



Letter to the Editor

The duodenal stump leakage: May it be foreseen and prevented?



To the Editor:

The interesting research of Chu Patricia et al., confirms the important clinical impact of the duodenum (D) stump leakage after distal gastrectomy, also today followed by not negligible morbidity and mortality.^{1–3} This carries interesting points of discussion concerning indications and surgical techniques in case of an 'incompetent' D stump, that is unsuitable to a safe closure, as shorter than half of its lumen, provided of fibrotic walls or deteriorated by a difficult dissection. These conditions, commonly found at surgery, can be pre-operatively suspected on the base of gastrointestinal Rx series or CT scans, as correlated with penetrating post-bulbar ulcers, chronic pancreatitis, or cholecystitis, entailing a complete bulbar excision.⁴ In case of duodenal ulcer, they suggest, instead of a distal gastrectomy, a vagotomy, possibly 'high selective', followed, when necessary, by a pyloroplasty extended to an obstructed D bulb. We successfully experienced an equivalent policy in good risk patients with perforated duodenal ulcer, where a simple suture was ameliorated by vagotomy, considering that the concomitant peritonitis does not represent an absolute contra-indication, nor a distal gastrectomy would offer more guarantees of healing the peptic disease.

The second, today more frequent condition, concerns cases of antro-pyloric malignant tumors, where a distal gastrectomy requires an aboral oncological safe margin >2 cm. Particular conditions, anatomically pre-existing or surgery related, can lead to an 'incompetent' duodenal stump, whose further dissection from the pancreatic capsule could be laborious and dangerous also for its vasculature. This challenging situation can be overcome by a termino-terminal anastomosis between the D stump and an intestinal loop, a technique firstly realized by R. Nissen with an 'omega' jejunal loop, that we changed to a Roux-en-Y one.⁵ Practically, a de-functionalized jejunal segment, 60 cm long, is prepared 20 cm distally from the Treitz ligament, carefully respecting its fine vascular and nervous vegetative structures, and lifted up to the right supra-mesocolic space. It is anastomosed with the duodenal stump, short but sufficient for an anastomosis with a small bowel loop, mobile, plastic, and congruent in size. About 30 cm downstream, an anti-peristaltic gastro-jejunal anastomosis is realized, usefully followed by a feeding jejunostomy (Fig. 1).⁶ This technique also avoids to close D, where throughout the post-operative intestinal paresis, the internal tension increases proportionally to the amount of accumulated fluids; besides it does not create any new 'barrier', which can be stressed by the D resumed peristaltic waves. Moreover, the Roux-en Y jejunal loop, functioning as an 'interposed' intestinal segment, keeps D still inserted in the upper digestive tract and facilitated to preserve its hormonal secretion.

With a similar intent, after an antro-duodenectomy for a

penetrating duodenal ulcer, a gastro-duodenal anastomosis, Billroth I type, has been proposed; however, this technique can become unsafe after an extended distal gastrectomy, as performed in oncology, for the predictable tension on the anastomosis.

Our experience of duodeno-jejunal anastomosis, developed in the years 2005–2010, although concerning only 2 cases of penetrating duodenal ulcers and 8 of antro-pyloric carcinomas, is encouraging for the absence of intra- or post-operative complications, and confirms as a useful solution with indications limited to short D stumps. The radiological controls demonstrated a prevalent gastric emptying through the efferent limb of the gastro-jejunal anastomosis, and excluded, in agreement with endoscopy, duodeno-gastric reflux. Interestingly, this surgery was never followed by the functional complications of the Billroth II gastrectomy, such as the 'afferent loop' or the gastric 'dumping' syndrome, probably for the double gastric outlet, the first toward D, still inserted in the digestive circuit, and the second toward the jejunum, always loaded by a digestive content but spaced over time and partially osmotically regulated.

Considering, the dangerous consequences of a duodenal stump leakage, unpredictably varying from a complete destruction of the

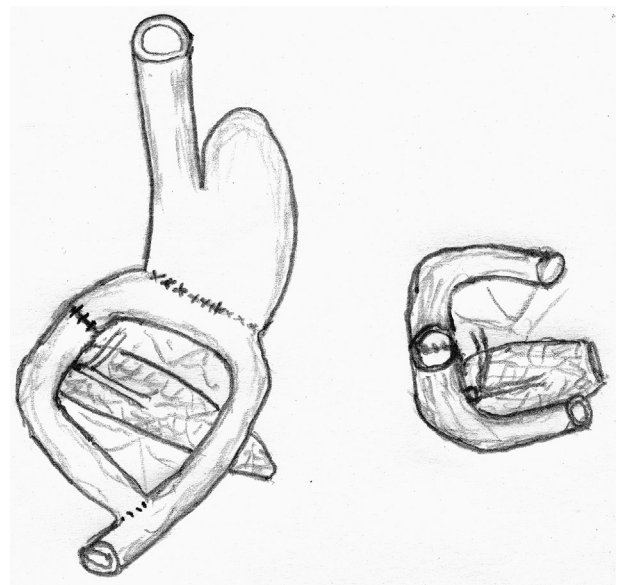


Fig. 1. After a distal gastrectomy a Roux-en-Y jejunal loop is used to construct a termino-terminal duodeno-jejunal anastomosis and a gastro-jejunosomy. Inset depicts the key point of this technique, consisting in an anastomosis instead of a direct closure of an 'incompetent' duodenal stump.

suture line to a less severe dehiscence/fistulisation, our experience alerts to recognize predisposing conditions and to choose among different surgical techniques.^{7,8}

Declaration of competing interest

The authors declare no conflict of interest.

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