

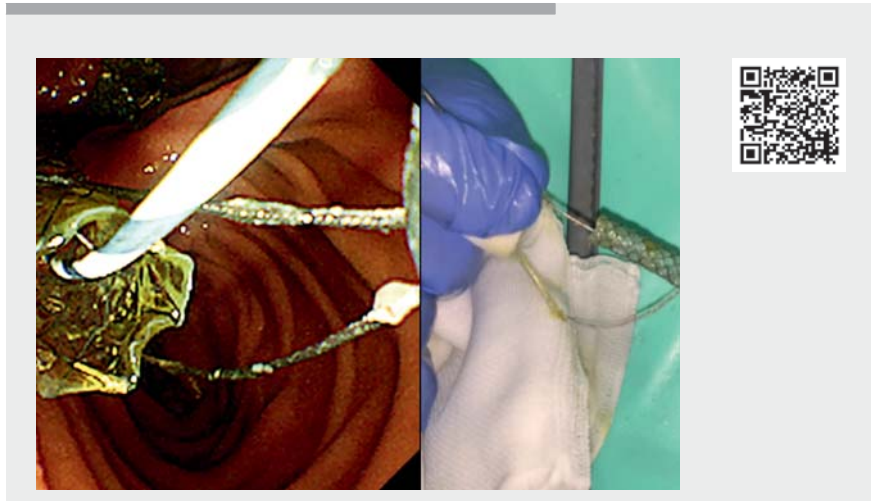
Across-the-papilla side-by-side placement of 6-mm fully covered metallic stents for malignant hilar biliary obstruction: a novel concept that may facilitate reintervention

For transpapillary drainage of a malignant hilar biliary obstruction (MHBO) with a metallic stent, considering the risk of branched bile duct obstruction and duodenobiliary reflux, insertion of an uncovered metallic stent above the level of the papilla tends to be selected [1–4]. However, this form of deployment often makes endoscopic reintervention difficult, even though it is frequently required [5]. Here, we report a novel concept of drainage for MHBO with endoscopic reintervention in mind, in the form of across-the-papilla side-by-side placement of 6-mm fully covered metallic stents.

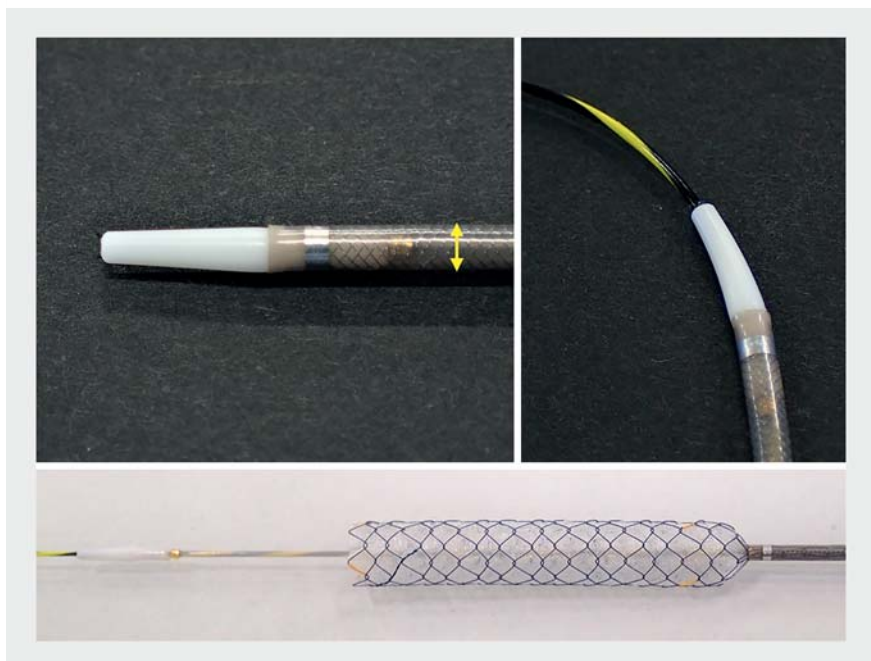
A 74-year-old woman with unresectable hilar cholangiocarcinoma presented with obstructive jaundice. Since both left and right intrahepatic bile ducts were dilated, bilateral metal stenting was performed using 6-mm × 10-cm fully covered braided metallic stents with a novel ultra-thin (5.9Fr) delivery system (Benefit; M.I. Tech Co., Ltd., South Korea) (► Fig. 1).

First, two guidewires were sequentially inserted into the intrahepatic ducts. Then, stent introducers were placed along each guidewire through the working channel and into the dilated bile ducts (► Fig. 2). Bilateral deployment of the two stents was simultaneously performed across the papilla (► Fig. 3). The patient progressed well, but later required endoscopic reintervention for poor drainage of the right bile duct.

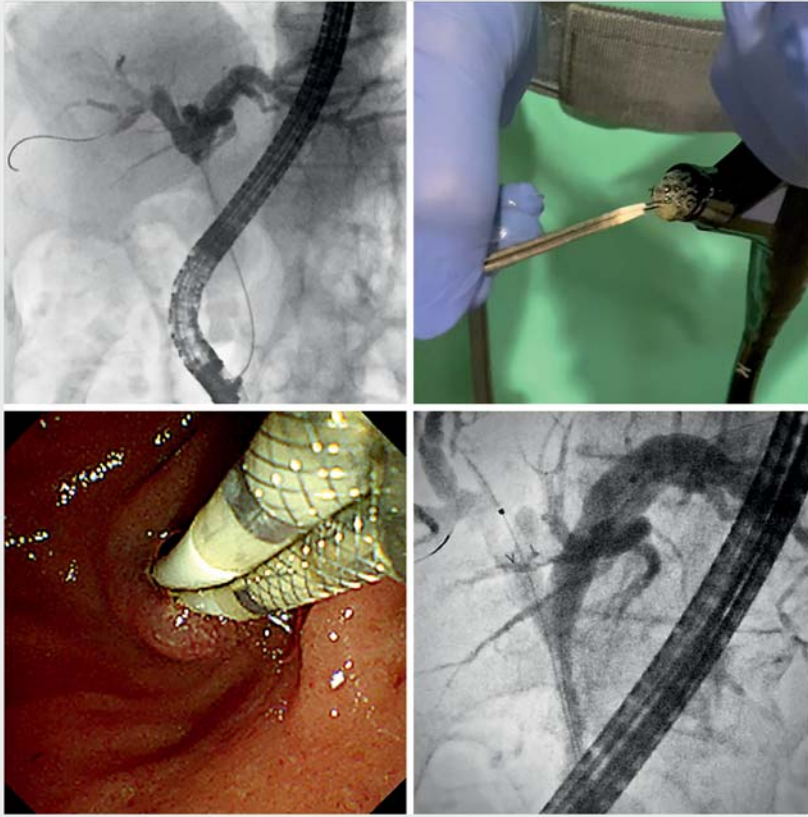
Since the lower end of the stent was inserted beyond the papilla and was of the fully covered type, the guidewire could be easily placed in the drainage area. A snare forceps was then inserted over the guidewire and used to grasp the stent and remove it through the scope channel (► Fig. 4). During removal, the left stent did not move, and the guidewire re-



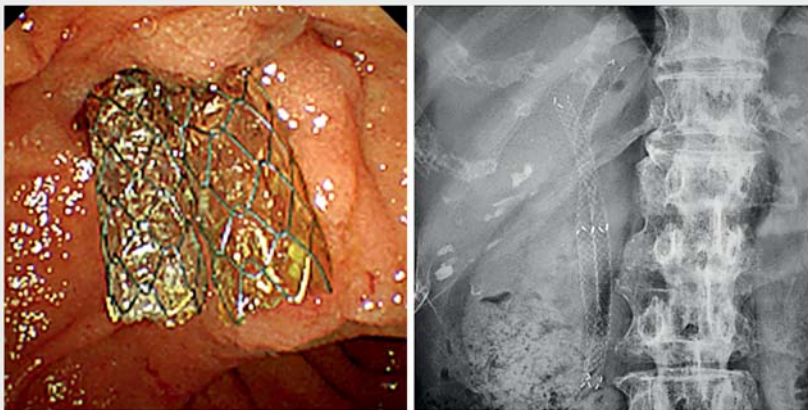
► **Video 1** Novel concept of drainage for malignant hilar biliary obstruction with endoscopic reintervention in mind, with across-the-papilla side-by-side placement of 6-mm fully covered metallic stents.



► **Fig. 1** A 6-mm × 10-cm fully covered braided metal stent with a novel ultra-thin (5.9Fr; double-headed arrow) delivery system (Benefit; M.I. Tech Co., Ltd., South Korea).



► **Fig. 2** First, two guidewires were sequentially inserted into both intrahepatic ducts. Then, stent introducers were placed along each guidewire through the working channel and inserted into both dilated bile ducts.



► **Fig. 3** Bilateral side-by-side deployment of both stents was simultaneously performed across the papilla.

mained in place; thus, a new stent could be successfully inserted along the same guidewire (► **Fig. 5**; ► **Video 1**).

This novel deployment concept allows exchanging a metallic stent to be as simple as exchanging a plastic stent. This method may be a useful option for managing MHBO with endoscopic reintervention in mind.

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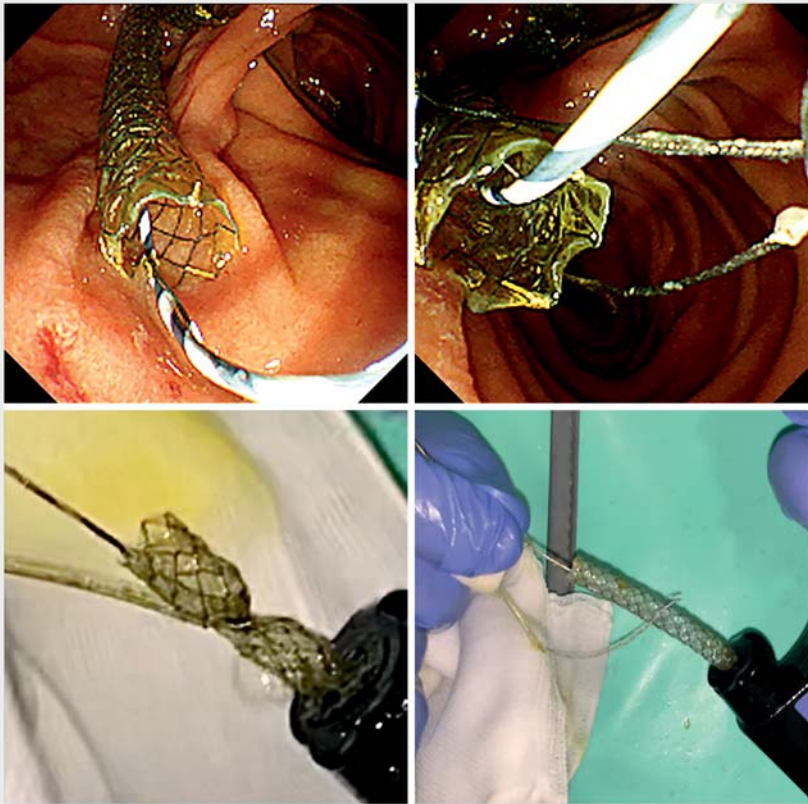
Competing interests

The authors declare that they have no conflict of interest.

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► **Fig. 4** Because the lower end of the stent was inserted beyond the papilla, the guidewire could be easily placed into the drainage area. A snare forceps was then inserted over the guidewire and used to grasp the stent and pass it through the scope channel for removal.

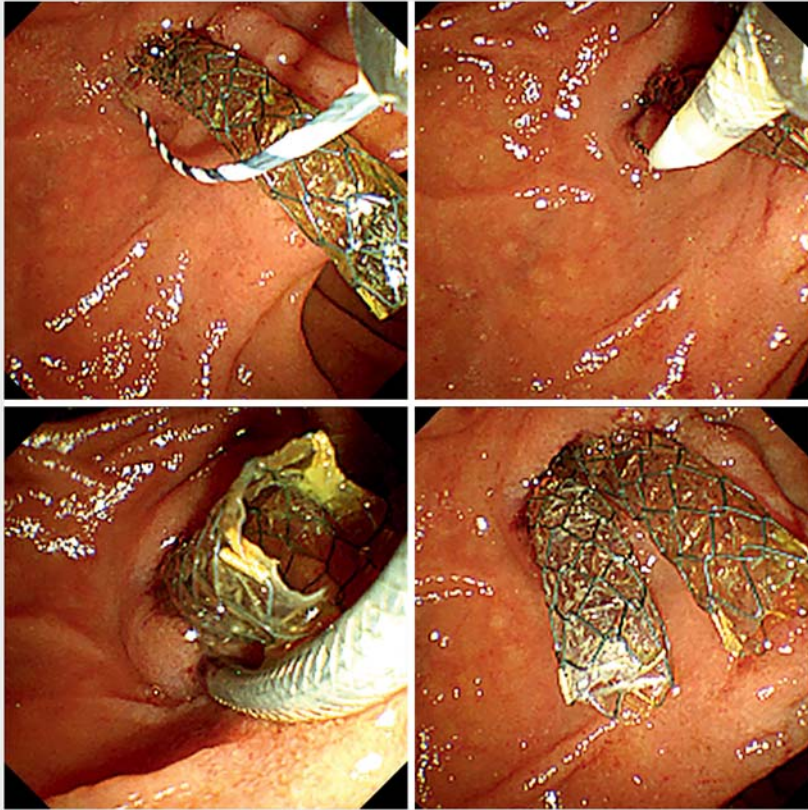
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► **Fig. 5** A new stent could be inserted along the guidewire. This method may be a useful option for managing malignant hilar biliary obstruction with endoscopic reintervention in mind.

Bibliography

Endoscopy 2022; 54: E102–E105

DOI 10.1055/a-1396-3606

ISSN 0013-726X

published online 30.3.2021

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Georg Thieme Verlag KG, Rüdigerstraße 14,
70469 Stuttgart, Germany

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