

Site of Luminal Narrowing Affects Likelihood of Successful Dilation When Ultra-Thin Endoscopes are Required



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Background

- Esophagogastroduodenoscopy (EGD) is used in the evaluation of esophageal disease to assess the lumen and mucosa, sample tissue, and perform therapeutic maneuvers
- Standard upper endoscopes, with a diameter of approximately 9-10 mm, may not be able to traverse the entire organ when luminal narrowing exists
- Ultra-thin endoscopes (UTEs), with diameters closer to 6 mm, allow endoscopists to complete inspection and optimize treatment plans in many of these patients

Aim

- To explore UTE patterns of use and evaluate for connections between UTE findings and successful resolution of luminal narrowing with endoscopic intervention

Methods

- All patients undergoing EGD utilizing UTE at a single high-volume teaching hospital between 9/2018 and 5/2022 were identified
- Patients with non-malignant strictures were selected for analysis
- Successful dilation was defined as either balloon or Savary dilation to a luminal diameter of at least 13 mm
- Esophageal stricture locations were defined as upper third (<24 cm from incisors), middle third (24-32 cm) and lower third (>32 cm)

Dilation Outcomes in Patients With Non-Malignant Strictures

	Total Cohort	Successful Dilation (Final Diameter at Least 13 mm)	Unsuccessful Dilation (Final Diameter <13 mm)	p-Value
Number of Patients (total dilation procedures)	31 (47)	14 (26)	17 (21)	
Dilation Procedures Per Patient		1.86	1.24	0.002
Age	61.5	63.8	59.7	0.581
Male (%)	18 (58.1%)	10 (71.4%)	8 (47.1%)	0.179
Location of Stenosis (%)				
Upper Third	17 (54.8%)	12 (85.7%)	5 (29.4%)	0.010
Middle Third	6 (19.4%)	1 (7.1%)	5 (29.4%)	
Lower Third	8 (24.8%)	1 (7.1%)	7 (46.7%)	

Summary of Results

- 205 EGDs where UTE was used, including 103 where dilation was performed
- 31 patients with luminal narrowing not due to malignancy had 47 EGDs with dilation
- Successful dilation was achieved in 14 patients, with an average of 1.86 dilation procedures (vs. 1.24 in the unsuccessful group)
- No significant difference with respect to age or gender when comparing dilation outcomes
- An ANOVA model showed a statistically significant difference between success rates for dilation of upper, middle, and lower third narrowing (p = 0.010), with the best results for proximal lesions

Discussion

- The use of UTE to investigate luminal narrowing has been studied, but rarely have therapeutic outcomes been examined with regards to lesion location
- This study shows that proximal esophageal locations are associated with a greater likelihood of successful dilation
- One potential explanation is that the etiologies of more proximal stenoses include congenital webs and radiation-induced strictures, where the causative insult is not ongoing at the time of dilation
- This contrasts with reflux-induced distal lesions, where persistent and active inflammation may prevent successful dilation
- The distal narrowing cohort also had a relatively smaller number of dilations per patient, leaving open the possibility that more attempts at distal dilation could even out the success rate between groups