Cut the weeds and dig up the roots: clip-and-snare assisted endoscopic mucosal resection of a rectal neuroendocrine tumor

Endoscopic submucosal dissection (ESD) has been the preferred treatment of small gastrointestinal neuroendocrine tumors (NETs) (≤ 10 mm) without muscularis propria invasion [1]; however, the requirements of special instruments and complex skills have limited its widespread application [2]. In this regard, we developed a simple clip-and-snare assisted endoscopic mucosal resection (CS-EMR) technique for complete removal of a rectal NET (▶ Video 1).

A 35-year-old man was referred for endoscopic treatment of a small rectal NET (6 mm). Because the NET was seen on colonoscopy to have a flat subepithelial surface (▶ Fig. 1a) and was evaluated on endoscopic ultrasonography (EUS) as not showing invasion of the muscularis propria, CS-EMR was used to achieve complete resection. As the transparent cap-covered single-channel endoscope, along with a pre-anchored snare, entered the rectum to target the tumor, a clip was inserted through the working channel of the endoscope and was used to grasp the mucosa adjacent to the tumor (▶ Fig. 1b). When the NET had been well lifted by the clip and transformed into a “pedicle polyp,” the snare was released from the endoscope and completely enveloped the root of the NET (▶ Fig. 1c). The NET was fully excised using a blended electrosurgical current (▶ Fig. 1d), leaving a clean surgical wound (▶ Fig. 1e). The wound was immediately closed by the lifting clip and application of a further clip (▶ Fig. 1f). Histological examination of the resected specimen revealed a G1 NET with negative margins (▶ Fig. 2).

Unlike the previously reported grasp-and-snare EMR, which requires a dual-channel endoscope to deploy a snare and a biopsy forceps through each channel [3], this CS-EMR needs only a single-channel endoscope. Unlike with the “underwater” EMR technique, which may be affected by blind vision once bleeding occurs [4], the CS-EMR has no risk of causing bleeding before resection. Therefore, the easy and safe CS-EMR technique is a promising alternative to replace ESD in the treatment of small NETs.

Competing interests

The authors declare that they have no conflict of interest.

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Acknowledgments

This study was supported by the Natural Science Foundation of Liaoning Province (No. 2019-ZD-0932) and the Project of Department of Education, Liaoning Province (No. LZ2019019).

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DOI https://doi.org/10.1055/a-1163-7140
Published online: 2020
Endoscopy
© Georg Thieme Verlag KG
Stuttgart · New York
ISSN 0013-726X

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Fig. 1 Endoscopic treatment of a rectal neuroendocrine tumor (NET) using the clip-and-snare assisted endoscopic mucosal resection (CS-EMR) technique. a Colonoscopy showed a subepithelial lesion (arrows) with typical NET features of poorly protruded surface and superficial yellowish mucosa. b The clip gently clamped and pulled the lesion toward the endoscope to separate it from the muscularis propria. c The lesion was resected with standard polypectomy settings. e A clean surgical wound was displayed. f The surgical wound was perfectly closed with only two clips.

Fig. 2 Histological appearance confirming the resected specimen as a G1 neuroendocrine tumor with negative margins.