Pulmonary Aspergilloma in Patient with Anorexia Nervosa: Case Report

Akira Mogi, MD, PhD, Takayuki Kosaka, MD, PhD, Ei Yamaki, MD, and Hiroyuki Kuwano, MD, PhD

A 31-year-old female with anorexia nervosa was referred to the Department of General Surgical Science at Gunma University for a surgical resection of a pulmonary aspergilloma. The patient had received treatment for anorexia nervosa at the Department of Psychiatry of the Hospital of Gunma University Graduate School of Medicine. A chest radiograph showed an infiltrative shadow with apical pleural thickening in the left upper lung field. A contrast enhanced computed tomography showed an irregular mass shadow with cavity formation that involved spherical clusters in the left upper lobe. The patient was diagnosed with pulmonary aspergilloma by serological studies and radiological features. A pulmonary segmentectomy of the left apical segment (S1 + 2) through a lateral thoracotomy was successfully performed. She had an uneventful postoperative recovery, and the final histopathological examination confirmed the diagnosis of pulmonary aspergilloma. This is a rare case study of a young female patient with anorexia nervosa who developed pulmonary aspergilloma.

Keywords: pulmonary aspergilloma, anorexia nervosa, surgical resection

Introduction

Aspergillus is a ubiquitous soil-dwelling organism found in organic debris, dust, compost, foods, spices, and rotted plants. It causes a variety of clinical syndromes in the lung, ranging from aspergilloma in patients with lung cavities to chronic necrotizing aspergillosis on those who are mildly immunocompromised or have chronic lung disease. Pulmonary aspergilloma, a disease caused by fungal mycelia, can occur within a cavity, usually within the parenchyma of the lung. An aspergilloma usually arises in a preexisting cavity in the lung, and the fungus does not generally invade the surrounding lung parenchyma. On the other hand, few anorexia nervosa patients have experienced infectious diseases, such as pulmonary aspergilloma, despite the existence of malnutrition. We herein report a rare case of a young woman with anorexia nervosa who developed pulmonary aspergilloma.

Case Report

A 31-year-old female presented to an internist with chest pain, palpitation, and dyspnea, which occurred subsequent to a cold. She had received outpatient treatment for anorexia nervosa in the Department of Psychiatry at Gunma University Hospital for 5 years. She was severely underweight, and her height and weight were 160 cm and 32 kg, respectively. Her calculated body mass index (BMI) was 12.5. Even with a cadaverous body, general conditions were satisfactory. She was referred to the Department of Internal Medicine because a chest radiograph showed an infiltrative shadow in the left upper lung.
field (Fig. 1). A contrast-enhanced computed tomography showed an irregular mass shadow with cavity formation that involved spherical clusters in the left upper lobe (Fig. 2); the lesion was suspected to pulmonary aspergilloma. Bronchoscopy for a transbronchial lung biopsy (TBLB) could not be performed due to her intense pharyngeal reflex. Serological analyses revealed that the serum aspergillus antigen was negative, but the serum anti-aspergillus antibody was positive. Other serological and laboratory studies, including tumor markers such as CEA, SCC, and NSE, did not show any abnormalities. In addition, bacterial studies of sputum showed a normal flora. Therefore, she was also diagnosed with pulmonary aspergilloma and was referred to our department for surgical treatment.

Written informed consent concerning the operation was obtained from the patient and her family before surgery. The patient underwent a segmentectomy of the left apical segment (S1 + 2) through the lateral thoracotomy of the fourth intercostal space. Because the lesion tightly infiltrated the adjacent parietal pleura, extrapleural dissection was performed to prevent incomplete resection.

Macroscopically, the lesion, which was 3.5 cm in diameter, existed in S1 + 2 of the left upper lobe, and its cavity was filled with fragile materials. Microscopically, the cavity was surrounded with fibrous walls associated with inflammatory cell infiltration and lymphoid follicles. Intracavitary materials attached to the cavity wall contained hyphae positively stained with Grocott’s silver stain and Alcian blue-periodic acid-Schiff. These hyphae were uniform and regularly separated, and their branching was dichotomous (Fig. 3). Therefore, the final pathological diagnosis was pulmonary aspergilloma.

The patient had an uneventful recovery and was discharged on postoperative day 4. She has been monitored for 7 months as an outpatient without any clinical symptoms of recurrence, and a chest radiograph produced no abnormal findings.

Discussion

Pulmonary aspergilloma is the most common form of pulmonary involvement due to Aspergillus. The aspergilloma consists of masses of fungal mycelia, inflammatory cells,
Pulmonary Aspergilloma

fibrin, mucus, and tissue debris, usually developing in a preformed lung cavity. Tuberculosis is the most frequent cause, but other examples are sarcoidosis, bronchiectasis, neoplasms, ankylosing spondylitis, other fungal infections, cystic fibrosis, and invasive aspergillosis.1-4) Pulmonary aspergilloma is known to be an opportunistic infectious disease that patients with immunocompromised or malnutritional status develop. However, only two cases of aspergilloma in patients with anorexia nervosa have been reported in the literature (as searched on Medline).5,6) Severe malnutrition is observed in individuals diagnosed with anorexia nervosa; however, few infectious diseases are found to occur concomitantly.7-9) In the case reported here, we concluded that our young patient with moderate cachexia attributed to anorexia nervosa was immunocompromised, which led to the Aspergillus infection.

Many patients with aspergilloma are asymptomatic, but the most frequent symptom is hemoptysis. Less commonly, patients develop chest pain, dyspnea, malaise, and wheezing. Fever is rare, except in the case of bacterial superinfection.1,4,10) In the case reported here, the patient was afebrile without hemoptysis, but chest pain and dyspnea were observed. In asymptomatic patients, no treatment is required, and observation is warranted in most cases. On the other hand, patients with aspergilloma who experience symptoms of hemoptysis should undergo surgical treatment because there is a risk of sudden life-threatening hemoptysis and there is no effective alternative medical therapy.11) There is no consistent evidence that aspergilloma responds to antifungal agents, and such drugs rarely achieve the minimal inhibitory concentrations within the lung cavities.12) Surgical treatment appears controversial in this case because no hemoptysis had occurred, but the patient was symptomatic. The reasons for surgical treatment in this case were as follows: 1) she was young, and her pulmonary function was adequately preserved; 2) her prolonged symptoms possibly interfered with dietary intake in the control of anorexia nervosa; 3) the patient agreed to receive surgical treatment after receiving detailed information about it. With regard to the surgical treatment, segmentectomy of S1 + 2 in the left upper lobe was chosen in this case because the estimated resection margin from aspergilloma was sufficient, as indicated by the detailed information from pre-operative three-dimensional computed tomography. Indeed, the complete resection of the lesion was proven by a post-operative pathological study.

Conclusion

This is a report of a rare case of young female patient with anorexia nervosa who developed pulmonary aspergilloma. It is considered that mild but chronic systemic immunocompromise resulting from a long-term poor nutritional status due to anorexia nervosa was the cause. Surgical treatment for pulmonary aspergilloma should be considered when patients are determined to be able to withstand the rigors of surgery, regardless of with or without hemoptysis.

References