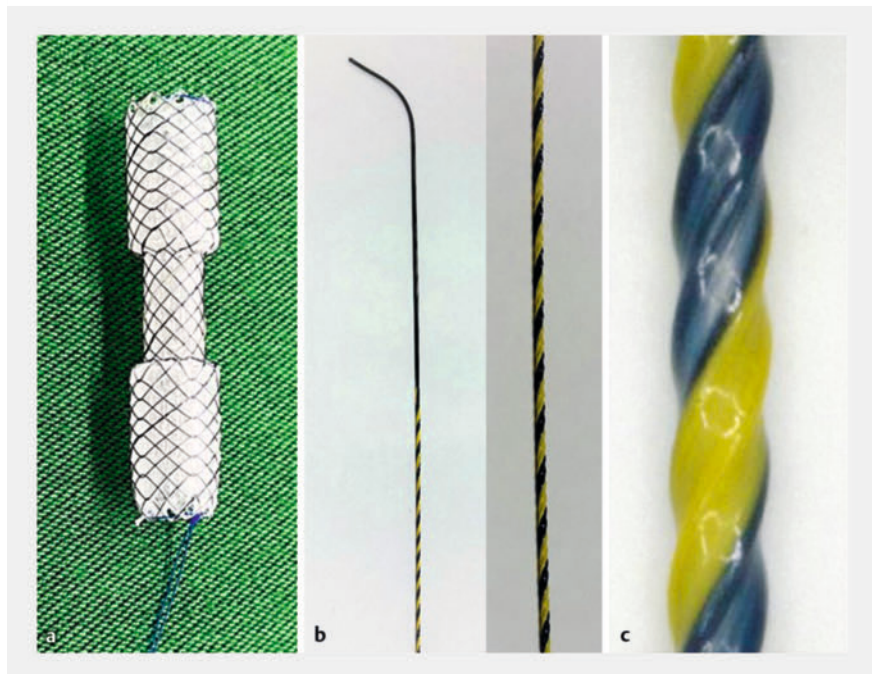


## Endoscopic ultrasound-guided choledochoduodenostomy using a novel, ultra-stiff, high-sliding guidewire and a dumbbell-shaped metal stent

OPEN  
ACCESS



**▶ Video 1** Endoscopic ultrasound-guided choledochoduodenostomy using the novel, ultra-stiff, high-sliding guidewire and the dumbbell-shaped metal stent.



**▶ Fig. 1** The stent and guidewire. **a** The dumbbell-shaped metal stent (BONASTENT M-Intraductal; Standard Sci-Tech Inc., Seoul, Korea) consists of a diameter of 8 mm in the central portion (15 mm length) and 12 mm in the proximal and distal portions (17.5 mm length, each), providing antimigration properties. **b** The 0.035-inch novel guidewire (SeekMaster Hard; Piolax Medical Devices, Kanagawa, Japan) consists of a thick (0.7 mm in diameter), high-rigidity, nickel-titanium core wire. **c** The surface of the wire is coated with polytetrafluoroethylene with “ridge-processing,” which reduces the contact area and friction with the metal stent delivery system, increasing sliding properties, and achieving extremely high device followability and insertability, thereby eliminating the need for fistula dilation.

Endoscopic ultrasound-guided choledochoduodenostomy (EUS-CDS) has potential as a first-line drainage method for malignant distal biliary obstruction. Several randomized controlled trials revealed that EUS-CDS with lumen-apposing metal stent (LAMS) have higher technical success rates and shorter procedure times than conventional transpapillary drainage [1, 2]. However, thin 6-mm diameter LAMs are frequently used due to their larger flanges, and these stents are associated with adverse events such as biliary wall compression and duodenobiliary reflux, as well as being expensive [3]. Conversely, EUS-CDS using conventional metal stents is associated with a risk of bile leakage due to the need for fistula dilation, as well as stent migration. Herein, we report a new EUS-CDS technique using a novel, ultra-stiff, high-sliding guidewire and a dumbbell-shaped metal stent.

The dumbbell-shaped metal stent (BONASTENT M-Intraductal; Standard Sci-Tech Inc., Seoul, Korea) has a diameter of 8 mm at the central portion and 12 mm at the proximal and distal portions [4], providing antimigration properties. The 0.035-inch novel guidewire (SeekMaster Hard; Piolax Medical Devices, Kanagawa, Japan) consists of a thick (0.7 mm in diameter), high-rigidity, nickel-titanium core wire. The polytetrafluoroethylene-coated surface of the wire with “ridge-processing” reduces the contact area and friction with the metal stent delivery system, while increasing the sliding properties and achieving high

device followability and insertability, thereby eliminating the need for fistula dilation (**▶ Fig. 1**).

A 73-year-old man with pancreatic cancer developed obstructive jaundice due to malignant distal biliary obstruction. A linear-array echoendoscope was inserted, and the common bile duct was punctured from the duodenum using a 19-G needle. The novel guidewire was inserted through the needle and advanced to the intrahepatic bile duct. The dumbbell-shaped metal stent delivery system was inserted over the guidewire without fistula dilation; the metal stent was deployed from the common bile duct to the duode-



► **Fig. 2** Fluoroscopic views. **a** A linear-array echoendoscope was inserted, and the common bile duct was punctured from the duodenum using a 19-G needle. **b** The novel guidewire was inserted through the needle and advanced to the intrahepatic bile duct. **c** Subsequently, the dumbbell-shaped metal stent delivery system was inserted over the guidewire without fistula dilation. **d** The metal stent was deployed from the common bile duct to the duodenum.

num (► **Fig. 2**, ► **Video 1**). The procedure time was 5 minutes, with no adverse events. The stent was patent until the patient's death, with no stent dysfunction including migration. This technique overcomes the shortcomings of EUS-CDS with LAMS, while allowing the same ease of application.

Endoscopy\_UCTN\_Code\_TTT\_1AS\_2AD

### Conflict of Interest

The authors declare that they have no conflict of interest.

### The authors

**Tadahisa Inoue**<sup>1</sup>, **Mayu Ibusuki**<sup>1</sup>, **Rena Kitano**<sup>1</sup>, **Kiyoaki Ito**<sup>1</sup>

<sup>1</sup> Department of Gastroenterology, Aichi Medical University, Nagakute, Japan

### Corresponding author

**Tadahisa Inoue, MD, PhD**

Department of Gastroenterology, Aichi Medical University, 1-1 Yazakokarimata, Nagakute, Aichi 480-1195, Japan  
tinoue-tag@umin.ac.jp

### References

- [1] Teoh AYB, Napoleon B, Kunda R et al. EUS-guided choledochoduodenostomy using lumen apposing stent versus ERCP with covered metallic stents in patients with unresectable malignant distal biliary obstruction: a multicenter randomized controlled trial (DRA-MBO Trial). *Gastroenterology* 2023; 165: 473–482.e2
- [2] Chen YI, Sahai A, Donatelli G et al. Endoscopic ultrasound-guided biliary drainage of first intent with a lumen-apposing metal stent vs endoscopic retrograde cholangiopancreatography in malignant distal biliary obstruction: a multicenter randomized controlled study (ELEMENT Trial). *Gastroenterology* 2023; 165: 1249–1261.e5
- [3] Vanella G, Bronswijk M, Dell'Anna G et al. Classification, risk factors, and management of lumen apposing metal stent dysfunction during follow-up of endoscopic ultrasound-guided choledochoduodenostomy: multicenter evaluation from the Leuven-Amsterdam-Milan Study Group. *Dig Endosc* 2023; 35: 377–388
- [4] Choi HJ, Moon JH, Lee YN et al. Evaluation of a newly modified nonflared fully covered metal stent, 12 mm in diameter, for intra-duodenal placement in patients with malignant biliary strictures: a feasibility study. *Endoscopy* 2016; 48: 625–631

### Bibliography

*Endoscopy* 2024; 56: E140–E141

DOI 10.1055/a-2241-2030

ISSN 0013-726X

© 2024. The Author(s).

This is an open access article published by Thieme under the terms of the Creative Commons Attribution License, permitting unrestricted use, distribution, and reproduction so long as the original work is properly cited.

(<https://creativecommons.org/licenses/by/4.0/>)

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



### ENDOSCOPY E-VIDEOS

<https://eref.thieme.de/e-videos>



*E-Videos* is an open access online section of the journal *Endoscopy*, reporting on interesting cases

and new techniques in gastroenterological endoscopy. All papers include a high-quality video and are published with a Creative Commons CC-BY license. *Endoscopy E-Videos* qualify for HINARI discounts and waivers and eligibility is automatically checked during the submission process. We grant 100% waivers to articles whose corresponding authors are based in Group A countries and 50% waivers to those who are based in Group B countries as classified by Research4Life (see: <https://www.research4life.org/access/eligibility/>).

This section has its own submission website at

<https://mc.manuscriptcentral.com/e-videos>