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Secondary Pleural Hydatosis - A Case Report

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Abstract
Liver hydatid causing rupture of diaphragm and secondary pleural hydatosisis a rare entity. The present article reports a case of a 61-year-old man who underwent right thoracotomy for the removal hydatid cysts, the liver hydatid cyst had caused rupture of the right hemidiaphragm causing secondary pleural hydatosis. He was suffering from cough and dyspnoea since two weeks. Chest radiograph revealed an opaque right hemithorax with signs of volume loss and compensatory hyperinflation of the left lung for which an intercostal tube was put; multiple cysts were found draining through the tube. Ultrasonography was done to confirm which revealed multiple cysts located in the posterior right hemithorax and liver.
Keywords: *Hydatid Cyst, Trans Dyaphragmatic Spread, Echinococcus Granulosus.*

Introduction

Cystic hydatid disease (CHD) is an infection produced by larvae of the parasite platyhelminth Echinococcus granulosus [1]. Living in a rural area is an important risk factor for this disease. The organs most commonly affected are the liver and the lungs. Extrapulmonary intrapleural hydatid cysts and rare and usually follows the rupture of a pulmonary cyst [2].They are unique in that they are outside the visceral pleura, but inside the parietal pleura. Only a small number, 2-5%, of thoracic cysts are reported to develop in the medialstinum, pleura [3,4] and diaphragm [5,6] but as high as 16 % of pulmonary cysts are reported to have concurrent liver cysts [5]. Among intrathoracic extrapulmonary hydatid cysts, 55% of the cysts are located in the fissure, 18% within the parietal pleura, 14% in the chest wall, 4.5% in the mediastinum, and 4.5% in the diaphragm [7]. Pleural hydatid disease is generally secondary to lung involvement or may be due to a hydatid cyst that arises in the liver and prolapses into the chest, but it may be primary on rare occasions. Pleural hydatid cysts may be solitary or multiple. Multiple pleural involvement is seen in cases of lung hydatid cyst rupture. We report a case of a patient suffering from cough and dyspnoea for two weeks secondary to pleural hydatosis.

Case Report

A 61 year old male patient presented with insidious onset, progressive shortness of breath since two weeks and chest pain. There was low grade fever. General examination revealed pallor and tachypnea. On Chest examination accessory muscles were working. On palpation, movement diminished on right side. On percussion, right side of thorax had dull note. On auscultation, decreased breath sound on right side. Routine laboratory studies yielded normal values. Posteroanterior chest radiograph revealed an opaque right hemithorax with signs of volume loss and compensatory hyperinflation of the left lung (Fig 1) for which an intercostal tube was put; multiple cysts were found draining through the tube. He was investigated with USG thorax which sowed multiple well defined rounded cysts of variable sizes in the right pleural cavity and in upper segments of liver (Fig2).Histopathological analysis of the fluid confirmed a diagnosis of hydatid cyst. CT thorax was done to visualize lung involvement which showed total lung collapse (Fig 3).MRI of the brain thorax and abdomen was done to visualize other organ and the diaphragmatic involvements (Fig 4). Diaphragmatic involvement was inconclusive however other organs were clear. Video assisted thoracoscopic surgery (VATS) was performed which showed a rent in the right dome of diaphragm(Fig 5) and cysts were removed following which hypertonic saline and betadine wash. Postoperative course was uneventful, and the patient was discharged on the 6th day postoperatively. Albendazole (10 mg/kg daily) was administered postoperatively. Postoperative radiograph showed normal inflation of the lung.

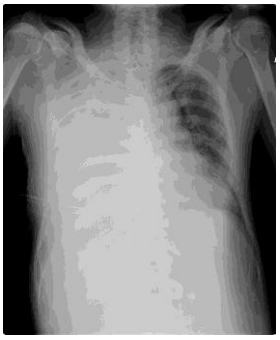

Fig 1: Whiteout right

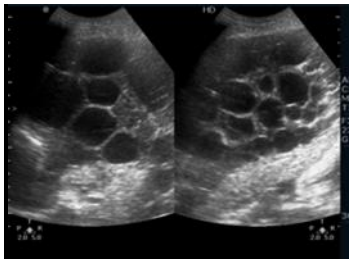

Fig 2: Multiple well defined, rounded cyst in the right

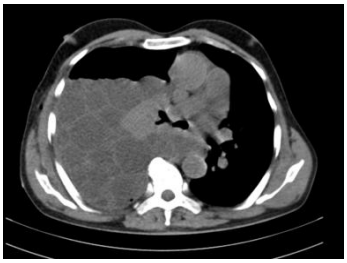

Fig 3.Axial Non contrast CT of the thorax at the level of bifurcation of trachea showing multiple right pleural hydatid cysts causing collapse of the lung.

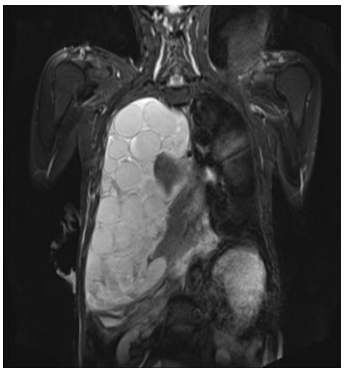

Fig 4. Coronal T2W image showing multiple hydatid cysts in the right hemithorax.

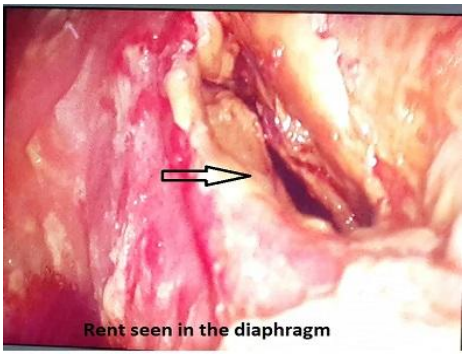

Fig 5. Intraoperative picture showing rent in the diaphragm

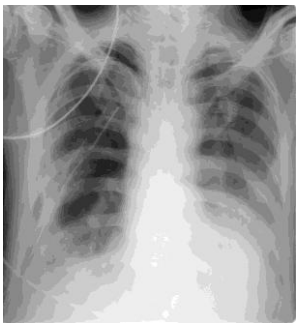

Fig 6: Post VATS. Normal

Case Discussion

Hydatid disease occurs when humans ingest the larval stage of the dog tapeworm Echinococcus granulosus or multilocularis. Infection with E.granulosus usually occurs in early childhood when children come into contact with infected dog's faeces or when they eat vegetables or improperly washed vegetables or fruit contaminated with dog faeces. The embryos hatch in the duodenum, penetrate the portal blood system and are carried to the liver, lungs and almost all organs in the body. Cysts develop over the years in the affected organs and produce their effects by sheer pressure unless the cysts rupture when anaphylaxis may occur. It is surprising that the liver in this patient was not as affected, as it is usually the most commonly affected organ. Intrathoracic extrapulmonary hydatid disease constitutes 2.3% - 7.4% of all hydatid diseases [1, 2, 7]. Among intrathoracic extrapulmonary hydatid cysts, 55% of the cysts are located in the fissure, 18% within the parietal pleura, 14% in the chest wall, 4.5% in the mediastinum, and 4.5% in the diaphragm [7].

Involvement of the diaphragm and thoracic cavity occurs in 0.6%–16% of cases of hepatic hydatid disease [8]. Mortality rates in previously reported cases vary from 5.6% to 43.7% [9]. Transdiaphragmatic migration of hydatid disease from the posterior segments of the right hepatic lobe has been reported to be a common complication and is probably related to their proximity to the diaphragm [10]. The bare area of the liver is by far the most common route of transdiaphragmatic migration. This area has been described as a potential pathway for the migration of hepatic abscesses from the liver to the mediastinum [11]. This may be due to the lack of peritoneal covering in this particular area, resulting in decreased resistance to cyst growth. Transdiaphragmatic migration from the right hepatic lobe through the diaphragm via other routes is less common.

Transdiaphragmatic migration varies from simple adherence to the diaphragm to rupture into the pleural cavity, seeding in the pulmonary parenchyma, and chronic bronchial fistula. Surgical classification into five progressive stages has been proposed [12].

Chest radiography may show pleural effusion, elevation of the diaphragm, lung consolidation, or laminated atelectasis at the lung base. Occasionally, an hourglass-shaped lesion or a loculated pleural effusion similar to an empyema can be seen in the posterior thorax on the lateral projection [13]. US can help confirm the presence of hepatic hydatid disease and demonstrate pleural effusion, although the diaphragmatic defect is rarely seen. CT is valuable for demonstrating transdiaphragmatic migration of hydatid disease and evaluating the thoracic component [14]. Sagittal and coronal MR imaging is also very useful in demonstrating the migration of the cyst through the diaphragm [12]. MR proves helpful in surgical planning by imaging and diagnosis of various grades transdiaphragmatic migration.

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