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.

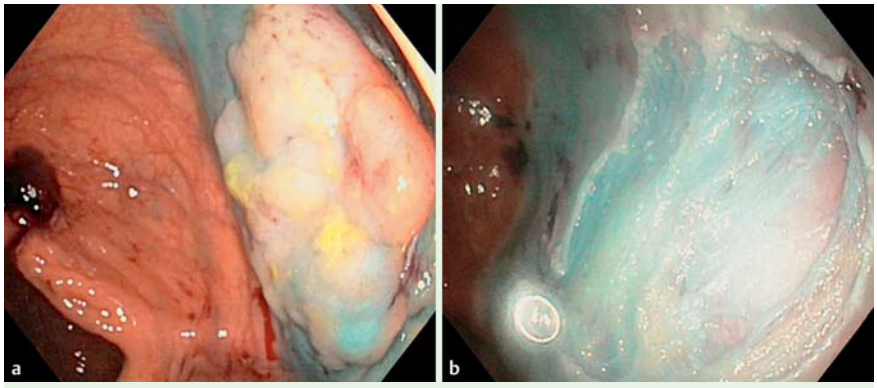

Fig. 1 **a** Sessile polyp and positive lifting sign in the ascending colon of a 67-year-old man undergoing screening colonoscopy. **b** Colonic wall defect after resection; only the serosal lining is left in situ. Attempts to close the defect with clips failed.

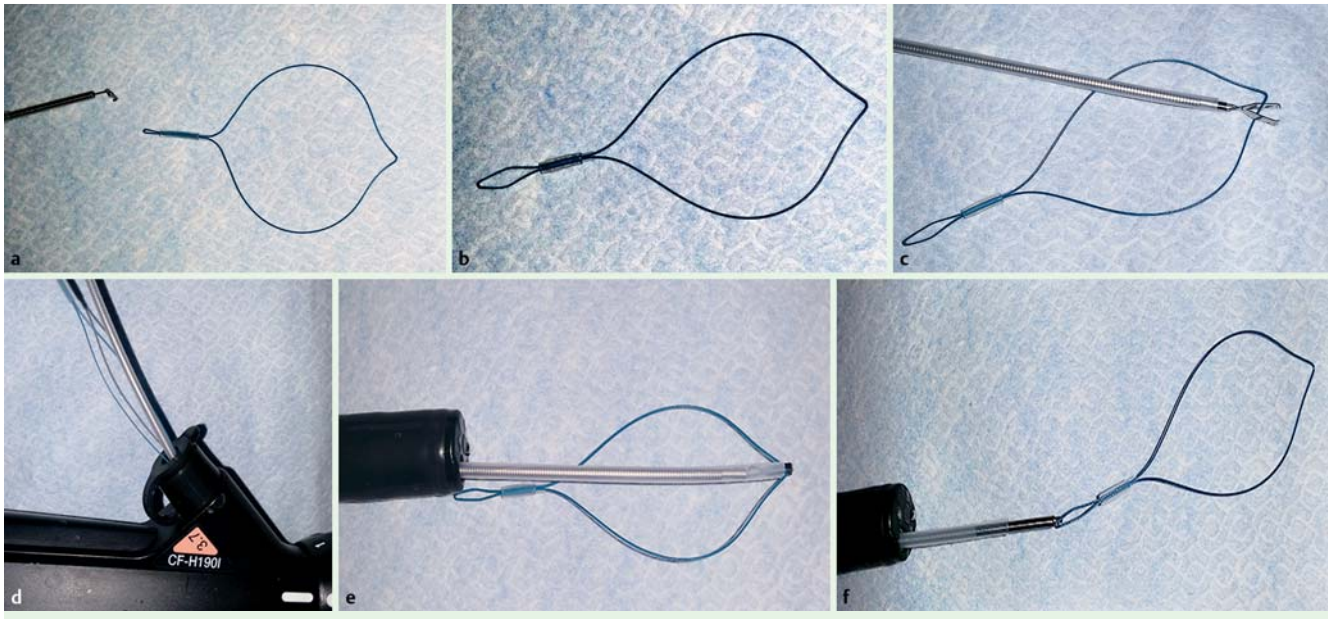

Fig. 2 Release and re-hook method (bedside demonstration). **a** The snare is released in the open position from the original sheath. **b** The distal loop is enlarged to facilitate re-hooking of the snare. **c** The snare is grasped with a clip. **d** The snare is introduced through the working channel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

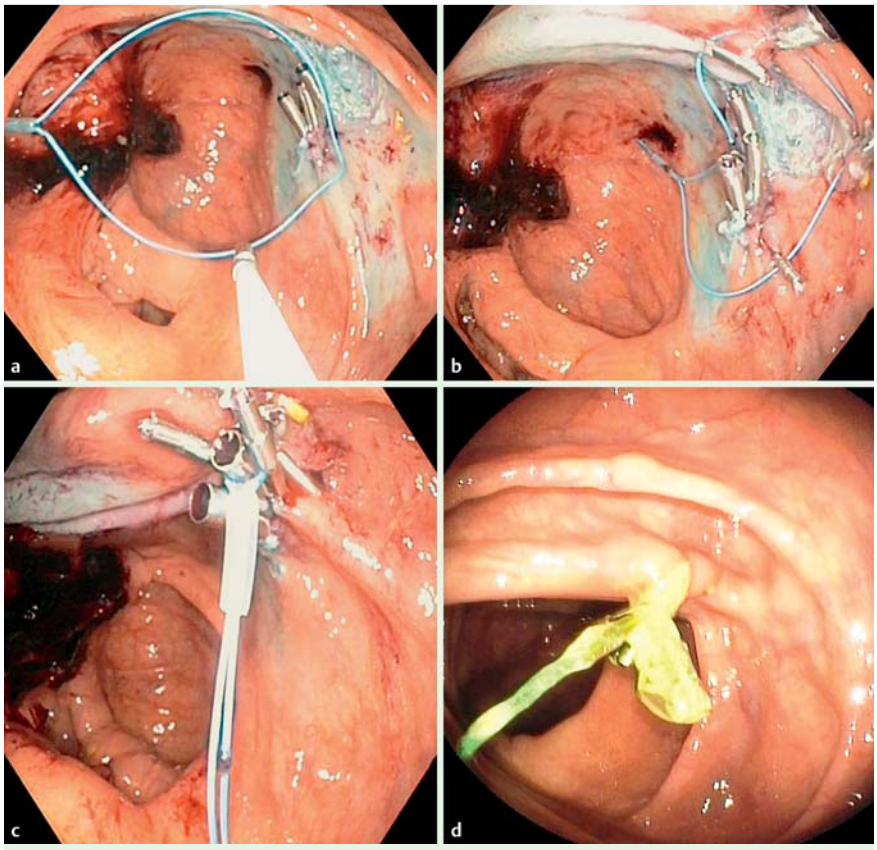

Fig. 3 Combined use of a nylon snare and clips for closure of the colonic wall defect. **a** Delivery of the snare into the colonic lumen. **b** Anchoring the snare with clips along the edges of the defect. **c** The closure is done in a "purse-string" fashion. **d** Follow-up colonoscopy at 8 weeks 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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Competing interests: None

Hrvoje Ivekovic, Dejan Vrzic, Branko Bilic, Nadan Rustemovic, Rajko Ostojic

University Hospital Centre Zagreb, Department of Gastroenterology and Hepatology, Zagreb, Croatia

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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Corresponding author

Hrvoje Ivekovic, MD, PhD
University Hospital Centre Zagreb
Department of Gastroenterology and Hepatology
Kispaticeva 12
10000 Zagreb
Croatia
Fax: +385-1-2388200
hrvoje.ivekovic@gmail.com