

Chronic Isolated Hemoptysis Revealing Coexisting Pulmonary Aspergilloma And Active Pulmonary Tuberculosis: A Case Report

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Abstract:

Pulmonary aspergilloma is a non-invasive form of chronic pulmonary aspergillosis that usually develops within pre-existing lung cavities, most commonly following pulmonary tuberculosis. Hemoptysis is the most frequent clinical manifestation and may occasionally be life-threatening. The coexistence of pulmonary aspergilloma with active pulmonary tuberculosis remains uncommon and may represent a diagnostic challenge.

We report the case of a 42-year-old woman with no previous history of tuberculosis who presented with recurrent isolated hemoptysis evolving over five years. Chest computed tomography (CT) revealed a thick-walled cavitary lesion in the right middle lobe with mixed solid and air content, suggestive of an aspergilloma. Although Aspergillus serology was negative, Aspergillus galactomannan testing was positive in the bronchial aspirate. Culture of the same sample also grew Mycobacterium tuberculosis, confirming concomitant active pulmonary tuberculosis. Itraconazole therapy was initiated, followed by antituberculous treatment, with an initially favorable clinical course. However, hemoptysis recurred one year later, requiring referral to the thoracic surgery department for further management.

This case highlights the rare coexistence of pulmonary aspergilloma and active pulmonary tuberculosis in a patient with no known history of tuberculosis. It underscores the need to systematically consider concomitant active tuberculosis in patients presenting with chronic hemoptysis and cavitary lung lesions, even when an aspergilloma has been identified.

Keywords: Pulmonary aspergilloma; Pulmonary Tuberculosis; Hemoptysis; Cavitary lung lesion; Aspergillus.

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I. Introduction:

Pulmonary aspergilloma is a non-invasive form of chronic pulmonary aspergillosis, corresponding to the colonization of a pre-existing lung cavity by an intracavitary fungal mass composed of Aspergillus hyphae, mucus, fibrin, and cellular debris[1,2]. Residual cavities left after tuberculosis are the main predisposing factor for the development of pulmonary aspergilloma, particularly in countries with high endemicity.[3,4].

The clinical presentation is variable, ranging from asymptomatic forms to sometimes severe respiratory manifestations. Hemoptysis is the most common clinical presentation, which can even be life-threatening in more severe cases.[2,3,5].

We report here the case of an aspergilloma associated with pulmonary tuberculosis, revealed by an isolated chronic hemoptysis evolving for 5 years, diagnosed and treated in the pulmonology department of CHU Mohamed VI Tangier.

II. Case Report:

We report a case of 42-year-old female patient, non-smoker, never treated for tuberculosis. She reported recurrent episodes of hemoptysis, evolving for five years, without dyspnea or chest pain, with no prolonged fever and no deterioration in general condition. Given the chronic course of hemoptysis, several microbiological investigations had previously been performed on sputum samples. Direct smear examinations for acid-fast bacilli, mycobacterial cultures, and Xpert MTB/RIF testing had repeatedly yielded negative results. The patient was admitted to our department due to worsening symptoms. On admission, the patient was conscious and clinically stable, with an oxygen saturation of 97% on room air, a respiratory rate of 24 breaths per minute, a blood pressure of 110/60 mmHg, and a heart rate of 102 beats per minute. The pulmonary examination was unremarkable.

Contrast-enhanced chest computed tomography (Figure 1) revealed a right middle lobe parenchymal consolidation containing a 35-mm thick-walled cavitary lesion with irregular margins and mixed solid-air content, showing no enhancement after contrast administration.

As part of the etiological workup, Aspergillus serology was performed and was negative. Bronchoscopy was then indicated. The endoscopic examination revealed inflammatory mucosa with an anthracotic pigmentation in the culmen. Bronchial samples were obtained. Aspergillus galactomannan testing was positive in the bronchial aspirate. Mycobacterium tuberculosis culture from the same sample was positive, confirming the diagnosis of active pulmonary tuberculosis.

A diagnosis of concomitant pulmonary aspergilloma and active pulmonary tuberculosis was established. The patient was started on oral antifungal therapy with itraconazole at a dose of 400 mg/day, administered in two divided doses. Antituberculous therapy was initiated one month later. The initial clinical course was favorable, with complete resolution of hemoptysis. However, hemoptysis recurred one year later, prompting referral to the thoracic surgery department for further management.

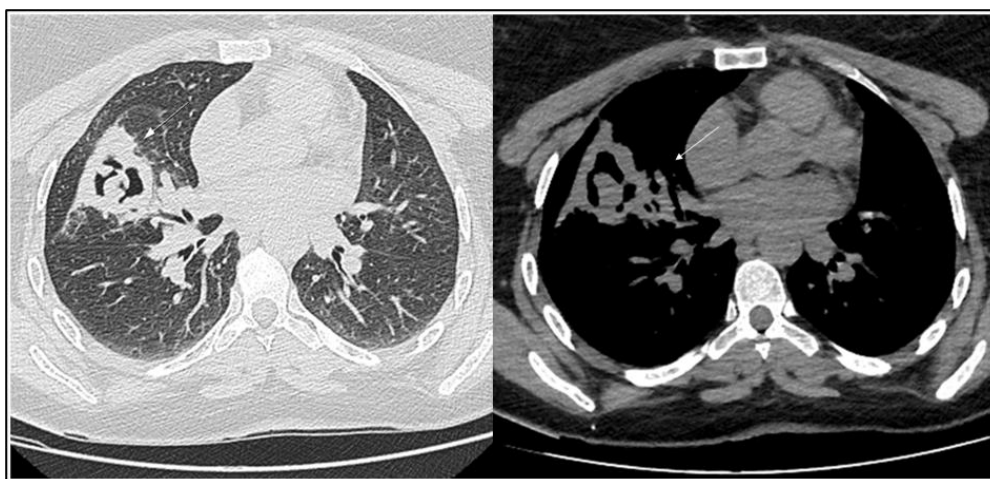


Figure 1: Chest computed tomography shows a right middle lobe cavitory lesion containing an intracavitary mass separated from the cavity wall by an air crescent

III. Discussion:

Pulmonary aspergillosis encompasses a spectrum of Aspergillus-related lung diseases with variable clinical manifestations, with variable clinical expression, including allergic bronchopulmonary aspergillosis, aspergilloma, chronic necrotizing aspergillosis, and invasive aspergillosis [6,7].

The clinical presentation of aspergilloma, as reported in literature reviews, is dominated by hemoptysis as the main symptom [6–9]. This is consistent with our patient's clinical presentation. This Hemoptysis may be massive and potentially life-threatening, even in patients with an otherwise preserved general condition [2].

The diagnosis is based on a combination of clinical, radiological, microbiological and serological evidence.[3,9,10]. Chest CT scan typically shows a rounded or oval mobile intracavitary mass separated from the cavity wall by an air crescent, known as Monod's sign [2,3,11,12]. The mobility of the mass with changes in patient position supports the diagnosis of aspergilloma and helps differentiate it from other cavitory lung lesions [12–14].

However, this imaging pattern is not specific, as the air crescent sign may also be observed in tuberculosis, lung abscesses, hydatid cysts, certain cavitory tumors, and other fungal infections [11,13]. In the setting of active pulmonary tuberculosis, this distinction is particularly important, as cavitory tuberculous lesions or mixed lesions may mimic isolated aspergilloma and , and require careful radio-clinical correlation [12, 15, 16].

In cavitory forms, culture alone often has limited sensitivity, underscoring the role of serological testing, particularly anti-Aspergillus antibody detection, in complementing imaging findings [17]. This diagnostic challenge is particularly relevant when aspergilloma coexists with bacteriologically confirmed active pulmonary tuberculosis, as in our case. In this setting, the issue is not only to identify Aspergillus colonization within a cavitory lesion, but also to recognize the concomitant presence of two active pulmonary diseases [5,18].

Pulmonary tuberculosis is the main predisposing factor for aspergilloma. Although the coexistence of aspergilloma and active pulmonary tuberculosis has been reported, it remains uncommon in the published cases [5,14,19].

Management depends primarily on the severity of hemoptysis and whether the lesion is classified as simple or complex [20]. Itraconazole and voriconazole are the most commonly used oral antifungal agents for the treatment of pulmonary aspergilloma. Among these, itraconazole is considered an appropriate first-line therapeutic option, with an overall efficacy ranging from 43% to 76% according to published studies [9,21].

In selected cases, asymptomatic aspergilloma may be managed conservatively with close clinical and radiological follow-up. Bronchial artery embolization may provide short-term control of hemoptysis; however, it

does not eradicate the underlying intracavitary aspergillus focus, which accounts for the risk of recurrence [22]. Surgery remains the standard curative treatment for symptomatic aspergilloma, particularly in operable patients presenting with recurrent or massive hemoptysis. However, it is not always feasible and is associated with significant postoperative morbidity [2,9,13,22].

IV. Conclusion:

Pulmonary aspergilloma is primarily a complication of post-tuberculous cavitary lung disease and is classically revealed by hemoptysis. However, its association with confirmed active pulmonary tuberculosis remains uncommon, raising important diagnostic challenges and requiring careful clinical management. Our case illustrates a prolonged presentation with isolated chronic hemoptysis, revealing the rare coexistence of pulmonary aspergilloma and active tuberculosis in a patient with no known history of tuberculosis. It highlights that, in any patient presenting with chronic hemoptysis and a cavitary lung lesions, even when an aspergilloma has been identified.

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