

Cystoscopy and Ureteroscopy with/without Laser Lithotripsy

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Open on
phone

WHAT IS THIS PROCEDURE?

The **ureter** is a thin tube that carries urine from the kidney to the bladder. Kidney stones can get stuck in the ureter or sit inside the kidney, causing pain, blockage or infection.

Ureteroscopy: a very thin scope goes through the urethra and bladder, then up the ureter, and sometimes into the kidney. No cuts are needed. A **rigid scope** reaches the lower ureter; a **flexible scope** reaches the upper ureter and kidney.

Laser and basket: a laser fiber passed through the scope breaks the stone into small pieces or dust. A small wire basket grabs pieces and pulls them out.

Stent afterward: a stent is often left in to keep the ureter open while it heals and stone fragments pass.

Why the C-arm: live X-ray guides the wire, shows where the stone is, and confirms the stent position.

KEY POINTS

- **C-arm with foot pedal in the room and ready when the patient enters.** Call the tech before the patient is in the room.
- **Open cysto set, rigid ureteroscope, Sensor wire, 6 Fr open-ended catheter and contrast.** Have the other scopes and wires in the room.
- Bring the **basket of stents** into the room.
- **Perioperative antibiotics needed.** Contact the surgeon if not ordered.
- Send stones **fresh and dry** for analysis (no liquid).
- Fluoroscopy monitors go **above** the scope monitor.

SUPPLIES

Open

- Cystoscopy set, camera, 30° lens loaded
- Rigid ureteroscope
- Cysto pack, C-arm drape, GloShield
- Sensor wire
- Open-end ureteral catheter, 6 Fr
- Contrast: Omnipaque 300 mgI/mL, 30 mL, diluted 50/50
- Biopsy port seal: **Gyrus ACMI adjustable, clear plastic** (BPS-A, item #022007), not the green one. See photo below.

Available in room, open only if asked

- Flexible ureteroscope
- Ureteral access sheaths (ClearPetra, Navigator or Cook; size per surgeon)
- Dual-lumen ureteral access catheter
- Stone basket: zero-tip nitinol, 1.9 Fr
- Laser fiber, 200 µm
- Amplatz Super Stiff and stiff Glidewire
- Stylet dial 8 Fr with 10 Fr introducer
- Stents (basket in room)

- Lubricating jelly on a 4×4
- Surgical jumpsuit (plastic overalls)



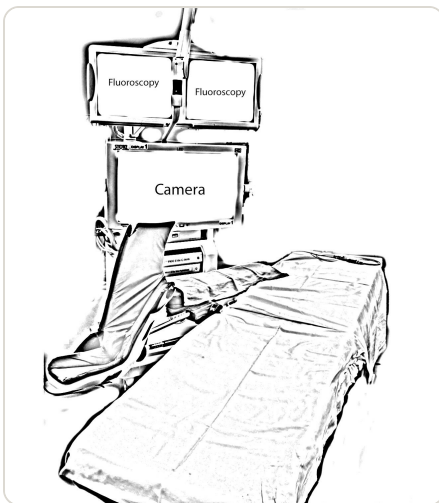
Gyrus ACMI adjustable biopsy port seal (clear). Tap to enlarge.

GLOVES

- Single glove: 7.5 micro.
- Surgical jumpsuit (plastic overalls).

ROOM SETUP

- Place the fluoroscopy monitors above the scope (camera) monitor, as pictured.
- C-arm approaches from the patient's left. Surgeon runs fluoroscopy with the C-arm foot pedal.
- Laser cart in the room, with a 10-lb sandbag behind the laser foot pedal.
- X-ray aprons for the team.
- Scrub sets up at the foot of the bed.



Monitor arrangement: fluoroscopy on top, camera below.

ANESTHESIA

- General anesthesia.
- Perioperative antibiotics: cefazolin (Ancef) 2 g IV, unless contraindicated. Contact the surgeon if not ordered.
- B&O suppository 60 mg after the prep.

POSITIONING

- C-arm compatible bed, with urology bed extensions.
- Dorsal lithotomy in Yellofin stirrups.
- Left arm tucked.
- SCDs on.

PREP AND DRAPE

- Povidone-iodine (Betadine) scrub and paint: pubis, perineum, upper third of thighs, and genitals. For female patients, paint only in the vagina.
- After the prep, dry the perineum and place the lithotomy drape.
- **Do not place towels under the drape.** Towels let the drape slip and fall, which contaminates the field.
- Please continue draping after the prep; no need to wait for the surgeon.

IRRIGATION

- One 3000 mL bag of saline in the pressure system.
- Pressure bag set at 200 mmHg.
- **Turn on pressure only for the ureteroscopy portion.** Gravity for cystoscopy and stent placement.
- No grounding pad or Foley.

WHY PRESSURE IRRIGATION?

Clear view: the ureteroscope's working channel is tiny. Once a laser fiber or basket is in it, very little fluid flows on its own. Pressure pushes enough saline through to keep the view clear and wash away blood and stone dust.

Only for ureteroscopy: for cystoscopy and stent placement the scope is larger and gravity flow is enough. High pressure through a cystoscope can overfill the bladder and cause bladder injury. Pressure is used only while the ureteroscope is up the ureter or in the kidney.

More is not better: too much pressure inside the kidney can push urine and bacteria into the bloodstream, which can lead to fever or sepsis after surgery and add to postoperative pain. That is why the pressure has a set limit and is used only when needed.

In practice: set the bag to 200 mmHg. Turn pressure on when the ureteroscope goes in; release it for the cystoscopy and stent portions. Tell the surgeon if the bag runs low or loses pressure.

LASER

- Thulium laser, 200 μ m fiber. Have the fiber in the room; don't open it until needed.