Dermatologic Causes of Head and Neck Dermatitis: A Case Based Overview

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Disclosures

• No relevant disclosures

• Textbook images are all from Andrews’ Disease of the Skin Clinical Atlas (unless otherwise specified)

• These cases include real patient photographs. To protect patient confidentiality, please do not take photos or distribute
Learning Objectives

• Total of 5 teaching cases showing different presentations of head and neck

• Differential diagnoses will be presented along side the cases

• We will not touch on every dermatologic entity as there are too many to consider

Case #1- Eyes Are Windows to the World

• 78yo F with history of eyelid dermatitis that started after glaucoma surgery in May 2020

• She has a history of uveitis and glaucoma and currently using eyedrops including Durezol (difluprednate) and timolol (stopped in June)

• Previously treated for blepharitis and tried warm compresses, baby shampoos, and cleansers

• Also tried Systane for dry eyes
Case #1 Cont

- Treating the eyes with Hydrocortisone 2.5% ointment PRN
- She also applies Aquaphor ointment daily around the eyes
Differential Diagnoses for Periorbital Dermatitis

- Allergic contact dermatitis
  - Cosmetics and removers
  - Eye drops/ophthalmic medications
  - Fragrances

- Dermatomyositis (heliotrope rash/raccoon eyes)

- Blepharitis

- Atopic dermatitis

- Periorificial dermatitis

Dermatomyositis
Blepharitis

https://www.texomaretina.com/blog/blepharitis/
She denies applying topical anesthetics to the skin, ever. Never had issues with dental or dermatologic procedures.

Further digging into the notes

• Since her glaucoma surgery in May, she sees 2 different ophthalmologists monthly for eye and pressure exams

• During each visit, they use Altafluor for the exams
  • Fluorescein + Benoxinate (oxybuprocaine)
Next Steps

• Oxybuprocaine is in the same class as benzocaine (ester)

• Avoidance led to interval improvement in < 1 month

• Only one other reported in the literature


Question #1

• What is the most common cause of allergic contact dermatitis around the eyes as reported in the literature?

A. Gold
B. Nickel
C. Balsam of Peru
D. Bacitracin
E. Benzocaine
Question #1

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E. Benzocaine

Eyelid Dermatitis

- 66.2% in one study had both bilateral upper and lower eyelid involvement

- “4 eyelid dermatitis” is a strong predictor for ACD

- Gold (17.5%) and nickel (15%) most common followed by balsam of peru (12.5%) and bacitracin (10%)

Case #2- Full Face Rash

• 60 year old female with new onset facial rash that started 3 months ago

• Was given 2x prednisone tapers that were helpful

• Notes that she was painting a condo unit starting in October. They finished in November and she has been living in the unit for the time being
Differential Diagnosis

• Allergic contact dermatitis

• Cutaneous Lupus

• Rosacea

• Seborrheic Dermatitis
Lupus Erythematosus

Seborrheic Dermatitis
Rosacea

Reaction to methylisothiazolinone, octylisothiazolinone, and MCI/MI
Question #2

• How is positive reaction to MI relevant to her facial dermatitis?

A. Personal products such as shampoo including MI
B. Nail polish having MI leading to facial ACD
C. Paint includes MI
D. MI is irrelevant in this case and the culprit is something else
Airborne Allergic Contact Dermatitis - Paint

- All paints studied had isothiazolinones (45)
  - MI was by far the most common followed by benzisothiazolinone (BIT)
- MSDS does not reveal presence of isothiazolinones (not required if < 1%)
- No difference with sheen vs pigmented vs other
- Isothiazolinone emission peaks in the first few hours but continues for at least 42 more days

- Started on 2 weeks of oral prednisone
- Given Desonide 0.05% ointment to use BID on the face x 2 weeks
- Switch her personal products
- Move out of the garden level apartment into another unit in her condo or find another place to live for now
- Try re-entering in 1-2 months

Case #3 – Red Lips

• 49 year old Asian male with 2+ year history of persistent lip dermatitis mostly affecting the lower > upper lips
• Does not note triggers and the rash is always present unless treating with hydrocortisone 2.5% cream or pimecrolimus 1% cream
• Stopped all lip products 1 year prior (lip balms, chap stick) without improvement
• Extensive history of dental work including porcelain crowns and tooth implants which use zirconium and titanium
• Is married and wife does use Blistex on the lips but he denies kissing her on the lips
Exam Findings

- Pink patches extending beyond the lateral vermillion borders of the lower lip with fine scale
- Faint erythema of the upper lip
- Minimal edema of the lips
- No erosions in the mouth
Differential Diagnosis for Lip Rash

• Allergic contact dermatitis

• Lip licking dermatitis (irritant contact dermatitis)

• Perioral dermatitis

• Angular cheilitis
  • Fissures around the corners of the lips

• Herpes simplex infection

Perioral Dermatitis

[Image of a person with perioral dermatitis]
Lip Licking Dermatitis

Angular Cheilitis
Patch Testing
- Core 80
- Dental Tray

What do you think is the culprit?

A. Implant metal
B. Porcelain crowns
C. Toothpaste
D. Drinking from soda cans
What do you think is the culprit?

A. Implant metal
B. Porcelain crowns
C. Toothpaste
D. Drinking from soda cans
Case #4- It’s not always contact dermatitis

• 68 year old female with history of facial dermatitis recalcitrant to topical steroids and calcineurin inhibitors

• Biopsy demonstrated hypersensitivity reaction

• Patch testing found several potential allergens including gold and fragrance.

• 3 months after changing products with minimal improvement
Case #4 continued

- She was started on dupilumab for presumed atopic dermatitis versus recalcitrant allergic contact dermatitis

- Notes some improvement but again, not significant

- Patient was started on itraconazole 200mg x 14 days for presumed head and neck dermatitis

Hi Dr. Yu, I finished the 14 days of itraconazole yesterday. The recurrences of red itchy patches on the face, and red itchy neck are quite a bit better. I am able to have a longer interval between using tacrolimus. The neck isn't "healed" to normal skin yet, but it is flaring less.
Question #4

• What is the presumed cause of “head and neck dermatitis”?  
A. Bacterial infection  
B. Dermatophyte infection  
C. Candida hypersensitivity  
D. Malassezia hypersensitivity
Head and Neck Dermatitis

- Hypersensitivity reaction to Malassezia
- Seen in subpopulation of patients with atopic dermatitis presenting with rash mostly on the head and neck
- Treatment includes oral antifungals such as itraconazole or fluconazole
- Dosing varies widely. Some studies recommend daily x 1 month then twice weekly pulsed dosing PRN
- 71% of patients in one study saw improvement at 2 months f/u


Take Home Points

• Not all "rash" on the face is allergic contact dermatitis or atopic dermatitis

• Metals such as gold and nickel are most common cause of periorbital dermatitis

• Think of methylisothiazolinone exposure in fresh paint as cause of diffuse facial dermatitis

• Tin can be found in toothpastes linked to fluoride → cheilitis

• Malassezia hypersensitivity can also cause head and neck dermatitis in atopic dermatitis
Hand and Foot Dermatitis

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5 November, 2021

Hand Dermatitis: Frequency & Duration

- point prevalence of 5.4%
  - women 2x ↑ incidence v. men
- chronic disease
  - mean duration = 11.6 yrs
Hand Dermatitis: Economic Impact

- $0.222 to $1 billion (1985 $’s) in lost productivity, medical care and disability for occupational hand dermatitis
- ~ 1/4 of patients evaluated had occupationally related disease
- $ 1 - 4 billion (1985 $’s) for all hand dermatitis
- E.U. systematic review, healthcare only: €1712 -9792 mean annual cost per hand dermatitis patient

Effect of Hand ACD on QoL

<table>
<thead>
<tr>
<th></th>
<th>Non-Hand Mean</th>
<th>Hand Mean</th>
<th>p-value</th>
<th>Adjusted p-value</th>
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<tr>
<td>Occupational</td>
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<tr>
<td>May Need to Leave Job</td>
<td>8.44</td>
<td>27.08</td>
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<td>Financial Future</td>
<td>9.60</td>
<td>22.58</td>
<td>0.02</td>
<td>0.04</td>
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<td>Interact w/ Co-workers</td>
<td>8.27</td>
<td>20.83</td>
<td>0.02</td>
<td>0.17</td>
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<td>Difficulty Using Hands</td>
<td>9.42</td>
<td>32.67</td>
<td>0.00</td>
<td>0.01</td>
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<tr>
<td>Fear of Being Fired</td>
<td>4.35</td>
<td>15.29</td>
<td>0.03</td>
<td>0.02</td>
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</tbody>
</table>

* Adjusted for gender, ethnicity, age, and occupation.

Significant effect on functional and emotional QoL

Foot Dermatitis

- No frequency data in general population
  - In studies of selected hand dermatitis patients, 40 – 50% had associated foot dermatitis
    - Contact Dermatitis. 2015; 75: 100-7.

- Economic impact unknown
- Effect on QoL never assessed

Hand & Foot: Demographics

- Mean age: 42.8 yrs
- Duration: 7.7 yrs
- M>F
- Racial predilection: ?
- Incidence of AD; PsO not reported
- Increased incidence of hyperkeratotic disease
- Increased incidence of occupational
  - Contact Dermatitis, 73, 100–107
Hand & Foot: Etiology

- Barrier dysfunction
- Genetic factors (fillagrin)
- Skin microbiome
  - Infection
- Immune dysregulation
  - ACD
  - ICD
  - AD
  - PCD
  - PsO
  - LP
  - Medications Other

Hand & Foot: Work-up

- History: onset, evolution, duration, episodic/persistent, smoking (dyshidrosis; PsO), occupation/avocation, & FH
- Physical (TBSE)
- r/o infectious (bacterial; fungal; scabies)
- Consider patch testing in all cases
- RAST or prick test (PCD)
- Biopsy rarely helpful (infectious, LP, PsO)
Drug-Related (Capecitabine)

Pegylated liposomal doxorubicin
Capecitabine
Nonselective antiangiogenesis
Multikinase agents: sorafenib, sunitinib, and pazopanib
5-fluorouracil
Cytarabine
Docetaxel
Doxorubicin
Methotrexate (high dose)
other cytotoxic agents
**Tinea**

1 hand, 2 feet: r/o tinea: KOH, DTM or bx

**Hand & Foot Dermatitis**

**ALWAYS EXAMINE ALL THE SKIN**

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Hands Only n=183</th>
<th>Hands &amp; Feet Only n=49</th>
<th>Hands, Feet &amp; Other n=11</th>
<th>Hands &amp; Other (not Feet) n=86</th>
<th>Total n=329</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>n</td>
<td>(%)¹</td>
<td>n</td>
<td>(%) ¹</td>
<td>n</td>
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<tr>
<td>ACD</td>
<td>90 (49.2)</td>
<td>22 (44.9)</td>
<td>4 (36.4)</td>
<td>53 (61.6)</td>
<td>169 (51.4)</td>
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<td>Atopic</td>
<td>3 (1.6)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>3 (0.9)</td>
</tr>
<tr>
<td>ACU</td>
<td>3 (1.6)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>4 (4.7)</td>
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<tr>
<td>ICD</td>
<td>14 (35.0)</td>
<td>3 (6.1)</td>
<td>1 (9.1)</td>
<td>16 (18.6)</td>
<td>84 (25.5)</td>
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<td>Dermatitis, nec</td>
<td>19 (10.4)</td>
<td>4 (8.2)</td>
<td>0 (0.0)</td>
<td>4 (4.7)</td>
<td>27 (8.2)</td>
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<tr>
<td>Dermatoses</td>
<td>7 (3.8)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>3 (3.5)</td>
<td>10 (3.0)</td>
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<tr>
<td>Pompholyx</td>
<td>9 (4.9)</td>
<td>3 (6.1)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>12 (3.6)</td>
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<tr>
<td>Psoriasis</td>
<td>37 (9.3)</td>
<td>19 (38.8)</td>
<td>6 (54.5)</td>
<td>8 (9.3)</td>
<td>59 (15.2)</td>
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<tr>
<td>Total</td>
<td>212 (115.8)</td>
<td>51 (104.1)</td>
<td>11 (100.0)</td>
<td>88 (102.3)</td>
<td>362 (110.0)</td>
</tr>
</tbody>
</table>

¹(%) total greater than 100 percent because patients may have multiple diagnoses

Psoriasis

58 yo male
Recent onset of Hand & Foot dermatitis
Denied any other dermatological problems
Family history: no known dermatological problems
TBSE: hyperkeratotic derm, hands & feet. Nails WNL.
Gluteal cleft as shown
Remainder of TBSE WNL

Hand & Foot dermatitis

- Decision to patch test almost always driven by history & clinical presentation
- Biopsy of palms and soles will r/o Tinea [if KOH & DTM (-)], scabies, LP & occasionally PsO, but usually “psoriasisiform dermatitis, not otherwise classified”
- Biopsy of dorsal skin may be helpful – but why?
- I rarely biopsy hand/foot dermatitis
Hand ACD: Patterns

- usually dorsal + web space
- depending upon contactant, may be palmar + dorsal

Classic Glove ACD: Palms spared
ACD, MCI/MI in hand lotion

Classic Solid Object ACD:
Dorsal hand spared

autoworker; installs brake liners; 3+ PTBFR
**Classic Dorsal Foot ACD: Soles Spared**

Leather (Cr VI / Co II), glues (PTBFR), rubber, isocyanates

2+ potassium dichromate

**Classic Plantar Foot ACD: Dorsal Foot Spared**

Most likely allergens: rubber accelerators, esp. MBT
Hand & Foot Dermatitis: Patterns

Interdigital webs; dorsal aspects largely spared; arch of foot > ball / heel = dyshidrosis
Patch if not responding to Rx (iatrogenic)

- hyperkeratotic
  - usually psoriasis; r/o ACD
- autoworker; installs tires; 3+ MBT; 1+ black rubber mix
**Hand Dermatitis: Patterns**

Pulpitis: fingertip only
Often first 3 fingers

- Occupations w/ fine manual dexterity
  - hairdressers, dentists, fine machine work
- allergic contact dermatitis
- frictional / psoriasis

**ICD of hands**
- usually dorsal + web space
- depending upon contactant, may be palmar + dorsal

- Pure ICD of feet rare; usually exacerbator
  - sweat & friction

Soap & water  Grease & Oils
Hand & Foot ACD: Most Common Relevant Allergens

- Nickel
- Cobalt
- Chrome
- Fragrance mix I
- Fragrance mix II
- Myroxylon pereirae
- MCI/MI
- MI

- PPD
- Thiuram mix
- Carba mix
- Mercapto mix/MBT
- Tixocortol pivalate
- Epoxy resin
- PTBFR
- Colophony

- Neomycin, bacitracin, polymyxin B
- Mixed dialkyl thioureas – rare but almost always relevant

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Hand & Foot: Management

- Good hand/foot care
- Lifestyle changes (smoking, friction, trauma)
- Minimize allergens/irritants
  - Workplace intervention
  - Barrier creams
- Treat hyperhydrosis
- Emollients
- Keratolytics (hyperkeratotic variants)
- Rx
Hand & Foot: Management

Topical Rx
- Glucocorticosteroids
- Calcineurin inhibitors (not palmoplantar)
- Calcipotriol
- Coal tar
- Crisaborole (not palmoplantar)
- Topical Jak/kinase agents
  - Ruxolitinib 1.5% cream
- Antibiotics/antifungals as appropriate

Hand & Foot: Management

Physical therapies
- Phototherapy (topical PUVA, palmoplantar)
- Excimer laser
- Botulinum toxin (hyperhidrosis)
- Iontophoresis (hyperhidrosis)
Hand & Foot: Management

Systemic Rx
- Glucocorticosteroids
- Alitretinoin (Canada)
- Acitretin
- Azathioprine
- Cyclosporine
- Methotrexate
- Mycophenylate mofetil
- PsO/AD biologics
- Apremilast
- JAK inhibitors

Summary: Hand & Foot Dermatitis
- Common, costly, multifactorial & severely impacts QoL
- Affects middle aged M > F & often presents as hyperkeratotic disease.
- History, TBSE +/- patch testing crucial to diagnosis s/p R/O infection
- Patterns of dermatitis are best clues to DDxs & selection of allergens
- Metals, rubbers, fragrances, preservatives, glues, dyes & medicaments are all common allergens
- Treatment includes a variety of topical, physical and systemic therapies – alone or in combination.
GENERALIZED DERMATITIS

Joseph F Fowler Jr MD
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Louisville, KY
ACAAI 2021

DISCLOSURES

• SmartPractice Inc.: Research Grant, Consulting, Speaking, Author
OUR DEFINITION

- Patches of dermatitis in at least 3 distinct body areas
- Not necessarily erythroderma

CASE 1

- 35 Y.O Caucasian male
- Multiple areas of dermatitis on trunk and extremities
- Started in childhood
- Better for many years, now getting worse for 2+ years
- Responds somewhat to TCS, better to systemic corticoids
- Otherwise healthy, somewhat overweight
CASE 1

CASE 1

CASE 1
CASE 1: WHAT NEXT?

- 1- treat aggressively with topical corticosteroids, wet wraps, antihistamines
- 2- systemic corticoids, tapering over 6 weeks
- 3- perform patch testing
- 4- start on dupilumab
- 5- perform a skin biopsy

CASE 1 PATCH TESTS

- Treatment with prednisone 40 mg QD for 5 days, then off 2 days then PT
- 98 patch tests applied for 48 hrs.
- Removed and read after another 48 hrs.
- Positive PTs to propylene glycol at 30% and 100%
PROPYLENE GLYCOL

- Very common additive in many TCS’s and many other topical meds and skin care products
- Found in some foods as a thickener and humectant

CASE I DX AND RX

- Diagnosis; both atopic dermatitis and allergic contact dermatitis
- Dermatitis improved with avoidance
- But AD was severe enough to require dupilumab
CASE 2

- 45 y.o. woman with dermatitis for 6 months
- Multiple excoriated patches diffusely on trunk and extremities
- Head, hands, and feet spared
- Responds to systemic corticoids
- But is spreading when systemics DC’d
CASE 2

CASE 2- PT PERFORMED

• What is the most likely allergen to be positive?
  • 1- Cobalt
  • 2- Methyl methacrylate
  • 3- Thieram mix
  • 4- Corticosteroids
  • 5- Lanolin
CASE 2 PT RESULTS

- Both tixocortal and budesonide are positive
- Tixocortal is the best PT marker for allergy to hydrocortisone

NACDG PAPER

- 10,061 patients patch tested- 1497 (15%) with “scattered, generalized ACD”
- Somewhat more common in males and with Hx of atopy
- Top allergens: preservatives, fragrances, propylene glycol, cocamidopropyl betaine, formaldehyde, tixocortal, budesonide

CASE 3
CASE 3

• 52 y. o. male with dermatitis episodically for > 2 years
• Tended to be worse in the winter
• No prior history of atopy
• Responds to systemic corticoids, then recurs

CASE 3

• What’s the best diagnosis?
• 1- Psoriasis
• 2- Allergic contact dermatitis
• 3- Irritant contact dermatitis
• 4- Atopic dermatitis, adult onset
• 5- Dermatitis herpetiformis
CASE 3

• What would you do next?
• 1- Perform skin biopsy
• 2- Perform patch tests
• 3- Do a scraping for mites or fungi
• 4- Order comprehensive RAST testing
• 5- Get a serum IgA level
FORMALDEHYDE

• One of the more common allergens we see
• Present in most permanent press clothing (as formaldehyde textile resins)
• Found in many skin and hair care products that contain FRPs
• Formaldehyde releasing preservatives include: Quaternium-15, midazolidinyl urea, diazolidinyl urea, DMDM hydantoin, bronopol, and others

INDICATIONS FOR PATCH TESTING

• Any DERMATITIS that is:
  • Recurrent after proper treatment
  • Persistent despite treatment
  • Requiring more treatment than you should be comfortable with, e.g. long-term systemic corticoids, long-term super potent topicals, etc.

And that include atopic dermatitis, and chronic hand eczema
THANK YOU