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 scolecites 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-
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
Frank rupture
  ↓
Cholecystectomy
Choledochotomy — evacuation of debris
  ↓
Surgery on hydatid cyst
  ↓
Localization
  ↓
Peripheral
  ↓
Excision of protruded dome +
drainage or marsupialization
or pericystectomy + drainage
  ↓
Drainage of biliary tract
  ↓
External biliary drainage
  ↓
T-tube

Central and/or nonaccessible
  ↓
Drainage of biliary tract
  ↓
External biliary drainage or
biliodigestive anastomosis or
sphincterotomy

Juxt portahepatic
  ↓
Exteriorization if possible
  ↓
Drainage of biliary tract
  ↓
External biliary drainage

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 differ-
ent surgical approaches. Clinical signs (es-
pecially jaundice), ultrasound, computed
tomography scan and laboratory investiga-
tion are very helpful in the diagnosis of hy-
datid cyst [3]. However, ERCP remains the
investigative tool of choice when attempt-
ing to visualize a cyst–biliary communica-
tion and is particularly indicated in patients
with an echinococcal cyst and jaundice [4].
During the operation, our policy is to
proceed first with cholecystectomy, chol-
angiography, exploration of the common bile duct and evacuation of cystic remnants
and debris. When this is completed, we pro-
ceed 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 detach-
ment of membranous elements from the walls of
the biliary tract [5]. Exploration of the com-
mon bile duct is completed with external
biliary drainage through a T-tube.

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

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

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

Conclusion

Frank intrabiliary rupture is a serious com-
pliation 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
tract. Accurate pre- and intraoperative diag-
nosis and drainage of the biliary tract are
important to reduce morbidity and mortal-
ity.

References

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