“Common” Skin Infections
Focus on Bacterial Infections

Everything You’re Itching to Know!

R. Mimi Secor, MS, M.Ed, FNP-BC, FAANP

Nurse Practitioner
Upton, Massachusetts (near Boston)
Focus on Bacterial Infections

MRSA

Folliculitis, dermatitis
Impetigo
Abscesses, Furuncles, Caruncles
Cellulitis
Erysipelas

Necrotizing Fasciitis
Objectives

- Identify various skin infections affecting adults focusing on bacterial conditions
- List several bacterial skin infections requiring immediate referral
- Develop a plan for diagnosis, treatment, follow-up of selected skin infections

MRSA
Methicillin Resistant *Staphylococcus aureus* in the Community:

Epidemiology and Management

*Staphylococcus aureus*

- *Staphylococcus aureus*: Common cause of infection in the community
- Methicillin-resistant *Staphylococcus aureus* MRSA:
  - Since 1970s, “healthcare” cause of infections
  - In 1990s, “community” cause of infections
Community-Associated MRSA: Definition per CDC

- MRSA culture in Outpatient setting
- Or First 48 hrs of Hospitalization
- And NO risk factors for health care-assoc. MRSA including:
  - Hospitalization, Long-term care
  - Surgery
  - Dialysis
  - Indwelling devices
  - History of MRSA

Outbreaks of MRSA in the Community

- Often 1st noted as clusters of “abscesses” or “spider bites”
- Most common in high risk settings
  - Sports
  - Prisons
  - Military
  - Daycare
  - Native Americans
  - Men having sex with men/ MSM
  - Tattoos
  - Hurricane evacuees in shelters
Factors that Facilitate Transmission

- Crowding
- Frequent Contact
- Antimicrobial Use
- Contaminated Surfaces and Shared Items
- Poor hygiene

Frequent Contact

- Crowding
- Contaminated Surfaces and Shared Items
- Poor hygiene

Range of recluse (genus Loxosceles) spiders in the United States

- Wright, 2008
CA-MRSA Infections are Mainly Skin Infections

<table>
<thead>
<tr>
<th>Disease Syndrome</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin/soft tissue</td>
<td>1,266 (77%)</td>
</tr>
<tr>
<td>Wound (Traumatic)</td>
<td>157 (10%)</td>
</tr>
<tr>
<td>Urinary Tract Infection</td>
<td>64 (4%)</td>
</tr>
<tr>
<td>Sinusitis</td>
<td>61 (4%)</td>
</tr>
<tr>
<td>Bacteremia</td>
<td>43 (3%)</td>
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<tr>
<td>Pneumonia</td>
<td>31 (2%)</td>
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Most Invasive MRSA Infections are “Healthcare” Associated

S. aureus-Associated Skin and Soft Tissue Infections in Ambulatory Care

- 11.6 million ambulatory care visits per year in 2001-03 for skin infections “typical” of S. aureus
- Increase in hospital outpatient and ED visits (2001-03 versus 1992-94)
MRSA Was the Most Commonly Identified Cause of Purulent SSTIs Among Adult ED Patients

(EMERGEncy ID Net), August 2004

59%
(97% USA300)

S. aureus Nasal Colonization 2002
National Health and Nutrition Examination Survey 2001-02

S. aureus: 32.4% = 89.4 M people

MRSA: 0.8% = 2.3 M people

MRSA colonization associated with age >= 60 years & being female

MRSA Prevalence 2007-08
Among Health Workers

  http://dx.doi.org/10.1016/j.annemergmed.2008.03.019
- Emergency dept health care workers
  - n of 255
  - 31.8% nasal S. aurea
- 4.3% MRSA !!!
- 15.2% MRSA (nasal) in another study in Chicago tertiary care teaching hospital
Differential Diagnosis – Think MRSA

- Include MRSA in Differential Diagnosis of skin & soft tissue infections (SSTI's) compatible with *S. aureus* infection:
  - Abscesses, boils
  - Pustular lesions
  - “Spider bites”
  - Cellulitis

Must Rule Out MRSA

Differential Diagnosis – Think MRSA

- Consider MRSA in differential diagnosis of severe disease compatible with *S. aureus* infection:
  - Necrotizing fasciitis
  - Osteomyelitis
  - Empyema
  - Necrotizing pneumonia
  - Septic arthritis
  - Endocarditis
  - Sepsis syndrome
  - Purpura fulminans
Necrotizing Fasciitis

Bullae: Below these lesions is necrotic tissue

Management of Skin Infections in Era of CA-MRSA

For "Purulent" Lesions
Routine Incision & Drainage, I & D

- I & D “purulent” skin lesions
- Culture
- Empiric antimicrobial therapy may be needed
- Alternative agents have Pros/Cons
  - More data needed to identify optimal strategies
- Use "local data" to guide treatment
- Patient education
- Follow-up

Culture
Treatment of Severe/Invasive Infections

- Consult an Infectious Disease Specialist
- Vancomycin is 1st-line therapy for severe MRSA infections
- Other IV agents may be appropriate
- Therapy per Culture & Susceptibility


Antimicrobial Selection for SSTIs

- Alternative agents - More data needed re: efficacy
- Clindamycin – Potential resistance
  - Relatively higher risk of *C. difficile*
- TMP/SMX – Group A Strep often resistant
- Tetracyclines – Not recommended for < 8 yrs
- Rifampin – Not as a single agent
- Linezolid – Expensive
  - Potential for resistance with inappropriate use

Preventing Transmission: KEY

- Keep wounds covered
- Wash hands frequently
  - after touching infected skin
  - or changing dressings
- Dispose of used bandages
- Avoid sharing personal items

www.cdc.gov
Preventing Transmission

- Exclude from school, work, sports activities, ONLY IF UNABLE to keep infected skin covered, clean, & maintain good hygiene
- Generally it is NOT necessary to close Schools to “disinfect” them - when MRSA occurs
- In Ambulatory Care, USE Standard Precautions
  - Handwashing, gloves, gowns, masks if respiratory

www.cdc.gov

MRSA Conclusions

- New MRSA strains emerging in community
- I & D is primary therapy for purulent skin infections
- Oral antibiotic treatments are available
- Patient education on proper wound care is critical
- Increased awareness, early diagnosis/ treatment, hygiene, & clean environment control outbreaks
MRSA Posters and Patient Education

http://www.cdc.gov/mrsa

Folliculitis
Clinical Presentation

- One or more pustules may first appear
- +/- Fever
  - usually low grade if occurs
- Associated malaise, fatigue
- Pustules may have wide rims of erythema

Folliculitis

- Dermatophytes........
  - Pityrosporum +KOH
- Mechanical, shaving...
- Occlusive, tan oils
- Acne related
- Steroid induced
  - 2 wks post meds
- Extensive – Ck HIV
- Antifungals topical or oral
- Warm compresses
- Avoid heat, friction, occlu.
- Antibacterial soap
  - Helps all types
- If Superficial / Mild
- Topical antibiotics
  - Mupirocin /Bactroban
    - BID x days/weeks
  - Oral Antistaph Meds
    - Dicloxicillin, Cephalexin
    - 500 mg po qid x 5-10 days

Hot Tub Folliculitis, Dermatitis
Hot Tub Folliculitis/ Dermatitis

- Inflammed hair follicles, typically on truck

- **Pseudomonas most common**
- Also *Staphylococcus*, but unusual
  - MSSA or MRSA

- Infection within 8 hours, up to 5 days…
  …of using contaminated hot tub, whirlpool
- Showering after offers NO protection!

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Hot Tub Folliculitis: Treatment

- **Culture lesions**

- White vinegar compresses – 20 mins tid
  - may provide significant benefit

- **Oral Antibiotics for pseudomonas**
  - Ciprofloxacin 500-750 mg bid x 5-10 days

- **Education**
  - No evidence of “person – person” spread
Impetigo

- Contagious, superficial skin infection
- Caused by staphylococci or occasional streptococci
  - Enters through small cut, abrasion
  - Resides often in nasopharynx
- Spread by contact
- More common in children
  - Particularly on nose, mouth, limbs
- Self-limiting
  - But if untreated may last weeks to months
Impetigo

- Symptoms
  - Rash persists
  - Begins as small area, increases in size
  - Yellow, crusted draining lesions

- Physical Examination Findings
  - “Honey crusts” and small vesicles
  - If crusts removed, tissue bright red, inflamed

Impetigo ?

Impetigo
Impetigo

- Diagnosis
  - Culture – Must consider MRSA

- Therapeutic
  - Per culture
  - Bactroban / Mupirocin or Altabax
  - 1st generation Cephalosporin vs. TMP/SMX

Impetigo- Education

Good hand washing, hygiene

Wash sheets, pillowcases

No school/daycare for 24-48 hours

Monitor for serious sequelae
Abscess: Definition

- An Abscess
  Is NOT a hollow sphere

- BUT a cavity
  formed by finger-like loculations
  of pus & granulation tissue

  extending outward
  along planes of least resistance

Furuncle:
Mild to Moderate - Abscess or Boil

- Walled-off, deep, painful, firm or fluctuant mass enclosing pus
- Thighs, butt, groin, axillae, waist
- Secondary to folliculitis
- No fever
- Culture, Consider I&D
- Warm soaks
Carbuncle:
Mod-Severe Abscess

- Extremely painful,
- Deep,
- Interconnected aggregate of;
- Infected, abscessed follicles
- Upper back/neck, thighs
- Fever, malaise, chills
- I&D, culture

Focus on Bacterial Infections

MRSA
   Folliculitis, dermatitis
   Impetigo
   Abscesses, Furuncles, Caruncles
   Cellulitis
   Erysipelas
   Necrotizing Fasciitis

Erysipelas Cellulitis?
Erysipelas Cellulitis on Leg?
Red, Swollen, Hard, Painful, Hot

Erysipelas
Acute, Superficial Cellulitis, GAS

- Differs due to lymphatic involvement “streaking”
- Dermal infection by GAS
- Margins demarcated, raised
- Legs, Face (often starts here)
- Fiery red, w/ streaks
- Site of entry NOT always clear, endogenous too
- Preceded by strept. pharyngitis
- 4 to 48 hrs
  - Malaise
  - High fever, chills, n/ vomiting

Erysipelas Cellulitis:
REFER

- Strept. Pyogenes (GAS)
- Culturing difficult: Only small % positive
- Antistreptolysin O titre elevation after 10 days
- Treatment by severity
- IV or Oral antibiotics
- Pen VK 250-500 mg x10 D
- Clindamycin
- Erythromycin
- Illness Sx resolve quickly
- Skin may take weeks!
Cellulitis: Classification

- Mild-moderate
  - Smaller area
  - No fever
  - No abscess
  - No joint involved
  - Indolent course

- Moderate-severe
  - Larger area
  - Rapid course
  - Fever
  - Abscess suspected
  - Joint area involved
**Cellulitis: Mild to Moderate?**

**Oral Regimens**
- Cephalexin 500 mg qid
- Cloxacillin 500 mg qid
- PCN Allergy
  - Clindamycin 300 mg qid
- MRSA Suspected or Proven
  - TMP/SMX DS 1-2 bid
  - Clindamycin 300 mg qid
  - Recheck in 24 hours

**PCN Allergy**
- Clindamycin 300 mg qid

**MRSA Suspected or Proven**
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- Clindamycin 300 mg qid
- Recheck in 24 hours

**Cellulitis: Moderate – Severe**

**Larger area**
- Rapid course
- Fever
- Abscess suspected
- Joint area involved

**Cellulitis: Moderate to Severe**

**Management**
- Drain Abscess
- Send for C&S
- Blood Cultures
- if fever
- MRSA versus Non-MRSA
- IV antibiotics

**Referral**
- If fever

**Notes**
- Wright, 2008
Cellulitis: Moderate to Severe Treatment - Cont’d

IV to PO Step down
- Afebrile 24-48 hours
- Resolution of Systemic symptoms
- Regression of erythema/induration
- Able to tolerate PO meds

Not Responding to Antibiotics? Differential

- Venous insufficiency
- DVT
- Contact dermatitis/allergy
- Unusual or resistant organism
- Deeper infection
- Undrained abscess
- Necrotizing fasciitis!

Bullae: Below these lesions is necrotic tissue
Necrotizing Fasciitis

- Severe, deep, necrotizing infection
  - Involves subcutaneous tissue into deep muscles
- Spreads rapidly
- Caused by
  - Group A Beta Hemolytic Strep, Staph, Pseudomonas, E Coli
- Mortality
  - 8-70% based on bacteria & rapidity of treatment
- Disfigurement common

Symptoms
- Post-surgery, traumatic wounds, injection sites, cutaneous sores
- Generalized body aches, fever, irritability

KEY: Severely painful skin redness
- Out of proportion to findings!
- Leg - most common location

Exam
- 1st appears as local redness resembling cellulitis

"Woke up. The cat's got your teeth."
Necrotizing Fasciitis

- Exam findings
  - Extremely tender “cellulitis”
  - Bullae with purulent center, rupture quickly
  - Black eschar appears, pain lessens
  - Systemic symptoms begin

Bullae: Below these lesions is necrotic tissue

Necrotizing Fasciitis: Plan

- Diagnosis
  - Wound & blood cultures, biopsy,
  - CBC w/ diff, urinalysis
- Management
  - HOSPITAL ADMISSION
- Education
  - Good wound hygiene

Systemic symptoms begin

Diagnosis

Wound & blood cultures, biopsy, CBC w/ diff, urinalysis

Management

HOSPITAL ADMISSION

Education

Good wound hygiene
Summary:
Common Skin Infections

Focus Bacterial Infections
- MRSA infections
- Contact dermatitis
- Folliculitis
- Impetigo
- Furunculitis
- Cellulitis
- Erysipelas
- Necrotizing Fasciitis

Addendum:
Additional Slides
- Scabies
- Herpes Simplex
- Lyme Disease
- Insect, Spider bites
- Tinea, Candidiasis
- Herpes Zoster
Erythrasma

- Wood's lamp - blue hue
- KOH negative
- Obese
- Diabetic
- Erythromycin 250 mg QID x 2 weeks
- Azoles less effective

Perioral Dermatitis
Perioral Dermatitis
- Occurs in young women and closely resembles acne
- Papules and pustules are frequently present
- Lesions are confined to chin and nasolabial folds
- Can also occur in children
- Cause is unknown but is believed to be exacerbated by benzoyl peroxide, tretinoin, alcohol based products and frequent moisturizing

Treatment
- Tetracycline creams
  - Two times daily x 4 weeks
- Erythromycin creams
  - Two times daily x 4 weeks
- Metrogel
  - Two times daily x 4 weeks
  - May not be as effective as above agents
- Avoid topical steroids
- Stop moisturizing

Contact Dermatitis
Contact Dermatitis: Rhus Dermatitis

- Rhus Dermatitis
  - Poison ivy, poison oak and poison sumac produce more cases of contact dermatitis than all other contactants combined
  - Occurs when contact is made between the leaf or internal parts of the roots and stem and the individual
    - Can occur when individual touches plant or an animal does and then touches human
  - Eruption can occur within 8 hours of the contact but may take up to 1 week to occur

Clinical Pearls

- Poison ivy is not spread by scratching
- No oleoresin is found in the vesicles and therefore, can not be spread by scratching
- Lesions will appear where initial contact with plant occurred
- Resin needed to be washed from skin within 15 minutes of exposure to decrease risk of condition

Clinical Presentation

- Clinical presentation
  - Characteristic linear appearing vesicles are likely to appear first
  - Often surrounded by erythema
  - Intensely itchy
  - Lesions often erupt for a period of 1 week and will last for up to 2 weeks
  - More extensive and widespread presentation can occur with animal exposures or burning of the plants / smoke exposure
Contact Dermatitis

Treatment

- Cool compresses 15 – 30 minutes three times daily
- Topical calamine or caladryl lotions
- Zanfel (OTC) wash – binds urushiol oil and removes from body/blisters
  - 75% decrease in itching and rash within 24 hours per package
- Colloidal oatmeal baths (AVEENO) once daily

Treatment

- Oral antihistamines
  - May use sedating antihistamines at bedtime
- Topical corticosteroids
  - Avoid face
- Oral prednisone vs. injectable Kenalog or similar
  - 20 mg 2 times daily x 7 days
  - Kenalog 40 mg injection (IM)
Follow-up

- Monitor for secondary infections
- Impetigo
  - Staph vs. strep
  - MRSA
- Education:
  - Lesions will decrease over a 2 week period
  - May continue to erupt over 48 hours despite steroid administration
  - Not spreading lesions with rubbing or scratching

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Scabies

- Etiology
  - Contagious disease caused by a mite
  - Common amongst school children
  - Adult mite is 1/3 mm long
  - Front two pairs of legs bear claw-shaped suckers
Scabies

- Itching worse at night
- Household involved
- Crusts may contain millions of mites
- Continued itching may indicate reinfection
- Itching for wks after successful treatment
- Burrow: classic lesion
  - Linear, curved, 1-2 mm wide, 15 mm long
  - Wrists, feet, groin, abdomen (warm areas)
  - Secondary lesions eczema look, excoriations
  - Crusts seen in immune compromised

Scabies

- Etiology
  - Infestation begins when a female mite arrives on the skin surface
  - Within an hour, it burrows into the stratum corneum
  - Lives for 30 days
  - Eggs are laid at the rate of 2-3 each day
  - Fecal pellets are deposited in the burrow behind the advancing female mite
  - (Scybala)-feces are dark oval masses that are irritating and often responsible for itching

Scabies

- Etiology
  - Transmitted by direct skin contact with infested person either through clothing or bed linen
  - Eruption generally begins within 4 – 6 weeks after initial contact
  - Can live for days in home after leaving skin
Scabies

- Symptoms
  - Minor itching at first which progresses
  - Itching is worse at night (this is characteristic of scabies)

- Signs
  - Erythematous papules and vesicles
  - Often on the hands, wrists, extensor surfaces of the elbows and knees, buttocks
  - Burrows are often present; May see a black dot at the end of the burrow
  - Infants: widespread involvement
Scabies: Diagnosis

- Apply oil to burrow, papule, vesicle
- Scrape with #15 blade
- High power for mite, eggs or feces
- May use saline or KOH
- "Magic marker" test,
  - Apply over lesion then wipe off with alcohol

Scabies Treatment

- Permethrin 5% cream below neck
- Repeat in 1 week
- Mupirocin oral/ topical 2ndary inf.
- Topical steroids, “Sarna” lotion or Antihistamines for itching

Scabies Education

- Treat all family members
- Wash all clothing, towels and bed linen
- No need to wash carpeting
- Consider bathing pets
- Bag: stuffed animals x 1-2 weeks
- Cut nails short
- Scratching spreads mites
- Itching may last weeks
Lyme Carrying Tick

Erythema Chronicum Migrans

- Etiology
  - Caused by a spirochete called Borrelia Burgdorferi
  - Transmitted by the bite of certain ticks (deer, white-footed mouse)
  - 1st cases were in 1975 in Lyme, Connecticut
  - Occurs in stages and affects many systems
  - Children more often affected than adults
Erythema Migrans - Bull's Eye Rash

Erythema Chronicum Migrans

- **Etiology**
  - Summer - highest incidence
  - 8000 cases/year in the US
  - 20 countries, 6 continents
  - Can be passed to fetus in-utero
  - Can survive 16 years between blood feedings

Blood Engorged Tick
**Erythema Chronicum Migrans**

**Symptoms**
- 3-21 days after bite
- Stage 1
  - Rash (present in 72-80% of cases)—slightly itchy
  - Lasts 3-4 weeks
  - Mild flu like symptoms (50% of time)
  - Migratory joint pain
- Stage 2
  - Neurological and cardiac symptoms
- Stage 3
  - Arthritis, chronic neurological symptoms
  - Make take years to get to this stage

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**Signs**
- Rash: Stage 1  
  - Begins as a papule at the site of the bite
  - Flat, blanches with pressure
  - Expands to form a ring of central clearing
  - No scaling
  - Slightly tender
- Arthralgias: Stage 2
  - Asymmetric joint erythema, warmth, edema
  - Knee - most common location

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**Systemic symptoms: Stage 3**
- Facial palsy
- Meningitis
- Carditis

**Diagnosis**
- R/O Ringworm (Tinea Corporis)
Erythema Chronicum Migrans

Diagnostic:
- Sed rate: normal until stage 2
- Lyme Titer
  - IGM: Appears first: 3-6 weeks after infection begins
  - IGG: Positive in blood for 16 months
  - High rate of false negatives esp. early in disease
    - As high as 50%
  - Lyme Western Blot

Plan
- Therapeutic
  - Amoxicillin 500mg tid x 21 days
  - Doxycycline 100 mg 1 po bid x 21 days
  - If in endemic area and tick is partially engorged, may treat with doxycycline 200 mg x 1 dose with food

Educational
- 50% continue chronic sx: h/a, arthralgias, fatigue after treatment
- Explanation is controversial
  - Chronic Lyme versus residual effects but recovered
- Tick repellant
- Light clothing
- Check children and pets and remove promptly
  - Remove properly- pull straight out, complete removal
- Closed toe shoes
- Comb hair
Lyme Resources

- www.ILADS.org
  - Chronic Lyme experts/ pioneers
- WWW.IDSA.org
  - Traditional, CDC affiliated experts
- www.cdc.gov
- Your state health department

Erythema Migrans of Lyme Disease

Superficial Fungal Infections

- DERMATOPHYTES. *aka* Tinea
- YEASTS
  - *Pityrosporum*
  - *Candida* sp.
TINEA Infections

- T.Corporis - ringworm of body
- T.Cruris - groin
- T.Pedis - foot
- T.Unguim - nail
- T.Capitis - scalp

T.Corporis

- Itchy
- Annular patch
- Well defined edge
- Scaling more obvious at edges (central clearing)
TINEA CRURIS

- Often assoc with T. pedis
- “Jock itch”
- Tight hot sweaty groin eg athletes, obese, in lycra

Onycholysis
- Subungual hyperkeratosis
- Dystrophy/ pigmentary changes
TINEA CAPITIS - KERION

TINEA CAPITIS – Black dot

Management

- General Measures

- Non-specific-
  - Keratolytics - eg Whitfield’s ointment
    - Irritant
Specific Antifungal Rx

- Griseofulvin
- Azoles-
  - Imidazole  eg ketoconazole (↑ liver toxicity, oral prep) topical preps
  - Triazole  eg itraconazole, fluconazole
- Allylamines  eg terbinafine, naftifine
- Ciclopiroxolamine

TOPICAL Rx

- Localized disease of skin
  - extend rx for 3-5/7 after apparent cure
  - 1% clotrimazole less effective
- Sprays & solutions
  - tinea pedis / hairy areas
- Limited nail disease
  - Batrafen nail lacquer

ORAL Rx

- Extensive disease
- Nail disease
- Tinea Capitis
Regimes-Tinea Unguium

- **TERBINAFINE**
  - Terbinafine 250mg od

- **ITRACONAZOLE**
  - Pulse rx Itraconazole - 1wk/mth 200mg bid
  - Itraconazole 200mg od

- **FLUCANAZOLE**
  - Fluconazole 150mg once weekly

Rx-Tinea Capitis

- MUST use oral Rx- prolonged course
  - Griseofulvin-20mg/kg/od x 6-8/52
  - Terbinafine-62.5mg-250mg od x 4/52
  - Fluconazole-50mg-150mg/wk x 4-6/52

Rx-Tinea Capitis

**Adjunctive Measures**

- Shampoo- antifungal/ antiseptic/antidandruff
- Antibiotics
- NO STEROIDS
Yeasts

- Pityrosporum.
- Candida.
- Ordinarily commensals.
- Can become pathogens under favourable conditions.

Pityriasis Versicolor

- Initiated by heat, sweat, steroids
- Asymptomatic scaly macules
- Chest, back, face

P. Versicolor

- Hyperpigmented
Management

- Many Rx
- No Rx eradicates yeast permanently
- NONSPECIFIC
- Keratolytics
  - whitefield ung, sulphur
- Antiseptics
  - selenium sulphide, Na thiosulphate
- CHEAP, smelly, messy, irritant, slower

Antifungal Rx

Azoles - oral/ topical
- Ketoconazole 200mg od x 7 days
- Itraconazole 200mg od x 7 days
- Fluconazole 300mg-400 mg stat
- Do Not Use terbinafine for vaginal Rx

P.V-tougher than you think!

High recurrence
Hypopigmentation
post-rx UVB helpful
Prophylaxis
Candidiasis

- Candida sp - commensal of GIT
- Precipitating Factors
  - Endocrinopathy
  - Immunosuppression
  - Fe/Zn deficiency
  - Oral antibiotic Rx
- Oropharyngeal candidiasis is marker for AIDS

Candidiasis

- Oropharyngeal
  - Candidal intertrigo-breasts, groin, web spaces
  - Chronic Paronychia - nail fold infection
  - Vaginitis/ balanitis

Candidal Intertrigo

- Moist folds
- Erythematous patch with satellite lesions
Management

- Rx underlying disorder
- Reduce moisture-
  - Wt loss, cotton underwear
  - Absorbent/antifungal powder eg Zeasorb AF
- Rx partner in recurrent genital candidiasis
- Rx-Nystatin
  - Azoles

Chronic Paronychia

- Infection of nail fold
- Wet alkaline work
  - Excess manicuring
- Damage to cuticle
- Swelling of nail fold
  - (bolstering)
- Nail dystrophy

Chronic Paronychia

- Keep hands dry/Wear gloves
- Long term Rx
- Oral Azoles
- Antifungal solution-(high alcohol content)
- +/-Broad spectrum antibiotics-cover staph/GNB
Herpes Simplex Virus

- HSV 1: oral, genital-recurrent only 1st year
- HSV 2: genital only, recurrent forever potentially

- Transmission
  - Contact with an active lesion, or area of tissue shedding
  - Contact with fluid such as saliva

- 90% of primary infections are asymptomatic
  - Symptoms may occur 3 - 7 days after contact

- 70% transmission when pts asymptomatic
- 70% of lesions atypical

- Symptoms
  - Tenderness, pain, paresthesia, burning, swollen glands, headache, fever, irritability, decreased appetite, drooling
Herpes Simplex Virus

Physical Examination Findings
- Grouped vesicles on an erythematous base
- Gingivostomatitis: Erythematous, edematous gingiva that bleed easily with small, yellow ulcerations
  - Yellowish-white debris develops on mucosa
  - Halitosis
  - Lymphadenopathy

Herpes Simplex Virus

Herpetic Gingivostomatitis
Herpes Simplex Virus

Plan

- Diagnostic
  - "PCR" Viral Culture of lesions
  - Most accurate: Herpes Select HSV 1, 2 serology (IGG)

- Therapeutic
  - Antivirals (see CDC guidelines at CDC.gov/stds)
  - Pain meds
  - Cool rinses
  - Oragel
  - Black tea bag soaks (let cool before applying)
    - Tannic acid

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Herpes Zoster

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Educational:

- Prevent contact with infected individuals
- Discussion regarding asymptomatic shedding
- Prevent recurrences
- Call for worsening of symptoms (i.e. inability to drink, no urination x 8 hours)
Herpes Zoster

- Highly contagious DNA virus which during the varicella infection (primary infection) gains access into the dorsal root ganglia
- Virus remains dormant for decades and is reactivated when an insult occurs to the individual’s immune system
  - Examples: HIV, chemotherapy, illness, stress, corticosteroid usage

Incidence and Prevalence

- 3 million cases of chickenpox yearly
  - Disease of childhood
- 600,000 - 1 million cases of herpes zoster each year in the United States
  - Tends to be more of a disease of aging
  - By age 80, approx 20% will have zoster at some point in our lifetime
  - Men = Women

www.niaid.nih.gov/shingles/cq.htm
## Risk Factors
- Increasing age (50-60 years and beyond)
- Varicella infection when < 2 years of age
- Immunosuppression
- Stress (controversial)
- Trauma
- Malignancies
  - 25% of patients with Hodgkin’s will develop zoster<sup>1</sup>


## Goals of Treatment
- Treat acute viral infection
  - Shorten course
  - Reduce lesions
- Treat acute pain
- Prevent complications
  - Post herpetic neuralgia

## Acute Treatment Options
- Antiviral
  - Goal: Reduce viral reproduction
- Corticosteroids
  - Initially postulated that these reduce viral replication; recent studies have not found this to be true
  - However, they do decrease pain
- Pain Management
  - Topical agents
  - Anti-inflammatory agents
  - Narcotics
- Post herpetic neuralgia prevention

www.aad.org/pamphlets/herpesZoster.html
Antiviral Treatment Options

- Begin within first 72 hours of eruption as benefits may be reduced if started later
- Shorten rash & reduce pain

- Studies vary re: how much they actually reduce post-herpetic neuralgia

Controlled Trials of Antiviral Agents for Herpes Zoster

<table>
<thead>
<tr>
<th>% of patients with PHN at:</th>
<th>3 months</th>
<th>6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acyclovir vs. Placebo</td>
<td>25% vs. 54%</td>
<td>15% vs. 35%</td>
</tr>
<tr>
<td>Valacyclovir vs. Acyclovir</td>
<td>31% vs. 38%</td>
<td>19.9% vs. 25.7%</td>
</tr>
<tr>
<td>Famciclovir vs. Placebo</td>
<td>34.9% vs. 49.2%</td>
<td>19.5% vs. 40.3%</td>
</tr>
</tbody>
</table>

Corticosteroids

- Often utilized despite mixed results in clinical trials
- Prednisone, when used with acyclovir, in one study reduced pain associated with herpes zoster
- Corticosteroids are currently recommended for individuals over 50 years of age with HZ
- Dosage:
  - 30 mg bid x 7 days; 15 mg bid x 7 days; 7.5 mg bid x 7 days

Pain

- Pain associated with herpes zoster can range from mild – severe
- Clinician must tailor pain medication options based upon individual presentation

Pain Management

- **Topical Agents**
  - Calamine lotion to lesions 2 – 3x/day
  - Betadine to lesions qd
  - Capsaicin cream once lesions crusted 3 – 5x/day
  - Topical lidocaine 5% patch for 12 hours at a time once lesions are crusted
  - Warm “black tea” bags (allow to cool)

Acute Pain Management

- **Oral Agents**
  - Acetaminophen
    - Has not been shown to be effective in trials
  - Ibuprofen or similar
    - Not likely to be effective with neuropathic pain

- **Nerve Blocks**
  - Effective for many individuals with severe pain in some trials
  - Ineffective in other trials
Examples of Herpes Zoster

Use of medications such as TCA’s, gabapentin, pregabalin, oxycodone and tramadol during the acute phase of HZ decreases pain AND may also reduce the risk of PHN, post-herpetic neuralgia

Follow-up

- Monitor for secondary infections
- Monitor for evidence of post herpetic neuralgia
- Monitor for adverse impact on quality of life