

# Fungal ball presenting as Haemoptysis

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## Abstract

Aspergillus species are ubiquitous molds found in organic matter. Aspergillus primarily affects the lungs, causing 4 main conditions like, allergic bronchopulmonary aspergillosis (ABPA), chronic necrotizing pulmonary aspergillosis (CNPA), aspergilloma, and invasive aspergillosis.

The term aspergilloma (fungal ball) was first used by Dave almost a century later to describe a discrete lesion that classically colonizes the cavities of healed pulmonary tuberculosis and other fibrotic lung diseases 1.

The true incidence of aspergilloma is exactly not known. Aspergilloma develops from secondary colonization of preexisting lung cavities. Natural history of aspergilloma is variable. Aspergilloma clinically presented as mild to severe hemoptysis, which may be life threatening 2.

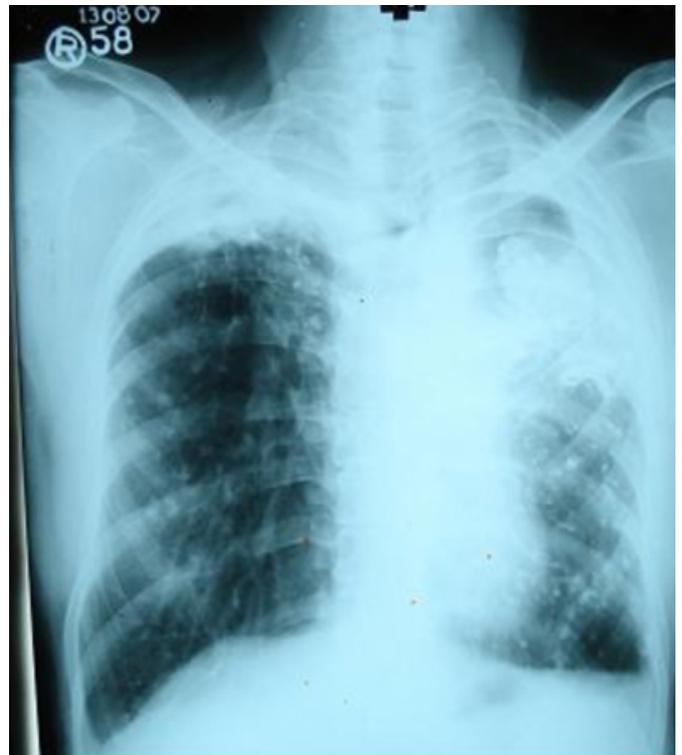
Here we are presenting a case of pulmonary aspergilloma in a 55 year old, non smoker male, who presented as recurrent haemoptysis.

## CASE REPORT

A 55 years old male, non smoker was admitted to our department with the complaints of recurrent haemoptysis and cough with expectoration for the last 11 years. But for the last two days he experienced recurrent bouts of massive haemoptysis. His past history revealed that he had taken off and on antitubercular drugs for last 8 years for the complaints of recurrent haemoptysis. His resting pulse rate was 102/min and blood pressure was 112/74 mm Hg and his respiratory rate was 26/min. His general examination revealed no significant abnormality. His respiratory system examination revealed coarse crepts localized to left infraclavicular and axillary areas. Initially he was put on symptomatic treatment for Haemoptysis. Subsequently his chest x-ray was done that showed a large cavity with a mass filled opacity confined to left upper zone (Figure:1).

## Figure 1

Figure 1 : Chest x-ray was done that showed a large cavity with a mass filled opacity confined to left upper zone



Healed and fibrotic changes were also noted in right upper zone. Thus a possibility of aspergilloma with other possibilities was raised. The clinical examination of the rest

of the system revealed no abnormality.

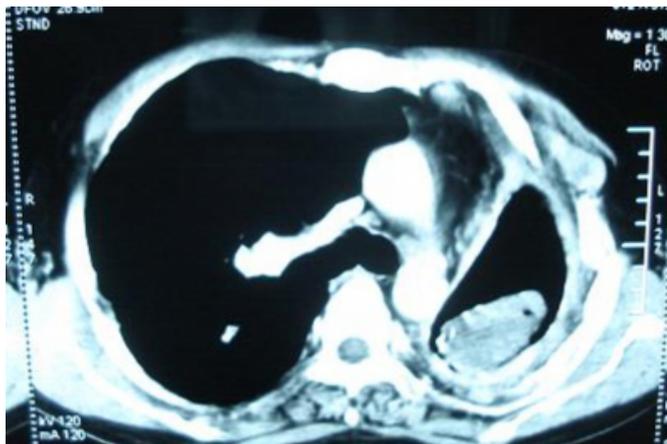
His blood biochemistry revealed, Total leucocyte count: 10,200/cmm, DLC: P 66 %, L 34 %. His PPD was negative. His sputum for AFB on three consecutive days was also negative. Subsequently Fiberoptic bronchoscopy was done but was normal. Culture of BAL Fluid growth of *aspergillus fumigatus*

He was put on antibiotics with symptomatic and supportive treatment. He was admitted in our department for 10 days. During hospitalization, his Haemoptysis was stopped and general conditions get improved.

While ruling out other possibilities, further his CT thorax was done that revealed fungal ball confined to left upper lobe (Figure:2) .

### Figure 2

Figure 2: CT thorax revealed fungal ball confined to left upper lobe



Thus the diagnosis of fungal ball presenting as recurrent haemoptysis was made. He was discharged on antibiotics and symptomatic and supportive treatment and advised for further follow-up.

## DISCUSSION

The first description of aspergillosis in man was made by Bennett in 1842. Aspergilloma represents a saprophytic growth of *Aspergillus* that colonizes in the pulmonary cavities and is usually located in the upper lobes. Although aspergillous spp. like *A. fumigatus* are by far the most common etiologic agents but other fungi may cause the formation of fungus ball (eg. *zygomycetes* and *fusarium*).

The aspergilloma (fungus ball) consists of masses of fungal mycelia, inflammatory cells, fibrin, mucus and tissue debris. Cavities of prior tuberculous infections are the most

common sites <sup>3</sup> . They are usually located in the upper lobes of the lungs <sup>6</sup> and are mobile intracavitary masses as seen in our case. Other causes in decreasing frequency include cysts and cavities from sarcoidosis, chronic fungal infections, bronchiectasis, bullae, sites of prior surgery such as lobectomy, pneumonectomy, pulmonary abscesses and bronchial cysts <sup>4</sup> .

The exact incidence of pulmonary aspergillomas is not known. The estimated figures range between 0.016% and 17% in various studies <sup>5,6</sup> but no estimate is available for India. The natural history of aspergillomas is variable: the fungal ball and the 'cavity in which it lies may enlarge, invasive aspergillosis may develop and in 7 to 10% cases aspergillomas may undergo spontaneous lysis <sup>6</sup> .

Pathologically, the walls of aspergilloma consist of fibrous tissue, inflammatory cells, and abundant vessels that may be the source of hemorrhage.

Pulmonary aspergillomas clinically present as chronic productive cough or hemoptysis, which can be life threatening particularly in patients with underlying PTB <sup>7</sup> . In a study done with 9 patients all had complaints of haemoptysis and 5 presented with cough <sup>8</sup> .

Aspergilloma does not cause many characteristic laboratory abnormalities. *Aspergillus precipitin* antibody test results (ie, for IgG) are usually positive. In aspergilloma, chest radiography reveals a mass in a preexisting cavity, usually in an upper lobe, manifested by a crescent of air partially outlining a solid mass. As the patient is moved onto his or her side or from supine to prone, the mass is observed to move within the cavity. However this sign is nonspecific because other conditions like haematoma, neoplasm, abscesses, hydatid cyst and wegeners granulomatosis can also demonstrates this feature <sup>9,10,11</sup> .

Pleural thickening may be the earliest sign on chest radiographs before any visible changes in the involved cavity of cyst . Other findings of *Aspergillus* superinfection include thickening of the wall of the cyst or cavity, opacification, or formation of an air – fluid level within the cyst. These masses may exist for years and can calcify.

CT scan images provide better definition of the mass within a cavity and may demonstrate multiple aspergillomas in areas of extensive cavitory disease. CT scan is now considered as more accurate technique than conventional chest radiograph in defining fungus balls, particularly in

fibrotic and distorted lung fields <sup>12,13,14</sup> .

Since there is no effective medical therapy for aspergilloma, some clinics recommend surgical removal of all lesions. Approximately 10% of aspergillomas spontaneously resolve . Systemic antifungals and steroids have shown limited results in treating aspergillomas.

However, surgical resection of an aspergilloma is the only certain method of cure.

Surgery is the primary choice for treating pulmonary aspergillomas, but it is associated with high morbidity and mortality. The underlying lung disease likes diabetes mellitus, chronic bronchitis and emphysema may be associated with poor outcome.

Unfortunately, only 20 to 40 per cent of patients with mycetomas are candidates for surgical excision of the lesion. The remainder are disqualified on different grounds: bilateral or multiple aspergillomas, severe pulmonary fibrosis, chronic bronchitis and emphysema, or cor pulmonale .

Other therapies include intracavitary instillation of antifungal agents, embolizations of bronchial arteries for hemorrhage, and surgical resection for cases of recurrent hemoptysis.

### COMPLICATION

The major clinical concern in patients with pulmonary aspergillomas is massive hemoptysis. Hemoptysis is common , occasionally it is massive and life - threatening. Massive hemoptysis is the cause of death in 5 - 14 % of patients with pulmonary aspergillomas.

### CONCLUSION

In last we concluded that in any patients who had taken adequate antitubercular drugs in past and presented with recurrent haemoptysis then possibility of fungal ball (pulmonary aspergilloma ) always kept in mind, so that misuse of antitubercular drugs will not be happen.

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