Colorectal endoscopic submucosal dissection for a lesion on the dentate line area resected with a scissor-type knife

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Colorectal endoscopic submucosal dissection (ESD) is a useful technique for resecting large colorectal tumors, but it is technically difficult. The difficulties include patients' breathing, presence of severe fibrosis, and difficult locations.[1-3] One difficult location is the dentate line area because of an abundance of hemorrhoidal vessels (Fig. 1). Clutch Cutter (Fujifilm Co, Tokyo, Japan) is a unique scissor-shaped serrated knife (Fig. 2A).[4] This knife enables mucosal incision and submucosal dissection. Tissue is caught with this knife and then cut or dissected electrosurgically. The outside of the knife is insulated. As such, there are no unintentional perforations, in contrast to other needle-type knives. Moreover, the Clutch Cutter can stop periprocedural bleeding without the need for hemostatic forceps. Its half-open style enables easy rotation in the appropriate direction (Fig. 2B). Thus, Clutch Cutter can potentially overcome various difficulties in colorectal ESD and can be managed by less-experienced endoscopists. Video 1 (available online at www.VideoGIE.org) shows colorectal ESD of a lesion on the dentate line area in which the Clutch Cutter was used. A 75-year-old woman underwent colonoscopy after

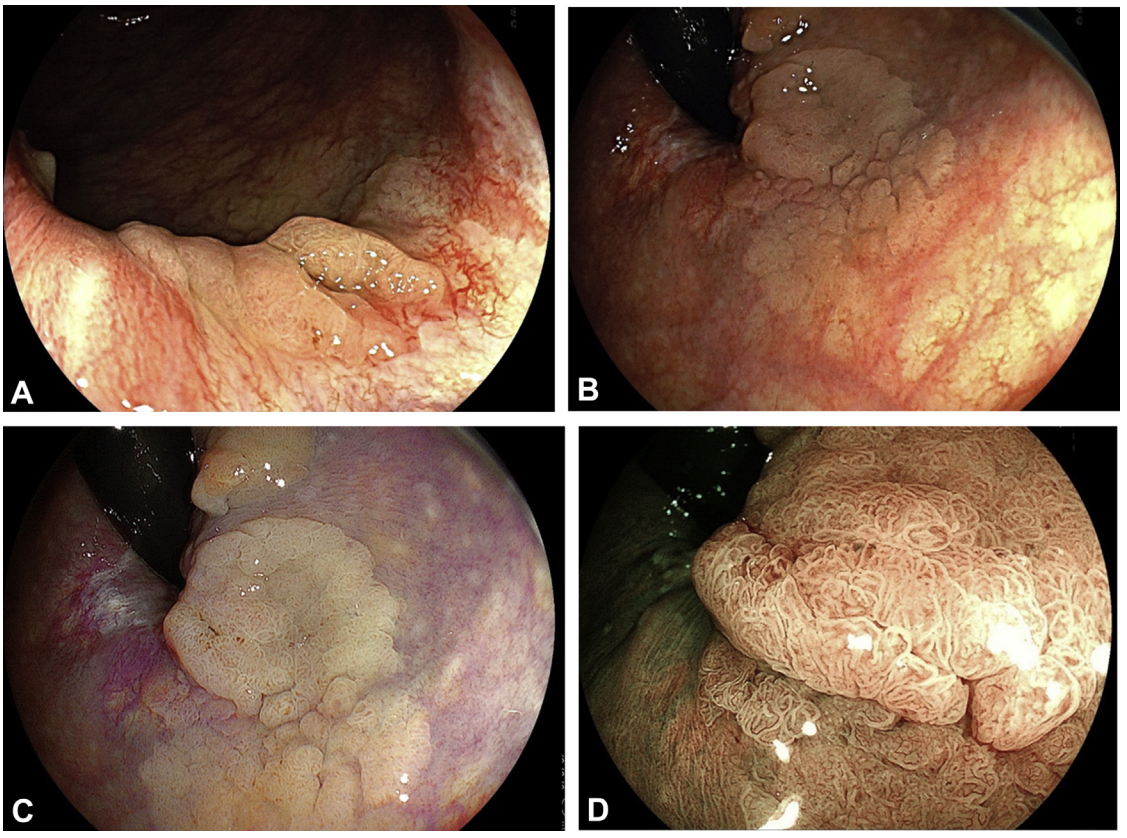

Figure 1. A lesion on the rectum and the dentate line area. **A,** Dentate line section. **B,** Rectal section. **C,** Linked color imaging showing a clear tumor margin. **D,** Magnified blue laser image showing a slightly irregular surface pattern.

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

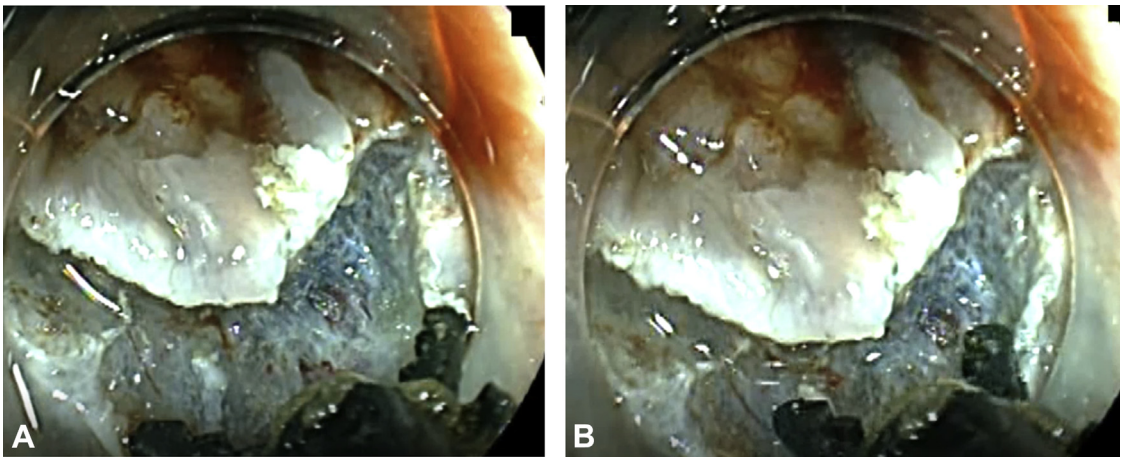

Figure 2. Clutch Cutter 3.5 mm (Fujifilm Co, Tokyo, Japan). **A,** Full-open style. **B,** Half-open style. This style is easy for rotating the knife in the appropriate direction.

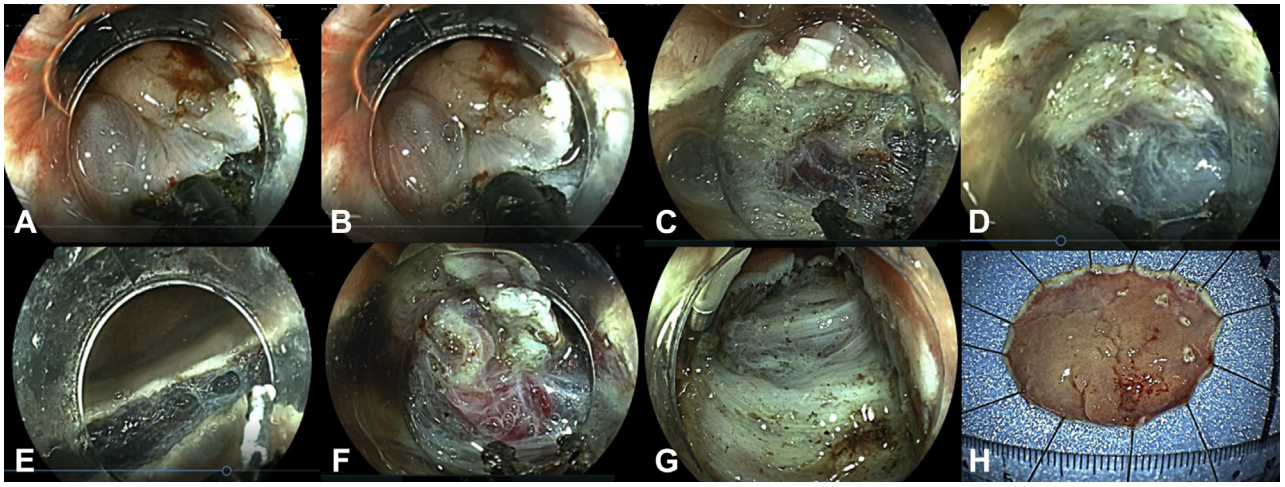

Figure 3. Colorectal endoscopic submucosal dissection with Clutch Cutter. **A,** To prevent the knife from slipping, we incised a small amount of mucosa electrosurgically using a Clutch Cutter in the full-open style of this knife (ERBE: VIO 300D, endocut I, effect 2, duration 4, interval 1). **B,** We caught the mucosa with the knife and incised it using the same electrosurgical setting. **C, D,** We performed submucosal dissection with 2 electrosurgical modes (forced coagulation effect 2, 30 W, endocut I effect 2, duration 4, interval 1). **E,** After checking an oral-sided blue color sign (caused by the blue injection solution) we performed a total circumferential incision. **F,** Palpable or large nonpalpable vessels were precoagulated (soft coagulation, effect 4, 100 W) and were dissected with forced coagulation. **G, H,** Finally, the lesion was resected en bloc in 38 minutes (diameter, 30 × 24 mm). Histologic examination showed high-grade adenoma with free margin.

a positive fecal immunohistochemical test result. A 25-mm type IIa tumor was detected on the rectum and dentate line area (Figs. 1A and B). White-light observation revealed neither a deep depression nor large nodules. Linked color imaging showed a clear tumor margin (Fig. 1C). Magnified blue-laser imaging magnification indicated a slightly irregular surface pattern (Fig. 1D).

High-grade dysplasia was suspected, and ESD was arranged for this lesion by use of a 3.5-mm Clutch Cutter. A medium-length pediatric colonoscope was used with a slightly tapered, transparent hood (Elastic Touch; TOP, Tokyo, Japan) because we were familiar with the 5 o'clock direction channel. For operating on the dentate line area, we used a blended injection solution of 2.0% lidocaine and 0.4% hyaluronic acid (1:1) with a small amount of indigo carmine for preventing pain and a 0.4% hyaluronic acid solution with indigo carmine for other areas.

After injection, we performed a mucosal incision with the Clutch Cutter. To prevent the knife from slipping, we electrosurgically incised a small amount of mucosa in the full-open style of this knife (ERBE: VIO 300D, endocut I, effect 2, duration 4, interval 1; Erbe Elektromedizin GmbH, Tuebingen, Germany) (Fig. 3A). We then caught the mucosa with this knife and incised it using the same electrosurgical setting (Fig. 3B). After this, we performed submucosal dissection with 2 electrosurgical modes (forced coagulation effect 2, 30 W, endocut I effect 2, duration 4, interval 1). Most of the submucosal tissues could be dissected in the forced coagulation mode, by use of a short intermittent foot switch operation (1-1.5 s) (Figs. 3C and D).

Once or twice we used the foot switch operation in the endocut mode after forced coagulation, to prevent excessive coagulation. After checking an oral-sided, blue color sign (resulting from the blue injection solution), we performed a total circumferential incision (Fig. 3E). Then, we continued submucosal dissection from the anal side. Palpable or large nonpalpable vessels were precoagulated (soft coagulation, effect 4, 100 W) and dissected with forced coagulation (Fig. 3F). Perioperative hemorrhage could be stopped with either soft coagulation or forced coagulation.

Finally, the lesion was resected en bloc in 38 minutes (diameter, 30 × 24 mm) (Figs. 3G and H). We also caught a resected specimen with the Clutch Cutter and removed it from the patient. After this, we coagulated exposed vessels in the dissected area using this knife. The patient started oral intake 2 days after ESD and was discharged. No adverse events occurred, including postoperative hemorrhage and delayed perforation. Histologic examination showed high-grade tubular adenoma with free margins.

In conclusion, the Clutch Cutter enabled us to perform ESD on the lesion in the dentate line area, control perioperative hemorrhage, and prevent perforation. Colorectal ESD with the Clutch Cutter is promising for overcoming various difficult situations.

DISCLOSURE

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Abbreviation: ESD, endoscopic submucosal dissection.

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