Release and re-hook: a novel method with combined use of clips and nylon snare to close a colonic defect after endoscopic mucosal resection

A 67-year-old man presented to our department for a screening colonoscopy, during which a 2-cm type IIa nonpolypoid lesion was found in the ascending colon (Fig. 1a). After submucosal injection (saline with methylene blue) and adequate lifting of the lesion, a single-piece endoscopic mucosal resection (EMR) was performed. The post-EMR defect consisted only of serosal lining (Fig. 1b). Because of its large size, attempts to close the defect with clips failed. A decision was

made to close the defect with the combined use of clips and a nylon snare (HX-400U; Olympus, Tokyo, Japan). The traditional method of snaring and clipping could not be performed. Therefore, we developed a new technique.

At the patient's bedside, the nylon snare was opened and released from its original sheath (Fig. 2a). The distal loop of the snare was enlarged to facilitate re-hooking (Fig. 2b). The snare was grasped with a clip (QuickClip2; Olympus) and

introduced into the working channel of the endoscope (Fig. 2c, Fig. 2d). The snare was delivered to the ascending colon (Fig. 2e, Fig. 3a), where it was anchored with multiple clips along the edges of the defect (Fig. 3b). The distal end of the snare was then re-hooked and pulled back into the original sheath (Fig. 2f), enabling the closure to be completed in a “purse-string” fashion (Fig. 3c). Follow-up colonoscopy at 8 weeks demonstrated a healed defect, with both the snare and clip in situ (Fig. 3d).

The application of two accessories with a single-channel endoscope is either challenging or impossible. Perforations and large mucosal defects can be closed with the combined use of clips and a nylon snare using two methods. In the “tulip-bundle” technique the snare is lassoed and tightened over a bundle of clips attached at the edges of the tear [1]. In the “purse-string” technique, the snare forms a nylon loop that is clipped around the edges of the lesion. Closure is accomplished by closing the snare [2,3]. However, with the tulip-bundle technique, there is a risk of the snare slipping over the clips, whereas the purse-string approach requires the use of a double-channel endoscope, or the snare must be fixed externally to the scope. In addition, it can be difficult to operate a double-channel endoscope or to maintain the position of an externally fixed snare in a redundant or tortuous colon.

Fig. 1 a Sessile polyp and positive lifting sign in the ascending colon of a 67-year-old man undergoing screening colonoscopy. b Colonic wall defect after resection; only the serosal lining is left in situ. Attempts to close the defect with clips failed.

Fig. 2 Release and re-hook method (bedside demonstration). a The snare is released in the open position from the original sheath. b The distal loop is enlarged to facilitate re-hooking of the snare. c The snare is grasped with a clip. d The snare is introduced through the working channel of the colonoscope. e Delivery of the snare. f Re-hooking of the snare.

Fig. 3 Combined use of a nylon snare and clips for closure of the colonic wall defect. **a** Delivery of the snare into the colonic lumen. **b** Anchoring the snare with clips along the edges of the defect. **c** The closure is done in a "purse-string" fashion. **d** Follow-up colonoscopy at 8 weeks shows complete healing of the defect, with both snare and clips in situ.

In sum, we believe that our release and re-hook method is a useful modification of the snare-and-clip technique and might be useful in a clinical scenario such as the one presented here.

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References

- 1 Luigiano C, Ferrara F, Polifemo AM et al. Endoscopic closure of esophageal fistula using a novel "clips and loop" method". *Endoscopy* 2009; 41: E249–E250
- 2 Zeng CY, Li GH, Zhu Y et al. Single-channel endoscopic closure of large endoscopy-related perforations. *Endoscopy* 2015; 47: 735–738
- 3 Matsuda T, Fujii T, Emura F et al. Complete closure of a large defect after EMR of a lateral spreading colorectal tumor when using a two-channel colonoscope. *Gastrointest Endosc* 2004; 60: 836–838

Bibliography

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