

DERMATOLOGY



Atopic dermatitis

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Dermatitis

A groups and spectrum of related disorders with pruritus being the hallmark of the disease

- Acute dermatitis: papules, vesicles
- Subacute dermatitis: scaling, crusting
- Chronic dermatitis: lichenification, xerosis, fissuring

Types:

- 1) Atopic
- 2) Seborrheic *often found on oily areas of the body.*
- 3) Contact (Allergic\Irritant)
- 4) Nummular *annular, coin-shaped*
- 5) Asteatotic (Xerotic) *secondary to dry skin*
- 6) Stasis associated *with venous insufficiency*
- 7) Lichen Simplex Chronicus (Neurodermatitis) *repeated scratching*



4 y\o boy with chronic, itchy, bleeding plaque

Atopic dermatitis

- **Pruritis** is the hallmark of AD
- Eczematous eruption leads to **lichenified dermatitis**
- Itching precedes the appearance of lesions

associated with personal or family history of atopy (asthma, anaphylaxis, eosinophilia)

Infantile atopic dermatitis:

- **60%** of case AD present in the **first year** of life, after 2 months of age
- Begin as **itchy** erythema of the **cheeks** →
- Distribution include scalp, neck, forehead, wrist, and extensors
- May become **desquamate** leading to **erythroderma**.
- **Most cases** the symptoms will **disappear** toward the end of the **second year**.
- The role of **food allergy** in infantile atopic dermatitis has been clarified
- Egg, peanut, milk, wheat, fish, soy, and chicken may exacerbate infantile AD
- **High** level of **IgE antibodies** to **House dust mites**
- IgE bound to Langerhans cells in atopic skin
- Food exacerbates symptoms in some patients: eggs, peanuts, cows milk represent up to 75% of positive test.



Childhood atopic dermatitis:

- Characterized by less acute lesions.
- Distribution: **antecubital and popliteal fossae**, flexor wrist, eyelids, and face.
- **Severe atopic dermatitis** involving more than 50% of body surface area is associated with **growth retardation**.
- Lichenification is characteristic of childhood atopic dermatitis.



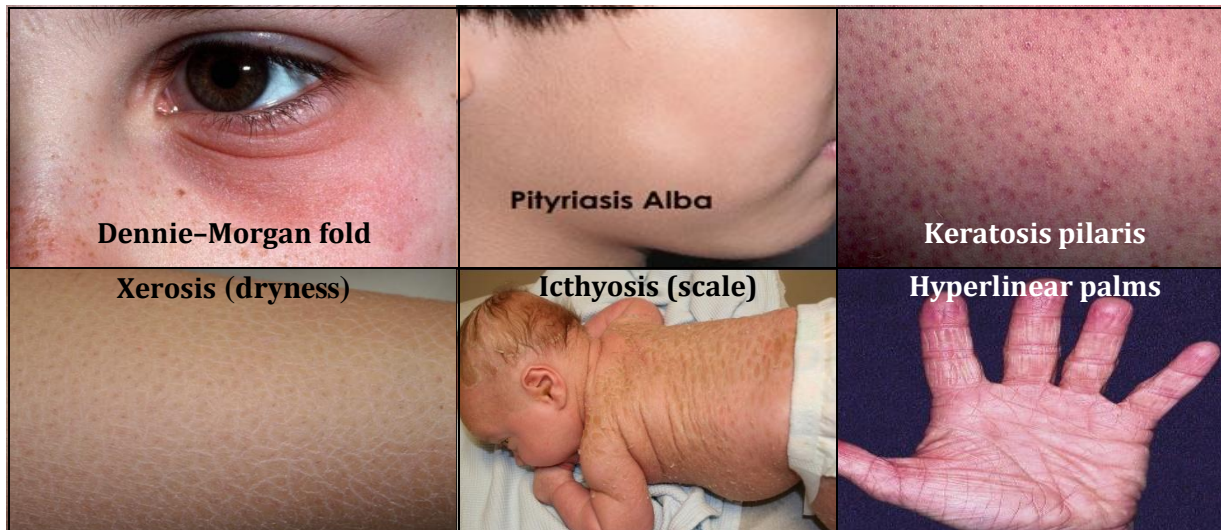
Antecubital

Adult atopic dermatitis:

- Distribution: antecubital and popliteal fossae, the front side of the neck, the forehead, and area around the eyes.
- **Atopic individuals** are at greater risk of developing hand dermatitis than are the rest of the population.
- **70%** develop **hand dermatitis** some times in their lives.



Atopic dermatitis signs:



- Hertoghe's sign – thinning of the lateral eyebrows

Infection:

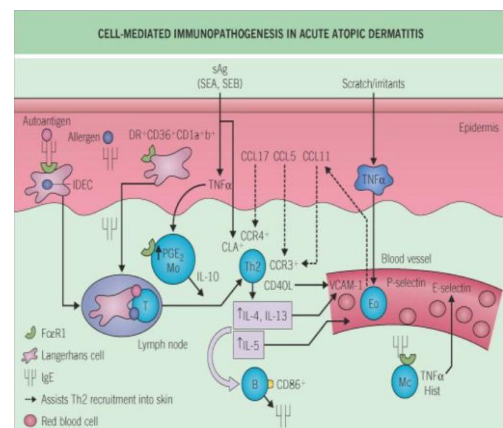
- **Staph aureus** – 90% of chronic lesions
- **Eczema herpeticum** – generalized herpes simplex infection. Young children usually.

Immunology: (just know it's Th2 dominance)

- **T helper cell type 2 (Th2)** dominance
- Th2 produces **IL-4, 5, and 10**
- IL-4 and IL-5 produce elevated IgE and eosinophilia
- IL-10 inhibits delayed type hypersensitivity
- Th2 may be sensitive to house mites or grass pollen
- Monocytes produce elevated amount of prostaglandin E2 (PGE2)
- PGE2 reduces gamma-interferon production, but not IL-4 from helper cells thereby enhancing the Th2 dominance
- PGE2 also directly enhances IgE production from B cells
- Langerhans cells of AD patient stimulate helper T cells into Th2 phenotype without the presence of antigen
- Langerhans cells have IgE bound to their surface receptors. These IgE are associated with atopic antigens, such as house dust mites

Differential diagnosis:

- Seborrheic dermatitis
- Contact dermatitis
- Scabies
- Psoriasis



DIAGNOSTIC FEATURES OF AD AS SUGGESTED BY THE AAD CONSENSUS

Essential features: must be present, and if complete, are sufficient for diagnosis:

- ★ Pruritus
- Eczematous changes
 - Typical and age-specific patterns
 - Facial, neck, and extensor involvement in infants and children
 - Current or prior flexural lesions in adults/any age
 - Sparing of groin and axillary regions
- Chronic or relapsing course

Important features: seen in most cases for support of the diagnosis:

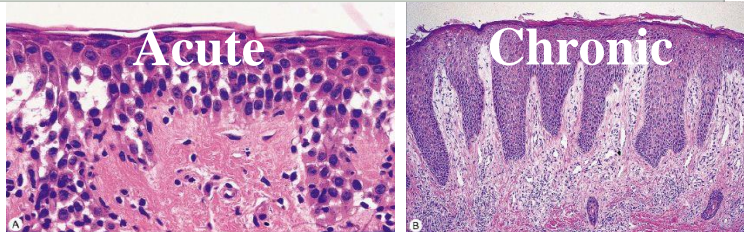
- Early age of onset
- Atopy (IgE★activity)
- ★ Xerosis

Associated features: help in suggesting the diagnosis:

- Keratosis pilaris/ichthyosis vulgaris/palmar hyperlinearity
- Atypical vascular responses
- Perifollicular accentuation/lichenification/prurigo
- Ocular/periorbital changes
- Perioral/periauricular lesions

Histology:

- Spongiotic dermatitis (edema)
- Lichen simplex chronicus
- Eosinophiles may be seen
- Subacute dermatitis: commonly misdiagnosed as tinea



Management:

- **Protect** from scratching
- Gentle cleanser or discontinue
- **Anti-histamines**, especially at night
- Bathing protocol
- Food allergies concerns and dietary restrictions.
- Hydrate skin daily with **moisturizers**
- **Avoid wool**
- Tell them it **could be chronic**

Treatment:

- Barrier
- Moisturizer
- **Topical steroids**
- **Tacrolimus** beneficial in **SEVERE** atopic dermatitis **Without side effects**
- Systemic Corticosteroids
- Phototherapy – UVA, PUVA
- Immunosuppressive therapy **When? If it involves large body surfaces**

Nummular dermatitis

- **Coin shaped patches** and **plaques**
 - **Secondary to xerosis cutis**
 - Primary symptom **itch**
- NOTICE the surrounding xerosis



Regional eczema

• Ear eczema:

Most frequently caused by **seborrheic** or **atopic dermatitis**
Staph, Strep, or Pseudomonas
Earlobe is pathognomonic of **nickel allergy**



• Eyelid dermatitis:

When on one eye only, it is most frequently caused by **nail polish**
When both eyelids are involved, consider mascara, eye shadow, eyeliner, etc

• Nipple eczema:

Painful fissuring, seen especially in nursing mothers
Maybe an isolated manifestation of atopic dermatitis
If persist **more than 3 months, and/or unilateral, biopsy is mandatory**
to **rule out Paget's disease**



• Hand eczema:

Spongiosis histologically
Irritant hand dermatitis- seen in homemakers, nurses. Resulting from **excessive exposure to soaps**
Pompholyx (tiny blisters)- tapioca vesicles, on sides of fingers, palms, and soles



• Diaper dermatitis

Caused by over hydration of the skin, prolonged contact with urine and feces, retained diaper soaps, and topical preparations.
prototypical example of irritant contact dermatitis.

• Juvenile plantar dermatosis:

- Begins as a **patchy symmetrical**, smooth, red, glazed macules **on the base of the great toes**
- Affect **age 3 to puberty**.
- Symmetrical lesions on **weight bearing area**
- Virtually **always resolve after puberty**



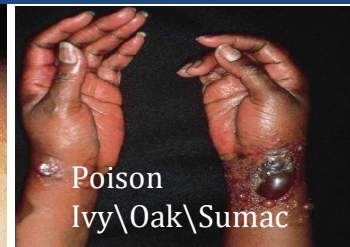
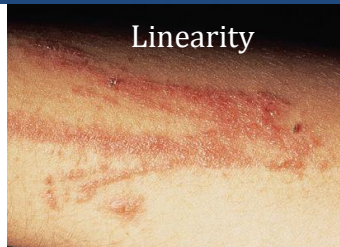
Xerotic eczema

- Also known as **winter itch**, nummular eczema, eczema craquele, and asteototic eczema.
- Anterior shins, extensor arms, and flank
- **Elderly person predisposed.**
- Use of bath oils in bath water is recommended to prevent water loss
- **Moisturizers** – urea or lactic acid.

Contact eczema

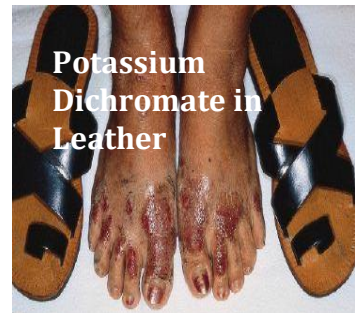
Allergic contact dermatitis:

- Type **4** Hypersensitivity Response
- Classically **well demarcated/patterned**
- Exposure can be infrequent (once a month)
- **Patch testing** is gold standard for diagnosis



TOP TEN ALLERGENS AS IDENTIFIED BY THE NORTH AMERICAN CONTACT DERMATITIS GROUP

Test substance	Allergic reactions (%)	Relevant reactions (%)
Nickel sulfate	14.2	49.1
Neomycin sulfate	13.1	46.2
Balsam of Peru	11.8	82.9
Fragrance mix	11.7	86.9
Thimerosal 10.9		16.8
Sodium gold thiosulfate	9.5	40.6
Formaldehyde 9.3		63.2
Quaternium-15 9.0		88.7
Cobalt chloride	9.0	55.1
Bacitracin 8.7		50.4



Irritant contact dermatitis:

- Most contact dermatitis is **irritant in nature**
- Occupational
- Prevention is key!



IRRITANTS AND MECHANISMS OF TOXICITY

Irritant	Mechanisms of toxicity
Detergents	Solubilization and/or disruption of barrier lipids and natural moisturizing factors in the stratum corneum Protein denaturation Membrane toxicity
Acids	Protein denaturation Cytotoxicity
Alkalis	Barrier lipid denaturation Cytotoxicity through cellular swelling
Oils	Disorganization of barrier lipids
Organic solvents	Solubilization of membrane lipids Membrane toxicity
Oxidants	Cytotoxicity
Reducing agents	Keratolysis
Water	If barrier is disrupted, cytotoxicity through swelling of viable epidermal cells

Lichen Simplex Chronicus (Neurodermatitis)

- Paroxysmal pruritus
- Habitual excoriating or rubbing
- Skin thickens to defend
- Consider underlying disease



Seborrheic dermatitis

- Distribution: **Face**, scalp, axillae, upper chest and **flexors**
- **Oily greasy skin**
- **Nasolabial folds**
- Chronic condition - Nonsteroidal adjuvants
- **Pityrosporum ovale** (malassezia yeast)
- Cradle cap (infantile or neonatal seborrheic dermatitis):
is a yellowish, greasy, patchy and scaly skin rash



Questions

1) A mother came to you with her 3 months old child who had been very irritable. She mentioned that his older brother had atopic Dermatitis. The newborn had Atopic dermatitis too. **What is the management of this condition from the following?**

- a. Education and skin care is of utmost important.
- b. Frequent use of Oral antibiotics is helpful.
- c. Topical high potency corticosteroids are indicated.
- d. Systemic steroid is the first line of treatment.

2) **Cradle Cap is a feature of:**

- a. Allergic Contact Dermatitis
- b. Seborrheic Dermatitis
- c. Irritant Contact Dermatitis
- d. Atopic Dermatitis

3) A 2 weeks old baby presented with itchy Erythematous plaques over his neck and flexures, suggestive of Seborrheic Dermatitis. **What is the pathogenesis of Seborrheic Dermatitis from the following?**

- a. Delayed type hypersensitivity reaction
- b. Commensal yeast *Pityrosporum Ovale*
- c. Type 1 hypersensitivity reaction
- d. Contact allergens

4) A 4 years old with oozing red patches and Plaques with vesicles over his face. **What is the most likely diagnosis?**

- a. Acute Eczema
- b. Chronic Eczema
- c. Pityriasis Rosea
- d. Verruca Vulgaris

5) A 5 months old infant brought by his mother to the Dermatology clinic because of scalp and skin lesions that are started within first month after delivery. On skin examination, there was a greasy yellowish scales over scalp with discrete erythematous patches over axillae and diaper area. **What is the most likely diagnosis?**

- a. Guttate psoriasis
- b. Seborrheic dermatitis
- c. Atopic dermatitis
- d. Pityriasis rosea

Answers: 1(a) , 2(b) , 3(b) , 4(a) , 5(b)

6) A 6 months old infant had been very itchy, presented with Eczematous Eruption Diagnosis as Atopic Dermatitis. **Which one of the following is the most common site distribution for the above patient of this disease?**

- a. Diaper Area
- b. Face
- c. Popliteal Area
- d. Scalp

7) One year old boy known to have atopic dermatitis presented to the emergency department with 1 day history of eruptive painful vesicles and crusted erosions over face. **What is the most likely diagnosis?**

- a. Impetigo
- b. Pityriasis versicolor
- c. Eczema herpeticum
- d. Allergic contact dermatitis

8) one year old boy known to have atopic dermatitis. **Which one of the following the patient should avoid?**

- a. Topical corticosteroids
- b. Topical immunomodulators
- c. Cotton clothes
- d. Wool clothes

9) A 2 months---year old baby present with itchy skin disease and cradle cap, **which one of the following is feature for the disease?**

- a. Papules and nodules
- b. Affect face and flexures
- c. Affect only children
- d. Systemic involvement

10) A 30 years---old housewife female known to have bronchial asthma presented to the clinic with itchy skin eruption over palms and wrist. The dermatologist is suspecting allergic contact dermatitis. **Which of the following is the common cause of allergic contact dermatitis?**

- a. Cotton clothes
- b. Nickel sulphate
- c. Moisturizer cream
- d. Soaps and detergents

11) A 24 months old child had very itchy, presented with eczematous eruption over his face and legs. **Which of the following criteria is used to diagnose atopic dermatitis?**

- a. High serum level of IgE is diagnostic.
- b. Dry skin is one of the main clinical feature
- c. It is commonly associated with diabetes
- d. Large yellow scales over scalp and napkin area

Answers: 6(b) , 7(c) , 8(d) , 9(b) , 10(b) , 11(b)