Pediatric Urology for the Primary Care Provider

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Objectives

• Recognize urological emergencies

• Determine when a urologic issue warrants referral to specialist

• Understand initial work-up and treatment of common urologic conditions
Outline

Testicular torsion and acute scrotum
Circumcision evaluation/phimosis/balanitis
Undescended testes
Hydroceles
UTI
Lower urinary tract symptoms – incontinence, frequency, urgency
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Testicular Torsion – Acute Scrotum

Wide differential diagnosis of scrotal pain and swelling

- Testicular torsion
- Torsion of the appendix testis or epididymis
- Epididymitis/orchitis
- Hernia/hydrocele
- Trauma
- Sexual abuse, tumor, idiopathic scrotal edema, dermatitis, cellulitis, vasculitis

A child with acute scrotal pain must be presumed to have testicular torsion regardless of age until proven otherwise
Testicular Torsion

Torsion may happen at any age, but more common in adolescence and neonates

Intermittent Testicular Torsion

Recurrent acute, sharp scrotal pain, +/- swelling with rapid resolution and intermittent asymptomatic periods
Testicular Torsion – Intervention

• Acute torsion – scrotal exploration and detorsion within 4-8 hours, pexy contralateral side

• Neonatal torsion – no consensus, but typically orchiectomy and contralateral orchiopexy at 3 months

• Intermittent torsion – recurrent/persistent pain, size discrepancy of testicles, avoid future testicular damage
Acute Scrotum – Differential Diagnosis

Torsion of appendix testis  
epididymitis/orchitis

Management is supportive,  
possible antibiotics if UA +

Hernia/hydrocele

Observation vs surgery  
if strangulated

Trauma

Usually observation
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Phimosis, Balanitis, Circumcision Evaluation

2012 AAP Policy Statement on Circumcision

After a comprehensive review of the scientific evidence, the American Academy of Pediatrics found the health benefits of newborn male circumcision outweigh the risks, but the benefits are not great enough to recommend universal newborn circumcision.

The AAP policy statement published Monday, August 27, says the final decision should still be left to parents to make in the context of their religious, ethical and cultural beliefs.
Circumcision – Office or Operating Room?

- Most will do newborn circumcisions only up to 30 days and 10lb
  - Some providers go above these limits
- Refer newborns ASAP from hospital or first newborn well check
- After this cutoff – circumcision will need to be done in the OR
- Abnormalities of the penis/foreskin will be done in the OR
  - Hypospadias, chordee, severe penile torsion, severe penoscrotal webbing, asymmetrical or incomplete foreskin
- OR Circumcisions done after 6 months of age

Refer ASAP – elective circumcision not covered >1 year of age
Foreskin/Penile Abnormalities

- Incomplete Foreskin
- Hypospadias
- Chordee
- Penile Torsion
- Penoscrotal Webbing
Care of the Uncircumcised Penis

• Phimosis is normal in babies and toddlers – never forcibly retract the foreskin

• Slowly and gently stretch the skin over time

• Phimosis after age 4 or if having symptoms – treat with topical steroid cream
  • Betamethasone valerate 0.1% TID x 6 weeks
Circumcision Indications

• Pathologic phimosis – balanitis xerotica obliterans
• High grade vesicoureteral reflux in an infant
• Failure of topical steroid
• Recurrent balanoposthitis
• Recurrent paraphimosis
Pathologic Phimosis

• Scarring

• Result of infections or tearing of the foreskin

• Steroid will be unsuccessful
Balanitis/Balanoposthitis

- 1.5% uncircumcised 0-15 yrs
- Most common: candidal
- Can be bacterial

- Topical antibiotic (metronidazole cream or bacitracin) and antifungals (clotrimazole cream)
- +/- oral antibiotics (Keflex, clindamycin)
Paraphimosis

- Tight band of foreskin has been retracted and remains trapped below coronal rim of glans
- Over time, the foreskin and glans distal to the tight band will become very edematous and can become strangulated – needs to be reduced ASAP
  - First perform penile block
  - Hold firm pressure at least 5 minutes circumferentially around the edematous portion of the foreskin
  - When edema has lessened, place thumbs on glans with fingers proximal to tight band and pull foreskin over glans
Complications After Circumcision

- Penile adhesions
  - Skin bridge vs soft adhesions
- Redundant foreskin
  - Usually not redundant when suprapubic fat pad is pushed down
- Cicatrix/concealed penis
- Meatal stenosis – causes deflected or abnormal urine stream
Plastibell Circumcision Complications

- Plastibell ring should fall off within 1-2 weeks
- If it falls off early but area is healing well, no intervention
- Assess status of glans – blood flow compromised?
- Assess patency of urethra – patient unable to void?
- If either of the above answers are yes, then plastibell should be cut off
  - Usually can get it off by cutting the string with an 11 blade, otherwise use ortho scissors
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Undescended Testes (UDT) Terminology

- Cryptorchidism
  - Undescended
    - Intra abdominal
  - Ectopic
    - Inguinal canal, outside external ring
  - Absent
- Retractile
UDT

• Cause is unknown, likely multifactorial. Risk factors include prematurity, advanced maternal age, maternal obesity, family history

• Associated syndromes: prune belly, neural tube defects, DSD (ie Klinefelter)

• May descend within first 6 months of life. After 6 months, unlikely to descend (1%)

• Diagnosis based on physical exam, not imaging. Ultrasound has low specificity and sensitivity

• Exam pearls: evaluate scrotum prior to palpation, 2-handed exam, soap or lubricant to facilitate
UDT Reason for Treatment

Fertility

Malignancy

Less important:

- Inguinal hernia
- Testicular torsion
- Injury
- Cosmesis
UDT Intervention

• Hormone therapy rare

• Surgery after 6 months of age, prior to 2 years

• Inguinal orchiopexy for palpable undescended testes
  • If close to scrotum consider scrotal orchiopexy

• Laparoscopic exploration and orchiopexy vs orchiectomy for nonpalpable testes

• Endocrine referral if bilateral nonpalpable testes, or nonpalpable testis and hypospadias

• Post-op examination at 1 month and 6 months, then regular exams by PCP
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Hydrocele

Caused by delayed closure of the processus vaginalis
Hydrocele

• Indications for repair:
  • Communicating hydrocele persists after 6 months
  • Noncommunicating hydrocele persists after 12 months
  • Presence of hernia
• Counsel family to watch for communication (increase and decrease in size of swelling, fluctuation), inflammation (red, hard), pain and proceed to EC to rule out acute strangulated hernia
• Surgical approach is inguinal
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## Urinary Tract Infection

### Signs and Symptoms

<table>
<thead>
<tr>
<th>Infants and Toddlers</th>
<th>Older Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irritability</td>
<td>New-onset incontinence</td>
</tr>
<tr>
<td>Fever</td>
<td>Foul odor to urine</td>
</tr>
<tr>
<td>Failure to thrive</td>
<td>Frequency/urgency</td>
</tr>
<tr>
<td>Nausea/vomiting</td>
<td>Pain with voiding</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>Listlessness</td>
</tr>
<tr>
<td>Hematuria</td>
<td>Irritability</td>
</tr>
<tr>
<td>Foul odor to urine</td>
<td>Unexplained fever</td>
</tr>
<tr>
<td></td>
<td>Abdominal/flank pain</td>
</tr>
</tbody>
</table>

Any fever without obvious source, rule out UTI (catheter not bag if not toilet trained)
Urinary Tract Infection Pearls

• Pyuria + Bacteriuria = UTI
  • Bacteriuria without pyuria may not need to be treated

• UTI with fever = pyelonephritis

• First line testing = renal ultrasound
  • If RUS abnormal → obtain voiding cystourethrogram
  • After second febrile UTI → obtain voiding cystourethrogram

• Recurrent afebrile UTIs/normal imaging → assess for constipation and voiding dysfunction
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Lower Urinary Tract Symptoms

Nocturnal enuresis

Daytime symptoms:
incontinence, urgency, frequency
Nocturnal Enuresis

• 15% of 5 year olds, 5% of 10 year olds, 1% of 15 year olds
  • Considered normal up to age 6

• Etiology: multifactorial
  • Hereditary, decreased vasopressin, increased arousal threshold

• Work-up: history, exam, and urinalysis
  • No imaging or urodynamics if monosymptomatic enuresis

• Limit fluids 2 hours before bed

• Void multiple times in the hours leading to bed
Nocturnal Enuresis – Treatment at Age 7 and Above if Patient/Family are Bothered by the Symptoms

DDAVP (desmopressin)
- Reduces urine production
- Temporary effect, does not cure the underlying process
- Important to decrease fluid 1 hour before to 8 hours after taking medication
- Dose 0.2mg → 0.4mg → 0.6mg

Enuresis Alarm
- More potential for lasting treatment
- Use 2-3 months, nightly
- Advise parents to listen and go wake child – child will most commonly not wake to the alarm by themselves

Other: imipramine, anticholinergics
Daytime Urinary Incontinence

• Differential diagnosis
  • Voiding dysfunction, constipation
  • Neurologic conditions (tethered cord, spina bifida)
  • Rarely anatomic (posterior urethral valves, fistula, ectopic ureter)

• Detailed history and physical

• Urinalysis, uroflow, +/- renal ultrasound, KUB, formal urodynamics
Daytime Incontinence – Constipation

Don’t just ask “Are you constipated?”

- Are BMs daily, every other day, twice a week?
- Does it hurt to pass BMs or take a long time?
- What Bristol stool type are they?
- Is there ever blood when you wipe?
Daytime Incontinence – Constipation

• Cleanout with miralax, mineral oil enemas

• Daily regimen with miralax or senna & fiber

• Need to continue daily for months – takes a while for rectum to return to normal size
Daytime Wetting – Behavioral Modifications

• Urinating every 2-3 hours during the day on a schedule, even before the urge to void
• Avoiding drinks which irritate the bladder, such as caffeinated, carbonated and citrus drinks
• Posture and relaxing techniques
• Hydration
• Management of perineal or pelvic area skin irritation
• Voiding and intake diaries
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