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Case Report

Cholelithiasis in an intrahepatic gallbladder

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ABSTRACT

Intrahepatic gall bladder (GB) is an uncommonly encountered condition in clinical practice characterized by ectopic location of GB within the hepatic parenchyma. This condition not only produces difficulty in clinical diagnosis of various GB diseases especially cholecystitis and carcinoma but also in their management including cholecystectomy. An ectopic partial intrahepatic GB can make cholecystectomy hazardous, when indicated. A case of cholelithiasis in an intrahepatic gallbladder with concurrent choledocholithiasis is reported. The patient initially presented with pain over the right upper abdomen. The diagnosis was made during intraoperative laparoscopic cholecystectomy. This article discusses about difficultly faced during cholecystectomy and rarity of the presentation.

Keywords: Cholelithiasis in ectopic gall bladder, Hepatic cyst like gall bladder, Intrahepatic gall bladder, Laparoscopic removal of intrahepatic gall bladder

INTRODUCTION

An intrahepatic gallbladder is one that is partially or completely embedded within the liver parenchyma. A developmental anomaly or failure of the gallbladder to move from its intrahepatic position to its normal superficial location during the second month of gestation may result in this ectopic location. The condition should be suspected if a cholecystogram or ultrasonography shows a gallbladder in an unusually high location.

Various anomalies of GB including agenesis have been described in medical literature.[1,2] Among these, ectopic position of GB is rare with an estimated incidence of 0.1-0.7% and includes intrahepatic, suprahepatic, retrohepatic, supra-diaphragmatic, retroperitoneal, within the falciform ligament, within abdominal wall musculature, left-sided and intrathoracic locations.[3,4]

Very few cases of intrahepatic GB (IHGB) have been reported in medical literature posing diagnostic and management difficulties.[5]

Anatomy

The gallbladder is a piriform (pear-shaped) organ that lies undersurface of segments IVB and V of the liver. The fundus of GB is an expanded blind anterior end of the organ projecting beyond the inferior margin of the liver. The body and neck of GB are attached to the visceral surface of the liver by the visceral peritoneum. Neck continues as cystic duct which joins the common hepatic duct to form the bile duct. Gall bladder normally is 7 to 10 cm in length, 3 cm broad at its widest part and has 30 to 50 ml capacity.

Embryology

Gall bladder develops as an outgrowth from the hepatic diverticulum in the middle of the third intrauterine week, from the distal end of the foregut. The hepatic diverticulum grows into the septum transversum and along with vitelline and umbilical veins forms the various components of the liver.

The outgrowth from the hepatic bud which forms GB remains outside the septum transversum develops with bile duct and liver during week 4 as ventral bud (hepatic diverticulum) from caudal foregut. Hepatic diverticulum has two components: pars hepatica and pars cystica. Parts hepatica gives rise to liver, common hepatic duct and intrahepatic bile ducts. Pars cystica gives rise to cystic diverticulum, which gives rise to gallbladder and cystic duct. Hepatic diverticulum elongates to form common bile duct. Above structures begin as solid cords, but at 8 weeks have lumina.

Etiology

Intrahepatic localization of the gallbladder is one of the most frequent ectopic locations. Although in reptiles and marsupials it is the usual location, in the human being it is only intrahepatic during the embryologic development to become extrahepatic during the second month of gestation. The intrahepatic gallbladder may therefore be regarded as an example of positional arrest during development. The intrahepatic gallbladder is the one that its entire circumference is surrounded by liver parenchyma. Sometimes, as in this case, there is some protrusion of the fundus. The intrahepatic gallbladder is one of the most frequent heterotopies.

CASE REPORT

A 50-year-old woman presented to our patient department with complaint of upper abdomen pain which was on and off for 2 years. Her present symptom for one-day duration, with vomiting for a day duration. Physical examination of abdomen shows tenderness over epigastric region with warmth over the same. Laboratory blood samples obtained when the patient at the presentation, showed 17,000 WBC count; liver function tests were elevated with T. bilirubin 6.3, SGOT 357, SGPT 303, ALP 121. Started with antibiotics and analgesics. Based on above findings came to differential diagnosis of cholecystitis, choledocholithiasis.

Management

An ultrasound scan and an abdominal CT scan shows multiple GB calculi noted with normal wall thickness and the intrahepatic biliary radicles and CBD (7mm) appears mildly prominent. An abdominal MRI confirms calculi in distal CBD. Came to conclusion with cholelithiasis with choledocholithiasis as final diagnosis. An ERCP was performed and the choledocholithiasis was resolved through stenting. With a course of antibiotics and analgesics patient was relieved of her symptoms and repeat liver function tests were in the normal range.

Afterwards a surgical exploration was planned. The operation started with laparoscopic approach to confirm diagnosis and go ahead with cholecystectomy. Intra-op gallbladder was found to be intrahepatic (Figure 1); it appeared as a cystic swelling covered by liver tissue on the lower surface of the right lobe of the liver. Gallbladder was found to be distended. Cystic duct located and ligated. Gallbladder was removed from GB fossa of the liver surface (Figure 2). After removal, a big cavity can be seen under the liver. These findings are not visualized in radiologic investigation (Figure 3).

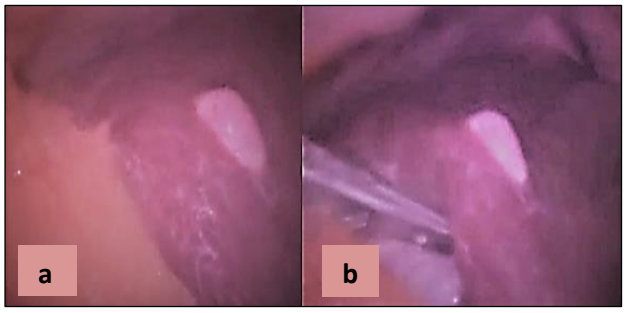

Figure 1: (a) Intrahepatic gall bladder looks like hepatic cyst. (b) Intrahepatic gall bladder showing extension under the surface of the liver.

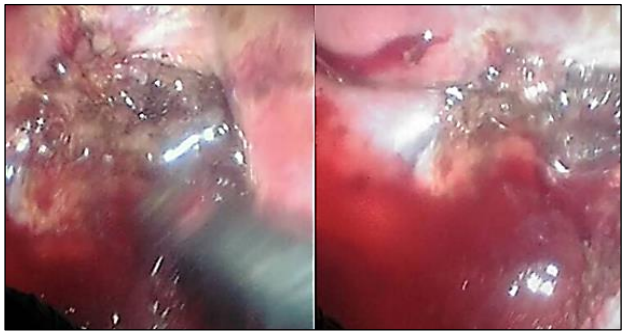

Figure 2: Liver surface after removing gall bladder.

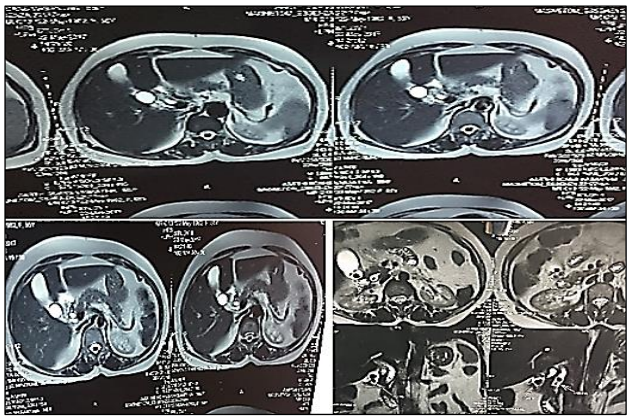

Figure 3: MRCP image shows GB and CBD calculi.

DISCUSSION

Clinical cases of intrahepatic GB are rarely reported in english literature.[8] Intrahepatic GB is one of the ectopic locations and makes cholecystectomy hazardous in this anomaly.[9] It has also been suggested that the intrahepatic gallbladder predisposes to disease; McNamee estimated that 60% of adult patients with this anomaly had

gallstones.[6,7] This, however, cannot constitute proof of predisposition, as patients present with cholelithiasis rather than the anomaly.

In the literature, the treatment described goes from transhepatic drainage to laparotomic cholecystectomy. Open cholecystectomy was done in few cases because of complications like perforated intrahepatic gallbladder and pre-op diagnosis of intrahepatic gallbladder.[10-12] In few laparoscopic approaches was done. In laparoscopy, different approach was used like hepatotomy and removal of gallbladder, simple drainage of the gallbladder with choledocholithotomy.[13,14]

CONCLUSION

Ectopic gallbladder can raise diagnostic dilemma. Though GB anomalies are relatively rare, it is prudent for the surgeon and the radiologist to note its abnormal positions especially when associated with gall stones. These abnormal positions should also be considered in the differential diagnosis of liver pathologies. Laparoscopic cholecystectomy remains the gold standard, it is safe and represents the treatment of choice also in the intrahepatic gallbladder, making it possible for these patients to benefit from the advantages offered by the laparoscopic approach to the gallbladder.

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