Greater Lymph Node Sampling with Mediastinoscopy-assisted Transhiatal Esophagectomy (MATHE) compared to Laparoscopic Transhiatal Esophagectomy

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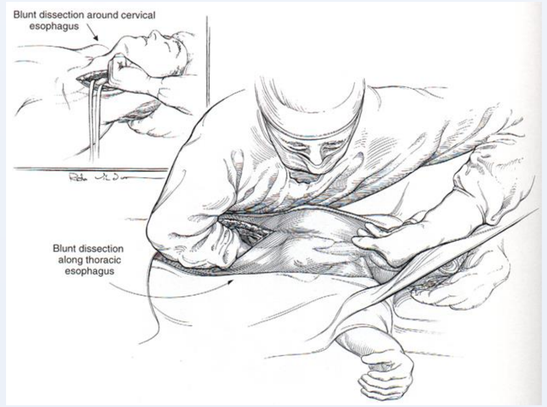
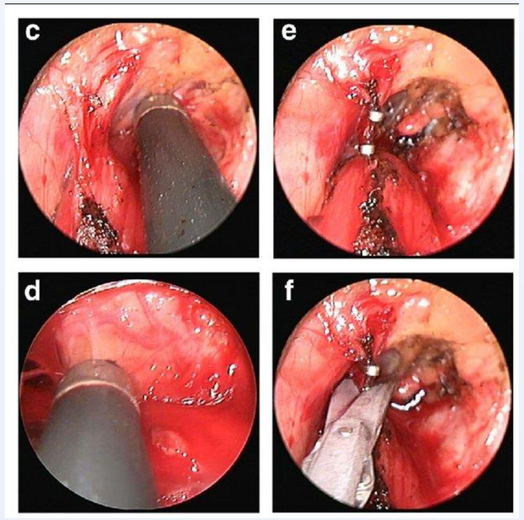
Introduction

- Since its adoption in the 1970's the transhiatal esophagectomy has been the choice of many surgeons secondary to decreased morbidity and mortality when compared to procedures that involve a thoracic approach and intrathoracic anastomosis.
- While a minimally invasive/robotic abdominal approach has further decreased the morbidity of the transhiatal esophagectomy the criticism remains that the procedure offers inadequate hemostasis and an inferior cancer operation secondary to the lack of lymph node harvesting.
- Mediastinoscopy Assisted Transhiatal Esophagectomy (MATHE) is a novel approach used to increase lymph node harvesting, assure hemostasis, and ease dissection in the upper mediastinum.
- This research study suggests MATHE technique can obtain a higher level of lymph node harvest without the added morbidity of a thoracic anastomosis or blind upper mediastinal finger dissection of the Laparoscopic/Robotic transhiatal approach.



Methods

- This is a retrospective, case-control study that compared patients undergoing a laparoscopic THE versus those undergoing MATHE performed at a single tertiary referral center from December 1, 2012, to July 1, 2021.
- Data was collected via chart review. The primary end-point measurement was lymph node harvest.
- Secondary endpoints included 30-day complications (death, arrhythmia, aspiration/pneumonia, anastomotic leak and need for re-operation due to anastomotic leak).
- Univariate statistical analyses were used to evaluate the data with significance set at $p<0.05$.



Results

- A total of 53 patients (mean age: 64 years, 26% women) were included in the analysis-36 with the use of the mediastinoscope and 17 without mediastinoscopy.
- The median number of lymph nodes harvested was greater with MATHE (8 nodes, range: 1-38) compared to THE without mediastinoscopy (4 nodes, range: 0-9) ($p=0.01$).
- Furthermore, rates of 30-day complications did not differ between MATHE and laparoscopic THE ($p > 0.30$ for all comparisons).

	THE without mediastinoscopy n = 17	**MATHE** n = 36	**P value**
Number of harvested Lymph nodes			
median (min-max)	4 (1-9)	8 (1-38)	0.01
30-day complications			
death	0%	3%	1.00
arrhythmia	18%	17%	1.00
aspiration/pneumonia	12%	22%	0.47
anastomotic leak	24%	17%	0.71
need for re-operation due to anastomotic leak	18%	6%	0.31

Conclusion

- Our results suggest that the MATHE technique allows for more thorough lymph node sampling than the traditional blind/blunt mode of dissection typically employed during THE.
- This results in more accurate staging with no additional morbidity.
- This is the only American study evaluating lymph node harvest when using the MATHE technique.
- Further prospective study of these findings is warranted.

"Transhiatal Esophagectomy." *CTSNet*, 2 Aug. 2011, https://www.ctsnet.org/article/transhiatal-esophagectomy.

- Mediastinoscopy-assisted esophagectomy for T2 middle and lower thoracic esophageal squamous cell carcinoma patients - 10.1186/s12957-018-1361-2JO - World journal of surgical oncology

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