Objectives

- Identify basic urologic anatomy
- Identify evidence based, cost effective diagnostic work-up of hematuria and when to refer to urology specialty.
- Understand BPH. Will learn appropriate evidence based-cost effective diagnostic work-up, screening, and treatment.
- Identify common male urology complaints in primary care. Understand the evaluation, diagnosis, and management of prostatitis, orchitis, hydrocele, varicocele, torsion, testicular masses.

Hematuria

**Gross hematuria**
- Episode of grossly visible blood in the urine
- 2-3% chance of malignancy

**Microscopic hematuria**
- What is found on MICROSCOPIC UA
  - Positive heme on dipstick is not sufficient to diagnose microhematuria
- 3-5% chance of malignancy
Risk Factors

- Age over 35
- ANY patient with GROSS hematuria
- Smoker
- Male
- Environmental exposure

Hematuria

Pee Pee ON THIS with 4 T's

- P Period
- P Prostate
- O Obstructive uropathy
- N Nephritis
- T Trauma
- T Tumor
- T Tuberculosis
- T Thrombosis (renal vein thrombosis)
- H Hematologic (anticoagulation*, bleeding disorders, sickle cell)
- I Infection
- S Stone

Hematuria

- Microscopic urinalysis
  - Positive heme on dipstick is not sufficient to diagnose microhемaturia
- Urine culture
  - Treat infection with CULTURE SPECIFIC antibiotic
- CT urogram (CT abdomen and pelvic WITH contrast)
- Urology referral
  - Will need cystoscopy and urine cytology
Anatomy

BPH
- Benign prostatic hyperplasia
- Affects 50% of men between the ages of 51 and 60 and up to 90% of men over the age of 80
- Increase in the amount of prostate stroma
- Increase in the number of α-1 receptors in the stroma

Male Anatomy
Anatomy of BPH

BPH
- H&P
- UA, culture?
- Voiding diary
- IPSS
  - Meaningful use

How Do We Treat?
- Treat the patient
- Decrease bladder irritants - 1st line treatment
  - Coffee, tea, any caffeine, energy drinks, sodas, anything with dark dyes, spicy foods, alcohol
- Avoid constipation
- Medications
- Minimally Invasive Therapy
- TURP
α-Blockers
- Inhibits α-1 adrenergic receptors. Causes relaxation of smooth muscle in the prostate, bladder neck, seminal vesicles, and vas deferens
- Terazosin (Hytrin), doxazosin (Cardura), alfuzosin (Uroxatral)
  - Non-selective α-1 receptor blockers
- Tamsulosin (Flomax), silodosin (Rapaflo)
  - Higher affinity for α-1A
- Side effects: Dizziness, runny/stuffy nose, retrograde ejaculation, hypotension

5α-Reductase Inhibitors
- 5α-reductase converts testosterone to dihydrotestosterone (DHT).
- Reduces prostate volume
- Increases urine flow
- Decreases PSA by 50%** (remember to double PSA value for patients on these medications)
- Decrease hematuria from the prostate
- Finasteride (Proscar), Dutasteride (Advodart)
- Can take 6-12 months for symptoms improvement
  - Not first line treatment
- Side effects: Impotence, decreased libido, decreased volume of ejaculate

Male Reproductive System
Physical Exam

- Inspection of the scrotum
- Pubic hair distribution
- Scrotal skin lesions
- Symmetry
- Palpation
  - Thumb and first two fingers of both hands
  - Easily movable in a sliding/gliding fashion
- Testes
  - Smooth, equal, firm but rubbery, round-ovoid, 4-5cm L x 2-4cm W x 3cm anteroposteriorly

Prostatitis

- Infection of the prostate gland
- Almost always occurs via the urethra. Bacteria migrates from the urethra or bladder through the prostatic ducts, with intraprostatic reflux of urine
- E. Coli, Proteus species, other Enterobacteriaceae (Klebsiella, Enterobacter, and Serratia species), Pseudomonas aeruginosa
- Acute or chronic

Clinical Presentation

- Acutely ill, with spiking fever, chills, malaise, myalgia
- Dysuria
- Irritative urinary symptoms: frequency, urgency, urge incontinence, dribbling, hesitancy, urinary retention
- Pelvic or perineal pain
  - Feel like they are sitting on something
  - Pain at the tip of the penis
  - On exam, the prostate is often firm, edematous, and exquisitely tender
- Elevated PSA
- Chronic prostatitis
**Diagnostics**
- H&P
- DRE
- UACS
- PSA?
- Blood cultures?

**Management**
- Bactrim DS, Cipro 500mg or Levaquin 500mg
  - Achieve high levels in prostatic tissue
- Culture specific antibiotics
- Younger than 35:
  - Single-dose ceftriaxone IM, 250mg
  - Doxycycline 100mg BID x10 days OR azithromycin 1 gram
- If insertive anal:
  - Single-dose ceftriaxone IM, 250mg
  - Levofloxacin 500mg x10 days OR ofloxacin 300mg BID x10 days
- NSAIDs
- Chronic: at least 6 weeks of antibiotics
  - Yogurt daily, probiotics

**Epididymitis**
- Inflammation, acute or chronic
- Causes: bacterial, viral, parasitic, trauma
- Chlamydia, gonorrhoeae, e.coli, haemophilus influenza, tuberculoide, cryptococcii
Clinical Presentation

- Most common between ages 14-35
- Low-grade fever, chills, red-enlarged, tender scrotum
- Sudden onset of severe pain
  - Unilateral
  - Prehn’s sign
- Blood in semen (hematospermia), penile discharge, suprapubic pain, groin pain, pain with intercourse and/or ejaculation
- Dysuria, flank pain, testicular pain

Clinical Presentation

Additional Exam findings
- Early: firmness isolated to epididymis
- Spermatic cord tender
- Intact cremaster reflex
- Late: Epididymo-orchitis
  - Inflammation is contiguous with testicle
- Reactive hydrocele

Differential Diagnosis
- Tumor
- Cyst
- Torsion
- Hernia
- Hematoma
- Spermatocoele
- Hematocele
- Hydrocele
- Varicocele

Diagnostics

- H&P
- UAC&S
- STI testing
- Ultrasound
  - Rule out torsion
Treatment

**Under 35 years**
- Single dose ceftriaxone IM 250mg
- Doxycycline 100mg BID x10 days OR azithromycin 1 gram
- If insertive anal:
  - Single dose ceftriaxone IM, 250mg
  - Levofloxacin 500mg x10 days OR ofloxacin 100mg BID x10 days

**Older than 35 years**
- Levofloxacin 500mg x10 days OR ofloxacin 300mg BID x10 days

Treatment

- Scrotal elevation
- Tighty whities
- Compression underwear
- Jack strap
- NSAIDs:
  - Ibuprofen 600mg TID x3-5 days
  - Toradol?
- NO sex for 10 days
- Wear condoms!
- If traumatic injury refer to urology

Orchitis

- Infection of one or both testicles
- May occur with prostatitis or epididymitis
- Systemic viral infections
  - Mumps, mumps
  - Coxsackie
- STI
- Mumps orchitis
Clinical Presentation

- Swollen, tender testis with swelling of the epididymitis
- Tender thickened spermatic cord
- Erythema of scrotum
- Reactive hydrocele
- Systemic symptoms: fevers, chills, fatigue, dysuria, flank pain, testicular pain, groin pain, pain intercourse/ejaculation

Clinical Presentation

Additional Exam Findings
- Prostate bogginess
- Testicular atrophy
- Unilateral or bilateral erythema and edema
- Epididymo-orchitis

Differential Diagnosis
- Tumor
- Cyst
- Torsion
- Hernia
- Hematoma
- Spermatoccele
- Hematocele
- Hydrocele
- Varicocele

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Hydrocele

- Accumulation of fluid within the tunica vaginalis surrounding the testicle
- Common cause of painless scrotal swelling in adults
- Result of trauma, hernia, tumor or torsion, infection such as epididymitis
- Can be communicating (peritoneal fluids or noncommunicating/acquired
Clinical Presentation

- Usually painless
- May be present for long periods, partially resolve, and can reoccur
- Gradual enlargement of scrotum with edema
- Discomfort develops due to added weight
- Transilluminates

Treatment

- Pediatric patient
- Usually resolve within the first year of life
- Scrotal support and NSAIDs
- Watchful waiting
- Symptomatic hydrocele can be treated surgically
  - Hydrocelectomy
  - Aspiration – often reoccurs

Varicocele

- Abnormal dilatation of the pampiniform plexus and spermatic veins
- Due to anatomical variations
  - The left gonadal vein is one of the longest veins in the body
  - Enters the left renal vein at a perpendicular angle
  - Pressure in the left gonadal vein causes dilatation and incompetence of the valve leaflets, leading to dilation of the scrotal venous complex
- Can lead to infertility
- Right sided varicocele is RARE
- May cause infertility even if SVR (source to reservoir) is normal
- Renal Cell Carcinoma
- Alive
Clinical Presentation

- Minimal left-sided scrotal fullness on Valsalva maneuver to a large, soft, left-sided scrotal mass ("bag of worms") that decompresses and disappears in the supine position.
- Dull, aching, usually left-sided scrotal pain, typically noticeable when standing
- Decreased fertility

Diagnostics

- H&P
- Ultrasound
- Right sided: CT abdomen pelvis
  - Send to urology ASAP
- Semen analysis
- ILACS
- STI testing
  - Rule out other causes of infertility
- Diagnosed on a grading system
  - Grade I: Small, palpable only with Valsalva maneuver
  - Grade II: Moderate, nonvisible on inspection but palpable upon standing
  - Grade III: Large, visible on inspection

Treatment

- Often does not require treatment
- Surgical repair only indicated for fertility issues
- Scrotal support
- NSAIDs
Hematocele

- Collection of fluid in the tunica vaginalis of the testes
- Collection of blood precipitated by trauma
  - Venous blood and edema
  - Burns, blunt trauma, sports injuries
- Worry about torsion!

Clinical Presentation

- Painful scrotum and painful to palpation
- Does NOT transilluminate
- Pain
- Bruising
- Edema
- Bleeding
- Nausea and vomiting
- Syncope
- Loss of normal testicular shape

Diagnostics

- H&P
- STAT ultrasound
- U/A
Treatment

- If testicular rupture or torsion immediate ER referral or STAT call to urology
- If scrotal contents intact
  - Ice
  - Elevation
  - Scrotal support
  - Bed rest

Testicular Torsion

- Obstruction of blood flow to the testes because of twisting
- 12-18 years old
- Most often unilateral
  - Left
- Extravaginally
  - Twisting of spermatic cord, testis, and process vaginalis
  - Rare
- Intravaginally
  - Failure of testes to adhere to the scrotal wall

Clinical Presentation

- Acute onset of moderate to severe testicular pain
- Profound diffuse tenderness and swelling
- Negative cremasteric reflex on physical examination.
- Symptoms often occur several hours after vigorous physical activity or minor trauma to the testicles
- Nausea and vomiting
- Children awakening at night or in the morning in pain
- Testis in transverse lie
- Small area of cyanosis
  - Blue dot sign
Clinical Presentation

Management

- STAT ultrasound
- STAT urology call
- Prevent ischemia and restore blood flow
- Salvage rates
  - > 90% within 6 hours
  - >50% within 12 hours
  - <10% in 24 hours

Testicular Mass

Tumor
- 20-39 years old
- Caucasian > African American
- Solid, firm
- With the body of the testicle
- Painful presentation OR Painless

Epididymal Cyst
- Benign
- Painless
- Sperm-filled cyst
- Arise throughout epididymis
- Moveable, firm
- Distinct borders
Management

**Tumor**
- Ultrasound
- Prompt referral to urology

**Epididymal Cyst**
- Ultrasound
- Often no treatment
- Scrotal support
- If significant discomfort or increasing size
- Excision of mass

Questions

- For questions and references:
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