Commentary

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When we examine Table 1.2, we subscribe to the same surgical steps as suggested by Mantke and Lippert. Similarly, in pancreatic head resection for periampullary cancer, we follow the same sequence of maneuvers but with few different "strategic choices" and "details." For example, Mantke and Lippert prefer a subcostal incision; we use a midline incision, because this incision is quicker to both make and close; in addition, for the majority of patients, the midline incision offers an equally good view of the entire peritoneal cavity. Certainly, whenever the uncinate process and the plane posterior to the head of the gland is "deep" and difficult to access, the surgeon's left hand is going to suffer intermittent, transient ischemia attacks when using a midline approach, but, at least in our experience, the use of the harmonic scalpel technology during this operative step has been able to reduce this specific disadvantage to the surgeon in the obese patient.

We also prefer pylorus-preserving resections. We start with a very wide "extended" Kocher maneuver; at this stage, we prefer to identify the origin of the SMA and the area between SMA and celiac trunk origin, because often this is the site of metastatic lymph nodes leading to a non-therapeutic R2 resection if not completely dissected.

To isolate the retropancreatic mesenteric/portal vein, we usually prefer to dissect the portal vein at the rostral margin of the pancreas and simultaneously to remove the nodes along the common hepatic artery. By doing so, you can get a sense of the direction of the superior mesenteric vein, a helpful hint often not easy to recognize in obese patients. Also, and most importantly, if an injury to the mesenteric/portal venous confluence should occur (and we know that sometimes this type of injury does happen!), the rostral control of the mesenteric-spleno-portal system is facilitated.

We specifically do not use bipolar cautery but rather use the harmonic scalpel extensively with the last generation forceps (FOCUS) which for us has become our "third hand." It is possible to secure most of the vessels with this device using suture ligation only for gastroduodenal, gastro-epiploic, and sometimes the pancreatoduodenal arteries during the dissection of the uncinate process. In particular, the anatomic dissection of the retroportal plane is facilitated and speeded markedly using the harmonic scalpel, starting from the anterior aspect of the SMA with gentle traction on the specimen after transection of the neck of the pancreas with a regular scalpel as guided by the left hand of the surgeon.

When resection of the portal or mesenteric vein is necessary, we administer 5,000 IU of heparin in order to minimize the risk of vein thrombosis. In our experience, a primary veno-venous anastomosis is almost always possible and preferable after a complete vein resection. Sometimes, it is necessary to disconnect and ligate the splenic

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vein at its junction with the SMV. The in situ pancreatic remnant and spleen maintain adequate venous drainage through the short gastric vessels; we have never had a splenic infarction or other complication with this technique.

Regarding common bile duct, after transection, we do not clamp the duct to avoid microdamage to the duct wall and accept free flow of the bile as controlled with a warm gauze. When the patient has had a previous biliary stent with the expectant bacterobilia, we irrigate the bile duct extensively.

We do not perform the so-called "extended lymphadenectomy" for the simple reason that several randomized, controlled trials have shown clearly that there is no survival advantage; as described by Mantke and Lippert, we also remove the lymph nodes around the common bile duct up to the cystic duct, the hepatic artery, anterior and posterior pyloric nodes, and the nodes along the superior mesenteric artery together with the specimen. We do not remove the lymph nodes in the aortocaval groove routinely but, when enlarged, we do remove them to ensure accurate pathologic staging. With this procedure, one must be very careful to avoid injury to the cysterna chyli, which is close to the left renal vein.

2.1   Reconstruction

Our preferred technique of pancreatic-enteric drainage is a single layer, intussuscepting, end-to-side pancreatojejunostomy using absorbable 4/0 monofilament interrupted sutures (PDS®, Ethicon). We carefully avoid occlusion of the Wirsung duct with the suture, believing that it is better to leave the transected duct "open" without potential damage of its delicate and thin walls by a direct mucosa-to-mucosa anastomosis. We also believe strongly that with a hard or very firm pancreas, every technique is a good option, but for the very soft pancreatic stump, pancreatogastrostomy is a good alternative and appears to decrease the rate of grade B and C pancreatic fistulas; for this latter technique, an anterior gastrostomy allows the surgeon to pull the pancreatic stump into the gastric lumen prior to performing single layer, end-to-side pancreatogastrostomy using

absorbable 4-0 monofilament interrupted sutures (PDS®, Ethicon). The trick to these intussuscepting anastomoses is to mobilize the pancreatic stump for at least 5 cm anterior to the splenomesenteric venous confluence.

An end-to-side hepaticojejunostomy is then performed at least 15 cm distal to the pancreaticojejunostomy. We have never yet experienced kinking of the jejunal limb with this technique. Usually, a single-layer suture using 4-0 monofilament interrupted sutures (PDS®, Ethicon) is performed for both the posterior and the anterior wall; for a particularly small duct, a running suture should be avoided to decrease the risk of ischemia and subsequent late stenosis. For the small size duct, we use interrupted 5-0 monofilament sutures (PDS®, Ethicon) without any other particular trick except to not use too many stitches; some bile leak in the first 48 h is preferable to the long-term morbidity of an anastomotic stenosis! Finally, to restore gastrointestinal continuity, we perform a single-layer duodenojejunostomy using 3-0 absorbable interrupted sutures (Vicryl®, Ethicon) in an antecolic fashion.

At the end of the procedure, a smooth, nonsuction, passive 2-mm drain is placed from the right flank posterior to the biliary anastomosis and near the rostral edge of the pancreatojejunostomy; a second drain is placed from the left flank and positioned at the caudal edge of the pancreatojejunostomy.

2.2   Postoperative "Fast Track" Management

All patients have a nasogastric tube placed perioperatively, but it is removed the next day. We test the drain fluid for amylase level. If the amylase level is less than 5,000 U/L, we remove the drain on postoperative day 3, because the risk of a pancreatic fistula is very low, while the risk of a drain-related complication (superinfection, erosion of local structures) is possible. Patients are allowed to drink tea and water on day 1 and to start eating on day 3 when the octreotide is stopped. Yes, we use prophylactic octreotide perioperatively to decrease the risk of pancreatic anastomotic leak based on several of our previous studies.

2.3 Distal Pancreatectomy and Splenectomy for Ductal Pancreatic Carcinoma

Most patients are approached via a midline incision just as for a pancreatic head resection. As with pancreatoduodenectomy, the harmonic scalpel has become the third hand of the surgeon which facilitates the management of the short gastric vessels, the retroperitoneal dissection of the pancreas, and the lymphadenectomy. After a wide opening of the gastrocolic ligament, we prefer to perform a Kocher maneuver to allow control of the portomesenteric axis and of the superior mesenteric artery. Lymphadenectomy along the common hepatic artery and celiac trunk is accomplished. The resectability of the tumor can now be verified with the careful mobilization of the pancreatic isthmus maintaining view of the spleno-portomesenteric confluence. After division of the splenic artery at its origin, we usually transect the pancreas with a scalpel, but acknowledge that a stapler can also be sued. Although there are studies on the advisability and efficacy of stapling the pancreatic stump, none have shown a convincing advantage of the use of a stapler. A recent report from Mayo Clinic suggested an advantage of the harmonic scalpel when transecting the pancreas during distal pancreatectomy; although we have tried this technique in few patients with good results and our interest is now in that direction, we are also conscious of minimizing the overall cost of the procedures by avoiding staplers or other biologic supports for which there is no sufficient evidence currently to justify their routine use. Finally, we use a similar drain as for pancreatoduodenectomy and manage this drain as described above. Patients are not managed postoperatively in the ICU and are subjected to a "fast track" approach.

An important difference in our technique from that of the authors is related to the lymphadenectomy. We do not remove the lymph nodes along the aorta or the tissue of Gerota fascia. We do not believe that any data support that such an extended lymphadenectomy prolongs survival and, on the contrary, we fear that these procedures could lead to postoperative morbidity, such as chylous fistula or infected intraabdominal collections. We also note the long median hospital stay (20 days) reported by the authors (Table 1.6) when compared with the relatively low rate of pancreatic fistula (15 %), and we wonder why the hospital stay is so prolonged.