BACKGROUND

- Laparoscopic Heller myotomy (LHM) combined with Dor fundoplication is a proven treatment for achalasia, but a subset of patients may have persistent dysphagia due to incomplete myotomy or excessively tight fundoplication.
- We assessed the feasibility and impact of intraoperative High-Resolution Esophageal Manometry (HREM) and the endoluminal functional lumen imaging probe (EndoFLIP®) during the LHM procedure.
- This is a novel approach in pediatrics and may improve surgical correction for these disorders.

SPECIFIC AIMS

In children with esophageal achalasia undergoing LHM:
- Determine the feasibility and safety of intraoperative HREM and EndoFLIP during LHM
- Characterize changes in EGJ pressure and distensibility at various intervals during LHM with Dor fundoplication.

METHODS

- Single-center retrospective review was completed for children with achalasia who underwent LHM and Dor fundoplication with intraoperative HREM and EndoFLIP testing performed between January 2020 and December 2020.
- EGJ pressure was recorded pre-myotomy, post-myotomy, and after the completion of a Dor fundoplication using HREM (Figure 1).
- Minimum esophageal diameter and EGJ distensibility were measured at 30mL and 40mL distension volumes pre-myotomy and after fundoplication using EndoFLIP (Figure 2).
- Data displayed as median with interquartile range.

RESULTS

- Six patients met criteria for inclusion. Median age was 13.5 years (IQR 7.25-14.5). All 6 patients had intraoperative HREM (pre-myotomy, post-myotomy, and post-fundoplication).
- Four patients had EndoFLIP data from both pre-myotomy and post-fundoplication. There were no complications arising from the use of intraoperative HREM and EndoFLIP.
- EGJ pressure differed significantly pre-myotomy compared to post-myotomy [31.5 mmHg (13.28-42.5) vs. 6 mmHg (5.5-25.5), p=0.01]. Post-myotomy and post-fundoplication LES pressures did not differ significantly (Figure 3).
- EndoFLIP data showed post-fundoplication esophageal minimum diameter increased significantly compared with pre-myotomy at 40 mL [4.8 mm (4.7-5.4) versus 9.9 mm (7.2-12.9) p=0.004] (Figure 4).
- There was also a trend toward increased post-fundoplication EGJ distensibility and cross-sectional area compared with pre-myotomy measurement (Figure 5).

CONCLUSION

- Concurrent HREM and EndoFLIP during LHM with Dor fundoplication is safe and feasible in children with achalasia.
- HREM and EndoFLIP provide complementary information that may better describe sphincter location, anatomy, and function in the surgical management of achalasia.
- HREM EGJ pressure decreases significantly while EndoFLIP minimum esophageal diameter increases significantly with LHM.
- A larger sample size and correlation with post-operative outcomes are needed to identify these measurements to clinical outcomes.