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Double cystic duct preoperatively diagnosed and successfully treated with laparoscopic cholecystectomy: A case report

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ABSTRACT

INTRODUCTION: A single gallbladder with a double cystic duct is a very rare finding. In addition, few cases with this rare condition are preoperatively diagnosed. However, the preoperative confirmation or suspicion of this rare condition could facilitate safe laparoscopic cholecystectomy, which is a minimally invasive therapeutic modality for gallbladder disease. We herein present a case of gallstone disease in a patient with a double cystic duct who was preoperatively diagnosed and successfully treated with laparoscopic cholecystectomy.

PRESENTATION OF CASE: A 57-year-old woman was admitted to our hospital with epigastric pain. Gallstone disease in the gallbladder and common bile duct was diagnosed by ultrasonography and computed tomography. Magnetic resonance cholangiopancreatography (MRCP) and endoscopic retrograde cholangiography (ERC) revealed that the aberrant cystic duct arose from the cystic duct and communicated with the intrahepatic bile duct of the posterior segmental branch. Laparoscopic cholecystectomy was successfully performed in combination with intraoperative cholangiography.

DISCUSSION: If an anomaly of the biliary duct system is not identified during surgery, it may turn out to be a bile leak. The preoperative diagnosis of a double cystic duct allows laparoscopic cholecystectomy to be performed safely in combination with intraoperative cholangiography.

CONCLUSIONS: A single gallbladder with double cystic duct is a very rare anomaly. However, laparoscopic surgery can be facilitated by the use of preoperative and intraoperative images.

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1. Introduction

A single gallbladder with double cystic duct is an extremely rare biliary tract system anomaly; there were no reported cases in a study of the intraoperative cholangiograms of 3845 cases [1,2]. If this anomaly diagnosed during or after surgery, rather than before surgery, it might lead to bile duct injury or bile leakage [3,4]. We herein report a case of gallstone disease in a patient with a double cystic duct who was preoperatively diagnosed and successfully treated with laparoscopic cholecystectomy. This work has been reported in line with the SCARE criteria [5].

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2. Case presentation

A 57-year-old woman was admitted to our hospital due to epigastric abdominal pain. A physical examination revealed no remarkable findings. Laboratory studies showed an elevated white blood cell count (10400/ μ L), aspartate aminotransferase (AST: 84 U/L), alanine aminotransferase (ALT: 39 U/L), alkaline phosphatase (ALP: 466 U/L), γ -glutamyl transpeptidase 205 U/L. Ultrasonography and computed tomography (CT) revealed small gallstones in the gallbladder and some stones in the common bile duct. A large liver cyst was also detected in S4. Thus, the patient was diagnosed with cholecysto-choledocholithiasis.

Laparoscopic cholecystectomy was planned after the complete removal of the gallstones in the common bile duct following endoscopic sphincterotomy (EST). However, a cystic duct which communicates with the intrahepatic bile duct of the posterior segmental branch was suspected based on the gross X-ray images obtained after the extraction of the bile duct stones. Therefore, the magnetic resonance cholangiopancreatography (MRCP) was performed. MRCP showed strong suspicion of a single gallbladder with a double cystic duct (Fig. 1). Thus, to confirm this rare

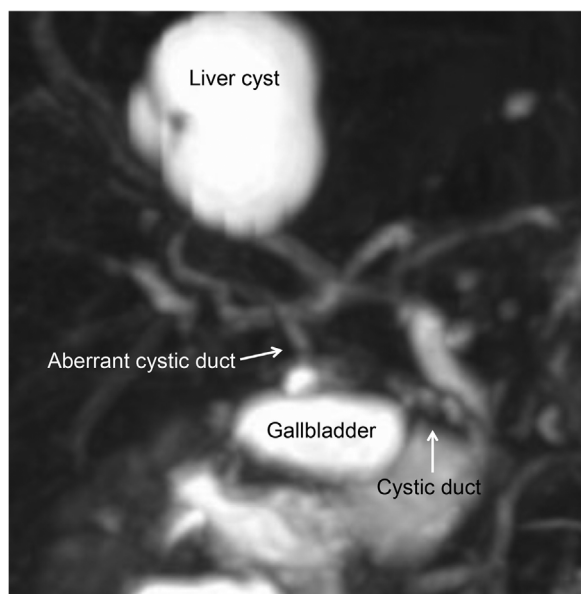


Fig. 1. A double cystic duct was suspected based on the MRCP findings.

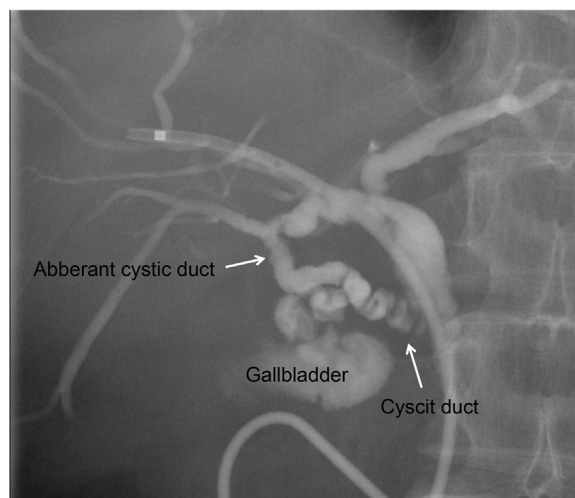


Fig. 2. ERC revealed that a normal cystic duct arose from the neck of the gallbladder, descended down and joined the common bile duct. In addition, an aberrant cystic duct arose from the cystic duct and communicated with the intrahepatic bile duct of the posterior segmental branch.

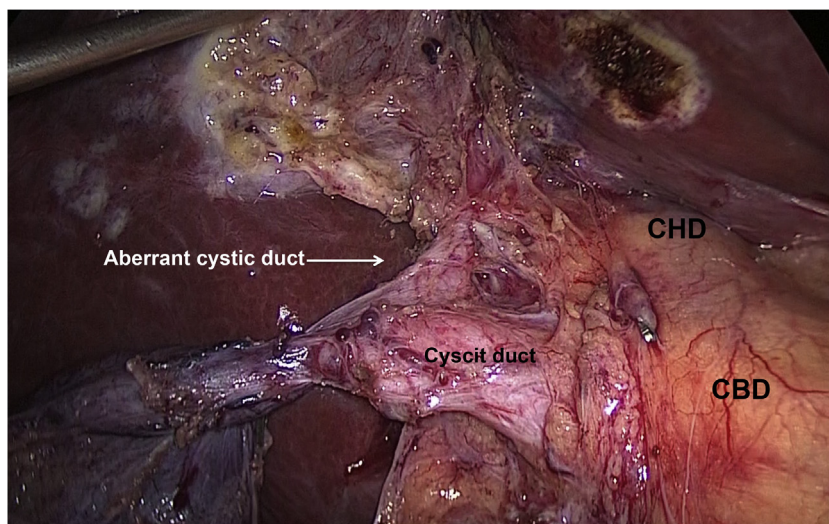


Fig. 3. The intraoperative findings revealed a double cystic duct. (CHD: common hepatic duct, CBD: common bile duct).



Fig. 4. An examination of the surgical specimen revealed two separate cystic ducts (arrows).

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