

## INTRAHEPATIC BILE DUCT RUPTURE OF HYDATID CYST: A RARE BUT SEVERE COMPLICATION



### General Surgery

**KEYWORDS:** Hydatid hepatic cyst, Rupture, Biliary obstruction, Common bile duct (CBD), Jaundice, Acute cholangitis

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### ABSTRACT

Rupture of hydatid liver cyst into biliary tree is frequent complication that involves the common hepatic duct, lobar biliary branches, the small intrahepatic bile ducts, but rarely rupture into common bile duct. The rupture of hydatid cyst is serious life-threatening event. We report a case of rupture of hydatid cyst of liver into common bile duct. A 30-year-old female patient who presented with acute right quadrant abdominal pain & jaundice was diagnosed as a case of rupture of hydatid cyst on abdominal CT scan. Rupture of hydatid hepatic cyst into common bile duct was confirmed on ERCP and CBD stenting was done. Further management included laparoscopic hepatic hydatid cyst marsupialization with drainage. An abdominal drain was kept in situ.

### INTRODUCTION

Hydatid disease or echinococcus is a zoonosis still causing concern in endemic areas, although, it can occur worldwide because dog is the definitive host. In humans, 50-75% of hydatid cysts occur in the liver, 25% are found in the lungs, and 5-10% are distributed along other tissues and organs.

Hydatid cysts of the liver exert pressure on the surrounding parenchyma, and in approximately one-fourth of the cases, due to higher pressure in the cyst, the cysts eventually leak into small bile ducts or perforate into large ones. Intrahepatic rupture of a hydatid cyst of the liver is a rare but serious complication. It can give rise to jaundice due to cholangitis, and common bile duct obstruction caused by hydatid membranes and daughter cysts.

We present a case of a hydatid cyst of the liver which ruptured spontaneously into the common bile duct resulting in jaundice and cholangitis.

### CASE REPORT

A thirty-year-old female presented with high-grade fever, nausea and right hypochondrial pain of two-week duration. The patient was jaundiced, febrile and had a tender hepatomegaly. The patient had no previous disease, did not drink alcohol & her family history was not significant. Investigations showed a deranged liver function test with a total bilirubin of 5.0 mg/dl, and raised serum alkaline phosphatase (285 U/L), and a total leucocyte count of 19,000/cmm.

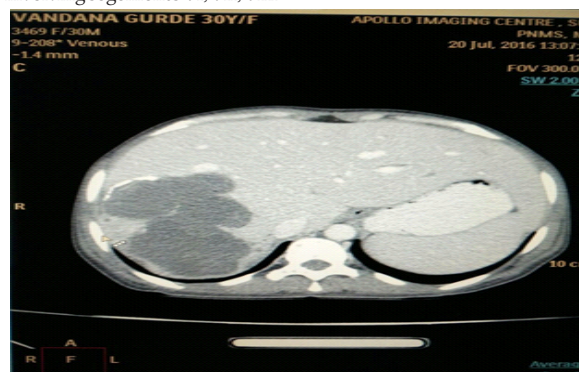
Abdominal ultrasonography revealed multilobulated large hypoechoic cystic lesion with internal floating membranes & echoes seen involving the right lobe of liver; largest cystic component measured 9.9x6.0 cm<sup>2</sup> in size which shows communication with other adjacent cystic lesions. This may represent hydatid cyst. The lesion was seen reaching upto subcapsular region at posterolateral aspect of liver. Curvilinear calcification was seen in the wall of cystic lesion in segment VII. Small hypoechoic area was seen adjacent to the above mentioned lesion?seepage. Dilatation of central with minimal peripheral intrahepatic biliary radicles, right (15mm) and left (13mm) hepatic ducts, common hepatic duct (16mm), common bile duct (proximal 17mm, distal 8mm). Above mentioned dilated biliary system shows fluid & moving echoes similar to hydatid cyst. The gall bladder was partly distended with sludge in it & 6mm wall oedema.

Abdominal CT scan showed a large multilocular intercommunicating, non-enhancing fluid density lesion involving segments VI, VII & VIII measuring approximately 110 (AP) x 82 (TRANS) x 144 (SI) mm in size. Lesions were reaching upto the

subcapsular region. There were linear hyperdensities noted within the lesions with wall calcification at places. Lesion was causing compression over intrahepatic portal veins and middle hepatic vein. Above mentioned lesion communicated with right hepatic duct at two places in segment VI. This may represent multiple intercommunicating hydatid cysts with communication with the biliary tract. Mildly dilated common bile duct (14mm), common hepatic duct (13mm), right hepatic duct (12mm) and left hepatic duct (10mm) seen. Cholangitic abscesses noted adjacent to main lesion. Mild free fluid seen in pelvis. Mildly dilated portal vein with collateral channels in perigastric region.

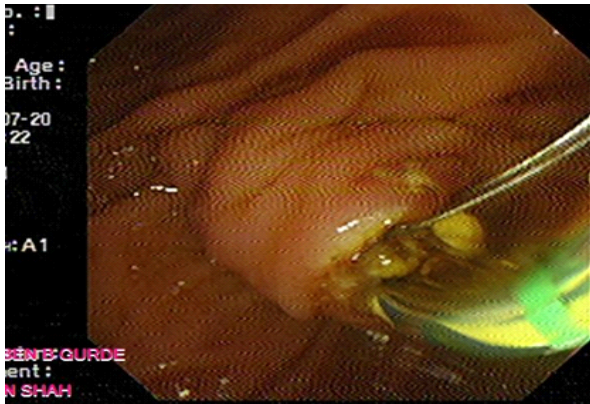


**Figure 1.** CT image showing multilocular intercommunicating lesion involving segments VI, VII, VIII

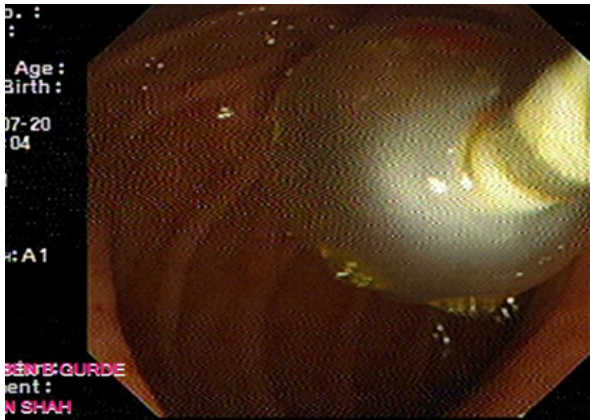


**Figure 2.** CT image showing multilocular intercommunicating lesion with communication with the biliary tract

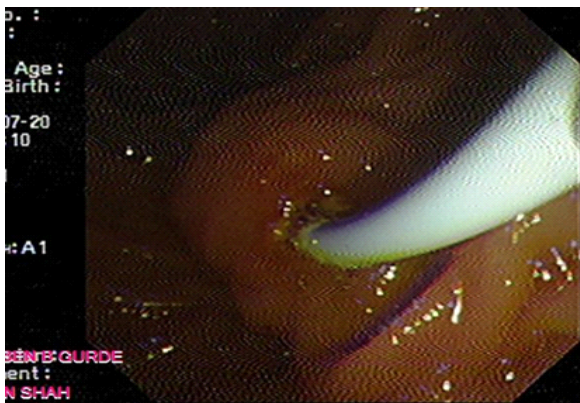
The case was interpreted as ruptured hydatid cyst with acute cholangitis and biliary obstruction. In order to certify the diagnosis and for the clearance of common bile duct, an endoscopic retrograde cholangiopancreatography was performed. ERCP evidenced a dilated CBD with two filling defects (daughter cysts) at lower end. Sphincterotomy was done followed by CBD clearance and stenting.



**Figure 3:** ERCP evidenced rupture of hydatid cyst within the biliary tree



**Figure 4:** ERCP image showing CBD clearance done by sweeping of balloon



**Figures 5:** ERCP image showing CBD stenting which was done after wire-guided sphincterotomy

After this procedure, an improvement in both the clinical and laboratory signs were noted. One week later, surgery was planned and laparoscopic hepatic hydatid cyst marsupialisation with drainage was done. Thorough irrigation with 3% hypertonic NaCl solution was done and an abdominal drain was kept in the cavity. The postoperative period was unremarkable and patient was discharged on day 10. The drain was removed on day 20th postoperatively, after assuring no output for a couple of days prior to removing the drain.

The patient was free of symptoms with no complications post-operatively and also after drain removal, and a check ultrasonography was done two weeks after removing the drain which was clear with no free fluid or post-operative collection.

## DISCUSSION

Human echinococcosis is a zoonotic infection caused by the tapeworm of the genus *Echinococcus*. Of the four known species of *Echinococcus*, 3 are of medical importance in humans. These are *Echinococcus granulosus*, causing cystic echinococcosis (CE); *Echinococcus multilocularis*, causing alveolar echinococcosis (AE); and *Echinococcus vogeli*. *E. granulosus* is the most common of the three. *E. multilocularis* is rare but is the most virulent, and *E. vogeli* is the rarest.

A hydatid cyst is surrounded by a pericyst, a layer derived from compressed host tissue and chronic inflammatory cells. Blood vessels do not pass through the pericyst but bronchioles and biliary ducts usually do. The true cyst wall has two layers, the ectocyst and the endocyst.

Many hydatid cysts remain asymptomatic, even into advanced age. Hydatid cysts grow at a variable rate and stabilize, and may become calcified, while others may collapse and completely resolve. The parasite load, the site, and the size of the cysts determine the degree of symptoms. Symptoms can be produced by a mass effect or cyst complications. Symptoms due to the pressure effect of the cyst usually take a long time to manifest. Most symptomatic cysts are larger than 5 cm in diameter.

In the liver, the pressure effect of the cyst can produce symptoms of obstructive jaundice and abdominal pain. With biliary rupture, the classic triad of biliary colic, jaundice, and urticaria may be observed. Passage of hydatid membranes in the emesis (hydatid emesis) and passage of membranes in the stools (hydatid enterica) may occur rarely. Secondary complications may occur as a result of infection of the cyst or leakage of the cyst. A rupture into the biliary tree can lead to obstruction by the daughter cysts, producing cholangitis and may lead to septicemia.

Ultrasonography and CT have been reported to be the main diagnostic methods, with 85% and 100% sensitivity, respectively, in identifying hydatid cyst rupture. Magnetic resonance cholangiography may also be used for diagnosis.

ERCP is very useful in the diagnosis of biliary complications and, moreover, it also has a therapeutic role like in our case. However, in case of a cystobiliary fistula, a surgical cure becomes mandatory. It has also been suggested that a peri-surgical use of albendazole facilitates surgery by reducing intracystic pressure and by reducing the risk of recurrence after surgery or endoscopic evacuation of a ruptured cyst into the biliary tree.

## CONCLUSION

Hydatid hepatic cyst rupture into the common bile duct is a rare complication. Usually, it leads to biliary colic, cholangitis and jaundice which may progress to septicemia. Accurate diagnosis and surgical intervention is mandatory with ERCP playing an important diagnostic and therapeutic role.

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