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Case Report

Duplication of the Gallbladder: A Case Report

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Abstract

Gallbladder duplication can be difficult to diagnose and identify, which can be a clinical issue. Since it can complicate a simple hepatobiliary surgery or a gallbladder condition, it is crucial to recognize this aberration and its many kinds. A 46-year-old lady who was admitted as a case of cholelithiasis and underwent effective surgical therapy of symptomatic gallbladder duplication is the subject of this case report. Our case report highlights various crucial points. Preoperative diagnosis is crucial in the event of surgery to avoid potential biliary injuries or reoperation in the event that the accessory gallbladder was missed during initial surgery. Laparoscopic cholecystectomy is still an option for safe intervention, although caution is still advised to prevent complications or the need for additional surgeries.

Introduction

It is uncommon for the biliary system to duplicate, and one in 4,000 to 5,000 people are estimated to have double gallbladder. There are different anatomic variations of a double gallbladder. Hence, it is crucial for a surgeon to be aware of them, in order to understand and proceed with a treatment plan. Lack of knowledge regarding the variants of gallbladder can prolong and complicate the surgery.

Case Report

A 46-year-old woman presented to the General Surgery Clinic complaining of right upper quadrant pain for more than 6 months, worsening recently. Increasing after consuming fatty meals, not associated with fever. Physical examination findings were consistent with the likelihood of cholelithiasis. Lab-wise there was no leucocytosis in the CBC, LFTs were all within the normal range. An ultrasound image was done which showed gallstone measuring 1.5cm in size near the neck, with no wall thickening or pericholecystic fluid or signs of cholecystitis (Figure 1). A CT scan was done and it showed gallbladder distension with mild intrahepatic and extrahepatic biliary duct dilation, no CBD stones (Figure 2). Neither of the imaging showed any variation of the biliary system. She was admitted electively for laparoscopic cholecystectomy. Intraoperatively, a double gallbladder was identified and completely excised, along with common bile duct dilation. The rest of the operation was proceeded successfully. A bi-lobed gallbladder, double gallbladder with a common neck (Boyden type Vesica fellea divisa) was seen (Figures 3 and 4). Histopathology result showed tan and sloughed mucosa, locular cyst in lumen of the gallbladder, findings consistent with chronic cholecystitis. One gallbladder showed chronic cholecystitis with cholelithiasis, with stone composition-mixed stones. While the other gallbladder showed mucocele with negative culture growth after bacteriology. The patient was discharged home the same day with no complications after receiving post-operative management.

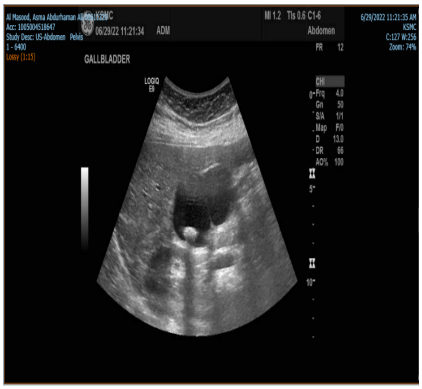

Figure 1: Shows the pre-operative U/S image finding.

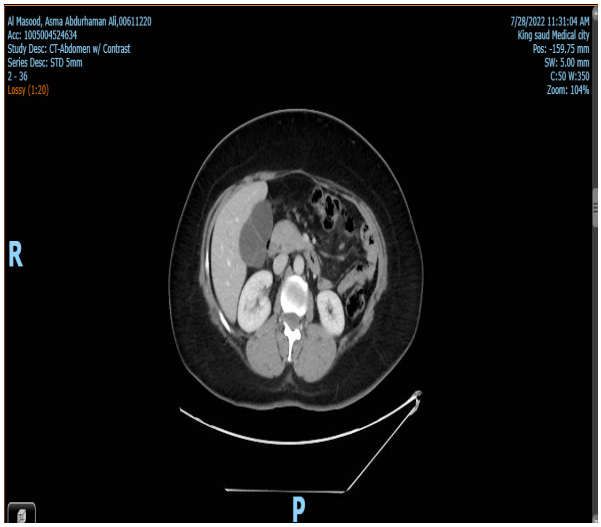

Figure 2: Shows the pre-operative CT image findings.

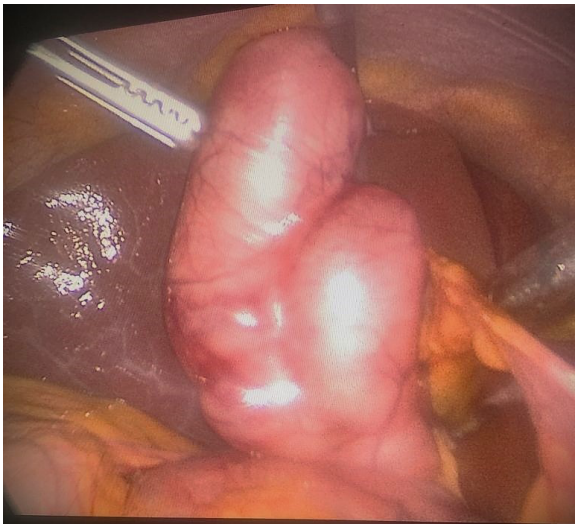

Figure 3: Intra-operative imaging of the duplicated gallbladder.

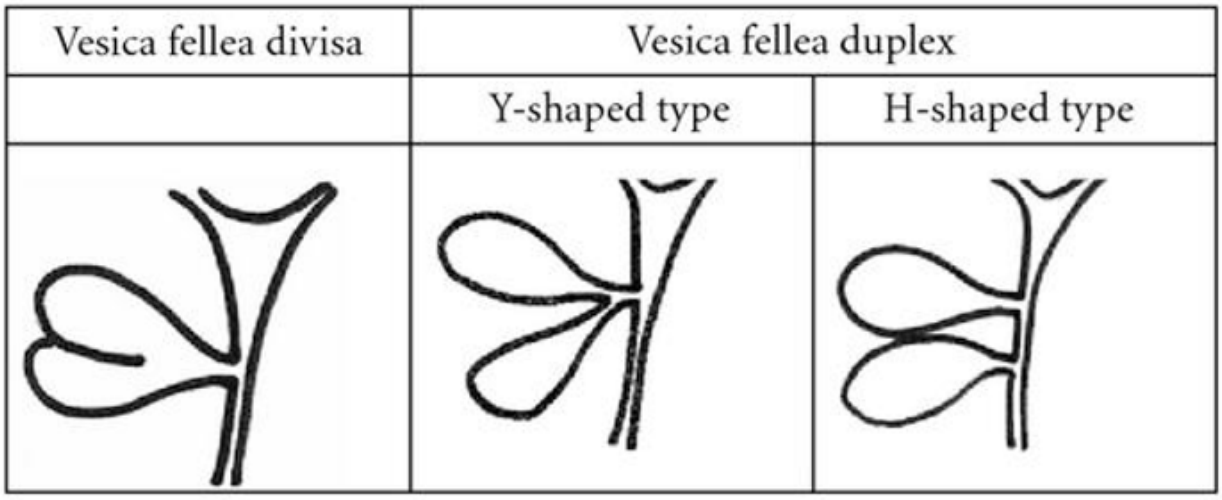

Figure 4: Boyden's classification of gallbladder duplication [1].

Discussion

Congenital gallbladder malformations can include deformities, deformations, numerous gallbladders, ectopias, intrahepatic positions, and heterotopic mucosa, among other morphological and positional anomalies. Duplication of the gallbladder is a morphological anomaly. [1] When the caudal bud of the hepatic diverticulum divides into independent buds or "outpouchings" between the fifth and sixth gestational weeks, it is thought to be the result of improper differentiation or excessive division of embryonic organs. The resultant duplication of the gallbladder is less complete the later the single primordium bifurcates. Due to this, a real gallbladder duplication occurs early in the gestation and is characterized by the presence of an auxiliary gallbladder and two separate cystic ducts. It is challenging to determine the precise incidence of duplicated gallbladders because only symptomatic instances or coincidental surgical, radiographic, and cadaveric discoveries are recorded [2].

The first occurrence of human infection was documented in 31 BC in a sacrificed victim of Emperor Augustus. In 1911, Sherren reported the first instance of a twin accessory gallbladder in a living person [3].

The structural differences between duplicate gallbladders have been categorized by a number of writers. Based on their relationship to the cystic duct, they are primarily divided into two primary groups: duplicated (split-primordium) or auxiliary gallbladders, depending on whether a common cystic duct is present or absent, respectively. Accessory gallbladders develop from two or more different cystic primordia and are distinguished by distinct cystic ducts entering the biliary network. The Boyden's categorization is the one that is most commonly used to describe double gallbladders. [1] The duplicate gallbladder and its variable anatomy was first described by Boyden in 1926. Based on their relation to the cystic duct, he described "vesica fellea divisa", (bilobed gallbladder which is drained by a sole cystic duct), and "vesica fellea duplex" (true gallbladder duplication). The latter is sub classified into "Y-shaped type" (two cystic ducts uniting before entering the common bile duct), and "H-shaped or ductular type" (two cystic ducts enter separately into the common bile duct). Duplicated gallbladder usually present with cholecystitis or gallstones. Duplicate gallbladders are not related with any particular symptoms or warning indications. It has not been proven that a duplicated gallbladder exhibits more pathology (malignant or not) than a single gallbladder. Since the most prevalent imaging technique for biliary illness depends on the operator, (i.e. ultrasound), this disease entity can be misdiagnosed. Because of this, many patients will move through with cholecystectomy without taking the possibility of a twin gallbladder into account. Congenital gallbladder anomalies, however, have been linked to a higher risk of postoperative problems and repeated surgery, according to numerous clinical investigations [4]. If symptoms

appear post cholecystectomy, the clinician has to include a possibly duplicated gallbladder in his diagnostic algorithm, in case a missed second gallbladder has remained inside the abdomen.

Only in symptomatic patients should surgery be considered as a first line of treatment. When doubled gallbladders are found accidentally, surgery is not advised, and preventative cholecystectomy in an asymptomatic patient with gallbladder duplication is not advised. Yet, it is recommended to remove both gallbladders in symptomatic patients at one stage to prevent subsequent disease in the remnant gallbladder and repeated surgical procedures. The mainstay of treatment is laparoscopic cholecystectomy, which has been used successfully as evidenced by the first of these procedures, which was published by Garcia et al. in the literature in 1993 [5, 6].

Conclusion

Although a double gallbladder is a rare finding, biliary abnormalities are frequently found during surgery. Hence, it is important to be aware of this to avoid problems and patient injury. Although ultrasound and CT scan are extremely specific imaging modalities for biliary pathology, as shown by our case study, they nonetheless have drawbacks and run the risk of preoperatively missing a diagnosis. Laparoscopic removal of both gallbladders at the initial procedure allows for the safe management of a double gallbladder and prevents the morbidity associated with recurring biliary illness and additional surgery.

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