



## Case Report

# Extrahepatic Bile Duct Polyps Combined with Choledocholithiasis: A Report of one Case

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**Abstract:** Aim: Bile duct polyps is a rare biliary disease, which may lead to bile duct stones and may play an important role in the occurrence and development of cholangiocarcinoma. Calculus of bile duct is a common disease in China and common causes including multiple polyps of the biliary tract and other factors. Therefore, we here to investigate the relationship of both diseases and to summarize some measures to prevent the occurrence of polyps. Method: We here describe a 49-year-old man presented with yellowing of skin and sclera and the pain in the upper abdominal area. We performed exploration of common bile duct + choledocholithotomy and T-tube drainage and polyps were not detected. Result: Yellow staining of skin and sclera reappeared after operation 2 months. The bile duct mucosa was rough and there was amount of black stones under choledochoscopy. Unexpectedly, at the confluence of the right and left hepatic ducts and at the left hepatic duct, there was a sessile polyp respectively. We electrocoagulated the polyps and removed the stones. The biliary tract was flushed with saline on the second day after operation and the total bilirubin was rapidly decreased. Conclusion: Therefore, we think that bile duct polyps and calculus of bile duct may be causality and influence each other, resulting in disturbance of bile duct dynamics and inducing biliary tract diseases.

**Keywords:** Polyps, Bile Duct, Choledocholithiasis Endoscopic Retrograde Cholangiopancreatography, Common Bile Duct Exploration

## 1. Introduction

Common bile duct (CBD) stone is a relatively frequent disorder with a prevalence of 10-20% in patients with gallstones. The common causes including biliary tract infection, bile duct foreign matter, biliary obstruction, cholelithiasis secondary bile duct stones, multiple polyps of the biliary tract, metabolism and other factors. CBD stone is associated with serious complications, including obstructive jaundice, acute suppurative cholangitis, and acute pancreatitis. Bile duct polyps and polypoid lesions of bile duct have a low incidence rate and may cause cholelithiasis and cholangiocarcinoma. Previous case report revealed that T-tube placement and CBD stone can cause inflammatory polyp in

CBD. So bile duct polyps and Calculus of bile duct may be causality and influence each other, resulting in disturbance of bile duct dynamics and inducing biliary tract diseases. Here we report a patient who was found two polyps in the extrahepatic bile duct due to jaundice 2 months after surgery. We speculate which may be caused by bile duct stones, surgical trauma, T-tube drainage and other factors. Therefore, in patients with biliary calculi complicated with obstructive jaundice, the presence of biliary polyps should be careful when they repeatedly appear jaundice after biliary surgery.

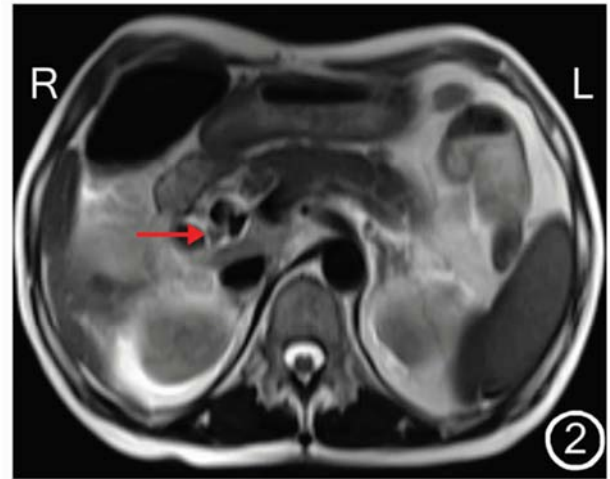
## 2. Case Presentation

The 49-year-old male was admitted to our hospital with

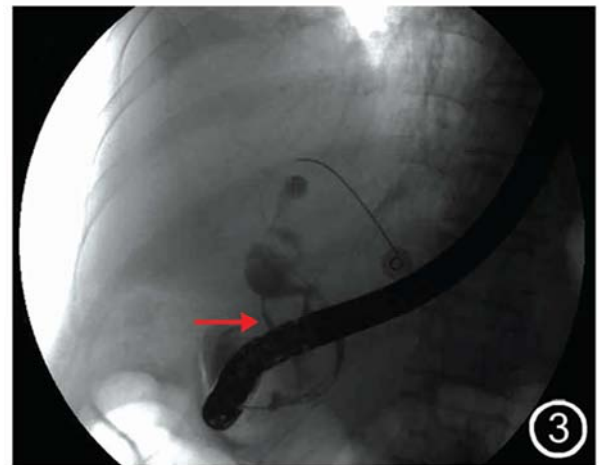
emergency due to yellowing of skin and sclera for 3 months, and the pain in the upper abdominal area for 13 hours. Who had no obvious cause to exhibited systemic skin and scleral yellow staining 3 months ago. The external ospital diagnosed bile duct stones with 3 times of endoscopic retrograde cholangiopancreatography (ERCP) examination and treatment, and the skin and sclera yellow stains were all relieved to different extents. The abdomen appeared suddenly before 13 hours. Area pain accompanied by chills and fever, and came to the emergency department of our hospital for further diagnosis and treatment. However, the patient suddenly had abdominal pain in the upper abdomen with chills and fever before 13 hours, so came to the emergency department of our hospital for further diagnosis and treatment. Laboratory studies showed elevated levels of total bilirubin (135.7  $\mu\text{mol/l}$ ), direct reacting bilirubin (115.2  $\mu\text{mol/l}$ ), indirect reacting bilirubin (20.5  $\mu\text{mol/l}$ ),  $\gamma$ -glutamyl transferase (1206 U/l) and aminotransferase (AST 58 U/l, 73 U/l). Blood routine test revealed elevated levels of WBC ( $11.2 \times 10^9/\text{L}$ ) and neutrophils account for 95%. Ultrasonography of the abdomen revealed intrahepatic and extrahepatic bile duct dilatation and multiple extrahepatic bile duct stones (Figure 1). MRI showed multiple stones in the common bile duct and left hepatic duct combined with dilation of the intrahepatic and extrahepatic bile ducts and common bile duct ( $\rightarrow$ ).



**Figure 1.** Abdominal ultrasonography showed intrahepatic and extrahepatic bile duct dilatation and multiple extrahepatic cholelithiasis.



**Figure 2.** MRI examination showed multiple stones in the common bile duct and left hepatic duct combined with dilation of the intrahepatic and extrahepatic bile ducts and common bile duct ( $\rightarrow$ ).



**Figure 3.** ERCP showed obvious dilation of bile duct ( $\rightarrow$ ).

However, yellow staining of skin and sclera reappeared after operation 2 months. Liver function examination showed elevated levels of total bilirubin (116.6  $\mu\text{mol/l}$ ), direct reacting bilirubin (94.8  $\mu\text{mol/l}$ ), indirect reacting bilirubin (21.8  $\mu\text{mol/l}$ ),  $\gamma$ -glutamyl transferase (1068 U/l) and aminotransferase (AST 54U/l, 60 U/l) again. After completing the relevant examination, we removed stones under choledochoscopy. During the operation, we found that the bile duct mucosa was rough and there was amount of different size black stones (Figure 4). We used the biliary net basket removed the stones in turn. Unexpectedly, at the confluence of the right and left hepatic ducts, there was a sessile polyp with a reddish color and a diameter of about 1.5 cm. The surface of which was covered with white flocculants. We touched it by biopsy forceps and found that the texture of polyp was soft and removed it. Additionally, there was another sessile polyp in the left hepatic duct, about 0.5 cm in diameter, with the same color and texture compared with the former one. We lapped the polyp with a choledochoscope snare and electrocoagulated it. We lapped the polyp with a choledochoscope snare and electrocoagulated it. The biliary

tract was flushed with saline on the second day after operation, the total bilirubin was rapidly decreased to 50 $\mu$ mol/l and discharged.



**Figure 4.** During operation found that bile duct mucosal was edema and rough.

### 3. Discussion

Bile duct polyps and Polypoid lesions of bile duct are rare biliary diseases and there only a few reports in the world [1-3]. The understanding of polyps origin and evolution is limited. A recent case report illustrates that the utility of a cholangioscopy with targeted biopsies is useful in the assessment and characterization of the polyps in the common bile duct [4]. Previous study described a patient with a solitary hamartomatous polyp in the common bile duct after hepatoduodenostomy [5]. Moreover, Keiichi Suzuki et al. reported the first case that solitary Peutz-Jeghers (PJ)-type hamartomatous polyp in the duodenum showing ingrowth into the common bile duct [6].

Inflammatory polyps is rare in the common bile duct. Mechanical stimuli are among the causes of inflammatory polyps including T tube placement [7, 8], common bile duct stone [9]. Besides, Yuichiro Uchida et al. presented the first case of inflammatory polyp in the common bile duct complicated with pancreaticobiliary maljunction. Which suggested that pancreaticobiliary maljunction may also a cause of inflammatory polyps in the common bile duct [10].

This kind of disease may cause calculus of bile duct and may play an important role in the development of cholangiocarcinoma [11]. Burhans and Myers [12] reported that among 88 cases of extrahepatic bile duct polyps, papilloma was found in 44 cases and adenoma in 39. When biliary polyps are formed, biliary obstruction and bile discharge disorder are prone to occur. The bile pigment of retention bile is decomposed into unconjugated bilirubin under the action of bacteria, thereby forming bile pigment stones and concurrent infection, eventually causing cholangitis. Bile duct polyps may cause changes in biliary fluid dynamics and then change the flow direction of bile, and even form the swirls or eddies, which promote the occurrence

of bile duct stones [13].

Calculus of common bile duct is a common disease in China and common causes including biliary tract infection, bile duct foreign matter, biliary obstruction, cholecystolithiasis secondary bile duct stones, multiple polyps of the biliary tract, metabolism and other factors [14, 15]. Which is also associated with serious complications, including obstructive jaundice, acute suppurative cholangitis, and acute pancreatitis. Early diagnosis and prompt treatment is the most important for managing CBD stones.

We speculate that bile duct stones, surgical suture residue, T tube drainage and other factors can cause congestion, edema, and even ulceration of bile duct mucosal wall, promote epithelial proliferation, inflammatory cell infiltration, and form bile duct polyps or polyp like lesions. Therefore, bile duct polyps and calculus of bile duct may be causality and influence each other, which may cause disturbance of biliary tract dynamics and induce biliary tract diseases.

In this case, the polyps were not detected during the common bile duct exploration. However, two polyps were found in the biliary tract examination due to jaundice 2 months after surgery, which may be caused by bile duct stones, surgical trauma, T-tube drainage and other factors. We ligated polyps under choledochoscope and electrocoagulated them. After flushing the biliary tract with heparin sodium saline, TBil decreased rapidly. Still, its further prognosis remains to be followed up later.

Therefore, we think that the following measures can prevent the occurrence of polyps. First, bile duct stones should be treated immediately once diagnosed to avoid stimulation of stones to bile duct wall. Next, minimize the knot during biliary tract surgery; take stones from the bile duct as gently as possible to reduce the damage to the bile duct caused by repeated stones extraction; try to maintain the original structure of the biliary tract and duodenal nipple; the T tube and nasobiliary duct should not be placed too long, avoiding long-term chronic stimulation to the biliary tract. Third, after T-tube drainage or indwelling nasobiliary duct, can use normal saline or heparin sodium salt water to wash the bile duct slowly to prevent the formation of foreign bodies. Last, after removing the T tube, routine choledochoscopy should be performed to clean the biliary tract again, which can prevent the formation of bile duct stones and polyps to a certain extent.

### 4. Conclusion

Bile duct polyps and calculus of bile duct may be causality and influence each other, which may cause disturbance of biliary tract dynamics and induce biliary tract diseases. In patients with biliary calculi complicated with obstructive jaundice, the presence of biliary polyps should be careful if jaundice recurrence after the biliary tract operation includes ERCP.

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