

Progressive Autonomy in Extended Totally Extraperitoneal Robotic Abdominal Wall Reconstruction: A Consecutive Case Series in Fellow Education

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Background

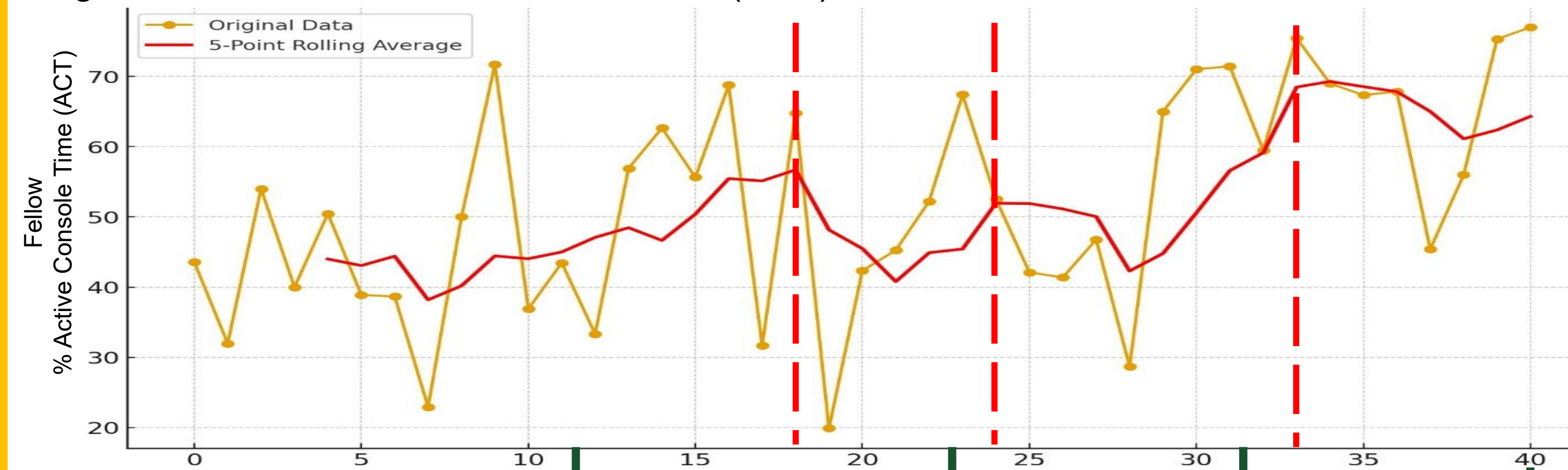
- Robotic training is becoming increasingly prevalent in minimally invasive surgery (MIS) fellowships
- Robotics widely utilized in hernia repairs, including abdominal wall reconstruction (AWR)
- Extended totally extraperitoneal (eTEP) approach adds a unique technical challenge by staying completely outside of the peritoneum
- Learning curve for eTEP AWR in practicing surgeons is about 70

Purpose

- To determine the learning curve for eTEP AWR in fellows with direct mentorship

Results

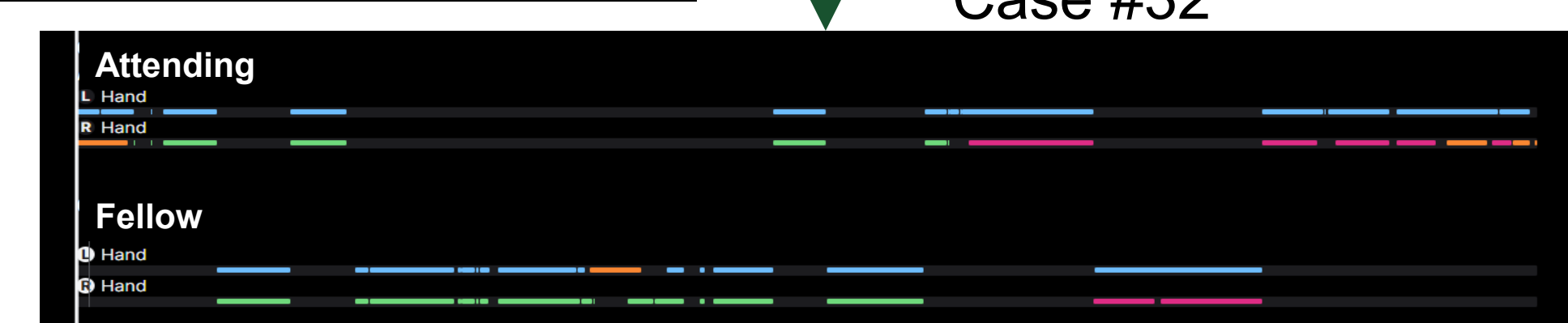
Figure 1. Fellow % Active Console Time (ACT) over case number



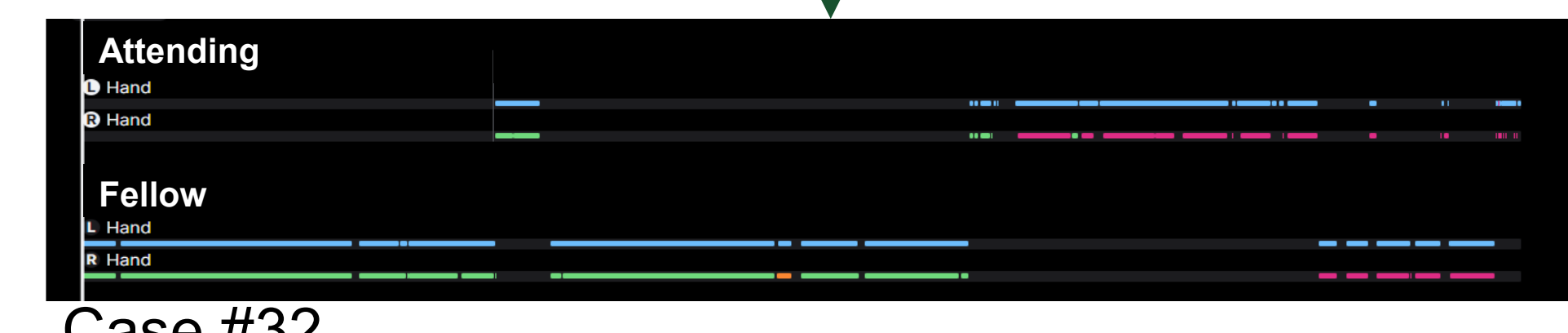
Representative case timelines:



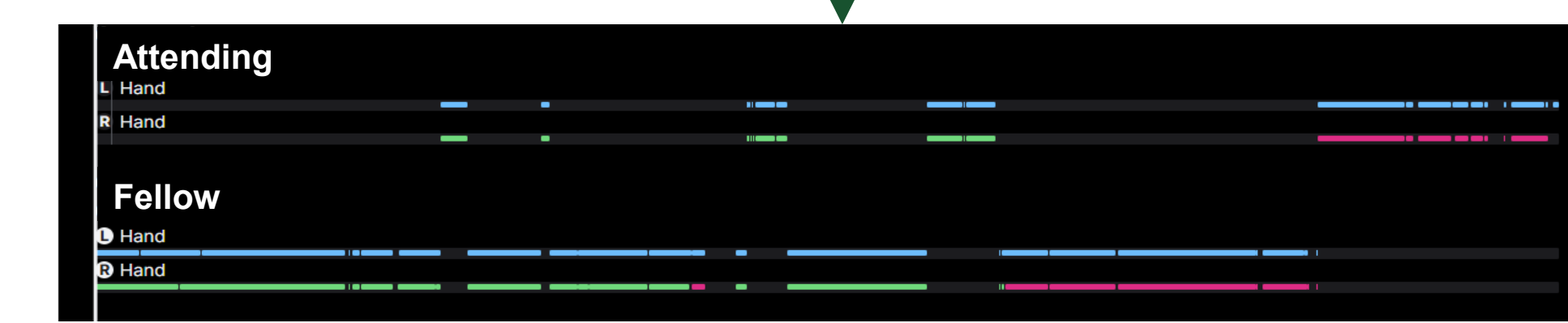
Case #11



Case #23



Case #32



Case #40

Table 1. Case characteristics

	n=41
Total operative time, minutes (mean ± SD)	249.1 ± 82
Total console time, minutes (mean ± SD)	171.0±56.4
Hernia defect length, cm (mean ± SD)	13.1±3.8
Hernia defect width, cm (mean ± SD)	9.3±3.7

Conclusions

When %ACT was used as a marker for progressive fellow autonomy in rAWR, we observed two early peaks in the series, possibly correlating to new skill acquisitions. This culminated in a sustained increase later in the series, likely signifying progressive autonomy of the fellow towards mastery

Methods

- Retrospective case series of consecutive robotic eTEP AWR by a single fellow from 2024-2025 at a high-volume hernia fellowship
- Bilateral retrorectus releases with or without a transversus abdominis release included
- Robotic console times extrapolated from the MyIntuitive web application
- Fellow involvement calculated by:

$$\% \text{ active console time (ACT)} = \frac{\text{fellow console time}}{\text{total console time}} \times 100$$
- A 5-point rolling average was calculated over time to summarize the progression of fellow autonomy