CASE REPORT

Gut and Liver, Vol. 5, No. 4, December 2011, pp. 532-535

Wire-Guided Endoscopic Snare Retrieval of Proximally Migrated Pancreatic Stents after Endoscopic Papillectomy for Ampullary Adenoma

La Young Yoon*, Jong Ho Moon*, Hyun Jong Choi*, Seul Ki Min*, Sang-Woo Cha†, Young Koog Cheon*, Young Deok Cho*, Moon Sung Lee*, and Jae Seon Kim‡

Digestive Disease Center, Department of Internal Medicine, Soon Chun Hyang University School of Medicine, Bucheon and Seoul, †Department of Internal Medicine, Eulji University College of Medicine, Daejeon, and ‡Department of Internal Medicine, Korea University College of Medicine, Seoul, Korea

With the increasing use of pancreatic duct (PD) stents after endoscopic papillectomy (EP), complications such as proximal migration of the stent have become increasingly prevalent. A PD stent that migrates within a nondilated PD may be difficult to remove endoscopically. We performed endoscopic retrieval of proximally migrated PD stents after EP in 5 patients. Endoscopic retrieval was performed immediately after EP in one patient, the next day in 3 patients, and 2 weeks later in one patient. Wire-guided endoscopic retrieval was attempted in 4 patients, and the migrated stents were removed successfully in these 4 patients. No significant procedure-related complications occurred, other than mild pancreatitis in a single patient. In one patient, endoscopic retrieval performed immediately after EP failed when using the conventional method, and the migrated stent was removed using a minisnare without a guidewire the next day; this patient developed severe pancreatitis. Wire-guided endoscopic snare retrieval seems to be a safe and effective method for removing proximally migrated PD stents after EP. **(Gut Liver 2011;5:532-535)**

Key Words: Endoscopic papillectomy; Migrated pancreatic stent; Endoscopic retrieval

INTRODUCTION

The most serious complication of endoscopic papillectomy (EP) for ampullary adenoma is postprocedure severe pancreatitis. Many studies suggest that the prophylactic placement of a pancreatic duct (PD) stent after EP reduces the risk of pancreatitis.[1,2] However, proximal migration of the PD stent occurs at a rate of about 5.2%.[3] In general, EP is performed for ampullary adenoma not extending into the biliary or pancreatic duct. Therefore, endoscopic retrieval of proximally migrated PD stents after EP is difficult because the PD diameter is within the normal range in most cases. We describe a case series with proximally migrated PD stents after EP that were retrieved successfully using a wire-guided endoscopic snare.

CASE REPORT

Between July 2004 and June 2009, we attempted endoscopic removal of proximally migrated PD stents after EP for ampullary adenoma in 5 patients. All patients underwent prophylactic placement of a PD stent after EP to reduce the risk of postprocedure pancreatitis. Wire-guided endoscopic snare retrieval was attempted in four patients and the conventional method using a forceps, snare, or basket without a guidewire in one patient. The demographic characteristics and technical outcomes of the patients are summarized in Table 1.

The wire-guided snare retrieval method is as follows. The PD is cannulated using an endoscopic retrograde cholangiopancreatography (ERCP) catheter and then a 0.035-inch guidewire is inserted deeply through the catheter. After removing the ERCP catheter, a snare (SD-7P-1 or SD-8P-1; Olympus, Tokyo, Japan) is passed over the guidewire. The migrated stent is captured in the snare and removed via traction on the snare. If the first attempt of capturing the migrated stent at its distal end was not successful, it was then tried at its proximal end.

1. Case 1

A 71-year-old man underwent EP for ampullary adenoma without ductal invasion. After the excision was completed, a 5 Fr, 9-cm Geenen PD stent (Wilson-Cook, Winston-Salem, NC,

Correspondence to: Jong Ho Moon
Digestive Disease Center, Soon Chun Hyang University Bucheon Hospital, 1174 Jung-dong, Wonmi-gu, Bucheon 420-767, Korea
Tel: +82-32-621-5094, Fax: +82-32-621-5080, E-mail: jhmoon@schmc.ac.kr
Received on June 8, 2010. Accepted on July 23, 2010.
pISSN 1976-2283 eISSN 2005-1212 http://dx.doi.org/10.5009/gnl.2011.5.4.532

Table 1. Characteristics and Technical Outcomes of Endoscopic Retrieval of Proximally Migrated Pancreatic Stents after EP

No.	Age/Sex	Diameter/Length of the pancreatic stent	Timing of the attempted endoscopic retrieval after EP	Retrieval method	Technical success	Complications
1	71/M	5 Fr/9 cm	1 day after EP	Wire-guided snare	Yes	No
2	48/F	5 Fr/7 cm	Immediately after EP	Wire-guided snare	Yes	Mild pancreatitis*
3	63/M	5 Fr/9 cm	2 wk after EP	Wire-guided snare	Yes	No
4	56/F	5 Fr/5 cm	1 day after EP	Wire-guided snare	Yes	No
5	34/M	5 Fr/9 cm	Immediately after EP	Conventional †	Yes	Severe pancreatitis ‡

EP, endoscopic papillectomy.
*Resolved with conservative care within 3 days; †Endoscopic retrieval using snare without a guidewire; ‡Hospitalized for 1 month.

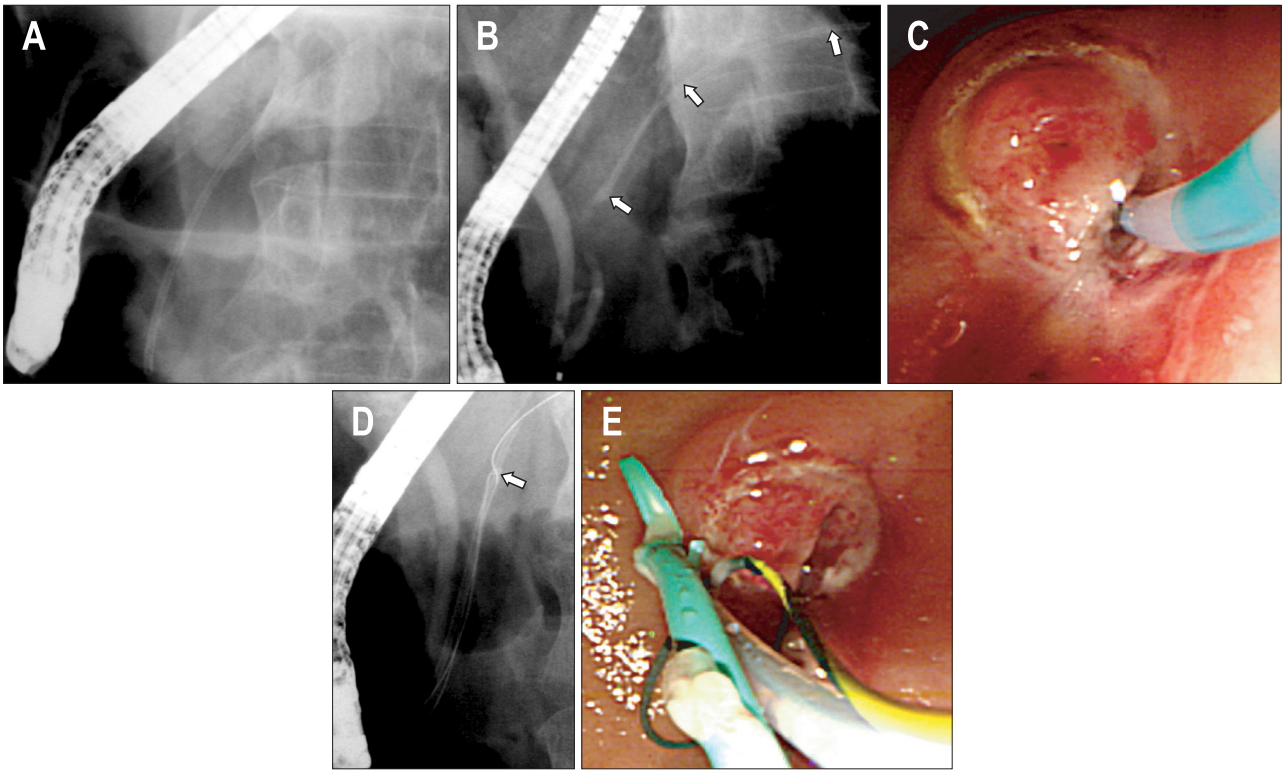

Fig. 1. (A) The pancreatic duct (PD) stent is positioned across the PD orifice. (B) It subsequently migrate into the proximal PD (arrows indicate the stent). (C) An endoscopic view showing improvements in ampullary edema; the pancreatic orifice is seen clearly. (D) The stent is captured with a snare (arrow), which is guided by a wire. (E) The endoscopic view showing the stent successfully removed from the PD.

USA) was placed immediately and positioned across the PD orifice (Fig. 1A). After retrieving the resected specimen, the PD stent was not seen in the duodenum. Fluoroscopy confirmed that the stent had migrated into the proximal PD (Fig. 1B). Unfortunately, the stent could not be retrieved because PD cannulation is difficult consequent to the edema and oozing that occurs after EP. The patient was kept fasting overnight and an attempt to retrieve the PD stent was made the next day. The ampullary edema had subsided and the pancreatic orifice was seen clearly (Fig. 1C). Due to the small diameter of the PD, it was difficult to pass accessories alongside the stent for its retrieval. We successfully performed wire-guided endoscopic snare retrieval (Fig. 1D, E). No procedure-related complications occurred such as acute pancreatitis after snare retrieval.

2. Case 2

A 48-year-old woman underwent EP for ampullary adenoma. After the excision was completed, a 5 Fr, 7-cm Geenen PD stent was placed immediately. After retrieving the resected specimen, the PD stent was not seen in the duodenum. We made several attempts to retrieve the stent, although the PD orifice was not seen clearly due to edema. The attempted retrieval of the stent failed. The next day, we performed wire-guided endoscopic snare retrieval of the PD stent successfully (Fig. 2). The patient developed mild pancreatitis and recovered within 3 days.

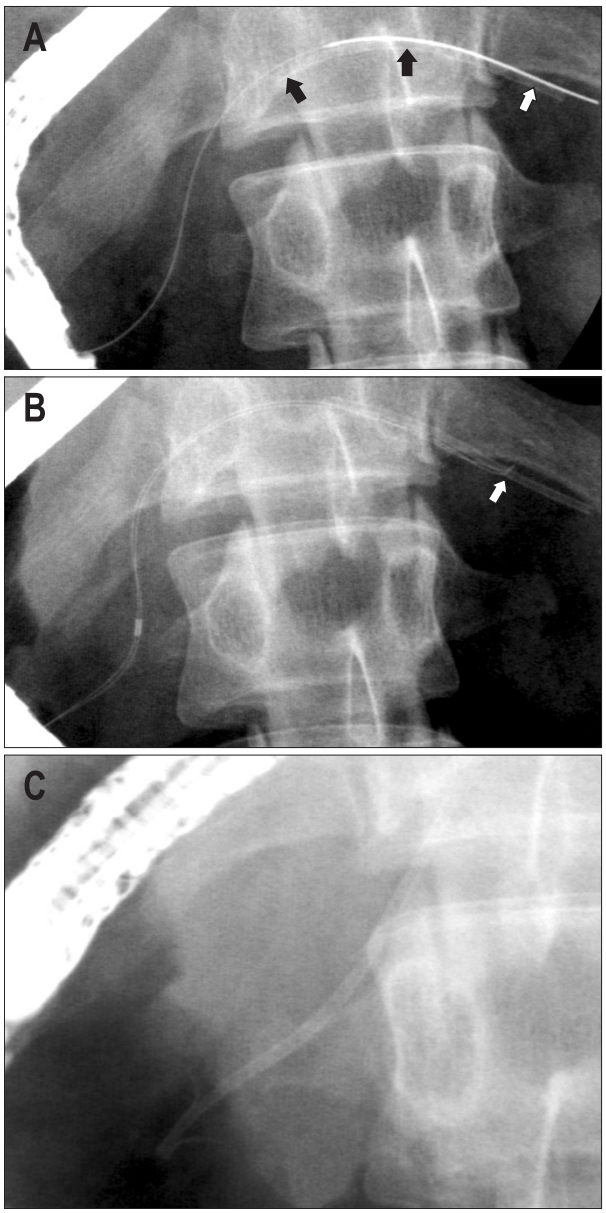

Fig. 2. Fluoroscopic findings showing the wire-guided endoscopic snare retrieval of a migrated pancreatic duct (PD) stent. (A) The stent migrated into the proximal PD (arrows indicate the stent). (B) Capturing the stent with a snare (arrow) guided by a wire. (C) Successful removal of the stent.

3. Case 3

A 63-year-old man underwent EP for ampullary adenoma. After the excision was completed, a 5 Fr, 9-cm Geenen PD stent was inserted. The next day, the plain abdominal radiograph confirmed that the stent had migrated into the proximal PD. Endoscopic retrieval of the stent was not attempted because the patient refused follow-up endoscopy to remove the stent. The patient was observed for approximately 2 weeks following the EP. Then, wire-guided endoscopic snare retrieval of the PD stent was performed successfully. No procedure-related complications occurred.

4. Case 4

A 56-year-old woman underwent EP for ampullary adenoma. After the excision was completed, a 5 Fr, 5-cm Geenen PD stent was inserted. The next day, the plain abdominal radiograph showed that the stent had migrated proximally. The migrated stent was removed successfully using the wire-guided endoscopic snare method and no procedure-related complications occurred.

5. Case 5

A 34-year-old asymptomatic man was found to have an ampullary adenoma with a normal biliopancreatic duct on ERCP. EP was performed using a reported method.[4,5] After the excision was completed, a 5 Fr, 9-cm Geenen PD stent was placed immediately and the distal end protruded into the duodenum. After taking up the resected specimen, the PD stent was not seen in the duodenum. Fluoroscopy confirmed that the stent had migrated into the proximal duct. Several attempts to retrieve the stent via the papillae using a rat-tooth forceps, snare, or basket were unsuccessful. The next day, we performed ERCP to retrieve the proximally migrated PD stent. The migrated stent was removed successfully with a minisnare (Soft AcuSnare; Wilson-Cook). Unfortunately, the patient developed severe pancreatitis and required hospitalization for 1 month to recover from the postprocedure pancreatitis.

DISCUSSION

Many studies suggest that placement of a PD stent reduces the risk of pancreatitis after EP.[1,2,4,6-9] With the increasing use of PD stents, many complications can occur, including migration of the stent. Proximal migration may be more serious because of the technical challenge associated with the attempt at retrieval. In one report, proximal stent migration occurred in 5.2% of patients and the majority of these stents could be retrieved endoscopically.[3] Lahoti *et al*.[10] reported a successful endoscopic retrieval rate of 80% (8 of 10). Of the two patients in whom the stents could not be retrieved, one developed continuous pain and required a distal pancreatectomy for stent removal. A recent retrospective study of 33 patients involving endoscopic treatment of proximally migrated pancreatic stents reported a successful retrieval rate of 78% for endoscopically placed stents.[11] The stents were retrieved using a balloon (44%), direct forceps grasp (28%), and guidewire stent cannulation with snare capture (11%). Postprocedure pancreatitis occurred in one patient. Four patients underwent surgery and one asymptomatic patient was observed.

Unfortunately, endoscopic treatment of proximally migrated PD stents after EP is more difficult due to the small diameter of the PD and postprocedure periampullary edema and bleeding. In

previous reports, the rate of post-ERCP pancreatitis was higher when cannulation was difficult and prolonged.[12,13] Multiple attempts at retrieval of a PD stent may predispose to pancreatitis owing to the added mechanical trauma. Therefore, a safe effective method for retrieving the migrated PD stent is needed to reduce postprocedure pancreatitis.

Cannulation of the nondilated main PD can be difficult using the accessories required for migrated stent retrieval. Therefore, we initially cannulate the PD with a catheter and then place a guidewire. After removing the ERCP catheter, the snare is passed over the guidewire. Finally, the snare is advanced into the proximal PD over the guidewire. All of the proximally migrated stents were removed successfully with the snare. This wire-guided endoscopic snare retrieval requires only minimal manipulation. Therefore, our technique had few complications such as postprocedure pancreatitis.

In our cases, we attempted to retrieve the proximally migrated PD stent immediately after EP in two patients. These initial attempts were unsuccessful. Although the migrated stent was retrieved 1 day later, one patient developed severe pancreatitis, which was difficult to treat, and the other developed mild pancreatitis. In the other patients, stent retrieval was attempted between 1 day and 2 weeks after placement. These three patients did not develop acute pancreatitis. From this perspective, it may be better to delay retrieving a proximally migrated stent because pancreatic duct cannulation immediately after EP is difficult due to edema and bleeding. We followed one asymptomatic patient with a proximally migrated PD stent for 2 weeks. He had no symptoms of pancreatitis until the stent was retrieved. If a stent has to be retrieved for a variety of reasons, such as pancreatitis or abdominal pain, further study of the optimal timing of retrieval is needed.

In conclusion, wire-guided endoscopic snare retrieval of proximally migrated PD stents after EP is safe and effective. In our experience, it is better to delay retrieval of a migrated stent by at least 1 day. However, further studies are needed to determine effective methods and optimal timing for the retrieval of proximally migrated PD stents after EP.

CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

REFERENCES

1. Desilets DJ, Dy RM, Ku PM, et al. Endoscopic management of tumors of the major duodenal papilla: refined techniques to improve outcome and avoid complications. Gastrointest Endosc 2001;54:202-208.
2. Catalano MF, Linder JD, Chak A, et al. Endoscopic management of adenoma of the major duodenal papilla. Gastrointest Endosc 2004;59:225-232.
3. Johanson JF, Schmalz MJ, Geenen JE. Incidence and risk factors for biliary and pancreatic stent migration. Gastrointest Endosc 1992;38:341-346.
4. Moon JH, Cha SW, Cho YD, et al. Wire-guided endoscopic snare papillectomy for tumors of the major duodenal papilla. Gastrointest Endosc 2005;61:461-466.
5. Park JK, Moon JH, Kim HK, et al. Wire-guided endoscopic snare resection of a choledochocele-associated villous adenoma. Endoscopy 2009;41 Suppl 2:E78-E79.
6. Cheng CL, Sherman S, Fogel EL, et al. Endoscopic snare papillectomy for tumors of the duodenal papillae. Gastrointest Endosc 2004;60:757-764.
7. Han J, Kim MH. Endoscopic papillectomy for adenomas of the major duodenal papilla (with video). Gastrointest Endosc 2006;63:292-301.
8. Zádorová Z, Dvofák M, Hajer J. Endoscopic therapy of benign tumors of the papilla of Vater. Endoscopy 2001;33:345-347.
9. Beger HG, Treitschke F, Gansauge F, Harada N, Hiki N, Mattfeldt T. Tumor of the ampulla of Vater: experience with local or radical resection in 171 consecutively treated patients. Arch Surg 1999;134:526-532.
10. Lahoti S, Catalano MF, Geenen JE, Schmalz MJ. Endoscopic retrieval of proximally migrated biliary and pancreatic stents: experience of a large referral center. Gastrointest Endosc 1998;47:486-491.
11. Price LH, Brandabur JJ, Kozarek RA, Gluck M, Traverso WL, Irani S. Good stents gone bad: endoscopic treatment of proximally migrated pancreatic duct stents. Gastrointest Endosc 2009;70:174-179.
12. Freeman ML, Nelson DB, Sherman S, et al. Complications of endoscopic biliary sphincterotomy. N Engl J Med 1996;335:909-918.
13. Smithline A, Silverman W, Rogers D, et al. Effect of prophylactic main pancreatic duct stenting on the incidence of biliary endoscopic sphincterotomy-induced pancreatitis in high-risk patients. Gastrointest Endosc 1993;39:652-657.