

A Rare Case of Forgotten CBD Stent with Secondary Biliary Calculi

**Dr. Sudhir Kumar Jain¹, Dr. Rathindra Tripura²,
Dr. Mrunal Bharat Kshirsagar³, Dr. Siva Sai Akshay Mitnala⁴,
Dr. Swechcha Shubham⁵**

¹HOD General Surgery, ²Assistant Professor General surgery, ³Senior Resident General Surgery, ⁴Junior Resident General Surgery, ⁵Junior Resident General Surgery

^{1,2,3,4,5}Department of General Surgery, Rama Medical College, Rama University, City-Pilkhuwa Hapur, Uttar Pradesh, India

Corresponding Author: Dr. Mrunal Kshirsagar

DOI: <https://doi.org/10.52403/ijhsr.20240622>

ABSTRACT

Endoscopic biliary stenting is a commonly performed procedure in interventional gastroenterology, typically utilizing plastic stents for short-term biliary drainage. Stentolith refers to a forgotten stent post-ERCP that serves as a nidus for stone formation. Stents should ideally be removed within 6 weeks to avoid complications such as cholangitis, pancreatitis, biliary stricture, and biliary cirrhosis. Failure to attend to stents for extended periods can lead to a wide range of complications.

Our 33-year-old patient presented with a long-standing forgotten biliary stent with stentolith. Diagnostic confirmation was achieved through a combination of abdominal ultrasonography and MRCP.

Keywords: Forgotten CBD Stent, Secondary Biliary Calculi, Stentolith

INTRODUCTION

The occurrence of choledocholithiasis is approximately 10% in patients with symptomatic gallstones and increases to 15% in those diagnosed with acute cholecystitis. The established approach for managing common bile duct (CBD) stones involves endoscopic retrograde cholangiography (ERCP) and subsequent stone removal, with or without stent placement. (1) Typically, the sequence of events includes ERCP management of CBD stones followed by cholecystectomy, and then removal of the stent. Gastroenterologists commonly remove the CBD stent approximately 3-4 weeks after placement, and in some cases, the stent may pass out spontaneously in the stool.

However, if stent removal is delayed for any reason, it can lead to complications. (2-3) We present a case of a forgotten biliary stent discovered after 6 years, which resulted in the formation of a stentolith and associated calculi in the common bile and hepatic ducts.

CASE REPORT

33 yrs. adult presented with pain in epigastric region since 4 months which aggravates on taking food. He also complained of fever which was intermittent in nature and gets resolved on taking medication. It was also associated with vomiting and yellowish discoloration of eyes for one month. He lost 5 kgs in 4 months due to pain after taking food. He was on liquid

diet for 4 months. On clinical examination, tenderness present in epigastric region. On biochemistry Deranged LFT was found with raised conjugated bilirubin and markedly raised alkaline phosphatase. On USG and MRCP choledocholithiasis with CBD stent seen in situ (figure 1.). ERCP was done for choledocholithiasis 6 years back. Laparoscopic cholecystectomy was done for cholelithiasis 2 years back. Patient was advised 6 years back for stent removal but patient ignored the advice. gastroenterologist failed to remove stent through ERCP due to multiple stentolith. Therefore, decision was taken to perform open CBD exploration and stent removal. Intraoperatively, Dilated CBD

2.5 cm seen adhered to duodenum (figure 2.) & liver, CBD explored for stent removal and same was removed under vision & CBD calculus extracted (figure 3.). Ureteroscope was used for visualisation of intraluminal impaction of calculi in the common bile duct till sphincter of ODI distally (figure 4.) also, common hepatic duct proximally (figure 5.). No impacted calculi seen; minimal sludge seen, & removed with forceps. Normal Saline wash given. T tube placed. After 6 weeks T-tube cholangiogram done and T-tube was removed. Patient reviewed after one month had no symptoms and doing well.

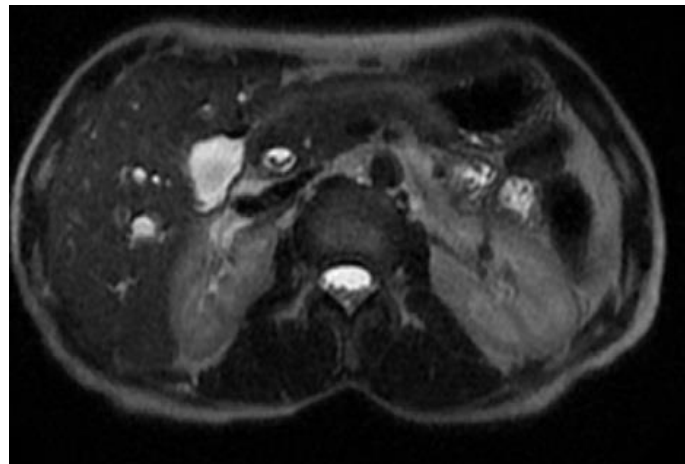


Figure 1. Preoperative MRCP showing stent and stentolith



Figure 2. Intraoperative dilated CBD cut open



Figure 3. CBD stent with stentolith of impacted calculi within

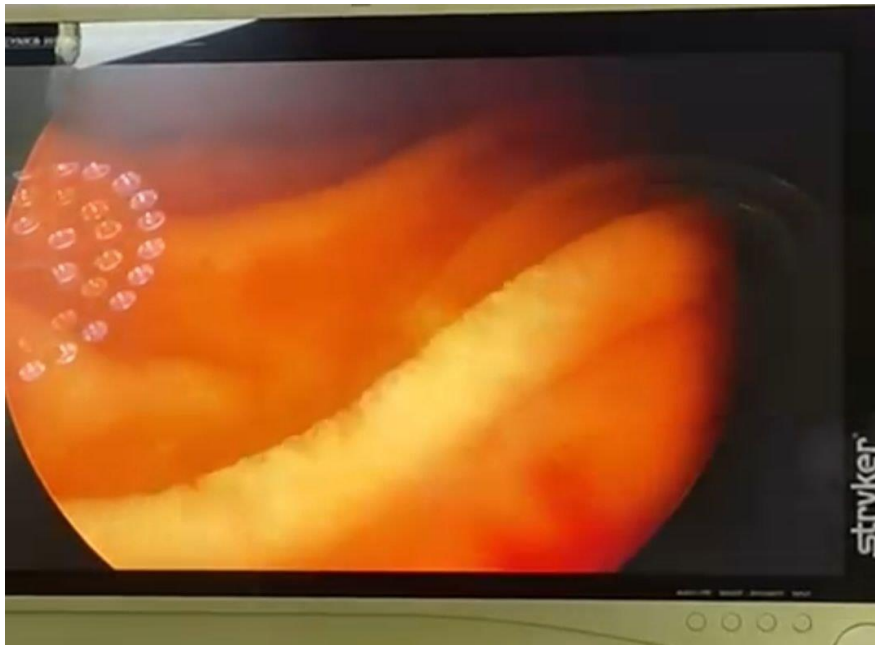


Figure 4. Distal visualisation of duodenum using ureteroscope passing through sphincter of odi

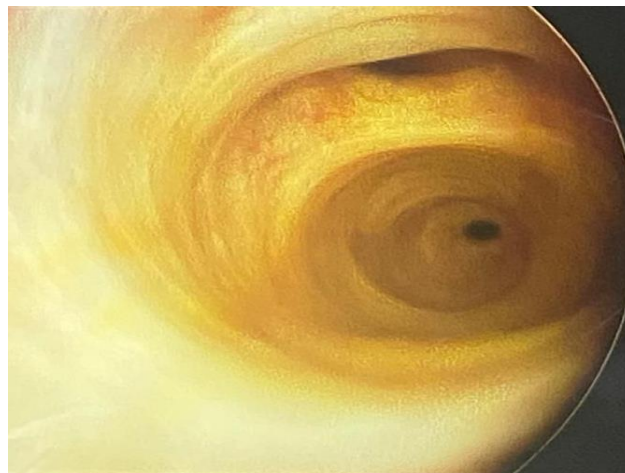


Figure5. ureteroscopic view of dilated hepatic duct with left and right hepatic duct orifices



Figure6. post-operative T-tube cholangiogram

DISCUSSION

Endoscopic retrograde cholangiopancreatography (ERCP) combined with endoscopic sphincterotomy (EST) and stone extraction is widely regarded as the preferred treatment for patients of any age diagnosed with choledocholithiasis. (4-6) This approach has demonstrated success rates ranging from 80% to 95%. Despite advancements in ERCP techniques, there are instances where endoscopic removal of biliary stones may prove challenging especially in cases forgotten and retained stents. Surgical interventions may be considered for these patients(7-10)

CBD stents are generally classified into two main categories: plastic and metallic. Metallic stents are typically constructed from stainless steel or nickel-titanium alloy. They generally used for long standing drainage like malignant biliary stricture. Plastic stents are commonly used temporarily for post-ERCP CBD clearance, palliative stenting in metastatic diseases with a life expectancy of less than three months, or temporary biliary drainage preceding surgery. Despite their cost-

effectiveness, plastic stents are prone to occlusion, primarily due to microbial colonies, bacterial byproducts, calcium bilirubinate, and calcium palmitate crystals, which foster bacterial adherence and biofilm formation. Bacterial β -glucuronidase release also contributes to calcium bilirubinate precipitation, which aggregates into stones due to glycoproteins. The presence of a retained stent acts as a foreign body, promoting bacterial colonization. Ideally, stents should be removed within three to six months. The most prevalent complications associated with retained endoscopic stents include jaundice, cholangitis, choledocholithiasis, pancreatitis, and internal migration. The incidence of stentolith formation is approximately 18% in cases where stents have been forgotten for over two years. CBD stentolith may manifest with symptoms such as pain, fever, jaundice, or recurrent cholangitis. Strategies to prevent or delay stent occlusion or stentolith formation may involve prophylactic antibiotics, antibiotic-impregnated stents, bile-thinning compounds like ursodeoxycholic acid, placement of CBD stents with

sphincterotomy when feasible, and utilization of larger diameter stents. Management typically entails endoscopic stent removal. However, patients experiencing symptoms may require laparoscopic or open CBD exploration and stent removal. Bilioenteric bypass with side-to-side Roux-en-Y choledochojunostomy, CBD exploration with choledochoduodenostomy, and endoscopic clearance of stentoliths have also been performed in select cases (11-13).

CONCLUSION

Patients often overlook the potential complications associated with prolonged retention of biliary stents. It is crucial to provide thorough patient counselling, education, and documentation to prevent this scenario.

Declaration by Authors

Acknowledgement: None

Source of Funding: None

Conflict of Interest: The authors declare no conflict of interest.

REFERENCES

1. Kroh M, Chand B. Choledocholithiasis, endoscopic retrograde cholangiopancreatography, and laparoscopic common bile duct exploration. *Surg Clin North Am* 2008; 88:1019-31, vii.
2. Culnan DM, Cicuto BJ, Singh H, Cherry RA. Percutaneous retrieval of a biliary stent after migration and ileal perforation. *World J Emerg Surg* 2009; 4:6.
3. Demling L, Koch H, Classen M, Belohlavek D, Schaffner O, Schwamberger K, et al. Endoscopic papillotomy and removal of gall-stones: Animal experiments and first clinical results (author's trans). *Dtsch Med Wochenschr* 1974; 99:2255-7.
4. Lambert ME, Betts CD, Hill J, Faragher EB, Martin DF, Tweedle DE. Endoscopic sphincterotomy: the whole truth. *Br J Surg*. 1991;78(4):473-6.
5. Chan AC, Ng EK, Chung SC, Lai CW, Lau JY, Sung JJ, et al. Common bile duct stones become smaller after endoscopic biliary stenting. *Endoscopy*. 1998;30(4):356-9.
6. Cotton PB, Forbes A, Leung JW, Dineen L. Endoscopic stenting for long-term treatment of large bile duct stones: 2- to 5-year follow-up. *Gastrointest Endosc*. 1987;33(6): 411-2.
7. Donelli G, Guaglianone E, Rosa RD, Fiocca F, Basoli A. Plastic biliary stent occlusion: factors involved and possible preventive approaches. *Clin Med Res*. 2007;5(1):53-60.
8. Kumar S, Chandra A, Kulkarni R, Maurya AP, Gupta V. Forgotten biliary stents: ignorance is not bliss. *SurgEndosc*. 2017;32(1):191-5.
9. De Palma G, Galloro G, Siciliano G, Catanzano C. Endoscopic stenting for definitive treatment of irretrievable common bile duct calculi. A long-term follow-up study of 49 patients. *Hepatogastroenterology*. 2001;48(37):56-8.
10. 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.
11. Bajbouj M, Treiber M, Ludwig L, Frimberger E, Schmid RM, Neu B. Forgotten biliary endoprosthesis. "Follow up" after 10 years. *Endoscopy*. 2008; 40(2):E221.
12. Gupta V, Chandra A, Noushif M, Singh SK. Giant stentolith: complication of a forgotten biliary stent. *Endoscopy*. 2013;45(2).
13. Kumar S, Chandra A. Giant stentolith: A rare complication of long-dwelling biliary endoprosthesis. *Arab J Gastroenterol*. 2020;21(2):132-4.

How to cite this article: Sudhir Kumar Jain, Rathindra Tripura, Mrunal Bharat Kshirsagar, Siva Sai Akshay Mitnala, Swechchha Shubham. A rare case of forgotten CBD stent with secondary biliary calculi. *Int J Health Sci Res*. 2024; 14(6):146-150. DOI: <https://doi.org/10.52403/ijhsr.20240622>
