Optimizing Outcomes in Paraesophageal Hernia Repair: A Novel Critical View

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INTRODUCTION

- Paraesophageal hernia repairs (PEHR) are recognized for their high recurrence rates, ranging from 25-42%
- Technical strategies including mesh repair, anterior gastropexy, tension free cruroplasty have been devised with limited benefit in preventing hernia recurrence
- We implemented an aerodigestive program at our institution, which resulted in increased operative volume (Figure 1) and the development of a critical view that standardizes PEHR

OBJECTIVE

- Present a novel approach to PEHR that involves visualization of a critical view
- Investigate outcomes of PEHR following the implementation of a critical view

METHODS

- Single-center retrospective study (IRB 23-107)
- Inclusion Criteria:
  - Type I-IV paraesophageal hernia
  - Paraesophageal hernia repair between 2015 to 2023
- Comparison groups:
  - Repair with Critical View (n=207)
  - Standard repair(n=90)
- Primary Outcomes: Hernia recurrence, reoperation rate
- Secondary Outcomes: postoperative complications, symptom resolution, hospitalization duration

RESULTS

Figure 1. Operative Volume Following Development of Aerodigestive Program

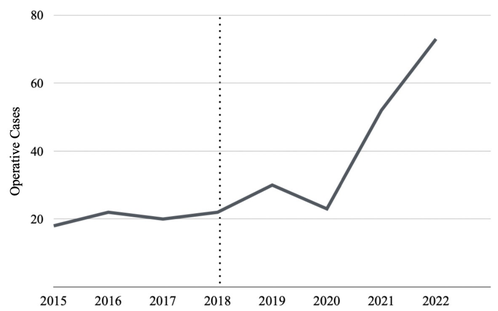


Figure 2. Critical View in PEHR

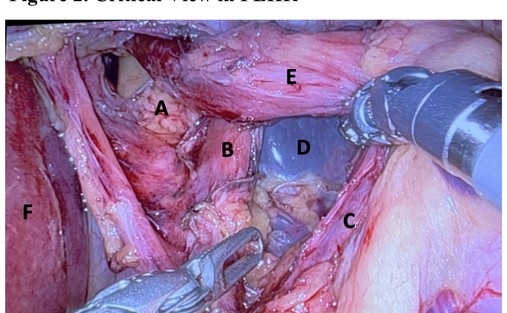
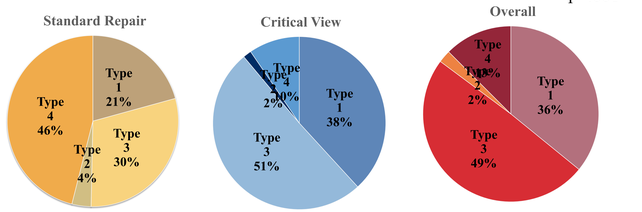


Figure Legend: CV in PEHR includes full dissection of the A) Posterior Mediastinum to reveal the inferior pulmonary vein, visualization of B) left Crus, C) left gastric artery with D) spleen in background when retracting E) the distal esophagus. F) Liver is demonstrated for orientation.

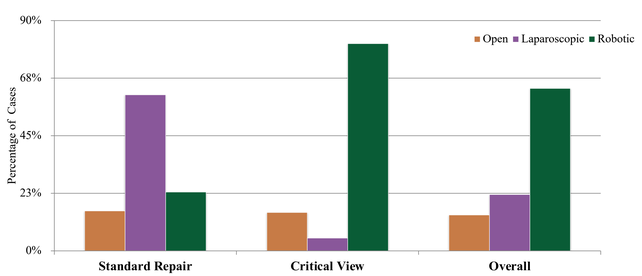
Figure 3. Univariate analysis of Baseline Characteristics

n=297
p<.001

3a. Hernia Type



3b. Surgical Approach



3c. Fundoplication Type

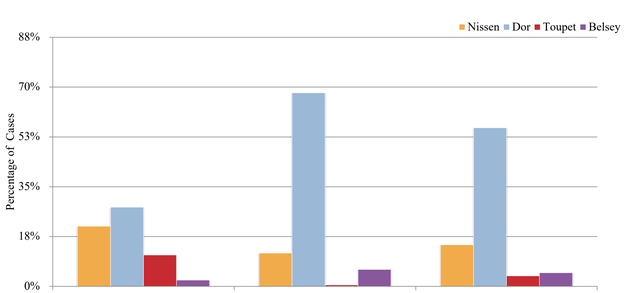


Figure 4. Multivariate Analysis of Operative Outcomes

Operative Outcome	Standard Repair	CV	AOR/β	95% CI	P value
Intraoperative complications, %, AOR	2.3	1.5	.13	.02-1.08	.059
Postoperative complications, %, AOR	23.9	17.7	.13	.05-.31	**0.001**
Length of stay, median (IQR days), β	*2 (1-4)*	*1 (0-3)*	-1.59	-3.23 - -0.04	**0.046**
Postoperative Readmission, %, AOR	11.1	12.6	.16	.06-.44	**0.001**
Hernia recurrence, %, AOR	22.2	9.7	0.37	0.15-0.95	**0.001**
Reoperation, %, AOR	10.2	0.5	0.07	0.01-0.61	**0.001**
Resolution of GERD	87.8	89.9	0.31	.07-1.44	0.134
Resolution of Dysphagia, %, AOR	91.1	93.2	0.26	.08-.82	**0.022**
Cessation of Antacid therapy, %, AOR	18	34.6	1.02	.28-3.64	.997

AOR: Adjusted Odds Ratio
β: Beta Coefficient

DISCUSSION

The creation of our institution's aerodigestive program led to an increase in operative volume by 20-50% annually, which led to the development of a critical view. PEHR with CV utilization revealed improved operative outcomes and was associated with lower rates of hernia recurrence and reoperation rates. Patients who underwent CV repair had a reduced risk of postoperative complications and hospital readmissions

CONCLUSION

Our results support the implementation of a critical view in PEHR that has resulted in favorable postoperative outcomes.

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