

## Open dissection for resection of a large submucosal tumor in the esophagus

Endoscopic submucosal tunnel dissection (ESTD) is commonly used for resecting esophageal submucosal tumors (SMT) [1, 2]. However, it is difficult to resect many large SMTs using ESTD because the endoscopic view is obscured and the cutting line is unclear. We present here a method of open dissection for resecting a large and irregular SMT in the distal esophagus.

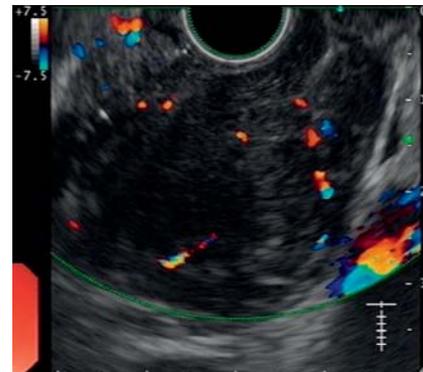
A 53-year-old man with a large esophageal SMT was referred for endoscopic resection. Endoscopic ultrasound revealed that the tumor originated from the muscularis propria (► Fig. 1). Three-dimensional reconstruction based on abdominal computed tomography directly showed the irregular shape of the large tumor (► Fig. 2).

We planned to perform ESTD initially. Mucosal incision and tunnel creation were done, using a hybrid knife, and the small proximal end of the tumor was exposed. As dissection continued, we found that the tumor was larger, and part of it was beyond the esophageal wall. We changed to using an insulated-tip knife, but smooth dissection was still not achievable because of obstruction by

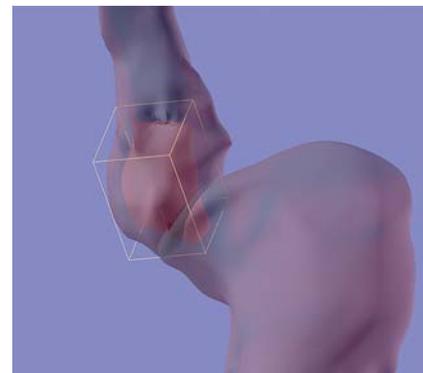
the partially dissected tumor (► Fig. 3). To adequately expose the cutting line and provide operating space, we opened the mucosa adjoining the surface of the tumor (► Video 1). Then we pushed the partially dissected tumor through the mucosal breach into the stomach, using a snare (► Fig. 4). Dissection in the stomach was performed subsequently to detach the tumor. Finally, complete dissection of the tumor was achieved after continued dissection from the esophagus. The tumor was extracted using the snare, and the wound was left without stitching (► Fig. 5). Pathological examination showed a leiomyoma.

Fasting and gastrointestinal decompression was prescribed for 4 days. Proton pump inhibitors, fluid replacement, and nutritional supplements were given. The patient began to drink after 5 days, and was discharged on postoperative day 10. During 30 days of follow-up, mild dysphagia was recorded when the patient ate quickly. Repeated upper endoscopies revealed healing of the wound and no obvious stricture.

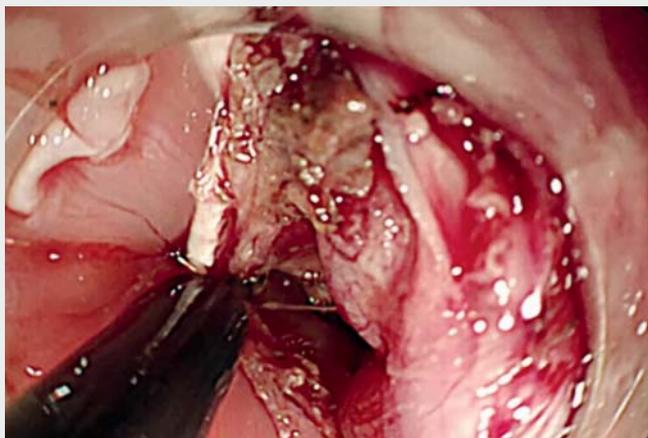
This open dissection method provides a new approach for resecting large SMTs in



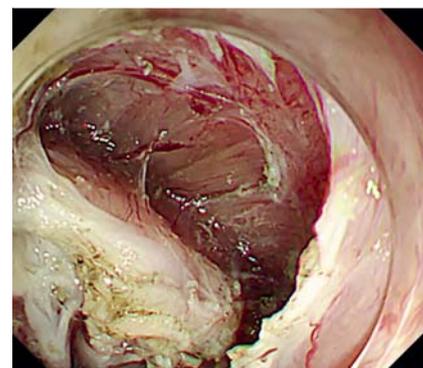
► Fig. 1 The large esophageal tumor originated from the muscularis propria, as shown by endoscopic ultrasound (EUS).



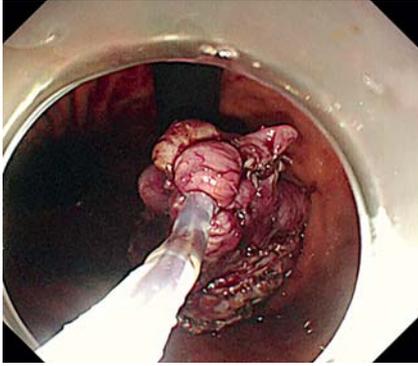
► Fig. 2 The irregular shape of the large esophageal submucosal tumor as shown on three-dimensional reconstruction.



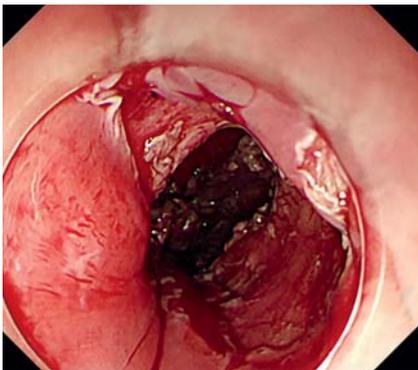
► Video 1 Open dissection for resecting a large and irregular submucosal tumor in the distal esophagus.



► Fig. 3 Smooth dissection was not achieved because of obstruction by the partially dissected tumor.



► **Fig. 4** The partially dissected tumor was pushed to the stomach using a snare.



► **Fig. 5** The wound was left without stitching.

the esophagus when conventional ESTD fails, that avoids a need for open surgery. Using this method, after partial dissection the tumor can be easily pushed to a lower plane or to the stomach for adequate exposure of the cutting line.

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## Competing interests

All authors have no conflicts of interest relevant to this article.

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## Bibliography

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