

CASE REPORT

SpyGlass DS system-assisted retrieval of proximally migrated pancreatic duct stent in a patient with chronic pancreatitis

Jerapas Thongpiya,*  Gandhi Lanke,† Pitchaporn Yingchoncharoen* and Kanak Das†

*Department of Internal Medicine and †Division of Gastroenterology and Hepatology, Department of Internal Medicine, Texas Tech University Health Sciences Center, Lubbock, Texas, USA

Key words

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Correspondence

Pitchaporn Yingchoncharoen, Department of Internal Medicine, Texas Tech University Health Sciences Center, MS 9410, 4th Street, Lubbock, TX 79430, USA.

Email: pitchaporn.yingchoncharoen@ttuhsc.edu

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Abstract

Pancreatic duct (PD) stent migration is among the recognized complications of endoscopic retrograde cholangiopancreatography (ERCP) with PD stent placement. Proximal stent migration poses a challenge for removal due to risks of PD damage, smaller caliber, and possible stricture. Here, we present a case of SpyGlass DS system-assisted PD stent repositioning after failure with traditional tools.

Introduction

Endoscopic retrograde cholangiopancreatography (ERCP) can be used to treat a variety of pancreaticobiliary disorders. During pancreatic duct (PD) stent placement, stent migration or misplacement is among the recognized possible complications of the procedure.¹ Pancreatoscopy-guided retrieval and repositioning of the stent could be used as a rescue technique in such cases where traditional methods fail.² Here, we present a case of pancreatoscopy-assisted 7 French (Fr) PD stent retrieval and repositioning using the SpyGlass DS system following failed attempts with traditional retrieval tools.

Case report

A 49-year-old woman with past medical history of systemic lupus erythematosus (SLE), scleroderma, and chronic SLE-induced pancreatitis presented to our hospital because of worsening upper abdominal pain for 10 days. Her chronic pancreatitis was complicated with high-grade PD stricture at the genu with upstream marked dilation of the PD for which she had undergone ERCP with PD stent placement 3 months prior to admission. MRI of the abdomen showed irregularity of the pancreatic head of unclear etiology, consistent with inflammation or neoplasm, and interval resolution of PD dilation. She was due to undergo ERCP with PD stent revision, which was then performed during this admission. The pancreatogram showed marked improvement of the PD dilation compared to before the procedure. Because of persistent abdominal pain and active SLE, it was decided to exchange the PD stent

instead of removal to avoid recurrence of the pancreatic ductal stricture. A 7 Fr 11-cm Hobbs plastic stent with a full external pig-tail and a single internal flap was intended to be placed at 10 cm into the main PD. The stent was accidentally positioned too far upstream due to a lack of color contrast between the stent and the pushing catheter. The stent was identified at the genu fluoroscopically. A 5-mm pancreatic sphincterotomy was performed. Different tools, including rat tooth forceps, standard biopsy forceps, pediatric biopsy forceps, and SpyGlass retrieval snare were unsuccessfully used to reposition the stent under fluoroscopic guidance. The PD was then explored using the SpyGlass DS system. The plastic stent was identified at the genu, retrieved, and repositioned at the major papilla, as shown in Figure 1, using the SpyBite forceps through the SpyGlass DS system. The stent drained clear pancreatic juice. The patient was then discharged with an uneventful hospital course. A follow-up MRI of the abdomen 4 days later revealed nearly resolved dilatation of the PD, which correlated with clinical improvement.

Discussion

Proximal migration of the PD stent has been recognized in up to 5.2% of patients.³ Proximal migration poses a therapeutic challenge given risks of PD damage, smaller caliber that further limits device entry, and/or presence of stricture.⁴ SpyGlass DS has been used in many pathologies including diagnostic and therapeutic procedures such as difficult common bile duct (CBD) stones, indeterminate CBD stricture, and PD interventions, which have high success rate with no or similar rate of complications as

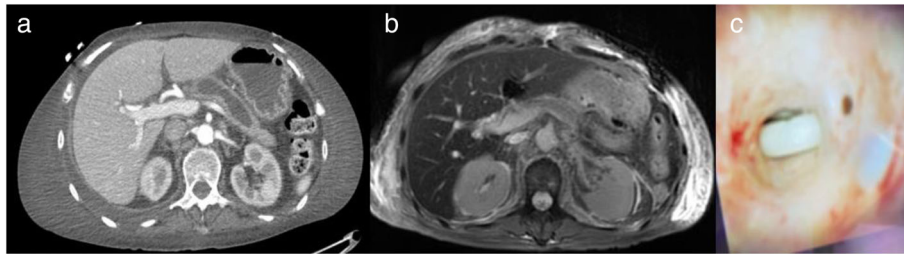


Figure 1 (a) CT of abdomen showing pancreatic duct (PD) dilatation 3 months prior to this admission. (b) MRI of abdomen showing resolution of PD dilatation on this admission after repositioning. (c) SpyGlass image showing the plastic stent in the PD.

Table 1 Published cases of SpyGlass-assisted migrated stent removal in PubMed until November 2022.

Patient demographic data	Diagnosis, initial location	Stent type, F, length	Migration direction	Prior attempts	Tools used with SpyGlass
50-year-old woman ⁹	Chronic pancreatitis	Straight, 7F, 7 cm	Proximal PD	Balloon, snares, forceps	Soehendra stent retriever
46-year-old man ¹⁰	Recurrent pancreatitis	Double-flanged straight, 5F, 7 cm	Proximal PD	Balloon, snares, forceps	Mini snare
55-year-old man (Gomez) ¹¹	Recurrent pancreatitis	Double-flanged straight, 5F, 7 cm	Proximal PD	Balloon catheter	SpyBite forceps, SpyGlass snare
65-year-old woman ⁸	Choledocholithiasis	Simple-flanged straight, 5F, 7 cm	Proximal PD	Balloon, snares, forceps	SypBite forceps
40-year-old woman ¹²	Recurrent pancreatitis	Single pigtail pancreatic winged stent, 5F, 7 cm	Proximal PD	Balloon, baskets, snares	SpyBite forceps
49-year-old woman (present case)	Chronic pancreatitis from SLE	Hobbs with full external pigtail and single internal flap, 7F, 11 cm	Proximal PD	Balloon, rat tooth forceps, standard and pediatric biopsy forceps, SpyScope snare	SypBite forceps

PD, pancreatic duct; SLE, systemic lupus erythematosus.

with conventional method, and is cost effective.^{5–7} The advantage of SpyScope includes its four-way tip deflection steering system, which provides easy maneuverability and aids in the direct visualization of the distal end of the stent.⁸ In this case, we elucidate an approach to use the SpyGlass DS system and the SpyBite forceps to reposition a proximally migrated PD stent after conventional techniques have failed. The additional confirmation of good alignment was the visualization of clear, free-flowing fluid. To our knowledge, ours is the first case of retrieval and repositioning of a 7 Fr proximally migrated PD stent with the assistance of the SpyGlass DS system and SpyBite forceps. According to previously reported cases, removal of migrated stents was achieved by different tools, mainly SpyBite forceps, after initial conventional techniques had failed, regardless of the presence of the central lumen. Direct visualization by SpyGlass also helped in the cannulation of the guidewire to ensure that the end of the stent had been reached before retrieval. We have compiled the published cases so far of SpyGlass-assisted removal of migrated stent, including in the pancreas and other locations, from PubMed in Table 1.^{8–13} To our knowledge, this is the first case of retrieval and repositioning of a 7 Fr PD stent using the SpyGlass DS system, which has a high success rate and fewer complications due to direct visualization and is cost effective.

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Patient consent

The patient has provided informed consent to publish her case.

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