

# Stretching the limits of submucosal tunneling endoscopic resection

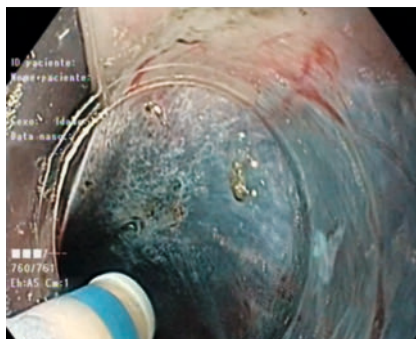
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A 60-year-old man presented with dysphagia due to a 40-mm leiomyoma of the muscularis propria in the middle third of the esophagus. The patient had a history of hypertension, atrial fibrillation, and anticoagulation. Endoscopic submucosal tunneling resection (STER) was proposed (► **Video 1**).

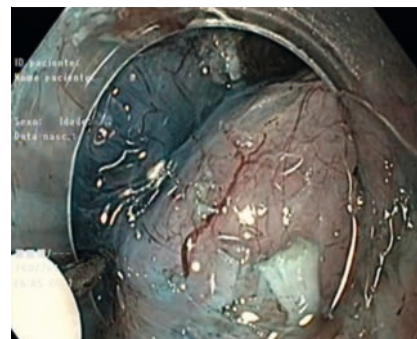
An incision of the mucosa was performed 5 cm proximal to the lesion, creating a wide tunnel 4 cm above the lesion (► **Fig. 1**). The tunnel was created by separating the mucosa from the lesion, extending laterally and distally. Dissection of the tumor's attachment to the muscular layer was performed using the DualKnife J (Olympus, Tokyo, Japan) and the HybridKnife I (Erbe, Tuebingen, Germany) (► **Fig. 2**), and myotomy of the circular muscular layer (Triangle tip knife, Olympus) was performed, preserving the capsule (► **Fig. 3**). A retrieval net (Roth Net; Steris, Mentor, Ohio, USA) was used for extraction (► **Fig. 4**). Hemostasis was verified and topical gentamycin was applied. The mucosal incision was closed with clips.

The patient was admitted to an Intermediate Care Unit, with piperacillin-tazobactam antibiotic prophylaxis. After 24 hours, thoracalgia developed and a thoracoabdominal computed tomography scan revealed an esophageal hematoma. The patient made favorable progress with transfer to the ward after 72 hours and was discharged on the eighth day. Pathological diagnosis confirmation of esophageal leiomyoma was made (► **Fig. 5**).

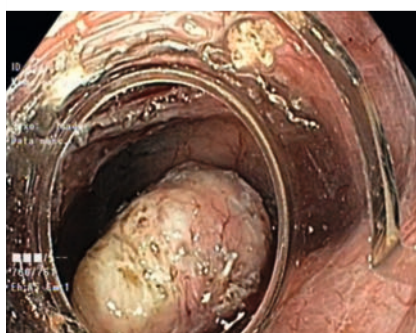
We present a case of a symptomatic esophageal leiomyoma successfully treated endoscopically with STER. Leiomyomas are benign lesions requiring resection when they cause obstructive symptoms, with an upper size limit for an endoscopic en bloc resection advised by the European guidelines of 35 mm, below that of the presented case [1]. STER allows the resection of tumors by tunneling the submucosa, minimizing the mu-



► **Fig. 1** Tunnel 4 cm above the lesion, created by separating the mucosa from the lesion, extending laterally and distally.



► **Fig. 2** Dissection of the tumor's attachment to the muscular layer.



► **Fig. 3** Capsule preservation with complete resection of the lesion.



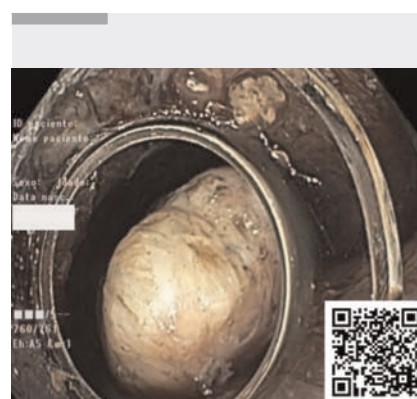
► **Fig. 4** Extraction through the tunnel and the upper esophageal sphincter using a retrieval net.

cosal defect [2,3]. Thoracoscopy enucleation is a surgical alternative, although no comparative studies are available [4]. Endoscopic full-thickness resection may be less preferable to STER since it does not preserve mucosal integrity [3]. The development in third-space intervention enables the management of progressively more complex lesions, avoiding a major surgical intervention.

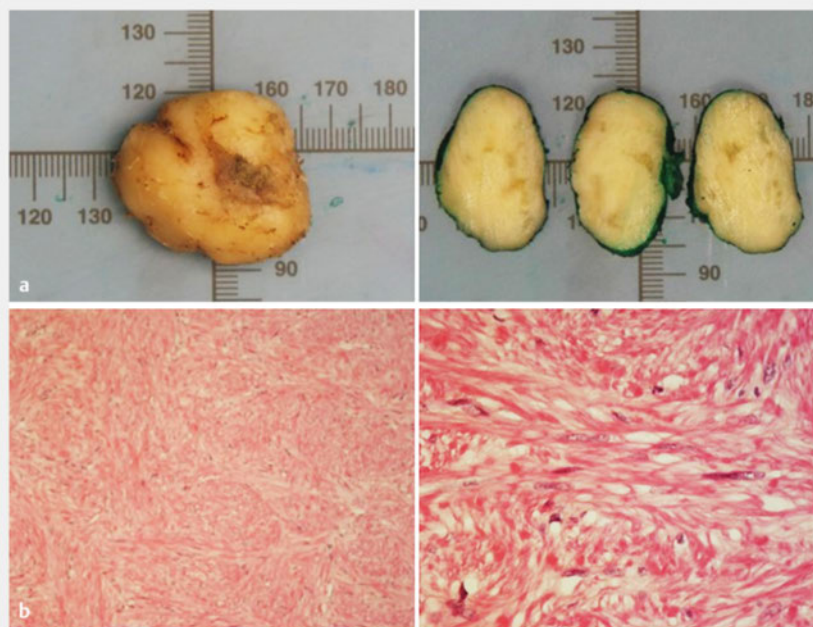
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## Conflict of Interest

The authors declare that they have no conflict of interest.



► **Video 1** Submucosal tunneling endoscopic resection of an esophageal leiomyoma.



► **Fig. 5** Histological evaluation. **a** White nodule of firm consistency. **b** Nodule formed by fusiform cells with no dysplasia ( $\times 20$  magnification and  $\times 100$  magnification).

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## References

- [1] Deprez P, Moons L, O'Toole D et al. Endoscopic management of subepithelial lesions including neuroendocrine neoplasms: European Society of Gastrointestinal Endoscopy (ESGE) Guideline. *Endoscopy* 2022; 54: 412–429. doi:10.1055/a-1751-5742
- [2] Liu Q, Ruan W, Liu Z et al. Efficacy and safety analysis of submucosal tunnel endoscopic resection for submucosal masses in esophageal muscularis propria. *Comput Math Methods Med* 2022; 2022: 4457696. doi:10.1155/2022/4457696
- [3] Kahaleh M, Bhagat V, Dellatore P et al. Subepithelial tumors: How does endoscopic full-thickness resection & submucosal tunneling with endoscopic resection compare with laparoscopic endoscopic cooperative surgery? *Endosc Int Open* 2022; 10: E1491–E1496
- [4] Phama DH, Nguyena ND, Doc ML et al. Video assisted thoracoscopy or laparoscopy for enucleation of esophageal leiomyoma: A seven-year single center experience of 75 cases. *J Visc Surg* 2022; 159: 108–113

## Bibliography

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