

Editorial concerning “Long-term outcomes of laparoscopic versus open surgery for clinical stage I gastric cancer: the LOC-1 study”

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We are writing in regard to a multicenter retrospective cohort study evaluating the oncological outcome of laparoscopic gastrectomy (LG) in comparison to open gastrectomy (OG) for clinical stage I gastric cancer treatment, the LOC-1 study (1). Although this study was similar to previous reports comparing LG and OG (2-4), the authors sought to add meaning to their study using propensity score matching (PSM). The value of this study was that authors used strict propensity score estimation based on 30 covariates and presented their detailed matching process. As expected, LG was oncologically comparable to OG for clinical stage I gastric cancer. We have several questions regarding this study. First, the authors commented that known confounding factors were more accurately adjusted for in this study than in a randomized controlled trial (RCT) through accurate propensity score estimation. However, we are not convinced that this study has a clinical and statistical impact similar to that of a well-designed observational study or RCT such as KLASS01, COACT 0301, or JCOG 0912 (5-7). Because the comparable oncological outcomes of LG and OG in early gastric cancer (EGC) are already well-known and LG is a standard treatment for EGC, this study seems to repeat well-known results. Second, the authors insisted that they increased the external validity because they enrolled consecutive patients including those with severe comorbidities, the elderly, and those requiring emergency surgery and all surgeons who used LG, OG, or both in

participating institutions. Their opinion is acceptable in clinical practice because patient condition and surgeon quality are important factors affecting postoperative course, complications, and mortality. In real practice, patients with various comorbidities undergo operations performed by surgeons experienced in open, laparoscopy or both surgeries, and sometimes by less experienced surgeons. However, where possible, eliminating other confounding factors initially would be more useful for focusing on the oncological outcome of each procedure than including all confounding factors.

This study found that short-term postoperative complications were similar between LG and OG. Surgical outcomes are affected by surgeon factors as well as patient factors (8). Surgeon factors include learning curve, which can be influenced by a surgeon's ability, assistant surgeon experience and cumulative experience in OG, LG, or both. This study used many covariates reflecting patient factors and tumor factors for PSM, but we could not find surgeon factors included as covariates. If the oncological outcomes and surgical outcomes are similar in LG and OG even after surgeon experience is used as a covariate, the results would be more interesting. The authors stated that all surgeons were considered to have sufficient experience to perform both surgeries because each hospital case volume was >300 cases per year. However, in real practice, the case volume of each hospital varies and even within the same hospital, and each surgeon has a different number of cases.

Moreover, each surgeon's ability varies widely. Thus, no single parameter can be used to measure the learning curve of gastric surgery or to evaluate each surgeon's ability.

In Korea, a prospective, randomized, clinical trial comparing LG and OG for advanced gastric cancer (AGC) is ongoing (KLASS-02-RCT registered at www.clinicaltrials.gov as NCT0145659) (9). Before starting this trial, all surgeons were required to complete a questionnaire detailing their professional experience and specific gastrectomy surgical background/training, and the gastrectomy metrics of their primary hospitals and to submit three laparoscopic and three open D2 gastrectomy videos (KLASS-02-RCT-QC) (10). Consequently, only qualified surgeons were approved to participate in the KLASS-02-RCT. Because the investigators in this trial believed surgical quality control and standardized D2 lymph node dissection are important for accurately identifying differences in surgical procedures, especially in AGC treatment, they invested considerable effort in creating a surgical quality control process. That's why many gastric surgeons are waiting the upcoming KLASS-02-RCT results. Considering the different oncological outcomes of EGC and AGC and the varying study protocol, the LOC-1 study has its own value for establishing gastric cancer treatment guidelines.

In conclusion, we think excellent oncological and surgical outcomes of LG and OG in this study enhanced the value of LG for gastric clinical stage I cancer. Although PSM for many confounding factors seems to provide additional support for these results, surgeon quality control looks to be still necessary for comparing different surgical procedures.

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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