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Intrahepatic gallbladder mimicking a cystic liver lesion: A case report & literature review[☆]

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ABSTRACT

Intrahepatic gallbladder is a rare congenital variant that occurs due to migration arrest of the gallbladder from reaching its normal position. We present a case of a 60-year-old gentleman presenting with chronic abdominal pain and impaired liver enzymes. Abdominal ultrasonography showed a hepatic cystic lesion which later was identified as an ectopic gallbladder within the liver parenchyma through magnetic resonance imaging study of the liver. Although ectopic gallbladder is a rare anomaly, awareness and correct identification of the abnormality prevents misdiagnosis with other liver pathologies as it may mimic other pathologies as presented in this case. It also allows better operative planning when indicated.

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Introduction

An ectopic gallbladder is a rare variant in which the gallbladder is located away from its normal position. Most common locations for ectopic gallbladder are under the left hepatic lobe, intrahepatic, transverse or retroperitoneal. An intrahepatic gallbladder can be partially or completely surrounded by the liver parenchyma [1, 2]. They are initially identified by ultrasonography (US) as an incidental finding; other modalities may be necessary when indicated depending on the patient clinical presentation using computed tomography (CT), magnetic resonance imaging (MRI), and magnetic resonance cholangiopancreatography (MRCP). While many gallbladder anomalies have been reported in literature, few cases of intrahepatic gallbladder in specific have been identified [3–8].

Case Report

A 60-year-old male, known case of hypertension and dyslipidemia with no significant surgical history, presented to the general surgery clinic with chronic recurrent right upper abdominal pain radiating to the back associated with nausea for the past eight months. He denied any history of fever, jaundice, vomiting or changing in bowel habits.

On physical examination, the patient was conscious and orientated with no signs of acute distress. He was also vitally stable. Local abdominal examination revealed non tender soft abdomen. The rest of the physical examination was unremarkable.

Laboratory hematological findings revealed raised alkaline phosphatase 309 U/L (normal 40–129 U/L) as well as deranged

[☆] Patient consent: A written consent was obtained from the patient for publication of this case and any accompanying images.

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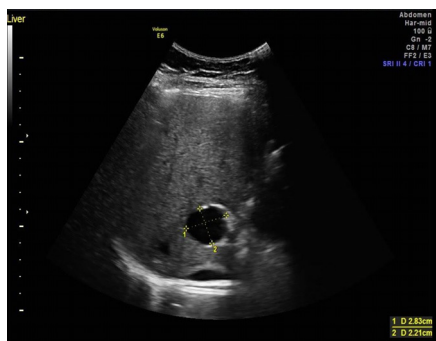


Fig. 1 – Abdominal Ultrasound. Ultrasound of the abdomen showing a solitary hepatic well-defined anechoic thick-walled cystic lesion in the right lobe of the liver and measuring 2.8 × 2.2 cm in size.

lipid profile. Remaining laboratory investigations including full blood count, other liver function tests, serum amylase and lipase were within normal limits. Radiological examination included an ultrasound study of the abdomen showing a solitary hepatic cystic lesion in the right lobe of the liver. (Fig. 1). The gallbladder was not visualized as per the performing radiologist.

Upon detection of a thick-walled cystic lesion in the liver in ultrasound examination, MRI study of the liver was done for further evaluation and characterization. The MRI study established the diagnosis of complete intrahepatic gallbladder which was free of calculi or abnormal biliary tree. Liver, common hepatic, bile ducts, and pancreas were normal. (Fig. 2 A-D)

With the imaging and investigations revealing no definite cause for the abdominal pain, the patient was being treated with pain analgesics and scheduled for further investigations with upper gastrointestinal endoscopy to rule out gastric/duodenal causes of pain.

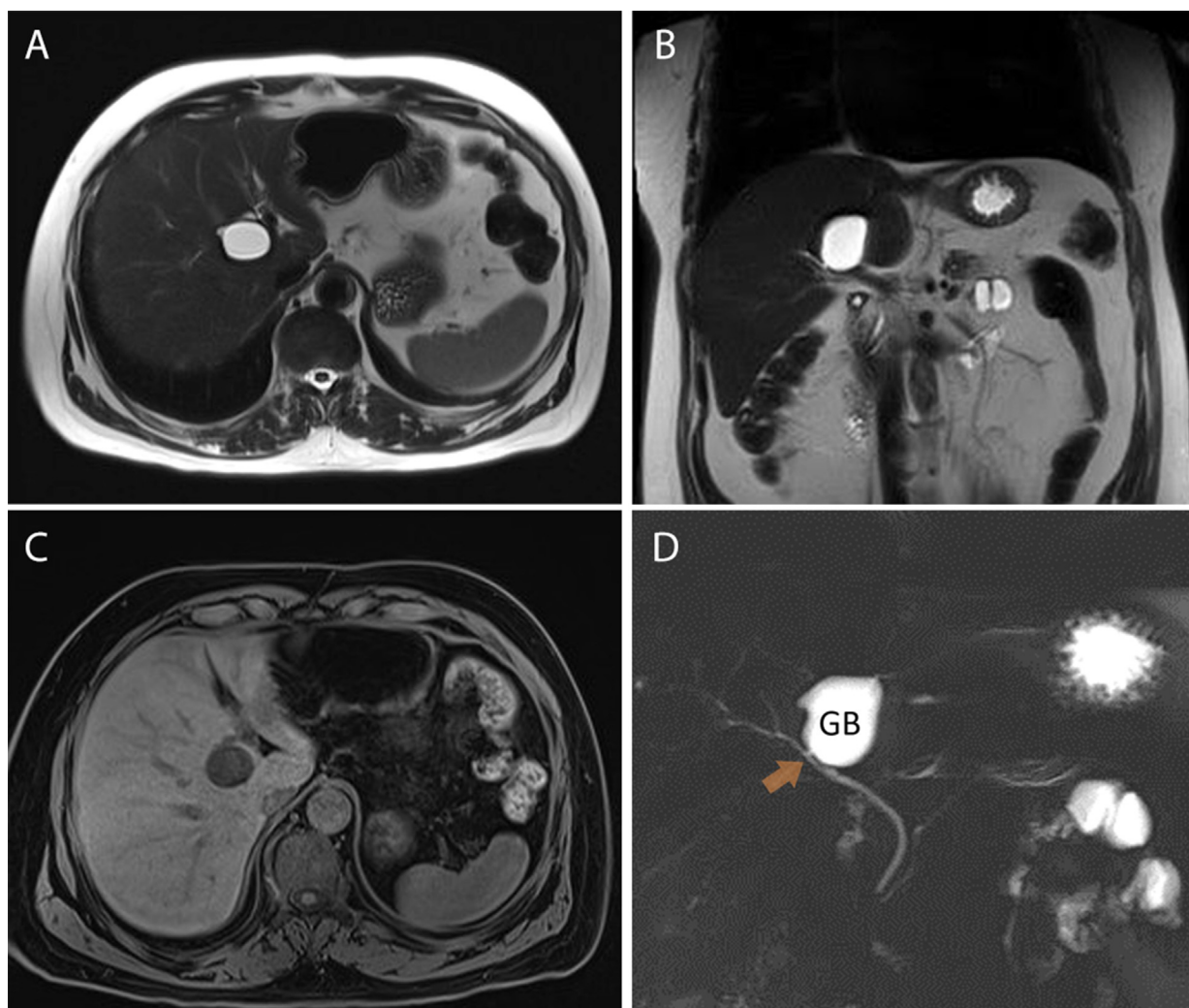


Fig. 2 – MRI of Liver. Magnetic resonance imaging study of the liver demonstrating an oblong shaped gallbladder in an ectopic position within the parenchyma of the right lobe of the liver on T2-weighted axial and coronal images (A, B) and axial T1-weighted image (C). MRCP confirmed the communication of the ectopic intrahepatic gallbladder (GB) to a normal biliary tree with a cystic duct emerging from the gallbladder as pointed by the orange arrow. (D)

Discussion

Gallbladder is normally located in the right upper quadrant below the right lobe of the liver in the plane of the interlobar fissure. Ectopic location of the gallbladder is considered an extremely rare anomaly with estimated incidence of 0.1%–0.7% [1]. Most common locations of ectopic gallbladder include under the left hepatic lobe, intrahepatic, transverse, or retroperitoneal [2]. It results from developmental arrest in migration of the gallbladder from reaching its normal position [3,4].

Conventional US is the first-line imaging modality acquired in most cases considering its widely available and fairly sensitive in excluding gallstones and acute cholecystitis. Other modalities such as CT, MRI, as well as radionuclide imaging are modalities that can demonstrate intrahepatic gallbladder. MRCP is the commonly used modality of choice to confirm the diagnosis and to identify any other possible abnormalities to the biliary tree and liver [6].

It is of radiological significance as it may be misdiagnosed for agenesis of gallbladder or post-cholecystectomy status especially in cases with inadequate clinical history. It can also mimic solitary cystic hepatic lesions such as simple hepatic cyst as presented in our case. Possible differential diagnosis for cystic hepatic lesion that communicates with bile duct to be considered are other gallbladder anomalies such as accessory or double gallbladder, intraductal papillary neoplasm of the bile duct (IPNB) or localized Caroli disease [9]. Accessory or double gallbladder may be excluded when other cystic lesions of similar features are seen elsewhere. IPNB are intraductal tumors with balloon-like bile duct dilation. Caroli's disease is seen as saccular dilatation of the intrahepatic bile ducts and would give the characteristic central dot sign representing portal vein branches within the dilated bile duct [10].

Other differentials include simple liver cyst, complex cysts, hemorrhagic cyst, echinococcal cyst, polycystic liver disease (PCLD); however, majority of these cystic lesions happen in biliary ducts that do not directly communicate with the biliary system [10,11].

It has been suggested that 60% of the adults with this abnormality had cholelithiasis or chronic cholecystitis likely due to stasis of bile [8]. The abnormal position of gallbladder may cause technical challenge during cholecystectomy or any other biliary procedures when indicated. It may also be accompanied with other abnormalities in the biliary tree. Therefore, proper pre-operative assessment with imaging and appropriate surgical planning are essential.

Conclusion

Ectopic gallbladder can cause radiological and surgical challenges and knowledge of the abnormality allows correct identification and subsequent appropriate management. Although it is a rare entity, when a cystic lesion with biliary communication is seen within liver parenchyma, ectopic intrahepatic gallbladder should be included in the differential diagnosis.

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