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Case Report

Hydatid cyst-colonic fistula: an exceptional complication

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ABSTRACT

Hydatid disease is a worldwide zoonosis and is localized in the liver in most cases. Its complications are numerous and include those related to the compression of adjacent viscera, infection of the cyst's contents or perforation of the cyst. Spontaneous rupture of the hepatic hydatid cyst into colon is an extremely rare complication. The communication is, typically, not discovered until surgery. We present a case of a liver hydatid cyst communicating with the hepatic flexure of colon. The surgical treatment of the lesion and its complications was complex but successful and included partial cystectomy with prolonged external tube drainage.

Keywords: Hydatid cyst, Complications, Fistula, Colon

INTRODUCTION

Hydatid disease is a parasitic infection caused by the tapeworm *Echinococcus granulosus* and *Echinococcus multilocularis* and it is endemic usually in raising countries, but also in most developed countries in Mediterranean region, South America, Africa, etc.

The liver is the most commonly affected organ with an infestation rate of 60%-75%. Specifically, the right hepatic lobe is affected in 80% of cases and the left lobe in 20%. Less common sites are the lungs (15%), spleen, peritoneum, kidneys and brain etc.[1]

It is characterized by its large clinical polymorphism and the gravity of its complications. Most symptomatic cysts are either complicated with rupture or secondary bacterial infection or due to their large size cause symptoms such as right upper abdominal pain, swelling and discomfort.[2]

Complications of hepatic hydatid cysts are uncommon.[3] The most common complication is the intrabiliary rupture of the hydatid cyst.[4] Other less common complications are the rupture of the cyst into the peritoneal cavity, thoracic cavity through the diaphragm and towards organs of the gastrointestinal tract and secondary bacterial infection of the cyst.[5] However rupture of hydatid cyst into the colon is extremely rare and there have been only a few reports in the literature.[6-9] We report a case of a liver hydatid cyst communicating with the hepatic flexure of colon which was discovered on surgery.

CASE REPORT

A 65 year-old male presented with complaints of right upper quadrant pain of 30 days duration associated with distension, nausea and right hypochondriac lump since 20 days. Pain was dull aching in nature. There was no history of jaundice, fever, alcoholism or abdominal trauma. He underwent surgery 5 and 10 years back probably for hydatid liver disease (details were unavailable). On examination there was a midline and paramedian scar of previous operation. Massive hepatomegaly (15×10 cms), firm with regular outline was present. A lump was present in right lumbar area (8×6 cms) and periumbilical region (6×4 cms). Lumps were dull on percussion, firm in consistency, freely mobile and moving with respiration.

He had a haemoglobin of 10.0 gm/dl, total leukocyte count of 12,000/cumm with eosinophilia. Liver and renal function test were within normal limits. Lipase was slightly raised while amylase was normal. X-ray chest showed raised right hemidiaphragm. Contrast enhanced computed tomography (CECT) of his abdomen revealed multiple multi-locular cystic lesions in right lobe of liver (13×10.4 cm), left subdiaphragmatic region (11.4×7.7 cm), right lumbar region (8.6×7.6 cm), pelvis and pancreatic head (Figure 1). No evidence of any bowel mass, obstruction or free fluid.

Figure 1: CT scan of abdomen and pelvis showing multi-locular cystic lesion (arrows) in abdomen suggestive of hydatid cysts.

The patient was started on oral albendazole which was followed by an exploratory laparotomy. Intraoperatively, a cystic lesion, 14×8×8 cm in size was seen in the right lobe of liver, filled with daughter cysts (Figure 2). The cyst was isolated with sponges soaked in povidone iodine solution and a partial excision of cyst with drainage was performed. The cyst was communicating with multiple daughter cysts in the hepatic flexure colon (Figure 3) suggestive of a cysto-colonic fistula. The fistula was narrow and difficult to dissect due to multiple inter-bowel adhesions from previous surgeries. Lumbar and prepancreatic hydatid cysts were excised partially with drainage (Figure 4). Drain was kept in the cysto-colonic communication.

Figure 2: Gross appearance of multiple hydatid daughter cysts.

Figure 3: Isolation of cavity with multiple povidone-iodine soaked swabs with removal of daughter cyst, also shown in the colonic cystic communication.

Figure 4: Excision of lumbar and prepancreatic hydatid cyst.

Patient's postoperative recovery was uneventful and patient was discharged on oral albendazole on the tenth postoperative day.

The content of the cyst did not drain into the large bowel because the fistula was very narrow. Drain contained non-bilious serous fluid and was removed on the 20th day postoperative. Histopathological report confirmed the diagnosis of hydatid cyst (Figure 5).

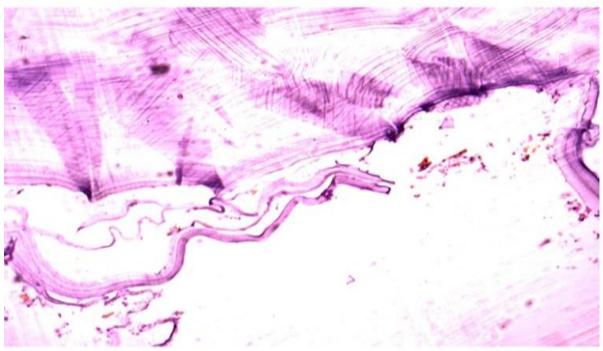

Figure 5: Histopathology of hydatid cyst involving mucosa, submucosa and muscularis layer surrounded by chronic inflammatory cells.

DISCUSSION

The complications of hepatic hydatid cysts are generally rare and they include two main categories: rupture and secondary bacterial infection.[1] Rupture of the hydatid cyst is more frequent, occurring in 20-50% of cases, while the secondary bacterial infection appears in only 5-8% of cases.[10] Several theories have been proposed in concern of the mechanism of the rupture, including the degeneration of the parasitic membranes due to chemical or host defense mechanisms, the ageing of the hydatid cyst and trauma.[5]

The hydatid cyst is composed of 3 layers. The outer layer is the pericyst, an avascular layer derived from modified host tissue and inflammatory cells. The middle layer is a laminated acellular membrane and the inner layer is the germinal layer which produces the laminated membrane and the scolices. The last two membranes form the endocyst.[1]

Three types of rupture have been described: contained, communicating and direct.

Contained rupture occurs when the endocyst ruptures and hydatid fluid escapes into the space between the pericyst and the endocyst resulting to the collapse of the endocyst.

Communicating rupture is the most common type of rupture, appearing in 44-64% of cases and its occurs when the content of hydatid cyst evacuates into the biliary radicles that have been incorporated by the pericyst.[11] Intrabiliary rupture of a hepatic hydatid cyst, although a rare entity, is the most common complication of hepatic hydatid cyst with a reported incidence of 3-17%.[4]

The direct rupture of a hepatic hydatid cyst, is which occurs when both the endocyst and pericyst are torn so that the content of the cyst escapes into the peritoneal cavity, the thoracic cavity through the diaphragm, the mediastinum or occasionally a hollow organ such as the colon. Another complication of direct rupture of hepatic hydatid cyst into the peritoneal cavity is the implantation of scolices in several organs leading to a condition called "metastatic hydatidosis".[5] Most common site of spontaneous rupture of hydatid cyst into hollow viscus is into the stomach.[12,13] The communication between hydatid cyst and digestive tract occurs when the cyst is located on the inferior surface of the liver.

Secondary bacterial infection of the hepatic hydatid cyst is a very rare complication due to the avascularity of the pericyst and the lack of connection between the endocyst and the host vascular system.

In case of a rupture or a defect in the laminated membrane, the germinal layer passes through and creates a satellite hydatid cyst by a process known as ectogenic vesiculation.

Infection of the cyst content and swelling of the outer membranes gives rise to adhesion formation between the cyst and the surrounding organs. Other mechanism for fistula is a continuous mechanical friction by a thick or calcified pericyst progressively eroding the hollow viscus wall.

The passage of hydatid membranes in the stools (hydatidorrhea or hydatidenteria) and the presence of hydatid cyst as well as the membranes in the vomit (hydatidemesis) can be detected.[14,15]

CT scan can visualize a cyst with an air-fluid level or an orally administered contrast material inside the cavity which is in a close contact with the digestive tract.

Surgical procedure depends on the view of the extent of hollow viscus damage. It includes logout of cysto-digestive fistula, treatment of the parasite and repair.

CONCLUSION

Although the incidence of *Echinococcosis* has dramatically reduced in recent decades, many cases can still be found in daily medical practice. The surgeon must keep in mind that this parasitosis can occur even in uncommon locations and therefore it should be regarded as a potentially systemic disease. The ideal treatment is the complete excision of the cyst without any spillage. In these cases the diagnosis is challenging and can be achieved only through a complete interdisciplinary evaluation of clinical, laboratory, and radiological data.

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