

Intramural esophageal dissection during peroral endoscopic myotomy

A 68-year-old woman with a history of aggravated dysphagia and regurgitation for 10 months was diagnosed with achalasia and was referred for peroral endoscopic myotomy (POEM) (▶ **Video 1**).

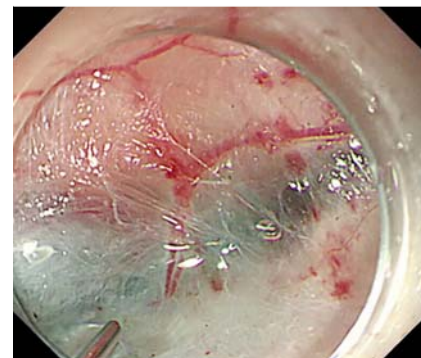
Preoperative esophagography showed a dilated esophagus without obvious passage of contrast agent. With the patient under general anesthesia, and after submucosal injections of saline with methylene blue, mucosal incision was performed at 10 cm above the gastroesophageal junction (EGJ) using a dual knife. During creation of the tunnel it was not possible to sufficiently lift the mucosa after repeated injections (▶ **Fig. 1**), and rupture of the mucosa was suspected (▶ **Fig. 2**); however no mucosal breach was noted after repeated observations. An unusual-looking visual field was then exposed (▶ **Fig. 3**), which looked totally different from the submucosal tunnel created later (▶ **Fig. 4**). The lifting sign was achieved after injections to a deeper layer, and subsequent dissection of the deep layer confirmed that the unusual visual field was above the muscularis mucosae (▶ **Fig. 5**). Therefore, a diagnosis of intramural esophageal dissection during POEM was made. Finally, the submucosal

tunnel between the muscularis mucosae and muscularis propria was created uneventfully. Myotomy and mucosal entrance closure also went smoothly. There was no unexpected mucosal breach during the whole procedure.

The patient began to drink at postoperative day 1, and was discharged from our hospital after 2 days. During 1 month of follow-up, the patient's symptoms improved significantly. Esophagography also confirmed the improvement of achalasia.

Intramural esophageal dissection is occasionally associated with oral anticoagulants, eating burnt or rough food, or vomiting during upper endoscopy [1]. As far as we know, intramural esophageal dissection occurring during POEM has not been reported, and it may be attributed to injection or inflation during the procedure. Since intramural esophageal dissection is superficial, an uneventful mucosal breach is more likely to occur. Early identification of intramural esophageal dissection during POEM helps in modifying the procedure, reducing the risk of complications such as postoperative infection.

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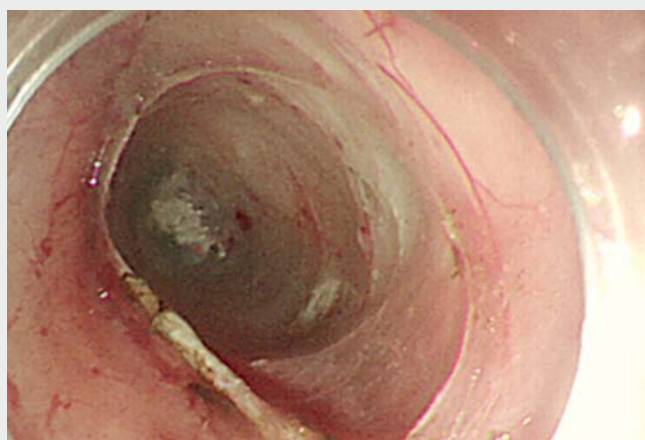
▶ **Fig. 1** During peroral endoscopic myotomy for achalasia in a 68-year-old woman, the lifting sign was not achieved after repeated injections at the beginning of tunnel creation.



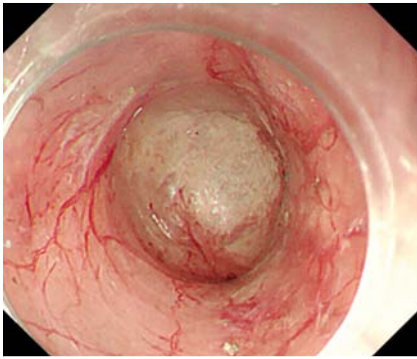
▶ **Fig. 2** Mucosal rupture was suspected during continuing creation of the tunnel.



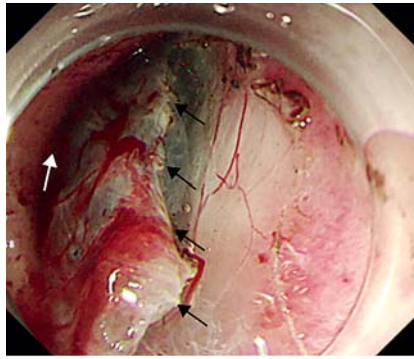
▶ **Fig. 3** An unusual-looking visual field was seen after mucosal rupture.



▶ **Video 1** Intramural esophageal dissection during peroral endoscopic myotomy.



► **Fig. 4** The submucosal tunnel created later in the procedure.



► **Fig. 5** The area with the unusual appearance (white arrow) was above the muscularis mucosae (black arrows).

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Competing interests

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

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