Abstract:
Obstructive jaundice is caused by blockade of common bile duct due to various etiologies. It commonly manifests as right hypocondrial pain, fever, and jaundice. We had an interesting patient of Hydatid cyst of liver who presented with a history of obstructive jaundice. Abdominal imaging was suggestive of obstructed biliary system but did not establish the cysto biliary communication. In view of cholangitis, we did ERCP (endoscopic retrograde cholangiopancreatography) and cholangiogram for that patient. It established the communication of cyst cavity to the right biliary system and daughter cyst was found in common bile duct causing obstructive jaundice. We put a plastic stent in the right system to decompress the biliary system and referred the patient to surgical gastroenterology department for surgical management. Hence ERCP is an important tool in establishing the cysto biliary communication even other imaging modality such as MRCP fails. Any patient with hydatid cyst with elevated bilirubin and alkaline phosphatase should be undergone ERCP to rule out cysto biliary communication.

Keyword: ZOONOTIC CHOLANGITIS, RUPTURED HYDATID CYST, CYSTO BILIARY COMMUNICATION, INTRA BILIARY RUPTURE

Introduction:
Hydatid disease is a zoonotic disease caused by parasitic infestation of humans mainly by tapeworm of the genus Echinococcus (Echinococcus granulosus, E. multilocularis and E. vogeli). The primary carriers (definitive hosts) are dogs and wolves. The intermediate hosts are sheep, cattle, and deer. Humans are alternative/accidental secondary hosts and are infected by ingestion of ova from the feces of dogs. The liver is the most common destination (70%), followed by the lungs (20%), kidney, spleen, brain, and bone. Up to one-third of patients with hepatic hydatid disease (HHD) present with complications such as rupture (into the biliary tree, thorax or peritoneum), secondary infection, anaphylactic shock and sepsis. The right lobe of the liver is affected in 80% of cases and the left lobe in 20%. The incidence of rupture into the biliary tree has been reported as 3–17%. It occurs into the right duct in 55–60% of cases, into the left duct in...
25–30% and rarely into the confluence or gall bladder. Intra biliary rupture occurs either as occult rupture - only cystic fluid is drained to the biliary tree or frank rupture - overt passage of intra cystic material to the biliary tract. The reported frequency for occult rupture is 10% to 37%, and 3% to 17% for frank rupture.

Case report:
A 26 year old male was presented in our department with history of abdominal pain since 1 year. The abdominal pain was confined to the right upper quadrant, intermittent pain and dull aching in nature. Since one month, the pain was continuous and severe in intensity. This episode was associated with high grade fever with chills, yellowish discoloration of eye and high coloured urine. There was no history of abdominal distention, leg swelling, hematemesis, melena and altered sensorium.

He underwent upper abdominal surgery in 2011 for right hypochondrial pain and swelling. On reviewing the old records, he underwent subtotal excision of Hydatid cyst and he was on Albendazole for one and half month post operatively. Otherwise no other significant past history was noted.

He was not an alcohol consumer and non smoker. His sleep was disturbed in last one month because of severe abdominal pain. His bladder and bowel habits were normal limits. There was no history of contact with pet animals.

On general examination, he was febrile and icteric. There was no pallor, no pedal edema and no significant lymphadenopathy. His vitals were within normal limits except tachycardia (Blood pressure - 110/80 mmHg, pulse rate - 92 beats per minute, respiratory rate – 22 breaths per minute).

On per abdominal examination, abdomen was soft, tenderness noted in the right hypochondrial region. There was a scar noted in the right hypochondrial region. There was no organomegaly and no evidence of free fluid. Other systemic examinations were within normal limits. With the background history of incomplete removal of hydatid cyst (subtotal excision), present illness was suggestive of cholestatic jaundice with cholangitis. The diagnosis of extra hepatic cause of cholestatic jaundice was made with probable etiology of ruptured hydatid cyst. On routine blood investigation revealed was within normal limits.

(hemoglobin- HB - 12gms%, WBC-6200 cells cu.mm, platelet count- 2 lakh, differential count- P<sub>63</sub> L<sub>33</sub> E<sub>04</sub>, random blood sugar-92mgs%, blood urea -28mgs%, creatinine –0.9mgs%) On liver function test, total bilirubin/direct bilirubin (TB/DB)- 6.5/3.5mgs%, liver enzymes (SGOT/PT) – 115/92U/L, serum alkaline phosphatase (SAP)-293U/L, serum albumin-4.6gm and prothrombin time (PT) INR- 0.98. Contrast enhanced CT (CECT) abdomen revealed a well defined hypodense cystic lesion noted in liver segment 7 measuring 6 × 6.5 cm with peripheral rim of calcification. There was also multiple peripherally placed hypodense cyst suggestive of daughter cyst, dilated common bile duct (CBD) and irregularity in the wall of the cyst medially. (Shown in figure 1)
MRI abdomen / MRCP revealed a multilobulated cystic lesion measuring 8.3 × 6.2 × 5.9 cm with peripherally placed smaller cysts noted in segment 6 and 7 of right lobe of liver. Cyst margin are well defined. Bile duct appear to be splayed around the cyst. Few IHBR appear mildly dilated and there was no obvious cysto biliary communication. (Shown in figure 2 & 3)

In view of cholangitis with obstructed biliary system in MRCP, patient was taken up for ERCP (endoscopic retrograde cholangiopancreatography). With intra venous sedation and buscopan, side viewing scopy done. Ampulla was visualized. Selective CBD cannulation was done (figure 4) and contrast was injected which showed dilated CBD, left and right hepatic duct and an irregular filling defect in the mid CBD which moved proximally on further contrast injection (figure 5)

**Figure 2**

![Figure 2 Image](image)

**Figure 3:**

![Figure 3 Image](image)

**Figure 4**

![Figure 4 Image](image)
More contrast was injected to visualize the intra hepatic biliary radicals (IHBR) which showed irregular shaped cyst with varying densities just above the right system with communication to the right biliary system (shown in figure 6).

7 Fr 8 cm double pigtail stent was deployed in the right system. Free flow of bile was noted. Patient was referred to the surgical gastroenterology department for further surgical management.

Discussion:
Spontaneous rupture is the commonest complication of hepatic hydatid cyst, most commonly into the biliary system. The causative factors for the rupture are trauma, infection or pressure from the progressively increasing size of cyst. About 90% of liver hydatid cysts which rupture are communicating with biliary channels. Hydatid cysts of the liver exerts pressure on the surrounding parenchyma. Due to higher pressure in the cyst, the cysts eventually leak into small bile ducts or perforate into large ones. Rupture is most likely to occur in centrally located cyst with a high intracystic pressure up to 80 cm H2O. According to Lewall and McCorkell, the cyst rupture can occur in three clinical forms: contained, communicating and direct. Contained rupture occurs when the cyst contents are confined within the pericyst. Communicating rupture defines tearing of the pericyst and evacuation of cyst contents into the biliary tract or bronchioles. Direct rupture describes complete tear of the cyst wall and spillage of the cyst contents into the peritoneal or pleural cavity.

ERCP is the gold standard in confirming biliary tract involvement. On ERCP, a swollen ampulla of Vater may be seen, with hydatid material protruding out. Dilated ducts with debris and daughter cysts may appear as radiolucent filling defects. Irregular leaf-like material that changes shape with changes in pressure differentiates this condition from other causes of obstructive jaundice. A small cystobiliary communication cannot always be excluded by ERCP and needs to be actively sought during surgery. Our case is a ruptured hepatic hydatid cyst into the biliary system which was the commonest mode of presentation of ruptured hydatid cyst. It was a frank rupture or communicating rupture and common bile duct was filled with daughter cyst and material. Cyst was communicated with the right system which is the commonest site of communication as in literature. ERCP was established the cysto biliary communication in our case inspite other imaging were not revealed the communication. Hence ERCP is the investigation of choice in case of suspected intra biliary rupture.

Conclusion:
Intra biliary rupture is a commonest mode of presentation of complicated hepatic hydatid cyst. Any alteration in the liver function test in setting of hepatic hydatid cyst should investigate for cysto biliary communication. ERCP is the gold standard in establishing
the cysto biliary communication. But small cysto biliary communication cannot always be excluded by ERCP and needs to be actively sought during surgery.

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