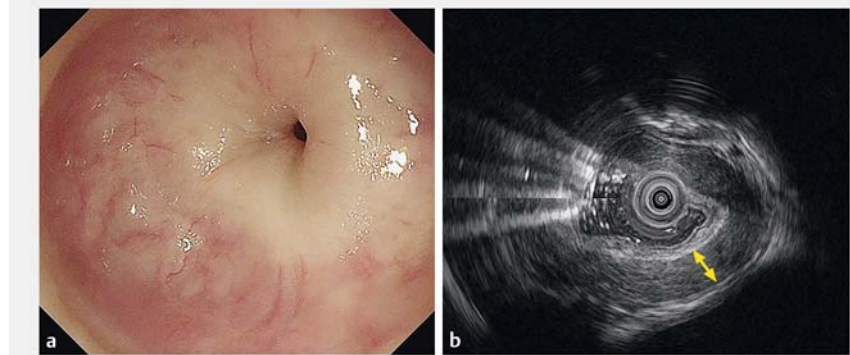


## Peroral endoscopic myotomy with simultaneous submucosal and muscle dissection in spastic esophageal disorder

Peroral endoscopy myotomy (POEM) is widely known as a treatment modality for achalasia and its use has been expanding to other spastic esophageal motility disorders [1, 2]. POEM with simultaneous submucosal and muscle dissection (POEM-SSMD) has been described for achalasia with severe adhesions in the submucosa of the cardia [3]. We present a challenging case, in which tunneling within the submucosa alone before the myotomy was not possible owing to spastic contractions in the mid-esophagus.

A 46-year-old woman presented with a long history of dysphagia, with worsening symptoms and chest pain since the previous year. Esophagogastroduodenoscopy with a standard endoscope showed narrowing at the level of the tracheal bifurcation and it was impossible for the scope to traverse the narrowing (► **Fig. 1 a**). An endoscopic ultrasonography (EUS) examination showed a thick band of muscle (► **Fig. 1 b**). It was possible to pass a nasal endoscope beyond the level of the narrowing and this revealed several diverticula in the esophagus, along with strong contractions. An esophagram showed abnormal esophageal contractions throughout, with a narrowed lumen (► **Fig. 2 a**). High resolution manometry was inconclusive because of the difficulty in placement of the catheter.

The patient was diagnosed with spastic esophageal disorder and underwent POEM (► **Video 1**). The mucosal entry was created with a 2-cm longitudinal incision at the 5-o'clock position using a FlushKnife BT (Fujifilm) after submucosal injection. Submucosal dissection was performed to create the submucosal tunnel. As we approached the tight junction with a narrowed tunnel, proceeding with submucosal tunneling alone was not possible. Instead, simultaneous submucosal and muscle dissection had to be performed, which eventually opened up the tunnel (► **Fig. 3**). Submucosal tunneling



► **Fig. 1** A narrowed segment in the esophagus is revealed on: **a** esophagogastroduodenoscopy, with the standard endoscope unable to pass through the narrowing; **b** an endoscopic ultrasonography (EUS) image, with a thick band of muscle seen.



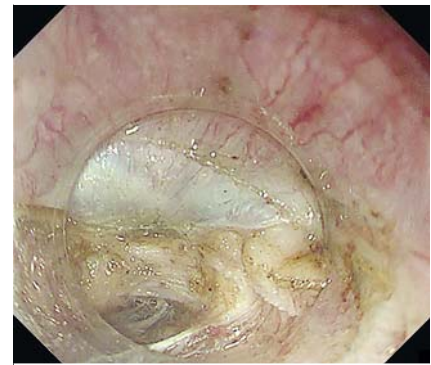
► **Fig. 2** Esophagram images: **a** before peroral endoscopic myotomy (POEM), showing strong contractions and a narrowed lumen; **b** on day-1 post-POEM, showing an improvement in contrast emptying.

was continued until two penetrating vessels were seen, indicating the distal end

of the POEM [4, 5], and the endoscopic myotomy was completed once the pene-



**▶ Video 1** Peroral endoscopic myotomy with simultaneous submucosal and muscle dissection (POEM-SSMD) in a tunnel that was narrowed by spastic esophageal contractions.



**▶ Fig. 3** Endoscopic image during peroral endoscopic myotomy with simultaneous submucosal and muscle dissection.

trating vessels were reached. A standard endoscope was then passed smoothly through into the stomach. The mucosal entry site was closed with endoclips.

An esophagram on day 1 after the procedure showed an improvement in contrast emptying (▶ **Fig. 2 b**). The patient reported significant improvement in her symptoms 3 months later.

Adopting a method of simultaneous submucosal and muscle dissection in a tunnel narrowed because of spastic contractions is feasible to allow successful completion of POEM.

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### Competing interests

Dr. Takashi Toyonaga receives royalties from Fujifilm and Olympus Medical Systems. The other authors declare that they have no conflict of interest.

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