



# Combination of immersion in saline solution, pocket-creation method, water-jet hydrodissection, and hybrid knife “probe mode” simplifies endoscopic submucosal dissection in giant rectal polyp

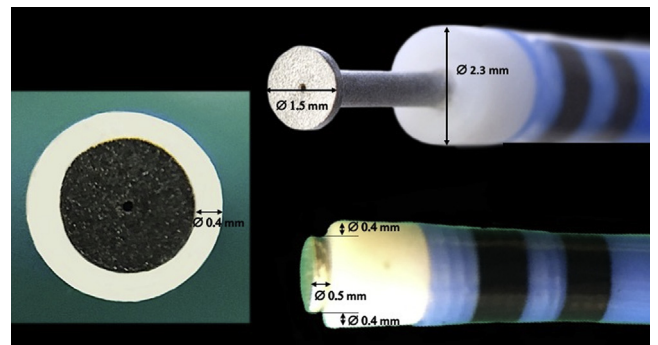
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Laterally spreading tumors (LSTs) of the nongranular pseudopressed type and LSTs of the granular mixed type have a high risk of submucosal invasion, so it is advisable to resect them en bloc in order to perform an adequate

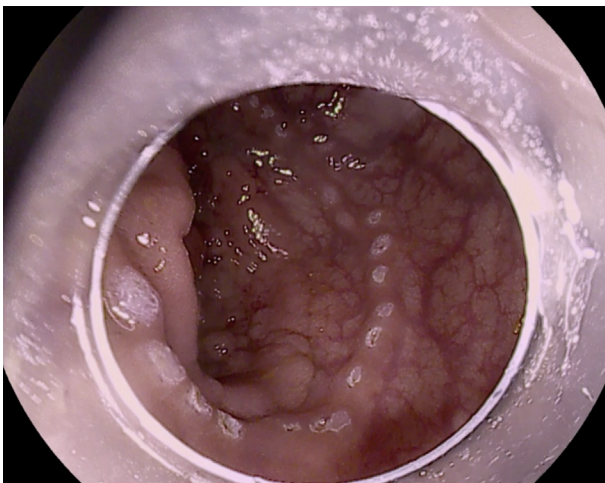
histologic study.<sup>1</sup> Endoscopic submucosal dissection (ESD) allows optimal endoscopic treatment of this type of lesion. This technique is difficult to perform when the lesion is giant. There are different methods to facilitate ESD, such as immersion in saline solution<sup>2</sup> and the pocket-creation method.<sup>3,4</sup> The water-jet hydrodissection technique has also shown effectiveness in rectal ESD.<sup>5</sup> We performed ESD with a combination of immersion



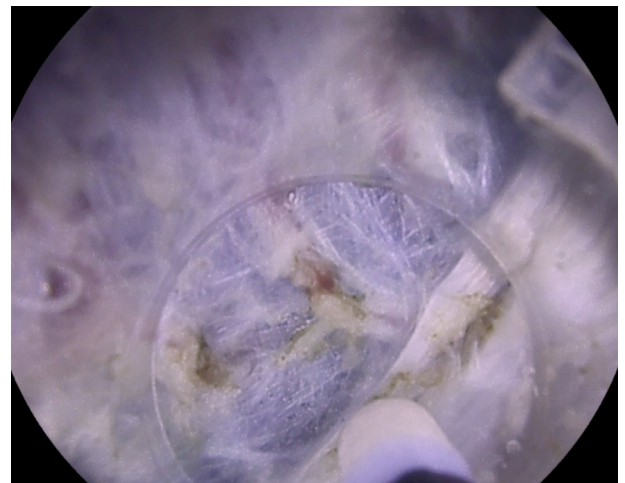
**Figure 1.** Diagnostic colonoscopic view revealing a giant rectal lesion with granular nodular mixed laterally spreading tumor morphology.



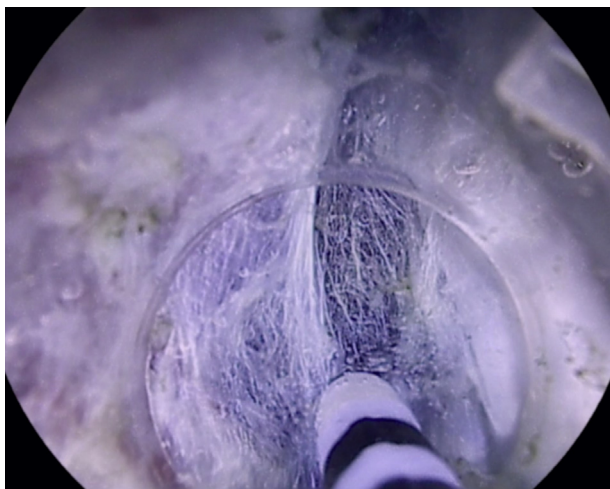
**Figure 3.** Hybrid knife T-type “probe mode.”



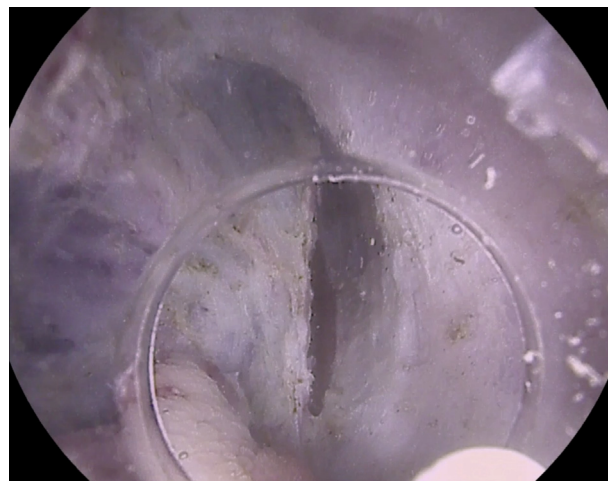
**Figure 2.** Thermocautery marks around the edge of the lesion.



**Figure 4.** Clear endoscopic view improving vessel identification.



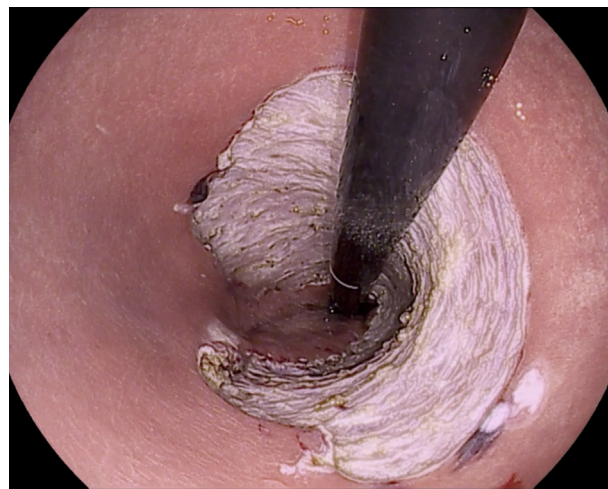
**Figure 5.** Clear endoscopic view improving dissection plane identification.



**Figure 7.** Mucosal suspension bridge facilitating traction by flotation.



**Figure 6.** Pocket-creation method in immersion.



**Figure 8.** Resection surface reaching up to 80% of the circumference.

in saline solution, the pocket-creation method, and hydrodissection. Saline solution was selected instead of sterile water to reproduce underwater conditions, similarly to those of other studies,<sup>2</sup> with the aim of improving buoyancy and reducing the risk of water intoxication.

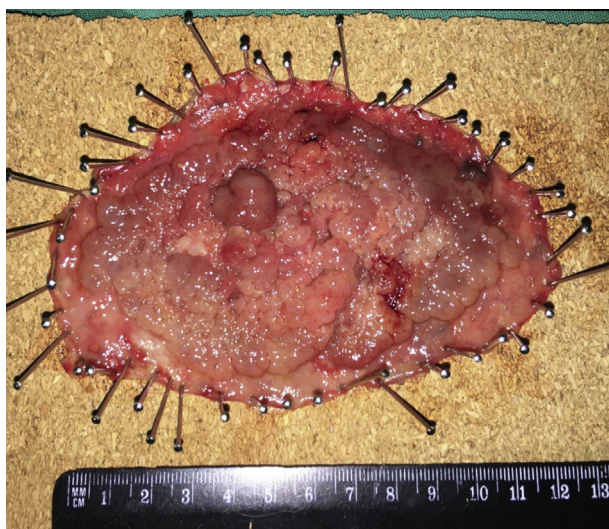
**Video 1** (available online at [www.VideoGIE.org](http://www.VideoGIE.org)) shows the ESD of a giant polyp in the rectum. The patient was an obese 60-year-old woman with hypertension, who had a positive result to a fecal immunohistochemical test. We performed a diagnostic colonoscopy, which identified a giant rectal lesion with granular nodular mixed LST morphology. The tumor was 5 cm from the dentate line and had an adenomatous pit pattern Narrow-Band Imaging (NBI) International Colorectal Endoscopic classification type 2 (**Fig. 1**).

Therapeutic endoscopy was performed with a retro-view colonoscope (EC-3490TLi; Pentax, Tokyo, Japan) with a conical-tip distal attachment cap (DH28GR, 29CR;

Fujifilm, Tokyo, Japan), Erbejet 2 hydrodissection system, and a T-type hybrid knife (Erbe Elektromedizin GmbH, Tübingen, Germany). Thermocautery marks were placed around the edge of the lesion (**Fig. 2**).

We used the hybrid knife in a different way. The T-type hybrid knife was developed for use in an open position, but this ESD device allows its use in a closed position. We have defined this use as hybrid knife “probe mode.” The width of the electrode contact in a closed position and the length of the blade allowed delicate dissection in immersion saline solution. The cutting diameter was 1.5 mm, and the cutting depth was 0.5 mm (**Fig. 3**).

The use of saline solution immersion facilitated a clear endoscopic view, improved vessel identification (**Fig. 4**), and improved the dissection plane (**Fig. 5**). The lesion floating effect of the submucosa in immersion generated a “traction” that helped lift the mucosal flap during ESD with the pocket-creation method (**Fig. 6**).



**Figure 9.** Resected specimen.

After creating the submucosal pocket under most of the surface of the tumor, we made a perimeter cut of the oral side. A suspension bridge was created between the nondissected sides that facilitated traction by flotation (Fig. 7) and was followed by cutting the bridge pillars until en bloc dissection was complete. We observed that the resected area reached up to 80% of the circumference (Fig. 8). There was no perforation or bleeding either during or after the procedure. The procedure time was 241 minutes. The resected specimen size was 120 × 80 mm (Fig. 9).

Histopathologic examination identified a tubular adenoma of 110 × 70 mm with intramucosal moderately differentiated adenocarcinoma and carcinoma-free lateral and vertical resection margins. At the 24-month follow-up visit, there was no residual adenomatous tissue in the biopsy specimens taken from the scar.

In conclusion, this case report illustrates that the combined use of water-jet hydrodissection, saline solution immersion, and the pocket-creation method to perform ESD can be an effective technique to remove colorectal polyps. The use of saline solution immersion facilitates a clear endoscopic view and mucosal flap floating effect, which improves visualization of the submucosal dissection plane. The hybrid knife “probe mode” can be

used safely and effectively in saline solution immersion. Prospective and comparative studies with other ESD knives with an injection function are needed to evaluate the efficacy and safety of this new combined method for the treatment of colorectal lesions.

## DISCLOSURE

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

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

## ACKNOWLEDGMENT

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