When do I hesitate to perform laparocopic distal pancreatectomy?

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Distal pancreatectomy with or without preservation of spleen is indicated for the benign and malignant disease of pancreatic body and tail. It is one of technically demanding surgery with considerable risk of surgical morbidity and mortality.

In the era of minimally invasive surgery, distal pancreatectomy also opened the gate to minimally invasive surgery as other surgeries did. After laparoscopic cholecystectomy begin in 1985 by Muhe, laparoscopic pancreatoduodenectomy and laparoscopic distal pancreatectomy (LDP) was first reported in 1994 and 1996 respectively.[1]

Although LDP progressed much slowly than other minimally invasive surgery mainly due to the complicated anatomy and high rate of surgical morbidity, the number of cases and published reports are increasing.[2] The trend is further facilitated by the refinement in the pancreatic surgery and development of surgical skill accumulated during last decades of era of minimally invasive surgery.

The benefits of LDP as compared with the open approach, include better visualization of the pancreas and its vessels. In a multi-institutional case-matched analysis, laparoscopic distal pancreatectomy (LDP) was associated with lower blood loss, a lower morbidity, and shorter hospital stays. Recently, Baker et al showed that LDP is superior to ODP even when readmission was counted for evaluation of surgical morbidities.[3]

In the early period of beginning, the indication of LDP tended to be limited to the benign, small lesions located in the periphery of distal pancreas. The procedure varied from laparoscopic encleation to distal pancreatectomy with or without spleen preservation. Recently, authors report the broadened indication. Kneuertz et al. analyzed the trends in patient selection, surgical technique, and outcomes over time and they showed that the indications for LDP have substantially broadened to include more patients with comorbidities, larger lesions, and more proximally located tumors within the pancreatic body or neck, requiring larger resections.[4] However, even in most recent days, LDP cannot be indicated for every pancreatic disease. A Recent study investigating national trends in USA showed that laparoscopy for distal pancreatectomy was underutilized and no centralization of LDP occurred.[5]

Regarding the application of LDP for pancreas cancer, some authors broadened to include pancreatic ductal adenocarcinoma in selected patients. However, currently, pancreatic ductal adenocarcinoma is not a common indication of LDP. The data thus far collected were not enough to reach a conclusion regarding the oncologic outcome of LDP for pancreas cancer. The oncologic outcome of laparoscopic colectomy or gastrectomy cannot be directly applied to pancreatic ductal adenocarcinoma. Recently, several authors reported favorable outcomes after LDP for pancreass cancer. Kooby et al. in the matched analysis of distal pancreatectomy for adenocarcinoma,

showed that LDP and ODP had similar outcomes in the number of lymph nodes harvested, resection margin status, and overall survival. Marangos et al also showed comparable outcome after LDP for pancreas cancer with 30% of 3 year survival rate.[6] Similar results were also found on a meta-analysis.[7] However, the consensus regarding the indication in a biopsy proven pancreatic cancer is still lacking so some surgeons are reluctant to perform LDP for pancreas cancer. In near future, multiinstitutional prospective randomized clinical trials are needed to determine the effect on oncologic outcome of LDP.

Technically, LDP is much more demanding than laparoscopic cholecystectomy thus the conversion rate may be assumed to be high. The conversion rate initially reported was very high but recently the rate is decreasing reported from 0% to 30% and it may be differ according to the indication of the LDP and experience of surgeons. Some authors do not preserve spleen at all and others preserve spleen in all cases. However, generally, the rate of spleen and splenic vessel preservation varies around 30 to 40%. Pancreas transaction is mostly performed by stapled transaction. The trends of indication for LDP are changing as Kneuertz et al. reported the patients with increasingly severe comobidities, more proximal tumors, more extended resections, shorter operative times, and less frequent use of a hand port.

In summary, the indications are broadening to include lesions which are larger, more centrally located, and more malignancies. As experience of LDP and skill accumulate, the indication may be further broadened in the furure.

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