

VIDEO CASE REPORT

Rectal reconstruction after endoscopic submucosal dissection for removal of a giant rectal lesion

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Endoscopic submucosal dissection (ESD) allows en bloc removal of large GI-tract lesions.¹⁻³ However, removal of large tumors creates big mucosal defects, which can cause delayed bleeding and delayed perforation.⁴⁻⁶ In addition, resection of circumferential or nearly circumferential tumors can result in subsequent stenosis, requiring

endoscopic dilation, placement of stents, or even surgical correction.⁷⁻¹⁰

Various measures have been suggested to prevent delayed bleeding (closure of mucosal defect with endoscopic clips) and stenosis (local injection of triamcinolone, insertion of betamethasone suppositories, and oral prednisone



Figure 1. Giant laterally spreading tumor (LST-GM 0-IIa+Is) starting at the dentate line, occupying the entire length of the rectum and involving the distal sigmoid colon.



Figure 3. Fore-balloon is pushed in the oral direction pulling the anal margin of the polyp and exposing the submucosal space under the giant rectal lesion.

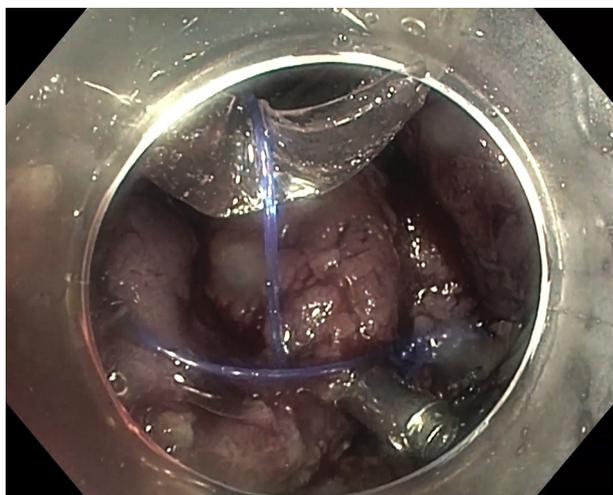


Figure 2. Dissected anal margin of the polyp is connected to the fore-balloon of the DiLumen using endoscopic clip.

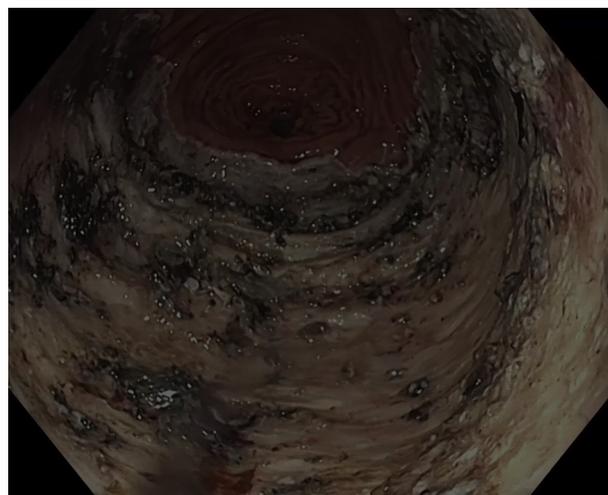


Figure 4. Straightforward view demonstrates large mucosal defect after ESD exposing muscularis layer of the rectum.

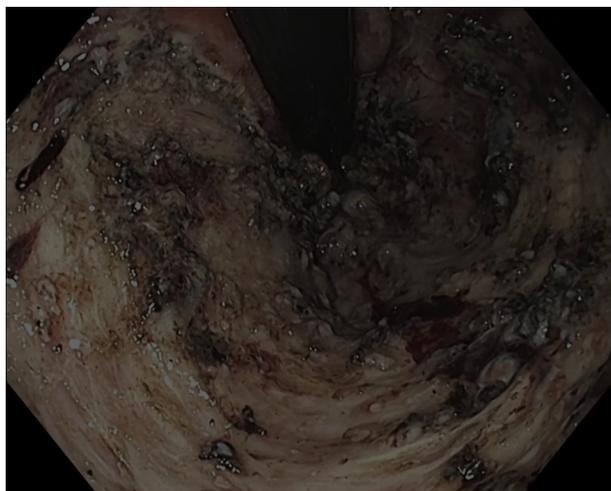


Figure 5. Retroflex view demonstrates large mucosal defect after ESD exposing muscularis layer of the rectum.

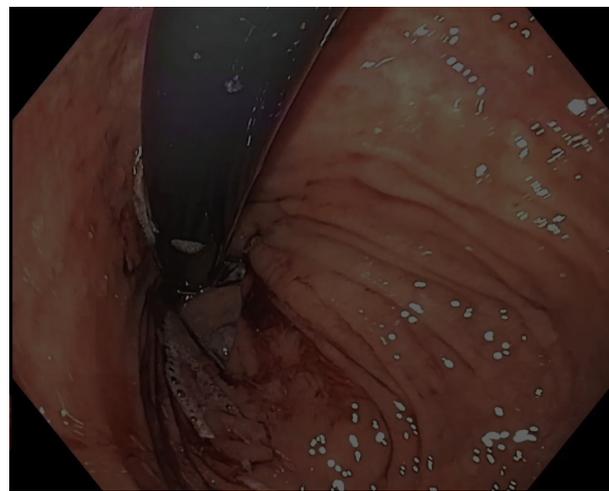


Figure 7. Retroflex view demonstrates complete restoration of the rectal mucosa after completion of endoscopic suturing.

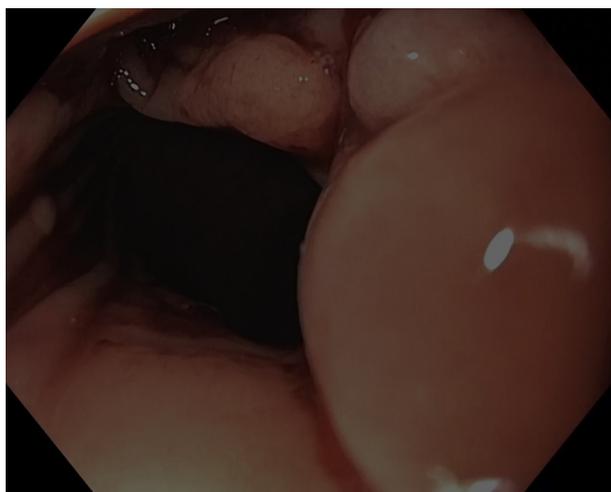


Figure 6. Straightforward view demonstrates complete restoration of the rectal mucosa after completion of endoscopic suturing.

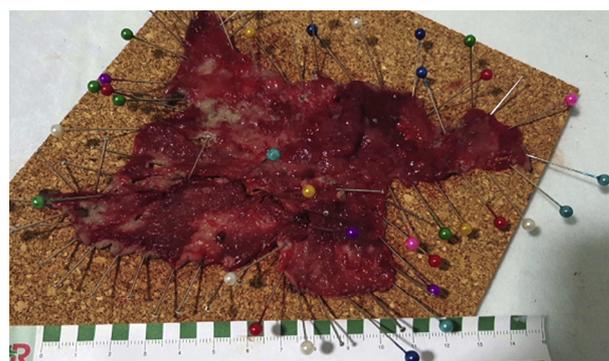


Figure 8. Resected specimen is fixed on a cork for subsequent pathological examination.

in tapered doses) after removal of large GI-tract lesions.^{9,11-14} We now report the use of the endoscopic suturing device Overstitch (Apollo Endosurgery, Austin, Tex, USA) for reconstruction of rectal mucosa to prevent delayed adverse events after endoscopic removal of a giant rectal lesion.

A 51-year-old man had experienced a discharge of mucus from the rectum for 2 months. His colonoscopy revealed a giant granular-type laterally spreading tumor (LST-GM 0-IIa+Is) starting at the dentate line and occupying the entire length of the rectum (Fig. 1; Video 1, available online at www.VideoGIE.org). The lesion was removed en bloc by ESD with the use of a HybridKnife (Erbe USA, Marietta, Ga, USA) and DualKnife-J (Olympus America, Center Valley, Pa, USA), assisted by multidirectional traction with a DiLumen (Lumendi LLC, Westport, Conn, USA) double-balloon interventional platform (Figs. 2 and 3). Removal of the lesion created a very large

mucosal defect, practically eliminating approximately 90% of the rectal mucosa (Figs. 4 and 5). Endoscopic rectal reconstruction was performed with an Overstitch endoscopic suturing device. The entire mucosal defect was completely closed with 2 continuous sutures (Figs. 6 and 7). After ESD and rectal reconstruction, the patient was completely asymptomatic and pain free, and he was discharged home on day 2 after the procedure.

Pathologic examination of the resected 17.0- × 10.1- × 0.3-cm specimen (Fig. 8) demonstrated a tubulovillous adenoma with focal high-grade intraepithelial neoplasia. The resected margins were negative for neoplastic changes, confirming R0 resection.

Repeated colonoscopy in 3 months (Fig. 9) demonstrated complete restoration of the rectal mucosa without any stenosis. There was no residual polypoid tissue.

In conclusion, dynamic multidirectional retraction with a double-balloon interventional platform markedly facilitated colonic ESD. In our patient with a giant rectal laterally spreading tumor, endoscopic reconstruction of the colonic mucosa allowed complete closure of the large mucosal

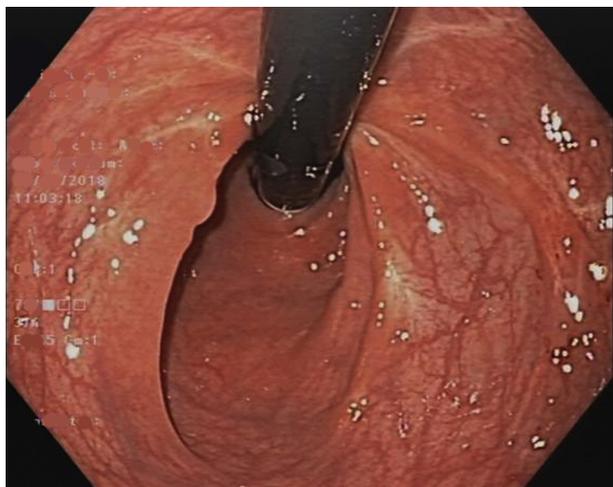


Figure 9. Follow-up colonoscopy in 3 months demonstrates complete restoration of the rectal mucosa without any stenosis.

defect after lesion removal, eliminated postprocedural pain, and prevented delayed bleeding and stenosis after colonic ESD.

DISCLOSURE

Dr Kantsevov is a consultant for Apollo Endosurgery, Aries, Endocages, LumenDi, Medtronic, Olympus and Vizballoons; is a cofounder of Apollo Endosurgery and Endocages; is a shareholder in Apollo Endosurgery; holds equity in Endocages, LumenDi; and is in active litigation with LumenR. All other authors disclosed no financial relationships relevant to this publication.

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

REFERENCES

1. Draganov PV, Gotoda T, Chavalitdhamrong D, et al. Techniques of endoscopic submucosal dissection: application for the Western endoscopist? *Gastrointest Endosc* 2013;78:677-88.
2. Farhat S, Chaussade S, Ponchon T, et al. Endoscopic submucosal dissection in a European setting: a multi-institutional report of a technique in development. *Endoscopy* 2011;43:664-70.
3. Uraoka T, Parra-Blanco A, Yahagi N. Colorectal endoscopic submucosal dissection: is it suitable in western countries? *J Gastroenterol Hepatol* 2013;28:406-14.
4. Oka S, Tanaka S, Kanao H, et al. Current status in the occurrence of postoperative bleeding, perforation and residual/local recurrence during colonoscopic treatment in Japan. *Dig Endosc* 2010;22:376-80.
5. Fujiya M, Tanaka K, Dokoshi T, et al. Efficacy and adverse events of EMR and endoscopic submucosal dissection for the treatment of colon neoplasms: a meta-analysis of studies comparing EMR and endoscopic submucosal dissection. *Gastrointest Endosc* 2015;81:583-95.
6. Kantsevov SV, Bitner M, Mitrakov AA, et al. Endoscopic suturing closure of large mucosal defects after endoscopic submucosal dissection is technically feasible, fast, and eliminates the need for hospitalization (with videos). *Gastrointest Endosc* 2014;79:503-7.
7. Iizuka H, Kakizaki S, Sohara N, et al. Stricture after endoscopic submucosal dissection for early gastric cancers and adenomas. *Dig Endosc* 2010;22:282-8.
8. Shi Q, Ju H, Yao LQ, et al. Risk factors for postoperative stricture after endoscopic submucosal dissection for superficial esophageal carcinoma. *Endoscopy* 2014;46:640-4.
9. Ohara Y, Toyonaga T, Tanaka S, et al. Risk of stricture after endoscopic submucosal dissection for large rectal neoplasms. *Endoscopy* 2016;48:62-70.
10. Abe S, Sakamoto T, Takamaru H, et al. Stenosis rates after endoscopic submucosal dissection of large rectal tumors involving greater than three quarters of the luminal circumference. *Surg Endosc* 2016;30:5459-64.
11. Hashimoto S, Kobayashi M, Takeuchi M, et al. The efficacy of endoscopic triamcinolone injection for the prevention of esophageal stricture after endoscopic submucosal dissection. *Gastrointest Endosc* 2011;74:1389-93.
12. Yamaguchi N, Isomoto H, Nakayama T, et al. Usefulness of oral prednisolone in the treatment of esophageal stricture after endoscopic submucosal dissection for superficial esophageal squamous cell carcinoma. *Gastrointest Endosc* 2011;73:1115-21.
13. Shoji H, Yamaguchi N, Isomoto H, et al. Oral prednisolone and triamcinolone injection for gastric stricture after endoscopic submucosal dissection. *Ann Transl Med* 2014;2:22.
14. Liaquat H, Rohn E, Rex DK. Prophylactic clip closure reduced the risk of delayed postpolypectomy hemorrhage: experience in 277 clipped large sessile or flat colorectal lesions and 247 control lesions. *Gastrointest Endosc* 2013;77:401-7.

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