Endoscopic submucosal dissection with a scissors-type knife for post-EMR recurrence tumor involving the colon diverticulum

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The advantages of endoscopic submucosal dissection (ESD) include the ability to control resection size and shape and permit en bloc resection of large and ulcerated lesions.1 However, even with ESD, endoscopic treatment is challenging for post-EMR recurrence of colorectal tumors because of severe fibrosis.2,3 Moreover, lesions involving the colon diverticulum are considered contraindicated for endoscopic treatment because of the risk of perforation in the absence of a muscle layer.4

We report the successful resection of post-EMR recurrence of a tumor invading the colon diverticulum by ESD, using the newer scissors-type knife, Stag Beetle Knife Jr (SB Knife Jr, Sumitomo Bakelite, Tokyo, Japan). This scissors knife enables grasping the target tissue, facilitating controlled dissection by the endoscopist, to prevent perforation.5

A 79-year-old woman with a polypoidal tumor (Paris 0–Is) in the sigmoid colon (approximately 20 mm in diameter) (Fig. 1A) was referred for ESD. The patient had undergone removal of a polyp from the sigmoid

Figure 1. A, Endoscopic submucosal dissection with SB Knife Jr for post-EMR recurrence tumor involving the colon diverticulum. A polypoidal tumor (Paris 0–Is) can be seen in the sigmoid colon (approximately 20 mm in diameter); a post-EMR scar is seen on the left side of the lesion. B, Endoscopic submucosal dissection was started from the anal side, and submucosal dissection was performed to the part of the diverticulum. C, Tumor invading the diverticulum and severe fibrosis due to post-EMR scar around the muscle defect of the diverticulum. D, Submucosal dissection was performed carefully at the muscle defect. E, The lesion was resected en bloc without perforation. F, The resection surface including the muscle defect was closed with clips.

Written transcript of the video audio is available online at www.VideoGIE.org.
colon in piecemeal fashion 5 years earlier. We noted a post-EMR scar on the left side of the lesion. ESD was started from the anal side with the SB Knife Jr (Fig. 1B). We used hyaluronic acid and indigo carmine for the submucosal injection.

The dissected segment was grasped, and a current was passed by use of a high-frequency generator (ESG-100, Olympus, Tokyo, Japan) at the following settings: pulse cut first mode (30 W) for the mucosal incision and submucosal dissection, and a soft coagulation mode (40 W) for hemostasis. We identified the tumor invading a diverticulum under the mucosal layer (muscle defect) and severe fibrosis caused by a post-EMR scar around this muscle defect (Fig. 1C). Severe fibrosis made lifting extremely difficult.

First, we dissected the fibrosis carefully, leaving part of the adjacent diverticulum. Next, we performed submucosal dissection, grasping and pulling the tissue carefully at the part of the muscle defect (Fig. 1D); these steps were repeated in an alternating sequence (Video 1, available online at www.VideoGIE.org). Postural rotation of the patient facilitated the resection. Finally, the lesion was resected en bloc without perforation (Fig. 1E). The resection surface including the muscle defect was closed with clips to avoid delayed perforation (Fig. 1F). The total procedure time was 170 minutes.

Pathologic examination revealed a high-grade tubulovillous adenoma with a negative margin. The tumor size was 17 × 12 mm. The patient was observed for a few days in the hospital according to our protocol and discharged without adverse events.

**DISCLOSURE**

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*Abbreviation: ESD, endoscopic submucosal dissection.*

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