CASE REPORT

Duplication of gallbladder with a common neck: A rare anatomical malformation

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Summary
Gallbladder duplication is a rare congenital anomaly. We report a rare case of double gallbladder in a young female, which was missed on ultrasonography, but was successfully treated by open cholecystectomy. It is paramount for an operating surgeon to be familiar with the anatomical details of the biliary system to prevent any inadvertent injury to the common bile duct and hepatic artery.

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1. Introduction
Gallbladder duplication is a rare anatomical malformation occurring in about 1/4000 births.1 Anatomical variations in the biliary system are associated with higher chances of common bile duct injury, especially during laparoscopic cholecystectomy.2-5 Preoperative imaging is helpful for diagnosis. Surgical removal of both gallbladders with intraoperative cholangiography seems to be the appropriate treatment.

2. Case report
A 35-year-old female presented with fatty dyspepsia associated with recurrent postprandial abdominal distention without any pain, nausea, vomiting, jaundice, or fever. Physical examination showed no abdominal tenderness. Laboratory values, serum biochemistry, C-reactive protein and liver function were normal. Ultrasound examination of the abdomen showed a distended gallbladder and cholelithiasis, without any anatomical variation (Fig. 1). The
patient underwent open cholecystectomy. At exploration, duplication of the gallbladder was confirmed as a Y-shaped type (vesica fellea divisa). Both the gallbladders, with the duct showing common cystic figures, were removed in the same procedure (Figs. 2 and 3). The bile duct was traced and was found to be normal (Fig. 4), and so there was no need for intraoperative cholangiography. On follow-up, the patient was doing well without any complaints.

3. Discussion

In the 5th or early 6th week of gestation, the gallbladder primordium may become bifurcated and lead to duplication. A split in the primordium leads to formation of duplication, while a true accessory gallbladder results from an extra primordium. It has been found in 1/4000 births.\(^1,6\) The first reported human case was noted in a sacrificial victim of Emperor Augustus in 31 BC.\(^5\) The following is Boyden’s classification\(^1,7\): (1) vesica fellea divisa (bilobed or bifid gallbladder, double gallbladder with a common neck); (2) vesica fellea duplex (double gallbladder with two cystic ducts), (i) Y-shaped type (the two cystic ducts uniting before entering the common bile duct) and (ii) H-shaped type (ductular type, the two cystic ducts entering separately into the biliary tree). In our case, it was a bilobed gallbladder with a common neck. Clinically it may be asymptomatic as in our case, or the symptoms may be in the form of acute or chronic cholecystitis, cholelithiasis, empyema, torsion, cholecystocolic fistula, lump in the abdomen, and carcinoma.\(^2\) Several publications have reported successful laparoscopic surgery for bilobed or even trilobed gallbladders.\(^2,4,8,9\) In asymptomatic patients with duplication of the gallbladder, cholecystectomy is usually not advised.\(^2\) Ultrasonography, magnetic resonance

Figure 1  Distended gallbladder with multiple calculi.

Figure 2  Duplication of gallbladder with two stones in each fundus (arrows).

Figure 3  Duplication of gallbladder with tip of arterial forceps in common neck (black arrow).

Figure 4  Single cystic duct stump held by artery forceps with normal common bile duct.
cholangiopancreatography (MRCP), computed tomography scanning, scintigraphy, and oral cholecystography are not 100% sensitive in identifying biliary ductal anomalies. The ultrasonography can help diagnose duplication of the gallbladder sometimes on the basis of certain points, however, ultrasonographic appearance may be confused with that of choledochal cysts, gallbladder diverticulum, Pfriggian cap, extrinsic fibrous bands across the gallbladder, and a folded gallbladder of Horattas. In our case, preoperative ultrasonography was performed, which showed normal biliary anatomy except for multiple cholelithiasis, and therefore intraoperative cholangiography was not needed because the rest of the anatomy was clear.

Congenital anomalies of the gallbladder are rare and may cause diagnostic or surgical problems which can be prevented by giving special attention to the biliary ductal and arterial anatomy. Laparoscopic cholecystectomy with intraoperative cholangiography seems to be the appropriate treatment.

References