



Endoscopic treatment of colonic diverticular bleeding with an over-the-scope clip after failure of endoscopic band ligation

Kenji Yamazaki, MD, PhD,¹ Akinori Maruta, MD, PhD,¹ Hiroki Taniguchi, MD,²
Kosuke Hasegawa, MD., PhD,² Masahito Shimizu, MD, PhD³

An 86-year-old woman with a history of hypertension and colonic diverticular bleeding (CDB) presented with severe hematochezia to a nearby medical institution. Contrast-enhanced CT identified extravasation in the sigmoid colon (Fig. 1). Emergency colonoscopy revealed an active diverticular hemorrhage in the sigmoid colon.

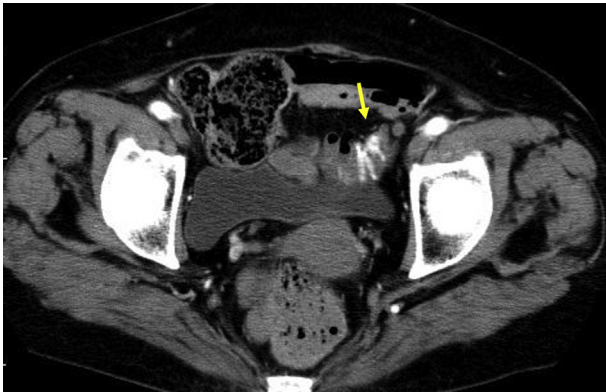


Figure 1. Contrast-enhanced CT showing extravasation in the sigmoid colon (arrow).

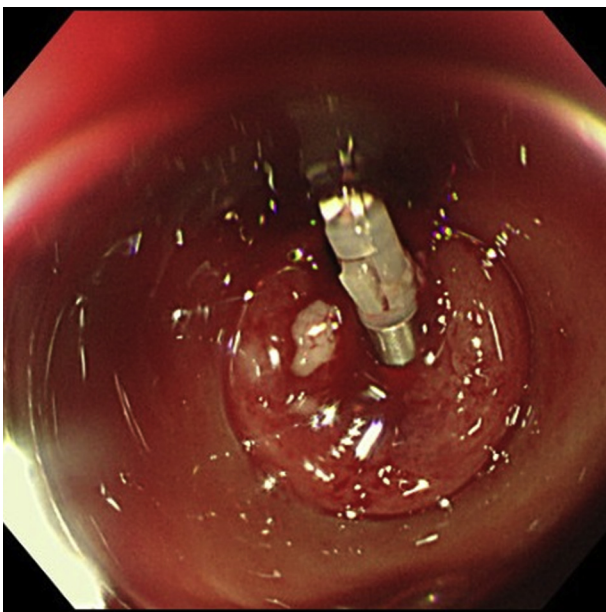


Figure 2. Endoscopic view showing active bleeding in the sigmoid colon where the previous clip was placed.

Although an endoclip was placed on the responsible diverticulum, active bleeding persisted. She was then referred to the emergency department of our hospital.

Another colonoscopy was urgently performed using a PCF-Q260AZI endoscope (Olympus, Tokyo, Japan). Active and sustained bleeding was visualized from the diverticulum in the sigmoid colon, where the previous clip was placed (Fig. 2). Initially, we decided to proceed with endoscopic band ligation (EBL). The endoscope was withdrawn and reinserted with a ligation device (MD-48910B EBL device; Sumitomo, Tokyo, Japan) (Video 1, available online at www.VideoGIE.org). The bleeding diverticulum was reidentified (Fig. 3). We attempted to suction the diverticulum with the ligation device; however, we were unable to sufficiently perform suction owing to the firmness of the diverticulum and could not ligate the diverticulum. During the attempt, the clip was unexpectedly dislodged from the diverticulum, and active bleeding continued (Fig. 4).

We decided to use an over-the-scope clip (OTSC; Ovesco Endoscopy, Tübingen, Germany). After the bleeding site was marked with an endoclip, the colonoscope was removed. The OTSC system was attached onto a GIF-

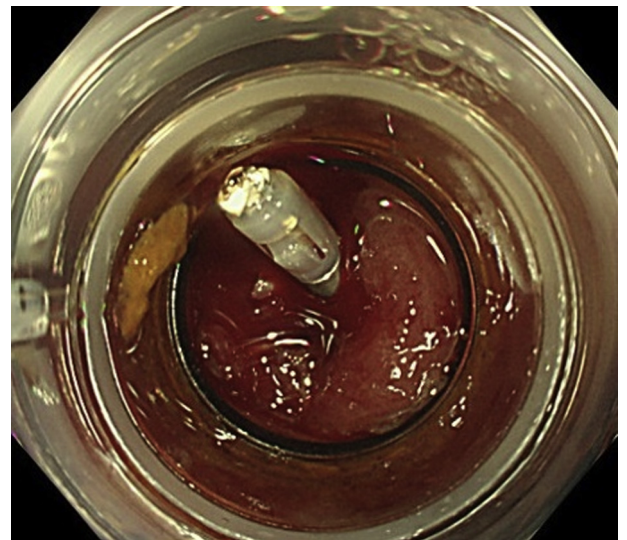


Figure 3. Endoscopic view showing the bleeding diverticulum reidentified after insertion with a ligation device.

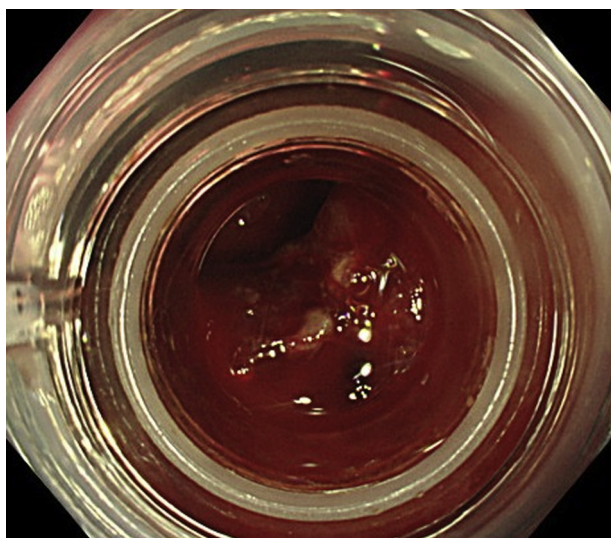


Figure 4. Endoscopic view showing the bleeding diverticulum after the previously placed clip was unexpectedly dislodged. Active bleeding persisted.

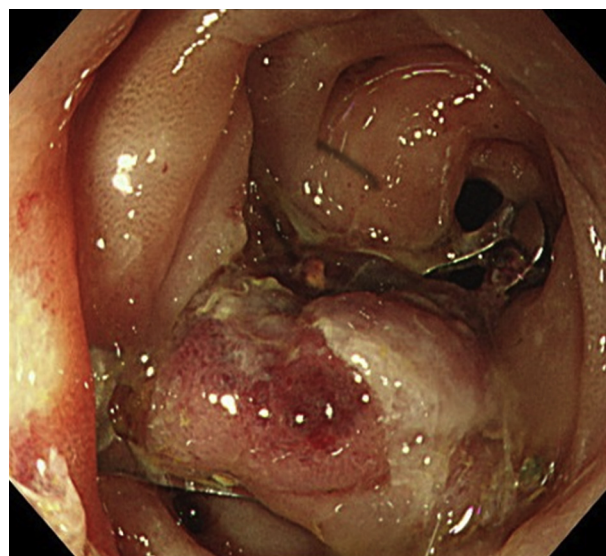


Figure 6. Endoscopic view showing the over-the scope clip (OTSC) in position. Clip application led to immediate hemostasis.

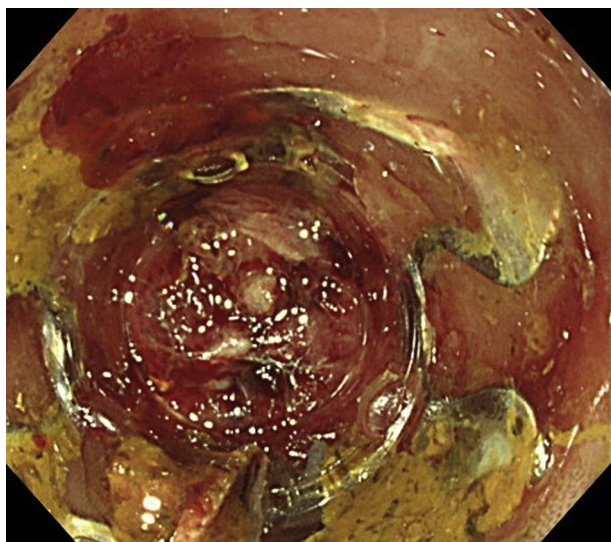


Figure 5. Endoscopic view showing the bleeding diverticulum with the over-the-scope clip (OTSC) system attached to the endoscope.

H290T endoscope (Olympus) and reinserted (Fig. 5). The bleeding diverticulum was suctioned into the transparent cap of the OTSC system and the clip (9 mm, traumatic type) was applied, leading to immediate cessation of bleeding (Fig. 6). The patient was discharged 7 days later. There were no short-term adverse events, and no recurrent bleeding occurred after 2 months of follow-up.

CDB accounts for approximately 26% to 33% of all cases of lower GI bleeding.¹⁻³ Many CDB episodes resolve spontaneously; however, some patients require endoscopic intervention for definitive management. Options include epinephrine injection, coagulation therapy, clipping, and band ligation. Comparison of the primary hemostasis rate

with endoscopic clipping and EBL revealed no significant difference; both techniques had an approximately 90% success rate.⁴ EBL had better long-term outcomes than clipping.⁵ Although several reports indicate that EBL had better results than endoscopic clipping, EBL cannot be performed in all patients.⁵ As in our patient, if the diverticulum is firm, sufficient suction may not be obtained, and EBL treatment may fail.

Recent reports have described using the OTSC system to achieve hemostasis for CDB.⁶⁻⁹ The OTSC system was originally developed for closure of perforations, leaks, and fistulas and has been used effectively as a rescue therapy for patients with severe GI bleeding. Two types of OTSC are available in Japan: traumatic type and gastrostomy closure type. Because the colon wall is thin, the traumatic-type clip with short and sharp teeth is suitable for colonic diverticular bleeding. When using the OTSC, the diverticulum involved should be sufficiently suctioned and inverted. Furthermore, even if the aspiration is not sufficient, as in our case, treatment can be completed using an OTSC because the sawtooth-like clip in the OTSC system will spring forward when released. The sawtooth-like design of the traumatic-type clip may have been advantageous and contributed to the success of the treatment because it allowed secure anchoring within the normal tissue surrounding the neck of the diverticulum.⁸ On the other hand, the OTSC system is very expensive compared with EBL; therefore, from a cost viewpoint, if the responsible diverticulum is sufficiently suctioned, we should first perform hemostasis with EBL before using OTSC. This report demonstrates that the OTSC system can effectively treat CDB if EBL cannot be performed because of a firm diverticulum that cannot be sufficiently suctioned.

DISCLOSURE

All authors disclosed no financial relationships.

Abbreviations: CDB, colonic diverticular bleeding; EBL, endoscopic band ligation; OTSC, over-the-scope clip.

REFERENCES

1. Oakland K, Guy R, Uberoi R, et al. Acute lower GI bleeding in the UK: patient characteristics, interventions and outcomes in the first nationwide audit. *Gut* 2018;67:654-62.
2. Niikura R, Yasunaga H, Yamaji Y, et al. Factors affecting in-hospital mortality in patients with lower gastrointestinal tract bleeding: a retrospective study using a national database in Japan. *J Gastroenterol* 2015;50:533-40.
3. Strate LL, Ayanian JZ, Kotler G, et al. Risk factors for mortality in lower intestinal bleeding. *Clin Gastroenterol Hepatol* 2008;6:1004-10.
4. Ishii N, Omata F, Nagata N, et al. Effectiveness of endoscopic treatments for colonic diverticular bleeding. *Gastrointest Endosc* 2018;87:58-66.
5. Nagata N, Ishii N, Kaise M, et al. Long-term recurrent bleeding risk after endoscopic therapy for definitive colonic diverticular

bleeding: band ligation versus clipping. *Gastrointest Endosc* 2018;88:841-53.

6. Probst A, Braun G, Goelder S, et al. Endoscopic treatment of colonic diverticular bleeding using an over-the-scope clip. *Endoscopy* 2016;48(Suppl 1):E160.
7. Soriani P, Tontini GE, Vavassori S, et al. Over-the-scope clipping in recurrent colonic diverticular bleeding. *Endoscopy* 2016;48(Suppl 1):E306-7.
8. Wedi E, von Renteln D, Jung C, et al. Treatment of acute colonic diverticular bleeding in high risk patients, using an over-the-scope clip: a case series. *Endoscopy* 2016;48(Suppl 1):E383-5.
9. Doi H, Sasajima K, Takahashi M. Using an over-the-scope clip for colonic diverticular hemorrhage. *Dig Endosc* 2019;31:E80-1.

Department of Gastroenterology, Gifu Prefectural General Medical Center, Gifu, Japan (1); Department of Internal Medicine, Gifu Prefectural Gero Hospital, Gero, Japan (2); Department of Gastroenterology, Gifu University School of Medicine, Gifu, Japan (3).

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