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EMPYEMA THORACIS A RARE PRESENTATION OF ASPERGILLUS INFECTION

General Medicine

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ABSTRACT

Introduction: The involvement of pleura in patients with allergic bronchopulmonary aspergillosis (ABPA) is uncommon. Aspergillus species is one of the most common causes of fungal infection of the lungs. Aspergillus empyema is a rare clinical entity and not included in classification of aspergillus related lung disease.

Case Report : A 29 year old female patient with history of bronchial asthma, presented with fever, dry cough and right sided chest pain. On auscultation, the breath sounds were diminished in intensity over the right infrascapular area and diffuse wheeze was heard in the rest of the lung fields. A chest radiograph confirmed the presence of a right sided pleural effusion. On thoracocentesis, thick fluid was drained which was found to be exudative. She demonstrated immediate cutaneous hypersensitivity to Aspergillus fumigatus antigen. Both total Immunoglobulin E and A. fumigatus specific antibody were elevated patient was started on voriconazole and prednisolone. Patient started to clinically improve and radiological resolution started after 10 days.

CONCLUSION: Tubercular Empyemas are a common presentation in Indian setting but empyema of fungal origin are rare. Hence a high index of suspicion is required to ensure timely diagnosis and treatment of this potentially lethal condition. Aspergillus is a rare cause of pleural effusion and must be thoroughly evaluated in patients with a history of asthma/ABPA

KEYWORDS

Bronchial Asthma, Empyema, Aspergillus fumigatus, ABPA

INTRODUCTION:

Aspergillus species is one of the most common causes of fungal infection of the lungs.[1] Three distinctive patterns of aspergillus related lung diseases are recognized: Saprophytic infestation of airways(aspergilloma), Allergic manifestations such as extrinsic allergic alveolitis, Abpa and tissue invasive disease called Invasive aspergillosis.[2] Aspergillus empyema is a rare clinical entity and not included in classification of aspergillus related lung disease. The important clinical manifestations include chronic asthma, recurrent pulmonary infiltrates, and bronchiectasis. Radiologically, ABPA is classified as seropositive ABPA(ABPA-S), ABPA with central bronchiectasis and ABPA with central bronchiectasis and with high attenuation mucus, depending on the absence or presence of bronchiectasis and high attenuation mucus.[3] Although numerous radiological findings have been described in it, pleural involvement is an extremely uncommon manifestation.

Case Report:

A 29 year old female, with history of prior treatment for pulmonary tuberculosis and bronchial asthma, presented with fever, dry cough and right sided chest pain for 15 days duration. There was no history of hemoptysis. She is a known case of asthma since 5 years and her asthma control was poor, but there was no history of asthma exacerbations requiring hospitalization.On examination the she was febrile (39.2°c), heart rate was 110 beats/min, blood pressure was 132/86 mm hg, and respiratory rate was 24 breaths/min. General physical examination was unremarkable and on auscultation, the breath sounds were diminished in intensity over the right infrascapular area, with diffuse wheeze in the rest of the lung fields. A chest radiograph confirmed the presence of a right sided pleural effusion. Tuberculin skin test performed with 5 tuberculin units was negative. Sputum smear for acid-fast bacilli was negative on 2 occasions and in view of a history of asthma, screening tests for ABPA were per formed. She demonstrated immediate cutaneous hypersensitivity to A. fumigatus antigen; serum immunoglobulin-e levels, both total (17,300 iu/ ml) and A. fumigatus specific (3.59 kilounits of antibody per liter) were elevated, and the total eosinophil count was 670 cells/l. High-resolution computed tomography of the thorax demonstrated a right pleural effusion with high-attenuation mucus plug. lung window sections showed centrilobular nodules with tree in bud appearance in both the lung fields. in addition, bilateral central bronchiectasis was seen (fig. 1). A possibility of ABPA with central bronchiectasis with pleural involvement secondary to ABPA was considered. On thoracocentesis, thick fluid was drained. the fluid was exudative and cultures for bacterial or mycobacterial etiology were sterile, cytological examination was negative for malignant cells. fungal cultures of the fluid were inconclusive. When initial management with empirical antibiotics showed no response, patient was started on voriconazole and prednisolone. thoracoscopic evaluation was planned but patient started to clinically improve and radiological resolution started after 10 days.

DISCUSSION:

Pleural involvement in ABPA is uncommon, and involvement of the pleura has been described in the form of parenchymal lesions extending up to the pleural surface or pleural thickening on radiology in up to 43– 82% patients with ABPA, in various small series[4]. Pleural effusion is a rarely reported clinical presentation of ABPA[5]. The mechanisms postulated for the development of pleural effusion in it include an intensive inflammatory response, with release of cytokines and fungal translocation into the pleural space, leading to a local th2-dependent inflammatory response or lung collapse, leading to "ex vacuo" pleural effusion. Another postulated mechanism is inflammatory pleural reaction, which occurs adjacent to inflamed lung tissue, leading to the development of an exudative effusion[6]. Rarely it may present with paratracheal and hilar adenopathy, obstructive lung collapse, pneumothorax and bronchopleural fistula. The treatment consists of steroids along with antifungal agents and effective drainage of pus.[7]

CONCLUSION:

Tubercular Empyemas are a common presentation in Indian setting but empyema of fungal origin are rare. Hence a high index of suspicion is required to ensure timely diagnosis and treatment of this potentially lethal condition. Aspergillus is a rare cause of pleural effusion and must be thoroughly evaluated in patients with a history of asthma/ABPA

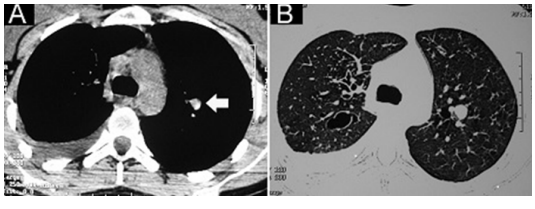

Figure 1

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