EUS-guided antegrade metallic stent placement using the stent-in-stent method with a 6-Fr novel slim delivery system in a patient with malignant hilar biliary obstruction

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A 72-year-old male was admitted with anorexia and jaundice caused by advanced gastric cancer with bismuth type II hilar biliary stricture due to invasion of gastric cancer [Figure 1]. A gastro-duodenal stent was deployed to treat malignant gastric outlet obstruction [Figure 2]. After 2 days, the gastro-duodenal stent expansion was

insufficient to insert the duodenoscope. Therefore, EUS-guided biliary drainage (EUS-BD) was conducted. In addition, as there was food residue in the stomach, transpapillary drainage was performed considering the risk of stent obstruction and retrograde infection.

Figure 1. (a) Computed tomography showing hilar biliary obstruction (arrow). (b) Computed tomography showing gastric outlet obstruction. (c) Computed tomography showing common bile duct (red arrowhead) was invaded (arrow) by gastric cancer (*)

Figure 2. (a) Endoscope and gastrography showing gastric outlet obstruction due to advanced gastric cancer. (b) A gastro-duodenal stent is placed to treat malignant gastric outlet obstruction

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The dilated B3 segment was punctured using a 19-gauge needle. A 0.025-inch guidewire was inserted into the duodenum through the papilla. A cholangiogram showed a 30-mm stricture in the hilar biliary duct and displacement of the left and right hepatic ducts [Figure 3]. A double-lumen cannula was inserted, followed by a 0.035-inch guidewire to stabilize the axis. A 0.025-inch

Figure 3. (a) The dilated B3 segment is punctured using a 19-gauge needle under EUS-guidance. (b) Cholangiography showing hilar biliary duct stricture and displacement of the left and right hepatic ducts (arrow)

guidewire was inserted into the right anterior B5 segment. The stricture was dilated using a 4-mm balloon. An uncovered self-expandable metal stent (SEMS), with a slim delivery system (Niti-S large cell SR slim delivery; 6-Fr diameter; Taewoong Medical, Seoul, Korea) was inserted to bridge the hepatic ducts [Figure 4]. Next, a 0.025-inch guidewire was introduced into the duodenum, beyond the papilla, through the stent mesh. The stricture and stent mesh were dilated using a 4-mm balloon. Another uncovered SEMS (Niti-S large cell SR slim delivery) was deployed from the distal common bile duct to the left hepatic duct using a stent-in-stent method. A plastic stent was placed from the intrahepatic duct to the stomach to maintain the access route [Figure 5]. After 6 days, the serum bilirubin level improved and he was discharged with no complications. At the 3-month follow-up, the patient was receiving chemotherapy and doing well.

EUS-BD has become a rescue treatment option for endoscopic retrograde cholangiopancreatography drainage

Figure 4. (a) A guidewire inserted into the right anterior B5 segment. (b) The stricture is dilated with a balloon. (c) A self-expandable metal stent is placed bridging the right and left hepatic ducts

Figure 5. (a) The stricture and stent mesh are dilated with a balloon. (b) A self-expandable metal stent is deployed using the stent-in-stent method. (c) X-ray image after EUS-guided biliary drainage

failure.^[1-3] However, malignant hilar biliary strictures may cause difficulties with drainage of the right liver.^[4] With a novel stent, a 6-Fr slim delivery system, and keeping a slight gap around the guidewire,^[5] a bilateral SEMS placement could be performed using the stent-in-stent approach under EUS-BD.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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