Dermatology Diagnostic Dilemmas
COMMON AND UNCOMMON CHALLENGES

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$75 billion spent on skin disease in 2013

Top risk factors in terms of attributable DALYs were due to 1 of the 3 following causes:
- Tobacco consumption
- High BMI
- Alcohol and drug use

Disability-adjusted life-years (DALYs)

2016 Life Expectancy
- US: 78.9
- HI: 81.3 Best
- MS: 74.7 Worst
- OR: 79.5 16th
Overview

- Morphology
- Teledermatology
- Diagnosis and management of common and uncommon dermatologic conditions
  - Focus on differential diagnosis
  - Focus of disease associations
  - Clinical pearls throughout
  - Random tangents

Disclosures

- MiMedx Speaker and Consultant

Morphology

Primary Lesions in Dermatology

- Macule
- Patch
- Papule
- Plaque
- Nodule
- Pustule
- Vesicle
- Bulla

Secondary Lesions in Dermatology

- Crust
- Scale
- Lichenification
- Atrophy
- Hypertrophy
- Erosion
- Ulcer
- Fissure
- Excoriation

Do not say “maculopapular rash” ever...well, almost never is acceptable.
Lesion Descriptors in Dermatology
- Size
- Color
- Distribution
- Pattern
- Surface Topography

Diagnosis of Dermatologic Conditions
- Primary and Secondary Lesion(s)
  - Inflammatory
  - Infectious
  - Neoplastic
  - Physiologic

Inflammatory Reaction Patterns
- Lichenoid Reaction
- Psoriaform Reaction
- Eczematoid Reaction
- Granulomatous Reaction
- Vesiculobullous Reaction
- Vasculopathic Reaction
- Acneiform Reaction
- Urticarial Reaction

Unique Inflammatory Disorders
- Disorders of the Fat
- Disorders of the Hair
- Disorders of Pigmentation

Management of Dermatologic Conditions
- Primary and Secondary Lesion(s)
  - Inflammatory
  - Infectious
  - Neoplastic
  - Physiologic
  - Immunomodulatory Therapy
  - Antimicrobials
  - Excision or Destruction
  - Treat Underlying Disorder

Always look for disease associations or underlying syndromes
Management of Dermatologic Conditions

If the condition you are treating does not respond to the appropriate therapies, maybe you have the wrong diagnosis.

Teledermatology

Three hundred ninety-one randomized participants were referred from remote sites of primary care to the dermatology services of 2 VA medical facilities for ambulatory skin conditions from December 2008 through June 2010.

Cost minimization analysis found a nonstatistically significant lower cost with teledermatology from the VA perspective and a statistically significant lower cost for teledermatology from the societal perspective.

Diagnostic agreement was moderate to almost perfect whereas management agreement was fair.
Launch in 2003, uses "telementoring" to train primary-care providers on how to treat chronic conditions such as hepatitis C, asthma, diabetes, mental illness and pain issues.

Provided about $7,000 hours in continuing medical education for healthcare clinicians in the last 10 years.

The CMS Center for Medicare & Medicaid Innovation awarded Project ECHO a three-year $8.5 million healthcare innovation grant.

The Robert Wood Johnson Foundation provided $5 million in funding to establish the new Project ECHO Institute through 2016.

The ECHO Act Passes U.S. Senate and House of Representatives

On Nov. 29, 2016, the U.S. Senate unanimously passed the bipartisan Enabling Capacity for Health Outcomes (ECHO) Act by a vote of 97-2. The House of Representatives passed the bill on Dec. 6, sending it to the President to be signed into law. The ECHO Act will increase access to specialized healthcare in rural and underserved areas nationally.

The Enhancing Capacity for Health Outcomes (ECHO) Act

- The ECHO Act aims to better integrate the Project ECHO model into health systems across the country.
- Requires the Secretary of the U.S. Department of Health and Human Services (HHS), in collaboration with the Health Resources & Services Administration (HRSA), to prioritize analysis of the model, its impacts on provider capacity and workforce issues, and evidence of its effects on quality of patient care.
- Requests a GAO report regarding opportunities for increased adoption of such models, efficiencies and potential cost savings from such models, ways to improve health care through such models, and field recommendations to advance the use of such models.
- Requires the HHS Secretary to submit a report to Congress on the findings of the GAO report and the HHS report, including ways such models have been funded by HHS and how to integrate these models into current funding streams and innovative grant proposals.

Productivity – 1st 6 months

Approximately 25 consults per month

<table>
<thead>
<tr>
<th>Derm Purchased Care</th>
<th>ECHO</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAXWELL</td>
<td>130</td>
</tr>
<tr>
<td>TYNDALE</td>
<td>113</td>
</tr>
<tr>
<td>BARKSDALE</td>
<td>113</td>
</tr>
<tr>
<td>NCB GPT</td>
<td>130</td>
</tr>
</tbody>
</table>

Percent Decrease:
- Maxwell = -13.1%
- Tynsdale = -9.9%
- Barksdale = -11.3%
- NCB GPT = -8.9%

Network Referral Ranking:
- Maxwell = #5
- Tynsdale = #3
- Barksdale = #5
- NCB GPT = #5

Access To Care

<table>
<thead>
<tr>
<th># Network Days To Appt</th>
<th># ECHO Days To Appt</th>
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<tbody>
<tr>
<td>40</td>
<td>23</td>
</tr>
<tr>
<td>22</td>
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Productivity Data – 1st year comparison

<table>
<thead>
<tr>
<th>Derm Referrals</th>
<th>Overall</th>
<th>1-11 Data</th>
<th>12-22 Data</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg</td>
<td>130</td>
<td>113</td>
<td>-13%</td>
<td></td>
</tr>
<tr>
<td>Sum</td>
<td>5723</td>
<td>4974</td>
<td>-74%</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Derm Referrals Cost</th>
<th>Overall</th>
<th>1-11 Data</th>
<th>12-22 Data</th>
<th>Diff</th>
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</thead>
<tbody>
<tr>
<td>Avg</td>
<td>19153</td>
<td>17801</td>
<td>-7%</td>
<td></td>
</tr>
<tr>
<td>Sum</td>
<td>841,834</td>
<td>783,255</td>
<td>-558,578</td>
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</tbody>
</table>
What is your diagnosis?

- 55 y/o M with >10 year history of this pruritic dry scaly plaque on the L calf. Similar lesions on the trunk, feet, UE.
- A. Tinea
- B. Atopic Dermatitis
- C. Psoriasis
- D. Lymphoma
- E. Syphilis

D. Cutaneous T-Cell Lymphoma

Atopic Dermatitis
Same Patient – Photo Allergic Reaction
Diagnosis?

Scabies

Diagnosis?

Scabies

What is your diagnosis?

Case #2
67 y/o M with 3 year history of progressively “dry skin.” Now has diffuse erythema and scale over the past 2 weeks and has fever, chills, fatigue.
A. Psoriasis
B. Atopic Dermatitis
C. Mycosis Fungoides
D. Drug Eruption
E. Pityriasis Rubra Pilaris

What is your diagnosis?

All of the above are correct!
Erythroderma

Which is Scalp Psoriasis?
Drug Induced Psoriasis

Same Patient

Same Patient

Psoriasis

Same Patient

Inverse Psoriasis
Tinea mimicking scalp psoriasis

Seborrheic Dermatitis

Seborrheic Dermatitis – Petaloid

Seborrheic Dermatitis vs Psoriasis?
Same Patient

Psoriasis – Inflamed

Traumatic Anserine Folliculosis

Pityriasis Rosea

Case #3

What is your diagnosis?
What is your diagnosis?

- 56 y/o F with slightly pruritic/burning lesions over her R ankle. Started after ORIF (screws under the lesions) 2 years ago.
  A. Chromoblastomycoses
  B. Keloids
  C. Lichen Planus
  D. Foreign Body
  - Granulomas
  E. Sarcoid

C. Hypertrophic Lichen Planus
Severe Oral Lichen Planus

Lichen Planus

Penile Lichen Planus

Labial Lichen Planus

Treatment & Associations

Lichen Niditus
43 y/o M with a 10 year history of these chronically recurring slightly tender plaques, some are annular over the chest, arms, face, upper back.

A. Tinea
B. Urticaria
C. Lupus
D. Granuloma Annulare
E. Sarcoid
C. Subacute Cutaneous Lupus Erythematosus

Granuloma Annulare

Granuloma Annulare

Granuloma Annulare

Granuloma Annulare?

Treatment & Associations
19 y/o M c/o abrupt onset of these pruritic and tender “hives” on his hands and feet the past few days. Does admit to a recent cold.
A. Urticaria
B. Lupus
C. Tinea
D. Erythema Multiforme
E. Sweet’s Syndrome
Treatment & Associations

Dx?
Serum Sickness–like Rxn to Augmentin

3 days later

Chronic Urticaria
16 y/o F with developmental delay has this patch of alopecia with minimal scale and varying sizes of hairs in the occipital and temporal regions.

A. Alopecia Areata
B. Trichotillomania
C. Syphilis
D. Tinea
E. Dissecting Scalp Cellulitis
A. Alopecia Areata

Alopecia Areata

Alopecia Areata

Temporal Triangular Alopecia

Treatment & Associations
Dissecting Scalp Cellulitis

Folliculitis Decalvans

Lichen Planus Pilaris

Scalp Folliculitis

Case #7

What is your diagnosis?
What is your diagnosis?

- 52 y/o healthy F c/o 2 month history of this white lesion on her shin. She thinks she hit her shin prior to the onset. Lesion is asymptomatic and denies lesions elsewhere. Patient's father had vitiligo.
  - A. Vitiligo
  - B. Post-inflammatory hypopigmentation
  - C. Sarcoid
  - D. Scleroderma
  - E. Chemical leukoderma

D. Scleroderma - Localized (Morphea)
55 y/o F with facial eruption for 10 years starting around menopause. Had severe acne in teenage years.

- A. Comedomal Acne
- B. Papular Acne
- C. Nodular Acne
- D. Sarcoïd
- E. Tinea
D. Sarcoid

Comedonal Acne

Papular Acne

Papular / Pustular Acne

Nodulocystic Acne

Acne Algorithm

Acne Algorithm:
- Comedonal
- Papulo-pustular
- Scarring
- Nodulo-Cystic

Acne Algorithm:
- Benzoyl Peroxide
- Azelex
- Clindamycin
- Benzamycin
- Tetracycline-doxycycline
- Minocycline

Acne Algorithm:
- Accutane/Amnesteem
- Hormonal Workup
  - DHEAS
  - Testosterone
Acne Algorithm

Rosacea

Steroid Rosacea

Severe Rosacea with Airborne Contact Dermatitis
Questions?

Question
What is the definition of a macule?
A. Raised (palpable) solid lesion <1cm
B. Discolored flat (non-palpable) lesion <1cm
C. Raised (palpable) solid lesion >1cm
D. Discolored flat (non-palpable) lesion >1cm
E. Raised (palpable) clear fluid filled lesion <1cm

Question
When evaluating a patient for psoriasis, aside from the cutaneous manifestation of psoriasis, which of the following would be the most important to address?
A. A personal or family history of lymphoma
B. A personal history of skin cancer
C. The patient's cardiac risk factors
D. The patient's risk for thyroid disease
E. A personal or family history of an immunodeficiency syndrome

Question
A patient presents with refractory atopic dermatitis after appropriate topical treatment, which of the following should you consider?
A. Five day oral steroid burst
B. Empiric treatment with a systemic antifungal for one month
C. Search for underlying cardiac disease
D. Empiric treatment with oral antibiotics for one month
E. Consider an underlying reason for immunodeficiency

Question
A 40 year-old obese female that smokes (one pack per day for the past 15 years) presents with new onset non-scarring papular/pustular acne predominantly over the jawline, with a history of difficulty getting pregnant – which of the following should you first consider in the initial management of this patient?
A. Isotretinoin
B. Topical clindamycin only
C. Benzoyl peroxide wash only
D. Evaluation for metabolic syndrome
E. A course of doxycycline for 2 weeks

Question
What is the definition of a patch?
A. Raised (palpable) solid lesion <1cm
B. Discolored flat (non-palpable) lesion <1cm
C. Raised (palpable) solid lesion >1cm
D. Discolored flat (non-palpable) lesion >1cm
E. Raised (palpable) clear fluid filled lesion <1cm
A 12 year-old male patient presents with refractory atopic dermatitis after appropriate treatment, which of the following would increase your suspicion for an underlying immunodeficiency?

A. Cold abscesses
B. A history of recurrent respiratory infections requiring antibiotics
C. Course facies
D. Lack of development of secondary teeth
E. All of the above

A 16 year-old healthy female with regular periods presents new onset non-scarring comedonal/papular acne, which of the following should you consider in the initial management of this patient?

A. Accutane
B. Oral contraceptives
C. Benzoyl peroxide wash and clindamycin topical solution
D. Evaluation for metabolic syndrome
E. Tretinoin 0.025% cr qhs, Benzoyl peroxide wash and clindamycin topical solution

When evaluating a patient for psoriasis, which of the following labs should you consider drawing?

A. TSH
B. CBC
C. Lipids
D. LFTs
E. HIV