

CASE REPORT

Peritoneal hydatidosis with ileus

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Abstract: *Background:* The parasitic infection hydatidosis or echinococcosis, is a parasitic infection caused most frequently by flatworm *Echinococcus granulosus*. Hydatidosis is endemic in Turkey where animal husbandry is common. Eventhough, Hydatid disease can develop anywhere in the human body it is most frequently occurs in the liver and then the lungs. Rupture of hydatid cysts into the peritoneal cavity, although rare, still presents a challenge for the surgeon.

Case: A 20-year-old man presented with ileus after 24 hours of mild abdominal distention, pain and nausea. On examination his abdomen was tender, with guarding and rebound tenderness and had a 3 cm long subcostal incision scar. All laboratory investigations were in the normal range. Exploratory laparotomy revealed multiple peritoneal cyst hydatid lesions with the largest measuring 10 cm in size and one also located in the right lobe of the liver.

Conclusions: Rupture of hydatid cysts into the peritoneal cavity, although rare, still presents a challenge for the surgeon. This pathology should be included in the differential diagnosis of acute abdomen in endemic areas, especially in patients with a history of cyst hydatid (*Fig. 1, Ref. 12*). Full Text (Free, PDF) www.bmj.sk.
 Key words: hydatid cyst, surgery, peritoneal hydatosis, ileus.

Hydatidosis, or echinococcosis, is a parasitic infection caused by *Echinococcus granulosus* or, less often, by *Echinococcus alveolaris* and *Echinococcus oligarthrus* (1). Dogs are the definitive host for this parasite. Dog feces contaminate herbage, which is then ingested by the intermediate hosts such as cattle and sheep. The ovum penetrates the intestinal wall, passes through the portal vein into the liver, lungs, and other tissues, and develops into a hydatid cyst. The life cycle is completed when dogs eat the cyst-bearing organs of the intermediate hosts. Consumption of contaminated unwashed vegetables and contact with infected animals are the transmission routes for humans (2). Humans become accidental intermediate hosts through an enteral exposure. Hydatidosis is endemic in the Mediterranean region including Turkey, the Middle and Far East, Australia, New Zealand, and South America (3). The liver is the most frequently involved organ (52–77 %), followed by the lungs (10–40 %), and may be seen at other locations such as the spleen, kidney, pancreas, brain, ovary, mesentery, pancreas, and vertebra (1–2). Diagnosis is made by anamnesis, imaging procedures (ultrasound, computed tomography, magnetic resonance imaging), and serology (4). The most common symptom is an abdominal pain followed by the symptoms arising from the pressure effect of the

cyst (5). Symptoms arise from compression or displacement of adjacent organs, but, exceptionally, spontaneous or traumatic rupture (4). Here, in this case, we present an unusual case of peritoneal hydatidosis, presenting with ileus.

Case

A 20-year-old man presented with ileus following 24 hours of mild abdominal distention, pain and nausea. The pain was diffused. There was no history of trauma. He had a temperature of 37.5 °C, his pulse rate was 90 beats/min and his blood pressure was 100/70 mmHg. On physical examination, his abdomen

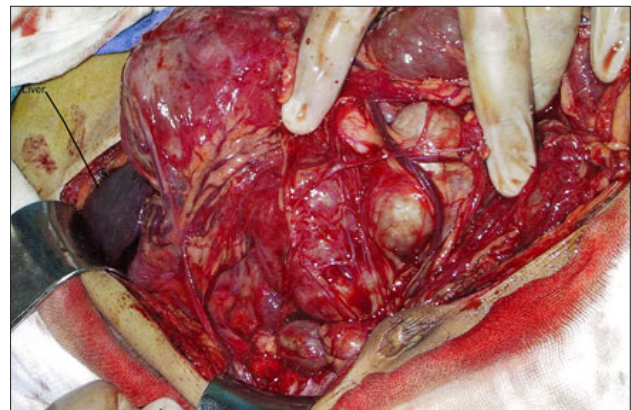


Fig. 1. Multiple hydatid cysts located between the intestinal loops.

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was tender, with guarding and rebound tenderness. He had had a hydatid cyst operation 5 years before, and there was a 3 cm long subcostal incision scar on examination. Laboratory investigations revealed a leukocyte count of 13000/mm³, with normal hemoglobin level and platelet count. Liver and kidney function tests were in the normal range. There were multiple air-fluid levels on abdominal radiography. Abdominal sonography showed multiple cystic lesions and a moderate amount of fluid in the abdominal cavity. Exploratory laparotomy revealed multiple peritoneal hydatid cyst lesions with the largest one measuring 10 cm in size and one also located in the right lobe of the liver (Fig. 1). One of the large cysts was compressing a small intestinal loop causing a complete obstruction. The cyst in the liver was 10 cm in size and had a ruptured area of 5 cm x 3 cm anteriorly. All visible hydatid cyst lesions were removed from the abdomen. The abdominal cavity was irrigated with hypertonic saline (3 %) and then by isotonic saline. After a thorough peritoneal lavage, the abdomen was closed with a drain in situ. He was treated with albendazole 10 mg/kg for 6 months under liver function and blood count monitoring. Postoperative follow up was uneventful. The patient had no recurrence or secondary hydatidosis during the 5-year follow-up.

Discussion

Hydatid disease is most commonly caused by *Echinococcus granulosus*, humans are the intermediate host, and it is endemic in Turkey with a prevalence rate of 585 and 291 per 100,000 populations in 1991 and 1999, respectively (1–6). A study of the sites of infection in 15,289 patients showed infection of the liver (75.2 %), lung (22.4 %), abdominal and pelvic cavity (5.2 %), spleen (1%), kidney (0.4%), brain (0.4%), and other organs (•0.2 % each) (4–7). The most common symptom is an abdominal pain followed by symptoms arising from the pressure effect of the cyst (5). Our patient presented with an abdominal distention, pain and nausea. Rupture of the cyst is the most common complication, either internally or externally, followed by secondary infection, jaundice, and anaphylaxis (3–8). In 1.0 % to 12.5 % of patients with intraperitoneal perforation, systemic anaphylactic reactions have been reported and these reactions may be life-threatening (3). The rate of intraperitoneal perforation has been reported between 1 % and 8 % in the literature (6). Superficially located cysts and large cysts are especially prone to rupture into pleural space and peritoneal cavity, or they may drain into the biliary tract or the gastrointestinal system (6). Cyst rupture is usually related to an increased intracystic pressure secondary to trauma, or enlargement of the cyst (5).

Ultrasound and CT are the main diagnostic methods in establishing the hydatid cyst rupture, with 85 % and 100 % sensitivity, respectively (3). Detached membranes or a reduction in cyst size on CT or sonography, or development of peritoneal fluid or biliary obstruction are representative markers of a direct intraperitoneal rupture (9). An abdominal ultrasound showed multiple cystic lesions and a moderate amount of fluid in the abdominal cavity in our patient. Intraperitoneal rupture of liver

hydatid cyst has a mortality rate of 6 % and morbidity rate of 20–35 % (10). Cholangitis, sepsis, acute abdomen, intraperitoneal bile leak, extensive inflammatory reaction, and shock associated with rupture (trauma) are the reasons for an urgent surgery, however if the patient is not suffering from an urgent illness, the operation can be postponed to a more suitable time (10). The principles of hydatid surgery such as elimination of the parasite, no intraoperative spillage, and saving healthy tissue were originally set forth decades ago (4). During the operation of a perforated cyst, the most important step is irrigating the peritoneal cavity with a sufficient amount of scolicidal agents and careful removal of all cystic content. Numerous solutions, such as hypertonic saline solution (15–30 %), formalin (2 %), silver nitrate (0.5 %), povidone-iodine (10 %), chlorhexidine (0.05 %), and a combination of cetrime (0.5 %) and chlorhexidine (0.4 %), have been used as scolicidal agents for the purpose of inactivation (3). In experimental studies, the scolicidal activity and also the toxicity of povidone-iodine were found to be higher than that of hypertonic saline. Iodine has toxic effects on peritoneal mesothelial cells (3). Gargouri et al used 3 % to 5 % saline and stated that the application time is more important than the concentration (11). All visible hydatid cyst lesions were removed from the abdomen. The abdominal cavity was irrigated with hypertonic saline (3 %) and then followed by isotonic saline. After a thorough peritoneal lavage, the abdomen was closed with a drain in situ in our patient. Operative lethality increases with the number of operations. Saimot reported a series with lethality rates of 0.9–3.6 % for the first operation, 6 % for the second, and 20 % for the third (12). The goal of the surgical treatment is to prevent complications, to eliminate local disease, and to minimize morbidity, mortality, and recurrence rates. To prevent recurrence, the WHO recommends a postoperative chemotherapy for at least 1 month (albendazole) or 3 months (mebendazole) (4). The high frequency of peritoneal recurrences makes the prolonged supervision necessary (7). During follow-up, we use an ultrasound control twice a year for 2 years and then annually, and also CT scan if necessary. In conclusion, the rupture of hydatid cysts into the peritoneal cavity, although rare, still presents a challenge for the surgeon. This pathology should be included in the differential diagnosis of an acute abdomen and subileus in endemic areas. Emergency surgery is the main treatment for intraperitoneal rupture of hydatid cysts, and medical treatment should be given postoperatively. The morbidity and mortality rates of surgical interventions for ruptured hydatid cysts are higher than the rates for an elective uncomplicated cases.

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Received June 26, 2008.
Accepted December 18, 2008.