MaineHealth

Pediatric Urology: When to Refer

Lily C. Wang, MD, PhD

March 29, 2025

Maine AAP Annual Conference

MMC Portland

1

Disclosures

- None of the planners or speakers for this event have any financial relationships to disclose

2

My Background

- Urology residency at New York Presbyterian – Weill Cornell Medical Center
- Pediatric urology fellowship year 1 at Connecticut Children's Hospital – University of Connecticut
- Pediatric urology fellowship year 2 at Texas Children's Hospital – Baylor College of Medicine
- Pediatric Urologist, Director of Robotic Surgery – Valley Children's Hospital, Madera, CA

- Started at Maine Medical Center in October 2022

Urgency and Timing of Referrals: Penis and Scrotum

Penile conditions

- Urgent conditions – bleeding after circumcision, inability/difficulty with urination, priapism, paraphimosis
- (Non)urgent conditions – balanitis, blunt penile injury, penile swelling
- Congenital abnormalities – hypospadias, twisted raphae, penile torsion, chordee, phimosis
- Acquired abnormalities – penile adhesions, penile skin bridges, redundant foreskin, meatal stenosis

Scrotal conditions

- Urgent conditions – scrotal/testicular injury, testicular torsion
- Congenital abnormalities – undescended testicles versus retractile testicles, hydroceles/hernias
- Acquired abnormalities – testicular ascent, testicular lesions: cysts, masses, varicoceles

Penile Conditions – Urgent Conditions

- Bleeding after circumcision – if cannot be stopped with pressure in the office → Refer to ED
  - Tips for decreasing bleeding in the office:
    - Compression dressing with gauze and/or coban – make sure you can see the glans to make sure that it still looks pink
    - Surgicel or other type of hemostatic agent
    - Silver nitrate – Use sparingly!! – can cause significant glans scarring, can be very painful

Penile Conditions – Urgent Conditions

- Inability/difficulty with urination
  - If bladder is distended → Refer to ED
  - Burning with urination
    - Evaluate meatus – Meatal stenosis? Tight foreskin? Injury to glans?
    - UTI?
    - Bladder spasms from prolonged holding of urine? → Refer if needed

Penile Conditions – Urgent Conditions

- Priapism
  - Painful erection lasting more than 4 hours → refer to ED
  - (More frequent erections may be a sign of distended bladder or bowel)

Penile Conditions – Urgent Conditions

- Paraphimosis
  - Acute painful penile swelling in **uncircumcised** boy

  → refer to ED if cannot reduce in office
  - Other things to look for – if circumcised but looks like paraphimosis – consider hair tourniquet syndrome

Penile Conditions – Non/Less Urgent Conditions

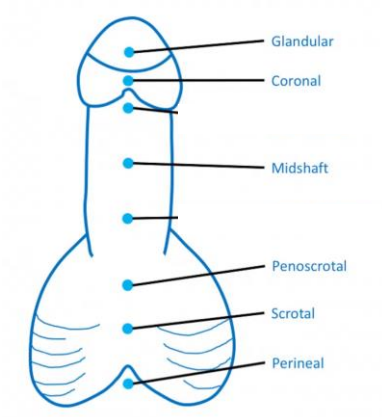
Penile Swelling

- Balanitis/balanoposthitis – inflammation of glans and foreskin → Refer if needed
  - Can be caused by irritants: soaps, bubble baths, detergents
  - Fungal infection
  - Bacterial infection
- Blunt penile injury – e.g. toilet seat crush injuries
  - Often can be managed expectantly → Refer if needed
  - if hematuria or inability to urinate → Refer to ED
- Summer Penile Syndrome/Idiopathic Penile Swelling → Refer if needed
  - Bites from mites or chiggers – associated with edema and pruritus – self limiting, can treat with anti-pruritic creams, topical corticosteroids, oral antihistamines, cold compress

9

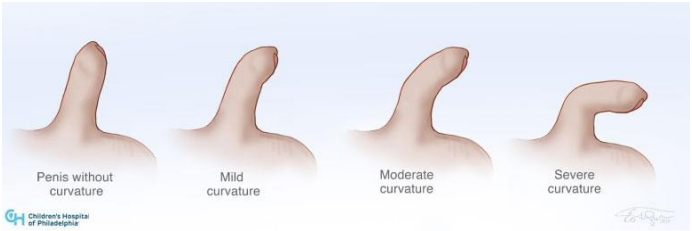
Congenital Penile abnormalities

- Hypospadias



https://teachmepaediatrics.com/surgery/urology/hypospadias/

Chordee

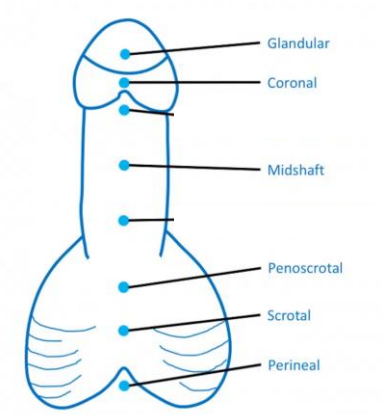


→ Non-Urgent Referral for Elective penile surgery when at least 6 months of age

10

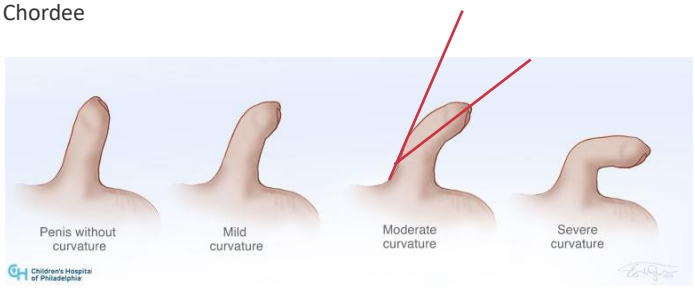
Congenital Penile abnormalities

- Hypospadias



https://teachmepaediatrics.com/surgery/urology/hypospadias/

Chordee

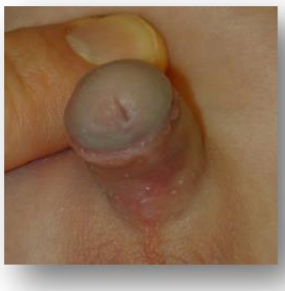


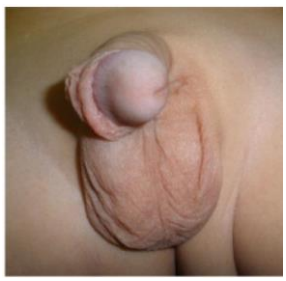
→ Non-Urgent Referral for Elective penile surgery when at least 6 months of age

11

Congenital Penile abnormalities

- Twisted median raphae versus penile torsion ≥ 90 degrees



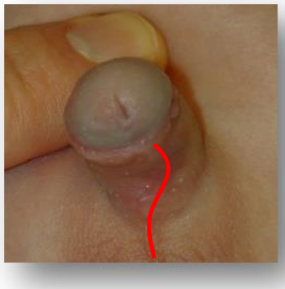


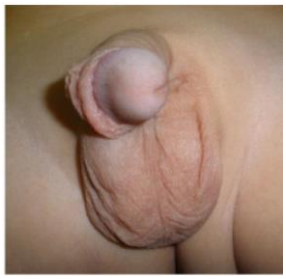
→ Non-Urgent Referral for Elective penile surgery when at least 6 months of age

12

Congenital Penile abnormalities

- Twisted median raphae versus penile torsion ≥ 90 degrees



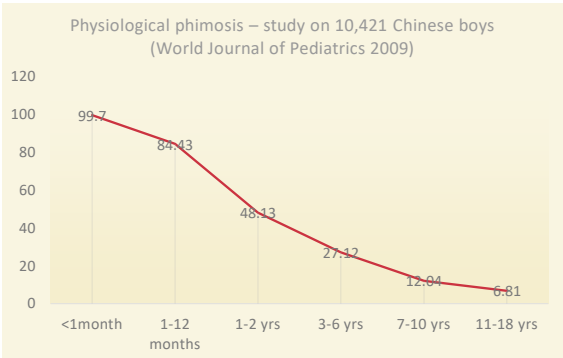


→ Non-Urgent Referral for Elective penile surgery when at least 6 months of age

Congenital Penile abnormalities

Congenital Phimosis

- Can refer whenever family is concerned or when 6-8 years of age
- Can offer steroid cream as non-surgical option for phimosis

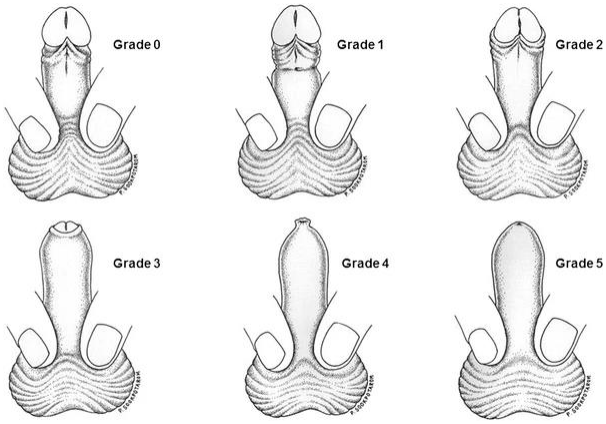


→ Refer if needed

Congenital Penile abnormalities

Congenital Phimosis

- Steroid cream as non-surgical option for phimosis
  - Corticosteroid cream to area of tightness
    - Triamcinolone 0.1% cream
    - Betamethasone 0.05% cream
  - Apply to area of tightness twice daily
  - Retract foreskin with every diaper change / every void or at least 5x/day
  - Reassess in about 2 months



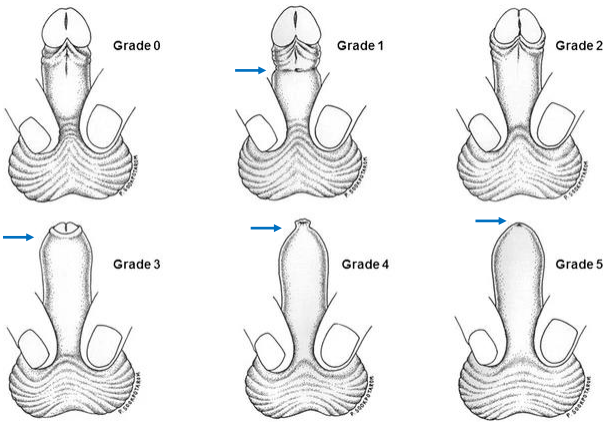
Pediatr Surg Int **29**, 393–396 (2013). https://doi.org/10.1007/s00383-012-3253-9

Refer if needed

Congenital Penile abnormalities

Congenital Phimosis

- Steroid cream as non-surgical option for phimosis
  - Corticosteroid cream to area of tightness
    - Triamcinolone 0.1% cream
    - Betamethasone 0.05% cream
  - Apply to area of tightness twice daily
  - Retract foreskin with every diaper change / every void or at least 5x/day
  - Reassess in about 2 months



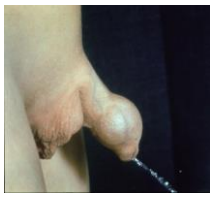
Pediatr Surg Int **29**, 393–396 (2013). https://doi.org/10.1007/s00383-012-3253-9

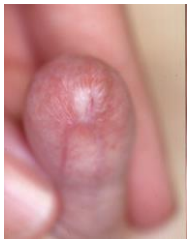
Refer if needed

Congenital/Acquired Penile abnormalities

Pathologic Phimosis

- Trapping of urine
- Scarring of prepuce (acquired)
  - Secondary to injury
  - Secondary to inflammation from recurrent irritation/infection
  - Can try steroid cream but less likely to be successful
- May be associated with bleeding from penis with urination – can be caused by tears in foreskin, may be confused with hematuria



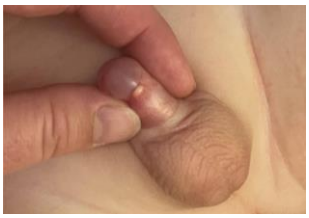


Urgent versus non-urgent referral depending on level of discomfort/difficulty with voiding

Acquired Penile Abnormalities

Penile Adhesions

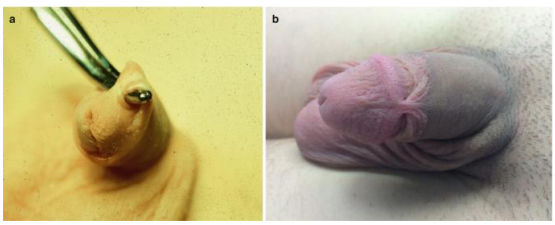
- Steroid cream to area of adhesion and retraction of area of lyse penile adhesions
- Lysis of adhesions in the office after application of lidocaine cream
- Lysis of adhesions in the operating room under anesthesia



Refer if needed

Penile Skin Bridges

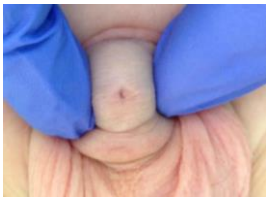
- Usually require excision in operating room under anesthesia
- Rarely treated in office after application of lidocaine cream for small thin skin bridges with very cooperative patient



Non-Urgent Referral

Acquired Penile Abnormalities

Meatal Stenosis → Non-Urgent Referral



- Often associated with
  - Thin/powerful urinary stream
  - Having to push to urinate
  - Upward deviation of urinary stream
- Meatotomy/meatoplasty in operating room

Redundant Foreskin versus Significant Pubic Fat Pad → Refer if needed

Scrotal Conditions

Scrotal Conditions – Urgent Conditions

Scrotal/testicular injury

- Significant laceration, especially if testicle is exposed – Refer to ED
- Contusion – if pain out of proportion to appearance – rupture Refer to ED to rule out torsion or testicular

Scrotal Conditions – Urgent Conditions

Testicular Torsion Refer to ED

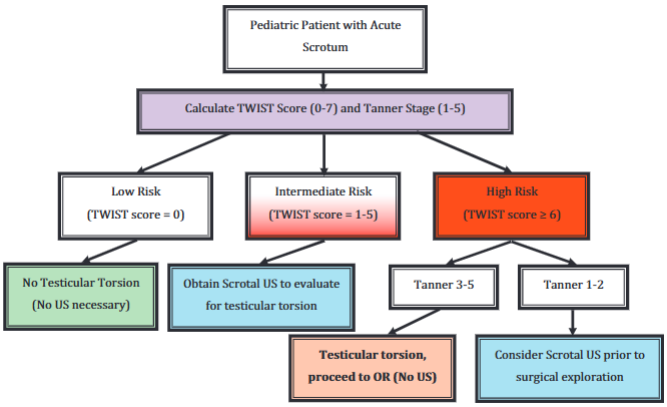
- Appearance – Unilateral scrotal swelling, testicle often indurated, may be in altered lie
- Timeline – Urgent surgery within 6-12 hours, sometimes 24 hours
- Missed torsion – Swelling and pain started >24 hours ago without significant change
- Intermittent torsion – Torsion and Detorsion
  - Often difficult to differentiate between intermittent torsion and other causes of intermittent scrotal pain
  - Difference usually based on intensity of pain, appearance of scrotum, and interventions to relieve the pain
  - If suspect intermittent torsion Refer for Urgent Urological evaluation

Scrotal Conditions – Urgent Conditions

Testicular Torsion → ED

TWIST (Testicular Workup for Ischemia and Suspected Torsion) Score 0-7	
Testicular Swelling	2
Hard Testicle	2
No Cremaster Reflex	1
High-Riding Testicle	1
Nausea or Vomiting	1

Barbosa JABA, de Freitas PFS, Carvalho SAD, et al. Validation of the TWIST score for testicular torsion in adults. *Int Urol Nephrol.* 2021;53(1):7-11.



Sheth KR, Keays M, Grimsby GM, Granberg CF, Menon VS, DaJusta DG, et al. Diagnosing Testicular Torsion before Urological Consultation and Imaging: Validation of the TWIST Score. Journal of Urology [Internet]. 2016 Jun 1 [cited 2025 Mar 7];195(6):1870–6.

Scrotal Conditions – Urgent Conditions

Testicular Torsion in Maine

Retrospective study of testicular torsion in the MaineHealth system from 1/1/2013 to 12/31/23

98 cases of acute testicular torsion – about 4 cases per 100,000 males less than 35 years of age

73.5% testicular salvage rate

The only factor that was significant on univariate regression for predicting testicular salvage was patient insurance

- 70.8% commercial insurance in the testicular salvage group and 42.3% commercial insurance in the orchiectomy group with an odds ratio of 4.27 (p-value 0.01) for testicular loss in the non-commercial insurance group. The other types of insurance were Medicaid, Medicare, other governmental insurance, and uninsured.

Unpublished data

Scrotal Conditions – Nonurgent Conditions

Scrotal Lesions: cysts, masses, varicoceles

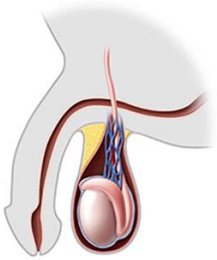
What to do when you feel something abnormal in the scrotum?

- Scrotal Ultrasound – determine the difference between cyst, mass, varicocele
- Urgency: If the lesion feels hard and/or irregular edges
  - Refer urgently to urology preferably with a scrotal ultrasound before the visit
  - If lesion is very large and there are constitutional symptoms (such as unintentional weight loss) and/or abdominal mass – may need to refer to ED
- If the lesion feels small and smooth or fluid-filled and outside of the testicle, obtain ultrasound and Non-Urgent referral

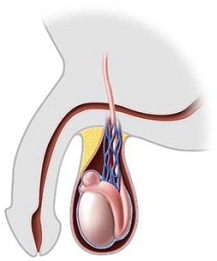
Scrotal Conditions – Nonurgent Conditions

Scrotal Lesions: cysts, varicoceles = lesions outside the testicle

Normal Groin

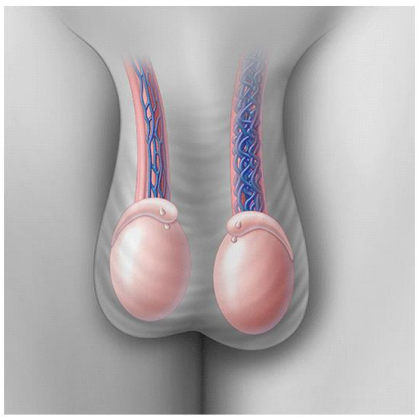


Epididymal Cyst



Non-Urgent Referral

Variococele

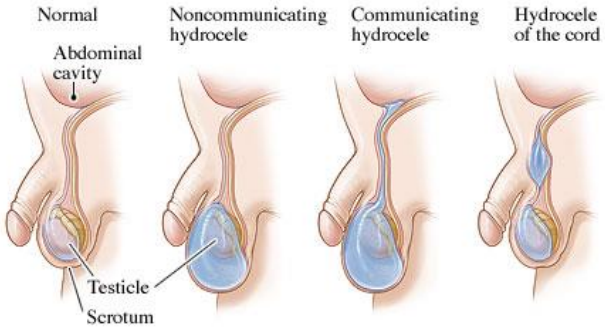


Scrotal Conditions – Nonurgent Conditions

Hydroceles: Fluid around the testicles

- Newborn hydroceles – Fluid around the testicle(s) occurring after birth, maybe associated with the trauma of birth, often resolves within the first year of life
- Reactive Hydroceles – Fluid that forms around the testicle after inflammation or injury, usually resolves within 1-2 months
- Communicating Hydroceles – Fluid that can flow between the abdomen and scrotum
- Hydrocele of the Cord – Fluid pocket along the spermatic cord

⇒ Non-Urgent Referral, or if needed



Scrotal Conditions – Nonurgent Conditions

Undescended Testicles versus Retractile Testicles versus Testicular Ascent: Definitions

Undescended Testicles

- Definition: Testicle that cannot be brought down into the scrotum
- In full-term babies – testicles should descend into the scrotum by 6 months of age
- In pre-term babies or babies born with low birth weight – testicles should descend into the scrotum by 1 year of age
- Prevalence: 3% in full-term babies, 30-45% in preterm and low birth weight babies

Retractile Testicles

- Definition: Testicles that can be manipulated into the scrotum after fatigue of the cremaster muscles
- Typically resolved with age and puberty

Testicular Ascent = Acquired undescended testicles

- Definition: Testicles that cannot be brought down into the scrotum or will not stay in the scrotum after fatiguing cremaster muscles – even though they were able to be brought down into the scrotum in the past
- Prevalence: 1-7%

Undescended Testis - Pediatric Urology | Urology Core Curriculum

Scrotal Conditions – Nonurgent Conditions

Undescended Testicles versus Retractile Testicles versus Testicular Ascent: When to Refer

Undescended Testicles

⟹ Refer by 6-12 months of age

- Surgical repair recommended before 18 months of age (corrected for prematurity) for optimal testicular function
- Surgical repair before puberty can reduce cancer risk associated with undescended testicles

Retractile Testicles

- If pediatrician or patient can bring testicles down into the scrotum and they stay in the scrotum after fatiguing cremaster muscles, no referral needed

Testicular Ascent = Acquired undescended testicles

- Refer when identified

⟹

Scrotal Conditions – Nonurgent Conditions

Undescended Testicles versus Retractile Testicles versus Testicular Ascent: Ultrasounds

Ultrasounds?

- AUA Guidelines (2018): "Providers should not perform ultrasound (US) or other imaging modalities in the evaluation of boys with cryptorchidism prior to referral as these studies rarely assist in decision making"
  - In the hands of an experienced provider or specialist, more than 70% of cryptorchid testes are palpable by physical examination and need no imaging.
  - US is non-contributory in routine use, with sensitivity and specificity to localize nonpalpable testis at 45% and 78%, respectively.
  - At this time, there is no radiological test that can conclude with 100% accuracy that a testis is absent. Therefore, a surgical exploration, such as diagnostic laparoscopy (or open exploration), must be performed on all nonpalpable unilateral and many bilateral cryptorchid patients. Diagnostic laparoscopy is the gold standard with high sensitivity and specificity.

Pediatric Urology eConsults

- Available to members of the MaineHealth system
- Placed via EPIC
- Response within 1-3 days from pediatric urology team
- Please let family know as there may be a charge associated with the eConsult

Questions ??

Primary Office
South Portland Office
100 Brickhill ave
South Portland, ME 04106
Phone: 207-773-1728
Fax: 207-773-8153

Oakland Office
46D First Park DR
Oakland, ME 04963
Office Phone: 207-680-2117
Fax: 207-680-2119

Lily.Wang@mainehealth.org

Email within MaineHealth - Wang, Lily C, Urology <Lily.Wang@mainehealth.org>