Challenging Cases from USC

F137 – Challenging Diagnostic Cases for Practitioners
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David S Lee, MD, FAAD
Assistant Professor of Clinical Dermatology
USC Keck School of Medicine
I do not have any relevant relationships with industry.

I have no financial conflicts of interest to disclose.
• Four cases from USC general dermatology clinics presented today

• Cases selected for their interesting clinical presentations and relevance to everyday clinical dermatology practice
Question 1

• What is the average number of mites on a patient with ordinary non-crusted scabies?
  – A) 10-15
  – B) 16-99
  – C) 100-499
  – D) 500-1000
  – E) >1000
Question 1

• What is the average number of mites on a patient with ordinary non-crusted scabies?
  
  – A) 10-15
  – B) 16-99
  – C) 100-499
  – D) 500-1000
  – E) >1000

Case 1

- 76 year old male referred by outside dermatologist for further evaluation of a generalized pruritic eruption for 1.5 years

- Initially well controlled on topical therapies and intermittent courses of systemic corticosteroids

- Over past year, pruritus has been intractable and more severe, keeping him up most nights and interfering with daily activities

- PMHx significant for hypothyroidism; no hx childhood atopy
Case 1

• Extensive workup and treatment attempts by previous dermatologist
  – 2 prior skin biopsies showing “spongiotic dermatitis with eosinophils”
  – Negative TRUE Test and NACDG Standard series patch tests
  – Pruritus workup, including labs and age appropriate cancer screening, unrevealing
Case 1

**Current treatments**
- **Prednisone** 40mg qod
- **Mycophenolate mofetil** 3g/day
- Topical corticosteroids
- Anti-histamines

**Past treatments**
- Cyclosporine
- Dapsone
- Omalizumab
- NBUVB phototherapy
Clinical Course

• Initial visit
  – **Negative mineral oil prep** of skin scrapings (multiple sites) in clinic
  – **Empirically prescribed permethrin 5% cream and PO ivermectin (200mcg/kg) x2 doses 1 week apart**
  – Additional management pending further review of outside records
Clinical Course

- Two weeks later

Hi,
I had my first normal night sleep in a year. So assuming things stay improved obviously I have to use the ointment again.

If this does it you are indeed a miracle doctor. :)
I can never thank you enough.

Sent from my iPhone
Clinical Course

• Follow up
  – Now off all immunosuppressants
  – Intermittent nummular eczema flares controlled with topical corticosteroids and gentle skin care

• Diagnosis
  – **Primary scabies infestation** vs other primary dermatosis with scabies super-infestation
Scabies

- Ectoparasitic infestation caused by *Sarcoptes scabiei* mite
- Transmitted by prolonged skin-skin contact
- Traditional non-crusted scabies
  - Majority of cases
  - 10-15 mites on host
- Crusted (Norwegian) scabies
  - Up to thousands of mites

Scabies

- Diagnosis
  - Clinical: burrows, autoeczematization dermatitis
  - Dermoscopy: ID of burrow
  - Skin scraping: ID of mite, eggs, scybala (feces)
  - Skin biopsy: ID of mite
  - <50% sensitivity in detecting scabies

What I learned

- Re-consider diagnosis if conventional therapies are ineffective
- Sensitivity of skin scraping/skin biopsy for detecting scabies is low (<50%)
- Have a low threshold to treat empirically for scabies!
  - Treatment (ivermectin, permethrin) is low risk
  - Rare resistance reported (<10%)

Question 2

• Which of the following is consistent with pemphigus foliaceus?
  – A) Tense blisters, H&E: sub-epidermal split, DIF: linear IgG + C3 of basement membrane zone
  – B) Tense blisters, H&E: sub-epidermal split, DIF: intercellular IgG + C3 of upper epidermis
  – C) Flaccid blisters, H&E: suprabasilar acantholysis, DIF: linear IgG + C3 of basement membrane zone
  – D) Flaccid blisters, H&E: suprabasilar acantholysis, DIF: intercellular IgG of throughout epidermis
  – E) Crusted erosions, H&E: superficial epidermal acantholysis, DIF: intercellular IgG + C3 of upper epidermis
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  - E) Crusted erosions, H&E: superficial epidermal acantholysis, DIF: intercellular IgG + C3 of upper epidermis

Case 2

• 41 year old female presenting with a pruritic generalized eruption for 1 month

• Presented to the emergency department 2 weeks prior and treated with permethrin, 5 day prednisone burst (20mg/day), and cephalexin
  – No improvement with this treatment
Clinical Course

• Initial visit
  – Punch biopsy taken from right thigh: **spongiotic dermatitis with eosinophils**
  – Same empiric treatment with permethrin and ivermectin as case 1
  – Added topical corticosteroids, PO anti-histamines

• Three weeks later
  – Rash morphology evolving, now with **flaccid vesicles**, but no mucosal lesions
  – Two additional punch biopsies taken for H&D and DIF
  – Patient started on prednisone taper
Clinical Course

• Repeat biopsies
  – H&E: intraepidermal pustular and **acantholytic dermatitis** consistent with pemphigus
  – DIF: **intracellular IgG and C3** consistent with pemphigus

• **ELISA positive for desmoglein 1 IgG**, negative for desmoglein 3 IgG

• **Diagnosis: pemphigus foliaceus**
Clinical Course

• Follow up
  – Referred to USC Blistering Disease Clinic
  – Started on:
    • High dose prednisone (1mg/kg/day) with gradual taper
    • Mycophenolate mofetil
    • IV rituximab infusion series (CLL/NHL dosing)
  – Currently in remission without disease activity
Pemphigus Foliaceus

- Autoimmune blistering disease
- Autoantibodies against Desmoglein 1
- Clinical
  - Crusted, scaly erosions > flaccid vesicles (P. vulgaris)
  - NO mucosal involvement (unlike P. vulgaris)

Pemphigus Foliaceus

• Pathology
  – **H&E (lesion edge)**: superficial epidermal split with acantholysis
  – **DIF (peri-lesional)**: intercellular IgG + C3 of upper epidermis
    • Send in *Michel’s/Zeus* transport medium!!

• Laboratory testing
  – **ELISA** for IgG autoantibodies to desmoglein 1
  – **Indirect immunofluorescence titer** for anti-epidermal IgG antibodies

https://arupconsult.com/category/autoimmune-disease/immunobullous-disease
What I learned

• Early stages of pemphigus can mimic other dermatoses

• May require multiple visits and skin biopsies to make the diagnosis

• If clinically suspicious for pemphigus, send DIF and serologic tests early!
Question 3

Which of the following allergens have been most frequently associated with wet wipe contact dermatitis?

- A) fragrances
- B) iodopropynyl butylcarbamate
- C) bronopol
- D) methylisothiazolinone/methylchloroisothiazolinone
- E) parabens
Question 3

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  - A) fragrances
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  - D) methylisothiazolinone/methylchloroisothizolinone
  - E) parabens

Case 3

• 23 year old male with a 10 day history of a painful eruption of the right hand

• Began with a small focus of pruritus on right third digit, then spread to the entire hand

• No identifiable triggers according to patient

• Patient also notes several month history of pruritic rash on penis/scrotum
Clinical Course

• Initial visit
  – Started clobetasol ointment for hand, tacrolimus ointment for genitals
  – Gentle skin care

• Two weeks later
  – Modest improvement in symptoms, but still significant edema and overlying skin changes
  – Punch biopsy taken: **chronic spongiotic dermatitis**, PASD/GMS stains negative for fungi
  – Started on 16 day **prednisone taper**
  – Referral to USC Patch Testing Clinic
Clinical Course

• Patch testing
  – NACDG Standard/Supplemental allergen trays
    • 3+ parabens mix
    • 3+ methylisothiazolinone (MI)
    • (-) methylchloroisothiazolinone/methylisothiazolinone (MCI/MI)

• MI present in new pet wipes patient was using on his dog
• ACDS CAMP “safe” product list given to patient
Clinical Course

• Follow up
  – Both hand and genital rash have resolved without recurrence

• Diagnosis
  – Allergic contact dermatitis to methylisothiazolinone
Methylisothiazolinone

- 2013 American Contact Dermatitis Society “Allergen of the Year”
- Common preservative used in cosmetics & household products, approved for use in 2005
- Tested on NACDG Standard allergen tray but not on TRUE test
  - TRUE test contains MCI/MI, which is NOT sensitive for MI allergy
- European Environmental Contact Dermatitis Research Group, 2016
  - 205/3434 patients with positive patch tests to MI
  - Most frequent sites affected
    - Hands – 43.4%
    - Face – 32.7%
    - Arms – 14.6%
    - Widespread – 12.7%
    - Eyelids – 11.7%

What I learned

• Consider contact allergy when distribution of the reaction is unique

• Methylisothiazolinone (MI) is a relatively new, important contact allergen present in many consumer products

• TRUE test contains MCI/MI but NOT MI
Question 4

What treatments have been proposed for erosive pustular dermatosis of the scalp?

- A) potent topical steroids
- B) topical calcipotriol
- C) dapsone 5% gel
- D) tacrolimus 0.1% ointment
- E) all of the above
• What treatments have been proposed for erosive pustular dermatosis of the scalp?
  – A) potent topical steroids
  – B) topical calcipotriol
  – C) dapsone 5% gel
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  – E) all of the above

Case 4

- 72 year old female with 6 month history of a non-healing ulcer of the scalp

- History of scalp BCC with excision 8 years prior

- Shortly prior to ulceration, underwent 2 scalp biopsies at outside clinic consistent with AK and SCCis – biopsy findings confirmed by our dermatopathologists

- Developed exuberant reaction to 4 week course of topical 5-FU, followed by persistent ulceration
Clinical Course

- **Initial visit**
  - Per patient, ulcer appeared to fluctuate in size
  - Wound culture: no growth
  - Wound care initiated, authorization for biopsies requested

- **One month later**
  - No significant interval change
  - 2 punch biopsies taken
    - First site: AK, scar, granulation tissue, focal granulomatous inflammation
    - Second site: ulcer, granulation tissue, focal granulomatous inflammation
Clinical Course

• Two months later
  – Continued fluctuation in size of ulceration
  – Three repeat shave biopsies:
    • All 3 sites: “inflamed ulcer and scar with crust and granulomatous inflammation”
Clinical Course

• Follow up
  – Significant improvement with clobetasol ointment

• Diagnosis: *erosive pustular dermatosis of the scalp*
Erosive Pustular Dermatosis of the Scalp

- Uncommon chronic idiopathic inflammatory dermatosis of the scalp
- Common in elderly (F>M)
- Crusting, erosions, pustules, alopecia in actinically damaged areas
- Frequently follows trauma or inflammatory insult to the affected area
- Pathology non-specific, can demonstrate inflammation with PMNs +/- pustules

# Triggers of EPDS

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<th>Trauma</th>
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<th>Sex</th>
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<tr>
<td>Photodynamic therapy</td>
<td>93</td>
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<td>4</td>
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<td>CO(_2) laser</td>
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<td></td>
<td>74</td>
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<td>Birth trauma</td>
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<td>Surgery</td>
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<td>F</td>
<td>6</td>
<td>Layton and Cunliffe(^13)</td>
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Treatment of EPDS

• No uniformly effective treatment
  – Topical/systemic/intralesional corticosteroids
  – Topical tacrolimus
  – Topical calcipotriol
  – Topical/Oral dapsone
  – Isotretinoin
  – Photodynamic therapy
  – Zinc supplementation

What I learned

• Consider EPDS for non-healing scalp wounds

• EPDS is a diagnosis of exclusion
  – Recommend multiple scouting biopsies to rule out other inflammatory, infectious and neoplastic etiologies

• Treatment can be challenging
Do not be discouraged (or let the patient get discouraged) if the specific diagnosis is not apparent at the initial visit.

Test and empirically treat simultaneously.

Have a management plan in place for follow up visits.
References

• https://arupconsult.com/category/autoimmune-disease/immunobullous-disease
Thank you!

Questions?

david.s.lee@med.usc.edu