



Perioperative Outcomes of Robot-Assisted Mediastinoscopic Transhiatal Esophagectomy in the Treatment of Thoracic Esophageal Cancer

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Introduction

Mediastinoscopic transhiatal esophagectomy (MTE) circumvents the thoracic approach and is particularly advantageous for patients with impaired pulmonary function. Nonetheless, MTE is associated with certain limitations, including a constrained visual field during mediastinoscopy, potential instrument interference, and procedural complexity. This study investigates the application of the Da Vinci surgical system as a means to overcome these limitations. We present the perioperative outcomes associated with robot-assisted mediastinoscopy in the context of robot-assisted mediastinoscopic transhiatal esophagectomy (RAMTE).

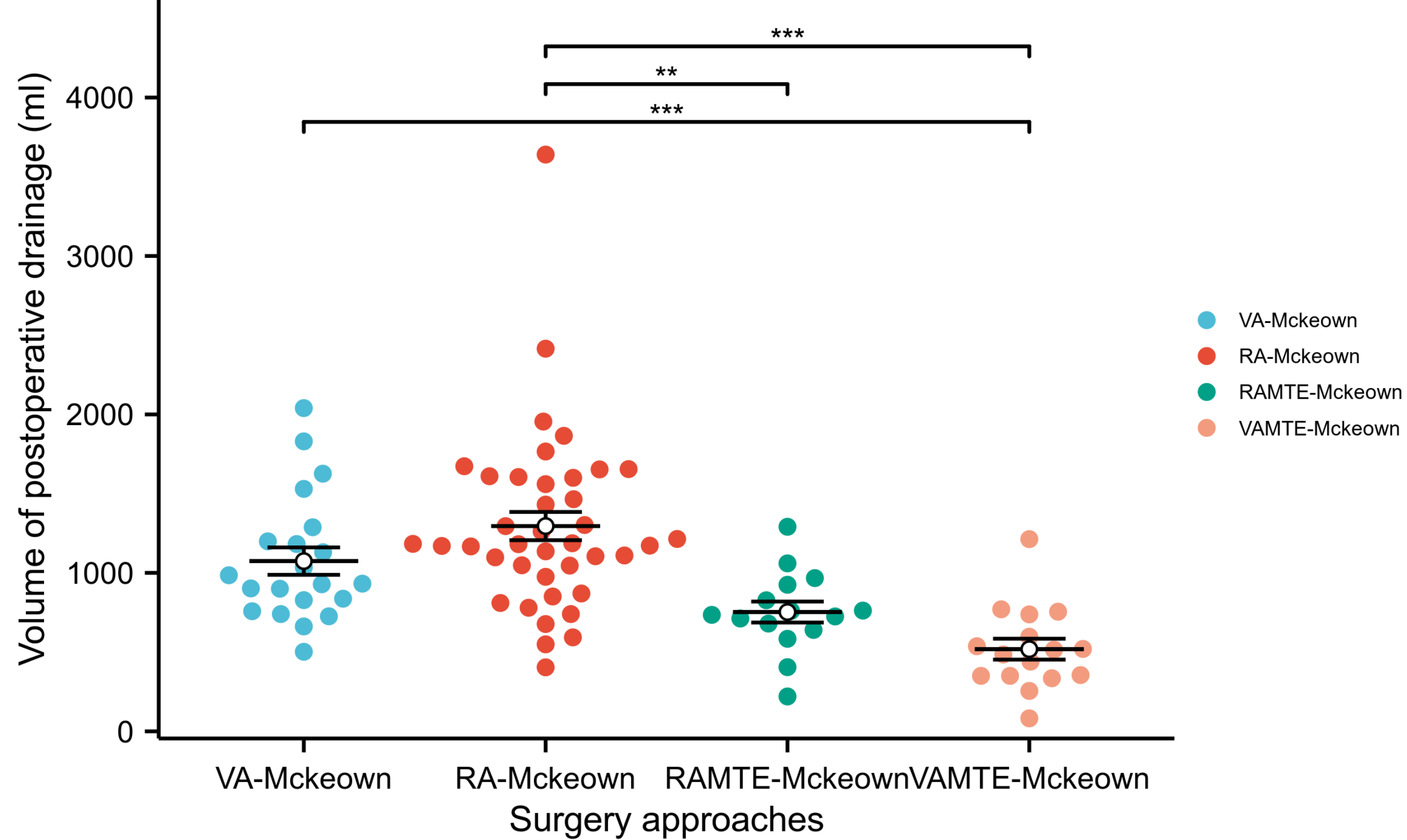
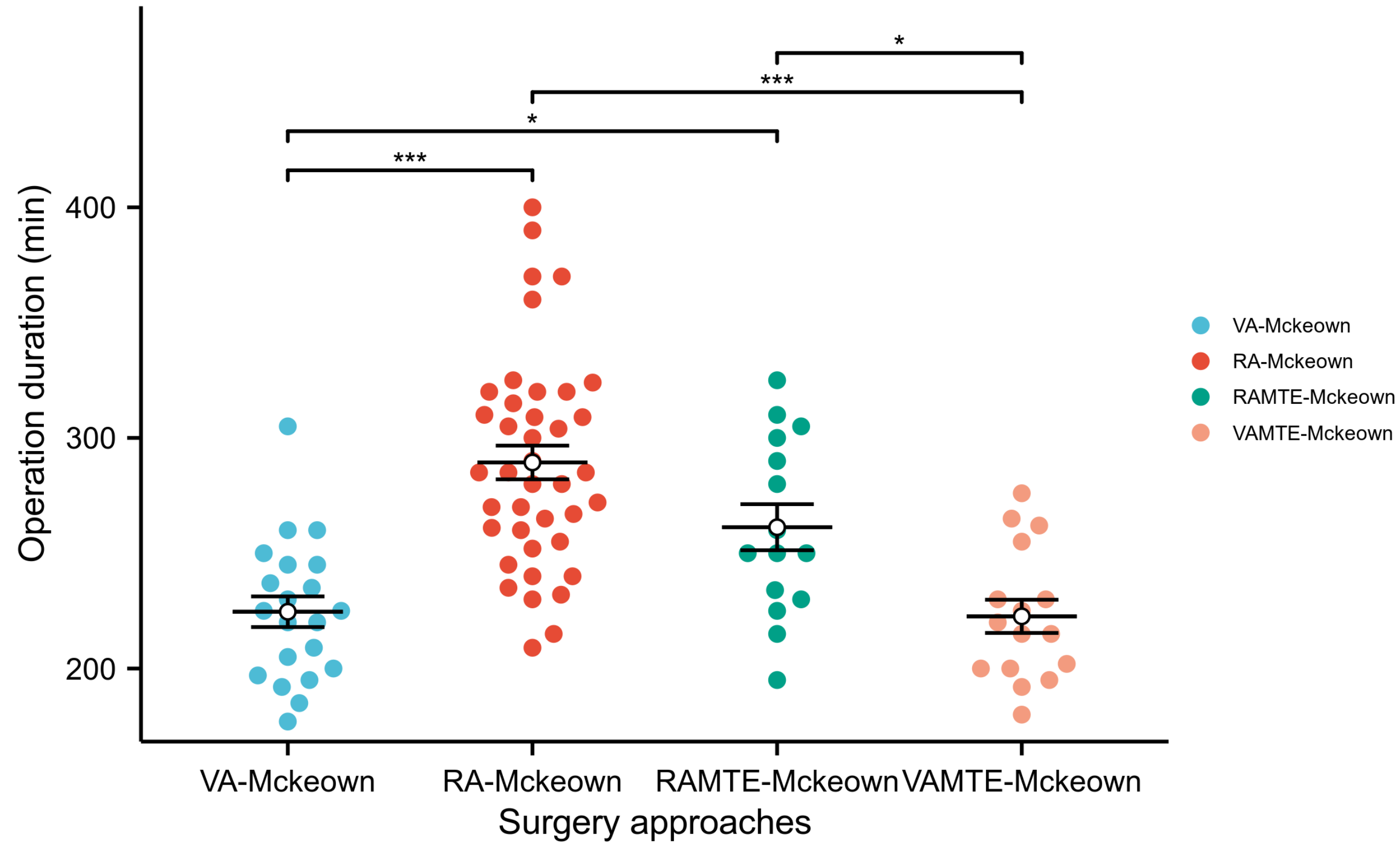
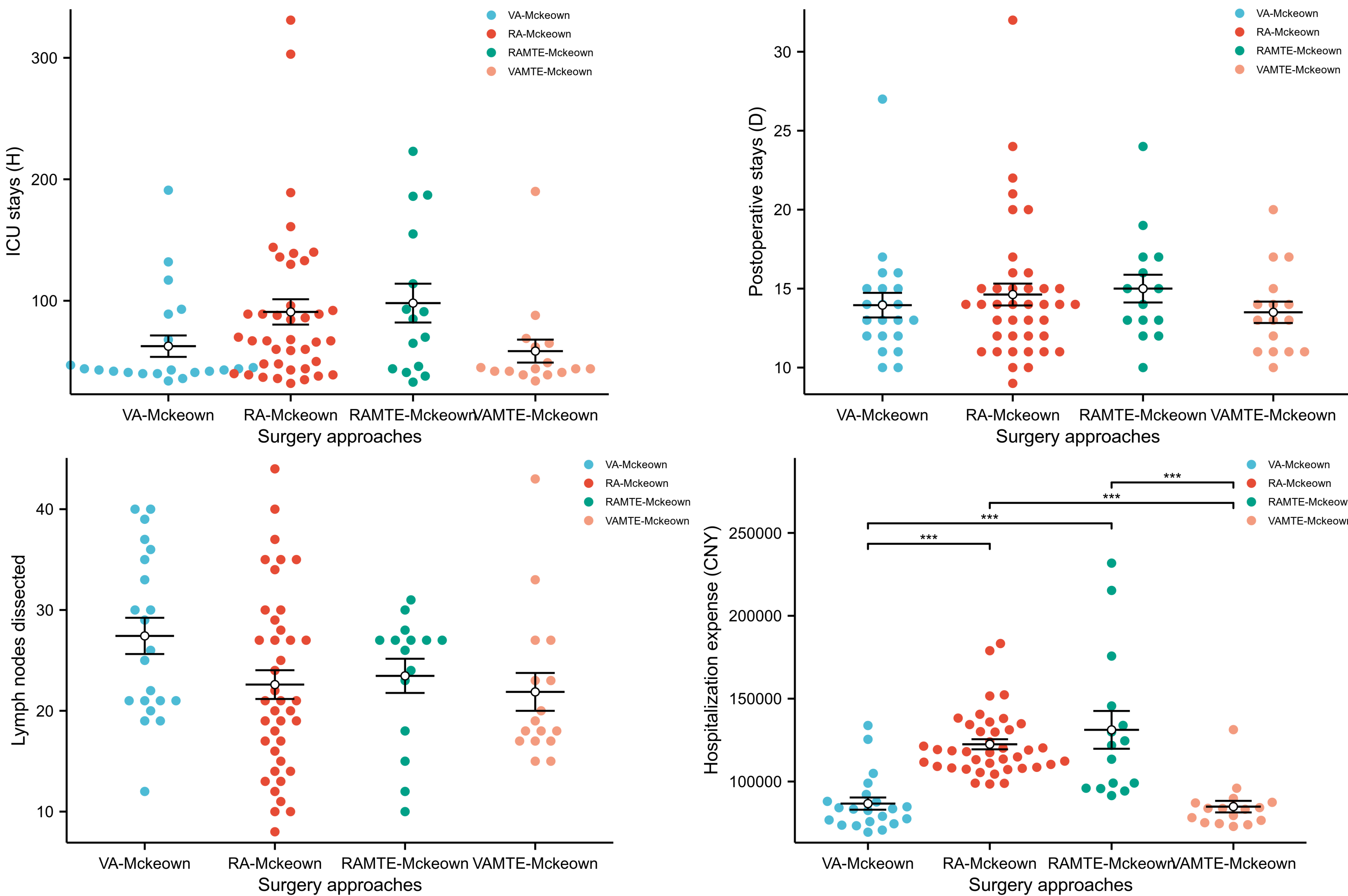
Methods

The study involved a cohort of 92 patients who were newly diagnosed with esophageal cancer and underwent Mckeown-style radical esophageal cancer surgery between August 2023 and May 2024. Participants were allocated to one of the following surgical approaches: video-assisted esophagectomy (VA-Mckeown), robotic-assisted esophagectomy (RA-Mckeown), video-assisted mediastinoscopic transhiatal esophagectomy (VAMTE-Mckeown), or robotic-assisted mediastinoscopic transhiatal esophagectomy (RAMTE-Mckeown). The study analyzed variations in operative duration, intensive care unit (ICU) stay length, overall hospitalization duration, the number of lymph nodes dissected, and postoperative drainage among the four surgical techniques.

Result

No anastomotic fistulas were detected in any of the patients, and there were no statistically significant differences in the incidence of postoperative pulmonary infections and hoarseness across the four surgical approaches. Furthermore, no significant differences were observed among the surgical approaches with respect to the length of stay in the intensive care unit, postoperative hospitalization duration, or the number of lymph node dissections performed. However, the RA-Mckeown and RAMTE-Mckeown procedures were associated with prolonged operative times and increased costs in comparison to the VA-Mckeown and VAMTE-Mckeown procedures. The postoperative drainage volume following the RAMTE-Mckeown procedure was lower than that of the RA-Mckeown procedure, with the VAMTE-Mckeown procedure resulting in the minimal drainage volume.

Characteristics	VA-Mckeown	RA-Mckeown	RATM-Mckeown	VATM-Mckeown	P value
n	21	40	15	16	
Age, mean ± Sd	66.619 ± 6.2087	65.375 ± 8.8396	69.467 ± 7.6799	66.438 ± 6.4907	0.438
Gender, n (%)					0.491
Female	5 (5.4%)	6 (6.5%)	5 (5.4%)	3 (3.3%)	
Male	16 (17.4%)	34 (37%)	10 (10.9%)	13 (14.1%)	
Height (cm), median (IQR)	164 (156, 166)	163 (158.75, 166.25)	160 (154, 165)	163 (156.5, 165.25)	0.567
Weight (Kg), median (IQR)	57 (52.5, 62)	57 (54, 63.125)	59 (49.5, 65.15)	57.25 (50.875, 59.5)	0.857
Stage, n (%)					0.337
I	5 (5.4%)	8 (8.7%)	3 (3.3%)	7 (7.6%)	
II	5 (5.4%)	11 (12%)	6 (6.5%)	6 (6.5%)	
III	10 (10.9%)	18 (19.6%)	5 (5.4%)	1 (1.1%)	
IV	1 (1.1%)	3 (3.3%)	1 (1.1%)	2 (2.2%)	
Postoperative Pulmonary Infection, n (%)					0.129
0	17 (18.5%)	29 (31.5%)	11 (12%)	16 (17.4%)	
1	4 (4.3%)	11 (12%)	4 (4.3%)	0 (0%)	
Postoperative Hoarseness, n (%)					0.212
0	19 (20.7%)	30 (32.6%)	11 (12%)	15 (16.3%)	
1	2 (2.2%)	10 (10.9%)	4 (4.3%)	1 (1.1%)	



Conclusion

The RAMTE-Mckeown procedure has been shown to be both safe and feasible. Nonetheless, its advantages in terms of surgical efficiency and the reduction of perioperative complications necessitate further validation through studies with larger sample sizes.

Reference

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