Common Infections of the Skin

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Candida of Nails

- paronychia (erythema and swelling around nailbed) and green nails
- occurs in persons who have hands in water
- must tx co-pathogen : pseudomonas

TREATMENT:
- Fluconazole 150 mg qd x1 month PLUS Ciprofloxacin 500 bid x 2 weeks
  OR
- Thymol 2-4% soak 20 mins bid x 3 months and tobramycin or gentamycin ophthalmologic drops

Which one is tinea?
How to diagnose

- Not all dystrophic nails = onychomycosis
- KOH - difficult to do and operator dependent
- CULTURE is gold standard but takes 3 weeks to grow out.
- Now PCR - used in Scotland with high sensitivity and specificity
- Cost effective and results in 72 hours

Alexander et al Br. J Derm 2011 May

Onychomycosis

- Topical treatment – use for the right type of lesions
- Naftin gel for small superficial lesions
- Penlac (Ciclopirox 8%) reported to work 35-52% of the time
  – cost: expensive
Right type of lesions for topicals

- Lunula not affected
- Less than 5 nails affected
- No thickening of nails
- No separation of nail plate on sides

- Griseofulvin-least hepatotoxic but lower efficacy- 250 mg bid x 12-18 months

- Fluconazole- 150 mg qweek for more than 6 months –July 2012 Dermat Tx Gupta AK et al

- Itraconazole- can pulse it- 400 mg qd x 7 days q month x 4 months

Terbinafine (Lamisil)

- Still the leader of the pack-most effective in terms of INITIAL and LONG-TERM cure rate.
- DOSE: 250 mg qd Continuously x 3 months for fingernails and x4 months for toenails (July 2012) i.e. no pulsing
### BASELINE 1 YR 5 YR

<table>
<thead>
<tr>
<th>Drug</th>
<th>1 YR</th>
<th>5 YR</th>
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<tbody>
<tr>
<td>Terbinafine</td>
<td>77%</td>
<td>75%</td>
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<tr>
<td>Itraconazole</td>
<td>70%</td>
<td>50%</td>
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<tr>
<td>Grispeg</td>
<td>41%</td>
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<tr>
<td>Fluconazole</td>
<td>?</td>
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</tbody>
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### Liver toxicity
- Transaminase elevation 0.4% to 1% with terbinafine and intraconazole
- Transaminase elevation does not predict liver failure
- Liver failure 1/100,000
- Terbinafine has gone generic

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### Onychomycosis
**A New Approach**

- Toenails take 12-18 months to grow
- Pulse terbinafine 250 mg per day for 1 week every 2-3 months for one year
- Booster dose at 9 months (250 mg qd x 1 month)

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### What about laser?
- Photo- inactivation laser and destructive laser
- Destructive laser-reduced fungal elements by 75-85% but long term??
- Photoinactivation-mycologic cure at 9 months=38% (1 study)
- No randomized controlled studies at this point
Tinea or bacteria?

Dissecting Cellulitis of Scalp
- Occurs in persons of color
- Culture for tinea but usually bacterial
- Culture and ask lab to provide identification of organism regardless of colony count
- Can take 1-2 years to treat with long-term antibiotics

Tinea Capitis
- Scaling and alopecia
- Examine all children in the family
- “Brush” culture and begin empiric therapy
- Treatment
  - Gris-PEG: 15-25mg/day x 6 weeks
  - Reculture
New thoughts on Tinea Capitis

- Terbinafine for children
- Much shorter course 2-4 weeks
  - 62.5mg/kg (10-20kg)
  - 125 mg/day (20-40 kg)
  - 250 mg/day (>40 kg)
- J of European Academy of Derm and Venerology, Nov 2003

Cutaneous Tinea

- KOH is helpful in distinguishing tinea from eczema
- Topical antifungals x 4-6 weeks
- Just say NO to Lotrisone PLEASE!

Topicals NOT ENOUGH Here!
Topicals vs orals

Orals NEEDED

Topicals sufficient

Tinea Pedis

Topicals or orals?

Topicals or orals?

Tinea or bacteria?

Pitted Keratolysis

• May be confused with tinea on foot
• See pits
• Bad odor
• From bacteria (corynibacteria)-topical erythromycin bid
Intertrigo

- Under pannus and breasts
- Always a component of candida
- Blow dry area
- Topical antifungals
- Tucks pads (wet to dry dressing)
Erosio interdigitalis blastomycetica

- Candida and bacteria between toes or fingers
- Spreads to DORUM of foot and has impetiginous look
- Treatment:
  Drying agents: Burow’s soaks (aluminum acetate) 20 mins bid
  Antibiotics for staph aureus
  Topical or po antifungals
  Mild topical steroid for itch

Tinea Versicolor

Treatment:
- for localized areas, topical antifungal otherwise:
  - Ketoconazole (Nizoral) 200 mg po daily x 4 days
  - Sweat x1 hour after taking med
  - Leave sweat on body for 8-12 hours
  - Selenium sulfate shampoo 15 mins q week for prevention
Recurrent Staph Infection

- Tx for methcillin resistant staph (MRSA) right off the bat - Doxycycline, septra, clinda and cipro
- Eradicate staph for 3 months by adding rifampin 600 qd x 5 days (watch drug-drug interactions) or
- Mupiricin intranasally qd for first 5 days of every month

Recurrent skin infection

- UNDERLYING disease that could be portal of entry
- Dry skin - lubricate with grease
- Eczema/Contact Dermatitis - TAC and lubrication
- Psoriasis - staph exacerbates psoriasis and psoriasis portal of entry
- Tinea - portal of entry - tx with antifungals

If not improving

- Was patient treated long enough?
  Once hair structures are involved or deep tissues, treatment time may be longer
Don’t forget strep

- Strep: Doxycycline and septra may not cover strep
- Cipro/levo do not cover strep
- Add antibiotic that covers strep-
  Cephalosporins or Dicloxicillin

Jacobs et al Diagn Microb Inf Dis 2007, March
Skin Surgeries in Diabetics

- More infection? Worse healing?
- Pts with DM had 66% higher risk for infection especially on legs, ears or with flaps and grafts.
- May be prudent to prophylax these pts undergoing these procedures with antibiotics before surgery
- HEALING NOT WORSE
  *Dixon et al Dermatol Surg 2009 July*
Cellulitis?

- Goal in study was to have dermatologists diagnose cellulitis vs other diseases
- 635 pts seen-67% had cellulitis N=425
- 33% had other-eczema, lymphedema, lipodermatosclerosis

*Levell et al Br J of Dermatol (BJD) 2011 Feb*

**Take Home Points:**

- Does the patient really have cellulitis?
- Is there an underlying dermatologic cause that contributes to condition-if treated could prevent repeated episodes?
- Does this patient require hospitalization?

• Of the 425 with cellulitis, 30% had predisposing dermatologic disease like tinea, eczema, psoriasis (treat underlying derm disease!!!)
• Hospitalization was averted for 96% of those with cellulitis (p.o. antibiotics with close follow-up)
Venous Insufficiency Ulcer

• **Control Edema**
  – Elevation of leg above heart 2 hours twice daily
  – Walk, don’t sit
  – Compression

• Diuretics overused and not of benefit unless fluid retention due to central problem is present (CHF, CRF)

• Create healing wound environment

Venous Insufficiency Ulcer

• **Metrogel** *(flagyl)* on ulcer-decreases anaerobes

• **Semipermeable dressing** *(Hydrosorb, Duoderm, etc)*

• **Compression** -
  Unna boot covered by Coban –
  - provides graded compression AND creates the correct wound environment

• Change dressing weekly

• Refer to dermatology if not healing

Infected Ulcer?

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When is a Leg Ulcer Infected?

• All leg ulcers are colonized with bacteria. Surface culture of little value

• Suspect infection if:
  – Increasing pain
  – Surrounding erythema, cellulitis
  – Focal area not healing and undermining present

• Treat superficial contaminant with vinegar/Burow’s soaks

Was it an inflammatory condition and not an infection?

• Erythema nodosum
• Pyoderma gangrenosum
• Hidradenitis suppurativa

Erythema Nodosum

• Not an infection
• Reaction pattern to strep, cocci, oral contraceptives, estrogen replacement, inflammatory bowel disease
• Painful, red nodules lower legs
• Pt’s feel bad
• Biopsy diagnosis-inflammation of fat
• Treatment with bedrest, NSAIDS, prednisone
Pyoderma Gangrenosum

- Not an infectious disease
- A “reactive” inflammatory disease
- Biopsy diagnosis
- Surgical I&D/excision make it worse
Treatment

- Do Not I&D
- Prednisone/cyclosporine
- Thalidomide
- Tacrolimus (protopic)
- Tx underlying disease
Hidradenitis Supparativa

- Not an infectious disease
- Disease of apocrine glands
- Treatment
  - IL Kenalog
  - Minocycline
  NEW: clindamycin and rifampin for 12 weeks or acitretin
  - Surgery
  - NOT Antibiotics for bacteria i.e. 10 day course
  - Biologics: infliximab (remicade)

- Remember HSV-culture
- Skin biopsy for histology and tissue culture
- Diseases that Masquerade as Infectious
  Diseases Ann Int Med 2005 Jan 4; 142:47-55
Orolabial Herpes Simplex

- No prophylaxis
- Treat when symptomatic
- Sun exposure can activate HSV-ACV 800 mg 1 hour before sun exposure

- HSV can give an erythema multiforme reaction
- Usually painful targetoid lesions on elbows and knees

When bullous erythema multiforme, also consider mycolplasma
Many thanks!