Common skin disorders:
Pearls for diagnosis and treatment

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Outline
- Approach to the itchy patient
- How to really treat eczema
- Psoriasis as a systemic disease
- Acne in the adult
- The red leg
- Drug eruptions
- Skin cancer
- Sunscreens

Pruritus = the sensation of itch
- Itch can be divided into four categories:
  1. Pruritoceptive
     - Generated within the skin
     - Itchy rash: scabies, eczema
  2. Neurogenic
     - Due to a systemic disease
     - Itch “without a rash”
  3. Neuropathic
     - Due to anatomical lesion in the peripheral or central nervous system
     - Notalgia paresthetica, brachioradial pruritus
  4. Psychogenic itch

Approach to the itchy patient
Pruritus- History

- Suggest cutaneous cause of itch:
  - Acute onset (days)
  - Related exposure or recent travel
  - Household members affected
  - Localized itch
- Itch is almost always worse at night
  - does not help identify cause of pruritus
- Aquagenic pruritus suggests polycythemia vera
- Dry skin = itchy

Pruritus- Physical Exam

- Are there primary lesions present?
  - yes
  - Pruritoceptive
  - no
  - Neurogenic, Neuropathic, or Psychogenic

Causes of Neurogenic Pruritus (Pruritus Without Rash)

- 40% will have an underlying cause:
- Liver diseases, especially cholestatic
- Renal Failure
- Iron Deficiency
- Thyroid Disease
- Low or High Calcium
- HIV
- Medications
- Cancer, especially lymphoma (Hodgkin’s)

Workup of “Pruritus Without Rash”

- CBC with diff
- Ferritin, iron, total iron binding capacity
- TSH and free T4
- BUN/Cr
- Calcium
- LFTs
  - Total and direct bilirubin, AST, ALT
- HIV test
- Chest X-ray
- Age-appropriate malignancy screening
Neuropathic Pruritus

- Notalgia paresthetica
- Brachioradial pruritus
  - Localized and persistent area of pruritus, without associated primary skin lesions, usually on the back or forearms
- Workup= MRI!
  - Cervical and/or thoracic spine disease in ~100% of patients with brachioradial pruritus and 60% of patients with notalgia paresthetica
- Treatment- capsaicin cream TID, gabapentin
  - Surgical intervention when appropriate

Treatment of Pruritus

- Treat the underlying cause if there is one
- Dry skin care
  - Short, lukewarm showers with Dove or soap-free cleanser
  - Moisturize with a cream or ointment BID
    - Cetaphil, eucerin, vanicream, vaseline, aquaphor
  - Sarna lotion (menthol/phenol)
- Topical corticosteroids to inflamed areas
  - Face- low potency (desonide ointment)
  - Body- mid to high potency (triamcinolone acetonide 0.1% oint)

Antihistamines for Pruritus

- Work best for histamine-induced pruritus
  - May also be effective for other types of pruritus
- First generation H1 antihistamines
  - Hydroxyzine 25 mg QHS, titrate up to QID if tolerated
- Second generation H1 antihistamines
  - Longer duration of action, less somnolence
    - Cetirizine, loratidine, desloratidine, fexofenadine

Systemic Treatments for Pruritus

- Doxepin- 10mg QHS, titrate up to 50 mg QHS
  - Tricyclic antidepressant with potent H1 and H2 antihistamine properties
  - Good for pruritus associated with anxiety or depression
  - Anticholinergic side effects
- Paroxetine (SSRI)- 25- 50 mg QD
- Mirtazapine- 15-30 mg QHS
  - H1 antihistamine properties
  - Good for cholestatic pruritus, renal failure
- Gabapentin- 300 mg QHS, increase as tolerated
  - Best for neuropathic pruritus, renal failure
Case 1

- 57 YOM with 3 months of itch
- Started on LE
- No response to antifungal creams and OTC hydrocortisone cream
- Showers 2 x/day with hot water, uses an antibacterial soap, and does not moisturize

Question 1: The Best Diagnosis Is

1. Asteatotic dermatitis
2. Pruritus of renal failure
3. Nummular dermatitis
4. Tinea corporis
5. Neuropathic pruritus

Case 2

- 68M with ESRD complains of generalized itch

Question 2: The Best Diagnosis Is

1. Asteatotic dermatitis
2. Pruritus of renal failure
3. Nummular dermatitis
4. Tinea corporis
5. Neuropathic pruritus
Case 3

- Chronic itch on central upper back

Question 3: The Best Diagnosis Is

1. Asteatotic dermatitis
2. Pruritus of renal failure
3. Nummular dermatitis
4. Tinea corporis
5. Neuropathic pruritus

Eczemas

Eczema (=dermatitis)

Group of disorders characterized by:
1. Itching
2. Intraepidermal vesicles
3. Perturbations in the skin’s water barrier
4. Response to steroids
Eczemas

- Atopic Dermatitis
- Hand and Foot Eczemas
- Asteatotic Dermatitis (Xerotic Eczema)
- Nummular Dermatitis
- Contact Dermatitis (allergic or irritant)
- Stasis Dermatitis
- Lichen Simplex Chronicus

Good Skin Care Regimen

- Soap to armpits, groin, scalp only (no soap on the rash)
- Short cool showers or tub soak for 15-20 minutes
- Apply medications and moisturizer within 3 minutes of bathing or swimming
Eczema
Topical Therapy

- Choose agent by body site, age, type of lesion (weeping or not), surface area
- For Face:
  - Hydrocortisone 2.5% Ointment BID
  - If fails, aclometasone (Aclovate), desonide ointment
- For Body:
  - Triamcinolone acetonide 0.1% Ointment BID
  - If fails, fluocinonide ointment
- For weepy sites:
  - Soak 15 min BID with dilute Burrow’s solution (aluminum acetate) (1:20) for 3 days

Eczema
Oral Antipruritics

- Suppress itching with nightly oral sedating antihistamine
- If it is not sedating it doesn’t help
  - e.g. loratidine not useful
- Diphenhydramine, Hydroxyzine 25-50mg, Doxepin 10-25mg

Eczema
Severe Cases

- Refer to dermatologist
- Do not give systemic steroids
- We might use phototherapy, hospitalization, immunotherapy
- Beware of making the diagnosis of atopic dermatitis in an adult- this can be cutaneous T cell lymphoma!

Psoriasis pearls for the internist
Psoriasis

- 2-3% of the US population has psoriasis

Psoriasis Aggravators

- Medications
  - Systemic steroids (withdrawal)
  - Beta blockers
  - Lithium
  - Hydroxychloroquine
- Infections
  - Strep - children and young adults
  - Candida (balanitis)

Psoriasis and Comorbidities

- Psoriasis is linked with:
  - Arthritis
  - Cardiovascular disease (including myocardial infarction)
  - Hypertension
  - Obesity
  - Diabetes
  - Metabolic syndrome
  - Malignancies
    - Lymphomas, SCCs
    - Solid organ malignancies
  - Higher mortality

- Psoriasis patients more likely to
  - Be depressed
  - Drink alcohol
  - Smoke
Psoriasis and Comorbidities

In patients with psoriasis, important to
1. Recognize these associations
2. Screen for and treat the comorbidities

Pustular Psoriasis

- Pustular and erythrodermic variants of psoriasis can be life-threatening
- Most commonly seen in patients who carry a diagnosis of psoriasis who have been given systemic steroids and now are rebounding
- High cardiac output state with risk of high output failure
- Electrolyte imbalance (hypo Ca^{2+}), respiratory distress, temperature dysregulation
- Best treated with hospitalization and cyclosporine or acitretin
Case 4

This patient:
1. Is appropriately treated as an outpatient
2. Has stable plaque psoriasis
3. May have hypocalcemia
4. Should ideally be treated with systemic steroids

Approach to adult acne

Pathogenesis/Clinical Features of Acne
- Pathogenesis (treatment targets)
  - Excess sebum
  - Abnormal follicular keratinization
  - Inflammation from *Propionibacterium acnes*
- Clinical features
  - Non-inflammatory open and closed comedones ("blackheads and whiteheads")
  - Inflammatory papules and pustules
  - Cystic nodules

Acne Treatment Options- Topical
- Benzoyl peroxide
- Antibiotics- clindamycin, erythromycin, combination benzoyl peroxide and either of above
- Sulfur based preparations
- Azelaic acid
- Retinoids
Acne Treatment Options- Systemic

- Antibiotics
  - Doxycycline 100 mg po BID
  - Minocycline 50-100 mg po BID
  - Tetracycline 500 mg po BID
- Oral contraceptives
- Spironolactone
- Isotretinoin

Topical Retinoids- How to Use Them

- Warn patients of side effects
- Start with a low dose: tretinoin 0.025% cream
- Wait 20-30 minutes after washing face to apply
- Use 1-2 pea-sized amount to cover the whole face
- Start BIW or TIW
- Moisturize 30 minutes after applying
- If using another topical acne therapy, use on alternate days
- Sunscreen daily
- Tazarotene is pregnancy category X!

Global Alliance Acne Treatment Algorithm

<table>
<thead>
<tr>
<th>MILD</th>
<th>MODERATE</th>
<th>SEVERE</th>
</tr>
</thead>
</table>
| Topical Retinoid + Topical Antimicrobial | Oral Antibiotic + Topical Retinoid + BPO | Oral Antibiotic + Topical Retinoid + BPO | Oral Isotretinoin

Special Cases

- Acne with hyperpigmentation- azelaic acid
- Acne/rosacea overlap or if also has seborrheic dermatitis- sulfur based preparations
- Acne in pregnancy: options include azelaic acid, topical erythromycin, topical clindamycin (category B)
- Cystic, scarring- isotretinoin
  - Teratogenic, hypertriglycerideremia, transaminitis, cheilitis, xerosis, alopecia (telogen effluvium)

**Special Cases:**
**Acne in Adult Women**

- Often related to excess androgen or excess androgen effect on hair follicles
- Other features of PCOS are often not present—irregular menses, etc.
- Serum testosterone can be normal
- Spironolactone 50 mg-100mg daily with or without OCP’s can be very effective, especially in women with lower facial acne

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**Case 5**

**Optimal treatment:**
1. Topical retinoid
2. Topical retinoid PLUS topical antibiotic
3. Topical retinoid PLUS oral antibiotic
4. Topical retinoid PLUS oral antibiotic PLUS benzoyl peroxide
5. Spironolactone

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**Case 6**

**Optimal treatment:**
1. Topical retinoid
2. Topical retinoid PLUS topical antibiotic
3. Topical retinoid PLUS oral antibiotic
4. Topical retinoid PLUS oral antibiotic PLUS benzoyl peroxide
5. Spironolactone

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**The red leg:**
**Cellulitis and its (common) mimics**

- Cellulitis/erysipelas
- Stasis dermatitis
- Contact dermatitis
Cellulitis
- Infection of the dermis
- Gp A beta hemolytic strep and Staph aureus
- Rapidly spreading
- Erythematous, tender plaque, not fluctuant
- Patient often toxic
- WBC, LAD, streaking
- Rarely bilateral
- Treat tinea pedis

Stasis Dermatitis
- Often bilateral, L>R
- Itchy and/or painful
- Red, hot, swollen leg
- No fever, elevated WBC, LAD, streaking
- Look for: varicosities, edema, venous ulceration, hemosiderin deposition
- Superimposed contact dermatitis common

Contact Dermatitis
- Itch (no pain)
- Patient is non-toxic
- Erythema and edema can be severe
- Look for sharp cutoff
- Treat with topical steroids
Contact Dermatitis

- **Common causes**
  - Applied antibiotics (Neomycin, Bacitracin)
  - Topical anesthetics (benzocaine)
  - Other (Vitamin E, topical benadryl)
- Avoid topical antibiotics to leg ulcers

The Red Leg: Key features of the physical exam

<table>
<thead>
<tr>
<th></th>
<th>Fever</th>
<th>Pain</th>
<th>Warmth</th>
<th>Bilateral</th>
<th>Streaking</th>
<th>Lymphadenopathy</th>
<th>Elevated WBC</th>
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<tbody>
<tr>
<td>Cellulitis</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Almost</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Consider another diagnosis</td>
<td>No</td>
<td>+/-</td>
<td>+/-</td>
<td>often</td>
<td>No</td>
<td>No</td>
<td>No</td>
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</table>

Antibiotics for bilateral cellulitis

- 145 subjects → cases reviewed by dermatology/infectious disease
- **Misdiagnosis in 41 (28%) patients**
- Diagnosis most commonly mistaken was stasis dermatitis (37%)
- >$3.7 billion spent on approximately 240,000 adult inpatient admissions for cellulitis in 2004
  - Cost and RISK of incorrect diagnosis

Case 7

The most likely diagnosis:

1. Bilateral cellulitis
2. Bilateral DVTs
3. Thrombophlebitis
4. Stasis dermatitis
5. Trauma related

Drug Eruptions

Drug reactions:
3 things you need to know
1. Type of drug reaction
2. Statistics:
   - Which drugs are most likely to cause that type of reaction?
3. Timing:
   - How long after the drug started did the reaction begin?

Drug Eruptions:
Degrees of Severity

<table>
<thead>
<tr>
<th>Simple</th>
<th>Complex</th>
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<tbody>
<tr>
<td>Morbilliform drug eruption</td>
<td>Drug hypersensitivity reaction</td>
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<tr>
<td></td>
<td>Stevens-Johnson syndrome (SJS)</td>
</tr>
<tr>
<td></td>
<td>Toxic epidermal necrolysis (TEN)</td>
</tr>
<tr>
<td>Minimal systemic symptoms</td>
<td>Potentially life threatening</td>
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</table>

Common Causes of Cutaneous Drug Eruptions

- Antibiotics
- NSAIDs
- Sulfa
- Allopurinol
- Anticonvulsants
Morbilliform (Simple) Drug Eruption

- Begins 5-10 days after drug started
- Erythematous macules, papules
- Pruritus
- No systemic symptoms
- Risk factors: EBV, HIV infection
- Treatment:
  - D/C medication
  - Diphenhydramine, topical steroids
- Resolves 7-10 days after drug stopped
  - Gets worse before gets better

Case 8

- 45 YOM treated as an outpatient with TMP/SMX for complicated UTI; admitted with urosepsis. Day after admission is found to have this eruption. No eosinophilia.

Case 8: Drug chart

<table>
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<tr>
<th>Day</th>
<th>-7</th>
<th>-6</th>
<th>-5</th>
<th>-4</th>
<th>-3</th>
<th>-2</th>
<th>-1</th>
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<th>1</th>
<th>2</th>
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<tr>
<td>cipro</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<td></td>
<td></td>
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<tr>
<td>pip/tazo</td>
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<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>norfloxacin</td>
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<tr>
<td>omeprazole</td>
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<tr>
<td>SQ heparin</td>
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<td>docusate</td>
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</tr>
<tr>
<td>TMP/SMX</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
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</tr>
</tbody>
</table>

The most likely culprit is:

1. Vanco
2. Pip/tazo
3. Omeprazole
4. TMP/SMX
Hypersensitivity Reactions

- Skin eruption associated PLUS systemic findings
- “DRESS” = Drug reaction w/ eosinophilia and systemic symptoms
- “DIHS” = Drug induced hypersensitivity syndrome
- Begins 2-6 weeks after medication started
  - time to abnormally metabolize the medication
- May be role for HHV6
- Mortality 10-25%

Hypersensitivity Rxn: Drugs

- Aromatic anticonvulsants
  - Phenobarbital, carbamazepine, phenytoin
  - CROSS-REACT
- Sulfonamides
- Lamotrigine
- Dapsone
- Allopurinol (HLA-B*5801)
- NSAIDs
- Other
  - Abacavir (HLA- B*5701)
  - Nevirapine (HLA-DRB1*0101)
  - Minocycline, metronidazole, azathioprine, gold salts
- Each class of drug causes a slightly different clinical picture
Hypersensitivity Rxn: Clinical

- Rash
- Fever (precedes eruption by day or more)
- Pharyngitis
- Hepatitis
- Arthralgias
- Lymphadenopathy
- Hematologic abnormalities
  - eosinophilia
  - atypical lymphocytosis
- Other organs involved
  - myocarditis, interstitial pneumonitis, interstitial nephritis, thyroiditis

Hypersensitivity Rxn: Treatment

- Stop the medication
- Follow CBC with diff, LFT’s, BUN/Cr
- Avoid cross reacting medications!!!
  - Aromatic anticonvulsants cross react (70%)
    - Phenobarbital, Phenytoin, Carbamazepine
    - Valproic acid and levetiracetam generally safe
- Systemic steroids (Prednisone 1.5-2mg/kg)
  - Taper slowly- 1-3 months
- Completely recover, IF the hepatitis resolves
- Check TSH monthly for 6 months
- Watch for later cardiac involvement (low EF)

Skin Cancer

Clinical Guidelines

Screening for Skin Cancer: U.S. Preventive Services Task Force Recommendation Statement

U.S. Preventive Services Task Force

Description: Update of the 2009 U.S. Preventive Services Task Force (USPSTF) recommendation statement on screening for skin cancer.

Methods: To update its recommendation, the USPSTF reviewed evidence published since 2009 on studies on screening effectiveness, the stage of detection by screening, and the accuracy of whole-body examination by primary care clinicians and self-examination by patients.

Recommendation: The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for skin cancer by primary care clinicians or by patient self-examination. [I statement]
• Applies to adults without history of malignancy or premalignant conditions
• Clinicians should remain alert for skin lesions with malignant features noted in the context of the physical exam performed for other purposes
  o LOOK! for ABCDs, rapidly changing lesions, do a biopsy when indicated

Know who is at risk:
  o Fair skin patients >65yrs
  o Atypical nevi
  o > 50 nevi
  o Positive family history of skin cancer
  o History of significant sun exposure and sunburns

Malignant Melanoma
• Most frequent cause of death from skin cancer
• Frequently occurs in young adults
  o #1 cause of cancer death in women age 30-35
• Intermittent, intense sun exposure (sunburns)
• The prognosis is DEPENDENT on the depth of lesion (Breslow’s classification) and lymph node status
• Melanoma of < 1mm in thickness is low risk
• Early diagnosis is KEY

Malignant Melanoma-ABCDE
• Asymmetry
• Border
• Color
• Diameter
• Evolution
Skin Cancers: What to Refer to Dermatology

- ANY suspicious pigmented lesion
- Any bleeding skin lesion
- Any red spot that doesn’t clear in 6-8 weeks
- Any non-healing erosion or ulceration
- Persons with greater than 50 moles, atypical moles, or family history of melanoma
- Fair-skinned organ transplant recipients with prior sun exposure

Sunscreens 101

Why Sunscreens?

- Prevention of skin cancer
- Prevention of photosensitivity (UVA)
  - Medications
  - Diseases: e.g. lupus erythematosus
- Prevention of skin aging

UV-B and UV-A

- UVB (290-320nm)
  - Burning rays of the sun
  - Filtered by the ozone layer
  - Most carcinogenic
  - Primary target of sunscreens
  - SPF refers only to UVB blockade

- UVA (320-400nm)
  - Tanning rays
  - Aging rays
    - a complete UVA blocker = anti-aging cream
  - Cause of medication related photosensitivity (e.g. HCTZ)
  - Harder to block
Chemical vs Physical Sunscreens

- Chemical sunscreens have UV absorbing chemicals
  - Benzophenone, Parsol 1789, Mexoryl, etc
  - Chemical UVA blockers are photo-unstable (degrade)
    - Stabilizers are now common (e.g. Helioplex)

- Physical sunscreens scatter or block UV rays
  - Zinc and titanium are physical blockers
  - More photostable
  - Block UVA well
  - Inelegant (white film)

What to Tell Your Patients

- Use sunscreen, SPF ≥ 30 EVERYDAY
- Avoid mid-day sun/Short Shadow Seek Shade
- Wear protective clothing (hats)
- Put sunscreen on your children
- Ask your doctor to check your skin lesions
- Vitamin D Supplement for those at risk for osteoporosis who follow stringent sun-protections practices
  - e.g. organ transplant patients

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* The American Academy of Dermatology recommends that **an adequate amount of vitamin D should be obtained from a healthy diet that includes foods naturally rich in vitamin D, foods/beverages fortified with vitamin D, and/or vitamin D supplements. Vitamin D should not be obtained from unprotected exposure to ultraviolet (UV) radiation.**

  - Unprotected UV exposure to the sun or indoor tanning devices is a known risk factor for the development of skin cancer.
  - There is no scientifically validated, safe threshold level of UV exposure from the sun or indoor tanning devices that allows for maximal vitamin D synthesis without increasing skin cancer risk.
  - To protect against skin cancer, a comprehensive photoprotective regimen, including the regular use and proper use of a broad-spectrum sunscreen, is recommended

* Taken from: American Academy of Dermatology website, 1/25/11