

Disseminated Gonococcal Infections (sometimes pustules)
 - dermatitis
 - tenosynovitis
 - symmetric arthritis
 - migratory

Sexually Transmitted Diseases

test + treat sexual partners

Drug of Choice Alternatives

1. Uncomplicated Gonococcal Infections	Ceftriaxone (125 mg IM once) or Cefixime (400 mg PO once)	Cefpodoxime (400 mg PO once) Azithromycin (2g PO once) Gentamicin (300 mg IM once)	} Then f/u after few wks.
2. Chlamydial Infections	Doxycycline (100 mg bid x 7d) or Azithromycin (1 g PO once)	Erythromycin (500 mg PO qid)	
3. Syphilis < 1 year	Benzathine Penicillin (2.4 MU IM once)	Doxycycline (100 mg PO bid x 14d)	} cannot use in pregnancy
4. Syphilis > 1 year	Benzathine Penicillin 2.4 MU IM wkly x 3wks	Doxycycline (100 mg bid x 30d)	
5. Neurosyphilis	Aqueous Penicillin G 3 to 4 MU IV q4h or 24 MU continuous IV infusion x 10-14d	Ceftriaxone 2g IV once/d x 10-14d	} Jarisch-Herxheimer Reax - usually post-tx of syphilis w/ PCN - continue tx
6. PID (outpatient)	Ceftriaxone 250 mg IM once + doxycycline 100 mg PO BID x 14d	Ofloxacin 400 mg PO bid x 14d or Levofloxacin 500 mg PO once/d +/- Metronidazole 500 mg PO bid x 14d	
7. PID (Inpatient)	Cefoxitin or Cefotetan IV + doxycycline 100 mg PO or IV bid x 14d	Ampicillin/sulbactam IV plus Doxycycline PO or IV or Ofloxacin or Levofloxacin IV plus Metronidazole IV (anaerobes)	
8. Epididymitis	Ceftriaxone 250 mg once + doxycycline 100 mg bid x 10d	Ofloxacin 300 mg PO bid x 10d or Levofloxacin 500 mg PO once/d x 10d	

- may present w/ pyuria, but if org seen Gram stain or backing - screen all active women < 25 y.o. and older high risk women

⊕ RPR w/ ⊕ FTA-ABS
 ↓
 Fake ⊕ RPR

Majority of cases are GC (chlamydia)

Prophylaxis after sexual assault
 Tx for GC/Chlamydia
 BV/Trichomonas
 and start tx w/in 72 hrs.

Meningococcal or Recurrent GC Bacteremia
 ✓ complement C450
 if ↓ then VC5/L6 levels

Diagnostic Criteria for PID

1. Lower abdominal pain
2. Cervical motion tenderness
3. Adnexal tenderness
4. Absence of competing diagnosis
5. Evidence of mucopurulent cervicitis

organisms
 GC/Chlamydia
 Anaerobes + Mycoplasma

Gonococcal Arthritis
 - ca ⊕ in only 50%
 Tx: Doxy 100 BID x 10-14 days

Complications : Infertility, ectopic, perihepatitis

Secondary Syphilis

Chancroid (H. Ducreyi)
 - painful ulcers
 - painful inguinal LAD
Tx: Ceftriaxone x 1 dose or Azithro 1g

HSV - also painful lesions but painless LAD

Neurosyphilis
 - memory loss, normal neuro exam
 - CSF → VDRL (+)
Tx: PCN G

Primary Syphilis

- painless LAD + lesions
- confirm Dx w/ darkfield exam

1. Rash (palms + soles)
2. Arthritis
3. Hepatitis Disproportionately + ALP Phos
4. Nephrotic syndrome
5. Condyloma lata
6. Aseptic meningitis
7. Generalized lymphadenopathy

LGV (Lymphogranuloma Venereum)

- small papule
- 1-2 wks. post-healing → large inguinal LAD
- hemorrhagic proctitis
- Tx: Doxy x 21 days

Normal vaginal D/C:

- scant
- white colorless (odor)
- pH < 3.8
- KOH
- Normal wet mount
- i. clindamycin-resistant Tx: Fosfocarnet

Vaginitis

Can also be seen w/ HSV
 - confirm Dx w/ Tzanck smear or viral cx's
Tx: Antivirals PO (If severe dis or CNS issues)

Trichomoniasis

strawberry cervix

- treat sexual partners
- Dx: wet mount or osom rapid test
- Tx: metronidazole 2g x 1 or 500 BID x 7 days
- always sexually transmitted
- yellow frothy d/c w/ pruritis + dysuria

Bacterial vaginosis (Gardnerella vaginalis)

- most common cause of vaginitis

Candidiasis

- thick, curdy d/c w/ vaginal erythema
- pruritis + burning
- pH < 4.5
- Dx: KOH wet mount
- Tx: Diflucan 150 x 1 or topical antifungals x 3-7 days
- tx partner only if balanitis present

Atrophic Vaginitis

- watery yellow d/c
- dyspareunia
- wet mount → wbc's w/out bacteria
- KOH ⊕
- Tx: Topical estrogens

- sexually transmitted

- thin, white, homogeneous

- fishy odor w/ KOH "fishy"

- pH > 4.5

- clue cells on wet mount

- Tx: Flagyl 500 BID x 7 days or Clinda oral x 7 days or gels/creams

complications:

- endometritis
- PID
- chorioamnionitis
- pre-term delivery

Prophylaxis against HIV Infection After Percutaneous Injury

Source Patient

- HIV+ class I
- HIV+ class II
- Unknown status

Low risk exposure 2 drugs x 4 wks superficial needle sticks 3 drugs x 4 wks

High risk exposure 3 drugs x 4 wks deep puncture needle sticks 3 drugs x 4 wks

none. + 2 drug x 4 weeks if risk factors for HIV

Same as above

Low Risk: Injury caused by solid needles, superficial injuries

High Risk: Injury caused by large-bore hollow needle, deep puncture, device visible contaminated with blood, needle used in a patient artery or vein

- HIV + class I: Asymptomatic HIV infection or a low viral load (< 1500 RNA copies)
- HIV + class II: Symptomatic HIV infection, AIDS, acute seroconversion or high viral load (> 1500 RNA copies/ml)

- 2 Drugs: Ziduvadine + Lamivudine, Lamivudine + Stavudine, Stavudine + Didansine
- 3rd Drug: Indinavir or Nelfinavir or Efavirenz or Abacavir

- most effective when given w/in 4 hrs.
 - effective after 72-hrs

Maternal → Infant spread ~25% risk

- ↓ Transmission
- low maternal viral load
- elective C-section @ 38 wks
- IV Ziduvadine to mother x 6 wks. to newborn PO
- if viral load then tx

clue cells

- Gram ⊕ rods attached to squamous epithelium

HIV Disease

CD4 Count Diseases

> 500 : Vulvo- vaginal Candidiasis , *pneumonia* (most commonly pneumococci)

200-500 : Hairy Leukoplakia, Oral Candidiasis, Recurrent HSV, Varicella-Zoster, Seborrheic Dermatitis, Recurrent Bacterial Infections, TB, Kaposi Sarcoma, Peripheral B Cell Non Hodgkin's Lymphoma

50-200 : PCP

<50 : MAC, Cryptococcosis, CMV, Cryptosporidiosis, Histo, Toxo, Multifocal Leukoencephalopathy, CNS Lymphoma, Dementia

PFT's → moderate obstruction w/ ↓ DLCO

contraindicated vaccines in HIV

- ① Oral Polio
- ② Varicella
- ③ Yellow Fever
- ④ MMR (if CD4 < 200)

also seen in normal non-HIV pt. assoc. w/ hot tub hypersensitivity pneumonitis

-assoc. w/ GI ulcers vs. EBV → ulcers

If HIV pt. exposed to chickenpox and is seronegative for varicella

Tx: varicella Ig

Acute Retroviral Syndrome
rash
-maculopapular
-cervical LAD
-oral ulcers
-atypical lymph's
-thrombocytopenia

-confirm Dx w/ HIV RNA (very ↑)
↓
then Ab forms + HIV RNA
↓
then levels set point (not re-progess)

Tx: HAART x 6 months

Evaluation of HIV+ Patient

1. PPD & VDRL annually (if PPD \geq 5 mm...INH 9 months)
2. Hepatitis A, B, and C serology; toxoplasma & CMV serology
3. Pneumococcal, H. influenzae type b, Influenza, Hepatitis A & B vaccine
4. Pap smear baseline, 6 months, and then annually if normal
5. Anal screening for HPV (anal papanicolaou smear, HPV DNA or both)
6. CD4 cell count
 - > 500: Repeat every 6-12 months
 - < 350: Start antiretroviral therapy & repeat q 3-6 months
 - < 200: Start pneumocystis prophylaxis
 - < 100: Toxoplasma prophylaxis in antibody +ve
 - < 50: M. avium prophylaxis (clarithromycin or azithromycin)
7. HIV RNA
8. Chest x-ray, lipid profile, CPK, amylase, lipase, CBC, LFTs, electrolytes, BUN/creatinine, glucose
9. Genotype test for antiretroviral drug resistance

→ Bactrim or Papsone + Pyrimethamine + Leukovorin

⑤ ELISA then indeterminate western blot
↓
likely HIV seronegative
↓
repeat in 3-6 months

Hep C → co-infection w/ ↑ risk of cirrhosis + HCC
Tx = 48 wks.
Hep B → ↑ risk of cirrhosis + chronic infection
Tx = long-term

Tx HIV w/ Lamivudine + (tenofovir or Emtricitabine)

Indications of Antiretroviral Therapy

- most important thing to follow → VL

1. CD4 count < 200 with any HIV RNA value
2. CD4 count >200 < 350 + any HIV RNA...treatment should be offered after discussing pros and cons with the patient
3. CD4 count >350 + HIV RNA > 100,000 copies/ml
4. Acute retroviral syndrome (6 months) *tz for*
5. Symptomatic HIV disease with any CD4 or HIV RNA
6. After high risk exposure (4 weeks) *tz for*
7. Rapid decline in CD4 count > 100 cells/uL in one year

or AIDS-defining illness (Ex.) Kaposi's sarcoma

Antiretroviral Therapy

Nucleoside/Nucleotide Reverse Transcriptase Inhibitors (NRTI)

Zidovudine (AZT), Stavudine (d4T) Didanosine (ddI), Zalcitabin (ddC), Lamivudine (3TC), Abacavir (ABC), Combivir (AZT+3TC), Trizivir (AZT+ ABC + 3TC), Emtricitabine (FTC), Tenofovir

Nonnucleoside Reverse Transcriptase Inhibitors (NNRTI)

Nevirapine, Delavirdine, Efavirenz (EFV)

Protease Inhibitors

↳ contraindicated in pregnancy

Saquinavir, Ritonavir, Indinavir, Nelfinavir, Amprenavir, Lopinavir + Ritonavir (Kaletra), Atazanavir, Tipranavir

Fusion Inhibitor Fuzeon

CCR5 Antagonist Maraviroc (Selzentry)

Therapy

- 2 Nucleosides + 1 Protease inhibitor **or** 1 Nonnucleoside
- 2 Nucleosides + 2 Protease inhibitor

Recommended Regimens

NNRTI based: Efavirenz + (Lamivudine or Emtricitabine) + (Zidovudine or Tenofovir)
PI based: (Lopinavir + Ritonavir) + (Lamivudine or Emtricitabine) + Zidovudine

Pregnancy Regimen
- include Zidovudine
↓
↓ transmission
↓
↓ fetuses

St. John's wort
↓
cytochrome P450-3A4 inducer
↓
↓ protease inhib. levels
(need ↑ doses)

Indications Of Changing Antiretroviral Therapy

→ most important factors to decipher when changing

1. Failure to achieve HIV viral load < 50 copies/ml within 6 months
2. Failure to achieve a 1-log reduction in viral load by 8 weeks
3. Significant increase (3-fold or greater) from the nadir not attributed to intercurrent infections
4. Failure of CD4 count to increase or decreasing CD4 count
5. Detection of viral isolate resistant to a drug
6. Drug toxicity
7. Clinical progression of disease

- (1) Resistance Assay
- (2) Drug history (HAART)

oral Thrush
Tx: Topical Clotrimazole
(oral Diflucan if severe)

Side Effects of Antiretroviral Therapy

AZT

Anemia (MCV↑), Thrombocytopenia, Neutropenia, Megaloblastosis, Myopathy

→ Lactic Acidosis too (Along Metabolic Acidosis)

ddI, ddC, 3TC, d4T

Pancreatitis, Peripheral neuropathy

Abacavir

Hypersensitivity syndrome → never use again if develops

All nucleosides

Lactic acidosis, lipoatrophy

Nevirapine, Delavirdine

Skin rash, Abnormal liver functions

Ritonavir

Perioral paresthesia, Inhibits cytochrome P 450 & slows metabolism of many drugs, ↑TG, ↑CPK

Insulin resistance, accelerated atherosclerosis

Saquinavir

Nausea, use with caution with Ritonavir

Indinavir

Nephrolithiasis, Interstitial nephritis

Nelfinavir

Diarrhea

All protease inhibitors

Metabolic Syndrome

(hyperlipidemia, central fat accumulation and insulin resistance)

Prophylaxis for Pneumocystis

Indications

1. CD4 count < 200
2. Prior PCP
3. H/O oropharyngeal candidiasis
3. Primary and secondary prophylaxis can be discontinued if CD4 count is > 200 for > 3 months
4. Patients who are not infected with HIV but are receiving immunosuppressive medications or who have an underlying acquired or inherited immunodeficiency

5. Prednisone 216 mg x > 8 weeks.
6. Immunosuppressives

Therapy

1. TMP/SMX 1 DS qd or TIW (3x a wk)
2. Dapsone 200 mg + Pyrimethamine 75 mg + Leucovorin 25 mg- all once a week
3. Dapsone 100 mg qd or 50 mg BID
4. Atovaquone 1500 mg/d
5. Dapsone 50 mg qd + Pyrimethamine 50 mg/wk + Leucovorin 25 mg/wk
6. Pentamidine 300 mg/month by aerosol

Also cover toxoplasma too

NNRTI ←

Protease inhibitors

Immune Reconstitution Syndrome

- w/in 4-wks of starting HAART + anti-TB Tx
- CD4 ↓'s
- VL ↓'s
- inf ex. present

Treatment of Pneumocystis Carinii Pneumonia

Toxicity
- rash
- leukopenia
- fevers
Tx: Δ to Pentamidine

- gradual onset cough + dyspnea
- CXR → ⊕ perihilar infiltrates
- Dx → sputum, BAL if ⊖ and trans-bronchia
Bx if ⊖
- ↑ LDH

1. TMP/SMX 15-20 mg/Kg... Oral or intravenous... first choice
2. Primaquine 30 mg + clindamycin 600 mg tid... oral
3. Atovaquone 750 mg tid... oral
4. Pentamidine 4 mg/Kg daily intravenous or 600 mg/d aerosol
5. TMP/dapsone
6. Trimetrexate

Toxicity
- can ↑ BUN/creat
hypotension
hypo/hyperglycemia
pancreatitis

Indications of Steroids

PO2 < 70 mm or A-a gradient > 35

Dose: Prednisone 40 mg BID... 5 days
Prednisone 40 mg qd... days 6 through 11
Prednisone 20 mg qd... days 12 through 21

Causes of CNS Enhancing Lesions in AIDS

- always assoc. w/ EBV Ab's
- CD4's usually < 50

1. Toxoplasmosis
2. Brain Abscess
3. CNS lymphoma

multiple ring-enhancing lesions
Tx: Pyrimethamine + sulfadiazine + folic acid
- chronic suppressive tx after acute

Criteria for Discontinuing Prophylaxis in HIV Disease

	Primary	Secondary
PCP	CD4 > 200 for ≥ 3 months	CD4 > 200 for ≥ 3 months
<u>Toxo</u>	CD4 > 200 for ≥ 3 months	CD4 > 200 for ≥ 6 months
MAC	CD4 > 100 for ≥ 3 months	CD4 > 100 for ≥ 6 months
CMV	Not applicable	CD4 > 100-150 for ≥ 6 months
Crypto	Not applicable	CD4 > 100-200 for ≥ 6 months
Histo	Not applicable	Continue indefinitely
<u>Coccidio</u>	Not applicable	Continue indefinitely

also seen in transplant
↑ pts w/ inattentiveness + sensorium + Cryptococcal meningitis
- most common cause in HIV pt's
- spinal tap
- Crypto Ag (serum)
- India Ink
Tx: Amphot B + Flucytosine
- serial taps to ↓ pressures esp. if clinical signs worsening
Prophylaxis - Fluconazole

Causes of Diarrhea in AIDS

Bacteria: Salmonella, shigella, campylobacter, M. avium

presents as FUO
Tx: Azithromycin +
Ethambutol +
Rifabutin/Rifampin

Protozoa: Cryptosporidium, isospora, cyclospora, microsporidium, giardia, E. histolytica

→ (+) AFB stain

Tx: P +
Azithro

Viruses: CMV, HSV, HIV

Drugs: DDI, protease inhibitors

→ Retinitis
Colitis
Esophagitis

Tx: val
Ganciclovir (Po) vs.
or
Foscarnet IV
Ganciclovir

CNS Disease in AIDS

CNS Lymphoma → Assoc. w/ (+) EBV titers

AIDS Dementia → brain atrophy

Vacular Myelopathy → paraplegia

Multifocal Leukoencephalopathy →

Radiculopathy

Myopathy

Peripheral neuropathy (ddI, ddC, 3TC, d4T)

Acute Retinal Necrosis - pt. does not need + CBC counts do
- blurring of vision get Tx: Acyclovir

Clinical Manifestations of

Endocarditis

S/S: Fever, Weight loss, myalgias & arthralgias, back pain, heart murmur, splenomegaly, clubbing, petechiae, Osler's nodes, subungual hemorrhages, Janeway lesions, Roth's spot

LAB: ↑ sedimentation rate, anemia, leukocytosis, microscopic hematuria, + RF, ↑ BUN/CR, circulating immune complexes, ↓ complement

→ cause:
IC GN
low complement

does not cause ↑ meningencephalitis

vs. polyomavirus BK
- causes worsening renal function (usually renal transplant pts)
- intranuclear inclusions in tubular cells

polyomavirus JC (demyelinating dis.)
- large hypodense areas on (non-enhancing) CT
Tx: supportive, stop immunosuppressives
- high mortality

also occurs w/ any immunosuppression (Ex.) post transplant

vs. CMV Retinitis
- immunosuppressed w/ ↓ CBC counts
floaters + flashing lights (photopsias)

- Tx: valganciclovir (Po) vs. IV ganciclovir + ophtho consult

- 3 blood cx's 1-hr. apart
- repeat cx's QDay until sterile

Classification of Endocarditis

Tricuspid valve Endocarditis
 - Drug addicts
 - Lung nodules/abscess
 w/ septic emboli
 - endocarditis picture
 - Ring-enhancing lesions on Head CT

Type Organisms

Native valve:	Streptococci (S. viridans, S. bovis & others) Enterococci, Staph. aureus HACEK (Haemophilus, Actinobacillus, cardiobacterium, Eikenella, Kinella)
IV Drug users:	Staph. aureus, Streptococci, Enterococci, <u>Gram-negative, Fungi</u> → represent 5-20% of cases in IV drug users
Prosthetic Valve:	Staph. epidermidis, Gram-negative, Fungi Streptococcus sp., Staph. aureus
Culture Negative:	Prior antibiotics, pyridoxal- requiring streptococci, Bartonella, Coxiella, Brucella

- fevers, cough, pleuritic chest pain
 - CXR: nodular densities of both lungs, come w/ cavitations

Treatment of Endocarditis

Organism Drugs of Choice Alternatives

Organism	Drugs of Choice	Alternatives
Highly Sensitive Streptococci (MIC < .1 ug)	Penicillin G + Gentamicin or Penicillin alone	Vancomycin Or Ceftriaxone
Streptococci (MIC > .1 to .5)	Penicillin (4 weeks) + Genta (2 weeks)	Vancomycin
Enterococci or Streptococci MIC > .5ug/ml	Penicillin G or Ampicillin + Gentamicin for 4-6 weeks	Vancomycin + Gentamicin for 4-6 weeks
Methicillin Sensitive Staphylococci	Nafcillin 4-6 weeks + Gentamicin 3-5 days	Vancomycin Cefazolin
Methicillin Resistant Staphylococci	Vancomycin 4-6 weeks + Gentamicin 3-5 days	~50% fail to respond to vanco for invasive staph aureus but susceptibilities remain for vanco
Prosthetic Valve S. epidermidis or staph aureus	Vancomycin + Rifampin 6 weeks + Gentamicin 2 weeks	↓ A to Daptomycin (bactericidal)
HACEK	Ceftriaxone for 4 weeks	Ampicillin + Gentamicin for 4 wks

high sensitivity
 intermediate sensitivity

can use for 2wks if uncomplicated and @-sided
 ~50% fail to respond to vanco for invasive staph aureus but susceptibilities remain for vanco
 ↓
 A to Daptomycin (bactericidal)

Empiric Rx of Endocarditis

Drug of Choice

Native valve	Penicillin G or Ampicillin plus Gentamicin Or Vancomycin + Gentamicin
IV Drug Users	Vancomycin+ Gentamicin
Prosthetic Valve	Vancomycin + Gentamicin + <u>Rifampin</u>
Culture Negative	Ampicillin/sulbactam + Gentamicin or Vancomycin + Gentamicin + Ciprofloxacin
Culture Negative (Prosthetic Valve)	Ceftriaxone + Gentamicin + Vancomycin

Indications for Surgery in Endocarditis

1. Persistent +ve blood cultures
2. Moderate to severe CHF secondary to valvular dysfunction
3. Recurrent emboli
4. Myocardial or valve ring abscess (heart block)
5. Large vegetation >10 mm
6. Fungal or Brucella endocarditis
7. Relapse of prosthetic valve endocarditis after optimal antimicrobial therapy

No need to replace valve for mild CHF, anemia or renal failure

CSF Findings in CNS Infections

	Pressure (mm Hg)	Cell Count (mm ³)	Type	Glucose (mg/dl)	Protein (mg/dl)	Gram Stain	Culture
Normal	Normal	5-15	<10	Lymph	40-80	15-45	-
Bacterial	↑	10-10000	<u>PMN</u>	↓	↑	60%	75%
TB	↑	10-1000	Lymph	↓	↑	+/-	+/-
Fungal	↑	5-1000	Lymph	↓	↑	<u>India Ink+/-</u>	+/-
Aseptic	↑	10-2000	Lymph	N	N/↑	-	-
Encephalitis	↑	0-2000	Lymph	N	N/↑	-	-
Para Meningeal	↑	5-500	Mixed	N	N/↑	-	-
AIDS Dementia	↑	0-200	Lymph	N	N/↑	-	-

Hickman
Remove Catheters:

1. Fungemia
2. Tunnel Infection
3. Febrile in spite of ABX

Preventing Site Infx for CABG
Tx: cefazolin
30mins -1hr pre-procedure and repeat after 3-4hrs. for long procedure + 24hrs post op (@8hrs x24hrs)

Eosinophilic meningitis
- predominance of eos
- acute and in CSF
- Angiostrongylus cantonensis (rat lung worm)
- mostly HSV
- Delirium
- Hallucinations
- Seizures
- Paresis

variant vs. sporadic
- variant → younger pts
- thalamus involved on MRI
- psychiatric symptoms vs. dementia (sporadic)
Creutzfeldt-Jacob
- rapid, relentless, progressive dementia
- coordination problem
- CSF → ↑ protein
- MRI → diffuse cortical white matter / basal ganglia signals
- Dx: Autopsy
- Fatal by lymph. in 10%
- 14-3-3 protein level in CSF
- also ↑ in encephalitis, ALS + CVA's
- sensitive & specific
- one (+)
- crypto Ag

Therapy Of Meningitis Based Upon Culture Results

S. pneumoniae

Penicillin-sensitive
Penicillin-resistant

Penicillin G
Vancomycin + ceftriaxone or Cefotaxime

H. influenzae

Ceftriaxone or Cefotaxime

N. meningitidis

Penicillin-sensitive
Penicillin-resistant

Penicillin G
Ceftriaxone or Cefotaxime

Immunosuppressed @ ↑ risk

Listeria (Gram ⊕ Rod)

Ampicillin + Gentamicin → (use Bactrim + vanco if PCN allergic)

Gram-negative bacilli (except pseudomonas)

Ceftriaxone or Cefotaxime + Gentamicin

Pseudomonas

Ceftazidime + Gentamicin

Staphylococci

Methicillin-sensitive
Methicillin-resistant

Nafcillin
Vancomycin

Fatal Familial Insomnia

- insomnia
- then dementia
- autonomic instability
- MRI → slight hyperintensity of cerebral cortex + basal ganglia
- Dx = via Bt (tissue)
- rare prion dis.

Empirical Therapy of Bacterial Meningitis with a Nondiagnostic Gram's Stain

Meningococcal Prophylaxis for meningitis

- close family contacts
- daycare/school contacts
- nursing school contacts
- exposure to secretions

Treatment

Age < 3 months	Ampicillin + Ceftriaxone or Cefotaxime
3 months to 60 Years	Ceftriaxone or Cefotaxime + Vancomycin
Age > 60 years	Ampicillin + Ceftriaxone or Cefotaxime + Vancomycin
<u>Alcoholic or other debilitating illnesses</u>	<u>Ampicillin</u> + Ceftriaxone or Cefotaxime + Vancomycin

Impaired Cellular Immunity (Ex: Transplant pt's)

Ampicillin + Ceftazidime + Vancomycin

Head trauma, neurosurgery
CSF shunts, neutropenia, nosocomial

Ampicillin + Ceftazidime + Vancomycin

Pregnancy

Ampicillin + Ceftriaxone

Therapy of Meningitis Based Upon Gram's Stain

Treatment

Pneumococcus	Gram-positive cocci	Vancomycin + (Ceftriaxone or Cefotaxime)
Meningococcus	Gram-negative cocci	Ceftriaxone or Cefotaxime
Listeria	Gram-positive bacilli	Ampicillin + Gentamicin
	Gram-negative bacilli	Ceftriaxone or Cefotaxime or Ceftazidime + Gentamicin

spread via contact < 3 ft. w/ larger droplets
Ex: Intubation/suctioning
φ prophylaxis if wearing masks

Dexamethasone 10mg IV before first Q6H x 4 days for pneumococcus only

Recurrent Pneumococcal meningitis

- Nasal sinus → sub-arachnoid space tract
- CSF rhinorrhea

+ Dexamethasone (for strep pneumo)
↓ glucose normal nasal secretion should be for glucose

Clinical Presentation of Tuberculosis

Primary:	Infiltrates in the middle or lower lung zones with ipsilateral hilar lymphadenopathy
Reactivation:	Upper lobe infiltrates, frequently with cavitation
Extrapulmonary:	Lymph nodes, pleura, bones, joints, GU system, CNS
HIV: CD4 > 200:	Upper lobe infiltrates ± cavitation + <u>positive PPD</u>
CD4 < 200:	Atypical features with hilar & mediastinal nodes, pleural effusion, no cavitation, <u>negative PPD</u>

Treatment of Tuberculosis

No drug resistance:

(4) INH + Rifampin + PZA + Ethambutal for 2 months
INH + Rifampin for 4 more months
 (Daily, twice weekly, or 3 times /week)

INH resistance: Rifampin, PZA and Ethambutal x 6 months

Rifampin resistance: INH + PZA + Ethambutal x 12 months

PZA resistance: INH + Rifampin + Ethambutal for 2 months
 INH + Rifampin for 7 more months

INH and Rifampin resistance: PZA + Ethambutal + Quinolone for 18-24 months + streptomycin or another injectable agent X 2-6 months

Resistance to all first-line drugs: 1 injectable agent (Amikacin, Streptomycin, Kanamycin, or Capreomycin) for 2 to 6 months plus 3 of these 4 agents for 18 months: Ethionamide, Cyclosporin, quinolone, PAS

✓ sputum cx's monthly if ⊕ then suspect resistance

Rifampin → body fluids turn red

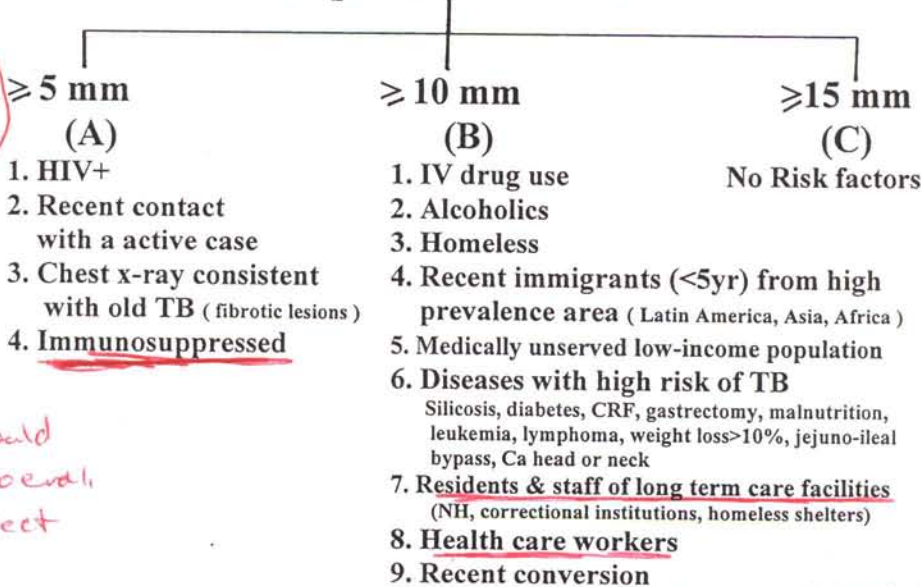
pyridinamide

Spinal TB
 - suspect w/ back pain + ⊕ PPD
 esp. in immunosuppressed pts
 - differentiate vs. bacterial osteo via Bx

Latent Tuberculosis

PPD testing should be performed only in persons who are at ↑ risk

Interpretation of PPD Test



BCG vaccine
 - even if pt. has ⊕ PPD and h/o this
 ↓
 to the ⊕ PPD cannot distinguish true ⊕ and false ⊕ PPD's

NH pt's → all should get 2 PPD's to eval. for booster effect

Booster Effect

- skin test wears over time
 ↓
 PPD may boost and test become ⊕

if 9st PPD ⊕ then 2nd stage PPD w/in 1 week

- if ⊕ then booster effect

↳ w/in 2yrs. of ↑ d ≥ 10mm

Indications for TB Prophylaxis

1. All patients in category A & B with positive PPD
2. High risk exposure even if PPD negative

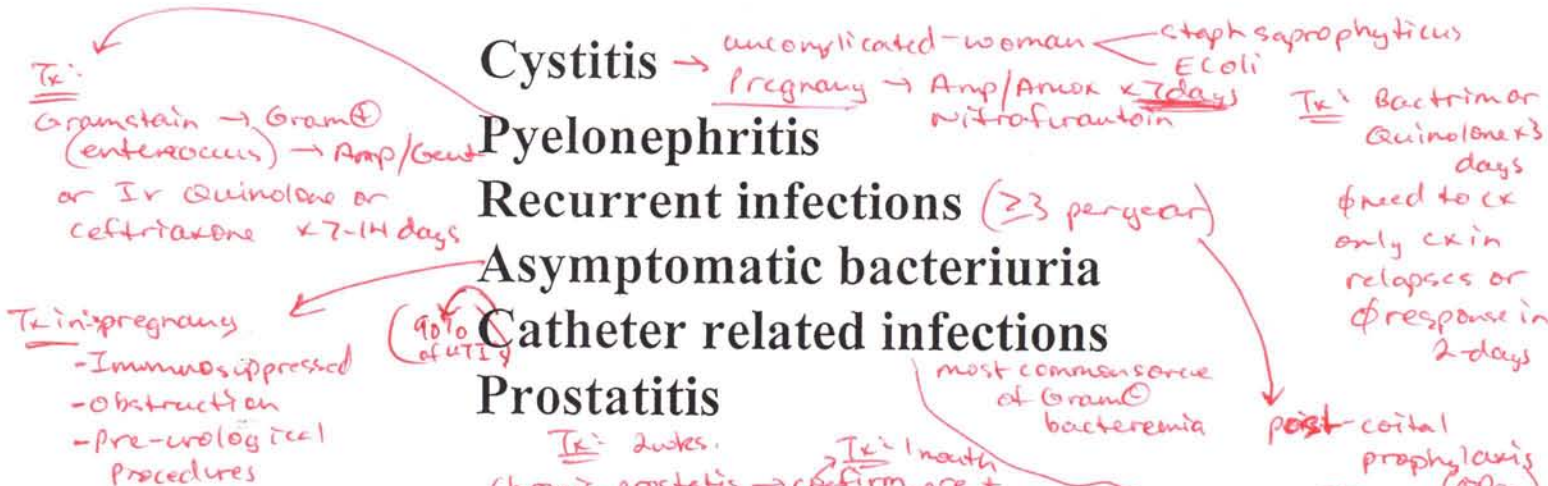
Recent close contact for at least 12 hrs with a person with infectious TB within 3 months especially if the contact is a young child or immunocompromised. Repeat PPD 3 months after contact has ended. (If positive continue Rx & if negative discontinue Rx)

Therapy

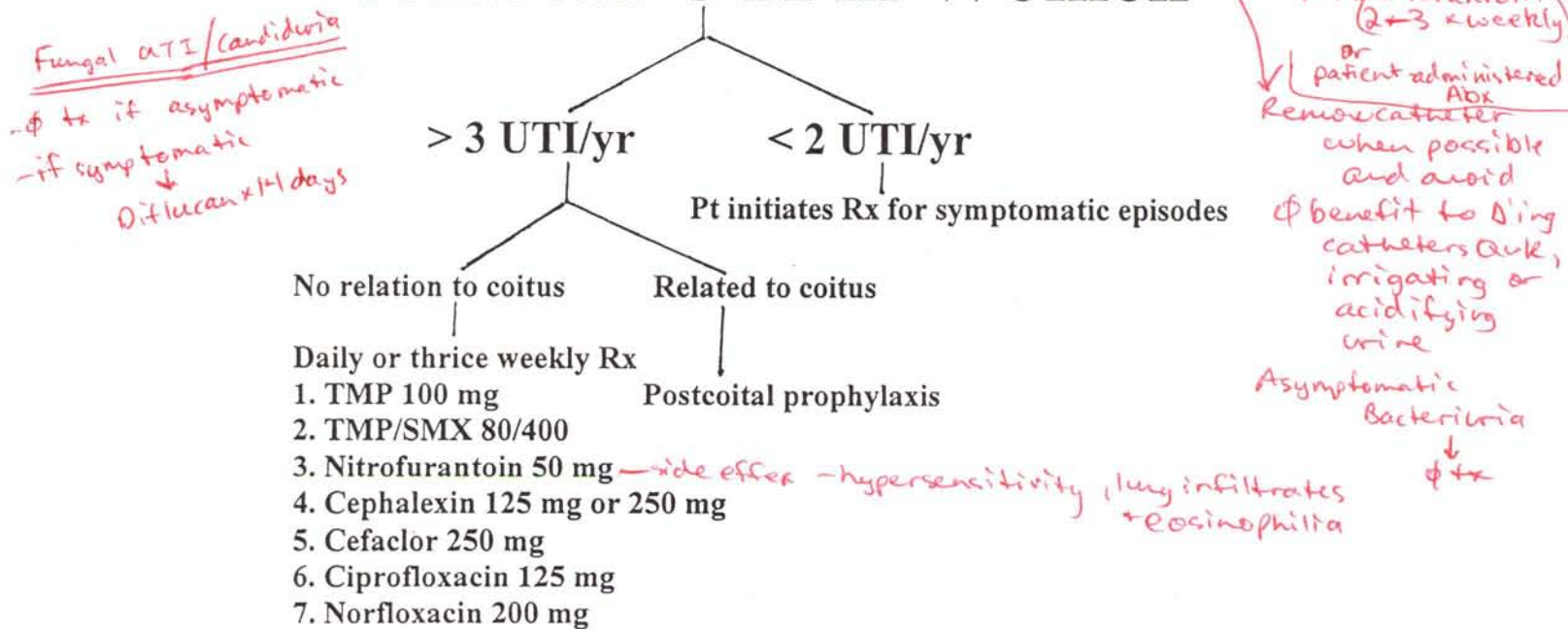
- INH for 9 months
- Rifampin for 4 months (if INH-resistant TB)
- INH + Rifampin for 3 months

Quantiferon Gold
- blood test for TB instead of PPD
(sensitivity similar to PPD)

Urinary Tract Infections



Recurrent UTI in Women



Lyme Disease

✓ PCR in joint fluid if arthritis ⊕

Caused by spirochete Borrelia burgdorferi in USA;
B. garinii and B. afzelii in Europe and Asia.

Spread by ticks of Ixodes species

Lyme Ab may be ⊕

Stage 1 (localized infection): Erythema migrans - avg size of central clearing ≥ 5 cm

Stage 2 (Disseminated infection)

Fever, chills, fatigue, arthralgias

Neuro: Meningitis, cranial neuritis (facial paralysis), radiculopathy, mononeuritis multiplex, myelitis

Cardiac: AV block, myopericarditis, LV dysfunction, Cardiomyopathy

unilateral or bilateral

Stage 3 (Persistent infection)

Late - Arthritis (Intermittent or chronic most commonly affecting the knees)

Subtle encephalopathy affecting memory, mood or sleep

Axonal polyneuropathy

Acrodermatitis: Reddish violaceous lesions that become sclerotic or atrophic

Diagnosis of Lyme Disease

Serology: If ELISA positive- confirm by Western blot

acute ← IGM Western blot is positive if 2 of the 3 bands are positive

past ("gone") ← IGG Western blot is positive if 5 of the 10 bands are positive

w/in 1-month both IgG + IgM should be ⊕

↓
if only IgM ⊕
after 1-month

↓
false ⊕

Culture from skin lesions

Spirochete DNA by PCR on joint fluid or CSF

Treatment of Lyme Disease

Oral Therapy

Doxycycline 100 mg BID or

Amoxicillin 500 mg TID or

Cefuroxime 500 mg BID

Indications

EM (14-21 days)

First degree AV block (14-21 days)

Facial paralysis (14-21 days)

Arthritis (30-60 days)

↳ titers fall slowly but IgM/IgG may stay ⊕ for years

IV Therapy

Ceftriaxone 2 g qd

Cefotaxime 2 g q 8 hr

use Doxy cycline if peno allergic

Neurological disease (14-28 days)

High degree AV block with PR interval > .3 s (14-28 days)

Arthritis (14-28 days)

Prophylaxis After Tick Bite
 - Doxy 200 x1 dose PO w/in 72-hrs. post tick removal
 - if tick present 736 hrs. + adult ↓'s risk of acquisition by 780%

Diseases Transmitted by Ticks

1. Lyme Disease
2. Rocky Mountain spotted fever

3. Ehrlichiosis (Human Granulocytic Anaplasmosis)

4. Babesiosis

- Northeast
- fevers/chills/HA's → flu-like
- leukopenia/thrombocytopenia
- ↑ LFT's too
- tick bite

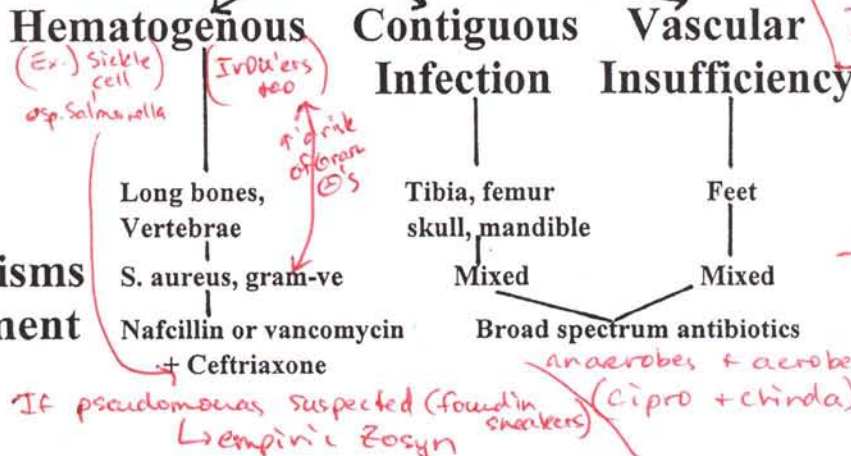
- Charby mulberry-like (morulae) structures in WBC's
- Tx: Doxycycline
- ✓ for Lyme + Babesiosis too

- fevers, ALP's
- myalgias
- rash on wrists/ankles
- Tx: Tetracycline or Doxycycline

in order for tick to transmit, needs to be attached x 36hrs or more
- if less → then of empiric tx.

(South Africa)
5 African Tickle Bite Fever
- most common human tick disease
- 1-2 wk incubation period
- vesicular rash
- eschars
- ✓ serology or PCR
- Tx: Doxycycline

Osteomyelitis



Definitive Dx and organisms
↓
Bone bx prior to Abx choosing

Bones

Organisms

Treatment

If pseudomonas suspected (found in smokers) → empiric Zosyn

sensitivity - 95%
specificity - 98%

Infections in a Compromised Host

- B cell defect (↓ IGG) : Pneumo, Meningo, H. influenzae, Giardia
- Neutropenia : Pseudomonas, Staph, Fungi (Aspergillus, Mucor, Candida)
- Phagocytic defect : Staph. aureus, Gram-neg, Nocardia, Aspergillus
- T cell defect
 - Bacteria : Mycobacteria, Listeria, Salmonella, Legionella
 - Viruses : Varicella-zoster, CMV, HSV
 - Parasites : Pneumocystis, Toxo, Cryptosporidia
 - Fungi : Histo, Crypto, Blasto, Coccidio, Candida
- Hyposplenism : Pneumo, Meningo, H. influenzae, Babesia, Malaria
- Complement 6-8 : Meningococcus, Gonococcus

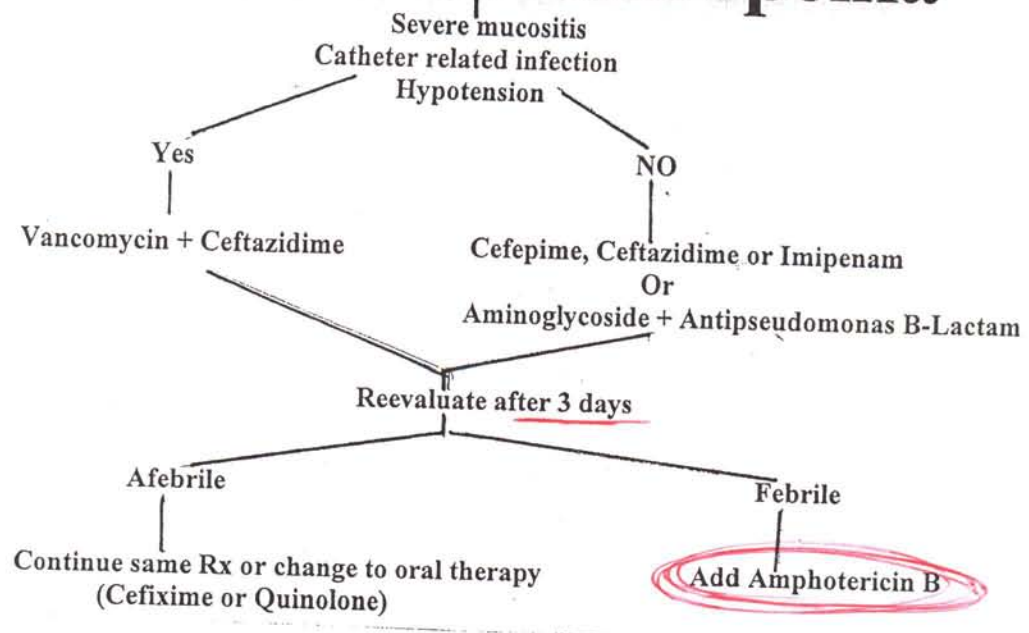
HHV-6
- Human Herpesvirus
- causes hepatitis
- + meningoencephalitis
- ↑ d. susceptibility to other infect bacterial + viral

HHV-8
- assoc. w/ Kaposi's Sarcoma

Aspergillois
- immunosuppressed
- flu-like:
- fevers
- HA's
- myalgias
- diarrhea
- cough
- CXR → "Halo sign"
↓
pathognomonic nodular lesion w/ surrounding ground glass appearance
- thick brown exudate of cavity lesions
Tx: Voriconazole

Chronic Granulomatous Dis,
- X-linked
- recurrent infect. esp. in childhood
Dx: via Nitroblue tetrazolium

Fever and Neutropenia

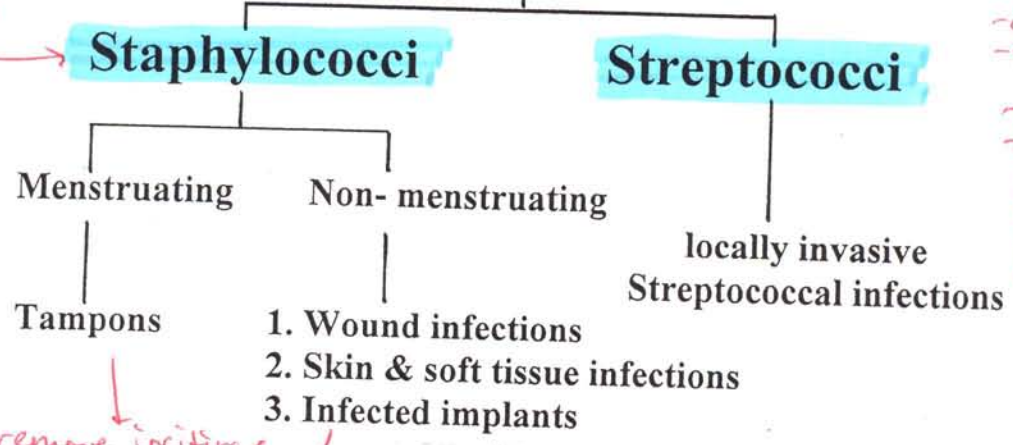


Toxic Shock Syndrome

- confirm Dx:
- vaginal ex

φ prophylaxis of close contacts recommended

- M/V/D
- leukocytosis
- fevers
- hypotension
- delirium
- subburn rash



remove inciting cause

Tx: Abx to cover both (staph + strep)
Vanco + chinda

Parvovirus B19 Infection

1. Erythema infectiosum (slap cheek appearance)
2. Polyarthrits (symmetric, inflammatory, < leukos.)
3. Aplastic crisis in chronic hemolytic anemias
4. Red cell aplasia in HIV +
5. Hydrops fetalis or fetal death

→ sudden ↓ H/H w/out bleeding + ↓ Retic
✓ IgM Ab's (acute?)

Histories On Sore Throat

1. Fever + exudate + pharyngitis + enlarged tonsils with exudates + tender cervical lymphadenitis → strep throat Tx: Azithro + Pen VK absence of cough + rhinorrhea
 2. Sore throat + cough + rhinitis ± conjunctivitis Dx: viral
 3. Sore throat + cough + hoarsness Dx: Mycoplasma → tonic contraction of muscles of mastication
 4. Sore throat + Fever + unilateral otalgia + dysarthria + trismus + right tonsil displaced medially and with exudates Dx: Peritonsillar abscess Tx: Drain + Abx
 5. Fever + dysphagia + odynophagia + drooling of oral secretions ± stridor Dx: Epiglottitis Tx: Admit to ICU
 6. Sore throat + fever + enlarged tonsils with thick exudates + generalized lymphadenopathy + splenomegaly + atypical lymphocytes Dx: Infect Mono
 7. Fever + sore throat + Splenomegaly + atypical lymphocytes + heterophile neg. Dx: CMV, VCMV Ab's Acute retroviral Syndrome
 8. Sore throat + fever + nonexudative pharyngitis + generalized lymphadenopathy + arthralgia + myalgia + lethargy + maculo papular rash ✓ heterophile Ab, ✓ IgM Ab's against capsule Ag
 9. Pharyngitis + white papules and vesicles on the palate → Herpangina
 10. Sore throat + marked systemic toxicity + fever + grayish brown membrane over both tonsils + serosanguinous nasal discharge Dx: Diphtheria Tx: Azithro
- Cxsackie virus

Anthrax

Gram ⊕ Rod's

→ only standard precautions needed & droplet or resp. isolation needed

→ cause widened mediastinum → hemorrhagic mediastinitis

Cutaneous: Ulcer surrounded by non-pitting brawny edema

Inhalation: Fever, dyspnea, hypoxia, hypotension, hemorrhagic mediastinitis (symmetrical mediastinal widening)

Treatment

Inhalation: Cipro or doxycycline + high dose penicillin... 60 days

Cutaneous: Cipro PO, (doxycycline or amoxicillin if susceptible)... 7-10 days, 60 days if related to bioterrorism

Post Exposure Prophylaxis

Cipro PO for 60 days, 30 days if vaccine given

Doxycycline or amoxicillin for susceptible strains

Histoplasmosis

- malaise
- fevers
- HA's
- ↓ appetite
- dry cough

- bird/bat droppings in soil
- endemic to SW USA/Mexico
- slight ↑ in LFT's
- CXR → reticulonodular diffuse infiltrates w/ enlarged mediastinal LN's
- early granulomatous inflammation

Treatment of Cellulitis

Cryptococcal
cellulitis
unusual even in
immunosuppressed
skin Bx → budding
yeast

Organism	Treatment	Alternative
Usual case: Gram+ cocci (Staph or strep)	IV cefazolin, nafcillin, ceftriaxone PO dicloxacillin, cephadrine, cephalexin, cefadroxil	IV vancomycin IV or PO linezolid
Diabetes: Gram +, gram-, anerobes	<u>Ampicillin-sulbactam</u>	Metropenam, imipenam, Clinda or metronidazole + quinolone
<u>Buccal cellulitis: H. influenzae</u>	Ceftriaxone	Metropenam or imipenam
<u>Dog or cat bite:</u> P. multocida, Anaerobes Capnocytophagia	Amoxicillin-clavulanate PO → Augmentin	Moxifloxacin + Clindamycin (Bactrim + clinda if pen allergic)
<u>Human bite:</u> Strep, Staph, Anaerobes, Eikenella	Amoxicillin-clavulanate PO	Penicillin + cephalosporin
<u>Injury in salt water:</u> V. vulnificus	IV Doxycycline	Cefotaxime; ciprofloxacin
<u>Injury in fresh water:</u> Aeromonas	Ciprofloxacin IV or Ceftazidime + gentamicin	Metropenam or imipenam
<u>Butcher, fish or clam handler, veterinarian: Erysipelothrix rhusiopathiae</u>	Amoxicillin PO for mild infection Pen G IV (12-20 million units) for severe infection or endocarditis	Ciprofloxacin, cefotaxime, imipenam

→ courses longer than
2wks. → ↑ risk
of BM
suppression
esp. thrombocytopenia

SARS

Etiological agent: Corona virus, incubation period 2-10 days
History: Recent travel to high risk area or contact with a SARS patient
S/S: Fever, chills, malaise, headache, cough, shortness of breath, pneumonitis,
hypoxemia
Lab: Lymphopenia, ↑AST/ALT(66%), ↑CPK (50%)
Chest X-ray: Ground glass opacification or focal consolidation of peripheral,
subpleural and lower zones of lung
Diagnosis: Real-time RT-PCR on respiratory secretions, feces, urine and tissue
sample from lung biopsy
Treatment: No specific treatment, effective intensive and respiratory care,
health care workers should use stringent infection control
measures against aerosol spread including N 95 msk, gowns,
goggles and gloves

Necrotizing fasciitis

- toxic
- vesicles
- pain/tenderness
- Dx: MRI

Tx: Amp/sulbactam +
clinda

Community - MRSA

Tx: Bactrim
Doxycycline
Clinda

West Nile Virus

- can very very rarely be transmitted via transfused blood

Virus initially infects birds (crows are susceptible to lethal infection), then transmitted to mosquitoes and from mosquitoes to humans

S/S: Aseptic meningitis, encephalitis, axonal polyneuropathy

or poliomyelitis (muscular weakness + flaccid paralysis)

Diagnosis: IgM capture enzyme-linked immunosorbent assay of CSF or serum

Treatment: No vaccine or antiviral agent is available for prophylaxis or treatment

Prevention: Removing standing water where mosquitoes breed; staying indoors at dusk, dawn and early evening, wearing protective clothing, and using insect repellent.

vs.
HsV Encephalitis
- affect temporal lobe
↓ expressive aphasia
- ✓ PCR + MRI
↓ temporal lobe abnorms
carry poor prognosis

Tx: Acyclovir

Dengue Fever

Caused by the RNA virus belonging to the class Flaviviridae (4 serotypes)

immunity (vaccine) only to 1 serotype

Transmitted by mosquitoes of the genus Aedes

Most cases acquired in Asia, Americas and Africa

Most common cause of Arboviral disease in the world (100 million cases/year)

Incubation: 3-14 days

S/S: Fever + severe headache + retro-orbital pain + severe myalgia and arthralgia + hemorrhagic manifestations (petechiae, purpura)

← abrupt onset

Leukopenia and a positive tourniquet test → inflate BP cuff → petechiae arise

Dengue Hemorrhagic Fever (Triad of symptoms)

Platelet count < 100000/cmm

Objective evidence of plasma leakage (↑Hct > 20%) or clinical signs of plasma leakage such as pleural effusion, ascites, or hypoproteinemia

Dengue Shock Syndrome

Diagnosis: IGM antibodies are positive in 4-5 days after onset of symptoms

IGG antibodies after 7 days

Culture of virus or PCR

Treatment: Supportive, monitor Hct and platelet count daily

viral Hemorrhagic Fever

- fever
- myalgia
- HAs
- vomiting
- diarrhea
- hypotension
- delirium
- shock
- petechial/mucous membrane hemorrhages
- leukopenia
- thrombocytopenia
- ↑ LFTs

Avian Influenza A (H5N1)

Transmission: Primary source birds, no human to human transmission

Incubation: 2-4 days

S/S: High fever, influenza like illness + lower respiratory tract symptoms

Pneumonia and progression to respiratory failure is common

GI symptoms common: Diarrhea, vomiting, abdominal pain

X-ray: Diffuse multifocal or patchy infiltrates, interstitial infiltrates or segmental or lobar consolidation

Diagnosis: Leukopenia, lymphopenia, thrombocytopenia, ↑AST/ALT

Pharyngeal swabs or lower respiratory samples best for diagnosis

Culture or PCR

Immunofluorescence test with monoclonal antibody

4 fold rise in H5 specific antibody

Treatment: Oseltamivir (Tamiflu)

Prevention: N-95 masks to be worn by health care workers

Unprotected exposure: Oseltamivir for 7-10 days

all pt's family members should be vaccinated
↑
avoid live vaccine in immunosuppressed instead use

Human Influenza

- Types A + B rapid resolution
↑ common
- Amantadine / Rimantadine

only effective against A

Oseltamivir / Zanamivir

active against A+B

needs renal dose adjustment

avoid in asthmatics
↓
↑d bronchospasm

Antibiotics

Penicillins

In High-doses:
seizures, ↑IC₉, Hemolysis

Antipseudomons: Piperacillin, Piperacillin/tozabactam, Mezlocillin, Ticarcillin, Ticarcillin/clavulanate

B-lactam-B lactamase Inhibitors *(anaerobic coverage too)*

Ampicillin-Sulbactam, Amoxicillin-Clavulanate, Ticarcillin-Clavulanate, Piperacillin-Tazobactam

Cephalosporins

First Generation

Cefazolin, Cephalexin, Cefadroxil → do not x blood brain barrier

Second Generation

Cefoxitin, Cefotetan, Cefuroxime, Cefamandole
Cefaclor, Cefmetazole, Cefonicid, Loracarbef

Third Generation

Ceftriaxone, Cefotaxime, Ceftizoxime, Cefprozil,
Cefixime, Cefibuten, Cefdinir, Cefditoren, Cefpodoxime
Ceftazidime, Cefoperazon, Cefepime → also cover Pseudomonas

Carbapenams

Imipenam-Cilastin, Meropenem, Ertapenem → can be given orally

Monobactams

Aztrenam *(Gram⁺ only)*

Macrolides & Azalides

Erythromycin, Clarithromycin, Azithromycin

Tetracyclines → avoid in pregnancy

Aminoglycosides

Gentamicin, Tobramycin, Amikacin, Streptomycin

TMP/SMX → allergic react, ↑ creat due to ↓ creat cle

Fluoroquinolones

Ciprofloxacin, Ofloxacin, Norfloxacin,
Levofloxacin, gatifloxacin, moxifloxacin → good atypical coverage

Metronidazole → avoid w/ EtOH (N/V)

Clindamicin

Vancomycin

Oxazolidinones (Linezolid) → ✓ blood counts esp. w/ courses > 2 wks.

Streptogramins (Quinapristin/Dalfopristin)

BM suppression
esp. thrombocytopenia

↑ing
Gram⁺
coverage ↓

Infected Catheters

Ex.) ICU pt. w/ SC TLC
Febrile now
Blood cx's → Candida

Tx: Start Ampho B + remove TLC

some avoid Diflucan b/c ~50% of candida strains are ϕ albicans and ϕ susceptible to Diflucan

Ex.) ICU pt. w/ SC TLC
Afebrile
Blood cx's → Candida

Tx: Ampho B / Caspofungin + remove TLC

Iodine → ↑'d infect vs. chlorhexidine (↓'d infect by 50% vs. iodine)

Otitis

Ex.) 2-weeks post-otitis media
Now w/ fever / (R) Hemiparesis
Head CT → Ring-enhancing lesion in (L) parietal lobe
CT-Guided Aspiration → cx's (P)

Think Brain Abscess post-Otitis

Tx: Ceftriaxone / Ceftriaxone
+ Flagyl

Ex.) otitis media

Tx: ↑-dose Amox

(Azithro / Augmentin / Bactrim / Cefuroxime if ϕ response)

Ex.) otitis externa

Tx: Topical Abx eardrops

Ex.) Malignant otitis externa

-red
-swollen
-earlobes

-usually-cause is Pseudomonas

Tx: IV Abx + Debridement

Sample Cases / Key words

① sexually active young man
sudden-onset (L) scrotal pain
marked upper testicular pain
Epididymis is anterior rather than posterior

Think: Torsion

Tx: Surgery

② Ichthema Gangrenosum

Think: ^{Disseminated} Pseudomonas

③ Hand / Foot / Mouth Disease

Think: Coxsackie virus

④ Fournier's Gangrene

Dx: B. Frag

Tx: Flagyl

5) Nocardia - septate hyphae → weakly gram+ beaded filaments

- seen w/ immunosuppression
- usually begins @ a Tr: Sulfonamides (esp. Bactrim)
- can spread to cardiac valves → embolization (brain abscess)

6) Mucormycosis Tr: Amphotericin B

7) Malaria - ring forms in RBC's (trophozoites)

Tr: Prophylaxis → chloroquine then primaquine

8) Cutaneous Bacillary Angiomatosis

Think: Bartonella

Tr: Amox + Azithro

9) Fish tank Granuloma

Think: Mycobacteria ~~marinum~~ marinum

- presents as asymptomatic limb nodules
- Dx → Biopsy not FNA
- PPD may show 5-10cm induration

Tr: Doxycycline

10) Impetigo - honey-crusted lesions
- staph / strep

11) Sporotrichosis - K-Iodide
- Itraconazole

12) Trichinosis - assoc. w/ eating raw pork

13) Traunk Smear → multinucleated giant cells

14) Avoiding Pneumonia in vented pts
- ↑ HOB to 45°

Risk Factors:

- CCS < 9
- chest trauma
- early resumption of external feedings
- H₂-Blockers

most common cause of non gonococcal septic arthritis

↓
Staph/strep

↓
esp. w/ RA
75-90% of cases are staph

15) IVDU'er w/ fevers
TR murmur
swollen/red ② SCM (clavicular joint)

mechanical pain w/ weight-bearing

typically pain is constant

Dx: Atypical location septic arthritis
(Think Pseudomonas)
Tr: Vanco for odd locations + cefepime

16) Small Pox - incubation period → 7-14 days

- face / extremities
- macules → papules then pustules
- crops of lesions are similar

if exposed → isolate x 7 days to watch for illness
→ small pox vaccine w/in 4 days or if vaccine contraindicated

most prominent outbreak vs. varying stages → varicella (chicken pox)

↓
vaccinia Ig (pregnancy) immunosuppressed

17) Plague gram rod Tr: streptomycin
- yersinia pestis
- spread by fleas
- Dox x 7 days
- Incubation - 2-4 days

- HA's
- high fevers
- dyspnea
- myalgias
- hemoptysis → watery, bloody sputum
- sepsis

18) Tularemia Tr: Doxy x 14 days or quinolones

person-to-person transmission
additional isolation precautions needed

19) Viral Hemorrhagic Fever Tr: Ribavirin

20) Herpes Labialis Tx: valacyclovir 2g^{PO} BID x 2 doses
-incubation period 3-5 days
↳ if acyclovir resistant → Foscarnet → ↑ electrolyte disturbances

21) Sinusitis Tx: Amox (then Azithro / Augmentin / Bactrim or Cefuroxime) if no response
-if recurrent:
✓ CT scan + ENT referral

22) Cat Scratch Disease -cat owners
-cause → Bartonella
-tender axillary LAD Tx: Cipro
-small pustular hand lesions
-Dx: confirm w/ serology or Bx

23) Butcher
wks. of fevers/chills/HA's
palpable spleen tip
Think: Brucellosis
✓ serology
Tx: Doxycycline

24) Veterinarian
fevers / ↑LFT's / ↑BUN / ↑creat
confusion
jaundice
Think: Leptospirosis
✓ serology
Tx: Doxycycline

25) Most serious complication of chicken pox + pregnancy → chicken pox pneumonia

26) Pt. from Arizona
cough / fevers
painful red lesions over posterior legs (Erythema Nodosum)
TxR → RUL infiltrates + thin-walled cavities
Think: Coccidiomycosis
Tx: Itraconazole / Ketoconazole

27) Ludwig's Angina
-fever
-swelling over mandible / neck
-swelling / erythema of tongue
-cause → anaerobes
Tx: Augmentin

28) Splenectomy 4 yrs. ago
now fevers / chills
purpura all over body
Think: Strep pneumo Bacteremia

29) Diabetic w/ dog bite
now cellulitis
Abd. surgery for MVA 4 yrs. ago
Smear → Howell-Jolly bodies → splenectomy
Think: Capnocytophaga
Tx: PCN

30) Activated Protein C (Xigris)

- improves outcomes in severe sepsis

31) Mass over R mandible
draining yellow sinuses

Think: Cervicofacial Actinomyces

Tx: High-Dose PCN

32) Cruiseship Diarrheal Outbreaks

Think: Norwalk virus

Traveler's Diarrhea

- Enterotoxigenic E. coli (most common cause outside US)
- self-limited
- w/in US → most common cause is Campylobacter

33) Construction worker
w/ wt. loss / cough / hemoptysis
ulcerative lesion on hand
nodular lesion on forearm

Think: Blastomyces (yeast)

Tx: Amphotericin B

- cyclospora - capnia
diarrhea w/out fever
Tx: rifaximin, stool AFB

34) Fevers / Chills / sore throat
L Neck pain x 2 days
Inflamed tonsils
Extremely tender / swollen SCM muscle
Blood cx's → Fusobacterium

Think: Lemierre Syndrome (septic thrombophlebitis of jugular vein)

35) Ebola virus - petechial rash

36) Herpes Zoster

- in post stem-cell transplant patients
- healthcare workers

Tx: famciclovir or valacyclovir → have replaced Acyclovir
→ use prophylactic Acyclovir to ↓ reactivation
→ if immune then should begin and vaccine dose
99% seroconvert

37) Entamoeba Histolytica

↑ risk of amebic abscess formation (usually in liver)
↳ think brown, odorless fluid, cx's ⊕, Gram stains ⊕

38) Subdural Empyema

- requires surgical drainage
- Abx tx depending on cx results
- LP contraindicated
- Dexa + mannitol of use

39) Botulism → only standard precautions needed (C/droplet or resp. isolation)

- prominent bulbar findings:
12-72 hrs. post-exposure

- Ⓐ Diplopia
- Ⓑ Dysphonia
- Ⓒ Dysarthria
- Ⓓ Dysphagia
- Ⓔ Descending symmetric flaccid paralysis

vs. Myasthenia Gravis
- autoimmune dis.
- slower onset
Guillain-Barre
- ascending paralysis
Eaton-Lambert
- proximal muscles
- slow-onset
- assoc. w/ malignancy (esp. small cell lung ca.)

40) Pneumonia Admission to ICU

Major Indications (Either of the below)

- Ⓐ Intubation
- Ⓑ Sepsis

Minor Indications (Two or more)

- Ⓐ SBP < 90
- Ⓑ Multilobar dis.
- Ⓒ PO₂ / FIO₂ ratio > 250