Pleural Effusion and Disorders of the Pleura

Pleural nocardiosis - Case series of an intricate diagnosis

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Introduction: Most common causes of pleural effusion are tuberculosis, malignancy and rheumatoid arthritis. Tuberculosis is endemic in our country and we tend to forget the rare causes of pleural effusion. Here we are presenting 2 cases of non resolving pleural effusion in connective tissue disorder patients who were on long term immunosuppression and steroids.

Case 1: 45/ female, known case of SLE, on immunosuppressants for 2 years. Patient presented with cough and breathlessness, no fever. Chest radiography showed right pleural effusion, pleural fluid analysis showed exudative fluid. Patient was advised to take antitubercular drugs, but patient refused. Then she presented after one month with recurrent pleural effusion. Usg thorax showed loculated pleural effusion and done usg guided thoracocentesis. Frank pus aspirated, then put pigtail for drainage.

Case 2: 32/male, known case of Rheumatoid arthritis for 8 years, presented with cough and breathlessness for 20 days. Chest radiography showed loculated massive pleural effusion. Usg guided thoracocentesis done, frank pus aspirated. Hence intercostal tube had inserted.

Results: Both patient's fluid report were exudative with very high values of ADA and LDH. ZN stain was negative, but Gram stain showed gram positive filamentous bacilli. Modified ZN stain picked up nocardia species. Both patients are on Cotrimoxazole for 6 months. Chest xray showing clearance and symptomatic improvement for both patients.

Conclusion: Nocardia usually affects immunocompromised patients. Hence with high index of suspicion we have to approach and come to diagnosis as nocardia usually affects lung parenchyma without involving pleura. Pleural involvement with nocardia is very rare, so in any undiagnosed case of pleural disease on prolonged steroid and immunosuppressant drugs, routine search for nocardia should be done. Here in both of our patients, there is mere involvement of pleura without involvement of lung parenchyma.

A study to evaluate the precipitating factor in patients with spontaneous pneumothorax

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Background: A spontaneous pneumothorax (SP) is that which occurs in the absence of an external event, it can
occur as a complication of underlying lung disease known as secondary SP (SSP) or in the absence of lung disease known as primary SP (PSP). In this study we tried to identify any precipitating factor that leads to a sudden increase in negative pleural pressure or greater mechanical alveolar stretch leading to rupture of alveoli or subpleural blebs. **Objective:** To evaluate the precipitating factor in patients with spontaneous pneumothorax. **Methodology:** A retrospective study of 93 cases of spontaneous pneumothorax who are admitted in our hospital from 2008 to 2021 was done. Data were collected using questionnaire. **Results:** Out of 93 cases, 86% (80) cases were SSP with male predominance of 94.2% and mean age of 70.76 years. 13.9% (13) of total cases were PSP with male predominance of 90% and mean age of 27 years. In 80% of cases had history of smoking; passive smoking in 20% of cases. The most frequent symptoms at the time of presentation were dyspnea (70%), followed by chest pain (50%) cough (30%), dyspepsia and fever (5%), 1% of cases were asymptomatic and was PSP. Among SSP cases, majority were COPD (80%) followed by ILD (15%) and infectious conditions (5%) like TB, pneumonia. 53% (50) of cases had precipitating factors which were cough (46%) followed by physical activities (18%) and recurrent infections (9%) and other factors (27%) such as sneezing, yawning, vomiting. Majority of patients were initially treated with tube thoracostomy, 40% patients underwent pleurodesis and 10% underwent surgical intervention. **Conclusion:** Out of 93 cases we have found, 50 cases had precipitating factors; by identifying these risk factors we can teach the patients with underlying lung disease regarding recurrences and prevent further episodes of SP.

**Intrapleural fibrinolysis therapy for septated malignant pleural effusions: A real world tertiary centre experience**

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**Background:** MPEs become septated in 16-30% of patients and are associated with a poorer prognosis. Previous RCTs have not shown improvement in dyspnea or pleurodesis success when IPFT was used via an intercostal chest drain (ICD).

**Aims:** To review the real world use of IPFT for non-draining septated MPEs in a tertiary pleural unit

**Methods:** All patients treated with IPFT for septated non-draining MPE between 1/18 and 30/12/20 were included. Eligibility for IPFT included patient-reported dyspnoea with a moderate (min. 2 rib spaces) septated, non-draining effusion and alternative causes of breathlessness excluded with a CTPA. Patients received 1 to 3 doses depending on symptomatic response.

**Results:** 10 patients were included. Data was collated through retrospective review of electronic patient records (Table 1). 6 patients were able to complete IPFT in the ambulatory/outpatient setting. Median cumulative pleural fluid volume drained at 24 h post-treatment was 700mL. Sonographic reduction of pleural collection was documented in 8 patients. 8 patients reported symptomatic benefit of dyspnoea which lasted between 5 and 7 days. In 3 patients, IPFT resulted in an improved performance status, which allowed them to receive oncological therapy. 2 patients with IPC achieved autopleurodesis after IPFT. Pleural bleed (not requiring intervention) was the single complication found in 1 patient who received alteplase and needed premature termination of IPFT.

**Conclusion:** IPFT is well tolerated in patients with septated non-draining MPE and can be safely administered in the outpatient setting. In select patient, there is a clear signal for symptomatic benefit in the real world setting. The finding that IPFT facilitated oncological treatments in 30% patients is intriguing. Further prospective studies in larger multicentre cohorts are urgently required.

| Gender (n) | Male | Female | Median age (years) | 70.5 |
|------------|------|--------|--------------------|------|
| **Type of malignancy (n)** | | | | |
| Breast | 4 | | | |
| Lung | 2 | | | |
| Mesothelioma | 3 | | | |
| Ovarian | 1 | | | |
| **IPFT administration route (n)** | | | | |
| Intercostal drain | 3 | | | |
| Indwelling pleural catheter | 7 | | | |
| **Therapeutic anticoagulation (n)** | | | | |
| Urokinase (IU/dose) | 5 (100,000) | | | |
| Alteplase (mg/dose) | 5 (2.5-10) | | | |
| **Number of doses (mean)** | 2 | | | |
| **Frequency (n)** | Daily | 8 | | |
| Weekly | 1 | | | |
| Monthly | 1 | | | |

**Bilateral chylothorax as a unique presentation in a patient with ovarian tumour**

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**Background:** Chylothorax is the accumulation of milky, lymphatic fluid in the pleural space. It is usually formed when the thoracic duct gets disrupted. Most common causes being malignancy (54%), trauma and surgery (25%), idiopathic (15%) and miscellaneous (6%).

**Case Study:** A 51-year-old female presented with dyspnea grade 4 mMRC since 6 days. The patient is on chemotherapy for ovarian carcinoma diagnosed 3 months back. On auscultation, breath sounds decreased in the bilateral infraaxillary and infrascapular areas. Chest x-ray showed...
bilateral moderate pleural effusions. Thoracentesis and pleural fluid analysis was performed. The pleural fluid was turbid and pale yellow, culture was sterile, Triglycerides: 238 mg/dL, Cholesterol: 32mg/dL. Tube thoracostomy was done and 400mL of fluid was drained per day.

**Discussion:** Chylothorax is diagnosed when triglyceride content in pleural fluid is more than 110mg/dL. In our patient, pleural fluid triglycerides were 238mg/dL. She was a known case of GI carcinoma treated 7 years back and presently on chemotherapy for ovarian carcinoma. Trauma and surgeries have been ruled out. Diagnosis is confirmed by estimating fluid chylomicrons, which was not done in this case due to non-availability of the test in our hospital. Management depends on the etiology and rate of accumulation of chyle. She was started on octreotide to reduce chyle formation.

**Conclusion:** As bilateral chylothorax is a rare presentation, high index of suspicion and meticulous history taking can identify the cause early. Chylothorax often leads to massive fluid and nutritional loss, hence early treatment reduces volume of chyle lost and prevents the complications.

**Clinical Evaluation of Pleural Effusion in Sarcoidosis patients in a tertiary care center**

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**Background:** Sarcoidosis is a systemic granulomatous disorder of unknown etiology. Lungs are the most commonly involved organs but extra-pulmonary involvement is quite common. Pleural effusion in Sarcoidosis due to disease activity is an uncommon manifestation.

**Objectives:** This study aims to describe the clinical profile and the treatment outcomes of patients with Pulmonary Sarcoidosis along with pleural involvement in a tertiary care center from North India.

**Methods:** Patients with cyto/histologically proven Sarcoidosis were screened for extra-pulmonary organ involvement and followed up as part of their treatment plan in the Department of Pulmonary Medicine, AIIMS, New Delhi. Clinical, demographic, lab parameters and treatment details were collected retrospectively and analyzed prospectively. 400 patients with biopsy-proven Sarcoidosis were included in this study.

**Results:** Out of the 400 patients with Sarcoidosis, 11 patients (2.7%) were found to have pleural effusion. The mean age was 44.8 (SD: 11.64) years with equal gender distribution. The most common symptoms were breathlessness and cough (63%), fatigue, and weight loss (45%). The mean duration of symptoms before diagnosis was around 40 weeks. The median serum ACE was 42 IU/L. Tuberculin test was negative in 91% of patients. The mean FEV1/FVC was 84.39 (SD: 8.3). The mean FVC was 3.07L (74%). Pleural fluid analysis showed Lymphocyte rich exudative effusion. All 11 patients were started on oral corticosteroids in view of symptomatic stage 2 disease. On follow-up, 6 patients had remission, 3 patients had relapsed and 1 patient had refractory disease. 1 patient was subsequently diagnosed to have Tuberculosis and was started on Anti-tuberculous therapy.

**Conclusion:** Pleural involvement is a rare manifestation in patients with Pulmonary Sarcoidosis. Common causes like cardiac involvement, renal involvement, and Tuberculosis must be ruled out before attributing the pleural involvement to the disease activity. The proper follow-up and close monitoring of the patients could give better treatment outcomes.

**A study of role of serum LDH and pleural fluid ADA ratio in differentiating malignant from tubercular pleural effusions**

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**Background:** Serum LDH is raised in Malignant pleural effusion [MPE] whereas pleural ADA is raised in Tubercular pleural effusion [TPE]. This presents as an opportunity to combine these test results developing a ratio (Serum.LDH / pleural fluid ADA also known as Cancer ratio) with the diagnostic power to differentiate MPE from TPE.

**Methodology:** A Retrospective study was conducted in 77 patients diagnosed with pleural effusion in department of Pulmonary Medicine, Andhra medical college, Visakhapatnam.

**Results:** Out of 77 patients, 37 had malignant pleural effusions and 40 had tubercular pleural effusions. The mean pleural fluid ADA was 30.18±21.40 in MPE and 78.51±37.26 in TPE. The mean value of serum LDH was 877.05±528 in MPE and 746.6±805.3 in TPE. The mean value of pleural fluid LDH was 722.35±242.92 in MPE and 730.19±77.62 in TPE. The mean value of cancer ratio was 42.75±35.29 in MPE and 11.38±7.7 in TPE. A cut off value of > 17.8 for cancer ratio had a sensitivity of 80% and specificity of 86.5% to differentiate malignant from tubercular pleural effusion.

**Conclusion:** The study concluded that higher serum LDH/ pleural fluid ADA ratio can distinguish between malignant and non malignant effusion. The cancer ratio ( serum LDH/ pleural fluid ADA ) helps in early identification of malignant pleural effusion in a very simple and cost effective manner.

**To compare the efficacy of povidine iodine and bleomycin used for pleurodesis in patients with malignant pleural effusions**

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Aim of the Study: to compare the efficacy of povidine iodine and talc used for pleurodesis in patients with malignant pleural effusion.

Patients and Methods: The current study was carried out in the period between October 2020 till November 2021 in respiration medicine department of Chalmeda Anand Rao Institute of Medical Sciences, Karimnagar. 30 patients with malignant pleural effusion were included in the study. Patients divided into 2 groups of 15 each. Group 1 underwent pleurodesis with TALC and Group 2 underwent pleurodesis by Povidine Iodine.

Results: Follow up results after 3 months in the two groups showed complete response in 13 patients (86.7%) in Group 1, and in Group 2, 12 patients (80%) showed complete response there was insignificant difference between the two groups in response to pleurodesis.

Clinical Profile and Outcome of Spontaneous Pneumothorax in Adults in Tertiary Care Hospital – Prospective Observational Study

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Background: Pneumothorax occurs when air leaks into the pleural space. The air which gets collected between lung and chest wall causes the lung to collapse. Various causes tend to cause the air leak into the pleural space. The current study is done to assess the symptomatology, etiology, management and outcome of primary and secondary spontaneous pneumothorax in adults admitted in tertiary care hospital.

Methodology: This is a prospective observational study conducted in the Department of Thoracic Medicine, Stanley Medical College, Government Hospital of Thoracic Medicine, Tambram Sanatorium during June 2020 to May 2021. This study included 50 patients. Pneumothorax patients taken up for the study are explained about the nature of study and informed consent is obtained. Patient's detailed history, smoking history, clinical examination, chest radiograph, sputum acid fast bacilli smear, HIV status were collected. Management strategy was decided based on symptomatology of patients, clinical examination and chest radiography. Management for patients is classified as observation, observation with oxygen, needle aspiration and insertion of chest drain. The patient is observed for any complication with ICD, duration between chest drain insertion and removal, duration of air leak with ICD, duration of hospital stay and final outcome (i.e. lung expansion) with management strategy followed during the course of treatment. Data were analysed using SPSS statistics for Windows, Version 23.0.

Results: 50 consecutive patients who fulfilled the inclusion criteria were included in the study. Among them 4 had primary spontaneous pneumothorax and 46 had secondary spontaneous pneumothorax. The mean age of patients was 41.5 years. 60% were smokers. The most common clinical manifestation was dyspnea (66%). The most common cause of SSP was found to be tuberculosis (72%). The cases were managed with Intercostal Chest Drain (92%), observation with O2 (8%). Adequate lung expansion was noted in 82%. The mean duration between chest drain insertion and removal was 10.2 days. The mean duration of hospital stay was 12.5 days. The mean duration of air leak was 9.3 days. The most common complication noted was persistent air leak (12%). There was no statistically significant association between age, gender, BMI, smoking status and lung expansion. There is statistically significant association between comorbidity and lung expansion.

Conclusion: The study concludes that secondary spontaneous pneumothorax due to tuberculosis is more common and most of the patients were managed with ICD. Patients responded well with ICD with few patients developing ICD related complications. ICD related complication was more common among patients with tuberculosis. Prompt screening of high risk patients and early intervention for spontaneous pneumothorax can reduce the disease morbidity and mortality.

A Case Report of Pseudomeig's Syndrome

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Background: Pseudomeig’s syndrome is a clinical condition of pleural effusion, ascites associated with ovarian tumour that is not fibroma or fibroma like tumour.

Case Study: A 49 year old female came with complaints of breathlessness since 3 months, dry cough and right side chest pain since 4 days. Chest X-ray showed right moderate pleural effusion. 800ml fluid was drained by thoracocentesis with improvement of symptoms. Pleural fluid analysis: lymphocytic predominant, no malignant cells, ADA 30 IU/L. After 2 days her dyspnea recurred, another 900 ml of thoracocentesis done. HRCT chest showed right pleural effusion with no underlying lung pathology. Ultrasound abdomen: large multiloculated cystic growth arising from ovary and minimal ascites. Ascitic fluid showed no malignant cells. CA 125 is 296.3 IU/ml. With malignancy suspicion, staging laparotomy and optimal cytoreduction was done by TAH BSO, Right pelvic lymph node dissection. Histopathology of ovary revealed borderline mucinous tumour. Following surgery, there is no recurrence of pleural effusion and ascites.

Discussion: Recurrent right side pleural effusion may be a marker of underlying ovarian tumour when no obvious lung pathology is found.

Conclusion: Ruling out underlying ovarian tumour in female patients with unexplained, recurrent pleural effusion is essential as this could be from pseudo meig’s syndrome and this is curable by tumour resection.
Differentiating transudative and exudative effusions by pleural fluid and serum bilirubin ratio

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Introduction: Pleural effusions have been divided into transudative and exudative effusions based on Lights criteria. The first step in the evaluation of patient with pleural effusion is to determine whether the pleural fluid is transudate or exudate.

Aim: To determine the efficacy of pleural fluid to serum bilirubin ratio in differentiating transudate and exudate in constrained resource settings.

Methods: 113 patients with pleura effusion are included. Pleural fluid and serum samples are collected and sent for analysis. Analysis of various parameters basing on Lights criteria and serum bilirubin ratio were done. Based on the final diagnosis cases were divided into transudative and exudative.

Results: Among 113 cases, 81 had exudative and 32 had transudative effusions. The commonest cause of effusion is pneumonia 54.3% (44), tubercular 29.6% (24), malignancy 16% (13) among exudates. Congestive heart failure 40.6% (13), kidney disease 28.2% (9), liver cirrhosis 18.7% (6), others 12.5% (4) among transudates. Considering cut off of 0.6, the sensitivity, specificity, positive predictive value and negative predictive value were 86%, 91%, 97% and 73% respectively.

Conclusion: pleural fluid to serum bilirubin ratio can be used as diagnostic tool in differentiating transudative and exudative effusions.

Pulmonary mucormycosis resulting in pyopneumothorax and empyema necessitans

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Background: Mucormycosis is an aggressive, life threatening invasive fungal infection. Pulmonary mucormycosis occurs after inhalation of the fungal spores into the bronchioles and alveoli. Diabetes mellitus especially with acidosis predisposes to the infection and influences the clinical presentation and prognosis. It results in pneumonia with infarction and necrosis which can spread to contiguous structures.

Case Study: This study reports a diabetic 30 year old male, admitted with complaints of right chest pain, cough and intermittent fever for 20 days. He developed progressive dyspnoea and scanty haemoptysis 3 days before admission. Initial chest X-ray revealed right side infiltrates. Sputum examination on Potassium Hydroxide mount showed broad aseptate hyphae. Intravenous liposomal amphotericin was initiated but after 10 days the patient deteriorated. Chest x-ray and CT scan showed hydropneumothorax with the formation of empyema necessitans requiring insertion of a chest drain and drainage of 200ml of pus. Later pleural fluid and nasal swab KOH also showed broad aseptate hyphae. He developed massive haemoptysis in the ICU on the 12th day of admission and passed away.

Discussion: Although histopathology and fungal culture is required for confirmation but delay in treatment initiation could further deteriorate the prognosis of the patient.

Conclusion: Successful treatment requires early diagnosis, reversal of the predisposing factors, surgical debridement and immediate initiation of antifungal therapy. Although such presentation of pulmonary mucormycosis is rare, importance must be given to the KOH examination of pleural fluid especially in the immunocompromised with a high index of suspicion.

Pleural sarcoma- A case report

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Background: Synovial sarcoma is malignant neoplasm of soft tissues, occurs in extremities, closely related to large joints like knee, tendons, tendon sheaths, bursae.

Case Study: A 40 year old female complaining shortness of breath, left sided pleuritic chest pain, dry cough, loss of weight, appetite since 1 month. She is known case of sarcoma of left thigh treated with chemotherapy 7 years back. Chest x-ray showed bilateral pleural effusion with non homogenous opacity in right upper, mid zone, left lower zone. Pleural fluid analysis was inconclusive. CECT chest revealed Right upper lobe mass with left sided pleural based mass with bilateral pleural effusion. Thoracoscopy done - intra operative findings- a 8*8 cm well defined fleshy mass seen originating from parietal pleura with dense adhesions. Biopsy taken from mass, sent for HPE revealed spindle cell tumor of pleura.

Discussion: Extrapulmonary synovial sarcomas are common than primary pulmonary sarcoma. It is distinctive soft tissue tumor having epithelial differentiation. Prognosis is poor. Treatment comprises combination of surgical resection, radiotherapy, chemotherapy. No guidelines for optimal treatment due to rarity of tumor.

Conclusion: We present case of pleural sarcoma with metastasis from sarcoma of thigh. Definitive treatment not been defined yet due to rarity of tumor. Patient was not willing for further management, opted for palliative care.

Spindle cell carcinoma of pleura

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Background: Spindle cell carcinoma (SpCC) is a very rare type of tumor. Very few case of thoracic SpCC have been reported in the literature. It is a type of sarcomatoid
Pleural aspergillosis with pulmonary artery thrombosis as a complication of Covid-19

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Background: COVID-19 is associated with an increased risk of superimposed bacterial and fungal infections. Pleural aspergillosis is an uncommon manifestation of invasive aspergillosis. We report a case of pleural aspergillosis with pulmonary artery thrombosis after COVID-19 with favourable outcome.

Case Study: A 67-year male, diabetic, IHD post CABG, with moderate COVID-19 disease 2 months ago, presented with 1 week history of productive cough, breathlessness and chest pain. Examination revealed hypoxia, tachycardia and diminished breath sounds on right side. Right hydropneumothorax was noted on imaging, tube thoracostomy was done. Pleural fluid investigations were suggestive of pyothorax. CECT-thorax showed cavity consolidation in right lower lobe. Patient was treated with IV antibiotics. However, there was persistent air leak and tachycardia. 2D-ECHO showed mild PAH. D-Dimer was high, CTPA revealed partial thrombosis of right posterior basal pulmonary arteries. Pleural fluid fungal culture yielded Aspergillus fumigatus. Patient was initiated on oral voriconazole and antiocoagulants. He showed marked improvement and in 5 days ICD was removed. Patient is on regular follow-up.

Discussion: COVID-19 associated superimposed infections have been reported with high mortality rates. The use of corticosteroids and/or IL-6 antagonists have been implicated with the fungal infections. Pleural aspergillosis is rare. Diagnosis is usually based on clinical and microbiological evidence. A key finding in invasive aspergillosis is angioinvasion which leads to thrombosis and tissue infarction.

Conclusion: Clinicians should have high index of suspicion for superimposed fungal infections in COVID-19. Early initiation of treatment brings down morbidity and mortality.

The diagnostic value of pleural fluid homocysteine and carcinoembryonic antigen in exudative pleural effusion

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Background: Malignant pleural effusion is accumulation of exudate in the pleural space due to its invasion by primary tumour cells or metastatic tumour cells originating from other tissues. Tumour biomarkers are molecules produced by normal cells in response to cancer or secreted by the tumour cells themselves that are released into the blood and pleural fluid; their concentrations increase in pleural fluid than in serum. Tumour biomarkers such as homocysteine and CEA showed significance in diagnosing MPE and BPE.

Objectives: To assess the diagnostic value of pleural fluid homocysteine and CEA in all Exudative pleural effusions.

Methodology: Prospective and observational study conducted at SRIHER. Pleural fluid Homocysteine and CEA were analysed.

Results: Out of 40 patients 19 were males and 21 were females. Homocysteine levels were 15.21 ± 17.22 showing its significance in Tuberculous effusion. CEA in Pleural Effusions in malignancy was 156.23 ± 196.87 proving its significance in diagnosing MPE.

Conclusion: In this study out of 40 patients homocysteine elevated in 3 patients with tuberculous effusions with sensitivity of 65.5% and specificity of 63.6% and elevated in malignant conditions such as Ca stomach and RCC CEA elevated in 9 patients diagnosed with Ca Lung followed by Ca breast in 4 patients and Ca gall bladder and Ca cervix in 1 patient each showing a sensitivity- 58.6% and Specificity- 90.9%.

Correlation between pleural fluid characteristics of histopathologically confirmed pleural tuberculosis and CBNAAT positive pleural tuberculosis

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Background: Tuberculous Pleural Effusion (TPE) is the second most common form of Extra-Pulmonary TB (EPTB) and the diagnosis primarily relies on pleural fluid Adenosine Deaminase (ADA) and lymphocyte count. Obtaining
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microbiological confirmation and drug sensitivity remains challenging in TPE as specimens from representative sites may be less approachable. Pleural tissue obtained under thoracoscopy guidance improves the sensitivity of CBNAAT, which also addresses testing for drug resistance.

Objective: Our objective was to analyse the pleural fluid characteristics of TPE diagnosed after tissue biopsy and to study if there are any association between them and CBNAAT

Methods: In patients with undiagnosed pleural effusion, TPE is confirmed in 63 patients after subjecting the tissue obtained under thoracoscopy guidance to Histopathology (HPE), CBNAAT and Culture. Pleural Fluid biochemical characteristics (Protein and ADA) and Lymphocyte count are analysed between CBNAAT and HPE confirmed TPE using unpaired T-test.

Results: Of the 83 patients with TPE, histopathological confirmation – presence of caseous necrosis and epitheloid granulomas, was obtained in 61. PT CBNAAT detected M.tuberculosis in 32 patients. PF characteristics were analysed between CBNAAT and HPE groups – ADA (mean ± SD-60.59 ± 17.54 vs 50.61 ± 16.89; p < 0.05), protein (5.26 ±0.49 vs 5.05 ± 0.56; p< 0.05), Lymphocyte Count (0.70 ± 0.19 vs 0.62 ± 0.23; p < 0.05). Increased PT CBNAAT yield was observed in patients with higher PF protein, ADA and Lymphocyte count.

Conclusion: CBNAAT positive TPE are associated with higher pleural fluid protein, ADA and Lymphocyte count compared to pathologically confirmed TPE.

Chylothorax- Case report

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Background: Chylothorax is characterized by presence of chyle in the pleural space and results from lesion or obstruction of the Thoracic duct. It presents as an exudate with lymphocytic predominance with high triglycerides and LDH levels.

Case Study: 35 year old male patient presented to OPD with complaints of Left sided chest pain and dyspnea on exertion started two days after lifting heavy electrical machine. Patient was evaluated. Chest X-ray showed left sided massive pleural effusion. USG guided therapeutic and diagnostic thoracentesis done. About 1250 ml milky white pleural fluid was aspirated. Pleural fluid showed presence of chylomicrons, LDH 606 U/L, Triglycerides more than 1576 mg/dl, ADA 2.18 IU/L, TLC-4688 cells/ml, Lymphocytes-79%, Foamy macrophages -15%, Polymorphs 2%, Mesothelial cells 4%. PET CT scan was done to rule out malignancy such as Lymphoma, which showed left sided pleural effusion. Lymphangiography showed lymphatic malformation with abnormal lymphatic channels.

Discussion: Our case is unique because a healthy patient with massive chylothorax of unknown etiology managed effectively by lymphangiogram with embolization.

Conclusion: There are many causes of chylothorax and its management is complex. The condition is best managed by pulmonologist, thoracic surgeon and intensivist. If the lymphatic leak does not stop by conservative management then surgery is required. New surgical technique are available such as pleuroperitoneal shunting and thoracic duct embolization.

Rare etiology of pneumothorax: Klinefelter syndrome

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Background: Increased shear forces or more negative pressure at the apex of the lung cause primary spontaneous pneumothorax in tall and slender young persons. The rupture of bullae or blebs causes spontaneous pneumothorax in most individuals. The chromosomal abnormality Klinefelter syndrome (KS) affects the lungs as well. Chronic bronchitis, bronchiectasis, and restrictive lung abnormalities have all been mentioned in the literature; however, spontaneous pneumothorax in KS has yet to be reported.

Case Study: A seventeen-year-old male with no apparent co-morbidities presented to us with an acute onset of dyspnea and pleuritic chest pain. Clinical findings on admission were suggestive of pneumothorax, which was confirmed by a chest x-ray. The patient had a small testis, a small penis, and no axillary or pubic hair on general examination. The patient’s arm span exceeds his height. He also discussed erectile dysfunction in history. We did a 2D ECHO and a slit lamp examination to rule out Marfan syndrome. He was found to have azoospermia and was sent for karyotyping, which was suggestive of KS.

Discussion: KS is a genetic disorder of X-chromosome characterized by hypogonadism and infertility with an incidence of one in 660. No studies have reported an association between pneumothorax and KS so far. Presentation of pneumothorax often arouses suspicion of more common etiologies rather than such genetic disorders.

Conclusion: An association between KS and pneumothorax can be considered in appropriate clinical settings. It warrants further studies for better know-how.

“The stranger in thy lungs” - Case report of a rare presentation of pleural endometriosis

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Background: Ectopic endometrial tissue, outside the confines of the uterine cavity is seldom suspected
without symptoms directed to an organ system. We report a rare case of bilateral thoracic endometriosis with abundant clinical dilemma, ultimately confirmed with histopathological evidence.

Case Study: A 30 year old lady was admitted with breathlessness and non-productive cough, since 5 years not associated with wheezing, chest pain, hemoptysis, palpitations or dizziness. On examination, vital signs were stable, reduced breath sounds in infra-axillary areas bilaterally, and no added sounds. Diagnostic evaluation was suggestive of bilateral hemorrhagic exudative effusion. As the diagnostic thoracocentesis was inconclusive, diagnostic thoracoscopy was done and biopsy revealed foci of endometrial tissue in the mesothelial lining of pleural tissue. On further emphasising her history, patient revealed history coinciding with her menstrual cycles. A course of Medroxyprogesterone and Leuprolide was given, but no alleviation of symptoms was noted and subsequently hysterectomy was advised.

Discussion: The prevalence of thoracic endometriosis remains relatively low, due to lack of literature and clinical data. In our case thoracic endometriosis was not suspected initially as patient presented with non progressive, intermittent breathlessness, chest pain and bilateral pleural effusion. However, the rare presentation of bilateral exudative effusion without a systemic cause was ultimately confirmed to be thoracic endometriosis through histopathological correlation.

Conclusions: Thoracic endometriosis has limited management options, and the requirement of further studies for effective therapy is eminent, especially for women of reproductive age. Early diagnosis with detailed menstrual history is of immense importance.

Pandora’s box of thoracic endometrial syndrome presenting as catamenial pneumothorax

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Introduction: Thoracic endometriosis refers to the presence of endometrial tissue in or around the lung. Thoracic endometriosis syndrome (TES) is characterized by the presence of one or more clinical manifestations of thoracic involvement (e.g., pneumothorax, hemoptysis, chest pain) in association with menstruation, seen in less than 1% of women undergoing pelvic surgery for suspected or known pelvic endometriosis. Isolated thoracic endometriosis is extremely rare. Therefore, the diagnosis is often missed or delayed resulting in recurrent hospital admissions.

History: 35 years old female, non-smoker, presented to the emergency department with sudden onset of right chest pain. Chest x-ray showed right hydro pneumothorax. Tube thoracostomy was done and 100ml of hemorrhagic fluid drain was noted.

Evaluation: Pleural fluid analysis was non-specific. Post tube thoracostomy chest x-ray and CT chest were normal. Patient had history of 3 admissions in the past 2 year in view of similar complaints and past 2 episodes were associated with menstruation and severe dysmenorrhea. USG abdomen was normal. In view of high index of suspicion of catamenial pneumothorax, Pleural fluid for CA 125 and 19-9 were analyzed. But, were within normal limits. As a last resort, thoracoscopy was done. Chocolate cysts were visualized in right middle and lower lobes. Patient was advised gonadotrophin releasing hormones and bilateral salpingo-oophorectomy.

Conclusions: Diagnosis of TES requires high index of suspicion as radiological findings are minimal. Therefore, TES should be excluded in woman of childbearing age who present with recurrent pneumothorax.

Left sided pleural effusion: A diagnostic and therapeutic challenge

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Left sided pleural effusion accounts for only about one third of the burden of pleural effusions. Most common aetiologies include congestive heart failure, bacterial pneumonia, malignancy and pulmonary embolism. Pleural effusion due to a subdiaphragmatic diseases are uncommon. Splenic pathology as a cause of left pleural effusion has been reported in 1% cases of left pleural effusion. We present the case of a 32-year male with left sided pleural effusion which on detailed work up, was diagnosed to be a reactionary effusion due to an epidermoid cyst of spleen. Epidermoid cyst accounting for only 10% of non-parasitic splenic cysts, remain dormant until complications such as rupture, super added infection or organ compression ensue. Collaborative efforts of the pulmonologist and the surgeon ensured optimal management of this rare entity.

Re-expansion bilateral pulmonary edema following thoracentesis

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Re-expansion bilateral pulmonary oedema is a rarest complication of thoracentesis. Exact mechanism for this is not known but oxidative stress and reperfusion injury are said to be the causes. Despite being infrequent, mortality may occur in up to 20% of cases. Here we present a 67-year-old female patient with hypertension presented with left sided empyema for which thoracentesis with ICD was done. Within few hours of the procedure patient developed bilateral pulmonary oedema.

Pseudochylothorax with recurrent pleural effusion
Background: Pseudochylothorax (PCT) is a rare form of pleural effusion which is also known by the names of chyliform or cholesterol pleural effusion, diagnosis of which is established by its high cholesterol content and milky pleural fluid. We describe a case of a pseudochylothorax in a male with recurrent pleural effusions.

Case Report: A 32-year-old man presented to us with chief complaint of right-sided chest pain and shortness of breath on exertion last 3 to 4 months. Past history of taking anti-tuberculosis treatment for recurrent pleural effusions several times in the past 10 years. Chest examination revealed decreased chest movement with volume loss on the right side. On percussion, there was a dull note and on auscultation breath sounds were absent in the right lower chest. Chest radiograph and CT chest confirmed right-sided pleural effusion with pleural thickening. Pleural aspiration: Milky white fluid drained, sent for analysis showed Cholesterol 257 and Triglycerides- 50 characteristic features suggestive of Pseudochylothorax. Pleural fluid was drained and the patient was advised for decortication.

Discussion: Pseudochylothorax is complicated by number of conditions the most common of which is tuberculosis and usually unilateral. Complication of pseudochylothorax is tuberculosis reactivation, Aspergillus infection, BPF, Pleurocutaneous fistula.

Conclusion: Pleural fluid examination is mandatory to rule out the underlying cause of repeated effusions, PCT in our case. As repeated anti-tuberculosis treatment is futile, correct diagnosis to be made for prompt treatment like decortication and to prevent further complications.

A case report on pancreaticopleural fistula with left sided empyema and right sided effusion

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Introduction: Pancreatic -pleural fistulae are a rare complication of acute or chronic pancreatitis whereby enzymatic pancreatic fluid, either from a pancreatic pseudocyst or directly from a disrupted duct, dissects into the pleural cavity, has a tendency to recur following pseudocyst or directly from a disrupted duct, dissects into the pleural cavity, has a tendency to recur following management.

History and Clinical Presentation: A 38year old male presented with complaints of cough – 1week, chest pain – 1week, short of breath since – 1week. History of 2 episodes of acute pancreatitis present. Chronic alcoholic.

Physicalexamination: Decreased to absent breath sounds present in bilateral infrascapular area ( R > L).Vocal resonance decreased in right interscapular, infrascapular area. tenderness present in left ICS infra axillary area.

Investigation: Chest Xray PA view showing bilateral pleural effusion. USG GUIDED THORACOTENSIS on the left side – pus was aspirated and sent for analysis, lymphocytic predominate, ADA-30, glucose-26,protein -1.46, ICD tube thoracostomy done. Right sided effusion -haemorrhagic, lymphocytic predominate, ADA-28.34, Amylase -14,232U/L.

CECT chest and abdomen: Calcifications noted suggestive of pancreatitis. Mean Pancreatic Duct measuring:9.5mm, well defined linear tract arising from MPD at pancreatic body extending superiorly through oesophageal hiatus into posterior mediastinum, displacing oesophageus and heart anteriorly.

Management: MRCP chronic pancreatitis with posterior mediastinal pseudocyst with distal PD,ERCP: Pancreaticogram done revealed leak at body and tail. sphincterotomy and stent placement done.

Conclusion: PPF should be considered as D/D in recurrent effusions especially in middle-aged men with a history of alcoholism and recurrent pancreatitis.

A case report of tubercular empyema in a patient with a perinephric abscess and diaphragmatic defect

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Introduction: Pleural effusions can be associated with a wide range of sub-diaphragmatic disorders. Ascending urological infections are rare. We report a case of pleural infection secondary to an occult perinephric abscess via a pre-existing (likely congenital) diaphragmatic defect.

Case Study: A 70 year old male presented to our department with complaints of pain in left side of chest, fever since a week. No significant past history.On examination of chest revealed fullness over left side of the chest , on percussion dullNote washeard on entire left hemithorax. On auscultation there were decreased breath sound and decreased vocal resonance on left hemithorax.

Discussion: Chest X-ray demonstrated a homogenous opacity in the left hemithorax with blunting of CP angle. ICD was done , 1L pus was drained.In Analysis of pleural effusion, pus for CBNAAT-MTB detected, rif resistance not detected.USG s/o Lt parasinal abscess .USG guided aspiration of abscess sent for CBNAAT revealed MTB.CT chest and abdomen s/o perinephric abscess with diaphragmatic defect.

Conclusion: Patient was started on ATT. With systemic antibiotics, and drainage of both the pleural and retroperitoneal collections. Intra-pleural tissue plasminogen activator/deoxyribonuclease therapy effectively cleared the residual pleural fluid. Spread of intra-abdominal sepsis through diaphragmatic defects to the pleural cavity represents a potential source of empyema.he result of this case study showed that case presenting as massive pleural...
effusion, tubercular empyema with perinephric abscess could be considered as rare cause of it.

Recurrent primary spontaneous pneumothorax

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Background: Primary spontaneous pneumothorax (PSP), defined as a pneumothorax without underlying lung disease, predominantly occurs in young, thin males. It is usually caused by ruptured pleural blebs or bullae.

Case Study: A 28 year old male presented with acute shortness of breath on exertion and right sided chest pain. Decreased breath sounds on auscultation, decreased chest wall movement on inspection, hyper-resonance on percussion, and reduced tactile fremitus on palpation of the chest noted. Patient had history of chest tube placement for right pneumothorax. Chest x-ray performed showed large right pneumothorax. Chest tube was placed immediately. Computed tomography (CT) without contrast showed multiple sub pleural bullae. Patient underwent doxycycline pleurodesis.

Discussion: In only one-third of patients with PSP will the bullae be seen in the chest film. Over 85% of patients with visible bullae during Video assisted thoracoscopic surgery (VATS) could be detected pre-operatively by CT scan. The apical bullae/blebs shadows on the CT scan should be differentiated from the normal ‘apical lines’. More than 50% of patients with PSP have contralateral blebs/bullae.

Conclusion: Existence and number of bullae/blebs on CT were not associated with the recurrence. The risk of recurrence is estimated to be 20%–50%. Probabilities of recurrent PSPs can be increased up to 50% after the first recurrence, and 85% after the second recurrence. Chest tube placement and better minimal surgical techniques to detect and remove hidden bullae/blebs, or pleurodesis techniques with better effectiveness and less adverse effects are still expected to improve the treatment outcomes of patients with PSP.

A case of severe ovarian hyperstimulation syndrome

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Background: We report a case of severe ovarian hyperstimulation syndrome (OHSS) with bilateral pleural effusion, ascites following controlled ovarian hyperstimulation.

Case Presentation: A 26-year-old woman, primi gravida (post In-vitro fertilization) had severe OHSS as a complication of gonadotropin stimulation. The patient presented with abdominal pain, chest pain and dyspnea. On further evaluation she showed massive ascites, bilateral moderate pleural effusion. Besides the medical treatment, abdominal paracentesis for the drainage of the massive ascites and multiple thoracocentesis were performed, resulting in expansion of the lung. Scan showed live intrauterine twin pregnancy.

Conclusion: Physicians can reduce the risk and incidence of OHSS by monitoring the serum estrogen levels and number of ovarian follicles. Human chorionic gonadotrophin should be withheld if estrogen levels are high or number of follicles are more than 15. Care should be taken to identify early such complications, as accumulation of pleural effusion secondary to OHSS is usually underdiagnosed. The morbidity associated with OHSS should not be underestimated, especially because patients might be pregnant. When the diagnosis is established early and appropriate supportive measures are taken, the prognosis of OHSS is favourable.