

“Loops-attached rubber band” facilitation of endoscopic submucosal dissection of superficial colorectal neoplasm

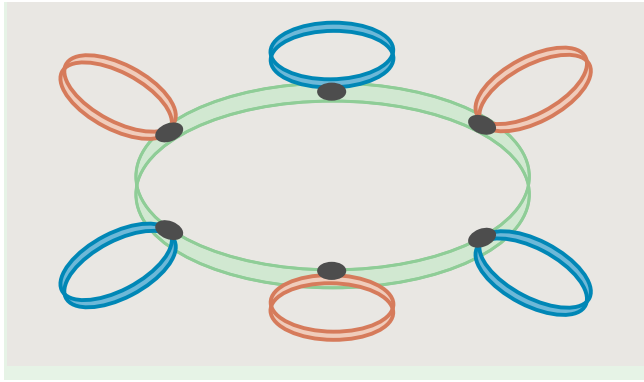


Fig. 1 “Loops-attached rubber band” consists of a circular rubber band connected to many nylon loops.

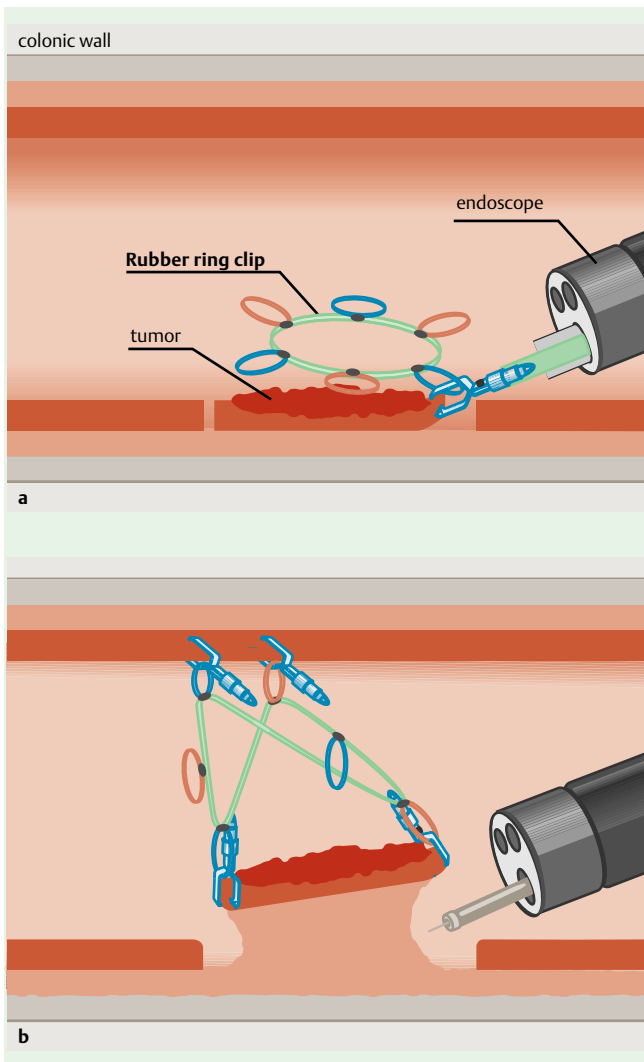


Fig. 2 Using the “Loops-attached rubber band”. **a** After partial dissection of the submucosa of the tumor, a regular clip is inserted and attached to an edge of the exfoliated mucosa after having first grasped the nylon loop attached to the LARB. **b** A regular clip is then inserted and attached to the colonic wall after having first grasped one of the nylon loops attached to the LARB. The regular clip is usually attached at a position opposite the lesion, enabling traction and therefore opening of the resection margin.

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Endoscopic submucosal dissection (ESD) of early gastric cancer has improved the success rate of en bloc resection, but it is not widely used to treat the colorectum because of its technical difficulty. It is possible that traction of the lesion may facilitate correct visualization of the lesion and make it easier to dissect. Several techniques involving traction of lesions have been reported [1–4], but these methods have not been widely employed because they are difficult to use. Furthermore, most devices lift only one part of a lesion, which does not provide a good overview of the area to dissect. Therefore, we designed a multiple traction device, which we have named “Loops-attached rubber band (LARB)”. LARB is able to lift the whole lesion by pulling at multiple points, thereby facilitating correct and better visualization of the lesion than other devices.

LARB consists of a circular rubber band connected to many nylon loops (Fig. 1). After partial dissection of the submucosa of the tumor, the LARB is connected to the edge of the exfoliated mucosa and the colonic wall opposite the lesion. This pulls up the whole lesion and opens the resection margin precisely (Fig. 2a, b). After the dissection, the nylon loop is cut using the loop cutter and the lesion is removed (Fig. 2c).

ESD using the LARB has been performed on a superficial colorectal lesion at the ascending colon (Fig. 3). En bloc resection was achieved without complication. The size of the resected lesion was 28 × 27 mm, and the procedure time was 50 minutes. We confirm that attaching the LARB to the lesion was not very difficult, and that the device facilitated both correct visualization and easier dissection of the tumor.

This preliminary result suggests that LARB-assisted ESD is effective, easily performed, and safe for the complete removal of large superficial colorectal neoplasms.

Video 1

Loops-attached rubber band-assisted endoscopic submucosal dissection is performed on the laterally spreading tumor.

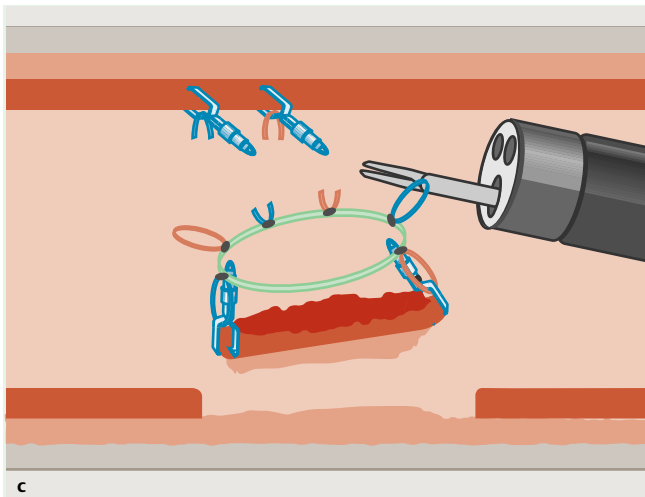


Fig. 2 (Continuation)
c After endoscopic submucosal dissection, the nylon loop is cut by the loop cutter and brought out from the colon.

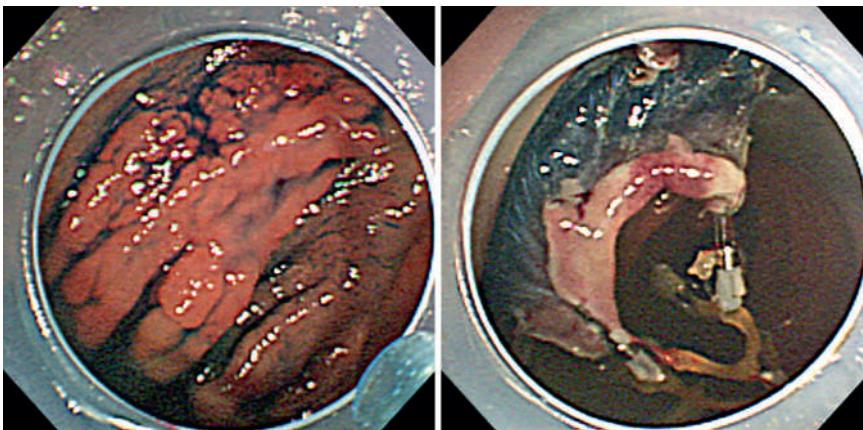


Fig. 3 Laterally spreading tumor. After partial dissection of the submucosa of the tumor, traction of the lesion by the LARB facilitated correct visualization and easier dissection.

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