

Laparoscopic management of rare “ H type” duplication of gall bladder

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A duplicated gallbladder is a rare congenital anomaly with an incidence of 1:4000 live births. They can remain asymptomatic and identified incidentally or present as acute cholecystitis, empyema, torsion, cholecystoenteric fistula, Gall bladder lump, or carcinoma. Here the current case is about discussing a case of a 25-year-old female who presented with symptomatic gallstone disease with a duplicated gallbladder having multiple stones in both the gallbladders. MRCP performed preoperatively revealed Y type duplication (double Gall bladder with common cystic duct). Laparoscopic cholecystectomy was performed and it finally revealed H type duplication (double Gall bladder with separate cystic ducts for each Gall Bladder).

Keywords: Duplicated Gall Bladder, H type gall bladder, Boyden’s classification, Harlaftis classification

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Introduction

Gallbladder duplication is a rare congenital anomaly with an incidence of 1 in 4000 live births [1]. The first reported human case of an accessory gallbladder was noted in the sacrificial victim of emperor Augustus in 31BC [2], but the first documented case of double accessory GBs in living humans was reported by Sherron in 1911 [3]. There is no sex predilection and they are mostly found in adults incidentally during cholecystectomy or autopsy.

There are two classification systems for duplicated gallbladders: Boyden's anatomical classification [1] and Harlaftis classification system [4].

The Harlaftis classification (Fig 3) is the most widely used and classifies the duplicated GBs anomalies into 3 types:

01. type I or split primordial group has only one cystic duct draining into the common bile duct. These Gallbladders are usually next to each other and share a common GB fossa. Its sub-classification includes septate, V-shaped, and Y duplicated GBs.
02. type II anomalies, the most common form have 2 separate GBs drain into a common bile duct through independent cystic ducts (H-type), or one of the cystic ducts drains into the right or left hepatic duct (trabecular type).
03. Type III accessory GBs include all other types not included in type I and II, including triple GBs.

Case Presentation

25 years female without comorbidities presented with complaints of recurrent colicky pain in the right upper quadrant of the abdomen for 1 year associated with nausea and vomiting. No history of fever jaundice or Pruritus. Ultrasound abdomen was suggestive of the double cavity of the gallbladder with multiple stones of size 8-9 mm with normal CBD.

A provisional diagnosis of acute calculus cholecystitis was made and MRCP was planned given abnormal ultrasound features. MRCP revealed duplicated gallbladders with multiple calculi(5-12mm) with majority calculi seen in the anteriorly placed gallbladder. The cystic duct was not well traceable but appears to be common to both gallbladder lumens (Figure 1).

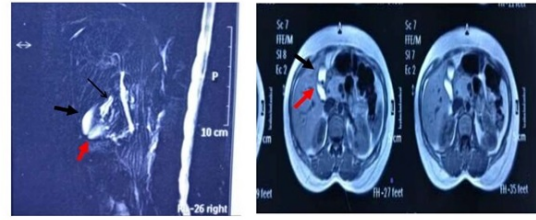


Fig-1: MRCP (Thin black arrow: cystic duct; thick black and red arrows; gallbladders).

Management and course

The patient underwent laparoscopic cholecystectomy. At Surgery, both gallbladders were found in a common Gallbladder fossa with minimal adhesions to the omentum. It was H-type according to the Harlaftis classification. After meticulous dissection, both cystic ducts and their blood vessels were divided and clipped, and the 2 GBs were successfully resected (Figure 2a,2b). Gallbladders were distended with multiple calculi. On opening, no polyps or growth were seen (Figure 2c). Both intraoperative and postoperative periods were uneventful and the patient was discharged on postoperative day two. The final histopathology report was suggestive of chronic cholecystitis.

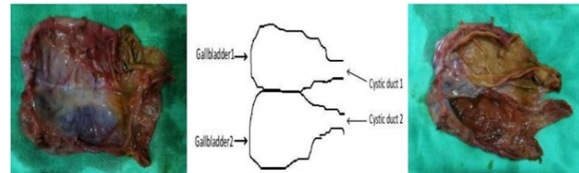


Fig-2: Resected specimen; 2A: Duplicated gallbladders, 2B; Schematic representation of specimen. 2C; Opened gallbladder's lumen.

Discussion

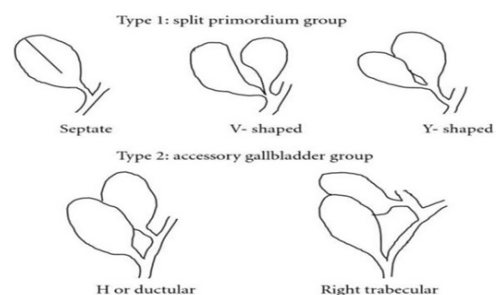


Fig-3: Harlaftis classification system for duplicated gallbladders.

Boyden's classification (Fig 4) of gallbladder duplication is as follows:

01. Vesica fellea divisa (bilobed or bifid gallbladder, double gallbladder with a common neck),
02. Vesica fellea duplex (double gallbladder with two cystic ducts),

Y-shaped type (the two cystic ducts uniting before entering the common bile duct),

H-shaped type (ductular type, the two cystic ducts entering separately into the biliary tree).

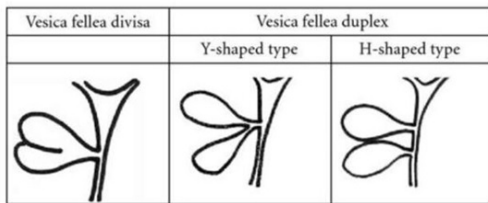


Fig-4: Boyden's classification of gallbladder duplication.

The differential diagnosis for duplicated GBs includes gallbladder diverticula, gallbladder fold, Phrygian cap, choledochal cyst, pericholecystic fluid, focal adenomyomatosis. In the past, duplicated Gallbladders were mostly found incidentally during cholecystectomy or autopsy, but these days they can be detected preoperatively by various imaging modalities. Ultrasound, as an extension of clinical examination, is usually the first imaging modality for suspected biliary diseases.

Ultrasound may diagnose gallbladder duplication but the anatomy of the ductal system cannot be defined very clearly [5,6]. MR cholangiogram becomes a handy investigation in a suspected case of duplicated GB. It is a noninvasive imaging technique and can very well identify duplicated GBs and associated ductal anomalies [7,8].

Clinical problems associated with duplicated gallbladder have similar nature to those encountered in the single gallbladder. Even the incidence and risk of the disease remain similar to a single gallbladder.

They can be diagnosed incidentally or may present as acute or chronic cholecystitis [9,10], cholelithiasis [9,10], empyema, torsion [11], cholecystocolic fistula [12], GB lump, and carcinoma. There are no specific symptoms attributable to a double gallbladder.

Once identified, symptomatic patients must undergo surgical removal of both gallbladders simultaneously because if the only gallbladder with pathology is removed first, another gallbladder may present later with similar pathology or symptoms at variable time intervals [13-16]. Cholecystectomy can be successfully performed either laparoscopically [9,10,14] or by the open method [3] but the laparoscopic approach should be the initial choice and cholangiography is recommended to aid in identifying and resecting the duplicated GBs.

Since there is no increased incidence of gallbladder disease in duplicated GBs, prophylactic cholecystectomy in asymptomatic patients with gallbladder duplication is not recommended due to limited data at present.

Conclusion

Presenting as a rare congenital anomaly, the duplicated gallbladder must be properly diagnosed and followed up by cholecystectomy preferably via the laparoscopic method, if symptomatic. Sometimes the final diagnosis can be made directly after surgery. As in our case, the MRCP report was suggestive of Y-type GBs but the final diagnosis was H-type GBs.

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