Small-caliber plastic stent for endoscopic ultrasound-guided drainage of a non-dilated pancreatic duct

Endoscopic ultrasound (EUS)-guided pancreatic drainage is increasingly utilized in cases where endoscopic retrograde cholangiopancreatography (ERCP) is not possible [1–3]. EUS-guided pancreatic drainage for a non-dilated pancreatic duct (PD) not only poses technical challenges but also increases the risk of procedure-related pancreatitis as well as stent-induced ductal injury. A small-caliber stent might be suitable for a non-dilated PD to prevent ductal injury and upstream main duct obstruction, but there has been no report on a dedicated 5-Fr EUS-guided pancreatic drainage stent. Herein we present a newly designed 5-Fr plastic stent for EUS-guided pancreatic drainage (Through & Pass Type IT; Gadelius Medical, Tokyo, Japan) (▶ **Fig. 1**), which is a thinner type of a previously reported stent [4].

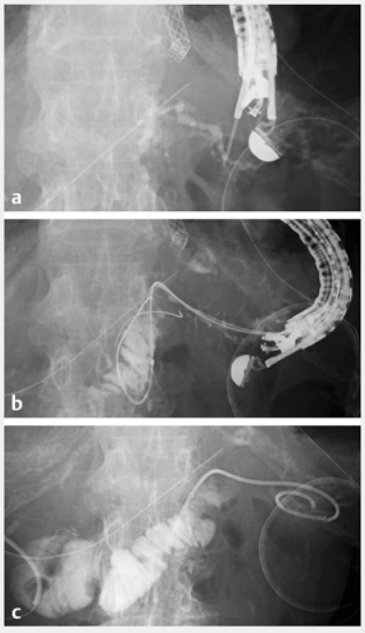
A 75-year-old woman with a history of pancreatoduodenectomy for intraductal papillary mucinous neoplasm was hospitalized with a pancreatic fluid collection (▶ **Fig. 2**). The fluid collection did not subside after percutaneous drainage, and therefore we decided to perform EUS-guided pancreatic drainage (▶ **Video 1**). Under EUS guidance, we punctured the non-dilated main PD with a 19-gauge needle and inserted a 0.025-inch guidewire (▶ **Fig. 3a**). The needle tract was dilated using an ultra-tapered mechanical dilator (ES dilator; Zeon Medical, Tokyo, Japan) and a 4-mm-wide balloon dilator (REN; Kaneka, Osaka, Japan). Using a double-lumen catheter (Uneven Double Lumen Cannula; Piolax Medical Devices, Kanagawa, Japan), we successfully passed a 0.025-inch hydrophilic guidewire into the jejunum and additionally inserted a 0.035-inch guidewire to stabilize the scope position ("double guidewire technique") (▶ **Fig. 3b**) [5]. After dilation of the pancreaticojejunostomy anastomosis using the balloon dilator, a 5-Fr stent was readily positioned from the jejunum to the stomach (▶ **Fig. 3c**). The postprocedural course was uneventful and the percutaneous drain was successfully removed. A follow-up CT scan 4 months later revealed the disappearance of the fluid collection without upstream ductal dilation.

Our new 5-Fr plastic stent was feasible in the EUS-guided drainage of a non-dilated PD.

Endoscopy_UCTN_Code_TTT_1AS_2AD

▶ **Fig. 1** Newly designed 5-Fr pigtail plastic stent for endoscopic ultrasound-guided pancreatic drainage. The stent has a pigtail structure at one end and two flanges at each end to prevent migration. This stent was developed as a modification of the 7-Fr plastic stent designed for endoscopic ultrasound-guided drainage.

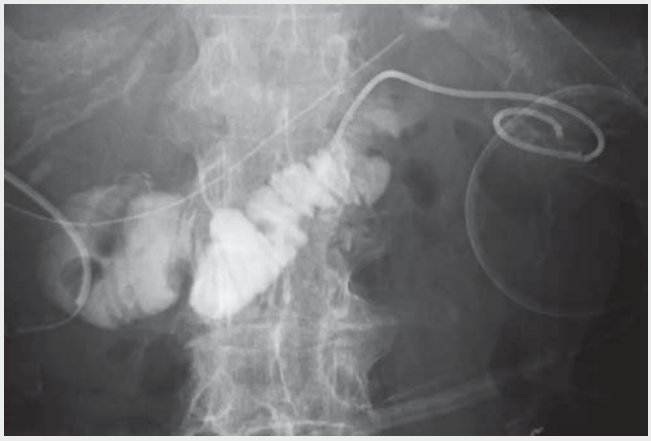
▶ **Fig. 2** Contrast-enhanced computed tomography showing a fluid collection around the pancreaticojejunostomy anastomosis (arrow). An endovascular stent for celiac artery stenosis (arrowhead) is also shown.



▶ **Fig. 3** Endoscopic ultrasound-guided transmural placement of a 5-Fr plastic stent for the non-dilated pancreatic duct. **a** Endoscopic ultrasound-guided access to the main pancreatic duct using a 19-gauge needle. Pancreatography delineated the non-dilated pancreatic duct with a diameter of 1.6 mm. A percutaneous catheter is also shown. **b** We passed a 0.025-inch guidewire into the jejunum. Using a double-lumen catheter, we additionally inserted a 0.035-inch guidewire, which was utilized to stabilize the scope position ("double guidewire technique"). **c** Placement of a 5-Fr stent across the pancreaticojejunostomy anastomotic stricture.

Competing interests

Dr. Itoi serves as a consultant of Gadelius Medical.



Video 1 Endoscopic ultrasound-guided transmural placement of a 5-Fr plastic stent for a non-dilated pancreatic duct.

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Endoscopy 2021; 53: E407–E408
DOI 10.1055/a-1333-0538
ISSN 0013-726X
published online 14.1.2021

Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany