Successful guidewire navigation technique in the bile duct using a 3F microcatheter and balloon wedge

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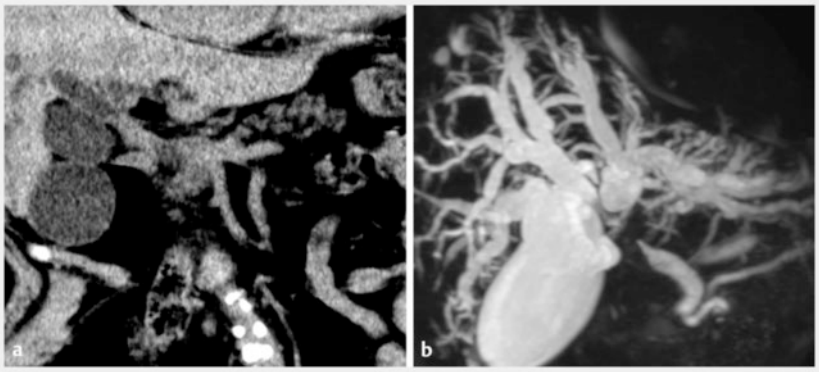
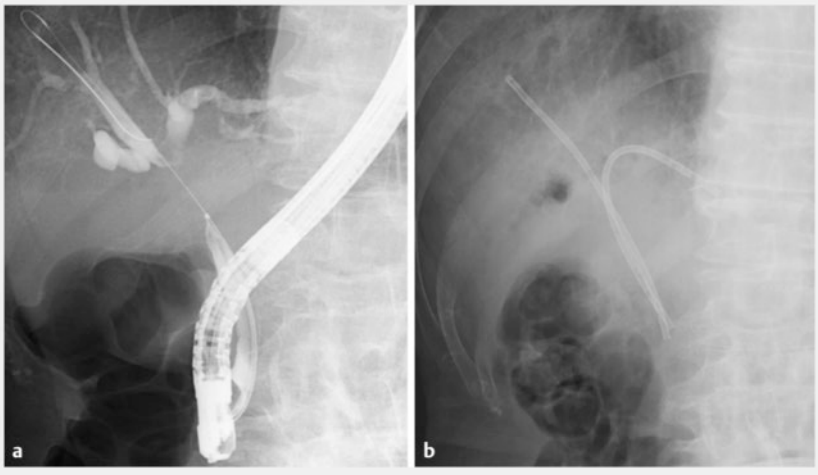
An 80-year-old man presented with hilar cholangiocarcinoma, Bismuth type II (▶**Fig. 1**), and biliary drainage of plastic stents (▶**Fig. 2**). Recurrent biliary obstruction (RBO) occurred every month for six months. Due to its frequency, we inserted an uncovered self-expandable metallic stent (USEMS).

We assumed that primary disease progression would result in Bismuth type IIIa necessitating drainage in three areas: anterior, posterior, and left lobes. Triple metal stenting could complicate reintervention; therefore, our plan was to conduct an endoscopic ultrasound-guided hepaticogastrostomy (EUS-HGS) on B3 and insert a USEMS in the anterior and posterior branches with a stent-in-stent. We performed endoscopic retrograde cholangiopancreatography using the TJF290 duodenoscope (Olympus, Japan). Cholangiography showed that the confluence of the posterior branch was steep, making guidewire (GW) navigation difficult. Therefore, the anterior branch was wedged with a balloon 7F catheter (Zeon medical, Japan) and a 3F microcatheter (Hanako Medical, Japan) was delivered alongside it (▶**Video 1**). The balloon wedge allowed the leading force of the GW to pass and be placed in the posterior branch. Furthermore, the 3F microcatheter could be inserted beyond the bile duct bend, facilitating deep insertion of the GW after cholangiography (▶**Fig. 3**). Finally, the USEMS was successfully placed with a stent-in stent technique and the patient went about 6 months without RBO. The multilumen balloon catheter [1] or rendezvous technique with EUS-hepaticoduodenostomy [2] may be useful for a steep angle at the confluence of the posterior branch; however, in the former, the GW lumen is fixed, which may reduce the flexibility of bile duct selection. Deep placement of the 3F microcatheter into the bile duct for cholangiography enabled GW insertion into the precise site. The usefulness of a 3F microcatheter has been reported [3]. We report this procedure with the aim of contributing to successful drainage of hilar biliary stenoses.



▶**Fig. 1** Image findings before biliary drainage. **a** Coronal view of the computed tomography scan showing wall thickening with a contrasting effect in the hilar bile ducts. **b** Magnetic resonance computed tomography showing Bismuth type II.

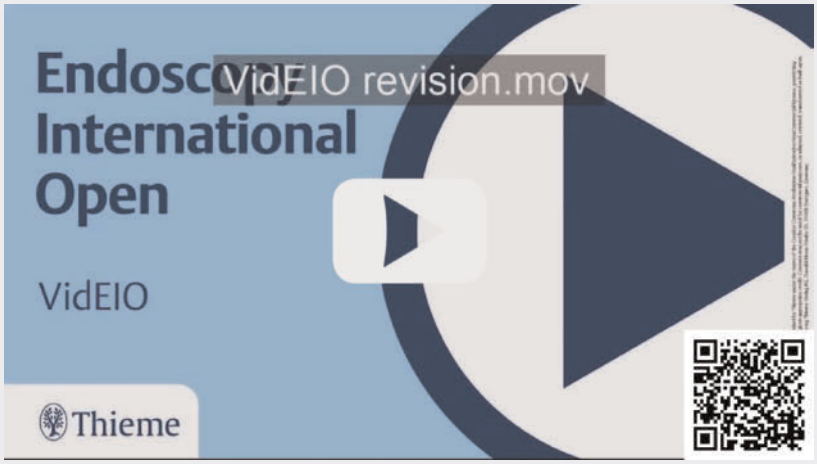


▶**Fig. 2** First endoscopic retrograde cholangiopancreatography. **a** Cholangiography showing the limited connection between the left and right hepatic ducts. The anterior and posterior branches are connected. **b** Placement of plastic stents into B3 and B8.

Conflict of Interest

The authors declare that they have no conflict of interest.

VIDEO



▶ **Video 1** Successful guidewire navigation technique in the bile duct using a 3F microcatheter and balloon wedge.

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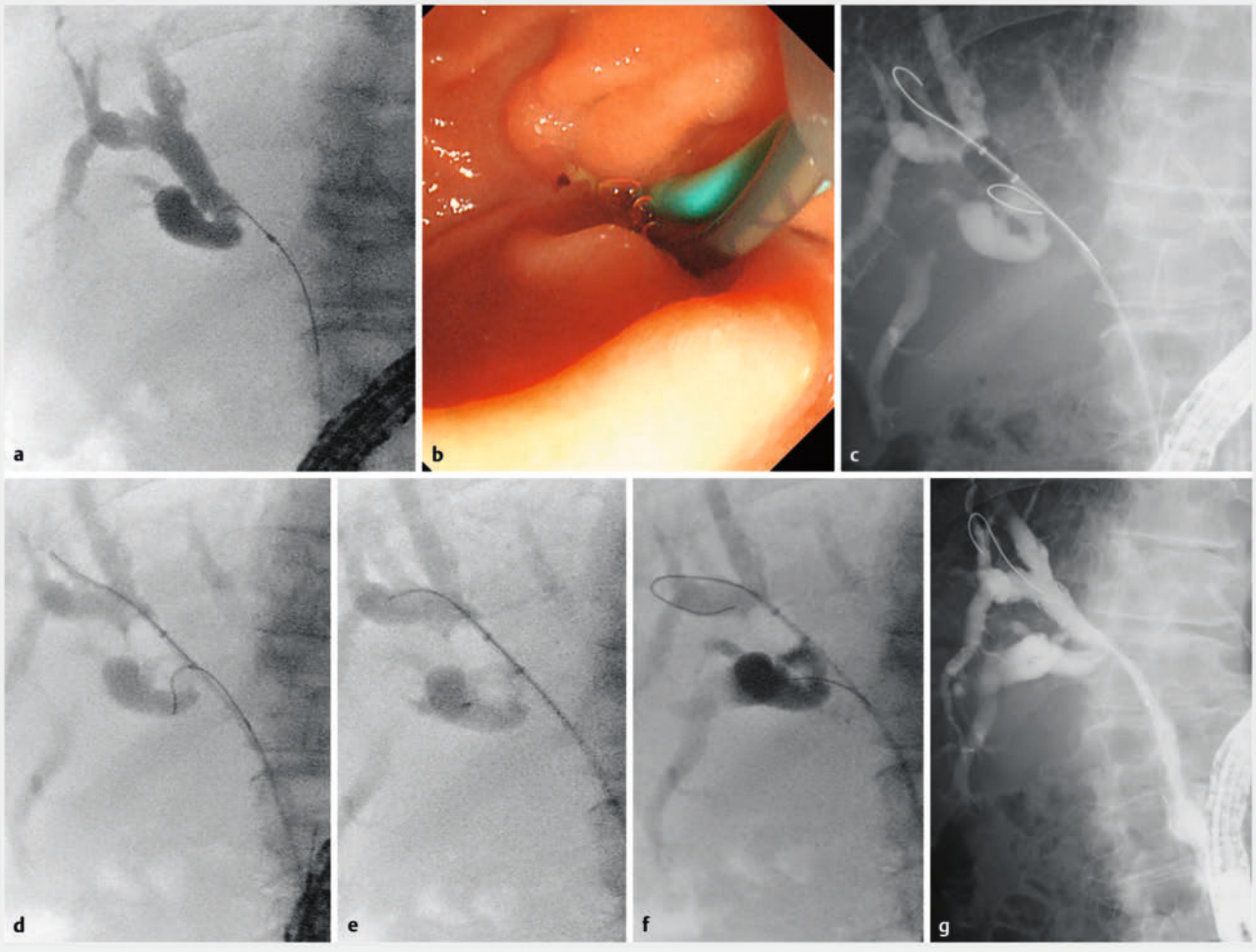

▶ **Fig. 3** Guidewire seeking technique in the bile duct with a 3F microcatheter and balloon wedge. **a** Selection of the posterior branch by only the guidewire (GW) is difficult. **b** The 3-F microcatheter passes easily alongside the balloon catheter and biliary cannulation. **c,d** The balloon wedge of the anterior branch allows the GW into the posterior branch. **e,f** The GW follows the 3F microcatheter, is placed into the posterior branch, and cholangiography is performed. **g** The stent-in stent method deploys the uncovered self-expandable metallic stent.

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