

LETTER

Laparoscopic Distal Pancreatectomy in Non-Malignant Pancreatic Tumors

**Riccardo Casadei, Claudio Ricci, Nicola Zanini, Nicola Marrano,
Raffaele Pezzilli, Francesco Minni**

Department of Surgery, S.Orsola-Malpighi Hospital, University of Bologna. Bologna, Italy

Dear Sir,

It is known that laparoscopy is not usually accepted as the treatment of choice for pancreatic tumors [1, 2, 3, 4, 5]. Even if laparoscopic pancreatectomy is rarely performed and is considered an elite surgical approach because of technical difficulties, long operative time and long learning curve, in recent years, laparoscopic distal pancreatectomy has become an increasingly used technique in the surgical treatment of several pancreatic diseases, including non-malignant tumors [6, 7, 8].

From May 2004 to August 2007, data from 10 consecutive patients who underwent laparoscopic distal pancreatectomy were entered into our surgical database. There were 2 males and 8 females with a mean age of 59.0 ± 16.2 (SD) years. Five of them (50%) were affected by non-malignant cystic tumors (3 serous cystadenomas, 2 mucinous cystic tumors) and 5 (50%) had non-malignant endocrine tumors (4 insulinomas and 1 non-functioning tumor). Two patients (20%) had an American Society of Anesthesiologists physical status (ASA score) equal to 3 or 4, and 8 (80%) had ASA score equal to 1 or 2.

According to the accepted criteria [9], distal pancreatectomy is defined as the resection of the pancreas reaching the left side of the superior mesenteric vein. Laparoscopic distal pancreatectomy was performed as follows:

1) after general anesthesia, the patient was kept supine, is positioned in a 30-45 degree right lateral decubitus with the patient's hip at the break in the table; the surgeon, the first assistant and the scrub nurse stand to the right of the patient. Pneumoperitoneum was achieved using a Hasson trocar and three other ports were placed. We used a 10 mm 30-degree telescope for visualization.

2) The gastrocolic ligament was opened allowing access to the pancreas. Laparoscopic ultrasonography was used at this stage to delineate the tumor and identify its relationship to the splenic vessels. After mobilization of the distal pancreas from the retroperitoneum and splenic vessels (spleen-preserving distal pancreatectomy), the pancreas was divided at the neck using an Endo-GIA[®] instrument (Ethicon Endo-Surgery, Cincinnati, OH, USA). It is to be stressed that, when performing a spleen-preserving distal pancreatectomy we always preserved the splenic vessels. In en bloc distal pancreatectomy with splenectomy, the splenic vessels were clipped, separately. The specimen was removed using an endo-bag through an incision in the left upper quadrant. A closed system suction drain was placed at the pancreatic bed.

Several parameters, regarding the characteristics of the tumor, intraoperative procedure and postoperative course, were analyzed and summarized in Table 1. During

laparoscopic distal pancreatectomy, a splenectomy is usually performed; a spleen-preserving procedure is possible when the tumor is small and it is not localized near the splenic hilus. In our series, only two patients underwent a spleen-preserving procedure. The tumor size of patients who underwent laparoscopic surgery is usually small, even if cystic tumors may be bigger than neuroendocrine tumors. Operating time was longer at the beginning of the learning curve (first 5 cases: 240±59 min, mean±SD) than it was at the end (last five cases: 198±42 min). The postoperative results were very good with no mortality and few complications (1 pancreatic fistula, 1 hemorrhage, 1 pulmonary infection). Re-operation was necessary due to a postoperative hemorrhage from the splenic vessels.

In conclusion, our data confirmed the safety and feasibility of laparoscopic distal pancreatectomy in the treatment of non-malignant pancreatic tumors. Laparoscopic surgery in high volume centers could be performed with an acceptable operating time, without important blood loss and could allow good postoperative results. Finally, we would point out that one of the difficulties in randomized and/or controlled studies on this topic is mainly due to the fact that patients in the laparotomic population may have significantly larger tumors than patients laparoscopically treated; the laparotomic and the laparoscopic groups may not have

comparable clinical characteristics, mainly due to different study periods [10].

Received September 9th, 2007 - Accepted November 14th, 2007

Keywords Laparoscopy; Neoplasms; Pancreatectomy

Conflict of interest The authors have no potential conflicts of interest

Correspondence

Riccardo Casadei
 Dipartimento di Chirurgia
 Policlinico S.Orsola-Malpighi
 Via Massarenti, 9
 40138 Bologna
 Italy
 Phone: +39-051.341.541
 Fax: +39-051.341.483
 E-mail: riccardo.casadei@aosp.bo.it

Document URL: <http://www.joplink.net/prev/200801/15.html>

References

1. Mabrut JY, Fernandez-Cruz L, Azagra JS, Bassi C, Delvaux G, Weerts J, et al. Laparoscopic pancreatic resection: results of a multicenter European study of 127 patients. *Surgery* 2005; 137:597-605. [PMID 15962401]
2. Ramage JK, Davies AH, Ardill J, Bax N, Caplin M, Grossman A, et al. Guidelines for the management of gastroenteropancreatic neuroendocrine (including carcinoid) tumours. *Gut* 2005; 54:1-16. [PMID 15888809]

Table 1. Clinical and surgical characteristics of the 10 patients studied. (Frequencies or mean±SD values are shown).

Distal pancreatectomy with splenectomy	8 cases (80%)
Spleen-preserving	2 cases (20%)
Tumor size	2.0±3.3 cm
Operating time	219±53 min
Transfusion requirements	2 cases (20%) ^a
Time to adequate oral intake	3.0±0.8 days
Amount of analgesic drugs administered (i.v.)	
- Ketorolac	120±104 mg
- Tramadol	400±305 mg
Overall postoperative mortality	No cases (0%)
Overall postoperative morbidity	3 cases (30%)
Pancreatic fistula	1 case (10%)
Length of postoperative hospital stay	8.0 ±1.3 days
Conversion rate	No cases (0%)
Re-operation	1 case (10%)

^aLess than 2 blood units were transfused in each patient

3. Tanaka M, Chari S, Adsay V, Fernandez-del Castillo C, Falconi M, Shimizu M, et al. International consensus guidelines for management of intraductal papillary mucinous neoplasms and mucinous cystic neoplasms of the pancreas. *Pancreatology* 2006; 6:17-32. [PMID 16327281]
 4. Michalski CW, Weitz J, Büchler MW. Surgery insight: surgical management of pancreatic cancer. *Nat Clin Pract Oncol* 2007; 4:526-35. [PMID 17728711]
 5. Verslype C, Van Cutsem E, Dicato M, Cascinu S, Cunningham D, Diaz-Rubio E, et al. The management of pancreatic cancer. Current expert opinion and recommendations derived from the 8th World Congress on Gastrointestinal Cancer, Barcelona, 2006. *Ann Oncol* 2007; 18(Suppl 7):vii1-vii10. [PMID 17600091]
 6. Fernández-Cruz L, Sáenz A, Astudillo E, Martínez I, Hoyos S, Pantoja JP, Navarro S. Outcome of laparoscopic pancreatic surgery: endocrine and nonendocrine tumors. *World J Surg* 2002; 26:1057-65. [PMID 12016486]
 7. Shimizu S, Tanaka M, Konomi H, Mizumoto K, Yamaguchi K. Laparoscopic pancreatic surgery: current indications and surgical results. *Surg Endosc* 2004; 18:402-6. [PMID 14735345]
 8. Melotti G, Butturini G, Piccoli M, Casetti L, Bassi C, Mullineris B, et al. Laparoscopic distal pancreatectomy: results on a consecutive series of 58 patients. *Ann Surg* 2007; 246:77-82. [PMID 17592294]
 9. Knaebel HP, Diener MK, Wente MN, Büchler MW, Seiler CM. Systematic review and meta-analysis of technique for closure of the pancreatic remnant after distal pancreatectomy. *Br J Surg* 2005; 92:539-46. [PMID 15852419]
 10. Nakamura Y, Uchida E, Aimoto T, Matsushita A, Cho K, Kawamoto M, Tajiri T. Clinical outcome of laparoscopic distal pancreatectomy a case-control comparison of laparoscopic vs open. *Pancreas* 2007; 35:419.
-