



Greater Omentum Binding: A Simple Technique to Cover the Pancreatic Remnant after Distal Pancreatectomy

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Distal pancreatectomy (DP) is most often performed for primary benign or malignant lesions in the body or tail of the pancreas.¹ The incidence of pancreatic fistula (PF) after DP remains high, reportedly ranging from 5% to 60%, although the mortality rate has decreased to less than 5% in high-volume centers.² Management of the stump of the pancreatic remnant to prevent PF has been a long-standing issue in pancreatic surgery. However, techniques for secure closure of the pancreatic remnant have failed to significantly decrease the PF incidence rate.³ This may be partly because of pancreatic laceration by transection and suturing, especially in cases involving fragile and soft pancreatic remnants.⁴

Theoretically, if pancreatic lacerations could be thoroughly sealed, the incidence of PF could be reduced. We introduce a new, convenient, and simple technique involving greater omentum binding to cover the pancreatic remnant after management with both stapling and suturing. We also report the preliminary results for grades of PF among patients who have undergone this new technique, according to the criteria of the International Study Group on Pancreatic Fistula (ISGPF).

Drs Min Wang and Zhu contributed equally to this work.

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METHODS

Patients

We performed this new method on 17 consecutive patients (9 men, 8 women) who underwent open DP between May 2013 and October 2013 at the Institute of Biliary-Pancreatic Surgery, Tongji Hospital, Tongji Medical College, Huazhong Scientific and Technological University, China. Patients were informed of the remnant pancreas management method before surgery, and informed consent was obtained from all patients. Clinicopathologic variables, preoperative factors (including age and comorbidities), operative notes, and postoperative hospitalization data were recorded.

Surgical procedure

Pancreatectomy comprised an oncologic, en bloc DP; lymphadenectomy and splenectomy were also performed in patients with malignant disease. The spleen was preserved whenever possible in benign or low-grade malignant pancreatic diseases. After isolating the pancreas from the common hepatic and splenic arteries and portal venous system, the splenic artery and vein were doubly ligated and dissected. Transection of the pancreas was performed with a linear stapler (1.5- to 2.5-mm heavy wire [Ethicon TL60]; Ethicon Endo-Surgery, Inc). The remnant pancreas was then closed again by use of transpancreatic interlocking mattress stitches (4-0 polydioxanone), approximating the 0.5-cm cut edge of the pancreatic remnant (Fig. 1).

The standard coverage procedure involved use of the greater omentum. First, the greater omentum was spread out, and a thick and unbroken part was chosen for subsequent binding to the closed pancreatic remnant. A purse-string suture was preset with the length of the incision based on the size of the pancreatic remnant (approximately 2 to 3 cm in diameter) (1-0 Vicryl; Ethicon Endo-Surgery, Inc) (Fig. 2). The section of the greater omentum with the purse-string suture was used to cover the pancreatic remnant. Two hemostatic forceps were used to fix the omentum, with the remaining stitch in the superoinferior margin of the pancreatic remnant

Abbreviations and Acronyms

DP	= distal pancreatectomy
GO	= greater omentum
ISGPF	= International Study Group on Pancreatic Fistula
PF	= pancreatic fistula
POPF	= postoperative pancreatic fistula

(Fig. 3). In this way, the omentum tightly covered the remnant. Finally, the preset purse-string suture was firmly tied at the pancreatic remnant, approximating the 0.5-cm cut edge (Fig. 4). The omentum was turned over to verify that the binding was adequately firm and that all transpancreatic interlocking mattress stitches were covered to thoroughly seal any pancreatic lacerations (Video).

One drainage tube (Suzhou Riyuexing Plastic Co, Ltd) was placed in close proximity to the pancreatic remnant before closure of the abdominal wall in all patients. The drain was removed after postoperative day 3 or 4, depending on the amylase and lipase activities in the drain fluid.

Definition and treatment of pancreatic fistula

Patients received octreotide (600 µg/day) until postoperative day 5. Postoperative PF (POPF) was defined and classified according to the ISGPF definition as more than 3 times the serum concentration in the drainage fluid on or after postoperative day 3. Type A, B, and C fistulas were defined according to the ISGPF classification.

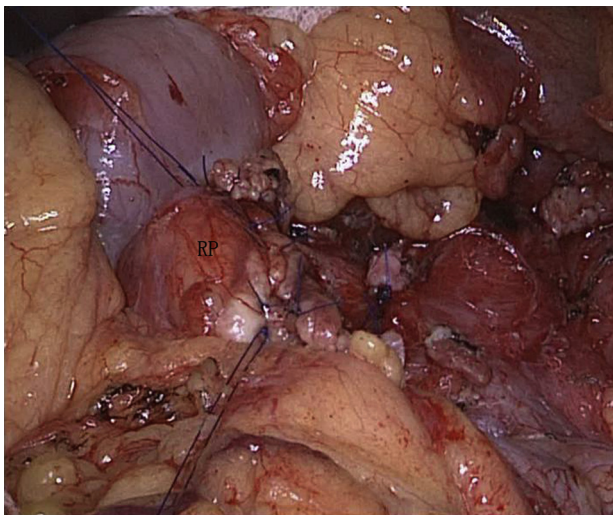


Figure 1. Transection of the pancreas was performed with a linear stapler, and the remnant was closed again by use of transpancreatic interlocking mattress stitches (4-0 polydioxanone), approximating the 0.5-cm cut edge of the pancreatic remnant. RP, remnant pancreas.

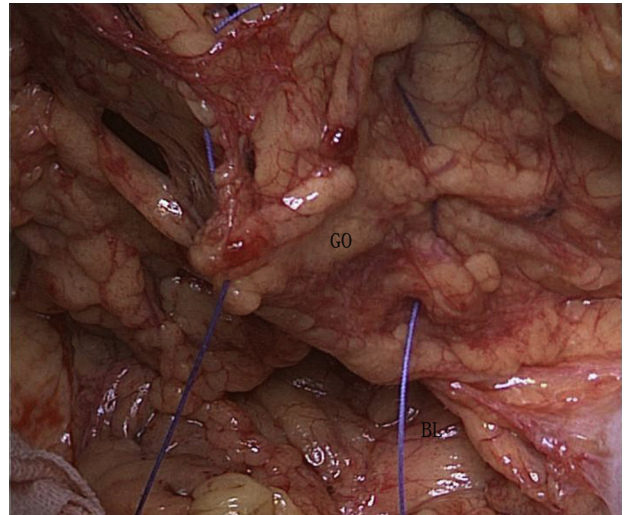


Figure 2. A purse-string suture was preset with the length of the incision based on the size of the pancreatic remnant (approximately 2 to 3 cm in diameter). BL, binding line; GO, greater omentum.

RESULTS

A total of 17 patients underwent DP with the new modified technique (Table 1). There were 9 men and 8 women, with a median age of 60 years (range 42 to 71 years). Indications for DP in the 17 patients were pancreatic adenocarcinoma (n = 10), pancreatic endocrine neoplasm (n = 2), mucinous cyst neoplasm (n = 1), serous cyst adenoma (n = 1), solid pseudopapillary tumor (n = 1), pancreatic pseudocyst (n = 1), and accessory

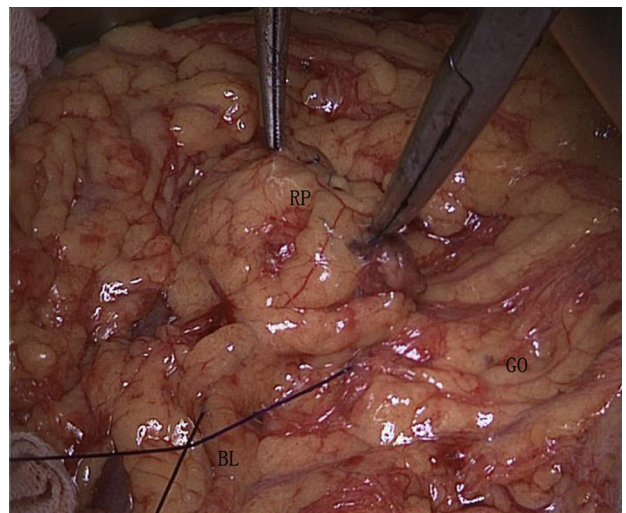


Figure 3. Two hemostatic forceps were used to fix the omentum with the remaining stitch in the superoinferior margin of the pancreatic remnant. BL, binding line; GO, greater omentum; RP, remnant pancreas.

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