

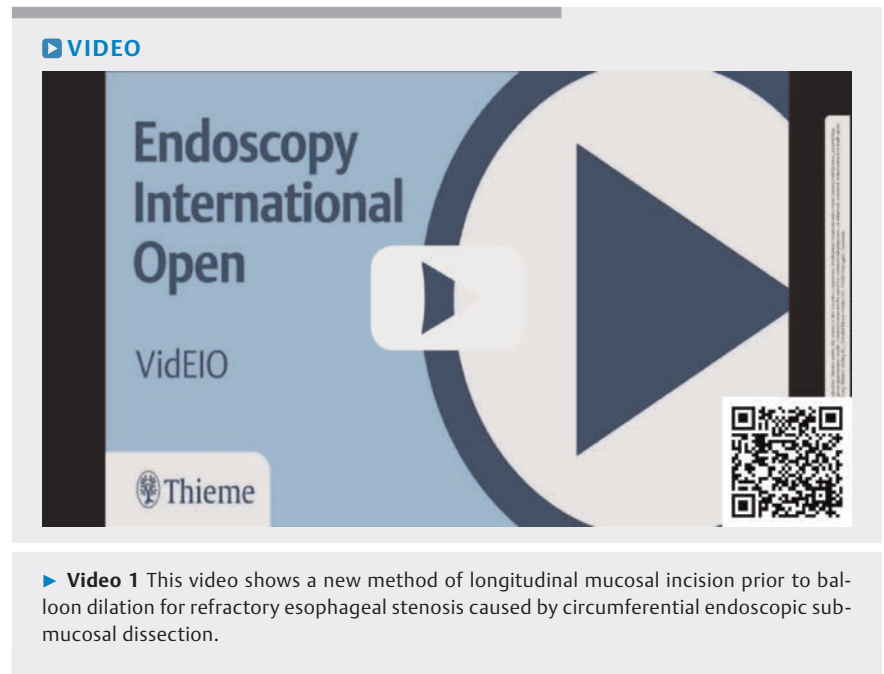
## Longitudinal mucosal incision prior to balloon dilation: Novel and advanced approach for severe esophageal stenosis ▶

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Stricture is a common complication following esophageal endoscopic submucosal dissection (ESD), occurring in 94.1% of cases involving resection of three-quarters or more of the circumference if no preventive measures are implemented. [1,2]. Standard treatments, such as balloon dilation with local or systemic steroid administration, are recommended in current guidelines [3]. However, some refractory strictures remain unresponsive to such measures, significantly reducing patient quality of life. This report presents a novel endoscopic approach to treat such cases.

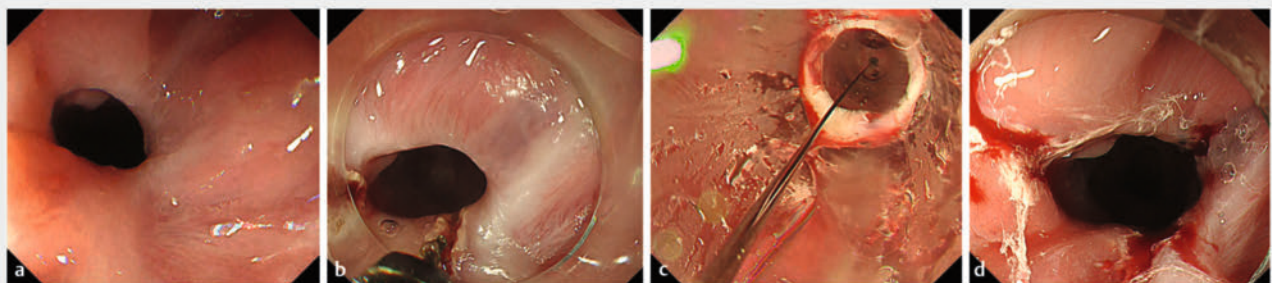
A 70-year-old male underwent ESD for a circumferential esophageal cancer followed by 100 mg of triamcinolone injection at another hospital. However, strictures developed 1 month later (▶ **Fig. 1a**). Subsequent balloon dilations were performed biweekly without improvement, leading the patient to seek care at our hospital.

Upon performing balloon dilation again for the stricture measured about 8 mm, we identified that same lacerations were consistently forming only in the 4 o'clock direction. Therefore, we adopted a strategy of performing mucosal incisions prior to balloon dilation to redistribute pressure applied to the stricture site during dilation (▶ **Video 1**). Endoscopic ultrasonography using a miniature probe

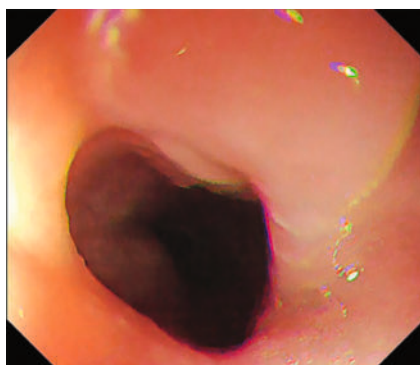


(UM-S20–17 R) was performed preoperatively to assess wall thickness. Using a needle knife (KD-645L: Olympus), longitudinal mucosal incisions were carefully made on the stricture at the 6 o'clock and 8 o'clock positions (▶ **Fig. 1b**). Balloon dilation then was performed using a balloon device (KD-645 L, 12 to 15 mm: Olympus) to expand the stricture to 15 mm (▶ **Fig. 1c**). Lacerations at the incision points were exten-

ded and additional tearing was observed at the 4 o'clock position, which was less severe than in previous procedures as we expected (▶ **Fig. 1d**). Subsequently, 40 mg triamcinolone was injected into the incision site. Four weeks later, follow-up endoscopy revealed that the stricture had resolved, allowing the endoscope to pass through smoothly (▶ **Fig. 2**). This improvement was still evident at 8-week follow-up.



▶ **Fig. 1** **a** Refractory esophageal stenosis can be seen, which prevents scope passage. **b** A longitudinal mucosal incision was carefully made on the stenosis site. **c** Subsequently, balloon dilation was performed to 15 mm. **d** There was no sign of perforation after the procedure.



► **Fig. 2** This image shows the stenosis site 1 month after the procedure. The endoscope could be passed through it.

Balloon dilation often fails to apply pressure in various directions at the stenosis site, which may be a major cause of lack of improvement. Longitudinal incisions at other points can distribute the pressure during dilation, which may offer promising new treatment for refractory stenosis cases.

### Conflict of Interest

The authors declare that they have no conflict of interest.

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