FROM SUSPICION TO DIAGNOSIS OF SLEEP APNEA SYNDROME. ANALYSIS OF PATIENTS REFERRED TO HOSPITAL CONSULTATION

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Introduction: Sleep Apnea Syndrome (SAS) has a high impact on quality of life and represents a frequent and growing reason for referral to hospital consultation, with very long waiting times. Some symptoms and characteristics of the patient are suggestive of this diagnosis and motivate referral.
Objectives: Identify the specialties that send patients to the Sleep Breathing Disorders (SBD) consultation and determine the percentage of confirmation of SAS for each one.
Methods: Prospective study of patients observed at the SBD consultation of University Hospital São João with suspected SAS who performed level 3 Polysomnography and symptom based questionnaires, between January and June 2019.
Results: A total of 380 patients were analyzed, with a mean age of 57 (± 13) years old and male predominance (64.5%). The mean BMI was 31.3 (± 6.3) kg/m^2 and 55.3% had obesity. Most patients had other comorbidities, such as hypertension (60%), dyslipidemia (44.2%) and diabetes mellitus (22.1%). Most patients reported snoring (67.5%), in addition to assisted pauses or gasping and nocturia (38.2% each). The average score of the Epworth Sleepiness Scale was low (8.4 ± 5.4). SAS was confirmed in 328 patients (86.3%). More than half had moderate to severe SAS (60.7%) and 53.7% started treatment with positive pressure. Patients were sent mainly by General and Family Medicine (GFM) with 30.3%, followed by Otorhinolaryngology (ENT) with 16.1%, Internal Medicine (10.5%) and Neurology (9.2%). Of the patients referred by Pulmonology, 91.7% had confirmation of clinical suspicion. SAS was also confirmed in 88.7% of cases sent by GFM, 87.5% of Internal Medicine cases and 86.9% of ENT cases. Regarding severity, GFM presented the highest percentage of moderate to severe SAS (62.6%), followed by Pulmonology (58.3%) and ENT (55.8%). More than half of the patients sent from Pulmonology, Internal Medicine and GFM initiated positive pressure treatment (66.7%, 55% and 51.3%, respectively), mainly with auto-CPAP.
Conclusions: The high percentage of confirmation of SAS suggests an appropriate referral to SBD consultation by most specialties. In addition, a good number of cases revealed moderate to severe SAS requiring treatment initiation, a proper indication for evaluation in hospital consultation. This study confirms GFM as the main origin of these patients, revealing a good tendency in the criteria used for referral, due to the amount of confirmed diagnoses and the severity of the cases sent.

Keywords: *Sleep apnea syndrome. Referral. Hospital consultation. Diagnosis.*

PC 083. KEY STRATEGIES FOR ADAPTATION TO VENTILATION THERAPY ACCORDING TO PROFILES AND BARRIERS OF INDIVIDUALS WITH OSAS: THE REALITY AT HOME

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Introduction: Apnea/Hypopnea Obstructive Sleep Syndrome is characterized by a partial or complete obstruction of the upper airways during sleep. OSAS is more common in obese men, but it also affects women with some major risk factors. Knowing that a good adherence and adaptation is preponderant to achieve therapeutic efficacy, there are many obstacles presented by individuals with OSAS in adapting to therapy.
Objectives: The main objective of this study is to identify and systematize the main profiles and barriers presented by patients with Portuguese OSAS at the time of adaptation to ventilotherapy and the principal strategies presented by health professionals to facilitate the adaptation and adherence to therapy.
Methods: A prospective and observational study was conducted between January and August 2019. The analysis is based on the collection of the main profiles and objections presented by individuals during the adaptation to Auto-CPAP therapy in the home environment and the main strategies used to promote therapeutic adherence. The most frequent profiles were stratified: female, male, active population, non-active population, bed partner or sleeping alone, driver or not. We present which are the key strategies of the CRD health professional based on the motivational focus.
Results: It was found that many of the objections presented were transversal between groups; there are several common objections to patients in the same group/profile. The female and active population is more resistant to adaptation and, consequently, less therapeutic adherence, even with the key personalized strategy outlined by the CRD health professional. Two important moments of positive reinforcement and/or strategic re-evaluation were identified, namely 1 week after the adaptation and 1 month after the adaptation, moments in which the intervention so that the patient has the greatest possible comfort significantly contributes to increase adherence and treatment effectiveness.
Conclusions: Adequate personalization and behavioral communication at the time of adaptation to A-CPAP/CPAP therapy increasingly play a predominant role in individuals with OSAS, given that they are mostly active individuals. The gender and daily life of each individual, as well as age, marital status, profession and symptomatology are factors to be taken into account in order to adopt a personalized strategy.

Keywords: *CPAP. Barriers. Comfort. Home respiratory care. Personalization. Behavior.*

PC 084. ALTERATION OF LONG-TERM AUTO-CPAP THERAPY TO CPAP IN INDIVIDUALS WITH THERAPEUTIC EFFICACY: WHAT IS THE INFLUENCE ON ADHERENCE?

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Introduction: Obstructive sleep apnea-hypopnea (OSA) is characterized by a partial or complete obstruction of the upper airways during sleep. In moderate or severe clinical situations, the gold standard of treatment is Auto-CPAP (Automatic Continuous Positive Airway Pressure), CPAP (Continuous Positive Airway pressure) or Bi-PAP (Bi-level Positive Airway Pressure). Adherence to ventilation therapy is considered to exist if there is use of more than 4 hours over a period of more than 70% of nights and therapeutic efficacy whenever clinical improvement is associated with an AHI < 5/h. These treatments are provided at home by health professionals within the scope of Home Respiratory Therapies.
Objectives: The main objective of this study was to assess the influence on adherence after changing from Auto-CPAP to CPAP therapy in long-term patients (> 2 years) who had therapeutic efficacy with A-CPAP treatment. The secondary objective is the correlation of other variables related to patient comfort (leaks, change of interface).
Methods: An observational, retrospective and longitudinal study was conducted between 7/2018 and 7/2019 in the northern region of Portugal (districts of Porto and Aveiro), with 1,123 individuals being followed up with Auto-CPAP ventilatory mode therapy. All these individuals started therapy in the Auto-CPAP mode to treat sleep-disordered breathing. The sample whose patients had been undergoing therapy for at least 2 consecutive years, with therapeutic efficacy, and who, after medical consultation, changed from ventilatory mode to CPAP mode, was 47 individuals (4%). Thirteen individuals were excluded because they had other changes besides the therapeutic mode (humidifier adaptation, interface change, etc.), so the final sample was 34 individuals.
Results: 34 individuals changed therapy from A-CPAP to CPAP for therapeutic efficacy. 22 were male (65%) and 12 female (35%). The individuals had a mean age of 64 years (± 8.6). The percentage of withdrawal due to inadequate CPAP therapy was 11.8% (4/34). The results of the individuals after 3 months of therapy (n = 30) were: AHI (events/h) in A-CPAP of 2.05 (± 1.7) and in CPAP of 1.9 (± 2.1), the adherence to therapy (h) in APAP was 6.4 (± 1.6) and in CPAP of 6.1 (± 1.4), with% > 4h in A-CPAP of 88.6 (± 10.6) and in CPAP of 88 (± 15.1). Regarding the leaks (l/min) we obtained A-CPAP 15.4 (± 7.8) and CPAP 22.5 (± 17).
Conclusions: Approximately 90% of patients adapted to CPAP, maintaining therapeutic adherence and therapeutic efficacy. However, they have higher leak values, with an impact on patient comfort, which may compromise long-term therapy. The correct follow-up of these individuals, especially in phases of therapy modification, is essential.

***Keywords**: OSA. Home respiratory therapies (HRT). Auto-CPAP/CPAP. Therapeutic efficacy. Therapeutic adherence.*

PC 085. IMPORTANCE OF SMOKING IN THE OBSTRUCTIVE SLEEP APNEA SYNDROME

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Introduction: Obesity and smoking are important risk factors for Obstructive Sleep Apnea Syndrome (OSAS). The relevance of smoking in OSAS results from the chronic inflammation of the nasopharyngeal mucosa associated with tobacco, with the consequent reduction of the calibre of the superior airway, facilitating its collapse during sleep.
Objectives: Analyse the impact of smoking habits in the diagnostic and severity of obstructive sleep apnea in a population undergoing pre-operative evaluation for bariatric surgery.
Methods: A patient sample was gathered from those followed in the sleep apnea consultations and already subjected to sleep studies (level I or III) at Beatriz Ângelo Hospital between January 2017 and April 2019. Smoking (actives or past) and non-smoking patients were compared for demographic, anthropometric, clinical (roncopathy and excessive daytime sleepiness), comorbidities (HT, diabetes and dyslipidaemia), and polysomnographic/polygraphic (AHI, T90, ODI) characteristics. It was considered a positive study for obstructive sleep apnea the presence of an Apnea-Hypopnea Index (AHI) equal to or above 5, being classified as mild, moderate or severe in accordance with the AHI (5 to 14, 15 to 29 and ≥ 30, respectively) and an Epworth score above 10 was indicative excessive daytime sleepiness. The Mann-Whitney test was used for the comparison of continuous variables, given that the sample was not normally distributed in these cases. For categorical variables, group comparison was used by means of Fisher's exact test.
Results: Of the 131 patients evaluated, 87 had no smoking habits (66.4%). The remaining 44 (33.6%), with active or past smoking habits, had an average load of 19.6 SPY. Within the group with smoking habits, higher prevalence of male patients (34.1% vs 14.9%; p = 0.012), higher daytime sleepiness (38.6% vs 19.5%; p = 0.019) and higher average cervical perimeter (42.89 ± 3.88 vs 41.05 ± 3.95; p = 0.005) were identified. However, a statistically significant difference in prevalence of OSAS diagnostic between the two groups was not found (86% vs 88%; p = 0.908), for any case severity. Nevertheless, a higher t90 period was identified (19.78 ± 27.14 vs 6.20 ± 13.71) in the patients with smoking habits, this with statistical significance (p = 0.003). There were also not found statistically significant differences between groups in what concerns presence of roncopathy (74.7% vs 79.5%; p = 0.539), comorbidities such as HTA (54.5% vs 48.3%; p = 0.498), diabetes (13.6% vs 17.2%; p = 0.595) or dyslipidaemia (36.4% vs 25.3%; p = 0.187).
Conclusions: Despite having been identified a higher average cervical perimeter and higher prevalence of daytime sleepiness among patients with smoking habits, a difference with statistical significance in what concerns the diagnostic of OSAS was not found. Nevertheless, the difference identified in T90 levels should be pointed out, as it suggests a role of smoking in this factor, therefore reinforcing the relevance of smoking cessation in this population.

***Keywords**: Obstructive sleep apnea. Smoking habits. Male gender. Epworth score. T90.*

PC 086. SCREENING OF SLEEP BREATHING DISORDERS IN ACUTE HEART FAILURE

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Introduction: Sleep-disordered breathing (SDR) is underdiagnosed in patients with heart failure (HF). The ApneaLink™ is a validated level III home sleep device for assessing the Apnea/Hypopnea Index (AHI) and Cheyne-Stokes Breathing Index (RCS), allowing for earlier diagnosis and treatment.
Objectives: To evaluate SDB in patients admitted to an Advanced Heart Failure Treatment Unit.
Methods: Retrospective analysis of Resmed's ApneaLink™Air records in patients admitted to the Unit within the previous 5 years, diagnosed with decompensated chronic heart failure, after stabilization and/or previous suspicion of OSAS.
Results: 39 exams were evaluated. 33 patients were men (85%). The average age was 53.9 ± 15 years. 81.8% had a reduced left ventricular ejection fraction (LVEF). Regarding comorbidities, dyslipid-

emia and hyperuricemia were more frequent (63.2%, n = 24 in both), followed by obesity (62.1%) and arterial hypertension (57.9%). 51.5% of patients had exposure to tobacco smoke. 71.8% (n = 28) of the patients had an AHI ≥ 15. AHI was higher in patients with coronary artery disease (40.1 vs 24.0, p = 0.049) and lowest in diabetic patients (12.0 vs 25.1, p = 0.039), with no difference in AHI values of patients with hypertension, dysrhythmia, thyroid disease, hyperuricemia and dyslipidemia. The mean AHI was higher in men (30.5 vs 17.8, p = 0.173). Cheyne-Stokes respiration (CSR) was present in 48.7% (n = 19) of the patients, associated with higher AHI (37.8 vs 19.7, p = 0.005) and higher IDO (38 vs 18.8, p = 0.001). This pattern was more frequent in men (duration of 16.6% of registration time vs 2.7%, p = 0.012). 6 patients had CRS for ≥ 120min, with higher AHI and oxygen desaturation index (IDO) (50.5 vs 24.5 and 48.5 vs 24.5 respectively; p = 0.022).
Conclusions: HF patients have important nocturnal symptoms, and level III screening allows timely treatment of sleep pathology in these patients. However, in our study about 1/3 of the patients, once the cardiac decompensation period was over, was oriented to polysomnography to confirm the severity of OSAS/RCS and to determine the most appropriate home ventilation mode.

Keywords: *Sleep-disordered breathing. Heart failure. Cheyne-Stokes respiration.*

PC 087. QUALITY OF LIFE AND SLEEP OF HEALTH CARE PROFESSIONALS IN A CENTRAL HOSPITAL

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Introduction: Working in a hospital may be exhausting and tiring, often requiring shiftwork. These factors may have an impact on quality of life and sleep of health care professionals and burnout symptoms may occur.
Objectives: To analyze the quality of life, sleep, anxiety and depression in health care professionals (doctors, nurses and health care assistants), working at different departments of a central hospital.
Methods: Cross-sectional study in which data were collected using a questionnaire, randomly distributed to hospital workers, based on socio-demographic questions and sleeping habits, as well as the Portuguese versions of the following questionnaires: WHOQOL-Bref; Pittsburgh Sleep Quality Index (PSQI); Epworth Sleepiness Scale (ESS) and Hospital Anxiety and Depression Scale (HADS).
Results: A total of 125 health care professionals answered our questionnaire. The mean age was 34.5 years-old and 76% were female. A great proportion of health care professionals had a high weekly workload, 56% worked 45h/week or more and 68% worked night shifts. The majority of them also exhibited factors that contributed to a bad sleep quality, namely: daily consumption of energy drinks (76%) and bad sleep hygiene (84%) -referring workout practice before bedtime, regular use of tablet, computer or cell phone before going to bed and irregular sleep. Even though only 16% of health care professionals presented values suggestive of daytime sleepiness (ESS ≥ 11), a great proportion had bad sleep quality (69%) with PSQI scores ≥ 5. Regarding quality of life, the subjective evaluation of their quality of life, using the WHOQOL-Bref questionnaire was, in average, 3.61 (maximum 5). Concerning the evaluation of anxiety and depression, we found that almost half of the health care professionals (42%) had scores suggesting anxiety and a quarter had values suggesting depression in the HADS questionnaire (values > 7).
Conclusions: In our sample, health care professionals had a high workload and, most of them worked night shifts. It didn't seem to have great impact on quality of life and daytime sleepiness, probably due to our relatively young population. A great proportion had bad sleep quality and bad sleep habits which may be contributing to high levels of anxiety and depression, which in the long run can have harmful effects. It is important not only to create better working conditions but also to promote better lifestyle habits, to control anxiety and depression symptoms, so that hospital work does not become another exhausting factor for hospital workers.

Keywords: *Quality of life. Sleep. Health care professionals.*

PC 088. AGRICULTURE AND CHRONIC FUNGAL INFECTION. A CASE REPORT

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Introduction: Chronic pulmonary aspergillosis occurs in immunocompetent or mildly immunocompromised patients and is characterized by an indolent clinical course with the development of progressive cavitary lesions (with or without a fungal ball) or nodules on thoracic imaging and direct evidence of Aspergillus infection by biopsy or positive serum precipitins to Aspergillus fumigatus.
Case report: Sixty-seven year old woman, farmer, non-smoker with personal history of hypertension and dyslipidemia, was observed in the emergency department for hemoptysis for 2 days. She also referred dry cough, asthenia and weight loss of 4 Kg through the last 3 months. Physical exam showed HR 67 bpm, room-air SpO2 97%, BP 160/100 mmHg. Lung auscultation revealed slight crackles on the lower third on the right lung. Blood test showed mild increase on inflammatory parameters (CRP 4.40 mg/dL) and GGT (241 U/L). Chest radiograph displayed a round opacity with poorly defined limits located next to the hilus on the right, which was confirmed to be posterior. She underwent bronchofibroscopy, during which, a cloth was observed; however, there were no signs of active bleeding or endobronchial lesion. The patient was admitted an started therapy with amoxiciline/clavulanic acid. From the additional study, she underwent chest CT scan, which showed on the right inferior lobe several cavitary lung lesions, filled with necrotic material (air crescent sign), as well as cylindrical bronchiectasis. Aspergillus fumigatus was isolated in sputum and bronchoalveolar lavage; IgG Aspergillus fumigatus was positive. The diagnosis of subacute invasive pulmonary aspergillosis was assumed, and started therapy with voriconazol.
Discussion: Subacute invasive pulmonary aspergillosis, formerly called chronic necrotising or semi-invasive pulmonary aspergillosis occurs in immunocompetent or mildly immunocompromised patients and has similar clinical and radiological features to chronic cavitary pulmonary aspergillosis, but is more rapid in progression. In this particular case, the occupational context and the subsidiary exams were fundamental for the diagnosis and treatment of this unusual form of Aspergillus infection.

Keywords: *Pulmonary aspergillosis. Fungal infection.*

PC 089. RESPIRATORY VIRUS DETECTION DURING FLU SEASON IN AN INTERNAL MEDICINE DEPARTMENT

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Introduction: Viral respiratory infections, especially influenza, are an important cause of morbidity and mortality, especially when associated with complications such as secondary bacterial infection. Vaccination is the best way to prevention flu, especially important in risk groups. In Portugal, there are few studies about flu in ward.
Objectives: Characterization of the patients admitted in an internal medicine department (IMD) with a respiratory virus (RV) identified in respiratory secretions. Evaluate the impact of RVI during the flu season and development of a protocol for RVI's workup.

Methods: Observational and retrospective study, between October 2018 and March 2019, of patients admitted to an IMD, with a virus identified in respiratory secretions. Data obtained from the electronic clinical files. Statistical analysis performed using the SPSS®.
Results: A total of 275 respiratory virus detection tests were made, with 37% positive (n = 102); 8 patients were excluded because they were discharged. Sample constituted of 94 patients, 56.4% female (n = 53), median age of 71.5 years (IQR = 60.8-82.0), a functional index of approximately 90% and a median Charlson Comorbidity Index of 1 (IQR = 0.0-3.0). The Influenza virus A was the most frequent (87.2%; n = 82), followed by the Respiratory Sincitial Virus (16%; n = 15). The median length of hospital stay was 7 days (IQR = 4.0-11.0). The mortality rate was 10.6% (n = 10), 60% male (n = 6), median age of 83 years (IQR = 75.0-87.8), median length of stay until death of 7.5 days (IQR = 4.8-10.0). There was no statistically significant difference between the two agents, regarding these variables. Secundary bacterial infection was considered to be present in 36.2% of cases (n = 34). Analysing the inflammatory biochemical markers, the sample presented a median C-Reactive Protein (CRP) of 25.2 mg/L (IQR = 7.7-70.5), with 14.1 mg/L (IQR = 5.85-50.6) being the median in patients with viral infection and 37.0 mg/L (IQR = 15.4-120) in those with secondary bacterial infection. In 77.7% (n = 73) of the patients no leukocytosis was reported. There was 6 procalcitonin assays, median value of 0.1 ng/mL (IQR = 0.05-0.39). Empirical antibiotic therapy was instituted since admission in 85.1% (n = 80) of patients and empirical antiviral in 40.4% (n = 38). Viral isolation promoted discontinuation of antibiotic therapy in 17.5% of cases (n = 14) and antiviral institution in 76.8% (n = 43). In 40.4% of the cases (n = 38), there was flu vaccination, with lower median delay (5 days versus 7), without statistical significance.
Conclusions: There was a high profitability of virus scans, with INF-A being the most frequently identified. Isolations allowed therapeutic change in 60.6% (n = 57) of the cases. Empirical antibiotic therapy was started in 85% (n = 80) and was discontinued in 17.5% (n = 14) of the patients. At discharge, secondary bacterial infection was considered in only about 1/3 of patients (36%; n = 34). This allows us to infer the difficulty in distinguishing between isolated viral etiology of secondary bacterial infection. There were few procalcitonin assays, a biomarker that may help distinguish these two etiologies. Vaccination seems to correlate with a shorter hospitalization delay.

***Keywords**: Viral respiratory infections. Ward. Influenza. Respiratory syncytial virus.*

PC 090. INHALED AMIKACIN FOR TREATMENT OF PULMONARY NONTUBERCULOUS MYCOBACTERIAL DISEASE

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Introduction: Nontuberculous mycobacterial (NTM) are difficult to eradicate. Usually, treatment of NTM pulmonary disease requires a prolonged multidrug regimen, with non-negligible toxicity and limited efficacy. Inhaled amikacin has been proposed as an option for refractory Mycobacterium avium complex (MAC) pulmonary disease.
Methods: Retrospective analysis of patients with NTM pulmonary disease that have been proposed for amikacin inhalation therapy in Centro de Diagnóstico Pneumológico de Gaia, between 12/2017 and 08/2019. All patients were submitted to tolerance test to inhaled amikacin (clinical evaluation and spirometry at baseline and after amikacin inhalation). Exclusion criteria for starting the antibiotic: poor tolerance, namely decrease in FEV1 ≥ 15% following inhalation of amikacin.
Results: From a total of 10 patients, one was excluded because FEV1 dropped by 26.6% (200 mL). All patients started inhaled amikacin after a 3 to 6 months period of lead-in with injectable amikacin.
Conclusions: Inhaled amikacin can be a valuable therapeutic adjunct in some patients with refractory NTM pulmonary disease. In our cohort, there were no significant adverse events. Prospective studies are required to clarify the clinical efficacy and the safety profile of inhaled amikacin.

***Keywords**: Inhaled amikacin. Nontuberculous mycobacteria.*

PC 091. INDIVIDUAL CONDITIONS AND CLINICAL RESPONSE IN PNEUMOCYSTIS JIROVECII PNEUMONIA: A RETROSPECTIVE ANALYSIS

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Introduction: Pneumocystis jirovecii is a major cause of pneumonia in immunocompromised individuals. Its prognosis may be associated with some pre-existing conditions and influenced by timing of adequate treatment institution.
Objectives: This study aimed to estimate the burden of immune compromise states and to evaluate the impact of individual risk factors on patient response and mortality, during treatment for Pneumocystis jirovecii pneumonia.
Methods: Retrospective analysis of patients admitted under hospitalization with pneumocystis jirovecii pneumonia over a period of 6 years, performing data recollection of individuals submitted to search and with identification of this agent in respiratory samples. Measurements included immune compromise conditions, timing of appropriate treatment institution, length of hospitalization and presence of poor prognostic factors frequently described in literature.
Results: Data of 45 individuals were collected. They were mostly of male gender (n = 33; 73.3%). The mean age was 59.6 ± 14.8 years (minimum 28; maximum 84 years). Human immunodeficiency virus infection (n = 17), solid or haematological neoplasms (n = 17), chronic corticosteroid therapy (n = 13), cases of antineoplastic chemotherapy regimen (n = 10) and kidney transplant recipient (n = 3) were identified in the sample. A low control of pre-existing condition(s) resulted in a delay in clinical response (29.5 ± 18.1 days versus 22.6 ± 10.7 days, with a p value of 0.205). In eighteen patients (40%) agent-directed antibiotic was instituted seven or more days after hospitalization. A statistically significant association was found between timing of appropriate treatment institution and death occurrence ($p < 0.05$). During appropriate treatment of infection, there were reports of shock (n = 9; 20.0%) and invasive mechanical ventilatory support (n = 6; 13.3%). In-hospital mortality rate was 26.7% (n = 12).
Conclusions: This analysis highlights the impact of non-controlled pre-existing disorders over clinical response to specific treatment of Pneumocystis jirovecii pneumonia. This study suggests that a delay in appropriate treatment institution may have a negative influence on patients' survival; a high index of suspicion is necessary in the presence of immune compromise conditions. Future studies/trials will be essential to confirm these, and other data recently published.

***Keywords**: Pneumocystis jirovecii pneumonia. Mortality. Immune compromise.*

PC 092. PNEUMONIA IN THE IMMUNOCOMPROMISED PATIENT. CASE REPORT

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Introduction: Pneumonia is one of the most common invasive infections in immunocompromised patients and still carries both a high mortality and morbidity rate. Symptoms and signs may be mild and

pathogenic microorganisms differ from the most common in the general population.
Case report: 75-year-old Caucasian man with a history of diffuse large-cell non-Hodgkin's lymphoma (undergoing the sixth cycle of chemotherapy, in remission), AHT, COPD, high suspicion of hypersensitivity pneumonitis, unknown history of varicella infection, denies flu vaccination. He presented to the ER with a clinical history of cough, fever and pruritic skin lesions with four days of evolution beginning on the thorax and with a craniocaudal distribution. The physical exam revealed tachypnea, with signs of respiratory distress; pulmonary auscultation with bronchovesicular murmur maintained bilaterally, with crackles scattered throughout both lung fields; inspection with dispersed and variable size erythro purpuric maculopapular lesions without sparing palms, plants and scalp, which did not blanched to digital pressure. Analytically with leukocytosis and neutrophilia, hyponatremia and increased C-reactive protein. Gasimetrically with type 1 respiratory failure. Chest X-ray with bilateral pleuroparenchymal lesions. Chest CT showed a honeycomb-patterned pulmonary fibrosis, as well as areas of interstitial lesion with a ground-glass pattern. Initially the main differential diagnoses were viral pneumonia in an immunocompromised patient vs community-acquired pneumonia associated with vasculitis in the context of hematologic disease. The patient underwent treatment with oxygen therapy, antibiotic therapy, antiviral and corticotherapy. On the third day of hospitalization the patient evolved to respiratory failure requiring endotracheal intubation and transfer to a Intensive Care Unit. Bronchofibroscopy revealed bronchial mucosal lesions similar to those of the skin. Cultural examination of bronchial secretions was negative. Serologies: Negative for Legionella, Weil-felix, Widal, HIV, VDRL and Pneumocystis jirovecii. PCR research of Herpes Varicella-Zoster virus in the blood was positive. Skin biopsy revealed histopathological findings compatible with herpetic infection. The patient showed an improvement in rash and breathing pattern at 2 weeks of treatment but the weaning from invasive ventilation was unsuccessful. The patient died on the 36th day of hospitalization.
Discussion: Herpes zoster is about 5 times more common in patients with hematologic cancers when compared with the general population. Between 5% and 15% of cases of adult chickenpox will produce some form of pulmonary illness. Immunosuppression is a risk factor for progression to pneumonia in a herpetic infection. Varicella pneumonia has a relatively high rate of respiratory failure, but early diagnosis with prompt administration of antiviral medication can improve outcomes.

Keywords: *Pneumonia. Varicella-zoster virus. Immunossupresion.*

PC 093. PASTEURELLA MULTOCIDA PNEUMONIA: THE IMPORTANCE OF ANAMNESIS

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Introduction: Pasteurella multocida (P. multocida) is a Gram-negative, commensal aerobic bacteria present in the oropharynx of pets, such as cats and dogs, and which in humans may be responsible for scratching or bite infections. Skin and soft tissue infection is the most common cause, and the respiratory tract being the second most common site of infection, affecting mainly individuals with underlying chronic lung disease, immunocompromised and elderly.
Case report: 43-year-old female from Romania living in Portugal for the last 12 years. Active smoking (10 cigarettes/day). Right pneumonia in April 2018. Denied usual medication. Profession: shellfish collector. Indicated the presence of cats and dogs at home. In August 2018 she went to the Emergency Department with a clinical condition with about 15 days of evolution, characterized by cough with mucopurulent sputum, functional dyspnea, asthenia and weight loss of about 2.5 kg. Denied fever or chest pain. She referred a dog bite and contact with sick cats. Cardiopulmonary auscultation revealed crackles in the base of the right hemithorax. Analytically with elevation of inflammatory parameters (CRP 16.7 mg/L) and with normocytic and normochromic anemia. Arterial blood gases without alterations. CXR showed condensation in the middle lobe and the sputum smear was negative. For a complementary diagnostic study, and considering it was a second episode of pneumonia with the same radiologic localization, a CT scan was performed, which showed consolidation with air bronchogram in the external segment of the middle lobe and bronchofibroscopy, which revealed the presence of large mucopurulent secretions at the level of the middle lobar bronchus and the basal pyramid; P. multocida multisensitive was isolated in the aspirate and bronchial lavage performed. She had 10 days of amoxicillin/clavulanic acid with good clinical, analytical and radiological evolution. Not yet motivated for smoking cessation, but gradually reduced consumption (about 5 cigarettes/day). Analytical study of autoimmunity and immunology was normal. Maintained follow-up in Pulmonology consultation.
Discussion: P. multocida is a zoonotic agent that can cause a wide spectrum of infections in humans. Beta-lactam therapy for 7 to 14 days is the treatment of choice for P. multocida pneumonia, and in this case, the good clinical and radiological resolution occurred after its establishment. Obtaining a detailed clinical history, particularly with regard to contact with animals, is essential for the suspicion of this etiological agent, for the selection of the pertinent diagnostic/therapeutic complementary exams and for the implementation of appropriate antibiotic therapy.

Keywords: *Pasteurella multocida. Pneumonia. Zoonosis.*

PC 094. CHRONIC COUGH: A CHALLENGING DIAGNOSIS

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Introduction: Chronic cough is a common clinical complaint, with relevant impact on patient's life quality. The main causes are the postnasal drip syndrome, asthma, bronchial hyperractivity, gastroesophageal reflux disease, smoking, chronic bronchitis, emphysema, atopy and drug iatrogenesis, among other less frequent causes. Clinical history and physical examination suggest the etiology in over half the cases, nevertheless, achieving a diagnosis might be challenging.
Case report: The authors present the case of a 79 year-old woman, non-smoker, with previous occupational exposition to cork for 20 years. She has a medical history of gastroesophageal reflux and a hemodynamically significant aortic stenosis, the last one proposed for surgical intervention. The patient is followed in Primary Health Care due to 10-month long complaints of dry, irritative cough, which worsens in the supine position. She was also recently evaluated at a pulmonology consultation due to chronic cough and identification of a 6 mm pulmonary nodule on chest CT. The patient goes to the emergency department of Hospital de Santa Maria due to an increase in cough intensity, haemoptoic sputum and chills. She reports two respiratory tract infections in the last three months, treated on an outpatient basis. At evaluation the patient is hemodynamically stable, with a 96% peripheral oxygen saturation. Chest auscultation reveals crackles on the lower third of the right pulmonary field and global wheezing. Additional investigation reveals elevated analytical inflammatory parameters and a consolidation in the middle lobe on chest radiograph. The patient is admitted at the pulmonology ward due to community-acquired pneumonia and initiates empirical antibiotic therapy. Chest CT reveals a cavitary middle lobe pneumonia and no other changes are described. Despite the decrease in inflammatory parameters, there is maintenance of episodes of dry cough and intermittent wheezing. Bronchofibroscopy is performed, revealing a partial obstruction of the intermedi-

ate bronchus by an 8 mm larger diameter animal bone, which is removed, following complete resolution of the previously mentioned complaints.
Discussion: The approach to chronic cough follows an etiological investigation logarithm, largely supported by response to therapy directed to the most common causes. The identification of etiologies often implicated in cough may delay the diagnosis. We emphasize the importance of identifying alarm signs, such as haemoptysis, recurrent respiratory tract infections, and complaints or physical examination changes which are persistent, therefore requiring additional investigation.

Keywords: *Chronic cough. Foreign body.*

PC 095. PULMONARY ACTINOMYCOSIS. THE GREAT MIMIC

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Introduction: Actinomycosis is a rare, indolent and slowly progressive granulomatous infection caused by species of Actinomyces, facultative anaerobic Gram-positive bacteria. Pulmonary actinomycosis results from aspiration of oropharyngeal or gastrointestinal secretions into the respiratory tract, with risk factors being poor hygiene or oral mucosal lesions and dental procedures. The diagnosis of asymptomatic pulmonary actinomycosis is difficult, not only due to the rare isolation of these bacteria in culture, but also due to the imaging presentation of the infection as a slowly growing mass, mimicking pulmonary tuberculosis, lung abscess or neoplasia. The definitive diagnosis is based on histological or microbiological confirmation.
Case report: We report the case of a 77-year-old retired non-smoking logistician with a known history of essential hypertension, dyslipidemia, and peripheral venous insufficiency for whom she was treated and pleomorphic parathyroid adenoma. Surgical dental treatment of various dental parts since 2 years ago. Referenced to Pulmonology consultation for 8 months of evolution of tiredness and significant weight loss, without cough, sputum, dyspnea, fever, night sweats or other symptoms. Thoracoabdominal-pelvic CT scan with right upper lobe apex mass 4 cm of spiculated contours, suggestive of primary neoplasia, with small central cavity, without adenopathy or other findings. Objectively eupneic at rest in room air, pulmonary auscultation with vesicular murmur maintained bilaterally, without other alterations. CT-PET scan showed right upper lobe injury without suspicious metabolic expression. Analytically without relevant changes, tumor markers (NSE, SCC, CYFRA-21, CEA) within normal range. Bronchofibroscopy was normal, brushed and bronchial lavage was performed at the right upper lobe level with negative cultures and negative cytology for neoplastic cells. He repeated a new bronchofibroscopy with lavage in the right upper lobe with the presence of numerous filamentous structures morphologically compatible with Actinomyces spp. Given the clinical context and the findings of the complementary exams, the diagnosis of pulmonary actinomycosis was admitted and hospitalization was proposed for intravenous antibiotic therapy with high doses of Penicillin G for 6 weeks. Negative blood cultures. A chest CT-scan at discharge revealed evolution of the right upper lobe lesion to a 38 mm pneumatocele in close contact with a small-caliber bronchus. Given the favorable clinical and imaging evolution, the patient was discharged and indicated to maintain oral antibiotic therapy with Amoxicillin (1 g 8/8h). Six months after the beginning of therapy, the patient was asymptomatic, with weight recovery and imaging improvement of the lesion.
Discussion: Response of pulmonary actinomycosis to treatment should be monitored radiologically, with expected lesion decrease at 4 weeks of treatment. Surgery is reserved for cases that are complicated or unresponsive to medical therapy. This case reinforces the importance of differential diagnosis of pulmonary Actinomyces infection with tuberculosis, lung abscess or neoplasia as well as the rapid initiation of prolonged directed therapy to prevent disease progression.

Keywords: *Actinomycosis. Lung. Differential diagnosis.*

PC 096. AN UNUSUAL CASE OF OBSTRUCTIVE PNEUMONIA

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Introduction: Endobronchial chondromas are rare benign tumours made entirely from mature hyaline cartilage. They may appear in the larynx, trachea or the main bronchi.
Case report: We present a case of a 69-year old woman, non-smoker, with a history of hypertension for which she was medicated with olmesartan/hidroclorotiazide 20 mg/12.5 mg. She presented to the emergency room with a 3-day history of fever and left pleuritic chest pain. On physical examination she had no fever, was hemodynamically stable and showed no alterations on auscultation. A blood analysis was performed and showed C-reactive protein of 196 mg/dL and leucocytosis (17,000/uL) with neutrofilia. A thoracic CT scan revealed an alveolar pattern densification of the anterior segment of the left superior lobe, with air-bronchogram, that made contact with the mediastinal pleura, suggesting an underlying pneumonic process. She completed a course of levofloxacin with total recovery and after 4 months, a new CT scan was performed, revealing complete radiological clearance.
In order to exclude a possible neoplasm as the underlying cause for the radiological exuberance of our case, in a patient without any relevant medical history, a bronchoscopy was performed. The result showed a nodular endobronchial lesion of unknown etiology, in the anterior segmental bronchi of the left superior lobar bronchi, with partial obstruction. Bronchial biopsy showed inflammation and the cytologic analysis of the bronchial aspirate was negative for neoplastic cells. Another bronchoscopy was performed and, once again, the cytology of the bronchial aspirate and brush were negative for neoplastic cells. Histological analysis of the lesion revealed an endobronchial chondroma. The patient remained asymptomatic, without any new pneumonia episodes. A conservative strategy was decided, with follow-up consultations.
Discussion: Endobronchial chondromas are usually diagnosed late, because of their slow growth rate and unspecific symptoms. In our case, the bronchial obstruction caused by the tumour led to an episode of obstructive pneumonia, whose exuberance raised the clinical suspicion of a possible underlying endobronchial process which ultimately led us to the diagnosis.

Keywords: *Endobronchial chondorma. Obstructive penumonia. Bronchoscopy.*

PC 097. ACUTE RESPIRATORY ILLNESS IN SICKLE CELL ANEMIA: INFECTION VERSUS VASO-OCCLUSION

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Introduction: Sickle cell disease is the most common hereditary hematological disease, with a global prevalence of 7%. It is a hemoglobinopathy caused by the substitution of the sixth amino acid in the beta-globin chain, glutamate, by valine. This results in the formation of hemoglobin S (HbS). The transmission pattern is autosomal recessive, which means only homozygous individuals (SS) develop sickle cell anemia, while heterozygous individuals are carriers and mostly asymptomatic. When deoxygenated, HbS polymerizes, causing distortion of the erythrocytes, which become less flexible.

This loss of erythrocyte deformability is responsible for hemolysis and vaso-occlusion, the hallmarks of the disease. Vaso-occlusive crises can occur in any organ, and frequently affect the lungs. A severe complication, with a 25% mortality rate, is the acute thoracic syndrome (ATS), which can present similarly to pneumonia, with fever, cough, chest pain and hypoxemia, as well as de novo opacities in the chest radiograph.
Case report: The authors present the case of a 22-year-old female patient with sickle cell anemia (SS), medicated with hydroxyurea. She had had several recent hospital admissions for respiratory infections, and had been referred to Pulmonology clinic after pneumonia complicated with left pleural effusion. Since then, she had two other admissions for necrotizing pneumonia. Despite clinical improvement after antibiotic therapy, the chest radiograph showed a persistent opacity in the left lower lung field. She was admitted to the Pulmonology ward, presenting with high fever, dyspnea and left chest pain aggravated by inspiration, after being treated as an outpatient initially with amoxicillin/clavulanic acid, and subsequently with levofloxacin. The same roentgenographic changes were present, and blood tests revealed leukocytosis and elevated C-reactive protein, as well as acute anemia, requiring transfusion support. The patient was started on a course of piperacillin/tazobactam and linezolid, with clinical and laboratorial improvement. However, no causative agent was identified, even in culture of bronchoalveolar lavage. A previous CT pulmonary angiogram had excluded pulmonary embolism. Therefore, she underwent a ventilation/perfusion lung scan, which showed a perfusion defect in the left lower lung. These findings favored the hypothesis of vaso-occlusive events, which were admitted as the cause of repeated respiratory infections in the left lower lobe. After antibiotic and analgesic therapy, the patient's clinical status improved. She was then discharged and referred to Thoracic Surgery, to be evaluated for surgical resection of the necrotized area.
Discussion: The relationship between vaso-occlusive crises and respiratory infections is complex. Due to splenic infarcts, patients with sickle cell anemia are more susceptible to respiratory infections caused by capsulated organisms, such as Streptococcus pneumoniae. Moreover, areas of pulmonary consolidation, such as those occurring in pneumonia, create a hypoxic environment, which favors HbS polymerization, erythrocyte deformation and vaso-occlusion. On the other hand, repeated vaso-occlusive phenomena can result in pulmonary infarct and necrosis, which favor the development of infection. Both entities can coexist in the same patient, and a multifaceted approach is required to ensure the best prognosis.

Keywords: *Sickle cell anemia. Vaso-occlusive crisis. Acute thoracic syndrome. Pneumonia.*

PC 098. FROM RARITY TO REALITY: PNEUMONIA BY RAOULTELLA ORNITHINOLYTICA

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Introduction: The genus Raoultella is an aerobic Gram-negative bacterium within the Enterobacteriaceae family. Even though there are few cases described, the species Raoultella ornithinolytica appears as aetiologic agent in several diseases, mainly in urinary tract and systemic infections, and most rarely in Pneumonia, Sepsis or Peritonitis.
Case report: The authors present a case of a former smoker (60 pack-years), 74-year-old male, with diagnosed Chronic Obstructive Pulmonary Disease (COPD) GOLD 4B (under Budesonide 200 µg and Umeclidinium/Vilanterol), chronic respiratory failure under long-term oxygen therapy (0.5 L/min/24h) and arterial hypertension. He was admitted in Emergency Room in July/2019 with mucopurulent sputum and nasal obstruction with 3 days onset. At observation, had peripheral oxygen saturation of 84% (with 0.5 L/min oxygen through nasal cannula), with no fever, and breath sounds globally diminished at auscultation. In chest radiograph showed a homogenous hypotransparency in upper half of the left hemithorax. Blood analysis had increased inflammatory biomarkers (leucocytosis with neutrophilia and CRP of 28.82 mg/dL). In blood gas analysis, only had moderate hypoxemia (pO2 65). It was assumed a community-acquired pneumonia (CURB 2) and started IV therapy with Amoxicillin/Clavulanic acid (1.2 g) and Clarithromycin (500 mg), after sampling blood and sputum cultures. In sputum was isolated Raoultella ornithinolytica and Escherichia coli, sensitive to on-going antibiotherapy. In day 4 of therapy, after clinical and analytical deterioration (hypoxemia with hypercapnia), he started Non-invasive ventilation and increased Amoxicillin/Clavulanic acid dosage to 2.2 g 8/8h. He underwent Computer Tomography of Thorax (CT Thorax), which revealed a consolidation area with air bronchogram in upper left lobe and a gas-filled cavity, suggesting necrosis. At day 8, he started fever and had a radiograph aggravation, assuming Nosocomial pneumonia, collecting new blood and sputum cultures and switching antibiotherapy to Piperacillin/Tazobactam (4,500 mg) and Vancomycin (1,000 mg). All of the cultures were negative. He completed a total of 14 days of Piperacillin/Tazobactam and 11 days of Vancomycin with favourable response, clinically, analytically and imagiologically (reduced size of the cavitation), and therefore clinical discharge. It was assumed an exacerbation of COPD (GOLD D) due to necrotizing community-acquired pneumonia by R. ornithinolytica and E. coli, and probable nosocomial pneumonia with no microbial agent identified.
Discussion: The authors highlight the case, not only for the rarity of the causal aetiological agent, but also for the specificity of the diagnostic method used (Matrix Assisted Laser Desorption/Ionization, MALDI-TOF MS), which is only available in a few amount of hospitals. Even though there are few cases described and without knowing the real pathogenicity and virulence of this bacteria, the clinical features presented appear to be similar to the literature. The identification of this bacteria can be useful, not only in epidemiologic context, but also because it's described to produce beta-lactamase, leading to multiresistant. They also highlight the importance of performing additional studies to understand the real prevalence and incidence of pneumonia by Raoultella ornithinolytica and identify risk factors.

Keywords: *Cavitated necrotizing pneumonia. Raoultella ornithinolytica.*

PC 099. LUNG ABSCESSES AND EMPYEMA DUE TO FUSOBACTERIUM NECROPHORUM

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Introduction: Fusobacterium necrophorum is an anaerobic bacteria that is rarely isolated in daily practice. It is strongly associated with Lemierre Syndrome, which is characterized by the classic triad of thrombophlebitis of internal jugular vein after oropharyngeal infection (mostly tonsillitis) and detection of this agent in microbiological specimens. Outside the context of this syndrome, it is very rarely described but there are some reports of cases of bacteremia and septic metastization to lung, liver, bone, etc. in which the initial infections focus was gastrointestinal or genitourinary tract.
Case report: We report a case of a 36 years old man, smoker of 20 pack-years, with high consumption of alcohol (average of four beverages per day), without any other relevant medical or past history. He presents with productive cough and dyspnea for small efforts, worsening in the last three days, only two weeks after being hospitalized with a presumptive diagnosis of acute gastroenteritis. In this

new episode, he presented septic shock on admission (Blood pressure of 74/40 mmHg; heart rate of 166 bpm) and his arterial blood gas test documented a PaO2 of 59.7 mmHg and lactates of 7.5 mmol/L. His chest radiography detected a right pleural effusion of large volume. After thoracentesis, observation of purulent liquid and harvest of specimens for microbiology, a chest drain was introduced and a total of 1800mL of liquid was drained. Blood cultures (aerobic and anaerobic) were also obtained and the patient started an empiric antibiotic - Piperacilin/Tazobactam. As it was necessary to begin aminergic support, patient was first admitted to intensive care unit. A chest computed tomography was preformed and the patient showed to have consolidation areas, some of which with cavitation and a few well defined necrosed nodules, distributed in both lungs, mainly peripherally. Abdomen evaluation showed a liver mass, measuring 95 × 73 × 34 mm, compatible with abscess. When the patient was clinically stable, he was transferred to Pulmonology service, where it was known the results of hemocultures and microbiological exam of pleural effusion, all positive for Fusobacterium necrophorum.
Discussion: Despite bacteremia due to F. necrophorum being very rare (< 1% of all bacteremia), when associated to Lemierre Syndrome, metastases of septic embolus is very common, particularly to liver, bone and lung, not being exceptional the development of empyema in that context. This case is different because criteria for that syndrome it's not met, with a probable infectious focus in gastrointestinal tract. There is scant reports of Fusobacterium infection with a focus that is not presumably located at the level of the head and neck. Other particularity of the case is that this patient didn't present any risk factor, beside the alcohol consumption, that could contribute to the development of this infection: immunosuppression, diabetes mellitus, chronic kidney disease, bad dental status/hygiene or drug dependence/habits.

***Keywords**: Empyema. Abscess. Bacteriema. Lemierre syndrome.*

PC 100. FEBRILE NEUTROPENIA TO ROTHIA MUCILAGINOSA PNEUMONIA, A CASE REPORT

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Introduction: Rothia mucilaginosa is a gram-positive coccus micrococcaceae that is part of the normal microflora of the mouth and upper respiratory tract. Although it is believed to be of low virulence, it is increasingly recognized as an opportunistic pathogen mostly affecting immunocompromised hosts. The infections caused by this pathogen are generally quite rare, but R. mucilaginosa should be considered in the diagnosis of pneumonia in this group of patients.
Case report: We present the case of a 66 year-old man, diagnosed with a stage IV squamous cell lung cancer in September 2018, under chemotherapy with gemcitabine and cisplatin, the last cycle on 6th November. He was admitted on the 14th November 2018 with cough, haemoptysis, pleuritic left chest pain and fever since the previous 3 days. On admission, his body temperature was 39.5 ºC, pulse rate 122/min, respiratory rate 26 breaths per minute, pulse oximetry 88% (FiO2 21%) and blood pressure of 128/65 mmHg. Chest auscultation revealed diffuse crackles at the upper third of left hemythorax. Laboratory study showed a total white cell blood count of 2,060/mm^3 (neutrophils 520), hemoglobin 7.4 g/dL, platelet count of 22,000/mm^3, and C- reactive protein level of 115 UI/L. The chest CT revealed an increase of the cavitated lesion in the apical-posterior segment of the left upper lobe (compatible with the known lung tumour), currently with 74 mm, with a larger wall thickness, inseparable from an extensive parenchymal consolidative component, believed to be attributable to a concomitant respiratory infection. Due to a diagnostic hypothesis of febrile neutropenia secondary to pneumonia he was empirically treated with amoxicillin-clavulanic acid (1.2 g) and clarithromycin (500 mg). It was also performed a bronchoscopy with bronchoalveolar lavage (BAL) (on the 2nd day of antimicrobial treatment), that didn't reveal signs of active bleeding or endobronchial lesions. After three days of treatment, there was a mild clinical improvement but the maintenance of fever and an increase of C-reactive protein level to 150 UI/L, guided the change of antimicrobial treatment to piperacillin-tazobactam (4.5 g). After 3 days, there was a resolution of fever, improvement of neutropenia and a decrease on C-reactive protein. The culture of BAL identified Rothia mucilaginosa, with susceptibility profile to ongoing antimicrobial treatment, so it was confirmed the diagnosis of severe pneumonia to Rothia mucilaginosa, without bacteraemia (3 negative blood cultures), so it was completed 14 days of piperacillin-tazobactam with complete clinical and laboratorial improvement.
Discussion: As there are few documented cases of pneumonia due to Rothia mucilaginosa, the authors believe that presenting this case will be of great interest. The variable susceptibility of R. mucilaginosa to beta-lactams, aminoglycosides, macrolides and fluoroquinolones dictates that the choice of antimicrobial agents should be guided by individual susceptibility tests in cases of severe infection. Early diagnosis and timely administration of appropriate antimicrobial treatment are necessary to obtain a favourable outcome.

***Keywords**: Lung cancer. Rothia mucilaginosa. Febrile neutropenia. Pneumonia.*

PC 101. ROUND PNEUMONIA: UNUSUAL PRESENTATION OF PNEUMOCOCCAL PNEUMONIA

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Introduction: Round pneumonia is a rare subtype of lobar pneumonia which arises due to a developmental defect in connective tissue (pores of Köhn and channels of Lambert). Although it is a well-known entity in childhood, is rarely described in adults. It presents normally as small and solitary nodule, but densities can be multiple and larger. Most cases are attributed to Streptococcus pneumonia but microbiologic study must also include agents of atypical pneumonia. Authors present a case of a previously healthy 30-year old smoker that presented with multiple pulmonary nodules due to Strep. Pneumonia.
Case report: A 30 year-old Caucasian female, teacher, presented with a six-day history of cough with sputum, dyspnea, high fever, chills, asthenia and pleuritic left chest pain, with progressive worsening. Her medical history noted for smoking (10 pack -year), breast cysts and sinusitis. She denied any chronic medication or known allergies. She referred contact with a student with influenza A virus flue but had no recent history of travelling to foreign countries or animal exposure. On admission she was febrile, sweaty, pale and had bilateral discrete bilateral crackles on auscultation. Her arterial blood gas analyses at room air revealed hypocapnia (FIO2/PaO2 0.23) and elevated lactate. Laboratory workup showed thrombocytopenia, elevated C-reactive protein and acute kidney disease. Chest X-Ray revealed round densities on both lungs and blunting of the left costophrenic angle. Nose swab was negative for influenza A virus but S. pneumoniae urinary antigen was positive. Blood cultures were collected and patient was started on intravenous ceftriaxone and azytromicin. Four hours after her emergency admission and despite medical therapy and oxygen supply her vital signs and blood gas analyses worsened dramatically (FIO2/PaO2 2.12), CT scan showed multiple large roundshaped consolidations with air bronchogram and she was admitted to the intensive care unit. Further microbiologic study with search for agents of atypical pneumonia was performed but negative and repeated blood, sputum and urine cultures were persis-

tently negative. The patient showed progressive clinical improvement with lung consolidations resolution and she was discharged after 3 weeks of hospital treatment.
Discussion: Differential diagnosis of multiple pulmonary nodular opacities is wide and includes tumor involvement, particularly if risk factors are present. Also, infection, immunological causes, metabolic or vascular causes or professional diseases. Septic presentation and decrease in size/resolution of lung nodules after antibiotic therapy favors an infectious cause. Round pneumonia is a rare subtype of lobar pneumonia, that presents as nodular opacities, mostly described in children. In conclusion, authors aim to raise awareness since multiple-lesion round pneumoniae is an infrequent but benign cause of multiple pulmonary nodules.

Keywords: *Round pneumonia. Pores of Köhn. Channels of lambert. Streptococcus pneumoniae.*

PC 102. THEY WERE FUNGI AFTER ALL!

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Introduction: Single pulmonary aspergilloma is one of the most common and well-recognized forms of pulmonary involvement by Aspergillus spp, occurring predominantly in pre-existing cavitary lung lesions.
Case report: The authors present a case report of a 69-year-old female, non-smoking, textile worker (33 years) with a history of pulmonary tuberculosis at 20 years of age, referred to the attending physician for a clinical course of 3 months characterized by dry cough of nocturnal predominance and 3 episodes of small amount hemoptoic sputum. The patient underwent chest computed tomography which revealed nodular formation with irregular soft tissue density of 29mm and small calcifications in the apical-posterior segment of the left upper lobe with contrast uptake. The patient was referred for pulmonology consultation and underwent videobronchoscopy that presented total occlusion of the anterior segment of the left superior lobar bronchus and enlargement of the spurs of the apical-posterior segment of the left superior lobar bronchus. The pathological result was negative for neoplastic cells. Positron emission tomography/computed tomography revealed abnormal nodule hypermatabolism as well as mild to moderate hypermetabolism in the left hilar region. Due to the location of the nodule, she was rejected for transthoracic biopsy and proposed for thoracic surgery (nodule excision) whose anatomopathological study reported an aspergilloma. The patient is now totally asymptomatic.
Discussion: The authors present the case by the unexpected diagnosis, as well as to demonstrate that not all lesions/lung masses correspond to malignant lesions, even if they present characteristics of malignancy.

Keywords: *Aspergilloma. Tumor.*

PC 103. HYDROCARBON PNEUMONITIS AFTER GASOLINE SIPHONAGE

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Introduction: Hydrocarbon pneumonitis following fuel aspiration is a rare form of acute pneumonitis. It's associated to professional exposure in fire-eaters workers or in siphonage of fuel (the latter are more rarely reported). The more common imagiological findings are atelectasis, consolidation with an air bronchogram and ground glass attenuation, most commonly in lower lobes and middle lobe (less frequently). Hydrocarbon pneumonitis is related with macrophages' activation, inducing bronchial edema, tissue damage and surfactant destruction; the inflammatory response is more important than the direct action of compounds. Usually, the patients recover without significantly sequels.
Case report: Male, 62-year-old, non-smoker, without relevant medical history, came to ED for accidental ingestion of gasoline after motor's siphonage. As he was asymptomatic and had no imaging or physical findings, he was under surveillance for a few hours and was discharged. He came again to ED after 10 days, reporting an episode of large volume hemoptysis. He referred to have dry cough, dyspnea and wheezing since the day of ingestion. At physical examination: hemodynamically stable, apyretic, oxygen saturation of 97% in room air, crepitations on the right inframammary region on pulmonary auscultation. Blood analysis without alterations. The chest radiograph revealed a right paracardiac opacity with silhouette sign. Computed tomographic (CT) scan of chest showed an irregular densification in the middle lobe, with 5 cm diameter, with bronchovascular involvement, air bronchogram and an adjacent ground-glass area. Considering imagiological pattern of bronchovascular involvement, the option was hospitalization for antibiotherapy and clinical surveillance. He had started empiric antibiotherapy with amoxicillin/clavulanate and azithromycin. Subsequently he performed a bronchoscopy, which revealed inflammatory signs in the middle lobar bronchus' mucosa, were the bronchial brushing was made. No microbiological isolations were detected and the bronchial brushing results were negative for neoplastic cells. Considering the clinical and imagiological improvement he was discharged for ambulatory consultation. The thorax CT scan was repeated one month later with a great improvement in the middle lobe densification, assumed in context of hydrocarbon pneumonitis. The patient stayed asymptomatic after discharge.
Discussion: The hydrocarbon pneumonitis is a relatively uncommon cause of acute pneumonitis. It is more frequent in the lower lobes, mostly on fire-eaters. In this case, the location on the middle lobe may be due to the fact that in siphonage the preferential position is the body leaning forward, while in fire-eaters (most reported cases) there is usually orthostatism while aspiration. The clinical presentation is often non-specific and includes dyspnea, cough, thoracalgia and hemoptysis. Frequently there is resolution of the condition in a few days just with conservative treatment. In such case, the asymptomatic period between aspiration and the symptoms led to considering other hypothesis such as infection or neoplasia, being treated with empirical antibiotherapy. Attention is draws to a less usual cause of aspiration pneumonia, being that the early diagnosis is important to the reduction of morbidity and anticipating other possible complications of hydrocarbon intoxication, both at pulmonary and organic levels.

Keywords: *Pneumonia. Aspiration pneumonitis. Hydrocarbon. Siphonage.*

PC 104. CHRONIC CAVITARY PULMONARY ASPERGILLOSIS

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Introduction: Chronic pulmonary aspergillosis comprises several manifestations of the disease, including simple aspergilloma, Aspergillus nodules, chronic cavitary pulmonary aspergillosis, and chronic fibrotic pulmonary aspergillosis. It usually occurs in patients with structural lung pathology, most often sequelae of tuberculosis and chronic obstructive pulmonary disease.
Case report: Male, 74 years old, smoker (50 pack year) with known medical history of pulmonary tuberculosis (PT), not treated, with left lung sequelae. Patient was observed in a Pulmonology consulta-

tion after the Emergency Department due to mild hemoptysis, increased inflammatory parameters and hypotransparency in the upper third of the left hemithorax. He underwent chest CT that showed a thick wall cavitation with the hypothesis of reactivation of PT, occupation by mycetoma, or infectious complication of bronchiectasis. Following the study, he underwent bronchofibroscopy: macroscopic non-specific inflammatory changes and, the bronchoalveolar lavage was positive for Galactomannan antigen and isolation of Aspergillus niger, and was negative for neoplastic cell, culture tests, and acid fast bacilli test. He started treatment with voriconazole 200 mg 12/12h; reassessment chest CT after 6 weeks showed decreased contents within the cavitation and the patient was clinically asymptomatic. There was a need for discontinue therapy for mild hepatic toxicity which he retook at a lower dose -100 mg 12/12h- after 12 days. On his own initiative, the patient discontinued antifungal therapy after 7 months of treatment. In the reassessment imaging exams it remained stable, with cavitation but no intracavitary nodular area.
Discussion: Surgical excision of simple aspergilloma is recommended. Long-term antifungal therapy is indicated for chronic cavitary pulmonary aspergillosis. Careful monitoring of antifungal serum concentrations, drug interactions and possible toxicities is recommended. Patients with single Aspergillus nodules only need antifungal therapy if not fully resected, but if multiple they may benefit from antifungal treatment.

***Keywords**: Aspergillosis. Aspergillus. Mycetoma. Cavitation. Fungal infection.*

PC 105. OLIGOPHRENIA AND CHRONIC COUGH. WHAT TO THINK ABOUT?

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Introduction: Cough is one of the most frequent causes of visits to the doctor's office. The most common causes of chronic cough are postnasal drip, gasteroesophageal reflux disease and asthma. A chronic cough lasts longer than 8 weeks.
Case report: A 65-year-old male patient, non-smoker, oligophrenic, referred to General Pulmonology consultation for cough with 3 years of evolution and changes in chest radiography. During the physical examination, a non-cooperative patient with peripheral oxigygen saturation of 95%. The chest radiography showed a hypotransparent lesion in the right pulmonary base. The thoracic computed tomography scan disclosed a slightly curvilinear 4 cm-long linear image proximal to the right inferior lobar bronchus. Distally to this location, there were exuberant bronchiectasis and proximally multiple micronodular lesions suggesting inflammatory or infectious disease. The possibility of a foreign body –bone– was considered. The bronchofibroscopy reavealed swollen mucosa throughout the right bronchial tree, a plug secretions in the origin of the right lower lobar bronchus and the foreign body, that was resected. The bronchial aspirate was negative for neoplastic cells and the bronchial biopsy revealed respiratory mucosa with chronic inflammation associated with foreign body – bone tissue and colonies of microorganisms with Actinomyces morphology. He did doxycycline for 6 months. At follow up visit, the patient was clinically better, with no cough or sputum and with no changes in the chest radiography.
Discussion: Foreign body aspiration is an uncommon condition in adults and it is often associated with neurologic disorders. A detailed clinical history, a complete physical examination and appropriate diagnostic tools are essential for timely diagnosis and to prevent late complications.

***Keywords**: Chronic cough. Foreign body.*

PC 106. THE CHERRY ON TOP OF THE DIAGNOSIS

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Introduction: Foreign body aspiration is more common in children than adults and symptoms can be very subtle in the latter group. The most common causes of foreign body aspiration in adults are age over 75, neurologic and psychiatric disorders, altered mental status and ineffective chewing by the use of inadequate dental prosthesis.
Case report: An 82-year-old male patient, ex-smoker, with previous history of chronic obstructive pulmonar disease, congestive heart failure, benign prostatic hyperplasia and dementia, referred to General Pulmonology consultation for dyspnea, productive cough and recurrent respiratory infections with 2 years of evolution. During the physical examination, patient with peripheral oxigygen saturation of 95%, without alterations. Previously, the patient did a chest radiography, a flexible bronchofibroscopy and a thoracic computed tomography scan. The chest radiography revealed a bronchovascular strengthening. The bronchofibroscopy showed an endobronchial mass with necrotic appearance and mucopurulent secretions partially obstructing the right upper lobar bronchus, that couldn't be removed with forceps or aspiration. The bronchial brush and biopsies were negative for neoplastic cells and the bronchial aspirate was positive for E. coli and M. morganii, susceptible to cefotaxime. The thoracic computed tomography scan disclosed a rounded and endoluminal nodular image with higher peripheral density and two foci of coarse millimetre calcifications located in the right superior lobar bronchus compatible with foreign body. The patient was admitted to the Pulmonology Department. The patient underwent rigid bronchoscopy, which confirmed the presence of a rounded formation, covered by purulent secretions at the level of the right upper lobar bronchus, compatible with a cherry stone, which was completely removed. The bronchial aspirate was negative for neoplastic cells and the bronchial biopsy revealed a non-specific chronic inflammation. After foreign body removal, the respiratory clinic improved and the patient was discharged in short term.
Discussion: Foreign body aspiration is an uncommon condition in adults, but if present can lead to potentially serious long-term complications, including aspiration pneumonia, bronchiectasis, hemoptysis, lung abscess and also mimics lung cancer in imaging.

***Keywords**: Respiratory infections. Aspiration. Foreign body.*

PC 107. ROUND PNEUMONIA: CLINICAL CASE

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Introduction: Round pneumonia is a rare presentation of pneumonias. Is a bacterial infection that occurs most often in children and is manifested radiologically as an opaque rounded, well defined, in the lower lobes simulating a lung mass. It is a rare entity in adults representing less than 1% of cases.
Case report: The authors describe the case of a 36-year-old patient, female, observed by a vespertine fever, sporadic episodes of cough without sputum and easy tiredness with about four days of evolution. Smoker (10 units pack year), family history of cancer (father and uncle deceased by stomach cancer). Normal vital signs and without changes to the examination of respiratory system. The chest X-rays evidenced rounded image about 4 cm in diameter on the upper lobe of the left lung and the chest computed tomography (CT) showed nodular hyperdensity in the apico-posterior segment of the left lung (4 × 3 cm), with air bronchograms, contours irregu-

lar and discreetly apparent contact with the pleura, without pleural effusion. The patient was treated with amoxicillin + acid clavulanic and clarithromycin. Returned on the fifth day of treatment asymptomatic and chest X-rays revealed considerable improvement. On the tenth day of treatment, was again observed, asymptomatic and brought a new chest x-rays without changes.
Discussion: The pathophysiological mechanism of round pneumonia not well studied. It is thought that initially there is an exudative inflammatory process, which spread by direct extension through the pores of Kohn and the canals of Lambert, segmental distribution. Subsequently, the centrifugal spread peri-bronchial inflammatory process determines the appearance of segmental or lobar image. The radiological aspect is early stage round in the evolution of the disease. In children, the pores of Kohn are underdeveloped and the connective tissue septa and alveoli is scarce, which helps to produce more compact and confluent areas of margins bounded, more frequent in this age group. Being an entity infrequent in adults, the differential diagnosis must be made with round atelectasis, post inflammatory pseudo tumor, bronchogenic cyst, pulmonary sequestration, blastoma, arterio-venous malformation, hamartoma, metastases and mediastinal masses, when in contact with the mediastinum. The big clue to the diagnosis of pneumonia is the presence of air bronchograms inside the mass, often only provable by chest CT. The primary aetiological agent is the Streptococcus pneumoniae, although others like the Micoplasma pneumoniae, Chlamydia pneumoniae, Legionella pneumophila, Klebsiella pneumoniae, Coxiella burnetii, Mycobacterium tuberculosis, may be involved in less frequently. The treatment is essentially clinical and antibiotic treatment directed toward the primary aetiological agent must be indicated. Usually the clinical and radiological response is quick and favorable. Before a radiological rounded image, with air bronchograms without clinical signs that suggest malignancy is reasonable to formulate the hypothesis of round pneumonia and wait for the clinical response to antibiotic therapy, delaying diagnostic procedures of greater complexity.

Keywords: *Round. Pneumonia. Adult.*

PC 108. SALMONELLA EMPYEMA: THE HISTORY OF A RARE CASE

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Introduction: Salmonella is a pathogenic enteric agent responsible for gastrointestinal and extra-intestinal infections. Pleuropulmonary infections by these gram-negative bacteria are rare.
Case report: A 83 year old male patient attended the emergency department with a one-week history of fever (38.2 ºC), productive cough, dyspnea and pleuritic pain localized to the right hemithorax. He denied nausea, vomiting, diarrhea and had no history of smoking or respiratory diseases. The patient had a medical history of myelodysplastic syndrome with excess blasts, requiring blood transfusion support every fifteen days. At physical examination the patient was pale, afebrile and eupneic. Pulmonary auscultation revealed decreased of the breath sounds and dullness to percussion over the right base. Chest radiography showed right base opacification and thorax computerized tomography revealed a right loculated pleural effusion with adjacent parenchymal consolidation and mediastinal lymphadenopathy. The laboratory tests revealed anemia (Hb 6.8 g/dL; Htc 19.8%) no leukocytosis (5,700 cells/µL; 3.65 × 10^3/µL (60%) neutrophils) and an elevated C-reactive protein (36.2 mg/dL). Urinary antigen for Legionella and Pneumococcus were negative. Blood cultures were obtained. A diagnostic ultrasound-guided thoracentesis was performed, which revealed a purulent pleural fluid. Samples of fluid were sent for culture and cytological analysis. A thoracic chest tube was inserted, with drainage of 450 mL of purulent fluid. Respiratory physiotherapy was started. It was assumed pneumonia with empyema and empiric antibiotic therapy was initiated with amoxicillin/clavulanic acid associated with clindamycin. Pleural fluid revealed an exudate with the following parameters: pH 6.24, glucose < 5 mg/dL, lactate dehydrogenase 6,743 U/L and proteins 3.8 g/dL. Cytology: 97,600 cells/mm^3 with 99% neutrophils. Pleural fluid and blood cultures were positive for Salmonella enteritidis. Antimicrobial susceptibility testing showed sensitivity to cotrimoxazole, ceftriaxone, ciprofloxacin and ampicillin. Stool cultures were negative for pathogens. In the presence of Salmonella non-typhi bacteremia with empyema and on the basis of antibiotic sensitivity, were started intravenous ceftriaxone and ciprofloxacin, resulting in clinical and laboratorial improvement. After seven weeks of antibiotic therapy, with negative blood cultures, the patient was discharged, with significant imaging improvement.
Discussion: This patient was a successful case despite his uncontrolled hematologic disorder. The diagnosis was challenging by the lack of gastrointestinal symptoms and no leukocytosis. Pleuropulmonary disease due to non-typhoid Salmonella is extremely rare and has a high mortality but should be considered in immunosuppressed patients. In this case the source of the patient's Salmonella wasn't discovered.

Keywords: *Empyema. Salmonella.*

PC 109. SPECIFIC BACTERIAL VACCINES. SINGLE STIMULUS VERSUS REIMMUNIZATION

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Introduction: Specific bacterial immunotherapy (ITBE) is a relatively recent tool in infection prevention strategy and with scarce clinical experience data. However, there has been increasing interest in its application, especially in preventing exacerbations of chronic obstructive pulmonary disease (COPD), with good results.
Objectives: To evaluate the efficacy in reducing the number of exacerbations of patients with chronic respiratory disease and frequent infectious exacerbations, with and without repetition of stimulus.
Methods: Retrospective study of a convenience sample of patients followed at the Consulta de Readaptação Funcional Respiratória of the Pulmonology Department of the Centro Hospitalar Universitário de Coimbra, with frequent infectious exacerbations (3 or more) despite the best therapeutic strategies employed. ITBE was used as an add-on therapy. Demographic and clinical data were analyzed, namely number of exacerbations 1 year before therapy and 2 years after. The total number of patients after the first immunization was divided into two groups, one containing reimmunized patients and the other not, comparing the results.
Results: Sample consisting of 10 individuals, 40.0% male, mean age 62.5 years. Seven had non-cystic fibrosis bronchiectasis, 2 COPD and 1 patient Mounier Kuhn syndrome. Three patients were on or were on long-term azithromycin therapy, 1 patient on inhaled colistin and 2 on inhaled tobramycin (colonized with Pseudomonas aeruginosa). Of the total, 4 patients had bacterial colonization [Pseudomonas aeruginosa (4) and/or Haemophilus influenzae (1)] and received a personalized vaccine with a higher percentage of colonizing agent (at least 10% in the composition) associated with at least 50% of standard microorganisms. The remaining 6 received the standard vaccine. The 10 patients initially treated had an average of exacerbations in the previous year of 3.4 (0.7 with hospitalization). In the year after therapy the average number was 1.2 exacerbations (0.2 with hospitalization). The data were then analyzed again (1 patient excluded, died of stroke) on 4 reimmunized patients and 5 non-immunized patients. The reasons for repetition were not only presence/absence of benefit (which could introduce very important bias) but also cost and

convenience, allowing, in a way, to standardize the 2 groups (this is evidenced by the similar number of exacerbations both 1 year before and after ITBE of both groups). The average number of exacerbations of the reimmunized in year 2 was 0.8 (no hospitalizations) and in the non-immunized was 3.3 (0.8 with hospitalization). When comparing the groups, no statistically significant difference was obtained, namely in the number of exacerbations requiring hospital stay.
Conclusions: With the caveats of a very small sample, there seems to be a difference in the mean exacerbations between groups depending on whether or not reimmunization is performed (despite the absence of statistical significance probably due to sample size), suggesting, in line with the available literature, the benefit of this therapy is obtained and maintained with repeated stimulation.

***Keywords**: Specific bacterial immunotherapy. Exacerbations.*

PC 110. WHAT IS THE IMPACT OF BACTEREMIA IN PNEUMONIA DUE TO S. PNEUMONIAE?

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Introduction: S. pneumoniae urinary antigen detection is a quick test with high sensibility and specificity. Isolation of the agent is important for identifying false positives and resistances, but in many pneumonias blood cultures are negative. The impact on prognosis of the presence of bacteremia on pneumonia due to Streptococcus pneumoniae (SP) is not clear.
Objectives: Comparative analysis of patients with community acquired pneumonia (CAP) due to SP admitted on an Intensive Care Unit (ICU), with or without associated bacteremia, relatively to comorbidities, organ failure and mortality.
Methods: Retrospective analysis of clinical and laboratorial data of patients admitted to an ICU for CAP due to SP, during a 5 years period. The patients were separated based on the presence or absence of SP isolation on blood cultures. Hyponatremia was defined as a serum sodium level under 135 meq/dL. Organ failure was defined as the need for invasive mechanical ventilation, vasopressors (norepinephrine or equivalent) or renal replacement therapy. The ventilator-free days and alive (VFD) on the first 10 days after admission to ICU were calculated for both groups.
Results: 28 patients were included, 12 with positive blood culture (PBC) and 16 with only positive urinary antigen test (negative blood culture - NBC). The majority was male (PBC 67% vs 56% in NBC), with a mean age of 60.3 ± 19.6 years old in PBC and 69 ± 13.8 in NBC (p = 0.218). Patients in NBC group have more frequently comorbidities (≥ 2, 31.3% vs 18.2%), namely heart failure (38% vs 25%), diabetes mellitus (38% vs 25%) and COPD (31% vs 8%), although less chronic renal failure (13% vs 17%) or human immunodeficiency virus infection (6% vs 8%); 19% of NBC were active smokers (vs. 8% in PBC). In PBC patients the presence of leukocytosis and hyponatremia, and also reactive C protein concentration (35.8 vs 37.0 mg/dL, p = 0.80) were similar to NBC group. The need for support of a least one organ was similar (PBC 33% vs 31% NBC; p = 0.91). The most common organ support was invasive ventilation (42% on PBC group and 25% on NBC, p = 0.350). The VFD was similar in both groups, 7.8 days in PBC group and 7.5 in NBC group. The need for vasopressor support and renal replacement therapy, in PBC and NBC groups, was, respectively, 25% and 31%, and 17% and 19%. The mean ICU length of stay (on survival patients) was also similar: PBC group 5.4 ± 2.0 vs 5.6 ± 4.9 days on NBC group (p = 0.55). The mortality rate was 17% with PBC and 13% with NBC (p = 0.755).
Conclusions: In this sample there was no evidence that bacteremia in patients with CAP due to SP was associated with higher severity or worse prognosis.

***Keywords**: Pneumonia. Streptococcus pneumoniae. Bacteremia.*

PC 111. TUBERCULOSIS IN PATIENT UNDER BIOLOGICAL THERAPY

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Introduction: Biological therapy is associated with an increased risk of tuberculosis. Infliximab is a monoclonal antibody that counteracts the biological activity of Tumor Necrosis Factor Alpha (TNF-α), preventing its binding to its receptor. TNF-α is fundamental in the immune defense against mycobacterium tuberculosis, especially in the formation and maintenance of granulomas, so its inhibition, and thereafter the inhibition of the chemokine network regulated by it, increases the susceptibility to the development of tuberculosis disease. Tuberculosis disease in the context of anti-TNF-α therapy may result from reactivation of latent infection or infection during treatment. Preventive therapy in patients with latent tuberculosis significally reduces the incidence of tuberculosis disease, which is why a systematic screening of these patients is critical. Annual screening, as well as research on potential exposure to cases of tuberculosis during treatment may reduce the number of cases due to new infections. All patients applying for biological therapy should be screened. Screenings should be performed prior to the initiation of biological therapy and preferably at the time of diagnosis, before the introduction of any immunosuppressive therapy. Patients that maintain biological therapy should also undergo annual screenings if the first one is negative or whenever they are exposed to cases of tuberculosis.
Case report: We report the case of a 44-year-old male patient, diagnosed with Behçet's disease about 15 years ago and under infliximab therapy for 13 years, with no record of tuberculosis screening in his clinical record before or during treatment but a tuberculin skin test before starting therapy. He mentioned contact with two close relatives the year before but was never screened. The patient was sent to the Emergency Department via Rheumatology consultation with a 5-week history of afternoon-predominant fever, a cough that was initially dry and then productive, weight loss and anorexia. He also had evidence of bilateral micro-nodular pattern on chest radiography. Direct sputum examination was negative but IGRA (Interferon Gamma Release Assay) test was positive. Given patient's risk factors, he started antibacillary therapy after procedures for mycobacteriological and pathological examination. In addition to pulmonar involvement, the study showed a stenosing lesion of the right colon, which turned out to be an inflammatory lesion of the ileocecal valve after colonoscopy was performed. The biopsy revealed granulomatous terminal ileitis. Isolation of Mycobacterium tuberculosis was obtained from sputum culture.
Discussion: Treatment with biological agents, particularly TNF-α inhibitors, is associated with an increased risk of tuberculosis, specially the more severe forms of the disease such as disseminated tuberculosis. Tuberculosis is a present disease and particular attention should be taken in patients at risk in order to prevent reinfection, spread of latent tuberculosis or new cases of tuberculosis disease. Disease screening is important and should be adapted according to the population in study.

***Keywords**: Tuberculosis. Biological therapy. Infliximab. Immunosupression. Screening.*

PC 112. SILICOSIS UNDER TUBERCULOSIS' SHADOW: THE IMPORTANCE OF THE CASE HISTORY

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Introduction: Tuberculosis remains a relevant disease in the modern society (16.6 notified cases/100,000 inhabitants in Portugal in

2018) affecting primarily the lungs, but also manifesting itself in other organs or systems, such as lymph nodes. The risk of tuberculosis increases in some populations, namely in patients with silicosis (chronic disease caused by the entry of silica dust into the lungs) with recent studies reporting a risk of tuberculosis development 2.8-39 times higher in these patients.
Case report: 41 year-old male patient, smoker (20 pack-year), pottery factory worker, went to the ER with complaints of weight loss (10 kg in 12 months), fatigue, anorexia, night sweats, productive cough with mucopurulent sputum and exertional dyspnea to moderate efforts. Work-up showed interferon gamma release assay non-suggestive of Mycobacterium tuberculosis infection, normal levels of serum angiotensin conversion enzyme, chest X-ray with bilateral hyperinsufflation and chest-CT with mediastinal and hilar adenomegalies, centrilobular and paraseptal emphysema, densification in the right lower lobe, ground glass nodules in the lingula and left lower lobe. PET-scan showed hyper-metabolism of the adenopathies. Bronchofibroscopy with bronchial aspirate and lavage showed negative PCR, direct and cultural examination for mycobacteria. Afterwards, the patient was submitted to a mediastinoscopy with mediastinal adenopathy biopsy, excluding lymphoproliferative disease and showing the diagnosis of probable tuberculosis. Tuberculin sensitivity intradermal reaction showed a discrete induration of 10 mm. In face of this clinical, imagiologic and histological results, maintained anti-bacillary therapy for 9 months, showing clinical improvement and weight gain (5 kg). Imagiologic follow-up showed persistence of the adenopathies with numeric stability but heterogeneous evolution in dimension and metabolic activity (only a few showed dimensional and metabolic decrease), and persistence of the bilateral pulmonary nodules with numeric and dimensional stability. Taking this heterogeneous evolution of the adenopathies into account, the patient was further questioned about his professional expositions, identifying an exposition to silica and feldspar, without the mandatory use of the individual protection equipments, framing this clinical case into a diagnosis of silicotuberculosis.
Discussion: The diagnosis of tuberculosis is frequently complex and not always linear. With this case report we aim to demonstrate that tuberculosis still remains a current diagnosis with high relevance, but also that therapeutic response can be conditioned by the existence of comorbidities such as silicosis, highlighting the necessity to identify potentially response modifying factors when the disease's evolution and/or its treatment doesn't correspond to the expected.

Keywords: *Tuberculosis. Silicosis. Silicotuberculosis.*

PC 113. TUBERCULOSIS, AN ATYPICAL FORM OF PRESENTATION

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Introduction: Tuberculosis is an infectious disease caused by Mycobacterium tuberculosis complex agent and the most affected organ is the lung. Extrapulmonary involvement can be found in 25% of cases: lymph nodes, pleura, central nervous system, pericardium, bones and kidneys.
Case report: Authors report a case of a male patient with 59 years old with past medical history of type 2 diabetes mellitus, ischemic cardiomyopathy, kidney stone disease and Still's disease receiving infliximab treatment for 18 years. The patient complained of a four month fever, night sweats and weight loss. Within that period, developed left forearm bursitis and cellulitis with no identified agent on synovial fluid and blood cultures. It was prescribed antibiotics with transitory recovery followed by clinical worsening with persistent fever. Complementary exams revealed: positive interferon-γ release assays (IGRAs) and a micronodular lung pattern was detected on chest radiography which motivated bronchoscopy. Afterwards the patient was sent to pulmonology appointment to clarify the diagnose. At that time the patient presented an exuberant oropharynx lesion, documented by the Otolaryngology department as a right tonsil pillar and palatine veil superficial ulcerative lesion with right tonsil pillar involvement, with symmetrical and normal mobility of the palatine veil. Due to malignant suspicion, biopsies were made but only revealed chronic granulomatous inflammation. After identification of acid-fast bacillus (AFB) on bronchoalveolar lavage, quadruple antibacilar therapy was initiated with resolution of oropharynx lesion, although maintaining fever. Treatment was altered due to detection of isoniazid molecular resistance (inhA gene mutation). Despite the treatment, there was recurrence of the bursitis (synovial fluid with AFB) and scrotal edema, with pus confirming the presence of AFB.
Discussion: This case report highlights atypical presentations of the disease such as lesions on oral cavity (only reported on 0.5-5% cases) and reinforces the importance of latent tuberculosis exclusion on patients submitted to anti-TNF alpha therapy, especially on cases treated before Portuguese society of pulmonology and rheumatology guidelines were published in 2006.

Keywords: *Tuberculosis. Anti-TNF alpha.*

PC 114. EXTRA-PULMONARY TUBERCULOSIS: 2 CLINICAL CASES

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Introduction: The incidence of tuberculosis has been decreasing in the past few years and Portugal is nowadays considered as a low incidence country. Extra-pulmonary tuberculosis comprises 12 to 20% of all tuberculosis cases and is more frequently observed in children and imunocompromised, hence the need of a high degree of clinical suspection.
Case reports: We firstly report a case of a female 52-year-old patient, non-smoker, with a past medical records of right tonsillectomy in 2017, with biopsy results of reactive follicular hyperplasia of tonsilar lymphoid tissue. In November 2018 the patient presented in our hospital with a 5-month old history of weight loss (5%), productive cough and a right painless submaxillary mass, adherent to deep tissue. Neck ultrasound showed a solid heterogeneous mass and neck and thorax CT displayed a right submandibular lesion with irregular margins, right tonsil enlargment, a pulmonar nodule in the upper left lobe (ULL), a micronodule in the lower left lobe (LLL) and bilateral mediastinal, right hylar and axillary left adenopathies. Bronchofibroscopy showed a lesion in the ULE bronchus with biopsy suggestive of lymphoid infiltrate, with normal bronchoalveolar lavage and bronchial secretions examination. PET demonstrated orofaryngeal thickening (SUV 6.69), pulmonar nodule in the ULL (SUV 5.69) and hypermatabolic changes in cervical, right supraclavicular, bilateral mediastinial, left hylar and left axilar lymph nodes. Transthoracic lung biopsy was performed, with no pathological abnormalities. The patient underwent left tonsillectomy, with biopsy displaying tonsillary tissue hyperplasia, and right cervical adenectomy, with a result consistent of necrotising granulomatous lymphadenitis of tuberculosis etiology. Diagnosis of pulmonar, lymph node and tonsilar tuberculosis was assumed and TB therapy started in April 2019, with a favorable clinical and imagiological outcome. The second case regards a 49-year-old female patient, non-smoker, with history of arterial hypertension, dyslipidemia, a stroke at 35 years of age with sequelae of epilepsy, Takayasu arteritis under prednisolone and azathioprine and anal canal adenocarcinoma at 46 years of age. In June 2019 the patient was admitted in our hospital for impaired left visual capacity and a diagnosis of ischemic optical neuropathy was made. During hospital stay, the presence of hyperpigmented skin scars in both legs, and one erythematous and puru-

lent plaque lesion, led to the performance of skin biopsy which revealed lobular panniculitis, Bazin induratum erythema like. The patient also tested positive for IGRA. Diagnosis of cutaneous tuberculosis was assumed and treatment for TB initiated, with a satisfactory clinical response.
Discussion: Extra-pulmonary tuberculosis presents itself in cutaneous form in 2 to 4% of cases, with the tonsilar form being even rarer1.3. Its diagnosis constitutes a clinical challenge, not only due to its plural forms of presentation but also because of the frequent need multidisciplinar discussion.

Keywords: *Cutaneous tuberculosis. Tonsillar tuberculosis.*

PC 115. EPIGLOTE NEOPLASIA AND PULMONARY TUBERCULOSIS: CONCOMITANT OR SEQUENTIAL?

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Case report: M.S.A, male, black, docker, native and resident of Luanda. Interned in May 2017 symptomatology about one month of evolution characterized by persistent cough with sparse hemoptoic sputum, progressive weight loss, anorexia. He denied chest pain, dyspnea, fever, excessive night sweats. Personal history: Pulmonary Tuberculosis for over 15 years; active smoker (20UMA), ethanolic habits 5 g/day. Family history: Not relevant. Objectively: Vigil, oriented and collaborative. Slim aspect. Flushed and hydrated, eupneic, acyanotic, anicteric. Vital parameters within normal range. Mouth, head and neck: No change. Thorax: No changes to inspection, palpation or percussion. AC: Audible, rhythmic, no wind. AP: Vesicular murmur maintained and symmetrical, without adventitious noises. Abdomen, members, neurological examination: No changes. Analyses: No changes worth highlighting. HIV negative serology. Negative smear microscopy. Chest X-ray (May/2017): with right apical heterogeneous opacity with cavitation outline. Diagnostic hypothesis: Reactivation of Pulmonary Tuberculosis/Infected Bronchiectasis/Neoplasia. Thoracic CT scan: "A cavity in the posterior segment of the right upper lobe is sequela in nature from an earlier inflammatory/infectious process. Another bullous lesion of apparent residual nature at the basal segment level. No mediastinal or hilar adenomegalies. Bronchofibroscopy: increased epiglottis volume with mucosal irregularity and irregular granulomatous lesions with pearly aspect extending to the right piriform sinus. Laryngeal tuberculosis?/Neoplasia of the right bronchial tree?). Bacteriological and mycobacteriological examinations were negative. During hospitalization, he was treated with ceftriaxone, aminocaproic acid, and the clinical evolution was favorable, and he was discharged awaiting the histological result of epiglottis biopsy, which revealed keratinizing squamous cell carcinoma. Which was why he was referred for medical oncology consultation. He was hospitalized again in August/2017 for right thoracalgia, cough with hemoptoic expectoration. Chest X-ray: worse, showing homogeneous opacity of rounded limits occupying the upper 2/3 of the right pulmonary field. Chest CT: Large, hyperdense lesion located on the 11-inch-long LSD with larger regular contours. Adjacent emphysematous bubble. No mediastinal or hilar adenomegalies. Pulmonary metastasis of epiglottis squamous cell carcinoma? Pulmonary Tuberculosis? Diagnostic bronchofibroscopy repeated: slight epiglottis irregularity (improved) in both bronchial trees with no indirect or direct signs of neoplasia, non-specific inflammatory signs at BLSD level where bronchial lavage was performed and BLSD division spur biopsy whose direct studies were negative. Given the epidemiological context and the radiological and endoscopic findings, it was decided to initiate first-line oral antibacillaries. There has been considerable clinical improvement with decreased coughing and sputum production, regression of chest pain, improved appetite and general condition. Radiological improvement was also observed, with a reduction in the dimensions and opacity density of the right upper lobe, which further supported the infectious hypothesis. Cultural examination of bronchial lavage. Analytically without relevant changes. Diagnosis: epiglottis squamous cell carcinoma + pulmonary tuberculosis (therapeutic test).

Keywords: *Pulmonary tuberculosis.*

PC 116. ENDOBRONCHIAL TUBERCULOSIS. A RARE PRESENTATION

J. Martins

Centro Hospitalar Lisboa Norte.

Introduction: Tuberculosis is an old infectious disease but still present in our days. It can present in many forms and affect many organs, although pulmonary involvement is the most common. It presents mainly as an insidious infection, with cough, fever and radiologically with alveolar opacities with a tendency to confluence and cavitation. We report a rare case of severe endobronchial and pulmonary tuberculosis in an immunocompetent patient.
Case report: A 74-year-old from China but residing in Portugal, with a previous history of psoriasis and an ischemic stroke without sequelae, resorted to the emergency department with severe weight loss, dry cough, wheezing, night fever and sweats, presenting with a heterogeneous hypotransparency with a cavitated lesion in the left upper lobe in the chest X-ray. Clinical history and radiological findings led to a high suspicion for pulmonary tuberculosis and in this context a videobronchofibroscopy was performed showing abundant whitish plaques in the vocal cords with antraconic lesions extending throughout the tracheal pathway and both bronchial trees, predominantly in the upper left lobe and with necrosis of the posterior apical segment. Acid resistant bacilli Mycobacterium tuberculosis was isolate in bronchial secretions and bronchoalveolar lavage microbiology. Thus, the diagnosis of pulmonary and endobronchial bacilliferous tuberculosis was established, which led to therapy with isoniazid, rifampicin, pyrazimanide and ethambutol. HIV research was negative. Due to the large extent of the disease affecting the larynx, trachea, the entire bronchial tree and the pulmonary parenchyma, the patient died after 4 months of antibacillary therapy.
Discussion: The evolution and prognosis of endobronchial tuberculosis varies, from complete resolution to severe endobronchial stenosis. Therefore its early diagnosis is very important, avoiding serious complications such as bronchiectasis, pulmonary destruction, respiratory failure and the need for endobronchial prostheses. We also underline the need for a high rate of suspicion for the diagnosis of M. tuberculosis infection, even in the absence of known prior contact and immunosuppression.

Keywords: *Laryngeal tuberculosis. Endobronchial tuberculosis. Bronchofibroscopy. Necrosis.*

PC 117. WIDESPREAD TUBERCULOSIS: ONE MUST SUSPECT THE GREAT MIMIC!

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Introduction: Tuberculosis remains a serious global public health problem. Its importance is most recently highlighted by the context of the human immunodeficiency virus pandemic, increasing use of immunosuppressive therapy, population aging and emergence of multidrug-resistant strains. In Portugal, tuberculosis is concentrated in the large urban centers where it has an intermediate incidence. Thus, a diagnosis remains to be taken into account especially in risk groups.
Case report: Female, 70 years old, partially autonomous, with relevant history of atrial fibrillation and valvular heart failure condi-

tioning chronic liver disease. She resorted to the emergency department for two weeks with progressive fatigue, anorexia, abdominal distension, constipation, fever and weight loss in the last year. The objective examination included: holositolic heart murmur III/VI (already known), distended abdomen, tympanized and painful upon right flank palpation. The exams performed at the emergency department showed: cholestasis pattern and CRP 12 mg/dL; abdominal ultrasound with evidence of hepatomegaly, echocardiography compatible with chronic liver disease, elongated hypoechogenic image, compatible with subcapsular hepatic hematoma, however atypia cannot be excluded and chest radiography with diffuse micronodular hypotransparency. In this context, she was admitted to the Medical Service for investigation and treatment, assuming as a probable diagnosis - hepatic neoplasia with pulmonary mestastization. During hospitalization, she maintained profuse sweating, fever, dysuria and polyaquiuria, without isolation of agent in cultural examinations. Urinary infections were admitted and two cycles of antibiotic therapy were completed. He underwent thoracoabdominal-pelvic CT: multiple dispersed micronodular formations, some of them coalescent, predominantly centrilobular, suggestive of miliary tuberculosis. Dysmorphic liver, oval hypodense area, which may be subcapsular hematoma. Contrast-marked thick-walled liquid areas in the upper peritoneal recesses as well as peritoneal fat densification may be infected and organized ascites. Bronchofibroscopy showed no endobronchial lesions and bronchoalveolar lavage revealed lymphocytic alveolitis (44% lymphocytes with decreased CD4/CD8 ratio). Bronchial secretions direct examination was positive for mycobacteria and positive nucleic acid amplification test for mycobacterium tuberculosis. Once confirmed the tuberculosis diagnosis, antibacillary were started. To better characterize the abdominal cavity imaging findings, the patient underwent abdominal MRI revealing multiple intraperitoneal liquid collections. Considering the patient's symptoms, the pattern of initial cholestasis (not characteristic of liver congestion secondary to heart failure, which leads to destruction of hepatocytes) and imaging changes, CT-guided aspiration puncture of the largest abdominal lesions was performed. Direct examination for drainage fluid mycobacteria was positive. Subsequently, cultural examination of bronchial secretions, bronchoalveolar lavage, blood and urine were positive for Mycobacterium tuberculosis confirming the diagnosis of disseminated tuberculosis.
Discussion: This case report reinforces that tuberculosis can affect any organ or tissue. Since its clinical manifestations are often systemic and nonspecific, early diagnosis can be difficult, (especially at age extremes such as the elderly) leading to disseminated disease. In summary, we stress the importance of clinical suspicion for early diagnosis and treatment in order to reduce morbidity and mortality risk.

Keywords: *Tuberculosis. Disseminated. Morbidity. Public health.*

PC 118. TUBERCULIN TEST VS IGRA IN LATENT TUBERCULOSIS SCREENING IN BIOLOGICAL THERAPY CANDIDATE

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Hospital Prof Dr. Fernando Fonseca.

Introduction: Tuberculosis remains a serious and important public health problem worldwide. Screening for latent tuberculosis infection includes exclusion of active disease and assessment of the immune response to Mycobacterium tuberculosis by the tuberculin skin test (TST) or interferon-gamma test (IGRA). The introduction of biological agents in the treatment of immune-mediated diseases increased the risk of tuberculosis reactivation for active disease.
Objectives: To compare the detection accuracy of TST and IGRA for latent infection screening in individuals with immunomediated diseases that are candidates for biological agents.
Methods: Retrospective study including patients proposed for biological agents that were screened for TBIL during 2017 in Centro Diagnóstico Pneumológico Dr. Ribeiro Sanches. Individuals with reaction values ≥ 5 mm (immunocompromised) or ≥ 10 mm (immunocompetent) in TST and concentration ≥ 0.35 IU/ml in IGRA-Quantiferon-TB were considered reactive. Data were collected by reviewing electronic medical records and data analysis was performed using Microsoft Excel 2010. K coefficient was calculated to determine concordance between the 2 tests.
Results: A total of 62 patients were included: 55% (n = 34) were females and 45.2% (n = 28) were males, with a mean age of 52.3 ± 14.2 years. We found that 87% (n = 54) had neither personal history of tuberculosis nor epidemiological contact, while 4.5% (n = 3) have reported contact with individuals with tuberculosis and 8% (n = 5) reported a history of previous TB. All patients underwent chest X-ray (n = 55) and/or chest CT (n = 30) and 17 had abnormalities in any of the exams. Tuberculin skin test (TST) was performed in 79.0% (n = 49) of patients and 81.6% (n = 40) was positive, 18.4% non-reactive (n = 9) and 13 with unknown results. The mean value of induration diameter was 16.9 mm, with a minimum value of 0 mm and a maximum value of 60 mm. Interferon gamma release assay (IGRA) was performed in 83.9% (n = 52) of patients and 65.4% (n = 34) was positive. HIV1/2 test was negative in 62.9% (n = 39) of patients and unknown in the others. Among the results of concordant TST and IGRA (n = 17), it was observed that 14 obtained positive tests in both. Between discordant tests, 9 showed positive IGRA with non-reactive TST, and 15 showed positive TST with negative IGRA. Concordance between the TST and IGRA tests was assessed using Cohen's Kappa coefficient, which was 0.274, demonstrating a slight agreement between these tests.
Conclusions: Comparative studies between TST and IGRA are few and the results of these tests should be carefully interpreted in the appropriate clinical context. While TST is more sensitive, IGRA is more specific and can be used to confirm a positive TST. There is no gold standard test for the diagnosis of latent tuberculosis, and considering the limitations that both TST and IGRA present, we believe that the best solution is based on the concomitant use of both tests, as directed by the Directorate-General for Health.

Keywords: *Tuberculosis. Screening. Tuberculin skin test. Interferon-gamma test. Biological therapy.*

PC 119. AN UNEXPECTED AND RARE CAUSE OF PLEURAL EFFUSION

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Introduction: The possibility of bacillary aetiology should be considered in any patient with unilateral pleural effusion of unknown cause. Pleural tuberculosis constitutes the second most common form of extrapulmonary tuberculosis. The occurrence of infection by Mycobacterium tuberculosis complex agents (M. tuberculosis, M. africanum e M. bovis) is influenced mainly by local epidemiology and by human individual immune factors.
Case report: We present a 26-year-old female patient, Caucasian, non-smoker, born in Turkmenistan and living in Portugal for four years; with antecedent of pulmonary tuberculosis five years ago; without any other comorbidities, or immune compromise conditions such human immunodeficiency virus infection. She reported a two-week clinical picture of pleuritic chest pain, sparsely productive cough, asthenia and nocturnal hypersudoresis. Pulmonary auscultation evidenced decrease of respiratory sounds at lower half of right hemithorax, with remaining physical examination unremarkable. On chest X ray a homogeneous opacity was evidenced, suggesting a moderate volume pleural effusion on right pulmonary field. The

analysis of pleural fluid revealed exudate characteristics with lymphocytic predominance and an adenosine desaminase level of 140 U/L, with direct microscopy negative for acid alcohol resistant bacilli. Given the clinical, epidemiological context and pleural fluid features, an antibacilar regimen was initiated with isoniazid, rifampicin, pyrazinamide, ethambutol and streptomycin. The patient started doing well with good clinical and radiological evolution. During treatment, the cultural exam of pleural fluid became available, with Mycobacterium tuberculosis complex identification, and drug-susceptibility test for tuberculosis revealing isolated pattern resistance to pyrazinamide. A property that differentiates M. bovis from other M. tuberculosis complex species is the single intrinsic resistance to pyrazinamide.
Discussion: Despite clinical similarities inside M. tuberculosis complex, M. bovis –for its intrinsic resistance to pyrazinamide e worst prognosis– must be identified. This case reminds the importance of specie description, since this is an agent rarely involved in this form of extrapulmonary tuberculosis.

Keywords: *Pleural tuberculosis. Mycobacterium bovis. Infection.*

PC 120. RASMUSSEN'S PSEUDOANEURYSM, A RARE CAUSE OF HAEMOPTYSIS FROM THE PULMONARY ARTERY

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Introduction: Rasmussen's pseudoaneurism is a focal dilation of a branch of the pulmonary artery into and adjacent cavity caused from past tuberculosis. This vascular complication is rare and could lead to massive haemoptysis of difficult management. The origin of this bleeding is the pulmonary artery instead of the bronchial artery as most haemoptysis cases. We report the case of a male with treated tuberculosis who had recurrent haemoptysis causing haemodynamic instability, previously treated with bronchial artery embolization.
Case report: 42 year-old male, melanodermic, born in Guiné-Bissau. Known medical history of bronchiectasis and tuberculosis treated 18 years ago. Non usual medication. Recent admittance to hospital because of haemoptysis with Pseudomonas aeruginosa isolation, treated with antibiotics. The complementary investigation of tuberculosis with mycobacterial culture and direct exam of bronchoalveolar lavage was negative. Thoracic computed axial tomography (CT) scan identified a large size cavity in the left upper lobe and multiples bronchiectasis in this area with the presence of a branch of the bronchial artery in straight relation with this bronchiectasis. Endovascular intervention was made with embolization of the bronchial artery at that level. The patient was discharged. A month after he returned to emergency room because of new abundant haemoptysis. No fever, weight loss, night sweats or other symptoms of active tuberculosis were noticed. At evaluation he was hypotensive (90-50 mmHg) with active haemoptysis. After cough stabilization, because of 7.1 g/dL haemoglobin count, he was transfused with 2 units of erythrocyte concentrate. During hospital stay he had new episode of abundant haemoptysis only controlled with high doses of aminocaproic and tranexamic acid. New contrast thoracic CT scan revealed an almost total filled cavity in the left upper lobe, with signs of active bleeding in significant amount from an image with 5 mm suitable with Rasmussen's pseudoaneurysm in the posterior wall of the cavity. Left pulmonary artery angiography confirmed this artery as the source of the lesion. The patient underwent, with success, pulmonary artery coil embolization by radiology intervention team. No haemoptysis episodes were recorded until discharge.
Discussion: Rasmussen's pseudoaneurysm is a potential lethal complication of tuberculosis. Although a rare cause, this form of aneurysm should always be included in the differential diagnosis of haemoptysis in patients with known history of tuberculosis, especially in those that already underwent bronchial artery embolization. Comparative studies of the best therapeutic approach (surgery or endovascular) remain yet to be done. We presented a case treated with success trough endovascular approach.

Keywords: *Rasmussen. Pseudoaneurysm. Haemoptysis. Tuberculosis.*

PC 121. LATENT TUBERCULOSIS IN PATIENTS PROPOSED FOR BIOLOGICAL THERAPY - SCREENING AND AVOIDING

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Centro Hospitalar Barreiro Montijo.

Introduction: The introduction of biological agents for the treatment of immunemediated diseases increases the risk of progression from latent tuberculosis infection (TBIL) to tuberculosis (TB) disease. Therefore, screening for TBIL is strongly recommended before starting this kind of therapies.
Methods and objectives: Retrospective study including patients proposed for biological agents that were screened for TBIL during 2017 in Centro Diagnóstico Pneumológico Dr. Ribeiro Sanches. The main objective of this study was to identify the prevalence of progression to TB disease among patients that completed prophylactic treatment. Data were collected by reviewing electronic medical records and data analysis was performed using Microsoft Excel 2010.
Results: A total of 62 patients were included: 55% (n = 34) were females and 45.2% (n = 28) were males; with a mean age of 52.3 ± 14.2 years. Only 4.5% (n = 3) of patients have had a history of contact with TB and 8% (n = 5) had suffered from previous TB. Every patient underwent chest X-ray (n = 55) and/or CT scan (n = 30) and 17 had at least one of the exams with suggestion of TB disease. Tuberculin skin test (TST) was performed in 79.0% (n = 49) of patients and 81.6% (n = 40) was positive; interferon gamma release assay (IGRA) was performed in 83.9% (n = 52) of patients and 65.4% (n = 34) was positive. Overall, 2 patients gave up consultation before completed screening. 3 patients had negative screening. All of the 57 patients eligible for treatment completed therapy, 54 were treated with Isoniazid, for 8.6 ± 1.4 months of treatment, and 3 were treated with Rifampicin, for 4 months of treatment. Most of them (73.7%, n = 42) had none adverse effect of drug therapy. 14% (n = 8) had liver toxicity and 12.3% (n = 7) had minor adverse effects. Between the ones that completed treatment, there were only 3 patients (5.3%) that presented progression to TB disease: ocular (1), lymph node (1) and pulmonary (1). All 3 patients had taken 9 months of Isoniazid. None of them presented concordance between TST and IGRA tests. 2 had positive TST and 1 had positive IGRA results. All 3 patients were HIV-negative. The patients with ocular TB and lymphadenitis TB started the biological agent after 2 months taking Isoniazid, and progressed to TB disease 6 and 7 months, respectively, after had completed the prophylactic scheme. The patient with pulmonary TB started biological therapy after had concluded prophylactic scheme and progressed to TB disease 15 months later.
Conclusions: Risk of tuberculosis infection is higher during treatment with biological agents, especially with tumor necrosis factor inhibitors (anti-TNF). Prophylactic therapy in these patients reduces the risk of reactivation of TBIL or new infection, so in such situations, careful screening of TB and its treatment is mandatory. In our study, between 57 patients who had completed screening, only 3 had TB disease during treatment, which supports the recommendation for screening and preventive treatment for TBIL in such patients.

Keywords: *Latent tuberculosis screening. Biological therapy. Prevention of tuberculosis disease.*

PC 122. OCULAR TUBERCULOSIS. CASE SERIES OF A REFERENCE CENTER OVER 3 YEARS

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Centro Hospitalar Barreiro Montijo.

Introduction: Portugal has been considered since 2017 a country with a low incidence of tuberculosis, with less than 20 cases per 100,000 inhabitants. However, in Porto and Lisbon this incidence remains higher. Extrapulmonary forms represent 25-30% of cases. The eye is a rare location and may be affected even in the absence of lung disease. According to the Portuguese consensus, published in 2017, the gold standard for the confirmed diagnosis of ocular tuberculosis (OT) is the identification of Mycobacterium tuberculosis in ocular tissues or fluids. When definitive diagnosis is not possible but there are clinical manifestations of tuberculosis or lack of response to conventional treatment and evidence of exposure to tuberculosis, the diagnosis of OT should be presumed and treatment initiated.
Objectives and methods: Retrospective study of patients diagnosed with OT and observed from January 2016 to December 2018 at Centro de Diagnóstico Pneumológico Dr. Ribeiro Sanches (CDP-RS). The aim of the study was to characterize the patients with OT. Data were collected through consultation of the clinical process, and demographic parameters, history of tuberculosis, immunological tests, radiological alterations, SUN Working Group classification, treatment and evolution were analyzed. Data were analysed and processed through Microsoft Excel program.
Results: In total, 38 patients were studied, corresponding to 1.8% of all tuberculosis patients seen in CDP-RS during this period. Of these, 17 (44.7%) were men and 21 (55.3%) were women, with a mean age of 53.2 ± 15.7 years. Only 6 patients (23.7%) reported personal history of tuberculosis, of which: latent (n = 3), ganglion (n = 2), pulmonary (n = 1) and ocular (n = 1) infection. Of the 38 patients, only 2 (5.3%) reported contact with tuberculosis patients. The diagnosis was presumptive in all patients. None had a confirmed diagnosis, and most of the diagnosis was possible (n = 29) or probable (n = 9). In the etiological investigation, the tuberculin test (TST) was positive in 24 (63.2%) patients. The average area was 23.2 ± 9.3 mm. The IGRA (QuantiFERON-TB Gold test) was positive in 33 (86.8%), negative in 2 (5.3%) and unknown in 3 patients (7.9%). Only 3 (7.9%) had pulmonary tuberculosis sequelae alterations on chest X-Ray and 9 (23.7%) on chest CT. Regarding ocular manifestations, 14 presented posterior uveitis, 9 anterior uveitis, 2 intermediate uveitis and 13 panuveitis. Most patients had bilateral ocular involvement (44.7%, n = 17). Initially all patients received quadruple tuberculostatic therapy, and 2 had to undergo therapeutic change for toxicity. Systemic corticosteroid therapy was performed in 21 (55.3%) patients. The median duration of treatment was 8.6 ± 2.1 months and 9 (23.7%) patients abandoned treatment. Most patients (44.7%) showed improvement with remission of ocular manifestations, with 2 still under therapy.
Conclusions: The diagnosis of OT is difficult and requires a high index of suspicion. It is mainly presumptive and should be part of the differential diagnosis of therapy-refractory uveitis. Treatment is effective and should be started early and maintained for at least 6 months in all patients where TO is a possibility.

Keywords: *Ocular tuberculosis. Extrapulmonar tuberculosis.*

PC 123. TUBERCULOSIS: THE GREAT IMITATOR

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Hospital Garcia de Orta.

Introduction: Tuberculosis has a widely variable clinical presentation. It may appear as a pulmonary nodule mimicking pulmonary neoplasia.
Case report: We present the case of a 51 year-old Brazilian man who works as an electrician with a previous history of smoking, binge drinking habits and cocaine inhalation. He developed symptoms of orthopnea, nocturnal paroxysmal dyspnea and NYHA II class fatigue. The study performed by his general physician was in keeping with a low-ejection fraction heart failure (LVEF of 22%), for whom he was started with specific medication (furosemide, carvedilol), with symptomatic improvement. He also performed a lung spirometry, whose results were unremarkable. The patient denied night sweats, cough, sputum and anorexia. He reported a weight loss of 6 kilograms (9% of body weight) and his physical examination was normal. The thoracic CT showed an irregular 11 × 20 mm nodule located in the external middle lobe and mediastinal adenopathies (both pre-tracheal and subcarinal locations), measuring 10-11 mm in major axis. The blood analysis including HIV, HCV, HBV, Rickettsia conori and Treponema pallidum serologies, CEA, CA 125, CA 15.3, NSE, SCC and Cyfra 21.1 were irrelevant. PET CT showed a maximal SUV of 1.85 in the previously identified nodule that was morphologically and metabolically inconsistent with active malignancy. Some mediastinal adenopathies were also identified in 4R position (SUV of 4.86, 2.1 cm size) and in pre-vascular location (SUV of 4.98, 1.72 cm size). He was submitted to transbronchial needle aspiration (TBNA) of stations 4R and 7, guided by endobronchial ultrasound (EBUS), which were negative for malignancy and showed no relevant findings. The two transthoracic biopsies showed no abnormalities besides necrosis. The patient remained in clinical follow-up, and the nodule had a progressive increase in its major diameter up to 17 × 20 mm in 6 months. In the multidisciplinary meeting, we decided to repeat EBUS and perform angio-CT to clarify the relationship between the nodule and the lung vessels and there was no evidence of any adjacent structure invasion. Through the second TBNA, we were able to obtain material at station 7 for cytology. The cell block study revealed lymphoid tissue with areas of caseous necrosis and granulomatous chronic inflammation, in keeping with Mycobacterium tuberculosis infection. The aspirative cytology showed lymphocyts, epithelioid histiocytes and giant multinucleated cells. Antibiotic treatment was initiated with rifampicin, pyrazinamide, ethambutol and isoniazid. He is currently being followed-up on a Tuberculosis clinic with regular clinical, analytical and imaging surveillance.
Discussion: The association of ganglionar tuberculosis and tuberculoma is uncommon. Antibiotic treatment may last beyond 1 year and regular imaging surveillance is recommended to assess the favorable response and rule out concomitant neoplasia.

Keywords: *Tuberculosis. Cancer. Pulmonary nodule. Adenopathy. Tuberculoma.*

PC 124. NECROTIZING PNEUMONIA?

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Introduction: The greatest source of anaerobic bacteria that causes pulmonary infections is the oral cavity. Most of the pacientes gather some conditions that leads to aspiration, like disfagia and alteration of consciousness. These changes can occur for drug abuse, alcohol abuse, seizures and neurologic diseases. Necrotizing pneumonia caused by Mycobacterium tuberculosis is a rare but severe condition. Distinguish M.tuberculosis pneumonia from bacterial necrotizing pneumonia is not an easy task.
Case report: L.M.G.N., 49 year old man, 60 pack-year smoker, history of alcohol abuse, goes to the emergency service with productive cough that lasts for one week, dyspnea, rigth pleuritic chest pain, fever and asthenia. At physical exam, he had fever (38.5 ºC), a lot of teeth in extremely poor condition; at lung auscultation he presented diminished vesicular breath sound with crackles in the right lung base. At blood gas analysis he presented partial respiratory insuffi-

ciency. Analitically, thrombocytosis (platelets = 505), hyponatremia (Na+ = 131) and increased acute inflammatory markers (CRP = 43.92) stood out. The chest x-ray presented an upper third opacity of the right lung field with aureolar opacities and bulging fissure. The patient was admitted to the Pulmonology Service with diagnosis of community acquired pneumonia. He had risk factors for aspiration and there for, empiric therapy was initiated with amoxicillin and clavulanic acid 2.2g and azithromycin. During hospitalization he suffered a clinical and analitycal worsening so it was added clindamycin to the previous medication, after 5 days of its initiation. A chest computed tomography (CT) was performed which highlighted a right apical cavitated lesion with 8-9 cm, containing small liquid level, presenting slightly thick walls, irregular internal contour and pseudomembrane images corresponding to apical peribroncovascular thickening of probable infectious nature. In the remaining parenchyma there was a slight diffuse prominence of the centrilobular interstitium, compatible with small airway disease. Calcified right anterior paquipleuritis was also observed. No pleural effusion. Small right subcentimeter paratracheal ganglia. Large mediastinal vessels with globally conserved tomodensitometric aspects. Broncofibroscopy was also performed that showed diffusely inflammatory thickened mucosa, conferring diffuse widening of spurs, more pronounced in the right bronchial tree. Cyto, myco, bacteriological examination of BAL was requested that turned out to be negative. During hospitalization, he fulfilled 14 days of amoxicillin and clavulanic acid, 5 days of azithromycin and 14 days of clindamycin. Subsequently, in Lowenstein Jensen medium culture, there was positivity for AAFB (Acid Alcohol Fast Bacilli). The therapeutic approach of tuberculosis with isoniazid, rifampicin, pyrazinamide and ethambutol was initiated. He underwent a control CT that showed a significant favorable evolution of the cavitated upper right lobe lesion with approximately 3.5 cm, with slightly thickened walls and densification of the adjacent pulmonary parenchyma with some striae extending to the adjacent pleurae. Significant pleural thickening especially on the right with extensive calcified paquipleuritis.
Discussion: Tuberculosis continues to be a prevalent disease in our country and its differential diagnosis is required in community acquired pneumonia with long term clinical course.

Keywords: *Pneumonia. Necrotizing. Anaerobic bacteria. Tuberculosis.*

PC 125. DISSEMINATED TUBERCULOSIS AND CYSTIC LUNG DISEASE, A RARE ASSOCIATION

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Hospital Professor Doutor Fernando Fonseca.

Introduction: There are multiple causes for pulmonary cysts and may rarely arise as a complication of pulmonary tuberculosis. Cystic lesions may develop before, during or after anti-bacillary treatment.
Case report: A 41-year-old male patient, with no relevant medical history presented to a general practitioner with 2 months of evolution of weight loss (2 kg), anorexia, asthenia and left cervical adenopathy. In the initial analytical evaluation it presented hepatic cytocholestasis, HIV1/2 negative serology, and accentuated CXR bronchovascular. The high-resolution thoracic CT showed no alterations. It was scheduled a excisional biopsy of left cervical adenopathy but was not performed. After 2 months, the patient went to the emergency room due to complaints of dyspnea, afternoon fever, night sweats, asthenia and persistent weight loss (about 7 kg in 6 months). He was cachectic, polypneic, feverish and with sub-crackling fervors audible in both pulmonary bases. Arterial blood gases showed partial respiratory failure. Blood tests showed leukocytosis (12,900 cel/mL) with elevated neutrophils (91.5%), RCP of 5.55 mg/dL and liver cytocholestasis standard. CXR suggested micronodular pattern with miliary distribution. Miliary tuberculosis was admitted as the most probable diagnosis and a bronchoscopy performed in the absence of sputum. The bacilloscopies of bronchial secretions and bronchoalveolar lavage were negative, but RCP for Mycobacterium tuberculosis was positive in bronchial secretions without rpoB mutations. The patient began a gradual introduction of potentially hepatotoxic anti-bacillary. Thoraco-abdominal CT also showed necrotic mediastinal adenopathy, adenopathy hepatic hilar and destructive lytic bone lesions of the vertebral bodies and left iliac bone, admitted as bone involvement by tuberculosis. Later the cultural examination of bronchial secretions came positive for Mycobacterium tuberculosis complex confirming the definitive diagnosis of disseminated tuberculosis in a patient with HIV negative serology. For positive meningeal signs lumbar puncture was performed. RCP for Mycobacterium tuberculosis in cerebrospinal fluid was positive, confirming the diagnosis of meningeal tuberculosis, so systemic corticotherapy was started. Head CT did not demonstrate any changes. Good clinical outcome was observed and the patient was discharged on the 29th day of full dose antibacillary (HRZE). In reevaluation consultation was found on radiograph left pneumothorax with indication for placement of thoracic drainage. Thoracic CT confirmed the left pneumothorax and multiple cysts with predominance in the upper lobes. By alteration of the state of consciousness the patient was endotracheally intubated (EIT) and transferred to Intensive Care Unit (ICU). Head CT and angio-CT showed unfavorable evolution of the meningeal tuberculosis, later confirmed by magnetic resonance. Dexamethasone was started in scheme. The chest tube (TD) was removed on the 10th day after placement. The patient was extubated on the 7th day after EIT, returning to the Pulmonology Department. After pneumothorax recurrence on the left, a new thoracic drain was placed. Because it was a second secondary spontaneous pneumothorax, thoracoscopy was performed with pleurodesis by poudrage.
Discussion: Pulmonary tuberculosis should be considered a possible cause of acquired cystic lung disease. In the case presented, the patient developed pulmonary cysts during anti-bacillary treatment.

Keywords: *Tuberculosis. Lung cysts. Pneumothorax.*

PC 126. IMMUNOGLOBULIN G SUBCLASS DEFICIENCY AND BRONCHIECTASIS. RETROSPECTIVE STUDY

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Introduction: Immunoglobulin G subclass deficiency (IgGSD) is a common finding in people with severe or recurrent infections. This is defined by a deficiency of one or more Immunoglobulin G (IgG) subclasses, when the total IgG level is normal. IgGSD is associated with immunoglobulin A deficiency, atopy, autoimmune diseases and chronic respiratory diseases such as bronchiectasis.
Objectives: To study a sample of adult patients with IgGSD and its impact in bronchiectasis.
Methods: Retrospective study of adult patients with IgGSD 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 54 patients with a median age of 41.5 years, of which 61.1% were females. These patients had selective deficiencies of either IgG1 (29.6%), IgG2 (38.9%) or IgG4 (11.1%), and a combined IgG2 and IgG4 deficiency in 16.7% of cases. There was only one case of selective deficiency of IgG3 and another of combined IgG1 and IgG4 deficiency. Eight cases presented with an IgA deficiency as well, from which three had an IgG2 deficiency and two had a combined IgG1 and IgG4 deficiency. The median total serum IgG was 8.14 g/L, whereas subclass median levels

were 3.64 g/L for IgG1, 1.50 g/L for IgG2 and 0.01 g/L for IgG4. Approximately two thirds had associated sinopulmonary diseases, including recurrent respiratory infections, asthma, rhinitis, pulmonary sarcoidosis (one case) and alfa-1 antitrypsin deficiency (two cases). Additionally, 29.6% of patients had a diagnosis of atopy and four patients had a diagnosis of autoimmune diseases such as Graves' disease. Out of 22 patients with available T-CT images, seven had bronchiectasis (BQ). Patients with bronchiectasis were generally female (57.1 vs 33.3%) and younger (42 vs 52 years) in comparison with patients without bronchiectasis. They had IgG1 (3 cases) and IgG2 (2 cases) selective deficiencies and combined IgG2 and IgG4 deficiency (2 cases). Bronchiectasis mainly affected the medial lobe and lower lobes. Lung function tests results (FEV1, FVC, FEF25-75%, TLC and RV) presented lower values in the bronchiectasis groups.

Conclusions: These results were not statistically significant. However, patients with bronchiectasis and IgGSD were generally younger, mainly females, and had an IgG1 selective deficiency. The authors recommend routine measurement of total serum IgG and IgG subclass levels as part of the aetiological study of patients with bronchiectasis as it alters the management of these patients.

Keywords: *Bronchiectasis. Immunoglobulin g subclass deficiency.*

PC 127. CYSTIC FIBROSIS DIAGNOSIS AFTER AGE 40. A CENTER EXPERIENCE

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Introduction: Cystic Fibrosis (CF) is a genetic disease that progressively affects multiple organs. With the diagnostic and therapeutic advances, CF is no longer a terminal disease of childhood. This study aimed to evaluate the characteristics of CF patients over 40 years.

Methods: Thirteen patients diagnosed with CF and over 40 years of age, attending in a reference center in Lisbon during 2019.

Results: A total of 13 patients evaluated, 4 were men and 9 women. Average age of 47.9 ± 5.2 years. Of the 13 patients most were diagnosed after age 18 and only 3 were diagnosed before that. The diagnosis was confirmed by genetic study in all patients (1 Delta-F508/DeltaF508 homozygous patient, 9 Delta-F508 heterozygous patients, 2 G85E mutation heterozygous patients, 1 3272-26A < G mutation homozygous patient). Twelve of 13 patients had a positive sweat test. Only 1 patient was asymptomatic with all other respiratory symptoms (cough and sputum), 5 had exocrine pancreatic insufficiency and 1 CF-related diabetes. The average Body Mass Index (BMI) was 25.24. Six patients were found to have chronic colonization by Pseudomonas aeruginosa (PA), 5 by Haemophilus influenza, 2 by Streptococcus pneumoniae, 2 by methicillin-resistant Sphaphylococcus aureus (MRSA). Mean FVC and mean FEV1 were 88.2 ± 16.2% and 65.8 ± 23.8%, respectively. Of particular note was the greater functional deterioration observed in patients with chronic colonization by Pseudomonas aeruginosa (PA), resulting in lower mean FEV1 values in this group, which reached statistical significance (p = 0.047). Regarding the average number of hospitalizations due to acute exacerbations in the last 5 years, there was an average of 1.43 hospitalizations per patient (maximum: 5, minimum: 0). The number of hospitalizations for acute exacerbation was slightly higher in the non-colonized PA group (mean hospitalization 1.86 versus average: 1 hospitalization in the PA colonized group).

Conclusions: Our reality shows that CF is no longer a disease of pediatric age, with an increasing number of adult patients with this condition maintaining a reasonable respiratory function reserve, good nutritional status and good quality of life. life translated by an acceptable number of exacerbations. To this end, much has contributed to advances in diagnosis and therapeutic strategies developed in recent years. Of note is the still important number of cases diagnosed only in adulthood, a problem that is currently expected to be resolved given the possibility that we can currently count on CF neonatal screening in Portugal. In view of the fact that seemingly very effective therapeutic interventions are currently appearing that appear to have a significant impact on changing the natural history of the disease with significant reduction in morbidity and mortality when introduced early, and in view of the fact that neonatal screening programs are in place, CF is a pathology with an increasingly important expression in adulthood.

Keywords: *Cystic fibrosis. Adults. Longevity.*

PC 128. PSEUDOMONAS AERUGINOSA ISOLATION IN PATIENTS WITH CYSTIC FIBROSIS. PROFILE OF A REFERENCE CENTER

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Introduction: Pseudomonas aeruginosa (PA) is a microorganism that often colonizes the airways of patients with cystic fibrosis (CF), having a major impact on pulmonary functional deterioration. Eradication of this airway agent from colonized patients is difficult, and suppression therapy with inhaled antibiotics in chronic colonization and systemic antibiotic therapy in acute exacerbations are recommended. The emergence of antibiotic resistant PA strains in this population is an increasingly common problem.

Objectives: To assess the antibiotic susceptibility profile of PA strains in CF patients and chronic colonization by this agent according to the Leeds criteria at a Reference Center involving the Lisbon Tagus Valley region up to the Algarve and to correlate with data on functional impairment, respiratory and nutritional status.

Methods: Retrospective analysis of patients over 18 years of age followed at a CF Reference Center who were colonized by PA in July 2019. Statistical analysis was performed using Microsoft Excel software.

Results: A total of 18 adult CF patients (47.3% of patients followed at the Reference Center) with a mean age of 32.1 ± 8.9 years and a slight female predominance (n = 10; 55; 6%). The mean value of % predicted FEV1 was 54.1 ± 17.7% and the body mass index (BMI) was 22.5 kg/m^2. Patients were divided into two groups according to antibiotic susceptibility profile (patients colonized with multidrug resistant strains (n = 8) and patients colonized with non-multidrug resistant strains (n = 10)). There was no statistically significant difference between the two groups in the mean FEV1 value (p = 0.09), although this value was lower in the group of patients colonized by multidrug resistant strains (FEV1 46.1% vs 60.4). Regarding the BMI value, the mean was lower in the group of patients colonized by multiresistant strains but did not reach statistical significance (p = 0.23). The antibiotic sensitivity pattern of the isolated AP strains showed that excluding the 6 patients with strains sensitive to all antibiotics, all other patients had colonization with gentamicin resistant strains (n = 12). Compared to the remaining aminoglycosides, resistance to amikacin was 55.6% (n = 10), while 38.9% (n = 7) showed resistance to tobramycin. Cephalosporin resistance (cefepime, ceftazidime) was 44.4% (n = 8). The resistance to ciprofloxacin was 38.9% (n = 7). In patients who were tested (n = 6) half had meropenem resistance. No resistance of PA to colistin and ceftolozano/tazobactam was reported.

Conclusions: The results of the present study reveal a high prevalence of PA colonization in adult patients followed at a CF Reference Center and a worrying value of colonization by multidrug-resistant strains (about half). It is also noted that more than half of the patients were colonized by strains resistant to at least one antibiotic. The pattern of antibiotic sensitivity in this study had no statistically significant impact on respiratory function pattern and nutritional status.

Keywords: *Cystic fibrosis. Pseudomonas aeruginosa. Resistence. Antibiotics.*

PC 129. MICROBIOLOGICAL PROFILE IN A PORTUGUESE BRONCHIECTASIS COHORT

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Introduction: Bronchiectasis (BE) is defined as a permanent and irreversible dilation of the airways. Chronic bronchial infection is a central feature of this pathology. Microbiological surveillance is mandatory in order to define targeted therapeutic approaches. The aim of this study was to describe the microbiological profile of a BE cohort followed in a specialized consultation in a Portuguese hospital.
Methods: Prospective cohort study. Patients followed in a specialized bronchiectasis consultation at Centro Hospitalar de Leiria were consecutively included from 01/2017 to 07/2019. Demographic data were recorded. Microbiological isolations of any respiratory sample were retrospectively collected and prospectively evaluated until the current time. Antibiotic resistance profile of the main BE pathological bacteria was evaluated (Pseudomonas aeruginosa [Pa], Haemophilus influenzae [Hi] and Staphylococcus aureus [Sa]). Statistical analysis was performed using IBM® SPSS vr25.
Results: 138 patients were included, 49.3% males, mean age 61.6 years (SD = 17.5). Microbiological diagnosis was achieved in 57.2% patients. Gram-negative bacteria were the most frequently identified microorganisms (113 isolates). Pseudomonas aeruginosa was the most prevalent pathogen (26.1%), followed by Haemophilus influenzae (23.2%) and Staphylococcus aureus (MSSA 13.1%; MRSA 5.1%); 27.5% of patients had more than one isolate through this period. 32.6% of patients had at least one hospitalization due to bronchiectasis exacerbation in the last 4 years. 63.9% of Pa isolates were susceptible to all tested antibiotics; resistance to fluoroquinolones (16.6%) and cotrimoxazole (11.1%) were the most commonly found. Among Hi, 90.6% of isolates were fully sensitive; only 3 isolates showed resistance (1 to amoxicillin, 1 to amoxicillin and cotrimoxazole and 1 to ampicillin). Non-tuberculous mycobacteria were isolated in 4.3% of patients: 4 Mycobacterium avium complex, 1 Mycobacterium lentiflavus and 1 Mycobacterium haemophilum. Tuberculosis was diagnosed in 3 patients (first-line drugs susceptible). Aspergillus fumigatus and Candida albicans were isolated from 4 subjects each.
Conclusions: Pa and Hi were the most common bacterial isolates in this cohort. These findings are in line with the published literature (12-43% for Pa and 14-52% for Hi). Antimicrobial resistance is one of the major concerns in bronchiectasis treatment since antibiotics are frequently used in this pathology (systemic or inhaled). Little is known about the current picture of antimicrobial resistance in this cohort of patients worldwide. Pa resistance to fluoroquinolones was the most prevalent antibiotic resistance in our study. This should be a major concern since quinolones are one of the first-line eradication treatment options. Surprisingly Hi showed a very low rate of antibiotic resistance. Sa isolates are increasing in BE patients as demonstrated in this cohort. NTM isolates are still rare, in contrast with other cohorts like the US data. Pa, Hi and Sa are the major pathogens in this cohort. Quinolone resistance is a major finding for Pa isolates. NTM and fungus were still rarely isolated.

Keywords: *Bronchiectasis. Microbiology. Chronic bronchial infection.*

PC 130. PHENOTYPIC DIVERSITY IN BRONCHIECTASIS EXACERBATIONS

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Introduction: Bronchiectasis is a chronic inflammatory condition, exploring the phenotypic diversity of the microbiological agents in exacerbations contributes to understand its evolution.
Objectives: Clinical characterization of patients hospitalized with non-cystic fibrosis bronchiectasis exacerbation.
Methods: Retrospective and descriptive study of clinical data of the 40 patients admitted with exacerbations in a eighteen month period.
Results: Patients had a median age 74.5 years, 57.5% (23) where female, 42.5% (17) male and 20% (8) had smoking habits. Beside bronchiectasis 70% (28) had other respiratory comorbidity, the more common where: 22.5% (9) COPD, 17.5% (7) tuberculosis sequelae and 7.5% (3) had both conditions. Bronchiectasis were bilateral in 60% (24) of the cases and 67.5% (27) had cylindric type, 12.5% (5) presented more than one type. Among patients, 65% (26) had 1 exacerbation with hospitalization in the last year, 15% (6) had 2, and 30% (12) had 3 or more. Mean hospitalization time was 12.6 days. At admission, 87.5% (35) had respiratory insufficiency. Of note, 25% (10) of the patients had history of bacterial colonization and 57.5% (23) presented sputum cultures positive: 26.1% (6) methicillin-resistant S. aureus (MRSA), 21.7% (5) P. aeruginosa, 17.4% (4) co-infection associating these agents and 8.7% (2) presented with H. influenza. P. aeruginosa resistant to ciprofloxacin – 2 cases (8.7%) (one associated with gentamicin and other piperacillin/tazobactam). H. influenza – 2 cases (8.7%) (resistant to erythromycin and other plus piperacillin/tazobactam). Two cases (8.7%) of co-infection with P. aeruginosa resistant to carbapenem and ciprofloxacin and other to gentamicin and ciprofloxacin. There are more exacerbations in patients with sputum culture positive (p = 0.011) and with history of bacterial colonization (p = 0.001).
Conclusions: MRSA and P. aeruginosa are the most common bacteria in exacerbations, all co-infections revealed these species.

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

PC 131. NEBULIZED HYPERTONIC SALINE SOLUTION FOR THE TREATMENT OF NON-CYSTIC FIBROSIS BRONCHIECTASIS: THE EXPERIENCE OF A PULMONOLOGY DEPARTMENT

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Introduction: In patients with bronchiectasis, mucociliary clearance is impaired due to structural changes, airway dehydration, and excessive volume and viscosity of airway secretions. The use of hypertonic saline (HS) associated with respiratory physiotherapy techniques allows the drainage of secretions to be optimized in those patients.
Objectives: To analyze patients with non-cystic fibrosis bronchiectasis (BNFQ) treated with SSH and to evaluate their tolerance to this treatment.
Methods: Retrospective observational study of patients with non-cystic fibrosis bronchiectasis treated with HS who did challenge test between January 2017 and July 2018. Demographic, clinical and microbiological data of the patients were analyzed.
Results: Of the 22 patients included in the study, 1 was excluded due to withdrawal from the consultation. The median age of the patients was 54 years (minimum age: 20 years; maximum age 87 years) and 12 patients (57.1%) were female. Postinfection etiology was assumed in 6 patients (28.6%), followed by primary ciliary dyskinesia in 4 patients (19%), associated with asthma in 2 patients (9.5%) and other etiologies in 2 patients (9.5%). 7 patients (33.3%) met criteria for chronic bacterial infection; The bacteria identified in those patients were: Pseudomonas aeruginosa (n = 6), Haemophilus influenzae (n = 1) and Klebsiella pneumoniae (n = 1). According to the E-FACED score, bronchiectasis were classified as severe (n = 2; 9.5%), moderate (n = 4; 19%) and mild (n = 15; 71.4%). 2 patients (9.5%) were receiving inhaled antibiotic therapy and 1 patient (4.8%) was receiving azithromycin. All patients had bronchorrhea as a reason for the onset of HS, and 11 patients (52.4%) also had frequent exacerbations. Patients did HS challenge testing before starting such treatment and the result was negative in all. The mean duration of treatment with

SSH was 12.6 months (± 8.7). 5 patients (23.8%) had discontinued treatment due to adverse effects (dyspnea and sepsis (n = 3), wheezing (n = 1) and haemoptysis (n = 1)) after a median of 6 months (0-15) treatment. In addition, 3 patients discontinued treatment due to no clinical benefit after a median of 3 months (1-10) of treatment. Regarding the group that had discontinued treatment for adverse effects, there were no statistically significant differences in baseline FEV1% (after bronchodilation) (p = 0.760) or in the percentage change in FEV1 within SSH challenge test (p = 0.746) compared with the group that have continued the treatment. In patients with at least 12 months of treatment with SSH and frequent exacerbations (n = 3; 14.3%) the median exacerbations decreased from 3 (3-7) to 2 (1-3). The mortality rate was 14.3% (n = 3).
Conclusions: Postinfection etiology was the most frequent in our study. The size of the sample limits the statistical analysis regarding the impact of SSH treatment on the number of exacerbations. Although all patients had a negative SSH challenge test, it was found that 23.8% of patients had discontinued treatment for adverse effects, and no significant differences could be identified in the analyzed variables comparing to the group of patients that have continued the treatment.

Keywords: *Bronchiectasis. Hypertonic saline solution.*

PC 132. UTILITY OF NASAL NITRIC OXIDE IN PRIMARY CILIARY DYSKINESIA SCREENING: A CENTER EXPERIENCE

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Introduction: Primary ciliary dyskinesia (PCD) is a rare autosomal recessive disorder characterized by ciliary dysfunction, resulting in chronic otosinopulmonary infections. It is estimated to affect 1 in 10,000 people. There is no screening test for the general population. The best approach is to combine compatible symptoms with testing at specialized centers. PICADAR is a questionnaire that combines clinical features and compatible events. Electron microscopy, videomicroscopy and genetic study are expensive and time consuming. In 1994 it was found that in PCD nasal nitric oxide (nNO) values were decreased. Today nNO measurement is a very sensitive and specific screening tool. It is painless, fast and inexpensive.
Methods: At the Bronchiectasis Appointment of the Pulmonology Service of Santa Maria Hospital, about 30% of patients have no etiological diagnosis identified. Videomicroscopy, electron microscopy and genotyping have been used for some years in patients with suspected PCD, mostly in children. With the recent availability of an nNO analyzer, we wanted to evaluate the underdiagnosis rate among adults with diffuse bronchiectasis with history compatible with PCD who underwent the systematic application of an etiological diagnostic algorithm. We analyzed the results of 9 consecutive patients whose nNO was measured with the Niox Vero® device using the closed palate technique.
Results: Of the 9 patients, 7 were women, aged 23 to 51 years (mean 34 ± 9 years). Five (56%) had a low nNO value (between 3 nL/min and 63.45 nL/min - average 27.48 ± 22.9 nL/min), compatible with PCD. The average value of those with normal nNO was 254.7 ± 87.1 nL/min (between 152.4 and 363.6 nL/min). They were followed on average for 4 ± 3.7 years in Pulmonology appointments. Although patients with higher PICADAR had lower nNO, no patient scored higher than 7, considered the diagnostic cut-off. It seems to us that this score alone is not sensitive enough to select which adults with bronchiectasis should be submitted to nNO measurement. Regarding the clinic, almost all had chronic sputum, but only 2 had a history of perinatal respiratory distress and only 1 had a situs anomaly. From a functional point of view, patients with PCD-compatible nNO value had lower mean FEV1 (64% vs 109%).
Conclusions: nNO measurement is an important tool for screening patients with bronchiectasis and features compatible with PCD; select who should proceed to more complex tests; and as an integral part of the diagnostic in case of clinical suspicion of PCD. The evaluation of the results of complementary exams should take into account the clinical context, be multidimensional and made in a multidisciplinary meeting, which is only possible in a specialized center. Our study found that more than half of the sample was found to be compatible with PCD, which reveals a high underdiagnosis rate. It is our goal to extend the use of this diagnostic method to more and more patients so that, with the identification of PCD, we can expand our understanding of the disease, improve therapeutic care and establish effective family planning.

Keywords: *Nitric oxide. Primary ciliary dyskinesia. Bronchiectasis.*

PC 133. NONINVASIVE VENTILATION FOR PREVENTION OF POST-EXTUBATION RESPIRATORY FAILURE IN CRITICALLY ILL PATIENTS

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Introduction: The periextubation period represents a crucial moment in the management of critically ill patients. Extubation failure, defined as the need for reintubation within 2–7 days after a planned extubation, is associated with prolonged mechanical ventilation, increased incidence of ventilator-associated pneumonia, longer intensive care unit and hospital stays, and increased mortality. It is therefore essential to identify patients at high risk of postextubation acute respiratory failure (ARF) in order to choose an appropriate strategy of respiratory support able to improve their outcome. Additional methods of non-invasive respiratory support, such as non-invasive ventilation (NIV) and high-flow nasal therapy, can be used to avoid reintubation. However, the role of NIV immediately after extubation in hypoxic patients remains unclear.
Objectives: Our aim was to identify clinical characteristics and co-morbidities of critically ill patients that undergone oxygen therapy or NIV in post-extubation. Our second aim was to access whether application of NIV, immediately after extubation, is effective in preventing post-extubation respiratory failure. Primary outcome was the need for reintubation according to standardized criteria. Secondary outcomes were intensive care unit (ICU) and hospital mortality, as well as time spent at ICU.
Methods: We performed a retrospective analysis of patients admitted at ICU from Hospital Santo António, between 1 January and 31 July 2018. Clinical characteristics, co-morbidities, cause of admission, weaning strategy (oxygen therapy versus NIV) and clinical outcome were reviewed. Comparison between the 2 groups was conducted using the Fisher´s exact test for categorical variables and the Mann-Whitney U test for continuous variables. The statistical analyses were performed using SPSS, and differences between the 2 groups were considered significant at $p < 0.05$.
Results: We included 153 patients with 64.0 (IQR 53.5-76.0) years old and 52.4% male. The main cause of admission was septic shock (n = 36, 23.5%), followed by postoperative abdominal surgery (n = 24, 12.6%) with a mean APACHE II score of 47.98 ± 14.98. About 13.1% of the patients were obese with a diagnosis of obstructive sleep apnea in 2.6%; 15.7% had a diagnosis of congestive heart failure and 8.9% of COPD. NIV was performed after extubation in high-risk patients for ARF (n = 14, 9.2%). Compared with the oxygen therapy during weaning, the institution of NIV resulted in significantly more days of stay at ICU [NIV group: median 9.0 days (CI 6.43-20.71) versus oxygen group: median 5.0 days (CI 6.85-10.21), p = 0.015], however there was no differences in mortality at ICU (p = 0.462) or 30 day mortality rate (p = 0.129). Furthermore, the incidence of re-intubation was not different between the two groups (p = 0.101).
Conclusions: NIV efficacy has been proved especially in a selected population of patients with acute hypercapnic respiratory failure.

In this study, we showed that NIV was a safe procedure, with no inferiority when compared with oxygen therapy during weaning, even in patients admitted with hypoxic ARF or with no past history of chronic hypercapnic respiratory failure.

Keywords: *Non invasive ventilation. Extubation. Acute respiratory failure.*

PC 134. PULMONARY TROMBOEMBOLISM ASSOCIATED WITH MTHFR AND PAI-1 GENE MUTATIONS: A CASE REPORT

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Introduction: Thrombophilia is defined as a predisposition to thrombosis and may be associated with inherited or acquired causes. Acquired causes include neoplasms, hormone therapy, immobilization, surgery, and immune diseases such as antiphospholipid antibody syndrome. Regarding genetic factors, that can be identified in 60% of venous thromboembolism cases (VTE), Leiden factor V is the main cause of hereditary thrombophilia, and others such as prothrombin 20210A, antithrombin III and protein C and S may be involved. The association between the presence of MTHFR allelic variants (C677T and A1298C) and the increased risk of VTE is not fully understood. However, an increase in homocysteine levels has been demonstrated in carriers of the MTHFR C677T variant. Another allelic variant that seems to be associated is PAI-1 4G, however the increased risk is not entirely clear either, but an association between this variant and the increased occurrence of venous thrombosis in the internal organs, namely the portal vein, has been described. The combined association of MTHFR and PAI-1 mutations has also been described in a patient with isolated renal venous thrombosis, demonstrating that combining these two mutations may increase the likelihood of thromboembolic events.
Case report: We report the case of a 37-year-old non-smoking woman with a personal history of obesity, under oral contraceptive therapy and family history of death by pulmonary thromboembolism (father). She was admitted due to syncope and one week of symptoms of dyspnea and thoracalgia with pleuritic characteristics. Tachycardia was present and blood gas analysis showed hypoxemia and hypocapnia. Blood analysis showed D-dimers of 4.2 mg/l, troponin of 29 ng/l and NT-proBNP 1,748 pg/ml. Chest computed tomography (CT) revealed extensive bilateral pulmonary embolism, dilated pulmonary artery and right ventricle, and nonspecific pseudonodular densifications, which could be infarcts. The echocardiogram showed an exuberant dilatation of the right cavities with septal bulging, but with conserved global systolic function, showing no indication for urgent fibrinolysis. She started anticoagulation, with good clinical and gasometric evolution. The thrombophilias study showed the detection of predisposing genetic factors with the identification of homozygous for MTHFR C677T polymorphism and heterozygous for PAI-1 4G polymorphism. She then underwent venous doppler of the lower limbs which demonstrated recanalization of the thrombosed left popliteal vein and repeated echocardiogram and chest CT that normalized. She maintained anticoagulation with rivaroxaban with clinical stability and no new thromboembolic events.
Discussion: This case reports a rare association of thromboembolic phenomena and hereditary thrombophilia with the allelic variants MTHFR C677T and PAI-1 4G, demonstrating the efficacy of rivaroxaban therapy. The literature reporting this association is scarce, demonstrating that this combination may increase the likelihood of thromboembolic events.

Keywords: *Pulmonary embolism. Deep vein thrombosis. MTHFR C677T. PAI-1 4G.*

PC 135. MICROSCOPIC POLYANGIITIS WITH DIFFUSE ALVEOLAR HEMORRHAGE: A LONG ICU JOURNEY

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Case report: 62 years old male, smoker (60 pack-years), went to the emergency department with a 5-day course of progressive dyspnea, fever, cough and mucous sputum, occasionally hemoptoic. Physical examination: febrile, hypertensive, tachycardic, pulse oximetry 91% in room air. Laboratory results: Hb 5.1 g/dL, MCV 102 fL, MCH 34 pg, WBC 9.9 × 10^9/L (L: 0.67, N: 8.9, B: 0.03, M: 0.26, E: 0 × 10^9/L), CRP 119.5 mg/L, creatinine 4.82 mg/dL. Chest X-ray and CT scan: exuberant bilateral interstitial-alveolar infiltrate, centrifugal. Admitted to the Intensive Care Unit (ICU), submitted to orotracheal intubation for significant hemoptysis. Due to acute kidney failure continuous venous hemodiafiltration was started. Bronchoscopy: diffuse towel hemorrhage. Bronchoalveolar lavage (BAL) with macroscopic appearance sequentially more hematic. Fundoscopy: bilateral retinal vasculitis. Serum anti-neutrophil cytoplasm MPO anti-body: 542 UA/mL. The diagnosis was microscopic polyangiitis with pulmonary and kidney involvement, so we started the treatment (3rd ICU day) with methylprednisolone (1 g/day for 5 days), followed by cyclophosphamide 1,500 mg (750 mg/m^2), then a maintenance dose of prednisolone (60 mg/day). On the 10th had fever and decreased paO2/fiO2. BAL was repeated and was positive for multidrug-resistant Pseudomonas aeruginosa in cultures. This late ventilator-associated pneumonia was treated with Ceftolozane/Tazobactam and Gentamicin, according to the antibiotic susceptibility testing. Due to clinical worsening in a immunossupressed patient, Linezolide and Anidulafungine were later added empirically, with resolution of the condition. After suspending sedation, there was an important behavioral change, with episodes of irritability and aggressiveness, ending in self-extubation on day 28, with no need for reintubation. CAM-ICU was applied, revealing the presence of delirium. Dexmedetomidine was initiated with improvement of the symptomatology. On day 29 a second cycle of cyclophosphamide 1,500 mg was given, with no complications. The patient maintained indication for renal replacement therapy and paraparesia in the context of critical care polyneuropathy. Hospitalization was further prolonged in the surgery ward due to perforated ischemic cholecystitis with biliary peritonitis. Submitted to cholecystectomy and multiple antibiotics, the immunosuppressive treatment was stopped since the second cycle and 1 month later the patient started episodes of dyspnea and hemoptoic sputum, suggesting reactivation of the vasculitis.
Discussion: Interstitial lung diseases are complex and their diagnosis must be accurately addressed in the ICU. In this case, the rapid onset and life-threatening lung manifestation of a systemic vasculitis led to an investigation where rapid diagnosis and early directed therapy were determinant for the prognosis of the patient. Even so, the hospitalization was prolonged by successive intercurrences, raising an already interesting case to a true challenge of intensive care setting.

Keywords: *Microscopic polyangiitis. Diffuse alveolar hemorrhage.*

PC 136. RASMUSSEN'S PSEUDOANEURYSM. AN IMPENDING BLEEDING EMERGENCY

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Case report: White male, 37 years old, smoker (20 pack-years), presented in the emergency department with a 4 months course of cough, purulent sputum, weight loss (not quantified), and hemoptoic sputum in the past 2 days. At admission hemodynamically sta-

ble, eupneic at rest, pulmonary auscultation with rhonchi in both apex. Laboratory results: Hb 10.7g/dL, MCV 73 fL, MCH 23.3 pg, WBC 19.6 × 10^9/L (N: 14.1, L:2.5, B:0, M:1.9, E: 0.9 × 10^9/L), Platelets 681x109/L, CRP 161 mg/L. Blood gas test (room air): pH 7.46, pCO2: 38.8 mmHg, pO2 73.2 mmHg, HCO3: 27.20 mmol/L, O2Sat: 95% Chest X-ray: bilateral infiltrate with apparent cavitation in the right upper field. Admitted in the Pulmonology department in a respiratory isolation room, sputum direct examination showed acid-fast bacilli, CT scan showed extense disease with multiple large cavitations, mostly at right, and therapy with HRZE plus Levofloxacine was started. The patient maintained hemoptysis and continued lowering of the hemoglobin (6.5 g/dL), despite therapy with aminocaproic acid. In the 6th day from admission he started with tachycardia and hypotension and was transferred to the ICU, starting therapy with tranexamic acid and controlling the hemoptysis. After 2 days without therapy and any blood loss, he had a massive hemoptysis (500 mL), controlled with aminocaproic acid and morfine. Thoracic angyo-CT scan was performed showing a pseudoaneurysm in the right inferior lobe (segment 6). The patient was transferred to the intervention radiology department in another center and submitted to selective bronchic arteries angiography, where the bleeding vessels where identified and embolitazion with 200 ug polyvinyl alcohol (PVA) particles was performed. On the next day, back in our ICU, the patient had another massive hemoptysis with abundant blood loss and desaturation (68%) despite tranexamic acid therapy, so he was intubated and connected to mechanic ventilation. Bronchoscopy showed active bleeding from the middle lobe bronchus and local hemostasis was performed with cold 0.9% saline and adrenaline. Initially with difficult ventilation (pH 7.06, PaCO2 88 mmHg, PaO2/FiO2: 76.1), optimized with curarization, the patient was transferred again to the intervention radiology department of another center, this time submitted to embolization with ethylene vinyl alcohol (EVOH) by CT guided transthoracic puncture. The patient didn't experience any more hemoptysis and was discharged, continuing the anti-tuberculosis therapy in the ambulatory.

Discussion: Rasmussen's pseudoaneurysm is an uncommon complication of pulmonary tuberculosis with cavitation that may lead to life threatening massive hemoptysis. Standing before such emergency, every measure must be taken to contain the bleeding and protect the airway, stabilizing the patient until resolution of the primary lesion is possible. In this case, despite two sudden episodes of major bleeding, the patient was kept alive and recovered from a very severe disease with relative little sequels.

Keywords: *Rasmussen. Pseudoaneurysm. Tuberculosis. Hemoptysis.*

PC 137. BRONCHOALVEOLAR LAVAGE FOR MICROBIOLOGICAL DIAGNOSIS OF PNEUMONIA IN ICU: DOES TIMING MATTERS?

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Introduction: The role of flexible bronchoscopy (FB) in the diagnosis of pneumonia in patients under invasive mechanical ventilation (IMV) is not clearly defined neither the ideal timing to collect bronchoalveolar lavage (BAL).

Objectives: To evaluate the relevance of invasive colecting respiratory samples with FB in patients with pneumonia under IMV and the timing of the procedure.

Methods: Retrospective study of general ICU patients, aged ≥ 18 years, with clinical and radiological diagnosis of pneumonia, from January 2017 to December 2018, submitted to BAL with 150 ml NaCl 0.9%. We compared the microbiologic results, considering the timing between orotraqueal entubation and the FB: ≤ 48h (Group 1) and > 48h (Group 2). Exclusion criteria: tuberculosis diagnosis at the admission, non-infectious motive for FB. Statistical analysis was performed in SPSS v24.

Results: 62 FB were performed, 49 met the inclusion criteria. Mean patient age was 65.4; 69% were male gender. Diagnosis in ICU admission: medical 36 (73.5%), surgical 6 (12.2%), trauma 7 (14.3%). Average severity scores: SAPS II 49, APACHE II 24. Group 1: 22 procedures and Group 2: 27. BAL had positive cultures in 24 (49%) samples, Group 1: 9 (40.9%), Group 2: 15 (55.6%) (p = 0.3). The mean ventilation days was similar in both Groups: 1 - 12.7 days and 2 – 12.9 days. The mean time of antibiotic at BAL day was 2.6 days; 15 patients (30.6%) had no antibiotic.

Conclusions: This study revealed that BAL did the diagnosis in 49% of FB performed, with higher accuracy when performed in patients with > 48h of MV, although not statistically significant.

Keywords: *Bronchoalveolar lavage. Pneumonia. Bronchoscopy.*

PC 138. COMMUNITY-ACQUIRED PNEUMONIA ON THE ICU: A 4-YEAR RETROSPECTIVE

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Introduction: Community-acquired pneumonia (CAP) is a serious health problem, linked to high mortality. There are several severity scores available, such as the Pneumonia Severity Index (PSI), IDSA (Infectious Diseases Society of America)/ATS (American Thoracic Society) severe pneumonia criteria and CURB-65.

Objectives: This study aimed to investigate the prognostic factors of CAP, including the three scores mentioned.

Methods: A retrospective analysis of the patients with CAP admitted in a central hospital ICU between 01/2015 and 12/2018 was conducted. Patient characteristics, vital signs, laboratory and image findings were evaluated.

Results: 52 patients were considered, with a mean age of 61.0 years and a male predominance (n = 32; 61.5%). 19.2% (n = 10) of the patients presented a history of alcoholism. The most described symptom was dyspnea (80.8%; n = 42), followed by cough (59.6%; n = 31). The mean ICU length stay was 8.0 days. 7 patients (13.5%) died during the ICU stay and 6 (11.5%) died on the follow-up. The mean CURB65 value was 3.0 and the mean PSI 125.5. They presented a mean of 3.5 minor criteria of IDSA/ATS and 81.6% presented the two major criteria. The PSI score was statistically higher on the group of patients that died on the ICU admission (p = 0.04) unlike the CURB-65 and IDSA/ATS minor criteria. Individually, the history of alcoholism (p = 0.006) and a lower pH (p = 0.019) were associated with mortality.

Conclusions: This CAP population admitted to ICU showed the relevance of PSI, and the alcoholism and the lower pH as isolated predictors of mortality. Critically ill patients with CAP are an extreme example of this pathology. The identification of the patients with higher risk of mortality it's crucial for optimization of the treatments and reduction of mortality rates.

Keywords: *Community-acquired pneumonia. Severity scores. Mortality.*

PC 139. PNEUMONIA ON ADMISSION IN A CRITICAL CARE UNIT: A RETROSPECTIVE ANALYSIS OF ONE YEAR

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Objectives: To characterize the population with community acquired pneumonia or hospital acquired pneumonia, present on the

admission in a Critical Care Unit (CCU), during a period of one year (from June 2018 to May 2019).
Methods: Only patients with microbiologic agent identification were considered, with samples collected previous to or at the CCU admission.
Results: During this period, a total 349 patients were admitted in the CCU. Of these, 70 had pneumonia diagnosis at admission, based on clinical and imagological criteria. Fifty were male (71.43%). The mean age was 60.03 ± 16.65 years. According to their origin, the patients were mostly sent from the Emergency Room (37.14%) and from Hospital Wards (34.29%). Concerning to comorbidities, 20 patients (28.57%) had chronic respiratory disease, namely COPD in 85.00% of those. Thirty-three patients (47.14%) had immunosuppressive conditions. The APACHE II mean was 21.21 ± 9.13 and SAPS II mean was 49.87 ± 18.15. Five patients (7.14%) were submitted to non-invasive ventilation with a mean utilization time of 2.00 ± 2.00 days and 69 (98.57%) to invasive ventilation with a 7.76 ± 9.18 mean time. About bronchial secretions microbiology, 93 agents were isolated, being the most frequent: methicillin-susceptible Staphylococcus aureus – 18, Streptococcus pneumoniae – 17, Haemophilus influenzae – 15, Escherichia coli – 8, Klebsiella pneumoniae – 6, Pseudomonas aeruginosa – 5, Enterobacter aerogenes – 3, Moraxella catarrhalis – 3, Streptococcus pyogenes – 3, Enterobacter cloacae – 2, Proteus mirabilis – 2, Citrobacter freundii – 2. In some cases, more than one agent was founded. Twelve blood cultures (17.14%) were concomitantly positive. Observing the sensibility of the isolated microorganisms, 27 (29.03%) were multidrug-resistant organisms. Most patients had been under various antibiotics. After the empiric antibiotic initiation, in 29 patients (41.42%), a de-escalation according to antibiotic susceptibility testing was possible. The mean CCU hospitalization time was 8.89 ± 9.28 days. During the CCU permanence, a 40.00% mortality was registered. Of the patients who were discharged from the CCU to other wards, a 33.33% mortality was observed.
Conclusions: This work allowed to characterize the patient' with admission pneumonia diagnosis in one CCU, with agent isolation, namely according to comorbidities and gravity. The authors point out the importance of etiologic agent documentation in antibiotic guidance.

Keywords: *Pneumonia. Critical care unit.*

PC 140. NON-INVASIVE VENTILATION IN WEANING PROCESS (NON-INVASIVE VENTILATION AS PROPHYLACTIC AND FACILITATION TECHNIQUE)

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Introduction: Non-invasive ventilation (NIV) has been used as an adjuvant in weaning process, as prophylactic rationale (consolidation and prevention of failure and need for reintubation) or as facilitator of ventilatory reautonomization (earlier extubation). NIV application in these scenarios has shown to be effective in reducing reintubation in specific patient groups (acute exacerbation of chronic respiratory failure, heart failure). The prognostic impact of reintubation and/or prolongation of invasive ventilatory support supports the need to recognize patients who may benefit from NIV in the ventilatory reautonomization process.
Objectives: to characterize the use of NIV in ventilatory weaning process in a general intensive care unit (GICU); identify predisposing factors of benefit in the use of NIV in ventilatory weaning.
Methods: retrospective observational study, including patients undergoing NIV in the process of consolidating ventilatory weaning in the 2017 annual period. Statistical analysis used the Statistical Package for Social Sciences program (version 25.0, IBM Corporation, USA).
Results: NIV use in the ventilatory weaning process occurred in 13.7% of the total GICU admissions (55/401). Patients allocated to this rationale of care had a median age of 70.0 years (P25-75, 61.0-77.0 years), with male gender predominance (72.7%). The most frequent admission typology was medical (90.9%). The most frequent reasons for admission were septic shock (41.8% [respiratory source, 27.3%; abdominal source, 14.5%]) and acute exacerbation of chronic obstructive pulmonary disease (COPD) (10.9%). Chronic respiratory disease was identified in 27.3% of patients. The diagnosis of heart failure was present in 36.4% of patients. The severity stratification, based on Simplified Acute Physiology Score (SAPS) II, had an average value of 51.2 (95%CI, 47.4-55.1). The mean time of invasive mechanical ventilatory support was 7.1 days (95%CI, 5.4-8.8 days). The main reasons for NIV allocation in the ventilatory reautonomization process were the recognition of COPD (27.3%) and heart failure (20.0%) scenarios. Type 2 respiratory failure of unknown etiology represented 18.2% of the cases. The reintubation rate was 16.4%. The reintubation event was not statistically related to any of the factors analysed (age, SAPS II, intubation time). The average length of stay (LOS) in the GICU was 10.0 days (95%CI, 8.3-11.7 days) and in the hospital 28.5 days (95%CI, 22.1-35.0 days). The mean intra-GICU and hospital LOS was higher in reintubated patients (intra-GICU LOS, 8.5 vs 17.8, $p < 0.001$; hospital LOS, 23.9 vs 52.2, $p = 0.031$). The readmission rate in GICU was not different from that observed in the non-included patient group (9.1% vs 6.2%, $p = 0.35$). SAPS II indexed in-hospital mortality was 0.44 (GICU global indexed in-hospital mortality 0.73).
Conclusions: NIV in the ventilatory weaning process is basal to the GICU process of care, being particularly relevant in cases of acute chronic respiratory failure and heart failure. Data for patients not allocated to NIV (extubation to spontaneous ventilation) are under review.

Keywords: *Non-invasive ventilation. Weaning.*

PC 141. COMPLICATIONS AND SAFETY IN THERAPEUTIC BRONCHOSCOPY IN MALIGNANT CENTRAL AIRWAY OBSTRUCTION: A REAL-LIFE EXPERIENCE

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Introduction: Therapeutic bronchoscopy (TB) for malignant central airway obstruction (mCAO) is considered a palliative treatment for symptomatic relief. However, its performance is not free of complications and may even precipitate a tragic outcome.
Objectives: To find out whether there are predictors of non-fatal complications and procedure related death of TB performance for mCAO.
Methods: Retrospective unicentre study including all patients submitted to TB due to significant and symptomatic mCAO, from January 2008 to December 2018. Significant mCAO was defined as reducing airway to 50% or less of the normal lumen. Data related to patient and lesion characteristics, endobronchial procedure and outcome were collected. Primary end-point (PE) was non-fatal procedure related complications occurrence. Secondary end-point was a composite outcome of intraprocedural death and death on the first 24h after the procedure.
Results: Sixty-five patients were included: 42 (64.6%) male, mean age 61.8 ± 12.9 years, who had 81 procedures: 65 (80.2%) first TB and 16 (19.8%) redo TB. Previous to TB, 76.5% patients referred dyspnoea (38.3% at rest and 38.3% on exertion), 13.6% haemoptysis and 13.6% patients were diagnosed with mCAO due to lung metastasis from a non-lung cancer. Procedure was considered emergent in 12.3% cases and urgent in 22.7%. The degree of stenosis was divided into 50-69% (21%), 70-89% (26%) or > 90% (53%). Successful airway bronchoscopic reopening was achieved in 58% cases. Proce-

dure non-fatal related complications were present in 18.5% (n = 15) cases: 8.6% non-haemorrhagic haemodynamic instability, 6.2% haemorrhagic haemodynamic instability, 6.2% cases of laceration of airway wall and 2.5% of pneumothorax with subcutaneous emphysema. Metastatic disease was significantly associated with complicated procedure (p = 0.027) and successful airway bronchoscopic reopening was significantly associated with free of complication procedures (p = 0.032). In multivariate logistic regression, 3 independent predictors of PE were identified. Male gender (OR 0.097, 95%CI 0.018-0.533) and elective procedure (OR 0.105, 95%CI 0.021-0.524) were protective factors while mCAO > 90% (OR 6.372, 95%CI 1.023-39.709) was a risk factor to PE occurrence. Secondary outcome was observed in 7.4% of cases (n = 6). It was significantly associated with emergent procedures (p = 0.024) and presence of dyspnea at rest (p = 0.010) and hemoptysis (p = 0.031) previous to intervention. All patients had mCAO > 90% (p = 0.028). No independent predictors were identified.
Conclusions: In our study, the incidence of non-fatal complications was significant but procedure related death was low. We identified several determinants and predictors that possibly influence their occurrence; being aware of them may help us improving our daily practice and procedure outcomes.

Keywords: *Airway obstruction. Therapeutic bronchoscopy. Complications. Death.*

PC 142. CLOSURE OF TRACHEOESOPHAGEAL FISTULA BY AMPLATZER OCCLUDER: FIRST CASE REPORTED IN PORTUGAL

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Introduction: The onset of a tracheoesophageal fistula can have various causes and often induces cough, dysphagia, aspirations of food content leading to recurrent respiratory infections and malnutrition. The treatment of choice is surgical, with over-the-scope esophageal clips (OTSC) or esophageal/tracheal prostheses being an alternative in patients without surgical indication. Some cases of usage of Amplatzer Occluder (nitrile devices used for interauricular communications closure) have been described to treat this condition.
Case report: Female patient, 67 years old, smoker. Personal history of COPD, stroke, hypertension, depression and sequelae of pulmonary tuberculosis. History of a car accident 45 years ago requiring prolonged mechanical ventilation and tracheostomy, that was subsequently closed. Usually medicated with Indacaterol + Glycopyrronium Bromide, Furosemide, Spironolactone, Indapamide + Amlodipine, Mirtazapine, Lorazepam and Diazepam. Since 45 years ago, she reported frequent choking, dry cough and recurrent respiratory infections requiring several hospitalizations. In 2016, she had two hospitalizations for respiratory infections that led to a larger study, which revealed the presence of a tracheoesophageal fistula in the posterior wall of the trachea, 5 cm from the carina, initially documented by bronchofibroscopy (BFC). The initial management of tracheoesophageal fistula was done by OTSC via upper digestive endoscopy. Due to recurrence of the fistula, the patient underwent two more attempts to close the fistula with OTSC, always with relapse. In May 2019, the patient went to the emergency department due to the aggravation of choking episodes, dyspnea, cough and vomiting while eating, and was hospitalized for study. During hospitalization, it was observed by BFC a dimensional increase of the fistula, and the patient started nasogastric tube feeding and refused any surgical treatment. Given the lack of response to the OTSC and the patient refusal for surgical treatment, it was proposed to use Amplatzer Occluder that the patient accepted. The device was placed under fluoroscopic control and directly visualization by the esophageal and tracheal strands. The guidewire was passed through the esophagus to the fistula and then removed through the tracheal slope with bronchofibroscopic biopsy forceps. The 8 mm Amplatzer Occluder was placed by the guidewire of the tracheal strand with sequential opening of the device initially in the esophageal strand and then in the tracheal strand, and the correct placement of the device was verified. Since then the patient has begun oral feeding again without further choking episodes or respiratory infections. It will still be reevaluated endoscopically.
Discussion: Tracheoesophageal fistulas may be refractory to usual endoscopic treatments and are a major cause of morbidity for the patient. In patients where surgery is not an option, it is important to consider new treatment possibilities such as the placement of Amplatzer Occluder which has shown good results although there are still few cases described.

Keywords: *Tracheoesophageal fistula. Amplatzer.*

PC 143. CLINICAL UTILITY AND SAFETY OF EUS-B ON THE APPROACH OF MEDIASTINAL AND PULMONARY LESIONS

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Introduction: Successful transesophageal and gastric use of the EBUS scope (EUS-B) was first reported in 2007. EUS-B makes a more complete assessment of the mediastinum possible when added to EBUS-TBNA. It provides nearly complete access to all relevant lymph nodes for staging lung cancer; permits the diagnosis of paraesophageal mediastinal and lung lesions which cannot be accessed through the tracheo-bronchial tree; permits access to the lower mediastinal lymph node stations (e.g. stations 8 e 9) and sub-diaphragmatic lymph nodes and may offer an easier alternative for puncturing challenging lymph nodes in comparison to EBUS (e.g. stations 2L and 4L).
Objectives: To determine the impact of EUS-B, isolated or combined with EBUS, on the approach of para-esophageal mediastinal and lung lesions.
Methods: A retrospective, single center study, included patients with mediastinal lesions and lung lesions undergoing EUS-B from January 2017 to August 2019 at Instituto Português de Oncologia de Coimbra. The procedures were performed in one session by a single operator (pulmonologist). The sensivity of EUS-B were assessed.
Results: One hundred twenty-two patients were included, with a male predominance (n = 77, 63.1%) and a median age of 65.8 ± 9.4 years. Sixty-eight (55.7%) patients performed isolated EUS-B and 54 (44.3%) was performed EBUS plus EUS-B. In 70 (57.4%) cases the procedure was performed under conscious sedation and nasal intubation. Of the total, only 105 (86.1%) underwent diagnostic puncture: 72 (68.6%) for suspected lung cancer (diagnosis and/or staging); 21 (20.0%) for isolated mediastinal adenopathies and 12 (11.4%) for suspected metastases from extrathoracic primary tumors. The most frequent target lesions were station 7 (n = 52, 49.5%) followed by 4L (n = 42, 40%). The procedure was positive in 53 (50.5%) patients; the most frequent diagnosis was lung cancer (n = 41), with a predominance of adenocarcinoma followed by small cell lung cancer (n = 9), carcinoma NOS (n = 5), squamous cell carcinoma (n = 3) and pleomorphic carcinoma (n = 1). The overall sensibility was 88.4%. No major complications were registered.
Conclusions: EUS-B is a feasible and safe technique, of added value in combination with EBUS in difficult to reach nodal stations and well tolerated when performed isolated for diagnosis purpose in patients with metastatic disease or para-esophageal mediastinal and lung lesions or unfit for endobronchial procedure.

Keywords: *EUS-B. Endoscopic techniques.*

PC 144. FIBEROPTIC BRONCHOSCOPY IN PLEURAL EFFUSION: IS IT WORTH IT?

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Objectives: To evaluate utility of fiberoptic bronchoscopy in patients with pleural effusion through microbiological, cytopathological and histopathological results and to understand the diagnostic yield of the procedure in these patients.
Methods: Retrospective analysis of patients with pleural effusion who underwent fiberoptic bronchoscopy at Pulmonology Department of Coimbra's University Hospital from January to December of 2014.
Results: 19 patients (13 male and 6 female), aged between 35 and 88 years old, mean age of 71 years old, were identified. A bronchial aspirate was performed in all procedures. Endobronchial lesions or mucosal infiltration were found in 8 patients who were submitted to bronchial biopsy (n = 8, 42.1%). Bronchial washings were performed in 5 patients (2.3%), bronchial brushings in 4 patients (21.1%) and bronchoalveolar lavage in two (10.5%). Bronchial aspirate culture was negative or polymicrobial in 12 patients (63.2%). The main agent found in these cultures was multidrug-resistant Staphylococcus aureus (n = 3.15.8%). In 4 cases (21.1%) other agents were found, namely, Serratia marcescens, Candida albicans, Klebsiella pneumoniae and multidrug-resistant Enterobacter aerogenes. Bronchial washings/bronchoalveolar lavage cultures performed in 7 cases were negative or polymicrobial in 4 (57.1%) and positive in 3 with two multidrug-resistant Staphylococcus aureus and one Candida albicans identification. Mycobacterium agents were not found in any of the samples. In the majority of cases cytopathological analysis was conducted (n = 17, 89.5%), with all cases showing inflammatory cells and fibrin except for one where cells with moderate atypia were found. Histopathological findings were diagnostic in two cases (25%): well-differentiated epidermoid carcinoma and breast carcinoma metastasis. In 3 cases (37.5%) nonspecific bronchial inflammation was found and in the remaining 3 cases other results were obtained: epidermoid metaplasia, basal epithelium cells hiperplasia and indeterminate. Overall, in 26.3% of the cases (n = 5) a etiology for the pleural effusion was obtained through this procedure.
Conclusions: The studied population although small, shows the variety of samples obtained through fiberoptic bronchoscopy. This technique shows some utility in pleural effusion especially in association with pleural procedures.

***Keywords**: Pleural. Effusion. Fiberoptic. Bronchoscopy.*

PC 145. PLEURODESIS ON MALIGNANT PLEURAL EFFUSION: TWO DIFFERENT TECHNIQUES ON A RETROSPECTIVE STUDY

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Introduction: Malignant pleural effusion is an important burden of malignant disease. Retrospective analysis of all pleurodesis performed between 2015 and 2017 at the Pneumology Service of Hospital Garcia de Orta.
Objectives: To describe one center experience on pleurodesis in malignant pleural effusion, the success rate and the main complications associated with both techniques (talc slurry or thoracoscopy) and to perform a comparative analysis between them. It was also performed a literature review on the main indications, complications and efficacy of pleurodesis on malignant pleural effusions.
Methods: We collected demographic and clinical data, site and histology of the primary tumor and pleural fluid characteristics. Primary outcomes were the effectiveness of pleurodesis defined as the lack of recurrence of pleural effusion, and mortality after pleurodesis. 61 patients were included in the study, with a slight predominance of women (52%) and a median age of 68 years old. The most common site of the primary tumor was the lung (38%) followed by the breast (28%) and gastrointestinal (13%), with the most common histology being lung adenocarcinoma (33%) followed by infiltrating ductal carcinoma (21%). In the vast majority of patients, pleurodesis was made by talc slurry (77%) and, in 23% of the patients, the technique was thoracoscopic talc poudrage with tube thoracostomy. Pleurodesis success rates were as follow: 48% had complete success, 29% had partial success, 23% had failed pleurodesis. The efficacy was similar with the two techniques (79% for talc slurry, 71% for thoracoscopic talc poudrage). There was a tendency for females to have a higher risk of suffering from pleural effusion relapse post pleurodesis interventions (32%). The only complication found was empyema (8.1%), in all cases post talc-slurry. We found a 67% survival at 30-day post- pleurodesis.
Conclusions: Our study is concordant with the reviewed literature emphasizing pleurodesis as a safe procedure in selected patients, without significant differences on efficacy between the two techniques. Pleurodesis enabled an adequate symptoms control with a low rate of complications. According to the authors, the simplicity of the technique and the less resources involved, support the choice of pleurodesis made by talc slurry as the first option.

***Keywords**: Pleurodesis. Malignant pleural effusion. Thoracoscopy. Efficacy. Complications.*

PC 146. TRANSBRONCHIAL CRYOBIOPSY IN DIFFUSE PARENCHYMAL LUNG DISEASE: RETROSPECTIVE ANALYSIS OF 24 CASES

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Introduction: In the diagnostic evaluation of interstitial lung disease (ILD), the recommended approach is with a multidisciplinary team who can relate clinical, radiological and pathological data. Occasionally, the diagnosis remains doubtful even when this process is followed. In these cases, a sample of the lung parenchyma is necessary to lead to a possible diagnosis. The transbronchial cryobiopsy (TBC) arises as a promising and less invasive alternative to the surgical lung biopsy (SLB), and is acquiring an emerging role in the interstitial lung disease diagnostic process.
Objectives: Evaluate the diagnostic yield of the transbronchial cryobiopsy, most frequent pathologies and complications of this procedure, in the assessment of patients with suspected interstitial lung disease.
Methods: This was a retrospective analysis including patients with clinical and radiological traits of the interstitial lung disease, who had undergone transbronchial cryobiopsy in Faro's Unit of Algarve Hospital University Center, from April 2018 to August 2019. The procedures were performed with a videobronchoscope, using a cryoprobe for the collection of lung parenchyma specimens. Several data from the patients and the procedure was analyzed, including diagnostic yield and complications.
Results: Criobiopsy specimens from a total of 24 patients were included. The mean age was 59.2 ± 11 years, 16 patients (67%) were male. In each procedure, the average of samples obtained was 3 (range, 1 to 5). A diagnosis was achieved in 16 patients (75%). The most frequent diagnosis was chronic hypersensitivity pneumonitis (6 patients, 25%), followed by chronic interstitial pneumonitis (5 patients, 21%). Other diagnosis found were non-necrotizing granulomatous disease (4 patients, 17%), sarcoidosis (1 patient, 4%) and pneumonia by Klebsiella pneumoniae (1 patient, 4%). The complications derived from the procedure were moderate hemorrhage (6 patients, 25%) and pneumothorax (1 patient, 4%). There were no severe complications.

Conclusions: The results sustain the idea that transbronchial cryobiopsy is a safe and useful technique in the diagnosis of interstitial lung disease, and this procedure should always be considered in the diagnostic process.

Keywords: *Cryobiopsy. Diffuse parenchymal lung disease. Bronchoscopy.*

PC 147. A CASE OF BRONCHIAL DIEULAFOY DISEASE

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Introduction: Dieulafoy's disease is defined by atypical, dilated arteries in the submucosa with a high risk of bleeding. This disease is related most times with the gastrointestinal organs, but it's described for other organs, including the lung. Dieulafoy's disease of the bronchus is an uncommon disease, with less than 40 reports in the literature, that manifests as life-threatening massive hemoptysis.
Case report: We present a case of a 59-year-old man, with no relevant past medical history, that was admitted at a hospital because of hemoptysis. No other symptoms were presented. His laboratory studies (coagulation, inflammatory and autoimmune markers) were normal and his computed tomography pulmonary angiography showed presence of blood in the lumen of the right bronchial tree and hazy condensation at the lower right lobe. A bronchoscopy was performed that showed remains of old blood, mainly at the right, and a submucous serpiginous tubular lesion at the lateral segment of the inferior right lobar bronchus. That lesion was under visualization when it started spontaneously to bleed profusely. The hemorrhage was of difficult control, but after treatment with applying cold saline, adrenaline and a fogarty balloon it ceased leaving a clot from the right bronchi to the carina. About two hours after the bronchoscopy, the patient had massive hemoptysis with change in the state of consciousness and desaturation enforcing orotracheal intubation selective to the left bronchial tree and realization of a pulmonary arteriogram with embolization of anomalous artery. The patient had a good recuperation and didn´t show any recurrence after 1 year of follow-up.
Discussion: In this case, the fast identification, the multidisciplinary cooperation, and a proper guidance have led to a successful end. Episodes of massive hemoptysis are serious situations and in about 25% of cases the cause it's not identified. The visualization of these vascular lesions by videobroncofibroscopy is conditioned by their location and the presence of superficial clot. If bronchial Dieulafoy lesions are suspected, caution is essential and biopsies avoided because can bring fatal complications.

Keywords: *Dieulafoy's disease. Hemoptysis.*

PC 148. CONGENITAL SUBGLOTTIC STENOSIS: CONCERNING ADULT EFFORT DYSPNEA

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Introduction: Subglottic stenosis is the partial or complete reduction of airway caliber. It is classified according to etiology (congenital or acquired), degree of obstruction and extent. Congenital subglottic stenosis is secondary to inadequate lumen recanalization during embryogenesis and accounts for 5% of subglottic stenosis cases. Congenital stenosis is subdivided into two main types: membranous and cartilaginous. Typical clinical manifestations are progressive dyspnea, stridor and wheezing. The clinical spectrum of congenital subglottic stenosis is variable, including patients with exuberant symptoms from birth, symptoms triggered after infectious complications or physical effort and asymptomatic patients (random diagnosis - in the context of intubation in unrelated surgery).
Case report: Female, 48 years old, non-smoker, with no relevant personal history, presented with progressive worsening dyspnea in the last 2 years, becoming incapacitating. Subsequent appearance of dry cough and stridor. In the respiratory functional study, it was highlighted the flattening of the expiratory branch without changes in the inspiratory curve, compatible with variable intrathoracic upper airway obstruction. The thoracic CT showed a fine-caliber accessory bronchus supplying the right upper lobe originating from the subcarinal trachea. Bronchofibroscopy was performed and a subglottic membrane, that prevented the passage of the fibroscope, was observed. A rigid bronchoscopy was proposed, and a subglottic pink membrane with a 4 mm orifice was visualized, as well as an anatomical variation of a fine-caliber accessory bronchus for the right upper lobe emerged from the distal trachea. In the last year, she performed photocoagulation and three dilations, resulting in symptomatic but transient improvement. The revised thoracic CT showed relatively concentric soft tissue thickening of the infraglottic gait of the larynx and the cervical trachea extending to the first tracheal rings, and subglottic stenosis leading to a 2/3 decrease in lumen. Due to the recurrence character with progressively shorter intervals between dilations, he performed laryngotracheoplasty with costal cartilage and tracheostomy followed by cricotracheal resection. The histology of the operative specimen demonstrated chronic inflammation and fibrosis of the chorion. According to the clinic, laboratory, imaging and histological diagnostic investigation excluded acquired forms of stenosis, and it was admitted to be a case of congenital stenosis, which was less commonly symptomatic late in the patient's life. Also note that currently the patient has regular clinical evaluation in consultation of Pulmonology.
Discussion: Subglottic stenosis is a complex condition capable of conditioning a significant limitation on quality of life (either due to symptomatology or morbidity associated with multiple therapeutic interventions) and its approach should be multidisciplinary (Otorhinolaryngology, Cardio-Thoracic Surgery and Pulmonology) thus allowing better guidance and treatment. The therapeutic approach depends on the severity of the stenosis, symptomatology and the patient's expected goals and includes: expectant attitude; endoscopic and surgical approach. The evaluation and treatment of this pathology is based on invasive exams and complex surgical interventions with associated important complications and a not negligible recurrence rate. Thus, the treatment of subglottic stenosis remains a real challenge today.

Keywords: *Subglottic stenosis. Congenital. Effort dyspnea. Therapeutic challenge.*

PC 149. ASPIRATED FOREIGN BODIES IN THE TRACHEOBRONCHIAL TREE: THE BEATRIZ ÂNGELO HOSPITAL INTERVENTION PNEUMOLOGY UNIT EXPERIENCE

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Introduction: Foreign body aspiration is a serious condition and can be potentially life threatening. Severity depends on the localization and extent of airway obstruction. Foreign bodies aspiration can occur at any age, being more frequent at age extremes. In adults, foreign bodies aspiration are associated with accidental situations or altered state of consciousness. Broncofibroscopy is the method of choice for diagnosing the presence of foreign bodies in the airway, and rigid bronchofibroscopy the method of choice for its removal.

Objectives: To review the casuistic of the removed foreign bodies, in the Interventional Pulmonology Unit of the Beatriz Ângelo Hospital between February 2012 and September 2019. To emphasize the importance of a multidisciplinary team in conducting these examinations.
Methods: Patients undergoing bronchofibroscopy and rigid bronchoscopy with suspected foreign body aspiration from February 2012 to September 2019 were included. We retrospectively assessed demographic characteristics, foreign body type, location, method of removal, type of anesthesia, complications, and human resources needed. The role of the multidisciplinary team was reviewed.
Results: Nineteen endoscopic examinations were performed on patients suspected of foreign body aspiration (mean age 58 years, 63.2% male) of which 15 were videobronchofibroscopy and 4 rigid bronchoscopy. All were performed with anesthetic support (13 under deep sedation and 6 under general anesthesia). The location of foreign bodies was in 100% of the cases in the right bronchial tree and the removal technique of choice was the use of foreign body forceps. There were no immediate complications resulting from the technique. In all patients (n = 19), an initial approach was performed by the nurse and doctor, with prior preparation of the material necessary to perform the procedure safely. In the examination room, the nursing team verified the correct equipment/material functioning and disinfection/sterilization, and in all patients (n = 19) a surgical safety checklist was applied. In all procedures (n = 19), 1 pulmonologist, 1 anesthetist and 2 nurses were present (one providing the instruments/material for the procedure to be performed safely and the other supporting the anesthesiologist for drug preparation/administration). There was a dedicated area for patients after the exam, involving surveillance by a nurse, ensuring the safe recovery of the state of consciousness and discharge schedule. This was also true for the 19 users in our sample.
Conclusions: Removing foreign bodies from the bronchial tree is a procedure of significant complexity that should only be done by experienced teams in the field. The presence of a multidisciplinary team ensures that it is carried out safely and effectively, as we confirmed with our sample results. Although rigid bronchoscopy is considered the "gold standard" in the removal of foreign bodies, in this sample there was a predominance of the use of videobronchofibroscopy, with equal efficacy and safety, which is in accordance with the most recent literature.

***Keywords**: Nursing care. Foreign bodies. Bronchofibroscopy. Rigid bronchoscopy. Sedation. General anesthesia.*

PC 150. THE DIAGNOSTIC CHALLENGE: A CASE REPORT

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Introduction: The differential diagnosis of lung masses includes infectious, inflammatory and neoplastic causes. When considering oncologic disease, in addition to primitive lung neoplasms, lymphoproliferative diseases should be thought of. Pulmonological techniques are crucial to the diagnosis.
Case report: Female, 45 years old, non-smoker, educational assistant. Right breast fibroadenoma. No medication. Went to the emergency department (ED) with a dry cough, fever, night sweats, asthenia and weight loss of 10 kg in 4 months. At admission, 39 ºC, normotensive, HR 120 bpm, eupneic at room air, SpO2 98%, pale, at pulmonary auscultation with decreased breath sounds in the right apex. No palpable adenopathies. Analytically, Hb 8.0 g/dL, Htc 26%, VGFM 69 fL, HGM 21 pg, leukocytosis 36,100/µl, 86.4% neutrophils, platelets 983,000/µl, PCR 16.5 mg/dL. Chest X-ray showed condensation of the right upper lobe (RUL). Thoracic-abdominal-pelvic CT scan showed obstructive pneumonia, with a heterogeneous mass, lobulated 97 mm in the RUL, hepatic and mammary nodules and hilar, mediastinal and celiac adenopathies. Started empirical antibiotic therapy with amoxicillin/clavulanic acid and azithromycin. Videobronchofibroscopy (BFC): inflammatory lesions of the right bronchial tree, distal biopsies were made and did not reveal atypia. After clinical improvement, she was discharged against medical advice, without performing transthoracic aspiration biopsy (BATT). The patient returned to the ED after 15 days, with right thoracalgia, night sweats, and fever. She maintained the imaging and analytical changes. Started empirical Levofloxacin. She underwent a new BFC, with inflammation from the lower 1/3 of the trachea, right main bronchus and upper lobar. Distal biopsies were performed, and revealed bronchial mucosa with fibrinoleukocyte exudate, without dysplasia or atypia. Submitted to BATT, the anatomopathological evaluation showed active chronic inflammatory infiltrate with lymphoid aggregates. Thoracic-abdominal-pelvic CT re-evaluation showed maintenance of the previously described alterations and hepatomegaly, hepatic hilum, gastric and retroperitoneal adenopathies. She presented with dyspnea and severe pain complaints in the lumbar region. On objective examination, with left supraclavicular and inguinal adenopathies, breath sounds decrease in right hemithorax. Gasometric evaluation at room air: pH 7.42; paCO2 50; paO2 54 mmHg; SO2 85.7%. Analytically, maintained high inflammatory parameters. Antibiotic therapy was stopped and started on corticosteroid therapy. Imaging reevaluation revealed right pleural effusion, adjacent atelectasis and volumetric stability of the LSD mass. The patient underwent ultrasound-guided thoracentesis and pleural biopsies. Pleural fluid revealed an exudate, with negative cytological and microbiological studies. Histological evaluation of the biopsies identified chronic inflammatory infiltrate without signs of malignancy. She presented a progressive decrease in inflammatory parameters and remained stable. After that, she underwent a new BATT whose findings were identical to the previous ones. Inguinal ganglion biopsy revealed B cell lymphoma, with intermediate features between diffuse large cell lymphoma and classic Hodgkin's lymphoma, CD20+, CD79a+;PAX5+; BCL6+; CD30+; CD10-; CD2-; ALK- and EBER-. Started R-CHOEP chemotherapy cycle.
Discussion: Primary and secondary lymphoproliferative disease involvement was considered. However, the multiple pneumological techniques performed did not allow the diagnosis. Only the systemic progression of the disease, after excision of peripheral adenopathy, allowed to define the etiology of the chest mass. This case is rare because of the histological type classified as "grey zone".

***Keywords**: Lymphoproliferative disorders. Grey zone lymphoma. Pulmonary lymphoma.*

PC 151. NEGATIVE PREDICTIVE OF EBUS FOR N2 IN LUNG CANCER

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Introduction: Endobronchial ultrasound (EBUS) has been proving its value as an important minimally invasive technique in lung cancer evaluation. In patients who are surgical candidates, mediastinal staging with N2 characterization is fundamental.
Objectives: To analyze the negative predictive value (NPV) of EBUS for N2 disease in lung cancer patients who are surgical candidates.
Methods: A retrospective analysis of patients who performed EBUS between January 2015 and June 2019 in Hospital Beatriz Ângelo was performed. Among these, those who performed EBUS because of lung cancer and subsequently underwent surgery were selected. These were characterized in terms of demographic and radiology data (computed tomography [CT] and positron emission tomography [PET]), diagnosis and treatment.
Results: 218 EBUS were performed with 127 (58%) in lung cancer patients. Among these, 21 patients subsequently underwent sur-

gery. A mean age of 62 ± 10.9 years and a predominance of male gender (76.2%) were observed. Transbronchial needle aspirations were performed in 18 patients with 32 punctured nodes (mean 1.77 punctured nodes per patient). The most frequent punctured nodes were station 7 (n = 15, 46.9%) and 4R (n = 11, 34.3%). Mean node diameter (by EBUS) of punctured nodes was 12.6 ± 6.5 mm and of nonpunctured nodes was 4.5 ± 1.3 mm (p value < 0.001). Among the 3 patients with N0 staging by EBUS and N2 by surgery, lung resection with lymph node dissection was performed in 2 and mediastinoscopy in 1. In our sample, EBUS NPV for N2 was 80%. One of the 3 patients had a station 5 positive, not accessible by EBUS. Excluding this patient, EBUS NPV for N2 was 86.6%.
Conclusions: EBUS is a minimally invasive lung cancer mediastinal staging technique with a high NPV for N2. Therefore, it prevents futile surgeries and associated risks. The small sample size is a limitation of this study.

Keywords: *EBUS. Lung cancer. Mediastinal staging.*

PC 152. FOREIGN BODY ASPIRATION AFTER HIGH-SPEED CAR CRASH

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Introduction: Foreign body aspiration is a possible complication in trauma patients, although it is often neglected. Dental parts are the most frequently described foreign bodies in this context, particularly after maxillofacial trauma.
Case report: The authors report the case of a previously autonomous 64-year-old male patient with no relevant medical or surgical personal history. He was admitted to the Emergency Department after a high-speed car crash, during which he suffered a frontal collision with a heavy vehicle and was incarcerated in his vehicle until the arrival of the prehospital emergency team. On initial observation in the Emergency Room, the patient had a permeable airway, was tachypneic, with bilateral thoracic expansion, with 99% SpO2 under 50% FiO2, tachycardic, normotensive after 2 liters of fluids (120/70 mmHg), collaborative and oriented. Pulmonary auscultation was normal. The patient had blunt cut wounds in the right supraciliary and temporal regions, as well as multiple abrasion wounds on the chest. Radiographs of the long bones were performed, which revealed a distal fracture of the right radius and of the left femur and tíbia. Computed tomography (CT) of the skull did not reveal any alterations. CT of the spine did not show any fractures or dislocations. CT of the thorax, abdomen and pelvis excluded pneumothorax or pleural effusion, as well as post-traumatic injuries to solid abdominopelvic organs, but revealed two left rib fractures and two pericentimetric hyperdense images at the right main bronchus and right lower lobe bronchus suggestive of foreign bodies, as well as bilateral posterobasal alveolar opacities suggestive of aspiration. The patient was admitted to the operating room for surgical treatment of the femoral fracture, followed by immobilization of the remaining fractures. There was a good overall clinical evolution, although the patient complained of persistent non-productive cough in the postoperative period. On the fourth day after admission, he suffered an intense coughing attack with spontaneous exteriorization of a vitreous foreign body, associated with small-volume hemoptysis. A CT of the chest was repeated, which showed persistence of the hyperdense image at the right lower lobe bronchus level, but now an absence of the image in the right main bronchus. The patient underwent flexible bronchoscopy, which revealed a foreign body housed at the emergence of the right basal pyramid, about 1 cm in diameter, compatible with a car windshield fragment with normal adjacent mucosa. It was removed with biopsy forceps without any complications. In the following days, the cough complaints were resolved.
Discussion: This case is especially interesting because of the unusual endoscopic and radiological images, but also to emphasize the little importance that was initially attributed to expressive changes on the chest CT, due to the patient's instability and the urgency of the initial surgical approach. This is a situation which, in this case, was easily resolved using flexible bronchoscopy, but that may be more complex if its resolution is further delayed.

Keywords: *Foreign body. Trauma. Flexible bronchoscopy.*

PC 153. BIOLOGICAL QUALITY: THE IMPORTANCE OF THE NUMBER OF CONTROLS

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Introduction: Biological Quality Control (BioQC) is an integral part of quality control in the Lung Function Laboratory (LFR). According to the literature this control should be performed regularly from measurements of the respiratory function of at least 2 subjects (biological controls - BioC) and to determine the stability of respiratory function a minimum of 10 measurements should be obtained.
Objectives: Verify the reproducibility level of the values obtained by the BioC, in order to ensure the accuracy of the results obtained in the flung function tests performed at the LFR of Hospital Vila Franca de Xira.
Methods: To establish the normal range of the two BioC, ten spirometry tests were performed daily at the same time of day with the Masterscreen Body® equipment, meeting the ATS/ERS 2005 acceptability and reproducibility criteria. BioC1 (female, 28 years old, body mass index (BMI) 20.45 kg/m^2) and BioC2 (male, 44 years old, BMI 30.06 kg/m^2). The following parameters were considered for analysis: FVC and FEV1. To obtain the coefficient of variation (CV), the mean and standard deviation (SD) of the obtained values were calculated. Precision of the values of each BioC was verified considering acceptable a CV below 3%. SD was used to define upper limit (LS) and lower limit (LI). The mean, LS and LI were recorded on a control chart (CC). Subsequently, FEV1 and FVC were obtained fortnightly, recorded in CC and interpreted according to Westgard rules. The results of descriptive statistics of the CV are presented as the mean and SD, obtained through the statistical program SPSS® v24.
Results: Normal range: BioC1 (n = 10): CV (%) CVF = 3.86 ± 0.08; CV (%) FEV1 = 3.58 ± 0.06; BioC2 (n = 10): CV (%) CVF = 5.19 ± 0.07; CV (%) FEV1 = 4.25 ± 0.05. BioQC testing: BioC1 (n = 19): CV (%) CVF = 3.81 ± 0.09; CV (%) FEV1 = 3.43 ± 0.09; BioC2 (n = 20): CV (%) CVF = 5.12 ± 0.06; CV (%) FEV1 = 4.22 ± 0.05.
Conclusions: FVC and FEV1 values of BioC2 were always within acceptable limits, while in BioC1 the values were out of control (OOC), especially FEV1. After checking the circuit of the equipment, we admit that these values were a result of the instability of the BioC1 lung function despite being a healthy, asymptomatic non-smoking individual, with no previous history of respiratory disease, and BioC1 was replaced. This result underlines the importance of including at least two BioC in order to avoid false positive results in biological quality control.

Keywords: *Biological quality control. Spirometry.*

PC 154. WHEN PULMONARY FUNCTION TESTS DO NOT FULFILL QUALITY CRITERIA: AN UNUSUAL CASE

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Introduction: The pulmonary function tests (PFT) are a matter of importance and diagnostic orientation of the different spectra of respiratory diseases, as well as major way to determinate their

evolution. Interpretation of their data is very important, although they do not allow the definitive diagnosis (with rare exceptions).
Case report: An 81-year-old Caucasian male resident in Torres Vedras (Portugal) was referred for general pulmonology consultation following imaging findings. Treated as a non-smoking patient with a clinical history of childhood typhoid fever, paroxysmal AF, NYHAA class II chronic heart failure, and presumed presumptive diagnosis of severe sleep apnea (by his general physician), who had been under nocturnal NIV for less than 6 months. At initial observation, mMRC 3 is shown, with progressive scheduling in the last 12 months, with productive cough (mucoid) without predominance of time (usual pattern for more than 10 years), with weight loss associated with 27 kg in the last 12 months. Reference still for asthenia and adynamia, but without anorexia allegedly perceived by the patient. There was a 3-month-old PF with standard restrictive grave, normal Tiffenau index, but with technical additions that can be oriented to a patient's collaboration deficit test. It also presents a previous blood gas evaluation, which shows 55 mmHg PaCo2 compensated hypercapnia, without associated hypoxemia. Imaging findings consist of two pulmonary nodules of the right upper lobe, with a larger diameter of 1.2 cm on its major axis, with ground glass in the surrounding lung tissue. PET SCAN was also performed, which result concluded "without metabolic changes - except as physiological expected". He was hospitalized for etiological study of the clinical picture, and the validation of PFT, in line with hypercapnia aimed at a possible neuromuscular disease, having been documented by electromyographic study with definitive neurophysiological pattern for lateral amyotrophic sclerosis.
Discussion: As the PFT are of equal magnitude to the diagnostic orientation of lung diseases and diseases with pulmonary involvement, they can still be valuable even when their quality criteria is dubious.

Keywords: *Pulmonary function tests.*

PC 155. CORRELATION OF 6-MINUTE WALK TEST WITH RESPIRATORY FUNCTIONAL PARAMETERS IN COPD PATIENTS

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Introduction: The 6-minute walk test (6MWT) is a simple, submaximal test that allows functional capacity to be assessed in patients with chronic respiratory disease such as chronic obstructive pulmonary disease (COPD). Its ability to assess response to certain treatments and its prognostic value make this test essential in evaluating COPD patients. Some studies have also shown correlation between 6MWT results and patients' spirometric values.
Objectives: Our aim was to analyze the correlation between the distance walked in the 6MWT (meters and percentage of the predicted value) and the respiratory functional parameters of COPD patients.
Methods: Retrospective observational study of COPD patients who have performed 6MWT between Jan-2019 and Jun-2019 in the lung function laboratory. Demographic, anthropometric, clinical and functional data were analyzed. The correlation between the distance walked in the 6MWT (meters and percentage of the predicted value) and the FEV1 and DLCO was analyzed.
Results: 111 patients were included in the study. The mean age of the patients was 66.64 years (± 9.04) and most were male (n = 92; 82.90%). Most patients were former smokers (n = 70; 63.10%) or smokers (n = 32; 28.8%). The average body mass index (BMI) was 26.19 (± 4.37). According to the GOLD classification, 23 patients (20.70%) were from group A, 37 patients (33.30%) from group B, 11 patients (9.9%) from group C and 30 patients (27%) were from group D. Regarding respiratory functional parameters, the mean FEV1 (after bronchodilation) was 1.48 L (± 0.56), the mean TLC was 6.83 L (± 1.12), the mean RV was 3.59 L (± 0.96), the mean IC/TLC ratio was 0.35 (± 0.82) and the mean DLCO was 58.53 (± 17.36). The average distance walked in the 6MWT was 461.44 m (± 77.19) and 78.74% (± 12.58). A weak and statistically significant correlation was found between the percentage of the predicted distance walked in 6MWT and FEV1 ($r = 0.362$; $p < 0.001$) and DLCO ($r = 0.368$; $p < 0.001$). There was also a weak and statistically significant correlation between the distance walked in the 6MWT in meters and the FEV1 ($r = 0.342$; $p = 0.001$) and the DLCO ($r = 0.274$; $p = 0.007$).
Conclusions: In our study, the distance walked in the 6MWT, either in meters or as a percentage of the predicted value, had a weak and statistically significant correlation with the functional parameters assessed (FEV1 and DLCO).

Keywords: *COPD. 6MWT.*

PC 156. THE ROLE OF CONDUCTANCE IN BRONCHODILATION TEST

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Introduction: According to the ATS/ERS the bronchodilator response is defined as the absolute and percentage change in the initial forced expiratory volume in one second (FEV1) and/or the forced vital capacity (FVC) of at least 200 mL and 12% compared to baseline. However, other pulmonary parameters have been associated with the reversibility of the airflow following bronchodilator therapy, namely the resistance and the conductance.
Objectives: To evaluate the bronchodilator response through the percent change in conductance.
Methods: Retrospective analysis of 593 bronchodilation (BD) plethysmographs performed in the service between January 1st 2018 and June 30th 2019 in adults. Functional respiratory parameters, clinical information and demographic data were recorded, and 182 plethysmographs were excluded for non-compelling with the inclusion criteria. Statistical analysis was performed using STATA and the PROBIT model.
Results: From the 411 analyzed plethysmographs, 18.73% (n = 77) had positive BD. The average age of the patients was 63.08 ± 14.31 years, with 53.28% (n = 219) being male. COPD was the prominent diagnosis (24.57%, n = 101), followed by interstitial lung disease (18.25%, n = 75) and asthma (17.03%, n = 70). 12.65% (n = 52) of the patients were smokers, 35.28% (n = 145) ex-smokers and 52.07% (n = 214) non-smokers. The mean BMI value was 28.84 ± 5.77 Kg/m^2 ranging from 14.24 to 53.42 Kg/m^2. In the total population, the mean value of percent change in conductance was 24.26 ± 33.45% ranging from -45 to 170%, and the mean value of percent change in resistance was -11.48 ± 25.12% ranging from -81 to 78%, thus only the conductance displayed a positive and statistically significant correlation with a BD positive test. When separately analyzed, the group with positive BD presented a two-fold higher average value of percent change in conductance ((41.77 ± 37.13, [-25.143] vs 20.22 ± 31.23 [-45.170]), meaning that the higher the percent change in conductance, the higher the probability of positive BD. However that probability never exceeded 50% of average probability, nor was it statistically significant for any of the values present in the sample.
Conclusions: The percent change in conductance does not play a significant role in bronchodilator response.

Keywords: *Bronchodilator response. Conductance.*

PC 157. NASAL HIGH FLOW THERAPY: A REALITY AT HOME?

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Introduction: Nasal high-flow therapy represents an important advance in alternatives for noninvasive ventilatory support in patients

with respiratory failure. Initially developed in the neonatal population in intensive care units and emergency services, it has been gaining space in the adult patient area. Several studies have contributed to the presentation of the benefits of its use not only in the management of acute respiratory failure, but also in chronic respiratory failure, particularly in COPD patients. However, there is a lack of evidence in the home environment.
Case reports: Clinical case 1: female, 56 years old, BMI = 29 kg/m^2;. Diagnosis of CKD in the context of ideopathic pulmonary fibrosis and lung neoplasia with left lower lobe lobectomy in 2011. Initiates home high nasal flow therapy in October 2018: with 30-35 lpm flow, 34 ºC temperature, oxygen output at 15 lpm, to maintain 60% FiO2 and teaching and adaptation of oximetry. On monitoring visits, the patient presented adherent, reporting high comfort due to the decrease in dyspnea. Totally dependent on therapy with mean adherence of 24 h/day. He presented episodes of acute and hospitalization and resolution of the condition through the readjustment of equipment parameters. In June 2019, in consultation with the assistant Pneumologist, Hypercapnic Respiratory Failure was identified, so ST bilevel therapy with adjuvant oxygen therapy at 15 lpm was initiated during the night, maintaining high nasal flow during the daytime. Clinical case 2: male, 63 years old, BMI = 25 kg/m^2. Diagnosis of COPD and pulmonary hypertension. Start of LTOT in 2012 with several hospitalizations: pneumothorax in 2016 and respiratory infection in May 2019. Adapted to high-flow nasal therapy, with 20 lpm flow, 31° temperature and oxygen output at 10 lpm to obtain FiO2 of 59% is discharged to home 2 days after with teaching and adaptation of oximetry. The user maintained autonomy in the readjustment of parameters by medical indication, reporting a clear improvement in quality of life, better quality of sleep and remission of tiredness/cephalias after awakening. Average adherence was 10 hours/day, including the night period. When the high nasal flow is not being used, the patient undergoes oxygen therapy between 8-10 lpm with a venturi mask, using the oximeter autonomously to change between therapies.
Discussion: The use of high flow therapy at home environment is recent but its results are predictive of success. An adequate articulation between patient/caregiver, CRD health professional and attending physician is of utmost importance for the promotion and maintenance of therapeutic efficacy. In this way, we will be able to guarantee the main objectives of the therapy, namely the patient's comfort and autonomy.

Keywords: *Respiratory insufficiency. Home respiratory therapies. High nasal flow. Self-management.*

PC 158. ALPHA-1-ANTITRYPSIN DEFICIENCY: IS PI*ZZ GENOTYPE THE ONLY VILLAIN?

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Introduction: Several mutations in SERPINA1 gene can lead to alpha-1 antitrypsin (A1AT) deficiency and a wide spectrum of disease. Carriers of Z allele have hepatic accumulation of protein, leading to liver disease, and little amounts of circulating A1AT, leading to lung emphysema. Mmalton (Mm) is a rare mutation affecting M allele and is associated with increased risk of liver and lung disease.
Objectives: To compare demographic, clinical and lung function characteristics between Pi*ZZ and Pi*ZMm genotype patients.
Methods: A retrospective multicenter study was conducted comparing all adult Pi*ZMm and Pi*ZZ patients followed in the outpatient clinic of three Portuguese hospitals in 2018. Of the 66 patients included, 59.1% were males, with a mean age of 52.6 ± 13.9 years, 52 had Pi*ZZ and 14 Pi*ZMm genotype.
Results: Obstruction was detected in 64.3% of ZMm and in 55.8% of ZZ patients (p = 0.567). No statistically significant differences were found between groups concerning the mean dosage of A1AT (23.1 ± 6.6 vs 23.2 ± 6.4 mg/dL, p = 0.940) and FEV1% (80.8 ± 40.4% vs 71.3 ± 39.9%, p = 0.439). With regards to smoking history, there were statistically significant differences in FEV1% of ZZ patients, between smokers/former smokers and non-smokers (53.8 ± 33.2% vs 107.9 ± 27.3%, p < 0.001), while there were no differences for the same comparison in ZMm patients' group (p = 0.275).
Conclusions: In this study, having Pi*ZMm genotype has similar clinical outcomes, with respect to lung disease, as being homozygous for Z allele, highlighting the need of identifying other rare A1AT genotypes besides Pi*ZZ patients. Differences between actual/former smokers in Pi*ZZ patients alert, once again, for the synergic effect of tobacco smoke and A1AT deficiency in pulmonary function decline.

Keywords: *Alpha-1-antitrypsin deficiency. COPD.*

PC 159. ALPHA-1 ANTITRYPSIN DEFICIENCY ASSOCIATED WITH THE MMALTON/MPALERMO VARIANT. GENOTYPES AND CLINICAL VARIABILITY IN A PORTUGUESE POPULATION

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Introduction: Alpha-1 antitrypsin deficiency (AATD) is a common inherited disease. Apart from the two major deficient variants (PI Z, PI S), there are rarer variants with clinical significance, such as the PI Mmalton (Mm)/Mpalermo (Mpa) variant. Like the PI Z, these variants produce a misfolded protein, which polymerizes in the hepatocyte, leading to reduced AAT blood levels and predisposing the patient to both pulmonary and hepatic disease.
Objectives: Characterization of the individuals with AATD, carriers of the PI Mmalton/Mpalermo (Phe52del) variant.
Methods: Retrospective review and clinical characterization of patients with this variant, identified between 2007 and 2018 in 4 centers in Portugal.
Results: From the 73 patients identified, 58.9% were male and 35.6% were smokers/former smokers. In this cohort, 46.6% were PI*MMm/Mpa, 20.5% were PI*ZMm/Mpa, 17.8% were PI*SMm/Mpa and 15.1% Mm/MpaMm/Mpa. The mean AAT plasma level was 52.7 mg/dL. Patients carrying a Z allele or homozygous for the Mm/Mpa variant, presented a more severe deficiency (23.0 and 23.9 mg/dL respectively). Family screening, respiratory symptoms and liver disease led to the diagnosis in 49.3%, 32.9% and 9.6% of the patients, respectively. Pulmonary disease was diagnosed in 46.5% of the patients and hepatic disease was present in 22.4%.
Conclusions: The clinical manifestations in patients with the PI Mmalton/Mpalermo variant are heterogeneous. In this sample, a significant proportion of patients already had pulmonary or hepatic disease at diagnosis, which support the need for a greater awareness about this variant among clinicians.

Keywords: *Alpha-1 antitrypsin. Alpha-1 antitrypsin deficiency. COPD. Cirrhosis.*

PC 160. AN INITIAL GROUP APPOINTMENT IN SMOKING CESSATION: A LIGHT AHEAD?

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Introduction: Smoking is the leading cause of preventable deaths in the world. Although health professionals have the duty to alert and refer patients to Smoking Cessation, the waiting list for Smoking

Cessation Appointment, often exceeds human resources and health services infrastructures.
Methods: To the first group appointment were summoned the maximum number of patients that could be scheduled within 2 weeks. This appointment was performed in a training room, where questionnaires were fulfilled and a PowerPoint presentation was made that clarified the purpose and methodology of the Smoking Cessation programme. In the end, individual appointments were scheduled. Patients took with them a leaflet to record smoking habits and pertinent information. The authors compare the number of appointments and the waiting list at the end of 2017 versus the end of 2018, the year in which this group appointment was introduced.
Results: Between 2017 and 2018 there was an increase in the number of patients summoned for first appointments (87 to 192), an increase in the number of consultations made (from 44 to 101), a decrease (41.2%) in the number of patients in the waiting list from 148 to 61 and a decrease in average time on the waiting list (from 334.3 to 162.9). At the end of May 2019 the number of patients in waiting list was 43, from the end of 2018 to May 2019 the number of days on the waiting list went from 162.9 to 73.7.
Conclusions: The implementation of a first smoking cessation group appointment allowed a greater number of patients to be contacted and to reduce the waiting list, making the waiting time more adequate to the specificities of this consultation.

***Keywords**: Smoking cessation. Smoking. Group appointment.*

PC 161. KNOWLEDGE AND SMOKING MANAGEMENT BY HOSPITAL MEDICAL RESIDENTS

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Introduction: Smoking is the main evitable cause of morbility and mortality. An appropriate approach by health professionals is fundamental to smoking cessation.
Objectives: To evaluate the importance attributed to smoking, previous training and need for future training, practical knowledge and smoking management by hospital medical residents.
Methods: Anonymous, voluntary "online" survey distributed to hospital medical residents.
Results: 83 medical residents answered the survey. Mean age was 25 years old, 60% were female, 76% were specialty residents (SR) and the remaining were general residents. On SR group, the commonest specialties were Internal Medicine (19%), Pulmonology (16%), General Surgery (13%), Pediatrics, Medical Oncology and Psychiatry (6% each), Orthopedics and Anesthesiology (5% each). 74% were non-smokers and 10% were ex-smokers. Smoking importance to disorders in their field was considered essential by 21% of the residents, very important to 45% and important by 27%. All residents agreed on the need to health professionals always inquire their patients' smoking habits. When asked about their previous training in this area, 67% considered to have knowledge on smoking cessation, although 68% felt the need for more training is this area. In fact, previous training was considered insufficient to allow them to: evaluate smokers dependency level (54%), evaluate smokers motivation to smoking cessation (49%), "5 A's" brief approach to smokers (66%), approach ambivalent smokers or those who do not intend to stop smoking (64%). It is also important to report that 48% dos the residents did not consider that their previous training has allowed them to identify patients who should be referenced to specialized intervention and 75% revealed that it has not also prepared them to prescribe and monitor pharmacological intervention. Half of the residents had already referenced patients to smoking cessation consultation. The majority of the residents (80%) had previous training on smoking cessation at college, and 25% had also at high school. Only 13.3% had post-graduated training in smoking during specialty training, and the same amount had done so during general residency. When asked about the format of eventual future training on smoking, the most suggested formats were practical workshop with consultation simulation (38%), combined training composed by "e-learning" plus presential lecture (27%), presential theoretical training (16%) and training exclusively on "e-learning" format (12%).
Conclusions: Survey results show that residents consider smoking as having a strong impact on their patients and that there is a need to invest in post-graduated training, in order to expand knowledge and improve smoking cessation management.

***Keywords**: Smoking. Smoking cessation.*

PC 162. MEDIASTINAL MYELOLIPOMA. A CASE REPORT

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Introduction: Myelolipomas are benign, rare tumors of mesenchymal origin, consisting of adipose and hematopoietic tissue, usually encapsulated, with preferential location in the adrenal glands. The incidence of extra-adrenal myelolipomas is rare, most often in the retroperitoneal region. Although usually asymptomatic, constituting findings in complementary exams, they can reach large dimensions, with potential to cause compression of adjacent structures. In addition, presentation and localization may simulate aggressive tumors such as liposarcomas.
Case report: We present the case of a male patient, 70 years old, non-smoker, former mining worker, with pathological history of hereditary spherocytosis and benign prostatic hyperplasia. She had a nonproductive cough, dyspnea on moderate exertion, and back pain. Chest CT revealed a 4.6 × 2.2 cm hypodense nodular image, located in the right postero- inferior paravertebral topography, with regular borders. In the imaging review at 3 months there was a dimensional increase to 5.2 × 3 cm. He then underwent CT-guided transthoracic biopsy, whose pathological examination revealed ectopic bone marrow, which may correspond to myelolipoma, without signs of malignancy. Given the dimensional increase and the risk of compression of nervous and vascular structures, the lesion was surgically excised by thoracotomy, and the anatomopathological examination of the surgical specimen confirmed the presence of myelolipoma. Clinical improvement was found, with resolution of back pain.
Discussion: Thoracic myelolipomas constitute only about 3% of these tumors, mostly in the posterior mediastinum and generally require no treatment, and clinical and imaging surveillance is indicated. Surgical removal is the treatment of choice, recommended for large myelolipomas or at risk of compression of adjacent structures.

***Keywords**: Benign tumor. Myelolipoma. Thoracic surgery.*

PC 163. SPONTANEOUS PULMONARY (LINGULA) TORSION. REPORT OF A RARE CASE

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Introduction: Pulmonary torsion results from the rotation of a pulmonary lobe (or whole lung) around its bronchovascular pedicle. The degree of rotation is variable (usually 180º) and may cause an ischemic process of the involved area. This is a rare event, with an incidence of 0.089-0.4%, whereby most reported cases follow pulmonary surgery, namely lobectomy. It occurs less frequently as a complication of minimal-invasive procedures such as video-assisted thoracic surgery (VATS), or after large-volume thoracentesis or pneumothorax. It rarely occurs spontaneously in the native lung

with no known structural pathology. In chest X-rays, the affected lobe is often opacified, with the hilum in an inadequate position and may present a reticular pattern, reflecting lesional or perilesional congestion. Chest CT allow the characterization of the lesion and plays an important role in the differential diagnosis (endobronchial obstruction, infarction, infection or even neoplasia). The optimal therapeutic approach is controversial and depends on the viability of the affected lung, but surgical intervention is usually needed as lung torsion may result in a surgical emergency scenario.
Case report: We report the case of a 60-year-old active smoker with a history of hypertension and COPD, on bronchodilator and antihypertensive treatment, admitted to the Pulmonology Department in the context of COPD exacerbation. During hospitalization, the patient underwent chest X-ray, which revealed a left upper lobe (LUL) mass. Subsequently, the patient underwent a thoracic CT, which described an area of spiculated contours, with 40 mm in the LUL extending from the pleural surface to the hilum, without adenomegaly. Due to the suspicion of a neoplasic process, patient was submitted to PET-CT that showed 18-FDG uptake in the described lesion, without uptake at the ganglion level. The patient was submitted to bronchofibroscopy that did not show endobronchial morphostructural alterations and with subsequent histology and cytology negative for neoplastic cells. He was then proposed to transthoracic biopsy of the lesion, also without evidence of neoplastic cells. Finally, the case was discussed with the Thoracic Department and the patient was proposed and accepted for surgery with extemporaneous examination. During surgery, the imagological described lesion was not identified, but instead, an atelectatic process of the lingula with associated torsion was identified resolved with lesion de-rotation and release with adhesion lysis and subsequent decortication. Normal re-expansion of the atelectasic lung was observed. Pleural surgical biopsy revealed chronic pleuritis with angiogenesis but no neoplasic cells where identified. The diagnosis of spontaneous torsion of the lingula was established and the patient followed up for consultation, having normalized sustained imaging.
Discussion: This paper reports an interesting case of spontaneous pulmonary torsion of the lingula, whose knowledge should be part of the Pulmonologist's repertoire not only for the potential clinical severity, sometimes requiring urgent surgical intervention when it comes to an acute presentation, but also for the differential diagnosis involved. Cases such as this one highlights the importance of multidisciplinary dialogue in the evaluation, interpretation and resolution of less common situations or when evolution does not follow the estimated course.

Keywords: *Pulmonary torsion. Lingula. Neoplasia.*

PC 164. ANTERIOR MEDIASTINAL MASSES AND THE ROLE OF MRI

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Introduction: There are different types of mediastinal masses that can be characterized on imaging techniques. The diagnosis can be established by the location of the lesion, age and imaging findings. Computed tomography (CT) and magnetic resonance imaging (MRI) are important to identify these masses and help us narrow the differential diagnosis. While CT is widely used for the initial evaluation of these masses, the results are often indeterminate. MRI is gaining importance in the characterization of mediastinal lesions, the site of origin and the involvement of adjacent structures, helping in the assessment of preoperative relationships, even though it is not used very often. We present four case reports of the most common anterior mediastinal masses, comparing thorax CT and MRI findings, and providing clues to the correct diagnosis. All the lesions were confirmed by histopathologic examination.
Case reports: Case 1. A 39 year-old-woman presented on chest CT an anterior mediastinal solid mass with lobulated contours, heterogeneous with central areas of hypodensity. A surgical biopsy was made disclosing a thymoma and a MRI was requested to assess preoperative relationships. She was submitted to mass resection, with histological confirmation of thymoma. Case 2. A 23-year-old man, evacuated for clarification of mediastinal mass, presented thoracalgia, fatigue and fever with a year of evolution. CT showed an anterior and left superior mediastinal solid mass, lobulated contour, with contrast enhancement, and some areas of hypodensity within the lesion. MRI showed an anterior mediastinal mass with hypersignal in T2-weighted sequences, central area with hyposignal and lake of contrast enhancement. A biopsy was made confirming the diagnosis of T-Lymphoblastic lymphoma. Case 3. A 42-year-old woman performed a chest CT showing a bulky anterior mediastinal mass that extended from the thoracic inlet up to the right atrial appendage. Due to vascular compression, an MRI was required to access the cleavage plane and confirm the surgical indication for resection. Histological exam confirmed mediastinal goiter. Case 4. A 21-year-old woman with left thoracalgia with 15 days of evolution performed a chest CT that showed a bulky antero-left lateral mediastinal mass. The MRI displayed an encapsulated anterior mediastinum mass with irregular thickened walls, multilobulated with thickened septa and heterogeneous content. With suppression of fat there was a loss of signal demonstrating fat or sebum content, highly suggestive of teratoma. The histological exam demonstrated a mature teratoma.
Discussion: Although CT is considered the imaging modality of choice, MRI has been increasingly used due to its excellent tissue characterization, the ability to differentiate between solid and cystic masses, its superior delineation of the relationship with adjacent structures, the lack of ionizing radiation and the possibility to be performed in patients with poor renal function or with contrast allergy. MRI can be used to achieve a clinical diagnosis, help stage and manage these lesions, reducing unnecessary procedures and can also be used in patient follow-up.

Keywords: *Anterior mediastinal masses. Magnetic resonance imaging. Thymoma. Lymphoma. Mediastinal goitre. Teratoma.*

PC 165. DESMOID TUMOR. A RARE CASE OF A GIANT CHEST MASS

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Introduction: Desmoid tumor also called aggressive fibromatosis is a rare tumor representing around 3% of all soft tissue neoplasms. In spite of benign, without metastatic potential, it is locally aggressive. Most of them arise sporadically, however, 5 to 15% are associated with a familial adenomatous polyposis. They affect most commonly females, between the ages of 15 to 60. The clinical presentation is variable depending on its location and growth rate. Treatment should be aggressive and consists of surgical resection with widely negative margins. When irresectable, radiotherapy may be required. It has high rates of local recurrence (about 65%) even after complete excision.
Case report: A 19-year-old female from São Tomé, with history of iron deficiency anemia, went to the urgency room with nonspecific epigastric pain in the previous 2 days, without any other gastrointestinal symptoms associated and progressive fatigue. She denied dyspnea, cough, sputum or chest pain. The clinical examination showed a marked decrease of pulmonary murmur in the lower 3/4 of the left hemithorax, without adventitious sounds. The blood tests had a microcytic hypochromic anemia requiring blood transfusion, without other alterations. Chest radiography revealed a large, well-defined opacity, occupying almost all the left hemithorax. She underwent thoracic CT, which revealed a heterogeneous mass occupy-

ing the left thoracic space, with unidentified origin, sizing about 133 × 92 mm, obliterating almost all of the left lung, conditioning contralateral deviation of the mediastinum. The complementary study from the follow up highlights: normal upper digestive endoscopy; functional ventilatory study with a restrictive syndrome (FVC 35.6% and FEV1 33.1); transthoracic biopsy with nonspecific histology of collagen/fibroblast proliferation. The patient underwent surgical resection. Intraoperatively was found a giant, hard-encapsulated mass, occupying the lower 2/3 of the entire left thoracic cavity, which compressed the entire left lower lobe. The pathological study of the mass revealed a mesenchymal tumor with immunohistochemical features of desmoid fibromatosis. After surgery she had a complete pulmonary expansion, with symptomatologic improvement.
Discussion: Desmoid fibromatosis is a slow-growing tumor with insidious clinical presentation and might even be asymptomatic. However, it is highly aggressive and can invade and compress neurovascular structures or surrounding organs, like the lung, compromising its integrity and function. The complete surgical excision is highly complex due to its enormous dimensions, and may be necessary a chest wall reconstruction. It has a high local recurrence rate, being essential a careful vigilance. Despite its benign classification, it represents an important cause of morbidity and mortality in the differential diagnosis of a chest mass.

***Keywords**: Thoracic mass. Desmoid tumor. Aggressive fibromatosis.*

PC 166. AN ELASTIC PLEURAL FLUID: WHAT CAN IT BE?

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Introduction: Thoracentesis is one of the first steps in the approach of a pleural effusion, allowing the analysis of different characteristics of pleural fluid. Although non-specific, the macroscopic features of pleural fluid may help identify the etiology of the effusion.
Case report: 51-year-old female, ex-smoker with history of controlled hypertension. Professional exposure to asbestos while working in the production of asbestos coated gloves. Previously asymptomatic, in February 2019 patient describes progressive dyspnea, leading to the realization of a chest radiography that documented a massive right pleural effusion. Thoracic CT confirmed a right pleural effusion causing contralateral deviation of mediastinal structures, compression of the superior vena cava and atelectasis of lung parenchyma, also showing a rounded pleural thickening in the right costal-mediastinal region with irregular contrast-enhancement. In order to evaluate the fluid and manage patient's symptoms, thoracentesis was performed with extraction of 1,100 cc of a clear, odorless, dense, almost elastic, citric yellow pleural fluid. Samples were sent to analysis, however, due to fluid's high density, biochemical or cytological evaluation wasn't possible. Due to high suspicion of malignancy, patient underwent medical thoracoscopy, reporting diffuse nodularity of the visceral, parietal and diaphragmatic pleura where multiple biopsies were performed. Additionally, it is important to mention the presence of a large pleural mass in the upper hemithorax in the anterior medial location. PET scan showed an extensive area of hypermetabolism (SUV maximum 14) in coincident location with the pleural mass previously described on thoracic CT and visualized on thoracoscopy, as well as other foci of hypermetabolism in the costal and mediastinal pleura, with no signs of extra pleural disease. Anatomopathological results were compatible with epithelioid mesothelioma. Two weeks after the procedure patient was reassessed and there was no evidence of fluid reaccumulating. She is now under treatment and follow-up by to the oncology team.
Discussion: Mesothelioma is the leading cause of primary pleural neoplasia. Exposure to asbestos is associated with a significant risk increase, with prior exposure being documented in 70% of the diagnosed mesotheliomas. Since the 1980s the use of asbestos has been decreasing and in 2005 the European Union banned its use, however, given the long latency observed in this pathology, in Europe a peak incidence of mesothelioma is predicted to 2020. Hyaluronic acid (HA) is a glycosaminoglycan widely distributed through the epithelial tissue, particularly in the pleura, where it decreases the friction between lung and chest cavity. In mesothelioma an increase in the production of HA is described, and its accumulation confers a viscous, almost elastic consistency to the pleural fluid, as seen in this patient. This case serves as an alert for a rare pathology, but that shouldn't be forgotten, mainly in areas of asbestos exposure, showing that a pleural fluid with these characteristics can point to the diagnosis of mesothelioma. However, histological analysis is still the gold standard for mesothelioma diagnosis, and medical thoracoscopy increases the diagnostic yield to 98% when compared to 26% of thoracentesis or 39% of the combination of cytological and closed pleural biopsy.

***Keywords**: Pleural effusion. Hyaluronic acid. Mesothelioma. Medical thoracoscopy.*

PC 167. PNEUMOTHORAX AFTER CT-GUIDED TRANSTHORACIC NEEDLE BIOPSY. EVALUATION OF RADIOLOGIC CONTROL PROTOCOL

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Introduction: Pneumothorax is the most common complication of computed tomography (CT) guided transthoracic needle biopsy (TTNB). The British Thoracic Society recommends surveillance and chest radiograph 1 hour after biopsy, but protocols vary in different institutions.
Objectives: Evaluate need to perform a second radiologic control at 4 hours and need to do both inspiratory and expiratory chest radiographs.
Methods: Retrospective study of TTNB performed between January and September 2018 at the radiology Department of Hospital Center Vila Nova de Gaia/Espinho, Portugal.
Results: 115 patients performed TTNB, 71.3% were male and 81.2% had smoking habits, with a mean age of 66 (± 12) years-old. Nodules were mainly solid (87%) and peripheral (56.1%), with a mean 22.2 (± 16.1) mm of biggest diameter. In 79.1% a histological diagnosis was obtained, oncologic in the majority (68.1%). Concerning the material, in most cases coaxial (68.8%) and 18G needle (92%) were used. Complication with pneumothorax occurred in 17 patients (14.8%), but only one needed chest drain insertion with admission to the ward. In the others, CT-guided exsufflation was performed or an expectant attitude was taken (8 cases each). Every normal chest radiograph 1 hour after biopsy remained normal at the forth hour. In 3 cases inspiratory radiograph was normal despite evidence of pneumothorax in expiratory incidence. The occurrence of pneumothorax was higher in the right lung (82.4% vs 17.6%, p = 0.010) and 47.1% of the patients with pneumothorax had previous emphysema. No other characteristic of the patient or procedure was associated with occurrence of pneumothorax.
Conclusions: Data obtained suggest that a second radiologic control is no longer required if the first one is normal. Furthermore, if in order to reduce costs and radiation exposure we need to select only one incidence, it should be expiratory chest radiograph. There were no definitive results about factors that increase risk of pneumothorax, suggesting it should be evaluated for each patient individually.

***Keywords**: Transthoracic needle biopsy. Pneumothorax. Radiologic control.*

PC 168. CHEST TUBE DWELL TIME IN SECONDARY PNEUMOTHORAX

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Introduction: A Secondary Pneumothorax (SP) is defined as the presence of air in the pleural space, that occurs as a complication of underlying lung disease. According to size and symptoms, treatment usually includes a chest tube insertion.
Objectives: Analyse the population of hospitalized patients in the Pulmonology department of Hospital Egas Moniz, in Lisbon, from 2011 to 2018, with a diagnosis of SP, according to chest tube dwell time.
Methods: Patients were divided into a prolonged chest tube duration (PD) group and a non-prolonged (NPD) group, based on the average chest tube dwell time (8 days). The Light Index (LI) and the British Thoracic Society (BTS) guidelines were used to assess the size of the pneumothorax. Patients with no chest x-ray available or with pleural effusion were excluded.
Results: This study evaluated 56 patients with SP, 16 in the PD group and the remaining 40 in the NPD group. Those with PD had a larger average size of pneumothorax according to LI (70% vs 46.6%; $p = 0.001$). A greater percentage of patients with a large pneumothorax was also noticed, according to LI and BTS guidelines ($p < 0.001$). A significantly higher percentage of patients with Respiratory Failure (RF) and persistent pneumothorax with surgical indication was also noticed in this group (44% vs 8% and 31% vs 10%, respectively). Although not statistically significant, those with PD were older (51 vs 41 years) and had a larger average size according to BTS (4.5 vs 2.5 cm).
Conclusions: The PD subjects tended to have larger pneumothoraxes and a higher percentage of patients with RF and persistent pneumothorax with surgical indication. These findings may provide information for better chest tube management, including the need to consider an earlier surgical intervention.

Keywords*: Secondary pneumothorax. Chest tube dwell time. Size. Light index. BTS. Surgical intervention.*

PC 169. RARE CAUSES OF BENIGN EXUDATIVE PLEURAL EFFUSION: 5 CLINICAL CASES

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Introduction: Pleural infection, heart failure and malignant pleural effusions, are the most common causes of pleural effusions. However, there are other less common causes in which accurate and timely recognition is essential for correct clinical orientation. The benign causes of pleural effusion are broad, diverse, some uncommon and poorly understood. An individualized approach is fundamental. The analysis of pleural fluid is primordial, often requiring pleuroscopic inspection and obtaining histopathological material. Finally, should be integrated all the available information.
Case reports: Case 1: male, 63 years old, current smoker, exposed to asbestos who showed with small neutrophilic serohematic exudative pleural effusion. Thoracoscopy showed hypervascularization, fibrin and adhesions. Pleural biopsies were negative for mesothelioma, showing "nonspecific chronic pleuritis". After further study and integration of results he was diagnosed with benign asbestos pleural effusion. Case 2: female, 80 years old, milky exudative pleural effusion, with elevation of triglycerides (chylothorax). Pleuroscopy with hypervascularization and lipomatous elevation areas of the mucosa. Pleural biopsies with non-specific inflammatory changes. Patient underwent pacemaker placement previously. Thoraco-Abdominal CT showed alterations in the vascularization of the IV hepatic segment, collateral vascularization through the thoracoabdominal wall, with drainage to the inferior vena cava, suggestive of "hot-spot-sign" evocative of superior vena cava (SVC) thrombosis. There was a reduction in SVC caliber and azygos vein engorgement. Clinical integration indicated for the diagnosis of chylothorax secondary to SVC thrombosis following the placement of pacemaker electrocatheters. Case 3: female, 55 years-old, eosinophilic serohematic exudative pleural effusion and peripheral hypereosinophilia (maximum value: 10.0×10^9/L). Without relevant epidemiological elements, negative parasitological study and without use of imputable drugs for eosinophilia. Thoracoscopy showed pleural hypervascularization with a nodular area, and biopsies showed eosinophilic pleuritis without malignant infiltration. After discussion and complementary hematological study she was diagnosed with chronic eosinophilic pleuritis secondary to idiopathic hypereosinophilic syndrome. Case 4: male, 66 years with mononuclear exudative pleural effusion. Thoracoscopy with septations and pleural thickening and biopsies evidencing a nonspecific pleuritis. On admission he developed migratory oligoarthritis, auricular chondritis and episcleritis/keratitis. In collaboration with Rheumatology, the diagnosis of pleural effusion secondary to relapsing polychondritis was sealed. Case 5: female, 38-year-old, current smoker with seropositive rheumatoid arthritis, had a small septated pleural effusion, coinciding with worsening joint activity. She had a lymphocyte exudative pleural fluid and pleural/serum rheumatoid factor ratio of 3.6. Thoracoscopy showed a complex pleural space, septated and with pleural thickening. Pleural histology showed nonspecific chronic fibrinous pleuritis. It was assumed the diagnosis of rheumatoid pleurisy.
Discussion: In contrast to malignant pleural effusions with clear and actualized guidelines, the causes of non-infectious benign exudative pleural effusions maintain a very dependent approach on observational studies and case reports. The lack of quality evidence and guidelines motivate difficulties with diagnostic classification and therapeutic orientation. We emphasize the importance of extending the analytical panel in the study of the fluid, the value of thoracoscopy after an inconclusive preliminary approach (greater safety in malignancy exclusion), and the correlation with occupational history, comorbidities, chronic medication, and immune/autoimmune study.

Keywords*: Pleural effusion. Thoracoscopy. Asbesto. Rheumatoid arthritis. Chylothorax.*

PC 170. SPONTANEOUS PNEUMOMEDIASTINUM: DIFFERENT FACES, SAME FRAME

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Introduction: Spontaneous pneumomediastinum (i.e. not due to trauma, surgery or medical-thoracic procedure) is a rare, generally benign entity for which predisposing and/or triggering factors are often unknown. Its presentation is nonspecific, and may present with dyspnea and chest pain, but also, less commonly, be clinically weak. Two clinical cases are presented.
Case reports: Case 1: A 35-year-old male patient, non-smoker, without risk inhalation exposure, with a history of bronchial hyperreactivity in the context of respiratory infection who underwent bronchial asthma during a clinical acute study. Chest High Resolution (HRCT) in an outpatient clinic, in which extensive pneumomediastinum was identified. Afterwards, she was hospitalized and resolved with conservative measures (bronchodilation, rest and low-output oxygen therapy). Case 2: a 80-year-old male patient, with history of colon cancer since 2016, with hepatic (thermoablation target) and pulmonary metastasis in 2019 (6 mm lobe nodule) submitted to wedge resection on 05/2019, without complications.

Still under chemotherapy, he resorted to the emergency department on 08/2019 for dysphonia and sudden edema of the face and neck, without accompanying pain or cardiorespiratory complaints. Thoracic HRCT revealed extensive pneumomediastinum and subcutaneous emphysema at the cervical, thoracic and abdominal walls. Under conservative treatment, presented resolution of the picture.
Discussion: We present the clinical cases mentioned above due to the rarity of the condition in question, the evidenced clinical-imaging dissociation and the distinct pathologies in its genesis. As a generally benign prognostic condition, conservative treatment is often the best approach, which has been confirmed in both cases.

Keywords: *Pneumomediastinum. Clinical-imaging dissociation.*

PC 171. BACTERIAL PLEURAL PLAQUES BY DIAPHRAGMATIC TRANSLOCATION: A THORACOSCOPIC FINDING

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Introduction: Empyema consists of pus in the pleural space and is usually a complication of pneumonia. We herein report an unusual case of empyema arising from a pancreaticopleural fistula. This rare entity occurs due to a disruption of the pancreatic duct, with fluid leakage into the retroperitoneum which fistulates to the pleural cavity.
Case report: The present case report is about a 76-year-old man with history of pancreatic ductal adenocarcinoma, submitted to distal pancreatectomy with splenectomy. He was admitted to the emergency department 2 months after surgery due to dyspnea at rest and fever. Thoracic X-ray revealed a moderate left-sided pleural effusion. Thoracocentesis was performed, followed by chest tube insertion, as a result of purulent fluid. Analysis was consistent with amylase-rich exudate, cytology did not detect malignant cells and microbiological examination was negative. Thoracic and abdominal computed tomography revealed left-sided pleural effusion and atelectasis, with correct placement of chest tube and a subphrenic collection surrounding the pancreatic region (followed by abdominal drain insertion). Empirical antimicrobial therapy with ceftazidime plus gentamicin was completed, pleural and abdominal drainage was well succeeded and the patient was discharged with remaining abdominal drainage. However, 10 days after he presented with fever and pleuritic pain. Chest/abdominal CT-scan showed small to moderate pleural effusion, pleural thickening and abdominal collection with decreased volume compared with the last CT, although still communicating with an adjacent pancreatic small collection (abdominal drain was correctly placed). Thoracocentesis was attempted but unsuccessful. Medical thoracoscopy was performed, revealing purulent fluid (aspiration of 300 ml), pleural plaques and thickening of visceral and parietal pleura. Pleural cavity cleansing was made with physiological saline solution and pleural biopsies were made. Histology was negative and microbiology revealed Klebsiella oxytoca, the same pathogen isolated in the abdominal fluid. Targeted antibiotic therapy was started and pleural lavages via chest tube were done during hospitalization. The patient's clinical and radiological status improved gradually and pleural drain was removed after 10 days. He was discharged under cotrimoxazol and abdominal pigtail drain. At follow-up consultation 2 months later the patient was asymptomatic and CT scan did not show significant alterations.
Discussion: Pancreaticopleural fistula is a rare complication of pancreatic ductal adenocarcinoma. Typical presentation consists in a left sided exudative pleural effusion with elevated amylase levels. Empyema may occur, as in the present case. Even though pneumonia is the most common cause of this pathology, not all of empyemas have thoracic etiology. Medical thoracoscopy is a safe and minimally invasive procedure that plays an important role in differential diagnosis of pleural effusions and in the management of some empyemas.

Keywords: *Empyema. Pancreaticopleural fistula.*

PC 172. ACUTE ONSET OF PLEURAL EFFUSION IN TERMINAL HEPATIC INSUFFICIENCY: DO NOT FORGET TUBERCULOSIS!

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Hospital Prof. Dr. Fernando Fonseca, Amadora.

Introduction: The onset of a right pleural effusion in a patient with terminal hepatic insufficiency leads clinical judgement towards the presence of a hepatic hydrothorax. Its diagnosis includes exclusion of alternative causes. The authors present a case that highlights the importance of not underappreciating any diagnostic hypothesis.
Case report: A 40-year-old male patient with ethanolic hepatic cirrhosis CHILD C and MELD 21, elected for hepatic transplant. He is admitted in the Gastroenterology ward with sepsis due to inguinal abscess and hepatic decompensation, with isolation of MSSA in the pus. After treatment of the hepatic decompensation, he had moderate ascites and oedema in the lower limbs, in a daily variable degree. No clinical or radiologic sign of respiratory distress was ever recorded. At 24th day of admission, dyspnoea, fatigue and episodes of bronchospasm were noted. The thoracic X-ray shows cardiomegaly and obliteration of right costophrenic sulcus. Clinical laboratory results highlighted leucocyte count 2×10^9/L with neutropenia 1.6×10^9/L, increases in the coagulation profile, bilirubin 5.2 mg/dL, total proteins 5.52 g/dL, creatinine 0.59 g/dL and RCP 3.36 mg/dL. Due to worsening of the complaints, he repeats the X-ray ten days later, which showed a total opacification of the right hemithorax, suggestive of being a new-onset pleural effusion. The patient is referred to the Pulmonology Department. A thoracocentesis with drainage of 3,000 cc of serohematic fluid is made, and results revealed: 1,694 cells/uL, lymphocytic predominance, ADA 45 U/L and Light criteria for exudate. Bacilloscopy and bacteria cultures were negative; mycobacterial cultures were being processed. The cytology was inconclusive. Considering the lymphocytic predominant exudate effusion, the main diagnostic hypothesis were cancer or hepatic hydrothorax, possibly infected. A few days later, the patient starts treatment for a spontaneous bacterial peritonitis, with negative bacterial cultures, bacilloscopy and Mycobacterium tuberculosis PCR of the ascitic fluid. A thoracic CT excluded pleural disease, mediastinal and left lung lesions; the right lung was collapsed due to the effusion. The effusion relapses rapidly, and a new diagnostic thoracocentesis with pleural biopsies is repeated 15 days after the first one; the effusion remained a lymphocytic exudate, with ADA 43 U/L. The new bacilloscopy and the mycobacterial cultures of the first thoracocentesis were negative, and in the biopsy giant multinucleate cells, sketching non necrotizing epithelioid granulomas were identified. However, cultural exams of the second thoracocentesis were positive for mycobacterium tuberculosis complex, and a diagnosis of pleural tuberculosis was made.
Discussion: A pleural effusion in terminal hepatic insufficiency may be a diagnostic challenge. The multiple infectious complications, the long hospital stays, and progression of disease may mistakenly narrow clinical thinking. We shall always consider the most common causes of pleural effusion in the general population, proceeding with diagnostic work-up according to what we find.

Keywords: *Pleural tuberculosis. Hepatic hydrothorax. Unilateral pleural effusion.*

PC 173. RECURRENT PLEURAL EFFUSION: WHEN THE ETIOLOGY IS NOT EVIDENT

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Introduction: Pleural effusion (PE) can have several etiologies and its recurrence is often a diagnostic challenge. Multiple Myeloma (MM) accounts for approximately 10% of hematologic malignancies and only 6% of patients develop PE during the course of the disease. The etiology is usually multifactorial, namely post-infectious, in the context of heart failure secondary to amyloidosis, pulmonary embolism, renal failure, hypoalbuminemia, second malignancy, reactive effusion or infiltration by plasma cells, which occurs in less than 1% of cases.
Case report: We present the case of a 51-year-old bricklayer, active smoker (35UMA) with no known pathology. History of 1 month of evolution of dry cough, fever of 38ºC and right thoracalgia, without respiratory failure, having been medicated with empirical antibiotic therapy for respiratory infection. He went to the emergency department for maintenance of right thoracalgia, at costal margin level, with pleuritic characteristics. Analytically without elevation of acute phase parameters. Chest X-ray with right pleural effusion and obliteration of the left costophrenic sinus. Evaluated at a pulmonology consultation, he denied constitutional symptoms, night sweats, hemoptysis, or other respiratory symptoms, maintaining intense right thoracic pain. Objective examination with pulmonary auscultation with decreased right base vesicular murmur and decreased vocal vibration transmission at this level, with no other changes. Thoracic CT scan with infracentimetric mediastinal adenopathy, band atelectasis of the anterior segment of the right upper lobe, extensive bilateral pleural effusions, larger on the right and right and left costal artery fractures and L1 vertebral body collapse. Ecoguided diagnostic and evacuator thoracocentesis with serofibrinous fluid with pH 7.4, glucose 83 mg/dl, exudate criteria, lymphocyte predominance 86%, ADA 18 IU/L, negative cultures. Pleural fluid and pleural biopsies negative for neoplasia. Videobronchofibroscopy without alterations, bronchial lavage negative for neoplastic cells, but with bacteriological isolation of Haemophilus influenzae, so he did directed antibiotic therapy. After recurrence of the right pleural effusion one month later, he underwent thoracentesis with serofibrinous fluid output without isolation of neoplastic cells. Analytically hemoglobin 10 g/dL, no leukocytosis, C-reactive protein 3.77 mg/dL, renal function, liver, albumin, ionogram, D-dimers, NT-proBNP, tumor markers (CEA, CYFRA 21, alpha-fetoprotein, PSA) within normality with the exception of NSE 26.9 ug/L and beta2-microglobulin elevation 4.67 mg/dL. Autoimmune study without changes. Protein electrophoresis with peak gamma presence at 2.4 g/dL. Abdominal fat biopsy with negative amyloid test. Myelogram with 32% plasma cells with immunophenotyping in agreement with multiple myeloma and bone biopsy that confirmed the diagnosis. In this context, PE associated with MM was assumed after an infectious condition, from which the investigation led to the final diagnosis.
Discussion: PE is an uncommon manifestation of MM and may appear at diagnosis or after initiation of chemotherapy. This case shows the importance of clinical and imaging re-evaluation of patients after respiratory infection, especially when complaints suggestive of pleural involvement persist and also the fundamental role of a complete analytical study in the diagnosis of recurrent pleural effusion, which in this case allowed to reach the final diagnosis.

Keywords: *Recurrent pleural effusion. Multiple myeloma.*

PC 174. MALIGNANT PLEURAL EFFUSION: THE IMPORTANCE OF PH AS PROGNOSTIC MARKER

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Introduction: The management of patients with malignant pleural effusions (MPE) remains an important clinical challenge. Considering the expense, discomfort and sometimes need for hospital stay of pleurodesis, patients with poor prognosis may elect to undergo other less invasive palliative measures. PH in pleural fluid has not yet been approved for prognostic assessment in MPE.
Objectives: Access the relation between pH of pleural fluid in the MPE with the median survival of the patients.
Methods: We conducted a retrospective study with evaluation of all patients with MPE diagnosis that underwent thoracentesis in our department between June 2015 and December 2018. Only patients with pH measured immediate after first thoracentesis were included. MPE diagnosis was defined by the presence of malignant cells in pleural fluid on cytologic examination or pleural biopsy. All malignancies were included. The cut-off value defined was 7.32 for pH as this corresponded to the mean value of the exams performed. The software IBM SPSS Statistics 25 provided data analysis for descriptive statistics. Kaplan-Meier curves were used to analyse overall survival after first thoracentesis and generalized Wilcoxon test to compare survival between groups. The results are presented in mean (± standard deviation) or median [25 percentile-75 percentile].
Results: Sixty-two patients were included in the study. The median overall survival in months was 2.78 [1.8-9.3]. PH mean value was 7.32 (± 0.12), 25 (40.3%) of the patients had a pH inferior to the mean and 37 (59.7%) equal or superior. The group A, defined as pH less than 7.32, showed a median survival of 1.9 months [1.3-4.9]. On the other hand, group B, defined as pH equal or superior to 7.32, revealed a median survival of 4.3 months [2.5-13] ($p = 0.006$). 3 months after thoracentesis 35% of the patients in group A were alive against 60% in group B.
Conclusions: The pH evaluation at the moment of thoracentesis is almost always done in non-malignant pleural effusion but often forgotten in MPE. The prognostic value of pH has been studied for the past decades but results are still variable and their use is not approved in guidelines. Our work shows an existence relation between pH inferior to 7.32 and low median survival. This relation is explained from accumulation of end products of glycolysis in the pleural space caused by tumours in advanced stage of disease. This marker could be used for identifying patients with no benefits of performing pleurodesis.

Keywords: *Malignant pleural effusion. Survival. Prognosis. pH.*

PC 175. BILATERAL PNEUMOTHORAX IN NEUROMUSCULAR DISEASE ASSOCIATED WITH NON-INVASIVE VENTILATION AND MECHANICAL INSUFFLATION-EXSUFFLATION

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Introduction: Duchenne muscular dystrophy is a motor neuron disease that involves respiratory muscles and results in ventilator failure and increased respiratory tract infection. Mechanical ventilator support, such as non-invasive ventilation (NIV) is the primary respiratory therapy for patients with respiratory failure and neuromuscular disease (NMD), however, clinical adjuncts focusing on cough augmentation, lung inflation, and chest wall mobility are frequently used.

Case report: The authors present a case of a 35 years-old male with Duchenne muscular dystrophy using NIV-BIPAP (Trilogy®) for 24h per day and mechanical in-exsufflation (MI-E) device (Cough Assist®). The ventilator modality used was AVAPs (IPAP 26-28 cmH2O, EPAP 10, Volume 350 mL). He presents to emergency department with sudden dyspnea and low pulse oximetry. At admission he was using NIV and he presents tachypnoeic with a low pulse oximetry (SpO2 77% and had a normal blood pressure and high heart rate (117/91 mmHg, HR 124 bpm). The initial arterial blood gases showed a respiratory acidosis (pH 7.27, pCO2 51.4, pO2 47.4, HCO3 23.2, SatO2 77.3%) and the chest x-ray exhibited a bilateral pneumothorax and a right 16Fr chest drain was inserted followed by insertion of left 16Fr chest drain with partial bilateral pulmonary expansion. At the same time there was a change on ventilatory pressures, decreasing IPAP to 24-25 cmH2O and EPAP to 8 cmH2O. He performed a lung CT-scan that showed a bilateral persisting pneumothorax with some pleural bridges. At this time the chest drains was replaced by another ones connecting them to negative low suction (-10 cmH2O) with no resolution of pneumothorax. He persisted with left broncopleural fistula for 19 days and right broncopleural fistula for 32 days. During hospitalization there were several attempts to reduce positive pressure achieving the lowest pressures for AVAPS: IPAP 22-20 and EPAP 4, volume 450 mL. At discharge the patient had a residual small right apical pneumothorax that didn't worse symptoms of respiratory failure and the blood arterial gases were normal. The MI-E pressure was decreased to +20/-20 cmH2O and the patient had recommendations to use it when he had increased sputum.
Discussion: This case represents a rare potentially life-threatening complication of NIV and MI-E, with barotrauma and bilateral pneumothorax. The NIV had benefits on survival and quality of life of patients with NMD, although long term effects and complications of NIV with high pressures for long hours during several years still unclear. While the clinical utility of MI-E had been established during episodes of respiratory illness, the benefits of prophylactic use remains controversial. The authors believe that this is a controversial topic that needs more scientific research and discussion.

Keywords: *Neuromuscular disease. Non-invasive ventilation. Mechanical in-exsufflation. Pneumothorax. Barotrauma.*

PC 176. INTRAPLEURAL FIBRINOLYSIS VS VATS IN THE MANAGEMENT OF COMPLICATED PARAPNEUMONIC PLEURAL EFFUSION OR EMPYEMA

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Introduction: Parapneumonic pleural effusion (PPE) is a frequent complication of pulmonary infections. The effusion may progress with fibrin deposition, formation of septae, pleural thickening, and with the pleural fluid becoming more purulent due to bacterial growth, consequently evolving to complicated PPE or empyema (if macroscopic purulence exists). In these cases, antibiotic therapy and pleural drainage are mandatory, however, this is not always enough. There is no consensus in the literature about the best approach that allows the early and effective resolution of this condition.
Objectives: To analyse the outcomes of intrapleural fibrinolytics instillation and video-assisted thoracoscopic surgery (VATS) in the management of complicated PPE or empyema, when conventional treatment fails.
Methods: A retrospective observational study was conducted with all patients diagnosed with complicated PPE or empyema and with an unsatisfactory response to antibiotic therapy and pleural drainage, between April 2016 and May 2019. Two groups were defined according to the subsequent treatment: one group of 13 patients who received intrapleural instillation of alteplase and dornase alfa in addition to pleural drainage and intrapleural saline washes, and another group of 12 patients undergoing VATS for debridement and/or pleural decortication. Demographic data, effusion characteristics, pre-procedure antibiotic time, procedural efficacy and complications, duration of a chest drain placed, length of stay, mortality, and readmissions were recorded.
Conclusions: No procedure was superior in efficacy, complications, length of stay or safety for the treatment of complicated PPE or empyema.

Keywords: *Intrapleural fibrinolysis. VATS. Parapneumonic pleural effusion. Empyema.*

PC 177. RECURRENT BILATERAL PLEURAL EFFUSION AND PNEUMOTHORAX: A RARE CASE OF THORACIC ENDOMETRIOSIS

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Case report: A 34-year-old woman with no risk factors for lung disease, family history of lymphoma (mother) and personal history of dysmenorrhea and infertility of etiology to be clarified. Transferred to our institution on November 2017 by bilateral pleural effusion for investigation. Thoracentesis and pleural biopsies were performed with drainage of 1,000 ml of darkened serohaemorrhagic pleural fluid, whose products and cytochemical study revealed exudate characteristics with cellular predominance of vacuolated macrophages and presence of hemosiderin pigments, negative for malignant cells. Bacteriological examination of pleural fluid was negative, TB - PCR negative, histological pleura examination was incolusive on 2 occasions. Thoracic CT: 21/11/2017: "Bilateral large volume pleural effusion on the right and medium volume on the left. No condensation, pulmonary nodules, or cavitary lesions were identified, without mediastinal or hilar adenomegalies." Abdominal - pelvic CT showed a "globular uterus measuring approximately 122 × 83 × 89 mm of large, heterogeneous axes, identifying a large intramural - subserous anterior fibromyoma, with ± 67 × 66 mm and another 27 × intramural 23 mm, no evidence of adnexal masses of solid or cystic nature, unchanged breast ultrasound. Analytically Hb: 11 g/dl, HIV: negative, TB - PCR: negative, ANA, ANCA, Complements: negative, CA125: 123 (< 35). During hospitalization there was recurrence of pleural effusion coinciding with the onset of menstruation and dysmenorrhea which made suspicion of pleural endometriosis. Due to the need for exploratory thoracoscopy and diagnostic laparoscopy, it was evacuated to the Republic of South Africa. The patient underwent laparoscopy and myomatous uterus, extensive endometriosis involving the pelvic organs, and Douglas sac fundus were visualized, and also underwent videothoracoscopy and visualized pleural endometriosis at diaphragmatic pleura level confirmed by histology. Medicated with Dienogest and returned to Angola. The patient came to the emergency department on 19/10/2018 for chest pain and dyspnea. Chest X-ray revealed a large volume pneumothorax on the left with a fully collapsed lung and signs of contraction of the mediastinal structures. Pleural drainage with total reexpansion. November/2018 - Large volume pneumothorax on the left and pleural effusion on the right. Gosserelin associated with 3.6 mg. In December/2018 one week after the onset of menstruation a new episode of large volume left pneumothorax with fully collapsed lung and small right hydropneumothorax appeared. Thoracic drainage with pleurocath with re-expansion. Left pleurodesis by videothoracoscopy. July/2019- bilateral pleural effusion, left pneumothorax, right diaphragm nodules. Thoracoscopy on the right: adhesions between the lower lobe and diaphragm, dissected, visualizing multiple lesions compatible with endometriosis in the diaphragm and projecting through the diaphragm above the liver;

pleurectomy and pleural scarification performed. Total hysterectomy + annexectomy for 09/09/2019.

Keywords: *Pleural effusion.*

PC 178. CONTROVERSIES ON THORACIC DRAINAGE: SURVEY ON PNEUMOTHORAX APPROACH

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Introduction: Thoracic drainage is guided by British and American recommendations, however controversies regarding pneumothorax management persist. There is a high variability between chest physicians in points such as indication for drainage and drain size. Our objective was to evaluate the practice of pleural drainage and pneumothorax approach in a national cohort of pulmonologists.
Methods: A survey was performed to the attendants of the meeting "Comissão de Trabalho de Técnicas Endoscópicas" in June of 2019. They were read a questionnaire to evaluate their demographic characteristics, their indication for pleural drainage in five distinct clinical settings and their preferred modality (needle aspiration, small-bore chest drain or large-bore chest drain). The questionnaire was anonymous and all participants agreed with the data analysis. Fleiss' kappa statistic was used to measure the agreement between raters according to Landis and Koch.
Results: A total of 28 participants completed the questionnaire, of which: 96.4% from Pulmonology, 50.0% with more than 10 years of professional experience, 71.4% from central hospitals, 53.6% with available support from Thoracic Surgery and 82.1% with available support from Interventional Radiology in their hospital. Needle aspiration is the preferred approach in primary spontaneous pneumothorax without clinical instability (50.0%) and in iatrogenic pneumothorax (42.9%), followed by small-bore chest drain insertion (≤ 14F) (28.6% in both scenarios), large-bore chest drain insertion (17.9% and 21.4%, respectively) and observation (3.6% and 7.1%, respectively). Only 10.7% of participants opted for needle aspiration in secondary spontaneous pneumothorax without clinical instability, in which case small-bore drains are preferred (50.0%) over large-bore drains (35.7%). Most chose to insert a large-bore chest drain in cases of pneumothorax secondary to chest trauma (92.8%) and spontaneous secondary pneumothorax with clinical instability (75.0%). Overall interobserver agreement was poor (κ 0.21; 95%CI 0.18-0.24), denoting great heterogeneity in the initial approach to pneumothorax. However, there was moderate interobserver agreement in the group with 21 to 30 years of professional experience (κ 0.48; 95%CI 0.21-0.75).
Conclusions: Thoracic drainage practices in this national sample differ from British recommendations, particularly in the frequent use of large-bore chest drains. As described in the literature, interobserver agreement was poor except for the notable exception of the subgroup with more years of experience. These results suggest the need for prospective multicenter studies in Portugal on pneumothorax approach and the elaboration of a national consensus document on this subject.

Keywords: *Thoracic drainage. Pneumothorax.*

PC 179. MEDICAL THORACOSCOPY: A USEFUL BUT LIMITED RESOURCE IN A PERIPHERAL HOSPITAL

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Introduction: Medical thoracoscopy is an exam that allows the Pulmonologist to access the pleural space, with direct visualization of changes and directed diagnostic or therapeutic procedures. In our hospital, it is performed with a rigid single-door thoracoscope under general anesthesia in the ambulatory operating room. This paper aims to review the case series of the last 10 years.
Results: From July 2009 to July 2019, 57 patients underwent medical thoracoscopy, 31 (54%) males, with a mean age of 64.2 years. The most frequent comorbidities were solid organ neoplasia (25), arterial hypertension (16), heart failure (8) and COPD (6). All examinations were performed in the context of recurrent pleural effusion, 32 for diagnostic and therapeutic purposes, 16 for therapeutic purposes only and 6 for diagnosis only. The average delay from first thoracentesis to thoracoscopy was 2 months, ranging from 2 weeks to 11 months, and the average number of previous thoracenteses was 3, ranging from 1 to 12. 5 thoracoscopies weren't able to perform due to multiple pleural adhesions and incapacity for pulmonary collapse. Biopsies were performed in 44 procedures, with a conclusive diagnose in 28 (63%) of them. Lung adenocarcinoma (7), malignant mesothelioma (7) and breast cancer (4) were the most frequent diagnoses. Of the negative results, only one was diagnosed by an alternative examination (lymphoma-compatible retroperitoneal mass biopsy). Talc pleurodesis was performed in 49 exams: 32 with a good result (no relapse of the pleural effusion or symptomatology after 3 months), 11 reasonable (partial pleural effusion control and symptom resolution) and 4 poor (no pleural effusion or symptom control). One patient required drainage following thoracoscopy for collected hydropneumothorax complicated with methicillin resistant S. aureus. One needed to repeat evacuating thoracenteses. Two died in the month following thoracoscopy due to disease progression. Mild complications occurred in 11 examinations: 6 hypotension, 2 minor bleeding, 2 hypoxemia, and 1 trocar site infection.
Conclusions: Medical thoracoscopy has shown good results in the diagnosis of recurrent pleural effusions without known etiology after initial approach with inconclusive thoracentesis and blind pleural biopsies. The results of talc pleurodesis performed in the same act are also quite satisfactory. The safety of the procedure stands out, without relevant complications. In our institution, the accessibility to the space to perform thoracoscopies sometimes causes a significant delay in the diagnosis and therapy of pathologies, often oncological. The same situation requires careful selection of cases proposed for thoracoscopy and limits the expansion of this technique to other indications.

Keywords: *Thoracoscopy. Pleurodesis. Pleural effusion.*

PC 180. THE "BORN" OF A TERATOMA

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Introduction: Teratomas are benign germ cell tumors and most of them are located in the most varied sites. They are the most frequent tumors of the anterior mediastinum after thymomas and are more commonly present in young adults. They represent about 8 to 13% of tumors in this region and have a very favorable prognosis with surgical treatment. We report the case of a 19-year-old female patient who underwent resection of anterior mediastinal cystic teratoma, discovered in the etiological investigation of an empyema.
Case report: Female, 19 years old, non-smoker. 17 week pregnant surveillance in Primary Health Care. Patient started with nausea and vomiting (unusual in her pregnancy), fever and chest pain in the upper left third with pleuritic features. In the SUC, a chest X-ray showed a white lung without air bronchogram and enlargement of the mediastinum and the analytical study showed an increase in acute phase parameters. She was subsequently submitted to a thoracentesis with purulent fluid outlet, and a thoracic drainage was placed in her and was admitted to the Pulmonology Department. Empirical antibiotic

therapy was started with Amoxicillin/Clavulamic Acid 2.2 g + Clindamycin after culture harvest. Penincillin-sensitive Streptococus Anginosus was isolated and antibiotic therapy was discontinued for penincillin for 22 days. It was evaluated by gynecology/obstetrics, and the fetus was found without signs of fetal distress. From the etiological investigation realized videobobobofibroscopy: BPE reduced to an extrinsic compression slit, edema mucosa and enlarged common trunk spur. Biopsy cytology was negative; EBUS: identification of small adenopathies at the 4L, 4R and 7 stations. The larger (11L-8 mm) station was punctured and the pathological anatomy revealed a reactive pattern lymph node; Chest MRI: voluminous mass in the anterior and superior mediastinum with liquid and solid component, apparently capsulated and with mass effect on the left lung and heart. A surgical approach was discussed with the HPV Thoracic Surgery, which agreed to operate on the patient, and there were no contraindications on the part of the Obstetrics. She underwent anterior mediastinal tumor excision and left decortication by clamshell procedure for 14h. The anatomopathological result showed a mature cyst teratoma with intense foreign body inflammatory reaction and multiple calcifications. Postoperatively both the patient and the fetus were well. Of note as the only complication is upper limb paresthesias (+ right) and is currently in a motor rehabilitation program.
Discussion: Teratomas, like all mediastinal tumors, often have nonspecific symptoms, and their diagnosis is often made as imaging findings. In the case reported here, the patient presented with an empyema secondary to teratoma rupture, and from the etiological investigation a mediastinal mass was found. Since she was a young and pregnant patient with no possibility of diagnosis by less invasive means, the mass was surgically excised and revealed to be a teratoma. To facilitate preoperative diagnosis and avoid misdiagnosis of this rare disease, more cases will need to be reported.

Keywords: *Mediastinal neoplasms. Teratoma. Thoracic surgery.*

PC 181. PLEURAL EFFUSION AS A RARE MANIFESTATION OF IDIOPATHIC HYPEREOSINOPHILIC SYNDROME: A CASE REPORT

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Case report: We report the case of a 55-year-old woman, non-smoker, with a history of mild chronic anemia, vitiligo and autoimmune hypothyroidism under supplementation, that was admitted for study of moderate right pleural effusion (PE). She had progressive dyspnea for minor exertion and dry cough for one week; denied fever, constitutional symptoms, allergies, exposure to dust, air conditioning, animals, new drugs, trauma or recent surgery. At the admission she presented with leukocytosis and eosinophilia (4.46 × 10/L) and serohematic PE exudate with normal pH and glucose and 80-90% of eosinophils. The study had normal sedimentation rate and IgE, as well as the immunological study was negative. Stool parasites and Cryptosporidium parvum/Giardia lamblia were negative. Pleural fluid (PF) and bronchial aspirate cytologies were negative for malignant cells and their cultures were negative for bacteria, mycobacteria and fungi. Echocardiography didn't reveal pericardial effusion or infiltrative cardiomyopathy, endoscopy and colonoscopy were normal. Thoracic-abdominal-pelvic CT and CT angiography didn't show neoplasia, parenchymal changes or signs of embolism, however, an irregular bladder thickening was noted, but cystoscopy was normal. A medical thoracoscopy showed a nonspecific pleural nodule whose biopsies revealed eosinophilic granuloma, CD45+ and CD68+. Faced with the inconclusive study, the patient underwent an extensive haematological study, which found a deficiency of vitamin B12 and serum normality for tryptase. The peripheral blood smear showed eosinophilia without blasts. Bone marrow aspiration revealed marked myeloid hyperplasia due to eosinophilic precursors, normal undifferentiated blasts, absence of microorganisms or neoplastic cells. The karyotype was normal and the bone marrow flow cytometry detected 51% of normal eosinophils and 1.8% of blasts. Bone marrow biopsy revealed myeloid hyperplasia with predominance of the eosinophilic component. The PDGFRalfa, PDGFRbeta and FGFR1 rearrangements by FISH and BCR-ABL1 and JAK2V617F by molecular biology were negative, so the diagnosis of idiopathic hypereosinophilic syndrome (IHES) was established. During hospitalization, there was a progressive increase of eosinophilia (maximum 10×10^9/L) associated with high thoracic drainage. Methylprednisolone (1 mg/kg/day) was administered, with rapid resolution of PE and normalization of eosinophils count. A week after discharge, the patient presented with eosinophilia (1.92×10^9/L), so she started 10 mg of prednisolone daily. Currently she's asymptomatic and with normal eosinophils count, with a minimum prednisolone dose of 5 mg daily. IHES is a rare disorder characterized by a peripheral eosinophil count $\geq 1.5 \times 10^9$/L associated or not with organ infiltration and its diagnosis requires the exclusion of secondary causes of eosinophilia.
Discussion: The interest of this case lies in the fact that it presents solely as eosinophilic PE, without any other involvement, namely cardiac. As far as we know, only a few similar cases have been reported so far. However, eosinophilic PE without apparent cause associated with peripheral eosinophilia in the absence of other findings should make this entity a likely hypothesis. In this case, cooperation with hematology is essential for diagnostic confirmation.

Keywords: *Pleural effusion. Eosinophilia.*

PC 182. THE UNLIKELY DIAGNOSIS OF A NUT MIDLINE CARCINOMA

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Case report: We report the case of a 23-year-old girl with a history of polycystic kidney disease (PKD) and hypertension treated with enalapril, who was admitted at the Emergency Department (ED) with a 5 weeks history of chest and lumbar pain which worsens with inspiration, dyspnea for moderate exertion and fever in the last 5 days (Maximum temperature 38.5 ºC). When questioned, nausea, vomiting, cough, sputum or gastrointestinal symptoms were denied. On physical examination, she presented fever (38.2 ºC) and with decreased vesicular murmur in the lung bases. No signs of difficulty breathing were noted. The patient's abdomen was soft and depressible and lumbar wrist-percussion test resulted negative. Analytically with increased inflammatory parameters and radiologically with homogeneous opacity in the left lower third was observed, which suggests a pleural effusion. Thoracentesis was performed and revealed citrus pleural fluid (PF), exudative with predominance of neutrophils (70%) and normal pH and glucose. Antibiotic therapy was started with amoxicillin/clavulanate and azithromycin. Percutaneous pleural biopsies (PPB) were performed and a chest tube was placed. The analytical study showed progressive elevation of inflammatory parameters, alpha fetoprotein of 380.9 ng/mL (N < 8.1) and beta-HCG negative. The microbiological study of PF and PPB were negative, as well as the research of neoplastic cells. Thoraco-abdominal-pelvic CT showed a left pleural effusion and pleural mass, one of them causing invasion of the dorsal vertebral body with bone destruction. Also was identified a heterogeneous left pulmonary densification which enables the exclusion a tumoral nature. Presence of mediastinal adenopathies and hepatic nodular area compatible with metastasis. Multiple cysts compatible with PKD were observed in his kidneys. Bronchofibroscopy was normal as well as bronchial aspirate and bronchial lavage were negative for neoplastic cells. With the worsening of the left loculated effusion and suspicion of left paravertebral neoplastic lesion, she was referred to Thoracic Surgery and underwent

surgical biopsies of the pleural masses (costal grid, paravertebral and diaphragmatic) and pleurodesis. The histological result was compatible with NUT midline carcinoma. Due to the accelerated decline in general condition, uncontrolled pain and nausea, she was transferred to Palliative Care where she was submitted to chest radiotherapy for pain control, but with no benefit and therefore escalated analgesic therapy. She died 7 weeks after being admitted in the ED.
Discussion: NUT midline carcinoma is a rare neoplasm genetically defined by rearrangements in the NUT gene. It mainly affects children and young adults and is not specific to any organ or tissue, but appears preferentially in the region of the head, neck and mediastinum. It is an aggressive and invariably fatal tumor with an average survival of 9 months. At the time of diagnosis most patients are at an advanced stage and rarely resectable. Currently, there is no specific treatment, due to the small number of cases, and mostly are refractory to conventional treatments. However, molecular changes are known, which fuels research to find an appropriate and effective treatment.

Keywords: *Pleural effusion. Carcinoma.*

PC 183. A RARE HYDROTHORAX CASE IN BUDD-CHIARI SYNDROME

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Case report: A 42 years old woman, never smoker, with a relevant past medical history of polycythemia vera (PV) since 2005 (JAK-2 V617F mutation), under therapy with hydroxyurea, was admitted in the Pulmonology Department with tiredness, weight loss and night sweats. Physical examination was relevant for right lung field abolished vesicular murmur and, in the abdomen, for a 7cm below costal grid palpable hepatic board with flanks prominence. Full blood count with Hb 15.6 g/dL and Htc 46%. Chest radiography showed right hemithorax homogeneous hypotransparency, compatible with pleural effusion. Thoracentesis and pleural biopsies were performed. The pleural fluid results were compatible with an exudate with lymphocytes predominance and normal ADA; various samples had negative bacteriologic, mycobacteriologic and mycologic exams; one sample had positive direct mycobacteriologic exam and molecular test and cultural with Mycobacterium tuberculosis complex (MTC) identification; cytology was negative for neoplasic cells. The pleural biopsies showed chronic inflammatory infiltrate and reactive mesothelial hyperplasia. Chest CT, after drain colocation, showed: small right pleural effusion, with pleural leaflets thickening, conditioning inferior right lobe collapse. A bronchofibroscopy was performed and evidenced right inferior lobar bronchus external compression signs. The bronchial lavage microbiologic exams were negative, as the neoplasic cells cytology. Toward the relapsing pleural effusion presentation and the MTC isolation in one of the pleural liquid samples, first line tuberculostatic therapy was initiated, when this result was available. Was submitted to video-assisted thoracoscopic surgery with pleural biopsies, highlighting fibrous thickening, lymphoplasmacytic inflammatory infiltrate, mesothelial hyperplasia, congestion and hemorrhagic signs, without neoplasm. The microorganisms search in surgical peace and pleural liquid was negative. An abdominal ultrasound was performed, with hepatomegaly imagological documentation, without focal lesions and splenomegaly. Because ascites aggravated, was submitted to a paracentesis, standing out in the ascitic fluid a normal adenosine deaminase and a negative microbiology. As the pleural effusion and ascites remained, the non-cirrhotic portal hypertension hypothesis caused by supra-hepatic vein thrombosis was considered. So, were performed: an abdominal eco-doppler, that did not allowed to exclude thrombosis; a digestive endoscopy, not showing esophageal varices; an abdominal magnetic resonance, that revealed homogeneous hepatomegaly, splenomegaly, ascites, inferior vena cava compression and suggestive alterations of supra-hepatic veins thrombosis in Budd Chiari Syndrome (BCS) context. Therapeutic anticoagulation was initiated and, later, a transjugular intrahepatic portosystemic shunt colocation was tried. However, the permeabilization was not possible, because extensive thrombosis was present. She is now being evaluated in the hepatic transplant department.
Discussion: The BCS is a rare disease and PV is its most frequent cause (representing 10 to 40% of the cases). In its turn, JAK-2 V617F mutation is present in 40 to 60% of the patients with BCS. This syndrome clinical manifestations depends of the extension and rapidity of the venous occlusion as well as of the collateral circulation development. Hydrothorax as an initial presentation isn't frequent.

Keywords: *Hydrothorax. Budd Chiari syndrome. Polycythemia.*

PC 184. TRANSUDATIVE CHYLOTHORAX: RARE ASSOCIATION IN HEPATIC CIRRHOSIS

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Introduction: Chylothorax is a rare entity that has traumatic and non-traumatic causes. Considering non-traumatic causes, obstruction of the thoracic duct due to cancer is the most common, being diagnosed lymphoma in about 70% of cases. The fluid is generally a lymphocytic predominant exudate.
Case report: The authors present a non-smoker 80-year-old male, with known allergic asthma, sleep obstructive apnoea, obesity, arterial hypertension, diabetes mellitus, ethanolic hepatic disease, chronic renal insufficiency and cholelithiasis. He complains of progressive fatigue, anorexia, asthenia, and non quantified weight loss for about six months. He also refers increase in abdominal girth, orthopnea, nocturnal paroxysmal dyspnea and lower limbs oedema. He denied fever, cough or expectoration. An ambulatory abdominal ultrasound showed liver with reduced dimensions, splenomegaly and ascites. The clinical laboratory results showed discrete alterations of AST and ALT around 50 U/L, AF 200 U/L, and creatinine 1.25 mg/dL. The seric lipid panel did not have alterations. A thoracic X-ray reveals a right pleural effusion, so a thoracocentesis is made, draining 1,800 cc of a cloudy fluid with pH 7.04. The patient is immediately admitted to the Pulmonology Department for investigation. The laboratory results of the fluid underlined: 700 cells/uL, ADA 9 U/L, glucose 449 mg/dL, Light's criteria for a transudative effusion (proteins 2.7 g/dL, LDH 100 U/L) normal level of cholesterol and increased triglycerides of 251 mg/dL. As so, a diagnosis of a transudative chylothorax was made, and the work-up to its etiology was continued. A thoracic, abdominal and pelvic CT showed cirrhotic liver; a gallbladder with irregularity of its superior wall, in its transition with its hollow, highly suggestive of adenocarcinoma; and low volume ascites, mainly subphrenic. There was no evidence of lymphoproliferative disease nor thoracic duct traumatic lesions. Eliminating lymphoma as possible diagnosis, we considered the co-existence of hepatic hydrothorax and chylothorax in the context of cirrhosis as the likely aetiology of the transudative chylothorax. The patient was treated with a low-lipid diet enriched with medium-chain triglycerides, and diuretics were optimized. After a second thoracocentesis, in which the fluid maintained the same characteristics, the effusion did not relapse.
Discussion: There are just a few cases of transudative chylothorax reported in literature, and they are mostly associated with hepatic cirrhosis. The pathophysiology of this association is uncertain, but some authors say that is occurs due to translocation of chylous ascitic fluid through diaphragm to pleural cavity. In this particular case, the volume of ascites was small, so its composition is unknown. The gallbladder carcinoma appears to be an incidental finding, fact supported by the non relapsing effusion after optimization

of medical therapy. This case raises awareness to the importance of recognizing this association in the presence of hepatic cirrhosis.

***Keywords**: Chylothorax. Transudate. Hepatic cirrhosis.*

PC 185. PREDICTORS ASSOCIATED WITH SUCCESSFUL PLEURODESIS AND SURVIVAL IN MALIGNANT PLEURAL EFFUSION

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Introduction: Malignant pleural effusion (MPD) dramatically decreases the quality of life and survival of cancer patients. There are multiple palliative approaches to drain the fluid and also to prevent relapse. Talc slurry pleurodesis remains one of the most common and effective therapeutic options in symptomatic patients with life expectancy of more than 2-3 months.
Objectives: Identify predictive factors related to the efficacy of talc slurry pleurodesis in patients with MPD.
Methods: Retrospective study of patients with malignant pleural effusion who underwent talc slurry pleurodesis over a 10-year period at the Pulmonology Department. Inclusion criteria: pleural malignancy proven by cytology and/or histology and information about biochemical parameters of pleural fluid. Efficacy was defined as no recurrence of pleural effusion. Survival was considered from the date of pleurodesis to death or the date of the last visit.
Results: A total of 29 patients with MPD undergoing pleurodesis were included. The average age was 76 ± 12 years with a male prevalence (57.1%). The group included 19 (67.9%) lung cancer patients, 3 (10.7%) with breast cancer, 2 (7.1%) with lymphoma, one (3.6%) with mesothelioma, one (3.6%) with pancreatic cancer, one (3.6%) with gastric cancer and one (3.6%) with cancer of unknown origin. Pleurodesis had a total success rate of 75% (rate of 68.4% in cases of lung cancer and 100% in other cases of cancer). Age and gender did not present a statistically significant association with the success of the technique ($p > 0.05$), however, there was a tendency for males to have higher relapse rates. Regarding pleural fluid biochemical parameters, a pH ≥ 7.3 and glucose > 60 mg/dl were associated with successful pleurodesis ($p < 0.05$). On the other hand, LDH, ADA, protein and cell count values did not show any statistically significant association ($p > 0.05$). The average total survival was 17 months (1-30) and was lower in patients in whom pleurodesis was not effective (mean 19.1 ± 8.4 vs 10.7 ± 8.3 months, respectively, $p < 0.05$).
Conclusions: As described in the literature, pleurodesis had a success rate of approximately 70%, with pleural effusion associated with lung cancer being particularly prone to relapse. Only two pleural fluid parameters were associated with the success rate of pleurodesis: pH ≥ 7.30 and glucose > 60 mg/dl. These factors must be taken into account to predict the timing of pleurodesis and the likelihood of relapse.

***Keywords**: Pleurodesis. Malignant pleural effusion.*

PC 186. PULMONARY REHABILITATION ADAPTED INDEX OF SELF-EFFICACY (PRAISE) VALIDATED TO PORTUGUESE RESPIRATORY PATIENTS

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Introduction: Recent updates on Pulmonary Rehabilitation highlight the importance of patients' self-efficacy on long-term adherence to health-enhancing behaviors. Self-efficacy was defined by Albert Bandura as a personal construct of how successfully one can execute a required behavior to produce a desired outcome. Higher sense of self-efficacy has been found to be positively associated with better attendance and improvements in Pulmonary Rehabilitation and reduction in sedentary time following Pulmonary Rehabilitation in people with Chronic Obstructive Pulmonary Disease. The Pulmonary Rehabilitation Adapted Index of Self-Efficacy (PRAISE) is an adaptation of the General Self-Efficacy Scale, adding 5 new specific Pulmonary Rehabilitation items. The scale ranges from 15 to 60 with higher score indicating higher levels of Self-Efficacy.
Objectives: This study aimed to translate, culturally adapt and evaluate reliability and validity of PRAISE on Portuguese respiratory patients.
Methods: Forward-backward translation and pilot testing were performed. Content validity was assessed by a multidisciplinary panel of expert judges. To evaluate reliability and validity, 150 respiratory outpatients on Pulmonary Rehabilitation participated on a cross-sectional study. Descriptive and reliability analyses, and exploratory factorial analysis using principal axis factoring, followed by oblique factor rotation was conducted to identify construct validity. IBM® SPSS® version 22 was used to perform statistical analysis.
Results: 150 patients with a mean age of 67 years, 54% male and 83% currently on Pulmonary Rehabilitation at Hospital Pulido Valente in Lisbon participated in the study. These included mainly Chronic Obstructive Pulmonary Disease patients (46.7%) but also Bronchiectasis (20%), Interstitial Lung Disease (20%) and other respiratory diseases. Exploratory factor analysis extraction provided a 4-factor solution that cumulatively explained 52.3% of total variance (F1: 26.6%; F2: 9.7%; F3: 8.7%; F4: 7.3%). Portuguese PRAISE showed a reliability of 0.78 (Cronbach alpha). **Conclusions:** The Portuguese version of PRAISE showed adequate psychometric properties to be used as an instrument to measure self-efficacy as a patient-centered outcome on Pulmonary Rehabilitation, in accordance with international guidelines.

***Keywords**: Self-efficacy. Praise. Validity. Pulmonary rehabilitation.*

PC 187. MINIMAL CLINICALLY IMPORTANT DIFFERENCE OF THE BRIEF-BESTEST IN PEOPLE WITH COPD AFTER PULMONARY REHABILITATION

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Introduction: People with chronic obstructive pulmonary disease (COPD) present worse balance and fall more than their healthy peers. Therefore, the need to integrate balance assessment and management in the rehabilitation process of these patients has been highlighted in the latest American Thoracic Society/European Respiratory Society statement. The Brief-Balance Evaluation System Test (Brief-BESTest) is a comprehensive, reliable and valid measure of balance, commonly used in people with COPD, which provides valuable information to tailor patients' balance training during pulmonary rehabilitation (PR). However, its clinical interpretability is currently limited due to the lack of cut-off points to identify clinical relevant changes. Therefore, this study aimed to establish the minimal clinically important difference (MCID) for the Brief-BESTest after a PR programme in people with COPD.
Methods: An observational prospective study, part of a larger study (3R: revitalising pulmonary rehabilitation) was conducted. Stable people with COPD completed a 12-week community-based PR programme with two weekly sessions of exercise training and one session every other week of education and psychosocial support. The following measures were collected: Brief-BESTest; 6-minute walk test (6MWT) and the modified Medical Research Council (mMRC). All measures were assessed pre and post PR. The MCID was computed using distribution- and anchor-based methods. The standard error

of measurement (SEM), 1.96SEM, 0.5*standard deviation, minimal detectable change with 95% confidence (MDC95) and Cohen's effect size were used as distribution-based methods. Anchors used were changes in the 6MWT and the mMRC, which to be used in the MCID calculation, should present a moderate correlation (≥ 0.3) with the Brief-BESTest change. Mean changes and linear regressions were computed to estimate the MCID from anchor-based methods. A quality effects models weighting 2/3 for anchor and 1/3 for distribution-based methods was used and the pooled values were obtained using META XL. Sixty-three people with COPD (68.6 ± 8.1 years old; 49 [77.8%] male; FEV1 49.3 ± 17.8%predicted) were included in the analysis. MCID based on distribution-methods varied between 2.04 and 5.64 points. Significant correlations were found between changes in the Brief-BESTest and changes in the 6MWT (r = 0.33; p = 0.008) and the mMRC (r = -0.30; p = 0.016). MCID based on anchor methods ranged between 2.44 and 3.32 points. Figure 1 shows that the MCID pooled was 3.2 points (95% Confidence Interval 1.93-4.40).
Results: An improvement of 3.2 points in the Brief-BESTest seems to be clinically meaningful in people with COPD after a 12-weeks community-based PR programme.
Conclusions: Future research using other balance measures as anchors would be useful to further validate our results. The estimated MCID of the Brief-BEST will aid health professionals to understand the effects of PR on balance performance and guide tailored interventions.

Keywords: *MCID. Balance. Pulmonary rehabilitation. COPD.*

PC 188. FATIGUE PREDICTS EXACERBATIONS IN PATIENTS WITH COPD ATTENDING TO PULMONARY REHABILITATION

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Introduction: Acute exacerbations of chronic obstructive pulmonary disease (AECOPD) are the main reason for patients' clinical decline and are challenging to predict. Pulmonary rehabilitation (PR), among many other benefits, decreases the frequency of AECOPD and improves fatigue, a burdensome and highly prevalent symptom in patients with COPD. Although, the association between fatigue, morbidity, mortality and AECOPD has been well described, the prognostic value of fatigue to detect AECOPD during PR is unknown. This study explored the prediction ability of the functional assessment of chronic illness therapy fatigue subscale (FACIT-FS) and the checklist of individual strength fatigue subscale (CIS-FS), to distinguish between patients who experienced and did not experienced AECOPD during a PR programme.
Methods: An observational prospective study, part of a larger trial (3R: revitalising pulmonary rehabilitation) was conducted. Stable patients with COPD completed a 12-weeks community-based PR programme. Fatigue was assessed prior to PR enrolment using the FACIT-FS and the CIS-FS. An AECOPD was defined as an acute worsening of respiratory symptoms which required additional therapy. The occurrence of an AECOPD during PR was self-reported and recorded by the physiotherapists during the PR. Independent t-tests were used to explore differences in fatigue scores between patients who experienced an AECOPD and those who did not. Point biserial correlation coefficient (rpb) was used to explore associations between the FACIT-FS and the CIS-FS scores and the occurrence of an AECOPD. Receiver Operating Characteristic (ROC) curves were computed to test the FACIT-FS and CIS-FS ability to predict AECOPD and the corresponding cut-off scores and likelihood ratios (LR) were determined. Fifty-three patients with COPD were included in the analysis [68.4 ± 7.6 years old; 42 (79.2%) male; FEV1 48.1 ± 17.4%predicted]. Thirteen patients (24.5%) experienced an AECOPD during PR and presented significantly higher levels of fatigue at baseline than patients with no AECOPD (FACIT-FS: 28.5 ± 7.1 vs 34.8 ± 10.3, p = 0.044; CIS-FS: 44.1 ± 8.4 vs 34.5 ± 13.2, p = 0.018). Increased fatigue at baseline was correlated with the occurrence of an AECOPD during PR (FACIT-FS, rpb = -0.28, p = 0.044; CIS-FS, rpb = 0.32, p = 0.018). FACIT-FS and CIS-FS showed good ability to discriminate between patients who experienced and did not experienced AECOPD during the PR programme (FACIT-FS: AUC = 0.71; 95%CI 0.58 to 0.85; p = 0.021; CIS-FS: AUC = 0.72; 95%CI 0.57 to 0.87; p = 0.019). Cut-off points of 32 points on the FACIT-FS and 44 points on the CIS-FS showed a 2.2 LR of identifying patients having AECOPD during PR (sensitivity = 68% and specificity = 69%).
Results: Patients scoring above (CIS-FS) or below (FACIT-FS) the established cut-off points were approximately 15% (LR≈2) more likely of having an AECOPD during PR.
Conclusions: These results highlight the need to comprehensively assess fatigue in patients with COPD, as well as to develop target interventions for its management during PR programmes. Future studies conducted with patients not enrolled in PR are needed to establish the external validity of our results.

Keywords: *Fatigue. Exacerbation. Prediction ability. Facit. Cis..*

PC 189. TELEMONITORING PHYSICAL ACTIVITY IN DAILY LIFE: INCREASED BENEFITS FOR THE PATIENT IN PULMONARY REHABILITATION

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Introduction: New information technologies are a promising tool for health services modernization and provide an enormous potential for personalized medicine in clinical practice. The Pulmonary Rehabilitation Unit from Hospital Pulido Valente has established SMARTREAB as a clinical routine for telemonitoring physical activity in daily life of chronic respiratory patients through synchronous accelerometry and oximetry. A major quality principle of such methodology has been the shared process between clinicians and the patient, analyzing objective telemonitoring data at the context of reported qualitative data.
Objectives: To illustrate case-examples of telemonitoring physical activity in daily life on chronic respiratory patients, applied on individualized patient evaluation and Pulmonary Rehabilitation.
Methods: One-year cross-sectional study of systematic telemonitoring physical activity of daily life in 100 chronic respiratory patients through SMARTREAB methodology.
Results: This methodology brought innovation and patient-service organization, with preliminary results of increased benefit in health care quality in diverse ways: individualized specific goal setting in Pulmonary Rehabilitation, routine habits reeducation with improved health in daily life, healthy physical activity habits follow-up and clinical exacerbations' early detection preventing avoidable hospitalizations.
Conclusions: Telemonitoring physical activity in daily life of a chronic respiratory patient, involving the patient in a participated analysis of the personalized objective and qualitative data, has increased benefits for the patient and his/her Pulmonary Rehabilitation.

Keywords: *Telemonitoring. Physical activity. Pulmonary rehabilitation. Personalised medicine.*

PC 190. FIRST STEPS ON HOME-BASED PULMONARY TELEREHABILITATION BY CENTRO HOSPITALAR UNIVERSITÁRIO LISBOA NORTE

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Introduction: Pulmonary Rehabilitation of Chronic Obstructive Pulmonary Patients (COPD) is scientifically recognized as the most ef-

ficient therapy improving quality of life and reducing patients' hospitalization and mortality. Nevertheless, less than 1% of these patients have access to Pulmonary Rehabilitation in Portugal, mainly provided by 24 hospital-based centres. Telemedicine applied to home-based rehabilitation has proven cost-efficacy results, being one of the most promising areas for patients' accessibility optimization.

Objectives: Pilot testing of a Home-based Pulmonary TeleRehabilitation model, empowering this therapeutic intervention through the application of new technologies at the citizens' service.

Methods: Project integrated on the Program for National Health Service Patient Circuit Improvement and aligned with the National Program for Respiratory Diseases. Pre-implementation phase with a pilot test on 5 COPD patients given clarified consent. After 1 month of educational and exercise training sessions as outpatients at the Pulmonary Rehabilitation Unit of Hospital Pulido Valente in Lisbon, patients continued exclusively as a home-based program for 2 months of exercise training with remote hospital monitoring by planned physiotherapist videocall. Patients' clinical assessment pre and post program occurred at hospital setting.

Results: Pilot testing of the Home-based Pulmonary TeleRehabilitation model was successful, with patients' high adhesion and satisfaction levels. Implemented methodology was instructive and inclusive applying new technologies and promoting self-efficacy on disease management, mainly on exercise training and physical activity in daily life plan. Questionnaires and field tests presented comparable benefits to the traditional Pulmonary Rehabilitation model.

Conclusions: The Home-based Pulmonary Rehabilitation model pilot tested provided operational validation on new technologies application at the citizens' service, with health care modernization and Pulmonary Rehabilitation service reorganization, with personal, familiar and societal disease impact levels.

Keywords: *Pulmonary rehabilitation. Telemedicine. New information technologies. COPD.*