Achievement of long-term stent patency in endoscopic ultrasonography-guided right bile duct drainage after left hepatic lobectomy (with video)

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A 72-year-old female with advanced rectal cancer presented with obstructive jaundice 6 months after undergoing left hepatic lobectomy for liver metastases. Computed tomography revealed a dilated right intrahepatic bile duct, and a new liver metastasis appeared in her right hepatic lobe [Figure 1a]. Endoscopic retrograde cholangiopancreatography (ERCP) revealed severe stricture at the hepatic hilum; however, insertion of an ERCP catheter into the right anterior intrahepatic duct was unsuccessful [Figure 1b]. Subsequently, endoscopic ultrasonography-guided right hepatic bile duct drainage (EUS-RBD) was attempted. The right anterior intrahepatic duct could be well-visualized with an echoendoscope from the duodenal bulb and was punctured with a 19-gauge aspiration needle [Figure 2a]. A 0.025-inch angle-tip guidewire (VisiGlide 2; Olympus Medical Systems, Tokyo, Japan) was inserted into the biliary system [Figure 2b], and following dilation of the fistula track by a 7-Fr biliary bougie dilator (Soehendra Biliary Dilation Catheter, Cook Medical, Winston-Salem, North Carolina, USA), a covered self-expandable metal stent (10 mm × 100 mm, Niti-S Biliary Covered Stent; Taewoong Medical, Seoul, South Korea) was successfully deployed through the duodenal bulb [Figure 2c and Video 1]. The total procedure time was 42 min. The postoperative period was uneventful, and both jaundice and never mentioned before resolved in

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Chemotherapy was resumed for advanced rectal cancer immediately after discharge. The patient died 767 days after EUS-RBD because of the progression of her underlying disease; however, she remained free of jaundice until death.

EUS-guided biliary drainage is a recently developed alternative technique in patients with biliary obstruction for failed ERCP. Various techniques have been described; however, limited data are available regarding EUS-RBD and long-term follow-up data are lacking. This is the first case which attained long-term stent patency in EUS-RBD after left hepatic lobectomy.

The use of the Spyglass System (Boston Scientific, Natick, Massachusetts, USA) to facilitate selective placement of a guidewire in the context of difficult biliary strictures has been reported. However, even if a guidewire had been successfully inserted across this stricture, the configuration and site of the stricture would have made placement of a self-expandable metal stent difficult, and a plastic stent would have to be used. Plastic stents tend to occlude within a few months, and the patient would have had to undergo repeat ERCP procedures for palliative drainage. In contrast, EUS-RBD using a self-expandable metal stent allowed long lasting effective drainage.

In conclusion, EUS-RBD could be an effective palliative option for right intrahepatic bile duct drainage, which is expected to maintain the patient's quality of life and achieve long-term stent patency and survival.

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

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**Conflicts of interest**
There are no conflicts of interest.

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**Figure 2.** (a) The right anterior intrahepatic duct was punctured using a 19-gauge aspiration needle under endosonographic guidance. (b) After the injection of contrast agent, a 0.025-inch guidewire was inserted into the biliary system. (c) A covered metal stent (10 mm wide and 100 mm long) was successfully deployed into the right hepatic bile duct via the duodenal bulb.