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PE 001. INFLIXIMAB NONINFECTIOUS LUNG COMPLICATIONS - A CLINICAL CASE

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Introduction: Inflammatory bowel disease (IBD) can be associated with pulmonary abnormalities, as part of extra-intestinal manifestations or as complications related to therapy. There are some reports regarding noninfectious lung disease related to IBD treatment, including sulfasalazine, methotrexate and azathioprine, and similar evidence is also emerging for anti-tumor necrosis factor alpha agents. We present the case of a patient with ulcerative colitis (UC), treated with Infliximab, who develops severe interstitial lung disease.
Case report: A 56 years-old Caucasian male, former smoker (30 pack-years), without other relevant exposure nor medical family history, who worked at a tech company, presented UC resistant to 5-ASA and corticoids and was being treated with Infliximab since November 2020. He started Isoniazid in October 2020 due to latent tuberculosis infection. In January 2021, he presented to the emergency department with 2-week history of progressive dyspnea and fever. Laboratory data demonstrated hypoxemia and elevated inflammatory biomarkers, without significant eosinophilia. CT angiography showed bilateral pulmonary embolism and diffuse ground glass opacities, sparing the upper lobes. SARS-CoV-2 PCR was negative. Community-acquired Pneumonia was assumed, and empiric antibiotic treatment with amoxicillin/clavulanate and azithromycin, enoxaparin 1 mg/kg/day and oxygen therapy were initiated. Blood cultures, urine antigens for *Legionella* and *Streptococcus* were negative, as well as HIV tests. Due to worsening of hypoxemia in the first 24h, the patient was transferred to the ICU and high-flow nasal oxygen therapy was started. Further investigation during the following days included the following: CT Scan, which showed bilateral lung opacities with central distribution and subpleural sparing and traction bronchiectasis, with a pattern of organizing pneumonia/non-specific interstitial pneumonia (OP/NSIP); Bronchoscopy, with negative microbiologic analysis of bronchoalveolar lavage; a normal echocardiogram and a negative autoimmunity study. The case was discussed in our multidisciplinary Interstitial Lung Disease meeting and drug-induced lung disease was admitted as the most likely diagnosis. Infliximab and Isoniazid were suspended, and systemic corticosteroid therapy was initiated. A new bronchoscopy was repeated in which the microbiologic analysis of bronchoalveolar lavage was still negative, and differential cell count showed neutrophilia plus inverted CD4/CD8 ratio. There was a clinical and radiological worsening, justifying the need for a 5-day course of glucocorticoids pulses (1 g of methylprednisolone) with clinical improvement. Azathioprine was associated afterwards. He was discharged after 2 months, requiring only oxygen therapy on effort and was included in a respiratory rehabilitation program. After 4 months, he is improving clinically and no longer needs oxygen therapy. Regarding UC, he remains in clinical and endoscopic remission.
Discussion: Drug-induced lung toxicity should be considered in IBD patients with respiratory distress, along with the pulmonary manifestations that can occur due to the disease itself. Although rare, Infliximab lung toxicity should be disclosed.

Keywords: *Pulmonary toxicity. Interstitial lung disease. Infliximab.*

PE 002. DIFFUSE ALVEOLAR HEMORRHAGE SECONDARY TO CYTOMEGALOVIRUS INFECTION - CASE REPORT

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Introduction: Diffuse Alveolar Hemorrhage (DHA) is characterized by the presence of blood in the alveolar spaces as a consequence of an injury to the alveolar-capillary interface and may be associated with high morbidity and mortality. Its diagnosis requires a high degree of suspicion due to its rarity, causal multiplicity and because the classic triad - hemoptysis, anemia and diffuse alveolar infiltrates on radiography - does not always occur invariably. It can occur under various contexts such as connectivitis, drug toxicity, vasculitis, coagulopathy, left heart disease and certain infections. Bronchoscopy with bronchoalveolar lavage (BAL) is usually required to confirm the diagnosis and the recommended treatment depends on the underlying aetiology.
Case report: 39-years-old woman, non-smoker, anti-aggregated (acetylsalicylic acid 100 mg/day) and under immunosuppression

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with high-dose corticosteroid therapy (prednisolone 70 mg/day) in the last 3 months after diagnosis of ischemic stroke occurring in the context of Takayasu's Arteritis with alleged secondary anti-phospholipid syndrome (APS). She went to the ER for acute onset hemoptysis with a drop of 2.9 g/dL hemoglobin and dyspnea with type 1 respiratory failure (PaO2/FiO2 215). She had neutrophilic leukocytosis and CRP of 0.7 mg/dL. Thoracic CT angiography excluded pulmonary thromboembolism, showing areas of hyperattenuation in ground glass and slight septal thickening compatible with HAD. Undergoing flexible bronchoscopy, BAL revealed progressively hemorrhagic aliquots and the presence of 40% of hemosiderophages. Due to clinical worsening and invasive microbiological study partially negative at the time, the case was discussed with Rheumatology and, initially suspecting DAH due to probable pulmonary capillaritis secondary to APS, 3 pulses of methylprednisolone 1 g and 1 pulse of Rituximab were performed. A quick response was achieved with regard to hemoptysis and gradual improvement in oxygenation, making it possible to suspend CPAP and supplementary oxygen therapy. From the following study, the autoimmune serology was negative (including ANCAs and anti-MG glomerular Ac), as well as the lupus anticoagulant, anticardiolipin and Ac. anti-beta2GP1. Only later was the virological research in BAL completed and the presence of cytomegalovirus was identified by PCR (11,790 IU/ml, normal < 500 IU/ml). The expressiveness of the observed title and the non-confirmation of criteria for APS led us to an interpretation of HAD as secondary to viral pneumonitis caused by CMV due to pharmacological immunosuppression. Corticosteroid therapy was reduced and a 3-week regimen of intravenous gangiclovir followed by oral valganciclovir was performed. On reassessment in consultation 3 months later, the patient was clinically stable, with almost complete resolution of changes in thoracic CT and at a functional level with 81% FVC and 71% DLCO predicted.
Discussion: This case illustrates the complexity of the etiological disjunction in many contexts of HAD. Even in the face of autoimmune pathology that may be associated with this complication, it is essential to conduct a systematic approach, while considering the possibility of infection by opportunistic agents, particularly in patients undergoing immunosuppressive treatment. The delay in receiving some BAL study results (sent out of the hospital) and the patient's clinical deterioration contributed to an etiological framework and correct therapeutic approach only *a posteriori*.

Keywords: *Diffuse alveolar hemorrhage. Takayasu's arteritis. Immunosuppression. Opportunistic infection.*

PE 003. ANCA VASCULITIS: WHEN PERSISTENCE IN THE SEARCH FOR A DIAGNOSIS MAKES A DIFFERENCE

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Introduction: Systemic vasculitis is rare, with heterogeneous presentation and nonspecific complaints, making its diagnosis challenging. ANCA-associated vasculitis often involves the lower respiratory tract and may present either through infiltration of the lung parenchyma by inflammatory cells, or through infiltration of the tracheobronchial mucosa or diffuse alveolar hemorrhage. Presentation through pleural effusion is uncommon. The authors describe a relevant clinical case for the way in which pulmonary involvement is manifested.
Case report: Male, 51 years old, history of colon adenocarcinoma and osteoarticular complaints under study, smoker. He went to emergency care for chest pain, dyspnea for minor exertion and weight loss. He also reported persistent joint complaints. On physical examination, there is a reduction in the vesicular murmur in the right lung base on auscultation. A chest X-ray was performed, which showed moderate-volume free pleural effusion on the right, confirmed by chest ultrasound. He was submitted to diagnostic thoracentesis with outflow of lymphocytic sero-hematic fluid, whose results from cytological, microbiological and mycobacteriological studies were negative. From previous exams, CT scan of the chest with nodules smaller than 6 mm and PET/CT with 18F-FDG showed hypermetabolic mediastinal adenopathies, namely paratracheal and bilateral prevascular adenopathies, and negative autoimmunity study. The patient was hospitalized for an exhaustive complementary study of the pleural effusion. It was decided to repeat the autoimmune study due to the persistence of joint complaints. This revealed strong positive anti-P-ANCA, positive anti-MPO, strong positive anti-Scl70 and negative anti-PR3 antibodies. From the rest of the analytical study, D-Dimers, ACE, anti-CPP, anti-ds-DNA, complement study, lupus-type inhibitors, anti-cardiolipins and anti-B2 glycoproteins were within the normal range. CT of the paranasal sinuses showed inflammatory mucosal thickening, with no other relevant findings. Respiratory functional study was normal. In view of the summary of urine with hematoproteinuria, and despite normal renal function, the case was discussed with Nephrology and proposed for renal biopsy. This revealed glomerulonephritis, without crescents, changes that fit the diagnosis of ANCA vasculitis. Treatment with Rituximab was started with improvement in joint complaints and without recurrence of pleural effusion.
Discussion: In the presence of pulmonary and renal disease associated with pANCA-MPO, clinical suspicion of microscopic polyangiitis should be raised. Weight loss, myalgias and arthralgias can precede the development of the disease, so the absence of ANCA should not exclude the diagnosis in the first instance. The differential diagnosis with other vasculitis is facilitated by renal biopsy histology through the demonstration of crescentic glomerulomephritis, in the absence of granulomas, and renal function is usually affected. The absence of CT findings of the paranasal sinuses also allows for a differential diagnosis with Granulomatosis with Polyangiitis.

Keywords: *Vasculitis. Pleural effusion.*

PE 004. FIBROSING ORGANIZING PNEUMONIA - A RARE CASE

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Introduction: Organizing pneumonia (OP) is a nonspecific inflammatory response to an acute lung injury. It may have an unknown etiology (cryptogenic), or a specific cause (associated with infectious agents, drugs, radiotherapy). Most cases show a favorable response and resolution with corticosteroid therapy. There are, however, rare cases of fibrosing interstitial disease, with behavior identical to fibrosing interstitial pneumonia and requiring an equally similar therapeutic approach that is distinct from traditional anti-inflammatory and immunomodulating therapy in OP.
Case report: A 78-year-old female was diagnosed with Cryptogenic Organizing Pneumonia (COP) in 2018. The initial chest CT showed diffuse ground-glass opacifications in the parenchyma and some consolidative foci, with peripheral and peribronchovascular distribution. Despite the good response to the prescribed course of corticosteroid therapy, the patient never tolerated a reduction in the dose of prednisolone below 10 mg/day. The CT image evolved into a pattern of fibrosing interstitial pneumonia, with resolution of ground-glass areas, but the appearance of linear and reticular opacities, peripheral traction bronchiectasis and predominantly basal. After digestive intolerance to azathioprine, immunosuppression was initiated with mycophenolate mofetil (MMF) at a dose of 2 g/day. In the reassessment after 6 months, clinical and radiological worsening was observed, with chest CT showing progression of fibrotic changes, meeting the criteria for fibrosis progression (PF-ILD). According to the respective criteria, antifibrotic therapy with nintedanib was started.

Discussion: The clinical case described is intended to illustrate a rare presentation of COP, which behaves similarly to fibrosing interstitial pneumonia. According to this evolution, the PF-ILD criteria should also be considered here, with the consequent prescription of antifibrotic medication, a therapy not considered for cases with traditional presentation of the disease.

***Keywords**: Organizing pneumonia. Lung fibrosis. Antifibrotic drug.*

PE 005. CYSTIC HYPERSENSITIVITY PNEUMONITIS: FROM RARITY TO REALITY

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Introduction: Pulmonary cystic diseases represent a heterogeneous group that share the same imaging alteration: the presence of multiple round images circumscribed by a thin wall with a low attenuation coefficient. The most common etiologies include lymphangioleiomyomatosis, pulmonary Langerhans cell histiocytosis, Birt-Hogg-Dubé syndrome and, less frequently, hypersensitivity pneumonitis.
Case report: The authors report two clinical cases. The first, a 46-year-old man, former smoker with 15 pack-year (cessation 24 years ago) and a worker in a cork factory, was sent to a Pulmonology consultation in 2011 for dyspnea mMRC 3 worsening during weekdays, with no alterations at physical examination. Chest CT scan revealed multiple dispersed pulmonary cysts, raising the suspicion of Histiocytosis X and functionally without alterations. After discussion in a multidisciplinary reunion, taking into account the manifestations that appeared 2 decades after smoking cessation, the hypothesis of Histiocytosis X was unlikely, raising suspicion of Suberosis. In this sense, BAL was performed with 48% lymphocytosis with a CD4/CD8 ratio of 0.12 and only 0.01% of the cells had CD1a+ by flow cytometry. Although Suberosis was the most likely diagnosis, a transthoracic lung biopsy was chosen for etiological confirmation, whose histological result showed lesions of interstitial pneumonia with peribronchiolar accentuation, suggestive of Hypersensitivity Pneumonitis. After a new discussion in a multidisciplinary meeting, Suberosis was assumed as the final diagnosis and the patient was suggested to avoid exposure (having changed his job). 10 years later, the patient is only under surveillance, with clinical stability, imaging and functional. The second, a 63-year-old male former smoker with 24 pack-year, with a history of exposure to quartz mines and avian exposure, and Psoriatic Arthritis under UVB photo (previous use of Methotrexate and Adalimumab), was sent to the Pulmonology consultation after hospitalization for pulmonary tuberculosis disseminated in 2019 for reassessment. At the first evaluation, patient without clinical respiratory and without alterations in the physical examination. Chest CT scan revealed multiple scattered cystic images and calcified hilar adenomegaly, raising the hypothesis of lymphocytic interstitial pneumonia and pulmonary amyloidosis. Functionally with a moderate decrease in diffusion (54%), with no other changes. After discussion in a multidisciplinary group meeting, he was admitted for transbronchial cryobiopsy (inconclusive) and BAL (49% lymphocytosis with CD4/CD8 ratio 0.36). In February/2021 he started dyspnea mMRC 1 and it was decided to perform a surgical lung biopsy (after multidisciplinary discussion) whose anatomopathological results revealed lesions of peribronchiolar silicoanthracosis and chronic constrictive bronchiolitis with peribronchiolar inflammation, associated with peribronchiolar epithelioid granulomas and pleural lesions with Schaumann bodies, establishing the diagnosis of hypersensitivity pneumonitis. The case will be discussed together with Rheumatology for a better therapeutic decision as the patient will be a candidate for anti-IL23 or anti-IL17 therapy for Psoriatic Arthritis.
Discussion: The presence of pulmonary cysts may appear in up to 13% of patients with non-fibrotic hypersensitivity pneumonitis, however in a small number and associated with other parenchymal alterations. The authors intend to highlight the rarity of the exclusively cystic presentation, and hypersensitivity pneumonitis should be considered a differential diagnosis in the presence of pulmonary cysts.

***Keywords**: Hypersensitivity pneumonitis. Lung cysts. Multidisciplinary approach.*

PE 006. MECHANICAL STRESS IN THE GENESIS OF IDIOPATHIC PULMONARY FIBROSIS: A CLINICAL CASE

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Introduction: Idiopathic pulmonary fibrosis (IPF) is a progressive disease with poor prognosis characterized by aberrant accumulation of fibrotic tissue in the lung parenchyma. The pathophysiology is not fully understood, but one of the proposed theories associates alveolar injury due to recurrent tension, as mechanical stress, to predisposing genetic and environmental factors. Wu et al. showed that the loss of function of Cdc42 in type 2 alveolar cells (AT2), involved in their differentiation into AT1 cells, causes progressive fibrosis, and that AT2 cells with Cdc42-null cannot regenerate new alveoli in pneumectomized rats. This study reinforces the relationship between mechanical stress and progressive pulmonary fibrosis. The authors describe a case of IPF with marked alterations in the upper left lobe (ULL) after lower left lobe (LLL) lobectomy.
Case report: Male, 70 years old, ex-smoker, was subjected in 2014 to LLL lobectomy for squamous cell lung carcinoma stage pT1bN0R0. He has maintained oncological monitoring so far without changes suggestive of cancer recurrence. The CT performed at 20 months revealed peripheral reticulation and some traction bronchiectasis, more extensive in the lower region of the ULL, all these alterations being compatible with Probable Usual Interstitial Pneumonia (UIP). Additionally, ULL transbronchial cryobiopsies revealed architectural distortion of the parenchyma by collagenous fibrosis, with areas of myxoid aspect and fibroblastic, paraseptal and centrilobular foci, with areas of preserved parenchyma, compatible with UIP. In a multidisciplinary meeting, the diagnosis of IPF was concluded, also supported by the absence of suspected exposure to hypersensitivity pneumonitis or autoimmunity. He started treatment with pirfenidone in 2017, having so far shown a functional decline, with a 10% drop in FVC and 27.6% in DLCO, and imaging progression, with peripheral reticulation, traction bronchiectasis and honeycomb pattern, especially in the lower region of the ULL.
Discussion: The presence of UIP alterations in the ULL after LLL lobectomy, with disposition and extension usually observed in the lower lobes according to the craniocaudal gradient, reinforces the importance of mechanical stress in the genesis of IPF, supporting this theory.

***Keywords**: Interstitial lung disease. Idiopathic pulmonary fibrosis. Mechanical stress.*

PE 007. A RARE CASE OF METHOTREXATE TOXICITY: AN IMPORTANT REMINDER!

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Introduction: Methotrexate toxicity is reported in a frequency of 0.3-11.6% and is frequently expressed in chest high resolution CT (HRCT) with a pattern suggestive of non specific interstitial pneu-

monia (NSIP) or a pattern of organizing pneumonia (OP). Prognosis is satisfactory for most patient although some studies report a mortality of up to 17.6% which alerts for the importance of clinical suspicion. We present a case of late OP secondary to methotrexate, with other initial suspicious etiologic causes.
Case report: Woman, 57 years old, non-smoker, with severe psoriatic arthritis treated with secukinumab and methotrexate for 5 years and 12 years, respectively. The patient had complaints of exertional dyspnea (mMRC 2), weight loss of 3Kg and night sweats. Initial radiographic changes were detected in a screening for pulmonary tuberculosis. Blood tests revealed sedimentation rate of 32 mm/1sth, CRP of 3.56 mg/dL and eosinophils of 220 cells/μL. Chest CT revealed a consolidative multifocal pattern affecting the middle, lingula and inferior lobes. BAL fluid analysis evidentiated lymphocytosis of 39% (CD4+/CD8+ 0.42) with a negative invasive microbiologic study. Pulmonary function tests revealed a FVC of 75% pred and a DLCO of 67% pred. In contrast with other connective tissue diseases, psoriatic arthritis has not been consistently associated with secondary pulmonary interstitial involvement. There has not been solid reports of secukinumab toxicity and this biologic treatment was continued. An action diagnosis of methotrexate toxicity was adopted (Naranjo probabilistic score of 5). Methotrexate was suspended and the patient was initiated in a brief course of deflazacort 0.75 mg/Kg for 4 weeks, with progressive reduction. A fast clinical and radiologic response was observed and a resolution of the consolidative pattern on HRCT was confirmed. A normalization of pulmonary function was obtained (FVC 91% pred; DLCO 80% pred).
Discussion: The diagnosis of this case was made with basis on compatible clinical, radiologic and laboratorial evidence (lymphocytic BAL, negative invasive microbiologic study) on top of the resolution of imagiologic changes with suspension of methotrexate and initiation of anti-inflammatory therapy. Despite the majority of cases occurring on the first 12 months of treatment, later occurrences have already been described. The main alternative diagnosis are made accounting for opportunistic infections or interstitial lung disease secondary to the baseline pathology (in cases of potential pulmonary manifestation).

***Keywords**: Organizing pneumonia. Methotrexate. Toxicity.*

PE 008. PIRFENIDONE - A RARE ADVERSE EFFECT

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Introduction: Pirfenidone is an oral anti-fibrotic drug approved for the treatment of Idiopathic Pulmonary Fibrosis (IPF). Its efficacy and safety profile has been assessed through experience from clinical trials and real-world clinical data. The most commonly reported adverse effects in trials were gastrointestinal (nausea, vomit, dyspepsia) and skin (rash and photosensitivity) related, implying drug discontinuation in 1% of cases during the first 6 months of treatment. Additional data from safety protocols report hyponatremia as a rare adverse effect, suggesting a mechanism based on a inappropriate antidiuretic hormone secretion (SIADH).
Case report: We describe a case of severe hyponatremia due to a syndrome of inappropriate antidiuretic hormone secretion (SIADH) in a 80-years old patient with Idiopathic Pulmonary Fibrosis. The patient started anti-fibrotic treatment with Pirfenidone with gradual dose-titration until full dose of 2,403 mg a day. Blood tests before treatment documented normal sodium levels (137 mEq/L). At fourth week of treatment, control blood tests revealed hyponatremia (126 mEq/L), motivating drug dose reduction, with partial recuperation of sodium levels (130 mEq/L) in the following days. At this point, no other clinical aspects bore significance regarding hyponatremia. After only one week, the patient presented nausea, sleepiness, and dyspnea aggravation with peripheral desaturation with oximeter levels of 77%. Blood tests revealed severe hyponatremia ((110 mEq/L). Further analysis documented serum hypoosmolality (245 mOsmol/kg) and urinary hyperosmolality) (463 mOsmol/kg), which, in absence of other etiology and patient's euvolemic status, was consistent with SIADH. The patient was admitted to a respiratory intermediate care, considering severe hypoxemia due to IPF exacerbation and severe hyponatremia. Pirfenidone was suspended at this point. Despite gradual normalization of sodium levels in the following days, clinical aggravation with upgrading oxygenoterapy needs and non-invasive ventilatory support dictated the outcome as the patient died five days after admission.
Discussion: Other mechanisms potentially justify the severe hyponatremia in the described case. Lung cancer, COPD and bacterial or viral pneumonias are among the most common secondary identified causes of SIADH. Drug-induced SIADH represents another etiology, with several drugs identified in literature as potential inducers of SIADH. Correlation between different drugs and SIADH is difficult to stablish and settle only on case reports. The temporal connection between hyponatremia and drug titration, as well as its normalization after drug suspension, despite the premature fatal outcome, allows us to confront this case with the reported data of hyponatremia as a rare side effect of Pirfenidone.

***Keywords**: Idiopathic pulmonary fibrosis. Antifibrotic agent. Pirfenidone. SIADH. Hyponatremia.*

PE 009. WHEN THE UNEXPECTED HAPPENS: A RARE MANIFESTATION OF SYSTEMIC LUPUS ERYTHEMATOUS

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Introduction: Systemic Lupus Erythematous (SLE) is a rare autoimmune disease. Although respiratory involvement is common in patients with SLE, the development of shrinking lung syndrome (SLS) is rare.
Case report: A 21 years-old woman with previous medical history of SLS with articular, kidney and pleural involvement with pleural effusion; deep venous thrombosis of the lower limb and pulmonary embolism. She was under medication with prednisolone 20 mg and mycophenolate mofetil 2 g, and oral anticoagulation. The patient was hospital admitted due to severe dyspnea on exertion, tiredness, right thoracic pain with pleuritic features and fever with weeks of evolution. On physical examination patient was tachycardic (135 bpm), polypneic (20 cpm) with normal peripheral oxygen (SpO2) saturation on room air. Absence of breath sound at the lower third of the right hemithorax was present on chest auscultation. Initial blood-tests revealed increased sedimentation rate (77mm on the first hour), lactate dehydrogenase (280 UI/L) and C-reactive protein (3.91 mg/dL). Chest radiograph showed elevation of the diaphragm on the right side, with no other findings. Thoracic computed tomography with angiography revealed elevation of the diaphragm with discal atelectasis in the middle lobe and in the right and left lower lobes. There were no signs of interstitial lung involvement or pulmonary embolism. Further investigation was negative for the presence of infection; transthoracic echocardiogram showed normal bi-ventricular function with no structural heart defects or signs of pulmonary hypertension; and ventilation/perfusion lung scintigraphy was negative for pulmonary embolism. Anti-nuclear antibodies and anti-double stranded DNA antibodies were elevated. Pulmonary function tests showed a restrictive ventilatory defect with reduced forced vital capacity (16% predicted), forced expiratory volume in one second (18% predicted) and total lung capacity (53% predicted). Thoracic ultrasound showed bilateral elevation of the diaphragm with reduced diaphragmatic excursion on tidal volumes and forced maneuvers, in supine and sitting position. Patient had reduced tolerance and desaturation (SpO2 < 90%) with the walking effort. She was diagnosed with SLS. Corticosteroid dose was increased to meth-

ylprednisolone 500 mg for 3 days, followed by prednisolone 1 mg/Kg/day in association with rituximab.
Discussion: The present clinical case shows a rare manifestation of LES. Shrinking lung syndrome has an estimated prevalence of 0.6% and its common clinical manifestations are unexplained dyspnea, reduced lung volume and restrictive defect on pulmonary function, with or without elevation of the diaphragm. So far, there is no definitive pathophysiological mechanism for its development. Although the consensual treatment is corticosteroids alone or in association with other immunosuppressive drugs, treatment response and long-term outcomes are poorly understood.

Keywords: *Systemic lupus erythematous. Shrinking lung syndrome. Diaphragm.*

PE 010. A CASE OF EMPYEMA POST-PNEUMONIA TO SARS-COV-2

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Introduction: Parapneumonic pleural effusion is a common complication of pneumonia, which might progress to empyema. The last one can be treated with antibiotic therapy and drainage, Nevertheless, in more advanced stages, a surgical approach may be necessary.
Case report: Female, 57 years old. Obese (BMI > 50). She entered to the Emergency Department (ED) due to fever, dry cough, tiredness and asthenia, with 4 days of evolution. Reported contact with positive neighbors for SARS-CoV-2. Under observation, hypoxemia was diagnosed, with an peripheral oxygen saturation of 80% in room air. She presented a positive SARS-COV-2 test and chest X-ray with bilateral diffuse heterogeneous hypotransparency. Due to progressive worsening, requiring invasive mechanical ventilation, she was transferred to the Intensive Care Unit, assuming Pneumonia at SARS-CoV-2. She completed 10 days of dexamethasone and, for suspected bacterial superinfection, 7 days of amoxicillin-clavulanic acid and 5 days of clarithromycin, with good clinical evolution and possibility of extubation. Given to a new respiratory aggravation, she developed bronchial secretions with isolation of Serratia marcencens, having completed 14 days of levofloxacin. In the ward, for maintaining hypoxemia requiring oxygen therapy, she was submitted to a computed tomography scan of the chest (CT-Tx) which showed "small bilateral pleural effusion with mild atelectasis". After 11 days, the patient conditions deteriorated again and the CT-Tx was repeated, which evidenced right pleural effusion suggestive of empyema. She was submitted to evacuation thoracentesis with 100mL of serofibrinous fluid, with isolation of multidrug-resistant Enterococci faecium and Escherichia coli and started piperacillin/tazobactam and linezolide. She repeated TC-Tx after 3 days which showed "empyema on the right (...) with multiple spots". Chest drainage was conducted, but only the vestigial content drained out, and it was removed. She repeated CT-Tx after 21 days which revealed "persistence of right pleural effusion, organized with pleural thickening, aspects related to empyema". The clinical case was discussed with the Thoracic Surgery, who performed the decortication of empyema by thoracotomy, after 5 days. She remained for two weeks under post-intervention antibiotic therapy. She was released from hospital in room air.
Discussion: In the current pandemic scenario, there are often prolonged hospitalizations for multiple infectious complications, in patients whose initial diagnosis was SARS-CoV-2 pneumonia. Clinical, analytical and radiological surveillance of these patients is extremely important, in order to detect and address early possible complications, including empyema. The approach to this pathology must be multidisciplinary, involving the Pulmonologist, the Thoracic Surgeon and the Physiotherapist.

Keywords: *SARS-CoV-2 pneumonia. Empyema.*

PE 011. SPONTANEOUS PNEUMOTHORAX AS MANIFESTATION OF MARFAN SYNDROME

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Case report: We present the case of a 25-year-old female, non-smoker, with asthma and a family history of sudden death at the age of 20 of her maternal grandfather and uncle, both with pectus carinatum. She developed oppressive chest pain with one day of evolution, radiating to the left upper limb, which worsened especially in the supine position, which reason why she went to the emergency room. Upon observation, the patient was hemodynamically stable, complaining with pain, and with diminished breath sounds in the left apex. A chest X-ray confirmed small left apical pneumothorax, for conservative treatment, and the patient was admitted to the Pulmonology department. During hospitalization, due to complaints of chest pain that worsened in the decubitus position and that seemed disproportionate to the dimensions of the pneumothorax, a transthoracic echocardiogram was performed, revealing hyperechoic pericardium, thin lamina of right retro-auricular effusion and dilatation of the initial segment of the ascending aorta (44 mm) , and the diagnosis of acute pericarditis was admitted. There was an improvement in the complaints under therapy with ibuprofen 600 mg tid and colchicine 0.5 mg bid. The pneumothorax resorbed within a week. During hospitalization, a concordant phenotype with connective tissue disease was found, namely Marfan's Syndrome as the most likely diagnostic hypothesis, with a systemic score of 10, which included the following signs: lens subluxation (confirmed by Ophthalmology), spontaneous pneumothorax, sign of hyperlaxity of the wrist and thumb, scoliosis, flat foot, reduced range of elbow extension, 3/5 dysmorphic facial features (dolichocephaly, enophthalmia, malar hypoplasia), dispersed vertical skin streaks (no increase in skin elasticity, with scars hypertrophic); it also had a wingspan of 172 cm and a height of 170 cm. Based on this diagnostic hypothesis and taking into account the patient's family history, a molecular study of the FBN1 gene was requested. Pathological variant in heterozygosity c.6548del(p.AS-2183Metfs*2) was detected, which confirmed the diagnosis of Marfan's Syndrome. The patient was referred to a Genetics and Cardiology consultation. She later developed a second episode of left pneumothorax requiring chest drainage and was submitted to VATS with atypical resection of the left upper lobe including a bullous complex and chemical pleurodesis with talc.
Discussion: Marfan Syndrome is one of the most common inherited connective tissue diseases. It is an autosomal dominant disease with an incidence of 1/3,000-5,000 individuals. Increased risk of pneumothorax has been described in patients with Marfan syndrome and has been attributed to the presence of apical blebs and bullae. In the case described, the presence of a spontaneous pneumothorax in a patient with a suggestive phenotype of this pathology allowed us to reach a definitive diagnosis through genetic study.

Keywords: *Pneumothorax. Marfan syndrome.*

PE 012. A CAUSE OF PLEURAL EFFUSION NOT TO BE FORGOTTEN

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Introduction: Pleural effusions can have multiple etiologies, being an adverse effect to consider in patients under treatment with tyrosine kinase inhibitors (TKI), namely, Dasatinib.
Case report: 70-y-old man, with chronic myeloid leukemia diagnosed in 2017, initially medicated with Imatinib, having been re-

placed by Dasatinib for not showing a cytogenetic response. The patient presented an excellent response, however, he developed complaints of dyspnea and right chest pain, and a chest X-ray was performed, which confirmed the presence of right pleural effusion (PE). He underwent diagnostic and therapeutic thoracentesis and pleural biopsies were performed. The analysis of the pleural fluid revealed an exudate, of lymphocytic predominance, with no blasts, the micro and mycobacteriological study was negative and the cytology negative for neoplastic cells. Biopsies identified signs of non-specific chronic pleuritis, with no evidence of myeloid infiltration. In a therapeutic decision meeting, it was considered that the PE would be secondary to Dasatinib, and it was decided to discontinue the drug and replace it with Bosutinib. The patient evolved favorably, with no evidence of recurrence of the PE after discontinuation of the drug.
Discussion: In patients undergoing TKI therapy, particularly Dasatinib, who present with PE, after excluding other etiologies, hypothesize that this is a secondary effect of the drug. Pleural fluid is usually characterized by a lymphocytic exudate. The mechanisms by which it occurs are still unknown, however, it is believed that it may be an immune-mediated phenomenon. Treatment involves discontinue or reducing the dose of the drug and other supportive measures. Patients should be instructed to recognize the main symptoms related to a possible pleural effusion, so that they can seek medical assistance as early as possible. The pulmonologist should also be aware of these types of manifestations associated with TKI drugs, such as Dasatinib.

Keywords: *Pleural effusion. Tyrosine kinase inhibitors. Dasatinib.*

PE 013. WHEN IMAGE DECEIVE

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Case report: A 78-year-old patient followed for a large-volume and recurrent left pleural effusion, compatible with an exudate according to Light´s criteria. The patient realized an Angio-TC that revealed a mediastinal pleural lesion associated with extensive pleural effusion on the left. Chest MRI showed a lesion occupying space with an apparent starting point in the mediastinal pleura, vegetating aspect, well-defined limits and regular contours measuring approximately 36 × 23 mm with the longest perpendicular axes. It was a solid lesion and heterogeneous signal, mostly isointense on T1 and moderately hyperintense on T2, with central areas of hypointensity. He also presented a lesion at the level of the pectoralis major muscle sheath, with similar behavior, measuring about 73 × 41 mm in the longest perpendicular axes. The two lesions, although undetermined character by this technique, their behavior in the various sequences suggested that they were schwannomas. Taking into account this similarity, we decided to biopsy the lesion located in the pectoral muscle sheath, whose morphological and immunohistochemical findings are compatible with the hypothesis of schwannoma. In order to confirm the etiology of the mediastinal lesion, the patient underwent medical thoracoscopy with biopsy. Schwannoma documented as a cause of pleural effusion is rare. The histology of the lesion, although the immunohistochemical study is not fully characteristic, the morphological aspects observed favor the diagnosis of angiomyolipoma, an entity that is very common in the kidney, but uncommon in other systems, very rare and with few cases described in the mediastinum, It was not possible to proceed with the investigation as the patient, unfortunately, died due to a complication of the procedure.
Discussion: This case shows that not always it is what it seems. In this patient, the radiology and the existence of another lesion compatible with the schwannoma diagnosis made us believe that the pleural lesion was a schwannoma too. However, histology showed us that we were actually facing another rare pleural lesion, an angiomyolipoma.

Keywords: *Pleural effusion. Pleural disease. Schwannoma. Angiomyolipoma.*

PE 014. PLEURAL EFFUSION SECONDARY TO DASATINIB TREATMENT – WHEN TO SUSPECT?

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Introduction: Dasatinib is a second-generation tyrosine kinase inhibitor used in the treatment of chronic myeloid leukemia (CML) and acute lymphoblastic leukemia (ALL) philadelphia chromosome-positive (Ph+). Pleural effusion is a complication that may occur at any time during treatment, in up to 28% of all cases. It is typically characterized as a lymphocyte-rich exudate.
Case reports: The authors report two cases of pleural effusion related to dasatinib. The first case is a 77-year-old woman, with a history of hypertension and dyslipidemia. She was diagnosed with CML Ph+ in 2014, initially treated with imatinib, which was discontinued due to toxicoderma. She was started on dasatinib as a second line treatment in September 2014, with molecular remission. In October 2020, she developed thoracic pain in the right hemithorax. Chest CT scan revealed medium volume bilateral pleural effusion, more evident on the right. A thoracocentesis was performed for symptomatic relief, without characterization of pleural fluid. The patient remained stable, under surveillance. In March 2021 she presented with clinical and radiological deterioration, and a new thoracocentesis was performed. Analysis of pleural fluid revealed an exudate, with 64% lymphocytes, with no microbiological isolates. Cytology was negative for malignant cells, and immunophenotyping showed no significant changes. These findings were interpreted in the context of pleural effusion related to dasatinib, and the treatment was interrupted. After one month, clinical and radiological improvement was observed. Four months after stopping dasatinib, there were no signs of pleural effusion, and no further interventions were needed. The second case refers to a 72-year-old woman, diagnosed with ALL Ph+ in 2017. She started treatment according to HOVON 100 protocol associated with imatinib, which was suspended due to development of pneumatosis intestinalis. In april 2018 she was started on dasatinib. She developed pancytopenia and gastrointestinal intolerance, which led to temporary interruption. Dasatinib was gradually reintroduced in June 2018. Six months later, she presented with exertional dyspnea and progressively worsening cough. A large volume right pleural effusion was detected, and she was admitted to the pulmonology ward. Pleural fluid analysis revealed an exudate, with 98% lymphocytes and cytology was negative for malignant cells. Pleural biopsy revealed characteristics of nodular histiocytic hyperplasia, which was interpreted as dasatinib-related toxicity. Dasatinib was stopped with clinical and radiological improvement. In November 2019 it was gradually reintroduced, but the patient developed pleural effusion six months later, and a new thoracocentesis was needed. One month later dasatinib was once again reintroduced, at a lower dosage and currently there is no evidence of pleural effusion recurrence.
Discussion: Dasatinib-related pleural effusion is a common complication. Some risk factors for its development include hypertension, dyslipidemia, and prior skin reaction to imatinib or dasatinib. These two cases illustrate the importance of early recognition and the possible need of treatment interruption in cases of medium/large symptomatic pleural effusions. Its reintroduction, in a reduced dose, can be considered according to the evolution of the hematologic disease.

Keywords: *Pleural effusion. Dasatinib. Tyrosine kinase inhibitor.*

PE 015. WHEN THE ASCITES IS THE KEY TO THE DIAGNOSIS

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Introduction: Pleural effusion is a very common disease with numerous causes requiring a systematic approach. Although in many cases the cause is easy to identify, there are some complex cases that require a multidisciplinary approach. Here we describe a complex case of pleural effusion.
Case report: A 58-year-old man, smoker with a history of alcoholism and drug addiction to heroin and cocaine (abstinent for 5 years) under methadone. The patient went to the emergency department due to right pleuritic chest pain and dyspnea associated with weight loss. At the physical exam the patient presents with sarcopenia, increased abdominal volume and decreased breath sounds on the right. A chest-abdomen-pelvis CT scan was performed showing loculated right pleural effusion, a site of pleural effusion in the anterior chest area, panlobular emphysema and ground-glass opacities. At the abdominal level the patient presented large-volume ascites with thickening of the great omentum and with signs of chronic liver disease. An increased of the inflammatory parameters was also found. Diagnostic thoracentesis was performed in the posterior region of the right hemithorax with aspiration of an orange fluid with an immediate pH of 7.12. Given the suspicion of complicated parapneumonic pleural effusion a chest tube was inserted and empirical antibiotic therapy was started. The study of the pleural fluid confirmed it to be an exudate with a predominance of mononuclear cells (61%) with LDH 3675 U/L and glucose 12 mg/dL. The cytological study was negative for malignant cells and the microbiological study was negative. Due to the hypothesis of tuberculosis, sputum samples were also collected with negative mycobacteriological tests. Given the absence of clinical improvement, collaboration of intervention radiology was requested for drainage of the anterior site of pleural effusion. A chest tube was placed and the biochemical study revealed it to be an exudate with a predominance of polymorphonuclear cells (96%), with a negative microbiological study and without malignant cells at the cytology exam. Paracentesis was performed, showing peritoneal fluid with exudate characteristics with 85% mononuclear and negative microbiological study. The cytological study revealed the presence of malignant cells of adenocarcinoma with an immunocytochemical study suggestive of primary pulmonary origin. Lung cancer is one of the most common malignancies in the world. The most frequent sites of metastasis are bone, liver, brain and adrenal glands. Pleural effusion is a common form of presentation and pleural fluid cytology is diagnostic in 60% of cases. This patient had two exudative pleural effusion, one with a predominance of mononuclear cells and the other with a predominance of polymorphonuclear cells, both with negative cytology and without lung lesions suggestive of malignancy at the CT scan. Ascites and thickening of the greater omentum suggested malignancy of the gastrointestinal tract, however, it was in the cytology of the peritoneal fluid that the diagnosis of lung adenocarcinoma was obtained. Peritoneal carcinomatosis is rare in lung cancer and can be found only in 2.6 to 16% of cases during autopsy, adenocarcinoma is the most commonly histological type.

Keywords: *Ascites. Lung cancer. Pleural effusion.*

PE 016. RECURRENT SECONDARY PNEUMOTHORAX IN A YOUNG PATIENT

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Introduction: Pneumothorax is characterized by the presence of air in the pleural space. This can be classified as primary or secondary. Secondary pneumothorax (SP) involves an underlying lung disease and may have several ethiologies, with Chronic Obstructive Pulmonary Disease(COPD) with emphysema being responsible for most cases. In the presence of acute dyspnea, especially in patients with underlying risk factors, clinical suspicion of pneumothorax should be part of the differential diagnosis.
Case report: A 29-year-old male smoker of 40pack-year with a personal history of COPD stage GOLD A-class II (FEV1 64%) with severe bullous emphysema. He also consumes inhaled drugs (cannabis/hashish) and is medicated with LABA/LAMA which he does not use. He went to the Emergency Room(ER) in December/2020 due to sudden dyspnea. On admission, he was hemodynamically stable (BP 110/80 mmHg), eupneic at rest and in room air, and with pSO295%. On pulmonary auscultation, the vesicular murmur was reduced throughout the right hemithorax. A chestX-ray revealed hypertransparency throughout the right hemithorax compatible with pneumothorax and hypertransparency in the upper 2/3 of the left hemithorax compatible with a known emphysema bullae. Chest drainage was placed with a20Fr drain, with no complications, and it stayed oscillating and bubbling. Due to suspicion of a bronchopleural fistula, a CT-Thorax was performed, which revealed extensive right pneumothorax, with complete collapse of the right upper and middle lobe, as well as extensive panacinar emphysema that involved also the left upper lobe and lingula. Analytically, the dosage of α-1-antitrypsin was normal. During hospitalization, he needed oxygen therapy, with a maximum intake of 5 L/min, which he was weaning with good tolerance. A new CT-Thorax was performed, which revealed complete resolution of the right pneumothorax, removing the chest tube and being discharged to the outpatient clinic. Taking into account his age and extensive emphysema, the case was discussed with Thoracic Surgery (TS), and he was referred to the consultation with a proposal for a left bolhectomy. In February/2021, the patient went back to the ER again due to sudden dyspnea with associated right chest pain, a new right pneumothorax was diagnosed and a20Fr chest tube replaced uneventfully, becoming oscillating and bubbling. Taking into account the recurrence, the TS was again contacted, having been transferred and submitted to upper right lobe and middle lobe bolhectomy with VATS talc (Video-assisted thoracoscopic surgery). Later discharge with indication to perform upper left lobe bolhectomy and VATS talc in an outpatient clinic, which had no complications. Currently, the patient is followed up in Pulmonology and, because of active smoking habits, the importance of smoking cessation for eventual inclusion in the lung transplant list was reinforced.
Discussion: A recurrent SP can represent a life-threatening situation, so prompt diagnosis and timely treatment are essential to prevent associated morbidity and mortality. The authors highlight the case for its seriousness in a young age group. It´s essential to invest in the education and awareness of patients about the seriousness of their clinical condition, strengthening respiratory rehabilitation programs and smoking cessation consultations, since both delay the progression of pulmonary pathology.

Keywords: *Secondary pneumothorax. Relapse. Bullous emphysema.*

PE 017. WHEN WE MUST GO FOR WHAT WE DON'T SEE: A RARE CAUSE OF PNEUMOTHORAX

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Introduction: Catamenial pneumothorax (CP) is a manifestation of thoracic endometriosis. It is characterized as recurrent episodes of pneumothorax in women in reproductive age, occurring in association with the menstruation. Its occurrence is rare.

Case report: A 24 years-old woman, current smoker since 17 years-old, with previous medical history of recurrent pneumothorax on the left side submitted to pulmonary wedge resection of the upper lobe of the left lung and mechanical pleurodesis on the left side. On pre-surgical investigation patient was not able to associate both episodes of pneumothorax with the menstruation; thoracic computed tomography showed discrete pulmonary emphysema on the upper lobes of both lungs with no other findings; and pulmonary function tests were normal, as well as transthoracic echocardiogram and alpha 1-antitrypsine measurement. During surgery, search for typical findings in CP, such as diaphragmatic fenestration and/or nodules, was negative. Pathological evaluation of the lung resection showed fibrotic changes with no specific disease pattern. Patient was hospital admitted one month after surgery due to acute thoracic pain on the left side, aggravated with deep inspiration, supine position and physical effort. Chest radiograph revealed recurrence of left side pneumothorax with a small pneumothorax on the apex of the left hemithorax. At physical examination she was eupneic with normal peripheral oxygen saturation, and ambulatory conservative treatment was decided. On the following months, she had periodic recurrence of the left thoracic pain almost every month. Multidisciplinary team discussion decided to initiate hormonal pharmacotherapy with continuous oral contraceptive (dienogest/ethinylestradio). At three months follow-up after treatment initiation, there was no pain recurrence and chest radiograph reevaluation showed pneumothorax resolution.
Discussion: In the literature the most frequent definition of CP is recurrent episodes of air in the pleural space in reproductive-age women occurring up to 7 days before and after the onset of menstruation. Additional features such as right-side pneumothorax, characteristic pleural findings, and concomitant endometriosis may also be associated. Surgery is considered the first-line treatment. The presented clinical case shows a case of CP with atypical presentation, recurrence after surgical treatment and response to hormonal therapy.

***Keywords**: Catamenial pneumothorax.*

PE 018. ENDOBRONCHIAL ULTRASOUND (EBUS) - ONE YEAR EXPERIENCE

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Introduction: Endobronchial ultrasound (EBUS) has become a major advance in bronchoscopy. As a minimally invasive procedure, it is useful not only in the diagnosis and staging of lung cancer, but also as an important method for the study of hilar and mediastinal adenopathies and extraluminal lesions adjacent to the tracheobronchial tree.
Objective and methods: Analytical, cross-sectional, prospective study with the purpose of analysing the diagnostic performance of EBUS from its implementation at Faro Hospital (August 2020) until August 2021. Exams were performed under general anaesthesia, some with a cytopathologist, allowing for immediate observation of the material obtained. The analysed variables were: gender, age, smoking habits, indication for the examination, imaging and endobronchial changes, number of punctured targets, their location, appearance, shape, size, number of passages, final diagnosis and complications.
Results: During the 1-year period 50 EBUS were performed, 36.0% of which in the presence of the cytopathologist. There was a male subject predominance (60.0%), with a mean age at the date of the procedure of 65.5 ± 8.6 years. 94.0% were smokers or ex-smokers (54.9 ± 25.2 pack-year, 8-120 pack-year). The main indications for the procedure included: diagnosis and/or staging of suspected or confirmed lung cancer (74.0%), diagnosis and staging of peripheral lung lesions with enlarged mediastinal lymph nodes (18.0%) and diagnosis of paratracheal and parabronchial masses (8.0%). The most frequent imaging alterations were: lung mass (38.0%), mediastinal adenopathies (36.0%), pulmonary nodules (20.0%) and mediastinal masses (6.0%). Most of the procedures showed no endoscopic changes (58.0%), 20.0% had inflammatory signs, 12.0% had direct signs of neoplasia and 10.0% indirect signs of neoplasia. A total of 82 ganglion stations were punctured (on average 1.7 ± 0.8 per patient) with a predominance of infracarinal 7 (36.6%), right lower paratracheal 4R (23.2%) and left lower paratracheal 4L (13.4%). The ganglia had a mean size of 12.2 ± 3.1 mm, most were heterogeneous (62.1%) and were punctured an average of 3.4 ± 1.2 times. Fourteen masses adjacent to the airway with a mean size of 42.5 ± 17.9 mm were approached and punctured on average 3.2 ± 1.6 times. Regarding the patients who underwent EBUS for diagnosis (n = 31, 62.0%), there was diagnosis confirmation in 80.6% (n = 25), with the most frequent being adenocarcinoma (74.2%) and metastasis of extrathoracic neoplasia (12.9%). The remaining patients (n = 6; 19.4%) were referred to another hospital to obtain a diagnosis through invasive procedures. The sensitivity of EBUS was 84.2% with 100% specificity in patients who underwent the procedure for lung cancer staging (n = 19, 38.0%). The rate of major complications secondary to this technique was 2.0% (n = 1).
Conclusions: Although a relatively recent technique at Faro Hospital, this study shows the importance of EBUS in the diagnosis of a wide range of thoracic diseases and in the staging of lung neoplasia, with good profitability and safety.

***Keywords**: Endobronchial ultrasound. Lung cancer. Diagnosis. Staging.*

PE 019. TRANSBRONCHIAL LUNG CRYOBIOPSY IN SMOKERS VERSUS NON-SMOKERS

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Introduction: Multidisciplinary discussion is the gold standard for the diagnosis of interstitial lung diseases. Clinical and radiologic data are crucial, but not always sufficient for a definitive diagnosis. Transbronchial lung cryobiopsy (TBLC) is a reasonable alternative to surgical lung biopsy to obtain a histological pattern, with lower mortality, but not without risks.
Objectives: To determine whether there is statistically significant difference in TBLC complications between smokers/former smokers (S/FS) and non-smokers (NS). To comparatively characterize both populations (demography, lung function, other risk factors).
Methods: Retrospective study of clinical files of 25 patients who underwent TBLC in the Interventional Pulmonology Unit of Hospital Prof. Doutor Fernando Fonseca between November 2019 and May 2021. Statistical analysis was performed using Fisher exact test and t-Student.
Results: 25 patients were included, 56% S/FS and 44% NS. The rate of pneumothorax was 50% among S/FS and 27.3% among NS ($p = 0.41$). The rate of moderate bleeding was 57.1% for S/FS and 45.5% for NS ($p = 0.69$). S/FS presented equal gender ratio, while NS were mainly male (55%). The mean age for S/FS was lower (67 *vs.* 77 years old, $p < 0.05$). As for lung function, S/FS presented higher mean FVC (71% *vs.* 66%, $p = 0.21$), higher mean FEV1 (74% *vs.* 68%, $p = 0.07$) and lower mean DLCOc/VA (52% *vs.* 71%, $p = 0.12$). Chest CT showing pulmonary emphysema was more frequent among S/FS (57.1% *vs.* 9%, $p < 0.05$). PASP was lower than 50 mmHg in both groups.
Conclusions: Despite the small sample size, patients in the S/FS group were younger patients, presenting with pulmonary emphysema more frequently and showing a higher trend towards pneumothorax and hemorrhage, although without statistically significant

difference. Smoking may constitute a risk factor to complications in this technique.

Keywords: *Transbronchial lung cryobiopsy. Interstitial lung diseases. Smoking.*

PE 020. PRIMARY LOCALIZED TRACHEOBRONCHIAL AMYLOIDOSIS: A DIAGNOSIS STILL WITHOUT CURE

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Introduction: Amyloidosis is characterised by the deposition in extracellular and/or intracellular tissues of abnormal proteins in a fibrillar form: the amyloid. These amyloid deposits may cause organ dysfunction. Amyloidosis can be acquired or hereditary, primary or secondary, localised or systemic. Although a rare disorder, primary localized tracheobronchial amyloidosis (TBA) is the most common localised form of respiratory amyloidosis. We present a clinical case of a woman with primary TBA whose diagnose was a clinical challenge.
Case report: A 57-year-old woman attended our clinic due to multiple respiratory infections in the previous year with recent onset of effort dyspnoea and wheezing. On examination, wheezes were auscultated in all lung fields, especially in the right upper lobe. Her oxygen saturation was 96% on room air and the chest radiograph revealed no abnormalities. Blood tests were anormal and functional lung test showed no obstruction despite a positive bronchodilator response. She was initiated on inhaled fluticasone furoate plus vilanterol (200/25 μg) once a day. On our follow-up, 1 month after our first consultation, the patient demonstrated only a slight improvement in dyspnoea, and wheezes were still detected in all lung fields. The CT scan revealed diffused bronchial thickening mainly in the right upper lobe entrance and upper part of the trachea. The CT scan also showed cylindrical and varicose bronchiectasis in the right upper lobe, filled with mucoid impaction and a "finger-in glove opacities" pattern with diffuse calcifications. Bronchoscopy revealed an obstruction of the lumen in the right upper lobe entrance due to infiltration of the submucosa with yellow material. The same yellow material was found in all the trachea. Biopsy and immunohistochemical techniques with Congo red stain demonstrated amyloid deposits in the sample. Systemic disease was excluded after an extensive workup. The patient was diagnosed with primary localized TBA. Nd:YAG laser therapy was used which allowed partial resection of the amyloid obstruction. 1 month after the intervention, the patient exhibited symptoms relief and functional testing revealed an improvement in basal FEV1. After 1 year of close outpatient follow-up with routine bronchoscopies, the patient remains with minor symptoms, controlled only with inhaled therapy (budesonide/formoterol).
Discussion: Primary localized TBA is a rare disease and requires the exclusion of systemic amyloidosis, which accounts for up to 80% of pulmonary amyloid lesions. Symptoms may mimic other respiratory conditions. This can delay the diagnosis and/or lead to misdiagnosis with other common conditions like asthma or pneumonia. The prognosis is poor, and no effective medical treatments are known so far. Laser photocoagulation seems to best the best option but more studies are needed in this field. We added off label inhaled corticosteroid (budesonide) to a long-acting β2-agonist (formoterol), with the intention of adding an anti-inflammatory local action in addition to bronchodilation to overcome the partial stenosis that remained, after intervention, in the right upper lobe entrance.

Keywords: *Amyloidosis. Tracheobronchial. Localized. Photocoagulation.*

PE 021. THE ROLE OF PEDIATRIC VIDEOBRONCHOSCOPY IN CONGENITAL MALFORMATIONS – CONCERNING A CASE OF TRACHEOESOPHAGEAL FISTULA

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Introduction: Tracheoesophageal fistula (TEF) is a common congenital anomaly of the respiratory tract, with an approximate incidence of 1:3,500 live births. It is accompanied by esophageal atresia (EA) in 88% of cases and the classification is based on its anatomical configuration. H-type FTE occurs in about 4% of cases and progresses without EA. In about half of the cases there are other associated anomalies (cardiac, genitourinary, renal, vertebral, anal atresia, etc.) that should be investigated. The pathogenesis stems from an anomaly in the differentiation of the trachea and esophagus from the primitive foregut during embryogenesis. Many cases are not detected in the prenatal period and, in cases of H-type TEF, the typical presentation is that of coughing, choking and desaturation associated with feeding the newborn. The exclusion of EA is done through the correct placement of a nasogastric tube, confirmed by performing a conventional thoracoabdominal radiography. An attempt to confirm the H-type fistula must be made using a contrast radiological study of the esophagus-gastric-duodenal (EGD) transit, however the path of the fistula may not be identified. In these cases, videobrochofibroscopy and esophageal endoscopy should be performed.
Case report: The authors describe the case of a 24-day-old female newborn. Late premature (GI 26w+5d), without other relevant antecedents. Admitted to the Neonatology Unit due to a condition beginning at 2h of life characterized by repeated episodes of choking, coughing, tachypnea, nasal fluttering, draught, difficult to reverse desaturation and labial cyanosis when administering milk per os, requiring exclusive feeding for nasogastric tube. No other findings on physical examination, apart from rustling, crackling and transmission noise in pulmonary auscultation. Nasofibroscopy did not show changes in the upper airways. The EGD transit contrast study excluded "major" gastro-oesophageal reflux, however, the TEF study was "inconclusive". Videobronchoscopy was performed, where a hole was observed in the posterior wall, in the middle 1/3 of the trachea, about 3.5 cm from the vocal cords and 2.5 cm from the carina. A guide wire was placed in the hole, leaving it in place and removing the endoscope. Then, the fiberoptic bronchoscope was introduced through the upper esophageal sphincter, observing the entry of the guide wire previously placed in the trachea on the anterior wall of the esophagus, confirming the diagnosis of H-type TEF in the middle 1/3 of the trachea. To exclude other associated congenital anomalies, abdominal, renal and bladder ultrasound (without changes compatible with congenital malformations) and echocardiogram (small interatrial communication, with exclusive left-right shunt, to be reassessed later) were performed. Treatment consists of surgical repair of the H-type TEF, individualizing the trachea and esophagus, obliterating the fistula. Due to changes in esophageal peristalsis after surgical correction, these patients often develop GERD and must be treated with PPI for at least 12 months. Pediatric videobronchofibroscopy has been appointed as the gold standard for the definitive diagnosis of TEF, since contrast studies are not always able to identify the path of the fistula. The prognosis of patients with H-type fistulas is generally good, depending on the presence or absence of other associated malformations.

Keywords: *Tracheoesophageal fistula. Pediatric videobronchofibroscopy. Congenital respiratory tract malformations.*

PE 022. FIBROEPITHELIAL POLYPS: A RARE ENTITY

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Introduction: Fibroepithelial polyps are rare benign tumors that most often present in the skin, oral cavity, and genitourinary tract. Airway involvement is rare and there are few reported cases.
Case report: Male, 55 years old, non-smoker, diagnosed with childhood asthma. Follow-up in Pulmonology consultation since October/2020 due to dyspnea for moderate exertion and chest oppression, as well as rhinorrhea. Therapy with LABA/ICS was started, with slight clinical improvement. Thoracic CT scan revealed, in the middle third of the trachea, a small, vaguely polypoid structure in an anterior location, measuring approximately 5 mm, described as possibly corresponding to secretions. In December 2020 he presented mild COVID-19 disease, maintaining the same symptoms previously described after resolution of the infection. He repeated CT scan at this point, showing no significant parenchymal changes, but maintaining the description of the tracheal polypoid lesion previously mentioned. He underwent flexible bronchoscopy, which revealed a sessile polyp in the middle third of the anterior wall of the trachea, with little hypervascularization, minimal bleeding, and no alterations in the adjacent mucosa. Biopsies were performed, which revealed a fibroepithelial polyp. The patient was proposed for rigid bronchoscopy in order to excise the lesion, photocoagulation was used. The patient is awaiting endobronchial re-evaluation at 3 months.
Discussion: The differential diagnosis of endobronchial lesions is vast and must be carefully considered. Respiratory tract fibroepithelial polyps are a rare entity, which can result in a low level of suspicion and delays in timely diagnosis and treatment. It is important to recognize this diagnostic hypothesis, bearing in mind that its growth can result in symptoms that mimic malignancy, infections or poorly controlled chronic lung disease.

Keywords: *Fibroepithelial polyps. Bronchoscopy.*

PE 023. AN UNEXPECTED FIND

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Introduction: Bronchopleural fistula (BPF) is a pathological communication between the bronchial tree and the pleural space, and it is a rare complication associated with high mortality and morbidity. BPF may result from several entities, being more often associated with postoperative complications. Numerous risk factors have been associated with the development of postoperative BPF, some of them being age over sixty, male gender, neoadjuvant radiation therapy, pulmonary infection, diabetes mellitus, malnutrition, smoking, chronic steroid/immunosuppressive therapies, long bronchial stump, residual tumour in the resection's margins and the need for postoperative ventilation, especially when high PEEP is advocated. Expectoration and respiratory symptoms typically worsen with the patient lying on the side opposite to the one involving the fistula. Flooding of the infected contents of the pleural space to the lung can lead to infectious complications. Radiological features that suggest the presence of a BPF are hydropneumothorax with persistent air leak, even though chest tubes have been placed, reappearance of air in a postpneumonectomy space previously opaque and a fall in the fluid level with an increase in the air level. If the patient has a chest tube, massive and prolonged air leakage would be an important clinical clue for BPF. Treatment ranges from bronchoscopic procedures to surgical intervention. There is no consensus regarding optimal management because of varying therapeutic success. A variety of solutions have been used to solve BPF, as the localization and size of the fistula as well as the length of the bronchial stump are decisive to decide the best treatment option. Bronchoscopy is a safe, quick and successful mode of treatment in a selected group of patients. Various endoscopic techniques for the control of BPFs have been used, such as sealants, fibrin glue, coils and endobronchial stents.
Case report: The authors present a case of a 79 years-old woman, previous smoker of sixty packs/year, submitted to left pneumonectomy and mediastinal lymph node dissection due to squamous-cell carcinoma of the lung. About a month after the surgery, she came to the emergency ward complaining of fever and progressively worsening dyspnea. Laboratory results presented elevated inflammatory parameters and thoracic X-ray showed hydropneumothorax with a fluid level on the left hemithorax, with no condensation. A thoracic pleural drainage was placed on the left hemithorax. After some days, the drainage was continuously bubbling. Videobronchofibroscopy was performed and on the left bronchial tree we observed a fistula with the pleural drain allocated intrabronchially. It was pulled out to the point that a closed-end prosthesis could be placed.
Discussion: BPFs can occur in multiple situations as appointed above. The insertion of a pleural drain in a previously existing BPF was a surprise and we have found no other case in literature. Although fistulas are a possible postoperative complication, each case must be analysed singularly. Bronchoscopy was of utmost importance to understand and treat the complication.

Keywords: *Bronchoscopy. Bronchopleural fistula. Prosthesis.*

PE 024. THORACIC DUCT CYST - AN UNUSUAL FINDING

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Introduction: Thoracic duct cysts are lymph-filled dilatations that can be found in any portion of the thoracic duct, namely in the supradiaphragmatic or infradiaphragmatic position. Supradiaphragmatic are typically found in the neck, whereas those in the mediastinal thoracic duct are quite uncommon. The cysts can be asymptomatic or, due to the pressure they can place on adjacent structures, cause symptoms such as coughing, dyspnea, dysphagia, or chest discomfort. Usually the approach is conservative, however in some cases the treatment can be surgical to prevent complications, such as spontaneous or traumatic rupture and chylothorax.
Case report: 74-year-old male, non-smoker, with no respiratory or constitutional complaints, referred to a pulmonology consultation due to alterations in chest CT. History of prostate cancer, having performed radical prostatectomy with pelvic lymphadenectomy in 2014, type 2 diabetes mellitus, hypertension, and dyslipidemia. Medicated with atorvastatin, metformin, ramipril, acetylsalicylic acid and lercanidipine. A control CT of July 2021 showed stabilized lung micronodules and innocent mediastinal adenomegaly. Reference to right para-aortic adenopathy with 17 mm short axis. Analytical study was normal. Objective examination with no alterations on cardiopulmonary auscultation, without digital clubbing. He was guided to the Portuguese Oncologic Institute (IPO) of Coimbra, where he performed ultrasound-guided fine needle aspiration puncture (EUS-b-FNA) under conscious sedation, to assess the alteration in the right para-aortic region. Through echo-endoscopy, the alteration described in the imaging exam was identified and punctured, and the material collected was a yellowish liquid, which in laboratory analysis revealed to be constituted by 424 mg/dl of tri-

glycerides. No other changes, namely in the evaluation by immunophenotyping. Exam without complications.
Discussion: The clinical importance of identifying thoracic duct cysts lies in their radiological misinterpretation as a pathological lesion, which can lead to an inappropriate clinical approach. In this clinical case, the collection of yellowish liquid material through EUS-b-FNA puncture, which in laboratory analysis indicated an elevation in triglycerides, as well as the radiological location compatible to a thoracic duct cyst, leads us to conclude that these findings refer to a cystic structure with this etiology. The patient will continue to be followed up in a pulmonology consultation.

Keywords: *Thoracic duct cyst. Radiologic evaluation. EUS-b-FNA. Triglycerides.*

PE 025. MADELUNG'S DISEASE - A CHALLENGE FOR THE PULMONOLOGIST IN THE AIRWAY APPROACH

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Introduction: Madelung's disease is a rare congenital disease characterized by multiple lipomas in the face and cervical, occipital and upper thoracic regions. These slow growing fatty masses result in deformity and limited cervical movement. Adipose tissue can deeply invade adjacent structures, involving the neurovascular bundle and compressing the larynx, trachea and esophagus. These patients are at increased risk of difficult airway associated with acute respiratory failure during deep sedation. The extensive perimeter of adipose tissue at the level of the cervical and occipital regions can make it difficult to approach the airway and to do bag-valve-mask ventilation, orotracheal intubation and urgent tracheostomy.
Case report: Male, 67 years old, previous smoker, with ethanol dependence, Madelung's disease, Dercum's disease, treated pulmonary tuberculosis, hemochromatosis and hypothyroidism. Referred to Rapid Diagnosis Consultation due to asthenia, chest pain and chronic productive cough. Computed tomography (CT) scan of the chest showed a cavitated lung lesion with thickened walls. It was proposed for bronchoscopy and assessment in a Pulmonology Consultation differentiated in Pre-Endoscopic Respiratory Evaluation. From the observation, the functional status ECOG = 0/5, the frailty scale 2/9 and the Lee Class I cardiac risk index stood out. Several risk factors for difficult ventilation were identified, such as age over 55 years, facial hair, missing teeth, body mass index of 38, snoring and suspected OSAS (STOP-BANG = 7, Epworth = 6/24). As factors for difficult airway approach there was limitation of the mobility of the head and neck by lipomas, Mallampati index 4, increased cervical circumference and difficult-to-determine thyromental and sternum distances. CT of the neck (2019) revealed diffuse lipomatosis conditioning compression of local structures, with considerable posterior cervical adipose deposition. Arterial blood gases (FiO2 = 21%) with partial respiratory failure at rest (paO2 = 70 mmHg). Plan established with reassessment by cervical and thoracic CT, assessment by otorhinolaryngologist with videonasolaryngoscopy, polygraphy sleep study, electrocardiogram and transthoracic echocardiogram and evaluation by Anesthesiology.
Discussion: Fiberoptic bronchoscopy is a safe endoscopic technique and its complication rate is relatively low. However, there are particular diseases that increase the risk of complications, so prior assessment of the patient becomes relevant. Knowledge of the airway and history of anesthetic complications are mandatory, considering the potential risk of severe respiratory failure and the need for invasive mechanical ventilation. In this patient, several anatomical characteristics were identified that affected the approach to the airway, resulting from his congenital lipodystrophy. The planning of the endoscopic examination benefited from the multidisciplinary assessment between Pulmonology, Anesthesiology, Radiology and Otorhinolaryngology.

Keywords: *Madelung's disease. Pre-endoscopic respiratory evaluation. Difficult airway.*

PE 026. SUBGLOTTIC MASS

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Introduction: Airway obstruction has a very large differential diagnosis. It can be congenital or acquired. Endotracheal intubation enormously increases the risk of endotracheal stenosis and consequent airway obstruction. The causes can be divided as malignant such as bronchogenic, laryngeal, oesophageal or thyroid carcinomas and Hodgkin's lymphoma, benign such as hamartoma, tracheal leiomyoma, endobronchial/tracheal lipoma, tracheal papilloma/papillomatosis, tracheal hemangioma or fibroma, neurogenic tumors among others, and non-neoplastic such as infection, gastroesophageal reflux disease, tracheobronchial amyloidosis, atrophic and relapsing polychondritis, idiopathic laryngeal tracheal stenosis, a granulomatous pathology such as tuberculosis, Wegener's granulomatosis, or sarcoidosis. Most of the patients either have chronic stable symptoms and are mistreated as COPD/asthma patients, or they are asymptomatic. These diagnoses are mostly discovered at postmortem examination. Sometimes masses can be seen on the X-ray or CT scans, but endoscopy is the gold standard diagnostic tool4. The treatment can be either endoscopic or surgical, depending on the lesion and the patient. Laser is used most of the times for ablation of these lesions, but it carries a risk of post-treatment stenosis.
Case report: The authors present the case of a 43-years-old man, born in Guinea-Bissau. Diagnosed with COPD about one year before, when he started complaints of dyspnea. He went to the emergency department for complaints progressively worsening dyspnea despite optimal bronchodilation, and few days of cough without stridor. Denied recent history of trauma/intubation or upper respiratory infection, fever, anorexia, or weight loss. Blood analysis presented no alterations and chest CT documented a solid lesion with projection below the vocal cords with 17 × 21 × 21 mm. Contrast-CT demonstrated evident heterogenous impregnation in the arterial phase, marked by peripheral predominance, and centripetal homogenization in venous phase, without extravasation. Laryngoscopy documented a regular, discreetly bossed, rounded polypoid nodular mass with implantation on the posterior part of the trachea, occupying more than 80% of the tracheal lumen. During hospitalization he began medical therapy with propranolol, but because of symptomatic worsening, he underwent tracheostomy, which occurred uneventfully. Subsequently videobronchofibroscopy showed the previously documented subglottic, hypervascularized mass, suggestive of subglottic hemangioma or lipoma, conditioning almost total lumen occlusion, not allowing progression of the fibroscope. Due to the risks inherent to any bronchoscopic intervention, the patient was proposed to excision with laser.
Discussion: Endoscopic diagnosis in worsening dyspneic patients may be of extreme importance to distinguish an acute-on-chronic lung disease from an obstruction of the airway. This patient could have had the growing mass since the beginning of his symptoms, which alert to a proper diagnosis for a definitive treatment. These benign lesions are rare in adulthood, with few cases described in the literature.

Keywords: *Subglottic. Mass. Bronchofibroscopy. Benign lesion. Endoscopy.*

PE 027. ROLE OF THE CARDIOPNEUMOLOGY TEAM IN MONITORING PATIENTS WITH OSAS UNDER CPAP DURING THE COVID-19 PANDEMIC.

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Introduction: In the treatment of Obstructive Sleep Apnea Syndrome (OSAS), the therapy with CPAP (Continuous Positive Airway Pressure) is the right choice. Adherence to CPAP is essential for the success of therapy, thus requiring a good education program for the patient's adaptation and collaboration to it. At HBA, there are two types of properly structured technical consultation: the initial consultation, where adaptation to CPAP is performed, and the follow-up consultation, where the patient is monitored under CPAP, which is interspersed with the medical consultation. During the pandemic, there was a need to restructure this consultation, keeping patient monitoring as a priority: teleconsultations were carried out at the expense of face-to-face consultations and the number of technical consultations was increased to allow continuity of monitoring. In this new operating model, the contribution of home respiratory care companies was essential, allowing the initial adaptation to home therapy and providing telemonitoring.
Objectives: To describe the reorganization of the technical consultation of the cardiopneumology team in the follow-up of patients under CPAP, in a pandemic phase (March 2020 to July 2021).
Methods: Presentation of the total number of technical teleconsultations in cardiopneumology from 3/2020 to 7/2021. Retrospective analysis of patient files under CPAP, evaluated in a cardiopneumology technical consultation between 1/1/2021 to 7/31/2021. Analyze the reports of patients in relation to the use of the equipment and the reading of data provided by home respiratory care companies. Data analyzed in Microsoft Office Excel®.
Results: Between March 2020 and July 2021, 1,293 technical teleconsultations were carried out. During the period analyzed, 473 teleconsultations were carried out (384 with access registration readings and 89 without access to registrations). Overall age was 59 years (69.3% male). Of the sample presented, 53.1% had severe OSAS, 33.4% moderate and 13.5% mild. Of the 384 individuals, 64.3% had good adherence (% use > 4h: 92.2%, overall use 7h03). In 28.6% of patients, high leakage was identified (17.4% made interface adjustment, 4.7% model replacement and 6.5% chin rest placement). 7.3% of the patients had residual AHI, 2.6% had leaks corrected and in 4.7%, ventilatory parameters were altered after clinical discussion. 137 patients with reading records did not present adherence, mainly referring some discomfort with the interface (37.9%), xerostomia (20.4%) and nasal obstruction (16.8%), having taken the necessary actions to correct said problems, and in some cases anticipated the medical appointment.
Conclusions: Despite the pandemic situation, continued follow-up of patients adapted to CPAP is essential, both in optimizing adaptation to treatment and in maintaining adherence over time. The advance of telemedicine allowed this continuity to be uninterrupted, allowing the maintenance of adequate treatment for patients with OSAS.

Keywords: *CPAP. OSAS. Adherence and COVID-19.*

PE 028. SEVERE OSA AND REFRACTORY RLS: THE RELEVANCE OF THE MULTIDISCIPLINARY APPROACH

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Introduction: Restless legs syndrome (RLS) is a common sleep-related pathology, characterized by sensory changes associated with an uncontrollable need for movement in the lower limbs, especially during periods of greater inactivity and at the end of the day. The coexistence of RLS with the Obstructive Sleep Apnea Syndrome (OSA) often has an impact on sleep quality and daytime symptoms, being also associated with an increased cardiovascular risk. Both pathologies are interrelated, sometimes creating challenges in the therapeutic approach.
Case report: 59-year-old male secretary, diagnosed with severe OSA (PSG level 3: AHI 48/h, mean SatO2 94.6%, SatO2 time < 90 4.5%) and RLS in 2018, started APAP 5-15 cmH2O and Ropinirol 4 mg. Despite the initial symptomatic improvement, there was a recurrence of the symptoms of the lower limbs, so he was referred to a Neurology consultation in 2019. He undergone several exams and a ferropenic anemia was diagnosed, starting oral supplemen-

PLM Statistics

All EMG.Tibialis	Number	Index	During PLM Number	During PLM Index
LM/RRLM	161	28,4	18	3,2
LM with Arousals	5	0,9	0	0,0
RRLM	113	19,9	0	0,0
LM with no association	43	7,6	18	3,2
LM/RRLM during N1	77	66,0	1	0,9
LM/RRLM during N2	84	26,0	17	5,3
LM/RRLM during N3	0	0,0	0	0,0
LM/RRLM during R	0	0,0	0	0,0

	Total Number	Index	Mean Duration [seconds]	Minimum Duration [seconds]	Maximum Duration [seconds]
LM/RRLM	161	**28,4**	2,2	0,5	8,3
LM/RRLM in PLM	18	**3,2**	1,2	0,5	2,5
PLM-sequences	2	**0,4**	324,4	184,2	464,7

PE 028A.tif

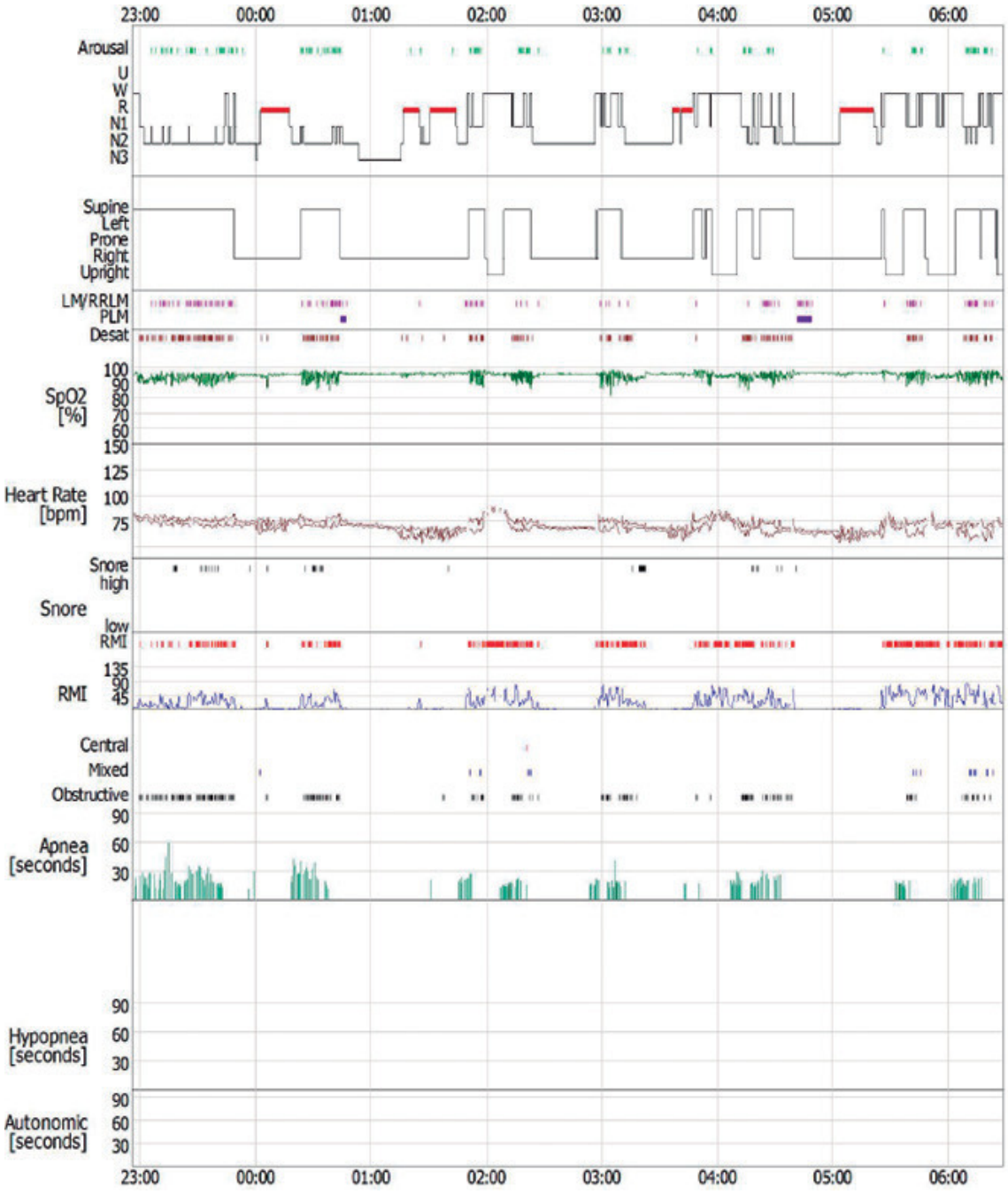

Figure PE 028B

Arousal Statistics

	Number	Index		Number	Index
Arousals	21	3,7	Spontaneous Arousals	0	0,0
Apnea Arousals	69	12,2	Hypopnea Arousals	0	0,0
LM Arousals	5	0,9	PLM Arousals	0	0,0
Desaturation Arousals	8	1,4	Snore Arousals	2	0,4
Respiratory Arousals	30	5,3	RERA	0	0,0
User Defined Arousals	0	0,0	Total Arousals	135	23,8

Figure PE 028C

Apnea/Hypopnea Statistics

Respiration	Number	%	A or H/h	Supine	Non-Supine	Mean [seconds]	Longest [seconds]
Apnea	202	100,0	35,7	187	15	20,5	59,4
Obstructive	184	91,1	32,5	170	14	20,6	59,4
Central	1	0,5	0,2	1	0	13,0	13,0
Mixed	17	8,4	3,0	16	1	19,5	23,1
Hypopnea (All)	0	0,0	0,0	0	0	0,0	0,0
Obstructive	-	-	-	-	-	-	-
Central	-	-	-	-	-	-	-
Mixed	-	-	-	-	-	-	-
RDI				63,2	3,3		
Total	202		35,7	187	15	20,5	59,4

Figure PE 028D

SpO2 Statistics

Mean Oxygen Saturation:	94,5	%	Saturation < 90%:	12,1 minutes	3,6	%
Lowest Oxygen Saturation:	84,0	%	Saturation < 80%:	-	-	%
Average Desaturation:	6,2	%	Saturation < 70%:	-	-	%

Figure PE 028E

tation and increasing the dose of Ropinirol to 8 mg/day. Due to the absence of clinical improvement, with associated hypersomnolence and sleep fragmentation, Ropinirol was changed to Pramipexole and a Pulmonology consultation was requested. In the first evaluation by Pulmonology, the patient had low adherence to APAP due to intolerance, which he attributed to nasal obstruction and to the lower limbs movements at night. At this stage, he scored 26 points on the International RLS Severity Scale (severe) and 16 on the Epworth sleepiness scale, referring to great difficulty in exercising his professional activity. On objective examination, a Mallampati grade III and a BMI of 32.2 kg/m^2 stood out. After a mul-tidisciplinary discussion, gabapentin 50 mg was associated, nasal lavage and topical steroids were started, weight loss and APAP resumption were encouraged. On reassessment, complaints persisted and had low adherence to APAP, with a residual AHI of 15/h at the expense of obstructive events. Analytically it maintained marked ferropenia. The patient un-derwent APAP 10-17 cmH2O, the dose of gabapentin was increased to 100mg, intravenous iron was started in a Hematology consultation and a study was requested in a Gastroenterology consultation. With these measures, there was an improvement in lower limb complaints during the day, but he maintained non-restorative sleep and awareness of frequent movements at night. For further clarification, a PSG level 1 under APAP was requested, which revealed sleep fragmenta-tion (24/h arousals index) and a residual AHI of 36/h, exclusively positional (recumbent 82/h; lateral decubitus 4/h). Although there were no periodic movements of the lower limbs (PLMS index 3.2/h), lower limb movements were observed associated with residual respiratory events in bench press (28/h). In this phase, therapy with APAP and postural conditioning with a tennis ball was proposed, and PSG level 2 was requested to evaluate the therapeutic efficacy. He is also in an ENT consultation, awaiting septoplasty.

Discussion: The authors highlight the importance of multidisciplinary articulation in addressing sleep respiratory pathology associated with movement-related sleeping sickness. The role of postural conditioning in the resolution of residual events in bench press in patients under high APAP pressure is also highlighted.

Keywords: *Obstructive sleep apnea. Restless legs syndrome. Apap. Multidisciplinary reunion.*

PE 029. THE ROLE OF AIRVIEW® TELEMONITORING IN THE FOLLOW-UP OF OSAS PATIENTS

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Introduction: Obstructive Sleep Apnea Syndrome (OSAS) is a highly prevalent respiratory disease. In the subgroup of patients with OSAS undergoing Positive Pressure Therapy (PAP), the Airview®, a telemonitoring tool, appears as a follow-up option for CPAP (Continuous Positive Pressure)/Auto-CPAP (Continuous Automatic Pressure) therapies, in an attempt to monitoring and early detection of situations of poor adherence to therapy. Our objective was to evaluate the role of Airview® in the treatment and follow-up of OSAS in patients followed in the Sleep Medicine Consultation.

Methods: Prospective epidemiological study of patients with OSA who were prescribed PAP (between 3 and 24 months of therapy) in patients followed at the Sleep Medicine consultation between March 2019 and June 2021. A total of 228 patients were included, with Resmed® model S10 CPAP devices, with residual apnea detection algorithm, mean therapy pressure and number of hours of daily use. The Airview® software has the algorithm validated. Patients underwent level 1, 2 or 3 polysomnography that confirmed the diagnosis of OSA. In patients in whom OSA with clinical indication for treatment was detected, therapy by PAP (CPAP/Auto-CPAP) was proposed, among others, and in the included patients, telemonitoring was proposed with the collection of the respective informed consent. Patients who accepted these conditions were included. After placing the PAP equipment on telemonitoring, patients were reassessed with consultation at 3, 6, 12 and 24 months of therapy, in person or by teleconsultation, the latter driven by the current period of pandemic to COVID-19.

Results: A total of 228 patients were evaluated, 155 men and 73 women, with a mean adherence of 5.28 hours (min 0 and max 11).

The residual AHI of patients on therapy was on average 2.32/hour (min: 0 and max: 12.5). Of these 44 were in CPAP mode, 179 in Auto-CPAP, 2 in NIV, another 2 in auto-bilevel) and 1 in Servoventilation. The Auto-CPAP Pressure in 95% of the nights (P95) averaged was 12.7 cm of H2O, with a minimum of 6 and a maximum of 15 cm of H2O. In June 2021, at 3 months 30 patients, at 6 months 56 patients , at 12 months 59 and at 24 months 83 patients were included, with the average daily use being, respectively: 4.30, 5.18, 5.40 and 5.47 hours. The mean residual AHI was respectively: 2.09, 1.81, 2.27 and 2.65/hour. We achieved a good adaptation to therapy in 209 patients (91%) and 19 dropped out of therapy.
Conclusions: In patients with a confirmed diagnosis of OSA treated by PAP, the use of telemonitoring should be considered to improve follow-up and therapeutic adjustment, promoting better compliance with the therapy. In this study, Airview® was considered a useful tool, capable of preventing early dropouts , allowed us to understand its influence on the control of residual events and promoting its particular usefulness during a pandemic, often avoiding the need for health professionals to travel to patients homes, without compromising their adherence.

***Keywords**: Telemonitoring. OSA. Airview®.*

PE 030. THE CHALLENGING DIAGNOSIS OF A PATIENT WITH A VERY SEVERE LUNG OBSTRUCTION

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Case report: 36-year-old man, non-smoker, works as a green meat cutter. Episodes of coughing and wheezing in childhood, with asymptomatic period until 2009, when he reported having persistent productive cough, wheezing, exertional dyspnea and chest tightness, with worsening of complaints during the night and morning. After worsening of these symptoms, he was sent to a Pulmonology consultation. He had been medicated for the last 5 years with fluticasone 250 μg and salmeterol 50 μg, with moderate improvement of symptoms. The pulmonary auscultation had a globally diminished ventricular murmur, with crackles in the lower 1/3 bilaterally. He had peripheral oxygen saturation of 91%, and the arterial blood gas analysis revealed a global respiratory failure. Further diagnostic studies identified a very severe lung obstruction with hyperinflation, and a slight decrease in DLCO in the lung function tests. The chest CT scan revealed tubular bronchiectasis in both upper lobes and apical segments of the lower lobes, with thickened walls and mucoid impaction, in addition to centrilobular micronodules with a diffuse bilateral mosaic pattern and mediastinal adenopathies, the largest subcarinal measuring 14 mm. The analytical and autoimmune study only revealed a slight increase in eosinophils. In bacteriological examination of sputum, a multisensitive Pseudomonas Aeruginosa was isolated, and an eradication cycle was prescribed with ciprofloxacin for 21 days. After showing little symptomatic improvement in later evaluations, a sweat test was requested, with NaCl values indicating a probable cystic fibrosis (114 mEq/L NaCl). It was requested a genetic study, with the panel of mutations for the CTFR gene identifying heterozygous genes for c.1521_1523delCTT (formerly F508del) and c. 254G>A (formerly G85E), which confirmed the diagnosis of cystic fibrosis. The patient was later sent for a specialized cystic fibrosis consultation at the Hospital de Santa Maria.
Discussion: The typical form of cystic fibrosis is diagnosed early in life and diagnosis at a later age is often associated with mild lung disease. A high index of suspicion is needed to make the diagnosis, as older patients with cystic fibrosis can appear to be well and have symptoms similar to other diseases. With advances in gene detection, adult cystic fibrosis diagnoses are increasing. A timely diagnosis of cystic fibrosis is important, as it has prognostic and treatment implications, in addition to being able to lead to genetic counseling in families.

***Keywords**: Cystic fibrosis. Lung obstruction. Genetic study.*

PE 031. ACCESS TO PULMONARY REHABILITATION: PERSPECTIVES OF PATIENTS, LOVED ONES AND HEALTHCARE PROFESSIONALS

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Introduction: Improving access to pulmonary rehabilitation (PR) is an international priority, but due to several constraints, healthcare professionals are often faced with the challenge of having to prioritise patients. Evidence from quantitative research suggests that symptoms, functional and health status and not lung function should guide referrals to pulmonary rehabilitation (PR). Whether these criteria are corroborated by the opinions of different stakeholders remains unknown. This qualitative study explored criteria, barriers and facilitators to access PR from the perspectives of people with chronic respiratory disease (CRD), loved ones and healthcare professionals.
Methods: An exploratory, cross-sectional qualitative study was carried out. Focus groups were conducted separately with people with CRD, loved ones and healthcare professionals; transcribed verbatim and analysed thematically. All participants had previous experience with PR.
Results: Seven focus groups were conducted: four with people with CRD (24 with chronic obstructive pulmonary disease and 5 with interstitial lung disease, 75.9% male, 68.4 ± 7.5 years); one with loved ones (n = 5, 100% female, 66.6 ± 7.7 years) and two with healthcare professionals (n = 16, 25% male, 38 ± 9.2 years). Perspectives among stakeholders were mostly consensual and organised in three themes: all people with CRD should have access to PR and as early as possible "Universal access"; if prioritisation is needed then priority should be given to those motivated, with high symptom burden and impaired functional status "Priority to those struggling and motivated"; and education about PR and continuity and communication between care settings and professionals are lacking to improve access to PR "Communication, dissemination and organisation as main keys".
Conclusions: Our findings corroborate previous evidence and provide new and complementary in-depth understanding to design interventions to improve access to PR in line with the perspectives of different stakeholders.

***Keywords**: Access to pulmonary rehabilitation. Chronic respiratory disease. Informal caregivers. Qualitative methods.*

PE 032. MEASUREMENT TOOLS TO ASSESS EDUCATION AND PSYCHOSOCIAL SUPPORT OF PULMONARY REHABILITATION IN PEOPLE WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE – A SYSTEMATIC LITERATURE REVIEW

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Introduction and objectives: Education and psychosocial support is a core component of pulmonary rehabilitation (PR). Nevertheless, measurement tools used to assess the effects of this component of PR have been scarcely investigated. Thus, this systematic literature review aimed to identify which measurement tools have been used to assess education and psychosocial support of PR in people with chronic obstructive pulmonary disease (COPD.)
Methods: A systematic search was conducted on PubMed, Scopus and Web of Science in February 2021. Articles were screened and inclu-

sion decided by two independent researchers. Randomised control studies, quasi-experimental and pre-post studies, which included people with COPD enrolled in a PR programme, with exercise and education and psychosocial support, were included. The same two independent researchers extracted the data to a standardised table.
Results: A total of 7112 studies were screened and 9 studies were included. 1121 people with COPD (68.69 ± 8.98 years old, 30.78% female, FEV1pp 53.25 ± 19.04%) were enrolled in the included studies. A total of 9 measurement tools were identified and the most reported was the Bristol COPD Knowledge Questionnaire (BCKQ) (n = 3, 33.3%). Other measurement tools were found, such as the Patient Activation Measure (PAM) (n = 1, 11.1%), the Education Specific Questionnaire (ESQ) (n = 1, 11.1%), the Lung Information Needs Questionnaire (LINQ) (n = 1, 11.1%), the COPD Knowledge Test (n = 1, 11.1%), the Pulmonary Disease Knowledge Test (PDKT) (n = 1, 11.1%), the Health Education Impact Questionnaire (heiQ) (n = 1, 11.1%), the Understanding COPD Questionnaire (UCOPD) (n = 1, 11.1%) and the Knowledge Assessment Questionnaire (n = 1, 11.1%).
Conclusions: This review has shown that there are nine measurement tools available to assess the effects of education and psychosocial support of PR in people with COPD. The most reported has been the BCKQ however, few studies assessing this component in PR programmes have been conducted. Given the importance of education and psychosocial support of PR for people with COPD, future research is urgently needed to provide recommendations on the most suitable measurement tools and promote its routine assessment.

Keywords: *Respiratory rehabilitation. COPD. Education program. Psychosocial intervention.*

PE 033. LEIRIA´S MUTATION

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Alpha-1 antitrypsin (AAT) deficiency is an autosomal codominant disease caused by multiple mutations in the SERPINA 1 gene. Belongs to the group of Protase Inhibitors (PI) and Pi*MM corresponds to homozygosity of the normal gene. The deficit appears in adults, essentially, with Chronic Obstructive Pulmonary Disease (COPD) and Emphysema in adults and these changes are potentiated by smoking. The minimum serum concentration considered protective is 57 mg/dl by nephelometry and 80 mg/dl by radial immunodiffusion. To date, more than 120 mutations in SERPINA1 are described in the literature. Female, 46 years old, ex-smoker (37 PPY). No known family history. In a Pulmonology consultation since 2012 for Asthma and COPD and alpha-1 antitrypsin deficiency, referred to Leiria Hospital for change of residence. Medicated with Formoterol, Salbutamol, Ipratropium Bromide and Aminophylline with a moderate/severe annual flare-up. In consultation, had complaints of dyspnea (mMRC2) and recurrent wheezing. Respiratory function tests showed very severe obstruction (FEV1 30%; FEV1/FVC 45%; DLCO 40%) with hypoxemia (pO2 66 mmHg). Chest computed tomography showed centrilobular and panlobular emphysema with greater expression in the lower lobes. Serum AAT concentration was < 5 mg/dl and the phenotype study Pi*MZ. As there appeared to be some disagreement between the patient's symptoms and the AAT levels, a genotypic study was continued which showed a ZQ0L mutation. The allele targeted by Q0L corresponded to a substitution of glutamic acid for lysine at position 342 of the protein. It is a severe deficiency allele associated with intracellular accumulation in the endoplasmic reticulum and reduced protein secretion by about 80%. It corresponds to a new variant characterized by the occurrence of a Glu (GAG) -Stop (TAG) mutation in an M3 base allele. This mutation is not described in the literature.

Keywords: *Alpha-1 antitrypsin. Mutation.*

PE 034. ALPHA-1 ANTITRYPSIN DEFICIENCY AND PREGNANCY – A CASE REPORT

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Introduction: Alpha-1 antitrypsin deficiency (A1AD) is the most recognized genetic cause of chronic obstructive pulmonary disease (COPD). There is some evidence about the potential role of alpha-1 antitrypsin (AAT) in the regulation of the immune system and in gestation. A severe deficit may lead to a decline in maternal lung function and fetal growth impairment. Few cases of pregnancy in women with A1AD were reported, but there is some evidence pointing to a higher abortion rate, preterm labor, and worse maternal health related outcomes.
Case report: The authors present the case of a 39-year-old primigravida, previous smoker, with a history of severe A1AD (ZZ genotype) and COPD with severe flow obstruction. At the time of diagnosis, she was medicated with inhaled bronchodilators and corticosteroid. She had serum levels of AAT of 15 mg/dL and forced expiratory volume in the first second (FEV1) of 990 ml (less than 40% of predicted). At 30 weeks of gestation she complained of increased shortness of breath. Lung function tests and arterial blood gas were stable. 24-hour oximetry showed desaturation (~85%) with exertion and in the nocturnal period, so supplementary oxygen (O2) was initiated. At 33 weeks of gestation she was admitted to the Obstetrics ward due to perception of diminished fetal movements and fetal growth restriction. Polysomnographic study showed mild sleep apnea (AHI = 13.7/h); treatment with APAP was initiated, with partial improvement of nocturnal hypoxemia, so supplemental O2 was added. Transthoracic echocardiogram was normal. Due to fetal and maternal risk, an elective cesarean section was performed at 36 weeks, with no reported complications. The newborn presented with low birth weight (2170 g), and an Apgar score of 9/10/10 regarding the 1st, 5th and 10th minutes, respectively, with normal blood gas. Shortly after delivery the patient presented with mild clinical deterioration, but additional therapy was not needed. She was discharged with an O2 prescription for exertion and APAP with O2 supplement. In the following Obstetric and Pulmonology appointments she showed progressive improvement of her respiratory complaints, and lung function was overall stable. The patient is currently undergoing further evaluation of her respiratory disease. She is awaiting approval for AAT augmentation therapy and was referred to a respiratory rehabilitation program.
Discussion: This case illustrates the difficulties of managing an uncommon combination of pregnancy in a patient with severe A1AD and functional respiratory impairment. Patients with A1AD in a reproductive age should receive counselling regarding potential risks associated with pregnancy and the importance of smoking cessation. Follow-up of these patients should focus on monitoring symptoms and preventing future exacerbations.

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

PE 035. GENERALISED BRONCHIECTASIS AND SEVERE ALPHA-1-ANTITRYPSIN DEFICIENCY: CONCERNING A CLINICAL CASE

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Introduction: Alpha-1 antitrypsin (AAT) deficiency is the most frequent inherited abnormality in adults and a risk factor for disease in several organs, the most frequent being chronic pulmonary disorders. There are more than 100 described mutations in this gene, but the homozygous genotype of the Z allele (PiZZ) contributes to the majority of clinically identified severe deficits. Although the

classical phenotype of lung disease due to severe AAT deficiency is early COPD, often associated with panlobar basal emphysema, lung involvement is heterogeneous. The authors present a case of severe AAT deficiency with a less frequent clinical phenotype.
Case report: A 62-year-old male, non-smoker, but with environmental exposure to tobacco smoke during childhood and adolescence (his father was a heavy smoker) and with no previous history of respiratory infections or significant respiratory diseases or others. The patient sought consultation for non-progressive exertional dyspnea with around 3 years of evolution and following a persistent cough with around half a year duration after a short period with a mucous sputum. His father, a smoker, had been diagnosed with bronchial asthma, and had died at 62 following an acute myocardial infarction. Pulmonary auscultation showed inspiratory crackles in the basal region of the lung, and the remaining physical examination was normal. Chest CT revealed generalized bronchiectasis, with thickened bronchial walls and mild centrilobular emphysema, and a respiratory functional study showed a moderate obstructive alteration with post-BD FEV1 66% with negative bronchodilation test, SB DLco 61% and RV/TLC 129%. With these alterations the cause for the bronchiectasis was pursued. AAT dosage of 24 mg/dL and genotyping with the detection of the Z allele in apparent homozygosity with the remaining study negative. As the father was already deceased and given the pulmonary alterations found, the diagnosis of severe AAT deficiency with PiZZ genotype was assumed.
Discussion: he search for diagnosis only in patients with the classical phenotype contributes to underdiagnosis and insufficient knowledge of the pulmonary changes and their clinical evolution, limiting the possibilities of effective treatment of all lung diseases associated with AAT deficiency. Several studies suggest an association between severe AAT deficiency and bronchiectasis, but the mechanism causing its advent is not clear. There are four national and international guidelines on Non Cystic Fibrosis Bronchiectasis and only the Portuguese Pulmonology Society guideline includes serum AAT dosage in the initial etiological study of bronchiectasis. With the case presented here, we intend to draw attention to the importance of diagnosing AAT deficiency as a rare etiology of bronchiectasis.

***Keywords**: Bronchiectasis. Alpha-1-antitrypsin.*

PE 036. HIGH FLOW NASAL THERAPY IN HYPERCAPNIC RESPIRATORY FAILURE DUE TO BRONCHIECTASIS – A THERAPY WHEN THERE IS CONTRAINDICATION FOR NIMV?

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Introduction: High flow nasal therapy (HFNT) is an oxygen delivery system that provides heated and humidified air by nasal cannula. There is increasing evidence of benefits in chronic obstructive pulmonary disease with chronic hypoxemic respiratory failure (RF), being increasingly applied in other cases, including hypercapnic RF. It provides a continuous flow of oxygen and a positive expiratory pressure (up to 6 cmH2O), allowing improvement in gas exchange and reduction of breathing work. This is a promising therapy in cases of bronchiectasis, as it allows an improvement in mucociliary clearance, reduction of exacerbations, increased time to new exacerbation and improvement of quality of life and comfort scores. In cases of bronchiectasis with PaCO2 > 50 mmHg, non-invasive mechanical ventilation (NIMV) is usually the option of choice. However, in severe cases of cystic emphysematous bullae, the use of NIMV may be contraindicated given the risk of iatrogenesis, whereas HFNT is an alternative that is still being studied.
Case report: A 19-year-old woman with bronchiectasis in the context of primary immunodeficiency (hyper IgE phenotype), with recurrent respiratory infections since 3 months age and multiple hospitalizations, with evolution to macrocystic bronchiectasis/pneumatocele, determining the excision of pulmonary cyst in left lower lobe at 4 years and later left lower lobectomy. Chronic infection due to *Pseudomonas aeruginosa*, under inhaled tobramycin and regular cycles of oral and intravenous antibiotherapy, with frequent episodes of exacerbation. She had very severe obstructive ventilatory disorder (FEV1 26.9%) and is currently on the list for lung transplantation. After evolving to chronic hypoxemic RF, long-term oxygen therapy for 24 hours (2 L/min at rest and setting 5 at walk) was started. Later, we verified progressive evolution of her condition, developing hypercapnic RF, with indication to NIMV. Given the severe involvement of lung parenchyma with multiple bilateral varicose and cystic bronchiectasis, some cysts measuring 10.5 cm and 5 cm of diameter and considering the high risk of pneumothorax due to NIMV use, HFNT was started as long-term therapy. The patient started HFNT (Airvo 2, flow 35 L/min and fiO2 32%, T 31 ºC) in laboratory. We verified significant clinical improvement with good tolerance and adaptation to HNFT. There was a significant reduction in transcutaneous CO2 from 54 mmHg to 47 mmHg, with resolution of nocturnal hypoxemia. No exacerbations after 3 months of treatment were verified.
Discussion: Although there are few scientific studies, the use of HNFT in patients with bronchiectasis is potentially promising as it provides airway humidification with benefits in mucociliary clearance, working as a positive expiratory pressure. As demonstrated by this clinical case, HNFT may be an important alternative in patients with chronic hypercapnic RF, when NIMV is contraindicated.

***Keywords**: High flow nasal therapy. Bronchiectasis. Respiratory failure.*

PE 037. ANTI-IL5 THERAPY AS A NOVEL THERAPEUTIC AGENT IN THE OVERLAP BETWEEN BRONCHIECTASIS AND SEVERE ASTHMA: A CASE REPORT

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Introduction: Bronchiectasis associated with severe uncontrolled asthma might be considered as an emerging phenotype described in type 2 asthma endotype, characterized by patients with severe, late-onset eosinophilic asthma, associated to higher number of exacerbations/year, blood eosinophilia, more severe obstruction to air flow (FEV1/FVC and FEV1), poorer response to ICS requiring more frequently bursts of systemic corticosteroids and increased mortality.
Methods and results: The authors present a case of a 46 years old non-smoker woman with allergic asthma and rhinitis. Since the age of 30, she had recurrent respiratory infections. She had an asthma control test score (ACT) of 12, blood eosinophilia (380 × 10^9/L), increased total IgE (168 U/mL), small airway obstruction with FEV1 88%, associated to pulmonary hyperinflation and a negative bronchodilation test. The DLCO was decreased with normal DLCO/VA. She reached 83% of the predicted distance on the six minute walk test. The HRCT presented fibrotic changes of the left upper lobe and the basal and posterior segments of the left lower lobe, with cylindric and varicose bronchiectasis in more than three lobes, bilaterally. She was submitted to bronchofibroscopy with ampicillin-resistant Moraxella catarrhalis isolation. Other etiologies associated with bronchiectasis and severe asthma complications, like ABPA were excluded. After therapeutic optimization with ICS/LABA at maximum doses, LAMA, anti-leukotriene, nasal steroids, mucolytics, physiotherapy, annual influenza and pneumococcal vaccination, there was a slight symptomatic improvement. Despite therapeutic optimization she developed recurrent peripheral eosinophilia (540 × 10^9/L) and multiple respiratory exacerbations, with episodes of dyspnoea and fever associated with an increased volume and puru-

lence of secretions managed with several courses of antibiotics and systemic steroids over the years, even after the introduction of xanthine, nebulized hypertonic saline and long-term macrolide therapy, no significant clinical response was observed. There was a progressive decrease in FEV1 (51%) with emergence of moderate bronchial obstruction, persistent pulmonary hyperinflation and increased airway resistance, associated with worsening of ACT score (5). It was admitted bronchiectasis with eosinophilic endotype (FACED score 2, BSI score 4) with multiple exacerbations. After optimizing therapy for aggravating comorbidities and exclusion of associated complications, the patient started the anti-IL5 (mepolizumab), presenting excellent response with increment of ACT score (25), reduction of blood eosinophilia (200 × 10^9/L), decreased exacerbations frequency (1 exacerbation), 32% increase of pre-bronchodilator FEV1 (FEV1 83%) and a significant increase in exercise tolerance.
Conclusions: The authors highlight the importance of the bronchiectasis and severe eosinophilic asthma overlap, since it is a phenotype which symptom's control and therapeutic optimization are vital to modify patients' prognosis, preventing future exacerbations, functional impairment, improving quality of life and survival. This case confirms the efficiency of IL-5 as a therapeutic target in eosinophilic bronchiectasis. In the Era of precision medicine it is essential to promote the development of new directed therapies, like anti-IL-5, based on the phenotype, endotype and treatable traits of patients with overlap between bronchiectasis and severe asthma.

Keywords: *Bronchiectasis. Severe asthma. Anti-Il5.*

PE 038. TUBERCULOSIS AND CO-MORBIDITY MANAGEMENT – THE CHALLENGE

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Introduction: Elderly people have an increased risk of infections due to physiological changes associated with aging. Tuberculosis cases in the elderly have increased.
Case report: 85-year-old woman, leucodermic, partially dependent on daily living activities, with a history of Alzheimer's disease, valvular and hypertensive heart failure, hypertension, depressive syndrome, anemia, pulmonary tuberculosis at 40 years of age with pleuro-pulmonary sequelae. Medicated with Budesonide 200 ug bid, Formoterol 12 ug bid, Memantine 10 mg id, Amitriptyline 25 mg id, Paroxetine 20 mg id, Bromazepam 1.5 mg id, Amlodipine/Valsartan 5/80 mg id, Fenofibrate 267 mg id, Indapamide 2.5 mg id. The patient went to the emergency department (ED) due to discomfort and swelling of the right anterior chest wall, asthenia, anorexia, and weight loss of 10 kg in 2 months. She denied coughing, expectoration, and night sweats. On physical examination, she was normotensive and normocardic, afebrile, and eupneic on room air with 95% of peripheral oxygen saturation. She presented with a swelling adjacent to the right breast with 12 × 9 cm, elastic consistency, adherent to the deep planes, and without signs of inflammation. Chest CT showed a collection next to the right breast measuring 99 × 79 mm, with calcifications, with a probable starting point in the 3rd chondrocostal cartilage. Bilateral fibro-retractable changes and extensive pleural calcifications. The hypothesis of chondrosarcoma of the third right anterior costal arch was considered, and the patient was referred to Oncology. We performed a guided CT biopsy, the histological evaluation revealed: necrosis, neutrophils, some lymphocytes, and macrophages. No granulomas or neoplastic cells were present. The exudate was acid-fast bacillus (AFB) smear negative. The nucleic acid amplification test for Mycobacterium tuberculosis was positive and identified an inHA mutation. The patient was referred to the Pneumological Diagnostics Center. Sputum mycobacterial cultures were negative. The patient started treatment with Rifampicin, Ethambutol, Pyrazinamide, and Levofloxacin. She presented poor tolerance to antitubercular medications, with complaints of feeling sick, nausea, and vomiting. We added metoclopramide to therapy. After 10 days of treatment, due to persisting feeling of malaise, she suspended treatment. That same day, she went to the ER. On admission, she had SpO2 93% at room air, afebrile, hemodynamically stable. Pale. Cardiopulmonary auscultation: S1+S2 rhythmic. Lung sounds were decreased in the lower 2/3 of the right hemithorax, with inspiratory crackles. Symmetrical edema of the hands and lower limbs, up to lower half of the legs. Blood results showed no leukocytosis or neutrophilia, Hb 9.5 g/dl, Htc 28.2%, Na 118 mEq/L, PCR 4.9 mg/dL, brain natriuretic peptide 3,001 pg/mL, troponin 335 ng/L, folic acid 2.7 ng/mL, iron 36 ng/dL. Without other relevant changes. AFB smear in gastric juice was negative. We assumed uncompensated heart failure in a probable context of therapeutic insufficiency or non-compliance and type 2 acute myocardial infarction. Despite optimization of cardiac therapy, correction of vitamin and protein deficits, and reintroduction of anti-TB drugs, the patient presented clinical deterioration and died.
Discussion: Managing elderly patients is challenging because of comorbidities, polymedication, and physiological changes related to aging. A global approach and closer surveillance of these patients may be essential for the stabilization of coexisting pathologies and, so, for a favorable outcome.

Keywords: *Extrapulmonary tuberculosis. Elderly. Comorbidities.*

PE 039. LIVING IN COMMUNITY – LIVING WITH MYCOBACTERIUM TUBERCULOSIS

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Introduction: Tuberculosis (TB) is a public health problem. Early diagnosis and rapid contact tracing are critical to halting spread in the community.
Case report: 46-year-old man, with a history of paranoid schizophrenia medicated with risperidone 1 mg/day and paliperidone 525 mg every three months, hepatitis C virus infection, smoker of 40 package years, drug addict, without drug use for 10-years, HIV negative, resident in a community that supports homeless people and with social vulnerability. He went to the family doctor twice, due to productive cough, with about one year of evolution, which had worsened in the last 6 months. He also presented non quantified weight loss. He was medicated symptomatically. Due to persistent complaints and fever (38 ºC) in the last 5-days, he went to the emergency department. The patient denied dyspnea, hemoptysis, and night sweats. He had no known COVID-19 contacts. On physical examination, he had low weight , 37.7 ºC, eupneic on room air with SpO2 98%, pulmonary auscultation reveled rude lung sounds. Without other relevant changes. RT-PCR SARS-CoV-2 was negative. Chest imaging showed bilateral and extensive micronodular pattern in both upper lobes, middle lobe, and left lower lobe and several cavitated lesions in both upper lobes, the largest in the right vertex with 4 cm of the longest axis. Sputum acid-fast bacillus smear and nucleic acid amplification test for *Mycobacterium tuberculosis* were positive. Without molecular resistances identified. We assumed bacilliferous cavitating pulmonary tuberculosis. The patient started antituberculous medications, with Isoniazid, Rifampicin, Pyrazinamide, and Ethambutol. Cultural examination revealed multi sensitive *Mycobacterium tuberculosis*. The average delay between the first contact with the health care system and the diagnosis was 173 days. In the contact screening, we evaluated 76 people, most of them male (n 65; 85.5%). We identified four men (5.3%) having disease, three with pulmonary tuberculosis and one with intrathoracic lymph node disease. They started antituberculous drugs. We

also identified 25 (32.9%) contacts with latent TB infection, most of them male (n 24; 96%). The median age presented was 59 years (min. 35; max. 67 years). All started treatment for latent TB. The mean time between diagnosis of the index case and diagnosis of contact disease was 83 days.
Discussion: The delay in the diagnosis and patient's vulnerability, namely alcoholic and toxic habits and mental illnesses, in a semi-closed community, resulted in the outbreak.

Keywords: *Community. Mental disease. Tuberculosis. Outbreak.*

PE 040. OCULAR TUBERCULOSIS - A DIAGNOSTIC CHALLENGE

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Introduction: Ocular tuberculosis (OTB) is a heterogeneous and nonspecific entity that may involve several ocular compartments. It occurs mostly in adults and by hematogenous dissemination from the primary focus that is generally unidentified. Immunocompromised individuals have a higher risk of developing TBO, with a higher incidence of extrapulmonary involvement in patients co-infected with HIV (> 50%). OTB is generally a presumptive diagnosis, on one hand because of the difficulty in performing biopsies and high risk of blindness, on the other hand because ocular involvement may consist of inflammation due to a cellular hypersensitivity reaction caused by circulating antituberculous antibodies. Thus, it is usually an exclusion diagnosis where clinical-demographic context is decisive.
Case report: Female teenager, 15-years-old, born in Guinea-Bissau, student. No known history of contact with tuberculosis (TB). She had a BCG vaccine scar (inoculation date unknown). She was evacuated to Portugal in March/2021 to be observed in Ophthalmology consultation (OFT). At that time, she was diagnosed with bilateral anterior uveitis and expansive scleral lesion in the nasal quadrant of the left eye (LE), in evolution for 1 year, associated with a marked decrease in visual acuity (VA). She started topical treatment with dexamethasone and tropicamide and was admitted to the Pediatrics service for the etiological study of the scleral lesion. To characterize it, MRI of the skull, orbit and face was performed, where a slight flattening of the internal contour of the external eyeball stood out, with no evidence of alteration in the locoregional scleral thickness; inflammatory filling of the tympanic-mastoid bilateral; no changes in the optic nerve, brain parenchyma, cerebellum, brainstem, or extrinsic ocular musculature. From the analytical investigation we highlight: complete blood count, peripheral blood smear, kidney and liver function without alterations, SV 8 mg/dL, PCR 0.18 mg/dL, total proteins 8.9 g/dL; proteinogram with slight gamma-globulin elevation (2%); negative infectious serologies (HIV, hepatitis, toxoplasmosis, syphilis, *Borrelia*); negative autoimmune study; normal lysozyme, ECA 65.2; positive IGRA; positive Mantoux (17 mm). She was again observed by the ophthalmology where the previous ocular lesions were found to be more severe, without response to topical therapy. Chest X-ray did not show acute pleuroparenchymal lesions. During hospitalization she only had complaints of decreased VA and bilateral hearing loss, without respiratory or constitutional symptoms. A scleral TBO (TBOE) diagnosis was made. She was referred to the Pneumonology Diagnosis Center and started anti-bacillary treatment (HRZE).
Discussion: We present a case of an adolescent with OTB manifestations, coming from a TB endemic region, with positive IGRA and Mantoux, without manifestations of systemic TB or other infectious or autoimmune causes. According to Agrawal et al., COTS Consensus Guidelines for TBU, 2020, the case is compatible with a presumptive diagnosis of OTB where the clinical-demographic context is preponderant. OTB is a rare entity in children, whose incidence in pediatrics is minimal (~1-2%). It does not respond to anti-inflammatory treatment, so clinical suspicion is crucial, as it is a treatable and curable entity, with a risk of irreversible VA impairment.

Keywords: *Ocular tuberculosis. Adolescence.*

PE 041. TUBERCULOSIS IN THE VERY ELDERLY PATIENT - THE EXPERIENCE OF A REFERENCE CENTER

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Introduction: The immune system senescence increases the susceptibility to infections. Concerning infection by Mycobacterium tuberculosis, elderly are more vulnerable to developing extrapulmonary and atypical forms of the disease.
Methods: Retrospective analysis of the national registry forms of tuberculosis (TB) patients with ≥ 80 years old, newly diagnosed, and treated in the Lisbon area from 2016 to 2019.
Results: We evaluated 101 patients, excluded 23 for having latent TB infection. We analyzed 78 patients, the mean age was 84.7 ± 3.4 years, and 59% (n 46) were male. The average delay between the onset of symptoms and diagnosis was 106.6 days. Women had a greater delay in diagnosis compared to men (112 *vs.* 103 days; $p < 0.05$). Diabetes (20.5%; n 16), oncologic disease (15.4%; n 12), chronic obstructive pulmonary disease (7.7%; n 6), and chronic renal disease (6.4%; n 5) were the main comorbidities found. Most patients had pulmonary tuberculosis (61.5%; n 48), of these 29.2% (n 14) had cavitation on chest x-ray and 43.8% (n 21) were bacilliferous. Patients with chest cavitation had lower time between symptom onset and the diagnosis (72.6 *vs.* 115.1 days; $p < 0.05$). 38.5% had EPTB, most patients had pleural TB (36.7%), followed by lymphatic (30.0%) and genitourinary (16.7%). Most patients completed treatment (71.8%) and 3.8% (n 3) dropped out. The mortality rate was 20.5% (n 16), there was no statistical difference between gender. From our analysis, female gender had higher odds of having chest cavitation (OR F/M 0.752 [95%CI 0.242-2.335; $p = 0.621$]) and mortality (Odd ratio F/M 0.632[95%CI 0.209-1.907; $p = 0.413$]) but not statistically different.
Conclusions: Our findings reveal that pulmonary TB was the most frequent form of the disease. Most patients completed treatment. Women had an increased delay in diagnosis. Their prognosis seems worse when cavitations with extensive forms of the disease are present. Being alert to this diagnosis in the elderly is crucial. A delay in diagnosis and advanced forms can compromise the outcome.

Keywords: *Tuberculosis. Elderly. Geriatric.*

PE 042. IMPACT OF THE COVID-19 PANDEMIC ON THE FUNCTIONING OF TUBERCULOSIS OUTPATIENT CENTERS IN PORTUGAL

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Introduction: The COVID-19 pandemic has fetched several challenges in the functioning of different healthcare units. Outpatient Tuberculosis centers (OTBCs) had to find new strategies in order to maintain patient care, while complying with all safety and hygiene standards stablished by the Directorate-General of Health (DGH). Having this into consideration, we aimed to understand (1) how the different OTBC have adapted to the newly infection control norms and standards, and (2) what was the OTBC's coordinators' perception regarding their centers' responsiveness during the pandemic and its impact on tuberculosis management.

Methods: Descriptive cross-sectional study, based on the application of an electronic questionnaire to the coordinators of each OTBC, in Portugal. The questionnaire consisted of 32 questions, divided into three sections: a) demographic questions; b) hygiene and safety measures during the pandemic; and c) evaluation of the functioning of the OTBC in two distinct periods: during the 1st State of Emergency, and after 1 year.
Results: Thirty-two responses were obtained from a total of 61 coordinators (52.5%). The most represented Regional Health Administrations (RHA) were RHA Alentejo and RHA Algarve, with a 66.7% response rate each. Surgical masks and alcoholic solution (SABA) are provided to healthcare professionals in all OTBCs, but FFP2 masks are not supplied in 2 centers. In other 2 centers, patients are not provided with surgical masks or SABA. In 83.9% of all OTBCs, there is a contingency plan for the management of cases with suspected or confirmed diagnosis of COVID-19. The majority (81.3%) consider that their OTBC complies with the safety standards established by the DGH. Comparing the functioning of the OTBCs during the 1st State of Emergency and after 1 year, responders refer consultations (face-to-face and/or telephonic) were globally maintained in both periods. Almost 60% report limitations in the number of daily consultations, although only 6.3% refer delays in scheduling new appointments. About 22% considered that patient follow-up was not adequate in the 1st State of Emergency, in contrast to 15.6% after 1 year. Half of the respondents (53.1%) believe that there were delays in the diagnosis of active disease in the 1st State of Emergency, rising to 68.8% after 1 year. The use of Directly Observed Doses (DOT) was variable; only 31.3% of OTBC's performed DOT face-to-face in all patients during the 1st State of Emergency, as opposed to 59.4% after 1 year. Screening of risk contacts was not performed at the appropriate time in 41.9% during the 1st SE, decreasing to 9.7% after 1 year. Screening of risk patients who are candidates for biological therapy was always carried out in both periods, and only 1 OTBC did not initiate treatments for latent tuberculosis. Finally, half the inquiries believe that the pandemic will lead to an increase in the incidence of tuberculosis in Portugal.
Conclusions: Overall, most OTBC's were able to follow the norms published by the DGH and maintain screenings and treatments of latent disease during the pandemic. Attention should be given to reported delays in diagnosis and obstacles in DOT implementation.

Keywords: *Tuberculosis. COVID-19. Dot. Active disease.*

PE 043. *ASPERGILLUS* INFECTION IN A LUNG TRANSPLANT PATIENT

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Introduction: Lung transplant patients have a high incidence of Aspergillus infection compared to other solid organ transplants. Most of these infections occur in the first few months after transplantation.
Case report: A 61-year-old female, diagnosed with fibrotic hypersensitivity pneumonitis and medicated with mycophenolate mofetil (MMF), rituximab and corticotherapy. She underwent bipulmonary transplantation under extra corporeal membrane oxygenation (ECMO) in January 2020. She was immunosuppressed with tacrolimus, MMF and prednisolone, and did not undergo induction immunosuppressive therapy; under prophylaxis with anidulafungin and then with inhaled lipid amphotericin B. A bronchoscopy was performed, and *Aspergillus fumigatus* was isolated in the bronchoalveolar lavage (BAL) and, consequently, therapy was changed to voriconazole. However, due to the persistence of this agent in BAL, caspofungin was associated. Due to hepatotoxicity, voriconazole was changed to isavuconazole. Posteriorly, *A. fumigatus* was isolated in the pleural fluid and in the surgical wound exudate of the thoracotomy. Due to the persistence of the agent in the pleural fluid, despite the systemic antifungal therapy instituted, pleural lavages with voriconazole were performed. Blood cultures were persistently negative throughout the hospital stay. Despite all the therapy, there was a clinical deterioration, and the patient died due to a fungal infection by *A. fumigatus*.
Discussion: This case intended to alert to the fact that antifungal prophylaxis is important but does not prevent the development of disease and constitutes a poor prognosis due to *Aspergillus* infection.

Keywords: *Lung transplant.* Aspergillus fumigatus. *Infection. Fungus.*

PE 044. CMV PNEUMONIA IN AN IMMUNOCOMPETENT ADULT - A RARE DIAGNOSIS

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Introduction: Cytomegalovirus (CMV) infection in immunocompetent adults is usually asymptomatic or self-limited, whereas severe infections are rare and poorly documented in the literature. When described, the gastrointestinal tract and central nervous system are the most frequent sites of severe CMV infection.
Case report: A 39-year-old Caucasian woman, non-smoker, with acne, medicated with isotretinoin for 4 months, referred to the ER for dyspnea (mMRC4), fever (38.5 ºC), myalgias, dry cough, submandibular adenopathies, bilateral ocular pruritus and conjunctival hyperemia with 48h of evolution. Objectively, the patient presented oedema in the parotid region, polypneic at rest (RR 25 cpm), SPO2 94% and pulmonary auscultation with a rough vesicular murmur and bibasal crepitations. Analyses showed lymphopenia (700 lymphocytes/mm^3), increased transaminases (AST 636, ALT 855), increased C-reactive protein (PCR 215) and negative procalcitonin (0.2 ng/mL). Antigenurys for S. pneumoniae and Legionella negative. Negative serologies (HIV, HBV, HCV). Negative SARS-CoV-2 test (RT-PCR). Arterial blood gas analysis (room air) with hypoxemia: pH 7.44; pCO2 31 mmHg; pO2 62 mmHg; HCO3 23 mmHg; Sat.O2 93%. The chest X-ray showed infiltrates, more evident at the bases, and the chest CT revealed the presence of multiple nodular opacities scattered throughout the lung parenchyma, as well as areas with ground glass pattern especially at the level of the posterobasal segments. The patient was admitted to the Pneumology ward with bilateral pneumonia of unclear etiology, and empirical therapy was started with ceftriaxone 2 g id and azithromycin 500 mg id. In the following 48 hours, there was clinical worsening with need for supplementary oxygen therapy with FiO2 60% (PaO2/FiO2 ratio: 190) and radiological deterioration with increase of ground glass areas and interstitial densification, findings that led to a suspicion of SARS-CoV-2 pneumonia. Given the clinical deterioration, the patient was transferred to an intermediate care unit, where SARS-CoV-2 was again tested and found negative. After the positive result of CMV serology (IgM and IgG) was known, ganciclovir 5 mg/Kg of 12/12h (750 mg/day) and corticotherapy in high doses (methylprednisolone 150 mg/day) were initiated. There was a progressive clinical respiratory improvement. The patient returned to the Pneumology ward after 48 hours for continued treatment, maintaining the same ophthalmological complaints that she had mentioned at the admission to the ER, with reference to blurred vision. Ophthalmic assessment revealed bilateral conjunctivitis with corneal epitheliopathy, compatible with CMV infection. Topical ofloxacin was started and previously administered antiviral therapy was maintained for 14 days. The patient was clinically stabilized and discharged from the hospital. At the re-evaluation appointment, the patient was asymptomatic, with CT without significant changes and normal Respiratory Function Tests.
Discussion: Severe CMV infection in immunocompetent adults with pulmonary involvement is a rare but not negligible event. While in a

pandemic state, there is a greater possibility of confusion and delay in the diagnosis of viral pneumonias other than COVID-19, since SARS-CoV-2 pneumonia is always the first option when facing an image with these characteristics in an immunocompetent patient.

***Keywords**: Pneumonia. CMV. SARS-CoV-2.*

PE 045. CLINICAL AND ECONOMIC BURDEN OF INVASIVE PNEUMOCOCCAL DISEASE AT HOSPITAL LEVEL IN PORTUGAL – RATIONALE AND DESIGN OF THE SPHERE STUDY FROM ITS ADULT PATIENT PERSPECTIVE

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Introduction: The prevalence of the different serotypes of Streptococcus pneumoniae in Portugal has been the subject of several publications, however the clinical and economic burden of Invasive Pneumococcal Disease (IPD) at the hospital level in Portugal remains poorly studied, particularly in the adult population.
Objectives: To evaluate the casuistry, incidence rate, lethality rate and burden associated with IPD in adult inpatients, namely in pulmonology, internal medicine, infectiology and/or intensive care units, in 8 Portuguese hospitals.
Methods: Observational, retrospective, and multicenter study. The clinical records of adult patients (aged ≥ 18 years) with IPD, admitted to 8 national hospitals during the period January 1, 2017 - December 31, 2018 and who were discharged during the same period, will be reviewed. The study will include a one-year follow-up period after discharge for each patient enrolled (through December 2019). Sociodemographic data, comorbidities, data on IPD and on the use of healthcare resources will be collected. Clinical characteristics and economic burden will be compared, based on the various variables analyzed. Sample calculation was performed based on clinical and epidemiological estimates. The inclusion of 238-318 adult patients is anticipated, representing approximately 45-60% of the total number of adult IPD cases hospitalized in Portugal during the entire study period.
Results: After identifying the centers to be included, based on their distribution throughout the mainland national territory and epidemiology, they were invited to participate starting July 2021. After acceptance, the study protocol will be submitted to the respective ethics committees and administration boards of institutions. After approval and subsequent initiation visits, sites will have 3 months for data collection.
Conclusions: The results of this study will allow the measurement of the impact of this disease and the associated burden. It is hoped that the data collected will contribute to highlighting the importance of preventive measures, better-informed decision-making and, ultimately, improving the clinical outcomes of IPD.

***Keywords**: Invasive pneumococcal disease.*

PE 046. PULMONARY NOCARDIOSIS - A TRICKY DIAGNOSIS

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Introduction: Nocardiosis is a rare bacterial infection caused by *Nocardia* spp. Despite being considered an opportunistic infection, it can occur in immunocompetent patients, with the lung being one of the main organs affected. Its imaging presentation is highly variable, from pulmonary nodules to consolidations, cavitated masses or pleural effusions, which is why it is often confused with other infectious pathologies or malignancy.
Case report: Male, 73-year-old, former smoker 45 UMA, history of chronic bronchitis, arterial hypertension, stroke 12 years ago, dyslipidemia and anxiety. Medicated with glycopyrronium, perindopril/indapamide, acetylsalicylic acid, omeprazole, simvastatin, amitriptyline and estazolam. Referred from his family doctor for chest CT imaging of suspected pulmonary condensation. Clinically, he presented cough and hemoptoic sputum over 6 months, without dyspnea or constitutional symptoms. On examination, he had no fever, with decreased breath sounds in the lower right 1/3. Analytically without leukocytosis, PCR 82.7 mg/L, no other relevant changes. The CXR showed heterogeneous hypotransparency at the right base, coincident on CT Chest with parenchymal condensation in the right lower lobe (6 cm), with a hypodense area inside suggestive of small cavitation, and associated with mediastinal adenopathies. Transthoracic biopsy revealed a chronic inflammatory infiltrate and, with Gomori and Grocott staining, numerous fine, filamentous and branching microorganisms were identified, compatible with infection by Nocardia spp, without cytological atypia. Sputum did not allow microbiological isolation. BAAR search was negative. The patient refused bronchoscopy. It was decided hospitalization for intravenous antibiotic therapy with Trimethoprim/Sulfamethoxazole (TMP/SMX). After 4 weeks of treatment, given the good clinical response and radiological improvement, he was discharged with maintenance of oral antibiotic therapy (TMP/SMX 160/800 mg 2id). A 6-month reassessment CT shows fundamentally sequelae, maintaining an area of coarse and irregular densification with disorganization of the surrounding tissue. The patient is currently completing the course of antibiotic therapy and under surveillance.
Discussion: We present a rare case of *Nocardia* Pneumonia in an immunocompetent individual who initially presented as suspicion of lung cancer. Given the nonspecificity of symptoms, the diagnosis in this case depended on histological examination. Since microbiological isolation that would allow sensitivity testing was not possible, the treatment was based on empirical antibiotic therapy in accordance with the recommendations published in the literature, which include intravenous therapy with trimethoprim/sulfamethoxazole for at least 3 weeks, followed by oral therapy. The total duration of treatment is not consensual and depends on the clinical evolution, which can last for 12 months in the most severe cases. Monitoring and close follow-up of these cases is essential, not only to assess the response to antibiotic therapy but also its adverse effects. The prognosis mainly depends on the extent of the disease and the presence of comorbidities. An early diagnosis, together with the timely beginning of treatment and its prolonged duration, are associated with a reduction in mortality and risk of relapse.

***Keywords**: Nocardiosis. Pulmonary infection. Nocardia.*

PE 047. AN UNEXPECTED ENDOSCOPIC FINDING

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Introduction: Septic pulmonary embolism (SPE) is manifested by fever, dyspnea, chest pain and cough and has unique imaging findings, such as nodules, patchy infiltrates, cavity and pleural effusion. Most blood cultures isolate methicillin-resistant and methicillin-sensitive *Staphylococcus aureus* (MSSA and MRSA), followed by *Fusobacteria, Klebsiella pneumoniae, Candida* and *Streptococcus viridans*. Treatment is usually with antibiotics for 4 to 9 weeks and is highly recommended the early removal of infected lesions, indwelling catheters or cardiac devices. SPE is associated with high mortality (~10%) and remains a diagnostic challenge in clinical practice due to its insidious onset, nonspecific clinical manifestations and life-threatening complications.
Case report: 69-years-old man, former smoker, with a medical history of arterial hypertension, benign prostatic hyperplasia, MALT type marginal zone lymphoma of ileon in complete remission for 10 years ago and nasopharyngeal carcinoma without residual disease

in the past 3 years. He went to the emergency department with progressively worsening asthenia and malaise with two weeks evolution. On examination, the patient was hemodinamically stable, afebrile and without respiratory distress. He was admited to the Internal Medicine Ward for study of pancytopenia (Hemoglobin 11.3 g/dL, Leukocytes 1.6 × 10^9/L, Neutrophils 1.04 × 10^9/L, Platelets 71 × 10^9/L) and hyponatremia (120 mmol/L). He was diagnosed with syndrome of inappropriate antidiuretic hormone secretion from urine biochemistry. Bone marrow aspirate and medullogram were normal. Treatment was initiated with filgastrim, water restriction and loop diuretics with saline. Methicillin susceptible *Staphylococcus aureus* was isolated in urine, sputum and blood cultures. Since the bacteremia, the patient started adjusted antibiotic therapy and underwent an echocardiogram that was normal. Positron-emission tomography (PET) showed several hypermetabolic nodular lesions across the pulmonary parenchyma of varying dimensions and heterogeneous muscle lesions dispersed throughout the trunk, upper and lower limbs. Thoracoabdominopelvic CT (TAP CT) revealed multiple nodular images in the lung parenchyma and markedly enlarged and heterogeneous right psoas. Hypogammaglobulinemia and normal viral serologies were revealed. He was submitted to videobronchoscopy that revealed whitish pedicled lesions in the intermediate bronchus and in the carina between the medial segmental bronchus and the basal branches of the right lower lobe. Bronchial aspirate isolated multidrug-Resistant *Enterobacter cloacae* and bronchial biopsies revealed non-specific bronchial inflammation. A SPE was admitted and intravenous immunoglobulin G was administered after multidisciplinary discussion. TAP CT after 10 weeks since admission showed only a nodule on the left upper lobe. The patient was followed up in the Immunoallergology, Pulmonology and Hematology out-patient clinics. Five months after, the patient maintained clinical stability and PET showed dimensional reduction of the lung nodules without relevant FDG-F18 uptake and absence of muscle lesions.

Discussion: SPE is a rare type of pulmonary embolism but a serious disease. Early diagnosis and treatment of SPE are important but this was hindered by the presence of unspecified and non-focused complaints. One of the confusing factors w.as that it was a case of SPE with no recognized major risk (such as intravenous drug use). Computed tomography and bronchoscopy are essential in the diagnosis and for monitoring of therapeutic response. These exams are also helpful to exclude noninfectious diseases.

***Keywords**: Septic pulmonary embolism. Bronchoscopy.*

PE 048. A RARE CAUSE FOR RECURRENT BRONCHOPULMONARY INFECTIONS

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Case report: 60-year-old male, woodworker and active smoker since he was 16 years old. Appears in pulmonology consultation for chronic purulent sputum and recurrent respiratory infections, including a pneumonia complicated by pleural effusion, and weight loss, 4 kg in the last 3 months. Patient denied tiredness, wheezing, hemoptysis and complained of dyspnea during respiratory infections. Absence of symptoms during exertion, but reports worsening of symptoms during the last year, after cleaning the attic. On physical examination, only the presence of two thoracic lipomas and an overall decrease in respiratory sounds were registered. Laboratory tests highlighting specific IgE of inhaled allergens positive for fungi and yeasts. PFR with mild obstruction unresponsive to inhaled bronchodilator. Normal CO diffusion. X-ray with enlargement of the air column at the level of the trachea. CT-AR showing dimensional prominence of the tracheobronchial tree, transverse tracheal diameter of approximately 36 mm, suggestive image of a small diverticulum in the posterolateral wall of the trachea. Acinar emphysema in the LID, central cylindrical bronchiectasis with endoluminal content and parietal thickening, and areas of subpleural parenchymal densification probably related to atelectasis. Fiberoptic bronchoscopy with tracheobronchomegaly, marked hypertrophy of the submucosal glands, plug of purulent secretions and mucosa with inflammatory signs. Bronchial aspirate positive for Ampicillin-sensitive *pneumococci* and *H. influenzae*, and negative for *M. tuberculosis* DNA and neoplastic cells. This investigation led to the diagnosis of tracheobronchomegaly or Mounier-Kuhn syndrome. The patient was medicated with anti-pneumococcal vaccine, admitted to respiratory rehabilitation for training with Flutter and rescheduled follow-up appointments.

Discussion: Tracheobronchomegaly is a rare condition of uncertain etiology that consists of a congenital or acquired atrophy of the connective tissue and muscle layer of the trachea and bronchi leading to marked dilation of these structures, tracheal diverticula, central bronchiectasis, emphysema and impairment of the cough mechanism and mucociliary clearance with consequent recurrent bronchopulmonary infections. The clinical presentation is nonspecific, the diagnosis is usually obtained by imaging exams, and treatment is limited to respiratory physiotherapy, antibiotics during exacerbations, and tracheal stents in cases of advanced disease. In this clinical case, the symptoms started years before the diagnosis and were dominated by respiratory infections, with two of them motivating hospitalization. Despite multiple X-rays performed in the emergency department and at the general practitioner, the enlargement of the air column was overlooked or not valued, which caused a delay in the diagnosis and in the beginning of chemoprophylaxis. Therefore, this syndrome should be considered in the differential diagnosis of recurrent respiratory infections and small X-ray findings should be valued.

***Keywords**: Respiratory infections. Imagiology. Tracheobronchomegaly.*

PE 049. BRAIN ABSCESSES SECONDARY TO LUNG ABSCESSES

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Introduction: Lung parenchyma infection, malignancy and infarction are the most common causes of cavitated lung lesions. Lung cavitation may present as chronic and asymptomatic and may be a substrate for infections as they alter the mucociliary clearance.

Case report: The authors report the case of a 62-year-old male, smoker (50 pack year), with a history of chronic alcoholism, pulmonary aspergilloma in 2017 without any targeted therapy and sequelae of right pulmonary cavitation. He went to the Emergency Department for 3 days left upper limb monoplegia. He did not have any other symptoms, neither respiratory nor constitutional. C-Reactive Protein of 137 mg/L stood out in the blood analysis. Brain CT showed an expansive cystic/necrotic lesion in the right frontoparietal cortex with perifocal vasogenic edema. Chest CT showed a massive cavitation in the right lung field, about 10 cm in diameter, with a small area of liquefaction and two cavitated lesions in the left upper lobe, the largest measuring 2.3 cm. He started piperacillin/tazobactam empirically after microbiological screening (which was negative) and was admitted to the Pulmonology ward. He performed cranioencephalic MRI which revealed 3 expansive lesions that raised the suspicion of pyogenic abscesses due to their imaging characteristics. The patient was transferred to Neurosurgery for surgical approach and complete drainage of these lesions. The microbiological study of the lesions revealed *Eikenella corrodens*, multi-sensitive. Thus, targeted antibiotic therapy with ceftriaxone

and metronidazole was initiated. As the neurologic symptoms improved, the patient was again transferred to the Pulmonology ward where he continued the therapeutic regimen. He underwent a videobronchofibroscopy which showed generalized atrophy of the entire tracheobronchial tree with numerous mucoceles. The microbiology and cytology of the bronchoalveolar lavage fluid were negative. After 1 month of therapy, he performed a chest CT where a slight improvement of the upper lobe cavitations and maintenance of the right cavitation was evident. As these lesions were still present, transthoracic lung biopsy was proposed for anatomic-pathological study, which the patient refused. He maintained the antibiotic for 2 months, with a switch to levofloxacin (14 days) and clarithromycin (28 days) for hospital discharge. The patient kept follow up in Pulmonology consultation where a chest CT was requested for imagiological control.

Discussion: Brain abscess is a focal intracranial infection that progresses to a purulent collection surrounded by a vascularized capsule. It is a rare disease, secondary to trauma, postoperative complication, dissemination from a contiguous or distant foci. The most common foci for hematogenous dissemination are pulmonary, pelvic and intra-abdominal suppurations, which usually lead to multiple and multiloculated brain abscesses. Facultative anaerobic bacteria, such as *Eikenella corrodens*, are the most frequent microorganisms of brain abscesses secondary to lung abscesses. The therapeutic approach to brain abscesses usually involves surgical drainage and prolonged antibiotic therapy, as in the present case.

Keywords: *Lung abscesses. Brain abscesses.*

PE 050. PULMONARY NOCARDIOSIS IN AN IMMUNOCOMPETENT PATIENT: THE SUCCESS OF PERSEVERANCE

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Introduction: Nocardiosis is an infection caused by *Nocardia* species, typically in immunocompromised individuals and often complicated with dissemination to the central nervous system. The current clinical case describes an exclusively pulmonary nocardiosis in an immunocompetent individual.

Case report: A 68-year-old male was referred to a Pulmonology Consultation, by his general practitioner, after two pneumonias within three months, which were treated with amoxicillin and clavulanic acid and levofloxacin respectively. The patient worked in public health and lived in a rural area, with exposure to chickens and cats and mentioned that, from time to time, he also saw rats on his property. He was an ex-smoker for 35 years (3 units pack year) and had abnormal fasting blood glucose, dyslipidemia and hypertension. He had no history of other previous respiratory infections, including tuberculosis. He was also not vaccinated with the flu or pneumococcal vaccines. The patient had easy excessive sweating with small efforts during the day associated with bouts of coughing, sometimes dry, sometimes with a yellowish sputum. There were no constitutional symptoms or night sweats and no changes in the physical exam. The most recent thorax computed tomography (CT) scan dated half a year ago and described tenuous ground-glass infiltrates in the right upper lobe, of a nonspecific nature, but with a probable infectious etiology, as well as a 5 mm intercisural nodule with regular contours. Electro and echocardiograms were normal. The sputum collected for micro and mycobacteriology had no isolations and the respiratory function study was normal. The patient repeated the chest CT scan that documented resolution of the ground-glass changes, dimensional stability of the nodule previously described, and a new one with 4 mm in the middle lobe. One year after follow-up, the cough and excessive sweating persisted, but there were no further infectious complications. He repeated the chest CT scan, which, in addition to the already known and dimensionally stable micronodules, reported the presence of several tenuous micronodularities in the periphery of the lower left lobe. He collected sputum once again, which mycobacteriological analysis made it possible to isolate partially acid-alcohol resistant structures, identified as *Nocardia africana*. The patient immediately started treatment with cotrimoxazole 10 mg/Kg/day and, after 20 weeks of treatment, he described a complete resolution of all symptoms.

Discussion: Nocardiosis is a rare disease, particularly in immunocompetent individuals, and results from aspiration or inhalation of *Nocardia* from water, soil or vegetation. It usually causes severe disease in immunocompromised individuals, however in immunocompetent patients the disease is usually moderate and long lasting. Differential diagnosis with tuberculosis is essential, particularly given the similarities between the two, both clinically and radiologically, in addition to being caused by slow-growing acid-alcohol resistant bacilli. The clinical presentation is variable and nonspecific, but productive cough with a yellowish sputum is common. Chest radiographic findings include pleural effusion, multiple pulmonary nodules and airspace consolidations, with or without cavitation. The first-line of treatment is cotrimoxazol, and prognosis is more favorable in immunocompetent individuals with limited disease.

Keywords: *Pulmonary nocardiosis. Immunocompetent.* Mycobacterium tuberculosis.

PE 051. HERPES ZOSTER PNEUMONIA: FROM CUTANEOUS VESICLES TO TRACHEOBRONCHIAL VESICLES

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Introduction: Varicella-zoster virus (VZV) infection can cause two distinct clinical entities: primary infection (chickenpox) or latent virus reactivation (shingles); and its diagnosis is essentially clinical. The probability of virus reactivation, as well as the clinical course of the disease, are directly influenced by the patient's immune system, where age, pregnancy, the presence of autoimmune pathology or iatrogenic immunosuppression are the main risk factors. Up to 10% of immunocompromised patients with cutaneous herpes zoster (HZ) can have visceral spread of the disease to other organs like the lungs, liver, brain or gastrointestinal tract.

Case report: We report the case of an 80-year-old woman with history of dermatomyositis associated with Ro52 with pulmonary involvement, sequelae bronchiectasis in the context of past pulmonary tuberculosis, arterial hypertension, non-insulin-treated type 2 diabetes mellitus and dyslipidemia. With a history of chickenpox in childhood. Immunosuppressed status by chronic medication with mycophenolate mofetil and prednisolone. The patient went to the emergency department due to erythematous and vesicular lesions in the right lower limb, with pruritus and purulent exudate, as well as accompanying homolateral pain intensity 8/10 with 1 week of duration. Already medicated with flucloxacillin (on D7) in an outpatient clinic. The diagnosis of an area with bacterial over-infection was assumed, having been medicated with acyclovir and escalating antibiotic therapy for piperacillin/tazobactam. On the second day of hospitalization, clinical worsening was observed, with the development of dyspnea, dry cough and partial respiratory failure. A chest X-ray showed bilateral and peripheral interstitial infiltrates, more evident in the left lung field. Videobronchoscopy revealed plugs of thick bronchial secretions at the level of the right upper lobe and lesions at the level of the tracheal mucosa and left main bronchus, compatible with herpes zoster. Considering the identification of herpetic lesions in the tracheobronchial tree and assuming an area with dissemination to

the respiratory system, therapy with acyclovir was extended and was carried out for 21 days. During the therapeutic course, there was clinical, analytical and radiological improvement. A new control videobronchofibroscopy was performed, in which there was complete resolution of the previously disseminated vesicular lesions. Bronchial secretions whose bacteriological examination were negative were collected.
Discussion: Immunosuppression is a well-known risk factor for VZV reactivation, as well as for disease severity. Thus, the diagnosis of shingles in these patients should alert us to the greater possibility of developing a more aggressive course of the disease and more complications associated with it. One of these complications is visceral dissemination, namely to the tracheobronchial tree. This case highlights the need of a quick and early diagnosis of these complications so that they can be properly identified and addressed. The identification of herpetic lesions in more than one dermatome in an immunocompromised patient, together with the development of respiratory symptoms should alert us to the possibility of pneumonia to HZ.

***Keywords**: Herpes zoster. Acyclovir. Videobronchoscopy.*

PE 052. INSIDE ASPERGILLUS' CAVITY – REGARDING A CLINICAL CASE

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Introduction: *Aspergillus* spp. is a ubiquitous saprophytic fungus that can be found in several locations. The most relevant species to humans is *A. fumigatus*, since it is the one that most frequently causes infections. The spectrum of infection by *Aspergillus* is wide and can vary between hypersensitivity reactions (allergic bronchopulmonary aspergillosis, for example) and invasive forms in immunocompromised patients, passing by more localized forms in immunocompetent individuals. Of the latest, aspergilloma is the most frequent in patients with previous structural lung disease.
Case report: We present the case of a 64-year-old Caucasian male, with pronounced smoking habits (> 80 pack-year) and without known past tuberculosis or other respiratory diseases. He came to our ER with complaints of progressive tiredness, productive cough with mucopurulent expectoration, and weight loss with 3 months of evolution. His laboratory results showed anemia, leukocytosis and neutrophilia, and elevation of inflammatory parameters. A chest CT was performed revealing a basal area of consolidation with air bronchogram on the right, associated with homolateral septate and heterogenous pleural effusion, as well as other structural alterations, of which stood out a cavity on the apical-posterior segment of the left upper lobe with an image on the interior that presented a change of position with ventral decubitus, suggesting an inhabited cavity. Pneumonia complicated with empyema on the right was assumed, as well as a likely aspergilloma on the left. The patient was admitted to treatment. Drainage of the pleural effusion was performed, as well as a flexible bronchoscopy which allowed the observation of a cavern containing a mass from which samples were collected, allowing the isolation of *A. fumigatus*. After the resolution of the right pneumonia and empyema, the patient was referenced to Thoracic Surgery and a left upper lobectomy was performed.
Discussion: An aspergilloma is constituted by an agglomerate of hypha, mucous, fibrin, and cellular debris which generally arises associated with pre-existing cavities, especially in the context of previous tuberculosis. It is most common in middle-aged men that can be asymptomatic or present with chronic productive cough. It can also cause hemoptysis, which can be fatal. Radiologically, it manifests by an oval mass on the upper lobes, that can have an air crescent sign and that varies with position. In very small aspergillomas it can assume the appearance of a nodule, demanding the differential diagnosis with neoplasia. Treatment is generally performed in symptomatic patients, and surgery is usually curative. In patients with limited pulmonary function, antifungals can be used although with more limited success. We present this case as an opportunity for a theoretical revision about this theme that, despite being relatively common in patients with structural lung disease, is not commonly observed in daily clinical practice. The bronchoscopic observation of the aspergilloma is also not frequently achieved as was in this case. The spectrum of disease by *Aspergillus* is also very wide and can assume several forms according to the basal immune status of the patient being studied.

***Keywords**: Aspergilloma. Flexible bronchoscopy. Fungal infection.*

PE 053. GROUND GLASS OPACITIES IN A POST-COVID-19 PATIENT: A CASE OF CMV PNEUMONITIS

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Introduction: Cytomegalovirus (CMV) pneumonitis is a life-threatening viral pneumonitis, which occurs predominantly in immunocompromised patients and is characterized by dyspnea and fever. In patients recovering from COVID-19 infection, CT-scan images demonstrating bilateral ground glass lung opacification are a common finding.
Case report: A 59-year-old immunosuppressed patient due to chronic lymphocytic leukemia and hypogammaglobulinemia, with a history of severe COVID-19 with bacterial superinfection two months prior, was admitted to the emergency department due to a week of worsening dyspnea, non-productive cough, fever, night sweats, myalgia, arthralgia and headache. On physical examination, the patient was febrile and tachypneic. There was a reduction in the respiratory sounds on the right inferior field and splenomegaly was found on the abdominal palpation. On blood work, leukocytosis (with stable lymphocytosis) and elevated CRP (6.87 mg/dL) were found. On chest radiograph, there was an infiltrate on the inferior third of the lower right field. The differential diagnoses of pneumonia in an immunocompromised patient and post COVID-19 organizing pneumonia were taken into consideration. The patient was started on empiric antibiotherapy and was admitted to the Pulmonology ward. During hospital stay, the patient performed a thoracic CT-scan, which revealed "scattered bilateral areas of ground-glass opacification, involving 25-50% of lung parenchyma". The patient also performed a bronchoscopy, with a bronchoalveolar lavage, which was positive for CMV DNA. The presence of Pneumocystis jirovecii was not detected. The diagnosis of CMV Pneumonitis was then confirmed and the patient was started on ganciclovir. The patient was successfully discharged after undetectable serum viral load, clinical and radiological improvement following nine days of ganciclovir (which was switched to valganciclovir for treatment continuation in an outpatient setting).
Discussion: Here we describe a case of CMV pneumonitis mimicking a post COVID-19 organizing pneumonia. Assuming post COVID-19 organizing pneumonia to be the cause of bilateral ground glass opacities without further investigation may be life-threatening. CMV pneumonitis should, thus, be considered in the differential diagnoses of immunosuppressed patients presenting with respiratory symptoms and samples should be promptly sent for CMV DNA PCR detection in order to initiate the appropriate treatment and improve prognosis.

***Keywords**: CMV pneumonitis. Post-COVID organizing pneumonia.*

PE 054. HAMMAN´S SYNDROME - PERFECTLY SPONTANEOUS

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Introduction: Hamman´s syndrome or Macklin syndrome is an idiopathic rare entity that might be encountered in young adults, most of them asymptomatic.
Objectives: We share a clinical case and a review of the literature.
Methods: We describe a 29-year-old patient, active smoker that comes to the emergency department with complaints of dyspnea, throat discomfort, right cervical, pleuritic pain and fever. No trauma history, flight or diving activities. Physical examination was consistent with subcutaneous emphysema on cervical region and right hemithorax. Arterial blood gases showed: pH 7.41, pCO2 41.0 mmHg, pO2 96.6 mmHg, Lac 0.9 mmol/L, HCO3- 25.5 mmol/L, SO2c 97.7% Blood tests without leucocythosis and negative C-reative protein. SARS-CoV-2 PCR negative on nasopharyngeal swab. Chest X-Ray did not show evidence of pneumothorax and Cervical X-Ray revealed subcutaneous emphysema more accentuated on the right. We requested a Chest HRCT and observed exuberant subcutaneous emphysema on the chest wall bilaterally infiltrating the cervical tissues up to the middle region of the neck. Also, there was exuberant pneumomediastinum reaching all the compartments. Patient was admitted in ward for conservative therapy (analgesic therapy and oxygen therapy to accelerate air absorption). There were not any endobronchial alterations during a diagnostic bronchoscopy. He was discharged after a few days, without any sequel or symptoms.
Conclusions: Hamman´s syndrome (spontaneous pneumomediastinum with subcutaneous emphysema) is a syndrome of unknown origin and treated in most cases with a conservative approach. In some rare cases it can cause hemodynamic compromise by cardiac tamponade.

Keywords: *Hamman. Pneumomediastinum. Subcutaneous emphysema.*

PE 055. THYMOMA - WHAT ABOUT OTHER LUNG TUMORS? CLINICAL CASE

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Introduction: Thymoma is a rare tumor of the anterior mediastinum originating from epithelial cells of the thymus. It can manifest by thoracic and constitutional symptoms and be associated with myasthenia gravis or other autoimmune diseases. Differential diagnoses include lymphoma, germ cell tumors, thyroid tumor, and metastases from other neoplasms.
Case report: 53-year-old woman with a history of type B2 thymoma, initial stage Masaoka III, diagnosed in 2015. Underwent surgery via sternotomy with en bloc excision of the mediastinal mass, pericardium and a segment of the upper lobe of the left lung due to pulmonary metastasis and pericardial and phrenic nerve ligation by local invasion, followed by adjuvant radiotherapy. As sequelae of these treatments she developed radic pneumonitis, a restrictive ventilatory syndrome secondary to paralysis of the diaphragm due to injury to the left phrenic nerve and lymphedema of the left upper limb, due to ligation of the internal mammary artery and vein. There was disease progression with pleural metastization evidenced by PET and confirmed by biopsy, and it was decided to maintain clinical surveillance due to the impossibility of re-operating, re-irradiating or performing cryoablation. Later, she started complaining of dyspnea, asthenia, left chest pain and symptoms suggestive of myasthenia gravis (eyelid flutter and decreased leg strength) associated with an increase in serum anti-acetylcholine receptor antibodies, under treatment with pyridostigmine. Radiologically, left pleural effusion (PE) of small/medium volume appeared, so she underwent palliative chemotherapy with cisplatin, doxorubicin and cyclophosphamide and due to disease progression performed a second line treatment with pemetrexed and paclitaxel. She went to the ER for dyspnea at rest, orthopnea, left chest pain and hypoxemic respiratory failure (RF). The chest X-ray showed total opacity of the left hemithorax and CT revealed mediastinal adenomegaly and left large volume PE conditioning complete atelectasis of the lung and contralateral mediastinal tilt, pleural thickening, two extensive pleural masses suggestive of carcinomatosis and multiple nodules in the right lung. A chest tube was placed with an outflow of 1,300 cc hematic pleural fluid, an exudate, amicrobial, negative for neoplastic cells, without a significant improvement in symptoms or RF. She presented progressive clinical worsening and given the irreversibility and progression of the oncological disease comfort measures were decided.
Discussion: We present a case of a patient hospitalized with a large-volume pleural effusion and uncontrolled symptoms resulting from the progression of a rare chest tumor - thymoma, with an unfavorable outcome.

Keywords: *Thymoma.*

PE 056. LIVING WITH EPISTAXIS - A CASE REPORT

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Introduction: Pulmonary arteriovenous malformations (AVM) are rare and result from abnormal communication between the arterial and venous system, resulting in a right-left shunt. This shunt can compromise oxygenation, predispose to infections, strokes, and myocardial infarctions.
Case report: We present a case of a 24-year-old woman, leukodermic, computer programmer, non-smoker, with no known diseases and no usual medication. Family history: father and paternal grandmother with history of epistaxis. Since the age of 8-year-old, she has had complaints of recurrent and spontaneous epistaxis every month. She complained, in the winter, when she gets a cold, sputum, sometimes streaked with blood. In addition, the patient had monthly complaints of frontal, ipsilateral, pulsatile headaches with pre-crisis aura. She denied blood loss from the gastrointestinal tract. On physical examination, she was eupneic on room air, with SpO2 98%. Pale skin. Telangiectases of the labial and gingival mucosa. Cardiopulmonary auscultation had no changes. Blood test showed iron deficiency anemia. Chest CT documented bilateral arteriovenous malformations in the pulmonary circulation. The larger arteriovenous communication measuring 16 mm in the superior segment of the lingula; 14 mm in the right upper lobe; 9 mm in the lower lobe of the right lung. Cranioencephalic CT showed ectasis of vascular structures, especially extracerebral venous ones. According to the Curaçao clinical criteria, the patient meets at least three of the four criteria, as the family history is not clear. We assumed the definitive diagnosis of Rendu-Osler-Weber Syndrome. Screening for abdominal visceral vascular lesions was negative. We discussed the case with interventional radiology, and the patient underwent AVM embolization without complications.
Discussion: Hereditary hemorrhagic telangiectasia or Rendu-Osler-Weber syndrome is a multisystemic vascular genetic disease. The main complication of the disease is due to pulmonary AVMs. Treatment includes measures to control epistaxis, iron deficiency anemia, and AVMs embolization, if AVM has the adequate caliber. AVM embolization reduces the risk of complications. In women of child-

bearing age who want to become pregnant, the literature recommends treatment of AVMs before conception.

Keywords: *Arteriovenous malformations. Rendu-Osler-Weber. Embolization.*

PE 057. TUBERCULOSIS AND LUNG CANCER - MIMICRY VERSUS OVERLAP

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ULS Guarda.

Introduction: Tuberculosis remains an important cause of death worldwide, with around 10 million diagnoses being made in 2019, according to the Global Tuberculosis Report 2020 – a number that has been decreasing very slowly in recent years. The early diagnosis of pulmonary tuberculosis (PT) can be difficult, particularly in immunocompromised individuals and extreme age groups, since the clinical manifestations and imaging alterations are nonspecific. These can be similar to those described for other pathologies, such as lung cancer, constituting a problem in diagnosis, delaying treatment and leading to unnecessarily invasive diagnostic techniques.
Case report: Male, 85 years old, self-employed. Personal history of arterial hypertension, bronchiectasis, rhinitis and recurrent respiratory infections in childhood. Family history of PT (father and brother). Ex-smoker of ≈12 pack year. Sent to the Pulmonology consultation after observation in the Emergency Department due to hemoptoic sputum, without respiratory failure and without analytical and/or hemodynamic repercussions. Sputum cultures (bacteriological and mycobacteriological) negative. Chest CT: bronchiectasis with thickening of its walls and fluid filling in the LLL, suggesting superinfection. During follow-up at the consultation, repetition of sputum culture examination came negative. About 3 years after the first described episode, new reports of hemoptoic sputum in association with constitutional symptoms (asthenia, anorexia and unintentional weight loss of 3 kg in 1 month). Chest CT: 10 mm nodule on RUL; densification in the RLL, in the parevertebral gutter, with central hypodensity; subpleural reticular pattern; bronchiectasis in the LLL; adenopathies in the aortopulmonary window, subcarinal and right hilum. He didn't undergo cultural sputum examination as requested. Invasive procedures performed: Fiberoptic bronchoscopy: thickening of the right b10 division spur; Radial EBUS: Identification of eccentric hypoechogenic formation in the proximal 1/3 of right b10. Endobronchial biopsies, distal transbronchial biopsies (radial EBUS) and EBUS-FNA: chronic inflammatory process, with no representation of neoplasia. Bronchial aspirate and brush: negative for neoplastic cells. Bronchial aspirate: positive culture for *Mycobacterium tuberculosis*. PET-18-FDG: RUL densification without uptake; RLL densification with slight uptake; no suspicious hypermetabolic adenopathies. First-line anti-bacillary regimen was started. Last sputum with negative direct examination and NAAT; awaits the result of mycobacteriological culture and reevaluation chest CT.
Discussion: It may be difficult to distinguish PT from neoplasm on the basis of clinical and imaging alone. Both pathologies can present as parenchymal infiltrates with increased metabolic activity and similar clinical features. This case demonstrates the importance of taking this into account, since the diagnosis of PT can be achieved with relatively simple microbiological exams, while the diagnosis of cancer implies the performance of more invasive procedures, with all the complications and costs that may result from this. The fact that the patient did not undergo the requested sputum culture is highlighted, which could have simplified the process. Although in many cases the need to perform invasive procedures remains, it is important to recognize the spectrum of changes that can arise with PT so that a diagnosis can be made as early as possible.

Keywords: *Pulmonary tuberculosis. Lung cancer.*

PE 058. WHAT DO WE KNOW ABOUT PNEUMOTHORAX IN LAM?

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Introduction: Lymphangioleiomyomatosis (LAM) is a rare multisystemic disease of unknown etiology that affects almost exclusively women of pre-menopausal age. It is characterized by the presence of cystic formations in the pulmonary parenchyma and by the obstruction of the airways, blood and lymphatic vessels, with consequent loss of pulmonary function.
Case report: We present the case of a female patient, 37 years old, leucodermic; work as a domestic; with known history of migraine, hospitalization for pneumonia acquired in the community at 33 old and spontaneous pneumothorax in the same year. Denied usual medication. The patient appealed to the Emergency Department for chest pain with pleuritic characteristics, more intense in the left hemithorax, with 10 days of evolution associated with wheezing. He denied coughing, expelling, dyspnea, fever, gastrointestinal symptoms or urinary complaints. Upon physical exam, her vitals were stable, eupneic at rest, without signs of respiratory difficulty, afebrile; the pulmonary auscultation showed a decrease of vesicular murmur in the left hemithorax. No other major changes. Imaging showed a voluminous left pneumothorax conditioning contralateral deviation of the mediastinal structures, and additionally, bilateral cystic images affecting all lung lobes. Abdominal CT was also performed, where a heterogeneous mass suggestive of angiomyolipoma was identified in the infradiaphragmatic region. The patient was hospitalized to perform thoracic drainage that occurred without complications, with pulmonary expansion after the procedure. During hospitalization, a new pneumothorax was observed in the right hemithorax. The patient developed favorably during the hospitalization and performed Tests of Respiratory Function that showed a moderate obstruction to the air flow. She was discharged clinically improved and referred to Pneumology consultation.
Discussion: The appearance of recurrent pneumothorax, pleural effusion, or progressive reduction of exercise tolerance in a woman of childbearing age should raise suspicion of LAM. Pneumothorax is a complication that occurs in 40% of patients, mostly between the 3rd and 4th decades of life, due to rupture of cysts in the pleural space. Patients whose first manifestation of the disease is a pneumothorax are diagnosed earlier than patients in whom dyspnea appears as the first symptom. There is as yet no medical treatment capable of reversing functional changes or halting lung injury. However, hormone therapy or immunosuppressive agents have been shown to be effective in stabilizing lung function. Chemical or surgical pleurodese is the recommended treatment due to the high recurrence of these complications.

Keywords: *Lymphangioleiomyomatosis. Women. Pneumothorax. Angiomyolipoma.*

PE 059. DYSPNEA: WHEN SHOULD WE THINK ABOUT VASCULITIS?

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Introduction: The appearance of late asthma, generally severe and resistant to corticosteroid therapy in a middle-aged adult, associated with peripheral eosinophilia and extrapulmonary complaints, should lead to the suspicion of Eosinophilic Granulomatosis with Polyangiitis.

Case report: We present a clinical case of a 46-year-old male, leucodermic. With known history of tuberculosis treated in childhood and asthma; no other major antecedents. He denied smoking or toxiphilic habits, only reported occasional ethanolic consumption. The patient appealed to the Emergency Department with dyspnea and wheezing, accompanied by productive cough with hemoptotic cough, since 2 months. When asked about other extrapulmonary complaints, he reported feeling paresthesias in the dorsal region of both feet and external face of the legs. Upon physical exam, his vitals were stable, eupneic at rest, with no signs of respiratory difficulty, cardiac frequencies within normal and afebrile. In pulmonary auscultation, the presence of some crackling boils dispersed in both pulmonary fields and, in the lower limbs, symmetric erythematous cutaneous lesions suggestive of vasculitic process. Hypoxemia was evidenced in the blood gas test and in the laboratory analysis the blood count revealed marked eosinophilia associated with proteinuria. Imaging showed multiple densification areas present in both lung fields. Hospitalization was decided to initiate systemic corticosteroid therapy, and the patient developed favorably. The presence of elevated serum pANCA levels was highlighted by the complementary means of diagnosis performed during hospitalization. Transbronchial pulmonary biopsy revealed eosinophil-rich alveolar inflammatory infiltrates. CT of the perinasal sinuses showed suggestive alterations of ethmoidal and frontal polysinusopathy and the electromyogram revealed to be compatible with multiple axonal Mononeuropathy. Eosinophilic granulomatosis with Polyangiitis was admitted and treatment with cyclophosphamide was initiated. The patient was discharged from the clinic referred to the Pneumology consultation.
Discussion: Eosinophilic granulomatosis with polyangiitis is a rare systemic vasculitis, mediated by ANCA (Anti-Cytoplasmic Antibodies of Neutrophils), that reaches small and medium caliver vessels. Clinically, it presents with peripheral eosinophilia, asthma, pulmonary infiltrates and extra-pulmonary involvement, being associated with worse prognosis. It usually occurs in the fifth decade of life and its diagnosis is clinical. The most effective therapy includes corticosteroids and immunosuppressive agents and their early identification and treatment is of utmost importance as it greatly improves the evolution of the disease.

***Keywords**: Dyspnea. Eosinophilia. Vasculitis.*

PE 060. LANGERHANS CELL PULMONARY HISTIOCYTOSIS, A PERTINENT SUSPICION

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Introduction: Langherans cells pulmonar hystiocitosis (LCPH) is a rare disease, of unkown ethiology, heavily associated to smoking habits, that causes severe pulmonary deterioration.
Case report: We present a case of a female patient, 48 years old, leucodermic. Worked as a housekeeper. Smoking habits of 25 Pack-years. Without relevant past personal medical history. This patient came to our hospital's emergency department presenting 3 kg weight lost in the past 2 months and anorexia, apart from productive cough, mostly mucous, and night sweats. No complaints of dyspnea, chest swoarness, fever, gastrointestinal or urinary symptoms. Upon physical exam, her vitals were stable, eupneic at rest, at room air, afebrile, without palpable adenopathy. Pulmonary auscultation showed no significant changes. Blood exams showed slight elevation of inflammatory parameters. In the chest X-Ray it was noticeable a reticulo-nodular diffuse infiltrate in both pulmonary fields. It was planted the hypothesis of pulmonary tuberculosis, pulmonary metastasis from an occult atypia or langerhans cells pulmonar hystocitosis. It was decided to maintain the patient under medical observation for etiology study. During the hospitalization in the service of Pneumology the patient remained hemodynamically stable, eupneic in rest in room air, apiretic. Imaging highlighting reticulo-nodular opacities and multiple small thin-wall cystic formations, some septated at thoracic CT, surrounded by normal parenchyma, very suggestive of Langerhans cell histiocytosis. Broncofibroscopy was performed without gross alterations and the collection of bronchoalveolar lavage went to the laboratory. Smoking cessation was advised and the patient was discharged clinically stable and referred to general Pneumology and thoracic surgery consultation. Later, the clinical suspicion in bronchoalveolar lavage and transbronchial biopsy was confirmed, which revealed nodules with high number of histiocytic cells with positive immunoreactivity for Cd1a and S100.
Discussion: The etiology of HPCL is unknown, but it is known to occur almost exclusively in leucodermic individuals with smoking habits, between 20 and 40 years of age. The incidence in men and women is equal, however women develop the disease later. Symptoms such as dyspnea, non-productive cough, fatigue, fever, weight loss and chest pain should make us think about this pathology. The diagnostic confirmation through imaging exams, bronchoalveolar lavage and transbronchial biopsy allows a more early identification of the disease. The definitive treatment consists of smoking cessation and lung transplantation.

***Keywords**: Langherans cells pulmonar hystiocitosis. Bronchoalveolar lavage. Reticulo-nodular opacities. Langerhans cells.*

PE 061. THERE ARE ARTIFACTS AND ARTIFACTS

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Introduction: A medical artifact is substantially defined by something artificial, which is not naturally present in a complementary means of diagnosis, in optimal conditions. Therefore, in the exercise of our medical activity, we often see various artifacts, namely in imaging exams, as in chest X-rays, in this specific case. There is a multiplicity of artifacts present in X-rays, such as shadows or overlapping structures from different locations, radiopaque objects external to the patient (buttons, necklaces, jewelry), movements of the patient we are studying or the image quality itself which, due to technical conditions, that sometimes it is not sublime, despite the efforts made to make it dissipate as much as possible. In this way, several causes can contribute to a suboptimal image quality, such as errors in the process of the image itself, improper handling of biofilms, the difficulty of mobilizing the patient and the patient's inherent incapacity given their clinical condition, among many others subjects that can become difficult to fight or even impossible. However, "there are artifacts and artifacts" and, in this specific case, the impossibility of some artifacts becomes a cause that we should not accept in the practice of our noble activity, such as Medicine, contributing to the degradation of working conditions, professional demotivation and devaluation of medical activity, as well as possibly contributing to the difficulty of retaining professionals in the National Health Service.
Case report: We present the case of a patient who was admitted to the UCIMC at Hospital Pulido Valente – CHULN and who, on the eve of his transfer and in view of the artifact presented in the daily X-ray, "forced" us to simulate a high-grade "intracardiac surgical excision" with removal of intracavitary, multiple and entangled filiform lesion with left apical pulmonary parenchymal involvement, which would be nothing more than gross avoidable artifacts shown in the image. It forced, therefore, the repetition of the radiography in the same day, with doubling of resources, medical time and radiation emitted to the patient. In this practical case we intend to portray and alert 3 points that we consider essential: i) the exis-

tence of harmful artifacts that consume time and resources; ii) there are artifacts we consider inadmissible by so avoidable they are; iii) the ease which nothing is promoted. In this image, we report a situation, unfortunately frequently increasing, associated with the trivialization of the abnormality. We hope that with this wake-up call we can help to reduce its incidence.

Keywords: *Artifacts.*

PE 062. PNEUMOMEDIASTINUM AND PNEUMOTHORAX IN COVID19 - AN INTENSIVE CARE UNIT EXPERIENCE

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Introduction: Pneumothorax is a complication of SARS-COV2 infection described in up to 1% of cases. Pneumomediastinum is a rare condition, but it has been described in association with this infection and can coexist with pneumothorax. The mechanism of spontaneous pneumomediastinum is not well known, it is thought that it may be related to the diffuse alveolar lesion that occurs in severe pneumonia, rupture of cystic lesions secondary to COVID19 infection, or alveolar rupture of pre-existing blubbles due to Valsalva maneuver by coughing.
Objectives: Identify and characterize cases of pneumomediastinum and/or pneumothorax in patients admitted to the Intensive Care Service (ICS) of Hospital Santo António, with COVID19 since December 2020.
Methods: The identification of patients who during hospitalization due to severe COVID19 had pneumomediastinum as a complication accompanied or not by pneumothorax, from December to August 12, 2021.
Results: Among the 324 patients admitted to the ICS during this period, 5 cases were found, 4 male, aged between 41 and 80 years. Of these, 3 had pneumothorax and pneumomediastinum and 2 only pneumomediastinum. Regarding the respiratory pathological history, one patient had tuberculosis sequelae (with no impact on pulmonary function) and one patient had chronic lung disease not stratified with evidence of centrilobular emphysema on Computed Tomography (CT). The most common clinical presentation was subcutaneous emphysema and in one patient compatible with hypertensive pneumothorax. All cases occurred under mechanical ventilation, within the first 10 days, in patients with extensive bilateral pneumonia. The date of the event, mean plateau pressure was 25 cmH2O, mean driving pressure 15.6 cmH2O, mean FiO2 86%, PO2/FiO2 ratio 179 mmHg. All patients underwent chest CT. Only one patient had chest drainage criteria. Mortality in this sample was 80%, on average on the 18th day after the pneumothorax/pneumomediastinum episode.
Conclusions: All patients were under mechanical ventilation, which itself increases the risk of pneumomediastinum, despite protective ventilation. However, it is known that patients with COVID-19 are at greater risk for the disease, with ARDS itself being a known risk factor. Pneumothorax and pneumomediastinum are complications that, despite being rare, can be associated with a worse prognosis, so the authors emphasize the importance of paying attention to the signs compatible with these diagnoses, to allow quick intervention and greater clinical surveillance.

Keywords: *Pneumomediastinum. Pneumothorax. COVID-19. Intensive care.*

PE 063. POST-COVID ORGANIZING PNEUMONIA – ABOUT A CLINICAL CASE

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Introduction: As a response of the lung parenchyma to aggression, Organizing pneumonia is divided into idiopathic and secondary – with similar clinical and radiological characteristics and outcome. With regard to SARS-CoV-2 infection, Organizational Pneumonia is increasingly recognized as a frequent complication.
Case report: We present the case of a 59-year-old female, housewife, non-smoker and with a history of hypothyroidism and dyslipidemia, who came to the emergency department due to a clinical condition, with two days of evolution, characterized by dyspnea on exertion, dry cough and fever. The clinical history highlighted close contact with a family member with flu-like illness, who had just arrived from abroad and, on physical examination, she was tachypneic and febrile. She performed Thorax teleradiography (with slight bilateral interstitial infiltrate, subpleural predominance), arterial blood gas analysis (with mild partial respiratory failure), analytical study (with leukopenia and neutropenia) and swab test for SARS-CoV-2 - which was positive. Assuming COVID Pneumonia, of mild/moderate severity, she was admitted to hospital and treated with Lopinavir/Ritonavir and Hydrochloroquine (over 11 days). The hospitalization was uneventful and, after 13 days, she was discharged – although without cured. Every 2 months, she was evaluated in a post-COVID consultation. Two months after the SARS-CoV-2 infection, she complained of fatigue and occasional arthralgia. At 4 months of follow-up, she performed a Functional Ventilatory Study (EFV), which was normal. However, in the same period, she presented worsening of tiredness and dyspnea. Other causes were excluded, and Computed Tomography (CT) of the Chest showed alterations compatible with Organizational Pneumonia involving the anterior segment of the Right Upper Lobe (LSD) and basal-posterior segment of the Right Lower Lobe (LID). Corticosteroid therapy was started, scheduled for 6 months, and she improved at the 1st month of treatment. Assessed after suspension of corticosteroid therapy, she was again very symptomatic, with worsening of dyspnea and severe polyarthralgia. Without analytical explanatory changes and normal EFV. On Thoracic CT, resolution of previously identified peripheral consolidations, but development of new opacities, with a similar pattern, in different regions. The case was discussed in a multidisciplinary meeting and systemic corticosteroid therapy was restarted at high doses. As a result, the patient showed clinical improvement, although she developed some of the frequent stigmas of corticotherapy (Hypertension, Hyperglycemia and Obesity).
Discussion: The clinical case is presented to illustrate that even apparently less severe forms of COVID Pneumonia can be associated with post-COVID Organizing pneumonia. The histological pattern is that of lung injury and, similarly to what happens in other contexts, there may be an adequate response to corticosteroid therapy, but simultaneously there may be relapses that require long therapeutic courses – as seen in the case presented here.

Keywords: *SARS-CoV-2 infection. Organizing pneumonia. Corticotherapy.*

PE 064. IMMUNOSUPPRESSION AND COVID-19 "PERSISTENCE"

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Case report: A 77-year-old woman with history of Rheumatoid Arthritis for 40-years with pulmonary involvement (usual interstitial pneumonia described on CT), hypertension, hypothyroidism, dyslipidemia and non-erosive gastropathy. Under treatment with Tocilizumab (4/4 weeks) since 2014 and PDN (10 mg/day). She was a patient with SARS-CoV-2 infection diagnosed on 16/01/2021, followed by Trace COVID-19 with mild/moderate symptoms and discharged on 10/02/2021. She went to a private clinic on 17/02/2021 due to easy tiredness and productive cough a week ago. She was febrile and the chest X-ray showed diffuse heterogeneous bilateral hypotransparencies, being sent to the Faro ER. She performed a CT

that revealed multiple foci of ground-glass opacities, bilateral, peripheral, intralobular septal thickening (crazy paving pattern) and areas of peripheral and bronchocentric consolidation. She was admitted by Internal Medicine for Community-Acquired Pneumonia in the COVID-19 ward, because recent infection in an immunocompromised patient could have a slow viral clearance. She started antibiotics with ceftriaxone + azithromycin. Positive multiplex RT PCR test for Rhinovirus/Enterovirus and SARS-CoV-2 not detected. On 22/2/2021, considering that she accomplished the cure criteria, she was transferred to the Pulmonology Department to an isolation room (negative pressure), awaiting the result of the RT PCR swab for SARS-CoV-2, which was positive. While in Pulmonology due to fever maintenance, antibiotherapy was progressed to piperacycline + tazobactam and gentamicin (8 days) with good clinical and laboratory response. CT chest on 1/3/2021 revealed multiple subpleural band opacities, architectural distortion with fibrosis, leading to traction bronchiectasis, compatible with organizing pneumonia. Antibiotics were suspended and started prednisolone 50 mg/day (15 days), with subsequent weaning. During March and the 1st week of April, 4 SARS-CoV-2 swabs were repeated, with positive result, 2 viral load dosages were made, revealing high values (maintenance of transmissibility). New CT performed on 5/4/2021 showed improvement, ground glass areas less evident than in the previous exam. Allowing to keep corticosteroid weaning. On 9/4/2021 dyspnea progressively worsened with an increasing need for oxygen therapy and fever reappeared. Two days later, nosocomial bacterial superinfection was assumed, cultures were taken and antibiotherapy was started with double antipseudomonas and MRSA coverage. The patient was transferred to the UCI COVID-19 beginning HFNC. She underwent fiberoptic bronchoscopy with BAL collection for *Aspergillus* PCR, search for galactomannan and *Pneumocystis jirovecci* and bronchial lavage for bacteriological, mycobacteriological and cytological examination (with hyphae investigation). Introduced voriconazole. Despite the initial response to treatment, the patient continued to need HFNC and after 11 days antibiotics were discontinued, as did the antifungal (samples results were negative). There was a progressive worsening of the patient and she died the following day.

Discussion: In pandemics, the need to establish "mathematical formulas" to define infected/non-infected patients circuits is undeniable. Cure criteria may allow early contacts and inappropriate use of IPE (transitient). In immunosuppressed patients, the risk of prolonged positivity implies a careful decision of their mobility (as it was done), in order to minimize their potential for contagion.

Keywords: *SARS-CoV-2. Immunosuppression. Viral load. Prolonged isolation.*

PE 065. CLINICAL, FUNCTIONAL AND IMAGING CHARACTERISTICS OF POST-INFECTION BY SARS-COV-2 - CASE SERIES OF THE RESPIRATORY PATHOPHYSIOLOGY LABORATORY OF A UNIVERSITY HOSPITAL CENTER

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Introduction: COVID-19, caused by the new SARS-CoV-2 coronavirus, leads to multiple organic affections, and lung damage is very frequent and important. During the initial period of the pandemic outbreak, investigations focused more on epidemiology, pathophysiology, as well as treatment of the disease. However, knowledge regarding the long-term changes of COVID-19 is still limited.

Conclusions: Analyze and describe the long-term functional changes in patients infected with SARS-CoV-2, correlating them with the initial severity of COVID-19 and with individual patient characteristics.

Methods: Retrospective study, with analysis of clinical data from 89 patients infected with SARS-CoV-2, who, during the follow-up of 3 and 6 months of the disease, underwent functional respiratory control, in a Respiratory Pathophysiology Laboratory of a University Hospital Center, between November 2020 and June 2021.

Results: At the 3-month and 6-month follow-up, respectively, 24% and 2.2% had a restrictive ventilatory pattern, 45% and 19% a normal functional study, 4.5% and 1.1% an obstruction pattern, and 57% and 8% showed increased airway resistance. Regarding the findings of restriction, they occurred mostly in males (81%), Caucasians (86%), with a mean age of 64 years. Considering the most relevant antecedents, 43% had a BMI ≥ 30, 14% had active smoking habits, 38% had a respiratory tract pathology, 57% had hypertension and 29% had diabetes mellitus. 91% were symptomatic at the time of diagnosis of COVID-19, and 86% were hospitalized, with an average of 23 days of hospitalization. The need for supplemental oxygen occurred in 71% (33% with high flow and 13% with invasive mechanical ventilation). It was found that 71% had a pattern of organizing pneumonia, and it was possible to determine an involvement of the lung parenchyma < 50% in 10% and ≥ 50% in 24% (compared to 15% and 28%, respectively, in the normal ventilatory pattern, the difference not being statistically significant: $p > 0.05$, 95%CI). At 3 months and 6 months, respectively, patients with restriction still had symptoms in 66% and 13%, 47% and 1.1% corticosteroid therapy, and 54% and 16% changes in ground glass on CT. 24% of severe disease occurred in a restricted ventilatory pattern, compared to the other patterns, although without statistical significance ($p > 0.05$%, 95%CI). In turn, there was a decrease in DLCO/VA by 9%, and normal DLCO by 36%, with severe disease in 62.5% and 28%, respectively, this difference being statistically significant ($p = 0.002$; 95%CI). There was no statistical difference in the correlation between the presence of concomitant lung disease and the ventilatory pattern after SARS-CoV-2 infection.

Conclusions: A significant proportion of patients present imaging and clinical changes during their post-infection follow-up, namely at 3 months. The decrease in DLCO may be related to the initial severity of the disease, as described in the literature. However, the severity, namely the degree of pulmonary involvement by COVID-19, does not seem to significantly affect the ventilatory pattern. More studies are needed, and the follow-up of these patients is crucial for the early detection of possible functional and/or imaging sequelae.

Keywords: *COVID-19. Pulmonary function tests. SARS-CoV-2.*

PE 066. POST COVID-19 – WHAT TO EXPECT IN A PULMONOLOGY CONSULTATION

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Introduction: The challenges related to COVID-19 began with the uncertainty of the best strategies to deal with the disease and now also involve the management of its sequelae.

Objectives: To evaluate the respiratory sequelae caused by COVID-19.

Methods: Retrospective study of all patients referred and followed at the Post-COVID Pulmonology Consultation of the Leiria Hospital Center, since the creation of the consultation in March 2021. Demographic, clinical, imaging and functional data were analyzed between 3 and 6 months post-infection (At the time of abstract submission not all data are available, the information will be updated closer to the presentation).

Results: Sample consisting of 72 individuals, 52.8% male, mean age of 63.2 years, 31.9% ex-smokers and 4.2% smokers, mean pack-year units of 12.1. Of the total, 36.1% of patients had previous respiratory pathology (19.0% with asthma, 5.6% with COPD, 19.4% with

OSAS). The most frequent comorbidities were hypertension (44.4%), dyslipidemia (31.9%), diabetes (26.4%) and obesity (25.0%). Of the patients observed, according to the DGS classification, 5.6% had critical illness, 34.7% severe illness, 34.7% moderate illness and 25% mild illness, 76.4% had SARS-CoV-2 pneumonia and 63.9% required hospitalization. In the evaluation at 3 months after infection, the mean mMRC was 1.7 (median of 2) and, of the 26.3% (19 patients) who underwent thoracic CT in the 3-month window, 7 still had some areas of ground glass (36.8%). At 6 months after infection, the mean mMRC was 0.8 (median of 1) and, of the 21 patients who completed the respiratory function study (in 6 there was no cooperation), 81.0% had normal study and, of the 25 patients who underwent chest CT (patients with normal CT at 3 months did not repeat the exam), 10 had mild fibrotic scarring streaks, 3 had signs of pulmonary fibrosis (in disciplinary meeting 2 classified as chronic hypersensitivity pneumonitis after retrospective analysis of imaging tests, bronchoscopic findings and clinical data and 1 is still under evaluation), 3 had discrete areas of ground glass, 1 had emphysema and the rest were normal. From a symptomatic point of view, the statistical comparison of dyspnea between the two moments of consultation showed a statistically significant difference in the improvement of dyspnea ($p < 0.001$).

Conclusions: There are still many doubts regarding the long-term pulmonary effects of COVID-19, so only time will allow us to understand the reversible nature, or not, of the findings. From our experience, respiratory complaints and chest CT findings tend to resolve over time, some of which need more than 6 months. Imaging and functional respiratory assessment may probably make it possible to diagnose other respiratory pathologies already in progress prior to the infection, possibly at earlier stages.

Keywords: *COVID-19. Respiratory sequelae.*

PE 067. FINDINGS IN HIGH RESOLUTION CT 3 MONTHS AFTER SARS-COV2 PNEUMONIA – A DESCRIPTIVE AND COMPARATIVE ANALYSIS

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Introduction: The main focus of the SARS-CoV-2 investigation is currently shifting, with an emphasis on the possible sequelae and its follow-up. This study aims to analyze the radiologic alterations, 3 months after discharge, of the patients admitted with SARS-CoV-2 pneumonia.

Methods: We studied the patients admitted for SARS-CoV-2 pneumonia in the pneumology ward of Trás-os-Montes e Alto Douro Hospital Centre that were reassessed in consult between January and June of 2021. High resolution thorax CT was conducted 3 months after discharge, with an evaluation of the number of affected lobes and the presence of ground-glass, consolidations, parenchymal bands, interlobular septs thickening, traction bronchiectasis, pleural thickening and honey-combing. Demographic, clinical and analytical descriptive analysis and comparative studies were performed with SPSS Statistics® 28th version.

Results: 98 patients were included. Its descriptive analysis is present in the table. From the comparative study, no significant association was found between the number of affected lobes in the admission and reassessment CT ($r = 0.111$, $p = 0.41$). Only the presence of parenchymal bands ($\chi^2 = 7.384$, $p = 0.007$) and interlobular septs ($\chi^2 = 8.113$, $p = 0.004$) in the admission CT were associated to its presence in the reevaluation CT. There was a positive correlation amongst the number of affected lobes and the age ($r = 0.369$, $p < 0.001$), platelet count on admission ($r = 0.313$,

ON ADMISSION		ON REEVALUATION CONSULT	
Male gender	64 (65,3)	**With respiratory symptoms**	61 (59,2%)
Age (years)	64,9 ± 11,4	*Dyspnea*	41 (41,8%)
BMI	32,5 [13,8]	*Cough*	21 (21,4%)
Smoking habits		*Chest pain*	15 (15,3%)
None	49 (50%)	**Scores**	
Former smoker	48 (49%)	*mMRC*	1 [2]
Smoker	1 (1%)	*PCFS*	0 [2]
Disease severity		*HADS A*	4 [5]
Moderate	22 (22,4%)	*HADS D*	2 [4]
Severe	62 (63,3%)	**Findings in HRCT**	
Critical	14 (14,3%)	*Timing (days)*	89 [36,5]
P/F Ratio on admission	266,5 [67]	*Number of affected lobes*	3 [4]
Minimal P/F Ratio	220 [150]	*Groung-glass*	68 (69,4%)
Laboratory results on admission		*Consolidation*	2 (2%)
Lymphocytes (/uL)	1040 [1143]	*Parenchymal bands*	58 (59,2%)
Platelets (/uL)	234142 ± 112878	*Interlobular septs thickening*	43 (43,9%)
D-dimers (ug/mL)	1,225 [0,83]	*Traction bronchiectasis*	13 (13,3%)
C Reactive Protein (CRP) (mg/dL)	11,05 [11,5]	*Pleural thickening*	11 (11,2%)
Procalcitonin (mg/dL)	1 [2]	*Honey-combing*	3 (3,1%)
Lactic dehydrogenase (LDH) (U/L)	367 [177]		
Ferritin (mg/dL)	840 [1602]		
Treatment			
Remdesivir	67 (68,4%)		
Dexamethasone	73 (74,5%)		

Table 1 – Descriptive analysis. Data presented as n (%), average ± standart deviation, median [interquartile range]. BMI (Body Mass Index), HADS (Hospital Anxiety and Depression Scale), HADS A (Hospital Anxiety and Depression Scale – Anxiety), HADS D (Hospital Anxiety and Depression Scale – Depression), PCFS (Post-COVID Functional Scale), mMRC (modified medical research council dyspnea scale), P/F (PaO_2/FiO_2) ratio, HRCT (High resolution computorized tomography).

Figure PE 067

p = 0.002), as well as the d-dimers (r = 0.322, p = 0.006), CPR (r = 0.347, p < 0.001), LDH (r = 0.315, p = 0.003) and ferritin (r = 0.371, p = 0.037) and a negative correlation with the minimum P/F ratio (r = 0.297, p = 0.003). Treatment with remdesivir was associated with a lower number of affected lobes (U = 566, p = 0.007). There was a significant difference of the number of affected lobes between patients with moderate and severe (p = 0.005) and critical (p = 0.003) disease. The presence of ground-glass was significantly related to the patients not treated with remdesivir (χ^2 = 4.197, p = 0.04) and to a higher admission CRP (U = 719, p = 0.02). The presence of parenchymal bands was significantly associated to a higher admission CRP (U = 765, p = 0.004), procalcitonin (U = 36, p = 0.006) e LDH (U = 659, p = 0.022), as well as to a lower admission P/F ratio (U = 852.5, p = 0.026). The levels of d-dimers (U = 443, p = 0.029) and CRP (U = 869.5, p = 0.025) was significantly higher in the patients with interlobular septs thickening on the reevaluation CT. The patients with severe and critical disease were more likely to have the aforementioned CT findings (χ^2 = 7.843, p = 0.02). The mMRC and PCFS scores were significantly higher in patients with pleural thickening (U = 170, p < 0.001; U = 290, p = 0.002) and honeycombing (U = 29.5, p = 0.013; U = 44, p = 0.039).
Conclusions: 3 months after SARS-CoV-2 pneumonia the CT seems to be more affected in older patients, with higher inflammatory activity, lower P/F ratio and, thus, a higher disease severity. The CT findings suggestive of fibrosis were more frequent in patients with more symptoms, higher functional limitation in the reevaluation consult as well as a higher inflammatory status during the infection.

Keywords: *COVID-19. High-resolution CT. Follow-up.*

PE 068. SEVERITY OF SARS-COV-2 INFECTION IN PATIENTS WITH OSAS AND MELLITUS DIABETES. DOES METFORMIN MAKE A DIFFERENCE?

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Introduction: The vast majority of patients with SAS have other comorbidities such as diabetes, obesity and dyslipidemia that contribute to the severity of SARS-Cov2 infection and mortality. Metformin can lead to ACE2 phosphorylation, reducing its binding to SARS-CoV-2 receptor domain, reducing its infectivity. Metformin can also decrease inflammation response, limiting the cytokine storm that occurs in COVID-19.
Methods: Retrospective study with 51 patients with SAS hospitalized with SARS-CoV-2 infection studied the difference in mortality and infection severity between patients on metformin *vs.* patients not medicated with that drug. 41.2% of patients were medicated with metformin (n = 21).
Results: In the group of patients with SAS and diabetes, medicated with metformin, the mean AHI was 37.3/h (with a minimum of 9.6/h and a maximum of 64.4/h), and 47.6% of the patients had severe sleep apnea (> 30/h) and 33.3% with moderate SAS (15-30/h). Of the 21 patients studied, 47.6% (n = 10) were not treated for their sleep apnea. There were 7 deaths (33.3% of the patients medicated with metformin), all of whom had at least moderate SAS. Only 1 had no associated cardiovascular disease. Comparatively, in patients not medicated with metformin (n = 30), there was only one death. The mean AHI was 24.1/h (42.3% of patients with severe SAS, 30.8% with moderate SAS and 26.9% with mild SAS, in 4 patients it was not possible to access polysomnography. However, without statistically significant difference compared to that observed in the group of patients under metformin (p > 0.05). There was also no statistically significant difference in the two groups regarding age (p > 0.05). Similarly, there were similar percentages of patients undergoing treatment for SAS (50% *vs.* 52.3%, in patients, respectively, not medicated and medicated with metformin).
Conclusions: From this study, it is not clear that metformin has a positive role in the outcome of SARS-CoV-2 infection in patients with SAS. In fact, the data obtained in this study seem to contradict it. However, more studies in this population and studies with a larger cohort are needed to understand the true possible impact of this drug.

Keywords: *SARS-CoV-2 Sleep apnea syndrome. Metformin.*

PE 069. THE IMPACT OF POST-COVID-19 PATIENTS IN A PULMONOLOGY WARD

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Introduction: The pandemic caused by the new coronavirus (COVID-19) has become a global concern in the last two years. The infectiveness and aggressiveness of the disease, in an acute phase, has been widely studied since the onset of COVID-19. We have recently begun to understand the long-term effects of this disease. The impact of this pandemic on respiratory patients without COVID-19 who suffered the consequences inherent to limited access to healthcare has been a less debated issue. The pulmonology department of Hospital de Santa Marta receives patients with cure criteria for COVID-19 who still need hospital care due to persistent respiratory failure.
Objectives: Evaluate the impact caused by the hospitalization of patients after COVID-19 infection on the functioning of a pulmonology ward.
Methods: Retrospective and comparative analysis between patients admitted to the Pulmonology department of our Center in the first 6 months of 2021 compared to the same period in 2019. Admissions for social cases and for pre-lung transplant study were excluded. We evaluated the total number of hospitalized patients, length of stay in the service, age, gender and different respiratory devices used by each patient (non-invasive ventilation, high-flow oxygen therapy or tracheostomy). Patients admitted in 2021 were divided according to the cause of admission between patients not COVID-19 or after infection with COVID-19. The results are presented as mean [± standard deviation].
Results: Between January and June 2019, there were 235 admissions to the Pulmonology ward. In the same period of 2021 there were 114 admissions. The mean length of stay for all patients in 2019 was 11.9 days [± 12] and in 2021 18.8 days [± 18.7], p < 0.05. In 2021, patients hospitalized after COVID-19 infection (n = 20) had a length of stay in the ward of 39.6 days [± 26.5] and those without COVID-19 (n = 94) of 14.1 days [± 13] p < 0.05. There was no statistical difference between the different groups regarding gender and age. Patients after COVID-19 infection required an average of 1.4 [± 1.1] devices and non-COVID-19 patients needed 0.3 [± 0.5].
Conclusions: This work shows a 51.5% decrease in the number of admissions to the Pulmonology ward in the first 6 months of 2021 compared to 2019. In addition to the lower recurrence to health care in the general population, there was also an increase in the length of hospital stay of patients, mainly patients after COVID-19 infection, which contributed to these results. Finally, we believe that the longer daily time needed to monitor patients in the ward after COVID-19 infection, reflected by the greater number of respiratory devices, as well as the displacement of professionals to respond to the pandemic, led to an increase in hospital stay of non-COVID-19 patients compared to the same period in 2019.

Keywords: *COVID-19. Ward. Post-COVID-19. Impact.*

PE 070. OROPHARYNGEAL DYSPHAGIA SECONDARY TO COVID-19

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Introduction: Oropharyngeal dysphagia can be a consequence of the lack of coordination between breathing and swallowing and is common in patients affected by Acute Respiratory Distress Syndrome (ARDS), particularly if invasive ventilatory support is used.
Case reports: From April to August 2021, 5 clinical cases were reviewed, referring to patients with dysphagia following prolonged hospitalization in the Intensive Care Unit (ICU) for pneumonia caused by SARS-CoV-2 and severe ARDS, with involvement of the lung parenchyma greater than 50%. Mostly female (n = 3; 60%). The median age was 68 years (min 24; max 74). All patients were previously autonomous. The median length of hospitalization was of 63 days (min 47, max 89) and 25 days in the ICU (min 17, max 53). All patients required invasive ventilation and orotracheal intubation (OTI) (median OTI duration 18 days; min 9, max 21), four of them with prone position cycles. Two patients had to progress to tracheostomy, closed at the time of evaluation. Three of the patients were fed by nasogastric tube (NGT) at the time of observation. Videoendoscopic swallowing study were performed to better assess dysphagia and to decide whether to progress to oral feeding or placement of Percutaneous Endoscopic Gastrostomy (PEG). In 4 patients it was evident the impairment of epiglottis mobility, in 2 patients the hypomobility of the larynx and in one patient the paresis of the right vocal cord. There was also a delay in the pharyngeal phase to greater consistencies in 3 of the patients. The swallowing reflex was absent in 2 of the patients and one patient presented the swallowing reflex only for the pasty consistency. Thus, two patients had a contraindication for oral feeding (PEG was placed during hospitalization), two had indication for removal of the NGT due to the possibility of oral feeding, one of them had indication for supervised feeding with eviction of liquids and one patient had no oral feeding limitations. After discharge, patients with PEG and indication for supervised feeding maintained rehabilitation, with resolution of dysphagia in reassessment 1 month after discharge.
Discussion: Dysphagia is a complication of critically ill patients, frequent in patients with severe COVID19 disease, and it is essential to be proactive in its early identification and management, with the implementation of assessment protocols, in order to avoid associated complications and ensure the patient's complete recovery.

Keywords: *Dysphagia. COVID-19. Videoendoscopic swallowing study.*

PE 071. ACUTE INTERSTITIAL PNEUMONIA CAUSED BY SARS-COV2: NEW DISEASES, OLD TREATMENTS

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COVID-19 pneumonia has been a challenge for the scientific community in cases of rapid onset and clinical worsening, with poor response to the therapy currently recommended for these cases. The authors report the case of a 60-year-old man with a past medical history of arterial hypertension, type 2 diabetes mellitus and acute myocardial infarction in January 2021. The patient was admitted to the Emergency Department (ED) on 4/02/2021 with a 5-day history of cough, asthenia and dyspnea and was diagnosed with SARS-CoV-2 pneumonia, with less than 15%-20% of pulmonary involvement. The patient was discharged home after he was given the warning signs and started empirical antimicrobial therapy (Amoxicillin + Clavulanic Acid and Azithromycin). He returned to the ED 3 days later, with clinical, laboratory and radiological worsening, with pulmonary involvement of 30-50%. He was hospitalized for SARS-CoV-2 pneumonia, bacterial superinfection and respiratory failure type 1. Oxygen therapy and dexamethasone was started and antimicrobial therapy previously instituted was maintained. There was clinical deterioration with the need for high-flow nasal cannula (HFNC) and change of antibiotic therapy to Piperacillin + Tazobactam. The chest computed tomography (CT) revealed clear radiological worsening: a greater degree of organizing pneumonia, worsening of central and bilateral bronchiectasis attributed to rapid onset of pulmonary fibrosis and bilateral pleural effusion. Admitting the hypothesis of rapidly progressive acute interstitial pneumonia, the case was discussed in a multidisciplinary meeting and it was decided to apply a new course of corticosteroid therapy with high-dose Prednisolone (120 mg/day). Due to the lack of response to all therapies instituted in a patient totally dependent on HFNC with 100% FiO2 for over 20 days and significant desaturation with small efforts, the case was discussed at a national reference center for interstitial diseases and it was decided to additionally start Azithromycin in the immunomodulating dose and Cyclophosphamide (totalling 6 monthly cycles 2 g/cycle). The evolution was favorable right after the first cycle of Cyclophosphamide in clinical, gasometric and radiological terms, documented by chest CT with significant regression of inflammatory changes, still maintaining signs of fibrosis. He was discharged home on room air, medicated with Prednisolone 40 mg and Azithromycin (3 times a week) and continued follow-up in the pulmonology consultation with the remaining cycles of Cyclophosphamide scheduled. He underwent rehabilitation with improved functional capacity and progressive weaning from Prednisolone. This case is relevant because we considered the exuberant inflammatory response of acute interstitial pneumonia caused by SARS-CoV-2 as a therapeutic target, with a frankly favorable response after starting Cyclophosphamide. The authors want to recall the importance of reviewing the pathophysiology and extrapolate to the new challenge of COVID-19.

Keywords: *COVID-19. Interstitial pneumonia. Cyclophosphamide.*

PE 072. COMPLICATIONS OF COVID-19 PNEUMONIA AND THEIR RELATION TO THE LEVEL OF HOSPITAL CARE

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Introduction: The long-term sequelae of the disease caused by the new coronavirus (COVID-19) are still unknown. Considering the high number of patients admitted to hospitals with pneumonia caused by COVID-19 and the importance of reassessing them in an outpatient setting, the Pneumology service of Hospital Pedro Hispano (HPH) created a consultation with this objective. The authors intend to evaluate possible complications of pneumonia caused by COVID-19 and realize if these are related to the hospital care level.
Methods: Prospective study for evaluation, in a medical consultation, of patients hospitalized with COVID-19 pneumonia at the HPH, at 4-6 months after hospital admission. Patients were consecutively included in this prospective analysis and the characteristics of patients admitted to the intensive care unit (ICU) were compared with other patients (non-ICU). Prior to the consultation, the patients underwent respiratory function evaluation, with spirometry, arterial blood gases and DLCO measurement, and imaging reassessment, with chest teleradiography or computed tomography (CT). Clinical evaluation in consultation included the Medical Research Council Modified dyspnea scale (mMRC), the EuroQol Group Questionnaire (EQ-5D) and the Fatigue Assessment Scale (FAS).
Results: Of the 98 patients evaluated [mean age 63.0 ± 10.4, 29 women], 26 (26.5%) were admitted to the ICU. There was no rela-

tionship with the previous presence of vascular risk factors, immunodeficiency or respiratory disease and the service of hospitalization. The PaO2/FiO2 ratio at admission (mean UCI = 261.2 ± 77.5 and non-UCI = 314.0 ± 48.4; p = 0.003) and the worst PaO2/FiO2 ratio during hospitalization (mean UCI = 138.9 ± 42.9 and non-UCI = 226.1 ± 69.2; p = 0.000) were different in the two groups. Considering the diagnosis of bacterial superinfection, there was significant differences (6 in the ICU; 4 non-UCI; p = 0.020). As for the presence of imaging changes in the reassessment, there were no significant differences (p = 0.722). Considering lung function, patients in the ICU had lower DLCO values, however without a statistically significant difference (mean DLCO UCI = 73.6% and non-UCI = 77.9%, p = 0.315; mean DLCO/VA UCI = 88.8 and non-UCI = 89.4, p = 0.898). Regarding the persistence of symptoms in the consultation and the mMRC value, there were no significant differences in the two groups, as well as in the health-related quality of life (mean EQ-5D total UCI = 6.46 ± 1.56 and non-UCI = 6.47 ± 1.71; mean % health UCI = 73.2% ± 17.55 and non-UCI = 76.0% ± 17.24) and in the assessment of fatigue (mean FAS UCI = 20.69 ± 8.57 and non-UCI = 18.54 ± 8.11).
Conclusions: Patients admitted to the ICU had more severe respiratory and a higher rate of complications during hospitalization, but there were no significant differences in clinical and respiratory function assessment, nor in the presence of imaging changes in the reassessment visit at 4-6 months between the two groups.

Keywords: *SARS-CoV-2 infection. Pneumonia. Hospitalization.*

PE 073. COVID-19 AND AUTOIMMUNITY: TWO-IN-ONE

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Case report: We present the case of a 63-year-old black male, nonsmoker, who worked as a bricklayer, with history of obesity, hypertension, type 2 diabetes, dyslipidemia and no history of respiratory disease. He presented to the Emergency Department during the first wave of COVID-19 pandemic in Portugal, with a 4-day history of fever, nonproductive cough and worsening dyspnea, after contact with SARS-CoV-2 infected people. On presentation, patient was febrile (38.1 ºC) with SpO2 70% (FiO2 21%). Arterial blood gas revealed severe hypoxemia (paO2 55 mmHg with FiO2 40%). Laboratory tests showed leukocytes 13,840/uL, neutrophils 65%, CRP 23 mg/dL, procalcitonin 0.5 ng/mL, d-dimer 1.21 mg/L, ferritin 420 ug/L, AST 143 UI/L, ALT 129 UI/L, LDH 902 UI/L and CK 1,428 UI/L. Contrast-enhanced chest computed tomography showed extensive ground-glass areas and some consolidative foci, particularly in the lung bases, without pulmonary thromboembolism. RT-PCR for SARS-CoV-2 by nasopharyngeal swab was negative. Influenza A and B antigens, *Streptococcus pneumoniae* and *Legionella pneumophila* urinary antigens and blood cultures were negative. Taking into count the epidemiology, disease course and imaging, a presumptive diagnosis of SARS-CoV-2 pneumonia with bacterial superinfection was made, complicated by acute partial respiratory failure, and the patient was admitted to Intensive Care Unit. On 10th day of illness, despite continuous positive airway pressure (CPAP), methylprednisolone and antibiotic therapy, orotracheal intubation and invasive mechanical ventilation (IMV) were needed. After 4 days, the patient was extubated to CPAP with slow improvement of hypoxemia under corticosteroid therapy. After several negative RT-PCR SARS-CoV-2 tests and serological evaluations with doubtful IgM and negative IgG, the diagnosis of COVID-19 was confirmed by positive IgM SARS-CoV-2 on 29th day of illness. The investigation of other causes of interstitial lung disease revealed a Raynaud history, without muscle, skin or joint symptoms; 1:320 positive ANA with AC-19 dense granular cytoplasm pattern (suggestive of anti-PL-7 synthetase, PL-12, protein-P-ribosomal and SRP antibodies), myositis panel and anti-Jo1 negatives; bronchoalveolar lavage with 42% lymphocytosis, without microbiological isolation or neoplastic cells. After discontinuing corticosteroids, a significant worsening of hypoxemia and pattern of organizing pneumonia was observed, with concomitant increase in CK, myoglobin and aldolase. The diagnosis of inflammatory myopathy with pulmonary involvement was made in a multidisciplinary meeting and the patient was treated with prednisolone and mycophenolate mofetil with favorable response. Six months after COVID-19, moderate restriction and moderate decrease in pulmonary diffusion were documented, with normalization of muscle enzymes and no respiratory failure.
Discussion: Inflammatory myopathies are a rare clinical entity, difficult to diagnose, that requires a multidisciplinary approach, with adequate radiological and serological evaluation. The myositis-specific autoantibody panel is positive only in 20-40% of cases, so a negative result doesn't exclude the diagnosis. In the current pandemic scenario, diagnosis can become particularly difficult, as the pattern of organizing pneumonia can also be found in COVID-19. The delay in the COVID-19 diagnosis in this case enabled the investigation of other causes and we believe that the viral infection may have acted as a trigger for myopathy, with the early institution of immunosuppressive therapy having been decisive for the prognosis.

Keywords: *COVID-19. Myositis. Interstitial lung disease.*

PE 074. A GLANCE AT SEVERE COVID-19: THE EXPERIENCE OF A RESPIRATORY INTENSIVE CARE UNIT

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Introduction: The incidence of CoVID-19 in Portuguese population over the first quarter of 2021 accounted for an unusually higher morbidity and mortality in the ICU setting.
Objectives: To characterize a cohort of patients admitted in a Respiratory Intensive Care Unit (RICU) in the first trimester in a tertiary university hospital.
Methods: Retrospective cohort study of 37 consecutive admissions in our RICU between January 10th and March 31st 2021. These data represent clinical features and outcomes of a group of critical COVID-19 patients admitted with severe respiratory failure. Descriptive analysis was stated as medians (interquartile range) for continuous variables and frequencies for categorical variables. A multivariate logistic regression was performed in order to identify variables associated with increased mortality.
Results: Of the 37 patients included, male gender was predominant (n = 23; 62%). Median age was 67 years (57-63) and 25 patients (67%) were over 60 years old. Predominant comorbidities included morbid obesity (n = 11; 30%), diabetes mellitus (n = 9; 24%), arterial hypertension (n = 9; 24%) and chronic heart failure (n = 7; 19%). Median hospital length of stay before ICU admission was 96 hours (48-192). Median APACHE II and SOFA scores were 20 and 7, respectively. Thirty-seven patients (81%) underwent invasive mechanical ventilation, with a median duration of 16 days on respiratory support (8-37); noninvasive ventilation and high-flow nasal oxygen were used in the remaining 7 patients as complementary therapies. They were used before endotracheal intubation in 7 patients (19%) or to prevent post-extubation failure in 12 patients (32%). Eight patients (27%) underwent continuous renal replacement therapy with a median duration of 2.5 days (1-3.2) on renal support. Major complications included ventilator-associated pneumonia (n = 12; 32%), atrial fibrillation (n = 9; 24%) and barotrauma (n = 8; 21%). Hospital mortality was 46% (17 out of 37 patients). Two patients died after ICU discharge. Multivariate logistic regression identified APACHE II score (p-value < 0.01), morbid obesity (p-value < 0.05) and barotrauma (p-value < 0.05) as variables associated with increased mortality.

Conclusions: The authors report the clinical features and outcomes of a cohort of critical CoVID-19 patients admitted in an RICU throughout the third wave of the pandemic surge in a tertiary hospital at Lisbon. High mortality rate, as well as infectious complications namely ventilator-associated pneumonia and barotrauma are unique features of this particular population and may reflect the advanced age of most patients and delayed ICU admission of non-responders to initial strategies applied in the ward setting. Despite a small sample, obesity and clinical evolution with barotrauma stand out as variables related with mortality in these patients.

Keywords: *COVID-19. RICU. Invasive mechanical ventilation. Mortality. Obesity. Barotrauma.*

PE 075. IMPACT OF ANALYTICAL MARKERS ON THE PROGNOSIS OF SARS-COV-2 INFECTION

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Introduction: The disease SARS-CoV-2 has variable clinical presentation, so the guidance of these patients represents a challenge. Its follow-up from the moment of diagnosis is essential, not forgetting the reassessment after hospital discharge.
Objectives: Evaluate analytical changes in patients with moderate to critical COVID-19 disease; to verify possible associations between the patient's risk factors, disease severity, and persistent symptoms 3 months after hospital discharge.
Methods: Observational study with patients hospitalized for SARS-CoV-2 pneumonia at the Centro Hospitalar de Trás-os-Montes e Alto Douro, between October 2020 and March 2021. Continuous variables were expressed as median and interquartile range and categorical variables as frequency and percentage. Comparative analysis was performed using Spearman correlation, Mann-Whitney U test or Chi-Square. The level of significance was defined as $p < 0.05$.
Results: One hundred and three patients were included, 65% female (n = 67), aged between 27 and 86 years (mean age: 65.03 ± 11.45). Only 1 patient was a smoker, 51 former smokers (49.5%). Regarding risk factors for severe disease, 67% of patients (n = 69) were over 60 years old, 34% (n = 35) had Diabetes Mellitus (DM), 8.7% (n = 9) had Heart Failure (HF) and 5.8% (n = 6) had COPD. Of the patients studied, 13.6% (n = 14) had critical illness, 61.2% (n = 63) severe illness and 25.2% moderate illness (n = 26). At hospital admission, median lymphocyte values were 960 (720) × 10^3/uL, platelets 201,000 (101,000) × 10^3/uL, D-dimers 1.11 (1.24) ug/mL, LDH 382.1 ± 120.9 U/L, CRP 8.17 (8.4) mg/dl and ferritin 824.5 (1,063) ng/ml. The median PaO2/FiO2 ratio at admission was 252 (57). At the time of reassessment, the patients showed normalization of the analytical alterations, with platelets 213,000 (81,000) × 10^3/uL, D-dimers 0.37 (0.39) ug/mL, LDH 183.21 ± 30.91U/L, ferritin 149 (193) ng/mL, CRP 0.2 (0.4) mg/dL. There were statistically significant differences between CRP ($p = 0.024$) and LDH ($p = 0.018$) at admission between the different degrees of disease severity. There was a statistically significant association between being over 60 years old and having increased CRP ($\chi^2 = 5.67$; $p = 0.017$), between COPD and CRP value ($U = 96.5$; $p = 0.006$), between HF and having increased LDH ($\chi^2 = 7.87$; $p = 0.005$), and between DM and increased platelets ($U = 827.5$; $p = 0.015$). A statistically significant positive correlation was confirmed between the PaO2/FiO2 ratio at admission and lymphocytes ($r = 0.306$; $p = 0.002$) and a negative correlation with CRP ($r = -0.382$; $p < 0.001$) and with LDH ($r = -0.269$; $p = 0.01$). Finally, statistically significant positive correlations were found between the result of the mMRC scale and D-dimers ($r = 0.253$; $p = 0.039$) and LDH ($r = 0.234$; $p = 0.048$) in the reassessment analyzes and between the result of the PCFS scale and D-dimers ($r = 0.037$; $p = 0.255$).
Conclusions: Laboratory evaluation is essential in the approach to COVID-19, with several biomarkers associated with a worse prognosis, which can be useful in risk stratification. This study demonstrates that older patients with COPD have higher CRP and that the increase in CRP and LDH on admission is associated with greater disease severity. It was also found that higher PaO2/FiO2 ratios are correlated with higher lymphocyte counts, lower CRP and lower LDH. Patients with higher D-dimers and LDH were also found to have more dyspnea.

Keywords: *COVID-19. Prognostic factors.*

PE 076. BAROTRAUMA IN THE CRITICALLY-ILL COVID-19 PATIENT - THE EXPERIENCE OF A RESPIRATORY INTENSIVE CARE UNIT

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Introduction: In the past year, numerous cases of spontaneous and ventilation-associated pneumomediastinum and subcutaneous emphysema were reported on critically ill COVID-19 patients, in sharp contrast with previously reported incidence in non-COVID-19 ARDS, (4.5,6), posing the question of whether coronavirus disease uniquely increases barotrauma events or physiopathological aspects during the disease course causing lung frailty play a role.
Objectives: To determine the rate, presentation, characteristics and management of critically ill patients with COVID-19 pneumonia who developed barotrauma and compare these with a population of non-CoVID primary ARDS patients admitted in a Respiratory Intensive Care Unit (RICU). Investigate whether respiratory mechanics differences can account for the well-known disparity of barotrauma events between these populations.
Methods: Retrospective case-control series of 6 critically ill patients with COVID-19 pneumonia admitted between January and March of 2021 who developed barotrauma and 15 critically ill patients with non-COVID-19 primary ARDS admitted during a two-year period from January 2019 to December 2020. Patient demographics, clinical course, ventilatory parameters, and radiographic features were obtained from electronic medical records. Barotrauma was defined as pneumomediastinum, subcutaneous emphysema, and/or pneumothorax on chest X-ray or CT. These variables were compared between ARDS COVID-19 barotrauma group (cases) and 15 non-COVID ARDS patients (controls). In standard descriptive analysis, continuous variables were reported as median (IQR) and categorical variables as frequencies.
Results: A total of 6 critically-ill COVID19 patients suffered barotrauma complications associated with invasive and non-invasive ventilation, representing 23% of the admissions in our RICU between January and March 2021 during the pandemic surge. The majority of patients were males (83%), and median age (interquartile range) was 71 (2.5) years. Only one patient suffered from predisposing lung pathology (COPD) and two patients had a BMI > 30 kg/m^2. All but one patient were under invasive ventilation at the time of the barotrauma event. Except one late event, barotrauma occurred, median, in the 5th day under IMV and 17th day of symptoms. There was no reported barotrauma in the control group. PEEP settings were not statistically different between cases and controls (12.3 *vs.* 11.7 cmH2O). Static compliance, in turn, was significantly lower in the COVID-19 ARDS barotrauma group comparing to any period of ventilation in the control group (28 *vs.* 46.8 ml/cmH2O).
Conclusions: These results are in line with the latest evidence regarding higher incidence of barotrauma in COVID-19 patients. PEEP levels did not differ between groups, although such a small cohort can limit the interpretation of the data. Static compliance, how-

ever, was much lower in this subset of COVID-19 ARDS patients with no previous lung disease. Once again, a small sample could have biased the results, however, such an expressive difference can be a surrogate marker of rapid disruption of lung structure and increase in fibrotic tissue in some COVID-19 ARDS patients. Future efforts must be made in order to better identify those patients who could benefit from different ventilatory support strategies early in the course of severe CoVID-19.

Keywords: *COVID-19. RICU. IMV. NIV. Barotrauma. Peep. Static compliance. Fibrotic lung.*

PE 077. EVALUATION OF THE LUNG FUNCTION AFTER SARS-COV-2 PNEUMONIA

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Introduction: SARS-CoV-2 infection can manifest itself quite unevenly, varying from asymptomatic cases to severe pneumonias with eventual respiratory failure and the need for invasive mechanical ventilation (IMV). Although some knowledge has already been gathered about the best way to approach these patients, little is known about the long-term sequelae of this infection as well as its impact on lung function.
Objectives: To characterize the lung function of previously admitted patients due to SARS-CoV-2 pneumonia. To detect variables or characteristics that associate with an increased risk of lung function changes.
Methods: Retrospective study. We reviewed the clinical files of all patients observed in Pulmonology – post-COVID19 consultation of our hospital center since its beginning in March 2021. We selected all patients that were admitted due to SARS-CoV-2 pneumonia, that had performed a lung function test (LFT) in the follow-up of the consultation and that had no known past medical history of respiratory diseases. Information regarding demographic data, length of hospital stay, smoking habits, percentage of lung involvement in the initial chest CT and the need for oxygen therapy or ventilatory support were collected. Data was analyzed using Microsoft® Excel version 16.43 and IBM® SPSS® Statistics version 24.
Results: A total of 49 patients met the inclusion criteria. Most were male (n = 29; 59.2%), the age average was 62.3 years and most were obese (n = 27; 55.1%; mean BMI 30.5 ± 3.9 kg/m^2). Most patients were not smokers (n = 35; 71.4%). The mean length of hospitalization was 12.0 ± 7.0 days and the mean interval of time between the positive SARS-CoV-2 test and the LFT performance was 116.6 ± 36.3 days. Eight patients (16.3%) presented a restrictive pattern on the LFT and 27 patients (55.1%) presented decrease of the diffusing capacity for carbon monoxide (DLCO), although only 3 (6.1%) kept that impairment after alveolar volume adjustment. The functional parameters presented the following mean values: FEV1 2.76 ± 0.77 L; FVC 3.37 ± 0.92 L; FEV1/FVC 82.1 ± 5.8%; TLC 5.28 ± 1.11 L; RV 1.99 ± 0.39 L; DLCO 73.8 ± 15.9%; DLCO/VA 90.12 ± 15.6%. An association between the need for CPAP, bilevel ventilation and/or IMV, and the presence of restriction (OR 24.89; p = 0.005) and DLCO decrease (OR 10.77; p = 0.004) in the LFT was observed. Obesity also associated with a restrictive pattern (TLC decrease) in the LFT (OR 0.96; p = 0.041) but not to changes in DLCO. No association was found between the percentage of lung involvement in the initial chest CT and the LFT results.
Conclusions: About 3 months after resolution of the SARS-CoV-2 pneumonia, the most frequently found changes in the LFT were the decrease of the DLCO and a restrictive pattern. The need for CPAP, bilevel ventilation or IMV was associated with an increased risk of restrictive changes and decrease of the DLCO in the LFT. The exuberance of the radiological manifestations does not seem to have functional translation after resolution of the acute episode. More studies are still needed.

Keywords: *Lung function tests. COVID-19. SARS-CoV-2. Restrictive pattern. DLCO decrease.*

PE 078. SEVERE COPD: BEYOND THE STANDARD TREATMENT

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Introduction: Little is known about the effects of profound lifestyle changes in COPD patients, as most studies focus on the impact of pharmacological and medical therapies.
Case report: 53-year-old woman, ex-smoker, sedentary lifestyle, history of fibromyalgia and COPD GOLD D grade 4 (FEV1 post-bronchodilator: 27%), awaiting lung transplant and attending a pulmonary rehabilitation program. Medicated with triple bronchodilator therapy and under long-term oxygen therapy (LTOT) 24h/day. Arterial blood gas (ABG) at room air with pH: 7.47, pO2: 46 mmHg, pCO2: 53 mmHg, HCO3-: 38 mmol/L. She had two exacerbations requiring non-invasive ventilation (NIV), so she started home NIV, initially with poor adherence, but which improved over time as she became more symptomatic. She continued to have 1-2 exacerbations per year and had no significant changes in her habits or medication, but after 3 years, she moved closed to her daughter, and had significant lifestyle changes, with daily walks to visit her daughter and taking care of her grandchildren. Her mood also improved significantly. She noticed a significant improvement in her symptoms, had no more exacerbations, and stopped using NIV and LTOT on her own account, with her ABG at FiO2: 21% revealing a pH: 7.44, pO2: 76 mmHg, pCO2: 41 mmHg, HCO3-: 27 mmol/L. Nocturn oximetry also showed no signs of significant desaturation. A new spirometry revealed an FEV1 post-bronchodilator: 43%.
Discussion: We present a very rare case in which a severe COPD patient significantly improved her lung function and symptoms, to the point of no longer needing LTOT and NIV, mainly due to lifestyle changes.

Keywords: *COPD. Lifestyle changes.*

PE 079. DESTRUCTION WITHOUT OBSTRUCTION – WHAT ENTITY?

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Introduction: Spirometry is the only complementary diagnostic exam recommended by the latest version of the Global Initiative for Chronic Obstructive Lung Disease (GOLD) for the diagnosis of COPD. Pulmonary emphysema is often associated with COPD, being defined as dilatation and destruction of the distal airways, not including spirometric changes. The systematic use of HRCT in the most diverse clinical situations has led to the growing identification of emphysema. The diagnostic criteria for COPD excludes patients with structural changes in the absence of the obstruction criteria. Recent editions of GOLD have been emphasizing symptoms over the value of FEV1.
Objectives: 1. To assess the existence of symptoms in patients with structural changes in the lung (emphysema) who don´t meet the diagnostic criteria for COPD. 2. To compare the results of the application of mMRC and CAT in these patients with a group of patients with COPD.

Methods: Sample selection: Consultation of the clinical file of patients with follow-up in a smoking cessation consultation (opportunity samples). Comparative study between: Group I: individuals with emphysema without COPD spirometric criteria; Group II: Patients with COPD criteria. Application of mMRC and CAT in both groups by telephone contact. Patients who were not able to apply the intended questionnaires due to impossibility of contacting after multiple attempts or refusal to respond were excluded.
Results: Global sample of 37 patients, 21 of which were excluded. 2 groups of 8 patients. Group I: 8 (100%) males; Mean age of 50.50 ± 6.99 years; Average BMI of 23.05; mMRC < 2: 4 (50%); mMRC ≥ 2: 4 (50%); CAT < 10: 3 (37.5%); CAT ≥ 10: 5 (62.5%). Group II: 6 (75%) males; 2 (25%) female; Average age of 60 ± 5.04 years; Average BMI of 31.16; mMRC < 2: 4 (50%); mMRC ≥ 2: 4 (50%); CAT < 10: 4 (50%); CAT ≥ 10: 4 (50%).
Conclusions: Sample mostly made of males in both groups. Difference of 10 years in mean age, being higher in the group of patients with COPD. Identical mMRC scores in both groups. Higher percentage of patients with CAT ≥ 10 in the group of patients with structural emphysema without COPD criteria. Patients with structural emphysema are as symptomatic or more symptomatic than patients with spirometric criteria for obstruction. More recent GOLD updates increasingly advocate symptom-guided therapy, but exclude patients with structural change (emphysema) due to the absence of disease-defining criteria of obstruction, which is less and less valued. The recognition of emphysema as a diagnosis, regardless of whether there is obstruction or not, should be considered, being the correct phenotyping of patients important so that effective therapeutic strategies in this entity can be developed. When is a HRCT assessment going to complement the spirometric study?

Keywords: *Emphysema. COPD.*

PE 080. USE OF FLUTICASONE FUROATE/VILANTEROL (FF/VI) IN PREGNANCY - CLINICAL CASE

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Introduction: There has been limited pregnancy exposure to fluticasone furoate (FF)/vilanterol (VI) in humans; FF/VI should only be used during pregnancy if the expected benefit to the mother is greater than any possible risk to the fetus. Because the management of asthmatic female patients is a routine in the pulmonology outpatient clinic, doctors need to be aware of the security that involves the different pharmacological treatments and balance the safety use versus the asthma controle, specially in this philological situation that can take asthma symptoms out of control.
Case report: Female, Age 27, Weight: 60 kg, height: 1.71 m. Past medical history for allergic asthma since childhood and no other comorbidities. First medical appointment at the pulmonology clinic in June 2017. Medication: budesonide/formoterol 360/4.5 mic/day + montelucaste 10 mg day. Spiromax inhaler with good inhaler technique, but just once a day in the majority of the days ("too" busy to remember to use it twice a day). Symptoms: Cough present most days,Use of salbutamol more than twice a week,Feeling of uncontrolled disease: wasn't feeling comfortable to go to the gym as usual, ACT: uncontrolled asthma (12 pts). Observation: Good general condition, Eupneic breathing in ambient air, pulmonary auscultation: bilateral expiratory wheezing and SpO2 Fi O2 21%: 96% and no signs of respiratory distress. The different inhalers and techniques were proposed and the choice option was for once a day vilanterol/fluticasone furoate (FF/VI) 184/22 mic, Ellipta device and a new appointment was scheduled in 3 months. The patient returns to the second appointment in Jan/2021. Came to ask about the risk for COVID-19 vaccine. Had no complaints and the ACT score was: controle asthma (20 pts). Refere that in this time interval was pregnant and had a heathy boy. Never stopped fluticasone furoate/vilanterol 184/22. In pre-natal appointments the gynecologist recommended the maintenance of asthma therapy considering the risk of asthma symptoms regarding past medical history before this therapeutic approach.
Discussion: The 12-month, open-label, randomized Salford Lung Study (SLS) in Asthma, evaluated the effectiveness and safety of FF/VI (100/25 μg or 200/25 μg), administered once daily via Ellipta, compared with usual care. In patients receiving FF/VI, 13 pregnancies were reported; these patients were either withdrawn from the study or lost to follow-up. For those patients where the outcome was known, there were 6 live births (5 with a healthy neonate and 1 with an unrelated congenital abnormality [hypospadias]) and 6 abortions (4 spontaneous and 2 induced). In Portugal: there are only two other cases reported on the use of FF/VI in pregnancy: in the first the pregnancy was ongoing, d in the second the outcome of the drug exposure during pregnancy was unknown.

Keywords: *Asthma. Pregnancy. FF/VI.*

PE 081. PLEURO-CUTANEOUS FISTULIZATION: A RARE COMPLICATION OF LUNG ABSCESS

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Introduction: Pulmonary Abscesses are defined as intraparenquimal collections of necrotic tissue, most caused by gastric content aspiration. Secondary causes, such as septic embolization or periodontal infections, are commonly caused by *Staphylococcus aureus (S. aureus)* or *Pseudomonas aeruginosa*. Despite the wide range of presentation and possible complications, the gold standard therapy is usually percutaneous drainage and broad-spectrum antibiotics.
Case report: A 42 year-old man with history of past drug consumption, active smoking (27 pack-year) and chronic Hepatitis C virus, presented to the Emergency Department (ED) with a history of right thoracic pain and edema in the right superior limb with a sudden start and worsening for the 2 following days. When questioned, the patient revealed to sporadically inject oral painkillers. On physical exam temperature of 38.5 ºC and a right anterior thoracic fluctuation, with 5 cm on its biggest axis, associated with pain, heat and redness was found. No other relevant signs found. Thoracic CT scan showed right superior lobe collection with 13 × 8 × 7.5 cm spreading into the plane posterior to the great pectoral muscle. Broad-range antibiotics were started (Piperacillin/Tazobactam, Metronidazole and Vancomycin) and the patient was referred to the Thoracic Surgery department for bed-side drainage. A 28Fr thoracic drain, on active -20 cmH2O aspiration, was placed inside the cavity through the 2nd intercostal space, right mid clavicular line. S. Aureus was isolated on the cavity liquid and the antibiotic regimen substituted for IV Cefazoline. After clinical, lab work and imaging improvement, with vestigial daily drainage, the thoracic drain was replaced for vacuum-assisted closure (VAC) on the 13th day. The patient was discharged after 35 day antibiotic therapy with sustained improvement throughout the whole episode and continued his treatment with weekly wound care on outpatient setting. VAC was suspended after 27 days and a total of 55 days of antibiotic was completed (4 days Vancomycin + Piperacillin/Tazobactam + Metronidazole, 29 days Cefazoline and 20 days of oral Cefuroxime). On 3-month follow-up the patient was clinically stable and the Thoracic CT Scan showed complete resolution with residual scarring tissue on the superior right lobe.
Discussion: Pulmonary abscess with cutaneous fistulization remains a rare complication, especially in immunocompetent patients. This case translates the importance of conservative care and a good initial clinical history on the diagnosis and treatment of this pathology. Albeit with exceptions, antibiotics and percutaneous drainage

remains the standard of care, with lung resection as last resort therapy for refractory cases.

Keywords: *Thoracic surgery. Lung abscess. Pulmonary infection.*

PE 082. DIPLOPIA, PTOSIS AND ANISOCORIA – III CRANIAL NERVE INJURY AS PRESENTATION OF LUNG CANCER

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Introduction: Acute neurological deficits have several etiologies including neoplastic and brain metastases are ten times more common than primary lesions. The symptoms may be the same and most result from increased intracranial pressure, direct invasion or compression of the brain parenchyma, hemorrhage, obstruction of arterial, venous or CSF flow, and paraneoplastic syndromes. However, neurological manifestations can also occur due to injury of cranial nerves in different locations along its path.
Case report: 63-year-old man, smoker, with a history of asthma/ACOS, hepatic steatosis and colon adenomas presents with a two-month history of right parietal headache. Later began with dyspnea, right chest pain, nausea, weight loss (10 kg), asthenia and anorexia. In the last two days with dysarthria, diplopia and unbalanced gait. Physical examination at the ER confirmed dysarthria, diplopia, partial right ptosis, anisocoria (R > L), limited adduction, supra and infraversion of the right eye, dysmetria and gait imbalance. Brain CT excluded acute hemorrhage or ischemia and revealed a possible right parietal osteolytic lesion containing a soft tissue component suspected of secondary lesion. Chest CT revealed a continuous left hilar mass with complete atelectasis of the upper left lobe measuring 46 × 40 mm that invaded the ipsilateral bronchovascular structures, multiple bilateral mediastinal and hilar adenomegaly and centrilobular emphysema. Abdominal CT showed a liver nodule and masses in both adrenals, suspected of secondary lesions. He was observed by Neurology who considered the hypothesis of ischemic stroke in vertebrobasilar territory. Due to an alteration in thyroid function (low T4, T3 and TSH) and hypoglycemia was observed by Endocrinology who performed a hormonal study which revealed a pan-hypopituitarism with adrenal insufficiency, central hypothyroidism and hypogonadotrophic hypogonadism in a probable context of metastasis of the pituitary/hypothalamus having started cortisol and levothyroxine. Cerebral resonance revealed several expansive lesions in the cortico-subcortical interface of cerebral hemispheres and left cerebellar peduncle suggestive of metastatic nature, meningeal tumor invasion of the cerebral sickle, thickening of the pituitary nail, globose pituitary and asymmetry of the cavernous sinuses, circumferential involvement of the internal carotid cavernous with perineural extension of the trigeminal mandibular division and thickening of the right oculomotor nerve, probably related to tumor invasion. The presence of an expansive formation of the right parietal bone measuring 25 × 35 × 20 mm in continuity with the encephalic parenchyma was confirmed translating possible encephalocele. Fiberoptic bronchoscopy allowed us to observe the presence of a vascularized endobronchial tumor almost completely occluding the left main bronchus in its distal 1/3, and bronchial biopsy revealed a histology of small cell lung carcinoma (SCLC). Treatment with dexamethasone and holocranial cerebral radiotherapy was instituted with improvement in headache, dysarthria and gait imbalance but there was no reversal of third cranial nerve paresis, keeping complete right ptosis at the time of discharge.
Discussion: We present a case of SCLC at an advanced stage at diagnosis that presented with neurological symptoms and signs compatible with paralysis of right third cranial nerve confirmed by MRI with diffuse cerebral and cerebellar metastasis.

Keywords: *III cranial nerve injury. Lung cancer.*

PE 083. EPIDERMOID CARCINOMA GRAFT IN A WIDLEY MODIFIED AREA

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Introduction: Epidermoid carcinoma is the second most common histologic subtype of lung cancer. It displays an endobronchial growth pattern which associates frequently with bronchial obstruction, obstructive pneumonia and cavitated lesions.
Case report: We report a case of a 48-year-old male, forty pack-year smoker, construction worker with a family history of pulmonary tuberculosis and absence of any personal history of relevant pathology on enquire. His only medication was an antidepressant and an anxiolytic. He presented at the emergency room with anorexia, weight loss, thoracic pain, hip pain and numbness of the right inferior leg. Other previous symptoms were hematemesis and hemoptysis. The whole symptoms were ten month long. Clinical findings were caquexia, cutaneous pallor and right leg movement limitation. The pulmonary auscultation was normal at the time. Laboratory findings were elevated C-reactive protein. Chest X-ray showed a right diaphragmatic elevation and right shadowing compatible with pulmonary cavitation. Thorax CT-scan displayed a mediastinal right precarinal mass with right main bronchi extension, cylindrical bronchiectasis on the right superior lobe, fibrotic striations and diffuse emphysema. He completed imagiologic staging which showed cerebral metastization (left frontal lobe and both temporal lobes) and bone secondary lesions (ribs, vertebrae, hip bone and right femoral head). Brochofibroscophy confirmed tracheal and both main bronchi extension with necrosis and infiltration of the mucosa, friable endobronchial lesions, translucent nodules and identification of multiple permeable cavitation-like outlets that replaced part of the right superior lobe. The biopsies taken were diagnostic of Epidermoid Carcinoma (PDL1 40%).
Discussion: Considering the remodeled morphology of the lungs and bronchial tree in this patient and the positive familiar history of pulmonary tuberculosis, we formulate the hypothesis of an Epidermoid Carcinoma graft in a widely modified area by a previous undiagnosed pulmonary tuberculosis infection. Even though this association does not have a therapeutic or prognostic impact, the presented case exemplifies the importance of clinical thinking to integrate the imagiologic alterations on the respiratory patient.

Keywords: *Epidermoid carcnoma. Bronchiectasis. Cavitation.*

PE 084. A RARE PRESENTATION OF EWING SARCOMA

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Introduction: Ewing Sarcoma is the second most common primary bone malignancy and its peak incidence is in the second decade of life. It is responsible for 10-15% of all primary chest wall tumors and may originate in bone structures or, less frequently, from soft tissues.
Case report: A 38-year-old-women, non-smoker and with no relevant clinical history. The patient went to general practitioner for persistent left thoracic pain with 2 months of evolution and performed spine and chest CT, that revealed an extrapulmonary mass (67 × 49 × 64 mm) dependent on soft tissue of the left chest wall, extending to the anterior arch of the left sixth rib and small left pleural effusion. During physical examination, there was decreased movement of the left chest wall with tenderness present in the inframammary area. At auscultation, there were diminished breath sounds in the lower two-thirds of the left hemithorax. On suspicion of a neoplastic lesion, the patient was admitted to the Pulmonol-

ogy Department and underwent diagnostic thoracentesis and CT-guided transthoracic biopsy. Thoracentesis revealed an exudative pleural effusion, despite having negative cytology. Transthoracic biopsy histology was compatible with Ewing Sarcoma. 18F-FDG PET did not reveal other hypermetabolic lesions suggestive of malignancy. The patient was referred to a Reference Center for Soft Tissue and Bone Sarcomas and started a chemotherapy regimen with cyclophosphamide, doxorubicin and vincristine. At the time of the edition of this abstract, the patient is clinically stable, completing the second cycle of chemotherapy, expecting a reduction in the size of the tumor, thus making resection of the lesion possible.
Discussion: The most common causes of death are associated with local recurrence, distant metastasis and infiltration of the lung parenchyma. Finally, the authors recall the importance of considering this rare pathology in the differential diagnosis of thoracic tumors in adolescents and young adults.

Keywords: *Bone tumor. Ewing sarcoma. Thoracic tumors.*

PE 085. PULMONARY TOXICITY SECONDARY TO PACLITAXEL - REFERRING TO 2 CLINICAL CASES

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Introduction: Taxanes have the potential to induce pulmonary toxicity, with interstitial pneumonitis being the most common toxicity. It can occur within days to weeks after the first taxane cycle or after treatment is completed. Taxane-induced interstitial pneumonitis represents a delayed immune-mediated hypersensitivity reaction.
Case reports: 1st case. Male, 63 years old. Diagnosis of Small Cell Lung Carcinoma - stage IV. Undergoing 1st-line treatment with Carboplatin + Etoposide + Durvalumab. Due to disease progression, he underwent 2nd line of treatment with Topotecan and later 3rd line with Paclitaxel (175 mg/m^2 of 3/3wks). 5 days after the 1st cycle of paclitaxel, he went to the emergency service for: fever and myalgia. She had hypoxemic respiratory failure. Chest X-ray with bilaterally reticulonodular infiltrate, more evident on the right. Analytically with increased C-reactive protein (215), without other changes. For refusing hospitalization, he was discharged on antibiotics. 4 days later, he had worsening dyspnea, fever and SatO2 72%; pulmonary auscultation - bilateral lower 2/3 crackles and diffuse wheezing. Analytically with worsening of C-reactive protein and worsening of bilateral infiltrates. Performed BFC - BAL revealed lymphocytosis of 46%. Diagnosis of Hypersensitivity Pneumonitis secondary to Paclitaxel is assumed. Corticotherapy 1mg/kg was started, with consequent clinical and imaging improvement of the patient. 2nd case. 77-year-old man. Diagnosis of stage IIIa lung adenocarcinoma, in July/2017, submitted to surgical treatment. New diagnosis of LID lung adenocarcinoma in August 2018. Undergoing atypical segmental resection of the LID. Follow-up CT scan revealed "dimensional progression of the nodular area adjacent to the suture material, suspicion of relapse." A transthoracic biopsy revealed lung adenocarcinoma. Undergoing concomitant QT (Carboplatin+Paclitaxel)+RT. In CT scan after complete of treatments: "appearance of multiple areas of ground glass densification in both pulmonary hemifields, with more central areas of consolidation, changes more suggestive of toxicity to chemotherapy." Performed BFC with BAL which revealed lymphocytosis: 29%. Interpreted as an imaging and immunophenotypic picture in favor of hypersensitivity pneumonitis possibly related to paclitaxel. Corticosteroid - prednisolone 40 mg was started with improvement in imaging changes.
Discussion: According to the literature, 1 to 5% of patients receiving paclitaxel or docetaxel develop pneumonitis. Symptoms are non-specific, including: dyspnea, dry cough, malaise, fever, tachypnea, hypoxemia. As shown, the pulmonary image may show an irregular and diffuse reticular pattern, ground-glass opacities with peribronchial distribution, focal opacities or dense/consolidating nodules with or without air bronchogram, or organizing pneumonia-like reactions. No specific treatment was effective, other than drug discontinuation. The evidence supporting the benefit of corticosteroids is observational. These are initiated in patients who have rapidly progressive or more severe pulmonary toxicity.

Keywords: *Pulmonary toxicity. Taxanes.*

PE 086. INTERSTITIAL NEPHRITIS SECONDARY TO TREATMENT WITH PEMBROLIZUMAB, REFERRING TO TWO CLINICAL CASES

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Introduction: Acute kidney injury is a rare but potentially serious complication of checkpoint inhibitor immunotherapy. The incidence ranges from 1.5 to 5%, with acute tubulointerstitial nephritis being the most commonly reported complication. In these patients, treatment involves discontinuing the drug and using steroids.
Case reports: 2 clinical cases will be presented. 1st case. A 67-year-old woman, diagnosed with stage IV pulmonary adenocarcinoma, PD-L1>50%. Started first-line treatment with Pembrolizumab on 06/29/2020. At the 8th treatment cycle, the patient had a serum creatinine of 3.5 mg/dl (baseline - 0.7 mg/dl), without any associated symptoms. She performed renal ultrasound without changes. Observed by nephrology and after excluding other causes, the diagnosis of interstitial nephritis secondary to Pembrolizumab was considered. Treatment was suspended on 12/14/2020 and prednisolone 1 mg/Kg was started in slow weaning for 6 months until a maintenance dose of 10 mg/day with analytical improvement of the patient (up to 1.1 mg/dl creatinine). Pembrolizumab therapy was restarted on 02/15/2021 with good clinical and analytical tolerance. 2nd case. 67-year-old male, diagnosed with stage IV pulmonary adenocarcinoma, PD-L1 positive (1-5%), NGS without target mutations. He underwent first-line treatment with Carboplatin + Pemetrexed, completing 4 cycles and subsequent maintenance with Pemetrexed. Documented disease progression at end of 3rd cycle with Pemetrexed. Second-line therapy with Pembrolizumab was instituted. In the 5th cycle, the patient reported asthenia, anorexia, worsening of his general condition, productive cough, mucous sputum and worsening of peripheral edema. From the analytical study, serum creatinine of 2.5 mg/dl (baseline creatinine – 0.8 mg/dl) is highlighted. Observed by nephrology that after excluding other causes, it was considered to be interstitial nephritis secondary to Pembrolizumab. Treatment with prednisolone 1 mg/kg is instituted, with consequent clinical and analytical improvement of the patient.
Discussion: The cases presented here show that although interstitial nephritis secondary to pembrolizumab is a rare complication, the early identification of the increase in serum creatinine levels is essential to establish a quick diagnosis and, consequently, an effective treatment. Immunological biomarkers, used as a way to predict the risk of adverse events related to the immune system and as a means of aiding in the early identification of these complications, are under study. They include interleukin 17, eosinophilia and toxicity scores, however the optimal predictive biomarker is not yet defined. After starting treatment with corticosteroids, serum creatinine should be assessed weekly. In the patients presented, it was possible to resume treatment with Pembrolizumab, with good tolerance and without worsening of renal function.

Keywords: *Immunotherapy. Pembrolizumab. Interstitial nephritis.*

PE 087. IMMUNOTHERAPY IN LUNG CANCER - EXPERIENCE OF THE COVA DA BEIRA UNIVERSITY HOSPITAL CENTER

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Introduction: Advances in the treatment of lung cancer at an advanced stage have been challenging and immunotherapy has brought new hope to these patients, increasing their quality of life and survival, however we cannot forget the possible adverse effects.
Objectives: To describe and characterize the teeth that underwent or are undergoing immunotherapy for lung cancer at the Centro Hospitalar Cova da Beira, as well as the adverse effects frequently presented.
Methods: Retrospective analysis of 64 patients diagnosed with lung cancer undergoing or undergoing immunotherapy at Centro Hospitalar Universitário Cova da Beira. For the statistical study the Excel program was used.
Results: 64 patients performed or performed immunotherapy for lung cancer at the Centro Hospitalar Universitário Cova da Beira, the average age is 70 years (min:54; max:87) and the majority are male (91%). Of these patients 27 have already died. Most received pembrolizumab (41 patients) followed by nivolumab (20 patients). The main histological group is adenocarcinoma, followed by the epidermoid and the stage at presentation was predominantly stage IVb and IVa. Most started second-line treatment (62%) and 25% first-line. The median number of cycles was 12 and the median survival-free progression (PFS) was 6.12 months. 34.4% of patients had adverse effects, the most common being skin rash and polyarthralgia (grade 1), 10 patients definitively discontinued immunotherapy and one of them died from the complication (aseptic meningitis).
Conclusions: It is concluded that the main drug used was pembrolizumab and the main histological type was adenocarcinoma. As expected, most patients were already in an advanced stage of the disease (IVa and IVb). The PFS presented was only 6.12 months, however we cannot forget that the patients were already in an advanced stage of the disease and many of them were on second-line therapy. We alert to the high rate of adverse effects, which although they were mostly garu1 and easy to overcome, in some of them there was a need to definitively stop the treatment, even if one death occurred.

Keywords: *Immunotherapy. Lung cancer.*

PE 088. METRONOMIC SCHEME WITH ORAL VINORELBINE - A CLINICAL CASE OF SUCCESS!

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Introduction: Despite advances in the treatment of lung cancer, many patients end up being excluded because of their age, performance status, comorbidities, and the high probability of drug-associated toxicity. We present the case of an elderly man undergoing a metronomic scheme with vinorelbine.
Case report: We present the case of an 88-year-old man, retired (former interior decorator), non-smoker with a history of heart failure, benign prostatic hyperplasia, chronic venous insufficiency and vertigo syndrome, who was sent in August 2015 for consultation of internal medicine for presenting on computed tomography (CT) of the chest, in the suppleural region at the level of the right lower lobe, ill-defined nodular area with irregular contours measuring 33 mm and mediastinal adenopathies. On the day the transthoracic lung biopsy was performed, a clinical condition characterized by lipothymia and tinnitus with partial respiratory failure began, and the chest CTA revealed pulmonary thromboembolism of the subsegmental branch of the right inferior pulmonary artery. The patient became hypocoagulated and after the histological result of adenocarcinoma (T2aN2M0) he was sent to the oncology pulmonology consultation. Given the patient's age, the factor of not having EGFR and ALK gene mutations and the comorbidities presented, support therapy was chosen, however the patient asks to try chemotherapy treatment, assuming the risks inherent to age and comorbidities, starting therapy with oral vinorelbine in a metronomic schedule (40 mg, 3 times a week, cycles every 21 days). The response evaluation chest CTs always maintained stability and the patient always presented well, without symptoms, zero toxicity, without side effects with excellent tolerability so far.
Discussion: We present the case due to the null toxicity presented to vinorelbine in an elderly patient, hypocoagulated and with heart failure, with excellent tolerability, no adverse effects, no disease progression and excellent survival.

Keywords: *Vinorelbine. Adenocracinoma. Elderly.*

PE 089. MUCINOUS LEPIDIC LUNG ADENOCARCINOMA. CHALLENGES OF A CLINICAL CASE IN A YOUNG PATIENT

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Introduction: Lung adenocarcinoma is the most common histological type of malignant lung neoplasms, and it may have several subtypes. Given the diversity of subtypes, it can have various presentations.
Case report: 41-year-old male, non-smoker, usually resident in Venezuela, lawyer and owner of a bakery (no contact with the flour). Previous history of rheumatoid arthritis and medicated with sulfasalazine. The patient had SARS-CoV-2 infection in September 2020 without the need for hospitalization or antibiotics. After the SARS-CoV-2 infection, he started a dry cough that worsened in February 2021, associated with dyspnea for mild exertion (mMRC 3). He also lost 15 Kg in 3 months. The chest X-ray showed consolidation of the right base and, analytically, an increase in C-reactive protein was highlighted. Community-acquired pneumonia was admitted and medicated with moxifloxacin. Due to maintenance of complaints, he was hospitalized and underwent a chest tomography, which revealed "multifocal infiltrate, involving both upper lobes, the middle lobe and right lower lobe where an important condensation with air bronchogram is seen." Bronchoscopy showed no relevant endobronchial alterations. Bronchoalveolar lavage (BAL) had 178 cells: 63% neutrophils, 13% macrophages, 19% lymphocytes, 5% eosinophils, CD4/CD8 ratio - 1.4. The microbiological exam was negative. Tracheobronchial aspirate and BAL cytology were negative for neoplastic cells. Despite being medicated with piperacillin and tazobactam and with negative inflammatory analytical parameters, there was clinical worsening with the onset of partial respiratory failure and imaging worsening with the presence of ground glass areas and condensation with air bronchogram throughout the middle and lower lobe of the right lung , in the posterior segment of the upper lobe of the right lung and dispersed in the anterior segment of the right upper lobe, the anterior segment of the left upper lobe, the lingula and the apical segment of the left lower lobe with ground-glass nodular areas that were associated with extensive necrosis with cavitation, with a diffuse appearance, with a tendency to confluence in the middle lobe and lower lobe of the right lung. Since the patient was worsening with antibiotic therapy and systemic corticosteroids and without etiological clarification with the exams performed, atypical pulmonary resection of the upper right

lobe and middle lobe was performed by video-thoracoscopy. The pathological anatomy of the surgical specimen revealed mucinous lepidic adenocarcinoma (CK7 +; TTF1 +) consistent with pulmonary origin. PD-L1 with 0% labeling in neoplastic cells. The KRAS variant was detected: c.180_181delinsAA p. (Gln61Lys) in exon 2. The patient was started on chemotherapy with carboplatin and pemetrexed.
Discussion: Invasive mucinous adenocarcinoma can imagiologically mimic pneumonia, making its diagnosis more challenging, especially in the clinical case presented, as this is a young, non-smoking patient with a previous history of SARS-CoV-2 infection and medicated rheumatologic disease, and at entry with high inflammatory parameters.

Keywords: *Pulmonary adenocarcinoma. Atypical pulmonary resection. Pneumonia.*

PE 090. SHOULDER PAIN - DIAGNOSTIC CHALLENGE

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Introduction: Pancoast's syndrome is caused by malignant neoplasm of superior sulcus of the lung which produces destructive lesions of thoracic inlet and comes along with the involvement of brachial plexus and stellate ganglion. Overall, Pancoast tumours are much less common than other lung cancers, accounting for fewer than 5% of all lung cancers (1-3% in various previous series).
Case report: We report a case of a 57-year-old Caucasian female patient, smoker, that presented with left shoulder pain, and left side ptosis and miosis on the phisical examination. Cervical and thoracic spine MRI and thoracic TC scans revealed a mass in the apex of the left lung, invading the left scalene muscle, brachial plexus, first rib, as well as the left subclavian and common carotid arteries, the emergence of the left vertebral and internal mammary arteries and without a cleavage plane with the posterior wall of the left subclavian vein. An hipercaptation lesion the left apex/thoracic inlet as well as left hilar and mediastinal lymphadenopathies were seen in the PET scan. Histologic diagnosis of non-small-cell lung carcinoma was established by transthoracic needle biopsy (cT4NxM0). After 3 cycles of chemo-radiotherapy it was attained reduction of tumour size as well as lymphadenopathies size. The patient underwent surgery with "en bloc" resection of the anterior left thoracic wall, with resection of the left first rib, left upper lobectomy, subclavian artery and vein replacement with Gore-tex® prosthesis and mediastinal lymphadenectomy. In the immidiate follow-up chest tube drainages were significant, hoarseness was noted, and left upper limb edema and motor function impairment were evident. The patient was discharged on the 12th postoperative day. After surgery the patient completed two cycles of chemotherapy. After 10 months of follow-up after surgery, there is no clinical or imagiological evidence of recurrence. Phlebography determined complete thrombosis of the subclavian vein prosthesis, however, edema and mobilization of the left upper limb, have been improving. The patient mantains left side ptosis and miosis.
Discussion: Pancoast tumours are challenging thoracic malignant diseases to treat because of their proximity to vital structures at the thoracic inlet, and also to diagnose since the tumors become clinically evident with Horner syndrome, severe pain in the shoulder radiating toward the axilla and/or scapula and along the ulnar distribution of the upper arm, atrophy of hand and arm muscles and edema of the upper arm due to obstruction of the subclavian vein. Prognosis depends mainly on T stage of tumor, response to preoperative chemoradiotherapy and completeness of resection. Surgery for Pancoast tumors is associated with 5% mortality rate and the complication rate varies from 7-38%. The overall 2-year survival rate after induction chemo-radiotherapy and resection varies from 55% to 70%, while the 5-year survival for R0 resections is quite good (54-77%).

Keywords: *Pancoast. Tumor. Shoulder pain.*

PE 091. DIAGNOSTIC VALUE OF PLEURAL FLUID FLOW CYTOMETRY IN MALIGNANT PLEURAL EFFUSIONS

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Introduction: Analysis of pleural fluid by flow cytometry is rapid and informative. It is particularly useful for neoplasis with possible pleural involvement, and bares a diagnostic as well as staging potential.
Methods: A convenience sample of 31 patients with pleural effusion under aetiologic investigation was gathered in a central hospital over the course of one year. Every patient was submitted to thoracocenthesis and analysis of the pleural fluid as regards biochemistry, differential cell count, immune phenotyping by flow cytometry and cytopathology (with cell block for imunocytochemical analysis) The results from the flow cytometry that were suggestive of neoplasm were accompanied and compared with those from cytopathology.
Results: The patient's median age was of 69 years old and 13 of the patients were female. The majority of effusions (n = 29) were unilateral on presentation. On ultrasound, the same number was large, anechogenic and simple. The median of the time period from admission to thoracocenthesis was 3.5 days. This was merely diagnostic for only 2 patients. Macroscopically, 16 of the pleural effusions were serious (mostly clear) and 14 serosanguinolent. All effusions except 2 exhibit criteria for their classification as exsudates. Likewise, all effusions had a predominance of mononuclear cells apart from one, which was attributed to a Meigs' syndrome. Flow cytometry revealed that the majority exhibited a positive CD4+/CD8+ ratio. In 10 subjects, the flow cytometry suggested a neoplastic effusion secondary to pleural involvement by immunoproliferative B cell neoplasm, whose cells were larger than normal and positive for immune markers specific of the given neoplasm. Interestingly, 8 of these patients did not obtain a cytopathological diagnosis suggestive of liquid neoplasm in the same pleural fluid sample. In 19 patients, the flow cytometry led to the suspicion of solid neoplasm by identification of non-hematopoietic lineage cells. These were present in either residual populations (< 1%) or, on the contrary, were the dominant cell population (> 50%). The majority was positive for EpCAM, cytokeratines, and CD200, whilst being negative for CD45. The lack of specificity of these markers did not allow to discern between likely primary tumours based on immune phenotyping alone. In these patients, cytopathology had additional diagnostic value in a minority of patients. In the patients in which a solid neoplasm was eventually diagnosed, the most common primary tumours were the lung adenocarcinoma followed by the cholangiocarcinoma. Lastly, the cytopathological diagnosis of the neoplasms was obtained after a median of 11.5 days following admission (7 days following thoracocenthesis), but was suggested by flow cytometry after 24 h work hours.
Discussion: In neoplastic pleural effusions, flow cytometry allowed for the diagnosis of lymphoproliferative neoplasms with a high sensitivity. In solid neoplasms, it was useful as a red flag through the identification of clonal cells, including for the patients in which the cytopathology was negative for the same sample. The fact that pleural fluid flow cytometry supplied a timely result relatively to cytopathology is particularly important for a population of patients that is already in an advanced stage of their neoplastic illness.

Keywords: *Cytopathology. Flow cytometry. Immune phenotyping. Malignant pleural effusion*