

## Answering Reviewers

**The revised sentences were highlighted in the manuscript.**

### **(1) Reviewer No. 504581**

1. This is a descriptive and interesting report of a retrospective study about the rate of accomplishment (not the usefulness) of a Clinical pathway of surgical management after laparoscopic gastrectomy with lymph node dissection for early gastric cancer. Therefore the authors should change the aims of their study, because for the evaluation of the usefulness of a clinical pathway is not enough with the evaluation of their accomplishment. It should be needed to make many other comparisons. This is a retrospective study, so the authors should have compared the results of this study with the results obtained in another cohort of patients operated (open or laparoscopic surgery) without the implementation of this clinical pathway, ideally in a case-control design.

**Answer)** You seem to be right, therefore we changed the aims of our study as follows:

**AIM: To evaluate the implementation of a clinical pathway and to identify clinical factors affecting the clinical pathway for laparoscopic gastrectomy.** (We changed the AIM)

However, I did present other cohort studies in the DISCUSSION shown below:

- (1) Several investigators have reported that a CP was effective for gastrectomy for stomach cancer<sup>[4,27,28]</sup>
- (2) Recently its effectiveness in enhancing recovery after surgery (ERAS) has been reported in the case of LG<sup>[15,36,37]</sup>.
- (3) Furthermore, LG has a predictable clinical course, which facilitates the use of a CP in gastric cancer surgery<sup>[17]</sup>.

- (4) Choi et al reported that the completion rate of CP in LG for gastric cancer was 76.2% and the expected completion rate in selected patients with no risk factors was 85.4%<sup>[12]</sup> similar to that of this study.

Therefore, we added at the DISCUSSION like this: These results support the belief that it is possible to develop and apply a CP for LG in gastric cancer patients.

2. Results 1.-Add percentage to all the figures in the table 4,5 and 6

**Answer)** You're right, and I added percentage signs to all the figures in the tables.

2. Why are so different the numbers of "wanted completion CP "in the internal anastomosis respect to the external anastomosis?

**Answer)** There is a striking difference of the numbers of "wanted completion CPs" between the intracorporeal anastomosis and the extracorporeal anastomosis groups. We believe that the reason can be explained as follows: Starting in 2004, the LG was performed by extracorporeal anastomosis, and starting in approximately 2008, it gradually converted to intracorporeal anastomosis. Since 2010, intracorporeal anastomosis procedures outnumbered extracorporeal anastomosis procedures. Over the last ten years, there have been many changes in the healthcare and reimbursement system in Korea, and the national health insurance allows cancer patients to stay in the hospital longer for treatment at reduced costs. These changes seem to influence the patient's desire to stay in the hospital. (We added at the DISCUSSION)

3. Was there any mortality?

**Answer)** There were two cases of mortality. One was caused by esophagojejunal leakage in extracorporeal anastomosis and the other by duodenal stump leakage in intracorporeal anastomosis. (We added in the “RESULTS”)

4. It is needed a better description of intraoperative events in the text , for instance 77 , 30 organ injury 12 vessel injury and the rest?? what else? Intraoperative events occurred in 77 cases (1.6%). There were 31 intraoperative events during anastomosis. They should deserve a better and more detailed explanation , (adding a table)

**Answer)** We added a new table (Table 3), and added in the “RESULTS” like this: Intraoperative events occurred in a total of 77 cases (1.6%) (Table 3). Among them, there were 31 intraoperative events during anastomosis, and almost all of them developed during esophagojejunostomies after total gastrectomy. Organ injuries occurred in 30 cases during lymph node dissection, mostly due to spleen injury. Vessel injuries occurred in 12 cases, and spleen artery injuries mainly occurred during the dissection of lymph node number 11 or retraction of the stomach.

5. Seven of the 30 instances of organ injury involved severe adhesions due to previous abdominal operations severe adhesions? What does it means, could you better explain it?

**Answer)** Dissection was difficult, and it took a longer operation time for patients with previous abdominal operation such as bowel resection, peritonitis, and cholecystectomy because these cases already had severe adhesion. We added in the “RESULTS” like this; Seven of the 30 instances of organ injury involved severe

adhesions due to previous abdominal operations, and these patients had a history of upper gastrointestinal surgery.

6. 743 patients had histories 743 (x%) the percentage is needed

**Answer)** 743 patients (15.5%) had histories of previous abdominal surgery. (We added in the “RESULTS”)

7. Comparisons between the intra and extracorporeal anastomosis group are shown in Table 3 Despite of the fact the group of extracorporeal anastomosis seems to be a group with less surgical risk, the final results were worse. However, the results of this comparison give us only an scarce information. Besides, this is not a randomized study and the groups are not homogeneous, so the comparative results showed could be misleading and has not any scientific value. If this comparison would be made as a case-control design could have more value, because it will avoid some important bias.

**Answer)** We explained the limitation of your comment at the discussion. Also we think that the case-control study should be tried in the near future. (We added in the “DISCUSSION”)

8. All of the Complications grade I considered as "an observations cases" had impact in the drop out of CP? Please add some commentary in the results and discussion.

**Answer)** You're absolutely right, and it was our mistake. The “complications grade I” and the "an observations cases" are distinctly different. The complications grade I is defined as any deviation from the normal postoperative course without the need for pharmacological treatment or surgical, endoscopic and radiological interventions and it allowed therapeutic regimens drugs as antiemetics, antipyretics, analgetics,

diuretics and electrolytes and physiotherapy. This grade also includes wound infection opened at the bedside. In our results, all of the complications grade I such as wound problem, mild ileus, and urinary problem affected the drop out the CP because of additional treatment. We corrected the observation group like this. -> We added in the "RESULTS" like this; Patients who needed additional observation without definite postoperative complications were classified as observation cases (Table 7).

9. The implementation of this CP implies the advantage of an early protocolized patient discharge. Therefore it is necessary to explain very well the reasons of the readmissions (early or late?) What was the rate of reoperations (early and late?)

**Answer)** Readmission within 30 days after discharge was included in the category of complication because all the readmissions were developed in fact due to complications. Cases with late postoperative complication did not belong to the group for drop. Reasons for readmissions were intra-abdominal fluid collection (23 patients), ileus (19 patients), anastomosis stenosis (5 patients), internal herniation (3 patients), duodenal stump leakage (2 patients), and wound infection (2 patients). There were eight (14.9%) reoperations from the readmission cases. (We added in the "RESULTS")

10. How many laparoscopic procedures had to be converted to open surgery discussion.

**Answer)** There was no case converted to a laparotomy. However, six cases of intracorporeal anastomosis were converted to extracorporeal anastomosis due to intraoperative events, such as anastomosis failure and bleeding. (We added in the "RESULTS")

11. The authors should add some comments and thoughts about the weakness of their report.

**Answer)** However, this study was analyzed retrospectively and was not a randomized controlled study, and the groups were not homogeneous, so the results could not be significant. Therefore, a prospective randomized controlled study should be conducted in the near future. (We added in the "DISCUSSION")

## (2) Reviewer No. 1832

The manuscript by Hee Sung Kim and co-workers analyzes retrospectively in 4800 consecutive patients the use of a clinical pathway in laparoscopic gastrectomy for gastric cancer. The authors identify risk factors affecting dropout from the clinical pathway, and conclude that those patients should thus managed more carefully. This is an interesting analysis addressing a clinical relevant question. The analyzed patient cohort is very impressive. However, there are a number of concerns that should be addressed:

1. It is not readily apparent why 'CP has rarely been suggested for conventional open gastrectomy in gastric cancer patients'. In the reviewers' opinion, these procedures are not more complex. In any event, there are also CP for open procedures.

**Answer)** In our result showed that intraoperative events (odds ratios =2.558) were the most significant risk factors for dropout because they are be related to longer operation time and postoperative complications. Recently, LG has been performed as the standard treatment for EGC, whereas OG is usually done for AGC. Severe AGC has a higher possibility of intraoperative events and complications due to difficult node dissection and extended surgery. (We added in the "DISCUSSION")

2. What are contraindications for LG in the authors' institution? Is the decision to perform LG at the discretion of the surgeon, or are all cases discussed in multidisciplinary boards?

**Answer)** The absolute indications for LG were EGC, cT1N0-1, and serosa-negative cases without distant lymph node metastasis, while cT2-3N1-2 was a relative indication in our division according to the preoperative clinical staging. The contraindication was serosa-positive (cT4) advanced gastric cancer (AGC) or AGC with cN3 at preoperative evaluation for LG. (We added at the "MATERIALS AND

METHODS")

3. What exactly is a 'substantial numbers of LG for gastric cancer'? Maybe, the authors could comment briefly about other regions, in which gastric cancer incidence is lower and patient present with disease that is more advanced and where patients have more co-morbidities.

Answer) Nine experienced gastric surgeons participated, all of whom had performed more than 150 conventional OGs and over 50 LGs for gastric cancer. (We added at the "MATERIALS AND METHODS")

4- The discussion section is rather long and could be shortened.

Answer) Sorry, I will try to shorten it. Thank you for your review.