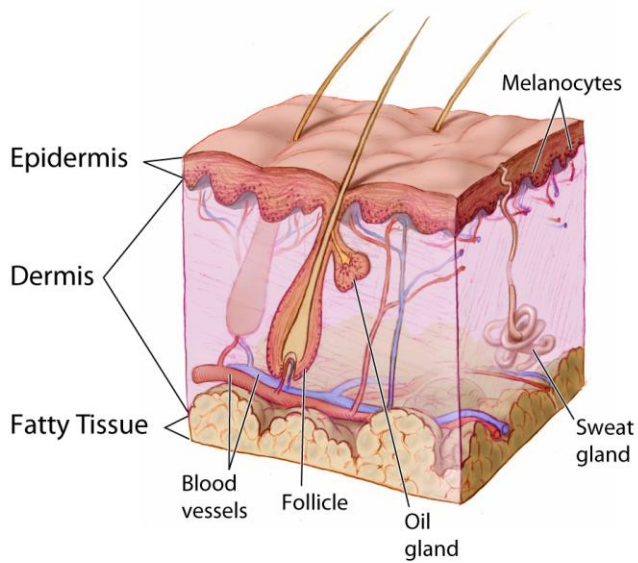


432 Teams

Dermatology



Atopic Dermatitis & Eczema



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9

Objectives

- 1- To know the **definition & classification** of Dermatitis/Eczema
- 2- To recognize the **primary presentation** of different types of eczema
- 3- To understand the possible **pathogenesis** of each type of eczema
- 4- To know the scheme of **managements** lines

Introduction:

- A groups and spectrum of related disorders with pruritus being the hallmark of the disease, they also come with dry skin.
- Every atopic dermatitis is eczema but not every eczema are atopic dermatitis.
- Atopic dermatitis mean that the patient has eczema (excoriated skin, itching and re-onset) and atopy (atopy; the patient or one of his family has allergic rhinitis, asthma or eczema). It starts early of life (eczema can happen at any time).
- It classified as:
 - Acute, characterized by erythema, papules, vesicles, oozing, and crusting.
 - Subacute, clinically it is represented by erythema, scaling, and crusting.
 - Chronic, presents with thickening of the skin, skin markings become prominent (lichenification); pigmentation and fissuring of the skin occur.



4 years old boy with chronic, itchy, bleeding plaques.
Well defined erythematous excoriated plaques on both cheeks with erosion.



Ill defined plaques



Acute on top of chronic very dry well defined brownish plaque with lichenifications.
Lichenification is the hallmark for chronic course.

Dermatitis

Classification of dermatitis:

- Atopic, **more common in children**
- Seborrheic (oily skin)- **(like naso-labial folds, scalp, ears)**
- Contact dermatitis, **substance cause eczema**
 - Allergic
 - Irritant
- Nummular, **coined shape, usually in the shin.**
- Asteatotic, **no seborrhea**
- Stasis **associated with venous insufficiency of the lower extremities.**
- Neurodermatitis **(acute) /Lichen Simplex Chronicus (chronic).**

Atopic Dermatitis

- **Pruritis is the hallmark** of atopic dermatitis (AD)
- Eczematous eruption leads to lichenified dermatitis
- Itching precedes the appearance of lesions
- Vicious cycle

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, **at the end when get old it may goes to flexors.**
- May become desquamate leading to erythroderma.



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Involvement of the cheeks is characteristic of the infantile pattern of AD.

- Most cases the symptoms will disappear toward the end of the second year.
- The role of food allergy in infantile and childhood atopic dermatitis has been clarified
- Egg, peanut, milk, wheat, fish, soy, and chicken may exacerbate infantile AD
- Dr. said “the best test is: if the parents suspect certain food make it worse, they stop it for two weeks then reintroduce it. If it improve and worsen then they stop it”.
- Allergens (like food) then it may cause eczema, asthma or anaphylaxis.
- Usually food allergy gone with time, but peanut butter is the most common food to remain allergen to the patient for life.

- 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, cow’s milk represent up to 75% of positive test.
- Dirty child theory? Soap dry the skin; we avoid soap in the treatment. Also, dirty child had better immunity usually, in clean child immunity doesn’t learn what is self and non-self, germs and normal cells; immune system may attack normal cells or non-harmful things and cause atopic dermatitis.
- Early nerve development? Children who have eczema they have better motor control than others do.

Extra Note: Dirty Child

The theory “is that as we clean up our environment, our immune system moves away from being geared toward fighting bacteria and parasites. Then it has nothing to do and starts to react against things that are normally not harmful, like dust mites, or cat dander or cockroaches or peanuts.” Said Dr. Maria Garcia Lloret, an assistant clinical professor of pediatric allergy and immunology at the Mattel Children’s Hospital at the University of California, Los Angeles.

Childhood Atopic Dermatitis:

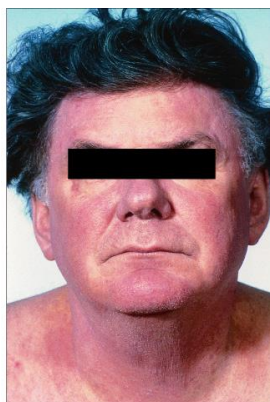
- Characterized by less acute lesions
- Distribution: antecubital and popliteal fossae, flexor wrist, eyelids, and face.
- Severe atopic dermatitis involving more than 50% of body surface area is associated with growth retardation.
- Eczematous plaque, early onset, history of atopy in the patient or the family and chronic course.



Sever case of the disease.

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.



Adult with atopic dermatitis that favors the face and neck.

Cutaneous stigmata

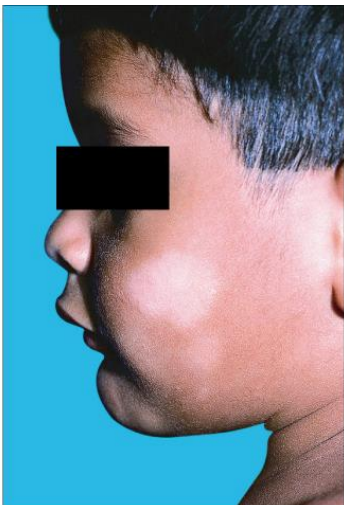
- Patient with eczema usually has one or more of these sign and symptoms (they use them in the criteria):
 - Dennie-Morgan fold
 - Pityriasis alba
 - Keratosis pilaris
 - Hertoghe's sign – thinning of the lateral eyebrows
 - Xerosis
 - Ichthyosis
 - Hyper-linear palms



Note the Dennie–Morgan lines (folds) and central facial pallor. They look tired and stupid. In this case, it is acute.



Hyper linear palms: One of the reason is using a lot of corticosteroid, which cause



Pitryaisis Alba
Well defined hypopigmented patch. Differ from vitiligo, is the color; vitiligo is depigmented. In this case, it is acute.



Keratosis pillaris.
Seen in atopic dermatitis, very common, seen in the outer arm, outer thigh or the buttocks. Distance between each lesion is almost equal; it originated from hair follicles.

✓ **Differential Diagnosis:**

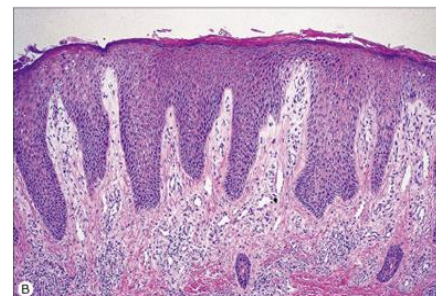
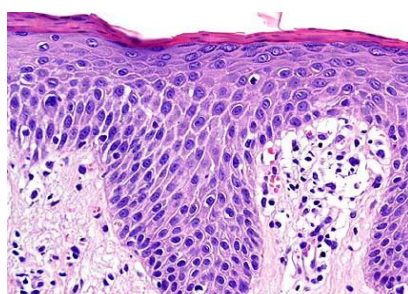
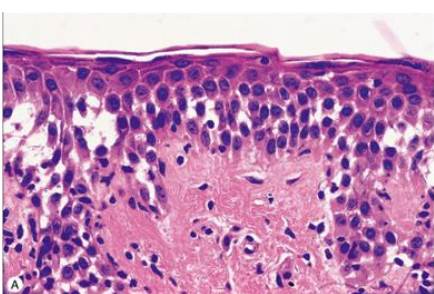
- Seb Dermatitis
- Contact dermatitis
- Nummular eczema "first three considered as eczema"
- Scabies الجرب (Infection , worse infection skin to have ,it is very itching)
- Psoriasis "usually scaly and not itchy"

Table 13.4 Diagnostic features of atopic dermatitis as suggested by the AAD consensus.

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 reactivity)	
★ 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	

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■ **Dermatitis 101:**



- Acute Dermatitis
- Less layer

- Subacute Dermatitis
- Commonly misdiagnosed as tinea
- Edema and swelling

- Chronic Dermatitis
- More layer

■ Histology:

- Spongiotic dermatitis (Edema)
- Lichen simplex chronicus
- Eosinophiles may be seen

■ Management:

- Protect from scratching
- Gentle cleanser or discontinue, **stop soaps.**
- **Anti-histamines**, especially **if it wake him up** at night, if it doesn't we don't give because of its drowsy side effect.
- 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**, **potency depend on the site of the disease.**
 - **Tacrolimus**, **less potent than mid potent steroid**
 - Systemic Corticosteroids
 - Phototherapy – UVA, PUVA
 - Immunosuppressive therapy
 - When to use immunosuppressive therapy? **If it involves large body surfaces**
- ✓ Topical FK506 (Tacrolimus) is dramatically beneficial in SEVERE atopic dermatitis”
- ✓ 95% showed good improvement in Alaiti and Rusicka study in JAAD 1998, Archive 1999
- ✓ Comparable to less potent topical steroids



- ✓ Eczema not that defined
- ✓ psoriasis very well defined

Nummular Dermatitis:-

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



Regional Eczema

A- Ear Eczema:

- Most frequently caused by **seborrheic or atopic dermatitis**
- Staph, Strep, or Pseudomonas
- Earlobe is pathognomonic of **nickel allergy**
- You should add antibiotics



B- Eyelid dermatitis:

- When on **one eye** only, it is most frequently caused by **nail polish**
- When **both** eyelids are involved, consider **mascara**, eye shadow, eyelash cement, eyeliner, etc
- **We may use very weak steroid or tacrolimus.**



C- Nipple eczema:

- **Painful fissuring**, seen especially in nursing mothers



- Maybe an isolated manifestation of atopic dermatitis
- If **persist** more than 3 month, **especially if the patient is not married or not lactating**, and/or **unilateral**, biopsy is mandatory to rule out Pagets disease

D- Hand eczema:

- **Most common type of eczema in adults.**
- Spongiosis histologically
- Irritant hand dermatitis- seen in homemakers, nurses. Resulting from **excessive exposure to soaps**
- Pompholyx- tapioca **vesicles**, on sides of fingers, palms, and soles
- Irritant versus allergic

Pompholyx eczema or (dyshidrotic eczema) , presents as vesicles



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E- 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**



F- Diaper dermatitis

It caused by **overhydration** of the skin, **maceration**, **prolonged contact with urine and feces**, retained diaper soaps, and topical preparations and it is a prototypical example of irritant contact dermatitis. Signs and symptoms are restricted in most individuals to the area covered by diapers. Children with a previous medical history of eczema or atopic dermatitis may be more susceptible to diaper dermatitis. The first-line therapy for individuals with diaper dermatitis is **zinc oxide ointment**.

❖ **Xerotic Eczema**

- All the skin is dry and itchy, usually in elderly.
- 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 Dermatitis

A. 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



Potassium Dichromate in Leather

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



Linearity, caused by a plant



Leather, dyes or metals can cause shoes allergy



Poison Ivy/Oak/Sumac

B. Irritant Contact Dermatitis

- Most contact dermatitis is **irritant in nature**
- Occupational morbidity
- Irritant vs allergic, If you do too much of an irritant you may have irritant dermatitis But allergic dermatitis will come even with small or short exposer to the allergen.
- 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



Tattoo caused the dermatitis



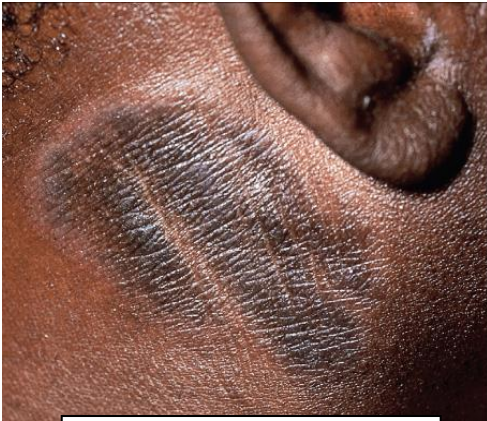
Hair dyes may cause irritant contact dermatitis, he used the dye several week ago which induced dermatitis for several weeks



A female homemaker with dry, itchy hands

❖ **Neurodermatitis/Lichen Simplex Chronicus:**

- Paroxysmal pruritus
- Habitual **excoriating or rubbing**
- Skin thickens to defend
- Consider underlying disease
- Neurodermatitis most commonly seen in the scrotum.



Increased skin markings



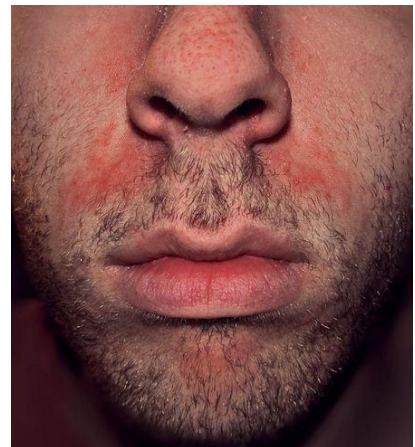
No fungus on the scrotum



Prurigo simplex

❖ **Seborrheic Dermatitis:**

- Distribution
 - **Face**, scalp, axillae, upper chest
- Chronic condition
 - Nonsteroidal adjuvants
- Caused by yeast (**Pityrosporum ovale**)
- Oily greasy skin
- Nasolabial folds involvement
- You should add antifungal



Seborrheic Dermatitis with yellowish crust



Cradle cap (infantile or neonatal seborrhoeic dermatitis): is a yellowish, greasy, patchy and scaly skin rash



❖ **Differential diagnosis:**



SLE



Rosacea



Skin Cancer:
Plaques but without erosions or

SUMMARY

- **Pruritis** is the hallmark of atopic dermatitis (AD)
- Infantile Atopic Dermatitis Begin as itchy erythema of the **cheeks**
- Severe atopic dermatitis involving more than 50% of body surface area is associated with **growth retardation**
- **Lichenification** is characteristic of childhood atopic dermatitis.
- T helper cell type 2 (**Th2**) dominance in atopic dermatitis
- In atopic dermatitis Management include Anti-histamines at night, moisturizers, Avoid wool and **Tacrolimus** in SEVERE cases
- In Nummular dermatitis, **Coin shaped** patches and plaques Secondary to xerosis cutis and the Primary symptom is **itch**
- Ear eczema Most frequently caused by seborrheic or atopic dermatitis, Earlobe is pathognomonic of **nickel allergy**
- In Eyelid dermatitis When on one eye only, it is most frequently caused by **nail polish**
- In Nipple eczema, **biopsy** is mandatory to rule out **Pagets** disease
- In Juvenile plantar dermatosis is Symmetrical lesions on weight bearing area and Virtually always **resolve after puberty**
- Allergic contact dermatitis is a **Type 4 Hypersensitivity** Response, Classically well demarcated and **Patch testing** is gold standard
- Seborrheic Dermatitis Caused by yeast (**Pityrosporum ovale**), Oily greasy skin and **Nasolabial folds involvement**

MCQ'S

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

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:

1	2	3	4	5	6
A	B	B	A	B	B
7	8	9	10	11	
C	D	B	B	B	