Case Report

Giant Choledochal Calculosis: Surgical Treatment

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Abstract

Context: Gallstone disease is one of the most common surgical pathologies. Choledocholithiasis may occur in some of these cases and require surgical intervention. Although there are relatively non-invasive procedures such as endoscopic retrograde cholangiopancreatography (ERCP), this technique is usually unsuccessful in patients with stones larger than 10 mm. In our case, we aimed to report a giant choledochal stone (15 cm × 4.5 cm), which is rare in surgical practice and our treatment with open surgery. **Case Report:** The patient was a 59-year-old woman. Magnetic resonance cholangiopancreatography (MRCP) had showed a hydropic gallbladder with an excessively dilated CBD and a 110 mm × 41 mm stone. In the operation, an excessively dilated CBD was seen and after choledochotomy and a very large calculus that filled CBD completely. Choledochotomy incision was carried forward and a T-tube choledochostomy with choledochoduodenostomy (CD) was performed. The patient was discharged without any complications on postoperative 8th day. **Conclusion:** Benign gallstone disease is a multifactorial process, with risk factors such as obesity, hemolytic diseases, diabetes mellitus, and pregnancy. Risk factors for choledocholithiasis are similar to those for gallstone disease. MRCP is a non-invasive technique in detecting choledocholithiasis. The gold standard intervention for CBD stones is ERCP. Stones in CBD may reach very considerable dimensions without causing serious symptoms. The most common symptom is jaundice. During preoperative radiological examination, giant stones may be interfered with malignancies. Surgeons should obey conventional algorithms in diagnosis and open surgery must be kept in mind in earlier stages without being too insistent on endoscopic interventions.

Keywords: Choledochal stone, Giant, Gallstone disease

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Introduction

Gallstone disease is one of the most common diseases in surgical intervention. As many as 35% of patients with gallstones will be symptomatic and require cholecystectomy.[1] Choledocholithiasis may occur in up to 3-10% of all patients undergoing cholecystectomy, and even 14.7% in some studies.[2] Endoscopic retrograde cholangiopancreatography (ERCP) is still considered to be the "gold standard" for the diagnosis of pancreatic and biliary ductal pathology.[3] However, endoscopic techniques have lower success rates in common bile duct (CBD) stones larger than 10 mm in diameter[4] and especially ones larger than 15 mm in diameter and need some form of lithotripsy to facilitate removal.[5,6] Cases that are not resolved by using endoscopic methods are treated with techniques such as percutaneous, transhepatic stone removal and CBD exploration, laparoscopically or with open surgery. Choledochal calcules are usually small in size because of the fact that they are originated from the gallbladder. A giant choledochal calculus is one whose diameter is over 2 cm.[7] Because it is rarely seen in surgical practice, actual incidence rates are not known. Endoscopic treatment is reported to be successful in 73% of the patients with a complication rate up to 8%.[7] In our study, we aimed to report our case, who had a 15-cm long and 4.5-cm wide choledochal calculus, and our successful treatment with open surgery.

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Case Presentation

The patient was a 59-year-old woman with complaints of intermittant abdominal pain, distention, and dyspepsia over 6 months. There were no specific diseases in her history except chronic atrial fibrillation. The laboratory results were in normal range except

Gamma-glutamyl transpeptidase (358 IU/L) and alkaline phosphatase (288 IU/L) levels. Tumor and hepatitis markers were negative. Ultrasound examination had revealed a 49-mm mass, creating a dense acoustic shadow on the posterior area of the neck of the gallbladder. Magnetic resonance cholangiopancreatography (MRCP) had showed a hidropic gallbladder with an excessively dilated CBD, and a 110 mm × 41 mm stone emerging from CBD, showing finger-like projections into the biliary ducts. Intrahepatic biliary ducts were dilated, especially in the left lobe, having milimetric calculus inside; there was a 39 mm × 20 mm stone in the proximal segment of the left lobe, coalescing with the stone in CBD [Figures 1 and 2]. CBD was 5 cm in width, filled with a stone, emerging into the intrahepatic biliary ducts. Following a partial sphincterotomy, a stent of 12 cm length and 10 F diameter was inserted in CBD.

In the operation, following cholecystectomy, an excessively dilated CBD was seen and after choledochotomy, a very large calculus that filled CBD completely was observed [Figure 3]. Choledochotomy incision was carried forward and the calculus was extracted [Figure 4]. After the extraction, it was observed to be a giant calculus, nearly 15 cm in length and 4.5 cm in width, that had taken the shape of CBD [Figure 5]. After exploring CBD for any other masses, a T-tube choledochostomy with choledochoduodenostomy (CD) was performed [Figure 6]. The bile duct was not biopsied to rule out a possible pre-existing choledochal cyst preoperatively. The patient was discharged without any complications on postoperative 8th day.

Discussion

Benign gallstone disease is a multifactorial process with risk factors such as obesity, hemolytic diseases, diabetes mellitus, and pregnancy. It is reported that 35% of gallstone patients will eventually require cholecystectomy.[1] Risk factors for choledocholithiasis have well-recognized[8] for over 20 years and are similar to those for gallstone disease. When there is a suspicion of CBD calculosis, the laboratory and radiologic

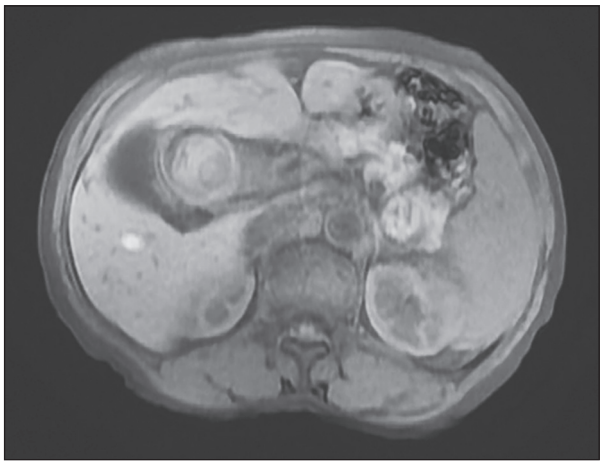

Figure 1: MRCP image of giant choledochal stone

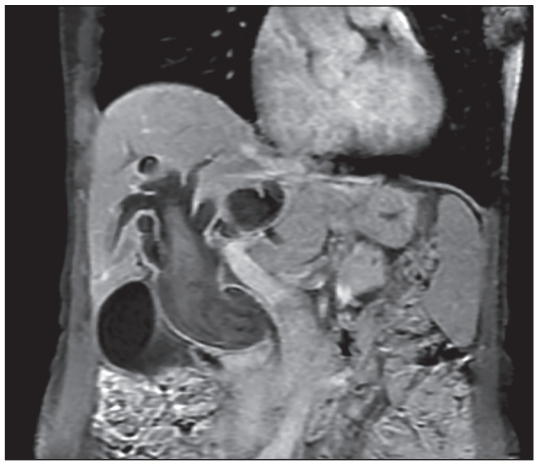

Figure 2: MRCP image of giant choledochal stone

Figure 3: A large calculus that filled common bile duct

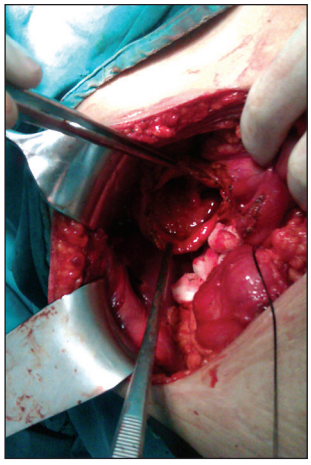

Figure 4: Choledochotomy and excision of the stone

Figure 5: Giant stone in 15 × 4.5 cm

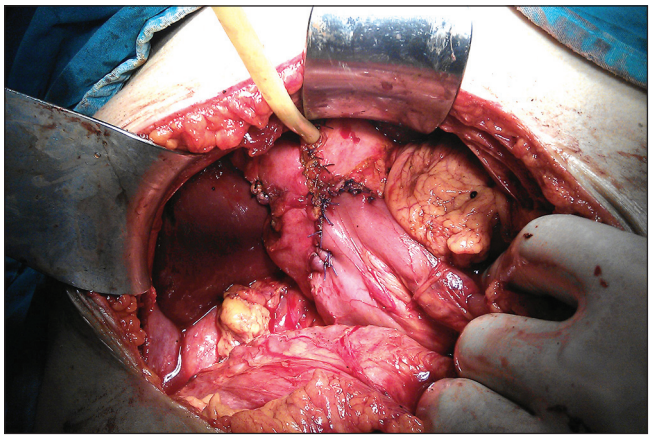

Figure 6: T-tube choledochostomy with choledochoduodenostomy

evaluation should be performed immediately. The serum hepatobiliary biochemical index and findings on abdominal ultrasonography images have commonly been initially used to predict CBD stones.[9-13] MRCP is a non-invasive technique that has the potential to observe choledocholithiasis in the preoperative setting.[14] After detecting choledocholithiasis, the most common and gold standard intervention for CBD stones is ERCP. The accuracy of MRCP in diagnosing CBD stones is comparable with that of ERCP and intraoperative cholangiography (IOC).[15-18] ERCP with endoscopic sphincterotomy (ES) and stone extraction was first described in 1974[19] and has been a first-line treatment ever since. Endoscopic papillotomy reduced the number of patients who underwent surgery for CBD stones, and today, CD is preferred usually in malign diseases. In our case, because of the excessive dilation of CBD, CD was the most suitable surgical procedure although it was a benign case.

Stones in CBD may reach very considerable dimensions without causing serious symptoms. The most common symptom is jaundice. During preoperative radiological examination, giant stones may be confused with malignancies. Therefore, surgeons should obey conventional algorithms in diagnosis, and open surgery must be kept in mind in the earlier stages without being too insistent in endoscopic interventions.

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