The Challenge of Eczematous Rashes in Little Ones
Then.....and Now

Sheila Fallon Friedlander, M.D.
Professor, Clinical Pediatrics & Medicine (Dermatology)
University of California, San Diego School of Medicine

Conflicts

• Pierre-Fabre
• GalDerma Advisory Board
• Onset Advisory Board
• J&J Clinical trials

My Approach to Eczema
Then.....and........Now

1990 2011
Pediatric Eczematous Rashes 101
Then & Now...

First...
Diagnostic lessons

Swimming Sammy
• 6 month old
• Scratching for 6 weeks
• TCS, hydroxizine
  – Still dancing!
• No one is sleeping
• Help!
Swimming Sammy...  
Then

• Age of onset?

• Family history of eczema?

• Are they really using the meds correctly?

Swimming Sammy ...  
Now

• Is anyone else itching?
Another “eczema” baby
Sullen Sara

6 mos old
Hx eczema
Scaling for months
Worse in the diaper area

Sullen Sarah
Then......

- Family history psoriasis?
- Diaper....?
  - Type/wipes, how many swipes?
Sullen Sarah
What I ask... Now

- Is she well?
- Diarrhea?
- Look at another orifice!
- What about the Hair? Hands? Feet?
- Breast feeding history?
- Poor man’s test...

• Mom stopped breast feeding 2 months ago
• Baby has:
  - stomatitis, glossitis
  - alopecia, irritability
  - FTT, diarrhea
• The baby’s alkaline phosphatase is low
• You need acid-washed plastic tubes...

For Sarah... Breast milk really WAS best!
The many faces of zinc deficiency

- Inherited AR...
  - baby lacks intestinal zinc transporter (ZIP4)
- Breast milk zinc def....
  - mom doesn’t have the goods (ZnT-2)
- Malabsorption....
  - lack of absorption enzymes.... think cystic fibrosis
- Zinc metabolic masqueraders ...
  - metabolic mix-ups.. Biotin, biotinidase

THINK ZINC!
Think malabsorption

Nicky’s Rash is Tricky

- 14 y.o. female with presumed nickel contact
- Often around her belly button & on legs
- Belts, snaps removed
- Initially better, then worsened again

Nicky’s Contact Derm to Nickel
Then...

- Confirm allergy
- Nicky is cheating!
- Stop wearing the belts & snapping the snaps...
- But what about her legs?
Nicky’s Contact Derm

Now… Other forms of exposure?

• It can be topical, IM, S.C. or oral exposure!

Systemic Contact Dermatitis

• …or “systemically reactivated allergic contact dermatitis”
• When an exquisitely sensitized person develops a reaction with systemic exposure (PO, IM, IV, SQ, Inhaled) to the substance that usually causes ACD
• Type IV hypersensitivity reaction

Presentation – Systemic Contact Dermatitis

Diffuse eczematous plaques (no reaction)
Vesicular hand dermatitis (Pompholyx)
Baboon syndrome
Flare at previous sites of exposure even patch test site
+/ Systemic symptoms

Nicky’s Contact Derm

Now… Other forms of exposure?

• It can be topical, IM, S.C. or oral exposure!

Systemic Contact Dermatitis

• …or “systemically reactivated allergic contact dermatitis”
• When an exquisitely sensitized person develops a reaction with systemic exposure (PO, IM, IV, SQ, Inhaled) to the substance that usually causes ACD
• Type IV hypersensitivity reaction

Presentation – Systemic Contact Dermatitis

Diffuse eczematous plaques (no reaction)
Vesicular hand dermatitis (Pompholyx)
Baboon syndrome
Flare at previous sites of exposure even patch test site
+/ Systemic symptoms
Most Common Causes

Key Points – DDx of Atopic Dermatitis

• Think Outside
  – Rule out scabies

• Think Inside – Is the baby sick?
  – Zinc, metabolic, malabsorption

• Outside that goes inside
  – Nickel (& other agents) topical - systemic

Those were interesting cases, Sheila
“But 90% of the time it’s atopic dermatitis!”

What do we do?

Therapy

Then .... & Now
Cheeky Chelsea

Then

- She’s allergic!
- She is “twitchy” – Aberration in the adaptive immune system

Cheeky Chelsea.....

Now

Focus on the biologically active barrier

- The “bricks”
  - Keratin
  - Filaggrin
  - Loricrin, involucrin, proline-rich proteins

- The “mortar”
  - Ceramides
  - Cholesterol
  - Fatty acids

O’Regan G-M & Irvine AD 2010 Clin Exp Allergy 40:965-972
The multifaceted stratum corneum
The “Bricks”

Keratohyalin granules - profilagrin

Filaggrin

- First association – I.V. 2006
- FLG mutations – strongest, most widely replicated genetic risk for A.D.
- Population-specific mutations
- 45 ancestral mutations thus far noted
- ? Adaptive advantage – occult vaccination against TB, other organisms

Irvine AD JID 2007;127:504

What about the mortar?

Lamellar bodies – ceramides, other lipids
Ceramide defects – Dinardo A,
Cook M et al J Invest Derm 2009;129:1882
Is there evidence that “replacement” products make a difference? Yes!

- TEWL & Corneometry
- Patient appraisal
- Ceramide products
  - Cerave, Epiceram, Hylatopic
- Ceramide & NMF
  - Restoraderm

Simpson E & Dutronic Y. J Drugs Derm 2011;10:744-9
Chamlin SL et al Ceramide barrier repair JAAA 2002;47:198–208
Frankel A et al J Drugs Dermatol 2011;10:666
Cheeky Chelsea Therapy

**Then**
- Mom needs to avoid dairy products & eggs
- Allergy shots?
- Humectants, occlusive agents
  - Vaseline, Aquaphor

**Now**
- Barier replacement products
- Restore deficiencies
  - Ceramide
    - Hyaluronic, Cerave, Epiduo
  - Filaggrin & ceramides
    - Restoraderm

"Bricks and Mortar" Structure of the Stratum Corneum

- Covalently bound lipid
- Cornified cell envelope
- Intracellular humectants (NMFs)
- Intracellular lamellar lipids
- Keratin macrofibrils
- Corneodesmosome
- Corneocyte

20 Layers
- Lipids
  - Chol
  - Chol S
  - Ceramide


Jessica 2001
Periorbital Flares

**Then**

- Search frantically for precipitants
  - Nail polish, fragrances, hair spray
- Sparing use of topical corticosteroids
Jessica 2001
Periorbital flares
• Nix large fragrance search
• TCIs
  – Calm skin first
  – Intermittent topical corticosteroids
• Where do we stand with the “Black Box”?
  – FDA Peds Advisory Committee
  – No clear risks - large DSMBs
  – 5 studies, 2 with “concerns”
  – Protopathic effect?

Constantly Crusting Conrad
Recurrent crusting flares
Then...
• Culture nose & lesions
• Empiric cephalosporin therapy;
• Repeated rounds

Now......
• Culture (r/o MRSA +/- HSV)
  BUT stay with empiric cephalosporin rx
• Bleach baths!
  – 0.005% concentration; Modified Dakin’s
  – 1/4 cup to ½ full 40 gallon tub
  – 2-3 times a week
  – Rinse off, grease up
Always Affected Alvin

Then...

- Compliance issues
- Lots of grease
- Pulsing steroids
- Light therapy
- Cyclosporin

Child With Severe Recalcitrant Disease

NOW

- Wet wraps
- You can use
  - Gauze
  - Stockinets
  - Wet & dry pajamas
Wet wraps...
A Virtual Barrier?
Preventing the scratch...
Promoting moisture retention

• USE with emollients or TCS
• Taper from TCS to vaseline!
• Sporadically or frequently
• Extensive or localized
• Absorption toxicity risk = low
• ?Increased risk of Infx

Krakowski AC et Pediatrics 2008
Dabade TS et al J Am Acad Dermatol 2011
Bad eczema..What if wet wraps don’t cut it?

– Systemic therapies
  • Phototherapy nbUVB
  • Cyclosporin short
  • MTX & azathioprine long
    – TPMT levels? Import
  • Concerns re neoplasia for latter two persist, but renal risk of cyclosporin limits long-term use

Summary
The Challenge of Eczematous Disorders in Little Ones, Then & Now

• Diagnosis
  – Outside - remember scabies
  – Inside – remember metabolic mix-ups; zinc
  – Outside-inside – think systematized nickel

• Therapy
  – Barrier building blocks - stay tuned
  – Bleach baths bonus
  – Wet wraps rule
  – Azathioprine & methotrexate can help

You don’t get this doing Mohs