

New endoscopic technique for uncontrollable bilious vomiting after gastrojejunal surgical bypass

Gastrojejunal Billroth II or single Roux-en-Y reconstructions that create a defunctionalized loop, are usually performed to treat patients with unresectable periampullary tumors [1,2]. The main adverse effect is bile reflux [3,4], with irritation of the gastric mucosa, that can generally be controlled with prokinetic drugs [1–4]. However, if the symptoms are severe, a redo surgery is the only available option described in the literature [1–4].

A 70 year-old man presented with copious vomiting of bile associated with inability to eat due to severe acute alkaline gastritis. Because of an inoperable pancreatic head tumor (with liver metastases), the patient had undergone biliojejunal and gastrojejunal surgical bypasses on a single Roux-en-Y defunctionalized loop 1 month earlier. (The surgeons had begun to create a Roux-en-Y reconstruction. However during the operation they had decided to use the biliary loop for the gastrojejunal anastomosis also. Thus they had created a single isolated Roux-en-Y loop and functionally a Billroth II reconstruction.)

From the earliest postoperative days the patient began to vomit bile increasingly because of gastroparesis linked to severe acute alkaline injury of the gastric mucosa.

In agreement with the surgeons, we decided to propose a new endoscopic technique to the patient for palliation of the clinical problem.

First, we placed a 7-Fr nasojejunal tube in the efferent part of the Roux-en-Y loop under both endoscopic and fluoroscopic view so that we could identify the efferent loop using endoscopic ultrasound.

Then, we introduced a linear echoendoscope (EG-3870 UTK; Pentax, Hamburg, Germany) into the afferent part of the

loop (containing the biliary anastomosis). After dilating the efferent part (the portion after the gastrojejunal anastomosis) with physiological solution, we were able to locate it endosonographically. We failed to perform an endoscopic enteral bypass with our previously described usual technique (using a cystoenterostome and a fully covered lumen-apposing metal stent [LAMS], 16 mm × 20 mm) [5] having lost the correct position because of loose intestinal contact caused by ascites. At the end of this first attempt, we placed some endoclips to close the intestinal perforation. The following day we used the Hot Axios Stent and Electrocautery Enhanced Delivery System (Boston Scientific, Marlborough, Massachusetts, USA) to pass from the afferent to the efferent portion and we created a fixed new bridge between them using a LAMS (diameter 15–24 mm, length 10 mm) (▶ **Video 1**).

The patient had an immediate resolution of symptoms and a prompt improvement in terms of quality of life with 3 months of follow-up.

This new endoscopic technique was used as a rescue therapy in a patient with low life expectancy and poor general condition in order to avoid a surgical re-operation. We have begun to verify this first result with a prospective study in selected patients.

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Competing interests

M. Mutignani is proctor for Boston Scientific.



▶ **Video 1** In a patient with a gastrojejunal bypass and copious vomiting of bile, entero-enteral stenting was performed to allow bile to flow directly from the afferent to the efferent portion of the gastrojejunal derivation, thus bypassing the gastrojejunal anastomosis.

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