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CASE REPORT

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Vesica Fellea Divisa: Rare cause of jaundice

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ABSTRACT

Gallbladder duplication is a rare congenital malformation that is usually asymptomatic, but it may present with various complications. Preoperative diagnosis and differentiation of this malformation are important to prevent the iatrogenic bile duct injuries during cholecystectomy. We present a case of a 48 years old male who presented with signs and symptoms of acute cholecystitis. Preoperative imaging (ultrasound and MRI) detected the duplicated gallbladder and helped clarify the diagnosis and the type of gallbladder duplication. Treatment was carefully managed. After initial laparoscopy, open cholecystectomy was decided because the critical view of safety could not be obtained. Gallbladder was removed and no post-operative complications were reported. Our case emphasizes that it is important to clearly reveal the biliary system and vascular anatomy and to remove both gallbladders.

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1. INTRODUCTION

Double gallbladder (GB) or duplication of the gallbladder is a rare congenital malformation; Boyden was the first to describe it and its variable anatomy in 1926 [1]. It is usually detected when it becomes symptomatic. It poses a challenge to the surgeon and the radiologist, both in preoperative evaluation and intraoperative management. When it becomes symptomatic, removal of both gallbladders is indicated. We report a case with diagnostic and surgical management of duplicate gallbladder.

2. CASE PRESENTATION

A 48-year-old male patient presented to our clinic with complaints of right upper quadrant abdominal pain that started especially after meals and pain radiating to the back. He had complaints of jaundice and fever. On physical examination, his abdomen was soft but with tenderness at the right upper quadrant area. The patient recalls no previous episodes of similar abdominal pain. Initial blood investigations showed elevation in white cell count (12.5 × 109/L), Bilirubin (13, 68 µmol /L), Alanine aminotransferase (ALT) (41U/L), and Gamma-glutamyl transferase (GGT) (42 U/L). Lipase level was normal.

The Abdominal Ultrasound (US) revealed an average gallbladder wall thickness. It also showed a septum of gallbladder at the distal body which divides the gallbladder into two parts with several stones in the gallbladder lumens. The cystic duct was not described. The common bile duct had a standard caliber (Figure 1).

To map out the biliary tree, a magnetic resonance cholangiopancreatography (MRCP) was requested. It clearly demonstrated the two lumens (83 mm and 41 mm) with the largest stone being 15 mm in diameter (Figures 2, 3 and 4). Both gallbladders were drained by one cystic duct into the bile duct (Figure 2).

The patient's cholecystitis was successfully managed with antibiotic therapy. The patient underwent laparoscopic cholecystectomy (Figure 3). Due to the extent of the

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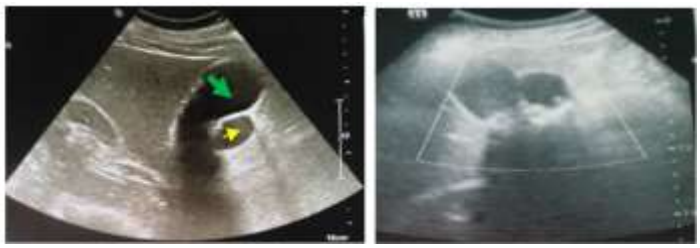

Figure 1. (a) US of the gallbladder revealed an unusual elliptical dense mass (green arrow) with an extra tubular structure located below and medial to the native GB (yellow arrow) (b) US of the gallbladder revealed cholelithiasis.

inflammation and omental adhesions, the dissection of Calot's triangle became difficult, and the critical view of safety could not be obtained. Hence a conversion to open cholecystectomy was decided. After the adhesiolysis, two gallbladder lumens could be seen. The dissection of Calot's triangle was carefully performed. One cystic duct and one cystic artery were distinguished. Exam of the specimen revealed bilobed gallbladder, double gallbladder with a common neck, both contain several micro and macro stones. (Figure 4).

Figure 2. Magnetic resonance cholangiopancreatography (MRCP) showing the double gallbladder with one cystic duct joins the common bile duct; 2D image(a),two separate lumens of the gallbladder; coronal view (b)T2-weighted MRCP; Axial view (c).

The pathology report also indicated chronic cholecystitis with gallbladder duplication and one cystic duct. The patient was discharged without any complications on post-op day 3.

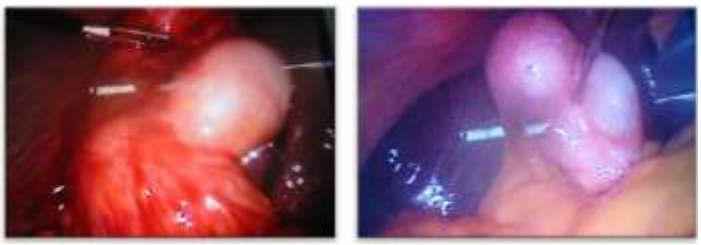

Figure 3. Intraoperative image showing. Dense omental adhesions around the gallbladder area (a). Calot's triangle is not clearly demonstrated (b).

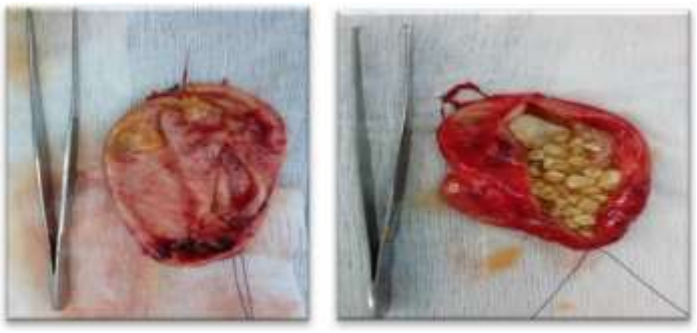

Figure 4. Surgical specimen of the duplicated gallbladder specimen with single cystic duct arising from Junction of both the gallbladders (a) duplicated gallbladder with stone containing in them (b).

3. DISCUSSION

The description of the first duplicated gallbladder was in a sacrificial victim of Emperor Augustus in 31 BC. Sherren documented the first case in 1911 [2]. The incidence is approximately 1 in 4000 people [3]. Duplicated GB is an anatomical variation caused by an abnormal embryonic development during the 5^{th} and 6^{th} weeks of gestation. Boyden found the persistence of numerous accessory vesicles formed from the hepatic antrum which would regress [4].

He classified these anomalies on [1] Vesica fellea divisa (with a common neck) like our case, Vesica fellea duplex (with two cystic ducts), Y-shaped type (the two cystic ducts uniting before entering the common bile duct), and H-shaped type (ductular type, the two cystic ducts entering separately into the biliary tree). The classification by Harlaftis, published on 1977, is the most accepted one [5].

Duplicated GB is found unexpectedly or due to symptoms that are related to lithiasis such as cholecystitis, cholangitis, [6], pancreatitis [7], and carcinoma [8]. According to Pillay et al, gallstones are due to inadequate drainage of bile [9].

Ultrasound (US) can show the number of the GB but the anatomy of biliary tree is not clearly identified [10]. Magnetic resonance cholangiopancreatography (MRCP) is much better to explore the anatomic variations [11]. Moreover, definitive diagnosis is established only during the operation [12].

This malformation can be confused with gallbladder diverticula, intraperitoneal fibrous bands, phrygian cap, choledochalcyst, gallbladder fold, pericholecystic fluid, and focal adenomyomatosis [13].

Cholecystectomy is not indicated in the absence of symptoms [14]. For a symptomatic case, laparoscopic cholecystectomy is the gold standard approach [15], even some surgeons preferred an open approach due to the inflammation which increases the iatrogenic biliary injuries. So, conventional cholecystectomy should not be considered as a failure. In our case, a conversion

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to open cholecystectomy was needed due to the extent of the inflammation, adhesions, and the difficulties in the dissection of the Calot's triangle to achieve the critical view of safety [16]. Once identified, both gallbladders should be removed to prevent complications and a second surgery. Reinisch & al presented a repeat laparoscopic cholecystectomy for duplicated GB after 17 years [17, 18].

The intraoperative cholangiogram would define the exact anatomy and assure complete resection without injury but there is no consensus to recommend [19]. The inspection of the GB specimen may discover biliary injuries. The pathological exam confirms the case [20].

4. CONCLUSION

Vesica Fellea Divisa is a rare anatomy variation of the biliary tract which represents an operative challenge. Imaging helps to identify this variation preoperatively and avoid surprises during operation. The surgeon should be careful to not omit it and follow the safe cholecystectomy strategy to prevent bile duct and vascular injury.

Declaration of conflicting interests: The authors declare no conflict of interest

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