

# DEFINING THE FELLOW LEARNING CURVE FOR RETRORECTUS HERNIA REPAIR USING ETEP: INSIGHTS FROM A DESIGNATED ABDOMINAL WALL FELLOWSHIP

Sara Saymuah, MD<sup>1</sup>; Carina McGuire, MD<sup>1</sup>; Griffin Feinberg<sup>2</sup>; Jessiel Castillo<sup>2</sup>; Julia Winschel<sup>2</sup>; Christina Raker<sup>3</sup>; Andrew Luhrs, MD<sup>1</sup>; Marcoandrea Giorgi, MD<sup>1</sup>

<sup>1</sup>The Miriam Hospital, Comprehensive Hernia Center; <sup>2</sup>Brown University Warren Alpert School of Medicine; <sup>3</sup>Brown University Biostatistics, Epidemiology, and Research Design Core

## INTRODUCTION

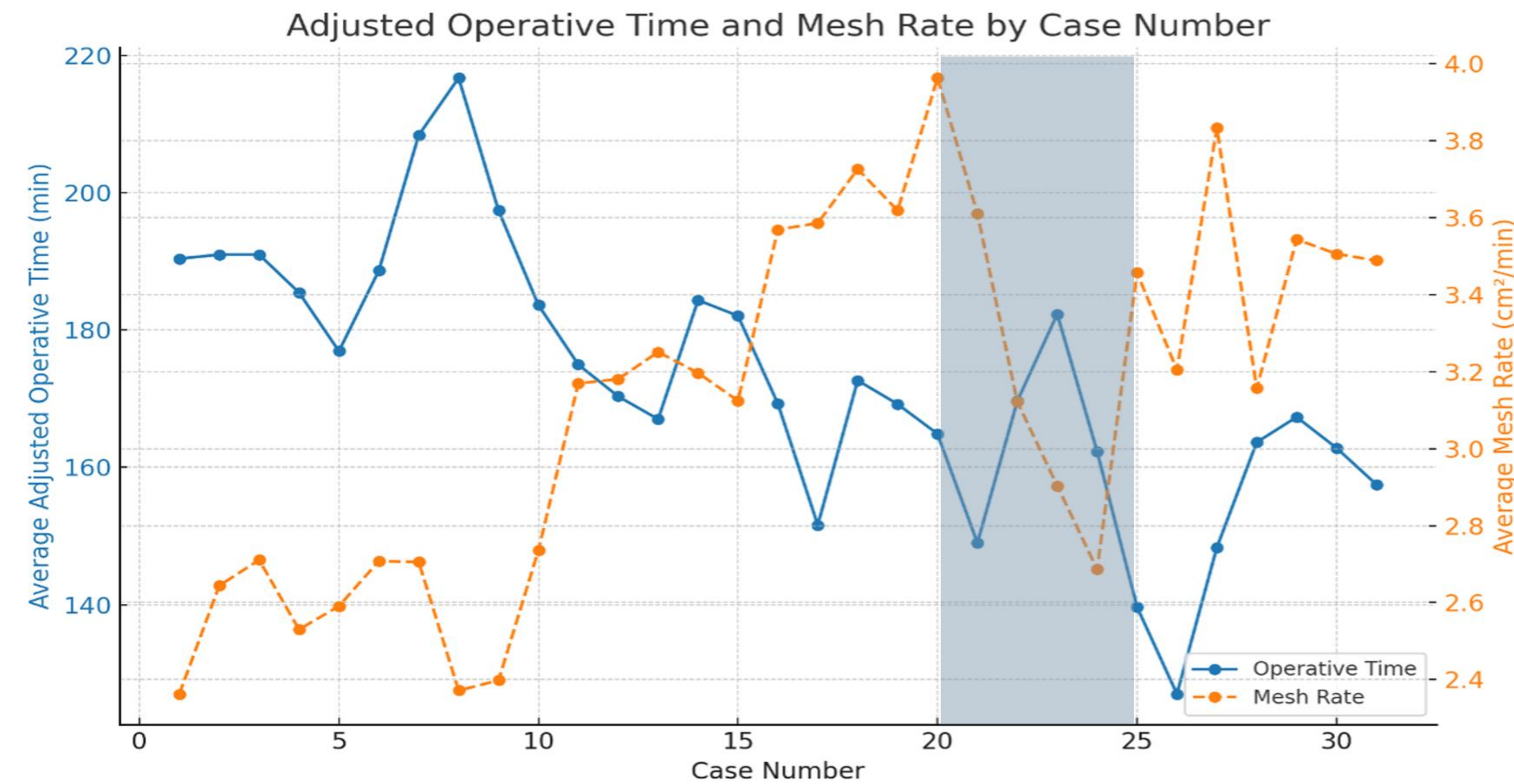
Existing data on robotic retrorectus extended totally extraperitoneal (eTEP) hernia repair learning curves largely track attending progression, with 10–25 cases typically cited for proficiency. **Published data for fellows remain sparse, despite the emergence of designated abdominal wall fellowship programs.**

This study evaluates the learning curve for fellows performing retrorectus repair with eTEP, **defining the case volume required to achieve operative proficiency.**

## METHODS

- A retrospective analysis was performed of 129 robotic eTEP abdominal wall hernia repairs performed by minimally invasive surgery fellows between 11/8/2019 and 3/4/2025 at an academic center with a designated abdominal wall fellowship.
- Linear regression was used to compare first and last case operative time and mesh repair in cm/hr.
- Analysis was adjusted for concomitant transversus abdominis release (TAR) and lysis of adhesions (LOA).

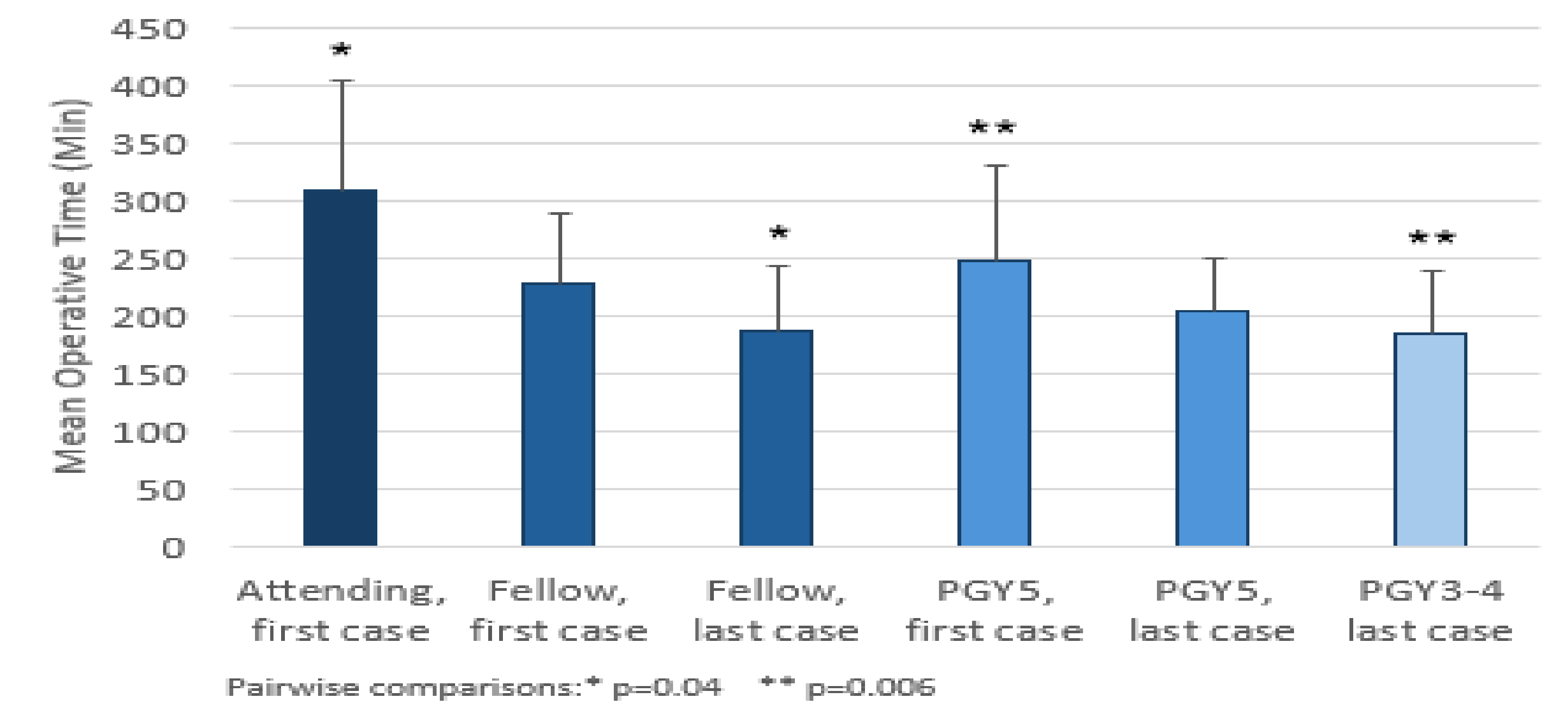
## OPERATIVE TIME AND MESH REPAIR RATE PROFICIENCY CASE NUMBERS



## RESULTS

- Fellows completed a **mean of 25.8 + 8.7 cases**, with **mean mesh size of 579.6 + 212.9 cm<sup>2</sup>**.
- Operative time decreased** from 228 + 61.5 minutes in the first case to 186.4 + 56.5 (P = 0.04) minutes in the last case, **representing an 18% improvement in efficiency.**
- Mesh placement rate increased** from 2.13 + 0.65 cm<sup>2</sup>/hr to 3.49 + 0.49 cm<sup>2</sup>/hr (P= 0.004), **representing a 64% gain in technical efficiency.**
- Adjusted models **confirm a reduction of -138.9 operative minutes** (95% CI -209.0 - -68.0, P = 0.003) and **an increase of + 1.95 cm<sup>2</sup>/min of mesh placement** (95% CI 1.05-2.84, P=0.002 cm<sup>2</sup>/min), independent of TAR/LOA complexity.

## RESULTS



## CONCLUSIONS

- Our study reveals **significant improvement in operative time and mesh repair rate for fellows** learning eTEP repair.
- A steep learning curve is experienced among the fellows' first 15-20 cases.
- Proficiency**, indicated by a plateau in operative time and mesh placement efficiency, **was reached at 20-25 cases and was independent of case complexity.**
- Our data mirrors published data for attending learning curves, **indicating structured early exposure in the training setting can accelerate operative proficiencies to attending levels.**
- Our results **indicate fellowship curricula should include ~25 supervised training cases of robotic retrorectus eTEP repairs to ensure competency for independent practice.**

## REFERENCES

- <sup>1</sup> Zayan NE, Meara MP, Schwartz JS, Narula VK. A direct comparison of robotic and laparoscopic hernia repair: patient-reported outcomes and cost analysis. *Hernia*. 2019;23(6):1115-1121. doi:10.1007/s10029-019-01943-7
- <sup>2</sup> Mitura K. New techniques in ventral hernia surgery - an evolution of minimally-invasive hernia repairs. *Pol Przegl Chir*. 2020;92(3):48-56. doi:10.5604/01.3001.0013.7857