

# Spontaneous intraperitoneal expulsion of an unruptured hydatid cyst

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## ABSTRACT

We report a 43-year-old man with a 20 x 20 cm hydatid cyst, spontaneously extruded out from the left lobe of the liver. This complication of hydatid cyst has not been recorded earlier, and makes the case unique in itself and worth reporting. The patient presented with a rare complication of biliary peritonitis of hydatid disease.

**Keywords:** Intraperitoneal, hydatid cyst, liver, biliary peritonitis.

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Hydatid disease has a worldwide distribution. The liver is the commonest site for a hydatid cyst, where it grows slowly over years to reach a detectable size. However, the onset of complications like rupture of the cyst into the biliary system, peritoneal or thoracic cavity with anaphylactic shock and infection brings the disease into an overt state.

**Case report.** A 43-year-old Turkish man, a construction worker, attended the emergency department with the complaints of pain in the abdomen and constipation for 2 days. He was given IV fluids and antispasmodics. After 3 days, he again returned to the hospital with increased abdominal pain, nausea and absolute constipation.

On examination, he had mild dehydration, pulse 90/minute, temperature 38.5, BP 90/60mmHg, mild icterus. The abdomen was distended with muscle guarding and tenderness all over. Bowel sounds were few and faint with empty rectum on digital examination. Clinical diagnosis of generalized peritonitis with paralytic ileus was made. Laboratory investigations revealed Hb 13.1gm/dl; TLC 8900 cells/hpf; DLC:N 77%, L 21%, E 1%, M 1%; B urea 44 mg%; B sugar 69 mg%; S bilirubin 2.7 mg%.

Urinalysis: normal. Plain x-ray abdomen in supine and upright position showed a huge, freely mobile, rounded well defined soft tissue mass (20x20 cms) in the abdomen (Figure 1). Small bowel loops dilated with multiple fluid levels. No free gas under the diaphragm. Abdominal ultrasonography revealed a large, mobile, unilocular, intraperitoneal cyst in the right subhepatic area (Figure 2). Multiple, fine, bright internal echoes were present in the fluid of cyst but no internal septa or loculations. Dimensions of cyst could not be taken because the lesion was larger than the screen size. The liver was pushed high up. Scanning of liver through intercostal spaces revealed an irregular area of low echogenicity in the left lobe. Intestinal loops were dilated and fluid filled and free fluid was present in the peritoneal cavity. Kidneys, gall bladder, spleen and urinary bladder were all normal. Therefore, conclusion of a large, mobile intraperitoneal cyst with intestinal obstruction was made. Emergency laparotomy was performed by right paramedian incision. The peritoneum was thickened like leather and filled with biliary fluid. A large freely floating bile stained hydatid cyst of 20x20 cm was recovered from the abdomen (Figure 3). Bile stained freely floating peeled off flakes of

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**Figure 1** - X-ray abdomen shows a large, well defined, round soft tissue mass in mid and left lower abdomen. Dilated intestinal loops due to ileus are displaced.



**Figure 2** - Diagram depicting ultrasound appearances. Cyst shifted to right subhepatic area.



**Figure 3** - Large unruptured hepatic hydatid cyst (20x20 cm) recovered from peritoneal cavity.

pericyst were present in the peritoneal cavity. After thorough peritoneal lavage with normal saline, exploration of the abdomen revealed a large irregular cavity on the inferior aspect of the left lobe of liver. Bile was oozing from the ragged hepatic cavity. Superficial cauterization of the hepatic cavity was carried out to secure biliary leakage. The omentum was thickened, congested and adherent close to the hepatic cavity. The gall bladder and common bile duct were normal and intestinal loops were distended due to ileus. A wide bore drain tube was put in the hepatic cavity along with omental pack. Corrugated drains were left in both flanks. The abdomen was closed in layers and the patient was kept on IV (intravenous) fluids, antibiotics and stomach suction.

The postoperative period was uneventful. Biliary leakage from the hepatic cavity took 2 weeks to stop completely. The patient was discharged on albendazole, 400 mg twice a day for 3 months.

The cyst was opened, which contained about 500 ml of whitish-yellow fluid with small sandy particles. No septa in the cyst (unilocular). Biopsy confirmed the diagnosis of hydatid cyst. Microscopic examination of peritoneal fluid did not reveal scolices.

**Discussion.** Hydatid disease is a well recognized flatworm disease caused by *Echinococcus granulosus*. Man is an accidental intermediate host, where the parasite will have a terminal event. A hydatid cyst can occur in any organ, the commonest site is the liver (70%) this being the first filter for the echinococcal larvae after entering into the portal circulation from intestines. The right lobe of liver is affected in 80% and 20% in the left lobe. Lungs (25%) are the next filters, 5 to 10% in the rest of the organs.<sup>1</sup> Hydatid cysts are usually located at the periphery of the liver and lungs because of very fine vascular filtration at the periphery. Approximately 75% cases are asymptomatic. Commonly the patient of a hydatid cyst presents due to complications such as rupture into the biliary tract (5-15%) or in the peritoneal cavity or thorax, resulting in severe anaphylaxis. Infection and suppuration of the cyst are the second most common complications. Severe acute abdominal pain usually indicates rupture of cyst. Slow growth of the cyst over years results in

pressure necrosis of the surrounding parenchyma, thinning of the cyst wall and high intracystic pressure (approximately 70mm of water). All these factors, superficial location and minor trauma or unnecessary manipulation may result in rupture of the cyst in the peritoneal cavity or in thorax. An expanding cyst in the deep hepatic substance may erode biliary ducts. Intra-peritoneal rupture results in showering of hydatid fluid into the peritoneum causing transient peritoneal irritation, allergic manifestations of varying intensity, anaphylaxis and secondary echinococcosis of abdominal cavity.<sup>2</sup> However, the incidence of life threatening anaphylactic shock is very low. According to Melita P et al,<sup>3</sup> biliary peritonitis is a very rare complication of hydatid disease. Rupture into the biliary tree results in biliary obstruction and jaundice due to passage of small daughter cysts<sup>4</sup> and cholangitis from hydatid fluid. Golematis GC et al<sup>5</sup> reported cutaneous fistula and Ardakani JV<sup>6</sup> reported cutaneous abscesses from hepatic hydatid cyst.

Various imaging modalities play an important role in the diagnosis of a hydatid cyst. Fifty percent of old, inactive hydatid cysts are detected by chance due to rounded calcification in the hepatic area on plain x-ray. A large active cyst may cause enlargement of the liver. If the location is peripheral, a distinct bulging of the hepatic margin may be seen on x-ray. Ultrasound, Computerized Tomography (CT) scan and Magnetic resonance imaging (MRI) are excellent imaging techniques. Ultrasound detects 90% of cysts, but is slightly less accurate than CT and MRI. CT and MRI are more sensitive in localizing cysts and identifying fine calcification of cyst wall. These investigations are also very helpful in situations where differentiation of an infected hydatid cyst is difficult from amoebic or pyogenic abscesses. Appearances on CT and MRI are similar with multiple loculations and thick septa in the cyst. On MRI, the cyst fluid is having long T1 and T2 relaxation times. Low intensity rim may be seen, which Hoff FL et al<sup>7</sup> believe represents the pericyst and specific for echinococcal cyst. Lewall and McCorkell<sup>8</sup> classified the sonographic findings of hepatic hydatid cysts. Type I: is a simple fluid-filled, anechoic with through transmission. In type I with rupture, the germinal layer is seen as an undulating membrane in cyst fluid. Moving echogenic debris (echinococcal sand) representing detached scolices helps to differentiate them from simple hepatic cysts. Type II: cysts contain multiple cysts of varying sizes, giving rise to 'Cart-wheel' appearances. Spokes of wheel (septae) represent walls of the tightly packed daughter cysts. Type III: are dead cysts, usually calcified and hyperechogenic with shadowing. Increased echogenicity on ultrasound or increased attenuation on CT of the cyst fluid suggests bacterial superinfection. In these cases, the cyst is less well defined and walls appear irregular and collapsed.

Advances in medical management has reduced surgical intervention. Todorov T et al<sup>9</sup> has successfully treated 30% cases of small unilocular hydatid cysts with mebendazole, 60mg/kg per day for 6 to 24 months; and with albendazole, 10mg/kg per day for 6 months in 40% patients. Acunas B et al<sup>10</sup> and Simonetti G et al<sup>11</sup> have managed unilocular hydatid cysts successfully with percutaneous aspiration on a limited number of patients with a very low risk of inducing anaphylaxis or rupturing the cyst. The cyst is aspirated and scolicidal agents like hypertonic saline (25%), chlorhexidine, sodium hypochlorite (0.5%), 0.5% cetrimide, 3% hydrogen peroxide and 0.5% silver nitrate solution is instilled and allowed to remain for 5 to 10 minutes in the cyst. Traditional scolicidal agents like absolute alcohol and formaline are not recommended any more because of the dangers of cholangitis, peritonitis and systemic toxicity. Surgery remains the treatment of choice in the majority of cases and is decided according to the age and fitness of the patient; size, location and number of hydatid cysts and involvement of biliary system. Several surgical procedures (Magistrelli P et al<sup>12</sup>) are described.

Much is written about the complications of hydatid disease in literature. But our patient presented with a rare complication of biliary peritonitis. Moreover, spontaneous expulsion of an intact large hepatic hydatid cyst of 20x20 cm size in the peritoneal cavity has not been recorded so far. On ultrasound examination, internal septa and loculations of daughter cysts are always present in such a large cyst of long duration. Absence of internal loculations in this large hydatid cyst was another unusual finding. This case has provided new sonographic features of a hydatid cyst. If the patient is from an endemic area, these findings are diagnostic of an extruded hepatic hydatid cyst: 1. A freely mobile cyst, with or without internal loculations, in the peritoneal cavity. 2. An irregular hypoechoic area in the liver.

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