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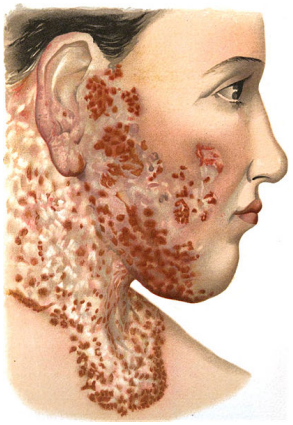
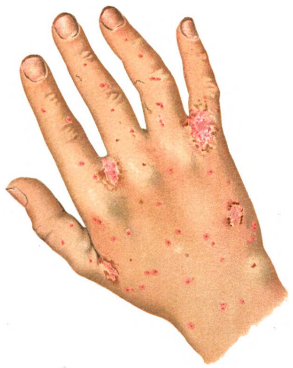
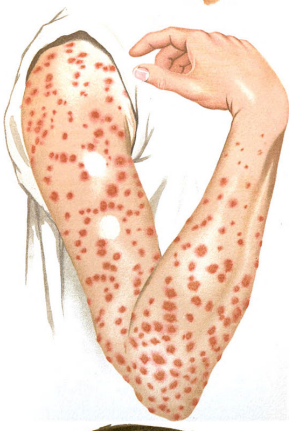
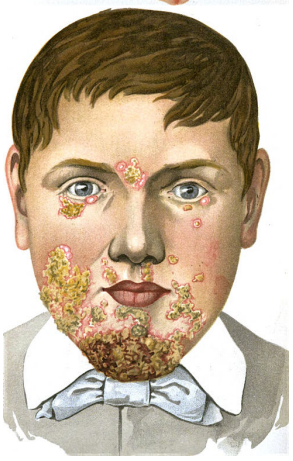


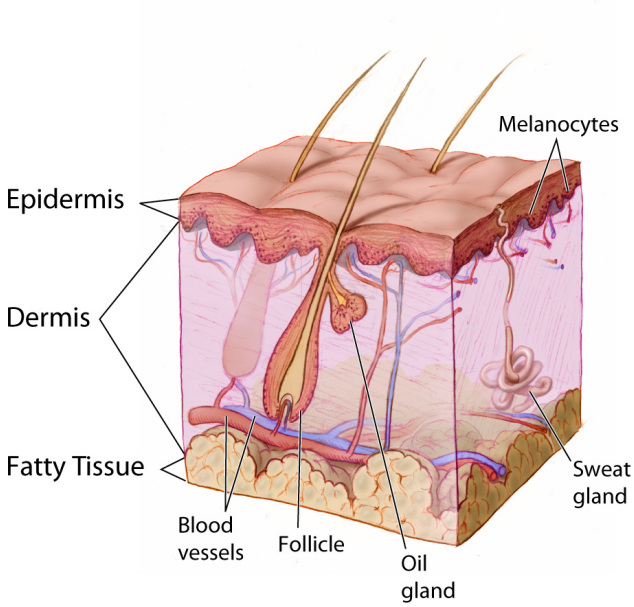






432 Teams

Dermatology



CUTANEOUS MANIFESTATIONS OF SYSTEMIC DISEASES

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

Done by: ***Fahad Al-Turki***

Reviewer: ***Name Al-Name***

Team Leader: ***Basil Al Suwaine***

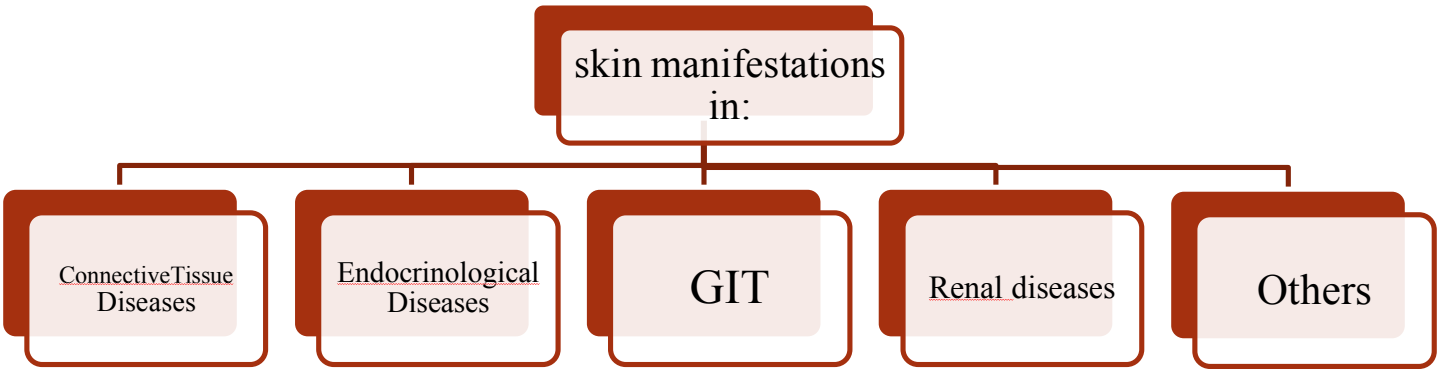
1

Objectives

1- To highlight the relation between skin manifestations and common systemic disorders.

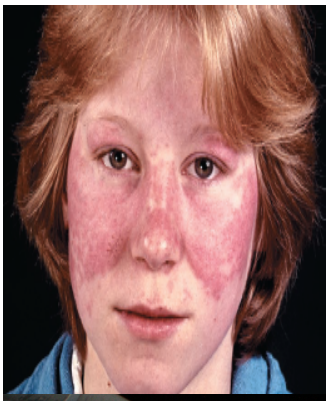
2- To understands various skin clues and their importance in investigating and managing different systemic diseases.

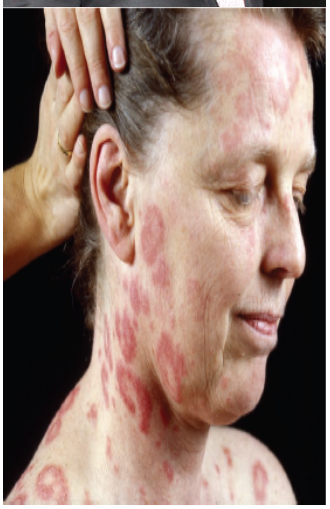
Mind map



Connective Tissue Diseases

1. Lupus:





- **SLE:** This serious acute multisystem autoimmune disease is based on polyclonal B cell immunity, with clinical manifestations that can include fever, skin lesions, arthritis, cardiac, CNS, renal and pulmonary disease. The disease is more common among females, black and young population. It can be manifested in the skin as :

✓ Facial Photosensitivity the most important feature in SLE.

✓ Butterfly Erythema see the pic.

✓ Serology: Positive ANA (antinuclear antibodies) and anti-ds DNA

In the MCQs you may get asked which of the following is a feature of SLE the answer can be any of the highlighted.

- **Discoid Lupus (DLE):** it's a distinct chronic type of lupus that affects only the skin (no systemic involvement), usually ANA negative. Its lesions round and scarring (scarring= if it was in the head it will prevent hair growth) over light exposed areas, mostly the face. It can develop to SLE**.**

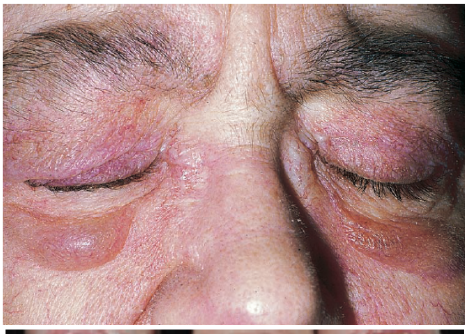
The musician Seal is a good example (pic 2)

- **Subacute Cutaneous Lupus (SCLE):** It doesn't cause scarring characterized by papulosqamous or annular (pic 3) presentation and photosensitivity. Usually ANA negative but anti Ro positive and it has mild systemic involvement.

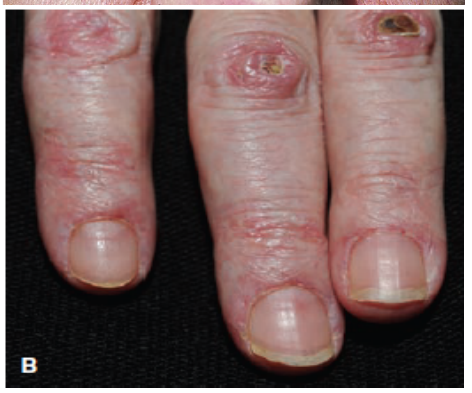
- **Neonatal Lupus:** Appears in the first month in a photo-distribution (over light exposed areas) , Papulosqamous and annular patterns. Congenital heart block (complete & permanent) usually needs pacemaker. Anti Ro positive.

- **Drug - Induced Lupus**: it can be induced by using some drugs like Procainamide, Hydralazine and others. Patients will be Antihistone positive

2. Dermatomyositis (Skin Rash + Muscle Weakness):



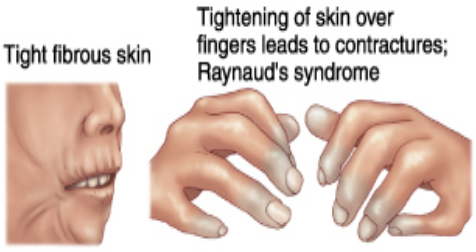
- Heliotrope : Violeceous color over the upper eyelids (pic) It can be found on the chest.
- Gottoron's papules: Flat- topped violaceous papules over knuckles of hands. (pic2)
- These two are the most important signs and they are common OSCE stations.



- Calcifications especially in kids It will feel it as hardness under the skin.
- Bilateral proximal muscle weakness (with high CPK, difficulties in climbing the stairs Positive EMG and Muscle biopsy)
- In adults (especially over 50 yrs)
- Associated with internal malignancy (e.g. GI, Prostrate, ovary & breast).

3. Scleroderma

- Thickened & tight skin
- Sclerodactyl in the fingers
- Face: loss of forehead lines
- beaked nose, small mouth, radial furrowing around the mouth)
- Telangectasia and calcification
- Systemic involvement: Lung, GI, Kidneys.
- Serology: Positive anti scl-70



- **CREST:** limited cutaneous (milder) form of systemic scleroderma.

✓ C=Calcification
✓ R =Raynand's
✓ E =Eosopheagal dysfunction
✓ S= Sclerodactasia
✓ T=Telangectasia
✓ Positive anti- centromere
✓ Less systemic involvement.

- **Morphea:** Localized scleroderma without systemic involvement. Firm,white patch of skin surrounded by violaceous ring.
- **En coup de sabre:** Linear scleroderma on the scalp and face which may give scarring alopecia + it may affect muscle or even bone.

The next table is imp. Serology is always an area of Qs:

Antibody testing for CTD (table)

Antibody	Clinical significance
ANA	Screening for SLE and other CTD
Anti-Centromere	Marker for CREST
Anti-histone	Marker for Drug-Induced Lupus
Anti-Smith	Specific for SLE
Anti - RNP	For MCTD
Anti - Ro	Neonatal Lupus, SCLE
Scl - 70 antibody	For Scleroderma
Anti ds- DNA	For SLE

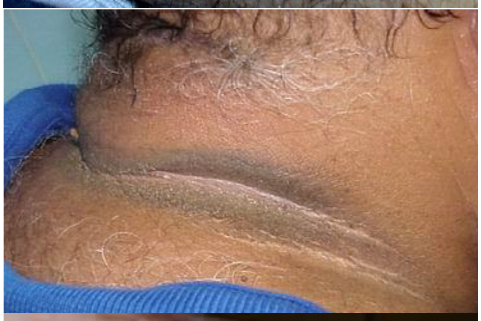
Endocrinological Diseases

1.Diabetes mellitus:

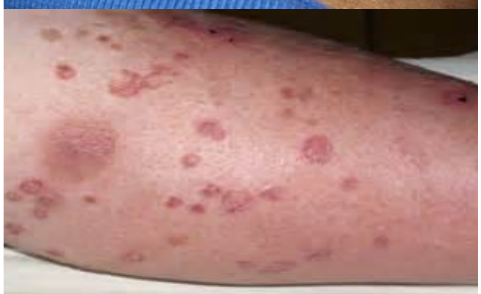
- **Skin tags** (soft fibroma):

  Small, pedunculated, soft papules on the eyelids, the neck, and the axillae.(skin folds)
  Mostly associated with obesity and insulin resistance.
  If numerous usually on top of acantohsis nigricans.

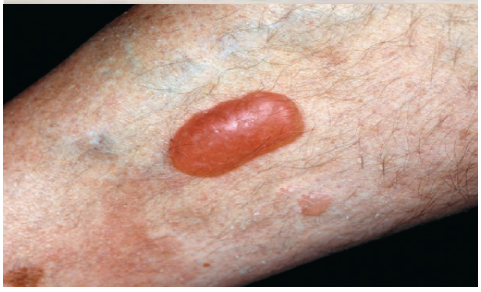
- **Acanthosis nigricans** :
  Hyperpigmented, velvety plaques in body folds.
  Increased insulin, which binds to insulin-like growth factor receptors to stimulate the growth of keratinocytes and dermal fibroblasts.
  Treatment is by weight reduction and decrease insulin resistance. (pic2)



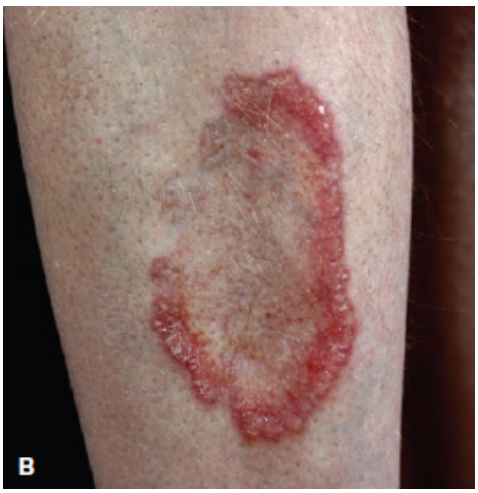
- **Diabetic dermopathy**
  Very common. Atrophic, hyperpigmented papules and plaques on shins. Men are affected more often than women. Possibly related to diabetic neuropathy and vasculopathy. No effective treatment, but it does improve with diabetic control.(pic3)



- **Bullous diabeticorum**
  Rare, Spontaneous blistering of the hands and feet.
  Heals without scaring.(pic4)



- **Thickening of skin**
  Thickening of the hands with tiny papules on fingers and stiff joints.Pebbled knuckles (or Huntley papules) are multiple minute papules, grouped on the extensor side of the fingers, on the knuckles, or on the periungual surface.Generalized asymptomatic thickening of the skin (diabetic stiff skin).Scleredema on upper back and neck.



- **Necrobiosis lipoidica diabeticorum**

Yellow atrophic plaques on the shins.
Sometimes they ulcerate.Histopathology shows tiered granulomatous reaction. Treatment with topical, intralesional steroids, tacrolimus, phototherapy, cyclosporine, and rarely surgery. (pic)

- **Bacterial and fungal infections**

✓ Pyodermic infections such as impetigo, folliculitis, carbuncles, furunculosis, ecthyma, and erysipelas can be more severe and widespread in diabetic patients.

✓ Erythrasma, caused by Corynebacterium minutissimum mostly on axillae and groin.

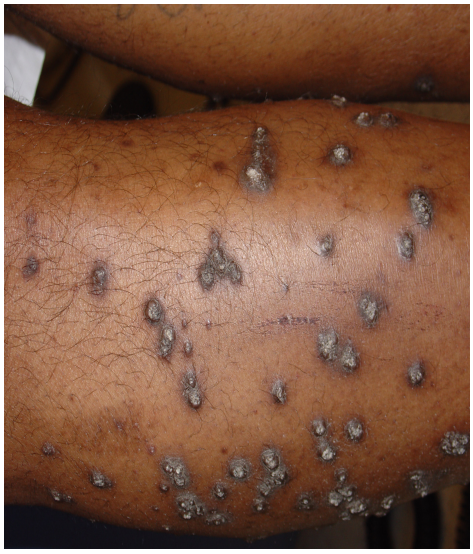
✓ Malignant otitis externa, often caused by Pseudomonas aeruginosa.

✓ Tinea pedis (can lead to cellulitis) and onychomycosis.

✓ Candidal infections like perleche on corners of mouth, and on vulva.

✓ Rare infections like mucormycosis by Phycomycetes and anaerobic cellulitis by Clostridium species.

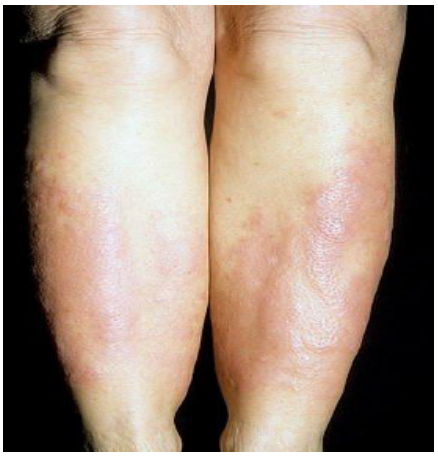
✓ Diabetics are generally liable to infections

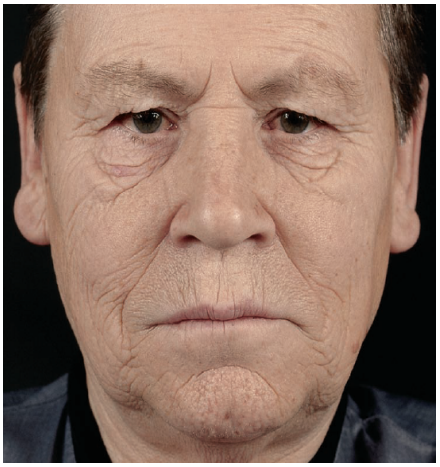


- **Perforating dermatosis**

Pruritic hyperkeratotic papules on the legs and trunk.
Histopathology shows transepidermal elimination of collagen and/or elastin.
Common in patients with diabetes and renal failure.
treatments include topical keratolytics, phototherapy, topical and systemic retinoids, topical and intralesional steroids, oral antihistamines, and cryotherapy.(pic)

2.Thyroid Disorders:

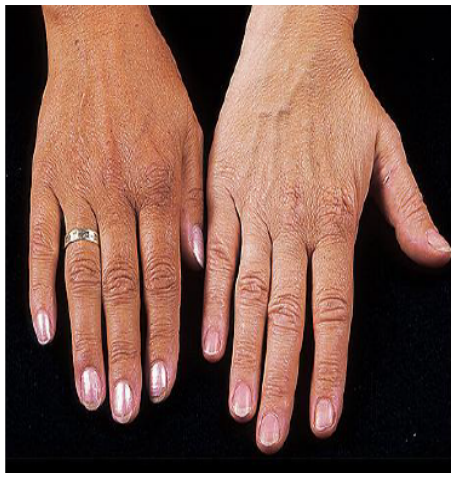




- **Hyperthyroidism**
  - ✓ Pretibial myxedema: the most characteristic features of thyrotoxicosis appearing as shiny waxy papules and plaques having orange-skin appearance on the chin of the tibia.(pic)
  - ✓ Warm skin and increased sweating.
  - ✓ Pruritus
  - ✓ Premature hair graying.
  - ✓ Alopecia with fine soft thinned scalp hair.
  - ✓ Hyperpigmentation or vitiligo.
  - ✓ Brittle nails.

- **Hypothyroidism**
  - ✓ Cold, pale and dry skin.
  - ✓ Pruritus.
  - ✓ A yellowish hue to the skin due to carotenaemia.
  - ✓ Slow growing ridged and brittle nails.
  - ✓ Delayed wound healing.
  - ✓ Myxedema: Dry, pale skin; thinning of the lateral eyebrows; puffiness of the face and eyelids; increased number of skin creases; dull, expressionless, beardless facies.(pic2)

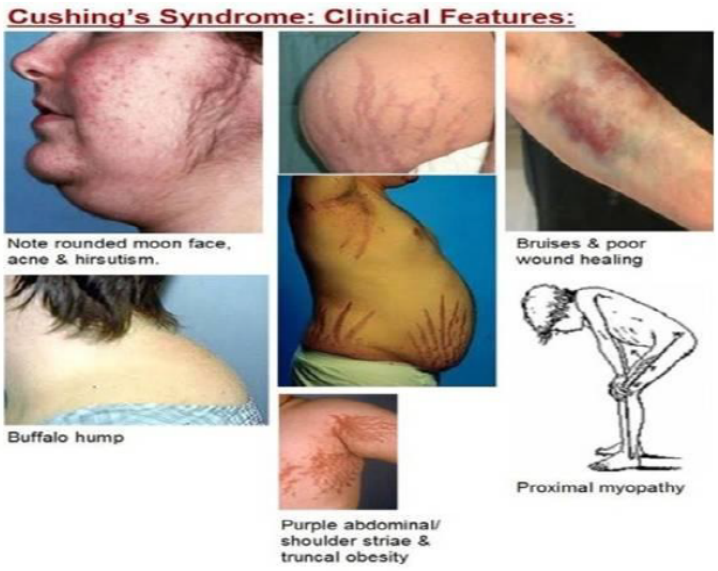
3.Addison's disease



- ✓ Hyperpigmentation: at Sun exposed skin, sites of trauma, axillae, palmar creases, old scars ,nevi and mucous membranes .(pic3)
- ✓ Adrenocortical hypofunction.
- ✓ Diffuse pigmentation on skin and mucous membranes. When u see a patient complaining of hyperpigmentation you need to check there mucous membrane and if it's positive for pigmentations you must investigate Addison's.
- ✓ Melanocytes stimulation by ACTH , the cause for hyperpigmentation.

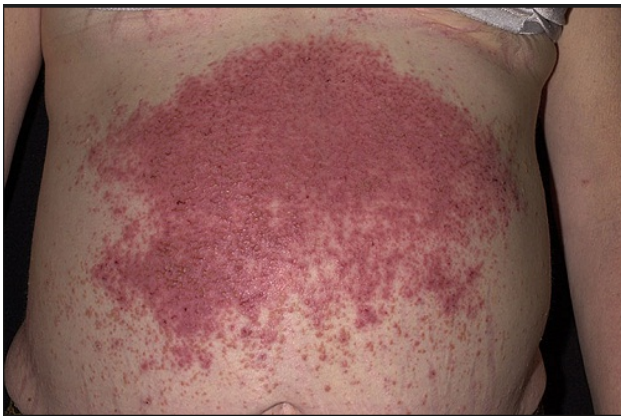
4.Cushing's syndrome

- ✓ Caused by prolonged exposure to high levels of plasma glucocorticoid.
- ✓ Adrenocortical hyperplasia.
- ✓ Benign or malignant adrenal tumours.
- ✓ Ectopic ACTH syndrome – secretion of ACTH by malignant or benign tumours arising in structures other than the pituitary or adrenal glands.
- ✓ Exogenous steroid administration
- ✓ Acne and hirsutism.
- ✓ Clitromegaly and male pattern alopecia.
- ✓ Striae.
- ✓ Easy bruising and purpura.
- ✓ Moon face and buffalo hump with fat redistribution.
- ✓ Telangectasia on face.
- ✓ Poor wound healing.



Gastrointestinal Diseases

1.Dermatitis herpetiformis



A. Definition:

- ✓ **Grossly:** Small severely pruritic vesicular lesions found in a symmetric distribution of both upper and lower extensor surfaces, buttocks and the scalp.
- ✓ **Microscopically:** direct immunofluorescence finding is granular deposition of IgA within the dermal papillae.

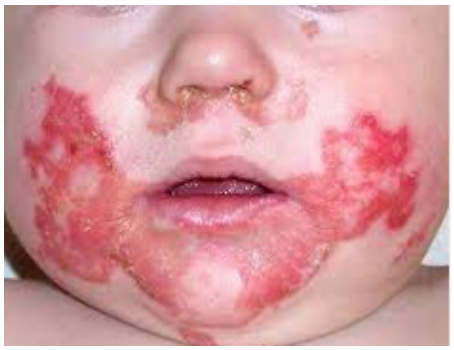
B. Etiology: Celiac disease (also known as gluten-sensitive enteropathy and celiac sprue) are caused by the inability to absorb gluten from the diet.

C. Treatment: 1-gluten-free diet. 2-dapsone.

2.Acrodermatits enteropathica

A. Definition: a rare autosomal recessive disorder that impairs dietary zinc absorption in the jejunum and ileum.

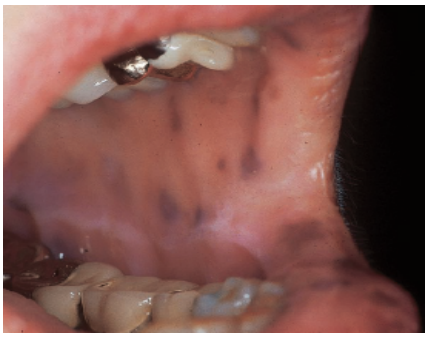
B. Clinical presentation:



- ✓ Presents in infants several weeks after breastfeeding is discontinued.
- ✓ Characterized by diarrhea, inflammatory rash, and hair loss.
- ✓ Scaly, erythematous patches and plaques similar to atopic dermatitis, but progress to vesicles, crusts, erosions, and pustules on acral areas, perioral and perianal (common you have to check it) areas.

C. Treatment: Zinc supplementation for life.

3.Peutz Jeghers syndrome



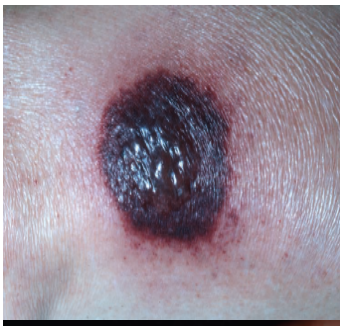
A. Definition: autosomal dominant disorder characterized by mucocutaneous hyperpigmentation together with GI polyposis.

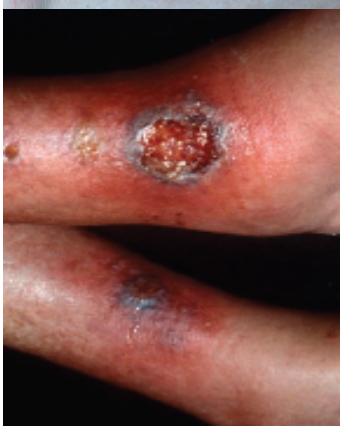
B. Clinical presentation:

- ✓ The skin findings first appear in infancy or early childhood and involve brown macules on the lips and buccal mucosa. (pic)
- ✓ multiple hamartomatous polyps occurring most commonly in the jejunum

C. Prognosis: 2-3% of patients develop GI carcinoma during their lifetimes.

4.Pyoderma gangrenosum





A. Definition: a painful, ulcerative lesion with a well-defined, undermined violaceous border. 'Neutrophil-Mediated Diseases'.

B. Clinical presentation:

- ✓ Starts as small (hemorrhagic) pustules (pic1), which subsequently burst and expand to form the larger noninfectious ulcer.(pic2)
- ✓ Positive pathergy test. You prick the skin and after 3-6 H the patient will develop pastule and this pastule will converted into ulcer.We usually avoid this test
- ✓ Mostly associated with ulcerative colitis. Also with Crohn's disease, rheumatoid arthritis, and leukemia.

C. Management: Surgery is contraindicated.

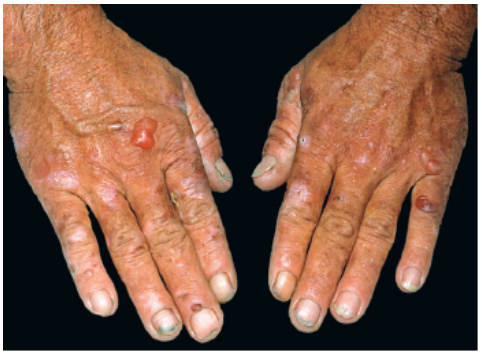
5.Porphyria cutanea tarda

A. Definition: most common porphyria occurring in adults.
It is an inherited as autosomal dominant disorder resulted from accumulation and increased excretion of porphyrins (a part of the hemoglobin molecule.).

B. Etiology: It results from the decreased activity of the enzyme Uroporphyrinogen decarboxylase (enzyme involved in hemoglobin synthesis pathways).

C. Clinical presentation:

- ✓ Skin photosensitivity with increased skin fragility, facial hypertrichosis (increased hair growth), blisters, scarring with milia formation, and skin hyperpigmentation on the hands and other sun-exposed areas.(pic)
- ✓ Associated with Hep C virus.



D. Treatment:

- ✓ By removal of possible triggers, including iron supplementation, alcohol, and estrogens.
- ✓ By phlebotomy is the process of making an incision in a vein with a needle to remove the blood.
- ✓ Hydroxycholorquine.

6.Hemochromatosis

A. Definition: A disorder of iron overload leading to excess deposition in multiple body organs.

B. Clinical presentation:

- ✓ Metallic gray or bronze-brown color that is generally diffuse.
- ✓ Skin atrophy
- ✓ Ichthyosis.(thickened, rough, fish scale skin)
- ✓ Partial hair loss (most often in the pubic region).
- ✓ Koilonychias.(spoon-like fingers)

C. Prognosis: Cirrhosis may develop, and might lead to hepatocellular carcinoma.

D. Treatment: Involves phlebotomy and chelating agents.

7.Liver Cirrhosis:

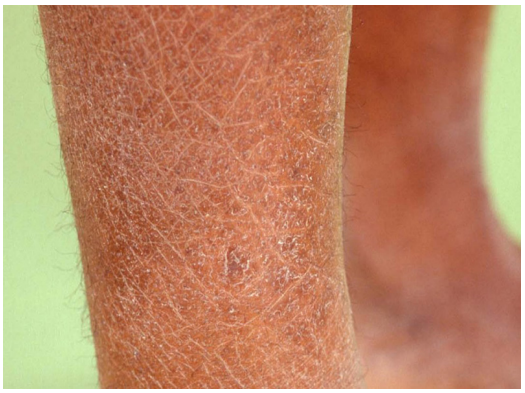
Clinical features:

Some of the associated abnormalities are the following.

- Pruritus. This is related to obstructive jaundice andmay precede it
- Pigmentatio With bile pigments and sometimesmelanin.
- Spider naevi :These are often multiple inchronic liver disease.
- Palmar erythema.
- White nails. These associate with hypoalbuminaemia.
- Porphyria cutanea tarda .
- Xanthomas: In primary biliary cirrhosis .
- Hair loss
- Generalized asteatotic eczema: It mayoccur in alcoholics with cirrhosis who have becomezinc deficient.

Renal Diseases

- **Xerosis:**

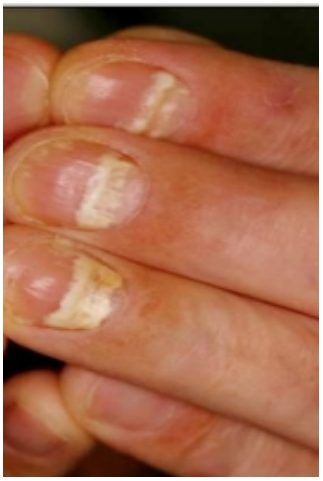


A-Definition: It is abnormal dryness of the skin, mucous membranes, or conjunctiva . Xerosis occurs in 50-92% of the dialysis population.
B- Etiology: The exact cause of xerosis in ESRD remains unknown.
C- Management: Many patients respond to routine use of emollients.

- **Pruritus:**

A. Definition: Itch, is a sensation that causes the desire or reflex to scratch.
B. Etiology: Uremia is the most common metabolic cause of pruritus.
C. Clinical presentation: Pruritus affects 15-49% of patients with chronic renal failure and 50-90% of the dialysis population.
✓ Excoriations
✓ Prurigo nodularis (It is a skin disease characterised by pruritic (itchy) nodules which usually appear on the arms or legs)
✓ Lichen simplex chronicus (See Eczema Lecture)
D. Treatment: include sedating antihistamines, emollients, phototherapy, thalidomide, and gabapentin.
E. Prognosis: Pruritus typically resolves after transplantation.

- **Half and half nails:**



A. Definition: Proximal portion of the nail with white color and the discoloration of the distal half (red, pink, or brown), with a sharp demarcation (line f between the two halves).
B. Clinical presentation: It occurs in around 40% of patients on dialysis. Usually involve fingernails (not the toes).
C. Prognosis:
It typically resolves after transplantation.

- **Nephrogenic systemic fibrosis:**

A.Definition: It is a disease of fibrosis of the skin and internal organs reminiscent but distinct from scleroderma or scleromyxedema.
B. Etiology: gadolinium might have a role in the pathogenesis of this condition.
C.Clinical features:

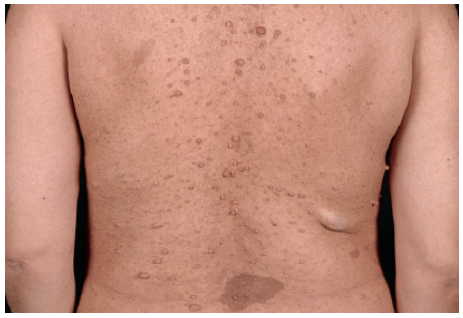
- ✓ Nephrogenic systemic fibrosis mostly seen in ESRD and dialysis patients.
- ✓ Presents as thick, indurated plaques on the extremities and the trunk similar to scleroderma.

D. Treatment:

- ✓ immunosuppressive agents.
- ✓ phototherapy.
- ✓ topical steroids.
- ✓ Retinoids.
- ✓ Photophoresis.

Neurocutaneous Disorders

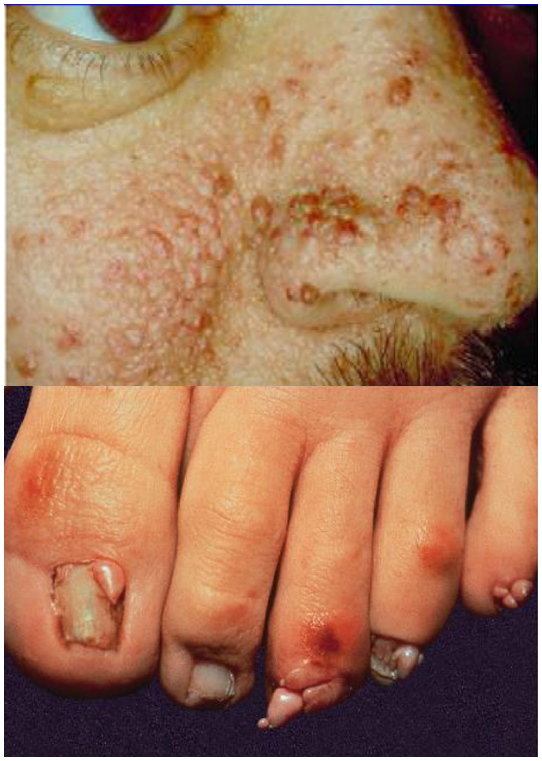
1.Neurofibromatosis:



A. Clinical features:

- ✓ Autosomal dominant
- ✓ Café-au-lait macules(light brown)(pic).
- ✓ Neurofibromas(soft pink or skin- colored papules and nodules).
- ✓ Axillary freckling. (Crowe sign), the presence of the macules on the axillae.
- ✓ Optic glioma.
- ✓ Lisch nodules (iris hamartoma, seen by slit-lamp examination).
- ✓ Associated with Neurological complications e.g. tumors, seizures and mental retardation.

2.Tuberous Sclerosis (Epiloia) :



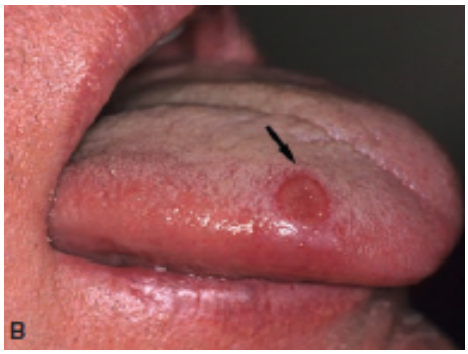
- ✓ Epi = Epilepsy
- ✓ v Loi = Low intellegence
- ✓ a= adenoma sebaceoum

- **Skin features:**

- **Adenoma sebaceoum (anigofibroma):** red papules around the nose and on chin.(pic)
- **Ash-leaf hypopigmention:** oval area of hypopigmention This is the earliest sign of TS.
- **Periungal fibroma:** multiple papules & nodules around the nail (pic2)
- **Shagreen patch:** skin colored plaque on the trunk with "orange-peel" surface.

Others

Behcet's Syndrome:



- ✓ Oral ulcer (the most common).(pic)
- ✓ Genital ulcers (mainly scrotal).
- ✓ Iritis and arthoropathy.
- ✓ May have CNS involvement.

Scurvy :

- ✓ Vitamin C deficiency
- ✓ Bleeding gums
- ✓ Can cause teeth loss (permanent complication)
- ✓ Easy bruishing
- ✓ Diagnosis : Low ascorbic acid (Vit-C) level in Leukocyte

Pellagra:

- ✓ Nictonic acid deficiency
- ✓ 4 "D"s
- ❖ Dermatitis (Photodermatitis)
- ❖ Diarrhea
- ❖ Dementia
- ❖ Death (if not treated).

It's unlikely to see a pellagra case nowadays, I have not seen one during my practice.

Hyperlipidemia:

- **Xanthelasma palpebrarum**

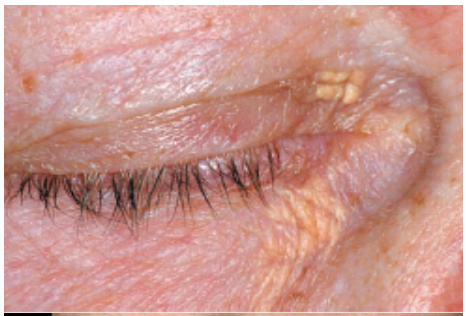
A-Definition: It is a yellow plaque that occur near the inner canthus of the eyelid and are often associated with atherosclerosis, dyslipidemia, and coronary artery disease.

B- Clinical presentation:

- Xanthelasma palpebrarum is the most common of the xanthomas(pic)
- It is asymptomatic
- bilateral and symmetric
- Can be associated with any type of primary hyperlipoproteinemia .Also, could be without hyperlipidemia.

C- Management:

- topical trichloroacetic acid.
- Electrodesiccation.
- laser therapy.
- surgical excision.

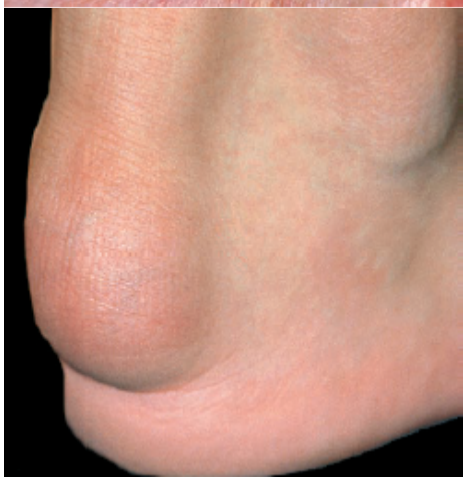


- **Tendinous xanthomas:**

A-Definition: It is a Cholestrol deposition and clinically manifested by papules and nodules found in the tendons of the hands, feet, and Achilles.

B- Clinical presentation:

- It is commonly seen on the Achilles tendon (pic2) followed by the hands, feet, elbows, and knees.
- It is the least responsive xanthoma to treatment.
- Mostly seen in patients with familial hypercholesterolemia.

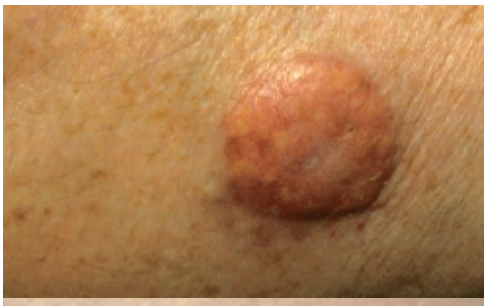


- **Tuberous xanthomas:**

A-Definition: They are firm and non-tender cutaneous and subcutaneous yellowish nodules on extensor surfaces.(pic)

B- Clinical presentation:

- It is mostly associated with familial dysbetalipoproteinemia.
- It may resolve after months of treatment with lipid lowering agents.



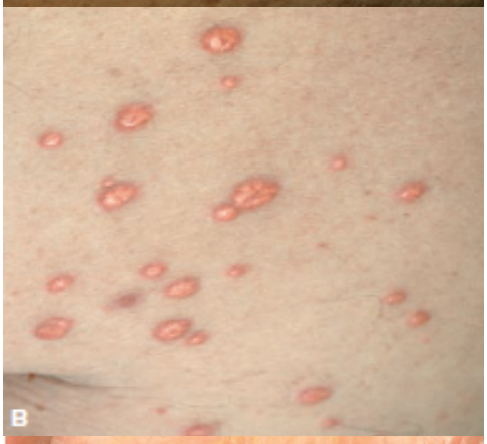
- **Eruptive xanthomas:**

A-Definition: They are painless, yellowish papules on an erythematous base that present as grouped lesions on trunk, elbows and buttocks. (pic2)

B- Etiology: They are usually associated with Hypertriglyceridemia.

C- Clinical presentation:

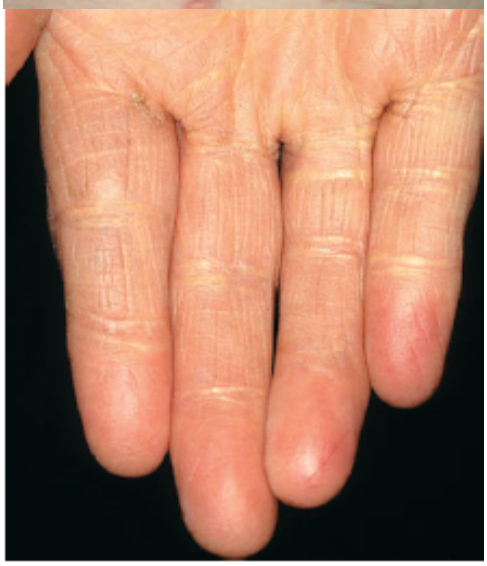
- They could be seen in poorly controlled diabetes and acute pancreatitis.
- They usually resolve in few weeks after therapy.



- **Planar xanthomas:**

A-Definition: They are elevated cutaneous yellowish-orange deposits on palmar creases.(pic3)

B- Clinical presentation: It is usually associated with familial dysbetalipoproteinemia.

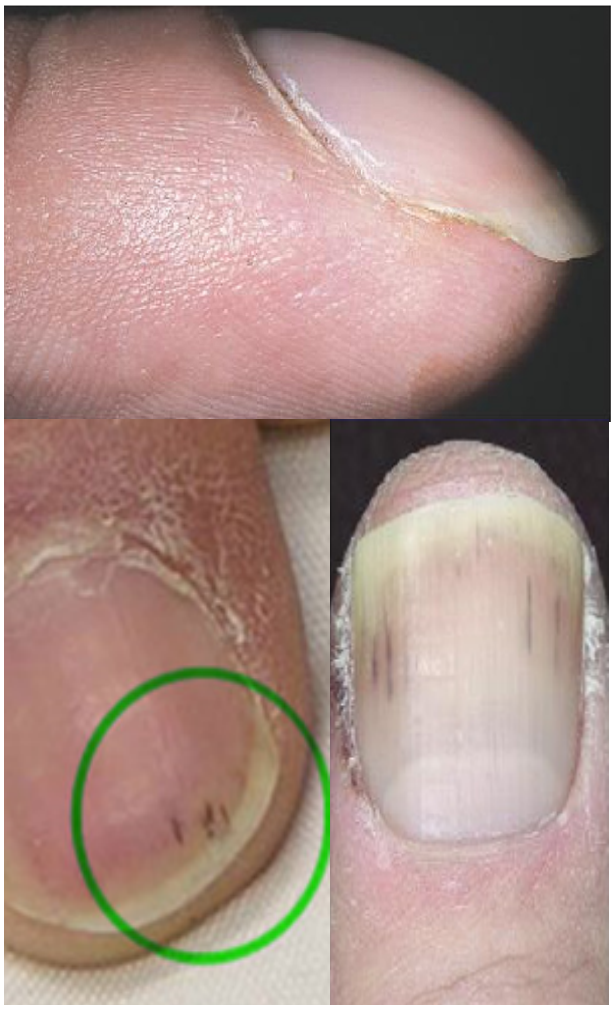


Causes of generalized pruritus without skin lesions:

- ✓ Endocrine: DM, hypo& hyperthyroidsm
- ✓ Haematological: polycythemia rubra vera, iron def anemia
- ✓ Malignancy; e.g. Lymphoma
- ✓ Hepatic: primary biliary cirrhosis
- ✓ Renal: CRF, The commonest manifestation of CRF is pruritus
- ✓ Neurological : e.g. Tabes dorialis
- ✓ Others:
  - Psychognic.
  - Drugs.
  - Idiopthaic.

Nails:

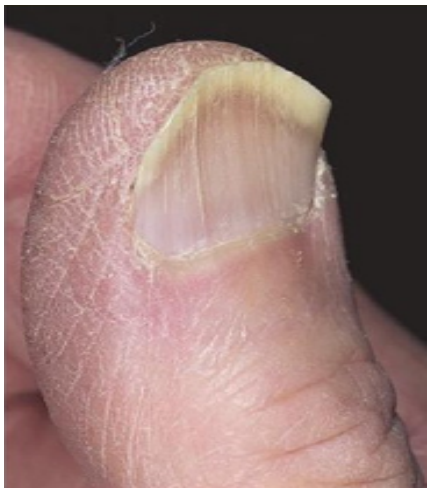
- **Clubbing :** Exaggeration of the normal nail curve associated with loss of the normal angle between nail and posterior nail fold.(pic)
  - **Causes:**
  1. Thoracic: Lung abscess, Lung CA.
  2. CVS: Congenital cyanotic heart disease.
  3. GIT:GI carcinoma, Inflammatory bowel disease.
  4. Endocrine: Thyroid disease.
  5. Idiopathic.



- **Splinter Haemorrhages :** (pic2,)
  - **Causes:**
  1. Bacterial endocarditis
  2. Septic emboli
  3. CTD
  4. Trauma
  5. Idiopathic

- **Koilonychia :** Spoon- shaped appearance.
  - **Causes:**

1. Iron deficiency anemia
2. Thyroid disease
3. Physological; early childhood
4. Dermatoses: Lichen planus, Alopecia Areata and others



MCQs

1- A patient who is known case of ulcerative colitis referred to the dermatology clinic due to his complaining of a painful well defined ulcerative lesion. The most likely diagnosis is :

A-Pyoderma gangrenosum
B- Dermatitis herpetiformis
C- Necrobiosis lipoidica
D- Porphyria cutanea tarda.

2- 47 Year old female presents with brown patches in the axilla, Which One of the following is the most recognized clinical feature of acanthosis nigricans:

A - They are small, pedunculated, soft papules on the skin found coomnly on the neck.
B -Thickening of the hands with tiny papules on fingers and stiff joints , but without discoloration
C- It is usually found in obese patints.
D- Diffuse purple skin pigmentation fond on the back, abdomen and shoulder.

3- Patients has abnormal bowel movements, Perianal ulcer,Mouth apthous ulcer(Patient diagnosed with Crohn Disease). What is the most likely of the following skin manifestations can go with the previous clinical picture?

A- Non-tender Ulcers on the calf.
B- Un ulcerated tender nodule on the shin.
C-Small, pedunculated, soft papules on the neck
D-Small severely pruritic vesicular lesions found in a symmetric distribution of both upper and lower extensor surfaces.

1-A
2-C
3-B