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The “Tenting-into-an-External-Snare Technique”: A Novel Single Channel Traction Approach for Endoscopic Resection of Difficult-to-Access Lesions Using a Wide-Necked Cap

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A 60-year-old patient with a history of appendectomy was referred for endoscopic resection of a flat, appendiceal orifice lesion. Previous colonoscopies indicated a small, indistinct lesion, partly removed using jumbo forceps and pathologically characterized as a serrated lesion on two occasions. For definitive endoscopic treatment, after obtaining informed patient consent, we intended to use a novel technique, dubbed the “tenting-into-an-external-snare technique”, having similarities with optional techniques using double-lumen endoscopes, however, with limited practicability in deep colon localizations. Therefore, we re-purposed a wide-necked over-the-scope clip (OTSC) demo cap (OVESCO, Tübingen, Germany—cap diameter 21 mm) with a wide-angle field of view, to which a small oval-shaped, 15 mm standard snare was anchored for external piggyback device transport (Fig. 1A). After uncomplicated and easy-to-achieve stable intubation of the cecum with the capped colonoscope (FujinonEC-760R-V/I; Fujifilm, Düsseldorf, Germany), the lesion appeared, in part submerged into deeper layers, with obscured margins. After indigo-carmine spraying and injection, adequate visualization and margin demarcation was achieved (Fig. 1B). Next, the external snare was released from the scope tip by forward mobilization

and brought into the field of action with use of a standard forceps (Fig. 1C). After snare placement, the center of the lesion was grasped and pulled into the cap. Subsequently, the lesion was snared under circumferential optical control for adequate margins and the defect was clipped (Fig. 1D). The patient had an uncomplicated clinical course. Pathologic analysis of the 11×7×6 cm measuring specimen containing elements of the muscularis mucosae revealed a saw-tooth contour of the crypt epithelium extending deep into the crypts, although definitive evidence for crypt branching could not be documented.¹

Different traction methods have been introduced in endoscopy practice, as evident in literature, however, mostly so in terms of endoscopic submucosal dissection (ESD) procedures.^{2,3} For standard snare polypectomy, double-lumen techniques implementing traction-assistance have been reported for flat colorectal lesions, however, are not established in most endoscopy services.⁴ Yet, its applicability is reduced in so-called deep colon lesions, e.g., in cecal localizations, complicating adequate scope advancement. The presented innovative technique makes use of a standard single-channel scope and, for the first time, re-purposes a large-diameter OTSC demo cap for piggyback device transport of an external snare. Wide-necked caps with a large field of view relative to standard caps may be instrumental in optimizing lesion visualization, accessory maneuverability and adequate visual control during snare resection.

In this individual patient, post appendectomy status eliminated the risk of inducing appendicitis, which might otherwise have complicated such an approach.⁵ At the same time, extensive scarring had to be anticipated, which may have made potential ESD approaches utterly cumbersome.⁶ The

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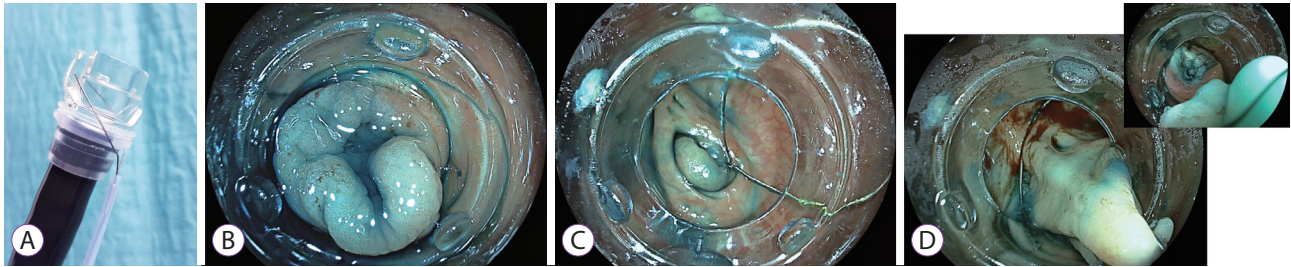


Fig. 1. (A) Anchoring of the external snare to the over-the-scope clip demo cap. (B) Indigocarmine-enhanced visualization of the flat lesion deep in the appendiceal orifice from 8 to 2 o'clock. (C) Release of the external snare by forward pushing, with subsequent forceps-assisted positioning around the lesion (not shown). (D) Successful forceps traction with tenting into the external snare and resection. Inset: clean resection with a formal, albeit not adequately validated in this specific situation, "target sign" at the base before clip closure.

recently marketed full thickness resection device (FTRD) as an innovative evolution of the OTSC platform for endoscopic full thickness resection might have represented a viable option in this situation. Given the limited lesion size, high associated cost, and residual concern for grasping adjacent organs, e.g., small bowel, due to postoperative adhesions with potential risk of fistula formation, we opted against an upfront FTRD concept and instead reserved this approach for potential rescue treatment in this patient. Indeed, the post-resection examination revealed a formal "target sign" (compare Fig. 1D), raising the concern of an increased perforation risk by applying this technique, particularly in the thin-walled cecum.⁷ However, the clinical impact of this otherwise highly specific perforation sign has not been established in endoscopic resections at the appendix base after appendectomy, with assumed exuberant tissue scarring. Notwithstanding, implementation of this and/or similar endoscopic resection approaches, calls for adequate training and reliable competence in endoscopic perforation closure techniques.

Conflicts of Interest

The authors have no financial conflicts of interest.

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