

Duplication of the Gallbladder: A Case Report

Safra Kesesi Duplikasyonu: Olgu Sunumu

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ABSTRACT: Gallbladder duplication is a rare anatomic malformation, which can now be detected by preoperative imaging study. We report a case of an asymptomatic duplicated gallbladder with sludge ball. This anomaly is important to know for surgeons because of associated anatomical variations of main bile duct and hepatic artery and increased risk of common bile duct injury.

Key words: duplication; gallbladder; anatomic malformation; imaging

ÖZET: Safra kesesi ameliyat öncesi görüntüleme ile tanısı konabilen nadir bir anatomik malformasyondur. Bu yazıda içinde safra çamuru olan safra kesesi duplikasyonlu asemptomatik bir olguyu sunuyoruz. Bu anomalinin bilinmesi birlikte görülen ana safra kanalı ve hepatic arter varyasyonları ile ana safra kanalının yaralanma riskinin artışı nedeniyle cerrahlar için oldukça önemlidir.

Anahtar kelimeler: duplikasyon; safra kesesi; anatomik malformasyon; görüntüleme

INTRODUCTION

Gallbladder duplication is a rare congenital malformation, occurring in about one per 4000 births (1). Congenital anomalies of the gallbladder and anatomical variations of their positions are associated with an increased risk of complications after laparoscopic cholecystectomy (2–5). Preoperative imaging should be helpful for diagnosis. Laparoscopic removal of both gallbladders with intraoperative cholangiography seems to be the appropriate treatment.

CASE REPORT

A 68 years old woman presented with abdominal distention and dyspepsia. Physical examination revealed a distended abdomen and no tenderness in the epigastric region. Her temperature was 37°C, and the rest of her vital signs were normal. Laboratory analysis of liver function was normal. Her blood values were within normal range. The plain abdominal radiographs were unremarkable. Sonographic examination of the right upper quadrant was performed (Figure 1).

There were two ellipsoid cystic structures side by side in gallbladder fossa. There was no other structure that may gallbladder. The lateral and small one contained a sludge ball. The common hepatic and intrahepatic ducts were normal. Cystic duct was not identified. These findings were thought to represent a double gallbladder with sludge ball of the lateral lobe. Both of them had normal gallbladder wall thickness.

Magnetic resonance imaging (MR) was performed for further evaluation of the biliary tree and gallbladder. Axial fast SE T2-weighted MR image shows two pear-shaped high-signal-intensity structures in the gallbladder fossa. A MR cholangiography was also performed, showing a double gallbladder with a common neck. Lateral one contained a sludge ball and there was no stone in the common bile duct.

DISCUSSION

Anomalies of the gallbladder have been classified into malformation of shape, number, site, size and heteropias. These anomalies may be asymptomatic or may cause wide range of complications. Duplication of the gallbladder is a rare congenital anomaly, occurring in about one per 4000 births (1).



Figure 1. Two ellipsoid cystic structures side by side is seen in gallbladder fossa on the sonographic examination.

During the fifth or early sixth embryonic week, occasionally, the gallbladder primordium bifurcates and results in duplication of gallbladder. Because of associated anatomical variations of cystic duct and hepatic artery, this congenital anomaly is important to know for surgeons (5). Anatomic variants of gallbladder duplication are still differentiated according to Boyden's classification as follows (1, 6):

(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),

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

The gallbladder in our case was compatible with the Vesica fellea divisa.

Differential diagnosis includes gallbladder diverticula, gallbladder fold, Phrygian cap, choledocal cyst, pericholecystic fluid, focal adenomyomatosis, and intraperitoneal fibrous bands (2). The incidence and nature of clinical problems associated with duplicated gallbladder are similar to those encountered in the single viscus, including

acute or chronic cholecystitis, cholelithiasis, empyema, torsion, cholecystocolic fistula, lump in the abdomen, and carcinoma. There are no specific symptoms attributable to a double gallbladder. Simultaneous removal of both gallbladders at surgery is recommended to avoid cholecystitis and symptomatic gallstones in the remaining organ (2, 9). Several publications reported successful laparoscopic cholecystectomy for a duplicate gallbladder (2, 4, 9–11). Schroeder and Draper reported a successful laparoscopic cholecystectomy for a tripe gallbladder (12).

Because there does not seem to be a significantly increased risk for subsequent disease, prophylactic cholecystectomy in an asymptomatic patient with gallbladder duplication is not recommended (2). It could now be detected preoperatively by imaging studies. Sonography is generally the first choice of imaging modality in patients with suspected biliary disease. It may diagnose gallbladder duplication if the viscera are located separately. Some criteria have been defined to diagnose gallbladder duplication on sonographic examination in limited case reports (13–16). Although sonographic findings may suggest a double gallbladder, the cystic duct is usually not identified and it is often impossible, as in our case, to distinguish bilobed gallbladder from a true duplication by sonography. Duplication should be considered when two cystic ducts are present on preoperative imaging. MR cholangiography proved to be a valid, noninvasive imaging technique for the evaluation of patients with suspected anomalies of the gallbladder after initial scanning with US (17). Helical CT scan can also be helpful (16). Duplication of the gallbladder has been detected by oral cholecystography, scintigraphy, and percutaneous transhepatic cholangiography but these examinations are not routinely used in patients with biliary disease.

Concomitance with other congenital anomalies, such as an anomalous right hepatic artery, has been described and may lead to intraoperative injury (5). Attention is being focused on the need of complete evaluation during surgery by intraoperative cholangiography to prevent inadvertent injury to the biliary system (2). In conclusion, duplication of the gallbladder is a rare congenital abnormality, which requires special attention to the biliary ductal and arterial anatomy. Laparoscopic cholecystectomy with intraoperative cholangiography seems to be the appropriate treatment.

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