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Case Report

ERCP stent as a nidus for CBD stone: post cholecystectomy status

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ABSTRACT

Obstruction of common bile duct due to a 'Forgotten stent' causing stone formation is a rare entity, which is usually associated with cholangitis. A much rarer presentation is our case with an ERCP stent forming a nidus for stone formation in the common bile duct without any evidence of cholangitis or bile duct obstruction. A 66-year-old female patient with a previous history of laparoscopic cholecystectomy and common bile duct stenting done 2 years back presented with vague abdominal pain, nausea and vomiting without features of jaundice or cholangitis. She was diagnosed on imaging as a case of choledocholithiasis with two stents in the common bile duct. A failed ERCP to extract the stent and relieve obstruction necessitated open choledochotomy, stents removal, common bile duct clearance and choledochoduodenostomy. The rarity of this patient with an ERCP acting as a nidus for common bile duct stones without evidence of obstruction or cholangitis is something to be documented. Although rare, these complications must always be considered and considered a possibility due to which post-operative and post-endoscopic follow up, regular check-ups and timely removal of the stents is necessary to avoid unnecessary complications or a need for repeat procedures and surgery that results in greater morbidity.

Keywords: Common bile duct, ERCP, Nidus, Obstruction, Stent, Stones

INTRODUCTION

Endoscopic common bile duct (CBD) stenting is recommended as the treatment of choice in the case of iatrogenic bile duct stenosis with a success rate comparable to surgical treatment (72% vs. 83%).[1] This kind of procedure can solve even a possible biliary fistula, a complication that can appear after a laparoscopic cholecystectomy.[1] The biliary stenting is performed either with plastic or metal stents, studies recommending their replacement after 3-6 months, to avoid complications such as: occlusion, migration of the stent or cholangitis.[2-5] Common bile duct obstruction by a foreign body is a rare cause of obstructive jaundice, especially when it occurs due to a biliary stent around which stones have formed.

Plastic stents are used for biliary drainage in patients with large common bile duct stones until definitive treatment. But, stent occlusion is the main disadvantage, limiting their patency to around 3 months, after which replacement is recommended. A biliary stent can act as a nidus for the biliary stone formation leading to stent-stone complex after long-term stent placement.

We report an unusual case of two forgotten plastic stents in the common bile duct forming a nidus for multiple stones.

CASE REPORT

A 66yrs old female presented with complains of right sided upper abdominal pain and nausea for about two weeks' duration and vomiting for the past 3 days. She had no history of fever and no history of jaundice. She gave a history of laparoscopic cholecystectomy with stenting done 2 years back at her native and gives history of not getting the stents removed. The details for stenting

during cholecystectomy was unknown with no available records and details from the patient.

On clinical examination, patient had surgical scars of previous laparoscopic cholecystectomy with minimal tenderness in the epigastric and right hypochondrium. Rest of the abdominal and systemic examination was unremarkable. Her vitals were normal.

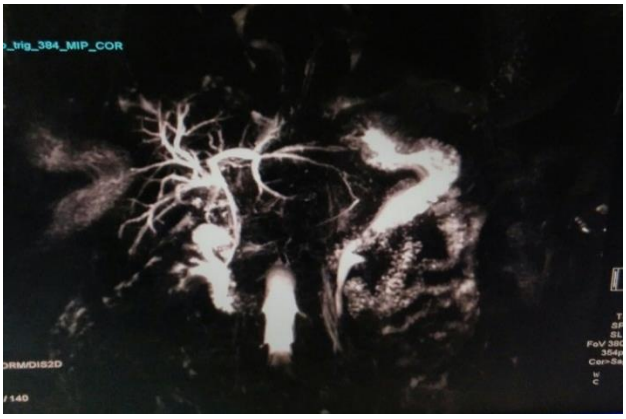

Figure 1: Dilated common bile duct.

Liver function tests showed raised SGOT and SGPT with otherwise normal values. Ultrasonography of abdomen demonstrated post cholecystectomy status and presence of a stent in the common bile duct. Right and Left hepatic duct measured 6mm and common hepatic duct measured 14mm. Common bile duct was dilated up to 2cm in size and showed multiple filling defect.

Figure 2: Stent in common bile duct.

It was followed up by MRCP which gave a report as post cholecystectomy status. choledocholithiasis with intrahepatic and extrahepatic dilatation of biliary radicals, biliary stent in situ (Figure 1 and 2).

A provisional diagnosis of choledocholithiasis was made and ERCP was planned to remove the old stent, remove the stones in common bile duct and clear the common bile duct. However, ERCP though attempted was not successful as there were two stents in the common bile duct which had formed a nidus with presence of sludge and multiple stones, which could not be removed due to dense adhesions and fibrosis.

Hence ERCP was abandoned and the next step of action was taken to do an open CBD exploration to remove the stents and the stones.

Exploratory laparotomy was planned after pre-operative assessment, pre-anaesthetic evaluation and after a detailed explained, informed and written consent.

Figure 3: Dilated common bile duct.

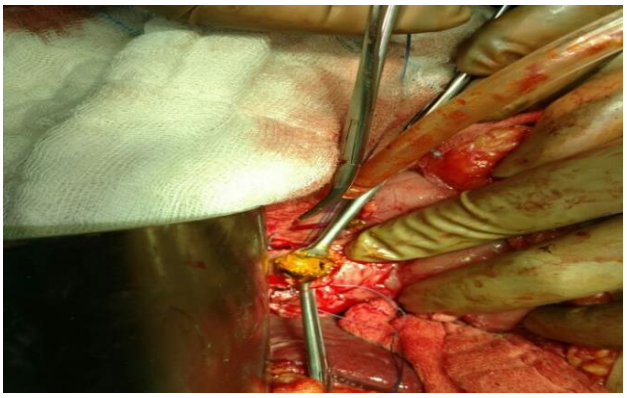

Figure 4: CBD stone around the stent.

Intra-operative findings were a dilated common hepatic duct with grossly dilated common bile duct and presence of stones in the common bile duct. A choledochotomy was then performed which revealed dirty yellowish brown sludge like material with multiple stones encasing two plastic stents inside the common bile duct. The stones were densely adhered to the stents and the common bile duct.

The stones were then removed completely under care and the stents were extracted as well (Figures 3-5). Thorough wash was given to the common bile duct to clear the sludge and the entire proximal and distal duct was irrigated and cleared with saline. The procedure was then completed by doing a choledochoduodenostomy. Haemostasis was achieved and the abdomen was closed in layers after placement of an abdominal drain.

Figure 5: CBD stones with stents.

Post-operative recovery was uneventful. Liver function tests were normal after surgery, the abdominal drain was removed after 72 hours and the patient was discharged after 10 days in a stable state. There were no further complications for a 6 month follow up.

DISCUSSION

The word nidus originated from Latin which means a place where something originates or is fostered or develops. A nidus is important for the formation of biliary stones. Stasis is an important contributing factor, that results either from stricture or foreign bodies. In one study, 30% of recurrent stones in the common duct after cholecystectomy were reported to contain non-absorbable suture materials in the centre of the stone, serving as a nidus.[6] In a study, which investigated foreign body infection in the biliary tract it was found that implants in the biliary tract impaired the local host defense mechanism, resulting in an increased susceptibility to microbial infection and fibrosis.[7] In a study, which investigated foreign body infection in the biliary tract it was found that implants in the biliary tract impaired the local host defense mechanism, resulting in an increased susceptibility to microbial infection and fibrosis. These plastic stents if kept for a prolonged period promote bacterial proliferation, and release of bacterial beta-glucuronidase, which results in the precipitation of calcium bilirubinate. Calcium bilirubinate is then aggregated into stones by an anionic glycoprotein. There remains a lumen in the common bile duct after placement of stents and this lumen may provide a pathway for bile flow even when the stents are completely obstructed. Koivusalo et al found that latex tubes were toxic and induced moderate to pronounced fibrosis and epithelial damage on the CBD wall, unlike silicone tubes.[8]

The mean duration of the patency of the stent was about 12 months and the rate of late complications such as stent occlusion and cholangitis were 33.4-40.8%.[9-12]

Most of the patients with stents in situ remain asymptomatic. However, inadequate follow up of the postoperative and post endoscopic period results in the formation of nidus around the stent and at times, cholangitis. In this patient, the lithogenic process was initiated on the remnant biliary stent that had not been replaced or extracted resulting in nidus formation without cholangitis.

CONCLUSION

Bile duct obstruction by a foreign material though possible, is a rare entity. ERCP stenting although a simple and safe procedure, the possibility of ERCP stent acting as a nidus for stone formation should always be forethought and anticipated. Hence, a proper post-operative or a post-endoscopic follow up is mandate and the patient must be given a detailed information regarding the possible complications and details of follow up. ERCP extraction of the stone and removal of the blocked stent remains a standard procedure but in cases of large stones covering the stents and prolonged fibrosis, surgery maybe the only option of removing the stones and stents and to relieve the obstruction.

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