

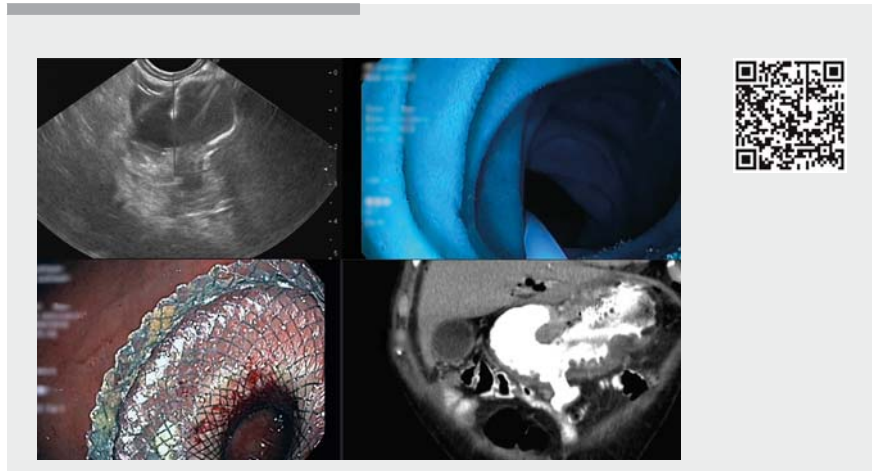
A nasobiliary drain connected to a waterjet system to facilitate endoscopic ultrasound-guided gastrojejunostomy

Gastric outlet obstruction (GOO) reduces quality of life and compromises nutrition. Duodenal stenting is the first-line treatment but does not completely relieve symptoms. Surgical gastrojejunostomy improves the quality of life in patients who are expected to survive for a long time. In patients with benign conditions such as chronic pancreatitis, duodenal stents are ineffective (being associated with high migration rates), and surgical gastrojejunostomy is both difficult and risky because of the significant malnutrition and frequent portal hypertension attributable to portosplenic thromboses. Recently, endoscopic ultrasound (EUS)-guided gastrojejunostomy using electrocautery to place a lumen-apposing metal stent has emerged as a new minimally invasive procedure.

Three techniques have been reported [1]: the single-balloon-occluded technique [2], double-balloon-occluded gastrojejunostomy bypass [3] (EPASS), and a direct technique [4]. The latter is the most attractive technique but is associated with the risk of puncture of an empty jejunum. Here, we report a case treated via direct EUS-guided gastrojejunostomy using a nasobiliary drain connected to a waterjet system.

A 55-year-old man with GOO secondary to chronic pancreatitis and portal vein thrombosis was hospitalized in our gastroenterology unit (► Fig. 1). Surgical gastrojejunostomy was contraindicated because of massive portal hypertension; we thus performed EUS-guided gastrojejunostomy (► Video 1).

The first step featured dilation of the stenosis to allow a nasobiliary drain to be placed in the jejunum (► Fig. 2). The drain was connected to a waterjet system, which allowed continuous jejunal filling with normal saline containing small amounts of a carmine coloring agent and contrast (► Fig. 3). A therapeutic echoendoscope was inserted into the stomach, parallel to the nasobiliary drain. Constant



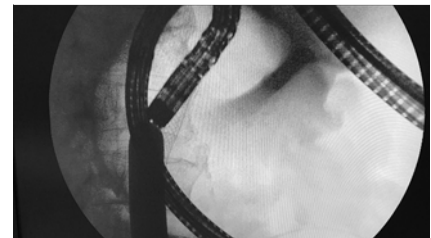
► Video 1 Gastrojejunostomy using nasobiliary drain and lumen-apposing metal stent.



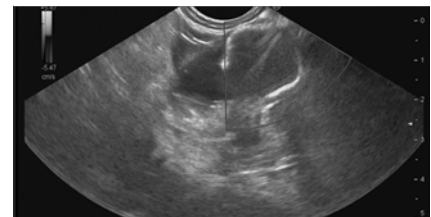
► Fig. 1 Gastric outlet obstruction due to chronic pancreatitis.



► Fig. 3 Filling of the jejunal loop with carmine-colored normal saline.



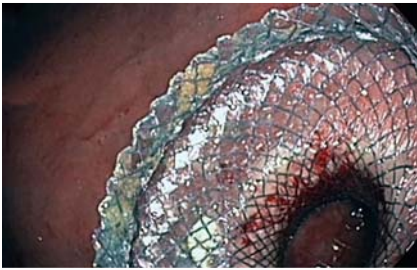
► Fig. 2 Dilation of the duodenal stenosis.



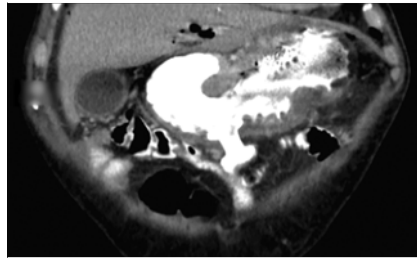
► Fig. 4 Opening of the distal flange of the lumen-apposing metal stent.

filling of the jejunum by the waterjet facilitated clear visualization of the dilated jejunum and performance of direct EUS-guided gastrojejunostomy using a HOT AXIOS device (Boston Scientific, Marlbor-

ough, Massachusetts, USA) with diameter of 20 mm (► Fig. 4, ► Fig. 5, ► Fig. 6). One day later, food was successfully taken, and the patient was discharged the next day. Thus, the use of a nasobili-



► **Fig. 5** Endoscopic view of the gastrojejunostomy.



► **Fig. 6** Coronal computed tomography view of the gastrojejunostomy with contrast ingestion.

ary drain connected to a waterjet system is a simple way to facilitate direct EUS-guided gastrojejunostomy via constant filling of the target jejunum.

Endoscopy_UCTN_Code_TTT_1AS_2AG

Competing interests

Dr. Jacques has been a speaker for Boston Scientific.

The authors

Marion Schaefer^{1,2}, **Abdelkader Taibi**³, **Hugo Lepetit**², **Romain Legros**², **Sylvaine Durand-Fontanier**³, **Mathieu Pioche**⁴, **Jérémie Jacques**^{2,5}

- 1 Service d'Hépatogastroentérologie, CHU de Nancy, Vandoeuvre-lès-Nancy, France
- 2 Service d'Hépatogastroentérologie, CHU Dupuytren, Limoges, France

- 3 Service de Chirurgie Digestive et Endocrinienne, CHU Dupuytren, Limoges, France
- 4 Service d'Hépatogastroentérologie, Hôpital Edouard Herriot, CHU Lyon, France
- 5 BioEM, XLim, UMR 7252, CNRS, Limoges, France

Corresponding author

Marion Schaefer, MD

Service d'hépatogastro-entérologie, CHU de Nancy, Rue du Morvan, 54500 Vandoeuvre-lès-Nancy, France
 Fax: +33-3-83153633
 mrn.schaefer@gmail.com

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