

A Rare Case of Coexisting Lung Carcinoma And Aspergillosis In A Noncavitary Lung Lesion.

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Abstract: Here we report a rare case of lung adenocarcinoma coexisting with pulmonary aspergillosis in a female. The morphologic coexistence of *Aspergillus* and the tumor is common in cavitary lesions. Aspergillosis complicated by lung cancer without cavity formation is very rare. In our case, in the first bronchoscopic biopsy, only aspergillus was detected. In the second biopsy, superficially aspergillus was seen. The tumor cells were obscured by hyphae of aspergillus. After serial and deep sectioning only, we could diagnose bronchogenic carcinoma. Histopathological diagnosis of adenocarcinoma with aspergillosis of lung was offered.

Keywords: Bronchogenic carcinoma, Aspergillosis, Bronchoscopy.

Date of Submission: 30 -06-2017

Date of acceptance: 09-09-2017

I. Introduction

Pulmonary aspergillosis occurs in parenchymal cavities or ectatic airways. *Aspergillus* is a ubiquitous dimorphic fungus. It rarely affects healthy people with an intact immune response, but those with preexisting structural lung disease, or impaired immunity are susceptible. Aspergillosis can remain asymptomatic or present with hemoptysis, which can be life-threatening. In one study, the prevalence of *Aspergillus* growth in patients with bronchogenic carcinoma was reported as being 14.2%, but only a few cases of combined aspergilloma and lung cancer have been reported in the reviewed literature ^(1,2)

Case Report-

A 70-year-old female, who was otherwise healthy, presented to outpatient department of Tuberculosis and chest diseases with history of breathlessness and cough with expectoration for 3 weeks. Patient also complained of pain in interscapular and right mammary region. She denied any history of hemoptysis or weight loss. On physical examination, she appeared healthy with no abnormality on chest, cardiovascular, abdominal and neurologic examinations. There was no history of hemoptysis, night sweats, pyrexia, or weight loss. Chest radiography revealed a noncavitary mass in the right upper lung zone. Fiberoptic bronchoscopy revealed a mass in the right upper lobe bronchus of right lung. (Figure 1) Repeated sputum examination did not reveal fungal organisms or malignant cells. Considering endobronchial mass lesion in bronchoscopy, clinical diagnosis of bronchogenic carcinoma was kept. Bronchoscopic biopsy was done. Biopsy revealed only plenty of dichotomously branching hyphae of aspergillus and chronic inflammatory infiltrate. Histopathology report of aspergillosis of lung was given. Clinicians were not satisfied with the histopathology report. They were strongly suspecting neoplastic lesion. So they decided to repeat the biopsy. Bronchoscopic repeat biopsy performed. Repeat biopsy received in multiple tiny bits. Sections revealed crowded solid sheets of tumor cells and plenty of dichotomously branching hyphae of aspergillus (Figure 1 & 2). The tumor cells showed moderate anisonucleosis, pleomorphism and hyperchromatism. Occasional glandular arrangement was seen. (Figure 3) Histopathology report was given as adenocarcinoma with aspergillosis of lung.

II. Discussion

The prevalence of *Aspergillus* growth in patients with bronchogenic carcinoma was reported as 14.2%. ⁽²⁾ Occasional patients with bronchogenic carcinoma complicating with pre-existing aspergillosis have been reported, usually showing fungal growth within a cavitating carcinoma and necrotic carcinoma cell clusters intermingled with hyphae ⁽³⁾. On the other hand, complication of noncavitating lung cancer by aspergillosis has been described. Growth of *Aspergillus* was observed in the necrotic tissue of non-cavitary lung cancer. It was

considered that the presence of necrosis may cause the growth of *Aspergillus*.⁽⁴⁾ Itano H et al reported a rare case of non-small cell lung cancer coexisting with pulmonary aspergillosis. The morphologic coexistence pattern of the two pathologies was believed to be the colonization of saprophytic *Aspergillus* in the bullous air spaces, obstructed by or contained within the tumor, according to the progression of the lung cancer.⁽⁵⁾ Saleh W et al described a patient who presented with an aspergilloma arising in a cavitating adenocarcinoma of the right lung.⁽¹⁾ In one study, the prevalence of *Aspergillus* growth in patients with cavitary or non-cavitary bronchogenic carcinoma was reported as 14.2%, but only a few cases of combined aspergilloma and lung cancer have been reported in the reviewed literature^(1,2)

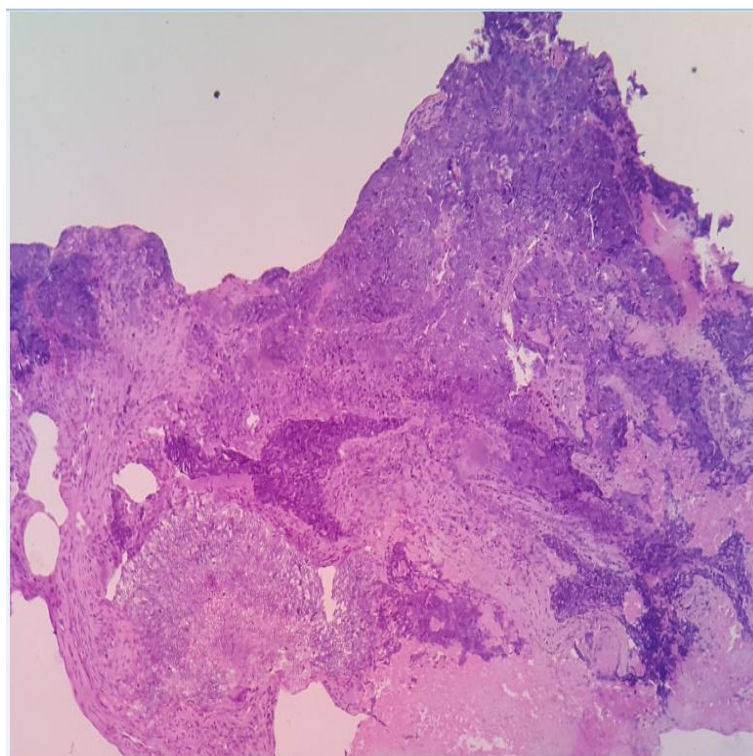
In our case in the first bronchoscopic biopsy, only aspergillus was detected. In the second repeat biopsy, superficially aspergillus was seen in microscopy. The tumor cells were obscured by hyphae of aspergillus. After serial sectioning only, we could diagnose bronchogenic carcinoma. Every case of lung carcinoma should be extensively searched for aspergillus and all cases of aspergillosis should be meticulously screened for malignancy.

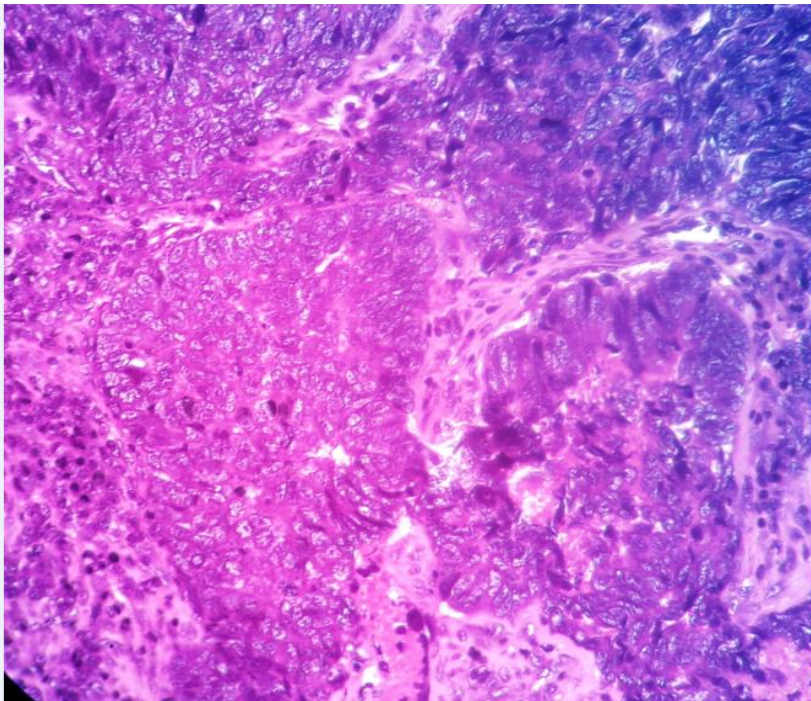
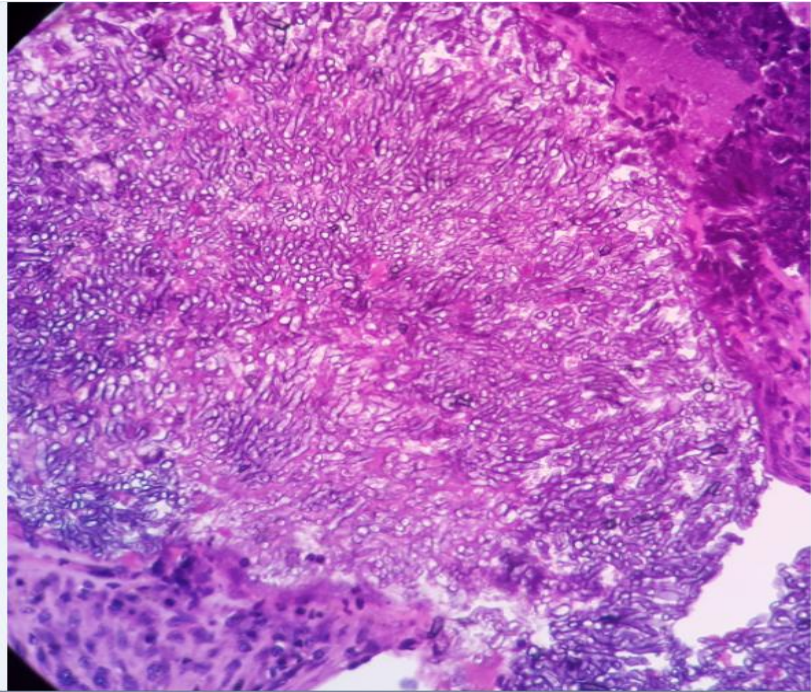
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Legends to figures

- 1) Figure 1- Bronchial biopsy showing ball of fungus and sheets and glandular arrangement of tumor cells (H&E stain, scanner view)
- 2) Figure 2- Showing plenty of dichotomously branching hyphae of aspergillus and surrounding inflammatory response(H&E stain, x400)
- 3) Figure 3- showing glandular arrangement and solid sheets of tumor cells(H&E stain, x400)





*Dr. Kalpana A. Bothale. "A Rare Case of Coexisting Lung Carcinoma And Aspergillosis In A Noncavitary Lung Lesion." IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) 16.9 (2017): 04-06