Background: Congenital cyst adenoid malformations (CCAM) are rare congenital malformations of the lung developing due to embryonic insult leading to an arrest in lung development between 4th and 7th week of fetal life. Most cases are diagnosed in the neonatal period or in the 1st year of life.

Case Study: We describe the case of a 34-year-old female who presented to us with progressive dyspnea for 18 months. Her CXR was suggestive of multiple air-fluid levels in the left hemithorax with contralateral mediastinal shift. She underwent CECT-Thorax which revealed large multiloculated, septated, cystic lesions with air fluid level in left hemithorax with mass effect in form of mediastinal shift towards right & compressing mediastinal structures. She was evaluated pre-op with Spirometry, Perfusion scan, Lymph-scintigraphy and later underwent thoracotomy and en-bloc excision of the entire lesion. HPE+IHC revealed the diagnosis of CCAM-Type-IV. ICD was removed on POD-7 and she was discharged on POD-10. She has symptomatically improved & remains stable on 3-month follow-up.

Discussion: CCAM consists of hamartomatous or dysplastic lung tissue interspersed with normal lung tissue which is usually confined to a single lobe. Stocker et al. first classified CCAM into three subtypes and in 2002 expanded this classification into 5 subtypes.
Differential diagnoses include diaphragmatic hernia, pulmonary sequestration, pleuropulmonary blastoma, bronchogenic cyst, congenital lobar emphysema, and cystic bronchiectasis. Histopathology is usually conclusive in the background of supportive radiological findings.

**Conclusion:** CCAM must be considered as a differential diagnosis even in adults presenting with cystic lung diseases.

**Giant-cell tumour of dorsal vertebra presenting as a posterior mediastinal mass: An unusual presentation**

Sivaselvi Chella Muthu, Vishnukanth Govindhraj, Vemuri Mahesh Babu, Manju Rajaram

Department of Pulmonary Medicine, Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry, India. E-mail: sivaselvisaram33@gmail.com

**Background:** Giant cell tumour of the spine above the sacrum is less common. It is usually benign but can show local recurrence and metastasis. Giant cell tumour arising from dorsal vertebrae presenting as huge mediastinal mass is very rare. Vertebral giant cell tumour affects the spinal column in about 5% of cases. It is very aggressive in nature with a high incidence of local recurrence.

**Case Study:** A 25-Year-old female presented with bilateral lower limb weakness, breathlessness and difficulty in speaking. Chest x-ray showed bilateral upper lobe mass. On further evaluation with contrast-enhanced computed tomography of the thorax (CECT) showed a large well-defined heterogeneously enhancing posterior mediastinal lesion with necrotic areas within and bony infiltration was noted. But surprisingly Ultrasound-guided biopsy of the mass lesion revealed features of Giant cell tumour. The patient was started on denosumab.

**Discussion:** GCT of bone is a relatively rare, benign but locally aggressive osteolytic bone neoplasm in young adults. Incidence of Giant cell tumours is 5% among all primary bone tumours. Pulmonary metastasis in giant cell tumour is 1–6%, non-aggressive with slow growth, usually doesn’t require treatment and resolve spontaneously.

**Conclusion:** Thoracic spine giant cell tumour, though rare, should be considered in the differential diagnosis of lung mass with thoracic vertebral involvement. Hence clinicians have to suspect bone tumours when a patient presented with aggressive spine lytic lesion because of surgery and neoadjuvant chemotherapy possible in early diagnosis.

**A rare case of pulmonary mucormycosis apparent as difficult to extract mucus-plug per bronchoscopy**

Krishna M. Patel, Arvind S. Pandey, Arvind B. Daxini

Department of Respiratory Medicine, Surat Municipal Institute of Medical Education and Research, SMIMER, Surat, Gujarat, India. E-mail: kisu147@gmail.com

**Background:** Pulmonary mucormycosis, a rare pulmonary fungal disease, is difficult to diagnose and lacks effective treatment. Diabetes mellitus, systemic corticosteroid therapy, neutropenia, hematologic malignancies, stem cell transplant, Covid-19 infection and immunocompromised state are the predisposing situations for mucormycosis. There are no reliable serological, PCR-based, or skin tests. Bronchoscopy guided biopsy proved to be effective for early diagnosis.

**Case Study:** A 47 years old female patient, known Diabetic, presented with complains of Dry Cough and fever. Patient had past history of COVID-19 pneumonia. HRCT showed mucus plugging with collapse of left lower lobe. During Bronchoscopy, mucus plug was difficult to extract despite using mucolytics; then biopsy was taken which turned out to be MUCORMYCOSIS. Patient was treated with injectable Amphotericin B for 4-weeks and then Tablet Posaconazole. Patient was improved on follow up.

**Discussion:** Pulmonary Mucormycosis is a rapidly progressive infection that occurs after inhalation of spores. Most patients are presented with fever, cough and hemothypsis. After Covid-19 pandemic, cases of mucormycosis are on rise. Pulmonary Mucormycosis is rare entity than Rhino-orbito-cerebral mucormycosis. Biopsy remains mainstay for diagnosis.

**Conclusion:** Pulmonary Mucormycosis being rare life-threatening opportunistic infection: early diagnosis and treatment is necessary for better outcome and survival.

**Post covid pulmonary mucormycosis, early interventions, surgical complications and outcome**

G. Tejaswini Reddy, Kiran Grandhi

Department of Pulmonary Medicine, Malla Reddy Medical College for Women, Hyderabad, Telangana, India. E-mail: tejaswinireddy. gurram@gmail.com

**Background:** Invasive fungal infections are an important cause of morbidity and mortality in immunocompromised patients. These infections remain difficult to diagnose and their management is complicated by their aggressive course of disease.

**Discussion:** A 50yrs old female, case of rheumatoid arthritis on treatment, post covid presented in a state of DKA with complaints of fever, cough, breathlessness and right sided pleuritic chest pain for >1 month with 2-3 episodes of minimal hemothypsis. CXR s/o Right middle lobe cavity lesion.

**Bronchoscopy:** Right UL bronchial segments inflamed, irregular sloughed mucosa with endobronchial narrowing, biopsy obtained.

**HPE s/o mucormycosis**

Patient started on IV antibiotics & antifungals. Thoracotomy- Right upper and middle lobectomy done on day 8 of hospitalization. Right upper lobe had two large necrotic thick walled cavities with blackish slough. On post-op day 4 patient developed large air leak in ICD s/o BPF. Second thoracotomy for BPF repair done after 7weeks of 1st surgery. Patient had respiratory distress after extubation. CXR showed right opaque hemithorax with
pull of mediastinum. Required urgent bronchoscopy to remove endobronchial mucus plug.

**Conclusion:** Prognosis and outcome have improved as a result of early diagnosis, newer antifungals agents & surgical debridement. Antifungal treatment, surgical interventions & high risk of post surgical complications in an immunocompromised elderly host is grave challenge. But our case had a positive clinical outcome.

**Unmet need among the smoking population**

**Bharat Gopal**

E-mail: nationalchestcentre@gmail.com

India has one of the highest number of smokers in the world. As per the 2017 Global Adult Tobacco Survey (GATS), 99.5 million adults smoke tobacco in India. Of those, 38.5% reportedly attempted to quit smoking, yet only a small fraction of them succeeded. Smoking and exposure to secondhand smoke kill about 1.2 million Indians each year. Currently the smokers have a choice of either to quit or use nicotine replacement therapies as a smoking cessation tool. Although several nicotine replacement therapies (nicotine chewing gums, patches etc.) are approved, more than 80% of smokers who use them for smoking cessation do not succeed. Hence there is a strong unmet need for smokers who are unable to quit to have better alternative nicotine products. In this regard we did an online survey amongst the 1000 members of medical fraternity to evaluate the current cigarette usage patterns, intention to quit, how many adopt NRTs and how many succeed and do the physicians genuinely feel the need for relatively safer and better nicotine products. The results will be presented in the forum.

**Lemierre’s syndrome presenting with pleural effusion: A rare case report**

**Hrishikesh Barui, Anirban Das, Preetam Goswami**

Burdwan Medical College and Hospital, Burdwan, West Bengal, India. E-mail: baruirshi05@gmail.com

**Background:** Lemierre’s syndrome is a condition identified by septic thrombophlebitis of internal jugular vein following an oropharyngeal infection along with septic embolization to other organs mainly lungs.

**Case Study:** A 14-year-old female presented with complaint of high-grade fever, progressive shortness of breath, painful swelling of throat for past 7 days. On chest x-ray, there was left sided whole lung consolidation with ipsilateral pleural effusion. Empirical treatment was started with intravenous piperacillin-tazobactam and levofloxacin. Complete hemogram and blood biochemistry showed neutrophilic leukocytosis only. Gram stain and aerobic culture of sputum, pleural fluid and blood were inconclusive. As there was no remission of symptoms, Contrast Enhanced Computed Tomography (CECT) scan was done and it showed bilateral moderate pleural effusion and filling defect of bilateral internal jugular veins. Ultrasonography of neck confirmed the presence of thrombus in internal jugular vein of both sides. Patient was initiated on intravenous cindamycin and subcutaneous anticoagulants. Gradually the symptoms of the patient resolved.

**Discussion:** Lemierre’s disease is caused by Fusobacterium necrophorum, an obligate anaerobic gram-negative rod, which is usually considered as a commensal of respiratory tract and typically affects young adults. Pulmonary involvement is common due to hematogenous spread of the bacteria. Most of the times, early initiation of appropriate antibiotics is essential for treatment.

**Conclusion:** Despite being called the “forgotten disease”, Lemierre’s syndrome requires strong clinical judgement and prompt management to prevent mortality.

**Granulomatosis with polyangiitis: A case study from a tertiary care centre in Kerala**

**Sajin Mathew, Proveen Valsalan, C. X. Elizabeth Sunila, Mitchelle Lolly, Nabil Ahamed**

Aster Medcity, Kochi, Kerala, India. E-mail: sajinssun@gmail.com

**Background:** Granulomatosis with Polyangiitis (GPA) is an autoimmune, multi-system, small and medium vessel vasculitis with granulomatous inflammation. It is often a rapidly progressive and potentially fatal disease. We aimed to review the clinical and radiological pattern of pulmonary involvement as well as the work up involved in diagnosis in 7 patients with GPA.

**Methods:** Study was conducted at a tertiary care centre in Kochi, Kerala with records reviewed over a two year period from October 2019 to October 2021. Definitive diagnosis was made using a combination of serological anti-neutrophil cytoplasmic antibody (ANCA) testing along with the clinical, radiological presentation and histopathological diagnosis where possible. A total of 7 patients met the diagnostic criteria in the time frame of the study.

**Results:** There were 4 males and 3 females with mean age 56 years on presentation. Cough was the most common symptom present in 85% of the cases followed by dyspnoea in 71%. 57% patients showed pulmonary infiltrates on chest X-ray; 1 patient with diffuse alveolar opacities and 1 with multiple cavitating nodules on CT Thorax. C-ANCA was positive in 75% of the patients. Biopsies were done in all patients out of which 2 were lung biopsies.

**Conclusion:** GPA is a diagnostic challenge leading to late diagnosis which can contribute to significant morbidity and mortality; hence patients presenting with cough and dyspnoea not explained by any obvious cause should be investigated for a possible diagnosis of vasculitis as lung is one of the most common and first organ to be involved.

**Granulomatosis with polyangiitis: A rare differential of nonresolving multiple cavitary lung lesion**

**Abhishek Dey, Kohena Roy, Jaydip Deb**
Abstracts

Department of Respiratory Medicine, Nilratan Sircar Medical College, Kolkata, West Bengal, India. E-mail: abhishekdey867@gmail.com

Background: Granulomatosis with Polyangiitis, formerly known as Wegener’s Granulomatosis is a rare chronic systemic disease characterized by vasculitis, granulomas and manifesting with multiple organ dysfunction. It is an extremely rare disease with prevalence of approximately 3.0 per 1,00,000 persons.

Case Study: A 52 year old female presented to us with complaints of intermittent fever, cough with hemoptysis for last 2 years and multiple episodes of redness of both the eyes in last 6 months. She also reported of having a reduced urine output with bilateral pedal edema for last 10 days. CT guided FNAC suggestive of granulomatous lesion. USG guided renal biopsy showing “crescentic glomerulonephritis” with positivity of Proteinase 3 IgG made the diagnosis. Patient was treated with Steroids, cyclophosphamide pulse therapy of 15mg/kg body weight along with 15 cycles of hemodialysis.

Discussion: Granulomatosis with Polyangiitis is one of the ANCA associated small vessel vasculitis involving various organs such as Nasal Septum, sinus, Upper respiratory tract, lungs and kidneys. Typical symptoms include cough(34%), hemoptysis (18%), Nasal congestion (11%), Pulmonary infiltrates(71%) and Renal failure (11%)

Conclusion: Granulomatosis with Polyangiitis should be critically considered as a diagnosis when a presentation includes multiple system involvement like lungs and kidneys. Life saving treatment is based on prompt and aggressive treatment with steroids along with high doses of cyclophosphamide.

Vacteral association presenting with pulmonary hypertension

Abhishek Dey, Kohena Roy, Jaydip Deb
E-mail: abhishekdey867@gmail.com

Introduction: Pulmonary hypertension is one of the differentials of progressive worsening shortness of breath. It requires a thorough diagnostic evaluation by an experienced specialist and then categorization as per the latest ERS guideline, which, is further essential in mapping out a management strategy. Pulmonary hypertension in the younger population is an unusual presentation in the field of adult respiratory medicine. This is the case of a young adult who was referred to our centre for further management of severe pulmonary hypertension. He was found to have a congenital cardiovascular defect which was in fact a part of a larger syndrome.

Case: This is the case of a 28-year-old gentleman, a mason by profession from West Bengal, who complained of worsening exertional breathlessness for the last 3 months. He was apparently well till 3 months back when he started to have dyspnoea on exertion. It was insidious in onset, slowly progressed over time from MMRC 1 to MMRC grade 3. He further gave a significant past history of intermittent cyanosis of lips, hands, and feet, which was not related to climate change. He recollected having cyanotic spells even in the past described as sudden fainting episodes or giddiness which would relieve on squatting. He was examined at a local centre for his syncopal episodes, where they labelled him to have a heart problem which was not evaluated in detail. However, due to financial constraints, he never sought help until he experienced shortness of breath. He was re-evaluated recently at a local hospital and was diagnosed to have severe pulmonary hypertension and was referred to Christian Medical College Vellore for further management of the same. He did not have orthopnoea or paroxysmal nocturnal dyspnoea. There was no cough / chest pain or fever. There is no history of acute coronary syndrome or cerebrovascular accident in the past. His parents were non-consanguineous and there was no family history of heart or other defects. As per recall he had speech delay but walked on time. Presently still has unclear/ nasal speech. At presentation, he was in respiratory failure with a room air saturation of 79% which increased to a maximum of 88% with supplemental oxygen. He was admitted for the same. On detailed examination it was found the he was of short stature (height ~ 54cm, parents and sister were taller than him) with a BMi of 18.98kg/m2, and he was noted to have an unclear/ nasal speech. Vitals were stable and all peripheral pulses were palpable. He had central cyanosis and pan digital grade 4 clubbing. His right hand was significantly smaller than the left with a hypoplastic thumb. The spine appeared grossly normal, and he had Pectus excavatum. Examination of the cardiovascular system revealed a loud P2, split s2 and an early systolic murmur. Basic blood investigations showed an arterial PaO2 of 49 mmH2O and a PCV of 6%. His Chest x-ray showed an enlarged right ventricle with a Cardio thoracic ratio of 55.59%. A 2D Echocardiogram also showed features of pulmonary hypertension causing a dilated right ventricle and right atrium with a mild tricuspid regurgitation. However, the interatrial septum was intact with no evidence for an atrial septal defect. Left ventricle showed D shaped appearance. We proceeded with a CT pulmonary angiogram which showed a communication seen at the junction of upper most portion of the ascending aorta and main pulmonary artery - features suggestive of an aorto pulmonary septal defect (APSD) which was a type ii defect. Features of shunting from pulmonary artery to the aorta- suggestive of Eisenmenger’s syndrome were evident. It also confirmed the dilated RA and RV findings in keeping with the echocardiogram and an additional finding of segmental vertebral fusion anomaly at the cervico-thoracic junction. Creatinine was elevated (1.5mg%) which worsened after contrast injection, also uric acid was 12.8g% which was significantly elevated. An ultrasound of the abdomen showed bilaterally contracted kidneys with the right and left kidneys measuring 6.4 cm and 7.4 cm, respectively. After a thorough literature search, his case was fitting in a VACTERL ASSOCIATION with the following findings which could be a part of the syndrome.
As the patient was not affordable for genome sequencing, he was given symptomatic management. A surgical correction of the defect was also not an option due to Eisenmengerization. He was initiated on medical management of the acute on chronic renal disease, was given diuretics and a combination of endothelin receptor antagonist and phosphodiesterase inhibitor (Tab. Ambrisentan-Tadalafil 5+20mg) half tablet once daily. He was also advised phlebotomy in case the PC was above 70% or he had hyperviscosity symptoms.

**Discussion:** Mal septation of the aortopulmonary trunk during embryogenesis results in aortopulmonary septal defect.\(^1\) This is identified as a window which can classified into types. The Richardson classification system for aortopulmonary septal defect (APSD) includes simple defects between the ascending aorta and pulmonary trunk (type I), defects extending distally to include the origin of the right main pulmonary artery (type II), and anomalous origin of the right main pulmonary artery from the ascending aorta with no other aortopulmonary communication (type III).\(^2\) Most defects are recognized at birth and must be corrected as soon as possible. Surgical correction procedures include autologous pericardial patch by the transaortic approach.

For correct identification. If missed, the patient will be considered to have primary pulmonary hypertension which is not fully correctable as opposed to a cardiovascular defect which is surgically correctable. This case also sheds light on the variety of presentations of a VACTERL association. VACTERL association is the presence of a minimum of 3 of 7 congenital abnormalities including vertebral, anal, cardiac, tracheoesophageal, renal, and limb abnormalities.\(^3\) It affects 1 in 10,000 to 40,000 new-borns, most being sporadic, and the exact aetiology being unknown. It thus remains as a diagnosis of exclusion. Due to its multiorgan involvement, VACTERL association is described as a developmental field defect, since malformations during blastogenesis usually result in congenital defects affecting many organ systems. The management of patients with VACTERL association involves long-term care, including surgical corrections of the defects and physical therapy. In this case our patient fulfilled the criteria as he had a cardiac anomaly, limb, and renal abnormality as well. He however presented atypically with pulmonary hypertension as opposed to otherwise typical presentations of VACTERL association in the younger age group.

**Conclusion:** Since APSD is not a common finding as opposed to an ASD, it may be easily missed on Echocardiogram and a CT which will lead to misdiagnosis. Medical facilities and personnel with expertise including radiologists, cardiologists and pulmonologists in our country still need to reach the nooks and corners so that congenital heart defects are surgically corrected before the onset of Eisenmengerization and before severe Pulmonary hypertension develops. Once this takes place, only symptomatic medical management is the only available option as of today.

**Consent:** An informed consent was taken from the patient for purpose of this clinical case write up.

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**Evaluation of inhaler use technique and its response to educational training**

**Prince Patel, Arti D. Shah, Kusum V. Shah, Bhavesh Patel**

E-mail: princee.patel97@gmail.com

**Background:** Efficiency of any inhaler medication is crucially governed by the correct inhalation technique and is critical in ensuring optimal medication conveyance for correct identification. If missed, the patient will be considered to have primary pulmonary hypertension which is not fully correctable as opposed to a cardiovascular defect which is surgically correctable. This case also sheds light on the variety of presentations of a VACTERL association. VACTERL association is the presence of a minimum of 3 of 7 congenital abnormalities including vertebral, anal, cardiac, tracheoesophageal, renal, and limb abnormalities.\(^4\) It affects 1 in 10,000 to 40,000 new-borns, most being sporadic, and the exact aetiology being unknown. It thus remains as a diagnosis of exclusion. Due to its multiorgan involvement, VACTERL association is described as a developmental field defect, since malformations during blastogenesis usually result in congenital defects affecting many organ systems. The management of patients with VACTERL association involves long-term care, including surgical corrections of the defects and physical therapy. In this case our patient fulfilled the criteria as he had a cardiac anomaly, limb, and renal abnormality as well. He however presented atypically with pulmonary hypertension as opposed to otherwise typical presentations of VACTERL association in the younger age group.

**Conclusion:** Since APSD is not a common finding as opposed to an ASD, it may be easily missed on Echocardiogram and a CT which will lead to misdiagnosis. Medical facilities and personnel with expertise including radiologists, cardiologists and pulmonologists in our country still need to reach the nooks and corners so that congenital heart defects are surgically corrected before the onset of Eisenmengerization and before severe Pulmonary hypertension develops. Once this takes place, only symptomatic medical management is the only available option as of today.

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to the lungs. Symptom relief is observed only when the appropriate technique is followed.

**Objective:** To assess technique and to provide education on proper use of inhaler in patients with obstructive airway diseases and to obtain data on benefits of proper inhaler technique.

**Materials and Methods:** A Cross Sectional interventional study was conducted at respiratory medicine department of Dhiraj Hospital, Vadodara. Their technique was evaluated by specific checklist INHS Liverpool Clinical Commissioning Group- Inhaler device Checklist. Patients having incorrect technique were counselled along with physical demonstration of proper inhaler techniques. A pre and post interventional score was compared to evaluate the benefits of the intervention.

**Results:** A total of 120 patients were enrolled in the study. Before counselling, 11.67%, 58.33%, and 30% of patients had poor, moderate and good inhaler technique, respectively while post counselling 0%, 12.50% and 87.50% had poor, moderate and good inhaler technique, respectively.

**Conclusion:** Overall, the majority of patients had erroneous inhaler techniques, however after counselling a dramatic surge in number of patients having correct inhalational technique was beheld, which suggests that counselling for the proper inhalational technique can improve efficacy and therapeutic outcomes.

**Poland syndrome associated with ipsilateral congenital ptosis**

**Shagun, R. S. Negi**

*Department of Pulmonary Medicine, IGMC, Shimla, Himachal Pradesh, India. E-mail: shagun1279@gmail.com*

**Background:** Poland syndrome is a rare congenital condition characterized by absence of unilateral chest wall muscles and sometimes ipsilateral syndactyly or brachydactyly. The condition typically presents with unilateral absence of sternal portion of pectoralis major muscle which may or may not be associated with the absence of nearby musculoskeletal structures.

**Case Study:** An 18-year-old male presented with complaint of asymmetry of chest. On examination, flattening was noticed in left infraclavicular and mammary area. There was also ipsilateral brachydactyly. Ipsilateral droop of eyelid was reported to be present since birth by parents. Chest radiograph showed translucency over left side with normal bronchovascular markings. MRI chest showed deficient sternal head of left pectoralis muscle. Ophthalmological and Neurological examination were found to be normal.

**Discussion:** The pathological mechanism is considered to be a result of interruption of the early embryonic blood supply to the subclavian artery. The absence of sternal portion of pectoralis major muscle in the patient did not result in loss of strength or malfunction. Patient and his family members were counselled about the condition and no surgical treatment was considered. There was also associated ipsilateral congenital ptosis which has never been documented before as a part of syndrome.

**Conclusion:** This case report adds to the knowledge of health professionals about this rare syndrome and its atypical presentations.

**Daisley Barton Syndrome**

**Samanvitha Vengaldas, Nagender Prasad Chenimilla, Ramu Madire**

*Department of Respiratory Medicine, Prathima Institute of Medical Sciences, Karimnagar Telangana, India. E-mail: samanvitha@vengaldas@gmail.com*

**Background:** Paraquat is a bipyridilium compound which when ingested accidentally or with suicidal tendency has a corrosive action locally and causes free radical injury to multiple organs. Cause of respiratory distress after paraquat poisoning includes development of pneumothorax and pneumomediastinum. Pneumomediastinum as a complication has 100% mortality.

**Case Report:** A young male, farmer with alleged history of consumption of paraquat presented to EMD after gastric lavage with vomiting and having elevated RFT and LFT followed by which dialysis was planned and methylprednisolone, NAC, vitamin C administered, over 48 hours patient developed respiratory distress and subcutaneous emphysema all over the body, with CT chest revealing bilateral pneumothoraces with pneumomediastinum. ICD placement was done. Though patient was treated aggressively, deterioration ensued over a period of time leading to his death.

**Discussion:** The mechanism of action of paraquat is by producing reactive oxygen species and hydroxyl radicals which leads to destruction of cell membranes causing impaired gas exchange and loss of surfactant which cause increase in surface tension within alveolar cells ultimately causing rupture of cells causing pneumothorax and pneumomediastinum. In our case the initial imaging was normal, but after a period of 48 hours patient developed sudden respiratory distress after development of pneumothorax on both sides and with extensive pneumomediastinum.

**Conclusion:** Development of pneumomediastinum in a case of paraquat poisoning has high mortality even after early diagnosis and aggressive management. In our case mortality could not be prevented because of presence of pneumomediastinum.

**Anterior mediastinal mass: A rare case of mature teratoma with active pulmonary tuberculosis**

**Sruthi Vijayan, N. T. Awad, Pranavi Kishore Amin, Yash Kedia**

*E-mail: sruthi.vijayan11@gmail.com*

The differential diagnosis of anterior mediastinal mass is lymphadenopathy(common tuberculosis) and teratoma. Mediastinal germ cell tumors are rare. Teratomas are defined by the presence of tissue from more than one of the three primitive germ cell layers. Mature(benign)
teratomas are composed of well differentiated elements such as fat, muscle and cartilage (mesoderm), and intestinal tissue (endoderm), hair skin and teeth (ectoderm). It can be usually asymptomatic or asymptomatic. Occasionally they erode into the airway and patient may cough up hair (trichoptysis) or oily sebum that is pathognomonic of benign mature mediastinal teratoma. Diagnostic procedure of choice is CECT chest. The case is of a 22 year old male who presented with complaints of left sided dull aching chest pain since 1 year and fever on and off, loss of appetite, loss of weight (10 kg), cough with minimum mucoid expectoration and 2 episodes of trichoptysis since 3 months. On further investigations with CECT, a well encapsulated lobulated heterogenous mixed density mass lesion was seen in anterior mediastinum suggestive of mature teratoma. Along with it, a thin walled cavity with multiple tiny centriflobular nodules suggestive of Tuberculosis was also seen. Patient was subjected to bronchoscopy which revealed the presence of hair, calcific materials and sebum in the airways. Patient was started on Anti-TB drugs and posted for surgical excision of the teratoma after the intensive phase of the ATT.

A case of right sided pulmonary hypoplasia presenting in adulthood with bicuspid aortic valve

Pronoy Sen1, Rupam Kumar Ta2, Anirban Das2
1Department of Pulmonary Medicine, Burdwan Medical College, Burdwan, West Bengal, India, 2Department of Pulmonary Medicine, Purulia Government Medical College, West Bengal, India. E-mail: pronoy.sen@gmail.com

Background: Pulmonary hypoplasia is a rare congenital anomaly which is characterized by underdevelopment of alveolar tissue resulting in a small, fibrotic and non-functioning lung. It is often accompanied by other congenital anomalies. It is very rare in right lung as compared to left. We present a rare case of right sided pulmonary hypoplasia presenting in adulthood with bicuspid aortic valve.

Case Study: A 21 year old female student was admitted to the hospital due to breathlessness with recurrent respiratory tract infections since childhood. Clinical examination revealed smaller right hemithorax compared to left. Chest X-ray showed right sided non-homogenous opacity with ipsilateral mediastinal shift. Contrast CT scan and CT pulmonary angiography showed rudimentary right upper and middle lobe and normal right lower lobe parenchymal tissue with normal right pulmonary artery. Bronchoscopy showed rudimentary right upper and middle lobe openings with patent right lower lobe opening. Echocardiography revealed bicuspid aortic valve. She was managed conservatively and is doing well on regular follow up.

Discussion: According to Boyd there are three degrees of mal-development of lung: agenesis, aplasia, and hypoplasia. Hypoplasia of the lung may be primary (idiopathic) or secondary (when it occurs in association with environmental factors). Treatment consists of control of recurrent infections, bronchodilators and management of other complications.

Conclusion: Pulmonary hypoplasia is a rare but important cause of recurrent childhood respiratory infections and must be diagnosed early with detection of other congenital anomalies.
Abstracts

Case Study: An elderly male presented with a history of chronic cough and dyspnea. Physical examination revealed a bulge in the intercostal space with coughing and sneezing. Ultrasound and CT imaging confirmed the presence of a lung hernia. The patient was managed conservatively with physiotherapy and nutritional support, and the hernia resolved over the course of 3 months.

Methods: A systematic review of the literature was conducted to evaluate the prevalence, diagnosis, and management of lung hernias. A total of 20 case reports were included in the analysis.

Results: The prevalence of lung hernias was estimated to be 0.0001%. Most hernias occurred in the right lower zone and were associated with chronic lung diseases. CT imaging was found to be the most reliable diagnostic tool.

Conclusion: Lung hernias are a rare but important condition that should be considered in patients with chronic lung diseases. Early diagnosis and appropriate management can prevent serious complications.

Impact of addition of aerobika oscillating positive expiratory pressure device to standard of care in patients with chronic obstructive pulmonary disease exacerbations: A real-world evidence study

Ankit Bansal1, Vinay Purohit2, Khushboo Bhojwani2, Pratyusha Gaonkar2

1Fortis Hospital, Jaipur, Rajasthan, India, 2Lupin Limited, Mumbai, Maharashtra, India. E-mail: drakbn1@gmail.com

Background: Oscillating positive expiratory pressure (OEP) devices are intended to facilitate sputum clearance in COPD patients with mucus hypersecretion which increases with airflow limitation.

Objective: To determine the quality of life using CAT (The COPD Assessment Test) score in patients with COPD exacerbations after 6-week use of Aerobika post discharge in an observational study.

Methods: Patients with COPD exacerbations prescribed Aerobika were evaluated using a proforma wherein, they rated their symptoms using the CAT score at day 0 and post six weeks of Aerobika use. The patients, as well as physicians, provided their response regarding its ease of use and benefits experienced during the study.

Results: Among the 40 patients (72.5% males), in 77.5% the CAT score improved at the end of six weeks compared to baseline. Overall, the mean CAT score decreased (20 to 12) with an average change of 40%. When we considered only the patients who noted an improvement, there was a >53% decrease in the CAT scores. Most patients reported that Aerobika was convenient to use [(ease of use (>72%), easy to clean and maintain (~83%) and easy to carry (>86%)]. Around 94% of patients stated that they would continue its use. The pulmonologists found considerable improvement in ease of expelling mucus rated as ‘excellent’ to ‘very good’ Physician reported that dyspnea reduced by 50% and exacerbations by 75%.

Conclusion: The use of Aerobika OEP device as an add-on, drug-free therapy with routine care provided symptomatic relief and demonstrated improved quality of life in COPD patients experiencing mucus hypersecretion.

Bronchus suis: Rare cause of non-resolving pneumonia. A case report

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Arjun Kumar, Mayank Mishra, Akhlesh, Girish Sindhwani

Department of Pulmonary Medicine, All India Institute of Medical Sciences, Rishikesh, Uttarakhand, India. E-mail: aknlnegi@gmail.com

Background: Tracheal bronchus is a rare congenital anomaly of the airway where accessory bronchus originates directly from the trachea. This condition is rarely reported in literature due to sparsely reported cases in the literature with estimated incidence of 0.1-2%. It is usually incidental findings in asymptomatic patients. However, it can be present with recurrent respiratory infection or with coexisting pulmonary complications. MDCT imaging and bronchoscopy plays a crucial role in identification of tracheal bronchus.

Case: Here we present the case of 54-year-old male with 80 pack years of smoking history presented to the outpatient department with complaints of increased difficulty in breathing and cough with expectations for 7 months and on and off fever for 1 month. Patient with recurrent right upper lobe pneumonia who was discovered to have tracheal bronchus on fibroptic bronchoscopy (FOB) findings showed a round opening measuring 1x1 cm approximately 2 cm proximal to main carina at the lateral wall of trachea.

Discussion: Tracheal bronchus is described in literature as mostly incidental finding in the chest CT scans or found during fibroptic bronchoscopy and it has been more frequently found in children with recurrent respiratory infections or part of congenital abnormalities. Multiple detector CT (MDCT) scan of the chest with the addition of 3D reconstruction is the non-invasive gold standard investigation in diagnosing tracheal bronchus. Treatment of TB depends on the underlying coexistence condition and the severity of the associated symptoms. Surgical resection of anomalous lobe is treatment of choice.

A pulmonary hamartoma: Case report

Induri Bala Mamatha Reddy, A. Vinay Kumar, K. Raj Kumar

E-mail: balamamathareddy@gmail.com

Background: Hamartomas are the most common benign tumours of the lung, bronchial location of these are less common than a peripheral pulmonary location. These also known as mesenchymomas . they can be parenchymal (80%) or endobronchial (10-20%). parenchymal lesions are usually an incidental finding and usually range in size from (1-5cms) . The endobronchial tumors usually present with new onset of respiratory symptoms , which are most commonly recurrent chest infections or hemoptysis

Case Study: A Case of a 55yr old female patient known diabetic, hypertensive, old cerebrovascular attack with right hemiparesis , walks minimally with support , most of the time bedridden complaining of cough dry in nature since 3 months with CT chest soft density foreign body measuring left upper lobar bronchus approximately 4cm from bifurcation of trachea, Air trapping in left upper lobe.

Discussion: Pulmonary hamartomas usually are asymptomatic with incidental coin lesions on routine chest radiography it occur in all parts of the lung they appear as solitary pulmonary nodules , they show varying patterns of calcifications , slow growth patterns , pulmonary resection is the most important treatment measure however there is a controversy about the indication and timing of surgery.

Conclusion: Though these are benign tumors diagnosing them is very important.

A case report of posterior mediastinal malignant peripheral nerve sheath tumor associated with neurofibromatosis type 1

Induri Bala Mamatha Reddy, A. Vinay Kumar, K. Raj Kumar

Chalmeda Anand Rao Institute of Medical Sciences, Karimnagar, Telangana, India. E-mail: balamamathareddy@gmail.com

Background: Malignant Peripheral Sheath Tumor(MPNST) is rare ,but it commonly associates with Neurofibromatosis type 1 (NF1). The incidence of MPNST is 0.001% in general population and 0.16% in patients with NF1.

Case Study: We report a male patient with a special condition ,whose tumors in body surfaces were benign neurofibroma and tumors in posterior mediastinum are MPNST. The CECT(contrast enhanced computed tomography) chest revealed large well defined soft tissue mass in left mid and lower portion of posterior mediastinum .The diagnosis was established by pathology and immunehistochemistry

Discussion: The majority of mediastinal neurogenic tumors arise in the posterior mediastinum with only 3% found in anterior mediastinum MPNST arising at the thoracic cavity is difficult to diagnose in early stages , as the patients are usually asymptomatic .therefore , tumors of large size ,with invasion of the surrounding organs , are occasionally discovered . it has very poor prognosis complete resection is the mainstay.

Conclusion: The appearance of neurofibroma should draw particular attention to the possibility of developing MPNST. More careful imaging examinations should be carried out.

A case report of mirror image right aortic arch

S. Sai Sharath, P. Pravinya, C. N. Prasad, M. Ramu

Department of Respiratory Medicine, Prathima Institute of Medical Sciences, Karimnagar, Telangana, India. E-mail: sharathsura29@gmail.com

Background: A right aortic arch (RAA) is present in 0.1% of the Population. RAA result from aberrant development of one or more components of the embryonic pharyngeal arch system. Three types of right aortic arch (RAA): RAA with mirror image branching (RAMI), RAA with aberrant left subclavian artery (ALSA) and RAA with isolation of the LSA. RAA can be associated with other congenital heart defects, chromosomal abnormalities or can present as an incidental finding Echocardiography, cardiac magnetic resonance (MR) imaging, and computed tomographic
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A 16 year old male patient came to good participants’ satisfaction and significantly enhances conclusion (p<0.0001) in average Pre (5.12± 2.7) and Post (12.4 ± Paired t-test showed that, there is a significant increase related knowledge was assessed using 16-item Asthma Knowledge Questionnaire (AKQ).

Knowledge Questionnaire (AKQ).

Methods:
The study was conducted in 50 Marathi speaking adult asthmatics visiting the outpatient department of Respiratory Medicine Department of Bharati Hospital and Research Centre, Pune, Maharashtra, India. Questionnaire for User Interface Satisfaction (QUIS) was used to assess patients’ satisfaction related to application. QUIS assessed users’ interaction satisfaction of software on dimensions such as screen quality, usefulness of system provided feedback, responsiveness and usability of graphic user interface. Pre and post intervention asthma related knowledge was assessed using 16-item Asthma Knowledge Questionnaire (AKQ).

Results:
The Marathi version ASTHMAexcel application showed satisfactory performance [Table 1]. Paired t-test showed that, there is a significant increase (p<0.0001) in average Pre (5.12± 2.7) and Post (12.4 ± 1.6) intervention AKQ Score (t=-18.699).

Conclusion:
The Marathi ASTHMAexcel application offers good participants’ satisfaction and significantly enhances asthma related knowledge.

Table 1: Level of patient satisfaction

| Domains of QUIS                     | Range | Mean±SD | Median (IQR) |
|-------------------------------------|-------|---------|--------------|
| Overall reaction to software        | 0-54  | 48.9±6.1| 50 (48-54)   |
| Screen                              | 0-36  | 32.2±4.6| 33 (31-36)   |
| Terminology and system information  | 0-54  | 48.2±5.2| 48 (46-53)   |
| Learning                            | 0-45  | 40.6±4.6| 42 (38-45)   |
| System capabilities                 | 0-45  | 41.66±3.4| 42.5 (40-45) |

Primary malignant mediastinal seminoma: A case report study

V. Mohanabalamurugan, K. V. V. Vijaya Kumar
Department of Respiratory Medicine, Andhra Medical College, Visakhapatnam, Andhra Pradesh, India. E-mail: balamurugan3421@gmail.com

Background: Mediastinal seminoma is a malignant germ cell tumor which is very rare usually occurs in anterior superior mediastinum in males aged 20-40years. These are considered to develop from germ cell precursors trapped during embryonic migration & survived on ectopic localisation.

Case Report: A 16year old male patient came to Government Hospital for Chest and Communicable Diseases in the month of July 2021 and presented with complaints of dry cough for 15 days, dysphagia and hoarseness of voice for 2days.His mother had a history of squamous cell carcinoma of hypopharynx and expired 1month back (June) after 4cycles of chemotherapy and radiotherapy. On examination, trachea deviated to right side and reduced intensity of breath sounds present in left hemithorax. Chest xray showed homogenous opacity of left upper and mid zone. Contrast enhanced CT showed large soft tissue density mass lesion involving left anterior mediastinum and left upper lobe measuring 10×12.2cm suggestive of malignancy. Ultrasound guided FNAC showed non small cell carcinoma. CT guided biopsy showed malignant mediastinal seminoma with HIC markers positive for cytokeratin (AE1/AE3) & CD117. Spirometry showed severe restriction with FVC less than 45% & FEV1/FVC more than 70%.

Discussion: After complete investigations, patient was diagnosed as primary malignant mediastinal seminoma. Patient was treated with 4 cycles of cisplatin based BEP regimen followed by radiotherapy oncourse.

Conclusion: Mediastinal seminoma is an extra gonadal germ cell tumors (GCTs) being sensitive to multimodality approach of chemotherapy followed by radiotherapy to ensure the long-term survival.

A case report of cervicofacial actinomycosis in post treatment completed extrapulmonary tuberculosis-cervical lymphadenitis

V. Mohanabalamurugan, K. V. V. Vijaya Kumar
Department of Respiratory Medicine, Andhra Medical College, Visakhapatnam, Andhra Pradesh, India. E-mail: balamurugan3421@gmail.com

Background: Actinomycosis is a chronic suppurative bacterial infection caused by Actinomyces israelii. It presents as an indolent chronic draining sinus which can present as cervicofacial swelling following dental extraction. It can present as a mass in the neck with lower abdominal pain, both sides, since two months. During evaluation he was found to have Right aortic arch on screening CT chest. RAA with mirror imaging was confirmed by HRCT chest and reconstruction. Patient was found to have no other abnormality related to RAA.

Discussion: Normal aortic arch development occurs by elongation, sprouting/splitting, and regression. Mirror imaging RAA is the most common form with congenital heart disease in 98 % of the cases. The present case has no evidence of other cardiac defects and was diagnosed incidentally.

Conclusion: This is a rare presentation of mirror image right aortic arch with no other cardiac defect.

Evaluation of the Marathi version asthmaxcel application in terms of patients’ satisfaction and asthma knowledge

Swapnil Gadhave1, Rashmi Gadkari2, Medha Bargaje3, Sundeep Salvi2, Sunit Jariwala4
1Pulmocare Research and Education Foundation, Pune, Maharashtra, India, 2Chest Research and Training Pvt. Ltd., Pune, Maharashtra, India, 3Department of Respiratory Medicine, Bharati Hospital and Research Centre, Pune, Maharashtra, India, 4Department of Medicine, Albert Einstein College of Medicine, Montefiore Medical Centre, NY, USA. E-mail: swapnil@purefoundation.in

Background: The English version of the ASTHMAexcel mobile application was developed by the Albert Einstein College of Medicine and Montefiore Medical Centre. NY, USA. We translated and developed the Marathi version of ASTHMAexcel application. We aimed to evaluate the satisfaction of asthma subjects with use of the Marathi version of ASTHMAexcel application and change in asthma related knowledge in Pune.

Methods: The study was conducted in 50 Marathi speaking adult asthmatics visiting the outpatient department of Respiratory Medicine Department of Bharati Hospital, Pune. Questionnaire for User Interface Satisfaction (QUIS) was used to evaluate the satisfaction of asthma subjects with use of the Marathi version of ASTHMAexcel application and change in asthma related knowledge in Pune.

Results: The Marathi version ASTHMAexcel application showed satisfactory performance [Table 1]. Paired t-test showed that, there is a significant increase (p<0.0001) in average Pre (5.12± 2.7) and Post (12.4 ± 1.6) intervention AKQ Score (t=-18.699).

Conclusion: The Marathi ASTHMAexcel application offers good participants’ satisfaction and significantly enhances asthma related knowledge.

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**Introduction:** Actinomycosis is a chronic supplicative granulomatous infection caused by the Actinomyces genus. Orofacial actinomycosis is the most common form of the disease, which is seen up to 55% of cases.

**Case Report:** A 43yr old male came to Government Hospital for Chest and Communicable Diseases in the month of January 2021 with the complaints of multiple discharging sinuses in the neck for past 8 months with the past history of tuberculous cervical lymphadenitis which occurred in 2017 and 2019. For which, he was treated twice with anti-tuberculous treatment. He is a chronic alcoholic and tobacco chewer for the past 30 years. FNAC of cervical lymph node in 2017 & 2019 showed epithelioid cell clusters and granulomatous lesion, suggestive of tuberculosis. CT neck showed multiple conglomerated lymph nodes at the level of 2,3,4 and supraclavicular region and soft tissue irregularity with facial thickening seen in left side of the neck. FNAC of cervical lymph node done in 2021 showed marked cellularity with sheets of polymorphs and few macrophages amidst necrotic cellular debris suggestive of acute nonspecific suppurative lymphadenitis or caseating tuberculous lymphadenitis. Biopsy of excised sinus tract showed granulation tissue associated with actinomycosis and no evidence of tuberculosis/neoplasia.

**Discussion:** Patient was diagnosed as cervicofacial actinomycosis and referred to dermatology department and treated with intravenous penicillin.

**Conclusion:** Cervicofacial actinomycosis is a chronic disease characterized by abscess formation, draining sinus tracts, fistulae and fibrosis. Though a rare disease, here the main predisposing factor is poor oral hygiene and also contributed by tuberculosis.

Dose assurance with nebulizer therapy: A laboratory investigation into the medication delivery performance of different nebulizers at different inspiratory/expiratory ratios

Khushboo Bhojwani1, Mark Nagel2, Nathaniel Hoffman2, Jason Suggett2

1Lupin Limited, Mumbai, Maharashtra, India, 2Trudell Medical International London, Ontario, Canada. E-mail: khushboobhojwani@lupin.com

**Background:** Breath-actuation type nebulizers only deliver medication during inhalation. Most nebulizers deliver aerosol continuously during inhalation and exhalation. The inspiratory/expiratory (I/E) ratio of a patient can change due to lengthening expiration in obstructive lung disease, or as a result of distractions to the patient during treatment. These changes may consequently decrease the delivery efficiency by nebulization. This laboratory study compared the delivery of salbutamol via a range of different nebulizer types.

**Methods:** Nebulizers (n=5/group) were evaluated with 3-mL fill of 833µg/mL salbutamol solution. The nebulizer was connected to a simulator (ASL5000, IngMar Medical) mimicking adult (tidal volume=500-ml) tidal breathing, with I/E ratios of 1:1, 1:2 and 1:3. Emitted aerosol was captured by filter at 1-minute intervals until sputtering to determine total mass of drug delivered. Albuterol assay was undertaken by HPLC-UV spectrophotometry. Fine droplet mass (µg<4.7µm) was determined by laser diffraclometry as the product of total mass and fine droplet fraction (%<4.7µm).

**Results:** Average fine droplet salbutamol mass at extended I:E ratios are shown in the Figure.

**Conclusion:** Higher, more consistent dose delivery was achieved by AEROECLIPSE® II BAN® Nebulizer across the range of I:E ratios tested compared to all other types of nebulizers. Clinicians should be aware of the opportunity to deliver effective and consistent doses more assuredly without the risk of potential under-dosing as disease progresses or if the patient pauses during treatment.

**Acknowledgement:** Previously presented at American Thoracic Society 2021 Virtual Conference.

**Platypnea-orthodeoxia syndrome in HIV, rare and treatable cause**

Harsha Jain, Nitesh Gupta, Shibadas Chakrabarti

E-mail: dr.harshajain.mbbs@gmail.com

**Background:** Platypnea-orthodeoxia syndrome is a rare clinical entity characterized by dyspnoea and deoxygenation accompanying changing of position to sitting or standing from recumbent position. It’s usually seen with patent foramen ovale and hepatopulmonary syndrome. Ventilation perfusion is a rare cause of the same. We report case of bilateral lower-lobe consolidation due to Pneumocystis carinii pneumonia and Cytomegalovirus due to HIV.

**Case Study:** A 53-year-old male, reformed smoker, hypertensive, presented with history of intermittent fever since 2 to 3 moths (undocumented), cough with expectoration since 4 to 6 months and shortness of breath only on exertion since one and a half year, which progressed to rest over the past 7 days, associated with Loss of appetite, loss of weight and palpitation. Patient was intubated in view of respiratory distress and altered sensorium (no records of ABG available). CT brain was normal. HRCT showed left sided pneumothorax with bilateral basal infiltrates with emphysematous changes. Post extubation,
patient continued to complain breathlessness, patient was managed with oxygen therapy via face mask, transferred to our department (respiratory) for further management.

**Physical Examination Findings:** On presentation patient was conscious, alert, hyperpigmented scars observed over anterior chest, trunk and upper thigh which patient had for 5 months. His vitals were oxygen saturation by pulse oximetry 96% with 3 litres oxygen via nasal prongs, respiratory rate 24 breaths/min, heart rate 102 beats/min BP-136/88mmhg. Respiratory system examination revealed normal chest movements with bilateral basal crepitations. Other system examination such as cardiovascular, per abdomen and central nervous system examination was normal. Bedside point-of-care ultrasound, revealed bilateral B-profiles in bilateral lower zones. Cardiac function was normal (ejection fraction ~60%). An abdominal scan and DVT screening were normal.

**Diagnostic Studies:** Accidentally we noticed that he was breathlessness more in the sitting position than the recumbent position. He maintained 96% saturation with 3L of oxygen in the recumbent position, and his saturation dropped to 88% in the sitting position, which further dropped in the standing position to 80%. He also developed tachycardia and tachypnoea in sitting position. Serial ABGs showed a 7% difference in saturation and a 19-mmHg difference in arterial oxygen tension (PaO2) in a recumbent and sitting position. Routine blood tests were all within normal limits, including a CBC count and a basic metabolic panel, NT-pro BNP. Urinalysis was negative for protein, cells, or casts. Viral panel is reactive to HIV I with CD4 counts of 73 cells/microlitre. Sputum for AFB-negative. ABG parameters of the patient in the sitting and recumbent position.

| Parameters | Sitting position at room air | Recumbent position at room air |
|------------|-----------------------------|--------------------------------|
| **Ph**     | 7.476                       | 7.467                          |
| **PCO₂**   | 35.1                        | 35                             |
| **PO₂**    | 53.3                        | 72.3                           |
| **HCO₃**   | 25.6                        | 25                             |
| **SAO₂**   | 88.7                        | 96                             |
| **A-a gradient** | 137.2                  | 115.9                          |

Bubble contrast echocardiography by intravenous administration of agitated normal saline was done for further evaluation of the cause for platypnea-orthodeoxia. We could not detect any opacification of the left atrium with microbubbles, even after three cycles, thus excluding the presence of intra-cardiac and extra-cardiac shunts. All valves appeared normal, and the ejection fraction was 60%. There was no evidence of pulmonary hypertension, left ventricular hypertrophy, or findings suggestive of cor-pulmonale. Ultrasonography of abdomen and pelvis was done to rule out chronic liver disease associated with hepato-pulmonary syndrome. CECT WITH CT-PA showed bilateral basal predominant inter and intra lobular septal thickening with patchy ground glass opacities and traction bronchiectasis with aortic root dilatation, no evidence of pulmonary artery venous malformation with aortic root dilatation. In view of aortic root dilatation and hyperpigmented skin lesion patient was worked up for syphilis which was negative. Bronchoscopy (BAL) was done to work up for bilateral GGO in lower lobe. BAL negative for CBNAAT, AFB, MGIT culture, pyogenic c/s, gram stain, fungal c/s and KOH stain. PCR BAL for cytomegalovirus and pneumocystis carinii for direct immunofluorescence turned out to be positive. 

**Treatment:** Patient treated with combination of tenofovir (300mg), lamivudine (300mg), dolutegravir 50mg od as per HAART therapy. Patient met the criteria for severe PCP disease, hence treated with tablet trimethoprim and sulfamethoxazole (60kg, started with 2 tablet QID) and Tablet prednisolone 40mg BD for 5 days, followed by OD for 5 days, 20mg OD for 11days. Patient was discharged on home oxygen therapy. On follow up patient started improving, able to sit from recumbent position. ABG showed

**Discussion:** Platypnea (increased dyspnea in the erect position relieved by assuming a recumbent position) and orthodeoxia (accentuated hypoxemia in the erect position, improved by assuming a recumbent position), it is a rare clinical entity. It is first described by Burchell et al. Quantitatively, orthodeoxia is defined as a drop in arterial oxygen saturation of 5% and $P_{\text{a}}O₂$ of 4 mmHg in the upright position. Most common etiological factors are intracardiac shunting, pulmonary shunting, ventilation-perfusion mismatch, and disorders such as pericarditis, emphysema, and pneumonectomy. Our patient did not have any history of COPD, cirrhosis or chronic liver disease. Air bubble contrast echo didn't show any evidence of intracardiac or intrapulmonary shunt. USG abdomen was normal and CT pulmonary angiography showed no evidence of pulmonary artery venous malformation. None of the above investigation revealed any possible aetiology hence low/zero ventilation/perfusion (V/Q) ratio (zone 1 phenomena) was considered as a cause, because patient showed bilateral lung bases involvement. Possible explanation to this is, in normal individuals in standing position, the apical portion of the lung, termed as zone 1, remains hypo perfused during most of the cardiac cycle, except for flushes of blood during the peak ejection phase of systole. The lying position places more of the lung in zone 3 and virtually eliminates zone 1. In our patient, the basal parts of both lungs were predominantly affected by the disease, as a consequence, it is possible that when the described patient was in supine position, all the under perfused upper part of the lung (zone 1) converted in zone 3 leading to equal ventilation and perfusion, and ultimately adequate oxygenation. By contrast, whenever the patient was in the standing position, increased perfusion of the
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Pulmonary rehabilitation is an integral part of perioperative care in patients undergoing chest surgery. However, structured physiotherapy protocols after chest surgery are lacking in India. This study aims at reporting the institutional standardised protocols for peri-operative physiotherapy and compare the outcomes with unstructured physiotherapy care in a dedicated chest surgery unit.

Materials and Methods: This is retrospective analysis of prospectively maintained data of 4168 patients, conducted in a dedicated thoracic surgical unit from March 2013 to March 2021. The control group included all patients operated between March 2013 and March 2017, where an unstructured chest physiotherapy care was provided. The study group included all patients operated on between April 2017 and March 2021, where physiotherapy was given as per structured protocols. All perioperative outcomes were measured, documented, analysed, and compared between the two groups.

Results: The mean time for the pre-operative preparation was significantly longer in the study group (p=0.0001). The incidence of postoperative lung atelectasis (p=0.0001), time to return to work (p=0.0001) and incidence of shoulder dysfunction (p=0.004) were significantly lower in the study group. However, the incidence of post-operative pneumonia (P = 0.21) and mean hospital stay was no different between the two groups.

Conclusion: Implementation of structured physiotherapy protocols helps in enhanced recovery after chest surgery. In opposition to unstructured physiotherapy care, application of standardized protocols leads to better pre-operative outcomes.

Table 1: Comparison of Standardized Physiotherapy protocol with unstructured physiotherapy care

| Variables                        | Standardized protocol | Unstructured care |
|----------------------------------|-----------------------|-------------------|
| Initial patient education        | Yes                   | No                |
| Detailed information booklet     | Yes                   | No                |
| Pre-operative physiotherapy      | Always                | Sometimes         |
| Early post-operative mobilization| Always                | Sometimes         |
| Post-operative “tailored” physiotherapy | Yes          | No                |
| Discharge advice booklet         | Yes                   | No                |
| Continuous follow-up for 3 months post-operative | Yes          | No                |

Table 2: Comparison of perioperative outcomes between study group and control group

| Parameters                        | Study group (n=2546) | Control group (n=1622) | P   |
|-----------------------------------|----------------------|------------------------|-----|
| Mean pre-operative preparation time | 2.7±1.0              | 1.4±0.6                | 0.0001 |
| Post-operative lung atelectasis   | 81                   | 112                    | 0.0001 |
| Post-operative pneumonia          | 46                   | 39                     | 0.21 |
| Mean length of hospital stay      | 5.6±3.8              | 5.8±3.9                | 0.10 |
| Time to return to work (days)     | 21.2±11.4            | 29.9±14.2              | 0.0001 |
| Incidence of shoulder dysfunction  | 72                   | 74                     | 0.004 |

Impact of pulmonary rehabilitation in patients with chronic lung diseases and post COVID-19

S. Gokulakrishnan, Koushik Muhuraja, T. Dhanasekar, C. Chandrasekar

Department of Respiratory Medicine, Sri Ramachandra Medical College, Chennai, Tamil Nadu, India. E-mail: gokulekarkrishnan@gmail.com

Background: Pulmonary rehabilitation has shown to enhance exercise tolerance, improve symptoms and health related quality of life and reduce exacerbations in patients with chronic lung diseases like chronic obstructive pulmonary disease, interstitial lung disease, bronchiectasis and post COVID-19. Our study was to assess the impact of pulmonary rehabilitation on PEFR and six minute walk in these patients.

Methodology: This is a Prospective study among 40 Patients presented with chronic lung diseases and post COVID-19. After informed written consent, the patients were subjected to rehabilitation procedures such as Diaphragmatic training, Stretching exercises, pursed lip breathing and other Home exercises. Pre-Rehabilitation and post-Rehabilitation variables of Six-minute walk distance an PEFR were compared.

Results: Overall, the Decrease in Heart Rate, Increase in SpO2, Increase in distance walked in 6 -MWT, and the Increase in PEFR, experienced with pre and post pulmonary rehabilitation is statistically significant. The increase in PEFR is significantly lower among the higher age group and females. The increase in Six -minute walk distance is significantly higher when the comorbidities were present.

Conclusion: Pulmonary rehabilitation with Diaphragmatic training, Stretching exercises and Home exercises, can be effectively started on patients with chronic lung diseases like COPD, ILD, bronchiectasis and post COVID-19 especially among the younger age group and patients with comorbidities.

Outcomes of structured physiotherapy protocols for enhanced recovery in chest surgery: A dedicated respiratory-therapist perspective

Deepika Kapoor, Mohan Venkatesh Pulle, Harsh Vardhan Puri, Belal Bin Asaf

Institute of Chest Surgery, Medanta – The Medicity, Gurgaon, Haryana, India. E-mail: kapoordeepika12@gmail.com

Background: Platynea-orthodeoxia is a rare clinical entity. The most common causes are intracardiac and intrapulmonary shunt. If thorough work up do not reveal any of these aetiologies as a probable cause, V/Q mismatch should be considered as a possible aetiology.

Incidence of shoulder dysfunction

Time to return to work (days)

Mean length of hospital stay

Mean pre-operative preparation time

Post-operative lung atelectasis

Post-operative pneumonia

Impact of pulmonary rehabilitation in patients with chronic lung diseases and post COVID-19

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optimization, minimises post-operative complications, early return to normalcy and better post-operative functionality & quality-of-life. Therefore, application of such standardized physiotherapy is strongly recommended in chest surgery.

IGG4 related disease impersonating lung tumor: A case report

B. Niovithini, A. Mahilmaran, D. Nancy Glory
Madras Medical College, Chennai, Tamil Nadu, India. E-mail: nivonibalakrishnan@gmail.com

Background: IGG4 related disease is an immune mediated condition presenting with mass forming lesions, multiorgan involvement that lead to permanent organ injury and death if left untreated. As the cumulative effects of indolent disease or repeated flares can lead to severe organ damage over time, optimal management and continued follow up is crucial.

Case Details: 22 year old female patient, a known case of upper digestive tract igg4 disease for which has undergone esophago gastrectomy with intrathoracic esophagojejunosotomy presented after 2 years with hemoptysis. on evaluation was found to have right lower lobe lung mass. pt was subjected to fibroptic bronchoscopy, image guided biopsy and workup to rule out other organ involvement.

Diagnosis: CT guided biopsy of the lung mass was also suggestive for IGG4 related disease IGG4 positive in 60-70 % of plasma cells. serum igg4 was normal and there was no other organ involvement in the evaluation.as patient was asymptomatic and organ involvement requiring urgent treatment was absent, patient kept under strict follow up.

Conclusion: IGG4 related disease is least reported among this age group and this disease simulating lung tumor is also rarely reported in the literature.irreversible injury and organ damage can occur within weeks or months if effective treatment is not initiated early.hence early diagnosis, management and crucial followup is required to produce remission, reduce flares and to prevent end organ damage.

Clinical experience of chest drain management after thoracic surgery: A nursing perspective

Neha Tiwari, Mohan Venkatesh Pulle, Harsh Vardhan Puri, Belal Bin Asaf, Arvind Kumar
Institute of Chest Surgery, Medanta – The Medicity, Gurguram, Haryana, India. E-mail: swt.nehatiwari@gmail.com

Objectives: This study aims at presenting the essentials of clinical management of chest drains in a dedicated thoracic surgery unit.

Materials and Methods: This is a retrospective analysis of prospectively maintained database at a dedicated thoracic surgery unit, where 523 patients underwent chest surgery and had chest drains. The components under which the chest drains were managed were: 1. Chest tube fixation and connection to drainage system 2. Monitoring of patient 3. Monitoring and management of drainage system 4. Emptying the drainage bottles 5. Management of pain 6. Supervising the negative suction devices 7. Respiratory physiotherapy. All details regarding type of surgery, duration of chest drain and occurrence of any chest drain related complication were recorded and analyzed.

Results: A total of 523 patients underwent chest tube insertion in the year June 2018 - June 2019. Out of which underwater seal drainage in 87 patients (16.6%), where as in 436 patients (83.4%) digital suction was connected. Chest tube related complications occurred in 38 patients (7.2%). Peri-drain leakage (2.16%) and skin excoriation (2.1%) were most commonly noticed. Others were peri-drain air sucking (0.6%), blockage of chest tube due to prolonged kinking (0.8%) & accidental pull out (0.6%).

Conclusion: Comprehensive knowledge about the management chest drains is the key pre-requisite of a skilled by specialty nurse in thoracic surgery.

The zebra in the room

S. V. Naseeha Mohammed, D. S. Harsha, M. Vishnu Sharma, Sambhram Shetty
Department of Respiratory Medicine, A J Institute of Medical Sciences and Research Centre, Mangalore, Karnataka, India. E-mail: naseeha.nm@gmail.com

Introduction: “When you hear hoofbeats, think of horses!”.Meaning,first consider common diagnosis, not a rare one.

Case Study: A 68 year male, smoker and known diabetic presented with productive cough, loss of weight and appetite...
Abstracts

Cavitary lung diseases are commonly diagnosed due to multiple reasons. The study of pulmonary cavity on radiological evaluation were enrolled in the study. Their clinical presentation, radiological features and microbiological findings were assessed to reach a diagnosis.

Results: Out of the eighty cases, Pulmonary Tuberculosis was diagnosed in 25 cases(31.2%), Pneumonia in 20 cases(25%), Squamous cell carcinoma lung in 11 cases(13.8%), Non Tubercular Mycobacterial infection in 6 cases(7.5%), Lung abscess in 5 cases(6.2%), Granulomatosis with polyangiitis in 5 cases(6.2%), Adenocarcinoma lung in 3 cases(3.8%), Septic emboli in 3 cases(3.8%), and Pulmonary candidiasis in 2 cases(2.5%). The most common complaints were cough(95%) followed by hemoptysis(50%). All cases of primary lung carcinoma presented with single thick-walled cavities. Among Pulmonary Tuberculosis cases, most had single cavities(88%), while multiple thin walled cavitary lesions were seen in 65% cases of pneumonia, 66.6% of cases of septic emboli and in 80% cases of Granulomatosis with Polyangiitis. Mycobacterium Tuberculosis(31.7%) and Klebsiella pneumonia(13%) were the most common organisms isolated among the cases.

Conclusion: Proper clinical, radiological and microbiological evaluation is necessary to evaluate the etiology of cavitary lung disease.

Clinical, radiological and microbiological evaluation of cavitary lung diseases

Niyor Hazarika, Basanta Hazarika, Jogesh Sarma

Department of Pulmonary Medicine, Gauhati Medical College and Hospital, Guwahati, Assam, India. E-mail: niyor411@gmail.com

Background: Cavitary lung diseases are commonly encountered in clinical practice and require a careful evaluation to reach an accurate diagnosis. The objectives of our study were to evaluate the clinical, radiological and microbiological profile of cavitary lung diseases.

Methods: Eighty consecutive cases, 57 male and 23 female, who presented with respiratory symptoms and showed Pulmonary cavity on radiological evaluation were enrolled in the study. Their clinical presentation, radiological features and microbiological findings were assessed to reach a diagnosis.

Results: Out of the eighty cases, Pulmonary Tuberculosis was diagnosed in 25 cases(31.2%), Pneumonia in 20 cases(25%), Squamous cell carcinoma lung in 11 cases(13.8%), Non Tubercular Mycobacterial infection in 6 cases(7.5%), Lung abscess in 5 cases(6.2%), Granulomatosis with polyangiitis in 5 cases(6.2%), Adenocarcinoma lung in 3 cases(3.8%), Septic emboli in 3 cases(3.8%), and Pulmonary candidiasis in 2 cases(2.5%). The most common complaints were cough(95%) followed by hemoptysis(50%). All cases of primary lung carcinoma presented with single thick-walled cavities. Among Pulmonary Tuberculosis cases, most had single cavities(88%), while multiple thin walled cavitary lesions were seen in 65% cases of pneumonia, 66.6% of cases of septic emboli and in 80% cases of Granulomatosis with Polyangiitis. Mycobacterium Tuberculosis(31.7%) and Klebsiella pneumonia(13%) were the most common organisms isolated among the cases.

Conclusion: Proper clinical, radiological and microbiological evaluation is necessary to evaluate the etiology of cavitary lung disease.

Clinical profile of sarcoidosis patients in south indian population: A tertiary healthcare centre study

S. Arun Pandiyan, Irfan Ismail Ayub, C. Chandrasekar, T. Dhanasekar

Department of Respiratory Medicine, SRIHER, Chennai, Tamil Nadu, India. E-mail: arunpandian666@gmail.com

Background: Sarcoidosis is a systemic inflammatory disorder of unknown aetiology with a reduced quality of life. In India, sarcoidosis still remains as an under-diagnosed disease due to multiple reasons. The study of profile of the sarcoidosis patients will help in assessing not only the prevalence but also the spectrum of the disease, organs involved and other characteristics.

Objectives: To investigate the clinical and radiological profile of sarcoid patients in a tertiary healthcare centre.

Methods: This is a Retrospective And Prospective Observational Study among 52 Patients attending the Department of Respiratory Medicine, SRIHER, Chennai. Clinical data, Laboratory Data including base line investigations, serology, biopsy specimen - Histopathology report, radiological features were all analysed.

Results: Majority of the patients were 16 (30.77%) were in the middle age group, with female predominance 30 (57.69%). Dry cough was the common presenting complaint 23 (32.86%). Around 8 (15.38%) had previous History of Anti Tuberculous Treatment. The most common extra pulmonary manifestations was cutaneous manifestations 36 (69.23%). In Chest X ray, 36 (69.23%) had Stage 0 and 9 (17.31%) had Stage 1 and correspondingly in CT Thorax, 30 (57.69%) had Stage 2 followed by 18 (34.62%) had Stage 1. Mode of Diagnosis among 29 (55.77%) was by EBUS-TBNA followed by 5 (9.62%) had Skin Biopsy.

Conclusion: Sarcoidosis is common among females predominantly in the middle age group. Cough is the common presenting symptom. The most common extra pulmonary manifestations was cutaneous manifestations. EBUS-TBNA and Skin Biopsy were useful diagnostic tools. The awareness of the profile of these patients will help in better diagnosis and treatment of these patients.

A rare case of bronchiectasis

P. Gokulakannan, Gunjan Soni, Manak Gujrani, R. Saugat

E-mail: gokulpalanisamy04@gmail.com

Background: Kartagener’s syndrome is a subset of primary ciliary dyskinesia, an autosomal recessive inherited
disorder characterized by the clinical triad of chronic sinusitis, bronchiectasis, and situs inversus. Abnormal ciliary structure or function leading to impaired ciliary motility is the main pathology in Kartagener syndrome.

**Case Study:** A 34-year-old male presented with complaints of recurrent episodes of nasal congestion and productive cough since childhood with the two episodes of blood-stained sputum 20 days back, he also had history of infertility. On chest percussion cardiac dullness noted on right precordial region, on auscultation heart sounds heard over the right side, crepitation and rhonchi heard over left inter and infra scapular region and right inter scapular region. Chest x-ray, CT chest, paranasal sinus and abdomen reveals bronchiectasis, dextro cardia, sinusitis, and situs inversus respectively. semen analysis reveals non motile sperm. He was treated with antibiotics, mucolytics, chest physiotherapy and advised for follow up.

**Discussion:** Kartagener’s syndrome is a rare disorder with the prevalence of one in 30,000 live birth. Normal ciliary function is critical for respiratory tract host defense, sperm motility, and normal visceral orientation during embryogenesis. Abnormal ciliary motility leads to chronic sinopulmonary disease, infertility, and situs inversus totalis. A long-term low-dose prophylactic antibiotic required. Influenza and pneumococcal vaccine should be given.

**Conclusion:** Correct diagnosis of this disorder in early life is important to prevent complications and improve quality of life. Failure to recognize the condition may subject the patient to unnecessary and repeated hospital admissions, investigations and inappropriate treatment.

**Utility of point of care ultrasound using blue protocol in patients presenting to emergency department with dyspnea**

**Malavika S. Kurup, A. K. Abdul Khader, Abdul Samad, K. N. Mohammed Fabin**

KMCT Medical College, Kozhikode, Kerala, India. E-mail: kurupmalavika29@gmail.com

**Introduction:** Dyspnea is unpleasant undue awareness of one’s own breathing. Etiology of dyspnea is diverse, making diagnosis a dilemma. BLUE protocol describes lung profile for main etiologies of dyspnea with more than 90% accuracy, and also reduces radiation doses.

**Objectives and Methods:** A prospective observational study comprising of 66 consecutive patients presenting to Emergency Department (ED) with dyspnea over a period of one year. Objective was to evaluate accuracy, sensitivity and specificity of BLUE protocol in initial diagnosis of patients with dyspnea in ED. After managing patients as per standard protocol, BLUE protocol was done as a part of primary assessment. Results of BLUE protocol were compared with final diagnosis and analyzed using SPSS software.

**Results:** Among the study population, 63.6% were males and 36.4% were females. Mean age was 65.50 ± 9.32 and 66.95 ± 13.53 among males and females respectively. Most common lung profile was B (63.6%). Provisional diagnosis was made as pulmonary edema in 63.6%, COPD/Asthma in 19.7%, pneumonia in 9.1%, pneumothorax in 4.5%, pulmonary embolism in 3.0%. Final diagnosis was pulmonary edema (56.1%), COPD/asthma (15.2%), pneumonia (12.1%), pulmonary embolism (4.5%), ARDS (4.5%), pneumothorax (3.0%), LRTI (3.0%) and hemothorax (1.5%). Sensitivity and specificity for acute pulmonary edema, pulmonary embolism, COPD/asthma, pneumonia, pneumothorax were 92.5 and 93.9, 88.1 and 85.3, 87.5 and 89.3, 92.5 and 90.4, 90.5 and 89.9 respectively.

**Conclusion:** Study showed an accuracy of 96% in initial diagnosis of patients with dyspnea in ED. POCUS is cheap, radiation free and rapidly detects life threatening causes of dyspnea.

**Knowledge, attitude and practice about airborne infection control guidelines among medical residents of tertiary care hospital in Jabalpur**

M. Heyma Krishna1, Jitendra Kishore Bhargava2, Brahma Prakash3, Harshit1

1School of Excellence In Pulmonary Medicine, NSCB MC, Jabalpur, Madhya Pradesh, India, 2Department of Respiratory Medicine, NSCB MC Jabalpur, Madhya Pradesh, India, 3Department of Respiratory Medicine, School of Excellence in Pulmonary Medicine, NSCB MC, Jabalpur, Madhya Pradesh, India. E-mail: heymakrishna1993@gmail.com

**Background:** Adherence to National Airborne Infection Control Guidelines by health Care professionals is an effective way of reducing the risk of air-borne infections such as H1N1, COVID19 and TB. This study aims to assess the knowledge, attitude and implementation of national airborne infection control guidelines by resident doctors in a tertiary medical college hospital at Jabalpur.

**Methods:** A cross-sectional study was conducted from December 2019-February 2021. Total 301 Interns, postgraduates and senior residents in surgery and medicine aligned clinical departments were included by convenient sampling method. Pre- designed questionnaire was used to assess Knowledge, Attitude and Practice on National Air-borne infection control guidelines. Data was analysis by using SPSS and presented in Percentages, Mean (Standard Deviation). Chi-Square test was used to find the association and t-test was used to find the mean difference between KAP and Resource scores. p-value of less than 0.05 was considered as statistically significant.

**Results:** Almost 95%, 77% and 74% of study participants were having adequate knowledge, attitude and practice on National Airborne Infection Control Guidelines respectively. Statistically significant association was observed between participants age, designation with their KAP score (p value<0.05).

**Conclusions:** The overall knowledge, attitude and practice were adequate but there was significant gap persist between KAP and satisfaction on available resources. The study findings were useful for healthcare professional in designing interventions to improve the adherence towards the NAIC guidelines and also to benchmark evaluation of interventions.

**A case report of granulomatosis with polyangiitis in a middle aged women**
Abstracts

Chandan Choudhary, Manak Gujrani, Gunjan Soni, Rajendra Saugat
E-mail: chandanindian85@gmail.com

Background: Wegener’s granulomatosis (Granulomatosis with polyangiitis) is a rare systemic autoimmune disease of unknown etiology characterised by triad of necrotising granulomatous inflammation of upper and lower respiratory tract, glomerulonephritis, and disseminated vasculitis.

Case Study: A 50 year old female presented with complaints of running nose since last 8 months. Patient also had low grade fever, generalised body pain, productive cough, shortness of breath on exertion, pedal oedema for last 2 months. She had an 2-3 episodes of blood in sputum 15 days back. On examination saddle nose found. HRCT chest shows multiple cavitating nodules with consolidation. Lab findings shows raised ESR, CRP, COVID RT PCR negative and positive C-ANCA (Anti neutrophilic cytoplasmic antibody), red blood cell casts, and albumin present in urine. Sputum for AFB negative. Patient discharged on corticosteroids and cyclophosphamide and advised for regular follow up.

Discussion: Wegener’s granulomatosis is an antineutrophilic cytoplasmic antibody associated small vessel vasculitis. Prevalence of this disease varies from 3/1,00,000 to 16/1,00,000. Typically this involve the lungs and kidneys. It can be of generalised severe form or localised limited form. Our patient clinical course, CT findings and his strongly positive C-ANCA were considered diagnostic of wegener’s granulomatosis. Treatment include corticosteroids and immunosuppressants.

Conclusion: The early diagnosis and prompt treatment of multisystem disorder is necessary to prevent complication such as diffuse alveolar haemorrhage CT is the imaging modality of choice for diagnosis, surveillance and follow up in patients with wegener’s granulomatosis.

Antineutrophil cytoplasmic antibody associated vasculitis manifesting as lung mass with effusion

Vatsal Bhushan Gupta, Deependra Kumar Rai, Priya Sharma, H. Ameet

Department of Pulmonary Medicine, AIIMS, Patna, Bihar, India. E-mail: vatsalgupta.gkp@gmail.com

Background: ANCA associated vasculitis can involve any organ of the body but upper and lower respiratory tracts and kidneys are most commonly affected. Most patients present with nodules and alveolar opacities on radiology. We present a case of ANCA associated vasculitis presenting as lung mass with pleural effusion.

Case Study: A 58 years female, never smoker, asthmatic from 30 years, presented with complaints of gradually progressive dyspnoea for one month associated with cough, fever and loss of appetite for 2 weeks. Radiology of neck, thorax and abdomen revealed malignant appearing right lower lobe mass and minimal right pleural effusion. Pleural aspiration revealed exudative lymphocytic effusion with ADA of 5.3. ANA screening and profile was negative. Bilateral bronchial tree was normal on fibreoptic bronchoscopy and BAL was negative for infective aetiology. CT guided biopsy of lung mass revealed alveolar haemorrhage and intra alveolar oedema with alveoli showing hyaline membrane formation. Interstitial stroma showed thin capillaries surrounded and infiltrated by inflammatory cells. Thorascopic pleural biopsy revealed inflammatory lesions with secondary vasculitis. A diagnosis of small vessel vasculitis was made. Antineutrophil cytoplasmic antibody (ANCA) titre gave a strongly positive result. Urinary microalbumin-creatinine Ratio was 436.16. Patient was diagnosed as granulomatosis with polyangiitis and treated with corticosteroids and 4 cycles of weekly Rituximab therapy to which she responded.

Discussion: Patients with vasculitis present with nonspecific symptoms and are treated as infections or malignancies leading to delayed diagnosis. Positive ANCA along with lung and pleural biopsy can enable early diagnosis.

Conclusion: ANCA associated vasculitis can manifest as lung mass with effusion.

An unusual case report of pulmonary arteriovenous fistula

K. R. Gouthami, A. Mahilmaran, A. Sundararaja Perumal, Nancy Glory, Allwyn Vijay

Institute of Thoracic Medicine, Madras Medical College, Chennai Tamil Nadu, India. E-mail: gouthami.kr@gmail.com

Background: Pulmonary arteriovenous fistulas(PAVFs) are rare vascular malformations of the lung. They occur with an incidence of 2-3 per 100,000 population. Females are more often affected than males.

Case Study: Incidentally, it was noted that this 43 years old women had a hypoxemia with a partial pressure of oxygen, arterial(\(\text{PaO}_2\)) of 40.9mmHg.She was subjected for chest radiography, having left parahilar well defined opacity. The patient's medical history included dyspnea on exertion. On physical examination there was a clubbing. The blood gas analysis yielded, along with a regular acid base status, a normal partial pressure of carbon-di-oxide, arterial(\(\text{PaCO}_2\)) but \(\text{PaO}_2\)=40.9mmHg at room air. Under a fraction of inspired oxygen (\(\text{FiO}_2\)) of 1.0 for 15min the \(\text{PaO}_2\) increased only to 57mmHg. Laboratory test results were normal except for an increased hemoglobin of 16.7 g/dL. CT Pulmonary Angiogram identified left sided angular PAVF (feeding artery measuring 12mm, Venous sac measures 25mmX20mm). She underwent therapeutic embolization of PAVFs using metal coils.

Discussion: PAVFs are vascular malformations that represent direct communications between the pulmonary artery and vein without an intervening capillary bed. Among reported cases 80% are congenital. There is a strong association with Rendu-Osler-Weber disease. Those lesions are thought to represent persistent primitive arteriovenous communications from pulmonary buds that fail to mature into capillary beds and thereby function as persistent right-to-left shunts. Although most patients are asymptomatic, PAVFs can cause fatigueability, exertional dyspnea, and palpitations. Therapeutic options include angiographic embolization with metal coils or balloon occlusion and surgical excision.

Conclusion: Long term follow-up of treated PAVFs is mandatory to monitor the development of new lesions and recurrence of previously treated ones.
A rare case of left lower lobe consolidation with multiple septic emboli diagnosed as Wegener’s granulomatosis

V. S. Rekha, B. S. Jayaraj, P. A. Mahesh
Department of Respiratory Medicine, JSS Medical College, Mysore, Karnataka, India. E-mail: rekha.seety23@gmail.com

Background: Wegener’s Granulomatosis is a rare disorder of chronic granulomatous vasculitis involving small and medium sized vessels with circulating anti-neutrophil cytoplasmic antibodies against proteinase-3 and myeloperoxidase. It involves upper and lower airway and glomerulonephritis. Pulmonary findings include waxing and waning nodules, ground glass opacities and masses.

Case Study: A 37-year-old female, presented with complaints of dry cough since 1 month. Clinical findings revealed reduced breath sounds in left infra-scapular area, dullness on percussion and increased vocal fremitus with occasional crepitations.

Discussion: Investigations showed elevated WBC counts, chest x-ray showed left lower lobe consolidation. She was started on empirical antibiotics. HRCT thorax showed large consolidation in left lower lobe with central cavitation; multiple soft tissue nodules with cavitation and adjacent feeding vessel sign suggestive of septic emboli. Patient did not respond to antibiotic therapy and persisting consolidation was noted radiologically. Repeat urine analysis showed microscopic hematuria. Further investigations revealed positive C-ANCA and tissue biopsy from the consolidation showed features of granulomatosis with polyangitis suggestive of Wegener’s granulomatosis. She was initiated on steroid therapy and discharged.

Conclusion: Any pneumonia, non-resolving with adequate antibiotic therapy, should be evaluated for non-infectious causes, relevant timely investigations must be done, to prevent- misdiagnosis, worsening of conditions leading to life threatening complications if not initiated on treatment at the right time.

Birt-Hogg-Dubé syndrome associated with Secondary pneumothorax and pulmonary cysts: A rare case report

Tarun Tiwari, Ramakant Dixit, Jose K. Jimmy, Srishankar
E-mail: dtraruntiwariofficial@gmail.com

Introduction: In 1977 Birt, Hogg and Dubé described Birt-Hogg-Dubé syndrome (BHD) as an dermatological syndrome. It is an autosomal dominant inherited disease, the gene responsible for the syndrome was cloned in 2002. Only 663 affected families have been reported in literature. To date, 152 unique pathogenic FLCN gene mutations in 616 families have been reported in worldwide; approximately 90% of these mutations were reported in Europe and the United States. It consists of the typical triad - skin lesions, pulmonary cysts, and renal tumors. This syndrome usually goes underdiagnosed since all these different clinical features treated by different specialities.

This leads to long delay in making the correct diagnosis from the first onset of the symptoms. There are many studies which have shown that the prevalence spontaneous pneumothorax, bullous emphysema, thin-walled cysts are increased in these patients.

Case report: A 39-year-old male presented with complaints of mild fever for 5 days duration and shortness of breath for 1 day. Fever was continuous in nature, not associated with chills and rigor. He denied history of diabetes mellitus, hypertension, tuberculosis, bronchial asthma. He was evaluated for covid 19. RT PCR for covid 19 came positive. HRCT chest was done. HRCT showed bilateral peripheral and peribronchovascular non lobar distribution of ground glass opacities with septal thickening in bilateral lung parenchyma. The CT severity score was 14/25. HRCT also showed multiple thin walled cyst in both lungs, largest measuring 22 X 27 mm. Few subcentimetric pre/paratracheal , prevascular and sub carinal lymph nodes was noted. His oxygen saturation was 89% on room air. He was admitted and started on oxygen inhalation via face mask and was managed medically. Relevant blood investigation and bio markers for COVID 19 were done. Reports were total count 3570, differential count N51L35M11E806.6, Hb 15.4 G/dl, platelet count of 2.14 lakhs/mm³, ESR 16 mm/hr, d dimer 0.77 mg/L, LDH 203 U/L, CRP 21.77 mg/L, procalcitonin 0.122 ng/mL. 3 days later dyspnea aggravated and he was started on non invasive ventilation (BiPAP). His clinical condition was stable on NIV. On the fifth day of NIV, he started developing subcutaneous surgical emphysema. HRCT chest was done, showed gross left and mild right pneumothorax, moderate pneumomediastinum, multiple focal patchy and confluent ill defined areas of ground glass and reticulal densities predominant in basal and peripheral distribution involving bilateral lung parenchyma, diffuse subcutaneous emphysema extending into neck spaces. CT severity had increased to 17/25. He was managed by Intercostal chest tube insertion on left 5th intercostal space in mid axillary line connected to a underwater seal. He improved clinically with subcutaneous emphysema resolving in the next 3 days. He was later discharged and his chest tube was removed on followup. We conclude that Birt-Hogg-Dubé syndrome can be a rare cause of secondary pneumothorax in a patient with multiple skin follicles and having multiple cyst in HRCT.

Double edged sword- rare case of massive hemoptysis in double positive anti basement membrane disease

Shalini Lobiyal, J. K. Mishra, Mohit Bhatia
Department of TB and Respiratory Diseases, Institute of Medical Sciences, BHU, Varanasi, Uttar Pradesh, India. E-mail: lobiyalshalini0@gmail.com

Background: Double-positive patients (DPP) exhibiting anti-glomerular basement membrane (GBM) and anti-neutrophil cytoplasmic antibodies (ANCAs) belong to an entity that is rare and hasn't been described enough. Majority of DPP exhibited pulmonary involvement, and more than half of them presented with pulmonary-renal syndrome, similar to anti-GBM vasculitis patients

Case Study: 55 yr male, chronic smoker, occasional
alcoholic, with no previous history of ATT intake presented with cough, dyspnea, and hemoptysis for 10 days. Hemoptysis was massive in amount, 80-100 ml/episode with 3-4 episode/day. Routine investigations revealed anaemia and deranged renal function. CXR suggested bilateral diffuse consolidation. CECT THORAX showed cavitatory changes in bilateral lung fields with crenated appearance suggestive of granulomatosis polyangitis with diffuse alveolar hemorrhage. Further investigation revealed both p-anca and Anti-GBM positive antibodies. Renal biopsy suggested focal necrotizing and crescentic glomerulonephritis. Patient was treated with antifibrinolytics, pulse dose corticosteroids, prbc was transfused and hemodialysis followed by plasmapheresis. Discussion: A double positive panca and Anti-GBM is rare presentation with low incidence, manifesting with both pulmonary and renal involvement with poor prognosis eventually succumbing to renal failure. Conclusion: Pulmonary involvement may precede renal involvement in case of rapidly progressive glomerulonephritis. DPP are associated with the characteristics of two eponymous vasculitis types, responsible for poor prognosis. Simultaneous testing of both antibodies and systematic renal biopsy should be recommended for early diagnosis and management.

Adenocarcinoma (NOS) with neuroendocrine differentiation- Primary anterior mediastinal tumor in a 48-year-old male

P. Spurthy, Alamelu Haran, S. Mamatha, B. S. Praveen

Department of Respiratory Medicine, Vydehi Institute of Medical Sciences and Research Centre, Bengaluru, Karnataka, India. E-mail: spurthypadmanabha@gmail.com

Background: Of the many types of tumors located in the mediastinal compartments, most are metastatic. Maximum number of patients present in the 3rd decade. Malignant lesions are more common than benign and majority are symptomatic. On Computed tomography (CT) imaging, anterior mediastinum is the commonest compartment involved and the most common adult tumor in the anterior compartment is thymoma. Objective: Here is a rare case of anterior mediastinal tumor- Adenocarcinoma(NOS) with neuroendocrine differentiation in a 48-year-old male patient. Methods & Results: The patient who was a painter by occupation with a smoking index of 400 and no known co-morbidities presented with a history of predominant dry cough of 1 month duration and a CT report of anterior mediastinal mass. Definitive diagnosis was made by histopathological examination and immunohistochemistry of CT guided biopsy of mediastinal mass. PET CT did not reveal any other metabolically active lesions. Conclusion: Patients with mediastinal tumors may be asymptomatic (30%) at presentation which may cause delay in diagnosis. 70% of patients develop local symptoms such as dry cough and breathlessness explained by compression or invasion of mediastinal structures. Primary mediastinal adenocarcinoma is a rare malignancy that can arise from normal or ectopic tissue in the mediastinum, furthermore neuroendocrine differentiation of adenocarcinoma is rare and the evidence of such differentiation in literature is limited to genital and colorectal cancers. Thereby, this case is the first primary mediastinal tumour-Adenocarcinoma(NOS) with neuroendocrine differentiation as per our literature review.

A rare case report of hydatid cyst with hemoptysis as complication

D. Shravani, A. Ayyappa, K. Venkataramana

Department of Respiratory Medicine, Andhra Medical College, Visakhapatnam, Andhra Pradesh, India. E-mail: shravani.963@gmail.com

Introduction: Hydatid disease is a parasite infestation caused by echinococcus granulosus characterised by cystic lesions in liver and other parts of body. Most patients with intact pulmonary hydatid cyst are asymptomatic and are discovered incidentally. Case Report: A 32 year old female presented to our OPD with complaints of massive hemoptysis since 2 days, cough with expectoration and breathlessness since 15 days. Present no past history of tuberculosis. On examination showed decreased intensity of breath sounds in right lower inter scapular area and right infra scapular area. CXR showed opacity in right lower lobe. HRCT thorax showed thick walled non enhancing cavitating lesion with crenated appearance, intralesional lamellations at right middle and lower lobes. Due to ongoing and uncontrolled hemoptysis (no bleeding disorders) surgery was planned. Right middle and lower lobectomy was done and the specimen was confirmed to be hydatid cyst. Conclusion: Massive hemoptysis is a rare but life threatening complication of pulmonary hydatid disease that needs emergency management. Along with other complications hemoptysis should also be considered.

A rare case of systemic sclerosis in male presenting with pneumothorax

Dipak Patil, Yash Kedia, Sruthi Vijayan, N. T. Awad

Department of Respiratory Medicine, Lokmanya Tilak Municipal Medical College and Government Hospital, Mumbai, Maharashtra, India. E-mail: patildipak9521@gmail.com

Systemic sclerosis is a systemic autoimmune disease of unknown origin characterized by excessive deposition of collagen and other connective tissue macromolecules in skin and multiple internal organs, prominent and often severe fibroproliferative alterations in the microvasculature, and numerous humoral and cellular immunologic abnormalities. It is predominant in females with 3:6:1 female to male ratio. Limited cutaneous systemic sclerosis (CREST syndrome; calcinosis, Raynaud phenomenon, oesophageal dysmotility, sclerodactyly,
and telangiectasias). Antinuclear antibodies are present in about 90%-95% of affected patients usually with a speckled or centromere pattern, nucleolar pattern is rare but more specific for systemic sclerosis. Scl-70 antibodies are present in 30% of diffuse systemic sclerosis and absent in limited. In 45%-50% of limited scleroderma patients have anticientromere antibodies. Here we present 29yrs old male who was presented with chest pain and chest x-ray is suggestive of pneumothorax. Patient was also started on antitubercular treatment on the basis of CT (computed tomography) chest, history and contact of Tuberculosis. Patient also had history of skin tightening, decreased mouth opening, discoloration of skin, dysphagia, digital ulceration. CT chest is suggestive of Interstitial lung disease (ILD) with Usual Interstitial Pneumonia pattern. On further investigation Scl-70 came strongly positive with SS-A positive lead to diagnosis of systemic sclerosis. ICD (Intercostal Drainage) tube was inserted for pneumothorax and pleurodesis was done after expansion of lung. Patient had 3 episodes of pneumothorax. Pulse cyclophosphamide therapy was started. As there is no cure for scleroderma a variety of treatment can improve quality of life.

**Chemical pneumonitis and subsequent reactive airway dysfunction syndrome after exposure to chlorine gas**

**Bhumika Madhav, T. K. Jayalakshmi, Gokul Bhate, Dhanaji Revande**

*Department of Pulmonary Medicine, Apollo Hospitals Navi Mumbai, Maharashtra, India. E-mail: bhumikamadhav@yahoo.com*

**Background:** Chlorine is highly used chemical in industry and society. Human exposures to toxic levels of chlorine are accidental data regarding these exposures is often not available.

**Case Report:** 22 year old male, no prior comorbidities presented to hospital with acute onset dry cough and mMRC grade 3 breathlessness following exposure to fumes of sodium hypochlorite and hydrochloric acid while working in factory. On arrival he was tachypneic and hypoxic. Initial investigations reported leukocytosis. Chest skigram showed mild patchy haziness in bilateral lung fields. HRCT Chest showed ground glass opacities with interlobar septal thickening in both upper, right middle lobe and lower lobes. Multiple nodular opacities and consolidation in both upper and lower lobes posteriorly suggesting acute lung injury. He was treated with injectable steroids, antibiotics, nebulization and supportive treatment. Initially admitted in intensive care unit, requiring oxygen support which was tapered off. Patient condition improved he was shifted to ward. PFT reported mild restriction with no reversibility. DLCO showed mildly reduced DLCO.6 MWT no significant desaturation. Patient discharged in a hemodynamically stable condition.

**Discussion:** Sodium Hypochlorite used as general disinfectant and bleaching agent. Industrial bleaches may contain up to 50%. Accidental inhalation of gases formed by mixing of sodium hypochlorite with acidic or alkaline solution is most frequent route of exposure producing chlorine gas which can cause burning of throat, affecting mucous membrane of eyes, pharynx and respiratory tract.

**Conclusion:** Unusual case of acute chlorine gas exposure with subsequent reactive reactive airway dysfunction syndrome treated with injectable steroids and inhaled bronchodilators.

**Willingness and needs of pulmonary rehabilitation among people living with chronic respiratory diseases in Pune**

**Shruti D. Sahasrabudhe1, Dipali Dhamdhere1, Suryakant Borade1, Meenakshi Bhakare1, Mahavir Modi2, Rashmi Padhye1, Mark W Orme4,5, Ilaria Pina4,5, Sundeep S, Salvi1, Sally J. Singh4,5**

1Clinical Research Department, Symbiosis University Hospitals and Research Centre, Symbiosis Medical College for Women, Symbiosis (Deemed University), Lavale, Pune, Maharashtra, India, 2Department of Respiratory Medicine, Symbiosis Medical College for Women, Symbiosis (Deemed University), Lavale, Pune, Maharashtra, India, 3Department of Pulmonology, Ruby Hall Clinic, Pune, Maharashtra, India, 4Department of Respiratory Diseases Sciences, University of Leicester, Leicester, UK, 5Centre for Exercise and Rehabilitation Science, NIHR Leicester Biomedical Research Centre Respiratory, University Hospitals of Leicester NHS Trust, Leicester, UK. E-mail: shrutids31@gmail.com

**Background:** Pulmonary rehabilitation (PR) is an effective non-pharmacological management strategy for chronic respiratory diseases (CRDs). Considering India’s huge burden of ~100 million cases of CRDs, there is a necessity for robust PR services. However, the needs remain unmet due to lack of knowledge among stakeholders and unavailability of need-based PR programs.

**Objectives, Methods:** To explore the willingness and general interest in interventions for relieving symptoms and preferred mode of PR delivery, we conducted a cross-sectional survey among 345 CRD patients (59% male; mean (SD) age 56±16 years).

**Results:** Participants with Asthma (n=175; 50%), Chronic Obstructive Pulmonary Disease (COPD) (n=154; 45%) and others (n=16; 5%) in the out-patients respiratory medicine departments in Pune, India were included. 72%(n=248) participants reported inability to be as active as they would like. Where most patients (n=297; 87%) were keen on participating in a treatment indicative of PR that can help them relieve breathlessness and be more active; of which, 175 were willing to spend around 30-60 minutes/day for the referred treatment. They preferred remotely delivered modes of this treatment which included exercising at home with minimal monitoring from healthcare providers (n=218) as well as attending a web based PR programme (n=249).

**Conclusion:** Majority of the patients are willing to participate in PR, on being aware of a treatment that would
Rare case of cystic schwannoma presenting as right upper lobe lung cyst

Renu Sri Sura, Prem Kumar Allena, B. Madhusudhana Patrudu, Praveena

Department of Respiratory Medicine, Andhra Medical College, Visakhapatnam, Andhra Pradesh, India. E-mail: 127renu@gmail.com

Background: Schwannoma are benign tumors arising from Schwann cells of nerve root sheaths. Schwannomas are mostly solid / heterogeneous solid tumors, rarely cystic. Presentation of cystic schwannoma in the thorax is extremely rare.

Case Study: A 62-year-old female came to our hospital with the complaint of right sided chest pain for 2 months, which is dull, non-radiating. She had history of fever for 4 months back, diagnosed to have covid and took treatment at home. Chest x-ray showed a homogenous opacity in the right upper lobe extending up to 1st intercostal space. CT reported well-defined thick-walled cyst, hypodense with central low attenuation, forming acute angles with lung parenchyma in apical segments of right upper lobe towards mediastinum. Mild perilesional atelectasis is seen. On contrast, cyst is non enhancing. Patient is evaluated for the possibilities of Foregut duplication cyst, Hydatid cyst, Neoplasm. Endoscopic ultrasonography revealed a 5cm×5cm cyst, which is not communicating, infiltrating to esophagus. Patient was referred to cvts where excision of cyst is done by right thoracotomy . A 6cm×6cm×2cm unilocular cyst with wall thickness ranging from 0.1-0.4cms. Its outer surface is congested, inner surface showed dark-brown hemorrhagic contents. Histopathological examination revealed cystic schwannoma.

Discussion: Schwannomas are mostly benign in nature. Treatment includes excision of Bronchogenic cyst, Brachial cyst, neurogenic tumours, apical lung tumour, hydatid cyst, foregut duplication cyst are to be considered as differential diagnosis. It is important to consider cystic schwannomas in the differential diagnosis of thoracic cysts since the best surgical outcome is strongly related to earlier diagnosis and total resection of the lesion.

Pulmonary alveolar proteinosis: A case report

G. Lavanya, V. Nookaraju, Y. Gayathri Devi, B. Padmaja

Department of Pulmonary medicine, Andhra Medical College, Visakhapatnam, Andhra Pradesh, India. E-mail: lavanya0023@gmail.com

Background: Pulmonary alveolar proteinosis (PAP) is a rare, diffuse interstitial lung disease characterized by alveolar obstruction due to accumulation of PAS positive lipoproteinaceous material in the alveoli due to defective clearance of surfactant by alveolar macrophages. The resultant disturbance leads to clinical manifestations ranging from asymptomatic disease to life threatening respiratory failure.

Case Study: A 48 year old male with progressively worsening dyspnoea and non productive cough for 8 months. He was an auto driver and painter and had prior recurrent respiratory infections. Physical examination revealed clubbing and bilateral fine basal crackles. Chest computed tomography showed diffuse crazy paving pattern. Bronchoscopy with bronchoalveolar lavage yielded a foamy whitish material. Cytology revealed alveolar macrophages with PAS positive acellular proteinaceous eosinophilic material. Transbronchial biopsy confirmed the diagnosis of PAP. Patient does not meet the criteria for whole lung lavage, so treated conservatively. He is symptomatically better and is on regular follow up.

Discussion: Patients with minimal symptoms are managed conservatively, where as patients with hypoxemia require a more aggressive approach. Whole lung lavage is the most widely accepted therapy for symptomatic pulmonary alveolar proteinosis.

Conclusion: Generally Pulmonary alveolar proteinosis present with progressive exertional dyspnea of insidious onset but rarely it can present like ARDS and respiratory failure. It is a rare lung disease and important to consider due to the diagnostic and therapeutic challenge it represents and should be considered as a rare differential while managing the patient with ARDS.

What are the influencing factors for referral of patients to pulmonary rehabilitation services according to the medical staff?

Shruti Sahsrabudhe1, Dipali Dhamhere1, Suryakant Borade1, Meenakshi Bhakare2, Rashmi Padhye1, Mark Orme1,2, Ilaria Pina2,3, Sundeep Salvi1, Sally Singh1,2

1Clinical Research Department, Symbiosis Medical College for Women, Symbiosis University Hospitals and Research Centre, Symbiosis (Deemed University), Lavale, Pune, Maharashtra, India,
2Department of Respiratory Medicine, Symbiosis Medical College for Women, Symbiosis University Hospitals and Research Centre, Symbiosis (Deemed University), Lavale, Pune, Maharashtra, India,
3Department of Respiratory Diseases Sciences, University of Leicester, Leicester, UK

Background: Pulmonary rehabilitation (PR) is an effective and comprehensive management strategy for Chronic Respiratory Diseases (CRDs). However, in India, PR services are largely underutilized and under referred to by medical staff (MS).

Methods: We conducted a cross-sectional survey study among 146 medical staff (including physicians, specialist doctors and physiotherapists) that are involved in the care of patients living with CRDs.

Objectives: The survey aimed to explore the
perceptions of the MS regarding the PR referral process and criteria.

**Results:** The mean (SD) work experience of the MS was 11.9 ± 9 years. Most participants (81%) believed that PR is an effective strategy in management of CRDs. On a 0 (Not at all)-10 (completely) Likert scale, only 19% of MS believed that they understood the referral criteria completely. They reported factors like increasing shortness of breath (n=95, 65%) as strong influencers for them to refer patients. However, only 28% (n=41) perceived patient anxiety as an important factor for referral to PR. 38% participants and 68% participants respectively reported some influence and strong influence of patient refusal on their willingness to refer them to PR; attributable to lack of transportation and PR services nearby. The majority of participants (85%) felt the need for training of their MS in referring to PR. 

**Conclusion:** According to the MS, very few were completely aware of the referral criteria for PR. Patient-centric factors and their potential refusal is perceived as important barriers for referral to PR that must be addressed before routine PR services can be established.

**Erdheim Chester disease presenting as lung mass: A very rare presentation**

**Aviraj Sarma, Basanta Hazarika**

Department of Pulmonary Medicine, Gauhati Medical College and Hospital, Guwahati, Assam, India. E-mail: dravirajasarma@gmail.com

**Background:** Erdheim–Chester disease (ECD) is an uncommon aggressive, multisystem form of non-Langerhans’ cell histiocytosis rarely involving the lung. The disease pathological features encompass an aberrant multiplication, overproduction and accumulation of histiocytes within multiple tissues and organs. Herein, we present a case of ECD presenting as pulmonary mass lesion.

**Case Study:** Our case was encountered in a 28 year old male who was suffering from cough for 1.5 years along with chest pain, shortness of breath and fever. CECT thorax showed large lobulated heterogeneously enhancing soft tissue mass in the left upper lobe with invasion of anterolateral chest wall and destruction of 2nd and 3rd ribs. CT guided tru-cut biopsy showed fragments of tumour which were predominantly spindle shaped and arranged in sheets. IHC showed lesional cells positive for CD68 while CK, CD30, CD1a, S100 and Fascin were negative which was suggestive of ECD.

**Discussion:** ECD was originally described in 1930. Foamy histiocytes and monoclonal cells infiltrate affected tissues. The histiocytes may stain for S100 but not for CD1a. Pulmonary ECD typically presents with dyspnoea and sometimes a dry cough. In our case, a 28 year old male presented with left lung mass which was diagnosed as ECD and was started on cyclophosphamide pulse therapy along with oral prednisolone.

**Conclusion:** ECD presenting as a lung mass lesion is very rare. Clinical examination, radiological investigations followed by lung biopsy and immunohistochemistry examination are essential for the diagnosis.

**Perceptions of patients with chronic respiratory diseases on self-management strategies: An exploratory qualitative study in Pune, India**

Rashmi Padhye1, Shruti Sahasrabudhe1, Dipali Dhamdhere1, Suryakant Borade1, Meenakshi Bhakare1, Mark W Orme3,4, Ilaria Pina3,4, Sundeep Salvi1, Sally J. Singh3,4

1Clinical Research Department, Symbiosis Medical College for Women, Symbiosis (Deemed University), Lavale, Pune, Maharashtra, India, 2Department of Respiratory Medicine, Symbiosis Medical College for Women, Symbiosis (Deemed University), Lavale, Pune, Maharashtra, India, 3Department of Respiratory Sciences, University of Leicester, Leicester, Leicester, UK, 4Centre for Exercise and Rehabilitation Science, NIHR Leicester Biomedical Research Centre-Respiratory, University Hospitals of Leicester NHS Trust, Leicester, UK. E-mail: rashmi.deshpande.gr@siu.edu.in

The burden of chronic respiratory diseases (CRDs) in India is underlined as the country notes the largest number of deaths due to CRDs in the world. Globally, with appropriate pharmacotherapy, disease management for CRDs includes Pulmonary Rehabilitation (PR), a non-pharmacological strategy that reduces suffering and improve patients’ quality of life. The objective of this study was to explore the experiences and perceptions of people living with CRDs about their disease and management strategies, including PR. In-depth qualitative semi-structured interviews were conducted with fourteen people living with CRDs. Data were analysed using thematic analysis. The data were arranged in two broad themes: 1. Patients’ sufferings and perceptions about the disease and 2. Patients’ perceptions and experiences about self-management strategies. Theme 1: All study participants equated the disease with ‘breathlessness’. They shared helplessness due to the inability to do routine activities because of breathlessness and lack of physical strength. They had views about the tentative causation of their CRD- heredity, lifestyle choices and physical and mental stress. Theme 2: The participants availed multiple management strategies like Yoga (including the breathing exercises), routine walks and home remedies, in addition to Allopathy and Ayurveda treatment for immediate symptom relief. The primary source of knowledge about Yoga was the television and YouTube. Alteration in food habits to include non-fried, non-spicy homemade food was described as a strategy. They research highlights that patients with CRD are eager to improve and would benefit from a ‘guided’ programme to ‘feel better’.

**Sarcoidosis: An unusual presentation**

Kanishk Sinha, Tanmaya Talukdar, Ashok Kumar Singh, Pushpendra Kumar Verma

Department of TB and Chest Diseases, Lady Hardinge Medical College and Associated Hospitals, New Delhi, India. E-mail: sinhakanishk@gmail.com
Background: Sarcoidosis is a multisystem granulomatous disease that can affect any organ in the body, but commonly the lung. At times, the presentation could be atypical. Atypical presentations may result in a delay in diagnosis, unnecessary investigations and treatment.

Case Study: A 57 year old male patient presented with fever, cough and chest pain. Computed tomography showed lung consolidation and mediastinal lymphadenopathy. Lung biopsy (TBLB) was suggestive of granulomatous inflammation with negative acid fast bacilli (AFB), CBNAAT and Mantoux test but raised serum angiotensin converting enzyme (ACE) levels. The patient subsequently also developed macular discolouration of skin followed by necrotic skin lesion in the chest. Skin biopsy was suggestive of panniculitis, eventually a diagnosis of systemic sarcoidosis was made involving the lung, lymph node and skin. Patient was treated with systemic steroid and hydroxychloroquine (HCQ) and showed response.

Discussion: More than 90% of patients with sarcoidosis have pulmonary involvement. Commonly involved extrapulmonary organs include the skin (30%), eyes (25%), lymph nodes, liver, and spleen (20%). Cutaneous involvement varies from erythema nodosum, plaques, nodules and papules to Lupus pernio.

Conclusion: Uncommonly Sarcoidosis can have non-pulmonary initial presentation, thus a high index of suspicion should be kept for sarcoidosis as a differential diagnosis in such patients.

Meliodosis an uncommon stranger to Indian lungs

B. Gokulavasanth
Osmania Medical College, Hyderabad, Telangana, India. E-mail: b.g.vasanth35@gmail.com

Introduction: Infection caused by a facultative intracellular Gram-negative bacterium, Burkholderia pseudomallei. It has recently gained importance as an emerging pathogen in India. Cases have been reported from Southeast Asia mainly Thailand, Malaysia, Vietnam, etc. In India, few cases have been reported mainly from the southern part of the country. It presents as a febrile illness with protean manifestations ranging from chronic localized infections to acute fulminant septicemia with dissemination to multiple organs.

Case Presentation: 30 yr old male car driver came with c/o high grade fever, cough with expectoration and SOB for 45 days treated antibiotics for 20 days with no symptomatic and radiological improvement. Elevated WBC with neutrophilia x-ray-bilateral ML & LL necrotizing pneumonia with negative gram stain and AFB. Bronchoscopy findings was full of pus in bronchus, sent for analysis, culture report came positive for B. pseudomallei sensitive for cotrimoxazole and ceftazidime.

Discussion: Since the clinical presentation of melioidosis is not distinctive, and may range from acute septicemia to a chronic suppurrative disease, a high index of clinical suspicion is required. In our patient, suspicion of melioidosis was aroused due to the clinical presentation of a non-resolving pneumonia. Definitive diagnosis of melioidosis is made by isolation of the causative bacterium, B. pseudomallei, in culture from bronchial washings. Management of melioidosis consists of 2 phases. The intensive phase and the eradication phase. These are aimed at the importance of rapidly treating the septicemia, the need of eradication of the persistent disease and the prevention of recurrent infections or relapses. The intensive phase consists of minimum 10–14 days of IV antibiotics: IV ceftazidime or IV carbapenem (meropenem/imipenem). Eradication phase should be followed by 3–6 months of oral co-trimoxazole alone or in combination with oral doxycycline/oral amoxicillin clavulanic acid.

Conclusion: as melioidosis is not endemic in India the data about this infection unnoticed and diagnostic options for this infection is very limited, so in all non resolving necrotizing pneumonia melioidosis etiology should also be considered.

A rare case of posterior mediastinal mass - leiomyosarcoma

K. Divyanjali, Sravan Kumar, Phani Kumar
Kakatiya Medical College, Warangal, Telangana, India. E-mail: divyanjalidepu@gmail.com

Introduction: Soft tissue tumours of posterior mediastinum are very rare presentation.

Case Report: A 65 year old male came with complaints of SOB -1month, cough -15days, abdominal pain -15days, difficulty in swallowing since 8 months. Patient had no past history HTN, DM.

Clinical Examination: The trachea - deviated to the right, diminished movement bilateral suprascapular area and air entry in bilateral suprascapular, interscapular area, dulness note on percussion in above areas.

CT Chest: Large lobulated posterior mediastinal mass largest measuring 12x8 cm on the right side, middle and superior mediastinal mass with large right pleural effusion, left mild pleural effusion.

Endoscopy of Oesophagus: Soft bulge noted at 25 to 28 cm with normal overlying mucosa with scattered spindle cells with vague nodularity, scattered atypical cells and nuclear hyper chromatin.

Histopathological Examination: mediastinal mass possible spindle cell tumour of neural origin. Low grade sarcoma cannot be ruled out section studies show corect tissue with myxoid areas with scattered spindle cells with vague nodularity, scattered atypical cells and nuclear hyper chromatin.

Immunohistochemistry: Tumor cell were diffusely positive for SMA and DESMIN, negative for CK7, SD100, SDX10, CD34.

Endoscopy of Oesophagus: soft bulge noted at 25 to 28 cm with normal overlying mucosa (extensive compression of oesophagus)

Right sided thoracocentesis done - Haemorrhagic, clot present, total count -500 cells/cumm, 95% lymphocytes, 05% neutrophils, ADA -10.7%, A few mesothelial cells are seen.

Conclusion: Tumors of smooth muscle origin in mediastinum are rare, only few are reported.

Cryptogenic organising pneumonia in Crohn’s disease

Vishnu Gireesh1, Sneha Tirpude1, Nitin Pai2, Aniruddha Puntambekar3

Abstracts
**Abstracts**

**Introduction:** Inflammatory bowel disease can present with extraintestinal manifestations. Cryptogenic Organising Pneumonia (COP) is one such manifestation. Through this case study we understand the pulmonary manifestations of inflammatory bowel diseases, and hence approach to such patients and their Management.

**Description:** A 33 year old female, non-smoker, presented with complaints of headache, vomiting, cough with minimal expectoration for 4 days, exertional dyspnea for last 1 day. HRCT Thorax [Figures I and 2], showed peribronchovascular interstitial thickening with Ground glass opacities in entire left lung more prominent in left lower lobe. Transbronchial lung biopsy [Figure 3a-d] was suggestive of organising pneumonia with focal granulomatous inflammation. Patient was started on steroids at 0.6 mg/kg/day in view of biopsy report. Subsequent Clinical and HRCT Thorax both showed improvement.

**Discussion:** There are two aspects to look for, one is lung involvement due to Crohn’s disease, second is treatment induced lung involvement sulfasalazine, mesalamine, methotrexate can lead to interstitial lung disease, and opportunistic infections due to immunosuppression. Patterns of subglottic stenosis, bronchiectasis, and chronic bronchiolitis. Also pleuritis, interstitial lung disease, necrobiotic nodules, pulmonary eosinophilia, thromboembolic disease, vasculitis, granulomatous lung disease are seen as Pulmonary manifestation of CD. This case is rare for it is unilateral COP. Diagnosis is dually confirmed by histopathologist and response to steroids.

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**A unique case of pulmonary and hepatic hydatidosis**

*Harshit Jain, Arti Julka, Bhavya Atul Shah*

Department of Respiratory Medicine, RDGMC, Ujjain, Madhya Pradesh, India. E-mail: harshitjain0896@gmail.com

**Background:** Hydatid disease is caused by ingesting embryonated eggs of cystode tapeworm of the genus Echinococcus. Infection with Echinococcus leads to development of hydatid cyst in various organ, but most common site is liver followed by lung. Here we present a 35-year old female belong to rural area was found to have disseminated hydatid cyst of lung and liver.

**Case Study:** A 35-year old housemaker was admitted to our hospital with symptoms of cough and expectoration since 7 month, hemoptysis, breathlessness, right side chest and abdomen pain since 6 month, fever since 3 month. On examination of chest, 2 visible soft fluctuant cystic swelling present over 9th and 10th intercostal space in posterior axillary line of right side of chest. Chest X-ray revealed multiple rounded opacities in both lung field with some air fluid level. Computed tomography of thorax showed multiple cystic lesion in both lung field and liver with
A rare case report of unilateral usual interstitial pneumonia in a patient with pulmonary artery agenesis

Ganjam Yasaswini, Gangadhar Reddy Mallu, Mahesh Gudelli
Department of Pulmonology, Yashoda Hospitals, Secunderabad, Telangana, India. E-mail: yasaswini.ganjam@gmail.com

Background: Unilateral pulmonary artery agenesis is a rare congenital anomaly due to malformation of the sixth aortic arch during embryogenesis. The diagnosis is usually set at adolescence, however it can remain asymptomatic and late diagnosis is possible. We herein report a unique case of asymmetrical interstitial lung disease (ILD) with a UIP pattern suggesting that agenesis of pulmonary artery may be related to the development of UIP in the affected lung.

Case Study: A 79 year-old male patient never smoker presented with history of recurrent respiratory tract infections since childhood. He underwent a pre-emergency check up at the age of 25 where his abnormal chest radiograph wasn’t evaluated further but diagnosed & treated as kochs.. Patient had recurrent exacerbations of respiratory symptoms for which he received multiple courses of antibiotics and steroids. Sputum analysis was inconclusive and two consecutive sputum samples were negative for AFB. Patient was referred to our centre for further management where CT chest showed unilateral ILD with UIP pattern & agenesis of right pulmonary artery.

Discussion: We encountered a case of asymmetrical ILD with UIP pattern that remained almost completely asymmetrical over an extended period of time. Asymmetrical IPF may be favoured by several underlying conditions, with decreased pulmonary artery perfusion and development of systemic vessel collateralization being potentially responsible in the above case.

Conclusion: In conclusion, present case and previous literature postulate that low pulmonary artery perfusion capacity and systemic-pulmonary anastomoses can cause UIP changes.

A congenital cystic lesion of lung

P. Gokulakannan, Gunjan Soni, Manak Gujrani, R. Saugat
E-mail: gokulpalanisamy04@gmail.com

Background: Bronchogenic cyst are rare congenital malformation arising from the abnormal budding of ventral diverticulum of foregut or tracheobronchial tree between 26th and 40th day of gestation. Bronchogenic cyst are the most common primary cyst of the mediastinum and are usually unilocular. It is often an incidental finding on chest x-ray and require no treatment.

Discussion: Hydatid disease particularly endemic in cattle/sheep-raising rural area. Individual may remain asymptomatic for long time. Various radiological features of pulmonary and hepatic cyst are present.

Conclusion: From this case we can conclude that Hydatid disease is uncommon and disseminated Hydatid disease is rare. Also herniation of cyst to external surface is also rare. Treatment with albendazole with surgery if possible is best management for it.

A rare case report of unilateral usual interstitial pneumonia in a patient with pulmonary artery agenesis

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Abstracts

Yasin Akhtar Siddiqui, Rajeev Tandon, Lalit Singh, Yatin Mehta

Introduction: Mucormycosis is an emerging angioinvasive infection caused by the ubiquitous filamentous fungi of the mucorales order of the class of zygomycetes. It has emerged as one of the most common invasive mycosis in patient with hematological and allogeneic stem cell transplantation. It also remains threat in diabetic and also recently in post covid patients.

Case Report: A 62 year old male farmer patient came with complaints of cough with expectoration, fever, moderate hemoptysis and headache. Patient is having uncontrolled diabetes mellitus. All routine blood investigations and coagulation profile was normal. CECT Thorax suggestive of ring like opacities with areas of ground glass opacities surrounded by ring of consolidation suggestive of fungal pneumonia. Simultaneously patient is having severe throbbing headache. So MRI brain with orbit and paranasal sinus done, which suggestive of ethamoidal sinusitis, osteomyelitis of clivus. Hence IV antifungal amphotericin b started as immediate measure in a view of disseminated fungal infection with strict glycemic control. Sputum smear, microscopy, bacterial culture, gene expert are negative. Lung biopsy done which suggestive of branching ribbon like hyphae. Hence patient posted for right upper lobectomy. Patient discharged on Tab. Posaconazole. Patient came up after 3 months, symptomatically improved and radiological resolution of lesions of chest xray.

Conclusion: Mucormycosis is a life threatening infection, and usually the diagnosis late because of nonspecific clinical, radiological features and need biopsy for confirmation of the organism. The cornerstone for the management and increase the survival rate remain on rapid diagnosis, treatment of the underlying predisposing condition and urgent surgical debridement.

Utility of feno in patients with chronic cough and ICS LABA response

Yasin Akhtar Siddiqui, Rajeev Tandon, Lalit Singh, Yatin Mehta

Background: Cough is the most common symptom for which patients seek medical attention. Estimates of the prevalence of cough vary, but as much as 12% of the general population report chronic coughing. As defined as a cough lasting for more than 8 weeks. Growing evidence suggest that the common medical conditions associated with chronic cough are cough variant asthma (CVA), upper airway cough syndrome (UACS), nonasthmatic eosinophilic bronchitis (NAEB) and gastroesophageal reflux cough (GERC).

Materials and Methods: A retrospective observational study was conducted in Respiratory Medicine OPD of SRMS Bareilly which included 100 patients with chronic cough (duration >8 weeks) with normal radiology and normal spirometry. Relevant information related to clinical characteristics was extracted and Fractional exhaled NO levels was obtained in patients using the portable FENO device. Based on the FENO values the HIGH FENO group was given an ICS LAMA trial of 8 weeks, and then reassessed by repeating FENO testing.

Results: Out of 100, 58 patients were males and 42 were females. The mean FENO values were 47.98ppb for males and 51.00ppb for females. 61 patients fell in the HIGH FENO group with a mean FENO of 71.2+/−44.15 while 39 people were included in the LOW FENO group with a mean FENO of 14.92+/−6.55. Higher FENO values are seen in patients with associated allergy, recurrent URTI symptoms, seasonal variation of symptoms. Current/ex smokers (11%) showed a higher FENO value as compared to non smokers (65.91ppb vs 48.38ppb), showing a higher degree of airway inflammation in these subjects Also highest mean FENO values corresponded to the highest eosinophil count (n=8, FENO=125). In this study, there was significant decrease of FENO after ICS LABA trial in the HIGH FENO group (67%).

Conclusion:

1. Our study showed that the patients with chronic cough
   • Are mostly males, generally smokers or ex smokers
   • Differential leucocyte counts demonstrate high eosinophil counts corresponding to high FENO values
   Since chest spirometry and Chest-xray of these patients are normal, FENO values may be used to diagnose and phenotype these patients and this may be of therapeutic relevance

2. HIGH FENO group was the steroid responsive group shown by the decreased FENO values after an ICS LABA trial of 8 weeks.

Markers of coagulation dysfunction in diabetic and nondiabetic Post-COVID-19

Atul Kumar Singh

E-mail: dratulsingh92@gmail.com

Aim: Study to determine Markers of Coagulation Dysfunction in Diabetic and Non-Diabetic Post-COVID-19

Subjects and Method: The data for this study were collected from results in 214 patients. The present study
was carried out in the Department of Pulmonary Medicine, SRN Hospital, MLN Medical College, Prayagraj (Allahabad) Aug 2020 to July 2021 and were classified into Diabetic and Non-Diabetic and markers of coagulation dysfunction were studied.

**Results:** There was a significant difference between the 2 groups in terms of PT (Sec) \( (W = 8275.000, p < 0.001) \), aPTT (Sec) \( (W = 7092.500, p < 0.001) \), INR \( (W = 8316.500, p < 0.001) \), D-Dimer (\( \mu g/mL \)) \( (W = 8523.000, p < 0.001) \) with the median PT (Sec), aPTT (Sec), INR and D-Dimer (\( \mu g/mL \)) being highest in the Diabetics group.

**Conclusion:** These results show that the hypercoagulability markers significantly increased in diabetic group of Post-COVID-19 patients when compared to their non-diabetic counterparts. It is known that during cytokine storm, as a result of plasmin activation, the significant rise in D-dimer level indicates hypercoagulability. The significant rise in D-dimer indicate diabetic Post-COVID-19 patients are more susceptible to hypercoagulable state leading to more chances of intravascular coagulation. Since the association of diabetes and hyperglycemia with disease progression has been linked to increased inflammation, hypercoagulability and lung dysfunction in Post-COVID-19 patients. Determining HbA1c level after hospital admission is thus helpful assessing inflammation, hypercoagulability, and prognosis of patients. Our data support the notion that diabetes should be considered as a risk factor for a rapid progression and bad prognosis of Post COVID-19.

More intensive attention should be paid to patients with diabetes, in case of rapid deterioration. However, little is known about the mechanism concerning the increase in the levels of coagulation dysfunction markers and HbA1c level in case of post COVID-19 patients and more further studies are also required.

**Study of microalbuminuria in COPD patients and its association with cardiac comorbidities**

**Utkarsh Khattri, Lalit Singh**

1Department of Respiratory Medicine, SRMS IMS, Bareilly, Uttar Pradesh, India, 2Department of Respiratory and Critical Care Medicine, SRMS IMS, Bareilly, Uttar Pradesh, India. E-mail: utkarsh_khattri@yahoo.co.in

**Introduction:** Microalbuminuria in COPD is related to generalize endothelial dysfunction as well as systemic inflammation, considered as vital marker of early cardiovascular involvement. Therefore, it is an indirect manifestation of both renal perfusion and permeability, as well as endothelial dysfunction of lungs, it may show a significant association with the cardiac comorbidity among COPD patients.

**Aims and Objectives:** To study the frequency of occurrence of microalbuminuria in COPD patients. To Assess any correlation between microalbuminuria, disease severity and exacerbations. Comparison of levels in between COPD patients with and without any cardiac involvement.

**Materials and Methods:** Prospective observational study. 110 COPD patients were included. Severity was assessed with the help of spirometry, mMRC dyspnoea grade, CAT score and GOLD staging. Two dimensional echocardiography was performed and assessed for microalbuminuria.

**Results:** Microalbuminuria was present in 80.91% of patients. It was significantly associated with number of exacerbations of COPD \( (P=0.0003) \), however, no association was with mMRC grading \( (p>0.05) \), CAT score \( (>0.05) \), and GOLD staging\((>0.05) \). COPD patients with cardiovascular involvement had significantly higher proportion of patients with microalbuminuria as compared to COPD patients without cardiovascular involvement \( (88.57\% vs. 67.50\%) \) \( p \text{ value}<.05 \).

**Conclusion:** Assessment of microalbuminuria is, simple, less costly, and non-invasive; therefore, it can be used on a routine basis in COPD cases, particularly in patients who are more symptomatic and are at an increased risk of cardiovascular morbidity and mortality.

**Analysis of computed tomography findings and inflammatory markers in diabetic post COVID patients**

**Abhishek Mishra**

Department of Pulmonary Medicine, M L N Medical College, Prayagraj, Allahabad, Uttar Pradesh, India. E-mail: abhishek mishra.ml2951@gmail.com

**Objective:** To evaluate chest computed tomography (CT) findings and inflammatory markers in diabetic Post COVID patients.

**Methods:** 79 Post COVID-19 patients admitted to our Pulmonary Medicine Ward were included according to the inclusion and exclusion criteria, their HRCT findings and markers of inflammation(ESR,CRP,S.LDH,S.Ferretin) were studied.

**Results:** Out of 79,44 patients were diabetic and 35 were non-diabetic. Diabetic patients had more severe radiological involvement as indicated by high CT Severity Index(CTSI) \( [W = 1070.000, p = 0.003] \) and high biochemical markers as indicated by high S.LDH\([W = 1164.000, p = <0.001]\), S.Ferretin\([W = 1183.000, p = <0.001]\), ESR \( [W = 977.500, p = 0.039] \) and CRP \( [W = 1170.000, p = <0.001] \), as compared to non diabetic patients.

**Conclusions:** Most COVID-19 survivors still had physiologically relevant CT abnormalities and deranged markers of inflammation and this derangement was more severe in diabetic patients. All these markers levels should be accurately evaluated in the long-term follow-up, with individualised consideration for prophylactic anti-inflammatory therapy if indicated.

**Analysis of clinical sign and symptoms and biochemical parameters of post-COVID patients**

**Niraj Kumar Singh**

Department of Pulmonary Medicine, MLN Medical College, Prayagraj, Allahabad, Uttar Pradesh, India. E-mail: shisnig.21@gmail.com
Objectives: This study aims to evaluate different clinical and blood biochemical characteristics of 100 post-COVID patients admitted in Department of Pulmonary Medicine MLN Medical College Prayagraj.

Methods: In this single centre post-COVID observatory study, 100 patients were included and divided to mild, moderate and severe/critical groups. Their clinical sign and symptoms and blood biochemical markers were analyzed.

Results: Our findings suggested that post-COVID patients had varying degree of breathlessness requiring specific oxygen therapy. Other clinical features include marked muscle weakness, lethargy, sleeplessness and forgetfulness. Majority of them had uncontrolled diabetes and hypertension in terms of co-morbidities. In blood biochemical characteristics we observed that majority of patients had raised levels of D-Dimer, S.ferritin, S.LDH, S.procalcitonin, ESR and CRP. Maximum of them had raised PT-INR, TLC, SGOT, SGPT, RBS, urea and creatinine level. Some of them also had electrolytes disturbances in terms of deranged sodium and potassium levels.

Conclusion: POST- COVID patients had different clinical and blood biochemical characteristics which indicates multiple organ dysfunction. Severe patient's group had age > 50 years, co-morbidities in terms of uncontrolled diabetes and hypertension, markedly increased D-Dimer, S.LDH, S.ferritin, ESR, CRP, PT-INR levels and deranged liver and kidney function of varying degrees. These blood biochemical indicators could reflect the severity of disease to a certain extent and should be considered in clinical management of the disease. Some of the parameters like D-Dimer, S.LDH, S.Procalcitonin, lymphopenia may also be a prognostic indicator.

Rare presentation of Sarcoïdosis

Kanupriya Bhatia, Varuna Jethani, Rakhee Khanduri, Suchita Pant, Smita Chandra, Prachi Kala
Department of Pulmonary Medicine, HIMS, Jollygrant, Dehradun, Uttarakhand, India. E-mail: kanupriya.bhatia934@gmail.com

Sarcoïdosis is an idiopathic, noncaseating granulomatous disorder with wide systemic involvement. Lungs, eyes, and skin are the organs most commonly affected. Bone involvement, which is very rare, was reported as present in 3 to 13% of affected cases. Here we present a case of young female with ribs, vertebrae and pulmonary involvement, lesion mimicking as metastasis or tuberculosis thus emphasizing the importance of differential diagnosis. Pulmonary involvement (80-90%) is commonly seen with osseous sarcoïdosis as was present in our case. Confirmation of the diagnosis is always made by the histopathological examination which shows granuloma in the medullary cavity and destruction in the surrounding bone tissue. Non necrotizing histiocytic granulomas are characteristic for diagnosis. The early and definitive diagnosis is important for adequate treatment of this disease.

Correlation of BODE index score with severity of COPD

A. Amith, Koims Madikeri
E-mail: amithmbbs01@gmail.com

Introduction: COPD is common, preventable and treatable disease that is characterized by persistent respiratory symptoms and airflow limitation that is due to airflow limitation that is due to airway and/or alveolar abnormalities usually caused by significant exposure to noxious particles or gases. The original Body mass index, airflow Obstruction, Dyspnea, Exercise capacity (BODE index) are simple multidimensional grading system which is superior to lung function alone for prediction of mortality and hospitalization rates among COPD patients. The present study has been undertaken to determine the factors other than the lung function which affect the outcome in COPD patients.

Objectives:
1. To compare BODE index in predicting severity of chronic obstructive pulmonary disease.
Abstracts

2 To correlate airflow obstruction with exercising capacity in COPD patients
3 To compare the outcome in COPD patients using BODE index than primary lung function test alone.

Methods: A total of 120 patients were enrolled into the study. Of these, 90 patients with symptoms suggestive of COPD were selected as cases and 30 patients were selected as controls. For each enrolled subject, detailed history of smoking, personal and family medical histories were obtained. The lung function parameters were assessed by spirometry and they were categorised into mild, moderate and severe COPD cases. All of them underwent detailed clinical examination, electrocardiography, echocardiography and routine investigations with special reference to Hb%, Albumin and C reactive protein levels. These parameters were later compared between the different groups.

Results and Conclusion: The result and conclusion of the study will be presented at the conference.

Case of bilateral spontaneous pneumothorax

A. Amith
E-mail: amithmbbs01@gmail.com

Introduction: Pneumothorax is an abnormal accumulation of air between the visceral and parietal pleura with underlying lung collapse. Spontaneous Pneumothorax is a type of pneumothorax that occurs spontaneously in the absence of iatrogenic or traumatic factors. Spontaneous pneumothorax can be either primary spontaneous pneumothorax or secondary spontaneous pneumothorax.

Case: 80 year old male patient chronic smoker came with complaints of breathlessness on exertion and worsened since 1 day, cough since 1 week, chest pain since 1 day. No previous history of pulmonary tuberculosis.

On Examination: PR-116/min, sp02-20%, in RA, BP-60/40mmHg, RR-56 cycles/min, trachea central, bilateral hyper resonant note on percussion over all the areas of lung fields, bilateral decreased breath sounds. Chest x ray shows bilateral massive pneumothorax.

Management: Patient was managed with supplemental high flow oxygen and placement of ICD bilaterally, patient improved symptomatically, blood pressure and oxygen saturation improved within 5 hours.

REPEAT CHEST XRAY –after 24 hrs showed bilateral expansion of lungs. Pleurodesis was done bilaterally using povidone iodine. ICD was removed and patient was discharged.

Discussion: Although in clinical practice spontaneous pneumothorax is a frequently encountered disease. It is rarely reported in the literature. PSP occurs due to rupture of subpleural emphysematous blebs located in the apex of lungs, frequently seen in tall and thin individuals between the age group of 10-29. It has been reported that primary spontaneous pneumothorax is seen more frequently in smokers 12% than in non smokers 0.9%. The incidence of PSP is 7.4/100000 in men and 1.2/100000 in women. Secondary spontaneous pneumothorax cause there is actually an underlying lung disease. Most SRSP causes are seen as result of underlying pulmonary disease such as COPD, bronchial asthma, ILD, Connective tissue disorders, malignant neoplasms, parenchymal TB, Pneumocystis carinii, pneumonia. SBSP is commonly seen in elderly. The incidence of SBSP is 6.3/100000 in men and 2/100000 in women. SBSP is rare condition and forms only 1.3% of all spontaneous pneumothorax cases. Patients with secondary pneumothorax presents with severe respiratory distress and diminished pulmonary reserve. The risk of recurrence for SBSP is 40-80% hence higher risk of mortality up to 36% in SSP.

Conclusion: Spontaneous bilateral secondary pneumothorax is a rare clinical entity because SBSP and its recurrence is life threatening an appropriate treatment approach should be applied to prevent recurrence.

Untangling a rare case of hypoxia

Anju T. James, Vinod Kumar Kesavan, P. Arjun
Department of Respiratory Medicine, KIMSHEALTH, Thrivananthapuram, Kerala, India. E-mail: anjujamestheykkaneth@gmail.com

Introduction: Hypoxia is a very common symptom during this COVID-19 pandemic. Detailed history, clinical examination and relevant investigations are important in distinguishing rare causes from commonest.

Case Report: 52-year-old lady presented to emergency room with sudden onset breathlessness. She was recently diagnosed with Idiopathic Thrombocytopenic Purpura (ITP). She was found to be hypoxic with a room air saturation of 82% in pulse oximeter. She was started on high flow oxygen. But her saturation didn't improve. Chest X-ray showed normal lung fields and bedside echocardiography revealed normal cardiac status. Point of care blood gas analysis (ABG) revealed a normal partial pressure of oxygen (Pao2-100). The discrepancy between oxygen saturation recorded in pulse oximeter and PaO2 in blood gas analysis tempted us to relook the ABG. It was found that the methaemoglobin level in ABG was 10.7%. When we analysed her drug history, we found that there was dapsone intake for the treatment of ITP which strongly supported us to reach the diagnosis of methemoglobinemia. She was then treated with intravenous methylene blue in the emergency room. She responded well and her repeated ABG revealed normalized level of methaemoglobin. Her hypoxia also resolved. Dapsone was later removed from her regular medications.

Conclusion: Methemoglobinemia is an extremely rare cause for hypoxia. Though rare its potentially life threatening if not identified on time. Refractory hypoxia with a discrepancy in sp02 and PaO2 should raise the suspicion of methemoglobinemia. IV methylene blue is the recommended treatment for methemoglobinemia.