Case 5335

Congenital Duplication of the Gallbladder
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Section: Abdominal imaging
Case Type: Clinical Cases
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Patient: 42 years, female

Clinical History:

42 years old female patient admitted to our emergency department with severe RUQ pain lasting for 3 days

Imaging Findings:

Physical examination revealed tenderness in right upper quadrant area, plain abdominal radiographs and admission laboratory findings including total bilirubin, alkaline phosphates, white blood cell count were all within normal limits. As the USG findings were strongly suggestive of a gallbladder duplication the patient was given medical treatment and after 6 months when the inflammation subsided an oral cholecystography and MRCP were performed to evaluate the detailed anatomy and to demonstrate the cystic ducts. Control USG showed two separate ellipsoid structures in the gallbladder fossa, the one anteromedially located containing a gallstone and sludge in the other one. The gallstone did not communicate between individual gallbladder lobes despite multiple patient positions during the US examination. The common bile duct, intrahepatic and extrahepatic biliary ducts were of normal caliber. On pathologic dissection two separate gallbladders and two separate cystic ducts contained in an omental covering were reported. The cystic ducts gradually merged into a common cystic duct before emptying into the common bile duct.

Discussion:

Congenital anomalies of the gallbladder may be numerical, positional, and morphological. True duplications of gallbladder are rare, and are found with an incidence at autopsy of about 1/4000. According to Boyden’s classification the anatomic variants of gallbladder duplication are: bilobed incomplete gallbladder duplication with one cystic duct, complete gallbladder duplication with separate cystic ducts and complete gallbladder duplication with a common cystic duct. Bilobed gallbladders are more rare than true duplications, and both types of malformations occur about twice as often in women as in men. As most errors in gallbladder surgery result from failure to appreciate the anatomic variations of the biliary system, the preoperative documentation of the anatomy has a critical role especially when considering laparoscopic cholecystectomy. Possible operative difficulties, inadvertant damage to biliary system, and severe complications may all be minimized if the surgeon is made aware of the presence of the specific type of anomaly.

US being both sensitive and specific is currently the primary imaging modality for suspected gallbladder disease. US findings may suggest a double gallbladder but the cystic duct is usually not identified. The differential diagnosis for two cystic structures in the gallbladder fossa should also include folded gallbladder, focal adenomyomatisis, Phyrigian cap, intraperitoneal fibrosis (Ladd’s) bands, vascular band across the gallbladder, choledochal cyst, pericholecystic fluid and gallbladder diverticulum. Some of other diagnostic modalities to correctly document the anomaly in question such as ERCP, PTC, OCG, CT performed after OCG, they have all their limitations. ERCP, PTC may show the specific type of anomaly but both are invasive procedures. Oral
cholecystography, scintigraphy and CT performed after OCG are unsatisfactory if the contrast agent is inefficiently absorbed from the intestine or poorly excreted by the liver. Absorption of the contrast agent is often impaired in acute abdominal illnesses, with ileus, vomiting or diarrhea. If the bilirubin level is over 3 mg/dl hepatic excretion will probably be inadequate for OCG. As a conclusive method of diagnosis we used single breath hold MRCP demonstrating two separate cavities and cystic ducts thus establishing correct diagnosis. Functional MRI using agents like gadolinium chelates or manganese-DPDP is useful in evaluation of bile duct integrity and biliary secretory functions. These molecules have large lipophilic components which is responsible for their high uptake by hepatocytes and excretion in bile.

**Differential Diagnosis List:** Congenital duplication of the gallbladder.

**Final Diagnosis:** Congenital duplication of the gallbladder.

**References:**


**Description:** A 42 year old female with gallbladder duplication. USG images showing the gallbladders lying side by side. Cranially located gallbladder contains a gallstone measuring approximately 12mm. Oral cholecystography shows both gallbladders. **Origin:**
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**Figure 2**

*Description:* MRCP images show two gallbladders in the gallbladder fossa and the presence of a single gallstone in the superomedially located organ. *Origin:*
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