

Perioperative Outcomes of Minimally Invasive Esophagectomy for Cancer in a Mid-Volume Center

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BACKGROUND

Minimally invasive esophagectomies (MIE) continues to have high rates of morbidity and mortality. Anastomotic leaks and pulmonary complications are among the most important source of morbidity and mortality. The aim of this study is to present the outcomes of a mid volume referral center after MIE.

METHODS

We retrospectively reviewed the medical records of all patients who underwent MIE from 2010 and 2018. Basic demographics, comorbidities, perioperative characteristics, mortality and major complications were analyzed. The variables , were reported in accordance to the models from the Society of Thoracic Surgeons (STS) General Thoracic Surgery Database (GTSD) Task Force.

Table 1

Esophageal cancer location, operative approach, and annual volume

Characteristic	N=64 (%)
Cancer location	
Lower third	15 (23)
Middle third	13 (20)
Upper third	36 (56)
Type of esophageal cancer	
Adenocarcinoma	41 (64)
Squamous cell carcinoma	23 (36)
Esophagectomy volume (N)	
Total	64
2010	1 (1.6)
2011	7 (10.9)
2012	2 (3.1)
2013	6 (9.4)
2014	6 (9.4)
2015	14 (21.9)
2016	14 (21.9)
2017	5 (7.8)
2018	9 (14)
Yearly average	7.11/year

MIE: Minimally invasive esophagectomy

RESULTS

During the study period, 64 patients underwent MIE for a malignant neoplasm. An average yearly rate volume of 7.11 MIE/year, were performed during the study period. The average age and gender were 67.11±8.66 years and 13 (20%) females respectively. The majority of cancers were adenocarcinomas (N=41;64%), and located in the upper third of the esophagus (N=36;56%). A leakage rate of 16%(N=10) was observed, along with a 30-day operative mortality rate of 2%(N=1). Preoperative chemotherapy seemed to have no influence on survival. However, the survival rates was different based on the cancer location ($p=0.0573$).

These results are comparable to the STS high volume centers.

Table 2

Patient outcomes (N=64)

Variables	Values N (%)
OR time (seconds)	293.03±77.48
LOS (days)	19.72±16.27
Frequency of operative mortality	1 (2)
Frequency of major complications	
Unexpected return to operating room	2 (3)
Leakage rate	10 (16)
Re-intubation	15 (23)
Initial ventilator support >48 hours	1 (2)
Pneumonia	3 (5)
Renal failure	1 (2)
Recurrent laryngeal nerve paresis	1 (2)

OR: Operating room; LOS: Length of stay

Table 3

Survival rates based on different variables

Previous chemotherapy	N=64 (%)	P value
Yes	19 (30)	0.257 ¹
No	45 (70)	
Cancer location		
Upper third	36 (56)	0.0573 ¹
Middle third	13 (20)	
Lower third	15 (23)	

¹Kaplanmayer and log rank test. Confidence interval of 95%; $\alpha=0.05$

CONCLUSIONS

Our results of MIE, in terms of postoperative complications and mortality, in a mid-volume center are comparable to highly specialized and high volume centers for MIE for esophageal cancer. Further larger comparative studies between low-, mid-, and high-volume are necessary to confirm these findings.