Diffuse Parenchymal Lung Disease and Pulmonary Circulation

Silicosis - A ruthless villain in stone industry: A case series

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Background: Silicosis is a progressive, irreversible lung disease due to inhaled silica particles with high mortality. In India, about 10 million workers are formally employed in construction, mining, stone crushing, glass manufacturing, industries with potential exposure to silica dust. Thousands of these workers develop silicosis every year and die directly from it, or due to secondary causes such as tuberculosis or lung cancer. Here we present case series of four cases from the southern part of Kerala, who have been working in stone cutting, crushing and sand blasting industries, unaware of their condition and the consequences, conceal their illness for fear of being expelled from their work.

Case Series: First case was a 40-year-old male with almost twenty years exposure to silica dust. His chest radiology were consistent with silicosis. Second case was a 64-year-old male with forty years of exposure history. Chest CT showed diffused nodular opacities with egg shell calcification in mediastinal lymph nodes suggestive of silicosis. Third case was a 69-year-old male with hemoptysis with silica exposure for more than 20 years. CT chest revealed right minimal pleural effusion with interlobular septal thickening. Our fourth case was a 64-year-old lady who had features of both silicosis and cystic bronchiectasis.

Conclusion: All the cases were having complications due to silicosis and no specific treatment could be offered. Though Kerala has a high literacy rate, the workers are still ignorant of this lung disease. Proper awareness and effective medical surveillance are the need of the hour.

Refractory Bronchorrhoea in case of Brochoalveolar Carcinoma

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Introduction: Bronchioalveolar carcinoma is a relatively rare non small cell carcinoma - adenocarcinoma that typically arises in the lung periphery. Bronchorrhoea in these patients is not uncommon. However, an effective treatment for bronchorrhoea in these patients has not been established.

Case: We describe a case of 30 yr old female presented with the complaints of cough for 15 months and shortness of breath for 4 months. Cough is productive, initial amount was > 150 ml/day and copious in nature. Further the sputum production increased and was the most distressing symptom. CECT thorax suggested active cavitating lesions with GGOs-infective necrotizing pneumonia. No abnormality seen in CECT abdomen. We ruled out the infectious and malignant causes (sputum-cytology-negative-4times; lung biopsy came inconclusive twice).

The case then treated as refractory bronchorrhea with pulse dose steroids and octreotide which showed variable decrease in sputum production. Later the post mortem lung biopsy suggested it as Bronchoalveolar carcinoma.

Discussion: Bronchorrhea is defined as water sputum production of over 100 mL per day. The most important considerations in the differential-diagnosis include primary-lung malignancies including BAC, lung metastases from adenocarcinomas of the colon or other glands. Nonmalignant conditions include endobronchial tuberculosis, asthma and ruptured pulmonary hydatid into a bronchus.

Conclusion: Bronchoalveolar carcinoma should be considered as a common differential in cases of refractory bronchorrhea.

A study about the exercise tolerance in interstitial lung diseases conducted in a tertiary care centre in India

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Background: Interstitial lung diseases are characterized by progressive scarring and fibrosis of interstitium of the lungs. ILD can markedly reduce patient’s exercise capacity and make patient dependent on oxygen, and can be associated with pulmonary artery hypertension (class 3 WHO classification ) with limited exercise capacity. We present a study done in our center where 110 patients of ILD are subjected to undergo 2-D echocardiography to assess the pulmonary hypertension and the co-relation between pulmonary hypertension with 6 minute walk distance. 2-D echocardiography showing PASP > 20 are classified into mild (PASP 20-40), moderate (41-55 PASP) and severe(PASP > 55 ) based on ERS journal 2019 , January edition.

Methodology: All ILD work up done including spirometry for FVC, 6 minute walk distance, echocardiography to evaluate pulmonary pressure.

Results: Out of 110 patients studied, 74 patients had pulmonary hypertension.

| Distance in meters | Number of subjects | Number of subjects | Number of subjects |
|--------------------|--------------------|--------------------|--------------------|
| 6 mwd              | Mild PASP          | Moderate PASP      | Severe PASP        |
| Normal >50 m       | 4                  | 0                  | 0                  |
| Mild 250-350 m     | 16                 | 6                  | 2                  |
| Moderate 150-250 m | 5                  | 8                  | 6                  |
| Severe <150 meter  | 1                  | 0                  | 2                  |
| Unable to perform  | 5                  | 5                  | 14                 |

6 mwd: 6-min walk test
Abstracts

Conclusion:
1. Patients with severe pulmonary hypertension were not be able to perform 6 minute walk test
2. Patients with mild pulmonary hypertension were having better exercise tolerance than those with moderate and severe pulmonary hypertension.

A rare subset of pulmonary fibrosis: Sine scleroderma case series

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Background: Systemic sclerosis sine scleroderma is a rare subset characterized by the total or partial absence of cutaneous manifestations with the occurrence of internal organ involvement and serologic abnormalities.

Case Study: With a follow-up of 7 patients in a tertiary district hospital, all of them presented as pulmonary or other systemic features correlating with serology with and without limited skin changes.

Discussion: Systemic sclerosis with scleroderma, i.e., Skin thickening is the most common symptoms. The disease has 2 main subsets, diffuse and limited forms. The other subset systemic sclerosis sine scleroderma classified into 3 groups. Type 1(complete) without cutaneous changes. Type 2 (incomplete) with limited cutaneous involvements (e.g., Calcifications, telangiectasises’ without sclerodactyly. Type 3(delayed) is internal organ involvement precedes skin changes (complete or incomplete).

Conclusion: Systemic sclerosis sine scleroderma can be considered as the spectrum of scleroderma with limited cutaneous presentation, not a different or rare disease.

Atypical presentation of lymphoid interstitial pneumonia

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Background: Lymphoid interstitial pneumonia (LIP), is a benign polyclonal infiltration of the alveolar space and interstitium with mature B or T cells. It may be idiopathic or associated with immunodeficiency and auto immune disorders. Usually bilateral, unilateral presentation is rare.

Case Report: 50- years –old male non-smoker, farmer by occupation presented with dyspnea and cough for 5 years which had aggravated over last 5 months, with low grade fever, loss of weight and appetite. Patient received antituberculosis treatment based on chest radiography 20yrs back. Chest radiograph showed cystic changes in right upper zone, non- homogeneous opacities in right mid and lower zones with prominent right hilum. Sputum smear for AFB , GBNAAT, LPA for MTB were negative. Klebsiella species isolated on culture. Routine blood investigations normal, HIV-nonreactive. Connective tissue disease workup negative. HRCT revealed upper lobe bronchiectasis, consolidation randomly distributed nodules across right lung. Histopathology of CT guided right upper lobe biopsy showed lymphoid follicles in follicular pattern with few interspersed lymphocytes. IHC stains of reactive germinal centres positive for LCA, CD 20, negative for BCL-2 suggestive of lymphoproliferative disorder -LIP.

Discussion: LIP, a benign lymphoproliferative disorder, classified as a rare idiopathic interstitial pneumonia, radiologically characterised by bilateral diffuse cysts. Diagnosis is by exclusion. Unilateral distribution of nodules, absence of characteristic cysts, presence of consolidation are unusual. Very few cases report unilateral manifestation of LIP.

Conclusion: Unusual presentation of LIP in our case highlights that idiopathic LIP may be unilateral and may occur in immunocompetant individuals.

Asymmetry, overgrowth and hemoptysis – Pulmonary thromboembolism diagnosed in a lady with probable proteus syndrome

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Background: Limb length discrepancy disorders are frequently associated with vascular anomalies and have been linked to sporadic somatic mosaicism involving mutations of phosphoinositide 3 kinase/AKT/mTOR pathway which has a role in tissue growth and angiogenesis. Proteus syndrome is the prototype of segmental overgrowth syndromes with an estimated prevalence of less than one in a million live births. Abnormal asymmetric overgrowth of long bones, macrodactyly, lipomas, vertebral and vascular anomalies have been described earlier. Although genetic counselling is advised, this syndrome can be diagnosed based on clinico-radiological features.

Case Study: A 36-year-old lady, with asymmetry of her lower limbs, presented with streaky hemoptysis and fever for 2 months and right-side chest pain for 2 days. CT Thorax done showed filling defects in multiple segmental pulmonary artery branches in both lungs, suggestive of pulmonary embolism, asymmetrical lipomatosis in right upper anterior abdominal wall with small lesion causing widening of right neural foramen at T11-12 level – probable nerve sheath tumor. She was advised genetic testing and counselling. Her ANA was 2+ speckled and it was labelled as a provoked Pulmonary embolism, and she has been on oral Warfarin with titration of INR since then.

Discussion: Medical Genetics in consultation with Radiology, opined that clinic radiological features were suggestive of Overgrowth syndrome and differentials discussed were Proteus syndrome, Cloves syndrome, Beckwith Wiedemann syndrome, and Klippel Trenaunay syndrome.
Abstracts

Conclusions: DVT and pulmonary embolism are most common causes of premature death in Proteus syndrome and hence it is essential to diagnose and initiate anticoagulation early.

A rare case presentation of post tubercular pleural effusion with seropositive systemic lupus erythematosus with NSIP pattern interstitial lung disease

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Background: Connective tissue disorders like systemic lupus erythematosus can have serious pulmonary complications like ILD. PFT, DLCO and HRCT Thorax remain the mainstay in the diagnosis of SLE associated ILD

Case Study: 25 year male patient came to OPD with complaint of breathlessness on exertion since 3-4 years and was on medication. Patient was case of post tubercular pleural effusion with Systemic Lupus Erythematosus(seropositive) with ILD. We described clinical presentation, investigations and outcome of this case.

Investigations:
CHEST X RAY: prominent broncho-vascular markings in bilateral lung lobes.
PFT: Moderate Restriction with moderate obstruction with small airway disease.
DLCO-normal study HRCT THORAX-Multiple pleuroparenchymal bands in bilateral lower lung lobes. Few centrilobular nodules with ground glass opacities are noted in lateral segment of right middle lobe suggestive of NSIP Pattern ILD.
ANA Test – positive:
Anti cardiolipin antibody -positive
Anti-PM/SCL antibody-borderline positive
2D ECHO- normal study
6MWT – no desaturation.

Management: Patient started on tab Deflazacort (oral steroids) and inhaled corticosteroids formoterol and beclomethasone (Inhaler) with hydroxychloroquine tablet.

Discussion: Association of ILD is rare with SLE compared to other connective tissue disorders.

Conclusion: Early treatment of SLE leads to better remission of ILD.

Prevalence of pulmonary artery hypertension in patients of COPD

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Introduction: Pulmonary artery hypertension is a lung disorder, in which the arteries carrying blood from the heart to the lungs become narrowed, making it difficult for blood to flow through the vessels. Pulmonary artery hypertension (PAH) has been defined as an increase in mean pulmonary arterial pressure >25mmHg at rest or >30 mmHg with exercise. Exact prevalence of PAH in COPD patients in still unclear and has been found to be highly variable in various studies. Thus, this study aims to find out the prevalence of PAH in patients of COPD in our institution.

Objective of Study: To determine prevalence of PAH among all COPD patients and correlate PAH in COPD patients with groups as per GOLD 2021.

Method of Study: All patients underwent spirometry to confirm COPD diagnosis. Confirmed cases of COPD were then categorized into Groups A, B, C and D as per GOLD guidelines 2021. These patients were the subjected to ECG and 2D Echo to confirm the diagnosis of PAH. Prevalence of PAH was then assessed in various groups of COPD.

Results: A total of 8/30 (26.6%) were diagnosed with PAH on 2D Echo. Out of these 1/8 (12.5%) belonged to Group A, 3/8 (37.%) in Group B, 0/8 (0%) In Group C and 5/80 (62.5%) in Group D.

Conclusion: Patients of COPD should be evaluated for PAH as occurrence of PAH is not uncommon in COPD patients.

A case report of Lymphangiomyomatosis

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Background: Lymphangiomyomatosis (LAM) is a rare lung disease that is characterized by the progressive proliferation of atypical smooth muscle-like cells, which leads to severe respiratory impairment and death. Dyspnea, cough, recurrent pneumothorax, and hemoptysis are the most common clinical symptoms of LAM.

Case Study: A 32 year old female, presented with complaints of dry cough, Breathlessness since 2012, Chest pain (after delivery of baby) and pedal edema since 2015, and recurrent pneumothorax first in 2019 then in 2021.

Discussion: X-ray showed bilateral infiltrates and HRCT showed extensive interstitial changes in both the lungs with upper lobe predominance suggestive of Interstitial Lung Disease. 2D echo suggestive of PAH (RVSP- 45mmHg, EF- 55%) and RA panel came out to be negative. USG abdomen showed solid renal lesion suggestive of Angiomyolipoma, thus suggesting the diagnosis of Lymphangiomyomatosis (LAM).

Treatment: Patient was taken on long term oxygen therapy and supportive treatment with steroids and anti-fibrotics was started. Patient was suggested pleurodesis but she refused.

Conclusion: LAM is suspected by the characteristic clinical features in reproductive aged women, obstructive patterns of the pulmonary function, and reticulonodular interstitial infiltrates on the chest x-ray. The pathological findings by a lung biopsy has been used for confirmation in the
Abstracts

The clinical presentation of pulmonary thromboembolism (PTE) includes deep vein thrombosis (DVT) and pulmonary embolism (PE). We aimed to analyze the risk factors, clinical presentations, evaluation, management strategies and outcomes of adult pulmonary thromboembolism cases at a tertiary care centre at Western Maharashtra.

Methods: In a retrospective observational study all consecutive adult pulmonary thromboembolism cases were admitted from Jan 2019 to Sep 2020 at our center were enrolled in this study.

Results: Forty-eight patients were included in the present study. The commonest presenting features were dyspnea (93.8%) and cough (79.2%). ECG revealed sinus tachycardia (56.25%), precordial lead, T-wave changes (6.3%), and S1Q3T3 pattern (16.67%). Diagnosis was confirmed by CTPA in 81% of cases. The localization of the embolus was central in 2%, lobar in 19 % sub segmental in 25% and in main pulmonary trunk in 27%. Echocardiogram revealed right ventricular dysfunction in 58% of the studied group. Treatment options included LMWH in 91%, NOACS in 2% of the patients and thrombolysis was needed in 12.5% of patients. There was no in-hospital mortality, however one patient had major bleeding.

Conclusion: The clinical presentation of pulmonary embolism varied from dyspnea to cough, though the commonest feature of dyspnea remains unchanged compared to prior studies. CTPA has been modality of choice for diagnosis, however few patients with high probability for PTE were diagnosed clinically along with suggestive echocardiography and ECG findings. Thus, a high index of suspicion and timely therapeutic anticoagulation with various agent lead to effective management and better outcome in the studied patients.

Congenital cystic adenomatoid malformation (CCAM) is growth of abnormal and non-functional lung tissue in solid or cystic form. The incidence (1:25000) of CCAM has increased drastically due to appropriate antenatal USG screening. Diagnosed fortuitously, patient presents with recurrent pneumothorax, infections, hemoptysis.

Clinical Case: 18 year old male presented with complaints of chest pain, breathlessness, fever for past ten days. With no history of repeated childhood infections or polyhydramnios in mother during delivery. X-ray chest showed air-fluid level indicating hydropneumothorax. CT thorax confirmed multiple cysts with air-fluid levels in them suggestive of CCAM. After lobectomy, biopsy showed cysts lined by ciliated pseudo-stratified columnar epithelium and fibrotic tissue between them confirming the diagnosis. Not having any significant past history and age of presentation made this a rare case.

Conclusion: CT scan should be considered for multiple air-fluid levels before any invasive intervention.

Risk factors for pulmonary embolism during the COVID-19 era, in an Indian cohort

Background: COVID-19 leads to a profound procoagulant state causing both arterial and venous thrombosis.

Methods: We analysed all PE related admissions from December 2019 till November 2020 to the Christian Medical College, Vellore, to assess the various risk factors of PE.

Results: N = 72. There were mostly males: 50 (69.44%) with a mean age of 53.25 (± 13) years. Overall, 17 patients had a massive PE, 30 had sub-massive PE, and 25 had low-risk PE, and there were eight deaths (11.11%). Of these, 12 (16.67%) patients had recent or concurrent COVID-19 infections, and 60 (83.33%) had no COVID-19 association. The average age in the COVID-PE was higher than non-COVID-PE (58.75 vs 47.53, p = 0.026). The gender distribution among COVID-PE was 1:1; whereas it was 3:1 among non-COVID-PE. The presence of other provoking factors for PE were significantly higher in the non-COVID-PE than the COVID-PE (55% vs 16.67%, p = 0.016). The proportion of patients with unprovoked PE were higher in the COVID population: 10 out of 12 (83.33%) compared to the non-COVID population 27 out of 60 (45%). Among those who had a pulmonary embolism, the odds of having an unprovoked PE were 6.11 times higher with concurrent COVID19 infection. (P = 0.0267). There was also no significant difference in mortality between COVID-PE and non-COVID-PE (8.33% vs 11.66%, p = 0.739).

Conclusion: Our data shows that unprovoked PE is more common in COVID 19 patients, and this supports the hypothesis that COVID 19 is a risk factor for PE.
Role of six minute walk test among diffuse parenchymal lung disease subjects

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Background: Diffuse parenchymal lung disease are heterogenous group of disorders of lower respiratory tract that are acute and chronic inflammation. 6MWT has shown similar results as that of spirometry in few studies. The aim of the present study is to evaluate the spirometry and 6minute walk distance in diffuse parenchymal lung disease subjects in the tertiary care centre.

Methods: Suspected subjects with DPLD attending Prathima institute of Medical Sciences, Karimnagar were taken into the study. The study includes 33 subjects males 36.8% and females 63.2% with mean age of 51.52 ± 15.46 years and included 44.7% of UIP and 21.1% of NSIP cases. Among the subjects 42% were farmers, 26.3% were smokers. Most common symptom was Dyspnea (78.9%).

Results: In the present study, IPF was diagnosed in 36.3% of subjects, CT-ILD in 33.3% and other in 30.3% of subjects were observed. Normal spirometry was observed in 7.89% of subjects, Obstructive in 10.5% of subjects and 78.7% of subjects showed restrictive pattern on spirometry with 30.7% showing moderate and 26.9% of subjects showing severe pattern. Mean 6MWD among all subjects was 325.375 m.

Conclusion: 6MWT shows comparable results as that of spirometry in subjects with DPLDs.

ANCA associated vasculitis presenting as non resolving pneumonia: Two Cases

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We report two cases of ANCA associated vasculitis presenting as non resolving pneumonia. Both patients were female. Case I was 42 years old, non smoker. She had dry cough for the ten months and fever on and off and dyspnea on exertion for four months. Previous CECT thorax showed heterogeneously enhancing wedge shaped cavitory consolidation in right upper lobe and left lower lobe. Patient was an uncontrolled diabetic. Case II was 55 years old ex-smoker with no comorbidities, had dyspnea on exertion, loss of appetite and cough with expectoration for 15 days and low grade fever for 5 days. Her room air SpO2 was 84%. Her HRCT thorax showed multifocal patchy areas of consolidation and ground glass opacities with centrilobular tree in bud nodules, perifissural and sub pleural nodules bilaterally. CT thorax repeated in both showed worsening. ESR was 55 and 62 mm/1 hour and CRP 21 and 36 mg/L for Case I and II respectively. Urine routine microscropy showed 15-20 RBCS/hpf. ANA was 1+ (homogenous and cytoplasmic) and c-ANCA1+ in Case I and ANA was 2+ (cytoplasmic) and p-ANCA 2+ in Case II. Fibreoptic bronchoscopy was normal and BAL for ZN stain, CBNAAT, fungal smear and culture, malignant cytology and galactomannan was negative. Transbronchial lung biopsy was suggestive of small focus of vasculitis in Case I and was not done in Case 2 due to severe hypoxia. Clinician awareness of this entity should be there so that early diagnosis can prevent irreversible organ damage and improve outcomes.

That time when thrombocytes got tipsy in the lungs – A pneumonia masquerade

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Background: In India, any patient with cough, hemoptysis and fever will automatically be categorized as a case of presumptive pulmonary tuberculosis and is subjected to testing for the same.

Case Study: A 33-year old male construction site worker, referred as a case of presumptive pulmonary tuberculosis, with fever, cough with scanty sputum with streaky hemoptysis and right-sided pleuritic chest pain. He had history of multiple substance abuse and had left clavicle fracture from an accidental fall 2 months ago, managed conservatively. Vital signs were well within normal limits. Systemic examination was normal except for diminished breath sounds in right infrascapular area. Chest X-ray showed right mid-zone airspace opacity with right minimal pleural effusion. Sputum AFB was negative. CT Chest showed right lower lobe basal segments consolidation with ground-glassing suggestive of aspiration pneumonia. ECG revealed T-inversion in III, V1, V2, V3 and ECHO showed Mild Pulmonary Hypertension. Pulmonary embolism was suspected. Doppler revealed deep vein thrombosis. CT-PA unveiled bilateral pulmonary arterial thrombus with right pulmonary infarct. Coagulation studies, autoimmune profile were normal. Patient started on anticoagulants.

Discussion: The probable provoking factors for thrombosis in this man in just his early 4th decade, include multiple substance abuse (including alcoholism) and history of clavicle fracture.

Conclusion: Pulmonary embolism should be on the list of differential diagnosis when a patient has a dry cough with hemoptysis and pleuritic chest pain even in the absence of tachycardia or desaturation. Pulmonary infarction can present as peripheral consolidation with ground-glassing on CT-Chest - ‘Melting Ice-Cube sign’.

A rare case of sarcoidosis with pulmonary and bone marrow involvement mimicking hematological malignancy
**Abstracts**

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**Introduction:** Sarcoidosis is a multisystem disorder which can involve lungs and extrapulmonary organ systems. Bone marrow involvement is extremely rare. Here we present a case of sarcoidosis with pulmonary and bone marrow involvement mimicking hematological malignancy.

**Case Report:** 46 year old female presented with dry cough, generalized weakness and joint pain lasting 2 months. One month back she was treated in an outside hospital as covid-19 pneumonia due to fever with bilateral lung infiltrates. One month after she was presented to our department with same symptoms and thrombocytopenia with anemia. CT chest shown peribronchovascular infiltrates with hilar lymphadenopathy. PET CT shown hilar adenopathy along with metabolically active foci in liver, lungs, spleen and multiple bones. So, lymphoma was suspected. Later, TBLB was done from hilar lesion; which shown chronic granulomatous lesion. Serum ACE and Calcium level also elevated. Bone marrow biopsy also shown chronic granuloma. So final diagnosis of sarcoidosis is made and she had good response to steroids.

**Discussion:** In the present case of sarcoidosis, patient has both pulmonary and bone marrow involvement which mimicked hematological neoplasm. TBLB from hilar lymph node helped to make diagnosis. Patient had good response to steroids.

**Conclusion:** Sarcoidosis with lung and lymphatic involvement is common; but bone marrow involvement is extremely rare. Steroids are the mainstay of treatment.

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**Cardiac sarcoidosis - importance of early diagnosis and management – A case series from tertiary care Mission hospital in Chennai**

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**Background:** The diagnosis of Cardiac sarcoidosis is quite challenging because of its clinically asymptomatic and delayed presentation. Early identification of cardiac sarcoid is very crucial as delayed consequences are potentially devastating which includes cardiomyopathy, VT, SVT, CHF and sudden cardiac arrest. Hence a high index of clinical suspicion and integration of appropriate imaging, laboratory investigations and pathological findings are usually required.

**Case Study:** Here we describe 5 cases of Cardiac sarcoidosis that was reported in tertiary care mission hospital in Chennai, for its varied clinical presentation, the importance of early diagnosis and initiation of appropriate treatment thus aiming to halt the inflammatory disease progression.

**Discussion:** While the definitive diagnosis for CS is considered to be endomyocardial biopsy, this is rarely done, as the procedure carries significant risk and carries a low sensitivity rate of approximately 20%. The advancement of non invasive modalities like, PET-CT scan and Cardiac MRI, plays a crucial role in diagnosis of cardiac sarcoid and hence helps in initiation of appropriate treatment with corticosteroids and immunosuppressants that helps to control the progression of disease thereby preventing further cardiac inflammation and fibrosis.

**Conclusion:** We report this case series to highlight the importance of timely diagnosis and treatment to reduce the morbidity and mortality pertaining to cardiac sarcoid and to encourage the consideration of sarcoidosis as one of the differentials in patient’s presenting with recurrent and refractory arrhythmias, conduction abnormalities and heart failure.

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**Diffuse alveolar hemorrhage in anti synthetase syndrome – Case report and review of literature**

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**Background:** Anti- Synthetase Syndrome (ASS) is a distinct subset among the idiopathic inflammatory myopathies (IIMs), characterised by the presence of anti-aminocyl transfer RNA synthetase antibodies (ARS). The typical “ triad “ of arthritis , myositis and ILD is observed in 60% of patients but rarely at initial presentation. Pulmonary capillaritis is the most common histologic subtypes of DAH and is usually seen with systemic vasculitides. DAH due to pulmonary capillaritis is adescribed in myositis but hardly been reported especially in the cotext of ASS.

**Case Study:** 45 yrs old female initially presented 2 yrs back with complaints of inflammatory polyarthritis for 4 yrs, dry cough and progressive shortness of breath for 3 months, scaly hyperkeratotic rash over palms and soles with fissured skin for 20 days.

**Discussion:** ASS is a distinct subset among the IIMs with its characteristic clinical features and autoantibody profile, DAH is a life threatening emergency with a constellation of clinical symptoms in bland pulmonary hemorrhage ,RBCs leak into the alveoli without any evidence of inflammation and is usually associated with coagulopathies , mitral stenosis , inhalation injuries , drugs and SLE.

**Conclusion:** DAH ia an extremely rare complication of anti-synthetase syndrome rapid deterioration with a fall in haemoglobin should raise clinical suspicion.

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**Idiopathic is always unpredictable: lymphoid interstitial pneumonia a case report**

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Lung India • Volume 39 • Abstract Issue • March 2022
Abstracts

Background: Lymphoid interstitial pneumonia is a benign polyclonal infiltration of the alveolar space and interstitium with mature B or T cells.

Case Study: A 30-year-old male with no known comorbidities and non-smoker presented with complaints of dyspnea on moderate exertion, low-grade fever and anorexia for 5 days. Chest X-ray & HRCT-thorax was done suggestive of left-sided pneumothorax with cystic lung disease. Left-sided ICD insertion was done and pleurodesis was done. Bronchoscopy was done and biopsy was taken from left-upper and lower-lobe, right-upper and lower-lobe. ANA, RFT and LFT levels were normal. BAL and biopsy was done suggestive of lymphocytic infiltrates with few plasma cells. PFT was done on follow-up suggestive of restrictive-abnormality.

Discussion: LIP is rare form of ILD most common seen in non-smoker and females, usually diagnosed on HRCT-thorax and most commonly associated with HIV, Sjogren’s Syndrome and Hypogammaglobulinemia. Clinical manifestation can be very non-specific and definitive diagnosis require lung-biopsy. 50% patients improve, 10% remain stable, and 40% die of the disease within 2 years even when treated with immunosuppression.

Conclusion: The main reason for reporting this case report is the rarity of patients who have been diagnosed with LIP in non-smoker male. It is important to highlight various diagnosis that one be mindful of, when approaching the patients who presents with cystic-lung-disease, male and non-smoker. Inaccurate diagnosis can lead to inappropriate therapy.

Does avian-antigen induced chronic hypersensitivity pneumonitis lead to more severe pulmonary hypertension than other causes of the same?

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Background: Chronic HP (CHP) is an important etiology of interstitial lung disease contributing to over 47% of the patients in the ILD-India registry. Pulmonary hypertension (PH) is found quite frequently in CHP and is associated with poor survival prospect.

Methods: Cases of Diffuse Parenchymal Lung Disease (DPLD) were screened for chronic hypersensitivity pneumonitis (CHP) historically (for exposure), clinically, and radiologically by using High Resolution Computed Tomography (HRCT) chest to be interpreted independently by a pulmonologist and a radiologist in favour of CHP. The possible Connective Tissue Disease (CTD) etiologies were ruled out by testing for Rheumatoid Factor, Anti-Citrullinated Peptide (anti-CCP), and Anti-Nuclear antibody tests (ANA). Further, the precipitin test (IgG) for avian antigen was done using Immunocap when a cut-off titer of 30 mg A/kg was accepted for identifying avian-antigen induced CHP. These patients were compared on demographic, lung-function, and echocardiographic variables to those possible CHP with no definite cause.

Results: The two groups (avian antigen positive and negative, n=23 and n=72 respectively) were similar in age, Body Mass Index, COPD Assessment Test score, and spirometric variables. Although the left ventricular ejection fraction (LVEF), and Tricuspid Regurgitation (TR) jet values were statistically similar between the avian antigen positive and negative CHP patients, those with likely avian antigen induced CHP had a higher TR-jet value (3.26±0.45 vs. 3.02±0.24) in meters/second, as well as significantly higher systolic-pulmonary artery pressure (sPAP) as 50.09±13.92 vs. 45.99±7.91; p = 0.05).

Conclusion: The significantly higher PH in echocardiography found in avian-antigen precipitin positive patients is interesting; it needs hemodynamic verification and further research to learn the mechanism.

HRCT chest scoring and its correlation with pulmonary function test in systemic sclerosis ILD: A study report

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Introduction: The lung is frequently involved in SSc, with interstitial lung disease (ILD) being a common manifestation. Though HRCT, pulmonary function tests are routinely performed in the evaluation of SSc-ILD, their correlation with the extent and progression of the disease has not been well documented. In this study we correlate the pulmonary function test with the HRCT chest scoring in systemic sclerosis ILD.

Materials and Methods: Consecutive patients who were diagnosed as systemic sclerosis attending thoracic medicine OPD will be enrolled in the study. All the following parameters of the pulmonary function test will be recorded viz., FEV1 (Forced Expiratory Volume at the end of the first second) for a more accurate assessment of the degree and severity of systemic sclerosis-related interstitial lung disease, a combination of high-resolution CT and pulmonary function testing are indicated. This kind of correlation and HRCT scoring can be used to track the disease course and its response to therapy.

Lung India • Volume 39 • Abstract Issue • March 2022
Clinical utility of echocardiography in predicting the presence and severity of pulmonary hypertension in patients with chronic lung diseases

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Background: Pulmonary hypertension is a progressive disease characterized by high mortality and morbidity. Echocardiography is a rapid, non-invasive method to assess the cardiac function in chronic lung diseases. The objectives of the study were to study the utility of echocardiography in predicting the presence of pulmonary hypertension in chronic lung diseases.

Methods: One hundred and ten patients, 75 males and 35 females who were diagnosed cases of chronic lung diseases were included in the study. Routine investigations and Radiological imaging was done for all cases. Spirometry was done to categorise the type of chronic lung disease and blood gas was analysed to estimate the degree of hypoxemia, if present. Echocardiography was done for all patients to look for any abnormal findings suggestive of Pulmonary Hypertension.

Results: Most common underlying lung disease was Bronchiectasis (38.2%), followed by Chronic Obstructive Pulmonary Disease (COPD) (36.4%). 28 cases (25.4%) had pulmonary hypertension suggested by echocardiography, which was 48.1% of COPD patients and 36.3% of bronchiectasis patients, 23.07% of ILD patients, 20% of bronchial asthma patients and 50% of patients with OSA. 10.91% had mild pulmonary hypertension, 11.82% had moderate pulmonary hypertension and 2.72% had severe pulmonary hypertension.

Conclusion: Echocardiography is a useful means to predict the presence and severity of Pulmonary Hypertension and should be included in the routine assessment of all such cases.

A case of pulmonary artery pseudoaneurysm caused by thoracic trauma

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Background: Hemoptysis is an important symptom which requires broad evaluation including invasive procedures. Pulmonary artery pseudoaneurysm (PAP) is an extremely rare cause of haemoptysis. Pseudoaneurysm is an encapsulated hematoma in communication with lumen of vessel wall. Massive hemoptysis from ruptured pseudoaneurysm is fatal in 50% cases.

Case Report: A 44 year old male presented with complaints of blood in sputum around 20ml/day on and off and shortness of breath on exertion since last 4 years. Patient had history of fall from height 4 years back. CECT chest shows left upper lobe mass lesion. On FOB, left upper lobe bronchus was occluded by pearly white growth. The bronchial biopsy was filament like material and report of bronchial biopsy was negative for malignancy. CBNAAT of BAL negative for tuberculosis. CT angiography suggests pulmonary artery pseudoaneurysm. Embolization of pulmonary artery was done for pseudoaneurysm. Patient did not report hemoptysis on follow ups.

Discussion: PAP is defined as the focal dilatation of the lumen of vessel wall. Massive hemoptysis from ruptured pseudoaneurysm is fatal in 50% cases. Traumatic PAP is a rare complication of a segment of pulmonary artery involving only the external layers of the arterial wall, thus associated with higher risk of rupture. It can be congenital or acquired. Causes of PAP are trauma, infectious disease, vasculitis, neoplasm, congenital disease. Clinical manifestations of PAP include cough, hemoptysis, chest pain. CT angiography is the investigation of choice. Treatment modalities includes endovascular treatment or surgical resection.

Conclusion: Traumatic PAP is a rare complication of traumatic thoracic injury. CT angiography is the gold standard for diagnosis and facilitates planning of endovascular or surgical procedures for preventing rupture.

Treating PH in DPLD in real world: A consensus approach and results

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Background: There is no published strategy for the treatment of Diffuse Parenchymal Lung Disease (DPLD) associated pulmonary hypertension (PH) that affects health, functionality, and survival adversely.

Methods: A “DLCO-FVC distance” as ≥30 (in percentage predicted values for both) was accepted on consensus (Kolkata PH group) for vasodilator (sildenafil/tadalafil) therapy for DPLD in whom PH was diagnosed on clinical radio-echocardiographic evidence. The willing patients were treated and the impact of the intervention was assessed on the change in measurement of 2-Chair Test (2CT) parameters after 3 months in a prospective real-world protocol.

Results: Out of 101 patients included, 32 did not qualify for anti-PH therapy and of the 69 qualified, 37 opted for treatment. The qualified-treated patients had significantly higher CAT score (13.3±4.12 vs. 1.16±3.34, p=0.003), FVC-DLCO distance (46.92±14.97 vs 17.25±9.93, p=0.0001), and lower DLCO (25.59±7.74 vs. 45.47±18.23, p=0.0001). On follow-up there was an improvement in the treated group in baseline saturation, minimum saturation (p=0.001) and degree of de-saturation (p=0.0004). The treated-qualified group has similar FVC-DLCO distance but significantly higher PAP (49.76±7.7 vs. 43.94±6.9, p=0.004) and worse predicted FVC (p=0.05),
Abstracts

We have demonstrated for the first time Pulmonary embolism (PE) is a common 54-year-old male patient. c/o cough since embolism in Indian subjects prognostication of the outcomes of Pulmonary Assessment of the role of PESI in the was the predominant PFT abnormality. were NSIP followed by UIP. Restrictive ventilatory defect associated with ILD were UCTD followed by rheumatoid arthritis. The commonly seen radiologic patterns of ILD from India. The most common CTDs that were HRCT followed by UIP pattern (22.1%). The majority of patients had NSIP pattern (59.6%) on patients with CTD-ILD the most common CTD's were walked on the 6-minute walk test was 349.3m. Among patients with CTD-ILD the most common CTD's were UCTD (34.1%) followed by Rheumatoid arthritis (30.4%). The majority of patients had NSIP pattern (59.6%) on HRCT followed by UIP pattern (22.1%). We have described the first case series on DPO are of two types i.e., nodular and dendriform. In Bilateral lung parenchyma. DPO are of two types i.e., nodular and dendriform. in lung tissue and indolent process defined as heterotopic bone formation in lung tissue. DPO are of two types i.e., nodular and dendriform. Background: Pulmonary embolism (PE) is a common cardiovascular disease which is often associated with significant mortality and morbidity. Our aim was to assess the role of Pulmonary Embolism Severity Index (PESI) in the prognostic evaluation of PE- its correlation with clinical disease severity and in the prediction of outcomes. Methods: A prospective observational study which recruited consecutive patients with CT pulmonary angiogram confirmed PE. Relevant demographic and clinical data were obtained. The PESI was calculated for all patients and they were classified as being low risk (Class 1&2) and high risk (Class 3-5) for morbidity and mortality. Patients with PE were categorized as Massive, Sub-massive and stable PE based on clinical parameters. The patients were followed up to assess length of hospital stay, 30-day and 3-month mortality.

Results: A total of 127 cases of PE were recruited of which 57% were males. PESI score seemed to correlate well with the clinical severity groups. High risk scores was present in 82.4% of massive VS 37.4% of stable PE (P=0.003) and 67.1%of sub-massive VS 37.4% of stable PE (P=0.002).3-month mortality increased steadily from risk classes 1-5: 0%, 3.6%, 20%, 29.2%, 38.5%. Mortality among the high-risk group was higher at both 1 and 3-months (29.3% and 35.6%) as compared to the low risk group (2% and 4.1%). However, length of hospital stay was not different between the risk groups.

Conclusion: We have demonstrated for the first time the usefulness of the PESI score for prognostication of outcomes in PE in Indian subjects.

A bone to pick from lung: Dendriform pulmonary ossification

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Background: Diffuse pulmonary ossification (DPO) is a rare medical condition characterised by ectopic bone formation in Bilateral lung parenchyma. DPO are of two types i.e., nodular and dendriform.

Case Study: 54-year-old male patient .c/o cough since 1month dry in nature, non-progressive in nature and fever for 1 month mild intermittent in nature relieved by medications. patient previously had no respiratory symptoms.

Discussion:
• Dendriform Pulmonary ossification is an uncommon and indolent process defined as heterotopic bone formation in lung tissue
• Commonly affects the men above age of 60 years
• Specific symptoms are lacking.it is apparent radiologically only when it is extensive
Abstracts

- Scar tissue injury induces an alkaline environment, initiates precipitation of calcium salts, enables alkaline phosphatase activity and activates profibrogenic cytokines
- This type of ossification forms after intra-alveolar exudates organizes after chronic congestion, organized pneumonia, or old intra-alveolar hemosiderin accumulation.

**Conclusion:** DPO is not usually considered and recognized during clinical workup and rarely described at post-mortem examination. However, it is an entity that deserves attention because it is commonly mistaken for clinical disorders with significant consequences. Although it is a difficult radiographic diagnosis to make, awareness of the entity and inclusion in list of differential diagnosis is key to recognition.

**Role of transbronchial lung biopsy in the diagnosis of diffuse parenchymal lung disease**

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**Background:** Diffuse Parenchymal Lung Diseases (DPLDs) encompass more than one hundred distinct lung disorders that tend to be classified together because of similar clinical, radiological, physiological, or pathological features. Diagnosis is based upon comprehensive history, physical examination, laboratory investigation, radiography and pathological tissue obtained from lung biopsy. In such cases transbronchial lung biopsy (TBLB) is a relatively safe procedure.

**Methods:** Hospital based observational study conducted in the Department of Pulmonary Medicine, Gauhati Medical College on 50 subjects diagnosed as DPLD on clinical and radiological basis. TBLB procedure was performed in all subjects.

**Results:** The diagnostic yield of TBLB was 86%. Most common finding on HPE from TBLB was Non Specific Interstitial Pneumonia (NSIP) in 24% of cases followed by Sarcoidosis in 14% of cases. Most common diagnosis based on clinical, radiological and histopathological features was NSIP in 22% of cases followed by Sarcoidosis in 14% of cases and Hypersensitivity Pneumonitis in 14% of cases. Procedural complications occurred in 66% of cases. Fever in 36% of cases, bleeding in 26% of cases and pneumothorax in 10% of cases.

**Conclusion:** TBLB is a safe procedure with high diagnostic yield providing histological confirmation of DPLD, especially in DPLD with peribronchial distribution such as sarcoidosis, hypersensitivity pneumonitis etc.

**A unique case of chronic thromboembolic pulmonary hypertension (CTEPH)**

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**Background:** Pulmonary Hypertension has diverse aetiologies and is classified into 5 groups of which Chronic Thromboembolic Pulmonary Hypertension (CTEPH) - Group 4 is one of the predominant cause of long standing Pulmonary Hypertension with underlying cause being pulmonary embolism leading to cardiac failure and death. This form of severe Pulmonary Hypertension is rare and progressive.

**Case Study:** A 47 year old male, presented to our OPD with history of progressive exertional dyspnoea of 6 months duration. He is a non smoker with no other comorbidities. Physical examination was normal. Chest X ray showed increased cardiothoracic ratio (CTR) and dilated main pulmonary artery with hilar prominence. A Transthoracic Echocardiogram (TTE) suggested severe pulmonary hypertension, Right ventricular hypertrophy, Left ventricular ejection fraction was normal with no valvular abnormalities. A CECT scan showed massive enlargement of main pulmonary artery with a large calcified thrombus in right main pulmonary artery and mosaic attenuation.

**Discussion:** CTEPH is a condition which requires high index of suspicion. In our case, patient presented with Pulmonary hypertension of unknown etiology and ultimately diagnosed as CTEPH. Screening test of choice is Ventilation/perfusion scan. Treatment of choice is Pulmonary Endarterectomy (PEA) but inoperable cases are treated with Riociguat.

**Conclusion:** CTEPH is often underdiagnosed which delays diagnosis and leads to poor prognosis. Inoperability can lead to poor prognosis.

**Interstitial lung disease in Amyopathic myositis: A rare case report**

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**Background:** ILD is the one of the most common manifestation of Connective tissue disease which accounts for the leading cause of Mortality and morbidity. CTD ILD accounts the prevalence of 13.9%.

**Case Study:** A 43 year old female was admitted in our hospital, with complaints of dry cough, shortness of breath. She also gave history of early morning joint stiffness. Blood investigation was normal with only CRP positive. HRCT Thorax showed signs of NSIP pattern with areas of traction bronchiectasis. Autoimmune workup done and it was negative for S.RA, anti CCP. S.ANA is positive and profiling was also found to be Jo 1, Rib.Po, DFS70 positive. Bronchoscopy was done and TBLB was suggestive of lung fibrosis. Further autoimmune profiling done revealed antibodies positive for dermatomyositis like Jo1 and Ku antibodies.

**Discussion:** CTD ILD has a better prognosis compared to non classifiable ILD. Dermatomyositis is a subgroup of DM with a lower prevalence of interstitial lung disease. The prevalence of ILD patients with DM was 32%. Diagnosing and managing CTD-ILD in the early stages helps to avoid life threatening exacerbations and poor outcomes.
Conclusion: CTD ILD can first manifest in the lungs without any other systemic manifestations. HRCT thorax can serve as an important primary investigation in order to assess the lung manifestation and prognosis.

Antisynthetase syndrome, a needle in the haystack
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Background: SARS-COV-2 has created one of the most devastating pandemics in history. Pulmonary fibrosis is one of the sequelae of COVID-19 pneumonia which has resulted in connective tissue disorders related interstitial lung disease (CTD-ILDS) being mislabeled.We present a rare CTD-ILD case that was mislabeled as post COVID sequelae.

Case Study: A 61 years female, diabetic who was diagnosed with post COVID sequelae pulmonary fibrosis 5 months ago and was on LTOT since then presented with complaints of fever,cough since 6 months,progressive breathlessness since 1 month. On presentation patient was afebrile,saturations of 88% on room air and 94% with 2lit/min oxygen support. Physical examination revealed bilateral fine crackles.Due to the worsening of symptoms, the patient sought a second opinion with us. Back then, the CT chest revealed subpleural, basal interstitial thickening. A repeat CT chest revealed subpleural, basal reticular changes, indicating progressing illness. A Complete PFT showed moderate restriction. DLCO was maintained at 71% predicted. After ruling out all other causes of ILD, CTD-ILD was suspected. CTD workup showed RF IgM and ANA positive. Myositis profile revealed MDA5, PL-12 and Ro52 positive. According to EULAR criteria a working diagnosis of overlap myositis (anti tRNA synthetase syndrome) was made and patient underwent TBLB which confirmed the diagnosis. Patient was put on steroids, antimetabolites and lung function has significantly improved.

Discussion: Antisynthetase syndrome, a kind of inflammatory myopathy, is one of the connective tissue diseases in which interstitial lung disease may precede the muscular manifestations.

Conclusion: Incorporating myositis profile into the ILD workup in all suspected CTD-ILD cases would help in early detection of CTD-ILDs in turn reducing mortality and morbidity.

Radiological patterns and progression of lung function parameters in interstitial lung diseases
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Background: ILD is a large group of diffuse parenchymal lung disorders characterized by varying degrees of pulmonary inflammation and fibrosis. Various radiological patterns include UIP, NSIP, COP, RBILD etc. ILD can be progressive or can remain non progressive in terms of clinical behavior and radiology. Patients with certain ILD are at risk of developing progressive phenotype.

Methods: This is a descriptive study done among patients with diagnosed ILD who presented to department of Pulmonary Medicine. Patients underwent detailed clinical examination and appropriate investigations done to identify etiology. HRCT patterns identified and lung function assessed by spirometry and 6 minute walk test. They were followed up after 6 months, clinical and functional reassessment done.

Results: Among 70 patients included in the study 43 were females and 27 were males. Dyspnea was the most common presenting complaint (98.6%). 52.8% of the patients had progression in the grade of dyspnea over 6 months. 93.77 was the mean saturation at time of examination. 24% of patients had volume loss in xray with lower zone being most commonly involved. Probable UIP (24.3%) and NSIP (24.3%) were most common CT patterns identified. CTD ILD was the most common ILD (34%). 41% of the patients had more than 5% worsening in subsequent FVC values. 40% of patients had > = 25m worsening in distance walked during 6MWT during follow up. Worsening in 6MWT was significantly associated with IPF (p value .038).

A rare case of unilateral interstitial lung disease
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Background: Interstitial lung disease (ILD) is usually a bilateral, heterogeneous diffuse parenchymal disease. Interruption in the main pulmonary circulation can result in unilateral ILD. It can be due to unilateral absence of pulmonary artery (UAPA) which occurs with cardiovascular abnormalities like TOF, Septal defects. Other causes include unilateral pulmonary venous thrombosis, radiation induced ILD, agenesis of pulmonary artery, sarcoma of pulmonary artery.

Case Report: A 32 year old male came to with complaints of hemoptysis, cough and progressive breathlessness on exertion for the past 2 weeks. Patient is a non smoker. He gives past history of ventricular Septal defect for which he was operated 24 years back. He has no known comorbidities. Chest xray revealed shift of mediastinal structures, diaphragmatic elevation with volume loss of the right lung and hyperinflation of the left lung. Following which HRCT chest was done, it revealed fine reticular peripheral interstitial markings with ground glass opacities correlating with the finding of an NSIP ILD. CECT was done and showed absence of right pulmonary artery branch.

Discussion: UAPA is a rare congenital anomaly due to malformation of the sixth aortic arch of the affected side during embryogenesis. Some patients present with chest pain, recurrent pulmonary infections, hemoptysis, dyspnea...
Rare case of lymphoid bronchiolitis in juvenile rheumatoid arthritis

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Background: Lymphoid bronchiolitis is a rare and serious pulmonary complication of juvenile rheumatoid arthritis.

Case Study: We report a case of 16 year old female presented with complain of cough with scanty expectoration, SOB on exertion , no weight gain since 3 to 4 years and pain and swelling in bilateral upper extremities finger joints since 5 months. Took ATT two times in past for same complaints. Examination revealed coarse crepitations and finger swelling was present on proximal interphalangeal joints. Chest x ray showed mid and lower zone infiltrates. CE CT chest showed – bilateral centrilobular nodular opacity with irregular thickening of inter and intralobular septa noted with mosaic attenuation of both lungs with tubular bronchiectasis changes in right apicoposterior and left apicobasal lung segments. RA factor was positive. ACR criteria for Juvenile Rheumatoid Arthritis also fulfilled. ANA and ACE test was negative. PFT showed small airway obstruction.

Discussion: Lymphoid bronchiolitis is a rare and serious pulmonary complication. Early radiological investigation (HRCT CHEST) could help in diagnosis and management of lymphoid bronchiolitis. In our case patient was diagnosed as a JRA and patient developed pulmonary manifestation before articular manifestation.

Conclusion: This case report suggest that lymphoid bronchiolitis is rare pulmonary complication of JRA. Often mistreated as pneumonia and pulmonary tuberculosis and clinician need to maintain higher level of suspicion.

“The big battle of small vessels”: A case report of Wegener’s Granulomatosis

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Background: Granulomatosis with polyangiitis is an autoimmune small vessel vasculitis, associated with anti-neutrophilic antibodies. Due to several forms of presentation with multi-system involvement, it must be suspected if symptoms progressively worsen despite initial treatment.

Case Study: A 15 year old adult, was admitted with recurrent episodes of fever, epistaxis and cough since 2 months. She was initiated on ATT at another hospital where FNAC of neck lymph node suggested granulomatous lesion. In view of epistaxis, hearing loss and redness of eyes, work up for autoimmune disorders was done. ANCA was significantly raised and patient was advised to stop ATT and start on oral steroids after which patient improved clinically. Patient later presented with headache and steroid induced adverse effects. Thus immnomodulatory drugs with low dose steroids was initiated. Within 2 months, patient presented with seizures, neuroimaging revealed an infarct with subarachnoid haemorrhage. Owing to the progression of underlying vasculitis, Rituximab was initiated, after which symptoms alleviated.

Discussion: Granulomatosis polyangiitis has a very low prevalence in Asia, with mean age of 40 years in India. Treatment strategies are tailored to the severity of the disease with immunosuppression and adjuvant therapies, to manage active vasculitis and maintain clinical remission. In our case due to early intervention, patient was spared of inappropriate medications which could have resulted in irreversible damage to her Heath.

Conclusion: Although tuberculosis is endemic in our country, all granulomatous disease should not be considered as tuberculosis without appropriate investigations, especially in younger age groups.

A case of pleuroparenchymal lesions: Think beyond TB

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Introduction: Pleuroparenchymal fibroelastosis (PPFE) is a rare interstitial lung disease characterized by fibrotic thickening of subpleural and parenchymal areas of the upper lobe. It may be both idiopathic or secondary to infections, interstitial lung disease and/or drug exposure. Often Pleuroparenchymal fibroelastosis patients report recurrent lower respiratory tract infections, suggesting that repeated inflammatory alterations induced by pulmonary infections may contribute to the development/progression of Pleuroparenchymal fibroelastosis.¹³

Case Report: A 32- year old non smoker bank employee consulted for progressive breathlessness and cough of 2 year duration.He had lost 5 kg weight loss in last 6 months and difficulty in walking more than 100 meter.He did not have chest pain,hemoptysis. He had no occupational or environmental exposure to inhaled dust, fumes or smoke. He had been under standard antitubercular treatment for 6 month duration that was given on basis of abnormal chest x-ray.His sputum smear microscopy for acid fast bacilli was negative. On clinical evaluation his respiratory rate is 22/ min, Temperature- Normal, Blood Pressure-Normal. SPO2-
98% rest and 88% on brief exertion. He had flat chest. On chest auscultation there was bilateral lower inspiratory crepitations over lower lung fields. His Complete blood count, sugar profile, Liver function test & Renal function test, Antinuclear antibody, Rheumatoid Arthritis factor and S.HIV were normal. Induced sputum Acid Fast Bacilli microscopy and Cartridge-based nucleic acid amplification test (CBNAAT) did not reveal Acid Fast Bacilli.

He had received antitubercular treatment in 2018 for 6 months due to abnormal chest x-ray. His chest x-rays of 2018 of 2 months duration showed steadily increasing inhomogenous opacities in left upper and middle zone and right upper zone. He was suspected of having non tuberculous diffuse lung disease and advised HRCT CHEST which revealed Interstitial lung disease.

PFT was suggestive of moderate restrictive pattern. Chest x-ray: Steadily increases ill-defined patchy mix density opacities and background of reticulonodulations in left upper, middle and right upper lung fields. Diffuse patchy subpleural upper lung fields dominant bilateral consolidation-non segmented peribronchovascular thickening, pleuroparenchymal band and lower field peribronchovascular thickening and brochiectasis.

HRCT CHEST: Subpleural, upper lobe dominated dense consolidations, pleural thickening, architectural distortions with pleuroparenchymal bands peribronchovascular thickening predominantly involving bilateral upper and mid lung fields and hypoattenuation of lower lung fields with peribronchovascular thickening and bronchiectasis. Patient refused for lung biopsy. On clinico radiological background he was diagnosed as pleuroparenchymal fibroelastosis and low dose prednisolone and pirfenidone initiated.

**Differential Diagnosis:**

Tb
CAP
BAC

**Conclusion:** Not all upper zone chest x-ray shadowing are tuberculosis especially in absence of fever, mycobacterial presence and symptomatic association of progressive breathlessness. Timely identification and evaluation in such scenario provides alternate disease specific diagnosis.

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**Evaluation of serum ferritin and interleukin 8 as predictors of ARDS and survival in cases with pneumonia**

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Acute respiratory distress syndrome (ARDS) is a catastrophic syndrome characterized by acute refractory hypoxemia; bilateral infiltrates on chest radiograph and a normal pulmonary artery occlusive pressure. ARDS is a major contributor to mortality and morbidity of adult cases admitted to intensive care units (ICU). This study aimed to estimate levels of biomarkers like serum ferritin and Interleukin 8, look for any association among cases with ARDS and their prognosis.

**Methods:** A prospective study was conducted at tertiary care teaching hospital among 80 pneumonia cases admitted in ICU. Subjects who developed ARDS referred to as cases (n=40) and who did not were the controls termed as non-ARDS (n=40). The cases included the subjects aged ≥18 years admitted in ICUs satisfying the Berlin ARDS definition and provided informed consent.

**Results:** We found that serum ferritin levels correlated with the subsequent development of ARDS among cases.
with pneumonia compared to cases with non-progression to ARDS; IL 8 levels showed no correlation with ARDS development. Serum ferritin levels were significantly higher among ARDS cases than subjects without ARDS and were significantly associated with mortality among case of pneumonia. ARDS cases had more elevated interleukin eight (IL8) levels than non-ARDS; however, these IL8 levels were not associated with mortality among cases with pneumonia.

**Conclusion:** Most of the times, ARDS is underdiagnosed, and there is potential for improvement in its management. Early identification of high-risk cases, simple biomarkers for identification and novel treatment methods support clinical decisions to reduce the chance of ARDS morbidity and mortality.

**Pulmonary arteriovenous malformation with severe mitral valve stenosis**

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Pulmonary arteriovenous malformation (PVM) are abnormal vascular connections between the pulmonary arterial and pulmonary venous circulations having a direct capillary free communication. This creates a right-to-left shunt. PAVM can be either congenital or acquired. We report a case of 38-year female who presented with dyspnea on exertion. Her past medical record showed history of balloon mitral valvuloplasty twice for mitral stenosis. Contrast enhanced CT was done in view of hypoxia not improving with oxygen which revealed bilateral multiple PAVM.

**Study of clinical profile and risk factors of pulmonary embolism**

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**Introduction:** The diagnosis of Pulmonary embolism (PE) is often missed due to its nonspecific clinical and radiological presentation. The presentation may vary from an incidental finding in an asymptomatic patient to sudden death. High index of suspicion in required for early diagnosis and prevention of mortality by pulmonary embolism.

**Aim:** To study the clinical and radiological profile of patients diagnosed with pulmonary thromboembolism against a background of risk factors.

**Methods:** This observational study was done over the period of one year in 45 patients diagnosed with pulmonary embolism and there clinical, radiological profile and risk factors were analyzed.

**Results:** The mean age of patients was $47.94 \pm 13.16$ years. Male sex predominance was found. The most common predisposing factor was deep venous thrombosis, malignancy and protein C and S deficiency. Shortness of breath was the most common symptom followed by tachycardia, chest pain and haemoptysis. RV strain followed by sinus tachycardia was the most common ECG finding. Pulmonary arterial hypertension as assessed by transthoracic ECHO and was present in 44.5% of patients. CT pulmonary angiogram finding revealed right pulmonary artery embolism in 16, left in 12 and both in 17 patients.

**Conclusion:** Pulmonary embolism must be suspected in those patients presenting with acute breathlessness with normal chest X-ray and sinus tachycardia particularly when associated with RV strain pattern in the presence of risk factors for PE. The awareness that classical findings of PE in X-ray and ECG are uncommon, need to be stressed among general practitioners and physicians.

**The diagnostic and pathognomic role of BAL cellular analysis in ILD cases**

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**Background:** Bronchoalveolar lavage (BAL) has gained acceptance to diagnose ILD. advent of HRCT reduced the clinical utility of BAL. The present work utilized recommendations of ATS to optimize BAL procedure and associated the findings with clinical examination and HRCT to precisely narrow down diagnosis of ILD.

**Objectives:** To study the BAL cellular analysis in ILD cases.

**Methods:** BAL was performed on ILD suspects at target site chosen on HRCT. The procedure, processing, and analysis of BAL fluid were performed as per ATS guidelines. The clinical data, HRCT findings and BAL report were used to narrow the diagnosis of ILD.

**Results:** In the cohort of 30 patients, IPF (4), HP (4), CTD-ILD (6), sarcoidosis (2), pneumoconiosis (4), malignancy (2), idiopathic NSIP (4), COP (1), tuberculosis (2), ARDS (1) were diagnosed. No statistically significant variation in differential count was found in different ILDs.

**Conclusion:** We found in the current study that there was no statistically significant difference in BAL cytology between ILD. Thus, BAL doesn’t provide any substantial information that could lead to discriminate between ILD. The definitive diagnosis of ILD in MDM after confrontation between BAL cytology and other diagnostic tools.

**The impact of an ILD MDT in the diagnosis and management of interstitial lung disease in a tertiary care center in South India**

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Abstracts

Background and Aim: Accurate diagnosis is crucial in the management of Interstitial Lung Diseases (ILD). Its complexity and diversity mandate a multidisciplinary approach involving the clinician, the radiologist, and when appropriate, a pathologist. ILD multidisciplinary team (ILD MDT) is currently the accepted gold standard in the diagnosis of ILDs. However, there is paucity of literature on its impact in real life.

Methods: We retrospectively studied the impact of ILD MDT on the patients discussed from October 2019 to March 2020 in our institution. The data was extracted from the electronic medical records. For new patients, the clinician’s diagnosis was compared with the diagnosis of the MDT. For follow up patients, the change in treatment was noted.

Results: In all, 522 patients were discussed in the ILD MDT out of these 312 were new and 210 were follow up patients. Among the new patients, the diagnosis remained same in 70 (22.43%), refined in 81 (25.9%), changed in 13 (4.6%) and a non ILD diagnosis was arrived at in 49 (15.7%) patients. Further evaluation was suggested in 99 (31.7%) patients. Among the follow up patients, change in steroid dose was advised in 94 (44.8%) patients. There was change in the management plan with respect to Azathioprine, MMF, Nintedanib and Pirfenidone in 17 (8.1%), 13 (6.3%), 9 (5.8%) and 5 (2.4%) respectively.

Conclusion: The ILD MDT plays an important role in the diagnosis and follow up of patients with ILD. It should be part of establishing the diagnosis in all ILD patients and in the management dilemma of ILD patients during follow up.

Polysomnography in diffuse parenchymal lung disease: A case series

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Background: Burden of diffuse parenchymal lung disease (DPLD) in Indian subcontinent is very high and decrease in oxygen saturation and increase in apnoea hypopnoea index (AHI) level is a major cause of morbidity and mortality in these patients. Polysomnography is an overnight study done in obstructive sleep apnoea (OSA) patients to evaluate oxygen levels during sleep and find the time period and type of apnoea.

Case Study: In this case study we are presenting ten cases of different DPLD i.e idiopathic pulmonary fibrosis, Rheumatoid arthritis - interstitial lung disease , idiopathic pulmonary fibrosis, scleroderma associated interstitial lung disease and occupational lung disease that visited us in the opd. Patients underwent detailed evaluation and relevant investigations were done. Patients underwent overnight polysomnography in sleep laboratory and different parameters like oxygen saturation, central and obstructive apnoea, AHI levels , oxygen desaturation index were evaluated.

Discussion: In this study we found that diffuse parenchymal lung disease (DPLD) is associated with mild OSA, decrease oxygen levels. Comorbidities play a major role in determining the burden of morbidity and mortality associated with DPLD and as DPLD is associated with poor prognosis ,OSA as a comorbidity can further decrease the life expectancy.

Conclusion: We concluded that diffuse parenchymal lung disease (DPLD) is associated with mild OSA and lower oxygen levels. Management of patients with DPLD and OSA are not much known and should be evaluated.

A rare cause of hemoptysis

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Introduction: Pulmonary arteriovenous malformations (PAVMs) are abnormal vascular structures that most often connect a pulmonary artery to a pulmonary vein, bypassing the normal pulmonary capillary bed and resulting in an intrapulmonary right-to-left shunt. As a consequence, patients can have hypoxemia and paradoxical embolization complications, including stroke and brain abscess. The most common cause of PAVM is HHT. We present a case of PAVM, which was picked up on a Chest X-ray in a patient with hemoptysis who presented to the emergency department (ED) of Dr.PSIMS & RF.

Case Report: A 16 years boy came with chief complaints of cough with expectoration associated with streaky hemoptysis, bilateral lower limb numbness and blurring of vision since 1 week. Patient vitals were stable and no positive signs in general and systemic examination.

Investigations: Blood investigations were normal. Chest X-ray showed well defined nodular opacity in left lower zone. CT chest (plain) showed ground glass opacity in superior and lateral basal segment of left lower lobe. Bronchoscopy anatomy was normal and BAL gram stain showed gram negative bacilli, gram positive cocci. Pulmonary angiogram showed arteriovenous fistula with left posterior basal artery Pseudoaneurysm. Later, Pulmonary artery aneurysm was embolized using microcoils. Post embolization control angiogram showed obliteration of flow in aneurysm.

Conclusion: Pulmonary AV malformation is a rare disorder and a rare cause of hemoptysis caused by congenital or acquired lesion in the lungs. Knowledge about this rare condition is crucial for early diagnosis and appropriate management.

Bronchial asthma with bleeding lungs

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**Background:** Wegener Granulomatosis (WG) is a multisystem necrotising granulomatous small-vessel vasculitis characterised by triad of upper airways, lungs and kidney involvement. It often overlaps with conditions like asthma, pneumonia, etc. We present a case of middle aged female being treated for Asthma, later diagnosed with WG.

**Case Study:** A 56 year old female patient, being treated for Asthma for ten years, presented with complaints of progressive breathlessness, productive cough, rhinorrhoea and fever since 2 months. She was initially evaluated and treated for pneumonia for two weeks. In view of non resolving symptoms and Acute kidney injury, she was referred for further management. CT chest showed bilateral diffuse ground glassing with consolidations. Bronchoscopic lavage showed bloody return of serial aliquots suggesting DAH. Vasculitis work up showed C-ANCA positive, renal biopsy showed focal sclerosis crescentic glomerulonephritis, suggesting WG. Patient was given IV Pulse Methylprednisone for three days followed by tapering, started on Rituximab, patient improved and was discharged, currently on Azathioprine maintenance and is being followed up.

**Discussion:** WG often presents as rhinosinusitis with asthma, due to which diagnosis gets delayed. CT chest with BAL and ANCA workup can help in establishing early diagnosis. IV pulse steroids stay as mainstay of treatment in active severe disease presenting as AKI with DAH.

**Conclusion:** ANCA vasculitides are often misdiagnosed and henceforth become life threatening. It’s imperative to consider WG as differential when involvement of respiratory system along with kidneys is seen. Therefore, early diagnosis with aggressive immunosuppression improves clinical outcome.

**Diffuse alveolar hemorrhage in the case of microscopic polyangitis: A case report**

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**Background:** Microscopic Polyangitis is a necrotizing small-vessel vasculitis causing necrotizing crescentic glomerulonephritis and pulmonary capillaritis with a propensity to involve multiple organs. MPA has a frequency distribution of approximately 3.3 per 100,000 individuals worldwide and 3.94% in India.

**Case Report:** A 22-year-old female patient came to OPD with complaints of recurrent episodic hemoptysis for the last 6 months and a 2 month history of low grade fever, the patient also had a past history of hematuria and melena. The CXR was normal. Blood investigation revealed moderate anaemia, with a normal coagulation profile. HRCT thorax was reported to be normal. She was treated with antifibrinolytic agents, IV antibiotics, and fluids. Bronchoscopic examination was performed, and BAL investigations were unremarkable. Repeat HRCT thorax revealed diffuse pulmonary alveolar haemorrhage.