

A Case of Aspergilloma Detected after Surgery for Pneumothorax

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We report a case of aspergilloma in an 80-year-old male patient who had no identifiable underlying disease before surgery for pneumothorax. He was hospitalized for left pneumothorax. A chest CT revealed a large bulla in the left lung apex with a nodule (diameter; 1.5 cm) at the edge of the bulla. After thoracodocesis, air leakage persisted and a large bulla and nodule were resected. Aspergillus was detected histopathologically in the nodule. Treatment with itraconazole 200 mg a day followed, and 4 months later he had no recurrent pneumothorax or Aspergillus infection. (Ann Thorac Cardiovasc Surg 2006; 12: 267–9)

Key words: pneumothorax, Aspergillus

Introduction

Pulmonary aspergillosis is generally a problem in pulmonary tuberculosis and immunosuppressed patients and in immunocompromised hosts who have been placed on anticancer or steroid therapy. However, in the present case, pulmonary aspergillosis was detected in a patient without underlying disease. The aspergilloma was detected after surgery for pneumothorax.

Case

The patient was an 80-year-old male who had coronary artery stenting because of an old myocardial infarction. He experienced chest pain and was hospitalized for left pneumothorax (Fig. 1). A chest CT revealed a large bulla in the left lung apex with a nodule (diameter; 1.5 cm) at the edge of the bulla (Fig. 2). The pneumothorax was resolved by chest drainage. Three months later he was hospitalized again for a left pneumothorax. Minocycline hy-

drochloride pleurodesis failed to resolve the problem, and surgery was performed. The large bulla and nodule were resected by video-assisted thoracoscopic surgery (VATS). Aspergillus was detected histopathologically in the nodule (Fig. 3). He was treated with itraconazole 200 mg a day, and 4 months later he had no pneumothorax or Aspergillus infection.

Discussion

Pulmonary aspergillosis is generally a problem in patients with lung diseases such as tuberculosis, bronchiectasia, or pulmonary abscess, in patients immunosuppressed by diabetes mellitus or hemodialysis, and in immunocompromised hosts who have been placed on anticancer or steroid therapy.^{1,2)} However, Aspergillus infection in the absence of underlying disease is rare. In Japanese literature from 1988 to date, there were only 11 reported cases (10 males and 1 female patient; age 14–80 years old; right side, 6 cases, left side, 5 cases) of Aspergillus infection not detected presurgically (Table 1).^{2–5)} In all cases, no causal connection was found between pneumothorax and Aspergillus infection. Two cases had a lung abscess.

One of the 7 reported cases in Japan suggested that the Aspergillus infection had caused the pneumothorax,²⁾ due to the rupture of bulla infected with aspergillosis.⁶⁾ The

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Fig. 1. Chest X-ray showed a left pneumothorax.

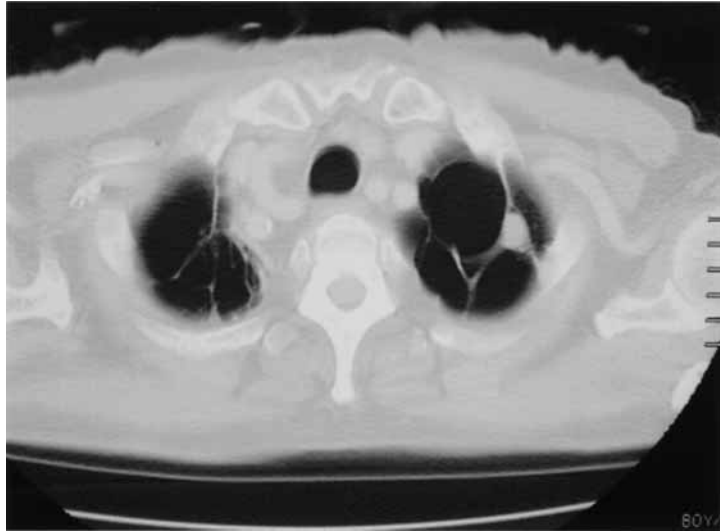
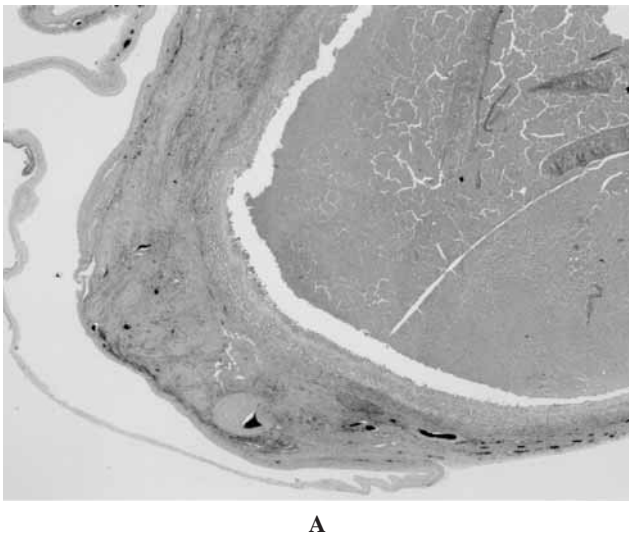
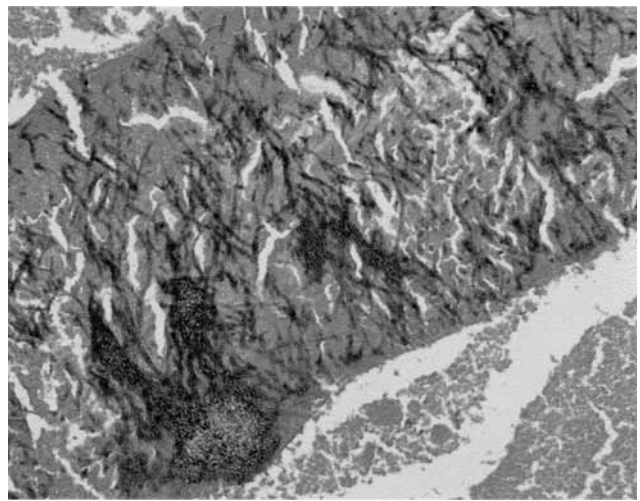


Fig. 2. Chest CT revealed a large bulla and a nodule bordering the left lung apex.



A



B

Fig. 3.

A: In the resected specimen, a colony of fungi was apparent in the nodule.

B: Y-shaped black *Aspergillus* mycelia with septa were recognized.

Aspergillus infection caused the invaded lung to collapse and secondarily permitted air leakage.⁷⁾ In our case, *Aspergillus* infection was not apparent before the operation and the causal link between pneumothorax and *Aspergillus* infection was not clear.

It is necessary for diagnosis of *Aspergillus* infection to detect *Aspergillus* in a sputum culture or in bronchial washings obtained by bronchoscopy, or by direct histological observation. However, it is difficult to prove the presence of *Aspergillus* in sputum: culture proven

Table 1. Aspergilloma detected after surgery for pneumothorax in Japan

Author (year)/ref.no.	Age	Gender	Location	Lung abscess	Underlying disease
Kondoh (1988)	16	M	Rt	–	–
Ohtsuki (1992) ³⁾	18	M	Lt S ¹⁺²	–	–
Sagara (1994) ⁴⁾	19	F	Rt U	–	Varicella
Takeda (1995) ⁵⁾	14	M	Rt S ¹	–	–
Matsumoto (1999) ²⁾	48	M	Lt S ¹⁺²	–	–
Matsumoto (1999) ²⁾	46	M	Rt U	+	–
Tsuji (2000)	18	M	Rt	–	–
Kim (2002)	17	M	Rt	–	–
Oikawa (2005)	32	M	Lt	+	–
Oikawa (2005)	61	M	Lt	–	–
Present case	80	M	Lt	–	–

M, male; F, female; Rt, right lung; Lt, left lung; U, upper lobe; S¹⁺², left S¹⁺² segment; S¹, right S¹ segment.

Aspergillus was found in 40–50% of cases, Aspergillus antigen in 20% of cases, and beta D-glucan in 20% of cases.⁸⁾ It is especially important to distinguish a nodule bordering on the bulla from a lung carcinoma.

There was no evidence suggesting that antifungal drug treatment would be effective. In this case, tests for Aspergillus antigen and beta D-glucan were negative. However, antifungal drugs were used because the patient was elderly and had a small space in his left chest cavity. Pneumothorax and Aspergillus infection were not apparent.

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