

Gallbladder Duplication: Appearance on Sonography, Oral Cholecystography and Computed Tomography

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✓ Transabdominal ultrasonography (US) of a 55-year-old female demonstrated duplication of the gallbladder. This rare congenital anomaly of the biliary system is confirmed by oral cholecystography and computerized tomography (CT). The differential considerations of gallbladder duplication and the clinical significance are discussed.

Anahtar Kelimeler: Gallbladder, duplication, ultrasonography.

Duplication of the gallbladder is a rare congenital anomaly with an incidence of about 1 in 4000⁽¹⁾. The differential considerations should include phrygian cap, folded gallbladder, vascular bands, gallbladder diverticulum, choledochal cyst and pericholecystic fluid⁽²⁾. Although it is primarily imaged with US and oral cholecystography, imaging of the duplication with hepatobiliary scintigraphy⁽³⁾, endoscopic retrograde cholangio-pancreatography⁽⁴⁾ and transhepatic cholangiography⁽⁵⁾ is published. To the best of our knowledge, it is the first report of CT imaging of double gallbladder, yet not being the method of first choice.

CASE REPORT

A 55-year-old woman presented with the complaints of abdominal discomfort and constipation of about five years duration. She was on treatment for hypertension and bronchial asthma for about 15 years. Physical examination revealed a blood pressure of 160/100 mmHg, and mild abdominal tenderness on palpation of the right upper quadrant. Laboratory findings were normal.

A fasting abdominal US examination (Fig. 1) disclosed two cystic structures in the

gallbladder fossa, both with a well-defined wall. Cystic duct couldn't be clearly identified. Oral cholecystography revealed duplication of the gallbladder and equal contraction of both lobes (Fig. 2). CT examination performed simultaneously with oral cholecystography revealed contrast-enhanced double gallbladder (Fig. 3a) and the sagittal reconstruction of CT slices demonstrated a separation between the two lobes (Fig. 3b).

DISCUSSION

Duplication of the gallbladder is a rare congenital anomaly with incidence of 1 in 3800 in a large autopsy series⁽¹⁾. Triple gallbladders are also reported^(6,7).

Duplication results from a developmental defect in the cystic primordium or presence of double cystic primordia, and classified in two groups on this basis⁽⁶⁾:

I. Split cystic primordium group

a. Septate gallbladder (Fig 4a)

b. Bilobed gallbladder (Fig 4b)

c. Y-Duplication (Fig 4c)

II. Double cystic primordium group

a. Ductular accessory gallbladder (H-Duplication) (Fig 4d).

b. Trabecular accessory gallbladder: The accessory cystic duct joins a branch of right hepatic duct (Fig. 4e).

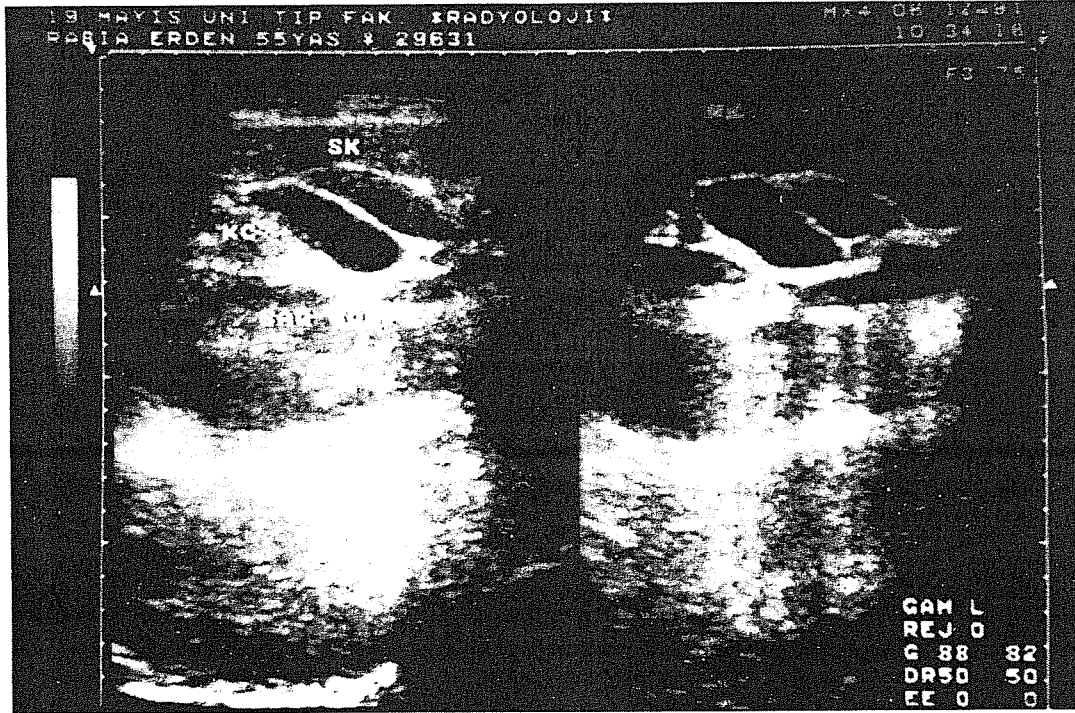


Figure-1: Abdominal US showing two cystic structures in the gallbladder fossa, both with a well-defined wall.

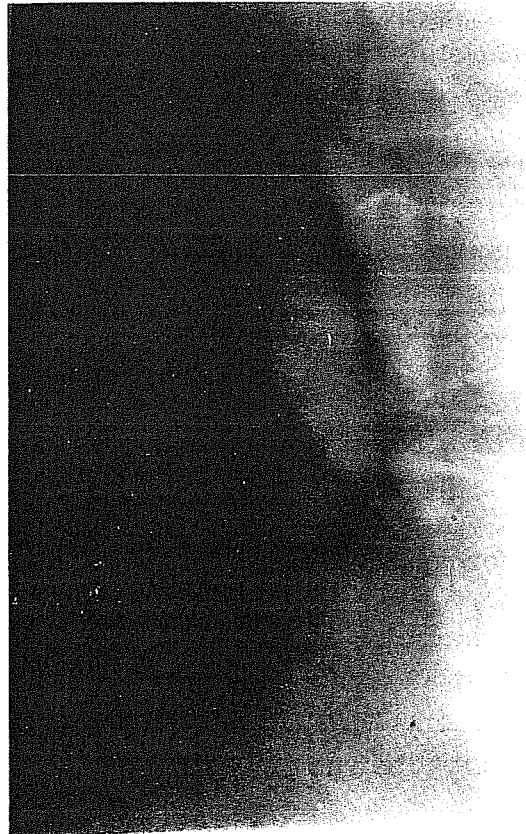


Figure-2: Oral cholecystography showing the duplication and equal contraction of both lobes

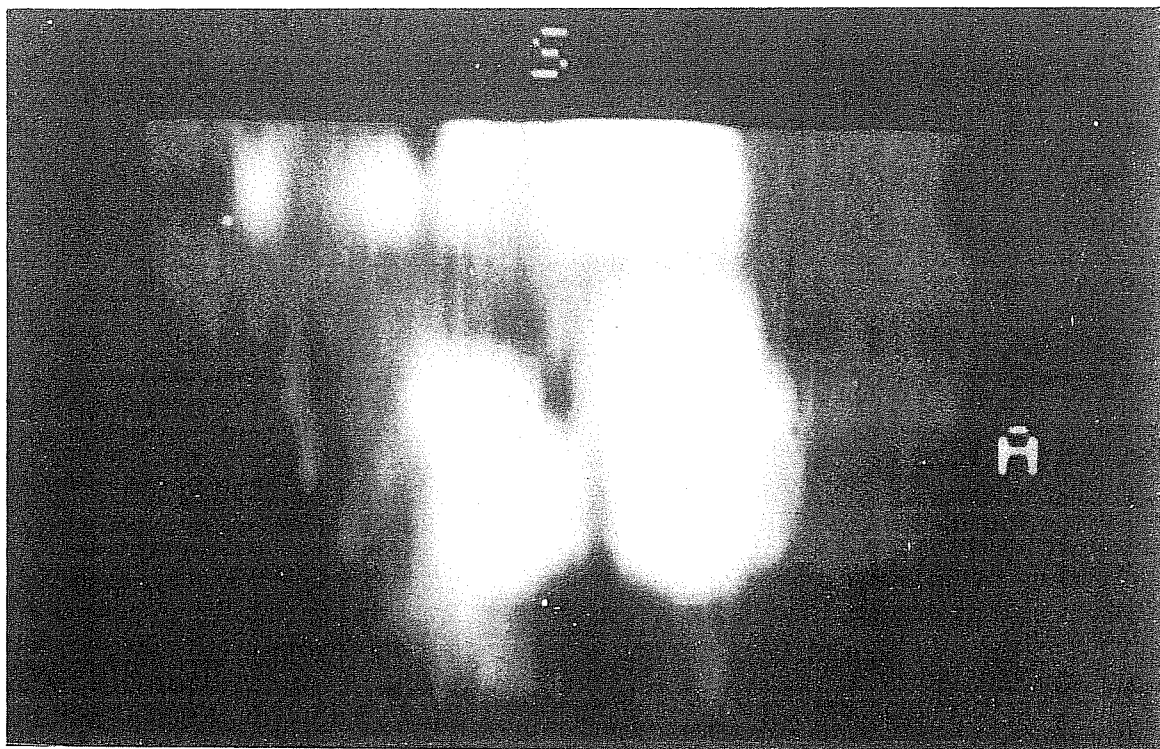
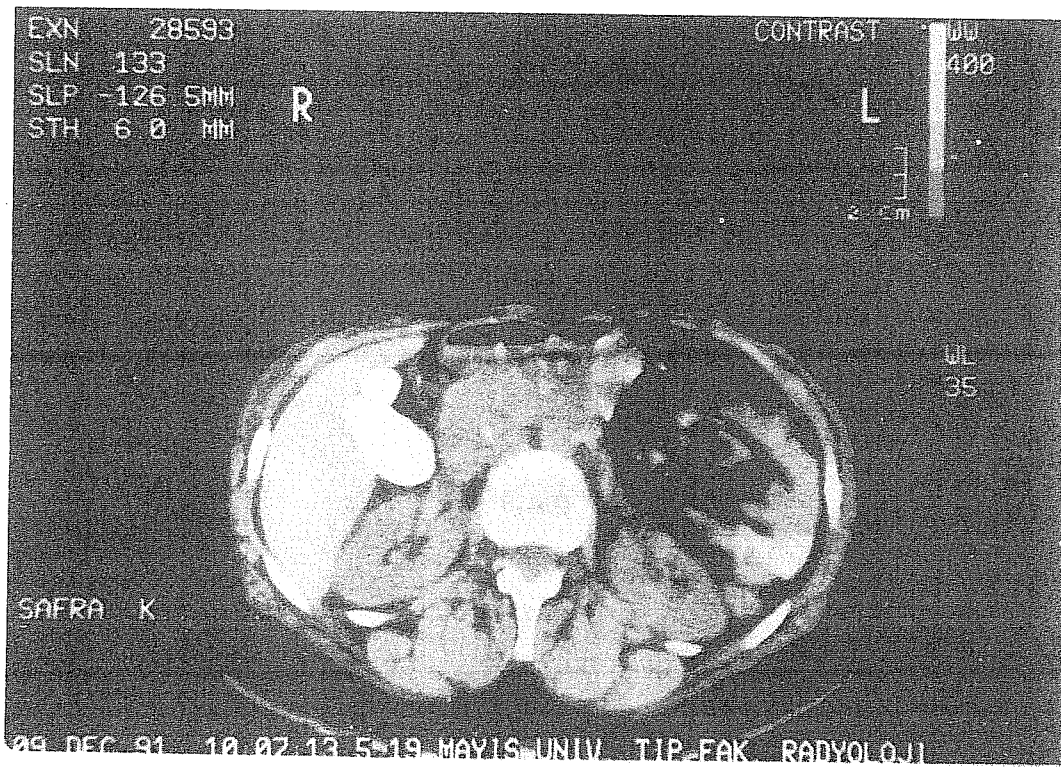


Figure-3: CT appearance of contrast-enhanced gallbladders (a) and the sagittal reconstruction disclosing the interlobar septum (b).

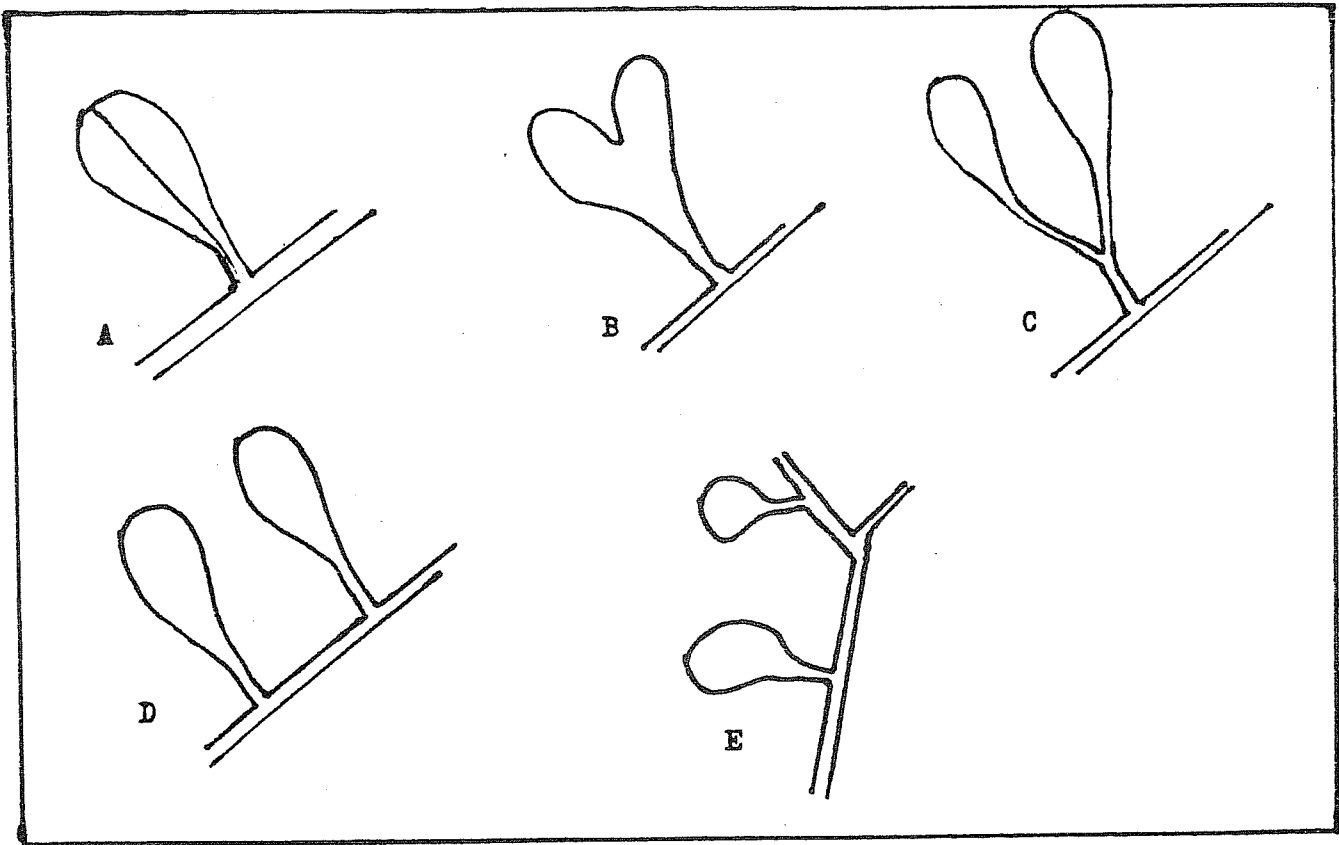


Figure-4: Varieties of duplicated gallbladder
 A. septate, B. bilobed, C. Y-duplication, D. H-duplication,
 E. trabecular accessory gallbladder.

Differentiation of the specific type of duplication is usually not possible, for it's difficult to identify the cystic duct even with sonography⁽²⁾. Most common type of duplication is the accessory gallbladder group, almost all being the ductular type. In the split primordium group, the most common type is Y-duplication. Most of the cases diagnosed radiologically are in the split primordium group, whereas those with surgical confirmation are in the accessory gallbladder group. This is because, the ductular duplication resembles septate gallbladder on oral cholecystography and secondly the milder types of duplication

usually don't necessitate surgery⁽⁶⁾.

Incidence of uni- or bilateral pathology, most commonly cholelithiasis and cholecystitis, is high in double gallbladders. In the absence of such associated pathology, the patient is asymptomatic^(2,8). Granot et al⁽⁵⁾ reported clinical recovery on removal of the gallbladders in a case of duplication of gallbladder associated with obstructive biliary disease and biliary cirrhosis. Udelsman et al reported a gallbladder duplication associated with vascular anatomic variations⁽⁹⁾.

The differential considerations of duplication should include phrygian cap, folded gallbladder, vascular bands, gallbladder di-

verticulum, choledochal cyst and pericholecystic fluid⁽²⁾. When present, unilobar pathology is an important differential aid, for unilobar lithiasis not entering the other lobe despite multiple changes in patient position, or unilobar inflammation causing delayed filling of that lobe on hepatobiliary imaging help differentiation of duplication from folded gallbladder^(2,10).

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