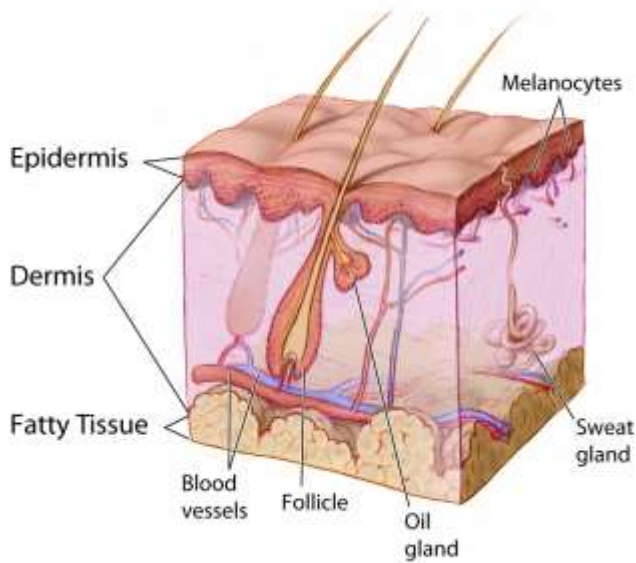


432 Teams

# Dermatology



## Language of Dermatology



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# Objectives

- Function , Structure of the skin.
- Approach to dermatology patient.
- Descriptive Terms and morphology of skin lesions.
- Reaction patterns.
- Topical therapy.

## History:

- Step 1: Start with basics (Age – Race – Sex - Occupation (*hair dressers , builders , florists are prone to contact dermatitis*))
- Step 2: Present complaints
- Step 3: History of skin lesion:  
Onset - when?  
Where? site of onset.  
Extension of lesions.  
Evolution.  
Itchy/ painful ?  
Provocative factors (sun , cold, friction).  
**Treatment. “imp”**
- Step 4 : (Past medical history - Family history - Drug history - Recreational and social history)

## Examination:

- Use good light when examining a patient - Examine nails & mucous membrane.
- Describe
  - the general appearance of patient.
  - Describe distribution of lesions
  - Describe arrangement of
  - Lesions (*configuration*)
  - Describe the type of the lesion
  - Describe the *shape*.
  - Describe the *color, size*
- Palpation (Look for consistency, mobility, depth and tenderness)

### Distribution :

#### A) Generalized :can be

##### 1.Symmetrical

- a.Universal (head to toe)
- b.Bilateral

##### 2. Asymmetrical

- a.Diffuse
- b.Unilateral

#### B) Localized to:

- Acral any pointy part (*toes , fingers , ear , nose*)
- Sun exposed
- Trauma sites. *Elbow and knee*
- Flexures
- Specific part like *butterfly rash in malar area, or acrofacial vitiligo*



Descriptive Terms (Arrangement)



**Linear:**  
Forms a line e.g. lichen planus



**Dermatomal**  
Occurring within the distribution of nerve  
Here its HZV



**Annular**  
Ring like. "In granuloma annulare" unlike BCC which is pearly nodular and elevated border and different location



**Herpiform/Grouped**  
Lesions grouped in a manner similar to herpes simplex lesions



**Reticular** :Net like  
In vasculitis - SLE  
People who apply warm pads or sit next to a heater will develop a pigment called erythema ab igne unlike . but in other diseases it not only a pigment it indicates that the underlying vessel is clogged



Verrucous, warty, papillomatous:  
Surface consisting of finger like projections  
"elevated lesion"



nummular/discoid:  
Refers to round, coin like lesions.  
As seen in eczema



**Guttate:**  
Drop like, "engouttes"  
"Very small lesion"  
As seen in some psoriasis type



**Targetoid:**  
Round lesions with concentric border and a dark center.  
Iris like.  
**Diagnostic of Erythema multiforme**



**Umbilication:**  
Round depression in the center.  
In **Molluscum contagiosum**  
« viral infection »  
Other viruses may have different presentation like warty HPV

## Morphology:

Skin lesions are divided into:

Primary =Basic lesion.

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

The type of the lesion:

It is the shape of lesion

The margination of the lesion.

### Primary lesions:

**Macule/patch**

**Papule/plaque**

**Nodule /Cyst**

**Wheal**

**Vesicle/bulla**

**Pustule**

**Purpura**

**Burrow**

### Secondary lesions:

**Excoriation**

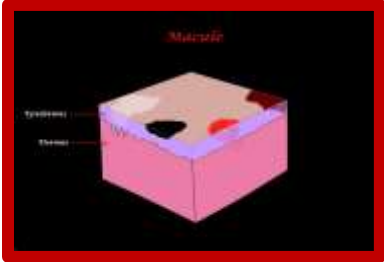
**Erosion**

**Scale**

**Fissure**

**Ulcer**

Primary Skin Lesions:



**Macule :**  
 Flat circumscribed discoloration that lacks surface elevation or depression.

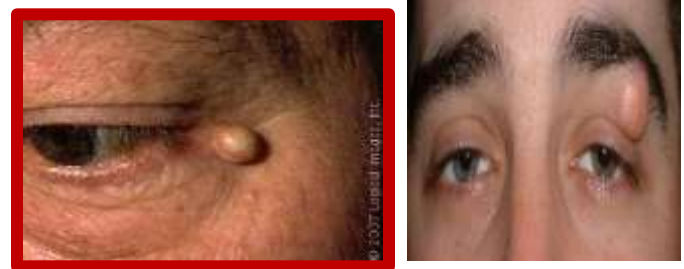
- e.g: vitiligo - Freckle.
- "just change in color"
- Smaller than Patch – less than 1 cm
- Erythema after a hot fluid spill → erythematous macule

**Patch:**  
 Flat circumscribed skin discoloration; a **large Macule more than 1cm**  
 e.g: Melasma.



**Papule :**  
 Elevated, Solid lesion < 0.5cm in diameter.  
 Notice color and surface changes eg.Umblicated, Keratotic,Papillomatous Flat topped.  
 From the males team :  
 e.g. Molluscum Contagiosum, Acne.Macule with elevation become papule

**Plaque:**  
 Elevated, solid confluence or expansion of papules . > 0.5 (lacks a deep component ).  
 We can differentiate between plaque and nodule by palpation . the nodule has the depth component



**Nodule :**  
Elevated, Solid lesion.  
> 0.5 cm in diameter;  
with deep component.  
greater part lies beneath the skin surface. (elevation+depth)  
the picture above is a deep fungal infection sporotrichoid in pattern (spreading through the lymphatics from the males team :  
e.g. Erythema Nodosum, Basal cell carcinoma.

**Cyst:**  
Nodule that contains fluid or semisolid material.  
. Usually soft and has depth.  
e.g. Epidermal cyst.



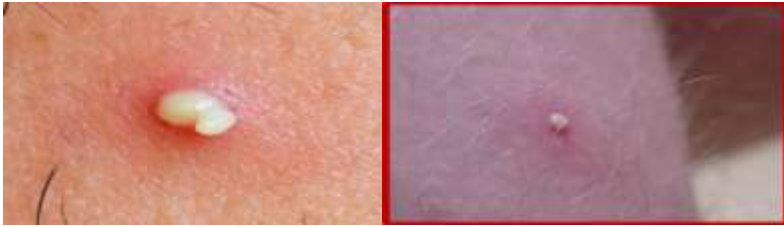
**Vesicle:**  
Elevation that contains clear fluid. <0.5 cm  
**Bulla:**  
Localized fluid collection. >0.5cm in diameter a large vesicle

**Burrow:** specific only for scabies  
Linear tunnel in the epidermis induced by scabies mite.  
in children "palm and sole"  
In adult "between fingers around the breast – umbilicus"



**Purpura:**  
Extra-vasation of red blood cells giving non-blanchable erythema. Doesn't turn white when you press on it  
e.g. vasculitis  
small spot called petechiae, large one called ecchymoses.

**Wheal:**  
Firm, edematous plaque that is evanescent (short lived) and pruritic; a hive.  
pale center and a pink margin.  
- less than 24 h  
- we see it in Urticaria



Pustule:  
Elevation that contains  
purulent material.  
Collection of pus  
e.g. Pustular Psoriasis, Acne

Secondary Skin Lesions:



Scale:  
Thick stratum corneum  
Easily removed  
e.g. psoriasis



Crust: also called scab  
A collection of cellular debris, dried serum and blood .  
e.g. hemorrhagic crust Not easily removed  
Antecedent primary  
lesion usually a vesicle, bulla, or pustule.  
e.g. Eczema , Impetigo



Erosion:  
A partial focal loss of epidermis that heals  
**without scarring**

- No bleeding
- If it reaches the dermis we call it ulcer .
- e.g. Ruptured vesicle or bulla
- the redness shown reflects the underlying dermal vessels that are intact



Excoriation :  
Linear erosion **induced by scratching**  
e.g. Atopic dermatitis





• Fissure :  
 Vertical loss of epidermis and dermis with sharply defined walls: crack in skin , thick sole exposed to pressure , hand eczema  
 its painful because it reached the dermis



Ulcer :  
 A full thickness focal loss of epidermis and dermis; heals with scarring



Scar:  
 A collection of new connective tissue; may be Hypertrophic or Atrophic; implies dermoepidermal damage  
 Part of the healing process



Lichenification:  
 Increased skin markings secondary to scratching  
 Patches of increased epidermal thickening with accentuation of skin markings and pigmentation. e.g. Lichen simplex chronicus. Atopic dermatitis. In patients with atopic dermatitis make sure you check the anti cubital fossa



Sclerosis:  
 Hardening of the skin .Skin is un-pinchable. This is seen in scleroderma when the subcutaneous tissue is replaced with collagen

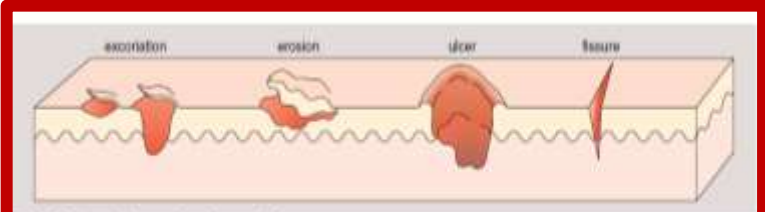


Fig. 4.24 Excoriation, erosion, ulcer and fissure.

Quiz:



Bilateral yellow plaques



Keratotic papillomatous skin (Flesh )colored plaque



Umblicated pearly papules, some are grouped



Annular erythematous scaly plaque as seen in psoriasis



Grouped vesicles on erythematous base  
In bulla and vesicles always comment on the base



Yellow crust, erosions ( both came from the bulla), flaccid bulla on erythematous base



1 cm cyst with telangiectasia



Unilateral erythematous patch

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## *History*

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- How long have skin lesions been present. Acute, subacute, chronic.
- Where did the problem first appeared?
- Progression of the problem.
- Any other symptoms like pruritus.
- Treatment history.
- General relevant medical history.
- Occupational and recreational history.
- Travel.
- Family and household contact history.

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## *Examination*

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- **Full skin** examination should be carried out to determine the full extent of the problem and possible unrelated conditions.
- Examination should be done in a **good light**, better natural sun light.
- Skin, nails, hair, mucous membranes should all be examined.
- General appearance of the patient must be assessed.
- **Lymph node** exams in selected diseases like mycosis fungoides and skin cancers.
- Wood's lamp, dermoscope, photography and other office based test like KOH preparation could help in diagnosis and follow up.

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## *Description of Skin Lesion*

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- **Type** (primary or secondary), **shape, size, color**, arrangement of lesions, distribution and configuration of the lesions all must be addressed while describing a lesion.
- **Distribution**: symmetrical, asymmetrical, unilateral, bilateral, diffuse, universal.
- **Site** of involvement: flexor, extensor, inverse, seborrheric, acral, photodistributed.
- **Configuration**: linear, grouped, reticular, annular, circular, arciform, dermatomal, koebnerization.

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- **Important Sign in Dermatology:**

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- **NIKOLSKY SIGN:**

- Rubbing of apparently normal skin induce blistering. (looking for skin being sloughed)
- Seen in **pemphigus vulgaris and toxic epidermal necrolysis (TEN)** only ones causing this sign



- **AUSPITZ SIGN:**

- Removal of scale on top of a red papule produces bleeding points.
- Seen in psoriasis (because dermal papillae contain capillaries which extend and become superficial)
- Difference between eczema and psoriasis?  
Eczema is ill defined while psoriasis is well defined.  
Eczema in acute phase form edematous papules.



- **Koebner's phenomenon:**

- Trauma to the skin re- produce certain diseases like:
  - a.Psoriasis
  - b.Vitiligo trauma triggers the immune system
  - c.Lichen planus.
  - d.Warts. we tell the patients to shave as it will spread it



- **DERMATOGRAPHISM**

- Firm stroking of the skin produce erythema and wheal.
- Seen in physical urticaria.
- In patient with atopy, stroking produces white dermatographism rather than red.
- lasts less than 30 minutes



## *Investigations*

- **Wood's lamp:**

Produces long wave UVL (360 nm)

Useful in

1. Tinea Versicolor-yellowish green fluorescence
2. Tinea Capitis -yellow green ( the fungus produces the dye) fluorescence in M.canis, M. Andouini (ask if they have cat or dog)
3. Vitiligo - Milky white.
4. Erythrasma -coral red fluorescence.
5. Melasma becomes more intensified.

(2 types of melasma: epidermal and dermal.

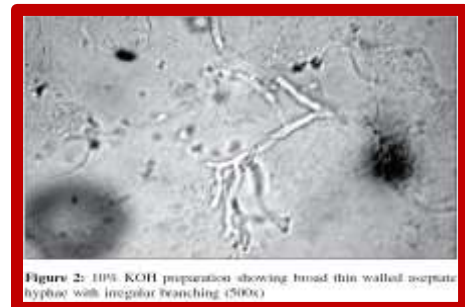
Epidermal melasma will be intensified under wood lamp and have good prognosis they resolve, while dermal melasma under wood lamp it will not intensify (it is better seen without the lamp), and remain constant



- **KOH**

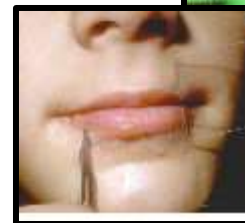
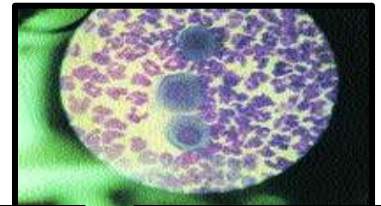
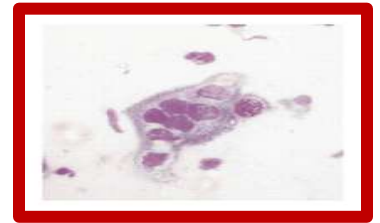
**preparation for fungus (used for scaly lesions not vesicular):**

1. Cleanse skin with alcohol
2. Swab.
3. Scrape skin with edge of microscope slide onto a second microscope slide.
4. Put on a drop of 10% KOH.
5. Apply a cover slip and
6. warm gently
7. Examine with microscope objective lens. (Will show the fungal elements more clearly because KOH will digest the keratin)



• **Tzank smear (used in vesicular lesions):**

- Important in diagnosing
  1. Herpes simplex or VZV (multinucleated giant cells)
  2. Pemphigus Vulgaris (acantholytic cells).
- Steps:
  1. Select a fresh vesicle.
  2. De-roof and scrape base of the vesicle.
  3. Smear onto a slide.
  4. Fix with 95% alcohol.
  5. Stain with Giemsa stain.
  6. Examine under microscope.



• **Prick test :**

1. Put a drop of allergen containing solution
2. A non bleeding prick (epidermal) is made through the drop.
3. After 15-20 min the antigen is washed, the reaction is recorded.
4. Positive test shows urticarial reaction (presence of wheal) at site of prick.
5. Detects immediate-type IgE mediated reaction (type 1 hypersensitivity reaction).
6. Emergency therapeutic measures should be available in case of anaphylaxis.(resuscitation cart)



• **PATCH SKIN TEST**

- Important in contact dermatitis. (Type 4 cellular immunity)
- Select the most probable substance causing dermatitis.
- Apply the test material over the back. Ask patient to keep it and not to remove it. Then read it after 48 hours (first reading) then remove the patch. Look for any redness. The red lesions are then followed up after 24 hours (72 hours since the patch was applied) is the second reading. If the redness increased or there is vesicle formation this is a positive test for allergic contact dermatitis. But if the redness subsided it is irritant contact dermatitis



- Read after 48 & 72 hr. Look for (erythema, edema, vesiculation)
- Positive patch test showing erythema and edema.
- In severe positive reaction vesicles may be seen.

- **SKIN PUNCH BIOPSY**

1. Clean skin with alcohol.
2. Infiltrate with 1-2% xylocaine with adrenaline (not used on tender tips).
3. Rotate 2-6 mm diameter punch into the lesions (if less the 4 mm we do not need to suture it but if more the 4 mm we need to suture) (reach up to the subcutaneous tissue).
4. Lift specimen and cut at base of lesion.
5. Fix in 10% formalin (send it for histopathology)
6. For Immunofluorescence Put in normal saline (to keep the tissue fresh).
7. Suture if 5 mm is used.

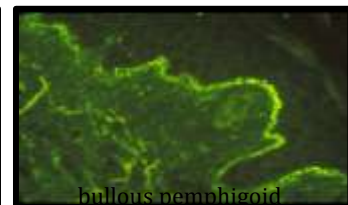
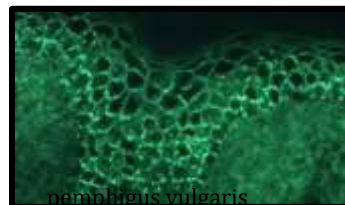
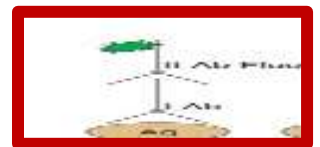
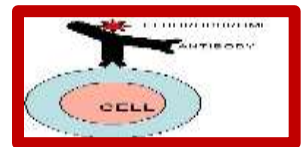


- **Direct immunofluorescence DIF**

-Used to diagnose autoimmune diseases e.g.

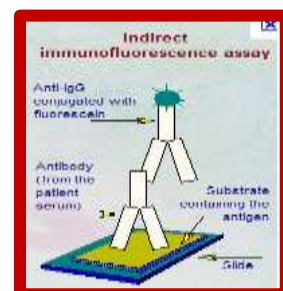
1. Pemphigus Vulgaris
2. Bullous pemphigoid
3. Lupus band test

- Detects immunoglobulin and complement deposits in skin.
- The deposits will give a green fluorescence
- Fluorescence will be noted if immunoglobulin deposits are intercellular between the epidermal cells as in pemphigus vulgaris or the Basement membrane zone as in bullous pemphigoid.

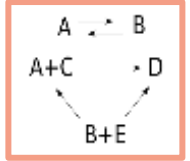


- **Indirect Immunofluorescence : IDIF**

- Detect auto antibodies in the serum.
- It is used:
  1. To confirm a diagnosis
  2. To differentiate between bullous diseases (the attack the same area in the skin). Eg. SLE, dermatitis herpiformis, pemphigus vulgaris Epidermolysis bullosa acquisita
  3. To monitor disease activity. i.e. if ab drop you may stop the treatment



## Reaction patterns



- Skin has limited number of responses to stimuli whether inflammatory or neoplastic.
- These responses are called reaction patterns.
- Reaction patterns aid in formulating differential diagnoses.

### 1. **Psoriasiform:**

- Well defined erythematous Papules or plaques with thick scale.
- Differential diagnosis:
  - Psoriasis.
  - Lichen simplex chronicus (**chronic eczema**)



### 2. **Pityriasiform:**

- Papules and plaques with delicate scales. Example Pityriasis rosea



### 3. **Lichenoid:**

- Flat topped polygonal **violaceous** papules.
- Differential diagnosis:
  - Lichen planus
  - Lichenoid drug reaction



### 4. **Bullous:**

- Differential diagnosis:
  - Pemphigus Vulgaris
  - Bullous Pemphigoid



### 5. **Pustular:**

- Differential diagnosis
  - Folliculitis
  - Varicella
  - Pustular psoriasis





**6. Eczematous:**

- Pruritic, ill defined erythematous edematous, vesicular eruption.
- Differential diagnosis
  - Atopic dermatitis.
  - Contact dermatitis




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## *Topical Therapy*

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- A wide variety of topical agents are available.
- Delivers the drug to target site.
- IF the lesion is dry -wet it
- IF wet -dry it.(Golden rule).

How to dry it? Using compressors (cloth of water) will cause it to evaporate

How to wet it? Creams, ointments

**Wet compresses:**

- Wet compresses - dries wet lesions. Like acetic acid, KMNO<sub>4</sub>(potassium permanganate)
- Wet compresses are
  1. Antibacterial.
  2. Cause debridement (removes the crust).
  3. Suppress inflammation (causes vasoconstriction).
- Topical drugs consist of active substance: like steroids, antimicrobial agents and vehicle.
- Vehicle: Is the base in which the active ingredient is dispersed. (the base in cream is water while ointment is oil)

**Creams**

- Creams are mixture of oils and water in which the active substance is dispersed.
- Creams are white in color- useful in folds

**Ointments:**

- Ointments are primarily grease.
- They are useful in dry lesions.
- Preserve moisture.
- Like petrolatum jelly and mineral oil.
- Ointments are applied to dry skin.
- Are translucent.



**Gels:**

- Gels are mixtures of propylene glycol and water.
- Sometimes they contain alcohol.
- They are translucent and are best used in wet disorders and hairy regions. Men , acne



**Topical steroids side effects:**

1. Atrophy and striae.
2. Telangiectasia and purpura.
3. Masking the initial lesion.
4. Perioral dermatitis and rosacea or acne.
5. Systemic absorption. Adrenal suppression
6. Tachyphylaxis. (Sudden loss of response)

If a patient with perioral dermatitis (scaly , itchy , red ) took a high potency steroid in the face you must taper the drug to avoid flaring , but in the rest of the body if a patient develops an ADR you may stop right away without tapering

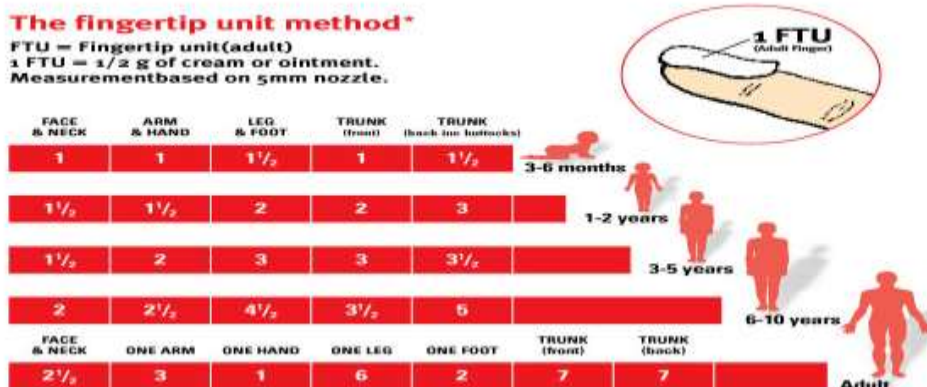
**Guidelines regarding steroid use:**

1. Avoid high potency steroid on flexures and face.
2. Avoid high potency steroid in children.
3. Avoid use for extended periods of time.(maximum for 2 weeks)

**How much to use?**

**Finger tip unit:**

- The amount of cream/ointment expressed from 5mm nozzle.
- It weighs 0.5g.
- It covers 2 hand units.



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## *Other therapeutic modalities*

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### Phototherapy machine/NBUVB



### Hand and feet narrow band UVB



### NBUVB is used to treat:

1. Vitiligo
2. Psoriasis
3. Lichen planus
4. Eczema
5. **Some malignancies**



### Liquid nitrogen gun. (Cryotherapy)

- Used to treat warts.



### Electric cautery:

Used to destroy skin tags and malignant tumors.



Quiz:



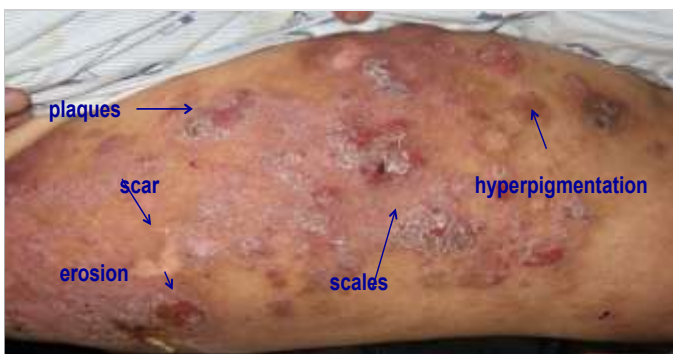
**Linear nodules with ulceration**



**Multiple erosions**



**Erosions, crusts, annular bullae**



**Scales, plaques, scars, erosion, hyperpigmentation**



**Confluent flat topped papules forming plaques**



**Erythematous papules**

Additional pictures from the males:



**Tumor:**

**Solid** elevation of the skin more than 2 cm in diameter and has depth. Like large nodule.



**Telangiectasia:**

**Dilated capillaries** visible on the skin surface. e.g. Rosacea.



**Poikiloderma:**

A morphologic descriptive term, refer to the **combination of atrophy, telangiectasia, and pigmentary changes** (hypo or hyperpigmentation) e.g. Dermatomyositis, Radiodermatitis, Mycosis fungoides.



Atopic dermatitis



Pemphigus vulgaris



Erythematous rosacea



Pyoderma gangrenosum.



Behchets Disease

## Summary

### Primary skin lesion features:

- ❖ Macule is small, flat, colored skin; Patch is bigger.
- ❖ Papule and plaque are elevated; Nodule have a depth.
- ❖ Vesicle is small, containing fluid; Bulla is bigger.
- ❖ Purpura is collection of blood; Telangiectasia is dilated capillaries.

### Secondary skin lesion features:

- ❖ Scale is detached fragment of stratum corneum.
- ❖ Excoriation is a shallow abrasion; Lichenification is a thickening and pigmentation.
- ❖ Erosion depressed lesion with loss epidermis; Ulcer a hole with destruction of epidermis and dermis.

## Questions

**1- In which disease we see Nikolsky's sign:**

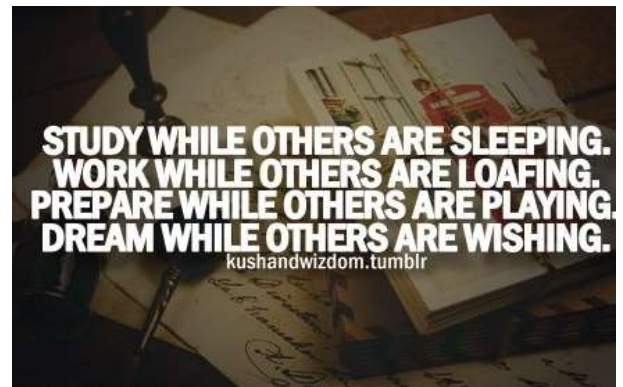
- a- Behcet's disease
- b- Psoriasis
- c- Rosacea
- d- Pemphigus Vulgaris

**2- Which of the following is secondary lesion:**

- a- Telangiectasia
- b- Purpura
- c- Scale
- d- Cyst

**3- A moist, circumscribed, usually depressed lesion that result from loss of all a portion of the epidermis:**

- a- Ulcer
- b- Erosion
- c- Fissure
- d- Poikiloderma



Answers:

- 1- D
- 2- C
- 3- B