A novel partially covered metallic stent with a 20-mm long distal bare portion for EUS-guided hepaticogastrostomy

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Endoscopic ultrasonography-guided hepaticogastrostomy (EUS-HGS) is a widely performed procedure for biliary drainage after failed endoscopic retrograde cholangiopancreatography. There are several steps in EUS-HGS, including puncture, guidewire advancement, and fistula dilation. Among these steps, stent selection is one of the most critical to obtain satisfactory short and long-term outcomes.

Currently, plastic stents and self-expandable metallic stents (SEMSs) are used for EUS-HGS; however, plastic stents have an increased risk of bile leakage and periprocedural bleeding compared to SEMSs[1]; thus, SEMSs are recommended for EUS-guided biliary drainage.[2] Although only a fully covered SEMS has the advantage of removability, it may block the intrahepatic biliary branch, causing segmental cholangitis. A partially covered SEMS (PCSEMS) with a long bare portion at its distal end can minimize this risk; however, a conventional PCSEMS only has a 5-mm bare portion. In EUS-HGS, the stent length in the intrahepatic bile duct should be at least 20 mm to prevent stent migration. Thus, although a PCSEMS is used, a covered portion of 15 mm or more should be deployed in the intrahepatic bile duct, which might cause segmental cholangitis.

Recently, a novel PCSEMS (EGIS biliary stent, double covered, 8 mm × 12 cm; S&G Biotech Inc, Yongin-si, Korea) with a 20-mm bare distal portion has been developed to avoid blocking biliary side branches. Compared with other general commercially available PCSEMSs, the bare length on its distal end is long enough to prevent intrahepatic bile duct obstruction. This stent has radio-opaque markers located at 3 positions (Fig. 1). The second markers, located at the junction of the bare and covered portions 20 mm from the distal end, help in stent deployment. When deploying the PCSEMS, the stent is first released up to 20 mm (Fig. 2A). Subsequently, the delivery sheath is pulled until the second markers are positioned at the puncture site of the bile duct (Fig. 2B), followed by complete deployment holding the markers in the same position. A stent length ≥3 cm in the luminal portion is reportedly suitable for maintaining stent patency.[3] Moreover, to avoid the potential adverse event of stent migration from the stomach into the peritoneal cavity, the stent length should be ≥10 cm,[2,4] and the intrascope channel stent release technique is likely to be useful.[5]

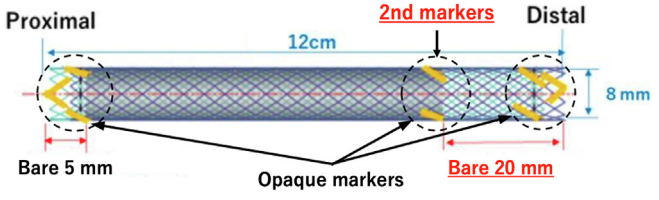

Figure 1. Stent specifications (EGIS biliary stent, double covered; S&G Biotech Inc, Yongin-si, Korea).

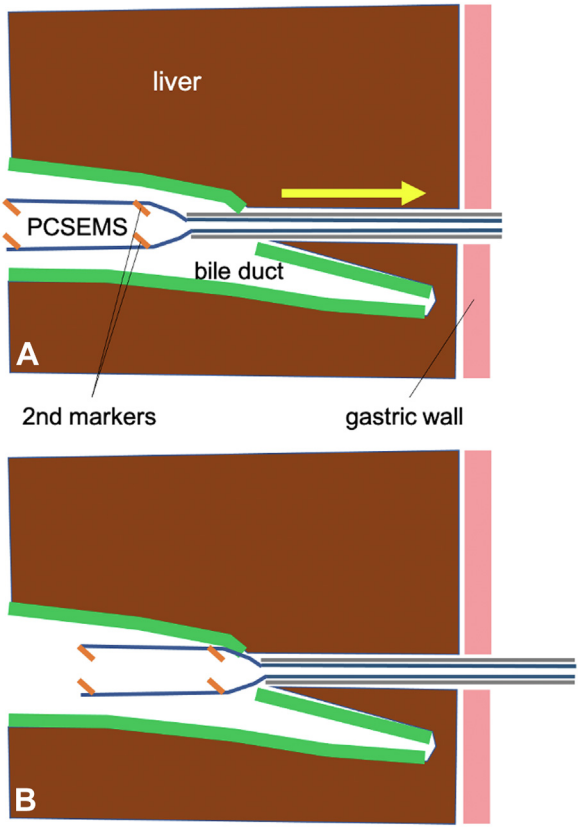

Figure 2. Illustration of stent deployment. **A,** The stent is released up to 20 mm. **B,** The delivery sheath is pulled until the second markers are positioned at the puncture site of the bile duct.

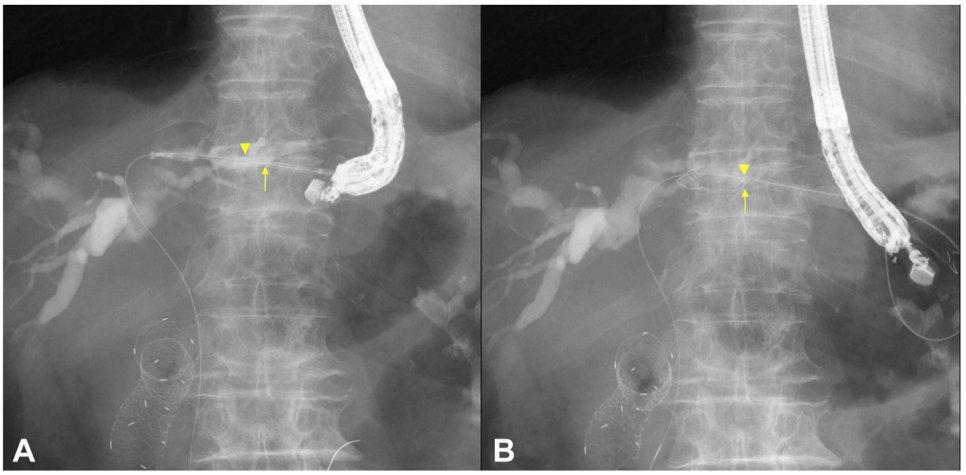

Figure 3. Fluoroscopic imaging demonstrating stent in place. **A,** Before releasing the stent, the second markers are placed on the deeper side of the puncture site of the bile duct. **B,** After deployment of the stent, the second markers are on the puncture site of the bile duct. The *arrow* shows the puncture site of the bile duct, and the *arrowhead* shows the second markers.

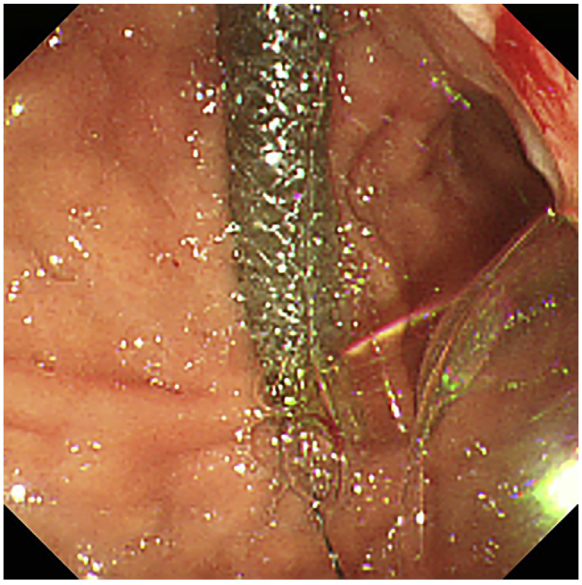

Figure 4. Endoscopic examination of the luminal portion of the stent.

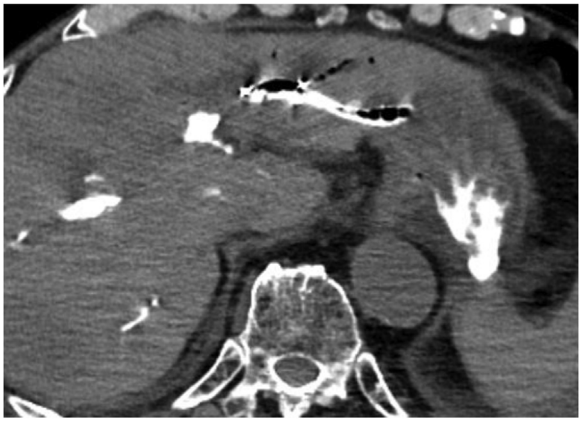

Figure 5. CT showing accurate positioning of the stent without candy sign or bile leakage.

The present case report describes an 82-year-old man with gallbladder cancer. He was admitted to our hospital for obstructive jaundice. EUS-HGS was performed because the ampulla of Vater was endoscopically inaccessible owing to the previously placed duodenal stent. The B3 bile duct was punctured with a 19-gauge needle, and a 0.025-inch guidewire was sufficiently advanced after cholangiography. A PCSEMS (EGIS biliary stent, double covered, 8 mm × 12 cm; S&G Biotech Inc) was inserted into the bile duct (Fig. 3A) after fistula dilation with a 4-mm balloon. Subsequently, the stent was deployed as described (Fig. 3B), and endoscopic examination confirmed adequate stent length in the luminal portion (Fig. 4). CT immediately after the procedure showed accurate positioning of the stent without a candy sign or bile leakage (Fig. 5).

In conclusion, this novel PCSEMS could provide stable and easy stent deployment in EUS-HGS without blocking the intrahepatic biliary branch, owing to the 20-mm-long distal bare portion. However, additional studies are required to further validate the use of this stent (Video 1, available online at www.giejournal.org).

DISCLOSURE

All authors disclosed no financial relationships.

Abbreviations: EUS-HGS, endoscopic ultrasonography-guided hepaticogastrostomy; PCSEMS, partially covered self-expandable metallic stent; SEMS, self-expandable metallic stent.

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