Predictors of Recurrence After Paraesophageal Hernia Repair

Saher-Zahra Khan MD[1,2], Christine Alvarado MD[1,2], Jamie Benson MD[1,2], Christina Boutros DO[1,2], Patrick Wieland MD[1,2], Hamza Nasir Chatha MBBS[1], Guy Katz MD[1], Joshua Lyons MD[1,2], Jeffrey M Marks MD FACS FASGE[1,2]
[1]University Hospitals Cleveland Medical Center, Cleveland, OH [2]Case Western Reserve University, Cleveland, OH

Introduction

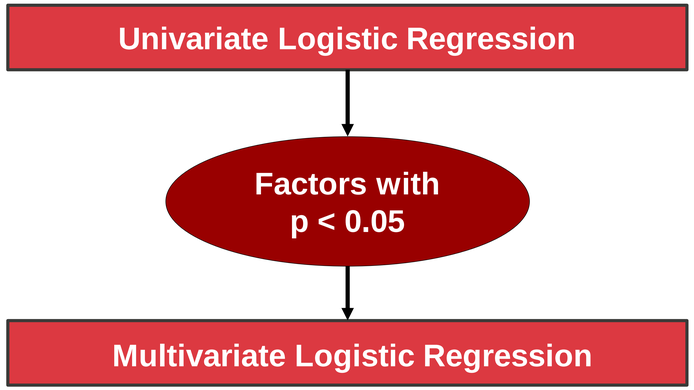
Rates of paraesophageal hernia recurrence cited up to 60%

Mixed operative strategies for reducing likelihood
- Fundoplication
- Gastropexy
- Mesh
- Sac excision

Aim: Assess predictors of recurrence in patients undergoing paraesophageal hernia repair

Methods

- Retrospective chart review 2010-2023
- Single tertiary care institution
- Comparison: Chi squared or Fisher's exact, T-test



Results

Table 1. Comparison of Demographics and operative factors

	Total n = 1,171	No Recurrence n = 993	Recurrence n = 178	p-value
Age > 65	497 (42.4%)	413 (41.6%)	84 (47.2%)	0.16
BMI > 30	706 (60.3%)	606 (61.0%)	100 (56.2%)	0.22
Diabetes	180 (15.7%)	159 (16.4%)	21 (12.1%)	0.16
Smoker	94 (8.1%)	81 (8.3%)	13 (7.3%)	0.77
Cardiac Disease	858 (73.9%)	727 (73.8%)	131 (74.4%)	0.86
Pulmonary Disease	505 (44.6%)	430 (44.8%)	75 (43.1%)	0.67
Previous Abdominal Surgery	771 (66.2%)	649 (65.7%)	122 (68.9%)	0.4
# of Symptoms Present	2 (1-3)	2 (1-3)	2 (1-3)	0.007
Elective Surgery	1,077 (94.3%)	909 (93.9%)	168 (96.6%)	0.17
HH Size ≥ 5cm	955 (81.6%)	804 (81.0%)	151 (84.8%)	0.22
Hernia Sac Excision	309 (31.3%)	252 (30.1%)	57 (37.5%)	0.072
Divided Short Gastrics	704 (68.3%)	585 (66.7%)	119 (77.8%)	0.007
Endostitch Used	455 (48.9%)	384 (48.2%)	71 (53.0%)	0.3
Mesh Used	127 (11.2%)	116 (12.0%)	11 (6.3%)	0.026
Fundoplication Performed	542 (47.7%)	444 (46.1%)	98 (56.3%)	0.013
Gastropexy Performed	281 (24.7%)	223 (23.1%)	58 (33.3%)	0.004

Results

Table 3. Univariate and multivariate analysis of factors used to predict recurrence

	Univariate Regression		Multivariate Regression	
	OR (95% CI)	P-value	OR (95% CI)	P-value
Age > 65	1.25 (0.91,1.73)	0.164		
BMI > 30	0.82 (0.59, 1.13)	0.224		
Diabetes	0.71 (0.43, 1.15)	0.162		
Smoker	0.88 (0.48, 1.61)	0.672		
Cardiac Disease	1.03 (0.72, 1.49)	0.862		
Pulmonary Disease	0.93 (0.67, 1.29)	0.672		
Previous Abdominal Surgery	1.16 (0.82, 1.63)	0.402		
Symptoms Present	1.15 (1.03, 1.28)	0.014	1.12 (0.99, 1.29)	0.074
Elective Surgery	1.82 (0.77, 4.28)	0.171		
HH Size ≥ 5cm	1.31 (0.85, 2.04)	0.222		
Hernia Sac Excision	1.39 (0.97, 1.99)	0.073		
Divided Short Gastrics	1.75 (1.16, 2.62)	0.007	1.31 (0.79, 2.18)	0.295
Endostitch Used	1.21 (0.84, 1.75)	0.304		
Mesh Used	0.49 (0.26, 0.93)	0.029	0.47 (0.23, 0.96)	0.039
Fundoplication Performed	1.51 (1.09, 2.09)	0.013	1.30 (0.83, 2.04)	0.245
Gastropexy Performed	1.66 (1.17, 2.36)	0.004	1.60 (1.09, 2.35)	0.015

Conclusion

- Recurrence was more likely to happen with gastropexy and less likely with mesh
- Fundoplication and division of short gastrics were associated with recurrence on univariate analysis but not multivariate when other factors were adjusted for
- Although patients with mesh were half as likely to recur, the low percentage of mesh used (11.2%) likely reflects use in selective patients, such as those with large hernias, fragile musculature, and/or recurrent hernias
  - Given other complications such as mesh erosion, migration, infection, and pain, judicious use should still be recommended
- Patients in which gastropexy was performed were 66% more likely to recur
  - Our results suggest that this technique should again be rarely used and only in select patients where data supports its usage