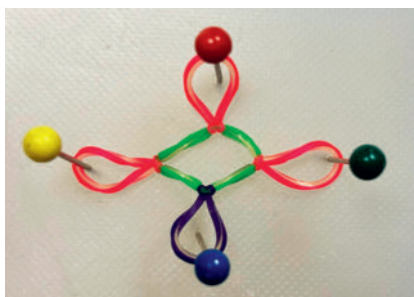


Traction-assisted and saline immersion endoscopic submucosal dissection for complete resection of peri-appendiceal large nonpedunculated colorectal polyps

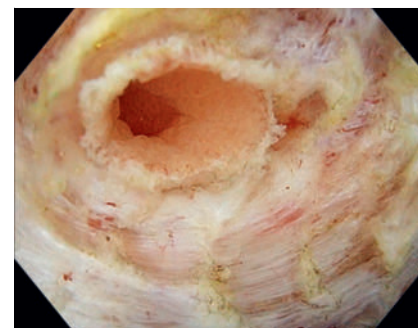
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▶ **Video 1** Multipoint traction is applied to lift and expose the appendix, facilitating clear visualization and access to the dissection plane. Source for graphical illustration: Created in BioRender. Vanhooren, M. (2025) <https://BioRender.com/a33w603> [rerif].



▶ **Fig. 1** The multiband system is applied with pink bands attached to the lesion margin and purple bands secured to an opposite fold, with the green band serving as a connection between the bands.



▶ **Fig. 2** Assessment of the defect margins is performed in saline immersion and with magnification to ensure clear visualization and precise evaluation of the resection area.

Endoscopic resection can be challenging for large nonpedunculated colorectal polyps (LNPCPs) around the appendiceal orifice. Factors predicting failure of endoscopic mucosal resection (EMR) include deep invasion of the appendiceal orifice and >50% involvement of the appendiceal orifice. In contrast, patients with a previous appendectomy are often able to undergo complete resection using EMR for LNPCPs that completely cover the prior appendiceal orifice [1]. Unfortunately, it is often difficult to tell upfront which of these factors is present in a given LNPCP.

Other options include full-thickness resection, which carries a 25% risk of acute appendicitis and is not suitable for large lesions [2]. Surgery may also be considered, but an extended appendectomy is often insufficient for lesions extending into the cecum. More extensive surgery, such as ileocecal resection or right hemicolectomy, carry significant risks, including 20% morbidity and 0.5% mortality [3].

This case series (▶ **Video 1**) demonstrates endoscopic submucosal dissection (ESD) for peri-appendiceal LNPCPs showing type 3a, 1, and 3 lesions according to Toyonaga's classification [3]. Other studies have described the ESD technique for LNPCPs of the appendiceal orifice using both traction-assisted and nontraction methods [3,4,5]. However, none have described a combined approach using multipoint traction with saline immersion.

In this case series, multipoint traction, using a multiband system (▶ **Fig. 1**), is applied to lift the appendix and expose the submucosal plane between the appendiceal mucosa and muscularis propria (M) for precise dissection. Saline immersion is used intermittently to improve visualization and access to the dissection plane (▶ **Fig. 2**).

In contrast to EMR, even lesions with deep invasion into the appendiceal orifice can be fully resected using this ESD-based technique as the caudal appendiceal margin can be visualized and the depth of mucosal incision within the appendix completely controlled. Furthermore, lesions fully encircling the orifice can also be completely removed.

In conclusion, using traction-assisted ESD with intermittent saline immersion, the skilled practitioner can avoid the pitfalls of EMR while avoiding the excess risks of full-thickness resection and laparoscopic surgery.

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Conflict of Interest

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References

- [1] Tate DJ, Desomer L, Awadie H et al. EMR of laterally spreading lesions around or involving the appendiceal orifice: technique, risk factors for failure, and outcomes of a tertiary referral cohort (with video). *Gastrointest Endosc* 2018; 87: 1279–1288.e2. doi:10.1016/j.gie.2017.12.018
- [2] Bronzwaer MES, Bastiaansen BAJ, Koens L et al. Endoscopic full-thickness resection of polyps involving the appendiceal orifice: a prospective observational case study. *Endosc Int Open* 2018; 6: E1112–e1119. doi:10.1055/a-0635-0911
- [3] Jacob H, Toyonaga T, Ohara Y et al. Endoscopic submucosal dissection of cecal lesions in proximity to the appendiceal orifice. *Endoscopy* 2016; 48: 829–836. doi:10.1055/s-0042-110396
- [4] Figueiredo M, Yzet C, Wallenhorst T et al. Endoscopic submucosal dissection of appendicular lesions is feasible and safe: a retrospective multicenter study (with video). *Gastrointest Endosc* 2023; 98: 634–638
- [5] Oung B, Rivory J, Chabrun E et al. ESD with double clips and rubber band traction of neoplastic lesions developed in the appendiceal orifice is effective and safe. *Endosc Int Open* 2020; 8: E388–e395

Bibliography

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