

Case Report

BRONCHIAL CARCINOMA WITH FUNGAL INFECTION-A CASE REPORT

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ABSTRACT

Lung cancer remains a major public health problem worldwide for both sexes, and its incidence and mortality are increasing. Pulmonary fungal infections have emerged as a world-wide health care problem in recent years. The incidence of invasive aspergillosis ranges from 1% to 8% in patients with solid tumors. A 50 yr old female patient presented with complaints of shortness of breath on exertion since 5-6 months, dysphagia, pain in epigastrium and chest pain since one month. Bronchial biopsy was done which showed poorly differentiated carcinoma along with several septate, branching hyphae, suggestive of *Aspergillus* sp. Patients with bronchogenic carcinoma are more prone to secondary pulmonary aspergillosis due to cancerous involvement of the pulmonary tissue as well as long-term steroid, anticancer, and antibacterial therapy. Culture for fungi and cytopathological examination of respiratory specimens often yield negative results and lack sensitivity in detecting the fungus in an early stage of infection. Histological demonstration of microorganisms in tissue biopsy remains the most reliable proof of invasive opportunistic infection.

Keywords: *Bronchial Carcinoma, Fungal Infection*

INTRODUCTION

Lung cancer remains a major public health problem worldwide for both sexes, and its incidence and mortality are increasing (Jemal *et al.*, 2011). Despite substantial improvements in the diagnosis and therapeutic management of the different histological types of lung cancer, morbidity and mortality are still high, notably due to pulmonary infection complications, which account for 35–70% of cases (Berghmans *et al.*, 2003).

Pulmonary fungal infections have emerged as a world-wide health care problem in recent years. Bronchopulmonary aspergillosis, have become increasingly common during the last few decades (Malik *et al.*, 2003). *Aspergillus* was first catalogued in 1729 by the Italian priest and biologist Pier Antonio Micheli. The data regarding *Aspergillus* infection is fragmentary, particularly in patients with bronchogenic carcinoma. The incidence of invasive aspergillosis ranges from 1% to 8% in patients with solid tumors (Remiszewski *et al.*, 2001; Shahid *et al.*, 2008). The increasing trend of pulmonary aspergillosis is due to the extensive use of broad-spectrum antibiotics (Samonis *et al.*, 1994), long-term use of immunosuppressive agents, increasing use of hyperalimentation and indwelling devices (Anaissie and Solomkin, 1994) and the increasing population of terminally ill, debilitated and immunocompromised patients (Davies, 1994).

Specific diagnosis of pulmonary fungal infection assumes importance in view of the different therapeutic strategies involved and the higher mortality associated with acute invasive fungal infection. Unfortunately, diagnosis of fungal respiratory infection is always difficult, owing to the lack of pathognomonic clinical features, contamination of the non-invasive samples like sputum with normal commensal flora and difficulty in obtaining invasive samples like trans-laryngeal aspirate and lung biopsy.

CASES

A 50 yr old female patient presented with complaints of shortness of breath on exertion since 5-6 months, dysphagia, pain in epigastrium and chest pain since one month. She denied any history of hemoptysis, night sweats, and pyrexia or weight loss. Patient is a chronic smoker since 25 yrs. On investigation, chest

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x-ray was done which showed collapse of left lung. CECT of the chest revealed an enhancing lobulated mass, probably of neoplastic etiology, severely narrowing and occluding the left main bronchus causing atelectasis. Mass was also compressing esophagus and left recurrent laryngeal nerve. Bronchoalveolar lavage was done which showed highly cellular smear comprised of respiratory epithelial cells and large sheets and clusters of highly abnormal cells having coarse chromatin, scanty to moderate amount of cytoplasm with occasional atypical mitotic activity, suggestive of malignancy. Bronchial biopsy was done which showed sheet of large polygonal cells characterized by more pronounced cytologic atypia, increased mitotic activity, and areas of necrosis along with several septate, branching hyphae, branching at acute angles was suggestive of *Aspergillus* sp.(figure 1,2 and 3).

DISCUSSION

Infections remain a part of the natural course of cancer. *Aspergillus* species can produce a wide range of pulmonary disorders. The various types of aspergillosis can be regarded as constituting a continuous spectrum, ranging from invasive disease in the severely immunosuppressed patient to hypersensitivity reactions such as allergic bronchopulmonary aspergillosis and bronchocentric granulomatosis in the hyperreactive patient. Patients with bronchogenic carcinoma are more prone to secondary pulmonary aspergillosis due to cancerous involvement of the pulmonary tissue as well as long-term steroid, anticancer, and antibacterial therapy. Sophie *et al.*, studied 210 consecutive patients with lung cancer who underwent a flexible bronchoscopy showed colonisation by *Aspergillus fumigatus* in 6.2% (Laroumagne *et al.*, 2013).

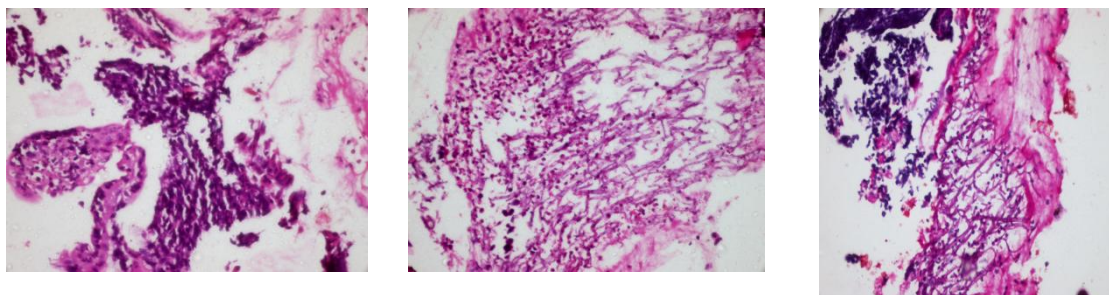


Figure 1: Poorly differentiated carcinoma of lung, 2 Fungal Hyphae (H&E stain, 40x) 3 PAS-D stain showing fungal hyphae (40x)

Culture for fungi and cytopathological examination of respiratory specimens often yield negative results and lack sensitivity in detecting the fungus in an early stage of infection. Histological demonstration of microorganisms in tissue biopsy remains the most reliable proof of invasive opportunistic infection.

Conclusion

We hypothesized that screening such patients for fungal colonization of the respiratory tract would enable us to identify individuals requiring closer monitoring for the development of possible complications like acute invasive fungal infection or dissemination via hematogenous spread.

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