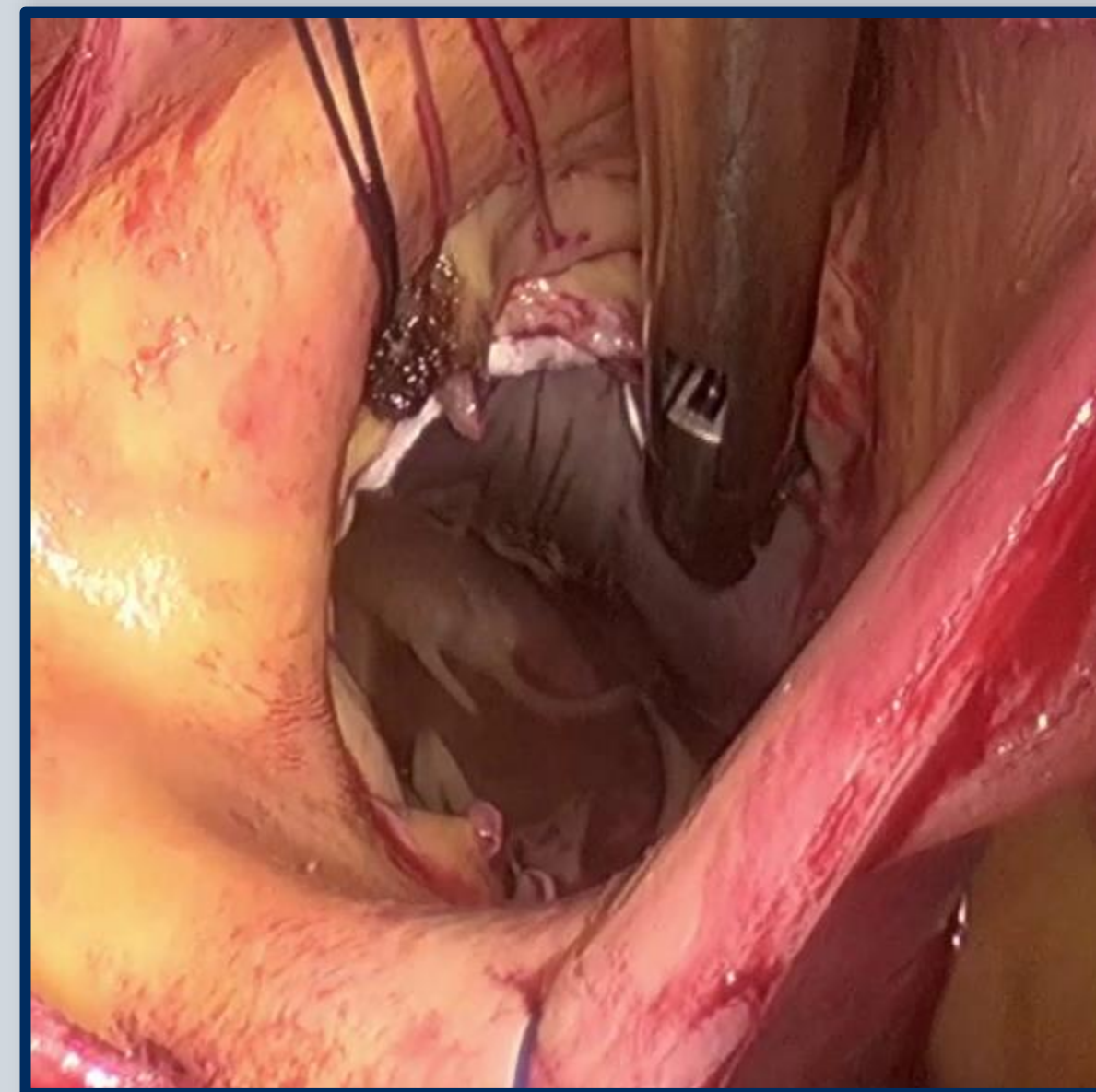


3D Endoscopic Aortic Valve Replacement Using The Triangulated Technique

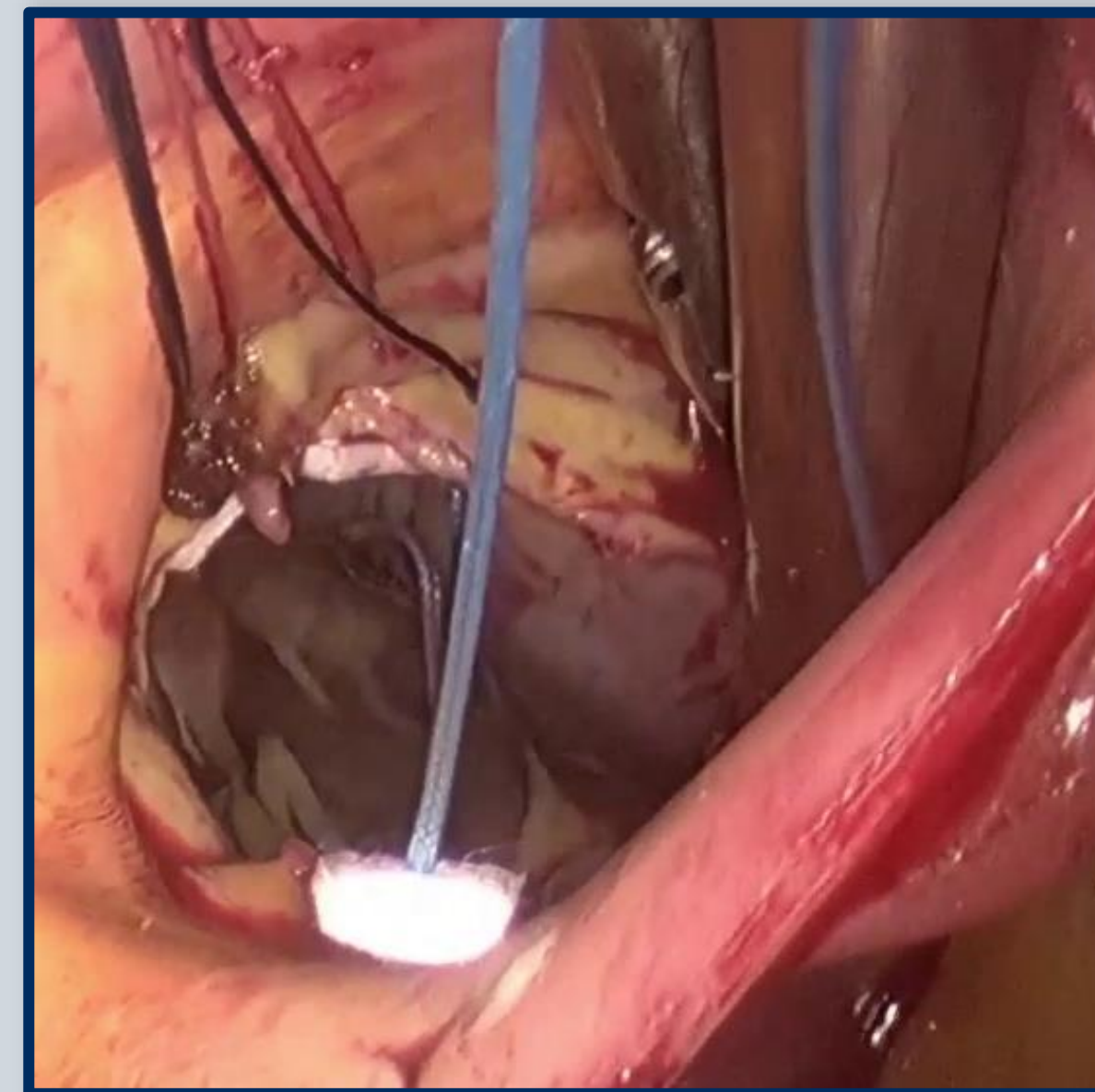
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Conventional



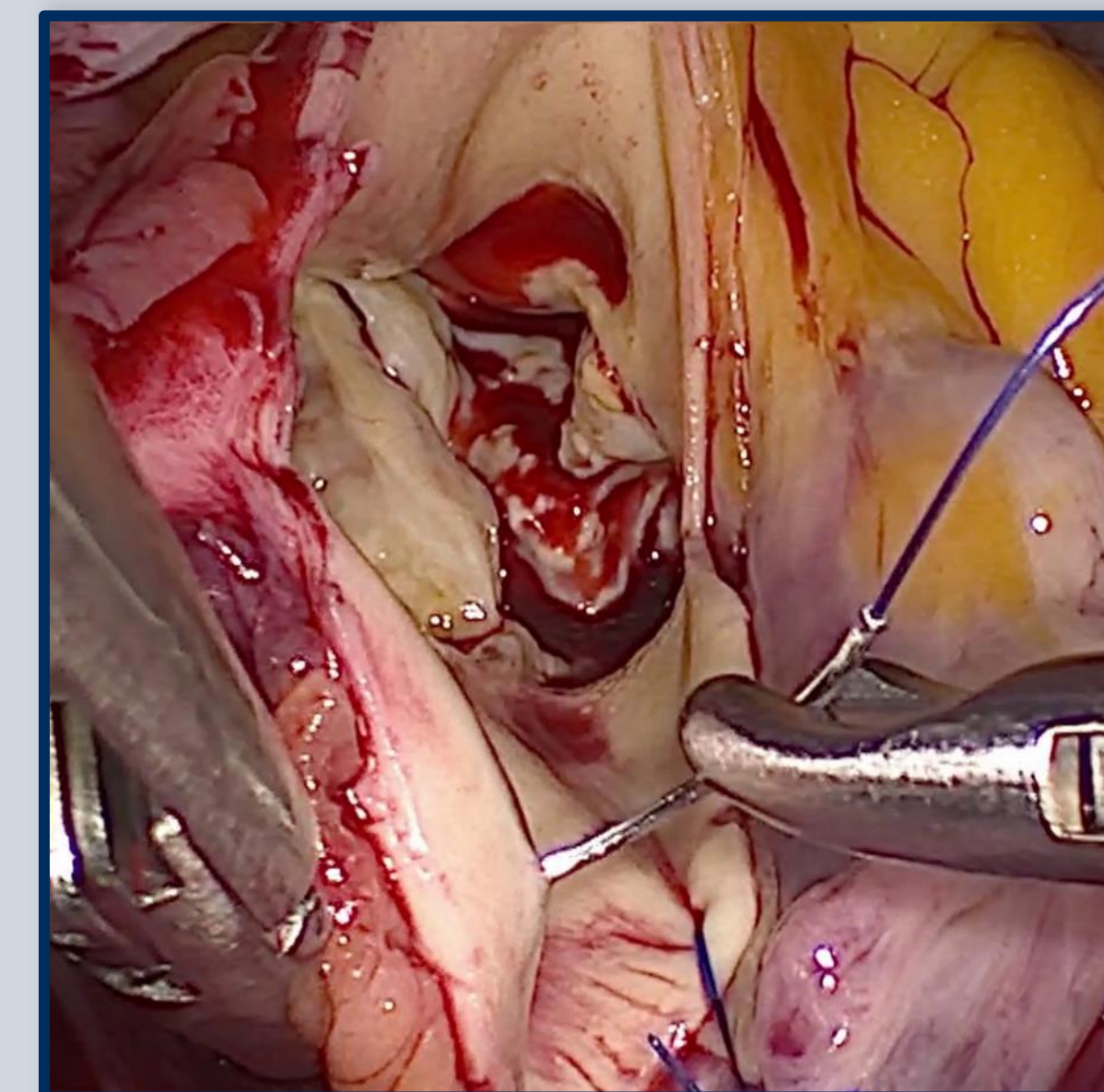
Hook Stitches



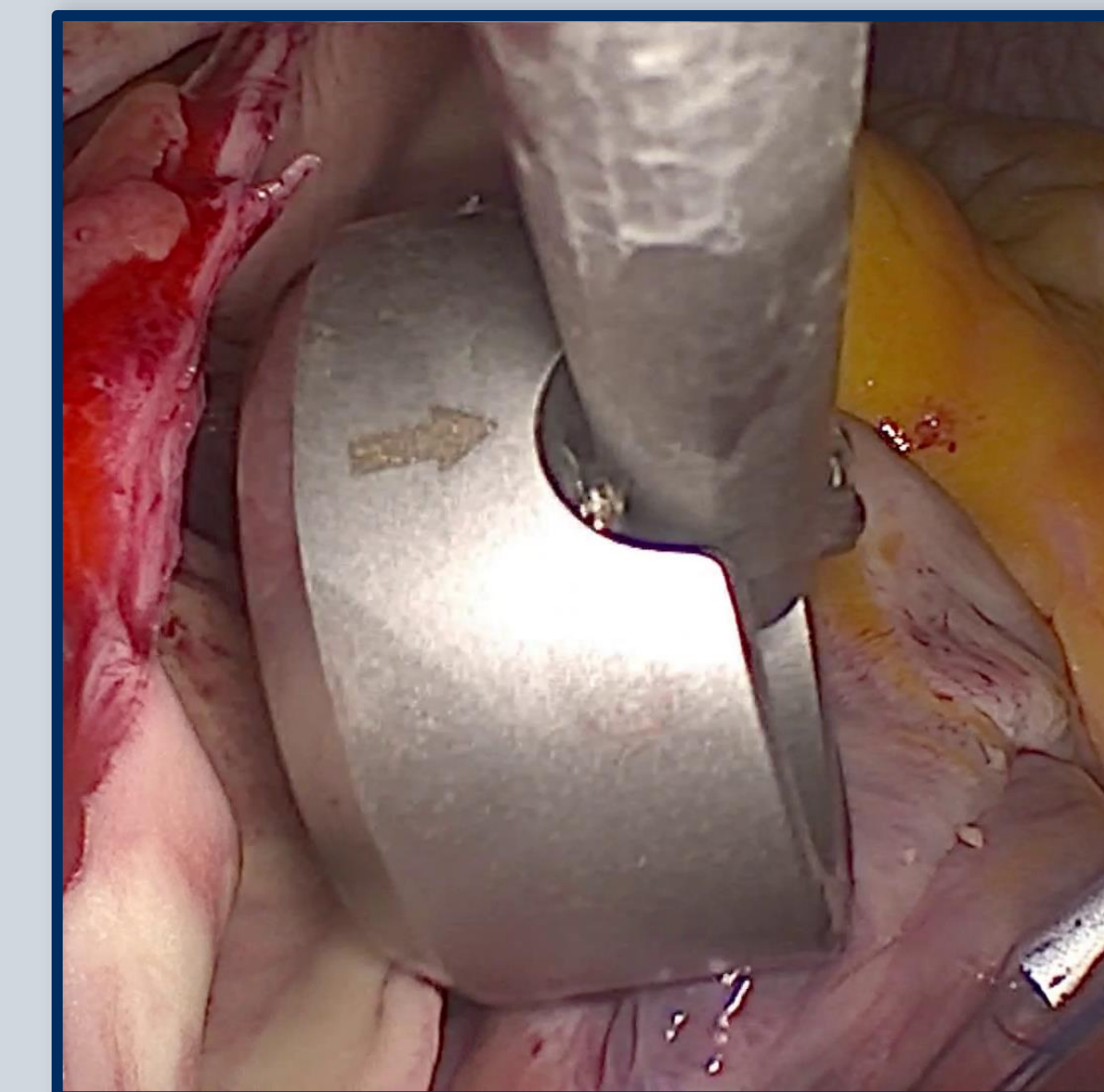
Blocked View

VS.

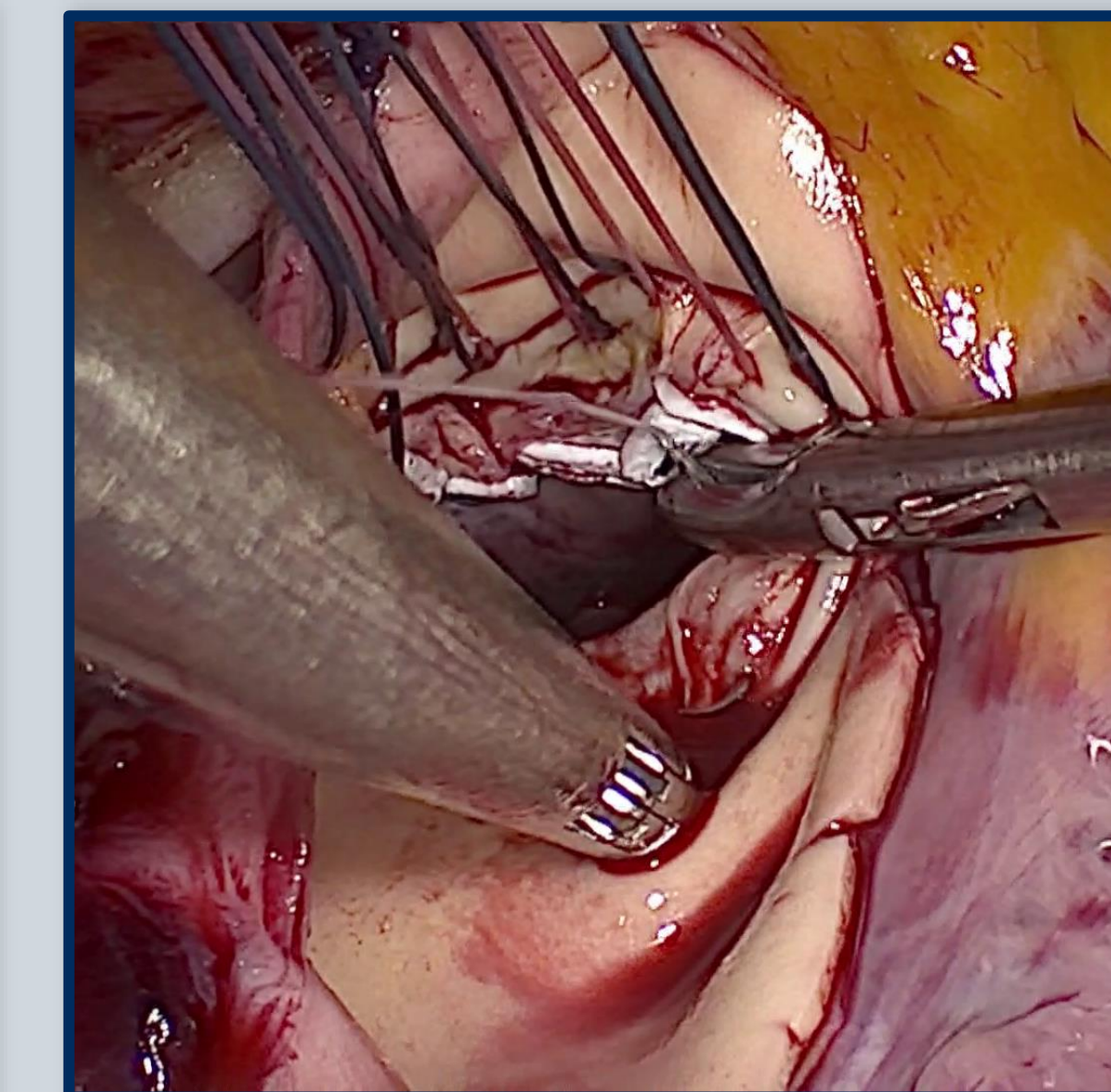
Triangulated Technique



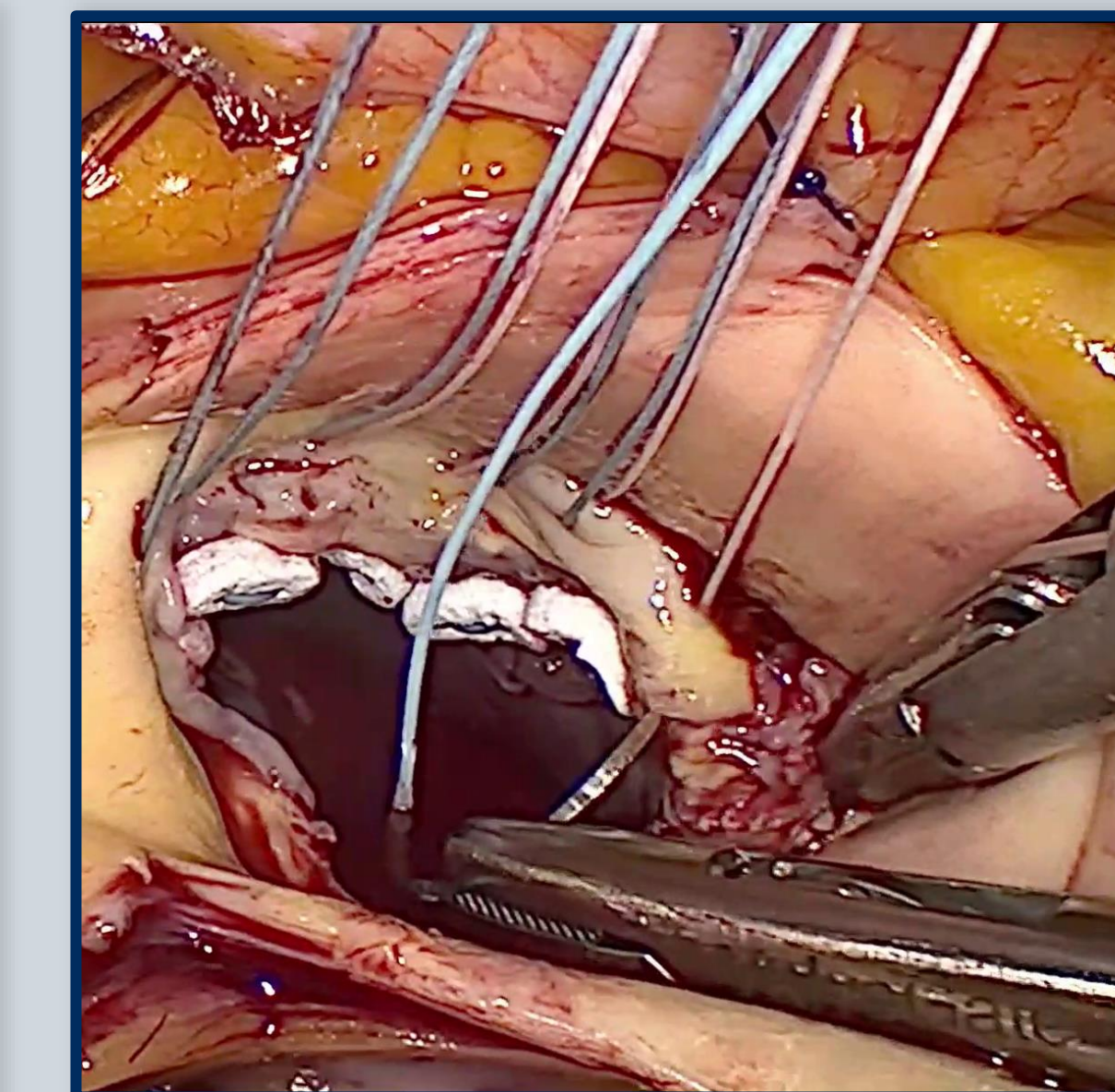
Longitudinal Aortotomy



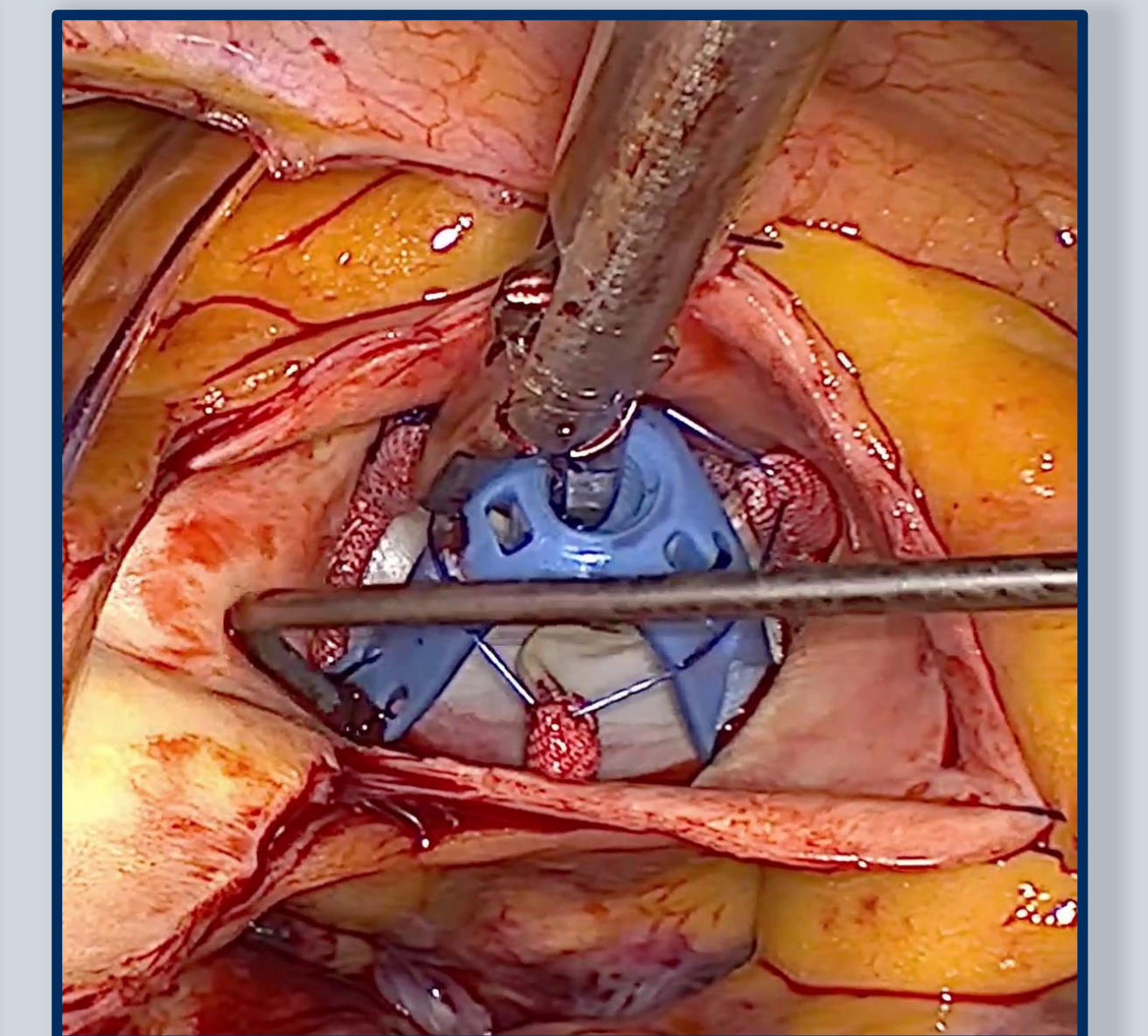
Foldable Sizer



Perpendicular Stitches



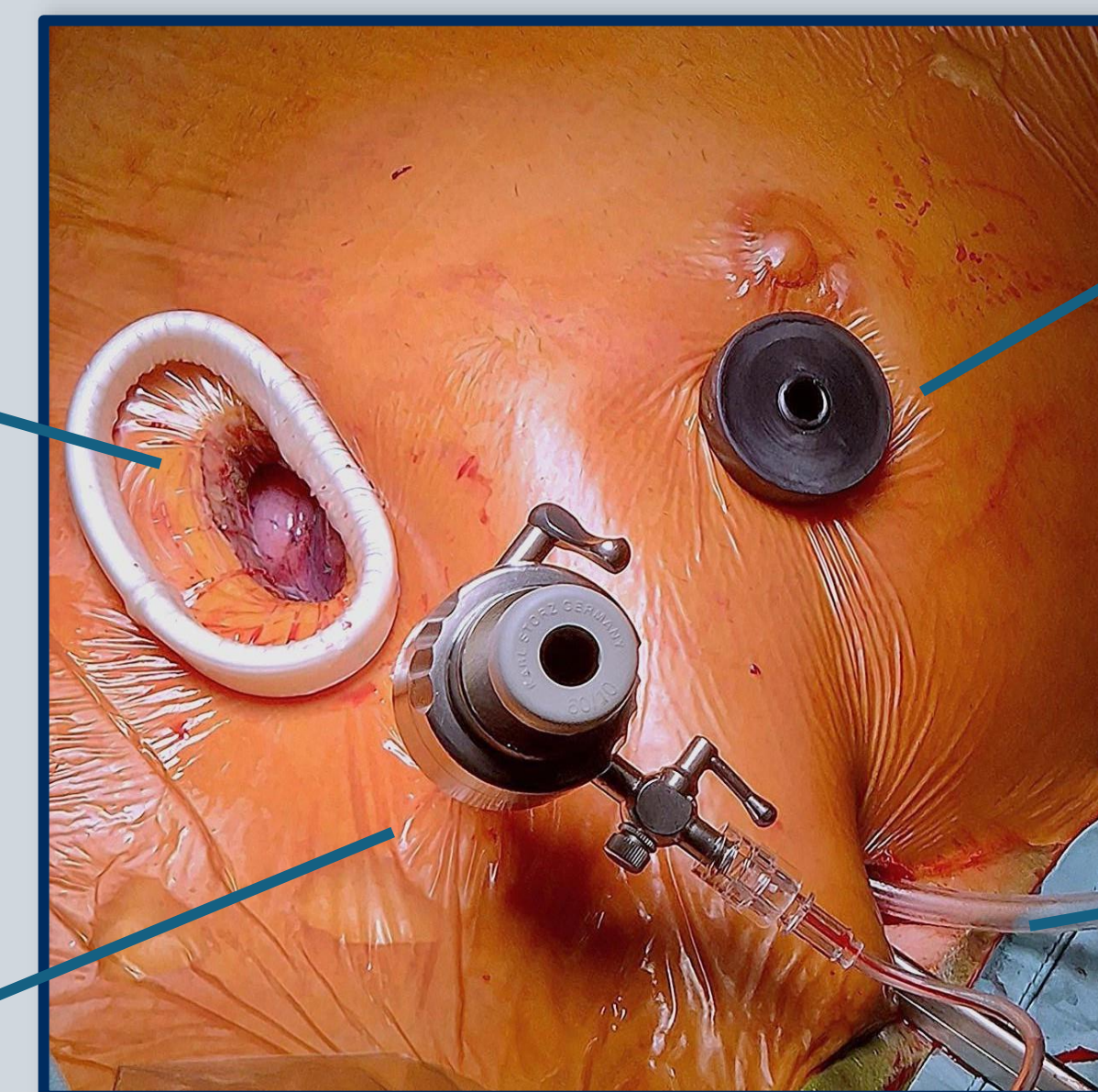
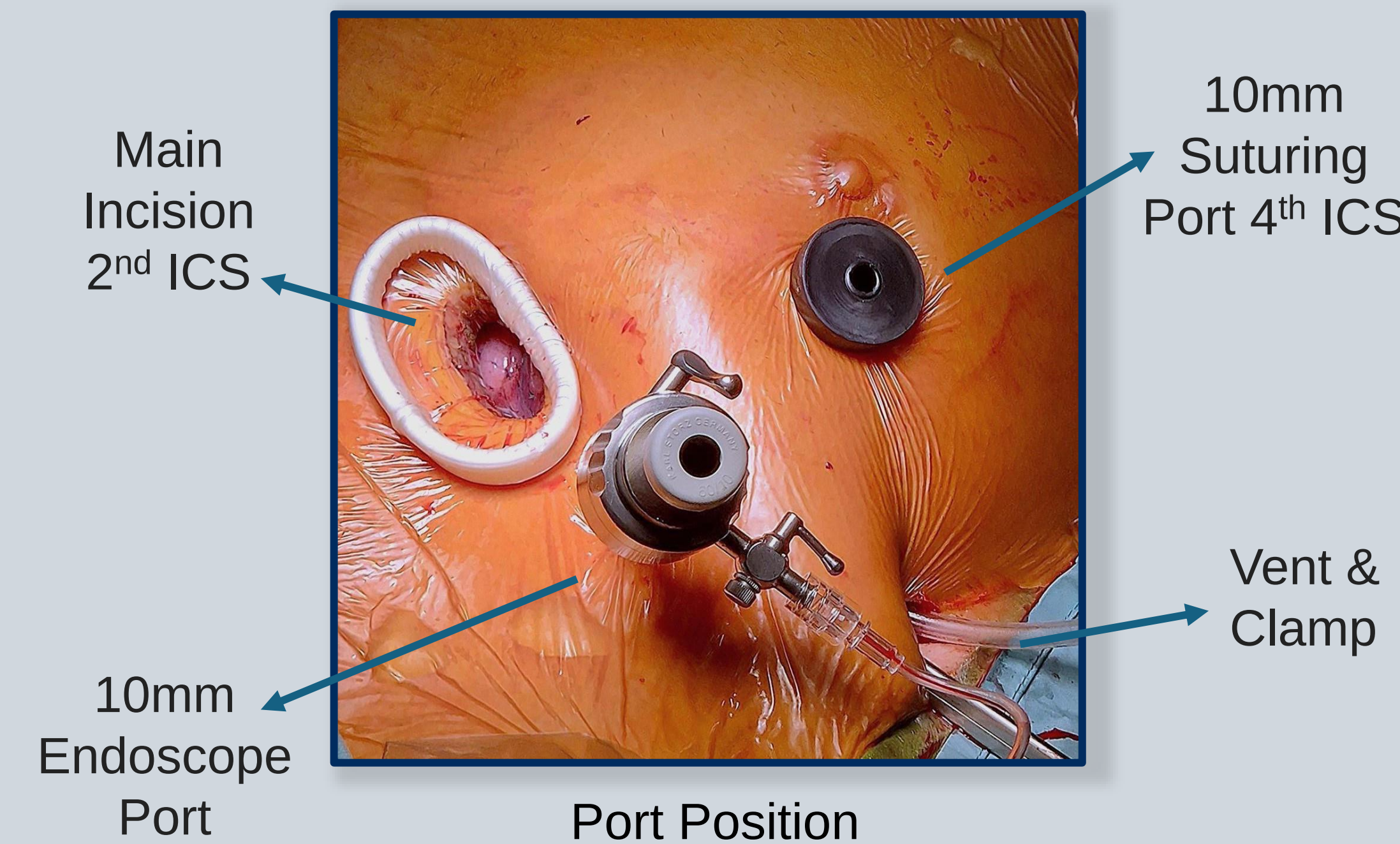
Continuous View



Intuitive Handling

OBJECTIVE Previous methods for total endoscopic aortic valve replacement (TEAVR) were limited by obstructed views and the use of hook stitches, resulting in less intuitive and less safe handling. We now introduce a new technique that utilizes natural movement patterns and continuous, unobstructed visualization, allowing for precise perpendicular suturing with both forehand and backhand approaches. Additionally, we present the first case series utilizing the triangulated technique.

METHODS In about 2 years we performed 18 TEAVR in triangulated technique in our center. In addition to the primary incision, we utilized a 10 mm working port in the peri-areolar region of the fourth intercostal space. The endoscope was carefully positioned at least 2 cm laterally to the primary incision on the right anterior axillary line, ensuring unobstructed access. A longitudinal aortic incision was performed to enhance the scope of action. We collated surgical data, as well as peri- and postoperative adverse events and complications, for all patients.



Port Position

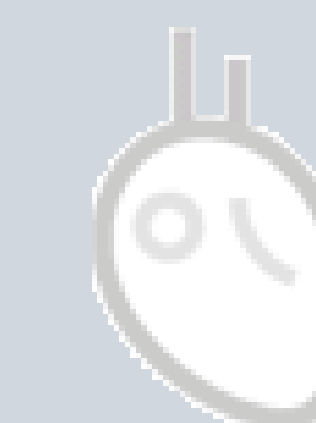


Habitual Movements

RESULTS

- 18 Patients, 72% male
- 57 to 76 years
- Biological 23 – 29mm
- Mechanical 25 – 27mm
- No conversions
- 1 Hemorrhage & 1 lymphatic groin fistula

Conclusion The possibility for traction and countertraction, intuitive needle holder and forceps handling and good tactile feedback ensure precise placement of perpendicular sutures, fore- and backhand. The triangulated technique employs habitual movement patterns, enhanced continuous visualization and an expanded working space to achieve an optimized workflow and safety, while adhering to all minimally invasive principles.



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