

Case Report

Retained plastic biliary stent presenting with obstructive jaundice: a case report

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ABSTRACT

Forgotten stents may lead to serious complications. We present a case report of a forgotten common bile duct (CBD) fully covered plastic stent presenting with Obstructive Jaundice. A 66 years-old female patient presented with features of obstructive jaundice. Further enquiry revealed a history of ERCP guided biliary stent placement 12 years ago, after which she was lost to follow up. An endoscopic attempt to retrieve the old stent and relieve biliary obstruction was unsuccessful, and a fresh stent was placed across the CBD following a sphincterotomy. CT showed evidence of a stent in situ, alongside calcified fragments of the previous stent and multiple CBD stones. Patient was taken up for surgery and Roux-en-y hepaticojejunostomy was performed following CBD exploration and retrieval of the stent-stone complex.

Keywords: Case report, Forgotten stent, Hepaticojejunostomy, Obstructive jaundice, Retained stent, ERCP

INTRODUCTION

Common bile duct obstruction by a foreign body is a rare cause of obstructive jaundice, especially when it occurs due to a biliary stent on which de novo gallstones have formed.

There are many studies about the biliary stents, however there is a little information about the long-term stayed or forgotten biliary stents except a few case reports. We have reported a case with biliary stent that was forgotten by the patient. The patients' adherence to stent follow-up schedule is critical. Forgotten or stents retained in the biliary ducts for a prolonged period without follow-up can lead to serious complications.^{1,2}

This case report has been reported in line with the SCARE criteria.³ Written informed consent was obtained from the patient for publication of this case report and accompanying images.

CASE REPORT

A 66 years old female patient presented with recurrent right upper quadrant pain, progressive yellowish discoloration of eyes, and generalised itching since, 2 months. She was a known diabetic and a hypertensive, well controlled on medications. On enquiry, she gave a history of having undergone an Endoscopic retrograde cholangiopancreatography (ERCP) guided biliary stent insertion 12 years ago for similar symptoms, following which she experienced symptomatic relief and did not seek any further treatment. The patient did not undergo any surgery or endoscopic procedure thereafter, and was lost to follow-up at the time. She now presented with features suggestive of obstructive jaundice. Her blood workup revealed a raised level of total and direct bilirubin, as well as raised level of serum alkaline phosphatase. A plain, erect x-ray of the abdomen showed an opacity in the right upper quadrant, presumably a calcified, retained stent from the previous procedure (Figure 1). An abdominal

ultrasound was suggestive of choledocholithiasis with retrograde dilatation of proximal common bile duct up to 22 mm in diameter, along with intrahepatic biliary radical dilation. An endo-biliary stent and calculi were noted.

Following adequate resuscitation, an ERCP was attempted. The previously placed CBD stent was not appreciated fluoroscopically, but cholangiogram was suggestive of large filling defect in mid CBD (Figure 2). Sphincteroplasty was done upto 12 mm, and despite multiple balloon sweeps, the impacted stone could not be retrieved. A 10 Fr×9 cm plastic stent was deployed across the level of obstruction to facilitate biliary drainage. Post-procedure, a contrast enhanced CT showed stent in situ along with a residual stent fragment within CBD (Figure 3). The patient was posted for an elective surgery. Laparotomy revealed a shrunken, fibrosed gall bladder along with a grossly dilated CBD with a stent as well as calculi palpable within. A cholecystectomy was done and CBD explored. The stents and multiple stones were removed (Figure 4), following which biliary-enteric drainage was established by way of a Roux-en-Y hepaticojejunostomy. Post-operative course was uneventful, and she was discharged on day 6 post-op (Figure 5). At follow-up, 6 weeks later, she was symptom-free and liver function tests had returned to normal.



Figure 3: CECT A+P showing the new and old eroded stent.



Figure 4: Intra-operative removal of new stent from dilated CBD.



Figure 1: Abdominal X-ray on admission showing eroded stent.



Figure 2: ERCP showing dilated CBD.



Figure 5: Post-operative X-rays showing no stents.

DISCUSSION

CBD stones originating from the gallbladder are called secondary bile duct stones and those that formed primarily in the biliary ducts are called primary bile duct stones.⁴ Risk factors for gallstone formation are nutrition, obesity, weight loss, female sex, race and serum lipid levels. A combination of bile infection, dietary factors, biliary stasis, and possibly parasitic infestation are implicated in the formation of intrahepatic biliary stones.⁵

CBD stones or choledocholithiasis leads to obstructive jaundice characterised by raised bilirubin. Bilirubin induces systemic inflammatory response syndrome which may lead to multiple organ dysfunction syndrome. The proper management includes full replacement of water and electrolyte deficiency, prophylactic antibiotics, lactulose, vitamin K and fresh frozen plasma, albumin and dopamine.⁶

European Society of Gastrointestinal Endoscopy (ESGE) recommends offering stone extraction to all patients with common bile duct stones, symptomatic or not, who are fit enough to tolerate the intervention. ESGE recommends endoscopic placement of a temporary biliary plastic stent in patients with irretrievable biliary stones that warrant biliary drainage. The stents are made up of polyethylene (most common), polyurethane, polyethylene/polyurethane blend, teflon or soft polymer blend. The biliary stents are usually implanted by gastroenterologists and interventional radiologist. However, healthcare workers who look after patients with jaundice should be aware of stenting as an option for treatment.

The mechanism by which stones change in number and size is unclear. It is likely that continuous friction between the plastic stent and the stones produces stress forces that facilitate the disintegration of stones and reduce their size.⁷

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. Thus, the stents themselves end up causing the primary disorder (choledocholithiasis) for which they were inserted in the first place.⁸

ESGE recommends that a plastic stent placed because of incomplete common bile duct stone clearance should be removed or exchanged within 3-6 months to avoid infectious complications like cholangitis.⁷

Common bile duct obstruction by a foreign body is a rare cause of obstructive jaundice, especially when it occurs due to a biliary stent on which de novo gallstones have formed. There are many studies about the biliary stents, however there is a little information about the long-term stayed or forgotten biliary stents except a few case reports.⁹

Patient with forgotten stents commonly present with abdominal pains, obstructive jaundice and cholangitis. They usually have deranged liver function tests and dilated biliary tracts on abdominal ultrasound.² Biliary stents are foreign bodies and, therefore, form a nidus of infection particularly if not removed within 4-6 weeks from insertion.¹⁰ The de novo formation of biliary stones around the stent was reported in a few case reports. These may lead to a stone-stent complex assuming a lollipop, dumb-bell, or the stent shape. Bansal and his colleagues were the first to term this complex 'stentolith' in 2009.¹¹

The most common complication of retained long-term plastic biliary stents was acute cholangitis associated with CBD stones. Endoscopic management was successfully performed in most cases.¹²

The management of the CBD stones remains controversial because many different surgical strategies are available: laparoscopic treatment (laparoscopic common bile duct exploration), sequential endoscopic and laparoscopic treatment (endoscopic retrograde cholangiopancreatography/endoscopic sphincterotomy (ERCP/ES) prior to laparoscopic cholecystectomy), inverted sequential endoscopic-laparoscopic treatment (laparoscopic cholecystectomy followed by ERCP/ES), and combined endoscopic-laparoscopic treatment (laparoscopic cholecystectomy with intraoperative ERCP/ES).¹³

The management needs to be tailored to each individual case after careful history and investigations.

Our case had a rather rare finding with stones extending from the CBD, into the right and left hepatic bile duct and the central and peripheral intrahepatic biliary ducts dilatation, such extensive biliary tree obstruction was rarely seen before. There was no past history of cholecystectomy, and history of multiple episodes of obstructive jaundice which resolved after primary management were present for over a span of 12 years.

We managed the patient with open CBD exploration and removal of stent debris and multiple stones with Roux-en-Y hepaticojejunostomy along with cholecystectomy, the gall bladder was observed to be fibrosed and shrunken, a sign of multiple attacks of cholangitis.

CONCLUSION

A retained or forgotten stent, with formation of a stent-stone complex, is a rare complication of endoscopically placed biliary stents. When detected early, it may be amenable to endoscopic retrieval, however in the long term, surgical exploration with biliary reconstruction may be the only option. The complication can be avoided entirely with better patient education, proper record-keeping, and regular timely follow-up.¹⁴

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