Dermatology Pearls for the Hospitalist: How to Avoid the Pitfalls

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Goals of this lecture

• Drug eruptions
  – Tell the difference between a benign and serious drug eruption
  – Know which drug(s) to stop

• Scabies
  – Make the diagnosis before it’s too late!

• Herpes simplex/zoster in the hospital
  – Unusual presentations
Goals of this lecture

• The red leg
  – How to tell when it’s not cellulitis
• Psoriasis
  – How to avoid precipitating a medical emergency
• Flesh eating drug
• Pyoderma gangrenosum
  – Avoid a potential nosocomial disaster
• Common benign conditions you will see
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?
Case

- 46 year old HIV+ man admitted to ICU for r/o sepsis
- Severely hypotensive → IV fluids, norepinephrine
- Sepsis? → antibiotics are started
- At home has been taking trimethoprim/sulfamethoxazole for UTI
Question 1:
Per the drug chart, the most likely culprit is:

<table>
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<tr>
<th></th>
<th>Day -&gt;</th>
<th>-8</th>
<th>-7</th>
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Admit day

Rash onset
Question 1:
Per the drug chart, the most likely culprit is:

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Admit day: Day -8
Rash onset: Day -1
# 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>Minimal systemic symptoms</td>
<td>Stevens-Johnson syndrome (SJS)</td>
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<tr>
<td></td>
<td>Toxic epidermal necrolysis (TEN)</td>
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<td></td>
<td>Systemic involvement</td>
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<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 getting better
Simple drug eruption - day 1
Simple drug eruption - day 3
Simple drug eruption- day 7
Hypersensitivity Reactions

- Skin eruption associated with systemic symptoms and alteration of internal organs
- “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 Reactions

Drugs

• Aromatic anticonvulsants
  – phenobarbital, carbamazepine, phenytoin
  – **THESE 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 Reactions
Clinical features

- 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
Anticonvulsant Hypersensitivity Reaction
Hypersensitivity Reactions 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 (Keppra) generally safe
• Systemic steroids (Prednisone 1.5-2mg/kg)
  – Taper slowly- 1-3 months
• Allopurinol hypersensitivity may require steroid sparing agent
  • NOT azathioprine (also metabolized by xanthine oxidase)
• Completely recover, IF the hepatitis resolves
• Check TSH monthly for 6 months
• Watch for later cardiac involvement (low EF)
Severe Bullous Reactions

- Stevens-Johnson Syndrome
- Toxic Epidermal Necrolysis (TEN)
Stevens-Johnson Syndrome (SJS) and Toxic Epidermal Necrolysis (TEN)

- Medications
  - Sulfonamides
  - Aromatic anticonvulsants (carbamazapine [HLA-B*1502], phenobarbital, phenytoin)
  - Allopurinol (HLA-B*5801)
  - NSAIDs (esp Oxicams)
  - Nevirapine (HLA-DRB1*0101)
  - Lamotrigine
  - Weaker link: Sertraline, Pantoprazole, Tramadol

### Stevens-Johnson (SJS) versus Toxic Epidermal Necrolysis (TEN)

<table>
<thead>
<tr>
<th>Disease</th>
<th>BSA</th>
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<tbody>
<tr>
<td>SJS</td>
<td>&lt; 10%</td>
</tr>
<tr>
<td>SJS/TEN overlap</td>
<td>10-30%</td>
</tr>
<tr>
<td>TEN with spots</td>
<td>&gt; 30%</td>
</tr>
<tr>
<td>TEN without spots</td>
<td>Sheets of epidermal loss &gt; 10%</td>
</tr>
</tbody>
</table>
Stevens-Johnson (SJS) versus Toxic Epidermal Necrolysis (TEN)

<table>
<thead>
<tr>
<th>SJS</th>
<th>TEN</th>
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</thead>
<tbody>
<tr>
<td><strong>Atypical targets</strong></td>
<td><strong>Erythema, bullae</strong></td>
</tr>
<tr>
<td>Mucosal membranes ≥ 2</td>
<td><strong>Skin pain</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Mucosal membranes ≥ 2</strong></td>
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</table>

**Causes:**
- Drugs
- Mycoplasma
- HSV
- Drugs
Stevens-Johnson Syndrome (SJS)
Stevens-Johnson Syndrome (SJS)
Stevens-Johnson Syndrome (SJS)/Toxic epidermal necrolysis (TEN)
Toxic Epidermal Necrolysis (TEN)
Toxic Epidermal Necrolysis (TEN)
Question 2

What is the most important consult besides dermatology to get in a patient with SJS/TEN?

A. Renal
B. Ophthalmology
C. Allergy/immunology
D. Wound care
E. GI/liver
Question 2

What is the most important consult besides dermatology to get in a patient with SJS/TEN?

A. Renal
B. **Ophthalmology**
C. Allergy/immunology
D. Wound care
E. GI/liver
SJS/TEN: Emergency Management

• Stop all unnecessary medications
  – The major predictor of survival and severity of disease
• Ophthalmology consult
• Check for Mycoplasma- 25% of SJS in pediatric patients
• Treat like a burn patient
  – Monitor fluid and electrolyte status (but don’t overhydrate)
  – Nutritional support
  – Warm environment
  – Respiratory care
• Death (up to 25% of patients with more than 30% skin loss, age dependent)
SJS/TEN: Treatment

• Topical
  – Protect exposed skin, prevent secondary infection
  – Aquaphor and Vaseline gauze
• Systemic- controversial
  – No role for empiric antibiotics
    • Surveillance cultures
    • Treat secondary infection (septicemia)
  – Consider antivirals, treat Mycoplasma if present
  – SJS: high dose corticosteroids -1.5-2 mg/kg prednisone (no RCT)
  – TEN: IVIG 1g/kg/d x 4d
Case

- 86M with CAD, HTN, AF, dementia
- Admitted for syncope and found to have had an NSTEMI
- 5 months of widespread intensely pruritic rash
- Prior to UCSF, was in an OSH due to digoxin toxicity, evaluated by 4 dermatologists, 2 skin bx reported as “non-diagnostic”
- Prior treatment- solumedrol and predisone for “eczema”
Crusted (Hyperkeratotic, Norwegian) Scabies

- Elderly, debilitated, institutionalized and immunocompromised patients
  - HIV, HTLV-1, T cell lymphoma/leukemia, transplants
- Millions of mites
- Mortality rate up to 50% over five years
  - Secondary to infection (Staph sepsis) or underlying condition
- Can result in large nosocomial outbreaks
- Eosinophilia and high IgE levels common
Crusted (Hyperkeratotic, Norwegian) Scabies

- Decrease in mortality (from 4.3% to 1.1%) after a treatment protocol:
  - multiple doses of ivermectin
  - topical scabicide
  - keratolytic therapy
  - PLUS early empiric broad spectrum antibiotics for patients with suspected secondary sepsis

Norwegian Scabies in the hospital – Treatment

• CONTACT ISOLATION
  – Quarantine clothing, bedding
• Contact infection control
• Permethrin 5% q 3d
  – Treat under fingernails, all skin folds
• Ivermectin (200mcg/kg) every two weeks
  – One group: ivermectin days 1, 2, 8, 9, 15, 22, 29
• Keratolytic BID
  – Urea (not salicylic acid or lactic acid)
• Repeat until clear- takes about 3 weeks
Herpes Pearls in the Hospital Diagnostic Tests

- Direct fluorescent antibody (DFA)
  - Detects both HSV and VZV

- Viral culture
  - HSV grows on culture, VZV does not

- Skin biopsy
  - Shows viropathic changes, but cannot tell HSV from VZV histologically without PCR
NG tube and ET tube “pressure ulcers” are often HSV
HSV in the Immunocompromised Host

• Atypical course
  – Chronic enlarging ulcers
  – Multiple sites
  – Cutaneous dissemination

• Atypical morphology
  – Ulcerodestructive
  – Pustular
  – Exophytic
  – “Verrucous” (usually VZV)
• 38 yo M with AIDS (CD4 4) admitted for cough
• 7 months of painful lesion on right D2 after manicure
• Treated with doxycycline, cephalexin, fluconazole
Case

- 81 yo female bedridden patient admitted for urosepsis
- PMH: bullous pemphigoid on prednisone 5 mg, azathioprine 100 mg
- Called to help manage bullous pemphigoid
Chronic HSV in the Bedridden, Immunosuppressed Patient
Disseminated HSV
Herpes Zoster - Pearls
Question 3

• This patient with zoster needs:
A. An ophthalmology consult
B. A neurology consult
C. An ENT consult
D. No further evaluation needed
Question 3

• This patient with zoster needs:
  A. An ophthalmology consult
  B. A neurology consult
  C. An ENT consult
  D. No further evaluation needed
Herpes Zoster

• Hutchinson’s sign
  – Vesicles on the nasal tip or side suggest nasociliary nerve branch involvement
• Call ophthalmology
Herpes Zoster

• Ramsay Hunt syndrome
  – Vesicles in distribution of the nervus intermedius (external auditory canal, pinna, soft palate, anterior 2/3 of tongue)
  – Associated with vertigo, ipsilateral hearing loss, tinnitus, facial paresis

• Call ENT
Disseminated zoster

• Definition
  – ≥ 20 lesions outside of 2 contiguous dermatomes

• At risk group
  – Immunosuppressed, elderly

• Viscera can be affected

• Treatment
  – Acyclovir 10-12 mg/kg IV q8hr
  – Until lesions are completely healed over (or clear!)

• Contact and respiratory isolation
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
  – Metronidazole OK (prevents odor)
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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</thead>
<tbody>
<tr>
<td>Cellulitis</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Almost never</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>
Pustular Psoriasis

- Often occurs when known psoriatics are given systemic steroids
- When the steroids are tapered, the psoriasis flares, often with pustules
• Patient is toxic appearing
  – Fever, chills
• Can be life threatening
  – High cardiac output state
  – Electrolyte imbalance
  – Respiratory distress
  – Temperature dysregulation
• Treatment
  – Acitretin or cyclosporine
38 yo female, hepatitis C, active heroin, crack cocaine
PMHx- miscarriage and premature delivery/infant death

Admission:
MRSA endocarditis
Vancomycin started

DVT
Lupus anticoagulant +

Heparin drip
Coumadin started

Drop in platelets, PLT F4 Ab + → HIT?
Heparin d/c’d
Coumadin continued

Day 19 of Coumadin
Purpura!!
Levamisole contaminated cocaine with agranulocytosis, retiform purpura
Levamisole in cocaine

- Levamisole
  - Antihelminth, used in veterinary medicine
  - Contaminated 30% of cocaine seized by the USDA from July to September 2008
  - April 2011- USDA found >82% of cocaine contaminated with levamisole
Levamisole in humans

- Agranulocytosis (20%)
  - Potentially fatal neutropenia in cocaine users
- Positive ANCA (PR-3 and MPO)
- Positive anti-HNE (human neutrophil elastase)
- Positive lupus anticoagulant
- Skin biopsy
  - Leukocytoclastic vasculitis AND/OR thrombotic vasculopathy (non-inflammatory)
- Abnormal labs resolve - follow, but don’t treat the APLAs unless deep clots occur
Case

- 67M underwent an elective saphenous vein phlebectomy for asymptomatic varicosities
- 4d post op, he develops erythema around the wound.
- Ulceration continues to expand despite multiple debridements and broad spectrum antibiotics.
- Wound cultures are negative
- 3 weeks later, he is transferred to UCSF and a dermatology consultation is called
- Tmax 104, WBC 22
Question 4

The most appropriate first line treatment for this disorder is

A. Systemic steroids
B. Intravenous antibiotics
C. Surgical debridement
D. Compression dressing
E. Wet to dry dressings
Question 4

• The most appropriate first line treatment for this disorder is
  A. Systemic steroids
  B. Intravenous antibiotics
  C. Surgical debridement
  D. Compression dressing
  E. Wet to dry dressings
Pyoderma Gangrenosum

- Rapidly progressive (days) ulcerative process
- Begins as a small pustule which breaks down forming an ulcer
- Undermined violaceous border
- Expands by small peripheral satellite ulcerations which merge with the central larger ulcer
- Occur anywhere on body
- Triggered by trauma (pathergy) (surgical debridement, attempts to graft)
Pyoderma Gangrenosum

- 50% have no underlying cause
- Associations (50%):
  - Inflammatory bowel disease (1.5%-5% of IBD patients get PG)
  - Rheumatoid arthritis
  - Seronegative arthritis
  - Hematologic abnormalities (AML)
Pyoderma Gangrenosum
Treatment

• AVOID DEBRIDEMENT
• Refer to dermatology
• Treatment of underlying disease may not help PG
  – Topical therapy:
    • Superpotent steroids
    • Topical tacrolimus
  – Systemic therapy:
    • Systemic steroids
    • Cyclosporine or Tacrolimus
    • Cellcept
    • Thalidomide
    • TNF-blockers (Remicade)
Common Benign Dermatoses in the Hospital

- Miliaria crystallina
- Grovers Disease
Miliaria

• Miliaria refers to sweat duct occlusion
• Common in situations that induce sweating- warm environments, febrile illness, drugs, etc
• Occurs at different levels in the skin
• Miliaria
  – Crystallina- intra or sub stratum corneum
  – Rubra- malpighiian layer (intraepidermal)
  – Profunda- rupture of intradermal duct and inflammation
Miliaria Crystallina

http://dermatlas.med.jhmi.edu/derm/index
Grovers Disease (transient acantholytic dermatosis)

- Sudden eruption of papules, papulovesicles; often crusted
- Mid chest and back
- Itchy
- Middle aged to older men
- Etiology unknown- heat, sweating
- Risk factors: hospitalized, febrile, sun damage
- Transient
- Treatment: topical steroids (triamcinolone 0.1% cream); get patient to move around