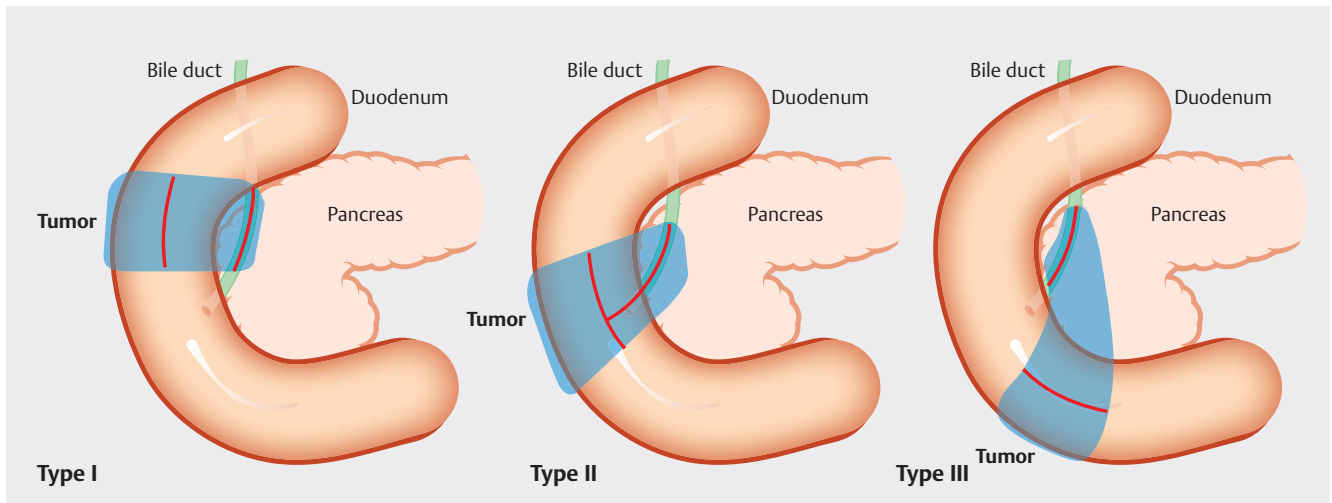


Transpapillary biliary drainage using a forward-viewing endoscope for distal malignant biliary obstruction after placement of a duodenal stent for type I duodenal stenosis

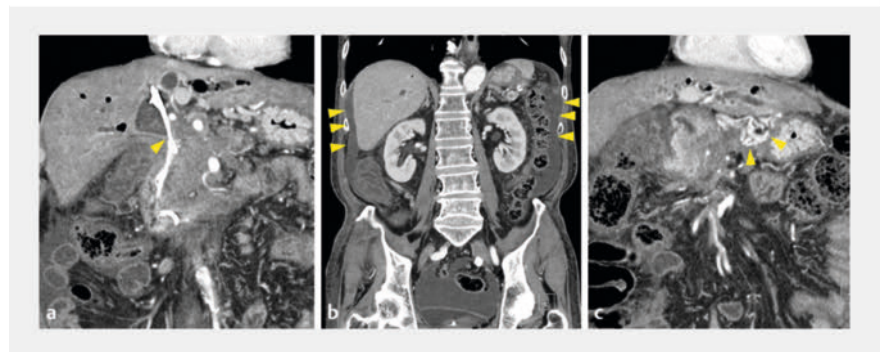
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► **Fig. 1** Schematic representations of duodenal stenosis. Three types of duodenal stenosis with biliary stenosis are shown, classified according to the anatomical location of the duodenal stenosis in relation to the major papilla. Blue areas indicate tumors and red lines indicate stenoses.

Transpapillary biliary drainage using a side-viewing duodenoscope is widely performed for patients with obstructive jaundice. In patients with pancreaticobiliary cancer, both distal malignant biliary obstruction (MBO) and duodenal stenosis may be complicated (► **Fig. 1**) [1], and it is often difficult to insert the duodenoscope in patients with duodenal stenosis on the oral side of the major papilla, especially. Endoscopic ultrasound-guided biliary drainage and percutaneous transhepatic biliary drainage are useful as alternative procedures; however, the presence of ascites or collateral flow makes it impossible to perform these procedures. We report a case of transpapillary biliary drainage for MBO using a forward-viewing endoscope after placement of a duodenal stent for type I duodenal stenosis.

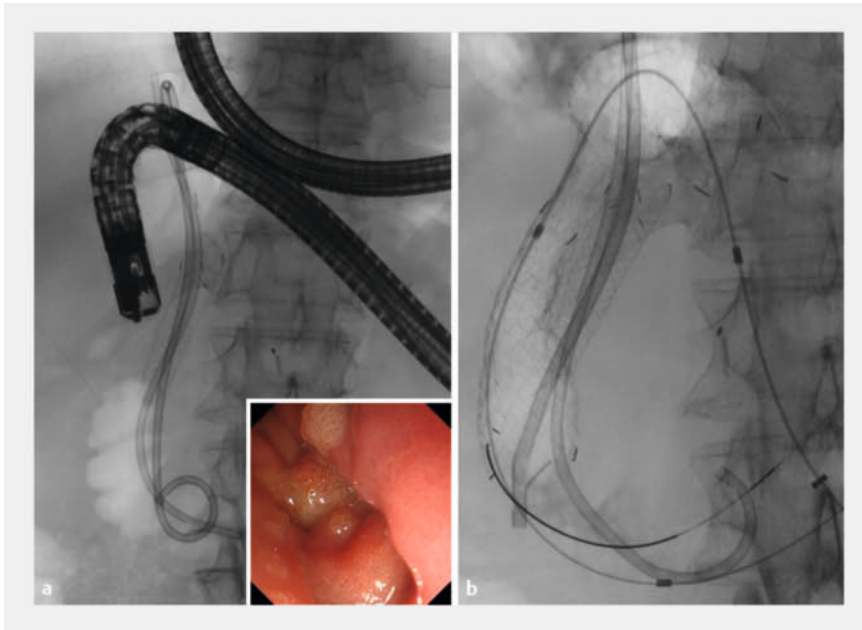
A 68-year-old man with pancreatic cancer was admitted to our institution because of high fever. Blood tests showed obstructive jaundice, and computed tomography (CT) revealed biliary dilatation despite the presence of endoscopic bili-



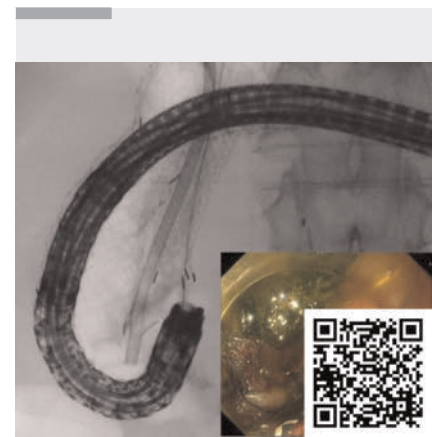
► **Fig. 2** Computed tomography images. **a** Biliary dilatation (arrowhead). **b** Ascites (arrowheads). **c** Collateral flow between stomach and liver (arrowheads).

ary drainage (► **Fig. 2 a**). CT also revealed ascites (► **Fig. 2 b**) and collateral flow between the stomach and the liver because the extrahepatic portal vein was occluded by tumor invasion (► **Fig. 2 c**). Although endoscopic retrograde cholangiopancreatography (ERCP) using a side-viewing duodenoscope (TJF-Q290V; Olympus Medical Systems, Tokyo, Japan) was attempted, it was difficult to insert the duodenoscope into the second por-

tion of the duodenum because of type I duodenal stenosis (► **Fig. 3 a**). Therefore, a duodenal stent was placed (► **Fig. 3 b**). Although the duodenoscope was inserted into the second portion through the duodenal stent, ERCP could still not be performed due to poor view (► **Fig. 4 a**). The major papilla could be visualized by flipping up the anal end of the duodenal stent using a forward-viewing endoscope (SIF-H290S; Olympus Medical Systems,



► **Fig. 3** Fluoroscopic images. **a** It was difficult to insert the scope into the second portion of the duodenum due to duodenal stenosis of type I. **b** A duodenal stent was placed.



► **Video 1** Transpapillary biliary drainage using a forward-viewing endoscope for distal malignant biliary obstruction after placement of duodenal stent is useful for patients with type I duodenal stenosis.

Conflict of Interest

The authors declare that they have no conflict of interest.

The authors

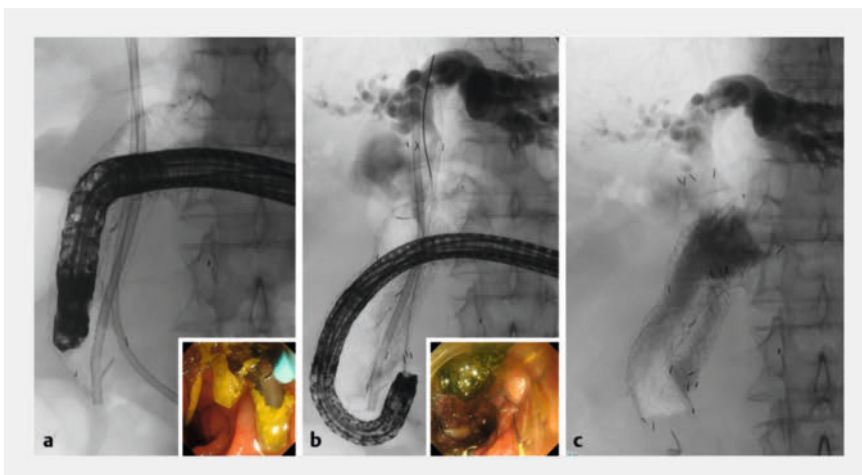
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► **Fig. 4** Fluoroscopic images. **a** Although a side-viewing duodenoscope was inserted into the second portion, endoscopic retrograde cholangiopancreatography could still not be performed due to poor view. **b** Biliary cannulation was performed by flipping up the anal end of the duodenal stent using a forward-viewing endoscope. **c** A fully covered self-expandable metal stent was placed.

Tokyo, Japan). Biliary cannulation was then performed (► **Fig. 4 b**), and a fully covered self-expandable metal stent was placed for the MBO (► **Fig. 4 c**, ► **Video 1**).

Transpapillary biliary drainage for MBO using a forward-viewing endoscope after placement of a duodenal stent is useful for patients with type I duodenal stenosis, ascites, and collateral flow.

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Reference

- [1] Mutignani M, Tringali A, Shah SG et al. Combined endoscopic stent insertion in malignant biliary and duodenal obstruction. *Endoscopy* 2007; 39: 440–447. doi:10.1055/s-2007-966327

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