Rupture of Right Hepatic Duct into Hydatid Cyst

Echinococcal disease can develop anywhere in the human body. The liver represents its most frequent location. Hepatic hydatid cysts may rupture into the biliary tract, thorax, peritoneum, viscera, digestive tract or skin. We report a rare case with rupture of the right hepatic duct into a hydatid cyst in a woman with known hydatid disease and choledocholithiasis. The increased intra-luminal pressure in the biliary tree caused the rupture into the adjacent hydatid cyst. The creation of the fistula between the right hepatic duct and the hydatid cyst decompressed the biliary tree, decreased the bilirubin levels and offered a temporary resolution of the obstructive jaundice. Rupture of a hydatid cyst into the biliary tree usually leads to biliary colic, cholangitis and jaundice. However, in case of obstructive jaundice due to choledocholithiasis, it is possible that the cyst may rupture by other way around while offering the patient a temporary relief from his symptoms.

Key Words: Hydatid Disease; Cholelithiasis; Echinococcal Cyst Rupture; Cystobiliary Fistula

INTRODUCTION

Hydatid disease, although rare, is still endemic in many countries, representing an important public health problem. It may occur in any organ or tissue. Reviews show that the most frequently involved organs are the liver (55%) and lungs (40%). Rarely, hydatid disease may be found in the spleen (1.8%), kidneys (1.4%) bones (0.1%) or other sites (1.7%). Multiple simultaneous locations are observed in 25% of cases (1, 2).

A common complication of hepatic hydatid disease is the rupture of the cyst caused by the increased pressure within it (2). Cysts may rupture into the biliary tree, the peritoneal or pleural cavity, the pericardium, the gastrointestinal tract, or even into blood vessels. Echinococcal cysts may coexist with cholelithiasis or scarcely with choledocholithiasis (3).

The aim of this study was to present an unusual case of hydatid cyst coexisting with choledocholithiasis and obstructive jaundice, in which the increased intraluminal pressure in the right hepatic duct led to the decompression of the biliary tree in to the cystic cavity. Diagnostic methods and various treatment modalities were also discussed.

CASE DESCRIPTION

A 60-yr-old female, coming from a rural area, was referred in March 2009 to the Emergency Department complaining for right upper quadrant pain and jaundice. She was diagnosed with echinococcal cyst of the liver and cholelithiasis four years ago. The laboratory examinations on admission were: white blood cell count (WBC): 10,000/μL without eosinophilia; lactate dehydrogenase (LDH) 1,209 μL; serum glutamic oxalo-acetic transaminase (SGOT) 256 μL; serum glutamic pyruvic transaminase (SGPT) 401 μL; total bilirubin 5.5 mg/dL with direct bilirubin 3.6 mg/dL. Abdominal ultrasound revealed multiple echinococcal cystic lesions in the right lobe of the liver. Additionally, the gallbladder was distended, containing multiple small stones and mud, while the intrahepatic biliary tree and the common bile duct were dilated. The subsequent computed tomography (CT) showed a huge multisegmented hydatid cyst of the right lobe occupying the segments V, VI, and VII, The intra- and extra-hepatic biliary trees were dilated (Fig. 1).

She was treated conservatively, her transaminasemia and hyperbilirubinemia subsided and the patient was discharged seven days later.

Ten days later, she was readmitted with jaundice. Her biochemical and hematological tests revealed severe transaminasemia and hyperbilirubinemia (SGOT 358 μL; SGPT 491 μL; LDH 754 μL; bilirubin 12.7 mg/dL with direct bilirubin 8.3 mg/dL). Surprisingly, an acute fall in her bilirubin levels was noticed two days later (LDH 127 μL; SGOT 175 μL; SGPT 335 μL; gamma-glutamyltransferase (γ-GT) 786 μL; alkaline phosphatase (ALP) 461 μL; bilirubin 5.4 mg/dL with direct bilirubin 3.2 mg/dL). Magnetic resonance cholangiopancreatography (MRCP) was performed showing a communication between the echi-
Fig. 1. CT scan images (A, B) showing a huge multi-locular cyst (arrows) adjacent the right hepatic bile duct.

Fig. 2. MRCP images showing communication between the echinococcal cyst and the right hepatic duct. The common hepatic duct and the common bile duct are full with material of unknown origin. (A) Cholangiopancreatography. (B) Cross-section image. (C) Frontal-section image.

Fig. 3. Intraoperative images (A–D) showing pigmented gallstones removed from the echinococcal cyst.
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formed. Multiple gallstones were removed from the common bile duct. Additionally, partial cystectomy was performed. Sur-
prisingly, pigmented gallstones with daughter cysts were found and removed from the echinococcal cystic cavity (Fig. 3). The intra-operative cholangiogram revealed communication be-
tween the echinococcal cyst and the right hepatic duct. The right hepatic duct was ligated. The cystic cavity and the subhepatic space were drained, and a T-tube was placed into the common bile duct. The patient recovered well from the operation and her postoperative course was uneventful. After discharge, albena-
zoled was administered for 3 month cycles, with 14 day intervals. Her follow-up included ultrasonography and CT scan 3 months and 12 months after the operation. Two years after the operation the patient was free of disease and symptoms.

DISCUSSION

Hydatid cysts grow at a variable rate. They may stabilize, or be-
come calcified, while others may collapse or even completely resolve (4). Becoming symptomatic may be due to pressure ex-

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In conclusion, rupture of a hepatic hydatid cyst into the biliary tree has proved to be an alternative treatment for patients with biliary hydatid disease (12).

In case of cystobiliary communication a surgical intervention is mandatory. Various types of procedures have been proposed such as: partial cystectomy with primary closure, partial cystec-
tomy with drainage, cystotomy with drainage, hepatic resection (atypic, segmentary or lobar) and omentoplasty (9). Suturing of the cystobiliary fistula, and if feasible common bile duct explo-
cation intraluminal material, suggesting the presence of hydatid sand and cysts (13). Recently, magnetic resonance imaging (MRI-MRCP) has proven to be a useful noninvasive diagnostic mo-
dality in cases of intrabiliary rupture, whereas CT scan and ultrasound results are inconclusive (13).

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pic aims. During preoperative endoscopic retrograde cholangiopancreatography (ERCP), daughter cysts may be seen in the duodenum, impacted in the ampulla of Vater or obstructing any part of the biliary tree (14, 15). Moreover, postoperative ERCP may resolve obstruction or cholangitis due to residual material in biliary ducts, while providing management of postoperative external biliary fistulae (15). Additionally, endoscopic sphincterotomy has proved to be an alternative treatment for patients with biliary hydatid disease (12).

In conclusion, rupture of a hepatic hydatid cyst into the biliary tree is the most common complication of hydatid disease.Usu-
ally, it leads to biliary colic, cholangitis and jaundice. However, it is possible that the rupture is being done conversely, relieving the patient from the obstructive symptoms. Currently, ERCP is a method of both diagnosis and treatment. Further surgical treat-
ment may be required if an obvious communication between
the biliary tree and the hydatid cyst is displayed.

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