

## **Point by point response to the reviewers' comments**

### **Reviewer #1>**

**The authors conducted retrospective case control study for long term functional comparison between LAPPG and LADG. The manuscript is generally well written with some minor grammatic error of articles and typos ("Willcoxon", "several of the benefit".....).**

Reply> Thank you for the kind comment, and we revised typos according to your comment. The other reviewer also pointed out other typos and we revised them as well.

Page 5, line 13

LAPPG had **several of the benefits** of a minimally invasive approach

➔ LAPPG had **several benefits** of a minimally invasive approach

Page 9, line 22

the Willcoxon rank-sum test ➔ the **Wilcoxon** rank-sum test

**The major limitation of this study which is not addressed in the manuscript is that LADG contains only Billroth II reconstruction. Therefore, long term functional difference between LAPPG and LADG might be from diversion of duodenum rather**

than preservation of pylorus. At least the abstract should contain information of Billroth II.

Reply> Thank you for your important comment, and we totally agree with you. Information of Billroth II was added in the manuscript, especially in abstract as follows.

Abstract, Method

We reviewed the clinicopathological data of 195 patients who underwent LADG and 101 patients who underwent LAPPG for cT1N0 gastric cancer in the middle third of the stomach between 2012 and 2015.

➔ We reviewed the clinicopathological data of 195 patients who underwent LADG with Billroth II anastomosis and 101 patients who underwent LAPPG for cT1N0 gastric cancer in the middle third of the stomach between 2012 and 2015.

Page 6, line 4-5

The aim of this study is to evaluate the long-term functional outcomes and QOL of LAPPG when compared to those of LADG.

➔ The aim of this study is to evaluate the long-term functional outcomes and QOL of LAPPG when compared to those of LADG with Billroth II anastomosis.

Page 7, line 7-8

From January 2012 to December 2015, 720 patients underwent LAPPG or LADG for cT1N0 gastric cancer in the National Cancer Center, Korea.

➔ From January 2012 to December 2015, 720 patients underwent **LADG with Billroth II anastomosis or LAPPG** for cT1N0 gastric cancer in the National Cancer Center, Korea.

Page 15, line 2-6

In contrast, there were considerable reductions in the secretion of gastrin and acid, and the absorption of dietary iron is limited when food bypasses the duodenum after LADG. For these reasons, there is a greater potential for improvements in postoperative anemia after LAPPG when compared to LADG

➔ In contrast, there were considerable reductions in the secretion of gastrin and acid, and the absorption of dietary iron is limited when food bypasses the duodenum after LADG **with Billroth II anastomosis**. For these reasons, there is a greater potential for improvements in postoperative anemia after LAPPG when compared to LADG **with Billroth II anastomosis**.

**The conclusion should reflect the aim of this study.**

Reply> Thank you for your valuable comment, and we agree with you. The conclusion was revised as follows

Abstract, conclusion

LAPPG could be a treatment option for middle third early gastric cancer according to the patient's needs and condition.

- LAPPG was beneficial to the recovery of postoperative anemia and bile reflux, however, it might be unfavorable in terms of long-term pain and reflux symptoms compared to LADG with Billroth II anastomosis.

Core tip:

LAPPG are beneficial to the recovery of postoperative anemia and physical function, but with greater pain and reflux symptoms. Therefore, LAPPG could be a treatment option for middle third early gastric cancer according to the patient's needs and condition.

- LAPPG is beneficial to recovery of postoperative anemia and bile reflux, however, it might be unfavorable in terms of long-term pain and reflux symptoms compared to LADG with Billroth II anastomosis.

Page 16, line 11-15

In conclusion, LAPPG could be a treatment option for middle third early gastric cancer according to the patient's needs and condition.

- In conclusion, LAPPG was beneficial to the recovery of postoperative anemia and bile reflux, however, it might be unfavorable in terms of long-term pain and reflux symptoms compared to LADG with Billroth II anastomosis. When a physician informs all possible advantages and disadvantages to a patient, and the patient wants to undergo LAPPG, LAPPG could be a treatment option for middle third early gastric cancer.

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**Reviewer #2>**

**OCID number - ORCID is right.**

Reply> Thank you for your comment, and we revised as ORCID in Title page.

**according to the patient's needs and condition (Abstract, Core tip and Discussion) - this phrase is unclear. I recommend to improve it.**

Reply> Thank you for your valuable comment and we agree that the phrase is unclear. The conclusion was revised as follows according to the word limitation of guideline.

Abstract, conclusion

LAPPG could be a treatment option for middle third early gastric cancer according to the patient's needs and condition.

➔ LAPPG is beneficial to recovery of postoperative anemia and to bile reflux, however, it might be unfavorable in terms of pain and reflux symptoms compared to LADG with Billroth II anastomosis.

Core tip:

LAPPG are beneficial to the recovery of postoperative anemia and physical function, but with greater pain and reflux symptoms. Therefore, LAPPG could be a treatment option for middle third early gastric cancer according to the patient's needs and condition.

➔ LAPPG is beneficial to the recovery of postoperative anemia and bile reflux, however, it might be unfavorable in terms of long-term pain and reflux symptoms compared to LADG with Billroth II anastomosis.

Page 16, line 11-15

In conclusion, LAPPG could be a treatment option for middle third early gastric cancer according to the patient's needs and condition.

➔ In conclusion, LAPPG was beneficial to the recovery of postoperative anemia and bile reflux, however, it might be unfavorable in terms of long-term pain and reflux symptoms compared with LADG with Billroth II anastomosis. When a physician informs all possible advantages and disadvantages to a patient, and the patient wants to undergo LAPPG, LAPPG could be a treatment option for middle third early gastric cancer.

**An esophagogastroduodenoscopy was performed annually, and the patient was evaluated for the presence of bile reflux and the grade of residual food according to the following criteria; no food residue, liquid only, soft diet residue, and nearly normal diet residue). - Page 9. The bracket at the end of the sentence should be removed.**

Reply> Thank you for your comment, and it was our mistake. We removed the bracket in Page 9, line 5.

**ranging from 2 to 5 years postoperation. - Page 9 and many times later (e.g., three times on Page 12) - postoperatively is better.**

Reply> Thank you for your comment. According to your comment, we revised 'postoperation' as 'postoperatively' as follows.

Page 9, line 17

The period between surgery and the day that the questionnaire was administered varied, ranging from 2 to 5 years postoperation.

- ➔ The period between surgery and the day that the questionnaire was administered varied, ranging from 2 to 5 years **postoperatively**.

Page 12, line 6

Serum protein decreased after surgery but increased after 1~2 years postoperation in both groups.

- ➔ Serum protein decreased after surgery but increased after 1~2 years **postoperatively** in both groups

Page 12, line 18-19

In the LAPPG group, 65% of patients had a nearly normal diet residue at 1 year postoperation, and the proportion decreased slightly to 45% at 5 years postoperation.

- ➔ In the LAPPG group, 65% of patients had a nearly normal diet residue at 1 year **postoperatively**, and the proportion decreased slightly to 45% at 5 years **postoperatively**.

**smaller decreased in gastrin levels - Page 15 - decrease is right.**

Reply> Thank you for your comment. We replaced ‘decreased’ with ‘decrease’

Page 15, line 2

with a smaller decreased in gastrin levels → with a smaller **decrease** in gastrin levels

**hemoglobin levels might be associated with the lower functional scores (Page 15) - I think this phrase is wrong. It will be changed to "the lower functional scores might be associated with the lower hemoglobin levels".**

Reply> Thank you for your comment. According to your comment, we revised the phrase as follows.

Page 15, line 10-11

hemoglobin levels might be associated with the lower functional scores.

→ the lower functional scores might be associated with the lower hemoglobin levels

**blood loos (Table 1) - loss is right.**

Reply> Thank you for your comment. We replaced ‘loos’ with ‘**loss**’



**OoL (Table 3) - QoL is right.**

Reply> Thank you for your comment. We replaced 'OoL' with 'QoL'

**Dysphasia (Table 3) - maybe dysphagia??**

Reply> Thank you for your comment. We replaced 'Dysphasia' with 'Dysphagia'

**The references should be constructed in strict accordance to the Instruction for Authors and should be uniform. E.g., the Titles of Journals will be presented with word capitalizations (as in PubMed). To be corrected.**

Reply> Thank you for your comment. We revised all references accordance to the Instruction for Authors.