

A Case Report: Lung Adenocarcinoma With Pulmonary Aspergilloma

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Abstract

A 65-year-old man who had an intracavitary mass surrounded by an air-crescent in the right side on his chest radiogram was diagnosed as aspergilloma. Any malignancy was not presented despite transthoracic and bronchoscopic biopsy. Since he had poor pulmonary function tests (PFT) and physical condition, pulmonary resection was not considered. He underwent cavernostomy and muscle flap transposition. Microscopic examina-

tion revealed aspergilloma and adenocarcinoma. Amphotericin-B and radiotherapy was given postoperatively.

This case showed us that old cavities could contain both fungus ball and adenocarcinoma.

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Introduction

Since the original pathologic description of human aspergillosis, by Virchow in 1856, the most unusual form of *Aspergillus* infection recognized is aspergilloma. Pulmonary aspergillosis has been classified into allergic, invasive, and saprophytic infections, which colonize preexisting lung cavities and produce a fungus ball (aspergilloma) (1).

Case Report

A 65-year-old man was admitted to the hospital with the complaints of the chest pain, cough, and hemoptysis that began 5 months ago with a severe attack and continued as minor episodes. His history was not specific except his brother had been treated for tuberculosis in the past.

He seemed extremely debilitated. Amphoric sufl on the right postero-inferior chest was heard on auscultation.

Results of laboratory investigations included leucocytosis, eosinophilia and poor PFT: Forced expiratory volume in one second (FEV₁)=0.96L (%34.8); Forced vital capacity (FVC)=1.31L (%38); (FEV₁)/FVC=%73. The bronchoalveolar lavage was cultured negative for tuberculosis. There was not any evidence of malignancy on bronchoscopic cytology and on transthoracic fine needle aspiration biopsy.

Chest X-Ray and CT scans revealed an intracavitary mass surro-

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Figure 1. Preoperative chest X-Ray of the patient contains a cavity and air crescent sign on the right side.

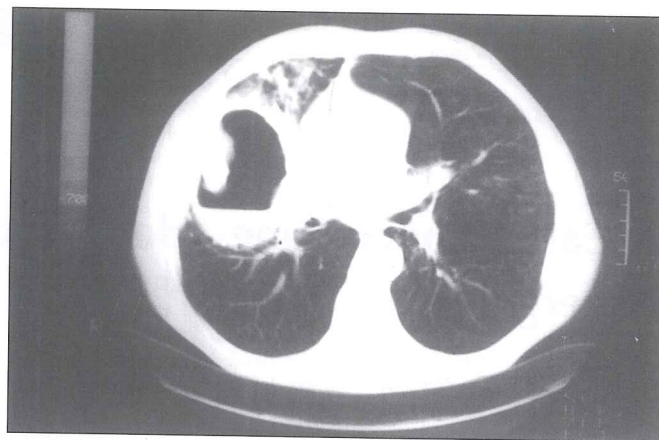


Figure 2. Computed tomographic scan shows an intracavitary mass surrounded by air crescent.

unded by an air-crescent on the right side (Figure 1,2).

The patient had been prepared for the operation with a supportive therapy consisting of hyperalimentation and bronchodilators. Since parenchymal resection was considered risky, cavernostomy was performed. The cavity was obliterated with latissimus dorsi muscle flap in the same session. Histological examination of the cavity wall revealed adenocarcinoma (Figure 3). Cultures of intracavitary material identified *Aspergillus*. Systemic amphotericin-B was given postoperatively for 3 weeks to prevent recurrence. Acute reaction due to Amphotericin-B occurred, but the therapy completed in the half dose. Radiotherapy was given for adenocarcinoma treatment. The patient died 10 months after radiotherapy.

Discussion:

Pulmonary aspergillosis and lung cancer rarely occur simultaneously. Regnard reported a series of 89 aspergilloma patients and Babatasi also reported another series of 84 patients and only one patient in each series had adenocarcinoma (1,2). Park reported a series of 110 aspergilloma patients and underlying diseases were carcinoma in 3% (3). Kita et al reported that lung cancer might arise from preexisting lung scars containing an aspergilloma (4). Hashiguchi et al performed cavernostomy for an aspergilloma in a patient. Histological examination revealed adenocarcinoma with aspergilloma (5). Aspergilloma may become in all kinds of cystic and cavitary parenchymal or pleural disease sequel, such as old cavities occurring in the course of sarkoidosis, lung cancers, and bacterial abscess. It was reported that old chronic tuberculosis cavities remain the most frequent underlying disease, and were recorded in 70% of the cases (2).

The clinical picture of aspergilloma ranges from an incidental radiological finding to life-threatening hemoptysis (1). The most frequent symptom of the disease is hemoptysis (6, 3). In reported series, the incidence of hemoptysis has ranged from 50% to 83% (1).

A definitive diagnosis of aspergilloma is usually established by the characteristic appearance of a fungus ball on chest ra-

diograph or computed tomography (1). Cavities are situated in the upper lobes or superior segment of the lower lobe (1). It should not be forgotten that the air crescent sign is not only associated with aspergilloma but also carcinoma.

Isolated growth of *Aspergillus* from sputum culture is not diagnostic. However repeatedly positive sputum cultures might be significant (1). Definitive diagnosis of aspergilloma is established by demonstrating and culturing the organism from the resected specimen. Cultures of intracavitary material identify *A. fumigatus* in 97.5% of the patients. (2).

It is reported that in pulmonary aspergilloma patients, antimycotic drug therapy was unsuccessful and surgery was the main therapeutic method (6, 7). There are 4 potential benefit of the surgery; prevention of hemoptysis, eradication of the pyogenic component, limitation of the symptoms, and prolongation of life (1). Since major hemoptysis may occur with an incidence of 20% in asymptomatic patients, several authors insist that all patients who have low operative risk, even if asymptomatic, should undergo lung resection to avoid the possibility of hemorrhage (1,2).

When the patient has limited respiratory function or poor general condition, the risk for major complications of lung resection is obvious. The minimal surgical management with cavernostomy is safe in such patient, and it is an effective method to prevent recurrences of hemoptysis (2, 8).

Common complications seen in postoperative period are pleural space problems, prolonged air leak, empyema with bronchopleural fistula, and postoperative bleeding (1,2).

The most frequent surgical operations are lobectomy, segmentectomy, atypical resection, and pneumonectomy. (6). However Regnard et al concluded that in debilitated patients who are at risk for lung resection, cavernostomy is an effective and well tolerated procedure. He also reported that the operation cavity could be secondarily closed by muscle plomage (2). Ono et al suggest that single-stage cavernostomy with muscle transposition is a viable surgical option (9). We performed single stage cavernostomy with muscle transposition in this case too. Therefore second operation was not requ-

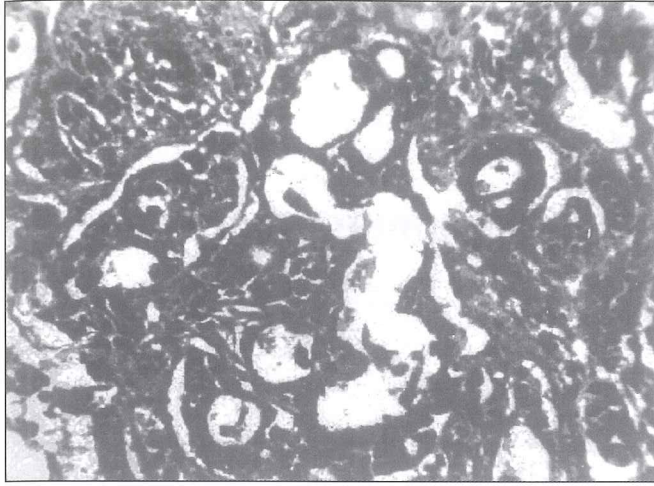


Figure 3. Histological examination of the cavity wall revealed adenocarcinoma.

ired for the obliteration of the cavity. Although histological examination revealed carcinoma, lobectomy could not be performed later because of his poor PFT and general condition. In the light of our experience and the literature, it should be

kept in mind that pulmonary aspergilloma and bronchogenic carcinoma may be together.

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