



Dermatology Team 441



MED441
KING SAUD UNIVERSITY



Introduction to dermatology

(Structures & functions of the skin + the language of dermatology)

Objectives:

- Function, Structure of the skin
- Approach to dermatology patient
- Morphology of skin lesions and descriptive Terms
- Important signs and Investigations
- Topical therapy

Color index:

- Main text
- **Important**
- **Dr's explanation**
- **Golden notes**
- Extra



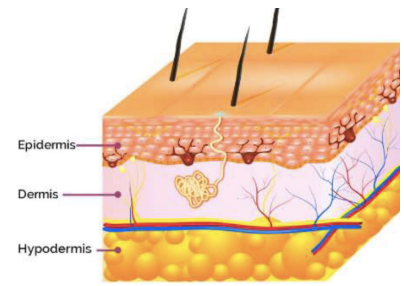
DERMATOLOGY
TEAM 438

This lecture was originally done by both 438 & 439 teams.
So great thanks to them

Function, Structure of the skin

The Skin:

- The skin is the largest organ of the body.
- Body surface area of 1.5- 2 m²
- Contributes to 1/6- 1/7 of body weight
- It consists of many cell types called “Keratinocytes”
- Specialized structures like the Basement Membrane
- It serves multiple functions that are crucial to health and survival
- Skin diseases are common
- Skin lesions maybe the presenting feature of an underlying systemic diseases
- Skin disease can have serious psychosocial effects.
- The skin is associated with RA , SLE , Dermatomyositis , Ankylosing spondylitis , Scleroderma.



Skin function:

Immune

- Barrier to harmful exogenous substance & pathogens, Langerhans cells in the skin are part of the adaptive immune system.
- acts as a barrier from chemical, antimicrobial, heat and radiation damage.

Metabolic and endocrine

- Prevents loss of water and proteins, vitamin D production after UVB exposure.

Sensory organ

- Contains a variety of nerve endings that respond to heat, cold, touch, pressure, vibration and pain. Hence, protects against physical injury.

Thermoregulation

- Regulates body temperature through eccrine glands “sweat glands” and dermal blood vessels. Important component of immune system.

Other functions

- **Psychological & Cosmetic Importance**
- **Protection:** acts as a barrier from chemical, antimicrobial, heat and radiation damage.
- **Sensation:** it has nerve endings which respond to temperature, pressure, pain, touch & vibration.
- **Storage:** of fat in the hypodermis Contains 50% of fat (subcutaneous tissue).
- **Synthesis:** of vitamin D.

Function, Structure of the skin



A video by The Doctor

Skin Structure composed of three layers:

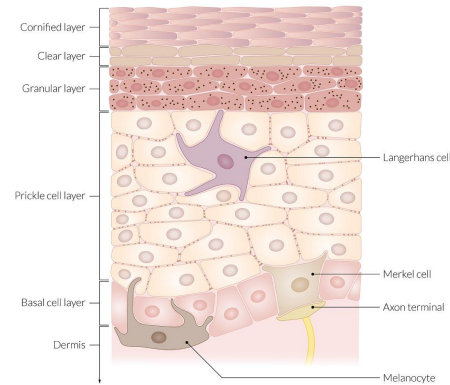
Epidermis

Dermis

Hypodermis
(Subcutaneous tissue)

1) Epidermis: ("Epi" coming from the Greek meaning "over" or "upon")

- It is the **outermost** layer of the skin.
- It is stratified squamous epithelium.
- Mechanical and antimicrobial barrier.
- Protects against water loss and provides immunological protection.
- There are **No blood vessels** (cells receive nutrients via diffusion from capillaries in dermis).
- The thickness is **site-specific** (from 0.03 mm on the eyelids to 1.5 mm on the soles of the feet).



- The main cell types which make up the epidermis are:

1-Keratinocytes

- Major cell type of epidermis 90%.
- They found in the stratum basale and move up to stratum corneum.
- The average time for a cell to travel to the most upper layer is about 40 days. (In psoriasis the period is shorter <2 weeks).
- Mitotically active in the basal layer

2-Melanocytes

- They are found in the stratum basale (Basal layer)
- They produce melanin.
- there are 2 types of melanin: the brownish black (**eumelanin**) and the reddish yellow (**pheomelanin**).
- Melanin packed into melanosomes and transported to basal keratinocytes.
- Skin colour is determined by the number and size of the melanosomes (not the number of melanocytes).

3- Langerhans cells

- They are antigen-presenting immune cells.
- They have a role in the skin immunity.
- They can be found in the mid-epidermis.

4-Merkel cells

- They are small round/oval cells.
- They act as **touch receptors**.
- They transmit sensory information in the skin to the sensory nerves

Function, Structure of the skin

Colour/ skin's response to UV light

- the **number of melanocytes are equal in white and dark skin.**
As we go to the right (more melanosomes), the skin becomes more resistance to burn and easily to tan



- **Dark-skin: Larger melanosomes, Increase melanization, decrease melanosome degradation.**
Light-skin: Smaller melanosomes, same number of melanocytes as dark-skin.

The epidermis consist of several zones:

Stratum Corneum	<ul style="list-style-type: none"> - Dead cells with no organelles (for protection). - (the cells in this layer have No nuclei =(corneocytes)). - (cornified layer horny cell layer): the outermost layer of the epidermis. - Its 25-cell layer. The cells have a thick envelope that helps it resist external chemicals. - In psoriasis you see a nuclei in the stratum corneum, because the keratinocytes is dividing rapidly. (Parakeratosis)
Stratum lucidum	<ul style="list-style-type: none"> - It is only found on the palms and soles below the Stratum Corneum.
Stratum granulosum	<ul style="list-style-type: none"> - Flat cells containing keratohyalin granules which is responsible for the colour of the cells, making it the darkest layer. - Diamond shaped granular cell layer & Cytoplasm is filled with Keratohyalin granules.. - The thickness of this layer is proportional to that of the stratum corneum (thicker in palms and soles (10 cell layers) than in the face (1-3 cell layers) because the stratum corneum is thicker there. - Has a waterproof properties
Stratum spinosum	<ul style="list-style-type: none"> - polyhedral cells with larger nucleus attached by desmosomes. - spinous cell layer as they are connected to each other by desmosomes and gap junctions which appear as spines. - Desmosome is a complex modification of the cell membrane. When there is a problem with desmosomes, the patient develops “blistering diseases” > the connection between keratinocytes is no longer there due to autoimmune antibodies or other causes. - Langerhans cells are found in this layer.
Stratum Basale	<ul style="list-style-type: none"> - columnar dividing cells : (Keratinocytes, Melanocytes, MC, LC) - basal cell layer which Rests on the basement membrane. - Divides continuously and moves upwards. - melanocytes : They synthesize melanin (which is responsible for skin color and protection against UV light) stored in melanosomes “pigment granules”. - Melanosomes: Transferred to adjacent keratinocytes by means of dendrites thus forming the epidermal melanin unit includes melanosomes, melanocytes and keratinocytes.

Dermoepidermal junction (BMZ)

Basement membrane	<ul style="list-style-type: none"> - It is the meeting point of the dermis and epidermis. - Provide adhesion and transport of cells and molecules between them. - It is the site of attack injury in blistering diseases. - Formed by: Plasma membrane of basal cells and hemidesmosomes, Thin clear amorphous space (lamina lucida), An electron dense area (lamina densa) and Anchoring fibrils that anchors the epidermis to dermis. - Thickened in certain skin diseases like discoid lupus erythematosus.
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Function, Structure of the skin

Dermis

Dermis

- Provides nutrition and support to the epidermis and interacts with it during wound repair.
- Gives the skin its strength, elasticity, and softness.
- It contains nerve endings so if you feel pain after stepping on a pin it means that the pin reached the dermis.
- The range is between 1 and 4 mm in thickness (depending on age and body site). **So it's thicker than epidermis**
- **It is divided into two layers:**
 - **Papillary dermis** (Upper layer).
 - **Reticular dermis** (Lower layer).
- **Consists of:**
 1. **Collagen fibers 70-80%:**
 - Provides strength to the skin.
 - Thin & loose fibers in papillary dermis.
 - Thick & dense fibers in the reticular dermis.
 2. **Elastic fibers 1-3% :**
 - Provides elasticity.
 - Protects against trauma and shearing forces.
 3. **Ground substance:**
 - E.g. proteoglycans and glycoproteins.
 - Functions includes water absorption, shock-absorption and lubrication between collagen and elastic fibers.
 4. **Blood vessels** (provides Nourishment to the overlying epidermis), sweat glands and hair follicles.
 5. **Cellular component:**
 - e.g. **fibroblasts** (produce collagen), mast cells, plasma cells and histiocytes.

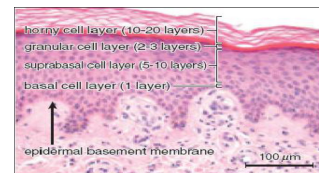
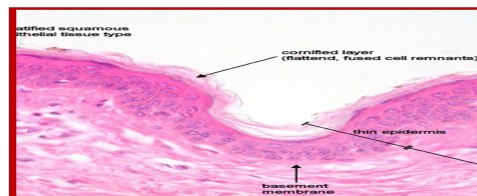
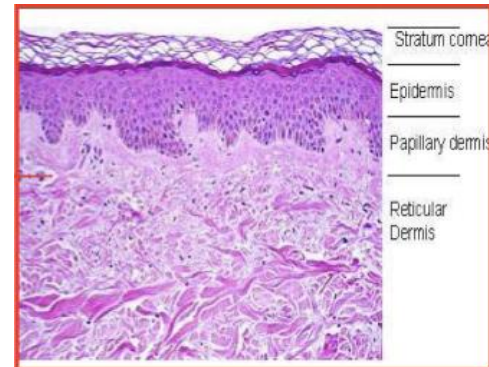


Fig. 1.4 The four layers of the epidermis

Hypodermis (Subcutaneous fat)

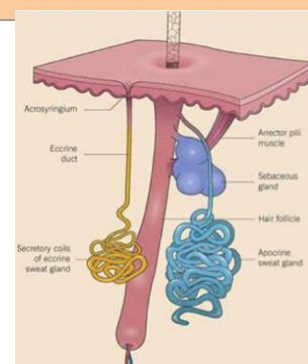
Hypodermis

- It lies below the dermis.
- It binds the skin to underlying bone and muscle.
- It supply the dermis with blood vessels and nerves.
- The main cell type is adipocytes (fat cells), used mainly for fat storage.

Skin appendages (Skin-associated structures that serve a particular function)

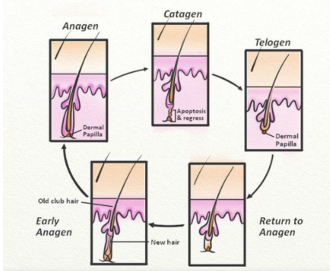
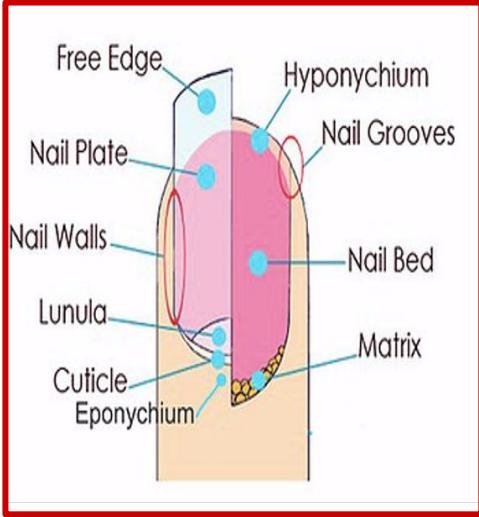
Eccrine sweat glands

- They open directly on the skin surface.
- They are **not connected to the hair follicle**.
- They regulate body temperature.
- **Abundant in palms and soles.**
- They present everywhere except:
 - **Vermilion (lip) border.**
 - **Nail beds.**
 - **Labia minora & glans.**
- Under parasympathetic cholinergic stimuli.

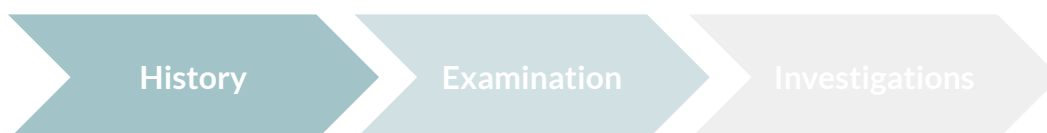


Function, Structure of the skin

Skin appendages cont'

<p>Apocrine sweat glands</p>	<ul style="list-style-type: none"> - They are larger than eccrine glands. open to the hair follicle - They release region-specific secretions that bacteria act on. - They are mainly found in the axilla and genital skin. - Under adrenergic stimuli. - Modified sweat glands that present in the: External ear canal, Eyelids (moll's glands) and Areola. - Under adrenergic stimuli.
<p>Sebaceous glands</p>	<ul style="list-style-type: none"> - They secrete sebum (Oil) to lubricate the hair and skin. - They Present in the scalp, forehead, face, upper chest in hairy areas but NOT in the palms and soles. (hands can be sweaty but never oily). - Under adrenergic hormonal control (enlarges during puberty) - Attached to hair follicles or open freely. - Sebaceous glands in the areola are called Montgomery tubercles, in the eyelid they are called meibomian glands. - Ectopic Sebaceous glands in the mucous membrane are called Fordyce spots.
<p>Hair follicle</p>	<ul style="list-style-type: none"> - We have up to 5 million hairs over the surface of the skin. - Most of this is vellus hair (fine short hair). - Terminal hair (longer and thicker hair) typically found on the scalp, axillae and the pubic area. - Pilosebaceous unit: formed by the hair follicles with it's attached sebaceous gland. - Avg number of hairs on the scalp is 100,000 (100 lost each day) - Hair growth is dynamic process within three phases: <ol style="list-style-type: none"> 1. Anagen (active growing hair) 2-6 years (85% of hair). 2. Catagen (rest phase of the hair) 2-4 weeks (2% of hair). 3. Telogen (shedding of the hair) 3 months (15% of hair). <p>Mnemonic: Rule of Three: 3 years, 3 weeks, 3 months</p> - Hair follicle has the hair shaft, hair bulb and the bulge. 
<p>Nails</p>	<p>Consist of:</p> <ul style="list-style-type: none"> o Nail plate (Formed of hard keratin) o Nail bed, (under the plate) o Matrix (The lunula is the visible part of the matrix), o Proximal and lateral nail folds (Proximal nail fold morphology can be altered in connective tissue disease) o Hyponychium. <ul style="list-style-type: none"> - Fingernails grow 3mm/month. - Complete replacement in 6 months - Toenails grow 1mm/month. - Complete replacement in 18 months - Can be affected in systemic and skin diseases. (e.g: Lichen planus).  <p>This image is super important</p>

How do you approach a patient with skin lesions?



EXTRA!! Approach to dermatology patient.

History:

- Introduce yourself, Confirm identity of the patient, Take permission
- **Step 1: Start with basics:** Name, age, sex ..etc.,
- Let the patient talk uninterruptedly in the beginning
- **Step 2 : History of skin lesion:** When? (Onset), Where? (site of onset), Extension of lesions, Evolution, Associated symptoms, Aggravating factors, Treatment **and if does it help.**
- **Past medical history:**
 - many common systemic diseases display skin manifestations.
- **Family history:**
 - Does anyone in the family have a similar problem?,
 - Does anyone in the family have a disorder of the skin?
 - N.B. Some skin conditions:
e.g. (neurofibromatosis, have a strong genetic basis).
- **Drug history:** **very important to ask about**
 - Over-the-counter, new, old, **Herbal** medications.
 - any known **drug allergies.**
- **Psychological history:**
 - People with severe, chronic skin disease may suffer from **anxiety, depression and social isolation** (e.g: patients with psoriasis).
 - **The psychological problem may be the cause of the skin disease, e.g dermatitis artefacta.**
- **Social history:**
 - Occupation (e.g. occupational dermatitis) and hobbies.
 - History of contact with other affected individuals.
 - Recent travel (abroad): it is important to be aware of endemic diseases in other parts of the world.
 - **Sun exposure:** tanning.. etc.
 - **Smoking habits:** some conditions are related directly to smoking such as psoriasis, hidradenitis suppurativa and palmoplantar pustulosis.
- **Systemic review**

Condition	Skin manifestations
Cushing's syndrome	Bruising, striae, acne, hirsutism
Addison's disease	Hyperpigmentation of skin and mucous membranes, hirsutism
Internal malignancy	Dermatomyositis , pemphigus, vasculitis, annular erythemas, Sweet's syndrome, pruritus
Diabetes mellitus	Necrobiosis lipoidica, neuropathic leg ulceration, skin infections
HIV	Maculopapular rash at seroconversion, Kaposi's sarcoma, multiple head-and-neck molluscum contagiosum
Sarcoidosis	Lupus pernio, erythema nodosum
Lupus	Malar rash, photosensitivity, vasculitis
Coeliac disease	Dermatitis herpetiformis

Examination:

- Wash your hands, Introduce yourself, Confirm identity of the patient, Take permission (consent and explain examination), Privacy, Exposure.
- **Use good light, Don't forget to examine: Hair, Nails and Mucous membrane.** Look for the patient as a whole, even if he came with a local lesion!
- **General appearance of patient:** is he/she well? scratching or displaying other signs of distress.
- **Inspection:**
Is it symmetrical or asymmetrical?, Does it involve particular sites? (e.g. extensor or flexor, sun-exposed or covered), Do lesions adopt any particular pattern? (e.g. diffuse, linear, grouped or scattered).
- **Describe skin lesion as follow:**
 - Distribution, Configuration, Size, Border and shape, Color, Morphology (Primary lesion and Secondary changes).
- **Distribution:** refers to how the skin lesions are scattered or spread out.
 - Skin lesions may be isolated (solitary/ single) or multiple.
 - The localization of multiple lesions in certain regions aids in making a diagnosis, as skin diseases tend to have characteristic distribution.
 - Aids in understanding the extent of the eruption and its pattern.

EXTRA!! Approach to dermatology patient.

Distribution Types

Distribution: how the skin lesions are scattered or spread out:










Generalized	All over the body.	Extensor	Such as knees, elbows, shins. (Vasculitic lesions on the limbs ddx: hench-schonlein purpura)
Localized	Restricted to one area of skin only.	Acral	Affecting the distal extremities such as ears, fingers, toes, nose e.g. acral vitiligo.
Symmetrical	both sides are the same or similar.	Pressure areas	Such as sacrum, buttocks, ankles, heels.
Unilateral	affecting one side of the body only.	Photo-sensitive	Affecting sun-exposed areas such as face, neck and back of hands. Ex: subacute lupus, nonmelanoma skin cancer
Koebnerised	Arising in a wound or scar. The Koebner phenomenon refers to the tendency of several skin conditions to affect areas subjected to injury	Seborrhoeic	The areas generally affected by seborrhoeic dermatitis, with a tendency to oily skin (seborrhoea). Scalp, behind ears, eyebrows, nasolabial folds, sternum and interscapular
Flexural	Body folds (also known as intertriginous) such as groin, neck, behind ears, popliteal and antecubital fossa.	Dermatomal	Corresponding with nerve root distribution. Ex: Herpes zoster

Examination (cont'):

- **Configuration:** shape or outline of the skin lesion
 - Anular
 - Nummular "Discoïd"
 - Grouped
 - Reticular
 - Linear
 - Target.
- **Colour:** What colour is the affected skin?
- **Shape, Size.**
- **Border:** Is the border well-demarcated or not?
- **Palpation:** Tenderness, temperature, consistency, mobility and depth.



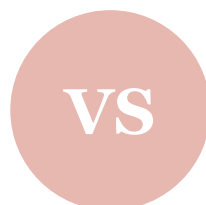
Descriptive Terms and morphology of Skin lesions

Descriptive Terms:	Description	
Photodistribution	<ul style="list-style-type: none"> - Lesions occurring over sun exposed skin. - Protected areas remain free of lesions. 	
Linear	<ul style="list-style-type: none"> - Forms a line. 	
Dermatomal	<ul style="list-style-type: none"> - Occurring within the distribution of nerve. - Most common example: Herpes zoster (Shingles) 	
Annular	<ul style="list-style-type: none"> - Ring like (pale in the centre). 	
Herpetiform	<ul style="list-style-type: none"> - Lesions grouped in a manner similar to herpes simplex lesions. 	
Reticular	<ul style="list-style-type: none"> - Net like. 	
Discoid:	<ul style="list-style-type: none"> - coin like lesions e.g. discoid lupus. - Not pale in the center (unlike annular) 	
Guttate	<ul style="list-style-type: none"> - Drop Like "en gouttes" مثل المطر 	
Targetoid	<ul style="list-style-type: none"> - Round lesions with concentric border and a dark center. - Iris like. Seen in erythema multiforme. 	
Umbilication	<ul style="list-style-type: none"> - Round depression in the center E.g: Molluscum contagiosum. 	

Skin lesions: are divided into:

Primary skin lesions








basic lesion







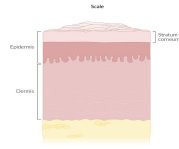

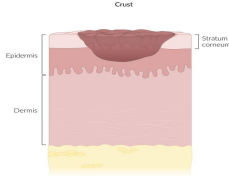

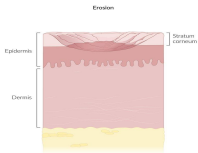

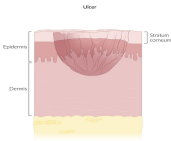

Secondary skin lesions

Develop during evolution of skin disease or created by scratching or infection



Descriptive Terms and morphology of Skin lesions

Primary skin lesion	Description
Macula	<ul style="list-style-type: none"> - Flat lesion. <i>If you close your eyes, you won't know it's there</i> - Change in skin colour. - less than 1 cm in size. - It Lacks surface elevation or depression. (not palpable) <i>e.g. freckle.</i> 
Patch	<ul style="list-style-type: none"> - Flat lesion. - Change in skin colour. <i>Pale or dark doesn't matter</i> - More than 1 Cm . - it Lacks surface elevation or depression. <i>e.g Vitiligo, melasma.</i> 
Papula	<ul style="list-style-type: none"> - Raised lesion. - solid lesion. - less than 1 cm in size. - Examine for color and surface changes eg. Umbilicated (mulloscum contagiosum), Keratotic (like warts), Papillomatous, Flat topped (lichen planus) 
Pustule	<ul style="list-style-type: none"> - Raised lesion. - Contains pus. - less than 1 cm in size. - <i>Just like a papule but it contains pus.</i> - it is filled with neutrophils, and may be white, or yellow. - Not all pustules are infected 
Plaque	<ul style="list-style-type: none"> - Raised lesion. - lacks a deep component. - more than 1 cm in size. - Confluence (group) of papules leads to the development of larger, usually flat-topped, circumscribed, plateau-like elevations known as Plaques <i>e.g. Plaque psoriasis.</i> - <i>Opposite of Papules in term of of size</i> - <i>Opposite of Patches in term of elevation</i> 
Nodule	<ul style="list-style-type: none"> - Raised lesion. - with deep component. - more than 1 cm in size. - <i>e.g. hidradenitis.</i> 
Vesicle	<ul style="list-style-type: none"> - Raised lesion. - Contains clear fluid. - less than 1 cm in size. - <i>e.g. Dermatitis Herpetiformis.</i> - Vesicle is a smaller bulla. 


Descriptive Terms and morphology of Skin lesions

Primary skin lesion	Description
Bulla	<ul style="list-style-type: none"> - Raised lesion. - Contains clear fluid. - more than 1 cm in size. - bulla is A large vesicle. - e.g. Bullous Pemphigoid. 
Wheal	<ul style="list-style-type: none"> - Raised lesion (swelling). - Transient firm, edematous plaque that is evanescent (transient/short lived) and pruritic. - Happens in diseases such as urticaria or atopic dermatitis (in atopic dermatitis they can be white not pink). Can also be with dermatographism - pale center and a pink margin (flare of border). - Well circumscribed, 
Cyst	<ul style="list-style-type: none"> - Nodule that contains fluid or semisolid material. 
Burrow	<ul style="list-style-type: none"> - Linear tunnel in the epidermis induced by scabies mite. 
Secondary Skin lesion	Description
Scale	<ul style="list-style-type: none"> - Epidermal thickening (stratum corneum). - Flakes off easily - e.g. psoriasis, fungal infection  
Crust	<ul style="list-style-type: none"> - Dried serum, blood or pus. - Yellow to brown - Previous primary lesion usually a vesicle, bulla, or pustule. e.g. impetigo. - A collection of cellular debris. - Doesn't flakes off easily  
Erosion	<ul style="list-style-type: none"> - A partial loss of part/all epidermis. - Heals without scarring. - Like excoriations but they're not linear  
Ulcer	<ul style="list-style-type: none"> - A full thickness focal loss of epidermis and dermis - heals with scarring.  

Descriptive Terms and morphology of Skin lesions

Secondary Skin lesion	Description
Atrophy	<ul style="list-style-type: none"> - Thinning of the skin - It might be due to the long-standing Use of Topical corticosteroids. 
Lichenification	<ul style="list-style-type: none"> - Increased skin markings secondary to chronic scratching (ex: atopic dermatitis.. Anyone that scratches chronically will have more melanin deposition in the skin. If they stop scratching, the darkening of the skin will get better) 
Excoriation	<ul style="list-style-type: none"> - Linear erosion induced by scratching. - Heals without scarring 
Fissure	<ul style="list-style-type: none"> - Vertical loss of epidermis and dermis with sharply defined walls; "cracks in skin" 
Scar	<ul style="list-style-type: none"> - A collection of new connective tissue. - May be hypertrophic (raised) or atrophic (depressed) - Implies dermoepidermal damage. 
Important Signs In Dermatology	Description
Koebner's phenomenon	<ul style="list-style-type: none"> - Trauma to the skin reproduce certain diseases like: psoriasis, vitiligo and lichen planus. 
Dermographism	<ul style="list-style-type: none"> - Firm stroking of the skin produce erythema and wheal. - Seen in physical urticaria. - In patients with atopy, stroking produces white dermatographism rather than red. 
Auspitz sign	<ul style="list-style-type: none"> - Removal of scale on top of a red papule produces bleeding points (pinpoint bleeding) - Seen in psoriasis (in psoriasis the blood vessels are closer to the surface) 

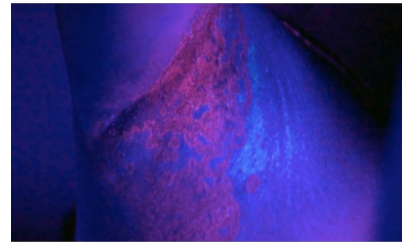
Important signs and investigation

Important Signs In Dermatology	Description
Nikolsky sign IMPORTANT	<ul style="list-style-type: none">- Rubbing of apparently normal skin induces blistering of the skin.- Seen in pemphigus vulgaris and toxic epidermal necrolysis (TEN). In diseases that are associated with separation of the skin such as autoimmune blistering disorders (ex: pemphigus vulgaris) or Steven Johnson syndrome or TEN  <p>Figure 2. A positive Nikolsky's sign in toxic epidermal necrolysis.</p> <p>Reproduced with permission from: Habif T, ed. <i>Clinical Dermatology: A Color Guide to Diagnosis and Therapy</i> 3rd ed. St. Louis: Mosby, 1996.</p>

Investigations:

Wood's lamp

- Produces long wave UVL (360 nm).
- Useful in:
 - Vitiligo (Milky white).
 - Erythrasma (coral red).
 - Tinea Versicolor (orange).
 - Pseudomonas (green).
 - Tinea Capitis - (yellow green) fluorescence in M.canis, M. audouini



KOH preparation

- For diagnosing fungal infections.
- Method:
 1. Cleanse skin with alcohol Swab.
 2. Scrape skin with edge of microscope slide onto a second microscope slide.
 3. Put on a drop of 10% KOH
 4. Apply a cover slip and warm gently.
 5. Examine with microscope objective lens.

Direct immunofluorescence (DIF)

- autoimmune diseases e.g. Bullous pemphigoid. (it's used for blistering disorders)

Prick test

يتم حقن المادة تحت الجلد

- food allergy, drug allergy
- Method:
 - Put a drop of allergen containing solution.
 - A nonbleeding prick is made through the drop.
 - After 15-20 minutes the antigen is washed, and the reaction is recorded.
- A positive test shows urticarial reaction, erythema, wheels at site of prick.
- Detects immediate-type IgE mediated reaction (type 1 hypersensitivity)
- Emergency therapeutic measures should be available in case of anaphylaxis.

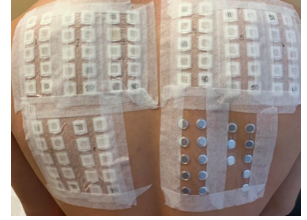


Important signs and investigation

Investigations cont:

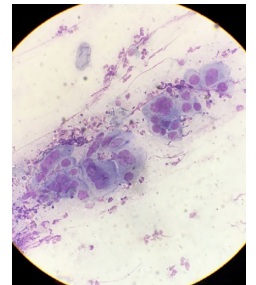
Patch test

- allergic contact dermatitis.
- Method:
 - Select the most probable substances causing dermatitis.
 - Apply the test material over the back.
 - Read after 48 & 72 hr (**type 4 hypersensitivity**) and look for (erythema, edema, vesiculation).
- Positive patch test showing erythema and edema.
- In severe positive reaction vesicles may be seen.



Tzanck smear

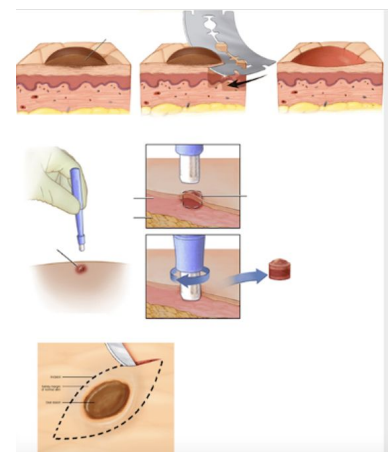
- Important in diagnosing:
Herpes simplex or VZV (multinucleated giant cells).
- Pemphigus Vulgaris (acantholytic cells; which are floating cells in blistering disorders due to antibodies against desmosomes)
- Method:
 - Select a fresh vesicle.
 - De-roof and scrape base of the vesicle.
 - Smear onto a slide.
 - Fix with 95% alcohol.
 - Stain with Giemsa stain.
 - Examine under microscope.



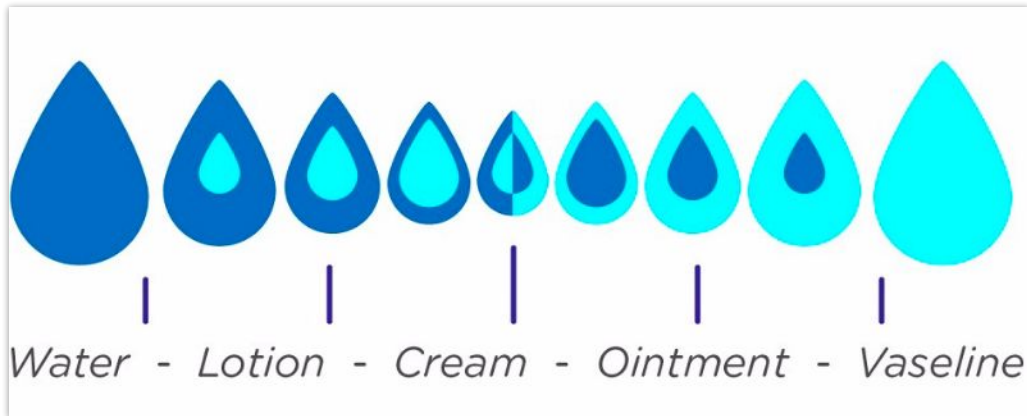
Skin biopsy

Very important

- To diagnose or R/O some skin diseases.
 - **Shave biopsy:** we shave a thin layer from the lesion.
 - **Punch biopsy:** we use an instrument called "punch" to remove a circular section through **all layers of the lesion.**
 - **Excisional biopsy:** we use a scalpel to take off the entire lesion.
 - Method:
 - Clean skin with alcohol.
 - Infiltrate with 1-2 % xylocaine with adrenaline.
 - Rotate 2-6 mm diameter punch into the lesions.
 - Lift specimen and cut at base of lesion.
 - Fix in 10% formalin
 - For Immunofluorescence put in normal saline.
 - Suture if 5 mm punch is used.



Topical therapy



Topical therapy:

- Applied directly to the skin
- **Advantage:** less side effects and toxicity.
- **Disadvantage:** can be time-consuming to apply, messy or uncomfortable!
- **Common types of topical formulations:**
 - **Solution:** **Water** or alcoholic lotion containing a dissolved powder.
 - **Lotion:** thicker than a solution and more likely to contain oil as well as water or alcohol. **70% water**
 - **Cream:** thicker than a lotion, a **50/50** emulsion of oil and water.
 - **Ointment:** nearly water-free (**80% oil**), Greasy, sticky, emollient, protective and occlusive.
- **Topical steroids:**
 - They act as anti-inflammatory, anti-mitotic, and immunosuppressive agent.
 - Many topical steroids available, from mild (Hydrocortisone) to very potent (Clobetasol).
 - Successful treatment depends on an accurate diagnosis and consideration of the steroid's delivery vehicle, potency, frequency of application, duration of treatment and side effects.
- **Common types of topical steroids:** (depending on; diagnosis, location, age)
 - **Ointments:** the **most potent**/most occlusive (ex: for dry/ thick hyperkeratotic lesions).
 - **Creams:** less potent than ointment but cosmetically more appealing, non-occlusive.
 - **Lotions:** less occlusive (ex: **work well in hairy regions**).
 - **Gels:** like lotions, less occlusive and greasy; (ex: work well in hairy regions; **more beneficial for the scalp**).
- **Topical steroid Side effects:**
 - **Atrophy and striae.**
 - Telangiectasia and purpura.
 - Masking the initial lesion.
 - Perioral dermatitis and rosacea or acne.
 - Systemic absorption.
 - Tachyphylaxis (sudden loss of response).

Quiz!

1- What is a patch?

- A) Solid elevated less than 1 cm
- B) Solid elevated less more than
- C) Flat circumscribed less than 1 cm
- D) Flat circumscribed more than 1 cm

2- A reticular lesion is similar to which of the following?

- A) coin like lesion
- B) drop like lesion
- C) line like lesion
- D) Net like lesion

3- Which one of following is a secondary lesion?

- A) Plaque
- B) Papule
- C) Wheal
- D) Ulcer

4- What makes the difference between whites and dark skin?

- A) Number if melanocytes.
- B) Sizes of melanocytes.
- C) Sizes of melanosomes.
- D) Number of melanosomes.

5- Which layer of the following composed of cells with no Nucleus?

- A) Granular layer.
- B) Basal layer.
- C) Spinous layer.
- D) Cornified layer.

6- Woods lamp is helpful in diagnosing which one of the following?

- A) Lichen planus.
- B) Tinea capitis
- C) Vitiligo.
- D) Psoriasis.

7- Flat discoloration of the skin more than 0.5 cm:

- A) Patch
- B) Plaque
- C) Papule
- D) Macule

Answers:

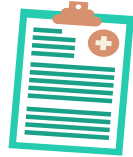
1:D, 2:D, 3:D, 4:C, 5:D, 6:C, 7:A

Thanks!!



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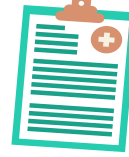


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