

Successful removal of an esophageal submucosal tumor by the submucosal tunneling endoscopic resection technique

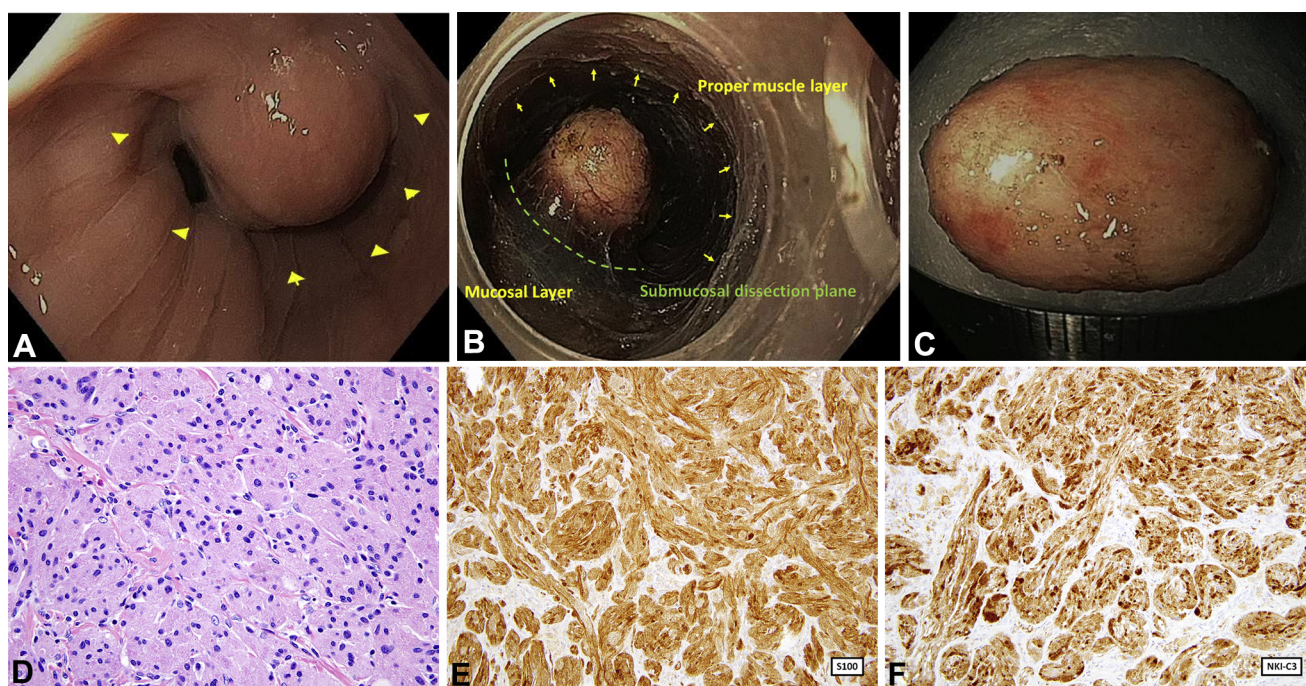


Figure 1. **A**, A 20-mm submucosal mass was observed at the gastroesophageal junction. **B**, In this case, the lesion was first isolated from the muscularis propria. Subsequently, submucosal dissection was continued to separate the mucosal layer from the tumor surface. **C**, A yellowish elastic hard mass, measuring 20 mm at the long axis. **D**, The tumor was found to be composed of nests and sheets of epithelioid cells with small nuclei and abundant granular eosinophilic cytoplasm. **E** and **F**, By immunohistochemistry, the tumor cells were found to be strongly and diffusely positive for both S-100 and NKI-C3. *S100*, marker of Schwann cells; *NKI-C3*, marker of lysosomes.

We describe a case of a submucosal esophageal tumor successfully removed by a submucosal tunneling endoscopic resection (STER) technique. Informed consent was obtained from the patient for the publication of his information and imaging.

A 32-year-old man presented with a history of dysphagia. His EGD revealed a 20-mm submucosal tumor at the gastroesophageal junction (Fig. 1A). EUS revealed a hypoechoic mass arising from the superficial 4th layer. First, the esophageal mucosa at approximately 7 cm proximal to the mass was lifted by using a starch and methylene blue solution. A needle-knife was then used to create a 2-cm longitudinal mucosal incision. The submucosal tunnel was then entered with an endoscope and extended longitudinally with a needle-knife and mechanical dissection with an attachment hood, until the surface of the yellowish tumor was exposed after approximately 5 cm of tunneling.

In this case, direct vision of the tumor surface proved that the proper muscle layer was not involved by the tumor, suggesting that the tumor arose from the submucosal layer (Fig. 1B). Finally, resection was completed without perforation of the muscle layer (Fig. 1C). A running stitch was chosen for closure of the submucosal tunnel because a running stitch has been shown to result in a more secure closure and decreased cost as compared with the interrupted stitch.

Histopathologic examination (Fig. 1D, E, F) led to the diagnosis of granular cell tumor, which does have malignant potential. His dysphagia resolved immediately after tumor removal. On the 3-month follow-up our patient had experienced no adverse events from his STER procedure and remained asymptomatic, with no recurrence of his presenting dysphagia. In conclusion, the combination of short-length needle-knife and countertraction

accomplished through the use of an attachment hood allowed for fine-needle dissection of the submucosal tissue as performed in the STER procedure. A running stitch using an endoscopic suturing device facilitated secure closure of the tunnel entrance ([Video 1](#), available online at www.VideoGIE.org).

DISCLOSURE

The following authors disclosed financial relationships relevant to this publication: H. Aihara: Consultant for Olympus America; C. C. Thompson: Consultant for Olympus America and Apollo Endosurgery. All other

authors disclosed no financial relationships relevant to this publication.

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<http://dx.doi.org/10.1016/j.vgje.2016.07.009>