

## Response to the reviewer

The major corrections are shown in a separate file in which the revisions are marked in red text, in addition to the revised manuscript.

To Reviewer #1

I would like to thank you for reviewing our article and for your kind comments.

1. As the title mentioned that the study object were EGC patients, the inclusion criteria for patients' selection should be the definition of EGC patients.

Response #1: Thank you for pointing this out. This study was designed to verify the oncological safety of SNNS. A nation-wide prospective study is currently undergoing in Japan. We tried to predict the results of that study in a retrospective manner using our own data. For the purpose of replicating the prospective trials, the patient selection criteria should be based on preoperative diagnostic data rather than the final pathological data. Preoperative diagnosis of early gastric cancer is difficult and sometimes includes lesions that are eventually shown to be T2 or deeper at the final diagnosis. Considering the difficulty of preoperative diagnosis of T1, we considered the indication for SNNS to be gastric cancer of superficial type (type 0), which is <5 cm in size. Most type 0 gastric cancers are T1, although some may be deeper. In the past, a type 0 advanced gastric cancer has been referred to as “advanced gastric cancer simulating early cancer.” It is widely known that its oncological characteristics are completely different from those of Borrmann-type advanced cancer, and that it has a favorable prognosis similar to that of early cancer. For these reasons, this study included a small number of gastric cancers that were initially considered type 0 but were eventually shown to be T2 or deeper. These are lesions that are identified as advanced gastric cancer in the postoperative permanent specimens. Therefore, we have changed the title from “early gastric cancer” to “early-stage gastric cancer,” as the previous title was certainly misleading.

Title: Life prognosis of sentinel node navigation surgery for early-stage gastric cancer: Outcome of lymphatic basin dissection

We have also added the following passage in the Background section:

A prospective nation-wide study is currently undergoing in Japan to verify the oncological safety of the tailor-made surgical strategy guided by sentinel node navigation. However, it is not a comparative study, and a control group has not been set due to difficulty in clinical circumference. In contrast,

standard surgery performed at our facility complies with the Japanese guidelines has been performed as the routine medical treatment simultaneously and in parallel with the clinical trial of SNNS by the first author, which made it possible for us to compare the prognoses retrospectively. Therefore, we conducted this retrospective comparative study on patients who underwent SNNS and those who underwent the standard surgery performed as per the guidelines. The sentinel node biopsy is a diagnostic method for lymph node metastasis, and its applicability is determined based on the preoperative findings. To reproduce the findings of the prospective study, we selected patients with preoperative findings that were the same as those with indications for SNNS, and verified them using propensity score matching.

2. This was a retrospective study, while the patients were included according to preoperative evaluated T stage(1-2), some of which might be pathologically diagnosed as T3 or T4 after surgery, which may impact the results.

Response #2: Sentinel node biopsy is a type of diagnostic method for lymph node metastasis, and its applicability is determined based on the preoperative findings. It is not performed once the final pathological diagnosis has been determined. Therefore, the safety of SNNS should be verified for all patients undergoing SNNS based on a specific preoperative diagnosis; if the safety is not guaranteed even after diagnosis of pT3 or deeper tumors, it cannot be concluded that it is safe for clinical application. In this study, the patients included in both the SNNS group and the control group had the same preoperative diagnosis, and both groups included the same proportions of T2 and T3 tumors. Therefore, we do not think that the patients with tumors deeper than T2, which are unavoidably mixed, had a significant influence on the comparison of the prognosis.

3. The surgical procedure of controlled group should be clearly stated and the stratification analysis is suggested to evaluate the oncological safety of different type of gastrectomy.

Response #3: The treatment details of the control group and the SNNS group are described in detail in the Table. We have also included them in the text. We have rewritten the “*Characteristics of the patients*” subsection in the Results:

In the control group, 67.6% of the patients underwent standard surgery (TG, 5.4%; DG, 62.2%), and 26.7% of patients underwent guidelines-modified gastrectomy (PG, 12.1%; PPG, 14.6%). In contrast, only 18.4% of the patients in the SNNS group underwent standard surgery, 14.2% underwent modified gastrectomy, and 67.4% underwent function-preserving curative gastrectomy (SG, 35.1%; MDG,

13.8%; MPG, 2.5%; LR, 15.9%), in which the extent of resection was reduced further than that recommended by the guidelines.

Since the purpose of this study was to evaluate the non-inferiority of SNNS, which is a tailor-made therapy, we compared the life prognosis between the two study groups, and not that in each surgical procedure, because the distribution of the procedures was very different and the number of patients in each procedure was not very large, making statistical comparison difficult.