

## Double Penetrated Duodenal Wall during Endoscopic Ultrasound-Guided Choledochoduodenostomy

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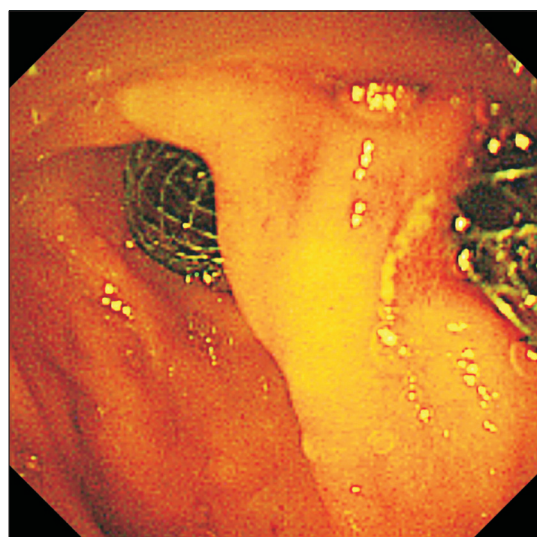
Endoscopic ultrasound-guided choledochoduodenostomy (EUS-CDS) using a covered self-expandable metallic stent (CSEMS) was developed as an alternative biliary drainage technique in patients with failed endoscopic retrograde cholangiopancreatography (ERCP).<sup>1,2</sup> Here, we present a case that underwent EUS-CDS with a partial CSEMS, resulting in a doubly penetrated duodenal wall for malignant distal bile duct obstruction.

A 44-year-old woman with cancer of unknown origins and obstructive jaundice was referred to our hospital. We performed ERCP, but selective bile duct cannulation was unsuccessful even with precutting. EUS-CDS was attempted using a curved-linear echoendoscope. Following the puncture of the common bile

duct from the duodenal bulb using a 19-gauge needle (EchoTip® Ultra; Cook Japan, Tokyo, Japan), a 0.025-inch guidewire (VisiGlide™; Olympus Medical Systems Corp., Tokyo, Japan) was inserted into the intrahepatic bile duct. The needle tract was dilated by a 6-F wire-guided diathermic dilator (Cysto-Gastro-Set; Endo-Flex GmbH, Voerde, Germany) using a blended cut mode. After the dilation of the tract, we inserted a partial CSEMS through the fistula tract under fluoroscopic guidance and direct visualization. The EUS-CDS procedure was performed quickly; however, the fluoroscopic view revealed partial CSEMS showing a candy-like appearance (Fig. 1). At first, we thought the candy-like appearance was caused by the long distance between the bile duct and the duodenal wall.<sup>3</sup> However, no dislocation was



**Fig. 1.** Radiograph showing a candy-like appearance during endoscopic ultrasound-guided choledochoduodenostomy.



**Fig. 2.** Endoscopic image immediately after endoscopic ultrasound-guided choledochoduodenostomy showing the doubly penetrated duodenal wall at the duodenal bulb.

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observed after releasing the partial CSEMS, which indicated that no distal migration occurred at the puncture site. Eventually, we confirmed that the candy-like appearance resulted from the doubly penetrated duodenal wall (Fig. 2). Fortunately, no additional interventions were required.

Recently, EUS-CDS using CSEMS has been reported and is favored for reducing bile leakage and achieving prolonged stent patency.<sup>2</sup> Forward-viewing echoendoscopes may be useful to prevent doubly penetrating the duodenal wall with a needle compared with curved-linear ones for the following differences: the location of the echo probe and its short length. The endoscopist should check the endoscopic view during CSEMS deployment at the anastomotic site. However, doubly penetrating the duodenal wall during EUS-CDS cannot be avoided at that time. The findings described here suggest that more attention should be paid to the possibility of doubly penetrating the duodenal wall when performing EUS-CDS using curved-linear echoendoscopes.

## CONFLICTS OF INTEREST

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

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