Migration of biliary stent into the gallbladder: A surprising intraoperative finding

Vipul D. Yagnik¹, Apurva Patel², Gururaj M. Mannari², Pankaj Garg³, Sushil Dawka⁴

¹Department of Surgical Gastroenterology, Nishta Surgical Hospital and Research Centre, Patan, Gujarat, India, ²Department of Surgery, IRIS Hospital, Anand, Gujarat, India, ³Department of Colorectal Surgery, Garg Fistula Research Institute, Panchkula, Haryana, India, ⁴Department of Surgery, SSR Medical College, Belle Rive, Mauritius

Abstract
Post-endoscopic retrograde cholangiopancreatography stenting is a well-established treatment for benign as well as malignant biliary obstruction. The most frequently encountered complication is stent clogging. Stent migration (proximal or distal), on the other hand, is not very common. Proximal migration of a choledochal endoprosthesis into the gallbladder has not yet been reported in the literature.

Keywords: Biliary stent, endoscopic retrograde cholangiopancreatography, gallbladder, migration

INTRODUCTION

Although the migration of plastic biliary stents has been reported, proximal migration into the gallbladder has not been reported. This report presents a rare case of migrated biliary stent into the gallbladder where it was identified while cutting the cystic duct.

CASE REPORT

A 32-year-old male was admitted with right upper abdominal pain, nausea and yellow discoloration of the eyes and urine for 3 days. He reported no significant history of alteration in stool colour, anorexia or weight loss. Laboratory investigations were consistent with the diagnosis of obstructive jaundice, with a serum bilirubin level of 5.5 mg/dL and a serum alkaline phosphatase level of 700 U/L. Ultrasonography (USG) of the abdomen revealed multiple common bile duct (CBD) stones with multiple gallbladder stones. We referred the patient for endoscopic retrograde cholangiopancreatography (ERCP) to a gastroenterologist. The cholangiogram showed mild dilatation of the CBD with multiple small filling defects at the lower end.

After confirmation of the guidewire in the CBD, sphincterotomy with balloon sweep was performed to remove the stones. A 7F 10-cm double pigtail plastic biliary stent was inserted in the CBD. Stent deployment was routinely smooth with no hurdles encountered. The post-ERCP course was uneventful. The patient was scheduled for laparoscopic cholecystectomy 6 weeks later. Minor symptoms were managed conservatively as definitive treatment was already scheduled. We performed USG of the abdomen and blood investigations for pre-operative evaluation. Abdominal USG revealed multiple gallstones; the biliary stent was noted in situ within the CBD which

How to cite this article: Yagnik VD, Patel A, Mannari GM, Garg P, Dawka S. Migration of biliary stent into the gallbladder: A surprising intraoperative finding. J Min Access Surg 2022;18:151-3.
was otherwise normal. Blood investigations were normal. While performing laparoscopic cholecystectomy, we noticed that we had inadvertently divided the stent while cutting the cystic duct [Figure 1]. An intraoperative cholangiogram was performed to check the CBD and hepatobiliary anatomy; both right and left hepatic ducts were seen clearly along with free passage of contrast through the CBD into the duodenum. The distal cut portion of the stent was seen in the gallbladder and removed [Figure 2]. The post-operative course was unremarkable, and the patient was discharged on the 3rd post-operative day.

The patient has granted us full informed written consent for publication.

DISCUSSION

Since the first report by Soehendra and Reynders-Frederix in 1980,[1] ERCP and stenting have become well established as the treatment for benign as well as malignant biliary obstruction. Stent-related complications are primarily due to stent occlusion or stent migration. The most frequently encountered complication is cholangitis; this is frequently the consequence of stent clogging due to microbial biofilm growth and biliary sludge accumulation.[2] Stent migration (proximal or distal), on the other hand, is not very common. Arhan et al. have observed that the overall migration rate for plastic stents in patients with benign and malignant diseases is 8.58% (proximal 4.58% and distal 4.00%).[3] Stent migration can occur both proximally (hepatic ducts) and distally (intestinal lumen).

Factors related to stent migration can be divided into two categories:[6] (1) stent-related factors and (2) nature of the disease.

1. Stent-related factors: These include length and diameter, material, design (straight or double pigtail) and the number of stents (single or multiple)
2. Nature of the disease: As may be expected, benign biliary disorders have a higher rate of migration.[3] However, proximal stent migration was more commonly associated with malignant strictures, larger diameter stents and shorter stents.[6]

Not all stents that migrate cause symptoms. Proximal migration of the stents often causes obstructive jaundice and cholangitis, while most distally migrated stents are eliminated spontaneously. Straight stents are more commonly associated with complications, including perforation of the intestine.[7] Yagnik and Joshipura recommend the use of double-pigtail stents to avoid perforation.[7]

In this case, proximally displaced segment of the stent was likely obscured by the acoustic shadowing from the calculi and therefore missed.

To the best of our knowledge, proximal migration of a choledochal endoprosthesis into the gallbladder has not yet been reported in the literature. This is the first report documenting this rare but noteworthy CBD stent displacement, and we highlight the need for awareness in a patient with a relevant history of endoscopic biliary intervention.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts...
will be made to conceal identity, but anonymity cannot be guaranteed.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

REFERENCES
1. Soehendra N, Reynders-Frederix V. Palliative bile duct drainage – A new endoscopic method of introducing a transpapillary drain. Endoscopy 1980;12:8-11.
2. Donelli G, Guaglianone E, Di Rosa R, Fiocca F, Basoli A. Plastic biliary stent occlusion: Factors involved and possible preventive approaches. Clin Med Res 2007;5:53-60.
3. Arhan M, Odeniș B, Parlak E, Erçuğrul I, Başar O. Migration of biliary plastic stents: Experience of a tertiary center. Surg Endosc 2009;23:769-75.
4. Morimachi M, Ogawa M, Yokota M, Kawanishi A, Kawashima Y, Mine T. Successful endoscopic removal of a biliary stent with stent-stone complex after long-term migration. Case Rep Gastroenterol 2019;13:113-7.
5. Márquez HR, Sanchez JS, Jaimes ES. Proximal migration of biliary stent: Case report. EC Gastroenterol Dig Syst 2019;6:155-62.
6. Johanson JF, Schmalz MJ, Geenen JE. Incidence and risk factors for biliary and pancreatic stent migration. Gastrointest Endosc 1992;38:341-6.
7. Yagnik VD, Joshipura VP. Duodenal perforation secondary to migrated biliary stent: A rare and serious complication of endoscopic retrograde cholangiopancreatography. J Dig Endosc 2018;9:193-5.