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Case Report

High volume stentolith in a case of neglected CBD stent: A case report

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ABSTRACT

Endoscopic retrograde cholangiopancreatography (ERCP) with endoscopic sphincterotomy (EST) and stone extraction is widely accepted as the treatment of choice for a patient of any age with choledocholithiasis.

Stentolith: It describes as a forgotten stent post ERCP which acts as nidus for stone formation. Stents has to be removed within 6 weeks. Longer periods of unattended stents leads to wide range of complications like cholangitis, pancreatitis, biliary stricture and biliary cirrhosis. Management involves either endoscopic retrieval of stents or surgical exploration.

1. Introduction

About 10–15% of the population with cholelithiasis have choledocholithiasis.[1] Choledocholithiasis may be primary or secondary. Endoscopic retrograde cholangiography (ERCP) and stone removal with or without stent placement is the gold standard treatment for choledocholithiasis.[2] This is followed by laparoscopic or open cholecystectomy for gall stones. Stents placed has to be removed within 4–6 weeks.

The complications of retained stents include stone formation, biofilm formation, cholangitis, stent migration, very rarely intestinal perforation.[1,3] Patient presents with abdominal pain, fever, and jaundice which leads to diagnosis. This article depicts one such case we encountered.

2. Case Report

Patient was a 78-year-old presented with fever, abdominal pain, loss of weight and appetite. Patient was a known hypertensive and had previously undergone ERCP and stenting 3 years back. Upon examination, patient was febrile and otherwise normal clinically. In blood investigation, LFT (liver function test) was deranged with elevation of mild bilirubin and enzymes. Ultrasound imaging revealed cholelithiasis with choledocholithiasis with dilated intrahepatic biliary radicles and proximal CBD.

Magnetic resonance cholangiopancreatography (MRCP) was done. Gall bladder, cystic duct and entire common bile duct was filled with calculi (Figures 1 and 2). Stent was not visible. So exploration was planned. Diagnostic laparoscopy revealed extensive adhesions so proceeded with laparotomy. Patient underwent open cholecystectomy with CBD exploration. Stent with 28 calculi extracted. Stent was studded with stones and concretions (Figure 3). There was narrowing in the distal CBD. In view of obstructive jaundice due to narrowing and since already

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patient had complications associated with stenting, we decided to proceed with surgical biliary bypass. So patient underwent open cholecystectomy with CBD exploration with choledochojejinostomy and jejunojejunostomy. Post-operative period was uneventful.

Patient was reviewed one week after discharge. Liver function test was performed. Liver enzymes and bilirubin were normal (SGOT –50, SGPT–20, Total Bilirubin–2.5). USG done to check for residual collection and was normal. Patient was then reviewed after one month; had no symptoms and was doing well.

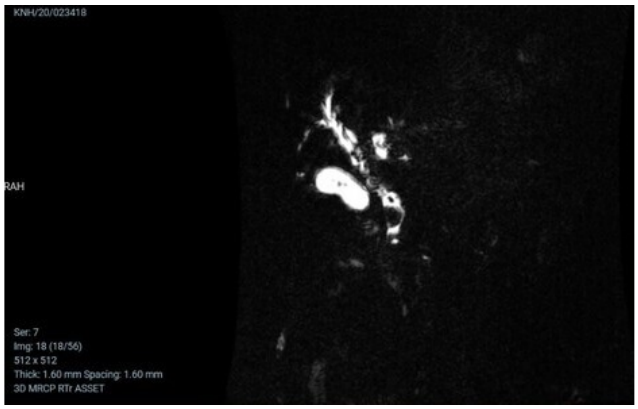

Figure 1: MRCP image depicting preoperative status. Entire CBD is studded with calculi; no stent could be visualized

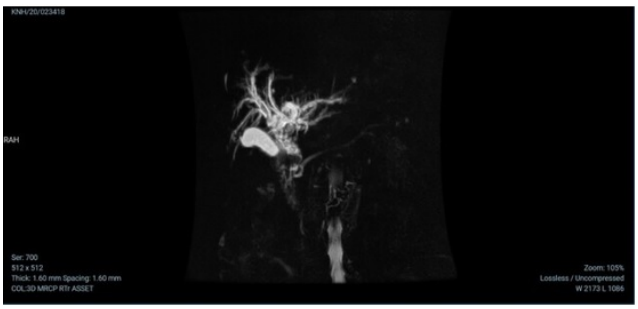

Figure 2: MRCP image

3. Discussion

Endoscopic retrograde cholangiopancreatogram (ERCP) with endoscopic sphincterotomy (EST) and stone extraction is widely accepted as the treatment of choice for a patient of any age with choledocholithiasis. This technique has been reported to be successful in 80–95% of the cases.[4] Endoscopic removal of biliary stones may infrequently be impossible despite improved ERCP techniques, especially when large or impacted stones are present, or in cases of a coexisting narrowing of the distal common bile duct (CBD). Surgical procedures could be options for patients who failed endoscopic restoration of bile drainage.[5,6]

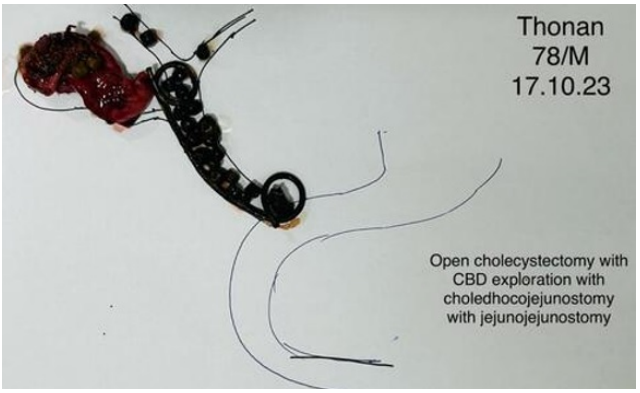

Figure 3: Specimen image depicting retrieved stent along with concretions and multiple calculi

The CBD stents used are of two broad categories—plastic and metallic stents. Metallic stents are usually made of stainless steel or nickel-titanium alloy. Plastic stents are generally used as a temporary measure for post-ERCP, CBD clearance, palliative stenting in metastatic disease with an expected life span < 3 months, or temporary biliary drainage before surgery.

Plastic stents, although economical, are prone to getting occluded, primarily due to complexes formed of microbial colonies and bacterial byproducts coupled with calcium bilirubinate and calcium palmitate crystals, which eventually promote bacterial adherence and biofilm formation. The release of bacterial β-glucuronidase also plays a role by causing precipitation of calcium bilirubinate, which is aggregated into stones by glycoproteins. The retained stent also acts as a foreign body, thereby promoting colonization of the bacteria over it.[7,8]

Ideally stents has to be removed within 3–6 months.[9] The most common complication of retained endoscopic stents are jaundice, cholangitis, choledocholithiasis, pancreatitis, internal migration.[10] The incidence of stentolith is around 18% in all cases with forgotten stent spanning over 2 years.

CBD stentolith may present with pain, fever, jaundice or recurrent cholangitis. Measures helpful in preventing or at least delaying occlusion of stent or stentolith formation could be use of prophylactic antibiotics, use of antibiotic impregnated stent, bile thinning compounds like ursodeoxycholic acid, placement of CBD stents and sphincterotomy when possible, use of a larger diameter stent.

Management involves endoscopic stent removal. But most patients who had developed symptoms will require laparoscopic or open CBD exploration and stent removal. Bilioenteric bypass with side-to-side Roux-en-Y choledochojejunostomy, CBD exploration with choledochoduodenostomy, and endoscopic clearance of stentoliths have also been done in some cases.[11–13]

4. Conclusion

Unaware of the complications of long-dwelling biliary stents, patients ignore the advice for the timely removal of biliary stents. Detailed patient counselling, education and documentation are essential to avoid this condition.

5. Source of Funding

None

6. Consent of the Patient

Obtained for publishing.

7. Conflicts of Interest

None

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