
Conventional Laparoscopic and Robot-assisted Spleen-preserving Pancreatectomy; Does “da Vinci” Indeed have Clinical Advantage?

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Background: Function-preserving minimal invasive pancreatectomy is thought to be ideal approach for pancreatic benign and borderline malignant lesions requiring pancreatectomy. In particular, great efforts to preserve spleen and pancreas parenchyma are increasing on the basis of this concept. However, conventional laparoscopic approach is not that easy. It must require extensive surgeons' learning-curves (experiences and techniques) due to several disadvantages that conventional laparoscopic surgery has. Robot surgical system was recently introduced to overcome these limitations to provide precise and safe laparoscopic surgery.

Materials and Methods: From March 2006 to December 2008, total 40 patients underwent laparoscopic pancreatectomy with intention to preserve spleen or pancreas parenchyma by a single pancreatic surgeon. Twenty-two patients were done by conventional laparoscopic approach (LP group) and the rest 18 patients by robot-assisted surgery (RP group). The perioperative clinicopathologic variables (age, gender, length of resected pancreas, tumor size, tumor location, bleeding amount, operation time, length of hospital, complication, mortality) were compared between two group, as well as spleen-preservation rate.

Results: The younger patients preferred robot-assisted surgery to conventional laparoscopic surgery (55.7 ± 14.0 years vs. 44.1 ± 16.5 years, $p=0.020$), and the mean operation time was longer in Robot group (271.6 ± 120.0 min. vs. 365.8 ± 129.4 min, $p=0.024$). From the view point of intention-to-preservation of spleen, the spleen-preserving rate of Robot group was considerably superior to that of Lap group (fail/success, 8/14 vs. 1/17, $p=0.027$). However, robot surgery cost the patients about 8,000\$ ($8,047.9 \pm 2,066.3$ \$) which was approximately twice the conventional laparoscopic group ($4,115.6 \pm 1,865.4$). There were no significant differences in other clinicopathologic variables.

Conclusion: Robot-assisted pancreatic surgery can provide increased chance for not only spleen preservation but also far advanced laparoscopic surgery. More experiences are mandatory to exactly address the role of robot surgery in far advanced laparoscopic era.