Minimally invasive paraesophageal hernia repair without intraoperative use of esophageal bougie is safe and effective: a case series from a community-based teaching institution

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Background

- Para-esophageal hernias require operation due to the inherent risk of gastric volvulus as well as associated symptoms
- Typically during surgery, an esophageal dilator (56F) is used to help approximate the fundoplication
- There is limited literature regarding recommendations of using an esophageal bougie
- Risk of esophageal injury associated with the use of an esophageal bougie in literature is about 0.8-1.2%[1]

Methods

- Retrospective review of patients who underwent laparoscopic paraesophageal hernia repair with fundoplication
  - Between 2010-2020
  - Single surgeon at a community-based academic hospital
- All patients underwent upper GI study and EGD
  - Exclusion criteria: achalasia, esophageal dysmotility or no fundoplication
- Perioperative outcomes analyzed
  - Recurrence
  - Stenosis
  - Post-operative PPI use
  - Post-operative dilations, re-operations, mortality
  - Operative time

Results

Table 1. Characteristics of patients undergoing laparoscopic paraesophageal hernia repair with fundoplication

Characteristics	N (%)
Total patients, n(%) Males Females	174 34 (20%) 140 (80%)
Age in years (range)	63.0 (32-90)
Body mass index (range)	29.4 (17-44)
Symptomatic GERD, n(%)	174 (100%)
Patients using PP, n(%)	162 (93.1%)
HTN, n(%)	95 (54.6%)
DM, n(%)	24 (13.8%)
CAD, n(%)	11 (6.3%)
Length of procedure (min)	110.9

GERD = gastroesophageal reflux disease; PPI = proton pump inhibitor; HTN = hypertension; DM = diabetes mellitus; CAD = coronary artery disease

Table 2. Operative results of patients undergoing laparoscopic paraesophageal hernia repair with fundoplication

Characteristics	N (%)
Mesh	50 (28.7%)
Fundoplication	174 (100%)
Conversion to open	0
Intra-operative complications	0
Recurrence of hernia	26 (14.9%)
Re-operation	11 (6.3%)
90-day re-admission	8 (4.6%)
30-day mortality	1 (0.57%)
Stricture	4 (2.3%)
Dilation	1 (0.57%)
Post-operative PPI use after 1 month	54 (31.0%)

Discussion

- Results are comparable to those seen in literature:
  - Rate of recurrence of 14.9% is comparable to that seen in a meta-analysis of 5-50% by Tam et al[2]
  - Complications requiring re-operation is comparable (3-6%)
  - Persistent post-operative symptoms of GERD is comparable
- Operative time was reduced

Limitations of the study

- Retrospective analysis
- Single surgeon, single institution
- Recurrence of hernia with radiographic imaging for symptomatic patients
- Non-standardized measure of post-operative symptoms

Conclusion:

- Performing PHR with fundoplication without an esophageal bougie is safe and effective while avoiding risks of esophageal injury

References:

1. Lowham, A. S. et al. (1996). Mechanisms and avoidance of esophageal perforation by anesthesia personnel during laparoscopic foregut surgery. Surgical Endoscopy, 10(10), 979-982
2. Tam, V., Winger, D. G., & Nason, K. S. (2016). A systematic review and meta-analysis of mesh vs suture cruroplasty in laparoscopic large hiatal hernia repair. The American Journal of Surgery, 211(1), 226-238.