Case Report

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TANAFFOS

Hemoptysis as a Complication of Capitonnage for Management of Pulmonary Hydatid Cyst

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The surgical approach to hydatid cyst of the lung is based on complete removal of the parasite, and management of the residual pericyst cavity. For the latter, capitonnage is a recognized method, by which the walls of the evacuated pericyst cavity are approximated with multiple sutures.
Capitonnage without suturing and ligation of bronchial openings individually may lead to postoperative air leakage with resultant pneumothorax or pneumatocele. The pulmonary parenchyma may also become distorted. Herein, we report another complication of capitonnage: presence of large amounts of unabsorbed suture material acting as foreign body within the residual pericyst cavity, leading to chronic infection and hemoptysis.

Key words: Hemoptysis, Hydatid cyst, Capitonnage

INTRODUCTION

The surgical treatment of hydatid cyst of the lung calls for complete removal of the parasite and management of the residual pericyst cavity. Rarely, the involved portion of the lung may be necessarily removed (1).

One of the earliest methods for management of the residual pericyst cavity was described by an Argentinian surgeon, Posadas in 1890, who introduced simple suture closure of the pericyst opening. To avoid inevitable air leaks, this technique was modified by suturing the edges of the pericyst cavity to the thoracotomy incision. In the same year, Delbet, a French surgeon, proposed folding of the walls of the pericyst cavity inward by multiple sutures, a technique called capitonnage (2).

In 1946, Ugon et al, according to Crausaz, proposed obliterating the pericyst cavity by a series of purse-string sutures inserted from the bottom of the pericyst cavity upwards to the pleural surface (3). This approach was modified in the same year by Allende and Langer who suggested individual ligation of the bronchial openings. Despite these refinements, capitonnage continued to remain popular because it could be rapidly executed (4). All viable hydatid cysts of the lung, in the course of their expansion, cause pressure necrosis of the walls of adjacent bronchi. The basic problem with capitonnage is that the bronchial side holes, opening into the pericyst cavity, may

be overlooked once the parasite has been removed. The walls of these bronchial openings, if larger than 1-2 millimeters, are usually cartilaginous and cannot be completely sealed off by merely approximating opposing surfaces of the pericyst cavity. The stage is set for persistent postoperative air leakage. The other drawback of capitonnage is that it distorts the pulmonary parenchyma and leads to atelectasis especially when there are multiple cysts (5).

We encountered another problem with capitonnage: a large amount of unabsorbed suture material remained in the pericyst cavity, acting as a foreign body and perpetuating the disease process.

CASE SUMMARIES

A 20 year-old man presented with a history of single hydatid cyst of the right lower lobe removed 14 months earlier. He was readmitted because of intermittent hemoptysis, raising the possibility of local recurrence of the cyst. A chest CT scan (Figure 1) further increased this suspicion. Bronchoscopy showed fresh blood clots in the right lower lobe bronchus. During thoracotomy, an irregular cavity was found in the right lower lobe just beneath the major fissure, measuring seven centimeters in diameter. The cavity contained frank pus, two large knotted 2-0 monofilament nylon suture segments and no hydatid material. More than six separate bronchial side holes opened into the irregular linings of the pericyst cavity, two of them larger than 4 mm in diameter. The suture material was removed and all bronchial openings were closed individually with 3-0 nylon sutures. The pericyst cavity was left open to the pleural surface and the edges of the opening were overrun with 3-0 chromic catgut sutures. The postoperative course was uncomplicated.

The patient did well on long-term follow up with no more hemoptysis.

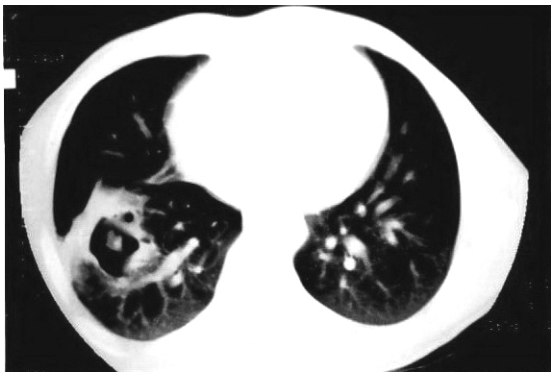

Figure 1. Chest CT scan of patient.

DISCUSSION

There is no surgical dictum stating that residual pericyst cavities of hydatid cysts must be closed or somehow obliterated (6). The basic surgical technique demands careful closure of bronchial openings regardless of their size. Capitonnage alone, by simply bringing two surfaces of the pericyst lining into apposition, cannot ensure complete and lasting closure of bronchial openings. A pneumatocele may form if the site of entry into the pleural cavity is closed, or a pneumothorax may occur if it has been left open. For very large pericyst cavities, many sutures may be required to fully close the pericyst cavity and they may act as foreign body if remain unabsorbed. After removal of the hydatid cyst of the lung, it is essential to take the time and effort to identify all the bronchial openings within the pericyst cavity. They should be individually closed with fine non-absorbable sutures. There is no need to close the residual pericyst cavity, as it will become rapidly repleuralized and the lung will fully expand.

As a final maneuver, the edges of the residual pericyst cavity should be overrun with continuous absorbable sutures to avoid minor bleeding and air leakage. Another advantage of this approach is that a pericyst cavity left open to the pleural space allows for early detection of inadvertently missed bronchial openings by observing continuous escape of air via the chest tube. This can lead to early intervention, before devastating complications like empyema occur.

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