



New traction technique in endoscopic submucosal dissection for large colorectal lesions: *roll-up technique*

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Endoscopic submucosal dissection (ESD) has been established as the standard treatment for colorectal tumors, and this procedure allows en bloc resection regardless of tumor size. However, colorectal ESD is still a challenging procedure for large lesions. The risk of adverse events after ESD increased in lesions ≥ 50 mm and was found to be associated with tumor size as an independent risk factor.¹ When the tumor is too large, the dissected area touches the contralateral colon wall, and the endoscopic view cannot be secured or sufficient tension is not applied to the dissected plane even if an internal traction technique is used.^{2,3} If traction is positioned too distally, the facing submucosal layer falls backward and an adequate dissection plane is difficult to secure (Fig. 1). In this report, we describe the *roll-up technique*, an effective traction technique for large lesions (Video 1).

ROLL-UP TECHNIQUE

Many traction techniques have been reported^{4,5} and are effective in promoting safe dissection in colorectal ESD. However, in the case of large lesions, the submucosal incision line is crushed by the weight of the lesion, and the dissected area touches the wall of the contralateral colon.

When SureClip traction bands (Micro-Tech, Nanjing, China) are used in multiple directions on large lesions, the lesions are well tensioned and dissection is highly effective (Fig. 2A and B). However, as the dissection progresses, the traction becomes ineffective because of the weight of the lesion (Fig. 2C). Therefore, after removing the ineffective traction band (Fig. 2D), new SureClip traction bands are added “to the backside of the dissected area” (Fig. 2E). Because the traction becomes ineffective again after pro-

ceeding with the dissection, this process is repeated. In addition, because the dissected area becomes rolled up, it is possible to maintain sufficient countertraction to dissect the remaining submucosa to the end. We have named this technique the *roll-up technique*.

A 76-year-old woman, without a medical history, was diagnosed with a large, 80-mm laterally spreading tumor (nodular mixed type) of the ascending colon (Fig. 3A). Despite the large size, no findings suggestive of deep submucosal invasion were noted on either white-light or narrow-band imaging magnification. Therefore, we performed ESD using Tech-Knife (Micro-Tech). The lesion was elevated and had clear borders, so no marking was done. After making a flap from the anal side, we used 3 SureClip traction bands to expand the endoscope's field of view because of the large tumor size (Fig. 3B). However, as the dissection progressed, the weight of the lesion made the traction bands ineffective (Fig. 3C). Because the tumor was too large, the dissected area touched the wall of the contralateral colon, and the endoscopic view could not be secured. Therefore, the ineffective traction bands were removed, and SureClip traction bands were added (Fig. 3D). ESD was performed using the *roll-up technique*, which provided continuous good traction, and the resection could be completed in 78 minutes without adverse events (Fig. 3E). Histologic examination revealed the tumor to be a well-differentiated intramucosal carcinoma with no lymphovascular invasion, and all of the margins were tumor free.

A limitation of the *roll-up technique* is that we cannot rule out the possibility that traction grip can influence pathologic assessment. Moreover, in areas where the lumen is narrow, space is not available to achieve traction, rendering the

Abbreviation: ESD, endoscopic submucosal dissection.

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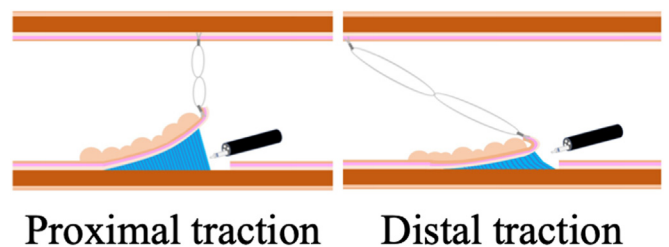


Figure 1. Difference between proximal traction and distal traction.

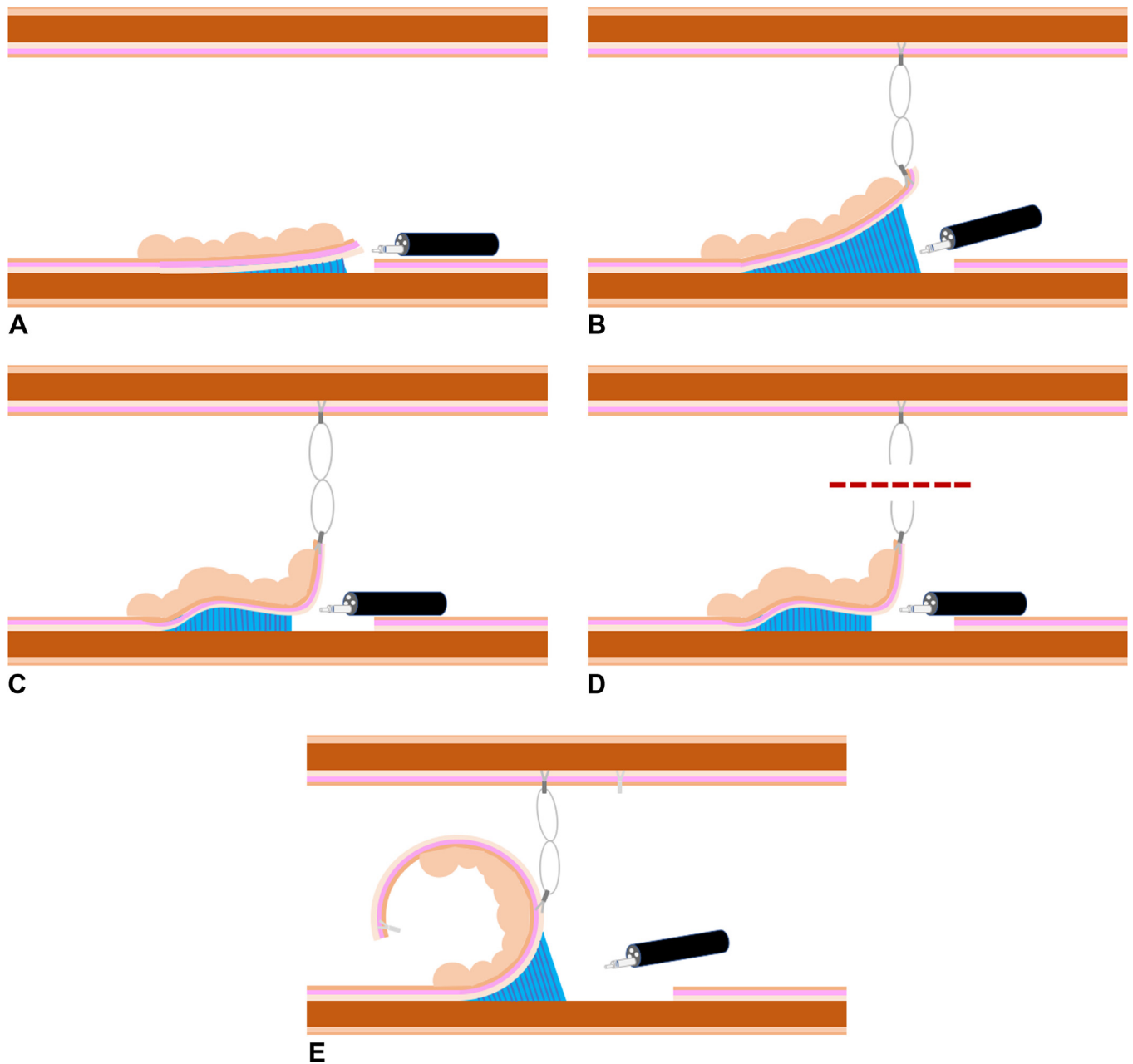


Figure 2. Schema of the roll-up technique procedures. **A**, After incision. **B**, Dissection with first tractions. **C**, Ineffective first tractions. **D**, Removal of first tractions. **E**, Rolled-up lesion by additional tractions.

technique inadequate. In addition, it may not be effective in circumferential lesions where tension is wasted.

This new traction technique, *roll-up technique*, could maintain effective tension by continuing to add traction to “the backside of the dissected area.” Sustained effective tension facilitates avoidance of muscle layer damage and perforation and also facilitates hemostasis. Thus, this tech-

nique can make ESD in large colorectal lesions more useful and safer.

DISCLOSURE

None of the authors have any disclosures to make.

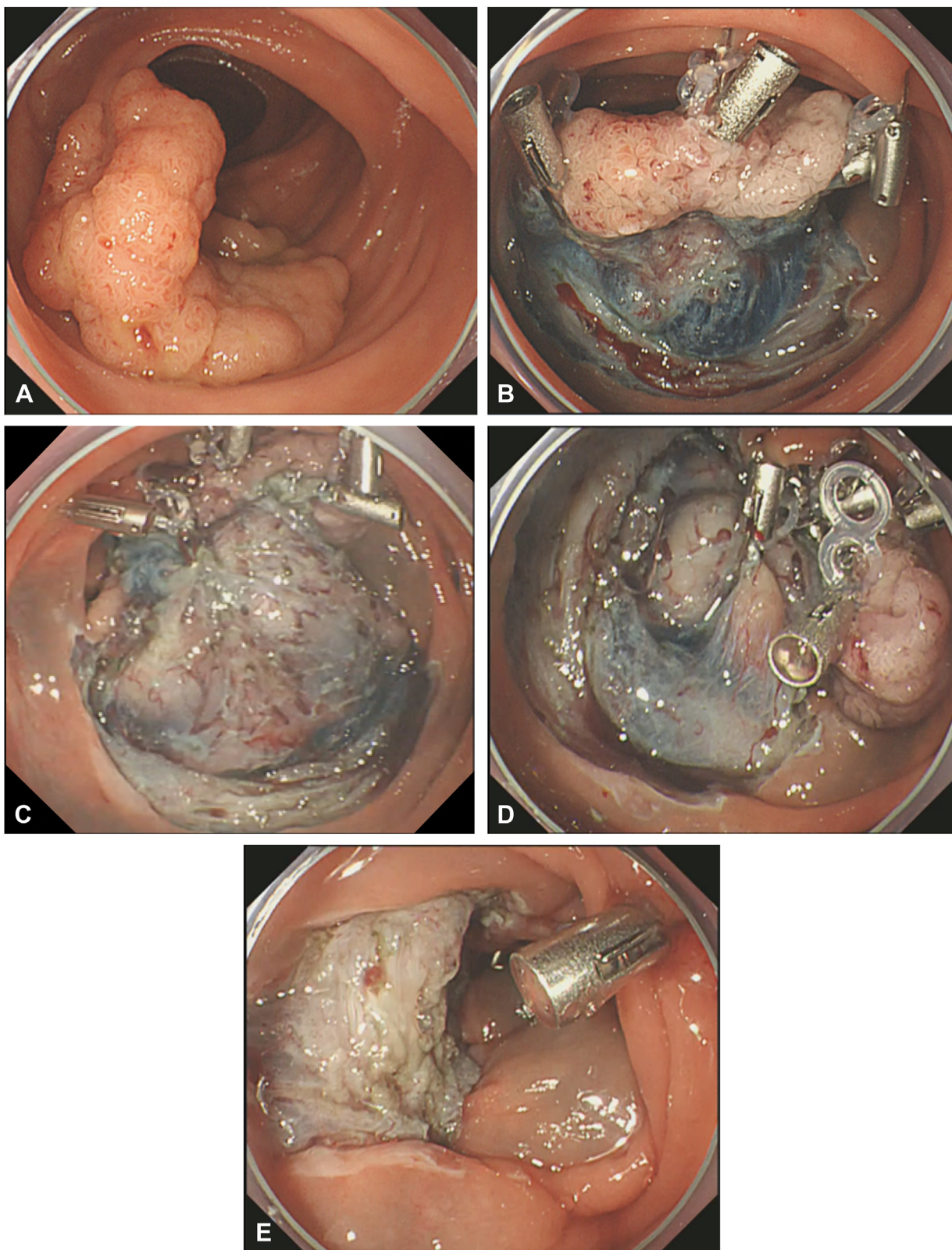


Figure 3. Endoscopic findings of the roll-up technique. **A**, Eighty-millimeter LST-GM of the ascending colon. **B**, First tractions. **C**, Ineffective first tractions. **D**, Additional tractions. **E**, Post-endoscopic submucosal dissection ulcer. *LST-GM*, Laterally spreading tumor-granular type, nodular mixed type.

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