Predictors of recurrence after paraesophageal hernia repair: A single institution series

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Background

- Paraesophageal hernias (PEH) are a common problem often requiring surgical intervention for management of symptoms and/or complications
- PEH repair is a technically challenging operation associated with a relatively high rate of recurrence at short-term follow-up
- Wide variability in patient selection and surgical approach make it difficult to determine the optimal technique to prevent recurrence
- We hypothesized that certain demographic and surgical factors would be associated with PEH recurrence after repair

Methods

- Retrospective review was performed of all adult patients who underwent PEH repair from 2017-2019
- Patients were excluded if they had concurrent operations at the time of PEH repair
- Primary outcome of interest was radiographic evidence of hernia recurrence at time of last follow-up

Results

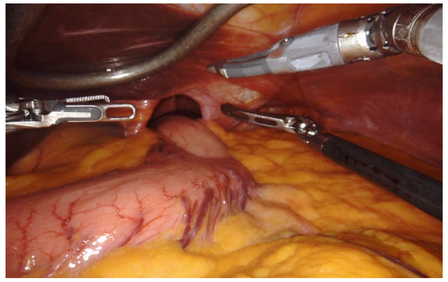


Figure 1. Demographic characteristics of all adult patients who underwent PEH repair from 2017-2019

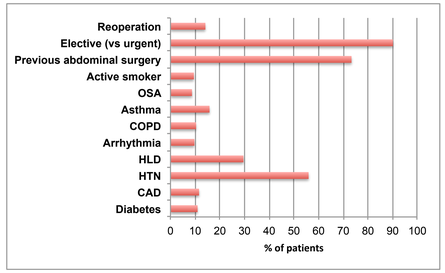
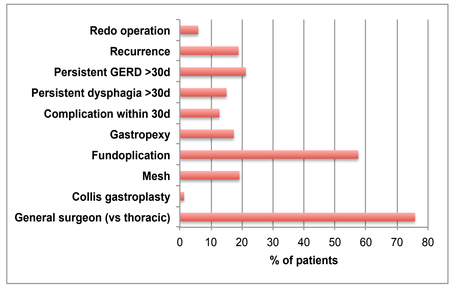


Figure 2. Surgical characteristics and outcomes of all adult patients who underwent PEH repair from 2017-2019



- During the study period, 322 patients met inclusion criteria with 61/322 (18.9%) having recurrence and 261/322 (81.1%) with non-recurrence at a median follow-up of 20 months

Table 1. Univariate analysis of factors associated with increased risk of hernia recurrence from 2017-2019

	Non-recurrence (n=261)	Recurrence (n=61)	p value
Age (years)	63.1 (14.39)	62.6 (15.80)	0.40
BMI	29.7 (5.81)	29.7 (5.38)	0.49
Obesity class			
Non-obese	142 (55.3%)	35 (59.3%)	
Class I	72 (28.0%)	17 (28.8%)	0.66
Class II	32 (12.4%)	4 (6.8%)	
Class III	11 (4.3%)	3 (5.1%)	
Active smoker	21 (8.1%)	9 (14.8%)	0.12
Co-morbidities			
Diabetes	29 (11.1%)	6 (9.8%)	0.77
CAD	30 (11.5%)	7 (11.5%)	0.99
HTN	141 (54.0%)	39 (63.9%)	0.16
HLD	75 (28.7%)	20 (32.9%)	0.53
Arrhythmia	22 (8.4%)	9 (14.8%)	0.13
COPD	24 (9.2%)	9 (14.8%)	0.20
Asthma	36 (13.8%)	15 (24.6%)	0.04
OSA	21 (8.0%)	7 (11.5%)	0.39
ASA class			
1	1 (0.4%)	0 (0%)	
2	88 (38.8%)	17 (32.7%)	0.62
3	135 (59.5%)	35 (67.3%)	
4	3 (1.3%)	0 (0%)	
Previous abdominal surgery	187 (71.6%)	49 (80.3%)	0.17
Type 4 PEH	15 (12.8%)	4 (11.8%)	0.87
General surgeon (vs thoracic)	199 (76.2%)	45 (73.8%)	0.69
Operative assistant			
Resident	98 (40.0%)	20 (35.7%)	
Fellow	102 (41.6%)	18 (32.1%)	
Co-surgeon	26 (10.6%)	5 (8.9%)	0.04
PA	4 (1.6%)	2 (3.6%)	
Surgical technician	14 (5.8%)	10 (17.9%)	
Other	1 (0.4%)	1 (1.8%)	
Surgical approach			
Laparoscopic	252 (97.3%)	61 (100%)	
Thoracoscopic	1 (0.4%)	0 (0%)	0.64
Robotic	5 (1.9%)	0 (0%)	
Laparotomy	1 (0.4%)	0 (0%)	
Collis gastroplasty	4 (1.6%)	0 (0%)	0.34
Mesh	51 (20.0%)	9 (15.5%)	0.43
Fundoplication	146 (56.6%)	35 (61.4%)	0.51
Type of fundoplication			
Nissen	108 (74.5%)	26 (74.3%)	
Toupet	31 (21.4%)	8 (22.9%)	0.93
Dor	6 (4.1%)	1 (2.9%)	
OR time	132.1 (114.08)	115.8 (53.14)	0.17
Gastropexy	40 (15.4%)	15 (25.9%)	0.06

Table 2. Multivariable logistic regression of factors associated with increased risk of hernia recurrence from 2017-2019

	OR	95% CI	p value
Re-operation	1.47	0.667-3.243	0.34
Surgical assistant			
Co-surgeon (ref)	1		
Resident/fellow	0.98	0.349-2.763	0.97
PA/surgical tech	3.14	0.909-10.823	0.07
Gastropexy	1.88	0.889-3.968	0.10
Asthma	1.00	0.994-1.013	0.17
Surgeon volume	0.12	0.037-0.376	0.45

Conclusions

- In this single institution case series of patients who underwent PEH repair, there were no demographic or surgical factors predictive of hernia recurrence
- These data suggest that PEH repair can be safely performed in a diverse patient population with varying surgical techniques without an increased risk of recurrence
- Further research and updates to current guidelines regarding PEH repair may be warranted to address these findings