

Incidence of Hiatal Hernia After Esophagectomy

Antonio R Malkoun, MD¹; Lauren Yoder Braff, MD²; Angela N Fellner, PhD, CCRP³; Erik Dunki-Jacobs, MD¹; Katherine Meister, MD¹; Kevin M Tymitz MD¹

¹Department of Surgery, Good Samaritan Hospital, Cincinnati OH; ²Allegheny General Hospital, Pittsburgh PA; ³TriHealth Hatton Research Institute

BACKGROUND

- Hiatal hernia (HH) is a known complication of esophagectomy
- HH occurs following approximately 4-5% of all esophagectomies, and potentially at higher rates after minimally invasive esophagectomies
- Incarceration/strangulation of viscera in HH is a source of morbidity and mortality
- Objective: to contribute to the body of literature on the incidence and management of HH after esophagectomy and identifying contributing factors including surgical method and approaches.

METHODS

- Retrospective cohort study of 95 patients in a single health system that underwent esophagectomy from January 1st, 2013-December 31st, 2020
- Conducted chart review to collect demographic, clinical data, method and approach of esophagectomy and rates of HH within 36 months of initial operation
- Rate of repair and recurrence after repair identified
- Performed statistical analyses using Pearson chi-square, Mann-whitney U-test and student's t-test to estimate the influence of various demographic factors, and surgical approaches in the development of HH

Variables	All patients (N=95)	No hiatal hernia (N=79)	HH (N=16)	p-value
Surgical approach, N (%)				0.008*
Laparoscopic-assisted	10	5 (50)	5 (50)	
Robotic-assisted	78	67 (85.9)	11 (14.1)	
Open	7	7 (100)	0 (0)	
Esophagectomy type, N (%)				0.808*
Transhiatal	65	54 (79.6)	11 (20.4)	
Ivor-Lewis	28	23 (82.1)	5 (17.9)	
Transabdominal	2	2 (100)	0 (0)	
Age, median (IQR)	64 (58-69)	65 (58-69)	60 (54.2-61.8)	0.007**
Smoking within 1 year, N (%)	12 (12.6)	9 (11.4)	3 (18.8)	0.523*
BMI, mean (SD)	28.6 (5.1)	28.8 (5.0)	27.2 (5.1)	0.235†
Pre-operative pre-albumin, mean (SD)	N=84 24.2 (5.6)	N=75 23.3 (5.2)	N=9 31.3 (3.6)	<0.001†
Neoadjuvant chemotherapy, N (%)	83 (87.4)	67 (84.8)	16 (100)	0.094*
Neoadjuvant radiation, N (%)	80 (84.2)	65 (82.3)	15 (93.8)	0.229*
* Pearson chi-square; ** Mann-Whitney U-test; † Student's t-test				

Table 1: summary of statistical analysis of patient demographics and method/approach of esophagectomy

RESULTS

- Sixteen patients (16.8%) developed HH within 36 months of their initial operation; age significantly associated with HH
- No significant difference in smoking status, BMI, neoadjuvant chemotherapy or radiation rates between those who developed HH and those who did not
- Incidence of HH significantly lower in robotic-assisted group (14.1%) and higher in laparoscopic-assisted group (50%) than would be expected by chance
- Patients with higher preoperative prealbumin had higher rates of HH (p=<0.001)
- Ten of sixteen HH underwent repair
 - Mesh repair, bovine pericardial patch, falciform ligament defect closure, combined approaches
- Three patients had recurrence post repair and required reoperation

CONCLUSIONS

- Age, preoperative prealbumin, and surgical approach were associated with development of HH
- Further research with multi-center involvement to delineate risk factors and best practices for management of a morbid condition
- Study limited by smaller laparoscopic-assisted group