CASE REPORT OPEN ACCESS

# Double gallbladder masquerading as a choledochal cyst: A case report

Manash Ranjan Sahoo, Anil Kumar T

## ABSTRACT

**Introduction: Double gallbladder (GB) is a very rare congenital anomaly of the billiary apparatus. It must be diagnosed preoperatively or the second GB may be missed during surgery. Case Report: An 18-year-old male presented with pain in epigastric region for four months with nausea and vomiting. General physical examination revealed no abnormality. Ultrasonography and magnetic resonance cholangiopancreaticography (MRCP) revealed multiple small calculi in the gallbladder and presence of a cystic diverticulum near porta hepatis with multiple intra cystic stones with normal common bile duct (CBD). With a provisional diagnosis of choledochal cyst abdomen was opened through extended right subcostal incision. GB was carefully dissected from GB fossa. After separation of GB another bulging was visible in the GB fossa. With carefull dissection, it was found to be another GB filled with multiple stones with separate cystic duct and artery which were carefully ligated and cholecystectomy of both the GBs was done. After ensuring proper hemostasis, the abdomen was closed en mass. Postoperative period was uneventful and the patient was discharged home on 7th postoperative day. Conclusion: Double gallbladder which is a rare congenital anamoly of gall bladder may mimick choledochal cyst on investigations MRCP. Surgeons should differentiate between the two and remove both the gall bladder either by open or laparoscopic method depending on the expertise.**

**Keywords: Double gallbladder, Duplicate gallbladder, Choledochal cyst**

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## INTRODUCTION

Double gallbladder (GB) is a very rare congenital anomaly of the billiary apparatus [1]. It must be diagnosed preoperatively or else the second GB may be overlooked or missed during surgery. We report here a case report of double GB masquerading as choledochal cyst on magnetic resonance cholangiopancreatography (MRCP).

## CASE REPORT

An 18-year-old male presented with pain in epigastric region for four months with nausea and vomiting. There was no past history of jaundice. He was of average body built and general physical examination revealed no abnormality. Abdomen was soft, nontender, without any lump, organomegaly or ascitis. Other

systemic examination was found to be normal.

Ultrasonography revealed multiple small calculi in the GB and presence of a cystic diverticulum near porta hepatis with multiple intra cystic stones. common bile duct (CBD) was apparently normal.

Magnetic resonance cholangiopancreatiography was performed to confirm the diagnosis. It showed a cystic diverticulum arising from CBD near porta hepatis. Common bile duct and biliary channels appeared normal. Multiple stones with maximum size of 3x3 mm were present in the GB and in the cystic diverticulum.

From the above clinical examination and investigations a provisional diagnosis of choledochal cyst was made and the patient was prepared for an elective surgery. Abdomen was opened through extended right subcostal incision and the hepatic flexure was elevated followed by extended kocherisation of the duodenum. Gallbladder contained multiple small stones. It was carefully dissected from the GB fossa. After separation of GB another bulge was visible in the GB fossa (Figures 1, 2). With carefull dissection, it was found to be another GB filled with multiple stones with separate cystic duct and artery. It were carefully ligated and cholecystectomy of both the gallbladders was done (Figure 3). Abdominal tube drain was given in Morrison's pouch. After ensuring proper hemostasis, the abdomen was closed en mass. Postoperative period was uneventful and the patient was discharged home on 7$^{th}$ postoperative day.

## DISCUSSION

Double gallbladders is a rare congenital anomaly of the biliary apparatus with incidence of one in 4000 patients [1, 2]. Double GB is classified according to Boyden's classification [2]. The two main types of duplication are (i) Vesica fellea divisa or bilobed GB, and (ii) Vesica fellea duplex or true duplications with two different cystic ducts. The true duplication is sub classified as: (a) Y shaped type (two cystic ducts unite before entering the CBD). Usually the two GBs are adherent and occupy the same fossa. (b) H shaped type (two separate GB & cystic ducts entering separately into the CBD. The accessory GB of ductular type may be adjacent to the normal organ in the GB fossa or may remain intrahepatic, sub hepatic or within the gastrohepatic ligament. The true duplication is more common and occurs due to bifurcation of GB primodium during the 5$^{th}$ and early 6$^{th}$ week of embryonic life [3].

Double GB does not presents with specific symptoms and incidence of the disease is similar to the normal variant. Normally one GB functions actively and the other remains as a mucocele. Gallstone is the most

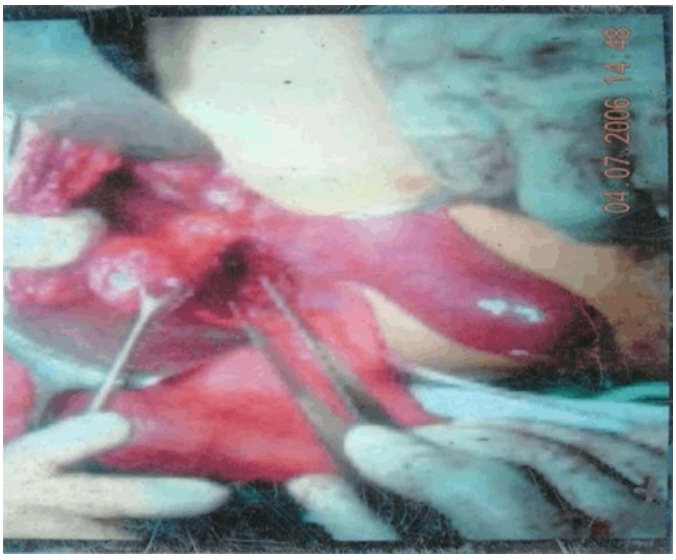


Figure 1: Intraoperative view of both the gallbladder's.

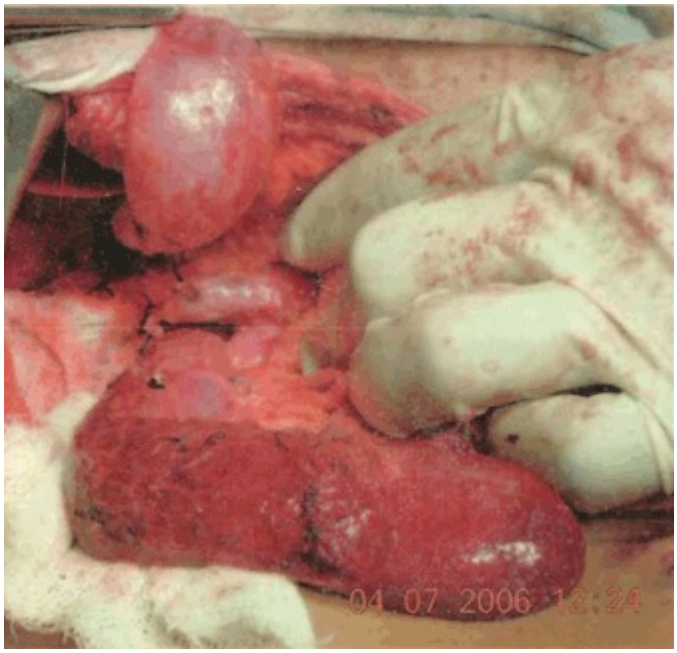


Figure 2: Second gallbladder deep in gallbladder fossa after removal of first gall bladder.

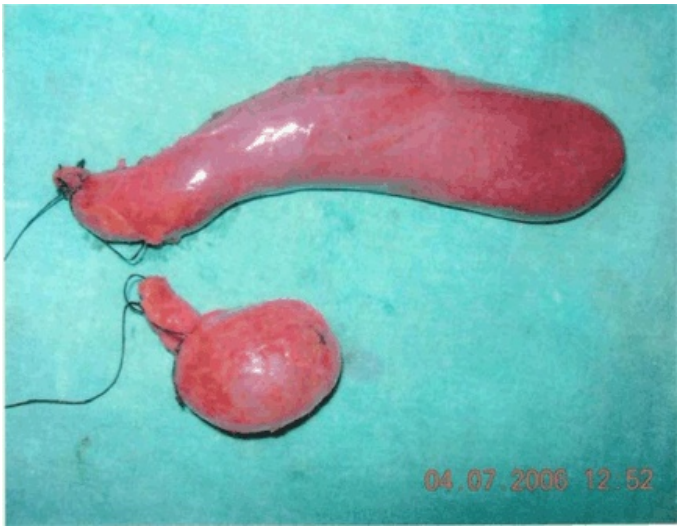


Figure 3: Gross specimens of both gallbladders removed by surgery.

common complication; usually involving one GB, though both may be involved. There is no increase in incidence of disease in the double GB, so prophylactic cholecystectomy is not recommended.

The differential diagnosis of double GB include gallbladder fold, focal adenomyomatosis, Phrygian cap, Ladds band, choledochal cyst, pericholecystic fluid and GB diverticulum [4, 5].

Ultrasonography, oral cholecystogram (OCG), computed tomography (CT), MRCP and endoscopic retrograde cholangiopancreatography (ERCP) can be used preoperatively to diagnose a case of double GB. Ultrasonography is the modality of choice with a high sensitivity and specificity. Computed tomography and MRCP are non-invasive and are vital to delineate the anatomy [4–6].

In symptomatic patients, cholecystectomy is recommended with excision of both the GB, even if disease is present in only one GB. Complete preoperative evaluation of the anatomy is a must to avoid the potential damage to the duct system. Intraoperative cholecystography and cholangiography is essential to delineate the ductal anatomy and to help identify additional anomalous structures. Cholecystectomy can be done by either open or laparoscopic approach depending on the expertise. Laparoscopic cholecystectomy is the gold standard treatment and can be done safely in double GB [7, 8].

In 1977, Todani classified choledochal cysts based on site of the cyst or dilatation into following types: type I: most common variety (80–90%) involving saccular or fusiform dilatation of a portion or entire common bile duct (CBD) with normal intrahepatic duct, type II: isolated diverticulum protruding from the CBD. This type is very rare, type III or choledochocele: arise from dilatation of duodenal portion of CBD or where pancreatic duct meets, type IVa: characterized by multiple dilatations of the intrahepatic and extrahepatic biliary tree, type IVb: multiple dilatations involving only the extrahepatic bile ducts, type V or Caroli's disease: cystic dilatation of intra hepatic biliary ducts. In our case, type type II choledochal cyst was suspected on ultrasound and MRCP as a diverticular outpouching but it turned out to be second gall bladder with separate arterial supply. Treatment of choledochal cysts include surgical excision of the cyst with the formation of a roux-en-Y anastomosis to the biliary duct because of complications like cholangitis and a 2% risk of malignancy, which may develop in any part of the biliary tree. Second gall bladder needs only simple cholecystectomy ruling out extensive surgery. Hence, surgeons should have a differential diagnosis of second gallbladder whenever investigations reveal type II choledochal cyst and should differentiate between two to avoid extensive surgery and unnecessary morbidity to the patient.

## CONCLUSION

Double gallbladder which is a rare congenital anamoly of gallbladder may mimick choledochal cyst even on investigation like magnetic resonance cholangiopancreatography. Surgeons should differentiate between the two and remove both the gall bladders when the patient's symptomatic either by open or laparoscopic method depending on the expertise of the operating surgeon.

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### Author Contributions

Manash Ranjan Sahoo – Conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Final approval of the version to be published

Anil Kumar T – Conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Critical revision of the article, Final approval of the version to be published

### Guarantor

The corresponding author is the guarantor of submission.

### Conflict of Interest

Authors declare no conflict of interest.



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