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Case Report

Surgery Section

De novo Choledocholithiasis in Retained Common Bile Duct Stent

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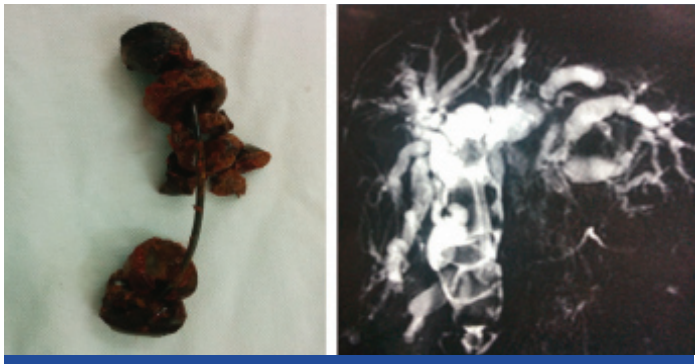
ABSTRACT

De novo choledocholithiasis means formation of stone in the common bile duct (CBD). It can present as biliary colic, jaundice, cholangitis, pancreatitis or it may be asymptomatic. There are various indications for biliary stenting like CBD stone, CBD stricture, biliary leak, peri ampullary carcinoma, CBD malignancy, etc. Foreign bodies like silk sutures, endo-clips, fish bone, retained T- tubes, plastic or metallic stents, etc. lead to biliary stasis leading to eventual stone formation. Here, we discuss a case of choledocholithiasis post-cholecystectomy with CBD stenting done 15 years back which had migrated and acted as a nidus for stone formation in the CBD and hepatic duct.

Keywords: CBD stenting, Cholangiogram, Cholecystectomy

CASE REPORT

A 65-year-old female came with chief complaint of dull aching intermittent pain in the right hypochondriac region since 5 months with no complaints of jaundice, fever or vomiting. Patient was operated for laparoscopic cholecystectomy 15 years ago with CBD stenting done at a periphery hospital. On physical examination no tenderness was present in the right hypochondriac region. Biochemical in vestigation showed raised serum alkaline phosphatase {680 IU/L (Normal range 44-147 IU/L)} with normal liver function tests. Ultrasonography of the abdomen was suggestive of dilated CBD measuring 15 mm at the porta with distal CBD showing, CBD stent in situ. It also showed two calculi measuring 3 cm and 2.1 cm in size causing intrahepatic biliary radical dilatation. MRCP with CT cuts were suggestive of grossly dilated CBD in its entire extent measuring 3.2 cm in its maximum diameter and filled with calcified sludge with a whorled appearance probably due to lith formation surrounding the CBD stent [Table/Fig-1]. Stent migration was seen with proximal tip in the right hepatic duct anterior division and the distal tip seen in the suprapancreatic CBD. Largest lith measured 7.6 x 2.3 cm in circumference and transverse diameter and another 13 mm lith was seen in the right hepatic duct with no evidence of choledochoduodenal fistula. Endoscopic retrograde pancreaticocholangiography was attempted but was unsuccessful and therefore, the patient was planned for open surgery with CBD exploration. Intraoperatively the CBD was grossly dilated and stones were palpable along with the CBD stent. The stent and the encircling stones were removed. Intraoperative cholangiogram was normal. Choledochoduodenostomy was done with a view of performing ERCP if further required. Patient was discharged on postoperative day 7 [Table/Fig-2].



[Table/Fig-1]: CBD stent with stone encircling it **[Table/Fig-2]:** MRCP showing grossly dilated CBD

DISCUSSION

Post- cholecystectomy stones may be left behind unintentionally in the CBD or they may slip from the cystic duct stump. Secondary stones are cholesterol stones in approximately 75% cases and black pigment stones in approximately 25% cases. Secondary stones are termed as retained stones when found within 2 years of cholecystectomy. Primary stones are formed *de novo* in the bile duct and are usually of brown pigment variety, single or multiple, often oval shaped and lie along the long axis of the duct. Primary stones are formed due to biliary stasis and infection [1]. The *de novo* radiolucent stones are formed around and above the stent in the proximal and distal part. The stones usually measure more than 2 to 3 cm in diameter. The complex of stent and stone more often than not takes the shape of the inside of the bile duct, often acquiring a dumb-bell shape. The average duration of clinical manifestation post biliary stenting is around 5.64 years (range 2-11 years) [2]. Biliary stasis occurs as sequelae of partial biliary obstruction which may occur due to the following reasons viz. parasites, non-absorbable sutures, residual calculi, fragments of drainage tubes, traumatic strictures, sclerosing cholangitis or congenital biliary abnormalities, surgical clips. All of the above mentioned reasons act as a core of matrix for lithogenesis due to the impairment of bile flow [3]. These foreign bodies in the common bile duct alter the local host defence and response mechanism as a consequence of which there is increased susceptibility to infection and eventually fibrosis occurs [4]. In 1897, Homan first described silk sutures as a nidus for CBD stone formation [5]. Plastic stent blockage presents at a median patent interval of 62–165 days; these stents may be exchanged prophylactically at scheduled intervals or when stent dysfunction develop [6]. Plastic stents if kept for a prolonged period promote bacterial proliferation and release of the enzyme beta-glucuronidase, which results in the precipitation of calcium bilirubinate. Calcium bilirubinate then aggregates into stones by an anionic glycoprotein. There are various case reports on foreign bodies acting as a nidus for stone formation. They present as biliary colic, cholangitis, acute pancreatitis or rarely they may be asymptomatic. This case is a rare experience where the retained plastic stent in common bile duct since 15 years led to choledocholithiasis with stone formation around the stent with no clinical symptoms of biliary obstruction. This case stands out because in spite of stones being formed

around the stent in its entire length, the stent remained patent for 15 years without development of jaundice or cholangitis and also led to stone formation in the right hepatic duct and supra pancreatic CBD.

In majority of such cases, ERCP with stone extraction using dormia basket and sphincterotomy is the preferred treatment of choice. If endoscopic treatment is unsuccessful then surgery in way of CBD exploration can be done.

CONCLUSION

Although rare, bile duct obstruction by a foreign body with secondary lithogenesis is possible. Endoscopic or surgical extraction of these foreign bodies is mandatory, in order to avoid the complications of obstructive jaundice. Even with the recent advances in endoscopy, surgery may be required in certain cases.

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