

Robotic Paraesophageal Hernia Repair Does Not Confer Superior Outcomes Compared with Standard Laparoscopic Repair

Introduction

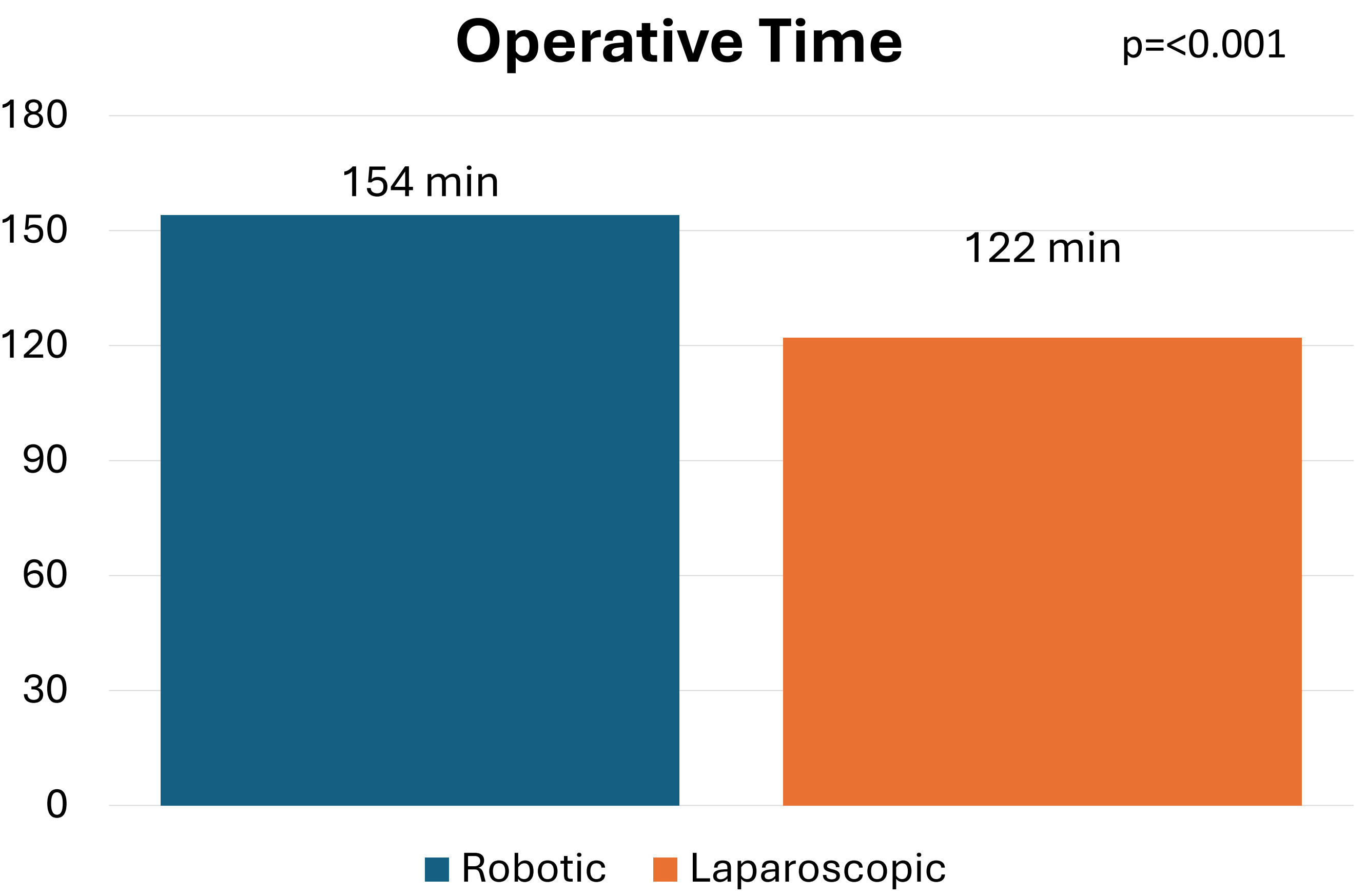
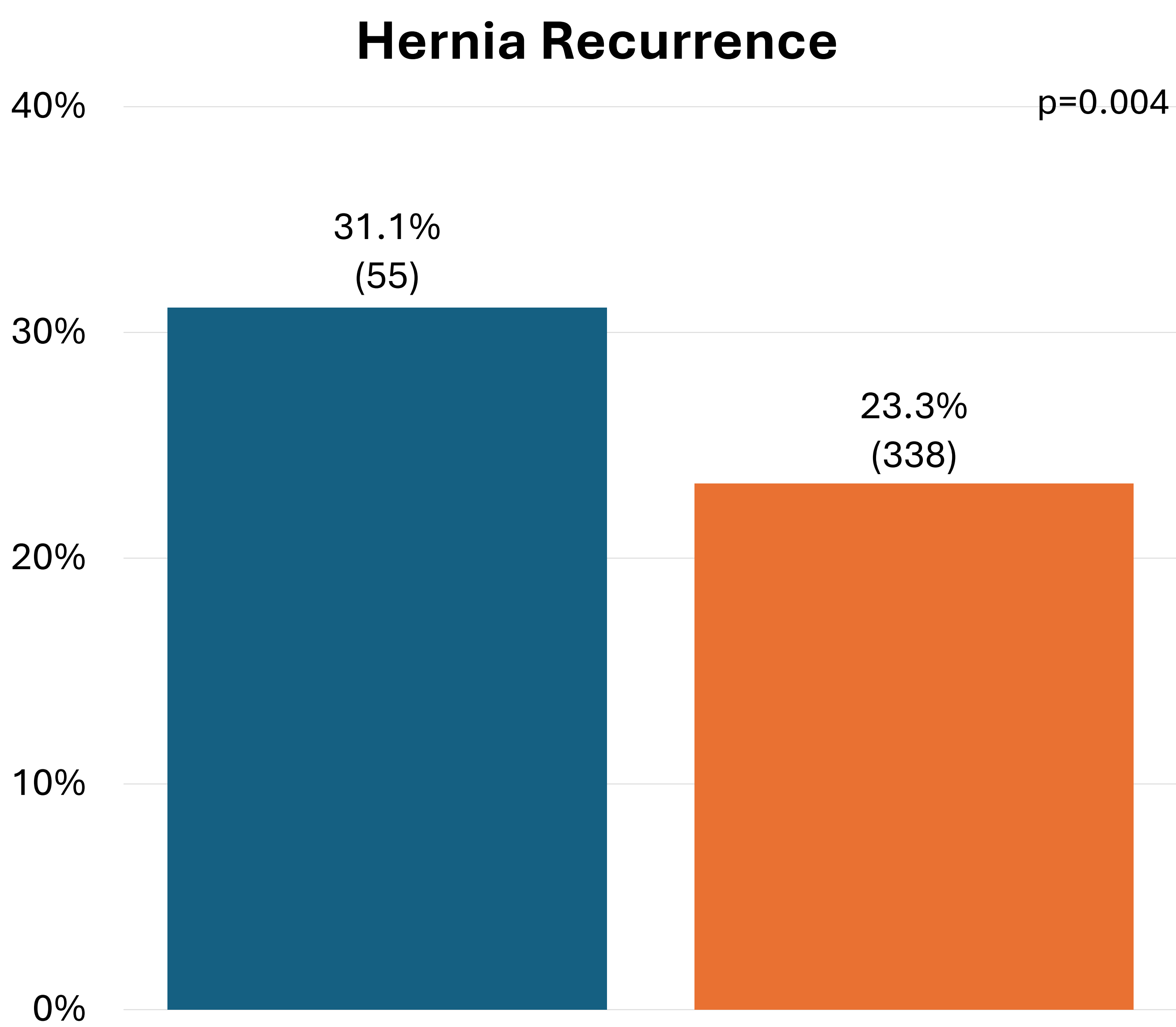
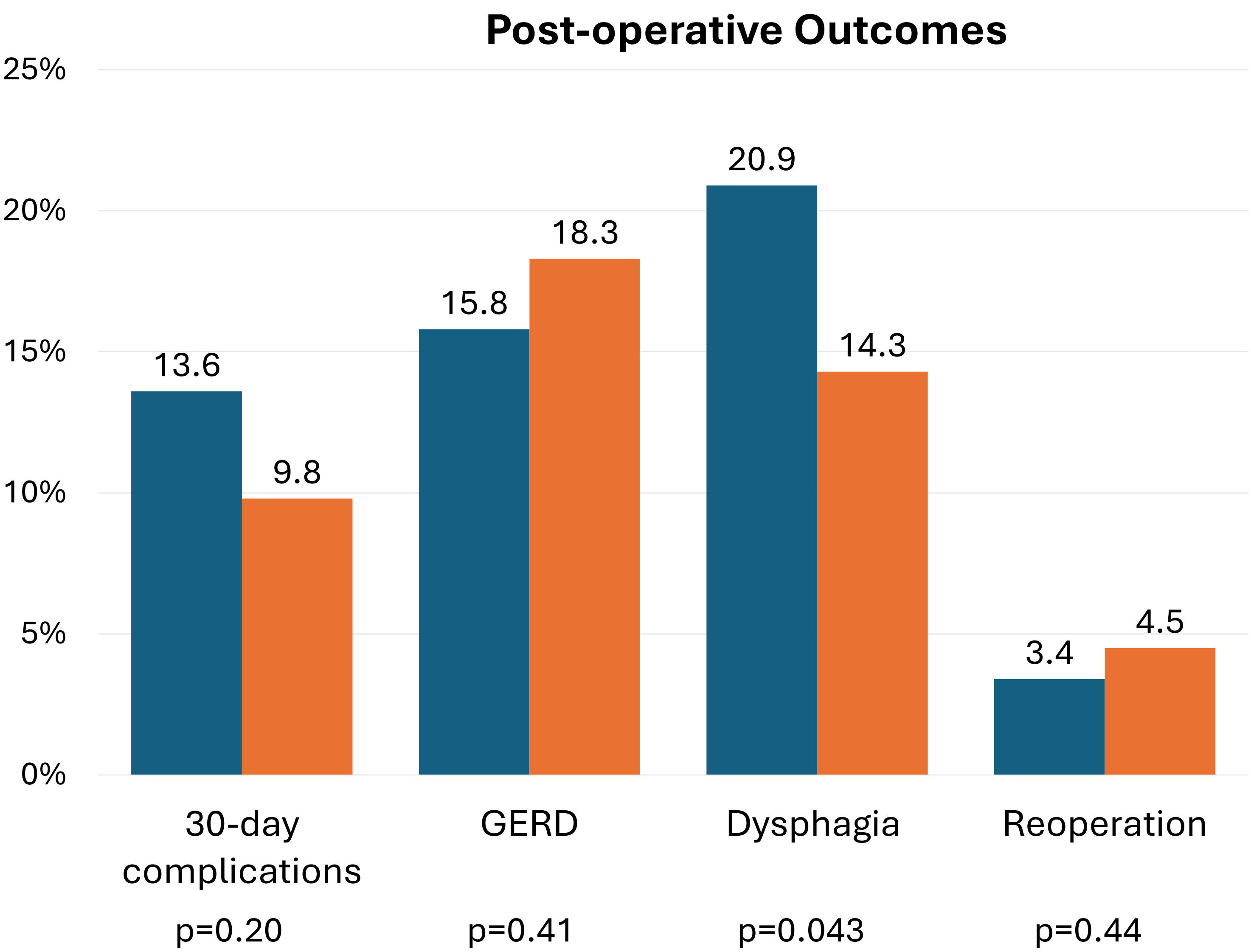
- Robotic paraesophageal hernia repair (PEHR) adoption is rapidly increasing.
- Limited data exists comparing postoperative outcomes between robotic and laparoscopic approach.
- Our aim was to evaluate clinical benefit over laparoscopic PEHR.
- Hypothesis : robotic PEHR confers superior outcomes to laparoscopic.

Methods

- Design : retrospective cohort study at a single institution between 2016 to 2023
- Population : adults undergoing minimally invasive PEHR
- Cohort : n = 1628
 - Laparoscopic : 1451 (89.1%)
 - Robotic : 177 (10.9%)
- Primary outcome - hernia recurrence
- Secondary outcomes –
 - Post-operative 30-day complications, GERD, dysphagia requiring intervention, reoperation for PEHR
- Univariate and multivariable analyses were performed
- Composite adverse outcome - the occurrence of any of the following: GERD, dysphagia, hernia recurrence, or reoperation

Unadjusted analysis : patient characteristics and operative variables.

<u>Patient characteristics</u>	Robotic	Laparoscopic	p-value
Female	134 (75.7%)	613 (42.2%)	< 0.001
Age	54 (44–67)	59 (47–69)	0.014
Diabetes	30 (16.6%)	229 (15.8%)	0.20
Cardiovascular disease	123 (69.5%)	1,036 (71.4%)	0.80
Pulmonary disease	95 (53.7%)	645 (44.5%)	0.014
Prior PEHR	8 (4.5%)	139 (9.6%)	0.04
<u>Operative variables</u>			
Concomitant procedures	96 (54.2%)	650 (44.8%)	0.017
Mesh use	17 (9.6%)	247 (17.0%)	0.013
Fundoplication use	74 (41.8%)	656 (45.2%)	0.29
Gastropexy	48 (27.1%)	251 (17.3%)	0.004
EBL ≤ 50ml	150 (84.7%)	1138 (78.4%)	<0.01



Results

Robotic repair was associated with:

- **Longer mean operative time** (154 vs 122min, p<0.001)
- **higher hernia recurrence** (31.1% vs 23.3%, p=0.044)
- **higher rates of postoperative dysphagia** (20.9% vs 14.3%, p=0.043)

On multivariable analysis

- robotic approach - increased odds of composite adverse outcome (OR 1.54, 95% CI 1.10-1.25, p=0.011)
- BMI>30 – lower odds of composite adverse outcome (OR 0.57, 95%CI 0.45-0.73, p<0.001)

Conclusion

- **Robotic PEHR was associated with longer mean operative time, higher rates of recurrence and higher post-operative dysphagia.**
- These findings may be influenced by case complexity, surgeon learning curve, and differences in patient follow-up patterns.

Implications

Careful patient selection may be important when considering robotic PEHR.

Further prospective studies are needed to clarify the role of robotic PEHR.

References
1. Bhatt H, Wei B. Comparison of laparoscopic vs. robotic paraesophageal hernia repair: a systematic review. *J Thorac Dis.* 2023
2. Barbash GL, Glied SA. New technology and health care costs—the case of robot-assisted surgery. *N Engl J Med.* 2010.
3. Elissavet S, Ioannis G. Robotic-assisted versus laparoscopic paraesophageal hernia repair: a systematic review and meta-analysis. *J Minim Invasive Surg.* 2023.