

Case Report

Tombstone of surgical clip in common bile duct

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Abstract

Laparoscopic cholecystectomy has gained popularity over open cholecystectomy due to the benefits of shorter hospital stay, lesser pain and smaller scar. The frequent use of surgical clips during laparoscopic cholecystectomy occasionally leads to migration of the clip into the bile duct. The migrated clip acts as a nidus for stone formation (cat's eye calculus).[1] These stones (tombstone for the clips) may cause symptoms like biliary colic, obstructive jaundice, cholangitis and acute pancreatitis. We report here two patients who underwent laparoscopic cholecystectomy and subsequently developed symptoms due to formation of cat's eye calculi.

Case reports

Case 1

A 57-year-old man underwent laparoscopic cholecystectomy in 2004 for acute cholecystitis. He was asymptomatic till November 2009 when he developed painless jaundice, high grade fever with chills and pruritus. Clinical examination was normal except for icterus and scar of previous laparoscopy. Laboratory investigations revealed a hemoglobin of 11.9 mg/ dL; total leukocyte count of 11,100/cumm; differential counts of neutrophils 98%, band forms 1%; and a normal coagulation profile. Liver function tests (LFT) revealed a total bilirubin (TB) of 19.5 mg%, direct bilirubin (DB) of 16.1 mg%; SGOT at 83 U/ L (normal 0-37); SGPT at 77 U/L (normal 0-40) and serum alkaline phosphatase (ALP) at 223 U/L (normal 40-125). Serum amylase and lipase were normal. Ultrasound (USG) abdomen revealed a dilated common bile duct (CBD) with a calculus and dilatation of intrahepatic biliary radicles. He was diagnosed to have choledocholithiasis with cholangitis and started on antibiotics. An urgent ERCP showed a 20 mm radiolucent filling defect with linear metallic density within the defect which was initially thought to be cholecystectomy clips left behind in the CBD (Figure 1). Since he was on clopidogrel, a 7 Fr, 10 cm double pig tail stent was placed. He became afebrile in 2 days and his LFT and blood counts improved. Seven days later, repeat ERCP and sphincterotomy were performed. Stone retrieval however was unsuccessful. Hence, he underwent surgery (CBD exploration) with removal of stones. Examination of stone revealed 3 clips embedded within it. There were no postprocedure complications. He was asymptomatic at discharge with normal LFT.

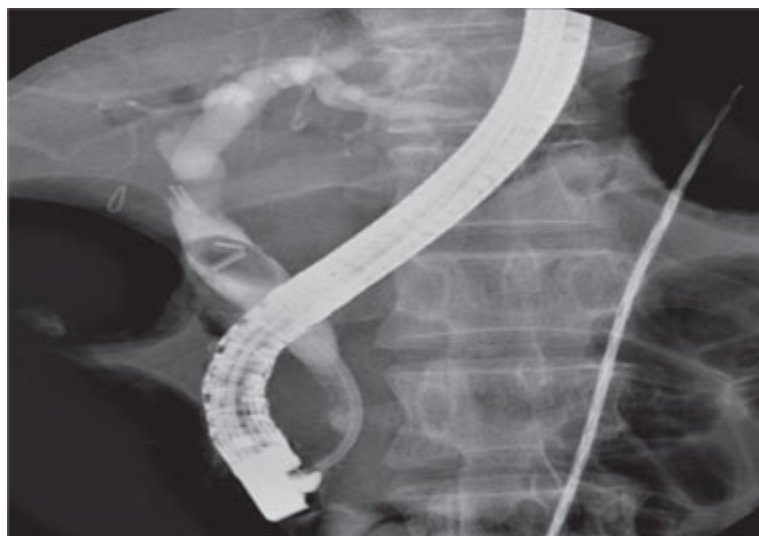


Figure 1: Calculus over surgical clips ('tombstone') in common bile duct

Case 2

A 53-year-old male underwent laparoscopic cholecystectomy in 2001 for symptomatic gallbladder stones. He was apparently well until October 2008, when he developed severe epigastric pain radiating to the back, associated with nausea and vomiting, with the episode lasting for 24 hours. He had had a similar episode of pain in early December 2009, which was diagnosed as acute pancreatitis (serum amylase: 1650 U/L). During the third episode in late December 2009, he was admitted to our hospital. Clinical examination was unremarkable. Hemoglobin, blood counts and coagulation profile were normal. LFT revealed TB - 1.8 mg%, DB -1.4 mg%, SGOT - 351 U/L, SGPT - 282 U/L and ALP - 249 U/L. Serum amylase and lipase were normal.

In view of the recurrent episodes of abdominal pain, he underwent MRCP which showed a metallic density at the terminal CBD. ERCP revealed a filling defect with a metallic clip in the distal bile duct. Biliary sphincterotomy and balloon extraction of the stone was performed. Examination of the stone showed a 1 cm metal clip embedded in it. Following the procedure, his pain settled and LFT normalized.

Discussion

Stones in CBD post-cholecystectomy are an important clinical problem seen in about 10% of patients.[2] While postcholecystectomy stones most commonly form de novo, a proportion of them occur as a direct complication of the surgery. The causes of stone formation directly attributable to surgery are: (a) formation of stone proximal to a post-operative biliary stricture and (b) suture material / metallic clip migrating into the CBD, which forms a nidus for stone formation.[2] The first case of post-cholecystectomy clip migration and stone formation was reported in 1979 by Walker et al.[3] Clip migration can occur following both laparoscopic and open cholecystectomy. The exact mechanism of clip migration and stone formation remains unclear. Some authors suggest that clips can cause erosion and necrosis of the wall of the CBD leading to migration of the clip into the CBD and subsequent formation of stones.[4] Predisposing factors for clip migration include short cystic duct stump, inappropriate placement of clips and local infection or suppurative complications around the CBD.[5]

A recent review by Chong et al[6] showed that most of the patients with clip migration present at an elderly age with the average time interval from cholecystectomy to clinical presentation being two years. Common presentations are obstructive jaundice, cholangitis, biliary colic and acute pancreatitis. While our first patient had only cholangitis, the second patient had recurrent biliary colic and biliary pancreatitis.

Since the clips get embedded inside the stones, they are often missed during evaluation. The clips can be seen on a plain X-ray abdomen, CT abdomen or MRCP. On a plain X-ray it is difficult to ascertain the exact position of the clip in relation to the stone and the bile duct. Ultrasound abdomen is not a good modality as it is difficult to identify the clips. Although CT and MRCP can detect clips and their relation to the stone and bile duct, ERCP is the preferred investigation because it can simultaneously aid in removal of these calculi. The success rate of managing these calculi using ERCP is almost 80%.[6] The remaining patients usually require surgical intervention. One of our patients had successful removal of the stone by ERCP while the other was successfully managed by laparotomy after a failed ERCP.

References

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