Supplementary Material

Reconstructive methods following pancreaticoduodenectomy

PJ

The pancreatic remnant was mobilized from the retroperitoneum and splenic vein for a distance of 2 to 3 cm. The transected jejunum was brought through a small incision in the transverse mesocolon to the right or left of the middle colic vessels.

PJ duct to mucosa

After mobilization of pancreatic remnant and closure of the end of the jejunum, a two-layer, end-to-side, duct-to-mucosa PJ was performed over a small Silastic stent. Following completion of the posterior row of 3-0 seromuscular sutures, a small, full-thickness opening in the bowel was made. The jejunal serosa was resected a little smaller than the size of the pancreatic duct, and mucosa of jejunum was exposed at the anastomotic point. The anastomosis between the pancreatic duct and small-bowel mucosa was completed with 4-0 or 5-0 monofilament sutures. Each stitch incorporated a generous bite of pancreatic duct and a full-thickness bite of jejunum. The posterior knots were tied on the outside, and the lateral and anterior knots were tied on the outside. Prior to the anterior sutures being tied, the stent was placed across the anastomosis so that it extended into the pancreatic duct and into the small bowel for a distance of approximately 2 to 3 cm. The anastomosis was completed with a placement of an anterior row of 3-0 seromuscular sutures.

Telescoping PJ

The remnant pancreatic stump was dissected about 2-3 cm in length. A plastic catheter of 2-3 mm diameter was inserted into the remnant pancreatic duct as a stent to preventing stenosis of the pancreatic duct after ligating the U-sutures. Approximately 45 cm length of proximal jejunal loop was selected. Two to three transpancreatic U-sutures with 3-0 proline were placed. The transpancreatic U-suture was needling from the mesenteric side of the anterior wall of the jejunum loop about 1 cm distal to the cut edge, then the needle was withdrawn from the inside of the jejunum loop lumen; with the same needle, bites were taken into pancreatic parenchyma in full thickness at the inferior edge of the remnant pancreas from the front to back, giving approximately 1.5-2 cm in distance from the cut surface of the pancreas; the needle was then taken inside-to-outside at the mesenteric side of the posterior wall of jejunum loop, then the needle was withdrawn approximately 1 cm from the cut edge of the jejunum; the needle was then moved outside-to-inside at the middle point of the posterior wall of the jejunal loop with the same suture interval as previous; After that, through slowly straining the double U-sutures by the assistant surgeons at the same time, the pancreatic stump was facilitatively invaginated into the jejunal loop. The double U-sutures were tied separately. Continuous anastomosis was performed with 0.2 silk between the seromuscular layer of the jejunum and the pancreatic capsular parenchyma of the stump.

PG

Antrectomy of the stomach or pylorus-preserving PD was performed, to leave a large residual stomach for insertion of the pancreatic stump into the gastric lumen. The pancreatic remnant was freed from the retroperitoneal space for about 3 cm. A corresponding transverse opening was made on the posterior gastric wall. The anastomosis was performed with an interrupted row 3/0 silk suture. Each stitch was passed through the pancreas and through the full thickness of the stomach. The pancreatic remnant was then immediately introduced into the stomach, and the anterior row of anastomosis was fashioned using full thickness sutures, which was tied from outside. A stent tube was inserted and fixed to the pancreatic duct and in some cases, no stent was introduced.

Biliary anastomosis

An end-to-side hepaticojejunostomy was fashioned by using single layer of interrupted 3/0 absorbable sutures and performed at a distance of about 10-15 cm distal to the pancreatic anastomosis using a single layer of interrupted 3/0 resorbable sutures (Vicryl).

Gastric anastomosis

An end-to-side gastroenterostomy was fashioned 30-45cm downstream from the biliary anastomosis in two layers using 2/0-3/0 PDS or vicryl. A generous gastrostomy (4-5cm) was made in the mid-point of the gastric remnant, adjacent to a correspondingly sized jejunostomy. After the gastrojejunostomy was completed, the anteroentrostomy was done on all cases of Roux-in-Y reconstruction.

Portal vein resection and reconstruction

If the portal vein had side wall injury or in case of tumor infiltration into the portal vein, segmental resection of the portal vein with safety margin above and below about 1cm, and mobilization of the portal vein, SMV and splenic vein with end to end vascular anastomosis of the proximal and distal remnant of the portal vein by 0.6 proline suture was done.