

## Male Genitourinary *Emergencies*

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## Learning Objectives

- Differential Diagnosis of “Acute Scrotum”
- Identify GU *Emergencies*
- Identify GU *Urgencies*

## Outline

- What We Need to Remember
- When Things are Working...
  - **Essential Anatomy**
- When They’re *Not*...
  - **Acute Scrotum**
  - **Fournier’s Disease**
- What We Need to Remember

## What We Need to Remember

- Name the 5 True Genitourinary Emergencies
- List the 3 Most Frequent Causes of the “Acute Scrotum”

## “Evidence-Based ???”

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ARE BOXER SHORTS REALLY BETTER?  
A CRITICAL ANALYSIS OF THE ROLE OF UNDERWEAR TYPE IN MALE  
SUBFERTILITY



## Evidence-Based ?'s

- ***Cremasteric Reflex***: Does an intact reflex exclude testicular torsion?
- ***Testicular Sonography***: Does a “normal” study exclude the possibility of testicular torsion?

## Anatomy: Essentials

- Three cylindrical bodies
  - Paired corpora cavernosa
  - Corpus spongiosum
- Fascial Planes
  - Buck's fascia – encases all three cylinders
  - Tunica albuginea – erectile bodies, testes
- Scrotal Contents

## Differential Diagnosis of Acute Scrotal Pain

- Testicular Torsion
- Epididymitis
- Appendage Torsion (testicular, epididymal)
- Epididymo-Orchitis
- Trauma
- Hernia
- Hydrocele
- Varicocele
- Henoch-Schonlein Purpura (HSP)
- Tumor
- Idiopathic scrotal edema
- Others...

## Testicle and Epididymis: Testicular Torsion

- **Urologic Emergency!**
- Epidemiology
  - Peak incidence: Neonates & Peri-Pubertal
- Pathophysiology
  - Lack of firm fixation to posterior scrotal wall
  - Diminished blood flow → ischemia → infarction
- Onset
  - Antecedent history of physical exertion or minor trauma
  - However, may also occur during sleep

## Testicular Torsion: Pain

- Sudden *and* Severe
- Constant *or* Intermittent
- Abdominal, inguinal, testes, proximal thigh
- Patients “*ill-appearing*”: nausea, emesis
- May present *non-specifically*
  - Consider in differential of **ANY** abdominal, groin, thigh pain *or* nausea, emesis
  - Perform GU exam in **ALL** of these patients

## Testicular Torsion: Physical Exam

- Testicle enlarged and diffusely tender
- Testicle ‘high riding’ with ‘transverse’ lye
- Cremasteric reflex may be absent

## Testicular Torsion: Cremasteric Reflex

- **Classic Teaching**
- *Rabinowitz 1984*
  - Prospective, 245 patients
  - Presence of reflex 100% sensitive for absence of torsion
  - Absence of reflex increased suspicion for torsion
- *Caldamome 1984, Melekos 1988*
  - Other series which confirmed earlier findings
  - 150 patients, 100 patients respectively

## Testicular Torsion: Cremasteric Reflex

### Recent Evidence

- *Feldstein 1985, Rabinowitz 1985, Hughes 2001, Nelson 2003*
  - Several case reports of testicular torsion with intact cremasteric reflex

### Bottom Line

- Interpret findings within clinical context
- Cannot rely solely on presence of reflex

## Testicular Torsion: Treatment

- **Consult Urology!**: “*Time is Testicle*”
- **High Probability** based on history & exam:
  - Surgical Exploration
  - In the ED: Can Attempt Manual Detorsion
    - Medial → Lateral (“open the book”)
    - End-point is relief of ischemia (i.e. pain)
- **Indeterminate** Presentations:
  - Color-flow duplex Doppler ultrasound
  - Radionucleotide scintigraphy

## Testicular Torsion: Sonography

### Classic Teaching

- Sonography long-regarded as test of choice
- Reports re: limitations of sonography (i.e. false negatives)
  - *Burks 1990* → 1 in 32 false negative
  - *Ingram 1993* → 1 case
  - *Steinhardt 1993* → 2 cases
  - *Yazbeck 1994* → 2 in 19 false negative
  - *Allen 1995* → 5 cases
  - *Stehr 2003* → 1 in 132 false negative

## Testicular Torsion: Sonography

### Recent Evidence

- Addition of cord imaging to Doppler imaging
  - Prospective: *Baud 1998, Arce 2002, Kalfa 2004*
  - Limitations noted by *Karmazyn 2004*
    - “Tortuous” (epididymitis) vs. “Coiled” (torsion)
    - Intermittent torsion/detorsion
  - *Kalfa 2007*: Prospective, Multicenter, 208 cases
    - HRUS “reliable and reproducible”

### Bottom Line

- Doppler sono is excellent, but imperfect
- Addition of cord imaging *may* improve diagnostic accuracy

## Testicle and Epididymis: Appendage Torsion

- Testicular & Epididymal Appendages
- Embryologic remnants
- No known physiologic function
- Often occurs in *pre*-pubertal males
- Clinical: Differs from Testicular Torsion
  - More indolent onset of pain/swelling
  - Rarely ‘systemic’ symptoms

## Appendage Torsion

### Physical Exam

- Pathognomonic “**Blue Dot**” Sign

### Treatment

- **Imaging Study**: assess intratesticular blood flow
- **Natural Course**: degenerate within 2 weeks
- **Urology Referral**

**If Diagnosis Uncertain**: *Consultation for Possible Surgical Exploration!*

## Testicle and Epididymis: Epididymitis

- An Inflammatory process
- More insidious onset of pain when compared with testicular torsion

## Epididymitis: Etiologies

- **Pre-Pubescent**
  - "Chemical": Congenital Anomalies
- **< 35 years-old**
  - Primarily STD's: *Gonorrhea, Chlamydia*
- **> 35 years-old**
  - Urinary Pathogens: BPH, Strictures
- **Direct Trauma**
  - "Chemical" Epididymitis

## Epididymitis: Clinical

- Pain: abdominal, inguinal, scrotal, testicular
- Early Signs: able to isolate to affected globus
- Progression: contiguous with testicle
- Final stage: **Epididymo-Orchitis**
  - May be difficult to differentiate from torsion
- Imaging: increased (or preserved) blood flow

## Epididymitis: Treatment

### Outpatient

- **< 35 years-old:** Ceftriaxone + Doxycycline
- **> 35 years-old:** Fluoroquinolone
- "Chemical": Cephalosporin

### Inpatient

- Admit: clinically 'toxic', intractable pain
- Bed rest, scrotal elevation, ice, analgesics
- Scrotal supporter when pain decreased

## Scrotum: Trauma

### Blunt Injury

- Hematocele: blue, tender scrotal mass

### Penetrating Injury

- Often requires surgical exploration
- Ultrasound to help determine extent of injury
- Urologic *Emergencies* until proven otherwise
  - Very Low threshold for consultation

## Scrotum: Fournier's Disease

- Polymicrobial infection, subcutaneous perineal structures
- May originate from skin, urethra or rectum
- Benign initial infection that becomes rapidly virulent → "Necrotizing Fasciitis"
- "Pain out of proportion to physical findings"
- Immunocompromised patients at greatest risk

## Fournier's Disease: Treatment

- ***Urologic Emergency!***
- Aggressive fluid resuscitation
- Broad-spectrum Rx: include clindamycin
- Surgical debridement
- Possible role for Hyperbaric O<sub>2</sub> Therapy

The screenshot shows a PubMed search result for the article "Fournier's gangrene in children." The authors listed are Adams JR Jr, Mata JA, Venable DD, Culkin DJ, and Bocchini JA Jr. The abstract text states: "Necrotizing fasciitis of the genitalia is a rare urologic emergency that is especially uncommon in children. We report a case of Fournier's gangrene in a four-year-old boy and analyze the data from 55 previously reported cases. Pediatric cases have been successfully managed with a more conservative surgical approach and have had a significantly lower mortality rate than adult cases." The PMID is 2186534. The interface includes search filters, display options (AbstractPlus), and a 'Show' button set to 20 items.

( Big Yawn ! )



## What We Need to Remember

- The 5 True Genitourinary Emergencies
- The 3 Most Frequent Causes of the "Acute Scrotum"

## Conclusions

### ***Five GU Emergencies:***

- Testicular Torsion
- Traumatic Injuries
- Paraphimosis
- Priapism
- Fournier's Disease

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## Thank You!

*Your comments are  
welcomed !*

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