Derma Team 436

Eczema and atopic Dermatitis

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 management lines

Team leader: **Ghada Alhadlaq**
Members: **Yara Aldigi, Doa'a Abdulfattah**

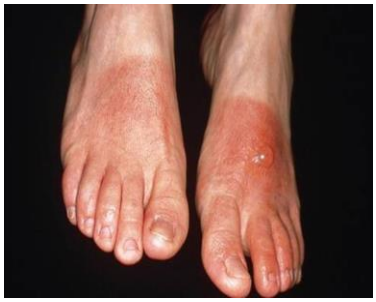
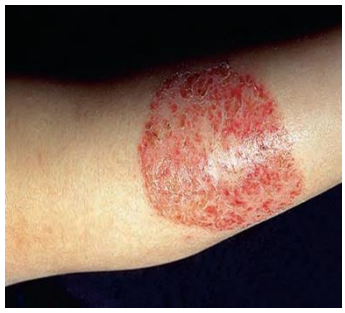
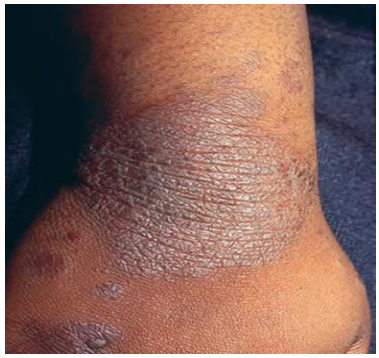
Revised by:
Template by group B

Before you start.. CHECK THE EDITING FILE

Sources: doctor's slides and notes + 436 group B team
[Color index: Slides| Slides| Important|doctor notes|Extra]

Eczema:

- **Definition:** inflammation of the skin
- What are the eczema phases?
  1. Acute eczema: Erosion[1], oozing, and vesicles
  2. Subacute eczema: redness, swelling, crust ± scale, and infection.
  3. Chronic eczema: Lichenification, dark pigmentation, and thick papules and plaques.

 Presence of vesicles (**Acute**).	 Scaly, crust, erythematous and not yet lichenificate (**Subacute**).	 Increase skin lines indicating lichenification (**chronic**)

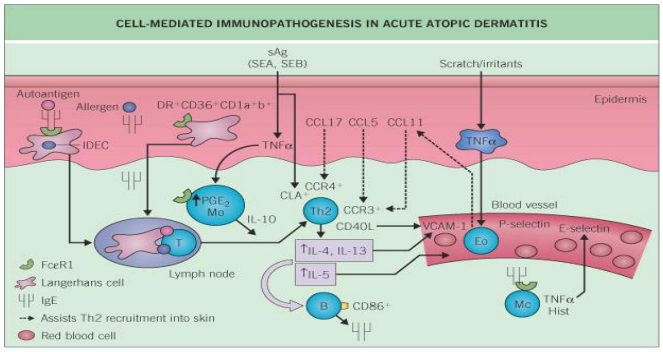
Atopic Dermatitis: حساسية تأتبية

- **Definition:** chronic relapsing itchy skin disease in genetically predisposed patients.
- **Associated diseases:** bronchial asthma, allergic rhinitis, allergic conjunctivitis (personal or family Hx) there's no causal relationship but they're associated.
- Incidence: up to 15-20 % in early childhood
- More in male
- Age of onset: Its mostly found in the pediatric age group
- 60%: first 2 months of life during infancy and not after birth immediately
- 30% : by age of 5 usually 4-5 around preschool age
- 10% between age 6- 20 years
- Improves in summer and flare in winter.

Pathogenesis:

- Through this cascade (first pic) we know the disease is associated with IgE and Th2
- The Autoantigen what starts the cascade is unknown
- In the epidermis, the Antigen presenting cell (Langerhans cell in skin) when it meet with the allergen they both react in the lymph node > activation of lymph node > activation of T cell > transformation into T helper 2 (Th2), which:
  1. increases IL-5: which then calls out to Eosinophils
  2. Increases IL-4 and IL-13: activates the Vascular-Endothelial system which results in Inflammation (WBC, Cytokines ....).

[1] Erosion (is superficial) vs ulcer (is deep)



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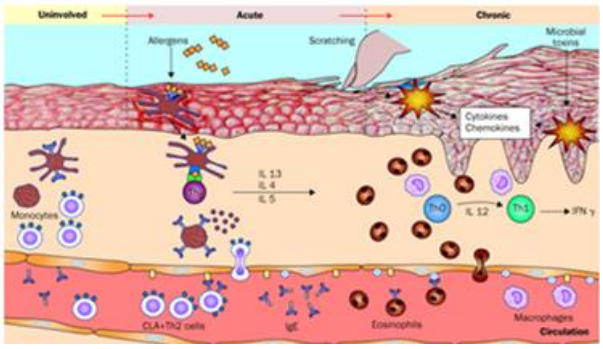


- So for treatment we need anti-inflammatory.

Cause:

- Atopy": genetic predisposition; there is protein in the skin called **Filaggrin**, genetic mutations in this gene results in dry skin.
- Skin barrier defect: Dry skin Xerosis (decrease production of moisturizing lipids; sebum).
- Immune dysregulation (The immune reaction of AD has a characteristic of both type 1 (increase in IgE) and type 4 (T cells)):

- T cell activation
- Ig E? (Epiphenomenon) such as asthma, urticaria, allergic rhinitis

Triggers:

- Allergy, increased tendency to certain allergens (Autoallergen)
- Infection: skin of pts with AD is colonized by S aureus. infection with S aureus often causes a flare of AD
- AD and Food! minor role Parents often ask about egg, chicken, and milk worsening the condition, but it doesn't have anything to do with w/AD on the basis of pathology. Maybe there is association, but no causation or activation!

Clinical variants: Focus on the age and distribution!!

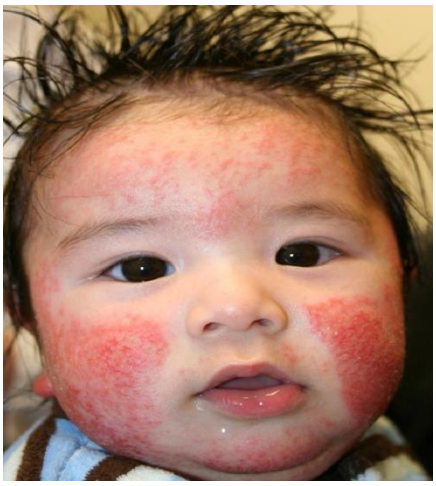
1. Infantile AD
2. Childhood AD
3. Adult AD

Infantile AD:

- Distribution
- Presentation

- Red skin, tiny vesicles on “puffy” surface. Scaling, exudate with wet crust and fissures.
- Diaper and scalp area is usually spared
- Demarcated; area between normal and abnormal skin
- Defined: we’re talking about the borders, for example psoriasis is well defined.
- To differentiate btw patches and plaques, remember that patches resemble melasma whereas in AD we have edematous and raised area of skin.
- Scale is a part of skin layers, while crust is a dried fluid.

- Well demarcated, Ill-defined, Erythematous Plaques, Crusty and Non-scaly
- Over the cheeks and forehead sparing the nasolabial fold

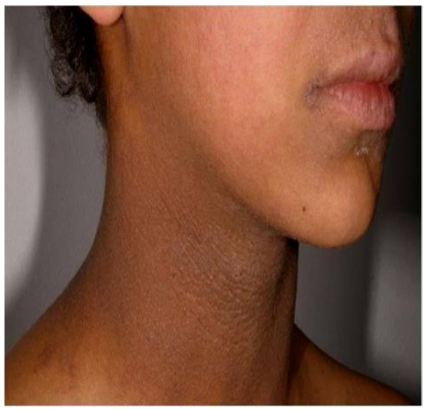


Childhood AD:

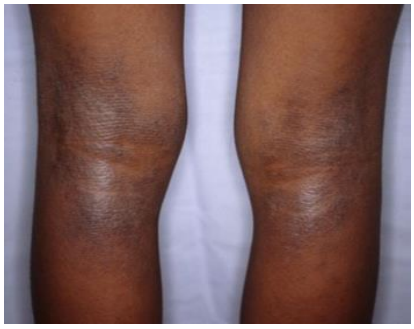
- Distribution
- Presentation

- Antecubital, popliteal fossae, neck and face.
- May be generalized
- Papular, lichenified plaques, erosions, crusts.

111-12 y/o boy with itchiness. He has Dark, Lichenified, and dry skin on the neck > indicating Childhood AD, check the antecubital and popliteal fossa (classical areas). Skin around the mouth is also dry.



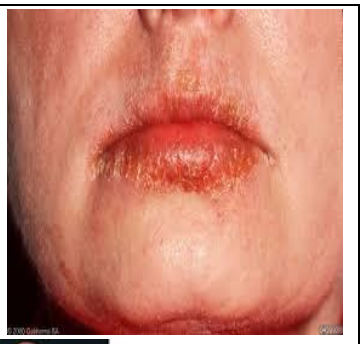
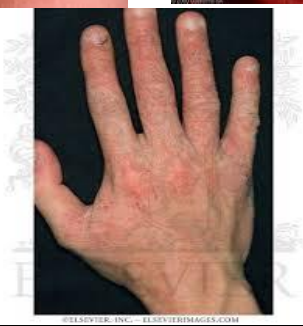
It can be acute or chronic, but mostly chronic due to lichenification.



Adulthood AD:

- Distribution
- Presentation

- Mostly flexural, face and neck.
- Usually localized over one area only like neck, hand or eyelids but May be generalized. May also involve classical areas (antecubital or popliteal).
- Lichenification and excoriations its dry so you'll know it from the morphology.

- AD is a clinical diagnosis; no investigations are needed.

Hanifin criteria

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 Dry lips
- Recurrent conjunctivitis
- Dennie–Morgan infraorbital fold Double eyelids
- Keratoconus
- Anterior subcapsular cataract
- Orbital darkening
- Facial pallor/erythema بياض حول الفم أو الأنف
- 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 Scratch of skin leaves a white line indicates dry skin.

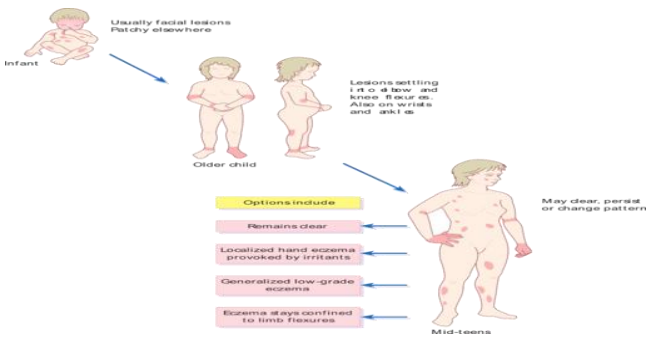
Updated criteria but we follow the first one.

Table 5.I. Revised criteria for the diagnosis of atopic dermatitis[4]

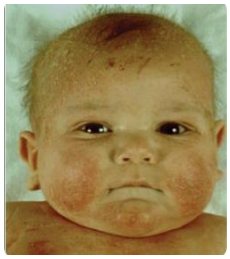
a. Must have:
- Pruritus

b. Plus 3 or more of the following:
- History of involvement of skin creases (front of elbows, back of knees, front of ankles, neck, around the eyes)
- History of a generally dry skin in the past year
- Personal history of asthma or hay fever
- Onset under the age of 2 years
- Visible flexural dermatitis

The diagnosis of atopic dermatitis in adults is primarily clinical; special investigations only contribute in identifying external aggravating factors.



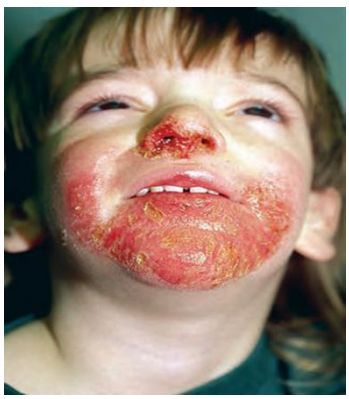
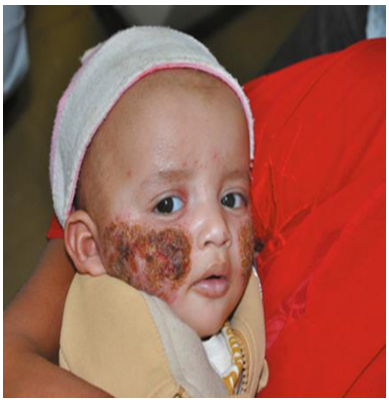
Prognosis:



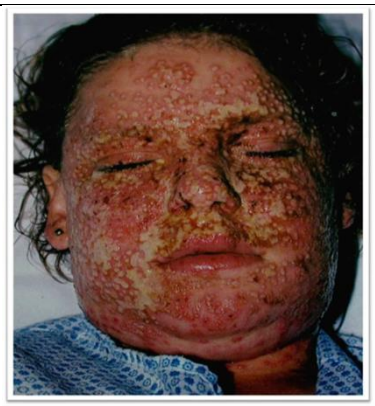
- Half of the cases improve by 2 years of age
- Most improve by teenage years
- <10% of patients have lifelong problems
- 30-50% will develop BA or hay fever

Complications:

1. Secondary infection the skin acts as a barrier so once it is diseased it becomes easily infected by Strep or Staph. Aureus and the skin will become crusty with yellow exudates. In *Impetigo* you see **honey-colored** crust skin and if not treated may lead to sepsis.
2. Eczema Herpeticum caused by herpes simplex virus: grouped vesicles, the patient seems very unwell and has a fever. Usually adults that are seen in the ER. Management: it's an EMERGENCY SO admit, IV acyclovir, Analgesia and call for an ophthalmologist.
3. Growth retardation due to chronic steroid use.
4. Psychological Missing school or work due to their appearance.

2ndry infection



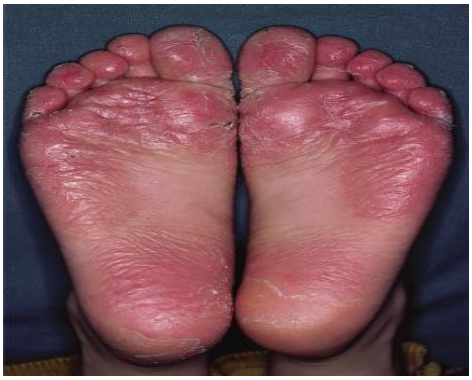
Eczema Herpeticum

Management: Important

- Education! Education! Education! Educating the patient about the disease, prognosis and management > they understand the chronic and relapsing nature of the disease > better compliance > avoidance of complications of topical steroids.
- Psychological support!
- Skin care: moisturizing the skin every 2h, anything that suits the patient, using moisturizers with no perfumes or preservatives may be best
- Avoid irritant like soaps
- Topical therapy: topical steroids mild or mid potent steroids for babies, Calcineurin inhibitors such as Tacrolimus, Pimecrolimus they have an anti-inflammatory effect and are good for areas prone to side effects of steroid and for maintenance since CS can't be used for long periods of time. Calcineurin inhibitors when used on an active disease may cause stinging.
- Antibiotics: (Antistaphylococcal drugs) if there is infection.

- Sedative antihistamine (Oral H1 antihistamine) to control itching and help sleep if the itchiness is severe and prevent baby from sleep. Histamine has no role in the pathogenesis of AD, giving non-sedative anti-histamines would be useless.
- Phototherapy also used in psoriasis, and vitiligo. Doesn't cause many s/e mainly dryness and tanning.
- Systemic therapy (if not improve with topical): steroids, Cyclosporin, Methotrexate, Azathioprine.
- Wool should be avoided
- Don't take long showers, avoid hot or cold water, use a lukewarm water, put the moisturizing immediately within 3 mint of showering, avoid bathing.

Juvenile planter dermatosis

	- Found in teens - Erythema and Fissures!! - A defect in the sweat glands (occlusion) - Caused by wearing shoes a lot - Subsides on its own - Management: Air it out and moisturize. - Usually no other lesions.

Seborrheic Dermatitis: الاكزيما الدهنية

- **Definition**: redness and scaling in regions where the sebaceous glands are most active as the face, scalp, presternal area and body folds. (oily, greasy, scaly, and erythematous). The distribution is different from AD!
- Very common chronic dermatosis.
- Age: infancy, puberty, old age
- More in male
- **Pathogenesis:**
- Increased Sebum! (seborrheic state)
- Tendency
- Pityrosporum ovale (Maalassezia furfur)[2] overgrowth, concentrate on this fungus as it's found in other diseases also (will be mentioned in another lecture).
- More in Parkinson, HIV/AIDS patients.

Clinical features:

Distribution:

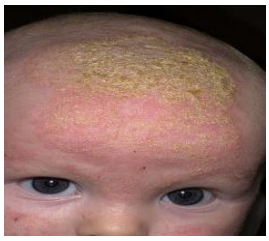
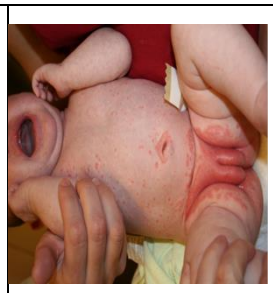
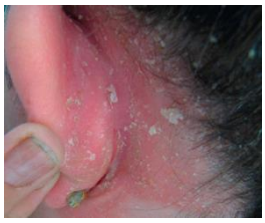
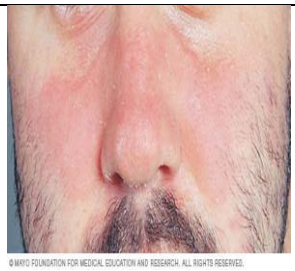
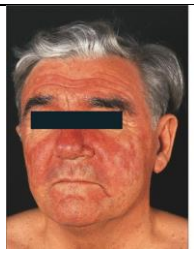
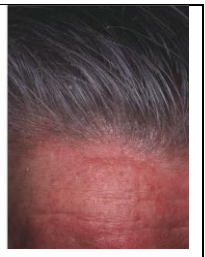
- Hairy are of head, cradle cap
- Face: forehead, nasolabial folds, glabella (على الأنف) and eyebrows.

[2] dimorphic normal flora in the skin; here it only causing eczema, but in other diseases it can cause infection.

- Trunk: DDx: PR vs pityriasis versicolor
- Body folds: axillae, groins, anogenital area, sub mammary areas, umbilicus and diaper area (infants)--- sharply marginated erythematous eruption, erosions and fissures.
- Genitalia: with yellow crust and psoriasiform lesions.

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

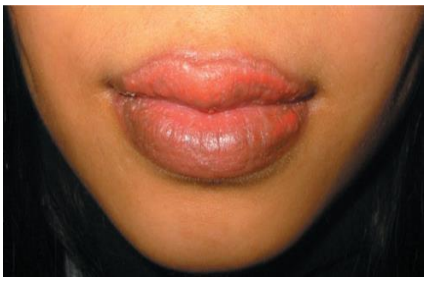
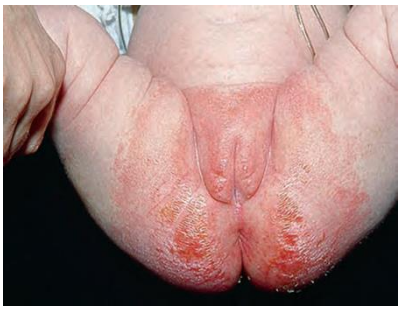
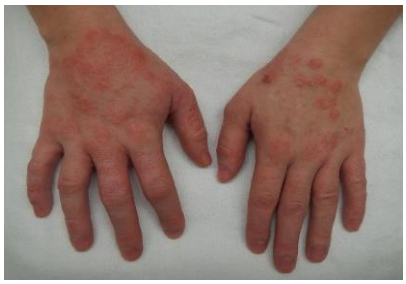
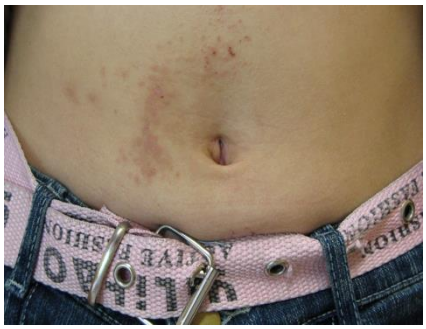
				 
Scaly, yellowish, greasy, oily, adherent plaque, with erythema beneath it. (cradle cap).	It may seem like irritant dermatitis or fungal infection (ddx), but here its shiny and erythematous and other area like axilla and scalp are involved.	Here you can see erythema which will help differentiate it from dandruff.	Ill-defined, oily, erythematous skin Distributed normally on areas with sebaceous glands.	It is not photo distribution; the nasolabial fold is involved. Unlike lupus, where the nasolabial fold is spared.

Management: doesn't subside but comes and goes depending on fungal activity.

- Scalp: all the shampoos are anti-fungal
  - Zinc pyrithione Shampoo
  - Selenium sulfide 2.5% shampoo
  - 2% ketoconazole shampoo
  - Low – potency glucocorticoid solution, lotion or gels.
- Skin:
  - Topical: antifungals, glucocorticoid, pimecrolimus
  - Combined therapy antifungal and hydrocortisone > Daktacort
  - You can use metronidazole instead of the steroids
  - Maintenance & recurrence

Contact dermatitis:

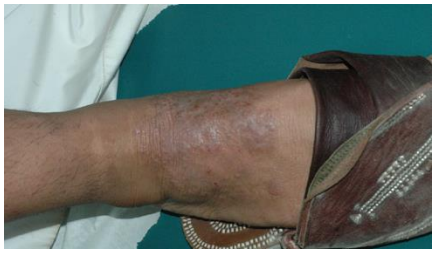
- Definition: dermatitis results from contact with external materials.
- Pathogenesis:
- Irritant (cytotoxic): not related to an immune reaction so anyone is susceptible to it
  vs. allergic (type IV): only genetically predisposed people are prone.
- Common irritants: detergent, acids, dust, burning chemicals, etc
- Common allergens: perfumes, hair dyes, nickels (e.g. watch), leathers (shoes), metals, rubbers (Gloves), latex (Materia in gloves), cosmetics, etc
- In allergic dermatitis; they may wear a watch and their allergy will cause itching in distant areas.

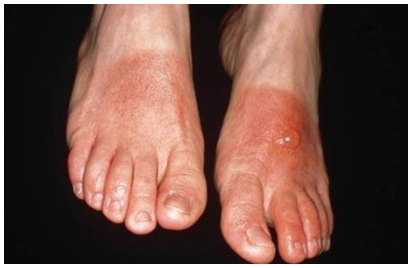
Irritant CD	Allergic CD
○ All people will react to an irritant if applied in a high enough concentration or to sensitive skin. ○ Only Localized itching. ○ At 1st exposure ○ Common causes: - Hands repeatedly exposed to water, cleansers - Lip-licking habit – wetting and drying caused by saliva - Napkin dermatitis  Irritant or allergic? its confined to the lips and there is fissure so it's irritant. However, with allergies it goes around the lips. Swollen due to saliva > lip-licking.  Ill-defined, erythematous scaly plaques and fissures. Due to stool or urine (cytotoxic material). - Chang the diaper + use cotton + Put zinc peroxide + small amount of topical steroids for a week or so. It's treatable when managed acutely.	○ It is caused by allergen that trigger type IV hypersensitivity reaction in a sensitized person. ○ May give Distance area itching. ○ Characteristics - First exposure does not cause a reaction T4 hypersensitivity (delayed) - Begins 24 h after subsequent exposure if already allergic ○ Commonest: Nickel[3], chromates, rubber, preservatives (مواد حافظة), topical Abx, topical cs (steroid). ○ Diagnosis: Skin patch tests (read at 48, 96 h).  Ill-defined, erythematous plaque. Due to gloves (latex). Chronic; whenever wearing the gloves there will be itching.  Due to the metal belt

- Patient with atopic dermatitis their skin is sensitive so they are prone to allergic or irritant contact dermatitis.

[3] المعدن جدا شائع؛ في الساعات، الاكسسوارات، مفاتيح ومقابض الأبواب، جوالات ميداليات ومقابض البلايستيشن

Shoe Dermatitis:



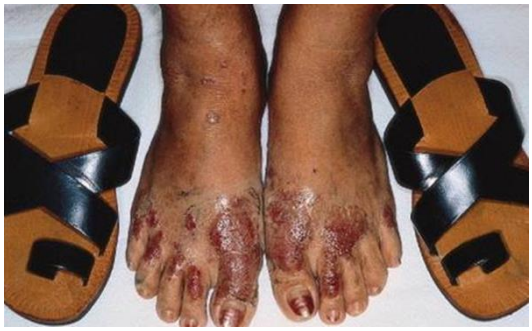


Causes:

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

Clinical Features:

- Predilection sites: site of contact
- Distribution & configuration
- In the pictures you can tell it was due to shoes because of its morphology, try to imagine what kind of shoes they were wearing.



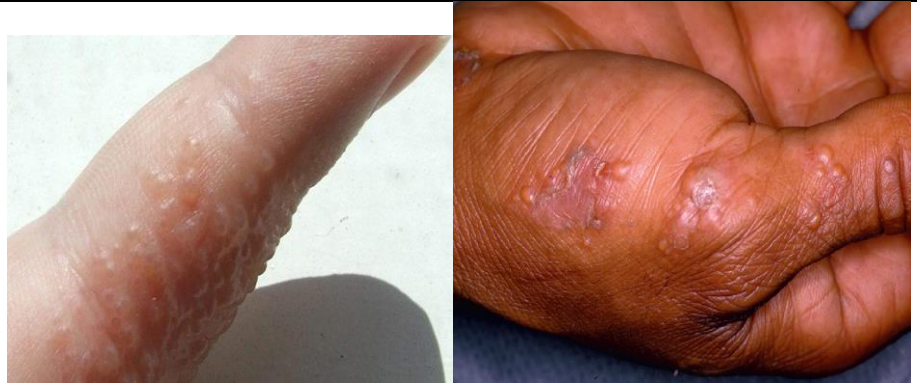
Management:

- Identification removal of causes.
- Patch testing: for allergic contact dermatitis not for irritant
- Avoidance allergens
- Topical corticosteroids for either irritant or contact dermatitis.

Dyshidrotic Eczema

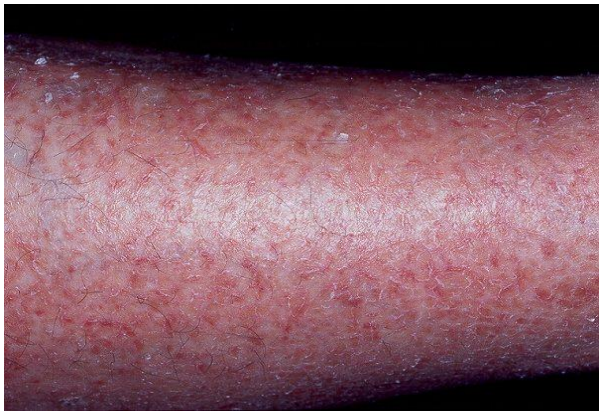
فقاقيع

-Associated with sweat glands
-Deep seeded vesicles
-Poor prognosis > systemic steroids



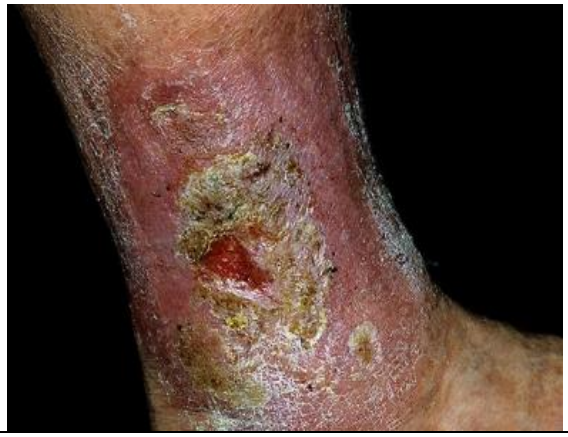
Asteotic Eczema

بقع اكزيما
Due to excessive dryness



Stasis eczema

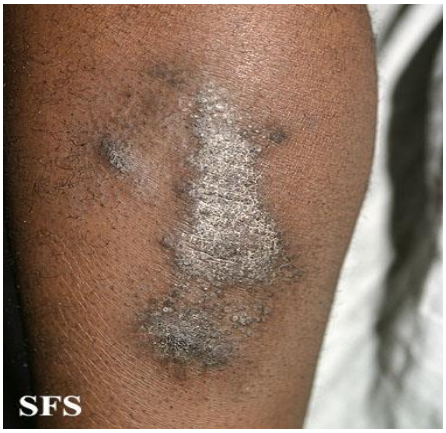
-Patient with varicose veins that develop venous ulcers on the lower medial aspect of the leg + eczema surrounding that area.
-Topical steroids but the vascular surgeon must treat it or else it will come back.



Lichen Simplex Chronicus

- Neurodermatitis
- Very chronic condition, self-induced through excessive itching (due to stress, anxiety or depression) > refer to psychiatry.

Lichen = thickened and lichenified plaque
Simplex chronicus = chronic



Questions:

1) **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

   Answer: C

2) **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.

   Answer: B

3) **One-year-old boy known to have atopic dermatitis presented to the emergency department with a one-day history of painful vesicles and crusted erosions over his face associated with fever. How will you treat this patient?**
   A.Systemic antiviral
   B.Topical steroid
   C.Oral antibiotics
   D.Oral Steroids

   Answer: A (eczema herpeticum)

4) **A-55-years-old female who works as a hairdresser presented with hand eczema. Which of the following best describes allergic and irritant contact dermatitis?**
   A.Patch test will be positive in irritant contact dermatitis
   B.Irritant contact dermatitis is caused by delayed type hypersensitivity reaction
   C.Allergic contact dermatitis occurs in previously sensitized individual
   D.Allergic contact dermatitis is non-immunologically mediated

   Answer: C

5) **UVB narrowband treating which of the following?**
   A. Melanoma
   B. Psoriasis
   C. Atopic dermatitis
   D. Urticaria

Answer: C

6) **Infant with dermatitis, diarrhea & hair loss . management?**
   A. Zinc supplement
   B. Oral antibiotics
   C. Topical steroids
   D. Systemic steroids

   Answer: A

7) **What would you recommend to the parents of a child who was diagnosed with atopic dermatitis ?**
   A. using moisturizers
   B. drinking fluids to prevent dehydration
   C. using topical steroids every day
   D. taking antibiotics to prevent infections

   Answer: A

8) **Which of the following is a major criterion in the diagnosis of atopic dermatitis?**
   A. Pruritus
   B. Facial pallor
   C. Dennie - Morgan folds
   D. Hypopigmented patches

   Answer: A