Editorial

Laparoscopic gastric cancer surgery results in reduced wound complication and overall morbidity

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Laparoscopy-assisted distal gastrectomy (LADG) was first introduced in 1994 by Dr. Kitano, and was rapidly adopted in Japan, Korea, and China, where gastric cancer remains an endemic disease. However, in other parts of the world, laparoscopic gastrectomy has been relatively unpopular as compared to laparoscopic surgery for other organs, such as colorectal cancer surgery, because lymph node dissection and reconstruction method are more complicated than other organ cancer surgery.

Recently, Kim and colleagues (1) of the Korean Laparo-endoscopic Gastrointestinal Surgery Study (KLASS) Group reported the results of a multicenter randomized trial comparing short-term outcomes for patients with stage I gastric cancer that had LADG *vs*. open distal gastrectomy (ODG). It is the first large scale multicenter randomized controlled study, although its indications are limited to earlier staged (stage I) gastric cancer.

The current report by Kim *et al*. reports a different operative morbidity of 13.0% and 19.9% and similar mortality of 0.6% and 0.3% between laparoscopic and ODG, respectively. The overall complication rate was significantly lower in the LADG group; in particular, the wound complication rate of LADG group was lower than that of the ODG group (3.1% *vs*. 7.7%). On the other hand, the major local and systemic complication rates were similar between the two groups. LADG was also associated with a longer operation time, less blood loss, and a shorter length of hospital stay. Reoperations were required in eight (1.2%) and nine (1.5%) cases in LADG and ODG group, respectively, and 6 out of 612 (0.9%) cases of LADG were converted to ODG during surgery. The multivariate risk factor analysis identified the operative approach and the number of comorbidities as independent risk factors for postoperative morbidity, whereas the pathologic stage and the extent of lymph node dissection had no significant influences on the development of postoperative complication.

The authors described well how they had ensured surgical quality control between investigator surgeons and institutions before patient enrollment. The eligible surgeons had to have performed over 50 cases each of LADG and ODG and each institution had to conduct over 80 cases annually. Two expert surgeons visited each site and assessed the surgeon's eligibility for participation. In addition, all of the participating surgeons thoroughly peer reviewed each other's unedited videos for the standardization and the quality control of the study. This study group realized that standardization of surgery is of utmost importance in the beginning of surgical clinical trial. However, the rate of the surgeons passing the assessment and whether the evaluators were few of the participating surgeons or an external expert are valuable information that was not mentioned in the report. Additionally, it would have been helpful to address the frequency of the unedited video reviews and whether they were solely for the standardization or for the improvement of surgical techniques. Moreover, since post-operative morbidity decreases with high-volume centers, details about the distribution of the recruited patients per surgeon/institution would have allowed for predictions about how the results would hold in community-based surgical practices. The impressively low conversion rate of 0.9%, especially when compared to randomized controlled trials for colon cancers (2), seems to be attributable to the efforts dedicated to surgical quality control and the

concentration of participating surgeons in few centralized hospitals.

Because this study is based on non-inferiority hypothesis of long-term survival; postoperative morbidity and mortality should be set as one of secondary endpoints as in other clinical laparoscopic surgery trials. However, the comparison of morbidity and mortality offers a valuable practical insight, especially if the long-term survival of the treatment group is similar to that of the control group (3). Myriads of minimally invasive gastric surgeons have been anticipating the report on this project, and the positive results are encouraging to many of us, despite the fact that the short-term results from a study that completed its patient recruitment in 2010 are a little overdue. As the authors mentioned, it is difficult to draw conclusions about whether a sufficient number of patients were included for the comparison of morbidity, as the statistical focus of this research was on the comparison of the long-term survival. Nevertheless, the rate of overall complication rate was significantly lower in the LADG group as compared to the ODG group. Although LADG did not decrease the rate of major abdominal and systemic complications, it significantly decreased the rate of wound related complications, as expected. The reduction in the rate of wound complications would presumably give rise to desirable secondary effects, such as cosmesis, less postoperative pain, earlier recovery, and enhanced quality of life, which are the primary advantages of LADG over ODG.

Although the study reports many positive results that were expected, it gives no conclusive answers about the safety of LADG, since most of the patients included in the study were of stage I gastric cancer. With the exception of South Korea and Japan, which has the national screening system established; 70% to 80% of the gastric cancer patients in the other parts of the world are diagnosed at advanced stages. Most surgical oncologists from China and from the Western world must employ the laparoscopic surgical tools for advanced cancer patients. Advanced gastric cancer surgery involves many unique technical implications: (I) the handling of bulky tumor exposed to serosa; (II) dissection of metastatic lymph nodes; (III) deep sitting nodes, such as 12a and 11p lymph node stations; (IV) total omentectomy; and (V) bleeding tendency. Nevertheless, the greatest advantage of laparoscopic surgery—securing a magnified visual perspective for meticulous tissue dissection and vessel sealing of all sizes—still holds true for advanced gastric cancer surgery. Also, the technical advances in company-based laparoscope video system and the laparoscopic instrument (e.g., stapler or energy based device) has been gaining more and more momentum. Backed by the general advantages of laparoscopic surgery and the technical advances, a number of pioneer surgeons have been safely performing laparoscopic surgery in advanced gastric cancer patients. Fortunately, the KLASS group has launched and completed patient enrollment of a follow-up clinical trial (KLASS 02), which compares the short- and long-term results of laparoscopic cancer surgery in a set of advanced gastric cancer patients. The short-term results from KLASS 02 should shed light on most of the questions regarding the safety of laparoscopic surgery on advanced stage gastric cancer, and could furthermore elucidate benefits for complications that are not typically associated with stage I gastric cancer.

In conclusion, based on the high priority of this KLASS 01 RCT result, laparoscopic distal gastrectomy proves itself to be an evidence-based practice at least in stage I gastric cancer patients. The morbidity results from this study could provide a standard based on which future studies could evaluate their surgical qualities. Furthermore, it behooves all surgeons in the KLASS group to organize formalized education processes with the instrument companies and the study groups from other countries to train the new physicians all across the globe.

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Footnote

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