# Single tunneling technique for treatment of giant laterally spreading tumor with endoscopic submucosal dissection

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Colorectal endoscopic submucosal dissection (ESD) is effective and provides en bloc removal of even large colorectal lesions. Because of the anatomic characteristics of the colon (eg, narrow lumen and thin walls), it may be difficult to carry out a successful colorectal ESD, especially when the lesion is huge.

We report a case of a laterally spreading tumor (LST) in the colon, about 20 cm, which was successfully resected by colorectal ESD.

An 82-year-old man was admitted to the hospital because of intermittent diarrhea, which had become worse during the past 3 months.

Colonoscopy disclosed a large, flat, elevated lesion in the distal sigmoid colon, which extended proximally. At its maximum, endoscopically the lesion was 15 cm in length (Video 1, available online at www.VideoGIE.org). Examination of biopsy specimens showed villous adenoma. EUS showed no submucosal involvement; ESD was decided on as a treatment option.

To achieve en bloc resection and benefit from gravity, ESD was planned as follows: to open a tunnel at the anal site of the lesion to the proximal site and then connect the tunnel to the right side of the lesion; afterward, to benefit from gravity and a clear line of sight, to reposition the patient to the right lateral position and join the tunnel to the left side of the lesion (Fig. 1; Video 1, available online at www.VideoGIE.org).

At the beginning of the procedure, a mixture solution of sodium hyaluronate (Adant, Meiji-Seika Kaisha, Tokyo, Japan) 25 mg/2.5 mL, diluted with saline solution to 0.4%, indigo carmine, and diluted epinephrine (1:10 000) was injected with a 23G needle for submucosal elevation. The first incision with a dual knife was performed at the anal site of the lesion, and then an incision with the same knife was continued into the submucosal area. After 2 to 3 cm of dissection, a mixture of hydroxyethyl starch (Voluven;

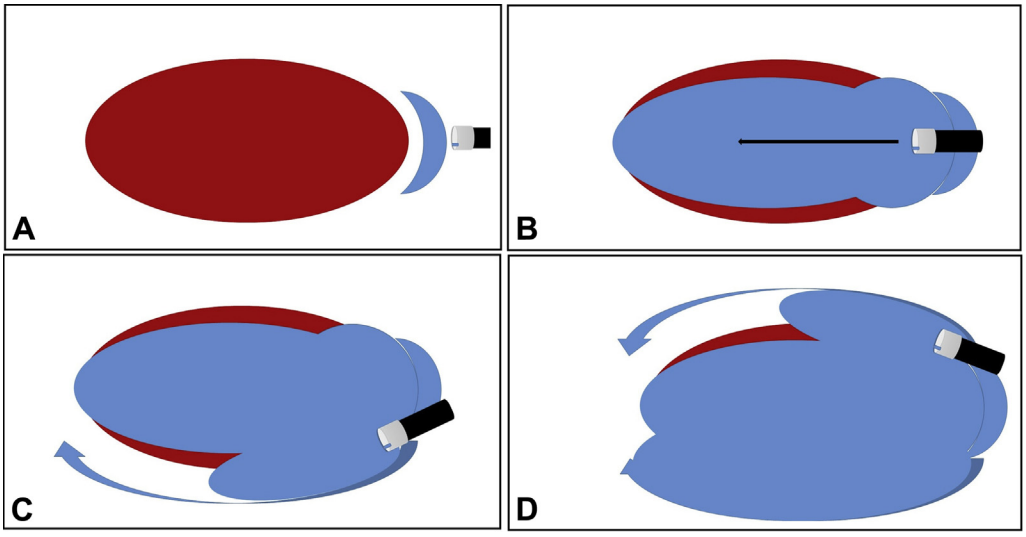


**Figure 1.** Schematic of endoscopic submucosal dissection. **A,** Short lateral incision at anal site. **B,** Opening the tunnel from anal canal to proximal area. **C,** Left lateral incision and dissection. **D,** Right lateral incision and dissection.

Written transcript of the video audio is available online at www.VideoGIE.org.

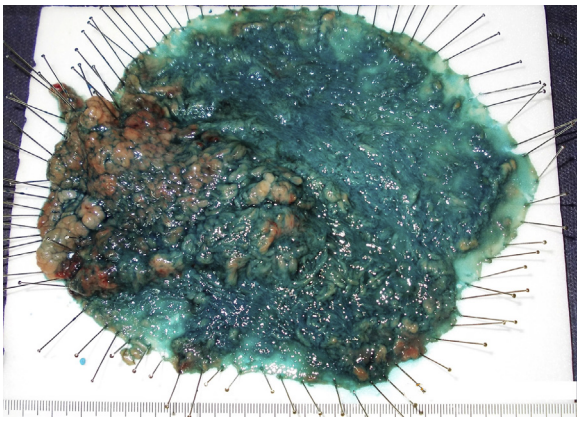

**Figure 2.** Resected specimen, 198 × 138 mm in diameter.

Fresenius Kabi, Bad Homburg, Germany), epinephrine, and indigo carmine was used for an easier and quicker injection.

The resected tumor was taken out en bloc by placement of a 25-cm overtube into the rectum. It measured 198 × 138 mm after it was fixed on styrofoam (Fig. 2). Histopathologic examination showed intramucosal carcinoma, and all margins were clear. No adverse events occurred during or after the procedures. The patient did not experience any further symptoms and was discharged on day 7. No residual tissue was seen on control colonoscopic examinations (Figs. 3 and 4).

## CONCLUSION

Because the lumen of the sigmoid colon is narrow, when the standard ESD technique (incision and dissection) is used, the dissected lesion can completely block the lumen and decrease the maneuverability of the endoscope. In this case, 2 different techniques, the tunneling method and the gravity effect of standard ESD, were used together for an effective and controlled dissection of a lesion nearly 20 cm long, and it was successfully removed en bloc.

When tunneling is performed, dissection can be done in a controlled manner because the dissected lesion does not fall directly into the lumen. Additionally, the gravity effect can help in dissection by supplying better visualization.

In addition, large lesions can easily bleed during incision and dissection because of their large and rich vascular supply, which befouls the submucosal area and leads to loss of orientation during the procedure. With this technique, large vessels are segregated and coagulated with hemostatic forceps before they are cut. Therefore, bleeding occurs less commonly, which helps in keeping the submucosal area clear.

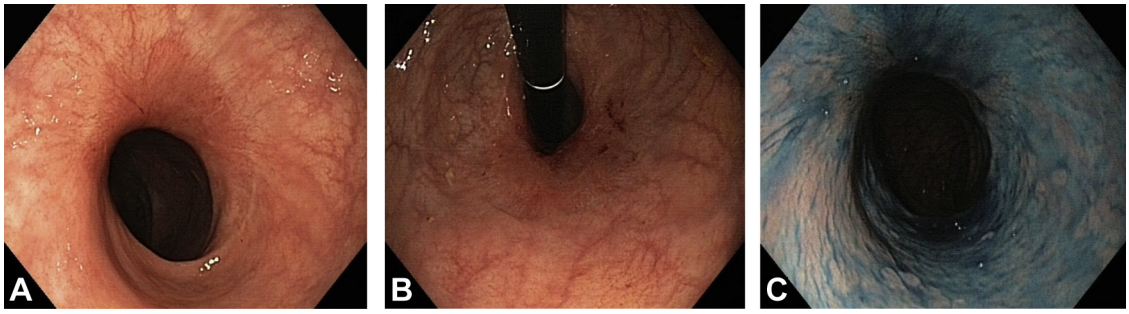


**Figure 3. A, B, C,** Endoscopic views of resected area at 6th month.

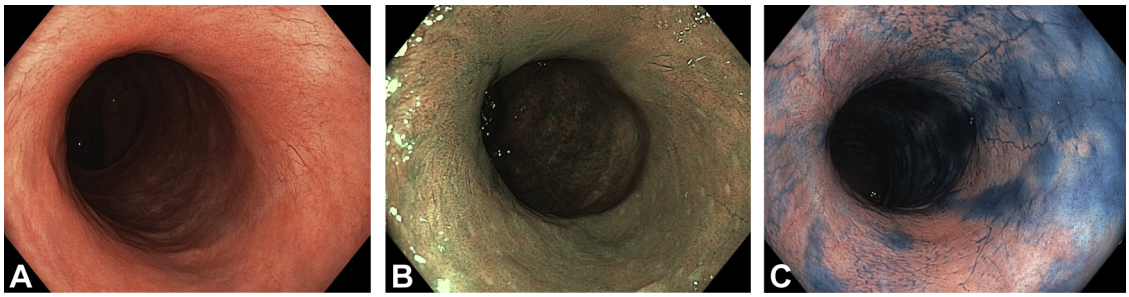


**Figure 4. A, B, C,** Endoscopic views of the resected area at 24th month.

All of these advantages of this method have a positive impact on the duration and quality of the procedure and may provide en bloc resection of the lesion, which is also why we preferred to use both techniques together.

## DISCLOSURE

*All authors disclosed no financial relationships relevant to this publication.*

*Abbreviations: ESD, endoscopic submucosal dissection; LST, laterally spreading tumor.*

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