Contact Dermatitis and Eczema

Matthew J. Zirwas, MD
Associate Professor of Dermatology
Director, Contact Dermatitis Center

Disclosures

- Taro
- Smart Practice
- Valeant
- Medimetriks
- Stiefel
- FitBit

2

1. Know when to patch test
2. Know how to patch test
3. Know what to do with the results

Know When to Patch Test

- Never an absolute need
  - Spectrum of "pre-test probability"
  - Based on location and itch

Patch Testing Practical Issues

- Patch testing is done using standardized allergens placed on the patient's skin under occlusion.
- Two Systems
  - Finn Chambers – virtually unlimited number of allergens available. Tedious, requires specially trained staff.
  - T.R.U.E. (Thin-layer Rapid Use Epicutaneous) test – very limited number of allergens (35). Convenient, no need for specially trained staff.

What is the role of TRUE Testing?

- TRUE test incompletely evaluates 72% of patients with ACD.
- From the patient perspective, it is 95% as inconvenient to go through TRUE testing as it is to go through comprehensive patch testing (ignoring travel)

What should I do instead?

- If you want to take good care of patients:
  - T.R.U.E. test + 10 allergens
    - Methylisothiazolinone 2000 ppm
    - Propylene Glycol 100%
    - Fragrance Mix II
    - Fragrance Mix I
    - Balsam of Peru
    - Amidoamine
    - Dimethylaminopropylamine
    - Hydroxyethyl Methacrylate
    - Formaldehdye 2%
    - Chloroxylenol

If you want to be a "referral center"

- ACDS Core Series

If you want to be CRAZY

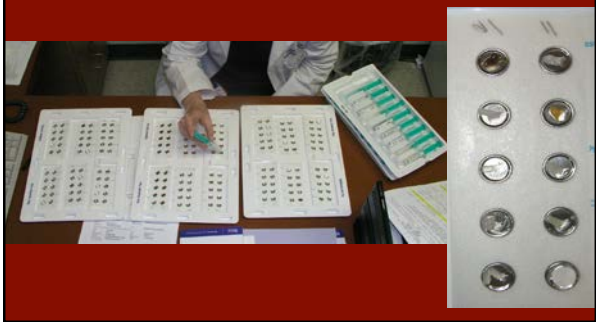
- ACDS Core Series + other panels

Patch Testing Procedure

- All patients are tested against a standard panel of allergens
- Based on history and distribution of the eruption, other panels can be added as necessary, but pretty rarely necessary

When Can You Prepare the Allergens?

- Syringes of allergen should be kept in the fridge most of the time.
- Can prepare fill the chambers 24 hours ahead of time
- EXCEPT:
  - Anything fragrance related
  - Anything acrylate related



Patch Testing Protocol

- Allergens are typically taped to the patient's back for 48 hours.

Patch Testing Practical Issues

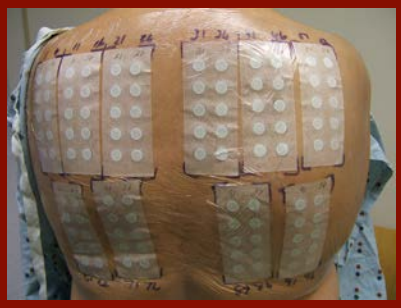
- Patients should avoid topical steroid or UV radiation to the tested site for at least one week prior to patch placement
- Patients with hairy backs should have their back shaved prior to placement. Shaving can be done the day of placement with a "pre-surgery razor".
- Wipe the back with rubbing alcohol, then let it evaporate away before applying

Patch Testing and immunosuppression

- Patients should be on no more than 20 mg a day of prednisone for the week before testing and 10 mg a day during the week of testing
- At least one month should have passed since their most recent IM steroid
- Other immunosuppressives are OK, as long as their rash is still present

Patch Testing Practical Issues

- Locations of allergens should be clearly marked on the patient's back at the time of placement and re-marked when tape removed.
- A digital camera is also helpful for taking pictures before and after the patches are put on
- Patient can shower after patches are removed – they just need to remark the markings if they start to wear off.



What About Stuff They Bring In With Them?

What about stuff they bring in with them?

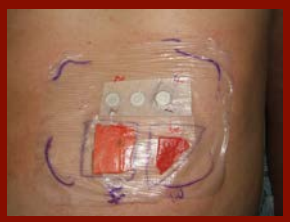
- If it is a leave on product (moisturizer) just put it under a Finn chamber and test it like any other allergen.
- If it is a rinse off product (shampoo) either don't use it or dilute it (tables of dilutions available).

What about stuff they bring in with them?

- If it's a solid (i.e. part of a shoe), get it wet, then tape it to their back with the other antigens.

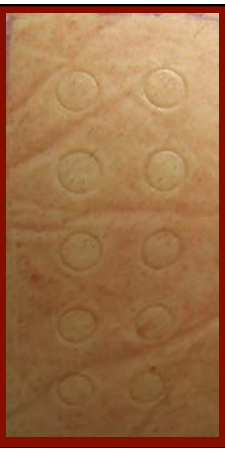
What about stuff they bring in with them?

- If you don't know what it is or what is in it, don't put it on the patient.



Patch Testing Protocol

- After 48 hours, the allergens are removed, and an initial reading may be done.

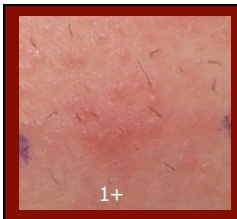


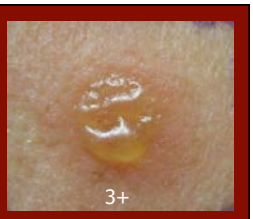
Reading the patches

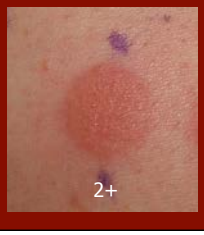
- Only reading that matters is at 96 or 120 hours
- Most important thing is if you FEEL something at the site
  - Close your eyes and run your finger over it
  - If you can't feel anything, it is negative

Patch Reading

- I might be able to feel something = +/-
  - Almost always negative if repeated
  - Only tell them about it if it REALLY fits
- I' m pretty sure I feel something = 1+
  - 50% chance positive if repeated
  - Tell them about it if it makes sense
- OBVIOUS POSITIVE = 2+ or 3+
  - 100% chance positive if repeated
  - Tell them about it if there is ANY POSSIBLE WAY it could make sense







Lets have some fun!!!

Patient Education

- MUST avoid/overcome information overload
  - Too much info → retaining and acting on none
  - Only tell them about relevant allergens
  - Only tell them relevant things about those allergens
  - Repeated exposure to information (videos)
  - Give specific instructions about what to USE, not about what to avoid

Zirwas MJ, Holder JL. JCAD. 2009;2(12):24-34.

Relevance

- Relevance defined for clinical purposes:
  - Relevant:
    - Likelihood it is causing their problem is high enough that you think they should avoid it.
  - Irrelevant
    - Likelihood it is causing their problem is low enough that you don't think they need to avoid it.

Examples of USUALLY not relevant

- Fragrance in isolated foot dermatitis
- Nickel in axillary dermatitis
- Rubber in anything but hand dermatitis

Relevance Changes?

- Relevance changes over time. For example:
  - Hand dermatitis in a healthcare worker
    - 2+ to carba and to sample of glove
    - +/- to fragrance, formaldehyde
  - Rubber is relevant, fragrance and formaldehyde are not.

Relevance "Changes"

- Have them wear carba free gloves and come back in 8 weeks
- They are 70% better, but have plateaued
- Fragrance and formaldehyde now become relevant

Table 8. Physician-Patient Percentage Agreement on Allergen Relevance

Allergen	*Percent Agreement*
Formaldehyde and formaldehyde-releasing preservatives	88%
Neomycin sulfate	78%
Nickel sulfate hexahydrate	71%
Fragrance mix and related products	65%
Gold sodium thiosulfate	56%

Gipson KA, Carlson SW, Nedorost S. Dermatitis 2010 21(5):275-279.

Managing Positive Results

- Why is it so important to determine relevance?
  - If they have both relevant and irrelevant positive patch tests, then…
  - …Telling them about the irrelevant ones makes it less likely that they will successfully avoid the relevant ones.

Scalf LA, Genebriera J, Davis MD, Farmer SA, Yiannias JA. JAAD. 2007;56(6):928-32

Table 3. The proportion of responders remembering all of the diagnosed allergens in relation to years after testing

Years after testing	Responders (n)	Remembers all allergens, % (no.)	*p*
1	64	39 (25/64)	—
5	35	26 (9/35)	0.0791[a]
10	42	17 (7/42)	**0.0045**[a]
			0.4028[b]
Total	141	29 (41/141)	—

Jamil WN, Erikssohn I, Lindberg M. Contact Dermatitis 2012 66(4):215-220.

Table 4. The proportion of responders remembering the diagnosed allergens in relation to the number of positive patch test results

Number of positive patch test results	Responders (n)	Remembering all positive allergens, % (no.)	*p*
1	52	45 (25/52)	—
2	37	27 (10/37)	0.0511[a]
3	28	14 (4/28)	**0.0032**[a]
			0.2427[b]
>3	23	9 (2/23)	**0.0014**[a]
			0.1066[b]
			0.6778[c]
Total	141	29 (41/141)	—

Jamil WN, Erikssohn I, Lindberg M. Contact Dermatitis 2012 66(4):215-220.

Helping Them Avoid the Allergens

- Verbal information much better absorbed than written, but combination of both is best
- Be practical and use common sense. If they have a foot dermatitis and are allergic to fragrance, don't make them change their shampoo!!!

Zirwas MJ, Holder JL. JCAD. 2009;2(12):24-34.

Patient Education

- Electronic media
  - Watching videos is more effective than face to face education by the physician
    - Study on atopic dermatitis
  - www.mypatchlink.com

Armstrong AW, Kim RH, Idriss NZ, Larsen LN, Lio PA. J Am Acad Dermatol. 2011 Mar;64(3):502-7

Helping Them Avoid the Allergens

- Telling the patient what they CAN use is the most practical and effective way to help them get better

  "You should not use any shampoo/soap/ gloves/shoes/moisturizer/etc except….."

- ACDS CAMP extremely useful

Patch Testing Practical Issues

- What if everything is negative?
  - This is GOOD NEWS!!!!!
  - Now you know this isn't contact dermatitis so you can focus on treating them for 'eczema'.

Eyelid Dermatitis

- Major Differential:
  1. Allergic Contact Dermatitis
  2. Irritant Contact Dermatitis
  3. Seborrheic Dermatitis
  4. Atopic Dermatitis
  5. Lichen Simplex Chronicus

44

Eyelid Dermatitis

- Key points
  - Asymmetry → Ectopic Allergic Contact Derm from hands
  - Spread beyond lids → Allergic Contact Derm from product contacting entire face
  - Atopic Dermatitis Elsewhere → Atopic
  - Retroauricular and/or erythema/scale without edema → Seborrhea/Psoriasis
  - Eyelid Limited without much erythema → Irritant dermatitis
  - Medial upper lid → LSC

45

Asymmetric Eyelid Dermatitis

- Allergens
  - Nail Polish
    - Toluene/Sulfonamide Formaldehyde Resin
  - Acrylic Nails
  - Hand Moisturizers
    - Lanolin, MCI/MI, Formaldehyde, Fragrance, parabens
  - Hand Soaps
    - Fragrance, MCI/MI, Formaldehyde, betaines

46

Eyelid Dermatitis beyond Eyelids

- Allergen Sources
  - Soap and Shampoo
    - Betaines, Fragrance, Formaldehyde, Parabens
  - Hair Dyes
    - PPD
  - Make-up applicators
    - Rubber
    - Make-up a rare allergen, common irritant
  - Eyelash Curlers
    - Nickel

47

Seborrheic Dermatitis/Psoriasis

- Exclude other diagnoses as much as possible
- Check retroauricular areas
- Treat with steroids and antifungals
  - ciclopirox has best data
- Wash face with dandruff shampoo
- Can look like ACD, ICD

48

Atopic Dermatitis and LSC of the eyelids

- Usually are an obvious atopic, although not necessarily atopic dermatitis
  - Most often with seasonal allergies
- LSC Favors medial eyelid, but can be entire upper and lower lids
- Treamtent
  - Antihistamines (oral and eyedrops)
  - Sarna Sensitive, moisturizers
  - Steroids, Protopic

49

Eyelid Dermatitis Treatment Principles

- If chronic, continuous: Protopic
- If intermittent: Best data suggests that class IV steroid is safe to use up to half the time
- Rinse eyelids very well after washing face
  - Wash face with CeraVe or Cetaphil after shampooing

50

General Considerations for Hand Eczema

- Specific diagnosis only useful if it leads to specific, effective therapy
- Some types can be diagnosed based on morphology and history, but usually necessary to patch test
- Biopsy often not helpful
- Irritant often complicates other types

51

Classification of Hand Dermatitis

- Allergic Contact Dermatitis
- Irritant Contact Dermatitis
- Frictional Hand Dermatitis
- Psoriasiform (just psoriasis?)
- "Dyshidrotic" Hand Dermatitis
  - Pompholyx and Dyshidrosis
  - Chronic Vesicular
- Nummular Hand Dermatitis

52

Allergic and Irritant Contact

- Distribution: Not very helpful, but:
  - Dorsal and interdigital: irritant
  - Palm or palm + dorsal: allergic
- Morphology:
  - Mild and diffuse: irritant
  - More severe and focal: allergic
- Symptoms:
  - Mainly itch: allergic
  - Pain/irritation > itch: irritant

53

Hand and …….

- The last slides demonstrate what I believe is a reproducible phenomenon, the "hand and" presentation
- Essentially, index of suspicion for contact dermatitis should be extremely high if the patient has dermatitis on the hands and another body part

54

Nummular Hand Dermatitis

- Distribution: Discrete plaques, dorsal fingers
- Morphology: Scale, erythema
- Symptoms: Itch > Pain
- Exposures: Possible Irritants
- Timing: Not Helpful

55

Frictional Hand Dermatitis

- Distribution: Favors dominant hand; palmar aspect only; medial digits and palm, fingertips
- Morphology: Xerotic, often glazed, scale; fissures; sometimes erythema
- Symptoms: Only pain if fissured
- Exposures: Paper, cardboard, low grade friction
- Timing: Not helpful

56

Psoriasiform Hand Dermatitis

- Distribution: Palms, sometimes fingers, sometimes soles
- Morphology:
  - Red, scaly, fissured
  - Sharp cut-off at proximal palm
- Symptoms: Painful when fissures
- Exposures: Not helpful
- Timing: Chronic, usually in 50s or 60s

57

Vesicular Variants: Pompholyx/Dyshidrosis

- Distribution: Palms, palmar fingers, lateral fingers
- Morphology:
  - Pompholyx: Large bullae
  - Dyshidrosis: Small vesicles
- Symptoms: Intense itch followed by pain
- Exposures: Not helpful
- Timing: Sudden onset, complete healing between episodes

58

Vesicular Variants: Chronic Vesicular

- Distribution: Palms, palmar fingers, lateral fingers, periungual areas
- Morphology: Scale; fissuring; presence and number of vesicles varies
- Symptoms: Vesicles intensely itchy, painful after ruptured
- Exposures: Not helpful
- Timing: Either crops of vesicles or daily vesicles; never clears completely, often worse with stress

59

Treatment

- Allergic Contact Dermatitis
  - Avoidance
- Irritant Contact Dermatitis, Hyperkeratotic, Psoriasiform
  - Protection, soaks, steroid ointments, moisturize, systemics
- Nummular
  - Same as Irritant
- Frictional
  - Protection, soaks, avoid steroids, systemic steroids
- Dyshidrosis
  - Pulse Oral Steroids
- Chronic Vesicular
  - Soaks, steroid ointment, steroid solution, systemic therapy

60

References

- Rietschel R, Fowler J. Fisher's Contact Dermatitis, 6th Ed.
  - Chapter 2, pages 11-29
  - Chapter 6, pages 66-87
  - Chapter 17, pages 319-338
  - Chapter 34, pages 722-730