



Endoscopic submucosal tunnel dissection with ring-thread countertraction for a large gastric tumor with extensive severe fibrosis

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Various methods of traction have been reported for gastric endoscopic submucosal dissection (ESD). We report a successful case in which a new traction method combining a tunnel and a ring-thread counter traction was effective.

The patient was a 78-year-old man with early gastric cancer; an 85-mm tumor was located at the lesser curvature of the upper gastric body (Fig. 1). The macroscopic type was 0-IIa, and there were no obvious findings of suspected submucosal invasive carcinoma, such as irregular protrusion, surface depression, and nonextension sign. Multiple ulcer scars were found on the anterior and posterior sides of the lesion. The histological type from the biopsy was well-differentiated tubular adenocarcinoma.

The ESD was performed using a single-channel endoscope (GIF-Q260J; Olympus Co, Tokyo, Japan). The tumor resection devices used were the DualKnife (KD-650L, Olympus Co) and the ITknife2 (KD-611L, Olympus Co), and the solution for local injection was a mixture of 0.4% sodium hyaluronate and indigo carmine with diluted epinephrine. First, we made a circumferential incision; next we created the submucosal tunnel from the oral side to the anal side (Figs. 2 and 3). By creating the

tunnel, the dissection line was clear in the fibrosis part of the anterior side, but we could not approach the posterior side because the fibrosis area was extensive.

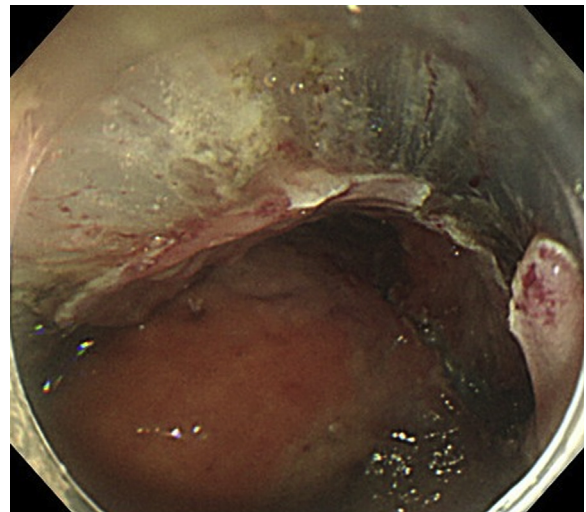


Figure 2. First, we made a mucosal incision in the anal side, and the incision was extended to create a circumferential incision.

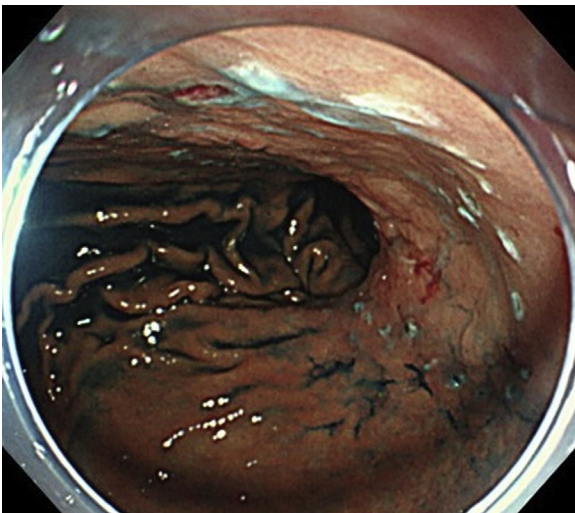


Figure 1. Endoscopic view of the lesion at the lesser curvature of the upper body. The lesion was 85 mm in size.

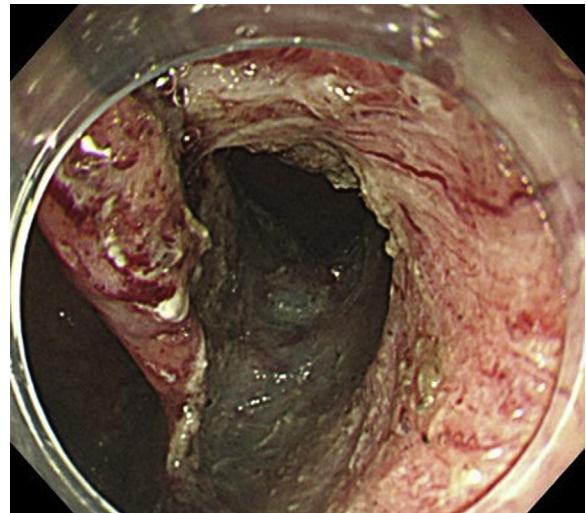


Figure 3. The submucosal tunnel was created from the oral side to the anal side.

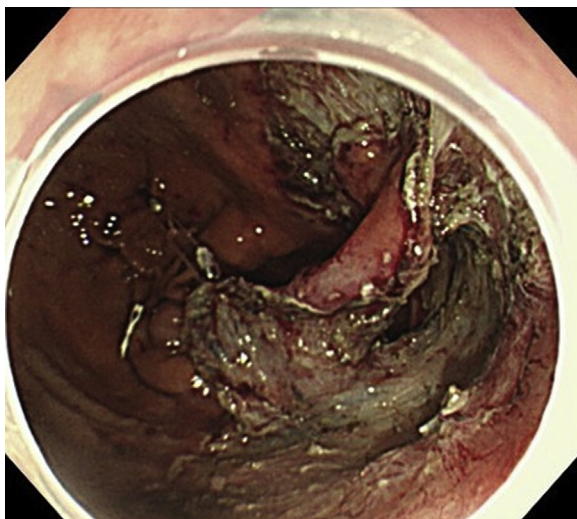


Figure 4. The ring-shaped thread was attached to connect the oral side of the lesion to the greater curvature side of the stomach.

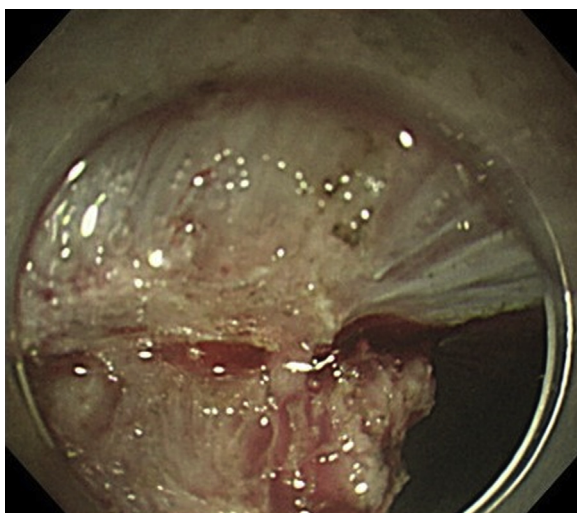


Figure 5. Severe fibrosis area in the side of the tunnel, in which the dissection line became clearer after attaching the ring-shaped thread.

Therefore, we attached a ring-shaped thread (made of floss) with 2 endoclips to connect the oral side of the lesion to the greater curvature side (Fig. 4). In this case, the diameter of the ring was about 10 mm, and it was used to pull the lesion at the lesser curvature side of the stomach to the greater curvature side. The thread provided good traction for the fibrosis area and thus allowed us to perform submucosal dissection of the side of the tunnel (Fig. 5). Finally, the lesion was completely resected en bloc without any adverse events. The lesion was 85 x 60 mm in size, and histological examination revealed it to be well-differentiated intramucosal carcinoma, with no lymphovascular invasion. All of the margins were tumor-free (Fig. 6).

For difficult lesions, it has been a problem to provide the traction to secure a good view in ESD. The effectiveness of

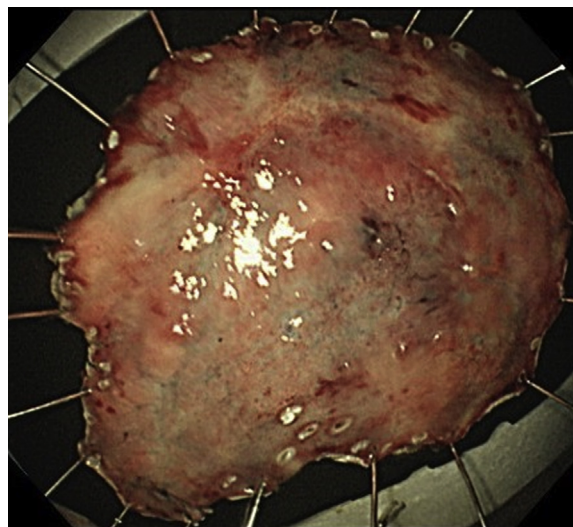


Figure 6. The opened specimen revealed intramucosal carcinoma and negative margins; the lesion was 85 × 60 mm in size.

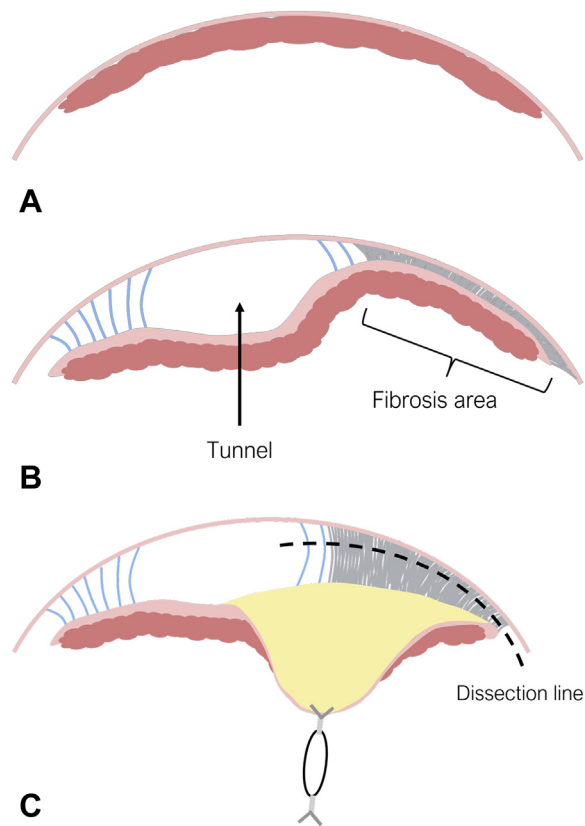


Figure 7. Schema of endoscopic submucosal tunnel dissection with ring-thread countertraction. **A**, A large lesion covered the lesser curvature of the stomach. **B**, Although the submucosal tunnel was created from the oral side to the anal side, we could not approach the posterior side because of the extensive fibrosis. **C**, The ring-thread counter traction provided a good view to approach the fibrosis area.

endoscopic submucosal tunnel dissection (ESTD) has been reported as a good method for providing traction.^{1,2} However, ESTD alone did not provide enough traction in

this case because of the lesion size and extensive severe fibrosis. In such a situation, combined use of traction by using ring-thread counter traction was effective (Fig. 7).

Several techniques, such as “clip and snare” and “internal traction method,” which have been reported previously, were effective traction methods using similar devices.^{3,4} However, those methods may require the assistant’s habituation or reinsertion of the endoscope, may have limited traction direction, or may not be suitable for large lesions. This method is considered to be simple and inexpensive, it does not require another assistant, it is suitable for large lesions, and it allows the operator to decide the direction of traction depending on the clip position. Based on this case, ESTD with ring-thread counter traction may be effective for large gastric tumors with extensive severe fibrosis (Video 1, available online at www.VideoGIE.org).

DISCLOSURE

All authors disclosed no financial relationships relevant to this article.

Abbreviations: ESD, endoscopic submucosal dissection; ESTD, endoscopic submucosal tunnel dissection.

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