HIATAL HERNIA AFTER ESOPHAGECTMY: A SINGLE CENTER RETROSPECTIVE ANALYSIS OF A RARE POST-OPERATIVE PHENOMENON

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INTRODUCTION

The development of a post-esophagectomy hiatal hernia (PEHH) is a clinically problematic sequelae rarely discussed in the literature with variable prevalence ranging up to 20%. The intent of our study is to examine PEHH presence in patients at our institution in hopes of further elucidating the incidence of this complication, risk factors for development and method by which they are most durably repaired. Moreover, we aim to compare the open approach to the MIE approach and determine which is preferred approach in regards to decreased PEHH occurrence.

METHODS

With IRB approval, a retrospective chart review was undertaken using CPT procedure codes for esophagectomy performed at a single institution from 2012-2020 by four surgeons. Demographic information, indications for surgery, tumor staging in cases of malignancy, neoadjuvant treatment, surgical approach, post-operative imaging findings and presenting symptoms were the major focus of our data collection. Surgical outcomes including length of stay (LOS), estimated blood loss (EBL), postoperative complications, and mortality rates were reviewed. Patients who suffered mortality within 30 days of surgery were excluded.

Table 1 – *Patient Demographics*

	Patient 1	Patient 2	Patient 3	Patient 4
Sex	M	M	F	M
Age	48	68	60	72
Surgery	Laparoscopic	Laparoscopic	Laparoscopic	Open
Chemoradiation	Neoadjuvant + adjuvant	Neoadjuvant	None	Neoadjuvant
Tumor location	Distal + GEJ	Distal + GEJ	Distal + GEJ	GEJ
Type	AdenoCA	AdenoCA	AdenoCA	AdenoCA
pT	3	0	1B	4A
pN	0	0	0	2
M	0	0	0	0
pStage	2	1	1B	4A
R	0	0	0	1
Tumor Size	5.6 cm	1.8 cm	3.5 cm	6.5 cm
# Lymph nodes	0/4	0/20	0/14	5/22
Grade	G2	G3	G2	G3

Table 2 – *Variable comparison of all post-esophagectomy patients*

	No hiatal hernia n=156	Hiatal hernia n=4	p-value
Age (years)	63.3 (23-85)	62.3 (48-73)	t(158) = -0.20, p = 0.42
Male	126 (80.8%)	3 (75%)	$\chi^2(1, N = 160) = 0.08$,
Female	30 (19.2%)	1 (25%)	p = 0.77
Malignant	138 (88.5%)	4 (100%)	$\chi^2(1, N = 160) = 0.52$,
Benign	18 (11.5%)	0 (0%)	p = 0.47
Neoadjuvant	n=138	n=4	$\chi^2(1, N = 142) = 0.02$,
therapy	108 (78.3%)	3 (75%)	p = 0.87
Yes	30 (21.7%)	1 (25%)	
No			
MIE	114 (73.1%)	3 (75%)	$\chi^2(1, N = 160) = 0.01$,
OE	42 (26.9%)	1 (25%)	p = 0.93
Average EBL (mL)	371.2 (50-6000)	150 (100-300)	t(146) = -0.69, p = 0.24
Average LOS (days)	12.5 (2-48)	8.75 (7-13)	t(150) = -0.90, p = 0.18
Clavien-Dindo score	n=110 (70.5%)	n=2 (50%)	$\chi^2(1, N = 112) = 2.64$,
1	32 (29.1%)	0 (0%)	p = 0.91
2	33 (30%)	1 (50%)	
3a	12 (10.9%)	0 (0%)	
3b	7 (6.4%)	0 (0%)	
4a	18 (16.4%)	1 (50%)	
4b	3 (2.7%)	0 (0%)	
5	1 (0.9%)	0 (0%)	
N/A	4 (3.6%)	0 (0%)	

RESULTS

One hundred and sixty-three transhiatal esophagectomies were reviewed with three mortalities within 30 days excluded from analysis. Of these cases, 145 (89%) were indicated for malignancy and 117 (73.1%) were minimally invasive. Four patients (2.5%) developed a PEHH at a mean of 12 months postoperatively (range: 3 - 28 months) with symptomatology driving the diagnosis for majority of patients [Table 1]. The indication for esophagectomy in all four cases was malignancy and three patients received neoadjuvant therapy. On variable comparison between those patients that developed a PEHH and those who did not, there was no demographic, oncologic factor or outcome variable that was found to be significant [Table 2]. Of note, three patients who had laparoscopic assisted procedures developed PEHH but no patients from the robotic assisted cohort did.

All patients who developed PEHH were repaired electively. Two patients underwent open transabdominal repair with mesh reinforcement and one with primary suture repair. There was one recurrence at 33 months postoperatively but no mortalities or conduit-related complications.

CONCLUSIONS

The rate of HH after esophagectomy at our institution was found to be 2.5% overall, which is within the range described in the literature. The limited size of our study does not allow for statistically significant determinations regarding risk factors or best method of repair. The true prevalence of a hiatal defect is likely higher than reported, as clinically asymptomatic patients are not captured in our current literature.

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