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Case Report

A Rare Cause of Lung Empyema: Intrapleural Rupture of Primary Splenic Hydatid Cyst

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Keywords

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Abstract

Primary hydatid cyst of the spleen with intrapleural rupture is rarely reported. Herein, we present an elderly woman who admitted with empyema due to intrapleural rupture of primary hydatid cyst where cytological examination of the pleural fluid with cell block method has facilitated the diagnosis.

ABBREVIATIONS

CT: Computed Tomography

INTRODUCTION

Empyema is collection of purulent fluid in the pleural space as a result of various clinical conditions. While pneumonia is the leading cause for the majority of the cases, spread of an intra abdominal infection through diaphragm may also cause emypema [1].

Hydatid disease, by the Echinococcus granulosus is still a serious problem particularly in endemic areas. While the liver and the lungs involved in 90% of hydatid disease, the spleen is involved only in 0.9 to 8% of the cases [2]. Since rupture and secondary infection are two main complications of splenic hydatid disease, surgical treatment is the preferred choice. Primary hydatid cyst of the spleen with intrapleural rupture presenting with pleural effusion is rarely reported [3,4].

Herein, we present an elderly woman who admitted with empyema due to intrapleural rupture of primary splenic hydatid cyst.

CASE PRESENTATION

A 68- year-old woman was admitted to department of thoracic surgery with left sided chest pain, fever and fatigue. Her past medical history was significant only for diabetes mellitus. She had diminished left breath sounds on auscultation and erythrocyte sedimentation and C-reactive protein rates were 102 mm/h and 145 mg/dl, respectively. Chest x-ray revealed pleural fluid in the left hemithorax which was diagnosed as empyema via thoracentesis and tube drainage was performed (Figure 1). Empiric sulbactam/ampicilline was given until the gram stain results of pleural fluid was obtained and continued after verification of Escherichia coli growth. Further cytological examination of the pleural fluid with cell block method demonstrated hydatid cuticular membrane (Figure 2). Thoracoabdominal computed tomography scan showed a semi-calcified cyst and abscess cavity in the spleen which was continuous with the diaphragm (Figure 3). After exploration via laparotomy, the spleen was found to be destructed with a giant calcified cyst which was adherent to hemidiaphragm. Splenectomy was performed and a passage to the intrapleural space through the diaphragm was noted, hence, the incision was extended to a thoracoabdominal one (Figure 4,5). The hemithorax was explored and free hydatid vesicules were seen and removed from the intrapleural space. The incisions

Figure 1 Chest x-ray; left pleural effusion.

were closed after partial pleural decortication and diaphragmatic repair. The patient recovered uneventfully and was discharged at postoperative day 10 with oral albendazole therapy (10 mg/kg) was given and continued for 3 months. There was no recurrence during follow-up of 40 months.

DISCUSSION

Pleural empyema is one of the emergencies of the thoracic surgery practice [1]. Splenic hydatid disease is seldom when compared to liver and lung hydatid disease and has two potential complications which are rupture and infection [2]. Rupture is usually intra abdominal but intrathoracic spread is defined in a few cases in the English literature [3,4]. Several factors such as close proximity to the diaphragm with mechanical compression and ischemia and sepsis in the hepatic cyst are responsible for trans-diaphragmatic rupture of hepatic hydatid cysts [5]. In this case, splenic hydatid disease was ruptured into the pleural space ending up in lung empyema, probably in the same manner. Although a calcified cyst is considered inactive, there are proofs that a cyst can stay viable many years after calcification such as our case [6]. Radiologic findings supplemented with serologic tests are usually enough for diagnosis of hydatid disease. Another interesting aspect of this case is that the cytological determination of hydatid cyst formation from sedimented cells with cell block method has been clarified the diagnosis where there was no obvious cystic lesion in the left hemithorax.

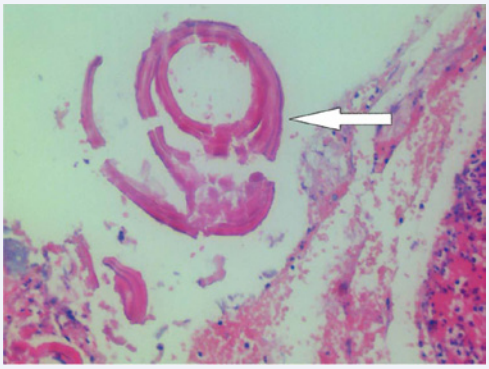

Figure 2 Cytological examination of pleural fluid with cell block method; cuticular membranes (white arrow).

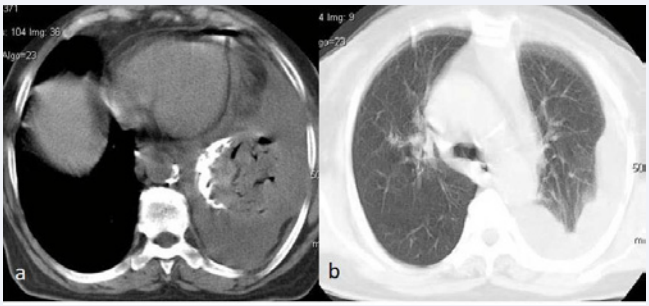

Figure 3 (a) Thoracoabdominal CT; (b) semi-calcified cyst and abscess cavity in the spleen with pleural effusion.

Figure 4 Spleen was containing infected hydatid disease.

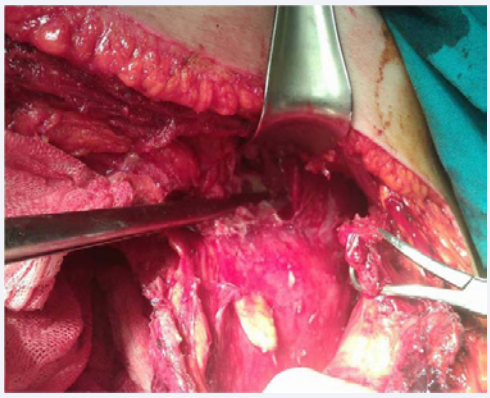

Figure 5 Intrapleural rupture of splenic hydatid disease; the tip of the pick-up indicates communication between the thorax and the abdomen.

The surgical treatment for splenic hydatid disease is total splenectomy in most of the cases whereas spleen saving surgery can be applied in selected cases. Costi et al [7] rationalize the need for hemi-splenectomy in spleen hidatydosis with benign fashion of this disease and influence on younger and healthy patients where a hemi-splenectomy can be well tolerated. In our case the calcified cyst was destructing the entire splenic tissue so we performed a total splenectomy with a thoracotomy for pleural restoration.

Although very rare, primary splenic hydatid cyst rupturing into pleural space should be kept in differential diagnosis of lung empyema particularly in countries where hydatid disease is endemic. Furthermore, cytological examination of pleural fluid with cell block method may contribute to the diagnostic process.

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