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Interventional radiology-operated endoscopy-assisted retrograde transnasal placement of a retrievable transhepatic covered biliary stent

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ABSTRACT

Biliary stent placement is an adjunct for complex biliary intervention. Patients with benign biliary strictures or aversion to external drainage may benefit from placement of retrievable biliary stents. This report describes a patient with a working diagnosis of benign biliary stricture who underwent interventional radiology-operated endoscopy-guided transnasal placement of a fully covered retrievable biliary stent.

Introduction

Biliary stent placement is an adjunct for complex biliary intervention. Patients with benign biliary strictures or aversion to external drainage may benefit from placement of retrievable biliary stents [1,2]. This report describes a patient with a working diagnosis of benign biliary stricture who underwent interventional radiology-operated endoscopy-guided transnasal placement of a fully covered retrievable biliary stent.

Case report

Institutional review board approval was not required for preparation of this report. A 64-year-old woman presented with

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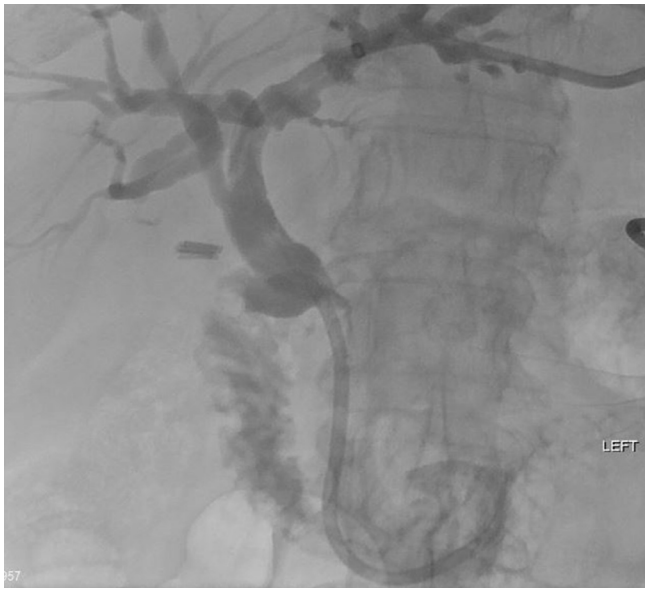

Fig. 1 – Cholangiogram performed via an indwelling 10-French biliary drainage catheter demonstrating intrahepatic and extrahepatic biliary ductal dilatation.

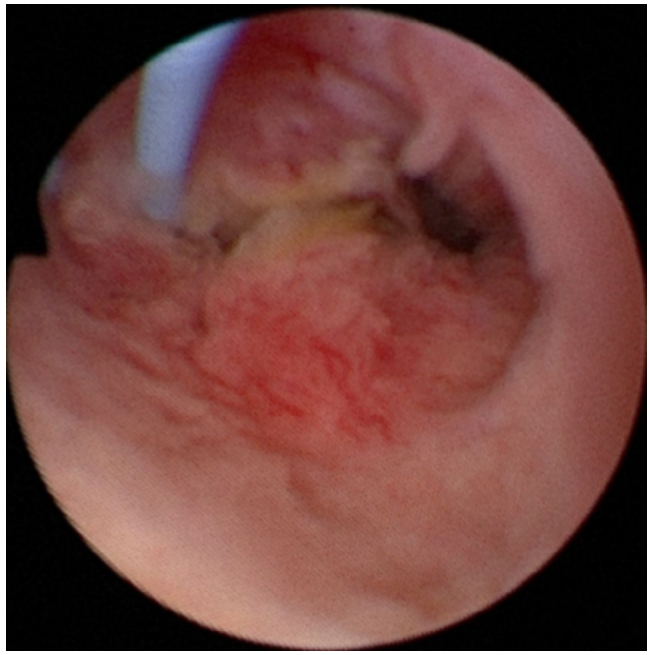

Fig. 2 – Direct endoscopic visualization of the obstructive mass within the distal common bile duct. Arrow denotes extensive frond-like tissue, which was later determined to represent invasive pancreaticobiliary adenocarcinoma

intrahepatic biliary dilation of uncertain etiology. A nonspecific abnormality was noted in the region of the pancreatic head on an outside computed tomography examination. Attempted endoscopic ultrasound-guided biopsy was non-diagnostic. The patient had previously undergone placement of a left-sided biliary drain for obstructive cholangitis. Because of presumed benign disease, she was referred for definitive biopsy, retrievable covered stent placement, and eventual tube removal. The WallFlex retrievable transhepatic stent system (Boston Scientific; Marlborough, MA) was not available at this institution; thus, a decision was made to perform interventional radiology-guided transnasal placement of a fully covered retrievable biliary stent.

The procedure was performed in an interventional radiology angiography suite. Initial fluoroscopic image demonstrated a left-sided 10.2-French internal/external biliary drainage catheter with the tip in the duodenum (Fig. 1). The drain was removed and an Amplatz Super Stiff (Boston Scientific) and safety Rosen wire (Cook) were placed into the small bowel. A 7-mm × 4-cm Mustang balloon (Boston Scientific) was used for tract dilation, and a 20-French peel-away sheath (Cook; Bloomington, IN) was placed. A 16.5-French flexible endoscope (Olympus Medical Corp; Tokyo, Japan) was inserted into the biliary tree and choledochoscopy was performed by an interventional radiologist. Direct visualization revealed nearly obstructive frond-like common bile duct mucosa (Fig. 2). Biopsies were obtained with 5.5-French endovascular biopsy forceps (Cordis Corp; Hialeah, FL).

The right naris was cannulated, and a Glidewire (Terumo Interventional Systems; Tokyo, Japan) and 4-French Glide catheter (Terumo) were passed into the duodenum. The wire was exchanged for a 450-cm JAG wire (Boston Scientific), which was captured with a 25-mm gooseneck snare (Medtronic Peripheral; Dublin, Ireland) from the biliary access, gaining through-and-through access from the nose to the biliary tree. A 10-French × 70-cm Ansel sheath (Cook) was placed into the biliary tree from the nasal access (Fig. 3). A 10-mm × 6-cm WallFlex Fully Covered Retrievable Biliary RX stent (Boston Scientific) was passed through the sheath into the common bile duct. The sheath was retracted; the stent was deployed across the ampulla and post-dilated with a 10-mm × 4-cm Mustang

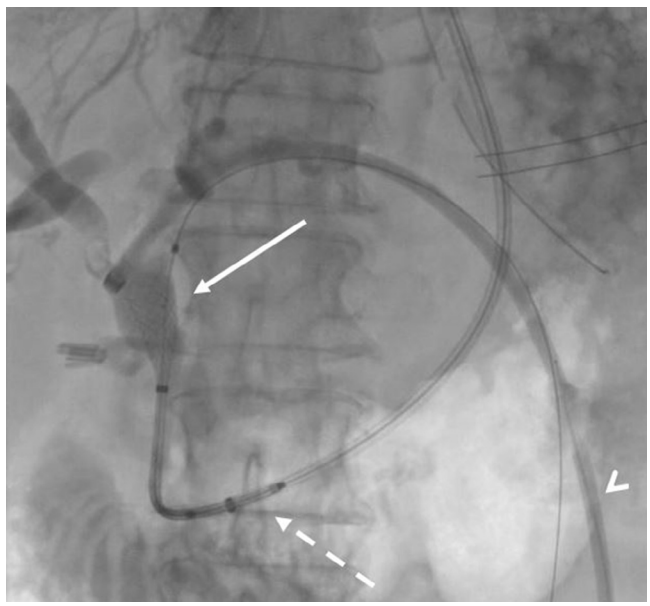

Fig. 3 – Image of the WallFlex stent in mid-deployment (solid arrow). Access has been obtained by advancing a sheath over a wire previously placed through the nose (dashed arrow) and out the previously created transhepatic tract (arrowhead).

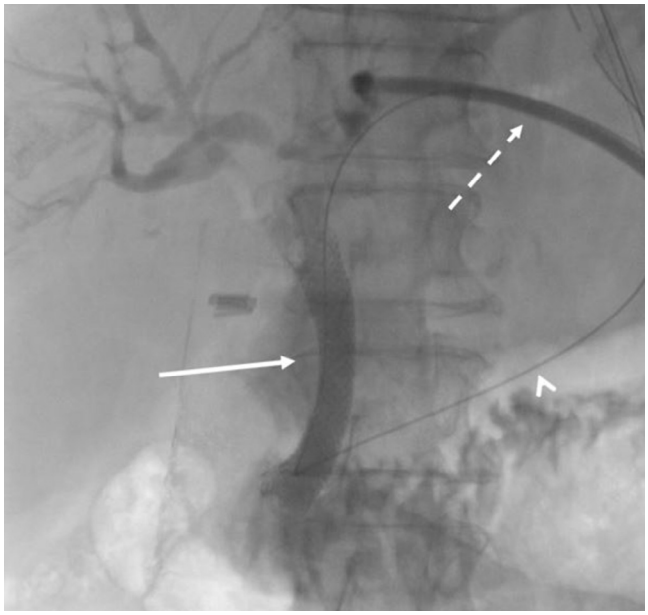

Fig. 4 – Fluoroscopic cholangiogram demonstrating a widely patent stent (solid arrow) with contrast flowing into the small bowel. Transhepatic sheath (dashed arrow) and through-and-through wire remain in place (arrowhead).

balloon (Boston Scientific). Completion cholangiography demonstrated prompt outflow through the stent into the small bowel (Fig. 4). A 14-French external biliary drain (Boston Scientific) was placed.

Subsequent pathology was consistent with invasive pancreaticobiliary adenocarcinoma. The external biliary drain was removed 2 weeks later. The patient remained asymptomatic 4 weeks after the procedure.

Discussion

The benefits of biliary stent placement in malignant obstruction have been previously described [3]. In cases where the diagnosis is uncertain; however, a retrievable device is preferable. There is a WallFlex retrievable biliary stent that may be deployed from a transhepatic access; however, this was unavailable at this institution. Atrium iCast stents (Atrium Medical; Merrimack, NH) may be used, but removal or displacement into the small bowel may be potentially difficult. Case reports from a single group have described utilization of a custom-fabricated system in benign biliary strictures, but this is cost-prohibitive without widespread utilization [4]. Rendezvous procedures performed with gastroenterology have been described, but require resource coordination and planning, which may be prohibitive [5]. Biodegradable stents may also serve similar purposes.

This report describes a transnasal technique for retrograde placement of a retrievable biliary stent by an interventional radiologist. Although additional studies are needed to demonstrate the feasibility and safety of this procedure, it could provide a viable option for interventional radiology-guided placement of retrievable biliary stents.

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