

Percutaneous Nephrolithotomy (PCNL)

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Open on
phone

WHAT IS THIS PROCEDURE?

PCNL: a technique to remove large kidney stones through a small incision in the back. The surgeon makes a path straight into the kidney, widens it, and passes a scope through it. The stone is broken up and the pieces are pulled out.

Why the C-arm: live X-ray guides the needle, wire and dilator into the kidney.

Afterward: a drainage tube is often left in the back to drain the kidney while it heals.

KEY POINTS

- **Most patients arrive with a nephrostomy tube (access).**
- **Place the Foley on the transfer cart, before turning the patient prone.** It will stay in.
- **C-arm in the room with foot pedal and ready when the patient enters.** Call the tech before the patient is in the room. Scrub drapes the C-arm right away.
- **ShockPulse and thulium laser in the room.** Don't open the probe or fiber until asked.
- Send stones **fresh and dry** for analysis (no liquid).

SUPPLIES

Open

- Perc nephroscopy instruments
- Flexible cystoscope
- Storz camera, GloShield
- Minor pack, C-arm drape, C-section drape with loban, blue towels, 3/4 sheet
- NephroMax balloon dilator, 30 Fr × 12 cm, with sheath
- Sensor wire
- Amplatz Super Stiff wire
- Dual-lumen ureteral access catheter
- Biopsy port seal, clear (BPS-A)
- #11 blade
- Syringes: 35 mL ×2 (contrast), 60 mL catheter-tip, 12 mL (irrigating), 50 mL
- Contrast: Omnipaque 300 mgI/mL, 30 mL ×2, diluted 50/50
- Y-type irrigation set, suction tubing, Poole tip

Available in room, open only if asked

- 18 G trocar needle, 15 and 20 cm
- Council-tip catheters: 22 Fr (most common), 18 and 20 Fr
- Catheter plug
- Amplatz renal dilator set
- Perc nephroscope set, long
- Stone basket: zero-tip nitinol, 1.9 Fr
- Stylet dial 8 Fr with 10 Fr introducer
- Zip wire, stiff Glidewire
- Open-ended catheter, 6 Fr
- ShockPulse probe, 3.76 mm
- Thulium laser fiber, 200 µm
- Pressure bag for irrigation
- Cautery

- 2-0 silk FS on a cutter
- Standard Foley 16 Fr
- Lubricating jelly on a towel
- ChloraPrep ×2
- ABD pads ×2, Medipore tape
- Surgical jumpsuit (plastic overalls)

GLOVES

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

ROOM SETUP AND POSITIONING

- **Non-surgical side:** Neptune at the patient's shoulder, with the saline bags hung from it. C-arm in the center; C-arm monitor beside it toward the feet.
- **Video (scope) monitor:** on the side opposite the surgeon, toward the head from the C-arm monitor.
- **Surgical side:** equipment boom at the patient's shoulder; ShockPulse at the feet.
- Foley placed on the transfer cart first.
- Prone on the OSI flat top, ProneView insert for the face.
- Arms cephalad on padded armboards, toward anesthesia.
- Three pillows for the chest, with the pink foam roll; foam under the knees.
- SCDs on.

ANESTHESIA

- General anesthesia.
- Perioperative antibiotics: generally cefazolin (Ancef) 2 g IV, but this varies; check the order. Contact the surgeon if none is ordered.
- Bupivacaine 0.5% with epinephrine, 30 mL: ask before opening.

PREP AND DRAPE

- ChloraPrep: flank. Include the nephrostomy tube if present.
- Rolled towel, then the C-section drape with loban pouch.

IRRIGATION

- Saline, 3000 mL bags, warmed.
- Hang two at a time, at different heights, from the Neptune.
- Pressure bag available; use only if asked.

LITHOTRIPSY

- ShockPulse and thulium laser both in the room.
- **Don't open the disposables** (ShockPulse probe, laser fiber) until asked.

END OF CASE

- Nephrostomy tube: Council-tip catheter, **22 Fr most common**, secured with 2-0 silk on a cutter.
- Connect it to a Foley drainage bag at the end of the case.
- Dressing: ABD pads ×2 and Medipore tape.
- Stones fresh and dry to pathology, "for analysis only."

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