Urology

Do This, Don't Do That

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Disclosures

- Consulting – Auris Robotics
- Scientific Advisory Board – Allena Pharmaceuticals

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Overview

Common Inpatient Urological Problems

1. Urinary Retention and Urinary Catheters
2. Ureteral Obstruction and Pyelonephritis
3. Paraphimosis and Scrotal Edema

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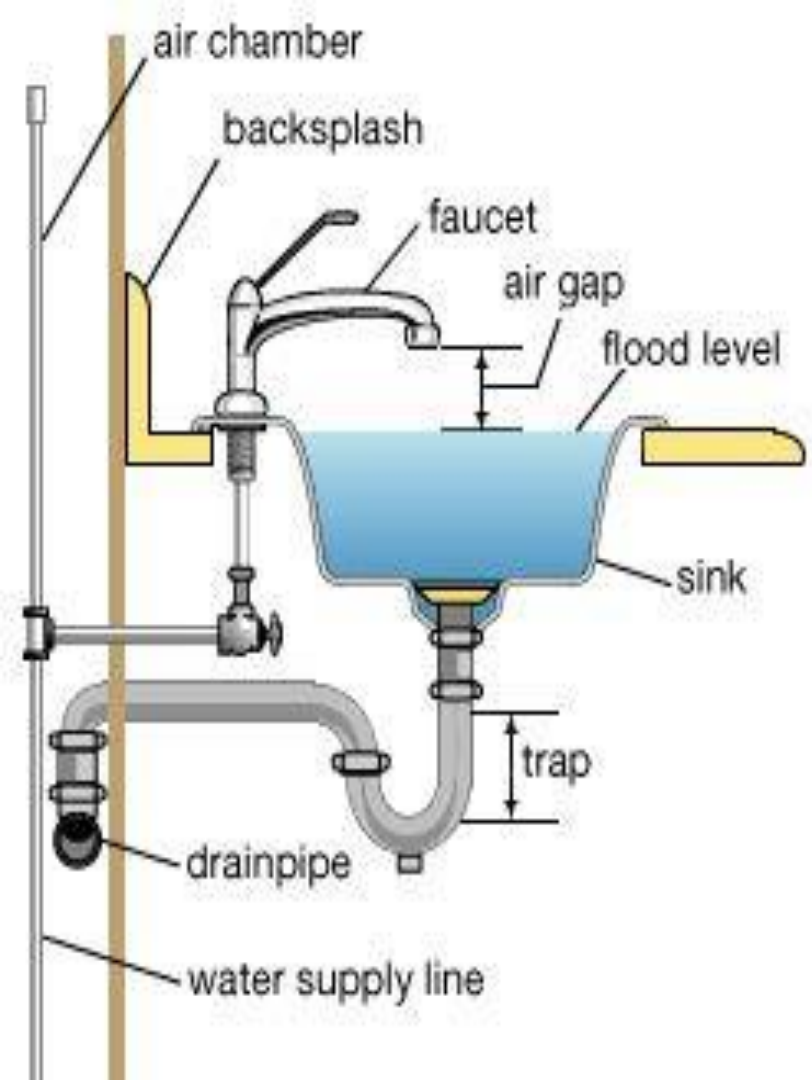

Urology is…

Plumbing

Complicated

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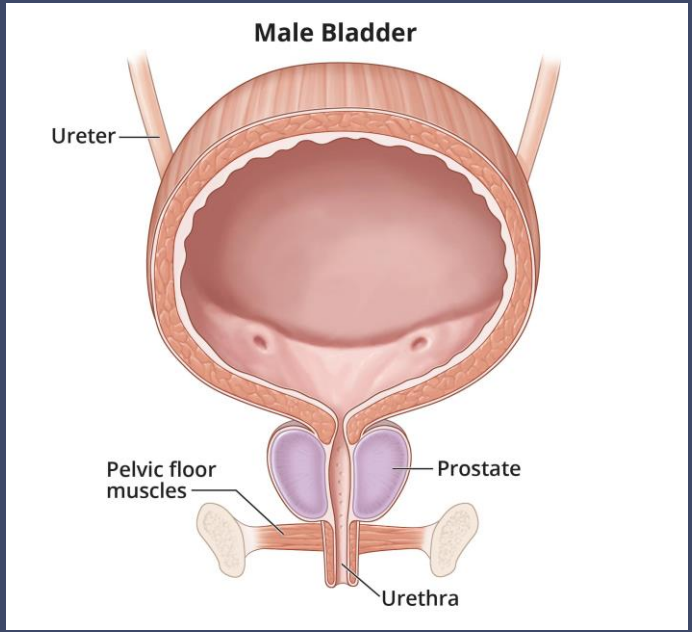
Urinary Retention

Diagnosis

- Patient has the urge to urinate but cannot
- Bladder scan shows a post void residual (PVR) >50% of voided volume
- Normally PVR <150ml but varies
- Ascites, cysts, etc can throw off bedside scanner



Two Problems

#1 Bladder Won't Squeeze

#2 Urethra Won't Flow

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Urinary Retention

#1 Bladder Won't Squeeze (aka Flaccid Bladder)

- Causes
  - Neurogenic bladder – spinal cord injury, diabetes, MS
  - Medications – anticholinergics, TCAs, procainamide, hydralazine, baclofen
  - Anesthesia
  - Overdistention
- Treatment
  - Urinary catheterization
  - Remove offending agent
  - Time

Urinary Retention

#2 Urethra Won't Flow (aka - Bladder Outlet Obstruction)

- Causes
  - Benign prostatic hypertrophy (BPH)
  - Constipation
  - Bladder stones / clot retention
  - Urethral stricture / disruption
  - Malignancy
  - Sphincter dyssynergia (ie. Multiple sclerosis, Parkinson's, spine injury etc)
- Treatment
  - Urinary catheterization
  - Medication or surgery
  - Time

Urinary Retention

Hematuria

- Blood in the urine – A few drops can color the whole bowl
- Compare to a wine (fun and classy!)

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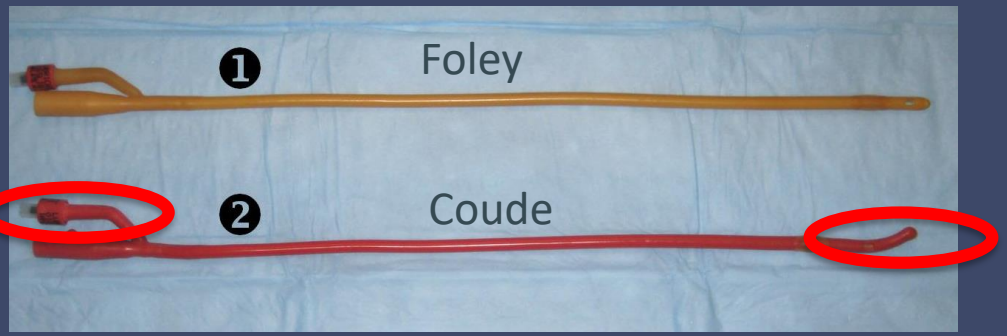
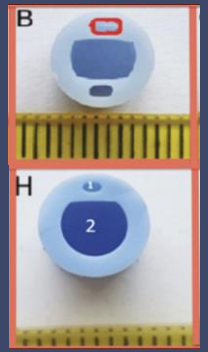
Urinary Catheterization

- Is it really necessary?
  - Strict I/Os are not a great reason. Consider condom cath.
- History – prior urologic procedures (prostatectomy, urethroplasty, etc), foley placement in the past
  - Old urology notes may mention which catheter worked best
- Physical
  - Obesity
  - Penoscrotal edema
  - Buried penis
  - Phimosis (tight foreskin)
  - Meatal stenosis (tight opening)
  - Penile cancer/mass

Urinary Catheterization

Catheter Sizes / Types





https://ulir.ul.ie/bitstream/handle/10344/6690/Walsh_2017_Comparative.pdf?sequence=1

- Coude can be used by **default**, better for enlarged prostate and recessed urethra
- Bigger (18-28Fr) are EASIER to place in men with large prostates
- Smaller only if: 1) known stricture or 2) stuck <1cm into meatus
- NEVER use an 18Fr 3-way for hematuria, at least 22Fr

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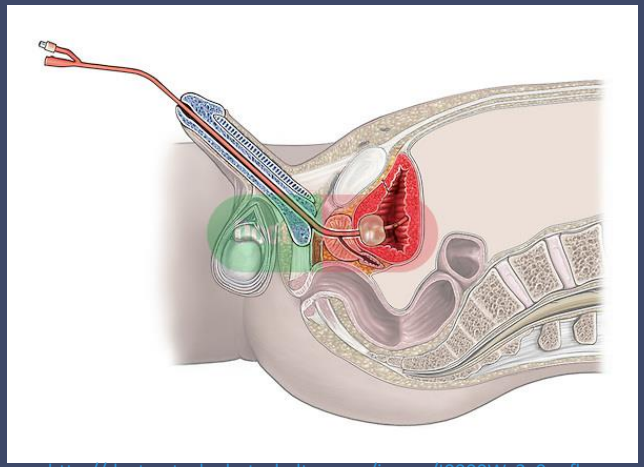
Urinary Catheterization

Technique – Male

1. Patient supine, provider right of bed (if right-handed)
2. Left hand pulling penis **taut** straight up toward the ceiling
3. Make sure fingers do not occlude urethra ventrally
4. Inject urethral lubricant (Urojet) or use a VERY well-lubricated catheter
5. Right hand (free-of lubricant) advancing the catheter
6. Tactile feedback, look for the catheter bouncing back when letting go, it shouldn't
7. Advance to the hub, look for urine outflow in tube, before inflating
8. Inflate balloon with 10cc sterile water , pull out till you feel it "seat"



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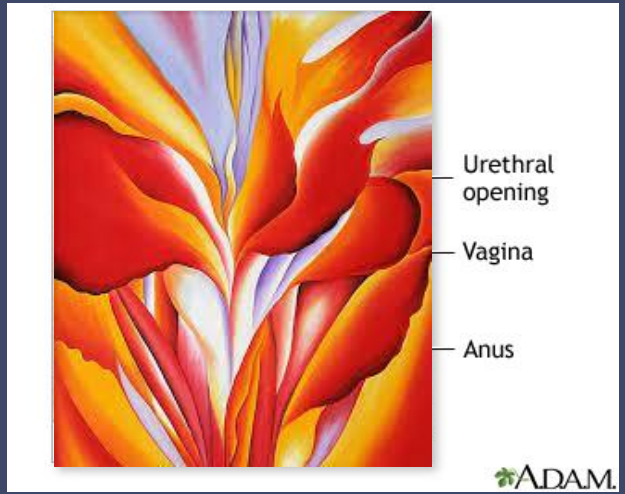
Urinary Catheterization

Technique – Female

1. Patient lithotomy “frog-leg”, provider right of bed (if right-handed)
2. Left hand retracting labia up and out to visually observe meatus
3. Meatus located below clitoris, sometimes recessed into vaginal introitus along anterior wall
4. If you cannot see, you need more hands to help with exposure



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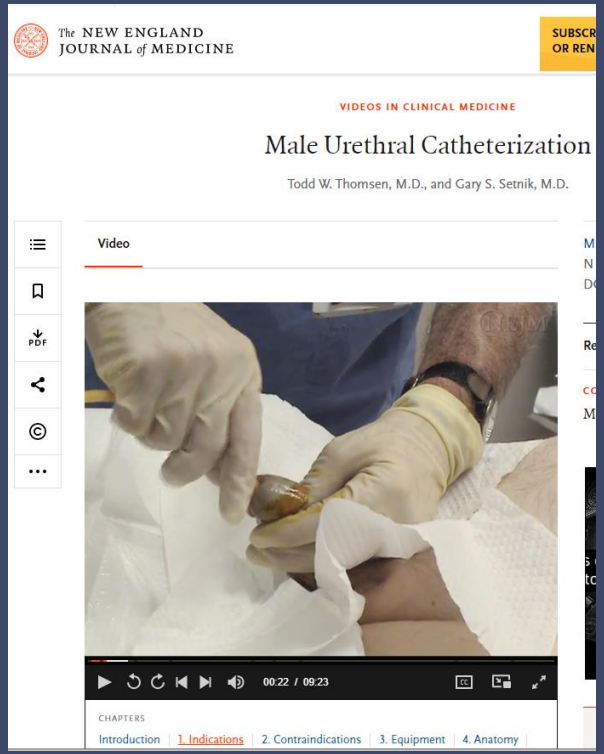
Urinary Catheterization

When to call Urology

1. Not before evaluating / trying
2. Urethral or prostate trauma suspected
3. Blood at the urethral meatus
4. Recent urethral / prostate / bladder surgery



https://www.nejm.org/doi/full/10.1056/nejmvcm054648

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Urinary Catheterization

Chronic Catheters

- Increased risk of delirium, UTIs and cancer
- Urethral erosion and incontinence
- Evaluate the need and remove when possible
- If a urologist put it in, best to check with them before removal

Condom catheters do not treat retention

Catheters are not a reason for bedrest

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Urinary Retention

Follow up

- Inpatient urodynamics are urban legend
- Outpatient work up for retention takes time
- Men with retention, consider starting tamsulosin 0.4mg QD prior to voiding trial

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Upper Tract Obstruction (Hydronephrosis)

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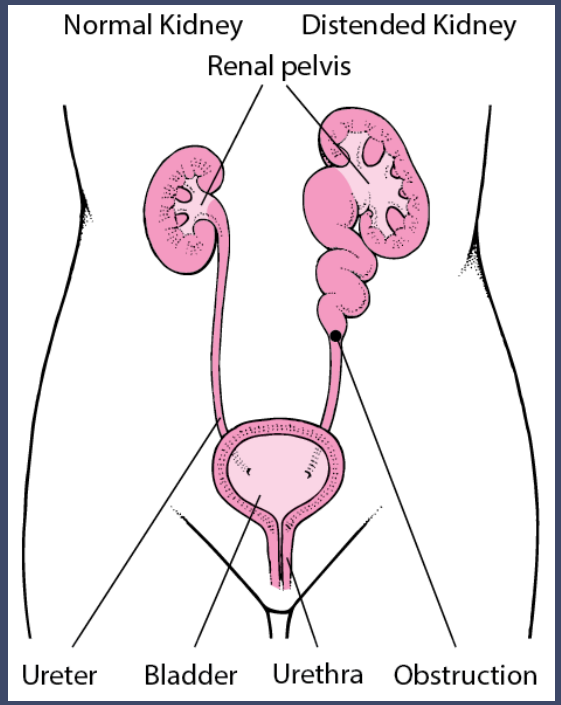
Ureteral Obstruction (Hydronephrosis)



Between the Kidney and Bladder

- Causes
  - Kidney stones
  - Ureteral stricture
  - Malignancy (1° or 2°, external compression)
  - Iatrogenic / Traumatic
  - Lower tract obstruction with back pressure
  - Infection (rare, chronic TB)

https://www.merckmanuals.com/home/kidney-and-urinary-tract-disorders/obstruction-of-the-urinary-tract/urinary-tract-obstruction

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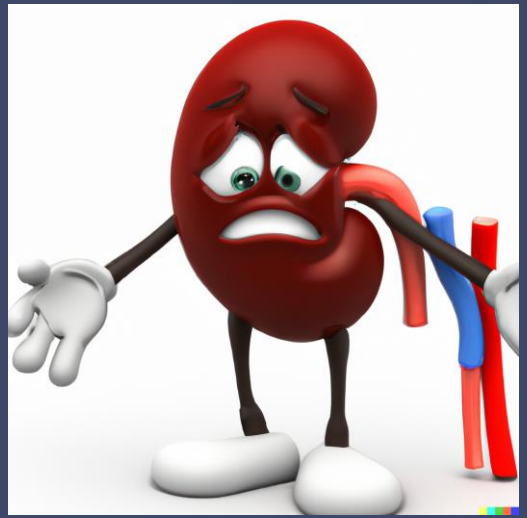
Ureteral Obstruction (Hydronephrosis)

Treatment = Drainage – urgency based on symptoms, etiology and time course

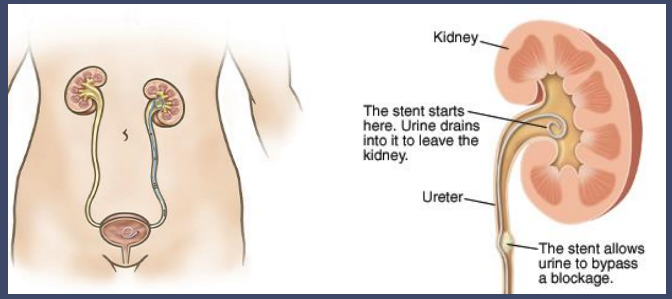
- Emergent
  - Obstruction with infection
- Urgent
  - Obstruction with unmanaged symptoms – pain, nausea
  - Obstruction with AKI – time is kidney
- Non-urgent
  - Chronic obstruction
  - Obstruction due to malignancy in the absence of above

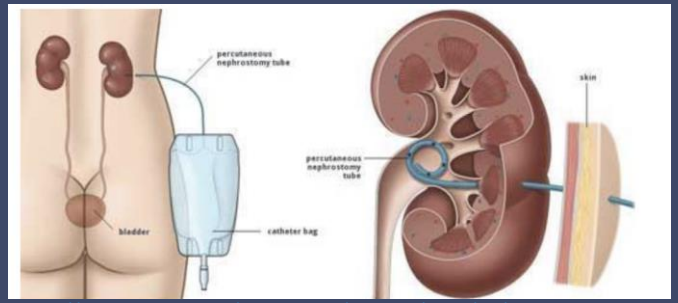


Ureteral Obstruction (Hydronephrosis)

Drainage Choice

1. Ureteral stent – OR with urology
   - Needs to be stable for anesthesia
   - Access to the bladder
   - Totally internal
2. Nephrostomy tube – Percutaneous with IR
   - Direct drainage
   - Higher complication rate
   - Requires a urine bag





https://www.esht.nhs.uk/wp-content/uploads/2020/02/0787.pdf

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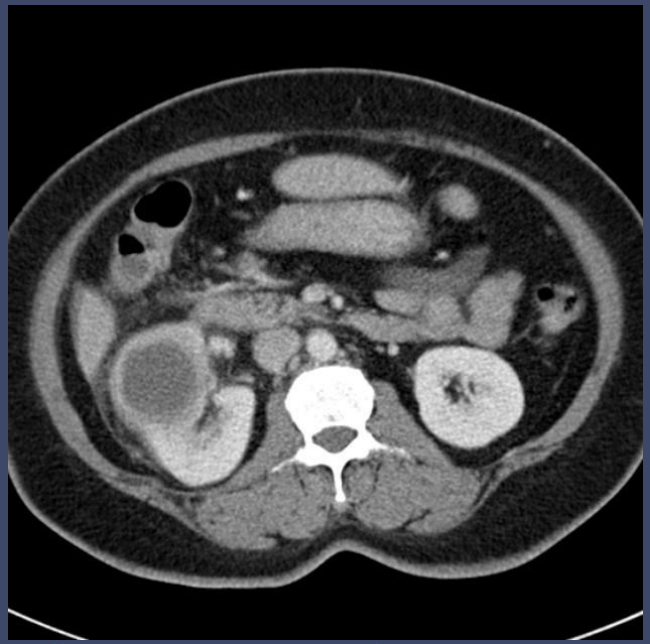
Pyelonephritis

- Fevers can persist x72hrs despite adequate antibiotics
- Infection alone can cause some mild, diffuse hydronephrosis
- Discrete or severe hydronephrosis suspect obstruction
  - Emergent drainage
- Assess for urinary retention.
  - BPH? Neurogenic bladder?
  - Place catheter.
- Not improving? Consider renal abscess.
  - If discrete, organized and >4cm, consider drainage



https://prod-images-static.radiopaedia.org/

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Penis Problems

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Scrotal Edema

- Common with patients with fluid overload
- Can be dramatic and uncomfortable but not an emergency
- Solution?
  - Elevation
  - Jock strap / compression shorts
  - Rolled up towel under the scrotum if in bed
  - Diuresis
  - Time
  - No referral

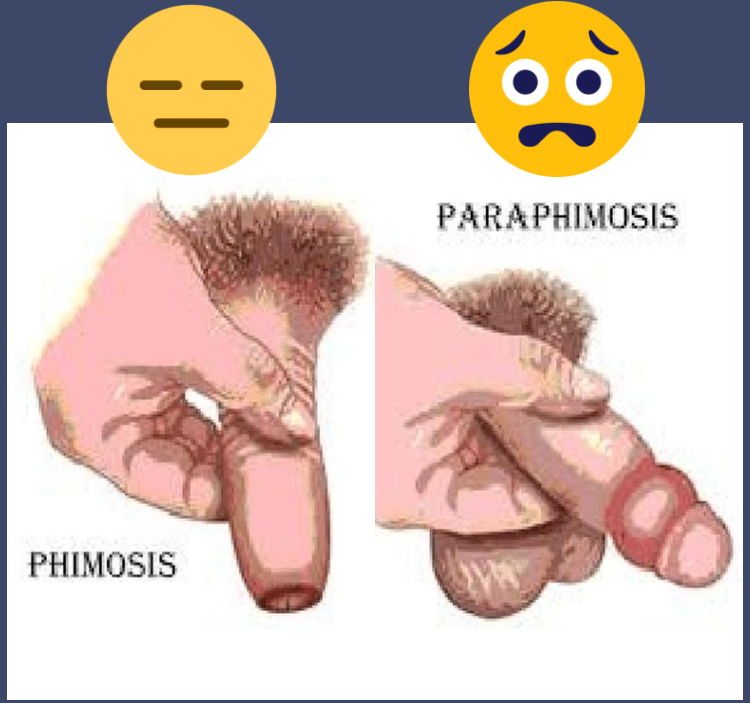
Phimosis and Paraphimosis

Phimosis - Fine

- Narrowing of the foreskin
- No acute treatment necessary

Paraphimosis - BAD

- Phimotic foreskin is retracted
- Narrowing cuts off venous return
- Distal penis swells
- Foreskin cannot be reduced



https://healthjade.net/paraphimosis/

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Phimosis and Paraphimosis

- Solution?

- Doesn’t that hurt?
  - Yes
  - But just the first minute or so


Thank You