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Case Report

Symptomatic cholelithiasis in an ectopic retrocolic retroduodenal subhepatic duplicated gallbladder

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ARTICLE INFO

Article history:

Received 30 April 2018

Revised 28 May 2018

Accepted 2 June 2018

Keywords:

Gallbladder duplication

Gallbladder anomalies

Accessory gallbladder

Cholecystectomy

MRI with MRCP

ABSTRACT

Gallbladder duplication is a rare anatomic variant of biliary anatomy, which can present diagnostic and treatment challenges. In this case, a 49-year-old male presented with classic symptoms of biliary colic to his primary care physician, and while computed tomography (CT) noted the presence of gallstones, neither CT nor ultrasound was able to locate a gallbladder within the gallbladder fossa. Initial surgery found and cauterized a rudimentary gallbladder, but symptoms persisted, requiring a second surgery and secondary analysis of CT, ultrasound, and magnetic resonance imaging with magnetic resonance cholangiopancreatography. Imaging helped clarify the diagnosis of gallbladder duplication (ductular type), where the first gallbladder's cystic duct inserted high on the common hepatic duct, and the second retroplaced gallbladder's cystic duct inserted into the midportion of the common bile duct. Thorough understanding of the numerous gallbladder duplication variants, careful interpretation of modern imaging, and close collaboration between surgeon and radiologist are essential for optimal management of patients with gallbladder duplications.

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* Funding: None.

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<https://doi.org/10.1016/j.radcr.2018.06.002>

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Case report

A 49-year-old male presented with classic symptoms of biliary colic to his primary care physician. Prompt imaging at another institution included ultrasound, which failed to detect a gallbladder within the gallbladder fossa (Fig. 1), and computed tomography (CT) of the abdomen 3 days later, which showed a stone-filled gallbladder without comment about its ectopic location. During laparoscopic cholecystectomy with conversion to open laparotomy 6 weeks later, a rudimentary gallbladder was identified within the gallbladder fossa, with the cystic duct inserting into the common hepatic duct. Because of its small size, the gallbladder was cauterized, but, unbeknownst to the surgeon, it did not correspond to the large stone-filled gallbladder reported on CT.

Postoperatively, the patient's symptoms persisted, and the surgeon carefully reviewed the operative findings and preoperative imaging studies with our radiologist. On the abdominal CT, a large stone-filled gallbladder with a long tortuous cystic duct was identified posterior to the colon and duodenum, inferomedial to the inferior tip of the right lobe of the liver, and anterolateral to the right kidney (Fig. 2). The intraoperative cholangiogram demonstrated that the cauterized rudimentary gallbladder inserted high on the common hepatic duct, near the confluence of the right and left hepatic ducts (Fig. 3). A partially filled tortuous tubular structure arising from the midportion of the common bile duct (CBD) was seen, thought to represent a second cystic duct.

Additional postoperative workup included ultrasound and magnetic resonance imaging (MRI) with magnetic resonance cholangiopancreatography (MRCP) 6 and 10 days after the surgery, respectively. Ultrasound showed a 3.2-cm structure



Fig. 1 – Initial ultrasound. Ultrasound failed to convincingly demonstrate a gallbladder within the expected location within the gallbladder fossa.

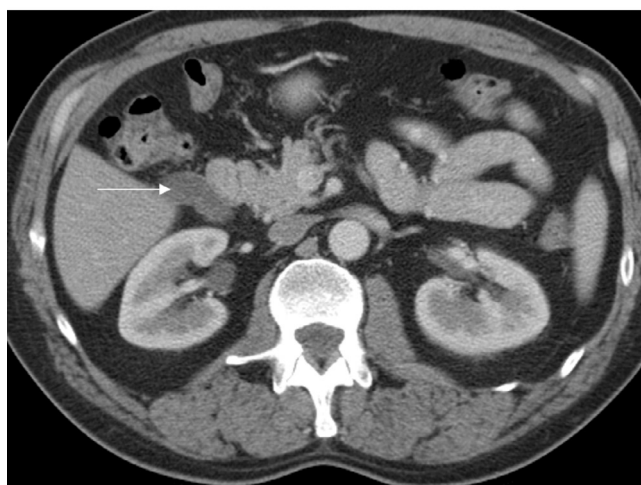


Fig. 2 – Computed tomographic imaging. (A) Axial contrast enhanced abdominal CT demonstrates the fundus of the duplicated gallbladder (arrow) located posterior to the ascending colon and anterolateral to the right kidney. (B) Axial CT obtained cephalad to (A) reveals the body of the gallbladder (arrow) coursing posterior to the duodenum and anterior to the right kidney.

with wall echo shadow sign in the region adjacent to the right kidney and liver, corresponding to gallbladder location on prior CT scan (Fig. 4). MRI with MRCP demonstrated a duplicated gallbladder located within the retroperitoneal space posterior to the colon. It was lateral to the duodenum at its lower portion and posterior to the duodenum superomedially near the CBD (Fig. 5A). The duplicated cystic duct inserted into the midportion of the CBD (Fig. 5B).

Forty-eight days after the initial surgery, a second operation (open cholecystectomy) resulted in successful removal of the large stone-filled gallbladder. A second intraoperative cholangiogram confirmed the connection of the retrocolic gallbladder with the midportion of the CBD, concordant with the preoperative MRCP. Repeat MRI with MRCP on the fourth

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