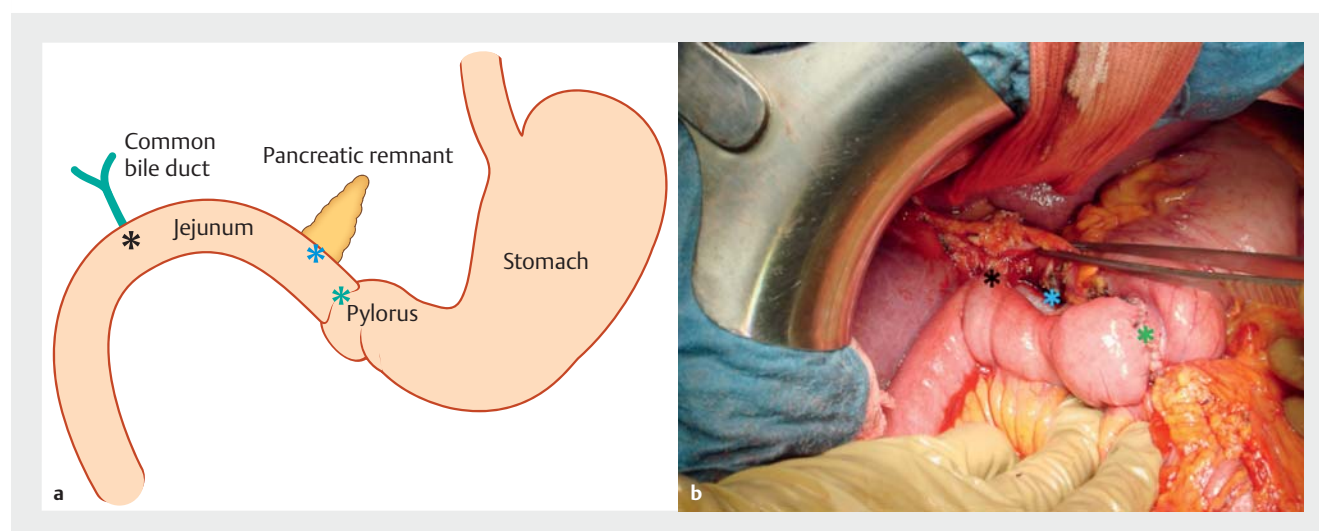


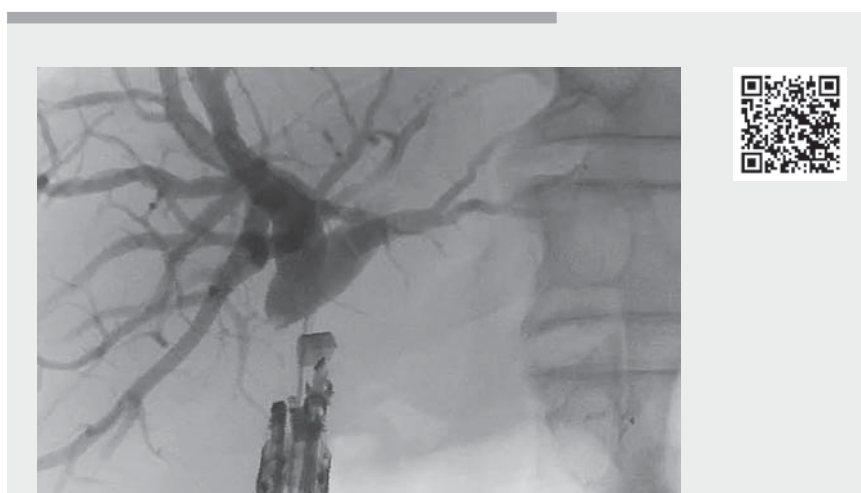
## Endoscopic biliary access after pancreaticoduodenectomy following Imanaga's procedure



► **Fig. 1** **a** Schematic representation of the Imanaga's montage. **b** Surgical view with the duodenojejunal anastomosis (green asterisk), the pancreaticojejunal anastomosis (blue asterisk), and the choledochojejunal anastomosis (black asterisk).

Endoscopic retrograde cholangiopancreatography (ERCP) is the technique of choice to drain the main biliary duct with a high degree of technical success [1]. However, in the case of a pancreaticoduodenectomy, endoscopic biliary access can be challenging. Imanaga's procedure is a pylorus-preserving pancreaticoduodenectomy procedure with the duodenojejunal, pancreaticojejunal, and hepaticojejunal anastomosis reconstructed in that order on the jejunal limb (► **Fig. 1**) [2, 3]. This procedure is thought to allow easier endoscopic access to the hepaticojejunal anastomosis [4].

Here we report two cases of endoscopic biliary access after Imanaga's procedure. (► **Video 1**). The first case is a 70-year-old man who underwent Imanaga's procedure 4 months before for a duodenal lesion that could not be resected endoscopically. He subsequently had cholestasis with a stenosis of the biliary anastomosis. The anastomosis was hard to find with a duodenoscope, but thanks to immersion, the anastomosis was retrieved and cannulated with deployment of a

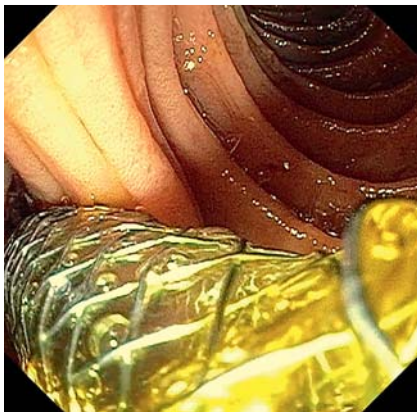


► **Video 1** Endoscopic biliary access after pancreaticoduodenectomy following Imanaga's procedure.

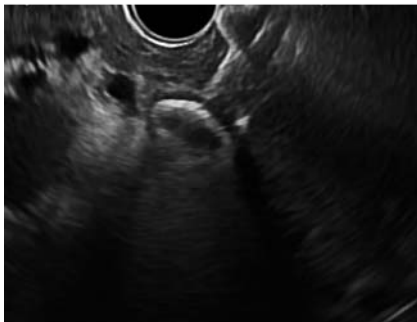
self-expandable metal stent to calibrate the anastomosis (► **Fig. 2**).

The second case is a 70-year-old man who underwent Imanaga's procedure 1 month before for an intraductal papillary mucinous neoplasm. A stenosis of the

biliary anastomosis occurred with cholestasis and one episode of cholangitis. Endoscopic management of the stenosis was decided. Despite intensive searching, the biliary anastomosis was not found. An echoendoscope was used to



► **Fig. 2** Self-expandable metal stent deployed at the choledochojejunal anastomosis.



► **Fig. 3** Deployment of a lumen-apposing metal stent at the choledochojejunal anastomosis.

visualize the common bile duct with a dilation of 7 mm and a clear stop. With a 19G needle, the biliary duct was punctured and opacified, and a guidewire was then positioned. To recalibrate the biliary anastomosis, a lumen-apposing metal stent was deployed, allowing satisfying biliary drainage (► **Fig. 3**). Neither patient experienced any adverse event, and their cholestasis improved in the following days.

This e-video illustrates two successful endoscopic biliary accesses in patients with a history of pylorus-preserving pancreaticoduodenectomy following Imanaga's procedure without the need of double-balloon endoscopy.

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### Competing interests

The authors declare that they have no conflict of interest.

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