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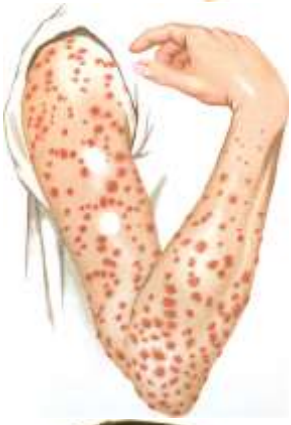
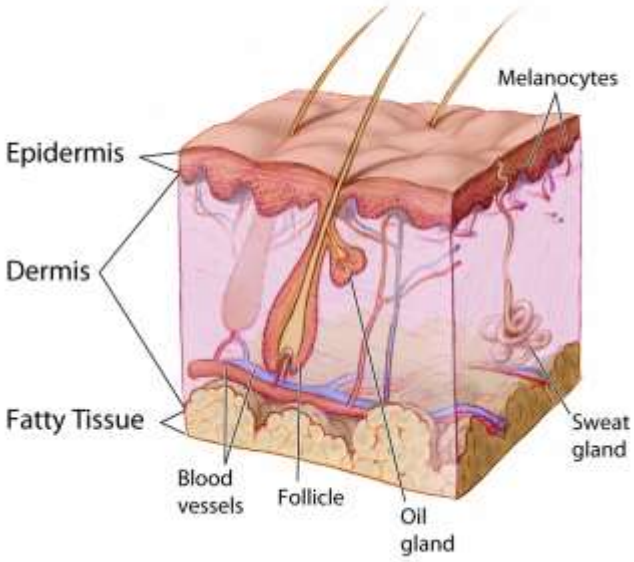


432 Teams

Dermatology



Atopic Dermatitis & Eczema

Done by: ***Lama Al Faraidi***

Reviewer: ***Lama Al Tawil***

Team Leader: ***Basil Al Suwaine&Lama Al Tawil***

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Color Code: Original, Team's note, Important, Doctor's note, Not important, Old teamwork

Objectives

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

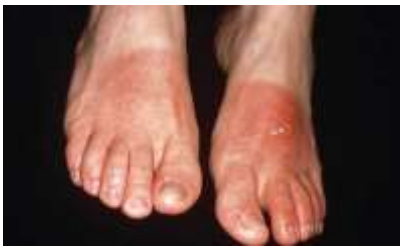
Eczema (dermatology term) – dermatitis (pathological term)

- ***Definition***: inflammation of the skin

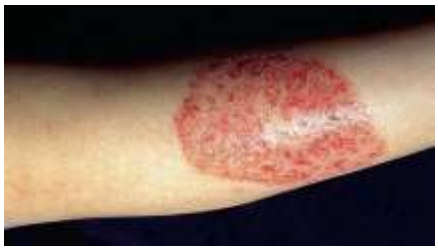
What are the eczema phases?

- ***Acute eczema:*** erosion, oozing and vesicles
- ***Subacute eczema:*** Redness+ swelling, crust -+ scale +infection (most common phase)
- ***Chronic eczema:*** lichenification, dark pigmentation and thick papules and plaques

- Scales in eczema are fine with dry itchy skin
- To diagnose eczema it has to be itchy , no itchy no eczema



Acute eczema



Subacute eczema

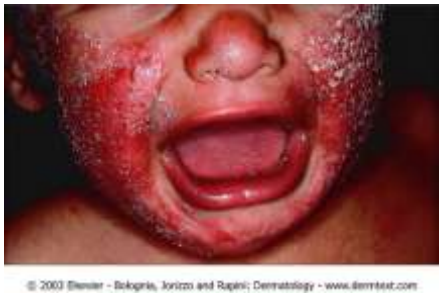
Chronic eczema

Atopic Dermatitis

- ***Definition:*** chronic relapsing itchy skin disease in genetically predisposed patients.
- ***Associated diseases (Atopy):*** bronchial asthma, allergic rhinitis, allergic conjunctivitis (personal or family Hx of atopy including the airway involvment)
- ***Incidence:*** up to 15-20 % in early childhood
- More in male
- ***Age of onset: (most commonly starts at infancy then at school age)***
  - 60% ------ first 2 months of life
  - 30 %------- by age of 5
  - 10%-------- between age 6- 20 years
- Improves in summer and flare in winter (cause of the dryness)
- Remember if a child gets AD and as an adult gets asthma , is there an association ? yes

Pathogenesis:

- Atopy: genetic predisposition → there is a defect in the synthesis of filaggrin protein
- Dry skin (decrease production of moisturizing lipids; sebum)
- Ig E ? (Epiphenomenon) It does not indicate type 1 or type 4 hypersensitivity, but IgE and T-Cells maybe elevated, but do not fulfill the criteria
- T-Cell activation
- Allergy, increased tendency to certain allergens
- Infection: skin of patients with AD is colonized by S aureus. Infection with S aureus often causes a flare of AD. (S.aureus is from the normal flora of the skin, and with eczema there is loss of skin barrier this is why they have an increased risk of getting infected)
- AD and Food! minor role (can be associated with food allergy, but we don't deprive the child from important and essential food)



Clinical Variants:

- Infantile AD
- Childhood AD
- Adult AD

Infantile AD:

- Distribution
- Begin as itchy erythema of the cheeks
- Presentation
  - ➢ Red skin, tiny vesicles on "puffy " surface. Scaling, exudate with wet crust and fissures.
  - ➢ **Diaper area is usually spared**

(usually present as acute or sub-acute on the face)

Ill-defined dusky erythematous edematous plaque, with faint scales on the cheeks, forehead, and chin. *Psoriasis is well defined*

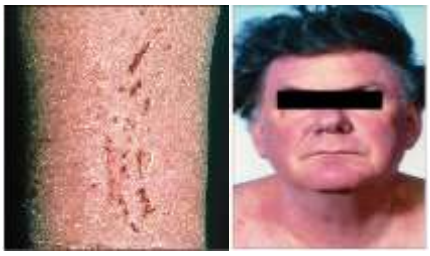
Childhood AD:

- Distribution
- Presentation (usually chronic, or subacute on top of chronic)
  - ➢ (Antecubital, popliteal fossae→ are places to know if its chronic or not), neck (back of the neck) and face. And these locations (flexures) go towards the atopic type
  - ➢ May be generalized

- Papular, lichenified plaques, erosions, crusts.

(Onset can be de novo or as a continuation from infantile AD)

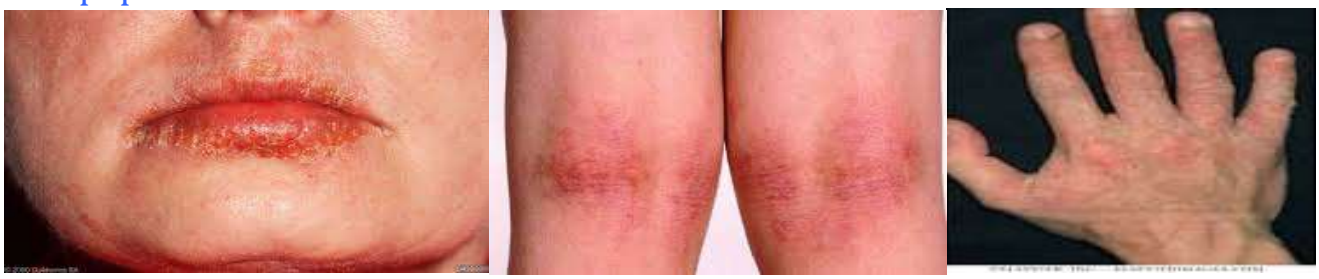
- Severe atopic dermatitis involving more than 50% of body surface area is associated with growth retardation



Adult with atopic dermatitis that favors the face and neck.

Adult AD:

- Distribution
- Presentation (usually chronic)
- Mostly flexural, face and neck. (or hands)
- May be generalized
- Lichenification and excoriations (due to bad itching)
- Atopic individuals are at greater risk of developing hand dermatitis than are the rest of the population

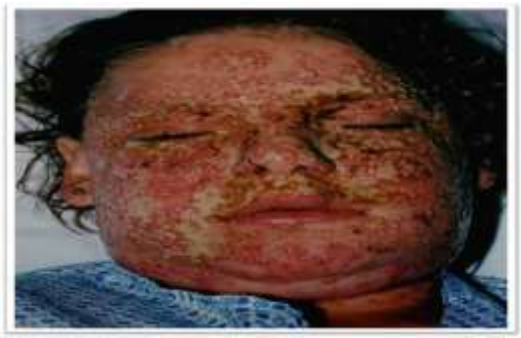


Diagnostic Features Of Atopic Dermatitis

DIAGNOSTIC FEATURES OF ATOPIC DERMATITIS
Major features (3 of 4 present)
• Pruritus • Typical morphology and distribution of skin lesions • Chronic or chronically relapsing dermatitis • Personal or family history of atopy
Minor features (3 of 23 present)
• Xerosis • Ichthyosis/palmar hyperlinearity/keratosis pilaris • Immediate (type I) skin test reactivity • Elevated serum IgE • Early age of onset • Tendency towards cutaneous infections/impaired cell-mediated immunity • Tendency towards non-specific hand or foot dermatitis • Nipple eczema • Cheilitis • Recurrent conjunctivitis • Dennie–Morgan infraorbital fold • Keratoconus • Anterior subcapsular cataract • Orbital darkening • Facial pallor/erythema • Pityriasis alba • Anterior neck folds • Pruritus when sweating • Intolerance to wool and lipid solvents • Perifollicular accentuation • Food intolerance • Course influenced by environmental/emotional factors • White dermographism/delayed blanch

Complications:

- Secondary infections
  (bacteria (impetigo/staph)or virus causing crusting on top of eczema)
- Eczema herpeticum
- Growth retardation (with systemic use of steroids)
- Psychological



Eczema herpeticum initial lesion is a vesicle Should be admitted

Prognosis: (gets better with increasing age)

- Half of the cases improve by 2 years of age
- Most improve by teenage years
- <10% of patients have lifelong problems
- 30-50% will develop BA or hay fever

Can be treated topically

Management:

- Education! Education! Education!
- Psychological support!
- Skin care: moisturizing the skin (put emollient on wet skin to be absorbed)
- Avoid irritant like soaps (because it makes the skin dry, avoid perfumed creams and soaps, and should not kill normal flora with detoil)
- Topical therapy:
  - ❖ topical steroids - used maximum of 2 to 3 weeks, go back to it if there is another flare. Use low potency on face and axilla, and high potency on arms and legs)
  - ❖ Tacrolimus, Pimecrolimus –non steroidal immunomodulator, used on patients above 2 years of age and can be used up to 3 months, also as maintenance in children
- ➢ Antibiotics--- Antistaphylococcal drugs as a prophylactic
- ➢ Sedative antihistamine to control itching and help sleep (use it PRN)
- ➢ Phototherapy narrow band UVB (acts as anti-inflammatory. Used in severe cases that failed topical treatment before going to systemic drugs, but can cause skin dryness so need to moisturize)
- ➢ Systemic therapy: steroids, Cyclosporin, Methotrexate, Azathioprine
  (for short use and acute flare)
- ➢ Avoid wool

Seborrhoeic Dermatits

- ***Definition:*** redness and scaling in regions where the sebaceous glands are most active as the face, scalp, presternal area and body folds.
- Very common chronic dermatosis.
- Age: infancy, puberty , old age
- More in male

Pathogenesis:

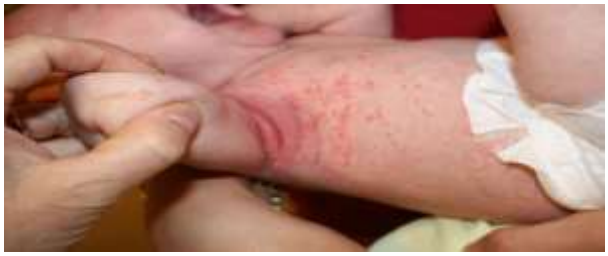
- Increased Sebum!(seborrheic state)
- Tendency
- Pityrosporum ovale (Maalassezia furfur) (fungus)over growth it a normal flora that causes many diseases when exposed to stress or increase gland secretion(most imp factor) same fungus associated with tinea vesricolor
- More in Parkinson, HIV/AIDS patients (severe dermatitis that is not responding to treatment).

Clinical features:
Presentation

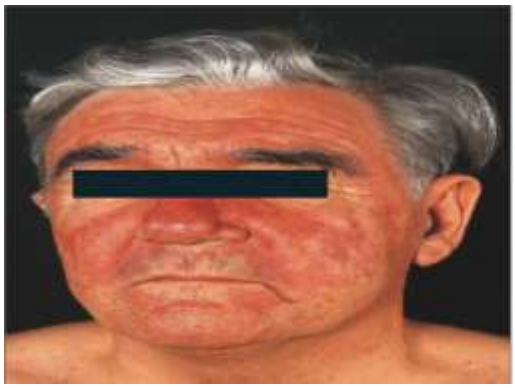
- Pruritus is variable
- Gradual onset, worse in winter dry environment.
- Orange- red greasy scaling macules, papules of varying size
- Trunk: nummular, annular
- Scalp: marked scaling, diffuse involvement

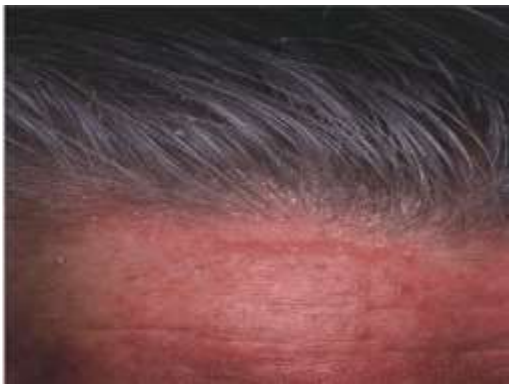
Distribution:

- Hairy are of head, cradle cap
- Face: forehead, nasolabial folds , glabella and eyebrows , umbilicus . (Anti-cubital ,popliteal, face =AD)
- Trunk: DDx: PR vs pityriasis versicolor
- Body folds: axillae, groins, anogenital area, submammary areas, umbilicus and diaper area (infants)--- sharply marginated erythematous eruption, erosions and fissures
- Genitalia: with yellow crust and psoriasiform lesions.



Orange red greasy thin scaling macules, papules of varying size in the flexure and note that the diaper and scalp are involved here





You see dandruff or fine scales on the eye brow and glabella , shiny forehead
The picture on the left may be confused as pitriasis rosea but its more acute than here which is chronic

Management:

Scalp:

- Zinc pyrithione Shampoo
- Selenium sulfide 2.5% shampoo
- ❖ 2% ketoconazole shampoo
- ❖ Low – potency glucocorticoid solution, lotion or gels.

Skin:

- Topical: antifungals, glucocorticoid, pimecrolimus (for maintenance)
- Combined therapy (anti-fungal and steroid) e.g. daktacort cream
- Maintenance & recurrence (does not improve with age)

DDX:

1. Contact dermatitis cause it also involves the diaper area
2. Flexural psoriasis with the involvement of inguinal area
3. Scalp psoriasis
4. Rosacea if involving the face

Seborrhoeic dermatitis	Scalp psoriasis
Does not pass beyond the hairline Found also with the face Less redness Ill defined Fine scales	Passes the hairline Found also on the knees and elbow Well defined Slivery thick scales

Contact Dermatitis

- ***Definition:*** dermatitis results from contact with external materials.

Pathogenesis:

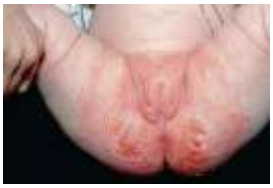
- Irritant vs. allergic : (cytotoxic vs type IV)
- Common irritants: detergent, acids, dust, burning chemicals, etc
- Common allergens: perfumes, hair dyes, nickels, leathers, metals, rubbers, latex, cosmetics, etc

IRRITANT CONTACT DERMATITIS

- All people will react to an irritant if applied in a high enough concentration
- At 1st exposure
- Ill defined like any eczema
- Patch skin test is negative
- Non-immune mediated

Common causes:

- Hands repeatedly exposed to water, cleansers (house wife dermatitis)
- Lip-licking habit – wetting and drying caused by saliva
- Napkin dermatitis (diaper)



Irritant diaper dermatitis with Hx of diarrhea

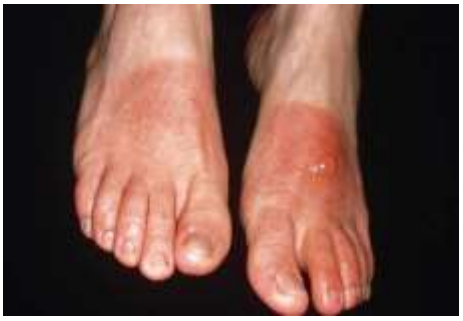
ALLERGIC CONTACT DERMATITIS

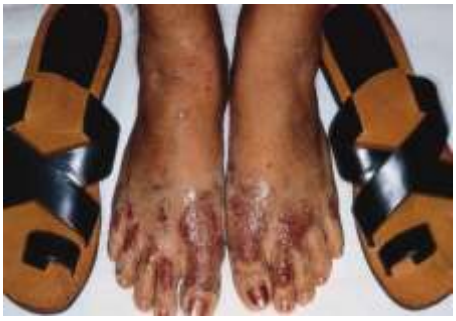
- Characteristics:
  - ❖ First exposure does not cause a reaction
  - ❖ Begins 24 h after subsequent exposure if already allergic (2nd exposure)
- Commonest: Nickel(watch , accessories , doorknob , keys etc..),latix, chromates, rubber, preservatives, topical Abx, topical cs
- Diagnosis: Skin patch tests positive, type 4 hypersensitivity (read at 48, 96 h)
- Type 4 Hypersensitivity Response
- Classically well demarcated/patterned
- Exposure can be infrequent (once a month)
- Patch testing is gold standard for diagnosis

demarcated/patterned , some areas are spared as no contact

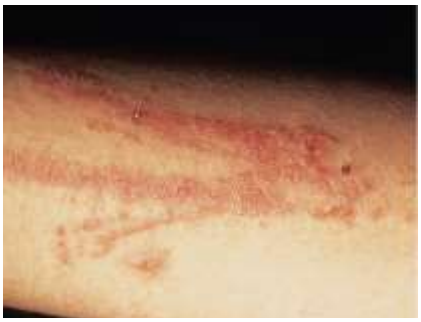
Shoe dermatitis Causes:

a. Rubber (most common)
b. Chromates (in leather)
c. Glutaraldehyde (in leather)
d. Adhesives

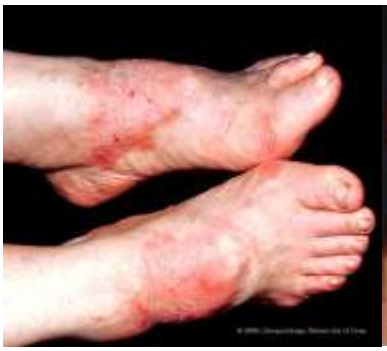




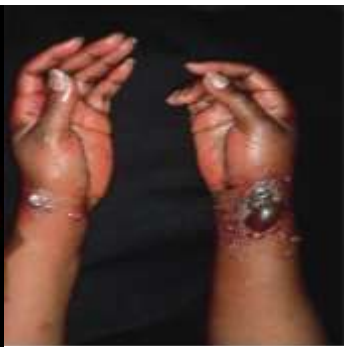
e. Dyes and henna produce three types of reactions allergic contact , or contact urticaria or severe anaphylaxis



Linearity, caused by a plant



Leather, dyes or metals can cause shoes allergy



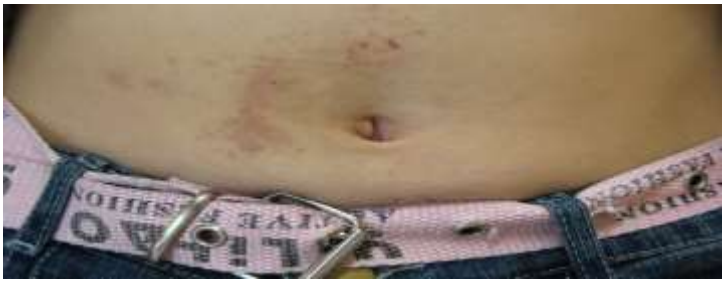
Poison Ivy/Oak/Sumac

Clinical features:

- Predilection sites: site of contact
- Distribution & configuration
- All are itchy

Management:

- Identification and removal of causes.
- Patch testing: if it is clear from the history no need to do it
  - for allergic contact dermatitis not for irritant
- Avoidance allergens
- Topical corticosteroid as anti-inflammatory

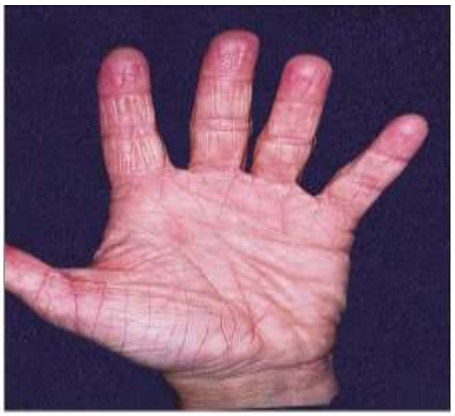


Allergic reaction can be away from the site of allergen

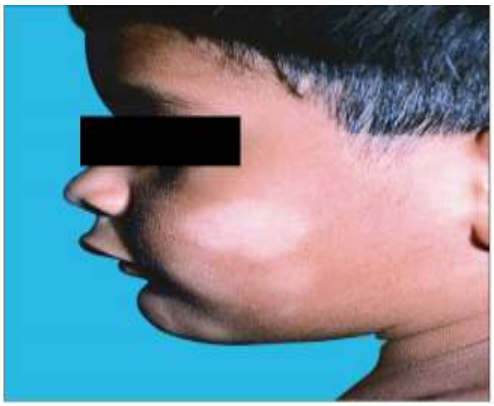
From male team work:
Cutaneous stigmata

- 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
  - Icthyosis
  - Hyper-linear palms

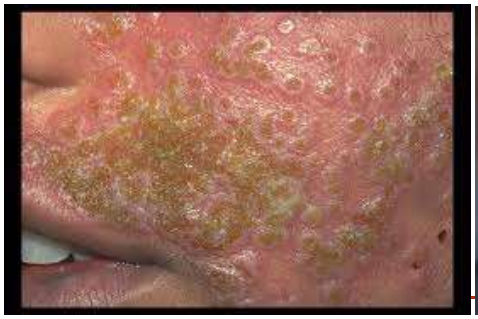
Note the Dennie–Morgan lines (folds) and central facial pallor.
They look tired and stupid.
In this case, it is acute.



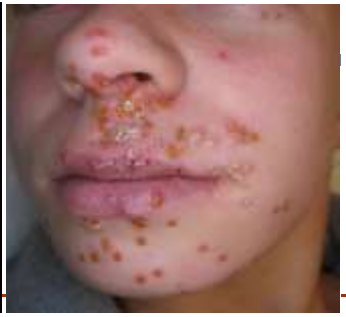
Hyper linear palms:
One of the reason is using a lot of corticosteroid, which causes atrophy



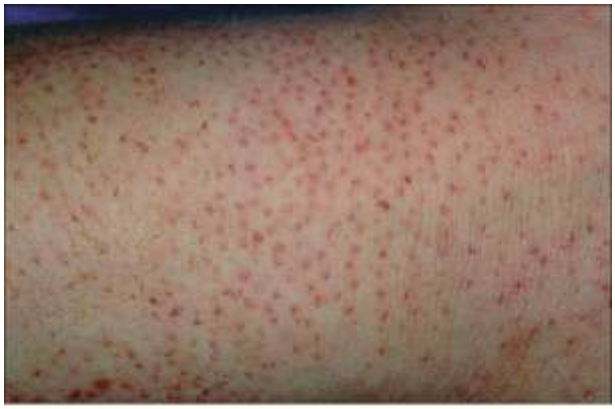
Pitryaisis Alba
Well defined hypopigmented patch.
Differ from vitiligo, is the color; vitiligo is depigmented.



Eczmetous herpitica
Severe case



Eczmetous herpitica:
Highly colored vesicles and eosions

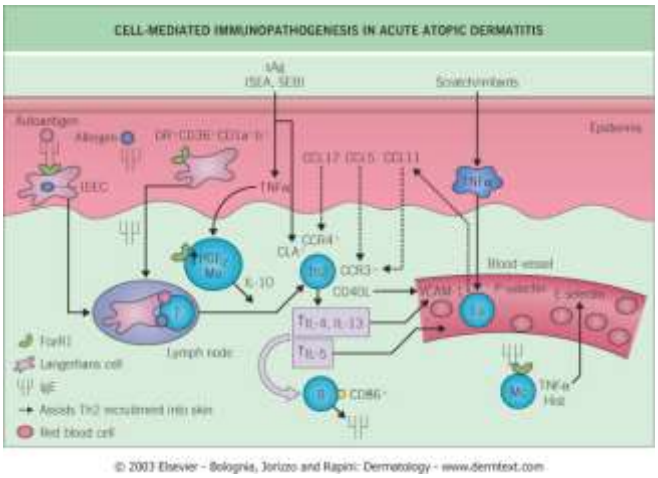


Keratosis pillaris.
Seen in atopic dermatitis, very common, seen in the outer arm, outer thigh or the buttocks.
Distance between each lesion is almost equal; it originated from hair follicles.

Infection

- Patients with atopic dermatitis can have infections
- Staph aureus – 90% of chronic lesions
- Eczema herpeticum – generalized herpes simplex infection "on top of eczema".
- Young children usually

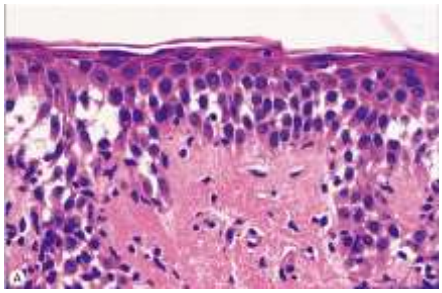
Immunology



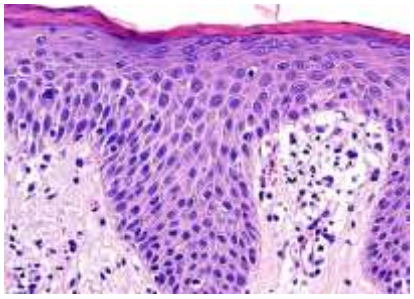
- T helper cell type 2 (Th2) dominance
- Th2 produces IL-4, 5, and 10
- IL-4 and IL-5 produce elevated IgE and eosinophilia
- IL-10 inhibits delayed type hypersensitivity
- Th2 maybe sensitive to house mites or grass pollen
- Monocytes produces elevated amount of prostaglandin E2 (PGE2)
- PGE2 reduces 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 suface receptors. These IgE are associated with atopic antigens, such as house dust mites

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

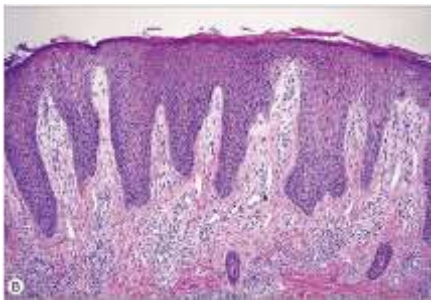
DIAGNOSTIC FEATURES OF AD AS SUGGESTED BY THE AAD CONSENSUS
Essential features: must be present, and if complete, are sufficient for diagnosis:
• Pruritus • Eczematous changes – Typical and age-specific patterns – Facial, neck, and extensor involvement in infants and children – Current or prior flexural 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



- Acute Dermatitis
- Less layer



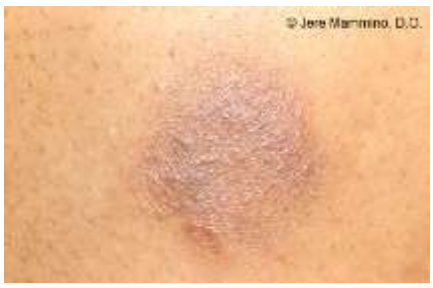
- Subacute Dermatitis
- Commonly misdiagnosed as tinea
- Edema and swelling

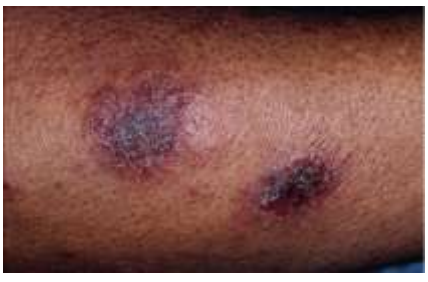


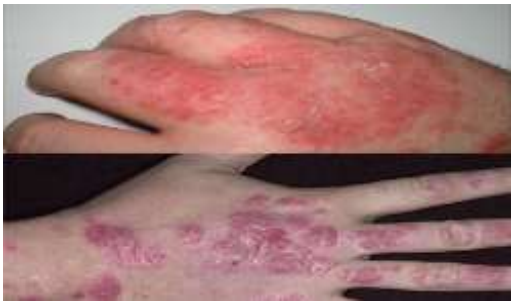
- Chronic Dermatitis
- More layer

Nummular Dermatitis:-

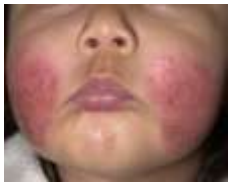
- Coin shaped patches and plaques
- Secondary to xerosis cutis
- Primary symptom itch
  - NOTICE the surrounding xerosis





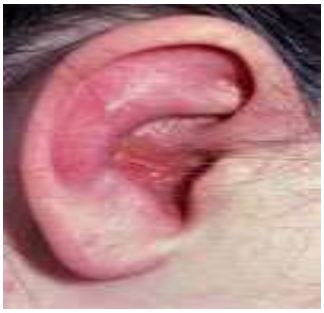


- ✓ Eczema not that defined
- ✓ psoriasis very well defined



Regional Eczema

A- Ear Eczema:

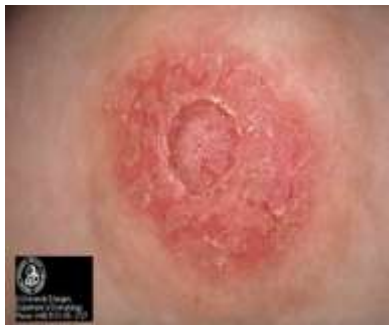


- Most frequently caused by seborrheic or atopic dermatitis
- Staph, Strep, or Psoeudomonas
- Earlobe is pathognomonic of nickel allergy
- You should add antibiotics

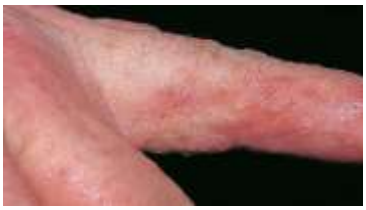
B- Eyelid dermatitis:

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

C- Nipple eczema:

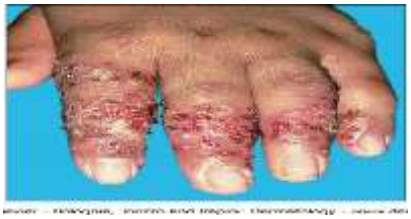


- Painful fissuring, seen especially in nursing mothers
- Maybe an isolated manifestation of atopic dermatitis
- If persist more than 3 month, especially if the patient is not married or not lactating, and/or unilateral, biopsy is mandatory to rule out Pagets disease



D- Hand eczema:

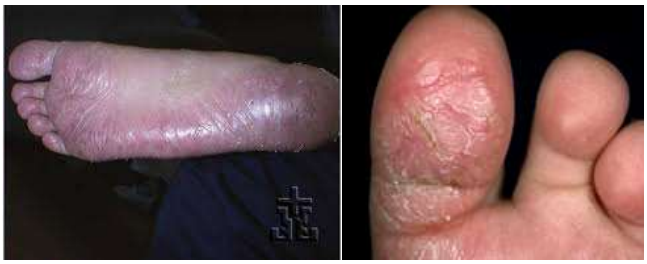
- Most common type of eczema in adults.
- Spongiosis histologically
- Irritant hand dermatitis- seen in homemakers, nurses. Resulting from excessive exposure to soaps
- Pompholyx- tapioca vesicles, on sides of fingers, palms,and soles
- Irritant versus allergic



Pompholyx eczema or (dyshidrotic eczema) , presents as vesicles

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

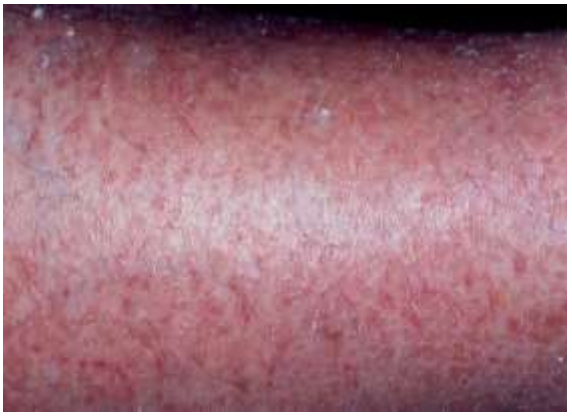


F- Diaper dermatitis

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.

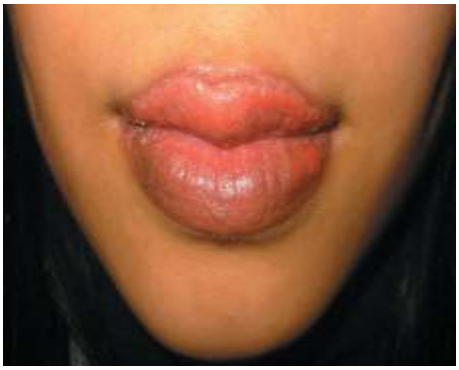
❖ *Xerotic Eczema*

- 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



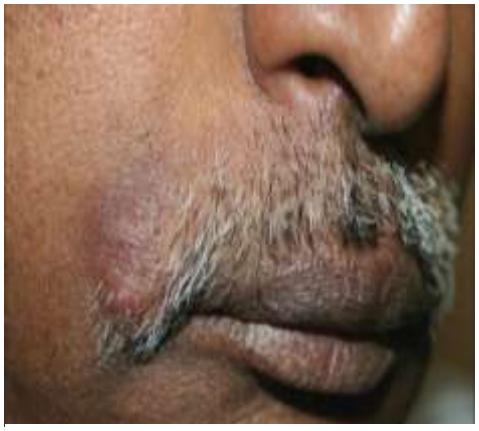
Irritant Contact Dermatitis

- Irritant vs allergic, If you do too much of an irritant you may have irritant dermatitisBut allergic dermatitis will come even with small or short exposer to the allergen.
- Prevention is key!

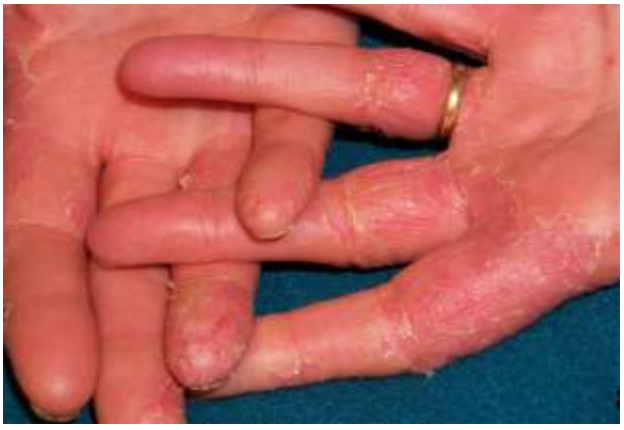


Tattoo caused the dermatitis

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



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

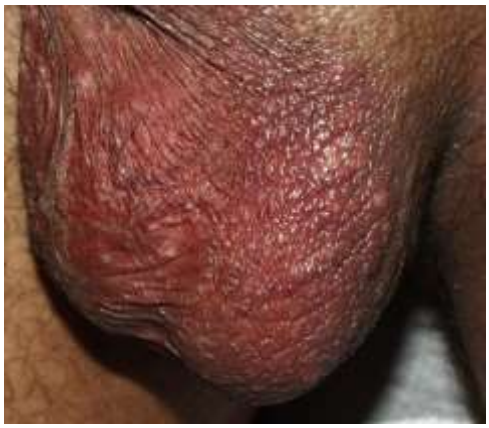


Irritant , housewife dermatitis presents with dry, itchy hands

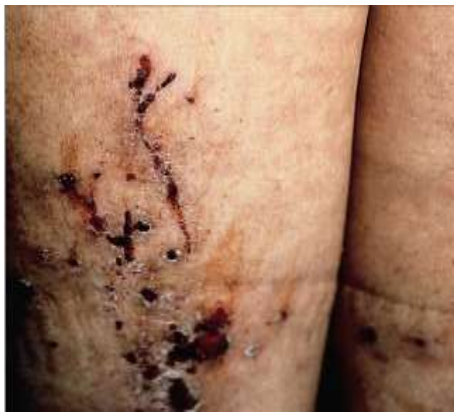
❖ *Neurodermatitis/Lichen Simplex Chronicus:*

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

Increased skin markings

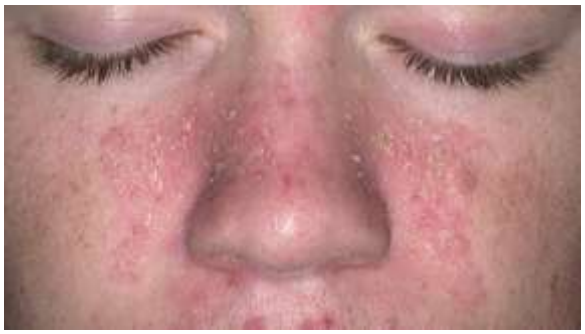


No fungus on the scrotum

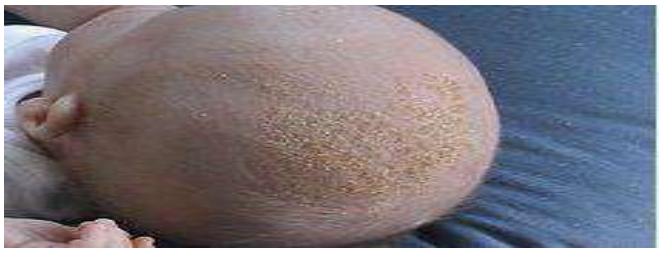


Prurigo simplex

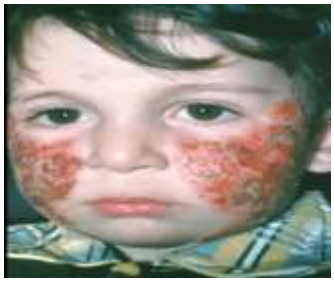
❖ *Seborrheic Dermatitis:*



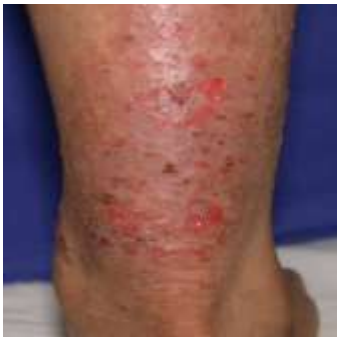
Seborrheic Dermatitis with yellowish crust



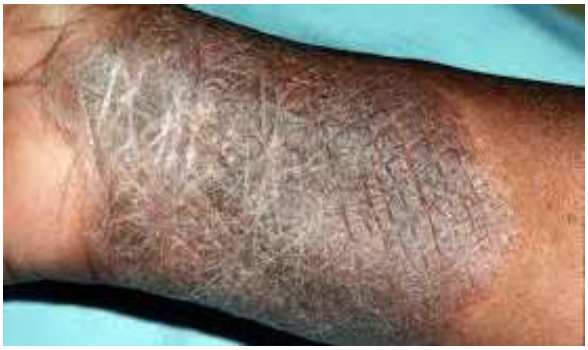
Cradle cap (infantile or neonatal seborrhoeic dermatitis): is a yellowish, greasy, patchy and scaly skin rash



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.

Summary:

- A group and spectrum of related disorders with pruritus being the hallmark of the disease, they also come with dry skin.
- Infantile Atopic Dermatitis Begin as itchy erythema of the cheeks
- T helper cell type 2 (Th2) dominance in atopic dermatitis
- In Nummular dermatitis, Coin shaped patches and plaques Secondary to xerosis cutis and the Primary symptom is itch
- In Nipple eczema, biopsy is mandatory to rule out Pagets disease
- Allergic contact dermatitis is a Type 4 Hypersensitivity Response, Classically well demarcated and Patch testing is gold standard
- Seborrheic Dermatitis Caused by yeast (Pityrosprum ovale), Oily greasy skin and Nasolabial folds infolvment

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.

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	