



P530; Does the Surgical Assistance AI -EUREKA- Support Identification by Surgical Fellows?

: A Pilot Randomized Controlled Trial Using an Eye-Tracking Device

KU:P

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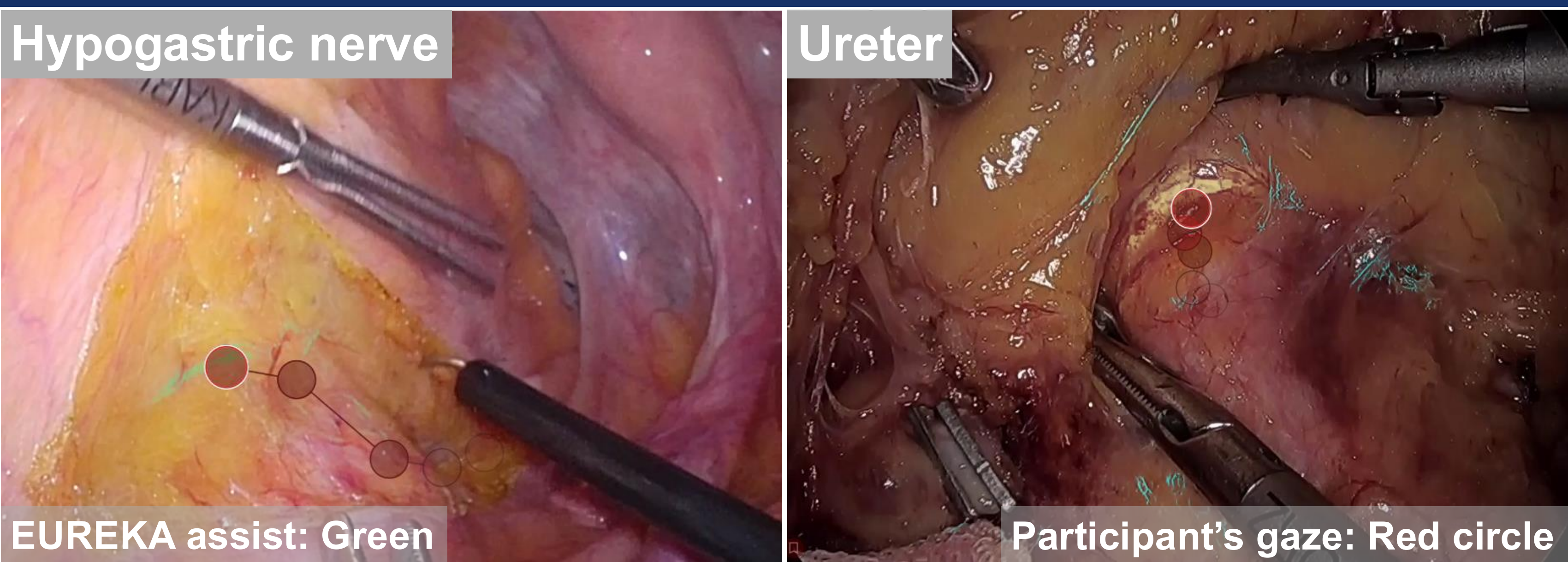
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Introduction

- EUREKA: surgery-supporting AI system
- Enhances visibility of key anatomical structures (e.g., connective tissue, nerves, vessels, ureters)
- Demonstrated strong educational benefits for students and residents

Study Aim

- Effectiveness for surgical fellows remains unclear
- Conducted real-time analysis to assess whether EUREKA improves anatomical recognition among surgical fellows



Methods

- <Design>
- Pilot randomized controlled trial
 - Participants: 31 surgical fellows (3–15 years postgraduate experience)
 - Block randomization: Junior fellows (≤ 9 years) / Senior fellows (≥ 10 years)
- <Intervention>
- 5 Videos: Laparoscopic sigmoidectomy (60 sec video + 5 sec still image)
 - Comparison: with vs. without EUREKA enhancement
- <Outcome Assessment>
- Eye-tracking using Tobii Pro Spark system
 - Correct recognition: ≥ 1000 ms gaze fixation on target structure in still image

Results

- No improvement in hypogastric nerve recognition (**EUREKA 75.0% vs. control 73.3%**)
- Improved ureter identification with EUREKA (**EUREKA 59.4% vs. control 43.3%**)
- Benefit more pronounced in junior fellows; limited effect in seniors (**junior: 73.3% vs. 56.7%; senior: 60.0% vs. 57.8%**)

Discussion

- **EUREKA appears helpful for less-experienced surgeons** and can assist ureter identification in technically difficult cases.
- **Eye-tracking provided objective evaluation** of anatomical recognition
- Further studies need across broader procedures and participants.

Conclusion

- ✓ **EUREKA can facilitate organ identification for surgical fellows, with particularly more benefits for younger surgeons.**
- ✓ **To further evaluate the effectiveness of EUREKA with a larger cohort.**

2026 SAGES COI Disclosure
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