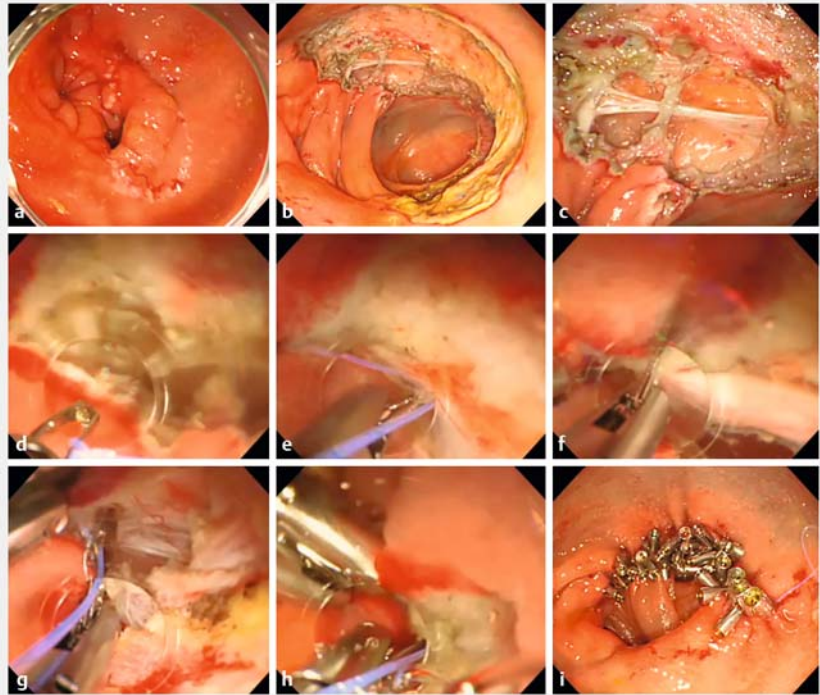


Closure of full-thickness perforation following endoscopic submucosal dissection of a gastric tumor near an anastomosis, using the reopenable clip-over-line method

Early gastric tumors can be completely resected using endoscopic submucosal dissection (ESD). However, ESD is challenging for tumors located above a gastric anastomosis, and intraoperative perforation can create difficulty [1]. We have developed a closure technique using reopenable clips with a hole in one jaw (or “arm”) of the clip (Sureclip 8 mm; Micro-Tech, China) and a line (nylon, 0.22 mm) that allows complete closure of thick mucosa and muscle layers, such as those in the stomach. We have previously described the reopenable clip-over-line (RCOL) technique [2,3]. In this report, we present complete defect closure using the RCOL method after perforation during ESD at a gastric anastomosis.

A 74-year-old woman presented with an early gastric tumor at the anastomosis site of a Billroth II gastrectomy (► **Fig. 1**, ► **Video 1**). We performed a complete resection with ESD. The resected specimen size was approximately 50 mm, and a full-thickness defect of approximately 15 mm was observed on the jejunal side of the mucosal defect. We closed the defect using the RCOL method. A calibrated, small-caliber tip, transparent hood with a tip tapering to 4 mm was used for precise placement of the reopenable clips [4]. First, a line was tied to one jaw of a reopenable clip and this first clip was inserted through the accessory channel. The reopenable clip was then deployed to grasp both the mucosa and the muscle layer at the margin of the defect. Outside the patient, the other end of the line was pulled through the hole in a second reopenable clip. This second reopenable clip was then inserted through the accessory channel guided by the line passing through the hole in the jaw of the clip, and deployed similarly to the first clip. With traction applied to the line, several clips were successively slid along the line



► **Fig. 1** Closure of 15-mm full-thickness defect after endoscopic submucosal dissection (ESD) of a tumor above a gastric anastomosis site, using the reopenable clip-over-line (RCOL) method. **a** Early gastric tumor above the anastomosis site. **b** Mucosal defect after ESD. **c** Full-thickness defect as large as 15 mm caused during ESD. **d** A reopenable clip attached to a line was placed at the edge of the defect, grasping the mucosa and the adjacent muscle layer. **e** Outside the patient, the other end of the line had been passed through the hole in the jaw of a second reopenable clip, and this clip was then passed, guided by the line, through the accessory channel and placed on the defect. **f–h** Applying traction on the line, several clips were successively slid along the line through the channel and placed to gradually close the perforation. **i** Complete closure of the post-ESD full-thickness defect using the RCOL method.

through the channel and placed on the defect to gradually close the perforation. When the defect was completely closed, the line was fixed to the normal mucosa using the modified locking-clip technique [5] and then cut. The duration from the first clip placement to the last clip placement was 34 minutes, and 35 clips were used.

Endoscopy_UCTN_Code_TTT_1AQ_2AG

Competing interests

The authors declare that they have no conflict of interest.



Video 1 Closure of a full-thickness perforation defect following endoscopic submucosal dissection of a tumor at a gastric anastomosis, using the reopenable clip-over-line (RCOL) method.

The authors

Tatsuma Nomura^{1,2}, **Shinya Sugimoto¹**,
Hirohisa Hisada¹, **Jun Oyamada¹**, **Keiichi Ito²**,
Akira Kamei¹

- 1 Department of Gastroenterology, Ise Red Cross Hospital, Ise, Mie, Japan
- 2 Department of Gastroenterology, Mie Prefectural Shima Hospital, Shima, Mie, Japan

Corresponding author

Tatsuma Nomura, MD

Department of Gastroenterology, Ise Red Cross Hospital, 1-471-2 Funae, Ise, Mie 516-8512, Japan
m06076tn@icloud.com

References

- [1] Yabuuchi Y, Kakushima N, Takizawa K et al. Short- and long-term outcomes of endoscopic submucosal dissection for early gastric cancer in the remnant stomach after gastrectomy. *J Gastroenterol* 2019; 54: 511–520
- [2] Nomura T, Sugimoto S, Temma T et al. Reopenable clip-over-the-line method for closing large mucosal defects following gastric endoscopic submucosal dissection: A prospective feasibility study. *Dig Endosc* 2022. doi:10.1111/den.14466
- [3] Nomura T, Sugimoto S, Temma T et al. Clip-line closure with the reopenable clip over line method for a large mucosal defect after gastric endoscopic submucosal dissection. *Endoscopy* 2022; 54: E1–E2
- [4] Nomura T, Sugimoto S, Temma T et al. Mucosal defect closure using a calibrated, small-caliber-tip, transparent hood after colorectal endoscopic submucosal dissection. *Endoscopy* 2022; 54: E691–E692
- [5] Nomura T, Sugimoto S, Temma T et al. Suturing techniques with endoscopic clips and special devices after endoscopic resection. *Dig Endosc* 2022; 35: 287–301

Bibliography

Endoscopy 2023; 55: E769–E770

DOI 10.1055/a-2081-6986

ISSN 0013-726X

© 2023. The Author(s).

This is an open access article published by Thieme under the terms of the Creative Commons Attribution-NonDerivative-NonCommercial License, permitting copying and reproduction so long as the original work is given appropriate credit. Contents may not be used for commercial purposes, or adapted, remixed, transformed or built upon. (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)

Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany



ENDOSCOPY E-VIDEOS

<https://eref.thieme.de/e-videos>



E-Videos is an open access online section of the journal *Endoscopy*, reporting on interesting cases

and new techniques in gastroenterological endoscopy. All papers include a high-quality video and are published with a Creative Commons CC-BY license. *Endoscopy E-Videos* qualify for HINARI discounts and waivers and eligibility is automatically checked during the submission process. We grant 100% waivers to articles whose corresponding authors are based in Group A countries and 50% waivers to those who are based in Group B countries as classified by Research4Life (see: <https://www.research4life.org/access/eligibility/>).

This section has its own submission website at <https://mc.manuscriptcentral.com/e-videos>