



Successful endoscopic full-thickness resection of an exophytic subepithelial lesion with double scope traction technique

Yuto Shimamura, MD, Mayo Tanabe, MD, Mary Raina Angeli Fujiyoshi, MD, Kaori Owada, MD, Haruhiro Inoue, MD, PhD

Endoscopic resection of an exophytic subepithelial lesion (SEL) in the stomach is challenging. Exophytic lesions are more amenable to surgical resection and are a relative contraindication for endoscopic resection. However, endoscopic resection of gastric SELs is now technically feasible with advancements in endoscopic techniques, such as peroral endoscopic tumor resection,¹ endoscopic subserosal dissection,² and endoscopic full-thickness resection.³ Secure closure of gastrointestinal (GI) wall defects is another technical challenge. Herein, we describe a case of successful endoscopic resection of an exophytic gastric SEL using a double scope traction technique, and a novel endoscopic purse-string “Loop 9” suturing method was applied for the closure.⁴

A 65-year-old woman was referred to our institution for endoscopic resection of a gastric SEL (Fig. 1). An abdominal CT scan showed an exophytic lesion arising from the lesser curvature. Tissue was obtained by EUS fine-needle biopsy, which revealed findings compatible with Gastrointestinal stromal tumor (GIST). After an extensive discussion of risk versus benefit with the patient and obtaining written consent, we opted to proceed with endoscopic resection.

The mucosal opening was created with a Triangle Tip J knife (KD-645L; Olympus Corp, Tokyo, Japan). After partial

mucosal incision, the assistant endoscopist cautiously inserted a second gastroscope (GIF-H290; Olympus: diameter of 8.9 mm) alongside the therapeutic scope (GIF-290T; Olympus) with sufficient lubricant to avoid esophageal trauma. A snare (SD-210L-25; Olympus) was advanced through the second gastroscope and was used to grasp the tumor (Fig. 2). The tumor was pulled into the gastric lumen, and the assistant endoscopist controlled effective traction while the main endoscopist continued dissection safely and effectively with the Triangle Tip J knife and IT-nano knife (KD-612; Olympus) (Fig. 3). There was no interference with the maneuverability of the main therapeutic scope. The direction of the traction was adjusted by the second scope to sustain the ideal traction (Fig. 4). Full-thickness resection was required to complete the procedure (Fig. 5), and we opted to close the defect with our previously reported “Loop 9” closure technique.

A 4-0 absorbable monofilament surgical suture (PDS-II; Ethicon Endo Surgery, Cincinnati, OH, USA) with a slip knot was created beforehand. The suture was grabbed with biopsy forceps (FB-231K; Olympus) and stored in the sheath. The first step of the closure was to release the loop in the stomach. Next, the first clip was deployed to anchor the edge of the defect, and the second clip then was

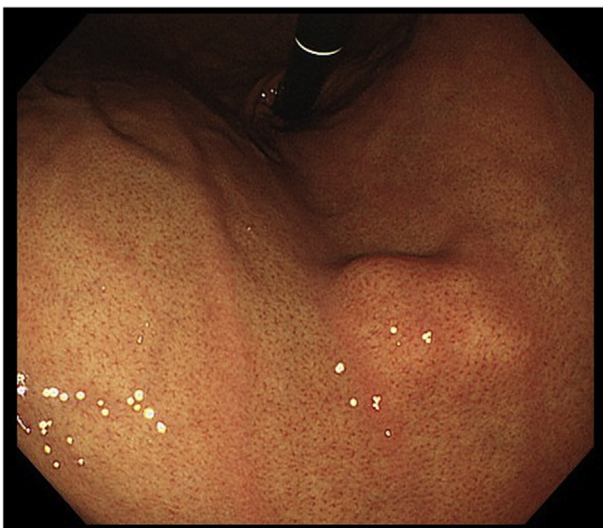


Figure 1. Endoscopic appearance of gastric subepithelial tumor.

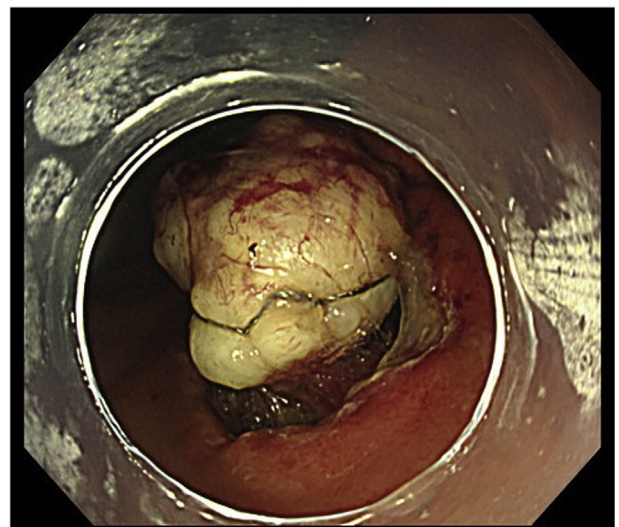


Figure 2. Snare traction was applied to give good traction in round tumors.

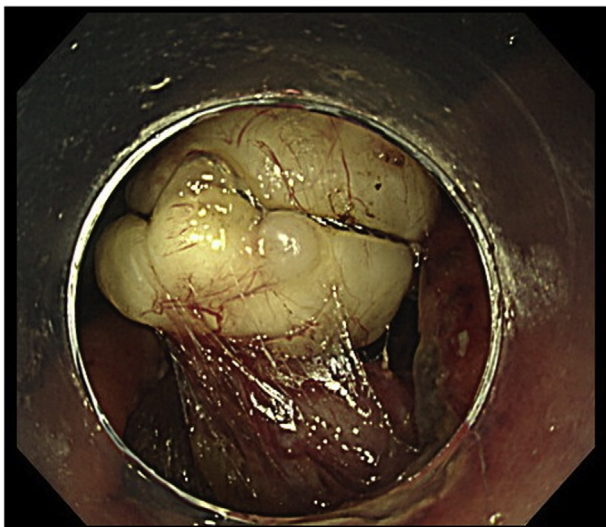


Figure 3. The tumor was pulled into the gastric lumen and effective traction was controlled by the assistant operator.

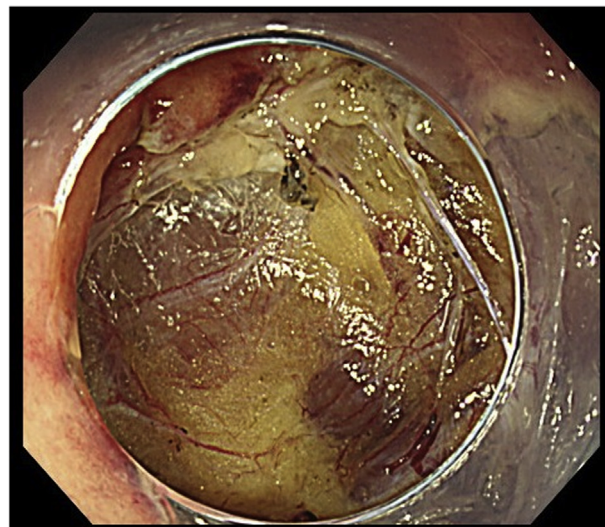


Figure 5. After complete tumor resection.

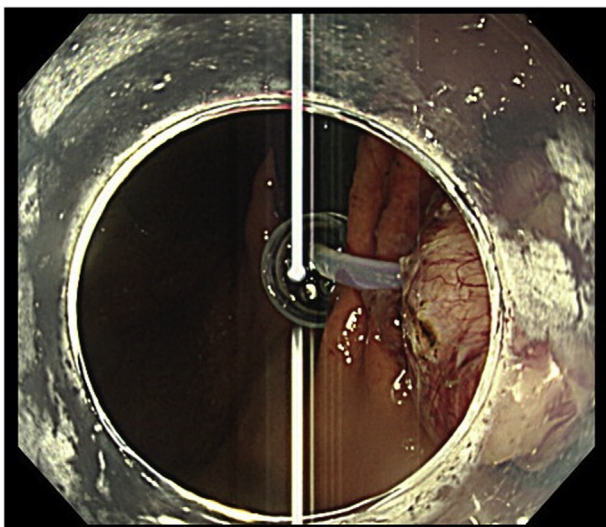


Figure 4. The direction of the traction was continuously adjusted by the second scope to sustain the ideal traction.

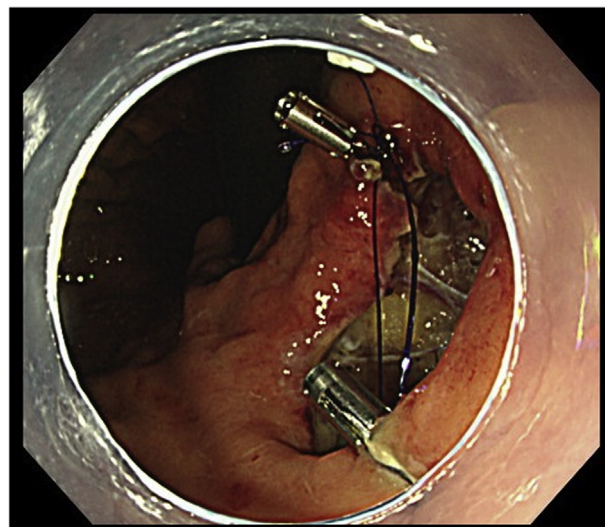


Figure 6. The first clip was deployed to anchor the edge of the defect, and thereafter the second clip was deployed to the contralateral side.

deployed to the contralateral side (Fig. 6). By grabbing and pulling the tail of the loop and pushing the sheath with the biopsy forceps, the knot was tightly tied to approximate the edges (Fig. 7). Additional clips were placed to achieve complete closure (Fig. 8). No adverse events were encountered during the procedure, and the clinical course after the procedure was uneventful. The final histology revealed GIST on immunohistochemistry staining, and negative margins were confirmed.

The main advantages of using the double scope traction technique are as follows: (1) Snare traction is beneficial to give good traction in round tumors, especially in cases of

extraluminal growth, and 2) by use of the second scope, the snare can be placed in an optimal position under direct visualization. Traction in any direction can be achieved by maneuvering the second scope.

Our case demonstrated the double scope traction technique, which was successfully applied to resect an exophytic SEL of the stomach. This technique may expand the endoscopic approach to these challenging lesions. In addition, the “Loop 9” closure technique is an option for closing the defect created during endoscopic full-thickness resection (Video 1, available online at www.giejournal.org).

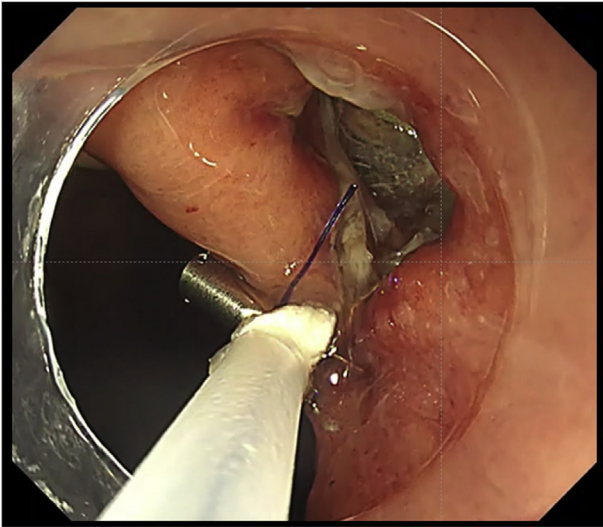


Figure 7. By grabbing and pulling the tail of the loop and pushing the sheath with the biopsy forceps, the knot was tightly tied to approximate the edges.

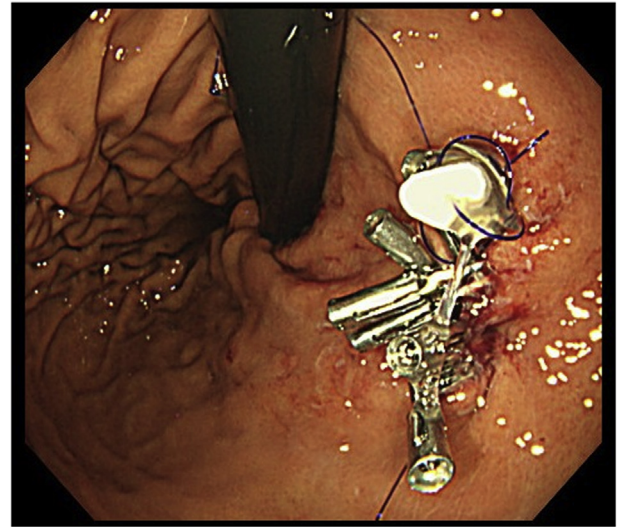


Figure 8. After achieving complete closure.

DISCLOSURE

Dr Inoue is an advisor for Olympus Corporation and Top Corporation and has an educational grant from Olympus Corporation and Takeda Pharmaceutical Company. All other authors disclosed no financial relationships.

Abbreviation: GI, gastrointestinal; GIST, gastrointestinal stromal tumor; SEL, subepithelial lesion.

REFERENCES

1. Onimaru M, Inoue H, Bechara R, et al. Clinical outcomes of per-oral endoscopic tumor resection for submucosal tumors in the esophagus and gastric cardia. *Dig Endosc* 2020;32:328-36.

2. Liu F, Zhang S, Ren W, et al. The fourth space surgery: endoscopic subserosal dissection for upper gastrointestinal subepithelial tumors originating from the muscularis propria layer. *Surg Endosc* 2018;32:2575-82.
3. Antonino G, Alberto M, Michele A, et al. Efficacy and safety of gastric exposed endoscopic full-thickness resection without laparoscopic assistance: a systematic review. *Endosc Int Open* 2020;8:E1173-82.
4. Inoue H, Tanabe M, Shimamura Y, et al. A novel endoscopic purse-string suture technique, "loop 9," for gastrointestinal defect closure: a pilot study. *Endoscopy* 2022;54:158-62.

Digestive Diseases Center, Showa University Koto Toyosu Hospital, Tokyo, Japan.

Copyright © 2022 American Society for Gastrointestinal Endoscopy. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

<https://doi.org/10.1016/j.vgie.2022.02.013>