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Impact Factor: 4.428

## Common Symptom due to Uncommon Cause: A Case of Unusual Cause of Bronchial Artery Aneurysm due to Pulmonary Aspergillosis

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### Abstract:

*A 59-year-old patient with type 2 diabetes mellitus who presented with massive hemoptysis two weeks after being treated for pneumonia complicated by apparent right lung abscess. Patient experienced persistent symptoms of cough associated with recurrent hemoptysis needing multiple hospital admissions. Contrast-enhanced computed tomography (CECT) chest revealed a right lower lobe mass with a concurrent right bronchial artery aneurysm. Elevated ESR associate with a high CRP persisted throughout the period. The patient underwent thoracic surgical intervention, including right lung lobectomy with ligation of the bronchial artery aneurysm. Histopathological analysis of the resected specimen confirmed the diagnosis of pulmonary aspergillosis. The patient was initiated on systemic antifungal treatment and scheduled for regular clinic follow-up. This case underscores the importance of considering pulmonary aspergillosis as a potential cause of massive hemoptysis in patients with a history of unresolved pneumonia, and highlights the successful management through appropriate timely surgical intervention and antifungal therapy preventing serious consequences like death*

**Keywords:** massive hemoptysis, unresolved pneumonia, pulmonary aspergillosis

### Introduction:

Pulmonary aspergillosis, caused by the ubiquitous fungus *Aspergillus*, presents a significant challenge in clinical practice, particularly in immunosuppressed individuals such as those with diabetes mellitus [1]. Pulmonary aspergillosis can be a mimicker for many common pulmonary disorders like pneumonia, lung abscess, lung cavity, intra-cavitary body as well as mass [2]. *Aspergillus* species are known colonizers in the environment, and their opportunistic nature poses a constant risk to individuals with compromised immune systems [3].

several studies have highlighted the diverse clinical presentations and diagnostic challenges induced by pulmonary aspergillosis [4,5]. Immunocompromised patients, including those with diabetes mellitus, are particularly susceptible to invasive aspergillosis, which can present with nonspecific symptoms such as fever, cough, and dyspnea [1]. Radiological imaging plays a crucial role in the diagnosis, with findings ranging from infiltrates mimicking pneumonia to nodules, cavities, and masses [6].

The diagnosis of pulmonary aspergillosis often requires a multidisciplinary approach, incorporating clinical evaluation, radiological imaging, microbiological cultures, and histopathological examination [7]. Bronchoscopy with bronchoalveolar lavage and fungal cultures is a valuable diagnostic tool, providing direct visualization and sampling of the affected lung tissue [7]. Histopathological examination demonstrating septate hyphae branching at acute angles is characteristic of *Aspergillus* infection [8].

Early diagnosis and initiation of antifungal therapy is crucial for improving outcomes, especially in immunocompromised patients [9]. However, the duration and choice of antifungal agents may vary depending on the severity of infection, underlying comorbidities, and response to therapy.

### **Case Presentation:**

A 59-year-old lady who has been treated for pneumonia complicated by a right lung abscess (Fig: 1) two weeks prior presented with massive hemoptysis. CECT chest revealed a right lower lobe mass along with a right bronchial artery aneurysm. The patient was promptly referred for thoracic surgical intervention due to the severity of symptoms and the risk of life-threatening bleeding.

The patient underwent right lung lobectomy (Fig: 2) with ligation of the bronchial artery aneurysm. The resected lung specimen was sent for histopathological analysis, which confirmed the presence of *Aspergillus* species (Fig:3), establishing the diagnosis of pulmonary aspergillosis.

Following surgery, the patient was initiated on systemic antifungal treatment to target the underlying aspergillosis. Regular clinic follow-up was arranged to monitor her recovery and response to treatment.

### **Discussion:**

Massive hemoptysis, defined as the expectoration of more than 300-600 ml of blood within 24 hours, presents significant risks, including aspiration, hypoxemia, hemodynamic instability, and a high potential for mortality [10]. Common causes include bronchiectasis, tuberculosis, lung cancer, chronic infections such as aspergillosis, pulmonary embolism, and vascular abnormalities like bronchial artery aneurysms [10,11]. The urgent nature of massive hemoptysis necessitates rapid diagnosis and intervention to mitigate these life-threatening risks [11].

In this case, pulmonary aspergillosis was a critical underlying condition leading to massive hemoptysis. Chronic pulmonary aspergillosis (CPA) can cause persistent lung inflammation and structural damage, predisposing patients to severe bleeding, especially when mycotic aneurysms are present. The patient's clinical scenario was complicated by a bronchial artery aneurysm, which significantly increased the risk of fatal hemorrhage. The histopathological examination of the resected lung specimen confirmed the diagnosis of aspergillosis, showing fungal hyphae, tissue necrosis, and an inflammatory response, necessitating systemic antifungal treatment to eradicate the infection and prevent recurrence.

Given the life-threatening nature of the bleeding and the lack of availability of bronchial artery embolization, timely surgical intervention was crucial. A lung lobectomy and aneurysm ligation were performed to control the hemorrhage and remove the source of infection. This case underscores the importance of considering pulmonary aspergillosis in patients with unresolved pneumonia and lung abscesses, highlighting that while antifungal therapy is essential, surgical intervention is sometimes necessary to address complications and ensure patient survival.

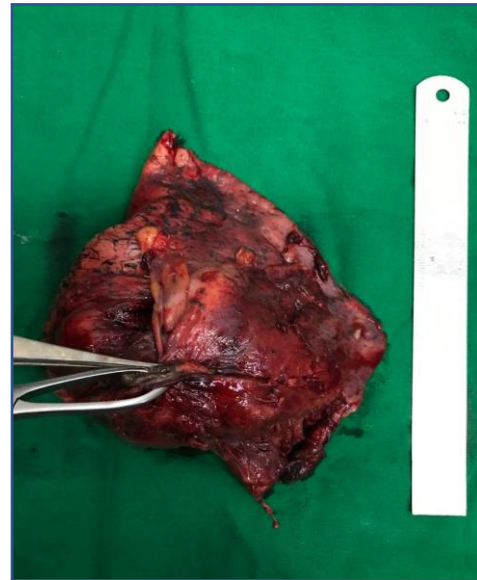
### **Conclusion:**

This case report highlights the importance of considering pulmonary aspergillosis as a potential cause of massive hemoptysis in patients with a history of unresolved pneumonia and lung abscess. Thoracic surgical intervention, including lung lobectomy and ligation of a bronchial artery aneurysm, combined with systemic antifungal treatment, can lead to successful management of the condition. Regular clinic follow-up is essential to monitor the patient's response to treatment and ensure favorable outcomes.

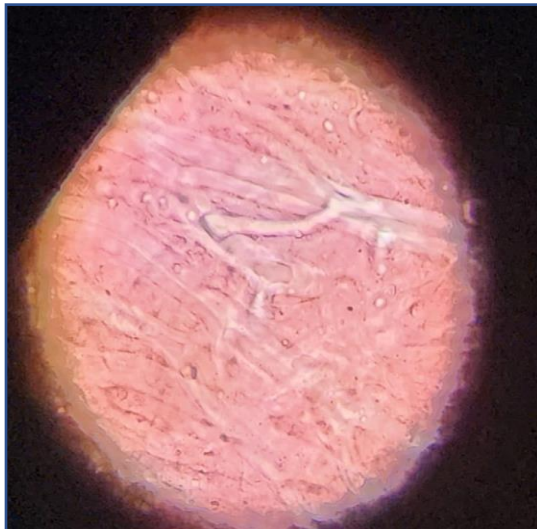
**Fig: 1**



**Fig:2**



**Fig: 3**



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