Clinical Guideline
Nephrolithiasis
Pediatric ED

This guideline should not replace clinical judgment.

Symptoms of nephrolithiasis

Patient assessment/history and physical

RN bedside duties

MD orders (labs, IVF, analgesia, radiology)

Renal bladder ultrasound (RBUS)

Stone visible on RBUS

Stone not visible on RBUS; RBUS positive for secondary signs
(hydronephrosis, hydroureter, increase in renal size, uroepithelial thickening)

RBUS negative; high clinical suspicion

RBUS negative; low clinical suspicion

Urology and nephrology consultation

Pain control and hydration

Low dose, non-contrast CT stone protocol

Positive for stone

yes

no

Alternative evaluation and workup

Meets discharge criteria

Meets admission requirements

Discharge
(medications, anticipatory guidance, pain control, follow-up)

Admission to urology or nephrology

See details on pages 2 and 3.
Symptoms of nephrolithiasis

- Abdominal/flank pain that is sharp, intermittent, usually unilateral (“colicky”)
- With or without the following:
  - History of nephrolithiasis
  - Pain radiation to pelvic region
  - Hematuria
  - Dysuria
  - Nausea/vomiting

Patient assessment/history and physical

History

- Abdominal, flank, penile, scrotal or vaginal pain
- Hematuria (more common in children)
- Dysuria
- Nausea/vomiting
- Fever
- h/o urinary tract infection

Pertinent past medical history

- Nephrolithiasis
- Urologic surgeries (i.e. bladder augmentation)
- Metabolic disorders

Medical examination

- Assess overall appearance/comfort
- Abdominal exam
- CVA tenderness
- GU exam (particularly testicular exam in boys—can present as testicular pain)

RN bedside duties

- Urine collection
  - Strain all urine
  - Perform urine dip (urinalysis)
  - Prepare specimen for possible culture
- Pregnancy test for all females >=12 or known post-menarche
- NPO until instructed otherwise by provider
- IV placement if clinically indicated; prepare to obtain tubes for CBC with diff/BMP/CRP
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MD orders (labs, IV, analgesia, radiology)

- Intravenous fluids
  - For clinical dehydration
  - Normal saline bolus 20cc/kg
- Laboratory
  - CBC, CRP—for concern of infectious component
  - BMP—concern for electrolyte abnormality and renal status
  - Urine culture if positive UA
  - HCG—if age appropriate and XRAY or CT imaging will be performed
- Analgesia
  - Assess and treat pain (using visual analog scale)
  - IV
    - FIRST LINE: Ketorolac 0.5mg/kg (unless renal insufficiency or solitary kidney or other contraindication)
    - Morphine
  - Oral
    - Acetaminophen
    - Ibuprofen

Meets discharge criteria

- Adequate pain control
- Ability to maintain PO hydration
- No concern for systemic infection
- Normal kidney function
- Normal renal anatomy
  - Two kidneys
  - Non-transplant patient
- No significant medical/urologic surgical history

Discharge

- Send patient home with urine strainer and they should strain all urine
- Rx for Tamsulosin (Flomax)
  - 4 y/o or less: 0.2mg qHS (capsule opened, split and sprinkled)
  - 4 y/o or more: 0.4 mg qHS
  - Side effects: orthostatic hypotension, dizziness, somnolence
- Aggressive PO hydration with water
- Ibuprofen 10mg/kg PO every 6 hours
- Follow-up in 2 weeks with CHoR urology and nephrology (804-628-1587)
- Return to ER if:
  - FEVER (emphasize danger)
  - Uncontrollable pain
  - Recurrent nausea/vomiting

Meets admission requirements

- Poor pain control
- Unable to maintain hydration
- Concern for infection
- Renal insufficiency
- Anatomic considerations
  - Solitary kidney
  - Kidney transplant
  - Complex medical/urologic surgical history

Admission to urology or nephrology

Urology

- Non-complex medical history
- Nephrology will co-manage/consult

Nephrology

- Complex medical history, acute renal failure, chronic kidney disease
- Urology will co-manage/consult
Nephrolithiasis Guideline

Executive Summary

Children’s Hospital of Richmond at VCU Nephrolithiasis Workgroup

Pediatric Urology Owner: Eric Nelson, MD
Pediatric Nephrology: Megan Lo, MD
Pediatric Emergency Medicine: Jon Silverman, MD, MPH

Approved (November 2020)

Chief of Pediatric Urology: C.D. Anthony Herndon, MD
Chief of Pediatric Nephrology: Timothy Bunchman, MD
Chief of Pediatric Emergency Medicine: Frank Petruzzella, MD, MS

CHoR Emergency Medicine Quality Committee: Rashida Woods, MD

CHoR Clinical Guidelines Committee: Jon Silverman, MD, MPH
Ashlie Tseng, MD

CHoR Quality Council, Executive Sponsor: Matthew Scheff, DO, MSHA
Dory Walczak, MS, RN, NE-BC, CPHQ

References


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Authors: Children’s Hospital of Richmond at VCU
Eric Nelson, MD
Megan Lo, MD
Jon Silverman, MD, MPH

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Example: