SCREENING

- **Cervical cancer** – begin at 21

- **Chlamydia** – sexually active and < 25

- **Breast cancer** – recently changed
  - mammography at age 40, Q1-2 years, then yearly at 50

- **Lipids** – begin at 45 Q5 years

- **Diabetes** – fasting glucose to begin at age 45 Q3 years (sooner with risk factors)
SCREENING

• **Colorectal cancer** – begin at age 50 (45 for AA)
  • 10 years earlier than first degree relative diagnosis
  • FmHx of FAP = begin at puberty
  • FmHx of HNPCC = begin at age 21; Q1-2 years
  • IBD = 8 years after onset of pancolitis
  • small adenoma = 3-6 years after polypectomy (< 3 years if > 1 cm)

• **TSH** – begin at age 50 Q 5 years
SCREENING

• Osteoporosis
  • begin at age 65 with DXA scan
  • begins in women aged 50-64 in presence of other risk factors
  • DXA scans should not be repeated within 2 years due to inherit precision of test
  • WHO Fracture Risk Assessment Tool can be used on women < 65 to determine which women should undergo DXA scans
  • women with 10-year risk of major fracture of 9.3% (b/c that is the risk at age 65)
  • Z-score = compared to their age; T-score = compared to maximum bone health

• Risk factors: fragility fracture history, weight < 127 lbs, medical causes of bone loss, smoker, RA, alcoholism
NERVE INJURIES

• Ilioinguinal nerve = Pfannenstiel incision
  • small triangular numbness around pubic symphysis; resolves ~ 6 months

• Femoral nerve = biggest risk is with deep, pelvic surgery by compression
  • from psoas compression in thin patients
  • patients have poor hip flexion and paresthesia over antero-medial thigh
NERVE INJURIES

• Obturator nerve = from trocar (TVT-O) or pelvic node dissection
  • numbness on inner thigh and difficulty with adduction

• Peroneal nerve = excessive pressure from stirrups
  • poor dorsiflexion (foot-drop)

• Pudendal nerve = risk with sacrospinous ligament fixation
  • perineal and vulvar pain worse with sitting
IMMUNIZATIONS

- **Influenza** = annually at age 50; healthcare workers, pregnancy

- **TDaP** = Q10 years, every pregnancy; wound management

- **Pneumococcal** = adults > 65; immunocompromised (SCA, asplenia)

- **HPV** = 9-26 in men and women

- **Hepatitis A** = travel to endemic areas or Hepatitis C infection

- **Meningococcal** = asplenia, military, college students
PEDIATRIC VULVOVAGINITIS

- **Foreign body** = malodorous, purulent discharge

- **Shigella** = uncommon, but causes persistent *bloody, odorless discharge*
  - from contaminated food; associated with *diarrhea*

- Treat diaper rash with clotrimazole cream

- Perianal pruritus + tape test = pin worms (*Enterobius vermicularis*)
  - treat with mebendazole
FRACTIONAL EXCRETION OF SODIUM

• \( \text{FENa} = \frac{(\text{Na}_U \times \text{Cr}_P)}{(\text{Na}_P \times \text{Cr}_U)} \times 100 \)
  • Less than 1% suggests prerenal
  • Greater than 2% is consistent with ATN

• **ATN** = injury to renal tubular epithelial cells \( \rightarrow \) sloughing
  • brown granular and epithelial cell casts
  • cardiogenic shock, septic shock, contrast dye, and nephrotoxins (dye, cisplatin, and aminoglycosides)
HEPARIN INDUCED THROMBOCYTOPENIA

• Occurs within 5-10 days of initiating heparin

• Decrease in platelets to less than 50% of baseline or less than 100,000

• Diagnosis usually made clinically; but can use serotonin release assay

• Alternatives to heparin
  • ‘Rudins” = lepirudin (recombinant hirudin) or bivalirudin
  • Argatroban – hepatically metabolized; direct thrombin inhibitor (follow PTT)
  • Fondaparinux
HYPERCALCEMIA

- Primary hyperparathyroidism and malignancy account for 90% of hyperCa
  - *if severely elevated, think malignancy*
  - primary hyperparathyroidism = elevated PTH
  - PTH-related protein with SCC of lung, head, neck, and cervix

- Treat with IV fluids first
  - add bisphosphonates if needed (inhibit Ca release from bone)
HYPERKALEMIA

• Can cause flaccid paralysis and EKG changes
  • *peaked T waves*, followed by decrease in P wave amplitues and widening PR interval
  • can progress to prolonged QRS and ventricular asystole

• Treatment with EKG changes:
  • **IV calcium gluconate**
  • insulin (takes longer)
  • Loop diuretics can be considered
  • hemodialysis is last line
NEUTROPENIC FEVER

• Absolute neutrophil count < 1,000 and single fever > 100.9

• Workup and start empiric broad-spectrum antibiotics
  • monotherapy = zosyn or cefepime
  • dual therapy = amnioglycoside + antipseudomonal PCN (cefepime)
  • vanco can be added if possible catheter-related infections
HERBAL MEDICATIONS

• black cohosh = liver disease

• ginkgo biloba = bleeding risk

• St. Johns wart = interacts with variety of drugs (INDUCER)

• kava kava = liver disease
MEDICAL ABORTIONS

• Can use mifepristone and misoprostol up to 63 days

• **Mifepristone** is progestin that competitively binds progesterone receptor and causes decidual breakdown

• **Misoprostol** is synthetic PG-E that causes uterine contractions
  • 95% treated successfully with 800 mcg misoprostol alone
  • sono is recommended 1-2 weeks following procedure (follow quants)
BENIGN BREAST DISEASE

(1) Nonproliferative disorders – simple cysts
   • infer no substantial increased risk

(2) Proliferative disorders without atypia – fibroadenomas and intraductal papillomas
   • associated with relative risk of 1.3-1.9

(3) Atypical hyperplasias – ADH or ALH
   • associated with relative risk of future breast cancer 4.1-5.3
BREAST CANCER

• *Eczematous lesion* = Paget disease

• *Unilateral watery or serous discharge* = ductal carcinoma

• * Bloody discharge* = intraductal papilloma
  • twice the risk of developing breast cancer

• *Greenish breast discharge* = fibrocystic disease

• *Cloudy, dark green to yellow, thick discharge* = ductal ectasia (benign)
BREAST CANCER

• **LCIS** risk factor for breast cancer (not a precursor)

• **Invasive lobular carcinoma** = risk of local recurrence and of contralateral breast

• **DCIS** is most common noninvasive breast cancer; “precancerous lesion”
  • treat with *breast-conserving therapy* (unless multifocal)
BREAST CANCER

- Gail model = predictive model; women with 5-year risk > 1.66% are candidates for chemoprevention

- **tamoxifen** is the ONLY drug approved for *chemoprevention* in PREmenopausal women
BREAST CANCER

- **Tamoxifen**: a SERM
  - reduced recurrence in postmenopausal women with hormone sensitive disease
  - *increases VTE, stroke, and endometrial cancer*
  - side effects include *vasomotor symptoms* and leg cramps
  - aromatase inhibitors are treatment of choice in women with contraindications

- **Raloxifene** = second generation SERM
  - approved for *POSTmenopausal* women (fewer VTEs)

- Aromatase inhibitors (**anastrozole**)
  - approved for first-line treatment in *POSTmenopausal women with ER-positive*
BREAST CANCER

• Tamoxifen:
  • Increases rate of *endometrial cancer* (2-4 fold)
    • do *NOT* use routine TVUS to determine thickness
    • Subepithelial stromal hypertrophy makes TV sono difficult to interpret
    • annual exams, *sample with bleeding*
  • Polyps are more common (18 fold), as well as atrophic endometrium
BREAST CANCER

• **BRCA**
  - BRCA 1 = chromosome 17  
  - BRCA 2 = chromosome 13

• **Breast cancer**: lifetime risk of 65-74%
  - BRCA 1 = 65-85%  
  - BRCA 2 = 65-85%
  - prophylactic mastectomy reduces risk by 90-95%

• **Ovarian cancer**
  - BRCA 1 = \(39-46\%\)  
  - BRCA 2 = \(12-20\%\)
  - RR BSO reduces risk by 85-95%; also reduces breast cancer by \(40-70\%\)
BREAST CANCER

• **BRCA**

  • *start screening at 25 with mammograms and MRI (annually for both) and CBE every 6 months*

  • *offer TVUS and CA 125 every 6 months at age 35 (if not done with childbearing)*

• Other deleterious mutations associated with breast cancer include p53, PTEN, ATM, CHEK2
BREAST CANCER

- breast cancer diagnosed during pregnancy can be treated with MRM
  - BCS would not be treatment of choice b/c of radiation
  - *adjuvant therapy can be given after 1st trimester*

- Avoid hormonal contraception, so *copper IUD* is usually best option
GENETICS

- **Autosomal dominant** = every generation affected (males and females the same)
  - Huntingtons, Neurofibromatosis (NF), Achondroplasia,
  - Polycystic Kidney Disease (PKD)

- **Autosomal recessive** = males and females equally affected; *consanguinity*
  - biochemical disorders (enzymes)
  - cystic fibrosis (CF), sickle cell anemia (SCA), spinal muscular atrophy (SMA)
  - Phenylketonuria (PKU), AR PKD, Congenital adrenal hyperplasia (CAH)

- **X-linked recessive** = males affected; think trinucleotide repeats
  - Duchenne muscular dystrophy, hemophilia, Fragile X
GENETICS

• Fragile X = CGG repeats
  • anticipation
GENETICS

- **Gastroschisis**: no covering
  - aneuploidy risk minimal (not increased)
  - caused by malformation / occlusion of SMA (*ventral wall defect*)
  - cord insert usually to the left (*defect is RIGHT*)
  - can deliver vaginally; is associated with IUGR (need growth sonos)

- **Omphalocele**: covering
  - associated with aneuploidy; *NEED karyotype*
HEREDITARY CANCER SYNDROMES

• Hereditary breast and ovarian cancer = BRCA1 and BRCA2
  • tumor suppressor genes; autosomal dominant

• Lynch syndrome = MSH2, MLH1, PMS2, MSH6
  • DNA mismatch repair genes
  • increased for colorectal, endometrial and ovarian cancer

• Peutz-Jeghers = STK11/LKB
  • tumor suppressor gene; autosomal dominant
  • hamartomatous polyps and hyperpigmented macules on lips / oral mucosa
  • increased risk of pancreas, liver, lung, breast, GI tract, and uterine malignancies
HEREDITARY CANCER SYNDROMES

• **Li Fraumeni syndrome** = p53 tumor suppressor
  - sarcoma, breast, leukemia, and adrenal gland syndrome

• **Cowden syndrome** = PTEN mutation
  - tumor suppressor
  - increased risk for breast cancer, thyroid, and endometrial cancer
LYNCH SYNDROME (HNPCC)

- **Screening tests**
  - Colon cancer: *colonoscopy* every 1-2 years, starting at age 20-25 (10 years before earliest)
  - Gastric cancer: *upper GI endoscopy* every 1-3 years starting at age 25-30
  - Urothelial cancer: consider annual *urine cytology*
  - CNS: only routine annual physical examination
  - Endometrial cancer: TVUS and office *endometrial sampling annually*
  - Ovarian cancer: *TVUS and CA 125* every 6-12 months by age 30-35
UTERINE CANCER

• Surgical evaluation and staging is cornerstone
  • reduces need for adjuvant therapy
  • cancer confined to uterus with *high-grade or deep myometrial invasion*
    • offer *postoperative radiation*
    • decreases vaginal recurrence

• **Papillary serous carcinomas** (5-10% of uterine cancers)
  • type II endometrial cancers; *nonobese patients*
  • poor prognosis (along with clear cell carcinoma)
  • chemotherapy similar to standard ovarian cancer is preferred adjuvant
UTERINE CANCER

• Low-grade endometrial cancers can be treated with high-dose progestin in patients who desire fertility preservation (76% response rate)
  • can treat poor surgical candidates with grade I disease with Mirena or Megace

• Cutoff of 5 mm for endometrial thickness in postmenopausal women

• Rapid enlargement of uterus = sarcoma
UTERINE CANCER

• Smooth muscle tumors of the uterus:
  • Leiomyosarcoma = can PRESERVE ovaries in young patients
    • aggressive tumors (10 mitoses / 10 high-power field)
    • in absence of obvious disease outside the pelvis, surveillance
  • Edometrial stromal sarcoma = do BSO b/c hormonal component
    • many are low-grade (80% of these tumors); indolent course

• Carcinosarcoma/MMT = tumor aborts through cervix (bulky)
  • very high rate of paraaortic and pelvic LN involvement
  • chemotherapy with carboplatin-paclitaxel is most often used regimen
EPITHELIAL OVARIAN CANCER

- Mucinous tumors are very large
  - *highest discordance* rate of frozen sections
  - perform appendectomy
EPITHELIAL OVARIAN CANCER

- Stage IA1 and IA2 are treated with surgery alone
  - do NOT need to biopsy contralateral ovary if appears normal
- Everything else treated with surgery and chemotherapy (taxol/platinum)

- Optimal debulking = remaining gross disease < 1 cm

- Platinum-sensitive = recurrence happening more than 6 months
- Platinum-resistant = recurrence occurring less than 6 months

- Second line agents: etoposide, doxorubicin, topotecan, gemcitabine
EPITHELIAL OVARIAN CANCER

• Ovarian tumors in pregnancy
  • stage II-IV should receive platinum-based therapy
  • risk of teratogenesis is limited to 1st trimester

• Once fetal lung maturity is established, vaginal delivery followed by surgery postpartum or cesarean delivery followed by complete hysterectomy / BSO / staging.
SEX-CORD STROMAL OVARIAN TUMORS

- *Hormonally active tumors*; low grade malignancies (excellent prognosis)

- **Granulosa cell tumors** = inhibin A & B
  - produce *estrogens*
  - Call-exner bodies on pathology

- **Thecoma / Fibroma** = solid tumors

- **Sertoli-leydig tumors** = produce *androgens* (masculinization)

- treatment is *surgery* with TAH/BSO if completed childbearing
  - **BEP** (bleomycin, etoposide, cisplatin) effectiveness is unclear
CALL-EXNER BODIES

Call Exner!

I found coffee beans...

in a Granulosa Cell Tumor
GERM CELL OVARIAN TUMORS

- young age
- *dysgerminoma* is the most common
- *immature teratoma* = graded on *immature neural*

- Treat with *unilateral* surgery and staging
- chemotherapy = **BEP** (bleomycin, etoposide, cisplatin)
  - for **ALL** yolk sac, embryonal, and choriocarcinomas
GERM CELL OVARIAN TUMORS

- **Tumor markers:**
  - hCG = choriocarcinoma
  - AFP + hCG = embryonal carcinoma
  - AFP = endodermal sinus tumor
  - LDH = dysgerminoma

- endodermal sinus tumor (*yolk sac*) = large, cystic masses
  - *Schiller-duval body*
SHILLER-DUVAL BODY
GESTATIONAL TROPHOBLASTIC DISEASE

• abnormal proliferation of trophoblastic tissue

• Abnormal hCG regression following mole
  • hCG plateau of 4 values over 3 weeks (± 10%)
  • hCG increase of more than 10% over 2 weeks
  • Persistence of detectable hCG >6 months after evacuation

• Primary treatment is evacuation of uterus
# Molar Pregnancy

<table>
<thead>
<tr>
<th>Complete Mole</th>
<th>Incomplete Mole</th>
</tr>
</thead>
<tbody>
<tr>
<td>46,XX or 46,XY chromosome pattern</td>
<td>69,XXX or 69,XXY chromosome pattern</td>
</tr>
<tr>
<td><strong>Absent fetus</strong> and amnion or fetal red blood cells</td>
<td><strong>Fetus</strong> and amnion or fetal red blood cells often present</td>
</tr>
<tr>
<td><strong>Diffuse trophoblastic proliferation</strong></td>
<td><strong>Trophoblastic proliferation is focal</strong></td>
</tr>
<tr>
<td>Frequently diagnosed as a molar gestation during pregnancy</td>
<td>Frequently diagnosed at the time of a missed abortion</td>
</tr>
<tr>
<td>50% will have a uterus larger than expected for gestation</td>
<td>Uterine size is frequently small for gestational age</td>
</tr>
<tr>
<td><strong>Theca lutein cysts</strong> may be present (15-25%)</td>
<td><strong>Theca lutein cysts are rare</strong></td>
</tr>
<tr>
<td>May be associated with medical complications</td>
<td>Medical complications are rare</td>
</tr>
</tbody>
</table>

20% become malignant  
5% become malignant
GESTATIONAL TROPHOBLASTIC NEOPLASIA

- = malignant transformation of placental tissue

- Once malignant GTN is diagnosed, must evaluate for metastases
  - CXR or CT of chest
  - CT of abd/pelvis
  - brain MRI
GESTATIONAL TROPHOBLASTIC NEOPLASIA

• WHO score > 7 is high risk
  • low risk is treated with weekly single agent (*methotrexate*)
    • continue until hCG are normal; can do hysterectomy
  • high risk (metastatic) is treated with multiagent (*EMACO*)
    • continue therapy for 2-3 weeks following normalization of hCG

• histology of *choriocarcinoma* = sheets of cytotrophoblasts & syncytiotrophoblasts without recognizable villi

• *Placental site tumor* = elevated human placental lactogen (*hPL*)
  • treatment for placental site tumors = *hysterectomy* (unresponsive to chemo)
CERVICAL CANCER

• Simple hysterectomy for stage IA1 disease (low risk of mets)
  • can also have cone if desire future fertility

• IB = clinically visible lesion limited to cervix
• IIA = early vaginal involvement
• IIB or greater = radiotherapy (NOT radical hysterectomy)

• Most common acute problem following radical hysterectomy = bladder dysfunction
• Most common fistula following radical hysterectomy = ureterovaginal
• Most common fistula following chemoradiation is = rectovaginal
CERVICAL CANCER

- Cervical cancer and pregnancy
  - cone biopsy at 16-18 wks
    - microinvasion = vaginal delivery
    - IA2+ = no desire for pregnancy, then treat normally
    - IA2+ = desire pregnancy; then document FLM and c/s

- Remember, *clinically staged*

- **Exenteration** is curative intervention for advanced or recurrent cancer *CONFINED* to the **CENTRAL PELVIS** after failed radiotherapy
ATYPICAL GLANDULAR CELLS

- 38% of women with atypical glandular cells on pap harbor significant pathology
  - AGC need (1) colp, (2) ECC, (3) cervical biopsy, (4) EMBx
  - if all negative, then get HPV
  - if HPV negative, repeat exam in 12 months

- Women with persistent AGC are at a very high risk of glandular disease
  - recommend *excisional procedure*
  - cone is preferred over LEEP
VULVAR INTRAEPITHELIAL NEOPLASIA

- Does not invade basement membrane
- Terminology:
  - VIN, usual type = warty, basaloid, HPV related
  - VIN, differentiated = seen in older women with lichen sclerosis with or without SCC hyperplasia
- Treatment with **WLE**
VULVAR CANCER

• 4% of female reproductive tract cancers
  • SCC = 90%
  • melanoma, adenoCa, BCC, sarcomas

• Treatment with radical hemivulvectomy or radical excision (1-2 cm margins)
  • node dissection if > 1 mm invasion

• WLE for Paget’s disease
  • 4-20% will have underlying invasive adenocarcinoma
  • WLE implies shallow removal without attention to lateral margins
VULVAR CANCER

• **Melanoma**: 2nd most common
  • stage I = less than 0.76 mm depth of invasion
  • surgery is the treatment of choice
  • may use adjuvant interferon for high-risk tumors

• **Basal cell carcinoma**: treatment is WLE with negative margins
SARCOMA BOTRYOIDES

- affects children
- *cluster of grapes bleeding* from the vagina
- treatment with *chemotherapy* (vincristine, actinomycin D, cyclophosphamide)
VAGINAL CANCER

- 1-2% of genital tract malignancies
- spread by local infiltration
  - upper 2/3rd of vagina drain into pelvic lymph nodes
  - lower 1/3rd of vagina drain into inguinal lymph nodes
- SCC is most common
  - clear cell carcinoma associated with DES exposure

- Treatment: radiation is treatment of choice
  - can combine with chemotherapy (cisplatin or 5-FU)
  - surgery has limited role
CHEMOTHERAPY

- Highly emetic: cisplatin
- Palmar plantar erythrodysesthesias (skin peeling): Doxil
- Leukemias: etoposide
- Affects spindle apparatus (mechanism of action): paclitaxel
- Restrictive pneumonitis: bleomycin
- CHF: doxorubicin
- Vesicants = doxyrubicin, dactinomycin, taxanes
- Bowel perforation: bevacizumab (AVASTIN)
- Radiation sensitizer: cisplatinum
- Premature gonadal failure: alkylating agents
- Risk of secondary malignancies: alkylating agents
- Hemorrhagic cystitis: cyclophosphamide
DERMATOLOGY

- **Lichen sclerosis** = treat with clobetasol
- **Lichen planus** = autoimmune, erosive lesions anywhere; treat with topical steroids
  - *if involves the vagina, then will be lichen planus (not sclerosis)*
- **lichen simplex chronicus** = reactive condition from scratching
  - hyperkeratotic with elongation of rete pegs
- **Psoriasis** = extensor surfaces; treat with UVB radiation and high potency steroids
- **Molluscum** = DX by exam (umbilicated center); self-limited
- **Scabies** = treat with permethrin
MATERNAL FETAL MEDICINE

- **Truncus arteriosus** = mom has **DM**

- **DiGeorge** = thymus; **22q11** microdeletion

- **Tetralogy of Fallot** = think **DM**; (1) pulmonary stenosis, (2) VSD, (3) RVH, (4) overriding aorta

- **Ebsteins anomaly** = think **lithium**; tricuspid valve involvement
SERUM SCREENING

- **Down syndrome** = low AFP, **high** hCG, **high** inhibin, low E3

- **Trisomy 18** = **low** AFP, **low** hCG, **low** inhibin, **low** E3

- ** Neural tube defect** = elevated **AFP**
If baby smiles at you, then c/s *(mentum posterior)*

**Warfarin:**
- 1\textsuperscript{st} trimester = limb and nasal hypoplasia
- 2\textsuperscript{nd} trimester = microcephaly and optic atrophy
- reversal = vitamin K
• Signet ring cells = Krukenberg (metastatic from GI / stomach)
• Coffee bean = Brenner’s tumor (mainly benign epithelial-stromal tumors)
• Call-exner bodies = granulosa cell tumor
• Fried eggs = dysgerminoma
• Struma ovarii = teratoma with _malignant thyroid tissue_
• Keratin pearls = SCC
• Koilocytes = HPV
PATHOLOGY

Signet ring = Krukenberg (metastatic from GI / stomach)

Coffee bean = Brenner’s tumor (mainly benign epithelial-stromal tumors)
PATHOLOGY

Fried eggs = Dysgerminoma

Koilocytes = HPV
SUTURES

- **Polyglactin 910** = *vicryl*; tensile = 55-70% at 2 weeks; absorbed 70 days

- **Polydioxanone** = *PDS*; slowly absorbable suture; 70% at 2 weeks; absorb 180 days

- **Poliglecaprone 25** = *monocryl*; tensile = 25% at 2 weeks; absorbed 119 days

- **Polyglycolic acid** = Dexon; synthetic, absorbable, braided suture

- **Polypropylene** = *Prolene*; nonabsorbable suture; cause more wound pain
HIV

• **Postexposure prophylaxis**
  
  • begin antiretrovirals as soon as possible; stop if patient found to be negative
  
  • class 1 = *less severe exposure*
    
    • HIV patient who is asymptomatic or known viral load < 1500
    
    • give 2 drug regimen (AZT + lamivudine)
  
  • class 2 = *severe exposure*
    
    • deep puncture, visible blood on device, patient has AIDS
    
    • give 3 drug regimen (AZT + lamivudine + ritonavir)

• **Nevirapine** is not recommended for ppx b/c of risk of severe hepatotoxicity
SYPHILIS

• Painless ulcer; darkfield microscopy with spirochetes
• If VDRL positive, then get FTA-ABS
• Primary = painless papule
• Secondary = 6 wks – 6 months post primary; fever, malaise, HA, maculopapular rash (palms and soles)
• Tertiary = gummas, neurosyphilis, cardiac syphilis
• Primary syphilis = one dose, IM, 2.4 million units of PCN
• Unknown stage = PCN, 2.4 million IM weekly x 3 weeks
• PCN allergy = can use erythromycin (if pregnant…desensitization)
• Jarisch-Herxheimer Rxn = fever, HA, arthralgia, increased lesions
  • Looks like allergic rxn, but not; release of treponemal endotoxins
PELVIC INFLAMMATORY DISEASE

• **Outpatient treatment** = ceftriaxone 250 mg IM + doxycycline 100 mg BID x 14 d
  • can add metronidazole 500 mg BID

• **Inpatient treatment** = cefotetan 2 g IV Q 12 hrs + doxycycline 100 mg IV Q12 hrs
CONGENITAL INFECTIONS

• **CMV:**
  - incidence of seronegative pregnant women range from 0.7-4%
  - *primary maternal CMV infection, transmission = 30-40%*
    - greatest in 3rd trimester (40-72%)
    - 30% risk in 1st trimester, but most serious sequelae (30% die)
  - **90% congenital CMV are asymptomatic at birth**
  - symptomatic congenital CMV: jaundice, petechia, thrombocytopenia, IUGR
  - **DX with PCR**
    - IgG avidity assay allows for improved sensitivity
    - presence of IgM and low-avidity IgG is consistent with primary infection
CONGENITAL INFECTIONS

- **CMV:**
  - **DX of fetal CMV:** PCR from amniotic fluid
    - does NOT predict severity of CMV infection
  - Management: *no therapies currently approved*
  - routine screening is NOT recommended
CONGENITAL INFECTIONS

• **Parvovirus B19**:
  - ssDNA, 5th’s disease
  - IgM and IgG antibodies are produced; 50-65% of women are seropositive
  - acute infection is associated with 17-33% risk of transmission
    - most cases resolve spontaneously
    - stillbirth 8-17% if before 20 weeks; 2-6% after 20 weeks
    - *8-10% of nonimmune hydrops* cases are secondary to parvovirus
  - DX: serology (IgM and IgG)
    - positive IgM should be *monitored* regardless of IgG
    - if negative, repeat in 4 weeks
CONGENITAL INFECTIONS

• **Parvovirus B19:**
  • Management: acute infection should be monitored
  • serial US and MCA doppler for 8-12 weeks
CONGENITAL INFECTIONS

- **Varicella zoster virus:**
  - highly contagious; transmitted via respiratory droplets
  - infection rate among seronegative women is 60-90%
  - infectious until vesicles crust over
  - 10-20% of pregnant women with varicella infection develop pneumonia, with mortality as high as 40%
  - congenital varicella syndrome = skin scarring, limb hypoplasia, chorioretinitis
  - neonatal VZV = high neonatal death if disease develops from 5 days prior to 48 hours PP
- **DX:** based on clinical findings (testing not needed)
  - should have past immunity documented at PN visit
CONGENITAL INFECTIONS

- **Varicella zoster virus:**
  - DX of fetal VZV: US findings include hydrops, hyperechogenic foci, cardiac malformations
  - Management: acyclovir
    - VZIG should be given to infants born to women with VZV close to delivery
  - Prevention with vaccination
CONGENITAL INFECTIONS

• **Toxoplasmosis:**
  • caused by *toxoplasma gondii*
  • consumption of cysts in *undercooked meat* or from infected animals
  • congenital transmission risk 20-50% if not treated
    • higher rates in later trimester (60% in 3rd trimester)
  • most do **NOT** have symptoms at birth, but 90% develop them later
    • *vision impairment, hearing loss, neurodevelopmental delay*
    • periventricular calcifications and ventriculomegaly
CONGENITAL INFECTIONS

- **Toxoplasmosis:**
  - DX with serology
    - high rates of false positive and false negative results
    - should send positive results to Sabin-Feldman labs
  - DX of fetal toxoplasmosis: US can determine severe disease
    - amniocentesis and PCR
  - Management:
    - suspected infections should be CONFIRMED by reference lab
    - treatment is spiramycin (macrolide)
CONGENITAL INFECTIONS

• **Listeriosis:**
  - gram positive rod
  - get from unpasteurized cheese, meats
  - hematogenous spread → see abscess on placental pathology
  - treat with ampicillin