Too Old to Operate? Outcomes of Paraesophageal Hernia Repair in Nonagenarians

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Background

- The majority of paraesophageal hernias (PEH) present in patients >65 years old.
- Information regarding outcomes of laparoscopic paraesophageal hernia repair (LPEHR) in nonagenarians is scant. Surgical mortality in nonagenarians has been reported as 10-20%.[1,2]
- Many referring providers are reluctant to refer elderly patients for LPEHR because they believe the surgical risk is prohibitive.
- We designed this study to evaluate LPEHR outcomes at our institution in nonagenarians, elective vs nonelective.

Methods

- A single institution retrospective cohort study of patients who underwent LPEHR January 1, 2003 to July 1, 2025 was performed in patients ≥90 years-old at time of surgery.
- Descriptive statistics and univariate analysis were performed to analyze differences in patients undergoing elective vs nonelective repair.
- Nonelective repair was defined as presentation to the emergency department and/or transfer from outside institution with repair during that same hospitalization.

Results

- A total of 34 patients age ≥90 (mean 92.3), predominantly female(70.59%), 10 elective and 24 nonelective.
- Nonelective cases resulted in more:
    - ICU admissions
    - Higher mortality
    - Longer length of stay
    - Higher complication rates
- There was no significant difference between elective and nonelective patient discharge back to home after LPEHR.

	Elective (n=10)	Nonelective (n=24)	p-value
	n(%) or Mean(SD)	n(%) or Mean(SD)	
Demographics			
Age	91.60 (2.32)	92.63 (2.80)	0.28
Female	7 (70.0%)	17 (70.83%)	0.96
BMI	26.36 (3.64)	24.80 (4.50)	0.30
ASA-II	1 (10.0%)	1 (4.17%)	0.54
ASA-III	7 (70.0%)	14 (58.33%)	
ASA-IV	2 (20.0%)	9 (37.50%)	
Intrathoracic Stomach (%)	84.50 (18.17)	87.50 (17.75)	0.53
Perioperative Outcomes			
ICU Admissions	1 (10.0%)	11 (45.83%)	0.05
Any Complication	1 (10.0%)	12 (50.0%)	0.03
Major Complication	0	6 (25.0%)	0.08
Minor Complication	1 (10.0%)	6 (25.0%)	0.32
EBL (mL)	16.0 (11.97)	38.63 (66.63)	0.72
30-d Mortality	0	3 (12.50%)	0.24
90-d Mortality	1 (10.0%)	3 (12.50%)	0.84
Procedure Time (mins)	149.4 (52.29)	144.0 (63.32)	0.43
LOS (days)	4.5 (3.92)	6.88 (3.96)	0.03
OR Return (<30 days)	0	1 (4.17%)	0.51
Discharge Home	5 (50.0%)	13 (54.17%)	0.82

Discussion

- Natural course of untreated PEH is estimated to be associated with an annual symptom progression in 14% of patients, requiring emergency surgery in 1.1% of cases.[3,4]
- In our study nonelective cases resulted in more ICU admissions, higher mortality, longer length of stay and higher complication rates.
- In octogenarians, nonelective PEHR was the most predictive of inpatient mortality, while being an octogenarian was not independently predictive of mortality.[5,6]
- In our study 30- and 90-day mortality was higher in the non-elective group, but this did not reach statistical significance.
- Predicting which patients will present with acute symptoms is difficult and poorly understood; Elhage et al. showed that an increased hernia sac volume was independently predictive of future emergent repair.[7]

Conclusions

- Operative repair of PEH in the elderly remains safe and effective with better outcomes when done electively.
- To our knowledge, this is the largest study to evaluate LPEHR outcomes in nonagenarians.
- Referral to foregut surgeons should be considered regardless of age, at the time of identification of the PEH.

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