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Traumatic rupture of a hydatid cyst of the liver presenting with skin lesions

The hydatid cyst is the evolution of a parasitic infection caused by Echinococcus granulosus and is an endemic disease in Turkey. The hydatid cysts of the liver can give origin to several complications and the rupture is one of them. Rupture can occur spontaneously or as a result of external trauma. The presentation with skin lesions is very rare. We present a 20-year-old male patient who presented himself after a car accident, and was diagnosed with a rupture of traumatic hydatid cysts due to hives rash. In the operation, a scolicidal gent was administered to the cyst, the cyst wall was partially excised and the germinative membranes were removed. Medical treatment with albendazole was started. The postoperative period was quiet. The intraperitoneal traumatic rupture of a hydatid cyst is rare, but it can cause severe anaphylactic reactions and biliary peritonitis. Although a rare and broken hydatid cyst due to trauma may present with skin lesions in a patient in an endemic region, it should be considered in the differential diagnosis.

KEY WORDS: Primary hydatid cyst, Trauma, Urticaria

Introduction

Hydatid cyst (HC) is a disease caused by the larval form of Echinococcus granulosus, their main host are dogs, while humans are intermediary hosts. Humans are infected by ingesting ova from soil or water contaminated by the feces of dogs. HC is endemic in countries such as Turkey, Middle East, Far East, South America, Australia, New Zealand, China and Kenya[1,2]. In Turkey it is still an important public health issue, with prevalence rates of 585 and 291 per 100,000 population in 1991 and in 1999, respectively [3].
The most commonly affected organs are the liver and the lung, but it can be seen all over the body. Cysts can be ruptured after trauma or spontaneously with increased intracystic pressure. Hydatid cyst rupture requires emergency surgical intervention [4].

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Anaphylactic reactions can develop by mixing the antigenic content of the cyst into systemic circulation as a result of cyst rupture [5]. Systemic anaphylactic reactions have been reported in 1.0% to 12.5% of patients with intraperitoneal perforation, and these reactions may be life-threatening [4,6]. The main diagnostic methods are ultrasonography(US) and computed tomography(CT).
The aim of this article is to present a case of liver hydatid cyst rupture which was manifested by skin lesions after a out of vehicle traffic accident and to review it with the literature. The diagnosis and the treatment were carried out at University Hospital of Erciyes University. This work is reported in line with the Surgical Case Report Guidelines (SCARE) criteria [7]. The legal tutor agreed with the publication of the case and signed the informed consent.

Case Report

A 20-year-old Middle Eastern male patient was brought to the emergency room after a car accident with abdominal pain. The patient had no history of surgery, or systemic disease. The patient did not have any contributing family or psychosocial history. He has no history

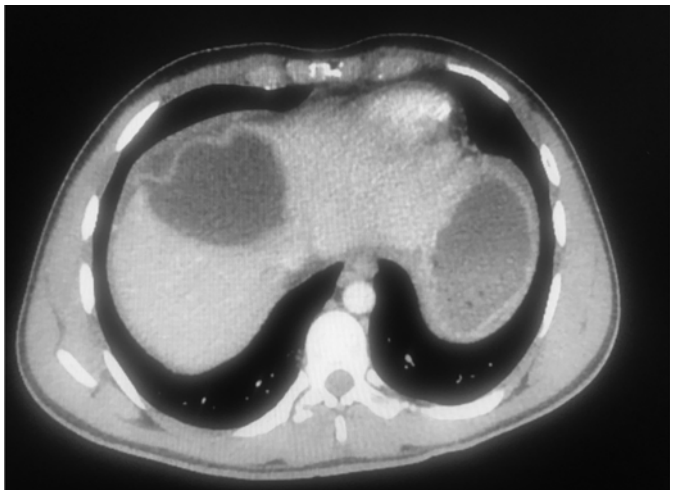

Fig. 1: A cyst cavity with a 7cm diameter was observed in the liver segment 8 with irregular walls, and a 4 cm cyst with regular walls was observed adjacent to the gallbladder.

of smoking or other metabolic diseases and pet ownership.

At the physical exam of the case, the following was found; TA:120/70 mmHg, respiratory rate: 20, Pulse: 80/min rhytmic, Temp:37.2°C, BMI: 25. Glasgow Coma Scale was 15. Right upper quadrant tenderness was present during abdominal examination, defense and rebound were not observed.

In the laboratory examinations conducted at admission; complete urine analysis was normal, Hb:13,2 g/dl, Htc: 39, Leukocytes:16600mm^3. AST:176,7 u/L, ALT:172,9 u/L, Glucose:77 mg/dL, Chloride:101,4 mmol/Lm, BUN 17,0 mg/dL, Creatinine 1,25 mg/dL, Sodium:140 mmol/L, Potassium:4,05mmol/L, Total_Bilirubine:0,10 mg/dL, Direct_Bilirubine:0,10 mg/dL, Amylase:43 U/L, GGT 43 u/L, ALP: 85 u/L, LDH:429u/L.

Abdominal ultrasonography (USG) showed perihepatic diffuse fluid and 2 cystic structures in the right lobe of the liver. The large one was observed as a type 2 hydatid cyst with a 9cm diameter thick-wall, containing an echogenic component, and showed dissection in the posterior wall. The other one was evaluated in favor of a thick walled type 1 cyst hydatid with a diameter of 5 cm. An abdominal computerized tomography (CT) was also obtained (Fig. 1). A cyst cavity with a 7cm diameter was observed in the liver segment 8 with irregular walls, and a 4cm cyst with regular walls was observed adjacent to the gallbladder.

The patient was evaluated by relevant trauma departments. During his follow-up, the patient developed diffuse urticarial rashes. There were urticarial skin rashes on the patient's body (Fig. 2). The patient was admitted to the intensive care unit. Intravenous methylprednisolone and feniramin, intravenous hydration, and nasal oxygen was administered for treatment of the allergic reaction. Patient was operated on in emergency conditions.

After anesthetic clearance, emergency laparotomy was performed under general anesthesia. Traumatic hydatid cyst rupture was considered in the patient and the operation was performed by an experienced team of surgeons. An umbilicus rotating upper-lower midline incision was performed. In the exploration, it was observed that the cystic lesion with a size of about 7 cm was perforated in the liver segment 8, and there was a cystic lesion with a size of 4 cm in the vicinity of the gallbladder, and clear free fluid was observed in the abdomen. No further pathology was observed in the abdomen. Perforated cystic cavity and intraabdominal fluid were washed with saline. Then the cystic membrane was removed from the cavity (Fig. 3). Serum sale was given into the cavity again and was left to stand. The debris was emptied by debriding the cavity. Cyst was not communicating with any of organs or bile ducts. Cholecystectomy was planned to drain the cystic lesion adjacent to the gallbladder. The pouch was normal, slightly hydropic. The wall was intact. The gallbladder was hanged from the fundus. Callot triangle was dissected and the cystic artery and cystic canal were cut by tying

Fig. 2: Urticarial skin rashes on the patient's body.

Fig. 3: The cystic membrane in the cavity.

with 2/0 silk. The pouch was removed by retrograde dissection from the liver bed.
The cyst wall was opened by placing 2/0 silk sutures on the cyst wall adjacent to the gallbladder. After entering the trocar, the cyst contents were aspirated and the saline serum was left to wait in the cavity for 10 minutes. Then the cyst wall was opened to remove the active germinative membrane, and the cyst content cleared. The cyst contents were washed again with serum sale. The abdomen was cleaned via aspiration. A total of three silicone drains were placed, one each in the right diaphragm, subhepatic region and pelvis.
There were no peroperative complications. The duration of the operation time 2 hours and 15 minutes, and blood loss was 100 ml. The patient was followed up in the postoperative intensive care unit. Since no problem was experienced during the postoperative period, drains were removed at the 2nd postoperative day, and he was discharged at post op day 5 with 10 mg/kg/day albendazole treatment.
The patient had no specific postoperative complications and no wound complication developed. We do not need re-discovery/revision surgeries. We have not experienced post-operative 30 day and long-term morbidity/mortality.
The patient was followed up as an outpatient 10 days after discharge and was well with no further complaints. Another follow-up was done at 6 months.
The patient should be closely followed in terms of biliary complications. Written informed consent was provided by the patient.

Discussion

Infection with echinococcus organisms is the most common cause of liver cysts worldwide. Hepatic hydatid cyst can persist asymptomaticly without rupture for years. The most common organs of localisation for hydatid cysts are the liver (55-70%) and lung (18-35%). The coexistence of cysts in these two organs is seen in 5-13% of the patients. In our country, the rate of HC is given as 1.3 / 100 000 population and the rate of surgical cases calculated for HC is 0.87-6.6/100 000[8] .
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. The rate of rupture of hydatid cysts into the peritoneum has been reported as between 1% and 8% in the literature [9-11]. Lewall et al. classified ruptured hydatid cysts into three categories; contained, communicating and direct [12]. The rupture of HC into the peritoneum can cause serious anaphylactic reactions. Although the reported frequency of minor allergic reactions after traumatic or spontaneous rupture of hydatid cysts ranges from 16.7% to 25%; the systemic anaphylactic reaction rate in HC disease which ruptured into the peritoneum has been reported as 1% to 12.5% [4,6]. In our case only urticarial lesions were detected.
The diagnosis of urticaria is clinically established by itching, rash, redness, and spontaneous disappearance of the lesion. Immediately after the diagnosis of hydatid cyst rupture, medical treatment should be initiated against allergic reactions and the patient needs to be taken to emergency operation. The diagnosis of HC can be made by immunological tests and radiology. USG and CT are very important diagnostic tools and Gharbi classification, especially with USG, provides detailed information about the morphology of the disease. It results in 85% and 100% sensitivity in determining cyst rupture of hydatid cyst [2,13]. Although percutaneous procedures have increased in the treatment of hydatid cysts, surgical treatment is still the gold standard.
Surgical treatment of the primary cyst should be the aim if the general condition of the patient allows it. Pericystectomy and hepatectomy are rarely applied in cases of complicated hydatid cysts, but conservative surgical methods such as external drainage, unroofing, and cavity filling are frequently used [9]. After intervention for a perforated cyst, the most important step is irrigating the peritoneal cavity with a sufficient amount of scolicidal agents[6] . The scolicidal activity of povidone-iodine was found to be higher than that of hypertonic saline in experimental studies [6,14]. Ruptured HC has to be followed in terms of postoperative recurrence and Sözüer et al. reported a 14% recurrence [1].
Biliary leakage is a potential problem after hydatid cyst surgery. The incidence of postoperative biliary leakage was 7.3% [15]. If the connection between the cyst and the biliary tract is recognized and intra-operatively treated, the incidence of this complication decreases.
The operative mortality rate for cases of perforated liver hydatid cysts has been reported to be 0% to 11.8% in some studies and the overall mortality rate was higher in studies of patients with perforated hydatid cysts [6,13]. It is known that treatment with albendazole at a dose of 10-15mg/kg/day is safe and effective for two to three 6 month periods. We also started albendazole treatment in the postoperative period. The reported complications regarding Albendezol are allergic reactions related to this drug and elevation of liver.
In conclusion; in our country where hydatid cyst cases are often seen, hydatid cyst ruptures should also be considered in the differential diagnosis of trauma patients presenting with allergic reactions.

Riassunto

La cisti idatidea è l'evoluzione di un'infezione parassitaria causata da Echinococcus granulosus ed è una malattia endemica in Turchia. Le cisti idatidee a localizzazione epatica possono presentare diverse complicazioni, e la

rottura è una di queste. Una rottura può avvenire spontaneamente o come risultato di un trauma esterno. In tal caso la presenza di lesioni cutanee è molto rara, ma può suggerire la diagnosi.
Il caso che presentiamo è quello di un uomo di 20 anni che si è ricoverato dopo un incidente d'auto, e gli è stata diagnosticata una rottura di cisti idatidea traumatica sulla base della presenza di eruzioni cutanee a tipo orticaria. Nel corso dell'operazione è stato introdotto nella cisti un agente scolocida, la parete della cisti è stata parzialmente asportata e le membrane germinative sono state rimosse, iniziando subito un trattamento medico con albendazolo. Il periodo postoperatorio è stato tranquillo. La rottura traumatica intraperitoneale di una cisti idatidea è un evento raro, ma può causare gravi reazioni anafilattiche e una peritonite biliare. Raramente la rottura di una cisti idatidea come conseguenza di un trauma può manifestarsi con lesioni cutanee. Specie se il paziente proviene da una regione di endemia idatidea, in presenza di eruzioni cutanee dovrebbe essere presa in considerazione l'idatidosi nella diagnosi differenziale.

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