Gallbladder Duplication - A Rare Congenital Anomaly

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INTRODUCTION

Gallbladder duplication is a rare congenital malformation, occurring in about one per 3000 - 4000 births.[1] Presence of a double gallbladder was first reported in 31 BC by Pliny.[2] Since then, 213 cases of true duplication of gallbladder have been described. Anatomic variation of duplication of gallbladder is classified according to Boyden's classification[1] into two groups – 1) Vesica fella divisa and 2) Vesica fella duplex (again divided into Y type and H type).

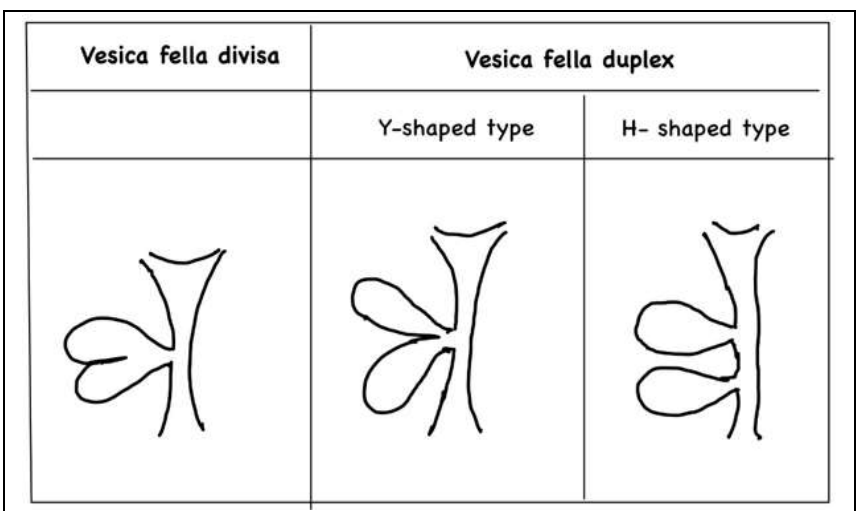

Figure 1. Boyden's Classification of Gallbladder Duplication [1]

PRESENTATION OF CASE

A 38-year-old male was referred to our department with chief complaint of recurrent right upper quadrant pain associated with nausea, vomiting and occasional fever for last 2 months. Physical examination showed tenderness in right upper quadrant of abdomen. Laboratory investigation showed elevated leukocyte count (total and differential) and C-reactive protein (CRP). Mild elevation of liver enzymes like total bilirubin, transaminase and alkaline phosphatase was seen. Ultrasonography showed distended gallbladder along with a cystic structure adjacent to it. Cystic structure was filled with echogenic material. With this ultrasonography findings, we suspect duplication of gallbladder or choledochal cyst. Computed tomography (CT) scan revealed two gallbladder-like structures adjacent to each other in gallbladder fossa. Next magnetic resonance cholangiopancreatography (MRCP) was done which revealed a complete gallbladder duplication with separate cystic duct draining into a common hepatic duct i.e., H type duplication of gallbladder in Boyden's classification. In our case complete gallbladder duplication occurred with separate cystic duct draining into a common hepatic duct suggestive of H type duplication of gallbladder.

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Ultrasonography showed a cystic structure adjacent to gallbladder which was filled with sludge. Contrast enhanced computed tomography (CECT) was done which showed two cystic structures adjacent to each other in gallbladder fossa suggesting duplication of gallbladder. Later magnetic resonance cholangiopancreaticography (MRCP) was performed. It clearly showed duplication of gallbladder consisting of two separate lobes and two separate cystic ducts draining into common hepatic duct separately. In our case MRCP confirmed the diagnosis.

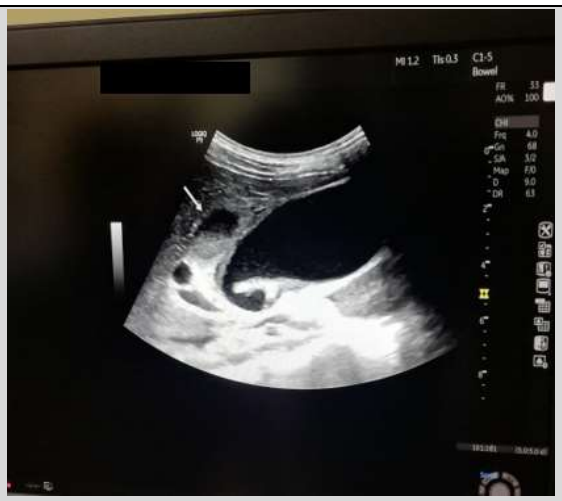

Figure 2. Sonography Showing Cystic Structure (Arrow) Adjacent to Gallbladder Filled with Echogenic Material

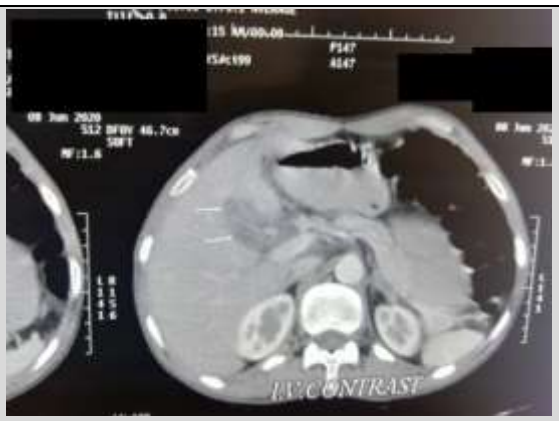

Figure 3. CECT Scan (Axial) Showing Two Cystic Structures Adjacent to Each Other (Arrow) in GB Fossa

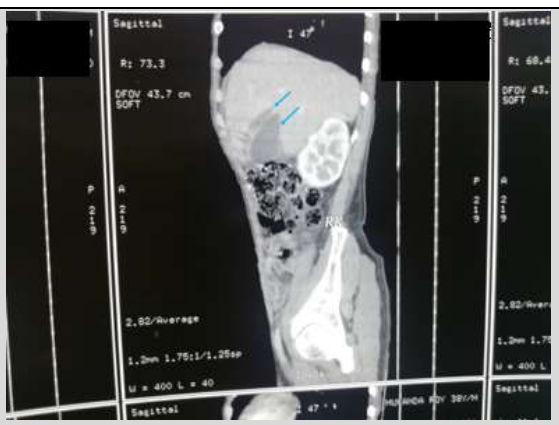

Figure 4. Reformatted CT Image Showing Two Cystic Structure (Arrow) Adjacent to Each Other Suggesting Duplication of Gallbladder

Figure 5. MRCP Showed Two Separate Cystic Ducts (Arrow)

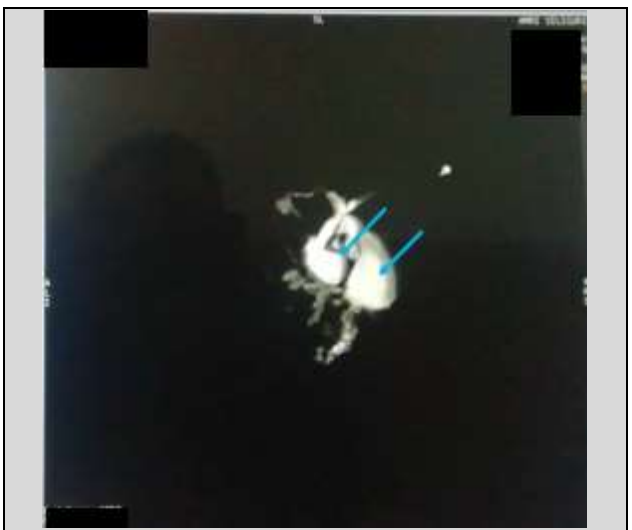

Figure 6. MIP (Maximum Intensity Projection) Showing Two Separate Gallbladders (Arrow)

DIFFERENTIAL DIAGNOSIS

Differential diagnosis of duplication of gallbladder includes gallbladder fold, Phrygian cap, choledochal cyst, peri-cholecystic fluid, focal adenomyomatosis and intraperitoneal fibrous bands.[5]

DISCUSSION

Clinically right upper quadrant pain, nausea and vomiting raised suspicion of gallbladder pathology. Ultrasonography is the first choice of imaging modality in patients with suspected biliary disease.[3] Ultrasonography may diagnose duplication of gallbladder if the two viscera are located separately. Cystic duct is usually not clearly identified by ultrasonography. Distinguishing bi-lobed gallbladder from a true duplication is also sometimes difficult by ultrasonography. Computed tomography and magnetic resonance imaging (MRI) are the two non-invasive imaging

techniques that help in describing the anatomy and pathology.[4] Magnetic resonance cholangiopancreaticography (MRCP) is a non-invasive technique which is widely used in the evaluation of biliary tract pathologies. Duplication of gallbladder can be detected by various investigations like oral cholecystography, percutaneous trans-hepatic cholangiography and scintigraphy but these examinations are not routinely used in patients with biliary disease.[4]

As both the gall bladder is anatomically and functionally same, clinically significant association with a duplication of gallbladder is similar with those of single gallbladder and among them acute and chronic cholecystitis, cholelithiasis, gallbladder carcinoma, empyma is important. Duplication of gallbladder does not attribute any special characteristic symptoms except those found in single gallbladder. Simultaneous removal of both gallbladder at surgery is recommended to avoid cholecystitis and symptomatic gallstone in the remaining organ.[6,7] Successful removal of a duplicated gallbladder is reported in various publications.[6-11] Schroeder and Draper reported a successful laparoscopic cholecystectomy for a triple gallbladder.[12] As there is no significant increased risk for subsequent diseases in asymptomatic patients, prophylactic cholecystectomy is not recommended.[6]

FINAL DIAGNOSIS

Based on ultrasonography, computed tomography, MRCP findings the case was diagnosed as complete gallbladder duplication with separate cystic duct draining into a common hepatic duct i.e. H type duplication of gallbladder in Boyden's classification.

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