Men’s Health Exam Notes

Male Genitourinary Anatomy

☐ Abdominal Wall
-Superficial to deep:
  1.) Camper’s fascia
   -extends to cover scrotum and penis and anchors to the inguinal ligament
   -possible route for spread of infection
  2.) Scarpa’s fascia
  3.) external oblique muscle
   -makes up exit to inguinal canal (superficial inguinal ring)
  4.) internal oblique muscle
  5.) transverse abdominal muscle
  6.) transversalis fascia
   -makes up entrance to inguinal canal (deep inguinal ring)
  7.) parietal peritoneum

☐ Inguinal Canal
-Formed as the testes descend into the scrotum
  -drags along layers of external oblique aponeurosis (external spermatic fascia), internal oblique (aka cremaster muscle), and transversalis fascia (aka spermatic fascia)
  -does not bring along layer of transverse abdominal muscle!
-Upper opening to processes vaginalis should be pinched off and obliterated
-Spermatic cord travels through it

☐ Hernias
• Direct inguinal hernias: plowing “directly” through weak tissue
  -less common
  -mechanism: increased intra-abdominal pressure (coughing, constipation, urinary retention, ascites), weakening of tissue due to age or smoking
  -results in a bulge medial to inferior epigastric vessels
  -can protrude all the way down through superficial inguinal ring, but rarely enters the scrotum
• Indirect inguinal hernias: slipping through an abnormally open inguinal canal
  -more common
  -mechanism: a result of a patent processus vaginalis
    -common in kids
  -results in a bulge lateral to the inferior epigastric vessels
  -may protrude all the way into the scrotum
• Femoral hernia: occurs via the femoral canal and will appear as a bulge BELOW the inguinal ligament

☐ Testes
-Function: testosterone secretion (via Leydig cells), spermatogenesis
-Covered in tunica albuginea to keep the seminiferous tubules together
  -connect to epididymis
  -pathological accumulation of fluid in the epididymis is called a spermatocele
-Partly covered in tunica vaginalis (remnant of processus vaginalis)
  -may be attached to a variably present appendix testis (a remnant of the Mullerian duct)
  -can become torsioned
    -visible in babies as a blue dot on the back of the testis
- Connected to urethra via the vas deferens
  - vas deferens is what is cut during vasectomy
- Failure to descend is called cryptorchidism
  - usually unilateral
  - more common in preemies
  - will usually self-resolve but can be fixed surgically or hormonally
- Pathological accumulation of fluid in the testis is called hydrocele

**Scrotum**
- Divided into right and left compartments by the median septum
- Asymmetry is common, with left lower than the right
- Houses spermatic cord and testes
  - spermatic cord is made of layers from the anterior abdominal wall
  - contains the testicular artery (from renal artery), vas deferens, and lymphatics and nerves to the testes
  - wrapped by the pampiniform plexus of veins, which serves to cool arterial blood
  - pathological dilation of the veins of the spermatic cord is known as varicocele
- Scrotal disorders:
  - epidermal (sebaceous cysts)
  - elephantiasis: from filarial worms

**Prostate**
- Separated into central, transitional, and peripheral zones of cells
  - most cancers originate in the peripheral zone
  - central zone surrounds ejaculatory ducts

**Penis**
- Corpus spongiosum contains the urethra and makes up the glans penis
- Corpora cavernosa
- Meatal abnormalities:
  - hypospadias: opening of urethra on underside of penis
  - epispadias: opening of urethra on top of penis
  - megameatus: enlarged meatus
- Prepuce (foreskin):
  - inner surface of foreskin is a mucus membrane that secretes smegma
  - attaches to glans via the frenulum
  - normally fused to glans until retraction ~ 10 years
- Abnormalities:
  - phimosis: nonretraction
  - paraphimosis: when foreskin becomes trapped behind the glans and can’t be pulled back over
    - necrosis risk
  - balanoposthitis: inflammation of the foreskin
- Shaft abnormalities:
  - Peyronie's disease: buildup of fibrous plaques in fascial layers leads to a curved penis
  - chordee: tightening of fascia on underside of penis makes it curl downward
- Erection:
  - arterial supply for erection comes from the dorsal artery, deep artery, and artery of the bulb of the penis
  - venous drainage via deep dorsal vein
  - erection is a parasympathetic response
    - increased arterial flow with decreased venous drainage
  - ejaculation is a sympathetic response
    - contraction of internal urethral sphincter prevents semen backflow
Seminal Pathway
1.) Testes
2.) Epididymis
3.) Vas deferens
4.) Ampulla of vas deferens
5.) Ejaculatory ducts
   -contribution from seminal vesicles (make up 60% of ejaculate)
6.) Prostatic urethra
   -contribution from prostate glands
7.) Cowper’s glands: only contribute pre-ejaculate prior to ejaculation to neutralize any remaining urine in urethra
7.) Penile urethra

H&P of Male Genitalia, Hernias, Lymphatics, Anus, Rectum, and Prostate

History
-Remember to ask:
  -sexual orientation
  -gender identity
  -relationship status
  -sexual activity
  -sexual response & function
  -penile discharge or lesions
  -scrotal pain, swelling, or lesions
  -h/o STIs
  -urological ROS
-Screen for substance abuse, prostate, testicular, penile, and colorectal cancers
-Counsel on:
  -nutritional
  -exercise
  -sleep
  -safety and injury prevention: prevention of STIs and HIV, contraception, testicular self-exam
  -mental health
  -young adult: risk-taking behaviors, body image
  -mid-life adult: occupation, relationships, stress
  -geriatric: retirement transition

Physical Exam
A.) Penis
   -can be supine or standing
   -inspect: skin, prepuce, glans, urethral meatus, shaft, base
     -document: skin, discoloration, circumcision, prepuce retraction or replacement, urethral position, urethral discharge
   -palpate: glans, any abnormal areas
     -document: induration or tenderness
B.) Scrotum
   -can be supine or standing
   -inspect: skin contours
     -document: skin, discoloration, contours, degree of testicular descent
     -transilluminate swollen areas
   -palpate: testis, epididymis, spermatic cord
     -document: size, shape, consistency, tenderness
C.) Hernias
   -first standing, then supine
-inspect: inguinal regions, genitalia
  -document: bulging, asymmetry, changes with straining, changes with supine position
-palpate:
  -inguinal canal: deep ring and internal ring (1 cm above midpoint of inguinal ligament)
  -femoral canal
  -document: bulging, asymmetry, changes with straining, changes with supine position

D.) Inguinal lymphatics
  -do while patient is standing
  -inspect for lymphadenopathy
  -palpate: horizontal and vertical groups of the superficial inguinal nodes
    -horizontal groups drain lower abdomen, buttock, external genitalia (except tests), anal canal, perianal area
    -vertical groups drain portions of lower extremity

E.) Cremasteric reflex
  -evaluates genitofemoral nerve (L1-L2)
  -normal: ipsilateral contraction of the cremasteric muscle → elevation of scrotum and testes
  -abnormal: absent reflex
    -may indicate testicular torsion, L1-L2 cord injury, upper or LMN injury, or epididymitis

F.) Anus
  -upright/bent over or left lateral decubitus
  -inspect: perianal and sacrococcygeal areas
    -document: lumps, ulcers, inflammation, rashes, excoriations
  -palpate: abnormal areas
    -document: lumps or tenderness

G.) Rectum
  -upright/bent over or left lateral decubitus
  -“windshield wiper” over the prostate and palpate each half
    -document: consistency, tenderness, induration, nodules
  -have patient bear down as you exit to check sphincter tone
  -any tenderness → stop palpation, inspect anal canal while patient is straining
    -document: sphincter tone, tenderness, induration, nodules, fissures

Miscellaneous Male Diagnostic Methods

-Remember that reference ranges vary between men and women
  -men have higher Hb
  -men have higher uric acid

1.) Testosterone
  -to evaluate hypogonadism, delayed or precocious puberty
  -to monitor testosterone replacement therapy, antiandrogen therapy
  -evaluation of infants with ambiguous genitalia

2.) Semen analysis
  -male partner contributes to ~40% of cases of infertility
  -need to refrain from sex for 2-5 days
  -results give appearance, liquefaction, pH, motility, concentration of sperm, morphology

3.) LH
  -elevated in testicular dysfunction, primary testicular failure, CNS dysfunction, precocious puberty, postviral orchitis
  -decreased in testicular tumors, secondary testicular failure, hypopituitarism

4.) FSH
  -pulsatile secretion
  -elevated in primary gonadal failure, testicular agenesis, alcoholism, gonadotropin-secreting tumors
-decreased in anterior pituitary hypofunction, hypothalamic disorders

5.) Antispermatozoal antibody

6.) Seminal plasma fructose
   -evaluation of azoosperma
   -absence implies obstruction or nonpresence of ejaculatory ducts

Topics In Men’s Health

- Erectile Dysfunction: the consistent or recurrent ability of a man to attain/maintain an erection sufficient for sexual performance
  -Mainly neurovascular cause, but with contribution factors
    -could be inhibited production of cGMP → no stimulation of parasympathetic sexual response
    -vascular endothelial dysfunction: HTN, dyslipidemia, smoking, hyperglycemia
    -cavernosal issues: significant penis curvature
    -neuro: diabetic neuropathy, MS
    -endocrine: low testosterone (from high prolactin or other causes)
    -psychological factors: excessive sympathetic input
  -Affects 22% of US men ages 20-75
  -Associated with age
    -however, it is normal for men to slowly decrease in hardness of erection and to have longer refractory periods between orgasm as they age
  -Likely an early marker of vascular disease
    -men with ED more likely to have CV event than men without ED
    -study showed 19% of ED men have silent, asymptomatic CAD
    -ED precedes onset of angina by 2-3 years and adverse CV events by 3-5 years
  -Investigation:
    -history:
      -circumstance surrounding ED
      -ask about libido
      -problem with getting an erection vs maintaining it
      -does patient have normal morning erections, any problems with masturbation
      -premature ejaculation
      -contributing comorbidities: CV disease, diabetes, depression, alcohol, smoking
      -surg history: pelvic, radiation, trauma
      -contributing prescription drugs, recreational drugs, or herbals
        -antihypertensives: thiazides, beta blockers
        -antidepressants
        -hormones: antiandrogens, anabolic steroids
    -PE:
      -BP
      -testicular exam
      -penis exam
      -vascular & neuro exam: peripheral pulses
      -prostate: can be done but rarely plays into ED
    -labs:
      -early morning testosterone with free testosterone
      -lipids
      -fasting blood glucose
      -if nipple discharge → prolactin
  -Treatment:
    -treat organic comorbidities
    -treat psychosexual dysfunctions
    -counseling:
      -good book: The New Male Sexuality
    -medications and devices:
• **phosphodiesterase type 5 inhibitor**: interfere with cGMP breakdown → continued dilation of inflowing blood vessels
  - **sildenafil**: should be taken on empty stomach, interaction with fatty foods
  - **tadalafil**: can be taken daily
  - **vardenafil**:
    - caution with prolonged QT
  → **first-line agents in the treatment of ED**
  → all are similarly effective, with 75% of men being able to have satisfactory erection for intercourse
    - may need 6-8 tries before meds will work
  → max efficacy in 1 hour
  → side effects: headache, indigestion, flushing, nasal congestion, loss of blue-green color vision, significant hypotension
  → contraindications: concomitant nitrates, severe CV disease
  → causes of treatment failure:
    - still need stimulation to have an erection after taking
    - heavy alcohol use
    - relationship problems
    - food or drug interactions

• **yohimbe**: derived from the bark of a tree in S. Africa, an alpha-2 adrenergic-R blocker
  - safe, low cost, but not yet recommended by the American Urologic Association

• **alprostadil**: prostaglandin penile injection
  - not a good initial treatment
  - issue of plaque and fibrosis, pain
  - should not be done with priapism-producing conditions such as sickle cell
  - prostaglandin intraurethral pellet: expensive, does not work for many
  - vacuum constrictive device: may make penis feel cold
  - surgical options: outcome depends on surgical skill of patient
    - implantation of inflatable prosthesis
    - balloon dilation or bypass of proximal arteries
    - ligation of veins to help maintain erection
  - effect of weight loss/increasing activity is controversial
  - smoking cessation: greatest effect when patient is younger with mild symptoms

**Prostatitis**: inflammation of the prostate due to a variety of possible causes
  - occurs in all ages of men
  - a common complaint

A.) **Acute bacterial prostatitis**:
  - organisms: mostly gram negs (*E. coli, Enterobacter, Serratia, Pseudomonas, Enterococcus, Proteus*), also *Neisseria gonorrhoeae* and *Chlamydia trachomatis* in sexually active young men
  - etiologies: sexually acquired, seeding by urine reflux, hematogenous or lymphatic spread from distant source, contiguous spread from adjacent infection
  - least common form
  - easiest to diagnose
  - can be life-threatening
  - consider in septic males without an obvious source of infection
  - risk factors: GU instrumentation, anal intercourse, immunocompromised, DM, neuro disorders affecting GU tract
  - presentation: urinary frequency, urgency, dysuria, nocturia, change in urine stream, pain in lower back, genitals, or abdomen, systemic signs of fever, chills, nausea, vomiting, hypotension, changes in level of consciousness with sepsis
  - investigation:
    - PE: vitals, LOC, abdomen, GU, neuro, CVA tenderness
    - DRE: prostate is tender, may be enlarged or fluctuant
    - don’t do vigorous exam or massage to prevent bacteremia
    - UA and urine cultures to look for organism
urethral culture if secretions are present
-gonorrhea/chlamydia testing
-blood cultures if septic
-CT if abscess suspected

-treatment:
-hospitalization if septic, other comorbidities, no support at home
-pain management
-urinary diversion if urine retention is present
-suprapubic catheter preferred over urethral catheterization to avoid abscess formation
-broad-spectrum antibiotics until sensitivities come back
-gram negs: Septra, fluoroquinolones, aminoglycosides
-gram pos: amoxicillin, ampicillin, cephalexin, cefazolin, vanco if MRSA
-IV for 3-4 days, then switch to orals
-usually fluoroquinolones orally for 2-6 weeks

B.) Chronic bacterial prostatitis:
-similar to acute bacterial prostatitis, but not life-threatening
-presentation: symptoms wax and wane
-recurrent UTIs with same organism and no explanation
-investigation:
-DRE: prostate may appear normal
-UA and culture for organism (may be harder to do)
- Meares-Stamey 4 glass test: multiple samples taken for localization cultures
- initial 10 mL void is from the urethra
- midstream void is from the bladder
- then do prostate massage for prostate secretions
- next 10 mL contains urethral and prostatic fluid
-treatment:
-prolonged course of antibiotics: fluoroquinolones
-suppressive antibiotic treatment: consider if 3+ recurrences each year
-Septra, tetracycline, amoxicillin, or nitrofurantoin

C.) Chronic prostatitis and chronic pelvic pain syndrome: urinary or genital pain with no evidence of infection, with symptoms for 3 of the last 6 months
-etiologic not well understood
-nanobacteria that we can’t find? Ureaplasma, Mycoplasma hominis, etc.
-elevated prostatic pressures
-voiding dysfunction
-pelvic floor myalgia (like IBS or fibromyalgia)
-functional somatic syndrome
-emotional disorder
-the most common form of prostatitis
-affects all ages of men
-inflamatory: WBCs present
-noninflammatory (aka prostatodynia, may be a misnomer)
-presentation: waxing and waning symptoms
-investigation:
-differential: infection, GU cancer, urinary tract disease, urethral stricture, neurologic disease
-need to do a complete H&P
-imaging: US, MRI
-biopsy
-bladder function tests: cystoscopy, flow dynamics
-blood tests
-formal psychological testing?
-treatments:
-meds:
-NSAIDs may not alter course of disease, only help for pain
-alpha blockers for urinary symptoms
- Muscle relaxants for painful ejaculations
- Finasteride to shrink prostate
- Antibiotics: may or may not help
- Sitz baths
- Lifestyle modifications
- Physical therapy: need a pelvic floor specialist
- Counseling

D.) Asymptomatic inflammatory prostatitis:
- Often found when working up men for infertility or during biopsy for presumed prostate cancer
- No treatment needed

- **Benign Prostatic Hyperplasia:** benign proliferation of the prostatic stroma and epithelium → palpable prostate with possible urinary symptoms
- Histologic presence of BPH increases with age
  - Prostate undergoes a growth spurt after age 40
  - Present in 90% of men age 85 years
  - Only 50% of these men will have macroscopic findings
  - And only 30-50% of these will have symptoms
  - More likely to have symptoms with higher PSA or larger prostate

- Presentation:
  - Bladder storage problems = irritative symptoms
    - Urgency, frequency, nocturia, urge incontinence, stress incontinence
  - Bladder emptying problems = obstructive symptoms
    - Voiding symptoms: hesitancy, poor flow, intermittency, straining, dysuria
    - Postvoid symptoms: terminal dribbling, postvoid dribbling, incomplete emptying of bladder

- Investigation:
  - Give pt AUA BPH symptom score sheet to fill out
    - Can also be used as a screen and for f/u
      - Mild = 0-7
      - Moderate = 8-19
      - Severe = 20-30
  - History: any recent instrumentation
  - PE: DRE, abdomen for distension, neuro, PVR
  - Labs: glucose, electrolytes, UA, PSA in select patients

- Treatment:
  - Always based on patient symptoms rather than scores, etc.
  - Watchful waiting if patients is not bothered and there are no complications
    - AUA score < 7
    - Monitor every 6-12 months
  - Medical therapy:
    - AUA score > 8
      - Alpha-1 blockers: decrease muscle tone in stroma and capsule
        - Rapid symptom relief
        - Do not decrease prostate size
        - Nonselective: terazosin, doxazosin, prazosin
          - Not recommended for use in BPH with concomitant HTN
          - Full effect in 2-4 weeks
          - Side effects: first dose syncope, orthostatic hypotension
        - Selective: tamsulosin, alfuzosin
          - No effect on BP
          - Effects in days to one week
          - Side effects: fatigue, asthenia, slight risk of ejaculatory dysfunction, nasal congestion
      - 5-alpha reductase inhibitors:
        - For those who can’t take or tolerate alpha-1 blockers
-shrink prostate
-can take 6-9 months
-pregnancy category X = women must not handle pills!
-side effects: erectile and ejaculatory dysfunction (greater than alpha-1 blockers), nausea, abdominal pain, asthenia

-surgical interventions
- indicated for renal insufficiency, urinary retention, recurrent UTIs, bladder calculi, hydronephrosis, large PVR
  • transurethral resection of prostate (TURP): prostate tissue removed via urethral scope
    - longer, more complicated procedure but best outcome
  • transurethral incision of prostate (TUIP): crack open prostate a little bit to allow more room for urethra
    - less invasive, less complications, quicker recovery, but prostate must be small
-open prostatectomy: good option for cases requiring several operations in the same area
  → post-surgical issues: erectile dysfunction, urinary incontinence, 5 year recurrence rate
-minimally invasive procedures: going through urethral to prostate but not cutting or removing the prostate in any way
  • transurethral needle ablation (TUNA): pierce urethral wall and transmit radiofrequencies to liquefy parts of prostate → sloughing of tissue via urethra
  • transurethral laser-induced prostatectomy (TULIP): same as TUNA but using laser
  • transurethral microwave thermotherapy:
  • water-induced thermotherapy:
  • intraprostatic stent placement
  → quicker recovery, need temporary catheter, can’t use these procedures for tissue sample

**Orchitis, Benign Scrotal Disease, and STIs**

- **Orchitis**
  A.) Mumps orchitis
  - mostly in kids and adolescents
  - occurrence in the spring
  - presentation: abrupt fever, testicular swelling and tenderness, may be bilateral, parotitis (7-10 days before onset of orchitis)
  - treatment: bed rest, NSAIDs, scrotal elevation and ice packs
  - prognosis: rare chance of sterility
  B.) STI orchitis
  - agent is usually *Neisseria gonorrhoeae* or *Chlamydia trachomatis* in sexually active heterosexual men under 35
  - can be related to epididymitis from same agent = epididymo-orchitis
  - consider enterobacteria in men > 35 with voiding dysfunction
  - treatment:
    - scrotal support, ice, pain relief, injection of spermatic cord with 1% procaine
    - admission if there is priapism or uncontrolled pain

- **Epididymitis**
  - Follows a STI, UTI, or can inflammatory only without infection
  - commonly *Neisseria gonorrhoeae* or *Chlamydia trachomatis* in sexually active heterosexual men under 35
  - older men: coliforms, *Pseudomonas*
  - noninfectious causes include trauma, autoimmune disease, vasculitis, or irritative urine reflux
  - incited by prolonged periods of sitting, vigorous exercise
  - Most common cause of adult scrotal pain
  - Acute, subacute, or chronic
  - Risk factors: recent instrumentation, anal insertive intercourse, heavy physical exertion, bicycle or motorcycle riding
  - Presentation:
usually subacute
-may be associated with urethritis and hemospermia
-if bacterial → severe swelling, exquisite pain, high fever, rigors, irritative voiding symptoms, acute prostatitis

-Investigation:
  -need to r/o torsion, tumor, incarcerated or perforated appendix
  -PE: urethral discharge, swollen, tender, indurated scrotum
  -cremasteric reflex present
  -UA and culture
  -urethral swab if discharge
  -US to r/o testicular torsion
  -prepubertal boys with recurrent epididymitis need evaluation for structural abnormalities of the urinary tract

-Treatment: varies with severity
  -hospitalization if acute febrile and septic
  -oral antibiotics for 3-6 weeks
    -treat empirically until cultures come back
  -ice, scrotal elevation, NSAIDs

-Prognosis:
  -complications of oligospermia and infertility

-**Hydrocele:** collection of peritoneal fluid between the parietal and visceral layers of the tunica vaginalis
  -In adults, may be due to fluid imbalance between secretion/absorption in the tunica vaginalis
    -can be related to injury or inflammation
    -can be associated with neoplasm or torsion
  -Presentation: soft, painless, cystic scrotal mass
    -could also have pain
    -mass transilluminates
    -can be bilateral
  -Treatment:
    -not necessary unless symptomatic
    -surgical excision of hydrocele sac
    -simple aspiration has high recurrence rate
    -surgical repair of patent processus vaginalis
  -Investigation:
    -US

-**Varicocele:** dilation of pampiniform plexus
  -Valve insufficiency in gonadal veins may contribute
  -More common on left side
  -Presentation:
    -bowl of spaghetti appearance in scrotum
    -increases with valsalva, decreases when supine
    -oligospermia or asthenospermia
    -painful, dull, or heavy sensation in scrotum
      -increased when standing, relieved by lying down
  -Treatment: scrotal support, analgesics, surgical repair

-**Testicular Torsion:** twisting of spermatic cord within a testicle, cutting off blood supply
  -A result of inadequate fixation of the testis to the tunica vaginalis
  -Can occur after trauma or spontaneously
  -A medical emergency, needs surgical treatment within 4-6 hours
    -irreversible damage after 12 hours
  -More common in neonates and postpubertal males
  -More common in colder seasons
  -Presentation: scrotal pain, nausea, vomiting, abdominal pain
-often awakens kids in the middle of the night

-Investigation:
-PE: tender testicle, scrotal swelling, tender epididymis, elevated testis, scrotal discoloration
- absent cremasteric reflex
- color Doppler US if PE is equivocal

-Treatment:
- surgical correction
- manual detorsion if surgery not available
- sedation or cord block followed by external rotation of testis
- need to f/u with surgical fixation to prevent recurrence

-Prognosis: infertility possible

- Torsion of Appendix Testis
- Occurs in boys age 7-14
- Presentation:
  - gradual onset of pain
  - early point tenderness localized to appendix testis
  - reactive hydrocele
  - “blue dot sign” from infarction and necrosis

-Investigation:
- US

-Treatment:
- rest, ice, NSAIDs
- surgery if persistent pain

-Prognosis: pain will last several days to months

- STIs in Men
  A.) Chlamydia trachomatis
  - in men, most common ages 25-34
  - most common notifiable disease in US
  - presentation: urethritis, urethral discharge, itching, dysuria
  - complications: infertility, chronic prostatitis, reactive arthritis, urethral strictures

  B.) Lymphogranuloma venereum
  - caused by Chlamydia trachomatis
  - more common in Asia, South America, Africa, tropical environments
  - higher risk with MSM
  - presentation: shallow painless ulcer, then painful adenopathy, then buboes

  C.) Gonorrhea
  - second most common notifiable disease in US
  - presentation: urethritis, conjunctivitis, pharyngitis, proctitis, dysuria, purulent discharge, fever
  - can be asymptomatic

  D.) Trichomoniasis
  - lives in male urethra
  - presentation: most males are asymptomatic, some get urethritis

  E.) HSV
  - presentation: pain, pruritus, soreness, external dysuria, inguinal adenopathy, characteristic vesicles

  F.) Syphilis
  - presentation: painless chancre, signs of secondary or tertiary syphilis if late

  G.) Chancroid
  - presentation: multiple painful genital ulcerations

  H.) Granuloma inguinale
  - caused by Klebsiella granulomatis
  - presentation: chronic painless ulcers that are beefy red
Male Cancers

Prostate Cancer
- Usually adenocarcinoma
- Most commonly diagnosed male cancer and 2nd leading cause of male cancer deaths
- Incidence increases with age
- More common in black patients
- Risk factors: age, race, high fat diet, FH, genetics, obesity
  - no association with smoking, sexual activity, prior infections, or BPH
  - protective: well-balance diet, physical activity, weight control
- Chemoprevention not recommended

Screening and available prostate tests:
- USPSTF: any prostate cancer screen for men under age 75 is grade I, and grade D for men over 75
  - if yes, do it every 2 years if normal or every year if abnormal
- DRE: low detection rate for tumors
  - refer if abnormal
- Transrectal US: no role as a screen
  - high cost and low specificity
  - can be used assess elevated PSA
  - best for staging and for guiding biopsies
  - can also be used to estimate prostate volume
  - not accurate in determining local tumor extension
- Cystourethroscopy: for visualization of abnormalities of the bladder, prostate, ureters
  - can also be used to do biopsy, retrograde pyelogram, or transurethral surgery
- Prostate biopsy:
  - indicated for early diagnosis of prostate cancer, active surveillance during conservative management of prostate cancer, or for evaluation of men with azoospermia

Labs:
- Serum prostate specific antigen: protein produced by healthy and malignant prostate cells
  - elevated in cancer, inflammation, or BPH
  - not diagnostic of cancer
  - low detection rate
  - false + and negs
  - will rise as men age
  - unknown if its use reduces mortality
  - refer if > 4.0 ng/mL
- Free PSA: PSA that is not protein bound
  - healthy men have a higher free PSA %
  - lower % free PSA = increased cancer risk
  - may be useful in differentiating cancer from BPH in patients with borderline high total PSA
- PSA velocity
  - if > 0.75 ng/mL ↑ per year, this increases likelihood of cancer
- PSA density: serum PSA/prostate vol (from US)
  - adjusts PSA level for prostate size
  - increased density = increased cancer risk
- Prostatic acid phosphatase: enzyme produced by the prostate
  - may be elevated in adenocarcinoma, manipulation of prostate, inflammation, BPH, other nonprostatic disease
  - questionable role in diagnosis of prostate carcinoma
  - can be used for monitoring chemotherapy
  - can’t be ordered immediately after DRE, TURPs, or prostatic massage

Presentation:
- no signs early in disease
- advanced disease: obstructive urinary symptoms, hematuria, hematospermia
-mets to bones, inguinal lymph nodes

-Investigation:
- prostate biopsy by transurethral US
  - look for hypoechoic areas
  - 8-12 core are sampled from the apex, mid-portion, and base of both lobes
- MRI: look for capsular extension and invasion to seminal vesicles, lymphadenopathy
- PET scan if suspecting mets
  - consider for PSA > 20, high-grade histology, or bone pain
- scoring of biopsy by Gleason system
  - higher score = more aggressive, worse prognosis

-Treatment:
- based on patient life expectancy, general health, tumor characteristics, risk of tumor progression and recurrence
  - controversial if disease is localized
- radical prostatectomy: open or laparoscopic
  - cavernosal nerve sparing to preserve potency
  - risks: urinary incontinence
  - follow up operation with PSAs, should be 0
- radiation: external beam or brachytherapy
  - results in impotence in many patients
- advanced or metastatic disease: hormone therapy
  - androgen deprivation via surgical or medical castration
    - meds: GnRH analogues, antiandrogens, ketoconazole, steroids
  - side effects: hot flashes, osteoporosis, impotence, decreased facial hair, weight gain, loss of muscle mass, gynecomastia
  - if refractory to hormone treatment:
    - docetaxel
    - targeted immunotherapy using patient’s own WBCs is now available
      - costs $93,000
      - side effects: infusion reactions, CV events

-Prognosis:
  - localized disease that is actively surveyed has a < 10 year life expectancy
  - localized disease that is treated has a > 10 year life expectancy

- Penile Carcinoma
  - Most commonly squamous cell
  - Rare
  - Diagnosed almost exclusively in uncircumcised men
  - Risk factors: lack of neonatal circumcision, HPV 16 or 18, tobacco use, poor hygiene
  - Presentation:
    - painless, non-indurated, ulcerated mass
    - may be on the glans penis, coronal sulcus, or foreskin
    - inguinal adenopathy
  - Investigation:
    - lesion biopsy
  - Treatment:
    - depends on tumor histology, size, location, and presence of lymphadenopathy
    - surgical removal is the gold standard
      - goals are to preserve glans sensation and maximize penile shaft length
      - may need total penectomy with perineal urethrostomy for proximal tumor
      - Mohs microsurgery for low grade tumors
    - other options: topical chemo, radiation, laser ablation
  - Prognosis:
    - directly related to grade of tumor and extent of invasion
      - poor prognosis: high histologic grade, vascular invasion, advanced pathologic grade, lymph node involvement, mets above the inguinal ligament
if untreated can lead to auto-amputation

Testicular Tumors
-Risk factors: cryptorchidism, abnormalities in spermatogenesis, FH or personal history of testicular cancer
-Screening:
-USPSTF recommends against screening in asymptomatic adolescents and adult males
-Presentation: firm, painless mass arising from the testis
-scrotal pain in 10% of cases, due to tumor hemorrhage or epididymitis
-usually unilateral, but 2-3% have bilateral involvement
-advanced disease: cough, GI, back pain, neurologic signs, supraclavicular lymphadenopathy
-Investigation:
-scrotal US: distinguishes benign vs malignant and intra vs extratesticular
-excisional biopsy with inguinal orchiectomy
-pathology: germ cell (most common) or stromal tumor
-if germ cell: seminoma or nonseminoma
-labs:
-β-HCG: will be elevated in choriocarcinomas, embryonal carcinomas, and in some seminomas
-AFP: elevation excludes diagnosis of seminoma
-CT of chest, abdomen, pelvis for mets
-especially to retroperitoneal lymph nodes, lungs, and mediastinum
-Treatment:
-inguinal orchiectomy with follow-up of tumor markers
-need chemo if they don’t decrease post-op
-seminomas are radiation sensitive
-also need chemo if above IIb
-non-seminomas are usually cured by orchiectomy alone
-Prognosis:
-seminoma 5-year survival rate is 98% if early, 55-80% if advanced
-non-seminoma 5-year survival rate is 96-100% if early, 90% if advanced
-consider sperm banking prior to treatments