



PRIMARY PERITONEAL HYDATIDOSIS CAUSING SIGMOID VOLVULUS: A RARE CASE PRESENTATION

General Surgery

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ABSTRACT

Hydatid disease caused by *Echinococcus granulosus* is a common parasitic infection of the liver. Rarely, the cyst may develop de novo in the peritoneal cavity without the involvement of any other intra-abdominal organ. We present a unique case of a 70-year-old man with a primary intra-abdominal hydatid cyst causing acute large bowel obstruction. A 70-year-old man presented to Emergency care with complaints of pain in left upper abdomen and umbilical region with abdominal distension, vomiting and absolute obstipation. Ultrasonography suggestive of intraperitoneal hydatid cyst with mild free fluid in pelvis. Computed tomography suggested acute intestinal (large bowel) obstruction with hydatid cyst. Patient underwent exploratory laparotomy with excision of the hydatid cyst arising from peritoneum and de-torsion of sigmoid volvulus. Postoperative patient developed hypertension and was started on anti-hypertensives. Patient was discharged and follow up was uneventful.

KEYWORDS

acute intestinal obstruction, hydatid cyst, *Echinococcus*, Liver

INTRODUCTION:

Hydatidosis is caused by *Echinococcus*, a tape worm, and is a worldwide zoonosis disease¹. It is transmitted by the fecal-oral route. The definitive host are the dogs or other carnivores whereas sheep or other ruminants are intermediate hosts for hydatid disease, and humans can become infected through contaminated food². Any organ can be affected by *Echinococcus granulosus* except hair and nails³. While the liver is the most commonly involved site, unusual affected sites include the heart, ovary, fallopian tube, and thyroid gland^{2,4}. The peritoneal cavity is involved in 12% of patients with previous hydatid cyst surgery or micro rupture of hepatic cysts². These cysts usually remain asymptomatic until reaching a large size⁵. In this report, we discuss a case of 70-year-old man presenting with acute abdomen with features suggestive of large bowel obstruction due to primary peritoneal hydatid cyst. Abdominal hydatid disease is usually asymptomatic, and the possible reason for diagnosis in this patient were features suggestive of large bowel obstruction. The patient had a long standing indolent peritoneal hydatid cyst with no liver involvement (Fig 1).

Over the course of time adhesions formed between the hydatid cyst with the anterior abdominal wall as well as sigmoid colon causing acute large bowel obstruction in the form of sigmoid volvulus (Fig 2 & 3). Our patient had no direct contact with farm animals. Disseminated intra-abdominal hydatid disease may occur following a rupture of the hydatid cyst into the peritoneal cavity, previous hepatic surgery for echinococcosis and blunt trauma producing secondary echinococcosis⁶. However, our case did not have any history of previous surgery or blunt trauma. It has also been reported that peritoneal cavity involvement can also be caused by spontaneous and asymptomatic micro rupture of hepatic cysts², none of which were present in our patient at the time of presentation.

Case Presentation -

A 70-year-old presented to acute surgical care with the complaints of pain in the left upper abdomen sudden in onset, gradually progressive from mild to severe in intensity. The pain was initially in the left upper abdomen area progressed to diffuse type of pain. Pain has no relieving/aggravating factors.

Associated with abdominal distension, non-bilious, non-projectile vomiting and absolute obstipation for 3 days No history of weight loss/loss of appetite/ jaundice/diarrhea. No history of similar complaints in past. No history of DM/HTN/CAD/TB On examination: Abdomen is distended with fullness noted in upper abdomen and epigastrium with tenderness in epigastrium, left hypochondrium, hypogastrium Per rectal examination: rectum collapsed with no staining of gloved finger

Clinical Course -

BLOOD TESTS	Hb – 11.6 gm% WBC – 4,200/mm ³ PLC - 2.40X 10 ⁶ /mm ³ Creatinine – 0.9 mg/dl RBS - 145 mg/dl Na ⁺ /K ⁺ - 141/3.6 mEq/l
USG ABDOMEN AND PELVIS	Liver Normal size and echotexture No IHBD E/o well defined intraperitoneal solid cyst echogenic lesion with multiple irregular hypoechoic spaces with peripheral calcifications m/s 9x8 cm noted in umbilical region with mild free fluid in pelvis
CT CHEST AND ABDOMEN	Liver normal size and echotexture E/o Well defined hypoechoic lesion m/s 13x6.8x7.3 cm with peripheral calcifications noted in umbilical region likely hydatid cyst E/o dilated large bowel loops with air fluid levels noted with max diameter m/s 7.9 cm likely due to external compression of hydatid cyst. Rectum collapsed. Mild free fluid in RIF F/s/o large bowel obstruction with peritoneal hydatid cyst with mild ascites
HISTOPATHOLOGY REPORT	Gross Pathology: Received pearly white globular mass with attached fibrofatty entirely measuring 13x6x3 cms. External surface shows calcification. Cut section of fibrofatty mass show cystic wall also noted small cyst measuring 1x1 cm grey-yellow adjacent to the calcified cyst. Histopathology: Multiple sections studied show fibro-adipose tissue congested blood vessels, perivascular mixed inflammatory infiltrate with laminated eosinophilic acellular membrane along with areas of calcification F/s/o: histological features consistent with hydatid cyst- parietal peritoneum.



Fig 1. Showing peritoneal hydatid cyst attached to anterior abdominal wall



Fig 2. Showing sigmoid volvulus as a result of adhesions due to peritoneal hydatid cyst

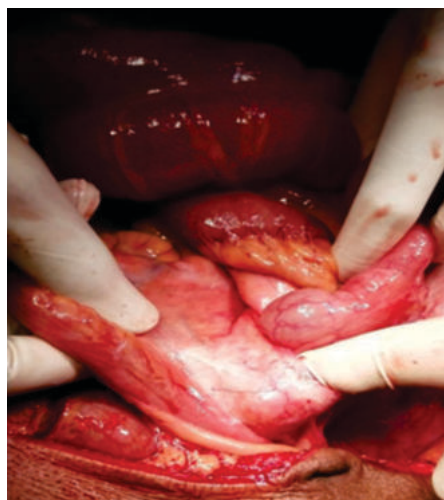


Fig 3. Showing the adhesion causing the sigmoid volvulus.

DISCUSSION -

There are three species that cause hydatid disease. *Echinococcus granulosus* is the most common, and *Echinococcus multilocularis* and *Echinococcus ligartus* account for a small number of cases.

Dogs are the definitive host of *E. granulosus*; the adult tapeworm is attached to the villi of the ileum. Up to thousands of ova are passed daily and deposited in the dog's feces. Sheep are the usual intermediate host, but humans are an accidental intermediate host. Humans are an end stage to the parasite. In the human duodenum, the parasitic embryo releases an oncosphere containing hooklets that penetrate the mucosa, allowing access to the bloodstream. In the blood, the oncosphere reaches the liver (most commonly) or lungs, where the parasite develops its larval stage—the hydatid cyst. Three weeks after infection, a visible hydatid cyst develops, which then slowly grows in a spherical manner¹⁴. The replicas of mother cyst are known as daughter cysts.

There are three layers of a hydatid cyst. A pericyst or fibrous capsule derived from host tissues develops around the hydatid cyst. The cyst wall itself has two layers, an outer gelatinous membrane (ectocyst) and an inner germinal membrane (endocyst). Brood capsules are small, intracystic cellular masses in which future worm heads develop into scoleces.

In dogs, the scoleces develop into an adult tapeworm; but in the intermediate host, they can differentiate only into a new hydatid cyst. Freed brood capsules and scoleces are found in the hydatid fluid and form the so-called hydatid sand. Hydatid cysts can die with degeneration of the membranes, development of cystic vacuoles, and calcification of the wall. Calcification of a hydatid cyst, however, does not always imply that the cyst is dead. History, imaging, and immunological tests may be used to assist physicians in order to confirm echinococcosis⁶.

CONCLUSION –

This case is being presented because of its rarity. Most common sites of occurrence of hydatid cyst are liver and lung, peritoneum being a rare site. Moreover, hydatid cyst of peritoneum presenting as acute large bowel obstruction is a rare complication of long-standing primary peritoneal hydatidosis. Pre- and postoperative medication will kill

spilled scolices in the ruptured hydatid cysts however in our case we did not start albendazole for our patient because of the acute abdomen and presence of other possible etiologies such as a complicated appendicitis⁹. Medical treatment is recommended in patients with extensive disease¹⁰. Albendazole and praziquantel is an effective therapy for treating hydatid cysts and an alternative to surgery for patients with disseminated hydatidosis^{10,11}. Rupture of these cysts is considered a serious complication because of chemical peritonitis and anaphylaxis¹². Intravascular spreading of the cyst contents can cause sudden death. Despite the hydatid cysts location, performing abdomen or thorax imaging is reasonable and should be repeated at least once in two years to detect possible recurrence¹³.

In conclusion, echinococcosis presents in different ways depending on the involved body organ. This disease should be considered as a differential diagnosis for acute abdomen in endemic areas. It is important to keep in mind that even peritoneal involvement may be seen despite absence of hepatic cysts. Careful excision of these cysts is the treatment of choice. In our case, a huge hydatid cyst in peritoneum caused acute abdomen manifestations. Patient underwent exploratory laparotomy and excision of hydatid cyst along with de-torsion of hydatid cyst was done. Patient postoperatively developed hypertension and was started on anti-hypertensives. Patient was started on Tab Albendazole 10 mg/kg in divided dose daily for 3 months with a gap of 2 weeks between each month. On follow up after 3 months, ultrasonography showed no evidence of hydatidosis in other solid organs and peritoneum and there was uneventful recovery.

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