



Stent-in-stent self-expandable metallic stent placement under direct cholangioscopy with the use of short double-balloon endoscope for a Roux-en-Y case

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Managing consequent jaundice caused by malignant hilar biliary obstruction (MHBO) is important. Endoscopic biliary drainage is the treatment of choice because of its limited invasiveness. Bilateral self-expandable metallic stent (SEMS) placement for unresectable MHBO is a good option because of its high success rate and long-term stent patency. However, in patients with surgically altered anatomy, especially those who have undergone Roux-en-Y bypass surgery, ERCP is challenging because the endoscope needs to pass the long limb of the small

intestine to reach the main papilla. Unusual postsurgical conditions, such as intestinal adhesions, also make controlling the endoscope, cannula, and ERCP devices difficult.^{1,2} Bilateral SEMS placement for patients with unresectable MHBO and Roux-en-Y is extremely difficult.

An 83-year-old man who had previously undergone Roux-en-Y for gastric cancer was admitted to our hospital with jaundice. Laboratory tests showed that his total bilirubin, aspartate aminotransferase, and alanine aminotransferase levels had risen to 8.8 mg/dL, 100 U/L, and 133 U/L,

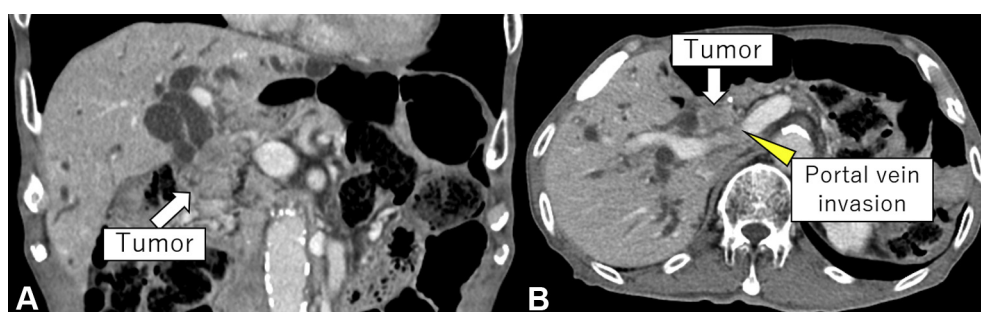


Figure 1. Contrast-enhanced CT view showing the tumor caused by hilar biliary obstruction (**A**, arrow) and originating in the hilar portal vein (**B**, arrowhead).

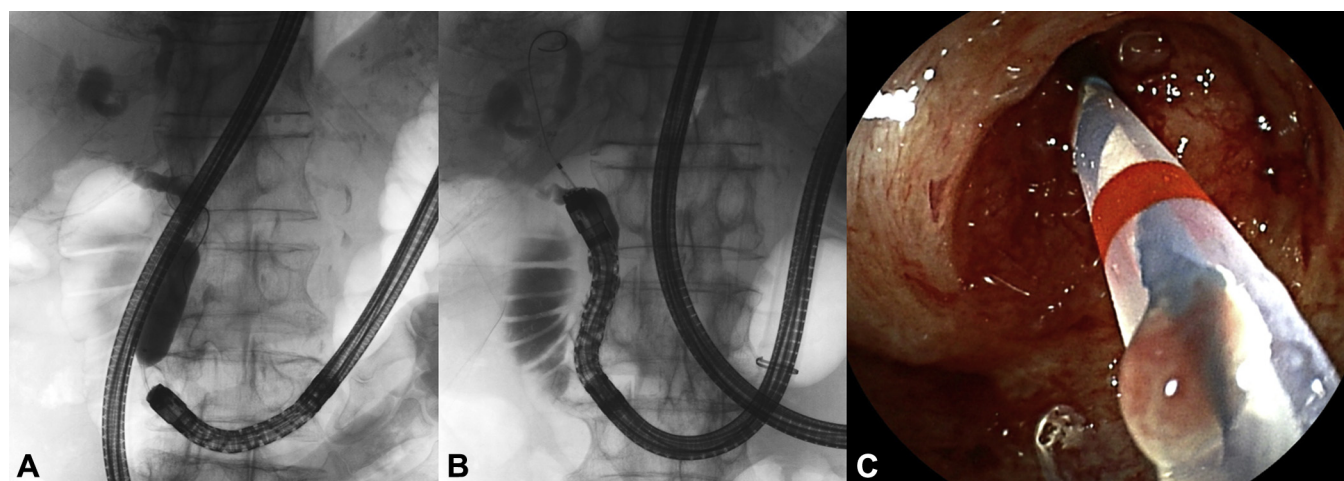


Figure 2. **A**, Endoscopic papillary large balloon dilation performed to dilate the main papilla. **B**, The endoscope was inserted toward the common bile duct, **C**, making it easy to set the cannula toward the origin of the occlusion.

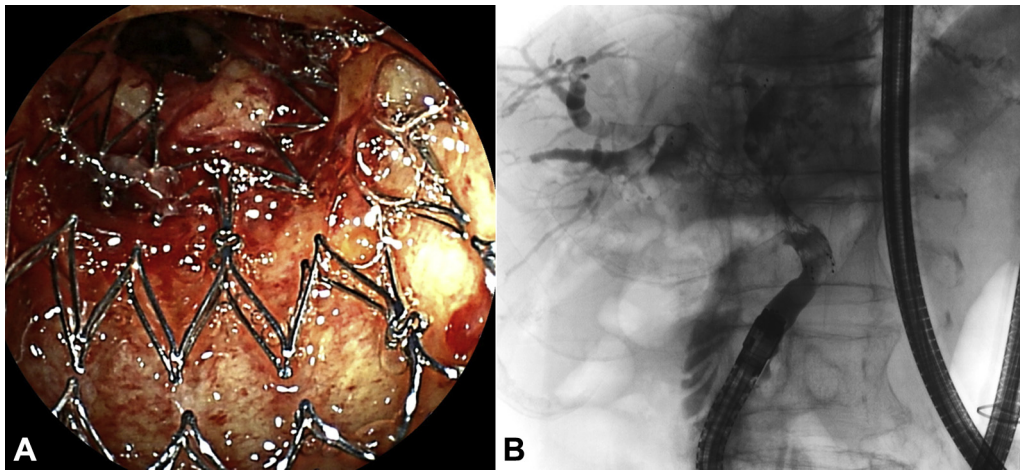


Figure 3. **A**, Placement of self-expandable metallic stent toward the bilateral bile duct. **B**, Rapid aspiration of contrast medium in the bilateral bile duct.

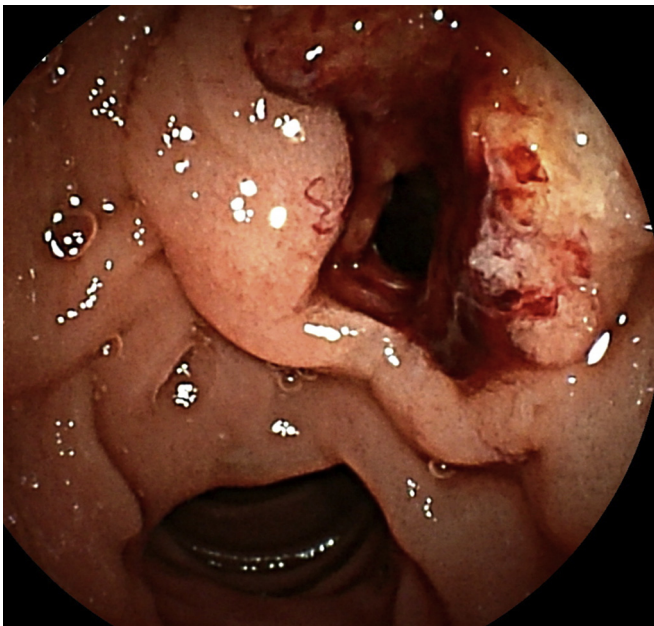


Figure 4. The main papilla was dilated by endoscopic papillary large balloon dilation and endoscopy without perforation and bleeding.

respectively. Contrast-enhanced CT revealed a dilated bilateral intrahepatic bile duct (IHBD) and a 24-mm × 16-mm tumor, which originated in the hilar bile duct and portal vein (Fig. 1). ERCP was planned to drain the obstruction, and a short double-balloon endoscope (sDBE) (EI-580BT; Fujifilm, Tokyo, Japan) with a 1550-mm working length, 3.2-mm working channel diameter, and 9.4-mm outer diameter was inserted into the main papilla.

Upon cannulation to the common bile duct (CBD), upper-bile duct obstruction by a tumor was observed. An endoscopic retrograde cholangiogram revealed that the cystic duct branched below the tumor. We tried to insert

the guidewire to the IHBD across the tumor; however, the upper bile duct was tightly closed, and the guidewire could not pass the obstruction.

Because the CBD was dilated to 14 mm, endoscopic papillary large balloon dilation (EPLBD) (14-mm REN; Kaneka Corp, Osaka, Japan) was performed for dilation of the main papilla. After dilation of the main papilla, the endoscope was directly inserted to the CBD, and the guidewire was then inserted to the IHBD by direct cholangioscopy (DC) with use of an sDBE (sDBE-DC), which allowed for easy detection of the occlusion origin and setting of the cannula toward it (Fig. 2). The 2 guidewires passed the obstruction and were set to the bilateral bile duct.

Endoscopic direct biopsy was also performed after placement of the guidewires. The results of the endoscopic retrograde cholangiogram confirmed that the Bismuth type II hilar obstruction had disappeared. Because the tumor originated in the hilar bile duct and portal vein, the obstruction was considered unresectable, and placement of stent-in-stent SEMSs was planned.

The SEMS 10-mm × 60-mm stent delivery system (2000 mm in working length and 1.8 mm in diameter) (Zeostent; Zeon Medical Inc, Tokyo, Japan) was easily and smoothly inserted and placed in the right bile duct. Thereafter, we pulled the tip of this stent delivery system toward the bottom of the hilar part. The guidewire that was inserted in this delivery system was pulled to the hilar part, then we sought the left bile duct. Using this technique, we were able to easily insert the guidewire to the left bile duct across the mesh of the initial SEMS. This thin delivery system also made it easy to pass across the mesh of the initial SEMS, and another SEMS (Zeostent, 10 mm × 60 mm) was smoothly placed in the left bile duct. The endoscope could aspirate the contrast medium from both sides of the IHBD (Fig. 3; Video 1, available online at www.VideoGIE.org). During the procedure, the

main papilla was dilated by EPLBD and endoscopy without perforation and bleeding (Fig. 4).

The patient's laboratory values quickly improved without any adverse events. One week later, examination of a direct biopsy specimen from the bile duct tumor established a diagnosis of bile duct cancer. The patient received gemcitabine plus cisplatin chemotherapy. No stent obstruction or signs of cholangitis were detected during chemotherapy.

In conclusion, sDBE-DC performed after EPLBD made it easier to perform bilateral stent-in-stent placement. This technique can be performed in patients with dilated CBDs and requires the use of an sDBE, which has a short working length. The SEMS requires a long delivery system that has a sufficiently effective length compared with the length of the sDBE; however, it was considered a facilitative method for unresectable MHBO with Roux-en-Y anatomy.

DISCLOSURE

All authors disclosed no financial relationships relevant to this publication.

Abbreviations: CBD, common bile duct; EPLBD, endoscopic papillary large balloon dilation; IHBD, intrabepatic bile duct; MHBO, malignant bilar biliary obstruction; sDBE, short double-balloon endoscope; sDBE-DC, direct cholangioscopy with use of sDBE; SEMS, self-expandable metal stent.

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