Skin and Soft-Tissue Infections

Steven C. Hatch
University of Massachusetts Medical School

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Skin & Soft-Tissue Infections

Steven Hatch MD MSc
USAID PEER/Liberia ID curriculum
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Goals

• Review several major presentations of skin & soft tissue infection
• Note importance of rapid diagnosis in specific diseases
• This is *not* exhaustive list
75 YO F WITH WORSENING LLE PAIN X 72 HOURS

- Fever 102.2 F
- Hx: DM, HTN
- Meds: lisinopril, amlodipine, insulin
- Exam: tachycardic, sick not toxic, hot swollen tender red/purple LLE, pulse 2+, no crepitus
HOW TO THINK ABOUT ID CASES

Non-infectious causes

Infections

Opportunistic (i.e. HIV)

“Routine”

“Weird” (i.e. seek references)

Gram Positives
Gram Negatives
Anaerobes
Viruses
Fungi
Parasites & Protozoa

Other bacteria:
--Intracellular
--Acid Fast/Modified
--Spirochetes & other
GIVEN THIS, WHAT WOULD YOU START?

- A. Start vanco
- C. Start vanco & chloramphenicol
- D. Start vanco, ceftriaxone, metronidazole
- E. Start ceftriaxone
- F. Start gentamicin
GIVEN THIS, WHAT WOULD YOU START?

- A. Start vanco
- C. Start vanco & chloramphenicol
- D. Start vanco, ceftriaxone, metronidazole
- E. **Start ceftriaxone**
- F. Start gentamicin
ROUTINE SOFT-TISSUE INFECTION ("CELLULITIS"): HOW TO APPROACH

• **Probe into the DM hx.** People with A1Cs of 12 are in a very different risk category than those at 7!
• *Then* think about microbiology:
  • **Strep** is overwhelmingly most likely bug
  • **Staph** forms abscesses—it looks different
• Outpatient Tx: PCNs.
• Inpatient Tx: 1st gen cephalosporin (cefazolin)
• Suppose the patient came in with severe pain
• Would you change your management?
• If so, how?
Necrotizing fasciitis

- "Pain out of proportion to exam"
- Usually Group A Strep
- Clostridium if wound involved
- Surgical emergency
- Clindamycin may have anti-toxin effect
WHAT IF HER FOOT LOOKED LIKE THESE PICTURES AND HER A1C WAS 11.6?
BAD DIABETIC FOOT INFECTION

• **A1Cs** tell the story
• Cells coated in sugar stop working through **non-enzymatic glycosylation**
  • “immune suppression”—neutrophils/MΦs cannot phagocytose
  • peripheral endothelium & nerve cell dysfxn
• **Polymicrobial** infection becomes a major consideration, esp **Pseudomonas, MRSA, GNRs**
• “Pain out of proportion” not as reliable an indicator
• **Broad spectrum coverage** is now appropriate: vanco plus pip-tazo (if avail); vanco/cipro/flagyl; maybe chloramphenicol
50 yo F with facial swelling x 48 hrs

- Erysipelas
- Strep pyogenes (Group A)
- Painful, swollen
- Purplish discoloration in lighter skinned pts (see next slide)
- Dx? Tx?
“Saint Anthony’s Fire”
Microbiology?
MSSA/MRSA

**Anti-MSSA**
- Dicloxacillin (po)
- Cephalexin (po)
- Oxacillin (IV)
- Nafcillin (IV)
- Cefazolin (IV)
- (+/- Fluoroquinolones)

**Anti-MRSA**
- TMP/SMX (po, IV)
- Doxycycline (po, IV)
- Vancomycin (IV not po)
- +/- clindamycine (po, IV)
- (+/- Fluoroquinolones)
THE RULES OF STAPH AUREUS

• #1: Staph kills
• #2: Staph sticks
• #3: Staph goes everywhere
• #4: Staph recurs
• #5: MRSA probably not more virulent than MSSA, only drug resistant (personal opinion)

• Vanco: not a great drug...we use it not because it’s better but because it’s active against MRSA and we don’t have less toxic or less costly alternatives
Pt comes with complaint of painless rash

- What history questions do you want to ask?
- What test do you order to help rule in or rule out primary dx?
- Add’l tests?
- Anything else?
- Do you shake his hand?
High syphilis mortality in Liberia (2004 data)

Related: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6089383/#!po=10.2273
35 yo M

- Presenting with hair loss
- Not painful
- Not pruritic (itchy)
- Dx?
Tinea capitis

- “Ringworm of the scalp”
- A superficial mycotic (fungal) infection (aka “dermatophyte”)
- Fungi like hair follicles/shafts
- Leads to hair loss, poss permanent
- Tx: Griseofulvin po
Additional dermatophytes of scalp

- Tinea favosa (aka “favus”)
- Different species than that which causes tinea capitis
- But both diseases treated by griseofulvin
44 yo M with arm lesions

- Works as farmer
- No systemic illness, wt loss
- Treated once with antibiotics (can’t remember which) but no help
Sporotrichosis

- *Sporothrix schenckii* (fungus)
- Found in soil, thus farmers/gardners @ risk
-Usu cutaneous, but also
- Lung—can increase risk for TB or bacterial PNA from scarring
- Disseminated—seen in pts with advanced HIV, likes bone & brain
- Dx: culture, micro/path
- Tx: itraconazole or fluconazole
Two men, aged 45

- What is the differential dx?
Others
Mycetoma & Eumycetoma

- Aka “Madura foot”
- Many fungi & bacteria are causative
- Distinguished by color of discharge
- Mycetoma caused by *Actinomyces spp*
- Eumycetoma by fungi (aspergillus, exophiala, pseudallescheria, madurella, others)
Filariasis
(can also be podoconiosis)
35 yo M with ulcer

- Several weeks duration
- Also got abx but no help
- No other medical issues
Leishmaniasis

- Several *Leishmania* spp (*L. major*, *L. donovani*, *L. infantum*)
- This is cutaneous form (“cheese pizza” with heaped-up border)
- Can also present as disseminated cutaneous, mucocutaneous, and visceral (*kala azar*)
- Visceral (*kala azar*) common cause of splenomegaly
- Vector: sandfly
- Dx: culture, pathology, PCR becoming more common
Leishmaniasis con’t

- Always include in differential of HIV patient, esp with diffuse cutaneous leish, or in someone with HIV & wasting (dx: bone marrow)
- Tx: “pentavalent antimonials” e.g. Na⁺ stibogluconate (some probs with resistance), amphotericin, miltefosine (new), ?fluconazole
Sporothrix & Leishmania, micro
Patients (adult & pediatric) with skin lesions
Leprosy

Multi- vs. Paucibacillary
Lesions distinguished by…?
Tx?