Candy-like sign during endoscopic ultrasound-guided choledochoduodenostomy as an indication of the long distance between the bile duct and duodenal wall

Endoscopic ultrasound-guided choledochoduodenostomy (EUS-CDS) using a covered self-expandable metallic stent (SEMS) is an established alternative drainage technique for patients in whom endoscopic retrograde cholangiopancreatography has failed [1,2]. This report describes the case of a patient who underwent successful EUS-CDS with a partially covered SEMS placed far from the duodenal wall. A 66-year-old man with locally advanced pancreatic head cancer was admitted to our hospital. He had undergone percutaneous transhepatic biliary drainage (PTBD) at another hospital 1 week earlier because of failed selective bile duct cannulation. He experienced right flank pain after PTBD. As the patient wanted the PTBD tube removed, we opted to perform EUS-CDS rather than antegrade stenting. After puncture of the common bile duct from the first part of the duodenum using a 19-gauge needle (Echo Tip Ultra; Cook Japan, Tokyo, Japan), a 0.025-inch guidewire (VisiGlide; Olympus Medical Systems Corp., Tokyo, Japan) was inserted into the intrahepatic bile duct. Fistula dilation was then performed using a 6-Fr wire-guided diathermic dilator (Cysto-Gastro-Set; Endo-Flex GmbH, Voerde, Germany) with a blended cut mode. Insertion of a partially covered SEMS (WallFlex, 10×60mm; Boston Scientific Japan, Tokyo, Japan) was then attempted through the fistula. The EUS-CDS procedure was performed quickly; however, the SEMS revealed a candy-like sign in the form of a large gap between the bile duct and duodenum, and this sign warrants caution as it indicates distal migration and bile leakage (Fig. 1 and Fig. 2; Video 1).

We therefore attempted additional stenting using a fully covered SEMS (Bonastent, 10×60mm; Standard Sci Tech, Seoul, Korea), but this stent could not be passed through the first partially covered stent. Balloon dilation (Hurricane RX Biliary Bal-
loon Dilation Catheter; Boston Scientific Japan) of the first partially covered SEMS was performed ( ● Fig. 3; ● Video 1).

Finally, a second fully covered SEMS was placed across the fistula through the first partially covered stent without any complication ( ● Fig. 4 and ● Fig. 5; ● Video 1). We were successful in saving this patient using placement of an additional fully covered SEMS. Caution should be taken in the event of the rare and dangerous candy-like sign, which indicates a long distance between the bile duct and duodenum, during EUS-CDS with covered SEMS placement.

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**Competing interests:** None

Hiroshi Kawakami, Masaki Kuwatani, Kazumichi Kawakubo, Taiki Kudo, Yoko Abe, Kimitoshi Kubo, Yoshimasa Kubota, Naoya Sakamoto

Department of Gastroenterology and Hepatology, Hokkaido University Graduate School of Medicine, Sapporo, Japan

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**Corresponding author**

Hiroshi Kawakami, MD, PhD

Department of Gastroenterology and Hepatology, Hokkaido University Graduate School of Medicine

Kita 15, Nishi 7

Kita-ku

Sapporo 060-8638

Japan

Fax: +81-11-7067867

hiropon@med.hokudai.ac.jp

Endoscopic rescue technique for gap formation of the partially covered self-expandable metallic stent (SEMS), which was dilated using a balloon catheter followed by placement of a fully covered SEMS.

**Video 1**

Endoscopic image showing the second fully covered self-expandable metallic stent (SEMS) placed across the first partially covered SEMS.