

PULMONARY ASPERGILLOMA

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Abstract:

Pulmonary aspergilloma is a rare disease, usually presenting as secondary invasion of preexisting lung cavity. When a pre-existing lung cavity is colonized by Aspergillus fumigatus it forms a fungal ball (Pulmonary aspergiloma). Presenting symptoms is usually cough, haemoptysis that may be life threatening. The radiological findings are that of a ball like structure within preexisting lung cavity on plain radiography and computerized tomography of the chest. We report a case of aspergilloma in a 70 year old man with past history of tuberculosis presented with the complaint of occasional cough, respiratory distress and occasional low grade fever for two years. It was diagnosed radiologically and confirmed by fine needle aspiration cytology and treated successfully with oral Itraconazole.

Key words: Aspergilloma, Pulmonary tuberculosis, Itraconazole.

Introduction:

The fungus *Aspergillus fumigatus* very rarely gives rise to human infection.¹ Pulmonary aspergilloma is a rare disease, usually presenting as secondary saprophytic infection of preexisting cavities in the lung.^{1,2} The most common preceding lung lesion is an open-healed tuberculous cavity.² This disease is commonly seen in immunocompromised hosts such as patients with acquired immunodeficiency, cystic fibrosis, diabetes mellitus, neutropenia, bone marrow or organ transplantation.^{2,3}

The aim of this case report is to highlight the diagnostic difficulties and management dilemma in an elderly patient with pulmonary aspergilloma, because bronchogenic carcinoma is one of the important differential diagnosis of cavitory lung lesion in elderly smoker patients.

Case Report:

A 70 years old, normotensive, smoker gentleman attended to us with the complaints of occasional cough with respiratory distress and occasional low grade fever for last 2 years. He also had left sided chest pain for last 2 months. On query, he gave history of

pulmonary tuberculosis about 12 years back, which was treated with 6 months regimen of anti tubercular drugs (rifampicin, isoniazid, ethambutol, pyrazinamide). He is a smoker for last 50 years with 30 packs year. Clinical examination revealed dull percussion notes and inspiratory crepitations in the left upper chest. Other systems were unremarkable on examination.

On investigations full blood count were within normal values. His erythrocyte sedimentation rate (ESR) was 86 mm in first hour. Serum urea, creatinine and electrolytes were within normal limits. But, random blood sugar was 10.8 mmol/l. Glucose tolerance test was 12.60 mmol/l 1hr after 75 gm of glucose intake and 11.56 mmol/l after 2hrs. Chest radiographs and computerized tomographic scan (CT scan) showed a cavitory lesion in upper lobe of the left lung with a mass within it and a crescentic rim surrounding the mass. In that stage our confusion was whether the lesion was a mycetoma or a cavitating bronchogenic carcinoma. We went for CT guided FNAC which revealed no malignant cell or granuloma. But there were a good number of polymorphs, pulmonary

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Fig.-1: X-ray chest showing Mycetoma in apex of the left lung with crescentic rim of air (arrow).



Fig.-2: CT scan of the chest showing a cavitory lesion in upper lobe of the left lung with a mass within it and a crescentic rim surrounding the mass suggestive of mycetoma (arrows).

macrophage and fungal hyphae. Finally he was diagnosed as a case of Pulmonary Aspergilloma in healed tuberculous cavity with Diabetes Mellitus. We started treatment with oral Itraconazole (300mg daily) and he responded satisfactorily. On follow up after 1 month, there was no cough, chest pain, respiratory distress or fever.

Discussion:

Pulmonary aspergilloma frequently complicates an existing cavity that was due to tuberculosis in most cases.^{1,2,4} Regnard et al reported growth of aspergilloma in a post-tuberculosis cavity in 69% of a series of 89 cases.⁵ Most patients of pulmonary aspergilloma are asymptomatic.³ Symptomatic patient commonly presents with cough, fever, shortness of breathing and hemoptysis (in 50 to 80% cases, which may be life-threatening).^{3,6,7} Dyspnoea,

malaise and weight loss are additional symptoms in aspergilloma that may be due to the underlying pulmonary disease.⁶ Fever is an unusual finding in aspergilloma, which may be due to concurrent bacterial infection, allergic type III hypersensitivity response or possibly an overlap syndrome, such as chronic necrotizing Aspergillosis.^{6,7} Aspergillomas are not static lesions. They may increase, decrease or remain stable in size and only <10% of cases may lyse spontaneously.⁶

Physical examination is generally nonspecific, like decreased breath sound or bronchial breath sounds or additional sounds.⁸ The diagnosis is based on various features, among those the presence of radiological opacity with an air crescent sign is of specific importance.¹ This air crescent sign reflects the presence of a fungus ball in a parenchymal cavity.^{1,6,7} Usually the size of the cavity is bigger than the ball, which forms a rim of air around most of the part of the ball. Hyphae of the *Aspergillus fumigatus* can be found in sputum, bronchial washings, FNAC (fine needle aspiration cytology) and post operative histopathological examination of the ball. The symptoms in our elderly patient with a history of heavy smoking gave rise to a suspicion of bronchogenic carcinoma. We went for CT guided FNAC from the lung lesion, which revealed fungal hyphae. Other alternative radiological differential diagnoses are disintegrating hydatid cyst, pulmonary abscess with necrosis, blood clot in a pulmonary cavity following haemorrhage.⁷ Definitive treatment of aspergilloma is surgical resection,⁹ but with a high morbidity and mortality (7-25%).² Surgical resection is restricted to patients with severe haemoptysis and adequate pulmonary function, and patients with poor prognosis.¹⁰ Regarding medical treatment, a lot of regimen are available, which includes treatment with amphotericin B, sodium or potassium iodide, itraconazole and fluconazole.^{1,3,4} Itraconazole is an orally active triazole antifungal agent with less toxicity, high tissue penetration and greater *in vitro* activity against *Aspergillus fumigatus* than amphotericin B.¹¹ Effective doses of itraconazole is usually 200 to 400 mg/d orally with a duration of treatment of 6 to 18 months.¹² Itraconazole, amphotericin B can be injected inside the mycetoma percutaneously under CT guidance, if response to oral medications is not adequate.¹³ In our patient we choose oral itraconazole to which he responded satisfactorily.

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