Dermatological Disorders
Overview

- Skin Infections: Bacterial infections, Fungal, viral infections
- Skin Things: Herpes zoster, lupus
- Skin cancer
- “Itchy Things”
BACTERIAL INFECTIONS OF THE SKIN

The Basics
- Lesion: area of skin that has suffered damage from injury or disease (wounds, bruises, abscesses, tumors, etc.)
- Rash: widespread eruption of lesions

Developing your Rash Differential
- 3 Basic Questions to ask with EVERY Rash
  1. Where did the rash start? (Face, torso, extremities, genitals)
  2. How long have you had it? (Acute vs Chronic)
  3. Does the rash itch? (Rules in or out many diagnoses)

Know These Terms (they are primary skin lesions):
- Abscess = furuncle = Boil: deep infection of hair follicles
- Bulla or blister: Fluid filled or pus filled > 0.5 cm
- Macule: flat change in skin with a color change (brown, blue, red, or hypopigmented)
- Nodule: solid lesion > 0.5 – 2.0 cm (Nodule > 2.0 cm is a tumor)
- Papule: raised, solid lesion ≤ 0.5 cm, varies in color
- Plaque: raised, solid lesion > 0.5 cm
- Vesicle: ≤ 0.5 cm elevated lesion that contains fluid
- Wheal (hive): transient rounded or flat top plaque

Infections/Infestations of the Skin

A Day In Clinical Practice

Superficial infections of the skin like impetigo, are most appropriately treated with what medication?

1. First generation cephalosporins
2. Tetracyclines
3. Sulfonamides
4. Topical antibacterials

If infection is extensive, what might be used?____________________________

Additional Notes:
A Day In Clinical Practice

A non-purulent cellulitis is most appropriately treated with what medication? Hint: what bug are you treating?

1. Cephalexin (Keflex)
2. Amoxicillin (Amoxil)
3. TMPS (Bactrim)
4. Mupirocin (Bactroban)

Cellulitis must be treated with a systemic agent.

A purulent cellulitis is most appropriately treated with a systemic agent. Which might be used? Select all that apply.

1. Cephalexin (Keflex)
2. Amoxicillin (Amoxil)
3. TMPS (Bactrim)
4. Mupirocin (Bactroban)
5. Clindamycin (Cleocin)
6. Cefadroxil (Duricef)
7. Doxycycline

Follow up
- 48 hours after initial treatment and then as patient condition dictates

Viral or Bacterial?

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What describes the typical prodrome of classic herpes labialis secondary to HSV-1 infection?

1. Pain, burning, tingling of the lip
2. Development of papules and vesicles
3. Development of vesicles only
4. Fever, sore throat, headache

How is this treated? ____________________________________________________________________

HERPES ZOSTER (Shingles)

- A reactivation of the varicella-zoster (chickenpox) virus that has lain dormant in nerve cells. This involves the skin of a single dermatome or less commonly, several dermatomes.
Pharmacologic Management
- NSAIDs or narcotic analgesics for pain
- Antiviral agents if patient presents within 72 hours of symptoms (acyclovir, famciclovir, valacyclovir)
- Antiviral agents to all immunocompromised patients
- Complication: Post Herpetic Neuralgia (PHN); consider TCAs, gabapentin (Neurontin), pregabalin (Lyrica), Capsaicin® cream, others

Herpes Zoster Vaccine
- ACIP recommends for all immunocompetent persons ≥ 60 years
- 32% of adults will have this once in lifetime
- Reduces risk of shingles and post-herpetic neuralgia

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A 26 year old has developed fever, headache and rash after a hiking trip. He admits to removing a tick from his upper shoulder 2-3 days ago. He is presumed to have Rocky Mountain Spotted fever. How should this be treated?

1. Clean and flush area of the tick bite thoroughly.
2. Prescribe amoxicillin-clavulanate for 7-10 days.
3. Wait for the rash to appear before treating.
4. Doxycycline 100 mg BID for 3 days after fever resolves.

SKIN INFECTIONS

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A 16 year old patient presents with this circular plaque on his forearm. What history is consistent with the most likely diagnosis? Select all that apply.

1. He is asymptomatic
2. He complains of pruritus
3. He has fever
4. He may have had contact with an animal
5. He may have been gardening.
6. He may have had a wrist band on.

Anti-Fungal Agents
- Pharmacologic Treatment
  - “Azoles” (miconazole, clotrimazole, etc.)
  - Allylamines (terbinafine, butenafine, etc.)
Fungal Infection

- Healthy people get fungal infections, but ……
  - Always consider immunocompromised states (HIV, diabetes) with extensive infection, failure to respond to treatment
- Dermatophytosis
  - Tinea capitis (head)
  - Tinea corporis (body surfaces)
  - Tinea cruris ("jock itch")
  - Tinea pedis (foot)
  - Tinea unguium (nail)
  - Most common pathogens: Epidermophyton, Trichophyton, Microsporum

Branching septate hyphae seen on KOH prep. Take sample from scaled border.

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Which organism below does not infect the patient?

1. Pinworm
2. Bed bug
3. Pubic louse
4. Scabies

A patient has scabies. Which contacts listed below should be treated? Select all that apply.

1. Household contacts
2. Sexual contacts
3. Office mates
4. Close personal contacts

LUPUS

Systemic Lupus Erythematosus (SLE)

- Chronic inflammatory disease that affects the skin, joints, kidneys, lungs, nervous system, serous membranes
- Course is variable: characterized by remissions and relapses
- More common in women in 20s, 30s

Additional Notes:
Lupus
- Fatigue most common complaint (80-100% patients)
- Joint aches (hands) and myalgias (90%)
- Eye: keratoconjunctivitis sicca
- Butterfly rash, malar rash
- Oral and nasal ulcers (12-45%): painless
- Renal involvement – 50%
- Hematologic – Leukopenia, anemia, thrombocytopenia
- Gastritis, peptic ulcers

What is a malar rash?_______________________________________________
________________________________________________________________

A Day In Clinical Practice

What serologic test, if positive, makes lupus highly suspicious?

1. Anti-CCP antibodies
2. Presence of Howell Jolly bodies
3. Positive antinuclear antibodies
4. Positive Rheumatoid factor

A Day In Clinical Practice

A palmar rash is very unusual. Which disease can present with palmar rashes? Select all that apply.

1. Rocky Mountain Spotted
2. Syphilis
3. Erythema multiforme
4. Lupus

Erythema Multiforme
- Immune mediated reaction
  - Usually caused by infection (90% of time) (herpes simplex virus or *Mycoplasma pneumoniae*); sometimes meds (< 10%)
- Cutaneous Hypersensitivity Reaction
  - Meds (< 10%)
  - NSAIDs, sulfonamide, antibiotics, antiepileptics
  - Erythema multiforme-like lesions may occur in lupus
- What other clues?
  - Usually on extremities (“acral distribution”)
  - Self-limited; resolves in 2-4 weeks
  - Common is a targetoid or iris appearance
  - Also papules, macules, plaques, vesicles
Seborrheic Keratosis: Common benign neoplasm, tan to dark brown, common in older adults

Changes as Skin Ages
- Skin atrophies, less vascularity and protein
- Loses elasticity → wrinkles
- By age 70: thin and paper-like (susceptible to injury)
- Sweat glands, sebaceous glands decrease in number → dry skin, heat stroke
- Speckled and uneven coloring, more pigment changes
- Skin cancers more prominent (accumulation of damage)
- Most common complaint is itching

What is the word used to describe itching skin due to dryness (common in older adults)?

Actinic Keratosis (solar keratosis):
- Risk Factors: Chronic sun exposure, fair skin, aging
- Occasionally progress to squamous cell carcinoma (SCC) (very slow progression)
- Serve as a marker of chronic skin damage, so need follow up with derm and self-inspection monthly

SKIN CANCER

Skin Cancer – Malignant tumors of the skin arising from various skin layers

Assessment Findings
Squamous Cell Carcinoma (SCC)
- Locations: Sun exposed areas
  - Head and neck 55%
  - Dorsum of the hands/forearms: 18%
  - Legs: 13%
  - Shoulder, back: 4%
  - Lower lip is common location in smokers
- Presents as papules, plaques, nodules, smooth, hyperkeratotic or ulcerative lesions
- May bleed easily
- Definitive diagnosis always with biopsy or excision of specimen

Additional Notes:
Basal Cell Carcinoma
- Common in fifty and sixty year olds
- Most common sites are head and neck
- Usual appearance is pearly domed nodule with overlying telangiectatic vessels, later, central ulceration and crusting
- Occurs 40x more common than squamous cell
- Particularly common in Caucasians
- Uncommon in dark skinned populations
- Most important risk factor is sun exposure
- Definitive diagnosis always with biopsy or excision of specimen
- Presentations: nodular, superficial, other presentations
- 70% occur on the face
- Nodular: Typically present on face as a pink or flesh colored papule

Malignant Melanoma
- ABCDE pneumonic (AAD, ACS)
  - A = asymmetry
  - B = border is irregular
  - C = different colors within the same region
  - D = diameter > 6 mm (pencil eraser) (in whites primarily on lower legs and back; in African Americans, on hands, feet and nails)
  - E = Enlargement (evolution)

BITES: CAT, DOG, HUMAN
- Very common injury
- Organisms are in oral flora of biting animal, and skin flora of victim
- Pasturella, Staph, Strept

A Day In Clinical Practice

A patient was bitten by a dog about 2 hours ago. There are puncture marks and a small laceration on the right anterior thigh. What should be done at this time? Select all that apply.

1. Clean and flush bite thoroughly
2. Prescribe amoxicillin-clavulanate for 7-10 days
3. Order tetanus, rabies prophylaxis if needed
4. Suture the lacerated area

Additional Notes:
ITCHY THINGS

Contact Dermatitis: Skin comes in contact with something it really doesn’t like, Type IV hypersensitivity reaction, takes 2-3 days to emerge. There are 2 types:

1. Irritant contact Dermatitis (most common causes):
   - Contaminated water
   - Soaps and detergents
   - Fiberglass and particulate dusts
   - Food products
   - Cleaning agents, lubricants, oils, coolants
   - Solvents, plastics, resins, petroleum products

2. Allergic contact dermatitis (most common causes):
   - Poison ivy/oak/sumac
   - Rubber compounds
   - Nickel, cobalt, gold
   - Thimerosal
   - Fragrances
   - Neomycin
   - Balsam of Peru
   - Lanolin

A Day In Clinical Practice

A topical steroid may be most appropriately delivered to the thin skin of an older adult via a(n):

1. gel.
2. cream.
3. ointment.
4. lotion.

Pharmacologic Management

- Vehicle Strength determines ability of drug to enter skin
  - Lotions < Creams < Gels < Ointments

PSORIASIS

- Plaque psoriasis – most common variant

Additional Notes:
CHECK YOUR KNOWLEDGE

What Dermatologic conditions are these associated with?

<table>
<thead>
<tr>
<th>Description</th>
<th>Condition</th>
<th>Treatment</th>
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<tbody>
<tr>
<td>Honey colored crusts</td>
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<td>Herald patch</td>
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<td>Burrows</td>
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<td>Sandpaper textured rash</td>
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<td>Pearly domed nodule</td>
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<tr>
<td>Christmas tree pattern rash</td>
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<td>Bright, beefy red rash</td>
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<td>Silvery scales</td>
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<td>Bull’s eye lesion</td>
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<td>Nits</td>
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<tr>
<td>Dermatomal rash</td>
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<td>Butterfly rash</td>
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<tr>
<td>Recurrent, highly pruritic rash and/on flexor and extensor surfaces</td>
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<td>HSV infection of the finger</td>
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Additional Notes:
Resources for Dermatological Disorders

- CareOnPoint (COP): www.careonpoint.com
- Clinical Guidelines in Primary Care; Amelie Hollier, DNP, FNP-BC, FAANP (2016)
- Topical Steroid Dispensing Cards; APEA
- Dermatology DDx Deck; Elsevier
- Pediatric Dermatology DDx Deck; Elsevier

Additional Notes: