



ADVANCES IN MINIMALLY INVASIVE INGUINAL HERNIA REPAIR: Impact of TEP, TAPP, and Robotic-Assisted Techniques on Postoperative Quality of Life (2021–2025)

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Background

Minimally invasive inguinal hernia repair has evolved significantly over the past decade with the adoption of laparoscopic TEP/TAPP techniques and, more recently, robotic-assisted surgery. Evaluating outcomes in Eastern European healthcare systems is important due to differences in hospitalization practices and resource allocation.

Methods

Retrospective analysis of 273 inguinal hernia repairs performed at Pelican Hospital, Oradea (2021–2025).

Techniques included:

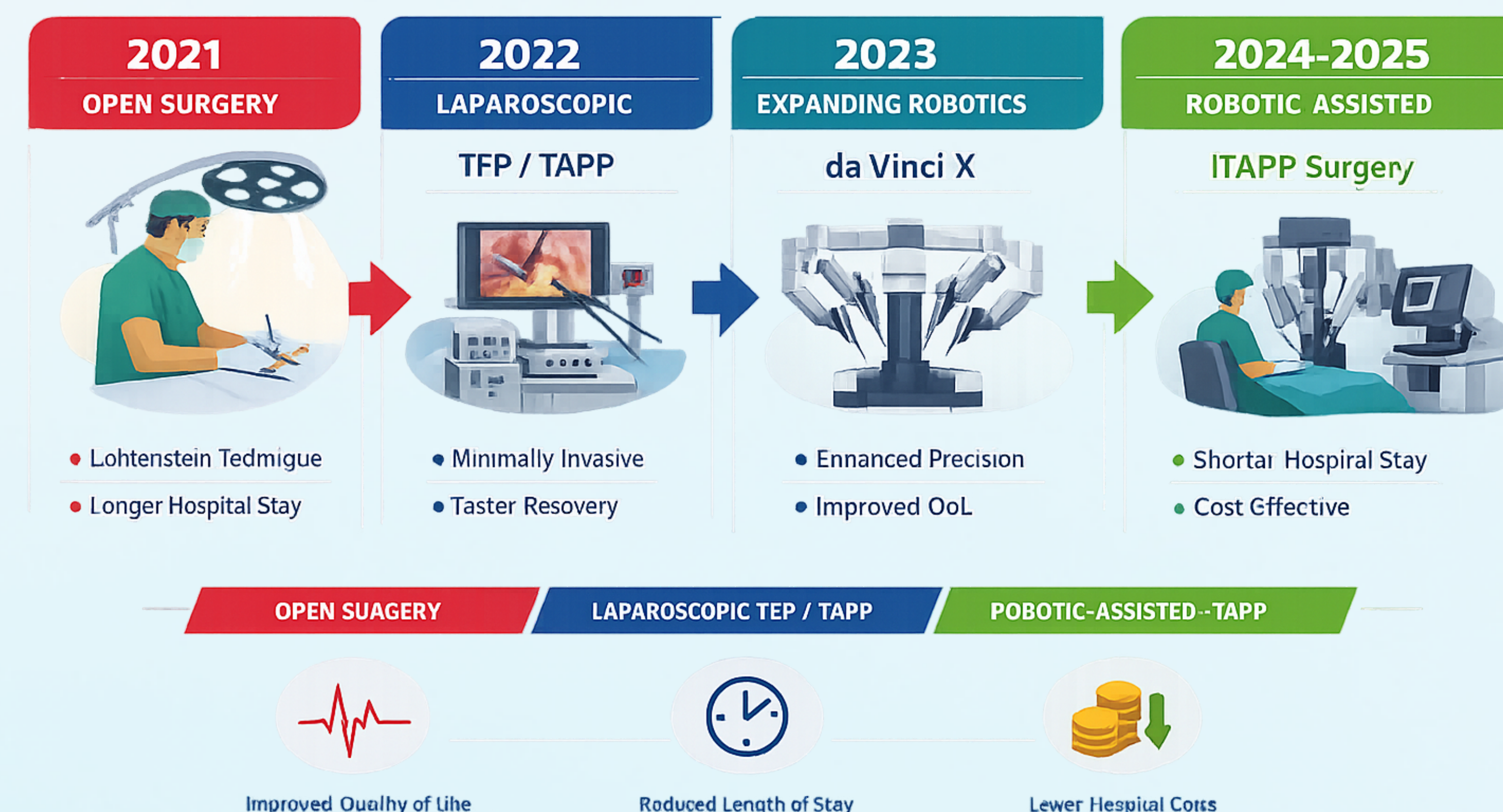
- Open Lichtenstein
- Laparoscopic TEP/TAPP
- Robotic rTAPP (da Vinci X)

Outcomes assessed:

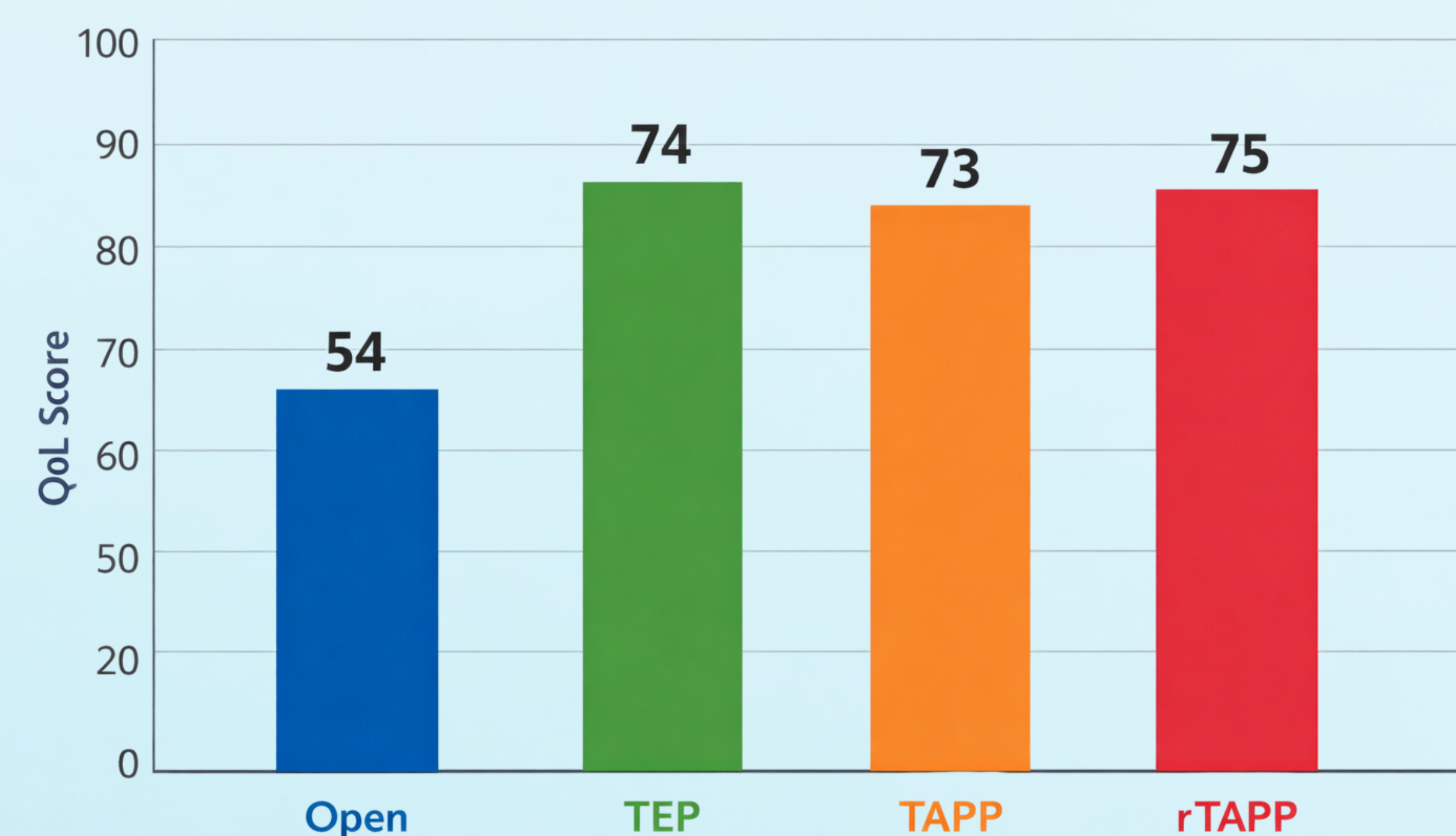
- Length of stay (LOS)
- Complication and recurrence rates
- Hospital costs
- Patient-reported quality of life (EuraHS-QoL)

EVOLUTION OF HERNIA REPAIR 2021-2025

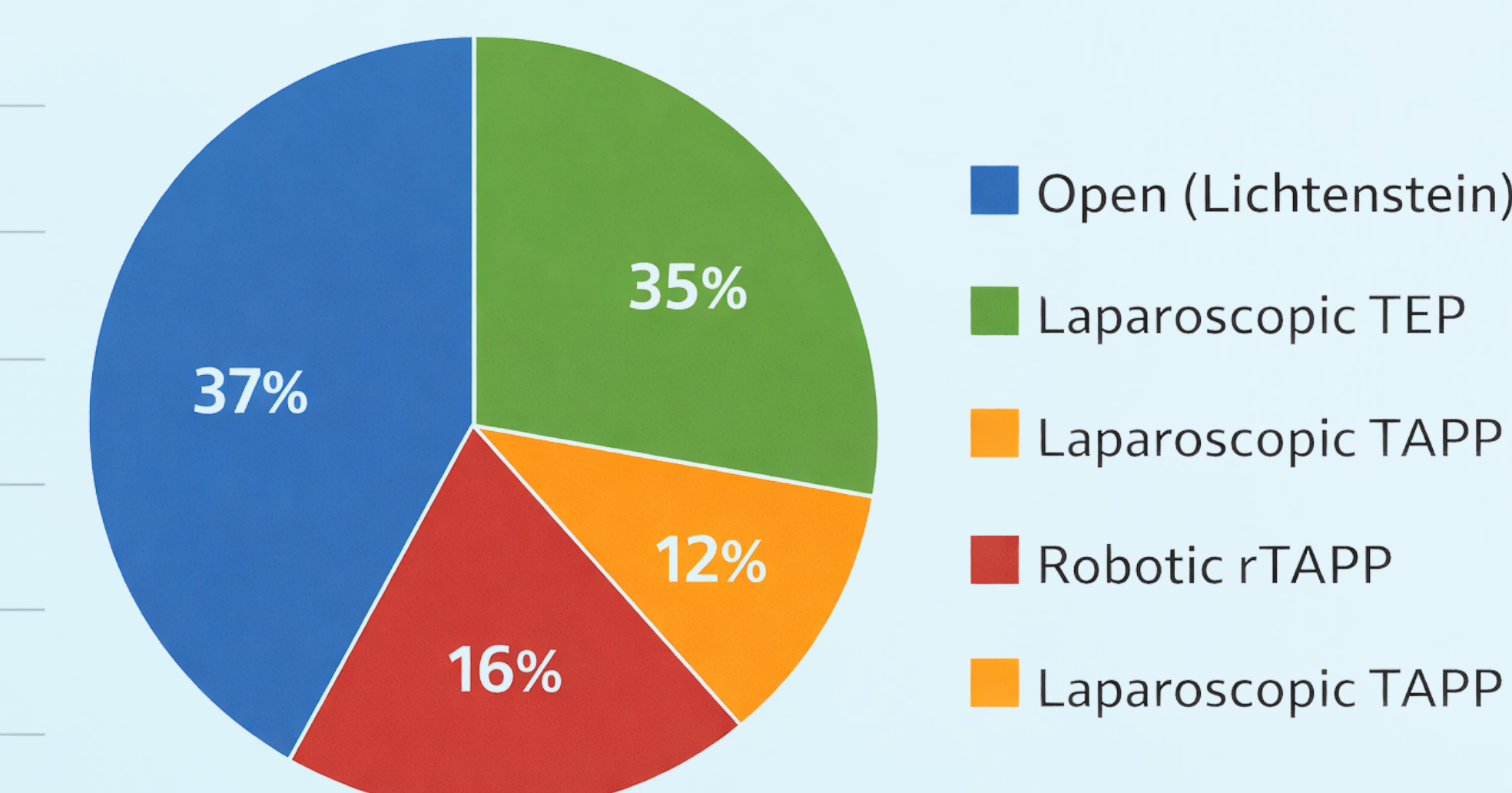
Transition from Open Surgery to Laparoscops. TEP, TAPP and Robotic Assisted TTAPP



EuraHS Quality of Life Scores After Inguinal Hernia Repair



Distribution of Surgical Techniques (n = 273)



Results

Minimally invasive techniques significantly reduced hospital stay:

- Open: 4.1 days
- Laparoscopic: 1.8 days
- Robotic: 1.6 days

Next-day discharge was achieved in >75% of laparoscopic and robotic cases after 2022.

No increase in complications or recurrence was observed.

Economic Impact

Despite higher equipment costs, robotic surgery reduced total per-case hospital costs by ~15% compared with open repair, due to shorter hospitalization and reduced postoperative analgesia.

Conclusion

Minimally invasive repair-particularly robotic-assisted TAPP-provides improved recovery, reduced LOS, and favorable economic outcomes. Our experience supports the integration of robotic hernia repair in Eastern European surgical practice.

Key references: HerniaSurge Group. International guidelines for groin hernia management. Hernia. 2018.; Bittner R et al. Update of the international HerniaSurge guidelines. Hernia. 2023.; Muysoms FE et al. EuraHS-QoL score development. Hernia. 2013.; McCormack K et al. Laparoscopic vs open hernia repair. Cochrane Database.; Prabhu AS et al. Robotic inguinal hernia repair. Surg Endosc. 2020.