



# Esophagectomy: Minimally Invasive versus Open

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# Patient Summary

Ms. \_\_\_ is a 62yo F with a PMH of T1DM, HTN, and HLD who presents to the clinic with progressive dysphagia and 10lb. weight loss in the past 4 months. After EGD, biopsy, and PET/CT confirmed locally advanced GE Junction adenocarcinoma, chemoradiation and esophagectomy were recommended.



# Learning Gap

During my surgery clerkship, I have observed both minimally invasive esophagectomy and open esophagectomy for esophageal cancer, and I am unaware how the two procedures compare in terms of post-operative outcomes, which led me to the question on the next slide.



# Question

In patients with esophageal cancer, does minimally invasive esophagectomy, versus open esophagectomy, lead to better post-operative outcomes?



# TIME Trial

- Description
  - RCT comparing early outcomes between MIE and OE



# TIME Trial

- Primary Outcomes
  - MIE had lower risk of pulmonary infection within 2 weeks (RR=0.30, p=0.005) and pulmonary infection in-hospital (RR=0.35, p=0.005) than OE



# TIME Trial

- Secondary Outcomes
  - MIE had shorter hospital stays ( $p=0.044$ ), lesser blood loss ( $p<0.001$ ), lower recurrent laryngeal nerve palsy rate ( $p=0.012$ ) than OE
  - OE had shorter operative time ( $p=0.002$ ) than MIE
  - MIE and OE had similar number of lymph nodes retrieved ( $p=0.852$ ), anastomotic leakage rate ( $p=0.390$ ), and mortality ( $p=0.590$ )

# Maas et al.

- Description
  - RCT comparing mid-term quality of life outcomes between MIE and OE





# Maas et al.

- Primary Outcomes
  - MIE led to better quality of life than OE at 1 year using the SF36 ( $p=0.003$ ), global health C30 ( $p=0.004$ ), and pain OES18 ( $p=0.001$ ) questionnaires



# Guo et al.

- Description
  - Meta-analysis comparing outcomes between MIE and OE



# Guo et al.

- Primary Outcomes
  - MIE had lower total complications ( $p=0.0009$ ), pulmonary complications ( $p=0.03$ ), and wound infections ( $p=0.0001$ ) than OE
  - MIE and OE had similar 30-day mortality ( $p=0.23$ ) and anastomotic leakage rate ( $p=0.65$ )

# Conclusions

1. MIE and OE both lead to acceptable outcomes
2. MIE might be associated with some benefits, like lower risk of pulmonary complications, lesser intraoperative blood loss, shorter hospital stay, and better one year quality of life



# References

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3. Guo W, Ma X, Yang S, Zhu X, Qin W, Xiang J, Lerut T, Li H. Combined Thorascopic-Laparoscopic Esophagectomy versus Open Esophagectomy: A Meta-Analysis of Outcomes. *Surgical Endoscopy* [Internet]. 10 Dec. 2015 [cited 12 Dec. 2022]; 30:3873-3881.

