Case Report

Ruptured hydatid cyst presenting as pneumothorax

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Abstract

Patients with echinococcus infection are mostly asymptomatic. The documented rates of simple pneumothorax in patients with pulmonary hydatidosis ranged from 2.4% - 6.2%. We report a case of a forty-year-old male patient who was referred to our hospital for management of recurrent pneumothorax. A video assisted thoracoscope (VATS) was first introduced which showed a large amount of pus in the pleural cavity and a perforated hydatid cyst. The VATS was converted to an open thoracotomy and decortication was done with removal of the ruptured hydatid. The patient made an unremarkable recovery and was discharged after one week with empyema tubes. The empyema tubes were gradually removed over a period of six weeks. An extraordinary number of management options for pulmonary hydatid disease have been offered. This case report highlights surgical treatment as the management opti

Key words: hydatid cyst; pneumothorax, pulmonary disease

J Infect Dev Ctries 2010; 4(4):256-258.

(Received 25 September 2009 – Accepted 3 January 2010)

Introduction

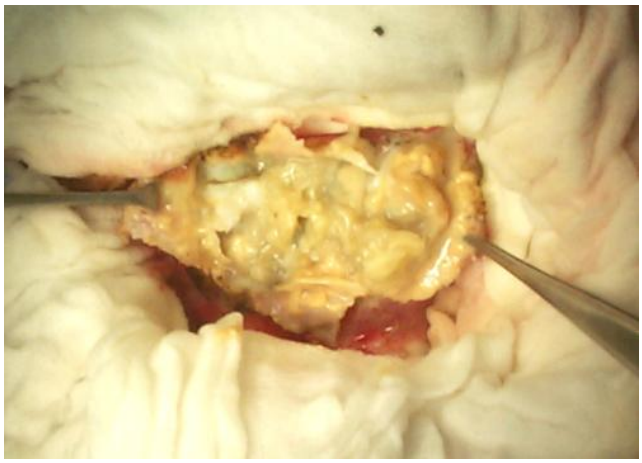
Echinococcosis or hydatid disease is caused by larvae of the tapeworm Echinococcus. In cystic echinococcosis, humans are an accidental host and are usually infected by handling an infected dog [1]. The liver and lungs are the most frequently involved organs. Pulmonary disease appears to be more common in younger individuals. Hydatid disease commonly occurs in the first three or four decades of life [2]. Although most patients are asymptomatic, some may occasionally expectorate the contents of the cyst or develop symptoms related to compression of the surrounding structures. Other symptoms of hydatid disease can result from the release of antigenic material and secondary immunological reactions that develop from cyst rupture. Diagnosis is made using a combination of imaging and serological methods. Surgical excision of the cyst is the treatment of choice whenever feasible.

Case Report

A forty-year-old man from a village presented with history of on and off fever for six months and shortness of breath on exertion since four months. One month prior to presentation to our hospital, the patient developed left pneumothorax which was treated with tube thoracostomy at a district hospital. The chest tube was removed after a week but the patient had a recurrence of pneumothorax for which he was referred to our hospital. A chest X ray was obtained which showed a large left-sided hydropneumothorax with significant shift of midline structures (1).

The patient was admitted and a chest tube was introduced which showed a large persistent air leak. The white blood count on presentation was 38,000/dL with 11.9% eosinophils. Because of these findings, the patient was taken to the operating theatre. A video assisted thoracoscope (VATS) was first introduced which showed a large amount of pus in the pleural cavity and a perforated hydatid cyst. The VATS was converted to an open thoracotomy. A large perforated hydatid cyst measuring 5 cm x 6 cm at the left lung base with multiple dead daughter cysts was also found. Decortication was done and the ruptured hydatid cyst was removed. Air leaks were closed with 4.0 prolene and the chest was closed after placing three chest tubes for drainage. Histopathology of a specimen taken during the

Figure 1. A large left-sided hydropneumothorax.



procedure showed features compatible with hydatid cyst.

The patient made an unremarkable recovery, with no postoperative complications and was discharged after one week with empyema tubes and on oral Albendazole 300 mg twice daily for 28 days. During follow-up, the empyema tubes were gradually removed over a period of six weeks. On long-term follow-up, the patient remained healthy and there was no recurrence.

Discussion

Hydatid cysts form in the liver in 50% to79% of patients and in the lung in 10-30%. They may also be found in the muscles, bones, kidneys, brain, heart, and other organs. Most cysts are acquired in childhood, remain asymptomatic for a long period of time, and are later diagnosed incidentally at chest radiography. Pulmonary hydatid cysts are multiple in 30% of cases, bilateral in 20%, and located in the lower lobes, mostly right, in 60% [1,3]. Hydatid cysts are encountered in the intact or ruptured form. Cyst rupture might be seen spontaneously or as a result of trauma [4]. When a hydatid cyst ruptures, it is termed as a complicated cyst and patient presentation is quite variable depending on the nature of the perforation [5].

The documented rates of simple pneumothorax in patients with pulmonary hydatidosis ranges from 2.4% to 6.2%. Empyema is reported to occur in 7.6% of patients with hydatid disease of the lung [5].

The most important diagnostic tools in pulmonary hydatid cysts are plain X ray and CT scan [6-7]. It is typical for an intact cyst to present as a round or oval homogenous density with sharp contours [6]. Pulmonary hydatid cysts may vary from 1 to 20 cm [3]. If the fluid in the cyst is entirely evacuated by expectoration, the remaining solid components will fall to the most dependent part of the cavity ("mass within a cavity") [3]. Unlike manifestations in other organs, calcification in pulmonary cysts is very rare (0.7% of cases) and the formation of daughter cysts is also infrequently seen [8]. Another method of diagnosis is using immunological tests. Echinococcus granulosus has a very complex antigenic structure, and hydatid disease has a slowly developing course. From 3% to 40% of human hydatidosis cases, most of which involve the lung, are found to be seronegative [9]. Immunodiagnostic testing for serum antibodies or circulating antigen provides supportive evidence of pulmonary echinococcosis. Screening is positive in only 50% of patients with pulmonary hydatidosis [1].

An extraordinary number of management options for pulmonary hydatid disease have been offered. These include lobectomy, pneumonectomy, excision of the entire cyst by enucleation (Barrett's technique), wedge resection, segmentectomy and needle aspiration of the cyst *in situ* [10-11]. More recently, medical therapy with benzimidazole drugs, such as albendazole, has been tried. The surgical approach differs in the case of intact or ruptured cysts. The operation has two steps: a) removal of the germinative layer, b) management of the residual pulmonary cavity. Intact cysts are generally removed after needle aspiration or enucleation without needle aspiration. Enucleation cannot be performed in ruptured cysts [12]. Thoracotomy is undertaken for the easy removal of the residual wall of the ruptured cyst and other ipsilateral cysts [11].The lung cavity that remains after removal of the cyst may be left as it is or obliterated by sutures from within the cavity in regard to the size and location of the cyst while the bronchial openings in the cavity must be closed by sutures in all cases. The overall morbidity and mortality rates after surgical treatment of the pulmonary hydatid disease are 1.4% to 19.1% and 0.6% to 4.2%, respectively [6].

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Conflict of interests: No conflict of interests is declared.