



The "Ultra Low" Duodenal Stump and its Difficult Management: An Old Technique Revisited

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Abstract

After a subtotal gastrectomy with a concomitant resection to the whole first part of the duodenum, an "ultralow" duodenal stump is difficult to close. A safe and effective technical solution is proposed, based on the use of a Roux-en-Y jejunal loop, which permits an end-to-end duodeno-jejunal anastomosis.

Introduction

After resection of the first part of the duodenum, the management of the duodenal stump can present serious problems, requiring particular technical solutions (1, 2, 3, 4). In our experience, this occurred in case of chronic post-bulbar duodenal ulcer (3 cases), gastric lymphoma extending beyond the pylorus (2 cases), single big sessile duodenal polyp (2 cases). We performed a complete resection of the first part of the duodenum to ensure a negative histological margin, or to remove all the scarring tissue around an ulcer. The associated subtotal gastric resection advised against a gastro-duodenal direct anastomosis, and we preferred a safer procedure, that is reported later.

Methods

After a subtotal gastrectomy extended to the whole first part of the duodenum, the duodenal stump, which remains dorsally fixed on the pancreas, is circumferentially dissected, preserving the trunk of the gastro-duodenal artery, but dividing the other more peripheral (sopraduodenal, retroduodenale and infrapyloric) branches, and leaving the Vater's papilla well beyond the line of transection. A concomitant Kocher's manoeuvre facilitates the dissection. At this level the duodenal wall regains a normal thickness and remains well vascularised by the anterior and posterior pancreatico-duodenal arteries (5) (Fig.1). An extended perigastric lymphadenectomy (D2) can be associated. In order to reconstruct the alimentary tract, a Roux-en-Y jejunal loop, 70-80 cm long, prepared 20-30 cm from the Treitz ligament is placed up into the supra mesocolic compartment, in a retrocolic way. An

end-to-end direct duodeno-jejunal anastomosis is realized with a single row of submucosal synthetic absorbable interrupted 3/0 stitches. Attention must be paid not to injury the lower part of the choledochus; for this purpose the surgeon can pass his left hand behind the duodeno-pancreatic block, and lift it in order to better expose the posterior duodenal wall. A properly prepared omental patch can be used to wrap the anastomosis.

Proximally 30 cm to this first anastomosis, on the same jejunal loop, a total, or subtotal, standard antiperistaltic gastro-enterostomy is performed, usually retrocolically (Fig.2). A naso-gastric aspiration tube can be useful in the post-operative period, as well as a feeding jejunostomy.

Discussion

A similar technique, just proposed by Fessler (6) and Nissen (7) with the use of an omega-jejunal loop and a subsequent less easy end-to-side duodeno-jejunal anastomosis, was later improved by others (8,9), but with an experience limited to postbulbar duodenal ulcers. We have extended its indication to other similar conditions requiring resection of the whole first part of the duodenum, believing that a regular anastomosis is better than an uncertain closure, and always preferring a Roux-en-Y jejunal procedure, with a subsequent safer end-to-end duodeno-jejunosomy.

On the other hand, an extended resection of all the first part of the duodenum permits to dispose a well vascularized duodenal wall, and without signs of scarring fibrosis.

Fundamentally this solution is addressed to prevent major complications, at first leakage of the duodenal stump, which is followed, today still, by a high morbidity and mortality(10).

From a functional point of view, our post operative controls showed a prevalent gastric outlet through the efferent limb, rather than the afferent towards the duodenum. No symptoms of afferent loop nor dumping syndrome, nor endoscopic signs of alkaline reflux gastritis were observed at mid- or long-term distance.

The same treatment of the duodenal stump can be extended to cases after a total gastrectomy, where an esophago-jejunal, rather than a gastro-jejunal, anastomosis must be performed (11).

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Illustrations

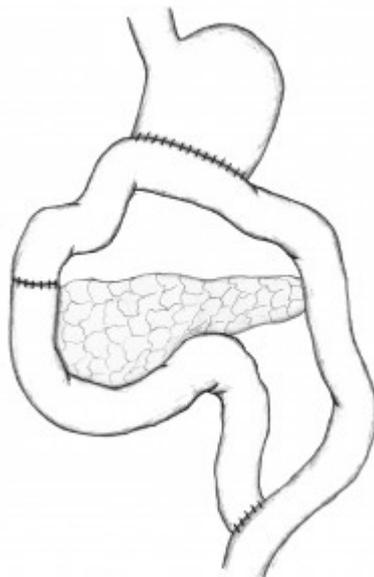
Illustration 1

Operative schema: after sub-total gastrectomy extended to the whole first part of the duodenum, the duodenal stump remains at the same level of the pancreatic capsule.



Illustration 2

Operative schema: reconstruction with a Roux-en-Y end-to-end duodeno-jejunal anastomosis, followed by a standard gastro-enterostomy.



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