Cholangioscopy-guided removal of a proximally migrated biliary stent using a modified standard polypectomy snare

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Biliary stent migration occurs in 5% to 10% of stent placements in patients and may be either proximal or distal. Proximal migration is confirmed when the stent is not endoscopically visible at the papillary orifice and is seen in the biliary tree on endoscopic cholangiography. Proximal migration can compromise bile drainage, mimicking stent occlusion and presenting with stasis and infection. Retrieval of proximally migrated stents and recurrent stent placement is required in these cases.

Standard endoscopic techniques for stent retrieval include direct extraction using a grasping forceps or extraction basket, indirect traction using an inflated extraction balloon pulled alongside the migrated stent, or stent cannulation and retrieval using a Soehendra (Cook Medical, Bloomington, Ind, USA) stent retriever. Retrieval of proximally migrated stents can be technically challenging,
especially when the stent is lost within a markedly dilated duct, a distal stricture is present, or the stent tip is impacted against the bile duct wall.1

A 72-year-old man who received a diagnosis of pancreatic head adenocarcinoma requiring endoscopic biliary stent placement 2 weeks before admission presented with jaundice, fatigue, and pale stools. His laboratory values were notable for a total bilirubin of 6.8 mg/dL and alkaline phosphatase of 930 U/L. A CT scan showed biliary dilation and a migrated biliary stent (Fig. 1).

The patient underwent ERCP, and a scout film confirmed 2 stents in place, a partially migrated single-pigtail pancreatic stent, and a straight biliary plastic stent that had completely migrated inside the bile duct (Fig. 2). The pancreatic duct stent was successfully removed using a grasping forceps under direct visualization. The bile duct was cannulated, and a cholangiogram showed a markedly dilated bile duct measuring 22 mm in diameter with a short, tight, distal stricture consistent with the known pancreatic head adenocarcinoma (Fig. 3). We attempted removal of the migrated stent using a 21-mm-diameter extraction balloon, but this was unsuccessful because of the distal stricture. Next, we attempted guidewire-assisted removal using a large-capacity biopsy forceps and a grasping forceps, but these attempts were unsuccessful because of marked dilation of the duct (Fig. 4).

After balloon dilation of the stricture, a cholangioscope was advanced over the guidewire to the upper bile duct, where we found the migrated stent in the markedly dilated bile duct. The bile duct was significantly dilated, and the
A stent was lodged against the bile duct wall immediately above the distal stricture (Fig. 5). There are snares designed to work with the cholangioscope’s 1.2-mm working channel, but we did not have any available. We modified a standard polypectomy cold snare (Exacto, Steris Healthcare, Mentor, Ohio, USA, 9-mm snare diameter) for use with the cholangioscope. The outer plastic sheath was cut at the handle and removed, preserving the inner wire of the snare (Fig. 6). The snare wire was advanced through the 1.2-mm working channel of the cholangioscope (Fig. 7). The snare was maneuvered around the biliary stent and then retracted. The stent was captured against the cholangioscope, which acted as an outer sheath. The ERCP scope was removed while maintaining tension on the wire, and the stent was successfully retrieved.

After stent removal, the bile duct was swept multiple times with an extraction balloon, and debris was removed. A fully covered self-expandable metal stent was placed in the common bile duct across the stricture (Fig. 8).

Proximal stent migration can be a challenge and is often managed under fluoroscopy with forceps, baskets, and balloons. Use of cholangioscopy is becoming more common, and direct visualization with the use of specialized tools may be a preferred option in select cases. Specialized cholangioscopic tools may not be readily available, but standard endoscopic tools can be modified for use in these cases. As the use of cholangioscopy expands, endoscopists will continue to innovate. Here, we described a case in which we modified a standard polypectomy snare to be compatible with a cholangioscope and used it to remove a proximally migrated biliary stent (Video 1, available online at www.giejournal.org).

DISCLOSURE

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