

A forgotten biliary stent for 17 years: Presented with perforated gallbladder and stentolith

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Abstract

Endoscopic biliary stent placement is a well-established, safe, and minimally invasive modality for the treatment of choledocholithiasis and other biliary diseases. Over the past decade, there has been an increase in its prevalence and use. We present an unusual case of forgotten biliary stent for 17 years who presented now with gangrenous cholecystitis and sealed the perforation. A large stentolith had also developed which was cleared with endoscopic retrograde cholangiography and re-stenting followed by laparoscopic cholecystectomy.

Key words

Choledocholithiasis, endoscopic retrograde cholangiography, gangrenous cholecystitis, stentolith

Introduction

The incidence of choledocholithiasis is 10% in patients of symptomatic gallstones and 15% in patients with acute cholecystitis.^[1] Established approach to manage the common bile duct (CBD) stone is endoscopic retrograde cholangiography (ERC) and stone removal with or without stent placement.^[2,3] Usual sequence of event is ERC management of CBD stone followed by cholecystectomy and then stent removal. Most gastroenterologists remove the CBD stent at around 3-4 weeks of its placement. Stent may pass out in stool spontaneously in few cases. If due to any reason stent removal is missed in time, it may lead to complications. We are reporting a case of forgotten biliary stent presented after 17 years with sealed gallbladder (GB) perforation and stentolith.

Case Report

A 69-year-old diabetic male presented to us with right upper

quadrant abdominal pain for 2 days; there was no jaundice at the time of presentation. He had CBD stone with obstructive jaundice in June 1996 which was treated elsewhere with ERC, clearance of CBD and stenting. His jaundice got relieved, but removal of the stent was missed by both doctor as well as patient. After almost 17 years of the asymptomatic period, patient arrived in an emergency department with acute pain in the abdomen with vomiting and high-grade fever. His leucocytes counts were 11,300/cmm, serum creatinine was 1.1 mg/dL, serum bilirubin was 0.9 mg/dL, and alkaline phosphatase was normal (54.5 mg/dL). He was evaluated with ultrasound abdomen which revealed distended GB with pericholecystic fluid collection and dilated CBD of 18 mm. On further evaluation with contrast-enhanced computed tomography (CT) scan, abdomen revealed localized GB perforation with changes of acute cholecystitis and old stent in CBD [Figure 1a].

We performed ERC; previously placed stent was removed which showed 1 × 1 cm large stentolith at its proximal end [Figure 1b], with re-stenting of CBD. The next day laparoscopy was performed; which showed sealed off GB perforation and findings of acute cholecystitis [Figure 2a]. The localized collection was drained (pus culture sent intraoperatively was positive for *Escherichia coli*), and cholecystectomy was performed [Figure 2b]. Although it was difficult, we were able to perform laparoscopic cholecystectomy in this patient for which we used 5 ports (an extra port in left hypochondrium for duodenum retraction and suction). Postoperative course was

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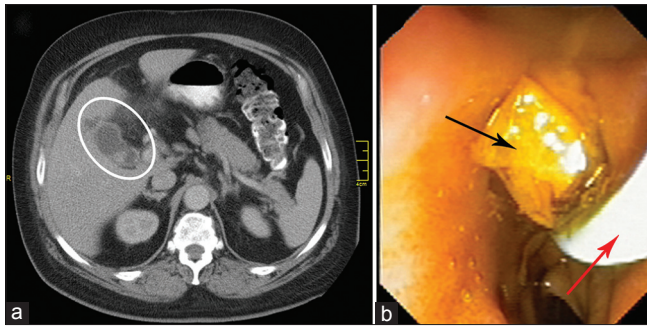


Figure 1: (a) Computed tomography scan image shows the localized perforation in the gallbladder (circled white). (b) Endoscopic image of stentolith with stent *in situ* (stent with red arrow and stentolith with a black arrow)

uneventful, and patient was discharged on third postoperative day and strictly advised for stent removal after a month. We kept a record of address and contact details of the patient to remind him for stent removal on time.

Discussion

Endoscopic retrograde cholangiography and stone removal are the gold standard treatment option for CBD stone. It may require sphincterotomy and stent placement to treat obstructions that occur in the bile ducts. In more than 90% of patients, the placement of a biliary stent relieves the obstruction and allows the bile duct to drain properly.^[4] In up to 6% of the cases biliary stent may migrate from the biliary tract spontaneously^[4] or be removed later on; usually 4-6 weeks after stent placement. Our institutional protocol is to advise an X-ray abdomen at 4 weeks following stent placement and if stent has not passed spontaneously then side viewing endoscopy and stent removal to be performed.

In the literature, very few cases have been reported of forgotten stent complications like infection, bile duct injury and perforation, stentolith, stent migration with intestinal perforation.^[5,6] 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 aggregates into stones by an anionic glycoprotein. Culnan *et al.* have reported perforation in ileum with small bowel obstruction due to migrated biliary stent.^[1] Itoi *et al.* have done an experimental study in animal with short term biodegradable biliary stent in pigs but its feasibility in human beings is still under investigations.^[7] In our case, patient had localized perforated GB and incidentally detected stentolith which were probably asymptomatic. We performed ERC and stent removal, another stent was placed as CBD was dilated. The cholecystectomy was completed laproscopically after 24 h. As patient had forgotten previously, this time we kept all contact details with intension to remind the patient 4 weeks later for stent removal. We also agree with Bansal *et al.* for maintaining “stent registry system” for all patients who undergo ERC and stenting for various reasons.^[5]

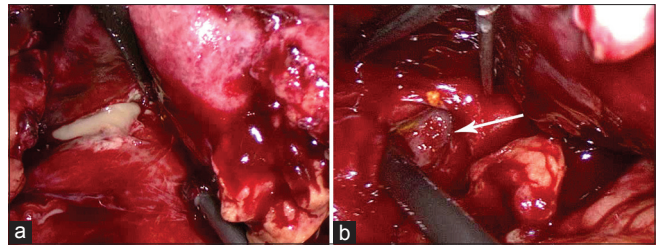


Figure 2: (a) Intraoperative picture of purulent collection surrounding the gallbladder (GB) with perforation. (b) Gangrenous GB with perforation in the body, arrow shows inflamed mucosa of gallbladder

As most of the time patients improve completely after ERC and stone removal, they are likely to forget the stent placed inside unless strongly stressed upon the follow-up. Many times trainee doctors forget to mention the follow-up for stent removal in the discharge summary may lead to this kind of complications later on and may create medico-legal problems. Hence, the responsibility to remind the patient for stent removal in time lies with the physician also.

Conclusion

Cholecystectomy must be performed on an early basis in patients with obstructive jaundice due to CBD calculi after clearance of choledocholithiasis. It is even more important in diabetic patients. Sometimes, biliary stent may be forgotten to remove and may lead to complications like formation of stentolith or medico-legal problems. We stress upon the proper follow-up for stent removal.

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