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Preliminary results of the application of custom-made mesh in laparoscopic inguinal hernia repair

Aim

Laparoscopic inguinal hernia repair has become a widely recognized technique, offering advantages such as reduced postoperative pain or shorter recovery time. One of the crucial component of a successful hernia repair is the choice of mesh. This study explores the use of tailored mesh in laparoscopic inguinal hernia repair, aiming to optimize the mesh shape for individual patient anatomy.

Material & Methods

The study included 10 patients qualified for laparoscopic transabdominal preperitoneal hernia repair in 2nd Department of General Surgery at the Jagiellonian University Medical College in 2024. The team that worked on the mesh design consisted of surgeons, radiologists and engineers. The design of custom made meshes consisted of following steps: CT scans (according to the protocol), creation of a 3D project, production of the mesh and clinical implementation- surgery. Clinical outcomes, including recurrence rates, postoperative pain, and patient satisfaction were investigated.

Results

Preliminary results suggest that tailored mesh provides optimal results. After 6 months of follow-up, no recurrences or other complications were reported. None of the patients complained about 'foreign body sensation' in the inguinal region

Conclusions

The customized mesh provides an anatomic fit to the patients' inguinal fossa. Possibly, better mechanical stability may be achieved by the larger number of contact points between the implant and the tissues. This technique represents a promising advancement in laparoscopic inguinal hernia repair, with the potential to improve surgical outcomes. However, further prospective studies are necessary to validate these findings.

