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Case Report

Three CBD stents removed: a rare case of obstructive jaundice

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ABSTRACT

Retained biliary stents are a rare but important cause of obstructive jaundice and cholangitis. Authors reported a unique case of a 28-year-old female with three retained common bile duct (CBD) stents, presenting with recurrent jaundice and undergoing successful open CBD exploration and Roux-en-Y hepaticojejunostomy. This report highlights the importance of follow-up after biliary stenting and the surgical challenges associated with retained stents.

Keywords: CBD, Common bile duct, Stent, Hepatico jejunostomy

INTRODUCTION

Common bile duct (CBD) obstruction by a foreign body is a rarely causes obstructive jaundice, especially due to a biliary stent on which de novo gallstones have formed. There are ample of studies about the biliary stents, however little information about the long-term stay or forgotten biliary stents except for 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 of utmost importance as Forgotten or stents retained in the biliary ducts for a prolonged period without follow-up can lead to serious complications.[1-4]

CASE REPORT

A 28-year-old female underwent laparoscopic cholecystectomy in 2022 for gallstones. On postoperative day 3, she developed bile leakage requiring surgical re-exploration and CBD repair. She subsequently experienced wound infection and required resuturing. Six months prior to presentation, she developed jaundice and was diagnosed with CBD stricture and stones. Endoscopic removal of stones and biliary stenting were performed. However, the stents were not removed in time, and the patient had recurrence of jaundice due to calculi formation. Two months ago, she was re-stented without removal of previous stents. One month ago, during an attempt to remove the stents, the gastroenterologist failed to retrieve them and inserted an additional stent and diagnosed it as "Broken stent with Choledocholithiasis" (Figure 1). This resulted in worsening jaundice with a serum bilirubin of 12 mg/dl. The patient was referred for definitive surgical management. She underwent open CBD exploration with stent and stone removal. Due to her preference to avoid future stenting, a Roux-en-Y hepaticojejunostomy was planned. After consent, surgery was performed through a rooftop incision. Extensive adhesiolysis was done. CBD was identified and opened, and three plastic stents (7FR, 10 cm) were removed (Figure 1). Flexible choledochoscopy confirmed removal of all stones (Figure 2).

Common bile duct and entry into duodenum (visualized duodenal papilla) respectively.

A jejunal limb approximately 40 cm distal to the duodenojejunal flexure was mobilized retrocolically and a side-to-side hepaticojejunostomy was fashioned. This approach was necessitated due to dense adhesions between the posterior CBD and portal vein. The proximal

and distal jejunal limbs were anastomosed side-to-side. All anastomoses were hand-sewn using 3-0 PDS suture and outer layer with silk 3-0. A right subhepatic drain was placed, and the abdomen was closed in layers (Figure 3). Postoperatively, the patient was started on liquids on POD 3 and discharged on POD 5 with bilirubin levels of 3 mg/dl. Follow-up at 2 weeks and 1 month showed normal bilirubin levels and a healthy stitch line.

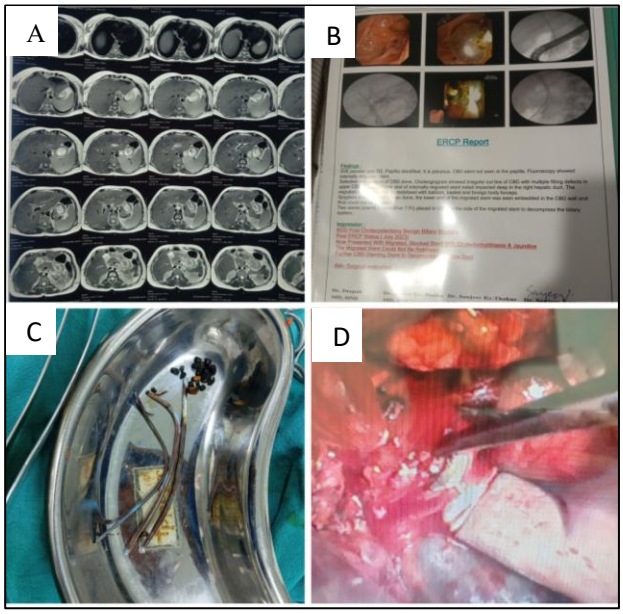

Figure 1(A-D): Upper two pics showing MRCP and ERCP report with retained stents. Lower two pics showing 3 stents and stones removed and on table stent removal through CBD (encircled).

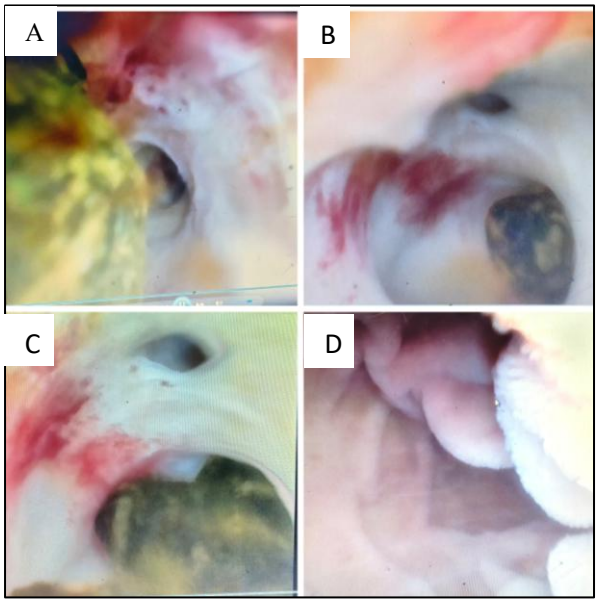

Figure 2(A-D): Choledochoscopic view of right and left common hepatic ducts (upto Secondary biliary radicals encircled) in upper two pictures. Lower two PICs showing stone in distal CBD and entry into duodenum (visualized duodenal papilla) respectively.

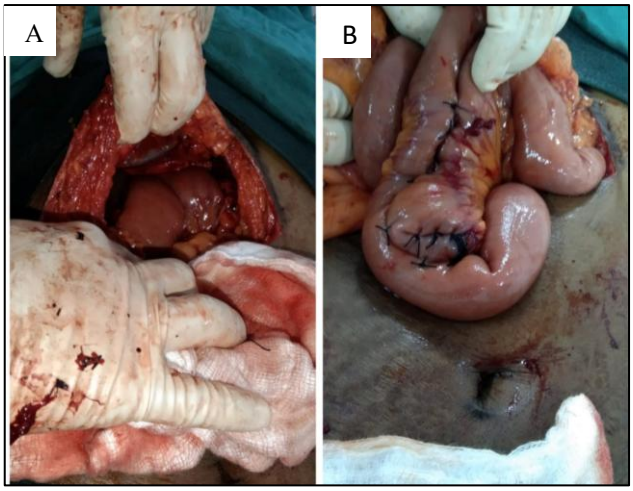

Figure 3: (A) Hepaticojejunostomy. (B) Roux EN Y Jejunojejunostomy.

DISCUSSION

Those stones of CBD originating from the gallbladder are called secondary CBD stones and the ones formed primarily in the biliary ducts are called primary bile duct stones.[5] Risk factors associated with gallstone formation are nutrition, high BMI, weight loss, females, race and serum lipid levels. A combination of bile infection, dietary factors, biliary stasis, and possibly parasitic infestation are the cause of formation of intrahepatic biliary stones.[6]

Choledocholithiasis leads to obstructive jaundice (raised bilirubin) which induces systemic inflammatory response syndrome (SIRS) which may progress to multiple organ dysfunction syndrome if not intervened and managed with full replacement of water and electrolyte deficiency, prophylactic antibiotics, lactulose, vitamin K and fresh frozen plasma, albumin and dopamine.[7] As per recommendation of European Society of Gastrointestinal Endoscopy (ESGE) it is mandatory for stone extraction to all fit patients with common bile duct stones, symptomatic or not and 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. Healthcare workers who look after patients with jaundice should be aware of stenting as an option for treatment. The mechanism of stones change in number and size is unclear. Continuous friction between the plastic stent and the stones produces stress forces that facilitate the disintegration of stones and reduce their size.[8]

Plastic stents if kept for long period promote bacterial proliferation with production of bacterial beta glucuronidase, which results in the precipitation of calcium bilirubinate which then aggregates into stones

by an anionic glycoprotein and hence, stents themselves cause the primary disorder (choledocholithiasis) for which they were inserted in the first place.[9] Thus ESGE recommends that plastic stents placed for incomplete common bile duct stone clearance are to be removed or exchanged within 3-6 months to avoid infectious complications like cholangitis.[8] There are many studies about the biliary stents, however there is a little information about the long-term stayed or forgotten biliary stents leading to Choledocholithiasis except a few case reports.[10] Patient with forgotten stents commonly present with abdominal pains, obstructive jaundice and cholangitis and have deranged liver function tests and dilated biliary tracts on abdominal ultrasound.3 Biliary stents, being foreign bodies form a nidus of infection particularly if not removed within 4-6 weeks from insertion.[11]

The de novo formation of biliary stones around the stent was reported in a few case reports which lead to a stone-stent complex assuming a lollipop, dumbbell, or the stent shape. Bansal and his colleagues were the first to term this complex 'Stentolith' in 2009.[12] The most common complication of retained long-term plastic biliary stents observed was acute cholangitis associated with CBD stones. Endoscopic management was successfully performed in most cases.[13] Many different surgical strategies are available like 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).[14] The management needs to be tailored to each individual case after careful history and investigations.

In this case 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 along with 3 CBD stents in situ. There was past history of cholecystectomy, and history of 2 episodes of obstructive jaundice which resolved after primary management were present for over a span of 2 years. Authors managed the patient with open CBD exploration and removal of stents debris and multiple stones with Roux-enY hepaticojejunostomy along with a right subhepatic drain.

CONCLUSION

A retained or forgotten stent leading to formation of a stentstone complex is a rare complication of endoscopically placed biliary stents. If detected early, it may be retrieved endoscopically. 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 recordkeeping, and regular timely follow-up. This is the first documented surgical removal of three retained CBD stents in India, successfully managed with definitive ROUX –EN – Y hepaticojejunostomy.

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REFERENCES

1. Muley G. Retained plastic biliary stent presenting with obstructive jaundice: a case report. Int Surg J. 2021;8(9):2792-5.
2. Odabasi M, Arslan C, Akbulut S, Abuoglu HH, Ozkan E, Yildiz MK, et al. Long-term effects of forgotten biliary stents: a case series and literature review. Int J Clin Exp Med. 2014;7(8):2045-52.
3. Lesetedi C, Motsumi MJ. Forgotten metal stent (3 years) presenting with a high burden of intra- and extra-hepatic ducts stones and cholangitis. J Surg Case Rep. 2019;2019(10):294.
4. Sharma M. Retained biliary stents: a silent source of sepsis. J Gastroenterol Hepatol. 2018;33(2):1-3.
5. Tazuma S. Gallstone disease: Epidemiology, pathogenesis, and classification of biliary stones. Best Pract Res Clin Gastroenterol. 2006;20(6):1075-83.
6. Ran X, Yin B, Ma B. Four Major Factors Contributing to Intrahepatic Stones. Gastroenterol Res Pract. 2017;7:213043.
7. Pavlidis ET, Pavlidis TE. Pathophysiological consequences of obstructive jaundice and perioperative management. Hepatobiliary Pancreat Dis Int. 2018;17(1):17-21.
8. Manes G, Paspatis G, Aabakken L, Anderloni A, Arvanitakis M, Soune P, et al. Endoscopic management of common bile duct stones: European Society of Gastrointestinal Endoscopy (ESGE) guideline. Endoscopy. 2019;51(5):472-91.
9. Yu JL, Andersson R, Wang LQ, Ljungh A, Bengmark S. Experimental foreign-body infection in the biliary tract in rats. Scand J Gastroenterol. 1995;30(5):478-83.
10. Odabasi M, Arslan C, Akbulut S, Abuoglu HH, Ozkan E, Yildiz MK, et al. Long-term effects of forgotten biliary stents: a case series and literature review. Int J Clin Exp Med. 2014;7(8):2045-52.
11. Giorgio P, Manes G, Grimaldi E, Schettino M, Alessandro A, Giorgio A, et al. Endoscopic plastic stenting for bile duct stones: stent changing on demand or every 3 months. A prospective comparison study. Endoscopy. 2013;45(12):1014-7.
12. Bansal VK, Misra MC, Bhowate P, Kumar S. Laparoscopic management of common bile duct "Stentolith". Trop Gastroenterol. 2009;30(2):95-6.
13. Sohn SH, Park JH, Kim KH, Kim TN. Complications and management of forgotten long-term biliary stents. World J Gastroenterol. 2017;23(4):622-8.

14. Nardi M, Perri SG, Pietrangeli F, Amendolara M, Dalla TA, Gabbrielli F, et al. Sequential treatment: is it the best alternative in cholecysto-choledochal lithiasis. Chir Ital. 2002;54(6):785-98.
15. Kumar S, Chandra A, Kulkarni R, Maurya AP, Gupta V. Forgotten biliary stents: ignorance is not bliss. Surg Endosc. 2018;32(1):191-5.

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