

CASE REPORT

Pulmonary Aspergilloma

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Introduction: Aspergillosis is a serious pathologic condition caused by *Aspergillus* organisms and is frequently seen in immunocompromised patients. *Aspergillus* species causes a variety of pulmonary diseases such as saphrophytic (aspergilloma/mycetoma), hypersensitivity reaction (allergic bronhopulmonary), semi-invasive (chronic necrotizing) and angioinvasive aspergillosis. **Case report:** We report a case of pulmonary aspergilloma (PA) in 38 years old patient who was previously healthy with complaints of fever and hemoptysis. PA was diagnosed radiologically and confirmed by serology. **Conclusion:** Oral itraconazole was administered. The patient responded well to the treatment with improvement in his systemic symptoms and regression of the pulmonary lesions. **Key words:** aspergilloma, hemoptysis, treatment.

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1. INTRODUCTION

Aspergillosis is a mycotic disease caused by *Aspergillus* species, usually *A. fumigatus*. *Aspergillus* is a genus of ubiquitous soil fungi and humans get infected by inhalation of airborne spores (1). The histologic, clinical, and radiologic manifestations of pulmonary aspergillosis are determined by the number and virulence of the organisms and the patient's immune response. It is chronic and silent, but may have fulminating and fatal course (2).

Aspergillus primarily affects the lungs, causing four main syndromes: allergic bronchopulmonary aspergillosis (ABPA), chronic necrotizing aspergillus pneumonia (or chronic necrotizing pulmonary aspergillosis (CNPA), aspergilloma and invasive aspergillosis (3). Pulmonary aspergilloma (PA) is an infectious disease originating from colonization of *Aspergillus fumigatus* in lung cavities and it is frequently and concomitantly present with pulmonary

diseases such as tuberculosis cavity, sarcoidosis, cavitary neoplasia, bronchiectasia, lung abscess, bronchial cyst and pulmonary infarct (4).

The aim of this case is to emphasise diagnostic difficulties and treatment dilemma in atypical cases of pulmonary aspergilloma, especially in young patients.

2. CASE REPORT

A 38-year-old man, member of the Roma population, with social history included a 20 packs/year smoking habit, who was otherwise healthy, presented with history of fever (up to 39°C) and chills and some episodes of small hemoptysis for 3 weeks. There was no history of chest pain, shortness of breath and he denied any history of weight loss. On physical examination, apart from sinus tachycardia, he appeared healthy with normal findings. A chest radiography revealed a cavitary lesion with "air crescent sign" (Figure 1). Routine laboratory examination revealed hypokalaemia, hy-

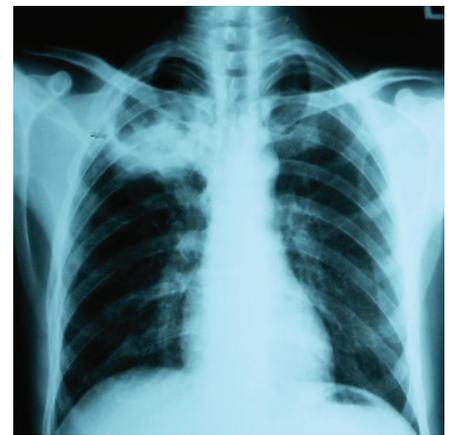


Figure 1. Cavitary lesion of upper right lobe with "air crescent sign"

poproteinemia, hypoalbuminemia, elevated C reactive protein 125,3 mg/L (<7), fibrinogen 8,5 g/l (2-4g/L), aspartate aminotransferase 70 U/L (<37), alanine aminotransferase 89 U/L (<43 U/L), leucocyte count $21,3 \times 10^9/L$ (4.0–10.0 $\times 10^9/L$) and a mild degree of anaemia, with a haemoglobin level of 10.8 g dl. Serial of sputum cultures were negative. Acido-alcohol resistant bacilli are not isolated in sputum series. Anti HCV, HIV and HbsAg were negative.

Computed tomography described bullous changes in the tops of both lungs and homogeneous condensation with permeated many illuminating in right lobe (Figure 2). Fiberoptic bronchoscopy discovered light mucosal hyperemia for right upper lobe with several point sources of bleeding. Pathohistology of bronchial biopsy was insignificant. Culture of broncho-alveolar lavage (BAL) fluid yielded negative results.

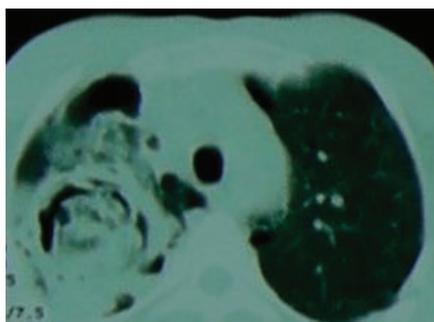


Figure 2. CT scan of the chest showing a cavitary lesion in the right upper lobe with a crescentic rim surrounding the cavitary mass

On admission, patient was subfebrile (up to 37.4°C). At first, empiric therapy was given (ciprofloxacin and ceftriaxone). Six days upon arrival, patient got worsen with high fever (up to 41°C) we decided to introduce empirical treatment for tuberculosis during one month. In the meantime, serology results has come and showed positive antifungal serum IgG (anti IgG At 157U/ml (≤ 70)), and IgM (Anti Aspergillus IgM At 335U/ml (≤ 70)) antibodies, but serum antigen was not isolated. Oral itraconazole (300mg daily) was introduced and he responded satisfactory. Patient had no fever the third day after therapy. On follow up, six weeks upon therapy, he had no fever, cough or haemoptysis and there was a moderate regression of radiological findings (Figure 3). The resection of pulmonary aspergilloma was recommended, but patient refused it.

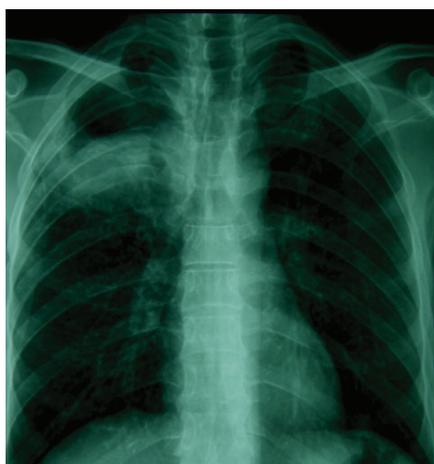


Figure 3. Control chest radiogram 6 weeks after therapy with Itraconazole

3. DISCUSSION

Patients suffered from PA present with symptoms that are usually non-specific: fever unresponsive to antibi-

otics, cough, sputum production, dyspnoea, pleuritic chest pain (due to vascular invasion leading to small pulmonary infarcts) and haemoptysis, which is usually mild, but can be massive (5, 6). Local finding may not be present in physical examination, or findings of respiratory distress and consolidation are determined (7). Our patient had fever and haemoptysis, and radiologically specific infiltrative shadow.

The presumptive diagnosis of aspergilloma is made by imaging, but the definite diagnosis relies on other clinical data. The chest radiograph is of little use in the early stages of disease, because the incidence of nonspecific changes is high. Chest CT scan leads to earlier diagnosis and improved outcomes in these patients. The typical chest CT scan findings in patients suspected to have PA include multiple nodules and the halo sign or at a later stage as an air crescent sign, which represents crescent-shaped lucency in the region of the original nodule secondary to necrosis (8, 9). Positive serology precipitins to *A. fumigatus* are diagnostic, but the test will be negative if some species other than *A. fumigatus*, or another fungus, such as *Zygomycetes* or *Fusarium spp* (7). Serum IgG antibodies to *Aspergillus* are positive in almost every case. *Aspergillus* antigen has been recovered from the bronchoalveolar lavage fluid of patients with aspergilloma, but the diagnostic value of this test is variable (10). The diagnosis of aspergilloma in our case was made by positive serology.

Pulmonary aspergilloma usually arise from colonization of aspergillus in preexisting lung cavities such as tuberculosis, sarcoidosis, bronchiectasis, bronchial cysts and bulla, but also complicate ankylosing spondylitis, neoplasm and pulmonary infection. Among this tuberculosis is the most common associated condition (11). In a study on 544 patients with pulmonary cavities secondary to tuberculosis, 11% had radiological evidence of aspergilloma (12). In the setting of diagnostic work-up, concerning following data: not responding to antibiotics, temperature jump up to (40°C), radiological finding and localization and the fact of belonging to socially vulnerable population, we decide to introduce anti tuberculosis therapy. Upon arrival

of positive serology, oral Itraconazole in dosage 300mg per day was introduced. Patient was afebrile the third day.

Up to now, there is no complete consensus in treatment of PA. Treatment is considered only when patients become symptomatic, usually with haemoptysis. Inhaled, intracavitary, and endobronchial instillations of antifungal agents as well as intravenously administered amphotericin B have been tried, but failed in success (13, 14). Administration of amphotericin B percutaneously guided by CT scan can be effective for aspergilloma, especially in patients with massive haemoptysis, with resolution of haemoptysis within few days (15, 16).

Oral itraconazole has been used, with radiographic and symptomatic improvement in half to two-thirds of patients, and occasional patients having a complete response. Itraconazole is a useful agent for aspergilloma management, because it has a high tissue penetration, but since it works slowly it is not in use in cases of massive, life-threatening haemoptysis (17, 18).

The surgical treatment of pulmonary aspergilloma is controversial. Some surgeons agree that most of the patients with minor haemoptysis can be managed in a conservative way (19). Several surgeons insist that all good-risk patients, even if asymptomatic, should undergo lung resection to avoid the possibility of exsanguinating the haemorrhage (20). Many endorse surgical resections of the cavity and removal of the fungus ball in cases with massive haemoptysis which at times is recalcitrant to embolization procedures (21).

4. CONCLUSION

The natural history of patients affected is variable. Some aspergillomas are known to undergo spontaneous lyses. Many endorse surgical resections in view of high risk of unpredictable, life-threatening hemoptysis.

Radiological finding is very important diagnostic tool in the diagnosis of PA. The characteristic appearance of an aspergilloma is one of more round masses within round or ovoid cavity, usually in the upper lobe, demarcated from the cavity wall by a crescent-shaped collection of air.

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