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Case Report

Spontaneous Intraperitoneal Rupture of a Hepatic Hydatid Cyst

Zulfu Arikanoglu[1], Fatih Taskesen[1], İbrahim Aliosmanoğlu[1], Mesut Gul[1], Mehmet Guli Cetincakmak[2], Akin Onder[1], Murat Kapan[1]

[1]*Department of Surgery and* [2]*Department of Radiology, Dicle University Faculty of Medicine, Diyarbakir, Turkey*

Hydatid cysts, which are endemic to certain areas, typically are found in the liver. Spontaneous intraperitoneal rupture, which can be life threatening, is rare. This article presents a case of spontaneous rupture of a hydatid cyst in a 69-year-old woman who was admitted to the emergency department. The patient had no history of trauma. Abdominal ultrasonography and computed tomography suggested rupture of a hydatid cyst. The patient underwent a partial cystectomy, and the cystic area was washed with hypertonic saline and the peritoneal cavity was washed with isotonic saline and drained. Postoperatively, the patient was treated with albendazole for 3 months. No additional pathology was observed at the 3-, 6-, and 9-month follow-ups. Although rare, a ruptured hydatid cyst should be considered in the differential diagnosis of the acute abdomen in a patient residing in an endemic area.

Key words: Liver – Hydatid cyst – Spontaneous rupture

Hydatid disease is a parasitic infection caused by *Echinococcus granulosus*. Although the parasite most frequently settles in the liver and lungs, it may be encountered in any part of the body.[1] Experienced surgeons are aware that a hydatid cyst may rupture, either spontaneously or after trauma or surgery. Although hepatic hydatid cysts rupture most commonly into the biliary tree, they may also rupture into the blood vessels, bronchi, or peritoneal cavity. Spontaneous intraperitoneal rupture of a cyst, albeit rare (1%–8%), is life threatening.[2] Patients with hydatid cyst rupture into the peritoneal cavity are often admitted to the emergency department with an acute abdomen. The diagnosis is established by ultrasonography (USG) and computed tomography (CT).[3]

This article presents a rare case of spontaneous rupture of a hydatid cyst in a 69-year-old woman admitted to the Dicle University Hospital Emergency Department complaining of pain in the abdomen and shortness of breath.

Reprint requests: Zulfu Arikanoglu, MD, Department of Surgery, Dicle University Faculty of Medicine, 21280, Diyarbakir, Turkey. Tel: +90 412 2289642; Fax: +90 412 2295912; E-mail: zulfuarikanoglu@gmail.com

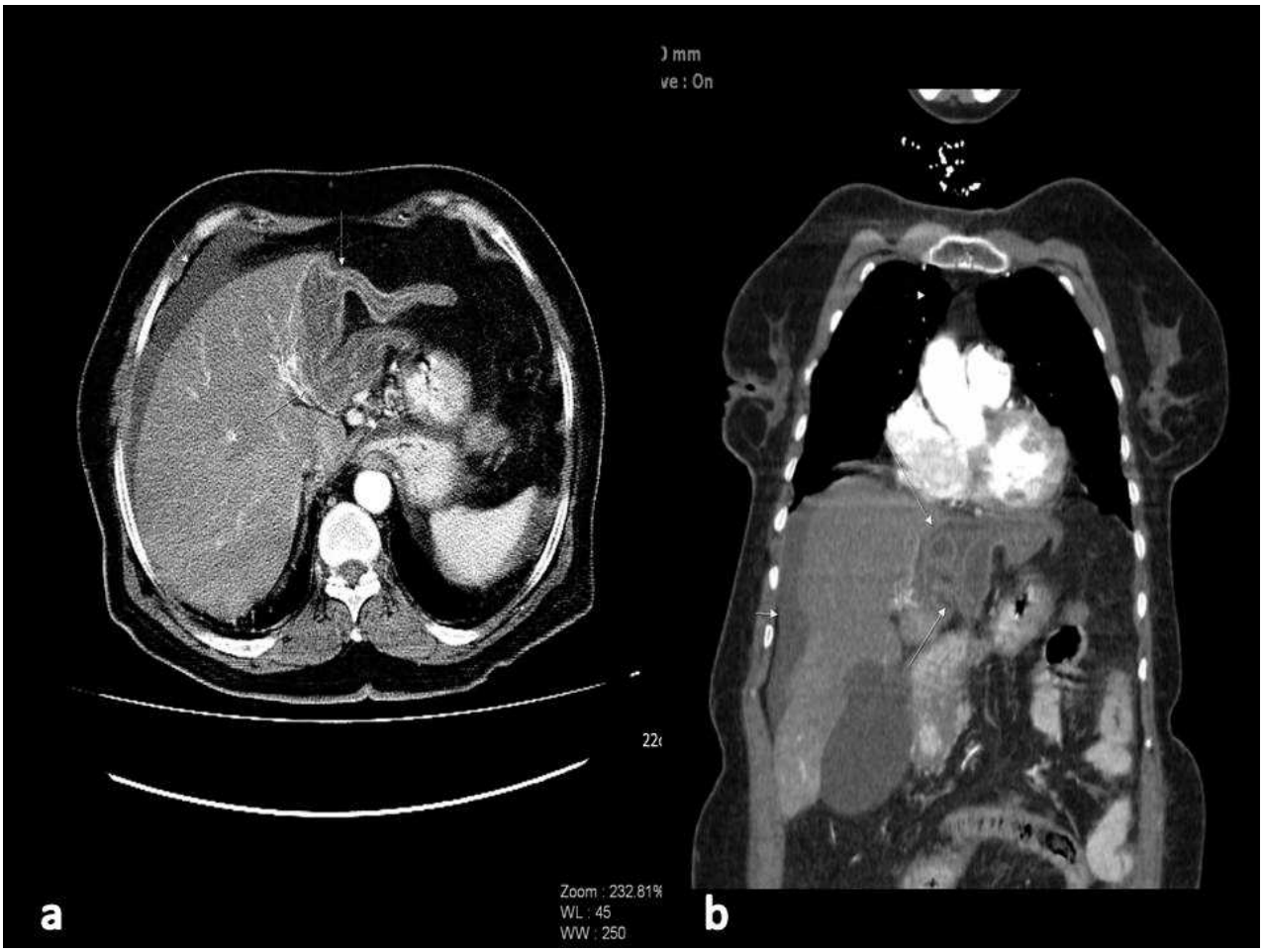

Fig. 1 Post-contrast CT examination in preoperative period (a: axial, b: coranal). Collapsed germinative membrane (both long arrows) and free perihepatic fluid (short arrow).

Case Report

A 69-year-old woman was admitted to the Dicle University Hospital Emergency Department complaining of shortness of breath, abdominal pain, and vomiting. The patient had no history of trauma, prior surgery, or systemic disease. The physical examination revealed general abdominal tenderness. Her blood pressure, pulse, respiration rate, and temperature were 110/60 mmHg, 103 beats/min, 20/min, and 38.7°C, respectively. The white blood cell count, hemoglobin, hematocrit, and platelet count were 14,300/mm^3, 11.9 mg/dL, 34.5 g/dL, and 332,000/mm^3, respectively. Other biochemical parameters, including the bilirubin level, were within the normal range. Nothing significant was observed in the posteroanterior chest X-ray or standing abdominal plain X-ray. Abdominal USG showed a 68- × 57-mm lesion with irregular borders and some cystic and echogenic areas in the left lobe of the liver. Minimal fluid was detected in the perihepatic region and lower abdomen. Abdominal CT revealed a collapsed germinative membrane 68 × 92 mm in diameter and widespread intra-abdominal free fluid (Fig. 1). A laparotomy was performed, with a diagnosis of hydatid cyst rupture. At surgery, a 10- × 8-mm cyst with a tear on the inferior surface was observed. Seropurulent fluid and daughter vesicles were also disseminated throughout the abdomen. The other abdominal organs were normal grossly. After a partial cystectomy, the cyst pouch was irrigated with hypertonic saline (3%), and the peritoneal cavity was washed with isotonic saline for 10 to 15 minutes. Then, two 22F Foley catheters were inserted: one into the cystic cavity and the other into the abdominal cavity. The patient was discharged without any trouble on the seventh postoperative day and prescribed 10 mg/kg/d albendazole (Andazol,

Biofarma, Istanbul, Turkey) for 3 months (3 weeks of drug administration and a 1-week drug-free interval), with liver enzyme and blood count monitoring. No recurrence or additional pathology was detected on CT at the 3-, 6-, and 9-month follow-ups.

Discussion

Although hydatid disease can be observed worldwide, it is endemic in Asia, Australia, the Middle East, Southern Europe, Africa, and South America. The liver is the organ most commonly affected by hydatid disease, yet *E. granulosus* can settle in practically any organ.[4] In most cases, the disease remains silent clinically for years in the organ where it has settled. The symptoms are generally due to pressure resulting from growth of the cyst and to complications.[5] The most common complication of a hepatic hydatid cyst is intrabiliary rupture (5%–25%),[6] whereas intraperitoneal rupture is observed in 3.2% to 16% of the cases.[2,6–9] Our patient's initial clinical findings were those of an acute abdomen.

Rupture can occur spontaneously or after trauma, depending on the diameter of the cyst (≥10 cm) or increased intracystic pressure. Our patient had no history of trauma before admission. This relatively rare (1%–8%) condition occurs most often in younger patients, specifically those with superficially located and bigger lesions.[1,10,11] Hydatid cysts that rupture intraperitoneally can present in various ways ranging from mild abdominal pain to potentially fatal anaphylactic reactions.[4,12,13] The most common symptom on admission is abdominal pain, which is accompanied by vomiting and nausea in most patients. Dissemination of the hydatid fluid and protoscoleces into the peritoneal cavity can evoke allergy-related reactions, like urticaria, fever, hypotension, or anaphylaxis.[1,11] Our patient presented with an acute abdomen.

The diagnosis of a ruptured hydatid cyst should be prompt because it requires emergency intervention. Because most cases are asymptomatic, the diagnosis is generally made after clinical or radiologic investigations for other reasons.[14] USG and CT are useful for identifying intra-abdominal fluid and a cyst with a detached membrane. The sensitivities of these methods are 85% and 100%, respectively.[2,12]

The preferred curative treatment for a perforated hydatid cyst is surgery. The methods used in the surgical treatment can be radical (pericystectomy + hepatic resection) or conservative (unroofing, with various procedures to treat the residual cavity).[15] Radical surgery in the case of rupture may be difficult under emergency conditions. Conservative procedures are much easier, faster, and safer.[7] All of the cyst contents should be removed, and the cyst and peritoneal cavities should be washed with saline solution and scolicidal agents. Hypertonic saline (3%, 15%, or 30%) is scolocidal. Hypertonic saline may cause hypernatremia.[16] In our patient, we used 3% saline for the cyst pouch and isotonic saline for the peritoneal cavity. We did not encounter any significant complications using these solutions. All patients should be treated with albendazole for 2 to 3 months to decrease recurrences and followed with serologic and imaging tests for at least 6 months. Our patient was treated with albendazole (10 mg/kg/d) for 3 months postoperatively.

In conclusion, spontaneous rupture of a hepatic hydatid cyst, albeit rare, may be fatal. Therefore, a ruptured hydatid cyst should be included in the differential diagnosis of acute abdomen, especially in regions where the disease is endemic. Given the high risk of anaphylactic reaction, a rapid diagnosis and intervention are mandatory. Surgery and postoperative medical treatment constitute the basis of treatment.

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