

Re: Comparative analysis of duodenum-preserving head resection and pancreaticoduodenectomy

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To the Editor: We read with great interest the article by Sun *et al*^[1] “Comparative analysis of duodenum-preserving head resection and pancreaticoduodenectomy. The most interesting result of the article is that duodenum-preserving pancreatic head resection (DPPHR) has several advantages on perioperative and long-term results. Unfortunately, after describing all the “modifications of DPPHR (Beger, Frey, and Gloor),” they did not specify which kind of modification was applied to each of the 28 patients that underwent DPPHR.

We reported 27 DPPHR and 37 pancreaticoduodenectomy (PD) performed for benign or borderline disease between 1991 and 2008.^[2] According to the size and site of the pancreatic head remnant, three types of DPPHR were classified: Type 1: a small rim of pancreatic head tissue is preserved along all the inner duodenal surface. Type 2: the rim of pancreatic tissue is preserved only superiorly to the major duodenal Vater’s Papilla. Type 3: pancreatic head tissue is completely removed, and the common bile duct (CBD) is skeletonized (See the Figure 1 of Pedrazzoli *et al*^[2]). Kocher’s maneuver is not performed for Type 3 DPPHR. Beger *et al*^[3] classified three types of DPPHR: DPPHR-S: duodenum-preserving total pancreatic head resection and resection of the periampullary segment of the duodenum and intrapancreatic segment of CBD; DPPHR-T = Type 3 DPPHR; DPPHR-P: partial pancreatic head resection, local tumor extirpation and resection of the uncinate process (see Figures 2–4 in Beger *et al*^[3]). A clear reference to one or more of the above reported DPPHRs or an explanatory figure of the DPPHRs performed would have been very helpful.

Furthermore, they did not report postoperative complications and mortality rate, if any, after DPPHR and PD. In our experience, DPPHR had a higher complication rate (81.5% *vs.* 40.5%) and pancreatic fistula rate (40.1% *vs.* 18.9%). Hospital mortality was 0% and 2.7%, respectively. In a systematic review of 523 DPPHRs for

pre-malignant and low-malignant neoplasms, Beger *et al*.^[4] found an overall morbidity rate of 31.5% and 46.6% for DPPHR-T and DPPHR-S ($P = 0.0001$), respectively, without significant difference in the incidence of severe complications and A-C postoperative pancreatic fistula. The mortality rate was 0.6%.

The authors reported the results of postoperative long-term follow-up, but mean and median follow-up were not reported. Significantly fewer DPPHR patients experienced exocrine pancreatic insufficiency ($P = 0.007$) or long-term cumulative complications ($P = 0.007$); in addition, they also had less weight loss ($P = 0.002$) and better overall health ($P = 0.002$). Strangely, the incidence of new-onset diabetes was higher among DPPHR patients (17.2%) than PD patients (7.0%) ($P = 0.275$).

In our experience,^[2] all DPPHR and PPPD patients were followed for a mean of 100 months and 135 months, respectively. DPPHR showed lower incidence of benign cholangitis ($P < 0.0001$), insulin-dependent diabetes mellitus ($P = 0.077$), and pancreatic insufficiency ($P = 0.003$).

We believe that the higher incidence of new-onset diabetes among DPPHR patients reported by the authors may be due to the higher percentage of chronic pancreatitis patients among DPPHR (17/29, 58.6%) than PD (18/57, 31.6%) patients.

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Authors' Reply: Comparative analysis of duodenum-preserving pancreatic head resection and pancreaticoduodenectomy

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To Dr. Pedrazzoli: Thanks for your careful reading and priceless comments on our recent publication.^[1] In view of your opinions and based on our clinical experience, we hereby reply as follows:

Which kind of modification was applied to each of the 29 patients that underwent DPPHR: Of the 29 patients in the DPPHR group, 10 (34.5%) underwent the Berne modification, 11 (37.9%) underwent the Frey modification, 8 (27.6%) underwent the Beger procedure. For the Berne modification, local excision of the tumor in the head of the pancreas was performed, without division and cutting of the pancreas over the portal vein. Reconstruction was accomplished by a single side-to-side pancreaticojejunostomy.^[2] For the Frey modification, a limited resection of the pancreatic head was performed with extended drainage of the main pancreatic duct by longitudinal pancreatectomy of the body and tail of the pancreas. Reconstruction was performed with a Roux-en-Y loop with side-to-side pancreaticojejunostomy.^[3] For the Beger modification, the pancreas was transected above

the superior mesenteric portal vein followed by excavation of the pancreatic head and preservation of a small rim (0.5–0.8 mm) of pancreatic head tissue along with the duodenum. Reconstruction was accomplished by pancreaticojejunostomy. The Type-1 or Type-2 DPPHR was performed according to the above reported DPPHRs.^[4,5]

Postoperative complications and mortality rate: At present, most of the comparative studies on the efficacy of the two methods have only focused on perioperative safety and the occurrence of short-term postoperative complications. In this article, we pay more attention to the impact of surgery on the long-term quality of life of patients. Thus, we did not report postoperative complications and mortality rate. The sample size was small in our study. We will expand the sample size based on this study and extend the follow-up period; the results of perioperative complications and mortality rate will be reported in the subsequent articles.

Follow-up and new-onset diabetes: In our experience, all DPPHR and PD patients were followed for a mean of 28 months and 38 months, respectively. As there is a higher incidence of new-onset diabetes among DPPHR patients, we agree with Prof. Sergio Pedrazzoli. We believe that the higher percentage of chronic pancreatitis patients plays a vital role in the higher incidence of new-onset diabetes among DPPHR than PD patients.

Finally, we appreciate the readers for reading the article carefully, giving professional advice, and writing this letter. We look forward to having more communication with Prof. Sergio Pedrazzoli.

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