Effect of Neoadjuvant Therapy on Uptake and Outcomes of Minimally Invasive Surgery for T2 Esophageal Adenocarcinoma

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Introduction

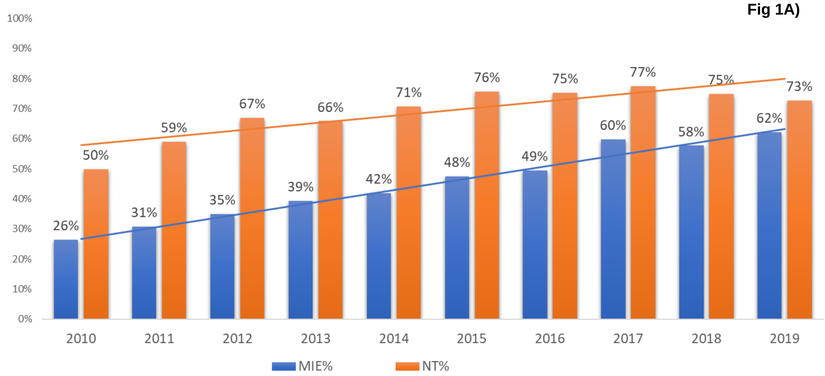
The effect of neoadjuvant chemotherapy or chemoradiotherapy (NT) on the feasibility of minimally invasive esophagectomy (MIE) is debatable. Most previous studies evaluated NT in patients with bulky tumors (T3/4) or lymph node metastases (N+), factors that may also affect technical aspects of surgery. We sought to evaluate the effect of NT on technical aspects of MIE in clinical stage IIA (T2N0M0) esophageal cancer, as well as to assess the effects of NT and MIE on outcomes in these patients.

Methods

We queried the National Cancer Database (2010-2019) for patients with cT2N0 esophageal adenocarcinoma undergoing esophagectomy. The cohort was stratified based on receipt of NT and compared for surgical and oncologic outcomes. We performed binary logistic regression to identify factors associated with conversion to open surgery among patients undergoing MIE. Lastly, we studied long-term survival outcomes using Kaplan Meier method.

	Open	MIE
Median OS (months)	55.13 (95%CI 48.75-61.50)	70.67 (95%CI 58.2-83.9)
5-year survival	47.5%	54%
	NT	**S**
Median OS (months)	60.8 (95%CI 54.1-67.4)	59.7 (95%CI 50.3-69.1)
5-year survival	50.4%	49.7%

Fig 1A)



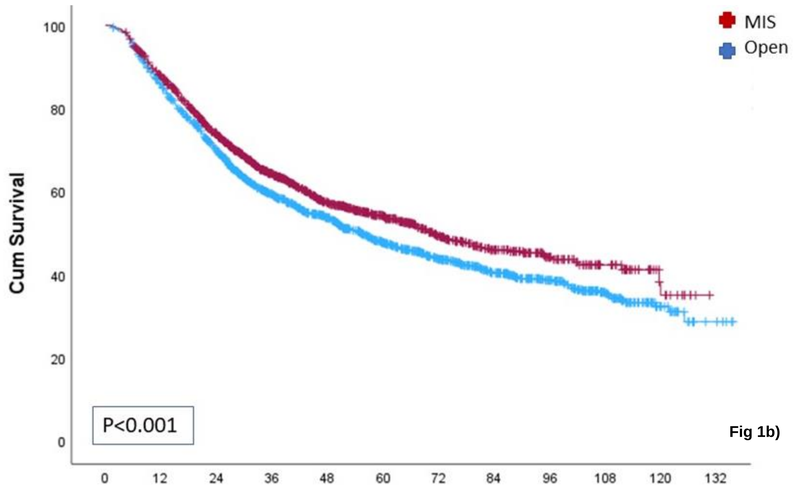


Fig 1b)

Results

The analysis included 3,413 patients, of whom 2,359 (69.1%) received NT and 1,054 (30.9%) had upfront surgery (S). The rate of MIE was comparable among groups (46.4%NT vs. 43.7%S, p=0.15) and increased over time, particularly in the NT group (Fig 1.a). Patients receiving NT had similar conversion rates from MIE to open surgery (8% vs. 10.8%, p=0.07), shorter median length of stay (9 vs. 10 days, p=0.003) and lower 30-day mortality (3.0% vs 4.4%,p=0.05) compared to upfront surgery.

Logistic regression revealed no association of NT (OR 0.71 95%CI 0.49-1.02, p=0.067) with conversion to open surgery. Lastly, patients receiving NT had comparable rates of survival to patients undergoing upfront sugery, while pateints undergoing MIE had higher 5 year survival than those undergoing open esophagectomy. (Fig 1.b)(Table 1)

Conclusions

There has been a trend towards increased utilization over time of NT and MIE for patients with cT2N0 esophageal cancer, supporting the safety and feasibility of this approach. Patients receiving NT were more likely to have R0 resections and had better perioperative outcomes. Contrary to traditional beliefs, NT was not associated with conversion to open surgery or other surrogates of increased technical complexity during the operation. MIE is associated with a survival advantage in this population of patients with cT2N0 esophageal cancer.

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