

Unusual ERCP Complication: Unwanted Course of Misdirected Bile

Patel AH¹, Lee JA² and Kim JJ^{3*}

¹Division of Gastroenterology, Kaiser Permanente Walnut Creek

²Division of Gastroenterology and Hepatology, Loma Linda University Medical Center

³Associate Professor, Division of Gastroenterology, Loma Linda University Medical Center

*Corresponding author:

John J Kim,
Division of Gastroenterology Department of Medicine
11234 Anderson St., Loma Linda, CA 92354, USA,
Tel: 909-558-5512; E-mail: JohnJKim@llu.edu

Received: 20 Nov 2022

Accepted: 01 Dec 2022

Published: 10 Dec 2022

J Short Name: JJGH

Copyright:

©2022 Kim JJ, This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and build upon your work non-commercially.

Keywords:

ERCP; Biliary stent; Migration; Perforation

Citation:

Kim JJ. SBCHE As A Prognostic Biomarker For Stomach Adenocarcinoma And Correlates With Immune Cells Infiltration. J Gastro Hepato. V9(12): 1-3

1. Abstract

Biliary stent complications include stent migration, obstruction, fragmentation, bleeding, perforation, cholangitis, and post-ERCP pancreatitis. Stent migration is the most common adverse event (5-14%) and is associated with: dilated CBD >10mm, benign stricture etiology, concomitant sphincterotomy, stent duration >1 month, and type of stent placed (straight, 10Fr diameter, and length >9cm). Here, we present a case report describing the clinical course of patient who suffered from a rare complication associated with biliary stents—intestinal perforation.

2. Text

A 78-year old man with newly diagnosed sigmoid colon cancer with a metastatic liver mass and peritoneal carcinomatosis presented to the emergency department with fever and abdominal pain 48 hours after undergoing ERCP with biliary stent exchange. A 10Fr x15cm plastic biliary stent was placed, crossing the hilar stricture adjacent to a 21mm liver mass (segment IV/V), to the right medial hepatic duct (Figure 1). He was discharged next day with improving liver tests. Other medical history includes hypertension and a recently diagnosed deep vein thrombosis on rivaroxaban. In 2020, he also developed a strangulated right inguinal hernia undergoing exploratory laparotomy and small intestine resection, which was later complicated by a large ventral incisional hernia.

On presentation, he had a fever of 40 degree C, heart rate of 102 beats per minute, and blood pressure of 83/42 mm Hg. Physical

exam revealed an ill appearing jaundiced man with marked abdominal distension over a large incision hernia and generalized tenderness. Laboratory analysis showed white blood count $13.9 \times 10^3/\mu\text{L}$, aspartate aminotransferase of 35 U/L, alanine aminotransferase of 56 U/L, alkaline phosphatase of 794 IU/L, and total bilirubin of 2.6 mg/dL. Blood cultures was positive for *Enterobacter cloacae*. Patient was found to be positive for SARS-CoV-2. A computed Tomography Scan (CT) of the abdomen and pelvis with intravenous contrast showed interval distal migration of the biliary stent and a development of a large retroperitoneal fluid and air collection (Figure 2, 3 orange-colored arrow). After fluid resuscitation and initiation of broad spectrum antibiotics, he underwent emergent interventional radiology (IR) procedure followed by an upper endoscopy and was found to have a duodenal perforation secondary to a migrated plastic biliary stent.

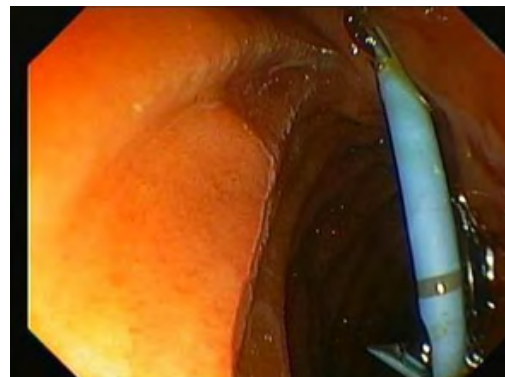


Figure 1: 10Fr x15cm plastic biliary stent crossing the hilar stricture

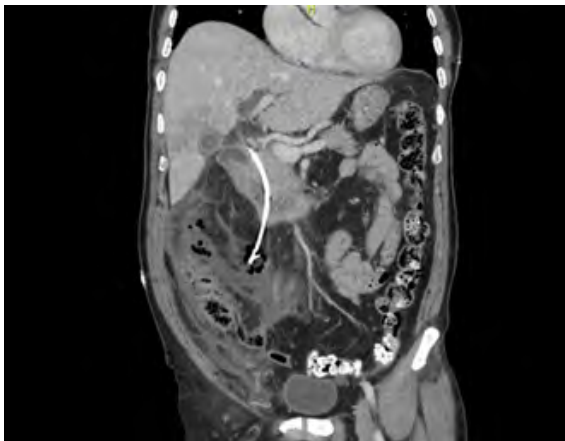


Figure 2: CT abdomen and pelvis with intravenous contrast illustrating distal migration of the biliary stent

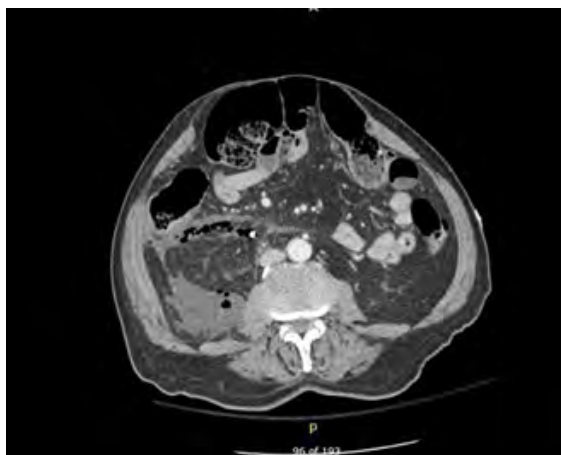


Figure 3: CT abdomen and pelvis with intravenous contrast illustrating development of a large retroperitoneal fluid and air collection (orange arrow)

Surgical consultation was obtained but due to his high operative risk patient was not a surgical candidate. Patient immediately received a CT-guided drainage with placement of pigtail catheter into the fluid collection, aspirating 100cc of bile by IR. Emergent endoscopy performed showed a plastic stent traversing across the lumen of the duodenum perforating the lateral wall, opposite of the ampulla (Figure 4). The stent was removed and an over-the-scope clip system was utilized to close the defect (Figure 5). Subsequently sepsis from vancomycin-resistant enterococcus improved. Patient then received a percutaneous drain for biliary decompression and an upper gastrointestinal series documented absence of a leak. Patient was then discharged with oral antibiotics and outpatient management of metastatic colon cancer.

Since then, patient has been admitted twice for recurrent sepsis secondary to *Klebsiella* and *Enterobacter* bacteremia due to a hepatic abscess that has been resistant to outpatient therapy. During his most recent admission, the abscess was documented to be increasing to 2.3 cm with repeat placement of JP drain. Patient is currently discharged and will continue antibiotics as an outpatient and potentially palliative care.



Figure 4: Endoscopy finding: Plastic stent traversing the lumen of the duodenum causing a perforation



Figure 5: Successful closure of the perforation with over-the-scope clip system

3. Discussion

Biliary stent is placed to establish biliary drainage for benign and malignant pancreatobiliary disease. Placement of plastic biliary stent is associated with a complication rate of 8-10% including stent migration, obstruction, fragmentation, bleeding, perforation, cholangitis, and post-ERCP pancreatitis. Stent migration is the most common adverse event (5-14%) and is associated with: dilated CBD >10mm, benign stricture etiology, concomitant sphincterotomy, stent duration >1 month, and type of stent placed (straight, 10Fr diameter, and length >9cm) [2].

Intestinal perforation from migrated stent is rare, occurring 72 hours to 6 months after ERCP. Only 25 cases have been reported, and a recent single center study reported an incidence of 0.8% among 696 ERCP procedures with placement of plastic biliary stents [1]. Our case documents the earliest duodenal perforation secondary to a migrated plastic stent. Perforations most commonly involve the duodenum with few reports of perforations involving the distal small

bowel, cecum, and sigmoid colon. Higher rates of duodenal perforation are likely related to proximity to ampulla, thin wall, and retroperitoneal fixation. Straight type stents compared to double pigtail-type stents are more likely to cause perforation due to higher likelihood of pressure necrosis from distal end on adjacent duodenal wall. This risk appears to be compounded in cases where stent is placed for management of benign biliary strictures (I.e. hilar stricture or post-liver transplant anastomotic stricture). In these cases, stricture may anchor the proximal end of the stent, preventing the spontaneous migration of the stent out of the duodenum leading to repetitive trauma from the distal stent tip leading to perforation.

Clinicians must maintain a high index of suspicion as symptoms are generally nonspecific and may mimic other ERCP complications such as pancreatitis, cholangitis, or stent dysfunction.

References

1. Bureau M-A, Gkolfakis P, Blero D, Pezzullo M, Devière J, Lemmers A. Lateral duodenal wall perforation due to plastic biliary stent migration: a case series of endoscopic closure. *Endosc Int Open*. 2020; 8(5): E573-E577.
2. Emara MH, Ahmed MH, Mohammed AS, Radwan MI, Mahros AM. Biliary stent migration: why, how, and what? *Eur J Gastroenterol Hepatol*. 2021; 33(7): 967-973.
3. Wang X, Qu J, Li K. Duodenal perforations secondary to a migrated biliary plastic stent successfully treated by endoscope: case-report and review of the literature. *BMC Gastroenterol*. 2020; 20(1): 149.