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Allergic bronchopulmonary aspergillosis in a bookbinder without a history of bronchial asthma or cystic fibrosis: A case report

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Abstract

Allergic Bronchopulmonary Aspergillosis (ABPA) is an immunological pulmonary disease. ABPA typically associated with asthma or cystic fibrosis. Here we present rare case report of ABPA associated with bronchiectasis, in a book binder due to occupational hazard without a history of asthma or cystic fibrosis.

Keywords

Allergic bronchopulmonary aspergillosis; book binder.

Introduction

Allergic Bronchopulmonary Aspergillosis (ABPA) is an immunological pulmonary disorder caused by hypersensitivity to Aspergillus fumigatus, typically associated with asthma or cystic fibrosis [1]. The prevalence of ABPA among asthmatic patients and cystic fibrosis patients was about 13% and 9% [2]. Even though there are no uniform diagnostic criteria or standard tests, Rosenberg- Patterson criteria are widely used for diagnosing ABPA [3]. Patients with ABPA generally present with cough, dark brownish sputum, wheezing, haemoptysis, and uncontrolled asthma [1].

The pathophysiology of ABPA is complex and not completely understood. When Aspergillus spores get inhaled, those are behaving as allergens. Low level of IgG and IgA in healthy individuals can eliminate fungal spores effectively. Though, in atopic individuals and patients with cystic fibrosis (Due to a defect in mucociliary clearance), Aspergillus can easily be colonized in respiratory tract and triggers an IgE-mediated hypersensitivity response. ABPA can lead to bronchiectasis in several ways (such as aspergillus antigen associated injury to airway, aspergillus infection may directly damage airway) [2,4]. In other way pre-exis-

ting bronchiectasis may facilitate ABPA due to existing damage to bronchi and airway clearance defect. Therefore, ABPA may lead to bronchiectasis or could complicate pre-existing bronchiectasis due to another aetiology [4].

Case Presentation

A 65- year-old male, diagnosed with type 2 diabetes mellitus, without any underlying history of bronchial asthma or cystic fibrosis presented with Productive cough, difficulty in breathing for two months, and on and off haemoptysis for two weeks. He also had a cough associated with dark brownish sputum and chest pain.

There was no fever, orthopnoea, or paroxysmal nocturnal dyspnoea. No loss of appetite or weight loss was documented. There was no evidence for other bleeding manifestations. There was no contact history of Tuberculosis. He was a non-smoker.

After being seen by a general practitioner, he had undergone a short course of antibiotics with no improvement in his symptoms.

The patient had well controlled diabetes mellitus without evidence for any macrovascular or microvascular complications. He was on oral metformin. His family history was negative for Tuberculosis, Bronchial asthma, cystic fibrosis, bronchiectasis, lung malignancy or bleeding disorders.

The patient has worked as a bookbinder for 30 years. He has a history of handling books with mould and mildew.

He was of average build with a body mass index of 22.6. He was not in respiratory distress. There was no pallor, icterus, cyanosis, Lymphadenopathy, clubbing, skin rashes or ankle oedema. Respiratory rate was 18 breaths per minute. There were no thoracic deformities or scars. Chest expansion was symmetrical. Auscultation revealed bilateral coarse crepitation in lung bases. Cardiac, abdominal and neurological examinations were not significant.

Laboratory investigation on admission revealed eosinophilia (1500/dl) in full blood count, high erythrocyte sedimentation rate (76 mm/hr), C reactive protein (32 mg/l) and Total serum Ig E level (886 IU/L). His liver and renal function tests were normal. Rheumatoid factor, antinuclear antibodies and anti-neutrophil cytoplasm antibodies were negative. Sputum for Acid Fast Bacilli direct smear 3 samples were negative. Mantoux test was performed and negative with 0 mm. Sputum bacterial cultures were negative. Sweat test was normal. Sputum full report was positive for aspergillus hyphae with 15 to 20 red cells. Test for human immunodeficiency virus was non-reactive. Chest X-ray (CXR) revealed bilateral cystic shadows predominantly in the lower zones and High-resolution computed tomography (HRCT) confirmed the existence of cystic bronchiectasis involving both lungs with marked changes in both lower lobes. However, a lesser degree of bronchiectasis was noted in both upper lobes. Fungal studies, including Serum precipitant IgG antibodies against Aspergillus fumigatus, Aspergillus specific Ig E (0.86 u/l), Serum Aspergillus Specific Ig G (0.49 u/l), were positive. Lung function test exhibited a mixed obstructive/restrictive pattern. Considering all the clinical features and investigation findings, “ABPA associated with bronchiectasis” was diagnosed.

Oral itraconazole (200 mg twice daily) and oral prednisolone (10 mg daily) started. However, prednisolone was discontinued due to the absence of clinical features of asthma and the antifungals were continued for four months. The patient's symptoms have settled after 2 weeks of starting the treatment. Liver Functions were monitored monthly. Haemoptysis was settled after a 3-day treatment with tranexamic acid. Pneumococcal vaccination and influenza vaccine were arranged on discharge with follow up arranged in chest clinic.

Discussion

Our patient is a bookbinder and has a history of exposure to mould and mildew from books during binding. Cladosporium, Penicillium, Alternaria and Aspergillus are the most common indoor moulds and could exist on book surfaces [5]. It is recommended to use appropriate personal protective equipment during handling books with moulds [5]. There wasn't any history of bronchial asthma or cystic fibrosis in our patient. CXR and HRCT confirmed the existence of bronchiectasis, without the classical HRCT features of ABPA, like fleeting pneumonia and central bronchiectasis [6]. Though, there were enough evidences of existence of ABPA such as typical clinical features, high eosinophilic count in full blood count, high total Ig E level, positive sputum full report and fungal studies for Aspergillus fumigatus. . Considering the total picture we made a diagnosis of ABPA associated with bronchiectasis. . In this case, ABPA is probably secondary to bronchiectasis, rather than bronchopulmonary aspergillosis causing bronchiectasis.

There were cases that ABPA presented without the history of the asthma or cystic fibrosis [7,8] as well as co-existing ABPA and bronchiectasis in literature [9].

Conclusion

Occupations associated with book handling should give appropriate attention to health hazards like fungal infections. Even though it is rare to present ABPA without bronchial asthma or cystic fibrosis, should consider the possibility of the existence of ABPA when clinical signs and symptoms are positive.

Declarations

Conflicts of interest: The authors have none to declare

Consent: Written informed consent was taken from the patient.

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