

Ultrasound Imaging in A Case of Ruptured Hydatid Cyst Complicating Pregnancy – A Case Report

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Abstract :

Ruptured hydatid cysts are rare causes of intra-abdominal haemorrhage. They are usually secondary to primary hepatic hydatid disease. They are even rarer causes of intra-abdominal haemorrhage in pregnancy. Untreated cases or cases with delayed diagnoses are associated with a poor outcome due to systemic hypotension and secondary organ damage resulting from exsanguinating haemorrhage. Ultrasound findings in hydatid disease are fairly classical and aid in early diagnosis of the same condition.

Keywords : Ruptured hydatid cysts, intra-abdominal haemorrhage.

Introduction :

Human hydatid disease usually occurs by infestation with *Echinococcus granulosus* and less frequently with *Echinococcus multilocularis*¹. Although reported from several countries, the disease is endemic in the Mediterranean region, Far East, South America, and Middle East. In humans, 50% to 75% of hydatid cysts occur in the liver, 25% are found in the lungs, and 5% to 10% are distributed along the arterial system². Complications of hepatic hydatid cysts are rupture and secondary bacterial infection². Primary peritoneal hydatidosis is rare (2%), and the mechanism of this infection is unknown. The cyst may be ruptured after a trauma, or spontaneously as a result of increased intracystic pressure. Superficially located cysts, large cysts, and viable cysts with high pressure are especially prone to rupture into body cavities. The main diagnostic methods are ultrasonography (US) and computed tomography (CT).

Case History and Imaging Findings

A 25 year old multigravida with 28 weeks of amenorrhoea was brought to the emergency department of Bapuji Hospital, Davangere in a state of shock. Her systolic blood pressure was 60mm Hg. Diastolic pressure was not recordable. She had a heart rate of 140 bpm. Her abdominal girth was out of proportion to her gestational age. She was immediately referred for ultrasound scan of the abdomen and the following findings were documented.

A large amount of free particulate intra-abdominal free fluid was observed. Aspiration confirmed the hemorrhagic nature of the fluid. Gravid uterus demonstrated a singleton pregnancy without cardiac activity. Gross oligohydramnios was observed. Spalding sign was not present.

A large complex multicystic mass (Fig1,2) with particulate internal debris was noted in the peritoneum in the right lumbar fossa. The margins of the surrounding solid organs such as the liver and spleen were clear of the mass. (Fig 3), Both kidneys appeared normal sonologically. Right sided anechoic pleural effusion of moderate quantity was seen.

Examined bowel loops showed normal ultrasound characteristics. Due to the severity of the patient's condition, further imaging in the form of CT scanning could not be undertaken. Patient died shortly despite aggressive fluid and inotropic support. Patient's caretakers did not consent for an autopsy.



Fig 1 : Gray scale ultrasound image shows a complex cystic mass free in the peritoneal cavity. Lower aspect of the image shows a gravid uterus with fetal limbs in view.

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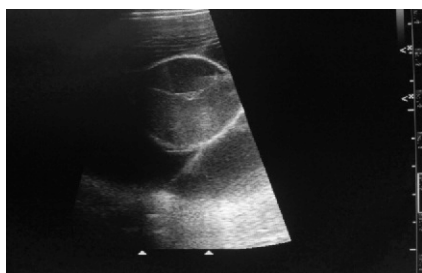


Fig 2 : High resolution ultrasound image with a linear transducer shows the complex internal architecture of the cystic mass.

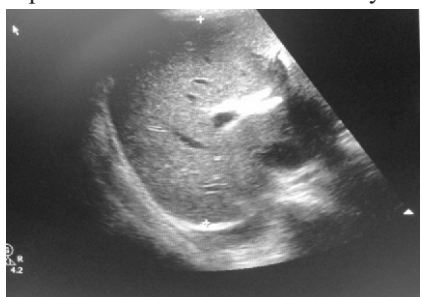


Fig 3 : Subcostal scan through the right upper quadrant shows a normal liver with intact margins.

Discussion : Infection with echinococcal organisms is the most common cause of liver cysts worldwide³. Dogs are the definitive hosts; whereas domestic ruminants (sheep, cattle) and human are intermediate hosts. Human become hosts accidentally by ingestion of contaminated foods, then ovules of *E. granulosus* are released within duodenum and embryos are. Rupture of a hydatid cyst into the abdominal cavity is a rare complication of the hydatid disease and causes serious problems and severe, life-threatening complications, including anaphylaxis. However, healed cases without anaphylaxis have been reported in the literature as have fatal cases with rupture of the cyst into the peritoneum^{4,5}. According to Lewall and McCorkell, there are 3 types of cyst rupture: contained, communicating, and direct. Various incidence rates of direct rupture have been reported. While Sozuer *et al.*⁶ reported a rate of 8.6%, Beyrouti *et al.*⁴ reported an incidence rate of 1.75%. Rupture can occur spontaneously or following a trauma. The risk of rupture is reported to increase with the increased size of the cyst and intracystic pressure⁷. The main predisposing factors for cyst perforation are young age and superficial localization. Abdominal pain, nausea and vomiting, and urticaria are the most common symptoms¹. Allergic reactions may be seen in 25% of the cases. Some authors reported that allergic symptoms occurred in 16.7% to 25.0% of study patients with ruptured hydatid cysts⁸.

Fatal anaphylaxis after cyst rupture has been described. Ultrasound and CT scan may be helpful for defining the cysts with detached membrane and the presence of intraabdominal fluid. Ultrasonography and CT have been reported to be the main diagnostic methods, with 85% and 100% sensitivity, respectively, in identifying hydatid cyst rupture⁸. CT yields the most information regarding the position and extent of intra abdominal hydatid disease and demonstrates exogenous cysts.

Conclusion: 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. Emergency surgery is the main treatment for intraperitoneal rupture of hydatid cysts, and medical treatment should be given postoperatively. The choice between a radical and a conservative operative procedure should be based on the number, size, and localization of cysts; the relation of cysts to bile ducts and blood vessels; additional organ injuries; and the general condition of the patient.

Due to the absence of autopsy or surgical confirmation, it was deduced that the hydatid cyst was primarily intraperitoneal with rupture causing intra-abdominal haemorrhage. A solid organ origin of the mass seemed unlikely as the solid organ margins were clearly free of the lesion on ultrasonography and the mass was present in the abdominal cavity in totality.

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