

—Report on Experiments and Clinical Cases—

Video-assisted Thoracic Surgery for Pulmonary Aspergilloma in Patients with Anorexia Nervosa

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Abstract

We report a case of pulmonary aspergilloma in a 27-year-old woman with anorexia nervosa who underwent a video-assisted thoracic surgery (VATS) lobectomy. On admission, she had lost 38% of her original weight but the laboratory data were normal. She had refused treatment for anorexia nervosa for nine years ago and may have been predisposed to opportunistic conditions. The aspergilloma was developed in a simple bulla formed in the course of healing of a lung abscess and a VATS lobectomy was safely and cosmetically performed. Wedge resection was difficult due to the size of the lesion. The residual lobes expanded very well and the postoperative course was uneventful. VATS is considered to be an efficient method in the treatment of pulmonary aspergilloma in patients with better lung function and localized pulmonary disease.

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Key words: pulmonary aspergilloma, video-assisted thoracic surgery, anorexia nervosa

Introduction

Recently, VATS has been widely utilized for the diagnosis and treatment of various diseases involving the thorax and has been reported to lessen damage to the chest wall¹ and reduce loss of pulmonary function. The purpose of this report is to present a rare case of pulmonary aspergilloma in patients with anorexia nervosa and discuss the indication of VATS for pulmonary aspergilloma.

A Case Report

A 27-year-old woman with anorexia nervosa was admitted to the hospital because of high temperature and a cough with small amounts of bloody sputum. The patient was diagnosed as having an abscess in the right upper lobe of the lung (**Fig. 1**). She had no history of chronic inflammatory lung disease with bulla or cavity. The symptoms were completely eased by treatment with antibiotics. A chest X-ray film taken three months after the treatment showed a simple bulla formed by lung abscess (**Fig. 2**). However, bloody sputum

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Fig. 1 Chest x-ray shows lung abscess in the right upper lobe of the lung.



Fig. 3 Chest x-ray shows a cavity with the thickened wall.



Fig. 2 Chest x-ray shows a simple bulla formed by lung abscess.

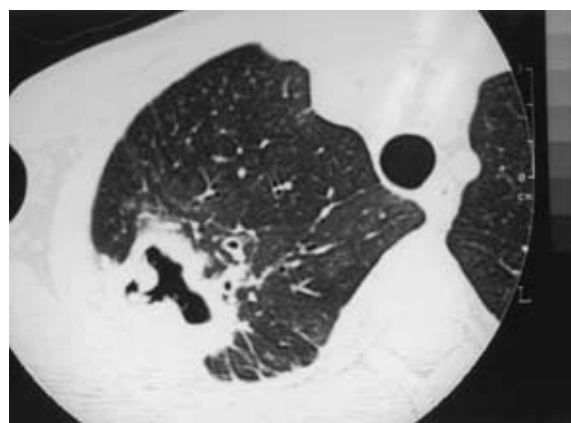


Fig. 4 Computed tomography of the chest shows nodular shadows protruding into the cavity.

developed repeatedly during the next year and chest X-ray films showed that the bulla changed to a cavity with thickened wall (**Fig. 3**). A Computed tomography scan of the chest showed nodular shadows protruding into the cavity (**Fig. 4**). The patient was suspected to have aspergilloma and was hospitalized for operation.

The patient's height was 155 cm she weighed was 36 kg at hospitalization. Her original weight was 58

kg. She has been suffering from anorexia nervosa since the age of 18 years old, but refused treatment and had been 36 kg for nine years. She had also been amenorrheic for nine months before admission. She admitted the abuse of laxatives and self-induced vomiting.

Her physical examination and laboratory data showed no abnormalities. *Aspergillus* and tuberculosis bacilli were not detected by sputum culture test. In the serological examination, the *aspergillus*'s antigen was negative, and the β -D-glucan was within the normal range. The forced expiratory volume in one second and % vital

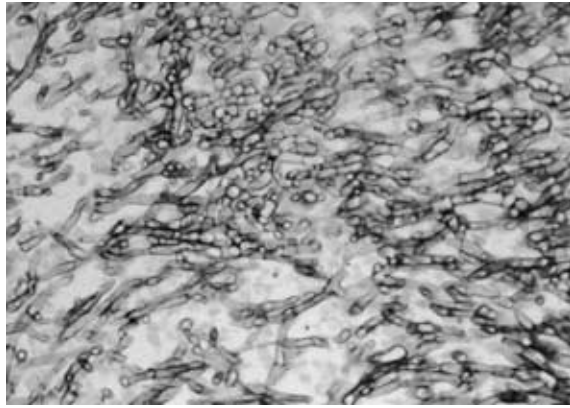


Fig. 5 Examination of intracavity materials shows uniform and regularly septated hyphae with dichotomous branching. Grocott's stain.

capacity were 2.7 L and 105.7%, respectively.

A VATS lobectomy was performed. The patient was prepared, anesthetized using a double-lumen endotracheal tube, and positioned as for a standard posterolateral thoracotomy. A 10-cm minithoracotomy incision was made along the 5th intercostal space around the posterior axillary line and one trocar port was placed in the anterior axillary line in the 7th intercostal space. Fibrous adhesion around the lesion was dissected extrapleurally to prevent bleeding. The pulmonary arteries, veins, and bronchus were staple transected, respectively. The right upper lobe was placed in the sac and removed through minithoracotomy. Her postoperative course was uneventful. The operative time was 300 minutes and the amount of bleeding was 530 ml.

Macroscopically, the lesion, 5 cm in diameter, existed in S² of the right upper lobe and its cavity was filled with fragile materials.

Microscopically, the cavity was surrounded with fibrous walls associated with severe inflammatory cell infiltration and lymphoid follicles. Intracavitary materials contained hyphae positively stained with Grocott's stains and Alcian blue-periodic acid-Schiff. These hyphae were uniform and regularly septated, and their branching was dichotomous (Fig. 5). Therefore, the final pathological diagnosis was aspergilloma.

Discussion

Pulmonary tuberculosis^{2,3} and atypical mycobacterium⁴ have been reported in patients with anorexia nervosa. However, no cases of aspergilloma in patients with anorexia nervosa have been reported. The association between anorexia nervosa and pulmonary infection is still controversial. Acquired reversible granulocyte bactericidal deficiency⁵, reduced alternative complement pathway⁶, qualitative defect in T cell function⁷, and neutropenia and infectious complications in patients with anorexia nervosa have been reported⁸, but increased incidence of specific infections in patients with anorexia nervosa compared with normally nourished persons is not clear². Patients over the age of 19 with duration of anorexia nervosa longer than 5 years and weight loss of 60% of original mass should be considered at risk³. Our patient had lost 38% of her original weight on admission but the laboratory data were normal. She had refused treatment for anorexia nervosa for nine years and may have been predisposed to opportunistic conditions. Consequently, she suffered from lung abscess and aspergilloma.

Pulmonary aspergilloma usually occurs in old pulmonary tuberculosis cavities and surgery is known to be risky because of the obliterated pleural space, indurated hilar structures, and failure of the residual lung tissue to expand after the operation⁹. But pulmonary aspergilloma frequently develops into hemoptysis, and sometimes fatal hemoptysis. If the risk of surgery is low, resection is recommended. Therefore, patients with better lung function and located pulmonary disease are good candidates for VATS lobectomy. The aspergilloma in our case was developed in a young woman and in a simple bulla formed in the course of healing of a lung abscess. Wedge resection was difficult due to the size of the lesion, in contrast to two cases of bronchial cyst and emphysematous bulla¹⁰. VATS lobectomy was safely and cosmetically performed and the middle and lower lobes expanded very well.

Conclusion

We reported a rare case of pulmonary aspergilloma in a patient with anorexia nervosa in which VATS lobectomy for aspergilloma was safely and cosmetically performed.

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