Urologic Emergencies

FMF 2014

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Faculty/Presenter Disclosure

- **Faculty:** Dr. Vukiet Tran

- **Relationships with commercial interests:**
  - **Grants/Research Support:** None
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Disclosure of Commercial Support

- **This program has received NO Commercial support**
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- **<u>Potential for conflict(s) of interest</u>:**
  - Not Applicable

Mitigating Potential Bias

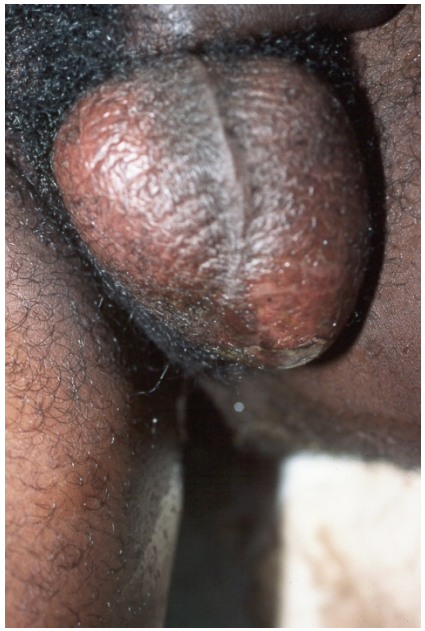
- No products or services from Gamma-Dynacare Medical Laboratories will be mentioned during this presentation

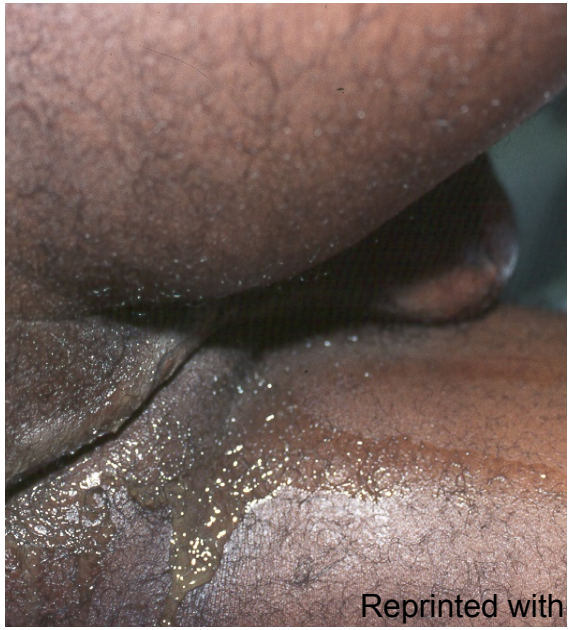
Learning Objectives

1. Evaluate and identify the presence of life-threatening urologic conditions demanding immediate surgical intervention
2. Assess the most common signs and symptoms of male urologic emergencies to provide treatment
3. Differentiate between TURP and radical prostatectomy
4. Understand that patients presenting after radical prostatectomy must never be catheterized by anyone but their urologist

Case 1

53-year-old man with a history of diabetes presents with groin pain. He is febrile, toxic-appearing. Physical examination reveals swollen and extremely tender scrotum, with tenderness and induration that extends into the perineum.





Fournier's Gangrene

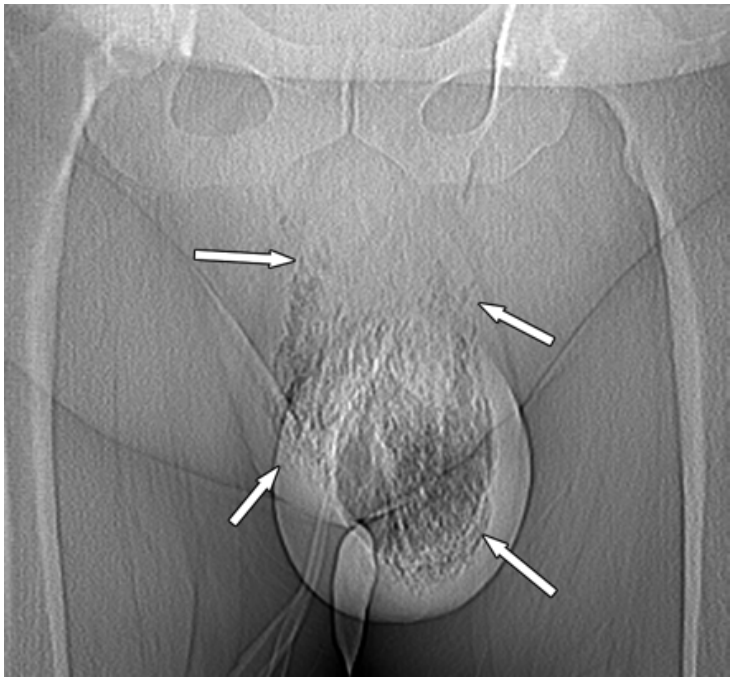
- Rare disease
- Untreated, progresses to sepsis, MOF, death
- Potentially fatal
  - Mortality was 19.5%
- Surgical emergency
  - Early recognition and immediate surgical debridement are crucial
  - Delayed debridement was a significant factor affecting survival

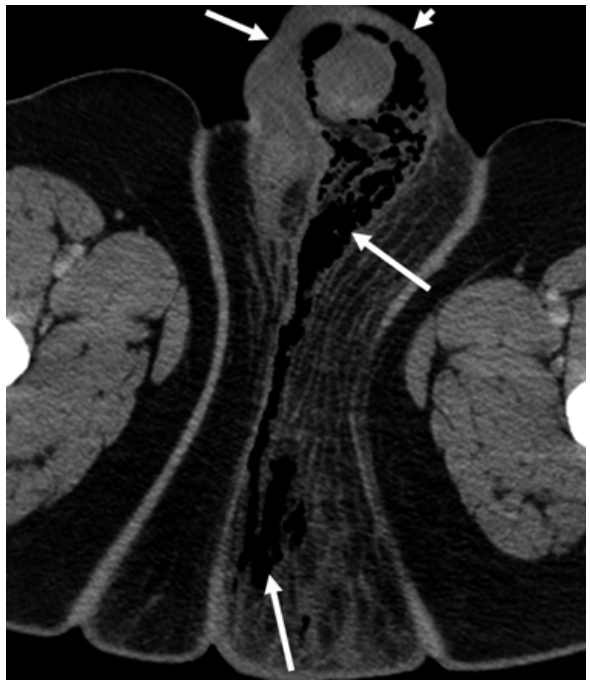
J WOCN. Jan/Feb 2012, 39(1): 98-102

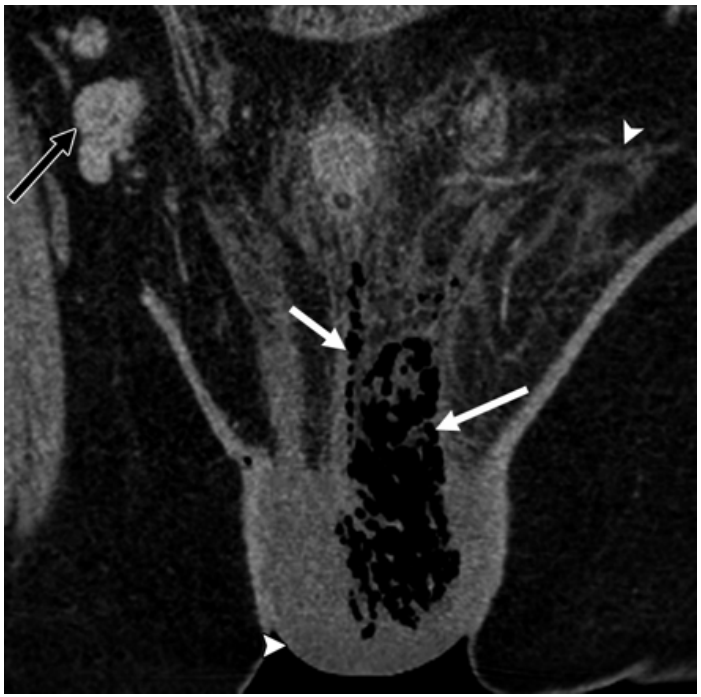
Fournier's Gangrene

- Polymicrobial ***necrotizing fasciitis*** of the perineal, perianal, genital areas, and abdominal wall
- Localized infection adjacent to a portal of entry is the inciting event
  - An obliterative endarteritis develops
  - Ensuing cutaneous and subcutaneous vascular necrosis
  - Localized ischemia and further bacterial proliferation

Ann Plast Surg 2001; 47: 523-527







Fournier's Gangrene

Originates from colorectal and genitourinary diseases

Colorectal tract

- Perirectal abscess
- Perianal abscess
- Perianal fistula
- Hemorrhoidal excision

Genitourinary tract

- Scrotal carbuncle
- Scrotal scratches
- Urethrovagnial fistula

Ann Plast Surg 2001; 47: 523-527

Fournier's Gangrene

- The testicles are rarely involved in the process
  - Blood supply to the testicles is different from that of the penis and scrotum

Ann Plast Surg 2001; 47: 523-527

Fournier's Gangrene

- Common agents are
  - E. Coli (Predominant aerobic)
  - Bacteroides (predominant anaerobic)
  - Proteus
  - Entorococcus
  - Staphylococcus
  - Pseudomonas
  - Klebsiella
  - Clostridium

Fournier's Gangrene

- Male to female ratio 10:1
  - Scrotum and penis in men
  - Vulva in women
- Extremes of age
  - Men in their 5^{th}-7^{th} decade of life
- Higher incidence in men having sex with men

http://emedicine.medscape.com/article/2028899-overview#a0104
Ann Plast Surg 2001; 47: 523-527

Fournier's Gangrene

- Onset is usually insidious
- Initial complaint may be abdominal or scrotal discomfort or general malaise.
- Then, rapid progression…
  - Crepitus (gas-forming organism)
  - Fever (88%)
    - Delayed recognition in the elderly and immunocompromized increases morbidity
  - Pain and swelling over the genital area (85%)
  - Erythematous changes of the involved skin (63%)
  - Purulent discharge (54%)
- Duration of symptoms to surgical debridement
  - 3.9 +/- 2.3 days

Annals of Plastic Surgery 64(6). June 2010: 765-769
The Nurse Practitioner May 2009, 34(5): 37-43

Fournier's Gangrene

- Predisposing factors
  - ***Diabetes Mellitus (predominant – 39-64%)***
  - Obesity
  - Alcoholism
  - Uremia
  - Cirrhosis
  - Malnutrition
  - Immunosuppression (malignancy, HIV, iatrogenic)
  - Local trauma
  - Paraphimosis
  - Circumcision or herniorrhaphy

Fournier's Gangrene

- Factors of prognosis
  - Size of the involved area (extensive area)
  - Full-thickness skin necrosis
  - ***Time*** between appearance of symptoms and surgical debridement
  - ***Diabetes is not a factor of prognosis***

Fournier's Gangrene

- Emergency management
  - Emergent surgical debridement
    - including the need for urgent penectomy, orchiectomy
  - Broad spectrum antibiotics
    - Third generation Cephalosporin plus Metronidazole
    - Penicillin and Gentamicin plus Metronidazole
  - Hyperbaric therapy?
  - Medical stabilization
  - Pain management
  - Nutritional support

Case 2

- 65-year-old man with a history of hypertension presents with inability to urinate for the last 16 hours. He is afebrile, non-toxic appearing, but in a lot of suprapubic discomfort. Physical examination is unremarkable.

Acute Urinary Retention

- Usually presents in men
- 3/1000 in men and 3/100,000 in women
- Middle-aged or elderly men

The Nurse Practitioner May 2009, 34(5): 37-43

Acute Urinary Retention

- Predisposing factors
  - Pre-existing history of LUTS
  - Bladder outlet obstruction (i.e. BPH, urethral stricture)
  - Infection (i.e. prostatitis, urethral herpes)
  - Bladder neck/prostate/urethral malignancies
  - Constipation
  - Post-operative pain
  - Excessive fluid or alcohol intake
  - Neurogenic disorders (i.e. spinal cord injury, MS, Parkinson's)
  - Medications (anticholinergics and opioids)

The Nurse Practitioner May 2009, 34(5): 37-43

Acute Urinary Retention

- Clinical presentations
  - Progression of LUTS
  - Sudden inability to void
  - Vague abdominal discomfort
  - Absence of bowel movements
  - Nausea and vomiting
  - Delirium

The Nurse Practitioner May 2009, 34(5): 37-43

Acute Urinary Retention

- Diagnosis
  - Clinical +/- bladder scan
  - Urinalysis and culture
  - Creatinine

Acute Urinary Retention

Management

Immediate

- Foley catheter
  - Straight tip
  - Coude
- Flushing and irrigation if hematuria with clots

Long-term

- Alpha-blockers
  - Tamsulosin
  - Alfuzosin
  - Terazosin
  - Doxazosin
- 5-alpha-reductase enzyme inhibitor
  - Finasteride
  - Dutasteride
- Surgery

TURP vs. Radical Prostatectomy

Transurethral resection of the prostate

- BPH

Radical Prostatectomy

- Prostate cancer
- Removal of entire prostate, seminal vesicles, and vas deferens

- After radical prostatectomy, patients must ***NEVER*** be catheterized by anyone other than their urologist
  - May disrupt the vesico-urethral anastamosis (early post-op) or
  - contribute to bladder neck contracture if performed traumatically even after the post-op period

- There are no specific recent papers/guidelines on this topic
- Even urologists would almost never insert one blindly in this situation

Advice from a wise friend

- “unfortunately, it's difficult to give a general rule based on "time from OR" as the only factor. Other important factors include the status of the anastamosis (ie. post-op anastamotic leak, bladder neck contracture) which may take varying periods to heal depending on severity or number of interventions required”

Advice from a wise friend

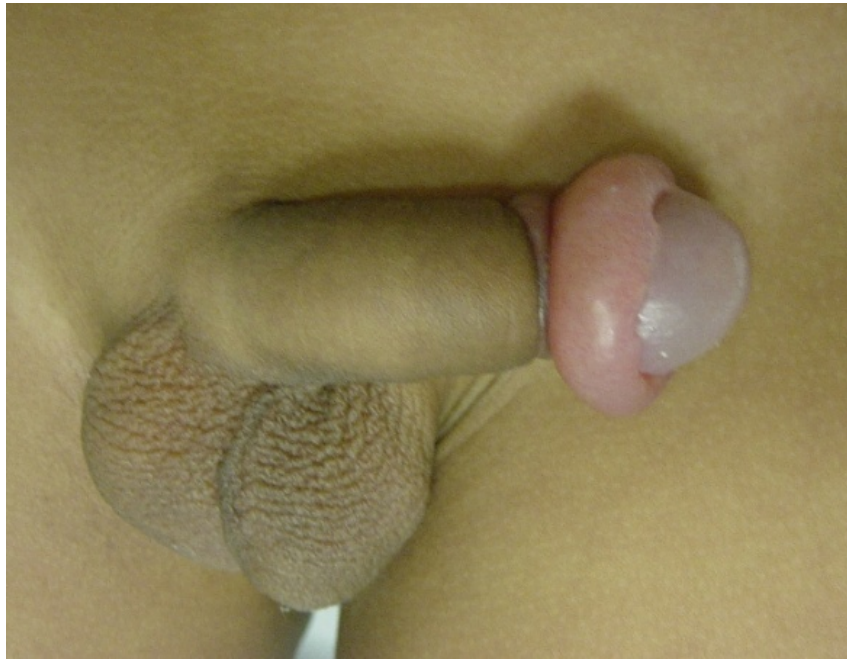
- “Repeated trauma at the level of the vesico-urethral anastamosis will cause stricture/ bladder neck contracture”

Case 3

An 8-year-old boy presents with penile pain.

Is this:

A. Paraphimosis
B. Phimosis



Which of the following treatments is **not** appropriate ED treatment for paraphimosis?

A. Circumcision

B. Dorsal slit

C. Manual compression of the glans

D. Penile block for pain management

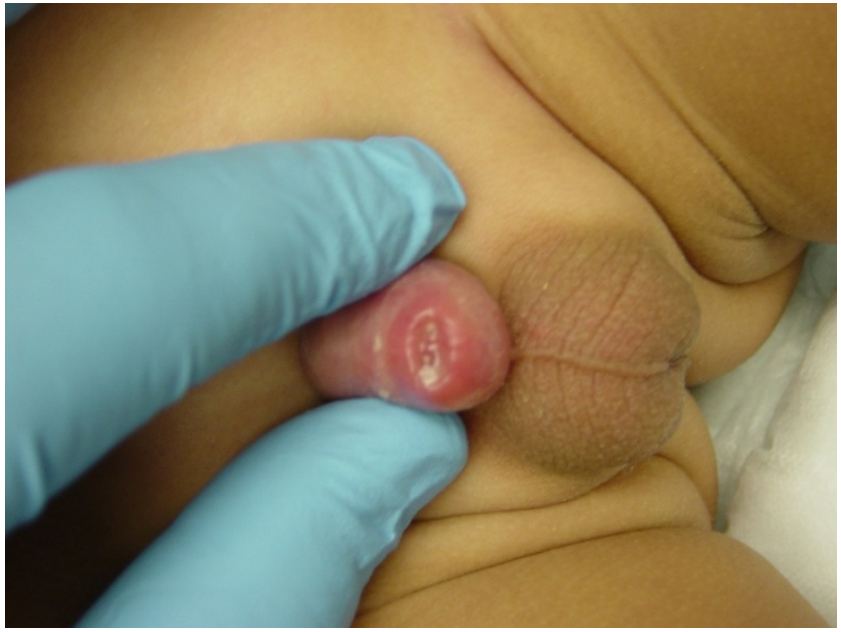
E. Puncturing the glans several times with a small needle

Paraphimosis

- Inability to pull retracted foreskin back over glans
- Emergency
- Vascular compromise
- Treatment
  - Continuous firm pressure to glans for 5-10 minutes
  - Dorsal slit
  - Circumcision

Case 4

A 2-year-old boy is brought in by mother. She is concerned about his penis.

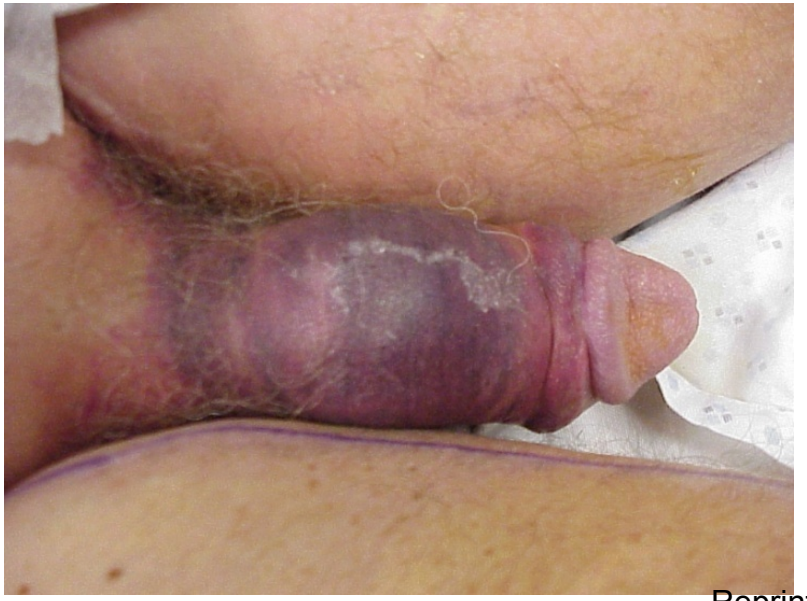


Phimosis

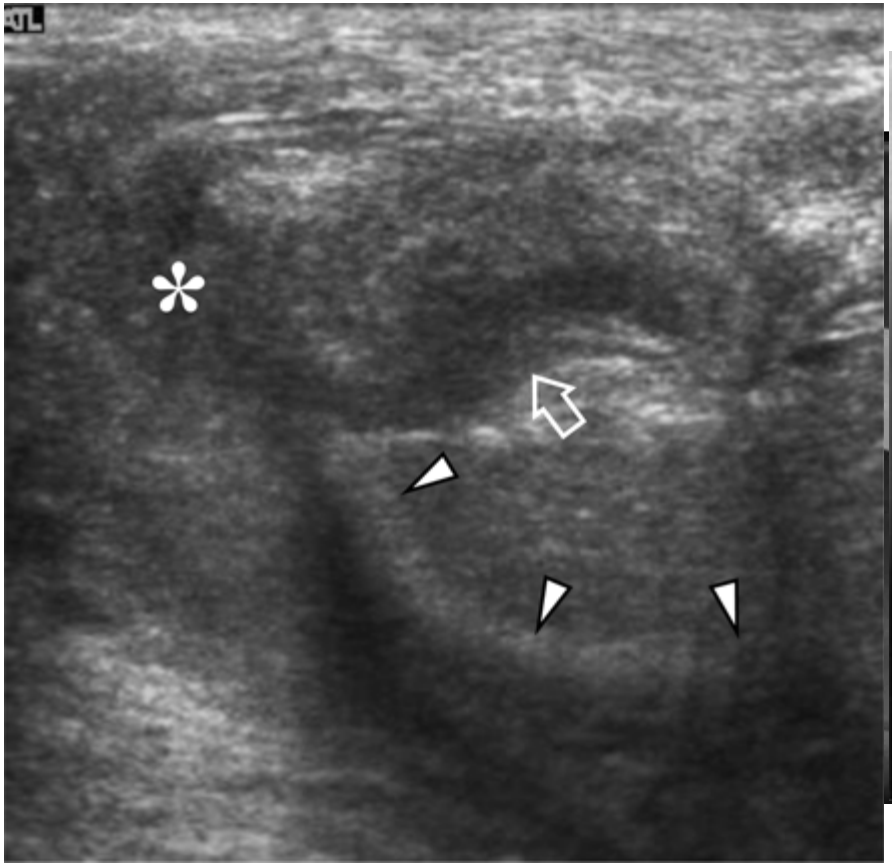
- Inability to retract foreskin behind the glans
- Usually secondary to chronic infection of foreskin with progressive scarring
- Dorsal slit occasionally required
- Definitive therapy = circumcision

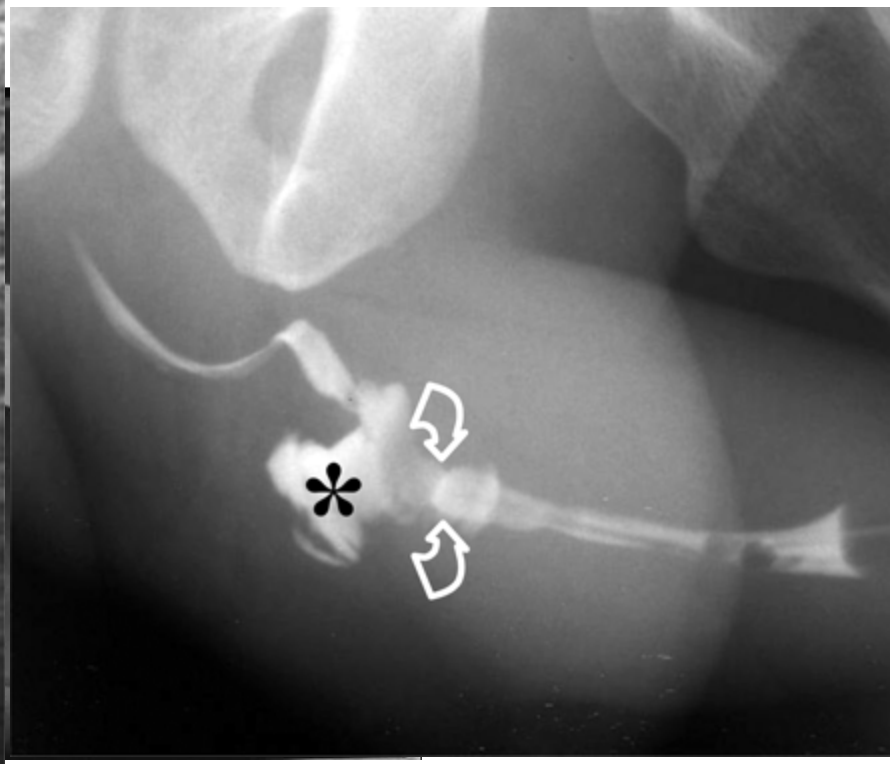
Case 5

26-year-old male presents with sudden severe penile pain. He reports he was having sexual intercourse when the pain began.



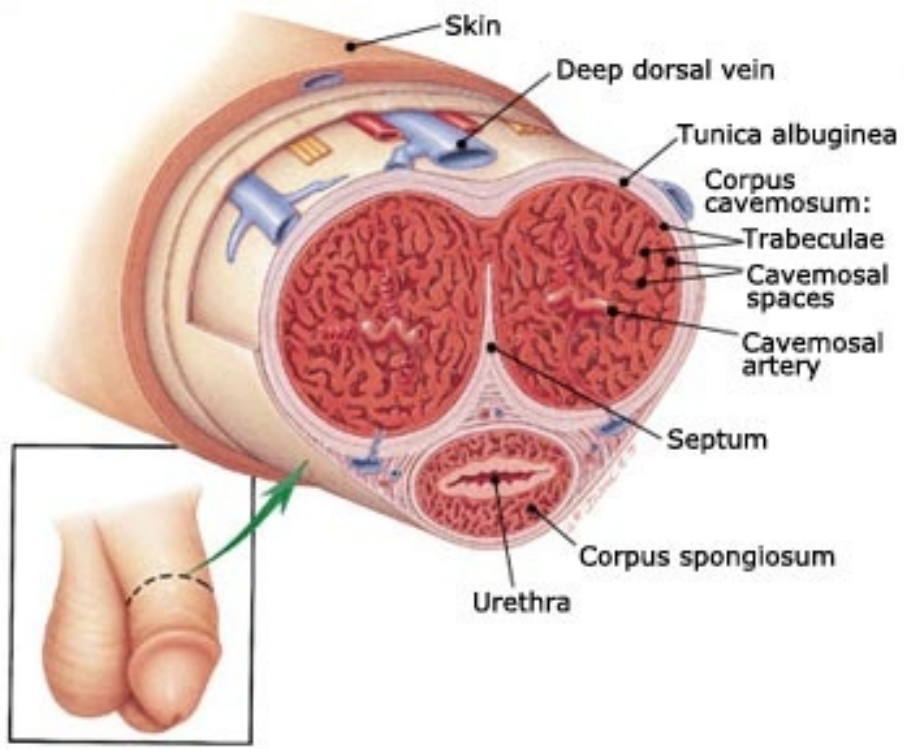
What test should be performed?





Fracture of Penis

- Acute tear of tunica albuginea
- Retrograde urethrogram to r/o associated urethra injury
- Surgical repair



Case 6

A 13-year-old boy is brought in by his parents for the sudden onset of groin pain. On examination, the patient's right testis is swollen, tender, and slightly elevated in the scrotum. Which of the following is NOT an appropriate step in management?

A. Administer pain medication
B. Check for cremasteric reflex
C. Manual detorsion
D. Order an ultrasound
E. Send the patient for urologic evaluation in 24 hours

Testicular Torsion

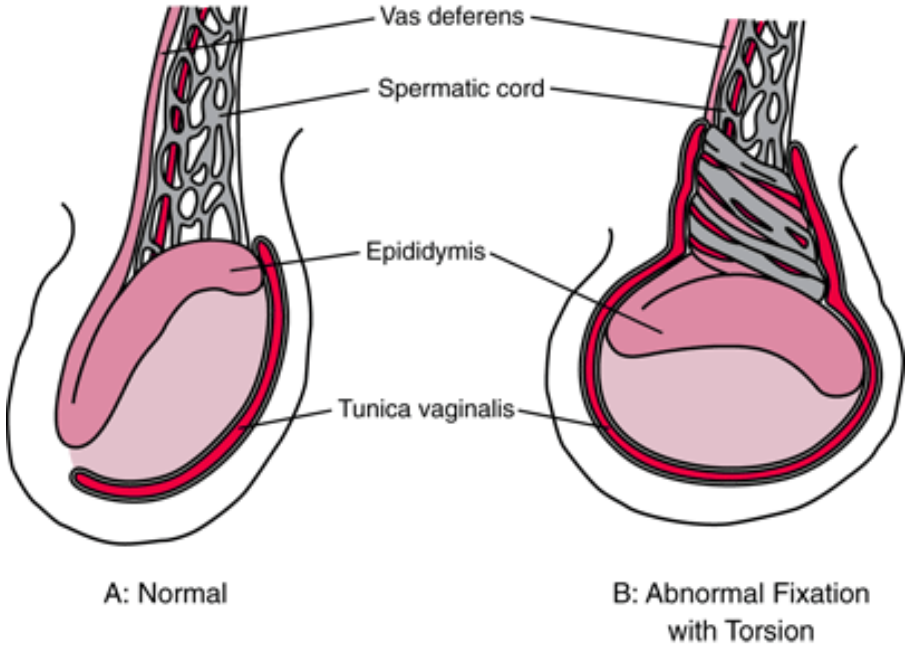
- Bimodal incidence
  - First few days of life
  - Between 12-18 (typically prior to age 21)
- Typical history of
  - strenuous physical activity
  - Blunt trauma
  - History of testicular pain with spontaneous relief

Testicular Torsion

- Manifestations
  - Acute onset of severe unilateral testicular pain or lower abdominal pain
  - Swelling within hours
  - Associated nausea or vomiting
  - ***Clinically difficult to distinguish from epididymytis***

Testicular Torsion

- Exam
  - Swollen, firm, high-riding testicle
  - Transverse lie
  - Loss of cremasteric reflex is associated finding, ***but not diagnostic and not always present***
  - Urinary symptoms typically absent



Testicular Torsion

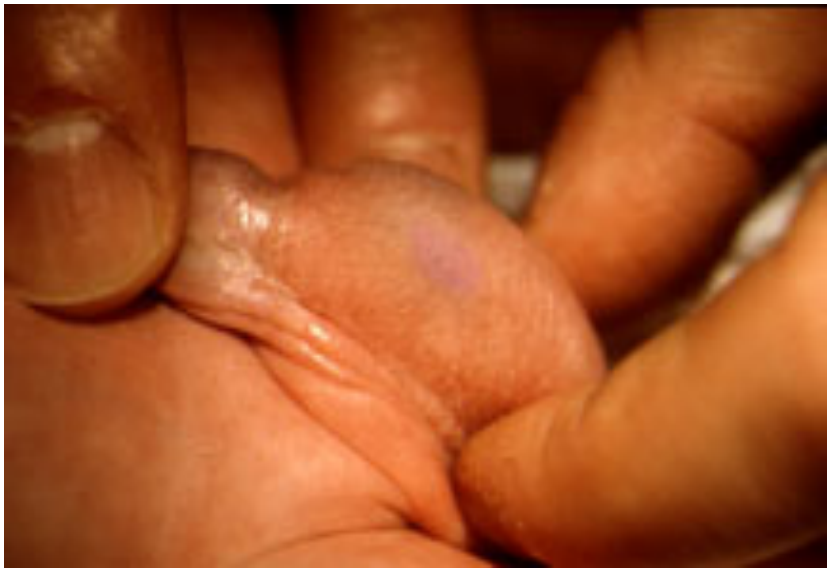
- Investigation
  - Color Doppler ultrasound
- Treatment
  - Manual detorsion (“open book” technique)
  - Surgery (orchidopexy)

Testicular Torsion

- Salvage rate 80-100% up to 6 hrs of ischemia
  - 20% after 10 hours
  - 0% after 24 hours

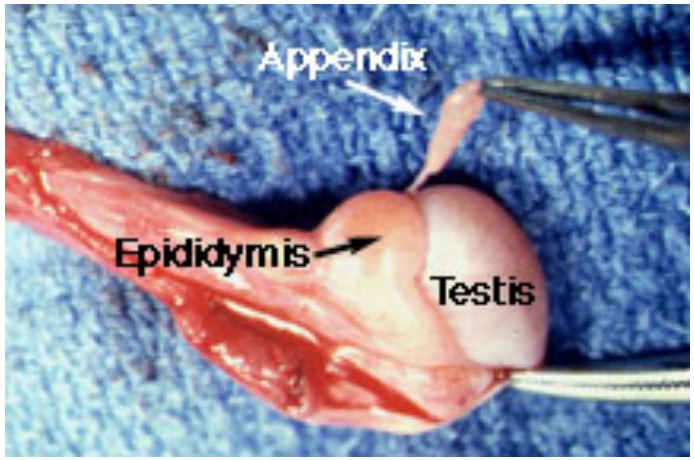
Case 7

6-year-old male presents with scrotal pain.



Torsion of Testicular Appendage

- Pain and tenderness localized to superior pole of the testicle
- Cremasteric reflex usually intact
- Paratesticular nodule at superior aspect of the testicle
  - Blue-dot appearance
    - Pathognomonic for this condition
    - Present in only 21% of cases



ACUTE SCROTUM

- Testicular torsion
- Epididymitis/Orchitis
- Incarcerated inguinal hernia
- Torsion of testicular appendage

Acute lower abdo pain

Always examine the scrotum and testicules

Case 8

A 29-year-old man presents with prolonged erection for the last 4 hours. On examination, the glans penis does not appear to be involved. Which of the following is an appropriate option for treatment?

A. Ice water enema
B. Intracavernous injection of phenylephrine
C. Prostatic massage
D. Subcutaneous epinephrine
E. Sublingual nitroglycerin

Priapism

- Definition:
  - Persistent penile erection (> 4 hours) that continues hours beyond, or is unrelated to, sexual stimulation
  - Typically, only the corpora cavernosa are affected

Compartment Syndrome of the penis!!

J of Urology Oct 2003, 170: 1318-1324

Priapism

- Subtypes
  - Ischemic (and Stuttering – Intermittent)
    - An emergency
    - Veno-occlusive, low flow
    - Abnormal cavernous blood gases
    - No cavernous blood flow
    - Typically corpora cavernosa are rigid and painful
  - Non-ischemic
    - Not an emergency
    - Arterial, high flow
    - Cavernous blood gases are not hypoxic
    - Typically, penis is neither fully rigid or painful
    - Trauma is the most common etiology

J of Urology Oct 2003, 170: 1318-1324

Priapism

- EMERGENCY
  - Irreversible damage between 24-48 hours
- Causes
  - Reversible
    - Sickle cell
    - Intracavernosal injections for erectile dysfunction
    - Leukemic infiltration
  - Irreversible
    - Medications (anti-HTN, anticoagulants, and antidepressants)
    - Illegal substances
    - Idiopathic

Priapism

- High flow
  - Rare
  - Usually painless
  - Long-term sequelae rare
  - Increased arterial flow to corpus cavernosae… increased venous flow…partially rigid, painless penile shaft and hard glans
  - Causes
    - Groin or straddle injury
    - High spinal cord injury

Priapism Treatment

General measures

- Urologic consultation
- Pain control, O2, hydration
- Treatment of the underlying cause
  - Sickle cell (transfusion, hydration, oxygen)

Intracavernous measures

- Penile block
- Aspiration with irrigation
- Intracavernous injection of sympatomimetics

J of Urology Oct 2003, 170: 1318-1324

Priapism Treatment

Intracavernous measures

Aspiration with irrigation

- 19 or 21 gauge needle into the corpus cavernsum

Sympatomimetics

- Epinephrine
- Norepinephrine
- Phenylephrine
- Ephedrine
- Metaraminol
- Significant cardiovascular side effects (alpha and beta adrenergic effects)
  - Monitor of adverse effects (HTN, tachy/brady, dysrhythmia, headache, palpitations)

J of Urology Oct 2003, 170: 1318-1324

Phenylephrine

- Alpha-selective adrenergic agonist
  - No indirect neuro-transmitter-releasing action
  - Minimizes potential cardiovascular effects
- Phenylephrine 100-500umol/ml
  - Inject 1ml q3-5min for 1 hour

J of Urology Oct 2003, 170: 1318-1324

Surgical shunts

- To be considered once sympathomimetic injections have failed
  - Cavernoglanular shunt should be the first choice of the shunting procedure

J of Urology Oct 2003, 170: 1318-1324

No evidence to support

- Oral Terbutaline
- Oral sympathomimetics
  - Ephedrine

J of Urology Oct 2003, 170: 1318-1324

Priapism Treatment

- Non-ischemic
  - Observation
  - Ice packs

J of Urology Oct 2003, 170: 1318-1324

Case 9

25-year-old male presents with unilateral testicular pain and swelling. Pain came on gradually. On exam, posterior aspect of the testicle is most tender and elevation of testicle relieves the pain. Cremasteric reflex is intact. What is the most likely diagnosis?

Epididymitis

- Bacterial infection
- Gradual onset of unilateral pain and swelling
- Associated fever and dysuria
- Tender, swollen epididymis (posterior) with associated hydrocele
- Prehn's sign = elevation of testicle relieves pain
  - ***Unreliable***

Epididymitis

- Consider ***Testicular torsion*** in all cases of suspected Epididymitis
  - Pain is sudden
  - Pain is severe
  - No associated signs of infection (i.e. urethritis or UTI)

Epididymitis

- In most cases, the testis is also involved – Epididymo-orchitis

Epididymitis

- <35
  - *C. Trachomatis*
  - *N. Gonorrhea*
  - *E. coli* and *Pseudomonas (men having sex with men)*
- >35
  - *E. coli* and *Pseudomonas*

Epididymitis

Treatment

Non-enteric organisms

- Ceftriaxone 250mg IM single dose

  or

- Cefixime 400mg orally single dose

  or

- Azithromycin 2g orally single dose

  Plus

- Doxycycline 100mg bid for 10 days

Enteric organisms

- Levofloxacin 500mg od for 10 days

  or

- Ofloxacin 300mg bid for 10 days

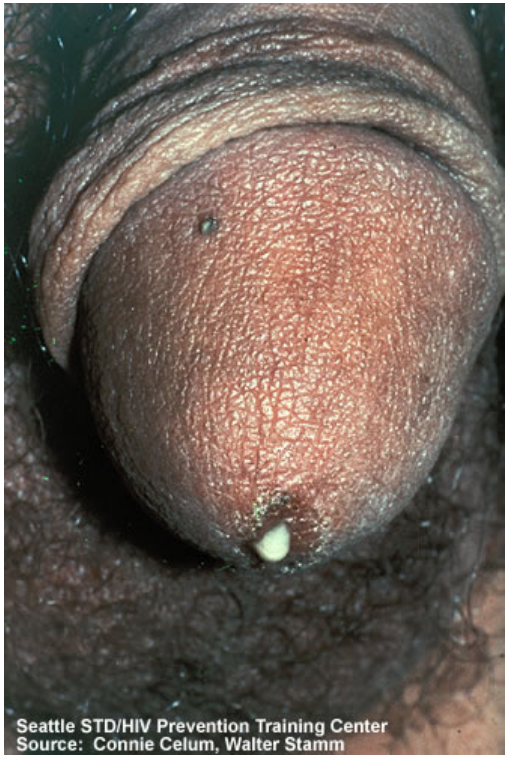
CDC 2010 STD Guidelines

Epididymitis

- Treatment of partners
  - All suspected or confirmed cases of C. Trachomatis or N. Gonorrhea

Case 10

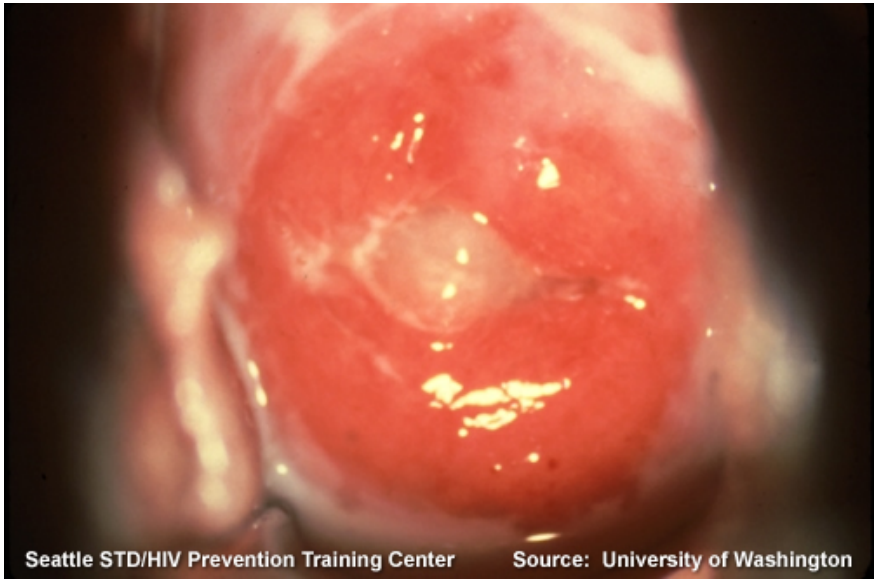
20-year-old college student presents with penile drainage and pain with urination.



Urethritis

- N. Gonorrhea
  - Urethritis
  - Vaginitis,
  - Proctitis
  - pharyngitis
  - Ponjunctivitis
  - Arthritis
  - Endocarditis
  - Sepsis
  - Meningitis
- ***Concurrent chlamydial infection***

Cervicitis



- Most common STI
- Most common cause of PID in college students
- Urethritis, epididymitis, cervicitis, conjunctivitis, pneumonia

Urethritis/Cervicitis

Treatment

Gonorrhea

- Ceftriaxone 250mg IM single dose

  or

- Cefixime 400mg orally single dose

  or

- Azithromycin 2g orally single dose

Chlamydia

- Azithromycin 1g orally single dose

  or

- Doxycycline 100mg bid for 7 days

  or

- Erythromycin base 500mg qid for 7 days

  or

- Levofloxacin 500mg od for 7 days

  or

- Ofloxacin 300mg bid for 7 days

CDC 2010 STD Guidelines
Update of Aug 2012

Urethritis/Cervicitis

Treatment

Gonorrhea

- Ceftriaxone 250mg IM single dose

  or

- Cefixime 400mg orally single dose

  or

- Azithromycin 2g orally single dose

Chlamydia during pregnancy

- Azithromycin 1g orally single dose

  or

- Amoxicillin 500mg bid for 7 days

  or

- Erythromycin base 500mg qid for 7 days

  or

- Erythromycin base 250mg bid for 14 days

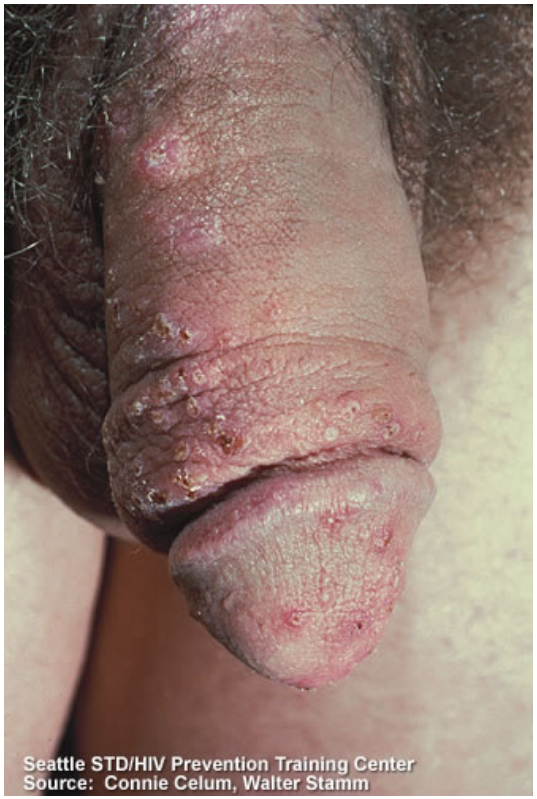
  or

- Erythromycin ethylsuccinate 800mg qid for 7 days

CDC 2010 STD Guidelines

Case 11

28-year-old male presents with these painful lesions.



Genital Herpes

- HSV Type II (occasionally Type I)
- Incubation 8-16 days
- Females: cervix, vulva
- Males: glans, foreskin

CDC 2010 STD Guidelines

Genital Herpes

Acyclovir

- Acyclovir 400mg tid for 7-10 days

  or

- Acyclovir 200mg five time per day for 7-10 days

Others

- Famciclovir 250mg tid for 7-10 days

  or

- Valacyclovir 500mg 2 tabs bid for 7-10 days

CDC 2010 STD Guidelines

Genital Herpes

- Indications for admission
  - Severe genital infections
  - Immunocompromised or disseminated
  - Cannot tolerate or unresponsive to oral therapy
  - Neonatal herpes

Summary

- Look for surgical and/or life-threatening etiology for pelvic pain
- In the acute scrotal pain, Testicular torsion until proven otherwise
- In lower abdo pain in males, the physical exam is not complete without the scrotal and testicular exams

Summary

- In the post-radical prostatectomy, ***NEVER*** blindly insert a foley catheter
- Call the specialist early to help manage the patient
- Beware of new STI guideline changes

Questions?

THANK YOU

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