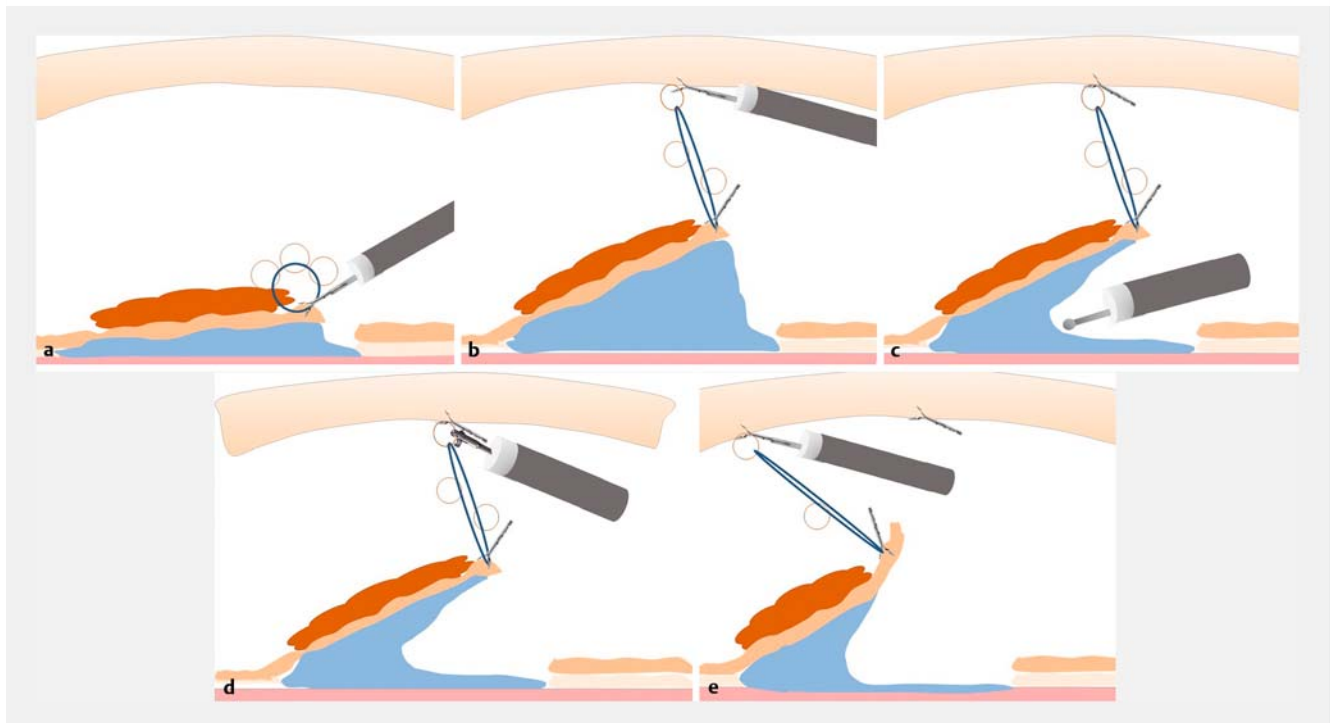


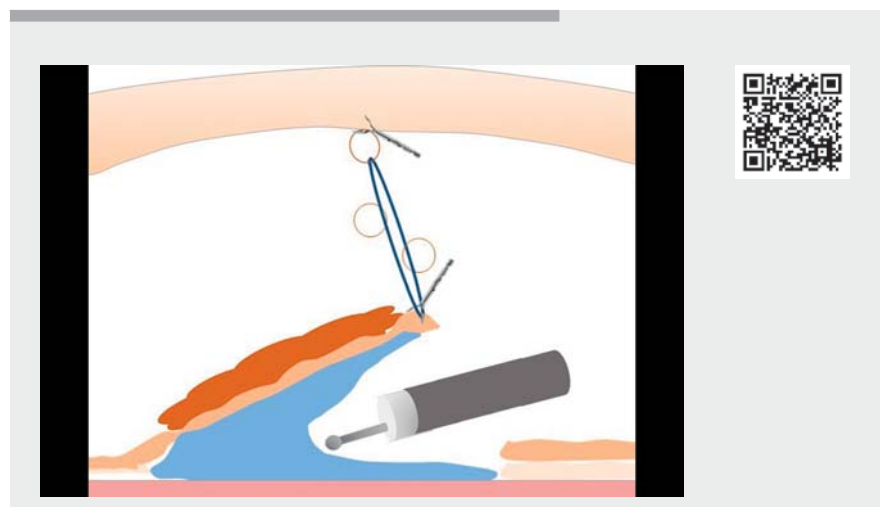
Clip with rubber band modification for dynamic traction in colonic endoscopic submucosal dissection

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► Fig. 1 Schematic showing: **a** a rubber band with three nylon rings (made from fishing line) applied to the edge of the lesion; **b** a clip grasping one of the nylon fixation rings is attached to the opposite bowel wall; **c** initial endoscopic submucosal dissection is performed; **d** the previously positioned nylon ring is cut to release the traction; **e** the readjusted traction is created by a new clip grasping another nylon ring being attached to a different point on the bowel wall, which enables dissection to proceed again.

A 63-year-old woman was referred because of a 40-mm laterally-spreading tumor, nongranular type (LST-NG), Paris 0-I_s+II_a, JNET type 2B, in the descending colon, with a tattoo beneath it, consistent with a residual lesion following a previous resection. Endoscopic submucosal dissection (ESD) was initiated with a partial mucosal incision (► **Video 1**). Difficulty was experienced in exposing the submucosal layer, even with the pocket-creation method and an underwater strategy. After complete circumferential incision had been performed, a clip grasping a rubber band with three nylon rings attached, which were handmade with fishing line, was applied to the lesion (► **Fig. 1 a**). One of the nylon rings was grasped with another clip and fixed to the opposite bowel wall, thereby provid-



► Video 1 Endoscopic views showing a modified clip with rubber-band traction method, with accompanying explanatory diagrams.

ing effective traction (► Fig. 1 b). It was then possible to perform ESD safely up to a point where the traction was no longer effective (► Fig. 1 c). The nylon fixation ring attaching the rubber band to the colonic wall was then cut with a loop cutter (► Fig. 1 d). Next, another clip grasping one of the remaining nylon fixation rings was fixed at a different location on the colonic wall that allowed effective traction to be created again (► Fig. 1 e). Subsequently, ESD was possible again, allowing en bloc resection to be completed with no adverse events.



The classic clip with rubber-band method has good reported outcomes [1, 2]; however, once performed, the axis of countertraction cannot easily be modified. For this to happen, reopening clips are needed, otherwise the removal of regular clips or elastic bands is traumatic, potentially causing specimen damage. The attachment of nylon fixation rings to the rubber band allows the previously positioned nylon ring to be easily cut and the same rubber band to then be repositioned to apply traction in another direction. This modification is easily hand-made, with a low cost and without any requirement for complex equipment.

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Competing interests

The authors declare that they have no conflict of interest.

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