DA VINCI XI® SURGICAL SYSTEM DISTAL GASTRECTOMY GUIDE

Developed with, reviewed and approved by Ichiro Uyama, PhD, MD (Fujita Health University)

SETUP FUNDAMENTALS

PROCEDURE STEPS

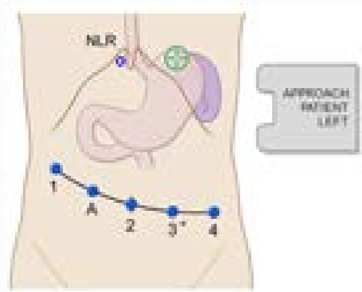
ADVANCED BIPOLAR SETUP

INSTRUMENT GUIDE

IMPORTANT SAFETY INFORMATION

SETUP FUNDAMENTALS

1 PATIENT POSITIONING & TABLE PREPARATION



2 PORT PLACEMENT

3 SYSTEM DEPLOYMENT

1 PATIENT POSITIONING & TABLE PREPARATION

PATIENT POSITIONING

- Patient is placed supine on OR table with split legs.
- Right arm on arm board abducted <90° with palms up. Left arm is placed alongside the body.
- Pad pressure points and bony prominences.
- Carefully secure body position with gel pad or bean bag and apply a strap across the patient's thighs to avoid any shifting of the reverse Trendelenburg position.
- To protect the patients head set up a anesthesia screen on the OR table.
- A urinary catheter is placed.
- A body warmer to prevent patient hypothermia can be applied.
- After positioning, padding, securing and preparing the patient in the supine position, the table is then placed in a reverse Trendelenburg position (15°).

TABLE PREPARATION

- Reverse Trendelenburg: >15°
- Tilt: As required for exposure
- Height: As low as possible

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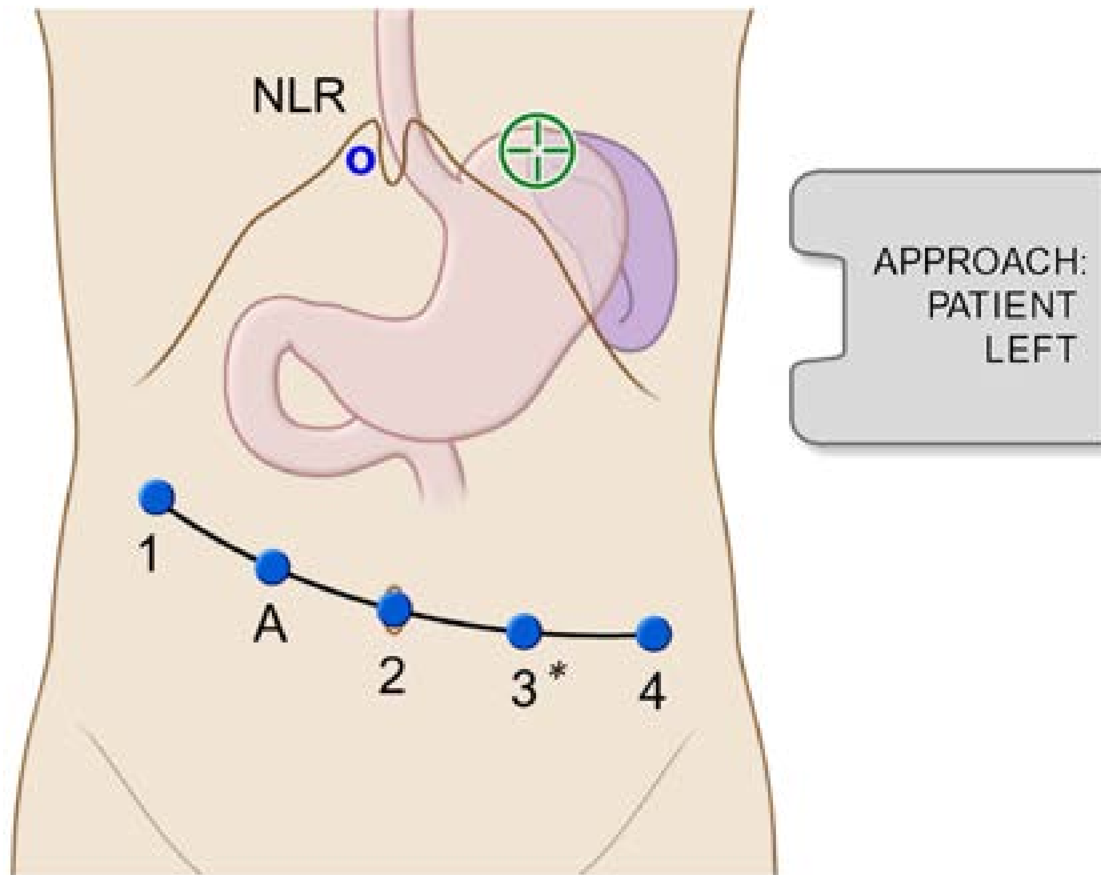
2 PORT PLACEMENT

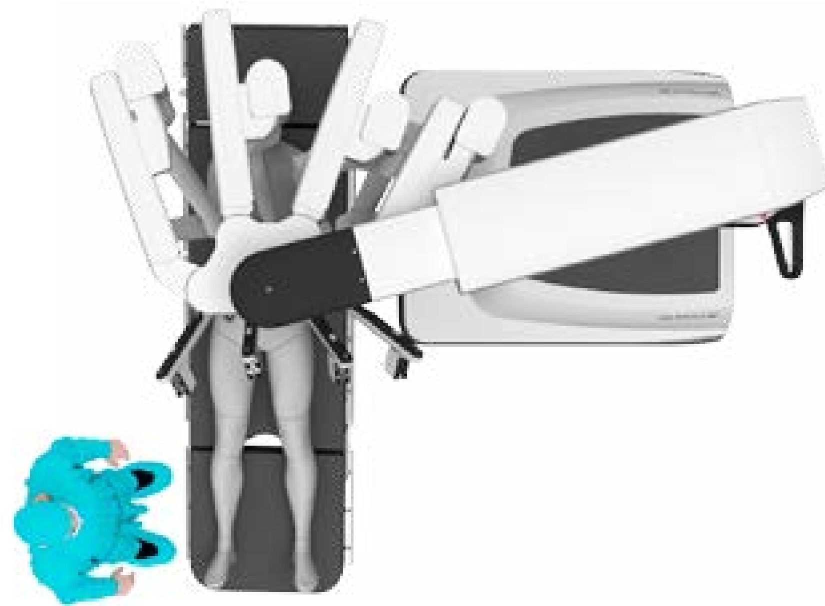


*Port 3 may be repurposed as an *EndoWrist*® Stapler port.

All ports may need minor adjustments based on the patient's BMI and body habitus. Port locations should be placed after insufflation up to 12 mmHg. Position the remote center on the cannula (thick black band) at the level of the peritoneum.

1. Place initial endoscope port 2 (Hasson Cone) in the umbilicus.
2. Place assistant port right lateral, 7-8 cm away from port 2.
3. Place ports 3 and 4 left lateral to port 2, 7-8 cm away from each other.
4. Place port 1 right lateral, 7-8 cm away from assistant port.
5. All ports are arranged on a line in a slight oblique angle towards the left side.
6. Place Nathanson Liver Retractor (NLR) in epigastric region.

3 SYSTEM DEPLOYMENT



DEPLOY FOR DOCKING

- Select Anatomy: Upper Abdominal
- Select Cart Location: Patient Left
- Hold down "Deploy for Docking"

DRIVE CART TO ENDOSCOPE PORT

TARGET

- Upper pole of the spleen

3 SYSTEM DEPLOYMENT

PERFORM MANUAL ARM ADJUSTMENTS

ALIGN ENDOSCOPE ARM

Adjust flex on the initial endoscope arm, using the laser lines as a positioning guide. Make the back of the arm parallel to the laser line. This aligns the arm with the target anatomy.

ADJUST SIDE WITH ONE (1) ARM

Adjust flex on the arm to maintain a minimum of one fist spacing to the initial endoscope arm.

ADJUST SIDE WITH TWO (2) ARMS

Flex the outer arm away from the inner arm (arm nearest endoscope) to get it out of the way for initial adjustment.

Adjust flex on the inner arm to maintain a minimum of one fist spacing to the initial endoscope arm.

Go back to outer arm and adjust flex back toward the inner arm to maintain a minimum of one fist spacing distance.

ADJUST PATIENT CLEARANCE

If there is not at least a fist-space distance to the patient or other sterile obstacles, adjust patient clearance on each arm. Otherwise, leave as is.

GASTRECTOMY PROCEDURE STEPS

1 RETRACT LIVER

Performed with *da Vinci* Surgical System or may be performed laparoscopically.

INSTRUMENTATION & SETTINGS

- 30° down endoscope
- Laparoscopic graspers
- Nathanson Liver Retractor

2 SYSTEM DOCKING

INSTRUMENTATION & SETTINGS

- 30° down endoscope, laparoscopic graspers, laparoscopic clip applier, metal clips
- Cadiere Forceps, Fenestrated Bipolar Forceps, Maryland Bipolar Forceps

3 LEFT DISSECTION/GREATER CURVATURE MOBILIZIATION

The procedure begins by dividing the omentum off of the greater curvature from the gastrocolic ligament to the gastrosplenic ligament (working from medial to lateral). The left gastroepiploic vessels are divided at their main trunk near the root. Lymph nodes 4sb and 4d are taken for a distal gastrectomy.

INSTRUMENTATION & SETTINGS

- 30° down endoscope
- Fenestrated Bipolar Forceps (left hand), Maryland Bipolar Forceps (right hand), Cadiere Forceps (retraction hand), swap for Medium-Large or Small Clip Applier when necessary
- Left hand Fenestrated Bipolar Forceps: IESU (Bipolar SoftCOAG mode Effect 6 with Autostop), Right hand Maryland Bipolar Forceps: Valleylab Force Triad (Macro Bipolar mode 60W)

NOTE: External foot pedal is required for activating second electro-surgical unit

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GASTRECTOMY PROCEDURE STEPS

4 RIGHT DISSECTION/INFRAPYLORIC DISSECTION

The dissection continues to the right side along the lower border of the panceras while exposing the head of the pancreas and dissecting lymph node 6. This step is completed once the right gastroepiploic vein and artery are identified and ligated.

INSTRUMENTATION & SETTINGS

- 30° down endoscope
- Fenestrated Bipolar Forceps (left hand), Maryland Bipolar Forceps (right hand), Cadiere Forceps (retraction hand), swap for Medium-Large or Small Clip Applier when necessary
- Left hand Fenestrated Bipolar Forceps: IESU (BipolarSoftCOAG mode Effect 6 with Autostop), Right hand Maryland Bipolar Forceps: Valleylab Force Triad (Macro Bipolar mode 60W)

NOTE: External foot pedal is required for activating second electro-surgical unit

ADDITIONAL CONSIDERATIONS

- If the landmarks (gastrocolic trunk of Henle) can not be seen (such as in obese patients), dissect the opposite side first.
- 3D visualization helps to distinguish the pancreatic tissue from the surrounding soft tissue.
- Minimize interactions with the pancreas to avoid post operative pancreatitis.
- For more reliable lymph node dissection, infrapyloric artery should be divided before clipping right gastroepiploic artery.

GASTRECTOMY PROCEDURE STEPS

5 DUODENUM DIVISION

In preparation for the duodenal transection, the area above the pancreas and duodenum are further dissected. The *EndoWrist* Stapler is used for the transection of the duodenum.

INSTRUMENTATION & SETTINGS

- 30° down endoscope
- Fenestrated Bipolar Forceps (left hand), Maryland Bipolar Forceps (right hand), Cadiere Forceps (retraction hand), swap for Medium-Large or Small Clip Applier when necessary
- *EndoWrist* Stapler 45 mm (blue reload)
- Left hand Fenestrated Bipolar Forceps: IESU (Bipolar SoftCOAG mode Effect 6 with Autostop), Right hand Maryland Bipolar Forceps: Valleylab Force Triad (Macro Bipolar mode 60W)

NOTE: External foot pedal is required for activating second electro-surgical unit

ADDITIONAL CONSIDERATIONS

- Place gauze below the dissected pyloric area for safe and easy dissection above the duodenum.
- Transect duodenum before cutting the right gastric artery.

6 SUPRAPANCREATIC DISSECTION & LESSER CURVATURE MOBILIZATION

After transection of the duodenum, the right gastric artery and vein are exposed and divided. The lesser omentum is divided, soft tissues around the hepatic arteries are dissected (LN 5, 7, 8, 9, 12a), the soft tissues up to the diaphragmatic crus are dissected (LN 1, 3), and the lymph nodes around the splenic artery are taken (11p).

INSTRUMENTATION & SETTINGS

- 30° down endoscope
- Fenestrated Bipolar Forceps (left hand), Maryland Bipolar Forceps (right hand), Cadiere Forceps (retraction hand), swap for Medium-Large or Small Clip Applier when necessary
- Left hand Fenestrated Bipolar Forceps: IESU (Bipolar SoftCOAG mode Effect 6 with Autostop), Right hand Maryland Bipolar Forceps: Valleylab Force Triad (Macro Bipolar mode 60W)

NOTE: External foot pedal is required for activating second electro-surgical unit

ADDITIONAL CONSIDERATIONS

- Good visibility of the pancreatic edge can be obtained by holding the gastropancreatic folds with the retracting instrument, while an assisting surgeon holds/rolls pancreas gently with gauze.

GASTRECTOMY PROCEDURE STEPS

7 GASTRIC RESECTION

The stomach is transected using the *EndoWrist* Stapler from the stapler port.

INSTRUMENTATION & SETTINGS

- 30° down endoscope
- Fenestrated Bipolar Forceps (left hand), Maryland Bipolar Forceps (right hand), Cadiere Forceps (retraction hand)
- *EndoWrist* Stapler 45 mm (blue reload)

ADDITIONAL CONSIDERATIONS

- When a tumor is located in a more proximal position place a clamping forceps on the anticipated stomach transection line and check the position of the endogastric clip by X-RAY.

8 RECONSTRUCTION & CLOSURE

The distal gastrectomy is performed with a fully robotic Billroth I or Billroth II reconstruction.

INSTRUMENTATION & SETTINGS

- 30° down endoscope
- Fenestrated Bipolar Forceps (left hand), Maryland Bipolar Forceps (right hand), Cadiere Forceps (retraction hand)
- *EndoWrist* Stapler 45 mm (blue reloads)

ADDITIONAL CONSIDERATIONS

- All intracorporeal anastomosis are performed with the *EndoWrist* Stapler.
- The Billroth I reconstruction is performed as a Delta-Shaped Anastomosis[1].

[1] Kanaya S, Gomi T, Momoi H, Tamaki N, Isobe H, Katayama T, Wada Y, Ohtoshi M: Delta-Shaped Anastomosis in Totally Laparoscopic Billroth I Gastrectomy: New Technique of Intraabdominal Gastroduodenostomy. J Am Coll Surg. 2002 Aug;195(2):284-7.

APPLICATION OF THE DOUBLE BIPOLAR MODE

RIGHT HAND

The Maryland BipolarForceps is utilized as the main dissection instrument during the procedure. It pre-coagulates and cuts tissue. It is connected to a Valleylab Force Triad (Macro Bipolar mode 60W).

PRE-COAGULATION OF TISSUE BUNDLES

① FIRST grasp the tissue bundle and keep the grip of the instrument slightly open around the tissue bundle

② THEN activate energy with the blue foot pedal for efficient dessication of the tissue

NOTE: If the energy is activated before the tissue bundle is grasped the bipolar spark will cut the tissue without hemostasis.

CUTTING/TRANSECTION OF TISSUE BUNDLES

① FIRST activate energy with the blue foot pedal BEFORE grasping the tissue bundle

② THEN close the grips of the instrument around the tissue bundle

NOTE: If the instrument grips are closed before the energy is activated the bipolar current shorts and no cutting will take place.

LEFT HAND

The Fenestrated Bipolar Forceps is utilized as a grasping instrument during the procedure providing countertraction on the tissue. In case of small bleedings from the tissue it provides safe hemostasis. It is connected to the integrated ERBE VIO® dV generator on the *da Vinci Xi*® Surgical System (Bipolar SoftCOAG mode Effect 6 with Autostop).

NOTE: External foot pedal is required for activating second electro-surgical unit

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DISTAL GASTRECTOMY

DA VINCI XI ENDOSCOPE RECOMMENDATIONS

VISION

Endoscope 30° (down view)

PRIMARY *ENDOWRIST* INSTRUMENT RECOMMENDATIONS*

BIPOLAR CAUTERY

Maryland Bipolar Forceps – *470172*

Fenestrated Bipolar Forceps – *470205*

CLIP APPLYING

Small Clip Applier – *470401*

ADVANCED TECHNOLOGY

EndoWrist® Stapler – *470298*

EndoWrist® Vessel Sealer – *480322*

*Not all products listed may be available for use in your country location. Please consult with the local Intuitive Surgical representative or local distributor of Intuitive Surgical products on availability.

DISTAL GASTRECTOMY

ALTERNATIVE*

ENERGY INSTRUMENTS

Hot Shears™ MCS – *470179*

CLIP APPLYING

Medium-Large Clip Applier – *470327*

Large Clip Applier – *470230*

GRASPING/RETRACTION

Cadiere Forceps – *470049*

OPTIONAL ANCILLARY SUPPLIES

Laparoscopic grasper

NEEDLE DRIVING

Large SutureCut Needle Driver – *470296*

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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. Individual surgical results may vary.

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. You should discuss your surgical experience and review these and all risks with your patients, including the potential for human error and equipment failure. Physicians should review all available information. Clinical studies are available through the National Library of Medicine at www.ncbi.nlm.nih.gov/pubmed.

Be sure to read and understand all information in the applicable user manuals, including full cautions and warnings, before using *da Vinci* products. Failure to properly follow all instructions may lead to injury and result in improper functioning of the device. Training provided by Intuitive Surgical is limited to the use of its products and does not replace the necessary medical training and experience required to perform surgery. Procedure descriptions are developed with, reviewed and approved by independent surgeons. Other surgical techniques may be documented in publications available at the National Library of Medicine. For Important Safety Information, indications for use, risks, full cautions and warnings, please also refer to www.davincisurgery.com/safety and www.intuitivesurgical.com. Unless otherwise noted, products featured are available for commercial distribution in the U.S. For availability outside the US, please check with your local representative or distributor.

ENDOWRIST® *HOT SHEARS*™ (MONOPOLAR CURVED SCISSORS)
The Tip Cover Accessory is intended to provide insulation over a section of the *EndoWrist*®.

Hot Shears™ (Monopolar Curved Scissors) Instrument so that RF energy is only available at the tip. The *EndoWrist Hot Shears* Instrument must always be used in conjunction with the Tip Cover accessory.

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