



Sonographic Detection of Congenital Duplicated Gallbladder

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Abstract

Double gallbladder is rare congenital anomaly. It is important to diagnose it preoperatively. Ultrasound is the preferred modality of imaging. Laparoscopic cholecystectomy can be safely done in benign condition of double gallbladder. 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

Gallbladder, Congenital, Sonography

Introduction

Gallbladder duplication is a rare congenital malformation, occurring in about one per 4000 births (1). Pre-operative diagnosis is extremely important as if diagnosed during surgery; the per-operative location of the second gallbladder may be difficult or even be missed (2). We are reporting a case of double gallbladder as it is very rare.

Case Report

A 47 years male presented with pain in epigastric region without jaundice. History of nausea and vomiting was present. General examination revealed no abnormality. On abdominal examination mild tenderness was present in the epigastric region. Ultrasound abdomen show double gall bladder lying in the gallbladder fossa with no evidence of stone or cholecystitis. Upper endoscopy (EGD) done revealed pre-pyloric ulcer. Patient was kept on medical treatment for peptic ulcer. No surgical intervention done for asymptomatic double gall bladder.

Discussion

Duplication of the gallbladder is a rare congenital anomaly, occurring in about one per 4000 births (1). It is thought to be due to exuberant budding of the developing biliary tree when the caudal bud of the hepatic diverticulum divides (3, 4). The first reported human case

was noted in a sacrificial victim of Emperor Augustus in 31 BC (5). Because of associated anatomical variations of cystic duct and hepatic artery, this congenital anomaly is important to know for surgeons (5).

Double gallbladders are classified according to the Boyden's classification (1). The two main types of duplications are vesica fellea divisa or bilobed gallbladder and vesica fellea duplex or true duplication, with two different cystic duct. The true duplication is sub classified into Y shaped type (two cystic duct unites before entering into the common bile duct, usually the two gallbladder and adherent and occupy the same fossa) and the H shaped type or ductular type (two separate gallbladder and cystic ducts entering separately into the common bile duct). The accessory gallbladder of ductular type may be adjacent to the normal organ in the gallbladder fossa or may be intrahepatic, subhepatic or within the gastrohepatic ligament. The true duplication is more common and occurs due to bifurcation of gallbladder primodium during the 5th and early 6th week of embryonic life (1,2,6,7).

Differential diagnosis includes gallbladder diverticula, gallbladder fold, Phrygian cap, choledocal cyst, pericholecystic fluid, focal adenomyomatosis, and

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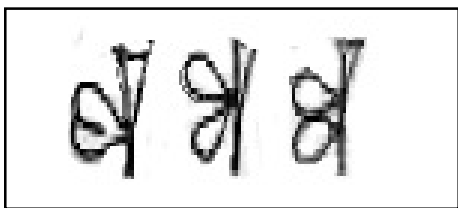


Fig 1 . Boyden's classification of gallbladder duplication. (1) Vesica fellea divisa (bilobed or bifid gallbladder, double gallbladder with a common neck), (2) Vesica fellea duplex (double gallbladder with two cystic ducts), (a) Y-shaped type (the two cystic ducts uniting before entering the common bile duct), (b) H-shaped type (ductular type, the two cystic ducts entering separately into the biliary tree).

intraperitoneal fibrous bands (8). The double gallbladders do not present with specific symptoms and the incidence of disease in this gallbladder is similar to its normal variant including acute or chronic cholecystitis, cholelithiasis, empyema, torsion, cholecystocolic fistula, lump in the abdomen, and carcinoma(9). Gallstone is the commonest complication occurring in one lobe but, both lobes can be involved. There is no increase in the incidence of disease in double gallbladder, so prophylactic cholecystectomy in an asymptomatic patient is not recommended (10).

The various modalities like ultrasound, Oral cholecystogram (OCG), scintigraphy, ERCP, PTC, CT scan and MRI can be used pre-operatively to diagnose double gallbladder. OCG and scintigraphy depend on certain conditions such as hepatobiliary uptake and excretion with a patent cystic duct. The other drawback is that, only one lobe will be visualized in the presence of disease. ERCP and PTC are the invasive procedures and will be used rarely. Ultrasound imaging is the modality of choice, with a high sensitivity and specificity. CT scan and MRI are the nonvasive modality and can be used to delineate the anatomy (2).

In symptomatic patient, cholecystectomy is recommended with the excision of both the gallbladder even if the disease is present only in one lobe (2, 10). Complete pre-operative evaluation of anatomy is must to avoid potential damage to the ductal system. During surgery meticulous dissection of the callot's triangle is mandatory. Laparoscopic cholecystectomy which has now become the gold standard for cholecystectomy is also recommended and can be done safely in double gallbladder (2, 10).



Fig 2. Ultrasound Showing Y-shaped Duplicated Gallbladder

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