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MANAGEMENT OF RECURRENT PNEUMOTHORAX AND BRONCHO-PLEURAL FISTULA BY FLEXIBLE BRONCHOSCOPY GUIDED INSTILLATION OF SILVER NITRATE

Pulmonary Medicine

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ABSTRACT

Introduction: A Pneumothorax is a condition characterized by the accumulation of air in the pleural space and associated secondary collapse of the surrounding lung . Pneumothoraces can be mainly divided into Traumatic pneumothorax and Spontaneous Pneumothorax. Spontaneous pneumothorax is further subclassified into either a primary spontaneous pneumothorax or secondary spontaneous pneumothorax . They are at times complicated by a bronchopleural fistula or a persistent air leak needing prolonged chest tube drainage. In patients who are poor surgical candidates Non-surgical treatment of persistent broncho-pleural fistula is performed , but the ideal method of closure is surgery.

Case Report : The current article is regarding a middle aged male patient who came to the department with left sided pneumothorax and Intercostal drainage tube in situ. He had a history of recurrent pneumothorax and a persistent Broncho Pleural Fistula which was closed non surgically using silver nitrate in our department.

Conclusion: Pneumothorax is a common condition and at times it is complicated by the presence of broncho-pleural fistula which in turn leads to persistence of ICD tube for a long time in the patient there by affecting the quality of life of the patients and additional chance of secondary infection. Since long surgery was considered as the only option but in patients who are unfit for surgery, Bronchoscopy guided Silver nitrate instillation and Broncho Pleural Fistula closure is an cheaper and less inasive option.

KEYWORDS

Pneumothorax, ICD tube, Surgery ,Silver Nitrate ,Bronchopleural Fistula, Bronchoscopy

INTRODUCTION

A Secondary Spontaneous Pneumothorax (SSP) is defined as a pneumothorax occuring in the presence of a pre-existing lung disease[1]. Most commonly associated conditions are Tuberculosis, Chronic Obstructive Pulmonary Disease, Lung Carcinomas, Cystic fibrosis and Infectious diseases (eg, Bacterial or fungal pneumonia) .[2,3]

Pneumothoraces are occasionally complicated by a persistent air leak or bronchopleural fistula requiring prolonged chest tube drainage. Non-surgical treatment of persistent broncho-pleural fistula is usually performed in patients who are poor surgical candidates, but the ideal method of closure is surgery.

Case report

A middle aged male patient presented to the emergency with left sided pneumothorax and Intercostal Drainage tube in situ. He had chest pain and shortness of breath since two months, for which he had previously shown in a private hospital where ICD (Intercostal drainage tube) was inserted and after chest X-rays showed complete lung expansion, ICD tube was removed and patient was discharged in stable condition. A week later he developed acute shortness of breath and chest X-ray showed pneumothorax and an ICD was re-inserted(Fig-1). He is a chronic smoker with a Smoking Index (SI)>500 and had Pulmonary Tuberculosis 6 years back for which he had taken complete treatment. Patient was discharged with ICD in situ with persistent continuous air leak and referred to our department for futher management.

Initially on admission we removed the ICD tube and an ICD of bigger diameter 32No.(Fig-2) was inserted but it did not help much in decreasing the bronchopleural fistula of the patient.

Further a contrast enhanced CT scan of thorax was performed which suggested the presence of multiple infected bullae and the rupture of an infected bullae communicating with the pleural cavity behind the Etiology of recurrent pneumothorax and persistant bronchopleural fistula. He also had chronic low grade fever with night sweats but was sputum negative and empirically anti tuberculous treatment was started, following one week of ATT intake and in view of persisting continuous air leak, patient was posted for flexible bronchoscope guided closure of bullae and bronchopleural fistula with 0.3 % silver nitrate. Procedure was uneventful and immediately post procedure there was drastic improvement and gradually over the following days there was complete absence of air leak suggesting closure of broncho- pleural fistula and ICD tube was removed as chest X-ray showed complete lung expansion(Fig-3).

Patient was discharged on Anti Tubercular Treatment and further follow up Chest X rays showed marked resolution of parenchymal infiltrates(Fig-4).

DISCUSSION

A pneumothorax is air in the pleural space, that is, air between the Parietal and Visceral Pleura. Pneumothoraces can be divided into Spontaneous Pneumothoraces, which occur without obvious cause or other antecedent trauma and Traumatic Pneumothoraces, which occur due to direct or indirect trauma to the chest.

Most of the secondary spontaneous Pneumothoraces are due to COPD(Chronic Obstructive Pulmonary Disease), although almost all lung diseases have been reported to be associated with secondary spontaneous pneumothorax.[4] Tuberculosis was the second leading cause of secondary spontaneous pneumothorax after COPD in endemic areas.[5]

COPD patients are sometimes complicated by the presence of emphysematous bullae. A bulla is an air-containing space within the lung parenchyma that arises from destruction, dilatation, and confluence of airspaces distal to terminal bronchioles and is larger than 1 cm in diameter.[6, 7] A superinfection within a bulla can occur with clinical manifestations including fever, cough, purulent sputum production, dyspnea, and pleuritic chest pain.[8, 9] Spontaneous pneumothorax may be a complication of bullous disease, particularly in patients who continue to smoke. The typical presentation is a sudden onset or worsening of dyspnea with or without pleuritic chest pain. Ultrastructural assessments suggest the possibility of air leaking through the wall of the bullae with sloughing of mesothelial cells.[10]Patients with pneumothorax secondary to tuberculosis should have surgery if the airleak persists more than a few days or if they have a relapse. [4]Here in this case patient is been treated with .3% silver nitrate after localization of bronchopulmonary segment with the aid of bronchoscope and methylene blue and the results were highly satisfactory and empirical ATT was started which showed significant clinical and radiological improvement.

CONCLUSION

Pneumothorax is a very common condition and very frequently it is complicated by the presence of broncho-pleural fistula which in turn leads to persistence of ICD tube for a long time there by affecting the quality of life of the patients and additional chance of secondary infection, since a long time surgery is considered as the only option but in patients who are not fit for surgery, Silver nitrate aided Broncho Pleural Fistula closure is an option and is cheaper and less invasive.

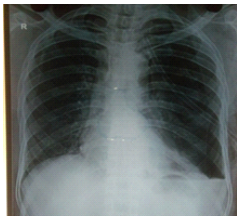

Figure 1

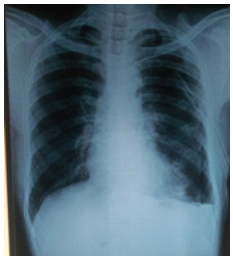

Figure 2

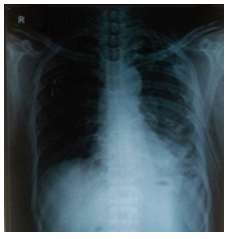

Figure 3

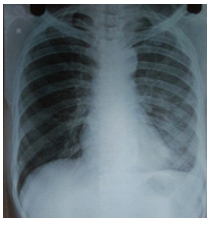

Figure 4

REFERENCES

1. Sahn SA, Heffner JE. Spontaneous pneumothorax. N Engl J Med 2000; 342:868.
2. Noppen M, De Keukeleire T. Pneumothorax. Respiration 2008; 76:121.
3. Chen CH, Liao WC, Liu YH, et al. Secondary spontaneous pneumothorax: which associated conditions benefit from pigtail catheter treatment? Am J Emerg Med 2012; 30:45.
4. Weissberg D, Refaely Y. Pneumothorax. Chest. 2000; 117:1279-1285
5. Blanco-Perez], Bordon J, Pineiro-Amigo L, et al. Pneumothorax in active pulmonary tuberculosis: resurgence of an old complication? Respir Med. 1998;92:1269-1273
6. Laurenzi GA, Turino GM, Fishman AP. Bullous disease of the lung. Am J Med. 1962;32:361–378.
7 Gaensler E, Jederlinic P, FitzGerald M. Patient work-up for bullectomy. J Thorac Imaging. 1986;1:75–93.
8. chandra D, Rose SR, Carter RB, Musher DM, Hamill RJ. Fluid-containing emphysematous bullae: a spectrum of illness. Eur Respir J. 2008;32(2):303–306.
9. Martinez F. Evaluation and medical management of giant bullae in COPD. In: Rose B, ed. UpToDate. Waltham, MA: UpToDate; 2013.
10. Ohata M, Suzuki H. Pathogenesis of spontaneous pneumothorax. With special reference to the ultrastructure of emphysematous bullae. Chest. 1980;77(6):771–776.