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Gallbladder chronicles: Unveiling the bilobed marvel- A riveting expedition into a rare congenital enigma

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Abstract
The bilobed gallbladder, a rare form of duplication, poses a diagnostic challenge due to its varied configurations. Imaging reports, often intricate, depend on the size, fusion, degree of lobes, and cystic duct disposition. A precise preoperative diagnosis is vital to avert complications. Here, we present a case detected on ultrasonography (USG) and confirmed in magnetic resonance cholangiopancreatography (MRCP). The integration of these advanced imaging modalities not only unveiled the nuanced anatomy but also underscored the imperative role of accuracy in preoperative diagnostics & crucial for optimal clinical management.

Keywords: Duplication of gallbladder, magnetic resonance cholangiopancreatography, gross classification

Introduction

Imaging of the gallbladder demonstrates a wide range of anatomical variants, including anomalies in number, shape, and location. Bilobed gall bladders are quite rare and are characterized by a large variety of configurations depending on the size and degree of fusion of the two lobes and on the number and disposition of the cystic ducts. The incidence is about 1 in 4000 births. Current imaging modalities like USG, magnetic resonance cholangiopancreatography (MRCP), and Endoscopic Retrograde Cholangiopancreatography (ERCP) help in the preoperative detection and characterization of the malformation.

Clinical History

A 57-year-old diabetic male presented with epigastric and right upper quadrant pain. Physical examination showed no remarkable tenderness. Hematologic and biochemical analysis showed leukocytosis, and the other laboratory findings were normal. Vital signs were within the normal limit. USG (GE VOLUSON-S8) revealed a grossly distended gall bladder of bilobed configuration with hyperechoic foci near the neck and stone at terminal CBD and resultant mild dilatation of the proximal common bile duct. MRCP (MAGNETOM ESSENZA 1.5 Tesla) revealed an overdistended bilobed gall bladder with two calculi at the GB neck with no signs of cholecystitis. A calculus is noted at the terminal CBD, causing obstruction and upstream biliary tract dilation with mild IHBR dilation.

Because the patient had mild symptoms, he was just advised to follow up and referred to a higher centre for further management.

Fig 1: With hyperechoic foci close to the neck and cholelithiasis with modest dilatation of the proximal common bile duct, a significantly enlarged gall bladder with a bilobed structure was observed in B-mode ultrasonography

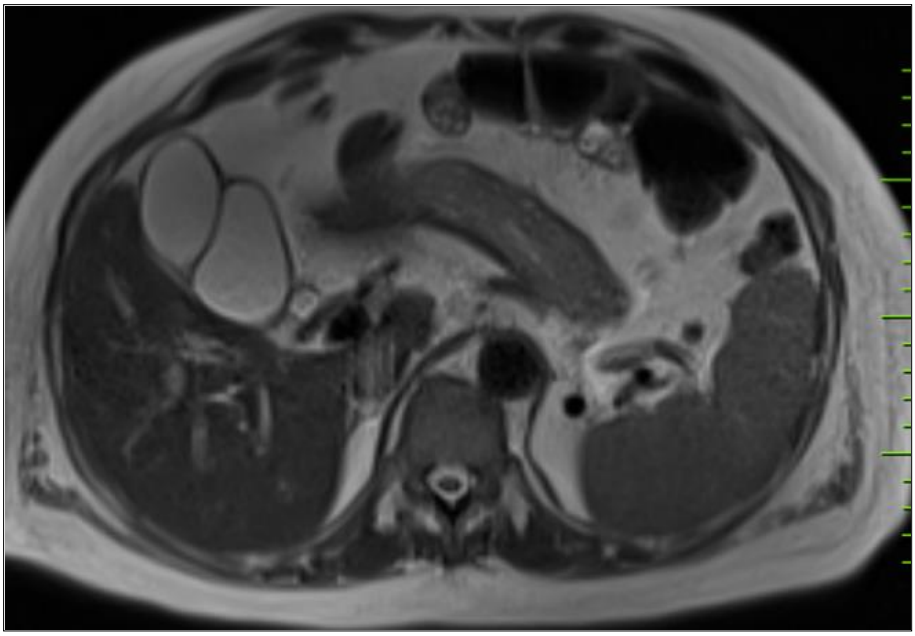

Fig 2: There is evidence of partial folding near the junction of the gall bladder's proximal and mid bodies on the MRCP T2 HASTE axial section, which demonstrates a bilobed configuration

Fig 3: There is folding near the junction of the gall bladder's proximal and mid body on the MRCP Maximum Intensity Projection, suggesting a bilobed shape

Discussion

Duplication of gall bladder is due to exuberant budding from the developing biliary tree when the caudal bud of the hepatic diverticulum divides. Gallbladder duplications are classified according to Boyden's classification. The two common types of duplications are the vesica fellea divisa (bilobed gallbladder) and vesica fellea duplex (true duplication) having two different cystic ducts [1]. The true duplication is sub-classified into the Y-shaped type and H-shaped type. The Y-shaped type has two cystic ducts that unite before entering the common bile duct whereas the H-shaped type has two separate gallbladders and two cystic ducts entering separately into the common bile duct. True duplication is more common and occurs as a result of the bifurcation of the gallbladder primodium during the fifth and early sixth weeks of embryonic life [2]. In our case, we find a duplication consisting of two lobes; both the lobe were drained by a single cystic duct. Both the lobes of the gallbladder shared a single cystic artery.

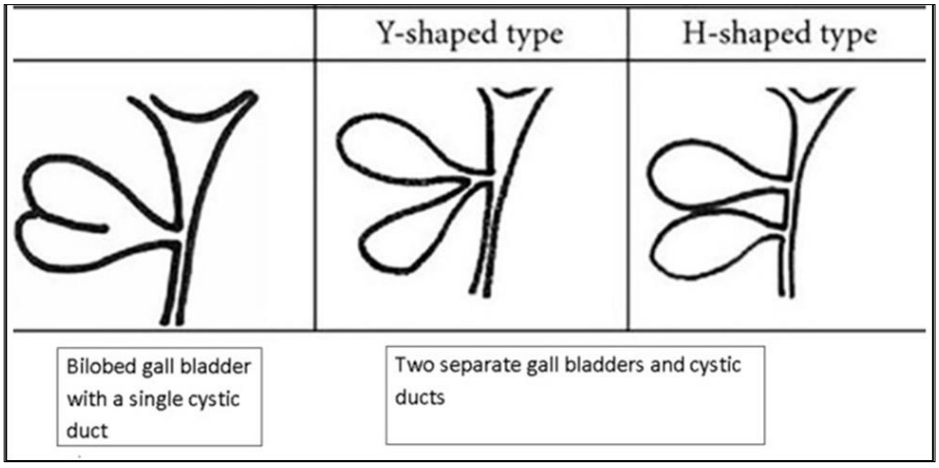

Fig 4: Classification of duplication of gallbladder based on their relation to cystic duct.
(Courtesy- Kumar M, Adhikari D, Kumar V, Dharap S. Bilobed gallbladder: a rare congenital anomaly. Case Reports. 2018 Feb 10;2018: bcr-2017.)

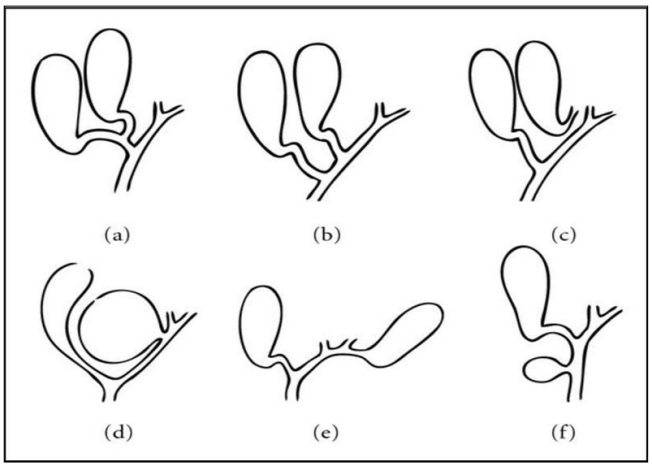

Fig 5: Double gallbladder as classified by Gross (Courtesy - Kawanishi M, Kuwada Y, Mitsuoka Y, Sasao S, Mouri T, Takesaki E, Takahashi T, Toyota K, Nakatani T. A case of double gallbladder with adenocarcinoma arising from the left hepatic duct: a case report and review of the literature. Gastroenterology Research and Practice. 2010 Jan 1;2010.)

Differential diagnosis of duplication of gallbladder includes Phrygian cap, choledochal cyst, folded gallbladder, focal adenomatosis, gallbladder diverticulum and intraperitoneal fibrous bands [3, 4].

Ultrasonography is the primary imaging modality for gallbladder pathology and it may find gallbladder duplication if the viscera are located separately. MRCP is a noninvasive imaging modality that helps to evaluate patients with suspected anomalies of the gallbladder in ultrasonogram [5].

Conclusion

In summary, a 57-year-old diabetic male presented with mild epigastric and right upper quadrant pain. Advanced imaging modalities, including ultrasonography (USG) and magnetic resonance cholangiopancreatography (MRCP), revealed a bilobed gallbladder with calculi at the neck and terminal common bile duct, causing mild obstruction. Despite the distinctive anatomical findings and the presence of cholelithiasis, the patient exhibited mild symptoms. Given the complexity highlighted by these imaging modalities, a decision was made to advise follow-up and refer the patient to a higher center for specialized management. This case underscores the pivotal role of advanced imaging techniques in delineating intricate anatomical variations and guiding tailored treatment approaches.

Competing interests: None declared.

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