

A RARE CASE OF FOREIGN BODY IN THE COMMON BILE DUCT: RETAINED T-TUBE REMNANT

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SUMMARY : Foreign bodies in the common bile duct are extremely rare. We report a case of retained T-tube remnant in the common bile duct as a cause of jaundice. The patient had previously undergone cholecystectomy and T-tube drainage for cholecysto-choledocholithiasis. Following the unsuccessful endoscopic trial to remove the stone, the patient underwent exploration of the common bile duct, retrieval of the T-tube remnant-bearing stone and choledochoduodenostomy.

Key Words: Common Bile Duct, Foreign Bodies.

INTRODUCTION

Foreign bodies in the common bile duct (CBD) are rarely encountered. Such foreign bodies include; surgical gauze (1), fish bones (2,3), Dormia basket (4,5), endo-clips (6-8), stents (9,10), shell splinter, peel of greens, ball of thread (11), cherry stalk (12), shrapnel (13), phytobezoar (14), and T-tube remnant (15-17). In patients without previous biliary operations and/or interventions or in those who do not have spontaneous entero-biliary fistula, these non-parasitic objects are thought to pass via entero-biliary reflux from the duodenum to the biliary tract (10). On the other hand, previous biliary operations may result in iatrogenic retention of various instruments.

Here we report a patient with a previous biliary operation – T-tube drainage, who presented with incomplete obstruction of the CBD due to stone formation around the remnant of the latex T-tube.

CASE REPORT

A 56-year-old male presented with jaundice, itching, mild right upper quadrant pain, weakness, loss of appetite and weight of about three months' duration. The patient was diabetic and hypertensive. He had undergone cholecystectomy and T-tube drainage for cholecysto-choledocholithiasis 3 years ago at another hospital. The T-tube was held in place for 8 weeks and then removed. The medical history was otherwise unremarkable. On physical examination, mild jaundice and right subcostal incision scar were noted. Laboratory investigations revealed the following abnormal findings: erythrocyte sedimentation rate 52 mm/h, white blood cell count 12.800/mm³, serum glucose 290 mg/dl, total bilirubin 2.63 mg/dl, direct bilirubin 1.97 mg/dl, serum alkaline phosphatase 355 U/L, ALT 129 U/L, ALP 280 U/L, and GGT 564 U/L. Abdominal ultrasound revealed dilatation of intra- and extrahepatic bile ducts and a stone in the distal

CBD. Upper gastrointestinal endoscopy showed no significant abnormality. On endoscopic retrograde cholangiography, a narrow segment, dilatation of the CBD proximal and distal to this point, and a filling defect in the distal CBD portion suggesting a fusiform, impacted bile stone were demonstrated (Fig. 1). Sphincterotomy was performed and removal of the stone attempted, but this trial failed. To exclude other pathologies, we performed magnetic resonance (MR) cholangiography (Fig. 2). On MR cholangiography, intrahepatic bile ducts were normal. In the distal segment of the CBD, a tubular structure showing a filling defect in the lumen, a focal stricture approximately 3 cm distal to the hepatic bifurcation, and dilatation of the CBD proximal and distal to this area was demonstrated. With these findings, our diagnosis was retained CBD stone and benign stricture.

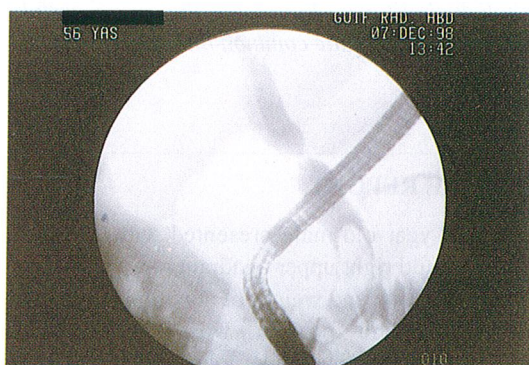


Fig. 1 : Endoscopic retrograde cholangiography indicated a narrow segment, dilatation of the CBD proximal and distal to this point, and a filling defect in the distal CBD portion suggesting a fusiform, impacted bile stone.

The patient underwent surgical exploration. Using the previous right subcostal incision and after a considerably difficult dissection, we found and isolated the CBD and the area of focal stricture. A choledochotomy was performed, and we were surprised to see that the stone we removed was bearing a remnant of a T-tube (Fig. 3 A,B,C). A choledochoduodenostomy was then performed and the patient was discharged on the 7th postoperative day without any complications.



Fig. 2 : MR cholangiography supported the findings of cholangiography and demonstrated a tubular structure in the distal segment of the CBD, a focal stricture approximately 3 cm distal to the hepatic bifurcation, and dilatation of the CBD proximal and distal to this area.

DISCUSSION

This report documents a rare case of biliary obstruction due to a previously retained T-tube remnant. This latex remnant had served as a nidus for eventual stone formation, and the patient became symptomatic three years after the retention of the foreign body, as the stone formation became prominent. The associated proximal benign stricture of the CBD was also probably related to the technical error experienced in the placement of the T-tube. Either the T-tube was sutured very tightly within the CBD, or possibly one or more sutures passed through the back wall of the CBD, as well, narrowing the duct and fixing a leg of the tube. The authors believe that inappropriate placement of the sutures caused the coincidental stricture in addition to making T-tube removal impossible. Forcing the tube out resulted in retention of a part of it. The fact that the whole circumference of the cylindrical formation of the T-tube had been preserved (Fig. 3C), instead of making tangential cuts, might have also added to the difficulty in removing it. Keeping the catheter in the CBD for an unusually long period (8 weeks) might also have contributed to the resultant complication.

The leading causes of very rare non-parasitic residual objects in the CBD, such as surgical gauze,

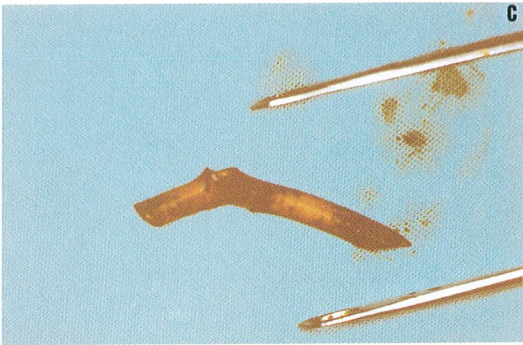
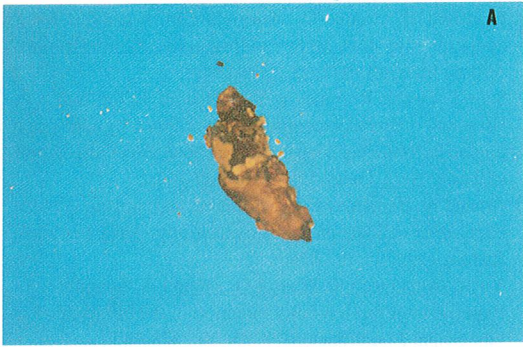


Fig. 3 : (A, B, C) Fragmentation of the removed stone revealed that it had developed around a T-tube remnant..

Dormia basket, endo-clips, stents and T-tube remnants, are retained during biliary operations or migrate in to the CBD afterwards (1, 4-10, 15-17, 18-20). Another cause is penetrating missile fragments or gunshots (15). A third possibility is an ingested foreign body if no history of previous operation or endoscopic intervention exists (2, 3, 11, 12, 14). After entering into the biliary tract, the foreign body may act as a nidus for stone formation and result in biliary obstruction and/or pancreatitis. In a study, which investigated foreign body infection in the biliary tract, the authors observed that implants in the biliary tract impaired local host defense mechanisms, resulting in an increased

susceptibility to microbial infection and fibrosis (21). Koivusalo et al. found that the latex tubes were toxic and induced moderate to pronounced fibrosis and epithelial damage on the CBD wall, unlike silicone tubes (22). They also showed that fibrosis and damage were due to mechanical pressure and foreign body reaction rather than its toxic effect of the material after six weeks.

Foreign bodies of the CBD should be removed via endoscopic route, but if this fails, surgery is indicated. Due to the size of the T-tube-bearing stone, endoscopic removal was not possible in our case. From an ethical aspect, it is also worthwhile to note that because the patient lacked a medical report warning about the T-tube remnant, as well as a careful follow-up, we were aware of this fact only after examining the removed stone.

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