CASE REPORT

INVASIVE PULMONARY ASPERGILLOSIS IN ASYMPTOMATIC PATIENT

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ABSTRACT

Aspergillous pulmonary infection shows variable pattern of involvement. The two main complications of pulmonary aspergillosis are angioinvasion resulting in hemorrhagic infarcts and airway invasion resulting in bronchiolitis and bronchopneumonia. A 24 years old asymptomatic young male, came for chest X-ray for medical fitness which revealed a large right hilar mass. CBC and ESR were normal. CT scan chest with contrast demonstrated a tubular branching solid lesion in right perihilar region, causing dilatation of bronchi giving glove finger appearance with hemorrhagic component. Bronchoscopy showed thick mucoid secretions in right upper lobe. Fungal culture showed growth of Aspergillous flavum.

Key words: Asymptomatic, invasive pulmonary aspergillosis

Introduction

Aspergillous pulmonary infection shows variable pattern of involvement: aspergilloma in immunocompitent patient, invasive pulmonary aspergillosis in immunocompromised patient, and allergic bronchopulmonary aspergillosis in hypersensitive patient. The two main complications of pulmonary aspergillosis are angioinvasion resulting in hemorrhagic infarcts and airway invasion resulting in bronchiolitis and bronchopneumonia. Aspergilloma is a saprophytic infection defined as a conglomeration of fungal hyphae mixed with mucous and cellular debris within the pulmonary cavity usually appears in a preexisting lung cavity[1] resulted from a previous lung infection especially associated with pulmonary tuberculosis and reported up to 11% in these patients.[2] The affected patients presents with non specific symptoms of cough, fever and dyspnea.

Aspergillus pulmonary infections may occur in an immunocompromised and in immunocompitent indivuals and show variable patterns ranging from aspergilloma to invasive pulmonary aspergillosis[3] which is potentially fatal condition depending upon the immunological and pulmonary status of patients. In immunocompitent patients aspergilloma is the usual pattern and allergic bronchopulmonary aspergillosis if the patient is hypersensitive.[4] Aspergilloma is a saprophytic infection defined as a conglomeration of fungal hyphae mixed with mucous and cellular debris within the pulmonary cavity usually appears in a preexisting lung cavity[1] resulted from a previous lung infection especially associated with pulmonary tuberculosis and reportedup to 11% in these patients.[2] On CT it appears as a intracavitatry soft tissue mass of variable shapes.[5] We reported a case of young male asymptomatic, healthy without history of asthma, incidentally found to have a well circumscribed lobulated radioopaquemass at right hilar region on chest x-ray. The radiological and bronchoscopic features of this rare form of pulmonary aspergillosis are described along with histopathological confirmation.

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Case Report

A 24 years old young male came for X-ray chest for medical fitness. He was non smoker with no history of cough, hemoptysis, fever or weight loss, without previous history of asthma, civil engineer by profession and had history of working near cement factory for one year. His physical examination was unremarkable with out evidence of lymphadenopathy. His CBC and ESR were with in normal limits. The chest X-ray revealed a large right hilar mass which was extending into the adjacent parts of lung in branching pattern as shown in (Fig. 1). CT scan chest with contrast was done for further evaluation, which demonstrated a

Figure 1: Chest X ray showing a large right hilar mass

tubular branching solid lesion in right perihilar region extending from the right hilum to the lower part of anterior segment of right upper and middle lobe, causing dilatation of bronchi giving glove finger appearance. Indistinct margins of haze around the lesion represented its hemorrhagic component as shown in (Fig. 2). No mediastinal lymphadenopathy or pleural effusion was noted on CT scan.

Bronchoscopy showed thick mucoid secretion in right upper bronchus. Bacterial and tuberculous cultures were negative, but fungal culture showed the growth of Aspergillous Flavum. Histopathology of these secretions showed exudative appearance admixed with fungal hyphae.

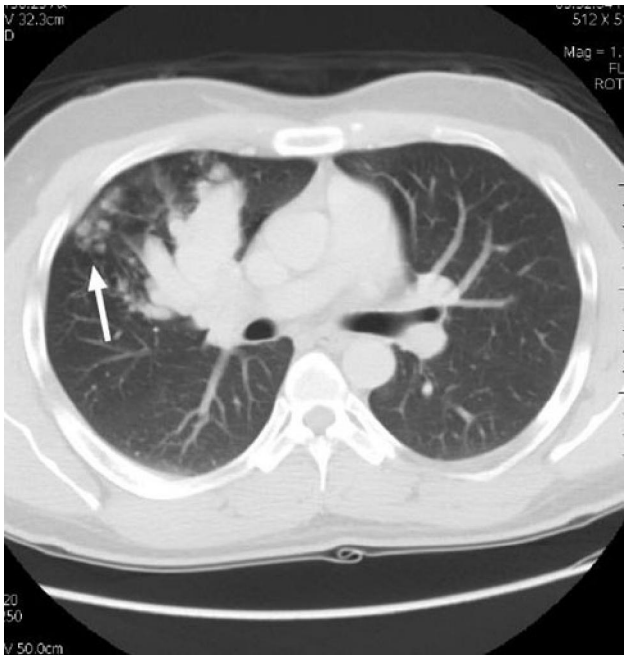

Figure 2: CT scan chest showing a tubular branching solid lesion in right perihilar region

Discussion

Pulmonary aspergillosis in healthy hosts usually manifest as aspergilloma or secondary non invasive aspergillosis. Different species of Aspergillus has been cultured from the specimen of these patients most commonly is Aspergillus mycelium which accumulates in a cavity already present secondary to pulmonary inflammatory conditions. Zimmerman postulated that the fungus grows inside a preexisting cavity and form a dense ball of fungal hyphae with exudative material.[6] The fungal hyphae keep on growing and cause extensive granulation along the cavity lining that may cause hemoptysis. An aspergilloma may remain silent for years or may cause hemoptysis especially if associated with tuberculosis other than that chronic cough, dyspnea or low grade fever may occur. Fungus ball may be multiple usually involves the upper lobe but not always. Massive load of Aspergillus rarely may cause active pulmonary infection in immunocompitenthost, the primary invasive aspergillosis may become fatal. It present as bilateral diffuse areas of

consolidation. In a immunocompromised patient may enter the bronchus and erode into the surrounding vessels causing thrombosis leading to ischemia and infarction, the fungus then grows rapidly on the necrosed tissue expanding the necrosis and ischemia. Its radiographic appearance is non specific, may appear normal in early stages or as a large infiltrates involving large areas of lung. However halo sign on CT scan are characteristic sign of secondary invasive aspergillosis.[7]

The disease of this patient does not fit into any of the above defined conditions for the following reasons. The patient was immunocompitent with no previous history of tuberculosis or pneumonia. The patient did not have any underlying cavitatory lesion or a history of exposure to Aspergillus.

Eun-Young Kang described unusual cases of pulmonary aspergillosis in immunocompitent host which on chest radiographs and CT scan showed a single infiltrate located in the peripheral zone of lower or upper lobe with no previous lung disease,[8] these findings did not coincide with any of previously described types of pulmonary aspergillosis. Most authors believe that aspergilloma forms in a preexisting pulmonary cavity[4] but others postulated that implantation of fungus occurs in a healthy bronchus and keeps on growing cause the dilatation of the bronchus due to the pressure created by the growing colony.[6] In healthy population inhalation of Aspergillus has been described leading to self limiting pneumonitis.[9] Lesion in our patient may occurred previously unnoticed small dilatations of bronchus in which fungus gets implanted and grew causing massive dilatation of segment.

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