



Robotic Trans-Abdominal Pre-Peritoneal (TAPP) Inguinal Hernia Repair

KEY ANATOMY:

Two preperitoneal compartments and the myopectineal orifice

The preperitoneal space is divided into two compartments separated by a fascial layer, the intermediate fascial layer. The anterior compartment closer to the muscle wall is the parietal compartment of the preperitoneal space, and the posterior compartment closer to the viscera and the peritoneum is known as the visceral compartment of the preperitoneal space.

The pubic symphysis, Cooper's ligament, and the epigastric vessels serve as important anatomical landmarks.

Description of the Procedure:

Patient is placed supine with arms tucked to sides.

Three trocars are placed 8-12 cm apart along a transverse line, 20-25 cm superior to pubis. The patient is then placed into 12-15 degrees Trendelenburg position.

Transperitoneal inspection of anatomy and pathology is performed. Direct, Indirect and Femoral Hernias are identified based on relationship to the inferior epigastric vessels and iliopubic tract. Mesh can be preplaced into peritoneal cavity superior to trocar line & anticipated sutures placed in gutters for efficiency. Robot is then docked.

At the robotic console:

Transverse peritoneal incision is made about 8 cm superior to the inguinal defect.

Medial to the epigastric vessels, the parietal compartment is dissected to visualize the rectus muscle. This is carried down to the symphysis pubis and the retropubic space is dissected to expose at least 2 cm contralateral to the midline. Cooper's ligament is exposed and cleared at least 2 cm below the ligament to ensure adequate space for the inferior border of the mesh.

Assessing for Direct Hernias:

Hesselbach's triangle is cleared assessing for a direct hernia. The hernia is reduced dissecting the contents away from the border of the transversalis (white) fascia. The (antisac/pseudosac) may be imbricated onto Cooper's ligament or high on the rectus muscle in lieu of closure of the direct defect to prevent injury to the anterior nerves and cord structures. Herniated femoral contents, if found, are reduced as well.

Assessing for Indirect Hernias

Lateral to the epigastric vessels, the dissection is carried out in *visceral compartment* continuing in the true preperitoneal plane. Importantly, the dissection must not extend to expose the psoas muscle and the nerves in the lateral compartment. Any indirect hernia sac, if present, is carefully reduced and separated from the cord structures with medial retraction and a combination of blunt/sharp dissection and focused



cautery. This dissection is continued until the cord structures are “parietalized” completely, allowing for visualization of the reflected peritoneum that is continuous with the line originating 2 cm below Coopers medially and across the psoas muscle in the lateral compartment. Cephalad retraction of the peritoneal flap should not be lifting the inferior mesh edge or cord structures; otherwise the inferior-lateral dissection should be expanded. *Overdissection and exposure of the genitofemoral and lateral femoral cutaneous nerves in the lateral compartment can lead to postoperative neuropathy.*

The internal ring is interrogated for a cord lipoma which would traverse the ring lateral to the cord structure and above the transversalis sling/ileopubic tract. If identified, the cord lipoma must be reduced to the retroperitoneum and removed or seated dorsal to the preperitoneal mesh.

Mesh Placement

Having achieved a complete dissection with a critical view of the entire myopectineal orifice, large or XL mesh (minimum 10 x 15 cm) is then positioned. It is centered at the iliopubic tract with the medial side crossing the midline and the inferior edge positioned 2 cm below Coopers ligament. With complete coverage of the MPO, the inferior edge of the peritoneum should be posterior and inferior to the mesh. The lateral aspect of the mesh should extend 3-5 cm beyond the lateral edge of the psoas. *It is important to remember that the most common mechanism of recurrence after posterior repair is inferior/inferiorlateral route, so mesh positioning is confirmed to provide adequate prevention.* The mesh is fixated using an interrupted suture placed to the ipsilateral Coopers ligament. A second suture may be added at the medial superior aspect of the mesh fixating this to the rectus complex. Suture placement in the lateral compartment should be avoided.

Closure:

The peritoneal flap is closed with running barbed suture. Additional holes in the peritoneum closed with suture. *Any exposure of barbs can lead to postoperative intestinal obstructions and must be avoided.*

Preperitoneal space gas aspirated to visualize the peritoneum apposed directly against the mesh and ensure no folding, lifting, or buckling of the mesh. *Any noted mesh movement is indicative of inadequate MPO dissection or incorrect mesh placement and may lead to recurrence.*

Any fascial incision through linea alba suture closed. Skin is closed, sterile dressings are applied.