



Laparoscopy-assisted nonexposed endoscopic full-thickness resection for local resection after endoscopic submucosal dissection

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INTRODUCTION

Conventional endoscopic full-thickness resection (EFTR) for gastric epithelial tumors is associated with a risk of peritoneal contamination.¹ To circumvent this problem, multiple nonexposed EFTR techniques have been developed.¹ Nonexposed endoscopic wall inversion surgery (NEWS) is a type of laparoscopy-assisted nonexposed EFTR technique that has been reported predominantly in the management of gastric subepithelial tumors.^{2,3} We report the use of this technique in the local resection of a microscopic residual tumor in a patient who underwent endoscopic submucosal dissection (ESD) for early gastric cancer.

CASE

An 83-year-old man with comorbidities in the form of coronary artery disease, chronic heart failure, and sick sinus syndrome required an ESD for resection of early gastric cancer. The pathology report of the resected specimen showed positive vertical margins, with deep submucosal invasion (2500 μm). A multidisciplinary assessment was performed, and a decision was made to choose the least invasive strategy for further management in light of severe comorbidities. The option of laparoscopy-assisted EFTR with NEWS technique was chosen.

Abbreviations: EFTR, endoscopic full-thickness resection; ESD, endoscopic submucosal dissection; NEWS, nonexposed endoscopic wall inversion surgery.

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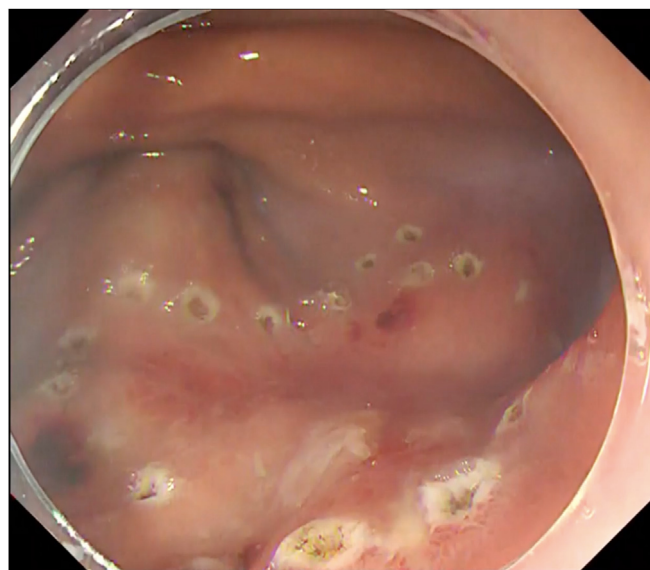


Figure 1. The post-endoscopic submucosal dissection scar after marking.

PROCEDURE AND OUTCOMES

We completed full-thickness resection of the ESD scar in this patient successfully with laparoscopic assistance using the NEWS technique (Video 1, available online at www.videogie.org). The technique started with laparoscopy followed by endoscopic marking of the site planned for resection (Fig. 1). After communication of the margins from the endoscopy side to the laparoscopy side by probing and transillumination, the margins were sutured from the laparoscopy side (Fig. 2). This produced an inversion of the gastric wall at the site, into the lumen of the stomach (Fig. 3). The next step involved submucosal injection, which was followed by mucosal incision and transmural dissection. Figure 4 is a schematic diagram describing the procedure (Fig. 4). As sutures became visible endoscopically, we relied on a hook-and-cut strategy to avoid injury to the sutures. Dissection was continued until full resection was achieved. This was followed by closure from the endoscopy side as well as reinforcement from the laparoscopy side, to complete the procedure.

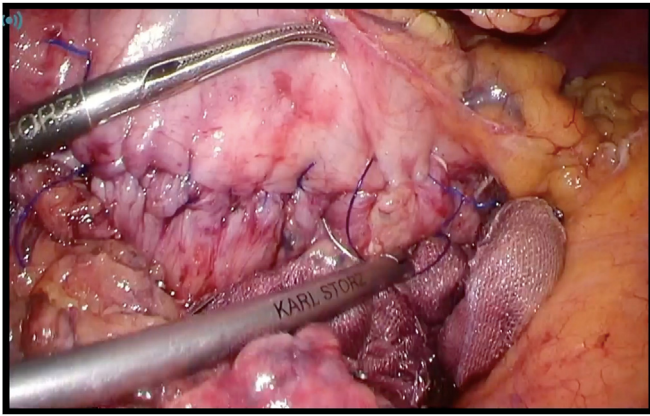


Figure 2. Laparoscopic suturing at the serosal side along the margins of the scar.

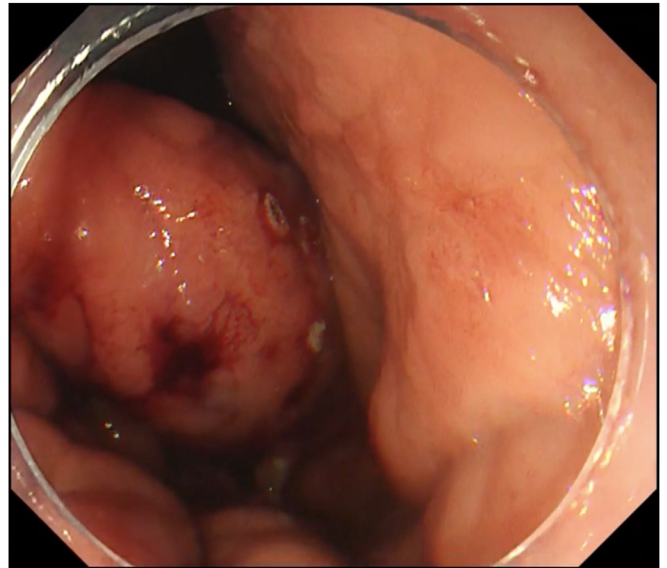


Figure 3. Endoscopic view of the inverted portion of the gastric wall.

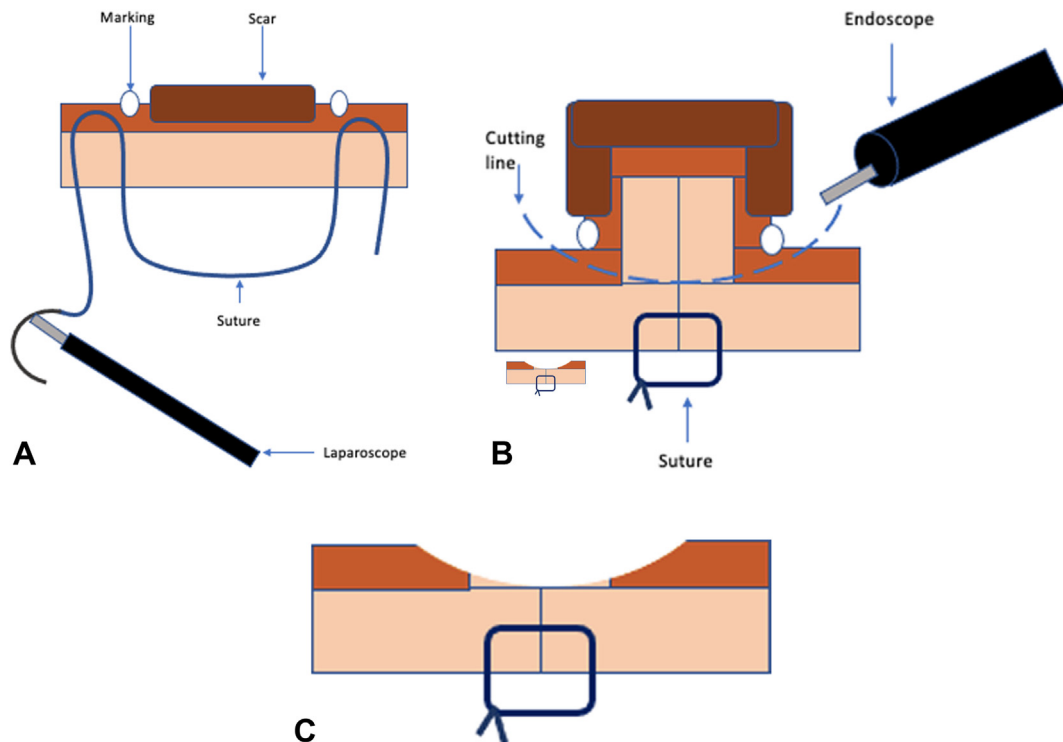


Figure 4. Schematic diagram describing the procedure. **A,** Laparoscopic suturing. **B,** Endoscopic dissection of the inverted portion of the gastric wall. **C,** Defect after resection.

There were no unplanned intraoperative events. There were no immediate or delayed postoperative adverse events. The patient was started on a liquid diet on the second postoperative day. He was discharged after a planned hos-

pital stay of 12 days and required no readmissions until 6 months after the procedure. The resected specimen showed no evidence of residual tumor, and the patient is being followed.

DISCUSSION

The utility of EFTR in the management of gastric cancers is limited owing to the risk of peritoneal contamination. However, in this case, we describe the utility of the NEWS technique for circumventing this risk.

The use of laparoscopic sutures outside the margins of the lesions serves the purpose of preventing peritoneal contamination, while at the same time allowing the endoscopist to inflate and deflate the stomach adequately, thereby facilitating safe and effective endoscopic resection. The technique of NEWS previously described involves the laparoscopic placement of a spacer² between the gastric wall before suturing, to provide countertraction as well as to protect the sutures during transmural dissection.⁴ However, we used a hook-and-cut strategy that eliminates the need for a spacer. The use of a spacer has the potential to increase procedure time as well as the size of the gastric wall that is inverted into the stomach via laparoscopic suturing.

We demonstrate here the successful completion of local resection of gastric cancer in a minimally invasive way, with

the NEWS technique. Our modification of the NEWS technique by use of a hook-and-cut strategy could possibly eliminate the need for a spacer.

DISCLOSURE

The authors disclosed no financial relationships relevant to this publication.

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