Case Report

Reconstructive Strategy after Pancreateicoduodenectomy in Partially Gastrectomized Patients

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Abstract

Context
Pancreateicoduodenectomy in partially-gastrectomized patients presents some peculiarities of the reconstructive phase. Above all, in B II and Roux-en-Y partial gastrectomies, a gastric re-resection with a redo gastrojejunal anastomosis should be avoided because it is often needlessly time-consuming and risky. In our series of 7 consecutive patients, either one of two reconstruction methods was used, depending upon the length of the pre-existing afferent loop. Case reports In order to better illustrate this strategy, two cases of carcinoma of the duodenal papilla are reported. Both of the patients had previously undergone partial gastrectomy with B II reconstruction for peptic ulcers. Both were admitted to our hospital with a past history of jaundice. However, whereas in Case #2 a sufficiently long pre-existent afferent loop could be utilized for the pancreatic and bile duct anastomoses, in Case #1 a shorter afferent loop was removed and the efferent loop was utilized for the anastomoses. The postoperative course was uneventful in both patients. Conclusions This reconstructive strategy for pancreateicoduodenectomy in gastrectomized patients, which uses either of the methods described above, has produced good results in our series of 7 patients and appears to be rational and straightforward.

Introduction

One of the steps of pancreateicoduodenectomy (PD) is represented by partial gastrectomy (PG). Therefore, when partially-gastrectomized patients need a PD, the step of a second PG with gastrojejunostomy (Figure 1) should be omitted, whenever possible, in order to simplify the procedure and prevent morbidity/mortality [1, 2]. This applies to PG with either B II or Roux-en-Y (the post-PD reconstructive strategy is exactly the same for both reconstructions), but not for B I, which inevitably requires a re-resection with a new gastrojejunostomy. A number of re-resection sparing methods have been proposed with no standardization of the respective indications [3, 4]. Moreover, all papers concerning the reconstructive phase of PD in gastrectomized patients deal with small series, the most extensive one consisting of eight patients [2]. Although our series consists of solely seven patients, we propose standardization and systematization of the reconstruction methods. For a better understanding of this paper and of the strategy recommended, two cases are reported.

Case Reports

Case #1
A seventy-five-year-old woman with a neoplasm of the duodenal papilla (adenocarcinoma at the histopathologic examination of the endoscopic biopsies) was admitted to our hospital. Jaundice had completely disappeared following a biliary stenting performed two months earlier in another hospital. A partial gastrectomy with B II reconstruction for peptic ulcers emerged from her history. After a CT scan that did not show any vascular involvement and only peripancreatic nodal involvement, a PD was scheduled. During the operation, in a transmesocolic B II, the gastrojejunal anastomosis appeared very close to the duodenojejunal flexure and the afferent loop was quite short (Figure 2, upper left panel). Therefore, the afferent loop was stapled immediately upstream of the gastric remnant for its complete removal within the specimen. The reconstructive phase consisted of stapling the efferent jejunal loop 40 cm downstream of the gastric remnant and utilizing its distal end for the anastomoses. For this purpose, the distal arm of the divided jejunum was brought up through the mesocolon and an end-to-end invaginating telescope-type pancreaticojejunal anastomosis was performed. A termino-lateral hepaticojejunal anastomosis was also performed with a 4-0 monolayer absorbable suture 20 cm from the first anastomosis (Figure 2, upper right panel). Finally, a latero-lateral jejunal anastomosis was performed between the proximal end of the efferent limb of the previous gastrojejunal anastomosis and the brought up jejunal loop 30 cm from the hepaticojejunal anastomosis. The histopathologic exam of the operative specimen confirmed a pT3 N2b, well-differentiated adenocarcinoma.

Keywords: Pancreateicoduodenectomy; Gastrectomy; Anastomosis, Surgical

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Received November 20th, 2014 – Accepted February 20th, 2015

and its distal end was brought up and anastomosed exactly 50 cm downstream of the duodenojejunal flexure. The afferent loop of the gastrojejunostomy was stapled a few centimeters downstream of the duodenojejunal flexure, whereas it represents a forced option in B I partial gastrectomy.

A fifty-nine-year-old woman with an adenocarcinoma of the duodenal papilla. After an uneventful postoperative course, the patient went home on the 16th postoperative day and, 6 months later, she is doing well, although still undergoing adjuvant chemotherapy.

Case #2

A fifty-nine-year-old woman with an adenocarcinoma of the duodenal papilla was referred to our hospital due to a progressive obstructive jaundice. Her history included a PG for a duodenal ulcer.

At laparotomy, a B II PG was evidenced with a long afferent loop to the jejunal pull-up seem even more complex than re-resection itself. This procedure should be avoided in B II and Roux-en-Y partial gastrectomies, whereas re-resection may exceptionally represent an unavoidable choice also in B II or Roux-en-Y gastrectomies for vascular or oncologic reasons, solutions like the interposition of a pedicled jejunal conduit or recurrent cholangitis could cause a pancreatic fistula and/or recurrent cholangitis [5, 9]. Reconstruction as in Case #1 implies an additional jejuno-jejunal anastomosis when compared to Case #2. On the contrary, a shorter afferent loop requires its excision within the specimen and the utilization of the efferent loop in order to decrease surgical time and risks of complications. Above all, a new gastrojejunal anastomosis, as opposed to a well-functioning long-standing one, might imply, in the postoperative course, a greater stasis of both bile and pancreatic juice in the afferent loop with greater risk of pancreatic fistula [6].

When re-resection is excluded (as it should be), the main conditioning factor for reconstruction is represented by the length of the jejunal from the duodenojejunal flexure to the gastrojejunal (in B II) or the jejuno-jejunal (in Roux-en-Y) anastomosis. An afferent loop length of 50 cm will allow its utilization for the pancreatic and biliary anastomoses with an adequate distance between each of the final three anastomoses (see Case #2). On the contrary, a shorter afferent loop requires its excision within the specimen and the utilization of the efferent loop for reconstruction in a Roux-en-Y fashion (see Case #1).

Indeed, an insufficient distance between the anastomoses could cause a pancreatic fistula [6, 7, 8] and/or recurrent cholangitis [5, 9]. Reconstruction as in Case #1 implies an additional jejuno-jejunal anastomosis when compared to Case #2 and for this reason a shorter afferent loop appears to be less favourable, although it is more common.

Some alternatives to these reconstructions have been proposed, but all appear to be technically and/or conceptually much more complex [1, 3, 4]. Therefore, whereas re-resection may exceptionally represent an unavoidable choice also in B II or Roux-en-Y gastrectomies for vascular or oncologic reasons, solutions like the interposition of a pedicled jejunal conduit or preservation of both the afferent and efferent loop to both be anastomosed to the jejunal pull-up [4] seem even more complex than re-resection itself.

DISCUSSION

The strategy to be followed in the reconstructive phase of PD in gastrectomized patients has not been defined previously because of the wide variety of reconstructions, which have been proposed mostly in small series [2, 5].

This paper centers exclusively on PD after PG, although the strategy which is proposed for the reconstruction seems suitable for total gastrectomy as well. Moreover, no issues exist for the quite unusual B I reconstruction after PG, in which a gastric re-resection with a new gastrojejunal anastomosis is unavoidable. In contrast, in both B II and Roux-en-Y reconstructions a re-resection can be avoided in order to decrease surgical time and risks of complications.

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The approach proposed in this paper appears straightforward, although it could hardly be supported by evidence-based findings, since PD in PG is quite uncommon. Moreover, the previously reported series are no more extensive than ours and numerically adequate randomized prospective trials on this subject do not exist and can hardly be imagined. In addition to the good results obtained in these cases and in 5 others of our series, pathophysiological and clinical evidences seem to support this approach, in the perspective of taking advantage of what, at first glance, could appear to be an unfavourable condition: a pre-existing PG.

CONCLUSION

In this paper does not suggest any new procedure and each of the two proposed types of reconstruction are well known by pancreatic surgeons. However, it may help to identify a standardized reconstructive strategy for PD in PG.

Conflict of Interest

Authors declare to have no conflict of interest

References


