

Surgical Management of *Aspergillus* Colonization Associated with Lung Hydatid Disease

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Colonization with *Aspergillus* sp. usually occurs in previously formed lung cavities. Cystectomy is a widely used surgical technique for hydatid lung disease that can also leave residual cavities and potentially result in aspergilloma. We present two cases of this rare entity and a case with *Aspergillus* sp. colonization of an existing ruptured hydatid cyst. (Ann Thorac Cardiovasc Surg 2008; 14: 116–118)

Key words: aspergilloma, lung hydatid cyst, *Aspergillus*

Introduction

Aspergillus sp. can form a fungus ball (aspergilloma) in lung cavities caused by tuberculosis, cancer, or other conditions.¹⁾ Residual cavities can also result from the surgical treatment of lung hydatid cyst, a zoonotic disease caused by *Echinococcus granulosus*.²⁾ Here, we describe 2 patients with aspergilloma formed within cavities of previously resected cysts, and 1 patient with the colonization of an existing ruptured cyst.

Case 1

A 41-year-old Jehovah's Witness woman presented with severe hemoptysis. Three years earlier, we had performed a right upper lobectomy for 2 hydatid cysts that had occupied more than 80% of the lobe. Two-and-a-half years earlier, left lung cystectomy without capitonnage was done elsewhere. Two years earlier, she developed persistent cough and intermittent hemoptysis. A computed tomography (CT) scan showed a mass within a residual cystectomy cavity. A bronchoscopy localized the bleeding coming from the left upper lobe, and we performed a left up-

per lobectomy. No blood was given. A pathological examination showed an aspergilloma within the residual cavity, which was confirmed with culture. She was given Itraconazole 100 mg/day for 3 months. One year after discharge, she remains asymptomatic, without recurrent aspergilloma or hydatid cyst in chest X-ray.

Case 2

A 42-year-old man presented with severe hemoptysis. Eight years earlier, cystectomy and capitonnage of 2 right lung hydatid cysts had been done elsewhere. Two years earlier, persistent cough and bloody sputum had appeared. He was told he had "residual cavities" in the right lung, but no surgical treatment was offered. When he arrived at our hospital, a CT scan showed a 3×3×3 cm cavity containing a mass in the right upper lobe (Fig. 1) and a 3×3×4 cm mass in the right lower lobe. A redo right posterolateral thoracotomy was done. The upper lobe lesion involved the hilum. The lower lobe lesion was deep and firm on palpation. A right pneumonectomy was performed. A pathological examination showed a large aspergilloma within the upper lobe cavity that was mixed with Prolene sutures used previously for capitonnage (Fig. 2). The lower lobe lesion was also a residual cystectomy cavity filled with organized clot presumably from blood aspirated during hemoptysis. Bronchiectasis and parenchymal consolidation was present around the lesions. He had an uneventful recovery and was given Itraconazole 100 mg/day for 3 months. Six months after the operation,

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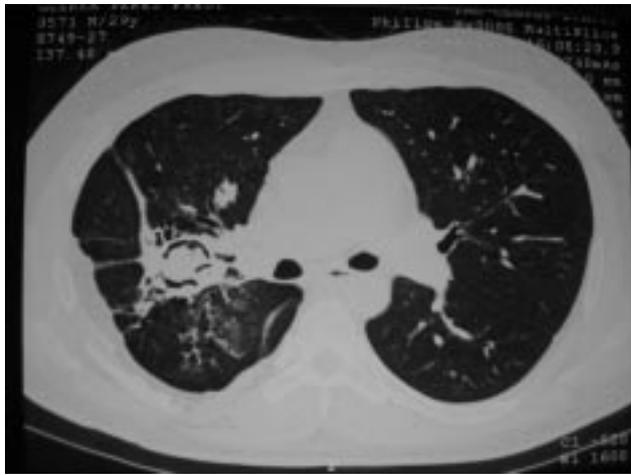


Fig. 1. Chest computed tomography (CT) scan with aspergilloma within residual cavity after cystectomy with capitonnage.

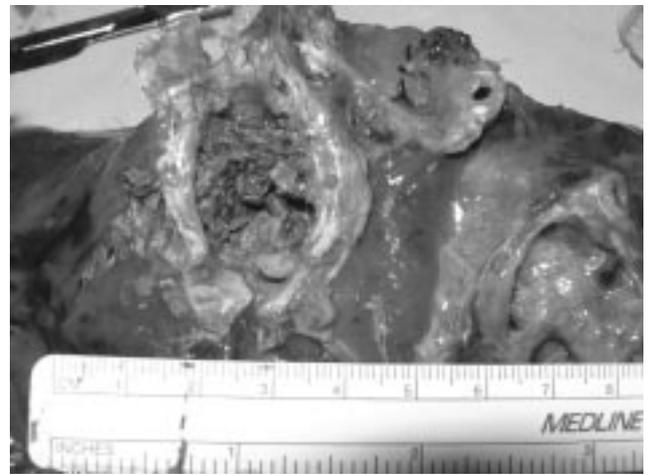


Fig. 2. View of the aspergilloma mixed with Prolene sutures previously used for capitonnage. Another residual cystectomy cavity, without capitonnage sutures, is seen in the lower lobe.

he remains asymptomatic.

Case 3

A 63-year-old, noninsulin dependent diabetic woman presented with persistent cough and bloody sputum. Eight months earlier she had vomica, but refused surgical treatment. She had pulmonary tuberculosis 25 years prior, with fibrotic changes in both lungs, but no cavities in chest X-ray. A TB sputum smear was negative. Cystectomy and capitonnage of a ruptured right lung hydatid cyst was performed. A microscopic examination showed a colonization of *Aspergillus* sp. within the ruptured hydatid cyst. She had an uneventful recovery and was given Itracozazole 100 mg/day for 3 months. Eighteen months later, she remains asymptomatic with no evidence of aspergilloma or recurrent hydatid cyst.

Comment

The goal of surgical treatment for lung hydatid cyst is to avoid resection and to preserve lung parenchyma. This is accomplished by removal of the cyst membrane (cystectomy), closure of bronchial openings, and obliteration of the residual cavity with sutures (capitonnage).²⁾ Some surgeons state that good results can also be obtained without capitonnage because the residual cavity eventually obliterates.³⁾

However, if the cavity remains and if bronchial communications are not properly closed, or if they reopen

later, aspergilloma can potentially form, causing life-threatening hemoptysis. Residual cavities can also occur after capitonnage if the sutures break, tear the tissues, or are loose.

We have found two reports of aspergilloma within a residual cavity after cystectomy with capitonnage⁴⁾ or without it.⁵⁾ In both, wedge resections were performed after the cavity was opened intraoperatively. Recommended surgical treatment for aspergilloma includes lung resection for patients with adequate pulmonary function tests, as with our patients, or cavernostomy in high-risk patients.⁶⁾ When aspergilloma is suspected preoperatively, we prefer anatomic lung resection because of the uncertainty of how much parenchyma should be removed to safely resect the lesion. On the other hand, to our surprise existing ruptured cysts can also be colonized with *Aspergillus*, but no apparent sequelae occurs if only cystectomy with bronchial closure and capitonnage is performed.

In conclusion, aspergilloma can form in a residual cavity left after a cystectomy with or without capitonnage, and the standard therapy for this condition is lung resection. Long-term follow-up after cystectomy is recommended, especially when residual cavities are present.

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