

A Novel Technique for Robotic Sacropexy: Safe and Efficient Mesh Fixation Using the Ney-Knot Method



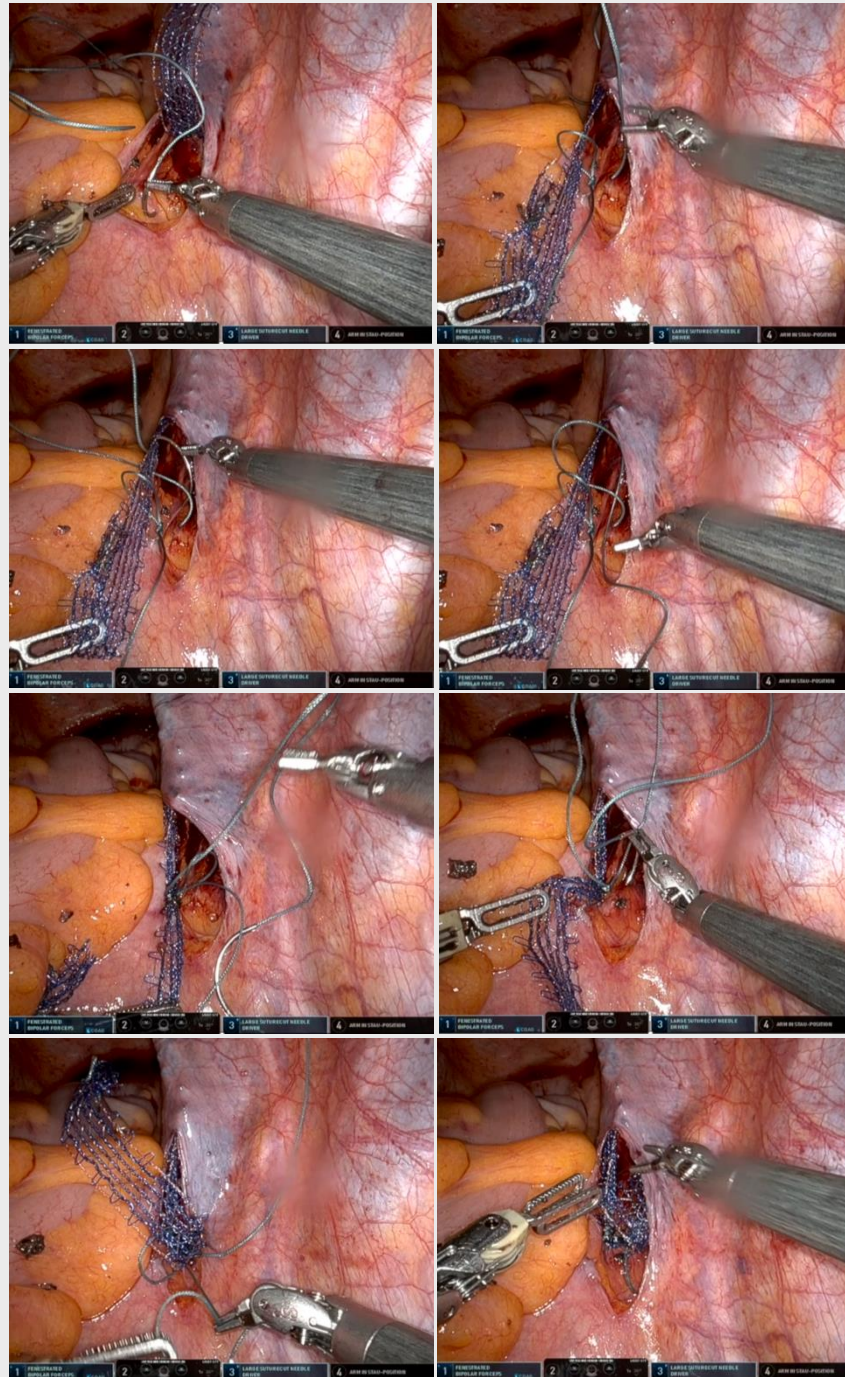
ICS2026
Maastricht

6 - 9 OCTOBER 2026
Maastricht, Netherlands

Joerg Neymeyer, Philine Wittur, Katharina-Sophie Mala,
Tianshu Chen and Thorsten Schlomm
Charité Medical University Berlin, Department of Urology



www.ics.org/2026/abstract/357



HYPOTHESIS / AIMS OF STUDY

Laparoscopic, abdominal, and robot-assisted sacropexy are well-established standard procedures for the treatment of apical (level I) pelvic organ prolapse. Over the past decade, complication rates related to mesh implantation have been significantly reduced through the use of lightweight, monofilament, large-pore meshes and absorbable sutures for vaginal stump attachment. Nevertheless, secure fixation of the mesh to the sacral promontory remains one of the most technically demanding steps of the procedure, particularly in robotic surgery. Challenges included limited working space, the need for precise tension control, the risk of suture pull-out, and frequent reliance on additional instruments or an assistant. This study aimed to evaluate the safety, feasibility, and efficiency of a novel robotic fixation technique using a pre-looped adjustable suture, referred to as the “Ney-Knot.”

The aim of this study was to evaluate the safety, feasibility, and efficiency of a novel robotic fixation technique for sacral promontory attachment during sacropexy. Specifically, we assessed whether the use of a pre-looped, adjustable suture (“Ney-Knot”) enables secure mesh fixation with reduced instrument requirements, shorter fixation time, and improved surgeon-controlled tension adjustment.

STUDY DESIGN, MATERIALS AND METHODS

Between February 2025 and March 2026, 52 consecutive patients underwent robot-assisted sacropexy using the Ney-Knot technique. All cases were retrospectively analyzed. The Ney-Knot consists of a 15 cm suture with a preformed, adjustable loop designed to allow controlled mesh fixation at the promontory. Promontory fixation was performed using only two robotic arms—a Johann grasper and a needle driver—without the need for additional assisting instruments. The first stitch was placed from cranial to caudal through the anterior longitudinal ligament at the promontory. The mesh was then inserted into the preformed loop and encircled by the running suture. By tightening the loop, the surgeon could precisely adjust mesh position and tension. A second stitch was subsequently placed from caudal to cranial, creating an additional loop around the mesh, analogous to a locking Z-stitch, to achieve final fixation. Peritoneal closure was performed in a standard fashion.

RESULTS

All procedures were completed successfully without intraoperative complications related to mesh fixation. Secure attachment of the mesh to the promontory was achieved in all patients, with no cases of suture tear-out, fixation failure, or postoperative pain attributable to the fixation site. The mean time required for promontory fixation was 11 minutes, indicating a high level of procedural efficiency. The Ney-Knot technique offered several practical advantages: elimination of the need for an assistant to elevate the vaginal stump, full control of mesh tension and positioning by the operating surgeon, and reduced instrument usage through reliance on only two robotic arms. These factors contributed to a streamlined workflow and potentially reduced operative complexity.

INTERPRETATION OF RESULTS

The findings of this study indicate that the Ney-Knot technique provides a highly effective and reproducible method for mesh fixation to the sacral promontory during robotic sacropexy. The absence of intraoperative complications and fixation failures demonstrates that this novel approach is both safe and reliable. Importantly, the technique achieved secure mesh attachment in all patients, highlighting its mechanical stability and suggesting that concerns such as suture tear-out or fixation loss can be effectively mitigated with the pre-looped, adjustable design.

CONCLUDING MESSAGE

The Ney-Knot technique represents a safe, reliable, and time-efficient method for mesh fixation during robotic sacropexy. Its high tensile stability, material-saving design, and minimal instrument requirements make it a valuable alternative to conventional fixation techniques. By enabling precise tension control and surgeon-directed mesh elevation, the Ney-Knot may simplify one of the most challenging steps of sacropexy and enhance the overall efficiency and reproducibility of robotic prolapse surgery.



Training Programme “Pelvic Floor Surgeon”
STIFTUNG CHARITÉ