

A Pitfall of Endoscopic String Clip Suturing

Satoshi Abiko, MD, PhD^{1,2}, Soichiro Oda, MD¹, Akimitsu Meno, MD¹, Akane Shido, MD¹, Sonoe Yoshida, MD¹, Ayumu Yoshikawa, MD, PhD¹, Kazuaki Harada, MD, PhD¹, Naoki Kawagishi, MD, PhD¹, Itsuki Sano, MD, PhD¹, Hisashi Oda, MD, PhD¹, and Takuto Miyagishima, MD, PhD¹

¹Department of Gastroenterology, Kushiro Rosai Hospital, Kushiro, Japan

²Department of Gastroenterology and Hepatology, Hakodate Municipal Hospital, Hakodate, Japan

Closing procedure-related ulcers reduce inflammation after colonic endoscopic submucosal dissection (ESD).¹ Various suture methods have been reported but are yet to be accepted because of their complexity and the need for expensive devices.² We report an unexpected problem experienced with the endoscopic string clip suturing (ESCS) method.³

A 50-year-old man with an 8-mm carcinoid tumor on the rectosigmoid was treated using ESD. Because this is the first time we used this method, we performed this method to the small post-ESD defect site. This defect site was 15 cm from the anal verge. If we do not perform this method, we will perform a normal way of defect closure with simple clip closure. Braided polyester (USP 3-0; Natsume Seisakusyo Co Ltd, Bunkyo-ku, Japan) was used as the suture thread. A total of 5 suture clips were used to close the site. The thread became caught between the blades of the loop cutter that was used during the procedure and could not be cut. The endoscope (GIF-Q260J; Olympus Optical, Tokyo, Japan) was removed via the anus, leaving the thread and loop cutter behind (Figure 1).

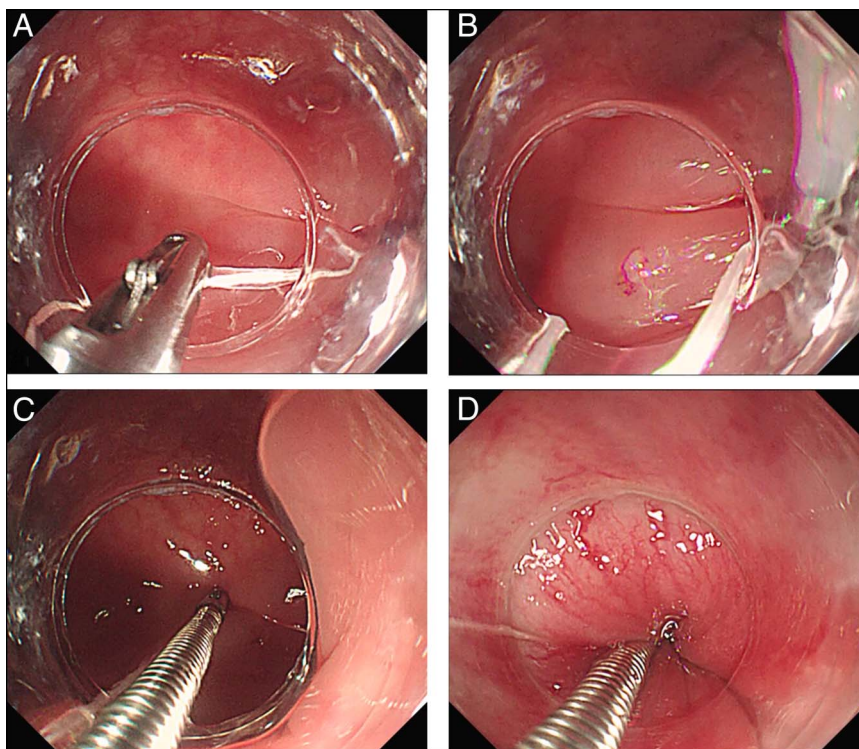


Figure 1. Figure showing unexpected problem experienced with the endoscopic string clip suturing method and the solution to the problem. (A and B) The suture thread became caught between the blades of the loop cutter that was used during the procedure and could not be cut. (C and D) The endoscope was removed via the anus, leaving the thread and loop cutter behind.

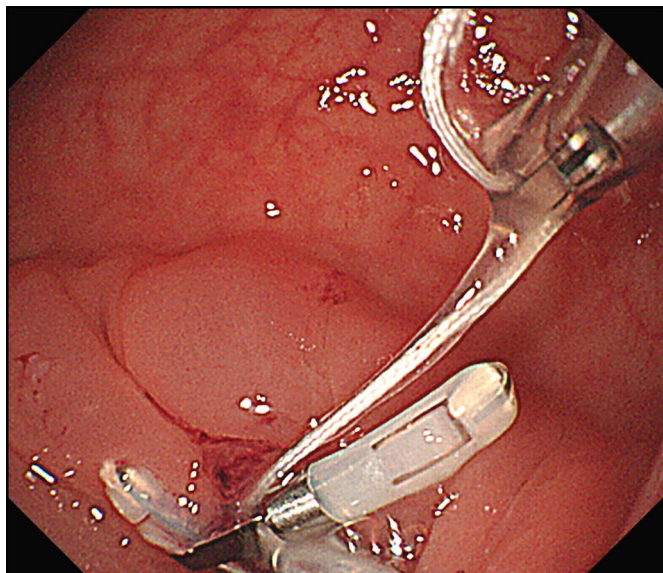


Figure 2. Figure showing the solution to the problem. Another endoscope was inserted through the anus, and the thread and loop cutter were seen.

Video 1. Video showing an unexpected problem experienced with the endoscopic string clip suturing method and the solution to the problem.

Another endoscope (GIF-Q260; Olympus Optical) was inserted through the anus, the thread was cut with a flash knife (We used a VIO 200D electrosurgical generator [ERBE Elektromedizin, GmbH, Tübingen, Germany, swift coagulation mode, Effect 4, 30 W].), and the procedure was completed without further complications (Video 1; watch the video at <http://links.lww.com/ACGCR/A24>) (Figure 2).

Line-assisted complete closure (LACC) is a suturing method similar to ESCS, but a PubMed search did not show any reports of patients for whom ESCS and LACC were difficult to complete.⁴ Problems that occur within the proximal colon as in this patient may be challenging to resolve. An attempt to cut the thread using the ESD knife was not successful because both the thread and knife were in the forceps opening. A nasal endoscope (about 5 mm) might be passed parallel to the current

scope (while it remained in place), but the nasal endoscope is not able to cut the suture with a flash knife. Loop cutters are great but can be difficult to use and can get stuck. It is essential to know that other options for cutting sutures exist, such as endoscopic scissors or the ESD knife. We should be aware of possible risks with this technique (ESCS and LACC). When we use ESCS, we should know the potential problems in performing ESCS.

DISCLOSURES

Author contributions: S. Abiko wrote the manuscript. S. Oda, A. Meno, A. Shido, S. Yoshida, A. Yoshikawa, K. Harada, N. Kawagishi, I. Sano, H.Oda, and T. Miyagishima edited the manuscript. S. Abiko is the article guarantor.

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REFERENCES

1. Zhang QS, Han B, Xu JH, Gao P, Shen YC. Clip closure of defect after endoscopic resection in patients with larger colorectal tumors decreased the adverse events. *Gastrointest Endosc.* 2015;82:904–9.
2. Akimoto T, Goto O, Nishizawa T, Yahagi N. Endoscopic closure after intraluminal surgery. *Dig Endosc.* 2017;29:547–58.
3. Yahagi N, Nishizawa T, Akimoto T, Ochiai Y, Goto O. New endoscopic suturing method: String clip suturing method. *Gastrointest Endosc.* 2016; 84:1064–5.
4. Yamasaki Y, Takeuchi Y, Uedo N, et al. Line-assisted complete closure of duodenal mucosal defects after underwater endoscopic mucosal resection. *Endoscopy.* 2017;49:E37–8.

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