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COMMENTED POSTERS

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PC 001. SEQUENTIAL VS MULTIPLEX PARALLEL STRATEGIES FOR THE MOLECULAR CHARACTERIZATION OF NON-SMALL CELL LUNG CANCER SAMPLES OBTAINED BY ENDOBRONCHIAL ULTRASOUND TRANSBRONCHIAL NEEDLE ASPIRATION – A SINGLE CENTER EXPERIENCE

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Introduction: Treatment algorithms of non-small cell lung cancer (NSCLC) emphasize the need for detailed knowledge of the molecular characterization (MC) to unveil the presence of actionable mutations. However, diagnostic tools are evolving to minimal invasive procedures, such as endobronchial ultrasound transbronchial needle aspiration (EBUS-TBNA), lending clinicians the dilemma of retrieving adequate samples to meet the demands of pathologists and molecular geneticists. Although the suitability of samples retrieved by EBUS-TBNA for histopathology and sequential molecular profiling (SMP) has been thoroughly studied, the feasibility of multiplex parallel next generation sequencing (MP-NGS) in this type of samples is still under debate.
Objectives: To evaluate the suitability of NSCLC samples retrieved by EBUS-TBNA for MC by both SMP and MP-NGS.
Methods: We conducted a retrospective analysis (January, 2019-December, 2022) of all patients that simultaneously performed EBUS-TBNA and MC of NSCLC either by SMP (real-time polymerase chain reaction for the detection of EGFR status followed by determination of ALK gene rearrangements by fluorescence in-situ hybridization) or MP-NGS. Data regarding demographics, smoking history, histopathological classification, staging, procedure details and final molecular analysis were collected.
Results: During this 4-year period, 102 NSCLC patients simultaneously performed MC of NSCLC and EBUS-TBNA. Of these, SMP was used in 59 cases, whereas MP-NGS was performed in 43 cases. EBUS-TBNA derived samples were used for MC in 66 patients (64.7%). The remainder 36 patients had their MC performed in alternative biological samples (mainly CT guided transthoracic lung biopsy, videobronchoscopy forceps biopsies, surgical lung biopsies and less frequently peripheral blood samples).
Patients in SMP group (n = 38) were mainly male (65.7%), with a median age of 67 years and half of them with smoking history. Most NSCLC were lung adenocarcinomas (86.8%), and 25 cases (65.8%) were TMN stage IV. A median of 2 lymph node stations were biopsied, with a median of 3 needle passages. Thirty-four samples (89.5%) were considered satisfactory for EGRF assessment, whereas 31 (81.6%) were suitable for ALK evaluation. EGFR mutations were identified in 6 patients and ALK rearrangements in 2. Similarly, patients in MP-NGS group (n = 28) were mainly males (57.1%), with a median age of 68.5 years and smoking history (57.1%). Stage IV lung adenocarcinoma was observed in 26 patients (92.9%). A median of 1 lymph node station was biopsied, with a median of 4 needle passages. EBUS-TBNA provided adequate samples in 26 patients, while 2 were insufficient for MPNGS and required a second EBUS-TBNA. Overall, 21 patients (75%) had actionable mutations, most frequently EGFR (28.6%). The median delay from initial EBUS-TBNA to final SMP and MP-NGS results was 20 days and 36 days, respectively.
Conclusions: Our results agree with those of larger studies, demonstrating that NSCLC samples retrieved by EBUS-TBNA are feasible for both SMP and MP-NGS. As expected, using a similar sample, MP-NGS was able to identify significantly more actionable mutations than SMP. Further data may be required concerning the delay observed from EBUS-TBNA to final MC.

Keywords: *NSCLC. EBUS-TBNA. MP-NGS.*

PC 002. PRESENTATION OF PRIMARY EFFUSION LYMPHOMA AS AN ENDOBRONCHIAL MASS – A CLINICAL CASE

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Introduction: Primary effusion lymphoma (PEL) is an uncommon subtype of lymphoma, being described in immunosuppressed individuals, often diagnosed with infection by the human immunodeficiency virus (HIV). The extracavitary form is a rare presentation of this entity.

Case report: 52-year-old male with a personal history of pneumonia. He went to the emergency department because of a dry cough that had been going on for about six months, associated with exertional dyspnea and constitutional syndrome. The complementary study showed elevation of inflammatory markers and positive serology for HIV, with high viral load and marked decrease in CD4+ Tlymphocyte counts, indicating severe immunosuppression. A plain chest X-ray was performed, documenting middle lobe consolidation; chest computed tomography was then performed, confirming the presence of middle lobe pneumonia, with a small ipsilateral pleural effusion and subcarinal and right paratracheal adenopathies. The patient was admitted and started empirical antibiotic therapy. Thoracic ultrasound was performed, confirming a consolidation pattern and a very small free pleural effusion. The clinical evolution was unfavorable, with the patient maintaining fever and elevation of inflammatory markers. Flexible bronchoscopy was performed, documenting the presence of a pearly white lesion occluding the entrance hole of the middle lobar bronchus, as well as small polypoid lesions in the subsegmental spurs of the basal pyramid right. Both lesions were biopsied. The immunohistochemical study carried out allowed the diagnosis of extracavitary PEL. Proton emission tomography was performed, documenting lung, pleural, liver, ganglionic and bone disease. The patient was referred to Clinical Hematology to start chemotherapy treatment.
Discussion: The extracavitary form of PEL is very rare, and the endobronchial manifestation has not been described in the revised literature. This case allowed endobronchial documentation of the lesion, in a patient with de novo HIV infection who, at the time of diagnosis, had no involvement of serous cavities. In the presence of an endobronchial mass, the possibility of lymphoma should always be considered, especially in immunosuppressed individuals, as it can be a challenging diagnosis.

Keywords: *Non-Hodgkin's lymphoma. Extracavitary primary effusion lymphoma. Flexible bronchoscopy. Human immunodeficiency virus infection.*

PC 003. ENDOBRONCHIAL HAMARTOMAS: CLINICAL REVIEW OF 2 CASES

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Introduction: Hamartomas are benign tumors that can occur in the lungs, skin, heart, and breasts, representing a mixture of mature mesenchymal tissue (like cartilage, bone, muscle, or adipose tissue), and are the most common benign pulmonary neoplasm in adults. The vast majority of them are located in the peripheral parenchyma but very rarely they may originate endobronchially. These tumors are usually present in the fifth and sixth decades of life and are more common in males. Most pulmonary hamartomas produce no symptoms, often being incidental findings, with persistent coughing or wheezing, dyspnea, hemoptysis, rhonchi, pneumonia, atelectasis, or pneumothorax being the most common manifestations. Endobronchial neoplasms additionally present the risk of airway obstruction.
Case reports: We present a 45-year-old non-smoking male with a personal history of obesity and hyperuricemia who was referred to a pulmonology appointment after having performed a chest computed tomography which revealed an irregular high-density foreign body in the lumen of the middle lobar bronchus with 12 mm. There were no lung-related symptoms relevant for this case and physical examination was unremarkable. The patient underwent a flexible videobronchoscopy that showed a firm and stiff endobronchial lesion completely obstructing the middle lobar bronchus and was removed with biopsy forceps. After removal, bronchial patency was found. Histological examination revealed a pulmonary hamartoma. The patient repeated flexible videobronchoscopy, which revealed a well-defined whitish pedunculated lesion on the B4/B5 spur of the middle lobe bronchus, which was biopsied and revealed nonspecific reactive changes in the bronchial mucosa (without residual lesions of pulmonary hamartoma). We also present an 85-year-old man, a former smoker, with a personal history of arterial hypertension, diabetes mellitus, obesity, ischemic heart disease, and prostate cancer. As he had been hospitalized 3 times in 4 months for pneumonia of the right lung, he underwent a flexible videobronchoscopy that showed a whitish rounded endobronchial lesion obstructing the lumen of the apical segment of the right lower lobe bronchus, which was biopsied and concluded to be a pulmonary hamartoma. A CT scan of the chest revealed an extensive area of alveolar consolidation involving a large part of the right lower lobe, groundglass densification, and less extensive consolidation in the right upper lobe, middle lobe, and lingula. Given the patient's advanced age and comorbidities, surveillance was decided.
Discussion: Despite hamartomas often mimic pulmonary malignancies, on imaging they typically present as coin-shaped and solitary masses, with well-defined edges, usually measuring less than 4 cm. Calcification may be present, most frequently in the "popcorn" or "comma-shaped" forms. Surgery is the only definitive curative option and can be necessary for neoplasms that have become symptomatic. The prognosis for these patients is generally excellent, as lesions are slow-growing and, despite the possibility of airway obstruction, with atelectasis or recurrent pneumonia, only in very rare cases, sarcomatous transformation was noted.

Keywords: *Hamartoma.*

PC 004. ENDOBRONCHIAL OBSTRUCTION DUE TO A BENIGN TUMOR – A CLINICAL CASE

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Introduction: Inflammatory myofibroblastic tumor (IMT), more common in children and adolescents, is a rare benign neoplasm consisting of myofibroblasts, generally presenting a high proliferative index, with a high risk of local progression and recurrence after removal. Its presentation at the endobronchial level is quite rare, constituting an increased risk for the patient due to the potential for airway obstruction. The authors present the case of an endobronchial IMT and respective approach.
Case report: Female, 26 years old, with a personal history of mild allergic asthma. She went to the emergency department due to a 2-day history of dry cough and feverish syndrome. On admission, she was tachycardic, tachypneic and feverish, with a peripheral oxygen saturation of 90%; pulmonary auscultation demonstrated decreased vesicular murmur at the left base. Complementary exams were performed: arterial gasometry documented hypoxemia and hypocapnia; plain chest X-ray documented left lower lobe (LLL) atelectasis; analytical study showed elevation of inflammatory markers. LLL pneumonia was assumed, and empirical antibiotic therapy was started. Clinical deterioration ensued in less than 24 hours, with development of severe respiratory failure. A repeated chest X-ray now demonstrated total atelectasis of the left lung. Thoracic computed tomography confirmed atelectasis of the left lung, associated with total occlusion of the left main bronchus (LMB) due to an endoluminal expansive formation. For this reason, rigid bronchoscopy (RB) was performed, which documented the presence of a highly vascularized lesion with smooth contours. Laser photocoagulation

and mechanical debridement were performed, with profuse bleeding controlled with cold saline solution, topical adrenaline and tranexamic acid. Downstream of the injury site, the segmental and subsegmental bronchi were patent, with aspiration of mucopurulent secretions. Due to the presence of post-obstructive pneumonia, empirical antibiotic therapy was maintained for seven days, with improvement. Immunohistochemical examination of the excised lesion revealed the presence of fusiform cells with ill-defined borders and an ovoid nucleus, together with an abundance of lymphocytes and plasmocytes and positive staining for anaplastic lymphoma kinase (ALK). The listed characteristics allowed the diagnosis of IMT. Flexible revision bronchoscopy was performed three weeks after RB, confirming irregular mucosa at the implantation site of the excised lesion, but without lesion recurrence; The patient was completely asymptomatic during this period, with normal pulmonary auscultation.
Discussion: The presented case recalls the importance of considering benign neoplasms as a potential cause of endobronchial obstruction, especially in young individuals. The availability of BR plays a fundamental role in the urgent management of these cases, constituting an important alternative to surgical excision. Carrying out a careful immunohistochemical examination is also essential, as the overexpression of ALK, which is characteristic of IMT and which was observed in this case, has therapeutic significance. Despite being benign, IMTs often express an aggressive evolution, with a high potential for recurrence after excision; certain patients may be candidates for targeted therapy with ALK inhibitors. Careful monitoring with computed tomography and fiberoptic bronchoscopy should be considered.

***Keywords**: Rigid bronchoscopy. Inflammatory myofibroblastic tumor. Post-obstructive atelectasis.*

PC 005. AN UNUSUAL DIAGNOSIS – FROM THE BILE DUCT TO THE LUNG

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Introduction: The lung is an organ of distant metastasis common to several neoplasms, with the breast, kidney, colon and rectum being the most frequent primitive tumors. Pulmonary metastases from biliary tract neoplasms are less common. Cholangiocarcinoma is a rare neoplasm of the biliary tree, and its intrahepatic variant represents less than 10%. They have a poor prognosis and usually appear in the fourth decade of life. Because they are associated with nonspecific symptoms, they are often diagnosed in advanced stages, when there are already distant metastasis. The authors present the case of an intrahepatic cholangiocarcinoma diagnosed through a pulmonary metastasis with endobronchial extension.
Case report: Female, 55 years old, without any relevant environmental or occupational exposures. She was admitted because of a lung mass detected in an imaging exam carried out in the context of clinical worsening during a course of appropriate antibiotic therapy for a respiratory infection. Thoraco-abdomino-pelvic computed tomography (TAP CT) showed a right hilar pulmonary mass measuring 42 mm, with voluminous mediastinal and right hilum adenopathies, associated with osteolytic lesion of the right acetabulum, hypodense hepatic nodule and heterogeneous solid nodules in the right adrenal gland. She underwent fiberoptic bronchoscopy, later converted to rigid bronchoscopy due to an endobronchial mass, which was biopsied and subsequently submitted to laser treatment. The biopsy revealed an adenocarcinoma originating from the bilio-pancreatic axis. She was then referred to a Medical Oncology consult. Given a personal history of a genetic mutation that confers increased susceptibility to cirrhosis, a diagnosis of intrahepatic cholangiocarcinoma with lung and adrenal metastasis (stage IV) was admitted. Due to the rapid progression of the neoplastic disease, the patient died about a month and a half after the diagnosis.
Discussion: The diagnosis of primary neoplasms of the biliary tract still represents a diagnostic challenge in the early stages of the disease, with intrahepatic cholangiocarcinoma being less frequent and more difficult to diagnose, manifesting symptoms associated with distant metastasis, such as pulmonary metastasis.

***Keywords**: Rigid bronchoscopy. Endobronchial tumor. Lung metastasis. Intrahepatic cholangiocarcinoma.*

PC 006. TRANSTHORACIC BIOPSIES OF LUNG LESIONS GUIDED BY REAL-TIME COMPUTED TOMOGRAPHY: THE EXPERIENCE OF ONE CENTER

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Introduction: Computed tomography-guided transthoracic lung biopsy (TATB) is a well-established and commonly performed technique for the diagnosis of lung lesions. Indications for BPTT include indeterminate pulmonary nodules or solid lesions not amenable to transbronchial biopsy or after inconclusive bronchoscopy and persistent focal infiltrates for which diagnosis is not possible with other investigations. It allows the confirmation or exclusion of neoplasia and the assessment of histological and molecular subtypes. It is minimally invasive and safe, with low complication rates: between 10-17%. The sensitivity, specificity and cost-effectiveness of BPTT for the diagnosis of malignancy are reported to be > 90%, > 99% and > 90%, respectively, even for nodules < 1 cm.
Methods and objectives: Descriptive, observational and retrospective analysis of the diagnostic yeld and safety profile of BPTT performed in 20 patients from January to February 2022 at CHLO-HEM. The information was obtained by consulting the clinical files of the respective patients.
Results: The analysis of the population of patients undergoing real-time BPTT showed a male predominant gender distribution (55%, n = 11) and a mean age of 65.9 years (n = 11; minimum age 43; maximum age 97). BPTT results were diagnostic in 90% of cases (n = 18), of which 70% were positive for malignancy (n = 14) and non-diagnostic in 10% (n = 2) of cases. In 95% (n = 19) of the patients, BPTT was decided given the inaccessibility of the lesion by BFO. Only 5% (n = 1) were referred for BPTT due to a previous negative diagnosis of bronchial biopsy and bronchial secretion cytology by BFO. From a technical point of view, the use of a tru-cut needle was chosen in 85% of cases (n = 17) when biopsy of pulmonary nodules or masses was required. Fine-needle aspiration accounted for 15% (n = 3) of BPTTs, used in cases of suspected infectious etiology. Of the pathology results obtained, primary lung neoplasia predominated (64.29%, n = 9) with lung adenocarcinoma being the most common histological pattern (55.56%, n = 5). Cases of lung metastasization from extrapulmonary primary neoplasms accounted for 35.71% (n = 5) of cases. BPTT performed with fine needle aspiration allowed the isolation of bacterial agent in 100% of cases. The cases in which diagnosis by BPTT was not possible (10%, n = 2), occurred due to insufficient sample collection, both in peripheral lesions > 2 cm. One of them with concomitant pleural effusion. The complication rate was 3% (n = 1), represented by only one complicated case of small pneumothorax, without the need for drainage, in a patient with emphysema.

Conclusions: BPTT is a highly accurate and safe technique for the diagnosis of lung lesions with radiation exposure. Its high diagnostic accuracy should be weighed against the risk of pneumothorax and hemorrhage, taking into account patient preference. The risk-benefit ratio is higher in patients with concomitant emphysema, bullous disease or chronic respiratory failure. The results obtained at this hospital center include diagnostic yield and complication rates comparable to previous studies.

***Keywords**: Computed tomography. Transthoracic needle biopsy. Lung lesions. Diagnostic yield. Pneumothorax.*

PC 007. A RARE CAUSE OF HEMOPTYSIS: AORTOBRONCHIAL FISTULA AFTER AORTIC ANEURYSM REPAIR

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Introduction: Hemoptysis is a frequent sign in respiratory diseases. Most of the times the underlying cause is easily recognized, however, sometimes the etiology can be difficult to identify. The presence of an aortobronchial fistula is a rare cause of hemoptysis, but it can lead to massive hemorrhage. Clinical suspicion should be high in patients with a history of aortic aneurysm submitted to surgical treatment.
Case report: Male 79 years old, PS 0, former smoker (120 pack-years). Personal history of arterial hypertension, dyslipidemia and contained rupture of a descending thoracic aorta aneurysm in December 2019, submitted to TEVAR (Thoracic Endovascular Aneurysm Repair) with stent-graft placement. The patient was admitted in the hospital in March 2020 for tracheobronchitis with reference to episodes of hemoptoic sputum. After discharge, he maintained follow-up at an Internal Medicine consultation and because he continued to have episodes of hemoptysis in small amounts, he was referred to a Pulmonology consultation. Chest CT with contrast revealed patent endoprosthesis in the thoracic aorta with a 3-mm continuity solution between the upper segment of the left lower lobe and the aorta, compatible with an aortobronchial fistula, without signs of contrast extravasation into the bronchial tree or gas in the stent-graft lumen. The case was discussed with Vascular Surgery and an endoscopic evaluation was proposed. Fiberoptic bronchoscopy was performed, with visualization of the stent-graft at one of the subsegments of B6. Due to the absence of symptoms and because the subsegment was contained by the stent, it was decided not to place an endobronchial prosthesis, which would exclude the entire left lung. The case was again discussed with Vascular Surgery who considered that the patient was not a candidate for open surgery given his risk factors and the complexity of the procedure. Conservative treatment was maintained. The patient continued follow-up in the Pulmonology consultation and a diagnosis of COPD was also established. There was spontaneous cessation of hemoptysis and the patient remains asymptomatic so far. The most recent chest CT scan from April 2023 shows no significant evolution of the aortobronchial fistula.
Discussion: Aortobronchial fistula is a rare condition in which there is a pathological fistulous path between the aorta and the bronchial tree. Most cases have a secondary origin, especially due to interventions in the thoracic aorta. This complication can occur several years after the procedure. The left bronchial tree tends to be the one involved due to the proximity of the descending thoracic aorta (there is a greater distance between the right bronchial tree and the ascending aorta). The most common manifestation is hemoptysis, but there may also be chest pain, dyspnea or hemodynamic instability. After identifying an aortobronchial fistula, a multidisciplinary approach should be conducted, taking into account the patient's symptoms, comorbidities and risk factors. Therapeutic options include correction by open surgery, endovascular repair or conservative treatment. We demonstrate a rare case in which only clinical and radiological surveillance was maintained, with good evolution and stability of the fistula.

***Keywords:** Aortobronchial fistula. Thoracic aortic aneurysm.*

PC 008. BRONCHOLOGY IN MALIGNANT TRACHEAL OBSTRUCTION – PALLIATE TO TREAT

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Introduction: Primary tumours of the trachea are rare, with malignant lesions in this location mostly due to direct invasion by lung, laryngeal or thyroid neoplasms, or, less frequently, by haematogenous metastization. Their incidence is approximately 0.1 in 100,000 people per year and they are more common in male patients with a history of smoking. Symptoms usually appear when there is obstruction of more than 50% of the tracheal lumen.
Case report: Male patient, 57 years old and active smoker, with a personal history of gastroesophageal reflux disease and high-grade vocal cord dysplasia, he underwent left cordectomy and radiotherapy seven years ago, under surveillance and without evidence of locoregional recurrence. In March 2023, he started coughing and hemoptysis. He underwent chest X-ray and gastroesophageal transit without alterations; respiratory function tests (RFT) with moderate bronchial obstruction, without response to bronchodilation; and chest CT that showed, at the level of the aortic arch, a lobulated lesion of the left lateral wall of the trachea, measuring 28 × 22 × 16 mm, causing 75% obstruction of the tracheal lumen and with a cleavage plane with the aortic arch preserved. Due to worsening symptoms, with dyspnea at rest (grade 8 on the modified Borg scale), comfort position in left lateral decubitus and expiratory stridor; the patient underwent rigid bronchoscopy for tumor clearance and symptomatic relief. Rigid bronchoscopy with videobronchoscopy support was performed and the tumor was observed at the level of the middle third of the trachea, with an extension of 25 mm and 80% luminal obstruction. Endobronchial evaluation distal to the tumor showed a healthy airway in the main carina and both bronchial trees. First, partial destruction of the tumor was performed with an electrocoagulation probe and mechanical removal with rigid forceps, which allowed identification of the implantation base in the left posterolateral wall. The beveled tip of the tracheoscope was then advanced to the base of the tumor, with core-out of the lesion under direct visualization and removal of the tumor with rigid forceps. At the end of the procedure, tracheal permeabilization was possible, with a final lumen of 90% of normal, and electrocoagulation was performed under the remaining tumor base. After the procedure, the complaints of dyspnea and stridor resolved, and the patient was discharged at 72 hours. Histological examination revealed invasive, moderately differentiated squamous cell carcinoma. Postoperative RFPs showed reversal of the obstructive pattern. Staging of the disease revealed a single suspicious uptake on PET-CT in tracheal thickening, corresponding to the base of the tumor, and absence of cranioencephalic lesions. The patient was proposed for segmental resection of the trachea.
Discussion: The clinical case presented demonstrates the importance of the rigid bronchoscopy technique in the approach of patients with tumours of the airway. In the case of tracheal tumours, surgery is the definitive treatment, however, in patients with obstructions that may compromise the airway, this technique assumes a "life-saving" role and constitutes a bridge to surgery, allowing

better optimization of the patient, planning of the procedure and performance of the necessary staging tests.

Keywords: *Bronchoscopy. Rigid. Obstruction. Tracheal.*

PC 009. ENDOBRONCHIAL ULTRASOUND-GUIDED TRANSBRONCHIAL NEEDLE ASPIRATION (EBUS-TBNA) – INITIAL EXPERIENCE FROM A CENTER

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Introduction: Endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) is a minimally invasive procedure established for the diagnosis of pathologies involving the mediastinum/hilar region and lung cancer staging. Available in Northern Portugal since 2009, initially limited to Central Hospitals, the technique has become increasingly demanded, resulting in a surge of requests and contributing to delays in the diagnosis/staging of lung neoplasia. As of February 2023, EBUS-TBNA has been available in our center, and this study aims to describe the initial experience and diagnostic performance of EBUSTBNA in a Portuguese district hospital.
Methods: A retrospective analysis of EBUS-TBNA results from February to July 2023 was conducted. The final disease diagnosis was obtained through a combination of other diagnostic tests, clinical surveillance, imaging, and the final pathological staging result for operated neoplasms. Descriptive analysis of procedure-related parameters and their outcomes was performed, along with sensitivity/specificity determination and ROC curve analysis.
Results: During this period, 37 patients underwent EBUS-TBNA. The median age was 66 [57-75] years, with a male predominance (26, 70%). Most referrals came from the Pulmonology clinic (23, 62%), while others were from the Internal Medicine clinic (5, 14%), Oncology clinic (4, 11%), inpatient setting (4, 11%), and CDP-Matosinhos (1, 3%). The maximum waiting time for EBUS-TBNA was 2 weeks. Twenty-one (57%) procedures were performed for diagnostic purposes, 11 (30%) for lung cancer staging, and 5 (14%) for simultaneous diagnosis and staging. With an anesthetist available once a week, the majority (29, 78%) of procedures were performed under general anesthesia with intubation via a laryngeal mask. Eight (22%) procedures were conducted with mild-moderate sedation using midazolam and fentanyl. Out of a total of 89 needle aspirations, most were performed in stations 7 (25; 28%), 4R (22; 25%), and 11R (17; 19%). The median number of punctured stations per patient was 2 [2-3]. Lymph node representativeness was achieved in 100% of cases. Microbiological analysis was conducted in 14 (38%) patients, and flow cytometry in 13 (35%). The procedure resulted in a definitive diagnosis in 20 (54%) patients: 13 (35%) with malignancy [adenocarcinoma (5), squamous cell carcinoma (2), small cell carcinoma (5), non-small cell carcinoma (1)], 6 (16%) with sarcoidosis, and 1 (3%) with non-tuberculous infection. EBUS-TBNA demonstrated a sensitivity, specificity, positive predictive value, and negative predictive value of 87%, 100%, 100%, and 82%, respectively. The area under the ROC curve was 0.935 [CI 0.850-1.000]. One significant complication occurred, with acute respiratory failure/alveolar hemorrhage, which was resolved with conservative measures.
Conclusions: The initial diagnostic performance of EBUS-TBNA in our center was high, with sensitivity and specificity comparable to other published studies. The availability of this technique allowed for a more timely diagnosis/staging of patients with neoplasia. Future objectives include increasing the number of procedures performed, conducting more examinations under sedation, and combining diagnostic and staging purposes.

Keywords: *EBUS-TBNA. Diagnosis. Sensitivity. Specificity.*

PC 010. PLEURAL EFFUSIONS SUBMITTED TO THORACENTESIS IN A TERTIARY HOSPITAL – DESCRIPTIVE ANALYSIS

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Introduction: The approach to medically caused pleural effusions by invasive methods falls under the competence of Pulmonology. The authors carried out a descriptive evaluation of the cases approached by thoracentesis in the first half of 2023 at the Interventional Pulmonology Unit of Hospital de Santa Maria.
Methods: A total of 120 patients with pleural pathology were evaluated. Most had pleural effusion (n = 110; 91.7%), and all underwent chest ultrasound. More than half underwent thoracentesis (n = 71; 64.5%), and patients who underwent placement of pleural drainage were excluded from this analysis. Gender distribution was roughly equal (54.9% female and 45.1% male), mean age was 70.3 ± 16.8 years (minimum: 25; maximum: 98 years old) and the patients were mostly referred from the Internal Medicine Service (52.1%), the Emergency Service (14.1%) and the Pulmonology Service (5.6%). Most patients (n = 32; 42%) had a personal history of cancer (suspected or confirmed), the most frequent being lung cancer (totaling 26%), followed by breast (20%) and rectal cancer (10%). In second place were patients with decompensated heart failure (n = 13; 19%) and in third place were patients with pleural effusion under study (n = 6; 9%). Half of the patients (n = 36; 50.7%) underwent thoracentesis for diagnosis and evacuation purposes simultaneously, while a third (n = 24; 33.8%) underwent for evacuation purposes and the remaining (n = 11; 15.5%) for diagnostic purposes. The average amount of liquid drained among the 60 patients who underwent evacuating thoracentesis was 1,240.4 ± 544.4 ml.
Results: The biochemical examination revealed 61.4% of exudates and 30.0% of transudates, and the remaining samples (n = 6) were not sent for biochemical study. Among the 70 samples sent for anatomopathological study, 61.4% were negative for neoplastic cells, 14.2% had reactive mesothelial cells, 11.4% inflammatory exudate, 7.1% blood sediment and 5.7% detected neoplastic cells (one gastric carcinoma, one clear cell carcinoma metastasis, one adenocarcinoma and one suspected mesothelioma). The microbiological examination was negative in all samples.
Conclusions: Pleural effusions were the pleural pathology in most need of approach by Interventional Pulmonology. Most effusions submitted to thoracentesis were associated with suspected or confirmed neoplastic pathology, followed by heart failure, and the predominance of exudates over transudates seems to support this distribution as it is in agreement with the data found in the medical literature.

Keywords: *Pleural effusion. Thoracocentesis. 2023.*

PC 011. PLEURAL EFFUSIONS SUBMITTED TO THORACIC DRAINAGE IN A TERTIARY HOSPITAL – DESCRIPTIVE ANALYSIS

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Introduction: The approach to medically caused pleural effusions by invasive methods is within the scope of Pulmonology. The authors carried out a descriptive evaluation of the cases treated with tho-

racic drainage in the first half of 2023 at the Interventional Pulmonology Unit of Hospital de Santa Maria.
Methods: A total of 120 patients with pleural pathology were evaluated, most of whom had pleural effusion (n = 110; 91.7%). A quarter of these patients underwent placement of pleural drainage (n = 27; 24.5%). The main indications were largescale malignant effusion (n = 11; 40.7%) and empyema (n = 7; 25.7%). Gender distribution was similar (51.9% female and 48.1% male), with a mean age of 63.2 ± 16.3 years (minimum: 26; maximum: 96 years). One third of the patients were referred from the Medicine Service (n = 9; 33.3%), followed by the Emergency Service (n = 7; 25.9%) and the Surgery Service (n = 4; 14.8%). All pleural effusions had characteristics of exudate.
Results: Of the 19 samples of pleural fluid sent for microbiological examination, four were positive (21.5%), and one of them isolated two microorganisms. All isolations occurred in patients with empyema – *Escherichia coli* (n = 2; 4.2%), *Eikenella corrodens* (n = 1; 1.4%), *Fusobacterium nucleatum* (n = 1; 1.4%) and *Streptococcus constellatus* (n = 1; 1.4%). Of the 18 samples sent for anatomopathological study, four were positive for neoplastic cells (n = 4; 21.1%) – three adenocarcinomas, two of pulmonary origin and one of ovarian origin, and one metastasis of renal cell carcinoma. Of the patients with malignant pleural effusion, almost half (n = 5; 45.6%) underwent pleurodesis using the slurrytalc technique. The remainder had an incarcerated lung (n = 1; 9.1%) or contraindication for pleurodesis (n = 5; 45.6%). No patient presented condition to place a long-term tunneled catheter. As complications associated with the placement of pleural drainage, there was only one episode associated with re-expansion edema.
Conclusions: A significant percentage of patients with pleural effusion present indication for pleural drainage, with malignant effusion and empyema being the most frequent indications. Pleural drainage allows, in a safe way, the rapid drainage of the effusion, the control of the infectious focus and allows the posterior palliative approach of the pleural effusion.

Keywords: *Pleural effusion. Thoracic drainage. 2023.*

PC 012. WHEN WAITING IS THE HARDEST

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CHULN.

Introduction: Iatrogenic injuries to the trachea and main bronchi are rare complications associated with invasive procedures. They are usually the result of tracheal intubation, with a reported frequency of 0.05-0.37%. Risk factors include emergent intubation, out-of-hospital intubation, double-lumen tracheobronchial tubes, rigid bronchoscopy, mechanical ventilation and surgical procedures at the level of the thyroid, esophagus and lungs. The most important diagnostic method continues to be bronchoscopy, allowing assessment of the location, extent and type of lesion.
Case report: We present a clinical case of a 72-year-old woman, non-smoker, autonomous. With a history of exposure to birds, no known connective tissue pathology. As previous diagnoses, she had asthma, HTA, dyslipidemia and NIT diabetes with diabetic retinopathy. She also refers to previous hospitalization due to SARS-CoV-2 infection lasting 12 days without the need for mechanical ventilation. She reported worsening tiredness, dyspnea and wheezing since hospitalization for SARS-CoV-2, despite optimization of therapy aimed at asthma and a cycle of antibiotics. Imaging showed a pattern of reticular densification in ground glass, associated with traction bronchiectasis and "honeycomb", with signs of slight volumetric retraction of the basal and right apical parenchyma – suggestive of fibrotic interstitial disease. Functionally with severe decrease in DLCO. Echocardiogram showing non-dilated cavities, PASP 41 mmHg with intermediate probability of pulmonary hypertension. The case was discussed in a multidisciplinary reunion of Interstitial Pathology, posing a diagnostic hypothesis of chronic interstitial pneumonia, having decided the need for cryobiopsy for etiological clarification. A cryobiopsy was performed under general anesthesia with placement of an orotracheal tube (OTT). During the procedure, there was evidence of minimal bleeding originating above the distal end of the OTT. After the procedure and careful raising of the TOT, a laceration of the tracheal posterior wall of approximately 3 cm in length was seen. The patient was admitted to the Intensive Care Unit for clinical and imaging surveillance, with no evidence of pneumomediastinum, pneumothorax or subcutaneous emphysema. Conservative therapy and surveillance were chosen. Endoscopic bronchial reassessment at 4 days showed posterior tracheal wall laceration with some signs of healing of the flaps. Classified as grade I - laceration limited to the mucosa/submucosa, without pneumodiastinum/mediastinicitis; according to Cardillo *et al*. She was discharged after 4 days, with indication for surveillance. Endoscopic bronchial reassessment after 1 month, showing complete healing of the laceration, with no continuity solution. Cryobiopsy showed alterations suggestive of chronic hypersensitivity pneumonitis.
Discussion: Iatrogenic injuries to the trachea and main bronchi are rare complications. The treatment is not standardized, given the little scientific evidence, so this case is presented, highlighting the success of conservative therapy in selected cases.

Keywords: *Iatrogenic tracheal injury. Tracheal intubation.*

PC 013. APPROACH TO ANASTOMOTIC STENOSIS IN PATIENTS SUBJECTED TO LUNG TRANSPLANTATION- THREE CLINICAL CASES

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Introduction: The development of bronchial anastomosis stenosis (BAS) is one of the main complications after lung transplantation, with a reported prevalence of 8.4%. Clinically, the patients develop progressively worsening dyspnea, accumulation of bronchial secretions, consequently with a greater risk of infectious complications. Early diagnosis and therapeutic intervention are essential to reduce its impact on morbidity and mortality. Among the endobronchial techniques used in the approach of BAS, the most commonly used are: balloon dilation, placement of an endobronchial prosthesis, laser ablation or electrocautery, argon plasma, cryotherapy, and instillation of mitomycin C. These techniques can be used alone or in combination. In this work, we present three clinical cases, to illustrate some of the different therapeutic strategies for BAS intervention and their results.
Case reports: Case 1: A 31-year-old male diagnosed with Granulomatous Polyangiitis. Following severe alveolar hemorrhage and refractory respiratory failure, he was placed on ECMO and subsequently underwent bi-lung transplantation. Two months after the surgery, he presented stenosis of the left main bronchus (LMB) > 50%, associated to dyspnea. We proceeded to mucosal cuts at the level of the stenosis with electrocautery, balloon dilation and placement of endobronchial prosthesis, with immediate improvement in ventilation after the procedure. Case 2: A 67-year-old man diagnosed with severe COPD, submitted to bi-lung transplantation. Two months after the transplant, there was fibrinous tissue around the

circumference of the anastomosis, extending distally to the secondary bronchi, mainly at the level of the right anastomosis. The patient presented worsening dyspnea associated with a decrease in pulmonary function (FEV1). Seriated bronchofibroscopies showed progressive worsening of the bronchial stenosis at the level of the right anastomosis. The patient was subjected to mechanical dilation through a rigid bronchoscope and with an endobronchial balloon, with clinical and functional improvement. Case 3: A 45-year-old man diagnosed with unclassifiable idiopathic interstitial pneumonitis underwent bi-lung transplantation. Bronchofibroscopy one month after the surgery showed fibrinous material at the level of the anastomosis bilaterally, with areas of necrosis in the emergence of the right upper lobe bronchus (RULB). Five months after transplantation, he presented stenosis of > 50% of the RULB, LULB and at the intermediary bronchus. Four rigid bronchoscopies were performed, with associations of interventional techniques (mechanical and balloon dilation, electrocoagulation, and instillation of mitomycin C), but reassessment exams always showed restenosis. Finally, we placed an endobronchial prosthesis at the level of the intermediate bronchus.
Discussion: Several risk factors may be associated with the development of central bronchial stenoses, such as tissue hypoperfusion, presence of infections, state of immunosuppression and preservation of the transplanted organ, as well as the type of surgical technique and factors related to the donor and the recipient. Despite the high prevalence of BAS in transplanted patients, there are no randomized controlled studies to date that assess the effectiveness of different endobronchial techniques, with the best available evidence being case series and expert opinion.

Keywords: *Lung transplantation. Bronchial stenosis. Endobronchial techniques.*

PC 014. BENIGN TRACHEAL STENOSIS: THE IMPORTANCE OF LONG-TERM FOLLOW-UP

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Introduction: Benign tracheal stenosis is a non-malignant pathological condition characterized by the narrowing of the trachea, resulting in compromised airway function. The stenosis is typically caused by factors such as inflammation, fibrosis, or other non-neoplastic processes, requiring endoscopic or surgical intervention.
Case report: We present the case of a 71-year-old man who developed benign tracheal stenosis after post-surgical intubation due to intestinal occlusion in 1997. The patient had a medical history of colon adenocarcinoma, which had been in remission since 1997, and arterial hypertension treated with perindopril and hydrochlorothiazide. In 1997, the tracheal stenosis was initially treated with the placement of an endotracheal prosthesis, which was subsequently removed in 1998. A surgical intervention was necessary, during which three tracheal rings were removed. The patient underwent regular follow-up and endoscopic review of the trachea for 5 years. However, after relocating to Évora, he lost follow-up. He was referred to our observation by his family doctor due to a one-week history of progressive stridor and worsening respiratory symptoms. Upon arrival, the patient was conscious and oriented but dyspneic with retractions and stridor. Due to rapid clinical deterioration and a decreased level of consciousness, orotracheal intubation was performed with the assistance of bronchofibroscopy to address the anticipated difficulty in airway management. During the visualization of the trachea, a significant reduction in tracheal lumen partially obstructed by mucopurulent secretions was observed. Conversion to rigid bronchoscopy was required for stenosis dilation and the placement of a new endotracheal prosthesis to ensure airway patency. The procedure proceeded without immediate complications, and the patient was admitted to the Pneumology department for monitoring. Throughout the hospitalization, no further complications were observed, and the patient was discharged with a referral to the Pneumology clinic for regular clinical and endoscopic follow-up.
Discussion: Benign tracheal stenosis following orotracheal intubation can be a potentially serious complication. The authors present this case to highlight the importance of prolonged follow-up for patients with a history of orotracheal intubation and/or tracheal stenosis corrected through endoscopic or surgical means, to ensure the ongoing effectiveness of treatment. Some cases may require long-term management, and lifestyle changes may be necessary to reduce factors contributing to airway inflammation and potential worsening of the stenosis.

Keywords: *Tracheal estenosis. Follow-up. Bronchoscopy.*

PC 015. BRONCHOSCOPIC EVALUATION OF AIRWAY INVASION IN ESOPHAGEAL CANCER

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Introduction: Bronchoscopy is often used to assess invasion of the airways by esophageal cancer, and is important in staging, preoperative evaluation and prediction of resectability.
Objectives: To evaluate the usefulness of flexible bronchoscopy to assess the involvement of the tracheobronchial tree by esophageal cancer.
Methods: Retrospective observational study. We selected patients who underwent flexible bronchoscopy in the context of esophageal cancer staging between January 2020 and July 2023. Statistical analysis was performed using SPSS software.
Results: 24 patients with esophageal cancer who underwent bronchoscopy in the aforementioned period were included. All patients (100%) were male, with a mean age of 62.7 ± 2.12 years. Most patients (76.2%) had active or past smoking habits. Endoscopic alterations were found in 45.8% of the patients (n = 11), the most frequent alteration being extrinsic compression (45%, n = 5), followed by infiltration of the bronchial mucosa in 27.2% (n = 3) of the cases. The presence of bronchoesophageal fistula was verified in 18.2% (n = 2) of the patients with endoscopic alterations and tracheoesophageal fistula in 9.1% (n = 1). 17% (n = 5) of the total number of patients had respiratory symptoms, and 80% of these had endoscopic changes. There was disagreement between CT scan and fiberoptic bronchoscopy in 33% of cases (n = 8). Of the patients who showed changes on bronchoscopy, 45% (n = 5) also had suspicious changes on CT scan. On the other hand, 7 patients (29.1%) had CT scan changes suspicious of airway involvement, which was confirmed by bronchoscopy in 71.4% (n = 5). 54.2% of patients were categorized in Choi Baisi's classification as category I, 16.7% as category IIA, 12.5% as IIB and 16.7% as category III. 45.8% of patients (n = 8) underwent surgical treatment after neoadjuvant chemoradiotherapy. Of these, 50% had discrete signs of extrinsic compression of the tracheobronchial tree (IIa). The mortality rate observed in this sample was 58.3% (n = 14) and the median survival was 8.5 months.
Conclusions: Bronchoscopy plays an important role in the staging of esophageal cancer, by allowing the assessment of tumor invasion of the tracheobronchial tree, with consequent impact on the most adequate treatment. In our sample, endoscopic alterations were found in 45.8% of the cases, with disagreement between CT and bronchoscopy in 33% of the cases. Choi Baisi's classification makes it possible to categorize patients according to the identified endo-

scopic alterations and predict resectability, with category II being the most heterogeneous in this regard.

Keywords: *Esophageal cancer. Bronchoscopy.*

PC 016. THE DIAGNOSTIC RANGE OF OESOPHAGEAL ECHOENDOSCOPY PERFORMED WITH A BRONCHOSCOPE (EUS-B) – CASE SERIES

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Introduction: Esophageal echoendoscopy performed with a bronchoscope (EUS-B) has proven to be a powerful tool in the diagnostic approach of thoraco-abdominal lesions. The objective is to demonstrate the diagnostic utility and versatility of EUS-B through the presentation of different clinical cases.
Case reports: Case 1: 63-year-old woman underwent PET-CT in the context of lung cancer staging, with the identification of two hypermetabolic lesions, one corresponding to the neoplastic lung lesion in the left upper lobe, as well as a nodular formation adjacent to the left anterolateral wall of the gastric body (20mm). EUS-B was used to puncture the nodule in the gastric wall. The histology revealed it was a gastrointestinal stromal tumour. Case 2: 73-year-old man underwent thoraco-abdominal-pelvic (TAP) CT, which identified a lesion in the upper lobe of the right lung, mediastinal adenopathies and expansive lesions in both adrenal glands. By performing EUS-B, it was possible to puncture the left adrenal gland, whose histology revealed infiltration by lung adenocarcinoma, allowing diagnosis and staging in a single procedure. Case 3: 61-year-old male with 2 pulmonary nodules on chest CT. PET-CT identified hyperuptake in the left glottic region and in the pulmonary nodules. He underwent transthoracic biopsy of one of the pulmonary nodules, which was inconclusive. He was proposed for EUS-B to approach the cervical lesion, with puncture of a mass at station 1L, compatible with large cell neuroendocrine carcinoma combined with adenocarcinoma. Case 4: 73-year-old man with a pulmonary mass in the left lower perihilar region and multiple liver lesions. Endobronchial ultrasound (EBUS) was performed and no mediastinal adenopathies were identified. Through EUS-B it was possible to puncture a liver lesion, obtaining the diagnosis and staging of atypical carcinoid. Case 5: 74-year-old man with a right para-aortic lesion (17 mm), which could be punctured by EUS-B, with drainage of yellowish liquid content, with a high concentration of triglycerides, compatible with a thoracic duct cyst. Case 6: 54-year-old man with a nodular lesion in the right upper lobe and multiple mediastinal and abdominal adenopathies. He underwent EBUS, with puncture of mediastinal adenopathies. Through EUS-B it was possible to puncture an adenopathy of the celiac trunk. The anatomopathological result revealed aspects suggestive of sarcoidosis. Case 7: 48-year-old male with a history of testicular germ cell tumor under surveillance. A right upper mediastinal mass was identified on a CT scan. Using EUS-B, it was possible to puncture the mass in location 2R, whose histology revealed a squamous cell carcinoma of the esophagus. Case 8: 46-year-old woman, with a history of papillary thyroid carcinoma, who underwent total thyroidectomy and lymph node dissection. A control CT showed a right paratracheal nodule. Using EUS-B, this lesion was punctured at location 1R. By titrating the thyroglobulin levels in the aspirate, the persistence of thyroid carcinoma was determined. The described procedures had no complications.
Discussion: EUS-B is a safe and effective diagnostic method. It allows to approach lesions inaccessible by the airway, being a complementary technique to EBUS and should be integrated in the diagnostic tools of interventional pulmonology.

Keywords: *Esophageal echoendoscopy performed with a bronchoscope. Endobronchial ultrasound. Diagnosis. Staging.*

PC 017. MEDIASTINAL BRONCHOGENIC CYST: A MINIMALLY INVASIVE APPROACH

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Introduction: Bronchogenic cysts are the most frequent cystic lesion of the mediastinum. Most don't cause symptoms and are discovered incidentally, however they can cause potentially serious complications by compressing adjacent structures. Complete surgical removal is the definitive treatment, but when this isn't possible, drainage of the cyst by transbronchial aspiration guided by endobronchial ultrasound (EBUS-TBNA) may be an option.
Case report: A 30-year-old woman, with a history of a mediastinal bronchogenic cyst with auricular compression, underwent partial resection in 2007. In November 2022, chest CT reappeared with a nodular formation measuring 60 × 50 × 45 mm with homogeneous content, high density and regular contours, compatible with a bronchogenic cyst. Better characterized on MRI, located between the carina and the left auricle, with slight compression of the inferior vena cava, spontaneous hypersignal on T2 and T1 images suggestive of having a high protein content and with internal septa. In July 2023, she went to the emergency room complaining of dyspnea and was hospitalized for infected cyst (which showed dimensional progression – 80 × 60 × 60 mm) with superior vena cava syndrome (SVCS) due to mechanical compression and compression of the left main bronchus with associated extensive left lower lobe (LLL) pneumonia. She was started on empirical antibiotic therapy with piperacillin/tazobactam and vancomycin, but on the 2nd day of admission she developed severe hypoxemic respiratory failure requiring invasive mechanical ventilation and admission to the intensive care unit. Considering the associated surgical risk, on the 4th day of hospitalization, the cyst was drained through EBUS-TBNA with a 22G needle. About 150 ml of purulent brownish liquid were drained and at the end of the procedure a significant reduction in the size of the cyst was observed by endoscopy ultrasound, without immediate or late complications of the procedure. The cytological examination of the aspirated content identified a granular background with numerous neutrophils and macrophages compatible with an infected cystic lesion and the microbiological examination showed the isolation of *Candida albicans* and antifungal therapy with fluconazole was initiated. In the reassessment CT scan, she showed a dimensional reduction of the cyst with resolution of the SVCS and improvement on the consolidation of the LIE. Clinically with clinical and blood gas improvement, allowing extubation on the 7th day of hospitalization.
Discussion: Infection is a rare complication of bronchogenic cysts, but it is among the most serious and potentially life-threatening. The best strategy for managing infected mediastinal bronchogenic cysts is not yet fully defined. It is known that in these situations the priority is to drain the infectious focus in the least invasive way possible until clinical stability is achieved. EBUS-TBNA can be diagnostic and therapeutic in infected cysts, with drainage by this route being technically simpler and with a lower risk of complications compared to surgical intervention in the acute phase of infection. In this case, fine-needle aspiration with drainage of the cyst's contents together with adequate antibiotic therapy played a leading role and constituted a viable and minimally invasive alternative for the resolution of the compression and control of the infection.

Keywords: *EBUS-TBNA. Bronchogenic cyst. Superior vena cava syndrome.*

PC 018. THE ROLE OF BRONCHOSCOPY IN FEBRILE NEUTROPENIA

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Introduction: Febrile neutropenia is a severe consequence of treatment with chemotherapeutic agents of neoplastic diseases. By definition it implies a single assessment with oral temperature > 38.3 ºC or temperature 38.0 ºC maintained for 1 hour, with an absolute neutrophil count < 500 cells/microliter, or which is expected to decrease to < 500 cells/microliter. Respiratory infections represent an important cause of mortality in these patients (~30%) and, although empirical antibiotic therapy is recommended, the recommendations in the literature suggest trying to identify the agent in question. The aim of this study was to understand the role of bronchoscopy (BF) in therapeutic management and possible impact on prognosis in these patients.
Methods: The BFs performed at Centro Hospitalar e Universitário de Coimbra during the period from July 2022 to June 2023 (1 year) were reviewed and patients who met the criteria for febrile neutropenia were identified. All patients had imaging changes supported by chest radiography or chest CT. Nineteen patients were analyzed, 13 men and 6 women who met these criteria with an average age of 59 years. All patients had hematologic malignancy and had an average neutrophil count of 10^2 cells/microliter. They were all under empirical antibiotic therapy since admission to hospital, 42% with antifungal coverage.
Results: The BF was requested with the purpose of identifying the pathological agent and in all of them the collection of bronchial aspirate and directed bronchial lavage or bronchoalveolar lavage was performed, with isolation of the etiological agent in 47% of the cases, the most frequent agents being *Klebsiella pneumoniae* and *Staphylococcus aureus*. In this subgroup of patients, there was a change in therapy in 77% of cases, including a spectrum reduction. Within the total number of procedures performed, only 1 post-procedure intercurrence stands out, with worsening respiratory failure. Of the 19 patients, 7 died during hospitalization due to lack of response to therapy, 4 of these with an isolated etiologic agent.
Conclusions: (BF) may play an important role in the microbiological identification of the agent involved in conditions of febrile neutropenia, as verified in this sample. However, its execution requires a risk-benefit balance, since it is not a harmless procedure and its diagnostic accuracy is limited.

Keywords: *Febrile neutropenia. Bronchoalveolar lavage. Bronchoscopy.*

PC 019. THE ROLE OF TRANSBRONCHIAL LUNG BIOPSY IN THE DIAGNOSIS OF SARCOIDOSIS

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Introduction: Sarcoidosis is a multisystemic disease of unclear etiology. Histologically, it is characterized by the presence of non-necrotizing granulomas, and often presents with pulmonary micronodules with centrilobular distribution. Transbronchial lung biopsy (TBLB) is an easily accessible technique, with an estimated 50-75% yield in the diagnosis of sarcoidosis. Objective: To determine the role of TBLB in the diagnosis of sarcoidosis in patients followed in a tertiary hospital.
Methods: Retrospective analysis of demographic data, diagnostic procedures, and clinical, analytical, imaging, and functional characteristics in a population of 130 patients with sarcoidosis followed up at a university hospital.
Results: 130 patients were included, with a mean age of 57.3 ± 12.7 years, of which 50.8% (n = 66 patients) were male. Tobacco exposure was present in 49 patients (37.7%), 22 active smokers (16.9%) and 27 former smokers (20.8%). Ganglionar involvement was the most frequent (n = 110, 84.6%), followed by lung (n = 90, 69.2%) and skin (n = 25, 19.2%) involvement. Three patients presented with Lofgren's syndrome. The most frequent radiological stage at diagnosis was stage II (n = 70, 53.8%), followed by stage I (n = 37, 28.5%). Bronchofibroscopy was carried out in 78 patients (60%), all with bronchoalveolar lavage (BAL) for performing absolute cell counts of lymphocyte population. Of these, 52 patients (66.7%) had a CD4+/CD8+ ratio > 2.5. TBLB were performed in 36 patients (46.2%): one stage I patient, 26 stage II patients, two stage III patients, and seven stage IV patients. TBLB allowed the histological diagnosis of sarcoidosis in 28 patients: 21 in stage II, two patients in stage III, and five patients in stage IV, corresponding to an overall diagnostic yield of 77.8% in this sample. Fragments were insufficient for diagnosis in three cases and, in five cases, no granulomas were detected in the lung parenchyma. There were no complications associated with the procedures performed.
Conclusions: In this sample, TBLB proved to be a safe and highly cost-effective test for the diagnosis of sarcoidosis, particularly in stage II (n = 21, 80.8%).

Keywords: *Sarcoidosis. TBLB.*

PC 020. BRONCHO-BILIARY FISTULIZATION – A CLINICAL CASE

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Introduction: Bronchobiliary fistula (BBF) is an abnormal communication between the biliary system and the bronchial tree. It may be congenital or develop after an inflammatory reaction of the subdiaphragmatic space, with subsequent rupture in the bronchial system and diaphragmatic erosion (after trauma, due to lithiasis, subdiaphragmatic abscess, cholecystitis, pancreatitis, or bile duct tumors). The bile causes significant irritability when in contact with the bronchial mucosa, leading to respiratory symptoms.
Case report: A 74-year-old man with a history of arterial hypertension and gallstones; recurred to the emergency department after one week of worsening abdominal pain, fever, mild jaundice, dyspnea, cough and green-yellowish sputum. Analytically, he had an increase of the inflammatory parameters, and the chest X-ray identified a right pleural effusion, with ipsilateral parenchymal infiltrate. Computed tomography allowed the identification of biliary tract thickening compatible with cholangitis, associated with a right subphrenic abscess. Despite the initiation of empirical broad-spectrum antibiotic therapy, the patient continued to deteriorate clinically, imagiologically and analytically; progressing to respiratory failure and transient need for non invasive ventilation. Thoracentesis showed a green-yellowish pleural fluid, with pH 6.64, LDH 34.424 U/L, bilirubin 6 mg/dl (serum 1 mg/dl), with leukocytosis of 12,300 with predominance of polymorphonuclear cells, and cultural examination isolated *Citrobacter koseri* and *Klebsiella oxytoca*. Given the characteristics of the and concomitant pathology of the bile ducts, the existence of abilio-pleural fistula was considered. Retrograde cholangiopancreatography identified extravasation of contrast, in favor of these hypothesis. Fibroscopy bronchoscopy was performed, observing large amounts of green-yellowish secretions from the middle lobar bronchus and the right basal pyramid, without direct identification of the fistula. The patient underwent cholecystectomy with exploration of the biliary tract and closure of the diaphragmatic orifice with an epiploic patch, with subsequent improvement in respiratory symptoms.

Discussion: This clinical case illustrates a rare diagnosis in clinical practice, for which a high degree of suspicion is required. Bile is a strong irritant of the airway mucosa and the presence of bronchobiliary fistulas is associated with a high rate of morbidity and mortality (12.2%).

Keywords: *Bilioptysis. Broncho-biliary fistula. Endobronchial techniques.*

PC 021. FOREIGN BODY ASPIRATION IN ADULTS – A 12-YEAR RETROSPECTIVE ANALYSIS IN A PULMONARY TECHNIQUES UNIT

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Introduction: Epidemiologically, foreign body aspiration has a bimodal distribution with a peak in pediatric age 1-3 years and a peak in late adulthood (> 75 years). The latter may occur as a result of acute or chronic neurological pathology, altered swallowing or dental procedures. Clinical presentation is often acute with stridor and dyspnea, but chronic presentation with repeated respiratory infections and chronic cough may also occur.
Methods: The aim of this study is to present a retrospective and descriptive analysis of data from adult patients who underwent endoscopic procedures for foreign body aspiration in the last 12 years in the Pulmonary Techniques Unit of a tertiary hospital. Demographic data, degree of autonomy, neurological pathology or pathology related to altered state of consciousness, type of clinical presentation, foreign body classification and location in the bronchial tree, type of endoscopic procedure and instrument used for its removal and associated mortality were evaluated.
Results: 45 patients diagnosed with adult foreign body aspiration were identified and 24 cases were analyzed whose study variables were complete in the computerized medical records. The majority were male (66.7%, n = 16) with a median age of 71 years (minimum 27 and maximum 87 years) and autonomous in activities of daily living (79.2%, n = 19). Most patients had no known medical pathology (62.5%, n = 15); in 3 cases they were associated with dental procedure; in the remaining cases there was an association with alcoholism (n = 2), Parkinson's disease (n = 2), sequelae of central nervous system disease (n = 2), altered mental status (n = 1), altered swallowing due to hypopharyngeal carcinoma submitted to radiotherapy (n = 1) and vocal cord paresis (n = 1). In 7 cases the presentation was acute with sudden dyspnea and in 7 subacute with post-obstructive pneumonia; there were 9 cases of chronic presentation (with repeated respiratory infections, n = 5; chronic cough, n = 3; hemoptoic sputum, n = 1) and 1 case without associated symptoms (imaging finding). In most cases (n = 19) the foreign body was removed by rigid bronchoscopy, 11 with initial assessment by videobronchoscopy. These were mostly located in the right bronchial tree (n = 17) and were removed with crocodile forceps (n = 22). Most foreign bodies were mineral (n = 12), followed by organic (n = 7) and inorganic (n = 5). Laser photocoagulation of granulomas associated with chronic presentation was performed in 3 cases. It is noteworthy that there were no deaths during and up to 30 days after the procedure.
Conclusions: Despite the known risk factors for foreign body aspiration in adults, most cases occurred in autonomous individuals with no known risk pathologies. Chronic presentation was frequent, which highlights the importance of differential diagnosis concerning other more common chronic pathologies. The value of rigid bronchoscopy in these situations should be emphasized as an extremely safe and effective procedure.

Keywords: *Foreign bodies. Rigid bronchoscopy.*

PC 022. PULMONARY ADENOCARCINOMA: EXPRESSION IMBALANCE OF ALK, ROS1, RET AND OTHER TARGET MUTATIONS BY NGS

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Introduction and objectives: Gene fusions have significant prognostic and predictive value being screened as part of molecular pathology testing for patient management. Different approaches have been developed to detect fusion and in next generation sequencing, 3'/5' imbalance value can evaluate novel fusions for diagnosis, still under therapeutic interpretation.
Methods: Oncomine™ Precision Assay Panel workflow applied to fusion detection using expression "imbalance" in Oncomine Reporter™ Software, generates 3'/5' imbalance value, reporting the difference in expression between 5' assay and 3' assay of each driver gene ALK, ROS1 and RET. Fluorescence in situ hybridization (FISH) and Immunohistochemistry (IHC) were applied to 3'/5' imbalance cases to confirm these targets in pulmonary adenocarcinomas.
Results: Genexus sequencing recently reported ten cases with 3'/5' imbalance values were considered. Six cases were ALK 3'/5' imbalance and five presented other concomitant driver mutations: EGFR, KRAS, MET exon skipping and ALK-EML4 rearrangement. These five cases were either ALK FISH or IHC negative. One case presented ALK 3'/5' imbalance with FISH negative and IHQ (3+) positive. Four cases presented RET 3'/5' imbalance. Three of the four cases presented concomitant mutations: two cases in the EGFR gene and one case with RET gene fusion, the fusion partner being the CCDC6 gene. One case did not present mutation. All cases were RET FISH negative.
Conclusions: NGS has brought advantages in multiple genes mutations/fusions detection. This fast and informative technology demands less tumoral cellular burden to detect novel mutations/fusions. Possible novel fusion mutations (3'/5' imbalance) detection requires confirmatory analyses. Tumoral cells that contain a gene fusion are often expected to have elevated expression of the 3' assay compared to the 5' assay, and these cases have to be confirmed through other methods – IHC and FISH, to complete Molecular Pathology Reports for targeted therapies prescription.

Keywords: *Expression imbalance. ALK. ROS1. RET. NGS.*

PC 023. PRALSETINIB IN THE TREATMENT OF NON-SMALL CELL LUNG CANCER (NSCLC) WITH RET GENE REARRANGEMENT

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Introduction: RET gene rearrangements are more common in young, non-smoking men, with the most frequent rearrangement occurring between introns 11 of the RET gene and 15 of the KIF5B gene. Selpercatinib and Pralsetinib are inhibitors that target these RET gene rearrangements, with significant benefits demonstrated in the clinical trials LIBRETTO-001 and ARROW. The guidelines from NCCN and ESMO recommend these inhibitors as first-line or subsequent treatment options for metastatic NSCLC with RET rearrangements, with a tolerable toxicity profile.
Case report: A 76-year-old patient with an ECOG performance status of 1 presented with severe sudden right-sided back pain, which prompted a chest CT scan. The scan revealed a 5.3 cm mass in the

right upper lobe with tissue bridging towards the pulmonary hilum, along with an associated adenopathy conglomerate. In the left upper lobe, there was a 4.5 mm micronodule. Pretracheal, Barety's location, pre-carinal, infra-carinal, and left para-aortic lymph node involvement were observed. EBUS with aspirational puncture was performed in stations 7 and 4L, which were consistent with lung adenocarcinoma, Stage IVB (T3N3M1c). The patient had a PD-L1 expression of 40% and a KIF5B (15)-RET (12) fusion. For further staging, the patient underwent contrast enhanced MRI, which showed multiple nodular lesions on the right side in frontal, parietal, and occipital locations measuring 5 mm, 6 mm, and 7 mm, respectively. Additionally, a 5.4 mm nodule was observed in the posterior parietal region on the left side. PET-CT revealed intense metabolic activity in the right lung tumour (SUVmax 12.22) with a small hypometabolic central area suggestive of necrosis. Adenopathy clusters were seen in the right lateral tracheal distal region (SUVmax 12.16), infracarinal region (SUVmax 12.12), left lateral tracheal distal region, and lateral to the aortic arch (SUVmax 11.86). Two suspicious small adenopathies were found in the right deep cervical root. In the osteomedullary compartment, two small foci were observed, one in the right iliac body and the other in the left sacral wing. The patient initiated Pralsetinib treatment, which has been well-tolerated for the past 6 months. Three months after starting Pralsetinib, a follow-up chest CT scan and contrast-enhanced MRI showed a partial response.

Discussion: The development of Selpercatinib and Pralsetinib has brought a significant paradigm shift in the treatment of NSCLC with RET alterations. These targeted therapies have demonstrated high efficacy and favourable tolerability profiles, as evidenced in this clinical case.

Keywords: *Adenocarcinom. KIF5B-RET. Pralsetinib.*

PC 024. SECONDARY HYPOPHYSITIS DUE TO PEMBROLIZUMAB: A LATE ADVERSE EVENT FOLLOWING DISCONTINUATION OF IMMUNOTHERAPY

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Case report: The authors present the case of a 65-year-old man, ECOG 1, smoker, with history of erythematous gastropathy of the antrum and allergy to diclofenac. In August 2021, the patient presented with a parenchymal lesion in the right peri-hilar region measuring 46 × 22 mm, invasion of retrocardiac mediastinal fat and suspicion of pleural metastasis. He was diagnosed with stage IVA Lung Adenocarcinoma with PD-L1 expression of 60-70% and negative NGS sequencing panel. The patient started first-line immunotherapy with Pembrolizumab in November 2021. After the second cycle, the patient developed grade 1 dermatitis on the forearms, which improved with topical medication. Thoraco-abdominal CT scans after the second and fourth cycles showed a clear partial response. After the fifth cycle in April 2022, due to significant gastric complaints, an esophagogastroduodenoscopy was performed, revealing grade 3 gastritis. Pembrolizumab was discontinued, and prednisolone 50 mg/day was initiated. The prednisolone dose was gradually reduced to < 10 mg/day, but the patient experienced a worsening of symptoms, leading to an increase in the prednisolone dose to 50 mg/day. Slow tapering was performed until complete discontinuation on 09/08. In August 2022, the patient was evaluated by Dermatology for a rash on sun-exposed areas that had been present for 2 months. Biopsies confirmed subacute lupus (grade 2), likely related to immunotherapy. The patient resumed prednisolone 20 mg/day, leading to significant improvement of the lesions. In October 2022, due to clinical stability, absence of corticosteroid use, and expressed willingness to resume immune checkpoint inhibitor (ICI) therapy, repeat tests confirmed ongoing response, and a rechallenge with Pembrolizumab was initiated. However, 10 minutes after drug administration, the patient experienced a grade 2 infusion reaction with gastric complaints, vomiting and shivering, leading to discontinuation of the infusion. Despite the proposal for Pembrolizumab desensitization by Immunoallergology, the patient declined to continue this therapy and has since been under clinical and imaging surveillance, showing no signs of recurrence. In May 2023, 11 months after the last cycle of immunotherapy, the patient reported severe fatigue and nonspecific malaise for 1-2 months. No new neurological symptoms were present. Suspecting hypophysitis, hormonal assessment of the hypothalamicpituitary axis was requested, which showed normal results except for decreased serum cortisol level (8h) (0.5 ug/dL) and decreased testosterone levels. A contrast-enhanced MRI revealed no significant abnormalities. The patient was started hydrocortisone 20 mg/day, resulting in significant clinical improvement, and was referred to an Endocrinology consultation, where a diagnosis of central adrenal insufficiency and central hypogonadism was made.

Discussion: In this case, numerous Pembrolizumab-associated immune-related adverse events (irAEs) are reported, with hypophysitis being a particular diagnostic challenge due to its nonspecific clinical presentation and the temporal gap between the last administration and symptom onset. Hypophysitis secondary to PD-1 inhibitors is a rare irAE, with a prevalence < 1%, requiring a high level of clinical suspicion for appropriate diagnosis and treatment. Despite discontinuing immunotherapy 1 year and 4 months ago, the patient has not experienced disease recurrence, which may be attributed to the multiple irAEs experienced, which likely induced a known mechanism of immune memory.

Keywords: *Hypophysitis. Immunotherapy. Pembrolizumab. Lung cancer.*

PC 025. BULLOUS PEMPHIGOID AS AN ADVERSE EVENT TO PEMBROLIZUMAB IN LUNG ADENOCARCINOMA: A CLINICAL CASE

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Introduction: Pembrolizumab is an immune checkpoint inhibitor that targets the programmed death cell protein-1 (PD-1) receptors in lymphocytes. In recent years, the indications for this therapy in malignant tumours, particularly in lung cancer (LC), have been increasing and, therefore, it is important to understand the various immune-mediated adverse reactions of this therapy.

Case report: Male patient, smoker, with medical history of chronic obstructive pulmonary disease, aortic aneurysm, bipolar disorder and psoriasis (controlled with topic treatment). Followed in Pulmonology Oncology Outpatient Clinic for adenocarcinoma located in the left upper lobe stage IIIA at diagnosis, PD-L1 > 50% and NGS with KRAS G12C mutation. He underwent left upper lobe lobectomy on 13/07/2022 and was proposed for adjuvant chemotherapy and radiotherapy for N2 disease that he did not initiate, since the post-op computed tomography evaluation showed disease progression with pleural metastization. Therefore, first-line therapy with Pembrolizumab 400mg 6/6 weeks was proposed with beginning on 14/10/2022. After 6 cycles of immunotherapy, the patient developed a severe skin reaction with the development of scattered tense vesicles on the limbs (more exuberant in the lower limbs). He was observed on 16/06/2023 in the emergency service (ES) and medicated with hydrocortisone and clemastine, being discharged with surveillance. He was subsequently seen by a dermatologist on 19/06/2023 who performed skin biopsies and prescribed prednisolone 60 mg/day in combination with high-potency topical cortico-

steroid therapy. The anatomopathological exam identified a subepidermal vesicle with associated inflammatory infiltrate, involving polymorphonuclear eosinophils, compatible with bullous pemphigoid. The measurement of serum autoantibodies revealed an elevated anti-BP180 antibodies, confirming the diagnosis. With the appropriate treatment, the patient showed progressive clinical improvement, but given the severity of the immune-mediated adverse reaction (irAE Grade 3), it was decided at the multidisciplinary thoracic tumour group reunion to discontinue Pembrolizumab, maintaining clinical and imaging surveillance.
Discussion: Although cutaneous adverse events of immunotherapy are relatively frequent, the majority of cases are mild events not requiring systemic treatment or immunotherapy's suspension. Presentation as bullous pemphigoid is a rare and serious complication that may require discontinuation of treatment. With the widespread use of immunotherapy in LC, it is extremely important to know the possible adverse effects of this therapy in order to act quickly and effectively. Therefore, it is extremely important that Primary Health Care and ES colleagues are aware of the wide range of possible irAEs as they are often the first to intervene when the symptomatology arises.

Keywords: *Bullous pemphigoid. Pembrolizumab. Lung cancer. Adverse reaction.*

PC 026. CANNONBALL METASTASIS – BASED ON A CLINICAL CASE

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Introduction: Sarcomas represent a heterogeneous group of mesenchymal tumors that represent less than 1% of all cancers in adults. The most frequent histological subtypes are liposarcoma (20%), followed by leiomyosarcoma (14%).
Case report: A 56 year-old male, previous inhaled drugs user and alcoholism, previous diagnosis of hepatitis C, bipolar disorder and soft tissue sarcoma of the neck that was surgically removed in January 2022 with subsequent radiotherapy, at the moment without oncological follow-up. The patient was admitted to the Internal Medicine ward in May 2023 due to anorexia, loss of weight (10 kg in 3 months), abdominal pain and bilateral low back pain. Blood test with elevation of inflammatory parameters, hyponatremia and partial respiratory failure. Chest X-ray showed multiple pulmonary opacification in a Cannonball metastases pattern, and chest CT revealed multiple bilateral pleural masses, moderate-volume bilateral pleural effusion, bilateral mediastinal and hilar lymphadenopathy, and multiple bilaterally scattered pulmonary nodules, the largest in the left lower lobe with 50 mm. A videobronchoscopy with radial EBUS was performed with the identification of a lesion in the apical segment of the left superior lobe and an endobronchial pedunculated lesion in the right superior lobe that was biopsied and whose histology revealed the presence of pulmonary metastases from synovial sarcoma. The patient was discharged home and referred to oncology at a Sarcoma Reference Center and pulmonology. The patient was readmitted within 72 hours due to clinical worsening, and eventually died without initiating targeted treatment.
Discussion: This case is characterized by the rarity of a sarcoma in an adult with an unusual histological subtype (only 5% of sarcomas are synovial) and a rare pattern of metastasis (distant metastasis of sarcomas occur in about 10% of cases, being predominantly pulmonary (> 80%). The radiological pattern of "cannonball metastasis" should also include the search for primary solid tumors, namely synovial sarcoma.

Keywords: *Synovial sarcoma. Lung metastasis.*

PC 027. MALIGNANCY SHADOW – UNTIL WHEN?

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Introduction: The majority of subsolid nodules are transient and represent benign pathology. However, when persistent, they pose a higher risk of malignancy, often manifesting as in situ adenocarcinoma or minimally invasive adenocarcinoma. Recommendations from the Fleischner Society propose that ground-glass opacities with dimensions exceeding 6 mm should be monitored by computed tomography (CT) after 6-12 months, and again at 3 and 5 years.
Case report: 79-year-old male patient, retired businessman, former smoker with a smoking history of 40 packyears. He has relevant medical history of GOLD A COPD and treated laryngeal and prostatic neoplasms. In 2017, he underwent chest CT for the evaluation of pulmonary pathology, which revealed emphysema and a small nodular parenchymal consolidation with "ground-glass" appearance in the right upper lobe (RUL) measuring 17 mm. This finding suggested a differential diagnosis of inflammatory process versus atypia. He was referred to the Pulmonology for etiological investigation. Bronchofibroscopy (BFC) with bronchial lavage was performed in August 2017, showing negative results for malignant cells. A Positron emission tomography in October showed no hypermetabolic activity. Considering the diagnostic results favoring scar tissue and the nodule's dimensions, surveillance with chest CT scans was maintained at 6 months, 2 years, and subsequently as per guidelines. These scans revealed minimal variation in dimensions (14-19 mm). In March 2023, after 6 years of follow-up, it was observed that the densification had increased in size to 25mm and presented a cavitary appearance. Further investigation included a PET/CT scan showing almost undetectable uptake (SUV max 0.97), as well as bronchoalveolar lavage that revealed positive cytology for Carcinoma, along with a cytoblock containing atypical epithelioid cells. The patient was referred to the Thoracic Surgery clinic where lobectomy was ruled out due to present comorbidities. The decision was made to proceed with Stereotactic Body Radiation Therapy (SBRT).
Discussion: Despite the unquestionable utility of following guidelines, which outline the best procedures based on the most current scientific evidence, we must consider rare exceptions like the case presented above. It was only detected in its early stages due to an over cautious approach, which will likely have a significant impact on the patient's survival.

Keywords: *Pulmonary nodule. Follow-up. Neoplasm.*

PC 028. THE INNOCENCE OF THE NEUROENDOCRINE: A CASE OF SYNCHRONOUS LUNG NEOPLASMS

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Introduction: The incidence of synchronous pulmonary neoplasms is estimated to be between 0.2-8%. The distinction between independent primary tumors or metastization of a single tumor becomes crucial, due to the implications on the correct staging, therapy and prognosis.
Case report: We present the case of a 54-year-old man, followed at Hospital de Dia de Pneumologia Oncológica, since 2019, with initial presentation of hemoptysis and weight loss. An initial chest CT-scan showed the existence of a spiculated nodule (45 mm) on the right lower lobe and homolateral hilar lymph node involvement. PET-CT was performed for staging, which showed the presence of a 22 mm spiculated nodular image in the RLL (SUVmax 3) associated with a known homolateral central mass (SUVmax 9) and hilar adenopathies (SUVmax 4). EBUS and mediastinoscopy showed no gan-

glionar involvement. The patient was started on neoadjuvant chemotherapy with cisplatin + vinorelbine and a lower bilobectomy + sleeve was performed. Histological analysis revealed acinar adenocarcinoma (PL-L1 10%; pT1bN1) in the central mass and large cell neuroendocrine carcinoma (pT2aN0) in the peripheral nodule. Mediastinal lymph node dissection confirmed no metastatic infiltration. Subsequently, adjuvant chemotherapy with carboplatin + etoposide was administered. At 9 months follow-up, it was documented the progression of disease with the appearance of left adrenal gland metastasis. The patient was submitted to adrenalectomy (R2 surgery). The histology confirmed infiltration by adenocarcinoma, rather than the neuroendocrine large cell carcinoma. Following the discussion in the multidisciplinary team meeting, 1st line palliative chemotherapy with carboplatin + pemetrexed (4 cycles) and radiotherapy in the surgical site was started. At this time, the patient developed COVID-19 with subsequent worsening of its performance status. It was decided to maintain active follow-up. At 6 months follow-up, the patient was hospitalized due to a high fever of unknown origin. A new progression of disease was confirmed with the identification of multiple hepatic secondary lesions. Some of them evolved to abcedation, particularly in the IV and VII hepatic segments, measuring from 7 to 8 cm. The patient underwent antibiotic therapy and the liver lesions were biopsied. He maintained a high-grade fever despite the antibiotics and the histology confirmed adenocarcinoma metastasis. A diagnosis of paraneoplastic hyperthermia was made. It was then decided to administer a 2nd line systemic therapy with a combination of chemo and immunotherapy (carboplatin + pemetrexed and pembrolizumab). Following its start, the fever ceased and the hepatic lesions saw a partial response. Regrettably, systemic therapy was suspended after the 4th cycle due to acute nephritis. Systemic corticotherapy saw little clinical improvement and the hepatic lesions progressed again. Pemetrexed was then reintroduced as monotherapy. The patient perished due to febrile neutropenia in the 2nd cycle of pemetrexed.

Discussion: The clinical case presented alerts to the importance, in the presence of synchronous neoplasms, of the correct initial staging of each lesion, being fundamental for the adequate follow-up of the patients. In the case of disease progression, a biopsy is imperative for histological confirmation of metastasis, because the neuroendocrine tumor is not always the most aggressive histological subtype.

Keywords: *Synchronous pulmonary neoplasms. Adenocarcinoma. Large cell neuroendocrine carcinoma.*

PC 029. PULMONARY MALT LYMPHOMA – A LITTLE-KNOWN ENTITY, WHAT SHOULD WE IMPROVE?

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Introduction: Mucosal-associated lymphoid tissue (MALT) lymphoma is the most common indolent B-cell lymphoma subtype. However, MALT lymphoma with pulmonary origin is a rare disease, representing less than 0.5% of lung neoplasms. It usually appears in the age group between fifty and sixty years old, being rare in younger ages. Most patients are asymptomatic or may have respiratory complaints such as cough and shortness of breath. Currently, its origin is still not fully understood. MALT lymphoma is thought to be related to infectious or inflammatory conditions. This relationship has already been established for the case of gastric MALT lymphoma and *Helicobacter pylori* infection. In the case of pulmonary lymphoma, there are already associations with some autoimmune diseases, namely systemic lupus erythematosus, Sjögren's Syndrome, among others.

Case report: The case presented is a 67-year-old woman who had been referred to a pulmonology consultation for recurrent respiratory infections for about two years. Its antecedents, Sjögren's Syndrome and gluten intolerance stood out. She underwent thoracic computed tomography (CT) which revealed mild bronchiectasis in the inner segment of the middle lobe bronchus, close to the right upper lobe fissure. At the endobronchial level, there were no significant alterations. CT scan one year later revealed a nodular lesion that increased in size after further reassessment and the patient was eventually proposed for transthoracic biopsy. Biopsy histology revealed it to be MALT lymphoma and the patient was referred for thoracic surgery. Pulmonary MALT lymphoma is still a rare and poorly studied entity. The case presented intends to recall an uncommon pathology and the importance of having suspicion at the time of the differential diagnosis, since establishing a diagnosis is often time consuming. In addition, the definition of the therapeutic plan is still a subject with little consensus, with the possibility of surgery, chemotherapy and radiotherapy.

Discussion: There are still very few studies that compare the different approaches. In the future, it would be interesting to compile the existing cases of MALT lymphoma in Portugal and compare the different approaches with the respective outcomes.

Keywords: *MALT. Lymphoma. Neoplasia. Sjögren.*

PC 030. SMALL CELL LUNG CANCER PRESENTING WITH PARANEOPLASTIC LIMBIC ENCEPHALITIS

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Introduction: Paraneoplastic encephalitis is a rare syndrome that results from an immune response directed against antigens that are ectopically expressed by the tumor, predominantly in the nervous system. Some of these antibodies are highly specific for the presence of neoplastic pathology, and their detection is one of the criteria for the diagnosing of a paraneoplastic syndrome. In most cases, the symptoms are acute/subacute and vary depending on the affected area. The therapeutic approach involves the use of immunosuppressive therapy; however, it should not delay the diagnosis, staging, and timely treatment of the underlying neoplastic pathology.

Case report: A 71-year-old female, a smoker (43 pack-years), without any significant past medical history, presented to the emergency department due to her first epileptic seizure. The seizure was preceded by acute confusion and frontal headache persisting for four days. Upon admission, she was in a state of stupor, with the ability to open her eyes in response to verbal stimuli, but not following commands. She also had a grade 3 left hemiparesis. There were no signs of meningeal irritation. Laboratory test showed a slight elevated C-reactive protein level (5.80 mg/dL) without other notable changes, including viral serologies. Cranial computed tomography (CT) scan performed at admission and 24h later did not show any abnormalities. A lumbar puncture (LP) was performed, revealing 46 cells/mm^3 (43/mm^3 mononuclear cells), protein levels of 34.3 mg/dL, and a glucose level of 69 mg/dL. The patient was hospitalized for further investigation, during which she experienced several generalized seizures that were difficult-to-control. The seizures were recorded by electroencephalogram and showed slow and paroxysmal generalized activity, with maximum fronto-temporal and variable lateralization. She underwent a therapeutic protocol for viral encephalitis with Acyclovir, which was discontinued due to the absence of herpesvirus in the cerebrospinal fluid. Other microbiological and cytological tests of the cerebrospinal fluid and blood cultures were negative. An autoim-

mune study was conducted on peripheral blood, which did not show any abnormalities. Additionally, a cranial magnetic resonance imaging was performed, and no other abnormalities were detected. Considering the possibility of paraneoplastic encephalitis, further blood samples were taken to study anti-neural/synaptic protein antibodies, revealing the presence of anti-SOX1 and anti-GABA1/GABA2 antibodies. Combined with the previous finding, this led to the definitive diagnosis of Limbic Paraneoplastic Encephalitis. Further investigations included a thoraco-abdominal-pelvic CT scan, which showed a lung mass in the external basal segment of the right lower lobe (3.1 × 2.1 × 4.8 cm) and mediastinal adenopathies (prevascular space, infracarinal, superior right paratracheal), as well as supraclavicular and right hilar lymph nodes. A linear endobronchial ultrasound (EBUS) with puncture of group 7 (16 mm in minor axis) was performed, and the diagnosis was consistent with Small Cell Neuroendocrine Carcinoma of the Lung. The patient initiated pulses of methylprednisolone with partial clinical improvement and is currently awaiting a PET/CT scan to complete the clinical staging process.
Discussion: Due to its rarity and complexity, paraneoplastic encephalitis remains a challenging syndrome to diagnose. Therefore, a multidisciplinary approach and a high level of clinical suspicion are essential for a proper management.

Keywords: *Paraneoplastic encephalitis. Paraneoplastic syndrome. Small cell lung cancer.*

PC 031. MALT LYMPHOMA WITH PULMONARY INVOLVEMENT

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Introduction: Primary pulmonary lymphoma is defined as a clonal lymphoid proliferation originating in the lung, without previous extrapulmonary involvement at the time of diagnosis or in the subsequent 3 months. Primary pulmonary origin is rare and MALT lymphoma is the most frequent.
Case report: We present a 73-year-old male patient, with a history of arterial hypertension, BPH and TIA in 2016. Former smoker of 50 pack-years and former construction worker. Currently medicated with acetylsalicylic acid 150 mg, dutasteride/tamsulosin 0.5 + 0.4 mg and atorvastatin 20 mg. No known drug allergies. Visited the emergency department in March 2018 with persistent cough, with about 4 weeks evolution initially dry but slightly productive in the last few days, associated with asthenia and anorexia with 2 months evolution. No fever, night sweats and weight loss. On physical examination, he had a HR of 102 bpm, was apyretic, with SpO2 on room air of 98%. Eupneic in room air. Pulmonary auscultation showed a diminished vesicular murmur in the right lower third. Analytically had leukocytes of 13,100 × 10^9/L and CRP 1.49 mg/dL. Chest X-ray showed pleural effusion on the right, and infiltration in the middle third of the right hemithorax. The CT-Chest showed extensive consolidation with air bronchogram, involving the entire right lower lobe with parenchyma hepatization and a small subpleural consolidation in the left lower lobe. The interlobular septa were thickened, associated with bilateral ground-glass densification. Bilateral adenopathies in the hilar mediastinum were also visible, the largest measuring 21 × 12 mm. Bronchoscopy showed inflammation, edema and orifices of very small caliber, insurmountable in the right lower lobe bronchus, without endobronchial lesions. The bronchoalveolar lavage (BAL) was negative for neoplastic cells. The immunohistochemical study showed an abundant accompanying T lymphoid population (positive for CD3 and CD5). Bronchial biopsies showed bronchial involvement by peripheral B-small cell lymphoma, confirmed by transthoracic biopsy, that showed lung involvement by peripheral B-lymphoma with features of marginal/MALT lymphoma. The patient was referred to Hematology consultation and started chemotherapy with R-CHOP. He was send back to the Pulmonology consultation in March 2020 because a control CT-scan found new spiculated pulmonary nodules. Another bronchoscopy didn't showed malignant alterations and a PET-CT showed an area of consolidation with heterogeneously increased uptake of FDG-F18 in the right lower lobe, without extrathoracic uptake. Given the differential diagnosis between lesions secondary to lymphoma and organizing pneumonia, it was decided to repeat the biopsy, that confirmed pulmonary involvement by marginal lymphoma/MALT. The patient restarted chemotherapy. The last CT-scan showed fibrosis lesions and traction bronchiectasis in the right lung and a large reduction in the volume of the right lower lobe.
Discussion: MALT lymphoma is a slowly evolving disease that can be asymptomatic or present respiratory or constitutional symptoms. Therapeutic options include surveillance, surgery and chemotherapy. It may be necessary to maintain surveillance for a long period of time, as almost 50% of patients have a relapse of the disease.

Keywords: *Primary pulmonary lymphoma. MALT lymphoma. B cell lymphoma.*

PC 032. MENINGIOMA WITH PULMONARY METASTASIS

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Introduction: The accidental finding of pulmonary nodules is increasingly common with the availability of complementary diagnostic tests, and their radiological characterization is essential in the diagnostic and therapeutic algorithm.
Case report: We present 64-year-old female patient with a history of arterial hypertension, depression and gastric GIST underwent gastrectomy in 2012. Exposure to wood stove smoke, domestic and farm animals, including birds. Currently farm worker and a former poultry, factory and cleaning worker. GIST followed in General Surgery consultation and oncology day hospital, under Imatinib. Currently medicated with esomeprazole 40 mg, atenolol/chlorotalidone 100 + 25 mg and alprazolam 0.25 mg. Referral to Pulmonology consultation in September 2016 due to increased size of pulmonary micronodules already known since 2011. CT-scan described multiple bilateral nodules, in the upper and lower lobes, with dimensions between 4 and 11mm, all growing compared to previous exam, probably corresponding to metastases. The largest nodule in the right upper lobe had spiculated contours, raising the hypothesis of primitive neoplasia. Patient with no history of pulmonary disease but with dry cough and sneezing crises with years of evolution, with exacerbations in the current year. She was medicated with tiotropium bromide + inhaled olodaterol hydrochloride. On physical examination she was eupneic on room air, with SpO2 95%. Pulmonary auscultation revealed bronchospasm. Analytically there wasn't increase in inflammatory parameters and Ig and SACE levels were within the normal range. Bronchoscopy without macroscopic alterations, with bronchoalveolar lavage (BAL) negative for neoplastic cells, with 5% of neutrophils, lymphocytic alveolitis with 27% of lymphocytes and a CD4/CD8 ratio of 10.8. Negative bacteriological examination. Pulmonary function test showed a severe obstructive syndrome with positive bronchodilation test (FVC: 84%; FEV1: 50%; TI: 49%; R: 0.68; VR: 185%; TLC: 120 [increase > 200 ml and 27% in VEMS]; DLCO 82%). It was placed as differential diagnoses hypersensitivity pneumonitis and probable chronic asthma/COPD, medicated accordingly. The patient refused biopsy and maintained follow-up. FDG-PET performed in August 2021 showed dimensional increase of the pulmonary nodule in the apical segment of the right upper lobe, without appreciable metabolic expression. The patient agreed with trans-

thoracic lung biopsy which revealed lung parenchyma with spindle cell proliferation, raising the diagnostic hypothesis of meningothelioid nodule or meningioma. Patient never had neurological complaints. Brain MRI identified meningioma of the high cerebral convexity with bilateral expression, predominance on the right side, with invasion of the superior longitudinal sinus. She was referred to the Neurosurgery consultation and offered surgery, which she refused, maintaining follow-up in both consultations. From a respiratory point of view she only has a slight daily cough. No symptoms or neurological deficits so far.
Discussion: Meningioma is one of the most frequent central nervous system tumors, usually benign. Pulmonary metastases are rare, and sinus venosus invasion is one of the risk factors. Survival is difficult to estimate due to the small number of reported cases, but most patients survived with the disease for more than 18 months.

Keywords: *Meningioma. Multiple pulmonary metastases. Pulmonary nodule.*

PC 033. INTRALOBAR SEQUESTRATION CONCEALED AS PRIMARY LUNG CANCER: A CASE REPORT

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Introduction: Pulmonary sequestration is a rare congenital anomaly of the lower airways, occasionally associated with recurrent infections. It is characterized by the presence of pulmonary tissue supplied by systemic arterial circulation, without tracheobronchial communication. The imaging presentation varies, with the identification of a heterogeneous or homogeneous solid lesion being more common. Here, we present a clinical case of a probable primary pulmonary neoplasia, which was confirmed through anatomopathological studies to be an intralobar sequestration.
Case report: A 67-year-old man, capable of performing activities of daily living, and a smoker with a smoking history of 50 pack-years, had a medical history of chronic obstructive pulmonary disease (COPD) with pulmonary emphysema, familial adenomatous polyposis, hypertension, dyslipidemia, peripheral arterial disease, and a previous diagnosis of oral cavity carcinoma treated with radiotherapy and chemotherapy in 2012 with complete remission. Clinically, he denied any respiratory or constitutional symptoms and had an unremarkable physical examination. As part of the COPD study, a thoracic CT scan revealed predominantly apical centrilobular emphysema and a 7 mm spiculated nodule in the right upper lobe. The PET-CT 18F-FDG scan showed slightly increased FDG-F18 uptake (maximum SUV of 1.7) in the nodule. Bronchofibroscopy showed no significant macroscopic changes, and cytology of bronchial aspirate did not reveal any neoplastic cells. An endobronchial ultrasound (EBUS) was performed, showing no evidence of nodal involvement in the neoplastic disease. A transthoracic biopsy was not performed due to the inaccessibility of the lesion. In a multidisciplinary discussion, given the high suspicion of early-stage primary neoplasia and the patient's moderate to high surgical risk, it was proposed and accepted to perform a uniportal video-assisted thoracic surgery with subsegmentectomy (UniVATS)of the right upper lobe and lymphadenectomy, which was completed without complications. The anatomopathological study of the surgical specimen was compatible with an intralobar pulmonary sequestration. The patient continues to be followed up in an outpatient setting. During the postoperative period, there was functional deterioration and reduced exercise tolerance. Follow-up radiological evaluation revealed distortion of the architecture of the right upper lobe. Currently, the patient is undergoing a respiratory rehabilitation program.
Discussion: Intralobar pulmonary sequestration is associated with recurrent infections. In the presented clinical case, there were no respiratory symptoms, and the diagnosis was incidental. The therapeutic decision in cases of suspected pulmonary neoplastic disease is challenging, making a multidisciplinary discussion essential.

Keywords: *Intralobar pulmonary sequestration. Rare diseases.*

PC 034. NEW THERAPIES, NEW COMPLICATIONS

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Introduction: Sarcoidosis is a granulomatous disease of unknown etiology. However, it is known to be a systemic pathology, and despite its initial description being related to patients with cutaneous lesions, thoracic involvement accounts for approximately 90% of cases. Nivolumab is a monoclonal antibody that stimulates cytotoxic T-cell response, leading to the subsequent elimination of tumor cells. While it has significant applicability against solid neoplasms such as lung and skin, it can also trigger immune intolerance and immune-related adverse reactions that are novel and specific to this type of treatment. Abnormal activation of T cells can result in inflammation of various organs, with the skin, intestines, and lungs being the most commonly affected.
Case report: A 47-year-old female patient with a history of controlled asthma since 2007, managed with Fluticasone/Salmeterol and Montelukast, was followed up in medical oncology for melanoma (T4N1M0). She was recommended adjuvant therapy with Nivolumab following surgical resection. Two days after starting treatment, she developed erythematous and pruritic macules on arms, legs, and face, with progressive aggravation, but improvement occurred after the introduction of a second antihistamine. During a routine CT scan at 2 months of treatment, suspicious mediastinal lymph nodes were detected, and a PET scan, 4 months after starting treatment, showed moderate 18F-FDG metabolism in bilateral hilar and subcarinal lymph nodes. Analytically, she presented with elevated PCR and ESR, and normal ACE, renal function, electrolyte levels, and liver function. The patient remained asymptomatic from a respiratory standpoint, with normal pulmonary function tests. However, there was dimensional progression of the lymph nodes, without changes in the lung parenchyma. Immunology studies and EBUS-TBNA were performed, revealing clusters of lymph nodes adjacent to station 7 with heterogeneous content, apparent hilar center, and blood vessels inside, with regular contours. Cytology of the lymph nodes showed cells from the lymph node itself without evidence of malignancy. In the bronchoalveolar lavage (BAL), there was lymphocytosis (70%) and a CD4/CD8 ratio of 3.24, with negative cytology for neoplastic cells and absence of microbiological isolates. Secondary lesions were ruled out, and a diagnosis of sarcoid-like reaction, likely related to Nivolumab, was assumed. Considering the absence of respiratory symptoms and the imminent completion of Nivolumab treatment, it was decided to continue the medication. The first re-evaluation CT scan, one month after the completion of adjuvant treatment, showed dimensional reduction of mediastinal and hilar lymph nodes. However, due to persistent cutaneous lesions, a biopsy was performed, and the histology was suggestive of sarcoidosis.
Discussion: Sarcoid-like granulomas and lymphocytosis in BAL have been described as consequences of exposure to Nivolumab, and this case highlights the importance of vigilant and careful monitoring during immunotherapy. Although it presents as an asymptomatic form diagnosed through a study of associated disease, which suggests a favorable prognosis, the side effects of Nivolumab should be promptly identified and managed to ensure the best quality of life and outcomes for patients. This case serves as a warning of the need to conduct further studies to deepen our

understanding of the relationship between immunotherapy and the development of sarcoidosis.

Keywords: *Sarcoidosis. Lung cancer. Nivolumab. Surveillance.*

PC 035. IMMUNE-RELATED ADVERSE EFFECTS IN LUNG CANCER: NIVOLUMAB AND PANCOLITIS

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Introduction: Nivolumab is an antibody that stimulates the programmed cell death protein 1 (PD-1) pathway. It is used in non-small cell lung cancer, and is currently recommended in neoadjuvant therapy associated with chemotherapy in early stages. Immune-related adverse effects (IRAEs) associated with nivolumab are various and multiorganic, with diarrhea being a frequent symptom (29% to 37%), but rare (< 5%) in more advanced grades (CTCAE grades 3 or 4). It usually appears 5 to 10 weeks after starting therapy. Some potentially fatal complications include intestinal perforation, ischemia, necrosis and toxic megacolon.
Case report: Male, 69 years old, former smoker (196 Pack-Year Units), with stage IIIA squamous cell lung carcinoma (T4N1M0), under neoadjuvant treatment with nivolumab, paclitaxel and carboplatin after decision in a multidisciplinary meeting. A few days after the first cycle (C1) of treatment, he started having episodes of diarrhea with blood and mucous with more than 8 liquid dejections/day (CTCAE grade 3), refractory to symptomatic medical treatment at home and need for evaluation in the Emergency Department due to weight loss and marked asthenia. Urgent colonoscopy revealed effacement of the vascular network throughout the colon, with edema, microerosions, friability and a whitish induct, suggestive of pancolitis which, given the clinical context, was assumed to be secondary to nivolumab. He was medicated with oral corticosteroid therapy, with subsequent weaning, with symptomatic improvement.
Discussion: Knowledge of the toxicities associated with PD-1/PD-L1 axis blockade, as well as their management algorithms, is essential for optimizing the efficacy and clinical safety of immunotherapy. In this particular case, contrary to what is described in the literature, toxicity occurred soon after the first cycle and implied a change in the therapeutic strategy.

Keywords: *Pancolitis. Lung cancer. Nivolumab. Immune-related adverse effects.*

PC 036. MILLIMETRIC TUMOR BEHIND EMPHYSEMATOUS BULLAE

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Introduction: Tumorlets are defined as hyperplasia of neuroendocrine cells smaller than 5mm and absence of mitotic activity and necrosis and are almost always associated with underlying lung disease, namely bronchiectasis, fibrosis, or other chronic inflammatory processes. It is believed that they arise as an adaptive response to hypoxia or fibrosis, or that neuroendocrine cells are involved in the genesis of various lung diseases. It is a rare pathology that typically affects middle-aged women and can be found in patients with multiple endocrine neoplasia type 1.
Case report: We present a 36-year-old man, smoker, with a personal history of vocal cord polyp, who underwent a suspension microlaryngoscopy. He was referred by his attending physician for occasional wheezing and scanty mucous sputum for the past 3 months. No other symptoms or changes on physical examination. Due to changes in the chest radiography, a chest computed tomography (CT) was performed, which revealed paraseptal emphysema in the middle lobe, the largest bubble measuring 74 mm, consolidation in the medial segment of the middle lobe, and micronodular infiltrate with tree-in-bud distribution in the middle lobe and left lung base. Lab studies and respiratory functional tests were normal. A flexible bronchoscopy was performed that demonstrated purulent secretions dispersed throughout the right bronchial tree, with isolation of *Streptococcus pneumoniae* and *Haemophilus influenzae* in bronchial aspirates and inflammatory cytology (negative for malignant cells). The patient was prescribed antibiotics, followed by a chest CT that revealed resolution of the micronodular infiltrate and was observed in a Thoracic Surgery appointment. He was submitted to middle lobe bullectomy by uniportal VATS and the histological analysis of the surgical specimen revealed subpleural bulla, follicular bronchiolitis lesions, and 0.9 mm tumorlet (positive synaptophysin and chromogranin). Clinical and radiological improvement was verified, with bronchiectasis in the middle and lower lobes shown in the control CT scans.
Discussion: DIPNECH (diffuse idiopathic pulmonary neuroendocrine cell hyperplasia), tumorlets, and carcinoid tumors are neuroendocrine tumors with several common features. While DIPNECH is characterized by several small nodules constituted by the proliferation of pulmonary neuroendocrine cells in the bronchial epithelium, tumorlets, and typical carcinoid tumors can extend beyond the basement membrane, reaching the peribronchial tissue (and are distinguished only by their size). Usually, tumorlets do not cause symptoms and are incidental findings in autopsies or surgical specimens due to interventions performed for other reasons. The majority are benign incidental findings, in which surgical resection is curative, and has a good prognosis.

Keywords: *Tumorlet. Emphysema.*

PC 037. RADIATION PNEUMONITIS IN A PATIENT WITH SMALL-CELL LUNG CARCINOMA – CORTICOIDS WHY I WANT YOU?

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Introduction: Radiotherapy is an important tool in the treatment of lung cancer, both in early stages and as a palliative strategy. However, thoracic irradiation carries potential complications such as Radiation-Induced Lung Injury (RILI), which includes Radiation Pneumonitis (RP) and Radiation Fibrosis. RP is classified into 5 grades of severity, with systemic high-dose corticosteroid therapy becoming the basis of treatment from the 3rd grade onwards.
Case report: Women, 72 year old, PS ECOG 1, with stage IV small cell lung carcinoma due to cerebral metastasis, is undergoing 3rd-line chemotherapy with Topotecan. She was treated with holo-cranial and thoracic radiotherapy due to superior vena cava syndrome. About 10 days after completing radiotherapy, she developed complaints of dysphagia, anorexia, and fever, likely due to radiation esophagitis. After a few days of persistent fever and worsening general condition, she was found to have pancytopenia and febrile neutropenia (MASCC score 10 points) requiring hospitalization. Treatment was initiated with piperacillin-tazobactam and itraconazole for 3 days, followed by a switch to meropenem and voriconazole, along with acyclovir due to clinical deterioration with hypotension and persistent fever. Septic workup yielded negative results. Filgrastim was administered, leading to clinical improvement and improvement of cytopenias, but the fever only subsided after starting naproxen. On the 10th day of hospitalization, she experienced a

new exacerbation with dyspnea on minimal exertion, cough, and prostration, being bedbound. Auscultation of the lungs revealed new diffuse bilateral crackles and severe respiratory failure necessitating oxygen therapy by high concentration mask. A thoracoabdominal CT scan showed extensive areas with groundglass opacities and bilateral reticular pattern. Considering her clinical history, a diagnosis of Grade 3 Radiation Pneumonitis was considered, and treatment with methylprednisolone 2 mg/kg/day and inhaled budesonide/formoterol was initiated. Despite these measures, the patient's condition continued to worsen, and it was decided to administer methylprednisolone pulses of 500 mg for 3 days as a lifesaving intervention, followed by a maintenance dose of methylprednisolone at 4 mg/kg/day. The patient also began high-flow oxygen therapy at 100% FiO2 with a flow rate of 60 L/min. She showed slow but progressive improvement of dyspnea, cough, and overall condition, tolerating a gradual reduction in FiO2 and tapering of corticosteroid therapy. A follow-up chest CT after 23 days showed a significant reduction in ground-glass opacities, but a diffuse reticular pattern persisted with some areas honeycombing like. After 43 days of hospitalization, she was discharged home, able to sit and walk with support, on oxygen therapy at 3L/min via nasal cannula, and on oral prednisolone at a dose of 40 mg/day. She is currently under follow-up in the Pulmonology clinic.
Discussion: The diagnosis of RP is an exclusion diagnosis based on clinical and radiological findings and a history of radiation therapy. Systemic corticosteroid therapy is the recommended treatment for severe RP, but due to the severity of this case, it was necessary to initiate corticosteroid pulses to recover this patient, who, despite all the complications, regained her quality of life.

Keywords: *Radiation pneumonitis. Radiotherapy. Corticosteroid therapy.*

PC 038. SUPERIOR VENA CAVA SYNDROME: TWO CASE REPORTS

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Introduction: Superior Vena Cava Syndrome (SVCS) is a set of signs and symptoms resulting from extrinsic compression and/or intravascular obstruction of the superior vena cava (SVC). Malignant obstruction is the most frequent (60-80%) and may occur due to thrombosis, direct invasion of the SVC or extrinsic compression by tumor, lymph nodes or other mediastinal structures. About 95% of malignant causes are due to lung cancer (Non-Small Cell Carcinoma in 50%, Small Cell Carcinoma in 25-30%) and lymphoma (Non-Hodgkin Lymphoma in 10-15%). Benign causes may be related to placement of intravenous devices (20-40%), benign tumors or mediastinal fibrosis. On objective examination, edema of the face, neck and/or upper limb may be seen, with obvious collateral circulation and facial plethora. Symptoms may be mild to life-threatening, the most frequent being head and neck fullness, lipothymia, headache, as well as dyspnea, dysphagia and dysphonia when there is invasion of adjacent structures. Less frequently, there may be hemodynamic instability, confusion or stridor requiring emergent intervention. We present two clinical cases of SVCS in the initial diagnosis of lung cancer.
Case reports: Case 1) Male, 54 years old, smoker, miner for 18 years. He went to the emergency department (ED) with a cough with hemoptoic sputum, weight loss and headache that worsened in the decubitus position. Objective examination revealed an increase in cervical circumference with erythema and venous engorgement. Chest CT revealed an 8.5 cm mass in the upper segment of the left lower lobe, multiple nodular lesions bilaterally and voluminous mediastinal adenomegaly, leading to a reduction in SVC caliber. Bronchofibroscopy revealed no direct or indirect endoscopic signs of neoplasia. However, with a positive bronchial lavage for neoplastic cells and transthoracic biopsy of the anterior mediastinal conglomerate, it was possible to establish the diagnosis of poorly differentiated non-small cell lung carcinoma, PDL-1 negative. Decompressive radiotherapy was initiated, with little evidence of benefit given the progressive functional decline and infectious intercurrence, which led to the death of the patient during hospitalization. Case 2) Male, 54 years old, smoker, former construction worker and painter. He came to the ER with edema and erythema of the neck, which had been progressing for one week, associated with dysphagia for liquids for two months. Chest and neck CT revealed a large upper mediastinal mass, measuring 6 × 8 cm, with marked reduction in SVC caliber and cervical lymph node hypertrophy. Given the differential diagnosis with lymphoma and accessibility for diagnosis, he underwent surgical biopsy of the mediastinal mass with histology compatible with small cell carcinoma. Given the diagnosis, dexamethasone and chemotherapy were started with significant symptomatic improvement.
Discussion: With these cases, the authors pretend to highlight the importance of the initial presentation of lung cancer as SVCS, corroborating the data in the current literature. It is important to note that this is a syndrome whose presentation may be an oncologic emergency requiring urgent corticotherapy and/or radiotherapy. However, the immediate initiation of decompressive therapy should be an individualized decision based on the presence of alarm symptoms, as it may compromise diagnostic assessment.

Keywords: *Superior vena cava syndrome. Non-small cell lung carcinoma. Small cell lung carcinoma. Mediastinal adenopathy.*

PC 039. CARCINOID HEART, THE KEY TO AN UNUSUAL DIAGNOSIS

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Introduction: Lung carcinoid tumors are rare malignant neoplasms representing 1-2% of all lung tumors. About 20 to 30% of patients have disseminated disease at diagnosis, presenting with carcinoid syndrome and, of these, about half have carcinoid heart disease.
Case report: Male, 79 years old, active smoker, without previous known diseases. He went to the emergency department due to shortness of breath and tiredness on minor exertion (mMRC 3), productive cough, starting 1 month ago. The physical examination showed facial flushing, decreased breath sounds in the lower one third of both lung fields, wheezes, and basal crackles. Arterial blood gas analysis showed type 1 respiratory failure and chest radiograph revealed opacification of the lower one third of both lung fields, with obliteration of the costophrenic sinuses, suggesting bilateral pleural effusion. The patient was admitted with suspicion of respiratory infection and therefore started empirical antibiotic regimen with amoxicillin/clavulanate and azithromycin. Three weeks later, during the hospital admission, he noticed a clinical worsening of dyspnea for progressively minor efforts (mMRC 4), increase in the abdominal perimeter and edema of the lower limbs. Exams were carried out detecting a progressive increase in NT-proBNP (up to 4,300 pg/mL); low-voltage QRS complexes on the EKG and a transthoracic echocardiogram demonstrating dilated right cavities and left atrium, with decreased overall RV systolic function, mild to moderate tricuspid regurgitation, with an estimated pulmonary artery systolic pressure (ePASP) of about 82 mmHg and a very slight pericardial effusion, predominantly posterior. Considering the hypothesis of carcinoid syndrome, as a presentation of a disseminated

carcinoid tumor, a thoracoabdominopelvic CT was performed, which revealed a mass in the right lower lobe, with approximately 50 mm in the longest axis; mediastinal and hilar adenopathy and numerous hepatic nodules, that capture contrast. For complementary study was performed: bronchoscopy, with histology of the biopsies carried out compatible with a typical lung carcinoid tumor, expressing chromogranin and Ki67 (about 1%); measurement of serum chromogranin A and urinary 5hydroxyindoleacetic acid (5-HIAA), both high; PET-CT with gallium 68 and brain CT. PET-CT showed a malignant tumor lesion with overexpression of somatostatin receptors in the right lower lobe (Q.SUVmax = 12.3), with mediastinal-hilar lymph node metastasis (Q.SUVmax = 11.7), liver (formation in the segment VIII, with greater peripheral uptake (Q.SUVmax = 15.2) and disseminated bone metastasis (Q.SUVmax = 19.3 in the body of C2). He was then proposed for therapy with octreotide in 4 to 4 weeks schedule, which he maintained until now, on an outpatient basis. Despite significant clinical and symptomatic improvement, it showed evidence of radiological progression after 4 treatment cycles.
Discussion: The diagnosis of carcinoid syndrome and associated heart disease remains challenging. The approach should integrate a biochemical screening, an imaging exam of the primary carcinoid tumor and an echocardiogram, in order to speed up the diagnosis, treatment and prevent potential complications induced by vasoactive substances in circulation.

Keywords: *Carcinoid syndrome. Carcinoid heart disease. 5-hydroxyindoleacetic acid.*

PC 040. REVIEW AND RETHINK – DIFFERENTIAL DIAGNOSIS OF A PULMONARY NODULE

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Introduction: The differential diagnosis of a pulmonary nodule is challenging, with invasive techniques representing an important resource for a definitive diagnosis. With effect, Multidisciplinary decision-making is essential, as well as clinical and radiological reevaluation.
Case report: This present clinical case is a 72 year-old woman, nonsmoker, with late-onset asthma and diffuse pulmonary nodules and micronodules (the largest 10 mm in the lower left lobe (LLL)). She was previously followed in a Pulmonology outpatient consult, and had since abandoned follow-up due to being asymptomatic. Admitted multiple times in the emergency department (ED) on 09/2020 for wrist and knee inflammatory-rhythm arthralgias, generalized myalgia, dyspnea, non-measured fever and left pleuritic chest pain; physical examination was normal. After failed antibiotic therapy with amoxycillin-clavulanic acid and readmission to the ED, chest computed tomography (CT) revealed diffuse subsolid pulmonary nodules with random distribution, a solid nodule in LLL (17 mm) and left suprarenal nodule (22 mm). She was admitted for further study and antibiotic therapy with trimethoprim-sulfamethoxazole and azithromycin. She was submitted to videobronchoscopy with positive PCR for DNA Mycobacterium tuberculosis, and lung biopsy revealing CK7 and TTF1 expression, suggestive of lepidic lung adenocarcinoma; there were no signs of secondary lesions in abdominopelvic and cranial-CT. Autoimmune laboratory study showed sedimentation rate of 119 mm and antinuclear antibodies 1/640 (speckled pattern), interpreted as cross-reaction due to tuberculosis/neoplasia. After starting antitubercular quadruple therapy, the patient was discharged and referred to the Tuberculosis Center (Centro de Diagnóstico Pneumológico) and Oncology-specialized Pulmonology consult. In Pulmonology outpatient consult, anatomopathology review of the lung biopsy fragment was requested, revealing CD34+ cellular proliferation compatible with the diagnosis of Epithelioid Hemangioendothelioma. Positron emission tomography (PET/CT) showed variable abnormal metabolism in the pulmonary micronodules of undetermined origin, intrathoracic adenopathies with low metabolism and left suprarenal gland with a high metabolism focus; chest-CT reevaluation showed indolent growth of the LLL nodule (23 mm), as well as increased solid-component in right upper lobe (22 mm) and median lobe (18 mm) subsolid nodules. Lung biopsy was proposed after discussing the case in a Multidisciplinary Team, which the patient refused.
Discussion: Epithelioid Hemangioendothelioma is a rare vascular tumor, mainly of pulmonary origin; its most common presentation is multiple bilateral pulmonary nodules. The present clinical case highlights the challenge of simultaneous neoplastic and infectious diagnosis, as well as the importance of clinical, radiological and anatomopathology review in a Multidisciplinary Team.

Keywords: *Epithelioid hemangioendotelioma. Lung cancer. Pulmonary nodule.*

PC 041. ONE OR TWO TUMORS? A CASE OF TRANSFORMATION OF EGFR-MUTATED ADENOCARCINOMA INTO SQUAMOUS CELL CARCINOMA

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Introduction: Tyrosine kinase inhibitors (TKIs) revolutionized the treatment of patients with EGFR-mutated non-small cell lung cancer (NSCLC). However, nearly all patients on TKIs will develop resistance to them, with histological transformation being one of the known resistance mechanisms (15% of patients with progression). Histological transformation to small cell carcinoma is the most frequent one, however, transformation to squamous cell carcinoma (SCC) is also referenced in the literature. We present the case of a patient with adenocarcinoma (ADC) stage IV EGFR+ with transformation to SCC after prolonged therapy with TKIs.
Case report: Female 45 years old, PS 0, former smoker (10 pack-years) diagnosed with lung ADC in 2017, stage IVA (T3N2M1a) due to pleural metastatic involvement. EGFR exon 19 deletion was identified, so erlotinib and bevacizumab were initiated. She completed 40 cycles up until 2020, when there was disease progression in the lung. She underwent a surgical biopsy which identified EGFR Thr790Met mutation of exon 20 (a liquid biopsy had been previously performed but it was negative for this mutation). Therapy was switched to osimertinib, which she continued for 34 cycles. Due to oligoprogression (lung and bone) in June 2022, she was also submitted to radiotherapy for the lesions in the lung, sternum and D6, maintaining osimertinib. In November 2022, there was new disease progression in the lung, kidney and bone (lumbar spine) and she was started on a new therapeutic line with carboplatin and pemetrexed. Due to progression after 3 cycles, a new biopsy and simultaneous switch to docetaxel and nintedanib were proposed. After 2 cycles, the transthoracic needle biopsy result was obtained, which identified SCC. NGS (next-generation sequencing) was requested for clarification (histological transformation vs. new primary tumour), which revealed EGFR exon 19 mutation and Thr790Met mutation in exon 20, concluding that it was a histological transformation to SCC. Thus far the patient is still on docetaxel, with documented partial response.
Discussion: There are several resistance mechanisms that occur in patients with EGFR-mutated NSCLC under TKIs. Thus, it is essential to repeat biopsies to identify them, allowing targeting and personalizing therapy. Due to its rarity, there is no defined therapeutic scheme, and a platinum doublet is suggested. Overall survival (OS) is difficult to estimate due to the scarcity of cases, however,

Meador C. et al. identified OS of 13.5 months after diagnosis of this transformation.

Keywords: *Adenocarcinoma. Squamous cell carcinoma. EGFR.*

PC 042. PNEUMONIA DUE TO SALMONELLA ENTERICA – PRESENTATION OF A RARE CASE

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Introduction: Infections due to non typhoid *Salmonella* are still an important global public health concern. The most common clinical presentations of salmonellosis are gastroenteritis, bacteriemia, and focal infections, such as septic arthritis, osteomyelitis, cholecystitis, endocarditis, meningitis, and pneumonia. Since Salmonella is an intracellular pathogen, patients with impaired cell-mediated immunity present an increased risk for developing salmonellosis, particularly patients with HIV infection, diabetes mellitus, patients under prolonged systemic corticosteroid therapy, alcohol abuse, some types of malignancies (such as leukemias and lymphomas) and some types of chemotherapy.
Case report: The authors present the case of a 66-year-old female, Caucasian, partially dependent on the activities of daily living, a current smoker (100 pack-years), with previous diagnoses of chronic obstructive pulmonary disease (COPD) GOLD 1B, centrilobular pulmonary emphysema and bronchiectasis, diabetes mellitus, arterial hypertension, dyslipidemia, osteoporosis, and former ethanolic habits (abstinent for more than 10 years and without liver cirrhosis). The patient was admitted to the hospital for further investigation of fever and diarrhea, followed by constipation, associated with dyspnea and productive cough. She had a fall in her home, resulting in left thoracic trauma with rib fractures and pulmonary contusion. Laboratory tests revealed increased acute phase reactants (CRP 39.8 mg/dL and procalcitonin 17.9 ng/mL) and acute kidney failure (creatinine 1.47 mg/dL). On imaging, there was a pulmonary consolidation on the left lower lobe, and a diagnosis of community-acquired pneumonia and diarrhea with acute kidney failure was admitted. The patient was medicated with amoxicillin/clavulanate and azithromycin and fluids. A chest CT was performed on the 4th day of admission, showing a progression of the parenchymal consolidations and thickening of the bronchial walls in the upper and lower lobes, presenting a nodular morphology, with progressive segmental and subsegmental consolidations and a small volume bilateral pleural effusion. There was an isolation of Salmonella enterica subsp. enterica serovar Brikama on blood cultures, without resistance to antimicrobials, and the antibiotic therapy was changed to cotrimoxazole, which the patient completed for 14 days during the hospital admission. All additional microbiological tests were negative. The patient had a hypercapnic respiratory failure and needed supplemental oxygen with FiO2 40% through a Venturi mask but presented progressive improvement with antibiotics, respiratory rehabilitation, and bronchodilators. She was discharged home on the 18th day of admission, clinically improved, and without respiratory failure. When further asked, she said she had eaten 1 kg of plums previously to the current episode. She denied consumption of uncooked eggs or untreated water. No other relevant epidemiological context was identified.
Discussion: Bacteremia occurs in about 5% of the cases of gastrointestinal disease due to non typhoid *Salmonella* and is associated with an increased risk of focal infection, such as pneumonia. The presence of previous pulmonary disease causes an increased risk of pulmonary involvement. Treatment includes at least two weeks of oral or parenteral antibiotics. Pneumonia due to Salmonella is a rare entity and is associated with increased mortality in patients aged 60 years or more and in cases of malignancy and immunosuppression.

Keywords: Salmonella enterica *subsp. Enterica serovar brikama. Salmonellosis. Pneumonia. Bacteremia.*

PC 043. PERCUTANEOUS DRAINAGE OF LUNG ABSCESS, A GOOD ALLY IN THE FIRST APPROACH?

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Introduction: Lung abscess is an infection of the lung parenchyma with associated necrosis. It can be classified as acute or chronic. The development of infection can occur through several routes, the most common being the aspiration of oropharyngeal contents. First-line treatment is broad-spectrum antibiotics. In cases where there is poor clinical evolution, the use of complementary measures is indicated, namely endobronchial drainage, surgery or percutaneous drainage.
Case reports: The cases presented represent an exception due to the therapeutic approach. The first case is a 51-year-old man, diabetic with alcoholic habits, who went to the emergency room due to fever, weight loss and chest pain. Thoracic teleradiography (X-ray) showed loculated effusion, and he underwent drainage and antibiotic therapy for a long period, with initial improvement. Subsequently, he presented a new clinical worsening with increased productive cough. The X-ray two months after the acute episode was compatible with a lung abscess, confirmed by computed tomography (CT). Broad-spectrum antibiotic therapy was started, with little response, so he underwent percutaneous drainage of the abscess with aspiration of purulent content. He showed marked radiological and clinical improvement in the subsequent days. The second case is a 64-year-old man, autonomous, with no relevant personal history, who resorted to the emergency room due to generalized malaise, fever and productive cough with mucopurulent sputum. He also mentioned weight loss, around 9 kg in 2 months. The X-ray revealed opacity at the left base and the CT was suggestive of a lung abscess. Broad-spectrum antibiotic therapy was started, however, given the size of the abscess, percutaneous drainage of the abscess was performed, with aspiration of purulent content. The patient showed abrupt clinical and radiological improvement, and was discharged a few days later, with continued antibiotic therapy. Currently, broad-spectrum antibiotic therapy continues to be recommended as the first line, however it is known that the success rate of this method alone is limited, especially in cases of large abscesses or more chronic disease. The cases presented represent the evolution in the paradigm in the approach of lung abscesses, both submitted to percutaneous drainage, without complications. The first case demonstrates the failure of conventional treatment with antibiotics in a long-standing abscess, which required 27 days of hospitalization. The second case represents an innovation in the approach, in which it was decided to perform percutaneous drainage at an earlier stage and which culminated in a very favorable clinical evolution in the short term, with discharge 9 days after drainage.
Discussion: These examples are intended to illustrate the already known safety in what is a more interventional approach, and when performed at an earlier stage of the condition, it may result in faster clinical improvement, with less hospitalization time and possibly a reduction in the duration of antibiotic therapy.

Keywords: *Lung abscess. Percutaneous drainage. Antibiotic therapy.*

PC 044. INVASIVE PNEUMOCOCCAL DISEASE AND PREVENTION – HOW MUCH ARE WE FAILING?

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Introduction: Invasive pneumococcal disease (IPD) is caused by Streptococcus pneumoniae bacteria and is a serious disease. It is

responsible for a large percentage of deaths worldwide. This disease can be prevented with vaccination. In Portugal, the vaccine has been recommended for risk groups since 2015, with some updates since then. There are currently several types of vaccines available. Currently, the national health authority (DGS) recommends vaccination for risk groups. Although vaccination is indicated for various pathologies, this is only reimbursed for a part of these.
Objectives: The objective of our work was to identify the number of cases of invasive pneumococcal disease with respiratory origin that occurred in the Portimão hospital in a period of 5 years (from 2017 to 2022) and to correlate it with the vaccination status of the patients.
Methods: A survey of patients diagnosed with pneumococcal pneumonia was carried out. Vaccination status was obtained using the RSE tool of Sclínico. Invasive disease was considered when the blood culture was positive or the patient developed sepsis in the context of pneumococcal infection. A total of 74 patients were included. Of these, 50% (n = 37) developed invasive pneumococcal disease and about 5 of them died during the course of this infection. The vaccination status was only possible to obtain in about 64.9% (n = 24) of patients with invasive disease. In this group, only one person had been vaccinated and it was a child. In the remaining, only 5 patients were vaccinated after IPD, which means that around 79.1% (n = 19) of patients remained without vaccine, despite a previous episode of IPD.
Results: According to the guidelines of the DGS and taking into account the comorbidities, pneumococal vaccine would be indicated in about 66.7% (n = 16) of the patients. If we consider other comorbidities considered by the Center for Disease Control and Prevention (CDC) recommendations for pneumococcal vaccination, namely alcoholism and smoking, this value would rise to 87.5% (n = 21).
Conclusions: This work aims to demonstrate the still existing vaccination shortage and the importance of greater economic and educational investment in this area. We also intend to remind the active role that the medical team should assume at the time of hospital discharge by prescribing the vaccine as part of the plan for the patient. In addition, we intend to draw attention to the need to expand the recommended vaccination groups, since alcoholism and smoking were two comorbidities with great prominence in this analysis and that, despite being already contemplated by the CDC, are not yet by the DGS.

Keywords: *Invasive pneumococcal disease. Vaccination. Streptococcus. Prevention.*

PC 045. IS CUBEDX AN INNOVATION IN THE IDENTIFICATION OF MICROORGANISMS IN BRONCHOALVEOLAR LAVAGE (BAL)?

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Introduction: Lower respiratory tract infections (LRTIs) are extremely common and associated with high morbidity and mortality, particularly in immunocompromised patients. Conventional microbiological diagnostic methods, such as quantitative culture (104 CFU/mL), remain the gold standard for the etiological study of LRTIs in bronchoalveolar lavage (BAL) samples. However, culture-based methods have some limitations, including the time required for laboratory results and the potential for contamination with commensal flora from the upper respiratory tract. Cube Dx (Cube Dx GmbH) is a molecular diagnostic method based on compact sequencing using a cylindrical multiplex microarray technology (hybcell) and a fully automated device (hyborg). It allows the identification of a broad panel of bacteria and yeast-like fungi in BAL samples without the need for prior extraction, providing results in about 2 hours. The objective of this study was to evaluate the analytical performance of Cube Dx in microbial identification in BAL samples.
Methods: This was a prospective single-center study conducted at a university hospital in the northern region of Portugal from August 2022 to March 2023. The inclusion criteria were adult patients undergoing bronchoscopy with at least one of the following: changes in bronchial productivity, analytical changes consistent with respiratory infection, and/or suggestive imaging changes of infection and/or bronchiectasis on chest CT. Duplicate BAL samples were collected and processed in parallel for both conventional microbiological diagnosis and Cube Dx. Cube Dx's analytical performance was calculated compared to conventional microbiological diagnosis.
Results: A total of 36 patients were included, but 3 of these samples were not processed due to equipment error with CubeDx, and one sample was repeated. Therefore, 32 samples from 32 patients were analyzed, 19 (59.4%) of whom were female, with a mean age of 63 (± 12.8) years. Ten patients (31.3%) had undergone antibiotic therapy in the previous 3 months, and 19 (59.4%) were on antibiotic therapy at the time of BAL. Regarding bacteriological results, there was complete agreement in 23 (71.8%) patients, partial agreement in 1 (3.2%) patient, and discordance in 8 (23%) patients. The microorganism was not included in the expected identification panel in one patient. This resulted in a sensitivity of 53.8% and specificity of 89.5% (p = 0.007), with a positive predictive value of 77.8% and negative predictive value of 73.9%. Regarding the identification of fungi in BAL, there was agreement in results in only 20 samples, all of which were negative, resulting in a specificity of 83% and a negative predictive value of 71.4%, but a sensitivity and positive predictive value of 0% (p = 0.217). No statistically significant differences were observed in the microbiological identification between CubeDx and conventional methods in patients with bronchiectasis.
Conclusions: This study suggests that Cube Dx appears to be more effective in excluding LRTIs, which may be useful in clinical situations requiring a rapid response for therapeutic guidance. However, further studies with a larger number of samples are needed to validate this new diagnostic tool.

Keywords: *Bronchoalveolar lavage. Microbiology. Bronchoscopy. Lower respiratory tract.*

PC 046. FIVE-YEAR TREND OF NONTUBERCULOUS MYCOBACTERIA IN THE NORTH REFERENCE CENTER IN PORTUGAL

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Introduction: Non-tuberculous mycobacteria (NTM) are opportunistic human pathogens found in the environment. The true clinical impact of NTM infections is difficult to determine due to challenges in discriminating between disease and colonization, as they are ubiquitous in the environment. Another problematic issue of NTM disease is that it is not a notifiable disease, which hampers a proper determination of its incidence and prevalence. As such, the real burden of NTM disease is underestimated worldwide, being important to understand the epidemiology and distribution of different NTM over the years. Therefore, the study aimed to characterize the circulation trends of NTM species isolated in Portugal's north reference center.
Methods: We conducted a retrospective study where all positive NTM cultures samples at the National Reference Laboratory for Tuberculosis (NRL-TB) of the National Institute of Health (INSA) from 2016 to 2021 and from northern health institutions were included.

Results: In this period, 217 cultures samples were positive for NTM. We found a heterogenous distribution in the region with a higher concentration in Vila Real and Bragança in the northeast area, followed by Santa Maria da Feira and Porto's metropolitan area on the coastline. *Mycobacterium avium* complex (MAC) was the most frequently isolated mycobacteria (59.4%) regarding all culture samples, as well as the most frequent mycobacteria each year and in all districts. When analyzing the evolution of isolates over the years, there was a decrease in MAC and *Mycobacterium abscessus* isolation and a slight increase in *Mycobacterium fortuitum*.
Conclusions: Our results shed light on the species distribution and changing trends of NTM isolates in the northern region of Portugal, not previously reported. The prevalence and species distribution data may contribute to a better understanding of NTM infections in this specific geographic area. These findings have implications for clinical management and public health interventions to prevent and control NTM infections. Further research is needed to explore the clinical impact, risk factors, and environmental sources of NTM infections in the region, and clinical-based studies of NTM infections are crucial to understand the dynamics of these infections in our population.

Keywords: *Nontuberculous mycobacteria. Epidemiology.*

PC 047. CLAVULANIC ACID-INDUCED THROMBOCYTOPENIA – AN ADVERSE EFFECT TO BE AWARE OF

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Introduction: Drug-induced thrombocytopenia should be considered in patients with the development of platelet decrease. Simultaneous exposure to several drugs thickens the diagnostic process and requires a systematic review of prescribed medication and their adverse effects.
Case report: A 71 year-old male with multiple comorbidities including chronic kidney disease on hemodialysis was admitted to Intensive Care Unit due to a right lower lobe pneumonia with empyema leading to severe partial respiratory failure. The patient was treated with piperacillin/tazobactam and vancomycin empirically and a thoracocentesis was performed with the drainage of purulent exudate. When the patient was stable he was transferred to the Pneumology ward, where the bacteriology result of the pleural exudate was obtained with the isolation of anaerobic gram-positive. Antibiotherapy was switched to amoxicillin/clavulanic acid according to the results of antibiotic sensitivity test. About six hours after drug administration, routine blood tests were performed, which revealed an isolated thrombocytopenia (299×10^9/L to 69×10^9/L) confirmed after a repeat blood count. Analytically, the presence of positive antiplatelet antibodies should be highlighted (GP IIb/IIIa glycoproteins for HPA antigens 1a/1a; 3a/3a and 4a and for GP Ia/IIa). Due to the recent exposure to a new drug the diagnosis of thrombocytopenia secondary to amoxicillin/clavulanic acid was assumed, this antibiotic was suspended, and clindamycin was started until the patient presented platelets > 50×10^9/L (minimum 21×10^9/L, recovery trend from the seventh day after the first dose). The case was discussed with Hematology colleagues which, given the fact that thrombocytopenia is more frequently associated with clavulanic acid, suggested reintroduction of amoxicillin alone, which the patient tolerated without platelet repercussions. During the diagnostic process other causes of thrombocytopenia, namely association with other drugs, were excluded, and medical records of the patient showed no previous record of exposure to clavulanic acid.
Discussion: This case portrays an unusual adverse effect of a drug commonly used in the treatment of several infections, namely of the respiratory system. In drugs composed of more than one component, it is crucial to consider the use of an individual component in monotherapy, as in this case amoxicillin was used. It is also of particular relevance a correct association between the drug and the adverse effect, when possible, since the incorrect causality relation can lead to a false contraindication in the future to use drugs or pharmacological classes. Amoxicillin/clavulanic acid-induced thrombocytopenia cases in literature are rare.

Keywords: *Thrombocytopenia. Clavulanic acid. Adverse effect.*

PC 048. ECONOMIC BURDEN OF HEALTHCARE RESOURCES ASSOCIATED TO ADULTS HOSPITALISED WITH INVASIVE PNEUMOCOCCAL DISEASE IN PORTUGAL, 2017-2018 – THE SPHERE STUDY

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Introduction and objectives: Invasive pneumococcal disease (IPD) is a severe disease caused by *Streptococcus pneumoniae*, representing a considerable public health concern. The introduction of pneumococcal vaccination in the national immunization program (NIP) had a significant impact on the incidence of IPD in children, but also in adults via indirect protection. This study aimed to provide real-world data on the economic burden of healthcare resource utilization (HCRU) associated with IPD in adults (18 years old) hospitalized in mainland Portugal.
Methods: This was a retrospective, multicentric, cross-sectional study of adult patients hospitalized with IPD between 2017-2018. The study collected secondary data from electronic hospital databases of 7 participating centers. Costs were derived using the information from the Portuguese Health Care System.
Results: A total of 395 adult patients were included, predominantly male (61.8%) and aged 65 years (55.4%). Only a smaller proportion was current smoker (26.3%) and had heavy alcohol consumption habits (17.4%). The majority of patients (72.2%) had at least one medical condition of interest, with bacteremic pneumonia (80.0%) emerging as the prevailing clinical manifestation of *S. pneumoniae* infection. Information on the specific *S. pneumoniae* serotypes was unavailable for all patients. Of concern, 64.3% of individuals had unknown vaccination status, with only 4.8% of total having received the *S. pneumoniae* vaccination. Of the 395 hospitalized patients, 24.1% were admitted to the intensive care unit (ICU). The mean duration of hospitalization was 16.8 ± 18.7 days, with an average of 11.0 ± 11.0 days spent in the ICU, for those who required it. During hospitalization, laboratory tests were performed on all 395 adults, with imaging assessments performed in 99.7%. Additionally, various medical exams (68.9%), procedures (20.0%), and surgeries (4.3%) were performed. The mean overall HCRU cost per patient during hospitalization for IPD was €6,100.8 ± 7,263.5. This included costs namely for hospitalization (€5,051.7 ± 6,231.1), laboratory tests (€542.7 ± 252.8), exams (€264.0 ± 252.8) and imaging assessments (€152.1 ± 223.3). The total cost per patient varied specially according to the clinical manifestation, and level of care. Cost was lower in patients who presented (comparing to those who didn't) bacteremic pneumonia (3,207.2€ vs. 5,668.8€; $p = 0.0005$) and higher in those with meningitis (6,961.0€ vs. 3,221.5€; $p < 0.0001$), empyema (8,230.5€ vs. 3,400.9€; $p = 0.0131$), and in individuals admitted to the ICU (10,218.8€ vs. 3,025.7€; $p < 0.0001$).
Conclusions: This real-world study describes the economic burden of HCRU associated with IPD in adults hospitalized in Portugal, showing the substantial economic burden that remains, mainly attributed to hospitalizations and associated procedures. This high-

lights namely the need for increased vaccination coverage, especially among those 65 years, and the importance of increasing awareness of health care professionals and patients for this disease.

Keywords: *Invasive pneumococcal disease. Healthcare resources. Hospitalization. Economic impact.*

PC 049. CARBAPENEMASE GENES ANALYSIS OF CARBAPENEM-RESISTANT *KLEBSIELLA PNEUMONIAE* STRAINS FROM PORTUGAL OVER A FOUR-YEAR PERIOD (2019-2023)

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Introduction: *Klebsiella pneumoniae* is one of the most common nosocomial pathogens worldwide, representing a serious threat to public health as it causes a wide range of infections, including pneumonias, urinary tract infections, bacteremias, and liver abscesses. This pathogen produces a vast array of resistance genes including KPC, VIM, IMP, NDM, GES and OXA-48-like carbapenemases. These enzymes hydrolyse most antibiotics, including carbapenems, leading to scarce therapeutic options. In Portugal, after the discovery of the first carbapenemase in 2009, increasing trend of carbapenem resistance has been described, however reports of recent resistance among carbapenemase-producing *K. pneumoniae* (CRKP) strains are scarce. In this study, we aim to analyse the resistance among carbapenemase-producing *K. pneumoniae* strains in Portugal recovered over the last four years (20192023).
Methods: Between 2019 and 2023, *K. pneumoniae* strains (n = 1,063) were collected from two Hospital Centres in Lisbon and one Hospital centre in northern Portugal and were sent to the Microbiology Research Laboratory on Environmental Health (EnviHealthMicro Lab) for further genomic analysis. PCR screening for produced carbapenemase genes were conducted.
Results: Of the total 1,063 K. pneumoniae strains collected over the 4-year study (2019-2023), 859 (859/1,073; 80.1%) produced at least one carbapenemase. Of these strains, 103 (11.9%; 103/859), 132 (15.4%; 132/859), 298 (298/859; 35.0%), 309 (309/859; 36.0%) and 17 (17/859; 2.0%) strains were collected in 2019, 2020, 2021, 2022 and 2023, respectively. In 2019, KPC (74/103; 71.8%) and OXA (25/103; 24.3%) were the most predominant carbapenemase produced. Also, KPC+OXA was observed in three (3/103; 2.9%) strains and NDM in one (1/103; 1%) strain. In 2020, KPC (61/132; 46.2%) was the most prevalent, followed by NDM (48/132; 36.4%), OXA (21/132; 18.2%), KPC+OXA (1/132; 0.76%) and GES (1/132; 0.76%) carbapenemases. For 2021, KPC (202/298; 67.8%) and OXA (60/298; 20.1%) were the most prevalent carbapenemases produced, while NDM (15/298; 5.0%), KPC+NDM (9/298; 3%), KPC+OXA (7/298; 2.3%), OXA+NDM (1/298; 0.3%) and IMP (1/298; 0.3%) was observed to a lesser extent. For 2022, KPC (228/309; 73.8%) and OXA (61/309; 19.7%) were the most predominant carbapenemase produced among K. pneumoniae strains, while KPC+NDM (5/309; 1.6%), KPC+VIM (5/309; 1.6%), KPC+OXA (4/309; 1.3%), OXA-GES (3/309; 1%) KPC+GES (2/309; 0.6%) and NDM (1/309; 0.3%) were also observed but to a lesser extent. In 2023, OXA (8/17;47.1%), KPC (7/17; 41.2%) and KPC+GES (2/17;11.8%) were the carbapenemase detected so far.
Conclusions: Herein, we report the resistance characterization of CRKP strains collected over a 4-year period (2019-2023). Overall, KPC was the most prevalent carbapenemase produced, followed by OXA-48-like carbapenemases and NDM. GES, VIM, and IMP carbapenemase were also detected. Worryingly, the co-production of carbapenemases was also observed which further reduces the effective therapeutic options. These results emphasize the importance of performing continuous molecular surveillance to give the best treatment to patients infected with CRKP.

Keywords: Klebsiella pneumoniae. *Carbapenemase genes. Portugal.*

PC 050. VIRULENCE FACTORS ANALYSIS AMONG *KLEBSIELLA PNEUMONIAE* STRAINS RESISTANT TO CEFTAZIDIME/AVIBACTAM FROM PORTUGAL

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Introduction: *Klebsiella pneumoniae* is a gram-negative bacterium found ubiquitously in nature, including plants, soil, animals, and medical devices. In humans, *K. pneumoniae* colonizes the mucosal surfaces, including the gastrointestinal tract and oropharynx, causing a wide range of infections. Aside from easily acquiring resistance to most antibiotics available mostly due to the production of resistance genes (i.e., carbapenemases), *K. pneumoniae* employs different mechanisms to grow and protect itself against the host immune system. These mechanisms include enhancement of capsule production, to be more resistant to phagocytosis and host immune responses in general; creating mechanisms of iron (an essential element for *K. pneumoniae* to survive and propagate during infection) acquisition called siderophores; creating mechanisms of adhesion to biotic and abiotic surfaces (fimbriae). The concomitant presence of both virulence and antimicrobial resistance genes in the same strains are very worrisome, and particularly in Portugal, the recent analysis of virulence genes among *K. pneumoniae* strains are scarce. As such, in this study, we analyze virulence factors among *K. pneumoniae* strains that are resistant to a vast array of antibiotics, including ceftazidime/avibactam.
Methods: Between 2019 and 2022, *K. pneumoniae* strains (n = 11) were collected from two Hospital Centres in Lisbon and were sent to the Microbiology Research Laboratory on Environmental Health (EnviHealthMicro Lab) for further genomic analysis. Antimicrobial susceptibility test and PCR screening for produced carbapenemase genes were conducted as well as whole-genome sequencing for further analysis.
Results: Of the 11 strains collected, nine strains (9/11; 81.8%) produced carbapenemases (blaKPC-3 (3/9; 33.3%), blaKPC-40 (2/9; 22.2%), blaOXA-181 (2/9; 22.2%), blaKPC-70 (1/9; 11.1%) and blaKPC-98 (1/9; 11.1%)). The strains displayed several sequence types (ST13 (4/11; 36.4%), ST307 (2/11; 18.2%), ST17, ST147, ST231, ST348, ST45 (all 1/11; 9.1%)), as well as several capsular loci (KL3 (3/11; 27.3%), KL112 (2/11;18.2%), KL5, KL19, KL25, KL51, KL64, KL62 (all 1/11; 9.1%)) and antigen loci (O1v2 (4/11; 36.4%), O2v1 (3/11; 27.3%), O1v1, O1/O2v2, O3b, O5 (all 1/11; 9.1%)). Regarding fimbriae production, type I fimbriae (fimA-fimK) was observed in ten (10/11; 90.9%) while type III fimbriae (mrkAmrkJ) was observed in nine (9/11; 81.8%) strains. Additionally, enterobactin (entA-entS, fepA-fepG, fes) and yersiniabactin (ybtA-ybtX, fyuA, irp1, irp2) were also detected with the former being observed in all eleven (11/11; 100%) strains and the latter in seven (7/11; 63.6%) strains. Furthermore, three different yersiniabactin genes were detected, namely ybt17 (4/7; 57.1%), ybt16 (2/7; 28.6%) and ybt10 (1/7; 14.3%) har-

boured in three different integrative and conjugative elements of K. pneumoniae (ICEKp): ICEKp10, ICEKp12 and ICEKp4, respectively.
Conclusions: Overall, most strains in this study produced two siderophores as well as both type I and type III fimbriae, while belonging to high-risk clones disseminating worldwide. Moreover, it is worth highlighting that these strains are also resistance to most antibiotics available including last-resort antibiotics such as ceftazidime/avibactam. Altogether, the presence of both virulence and antimicrobial resistance genes in the same strain found in this study warrants further attention as it poses a great concern to public health in Portugal and around the world.

Keywords: Klebsiella pneumoniae. *Ceftazidime/avibactam resistance. Virulence factors.*

PC 051. VACCINATION AGAINST INFLUENZA AND ANTI-PNEUMOCOCCAL IN PATIENTS HOSPITALIZED FOR RESPIRATORY INFECTION IN AN INTERNAL MEDICINE WARD

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Introduction: Respiratory diseases are responsible for a large part of hospitalizations, consuming physical and economic resources. From our practice, we know that influenza (with around 1,200 admissions per season) and pneumonia (with around 40,000 admissions per year) are two of the most prevalent respiratory infections. In Portugal, between 2008 and 2018, the average direct annual cost was 3.9 million euros, or around 3,000 euros per hospitalization (Froes F *et al*. BMC Infect Dis. 2022;22:726. Vaccination is important in reducing this number of hospitalizations and their severity.
Objectives: To evaluate influenza and pneumococcal vaccine coverage in an internal medicine ward; compare severity between vaccinated and unvaccinated patients; assess the existence of vaccination counseling.
Methods: Retrospective study of patients in an Internal Medicine ward in a tertiary hospital, with respiratory infection on admission, from October 2022 to March 2023.
Results: From a total of 558 hospitalizations, 205 patients were included in this study: 52% were female, with a median age of 81 years, with hypertension being the most common comorbidity. Of those included, 44% had pneumonia and 10% the flu, with 188 being indicated for the flu vaccine and 186 for the anti-pneumococcal vaccine, of which 87 (46%) and 156 (84%) were not vaccinated, respectively. In each group, only 1 patient was advised to undergo these vaccines after discharge. Of the 23 influenza isolates, 19 had an indication for influenza vaccination, and of these, 14 (74%) were not vaccinated. In this group, 1 (7%) patient died, 4 (29%) required NIV and none required mechanical ventilation. Of the 5 vaccinated, 1 needed NIV (20%) and there was no record of deaths or need for mechanical ventilation. Of the 14 *S. pneumoniae* isolates, 12 had an indication for antipneumococcal vaccination, and of these 11 (92%) were not vaccinated. In this group, 3 (27%) required NIV, 1 (9%) required mechanical ventilation and 2 (18%) died. The only one vaccinated did not need NIV, mechanical ventilation and did not die, needing only oxygen therapy. Of the 68 patients admitted for pneumonia without isolation of the agent, 60 had an indication for antipneumococcal vaccination, and of these, 47 (78%) were not vaccinated. Of this group, 10 (21%) required NIV, 3 (6%) required mechanical ventilation and 7 (15%) died. Of the 13 vaccinated, 3 required NIV (23%), 0 required mechanical ventilation and 1 (8%) died. Limitations: The reduced number of data does not allow for a statistically significant difference regarding the severity of infections between vaccinated and non-vaccinated individuals.
Conclusions: The severity of infection seems to be greater in non-vaccinated patients, when we compare the need for NIV, IMV and mortality. Although there is a high prevalence of unvaccinated patients with an indication to undergo these vaccines, this indication was only included in the discharge note of 1 patient. Thus, this work highlights the importance of vaccination in reducing severity and hospitalizations, as well as the relevance that health professionals should have in counseling about vaccination.

Keywords: *Vaccination. Flu. Pneumonia. Prevention.*

PC 052. NON-TUBERCULOUS MYCOBACTERIA – A 5 YEAR RETROSPECTIVE STUDY ON A GENERAL HOSPITAL SETTING

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Introduction: Atypical mycobacteria infections are caused by a group of non-tuberculous mycobacteria (NTM) found in environmental settings that most frequently result in lung infections and disseminated disease. A better knowledge about these pathogens is essential for an early diagnosis and adequate management.
Objectives: Characterization of a group of patients with a NTM positive culture regarding risk factors and atypical mycobacteria infection criteria.
Methods: Descriptive retrospective study of patients with a NTM positive culture in respiratory specimens between 2017 and 2022, in a general hospital setting.
Results: The study identified 38 patients with a respiratory specimen culture positive for NTM, with a median age of 68.5 years (min. 32; max. 87), 39.4% of female subjects. 57.9% had active or past history of smoking, 65.8% had a previously diagnosed respiratory condition, most commonly bronchiectasis. 60.5% were previously diagnosed with conditions associated with chronic immunosuppression. 86.8% positive cultures were obtained from sputum specimens, 10.5% from bronchoalveolar lavage fluid a one in a lymph node biopsy. All of the specimens were positive in liquid culture media, 42.1% were positive on solid culture media and 10.5% of specimens resulted in a positive sputum spear microscopy. The most frequently isolated NMT were *M. gordonae* (42.1%), *M. chelonae* (31.6%), *M. intracellulare* (10.5%) and *M. avium* (5.2%). 21.1% of patients met the criteria for atypical mycobacteria infection, mostly due to *M. intracellulare* (25%) and *M. avium* (25%). Further follow-up on treatment eligibility and outcome was not obtainable.
Conclusions: A minority of NTM positive cultures resulted in a diagnosis of atypical mycobacteria infection, with the majority of individuals having a previous documented respiratory condition, mostly bronchiectasis.

Keywords: *Non-tuberculous mycobacteria. Immunossupression.*

PC 053. RESPIRATORY VIRUS POST-PANDEMIC – CHARACTERISTICS OF PATIENTS ADMITTED WITH RESPIRATORY SYNCYTIAL VIRUS

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Hospital Professor Doutor Fernando Fonseca.

Introduction and objectives: The COVID-19 pandemic made respiratory virus panels more accessible in hospital admissions for pa-

tients with respiratory symptoms. It appears that recently, there's been an increase in hospital admissions in patients with respiratory syncytial virus (RSV) in this context. RSV is a very transmissible virus, commonly associated with infections in children. We aim to characterize the adult population admitted to a secondary hospital with a positive RSV result in nasal exudate throughout a year.
Methods: We consulted the clinical files of adults with positive RSV result in polymerase chain reaction of nasal exudate between January and December 2022.
Results: 3091 patients were tested for RSV, 173 of which were positive.60.6% (n = 105) of positives needed admission (97 between October and November), for an average of 16.2 days (1-66). There was female predominance (60% of cases, n = 63), with an average age of 76.67 years (31-100), slightly higher in the female population (79.9 versus a 71.8 years). There was an increased incidence with age. We observed 45.7% of the admitted patients were over 80 years old. 95% of patients (n = 100) presented with symptoms, which we defined as at least two of: fever, cough, sputum, dyspnea, odynophagia, rhinorrhea, nasal obstruction; in 92% of cases (n = 97), respiratory failure was the reason for admission. Oxygen supplementation was needed in 94.2% (n = 99), 5% of which (n = 5) through high flow nasal cannulas. Secondary bacterial infection was considered in 50 (47.6%) patients in early stage (less than 48 hours after admission). 73 (69.5%) patients completed antibiotic therapy throughout their hospital stay. The most common drugs used were azithromycin (n = 48), amoxicillin/clavulanate (n = 37), ceftriaxone (n = 28) and piperacillin/tazobactam (n = 27). Medium duration of antibiotherapy was 8.1 days (5-25). In 9 cases (8.5%), patients presented positive *Streptococcus pneumoniae* urinary antigen (one of which with positive blood cultures) and 3 patients (2.9%) presented positive sputum culture (1 *H. influenzae* and 2 *H. parainfluenzae*). 2 patients (1.9%) presented viral co-infection (SARS-CoV-2 and Influenza B). Concerning support therapy, 22% (n = 24) underwent non-invasive ventilation and 3.8% (n = 4) underwent invasive mechanical ventilation. 70 patients (66.7%) were subjected to corticotherapy (66.7%). 9 patients (8.6%) were admitted to intensive care unit. We observed a mortality rate of 12.4% (n = 13). The most frequent comorbidities were essential hypertension (63.8%, n = 67), type 2 diabetes (32.3%, n = 34), atrial fibrillation (29.5%, n = 31), heart failure (28.5%, n = 30) and chronic obstructive pulmonary disease (18%, n = 19).
Conclusions: We intend to highlight respiratory syncytial virus' paper in hospital admissions, especial with its role on exacerbations of cardiopulmonary disease, as a precipitant factor in respiratory failure, especially in older ages and those with more cardiac and respiratory diseases.

Keywords: *Respiratory syncytial virus. Hospital admissions.*

PC 054. THE EVOLUTION OF PNEUMOCOCCAL DISEASE IN THE PRE AND POST PANDEMIC PERIOD – THE EXPERIENCE OF A TERTIARY HOSPITAL

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Hospital Prof. Doutor Fernando Fonseca.

Introduction: Despite the global impact of the COVID-19 pandemic on the epidemiology of respiratory infections, *Streptococcus pneumoniae* (SP) infection remains one of the leading causes of death in the world potentially preventable through vaccination.
Objectives: Characterization of pneumococcal disease in the adult population admitted to a tertiary hospital in the pre- and post-pandemic period.
Methods: Retrospective analysis of the clinical files of patients aged 18 or over, hospitalized for SP infection at Prof. Doutor Fernando Fonseca (HFF) Hospital between 2016 and 2022. The epidemiological characterization of the hospitalized population in 2022 and its comparison with the 2019 counterpart was carried out, regarding the incidence and severity of the infection.
Results: Between 2016 and 2022, 591 SP infections were identified through culture isolation or urinary antigen detection (UAD). There was a progressive increase in the number of isolates until 2019, when it stabilized, having resumed in 2021 the previously presented growing trend. In 2022, 152 infections by this agent were identified (1.8 times higher than in 2019), which led to hospitalization in 98% of cases. Most hospitalized patients were older than 65 (median 68.5 years, Q1-3 55 and 82 years) and had at least one known comorbidity (80%) – respiratory, cardiovascular, renal, hepatic, neoplasic, diabetes or immunodeficiency. Only 15% of patients had records of previous pneumococcal vaccination. Pneumonia was the most common presentation (89%). In the subgroup of invasive pneumococcal disease (IPD, 24%) the occurrence of 5 cases of meningitis (3%) stands out. As for the severity of infections, 18% of hospitalized patients were admitted to an intensive care unit (ICU), most of them needing support from 2 or more organs (68%). The average hospital stay was 16.5 ± 22.5 days and in the ICU were 13.1 ± 14.3 days. The overall inpatient mortality rate was 20.4% and 35.7% in the ICU. All-cause mortality 3 months after admission was 27.6%. Apart from alcoholism (p = 0.03), none of the comorbidities alone appeared to significantly impact prognosis (p > 0.05). The presence of IPD did not, by itself, determine a higher level of care. Given the uncertainty of the vaccination status of several patients, it was not possible to assess the role of vaccination in preventing and limiting the severity of the disease. Compared to 2019, considering only patients with cultural isolation in this analysis, a higher mortality rate (p = 0.11) and ICU admission (p = 0.23) was observed in 2022, despite similar demographics and number of cases of IPD (p = 0.55).
Conclusions: The COVID-19 pandemic seems to have interrupted the increasing trend of pneumococcal infections observed until then. The subsequent increase in cases reflected the progressive lifting of previously imposed public health restrictions. However, the automation and amplification of laboratory processes, such as UAD, were responsible for the substantial increase in cases verified in 2022. Excluding diagnoses by UAD, compared to 2019, there was no statistically significant difference.
Pneumococcal disease continues to be responsible for a high number of hospitalizations and a high mortality rate.

Keywords: Streptococcus pneumoniae. *COVID-19. Antigen urine detection. Invasive pneumococcal disease.*

PC 055. FROM THE HEART TO THE LUNG: SEPTIC LUNG EMBOLIZATION OF INFECTIVE ENDOCARDITIS

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Introduction: Right-sided infective endocarditis (IE), represents only 10% of all cases of IE and is usually associated with risk factors, such as: injection drug use, presence of cardiac implantable devices and other intravascular devices (e.g.: peripheral or central venous catheter). IE as a result of minimally invasive procedures (e.g.: endoscopic procedures) is uncommon, with only a few cases been reported. Lung nodules as a form of presentation of IE is a rare finding, and more associated with right-sided endocarditis. Here we report a rare case of cavitated lung nodules associated with IE of the tricuspid valve after polypectomy performed during colonoscopy.

Case report: An 80 years-old male, with atrial fibrillation, lung hypertension of cardiac origin and colon polyps submitted to colonoscopy guided biopsy four weeks before, without health risk behaviors or any other significant background was admitted with symptoms of fever, notion of dyspnea and retrosternal chest pain with 15 days of evolution. On examination the patient had hypoxemic respiratory failure, without significant changes of lung sounds, but had a systolic heart murmur on tricuspid valve location, never described before. On chest radiograph, lung nodules could be seen on the upper and middle third, along side a consolidation of the lower 1/3 of the right lung. A diagnosis of community acquired pneumonia was made and the patient was started on empiric antibiotics (ceftriaxone and azithromycin). From the initial microbiological screening two blood cultures isolated Enterococcus faecalis, and the same agent was isolated on another 2 additional blood cultures. A revaluation chest radiograph was performed and it showed an increase in size of the lung nodules, so a high-resolution chest computerized tomography was done and it showed a parenchymatous consolidation of the upper right lobe with increased eccentric density, nodular lesions with internal cavitation, suggestive of septic embolization, more evident on the right lung. A transthoracic echocardiogram was performed and it showed a vegetation on the tricuspid valve, reinforcing the diagnosis or IE of the tricuspid valve with septic embolization to the lung, probably in the context of the polypectomy performed 4 weeks before. An antibiotic regimen was started based on microbiological sensitivity testing with ceftriaxone and ampicillin, with clinical and serological improvement and gradual resolution of the initial radiological findings.
Discussion: Lung nodules of acute presentation, as seen in septic embolization of IE are an uncommon finding. Right-sided IE associated to polypectomy performed during colonoscopy, is a rare occurrence, with few cases reported (about 25 cases as of 2019). This initial presentation of IE with radiological findings compatible with lung nodules, shows the importance of considering various differential diagnosis and a careful medical history.

***Keywords**: Lung nodules. Bacterial endocarditis. Post endoscopic procedures complications.*

PC 056. CHARACTERIZATION OF RESPIRATORY SYNCYTIAL VIRUS INFECTION IN A HOSPITAL

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Introduction: Respiratory syncytial virus is responsible for a large number of infections in adults. Most of these infections in adulthood are generally mild but can also cause severe disease, particularly in elderly patients, immunocompromised individuals, or those with cardiopulmonary comorbidities. In the post-COVID-19 pandemic context, it is essential to document the importance of respiratory infections that lead to Emergency Department visits and their impact on hospital mortality and morbidity, particularly in high-risk groups. Objective: The authors aim to retrospectively characterize the results of RSV testing in adults in hospital services.
Materials and Methods: The results of respiratory syncytial virus testing by PCR (Polymerase Chain Reaction) and FilmArray™ panel were analyzed during the period between October 2022 and May 2023, corresponding to the winter months, in adults at the Centro Hospitalar Lisboa Ocidental. For this study, clinical records of patients with positive results for respiratory syncytial virus were consulted, and demographic data and disease severity requiring hospital admission were evaluated.
Results: In the 8-month period between October 2022 and May 2023, 3,458 patients were tested for RSV. The average age of the sample was 70.1 years-old (mode 85 yo, median 75 yo); with a similar gender distribution, 54% (n = 1,893) being female. Of the study patients, 203 (5.9%) were positive for RSV, with an average age of 71.9 yo and 64% (n = 130) being female. When analyzing the results of patients positive for respiratory syncytial virus, it was found that 54% (n = 110) required hospitalization, with 6.9% (n = 14) needing admission to the Intensive Care Units. Regarding the demographics of patients hospitalized for RSV, the average age was 71.9 years-old (mode 86 yo, median 75 yo) and 64% (n = 71) were females. It should also be noted that in this sample, the percentage of deaths due to RSV infection was 3.4% (n = 7).
Conclusions: In this sample, the authors highlight a significant number of positive cases (5.9%) which shows the importance of this infection and its diagnosis. The authors also observed the number of patients with severe RSV infection was quite significant with 54% of patients requiring hospitalization, including 6.9% in the Intensive Care Units. The high percentage of patients requiring hospitalization may be due to the advanced age of the positive group (median age > 75 yo). Knowing that with the advancing age there is a greater number of comorbidities and immunosuppression, these figures alert us to the need for diagnosis and development of preventive therapies, namely vaccination.

***Keywords**: Respiratory syncytial virus. Hospitalization. Respiratory infection. Vaccine.*

PC 057. THE IMPACT OF THERAPY WITH RITUXIMAB ON SARS-CoV-2 INFECTION

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Introduction: Although vaccination against COVID-19 has drastically reduced the incidence of severe cases of the disease, there are still some populations in which the effects of vaccination have not proved to be as effective. This is the case of patients treated with rituximab, an anti-CD20 monoclonal antibody that has the effect of persistently depleting B cells, which in turn can negatively affect the production of antibodies against SARS-CoV-2.
Case report: A 62-year-old woman with previous history of follicular non-Hodgkin's lymphoma in remission under maintenance therapy with rituximab, with complete vaccination against COVID-19, presented fever, dry cough, myalgias, asthenia, anosmia and ageusia. Due to the presence of typical symptoms, a SARS-CoV-2 antigen test was carried out, which came back positive. About two weeks after the onset of the condition, she developed dyspnoea and pleuritic chest pain, prompting a visit to the Emergency Room. From the complementary evaluation, analytically, she presented lymphopenia, increased inflammatory markers, type 1 respiratory failure and hypogammaglobulinemia. Thoracic CT angiography identified areas of ground-glass densification scattered throughout the different lung lobes, with a preferential peripheral distribution, some of which with associated small consolidative components, coexisting with a slight thickening of the inter and intralobular septa at the level of these areas, aspects in a probable relation with COVID organizing pneumonitis, also emphasizing the absence of adenopathies in the affected segments and exclusion of central pulmonary thromboembolism. Taking these findings into account, it was decided to carry out a SARS-CoV-2 test, which was positive with a low cycle threshold (25.6) with a negative anti-SARS-CoV-2 IgG antibody test. These results were compatible with active SARS-CoV-2 infection. The patient was admitted and started on corticosteroid therapy, intravenous immunoglobulin and a course of remdesivir. She also underwent respiratory kinesitherapy and physical rehabilitation, registering clinical improvement during hospitalization with the possibility of

discharge medicated with corticotherapy in a slow weaning scheme. Under reassessment in an outpatient clinic she had favorable evolution and tolerated the recommended corticosteroid weaning scheme.
Discussion: This case demonstrates how despite full vaccination against COVID-19, some immunosuppressed patients can still develop severe or prolonged illness. It should be noted that therapy with intravenous immunoglobulin can be seen as a pillar in the treatment of severe cases of COVID-19 in patients treated with rituximab and who, therefore, are unlikely to acquire natural immunity with antiSARS-CoV-2 antibodies. In addition, it highlights how remdesivir therapy can be beneficial even if not administered in the early course of the disease in immunosuppressed patients who have evidence of active viral replication.

Keywords: *COVID-19. SARS-CoV-2. AntiSARS-CoV-2. Rituximab. Anti-CD20.*

PC 058. COVID-19 AND DRUG-INDUCED IMMUNOSUPPRESSION – A CLINICAL CASE

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Introduction: The natural history of SARS-CoV-2 infection largely depends on the immune response capacity of infected individuals. B-lymphocyte-depleting drugs, such as those used in the treatment of multiple sclerosis, can cause severe hypogammaglobulinemia with impact on the development of severe and/or prolonged COVID-19 cases. Epidemiological studies and viral genetic sequencing allow a better characterization of SARS-CoV-2 infections.
Case report: 25-year-old female patient, autonomous, with a history of multiple sclerosis treated with semestral ocrelizumab, hospitalized in July/2021 for SARS-CoV-2 pneumonia. During hospitalization, organizing pneumonia was assumed, and she was discharged under corticosteroid therapy with prednisolone. In a 4-month follow-up thoracic CT scan, ground-glass opacities of migratory nature were still identified, and a galactomannan antigen was isolated in bronchial secretions. After discussion in the setting of a multi-disciplinary Interstitial Lung Disease reunion, it was decided to suspend ocrelizumab, start itraconazole and increase the dose of prednisolone. She resorted to the ER in March/2022 due to worsening dyspnea, and a chest CT was done that again documented bilateral ground-glass opacities suggestive of SARS-CoV-2 pneumonia, with no hospitalization criteria. A new SARS-CoV-2 PCR test performed in nasopharyngeal exudate was positive, and genetic sequencing at INSA revealed a Delta variant with a replication level suggestive of active infection, in a period of Omicron variant dominance. She was hospitalized 1 month later due to worsening of the respiratory condition and new onset respiratory failure, when a new chest CT documented worsening of the previously identified lesions, initiating high-dose corticosteroid therapy and remdesivir. During hospitalization, hypogammaglobulinemia was detected, which was assumed to be induced by ocrelizumab, starting total immunoglobulin every 3 weeks. After discharge, and given sustained improvement, a switch from ocrelizumab (discontinued for 6 months at the time) to natalizumab was decided, having remained neurologically stable, with radiological improvement without recurrence of the respiratory symptoms.
Discussion: This case illustrates the need for investigation and differential diagnosis of prolonged COVID-19 conditions, especially studies aimed at cellular and/or humoral immunity in individuals with know risk factors. In this case, the resolution of the clinical case involved the treatment of iatrogenic hypogammaglobulinemia, identified after persistent symptoms and absence of improvement under targeted treatment.

Keywords: *COVID-19. Immunosuppression.*

PC 059. CRACK LUNG SYNDROME" – A DIAGNOSTIC HYPOTHESIS TO BE CONSIDERED

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Introduction: "Crack lung syndrome" is an acute pulmonary syndrome, manifested by diffuse alveolar damage and alveolar haemorrhage, with 48 hours onset after cocaine inhalation. Inhaled cocaine induces a variety of acute pulmonary complications – from pulmonary edema, alveolar hemorrhage, eosinophilic pneumonia, pneumothorax, thromboembolic complications, to partial respiratory failure. In the acute phase, it can be easily confused with other clinical entities due to the clinical and radiological non-specificity of the condition.
Case report: We present the clinical case of a 45-year-old man with a history of inhaled heroin use and active smoking (CT 30 UMA)s. Integrated in methadone program. He denied additional usual medication. He went to the Emergency Department due to chest pain, dyspnea and fever. The pain manifested itself at rest, intermittently, after cocaine inhalation with a week of evolution associated with progressive tiredness. New consumptions were determined, two days before coming to the ED with worsening dyspnea. On physical examination, he had fever and tachypnea; pulmonary auscultation showed bilateral pulmonary wheezing; arterial blood gases (FiO2 21%) revealed hypoxemic acute respiratory failure (pO2 45 mmHg, SpO2 86%). Respiratory viruses (COVID, influenza A and B, RSV) as well as S. pneumoniae urine antigens were negative. He had leukocytosis 15,800/mm^3 and increased CRP 23 mg/dl, as well as elevated troponins 4,591 ng/L. The electrocardiogram showed ST-segment elevation in V2 to V5 and QS wave. Transthoracic echocardiography revealed ischemic heart disease, compromised global systolic function and associated diastolic dysfunction. Chest CT scan revealed consolidative densifications with air bronchograms in both lungs, predominantly in the upper lobes, with peripheral ground-glass densifications and mediastinal adenopathies, the right paratracheal being the largest one (13 mm). A multifactorial partial respiratory failure was assumed in a probable context of chemical pneumonitis with bacterial superinfection and a picture of heart failure due to acute myocardial infarction. Due to worsening respiratory failure, he was admitted to the ICU with rapid evolution to invasive mechanical ventilation. During the first days, he had a cardiorespiratory arrest with acute heart failure, Killip class III, as a confounding factor contributing to the etiology of respiratory failure. Despite multiple cycles of antibiotic therapy, there was fever persistence, worsening of bilateral consolidations, increase in inflammatory parameters, with hemoptoic bronchial secretions without achieving weaning from ventilation. Bronchoalveolar lavage excluded diffuse alveolar hemorrhage, infection or other etiology. After resolution of the complications and due to permanent protective invasive mechanical ventilation, improvement of the respiratory failure was achieved and the patient was transferred to the ward.
Discussion: This case is particularly important because it broadens the spectrum of differential diagnoses for patients with acute hypoxemic respiratory failure and alveolar infiltrates. The pathophysiological mechanisms are varied. The temporal relationship between cocaine use, onset of hypoxemia and alveolar infiltrates suggests the diagnosis. In spite of not being the case of our patient,

in the absence of complications, treatment is supportive with oxygen and fluid therapy; symptoms and hypoxemia, resolve spontaneously.

***Keywords**: Crack lung. Alveolar infiltrates. Acute hypoxemic respiratory failure.*

PC 060. IF YOU CAN LOOK, SEE. IF YOU CAN SEE IT, NOTICE IT

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Introduction: Chest radiography is the most used imaging test, and several errors associated with its performance have been described. The most frequent include identification and placement of the patient (centered, not rotated, scapula deprojection, visualization of the lung apexes and diaphragm), image quality and removal of confusing objects (wires, electrodes, personal objects). Although less frequent, image inversion still stands out, which can lead to important misinterpretations.
Case report: 64-year-old woman, former smoker for 10 packs (stopped 5 years ago) and history of right breast cancer in 2009, underwent surgery, QRT and hormone therapy. She was followed in a pulmonology consultation due to persistent cough, having performed a chest CT, identifying a pulmonary nodule in the middle lobe (LM), increased uptake of the LM lesion and bilateral hilar on PET. Fiberoptic bronchoscopy, followed by EBUS (puncture of stations 4R and 7) did not allow confirmation of lung cancer. Due to the continued suspicion of neoplasia, she was proposed for VATS. A lobectomy of the LM was performed, complicated by extensive hemorrhage due to spontaneous rupture of the pulmonary artery, requiring a right pneumonectomy with a main bronchial sleeve on the left. Estimated blood loss of 6 liters. Postoperative period in the intensive care unit under invasive mechanical ventilation and hemorrhagic shock, with cardiovascular dysfunction (maximum noradrenaline doses up to 200 micrograms/min), neurological, hematological (> 40 units of blood products), hepatic (AST and ALT > 1,000) dysfunction and renal (kidney replacement technique). As intercurrences, he also presented single-lung pneumonia with septic shock. Slow, progressive improvement with multiorgan recovery, maintaining a persistent vegetative state with a Glasgow Coma Score of 6 without sedation or opiates. On the 30th day of hospitalization, due to suspected respiratory reinfection, a central venous catheter was placed in the right subclavian vein. In the post-procedure control X-ray, the image was inverted, making it difficult to identify the most fundamental alteration: emptying of the right pneumonectomy site due to dehiscence of the bronchial sleeve suture. Given the severity of the situation, without surgical indication, the patient died of respiratory failure with septic shock and multiorgan dysfunction.
Discussion: With this clinical case, we intend to highlight the importance of the correct performance and interpretation of chest X-rays, especially in critically ill patients who undergo untransportable exams, with a higher probability of error. These errors can impair the interpretation and delay the identification of other alterations, possibly more significant. It refers to the importance of the Swiss Cheese Model, where an attempt is made to explain the reasons for the failures, as a result of the combination of multiple errors in different structures (organizational, technical, communicational, human) and the best way to avoid them in the future.

***Keywords**: Chest X-ray. Inversion. Human error.*

PC 061. TUBERCULOSIS COMPLICATED WITH ARDS: ABOUT A CLINICAL CASE

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Introduction: Acute respiratory distress syndrome (ARDS) is common in Intensive Care Units (ICU), associated with high morbidity and mortality. The main causes include sepsis, pneumonia, aspiration, chest trauma, pancreatitis, among others.
Tuberculosis (TB) remains an important public health problem, especially in underdeveloped countries, and in relation to the HIV epidemic. TB can cause ARDS, usually in the context of disseminated TB. However, few cases are reported, with a prevalence of < 5%. Although TB is a treatable disease, it has high mortality in patients with severe pulmonary TB and respiratory failure, probably due to insufficient recognition of ARDS.
Case report: 42-year-old man, born in Guinea-Bissau, living in Portugal since April 2023. Civil construction worker, with personal history of hypertension and unspecified liver disease. He went to the Emergency Department due to weight loss, progressively worsening fatigue and cough with hemoptoic sputum. After etiological investigation, *Mycobacterium tuberculosis* was identified in the bronchoalveolar lavage (positive nucleic acid amplification test, negative direct exam), and a probable case of disseminated tuberculosis was admitted (awaiting the result of the culture exam): pulmonary and pleural affection (empyema, pulmonary nodules and cavitation on the right), central nervous system (parietal space-occupying lesion with edema and deviation of midline structures - probable tuberculoma) and probably hepatic (hyperbilirubinemia and elevation of transaminases, with no other identified cause). Serology for HIV infection negative. Due to difficult control of the pulmonary focus, he underwent empyemectomy and right pleural drainage in the operating room under general anesthesia, with isolation of multiresistant *Streptococcus oralis* and *Peptostreptococcus anaerobius* from the pleural fluid. As an intraoperative intercurrence, he presented an episode of vomica during mobilization, with consequent aspiration pneumonia on the left. In this context, there was respiratory worsening, with transfer to the ICU. Failure of initial high-flow oxygen therapy requiring invasive mechanical ventilation (IMV) due to severe ARDS (PF < 100) in a patient with disseminated TB and bacterial superinfection. He maintained anti-bacillary drugs (HZRE), started meropenem and linezolid, with slow clinical, laboratory and imaging improvement and significant pulmonary and pleural sequelae. Difficult ventilatory weaning, with difficulty in administering and controlling the bioavailability of anti-tuberculosis drugs – oral/enteral administration medication, in a patient with probable abdominal disease of tuberculosis, liver and kidney dysfunction and abdominal stasis.
Discussion: In Portugal, despite the reduction in the incidence of TB, the incidence in the immigrant population remains constant with a higher risk of HIV superinfection and increased morbidity and mortality. It is important to maintain a high clinical suspicion, especially due to the significant mortality associated with disseminated TB. TB in the ICU is uncommon but has important particularities such as the bioavailability of drugs and infection control.

***Keywords**: Tuberculosis. ARDS. Bacterial superinfection. Intensive care.*

PC 062. RISK FACTORS FOR MAJOR INTRAOPERATIVE BLEEDING IN LUNG CANCER

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Introduction: Lung cancer is the most prevalent cancer in the world and the leading cause of cancer-related death worldwide. Currently, surgical treatment mainly by VATS (Video-Assisted Thoracic Surgery) is considered as a preferred therapeutic option. This technique allows for a reduction in the duration of thoracic drainage and hospitalization, with improved recovery and results. As a limitation, in relation to thoracoscopy, it presents less visibility and limitation of the surgeon's movements, restricting the approach in the face of complications, namely vascular injury. The prevalence of major intraoperative complications is < 2%. Bleeding, especially if > 100 ml, has a prognostic value for worse short- and long-term survival.
Case report: 64-year-old woman, former smoker for 10 packs (stopped 5 years ago), with a history of right breast cancer in 2009, who underwent surgery, QRT and hormone therapy. She was followed in a pulmonology consultation due to persistent cough, having performed a chest CT, identifying a pulmonary nodule in the middle lobe (LM), increased uptake of the LM lesion and bilateral hilar on PET. Fiberoptic bronchoscopy, followed by EBUS (puncture of stations 4R and 7) did not allow confirmation of lung cancer. Due to the continued suspicion of neoplasia, she was proposed for VATS. A lobectomy of the LM was performed, complicated by extensive hemorrhage due to spontaneous rupture of the pulmonary artery, requiring a right pneumonectomy with a main bronchial sleeve on the left. Estimated blood loss of 6 liters. Postoperative period in the intensive care unit under invasive mechanical ventilation and hemorrhagic shock, with cardiovascular dysfunction (maximum noradrenaline doses up to 200 micrograms/min), neurological, hematological (> 40 units of blood products), hepatic (AST and ALT > 1,000) dysfunction and renal (kidney replacement technique). As intercurrences, he also presented single-lung pneumonia with septic shock. Slow, progressive improvement with multiorgan recovery, maintaining a persistent vegetative state with a Glasgow Coma Score of 6 without sedation or opiates. On the 30th day of hospitalization, he presented dehiscence of the suture of the bronchial sleeve with emptying of the pneumonectomy site and hemoptysis, and he died.
Discussion: Major bleeding complications are infrequent but have an important prognostic factor in the short and long term. Causes of intraoperative hemorrhage include hemorrhage from large vessels, bronchial arteries, vessel and bronchial stumps, lung parenchyma, lymph nodes, and chest wall. As risk factors we have anatomical variants, type of procedure, sex, stage of the neoplasia and histological type. Some studies report that performing prior CRT is related to major intraoperative complications; however, further studies are needed on the role of VATS after CRT.

Keywords: *Lobectomy. VATS. Hemorrhage. Radiotherapy.*

PC 063. SILICOSIS AND TUBERCULOSIS HOLDING HANDS – EFFICACY OF A WORKSHOP IN THE QUARRY INDUSTRY IN ALTO TÂMEGA REGION (NUTS3)

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Introduction: Following an outbreak of tuberculosis in a quarry in ACES Alto Tâmega e Barroso, a workshop entitled "Safety and Health in the Quarry Industry" was devised and promoted by Alto Tâmega e Barroso Public Health Unit, the Authority for Working Conditions and the Vila Pouca de Aguiar County. The main goal was to educate the businessmen and Safety and Health technicians of the quarry industry to the prevalence of silicosis and tuberculosis in this setting, the importance of preventive measures and an adequate screening and the potential complications and labor impact of these diseases.
Objectives: Assess the knowledge of Bussinessmen and Safety and Health Technicians in the quarry industry about silicosis, its relationship with tuberculosis and the efficacy of a workshop in the target audience.
Methods: Within the scope of the forementioned workshop, an online quiz (by QRcode) was applied, containing 12 questions about the epidemiology, clinical presentation, diagnosis and labor impact of silicosis, associated or not with tuberculosis. The percentage of correct answers was assessed before and after the workshop.
Results: There were a total of 94 participants in the workshop, 48 (51.06%) of which responded to the quiz previously (prequiz) and 24 (25.53%) after the workshop (post-quiz). Globally, we found 69.52% correct answers in the pre-quiz and 78.43% in the post-quiz. The participants showed a higher previous knowledge about silicosis (71.71% of right answers) than tuberculosis (66.44%). The labor impact was the topic with higher percentage of correct answers (pre: 92.10%; post: 97.5%), followed by the clinical presentation (pre: 71.61%; post: 82.36%), epidemiology (pre: 71.14%; post: 80.16%) and diagnosis (pre: 39.28%; post: 44.54%). Globally, an improvement of 8.91% of correct answers was observed, more pronounced in the questions referring to tuberculosis (9.98%) and the clinical presentation (10.76%) and epidemiology topics (10.61%).
Conclusions: This workshop showed and non-negligible impact on silicosis and tuberculosis literacy in the quarry industry leadership. This small study displayed the importance of this kind of initiatives. However, the impact on the field, namely the change in the preventive practices and global epidemiology of these diseases remains to be scrutinized.

Keywords: *Silicosis. Tuberculosis.*

PC 064. SUBEROSE, A REALITY OF NORTHERN PORTUGAL

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Introduction: Hypersensitivity Pneumonia (HP), or extrinsic allergic alveolitis, is a complex syndrome, mediated by immunological changes, with different symptoms at presentation as well as levels of intensity. Despite the low prevalence and incidence, different agents have already been described as causes and are related to the intensity of exposure, occupational activities, geographical areas... With the cork industry being one of the main employers in the northern region of Portugal, there is a clear predominance of suberosis in these localities.
Case report: Man, 40 years old, cork worker since October 2021, presenting with complaints of asthenia, dry cough, and dyspnea, which appeared a few months after starting to work as a cork worker. Without chronic medication, ex-smoker since 2008. Referred to the pulmonology consultation due to imaging changes detected in a Computed Tomography (CT) scan performed in the Emergency Service (ES). From the study conducted, Pulmonary Function Tests (PFT) showed evidence of mild restriction (Total Lung Capacity (TLC) of 78, Forced Vital Capacity (FVC) normal and a slightly reduced Diffusing Capacity of Carbon Monoxide (DLCO), 77). The CT was typical of HP, presenting the triple density sign and the Analytical Study (AS) showed no alterations in autoimmunity. Bronchoalveolar Lavage (BAL) with mild eosinophilic alveolitis (macrophages 85%, lymphocytes 5.8%, neutrophils 3.8% and eosinophils 1.6%). Woman, 51 years old, with hypertension, non-smoker, cork worker since 1996. She reported that when she changed to a direct handling cork job, she began experiencing dyspnea and productive cough with mucopurulent sputum. Chest X-ray and PFT without alterations. She underwent a chest CT scan that showed the triple density sign, ground-glass opacities, mosaic attenuation, and some scattered micronodules. AS with negative autoimmunity. BAL with lymphocytic alveolitis (63%), predominantly CD8 (CD4/CD8 ratio < 1). Both cases, had no history of drug intake that could match the

CT pattern and, therefore, considering the respiratory symptoms concomitant with the occupational activity where they were in daily contact with cork dust and molds, as well as typical CT alterations, the diagnosis of non-fibrotic Hypersensitivity Pneumonitis was assumed in multidisciplinary group, in accordance with the guidelines of the American Thoracic Society. Occupational disease was reported and a document was issued with the condition of avoiding contact with cork and recommendation for changing the workplace.
Discussion: Suberosis can be considered an occupational disease with a strong impact on a worker's respiratory status, due to the symptoms and fibrotic changes that causes. An urgent diagnosis is essential, based on exposure to a capable agent, characteristic semiology, and concordant imaging changes. The primary treatment is based on the avoidance of exposure and the use of personal protective equipment. Corticosteroid therapy may be a weapon in an acute phase, but if symptoms persist or are refractory to therapy, immunosuppressants such as Mycophenolate Mofetil (MMF) may be an alternative.

Keywords: *Suberosis. Cork. Hypersensitivity pneumonitis. Bronchoalveolar lavage.*

PC 065. THE IMPORTANCE OF EXPOSURE HISTORY IN THE DIAGNOSIS OF PNEUMOCONIOSES: A CASE REPORT

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Introduction: Caplan syndrome (CS) was first described in 1953 by A. Caplan. It is a rare entity, also known as rheumatoid pneumoconiosis, and is characterized by multiple well-defined pulmonary nodules, predominantly in the periphery of the lung parenchyma, on chest radiography in individuals with occupational exposure to inorganic dusts (most commonly coal) and concomitant diagnosis of rheumatoid arthritis (RA). The prevalence of CS in patients with pneumoconiosis is estimated to be 0.75-1.5%.
Case report: Male, 63 years old, Caucasian, autonomous, ex-smoker of 5 pack-years, with occupational exposure to silica as a rock hewer of cement and stone walls with a pneumatic hammer, without protection of the airway. Personal history of seronegative RA, hypertension, diabetes mellitus type 2, dyslipidemia and gastroesophageal reflux disease. He was referred to a pulmonology consultation due to pulmonary nodules described on chest X-ray and CT. Clinically, he presented dyspnea on slight exertion (mMRC2), occasional dry cough and unintentional weight loss (10 kg). Objective examination revealed "gusty fingers" and pulmonary auscultation with a bilaterally maintained and symmetrical vesicular murmur, without adventitious noises. Analytically, C3 and C4 were slightly increased, antinuclear antibody (ANA) was positive with a mottled pattern and rheumatoid factor was slightly increased (16.5), and the remaining autoimmunity study was negative. Respiratory functional study was normal. Chest radiography showed well-defined nodules, more evident in the middle and lower levels bilaterally, and some peribronchovascular interstitial densification. Subsequently, chest CT showed multiple calcified mediastinal lymph nodes laterotracheal, precarinal and in the pulmonary hilums, and multiple nodules scattered in the lung parenchyma, many of them calcified, more pronounced in the pulmonary apex (subpleural juxta-pleural), especially on the left, coexisting bilateral micronodularity predominantly subpleural. He underwent bronchofibroscopy under corticotherapy (prednisolone 20 mg/day), with immunophenotypic study of bronchoalveolar lavage with TCD8 lymphocytosis (71.13% lymphocytes, CD4/CD8 ratio = 0.2).
Discussion: The history of occupational exposure to silica, concomitantly with the clinical and characteristic imaging changes allowed to define the diagnosis of chronic simple silicosis which, in a patient with a previous diagnosis of RA, establishes a diagnosis of CS. This case highlights the importance of integrating careful anamnestic investigation, particularly the history of exposure, with typical radiological patterns in establishing the diagnosis of diffuse lung diseases. The exuberance of the imaging changes in a relatively young patient is also noteworthy. Given the well-established causal relationship between occupational exposure and the observed changes, it is important not to forget pneumoconioses, since they are potentially preventable diseases with the use of adequate protection and whose early diagnosis has an impact on prognosis.

Keywords: *Occupational exposure. Silica. Pulmonary nodules.*

PC 066. END-STAGE SILICOSIS AND LUNG TRANSPLANTATION: PRESENTING TWO CLINICAL CASES

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Introduction: Silicosis is a fibrotic and progressive occupational disease caused by the inhalation of free crystalline silicon dioxide, or silica. No specific treatment has yet been approved for the treatment of silicosis, which associates with high morbidity and mortality. End-stage silicosis is one of the accepted indications for lung transplantation, although there is still scarce scientific data published on this topic.
Case report: 45-year-old male, former smoker (50 pack-years), worked as a stone cutter in the marble industry, with no use of personal protective equipment, is followed in the Pulmonology Outpatient Clinic due to hypothesis of sarcoidosis versus silicosis with progressive massive fibrosis, with multiple courses of systemic corticosteroids since 2021. Additionally, he presents chronic hypoxemic respiratory failure under supplemental oxygen therapy, pulmonary hypertension (PASP 64 mmHg), atypical mycobacterial disease (treated in 2018), spontaneous pneumothorax in 11/2020, frequent supraventricular extrasystoles, hiatal hernia and depression. Laboratory tests: normal hemogram, ESR 41 mm, CRP 2.33 mg/dL, normal kidney function, electrolytes and liver enzymes, LDH 342 U/L, ACE 160 U/L, negative autoimmune study and viral serologies. Pulmonary function tests: very severe mixed ventilatory defect (FEV1/FVC 0.49; FEV1 34%; FVC 54%; TLC 63%) and severe reduction of DLCO (30%). Bronchoalveolar lavage: macrophages 46%, lymphocytes 48%; negative bacteriological, mycological and mycobacteriological exams. The patient was submitted to a surgical lung biopsy in 05/2023 and the histopathological exam confirmed the diagnosis of silicosis. Due to the progressive course of the disease, he is currently in evaluation for lung transplantation. 49-year-old male, never-smoker, worked as a dental prosthetic technician, was submitted to bilateral sequential lung transplantation in 06/2012 due to silicosis. He was initially treated with immunosuppressive therapy with tacrolimus and mycophenolate mofetil. He had a diagnosis of chronic graft rejection since 09/2020 after hospital admission due to pneumonia in the immunocompromised patient with the need for invasive mechanical ventilation. Additionally, the patient presented chronic hypercapnic respiratory failure under supplemental oxygen therapy and domiciliary noninvasive mechanical ventilation since 2020. He was treated with immunosuppressive therapy with everolimus 1 mg 12/12h, tacrolimus 1.5 mg 12/12h and prednisolone 5 mg/day. Laboratory tests: Hb 12 g/dL; Leucocytes 12,000/uL; ESR 14mm; creatinine 1.60 mg/dL; LDH 273U/L; negative autoimmune study and viral serologies. Pulmonary function tests: mixed ventilatory defect, with a predominance of bronchial obstruction (FEV1/FVC 0.49; FEV1 22%; FVC 35%; TLC 75%) and moderate reduction of

DLCO (53%). Due to chronic graft rejection and its progressive course, the patient was submitted to lung retransplantation at an international Pulmonary Transplantation Centre, but he died during the postoperative period.
Discussion: These cases highlight the role of lung transplantation in patients with end-stage silicosis. Selected patients with end-stage silicosis can benefit from lung transplantation, which is the only therapeutic alternative in end-stage silicosis, with an important clinical benefit compared to conservative management. Due to the high prevalence of intraoperative complications, there are still few patients with end-stage silicosis, globally, to have been submitted to lung transplantation. Lung retransplantation remains a rare procedure. The operative risk of lung retransplantation is superior to that of the initial transplantation and associates with a worse prognosis.

Keywords: *End-stage silicosis. Progressive massive fibrosis. Lung transplantation. Chronic graft rejection. Lung retransplantation.*

PC 067. RESEARCH: SMOKING CESSATION IN A PULMONOLOGY WARD

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Introduction: Tobacco is the main risk factor for the development of respiratory disease, namely Chronic Obstructive Pulmonary Disease (COPD) and lung cancer, it increases the risk of asthma and COPD exacerbations and is one of the leading preventable causes of death. The smoking cessation (SC) success rate at one year is about 3% without medical support, but can be increased to around 35% at 6 months when accompanied by therapeutic aid. Hospitalization is a pivotal moment for SC, since the direct consequences of smoking are more consciously perceived by the patient, and it is a period of mandatory abstinence. The present study aimed to assess the association between SC motivation in the context of hospitalization due to respiratory disease and its success when a smoking cessation protocol is applied.
Methods: A prospective interventive study was conducted in patients admitted to the Pulmonology Ward of Centro Hospitalar de Setúbal with current smoking habits. Demographic data, data on smoking habits, tobacco dependence (Fagerström test), SC motivation (Richmond test) and self-efficacy on a numerical scale (0-10) were collected. There was joint intervention by the medical and nursing team in this assessment and ongoing education on the benefits of CT. At discharge, patients were offered personalized pharmacological therapy and were followed up at 1 week post-discharge through a telephone consultation, and after 1 and 3 months in a consultation. SC was assessed through a questionnaire and the exhaled carbon monoxide value.
Results: Of the patients included in the study (n = 15), with a mean of 55 ± 32 pack-years, 86.7% (n = 13) maintained abstinence in the first week post-discharge, 73.3% (n = 11) after 1 month and 33.3% (n = 5) after 3 months. There was a 20.0% loss-to-follow-up rate (n = 3). A statistically significant association was found between the Richmond score and SC success at week 1 (p = 0.012), and between the self-efficacy scale and SC at the at week 1, month 1 and 3 (p = 0.002, p = 0.015 and p = 0.010, respectively) using the Mann-Whitney test. No correlation was found between the Richmond score and SC at 1st and 3rd months, nor between the degree of dependence, smoking burden, presence of withdrawal symptoms or educational level and SC success. Limitations of the study include the small sample size, the inability to objectively confirm abstinence at the telephone consultation, the short follow-up time, the absence of other specialities (such as psychology) in the multidisciplinary SC team.
Conclusions: Smoking abstinence should be a goal set for all patients. In this context, hospitalization represents an opportunistic moment of intervention for SC. This study presented data on the implementation of a smoking cessation protocol in an inpatient ward and showed that an intervention during hospitalization and subsequent follow-up in an outpatient setting contributed to an increase in the quitting rate at 3 months (33.3%), consistent with literature data. It demonstrates the importance of an early approach to inpatient SC, but also the need for coordination with primary health care for longer follow-up and maintenance of long-term results.

Keywords: *Smoking cessation. Smoking. Hospitalization.*

PC 068. CITISINICLINE IN SMOKING CESSATION – PRELIMINARY RESULTS

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Introduction: Currently, tobacco remains one of the major public health problems, having a considerable impact on the health status of the population. Despite all the measures adopted to end consumption, there is a high prevalence of smokers in Portugal. Quitting smoking thus becomes imperative and smoking cessation consultation is central to this process. Among the drug therapies available in the market, citisinicline has been demonstrating consistent results combined with speed and good tolerance.
Objectives: Preliminary analysis of the results obtained with cytisinicline.
Methods: Retrospective study, with consultation of clinical records, of patients enrolled in the hospital smoking cessation consultation (CCTB) and who were prescribed cytisinicilline. We proceeded to the comparison of the different scales used in the characterization of the patients, namely, the Fagerström test that measures the degree of tobacco dependence and the Richmond scale that evaluates the motivation for smoking cessation, with the results obtained and, consequently, the efficacy of the drug was analyzed.
Results: Cytisinicline was prescribed to 34 patients enrolled in the CCTB, and 64.7% (n = 22) purchased the drug. The mean age was 54.3 ± 7.5 years, 55.9% were men, and the mean number of cigarettes before treatment was 20.8 ± 9.7. Regarding the analysis of the Fagerström scale, the mean was 6.4 ± 2.1 points and there is a direct relationship between the increase in points and the increase in the average number of cigarettes smoked, which translates into a higher degree of tobacco dependence. In the analysis of the motivation to quit smoking, there is no impact of the degree of motivation with the result obtained (cessation/reduction of consumption), which can be explained by the subjectivity of the scale and by smoking dependence. After treatment, 50% of the patients were able to stop smoking and the remainder had a significant reduction in the number of daily cigarettes. Of the adverse effects reported, the most prevalent were nausea 11.8% (n = 4), weight gain 8.8% (n = 3), sleep disturbances 8.8% (n = 3), altered taste 5.8% (n = 2) and anxiety 2.9% (n = 1). One case of rash is also reported.
Conclusions: This preliminary analysis of the results obtained with cytisinicline allows us to conclude that it is an effective drug with few adverse effects reported. As this is a preliminary study, the long-term maintenance of cessation was not evaluated, which translates into a limitation of this study, given the importance of maintaining the follow-up of these patients.

Keywords: *Smoking cessation. Citisinicline.*

PC 069. ASSOCIATION BETWEEN RITUXIMAB AND TACROLIMUS IN THE TREATMENT OF REFRACTORY ANTISYNTHETASE SYNDROME WITH INTERSTITIAL LUNG DISEASE

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Introduction: Antisynthetase syndrome (ASyS) is an idiopathic inflammatory myopathy, defined by the association of myositis, interstitial lung disease (ILD), arthritis, Raynaud's phenomenon, mechanic's hands and the presence of anti-aminoacyl-tRNA-synthetase antibodies. ILD can occur at any time during the disease course and remains a major determinant of morbidity and mortality in ASyS, particularly in patients who present with an acute respiratory distress syndrome.
Case report: A 35-year-old previously healthy male presented to Rheumatology clinic with inflammatory arthralgia of hands, knees and feet. He had cracked skin on his fingertips, which he associated to his occupation. Blood tests had positive antinuclear antibodies (1/640) with positive anti-Jo1 and anti-Ro52 antibodies. He had no evidence of other organ involvement, including myositis or ILD. After 18 months of follow-up, without any specific therapy, he was admitted into hospital with fever and acute, progressively worsening dyspnea. Physical examination documented diminished breath sounds in both lung bases and proximal muscle weakness. Laboratory tests revealed leukocytosis, elevated inflammatory markers, raised muscle enzymes; arterial blood gases showed partial respiratory failure. Chest computed tomography (CT) documented bilateral pleural effusion, bilateral diffuse ground-glass opacities and foci of consolidation with air bronchogram. He started large-spectrum intravenous antibiotics and intravenous human immunoglobulin (2 g/kg), as infection could not be ruled out. After 4 days of treatment, fever persisted despite negative culture exams, and respiratory failure progressed with need for invasive ventilation. Intravenous methylprednisolone (1 g/day, 3 days), followed by prednisolone 1 mg/kg/day, and intravenous cyclophosphamide (1 g/m^2 monthly, for 6 months) were started, with good response. Nearly one month after the third cyclophosphamide administration, under prednisolone 0.75/mg/kg/day, fever and myositis recurred. He was switched to rituximab (2 × 1 g, 2 weeks apart) in association with subcutaneous methotrexate 20 mg/week, with benefit. He kept follow-up in outpatient clinic, with prednisolone tapering and supplementary oxygen therapy suspension. Twenty-two weeks after rituximab administration, the patient was readmitted with a new ASyS flare, including fever, myositis and acute ILD with need for invasive ventilation (chest CT consistent with a non-specific interstitial pneumonia overlap organizing pneumonia; Figure 1B). He stopped methotrexate and due to disease severity and refractoriness, received intravenous methylprednisolone (1 g/day, 3 days), followed by oral prednisolone 1 mg/kg/day, and intravenous cyclophosphamide (6 fortnightly pulses at a fixed dose of 500 mg) combined with rituximab (2 × 1 g, 2 weeks apart). There was complete resolution of pulmonary infiltrates, with clinical and analytical improvement, and the patient was kept under maintenance therapy with rituximab (2 × 1 g, 2 weeks apart, every 6 months) and tacrolimus (0.075 mg/kg/day; target 210 ng/mL). Two years later, he stopped steroids and is asymptomatic, without new disease flares.
Discussion: Steroids remain the first-line therapy for inflammatory myopathies-associated ILD, but the addition of steroid-sparing agents is frequently needed. A multimodal immunosuppression therapy is often required, particularly in rapidly progressive ILD. Despite little experience in daily clinical practice, tacrolimus seems to be an emerging drug for treating refractory ILD and myositis in ASyS.

Keywords: *Antisynthetase syndrome. Interstitial lung disease. Tacrolimus. Rituximab.*

PC 070. ABEMACICLIB-INDUCED PNEUMONITIS: PRESENTING A CLINICAL CASE

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Introduction: Abemaciclib is a cyclindependent kinase 4 and kinase 6 (CDK 4 and CDK6) inhibitor approved for the treatment of hormone receptor (HR)-positive, human epidermal growth factor receptor 2 (HER2)-negative locally advanced or metastatic breast cancer in combination with an aromatase inhibitor or fulvestrant.
Case report: 63-year-old female, Caucasian, performance status ECOG 0, former-smoker (90 pack-years), retired telephonist, with the following diagnoses: COPD GOLD 3E, medicated with triple therapy (LABA/LAMA/ICS); previous squamous cell carcinoma of the left lung, stage IIIA, submitted to left upper lobe lobectomy in 09/2018 and, subsequently, concurrent chemotherapy and radiotherapy until 01/2019, maintaining follow-up with no signs of recurrence; active pulmonary tuberculosis, treated in 2021 for 6 months; breast cancer, submitted to mastectomy in 09/1999 and hormonotherapy with tamoxifen (one year), with lymph node recurrence in 2014, treated with palliative intent letrozole (completed in 12/2019). Due to lymph node progression of breast cancer, in 10/2022, she was medicated with fulvestrant and abemaciclib. In 03/2023, five months after the institution of this therapy, she started complaining of worsening dyspnea, and the chest computed tomography (CT) showed multifocal bilateral ground-glass opacities, more evident in the right upper lobe, right lower lobe and left lower lobe, with adjacent micronodular opacities and features of organizing pneumonia in the periphery of the middle lobe, suggesting drug-induced interstitial pneumonitis. Due to fever, increasing dyspnea, productive cough with purulent sputum and de novo consolidation with air bronchogram in the right lower lobe, the patient was hospitalized with the diagnoses of interstitial pneumonitis secondary to abemaciclib and right lower lobe bacterial pneumonia. Abemaciclib was stopped and the patient was medicated with optimized bronchodilator therapy, systemic corticosteroids (methylprednisolone 40 mg/day) and empirical antibiotics with amoxicillin/clavulanic acid and azithromycin. Due to hypercapnic respiratory failure with decompensated respiratory acidosis, she underwent a period of non-invasive ventilation (NIV) and supplemental oxygen. A bronchoscopy was performed, with no evidence of endobronchial lesions. Bronchoalveolar lavage (BAL) – cytology: 95% macrophages, 3% lymphocytes, 2% neutrophils, CD4/CD8 2; the microbiological exams were negative; the histopathological exam was negative for neoplastic cells. The patient presented a good clinical, laboratory and radiological evolution, and she was discharged from the hospital clinically improved, with no need for NIV or supplemental oxygen. She was medicated with systemic corticosteroids (prednisolone 40 mg/day), with an indication to suspend abemaciclib and maintain fulvestrant. Three months after being discharged, she maintained good clinical and radiological improvement, allowing a decrease of prednisolone to 30mg/day.
Discussion: Abemaciclib is associated with a 4.7-fold increase in drug-induced pneumonitis when compared with other antineoplastic drugs. Pulmonary toxicity is estimated at 1.7-3.3%, with a mortality of 0.3%. The most frequent chest CT findings are diffuse alveolar damage, organizing pneumonia, ground-glass opacities, and a non-specific interstitial pneumonia pattern. The risk factors associated with increased mortality are age (> 70 years), preexisting interstitial lung disease and performance status ECOG > 2. The management includes discontinuing the offending drug and instituting systemic corticosteroids.

Keywords: *Interstitial pneumonitis. Abemaciclib. Drug-induced lung toxicity.*

PC 071. WHO ARE THE INFORMAL CAREGIVERS OF PEOPLE WITH INTERSTITIAL LUNG DISEASE? WHAT ARE THEIR NEEDS?

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Introduction: People with interstitial lung disease (ILD) experience severe symptoms (e.g., dyspnoea, fatigue) and exercise intolerance, compromising daily physical activity and quality of life. As the severity of symptoms progresses, these people present more difficulties in performing their daily activities and become more dependent. Informal caregivers play a key role providing them support and assistance, especially at advanced stages. Nevertheless, knowledge about the characteristics of these informal caregivers and their support needs is lacking. This study aimed to characterise and identify the needs of informal caregivers of people with ILD.
Methods: An exploratory cross-sectional study was conducted. Informal caregivers were identified by participants with ILD of the iLiFE study (NCT04224233). An informal caregiver was considered as the person providing unpaid care to the patient. Information about the care provision, i.e., relationship with the patient and if the caregiver lived with him/her, number of people involved in the care and duration and type of care provided was collected. The carers' support needs were assessed with the Carers Support Needs Assessment Tool (CSNAT), which is a comprehensive, but brief and practical tool, comprising 14 questions that assess the need for more support. Seven questions are related with direct needs (the carer's own needs) and the other seven with indirect needs (related with the care provision). The CSNAT is scored as: 0-no, 1-little more, 2-quite a bit more and 3-very much more. For the purpose of this study, a need was considered if any score other than "no" was registered. Descriptive statistics were used to analyse data.
Results: Twenty-three informal caregivers (62 ± 16 years) were included. Most were women (56.5%), spouses (78.3%), had at least one comorbidity (65.2%), lived with the patient (91.3%), were the only ones involved in the care (65.2%) and provided permanent care (60.9%) with 73.9% providing care from more than 2 years. The main types of care provided included: accompaniment to medical appointments (78.3%), housework (73.9%), shopping (60.9%), transportation (56.5%), bureaucratic issues (43.5%) and personal care (39.1%). Most informal caregivers needed more support to: know what to expect in the future/who to contact if concerned about the relative (47.8%), understand the relative's disease (39.1%) and manage relative's symptoms/talk with their relatives about their disease (30.4%). Informal caregivers also wanted more support with dealing with their feelings and worries (43.4%) and for their financial/legal/labour problems (34.7%).
Conclusions: Informal caregivers of people with ILD seem to be mostly female, at advance age and providing care on their own for several years. Attention for providing information about the disease trajectory, strategies to manage it and emergency contacts, but also support for caregivers' direct needs (e.g., feelings and concerns) is needed in interventions to support this stakeholder group. These insights regarding the characteristics and needs of informal caregivers of people with ILD, may help tailoring interventions to support them, contributing to improve their well-being and care experience.

Keywords: *ILD. Care assessment. Needs. Informal caregivers.*

PC 072. ELECTRONIC CIGARETTES AND VAPING ASSOCIATED PULMONARY ILLNESS – A CASE STUDY

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Introduction: EVALI is an increasingly prevalent lung injury caused by electronic cigarette or vaping product use, once marketed as a safer alternative to traditional cigarettes.
Case report: A 51-year-old male active smoker with 36 pack-year smoking history, presented with dyspnea and relative hypoxemia 13 days after switching from conventional cigarettes to electronic cigarettes. Relevant past history includes exposure to welding fume (namely iron, zinc and copper), acute CHV 15 years prior, with presently undetectable viral charge, depressive disorder under sertraline and trazodone, arterial hypertension treated with perindopril and hypercholesterolemia treated with a statin. The patient also had a history of necrotizing pneumococcal pneumonia a year prior. In radiological reevaluation there was resolution of the pneumonic process previously visible in the left lung as well as paraseptal emphysema of apical predominance and patchy areas of ground glass in both superior lobes and superior segments of both inferior lobes, de novo. He had normal lung function tests. BAL was obtained, showing 91% of macrophages, 17% of which with black intracytoplasmic inclusions. Microbiology of bronchial aspirate was negative. Transbronchial pulmonary biopsy showed preservation of alveolar morphology and nonspecific inflammatory infiltrates with predominantly lymphoplasmacytic cells. A temporary diagnosis of EVALI (moderate level of confidence) was established in multidisciplinary meeting and the patient stopped using electronic cigarettes, maintaining sporadic conventional tobacco consumption (2-3 cigarettes per week). Clinical improvement was almost immediate and radiological improvement of ground glass infiltrates is visible in a CT scan 8 months of vaping cessation.
Discussion: Electronic cigarette use has been linked to a broad spectrum of pulmonary disease, including EVALI. A working definition of this entity includes respiratory failure with symptom onset within the last 90 days of electronic cigarette use, pulmonary infiltrates on imaging, the absence of infection, and no evidence of alternate causes of respiratory failure. The use of bronchoscopy with BAL and lung biopsy has no clear established role, but may be warranted on a case-by-case basis.

Keywords: *Interstitial lung disease. Tobacco. E-cigarette.*

PC 073. CHARACTERIZATION OF PATIENTS UNDER ANTIFIBROTIC TREATMENT FOR PROGRESSIVE PULMONARY FIBROSIS: THE EXPERIENCE OF A CENTER

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Introduction: Progressive Pulmonary Fibrosis (PPF) is defined as a fibrotic interstitial lung disease (F-ILD), not including Idiopathic Pulmonary Fibrosis (IPF), in patients who meet 2 criteria in the previous year: worsening of respiratory symptoms; functional decline (absolute decline in FVC 5% or DLCO 10%), or radiological evidence of fibrosis progression. Approximately 18-32% of F-ILD cases progress to PPF. The INBUILD study demonstrated the impact of nintedanib in reducing the annual decline in forced vital capacity (FVC).
Methods: This is a retrospective single-center study of all patients who initiated antifibrotic treatment for PPF from November 2020 to February 2023. The study includes descriptive analysis, sociodemographic characterization, diagnosis, chest CT patterns, treatment, and progression criteria. The evolution of pulmonary function, FVC before and after antifibrotic treatment, and survival analysis (Kaplan-Meier) were evaluated.
Results: Sixteen patients started antifibrotic treatment for PPF. The majority were on nintedanib (15; 94%), and 1 (6%) received off-label pirfenidone. The average age was 69 ± 10 years, with 50% being male. Smoking habits: 8 (50%) were non-smokers, 7 (44%) were ex-smokers, and 1 (6%) was an active smoker. The most prevalent F-ILD diagnoses

were Hypersensitivity Pneumonitis (10; 63%) and Systemic Sclerosis-related lung involvement (3; 19%). CT patterns showed definite/probable Usual Interstitial Pneumonia (UIP) in 5 (31%) cases, Non-specific Interstitial Pneumonia (NSIP) in 4 (25%) cases, indeterminate UIP in 1 (6%) case, and other patterns in 6 (38%) cases. Fourteen patients (88%) were on corticosteroids and/or immunosuppressants, with an average duration of 43 ± 26 months. Of the total, 13 patients (81%) met the criteria for symptomatic worsening, 9 patients (56%) showed radiological worsening, and 10 patients (63%) had a decline in pulmonary function (pre-treatment FVC: 1 missed value). At the start of antifibrotic treatment, the mean FVC was 64 ± 25%, and DLCO was 35 ± 16%. The average duration of antifibrotic treatment was 12 ± 8 months. Antifibrotic therapy needed to be discontinued in 1 (6%) case due to persistent vomiting. Graph 1 illustrates the evolution of FVC (%) before and after the start of antifibrotic treatment. The decline in FVC before (median -0.150L [-0.265; -0.050]) and after the treatment initiation (median -0.110L [-0.150; 0]) did not show a statistically significant difference (n = 10; p = 0.401). Three patients (19%) died during the study period. The median survival after F-ILD diagnosis was 76 months (95%CI 63-89), with no significant difference between different subtypes of F-ILD (log rank p = 0.399).
Conclusions: In the studied sample, the introduction of antifibrotic treatment did not show a significant impact on reducing functional decline at 12 months. However, the small number of patients with one-year results (n = 10) and the considerable functional impairment at baseline might have influenced the results. More studies are needed to identify the correct timing for initiating antifibrotic therapy in patients with PPF not related to IPF and to determine which patients may benefit most from its introduction.

***Keywords**: Progressive pulmonary fibrosis. Antifibrotic.*

PC 074. MORTALITY AND RESPIRATORY FUNCTIONAL EVOLUTION IN DIFFERENT DUBTYPES OF PROGRESSIVE PULMONARY FIBROSIS VERSUS IDIOPATHIC PULMONARY FIBROSIS: A REAL-LIFE STUDY

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Introduction: Progressive Pulmonary Fibrosis (PPF) represents a subgroup within the fibrotic interstitial lung disease (F-ILD) characterized by irreversible progression of pulmonary fibrosis, worsening symptoms, declining respiratory function, and early mortality, similar to Idiopathic Pulmonary Fibrosis (IPF). The INBUILD study demonstrated the impact of nintedanib in reducing the annual decline in forced vital capacity (FVC) in PPF, similar to studies in IPF.
Methods: This retrospective single-center study included all patients who initiated antifibrotic treatment for PPF and IPF from June 2016 to February 2023. Descriptive analysis of the groups was conducted, comparing the functional evolution over the 12 months before and after the initiation of antifibrotic treatment, including a subgroup analysis based on the underlying F-ILD. Survival analysis (Kaplan-Meier) was also performed.
Results: Out of 52 patients under antifibrotic treatment, 16 (31%) met the criteria for PPF, and the remaining (36, 69%) were diagnosed with IPF. The most prevalent PPF diagnoses were Hypersensitivity Pneumonitis (10; 63%) and Systemic Sclerosis-related lung involvement (3; 19%). Four (11.1%) IPF cases presented a combination of pulmonary fibrosis and emphysema (CPFE). Significant differences between the PPF and IPF groups were found in baseline characteristics, including age (p = 0.009), chest CT pattern (p < 0.001), type of prescribed antifibrotic (p = 0.004), duration of antifibrotic therapy (p = 0.017), and exposure to immunosuppressants (p < 0.001). A total of 6 (12%) patients discontinued antifibrotic treatment, mainly due to gastrointestinal complaints, with no statistical significance between groups (p = 0.426). At the start of antifibrotic treatment, the mean FVC (%) in the PPF group was significantly lower than in the IPF group (PPF: 63.6 ± 24.8%; IPF: 89.7 ± 23.2%; p = 0.001). The median relative decline in FVC was similar at 12 months of antifibrotic treatment between the two groups (PPF: -0.110 [-0.150; 0.000]L; IPF: 0.010 [-0.148; 0.235]L; p = 0.220). There were 3 (19%) deaths in the PPF group and 9 (25%) in the IPF group, with no statistical significance (p = 0.622). The median survival after F-ILD diagnosis was similar (log-rank p = 0.232), translating to 65.36 months (95%CI 51.31-79.40) for IPF and 75.98 months (95%CI 63.04-88.93) for PPF. No statistical differences were documented (log-rank p = 0.475) when stratified by F-ILD subtypes.
Conclusions: In our sample, PPF patients were significantly younger than IPF patients, mostly exhibited non-UIP CT patterns, and had more compromised lung function at baseline. PPF patients showed a similar mean decline in FVC and median survival time compared to IPF patients. We believe that further studies will be necessary to identify the correct timing for initiating antifibrotic therapy in non-IPF PPF patients to improve the impact on reducing functional decline and survival in these patients.

***Keywords**: Progressive pulmonary fibrosis. Idiopathic pulmonary fibrosis. Antifibrotic.*

PC 075. BONE MARROW TRANSPLANTATION IN LUNG DISEASE DUE TO SYSTEMIC SCLEROSIS – CLINICAL CASE

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Centro Hospitalar e Universitário Lisboa Norte.

Introduction: Systemic sclerosis is characterized by vascular dysfunction and progressive fibrosis of the skin and internal organs, and the diagnosis is supported by clinical and serological findings. It affects mostly females and its presentation is heterogeneous in organic involvement and prognosis. Pulmonary involvement is a frequent complication (80%), manifested by alveolitis, fibrosis and/or vascular disease with a risk of developing pulmonary hypertension. The frequently associated imaging patterns are those of non-specific interstitial pneumonia or usual interstitial pneumonia. Lung disease is usually progressive and worsens the prognosis, so early diagnosis and treatment are essential. When indicated, therapy includes immunomodulatory and/or antifibrotic agents.
Case report: We report a female patient, 25 years old, non-smoker, with asthma since childhood, under ICS+LABA therapy. She was diagnosed with progressive systemic sclerosis (PSSc) at the age of 12 (2010), on presentation with Raynaud's phenomenon, sclerodactyly, digital ulcers and positivity for ANA (1/640), ANA screening (194.8) and Ac. Anti-Ro52(SS-A) (319.8). Chest CT was performed in 2011, which identified a slight thickening of the interlobular septa, with no associated clinical or functional compromise. Until 2014, therapy with bosentan, azathioprine, pentoxifylline, iloprost and nifedipine was instituted. Due to worsening of pulmonary involvement, with associated bronchiolectasis, she was started on mycophenolate mofetil (MMF). In 2015, after 1 year of therapy with MMF, there was an increase in dyspnea on exertion and worsening of intra and interlobular thickening with a diffuse and peripheral distribution, along with foci of ground glass opacitites and traction bronchiolectasis with a discreet honeycomb pattern. There was concomitant functional deterioration, with a drop in FVC (58%) in 540 ml (15%) and in DLCO from 81% to 60%, which indicated failure of this immunosuppressive strategy. Cyclophosphamide was then started, having performed 4 cycles with a significant clinical response, which, however, regressed after interruption of this therapy. In 2017, the patient underwent an autologous hematopoietic stem cell transplant, a procedure that took place without major complications. In 2022, five years after the transplant, she had no respira-

tory complaints and didn't present hypoxemia or desaturation in the 6-minute walk test. Imagiological studies showed stability of the interstitial lung disease and there was a sustained functional improvement (FVC 86% and increase of 20% in the DLCO), along with an improvement in the skin and vascular complaints, therefore the patient is currently without therapy directed at PSSc.
Discussion: Autologous hematopoietic stem cell transplantation has gained importance in preventing disease progression in diffuse and rapidly progressive forms of systemic sclerosis. In this case it is shown the relevance of this therapy in controlling lung manifestations of this disease. The morbidity and mortality associated with the procedure are high, which conditions its use and obligates a rigorous selection of candidates. The young age, absence of comorbidities and early referral were factors in favor of the success of this therapy.

Keywords: *Systemic sclerosis. Interstitial lung disease. Bone marrow transplant.*

PC 076. EFFECTIVENESS OF INFLIXIMAB IN REFRACTORY SARCOIDOSIS: EXPLORING TREATMENT OUTCOMES AND RELAPSE FACTORS

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Introduction: Infliximab is a monoclonal antibody that binds and inactivates circulating TNF, which plays a significant role in the pathophysiology of sarcoidosis. Despite the lack of randomized clinical trials, infliximab is often considered a therapeutic option for refractory sarcoidosis. Our study aims to investigate the effectiveness of infliximab in patients with refractory sarcoidosis and explore possible factors related to sarcoidosis relapse after infliximab suspension.
Methods: We retrospectively identified sarcoidosis patients treated in the Thorax department - day hospital at Hospital Pulido Valente (Centro Hospitalar de Lisboa Norte). Infliximab treatment was initiated in patients who did not respond to first and second-line immunomodulators, as determined by a group of expert Pulmonologists. Patients were characterized based on organ involvement and duration of treatment. Clinical outcomes were defined as treatment success versus failure. We considered treatment success to be (A) a clinical improvement (FVC increase of 10% from the baseline at 52 weeks if pre-treatment FVC < 70%; improvement in 6MWT in SpO2 or mBORG) or (B) radiological improvement, for what concerns pulmonary disease, or (C) improvement of the main symptoms if another organ was involved.
Results: We identified 28 patients with refractory sarcoidosis. The proportion of treatment success was 85% in pulmonary, 100% in CNS, and 100% in cardiac disease. However, when observed at week 12 after the introduction of Infliximab, only 50% of pulmonary disease cases responded to treatment. The mean duration of treatment with infliximab was 42 months. Regarding relapse, no significant association was found between the duration of therapy with Infliximab and the rate of relapse when data were analyzed with the Mann-Whitney U test (-0.75). What appears to have predictive value for relapse is the extension of the disease. Using linear regression, we analyzed our data and observed a positive correlation between the number of organs affected by sarcoidosis and the probability of new worsening of the disease after the suspension of treatment with infliximab (+0.58 with a p-value of 0.047).
Conclusions: Infliximab is an effective therapy for refractory sarcoidosis, leading to clinical and radiological improvement and a reduction in corticosteroid dose. However, despite this clear evidence, there are still no recommendations regarding the best treatment strategy, especially concerning the duration of treatment. Our study shows that relapse is common after discontinuation of infliximab, particularly in patients with a larger organ involvement, suggesting a more cautious approach to infliximab suspension in these cases. Further studies involving larger groups of patients are needed to support these findings.

Keywords: *Sarcoidosis. Infliximab. Relapse.*

PC 077. SYSTEMIC AND LOCALIZED LUNG AMYLOIDOSIS – TWO CLINICAL CASES

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Introduction: Amyloidosis is characterized by the deposition of amyloid substance in one or more organs and soft tissues. Identification of apple-green birefringence after staining biopsy material with Congo red is pathognomonic. Pulmonary forms are rare and occur mainly due to deposition of systemic lambda light chain (LA) proteins and less frequently due to protection from kappa chains, transthyretin or secondary deposits (AA). In systemic amyloidosis, the protein is produced outside the thorax and is deposited in the lungs (interstitium, vasculature, lymph nodes, among other structures), often with diffuse distribution, whereas in localized forms production and deposition is parenchymal (nodules and cysts) or in the larynx and tracheobronchial tree.
Case reports: Female, 67 years old, non-smoker, retired as a wine warehouse worker, exposed to caustic soda + sodium hypochlorite vapors, not wearing personal protective equipment (PPE). Diagnosed in 2013 with systemic lupus erythematosus and Sjögren's syndrome. In 2015, she reported complaints of dry cough and dyspnea and underwent a chest CT that detected nodules in different lung lobes. A surgical biopsy was performed which revealed an amyloid tumor, concluding the diagnosis of secondary pulmonary amyloidosis. In 2020, due to the dimensional increase of the nodules, therapy with mycophenolate mofetil was started and therapy with azathioprine and hydroxychloroquine was suspended until then. Currently, there is clinical, imaging and functional stability. 85-year-old man, former smoker (120 pack years). Retired factory worker, reporting contact with chemicals including caustic soda, carbonates, sulfuric acid, citric acid and phosphoric acid without using PPE. History of monoclonal gammopathy of undetermined significance low-risk lambda IgG, COPD, chronic kidney disease and high blood pressure. The serum immunofixation showed a monoclonal IgG lambda component and the urinary immunofixation showed trace amounts of Bence Jones Lambda (18.8 mg/24h), without lytic skeletal lesions. The patient refused medullary invasive study. He reported dyspnea on minor exertion and performed a chest CT scan that revealed extensive multifocal bilateral pulmonary consolidations with air bronchogram without distortion of the bronchovascular architecture, associating multiple bilateral bronchocentric and peribronchovascular pulmonary nodules, with areas of confluence with multilobar consolidations and diffuse perilymphatic nodules. Respiratory functional tests revealed a severe reduction in DLCO (34%). The most likely diagnosis were a primary neoplastic lesion with diffuse intrapulmonary dissemination or sarcoidosis. The patient had positive rheumatoid factor and negative autoimmunity and angiotensin-converting enzyme studies. Abdominal fat biopsy was performed, in which test for amyloid substance was negative. The patient refused further invasive studies. He agreed to perform bronchoscopy with lung biopsy in the context of hospitalization due to acute respiratory failure and kidney injury, and a post-mortem diagnosis of pulmonary amyloidosis was concluded.
Discussion: We report two distinct cases of pulmonary amyloidosis. Pulmonary amyloidosis associated with Sjögren's syndrome often occurs with mild symptoms, with solitary or multiple nodules, with or without calcification and sometimes with concomitant cysts, which require monitoring, especially because of the risk of associated lymphoproliferative disease. Systemic forms of pulmonary

amyloidosis are often associated with diffuse involvement with relevant clinical impact in the absence of treatment.

Keywords: *Lung amyloidosis. Sjögren. Monoclonal gammopathy.*

PC 078. PROFILE OF PATIENTS WITH HYPERSENSITIVITY PNEUMONITIS WITH AUTOIMMUNE FEATURES – EXPERIENCE FROM A CENTRAL HOSPITAL

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Introduction: Hypersensitivity Pneumonitis with autoimmune features (HPAF) remains an undefined and controversial diagnosis, particularly the role of autoimmunity in the clinical course and prognosis of Hypersensitivity Pneumonitis (HP). A better understanding of this entity could have a relevant impact on the management and evolution of these patients.
Objectives: To characterize the patients who have their clinical follow up at the Pulmonary Interstitial Diseases Consultation of CHUSJ, with the diagnosis of HP with autoimmune features.
Methods: Retrospective analysis of the clinical files of patients who have been followed at the Pulmonary Interstitial Consultation of CHUSJ from a database made with multiple categories related to clinical evaluation, autoimmune profile, respiratory function, imaging and histology.
Results: The study included 49 patients with a mean age of 72 years, 57% of those were male. 33% of them were smokers or ex-smokers. 56% reported exposure to birds and 17% to fungi. The mean duration of symptoms was 15 months and 82% of patients reported dyspnea. Chest CT showed 73% reticulation, 55% traction bronchiectasis, 45% mosaic pattern, 18% honeycomb and 12% micronodules. BAL was performed in 94% of patients and lymphocytosis was observed in 66% of them. Analytically, all patients presented autoimmune alterations, the most prevalent being an increase in ANAs in 83.7% of patients, mostly with a mottled pattern. Lung biopsies were performed in 31% of patients using transbronchial cryobiopsies. Fibrotic PH was predominant, present in 69% of the cases. At diagnosis, 36% of patients had restrictive ventilatory changes, 25% obstructive ventilatory changes and 80% decreased diffusion capacity. Regarding therapy, 82% of patients underwent immunosuppression, 24% antifibrotic therapy and only 18% were monitored. 39% of patients met progression criteria and 18% died.
Conclusions: The impact of autoimmune features in the context of PH needs to be clarified given the possible implications for the prognosis of these patients. Although with overlapping characteristics, in this cohort there appears to be a higher proportion of patients with non-fibrotic disease and a lower proportion of patients with progression to fibrotic disease, considering the published series of patients with PH.

Keywords: *Interstitial lung disease. Hypersensitivity pneumonitis with autoimmune features (HPAF).*

PC 079. AN ATYPICAL COMPLICATION OF PULMONARY INFARCTATION – A CASE REPORT

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Introduction: Pulmonary infarction (PI) occurs as a consequence of occlusion of the distal pulmonary arteries, leading to tissue necrosis. Pulmonary thromboembolism (PTE) is an important cause of PE, and exclusion of other entities is necessary as therapy is directed at the underlying pathology. Risk factors for PE include smoking and infarct areas greater than 4 cm.
Case report: A 70-year-old male, smoker, with history of dilated cardiomyopathy, hypertension and dyslipidaemia. Referred to Pulmonology consultation to study a mediastinal mass. Chest CT: Voluminous polylobulated formation occupying the mediastinum at the level of the pre-tracheal retro-cava space, aortopulmonary window and carina, suggestive of a conglomerate of adenopathies with 7.1 × 6.6 × 8.2 cm. There was practically completed occlusion of the right pulmonary artery and compression with narrowing of the SVC. Flexible bronchoscopy: hyperemic mucosa at the level of the right main bronchus, bronchial biopsies: no neoplastic cells. Endobronchial echoendoscopy: adenopathic mass/conglomerate (Bulky) with continuity between G7 and G4R, without a cleavage plane. Aspiration puncture was performed. While waiting for the cytology result, he went to the ER for syncope and haemoptoic sputum. Examination showed collateral venous circulation in the right hemithorax region, jugular engorgement and cervical and facial flushing with dysphonia and headaches. Laboratory tests showed haemoglobin of 9, C-reactive protein of 6, D-dimers of 1,026 and troponin of 3.9. Chest CT: areas of consolidation and ground-glass densities in the peripheral zone of the anterior, posterior basal and apical segments of the right upper lobe, as well as in the periphery of the posterior and lateral segments of the right lower lobe, suggestive of pulmonary infarction. The patient was admitted with superior vena cava syndrome and pulmonary artery occlusion leading to pulmonary infarction and was admitted to the Pulmonology Department. Mediastinal radiotherapy 20 Gy in 5 fractions was performed with clinical improvement. Cytology was positive for Small Cell Carcinoma. He was referred to Pulmonary Oncology and started chemotherapy with carboplatin + etoposide. After the first cycle, he was hospitalised for respiratory infection and type I respiratory failure. Chest CT: three cavitated formations measuring 30, 29 and 25 mm each, with thickened walls and heterogeneous content with solid areas and no liquid level, fungal infection could not be excluded. As the patient was immunosuppressed, a bronchoscopy was performed to collect secretions and exclude opportunistic infections, namely fungal infections. The examination was unchanged and the microbiological test was negative. After discussion with a multidisciplinary team, the evolution of the previous pulmonary infarction was assumed. Imaging reassessment after three months identified only two of the three cavities, round in shape and thin-walled, without content, with favourable evolution.
Discussion: This is a case of PE due to occlusion of a central and peripheral pulmonary artery by extrinsic compression of malignant origin. This type of presentation is unusual, as is most often associated with pulmonary thromboembolism. The authors present this case for its uniqueness and favourable radiological evolution after targeted oncological therapy, as well as all the diagnostic work-up performed to exclude other aetiologies.

Keywords: *Pulmonary embolism. Pulmonary infarctation. Cavitation.*

PC 080. PULMONARY SCLEROSING PNEUMOCYTOMA

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Introduction: Pulmonary sclerosing pneumocytoma, traditionally called pulmonary sclerosing hemangioma, is a rare lung neoplasm. It usually presents as an asymptomatic solitary pulmonary nodule, being more frequent in females, especially in the fifth decade of life. Being a rare pathology, its natural history is not fully estab-

lished, however, it is considered that this tumor has a benign clinical course, with slow growth. The treatment involves surgical resection and the prognosis is excellent.
Case report: Female patient, 67 years old, writer. No smoking habits. Past medical history of hypothyroidism, medicated with levothyroxine. Referred to the Pulmonology Department in 2020, due to the presence of a 22 mm nodular formation in the middle lobe, on Thoracic Computed Tomography (CT), performed in the context of a post-fall. No associated respiratory symptoms. Positron Emission Tomography (PET) was performed, which revealed a suspicious nodular right lung lesion, in the middle lobe, with regular contours measuring 25 × 25 mm with SUVmax 4. A CT-guided transthoracic biopsy was proposed, which the patient refused, having undergone a lobectomy of the middle lobe, whose pathological anatomy allowed the diagnosis of a sclerosing pneumocytoma. Currently, the patient is being followed up in consultation, showing no evidence of recurrence.
Discussion: The authors present this case because it is a rare entity whose histological diagnosis can be challenging, but which should be considered when identifying a pulmonary nodule on imaging.

Keywords: *Pulmonary nodule. Neoplasia. Sclerosing pneumocytoma.*

PC 081. ADVERSE EFFECTS OF OSIMERTINIB

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Introduction: Osimertinib is the preferred therapeutic option in patients with metastatic non-small cell lung cancer with an EGFR mutation. It is a safe drug and the most frequent adverse effects are QT prolongation, diarrhea and lymphopenia.
Case report: 88-year-old woman, non-smoker, retired (seamstress), autonomous, with personal history of colitis and hypertension. Performance status 2. She was referred to Pulmonology Oncology Day Hospital due to a diagnosis of Lung Adenocarcinoma, PD L1 < 0-1%, EGFR + (deletion in exon 19) stage IVB - cT4N3M1c - pleura, bone, liver and contralateral lung on LSD. In a multidisciplinary reunion, it was decided to start osimertinib 80 mg/day and perform palliative RT on the right acetabular lesion and ischion, a treatment that was carried out for 1 week with a total dose of 20 Gy/5 fr. ECG after introduction of osimertinib did not demonstrate QT prolongation. During the 4th cycle of osimertinib, she was hospitalized due to acute pulmonary edema. During hospitalization, a transthoracic echocardiogram (EchoTT) was performed, which showed a left ventricle with an ejection fraction (EjF) of 28% due to diffuse hypokinesia, dilation of the left auricle with PSAP 52 mmHg. Heart failure was assumed with reduced Fej and despoiling therapy was started (furosemide and spironolactone). It was decided to discontinue osimertinib and she was referred to the Cardiooncology consultation, which, given the suspicion of heart failure with reduced FjE, equated iatrogenesis to osimertinib. In this consultation, Fej remained severely compromised 22%, so osimertinib was suspended. Reassessed in 1 month by Cardiooncology with clinical improvement, reduction of NTproBNP and echocardiogram showing Fej 32%. Dilated cardiomyopathy was diagnosed in a patient on osimertinib. Given the clinical, laboratory and ultrasound improvement, osimertinib was reintroduced with a dose reduction (40mg/day), awaiting an ultrasound evaluation after reintroduction of osimertinib.
Discussion: Studies show that cardiomyopathy associated with osimertinib is described in 2.6% of patients, of which 0.1% are fatal, being more frequent in elderly patients or patients with hypertension. This entity should be suspected in patients with a decrease of more than 10% in Fej or Fej < 50%. Therefore, it is important to perform, in addition to the ECG, an echocardiogram before and after the introduction of osimertinib to monitor Fej. In most cases, discontinuing osimertinib allows recovery of cardiac function, suggesting that cardiotoxicity is probably reversible, with most patients tolerating reintroduction of osimertinib with dose reduction.

Keywords: *Osimertinib. Cardiomyopathy.*

PC 082. A RARE CASE OF PRIMARY EPITHELIAL-MYOEPITHELIAL CARCINOMA OF THE LUNG

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Introduction: Primary epithelial/myoepithelial carcinomas of the lung are quite rare, accounting for only 0.1-0.2% of all lung tumors. It is a subtype of salivary gland tumor originating in the submucosal tracheobronchial glands, presenting in most cases as an endobronchial mass. Its diagnosis is based mainly on histopathology and immunohistochemistry.
Case report: Patient, male, 75 years old. Autonomous in activities of daily living. Retired welder. Former smoker (estimated tobacco load of 20 packs). With a history of arterial hypertension, type 2 diabetes mellitus and dyslipidemia. Medicated with indapamide 1.5 mg, amlodipine/valsartan 5/80 mg, empagliflozin/metformin 5/1,000 mg and rosuvastatin 10 mg. He went to the Family Doctor for constant right back pain that worsened with movement, denying other associated symptoms. In this context, he underwent complementary diagnostic tests for investigation, of which a computed tomography (CT) of the chest stands out, showing evidence of a "right suprahilar lesion measuring 3.6 × 2 cm, with regular contours, suspected of an eventual atypical lesion". Thus, he was referred to a Pulmonology consultation for an etiological study. On physical examination, he was eupneic on room air, with good peripheral saturation and with globally reduced vesicular murmur on pulmonary auscultation, with no adventitious sounds. Bronchoscopy revealed "in the right upper lobe bronchus, at B1, the presence of an endobronchial growth mass that obliterates it", whose cytology of both the brushing and the bronchial secretions was suspicious for neoplastic cells and whose biopsy of the mass later revealed that it was treated of an epithelial/myoepithelial carcinoma. For staging, PET-CT was performed with "anomalous hyperuptake (SUVmax 3.6) in a lung lesion in the right upper lobe, parahilar, measuring 4 × 2 cm; no other lesions that express hypermetabolism suggestive of malignancy were identified" and cranioencephalic CT with no evidence of metastasis Collaboration with Otorhinolaryngology was requested to evaluate the patient, and a CT of the neck was performed, thus excluding a primary tumor of the salivary glands with pulmonary metastasis. The case was later discussed in a multidisciplinary meeting of Pulmonology Oncology, deciding that it would be indicated for surgical treatment. Thus, he was referred to Thoracic Surgery, and is currently awaiting surgical intervention.
Discussion: Primary epithelial-myoepithelial carcinoma of the lung is considered a low-grade malignant neoplasm, with an apparently favorable prognosis (but taking into account its rarity with still few established data), especially when subjected to surgical resection. However, it can recur and metastasize. With this clinical case, we intend to highlight the importance of a multidisciplinary approach to the patient with the support of different Medical Specialties both in the diagnostic process and in the subsequent treatment. The role of fiberoptic bronchoscopy in obtaining the diagnosis is also highlighted.

Keywords: *Lung cancer. Epithelial/myoepithelial carcinoma. Multidisciplinarity.*

PC 083. ASPERGILLOSIS IN A PATIENT WITH PULMONARY ADENOCARCINOMA

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Introduction: In patients with respiratory complaints and constitutional syndrome, the possibility of a lung neoplasm should be considered. However, especially in patients with a long-standing clinical history, the existence of other concurrent diseases should be investigated.
Case report: We present the case of a 65-year-old man, a smoker (50 pack-years), with no regular medical follow-up or habitual medication. He was admitted due to a clinical presentation that had been evolving for 6 months, characterized by dyspnea at rest, cough, hemoptoic sputum, hoarseness, a 15% weight loss, asthenia, and anorexia. There was no respiratory failure. Thoracic CT scan revealed a voluminous cavitary lesion in the right parahilar region (44 × 42 mm), with thickened walls, fistulizing into the left main bronchus, extending cranially through the right thoracic operculum and contiguous with the mediastinum. Adjacent to this lesion, two other cavities of 42 × 28 mm and 12 × 10 mm were also identified. Serial sputum smears for acid-fast bacilli (AFB) were negative. Bronchoscopy revealed right vocal cord paresis, deformation of the tracheal trajectory, and destruction of the carina due to a large right-sided cavern with areas of necrosis. Bronchoalveolar lavage tested positive for *Aspergillus* spp DNA, while the rest of the investigations (AFB, mycobacteriology, bacteriology, and mycology; DNA for *Mycobacterium tuberculosis*, avium, intracellulare, and Nocardia) were negative. Cytology did not show evidence of atypical cells or suggestive changes of mycobacterial infection. Bronchial biopsy showed epithelial squamous metaplasia compatible with adenocarcinoma, associated with fragments showing necrotizing suppurative changes. Serum IgG for *Aspergillus* was > 80 U/mL. The patient was diagnosed with advanced adenocarcinoma with extensive destructive lung lesions, complicated by invasive aspergillosis. He started treatment with voriconazole 400 mg/day and was referred to Medical Oncology. However, his clinical course rapidly deteriorated, leading to death 21 days after diagnosis.
Discussion: In patients with lung cavitations, as seen in the context of neoplasms, the possibility of concomitant cavitary pulmonary aspergillosis should be considered. These clinical conditions can sometimes present with overlapping symptoms, such as cough (productive/hemoptoic), dyspnea, anorexia, and fatigue. Therefore, a high index of suspicion is essential in the evaluation and appropriate management of these patients to ensure timely and accurate diagnosis and treatment.

Keywords: *Adenocarcinoma. Aspergillosis. Cavitations. Bronchofibroscopy.*

PC 084. LUNG METASTASIS AND PROSTATE CANCER – AN UNUSUAL PRESENTATION

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Introduction: Pulmonary involvement by metastatic disease is common in multiple cancers, like colon and breast cancers. However, pulmonary metastasis from prostate cancer is less common and very rarely the diagnosis is made from the lung lesion. Differentiation between a primary lung cancer and secondary involvement is essential, as it implies different therapeutic strategies.
Case report: A 84-year-old male presented to the Emergency Department due to worsening condition of asthenia, cough with mucoid sputum, anorexia and weight loss of about 10 kg in the last 5 months. Chest CT scan documented multiple bilateral mediastinal and hilar lymphadenopathy at the thoracic level, hilar lesion with reduced caliber to the right of the upper and middle lobe bronchi associated with scattered micronodulation throughout the lung parenchyma with slight densification in ground glass and thickening of interlobular septa. He was referred to Outpatient Pulmonology and bronchofibroscopy was requested, which documented enlargement of spurs and scattered areas of mucosal infiltration on the right that were biopsied. In this time interval, the patient returned to the ER due to lower urinary symptoms and edema of the left lower limb, having been evaluated by Urology. An abdomino-pelvic CT scan showed a circumferentially thickened bladder wall, inseparable from the contours of the prostate and seminal vesicles, and lumboaortic and obturator lymph node enlargement, the largest on the left measuring 6 × 3 cm. Obtained anatomopathological result of bronchial biopsies compatible with metastatic prostate carcinoma, Gleason grade 10 (5+5). Case discussed in multidisciplinary meeting of thoracic tumors, having been proposed for chemotherapy.
Discussion: Pulmonary involvement by prostate cancer is uncommon and the cases in which the diagnosis is obtained through bronchial biopsies are rare. This case reinforces the importance of a holistic assessment of the patient and the integration of the various symptoms mentioned by the patient. The multidisciplinary discussion of these cases is essential to give the best guidance.

Keywords: *Metastasis. Lung. Prostate.*

PC 085. EWING'S SARCOMA OF THE PULMONARY VEIN: A RARE CASE.

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Introduction: Ewing's Sarcoma is a rare neuroectodermal tumor, which usually involves bone structures, being more frequent in children or young adults. Extraosseous Ewing's Sarcomas are even more uncommon, affecting the soft tissues of the chest wall, paravertebral region and gluteal muscles. Cases referring to Ewing's Sarcomas of the pulmonary vein are unheard of.
Case report: 23-year-old woman, with no known personal history, was admitted to the Gastroenterology Department due to Acute Pancreatitis. During the hospital stay, she developed headache associated with dizziness and change in vision complaints, having performed a cranioencephalic CT, which showed multiple expansive lesions. Given the possibility of brain metastases from an unknown primary tumor, thoracic-abdominal-pelvic CT was performed and it showed an extensive lobulated mass with gross calcifications in the right lower lobe, with involvement of the pulmonary vein, left auricle and right lower lobe bronchus, nodular areas suggestive of carcinomatous lymphangitis and juxtapleural nodular area in the ipsilateral lobe, adjacent to the vertebral body of T7. Bronchoscopy was performed, showing a clot at the level of the anterior segmental orifice of the right lower lobe bronchi. After aspiration of the clot, a bilobed swelling was visualised, which was biopsied. Transthoracic echocardiogram showed a mass of compact and of homogeneous consistency that entered the left atrium through the right superior pulmonary vein, which extended into its interior. Anatomopathological result of bronchial biopsies of undifferentiated small and round cell malignancy, and together with immunohistochemistry and the other data was in favor of Ewing's sarcoma of the right pulmonary vein, with intracardiac extension and lung and brain metastases.

Discussion: Although rare, Ewing's Sarcoma should be one of the differential diagnoses to be considered in chest masses, especially in young adults. Its differentiation from other lung tumors is difficult, since the symptoms and imaging are not specific, making it crucial to obtain biological samples from the tumor. Its diagnosis is based on immunohistochemistry, very suggestive in cases with histology with small and round cells.

Keywords: *Cancer. Sarcoma. Ewing. Lung.*

PC 086. SMALL CELL LUNG CANCER – A DIFFERENT CASE

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Introduction: SCLC is the most aggressive histological type of lung cancer and is strongly associated with smoking, being rare in non-smokers. Survival is low (< 10% at 5 years), even in limited disease.
Case report: Male, 79 years old, non-smoker, secondhand smoke exposure (SHS). History of hypertension, diabetes and hypocoagulated atrial fibrillation. Hospitalization in September/2020 due to COVID-pneumonia. Sent for consultation, asymptomatic, with excellent general condition. PET-CT showed a high metabolic-grade lesion on the right upper lobe (RUL). Bronchoscopy showed no lesions. Blind bronchial wash and brush (RUL) were compatible with small cell carcinoma (SCLC), which was confirmed by a transthoracic biopsy. Molecular study had insufficient DNA. Brain-MRI didn't show unequivocal metastasizing lesions. Therefore, a diagnosis of SCLC in stage IIIB (T3N2M0) was made. He underwent 5 cycles of chemotherapy with carboplatin and etoposide (ending in March/2021) and concomitant radiotherapy, with a 26% reduction in lesion size. It was decided not to perform prophylactic cranial irradiation due to the patient's age. In May/2022, there was evidence of local right parahilar recurrence on chest-CT; brain-MRI without evidence of metastasis. It was decided rechallenge a with carboplatin and etoposide, which was started in June/2022 (4 cycles). The chest-CT reassessment in September/2022 showed a stable disease and a similar brain-MRI result. Surveillance was maintained, and there was suspicion of local right parahilar recurrence in February/2023. PET-CT showed only local uptake and brain-MRI revealed no metastases. As this is a SCLC with atypical behaviour, a review of the initial biopsy slides was requested, which favoured neuroendocrine neoplasia, with scarce neoplastic representation and impossibility of performing Ki67, not allowing a safe discernment between atypical carcinoid and SCLC. For confirmation, a rebiopsy was performed by EBUS-radial (May/2023), confirming the diagnosis of SCLC. He was proposed for local RT, which was precluded because the maximal dose in the healthy lung was reached. A new rechallenge with carboplatin and etoposide was decided, and he is currently in the first cycle.
Discussion: We present a case of SCLC in a non-smoker, with a peripheral lung lesion and a survival of 2 years and 10 months, without metastasis. All these characteristics are atypical of SCLC, highlighting the importance of histological confirmation and multidisciplinary shared decisions, particularly in less typical cases such as the one presented. SHS and radon exposure are described as possible risk factors for SCLC in non-smokers. Survival in these patients is also poor overall, with a reported 2-year survival of ~17%. Some oncogenes and tumour suppressor genes have been implicated in the pathophysiology of SCLC, especially in non-smokers, and molecular characterization in this patient might have been important. The clinical characteristics and prognosis of patients with SCLC seem to differ between smokers and non-smokers. However, the data are scarce and contradictory, making it important to report sporadic cases in non-smokers, with a discussion of risk factors and survival, as in the case presented here.

Keywords: *Lung cancer. Small-cell lung cancer. Smoke. Survival.*

PC 087. LUNG CANCER: A RARE HISTOLOGICAL DIAGNOSIS

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Introduction: Lung cancer is the leading cause of cancer-related deaths worldwide, with an estimated 1.8 million deaths in 2020, making it the 4th leading cause of cancer in both sexes.
Case report: A 70-year-old Caucasian woman, autonomous, non-smoker. Pre-existing diagnoses: arterial hypertension and dyslipidemia, medicated with perindopril and pitavastatin; OSA under CPAP therapy. She presents with exertional dyspnea, wheezing, and rhinorrhea with a two-month evolution. Due to suspected asthma and rhinitis, she started therapy with inhaled fluticasone furoate/vilanterol, intranasal fluticasone furoate and bilastine, showing partial improvement of the symptoms. Initial studies revealed: hemoglobin 12.6 g/dL; normal thyroid function, D-Dimers and NT-proBNP; pulmonary function tests were unaltered; chest X-ray showed bilateral enlargement of the pulmonary hila; transthoracic echocardiography revealed slightly dilated left atrium and ventricle, ejection fraction 48%, PSAP 30 mmHg. She sought the Emergency Department due to worsened symptoms associated with left-sided pleuritic chest pain. Upon observation: arterial hypertension, normal heart rate, afebrile, eupneic, SpO2 93% (room air), decreased vesicular murmur in the lower third of the left hemithorax. Blood tests were normal. Chest CT revealed a left hilar lesion involving the bronchi, left postero-basal atelectatic consolidation with stenosis of the segmental bronchus, homolateral pleural effusion, areas of pleural thickening, multiple hilar and mediastinal adenopathies, and minimal posterior pericardial effusion. She was admitted to the Pulmonology Department for further investigation. Thoracic ultrasound and diagnostic thoracentesis were performed revealing: non-pure pleural effusion, adjacent lung atelectasis, and pleural thickening; 1,000 mL of serofibrinous fluid (exudate) was drained, and the cytological examination was negative for neoplastic cells. Fibrobronchoscopy showed decreased caliber of the left upper and lower bronchi due to widening of the spurs and mucosal edema with obliteration of the folds. Additional staging with thoracic, abdominal, and pelvic angio-CT revealed celiac and supraclavicular adenopathies. Microbiological and cytological examination of bronchoalveolar lavage was negative. Bronchial biopsies revealed bronchial infiltration by small B-cell non-Hodgkin's lymphoma (NHL), with morphological and immunohistochemical characteristics compatible with marginal zone B-cell lymphoma. After hospital discharge, she was referred to the Hematology Department. An osteomedullary biopsy showed no alterations. The diagnosis of marginal zone lymphoma of bronchus-associated lymphoid tissue (BALT) stage IVA was confirmed, and treatment with chlorambucil and rituximab was initiated. Talc pleurodesis was performed for symptomatic recurrent left pleural effusion with successful resolution.
Discussion: The mucosa-associated lymphoid tissue (MALT) lymphoma is a subtype of marginal zone B-cell NHL that occurs in 7-8% of cases. It most commonly affects the stomach (35%), ocular adnexa (13%), skin (9%), lung (9%), and salivary glands (8%). Primary pulmonary lymphomas are rare and account for 0.5-1% of primary lung neoplasms, with BALT lymphoma being the most common histological subtype (77-87%). Symptoms are typically nonspecific, such as dyspnea, cough and fatigue. It occurs in individuals over 60 years old and follows an indolent course with a favorable prognosis. First-line therapy for advanced disease is immunochemotherapy.

Keywords: *Lung cancer. Non-Hodgkin lymphoma. Malt lymphoma. Balt lymphoma.*

PC 088. NOT EVERYTHING IS AS IT SEEMS: CILIATED MUCONODULAR PAPILLARY TUMOR, A CAUSE OF PULMONARY MASS

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Introduction: Ciliated muconodular papillary tumor is a rare neoplasm characterized by papillary structures with ciliated, mucinous, and basal cells. It can occur in both smokers and non-smokers, typically affecting the lower lobes. Generally, it follows a benign course, requiring only partial surgical resection.
Case report: A 59-year-old man, former smoker (25 pack-years), was referred to the pulmonology consultation due to a two-year history of cough, dyspnea on moderate exertion, and severe fatigue. He also experienced recent self-limiting episodes of hemoptysis, anorexia, and weight loss. Chest computed tomography (CT) revealed a 45 mm consolidation in the right upper lobe (RUL) with increased 18FDG PET uptake (maximum SUV 2.5). There was no evidence of lymphadenopathy on CT or PET, and brain magnetic resonance imaging showed no space-occupying lesions. He underwent a transthoracic biopsy (TTB) guided by CT, and the pathology was consistent with lung adenocarcinoma (positive for CK7 and TTF1). Endobronchial ultrasound-guided bronchoscopy (EBUS) was performed, ruling out lymph node involvement, and staging the tumor as cT2b, N0, M0 (stage IIA), with PD-L1 expression at 0 to 1% and NGS showing no targetable therapeutic mutations. Following a multidisciplinary discussion, the patient underwent video-assisted thoracoscopic surgery with RUL lobectomy and lymph node dissection. The pathology confirmed a ciliated muconodular papillary tumor without lymph node involvement, and the review of the TTB specimen corroborated the surgical findings. The patient is currently under surveillance, having been reevaluated with a chest CT at three months, showing no signs of recurrence.
Discussion: Ciliated muconodular papillary tumor is often interpreted as a primary lung tumor due to its peripheral location, irregular borders, and potential slow growth. It is a rare tumor, which in itself poses challenges in identification. Certain morphological aspects, such as the formation of papillae and the presence of mucin-producing cells, may lead to confusion with an adenocarcinoma. However, the tumor highlighted in this case exhibits ciliated cells (indicative of benignity) and lacks nuclear atypia. Regardless of the surgical intervention, it has a low tendency to recur and does not metastasize. We present a case of a ciliated muconodular papillary tumor in the left upper lobe with evident diagnostic difficulty that was successfully treated with lobectomy.

***Keywords**: Ciliated muconodular papillary tumor. Transthoracic biopsy. Lung adenocarcinoma. Endobronchial Ultrasound-Guided Bronchoscopy. Video-Assisted Thoracoscopic Surgery. Lobectomy. Benign Tumor.*

PC 089. CANNONBALL METASTASES: A RARE PULMONARY PRESENTATION OF DIFFUSE LARGE B CELL LYMPHOMA

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Introduction: Diffuse large B cell lymphoma (DLBCL) is a type of non-Hodgkin lymphoma characterized by its aggressive presentation with extranodal involvement at diagnosis in about 40% of cases. Lung involvement is rare and a "cannonball" radiological pattern is an unusual form of initial presentation of DLBCL, with only a few cases previously reported.
Case report: A 78 years-old female, without any relevant medical background was admitted to the emergency department (ED) with a history of dry cough for the last year which has worsened on the previous three weeks. She also reported dyspnea to small efforts, vespertine fever with good response to antipyretic drugs and occasional hypersudation. An involuntary weight loss of ten kilograms in this time frame was reported and the patient had been already medicated with two cycles of empiric antibiotics in the last month, without improvement. On chest radiograph a "cannonball" pattern could be seen and the patient was admitted to the ward for investigation of probable neoplasic disease of unknown origin. An abdominal and pelvic computerized tomography scan was performed and cervical, axillar, hilar, mediastinal, mesenteric, retroperitoneal and peritoneal matted lymph nodes, low density hepatic and splenic nodules and several bilateral lung nodules as could be seen on initial chest radiograph. Positron emission tomography with fluorodeoxyglucose (PET-CT-FDG18) showed numerous lung nodules, right lung effusion and upper and lower diaphragmatic matted lymph nodes with hypermetabolic pattern. An excisional cervical lymph node biopsy was performed and a diagnosis of diffuse large B cell lymphoma, stage IV-B, was made. Chemotherapy was started with R-miniCHOP protocol and after the tenth day of treatment significant regression of lung lesions could be seen.
Discussion: Diffuse large B cell lymphoma is an aggressive type of non-Hodgkin's lymphoma, usually diagnosed already in advanced stages with extranodal involvement. Gastrointestinal involvement is the most common place of extranodal progression, but any other organ can be involved. Lung involvement is normally seen with ground-glass opacities or cavitated lesions, being a "cannonball" radiological pattern a much more atypical presentation of this haematological disease.

***Keywords**: Diffuse large B cell lymphoma. Pulmonary metastasis. Pulmonary nodules.*

PC 090. APPROACH TO HEPATIC METASTASIS FROM NEUROENDOCRINE LUNG TUMORS: WHAT ARE THE OPTIONS?

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Introduction: Neuroendocrine tumors are rare tumors with heterogeneous clinical presentation and prognosis. The liver is the most common site of metastasis. Hepatic metastasis of carcinoid tumors can lead to the development of carcinoid syndrome, as well as local complications such as biliary obstruction or hepatic insufficiency. There are various therapeutic strategies available based on the characteristics and extent of hepatic disease as well as the patient's clinical condition.
Case report: We present the case of a 90-year-old gentleman, immigrant, with an ECOG performance status of 2, non-smoker, and a history of cerebrovascular disease, dyslipidemia, and sleep apnea. He was diagnosed with a neuroendocrine lung tumor and underwent lung resection surgery in 1993. He experienced hepatic recurrence in 2012 and underwent subsequent surgical resection of the metastasis. Documented hepatic disease recurrence in 2019 led to the initiation of systemic therapy with octreotide. He returned to Portugal in 2022 and continued monthly octreotide treatment for diffuse hepatic metastasis, initially with stable imaging findings of the hepatic lesions. Since February 2023, he had multiple visits to the emergency department for symptoms of nausea, diarrhea, fever, dyspnea, wheezing, facial swelling, and generalized itching, prompting several courses of antibiotic and corticosteroid therapy. Analytically, he exhibited worsening cholestatic pattern and a sig-

nificant elevation in chromogranin A levels (1,218.8 ng/mL (0-100)). Concurrently, unfavorable imaging evolution of the hepatic lesions and a focus of peritoneal implant were documented. Given the probability of carcinoid syndrome secondary symptoms in the context of progressive hepatic oncological disease, an assessment of the feasibility of hepatic embolization by interventional radiology was requested. The patient underwent the first session of transarterial embolization in May 2023. Since then, he has experienced good symptomatic control, with no new episodes of fever or facial swelling. A decision was made not to proceed with another embolization session due to the patient's age, overall condition, and risk-benefit balance of the therapeutic strategy. He is currently maintained on octreotide treatment.
Discussion: This case underscores the fact that hepatic disease often determines the prognosis in patients with indolent neuroendocrine tumors. For patients who are eligible for resection of > 90% of metastases, without evidence of extrahepatic disease and with a performance status suitable for intervention, metastasectomy is considered first-line treatment, despite a high recurrence rate (50-95%), mainly within the first 3 years post-surgery. For patients who are not surgical candidates, targeted treatment options such as transarterial embolization, chemoembolization, or radioembolization exist, which can offer locoregional control and alleviate symptoms of carcinoid syndrome.

Keywords: *Neuroendocrine lung tumors. Carcinoid syndrome. Hepatic metastasis. Transarterial embolization.*

PC 091. PULMONARY TOXICITY TO OSIMERTINIB – A CLINICAL CASE REPORT

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Introduction: Osimertinib is an irreversible tyrosine kinase inhibitor (TKI) that targets the epidermal growth factor receptor (EGFR). It has an effect on the EGFR T790M mutation, which confers resistance to other TKIs. It is indicated for non-small cell lung cancer (NSCLC) as adjuvant treatment after complete tumor resection in stage IB to IIIA patients with exon 19 deletions or exon 21 substitution mutations of EGFR. It is also indicated as a first-line treatment for locally advanced or metastatic NSCLC with EGFR mutations (including T790M mutation). The ADAURA (adjuvant treatment for EGFR-mutated NSCLC with or without prior adjuvant chemotherapy), FLAURA (treatment of EGFR-mutated locally advanced or metastatic NSCLC without prior treatment), and AURA3 (treatment of locally advanced or metastatic NSCLC with T790M EGFR mutation progressing on or after EGFR TKI treatment) trials have demonstrated the efficacy and safety of osimertinib in these populations. Adverse reactions in the form of interstitial lung disease (ILD) were reported in 3.7% of patients in these studies, with a higher incidence observed in Japanese patients (10.4%) compared to non-Asians (2.8%).
Case report: We present the case of an 82-year-old Caucasian woman, non-smoker, with stage IVB (T4N3M1c) lung adenocarcinoma harboring a Leu858Arg mutation in EGFR exon 21. She was undergoing first-line treatment with osimertinib 80 mg/day. About 1 month after treatment initiation, she presented to our emergency department with severe dyspnea. Type 2 respiratory failure and a right pleural effusion with increased volume compared to the diagnosis date were identified, along with "extensive bilateral lung infiltrates, suggestive of either infectious/inflammatory lung disease or progression of potential carcinomatous lymphangitis." Osimertinib was discontinued, empirical antibiotic therapy was initiated, as well as non-invasive ventilation, and chest tube drainage of the pleural effusion was performed, resulting in progressive clinical improvement. Upon reintroduction of osimertinib, the patient experienced worsening dyspnea and respiratory failure, requiring increased oxygen supplementation. Due to suspicion of ILD induced by osimertinib, the drug was again discontinued, and corticosteroid therapy was initiated, leading to further clinical improvement.
Discussion: We present a representative case of a side effect of osimertinib – the development of ILD. According to initial trials, this adverse reaction typically occurs around 84 days after treatment initiation. However, some real-world studies suggest a median time to ILD development of 40 days, closer to the observed timeframe in this case. Furthermore, they also suggest that the incidence of ILD may not be as low as previously reported and could reach up to 18%, albeit with varying clinical severities. This case aims not only to illustrate this side effect but also to highlight its potentially higher incidence than previously assumed, emphasizing the importance of early identification. It's important to consider that the widespread use of this drug will likely lead to increased observation of similar cases in our clinical practice.

Keywords: *Non-small cell lung cancer. Lung adenocarcinoma. EGFR TKI. Osimertinib.*

PC 092. VOLUMINOUS MASS IN THE ANTERIOR MEDIASTINUM/LEFT HEMITHORAX – A CLINICAL CASE REPORT

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Introduction: Thoracic tumours can originate from various organs, and their diagnosis is not always straightforward due to the complex interplay of structures in this area. They can originate in the mediastinum with invasion of the adjacent lung or have a pulmonary origin with mediastinal invasion. While chest CT is essential for differentiation, the distinction is not always easy.
Case report: We present the case of a 49-year-old male with a history of resolved hepatitis C, hypertension, active smoking (with a smoking history of approximately 50 pack-years), and former illicit substance use (heroin). The patient presented to our emergency department with a 3-month history of progressively worsening chest pain, associated with a weight loss of 30 kg over the preceding 6 months and progressively worsening dyspnea. Chest CT revealed a voluminous, heterogeneous mass on the anterior aspect of the left hemithorax, measuring 12.3 × 12.4 cm, possibly originating from the anterior mediastinum and invading the left hemithorax. It was in contact with the thoracic aorta, invading the anterior and upper abdominal wall on the left, the left diaphragm, the upper pole of the spleen, with destruction of costal arcs, and compressing the heart and left pectoral muscles. The patient was admitted for further investigation and underwent 2 transthoracic biopsies. The second biopsy led to the diagnosis of a probable sarcomatoid carcinoma (of thymic vs. pulmonary origin). The patient was referred to the Respiratory Oncology clinic but was soon readmitted due to uncontrolled pain and ultimately passed away.
Discussion: Pulmonary sarcomatoid carcinoma (PSC) is a rare subtype of non-small cell lung cancer (NSCLC), accounting for 0.1-0.4% of these tumors. Its representation in the literature is primarily in case reports or small series. The 2021 World Health Organization

classification of lung tumors recognizes five subtypes of PSC: pleomorphic carcinoma (including giant cell carcinoma and spindle cell carcinoma subtypes), pulmonary blastoma, and carcinosarcoma. Histological diagnosis of this entity is challenging, especially in non-surgical samples. Recent advances in molecular studies have shown the origin of this tumor on the dedifferentiation of adenocarcinomas or squamous cell carcinomas, suggesting a potential role for immunotherapy or targeted therapies directed at mutations found in these tumors. However, there are no official recommendations regarding treatment, and the effectiveness of the TNM classification in these tumors is yet to be established. It is considered a highly aggressive tumor with poor prognosis and low survival rates due to its high invasiveness, recurrence, and chemo-radio-resistance. The median overall survival is 7-12 months, and 5-year overall survival rates are less than 25%.

Keywords: *Non-small cell lung cancer. Pulmonary sarcomatoid carcinoma.*

PC 093. PULMONARY CARCINOSARCOMA – A CLINICAL CASE

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Introduction: Lung sarcomatoid carcinoma (PSC) is a rare neoplasm, which contains a component with epithelial differentiation and another with mesenchymal differentiation. According to the World Health Organization classification, CSP includes 5 subtypes: Pleomorphic Carcinoma, Spindle Cell Carcinoma, Giant Cell Carcinoma, Pulmonary Blastoma and Carcinosarcoma (CS). Its pulmonary location is extremely rare, corresponding to 0.4% of all lung tumors.
Case report: Male, 73 years old, ex-smoker for 30 years (< 15 UMA), with no other relevant pathology. He went to a Pulmonology consultation due to weight loss (10 kg in one year), haemoptoic sputum and right chest pain for the last 6 months. On physical examination, there were decreased lung sounds in the right apex, with no other alterations. Chest CT: Extensive heterogeneous mass on right upper lobe, with contrast enhancement, suggestive of cavitated neoplasm. There is also apparent pleural infiltration. Centimeter and infracentimeter mediastinal adenopathies in the paratracheal region, intercavatracheal space, subcarinal and right hilum. Flexible bronchoscopy: Right upper lobe with infiltrated-looking mucosa, bronchial biopsies were performed. Reduction in the caliber of the anterior segment of the LSD, mucosa without alterations, distal bronchial biopsies were performed. Bronchial biopsies: inflammatory infiltrate of the chorion, no malignant cells. We performed endobronchial ultrasound (EBUS) including the use of a radial probe. Bronchial biopsies: bronchial mucosa infiltrated by neoplasm with glanduliform component (CK7+, TTF1-) and undifferentiated fusiform component (carcinossarcoma? Spindle cell carcinoma?); PD-L1 70%. Staging exams also revealed a single bone metastasis in the right iliac bone. After discussion in a multidisciplinary meeting, the hypothesis of pulmonary carcinosarcoma (T4N3M1) was done. The patient started therapy with pembrolizumab. He is awaiting a new thoracic CT to reevaluate response to therapy.
Discussion: Lung carcinosarcoma is a rare neoplasm, with a higher incidence in males and in smokers with high tobacco load. The initial histological diagnosis is difficult since both components in the sample need to be intercepted. It is an aggressive tumor with poor prognosis and poor response to chemotherapy. Tyrosine kinase inhibitors and specific immunotherapy have been used in individual cases with favourable response.

Keywords: *Lung sarcomatoid carcinoma. Lung carcinosarcoma. Immunotherapy. PD-L1.*

PC 094. IS SURGERY ALWAYS THE BEST OPTION?

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Introduction: Early-stage lung cancer is a challenge both in the form of presentation and in defining the best therapy. Treatment depends on factors such as the localisation of the lesions and the assessment of surgical eligibility. The latter option is currently considered standard treatment in stage I lung cancer. However, with the introduction of new ablative techniques, stereotactic radiotherapy (SBRT) has shown promising results in this field.
Case report: We present the case of a 71-year-old man, with a history of hypertension, dyslipidaemia, chronic obstructive pulmonary disease, smoker (50 MU), peripheral arterial disease and history of right-sided empyema in childhood, secondary to renal infection. In February 2021, he was referred to the pulmonology consultation due to the identification, on thoracic computed tomography scan (CT), of an irregular infracentimetric nodular image (6-7mm) in the anterior segment of the right upper lobe. After serial reassessments with CT, significant growth of the nodule (16 × 12 mm) was observed in September 2022. It also showed calcified mediastino-hilar adenomegaly, sequelae emphysematous and fibrotic parenchymal changes, and multiple calcified pleural plaques on the right side. Histological characterisation by transthoracic aspiration biopsy identified a squamous cell carcinoma (SCC) of the lung with PDL1 of 30%. Positron Emission Tomography-CT (PET-CT) staging showed hypermetabolism of the nodule, suggestive of malignancy, and mediastinal ganglionar (stations 4R and 7) and bilateral bronchohilar hypermetabolism, reflecting malignant or inflammatory aetiology. Due to the doubtful involvement of the pulmonary hilum, an echoendoscopy with transbronchial aspiration (EBUSTB-NA) was performed for mediastinal staging and was negative for neoplastic cells at stations 4L, 4R, 7, 10L, 10R. Cranioencephalic MRI did not identify secondary lesions. It was discussed in a multidisciplinary oncological pulmonology meeting, and as it was a stage I SCC, the therapeutic options to be evaluated were surgery or SBRT. A cardiorespiratory function assessment was conducted, with an echocardiogram showing no significant changes and a respiratory function test compatible with surgical resection up to lobectomy. The patient had a performance status of 0, and surgery was proposed. Proposed for right upper lobectomy with mediastinal lymph node dissection, he underwent a posterolateral thoracotomy that revealed pleuroparenchymal adhesions of the right lower lobe, diffuse increase in lung parenchymal thickness, without identification of the cissures. Dissection of the hilum was laborious due to exuberant calcified adenopathies involving the right upper lobe artery and bronchus. An attempt was made to construct a cissure, but mechanical sutures were not possible due to the anomalous consistency of the parenchyma. Manual sectioning of the parenchyma with electrocoagulation (monopolar electric knife) was performed, with manual raffia in 2/3 of the thickness and placement of mechanical loads in the remaining 1/3. The postoperative period was difficult because of space occupation by the remaining lung, but the patient was discharged without significant postoperative complications. Retrospectively, CT scans already described structural lung changes, which could have anticipated the difficulties within the surgery. Thus, although surgery was the standard treatment in this case, SBRT could have been an equally valid therapeutic approach with fewer risks for the patient.

Keywords: *Lung cancer. Squamous cell carcinoma. Stage i. Surgery. Stereotactic radiotherapy.*

PC 095. DISCERNING THROUGH THE FOG: POST-ACUTE SEQUELAE OF SARS-CoV-2 INFECTION OR SOMETHING MORE?

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Introduction: Getting a definitive diagnosis when dealing with respiratory diseases is challenging because of the inherent non-specificty of symptoms. Symptoms such as fatigue, cough and dyspnea are usually reported by patients with post-acute sequelae of SARS-CoV-2 infection or Long COVID, masking and delaying diagnosis of other diseases like lung cancer. Now, more than ever, clinical examination of every patient needs to account for the complexity and intrinsic mimicking of different respiratory diseases.
Case report: A 55 years-old, non-smoking, female, was admitted to the emergency department (ED) with dyspnea for small efforts (mMRC 3) and persistent dry cough after SARS-CoV-2 infection three months before. She also reported nocturnal paroxysmal dyspnea and pleuritic chest pain. No exposure or epidemiological risk factors were found. No other relevant medical history was found. The patient had a previous admission to the ED with the same symptoms, being diagnosed with Long COVID and discharged with bronchodilators for symptomatic control without improvement. On admission, she was afebrile, with tachypnea (RR: 28 bpm) and tachycardic (HR: 120 bpm), persistent dry cough and increased respiratory workload, SpO2 (FiO2 0.21): 92%. On lung auscultation, decreased respiratory sounds on the middle of the left hemitorax and bilateral wheezes. Arterial blood gas analysis with hypoxemic respiratory failure when adjust to age (FiO2 0.21; pO2 63.1 mmHg). Slight elevation of D-Dimers in blood work (523 ng/mL). On chest radiograph, left superior lobar atelectasis and multiple bilateral lung nodules. The patient was started on oxygen and intensified inhaler therapy, without improvement. A computerized tomography angiography of the chest (CTAChest) was done and it showed a lung nodule on the left upper lobe causing secondary atelectasis; bilateral multiple nodules with apical-caudal distribution and irregular thickening of interlobar septa compatible with lymphangitic carcinomatosis. The patient was admitted to the ward, videobronchoscopy was performed and a heterogeneous and friable lesion could be seen at LC1, causing obstruction of upper left lobe and lingula segments. Biopsies of this lesion were made and histopathological analysis was consistent with lung adenocarcinoma. Head CT revealed the presence of lesions compatible with metastasis (left temporo-occipital region, right frontal parietal region). A final diagnosis was made of PD-L1 negative, stage IVB lung adenocarcinoma, without actionable mutations for treatment. Follow-up was done in lung oncology consultation, where chemotherapy was started with carboplatin e pemetrexed, but after initial stabilization, the patient presented gradual deterioration of health, resulting on her death four months after diagnosis.
Discussion: The significant prevalence of patients with Long COVID brings more challenges to the diagnosis of other respiratory diseases inside this population. The nonspecific nature of signs and symptoms of most respiratory diseases demands an exhaustive investigation work to clarify the clinical riddle present in these cases. The masking of lung cancer diagnosis because of symptoms attributed to sequelae of COVID disease, as shown in this case, are an important advice and learning tool to everyone's clinical practice, where Long COVID should be a diagnosis of exclusion.

Keywords: *Post-acute sequelae of SARS-CoV-2. Long COVID. Lung adenocarcinoma.*

PC 096. FROM TUBERCULOUS SPONDYLOSDISCITIS TO LUNG ADENOCARCINOMA

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Introduction: New bone lesions in patients with no known history of neoplasia make the diagnosis of metastasis more complex. Knowing that metastatic bone lesions may present different imaging patterns independently of the primary tumor, the diagnosis may not be straightforward. The differential diagnosis between metastatic bone lesions and infectious changes such as spondylitis or spondylodiscitis arises mainly in situations where multifocal bone involvement is seen.
Case report: This was a 68-year-old, autonomous, healthy, non-smoking patient who was transferred to the Pulmonology Department from the Neurosurgery Department. The patient was referred from the Local Health Center to the Emergency Department due to CT of the cervical spine, following complaints of left cervicobrachialgia with about 3 weeks of evolution, showing voluminous confluent lytic lesions involving the vertebral bodies of C5, C6 and C7, with an exuberant soft tissue component, with endocanal and foraminal expression on the left, suggestive of lesions of a secondary metastatic nature. A pathological fracture due to partial collapse of D6 was also described. The patient had no other complaints such as dyspnea, fatigue or consumptive symptoms. A complementary study was carried out with CT of the body, highlighting countless pulmonary micronodularities scattered throughout the pulmonary lobes, also suggestive of secondary disease. A complementary study of the cervical lesions with MRI revealed aspects related to spondylodiscitis with osteomyelitis and somatic collapse, giving rise to the diagnostic hypothesis of tuberculous spondylodiscitis. She was started on empirical therapy with Isoniazid, Rifampicin, Ethambutol and Pyrazinamide and was evaluated by Neurosurgery and underwent C5-C6-C7 corpectomy with spinal decompression, and an infiltrative and destructive lesion of the vertebral bodies was observed intraoperatively with areas of caseous exudate, consistent with tuberculosis lesions. Due to lung lesions suggestive of malignancy, bronchofibroscopy and bronchial biopsies were performed. After cytology of bronchoalveolar lavage and bronchial secretions positive for neoplastic cells, favoring adenocarcinoma and concomitant negative results of the direct and PCR tests of the same lavage, bronchial secretions, bronchial and bone biopsy and intraoperative pus, suspicion of tuberculosis was raised and therapy with HRZE was suspended, after 9 days of treatment. Subsequently, the anatomopathological examination of the cervical bone biopsy describes bone tissue with infiltration by adenocarcinoma of glandular and papillary pattern, with positivity for CK 7, TTF 1 and negativity for CK 20, CDX2, PAX8, CA125, WT1, GATA3 and thyroglobulin. Suggestive of metastasis from adenocarcinoma of pulmonary origin. After completing the investigation and clarifying the diagnosis, she was discharged from hospital with adjustment of analgesic therapy and referred to the Pulmonary Oncology consultation.

Keywords: *Metastasis. Spondylodiscitis. Adenocarcinoma. Tuberculosis.*

PC 097. THORACIC HEMANGIOMA: A CASE REPORT

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Introduction: Hemangiomas are benign vascular lesions, most commonly found in the skin or liver. Their presence in the thoracic region, especially in the thoracic wall, is rare, with very few cases described in the literature. Most cases have been reported in young

patients, with variable clinical presentations and a favourable prognosis.
Case report: A 61-year-old female patient with no significant personal history (including no personal or family history of oncological pathology) and an active smoker (with an estimated tobacco load of 45 pack-years) underwent a chest computed tomography (CT) scan in the context of a smoking cessation attempt. The patient did not present any symptoms or abnormalities on physical examination. The chest CT scan showed the presence of centrilobular emphysema predominantly in the upper lobes and a nodular lesion with an apparent pleural base, approximately 3 cm in diameter, located at the transition between the upper and lower left lobes. There were no visible hilar or mediastinal lymph nodes or other significant findings on the examination. Following this, the patient was referred to the Oncological Pulmonology Consultation, where the study of this lesion was initiated, including pulmonary function testing and transthoracic fine-needle aspiration biopsy. Pulmonary function testing was within normal limits, and the anatomopathological examination of the biopsy showed the presence of a benign vascular lesion with fragments of striated muscle tissue consistent with thoracic wall tissue, with no representation of lung parenchyma - these findings were compatible with Thoracic Hemangioma. The case was discussed in the Oncology Group Meeting, and given the characteristics of the lesion, the patient was proposed for its excision by Thoracic Surgery and is currently awaiting surgery.
Discussion: Although rare, thoracic hemangiomas should be considered in the differential diagnosis of neoformative lesions in the thoracic region. Their preoperative diagnosis is challenging, given their rarity and the fact that clinical and radiological findings are nonspecific, making biopsy and histopathological examination essential. With this case, we aim to raise awareness about this pathology, which despite its rarity, should be taken into account in the differential diagnoses of thoracic neoformative lesions.

Keywords: *Neoplasm. Hemangioma. Thoracic hemangioma.*

PC 098. SMALL CELL CARCINOMA AND ADENOCARCINOMA OF THE LUNG – A RARE INAUGURAL COMBINED PRESENTATION

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Hospital Professor Doutor Fernando Fonseca.

Introduction: The combined different histological types of primary lung carcinoma is a rare diagnosis. It has an incidence of 0.26 to 1.33%, with squamous cell carcinoma being the most frequent combined histologic type and the association of small cell carcinoma with adenocarcinoma very rare.
Case report: Female patient, 66 years old, autonomous, non-smoker. She presented at the Emergency Department with dyspnea, productive cough, asthenia, anorexia and unquantified weight loss over 3 months. Chest radiography showed total hypotransparency on the right pulmonary field with contralateral mediastinal shift compatible with right pleural effusion. Diagnostic thoracentesis documented a pleural effusion with exudate characteristics with lymphocytic predominance (86.5%), whose cytology was positive for neoplastic cells. Immunohistochemical study identified BerEP4 and TTF1 expression compatible with primary lung adenocarcinoma and PD-L1 expression of 1%. Subsequently, thoracic computed tomography (CT) with intravenous contrast was performed, identifying: a 9 × 5 cm mass in the right pulmonary hilum, mediastinal adenomegaly, the largest right paratracheal of 40 mm without cleavage plane with the right pulmonary artery and superior vena cava involving the right lower lobar bronchus and conditioning pneumonia. The patient also had right supraclavicular adenomegaly of 30 mm, right pleural effusion and pericardial effusion. Cranioencephalic CT excluded signs of secondary disease. Bronchofibroscopy identified a tumor mass occluding the right upper lobar bronchus and intermediate bronchus whose biopsies were compatible with small cell carcinoma, with immunohistochemical profile positive for CAM5.2, TTF-1 and CD56, Ki67 80% and negative for CD45. An initial diagnosis of primary lung neoplasm with combined histologies of small cell lung carcinoma (SCLC) and adenocarcinoma (ADC) was assumed. After discussion in a multidisciplinary team meeting, a therapeutic approach was chosen with chemotherapy and first-line immunotherapy with cisplatin, etoposide and atezolizumab (to be started in the second cycle). The patient underwent one cycle of chemotherapy showing the typical response of a CPPC with significant reduction of the lesion and right lung expansion. However, during hospitalization, the patient developed nosocomial pneumonia and segmental thromboembolism of the left lower lobe and died despite the measures instituted.
Discussion: The present case demonstrates the inaugural combined diagnosis of small cell lung carcinoma and adenocarcinoma in a non-smoking patient, which is a rare presentation of lung cancer. This diagnosis is associated with a worse prognosis and an increased challenge in the choice of therapy. Despite the initial therapeutic response, the patient died of complications associated with the oncological disease and therapy.

Keywords: *Adenocarcinoma. Small cell carcinoma. Combined small cell carcinoma.*

PC 099. GALACTORRHEA AS THE FIRST MANIFESTATION OF LUNG ADENOCARCINOMA – A CASE REPORT

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Introduction: Lung cancer is the second most prevalent malignant neoplasm and the most lethal worldwide. The paraneoplastic syndrome is relatively rare, appearing more frequently associated with small cell lung cancer and adenocarcinoma histology. Little is known about its prognostic implications, namely, influence on the course of the disease or response to therapy, but it is known that it is not directly caused by the primary neoplasm itself or by its metastases, but rather by the immune-inflammatory, degenerative and vascular complex associated with them.
Case report: The authors present the case of a 52-year-old woman with a personal history of cholecystectomy in the past, non-smoker, without respiratory symptoms and who presented with a 2-month history of bilateral galactorrhea, amenorrhea, weight loss (7 kg - 15% of normal body weight) and asthenia. From the investigation carried out, normal FSH and serial prolactin levels where obtained, normal mammography, normal brain CT scan and chest CT scan revealing irregular condensation in the anterior segment of the upper lobe of the right lung, with a small calcification in its center, ground glass opacity area and bronchiectasis, involving the anterior segmental bronchus and emitting spicules that reached the anterior costal pleura. Fiberoptic bronchoscopy was performed and no endobronchial lesions were identified with cytological study of bronchial aspirate and complete cultural examinations all negative. Finally, PET-CT was performed, which showed an increase in metabolism in the anterior slope of the LSD (SUVmax 4) with approximately 3.6 cm of longest axis. In multidisciplinary meeting we have decided to propose a surgical approach (diagnostic and therapeutic) since it was a young patient who had imaging findings suggestive of lung adenocarcinoma in a location difficult to approach by less invasive methods. The patient underwent right upper lobectomy with mediastinal and hilar lymph node dissection with a histological result consistent with lung adenocarcinoma PD-L1 < 1% and EGFR positive (mutation L858R). Post-surgical staging was IB (pT2a N1 Mx)

so she also underwent adjuvant QT with Carboplatin + Pemetrexed for a total of 4 cycles. Currently, with 1.5 years of follow-up, she remains without evidence of local or metastatic disease, clinically asymptomatic and with normalization of the menstrual cycle and without galactorrhea.
Discussion: This clinical case shows an extremely rare presentation of lung cancer, galactorrhea and amenorrhea, demonstrating how the level of suspicion for this disease should be low, avoiding delays in diagnosis with a huge impact on the prognosis and evolution of this entity.

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

PC 100. THORACIC ENDOMETRIOSIS SYNDROME: THE CHALLENGE OF A CASE OF RECURRING CATAMENIAL PNEUMOTHORAX

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Introduction: Thoracic endometriosis syndrome (TES) consists of the presence of endometrial tissue in the airways, pleura or lung parenchyma. It is a rare clinical entity and is associated with the occurrence of catamenial pneumothorax (73%), hemothorax (14%), hemoptysis (7%) and pulmonary nodules (6%) in women of reproductive age, usually being associated with pelvic endometriosis (50-84%) and infertility.
Case report: A 42-year-old female, smoker (smoking load: 16 pack-years), with no previously known medical diagnoses, obstetric index 0000, presented the first episode of right-sided spontaneous pneumothorax in 07/2022, with the need for pleural drainage, followed by a second episode of right-sided spontaneous pneumothorax in 09/2022. She was submitted to thoracoscopic surgery, talc pleurodesis, parietal pleurectomy and segmentectomy, with no visible structural changes. The chest computed tomography (CT) from 07/2022 and 09/2022 presented right-sided pneumothorax, mild paraseptal emphysema in the right apex and a small amount of pleural fluid on the dependent region of the right hemithorax. The histopathological examination of the surgical resection specimen showed: lung parenchyma with emphysematous features and bullae, fibrotic areas with thickened-walls blood vessels and anthracotic pigmentation, thickened pleura with fibrosis, and no signs of specific inflammation or malignancy, which was consistent with subpleural bullous emphysema. Laboratory tests: normal serum level of alpha-1 antitrypsin (160 mg/dL) and normal immunoglobulins, with no relevant changes. The patient presented recurring right-sided pneumothoraces in 09/2022 and 01/2023, after the pleurectomy, and a temporal relationship between the pneumothoraces and menstruation was detected, supporting the hypothesis of catamenial pneumothoraces, although there were no signs of pleural or diaphragmatic endometrial lesions or defects at the time of the thoracoscopic surgery. She started complaining of abdominal pain and right-sided chest and shoulder pain worsening shortly afterward the menstrual phase. She performed an abdominal-pelvic magnetic resonance (MRI) (11/2022) depicting: right-sided diaphragmatic defects with herniary expressions, consistent with endometrial lesions; thickening of the uterine torus and sacrouterine ligaments, especially on the right side, consistent with deep pelvic endometriosis; focal adenomyosis on the right fundic region of the uterus; and a small angiomyolipoma in the left kidney. The patient was referred to Obstetrics/Gynecology and she was medicated with combined hormonal contraceptives (dienogest 2 mg + ethinylestradiol 0.03 mg), which she is currently taking continuously.
Discussion: In this case, the clinical presentation of thoracic endometriosis, with recurring catamenial pneumothoraces, preceded the clinical expression of pelvic endometriosis. It is also of note the absence of signs of pleural or diaphragmatic endometrial lesions at the time of the thoracoscopic surgery, which were only identified in the subsequent abdominal-pelvic MRI. Due to its nonspecific signs and symptoms, the diagnosis of TES is complex and often delayed. Clinically, TES associates with thoracic pain, dyspnea, cough, hemoptysis and shoulder pain, occurring in women of reproductive age in the menstrual phase. The initial treatment consists of medical therapy, with hormonal treatment to suppress ovarian estrogen secretion. When medical treatment fails, surgical treatment is suggested and includes chemical pleurodesis, removal of ectopic endometrial tissue (through wedge resection or limited segmentectomy), closing diaphragmatic defects, abrading of pleural surfaces, and pleurectomy.

Keywords: *Thoracic endometriosis syndrome. Catamenial pneumothorax. Thoracoscopic surgery. Pleurectomy.*

PC 101. AN UNLIKELY PLEURAL INCIDENTALOMA

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Introduction: Breast cancer has a higher recurrence rate in the first year, most occurring in the first 3 years after surgery, being particularly rare after 20 years of radical mastectomy.
Case report: 68-year-old woman, former smoker of 15 packs/year, with a history of bilateral invasive ductal carcinoma of the breast diagnosed in 2003, for which she underwent bilateral radical mastectomy, chemotherapy, radiotherapy, and hormone therapy (until 2008). No previous history of occupational exposure. She went to the emergency department, referred by her family doctor, after electively had a chest X-ray performed, which showed hypotransparency in the entire left lung field. No complaints valued by the patient. On admission, SpO2 97% (FiO2 - 21%), highlighting only semiology of left pleural effusion. The analytical and gasometric evaluation showed no changes. Chest CT confirmed the presence of a large left pleural effusion with pleural thickening with a nodular appearance (7-8 mm thick), nodular densification of the mediastinal pleura with a more nodular area (20 × 15 mm) in the anterior mediastinum on the right with atelectasis on the left lower lobe and lower segment of the lingula. In this context, she underwent thoracocentesis with output of 1,150 ml of serofibrinous fluid, compatible with exudate. The anatomopathological result of the pleural fluid was negative for the presence of neoplastic cells. Due to pleural thickening, the patient was proposed for pleural biopsy, having performed, due to greater accessibility and ease of performance, blind pleural biopsies, which proved to be insufficient for diagnosis. In this context, she performed a CT-guided pleural biopsy, which confirmed the presence of cells with nuclear pleomorphism, and with staining in the immunohistochemical study compatible with breast carcinoma metastasis. The patient was referred to a Medical Oncology consultation, with confirmation of breast cancer recurrence, having initiated targeted medical treatment with chemotherapy.
Discussion: Surveillance of cancer recurrence by chest imaging is not recommended in asymptomatic patients after curative treatment of breast cancer. This case depicts an incidental diagnosis of pleural recurrence of breast cancer, uncommon after 20 years post-mastectomy, which was diagnosed incidentally after elective chest X-ray. CT-guided pleural biopsy is a minimally invasive, fast and a cost-effective diagnostic technique compared to thoracoscopy, with a higher diagnostic rate than blind pleural biopsies, having been essential in this case for the diagnostic identification of recurrence and timely therapy.

Keywords: *Incidental diagnosis. Metastases. Ct-guided pleural biopsy.*

PC 102. PLEURAL INVOLVEMENT BY MAST CELL LEUKEMIA: RARE CASE CONFIRMED BY THORACOSCOPY

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Introduction: Mast cell leukemia is a rare and aggressive form of myeloproliferative syndrome that is characterized by aberrant mast cell proliferation and represents less than 1% of all mastocytosis. The diagnosis implies leukemic infiltration of the bone marrow with the presence of > 20% atypical mast cells in the bone marrow. Its clinical manifestation is variable, according to the organs involved, often the liver, GI tract, spleen and peritoneum.
Case report: We present the case of a 65-year-old man with a recent diagnosis of mast cell leukemia, supported by a bone marrow biopsy that revealed the presence of fusiform mast cells with CD25 expression that represented 20% of cellularity. He went to the emergency room due to progressive subacute dyspnea with radiographic and ultrasound confirmation of a large left pleural effusion, not septate. He had undergone a successful pleural evacuation a week before, whose liquid had characteristics of lymphocytic exudate, with a protein ratio of 0.76, an LDH ratio of 1.1 and a cellularity of 1,020 cells/uL with a lymphocyte predominance of 86%. Immunophenotyping of pleural fluid was not enlightening regarding the etiology, although it detected 0.06% of mast cells, with aberrant expression of CD25. The case was discussed and proposed for thoracoscopy, in which some areas of parietal pleural thickening were observed with a gray/dark color, without nodules per se and an extensive pleuro-pulmonary adhesion that it was not possible to release. Histology of pleural forceps biopsies identified aberrant mast cell proliferation and aggregates with granular cytoplasm. He underwent pleurodesis with talc, without recurrence of the effusion so far (2 months).
Discussion: Pleural involvement by mast cell leukemia is rare, with very rare cases described in the literature. Bearing in mind that immunophenotyping in pleural fluid may not fully clarify this type of situation, pleuroscopy should be considered. An early approach to pleural effusion in this disease with a poor prognosis may lead to some gain in the quality of life of these patients.

Keywords: *Pleural effusion. Mast cell leukemia. Mastocytosis.*

PC 103. PARANEOPLASIC NEUROLOGICAL SYNDROME CAUSED BY ANTI-MA2 ANTIBODY AND EPITHELIOID MESOTHELIOMA – REPORT OF A RARE CLINICAL CASE

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Hospital de Braga.

Introduction: Paraneoplastic syndromes are signs or symptoms that are caused by lesions in regions beyond the primary tumor or metastases and may afflict different organs and systems. In paraneoplastic neurological syndromes (PNS), the symptoms are usually caused by an immune-mediated lesion due to the presence of antibodies against neural antigens expressed by the tumor. The most common clinical manifestations include limbic encephalitis and cerebellar and brainstem syndromes. The neurological symptoms often precede the oncological diagnosis, and the PNS are rarely associated with malignant mesothelioma.
Case report: A 66-year-old woman, non-smoker, who worked in the textile industry and had a history of intervened bilateral carpal tunnel syndrome and left hypoacusis, presented to the ER in October 2022 with a 2-week history of imbalance, feeling like she walked with her feet wide apart, paresthesia, loss of muscle strength, dysarthria and dysphagia. She also reported a 5month history of self-limited episodes of dizziness for which she was prescribed betahistine, with no significant improvement. She also reported a loss of 10 kg during this period. On neurological examination, there was mild dysarthria, grade 4 tetraparesis, dysmetria on the finger-to-nose and heel-to-knee tests and wide based gait. The initial blood tests and cranial CT were normal. The cranial MRI identified a schwannoma of the VIII left cranial nerve that shaped the adjacent cerebellar parenchyma, which Neurosurgery considered to not justify the clinical manifestations. The anti-neuronal antibody study was positive for anti-Ma2(Ta), and further thoracic, abdominal and pelvic CT showed lobulated thickening of the left pleura, associated with moderate pleural effusion, which has suggestive of a neoformative process. Considering the most probable diagnosis of PNS, she completed 5 days of intravenous immunoglobulin, with no improvement. She was referred to a Pulmonology consultation to study the suspicious pleural lesion. After two inconclusive blind pleural biopsies, she underwent medical thoracoscopy, which allowed visualization of nodular lesions distributed by the anterior, posterior and diaphragmatic costal pleura. Histopathological results of pleural biopsies were compatible with epithelioid mesothelioma, with expression of CK7, calretinin and podoplanin and loss of expression of BAP1. The disease was staged as cT2NxM0 and, because there were no surgical conditions, she was proposed for first-line palliative treatment with carboplatin and pemetrexed, which she completed for three cycles. Due to disease progression, according to RECIST criteria, she switched to second-line treatment with nivolumab. Despite the treatments, the neurological symptoms progressively worsened, and other causes for these symptoms were excluded. Treatment was discontinued after the second cycle due to evolution to ECOG of 4. Currently she is under supportive treatment with the help of the palliative care team.
Discussion: Anti-Ma2 antibodies are associated with testicular, pulmonary and breast tumors, and cases associated with malignant mesothelioma are very rare. These autoantibodies are associated with poor prognosis because of the poor clinical response to currently available treatment options. Treatment of the underlying neoplasm is the most effective alternative in most cases, which highlights the importance of recognizing this entity.

Keywords: *Epithelioid mesothelioma. Paraneoplastic syndrome. Anti-Ma2 antibody.*

PC 104. WHEN A PNEUMOTHORAX DOESN'T COMES ALONE: A CASE SERIES

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Introduction: Endometriosis is defined by the presence of endometrial glands outside the uterine cavity. Thoracic involvement is the most frequent extra-pelvic location. Its pathogenesis is explained by Sampson's theory: retrograde movement of menstrual endometrium through the fallopian tube, which migrates through diaphragmatic defects, leading to self-transplantation of tissue/cells into the thoracic cavity. Metastatic dissemination of endometrial tissue via the venous or lymphatic system to the lungs is another proposed mechanism.
Case reports: The patient is a 32-year-old woman with a history of Chron's disease, SAPHO syndrome and ectopic pregnancy with left salpingectomy on 07/2022. On 09/2022, she went to the emergency

department (ER) for right thoracalgia, compatible with pneumothorax and underwent chest drainage (TD). She had an ipsilateral recurrence in 03/2023, with a new DT placement. Imaging in November showed "millimetric parenchymal bubbles" in the right lung apex. While awaiting surgical intervention, she had a 3rd recurrence of ipsilateral pneumothorax, also requiring DT. She subsequently underwent right exploratory videoassisted thoracoscopy, with apical wedge resection of the right upper lobe due to a sequelae area with a bullous aspect, pleurectomy and splinting. Several diaphragmatic fenestrations were observed. Anatomopathologically, "irregular emphysema with bubbles and inflammatory infiltrate" was identified. The second case depicts a 25-year-old woman, smoker, with a history of several visits to the ER for menometrorrhagia and dysmenorrhea. On 8/7/2020 she was seen in the ER for left thoracalgia, compatible with a small apical pneumothorax chamber on radiography, without indication for chest drainage (TD), having resolved spontaneously. Imaging showed "slight biapical emphysema and fibrotic, retractable, symmetrical changes". 20 days later, she came to the ER for the same reason, with pneumothorax on the left, which also resolved spontaneously. She was surgically approached with atypical lung resection of LSE bullae and mechanical pleurodesis by VATS, with no intraoperative findings suggestive of thoracic endometriosis. Pathologic evaluation showed nonspecific fibrotic changes. About 10 days after the intervention, she had a recurrence of ipsilateral pneumothorax, with imaging evidence of "apical emphysematous changes". None of the cases had alpha 1 antitrypsin deficiency. Retrospectively, the anamnesis allowed a temporal relationship to be established between the cases of pneumothorax and the menstrual phase of the patients. The diagnosis of thoracic endometriosis syndrome was thus assumed, due to the presence of clinical manifestations of thoracic involvement (recurrent catamenial pneumothorax), but without histological confirmation. Both women started contraceptives and have remained without recurrence to date.
Discussion: The management of patients with thoracic endometriosis should be multidisciplinary: pulmonologists, thoracic surgeons, gynecologists. This includes treatment of its form of presentation, followed by secondary prevention of recurrence with surgery: segmentectomy, blebectomy, resection of endometrial implants, diaphragmatic repair, pleurodesis, embolization. Hormonal suppression is also essential to treat the underlying cause. Gonadotropin-releasing hormone (GnRH) analogs are usually chosen and should be maintained for 6-12 months. Because they act by temporarily inducing menopause, the temporary inability to become pregnant and the risk of osteoporosis should be considered. During follow-up, possible recurrences, residual disease and adverse effects should be thoroughly assessed.

Keywords: *Thoracic endometriose. Recurrent pneumothorax. Catamenial pneumothorax.*

PC 105. PLEURODESIS – TEN-YEAR EXPERIENCE

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Introduction: Talc pleurodesis via slurry is a common and effective invasive procedure used for management of recurrent pleural effusion (PE) or selected cases of pneumothorax, representing an important treatment option in patients with recurrent malignant PE.
Objectives: Analysis of all talc pleurodesis via slurry scheduled over ten years in a Peripheral Hospital in Portugal. The main goal is to describe the indications, median time of chest tube, complications inherent to the procedure.
Methods: Retrospective study using hospital records (Glintt®) for patients scheduled for talc slurry pleurodesis via chest tube between 2012 and 2022. The following parameters were evaluated: sex, age, smoking history, occupational exposure, time to discharge, elective admission, diagnosis, indication for procedure, laterality, pleural fluid (PF) characteristics, pathology diagnosis product, pleural catheter duration, efficacy of the procedure, complications and mortality.
Results: Of the 72 patients scheduled for pleurodesis, 54% were women, median age 67.72 ± 14 years, the majority never-smokers (59.72%) with no occupational exposure (87.5%). In the total of 67 pleurodesis via slurry, 63 (87.5%) were due to malignant recurrent pleural effusion (lung cancer in 33.33%, breast cancer in 19.44%) and 4 cases (5.56%) of pneumothorax; 56 exudates according to Light's criteria (pleurodesis was scheduled in only 2 patients with recurrent transudate PE, both with hepatic cirrhosis), 88.89% sterile; pathology diagnosis was established by pleural fluid cytology half of the patients. The median pleural drainage time was 10.5 days, 2.67 days after the procedure. Three-month efficiency of pleurodesis was 73.01% of malignant PE and 75% of pneumothorax, with recurrence rate 26.39% (n = 19, 16 patients with malignant PE and 3 patients with pneumothorax, multiple myeloma and hepatic cirrhosis, respectively), most commonly within 3 months. No mortality was directly associated with the procedure, however, 30-day mortality rate was 31.94%.
Conclusions: The data collected indicate that pleurodesis is a rather uncommon procedure in our center, carried out mainly in severely-ill, symptomatic patients with recurrent malignant pleural effusion. We highlight, in this population, the importance of a Multidisciplinary decision, as well as articulation between Pulmonology and other Medical and Surgical Specialties.

Keywords: *Pleura. Pleural effusion. Pleurodesis. Pleural techniques.*

PC 106. AN ISOCALOTHORAX CLINICAL CASE (ENTERIC FEEDING HYDROPNEUMOTHORAX)

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Introduction: Nutrition is a very important factor in critical patient care. Enteral feeding is preferred over parenteral feeding. In order to achieve enteral feeding, sometimes the placement of a nasogastric tube is need. Even though it's a routinely used technique, it is not without risks, with na estimated adverse event rate of 0.3-8%, and a mortality rate of about 0.3%. The most common tracheopulmonary complication, which corresponds to 60% of adverse events is the pneumothorax.
Case report: We present the case of an 85-year-old man, dependent in activities of daily living, and clinical history of dementia with behavior changes, amnestic deficit, and liquid consistency dysphagia. He had regular follow up with palliative care for a right leg chronic ulcer due to obstructive peripheral artery disease, for which he refused amputation. He was admitted to the hospital for dyspnea and acute respiratory failure and a diagnosis of COVID-19 pneumonia with secondary bacterial infection was made. He was admitted under oxygen supplementation and antibiotic therapy. Due to prostration, there was need for nasogastric tube placement for feeding and medication. In the subsequent hours, worsening of respiratory failure was observed, with escalation of oxygen therapy from 3 liters/min through nasal cannula to venturi mask with FiO2 60% over 24 hours and enteral feeding intolerance, with an apparent gastric stasis of about 1,000 ml over 24 hours. Give this clinical decline, he repeated thorax X-ray which showed hydropneumothorax with nasogastric tube in an atypical position, headed towards the right lung. After a chest drain was inserted, air and enteral feeding solution was aspirated. A CT scan was ordered. CT showed right hydro-

pneumothorax, the chest drain in situ and peri-esophageal fat densification with gas in the adjacent pleura, suggestive of esophageal perforation with esophago-pleural fistula. The case was discussed with thoracic surgery, and it was considered in the team discussion that there was no indication for any other clinical measures. The patient had an unfavorable evolution and comfort was privileged.
Discussion: With this case, we aim to alert to the iatrogenic risk of a very common procedure, which is used every day and often with an underappreciated risk. The patients at higher risk for adverse events are also those in which the placement of a nasogastric tube is often most needed: elderly patients or those with altered state of consciousness. It is, therefore, in these patients in which the placement of these devices should be most careful and those in which we should be more alert in order to detect complications sooner.

Keywords: *Nasogastric tube. Iatrogenic risk. Nutrition.*

PC 107. PLEURAL EFFUSION AS A RARE PRESENTATION OF A SYSTEMIC DISEASE: CASE REPORT

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Introduction: Whipple's disease is a rare infectious disease caused by the Gram-positive bacterium *Tropheryma whipplei*. It is more frequent in middle-aged Caucasian men. The clinical spectrum is variable, but it is classically characterized by multisystem involvement, with joint and gastrointestinal symptoms. Pleuropulmonary involvement is rare. When timely diagnosed and treated the prognosis is good, with significant symptomatic improvement. We present a case report of Whipple's disease presenting with pleural effusion.
Case report: 48 year-old male patient, born in Romania, construction worker. Smoking history of 80 pack-years and an alcohol intake of 70 g/day. He had no known medical history, regular medication use or recent travels. He presented to the emergency room with anorexia, a 10 kg weight loss and dyspnea on exertion for the last three months. On examination he had diminished breath sounds in the lower two-thirds of both hemithoraces. Blood tests showed normocytic and normochromic anemia (Hb 9.2 g/L), mild elevation of inflammatory markers (CPR 5.2 mg/dL and ESR 91 mm), and positive ANA 1/160. Chest Xray revealed extensive bilateral pleural effusion. The full-body CT scan showed multiple mesenteric lymphadenopathies, with no other relevant findings. Thoracentesis was performed, draining 1,800 mL of serohematic fluid compatible with an exudate with a monocyte predominance. Microbiological examination, including PCR for *Mycobacterium tuberculosis*, was negative, and the histopathological analysis showed no neoplastic cells. To investigate occult neoplasia, upper gastrointestinal endoscopy and colonoscopy were conducted, revealing esophagitis and erosive gastritis. Gastric and duodenal biopsies showed active chronic duodenitis with bacilli colonies in the cytoplasm of macrophages, positive for periodic acid-Schiff staining. PCR testing identified *Tropheryma whipplei* DNA, leading to the diagnosis of Whipple's disease. The patient was started on a two-week course of ceftriaxone followed by one year of cotrimoxazole 960 mg twice daily, resulting in the complete resolution of symptoms and pleural effusion.
Discussion: Whipple's disease is an extremely rare cause of pleural effusion, with very few reported cases. Although PCR for *Tropheryma whipplei* DNA in pleural fluid was not performed, the rapid resolution of the effusion with targeted antibiotic therapy strongly suggests its etiology. The authors suggest considering this etiology in the differential diagnosis of pleural effusion, especially in male patients with concurrent constitutional, joint, and gastrointestinal symptoms.

Keywords: *Pleural effusion. Whipple's disease.*

PC 108. REFRACTORY POST-PERICARDIOTOMY SYNDROME – A PECULIAR CAUSE FOR PLEURAL EFFUSION

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Introduction: Post-pericardiotomy syndrome is a form of pleuropericardial injury that occurs after cardiac surgery. The underlying ethiopathogenic mechanisms are not fully understood, but it seems to be precipitated by an initial trauma to the mesothelial cells of the pericardium or pleura, such as cardiac surgery, which triggers the release of antigens and stimulates an immune response with deposition of immune complexes in the pericardium, pleura and lungs. There is usually a good response to anti-inflammatory therapy.
Case report: A 70-year-old male patient with previous history of arterial hypertension and peripheral arterial disease presents with presented to the emergency room with sharp chest pain and was diagnosed with type A aortic dissection, being later submitted to cardiac surgery with implantation of a tubular prosthesis in the aorta with immediate postoperative period without major intercurrences. Four weeks after the intervention, he presented with fever and pleuritic chest pain, with no other associated symptoms, namely cough, expectoration, or dyspnea. Laboratory tests showed a significant increase in inflammatory parameters, without an increase in troponin or NT-proBNP. On the electrocardiogram, there were no alterations suggestive of acute coronary syndrome or acute pericarditis. Mechanical complications of the surgery were excluded by thoracic angio-CT, identifying the presence of pericardial effusion and left massive pleural effusion, which led to the performance of thoracentesis with drainage of 1,500 mL of serofibrinous fluid. The cytochemical examination was suggestive of exudate according to Light's criteria with a predominance of mononuclear cells. A complementary assessment was carried out, which excluded infectious complications, and neoplastic or rheumatological/vasculitic processes. Therefore, based on the clinical situation described appearing 4 weeks after cardiac intervention, the most likely diagnosis was post-pericardiotomy syndrome, which led to treatment with a course of anti-inflammatory drugs (ibuprofen and colchicine) with clear improvement and subsequent hospital discharge. About a week later, still under anti-inflammatory therapy, the patient returned to the emergency room with a recrudescence of the clinical picture. The diagnosis of refractory post-pericardiotomy syndrome was assumed and steroid therapy with prednisolone was started as a 2nd line treatment option, with total resolution of the symptoms and abrupt decline in inflammatory markers and resolution of effusion on subsequent outpatient reassessment.
Discussion: Classically considered rare, the prevalence of post-pericardiotomy syndrome is uncertain with disparate incidence descriptions depending on the surgical intervention. Although it has a low mortality, with rare cases in which it evolves to cardiac tamponade, it is associated with significant morbidity with an impact on the use of health care, length of hospital stay and associated costs. The present case illustrates the need to consider this etiology in the differential diagnosis of pleural effusion in patients who have recently undergone cardiac surgery. Also noteworthy is the fact that anti-inflammatory therapy may prove insufficient, requiring steroid therapy to achieve resolution of the clinical picture, due to the inherent autoimmune component.

Keywords: *Post-pericardiotomy syndrome. Pleural effusion. Thoracocentesis.*

PC 109. INFECTIOUS PLEURAL EFFUSIONS: CHARACTERIZATION AND CLINICAL APPROACH

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Hospital de Braga.

Introduction: Infectious pleural effusions are one of the leading causes admission to the Pulmonology department.
Methods and objectives: Aiming to characterize this pathology clinical approach we analyzed the processes of the patient admitted for pleural effusion and empyema, throughout a period of 2 years. After a manual revision of the processes, all the empyema and complicated infectious pleural effusion were selected.
Results: A valid sample of 41 inpatients with complicated infectious pleural effusion (n = 18; 44%) and empyema (n = 23; 56%) was obtained. Additional data regarding patient characterization, pleural fluid, and microbiological results were analyzed, highlighting that pleural effusion in oncology patients occurred after thoracic surgery and a predominance of neutrophils in all pleural fluid samples where differential cell count was possible. About one-fourth of the patients (n = 10) needed more than one chest drain for the following reasons: unintentional exteriorization (n = 3, 30%), obstruction (n = 5, 50%), and recurrence/aggravation of the effusion (n = 2, 20%). In 10% of the patients, intrapleural fibrinolysis was performed using alteplase (the only drug available in the hospital). The patients remained hospitalized for an average of 21 days, with 17 days of antibiotic therapy, completing the remaining antibiotic treatment at home (totaling 21 days). The preferred empirical antibiotic therapy was piperacillin/tazobactam (n = 12; 29%), followed by ceftriaxone in combination with clindamycin (n = 11; 27%). In 13 patients (32%), it was necessary to escalate antibiotic therapy due to clinical worsening/lack of response to empirical treatment, but it was possible to de-escalate after microbiological isolation in 7 patients (17%). Three deaths were verified, with a mortality rate of 7.3%. The infectious pleural effusions present themselves as a major clinical challenge, frequently ending in prolonged hospitalization periods and the need of multiple chest tubes. The results reveal that the risk factors, demographic characteristics and patients' clinical presentation are in accordance with the published bibliography. The microbiological isolation were also as expected, allowing a proper choice of antibiotics, accordingly to the recommendations. An average of 32% of the patients needed some adjustment in antibiotic therapy, either due to worsening or lack of response to the empirical therapy, which highlights the importance of a close clinical approach to guarantee an appropriate and effective therapy.
Conclusions: The observed inpatients' mortality rate aligns with previous reports, but also emphasizes the continuous need to optimize care and therapeutics to reduce complications and improve these pathologies' prognosis.

***Keywords**: Infectious pleural effusions. Clinical approach.*

PC 110. BIRT-HOGG-DUBÉ SYNDROME: 2 CLINICAL CASES REVEALED BY SPONTANEOUS PNEUMOTHORACES AND... BY THE FACE

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Introduction: Birt-Hogg-Dubé (BHD) syndrome is a rare autosomal dominant genodermatosis caused by a mutation on the gene that codes folliculin (FLCN). BHD manifests as cutaneous fibrofolliculomas, renal tumors, pulmonary cysts, and recurrent spontaneous pneumothorax. Diagnosis confirmation is made by genetic testing. Herein, we report 2 cases of BHD.
Case report: 46 year-old woman, ex-smoker, that was on follow by a Pneumology doctor for lung cysts detected on Thoracic CT scan, mostly on lung basis, and history of recurrent pneumothoraces (4); the first at 29 years of age. She reported dry cough, mainly during sports practice. She was submitted to 2 surgical pleurodesis with bullectomy at 39 and 46 years old. Histology of resected bullae revealed empty cavitated lesions covered with simple squamous epithelium with no inflammatory features, therefore excluding pulmonary lymphangioleiomyomatosis and lymphocytic interstitial pneumonia. Family history was significant for a son who had a spontaneous pneumomediastinum. Physical examination revealed 2 cutaneous lesions on the face compatible with fibrofoliculomas and no other alterations. Autoimmunity studies were negative as well as HIV infection screening. Lung function studies were within normal and there were no lesions on renal CT scan. Genetic studies detected an heterozygous missense variant c.50G>C (p.Arg17Pro) on FLCN gene, reported on the literature as associated with BHD. Currently, the patient is on imaging surveillance and her son was referred for pneumology evaluation and genetic counseling. 59 year-old man with a 25 pack-year smoking history, who was admitted to the hospital for primary spontaneous pneumothorax. His medical history was significant for dyslipidemia, chronic gastritis, alcohol abuse and cirrhosis. He had no known previous respiratory illness and no relevant family history. Physical exam was notorious for extensive facial fibrofolliculomas on the malar, nasogenian and nasal regions. Thoracic CT scan showed centrilobular, parasseptal and bullous emphysema – lung bullae with 60 mm of major diameter. A chest tube was placed with complete resolution of pneumothorax. The patient was referred for VATS surgical pleurodesis. Anatomopathological studies reveled collagenous pleuritis and bullous emphysema. The genetic analysis identified variant c.573_574delinsT p.(Lys192Argfs*31) on FLCN gene. Although this variant is not yet report on ClinVar database, it originates a stop codon which results in a truncated protein that should be considered pathogenic. Patient was referred for genetic counseling. Renal echography showed no lesions.
Discussion: We only diagnose what we know: clinical evidence of fibrofolliculomas and recurrent pneumothorax should raise suspicion of BHD. This diagnosis allows appropriate genetic counselling and careful imaging follow-up for on time detection of renal tumours.

***Keywords**: Birt-Hogg-Dubé syndrome. Pneumothorax. Vats. Fibrofolliculomas.*

PC 111. OSA AND NEUROMUSCULAR DISEASE – A RELATIONSHIP FAR FROM LINEAR

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Introduction: Obesity, male gender and advanced age are among the risk factors most associated with Obstructive Sleep Apnea Syndrome (OSA). However, many others can contribute to the diagnosis – namely craniofacial changes or neuromuscular diseases (NM). In this sense, Charcot Marie Tooth Disease (DCMT), including a vast group of peripheral neuropathies, may creates changes that facilitate the development and perpetuation of OSA. Clinical Case:
Case reports: Case 1) Man, 63 years old, non-smoker, retired from the textile industry due to disability, diagnosed with DCMT since adolescence, referred to the Sleep Respiratory Disease (SRD) consultation because of complaints suggestive of OSA. As comorbidities to highlight: Arterial Hypertension, DM2 and Dyslipidemia – controlled with medical therapy. With normal body mass index (BMI) and no changes in the objective examination, he performed Respiratory Function Tests (PFR), Arterial Gasometry (GSA), HRCT-Thorax and Polysomnography (PSG) – showing reduced inspiratory muscle strength and changes compatible with severe OSA (RDI 78 events/h). The patient was proposed for respiratory (RR) and motor rehabilita-

tion, Cough assist and initiation of Noninvasive Ventilation (BiPAP-ST mode) at night – measures to which he adhered. Throughout the follow-up, there was worsening of the limitation of the strength of the respiratory muscles (inspiratory and expiratory), with greater difficulty in the management of secretions, frequent respiratory infections and the need for pressure adjustment and increased performance of Cough assist. The patient remains in an RR program 2 times a week and, with regard to OSA, without complaints. Case 2) Man, 40 years old, non-smoker, unemployed, with diagnoses of epilepsy and axonal DCMT (since childhood), also referred to PRS consultation because of suspected OSA. On objective examination: important obesity (BMI 32) and changes resulting from its underlying disease, with cavus foots and marked atrophy of the lower limbs (LLs). He performed PFR, which were normal (namely in the evaluation of respiratory muscle strength), and PSG, which was diagnostic of severe OSA (RDI 59 events/h). Weight loss and sleep hygiene measures were recommended, and the patient started CPAP 6-16cmH20, with good adaptation. He did not accepted referral to RR or motor. Despite the recommendations, he presented successive weight gain, conditioning his accentuation of the usual tiredness. Associatedly, with aggravation of muscle weakness at the level of the LLs, with important functional repercussions. In an attempt to exclude impairment of respiratory muscle strength, the entire study was repeated, but it remained normal. Under AutoCPAP, and with good adaptation, the patient was discharged from the PRS consultation, maintaining follow-up in an attending physician.
Discussion: The 2 clinical cases are presented for reflection on the multitude of factors that can contribute to the diagnosis of OSA and the need of its joint management. Neuromuscular disease can contribute to SRD by direct affection of respiratory muscles and/or indirectly causing other types of conditions, namely weakness of peripheral muscles and physical deconditioning, with the associated difficulties in weight management and its repercussions at the respiratory level.

***Keywords**: OSA. Neuromuscular disease. Charcot Marie tooth disease. Risk factors.*

PC 112. SOMNOLYZER IN POLYSOMNOGRAPHY ANALYSIS: CONTRIBUTIONS TO ITS APPLICATION AND OPTIMIZATION

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Introduction: Polysomnography is the gold standard for the assessment of sleep disorders, but despite being fundamental, its level of complexity often makes it difficult to apply to all individuals with suspected sleep disorders The development of automatic analysis software generated through artificial intelligence algorithms has emerged as a fundamental tool in an attempt to maximize the performance of these tests, minimizing the time spent manually scoring. It is important to assess the applicability of these analysis algorithms and their reliability taking into account the quality of the signals recorded in polysomnography. The aim of this study is to compare the manual analysis of polysomnography with the automatic analysis of Sleepware G3 v. 4.1 software and the automatic analysis Sleepware G3 v.4.1 software with Somnolyzer in all the parameters evaluated.
Methods: A case study was conducted on the evaluation of a random sample of 20 polysomnographies performed at the sleep laboratory of Hospital da Luz de Setúbal between June and September 2022. The individuals evaluated in this sample had a mean age of 52.1 years [21-78], 60% female and 40% male. A comparison was made between the 3 analyses for all sleep assessment variables, respiratory events, oxygen saturation, limb movements and quality of the recorded signals, based on the guidelines of the American Academy of Sleep Medicine and the SPSS statistical analysis software.
Results: In terms of results, the correlation between the manual analysis and the automatic analysis of the Sleepware G3 v.4.1 software with Somnolyzer was positive and significant in most situations for a significance level of (0.01). Exceptions were the correlations for the variables sleep stage N1% with a value of (0.408), which was only significant at a significance level of (0.1), sleep stage N3% with a value of (0.327), which was not significant and the central hypopnea index with a negative correlation value (-0.067). The correlation between the manual analysis and the automatic analysis of the Sleepware G3 v.4.1 software presents lower results than the previous situation, with many cases where statistical significance is only guaranteed for the highest significance level (0.1), and there are also more cases where the correlation is not considered significant such as Sleep onset; duration stage Wake (min), sleep stage N1%, sleep stage N3%, duration sleep stage N3 (min) and micro-awakenings index.
Conclusions: This study shows that the automatic analysis Sleepware G3 v.4.1 software with Somnolyzer has a strong applicability and reliability in the different parameters evaluated, compared to the automatic analysis of Sleepware G3 v.4.1 software, enhancing the manual analysis allowing a faster revision of these exams. However, since this correlation depends directly on the quality of the recorded signal, this point should also be taken into account, which can lead to some discrepancies when the recording presents some signal artifact, so a manual analysis is essential to ensure a correct final evaluation.

***Keywords**: Polysomnography. Manual analysis. Automatic analysis. Somnolyzer.*

PC 113. POSITIONAL SLEEP THERAPY WITH NIGHT SHIFT® DEVICE: RE-EVALUATION AT 5 YEARS

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Introduction: Obstructive sleep apnea syndrome (OSAS) is the most common sleep breathing disorder. About 56% of the OSAS population, mainly with mild-to-moderate OSAS, have positional obstructive sleep apnea (POSA), commonly defined as twice the number of breathing events in the supine position (SP) compared to the number of events in the non-supine position (NSP). Positional therapy (PT) aims to prevent SP in sleep.
Objectives: To evaluate the adherence and efficacy of the Night shift® (NS) device after 5 years from the beginning of treatment with this device, in patients diagnosed with POSA in polysomnographic study level II (PSSII).
Methods: Retrospective study of patients who started PT in 2018 with NS, provided at no cost by the home respiratory care company Vivisol, at Vila Franca de Xira Hospital, as part of a study to evaluate the efficacy and tolerance of PT. A questionnaire was conducted by telephone, and those who still remained on NS were submitted to a new PSSII. Statistical analysis with Microsoft-Excel.
Results: Sample of 12 patients, predominantly male (8/66.7%), mean age 58.5 years old, mean weight 80.8 kg and mean BMI 27.2 kg/m^2. Most frequently reported symptoms that prompted the first PSSII: daytime sleepiness (6/50%), snoring (4/33.3%), witnessed apneas (3/33.3%) and non-restorative sleep (3/33.3%). The initial PSSII showed a mean total apnea-hypopnea index (AHI) of 11.5/h, 27.4 in SP and 5.0 in NSP. Most patients (9/75%) discontinued PT with NS: 1 patient (8.3%) after 1 week of use, 3 (25%) after 3 months, 2 (16.7%) after 1 year and 3 (25%) after 2 years. Main reasons for discontinuing PT were: no improvement in initial symptoms

(4/33.3%), device failure (3/25%) and discomfort associated with its use, due to the triggering vibration (2/16.7%). Only 3 patients (25%) continued to use the NS daily, reporting a good adaptation, with resolution of the symptoms that motivated its use. This subsample, consisting of 2 men and 1 woman, was proposed for repeat PSSII in 2023 under NS. They had a mean Epworth Scale score of 7/24, mean weight 70.3 kg and mean BMI 25.5 kg/m². Positional apneas could not be assessed because they never adapted SP during the study. There was a mean total AHI of 31.4/h, a mean of 22.7 obstructive apneas and 154 obstructive hypopneas, and snoring in 45.8% of the time, with a diagnosis of severe OSAS in the 3 patients despite PT.
Conclusions: This sample shows poor adherence to PT with NS, with persistence of OSAS symptoms and discomfort caused by the equipment as the main reasons. In the subgroup of patients who continued to use NS, the device was effective in treating POSA, as they never adopted SP during PSSII/2023. However, a worsening of AHI was observed, emphasizing the importance of maintaining longitudinal follow-up of these patients, and the possibility that POSA may progress to OSAS without positional worsening, with subsequent need for treatment adjustment.

Keywords: *Obstructive apnea. Positional therapy. Night shift.*

PC 114. ADVANTAGE OF PSG II FOR OBJECTIVE ASSESSMENT OF SLEEP QUALITY

Maria Gomes

Clinica do Sono Dra. Maria José Guimarães.

Introduction: Sleep can be described as an essential biological state for memory consolidation, temperature regulation, energy conservation and energy metabolism in the brain. The procedures involved in sleep perception are still unclear. What has been observed is that there are discrepancies between neurophysiological data and the perception of sleep by the individuals themselves, both without complaints and in different sleep pathologies. The perception of sleep is a complex concept that involves processes and aspects that can influence the individual's interpretation of the sleep-wake cycle. In this study, the term perception refers to the subjective data felt by the patients through the application.
Objectives: To compare the perception of sleep in individuals submitted to type II home polysomnography (PSG II) and to assess whether there is a difference in the perception of sleep described in the questionnaire and the results received. PSG II aims to evaluate the physiological parameters of sleep at the patient's home. The exam is carried out using sensors that accommodate brain electrical activity, muscle and heart activity, eye movements, oxygenation, resonance and body position. It has the advantage of ensuring that the patient has a night similar to others, and therefore reproduces the reality of each one. From a technical-scientific point of view, there are factors at home that were not controlled, without supervision by a sleep technician.
Methods: Prospective study carried out with the Nox A1s equipment, in 7 adults, of both genders, aged between 31 and 65 years, with complaints suggestive of poor sleep quality, between March and July. All individuals filled out a test after the examination (questionnaire prepared by the sleep clinic), which allowed the collection of subjective data on sleep latency, number of awakenings, total sleep time and general notion of sleep quality, to later comparison with the values collected in PSG II. A comparison was made between objective and subjective results. Excluding individuals who do not know the number of hours slept, 75% have the perception that they slept less time, since the average hours of sleep was 7h24min and the average that individuals thought they had slept was 3h20min. There were awakenings for no apparent reason in all subjects.
Results: The number of individuals who stated that their sleep was the same as usual was, in percentage, the same as those who reported that it was worse than usual, which may translate into some advantage in using PSG II for symptomatic individuals.
Conclusions: Judging by the results of the study, so far, more than half of the patients who reported having poor sleep quality have a wrong perception of the number of hours slept. PSG II studies can be considered as a useful tool to obtain, in a more objective way, the real representativeness of the quality and quantity of each individual's sleep. Limitations: the reduced number of patients and the fact that they did not complete the questionnaire correctly proved to be limitations in the data obtained.

Keywords: *Sleep. Polysomnography. Interaction. Perception.*

PC 115. CENTRAL SLEEP APNEA AFTER INITIATION OF VENTILATORY SUPPORT IN A NEUROMUSCULAR PATIENT: WHEN TREATMENT IS THE PROBLEM AND THE SOLUTION

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Introduction: Central Sleep Apnea (CSA) is present in less than 1% of the general population and encompasses a range of conditions characterized by altered respiratory drive or decreased ventilatory capacity in the absence of airway obstruction. Neuromuscular diseases may be associated with CSA due to underlying hypoventilation related to the disease. Positive airway pressure is the treatment used in the presence of ACS and hypoventilation syndrome.
Case report: Male, 53 years old, with a history of Amyotrophic Lateral Sclerosis (ALS) for 3 years, without regular follow-up due to his own refusal. He presented at the emergency department with worsening dyspnea and orthopnea over the past 15 days. On examination, he showed cachexia with overall muscle atrophy, reduced muscle strength, dysarthria, and hypophonic speech, despite preserved cognition. He was tachypneic and using accessory respiratory muscles. Analyses showed mild hypoxemia (pO2 67 mmHg) and hypercapnia (pCO2 78 mmHg), without respiratory acidemia. Non-invasive ventilation (NIV) was initiated with Bi-level Positive Airway Pressure (BiPAP-ST). However, the patient experienced altered consciousness with fluctuations in wakefulness and periods suggestive of central apneas, despite overall improvement in blood gas levels and the absence of focal neurological deficits. Assumed likely non-hypocapnic central apnea in the context of adaptation to NIV in a patient with baseline hypoventilation syndrome. The patient showed progressive clinical improvement and blood gas stabilization. At the time of discharge, he was undergoing nocturnal and daytime NIV for periods, not requiring oxygen therapy, with pH 7.43, without hypoxemia (pO2 80 mmHg) or hypercapnia (pCO2 42 mmHg). During the first 11 days of NIV use, the patient maintained an Apnea-Hypopnea Index (AHI) > 15 events per hour, with a decreasing profile of the number of events. After 15 days of treatment, there was stabilization of the respiratory drive with AHI < 5 events per hour (ventilator reading image available in the appendix).
Discussion: In central apneas, the use of positive pressure is not always sufficient to completely eliminate all apnea events. Particularly in patients with impaired respiratory drive, such as those with neuromuscular disorders, adaptation to NIV may not always be easy and stabilization of the respiratory drive is usually a lengthy process. In the present case, although central apneas appeared after starting NIV, the patient showed favorable clinical evolution with the maintenance of treatment and there was a clinically significant reduction in apnea events after only 15 days. Thus, treating patients with hypoventilation syndromes and central apneas remains a significant challenge in medical practice and

requires frequent monitoring coupled with clinical judgment to optimize treatment response.

Keywords: *Central sleep apnea. Non-invasive ventilation. Hypoventilation. Neuromuscular disease.*

PC 116. MANDIBULAR ADVANCEMENT DEVICES – THE EXPERIENCE OF A TERTIARY HOSPITAL

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Introduction: Mandibular advancement devices (MAD) have been gaining recognition in the treatment of obstructive sleep apnea over the last few years. Although CPAP is the gold-standard for the treatment of this pathology and is more effective in reducing the frequency of obstructive events, some patients do not adapt to this treatment, and in some cases MAD is a viable option.
Objectives: The objectives of this study are to characterize patients with MAD being followed up in a Pulmonology - Sleep Apnea consultation and to evaluate the effectiveness of this treatment in correcting obstructive events (AHI).
Methods: A descriptive retrospective study was carried out, based on the analysis of the clinical files of patients followed in a Pneumology – Sleep Apnea consultation under treatment with MAD. Data were collected to characterize patients (gender, age, BMI) and disease (AHI value, postural/non-postural OSAS) and information on previous treatments performed and data on treatment with MAD (adherence and AHI value).
Results: The clinical files of 22 patients were analyzed. Of the study sample, 16 patients (73%) were male. The mean age of the patients was 568 years and the mean BMI was 272 (5 normal weight patients, 13 overweight patients and 4 obese patients). The mean AHI at diagnosis was 16 7 (10 patients (45.5%) with mild OSAS, 10 patients with moderate OSAS (45.5%) and 2 patients (9%) with severe OSAS). In this sample, 12 patients (55%) had OSAS with a postural component. In 11 patients (50%) another treatment had already been tried before the MAD, namely postural measures in 1 patient (4.5%) and therapy with positive air pressure in 10 patients (45.5%). Of the 22 patients, 21 performed a new sleep study under MAD and there was a reduction in the AHI value in 16 patients (76.2%) and an increase in the AHI value in 5 patients (23.8%). The average AHI value in sleep studies performed with DAM was 9 7 (AHI < 5 in 9 patients (42.9%); mild OSAS in 7 patients (33.3%) and moderate OSAS in 5 patients (23.8%)). Regarding adherence to treatment, the majority (81.8%) of patients reported using the DAM every night and throughout the night.
Conclusions: In this sample, it was found that the institution of DAM led to a reduction in the AHI value in most patients. In 28.8% of cases there was an increase in the AHI value, which suggests that this therapy may not be effective in patients with certain characteristics.

Keywords: *MAD. OSAS.*

PC 117. OBSTRUCTIVE SLEEP APNEA AND ASTHMA IN STEP 5: PREVALENCE AND ASSOCIATION WITH COMORBIDITIES, QUALITY OF LIFE, AND ASTHMA CONTROL

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Introduction: Asthma and obstructive sleep apnea (OSA) are respiratory disorders with a high prevalence and often coexist in the same patient. Although these two conditions are distinct, some studies suggest there may be a bidirectional relationship between them, especially in patients with severe asthma, as they often share risk factors such as obesity, gastroesophageal reflux (GERD), and rhinosinusitis. This study aims to evaluate the prevalence of OSA in patients with asthma in Step 5 of the Global Initiative of Asthma (GINA) and the relationship between its severity and asthma control.
Methods: Retrospective analysis of patients with asthma in Step 5 followed in the Pulmonology clinic. Validated questionnaires were used to assess asthma control (mini-ACT), quality of life (mini-AQLQ), and daytime sleepiness (Epworth scale). Patients were divided into 2 groups - those with a confirmed diagnosis of OSA by polysomnography and those without an OSA diagnosis (excluded by polysomnography or without suggestive clinical symptoms).
Results: 44 patients were included, 79.5% (n = 35) female, with a mean age of 54.3 ± 3.2 years. 63.6% (n = 28) of patients were under biological therapy, and the median body mass index (BMI) was 28 kg/m^2 (IQR 20-36). Approximately 41.0% (n = 18/44) had undergone polysomnography (Level I, II, or III) for sleep evaluation, and of these, 77.8% had OSA - [57.1% (n = 8) mild OSA, 21.4% (n = 3) moderate OSA, and 21.4% (n = 3) severe OSA]. Regarding the population with asthma+OSA (n = 14), all patients were overweight, and 78.6% had BMI 30 kg/m^2, with the median BMI of these patients (32.5 kg/m^2, IQR 28-27) being statistically higher than those without OSA diagnosis (n = 30) (27 kg/m^2, IQR 21-33) ($p < 0.001$). There was no statistically significant association between OSA and rhinosinusitis ($p = 0.076$) or OSA and GERD ($P = 0.737$). The mean score of the AQLQ questionnaire in patients with OSA (58 ± 21) was statistically lower than in patients without an OSA diagnosis (74 ± 22) ($p = 0.03$). The mean score of the ACT questionnaire in patients with OSA was 17 ± 6, while in patients without an OSA diagnosis, it was 20 ± 5. There was no statistically significant difference in asthma symptom control ($p = 0.10$) and daytime sleepiness ($p = 0.98$) between the groups with an OSA diagnosis and those without an OSA diagnosis.
Conclusions: The prevalence of OSA in patients with asthma in Step 5 of GINA was high (31.8%) and in line with the literature. Obesity was the only comorbidity statistically associated with the coexistence of asthma and OSA. The quality of life of patients with asthma+OSA was statistically inferior to those without an OSA diagnosis. Despite the small sample size, these results validate the need to screen for the presence of OSA symptoms in patients with asthma, especially in Step 5, who are overweight and have an impact on their quality of life.

Keywords: *Asthma. Obstructive sleep apnea.*

PC 118. CONFOUNDERS IN THE DIAGNOSIS OF PARASOMNIA: A CASE REPORT

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Introduction: REM sleep behaviour disorder (RBSD) is a unique parasomnia characterised by loss of atonia characteristic of REM sleep and vivid dream-like behaviours, of uncertain prevalence that represents a clinical challenge. Its prevalence increases with ageing, and it can occur in the absence of neurological pathologies (idiopathic) or in association with neurodegenerative disorders, being a strong predictor of synucleinopathies such as Parkinson's and Lewy body dementia, or even related to certain drugs. The association with Alzheimer's disease (AD) is uncertain.
Case report: A 65-year-old woman with a history of scareroid fever, depressive syndrome and early AD was referred by Neurology to the sleep pathology consultation. She presented with complaints of snoring, vivid dreams, sensation of discomfort in the lower limbs at

rest, requiring movement of the limbs to relieve this symptom, nocturnal restlessness and somniloquy, which had been progressively worsening for 2 years. The stop-bang scale scored 1. In addition to her usual medication, she was also medicated with venlafaxine and pramipexole. RBSD and restless legs syndrome (RLS) were initially hypothesised. The blood study revealed normal ferritin (105.8) and polysomnography level 1 (PSG1) showed long initial and terminal insomnia; many micro-awakenings in all sleep stages (WASO = 3 h), with a micro-awakenings index = 29.1, many associated with PLMS (PLMS index = 63.6), including during waking hours; low sleep efficiency (58.5%); overall RDI was 10.1 events/h and ODI 11.2. In addition, atonia was absent for almost the entire REM sleep time, with behavioural manifestations such as moaning and some upper limb movements. Thus, the diagnoses of mild obstructive sleep apnoea syndrome (OSAS), mostly due to hypopnoea and without significant associated desaturation or micro-awakenings; SPI; and RBSD were admitted. Clonazepam 0.5 mg was started, with improvement in complaints of nocturnal agitation and insomnia. Referred for neurology sleep consultation. Awaiting PET-FDG and 24-hour EEG.
Discussion: RBSD is occasionally reported in association with other neurodegenerative disorders that do not fall under synucleinopathies, such as Alzheimer's disease. Its presence may indicate a comorbid -synucleinopathy. PSG1 in this case is essential to confirm the diagnosis and rule out possible differential diagnoses such as pseudo-RBSD associated with OSAS, also present in this case. A 24-hour EEG is essential to rule out nocturnal epilepsy (particularly frontal or extratemporal lobe epilepsy), a differential diagnosis of RBSD.

Keywords: *Alzheimer. RBSD. RLS. SAOS. Polysomnography.*

PC 119. IS THERE A RELATION BETWEEN FENO SERIAL MEASUREMENT AND SYMPTOMS CONTROL OF ASTHMA IN PATIENTS UNDER OMALIZUMAB?

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Introduction: It has been shown that patients with severe asthma with higher FeNO levels that initiate Omalizumab have a greater benefit in exacerbations reduction but some studies do not support this evidence. Therefore, its utility in monitoring these patients is still uncertain.
Objectives: The purpose of this study was to analyse the relation between the serial evaluation of FeNO with the symptomatic control of asthma.
Methods: We selected six non-smoking patients with severe asthma under Omalizumab to perform a serial home analysis of FeNO with a portable device (Vivatmo), twice a week, during a period of two months. All patients were taking the biological therapy every four weeks and each FeNO measurement was followed by an evaluation of the peak expiratory flow (PEF) and the filling of Asthma Control Test (ACT) and Control of Allergic Rhinitis and Asthma Test (CARAT).
Results: The majority of patients was female (66.7%). Half of the patients were taking 150 mg every four weeks and the other half 300 mg. Only one patient had worsening symptoms but were not followed by an increase in FeNO levels. We found correlation between ACT and CARAT in 15 of the 17 evaluation moments performed, but no correlation was found between FeNO with PEF, ACT or CARAT.
Conclusions: No correlation between FeNO serial measurement and asthma symptoms control was found. More studies with larger samples are needed to evaluate the role of FeNO in asthmatic patients under biological therapy.

Keywords: *FENO. Omalizumab. Asthma. Symptoms control.*

PC 120. OMALIZUMAB IN CLINICAL PRACTICE: EXPERIENCE OF A PERIPHERAL HOSPITAL

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Introduction: Severe asthma is a form of asthma that is uncontrolled despite good adherence to high doses of ICS-LABA, possible risk factors have been identified and treated, or in which there is a clinical worsening when trying to reduce the dose of ICS-LABA. Approximately 3-10% of asthmatics have severe asthma. Severe asthma is associated with a higher risk of hospitalization and accounts for the majority of asthma hospitalizations.
Methods: Descriptive and comparative analysis of patients in the Severe Asthma consultation at a peripheral hospital under biological therapy with omalizumab. To carry out this analysis, the clinical files of the patients were consulted.
Objectives: To characterize patients in the Severe Asthma consultation under biological therapy with omalizumab. To compare the clinical status and asthma control of these patients in the 12 months before starting omalizumab therapy (G1) vs. in the 12 months after the introduction of omalizumab (G2). Variables evaluated: gender, age, diagnosis, CARAT questionnaire, exacerbations, hospitalizations, and initial dose of omalizumab.
Results: The sample consisted of 15 patients, 13 (86.67%) female and 2 (13.33%) males, between 28 and 86 years, with an average age of 52.13 years. All patients studied had a diagnosis of severe allergic asthma. Grass allergy (66.67%) and dust mite allergy (33.33%) were the most frequent etiologies. The CARAT questionnaire (n = 12 patients) varied between 4/30 and 25/30, with a mean value of 12.25/30 in G1 and between 13/30 and 30/30, with a mean value of 20.75/30 in G2. Exacerbations varied between 2 and 5 with a mean value of 3.4 in G1 and between 0 and 1 with a mean value of 0.27 in G2. 73.33% of patients in G1 and 0% of patients in G2 had 2 exacerbations. In G1 and G2, the percentage of patients with 1 hospitalization was 6.67%. The most used initial doses of omalizumab were: 300 mg and 600 mg, in 40% and 26.67% of patients, respectively.
Conclusions: Omalizumab is an anti-IgE monoclonal antibody administered to patients with severe allergic asthma (Step 5), uncontrolled despite optimized therapy, which has demonstrated significant efficacy in controlling asthma and, consecutively, in reducing exacerbations and hospitalizations for severe asthma, as seen in this sample of patients.

Keywords: *Severe allergic asthma. Omalizumab. Exacerbations.*

PC 121. SEVERE ASTHMA AND COVID-19, EXPERIENCE OF A REFERENCE CENTER

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Introduction: The World Health Organization declared COVID-19 a pandemic on March 11, 2020, 1,150 days later, on May 5, 2023, this infection was no longer considered a global health emergency. Among the 765 million confirmed cases and the nearly 7 million reported deaths, its expression and manifestation among certain pathologies, such as severe asthma, aroused great scientific interest. Some comorbidities such as obesity, cardiovascular disease and diabetes are considered independent risk factors for severe COVID-19. Nevertheless, severe asthma was not associated with an increased risk of infection or a worse prognosis.
Objectives: To analyze the cases of COVID-19, in patients with severe asthma, under biological therapy, in a national tertiary hospital.

Methods: Retrospective study of epidemiological characteristics, comorbidities, clinical, severity and treatment of SARS-CoV-2 infections observed in this group of patients, between March 2020 and May 2023. Records from the RSE vaccination platform were used to confirm the infection. Excel and SPSS, version 23 were used to the statistical analyses.
Results: Seventy-seven patients with severe asthma were studied, 77.9% (N 60) female, mean age 52.61 ± 14.23 years. The main comorbidities found in this group of patients were: rhinosinusitis 64.9% (N 50), bronchiectasis 37.7% (N 29), nasal polyposis 29.9% (N 23), obesity 26% (N 20), anxiety/depression 24.7% (N 19), GERD 16.9% (N 13) and non-insulin treated Diabetes Mellitus 14.3% (N 11). Of the patients included, 44.2% had no record of SARS-CoV-2 infection, 55.8% (N 43) had a record of a SARS-CoV-2 infection, and 11.6% (N 5) had a record of 2 infections by the same agent. 43 patients, 25.6% (N 11) went to the Emergency Department and 9.3% (N 4) required hospitalization. In 16.3% (N 7) the infection was associated with asthma exacerbation, 86% of these required a cycle of oral corticosteroids. Of the patients who had COVID 19 and within the studied comorbidities, obesity was the one that stood out (mean BMI 40.4 ± 7.37 kg/m^2). Obesity correlated with the existence of asthma exacerbation (p 0.01, rho 0.534), with the fact that the patient needed a course of oral corticosteroids (p < 0.01, rho 0.557) and with the need to go to the Emergency Department (p 0.01, rho 0.557). Another important result was that the more vaccine doses the patients had at the time of the infection, the less the need to resort to the hospital (p 0.03, rho -0.333) and the fewer asthma exacerbations (p 0.019, rho -0.377) were observed.
Conclusions: With this work, the authors highlight the importance of the protective effect of vaccination, as well as the importance of controlling asthma and comorbidities in this group of patients with severe respiratory disease undergoing biological treatment.

Keywords: *Severe asthma. COVID-19. Biological treatment.*

PC 122. ACUTE IDIOPATHIC HYPEREOSINOPHILIC SYNDROME – A RARE DIAGNOSIS

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Introduction: Hypereosinophilic syndromes are a group of diseases characterized by excess production of eosinophils causing infiltration and damage to multiple organs.
Case report: A 67-year-old woman, with a personal history of asthma, chronic rhinosinusitis, hypothyroidism and depression, went to the emergency department for dyspnea and productive cough with mucopurulent sputum that had been evolving for 2 weeks. Concomitantly, she also mentioned easy tiredness, anorexia and weight loss of 3-4 kg in a month. She went in a recent trip to Peru, mentioning gastroenteritis during travel. Upon admission to the emergency department, she was hemodynamically stable, polypneic, SpO2 89% without oxygen therapy, with marked wheezing on pulmonary auscultation. She performed blood gas analysis with partial respiratory failure (PaO2 53 mmHg), analytical evaluation that demonstrated leukocytosis 22,540/uL, with 13,000 eosinophils/uL, CRP 9.65 mg/dL and troponin elevation 2,052 pg/mL. Thoracic CT angiography showed extensive peribronchovascular infiltrate in the left upper lobe and areas of subpleural densification in the right upper lobe and in the upper segments of both lower lobes. Also, her electrocardiogram showed ST segment inversion in V2 and V3, transthoracic echocardiogram showed mild impairment of ejection fraction without other alterations, and additionally, cardiac scintigraphy was performed without ischemic alterations. The patient was admitted assuming probable eosinophilic pneumonia and eosinophilic myocarditis. The myelogram showed eosinophilic infiltration of 38% in all maturation stages. She performed videobronchofibroscopy with mucous secretions and yellowish plaques in the bronchial trees, whose histological result confirmed the presence of dense eosinophilic exudate. Bacteriological tests were negative. The seric autoimmune, allergological, bacterial, viral and fungal study was negative. In the parasitological study, she had positive serum levels for hydatid disease in low titer, however, it was excluded as a cause of eosinophilia after verifying the absence of hydatid cysts in the thoraco-abdomino-pelvic CT scan and negative parasitological exams of the feces. Pulmonary neoplasia was excluded by bronchial biopsies, as well as hematologic neoplasia by bone biopsy study. The patient completed corticosteroid therapy with clinical, analytical (reduction of troponin, and total remission of eosinophilia) and imaging improvements and was discharged on the 15th day of hospitalization without the need for oxygen therapy, maintaining corticosteroid therapy at weaning. There was evident radiological improvement after 8 weeks of therapy, with resolution of the perivascular infiltrates. On the last pulmonology appointment, she was asymptomatic. She maintains current follow-up in Pulmonology, Cardiology and Hematology consultations. After extensive exclusion of other causes, an idiopathic hypereosinophilic syndrome was assumed.
Discussion: This case portrays an unusual example of an acute hyperosinophilic syndrome, confirmed by bone biopsy, with medullary, pulmonary and cardiac involvement. It is an idiopathic hypereosinophilic syndrome, given that an extensive study of primary and secondary causes was carried out, and no cause was identified. Comorbidities such as asthma can mask the diagnosis of acute hypereosinophilic syndrome with pulmonary involvement, with emphasis in this case on the imaging pattern, which was also uncommon for eosinophilic pneumonia.

Keywords: *Idiopathic hypereosinophilic syndrome. Seric hypereosinophilia. Eosinophilic pneumonia. Eosinophilic myocarditis.*

PC 123. CONECTAR – COLLABORATIVE NETWORK FOR PATIENTS AND PUBLIC INVOLVEMENT IN CHRONIC RESPIRATORY DISEASES RESEARCH: IMPLEMENTATION STRATEGIES AND IMPACT

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Introduction: Patient and public involvement (PPI) is a powerful way to ensure that health research addresses the needs of patients and is key to developing innovative solutions impacting patients' lives. In Portugal, specific PPI initiatives for patients with chronic respiratory diseases (CRD) have yet to be established. We developed the ConectAR, a sustainable network of patients with CRD and their carers involved as co-researchers. We aimed to share our experience in building this network and present the impact after one year.
Methods: Since April 2022, patients with CRD and carers above 18 years were invited to join ConectAR using social media platforms (Facebook, Instagram) and through direct invitation by e-mail to patients who participated in previous research projects of the team. We conducted a workshop with 13 patients with CRD/carers and researchers to establish the communication strategy and recruitment and engagement tools. Based on the workshop's conclusions, communication between the coordination team and Conec-

tAR members is done in an informal environment and simple language through email, periodic presential and virtual meetings and activities for team building and science communication through the arts. During the workshop, we defined different activities to be implemented, and we organized the members into small working groups according to their motivation.
Results: Currently, the ConectAR network has 137 members (median age, min-max; 36, 18-72 y.o.): 73% patients, 12% carers and 15% interested citizens (including healthcare professionals, students of health sciences and members of patient organisations). The coordination team includes 3 asthma patients and 1 carer, along with researchers. So far, this network's outcomes include writing one mHealth research protocol, three papers with a summary in plain language (two published, one under review) and five abstracts in national and international conferences. The network translated to Portuguese the self-learning European Patient Ambassador Programme (EPAP) of the European Lung Foundation and was awarded two prizes for the best projects in asthma by a national society and one prize for the best abstract in patient-centred research by an international society.
Conclusions: The ConectAR network showed that it is feasible to involve patients with CRD and carers as co-researchers, considering their views since the start of the project and involving them in coordination, scientific and dissemination activities. We expect to incorporate the learnings from this project into developing recommendations for future PPI actions.

Keywords: *Patient and public involvement. Citizen science. Patient-centered health research. Asthma. Chronic respiratory diseases.*

PC 124. CHARACTERIZATION OF SEVERE ASTHMA IN MADEIRA ISLAND – THE EFFECTIVENESS OF BIOLOGICAL THERAPY

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Introduction: Severe asthma is a complex and heterogeneous disease and affects 3 to 10% of patients with asthma. At the Funchal Central Hospital, 44 patients were diagnosed with severe asthma. The aim of this study is to evaluate the efficacy of treatment with biologics in this population regarding the occurrence of exacerbations, FEV1 variation and eosinophilia as well as maintenance of oral corticosteroids.
Methods: A retrospective study of the clinical processes and collection of appropriate data were performed, before and during treatment with biologics.
Results: Of the 44 patients described, 29 are female, 33 are non-smokers and the average age is 58.6 years. Regarding comorbidities, there is a prevalence of dyslipidemia, obesity, depressive syndrome, arterial hypertension, obstructive sleep apnea syndrome and imaging alterations such as peribronchial thickening, bronchiectasis and emphysema. There are 31 patients under biological therapy for at least 12 months, with the remaining 13 starting biological therapy in the current year. Under Omalizumab there are 13 patients, of whom 8 have childhood-onset asthma. The T2 allergic phenotype is verified in 8 patients and the non-allergic phenotype in the others, with a maximum IgE value of 788.0 kU/L and a maximum peripheral eosinophilia of 400 cells/µL. An average reduction of 150 eosinophils in peripheral blood was recorded with the start of treatment. On average, the FEV1 value was 1.83 L (72.9%) before the introduction of biological therapy and over the course of it an increase of 720 mL (19.4%) was observed in two patients. The occurrence of an exacerbation was found in 9 patients, with 2 hospitalizations for COVID-19. In 2 patients, it has not yet been possible to suspend oral corticosteroid therapy. Following, 28 patients are on Mepolizumab, of whom 17 have adult-onset asthma and 2 patients with a previous diagnosis of chronic eosinophilic pneumonia. Nasal polyposis is observed in 4 patients and the allergic T2 phenotype in 16. There was a predominance of eosinophilia in this group, with a maximum number of 8,400 cells/µL. After the beginning of the biologic, there was a significant improvement in eosinophilia, on average with a reduction of 1,100 cells/µL. The mean previous value of FEV1 was 2.14 L (80.7%) and a gain of 510 mL (19.7%) was observed in two patients. An exacerbation occurred in 4 patients and 2 maintain oral corticosteroids. It is noteworthy that, in this group, there was a weight loss of 3.5 kg in 13 patients. In turn, 2 are under Benralizumab, both with previous treatment with Omalizumab, with no eosinophilia (500 cells/µL previously), new exacerbations or need for oral corticosteroid therapy. One patient, previously under Mepolizumab, started Dupilumab due to worsening of symptoms and recurrent nasal polyposis, with a reduction in peripheral eosinophilia from 4,500 to 500 cells/µL.
Conclusions: This study demonstrates that treatment with biologics improves individual patient outcomes with severe asthma. This analysis is limited by some patients not having blood count and respiratory functional tests after the beginning of therapy.

Keywords: *Severe asthma. Biologics. Eosinophilia. Corticosteroid therapy.*

PC 125. MEPOLIZUMAB ANAPHYLAXIS IN ASTHMATIC PATIENT

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Introduction: Specific monoclonal antibodies (mAbs) are therapeutic agents against severe asthma and can significantly reduce disease burden and asthma mortality. Several mAbs, including mepolizumab, have been approved as addon maintenance therapeutics for severe, inadequately controlled eosinophilic asthma. Knowledge of risks of hypersensitivity and lifethreatening anaphylaxis associated with different mAbs is critical for their appropriate and safe administration.
Case report: The authors present the case of a 42-year-old female with asthma, allergic rhinitis, and documented allergy to penicillin. As medication she was taking inhaled fluticasone furoate/vilanterol, 184/22µg and tiotropium bromide 2.5 µg once daily, with several cycles of oral corticosteroids in the last year and frequent use of salbutamol. Respiratory function test showed mild obstructive ventilatory impairment with positive bronchodilation test: forced expiratory volume in first second (FEV1) of 2.04L (72%), a forced vital capacity (FVC) of 3.12L, a FEV1/FVC ratio of 0.65 and a variability of FEV1 post-bronchodilator test of 35% (2.75 L). As the asthma was uncontrolled despite adherence with optimized high-dose ICS-LABA and LAMA therapy and treatment of contributory factors, it was considered as severe and a biologic treatment was proposed. Blood eosinophils count was 400/µL, compatible with an eosinophilic asthma, and so an anti-IL-5 was considered, in this case mepolizumab. The patient started mepolizumab in May 2023 with a dose of 100 mg subcutaneously. During the surveillance time she had a skin reaction with rash on the trunk, arms and face, which was resolved with oral cetirizine. Four weeks later the patient returned for the second administration. Due to the adverse reaction in the first administration, the second one was administered in a phased way. First, 30 mg were administered, followed by 30 minutes of surveillance without complications. The last 70 mg were administered afterwards and 20 minutes later symptoms of pruritus in the upper limbs and trunk started, for which cetirizine was administered. Twenty minutes later an anaphylactic reaction was observed: cough, wheeze and polipnea. Adrenaline, hidrocortisone and salbu-

tamol were administered, with only partial resolution of the symptoms. Blood pressure was 131/62 mmHg, pulse rate 104 beats/min and SpO2 100%. The emergency team was called and the patient was taken to the emergency room, where complete resolution of symptoms was achieved with intravenous adrenaline, clemastin and hydrocortisone and inhaled salbutamol and ipratropium bromide. The patient was discharged after two days.
Discussion: Several clinical trials have shown a high level of safety of mepolizumab and to the knowledge of the authors there are only two cases of anaphylaxis to mepolizumab described. The authors still don't know if the anaphylaxis was due to the drug itself or some excipient like polysorbate that is present not only in mepolizumab formulation but also in benralizumab and omalizumab formulations. Severe or uncontrolled asthma is known to be a high risk factor of morbidity and mortality in anaphylaxis patients, so, the authors want to highlight the importance of supervised administration of biological therapies in asthmatic patients, not only when started, but also during all the following administrations.

Keywords: *Asthma. Mepolizumab. Anaphilaxis.*

PC 126. FENO IN CLINICAL PRACTICE

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Introduction: Fractional exhaled nitric oxide (FENO) is a non-invasive method, useful in the airway Th2 inflammation evaluation. Objective: To determine if FENO is related with asthma control, serum eosinophilia, bronchial obstruction and methacholine hyperreactivity.
Methods: Retrospective analysis (using descriptive statistics, chi-square test – Pearson bivariate correlation - and logistic regression) of 391 patients followed in the Respiratory Medicine consultation – Hospital da Luz Lisboa, with suspected or confirmed allergic asthma, which have performed FENO evaluation, between 06/2022 and 06/2023. Atopic cases were documented based on prick test or IgE value. Three levels of FENO were considered (low < 25 ppb; middle 25-50 ppb; high > 50 ppb). Asthma control was measured by Asthma Control Test (ACT). A serum eosinophil count > 300/uL was considered as eosinophilia and the interpretation of the lung function test and methacholine challenge test followed the most recent guidelines. **Results:** Information regarding smoking habits, ongoing therapy, ACT, serum eosinophil count and lung function test was accessible in 151 of the 391 patients subjected to FENO evaluation. Methacholine challenge test was available in 23 of those patients. Mean age was 42.7 ± 15.6 years and the majority was female (n = 96; 63.6%). The majority were never smokers (n = 114; 75.5%) and were on inhaled and/or systemic corticoid therapy (n = 81; 53.6%) for at least 3 months. In this sample, there is statistical evidence to state that the level of FENO and the asthma control are related (R = 0.214; p < 0.01), whereby, of the total number of patients with ACT compatible with good control (52.3%), the majority (33.8%) had a low FENO level. There was also a positive and significant correlation between FENO value and methacholine challenge test results (sig. = 0.006 < 0.05), where the higher the FENO value, the superior the number of patients with positive methacholine challenge. There was also a trend towards serum eosinophilia when FENO was higher (sig. = 0.000 < 0.01). Bronchial obstruction did not differ between FENO levels. These results were independent of smoking habits and corticosteroid use.
Conclusions: FENO was associated with symptomatic control, bronchial hyperreactivity and serum eosinophilia, in this population sample. Although no association was found between the FENO value and bronchial obstruction, FENO is an early method for detecting airway inflammation, even in the absence of obstruction on spirometry, and therefore is a relevant method for monitoring and directing the institution of preventive and therapeutic measures.

Keywords: *Asthma. Spirometry. Methacholine. FENO. ACT. Eosinophils.*

PC 127. EXPERIENCE OF A PORTUGUESE TERTIARY HOSPITAL IN OLD ASTHMATIC PATIENTS UNDER BIOLOGICAL THERAPY

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Hospital Garcia de Orta.

Introduction: Asthma is a chronic respiratory condition and that affects millions of old adults. Several studies proven that biological therapy may be effective in the improvement of lung pulmonary function, asthma control and quality of life in asthmatic patients. In this study, we propose to evaluate lung pulmonary function, asthma control and quality of life before and after therapy with monoclonal antibody in pts > 65 years old.
Methods: Retrospective study including pts under biological therapy followed in a Severe Asthma Unit in a Portuguese tertiary hospital. Data collected from patients' clinical files included demographic characteristics, type and duration of biological monoclonal antibody (MA) therapy, lung pulmonary function (LPF), asthma control trough Asthma Control Test (ACT) and quality of life trough mini asthma quality of life questionnaire (Mini-AQLQ) before and at least 12 months after biological therapy. **Results:** 47 patients, 30 female, mean age 74 years old (min 65, max 91). 21 under mepolizumab, 17 omalizumab, 8 benralizumab and 1 reslizumab. LPF was assessed at baseline and after biological treatment. There was an increase of FEV1 in all pts after 12 months of treatment and with all the MA. Regarding asthma control, the mean value of ACT score before treatment was 14.5 and 12 months after was 20.7 points. This difference was statistically significant (p-value 0.025). We also found an improvement in the patient's quality of life, measured by mini-AQLQ from 3.2 to 5.1 points, (p-value < 0.031).
Conclusions: Our data suggests that MA treatment can be an effective therapy in an older asthma population, improving LPF, asthma control and patients quality of life.

Keywords: *Asthma in the elderly. Biological. Quality of life.*

PC 128. TREATMENT WITH OMALIZUMAB DURING PREGNANCY: CASE REPORT

Serviço de Pneumologia, Hospital Professor Doutor Fernando Fonseca.

Mariana Maia e Silva, Rudi Fernandes, Manuel Osório, Cecília Pardal

Introduction: Asthma is one of the most common diseases in pregnant women and about one-third experience worsening symptoms during pregnancy. As uncontrolled asthma is associated with adverse effects for both the mother and the fetus, it is essential to optimize therapy to improve perinatal prognosis. Biological therapies play a crucial role in the treatment of severe asthma patients, however, evidence regarding their safety profile during pregnancy is insufficient and limited to case reports and observational studies. The use of omalizumab by pregnant women is generally discouraged. We present a case of a pregnant patient with severe asthma under omalizumab therapy.
Case report: 38-year-old woman, with a medical history of thyroidectomy for thyroid carcinoma, obesity and allergic rhinitis and a smoking history of 5 pack-years. The patient was diagnosed with

severe allergic asthma in 2013, with an initial IgE level of 196; positive skin sensitivity tests for *Dermatophagoides farinae*, having undergone 3 years of specific immunotherapy; pulmonary function study showed small airways obstruction and positive bronchodilator response. She began biological therapy with omalizumab in 2015, 450 mg every 4 weeks. There was an improvement in symptomatic control and pulmonary function. She became pregnant in 2019 with worsening of symptoms, needing an increase in inhaled maintenance therapy and one cycle of systemic corticosteroids. Considering that the risks of omalizumab discontinuation would outweigh its maintenance, she continued the treatment throughout the pregnancy. She delivered a healthy newborn at 41 weeks via cesarean section without complications and there was no worsening of symptoms.
Discussion: Adequate treatment of severe asthma during pregnancy is crucial to minimize complications. The EXPECT study, a prospective observational study published in 2019, evaluated the perinatal prognosis in pregnant asthmatic women treated with omalizumab, and no increased risk of congenital malformations, preterm birth, or other complications was observed. However, this was a non-randomized study with a small sample size. Scientific evidence regarding other biological therapies is even scarcer, hence the importance of exchanging experiences among clinicians and conducting further studies to establish appropriate and safe therapeutic strategies in this population.

Keywords: *Severe asthma. Biologic therapy. Omalizumab. Pregnancy.*

PC 129. PRESCRIPTION PATTERN OF BIOLOGIC TREATMENT IN SEVERE ASTHMA WITH TYPE 2 INFLAMMATION

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Centro Hospitalar Universitário Cova da Beira.

Introduction: The efficacy of biological drugs used in the treatment of severe asthma with a Th2 phenotype has been widely studied, and the choice between them must be weighed on a case-by-case basis. This work intends to review the prescribing patterns of biologics approved for the treatment of severe asthma, with the exception of omalizumab, as it is essentially indicated for allergic asthma.
Methods: All asthma patients medicated with anti-IL-5/IL-5-R and anti-IL4 drugs at the hospital centre between 2017 and 2023 were included. Variables that may have influenced their prescription were studied.
Results: 34 patients with asthma, mostly female (n = 21, 61.8%) were included. Age ranged between 23 and 83 years, with no statistically significant differences between drugs (p = 0.087), although patients receiving dupilumab tended to be younger. The main reason for prescription due to another disease was observed in 14.7% of the cases (1 case of eosinophilic granulomatosis with polyangiitis under mepolizumab, 2 cases of chronic rhinosinusitis with nasal polyposis and 2 cases of allergic dermatitis under dupilumab). These were excluded from the following analysis. There were 18 prescriptions for mepolizumab (62.1%), 8 for benralizumab (27.6%), and 3 for dupilumab (10.3%), with nonallergic phenotype in 65.2%, 26.1% and 8.7% of cases, respectively (p = 0.665). There was no record of reslizumab prescription. In addition, 3 of the cases with mepolizumab and 1 with benralizumab had previous treatment with omalizumab and 1 case of dupilumab with mepolizumab (patient with severe nasal polyposis). About 58.6% of the patients had allergic rhinitis/rhinosinusitis, with no significant differences between the drugs, despite being present in only 37.5% of the cases with benralizumab, but 61.1% and 100.0% of the cases with mepolizumab and dupilumab, respectively. Furthermore, all patients medicated with dupilumab had nasal polyposis, contrary to what was observed with benralizumab, in which this pathology wasn't observed (p = 0.003). Regarding obesity, no significant differences were observed, although none of the patients under dupilumab had high BWI. Regarding the remaining comorbidities, mepolizumab was the only drug prescribed in cases of sleep apnea syndrome (n = 3); no patient had atopic dermatitis; and gastroesophageal reflux disease, autoimmune pathology and bronchiectasis were present in only 1 case each. Despite the absence of statistically significant differences, benralizumab was the biologic chosen for cases with higher eosinophil counts. The median of functional values did not vary significantly (FEV1/FVC: p = 0.367; FEV1: p = 0.269).
Conclusions: As expected, the presence of nasal polyposis significantly influenced the preference for dupilumab. On the other hand, benralizumab was the least often chosen drug in patients with nasal pathology (rhinitis/polyposis), but the most chosen in cases of high eosinophilia. The biggest limitation of this work was the sample size and the fact that it reflects the reality of only one hospital centre. In addition, all dupilumab prescriptions were made in 2023, which may represent a bias, given that this drug is more recently available in the hospital.

Keywords: *Personalized treatment. Severe asthma. Type 2 inflammation.*

PC 130. PRESCRIBING PATTERN CHANGES APPROVED BIOLOGICS IN SEVERE ASTHMA

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Introduction: The innovation observed in the last decade regarding asthma treatment has moved clinical practice towards personalized medicine. The therapeutic efficacy varies according to the disease phenotype and the context of each patient. The objective of this work is to study the pattern of biological therapeutic maintenance and reasons for discontinuation or switch.
Methods: All records of biological prescriptions indicated for the treatment of severe asthma at the hospital centre between January 2007 and May 2023 were reviewed, including all cases. Cases that didn't start therapy were excluded.
Results: A total of 79 patients were included, aged between 23 and 85 years, 57% (n = 45) female, medicated with omalizumab (n = 49, 62%), benralizumab (n = 7, 9%), mepolizumab (n = 18, 23%), dupilumab (n = 5, 6%) for any cause. A total of 13 patients (17%) discontinued treatment (2 of them with an initial prescription for a cause other than asthma) and 5 (6%) switched. The joint outcome of discontinuation and therapeutic switch was recorded between 3 and 204 months after the first dose, with a median of 13 months. Omalizumab was the biologic with the highest initial prescription for the treatment of severe asthma (n = 44), and the most frequently discontinued (n = 8, 18%) or switched (n = 4, 9%), particularly for anti-IL drugs -5/5R, especially mepolizumab (n = 3). With regard to cases of interruption of omalizumab, it was found that the majority showed functional improvement, but lack of disease control (n = 4, 9%). There was only one case of absence of clinical and functional improvement, in a patient who concomitantly had allergic bronchopulmonary aspergillosis. In the causes of switch, in addition to the lack of symptomatic/functional response, a hypersensitivity reaction was also recorded. Of the remaining drugs prescribed for the treatment of asthma, mepolizumab (n = 16) was the only one with records of therapeutic change. In fact, 3 cases with interruption were recorded (18%): no response in a smoker; hypersensitivity reaction; for refusal. Regarding the switch, there was only 1 case, in a patient with severe nasal polyposis in which it was decided to switch to dupilumab. A statistically significant difference was found between symptomatic control and treatment main-

tenance ($p < 0.001$). With regard to the presence of other comorbidities (obesity, gastroesophageal reflux, allergic rhinitis, atopic dermatitis, nasal polyposis, presence of other pulmonary pathologies), functional or analytical alterations, there were no statistically significant differences regarding the outcome.
Conclusions: The vast majority of patients with severe asthma who start biological treatment maintain it over time. In our sample, the switch to biological treatment was essentially motivated by the lack of symptomatic control of the disease, despite the fact that most patients showed functional improvement. The sample size is the major limitation, as it probably influenced the lack of significant results regarding some of the different variables under study. In addition, currently, there are no defined criteria to guide the therapeutic optimization with biological treatment modification in cases of responsive patients and more multicentric population-based studies are needed.

***Keywords**: Personalized treatment. Severe asthma. Biological treatment.*

PC 131. RESPIRATORY FUNCTIONAL IMPACT OF HALF A YEAR OF BIOLOGICAL THERAPY IN PATIENTS WITH SEVERE ASTHMA

Centro Hospitalar Universitário Cova da Beira.

Ana Craveiro, Daniel Rocha, Diana Sousa, Eunice Magalhães, Maria la Salete Valente, Maria Jesus Valente

Introduction: Severe asthma (FA) is a particularly challenging subtype of bronchial asthma, involving several drugs and in high doses. Nowadays, there are biological therapies that improve the quality of life of patients, with a safety profile much higher than that of corticosteroid therapy. In addition to the subjective gains they offer, they can greatly increase lung function.
Objectives: To evaluate the existence of changes in the value of FEV1 after 6 months of biological therapy in patients with severe asthma followed in a pulmonology service of a district hospital Portuguese.
Methods: Retrospective observational study including 55 patients with GA on biologic therapy for more than 6 months. Data were obtained through access to clinical files.
Results: Of the 55 patients, 60% were female and the mean age was 67.5 years (min 39, max 82). More than half lived in an urban context (62%) and 60% were not professionally active. 82% were non-smokers and 53% reported risky inhalation exposure. Almost half of the patients had a T2-Allergic inflammation phenotype (n = 27) and 1/3 had a T2-Eosinophilic phenotype (n = 16). 22% of patients had a non-T2 phenotype. Regarding the evolution of pulmonary function, the mean value of postbronchodilation FEV1 in respiratory function tests (PFR) was 67.8L to 77.9L after 6 months of biological therapy, with a statistically significant difference in means (p-value < 0.01).
Conclusions: According to the initial hypothesis and data from numerous investigations, the present study confirmed, with statistical significance, that biological drugs are associated with great benefits, namely in terms of pulmonary function.

***Keywords**: Severe asthma. Biological. FEV1. Functional impact.*

PC 132. EFFECTS OF DUPILUMAB ON LONG TERM PARENCHYMAL DISTORTION – CLINICAL CASE

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Introduction: Asthma with Th2-type inflammatory response and chronic rhinosinusitis with nasal polyposis (CRScNP) are frequently associated pathologies. Dupilumab, an anti-IL-4 receptor monoclonal antibody, is approved for the treatment of uncontrolled severe asthma with peripheral eosinophilia and/or increased FeNO and for the treatment of severe CRSwNP refractory to medical-surgical treatment.
Case report: Female, 52 years old, non-smoker, followed up in Immunoallergology due to Widal's Triad, medicated with ICS/LABA, montelukast and nasal corticosteroid therapy. Due to recurrent respiratory infections and imagiological alterations (pulmonary nodules, mediastinal/paratracheal/subcarinal lymphadenopathy, diffuse bronchiolectasis and complete atelectasis of the middle lobe and ULL), she began follow-up by Pulmonology. She underwent fiberoptic bronchoscopy (2012) which showed a cleft middle lobe bronchus, enlargement of the upper left lobe bronchus spur and a decrease in the caliber of the subsegmental bronchi. The immunological study of bronchoalveolar lavage revealed mild eosinophilic alveolitis and bronchial biopsies eosinophilic inflammatory alteration associated with peripheral eosinophilia. BAL microbiology without isolations and negative cytology for malignancy. Negative autoimmunity study. The transthoracic lung biopsy of a nodule in the IEL wasn't representative, so surveillance was chosen. It maintained clinical and imaging stability until 2020, when it presented worsening of nasal symptoms, with periods of frequent oral corticosteroid therapy, and respiratory with consequent adjustment of inhalation therapy for medium-high dose ICS. Imagiologically with more dense nodular lesions and bronchiectasis with marked bronchial impaction in the RIL. Also presented dimensional progression of the LLL nodule. She repeated bronchoscopy (February/2021) having purulent secretions coming from the LUL in addition to the previous structural changes. LBA Aspergillus DNA screening was positive but did not meet criteria for ABPA. Suspicion of non-tuberculous mycobacteriosis (by radiological presentation) was excluded due to the absence of isolations in the BAL. Biopsy of the nodule in the ILL (July/2021) showed marked eosinophilic inflammatory infiltrate, without vasculitis or granulomatous lesions. Since November/2021 with progressively worsening nasal complaints (anosmia, secondary serous otopathy, decreased hearing acuity) with the need for corticosteroid pulses, uncontrolled asthma and persistence of imaging changes, having started treatment with dupilumab in March/2022 (criteria for rhinosinusitis with chronic nasal polyposis refractory to medical-surgical treatment). Frank clinical improvement of nasal and respiratory symptoms in an evaluation 2 months after starting dupilumab, and in the evaluation at 12 months there were no nasal obstructive complaints, with recovery of smell and taste, without antibiotic therapy/oral corticosteroid therapy and with a significant improvement in exercise tolerance, having resumed work activity. Nasal CCT and montelukast were suspended. Imagiologically, significant improvement in middle lobe atelectasis, LUL insufflation for the first time in 10 years, cystic and cylindrical bronchiectasis. On the other hand, marked dimensional reduction of nodular densification and signs of bronchial impaction.
Discussion: The management of asthma with rhinitis and nasal polyposis can be complex. The emergence of dupilumab biological therapy allowed, in selected patients, to obtain marked symptomatic control. This case demonstrates that even at the level of bronchial impaction there can be a response, exemplified by the reversal of imaging changes with at least 10 years of evolution.

***Keywords**: Asthma. Atelectasis. Dupilumab. Chronic rhinosinusitis with nasal polyps.*

PC 133. LOCALIZED BRONCHIECTASIS

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Introduction: Localized bronchiectasis are more frequently associated with endobronchial obstruction caused by a foreign body or

tumor, the former being more frequent in children. In adults, aspiration occurs more frequently due to seizures, stroke or emergent orotracheal (tooth) intubation. Other causes are post-infectious, chronic aspiration or mycobacterial infection.
Case report: A 20-year-old woman, diagnosed with asthma with 5 years old, a social smoker, is admitted in Emergency Department with symptoms of dry cough, dyspnea and left pleuritic chest pain for two days. Examination with no relevant changes, blood tests with d-dimers of 1.24 mg/L and negative inflammatory parameters. A chest computed tomography angiography was performed and didn't show pulmonary thromboembolism, but showed varicose bronchiectasis in the right lower lobe, with an annular image in the segmental external basilar bronchus. In an outpatient evaluation in Pneumology consultation, the patient was asymptomatic, had history of influenza A infection at 10 years of age, alcohol consumption with binge drinking and absence of associated episodes of aspiration of foreign bodies or dyspnea. Flexible bronchoscopy (FB) was performed and revealed a foreign body (1.5 cm long pen nib), that was removed with foreign body tweezers, and with signs of inflammation at this level. Later, when questioned, she stated that by the age of 10 she had swallowed a pen nib, denying respiratory complaints or subsequent infections.
Discussion: BF is recommended in the diagnostic process of bronchiectasis when there is suspicion of bronchial obstruction, due to a foreign body or tumor, and should be routinely considered in cases of localized disease. The presence of a foreign body was suggested by the CT image, however, in the case of non-radiopaque objects, its presence may go unnoticed and foreign body aspiration is not always suggested by the anamnesis. Our case highlights the complementary importance of bronchoscopy in these cases.

Keywords: *Localized bronchiectasis. Foreign body. Finding.*

PC 134. FOLLICULAR BRONCHIOLITIS: A RARE CAUSE OF LADY WINDERMERE SYNDROME

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Introduction: Follicular bronchiolitis (FB) is a rare bronchiolar disorder characterized by the development of hyperplastic lymphoid follicles with germinal centers around the small airways, often with distortion of the bronchial tree architecture that cause partial bronchial and bronchiolar obstruction. FB is a pathological diagnosis and the exact cause is still unknown, but in most cases it is associated with rheumatic diseases and immunodeficiency, and is usually treated as part of the underlying disease.
Case report: A 48-years-old Woman, non-smoker, with no relevant past history or medication, was admitted with haemoptysis and progressive dyspnoea. She had mild hypoxemia and the remaining blood tests were normal. Bronchofibroscopy revealed slightly hematic secretions in both bronchial trees, no microorganisms isolated and cytopathology was negative. Chest CT showed diffuse ground glass, tree-in-bud and a few bronchiectasis. A surgical biopsy was performed and the histopathological diagnosis was FB. She started long-term treatment with oral corticosteroids with favorable clinical outcome. Five years later she was diagnosed with endometrium carcinoma, treated with surgery and adjuvant chemotherapy. Three years later she was re-admitted with haemoptysis, productive cough, pleuritic pain and fever. Chest radiography showed bilateral diffuse consolidation and CT angiography scan showed acute pulmonary embolism, several diffuse ground glass areas, undefined micronodulation and tree-in-bud pattern, bronchiectasis, an area of consolidation with air bronchogram in the middle lobe and small left pleural effusion. A PET/CT was performed, showing multiple nodular densifications with FDG-F18 enhancement, suspicious of lung metastasis; hypermetabolic pleural thickening compatible with pleural metastasis, suspicious of malignant left effusion and hypermetabolic adenopathies; no pelvic alterations suggestive of neoplastic disease in activity. Sputum analysis identified *Aspergillus fumigatus* and *Mycobacterium* avium and *Acinectobacter baumanii* complex, M. avium and A. fumigatus were isolated in bronchial aspirate and lavage. Haemoptysis were stopped and she was then started on anticoagulation for pulmonary embolism and antibiotics. CT-guided transthoracic lung biopsy ruled out metastatic cancer, and she was referred to the Tuberculosis Outpatient Unit. Two months after completing treatment for *M. avium*, she started again having haemoptysis and also loss of weight. *M. avium* was identified again in sputum samples. Chest CT showed exuberant bronchiectasis, mainly in the middle lobe and therefore Lady Windermere Syndrome was diagnosed. The identification of *M. avium* persisted and *Pseudomonas aeruginosa* was identified in the bronchial aspirate and lavage. Eradication attempts with antibiotics was ineffective; given the colonization with *P. aeruginosa* inhaled colistine was started. Currently the patient is stable although she maintains episodes of mild haemoptysis.
Conclusions: Primary idiopathic FB is rare, and treatment with systemic glucocorticoids has been reported to be successful in a few cases. However, in this case, corticoid-induced immunodepression predisposed to the occurrence of M. avium colonization and Aspergillus and *Acinectobacter* infection followed by middle lobe bronchiectasis - Lady Windermere Syndrome - and *Pseudomonas aeruginosa* colonization.

Keywords: *Haemoptysis. Follicular bronchiolitis. Bronchiectasis. Lady Windermere syndrome.*

PC 135. USE OF SIMEOX IN THE CLEARANCE AND MOBILIZATION OF MUCUS IN BRONCHIECTASIS – CLINICAL CASE

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Introduction: Airway clearance techniques facilitate bronchial hygiene in obstructive pulmonary disease, complicated by excessive secretion production and are widely recommended as part of the treatment of bronchiectasis. New techniques have recently been developed, such as Simeox® technology, by Physio-Assist. It consists of a medical device, which is indicated to help fluidify and transport mucus from the bronchioles of the deep lung to the large bronchi, so that they can be eliminated by coughing; generates a succession of very short air depressions, of constant volume and with a frequency similar to the vibrating cilia of the bronchial epithelium during the patient's relaxed expiration, spreading a vibrating pneumatic signal throughout the bronchial tree with direct action on viscosity and mobilization of the mucus.
Case report: 46-year-old male, weight: 80.5 kg, height: 1.76 m. Personal history of: hospitalization for 6 months for pneumonia at 6 months of age; severe obstructive ventilatory syndrome; cystic bronchiectasis. Medicated with triple therapy ICS/LBA/LAMA by Ellipta® and under a respiratory rehabilitation program since 2021, with two cycles of treatments per year. He had 2 exacerbations in 2022, requiring 1 episode of hospitalization. Started treatments with Simeox® on 30/05/2023, in a total of 15 sessions. mMRC: 2, CAT: 22, LCADL: 17, EuroQol: 70%. Previous BGA: pH – 7.386; pCO2 – 37.2 mmHg; pO2 – 65 mmHg; sO2 – 91.6%; HCO3- - 22.4 mmol/L. Throughout the treatments, the patient verbalized several times that he felt less mucus throughout the day and better aerobic capacity to carry out activities of daily living. At the end of the 15th session, the reassessment showed: mMRC: 1, CAT: 19, LCADL: 15, EuroQol: 80%. Final BGA: pH – 7.402; pCO2 – 38.6 mmHg; pO2 – 75.6 mmHg; sO2 – 94.7%; HCO3- - 28 mmol/L.

Discussion: Based on the scales completed by the patient (CAT, mMRC, LCADL and EuroQol) it is possible to verify that the treatments with Simeox® represented an added value in the perception that the patient had of health gains, with gains that had never been achieved before with the optimization of pharmacological and non-pharmacological therapy. Through the analysis of the blood gas values, it was possible to verify an improvement in the pO2 values (from 65 mmHg in the initial BGA, to 75.6 mmHg in the final) and in the sO2 values, from 91.6% in the initial BGA, to 94.7% in the final.

Keywords: *Bronchiectasis. Mobilization of mucus. Simeox®.*

PC 136. *PNEUMOCYSTIS JIROVECII* AND THE MYSTERY OF INFECTION IN THE IMMUNOCOMPETENT

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Introduction: *Pneumocystis jirovecii* (PJ) is an opportunistic fungus that can cause severe pneumonia in immunocompromised patients, especially those with HIV infection, transplant recipients, patients with tumors, or individuals under immunosuppressive therapy. PJ infection in immunocompetent individuals is uncommon; however, some cases have been reported, and it is assumed that the disease may occur through the reactivation of latent infection or person-to-person transmission.
Case report: A 77-year-old female patient, independent, with a history of hypertension (HTA), osteoporosis, and hysterectomy with ovarian tumor removal at the age of 71, worked as a seamstress from home. Referred to the Pulmonology clinic due to a productive cough with yellowish sputum, fatigue, and anorexia, which had been evolving for 2 years. Previously followed up in Allergology for rhinitis and chronic cough, with a poor response to the prescribed therapy: fluticasone nasal spray 27.5 µg twice daily, inhaled budesonide 200 µg twice daily, and montelukast 10 mg once daily. Allergy tests were negative, with a total IgE of 72.40 kU/L and no eosinophilia. Respiratory Function Tests and DLCO, were normal. A chest CT scan revealed a diffuse ground-glass opacities pattern, bronchial wall thickening with bronchiectasis in both lung fields, and some areas of tree-in-bud. The patient had a history of SARS-CoV-2 infection 8 months ago, but the symptoms did not worsen. On physical examination, appeared emaciated, weighing 50 kg, with a body mass index (BMI) of 19.1 kg/m^2, experiencing frequent bouts of coughing, but eupneic with oxygen saturation of 96%. Auscultation of the lungs revealed crackles and some wheezing sounds. A bronchofibroscopy with bronchoalveolar lavage (BAL) was performed, which identified *Pneumocystis jirovecii* infection through PCR. The BAL showed neutrophilia higher than 50%, consistent with suppurative infection. The laboratory tests include a normal hemogram and normal leucogram, elevated IgG and IgA levels with normal IgM, negative serologies for HIV, hepatitis B, and hepatitis C viruses, serum immunofixation without monoclonal bands, and normal total protein and albumin levels. The autoimmune study was also normal, including ANA, ENA, ANCA, anti-DNA, anti-CCP, and rheumatoid factor. Based on the patient's clinical history and imaging exams, there were no suspicions of rheumatological or oncological diseases. Started treatment with sulfamethoxazole and trimethoprim (SMX-TMP) at a dose adjusted to her weight, along with folic acid, for a duration of 21 days. During the SMX-TMP treatment, experienced some complications, including nausea, vomiting, and loss of appetite, but no hospitalization needed. Analytically mild hyponatremia, acute kidney injury that resolved in next follow-up. Post-treatment, the patient shows clinical improvement with less cough, better appetite, weight gain, less fatigue. CT scan after one month showed no significant improvement, possibly due to underlying chronic lung issue that is still under investigation.
Discussion: In this clinical case, no risk factors for immunosuppression and PJ infection were identified. Possible susceptibility factors include the patient's age and low weight, as well as the presence of bronchiectasis and chronic inhaled corticosteroid use. The performance of bronchoalveolar lavage (BAL) is essential even in patients without risk factors for the proper diagnosis and treatment of pneumocystosis.

Keywords: Pneumocystis jirovecii. *Pneumocystosis. Immunocompetent. Bronchiectasis.*

PC 137. THE ROLE OF AUGMENTATION THERAPY IN PATIENTS WITH ALPHA-1 ANTITRYPSIN DEFICIENCY

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Introduction: Alpha-1 antitrypsin (AAT), synthesized in hepatocytes, acts at the lungs by inhibiting the activity of several neutrophil-derived proteases. AAT deficiency is a prevalent genetic disease in Madeira Island, currently with more than 200 cases diagnosed. AAT augmentation therapy in these patients is fulcral and is recommended in individuals over 18-years-old with a diagnosis of Chronic Obstructive Pulmonary Disease, AAT < 57mg/dL, FEV1 between 30-70%, non-smokers or ex-smokers for more than 6 months, without selective IgA deficiency and with deficiency phenotypes or other combinations of alleles with rare variants. The aim of this study is to characterize patients who are under augmentation therapy (Prolastin®) and to assess the impact of this therapy on pulmonary function of these patients.
Methods: A retrospective analysis of clinical processes and collection of appropriate data, before and during augmentation therapy, were performed.
Results: At the Funchal Central Hospital, 16 patients are being treated with Prolastin®, of whom 8 (50%) are male and 9 (56.3%) are ex-smokers. The mean age is 58.6-years-old and the average AAT value is 27.4 mg/dL. Regarding the genotype of each individual, there are 7 patients with Pi*ZZ (43.8%), 2 Pi*SZ (12.5%), 2 Pi*ZQ0Santana (12.5%), 3 Pi*ZMMalton (18.7%) and 2 Pi*MMaltonMMalton (12.5%). Concerning the parenchymal alterations visualized on thoracic computed tomography, bronchiectasis are seen in 15 (93.8%) and emphysema, especially in the lower lobes, in 13 (81.3%) individuals. About respiratory function tests, obstruction (FEV1/FVC ratio < 0.7 according to GOLD criteria) is observed in all patients. In 2 patients, it was not possible to obtain the comparison of pulmonary function by spirometry, but in the remaining 14, the average FEV1 value was 1.61L (59.9%) and with the augmentation therapy, it changed to 1.38L (53.2%), with a loss of 230 mL in, approximately, 3 years. Chronic *Pseudomonas aeruginosa* infection is seen in 4 (25%) patients and 3 (18.8%) are on long-term oxygen therapy. It is noteworthy that one patient has severe asthma and is under treatment with biologics and another patient with Common Variable Immunodeficiency under immunoglobulin therapy. In turn, 4 (18.8%) patients, two Pi*ZZ, one Pi*SZ and one Pi*MMaltonMMalton present alterations in liver function tests, cirrhosis or fibrosis, and are followed concomitantly in the Gastroenterology consultation.
Conclusions: The presence of the Z, MMalton and Q0Santana alleles is related to greater severity of lung disease and the Z and MMalton alleles play a role in the development of liver disease. There was no decrease in lung function decline in patients on augmentation therapy. In this series, there is a decrease in the FEV1 value of, approximately, 76.7 mL/year with Prolastin®.

Keywords: *Alpha-1 antitrypsin. Genetic disease. Augmentation therapy. Pulmonary function.*

PC 138. FROM FUNCTION TO ACTION: PHYSICAL ACTIVITY AND LUNG FUNCTION IN ALPHA 1 ANTITRYPSIN DEFICIT

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Introduction: Alpha-1 antitrypsin deficiency (DAAT) is a common genetic disease in the European population. At the pulmonary level, there is an imbalance between proteases and antiproteases, leading to degradation of the extracellular matrix of the respiratory tract and lung parenchyma. Many develop pulmonary emphysema, with dyspnoea, cough and tiredness. The objective of this work is to evaluate how the physical activity of these patients varies according to their lung function.
Methods: Data from 23 patients who were undergoing AAT replacement therapy at Centro Hospitalar e Universitário de Coimbra were analyzed and asked to answer the MRC, EuroQol, St George Respiratory Questionnaire (SRGQ), IPAQ questionnaires and use a pedometer for 7 days. They were aged between 51 and 78 years and had an average BMI of 23.4 kg/m^2. Eight patients were under long-term oxygen therapy. With regard to lung function, they had an average FEV1 of 48% of predicted. The mean FEV1/FVC ratio was 40% and the mean DLCO 43%.
Results: In the 6-minute walk test, they walked an average of 370 meters, with a minimum of 60 m and a maximum of 562 m. As for the notion of dyspnea, assessed using the mMRC scale, most had grade 1-2 dyspnea. In the SGRQ the average was 52.88, in the EuroQol 10. In the evaluation by the IPAQ, 9 were considered active, 6 minimally active and 8 inactive. As for the pedometer data, the patients walked an average of 19,651 steps, a minimum of 255 and a maximum of 51,892, in 7 days. In the subgroup of patients under OLD, the average number of steps was 10,247 in 7 days. After dividing into 4 groups according to FEV1 levels, following the GOLD classification, there is an average of 31067 steps in group 1, 35,788 steps in group 2, 14,174 steps in group 3 and 8,159 steps in group 4, with all patients in group 4 were also considered inactive in the IPAQ. Patients with DLCO > 60% had an average of 36,618 steps, DLCO 40-60% an average of 21,662 steps and DLCO < 40% an average of 12,017 steps. Despite the small sample volume, there was a statistically significant relationship between FEV1 and DLCO values and the number of steps, as well as FEV1 with EuroQol and IPAQ. Severe AATAD is a disease with a high impact on the quality of life of these patients.
Conclusions: The patient's baseline lung function seems to be a predictor of the physical activity of these patients, so it can be used as a decision factor in the integration of rehabilitation programs.

Keywords: *Alpha-1 antitripsin deficit. Physical activity. Pulmonary function.*

PC 139. ANALYSIS OF INFLUENZA AND PNEUMOCOCCAL VACCINATION IN A SAMPLE OF PATIENTS WITH COPD

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Introduction: Chronic obstructive pulmonary disease (COPD) exacerbations are mostly triggered by respiratory infections, with a negative impact on lung function, disease progression and mortality. Influenza (IV) and pneumococcal (PV) vaccinations are associated with a reduction of the number of exacerbations and are recommended for patients with COPD.
Objectives: This study's goal was to assess whether age and COPD severity are associated with performing PV and annual IV.
Methods: We retrospectively analysed the clinical files of patients with COPD evaluated in a pulmonology consultation in a period of 8 months (September 2021 to April 2022), and demographic and clinical data was collected. Data analysis was performed using the SPSS software (IBMStatistics23). Independent t-test, chi-square and/or Fisher's exact test were used, as appropriate.
Results: A total sample of 65 patients was obtained, mostly male (n = 59; 90.8%), with a mean age of 74.7 ± 9.9 years (min. 48, max. 91). Fifty-five patients (94.6%) were aged 65 years. Fifteen were smokers (23.1%) and 42 former smokers (64.6%). Regarding the severity of airflow limitation, according to the classification proposed by GOLD - percentage of FEV1 after bronchodilation in relation to the predicted value - most patients (46.2%) were in grade 2 (FEV1 50 to 79%) and 38.5% in grade 3 (30 to 49%). Only 9.2% (n = 6) belonged to group 1 (80%) and 6.2% (n = 4) to group 4 (FEV1 < 30%). As for the assessment of symptoms and risk of exacerbations, nine patients (13.8%) belonged to group A, 34 (52.3%) to group B and 22 (33.8%) to group E. In the analysed sample, 61 patients (93.8%) performed IV annually. The percentage of patients with PV was lower, 84.4% (n = 54). The majority (n = 35, 64.8%) had a complete PV regimen: 34 patients had received the 13-valent pneumococcal conjugated vaccine (PCV13) and pneumococcal polysaccharide vaccine (PPSV23), the remaining patient also received the 20-valent pneumococcal conjugated vaccine (PCV20), in addition to the previous regimen. As for the recommendation of the vaccination, it was found that IV was mostly offered by Primary Health Care (PHC) (50.8%, n = 31). PV was recommended by PHC in 3 patients (4.9%), but mostly by Pulmonology (n = 51, 83.6%). There was a statistically significant difference in the mean age between vaccinated and unvaccinated patients, both for IV (p = 0.013), with a mean difference of -12.5 years in non-vaccinated patients, and for PV (p < 0.001), mean difference of -13.70 years. There was also a statistically significant association between age 65 years and vaccination, for both IV (p = 0.010) and PV (p = 0.042). There was no statistically significant association between the GOLD classification group, either spirometric or clinical, and vaccination.
Conclusions: It was found that the vast majority of patients with COPD followed in general pulmonology consultations are vaccinated against both influenza and pneumonia, particularly older patients. In contrast to IV, which is offered largely through PHC, PV was recommended mostly in the pulmonology consultations, suggesting that the importance of these vaccines in COPD patients should be reinforced with other specialties.

Keywords: *Chronic obstructive pulmonary disease. Influenza vaccination. Pneumococcal vaccination.*

PC 140. RISK PROFILES AND IMPACT OF MODERATE AND SEVERE EXACERBATIONS ON CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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Introduction: Exacerbations in chronic obstructive pulmonary disease (COPD) are associated with acute deterioration of health status and worsening of the patient's prognosis. Early identification of patients at high risk for future exacerbations is one of the strategies to prevent exacerbations and their consequences.
Objectives: To assess the impact of the exacerbation profile at diagnosis on the risk of all-cause mortality and cardiovascular death at 1 year in patients with COPD.

Methods: A retrospective, observational, longitudinal study that analyzed secondary data from a Local Health Unit in the north of Portugal. Patients aged 40 with a diagnosis of COPD between Jan 2013 and Dec 2018 were included. Moderate exacerbations were defined as outpatient consultations related to COPD in which there was prescription of respiratory antibiotics and/or oral corticosteroids, and severe exacerbations were defined as visits to the emergency room or hospitalization. Patients were grouped into five exacerbation categories based on their history in the 12 months prior to diagnosis: (A) 0 exacerbations; (B) 1 moderate exacerbation; (C) 2 moderate exacerbations; (D) 1 severe exacerbation and (E) 2 exacerbations, 1 severe exacerbation. The adjusted risk of new exacerbations, all-cause mortality and cardiovascular death 1 year after COPD diagnosis was determined with a 95% confidence interval (CI) for each exacerbation category, with category A as the reference.
Results: A total of 5,696 patients with COPD were included, most of whom were male (68%), with a median age (IQR) of 68 (18) years and 25% current smokers. About 60% of patients had moderate or severe exacerbations, before or on the date of diagnosis. The distribution of patients by exacerbation categories was: (A) 40.3%; (B) 16.4%; (C) 6.4%; (D) 31.8% and (E) 5.1%. In most patients, the diagnosis date coincided with the date of an exacerbation, in 99% and 98% of cases in categories D and E, respectively. Respiratory and cardiovascular comorbidities had an increasing trend between categories. The most common treatment in all categories was monotherapy with LABA/LAMA (32-74%), followed by the combination of ICS with LABA/LAMA (22-56%). The adjusted risk of moderate exacerbations at 1 year was higher in categories C (HR = 2.14; CI 1.64-2.79) and E (HR = 2.07; CI 1.51-2.85). In the case of severe exacerbations, the adjusted risk at 1 year was higher in categories D (HR = 4.33; CI 3.22-5.83) and E (HR = 3.84; CI 2.27-6.48). Category D had the highest risk of all-cause mortality (HR = 1.65; CI 1.21-2.18), followed by category D (HR = 1.42; CI 1.03-1.96). Regarding cardiovascular death, category E (HR = 1.65; CI 1.17-2.34) and C (HR = 1.53; CI 1.06-2.20) were the ones with the highest risk at 1 year.
Conclusions: This study indicates that the history of exacerbations at the time of COPD diagnosis impacts the risk of subsequent exacerbations, the risk of all-cause mortality and the cardiovascular risk at 1 year. Early diagnosis and treatment is essential to prevent new exacerbations and their consequences.

Keywords: *COPD moderate severe exacerbations.*

PC 141. COPD OUTCOMES OVER A PERIOD OF 6 YEARS AND THE ABCD(E) ASSESSMENT TOOL

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Introduction: The ABCD assessment tool combines the level of symptoms and the frequency of exacerbations. GOLD 2023 recognized the clinical relevance of exacerbations and merged the C and D groups into a single group E.
Objectives: Evaluate COPD outcomes after a period of 6 years and the relationship with the ABCD assessment tool.
Methods: Prospective cohort study. Patients with COPD followed in an outpatient setting were selected. The ABCD assessment tool was applied in the year of 2016. Outcomes such as hospitalizations, visits to the emergency department and death rate were assessed during the following 6 years.
Results: 86 patients were included, median age 66 years old, 91% males and 50% current smokers. The distribution of the ABCD assessment tool using mMRC was: A = 35, B = 17, C = 17, D = 17, and CAT: A = 19, B = 33, C = 7, D = 27. The grade of obstruction was: 1 = 9, 2 = 43, 3 = 26, 4 = 8. After the 6 year period 35% (n = 30) patient had died and 37.2% (n = 32; n = 25 from previous A/B groups) patients reassigned to the E group. The C and D groups presented with higher number of hospital admissions ($p < 0.001$, = 0.473) and visits to the emergency department ($p < 0.001$, = 0.388). There was no correlation with death rate ($p = 0.250$). There was no difference in the number of hospital admissions ($p = 0.420$) or visits to the emergency department ($p = 0.078$) between groups C and D. The B group, using mMRC, when compared to the A group, presented more hospital admissions ($p = 0.022$, = 0.324), this was not statistically significant when using CAT.
Conclusions: The ABCD GOLD groups correlated with hospital admissions and visits to the emergency department. There was no difference between the C and D groups in predicting outcomes, supporting the use of the new E GOLD group.

Keywords: *COPD. ABE assessment tool.*

PC 142. EVALUATION OF HOSPITAL READMISSION AND CARDIOVASCULAR OUTCOMES FOLLOWING ACUTE EXACERBATION OF COPD

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Introduction: Chronic obstructive pulmonary disease (COPD) is a frequent cause of global morbidity and mortality, with acute exacerbations (AECOPD) often leading to hospitalization. Readmissions have a significant impact on patient's quality of life and healthcare systems, estimated to range from 2.6% to 82.2% within 30 days. AECOPD has been associated with a significant increase in cardiovascular risk, contributing to the morbidity and mortality of this population. This study aims to identify and analyze readmissions with the goal of improving post-discharge patient management.
Methods: Retrospective observational study of AECOPD cases admitted to the pulmonology ward of a secondary hospital between 2017 and 2021. Patients with post-BD FEV1/FVC < 70% were excluded. Demographic characteristics, in-hospital mortality, readmissions at 30 and 90 days, and rehospitalization rates were evaluated.
Results: A total of 301 AECOPD hospitalization episodes were evaluated, with 137 excluded. The majority were male (78%), and the mean age was 66 ± 9.6 years. A mortality rate of 8.8% (n = 12) was observed. Of the remaining 125 admissions, 24% (n = 30) were readmitted to the hospital within 30 days, of which 20% (n = 25) resulted in rehospitalization, with a median duration of 17.5 days (P25 8.8, P75 25.0 days). At 90 days, 43.2% (n = 54) of patients were readmitted, with 30.4% (n = 38) requiring rehospitalization, and a median duration of 28.0 days (P25 12.8; P75 45.3 days). The most frequent causes of readmission are represented in graphs 1 and 2, with AECOPD being the most common in both groups, followed by pneumonia and heart failure. Additionally, 15.3% (n = 21) of patients experienced cardiovascular events within 30 days after AECOPD, with decompensated heart failure being the most common (11.7%, n = 16), along with cases of acute coronary syndrome, new-onset arrhythmia, and hypertensive urgency.
Conclusions: This retrospective observational study demonstrated a 30-day readmission rate of 24%, which increased to 43.2% at 90 days, consistent with findings from other studies. Moreover, cardiovascular events were observed in 15.3% of patients, underscoring the importance of a multidisciplinary approach in managing these patients. Identifying risk factors associated with higher readmission probability and tailoring discharge plans and follow-up on an individual basis are essential to reduce hospital readmission rates and improve clinical outcomes.

Keywords: *COPD. Readmission.*

PC 143. HIDDEN IN PLAIN SIGHT – A CASE OF LATE-DIAGNOSED BULLOUS EMPHYSEMA

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Introduction: Vanishing Lung Syndrome, also known as giant bullous emphysema, is a rare radiological entity characterized by the presence of emphysema in the form of one or more bullae that occupy more than one-third of a hemithorax and compress the remaining lung parenchyma or mediastinum. These bullae typically appear in the upper lobes. It represents a phenotypic subtype of chronic obstructive pulmonary disease about which little is known, and its clinical manifestations may include dyspnea, cough, decline in lung function, and spontaneous pneumothorax. Regarding the latter, special caution is needed when evaluating chest radiographs, as the bullae can mimic the presence of pneumothorax. However, chest tube placement should be avoided due to the risk of persistent air leak. Chest CT is essential for differentiation.
Case report: We present the case of a 60-year-old male referred to our clinic due to the detection of bullous emphysema on routine preoperative chest CT for orthopedic surgery. The patient's medical history included childhood asthma, active smoking with a smoking history of approximately 50 pack-years, and a past history of intravenous and inhaled illicit substance use, including heroin, cocaine, and cannabis, with more than 10 years of abstinence. He reported only mild and longstanding dyspnea (mMRC 1). The chest CT that led to the referral described "features of centrilobular and paraseptal emphysema with very significant air bullae causing marked compression and restriction of lung parenchyma, particularly on the right side, with the largest bulla located in the previous topography of the middle lobe, measuring about 15.3 x 10 cm in its largest axis." Upon reviewing available previous radiological images, an area of hyperlucency overlapping the mediastinum was observed, with a denser line corresponding to the bulla wall. Vascular markings were not absent due to superimposition of the image of the remaining right lung parenchyma. This image had been present for at least 3 years, but never detected.
Discussion: We present a rare case of vanishing lung syndrome. This entity should be present in our mind, as it can radiologically mimic pneumothorax, a much more common condition but with a completely different treatment approach. Although this condition has been associated with tobacco and cannabis use, as well as other drugs, there is a lack of substantial data to verify these associations. Most reported cases involve the upper lobes and clinically present with pneumothorax due to bulla rupture. In our case, the presentation was different, but it remained undiagnosed for several years. This also highlights the importance of obtaining chest radiographs in both anteroposterior and lateral views, as well as the importance of a systematic approach to radiographic interpretation to avoid overlooking subtle changes. Treatment options include surgery, endobronchial valve placement for lung volume reduction, or even lung transplantation.

Keywords: *Vanishing lung syndrome. Giant bullous emphysema. Pneumothorax.*

PC 144. ADHERENCE TO INHALER THERAPY: CAN WE TRUST OUR PATIENTS?

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Introduction: Given the additional complexity of inhaled therapy, treatment adherence tends to be lower in patients with asthma or COPD, with estimates ranging from 22% to 78%. Objective and subjective tools allow us to infer our patient's adherence to inhaled therapy. This study aimed to evaluate and compare adherence rates in patients with asthma and/or COPD, using a subjective tool, the test of adherence to inhalers (TAI) questionnaire (see annex), and an objective tool, the proportion of days covered (PDC).
Methods: For 12 months, we included participants with asthma, COPD, or asthma-COPD overlap, in the context of consultation or hospitalization who agreed to participate in the study and filled out the TAI questionnaire (N = 196 participants). Clinical and demographic information was collected. Descriptive and comparative statistics were performed using parametric tests. The TAI and PDC scores were statistically evaluated by correlation.
Results: The mean age was 66.17 ± 14.64 years and 51% were male. 104 participants (53.1%) had COPD, 74 (37.8%) had asthma, and 18 (9.2%) had asthma-COPD. Only 40 participants (20.4%) completed high school and/or university education. The mean TAI score was 48.41 ± 3.32, with no statistically significant differences between groups by sex, education, or context. There was a statistically significant mean score difference of 1.62 ± 0.67 between patients with COPD (mean of 48.85) and overlap (mean of 47.22) (p = 0.017). Adherence was classified as good in 118 (60.2%) participants, intermediate in 56 (28.6%), and poor in 22 (11.2%). Good adherence and intermediate adherence were observed in 67.3% and 25.0% of participants with COPD, in 56.8% and 29.7% with asthma, and only in 33.3% and 44.4% with overlap, respectively. The mean PDC was 76.38 ± 23.70, with no statistically significant differences between groups by sex, education, or context. There was a statistically significant mean difference in PDC of 11.95 ± 3.62 between patients with COPD (mean of 82.24) and asthma (mean of 70.28) (p = 0.001), and of 14.62 ± 5.46 between patients with COPD and overlap (mean of 67.61) (p = 0.008). Adherence was good in 108 (55.1%) of the participants and poor in 88 (44.9%). Good adherence was observed in 67.3% of participants with COPD, in 43.2% with asthma, and only in 33.3% with overlap. A linear, positive, and mild correlation existed between the TAI score and the PDC (r = 0.37; p = 0.000). The agreement in the classification of adherence between these two tools in all participants, in COPD, asthma, and overlap was 64.2%, 75.0%, 51.3%, and 55.5%, respectively.
Conclusions: The inhaled therapy adherence rate in our sample matches the available literature. Our study showed that both adherence to inhaled therapy and agreement between the 2 tools (TAI and PDC) were significantly higher in patients with COPD. The reliability of subjective tools, such as the TAI, appears to be higher in patients with COPD than in patients with asthma.

Keywords: *Treatment adherence. Test of adherence to inhalers. Proportion of days covered. COPD. Asthma.*

PC 145. TRIPLE THERAPY IN COPD EXACERBATIONS – A RETROSPECTIVE STUDY

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Introduction: Bronchodilators are the basic therapy for COPD. Long-acting bronchodilators should be used: anticholinergics (LAMA) and B2 agonists (LABA). According to the 2023 GOLD initiative, in symptomatic patients with a history of exacerbations and peripheral eosinophilia, triple therapy (the two bronchodilators, LAMA and LABA, and inhaled corticosteroids) is indicated, with the aim of improving symptoms and reducing exacerbations. Some studies have shown that the early introduction of triple therapy after an exacerbation reduces the risk of subsequent severe exacerbations.
Objectives: To evaluate the introduction of triple therapy and whether early/late onset has an impact on the reduction of subsequent exacerbations in patients from our clinical practice.

Results: We included 38 patients (26 women, median age 70 years) diagnosed with COPD under triple therapy (TT) for at least one year. The triple therapy initiated was in 24 patients on multiple devices (open), and in 9 patients was later adjusted for single device (closed). In the remaining 14 patients, open TT was introduced ad initio. Fifteen patients started triple therapy in the first 30 days after an exacerbation and 13 patients in a later date; 10 patients had no history of exacerbation. In the year following the start of TT, patients had, on average, one less exacerbation, with no statistically significant difference between those who started triple therapy early or later. An ANOVA test found statistical significance ($p < 0.001$) in the decrease in exacerbations between patients who had at least two moderate exacerbations or at least one severe exacerbation (belonging to group E, GOLD 2023), who had on average 1.8 fewer exacerbations, and patients with a history of only one moderate exacerbation, who had on average 1.2 fewer exacerbations. Peripheral eosinophilia did not produce statistically significant differences in exacerbations after initiation of triple therapy.
Conclusions: Most of the patients included started triple therapy after an exacerbation, on multiple devices. Initiation of triple therapy in exacerbating COPD patients was associated with a reduction in subsequent exacerbations, with no influence of early or late onset. Sample size, the retrospective nature of the study, based on clinical records, and the underestimation and lack of adequate registration of COPD exacerbations, particularly moderate ones, may be limitations of this study.

Keywords: *COPD. Exacerbations. Triple therapy. Inhaled corticosteroids.*

PC 146. CHEST CT IN COPD EXACERBATION RISK AND SEVERITY

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Chantal Cortesão, Filipa Bento, Pedro Silva Santos

Introduction: Chest CT scan is not a requirement for COPD diagnosis and has been used mainly to assess comorbidities such as lung cancer. Despite this, several imaging markers have shown correlation to disease severity and prognosis. We aimed to examine the associations of several chest CT scan-identifiable markers with history of COPD exacerbation.
Methods: We included patients with previous diagnosis of COPD, followed in a tertiary hospital. We evaluated chest CT scans with regards to emphysema, bronchial wall thickening, presence of bronchiectasis, pulmonary trunk to aortic ratio, coronary calcifications and luminal plugging. Clinical data, including history of exacerbations in the past two years (2020-2022), was obtained from clinical records. Statistical analysis was performed in SPSS v.28. We included 44 patients, 36 males (82%), with a medium of 71 years of age.
Results: Twenty patients (45.4%) had no history of exacerbations and 24 (54.5%) had at least one severe exacerbation (15 patients) or two or more moderate exacerbations (9 patients). No statistically significant difference was found between CT-identifiable markers in exacerbating and non-exacerbating patients nor between patients who had severe COPD exacerbations and moderate exacerbations.
Conclusions: Several CT scan-identified markers have shown correlation to disease severity and prognosis. We found no association between presence and distribution of emphysema, bronchial wall thickening, presence of bronchiectasis, elevated pulmonary trunk to aortic ratio, coronary calcifications or luminal plugging with exacerbation history in our sample. Other alterations such as low lung density and quantification of emphysema were not taken into account and might have association with COPD exacerbation risk.

Keywords: *COPD. CT SCAN. Exacerbation.*

PC 147. SEVERITY CLASSIFICATION OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE EXACERBATIONS IN HOSPITALIZED PATIENTS: THE ROME PROPOSAL

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Introduction: The current severity classification of COPD exacerbation has limitations, since it is based on event information obtained a posteriori, about the use of additional medication and health services. A new proposal for evaluation of exacerbations severity, published in 2021, classifies them in mild, moderate and severe, according to 6 objective variables. Despite being contemplated in the 2023 GOLD guidelines, this classification system is not yet generalized in clinical practice, in evaluation and treatment of COPD patients.
Objectives: To apply the Rome Proposal on the classification of COPD exacerbation severity in patients admitted to the Pulmonology Ward, in the first 4 months of 2023.
Methods: Retrospective analysis of patients admitted to the Pulmonology Ward of a Central Hospital, with the diagnosis of acute exacerbation of COPD, from January to April 2023. Patients were classified according to the severity of the exacerbation into Mild, Moderate, or Severe, according to the following criteria analyzed at admission: heart rate, dyspnea, respiratory rate, peripheral oxygen saturation, C-reactive protein, hypercapnia, and acidemia.
Conclusions: According to the previous severity classification, analyzed COPD exacerbations would be called "severe", due to the need for hospitalization. After applying the new severity stratification proposal, only 46% of exacerbations are "severe". "Severe" exacerbations had a greater number of patients under NIV and a longer hospital stay. There were 11% of "mild" exacerbations requiring hospitalization, which probably reflects other clinical, laboratory and radiological criteria, not approached by Rome Proposal, such as isolated hypoxemia or decompensation of comorbidity(ies), for example.

Keywords: *COPD. Exacerbation. Classification.*

PC 148. HOSPITALIZATIONS FOR ACUTE EXACERBATION OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE: A DESCRIPTIVE ANALYSIS

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Introduction: The chronic obstructive pulmonary disease (COPD) is characterized by persistent and progressive obstruction of the airways, and its diagnosis is confirmed through spirometry. Currently, it is the third leading cause of death worldwide and represents a major public health issue. Being an underdiagnosed disease worsens the associated morbidity and mortality rates.
Objectives: To characterize the hospitalized patients diagnosed with acute exacerbation of COPD (AECOPD) in relation to demographic data, risk factors, spirometry results, therapeutic approaches, comorbidities, in-hospital mortality rate and readmission rate. To compare the group of patients with a confirmed COPD (cCOPD) diagnosis with the group of patients with suspected COPD (sCOPD – without spirometry).
Methods: Retrospective analysis of clinical records of patients hospitalized for AECOPD at Hospital Beatriz Ângelo in 2022. We considered for analysis the first hospitalization for AECOPD in that year. We performed descriptive statistics using Microsoft Excel and used IBM SPSS Statistics 22 to compare the two groups, considering results with a p-value < 0.05 statistically significant.

Results: We identified 99 patients hospitalized with an AECOPD diagnosis, 65% of them were male, with a mean age of 72 ± 12 years. The majority were smokers (47%) or ex-smokers (33%). The most frequent comorbidity was cardiac pathology (42%) and the primary cause of exacerbation was infection (75%). Among this population, only 52% had a confirmed diagnosis by spirometry, with an average FEV1 of 46% predicted. Vaccination rates were higher in the group with cCOPD vs sCOPD group (COVID-19: 82 vs 52%; flu: 66 vs 35%; 13-valent pneumococcal conjugate: 53 vs 21%; 23-valent pneumococcal polysaccharide: 31.4 vs 2.1%). We observed a higher proportion of patients on long-term oxygen therapy (LTOT) and noninvasive ventilation (NIV) prior to admission in the cCOPD group, but without statistical significance. During hospitalization, a significantly higher proportion of cCOPD patients experienced global respiratory failure (RF) (86 vs 69%) and required NIV (53 vs 31%). Likewise, the rates of systemic corticotherapy use and respiratory physiotherapy during hospitalization were higher in the cCOPD group (100 vs 67% and 96 vs 71%, respectively). At the time of discharge, the most prescribed inhaled therapy was triple therapy (cCOPD and sCOPD: 43 vs 27%), followed by dual bronchodilation (cCOPD and sCOPD: 37 vs 27%). 35% of cCOPD patients were discharged with indication for LTOT and 31% for NIV, while in the sCOPD group it was only 13% and 6%, respectively, with statistically significant differences. Finally, the in-hospital mortality rate was 4%, and the readmission rate at 3 months was 27% (similar in both groups).
Conclusions: Spirometry confirmation of COPD diagnosis is essential for correctly managing these patients. Vaccination rates in this sample were lower than recommended, despite being higher in the group of patients with cCOPD. The higher rate of RF and need for LTOT and NIV at discharge may be related to a greater disease severity in the cCOPD group or to the inclusion of patients without COPD in the sCOPD group.

Keywords: *COPD. Exacerbation. Hospitalization.*

PC 149. FEV1Q: IS IT A RELEVANT SPIROMETRIC ASSESSMENT IN COPD PATIENTS?

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Introduction: Chronic Obstructive Pulmonary Disease (COPD) is associated with persistent, often progressive, airflow obstruction. Evidence suggests a weak relationship between forced expiratory volume in 1st second (FEV1) and symptoms and health status in this disease. New spirometric parameters have been studied and related to clinical outcomes, such as the FEV1Q. FEV1Q is the measured FEV1 divided by the sex-specific 1st percentile value of the absolute FEV1. It has been proposed as the best related spirometric lung function parameter to all mortality and survival, however, its clinical role in specific diseases is unknown.
Objectives: To assess the relation between FEV1Q and the symptoms (dyspnea), exacerbations, GOLD ABE groups and estimated survival, according to the BODE index, in COPD patients.
Methods: We included COPD patients assessed in a Pulmonology appointment at Hospital da Luz Lisboa between January 2021 and June 2023. COPD was diagnosed according to GOLD criteria. Patients without spirometry data and information on symptoms and exacerbations were excluded. Demographic, clinical and functional data were collected through the clinical process. We calculated FEV1Q according to the equation: FEV1 (liters) divided by the sex-specific 1st percentile of the FEV1 (0.5L for males and 0.4 L for females). Continuous variables are presented as mean standard deviation and categorical variables presented as n (%). Post-bronchodilator FEV1Q value was compared in different groups according to: dyspnea (mMRC 0-1 vs mMRC 2), last 12 months exacerbations (0 or 1 moderate vs 2 moderate or 1 leading to hospitalization), GOLD ABE assessment tool and predicted survival, according to BODE index. Due to few individuals with a complete BODE index, two categorical groups were considered: 4 years survival of 80% and < 80%.
Results: We included 152 COPD patients, 70.29.8 years old and 94 (61.8%) were male. The pos-bronchodilator FEV1 was 73.319.9%. The BODE index was calculated for 55 patients. We documented differences in FEV1Q according to the dyspnea (mMRC 0-1: 4.81.5 vs mMRC 2: 3.61.4, $p < 0.001$), exacerbations (4.41.5 vs 3.41.6, $p = 0.011$), GOLD ABE groups ($p < 0.001$) and estimated survival (4 years survival of 80%: 4.30.9 vs < 80%: 2.61.0, $p < 0.001$). Regarding GOLD ABE groups, we documented differences between A-B (4.91.4 vs 3.61.2, $p < 0.001$) and A-E (4.91.4 vs 3.41.6, $p < 0.001$) but no statistical difference between B-E ($p = 0.695$).
Conclusions: In this sample of COPD patients, the FEV1Q presented differences according to the symptoms, exacerbations and survival based on BODE index. Considering the GOLD ABE groups, we also documented differences between A group and other groups; however, we did not find differences between B and E groups which could be related with the lower survival of these groups. In conclusion, FEV1Q can be a promisor spirometric parameter to access COPD patients, however more studies are needed, including to access changes over time.

Keywords: *COPD. FEV1Q. Spirometry.*

PC 150. SURGICAL MANAGEMENT OF INFECTIOUS PULMONARY CONDITIONS: A 5-YEAR SINGLE CENTER EXPERIENCE

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Introduction: Surgical treatment in infectious pulmonary disorders is usually reserved to symptomatic patients with focal disease pathology and no effective response to medical treatment. This study will focus on 4 major conditions: bronchiectasis, aspergillosis, tuberculosis, and lung abscesses. Although showcasing a vastly different biological nature, these conditions normally display a favorable outcome with conservative therapy. However, in some cases, surgery may play an important role in symptomatic control and prevention of long-term disease progression. We aim to evaluate the impact of surgery in the treatment of infectious pulmonary conditions.
Methods: We performed a retrospective cohort analysis of all patients with infectious pulmonary diseases who underwent surgical resection from 2018 to 2022 in our institution.
Results: During the 5-year period, 43 patients were considered. There was a slight female predominance (51%) and a mean age of 50.5 (± 18.5) years. Many patients had underlying lung disease, including asthma (7%), chronic obstructive pulmonary disease (14%) and previous history of severe pneumonia (14%) and lung tuberculosis (19%). When solely considering the patients affected with aspergillosis, 36% exhibited cavitary lung lesions from past tuberculosis infection. The most common presenting symptoms were productive cough (42%), dyspnea (26%) and recurrent hemoptysis (26%). 10 patients (23%) were asymptomatic but showed persistent radiological abnormalities. Surgery was indicated in the treatment of bronchiectasis in 16 patients (37%); aspergillosis in 14 (33%), tuberculosis in 9 (21%) and lung abscess in 4 patients (9%). The procedures comprised pneumonectomy (9%), bilobectomy (4%), lobectomy (42%), segmentectomy (9%) and wedge resection of lung lesions (36%). In 64% of patients, surgery was per-

formed on the right lung. Thoracotomy was conducted in 51% of surgical procedures while the reminiscent were performed through videoassisted thoracoscopy. The conversion rate to open surgery was 2% (one case required conversion for adequate hemostatic control). The median drainage time was 5 [1-22] days and median hospital stay was 7 [2-39] days. The minor morbidity rate was 14% (Clavien Dindo II) whereas major morbidity rate was also 14% (Clavien Dindo III-V). Major complications comprehended recurrence of pneumothorax, requiring replacement of pleural drainage (8%); empyema, needful of surgical decortication (8%); development of lung abscess with resulting lobectomy (8%); hemothorax, with the need of surgical hemostasis (8%) and respiratory failure requiring reintubation (17%). Mean follow-up time by Thoracic Surgery was 6.8 (± 9.8) months. There were no cases of perioperative or 30-day mortality. The survival rate, 1 year after surgery, was 98%. Conversely, 30 patients (69.8%) experienced clinical improvement after surgery.
Conclusions: Infectious pulmonary conditions can lead to complications which greatly impact the respiratory capacity and quality of life. Unsuccessful medical treatment is the main indication for surgery. Although this is a very heterogenous group of patients, our study confirmed that surgical treatment is effective, playing an important role in symptomatic improvement. Surgery reduces the morbidity and mortality rates with careful preoperative planning and in appropriately selected cases.

Keywords: *Infectious pulmonary disease. Bronchiectasis. Tuberculosis. Aspergillosis. Lung abscess. Surgery.*

PC 151. A RAGING CHEMICAL PNEUMONIA – A CASE REPORT OF SEVERE FIRE BREATHER'S LUNG

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Introduction: Fire breather's lung is a rare entity ensuing from manipulation of liquid hydrocarbons namely paraffin due to its high explosive feature. Aspiration lipoid pneumonitis constitutes a serious complication. The lipid component of paraffin generates an exacerbated inflammatory reaction that results in destruction of alveolar structures, edema and abundant mucus secretion and interstitial lung necrosis. Recognition of imaging findings and assertion of accidental exposure is essential for establishing a prompt diagnosis and determining the best course of treatment. Evidence published shows a good clinical response to conservative therapy. Very few cases have been reported requiring surgical approach. Herein, we present a surgical case of fire-breather's lung with rapid pathologic deterioration. In our center, only two cases of chemical pneumonitis were accounted for requiring surgery, the first of which was published in 2020.
Case report: A 21-year-old male smoker presented in the emergency department after accidental aspiration of liquid paraffin from blowing fire. He exhibited fever, cough and pleuritic pain but did not show signs of difficulty breathing. Chest X-ray revealed a heterogeneous hypotransparency on the right hemithorax. Treatment with oral amoxicillin-clavulanic acid and azithromycin was initiated and the patient was discharged on the same day. Clinical deterioration dictated the return to the emergency room after 72 hours with an acute onset of respiratory distress and hemoptysis. Chest auscultation disclosed crackles on the right side and blood tests displayed a rise of inflammatory markers. CT scan revealed middle lobe abscess and necrosis as well as cavitary lung nodules in the right and left lower lobes. A bronchoscopy demonstrated extensive inflammation and drainage of purulent fluid from the bronchus intermedius. Antibiotic treatment was escalated to piperacillin-tazobactam and respiratory rehabilitation was started. However, poor clinical response and worsening of infection parameters favored the need for surgical resection. A middle lobe lobectomy and wedge resection of the right lower lobe lesion was performed through muscle-sparing thoracotomy with evidence of extensive infected parenchymal destruction of the middle lobe. After the procedure, the patient experienced substantial clinical improvement and increase in respiratory capacity. Pleural drainage removal and subsequent hospital discharge took place on the 5th post-operative day. One month after surgery, the patient is asymptomatic with resolution of the left lung lesion and no evidence of complications.
Discussion: Aspiration of exogenous toxic substances and specifically hydrocarbons can lead to chemical pneumonitis and culminate in lung parenchymal destruction and severe chronic disease. Awareness should be emphasized to the possible hazards of accidental exposure and the potential respiratory distress and delayed clinical decline. In most cases, early antibiotic and supportive therapy allow for disease control. Lung necrosis is extremely rare and yet is a life-threatening complication, requiring surgical removal of the destroyed parenchyma. Our case reflects an atypical poor prognosis of fire breather's lung disease, disclosing the pivotal role of Thoracic Surgery in the treatment of severe complications from toxic pulmonary exposure.

Keywords: *Fire breather's lung. Chemical pneumonitis. Lipoid pneumonia. Paraffin. Lung necrosis. Surgery.*

PC 152. SPONTANEOUS PNEUMOTHORAX FOLLOWING RIGHT INFERIOR LOBECTOMY – A COINCIDENTAL FINDING.

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Introduction: Prolonged air leak (PAL) is the most common complication of lung resection surgery, with an incidence of 15 to 18%. In the literature, there is few evidence regarding spontaneous pneumothorax following lung resection surgery.
Case report: A 49 years old male patient and a former-smoker (20 pack-year's) was referred to Thoracic Surgery consult due to an endobronchic hamartoma in right B6 (diagnosed by rigid bronchoscopy). Submitted to right inferior lobectomy by VATS, without complications, with thoracic drain removal and discharge on the 2nd post-op day. The patient was admitted in the emergency room 3 days after, with dyspnea and subcutaneous emphysema on the right hemithorax. The thoracic radiography showed a large volume pneumothorax and a Jolly 18Fr drain, with a low pression suction system (Thopaz®), was placed. The next day, the right lung was fully expanded, however it kept a persistent air leak (about 200-400 ml/min). The low pression suction was removed on the 8th day of admission, with a persisting air leak. Due to the PAL, the surgical team decided to re-intervene, in order to revise the aerostasis, which was performed on the 18th day of admission. During the surgery, no air leak was found on the bronchial stump. However, a ruptured bleb was identified and, consequently, a wedge resection and chemical and mechanical pleurodesis was performed. The patient showed a satisfactory clinical development, removing the thoracic drain and being discharged on the 4th post-op day.
Discussion: This case highlights the importance of considering different etiologies of a post-surgical PAL, particularly in a patient with risk factors for a spontaneous pneumothorax. A prospective study could enlighten the true incidence of this coincidental finding and, perhaps, change the current therapeutic and surgical approaches.

Keywords: *Pneumothorax. Prolonged air leak.*

PC 153. TERATOMAS: A DIFFERENTIAL DIAGNOSIS IN MASSES OF THE ANTERIOR MEDIASTINUM THAT MUST NOT BE FORGOTTEN

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Introduction: Teratomas of the mediastinum are rare and the anterior mediastinum is the most common extragonadal location of these tumors. Most of the mediastinal teratomas are mature teratomas therefore being benign. Benign teratomas have no sex predilection and are more common in early adulthood (between 20 and 40 years old). These tumors are mostly asymptomatic so its diagnosis is mainly incidental by a chest X-ray or CT scan performed for other reasons. CT scan of the chest is the imaging method of choice and usually reveals well demarcated and lobulated masses, cystic or mostly cystic with calcifications and areas of fat. The presence of a fat-fluid level is pathognomonic for teratomas but rarely seen. As most mediastinal teratomas are located in the anterior mediastinum, they can be misdiagnosed as thymomas. Complete surgical excision is the treatment of choice and prognosis after resection is excellent. Malignant transformation is rare.
Case report: A 60 year old woman presented with chronic cough after Covid-19 infection. Chest X-ray revealed a bulky mass occupying most of the left hemithorax and the right lower hilar region. CT showed a large mass in the anterior mediastinum protruding to the left hemithorax with 15 centimeters, with a density mainly cystic and peripheral calcifications. Beta-human chorionic gonadotropin (beta-hCG) and alpha-fetoprotein (AFP) were normal. MRI showed a heterogeneous mass with some areas of fat tissue and some cystic areas, with a right deviation of the mediastinum but neither infiltration nor apparent invasion of surrounding structures. The patient underwent complete surgical excision of the lesion by median sternotomy. The hospital stay was uneventful and she was discharged three days after the surgery. Histological examination revealed a benign neoplasm with characteristics of mature cystic teratoma. The postoperative CT scan one year after the surgery showed no signs of recurrence of the tumor.
Discussion: Teratomas of the anterior mediastinum present a rare clinical scenario. Although rare, mediastinal teratomas can attain a substantial size and represent a diagnostic challenge due to their heterogeneous composition. A successful outcome is dependent on precise preoperative evaluation and complete surgical excision. This case report enhances the importance of considering teratomas in the differential diagnosis of anterior mediastinal masses and its timely surgical intervention for the best prognosis on a long run. Sharing such cases is of clinical importance to help other medical practitioners that encounter similar cases.

Keywords: *Teratoma. Germ cell tumor. Anterior mediastinum. Surgery.*

PC 154. CARDIOPULMONARY EXERCISE TESTING (CPET) WITH CYCLE ERGOMETER IN PREOPERATIVE EVALUATION FOR LUNG RESECTION SURGERY: EXPERIENCE FROM A HOSPITAL CENTRE

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Introduction: Certain parameters assessed during Cardiopulmonary Exercise Testing (CPET) with cycle ergometer, particularly peak oxygen uptake (VO2), are used to stratify postoperative risk following lung resection surgery. However, the established thresholds for predicting postoperative mortality and morbidity were mainly derived from patients undergoing thoracotomy, while minimally invasive surgical methods, such as video-assisted thoracoscopic surgery (VATS), are now increasingly used. Other factors may also be associated with unfavorable events in patients undergoing surgery.
Objectives: The aim of this study is to analyze the relationship between certain clinical and functional factors and some CPET-derived variables with the occurrence of postoperative complications after lung resection surgery, based on the experience of a Central Hospital.
Methods: A retrospective analysis of patients who underwent CPET as part of the preoperative evaluation for lung resection surgery between 2010 and the first half of 2023. Statistical analysis was performed using SPSS (IBM Statistics 26).
Results: Among 32 patients who underwent CPET to assess conditions for lung resection surgery, only 20 underwent surgery. Most patients were male (55%; n = 11), and mean age was 60.4 (± 11.2) years. The indication for surgery was mostly due to oncological disease (n = 18) and only in two cases due to emphysema (n = 1) and bronchiectasis (n = 1). Most patients underwent lobectomy (n = 16; 80%), 13 patients underwent VATS. The postoperative complication rate was 25% (n = 5), with 2 patients having more than one cardiopulmonary complication. However, there were no deaths in the first 90 postoperative days. The most frequent complication was pneumothorax (n = 4), followed by respiratory infection (n = 1), unilateral pleural effusion (n = 1), and cardiac arrhythmia (n = 1). Mean peak VO2 was 20.9 mL/kg/min (17.1-23.8) in patients who developed some complication and 19.5 mL/kg/min (10.0-26.6) in patients without any postoperative complication (p = 0.24). The proportion of patients with peak VO2 of < 15 mL/kg/min, 15 to < 20 mL/kg/min, and 20 mL/kg/min developing at least one postoperative complication was 0.0, 22.0, and 33.0%, respectively. The mean O2 pulse was 80.4% (± 13.3%) in the group of patients with some complication and 98.1% (± 15.6) in the group without any postoperative complication and this difference was statistically significant (p = 0.02).
Conclusions: In this patient sample, there was only a statistically significant association between O2 pulse and the occurrence of postoperative complications. Although VO2 is a well-established parameter for predicting complications following lung resection surgery, this study does not provide support for such an association. VATS has increasingly been favored as an alternative to thoracotomy and is generally associated with a lower rate of postoperative complications. Therefore, prospective studies are needed to define the thresholds for parameters such as peak VO2, as well as other variables derived from CPET with potential in the preoperative risk assessment of patients proposed for lung resection surgery.

Keywords: *Postoperative complications. Cardiopulmonary exercise testing. Peak oxygen uptake. Oxygen pulse. Lung resection.*

PC 155. MANAGEMENT OF CHEST DRAINAGE IN THE OUTPATIENT POSTOPERATIVE SETTING: CASE SERIES REPORT

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Introduction: The management of chest drainage after lung resection surgery remains an evolving science. The maintenance and decision to remove a chest tube continues to be influenced by the surgeon's personal experience and access to new technologies-portable and digital drains for example-and the duration of chest

tube drainage is an important factor in patient morbidity and length of stay. One of the concerns and complications frequently observed after surgery is persistent air leak one of the most common postoperative complications, occurring in 15% of patients undergoing lung resection - which can now be safely managed in the outpatient setting using portable drainage systems.
Case reports: Case report 1: Male, 73 years old, submitted to left upper lobectomy sparing the lingula and VATS mediastinal lymph node dissection for pulmonary nodule suspected of neoplasm - pT-1bN0M0 - IA2. Discharge on the 4th day post op. Reassessed on the 6th day post op - air leak maintained, lung expanded, drain mobilised by about 5 cm. 12th day post-op - no air leak, drain clamped with chest X-ray with good expansion and no collections. Drain removed and biotrol bag left to reassess fluid (dressing with yellow fluid). Biotrol bag removed on the 13th day. Case report 2: Male, 52 years old, non-smoker, plumber with exposure to asbestos. Excellent general condition, diagnosis of malignant pleural mesothelioma of the right epithelioid type, submitted to pleurectomy/extended decortication-ypT2N0. Due to the maintenance of a low output airway fistula, he was discharged on the 16th postoperative day with a portable drainage device, with indication for reassessment. Drain removed 3 weeks post-op. Case report 3: A 65-year-old male with a history of tuberculosis sequelae and status post wedge resection of LSE adenocarcinoma. He underwent LSD, wedge resection of the right lower lobe and VATS mediastinal lymph node dissection for a pulmonary nodule suspected of neoplasm - CPC pT-1bN0. Discharge 17th day post-op. Re-evaluation 27th day post-op asymptomatic, chest X-ray superimposed on discharge. Obstructed drain with minimal serous drainage, replaced with 24f pezzer. Drain removed on 34th day post-op.
Discussion: There was no presentation of major pneumothorax or subcutaneous emphysema at discharge, and the presence of small apical pneumothorax is not a contraindication for outpatient management, leading all cases to be good candidates for outpatient management due to persistence of low output air fistula. There were no complications or development of infectious complications such as pneumonia or empyema, and in the 1st case prophylactic measures were instituted such as progressive drain exteriorisation in the 1st week and drain removal within 20 days post-op. No mortality or increased morbidity was observed in all cases. A decrease in hospitalisation times was observed in these patients, suggesting that this type of management should be incorporated into the postoperative care protocol.

Keywords: *Chest drainage. Persistent air leak. Lung resection. Decortication and pleurectomy.*

PC 156. HOSPITAL SCORE: REAL LIFE APPLICATION IN A TERTIARY HOSPITAL PULMONOLOGY WARD

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Introduction: Hospital readmission after discharge from a ward is common and carries high healthcare costs. The HOSPITAL score is a validated tool to identify patients at risk of potentially avoidable hospital readmission within 30 days of discharge. This study aims to demonstrate the practical application of this score in patients admitted to the pulmonology ward of our hospital, as well as to assess whether its result is concordant with hospital readmission at 30 days and which additional variables may influence readmissions in respiratory patients. 3 patients admitted to the Pulmonology ward in 2022, both with readmission at 30 days and without, were selected and the HOSPITAL score was applied. Data were collected from the hospital clinical records.
Case reports: Case 1: Female, 48 years old. Personal history (PH) of stage IV breast cancer. Hospitalized for 14 days due to respiratory distress in the context of neoplastic pleural effusion. With anemia and hyponatremia at discharge; known oncological pathology; undergoing procedure coded in ICD-9; current urgent admission; with one admission in the previous year. HOSPITAL score of 8 (high risk). Readmitted within 30 days of discharge for recurrence of pleural effusion. Case 2: 80-year-old male. PH of COPD and heart failure with preserved ejection fraction. Hospitalized for 25 days for acute COPD due to acute tracheobronchitis without isolated agent, requiring non-invasive ventilation (NIV) due to respiratory acidemia. Anemia at discharge; current urgent admission; undergoing ICD-9 coded procedure (NIV); no hyponatremia, no known oncological pathology and no admissions in the previous year. Hospital score of 4 (low risk). Readmitted within 30 days of discharge for a new COPD exacerbation. Case 3: Male, 19 years old. No known PH, no previous visits to the Emergency Department (ER). Hospitalized in March 2022 for primary spontaneous pneumothorax, for 10 days due to delayed lung expansion. No anemia or hyponatremia at discharge; no known oncological pathology; undergoing ICD-9 coded procedure; current urgent admission; no admissions in the previous year. Hospital score of 4 (low risk). Readmitted 2 weeks after discharge for recurrence of pneumothorax.
Discussion: Although the Hospital score is a validated tool to identify the risk of hospital readmission at 30 days, it has some limitations, as illustrated by the cases presented (readmission of a patient with a low risk score and despite his young age; readmission of a patient with a second COPD exacerbation). Although this score is validated for hospitalizations for any pathology, it is a general score that leaves out the particularities of certain subgroups of patients, such as respiratory patients. Thus, although it is a useful tool for identifying patients at risk of readmission, it is essential to develop a score adapted to our inpatient population, which includes the presence of certain underlying pathologies as a risk factor, as well as changes in chest imaging or respiratory function.

Keywords: *HOSPITAL score. Readmission. Ward.*

PC 157. CEMENT LUNG? A CASE OF CEMENT IMPLANTATION SYNDROME

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Introduction: Cement implantation syndrome (CIS) is a rare but potentially serious condition that can occur during or after joint replacement surgery using cement, typically within 48 hours. It is characterized by the presence of hypotension, hypoxemia, or both, and may or may not be accompanied by loss of consciousness.
Case report: A 70-year-old man with a history of hypertension and diabetes mellitus, without relevant pulmonary antecedents, presented to the Emergency Department of HSM (Hospital Santa Maria) due to a fall at home resulting in a traumatic fracture of the left femur. He underwent cemented hip arthroplasty and was admitted to the Orthopedics department. Approximately 24 hours later, the patient developed a sudden onset of dyspnea and peripheral desaturation, which worsened progressively over a few hours and did not respond to implemented oxygen therapy. Internal Pulmonology Emergency was activated for diagnostic and therapeutic guidance. Upon examination, the patient was hemodynamically stable but tachypneic while receiving supplementary oxygen through a Venturi mask with an FiO2 of 60%, with SpO2 at 86%. The following relevant findings were observed during complementary evaluation: Arterial blood gas analysis (with FiO2 60%): pH 7.44, pCO2 35 mmHg, pO2 57 mmHg, HCO3- 23.8 mmol/L, sO2

86%. Laboratory evaluation: leukocytosis (15,000/µL) with neutrophilia (89%), C-reactive protein 18 mg/dL, procalcitonin 0.3 ng/mL. SARS-CoV-2 Antigen test: negative. Contrast-enhanced chest CT scan: ruled out pulmonary embolism, showed evidence of bilateral scattered areas with crazy paving pattern and some foci of alveolar consolidation. Therefore, after ruling out other more common diagnoses and considering the recent cemented joint prosthesis placement, the probable diagnosis of Cement Implantation Syndrome was considered. High-flow oxygen therapy (HFOT) and corticosteroid therapy with Methylprednisolone 1 mg/kg were initiated, leading to progressive clinical and radiological improvement during hospitalization.
Discussion: CIS is a rare and potentially fatal complication of orthopedic surgery involving cement implantation, and it should be considered in patients with sudden dyspnea in the postoperative period. Although the pathophysiological mechanism is not entirely understood, the treatment during the acute phase involves early initiation of corticosteroid therapy and supportive organ function measures.

***Keywords**: Cement. Arthroplasty. Respiratory failure.*

PC 158. STRUCTURED MONITORING OF THE INHALATION TECHNIQUE: EXPERIENCE IN A HOSPITAL CENTER

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Introduction: The inhalation route is the preferred method for administering therapy in the treatment of respiratory diseases. Incorrect use of inhalation devices and non-adherence to therapy have a frankly negative influence on the therapeutic efficacy of inhaled drugs. Medical doctors and nurses have a central role in patient follow-up and education, particularly in monitoring and optimizing the inhalation technique at each visit.
Objectives: Evaluate, record and correct in a structured way the performance of patients in carrying out the inhalation technique, with their device, in a hospital consultation.
Methods: Patients seen in a Pulmonology consultation, from March to June 2023, with a diagnosis of COPD, Asthma, Asthma/COPD Overlap or Bronchiectasis, medicated with inhaled therapy, and who consented to participate in the investigation were included. The patients were evaluated in medical and nursing consultations, where the inhalation technique was checked, the main errors in its execution were identified, recorded and corrected. The document of the "7 steps of the inhalation technique" (Inhaler Standards and Competency Document, UK Inhaler Group 2019) was used. The demographic and clinical data of each participant were obtained from the clinical file, ensuring the anonymization of the data.
Conclusions: A high proportion of patients (78%) had at least 1 step with associated technical error. It should lead to reflection, since most patients were followed up in a hospital consultation (82%) and had been medicated for more than 6 months (78%). The inhalation technique steps with the highest frequency of associated errors were step 3 (41%), step 5 (35%) and step 6 (27%). Most of the errors seen were not related to the type of device. It is worrying the difficulty of adapting the inspiration according to the devices, observed with the Aerosphere and the SMI. Ellipta was the device with least occurrence of errors. The sample size does not allow us to identify factors associated with the inhalation technique.

***Keywords**: Inhaled therapy. Inhaler device. Patient education.*

PC 159. MAINTENANCE OF PULMONARY REHABILITATION BENEFITS: IMPACT OF A PERSONALISED COMMUNITY-BASED PHYSICAL ACTIVITY PROGRAMME (PICK UP) FOR PEOPLE WITH COPD

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Introduction: Pulmonary rehabilitation (PR) is a grade-A evidence-based intervention to manage people with chronic obstructive pulmonary disease (COPD), with recognised benefits in several health-related domains (e.g., functional status and symptoms). Nevertheless, extending PR benefits on the long-term remains an important research challenge, and the optimal maintenance strategy is yet to be determined. Inclusion of people with COPD in community-based physical activities (PAs), which incorporate various PA facilitators (e.g., proximity, social inclusion, supervision), may encourage adherence to a sustained physically active lifestyle, thereby, maintaining PR benefits on a long-run. This study aimed to assess the effectiveness of a community-based PA programme (PICk UP) in sustaining several health-related PR benefits, over a six-month period, in people with COPD. This multicentre, parallel, randomised controlled trial (NCT04223362/NCT04711057) included people with COPD who had completed a community-based PR programme running in four primary healthcare centres (Aveiro, Estarreja, Oliveira-do-Bairro and Montemor-o-Velho) and in the Lab3R-ESSUA (School of Health Sciences, University of Aveiro).
Methods: Participants were randomly assigned to the experimental group (EG), enrolling in community-based physical activities (i.e., gym, senior exercise classes, pool exercise classes and Chi Kung) for six-months, or to the control group (CG), proceeding with standard care. Immediately after PR and after three- and six-months, the following outcomes were assessed: functional status (six-minute walk test, 1minute sit-to-stand [1-minSTS] and physical performance test); peripheral muscle strength (quadriceps maximal voluntary contraction and handgrip, both using hand-held dynamometry); balance (Brief-Balance Evaluation Systems); symptoms (COPD Assessment Test, Checklist of Individual Strength-fatigue subscale and Functional Assessment of Chronic Illness therapy–fatigue subscale); emotional status (Hospital Anxiety and Depression Scale); and health-related quality of life (St. George's Respiratory Questionnaire). Effectiveness of the PICk UP trial was assessed using the intention-to-treat approach (inclusion of all randomised individuals) through unadjusted linear mixed models followed by post-hoc multiple comparisons.
Results: This study included 61 participants, 32 in the EG (84% male, 70.1 ± 9.2 years, FEV1 60 ± 16.7% predicted) and 29 in the CG (83% male, 69.1 ± 7.7 years, FEV1 53.9 ± 16.5% predicted). A significant time-group interaction was found for the 1-minSTS test ($p < 0.05$). There was a significant difference between the groups at the six-month follow-up: the CG performed 2.6 fewer repetitions at the six-month follow-up than at baseline, compared to the EG. For the other outcomes, there was neither a significant time-group interaction nor differences between the groups.
Conclusions: Engaging people with COPD in community-based PA programmes can effectively prevent the decline in sit-to-stand performance after six-months of PR. The remaining PR benefits were maintained in both groups. Future studies with longer follow-up periods (up to one or two years) are needed to confirm whether these results are similar in the long-term.

Keywords: *Physical activity. Behavioural change. Community. Chronic respiratory diseases.*

PC 160. EFFECTS AT 2-MONTHS FOLLOW-UP OF PULMONARY REHABILITATION IN OUTPATIENTS WITH AN EXACERBATION OF COPD – A RANDOMIZED CONTROLLED TRIAL

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Introduction: People with chronic obstructive pulmonary disease (COPD) frequently suffer from exacerbations (ECOPD), which have a negative impact on health status and disease progression. Pulmonary rehabilitation (PR) is a well-established intervention for the management of stable COPD. Nevertheless, uncertainty regarding the effects of PR in patients with ECOPD still exists, namely in those with mild and moderate ECOPD, managed in outpatient settings.
Objectives: To explore the effects at 2-months follow-up of a home-based PR programme on disease impact and physical activity in outpatients with ECOPD.
Methods: A randomized controlled trial (NCT03751670) was conducted in outpatients with ECOPD. Patients were included within 48h of the diagnosis of ECOPD and randomly assigned to the control (CG, i.e., standard medication) or experimental (EG, i.e., standard medication plus 3-weeks of home-based PR [breathing control, airway clearance techniques, exercise training, psychoeducational support]) groups. Impact of the disease and physical activity levels were assessed at inclusion (Pre), after 3weeks (Post) and 2-months after the Post assessment (FU2M) with the COPD assessment test (CAT) and the brief physical activity assessment tool (BPAAT), respectively. For these outcome measures, comparisons within and between groups were explored with (non-)parametric mixed ANOVAs followed by Bonferroni-adjusted pairwise comparisons. Exacerbation recurrency and ECOPD-related unscheduled healthcare visits were explored at the FU2M, and comparisons between groups were performed with Chi-square and Mann-Whitney U tests.
Results: Fifty outpatients with ECOPD (78% male, 69.7 ± 10.7 years, FEV1 47.4 ± 16.4%pred) were included. Superior results were found in the EG in comparison to the CG for both the CAT ($p = 0.006$) and the BPAAT ($p < 0.001$). At FU2M, patients in the EG were able to maintain the benefits obtained with PR in the CAT (Pre 23.1 ± 7.1 vs. Post 10.6 ± 5.4 vs. FU2M 8 ± 4.7) and BPAAT (Pre 0 [0; 0] vs. Post 3 [2; 5.5] vs. FU2M 4 [0; 4]), while the CG could maintain the improvements obtained at the post assessment for the CAT (Pre 23.2 ± 7.1 vs. Post 17.4 ± 9.5 vs. FU2M 13.6 ± 7.7) and had no improvements in the BPAAT (Pre 0 [0; 0] vs. Post 0 [0; 0] vs. FU2M 1 [0; 4]). The number of ECOPD-related unscheduled healthcare visits (EG 0 [min 0; max 1] vs. CG 0 [min 0; max 8], $p = 0.165$) and the number of patients suffering a re-exacerbation were similar in both groups (EG 2 vs. CG 4, $p = 0.667$).
Conclusions: A 3-weeks home-based PR programme in outpatients with ECOPD is more effective than just standard medication not only in improving patients' physical activity levels and impact of the disease, but also in maintaining those improvements during 2-months follow-up. No additional benefits of PR were found on exacerbation recurrency or ECOPD-related unscheduled healthcare visits. Future larger studies with longer follow-up periods are needed to confirm these findings and further explore the role of PR in the prognosis of these patients.

Keywords: *Chronic obstructive pulmonary disease. ECOPD. PR. COPD assessment test. Physical activity. Exacerbation recurrency.*

PC 161. CHARACTERIZATION OF SYMPTOMS OF DEPRESSION, ANXIETY AND STRESS IN A POPULATION OF PATIENTS INTEGRATED IN A PULMONARY REHABILITATION PROGRAM

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Introduction: Depression and anxiety are prevalent comorbidities in patients with respiratory diseases, particularly in chronic obstructive pulmonary disease (COPD), with an impact on exacerbations and mortality.
Objectives: To characterize the prevalence and severity of symptoms of depression, anxiety and stress in a group of patients integrated in a Pulmonary Rehabilitation Program (PRP) and its correlation with other outcomes evaluated in PRP.
Methods: Observational unicentric study (Lisbon-Portugal) using the questionnaire DASS-21 (Depression, Anxiety and Stress Scale) in the initial evaluation of the PRP.
Results: Forty-two patients were included, with mean age of 68.1 ± 10.4 years, 64.3% men (n = 27), 71.4% former smokers (n = 30) and 4.8% current smokers (n = 2), 21.4% with BMI 21 kg/m^2 (n = 9) and 21.4% with BMI > 30 kg/m^2 (n = 9). The most frequent diagnoses were COPD (n = 22; 52.4%), interstitial lung diseases (n = 6; 14.3%), asthma (n = 4; 9.5%) and pleural diseases (n = 4; 9.5%). There was a predominance of obstructive ventilatory defect, with mean FEV1% pred 62 ± 26 (1.57 ± 0.71L). The mean mMRC (modified Medical Research Council) Dyspnea Scale value was 1.88 ± 0.86, with mMRC3 in 23.8% (n = 10). Fifteen patients presented chronic respiratory failure. According to the recommended cut-off scores (Lovibond, 1995), 31% of patients presented increased scores in the depression (DASS-depression) and anxiety (DASS-anxiety) subscales and 19% of patients in the stress (DASS-stress) subscale. Psychopathology was already diagnosed in ten patients (depression in 8 patients and anxiety in 5 patients). After the application of the DASS-21 questionnaire, four other patients were further referred to Clinical Psychology. The subscales DASS-depression and DASS-anxiety presented a positive correlation with the depression and anxiety subscales from Hospital Anxiety and Depression Scale (HADS): $r = 0.613$ ($p = 0.005$) and $r = 0.700$ ($p < 0.001$), respectively. The subscale DASS-depression presented a positive correlation with DASS-anxiety ($r = 0.753$; $p < 0.001$), DASS-stress ($r = 0.720$; $p < 0.001$), HADS-depression ($r = 0.613$; $p = 0.005$), HADS-anxiety ($r = 0.772$; $p < 0.001$) and the London Chest Activity of Daily Living (LCADL) ($r = 0.448$; $p = 0.010$), and a negative correlation with the Pulmonary Rehabilitation Adapted Index of Self-Efficacy (PRAISE) ($r = -0.592$; $p = 0.005$) and the distance covered in the six-minute walk test ($r = -0.318$; $p = 0.046$). As for the subscale DASS-anxiety, there was a positive correlation with DASS-stress ($r = 0.877$; $p < 0.001$), HADS-anxiety ($r = 0.700$; $p < 0.001$), HADS-depression ($r = 0.513$; $p = 0.025$), COPD Assessment Test (CAT) ($r = 0.771$; $p = 0.001$), LCADL ($r = 0.460$; $p = 0.008$) and a negative correlation with PRAISE ($r = -0.658$; $p = 0.001$). The subscale DASS-stress showed a positive correlation with HADS-depression ($r = 0.631$; $p = 0.004$) and HADS-anxiety ($r = 0.751$; $p < 0.001$) and a negative correlation with PRAISE ($r = -0.624$; $p = 0.003$).
Conclusions: The use of the questionnaire DASS-21 pointed to an increased prevalence of symptoms of anxiety and depression in about one-third of the patients in PRP, presenting a correlation with other outcomes evaluated and being associated with decreased functional capacity and decreased self-efficacy in disease management. Although the use of DASS-21 is already validated for COPD patients in Pulmonary Rehabilitation, further research is necessary to evaluate its use in other pulmonary diseases, as well as its responsiveness to evaluate the effects of PRP.

Keywords: *DASS-21. Depression. Anxiety. Stress. Pulmonary rehabilitation program. Psychology. Mental health.*

PC 162. TUBERCULIN SKIN TEST IN TUBERCULOSIS SCREENING IN PSORIATIC PATIENTS

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Introduction: The diagnosis of latent tuberculosis infection (LTBI), with tuberculin skin test (TST) and IGRA (Interferon-Gamma Release Assay), is mandatory prior biological treatment. Recent studies suggest that TST results could be associated to psoriasis severity, which can result in greater discordance between TST and IGRA results in these patients.
Objectives: The aim of this study is to evaluate the discordance between TST and IGRA in the TBIL screening in patients with psoriasis and in patients with autoimmune pathologies without cutaneous involvement, proposed to biological treatments.
Methods: Case control study with adult patients referred to the Center for Pneumological Diagnosis for LTBI screening before biological treatments, between July 2021 and July 2022. Cases were patients with psoriasis and controls were patients with autoimmune diseases without skin involvement. Patients with immunosuppression or previously treated tuberculosis were excluded. History of TB in family members, BCG vaccination, TST and IGRA results were recorded.
Results: 325 patients were included, mainly females (55.38%; n = 180). The mean of ages was 51.06 ± 15.37. There were 167 (51.38%) patients with BCG vaccination. Fifteen patients (4.62%) had a history of TB in a family member and 21 (6.46%) had contact with a case of TB. There were 122 cases (37.54%) and 203 controls (62.46%). In the psoriatic group, 43 patients (79.07%) had positive results of TST and/or IGRA, with agreement in 8 patients (18.60%). There were 34 patients (79.07%) with TST+/IGRA- and 1 patient (2.33%) with TST-/IGRA+. In the control group, 64 patients (31.52%) had positive result of TST and/or IGRA, with agreement in 19 patients (29.68%). There were 26 patients (40.62%) with TST+/IGRA- and 19 (29.69%) with TST-/IGRA+. The patients with psoriasis were more likely to have a positive result of TST (OR1.83; p = 0.017) than those with other autoimmune diseases. The TST and IGRA showed fair agreement either in the case group (k = 0.22; p < 0.01) and control group (k = 0.28; p < 0.01).
Conclusions: In this study, we found moderate agreement between TST and IGRA in both groups. However, psoriatic patients were more likely to have a positive TST and a TST+/IGRA- result. We should discuss the benefit of using TST in the screening of this group of patients.

Keywords: *Latent tuberculosis infection. Psoriasis. Tuberculin skin test. Interferon-gamma release assay.*

PC 163. DISSEMINATED AND DISGUISED: THE SEARCH CONTINUES

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Introduction: Constitutional syndrome can be the manifestation of several pathologies including malignant, infectious, autoimmune and psychiatric diseases.
Case report: 71-year-old male, non-smoker. Former driver and worked in a quarry. History of malaria at age 21, dyslipidemia, hypertension and atrial fibrillation. Symptoms for 6 months: asthenia, anorexia, and weight loss (26 kg/12 m). The etiological study revealed anemia, elevated SV and CRP, CT scan with a left para mediastinal lung consolidation, micronodular pattern and mediastinal, hilar, celiac and inguinal adenopathies. Fiberoptic bronchoscopy (FOB) showed a lesion suggestive of neoplastic infiltration (LMB) and indirect signs of neoplasia (LSLB). Bronchial biopsies (BB): squamous metaplasia and inflammation; bronchial aspirate (BA): inflammation; microbiological direct and cultural exam negative for mycobacteria. Transthoracic biopsy revealed a non-necrotizing granulomatous inflammatory process. Analytically: negative HIV serologies; Mantoux 22 mm; normal IgA, IgG, IgM. PET-FGD: "Left lung densification with intense glycolytic metabolism compatible with high metabolic grade malignant pathology (...) mediastinal and hilar lymph node metastases". Decided on presumptive treatment with HRZE, which he did not tolerate and suspended 6 weeks later. Subsequently, started Prednisolone 60 mg/day with gradual weaning with clinical, analytical and imaging improvement. Repeated FOB: no endobronchial lesions; BA: direct and PCR-DNA for Mycobacterium tuberculosis (MT) negative, culture positive for atypical mycobacteria – Mycobacterium intracellulare isolation. BB: granulomatous inflammation. Started treatment for NTM: Clarithromycin+R+E. He presented cutaneous fistulation of a right inguinal adenopathy conglomerate and adenopathy biopsy results: direct, PCR-DNA, and cultures negative for TM/NTM and fungi; histology with granulomatous lymphadenitis with central necrosis. Imaging reassessment with stability and maintained treatment. Later he was admitted for new neurological symptoms and CT and MRA revealed evidence of a brain lesion with vasogenic edema, suspected of tumor nature. Liquor exam: direct, culture, PCR-DNA negative for TM and NTM. He was given dexamethasone and maintained anti-NTM drugs. By neurosurgery, surgical approach to the lesion was postponed. In the reassessment CT scan, cervical, thoracic, abdominal and inguinal adenopathies persisted with increased dimensions and necrosis and a new ganglion biopsy confirmed a granulomatous process, negative for TB and NTM. He underwent lesion excision: direct exam positive, PCR-DNA TM/NTM negative, granulomas with caseous necrosis, culture not performed. It was decided the suspension of all antibiotic drugs. There were performed again several exams with the following results: BAL and several ganglionic biopsies negative for TM/NMT, presence of granulomatous and necrotizing lymphadenitis; negative exhaustive immunological and infectious studies; monoclonal peak IgA/lambda and immunophenotyping in peripheral blood not compatible with chronic granulomatous disease. A new brain lesion analysis was available: PCR-DNA positive for atypical mycobacteria. The case was discussed with a reference center for NTM and started treatment with Azithromycin/Ethambutol/Rifampicin/Moxifloxacin for 12 months with a favorable clinical, analytical, and radiological response.
Discussion: It was assumed an atypical disseminated Mycobacteriosis in a patient without an identified immunosuppression and negative anti-gamma interferon antibodies. During follow-up maintenance of anemia, anorexia, asthenia, and weight loss without improvement with antidepressant treatment, endoscopic studies with no relevant changes and a new autoimmune analysis revealed positive ANA, so the hypothesis of systemic sclerosis is being considered.

Keywords: *Atypical mycobacteriosis.*

PC 164. CRIPPLING DORSALGIA – WHAT POTTENTIAL CAUSES?

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Introduction: Bone tuberculosis (TB), an infection of the bone/joints by Mycobacterium tuberculosis (Mt), accounts for 35% of

cases of extrapulmonary TB. Spinal tuberculosis, also known as Pott's disease, represents 50% of bone TB cases. Although it is a rare manifestation of the disease in modern times, it can still affect a significant percentage of individuals, and clinicians should be attentive to this possibility when presented with a case of spondylitis.
Case report: A 37-year-old man from Benin, residing in Portugal since 2009, non-smoker, working in the construction industry. No other recognized environmental exposures. History of pulmonary TB diagnosed in 2013, completed a 6-month anti bacillar treatment at the local CDP. Referred to the Pulmonology clinic in March 2021 by his family doctor due to changes observed in chest CT performed on an outpatient basis, showing traction bronchiectasis in the left upper lobe and subpleural thickening in the middle lobe, both with residual appearances. During the consultation, he had no respiratory complaints such as dyspnea, cough, sputum, or fatigue. He reported experiencing inflammatory back pain for several months following an accidental fall, making movement painful. He had already taken analgesics, but without relief. Additionally, he mentioned unquantified weight loss and night sweats. Physical examination revealed no abnormalities. A thoraco-abdomino-pelvic CT scan in April 2021 showed an osteolytic lesion at D7-D8 and a pathological fracture of D8, with other aspects of the lung parenchyma without new alterations. He underwent a bone biopsy, and the mycobacteriological culture result was positive for drug-sensitive Mt. He was referred to the local CDP and started anti bacillar therapy in May 2021, which continued until October 2022. A follow-up CT scan in November 2022 revealed evidence of resolution of the previously observed bone changes. The treatment, though lengthy, was successful, and the patient remains asymptomatic.
Discussion: Given the patient's previous history of TB, all reported symptoms should be carefully assessed and considered. We should not forget that TB is a systemic disease that can affect not only the respiratory system but also various extrapulmonary sites, including bone TB, which can significantly impact patients' quality of life. Nevertheless, it is a condition that can be effectively treated.

Keywords: *Bone tuberculosis.*

PC 166. PLEURAL TUBERCULOSIS – A CHALLENGING DIAGNOSTIC PATHWAY

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Introduction: Pleural tuberculosis is a disease characterized by a non-productive cough in over 90% of patients, often associated with chest pain in 75% of cases. In its acute form, it can mimic pneumonia with parapneumonic effusion. In the chronic form, the disease is marked by symptoms such as low-grade fever, night sweats, dyspnea, and weight loss.
Case report: A 35-year-old man, originally from India, with no relevant medical history, sought the emergency department due to pleuritic chest pain lasting for three weeks. He presented with progressively worsening dyspnea, anorexia, and weight loss. On examination, he was febrile, tachypneic, with peripheral oxygen saturation of 90% on room air, decreased breath sounds on the left base, and obvious emaciation. Notable findings from medical imaging and tests: laboratory analysis showed leukocytosis and an increase in C-reactive protein (CRP). Chest X-ray revealed right-sided pleural effusion, and a chest CT scan showed bilateral pleural effusion with small volume on the left side and significant volume on the right side. Mediastinal lymphadenopathy was also observed, with the largest node measuring 9 mm, and no alterations in lung parenchyma. A thoracentesis was performed, revealing an exudate with a pH of 7.36 and predominantly polymorphonuclear cells, suggesting parapneumonic effusion. The patient was admitted and started empirical antibiotic treatment with amoxiclav and clarithromycin; however, there was no significant clinical improvement, and he continued to have regular fever spikes and recurrence of pleural effusion. The effusion was addressed again, and the fluid had a pH of 7.3, LDH of 459 U/L, and predominantly mononuclear cells. PCR testing for Mycobacterium tuberculosis (MT) in the pleural fluid was negative, as well as bacteriological tests and acid-fast bacilli (AFB) staining. A new chest CT scan revealed persistent empyema on the left side, with marked pleural thickening and fluid content with gas loculations, indicating strong adherence. Additionally, there was an increase in pleural effusion on the right side. Due to the persistent diagnostic suspicion of pleural tuberculosis, a pleural biopsy was performed, which revealed the presence of lymphocyte infiltrates and granulomas with macrophages and Langhans giant multinucleated cells. The AFB staining was positive, as well as PCR for MT, confirming the diagnosis of pleural tuberculosis after bacillus isolation in culture. The patient promptly started treatment with antituberculosis drugs and showed progressive clinical and radiological improvement.
Discussion: The diagnosis of pleural tuberculosis should be based on a combination of clinical data, imaging, and laboratory tests. Given its complexity, multiple methods are often required to establish the diagnosis with greater precision. Demonstrating the presence of *Mycobacterium tuberculosis* in various available samples can be difficult despite strong evidence of the disease. However, having a high clinical suspicion is essential for timely diagnosis of this condition.

Keywords: *Tuberculosis. Pleural biopsy. Antituberculous drugs.*

PC 167. TB CONTACT TRACING REGISTRIES: TRADITIONAL FORMS IN A DIGITAL AGE

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The interaction and communication of contact tracing data between Outpatient Tuberculosis (TB) Clinics and Public Health is based on the exchange of several paper forms created more than two decades ago by the National TB Program of the National Health System (NHS). Form "Modelo 3" is used to register the results of contact tracing completed at the Outpatient TB Clinic: for each TB index case an individual form is created and the results for every single contact evaluated are filled or added, manually or digitally. Though the role of these forms has been undeniable in attaining the aims of the National TB Program the current procedure of filling in the former is labour intensive, susceptible to registration errors, loss of information, and may facilitate confidentiality breaches, among other pitfalls. In this context, aiming to surpass some of the limitations of the traditional forms, in a partnership between the Matosinhos Outpatient TB Clinic and the Department of Information Technologies of the Unidade Local de Saúde de Matosinhos, based on the concept and content of "Modelo 3" a confidential digital platform was created to register Contact Tracing Data based directly on updated information available on the NHS national platform, with access restricted to involved healthcare professionals. The new platform has been regularly updated and optimized in a continuous dynamic process, taking advantage of direct data extraction and computerization strategies. On the other hand, this platform includes search tools and allows for data exportation to other apps developed to manage, edit and analyse for direct evaluation and interpretation of extracted data. This presentation seeks to share potential new, safe and efficient strategies to handle contact tracing registering, communication and analysis, aligned with current trends towards modernizing and computerizing National TB Program forms.

Keywords: *Tuberculosis. Contact tracing. Registry platforms. Computerization.*

PC 168. TUBERCULOSIS CONTACT TRACING IN PRISON SETTING – CHALLENGES AND THE WAY FORWARD

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Introduction: The imprisoned population in Correctional Facilities (CF) is often characterized by the presence of risk factors for Tuberculosis (TB) development. HIV infection, previous drinking and drug habits, allied to prison-cell overpopulation render CF prone to evolving TB cases and its transmission. Furthermore, several limitations have been reported regarding the ability to comply with national policy aimed at preventing the admission of new TB cases into CF by early detection strategies. These factors combined have contributed to the persistently high TB incidence in CF. When faced with a new TB case in a CF, past contact tracing strategies were simplified relying mainly on symptom assessment and lung X-ray. Subsequent latent TB infection (LTBI) diagnosis has been frequently overlooked.
Methods: Following a new inmate TB case diagnosed in a CF in December of 2021, a conjoint strategy was established, in a partnership between the TB Outpatient Clinic (TOC) and the CF healthcare team to improve contact tracing and minimize future TB cases in the CF. In addition to the usual symptom and radiological evaluation, IGRA blood tests were performed in inmates with criteria for LTBI screening.
Results: The results of this strategy are summarized below: Forty-six (46) exposed inmates and 29 professionals working at the CF were submitted to symptom assessment and lung-X ray. All workers (asymptomatic and with normal X-rays) were directed to be evaluated by Occuppational Health Services. The inmate population included 46 men with a mean age of 47 years (± 11.2). All inmates were asymptomatic. Three inmates had abnormal X-rays, 2 of which with known lung sequelae of previous disease, and one newly diagnosed with Pulmonary TB. Among the remaining 43 inmates, two were known to be HIV positive and were evaluated at the OTC and started on chemoprophylaxis. Nineteen had been released from the CF thus not being submitted to IGRA testing. LTBI was ruled out in 12 inmates while 7 were summoned to the OTC for LTBI treatment. Of the 9 inmates who were started on medication, 3 completed the treatment (1 Chemoprophylaxis, 2 LTBI), 2 abandoned treatment after being released from the CF (1 Chemoprophylaxis, 1 LTBI) and 4 inmates, though still within the CF, failed to show up to several follow-up consultations.
Conclusions: It is essential to ponder on the approach to TB at CFs. The main focus should be on compliance with national policy on TB screening applied for every new inmate on arrival. On the other hand, the data presented evidences the importance of contact tracing both for early detection of new cases of TB and LTBI diagnosis. It is however, critical to ensure that the investment made on LTBI diagnosis is complemented with adequate conditions for treatment completion on follow-up.

***Keywords**: Contact tracing. Prison setting. Correctional facilities.*

PC 169. PULMONARY ARTERIOVENOUS MALFORMATION – NOTICING WHAT GOES UNNOTICED

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Introduction: Pulmonary arteriovenous malformations (PAVM) lead to an anatomical right-to-left intrapulmonary shunt that compromises alveolar gas exchange. It is a rare condition, with variable clinical presentation, often associated with hereditary hemorrhagic telangiectasia. Treatment should follow individual guidance and include embolization or resection surgery.

Case report: A 75-year-old man, ex-smoker, with hypertension and polyglobulia being studied at a Hematology consultation, with no relevant respiratory symptoms, was referred for respiratory function tests. In the Pathophysiology Laboratory, due to his low peripheral oxygen saturation, he performed blood gas analysis (BGA) in ambient air, which revealed relevant hypoxemic respiratory failure (BGA: pH 7.40; pO2 40 mmHg; pCO2 43 mmHg), for which reason oxygen therapy was instituted (progressively titrated to mask of venturi (MV) at 60% for acceptable saturations) and sent to the ER for further study. On admission to the ER, asymptomatic, physical exam without mucocutaneous alterations or on cardiopulmonary auscultation, except globally decreased vesicular murmur. Analytically, he presented polyglobulia (hemoglobin: 16.4 g/dL), without elevation of inflammatory parameters, and on chest X-ray, bronchovascular reinforcement, and signs suggestive of hyperinflation. To exclude pulmonary thromboembolism, a chest angio-CT was performed, which revealed a "vascularized subpleural peripheral nodular lesion with vascular enhancement, about an arteriovenous vascular malformation (AVM) measuring about 16.3 mm, as well as incipient signs of centrilobular emphysema." Considering the findings, interventional imaging at the Centro Hospitalar Universitário de Coimbra was contacted, and elective embolization was proposed. During hospitalization and to investigate the presence of arteriovenous malformations in other locations, abdominal ultrasound and cerebral magnetic resonance imaging were requested, both normal. Contrast-enhanced transthoracic echocardiogram excluded the existence of concomitant cardiac disease, presenting a low probability of pulmonary hypertension. Twelve days after the diagnosis, the patient underwent embolization of the afferent branch of the AVM with the placement of 2 detachable coils, without immediate complications, returning to the Centro Hospitalar de Leiria for continued care. After the procedure, there was a slight improvement in polyglobulia (hemoglobin: 15.8 g/dL) and a significant improvement in hypoxemia (BGA at 2 liters/minute: pH 7.43; pCO2 47 mmHg; pO2 61 mmHg; HCO3 31.2; SatO2 94%). He also performed respiratory functional tests that were not valued due to poor cooperation. After progressive weaning from oxygen therapy, he was discharged on long-term oxygen at 2 liters/minute and was referred for reassessment in a Pulmonology consultation.
Discussion: PAVM are associated with considerable morbidity and mortality, and their detection and treatment are important to prevent serious complications such as ischemic stroke or brain abscess. This clinical case reflects the challenges in diagnosing PAVMs, which are often asymptomatic, sometimes being an accidental finding in imaging tests performed to investigate other pathologies. After treatment and with adequate follow-up, the prognosis is generally favorable.

***Keywords**: Pulmonary arteriovenous malformation. Embolization. Intrapulmonary shunt.*

PC 170. PULMONARY THROMBOEMBOLISM IN PATIENTS WITH COVID-19: INCIDENCE AND PRESENTATION OF PULMONARY IMPAIRMENT

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Introduction: Pulmonary thromboembolism (PTE) is one of the components of venous thromboembolism, and thus the 3rd most common cause of acute cardiovascular syndrome, but it has a nonspecific clinical presentation. For the definitive diagnosis of PTE, which is potentially treatable, imaging evaluation is recommended, with angiotomography of the pulmonary arteries (ANGIO-CT) being the modality of choice. It is known that the association between PTE and COVID-19 results in a greater risk of death compared to PTE alone in the hospital environment.

Objectives: To describe tomographic findings compatible with PTE in patients diagnosed with COVID-19. To analyze the incidence of pulmonary thromboembolism (PTE) in hospitalized patients diagnosed with COVID-19.
Methods: Retrospective, descriptive, observational cohort study, using data from electronic medical records of patients over 18 years old, with COVID-19 admitted and followed up in a private and public Hospital between April 2020 and April 2021, with approval of the institution's research ethics committee. The variables of interest were defined as sociodemographic data, clinical data, comorbidities, radiological and laboratory findings. As for the statistical analysis, for the quantitative variables the Shapiro-Wilk and/or Kolmogorov-Smirnov tests were applied and the calculation of measures of central tendency. In addition, for non-Gaussian quantitative variables, medians and interquartile ranges were used. As for the Gaussian variables, mean and standard deviation. For the qualitative ones, valid percentages and absolute frequencies were calculated.
Results: A total of 1,822 patients with COVID-19 were verified, of which 64 were diagnosed with PTE, with an incidence of 3.51% (95%CI: 2.74 to 4.43). The tomographic presentation found: ground-glass opacity (83.1%), consolidation (59.3%), mosaic paving (40.7%), atelectasis (37.3%), pleural effusion (32.2%), Bronchiolitis obliterans with organizing pneumonia (6.8%), and inverted halo sign (5.1%). Embolus distribution on CT-ANGIO revealed a pattern of peripheral involvement, as segmental/subsegmental arteries were more frequently involved compared to main/lobar arteries (76.2 versus 23.8%). There was also a predominance of unilateral (64.4%) over bilateral ones. Of the total, 72.9% had mild to moderate extension of lung involvement, while 27.1% had severe extension.
Conclusions: The tomographic presentation of patients hospitalized with COVID-19 can mimic parenchymal changes associated with PTE, as it overlaps findings of both diseases when associated. Furthermore, the predominantly peripheral location of TEP in COVID-19 suggests an important role for local immunothrombosis. Thus, as chest CT is used in routine practice for the diagnosis of COVID-19, PTE should be suspected despite the low incidence demonstrated in the study.

***Keywords**: Pulmonary embolism. COVID-19. Computed tomography angiography.*

PC 171. LUNG NODULES – CANCER RECURRENCE OR SYSTEMIC DISEASE?

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Introduction: Lung nodules are a diagnostic challenge in the follow-up of patients with a history of lung cancer. In addition to excluding possible recurrence, non-malignant causes, such as infectious, inflammatory or drug-related causes, should be investigated.
Case report: Autonomous 81-year-old man, with smoking (42 pack years) and ethanol (45 g/day) habits, and a history of type 2 diabetes mellitus, arterial hypertension, mild OSAS, hyperuricemia and benign prostatic hyperplasia. The patient underwent left pneumonectomy with lymph node dissection in 2015 due to squamous cell carcinoma of the lung (pT3N0M0). In January 2022, several solid nodules with a ground-glass halo (the largest measuring 11 mm and 8 mm) were identified in the right lung. In a multidisciplinary meeting, a probable infectious etiology was assumed, therefore empirical antibiotic therapy was started, without subsequent disappearance of the nodular lesions. PET was performed in March 2022, which revealed hypermetabolism of nodular lesions suggestive of a secondary cause (maximum SUV between 4.2 and 11), as well as right broncho-hilar, subcarinic and interaortocaval adenopathy avid for FDG. In March, following an episode of hemoptysis, he underwent bronchofibroscopy, showing scattered pearly lesions of the trachea. Bronchoalveolar lavage revealed fibrinogranulocyte exudate, with no identification of neoplastic cells, and the tracheal biopsies contained fragments of the respiratory mucosa without particularities. About 1 month later, he went to the Emergency Department due to progressively worsening dyspnea, edema of the lower limbs and choluria with 1 month of evolution. He reported the occurrence of lesions suggestive of purpura on the lower limbs, which meanwhile resolved. He denied other complaints, namely constitutional, urinary and ophthalmological. The physical examination highlighted the presence of exuberant, symmetrical lower limb edema and, on pulmonary auscultation, crackles in the lower third bilaterally. Blood tests revealed hemoglobin of 10.1 g/dL, no change in leukogram, creatinine of 4.32 mg/dL (in January creatinine value was 0.92 mg/dL), urea 100 mg/dL and increase in CRP (11.8 g/dL). Summary urine analysis revealed hemoproteinuria and mild leukocyturia. He underwent CT whose abdominal evaluation showed no alterations except for a globular prostate. A KDIGO 3 acute kidney injury of probable renal etiology was concluded. He was hospitalized and, from the complementary study carried out, we highlight the identification of positive ANCA PR3 (876 CU) and sedimentation velocity of 120 mm/h. The diagnosis of ANCA PR3 vasculitis with multisystemic involvement (kidney damage, pulmonary nodules and history of hemoptysis) was considered, therefore corticosteroid and rituximab therapy were started, as well as hemodialysis (HD), were initiated in this context. He was discharged after 10 days of hospitalization with indication to maintain immunosuppression and HD.
Discussion: Small vessel vasculitides associated with ANCA are rare autoimmune diseases, more common in men of advanced age. The lungs and kidneys are the main organs affected, with a spectrum of mild to fulminating symptoms. The occurrence of hemoptysis and hemoproteinuria are important warning signs. Pulmonary involvement can be manifested by nodules, often multiple, so this group of diseases should be included in their differential diagnosis.

***Keywords**: Pulmonary nodules. Anca vasculitis. Hemoptysis.*

PC 172. THE RED SUBMARINE: A CASE OF HEMOPTYSIS AFTER BREATH-HOLD DIVING

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Introduction: The connection between humans and the sea is ancient and steeped in history. Although in ancient times primarily used for food harvesting, breath-hold diving is currently a form of underwater sport in which practitioners submerge themselves to varying depths without the aid of respiratory support. Underwater sports like this induce intense physiological changes and push the human body to its limits. The respiratory system is particularly affected due to hypoxia and increased ambient pressure, impacting intrapulmonary gas volumes and pressures. Despite limited literature, there are a few reported cases of pulmonary edema, chest pain, and hemoptysis after free diving.
Case report: We present the case of a 51-year-old male with no significant past medical history or medication use, who was a recreational breath-hold diver. He presented to our emergency department with a three-day history of mild hemoptysis/hemoptoic sputum after free diving. He reported previous similar episodes, but of shorter duration (self-limited to 1 day). In this episode, he was diving at approximately 12 meters of depth. Physical examination revealed no noteworthy changes. Chest CT revealed bilateral ground-glass opacities, predominantly on the right side, suggestive of diffuse alveolar hemorrhage. Flexible bronchoscopy identified a track of blood originating from the posterior segment of the right upper lobe bronchus

(RULB). He was started on aminocaproic acid and did not experience further hemoptysis episodes. Coagulation studies were normal, as well as autoimmune screening. A follow-up CT at 6 months showed resolution of the previous findings. He remained asymptomatic despite resuming free diving at shallower depths.
Discussion: This case illustrates an instance of diffuse alveolar hemorrhage following breath-hold diving, clinically manifesting as hemoptysis. Breath-hold divers are susceptible to pulmonary barotrauma, which can clinically present as hemoptysis or pulmonary edema. However, there is limited literature on this topic. The exact mechanism of symptoms remains unknown, likely related to changes during diving, including cardiovascular, increased ambient pressure, and hypoxia. Boyle-Mariotte's Law postulates that as ambient pressure progressively increases with dive depth, lung volumes decreases. Eventually, total lung capacity is reduced to residual volume, creating negative intrathoracic pressure that results in blood pooling in the chest. This can potentially lead to pulmonary edema and alveolar hemorrhage due to endothelial damage. A study on two professional divers pinpointed the origin of the hemorrhage in the subsegments of the RULB, which was also observed in our case, constituting an interesting observation. Other contributing pathophysiological factors have been proposed, but the exact mechanism remains unknown. The spectrum of clinical manifestations related to underwater sports is likely underreported and underdiagnosed, and this case seeks to draw attention to such situations.

Keywords: *Diffuse alveolar hemorrhage. Hemoptysis. Free diving. Breath-hold diving.*

PC 173. WHAT IS THE ROLE OF SPIROMETRY IN THE SELECTION OF INHALER DEVICES IN COPD?

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Introduction: Incorrect inhalation technique is directly associated with poor control of COPD. Evaluating patients' inspiratory capacity to select the most suitable inhaler becomes essential in disease management. However, this assessment is often challenging to conduct during clinical practice. The authors aim to evaluate whether there is any parameter in spirometry that can predict the inspiratory capacity of COPD patients.
Methods: A multicenter study was conducted involving all patients with a confirmed diagnosis of COPD who had been using an inhaler for at least one month and underwent respiratory functional tests during the months of March and April of 2023 at two tertiary hospital centers. The inspiratory capacity of all patients was tested at various intensities using the In-Check DIAL G16 device, and their results were compared with spirometry values.
Results: In the study, 53 patients diagnosed with COPD were included. Among them, 11 were female (20.8%), and their average age was 71.1 ± 10.3 years. Thirteen patients (24.5%) were current smokers, 34 (64.2%) were ex-smokers, and 6 (11.3%) had never smoked, with an average smoking history of 44.7 ± 20.6 pack-years. Regarding the inhaler devices used by the patients, 11 (20.8%) used the ellipta device, 19 (35.8%) used the breezhaler, 13 (24.5%) used the pressurized metered-dose inhaler (pMDI), 7 (13.2%) used the respimat, 2 (3.8%) used the genuair, and 1 (1.9%) used the spiromax. During the study, 45 patients (84.9%) demonstrated inspiratory capacity at the average intensity when using the In-Check DIAL G16 device. Only one patient showed a lack of inspiratory capacity at the pressurized intensity (1.9%). To assess the correlation between spirometry values and average inspiratory capacity, a Receiver Operating Characteristic (ROC) analysis was performed. Among the parameters tested, FIF50 showed the best Area Under the Curve (AUC) value of 0.756. This suggests that FIF50 can serve as a valuable parameter for predicting patients' inhalation capacity.
Conclusions: Evaluating the inspiratory capacity in all COPD patients is crucial for therapeutic management; however, the limited time in consultation makes this evaluation difficult to perform systematically. FIF 50 emerges as an easily accessible parameter that can aid in choosing the appropriate inhalation device.

Keywords: *COPD. Inhaler device. Inspiratory capacity.*

PC 174. USE OF THE PREOPERATIVE RESPIRATORY THERAPY SCORE TO ASSESS OUTCOMES IN SURGICAL CANDIDATES: ANALYSIS OF A SERIES OF CASES

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Introduction: The preoperative respiratory therapy (PORT) score, created in 1988 by Torrington and Henderson, aimed to identify surgical candidates with a higher risk of perioperative and postoperative complications. With the evolution of surgical techniques and peri/postoperative care provided, the question arises of the usefulness of this score currently. The aim of this study was to apply the PORT score to a series of surgical candidates and compare their severity with observed adverse events.
Methods: Retrospective analysis of a series of 101 consecutive people evaluated with pre-surgical spirometry in the Physiopathology sector of the Pulmonology Department of a tertiary hospital between December 1, 2021 and January 31, 2022. Demographic and clinical data collected was subjected to descriptive and inferential statistical analysis. A p-value of 0.05 was assumed.
Results: Of the 101 cases evaluated, only 74 had undergone surgery at the time of data collection. In these, there was a predominance of males (62.2%), with an average age of 59.61 (± 18.07). The most common comorbidities in the sample were smoking (43.2%, with an average smoking burden of 34.7 pack-year units), heart failure (28.4%) and pulmonary emphysema (24.3%). The surgical procedures that motivated the performance of spirometry were liver transplantation (13.5%), followed by aortic valve replacement and pulmonary lobectomy (both 12.2%). Mean percentage values of forced expiratory volume in one second (FEV1; 84.6%), forced vital capacity (FVC; 85.6%) and the ratio of these measurements (77.7) were normal. Calculation of the PORT score classified 58.1% of patients as low risk, 37.8% as moderate risk and 4.1% as high risk. After performing spirometry, only 17.6% of patients were subjected to attitudes aimed at respiratory optimization, namely seven patients referred for kinesitherapy and six patients who managed smoking reduction; two patients were newly diagnosed with COPD. In the postoperative period, there were respiratory complications in 32.4% of the patients, the most common being lower respiratory infection (13 patients) and pulmonary atelectasis (12 patients). The occurrence of pulmonary atelectasis was significantly related to the "high risk" group ($p = 0.042$); there were no other significant differences in the rate of postoperative complications between PORT score severity levels. The presence of diffuse lung pathology ($p = 0.031$) and undergoing liver transplantation ($p = 0.031$) were associated with a higher rate of complications. There were two deaths, both in patients undergoing liver transplantation.
Conclusions: In our study, the PORT score was not related to the rate of postoperative respiratory complications, except in pulmonary atelectasis and in patients undergoing liver transplantation. Additionally, the documentation of the PORT score resulted in optimization attitudes in a minority of cases, suggesting undervaluation of the findings. It is important to identify patients at greater

surgical risk in order to take prophylactic measures to avoid cardiorespiratory complications more effectively, as well as to identify any relevant clinical scores.

Keywords: *Respiratory physiopathololology. Spirometry. Port score. Liver transplant. Surgical risk.*

PC 175. IS IT NOW AS BEFORE?!

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Introduction: In view of the introduction of new guidelines regarding the interpretation of respiratory functional tests (RFT), it was considered pertinent to verify the impact of their implementation. In this study, the results were compared using fixed percentage values and the ERS 2021-z-score, regarding the classification of the ventilatory impairments, its severity and the diffusing capacity of the lung for carbon monoxide (DLCO) measurement. The bronchodilator responsiveness was also compared using the previous and the current criteria.
Methods: All patients who underwent RFT between January and June 2023 were included. 413 patients underwent plethysmography and/or spirometry, 172 bronchodilator responsiveness test and 174 DLCO measurement. A comparative analysis was performed with calculations in Excel.
Results: Of the 413 patients, 51.2% were female, the mean age was 54 years and the mean height was 165 cm. Regarding the ventilatory impairments, according to the fixed percentage values, 58.1% of the RFT were normal, 38.3% revealed an obstructive pattern, 2.9% restrictive, 0.2% mixed and 0.5% nonspecific pattern. Using the ERS 2021 z-score, 61.7% of the RFTs were normal, 32.2% revealed an obstructive pattern, 2.4% restrictive, 1% mixed and 2.7% nonspecific pattern. Thus, it was verified, using the z-score compared to the fixed percentage values, an increase in normal RFT, a decrease in the obstructive and restrictive pattern and an increase in the nonspecific and mixed pattern. The increase in the number of normal tests with z-score was mainly at the expense of tests considered obstructive, when fixed percentage values were used (n = 25). It is noteworthy that 128 RFTs maintained the obstructive pattern, using both criteria and that 11 normal RFTs became nonspecific (n = 7), obstructive (n = 4) or mixed (n = 1). Of the 12 tests with restrictive pattern using fixed percentage values, 9 remained restrictive, 1 became normal and 2 became non-specific with z-score. Regarding the severity of the obstruction, moving to the ERS 2021-z-score, the mild classification increased from 50% to 72.7%. Concerning the bronchodilator response, 172 RFTs were analysed. There were no percentage differences in positivity or negativity of the response. Regarding DLCO measurement, the percentage of normal remained practically the same. Using z-score, the mild ones decreased from 18.3% to 12.1% and the moderate and severe increased from 13.7% to 19.2%.
Conclusions: The study showed a decrease in RFT with an obstructive pattern and an increase in normal tests and with a nonspecific and mixed patterns, using ERS 2021-z-score, compared to fixed percentage values. Although the expectation was an increase in the number of significant bronchodilator responsiveness using the new criteria, this was not the case. One possible justification is that the value from which the comparison is made, according to the current criteria, is the predicted value and not the pre-bronchodilation of the patient. It was verified that, using the z-score, in the obstructive pattern there was a higher percentage of PFR that reduced its severity, contrary to what happened in the DLCO.

Keywords: *Spirometry. Plethysmography. Diffusing capacity of the lung for CO measurement. Bronchodilator responsiveness test. Obstructive pattern. Restrictive pattern. Fixed percentage values. ERS 2021-Z-Score.*

PC 176. PREDICTIVE EQUATIONS OF MAXIMAL RESPIRATORY PRESSURES: WHICH TO APPLY IN THE PORTUGUESE POPULATION?

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Introduction: Maximal respiratory pressures (MRP) are used to detect respiratory muscle weakness, often present in respiratory and neuromuscular diseases. Currently, there is no consensus regarding the lower limit of normal for MRP. These pressures are influenced by several factors (e.g., sex, height, age), which must be considered in each evaluation. To this date, no existing predictive equation has been validated for the Portuguese population.
Objectives: To compare and verify the applicability of predictive equations of MRP in a sample of Portuguese adults without relevant comorbidities.
Methods: We conducted a retrospective analysis of respiratory function tests performed in the last year in a Portuguese hospital, with the assessment of MRP using a spirometer. Inclusion criteria were adults without relevant comorbidities with a BMI below 35 kg/m^2, who underwent a respiratory function test to exclude respiratory disease or in the preoperative context. Demographic data was collected to apply 12 predictive equations of maximal inspiratory pressure (MIP) and 6 predictive equations of maximal expiratory pressure (MEP) compliant with the ATS/ERS standards. We calculated each equation's predictive value (predicted/measured -%) and tested for statistically significant differences. A stepwise multiple linear regression was performed to determine independent predictors of MRP.
Results: We included 47 men and 61 women. Different equations were more appropriate depending on MRP type and sex. Overall, they overestimated the measured values of MIP and MEP and were statistically different ($p < 0.001$). The Rsquared of our model for the MIP was 18%. Gender proved to be the only independent factor in the multivariate analysis. When considering MEP, R-squared was 33%. Gender, BMI, and FEV1 were independent predictors.
Conclusions: Enright *et al.* (1994) equation proved to be the most appropriate to predict MIP values in Portuguese women, while the equation by Pessoa et al. was more suitable for males. Regarding the MEP, the equation by Gopalakrishna proved more appropriate for females, while Enright et al. (1995) suited males the most. The existing predictive equations differ and fail to explain the measured MRP. Our low coefficient of determination is similar to the R-squared for the available equations. More robust studies are needed to explain the missing variability.

Keywords: *Maximal inspiratory pressure. Maximal expiratory pressure. Predictive equations.*

PC 177. EVALUATING CARDIORESPIRATORY COMPLICATIONS AFTER LUNG RESECTION IN PATIENTS ASSESSED BY CARDIOPULMONARY EXERCISE TEST: A 10-YEAR REVIEW

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Introduction: The Cardiopulmonary Exercise Test (CPET) is recommended in pre-operative risk stratification in all patients with comorbidities or previously documented functional limitation consid-

ered to undergo lung resection surgery. It provides an estimate of the cardiopulmonary reserve.
Methods and objectives: A retrospective observational study was conducted with data from patients assessed by CPET to estimate surgical risk in a secondary hospital between January 2013 and January 2023. We aimed to evaluate variables associated with cardiorespiratory morbidity in the 30 days following lung resection surgery in patients preoperatively assessed by CPET.
Results: 64 patients assessed by incremental CPET on cycle-ergometer were evaluated. 14 patients who were not subjected to lung resection surgery due to perceived surgical risk or complications in the time until surgery were excluded. Patients were mostly male (66.0%), with a mean age of 64.2 years (SD 7.38). At the time of CPET, 32 patients still smoked (64.0%) and 15 patients (30.0%) were former smokers. The most prevalent comorbidities were COPD (64.0%), hypertension (62.0%) and a previously diagnosed neoplasm (22.0%). The average workload supported during CPET was 72.44 Watts (SD 24.86) and the average percent of workload predicted was 58.36% (SD 23.22). The mean VO2Peak was 18.08 mL/kg/min (ranging from 9.6 to 25.5 mL/kg/min), and on average, it reached 67.72% of the predicted value (ranging from 35% to 106%). 32 patients (64.0%) then underwent Lobectomy or Bilobectomy, 14 (28.0%) had a resection inferior to Lobectomy, and four pneumonectomy (8.0%). The median time between CPET and surgery was 42 days (IQR 38). 16 patients experienced at least one cardiorespiratory complication (32.0%) and one patient died (2.0%) during the postoperative period. The most frequent complications were respiratory tract infections (13 patients), dysrhythmia (five patients) and bronchopleural fistula (three patients). The mean age (p 0.022) and length of hospital stay (p 0.001) were significantly higher in the group with complications. The absolute and per cent of predicted VO2Peak values were inferior in patients with complications, although not significant (p 0.541 and p 0.107, respectively). A statistically significant association was observed between VO2Peak below 15 mL/kg/min and morbidity (p 0.027). The frequency of VO2Peak below 10 mL/kg/min, between 10-15 mL/kg/min, between 15-20 mL/kg/min, and above 20 mL/kg/min was 2.0%, 12.0%, 56.0%, and 30.0%, respectively. The decision regarding the surgical extent was made according to the peak oxygen consumption. The proportion of patients with complications in each of the described groups was 100%, 66.7%, 25.0%, and 26.7%, respectively, with no significant association between morbidity and the different groups (p 0.083).
Conclusions: In this evaluation, we observed a low mortality and morbidity rates, comparable to previously reported values. The critical interpretation of patterns of stress response in CPET may illustrate the risk of surgical risk after lung resection surgery, allowing both the identification of factors limiting each patient's physiological reserve, as well as a more personalized approach of treatment.

***Keywords**: Cardiopulmonary exercise test. VO2. Lung resection surgery. Post-operative morbidity.*

PC 178. CARBON MONOXIDE DIFFUSION CAPACITY IN CHRONIC THOMBOEMBOLIC PULMONARY HYPERTENSION – A NEW PROGNOSTIC TOOL?

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Introduction and objectives: Chronic thromboembolic pulmonary hypertension (CTEPH) constitutes a progressive condition with important therapeutic and prognostic considerations. The carbon monoxide diffusion capacity (DLCO) has been widely used as a marker to evaluate pulmonary function in various respiratory pathologies; however, its prognostic value in this patient group remains poorly elucidated.
Methods: Eighty-five (85) patients with confirmed CTEPH at a pulmonary hypertension reference center were retrospectively evaluated between February 2010 and June 2023. DLCO was assessed at the time of the first evaluation, and its prognostic impact was determined, including mortality at 1 and 5 years after diagnosis, as well as hospitalizations due to cardiovascular or respiratory causes within the first year after diagnosis. Additional laboratory, hemodynamic, and respiratory functional parameters were also evaluated. The data were analyzed using IBM® SPSS® software, version 28.0.
Results: The mean age at the time of DLCO evaluation was 62.3 years ± 14.8; two-thirds of the patients were female (68.2%, N = 58). Approximately 90% of the patients were treatment-naïve at the time of this initial assessment (N = 76). The mean DLCO for the sample was 67.7% ± 17.6 (N = 63). Regarding 1-year mortality, it was observed that DLCO was significantly lower in this group (48.82 vs. 68.98%, p = 0.013; N = 62), with similar results found in 5-year mortality after diagnosis (53.79 vs. 69.92%, p = 0.010; N = 61). Similar results were observed using the DLCO adjusted for alveolar volume (KCO) - 59.40 vs. 80.49%, p = 0.025 (N = 31); 56.93 vs. 82.77%, p < 0.001 (N = 31), respectively. Significant differences were also observed in mixed venous saturation (52.6 vs. 66.0%, p = 0.014), mean right atrial pressure (14.0 vs. 8.3 mmHg, p = 0.025), and N-terminal pro-B-type natriuretic peptide (NT-proBNP) levels (3,132.5 vs. 679.0 pg/mL, p = 0.005) concerning 1-year mortality after diagnosis. Regarding the rate of hospitalizations due to cardiovascular or respiratory causes within the first year after diagnosis, there was a trend towards lower DLCO values in this patient group, but it did not reach statistical significance (60.98% vs. 69.51%, p = 0.117; N = 60). Through ROC curve analysis, the values of 64.05% and 64.60% were determined as DLCO cutoffs associated with a higher risk of mortality at 1 (area under the curve (AUC) 0.828, p = 0.016, sensitivity (S) 80%, specificity (E) 60%) and 5 years (AUC 0.766, p = 0.011, S 88.9%, E 63.5%), respectively.
Conclusions: This study demonstrates that the evaluation of DLCO may have important prognostic implications in patients with CTEPH, potentially reflecting changes in the microvasculature of these patients, as well as an association with worse outcomes. Further studies should be conducted to confirm its prognostic implications and its potential use in risk stratification for this patient group.

***Keywords**: Pulmonary hypertension. Chronic thromboembolic pulmonary hypertension. Carbon monoxide diffusion capacity.*

PC 179. INDUCING CHRONIC PULMONARY HYPERTENSION SWINE MODEL WITH SUTURES EMBOLIZATION

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Introduction: There is an urgent need for large animal models of pulmonary hypertension (PH) that allow application of pharmacological and interventional therapies in a translational setting.
Objectives: We attempted to develop a simple large animal model of severe PH with right ventricular (RV) failure by mimicking chronic thromboembolic pulmonary hypertension phenotype Previous attempts have used short suture segments, microspheres and pharmacological interventions.

Methods: 2-month-old pigs (~25 kg) were used. Right heart catheterization (RHC) was performed, and after baseline pulmonary artery (PA) pressure and cardiac output (CO) measurements, a sheath was advanced into the left or right PA and a high-fidelity pressure transducer was placed at its tip. Silk sutures (0,15 cm) were injected into the selected PA, while continuously recording pressures. Embolization was stopped when mean PA pressures reached 40 mmHg, or complete occlusion of the selected branch was seen (angiography). The procedure was performed for 3 consecutive weeks, and followed by a 3-6 week period, followed by echocardiographic, hemodynamic (pressure-volume loop (PVL) analysis) and sample collection.
Results: Embolization led to an acute increase in PA pressure, which was attenuated at re-intervention, but aggravated during the follow-up period. A significant portion of both right and left lower lobes were obstructed. Terminal RHC showed severe PH development (mPAP = 49 ± 5 mmHg). Significant RV hypertrophy and failure (lower TAPSE and EF) were observed, without significant RV fibrosis. Quantitative PCR showed an upregulation of adverse remodelling markers (MYH7/MYH6, NPPB and TNFA), and downregulation of ATP2A2. Isolated skinned RV cardiomyocyte analysis showed normal active tension development and calcium sensitivity, but passive stiffness was significantly increased in the RV from CTEPH animals. Overflow-induced vascular remodelling was observed in distal arteries from the right upper lung lobe (unobstructed).
Conclusions: We created a simple large animal model of chronic PH by injecting long sutures into the pulmonary circulation, without the need for additional hits.

Keywords: *Pulmonary hypertension. Chronic thromboembolic pulmonary hypertension. Large animal models.*

PC 180. CARDIORESPIRATORY STRESS TEST AND PULMONARY HYPERTENSION – A SUI GENERIS RELATIONSHIP

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Introduction: Many patients with Pulmonary Hypertension (HTP) have exercise limitation, and PECR is an important method to evaluate the potentially underlying pathophysiological mechanisms. VO2 (Peak oxygen uptake) represents the most frequently analyzed parameter and has prognostic significance, with values < 10.4 mL/kg/min to be considered predictive of early mortality.
Objectives: To evaluate the existence of increased ventilatory response in patients diagnosed with HTP followed in a pulmonology consultation.
Methods: Retrospective observational study of initial PECR performed in 16 patients diagnosed with HTP. Statistical analysis with SPSS software version 25.
Results: PECR of 16 patients were reviewed, with a predominance of females (62.5%) and a mean age of 53.6 years (min. 28, max. 75 years). 37.5% of patients had HTP in group 1 and approximately 70% were non-smokers (n = 11). With incremental protocol, the average maximum load was 82.81 watts. Regarding the maximum VO2 reached, the mean was 10.76 mL/Kg/min (with a minimum of 6.37 and a maximum of 2.1). The mean anaerobic threshold was 74.5 and the median ventilatory equivalent was 31.8. Mean maximum heart rate was 138.5 bpm. More than half of the PECR were abnormal due to respiratory factors (62.5%), almost 20% had cardiac changes and 12.5% mixed anomalies.
Conclusions: Patients with HTP often have increased ventilatory CO2 equivalent, decreased O2 pulse, and reduced VO2 maximum, among other changes – as observed in patients whose PECR was analyzed. Although it does not diagnose HTP, PECR can assist in its diagnostic gait and contribute to the initial and follow-up evaluation, providing important prognostic information.

Keywords: *Pulmonary hypertension. Cardiorespiratory exercise test. Ventilatory equivalent.*

PC 181. MULTIFACTORIAL HYPOVENTILATION, A REAL CHALLENGE!

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Introduction: Hypoventilation related to sleep is characterized by inadequate ventilation and an increase in PCO2 during sleep. It should be noted that its etiology can be multifactorial, which appears to be a huge diagnostic and therapeutic challenge.
Case report: 65-year-old male, former smoker, with multiple cardiovascular risk factors, including obesity and cerebrovascular disease and a history of spinal cord trauma, with sequelae of tetraparesis. Referred to the pneumology consultation due to suspected respiratory sleep pathology, presenting: snoring, assisted breathing pauses, morning headaches and excessive daytime sleepiness. Level III polysomnography was performed, which showed severe OSA (REI of 106/h, with 482 obstructive apneas), with nocturnal hypoxemia (mean SatO2p of 83.3%; time < 90% (T90) of 80%; ODI of 113.9/h), with an oximetry curve suggestive of hypoventilation, confirmed by blood gas analysis. A chest CT was performed, which revealed paraseptal emphysema and apical bullae, suggestive of COPD, which it was not possible to confirm given the patient's inability to cooperate with the performance of a pulmonary function tests. Treatment with APAP was started until adaptation to NIV, which was found to be insufficient in correcting obstructive events, daytime hypercapnia and nocturnal hypoxemia. He was then adapted to NIV and parameters were measured using: oximetry and capnography, thoracic and abdominal bands and laboratory monitoring. He started home ventilation with bilevel ST mode (IPAP 26 mmHg, EPAP 9 mmHg, RR 18 cpm) with supplemental O2 at 1 L/min, at night. Significant clinical and symptomatic improvement was observed, in particular, resolution of morning headaches, daytime sleepiness and correction of obstructive events. However, nocturnal oximetry, despite an average SatO2p of 95%, maintained an ODI of 41/h and an irregular "sawtooth" profile, which could not be explained by the history and tests described. In this context, level I polysomnography was performed under NIV, compatible with severe OSA (AHI of 30.6/h) with nocturnal hypoxemia (T90 of 30.7%). An attempt was made to re-adapt, in an inpatient setting, with measurement of parameters, change to hybrid mode (AVAPS) and finally adaptation to volumetric mode (ACV: VT 600 ml, PEEP 4 mmHg, Ti 1.1 sec) which allowed an improvement, but not normalization of nocturnal hypercapnia and oximetry. At follow-up, despite an excellent adaptation and adherence (average use 12 hours/night and 100% of the days), there was a recurrence of drowsiness and persistence of hypercapnia. Given the limitation of parameter escalation, due to structural changes, it was decided to increase the time of use, including adaptation to the mouthpiece (AC-MPV: VT of 1,350 ml; PEEP of 0 mmHg, RR of 0 cpm, Ti of 1.4 sec). Currently asymptomatic with an average use of ventilation of 20 hours/day, maintaining significant changes in nocturnal oximetry and daytime blood gas analysis, which supports hypoventilation.
Discussion: We present a case of multifactorial hypoventilation that was very difficult to correct. Thus, the importance of an adequate etiological study that allows defining and limiting ventilation strategies emerges, as well as an appropriate follow-up with emphasis on clinical, gasometric and nocturnal oximetry evaluation, particularly its morphology.

Keywords: *Nocturnal hypoventilation. Obstructive sleep apnea. Non-invasive ventilation. Mouthpiece ventilation.*

PC 182. WHAT IS THE RELEVANCE OF THE CONTEXT OF THE INITIATION OF NON-INVASIVE VENTILATION IN PATIENTS WITH OBESITY HYPOVENTILATION SYNDROME?

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Introduction: Continuous positive airway pressure is one of the mainstays in the treatment of obesity hypoventilation syndrome (OHS), either in the form of CPAP (continuous positive airway pressure) or in the form of non-invasive ventilation (NIV). The start of this therapy may occur in an exacerbation (emergency/hospitalization service), when the patient presents with initial global respiratory failure, or occur, in stability, during follow-up in a specialized consultation.
Objectives: The aim of this study was to analyze if there were statistically significant differences on outcomes and comorbidities of patients with OHS depending on the context of initiation of NIV (stability versus exacerbation).
Methods: A retrospective analysis was carried out of the patients followed in the NIV consultation, between January 2014 and June 2023, in a tertiary hospital, with the diagnosis of OHS. The t-test for independent samples was used, and a Kaplan-Meier survival analysis was performed for a follow-up time of 150 months. Results with $p < 0.05$ were considered statistically significant.
Results: In a population of 921 patients being followed up at the consultation, a sample of 137 (14.9%) was obtained with the diagnosis of OHS. Most patients (89.8%) were under NIV, with more than half (59.1%) starting in the context of a consultation. In those who started NIV in stability, the median age was 69.0 [59.0-75.5] years, and 74.5 [64.3-83.0] years in those who started in exacerbation. The median time of daily use was similar between the two groups. We observed, on average, with a statistically significant difference, that the patients who started NIV in stability had a lower body mass index (BMI) and fewer hospitalizations, in relation to those who started it in exacerbation. It was also verified that there was a relationship between the context in which NIV was started and the survival time, with a lower average being obtained in patients who started NIV during exacerbation. No relationship was documented between comorbidities and the context of initiation of NIV.
Conclusions: It is concluded that there is a statistically significant relationship between BMI, the number of hospitalizations and the context in which NIV was started, as well as the survival time. Noting that, when the beginning of this therapy occurs in an acute context, the outcomes are worse, advocating the importance of early referral of these patients to a specialized consultation.

Keywords: *Obesity-hypoventilation syndrome. Home non-invasive ventilation. Context of initiation of therapy.*

PC 183. CONTINUOUS TRACHEOSTOMY VENTILATION WITH A HOME VENTILATOR IN SEVERE ANKYLOSING SPONDYLITIS: A CLINICAL CASE

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Introduction: Ankylosing spondylitis (AS), an axial spondyloarthritis, is a chronic multisystem inflammatory disease. Through a progressive process of spinal and joint fusion, advanced disease culminates in extreme limitation of spinal mobility and thoracic expansion. In a minority of patients, pulmonary manifestations of the disease are observed, including interstitial lung disease, fibrotic changes of the apices, spontaneous pneumothorax and restrictive syndrome. Dorsal kyphosis with involvement of the thoracic spine and the costoverterbral, sternoclavicular and sternomanubrial joints may prevent effective lung ventilation.
Case report: We present the case of a 51-year-old man, previously autonomous, non-smoker, with a relevant personal history of heart failure, atrial fibrillation and ankylosing spondylitis with severe cervical kyphosis, and no known previous respiratory failure. He was referred to the respiratory failure (RF) consultation after a long-term stay in an ICU for chronic global respiratory failure requiring continuous ventilation by tracheostomy and LTO. The condition began after 4 days of fatigue on progressively less exertion, and his wife found him unresponsive. He arrived at the ER in periparous state, with peripheral saturations of 40% on room air (aa) and respiratory acidemia on blood gas analysis (pH 7.18, pCO2 92.9, pO2 25.9). He was intubated and transferred to the ICU, and infectious, thromboembolic, cardiac or pleuroparenchymal pathologies were excluded. The diagnosis was acute chronic RF secondary to ankylosing spondylitis with severe restrictive syndrome. After failed extubation attempts, he was tracheostomized (lateral tracheostomy due to the impossibility of a previous approach due to kyphosis). As ventilatory weaning was not possible, he was discharged home with continuous mechanical ventilation (CMV) with an insufflated cuff by the tracheostomy, with a home ventilator, in ST mode and LTO at 2 L/min. In the RF consultation, he underwent chest and neck CT and BFO that aimed at airway patency, without evidence of obstruction, supra and infra tracheostomy, so hospitalization was proposed to attempt decannulation for NIV which the patient refused. Thus, he maintains continuous CMV through the tracheostomy, with controlled RF. During follow-up, he stopped LTO and started an external humidifier at night and a home mechanical in-ex-sufflator to fluidize secretions and promote mucociliary clearance. With the maintenance of the physical and respiratory rehabilitation program, a progressive gain in walking autonomy was observed, walking with the ventilator. He is currently performing short periods of cuffless ventilation with the home physiotherapist and will switch to a smaller caliber cannula in order to have peri-cannula air passage and voice training, although warned of the risk of ventilatory compromise if this management is not done in specialized hospitalization.
Discussion: Ventilatory compromise secondary to a restrictive syndrome in the context of AS is rare. Certain patients, notably restrictive and neuromuscular patients, may benefit from ICU support teams specialized in decannulation/extubation with advanced NIV expertise in patients with global RF, in order to avoid prolonged tracheostomy ventilation.

Keywords: *Ankylosing spondylitis. Non-invasive ventilation. Tracheostomy.*

PC 184. IMPACT OF OBESITY-HYPOVENTILATION SYNDROME ON HOSPITALIZATIONS FOR ACUTE-ON-CHRONIC RESPIRATORY FAILURE

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Introduction: Obesity-hypoventilation syndrome (OHS) is a diagnosis of exclusion among the various causes of alveolar hypoventilation. Typically the diagnosis occurs during acute-on-chronic respiratory failure. Evidence on admission to the Intensive Care Unit (ICU) of these patients is scarce. This study aimed to evaluate risk factors associated with ICU admission during hospitalization for type II respiratory failure in patients with OHS.
Methods: A retrospective cohort study was carried out in a level II hospital in Portugal, which included patients diagnosed with OHS who were hospitalized for acute-on-chronic respiratory failure re-

quiring ventilation therapy. It was considered the first admission to the ICU or the exacerbation with the greatest severity of respiratory acidemia. Patients with and without need for ICU admission were compared. NIV failure as the first line of therapy was considered the primary outcome. Sociodemographic characteristics (gender, age, BMI, smoking status) and clinical characteristics (comorbidities, length of stay, NIV failure, mortality, among others) were also analyzed.
Results: 56 patients were included, with a median age of 76 years [IQR 67-83], 80% (n = 45) were female. 86% (n = 48) were non-smokers and had a median BMI of 37.20 kg/m^2 [IQR 33.12-40.59]. The most frequent comorbidities were arterial hypertension in 91% (n = 51) and heart failure in 89% (n = 50). Of the patients with a sleep study (n = 29), 89.7% had obstructive sleep apnea syndrome (OSAS), and 43% (n = 24) had pulmonary hypertension confirmed by echocardiography. Among patients with OSAS, 25% (n = 14) had severe disease with a median AHI of 36.9/h. Regarding treatment, 20% (n = 11) were under NIV and 5% (n = 3) under APAP previously. 39% of the patients did not have a previous diagnosis of OHS. Of the evaluated patients, 23.2% (n = 13) were admitted to the ICU, of which only 3 underwent home ventilation therapy. The main causes of exacerbation were similar between groups (p = 0.573), with decompensated heart failure being the most frequent (ICU 61.5% vs non-ICU 71.4%), followed by acute tracheobronchitis (ICU 23.1% vs non-ICU 14.3%). On admission, the groups showed no differences in acidemia (median pH: ICU 7.27 vs non-ICU 7.31, p = 0.051). NIV was instituted as first-line therapy in all non-ICU patients and in 12 of the 13 patients in the ICU, failing to resolve acidemia in 1 patient, who required invasive mechanical ventilation. Mean time to resolution of acidemia was similar between groups (ICU 9 hours vs non-ICU 12 hours, p = 0.310) as was the median length of total hospital stay (ICU 10 vs non-ICU 9 days). There were no in-hospital deaths. There were no statistically significant differences between the groups in the remaining variables analyzed.
Conclusions: Patients with acute-on-chronic respiratory failure and OHS seem to respond favorably to NIV, with failure of first-line ventilation therapy being observed in only one patient. Given the prevalence of heart failure as an exacerbation factor, the control of cardiovascular risk factors is extremely important.

Keywords: *Obesity-hypoventilation syndrome. Intensive care unit. Non invasive ventilation.*

CARDIO 001. CLASSIFICATION OF VENTILATORY THRESHOLDS IN CARDIOPULMONARY EXERCISE TESTING USING MACHINE LEARNING AND DEEP LEARNING METHODS

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Introduction: The incremental cardiopulmonary exercise test (CPET) is a complementary diagnostic exam that assesses functional capacity by measuring cardiovascular, respiratory, and metabolic responses to incremental exercise. During the exercise increment, different energy substrates and metabolic mechanisms are predominantly used, characterizing the aerobic, transition, and anaerobic phases of exercise. Ventilatory thresholds (VTs) have been defined to separate these phases. Despite several years of study in this area, the precise measurement of these thresholds in clinical practice remains time-consuming and subject to variability due to visual analysis of patterns, resulting in inter-operator variability.
Methods: This study proposes an alternative to the traditional method of VT1 and VT2 measurement, using machine learning models (kNN) and deep learning models (GRU) with subsequent evaluation of their performance. The study individually identified VT1 and VT2 points in 720 CPETs collected from a public database (Physionet database "Treadmill Maximal Exercise Tests from the Exercise Physiology and Human Performance Lab of the University of Malaga"). The individuals who performed these CPETs were predominantly amateur and professional athletes. All CPETs were incremental treadmill tests, but several protocols were used. The available variables in the database were: oxygen consumption (VO2), carbon dioxide production (VCO2), minute ventilation (VE), respiratory rate (RR), heart rate (HR), test time, and treadmill speed. Subsequently, variables for ventilatory equivalents for oxygen (VE/VO2) and carbon dioxide (VE/VCO2), respiratory exchange ratio (RER), oxygen pulse, and tidal volume were created. In the initial approach, the kNN machine learning model was trained on 80% of a total of 277,399 examples to identify the exercise phase to which a given respiratory cycle belonged (aerobic, transition, or anaerobic), achieving an accuracy of 86.5%.
Results: However, while machine learning models are suitable for tabular databases, when the data is sequential (as in CPETs), deep learning algorithms usually perform better because they consider the temporal patterns in the data. Accordingly, two models of a recurrent neural network type (GRU) were created, one for automatically classifying VT1 and the other for VT2, resulting in accuracies of 92.0% and 88.4%, respectively. Regarding the identification of VT1, the GRU model achieved a mean absolute error (MAE) of VO2 of 286 ml.min^{-1} and a mean absolute percentage error (MAPE) of 13.5%, while in the measurement of VT2, the model achieved an MAE of VO2 of 202 ml.min^{-1} and an MAPE of 7.1%.
Conclusions: Although this is a proof of concept approach, machine learning models can identify the exercise phase in a CPET. Nonetheless, the accuracy of automated classification increases considerably when deep learning models are used, capable of identifying sequential patterns, which are essential in the analysis of incremental CPETs.

Keywords: *Cardiopulmonary exercise testing. Ventilatory thresholds. Machine learning. Deep learning.*

ENF 001. EFFECTIVENESS OF A REHABILITATION NURSING CONSULTATION FOR PEOPLE WITH ASTHMA

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Introduction: Asthma is a chronic inflammatory disease of the respiratory airways and is considered a Public Health problem, which lacks a personalized multidisciplinary intervention, to allow the user to develop mastery in the self-management of his disease. The project intends to answer the question: What methods could be used to enhance the use of asthma controller therapy?
Methods: Randomized and controlled clinical trial. The sample consists of users with asthma at Family Health Units in the municipality of Oliveira de Azeméis. There will be na experimental group that will undergo structured rehabilitation nursing consultations, and a control group that will receive the usual nursing care appropriate for asthma management. Both groups will be subject to two evaluation moments with the CARAT test and the AQLQ-M questionnaire.
Results: The aim is to evaluate the effectiveness of interventions for people with asthma implemented within the framework of a structured rehabilitation nursing consultation. It is expected to observe a clinically significant improvement with regard to disease control, quality of life, and user empowerment.

Keywords: *Asthma. Adults. Respiratory rehabilitation. Breathing exercises. Closed lip breathing. Diaphragmatic breathing. Quality of Life. Self-Management. Rehabilitation Nursing.*

ENF 002. PATIENT WITH INDWELLING PLEURAL CATHETER – CASE STUDY

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Introduction: The progression of oncological disease in humans leads to situations that are difficult for the user and family to manage, such as malignant pleural effusion (MPE). This leads to the appearance of symptoms, such as dyspnea, cough and chest pain, conditioning the patient's quality of life. Drainage of MPE allows the relief of these symptoms. Since chemical pleurodesis was the only option for definitive treatment until recently, indwelling pleural catheters have emerged as an alternative. The placement of a indwelling pleural catheter (IPC) can increase the relief of dyspnea, as well as the possible occurrence of spontaneous pleurodesis. Allows the reduction of the user's return to the hospital unit and the need for frequent hospitalizations. The nurse has an important role in the pre, intra and post placement of the IPC. The Nursing team must be able to respond to these differentiated procedures, adjusting to the needs of the patient and the reference person in order to empower them as true partners in care, with the aim of improving the patient's quality of life.
Objectives: To describe and analyze a clinical case of a patient with IPC. Reflect on nursing care for patients with IPC. Identify aspects of improvement to ensure the quality and safety of nursing care for patients with IPC.
Methods: Retrospective, exploratory and descriptive study based on proposals from an informal case study. The ethical assumptions inherent to the nature of the investigation were fulfilled.
Results: Female, 52 years old, with colon adenocarcinoma diagnosed in March 2022. She underwent left hemicolectomy and chemotherapy until February 2023. In April, she visited the emergency department (ER) twice due to abdominal pain, worsening with movement and coughing. Large right pleural effusion, diagnostic-evacuating thoracentesis was performed, with output of 1,200 cc of serous pleural fluid. Chest drain placed in hospitalization. Due to non-resolution of the MPE, it was decided to place the IPC in May. She was discharged home, after teaching the patient and family about care to be taken with the catheter, making a dressing, monitoring for inflammatory signs, periodicity and amount of fluid to drain. Patient stayed at home for 2 months, being autonomous in handling the catheter. During this period, doubts were clarified weekly by telephone, with no complications related to the catheter. She was later hospitalized again due to the progression of the disease, eventually dying.
Conclusions: The analysis of this clinical situation triggered the need for the nursing team to draw up guidelines for the placement of the IPC and post-placement care, as well as the creation of an information leaflet. Training the user and family to handle the IPC allows for the improvement of personal autonomy. The greatest advantage of using this equipment will be the relief of symptoms of respiratory distress in patients with neoplastic progression. Equipping the nursing team with the necessary tools to respond to the user and/or reference person in the multitude of possible scenarios is crucial for the provision of excellent health care.

Keywords: *Pleural diseases. Indwelling pleural catheter. Nursing care.*

FISIO 001. SIMEOX AS AN ADJUNCT TO RESPIRATORY KINESIOTHERAPY IN PATIENTS WITH BRONCHIECTASIS – PRELIMINARY STUDY

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Introduction: The presence of bronchorrhea significantly affects the quality of life of patients with bronchiectasis. They are often enrolled in rehabilitation programs aimed at enhancing the elimination of bronchial secretions and reducing infectious exacerbations. The Simeox® (PhysioAssist S.A.S.) presents itself as an innovative technology to assist the elimination of bronchial secretions. Its mechanism is based on applying oscillatory intrathoracic pressure, which allows it to pass through the bronchial tree, changing the mucous characteristics of the secretions and facilitating their elimination.
Methods and objectives: Aiming to evaluate the impact of Simeox® inclusion on respiratory kinesiotherapy plan, this study included patients admitted for bronchiectasis acute exacerbation with respiratory kinesiotherapy criteria and patients with bronchiectasis in a regular program in respiratory kinesiotherapy outpatient care. At the beginning and end of the respiratory kinesiotherapy program (between 2-5 days/week, with a total of 25 sessions), symptoms and perception of health status were assessed through Bronchiectasis Exacerbation Symptoms Tool (BEST) and 5D-5Q-5L questionnaires. In the end of the program another questionnaire was applied to evaluate the satisfaction and the device's ease of use.
Results: 5 patients were included, 3 male and 2 female, ages between 24-75 years (mean of 52 years). Regarding symptoms, there was an improvement of the mean BEST' score from 20.6 (10-26) to 7.8 (7-12). When it comes to the perception of health status, using 5D5Q-5L, the mean score improved from de 9.6 (5-12) to 7.8 (5-12). The questionnaire also verified an improvement in self-assessment of health status, from 42/100 to 68/100, according to the visual analog scale. Lastly, regarding the satisfaction and Simeox®' ease of use, the mean score was 85% (73-100).
Conclusions: In this study, the addition of Simeox® in the respiratory kinesiotherapy plan for patients with bronchiectasis reduced associated respiratory symptoms and improved the perception of health status, resulting in a positive impact on the patients' quality of life. The patients expressed satisfaction with the device, considering it easy to use.

Keywords: *Simeox. Respiratory kinesiotherapy. Bronchiectasis.*