Intrahepatic Bile Duct Cyst Calculus and Gallbladder Stones Treated With Surgery: A Case Report

Koichi Kimura1,2*, Yasuhiro Doi1, Yosushi Takii1, Ryosuke Tsutsumi1, Kensuke Kudou1, Norifumi Tsutsumi1, Tetsuo Ikeda1 and Soichiro Maekawa1

1Department of Internal Medicine, Munakata Medical Association Hospital, Japan
2Department of Endoscopy and Endoscopic Surgery, Fukuoka Dental College, Japan

Abstract

Background: Intrahepatic bile duct cyst calculus is an extremely rare case. We report a case of intrahepatic bile duct cyst calculus and gallbladder stones treated with surgery.

Case Presentation: A 76-year-old woman consulted our institution because of epigastric pain. Her blood chemistry results showed elevation of hepatic-cystic system enzymes. Computed tomography revealed cholecystitis with gallbladder stones and stones within an intrahepatic bile duct cyst at the root of the right hepatic duct, which was suspected as a sub-gallbladder. Endoscopic retrograde cholangiopancreatography and other examinations were performed. Finally, the patient was diagnosed with double gallbladder stones and cholecystitis, and she underwent surgery. Intrahepatic bile duct cyst (considered as accessory gallbladder) and gallbladder resections and hepaticojejunostomy were performed with laparotomy. She progressed well post operatively and was discharged from the hospital on postoperative day 19. Postoperative histopathological examinations showed a definite diagnosis of intrahepatic bile duct cyst calculus and gallbladder stones with cholecystitis.

Conclusion: We report a case of intrahepatic bile duct cyst calculus and gallbladder stones treated with surgery. Decision of surgical procedure by the location of intrahepatic bile duct cyst is essential for the treatment.

Keywords: Intrahepatic bile duct cyst calculus; Type V bile duct cyst; Gallbladder stone

Background

Acute cholecystitis is the most frequent complication of cholelithiasis, accounting for up to 20% of patients with symptomatic gallstones [1]. Acute cholecystitis is one of the most frequent causes of urgent admission at surgical departments due to the high prevalence of cholelithiasis [2]. The Todani classificationscheme is typically used to classify bile duct cysts based on their location and morphology [3]. Todani type V cysts are described as single or multiple intrahepatic cystic dilations with no extra hepatic involvement. Type V cysts are a rare form of bile duct cyst, and solitary type V cysts are even less common, with an estimated incidence of 1:1,000,000 [4]. Solitary diverticular type V cysts are exceedingly rare.

Complications associated with bile duct cysts include bile duct stricture, cholangitis, bile duct stones, pancreatitis and biliary malignant changes. The risk of biliary malignancies increases with age [5]. Subsequently, bile duct cysts are surgically managed with complete cyst excision and hepaticojjunostomy reconstruction or hepatectomy [6].

Here, we present a patient with solitary type V intrahepatic bile duct cyst with calculus and gallbladder stones treated with surgery.

Case Presentation

The patient was a 76-year-old female with epigastric pain. Her blood chemistry study results showed elevation of hepatic-cystic system enzymes (as part at aminotransferase: 193U/L, alanineaminotransferase: 238U/L, alkaline phosphatase: 826U/L, gamma-glutamyl transpeptidase: 559U/L, total bilirubin: 4.0mg/dL, C-reactive protein: 3.93 mg/dL). Computed tomography revealed gallbladder enlargement, gallbladder wall thickening with gallbladder stones, common bile duct expansion (8 mm), common bile duct stones and stones with in an intrahepatic cyst at
the root of right hepatic duct, suspected as an accessory gallbladder (Figure 1A and 1B). Magnetic resonance cholangiopancreatography showed the same findings as computed tomography (Figure 2A and 2B). Subsequently, she was diagnosed with common bile duct stones, double gallbladder stones, and cholecystitis, and endoscopic retrograde cholangiopancreatography was performed. Cholangiopancreatography showed filling defects in the gallbladder, common bile duct, and intrahepatic cyst at the root of the right hepatic duct, which was suspected as an accessory gallbladder (Figure 3). Endoscopic sphincterotomy was performed for the common bile duct stones. No malfusion of the pancreaticobiliary ducts was observed. Two black stones were discharged from the common bile duct. One biliary stent was placed into the common bile duct. Finally, surgical procedure was performed for double gallbladder stones and cholecystitis. First, laparoscopic surgery has been planned; however, almost all the intrahepatic bile ducts are in the liver parenchyma (Figure 4A). Subsequently, intrahepatic bile duct (considered as accessory gallbladder) and gallbladder resections and hepaticojejunostomy were performed with laparotomy. She progressed well postoperatively and was discharged from the hospital on postoperative day 19. Postoperative histopathological examinations revealed no muscular layer in the wall of the intrahepatic bile duct cyst (considered as accessory gallbladder) (Figure 4B), and the definite diagnosis was intrahepatic bile duct cyst calculus and gallbladder stones with cholecystitis.

**Discussion**

Bile duct cysts are rare worldwide, with an estimated incidence...
In conclusion, we report a case of solitary type V intrahepatic bile duct cyst with calculus and gallbladder stones treated with surgery. Decision of surgical procedure by the location of intrahepatic bile duct cyst is essential for the treatment.

**References**


