

Case Report

Broken stent of endoscopic retrograde cholangiopancreatography mimicking a common bile duct stone: a case report

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ABSTRACT

Long standing biliary stent for biliary stricture may have complications like cholangitis, cholecystitis, stent fracture and stent migration. Treatment includes re-do endoscopic retrograde cholangiopancreatography, removal of fractured stent and restenting. Authors report a case of fractured biliary stent mimicking as distal common bile duct stone. Patient presented with features of cholangitis with history of endoscopic stenting 6 years back but lost follow up thereafter. Ultrasound showed 2cm calculus in distal common bile duct and the stent was seen on endoscopy through the papilla in the duodenum. Contrast enhanced computed tomography of abdomen showed radio opaque dense shadow in the distal common bile duct suggesting possibility of broken biliary stent. Redo endoscopic retrograde cholangiopancreatography failed to remove the fractured stent. A new stent was placed without complications. Patient underwent open common bile duct exploration and the fractured stent was removed. Patient recovered completely after the procedure.

Keywords: Broken stent, CBD stone, ERCP

INTRODUCTION

Benign biliary strictures constitute about 30% of biliary strictures and endoscopic retrograde cholangiopancreatography (ERCP) with stenting is done for the same.¹ ERCP is safe in experienced hands, with a failure rate of 3-5%.² The complication rate of biliary stenting is 8-12% and comprises cholangitis, cholecystitis, duodenal perforation, bleeding, etc.³ Stent fracture and migration (proximal or distal) is a rare and late complication which occurs in 5-10% of patients.

The potential risk factors for stent migration include bile duct stenosis secondary to benign disease, multiple stents, stenosis of lower bile duct, bile duct diameter >10mm,

duration of stent placement >1month, physical constituents of stents.⁴

The fractured migrated stent can act as a nidus for stone formation. Here authors report a case of fractured migrated stent which developed concretions around it, mimicking a stone in the common bile duct, and presenting with obstructive jaundice.

CASE REPORT

A 49-year-old female patient presented to emergency ward with the history of upper abdominal pain, vomiting, fever and jaundice for 7 days. There was no history of altered bowel and bladder habits. There was a past history

of jaundice 6 years ago for which ERCP and stenting was done due to distal CBD stricture in a private hospital, but full details were not available. Patient had no history of any co-morbidities. Patient gave a history of hematemesis 1 year ago for which upper gastrointestinal endoscopy (UGIE) was done. UGIE showed gastric erosions with a stent in the ampulla. Patient was managed conservatively and discharged with oral medications. Patient underwent MRI with magnetic resonance cholangiopancreatography (MRCP) 1 year ago which showed gallbladder calculi, minimally narrowed distal common bile duct (CBD) with minimal intrahepatic biliary radical dilatation (IHBRD) and stent in situ. Patient was planned for ERCP and stent removal but lost follow up. Now, on examination, the abdomen was soft, with minimal tenderness in right hypochondriac region with a palpable gall bladder. Skiagram revealed radio-opaque shadow near gall bladder area.

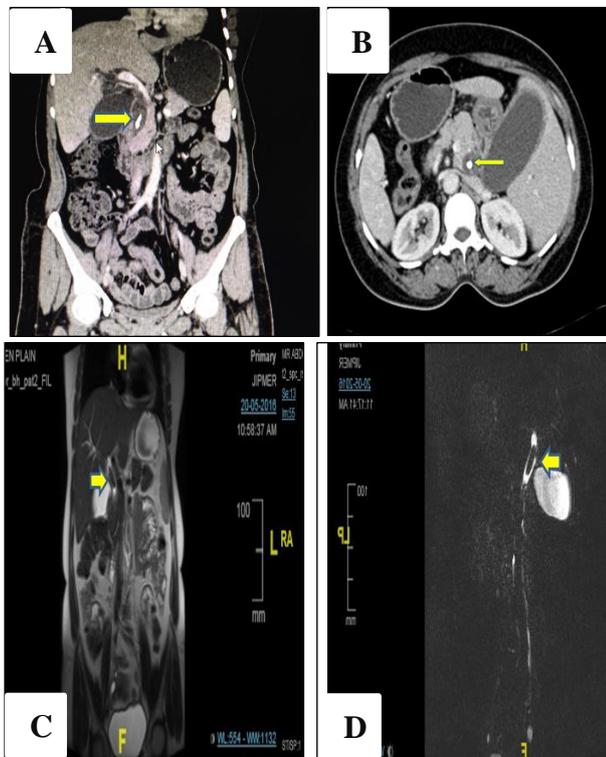


Figure 1: Computed tomography (CECT) and magnetic resonance cholangiopancreatography (MRCP) images showing the broken stent with concretions. Arrows in Figures 1(A): (Coronal view) and 1(B): (Axial view) show the broken stent in the common bile duct on CECT. Arrows in Figures 1(C): (Coronal view) and 1D (T2 weighted image) show the broken stent in the common bile duct on MRCP.

Ultrasound examination of the abdomen revealed distal CBD stone of 2.5 cm with dilated CBD of 1.5 cm at porta hepatis, with cholelithiasis. Contrast enhanced computed tomography (CECT) revealed the possibility of fractured and migrated ERCP stent proximally which could be mimicking a CBD stone (Figure 1A and 1B).

Redo ERCP as a part of treatment confirmed the fractured migrated stent in the proximal CBD. After sphincterotomy, balloon dilatation of papilla was done up to 12mm. Balloon sweeping was done with removal of sludge and small stones. Stone retrieval basket was used to remove the fractured stent but got impacted. ERCP was attempted thrice, but it failed to retrieve the impacted broken stent as concretions had formed around it. Another new plastic stent was placed across the broken stent. Patient was planned for MRCP followed by open CBD exploration. MRCP showed broken stent with concretions in proximal CBD with diameter of 1.3cm (Figure 1C and 1D).

Intraoperatively, broken stent with concretions of 2cm length with a plastic stent in CBD was seen (Figure 2).

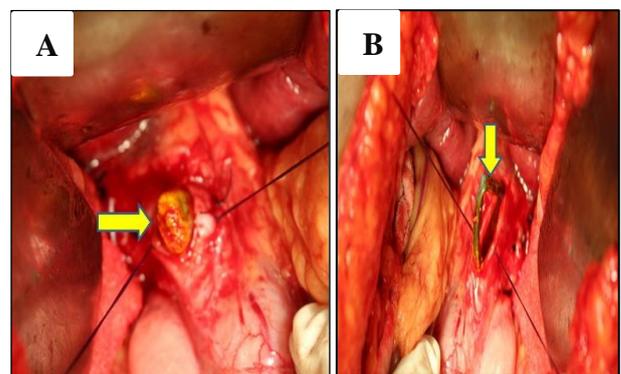


Figure 2: Intraoperative images showing the broken stent with concretions (2A, Arrow) extruding from the common bile duct, and the stent (2B, Arrow) being removed.

Broken stent and plastic stent were removed, cholecystectomy done, and T-tube was placed in situ (Figure 3). Post-operative period was uneventful.



Figure 3: Broken stent with concretions and the removed stent.

DISCUSSION

Endoscopic stenting is a well-established therapy for both benign and malignant biliary strictures.⁵ Malignant biliary

obstruction is caused by pancreatic carcinoma, cholangiocarcinoma and metastatic disease. Majority of these patients will require non-surgical treatment because of advanced nature of disease or significant comorbidity associated with surgery. Biliary stenting is often the only feasible therapeutic option for such patients.

Benign biliary diseases such as stricture, choledocholithiasis and leaks are usually treated with plastic stent placement. In this case, ERCP with stenting had been done in view of distal CBD stricture 6 years prior to the presentation.

Placement of stent has its own complications with a documented rate of 8-10%. The complications include cholangitis, cholecystitis, perforation of duodenum, bleeding, stent migration, and rarely stent fracture.⁴ Placement of plastic stents may need repeated replacement, in comparison to fully covered self-expandable metallic stents. It was initially unclear what type of stent was placed in this patient during the previous procedure as the details were not available. Placement of uncovered self-expanding metallic stent is not a safe practice. Spontaneous fracture of uncovered self-expandable metallic stent is a rare phenomenon and can occur when placed for a benign stricture with long expected life. Johanson JF et al, studied the incidence and risk factors of biliary and pancreatic stent migration. Results demonstrated the incidence rate of 4.9 % and 5.9 % for proximal (into the duct) and distal (out of the duct) biliary stent migration respectively.⁵

Stent migration was more common in patients who have not undergone sphincterotomy before stenting with incidence of 8.5%.⁶

The retrieval of fractured displaced segment of stent is a very challenging procedure. The retrieval procedures are done by endoscopic procedures using snare, forceps or balloon technique, rarely requiring surgical intervention.⁴

In the present case, the location of the fractured segment in the proximal CBD was confirmed with repeat ERCP. Retrieval of the stone/migrated stent was attempted thrice by ERCP and stone retrieval basket, but failed, possibly owing to the fact that concretions had formed around the fragment and it was too large for extraction. A temporary plastic stent had to be placed across it to relieve the obstruction. MRCP was done to assess the nature of the stone/concretion, and it was removed by open exploration at a later date.

In a previously reported study, Lee JH et al used a retrieval basket to grasp the distal end of straight guidewire to retrieve the migrated stent using guidewire loop technique.⁷ After successful biliary cannulation, the guidewire was slightly pushed forward to form a loop within the CBD. By simultaneously pulling the retrieval basket and the guidewire backward, the distal flap of the

biliary stent was caught by the guidewire loop and the migrated stent was successfully removed.

Shah DH et al, found that balloon biliary sphincteroplasty with controlled radial expansion balloon dilator increases the retrieval rate of proximally migrated biliary stents.⁸

CONCLUSION

In conclusion, a concretion formation over a broken stent can happen, which may mimic a CBD stone. Retrieval of this concretions/stone by endoscopic methods can be associated with failure, requiring laparoscopic or open surgical procedure for its removal.

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