

Taking an Alternate Route Home: Stenting of Choledochoduodenal Fistula

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Abstract

A 53-year-old male with adenocarcinoma of the rectum with metastasis to liver and porta hepatis region underwent biliary stenting due to aggressive distal common bile duct stricture. At the time of planned stent exchange, the guidewire could not be re-introduced, despite several techniques, including the SpyScope® system. A small fistula was noted by contrast fluoroscopy extending between proximal biliary tree/porta hepatis and the duodenal bulb, likely secondary to previous chemotherapy and radiation. A stent was placed in this fistula, as this was the only pathway available for biliary drainage.

Introduction

Choledochoduodenal fistulas (CDFs) may occur secondary to inflammatory or neoplastic causes or as a consequence of radiation therapy. Rarely, this may represent an alternative pathway for biliary drainage. There are no previous case reports of stenting a CDF.

Case Report

A 53-year-old male with rectal adenocarcinoma with metastasis to the right lobe of the liver and porta hepatis lymph nodes presented with aggressive distal common bile duct (CBD) stricture and underwent biliary stenting with a 10 French x 12 cm polymer stent by endoscopic retrograde cholangiopancreatography (ERCP). Prior treatment included right hemihepatectomy, portal lymph node and retroperitoneal lymph node dissection, and external beam radiation therapy. A polymer stent was chosen to facilitate biliary flow from the tributaries. At the time of planned stent exchange, the guidewire could not be reintroduced into the proximal biliary system after the removal of the old stent, despite numerous techniques and maneuvers. Several maneuvers were unsuccessful in traversing the wire through the CBD stricture, including use of the SpyScope® system (Boston Scientific, Natick, MA) for directed wire access. Percutaneous transhepatic catheterization, although the typical alternative option, was not considered suitable for biliary drainage of this patient's non-dilated biliary system due to underlying liver damage from previous radiation, liver metastasis, and prior right hemi-hepatectomy.

A small fistula was noted by contrast fluoroscopy, extending between proximal biliary tree/porta hepatis and the duodenal bulb, likely secondary to previous chemotherapy and radiation and liver metastasis (Figures 1 and 2). This fistula was used to access the intrahepatic biliary system with an 0.035 guidewire (Jagwire; Boston Scientific, Natick, MA), whereupon a 7 French x 7 cm stent was placed in the fistula for palliation using a 9-mm upper scope and a standard introducer (Figures 3 and 4). The patient did well for several months

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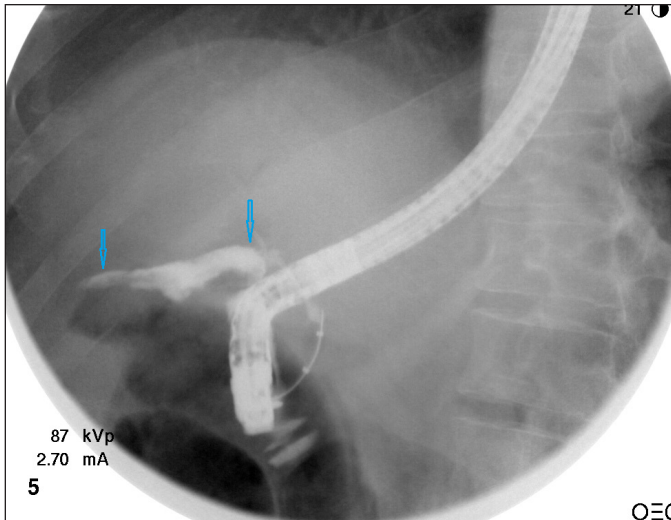


Figure 1. Cholangiography demonstrates a fistulous connection of extrahepatic biliary system and duodenum (arrows).

and underwent stent upsizing on a scheduled basis until his disease advanced to overwhelm the entire liver parenchyma with metastatic disease. The patient was referred for possible palliative hyperthermic intraperitoneal chemotherapy (HIPEC) and hospice care.

Discussion

CDFs are rarely reported and commonly form due to inflammatory, neoplastic, traumatic, or infectious causes.¹⁻³ Tuberculous duodenal ulcers are also reported to cause CDF.⁴ These fistulas may form spontaneously as a complication from metallic biliary stents with underlying malignancy.⁵ The mechanism of CDF may occur as a result of increasing pressure traversing along the pathway of the fistula from obstruction in the distal CBD. Sump syndrome may occur as a complication of allowing biliary drainage through an alternative route like CDF, as the food, stones, and debris accu-

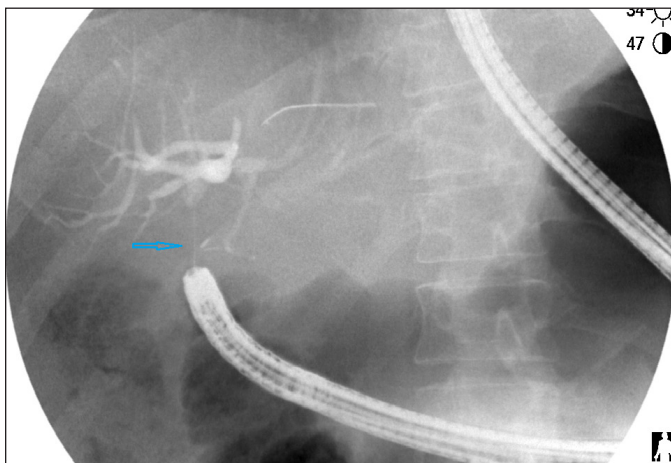


Figure 2. Deep biliary cannulation from the duodenal bulb, through the fistula (arrow), and into the deep left intrahepatic system.

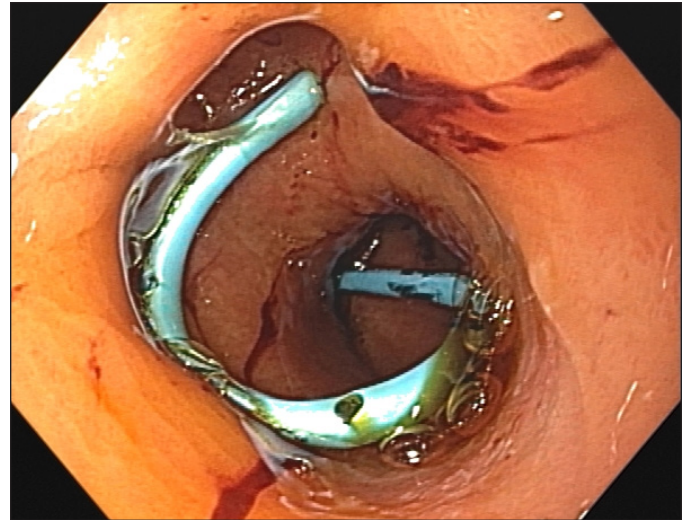


Figure 3. Endoscopic view of the biliary stent in good position in duodenal bulb.

multate at the distal CBD, thereby further obstructing normal biliary drainage.⁶ CDFs can be treated surgically; however, a surgical option may not be appropriate in patients requiring palliative care.⁷ As we demonstrate, endoscopically stenting these CDFs may serve as a reasonable alternative pathway for allowing biliary drainage and palliation when percutaneous transhepatic catheter drainage cannot be pursued.

Disclosures

Author contributions: J. Chintanaboina wrote the manuscript. A. Mathew and MT Moyer reviewed, edited, and finalized the manuscript. MT Moyer is the article guarantor.

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Informed consent was obtained from the patient's next of kin for this case report.

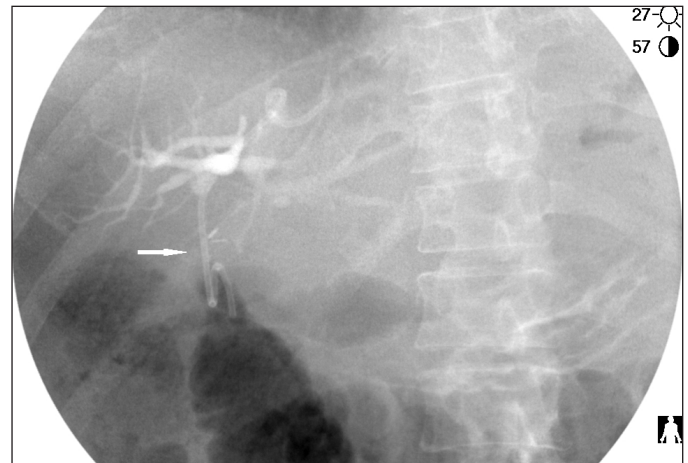


Figure 4. ERCP view of the biliary stent in the fistula connecting the deep left intrahepatic system and duodenal bulb (arrow).

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