Case Report

A rare case of calcified pulmonary aspergilloma

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ABSTRACT

Pulmonary aspergilloma is caused by colonization and proliferation of Aspergillus in the preexisting cavities in lungs. Diagnosis of pulmonary aspergilloma is usually made based on chest X-ray findings, presence of serum precipitins against aspergillus and sputum culture. Bronchoscopic visualization of aspergilloma is very infrequent and more over calcification is rarely seen. We report a case of pulmonary aspergilloma, which was both calcified and visualized endoluminally during bronchoscopy.

KEY WORDS: Aspergilloma, bronchoscopy, calcification

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INTRODUCTION

Pulmonary aspergilloma is caused due to the inhalation of the fungal spores in patients with preexisting cystic or cavitary lung disease. The fungal hyphae admixed with mucus and cellular debris within a pulmonary cavity or ectatic bronchus forms an aspergilloma or fungal ball. Aspergilloma occurs most commonly in residual tuberculosis cavities, followed by sarcoidosis.[1]

Majority of patients with aspergilloma remain asymptomatic. Among those who are symptomatic, hemoptysis is the most common complaint. In many cases, an aspergilloma is suspected when a discrete, round or oval density, occupying the upper lobe cavity is incidentally noticed in a chest X-ray. Presence of serum precipitins against aspergillus is confirmatory test.

Aspergilloma passes through various phases in the clinical spectrum. The fungus grows and dies continuously, undergoes regressive changes in its structure, fragments and forms focal calcification. In majority of cases, the dead fungus liquefies, and is eliminated with the sputum. Rarely, the dead and calcified fungus may be retained within the cavity, which forms a calcified mass or broncholith. However, calcification is very infrequent.

Here we report a rare case of calcified aspergilloma, which was visualized during bronchoscopy.

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CASE REPORT

A 40-year-old male patient presented with cough with expectoration, and blood streaked sputum, which was intermittent for 2 years. He was diagnosed to have pulmonary tuberculosis 2 years ago for which he took treatment for 8 months. On examination, vitals were stable, and respiratory system examination revealed bronchial breath sounds in left upper lobe with crepitations. Routine blood examination showed eosinophilia and raised erythrocyte sedimentation rate (ESR) 20 mm/h. Chest X-ray revealed presence of left upper lobe cavity with accompanying air crescent [Figure 1]. Sputum for acid fast bacilli (AFB) smear was negative.

Bronchoscopy revealed white mass lesion occluding the apical posterior segment, which was hard and powdery on biopsy [Figure 2]. Histopathological examination of the biopsy specimen showed necrotic tissue fragments and fungal mass, composed of dichomatously branching, acute angled septate hyphae of Aspergillus. Calcified concretions were seen surrounding the debris and stained positive for periodic acid Schiff stain (PAS) [Figure 3]. There was no lymphoid tissue in the specimen to suggest broncholith due to erosion of calcified node within bronchus. Ziehl Neelson staining of the bronchial

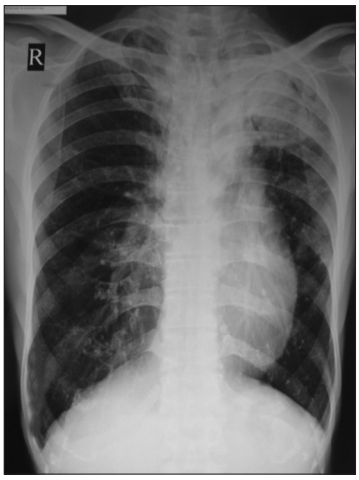

Figure 1: Chest X-ray showing left upper lobe cavity with crescent

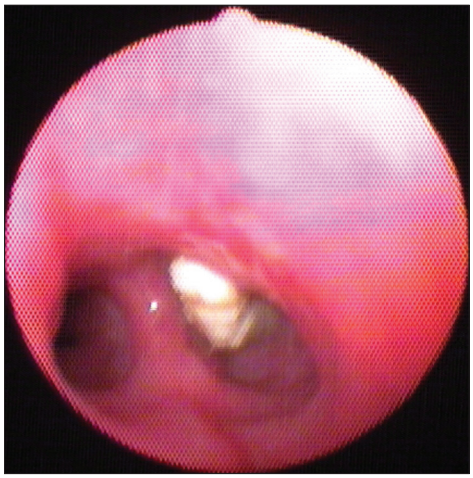

Figure 2: Bronchoscopy showing calicified lesion occluding left upper lobe

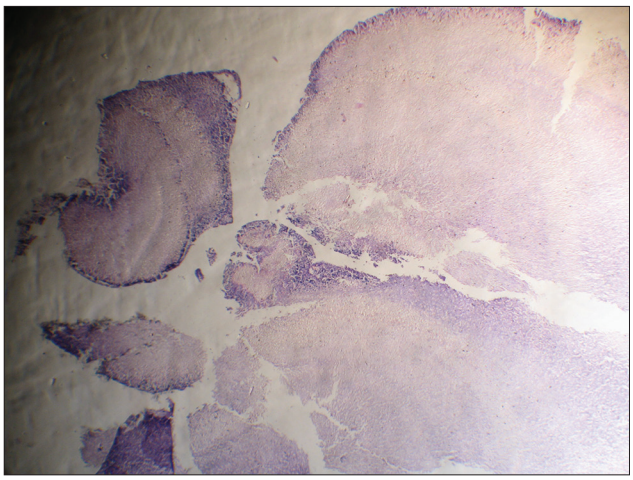

Figure 3: Histopathologicalexamination of the biopsy specimen showing necrotic tissue fragments and fungal mass, composed of dichomatously branching acute angled septate hyphae of Aspergillus with calcified concretions

lavage showed presence of AFB. Cytology of bronchial brush showed few endobronchial cells, metaplastic squamous cells and occasional atypical cells. Many clusters of necrotic cells with histiocytes, neutrophils, and acute angled septate fungal hyphae were seen in a background of necrotic material and red blood cells (RBCs), suggestive of an abscess with aspergillosis. Based on the bronchoscopy findings and histopathology report, he was diagnosed to have calcified aspergilloma in the left upper lobe with active tuberculosis. Antitubercular treatment was restarted under DOTS Category II, with INH, rifampicin, pyrazinamide, ethambutol, and streptomycin.

Follow up of the patient was done, and bronchoscopy repeated after one year revealed disappearance of the calcified mass. AFB smear and fungal smear of bronchial lavage were negative. Lung biopsy showed no evidence of fungal elements.

DISCUSSION

Aspergilloma is generally a radiological diagnosis and is often a complication of a posttubercular cavity. However, presence of endoluminal aspergilloma as visualized bronchoscopically is a rare entity. A study has reported ten patients with endobronchial aspergilloma diagnosed by bronchoscopy and histological examination. The chest radiologic finding showed fibrotic changes as a consequence of previous tuberculosis infection in most patients and a mass-like lesion in few patients.[2] In a survey among 544 patients with posttuberculous cavities of at least 2.5 cm, and sputum negative for tubercle bacilli, it was reported that 25% of the patients had presence of serum precipitins against Aspergillus, and 11% of them had radiographic evidence of aspergilloma. Resurvey done among the survivors after 3 years, showed serum precipitins positive in 34% of the patients, and chest X-ray positive for aspergilloma in 17% of the survivors.[3] In our case, patient had past history of tuberculosis that must have probably caused the cavity in the left upper lobe, which led to aspergilloma formation.

This patient presented with hemoptysis, which is the most common symptom among the patients with aspergilloma. In a study it was found that 74% of the patients with aspergilloma had hemoptysis. Immune pathogenetic mechanism of aspergilloma and allergic bronchopulmonary aspergillosis is quite distinct. However, a rare case of the coexistence of ABPA and aspergilloma has been quoted.[4]

Bronchoscopy done revealed an incidental finding of aspergilloma, which was endoluminal. In 1987, a case of pulmonary aspergilloma detected during bronchoscopy was reported, which was probably the first case to be diagnosed in this manner.[5] Similar cases have been reported later[6] and intracavitary instillation of antifungals have been tried in few such cases.[6] A calicifed bronchopulmonary lymph node referred to as broncholiths may sometime erode the bronchus and may

be visualized endoluminally by bronchoscopy. However, differentiation is possible histopathologically from calicified aspergilloma as broncholith due to lymph node calicification demonstrates lymphoid tissue in abundance, which was absent in our case.

The biopsy specimen showed calcification, which is very unusual. However, cases of calcified aspergilloma have been reported earlier. A case of endobronchial aspergilloma that led to necrotizing pneumonia has also been previously cited.[5]

The repeat bronchoscopy, done after one year in this patient showed disappearance of the mass, with no evidence of fungal elements, which is probably due to spontaneous lysis of the lesion, or as a result of pyogenic infection in the cavity. Similar cases of spontaneous lysis of aspergilloma has been documented previously.[6]

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