



Real value of restaging laparoscopy for gastric cancer after preoperative therapy

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Comment on: Thiels CA, Ikoma N, Fournier K, *et al.* Repeat staging laparoscopy for gastric cancer after preoperative therapy. *J Surg Oncol* 2018;118:61-7.

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We have read the article entitled “*Repeat staging laparoscopy for gastric cancer after preoperative therapy*” (1) by Thiels *et al.* published in *Journal of Surgical Oncology*. We would like to congratulate the authors for this successful article, and make some comments.

In this study, they retrospectively examined peritoneal metastasis in gastric cancer patients who received neoadjuvant treatment after the first negative laparoscopy to show the significance of repeat staging laparoscopy after neoadjuvant treatment. In addition, they sought to identify factors associated with positive findings at the 2nd exploration. Of the 451 patients with attempted resection, 54 (12.0%) had positive explorations. Multivariate analysis revealed that positive explorations were independently associated with poor differentiation and linitis. Based on these results, they concluded that routine diagnostic laparoscopy at the time of definitive resection in patients with gastric cancer who received preoperative treatment may be useful to prevent non-therapeutic laparotomy. Although this study was driven by the well-formulated research question whether repeat staging laparoscopy after neoadjuvant treatment for gastric cancer was clinically significant, readers should be careful in assuming that staging laparoscopy is useful to find occult progressive diseases during preoperative treatment.

Irino *et al.* reported a false negative ratio of 10.6% in staging laparoscopy in gastric cancer patients (2). They performed staging laparoscopy in 156 patients and found 74 positive findings (peritoneal dissemination or positive cytology). Among the 82 patients without apparent peritoneal disease, 66 underwent laparotomy without

any preoperative treatment, and 7 of them were found to have peritoneal disease at the time of laparotomy, which corresponded to a false negative rate of 10.6% (7/66). In other words, staging laparoscopy is an inherently incomplete examination and repeated staging laparoscopy may newly detect peritoneal disease which may have been overlooked in the initial staging laparoscopy regardless of preoperative treatment. Furthermore, the question then arises, “*Can peritoneal dissemination or floating cancer cells in the abdominal cavity which were possibly overlooked at the initial laparoscopy be found by repeating laparoscopy?*” Staging laparoscopy is not necessarily the most suitable examination tool to detect peritoneal disseminations. Limited number of trocars and limitation on the use of energy device prevent surgeons from exploring entire abdominal cavity such as the omental bursa and the mesentery in detail. The high false negative ratio reported by Irino *et al.* has shown the difficulty and uncertainty of staging laparoscopy (2).

In fact, in the study by Thiels *et al.*, 54 patients had eventually positive peritoneal disease, 24 of whom underwent 2nd diagnostic laparoscopy, and 11 of them went on to open exploration due to inconclusive/inaccurate diagnostic procedure: inability to complete the operation laparoscopically (n=3), negative laparoscopic exploration followed by identification of peritoneal disease on laparotomy (n=5), and a biopsy of a suspicious lesion that was negative on frozen pathology but positive on final pathology after definitive resection (n=3). In other words, only 13 of the 24 patients benefited from repeat diagnostic laparoscopy, and if all the 54 patients with positive exploration had undergone repeat staging laparoscopy,

the number of patients who might have benefited from repeated laparoscopy would be estimated to be 29. Therefore, only 6.4% (29/451) of the patients may benefit from repeat staging laparoscopy, which is even lower than their estimation. Although it's impossible to distinguish overlooked disease in the initial staging laparoscopy from progressed disease during preoperative therapy when peritoneal disease is newly detected in repeated laparoscopy, at least, all the second exploration after preoperative treatment should be done by laparoscopy to show the efficacy of repeated staging laparoscopy after preoperative treatment.

Their multivariate analysis revealed that poor histological differentiation and linitis were independent risks of positive findings in the 2nd explorations. This suggests that the abdominal cavity should be thoroughly explored in patients with those risk factors regardless of laparoscopic or laparotomy before resection.

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2. Irino T, Sano T, Hiki N, et al. Diagnostic staging laparoscopy in gastric cancer: a prospective cohort at a cancer institute in Japan. *Surg Endosc* 2018;32:268-75.