Case report

Frank intrabiliary rupture of hydatid hepatic cyst: diagnosis and treatment

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Introduction

Echinococcal cysts of the liver are composed of both host and parasite tissue. The former consists of a dense, fibrous tissue called the pericyst, formed by a reaction of the liver to the presence of the parasite. The latter, the endocyst, is formed of two layers, an outer laminated layer and an inner germinal one. The inner layer produces scolices that detach and float freely in clear hydatid fluid as daughter cysts [*1*].

There are two types of communication between the biliary tree and hydatid cysts: frank intrabiliary rupture and simple communication. In the former, the elements of the cyst drain into the biliary ducts and cause intermittent or complete obstruction, which should be diagnosed preoperatively, explored carefully during the operation and treated by biliary drainage to prevent serious complications, particularly cholangitis and biliary obstructions by cyst contents. Simple communications, which are frequently seen during hydatid cyst surgery, can cause postoperative biliary fistulae unless they are properly treated by closing the openings [*2*].

In this report, three cases of frank intrabiliary rupture of hydatid hepatic cyst, are described and our policy of surgical management is outlined.

Patients and methods

In the 3-year period from January 1995 to February 1998, 3 patients underwent surgery for frank intrabiliary rupture of a hydatid cyst at the Surgical Department of King Hussein Medical Centre. During the same period, 28 patients were operated on because of hydatid disease of the liver.

Case 1

A 22-year-old male was admitted to hospital with recurrent episodes of right hypochondrial pain, fever and vomiting. White blood cells and serum bilirubin were elevated. Abdominal ultrasound demonstrated a multiloculated cystic lesion in the right lobe of the liver indicating an infected hydatid cyst. The common bile duct was not dilated. Evacuation of the hydatid cyst by excision of part of the cyst wall and drainage was carried out. Postoperative jaundice and bile leaks occurred. Endoscopic retrograde cholangiopancreatography (ERCP) with sphincterotomy resolved the problem.

Case 2

A 27-year-old female patient was investigated after suffering right-sided abdominal pains, jaundice, fever, chills and rigors of 1 week duration. She had had a history of vague abdominal discomfort over the previ-

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Figure 1 **Tubogram showing the communication between the hydatid hepatic cyst and the common bile duct**

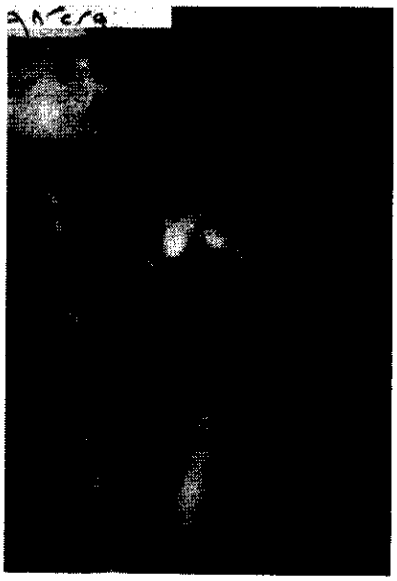

Figure 2 **Postoperative T-tube cholangiogram**

ous 6 months. Laboratory investigation showed leukocytosis and raised serum bilirubin and alkaline phosphatase levels. Abdominal ultrasound showed a hydatid cyst in the right lobe of the liver, near the porta hepatis. The common bile duct was 12 mm in calibre and contained debris. Surgery had first been performed at another hospital. The hydatid hepatic cyst was inaccessible, the common bile duct had been explored and closed with a T-tube. The patient did not improve after the operation. A second operation was performed at King Hussein Medical Centre and cholecystectomy was carried out. This was followed by exploration of the common bile duct and lavage under pressure. The cyst, which was surrounded by parenchyma, was treated by marsupialization with external drainage of the cavity. Meticulous care was taken when removing the fluid and contents. The peritoneal space was protected from the spillage of scolices by packing the field with gauze impregnated with a 10% hypertonic saline solution. The common bile duct was closed with a T-tube. On 10th day after the operation, a tubogram showed no obstruction and the T-tube was removed. When seen 3 months later, the patient was in good health. Figure 1 shows communication of the hydatid hepatic cyst with the common bile duct.

Case 3

A 28-year-old female patient presented with recurrent right upper-quadrant abdominal pain, jaundice, clay-coloured stools, dark urine and fever. White blood cells, total bilirubin and alkaline phosphatase levels were raised. Abdominal ultrasound showed dilated common bile duct with no stones, no gallbladder stones and no hepatic lesion. ERCP indicated dilated common bile duct with obstructive lesions. At another hospital, a cholecystectomy and exploration of

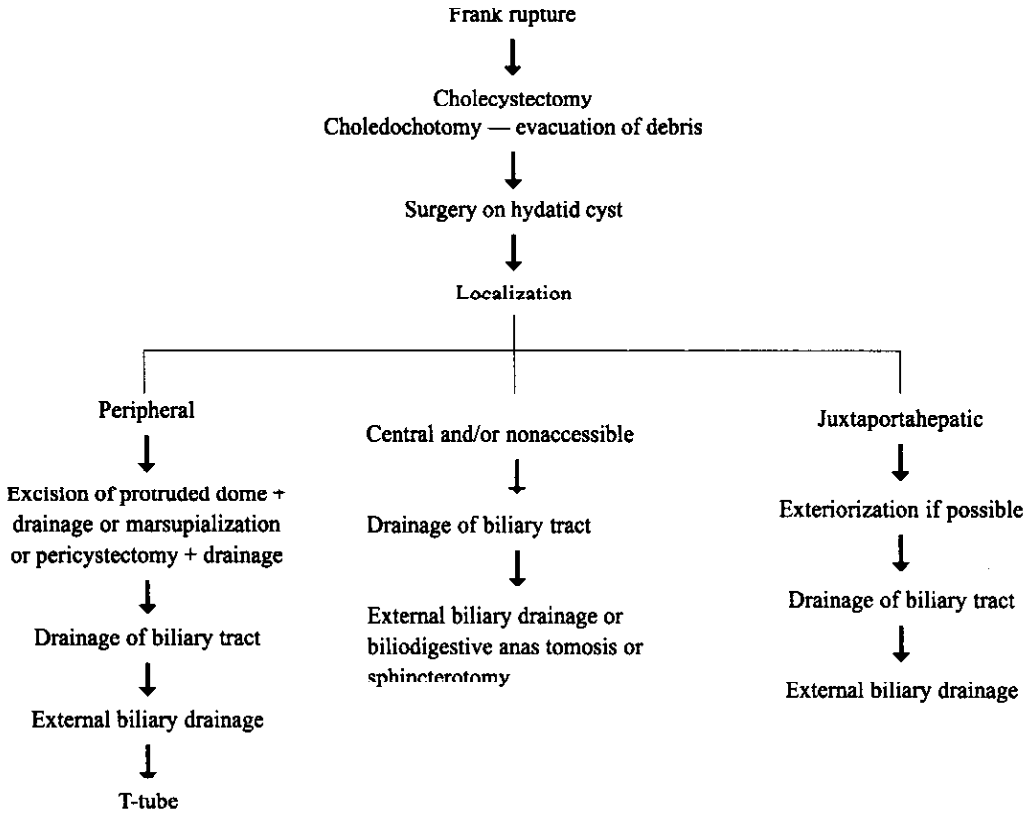

Figure 3 **Algorithm for the treatment frank intrabiliary rupture of hydatid cyst of the liver [5]**

the common bile duct had been performed. No pathologic findings were evident inside the common bile duct and it was closed with a T-tube. An enlarged lymph node at the porta hepatis was thought to be the cause of the obstructive jaundice; biopsy showed a reactionary lymph node. After surgery, the patient did not improve and showed signs of cholangitis. A second operation was carried out at King Hussein Medical Centre. The common bile duct was explored and cleared of daughter cysts and debris. Care was taken to avoid rupturing the cyst and spilling its contents into the peritoneal cavity. The cyst fluid was aspirated and a 10% hypertonic sodium chloride solution was introduced. The fistulous communication was closed with external drainage of the cavity. The common bile duct was closed with a T-tube. The patient improved after the operation and her jaundice subsided. T-tube cholangiography showed no obstruction and the T-tube was removed on the 10th day after surgery (Figure 2).

Discussion

Rupture of hepatic hydatid cysts into the biliary tract has a clinical picture identical to that of choledocholithiasis. In areas where hydatid disease is endemic, preoper-

ative differential diagnosis from calculus disease is important because of the different surgical approaches. Clinical signs (especially jaundice), ultrasound, computed tomography scan and laboratory investigation are very helpful in the diagnosis of hydatid cyst [3]. However, ERCP remains the investigative tool of choice when attempting to visualize a cyst–biliary communication and is particularly indicated in patients with an echinococcal cyst and jaundice [4].

During the operation, our policy is to proceed first with cholecystectomy, cholangiography, exploration of the common bile duct and evacuation of cystic remnants and debris. When this is completed, we proceed with the treatment of the hydatid cyst [2,5,6]. Repeated lavage under pressure through the orifice of choledochotomy is carried out as this facilitates the detachment of membranous elements from the walls of the biliary tract [5]. Exploration of the common bile duct is completed with external biliary drainage through a T-tube.

In cases of central and non-accessible cysts, sphincteroplasty or choledochoduodenostomy for older patients is performed, permitting continuous internal drainage of an otherwise unapproachable hydatid cyst [6].

Postoperative ERCP is useful for removing remaining cystic remnants as seen in Case 1 [4].

Figure 3 shows an algorithm for the treatment of frank intrabiliary rupture of hydafid cyst of the liver.

Conclusion

Frank intrabiliary rupture is a serious complication of liver hydatid cysts . The main principles of management are the surgical treatment of the cyst with removal of all cystic elements and drainage of the biliary tree. Accurate pre- and intraoperative diagnosis and drainage of the biliary tract are important to reduce morbidity and mortality.

References

1. Kattan YB. Intrabiliauy rupture of hydatid cyst of the liver. *British journal of surgery*, 1975, 62:885–90.
2. Ulualp KM et al. Management of intra-biliary rupture of hydatid cyst of the liver. *World journal of surgery*, 1995, 19:720–4.
3. Lee SH, Scudamore CH. Combined radiologic and endoscopic management of biliary obstruction from ruptured hydatid disease. *Gastrointestinal endoscopy*, 1991, 37 (1):73–5.
4. Magistrelli P et al. Value of ERCP in the diagnosis and management of pre- and post-operative biliary complications in hydatid disease of the liver. *Gastrointestinal radiology*, 1989, 14(4):315–20.
5. Komaros SE, Aboul-Nour TA. Frank intrabiliary rupture of hydatid hepatic cyst: diagnosis and treatment. *Journal of the American College of Surgery*, 1996, 183:466–70.
6. Alper A et al. Choledochoduodenostomy for intrabiliary rupture of hydatid cysts of liver. *British journal of surgery*, 1987, 74:243–5.