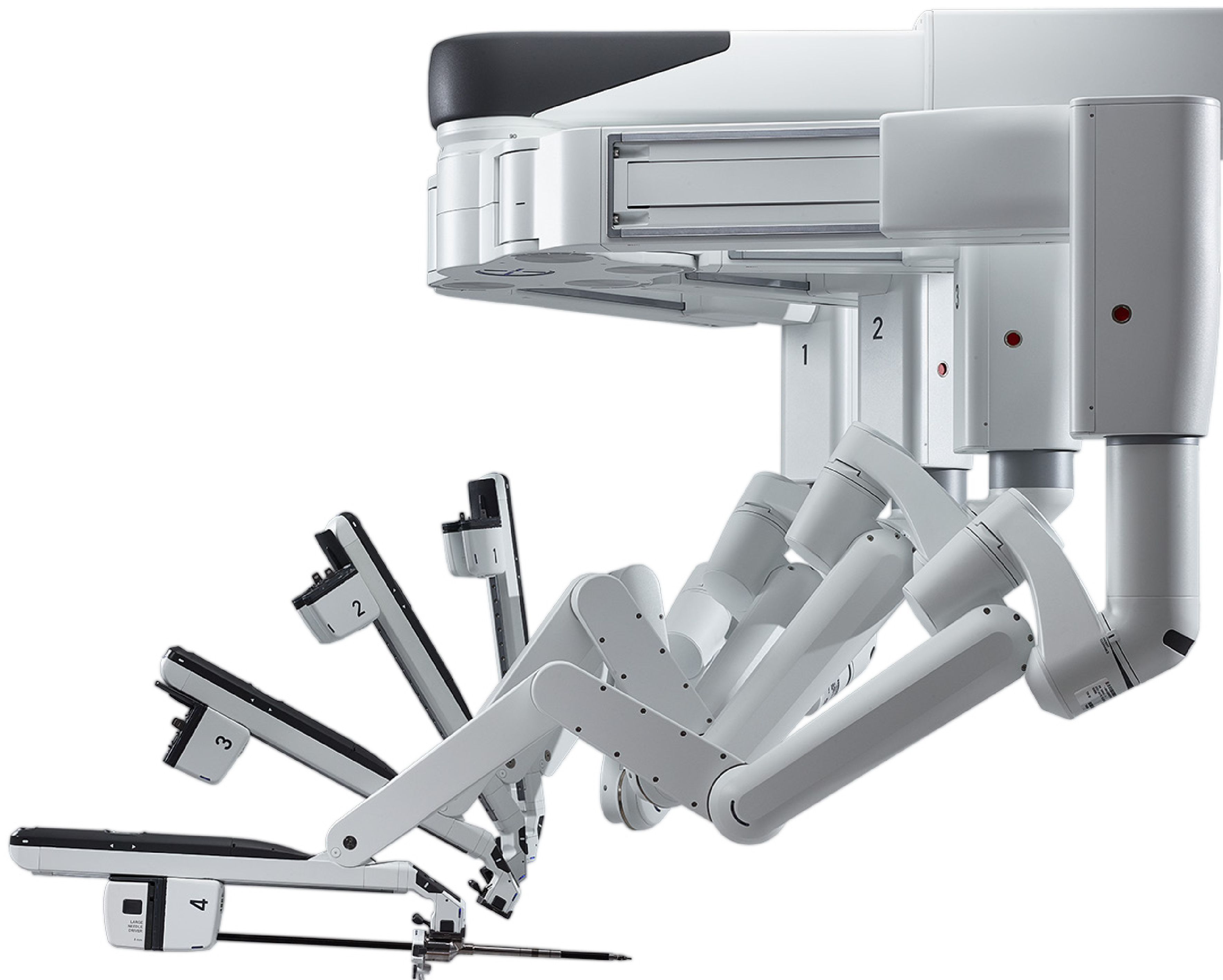


INGUINAL HERNIA REPAIR PROCEDURE GUIDE



EXAMPLE OPERATING ROOM (OR) CONFIGURATION

PATIENT POSITIONING & PREPARATION

PORT PLACEMENT

SYSTEM DEPLOYMENT & DOCKING

SUGGESTED INGUINAL HERNIA PROCEDURE STEPS

INSTRUMENT GUIDE

IMPORTANT SAFETY INFORMATION

Inguinal Hernia Repair – Transabdominal Preperitoneal (TAPP).

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INGUINAL HERNIA REPAIR PROCEDURE GUIDE

EXAMPLE OPERATING ROOM CONFIGURATION

The following figure shows an overhead view of the recommended OR configuration for a *da Vinci* Inguinal Hernia Repair (Figure 1).

NOTE: Configuration of the operating room suite is dependent on room dimensions as well as the preference and experience of the surgeon.

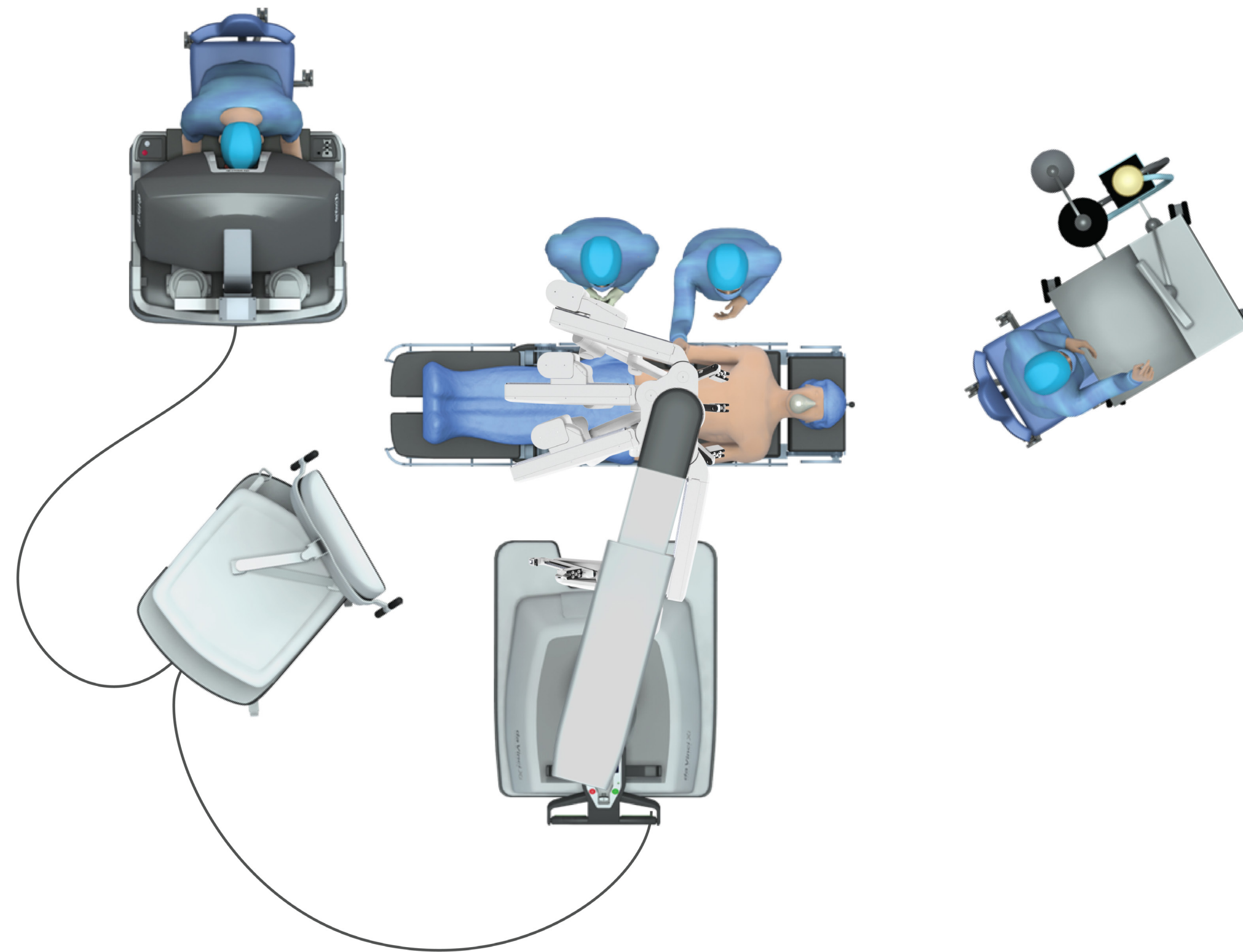


FIGURE 1

EXAMPLE OPERATING ROOM (OR) CONFIGURATION

PATIENT POSITIONING & PREPARATION

PORT PLACEMENT

SYSTEM DEPLOYMENT & DOCKING

SUGGESTED INGUINAL HERNIA PROCEDURE STEPS

INSTRUMENT GUIDE

IMPORTANT SAFETY INFORMATION

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INGUINAL HERNIA REPAIR PROCEDURE GUIDE

PATIENT POSITIONING & PREPARATION

- > Place the patient in the supine position.
- > Tuck the arms and pad pressure points and bony prominences.
- > Secure the patient to the table to avoid any shifting with the Trendelenburg position.
- > Sterilely prep the abdomen.
- > Insufflate the peritoneal cavity up to 12 mmHg.
- > Before docking, place the patient in approximately 15° Trendelenburg and lower the table as much as possible (Figure 2).



FIGURE 2

EXAMPLE OPERATING ROOM (OR) CONFIGURATION

PATIENT POSITIONING & PREPARATION

PORT PLACEMENT

SYSTEM DEPLOYMENT & DOCKING

SUGGESTED INGUINAL HERNIA PROCEDURE STEPS

INSTRUMENT GUIDE

IMPORTANT SAFETY INFORMATION

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INGUINAL HERNIA REPAIR PROCEDURE GUIDE

PORT PLACEMENT

For Patient Cart approach from the patient left (Figure 3):

- › Place initial endoscope port 3 at the top of the umbilicus or superior in order to maintain a minimum 15 cm from the pubic symphysis.
- › Place port 2 left lateral 8 cm, cranial 2 to 4 cm to the endoscope port.
- › Place port 4 right lateral 8 cm, cranial 2 to 4 cm to the endoscope port.
- › For each instrument arm, ensure straight line access to the contralateral anterior superior iliac spine in front of the endoscope port.

For Patient Cart approach from the patient right:

- › Use identical port locations as described above using arms 1 through 3.
- › Use arm 2 for the initial endoscope port.

If desired, place an optional 5 mm assistant port 7 to 8 cm superior to the endoscope port on the midline. Additional retraction through the assistant port is helpful for dissection of large hernia sacs.

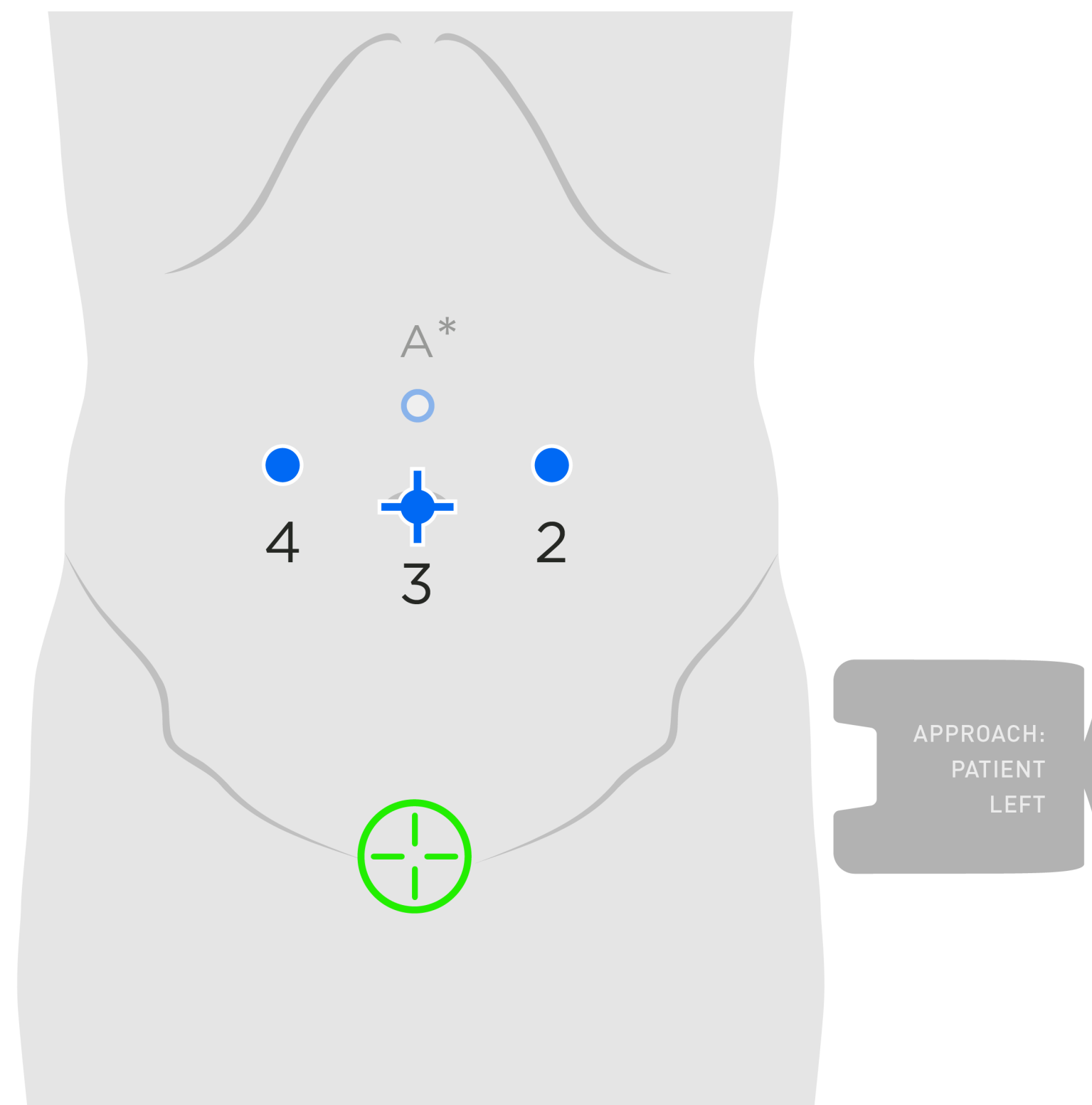


FIGURE 3 – LEFT SIDE APPROACH

EXAMPLE OPERATING ROOM (OR) CONFIGURATION

PATIENT POSITIONING & PREPARATION

PORT PLACEMENT

SYSTEM DEPLOYMENT & DOCKING

SUGGESTED INGUINAL HERNIA PROCEDURE STEPS

INSTRUMENT GUIDE

IMPORTANT SAFETY INFORMATION

Inguinal Hernia Repair – Transabdominal Preperitoneal (TAPP).

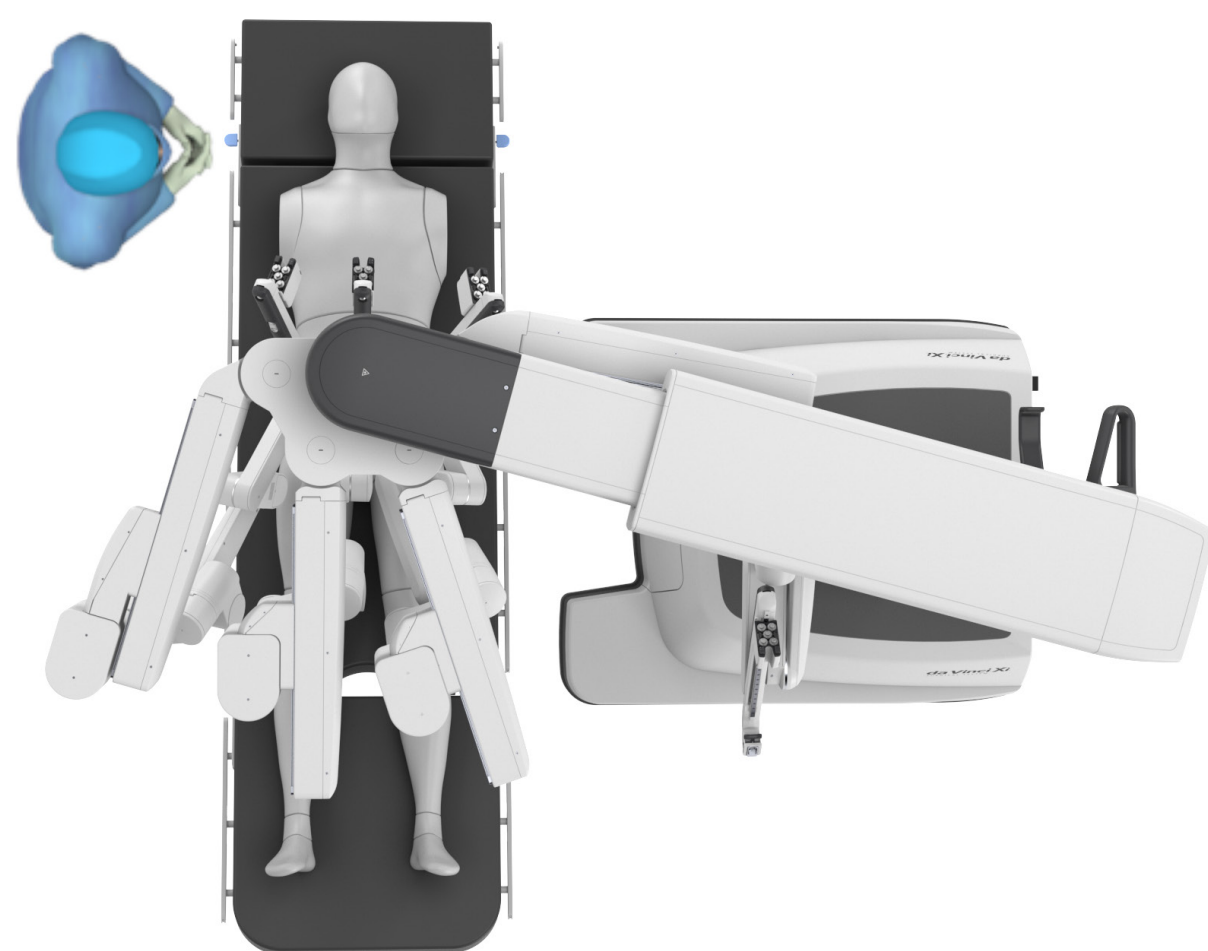
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INGUINAL HERNIA REPAIR PROCEDURE GUIDE

SYSTEM DEPLOYMENT & DOCKING

- › Select pelvic anatomy and Patient Cart location (approach from patient left shown in Figure 3). Deploy the *da Vinci* System for docking.
- › Ensure the Patient Cart arms clear the patient. Push all overhead lights and equipment aside.
- › Drive the Patient Cart toward the patient and align the laser lines with the endoscope port.
- › Dock arm 3 to the endoscope port. Insert the endoscope and target the midline of the pelvis for a bilateral repair or the hernia defect for a unilateral repair.
- › Dock the remaining arms. Stow the arm closest to the Patient Cart column (Figures 4 & 5).
- › Perform manual arm adjustments as needed. Align the endoscope arm to be in-line with the endoscope port and target anatomy. Position arms 1 and 3 to have a minimum one-fist clearance to the endoscope arm.
- › Adjust patient clearance as needed. Ensure there is a minimum one fist clearance between the patient and each arm.



FIGURES 4 & 5

EXAMPLE OPERATING ROOM (OR) CONFIGURATION

PATIENT POSITIONING & PREPARATION

PORT PLACEMENT

SYSTEM DEPLOYMENT & DOCKING

SUGGESTED INGUINAL HERNIA PROCEDURE STEPS

INSTRUMENT GUIDE

IMPORTANT SAFETY INFORMATION

Inguinal Hernia Repair – Transabdominal Preperitoneal (TAPP).

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INGUINAL HERNIA REPAIR PROCEDURE GUIDE

SUGGESTED INGUINAL HERNIA PROCEDURE STEPS

1. Lysis of Adhesions

If necessary for pelvic access, take-down abdominal adhesions. May be performed with the *da Vinci* System or laparoscopically. Avoid taking down adhesions to the peritoneum overlaying the site of the mesh pocket creation. Reduce any hernia contents if possible.

2. Creation of Peritoneal Flap and Mesh Pocket Dissection

Measure and mark a point superior to the hernia defect using two lengths of the Cadiere forceps to approximate a 4 to 5 cm distance. From this mark, move laterally along a horizontal line to the level of the anterior superior iliac spine and create another mark to note the lateral margin of the peritoneal flap. Incise the peritoneum at the second mark and continue medially through the first mark toward the medial umbilical ligament. Continue the peritoneal incision inferiorly along the medial umbilical ligament to the level of the hernia defect to aid in pocket visualization and mesh placement.

Rotate the camera between 30° up and 30° down as needed to aid in visualization during peritoneal flap creation and mesh pocket dissection. Stay in the plane between the peritoneum and transversalis fascia during peritoneal flap and mesh pocket creation to remain within an avascular plane and avoid the nerves associated with the “triangle of pain”.

Once the full length of the flap has been developed to a depth of 1 to 2 cm, begin the mesh pocket dissection behind the rectus muscle and carry downward to the level of the pubic bone. Develop the medial portion of the pocket from the pubic tubercle to the iliac vessels. Move to the lateral dissection and develop the pocket there as well. Lastly, perform the central dissection by releasing the peritoneum from the spermatic cord/round ligament and associated structures. Release these structures with cranial and anterior reflection of the peritoneum while sweeping the structures inferiorly towards the body wall, staying close to the peritoneum with the dissection plane. This will release the sac from the hernia defect. Reduce any cord lipoma into the abdomen.

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EXAMPLE OPERATING ROOM (OR) CONFIGURATION

PATIENT POSITIONING & PREPARATION

PORT PLACEMENT

SYSTEM DEPLOYMENT & DOCKING

SUGGESTED INGUINAL HERNIA PROCEDURE STEPS

INSTRUMENT GUIDE

IMPORTANT SAFETY INFORMATION

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INGUINAL HERNIA REPAIR PROCEDURE GUIDE

SUGGESTED INGUINAL HERNIA PROCEDURE STEPS (CONTINUED)

Methods for determining an appropriate depth of dissection along the retroperitoneum include:

1. Ability to visualize a straight horizontal line laterally out from the pubic tubercle that does not cross peritoneum (this simulates the lower edge of the placement of the mesh)
2. Visualizing the curvature of the vas deferens or round ligament
3. Ensuring a separation at the base of the “triangle of doom” in males of at least 3 cm between the vas deferens and testicular vessels

3. Mesh Fixation

Insert the mesh and sutures into the intra-abdominal cavity through the instrument arm port during the instrument exchange for the needle driver. Alternatively, the mesh may have been previously placed into the peritoneal cavity during initial trocar placement. Secure the mesh in place with interrupted sutures. Consider placing one suture into Cooper’s ligament, one at the superior and medial aspect of the mesh, and a third at the superior and lateral aspect of the mesh. Take care to avoid the nerves and vasculature within the inguinal region from the posterior aspect. Alternatively, a self-fixating mesh may be used.

4. Closure of the Peritoneum

The peritoneum is closed using a running stitch of barbed, self-locking suture. Suture in the direction of dominate hand to non-dominate hand to help prevent instruments from crossing.

5. Bilateral Hernia Repair

For bilateral hernia repair repeat steps 1-4 above. Alternatively, consider staging the bilateral repair by first completing the peritoneal flap and mesh pocket dissection on both sides. Then, during instrument exchange for the needle driver, insert and grossly position the first mesh, sutures, and then second mesh. Once the needle driver is inserted, position and secure each mesh. Finally, close the peritoneum on both sides.

< BACK

EXAMPLE OPERATING ROOM (OR) CONFIGURATION

PATIENT POSITIONING & PREPARATION

PORT PLACEMENT

SYSTEM DEPLOYMENT & DOCKING

SUGGESTED INGUINAL HERNIA PROCEDURE STEPS

INSTRUMENT GUIDE

IMPORTANT SAFETY INFORMATION

Inguinal Hernia Repair – Transabdominal Preperitoneal (TAPP).

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INGUINAL HERNIA REPAIR PROCEDURE GUIDE

INSTRUMENT GUIDE

ENDOSCOPE

Endoscope, 8 mm, 30°
470027

ENDOWRIST®

ENERGY INSTRUMENTS

Hot Shears™
(Monopolar Curved Scissors)
470179

GRASPING/RETRACTION

Cadiere Forceps
470049
or
Fenestrated Bipolar Forceps
470205

NEEDLE DRIVING

Mega SutureCut™
Needle Driver
470309

OPTIONAL ANCILLARY SUPPLIES

LAPAROSCOPIC GRASPER

LAPAROSCOPIC SCISSORS

LAPAROSCOPIC NEEDLE DRIVER

EXAMPLE OPERATING ROOM (OR) CONFIGURATION

PATIENT POSITIONING & PREPARATION

PORT PLACEMENT

SYSTEM DEPLOYMENT & DOCKING

SUGGESTED INGUINAL HERNIA PROCEDURE STEPS

INSTRUMENT GUIDE

IMPORTANT SAFETY INFORMATION

Inguinal Hernia Repair – Transabdominal Preperitoneal (TAPP).

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INGUINAL HERNIA REPAIR PROCEDURE GUIDE

Financial Disclosure

This material has been developed with, reviewed and approved by an independent surgeon(s) who is not an Intuitive Surgical employee. This independent surgeon(s) has received compensation from Intuitive Surgical for consulting and/or educational services.

Risks

Hernia Repair (ventral, incisional, umbilical, inguinal): recurrence, bowel injury, mesh infection, urinary retention. **For inguinal hernia repair:** testicular injury.

Important Safety Information

Serious complications may occur in any surgery, including *da Vinci*® Surgery, up to and including death. Examples of serious or life-threatening complications, which may require prolonged and/or unexpected hospitalization and/or reoperation, include but are not limited to, one or more of the following: injury to tissues/organs, bleeding, infection and internal scarring that can cause long-lasting dysfunction/pain.

Risks specific to minimally invasive surgery, including *da Vinci*® Surgery, include but are not limited to, one or more of the following: temporary pain/nerve injury associated with positioning; a longer operative time, the need to convert to an open approach, or the need for additional or larger incision sites. Converting the procedure could result in a longer operative time, a longer time under anesthesia, and could lead to increased complications. Contraindications applicable to the use of conventional endoscopic instruments also apply to the use of all *da Vinci* instruments.

For Important Safety Information, indications for use, risks, full cautions and warnings, please also refer to www.davincisurgery.com/safety and www.intuitivesurgical.com/safety. Individual surgical results may vary.

da Vinci Xi® System Precaution Statement

The demonstration of safety and effectiveness for the specific procedure(s) discussed in this material was based on evaluation of the device as a surgical tool and did not include evaluation of outcomes related to the treatment of cancer (overall survival, disease-free survival, local recurrence) or treatment of the patient's underlying disease/condition. Device usage in all surgical procedures should be guided by the clinical judgment of an adequately trained surgeon.

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PATIENT POSITIONING & PREPARATION

PORT PLACEMENT

SYSTEM DEPLOYMENT & DOCKING

SUGGESTED INGUINAL HERNIA PROCEDURE STEPS

INSTRUMENT GUIDE

IMPORTANT SAFETY INFORMATION

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