

CASE REPORT

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Allergic bronchopulmonary aspergillosis mimicking lung cancer in a nonasthmatic male patient

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Abstract

Presentation of *Aspergillus* infections of the lung is varied. Allergic bronchopulmonary aspergillosis (ABPA) is one such presentation in which there is hypersensitivity reaction to *Aspergillus* antigens. It occurs commonly in asthmatics and patients with cystic fibrosis. We report a case of ABPA in a 55-year-old male initially evaluated for left lung cancer who had never been diagnosed with asthma.

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Full Text

Introduction

Pulmonary diseases caused by *Aspergillus* species are of many types such as aspergilloma (fungal ball), allergic bronchopulmonary aspergillosis (ABPA) (allergic type), invasive pulmonary aspergillosis (invasive type), and chronic necrotizing pulmonary aspergillosis (semi-invasive type), based on the host immunity and the virulence of the organism. [1] ABPA is an allergic disorder which was first reported in 1952 by Hinson et al. [2] It is usually seen in patients with bronchial asthma and cystic fibrosis. De novo presentation of ABPA is rare and often mistaken for other pulmonary diseases resulting in delay in diagnosis and initiation of therapy. We report a case of ABPA in a patient who had no pre-existing lung disease.

Case Report

A 55-year-old male, nonsmoker, with no previous comorbidities, was referred to our institution as a suspected case of lung cancer. He had been having cough with mucoid expectoration for about a month prior to admission and had taken oral antibiotics and antihistaminics for the same. He also complained of breathlessness and weight loss of 4 kg. He had no hemoptysis or fever. He had had a chest X-ray taken at an outside hospital which had shown a left mid-zone nonhomogeneous opacity and hence had been referred as lung cancer. At admission, his general condition was good. Auscultation of his chest revealed few crepitation in the left mammary area.

Blood investigations revealed a total white blood cell count of 10,900 with eosinophils of 18.8% and absolute eosinophil count of 1626 and IgE level being 1480 IU/ml. Chest X-ray showed a left mid-zone nonhomogeneous opacity [Figure 1]. Computed tomography (CT) thorax was done which revealed symmetrical focal central bronchiectasis with surrounding patch of consolidation involving part of upper and middle lobes [Figure 2]. Based on this, a suspicion of ABPA was raised. Microbiological analysis of the sputum revealed *Aspergillus fumigatus* colonies. Serological test was positive for *Aspergillus* antibodies. Aspergellin skin test was positive. With these, we came to a diagnosis of ABPA and ruled out lung cancer (six out of eight in Rosenberg-Patterson criteria).{Figure 1}{Figure 2}

The patient was treated with oral prednisolone 0.5 mg/kg/day which was gradually tapered and with itraconazole 400 mg twice daily for 3 days followed by 200 mg twice a day for 16 weeks. Clearance of the radiological opacity and reduction in IgE levels were observed during follow-up.

Discussion

Aspergillosis is a common term used to denote all disease entities caused by nearly fifty pathogenic species of *Aspergillus*. Of these, *A. fumigatus* accounts for most cases of invasive and allergic aspergillosis. The required size of inoculum to cause infection is uncertain, but in general, an intense exposure is required to cause disease in an immunocompetent person.

ABPA represents a Type 1 and 3 hypersensitivity reaction to *A. fumigatus* commonly. ABPA occurs in nearly 1%-2% of patients with persistent asthma and in 2%-15% of adults with cystic fibrosis. [3] Episodes of bronchial obstruction with mucous plugs leading to coughing fits, pneumonia, consolidation, and breathlessness are typical. There are five stages of disease process: Stage I (acute), Stage II (remission), Stage III (exacerbation), Stage IV (steroid dependent), and Stage V (fibrotic). [4] The disease may have periods of remission and exacerbation and may later progress on to cause interstitial fibrosis.

A diagnostic criterion described by Rosenberg and Patterson has been used in diagnosing ABPA which includes eight major criteria including clinical (bronchial asthma), laboratory (eosinophilia, serum-precipitating antibodies, elevated IgE levels >1000 IU/ml, and Serum *A. fumigatus* specific antibodies), radiological (fleeting opacities on chest X-ray and central bronchiectasis on CT scan), and positive skin test for *Aspergillus* antigen. [5]

The diagnosis of ABPA may be confirmed if at least six major criteria are met, although it is also acceptable to confirm the diagnosis based on minimum criteria.

Chest X-ray findings in ABPA are variable, the most common being transient pulmonary infiltrates, atelectasis, and bronchiectasis. Less commonly, there may be cavities and fibrosis. [6]

ABPA without bronchial asthma is rare, and <50 cases have been reported worldwide mostly to *A. fumigatus* but one to *Aspergillus niger*. [7] It was mistaken for other entities such as tuberculosis and bronchogenic carcinoma in almost all of these cases. [8],[9]

Using glucocorticoids at a dose of 0.5 mg/kg/day is the treatment of choice for ABPA. Treatment is usually for 6 months, but it can be prolonged to 12 months also. Addition of an antifungal, preferably itraconazole, still requires further studies but was given for our patient since sputum grew colonies of *Aspergillus*. Steven et al. had done a double-blind, randomized controlled study on the effectiveness of itraconazole in ABPA, which showed that 45% improved with the addition of itraconazole 200 mg twice a day for 12 weeks. [10] Efficiency of the treatment is monitored by lowering serum IgE levels and clearing pulmonary opacities in chest X-ray. Ideally, patients must undergo an evaluation for every 6-8 weeks in the 1st year followed by every 6-12 months. [5]

Conclusion

ABPA is an underdiagnosed condition that may present with varied clinical and radiological presentations. When a patient does not respond to antibiotics or evaluation is not suggestive of malignancy, ABPA must be a differential diagnosis that is to be considered, and appropriate treatment must be initiated.

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Conflicts of interest

There are no conflicts of interest.

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