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Case Report

Multiple Separated Cystic Ducts from a Single Common Bile Duct and One Gallbladder, New and Enormously Exceptional Variant in Literature: A Case Report

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ABSTRACT

This case report based on following the SCARE (Surgical Case Report) guiding principle. Construction and dissimilarities of the biliary tracts can pose greater threats of ductal damage and post-surgery complications for patients and surgeons. In the literature, we cannot find a similar case; in surgery, you find multiple separate cystic ducts.

This very exceptional case is a 28-year-old woman with chronic cholecystitis signs and symptoms, for which ultrasonography was normal, showing a gallstone. In surgery, we find multiple separated cystic ducts from a single gallbladder, with the insertion of the common bile duct (CBD). We ligate the main cystic ducts and multiple separated cystic ducts from a single gallbladder one by one, and avoided damage to the CBD. After her recovery, we discharge her healthy with no evidence of CBD damage.

Prior to any procedure for the recognition of these variations, we must ensure that we are familiar with the biliary anatomy through a suitable and acceptable method of examination. Detection is so vital to prevent ductal injury in the biliary tract. It is reasonable for physicians to use assessments such as MRCP (Magnetic resonance cholangiopancreatography), CT scan (computed tomography scan), ERCP (Endoscopic retrograde cholangiopancreatography), or sonography in advance, at a minimum, for patients with related signs or symptoms. In surgery parts, every surgeons should be alert about variations in biliary tract to protect patients in future damages and complications.

To address these concerns, certain procedures are needed. In the situation of laparoscopic cholecystectomy, it is vital to pay attention to many uncommon hereditary structures for any physician.

Key words: Cholecystectomy, Cystic duct, Gallbladder, Common bile duct, Anatomic variation.

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INTRODUCTION:

Variation in the construction of the biliary diagram can expose patients to complex dangers of ductal injury and complications after surgery (1). Congenital irregularities of the extrahepatic biliary channel tree are possibly the most common dissimilarities of the human body (2). The diagnosis is made during surgery (3). This case report is written following the SCARE guideline (4). Information around any structural dissimilarity in the bile duct aids surgeons in preventing the fortuitous occurrence of iatrogenic difficulty in the procedure and surgeries (5). Surgeons may make mistakes between any parts of the biliary channels, such as the right hepatic duct and the cystic duct, ligate, and cut this (6). As a result, these persons may develop biliary fistula, biliary peritonitis, or cirrhosis of the liver at a future phase, and they can face serious problems during life (7). The cystic duct can show many variations (8). Detecting this difference before the operation is crucial for preventing ductal injury and saving a life (9). The diagnosis shows itself during surgery, by watching, or after damage (10). However, it can miss in an operation, and diagnosis happens after surgery, through an analytical plan applied for persistent biliary indications and signs (11). Bile duct injury (BDI), with a 0.3% incidence, remains the most preventable problem (12).

CASE REPORT:

This very rare case is a 28-year-old woman with abdominal pain, sickness, gagging, and low-grade fever, referred to the surgical team. We admitted her with an IV line, hydrated her, and after stabilization of her situation, we requested lab exams. AST (Aspartate Aminotransferase), ALT (Alanine Aminotransferase), and ALK-p (Alkaline Phosphatase), were normal, and there was no evidence of pancreatitis. We performed ultrasonography, which showed gallbladder wall inflammation and gallbladder thickening with a 17 mm gallstone. We start antibiotic therapy at first, and then we scheduled her for surgery. At first, we start with four ports laparoscopic surgery, but because of inflammation, we changed the operation to open. We identify CBD and cystic duct and resect the gallbladder completely (Figures 1 and 2), but we observe multiple separated accessory cystic ducts from a single gallbladder near this gallbladder (Figures 3 and 4). At the end, we check the common hepatic duct, common bile duct , our ligation, duodenum, pancreas, and liver for leakage of bile, which was negative (Figure 5). One day after surgery, we start feeding the patient, and after toleration, we order an MRCP that show ligated multiple separated accessory cystic ducts from a healthy CBD and no evidence of bile leakage (Figure 6). We discharged her healthy 3 days after surgery. We followed up with her every week for 2 months and found no signs of biliary tract damage in lab data or in physical examinations. This case is a complicated case in surgery that routine way for diagnosis, cannot help before surgery exactly.

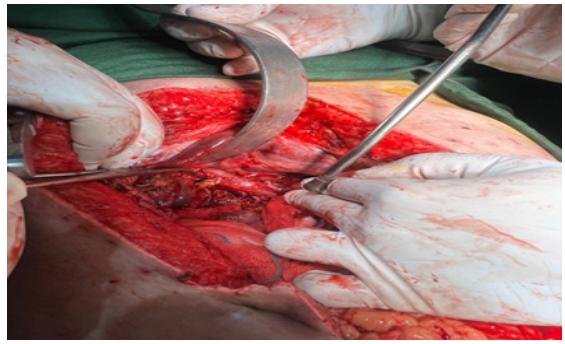

Figure 1. Resection of the gall bladder

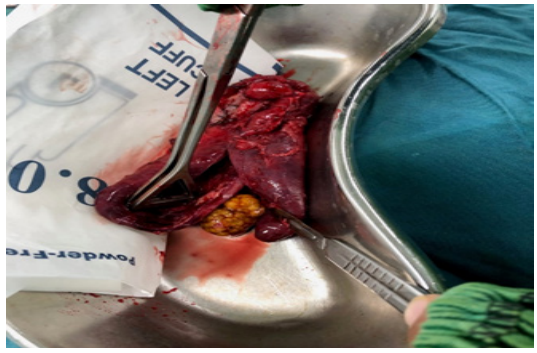

Figure 2. Gall bladder with a gallstone

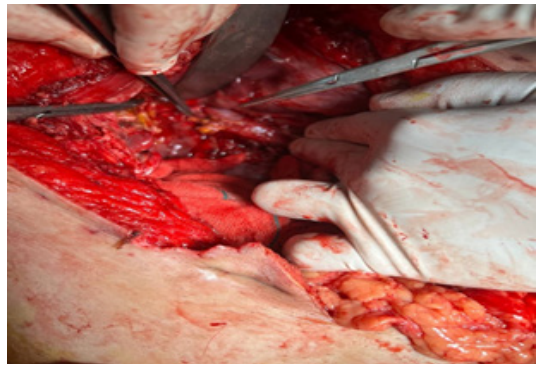

Figure 3. Multiple separated cystic ducts from a single CBD to the gallbladder

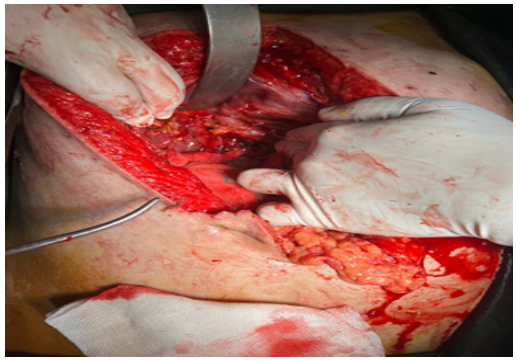

Figure 4. Multiple separated cystic ducts from a single gallbladder

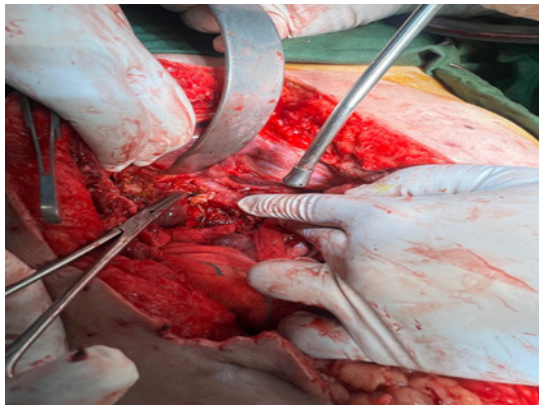

Figure 5. No evidence of bile leakage

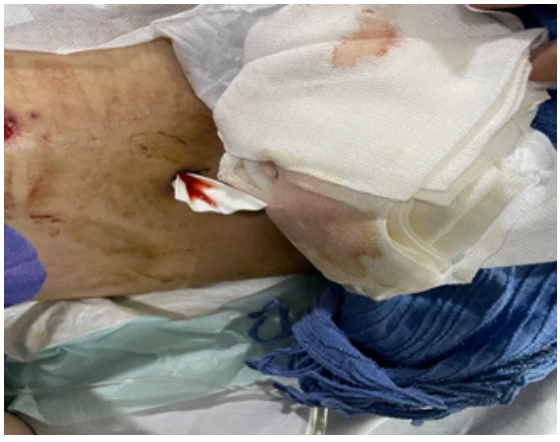

Figure 6. No evidence of macroscopic leakage of bile

DISCUSSION:

Generally, we have no exact model or acceptable analytical plan among patients with biliary tree diseases for judgment of possible and common irregularities, yet. It is imperative to assess the biliary duct trees before any surgery for the identification of feasible non-standard biliary duct dissimilarities to limit bile duct damage during surgeries (1). We know we have multiple variation in biliary tract (13). Today's we can report new variation of biliary tract by new diagnostic ways. (14). The cystic duct is the most imperative part of irregularities in this story (15) ,and elective procedure by surgeons or endoscopists for diagnostic or therapeutic interventions in most cases of biliary tree diseases is necessary (16). We can prevent problems to know anatomy of the biliary trees by MRCP, CT scan ERCP or sonography.

This is so important, analyzing the biliary duct preoperatively and intraoperatively to prevent the occurrence of unusual biliary duct dissimilarities for predicting bile duct damage in patients (1). It is common sense that physicians use estimations such as MRCP, CT scan, ERCP, or sonography, before surgery or endoscopic interventions, at least for some selected patients, with risk factors. Late or unknown diagnosis can cause problems and damage in the biliary tract, especially in additional cystic ducts, which can lead to bile escape or fistula, duct banding, or secondary cystic duct stenosis and fibrosis. To alleviate concerns, an endoscopic retrograde cholangiopancreatography can be performed before surgery, and a cholangiogram can be part of the surgical approach. In the laparoscopic cholecystectomy, attention to such uncommon hereditary anatomy of the bile tree is essential (17). Biliary dissimilarities appear, such as a dual cystic duct, segment VI's drain into the cystic duct, the right posterior subdivision duct drains into the cystic duct, the right posterior subdivision duct's distal drain into the gall bladder, and the proximal right posterior subdivision duct drains into the gall bladder's body (18). A surgeon should be familiar with the complex range of anatomic variations that are infrequent, to avoid related morbidity and mortality (19). Any ductal injury needs evaluation with an operative cholangiogram and cannulation of all parts (20). Case reports are the edges of science and every physician should notice to this part that, patient is different in disease by another patient with same signs (21-29).

We could not find a similar case report in the literature, and to the best of our knowledge, this is the first report.

CONCLUSION:

In this case, as shown in Figure 4, multiple separate cystic ducts are clearly visible, indicating that variation in the biliary tract is enormous and unfamiliar to the therapeutic team. We should do ultrasonography, MRCP, or ERCP before surgery, and if we have damage in the CBD, for diagnosis, MRCP, and for both diagnosis and treatment, ERCP is a valuable procedure.

Highlights:

•Cystic duct variation is very familiar.

•This structure of the cystic duct is an enormously exceptional variant.
• We described a case of a young woman who had multiple detached cystic ducts departing from a single gallbladder and a single CBD, which was not reported in the literature before.

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