

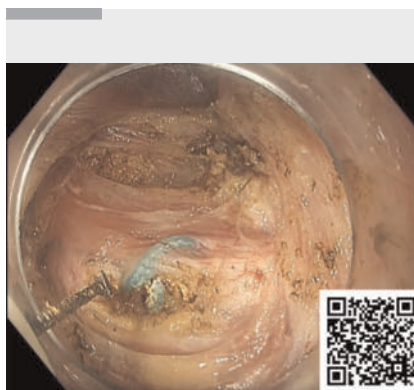
## Impedance planimetry-guided peroral endoscopic myotomy of the fundoplication valve



We present a novel approach involving impedance planimetry with the endoscopic functional lumen imaging probe (EndoFLIP) to guide peroral endoscopic myotomy of the fundoplication valve (FP-POEM) (► **Video 1**).

A 34-year-old man presented with severe dysphagia following three laparoscopic fundoplications and revisional surgical interventions for gastroesophageal reflux disease (GERD). He was unable to consume solid foods, necessitating parenteral feeding. Radiologic and endoscopic evaluations were similar to type I achalasia, characterized by esophagogastric junction (EGJ) tightening and a dilatation of the distal tubular esophagus. Previous surgical interventions had resulted in pronounced scarring and fibrosis, making further surgical interventions to release the fundoplication unfeasible. After a multidisciplinary review, we opted for a third-space endoscopic approach to dissect the fundoplication valve [1].

Prior to and after the myotomy, intraoperative impedance planimetry with EndoFLIP was used to assess distensibility, yielding a distensibility index (DI) of 1.7 and 1.5 mm<sup>2</sup>/mmHg with 30-mL and 40-mL balloons, respectively, prior to myotomy. A posterior tunnel was initiated 5 cm proximal to the EGJ and extended 3 cm into the fundoplication site. The myotomy involved the circular esophageal muscles and the fundoplication valve. Owing to the pronounced fibrosis, the exact extent of the myotomy was difficult to predict correctly. Post-myotomy, the DI improved to 2.8 mm<sup>2</sup>/mmHg. With intraoperative guidance from EndoFLIP in standard esophageal POEM for achalasia, the objective is to enhance the DI by a minimum of 200% [2]. Consequently, further myotomy was performed, resulting in a DI of 5.1 and 4.5 mm<sup>2</sup>/mmHg with the 30- and 40-mL balloons, respectively. The tunnel entrance was secured with four hemoclips.



► **Video 1** Endoscopic myotomy of the fundoplication valve is performed with intraoperative guidance via impedance planimetry in a patient with dysphagia following laparoscopic fundoplication surgery.

At the early follow-up assessment after 3 months, the patient's symptoms had resolved. He was able to eat solid foods and had no complaints of reflux.

This represents the first case of EndoFLIP-guided FP-POEM. The use of intraoperative DI and cross-sectional area evaluations allowed optimization of the myotomy extent. While EndoFLIP has been used in standard esophageal POEM [3], its potential utility may be particularly pronounced in more challenging cases.

Endoscopy\_UCTN\_Code\_CPL\_1AH\_2AH

### Conflict of Interest

The authors declare that they have no conflict of interest.

### The authors

**Sandra Nagl<sup>1</sup>, Alanna Ebigbo<sup>1</sup>, Marc Barthet<sup>2</sup>, Helmut Messmann<sup>1</sup>**

<sup>1</sup> Department of Gastroenterology, University Hospital Augsburg, Augsburg, Germany

<sup>2</sup> Department of Hepatogastroenterology, Assistance Publique des Hôpitaux de Marseille Aix-Marseille, Université Hôpital Nord Marseille, Marseille, France

### Corresponding author

**Alanna Ebigbo, MD**

Department of Gastroenterology,  
Hospital Augsburg, Stenglinstraße 2,  
86156 Augsburg, Germany  
alanna.ebigbo@uk-augsburg.de

### References

- [1] Gonzalez JM, Barthet M, Debourdeau A et al. Peroral endoscopic myotomy and valve section for treatment of persistent and disabling dysphagia after laparoscopic fundoplication (with video). *Gastrointest Endosc* 2023; 98: 839–842
- [2] Ngamruengphong S, von Rahden BH, Filser J et al. Intraoperative measurement of esophagogastric junction cross-sectional area by impedance planimetry correlates with clinical outcomes of peroral endoscopic myotomy for achalasia: a multicenter study. *Surg Endosc* 2016; 30: 2886–2894
- [3] Amundson JR, Wu H, VanDruff V et al. Esophagogastric junction compliance on impedance planimetry (EndoFLIP) following peroral endoscopic myotomy (POEM) predicts improvement in postoperative Eckardt score. *Surg Endosc* 2023; 37: 1493–1500. doi:10.1007/s00464-022-09432-2

### Bibliography

Endoscopy 2024; 56: E326  
DOI 10.1055/a-2291-9572  
ISSN 0013-726X  
© 2024. The Author(s).

This is an open access article published by Thieme under the terms of the Creative Commons Attribution License, permitting unrestricted use, distribution, and reproduction so long as the original work is properly cited.  
(<https://creativecommons.org/licenses/by/4.0/>)

Georg Thieme Verlag KG, Rüdigerstraße 14,  
70469 Stuttgart, Germany

