



Introduction

- Surgeon experience influences outcomes across many procedures, but evidence in highly specialized techniques like POEM is limited
- Prior POEM and advanced endoscopy studies suggest increasing experience may improve efficiency and lower complications
- This study was designed to evaluate whether surgeon case volume is associated with post-POEM clinical success, complications, or 30-day readmission

Study Design and Methods

- This was a retrospective cohort study of 368 patients who underwent a POEM at a single institution over a 8 year period (2016-2024)
- For each surgeon, the first 100 cases were classified as low volume (≤100); all subsequent cases were classified as high volume (>100)
- Baseline variables were compared with X2/Fischer's exact tests and Wilcoxon rank-sum tests
- Multivariate logistic regression adjusted for age, sex, BMI, Charlson comorbidity index, achalasia type, prior endoscopic therapy and symptom duration
- Primary outcomes were post operative Ekardt score ≤3, immediate post operative complications, and 30 day readmissions

Baseline demographic and clinical characteristics			
Characteristic	High (>100) (n=246)	Low (≤100) (n=122)	p-value
Age at surgery, median (IQR)	60.5 (48, 70)	61.5 (42, 71)	0.82
Sex, n (%)			0.33
Female	132 (53.7)	58 (47.5)	
BMI	27.6 (23.0, 34.3)	27.3 (22.8, 31.1)	0.25
Charlson comorbidity category, n (%)			0.46
0	65 (26.4)	39 (32.0)	
1–2	70 (28.5)	29 (23.8)	
≥3	111 (45.1)	54 (44.3)	
Smoking status, n (%)			0.003
No	113 (45.9)	36 (29.5)	
Achalasia type, n (%)			0.042
1	35 (14.2)	15 (12.3)	
2	123 (50.0)	46 (37.7)	
3	29 (11.8)	15 (12.3)	
Unknown	59 (24.0)	46 (37.7)	
Pre-op Eckardt category, n (%)			0.090
≤3	62 (25.2)	27 (22.1)	
>3	179 (72.8)	87 (71.3)	
Unknown	5 (2.0)	8 (6.6)	

Continuous variables are presented as median (IQR) and compared using Wilcoxon rank-sum tests. Categorical variables are presented as n (%) and compared using χ^2 or Fisher's exact tests, as appropriate. "Unknown" indicates missing/uncoded values.

Multivariable-adjusted odds ratios (Low vs High-volume surgery) for key outcomes (<i>High-volume = reference</i>)*			
Surgeon volume	Post-op Eckardt > 3	Immediate post-op complication	30-day readmission
High volume (ref)	1.00 (ref)	1.00 (ref)	1.00 (ref)
Low volume	0.95 (0.43 – 2.1)	1.68 (0.66 – 4.28)	0.74 (0.32 – 1.69)

* Models adjust for age, sex, BMI, Charlson comorbidity index, achalasia type, prior endoscopic intervention, and symptom length; OR > 1 = higher likelihood of the outcome; Low-volume shows ORs > 1 across outcomes (higher risk).

Intraoperative characteristics			
Characteristic	High (>100) (n=246)	Low (≤100) (n=122)	p-value
Myotomy location, n (%)			0.014
Anterior	208 (84.6)	106 (86.9)	
Posterior	28 (11.4)	5 (4.1)	
Anterolateral	0 (0.0)	1 (0.8)	
Unknown	10 (4.1)	10 (8.2)	
Unintentional mucosal injury, n (%)			0.84
No	231 (93.9)	113 (92.6)	
Yes	8 (3.3)	5 (4.1)	
Unknown	7 (2.8)	4 (3.3)	
Intraop pneumoperitoneum requiring treatment, n (%)			0.65
0	125 (50.8)	66 (54.1)	
1	50 (20.3)	20 (16.4)	
Unknown	71 (28.9)	36 (29.5)	

Postoperative outcomes			
Outcome	High (>100) (n=246)	Low (≤100) (n=122)	p-value
30-day readmission, n (%)			0.69
No	215 (90.7)	107 (92.2)	
Yes	22 (9.3)	9 (7.8)	
Immediate post-op complication, n (%)			0.31
No	236 (95.9)	114 (93.4)	
Yes	10 (4.1)	8 (6.6)	
Post-op Eckardt category, n (%)			1.00
≤3	219 (89.0)	109 (89.3)	
>3	27 (11.0)	13 (10.7)	

Results

- 368 cases were included in the study (122 low volume; 246 high volume)
- Overall clinical success (post op Eckardt ≤3), was 89.1%
- Baseline characteristics similar except smoking status (p=0.003) and achalasia type (p=0.042)
- In adjusted models, low volume was associated with higher odds of immediate post operative complications (OR 1.68, 95% CI 0.66-4.28), and lower odds of post operative Eckardt ≤3 (OR 0.95, 95% CI 0.43-2.1) and 30 day readmission (OR 0.74, 95% CI 0.32-1.69)
- Higher BMI predicted greater odds of post operative Eckardt >3 (OR 1.015, p=0.008)
- CCI ≥3 predicted higher readmission (OR 4.92, p=0.010)
- Increasing age was associated with lower readmission risk (OR per year 0.968, p=0.022)

Conclusions

- Low volume POEM surgery was not significantly associated with adverse outcomes
- Patient-level factors, particularly BMI, CCI, and age demonstrated stronger associations on outcomes.
- Future research will evaluate different cut offs to better understand at what case volume competence is achieved