Olgu Sunumu

Imaging Findings of Gallbladder Duplication: Case Report

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Abstract

Aim: To present imaging findings of a case with gallbladder duplication, which is a rare congenital anomaly.

Material and Method: A four-year-old girl was admitted to our hospital with a complaint of recurrent abdominal pain. Abdominal sonography revealed a fusiform cystic structure reaching from the head of pancreas to the hepatic hilum. Magnetic resonance cholangiopancreatography clearly showed the true duplication of the gallbladder, consisting of two vesicae and two separate cystic ducts entering the common duct, indicative of duplication.

Result: To prevent biliary damage, preoperative diagnosis of gallbladder duplication is necessary. Radiologic imaging findings allow us to show variations of gallbladder and biliary tract.

Key words: Gallbladder duplication, congenital anomaly, imaging findings

Introduction

Congenital duplication of the gallbladder is a rare biliary anomaly with different morphologies depending on events of embriogenesis, occuring in about one per 4000 births (1).

Accurate pre-operative diagnosis of this anomaly becomes important to prevent possible surgical complications and repeated surgery (2).

Modern imaging modalities like magnetic resonance cholongiopancreatography (MRCP) and endoscopic retrograde cholongiopancreatography (ERCP) enable preoperative detection and characterization of the anomaly (3).

We presented a case of gallbladder duplication in which, MRCP allowed the differentiation of the spesific type of duplication.

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Case Report

A four-year-old girl was admitted to our hospital with a complaint of recurrent postprandial abdominal pain. Physical examination showed no remarkable tenderness. Hematologic and biochemical analysis showed a leucocytosis and the rest of laboratory findings were normal. Vital signs were normal.

Abdominal sonography revealed a normal gallbladder and a fusiform cystic structure reaching from the head of pancreas to the hepatic hilum (Figure 1).

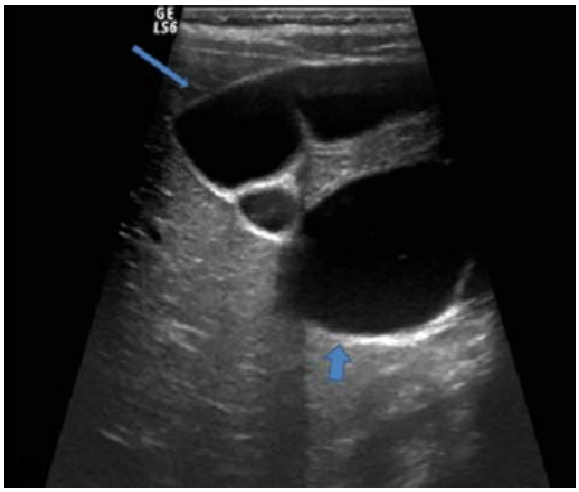

Fig. 1. Two adjacent cystic structures (gallbladders). Primary gallbladder (long arrow) and duplicated gallbladder (thick arrow).

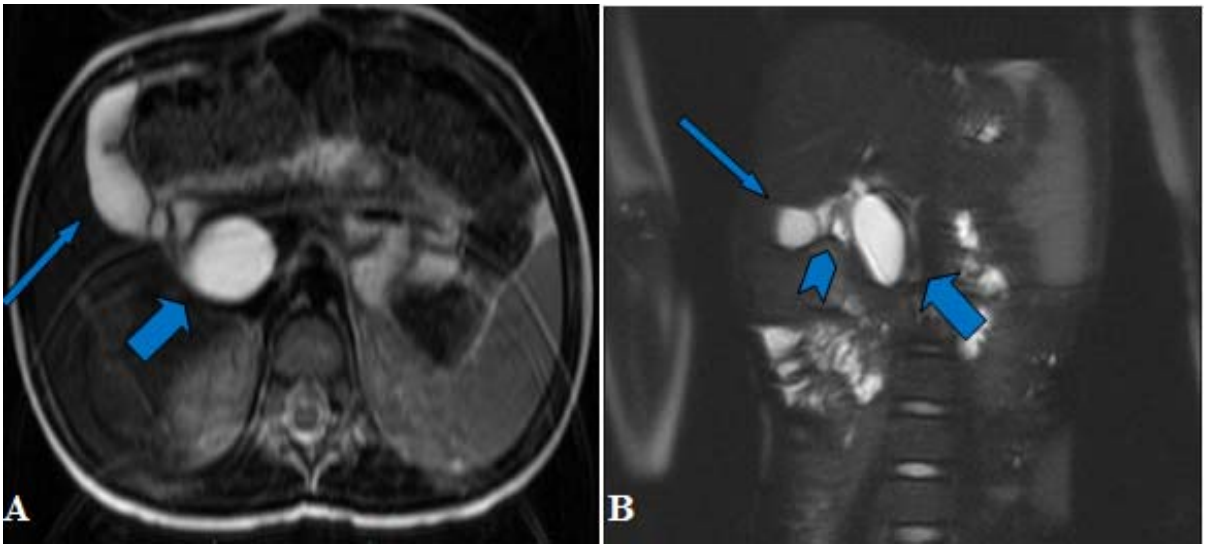

Fig. 2. Axial (A) and coronal (B) magnetic resonance images; primary gallbladder (long arrow), duplicated gallbladder (thick arrow), and duodenum (arrow head).

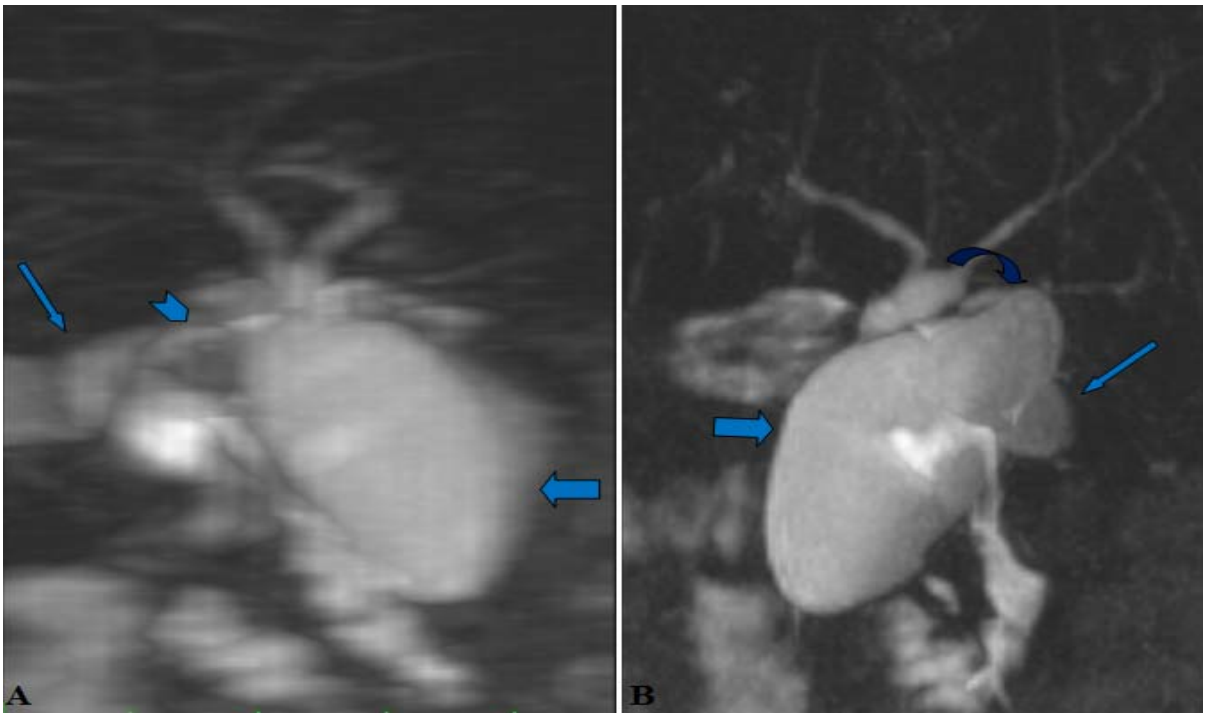

Fig. 3A, B. Primary galbladder (long arrow), duplicated gallbladder (thick arrow), primary cystic duct (arrow head), and duplicated gallbladder's cystic duct (curved arrow).

MRCP was performed showing normal gallbladder and cystic duct with a second gallbladder (Figure 2A, B). Maximum intensity projection (MIP) algorithm was used as post-acquisition image processing to produce a three-dimentional cholangiogram (Figure 3A, B).

MRCP clearly showed the true duplication of the gallbladder, consisting of two vesicae and two separate cystic ducts, one entering the common duct and the other entering the right hepatic duct, indicative of a ductular type duplication.

A post-fasting sonogram demonstrated contraction of the gallbladder which is located normally and no contraction was seen in the second one (Figure 4). Relatives of the patient did not accept the surgery and continued to controls at another institution.

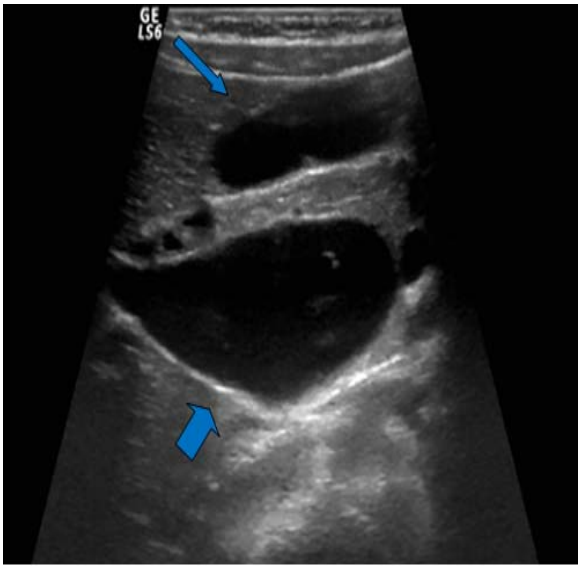

Fig. 4. Postprandial US image; primary gallbladder (long arrow) was contracted but duplicated gallbladder (thick arrow) was not contracted.

Discussion

Duplication of the gallbladder is a rare congenital anomaly with an estimated autopsy and radiographic frequency of 0.02% and 0.03%, respectively (4). Duplication is seen more often in women. Congenital malformations of the gallbladder are divided into morphological and gastrointestinal abnormalities.

Duplication is a morphological abnormality. Gross classified double gallbladder into six types, designed A to F (Figure 5). Our case appears to correspond to type E reported by Gross. It is thus the accessory gallbladder arises from the hepatic duct (5, 6).

Our case is classified as trabecular type according to the Harlaftis classification. This group is characterized by the presence of two or more cystic ducts opening separately into the biliary tree. The two organs may be of the same size or one may be smaller. There are two types in this category (2):

1. H or Ductular gallbladder: The cystic and accessory cystic ducts enter the common bile duct separately.
2. Trabecular gallbladder. The accessory cystic duct enters the hepatic duct.

Sonoraphy is currently the primary imaging modality for suspected gallbladder disease. Some sensitive ultrasonographic signs of gallbladder duplication are suggested. These signs consist of isolated contraction of non-diseased gallbladder with absent contraction of diseased gallbladder (7). US findings of our case has supported this judgement.

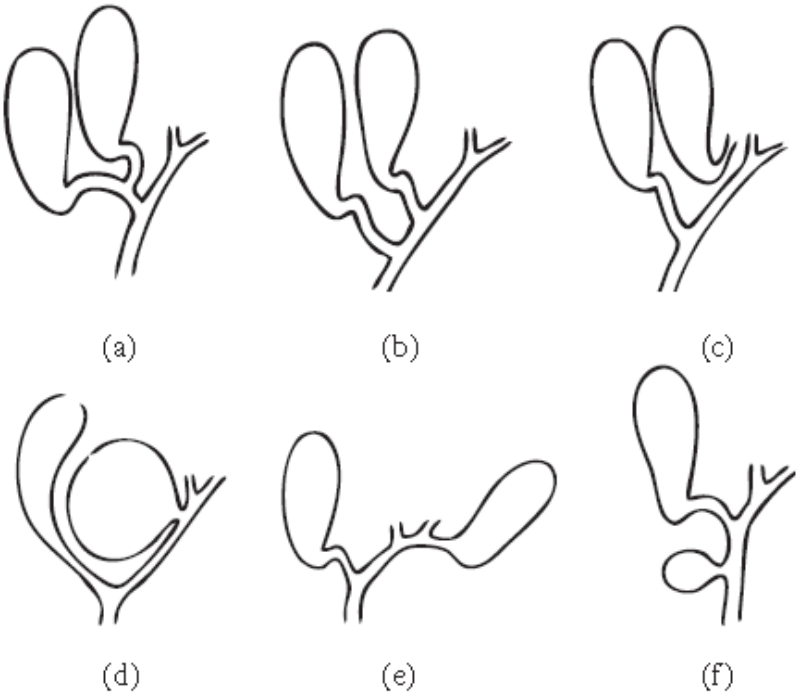

Fig. 5. Double gallbladder as classified by Gross (6).

Duplication of the gallbladder can be detected by oral cholesystography, scintigraphy and percutaneous transhepatic cholangiography but these examinations are not routinely used in patients with biliary disease (8).

MRCP is a noninvasive technique widely used in the evaluation of biliary tract abnormalities (9). In our case MRCP rapidly showed the gallbladder duplication and allowed us determine the type of duplication.

The differential diagnosis of gallbladder duplication include; choledochal cyst, gallbladder diverticulum, pericholecystic fluid, phrygian cap, focal adenomyosis (3).

The differentiation among double gallbladder, folded gallbladder, and vascular band may be difficult, as these entities should have similar sonographic appearances. When stones are present, they may be sequestered in one of the two lobes. When gallstones can be demonstrated to communicate with all parts of the gallbladder, a folded gallbladder would be more likely than a duplication. Gallstones may become sequestered in a compartmentalized part of the gallbladder, such as with phrygian cap or adenomyomatosis; however, the morphology of the gallbladder should still appear oblong as opposed to two discrete adjacent lobes as seen with duplication. Isolated contraction of the nondiseased lobe with absent contraction of a diseased lobe. This finding may be useful for differentiating between two gallbladder lobes and other forms of pericholecystic fluid collection (7).

Intraperitoneal fibrous bands (Ladd bands) have been associated with foregut malrotations. Recent recognition of foregut malrotations has been described by identifying transposition of the superior mesenteric vein to the left of the superior mesenteric artery with the first jejunal branch coursing to the right rather than to the left (10). If this altered vascular anatomy is seen and associated with two cystic structures in gallbladder fossa, a Ladd band is highly suggested (11).

Gallbladder duplication is a rare congenital abnormality that requires surgical treatment. To prevent biliary damage, preoperative diagnosis is necessary. Although US is generally the first choice of imaging modality, MRCP is an effective noninvasive technique for the evaulation of patients who are suspected for gallbladder duplication.

Safra Kesesi Duplikasyonu Olgusunda Görüntüleme Bulguları

Özet

Amaç: Nadir görülen konjenital anomali olan çift safra kesesi olgusunun görüntüleme bulgularını sunmak.

Bulgular: Tekrarlayan karın ağrısı nedeniyle merkezimize başvuran dört yaşındaki hastada yapılan ultrasonografide pankreas başı düzeyinden portal hilusa uzanım gösteren kistik lezyon izlendi. Ayırıcı tanıya yönelik elde edilen manyetik rezonans kolanjiopankreatografide koledokla bağlantısı olan çift safra kesesi izlendi.

Sonuç: Cerrahiye bağlı olası komplikasyonların önlenmesi açısından operasyon öncesi safra kesesi varyasyonunun tam olarak gösterilmesi gerekmektedir. Radyolojik görüntüleme bulgularıyla safra kesesi ve safra yolları varyasyonları gösterilebilir.

Anahtar kelimeler: Çift safra kesesi, konjenital anomali, görüntüleme bulguları.

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