Over-the-wire snare-assisted stent exchange in endoscopic retrograde cholangiopancreatography

Fateh Bazerbachi, MD,[1] Nauzer Forbes, MD, MSc,[2,3] Barham K. Abu Dayyeh, MD, MPH,[4] Vinay Chandrasekhara, MD[4]

OVERVIEW

ERCP is an important therapeutic tool to address pancreatobiliary pathology. At times, negotiating a stricture with a wire can be challenging, but the nature of these lesions often mandates the placement of a temporary stent and often requires the exchange or upsize of stents to adequately manage the stricture. In such cases, it is efficient to preserve the tract established by the stent in the index procedure rather than renegotiating the stricture upon exchange. Toward this end, we demonstrate the steps of a method that allows preservation of the tract by removing the stent over a wire left in adequate position with the tip situated proximal (upstream) to the stricture.[1,2]

PROCEDURE

The first step of this method involves cannulation of an existing biliary stent with a hydrophilic guidewire or a hydrophilic tip wire. This effort will depend on the sojourning stent. For long stents with side holes, a fully hydrophilic angled tip wire is advantageous because it can be torqued to be redirected away from the side holes, maintaining a course within the stent. For nonfenestrated stents, a slightly stiff and hydrophilic tipped guidewire is sufficient. The nonhydrophilic portion of the wire can be lubricated with vegetable oil to decrease the friction between sludge and debris accumulated within the stent. The guidewire is directed under fluoroscopic guidance.

When the wire is positioned in an optimal location with the tip beyond the proximal (upstream) stent flange, a snare is then passed over the wire. The snare is opened slightly and introduced over the wire to the working channel cap (Fig. 1A). Next, the snare is gently closed without being fully tightened over the wire. With the wire secured with the elevator, the snare is gently quivered and passed over the wire until it reaches the elevator. Next, the elevator is released slowly, and the snare catheter is gently pushed out while the assistant gradually and slowly opens the snare to avoid pushing the wire downstream to the duodenum (Fig. 1B). When the snare is fully opened, it is then advanced to grasp the distal most end of the sojourning stent, and the snare is then closed slowly but firmly around the stent as the catheter is advanced. The stent is pulled over the wire using steady, gentle force until it is extracted through the duodenoscope channel. A new stent can then be placed over the newly placed wire in the standard fashion (Video 1, available online at www.videogie.org).

DISCUSSION

Plastic biliary stents may require scheduled routine exchange, given their limited life spans and the associated risk of occlusion. Preserving the tract established by the stent facilitates the exchange and avoids challenges involved in negotiating tight strictures anew. Multiple methods have been described in the literature to facilitate this exchange, including the application of a dedicated metal stent retriever (eg, Soehendra device, Cook Medical, Bloomington, Ind, USA),[3] wire-guided dilation balloon-assisted exchange,[4,5] and over-the-wire or next-to-the-wire snare-assisted stent exchange.[1,2,6]

These methods can be useful in multiple scenarios, including cases with challenging strictures, where there is a need to minimize contrast injection (eg, in a patient with a dominant stricture and primary sclerosing cholangitis), or where there is a need to regain access to an exact sectoral system (eg, a subphrenic abscess secondary to a peripheral biliary stricture). In addition, these methods allow immediate revision and salvage of a maldeployed or inadequate stent (eg, suprapapillary maldeployment or the selection of an insufficiently short or overly long prosthesis), particularly when access to that segment was initially challenging. Importantly, these methods are valuable in pancreatic endotherapy, such as a pancreatic duct stricture or disruption by pancreatitis or traumatic injury, where maintaining access to the upstream duct is critical.

Last, although occluded stents will make passage of the wire more challenging, in our experience, the use of a fully hydrophilic angled tip wire will overcome this issue by constant torque and advance maneuvers of the wire through the occluded stent. Forming an "end knuckle" or loop will also prevent the wire from exiting the side-holes of a plastic stent with multiple fenestrations.

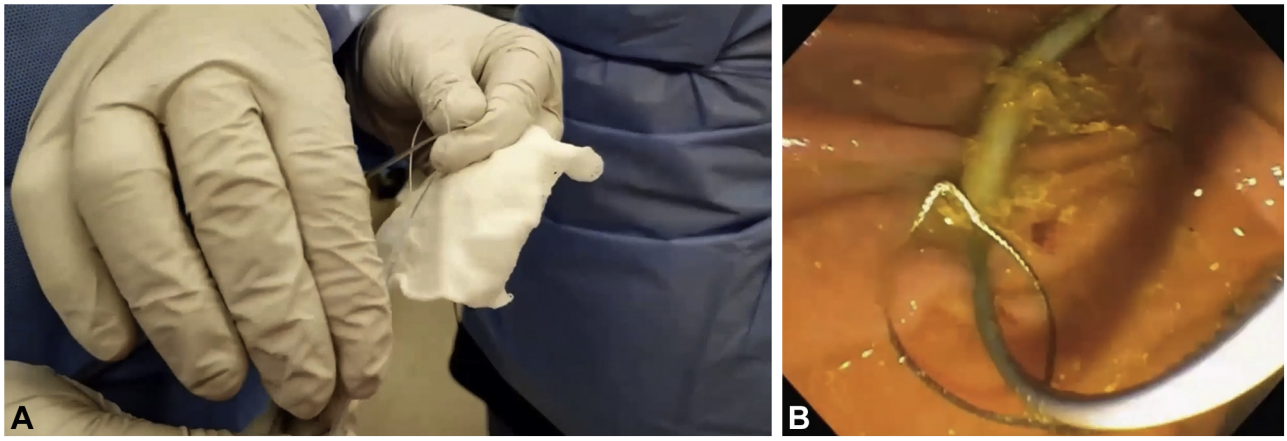

Figure 1. Introducing the open snare over the wire outside the patient **(A)** and inside the duodenum lumen **(B)**.

DISCLOSURE

Dr Forbes is a consultant for Boston Scientific Corporation, Pentax Medical, and Pendopharm Inc; is on the speaker bureau for Pentax Medical and Boston Scientific; and has received research support from Pentax Medical. Dr Abu Dayyeh is a consultant for Boston Scientific, USGI Medical, Metamodix, BFKW, and DyaMx; is on the speaker bureau for Johnson and Johnson, Endogastric Solutions, and Olympus; and has received research support from Boston Scientific, USGI Medical, Apollo Endosurgery, Spatz Medical, GI Dynamics, Caim Diagnostics, Aspire Bariatrics, and Medtronic. Dr Chandrasekhara is a consultant with Covidien LLP; is on the advisory board for Interpace Diagnostics; and is a shareholder in Nevakar Corporation. All other authors disclosed no financial relationships.

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CentraCare, Interventional Endoscopy Program, St. Cloud Hospital, St. Cloud, Minnesota (1), Division of Gastroenterology and Hepatology, Department of Medicine, University of Calgary, Calgary, AB, Canada (2), Department of Community Health Sciences, University of Calgary, Calgary, AB, Canada (3), Division of Gastroenterology and Hepatology, Mayo Clinic, Rochester, Minnesota (4).

If you would like to chat with an author of this article, you may contact Dr Bazerbachi at fateh.b@gmail.com.

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