DERMATITIS
ECZEMA

JOHN L. BEZZANT, M.D.
THE PHYSICIAN

IS PRIMARILY A PROBLEM SOLVER

- FACULTY TEACHING HANDBOOK
“THE GODS ARE MORE WILLING TO HELP US IN TERMS OF PREPARATION, THAN IN TERMS OF DELIVERENCE.”

Jess Walker, Debate Coach
70 YR OLD WOMAN, 4 YEARS OF MISERY, I WAS THE 10TH PHYSICIAN SHE SAW.
TREATMENTS GIVEN TO HIM BY HIS INTERNIST
Dr. John Zone
Chairman of Dermatology
University of Utah
IF YOU DON’T KNOW WHAT YOU’RE DOING, DR. ZONE SUGGESTS WRITING ON THE PRESCRIPTION, “I AM STUPID.”
PATIENT’S REACTION WHEN WE MAKE A MISTAKE.
“REPENT MEANS YOU MUST CHANGE [IMPROVE] OR YOU ARE A DEAD DUCK!”
Jess Walker, Debate Coach
SUMMARY

FIG. 1.24. Strands of collagen termed trabecular dividing conglomeration of subcutaneous fat cells into lobules. These fibrous septa also house major vascular networks, lymphatics, and nerves. (× 25)
The purple dots are lymphocytes attacking the epidermis (upper purple layer), and the dermis (lower pink layer).
Dermatitis
ITCHES!
ECZEMA

- **ECZEMA**: FROM ITS GREEK WORD ELEMENTS, LITERALLY MEANS THE RESULT OF (-MA) BOILING (-ZE-) OUT OR OVER (EC-).

- (IT IS OFTEN USED INTERCHANGEABLY WITH DERMATITIS.)

- (First used by Chambers 1753: OED)
ECZEMA: 1753
DERMATITIS/ECZEMA
DR. DUHRING, PHILADELPHIA
1876

Louis Duhring (1845-1913)
DEFINITIONS

- DERMATITIS: DERMA (DERIVES FROM GREEK AND LITERALLY MEANS THE RESULT OF THE ACTION (-MA) OF FLAYING (DER-). IT IS LITTLE REALIZED THAT –ITIS DOES NOT INHERENTLY MEAN INFLAMMATION AND THAT ITS ANCIENT FORM AND MODERN DESCENDANT (-ITE) SIMPLY RELATE THINGS TO A PERSON, PLACE OR OTHER IDENTITY. NEVERTHELESS, SINCE IT HAS COME TO MEAN SKIN INFLAMMATION: REDNESS, REDNESS & SCALING, REDNESS WITH BLISTERING. (First used by Duhring in 1876: OED)
SKIN DERIVES FROM THE OLD NORSE WORD “SKINN” MEANING THE OUTSIDE COVERING OF HUMANS OR ANIMALS.
DERMATITIS/ECZEMA
DERMATITIS/ECZEMA
DERMATITIS

- INFLAMMED SKIN MAY APPEAR RED AND SCALY OR RED WITH VESICLES
<table>
<thead>
<tr>
<th>Pattern</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atopic &lt;2 yrs.</td>
<td>Extensor</td>
</tr>
<tr>
<td>Atopic &gt;2 yrs.</td>
<td>Flexural</td>
</tr>
<tr>
<td>Nummular</td>
<td>Round</td>
</tr>
<tr>
<td>Lichen Simplex</td>
<td>Baseball player</td>
</tr>
<tr>
<td>Seborrheic</td>
<td>Head</td>
</tr>
</tbody>
</table>
Atopic ("Strange") Dermatitis=
The Itch Of Wheezers & Sneezers
The existence of the mechanism in *dermatitis venenata* can be inferred from the exclusive susceptibility of human beings. In the hypersensitiveness of infection the existence of the mechanism is evidenced by the lacking sensitiveness of normal individuals to the active agents; for example, tuberculin.

For reasons that are discussed in the second part of this communication, Dr. Cooke suggests the subdivision of the forms of hypersensitiveness into a “normal” group and an “abnormal” group. The group of abnormal hypersensitiveness includes anaphylaxis, the hypersensitiveness of infection and those idiosyncrasies that are controlled by the dominant gene demonstrated by Cooke and Vander Veer. This latter sub-group evidently needs a special term by which it may be conveniently designated and this need is satisfactorily met with the word *atopy*, which was kindly suggested by Professor Edward D. Perry of Columbia University. The Greek word *atopia*, from which the term was derived, was used in the sense of a strange disease. However, it is not, on that account, necessary to include under the term all strange diseases; the use of the term can be restricted to the hay-fever and asthma group.

The classification here proposed is thus:

```
<table>
<thead>
<tr>
<th>Hypersensitiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal (Cooke)</td>
</tr>
<tr>
<td>1. Dermatitis venenata</td>
</tr>
<tr>
<td>2. Serum disease (ordinary)</td>
</tr>
<tr>
<td>Abnormal</td>
</tr>
<tr>
<td>1. Anaphylaxis</td>
</tr>
<tr>
<td>2. Hypersensitiveness of infection</td>
</tr>
<tr>
<td>3. Atopy</td>
</tr>
</tbody>
</table>
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The three abnormal forms are distinguished by the following features:
My nephew and nieces. These diseases often coexist. We are a family of wheezers, sneezers, scratchers.
My nephew. Most of us in our family have manifest more than one of these disorders. It’s (they are) the gift that keeps giving.
TRIAD: ECZEMA, ASTHMA, ALLERGIC RHINITIS

Figure 1. The "Atopic March"

Atopic dermatitis is in most cases the first manifestation of the atopic disposition.

The purple dots are lymphocytes attacking the epidermis (upper purple layer), and the dermis (lower pink layer).
DEFECTIVE BARRIER LAYER
STRATUM CORNEUM

FIGURE 1. — (Left) Visible light macrograph of dry skin on the outer lower leg (approx. 50x), showing lifting squame. (Right) SEM micrograph of carbon tape applied to dry outer lower leg skin (500x); note compacted corneocytes in disarray.
DEFECTIVE STRATUM CORNEUM

FIGURE 15. Schematic diagram showing pivotal events within the "dry skin cycle".
BAD: DRY ENVIRONMENT OF WINTER
SUMMARY: ECZEMA
Th2 BLUES
ATOPIC ECZEMA RESOLVED SPONTANEOUSLY AGE 5 YEARS
ADULT ATOPIC DERMATITIS

ALMOST ALWAYS FLEXURAL—CREASES IN THE SKIN
Dermatitis ITCHES!
ATOPIC DERMATITIS: GENERALLY FLEXURAL
1% HYDROCORTICONE OR CALCINEURIN INHIBITOR ONLY; OTHERWISE YOU RISK ATROPHY AND STRIAE!
Atopic dermatitis involving hands and scrotum. Atopic dermatitis often involves the skin of the scrotum and labia.
Atopic dermatitis of the hands; it can involve any place on the hands and feet. Often there is secondary staph infection.
ONE MILLION TO TEN MILLION/CM²
SECONDARY INFECTION OF DIAPER DERMATITIS

CANDIDA

IMPETIGO
GRAM STAIN & TZANCK (WRIGHT’S)
Nummular ("Little Coin") Dermatitis
Nummular dermatitis of thigh.
Nummular dermatitis, acute vesicular presentation.
Lichen ("To Lick") Simplex Chronicus = Neurodermatitis = Baseball Players’ Disease
In lichen simplex chronicus, persons itch and therefore scratch where baseball players itch and scratch. The skin looks normal before it is scratched.
ANXIETY!
EXCORIATION INDUCED
LICHENIFICATION
Lichen simplex chronicus, perianal area. The perianal and genital areas are commonly involved.
Seborrheic dermatitis
Seborrheic dermatitis. Note patchy scalp involvement.
Seborrheic dermatitis of beard.
YEAST GROWS IN PILOSEBACEOUS STRUCTURES
SHAVING DERMATITIS
POISON IVY DERMATITIS
NEVER ASSUME ANYTHING!
(UNLESS YOU CAN’T PROVE IT)

ROBERT WEST
PROVO CITY
ATTORNEY
DIAGNOSTIC MUST’S

1. IF IT IS SCALY, SCRAPE THE SCALE & PERFORM KOH MOUNT. LOOK FOR SCABIES MITES.

2. IF THERE IS FLUID, DO A GRAM AND WRIGHT’S STAIN; IF INCONCLUSIVE, CULTURE AND PCR.

3. IF DX IS UNCERTAIN, PERFORM A 4 MM PUNCH BX; SEND ½ IN FORMALIN FOR H&E, AND ½ IN MICHELLE’S FOR IMMUNOFUORESCENCE.

4. SEND TISSUE TO A DERMATOPATHOLOGIST.
IF IT IS SCALY, SCRAPE THE SCALE
AND DO A KOH PREP, AND EXAMINE
UNDER THE MICROSCOPE.
This man had this eruption, and the KOH prep of the scale showed the following.
IF THERE IS FLUID, DO A GRAM STAIN, WRIGHT STAIN, AND CULTURE OR DO PCR IF THERE’S UNCERTAINTY.
GRAM STAIN & TZANCK
(WRIGHT’S)
UNCERTAIN?
CULTURE, PCR, TISSUE
UNCERTAIN ABOUT DIAGNOSIS?

“WHEN IN DOUBT, PUNCH IT OUT;
WITHOUT A PUNCH IT’S JUST A HUNCH”
BIOPSY (PUNCH)
PUNCH BIOPSY OF HAIR:
INCLUDE ALL THE FAT YOU CAN!
BIOPSY OF EDGE OF BLISTER IN FORMALIN
BIOPSY 1 CM AWAY FROM BLISTER IN MICHEL’S
BIOPSY

- SEND TO A **COMPETENT** DERMATOPATHOLOGIST!
- THE REPORT IS OFTEN UNINTELLIGIBLE: THEN
  - 1. CALL A DERMATOLOGIST
  - 2. REFER PATIENT TO A **COMPETENT** DERMATOLOGIST.
The purple dots are lymphocytes attacking the epidermis (upper purple layer), and the dermis (lower pink layer).
FIRST, AVOID THESE: TIGHT CLOTHING, WOOL, FRAGRANCES
OPTIMUM USE
GREASE FOR PEACE!
CETAPHIL DOESN’T CAUSE STINGING ON FISSURED SKIN!
The purple dots are lymphocytes attacking the epidermis (upper purple layer), and the dermis (lower pink layer).
ITCHING/BURNING

- PROBLEMS
- MATCH EXTINGUISHER TO FIRE!
Potency:

- Steroid Molecule
- Vehicle
John: “How much should a person know about a drug before using it, Dr. Goodman?"

Dr. Goodman: “A lot! And you can quote me on that!”
The Nobel Prize in Physiology or Medicine 1950

"for their discoveries relating to the hormones of the adrenal cortex, their structure and biological effects"

Edward Calvin Kendall
- 1/3 of the prize
- USA
- Mayo Clinic
  Rochester, MN, USA
- b. 1886
d. 1972

Tadeus Reichstein
- 1/3 of the prize
- Switzerland
- Basel University
  Basel, Switzerland
- b. 1897
  (in Wloclawek, Poland)
d. 1996

Philip Showalter Hench
- 1/3 of the prize
- USA
- Mayo Clinic
  Rochester, MN, USA
- b. 1896
d. 1965
CORTICOIDS

- HYDROCORTISONE
- TRIAMCINOLONE
- CLOBETASOL
- FLUOCINONIDE
INHERENT ANTI INFLAMMATORY POTENCY OF THE CORTICOID MOLECULES

<table>
<thead>
<tr>
<th>Generic Name</th>
<th>Sample Brand Name</th>
<th>Relative Vasoconstriction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocortisone</td>
<td>Hytone</td>
<td>1</td>
</tr>
<tr>
<td>Triamcinolone acetonide</td>
<td>Kenalog</td>
<td>75</td>
</tr>
<tr>
<td>Fluocinolone acetonide</td>
<td>Synalar</td>
<td>100</td>
</tr>
<tr>
<td>Halcinonide</td>
<td>Halog</td>
<td>160</td>
</tr>
<tr>
<td>Fluocinonide</td>
<td>Lidex</td>
<td>220</td>
</tr>
<tr>
<td>Betamethasone valerate</td>
<td>Valisone</td>
<td>360</td>
</tr>
<tr>
<td>Betamethasone dippionate</td>
<td>Diprolene</td>
<td>1660</td>
</tr>
<tr>
<td>Clobetasol propionate</td>
<td>Temovate</td>
<td>1869</td>
</tr>
</tbody>
</table>

Data courtesy of Glaxo Dermatology Products, Glaxo Inc.
Vehicles:

- Ointment
- Emollient
- Cream
- Gel
- Solution
VEHICLES
CORTICOID VEHICLES
CORTICOMESS?
## CORTICOSTEROID CHART GUIDE: THE BLESSING-CURSE OF ABUNDANCE

### Potency Ranking of Topical Steroids

<table>
<thead>
<tr>
<th>Potency</th>
<th>Brand</th>
<th>Strength</th>
<th>Potency</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUPER HIGH</td>
<td>Differin</td>
<td>0.025%</td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td>Clindamycin</td>
<td>1%</td>
<td>strong</td>
</tr>
<tr>
<td></td>
<td>Tretinoin</td>
<td>0.1%</td>
<td>very strong</td>
</tr>
<tr>
<td>HIGH</td>
<td>Differin</td>
<td>0.05%</td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td>Clindamycin</td>
<td>2%</td>
<td>strong</td>
</tr>
<tr>
<td></td>
<td>Tretinoin</td>
<td>0.05%</td>
<td>very strong</td>
</tr>
<tr>
<td>MEDIUM</td>
<td>Differin</td>
<td>0.1%</td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td>Clindamycin</td>
<td>5%</td>
<td>strong</td>
</tr>
<tr>
<td></td>
<td>Tretinoin</td>
<td>0.025%</td>
<td>very strong</td>
</tr>
<tr>
<td>LOW</td>
<td>Differin</td>
<td>0.01%</td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td>Clindamycin</td>
<td>10%</td>
<td>strong</td>
</tr>
<tr>
<td></td>
<td>Tretinoin</td>
<td>0.01%</td>
<td>very strong</td>
</tr>
</tbody>
</table>

### Amount of Medication Required

<table>
<thead>
<tr>
<th>Tapering Unit</th>
<th>2-Week Treatment Once a Day</th>
<th>Twice a Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>44.0 g</td>
<td>22.0 g</td>
</tr>
<tr>
<td>2</td>
<td>22.0 g</td>
<td>11.0 g</td>
</tr>
<tr>
<td>3</td>
<td>11.0 g</td>
<td>5.6 g</td>
</tr>
<tr>
<td>4</td>
<td>5.6 g</td>
<td>2.8 g</td>
</tr>
<tr>
<td>5</td>
<td>2.8 g</td>
<td>1.4 g</td>
</tr>
</tbody>
</table>
DON’T PANIC! WHEN FACED WITH THE VAST EXISTENTIAL CHOICE OF TOPICAL CORTICOIDS.
ADULTS: FACE, AXILLAE, NIPPLES, GROIN, NATAL CLEFT
TWICE DAILY TILL ITCHING STOPS
CHILDREN: TWICE DAILY TILL ITCHING STOPS
1% HYDROCORTICONE OR CALCINEURIN INHIBITOR ONLY; OTHERWISE YOU RISK ATROPHY AND STRIAE!
IF YOU DON’T KNOW WHAT YOU’RE DOING, DR. ZONE SUGGESTS WRITING ON THE PRESCRIPTION, “I AM STUPID.”
ADULTS: TRUNK & EXTREMITIES
THIN COAT TWICE DAILY TILL ITCHING STOPS
CORTICOID INDUCED INFLAMMATION & ATROPHY
IF YOU DON’T KNOW WHAT YOU’RE DOING, DR. ZONE SUGGESTS WRITING ON THE PRESCRIPTION, “I AM STUPID.”
ATOPIC DERMATITIS: GENERALLY FLEXURAL
STAPHYLOCOCCUS AUREUS

- GRAM +
  (BLUE/PURPLE)
- STAPH IS THE “PURPLE PEOPLE EATER.”
JOHN BEZZANT’S HANDS AND FEET THIS WINTER
“HELPA ME, HELPA ME, HELPA ME!”
(TOSCANINI’S PLEA TO THE NBC ORCHESTRA)
I’LL SHOW YOU HOW TO HELP ME.
MY ECZEMATOUS SYMPTOMS: PAIN, BURNINGS, ITCHING.
I CANNOT PLAY KEYBOARD INSTRUMENTS DURING FLARES.
TREATMENT FOR JOHN BEZZANT’S HAND ECZEMA
GREASE FOR PEACE!

CETAPHIL DOESN’T CAUSE STINGING ON FISSURED SKIN!
TREATMENTS GIVEN TO HIM BY HIS INTERNIST
1. CLOBETASOL 0.05% OINTMENT TWICE DAILY
2. MUPIROCIN 2% TWICE DAILY
3. 40% UREA CREAM TWICE DAILY
4. CETAPHIL OR CERA VE CREAM TWICE DAILY
PROBLEM
SHAMPOOS FOR TREATING SEBORRHEIC DERMATITIS

- ANTI-YEAST:
  - 1. ZINC
  - 2. SELENIUM
  - 3. KETOCONAZOLE

- ANTI-INFLAMMATORY: COAL TAR (BROWN)
  REMOVE SCALE: SALICYLIC ACID (CLEAR)
CAN USE INDIVIDUAL SHAMPOO OR MIX THEM
MID TO ULTRAPOTENT STEROID SOLUTIONS OR FOAM FOR SCALP
1% HYDROCORTISONE SOLUTION TO EARS & FACE
SHAVING DERMATITIS
SHAVING
Allergic contact dermatitis usually requires treatment with prednisone 1 mg/kg/day, often in addition to a high potency topical steroid 2X/day.
The Many Faces of Poison Ivy

Poison ivy (Rhus radicans) is a woody shrub or vine found throughout the United States. Red-tinged leaves grow in groups of three and have smooth, fine-toothed, or lobed margins, and small, yellow-green flowers form cream-colored fruit. The allergen, predominantly 3-n-pentadecylcatechol, is found in the resinous sap material urushiol, which is produced by the leaves, fruit, stem, and bark. Therefore, although delayed-hypersensitivity dermatitis induced by contact with poison ivy is usually considered a summer problem in the northeastern United States, it can (and does) occur year-round.

These photographs, which were taken in southeastern Massachusetts, show the changing appearance of the plant during its growth cycle. In mid-May, before the leaves fully emerge, the vine and the cream-colored fruit are visible (Panel A). In July, the red tinge and shiny appearance of the leaves have faded (Panel B). In October, the leaves change color (Panels C and D) and are shed.

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Another Image in Clinical Medicine (Boctor FN, Uehlinger J. Malaria and Sickle Cell Disease. N Engl J Med 2002;347:1) has also been published in this issue and can be seen at http://www.nejm.org
POISON IVY DERMATITIS
AUTOECZEMATIZATION
Allergic contact dermatitis. Note sparing of the palms. You can clearly see the line where the stratum corneum of the palms thickens and prevents chemical penetration.
PREDNISONE
ORAL CORTICOSTEROIDS
PREDNISONE 1 MG/KG/DAY, TAPERING OVER 3-4 WEEKS

BEFORE STARTING ASK ABOUT:

1. DIABETES MELLITUS
2. TUBERCULOSIS
3. COUMADIN (PREDNISONE HAS AN ANTI-COAGULANT EFFECT: IT RAISES THE INR)
4. MENTAL ILLNESS: DEPRESSION, ANXIETY, ETC.
WEEKLY INTRALESIONAL INJECTIONS OF KENALOG WERE GIVEN BY A DERMATOLOGIST FOR ONE YEAR--NO IMPROVEMENT, NO DIAGNOSTIC PROCEDURE PERFORMED. NOTE MARKED SKIN ATROPHY!
SCABIES, ‘NORWEGIAN’ (DIFFUSE, LONGSTANDING)
Scraping penis left
WATCH FOR ANXIETY/DEPRESSION

ANTIHISTAMINE:
DOXEPIN

ADULTS: 10-50 MG ORALLY AT BEDTIME

CHILDREN: 1-5 MG ORALLY AT BEDTIME

QUESTIONS: DRUG INFORMATION, 801-581-2073
LICHERN SIMPLEX CHRONICUS (ANXIETY/DEPRESSION)
COMFORTABLY NUMB