

## LETTER

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# Pancreatectomy for Intraductal Papillary Mucinous Neoplasm of the Pancreas: Could Pancreaticogastrostomy Be the Anastomosis of Choice?

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Dear Sir,

Surgical resection is the treatment of choice for intraductal papillary mucinous neoplasms (IPMNs) of the pancreas. The aim of resection in the management of IPMNs is to remove all the adenomatous or malignant mucosa and to minimize the chance of recurrence in the pancreatic remnant. However, even after partial pancreatectomy with negative surgical margins for non-invasive IPMN, the tumour can recur as disseminated disease or as locally invasive or non-invasive disease in the pancreatic remnant [1]. For non-invasive IPMNs, the overall disease recurrence rate reported is 1.3 to 9.3% while, for invasive IPMNs, the overall disease recurrence rate is 12 to 68% [2]. The overall recurrence rate for IPMNs varies from 7% to 43% [2].

Our question relates to the issue of the high risk of recurrence in both non-invasive and invasive IPMNs after partial pancreatectomy. Has pancreaticogastric anastomosis been utilized in patients with IPMNs and is it something we should all think about in patients who undergo resections of the head and require surveillance with subsequent endoscopic retrograde cholangiopancreatography (ERCP)? Would pancreaticogastrostomy be something we should all be doing in order to follow-up patients having a pancreatic remnant with endoscopic surveillance?

Several techniques of anastomosing the pancreatic remnant to the stomach have been proposed: invagination of the stump of the pancreas, implantation of the pancreatic duct, and anastomosis between the pancreatic duct and the gastric mucosa.

Several theoretical and technical advantages of a pancreaticogastrostomy have also been summarized.

The anastomosis can be created easily due to the proximity of the stomach to the pancreas, and its fixed position ensures no tension at the anastomosis. The thick posterior wall of the stomach, its excellent blood supply to the anastomosis and the thickness of the stomach wall hold sutures well. Postoperative gastric decompression removes pancreatic secretions, preventing the retention of pancreatic secretions in a jejunal loop. The conversion of trypsinogen to trypsin and the subsequent activation of other proteolytic enzymes requires enterokinase which is absent in the stomach; this lack of enzyme activation may help prevent autodigestion of the pancreatic anastomosis. Nasogastric decompression provides for the continuous emptying of the stomach and, thus, less tension on the anastomosis, a benefit not associated with a pancreaticojejunal anastomosis. These advantages may result in a low incidence of anastomotic fistulas and a reduction in the morbidity and mortality associated with anastomotic leakage.

Results from a number of institutions have demonstrated leakage rates of 0 to 14% in cases where pancreaticogastric anastomosis was performed [3]. These results are equal to, or better than, the results reported in the literature for a pancreaticojejunostomy. Miyagawa *et al.* [4] also carried out a retrospective study comparing pancreaticojejunostomy to pancreaticogastrostomy and concluded that a pancreaticogastrostomy was the safer reconstructive method. However, Yeo *et al.* [5] reported a leakage rate of 11.7% and no significant difference between the two methods of reconstruction comparing them in a randomized prospective study after a pancreaticoduodenectomy for both benign and malignant periampullary and pancreatic disease. Finally, an evidence-based approach indicates that pancreaticogastrostomy and pancreaticojejunostomy are equivalent in terms of perioperative morbidity and mortality [6].

We strongly believe that, during the long-term follow-up in patients with IPMNs who underwent pancreaticogastric anastomosis following a pancreaticoduodenectomy, this reconstructive

Received April 10<sup>th</sup>, 2010 - Accepted May 31<sup>st</sup>, 2010

**Key words** Anastomosis, Surgical; Neoplasms; Pancreatectomy

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**Document URL** <http://www.joplink.net/prev/201007/18.html>

technique permits direct access to the pancreatic remnant using endoscopic ultrasonography (EUS) and ERCP, allowing direct opacification and cytological brushings of the pancreatic duct. Samples of pancreatic juice can be obtained for cytological examination. Even in cases where stricture of the pancreaticogastrostomy impairs direct access to the pancreatic duct, the use of EUS allows a precise examination of the pancreatic ductal system as well as for puncture for cytological examination.

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**Conflict of interest** The authors have no potential conflict of interest

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#### References

1. Wada K, Kozarek RA, Traverso LW. Outcomes following resection of invasive and non-invasive intraductal papillary mucinous neoplasms of the pancreas. *Am J Surg* 2005; 189:632-6. [PMID 15862510]
  2. Gourgiotis S, Ridolfini MP, Germanos S. Intraductal papillary mucinous neoplasms of the pancreas. *Eur J Surg Oncol* 2007; 33:678-84. [PMID 17207960]
  3. Mason GR. Pancreatogastrostomy as reconstruction for pancreatoduodenectomy: review. *World J Surg* 1999; 23:221-6. [PMID 9933689]
  4. Miyagawa S, Makuuchi M, Lygidakis NJ, Noguchi T, Nishimaki K, Hashikura Y, et al. A retrospective comparative study of reconstructive methods following pancreaticoduodenectomy - pancreaticojejunostomy vs. pancreaticogastrostomy. *Hepatogastroenterology* 1992; 39:381-4. [PMID 1360936]
  5. Yeo CJ, Cameron JL, Maher MM, Sauter PK, Zahurak ML, Talamini MA, et al. A prospective randomized trial of pancreaticogastrostomy versus pancreaticojejunostomy after pancreaticoduodenectomy. *Ann Surg* 1995; 222:580-8. [PMID 7574936]
  6. Stojadinovic A, Brooks A, Hoos A, Jaques DP, Conlon KC, Brennan MF. An evidence-based approach to the surgical management of resectable pancreatic adenocarcinoma. *J Am Coll Surg* 2003; 196:954-64. [PMID 12788434]
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