

Case study

A CASE OF ASPERGILLOMA WITH MUCIN SECRETING ADENOCARCINOMA IN THE CAVITY WALL

Agarwal S, Gupta K, Mullick S, Dewan RK

Department of Pathology, National Institute of TB & Resp. Diseases, Sri Aurobindo Marg, New Delhi - 30, India

ABSTRACT

A Pulmonary aspergillosis and lung cancer rarely occur simultaneously. We report a 63 year old female with complaint of haemoptysis. Contrast enhanced chest revealed a cavity containing fungus ball in the left lung lower lobe suggestive of a fungoma. Left lower lobectomy was done for intractable haemoptysis. The histological examination of the resected specimen showed colonies of aspergilli in the cavity and mucin secreting adenocarcinoma in the cavity wall. Careful gross examination of the patient must be done to rule out metastasis.

Key words: Aspergilloma, Adenocarcinoma, Left lower lobe, Cavity wall

INTRODUCTION

Reported cases of lung cancer with intracavitary aspergillus are rare in literature.¹ Aspergilloma is a well recognized but rare complication of pulmonary carcinoma.² In rare cases, lung cancer might arise from preexisting lung scars containing an aspergilloma or they can be induced by the unusually long prevalence of fungus in the lung.² Here we report one such rare case where lobectomy was done for long standing aspergilloma and subsequent histopathological examination revealed foci of mucin secreting adenocarcinoma.

CASE REPORT

A 63 year old female was admitted in our hospital for evaluation of haemoptysis for 2 years. Routine hematological, biochemical investigations and pulmonary function tests were within normal limits. Contrast enhanced computed tomography (CECT) chest showed a small thin walled cavity with fungus ball in posterior basal segment of left lower lobe.

Correspondence:

Dr. Shalini Mullick
Department of Pathology
National Institute of TB and Respiratory Diseases
Sri Aurobindo Marg, New Delhi – 30, India
E-mail: drshalinimullick@gmail.com

Remaining bilateral lung fields showed normal bronchovascular markings and attenuation values. There was no evidence of pleural thickening, calcification, pleural effusion, pneumothorax and mediastinal lymphadenopathy. A diagnosis of fungoma lung was suggested on radiological evaluation and patient was taken up for surgical resection. Left lower lobectomy was performed. On gross lobectomy specimen measured 14x8x4 cms which on serial section showed a single thin walled cavity, noncommunicating with bronchus and filled with dirty brown material, measuring 2x2cms (figure 1). Pericavitary area showed fibrosis. On microscopy microsections from dirty material showed colonized fungal hyphae filling the cavity. The hyphae were septate with acute angle branching typical of aspergillus (figure 2). The cavity wall was lined by stratified squamous epithelium and showed granulation tissue, fibrosis and small collection of tumor cells in subcentimeter area (maximum size in prepared section measured 0.8 cm), which was not appreciable grossly (figure 3a & b). The tumor cells were tall columnar mucin secreting cell with basal nuclei and were arranged in acinar and lepidic pattern. All tumor cells were positive for mucicarmine and CK7 (figure 4a & 4b). No tumor cells were found elsewhere. There was no pleural or vascular invasion. All hilar lymphnode were reactive and negative for tumor cells. Final diagnosis of aspergilloma left lower lobe with mucin secreting adenocarcinoma in the cavity wall was rendered.



Figure 1. Lobectomy specimen showing measured single thin walled cavity measuring 2x2 cms and filled with dirty brown material.

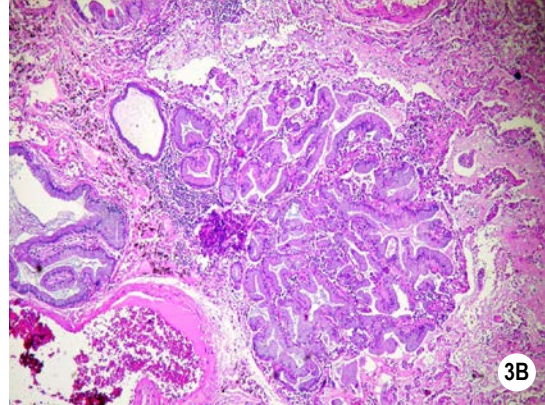


Figure 3A & 3B. Cavity wall lined by stratified squamous epithelium and showed granulation tissue, fibrosis and small collection of tumor cells arranged in acinar and lepidic pattern in subcentimeter area (H&E 10x and 40x)

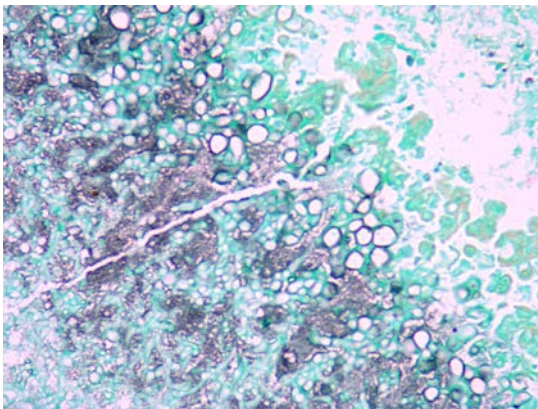


Figure 2. Colonized fungal hyphae filling the cavity showing dichotomously branching hyphae compatible with *Aspergillus* (SM 40x)

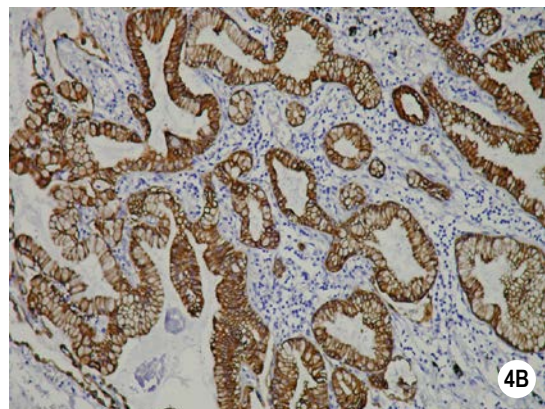
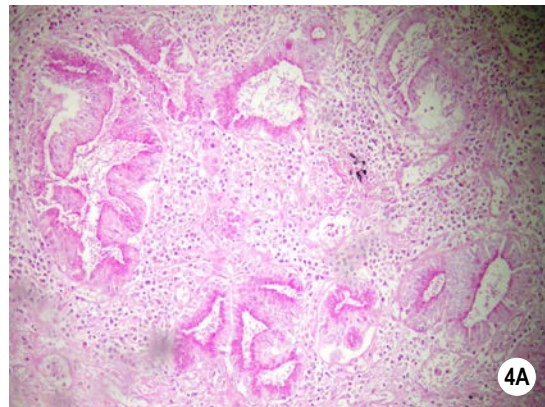
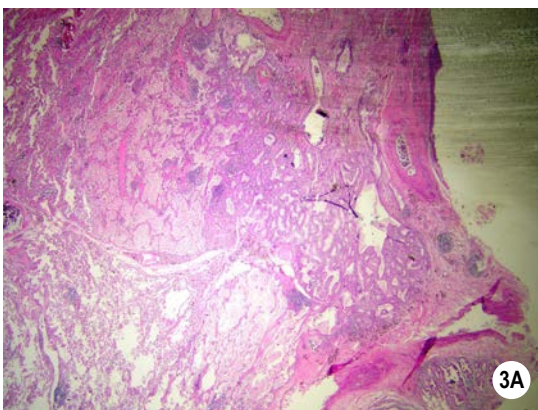


Figure 4A & 4B. Tumor cells positive for mucicarmine (40x) and CK7 40x



DISCUSSION

Reported cases of lung cancer with intracavitary aspergillus are rare in literature.¹ Regnard et al and Babatasi et al found only one patient with adenocarcinoma in their series of 89 aspergilloma patients.^{3,4,5} Similarly only 11 such cases have been reported in Japan.¹ We here report a rare

case of aspergilloma lung with mucin secreting adenocarcinoma in the fungal cavity wall and to the best of our knowledge there are no such cases reported from Indian subcontinent.

It is known that aspergilloma is a well recognized rare complication of pulmonary carcinoma but in none of the cases there is evidence that aspergilloma preceded the tumor.² However, Kita

et al reported that lung cancer might arise from preexisting lung scars containing an aspergilloma.⁶ Similarly Andrew et al reported that pulmonary carcinoma can be induced by the unusually long prevalence of fungus in the lung.² In our case too lobectomy was done for long standing aspergilloma which subsequently revealed mucin secreting adenocarcinoma of subcentimeter size in the cavity wall. Also it has been shown in animal models that aspergillus species have carcinogenic properties particularly in association with pulmonary adenocarcinoma.^{2,7,8} Moreover the association between ingestion of aspergillus toxin and hepatocellular carcinoma in man is well synergy between a viral infection (hepatitis B) and aspergillus flavus toxin in the diet.^{2,9}

Although, definite diagnosis of aspergilloma can usually be established by the characteristic appearance of fungus ball on the chest radiograph or computed tomography, but the presence of lung cancer with aspergilloma is difficult to detect radiographically.^{10,11} Therefore, in the light of our finding and the literature it should be kept in mind, that as pulmonary aspergilloma and carcinoma can occur simultaneously, there is need for careful gross and histopathological examination.

This case highlights two important facts. First, careful gross is to be done in every case of pulmonary aspergilloma. Second, the detail workup of the patient should be done to rule out metastasis whenever a coexisting malignancy is discovered.

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