Case report

Spontaneous intraperitoneal rupture of hydatid cysts of the liver with encapsulating peritonitis ; a case report

Abstract:

- Background:

Spontaneous rupture of a hepatic hydatid cyst resulting in biliary peritonitis is an infrequent but severe complication that requires urgent surgical intervention and has high rates of morbidity and mortality. There are very few reported cases of this complication in the medical literature.

- Case presentation:

We present an unusual case of a 64-year-old male who presented with acute peritonitis due to biliary peritonitis resulting from the spontaneous rupture of a large hydatid cyst of the liver, as seen on contrast-enhanced computed tomography, which also showed intraperitoneal fluid. During the operation, approximately 4L of infected bile was found in the peritoneal cavity, and a cystobiliary communication was observed with rupture of the anterior wall of the cyst. Treatment involved unroofing the cyst and closing the communication. The patient was free of recurrence and in good health after 6 months of follow-up.

- Conclusion:

Although this complication is rare, it should be considered in the differential diagnosis of acute abdominal pain in patients living in endemic areas.

Key words: hydatid cyst, spontaneous rupture, peritonitis, case report

Introduction:

The occurrence of human hydatid disease commonly follows infestation with Echinococcus granulosus. Humans are infected by enteral transmission and become an accidental intermediate host [1]. The Hydatid disease is an endemic problem in Morocco and in the ovine areas of the world. It could be situated in any organ of the body. The most frequent organ affected is the liver (50% to 70%) [2]. The occurrence of intraperitoneal rupture with biliary peritonitis caused by a hepatic hydatid cyst is a highly uncommon clinical presentation, even in regions where the disease is prevalent. This condition arises when there is a rupture in both the biliary tree and the peritoneal cavity. Although intrabiliary rupture is the most frequent complication associated with hepatic hydatid cysts, the incidence of intraperitoneal rupture is low and ranges from 1 to 8%. [3,4]. The combination of both complications is rare. This complication should

be included in the differential diagnosis of acute abdomen, particularly in endemic areas. We report here a case of biliary peritonitis due to spontaneous rupture of a hydatid cyst of the liver that presented as an acute abdomen.

Case presentation

- Patient information:

A man from Morocco, aged 64, who was previously in good physical condition, reported having abdominal pain for 20 days and fever for 8 days. He went to the emergency department because his abdominal pain had become more intense and he had started vomiting in the past 2 days.

- Clinical findings:

On examination he looked unwell and sweaty, with a temperature of 38.5°C and a pulse rate of 120 beats/min. The abdomen was tender .

- Diagnostic assessement:

Blood investigations revealed total count of 18400/mm3, c-reactive protein (CRP) was elevated (165mg/l),Hydatid serology was positive. CT scan abdomen 2 days prior to admission to our institution showed a large hydatid cyst in the segment III, IV, V, VII and VIII of liver with separation of membrane intraperitoneal fluid.

- Therapeutique intervention:

The patient had an emergency surgery due to a suspected rupture of a hydatid cyst inside the abdomen. During the surgery, we discovered 4 liters of infected bile and peritonitis with multiple small cysts in the peritoneal cavity. Additionally, we observed a big hydatid cyst in segments III, IV, V, VII, and VIII of the abdomen. A rupture of the anterior wall of the cyst was noted. An unroofing procedure was performed with a large peritoneum lavage using hypertonic saline solution, a small cysto biliary communication was identified and sutured .

- Follow up and outcomes:

After surgery, the patient was started on albendazole (15 mg/kg/d) for six months.

At 6 months follow up, patient was without evidence of recurrence.

Discussion:

Ecchinococcus granulosus organism causes hydatid disease, most frequently in the liver. The parasite is endemic in sheep farming regions such as South and Central America, the Middle East, , Western Europe, some sub-Saharan countries, Russia and China. Humans are unintentional intermediate hosts in the life cycle, usually acquired by direct contact with dogs or sheep [5].

Even though this disease is commonly considered "benign", it still has a potentially devastating health impact on patients because of its serious complications. The gravest complication is the rupture. three different types of ruptures that can occur in hydatid cysts. The first type is a "contained rupture," which happens when the cyst ruptures but

is still surrounded by the liver tissue. The second type is a "communicating rupture," which occurs when the cyst ruptures into a bile or vascular duct. The third type is a "direct or free rupture," which happens when the cyst ruptures into the peritoneal cavity. [6].

While intraperitoneal cystic rupture is a rare complication of hydatid disease, it still occurs in a significant number of cases, ranging from 1% to 16% of reported cases. Intraperitoneal cyst rupture can occur spontaneously and may be caused by an increase in pressure within the cyst [6,7].

Rupture of an intraperitoneal cyst can happen spontaneously and can be due to an increase in intra-cystic pressure [8].

The symptoms and signs of a ruptured hydatid cyst may not always be severe, but if the cyst ruptures in intraperitoneal cavity, the hydatid fluid can cause chemical peritonitis. In addition, if there is a concurrent bile leak, peritoneal symptoms and signs may appear earlier and be more severe, as was the case with our patient [5].

The most effective method for accurately determining the location of a cyst, identifying any associated cysts within the abdomen, and assessing vascular and biliary connections is through the use of a CT scan with high sensitivity and high-resolution multiplanar reconstruction images [6].

Surgery remains the preferred treatment for hydatid cysts that have ruptured, but the optimal approach has not been definitively established .The main surgical techniques for treating a liver cyst can be categorized as either conservative, such as unroofing, or radical, which includes pericystectomy, pericystoresection, and hepatectomy. In emergency situations, the conservative approach appears to be the preferred method due to its lower risk of bleeding, shorter operating time, and lower requirement for advanced surgical skills [6,9]. The second phase of surgical treatment involves extensive intraoperative lavage. Hypertonic saline solution (3% 30%), is the preferred solution utilized for this purpose [6,10]. The management of cystobiliary communications depends on the location and dimensions of the fistulae. For substantial, lateral, or central fistulae, direct suturing is not recommended. Instead, a catheter is inserted through the fistula opening and left in the intrahepatic biliary tree, then brought out through the skin using the shortest path [5].

After surgery, it is recommended to begin antihelminthic treatment using albendazole at a dosage of 15mg/kg/day as soon as possible. The duration of antihelminthic treatment is not well established and varies among different sources [6].

Patients who have undergone treatment for hydatid cysts should be closely monitored through regular follow-up appointments that include hydatid serology testing (indirect hemagglutination test) and abdominal ultrasonography every 3 to 6 months. This follow-up protocol is crucial for early detection of recurrence, which may be linked to inadequate peritoneal lavage or ineffective medical treatment [11].

Conclusion:

Although it is uncommon, the possibility of intraperitoneal rupture of a hydatid cyst should be taken into account when evaluating a person with an acute abdomen,

especially if they live endemic area. If a patient has acute abdominal pain and imaging tests indicate the presence of a hydatid cyst, it is important to consider the potential for biliary peritonitis as a cause of the acute abdomen.

Patient perspective : The surgical procedure, along with its benefits and potential complications, was described to the patient. They agreed to the procedure, and their informed consent was obtained.

Ethics approval : not applicable

Consent of patient : The patient provided written and informed consent for the publication of this case report and its associated images. A copy of the written consent is available upon request for the Editor-in-Chief of this journal to review.

Registration of research studies: As our paper is a case report, it was not registered.

Provenance and peer review

Not commissioned, externally peer-reviewed

References :

1 Abu-Eshy SA: Clinical characteristics, diagnosis and surgical management of hydatid cysts. West Afr J Med 2006, 25(2):144–152.

2 Piskin T, Ara C, Dirican A, Ozgor D, Unal B, Yılmaz S: Perforated hydatid cyst into peritoneum presented with urticaria. Dicle Med J 2010, 37(1):71–74.

3 Sozuer EM, Ok E, Arslan M: The perforation problem in hydatid disease. Am J Trop Med Hyg 2002, 66:575-577

4 Beyrouti MI, Beyrouti R, Abbes I, Kharrat M, Ben Amar M, Frikha F, Elleuch S, Gharbi W, Chaabouni M, Ghorbel A: Acute rupture of hydatid cysts in the peritoneum: 17 cases. Presse Med 2004, 33:378-384.

5 Ray, Sukanta, et Kausik Das. 2009. « Spontaneous Intraperitoneal Rupture of Hepatic Hydatid Cyst with Biliary Peritonitis: A Case Report ». Cases Journal 2 (1): 6511.

6 Mejri, Atef, and al. 2021. « Acute Intraperitoneal Rupture of Hydatid Cysts of the Liver: Case Series ». Medicine 100 (44): e27552.

7 Derici H, Tansug T, Reyhan E, Bozdag AD, Nazli O. Acute intraperitoneal rupture of hydatid cysts. World J Surg 2006;30:187983. discussion 1884-1885

8 Limeme M, Yahyaoui S, Zaghouani H, et al. Spontaneous intraperitoneal rupture of hepatic hydatid cyst: a rare cause of ascites. BMC Surg 2014;14: doi: 10.1186/1471-2482-14-99.

9 Ozturk G, Aydinli B, Yildirgan MI, et al. Posttraumatic free intraperitoneal rupture of liver cystic echinococcosis: a case series and review of literature. Am J Surg 2007;194:313–6.

10 Gök M, Topal U, Öz AB, Akyüz M. Traumatic rupture of a hydatid cyst of the liver presenting with skin lesions. Ann Ital Chir 2020;9.

11 Feleppa C, D'Ambra L, Berti S, Magistrelli P, Sani C, Falco E. Laparoscopic treatment of traumatic rupture of hydatid hepatic cyst–is it feasible?: A case report. Surg Laparosc Endosc Percutan Tech 2009;19: e140–2.

Figures :

Figure 1 : CT image showing ruptured hydatid cyst

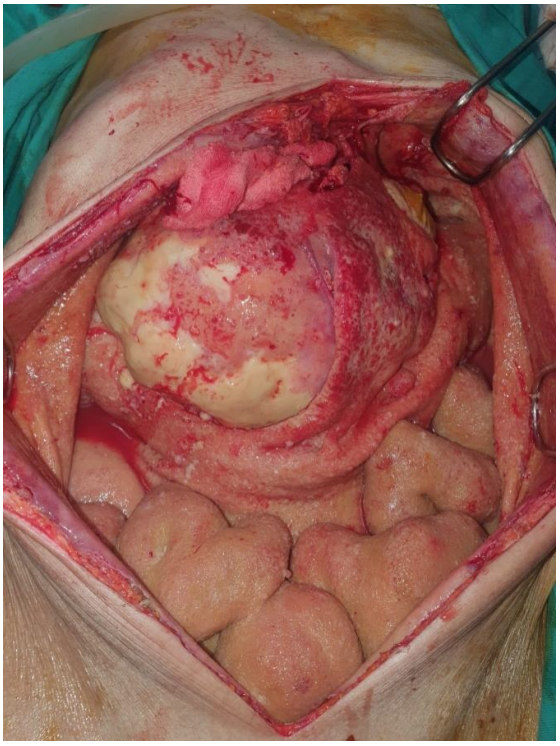

Figure 2 : intra operative image of encapsuled peritonitis caused by hydatid cyst rupture

Figure 3 : intra operative image showing the hydatid cyst after unroofing with biliary communication