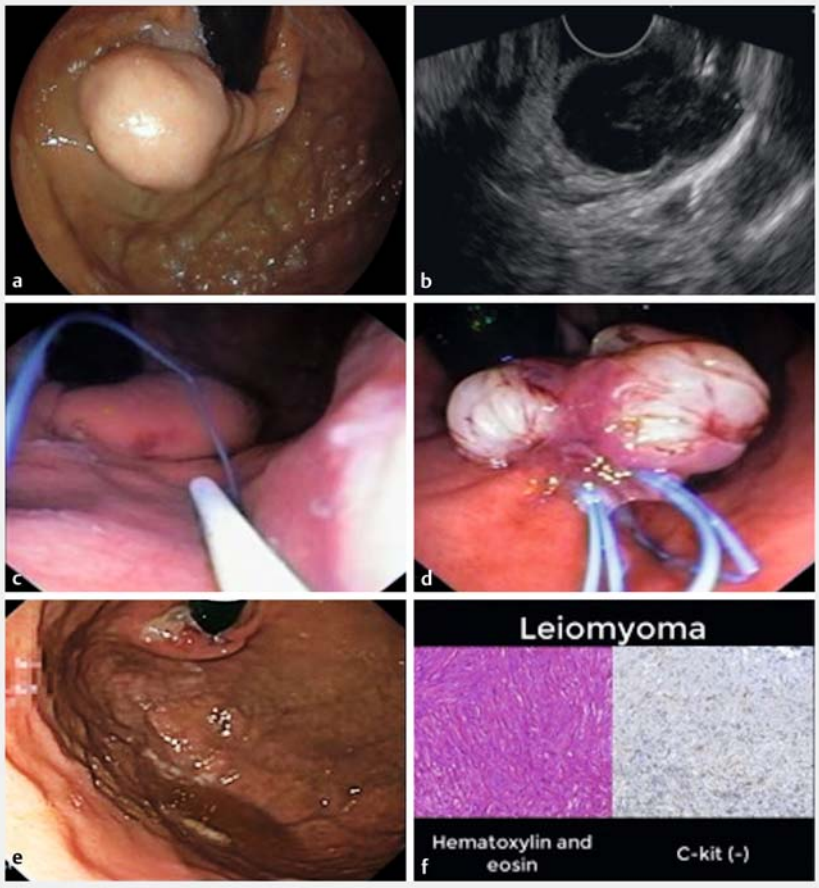
A novel and feasible technique for diagnosis and treatment of small subepithelial tumors

Subepithelial tumors are commonly encountered during routine endoscopy, but their exact prevalence is uncertain. Their management and treatment stand in striking contrast to those of mucosal lesions: techniques are still early in evolution, numbers are small, and robust outcome data are sparse [1]. Using endoscopic ultrasonography (EUS), it has become possible to diagnose subepithelial lesions by evaluating the originating layer, echo level, and internal echo pattern of the lesion [2, 3]. Lipomas, lymphangiomas, and fibromas originate from the third layer and leiomyomas and schwannomas from the fourth layer [4].

For diagnosis, forceps biopsy and EUS-guided fine-needle aspiration (EUS-FNA) or unroofing using the ligate – unroof – biopsy technique can be performed. Endoscopic treatment is possible. In 2014, Binmoeller et al. [5], described the "suck – ligate – unroof – biopsy" technique using a detachable loop. We describe a novel and feasible technique to treat a gastric leiomyoma using a tissue helix, which was used to pull the lesion into the detachable loop (▶ **Video 1**).

A 39-year-old woman presented with dysphagia. Her symptoms had started 2 years earlier. Esophagogastroduodenoscopy (EGD) was performed and a subepithelial lesion was diagnosed. After that, EUS showed an anechoic image from the fourth layer, near the esophagogastric junction (▶ **Fig. 1**).

For the procedure, we used a double-channel gastroscope, tissue helix, and a detachable nylon loop. First, we passed the tissue helix through the detachable loop. We pulled the lesion into the loop, which was then tightened at the base of the lesion, the suction was released, and the loop was deployed from the delivery sheath. We did this three times to ensure that no bleeding would occur.



▶ **Fig. 1** Subepithelial lesion before, during, and after the procedure. **a** Endoscopic assessment; **b** endoscopic ultrasonography; **c** loop ligating device and tissue helix; **d** final appearance after the procedure; **e** follow-up esophagogastroduodenoscopy (15 days after the procedure); **f** diagnosis: leiomyoma.

The tumor was "unroofed" with a needle-knife. Two perpendicular incisions were made along the mucosal surface. Multiple biopsy specimens were obtained using a biopsy forceps. A leiomyoma was diagnosed.

A follow-up EDG was performed 15 days after the procedure. The patient was asymptomatic and only a scar was observed.

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Competing interests

The authors declare that they have no conflict of interest.

Video 1 Technique for diagnosis and treatment of subepithelial lesions. Tissue Helix was used to pulling the lesion into the datachable loop. After that, we unroofed the tumor with low risk of bleeding and diagnosed a leiomyoma using a biopsy forceps. Fifteen days after the procedure, the patient is asymptomatic.

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