

Comparative Outcomes of Anastomotic Techniques Following Esophagectomy for Cancer

Kenneth Meredith MD, Jamie Huston MS, Ravi Shridhar MD-PhD

Florida State University College of Medicine, Sarasota, FL; Sarasota Memorial Health Care System, Sarasota, FL; Advent Health Cancer Institute, Orlando, FL

BACKGROUND

- Esophagectomy remains a cornerstone of treatment for esophageal cancer, yet the optimal anastomotic technique is debated.
- This study evaluated perioperative and oncologic outcomes associated with EEA stapler, Orvil stapler, linear stapler, and handsewn methods.

METHODS

- We performed a retrospective analysis of patients undergoing esophagectomy for cancer.
- Patients were stratified by anastomotic technique:
 - Handsewn
 - EEA with sutured purse string
 - Orvil (EEA with trans oral anvil)
 - Linear stapled
- Patient demographics, operative outcomes and postoperative complications were compared.

Table 1: Patient Characteristics

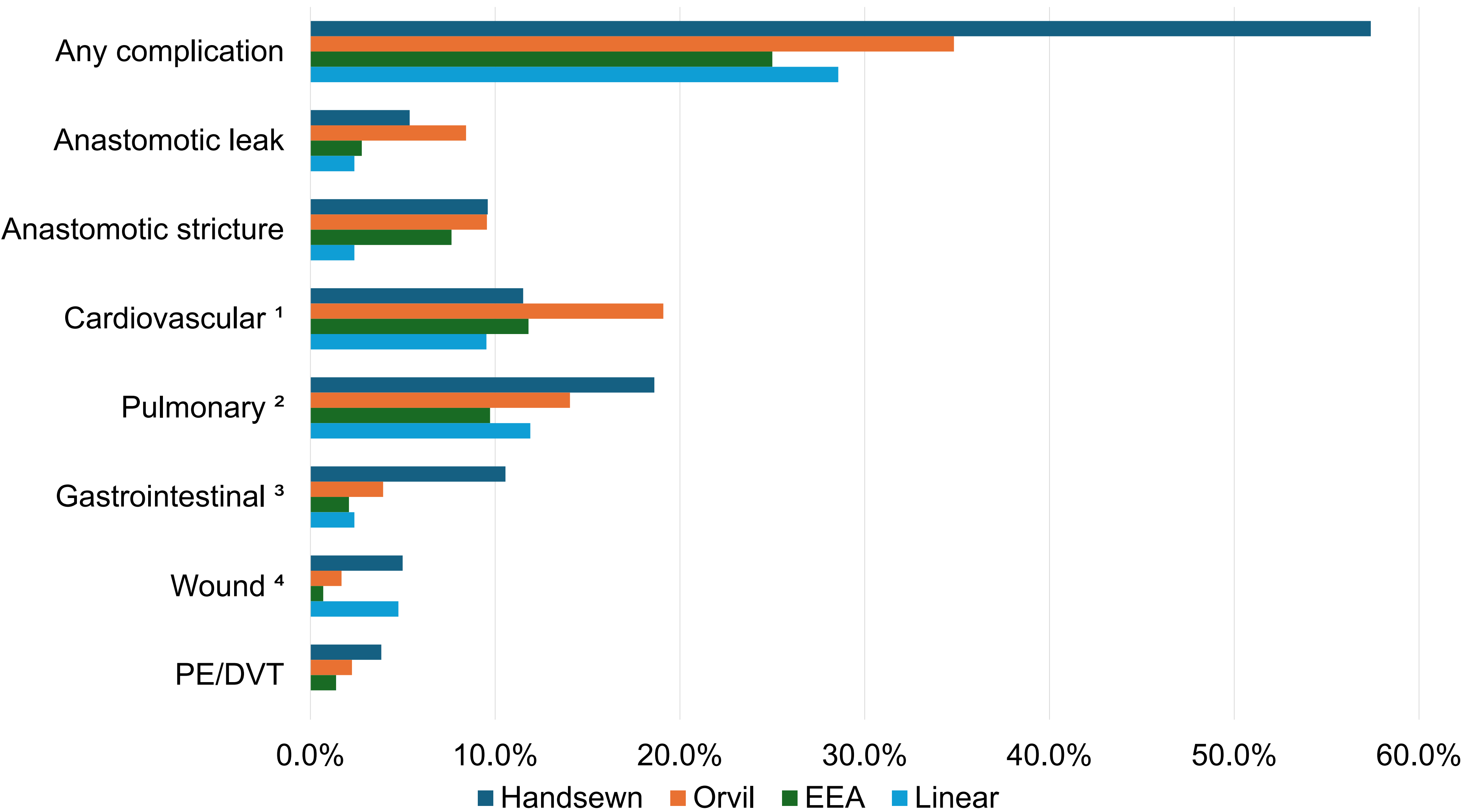
Variable	All N = 885	EEA N = 144	Orvil N = 178	Linear N = 42	Handsewn N = 521	<i>P</i> value
Age, year	67 (28 – 91)	67 (30 – 84)	70 (42 – 91)	71 (34 – 82)	65 (28 – 86)	<0.001
Sex						
Male	743 (84)	113 (78.5)	146 (82)	32 (76.2)	452 (86.8)	0.04
Female	142 (16)	31 (21.5)	32 (18)	10 (23.8)	69 (13.2)	
BMI, kg/m ²	27.7 ± 5.9	28.1 ± 7.3	26.6 ± 5.6	25.2 ± 4.7	28.2 ± 5.5	<0.001
ASA score	2.7 ± 0.6	2.7 ± 0.5	3.1 ± 0.6	3.1 ± 0.5	2.4 ± 0.5	<0.001
Histology						
Adenocarcinoma	744 (84.1)	122 (84.7)	140 (78.7)	39 (92.9)	443 (85)	0.13
Squamous	105 (11.9)	14 (9.7)	31 (17.4)	3 (7.1)	57 (10.9)	
Other	36 (4.1)	8 (5.6)	7 (3.9)	0	21 (4)	
Neoadjuvant therapy	593 (67)	113 (78.5)	140 (78.7)	38 (90.5)	302 (58)	<0.001

Table 2: Operative Outcomes

Variable	All N = 885	EEA N = 144	Orvil N = 178	Linear N = 42	Handsewn N = 521	<i>P</i> value
Operative time, min	285 (240 – 349)	394 (349 – 479)	289 (259 – 339)	288 (269 – 320)	253 (225 – 300)	<0.001
Estimated blood loss, mL	150 (75 – 250)	150 (100 – 200)	100 (50 – 100)	50 (25 – 50)	200 (100 – 350)	<0.001
Negative margins	853 (96.4)	144 (100)	177 (99.4)	40 (95.2)	492 (94.4)	<0.001
Length of stay, day	10 (8 – 12)	10 (8 – 13)	8 (7 – 10)	9 (8 – 10)	10 (9 – 13)	0.004
30-Day mortality	21 (2.4)	1 (0.7)	7 (3.9)	0	13 (2.5)	0.20
90-Day mortality	39 (4.4)	2 (1.4)	14 (7.9)	0	23 (4.4)	0.02

RESULTS

Figure 1: Postoperative Complications



Any complication defined as the presence of one or more complication(s) in a single patient
¹ Cardiac arrhythmia, myocardial infarction
² Pneumonia, pleural effusions, pneumothorax, respiratory failure
³ Delayed gastric emptying, ileus, partial bowel obstruction
⁴ Infection, dehiscence

CONCLUSIONS

- Anastomotic technique significantly influences operative efficiency, and complication rates following esophagectomy.
- Handsewn anastomoses were associated with higher morbidity and longer hospital stay, while stapled approaches demonstrated more favorable perioperative profiles.
- These findings suggest stapled, particularly a linear stapled technique may offer advantages in select patients, though prospective studies are warranted to confirm long-term outcomes.