MINI-SYMPOSIUM

Eczema/Dermatitis Conundrum

• Contact Dermatitis – Clues to Cures
• Atopic Eczema – Dousing the Fire

Leigh Ann Carter, M.D.
Contact Dermatitis: Clues to Cure

Leigh Ann Carter, MD
LOVELESS

PLANTATION SHELVING

www.lovelessboots.com

BOOTS AS UNIQUE AS THEIR OWNERS

START CUSTOMIZING YOUR BOOTS

Visit our online store for accessories and more.

We provide attractive corrections for our products.

Type keywords or phrases into the search bar.
What Is Allergic Contact Dermatitis?

- Most people are very familiar with Allergic Contact Dermatitis (ACD) although they may not realize it....
Common Culprits?

- The itchy skin rash caused by exposure to poison ivy is a classic example of ACD.

Note the **LINEAR** appearance of the lesions...

This must be an "**outside job!**"
Straight-forward Examples

Another example of ACD is nickel allergy in someone who reacts to costume jewelry or the metal button on their jeans.
Elusive etiologies

- Unfortunately all cases of ACD are not this clear-cut.
- There are numerous substances, called “allergens,” that can cause dermatitis in sensitized individuals.
- Many of these allergens are difficult to identify.
Elusive etiologies

- For example, a patient may be allergic to various preservatives or fragrances in their personal care products.
- Patients may even be allergic to ingredients in the medications they are using to treat their rash. *(Initial improvement, but will flare in a few days.)*
In cases such as these, patch testing is used to identify the specific allergens.

Patch testing is a safe and painless process.

Small amounts of suspected allergens are placed onto tape and then applied to the patient’s back.
Patch Testing

- Unlike “scratch” or “injection” testing, there are no needles involved.
- The tape is removed after two days and a reading is made to check for reactions (a red spot at the location of a particular allergen.)
- A final reading is made several days later.
Common allergens include:

- metals,
- fragrances,
- topical antibiotics,
- preservatives.
Likely Suspects…

- The top 10 allergens recently identified by the Mayo Clinic Contact Dermatitis Group (MCCDG) were: Nickel, Balsam of Peru, Gold, Neomycin, Fragrance mix, Thimerosal, Cobalt, Formaldehyde, Benzalkonium chloride, and Bacitracin.
Common Culprits

- *Nickel (nickel sulfate hexahydrate) — metal frequently encountered in jewelry and clasps or buttons on clothing
- *Gold (gold sodium thiosulfate) — precious metal often found in jewelry
- *Balsam of Peru (myroxylon pereirae) — a fragrance used in perfumes and skin lotions, derived from tree resin
- *Thimerosal — a mercury compound used in local antiseptics and in vaccines
- *Neomycin sulfate — a topical antibiotic common in first aid creams and ointments, also found occasionally in cosmetics, deodorant, soap and pet food
Common Culprits

- *Fragrance mix — a group of the eight most common fragrance allergens found in foods, cosmetic products, insecticides, antiseptics, soaps, perfumes and dental products
- *Formaldehyde — a preservative with multiple uses, e.g., in paper products, paints, medications, household cleaners, cosmetic products and fabric finishes
- *Cobalt chloride — metal found in medical products; hair dye; antiperspirant; objects plated in metal such as snaps, buttons or tools; and in cobalt blue pigment
- *Bacitracin — a topical antibiotic
- *Quaternium 15 — preservative found in cosmetic products such as self-tanners, shampoo, nail polish and sunscreen or in industrial products such as polishes, paints and waxes
Culprit?
Prior Biopsy Site

Eczematous “weepy” papules
Allergic contact dermatitis can be very frustrating for patients when they do not know what is causing their rash.

But with patch testing, the offending allergens can be identified and successfully avoided.
Case Study

- A woman presented with a 6 month history of dermatitis on her neck and chest.
- She denied new exposures during this time period.
- Topical steroids helped, but the eruption always recurred.
Case Study

- Patch testing revealed a 2+ reaction to Lyral (The Allergen)

On review of her products, the perfume she had been using for several years, Glow by JLo listed hydroxyisohexyl 3-cyclohexene carboxaldehyde as an ingredient, which was noted to be synonymous with Lyral.
Case Study

- The patient had been applying this perfume to her anterior neck on a nearly daily basis for the past several years.

- This is a case where more extensive patch testing was needed. Lyral is not included in the routine screening allergens for fragrances.

- Allergies can develop at any time. The longer a patient has been exposed to something, the more likely they are to become sensitized to it.
Pearls

- Poison Ivy is a classic example of Allergic Contact Dermatitis.
- Look for a LINEAR arrangement of lesions as a clue to an “outside” etiology. This is most common with plants.
- Common allergens include:
  - metals,
  - fragrances,
  - topical antibiotics,
  - and preservatives.
- Bactroban (mupirocin) ointment is a good alternative to Neosporin (triple antibiotic) ointment if you suspect contact dermatitis but do not wish to patch test yet.
- Patients may even be allergic to ingredients in the medications they are using to treat their rash. *(Initial improvement, but will flare in a few days.)*
- Patch testing is *not* the same as scratch testing.
- Allergies can develop at any time.
- The longer a patient has been exposed to something, the more likely they are to become sensitized to it.
What's in the news??

- Utilize mobile media to stay in the know!

- Great Sites:
  skinandallergynews.com
  Medpage.com
  Medicalnewstoday.com
Atopic Dermatitis

Eczema of the eyelids? Think chemical allergy

By: DOUG BRUNK, Skin & Allergy News Digital Network

04/22/13

AT THE AACS ANNUAL MEETING

LAS VEGAS – If a patient presents with eczema of the eyelids, or swollen eyelids that don’t respond to topical steroids, think about sending them for chemical testing, advised Dr. Janet M. Neigel.

"The eyelids are red and scaly, a little swollen, and it just never goes away," she said in an interview at the annual meeting of the American Academy of Cosmetic Surgery.

Courtesy Dr. Janet L. Neigel
Nickel, cobalt sensitivity increases with number of body piercings

By: SHARON WORCESTER, Skin & Allergy News Digital Network

04/15/13

AT THE ACDS ANNUAL MEETING

MIAMI BEACH – The risk of nickel and cobalt sensitivity increases in tandem with the number of body piercings, according to findings from a study involving nearly 9,400 patch-tested patients.

Overall, 3,907 (41.6%) of the 9,388 subjects had no piercings, 131 (1.3%) had one piercing, 3,987 (42.5%) had two piercings, 934 (9.9%) had three to four piercings, and 429 (4.6%) had five or more piercings, Jaime L. Loso reported at the annual meeting of the American Contact Dermatitis Society.

Nickel and cobalt sensitivity both were significantly associated with piercing (relative risks of 2.52 and 1.63, respectively); chromate sensitivity had an inverse relationship with piercing (relative risk, 0.60), said Ms. Loso, a third-year medical student at the University of Minnesota, Minneapolis.
Contact Allergen Replacement Database (CARD).....

There’s an app for that!!
Eczema: "to boil out"
Eczema: "to boil out"
Weepy, oozing, wet lesions…

- Edema fluid escapes through the epidermis.

This is called "spongiosis" by pathologists. Think of the epidermis as a sponge filled with fluid.
Distribution

- Face
- Elbow
- Knee
Infancy and Childhood

- Face is commonly affected
- Extensor surfaces of arms/legs
- Often associated with asthma and allergic rhinitis
- Condition generally improves with age
Adolescence and Adulthood

- Flexural surfaces are commonly affected
- Chronic involvement can lead to lichenification
- Condition generally improves with age

Atopic Dermatitis (AD): Clinical Characteristics

- Affects > 2% of total population – 80%-90% of those affected are < 5 years of age
- Clinical presentations typically change with age
- Acute, subacute, and/or chronic
- Characterized by exacerbations and remissions
- Hyperirritability of the skin (pruritus)
- Excoriation exacerbates and maintains inflammation
- Associated with asthma and allergic rhinitis
Hanifin and Rajka Diagnostic Criteria for Atopic Dermatitis (AD)

Major criteria: Must have three or more of:

- Pruritus
- Typical morphology and distribution
- Flexural lichenification or linearity in adults
- Facial and extensor involvement in infants and children
- Chronic or chronically-relapsing dermatitis
- Personal or family history of atopy (asthma, allergic rhinitis, atopic dermatitis)
Minor criteria: Should have three or more of:
  Xerosis
  Ichthyosis, palmar hyperlinearity, or keratosis pilaris
  Immediate (type 1) skin-test reactivity
  Raised serum IgE
  Early age of onset
  Tendency toward cutaneous infections (especially S aureus and herpes simplex) or impaired cell-mediated immunity
  Tendency toward non-specific hand or foot dermatitis
  Nipple eczema
  Cheilitis
  Recurrent conjunctivitis
Minor criteria, cont.:
Dennie-Morgan infraorbital fold
Keratoconus
Anterior subcapsular cataracts
Orbital darkening
Facial pallor or facial erythema
Pityriasis alba
Anterior neck folds
Itch when sweating
Intolerance to wool and lipid solvents
Perifollicular accentuation
Food intolerance
Course influenced by environmental or emotional factors
White dermographism or delayed blanch
D. Exclusions: Firm diagnosis of AD depends on excluding conditions such as scabies, allergic contact dermatitis, seborrheic dermatitis, cutaneous lymphoma, ichthyoses, psoriasis, and other primary disease entities.
Clinical Findings....

- **CHRONIC**
  - Lichenification (rubbing)
  - Prurigo (picking)

- **ACUTE**
  - Pruritus
  - Erythema
  - Infiltration or papulation
  - Vesiculation
  - Exudate
Treatment

• Restore hydration

• Identify and eliminate triggers

• Decrease pruritus and inflammation
Trigger Factors

- Irritants
- Allergens - some controversy
- Infections - esp staph
Standard Therapies for Atopic Dermatitis

- Moisturization
- Irritant and allergen avoidance
- Topical corticosteroids
- Antibiotics
- Sedating antihistamines
- Phototherapy (PUVA, UVA, UVB, nbUVB)
- Immunosuppressive/Immunomodulatory therapy. Cyclosporine 5mg/kg in severe cases
"But, Doc, sun light makes this better....."

I recommend narrow band UVB for some recalcitrant cases of atopic dermatitis.
Topical Medications

- Age of patient
- Treatment site
- Extent/severity of disease
- Duration of treatment
- Potency: Desonide/hydrocortisone are non-florinated.
- Triamcinolone is mid-potency, clobetasol is high-potency.
- Formulation: Topical steroids can be very expensive.
Topical Calcineurin Inhibiters

• Tacrolimus ointment .03% and .1%
• Pimecrolimus cream 1%
• Work by stopping up-regulation of inflammatory lymphocytes
  – No skin atrophy
  – No telangiectasia
  – No tachyphylaxis
  – Black box warnings
Case study
Atopic Dermatitis with Secondary Impetiginization: Cleared with oral cephalexin, prednisone, and topical tacrolimus.
Case study
Eczema Herpeticum

• 9 month old boy with history of atopic dermatitis since 3 years old.

• Developed widespread vesicular eruption after contact with family member with herpes labialis.

• Treated with oral acyclovir, antihistamines, cool water compresses with dramatic improvement after one week.

• This can be emergent. If child is “ill” (constitutional symptoms), consider hospital admission for IV acyclovir.

• Ocular involvement is an EMERGENCY. (Consult ophtho immediately, but admit patient for IV acyclovir right away!)
Case study

Why is this child’s eczema so recalcitrant to treatment?
Is it just a matter of non-compliance?
Case Study

This is a 4-month-old boy, born at 30 weeks gestation due to premature rupture of membranes. He presents with a 2-month history of well-demarcated, erosive, vivid red plaques on face and buttocks. The mother described the appearance of "blisters".

Diagnosis: Acrodermatitis Enteropathica
Diagnosis:
Acrodermatitis Enteropathica

Discussion
This is a classic example of a rare but fascinating disease. The clinical presentation of prematurity, exclusive breast feeding, and striking clinical signs and symptoms should suggest the diagnosis. Laboratory information later revealed a markedly decreased serum zinc level at 0.11 microgram/ml (range is 0.66 - 1.10 microgram/ml) and decreased alkaline phosphatase in the infant.

The biopsy showed typical changes of the disease, with broad areas of parakeratosis with a diminished granular layer associated with pallor in the superficial keratinocytes. These changes are more typical of early lesions. With progression of the disease, confluent necrosis with subcorneal or intraepidermal clefts may occur.

Zinc supplementation has led to complete resolution of the lesions.
Case study
Case study
Atopic Dermatitis Pearls

• Moisturize, moisturize, moisturize... but do not put heavy emollients on before sweating as it can cause flares. Moisturize when the patient will be cool if possible.

• Long-term continuous use of topical steroids can cause skin atrophy (striae).

• Check zinc level in child with recalcitrant well demarcated “eczema” on perioral area and in diaper area to rule out acrodermatitis enteropathica.

• Remember to ask about recent exposure to family member with herpes labialis if atopic child has severe flare.

• Ocular involvement in eczema herpeticum is an EMERGENCY. (Consult ophtho immediately, but admit patient for IV acyclovir right away!)

• Use oil after bathing. Use moisturizing bar soap as the only soap and shampoo for atopic children.
Dosage Forms

INJ (pre-filled syringe): 300 mg per 2 mL

Adult Dosing

**Atopic dermatitis, mod-severe**

- 300 mg SC q2wk
- Start: 600 mg SC divided in 2 sites x1
Dupixent
dupilumab

- Safety/Monitoring
  - Monitoring Parameters
  - No routine tests recommended
Mechanism of Action

- Binds to and inhibits interleukin-4 receptor alpha subunit, interfering with interleukin-4 and interleukin-13 cytokines, reducing inflammation and altering immune response (monoclonal antibody)
Dupixent
dupilumab

Adverse Reactions

**Serious Reactions**
- Hypersensitivity rxn
- Serum sickness
- Serum sickness-like rxn
- Keratitis

**Common Reactions**
- Injection site rxn
- Conjunctivitis/Keratitis
- Blepharitis
- Herpes viral infection
- Ocular pruritus
- Dry eyes
References

- ATOPIC DERMATITIS, Medscape, Ken Washenik, MD, PhD
- Dermatlas
- Medscape, Dermatology
- MayoClinic.com
- eMedicine