DERMATOLOGY

Morphology of skin lesions signs & Investigations

DONE BY

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TEAM LEADER

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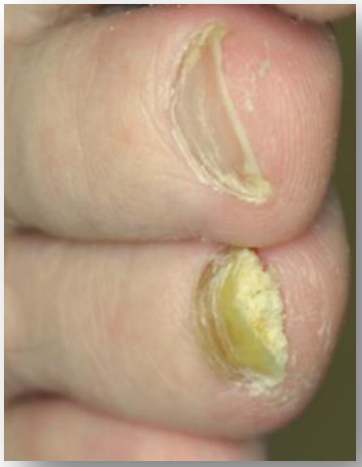
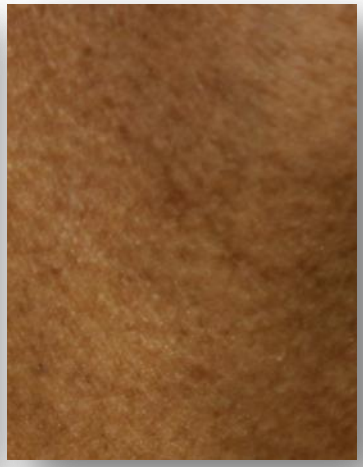
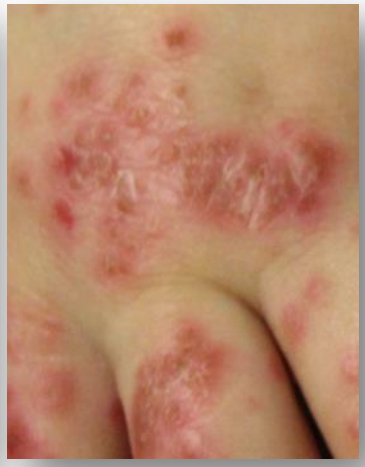
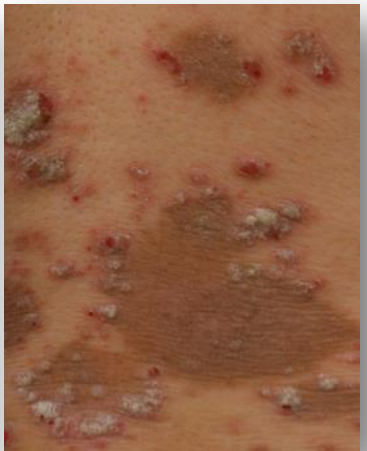





FROM SLIDES DOCTOR'S NOTES TEAM'S NOTES FROM BOOK IMPORTANT

Morphology

Skin lesions are divided into :

- Primary lesion : Basic lesion.

Primary lesions	Features
Macule/patch	Only discoloration of the skin : ○ Macule = (<0.5 cm) ○ Patch = (> 0.5 cm)
Papule/plaque	Elevated lesion without depth ○ Papule = (< 0.5 cm) ○ Plaque = (> 0.5 cm)
Nodule	Elevated lesion + has a depth ○ 0.5 cm in diameter
Cyst	Elevated lesion + has a depth contains fluid or semisolid material
Burrow	Linear tunnel in the epidermis ✓ **scabies mite**
Vesicle/bulla	Elevation that contains clear fluid ○ Vesicle = (< 0.5 cm) ○ Bulla = (> 0.5 cm)
Pustule	Elevation contains pus
Purpura	Blood gunder the skin (**Extra-vasation**) ✓ red or purple discolorations of the skin
Wheal	Firm, edematous plaque

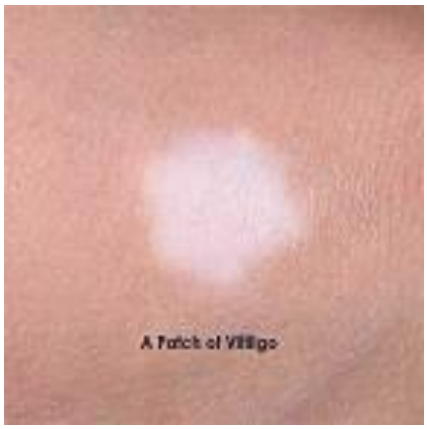
- Secondary lesions : Develop during evolution of skin disease created by <u>scratching or infection</u>
  - ✓ Secondary skin lesions are those changes in the skin that result from primary skin lesions, either as a natural progression or as a result of a person manipulating (e.g. scratching or picking at) a primary lesion.

  - ❖ Excoriation
  - ❖ Erosion
  - ❖ Scale
  - ❖ Fissure
  - ❖ Ulcer
  - ❖ Lichenification
  - ❖ Scar

Primary lesions

1- Macule

Flat circumscribed discoloration that lacks surface elevation or depression (<0.5 cm).



2- Patch

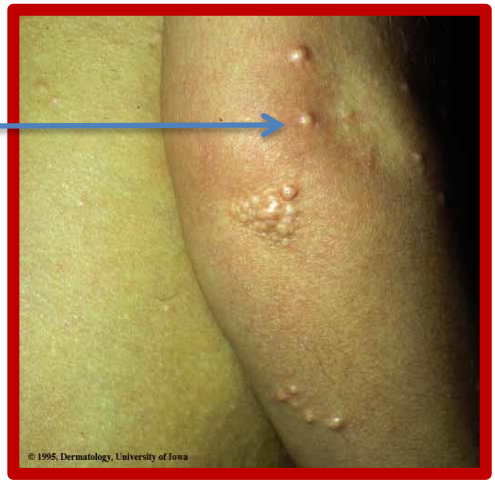
Flat circumscribed skin discoloration; a large Macule (> 0.5cm).

3- Papule

Elevated, Solid lesion < 0.5cm in diameter.
Notice color and surface changes

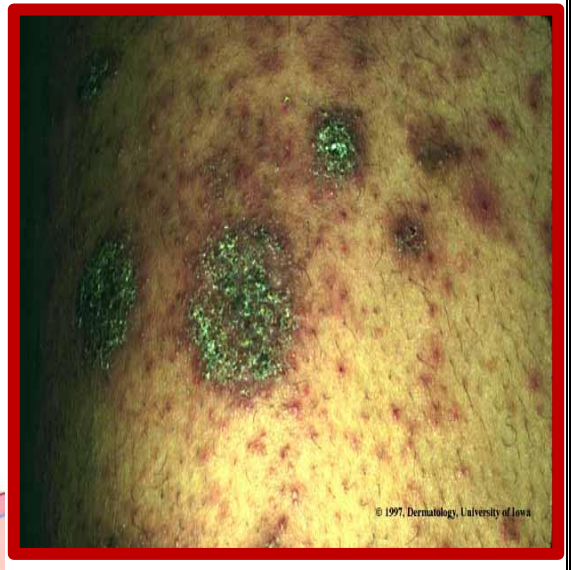
e.g

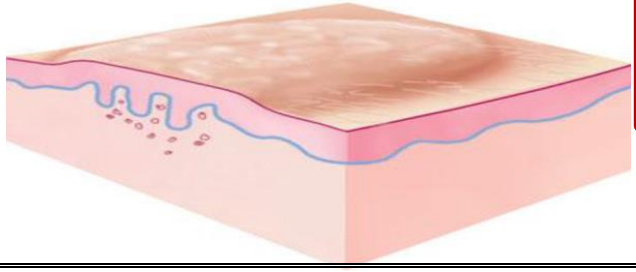
- Umblicated,
- Keratotic
- Papillomatous
- Flat topped.



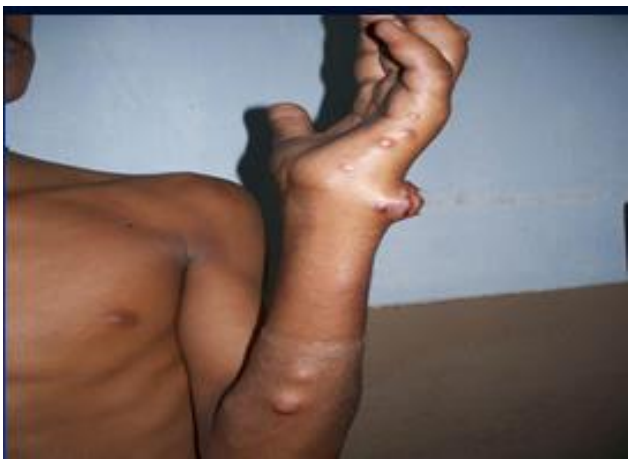
4- Plaque

Elevated
Solid confluence or expansion of papules
> 0.5 (lacks a deep component).





5- Nodule

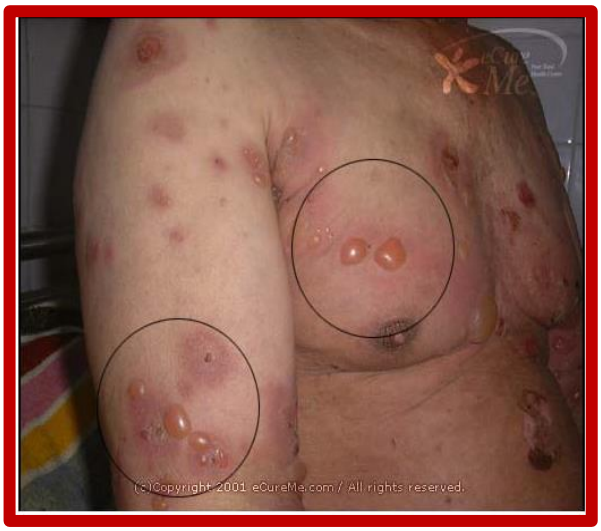


Elevated
Solid lesion > 0.5 cm in diameter
with deep component

6- Cyst

Nodule that contains fluid or semisolid material.

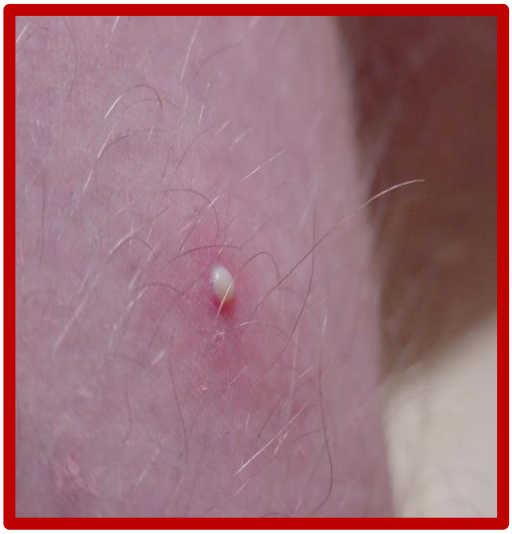
7- Blisters (Vesicle & bulla)



Vesicle:
- ✓ Elevation that contains clear fluid.

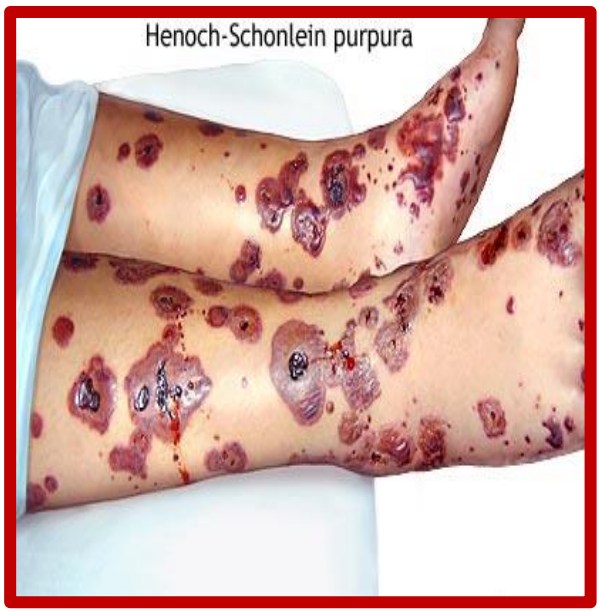
Bulla:
- ✓ large vesicle

8- Pustule



- ✓ Elevation that contains purulent fluid (pus)

10- Purpura:



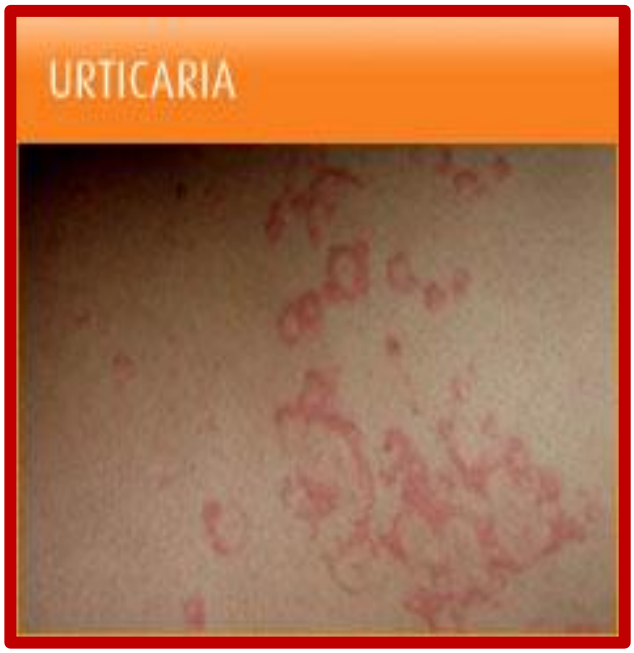
Extra-vasation of red blood cells giving non- blanchable erythema

11- Burrow

Linear tunnel in the epidermis induced by scabies mite

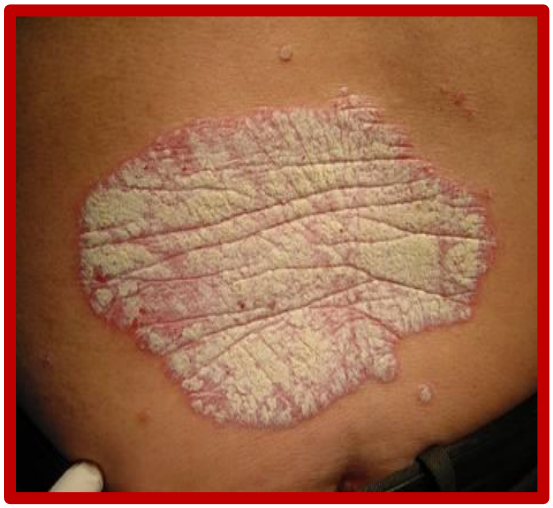
12- Wheal

Firm, edematous plaque that is evanescent (short lived) and pruritic; a hive



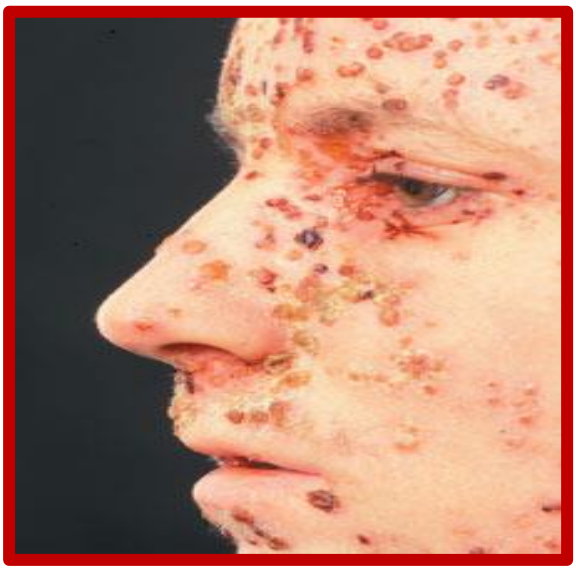
Secondary Lesions

1- Scale:



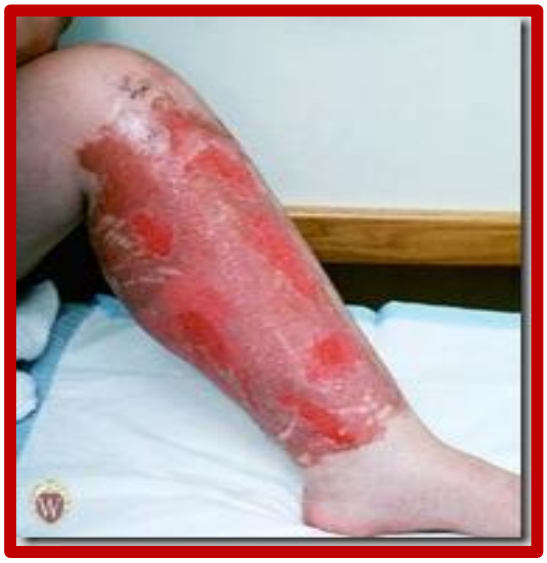
- ✓ Thick stratum cornium

2- Crust



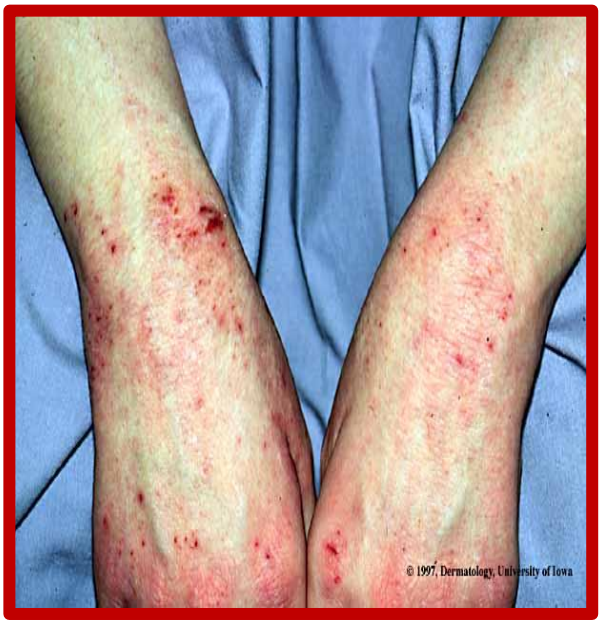
A collection of cellular debris, dried serum and blood . Antecedent primary lesion usually a vesicle, bulla, or pustule.

3- **Erosion**



A partial focal loss of epidermis that heals without scarring.

4- **Excoriation :**

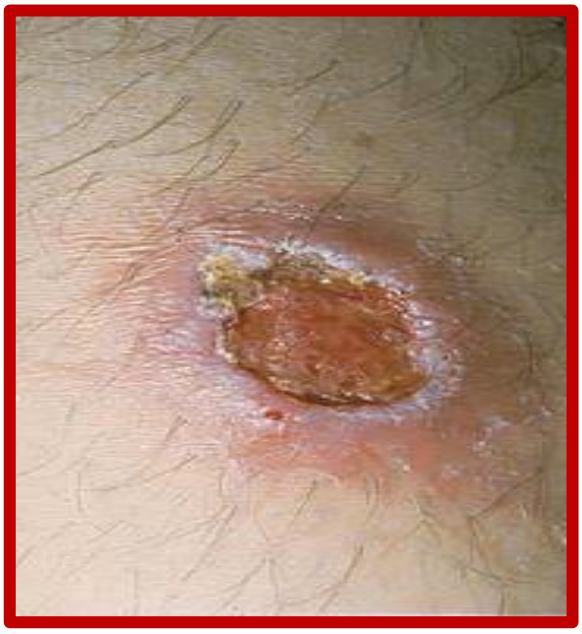


Linear erosion induced by scratching

5 – Fissure

Vertical loss of epidermis and dermis with sharply defined walls: crack in skin

6- Ulcer

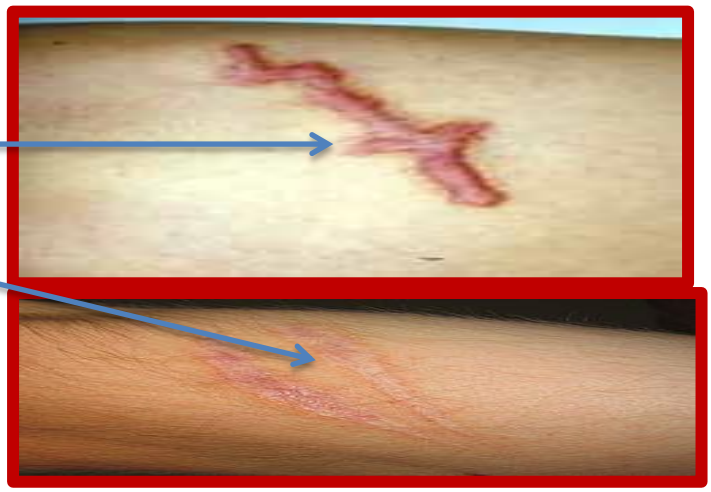


A full thickness focal loss of epidermis and dermis; heals with scarring

7 - Scar:

A collection of new connective tissue; may be :

- hypertrophic
- Atrophic

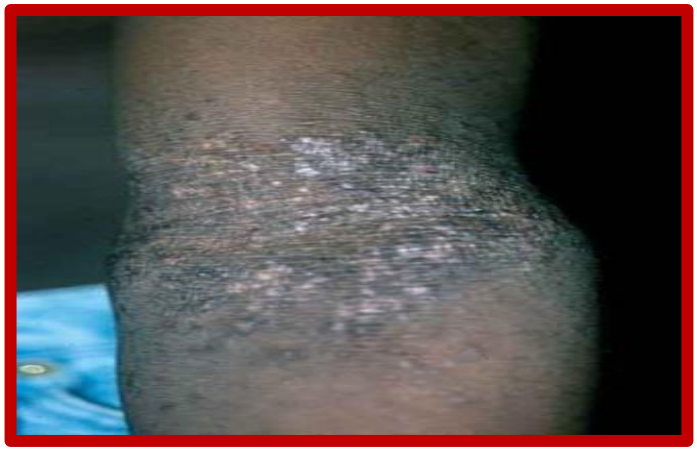


✓ implies dermo-epidermal damage

8 - Lichenification:

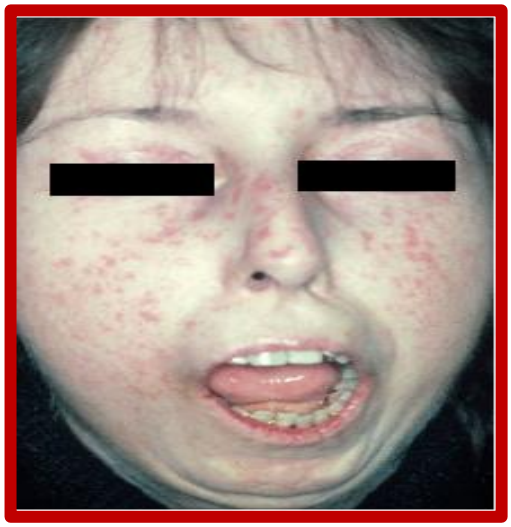
Increased skin markings secondary to scratching

✓ Occur in chronic eczema



Specialized Terminology

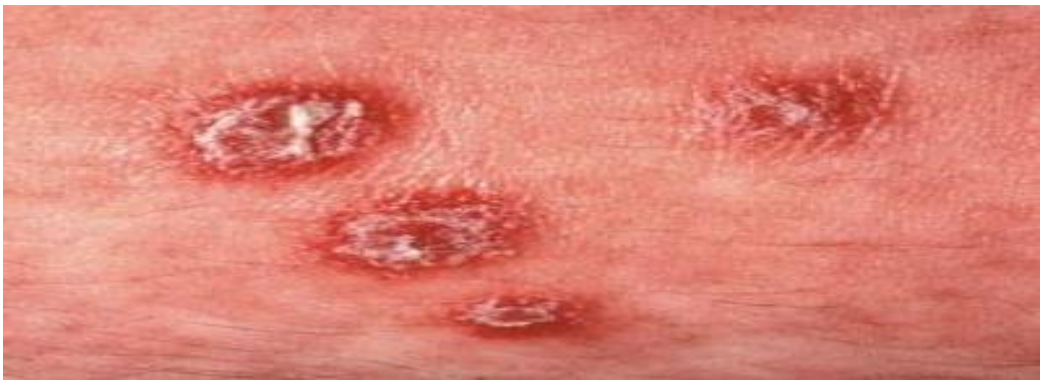
❖ **Sclerosis**
Hardening of the skin, (Skin is un-pinchable)



✓ How to describe the lesion [VERY IMPROTANT] !!

Number of the lesion → Texture → Border → Color → Surface → Name of the lesion → Location

Multiple well-defined regular erythematous scaly patch occupying (location of lesion)



Important signs

NIKOLSKY SIGN

Rubbing of apparently normal skin induce Blistering
Seen in :

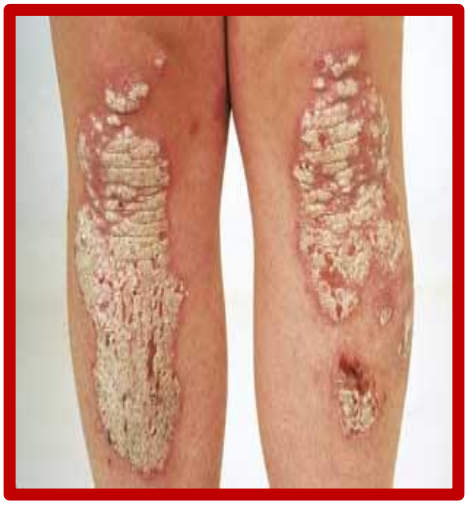
- Pemphigus vulgaris
- Toxic epidermal necrolysis (TEN)

The epidermis is detached and slipping free from the dermis with slight pressure

AUSPITZ SIGN

Removal of scale on top of a red papule produces bleeding points
(pinpoint hemorrhage from superficial dermal capillaries.)
Seen in PSORIASIS

occurs because the capillaries under the epidermis are numerous and twisted, and very close to the surface. Removing a scale or scraping the skin basically rips open the very top-most capillaries, resulting in bleeding

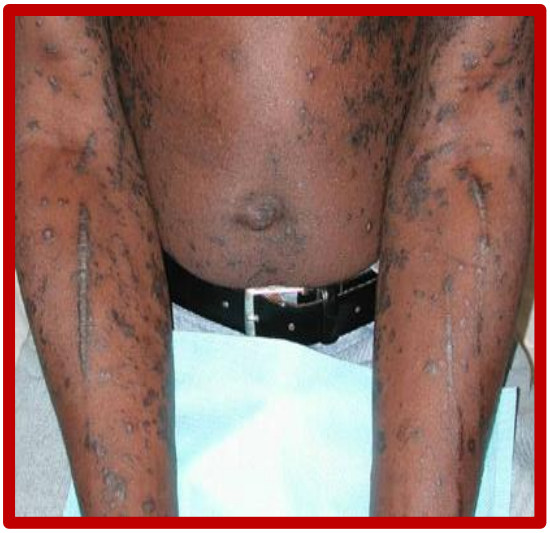


Koebner's phenomenon

Trauma to the skin produce certain diseases
(skin lesions which appear at the site of injury)
Seen in :

a.Psoriasis
b.Vitiligo
c.Lichen planus.
d.Warts.

After injury to the skin, new psoriasis plaques can flare up at the site of injury, or old ones spread. For this reason, it is important for psoriatics to avoid skin damage wherever possible.

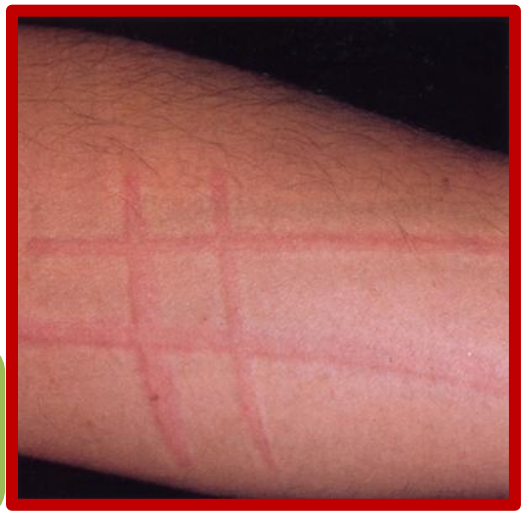


DERMATOGRAPHISM

Firm stroking of the skin produce erythema and wheal

Seen in:

- Physical urticaria
- Patient with atopy.



When you scratch the normal skin => edema and erythema => skin becomes raised and inflamed (YOU CAN WRITE ON SKIN)

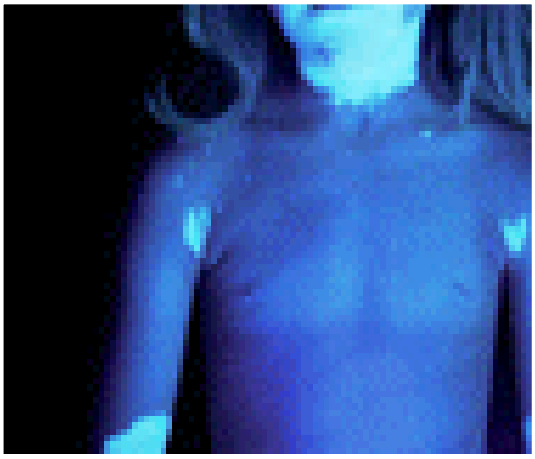
INVESTIGATIONS

Wood's lamp :

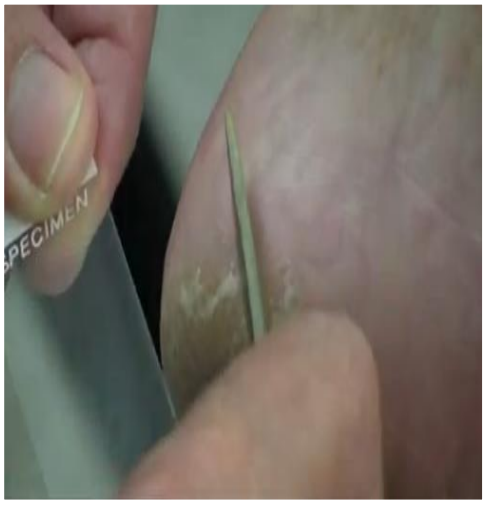
Produces long wave UVL (360 nm)

Useful in :

- Tinea Versicolor-Yellow green flourescence
- Tinea Capitis -yellow green flourescence in (M.canis, M. Andouini)
- Erythrasma –coral red flourescence
- Vitiligo - Milky white.



KOH preparation for fungus



Cleanse skin with alcohol Swab.
Scrape skin with edge of microscope slide onto a second microscope slide

Put on a drop of 10% KOH
Apply a cover slip and warm gently
Examine with microscope objective lens

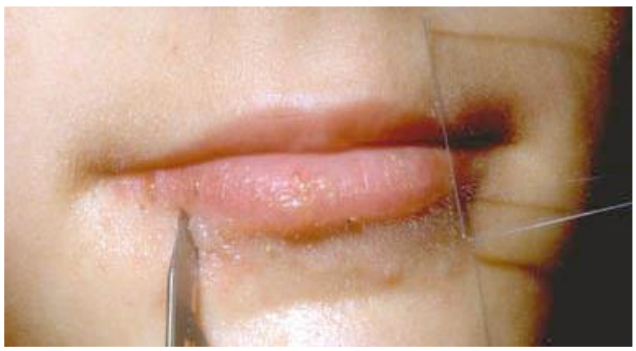
- ✓ You may see hyphae and/ or spores

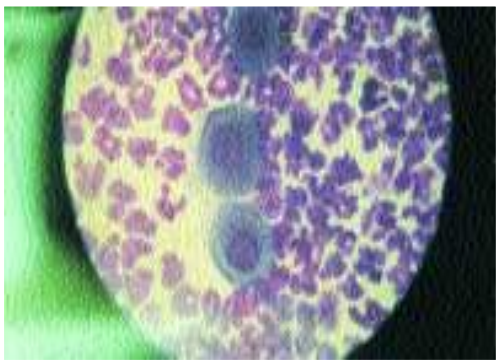
Tzank smear :

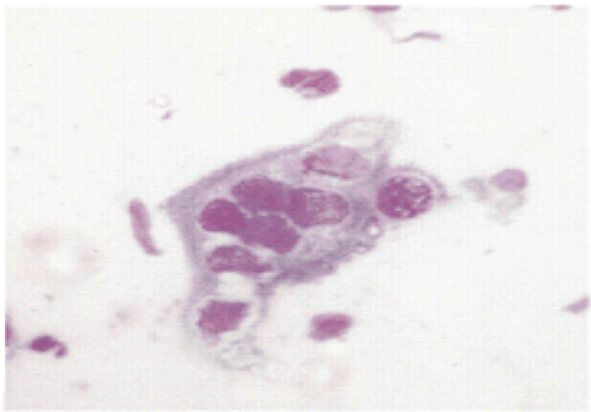
Important in diagnosing :

- Herpes simplex or VZV (multinucleated giant cells)
- Pemphigus Vulgaris (acantholytic cells).

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







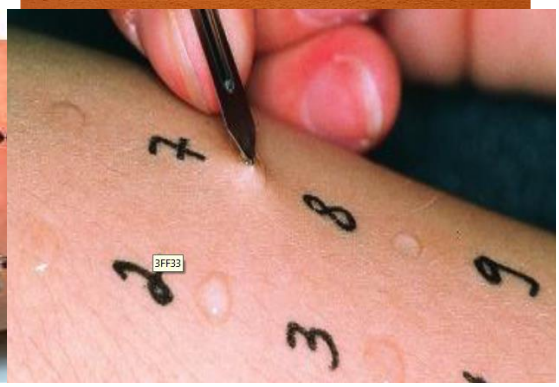
Prick test

Put a drop of allergen containing solution
A nonbleeding prick is made through the drop.

After 15-20 mins the antigen is washed , the reaction is recorded.

A positive test shows urticarial reaction at site of prick.

Detects immediate-type IgE mediated reaction
Emergency theraputic measures should be available in case of anaphylaxis.



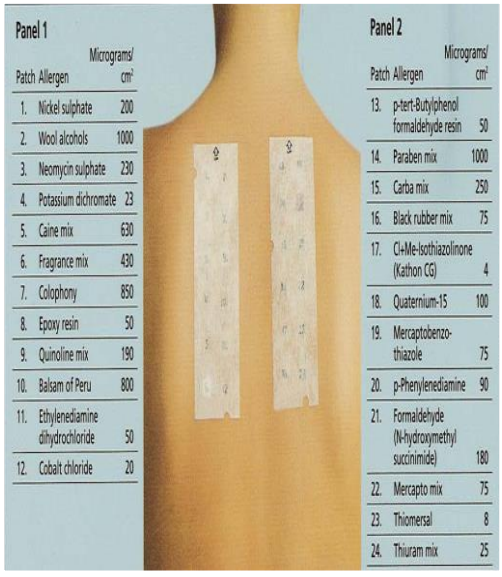
PATCH SKIN TEST

Important in contact dermatitis
Select the most probable substance causing dermatitis

Apply the test material over the back
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

- ✓ Test type 4 reaction Cell mediated immunity



Panel 1			Panel 2		
Patch	Allergen	Micrograms/ cm²	Patch	Allergen	Micrograms/ cm²
1.	Nickel sulphate	200	13.	p-tert-Butylphenol formaldehyde resin	50
2.	Wool alcohols	1000	14.	Paraben mix	1000
3.	Neomycin sulphate	230	15.	Carba mix	250
4.	Potassium dichromate	23	16.	Black rubber mix	75
5.	Caine mix	630	17.	Cl+Me-Isothiazolinone (Kathon CG)	4
6.	Fragrance mix	430	18.	Quaternium-15	100
7.	Colophony	850	19.	Mercaptobenzo-thiazole	75
8.	Epoxy resin	50	20.	p-Phenylenediamine	90
9.	Quinoline mix	190	21.	Formaldehyde (N-hydroxymethyl succinimide)	180
10.	Balsam of Peru	800	22.	Mercapto mix	75
11.	Ethylenediamine dihydrochloride	50	23.	Thiomersal	8
12.	Cobalt chloride	20	24.	Thiuram mix	25

SKIN PUNCH BIOPSY

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
Put in 10% formalin
"For Immunoflourescence put in normal saline"

Direct immunoflouresence DIF :

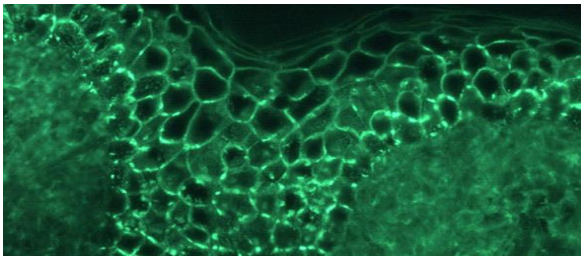
Used to diagnose autoimmune diseases e.g.

- ✓ PemphigusVulgaris
- ✓ Bullous pemphigoid

Detects immunoglobulinand complement deposits in skin.

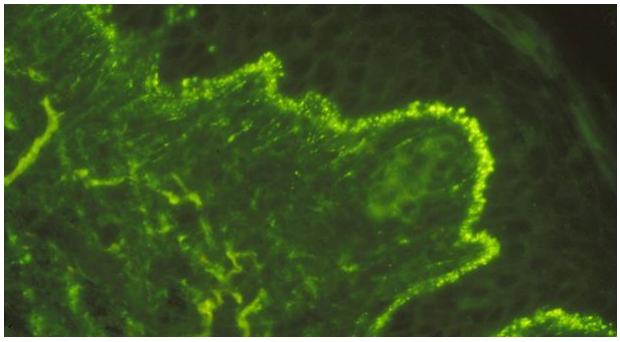
Fluorescence will be noted if immunoglobulin deposits are :

Intercellularly between the epidermal cells as in
✓ pemphigus vulgaris



OR

at the Basement membrane zone as in
✓ bullous pempigoid



Indirect ImmunoFluorescence : IDIF

Detect auto antibodies in the serum

It is used to confirm a diagnosis

- To differentiate between bullous diseases
- To monitor disease activity

Topical therapy and others.

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)

Wet compresses - dries wet lesions.
Like KMNO4

Wet compresses are

- Antibacterial
- Cause debridment
- Suppress inflammation.

Topical drugs consist of :

Active substance like steroids, antimicrobial agents and vehicle
(Vehicle: Is the base in which the active ingredient is dispersed.)

Topical steroids 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)

<u>Guidelines regarding steroid use:</u>

Avoid high potency steroid on flexures and face.
Avoid high potency steroid in children.
Avoid use for extended periods of time.

Creams are mixture of oils and water in which the active substance is dispersed.

- ✓ white in color- useful in folds.
  Used in acute eczema

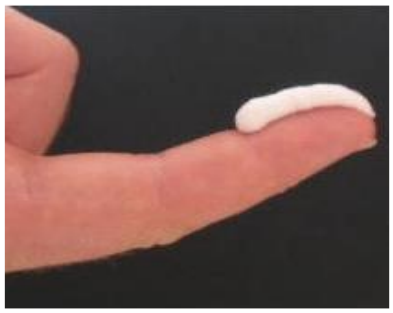
Ointments are primarily grease. They are useful in dry lesions
e.g. petrolatum jelly and mineral oil.

- ✓ They are translucent
  Used in eczema

Gels are mixtures of propylene glycol and water.
Sometimes they contain alcohol .
They are translucent and

- ✓ Best used in wet disorders and hairy regions
- ✓ mucose membrane

How much to use?



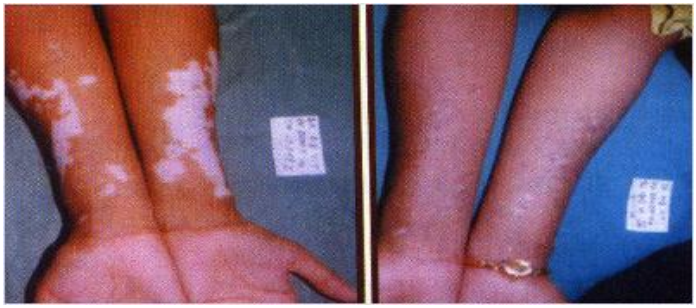
Finger tip unit:

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

1- PHOTOTHERAPY MACHINE/NBUVB (narrowband uvb light therapy)

- ✓ Hand and feet narrow band UVB (most common use in KKUH)

Vitiligo treated by NBUVB

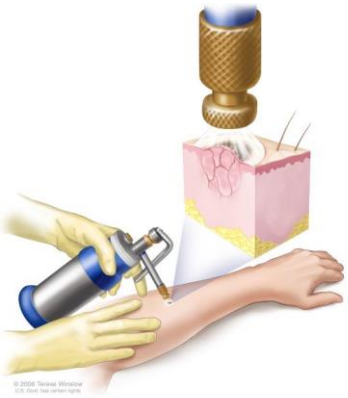


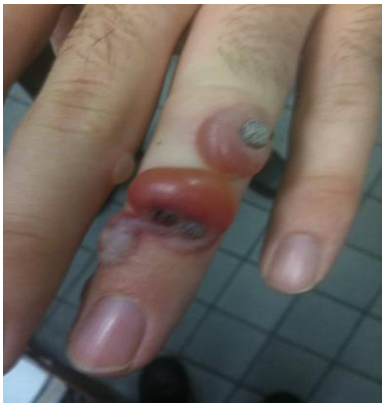
Other indications include :

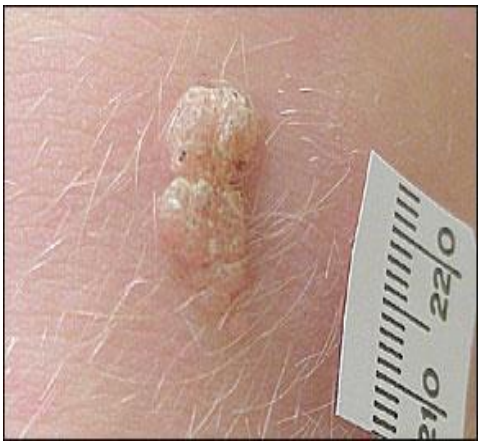
- psoriasis
- Lichen planus
- Eczema

2- Liquid nitrogen gun(Cryotherapy)

- ✓ Used to treat warts



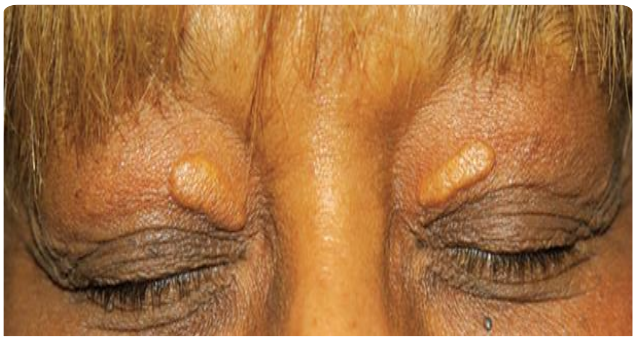




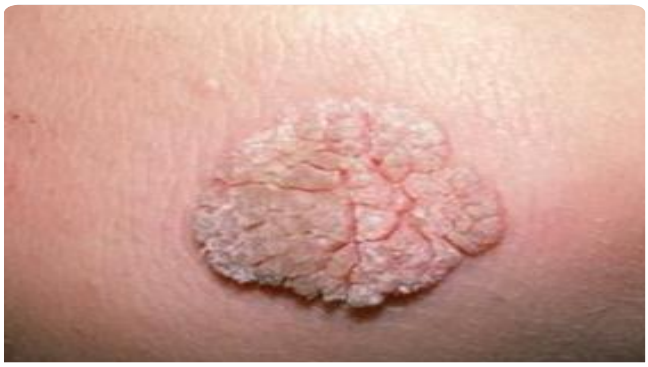
3- Electric cautery

- ✓ Used to destroy skin tags
- ✓ Malignant tumors

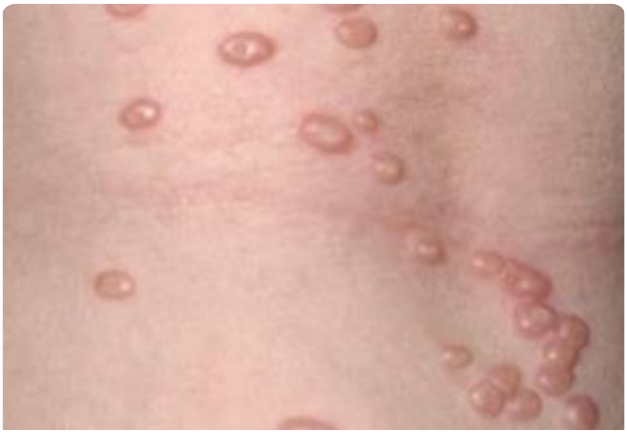
Quiz



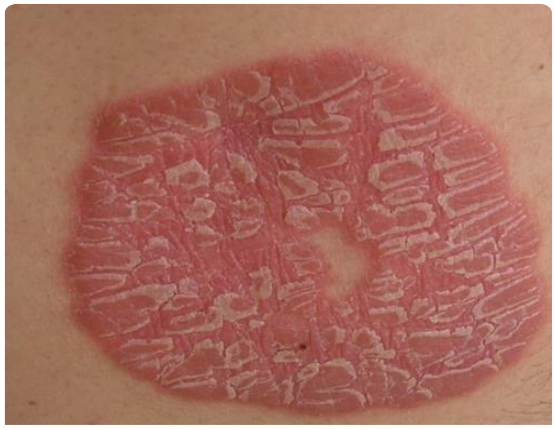
Bilateral yellow plaques



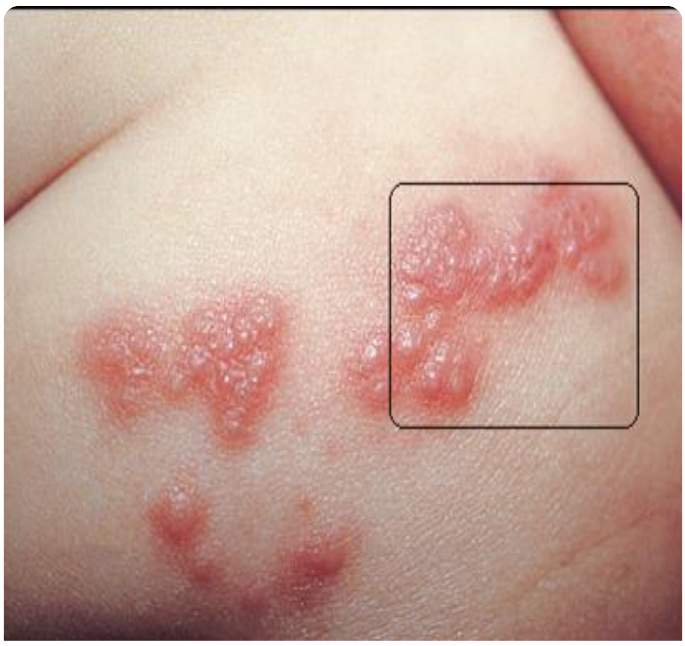
Keratotic papillomatous skin colored



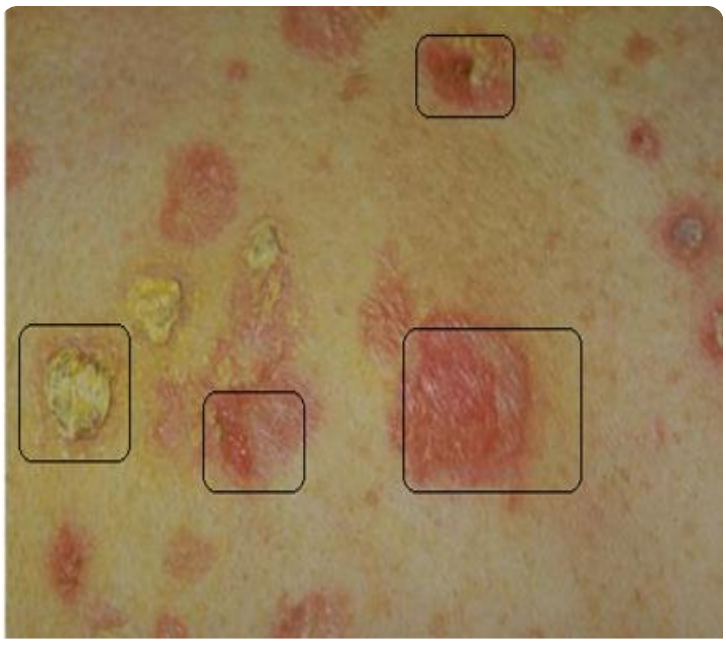
Umblicated pearly papules, some are grouped



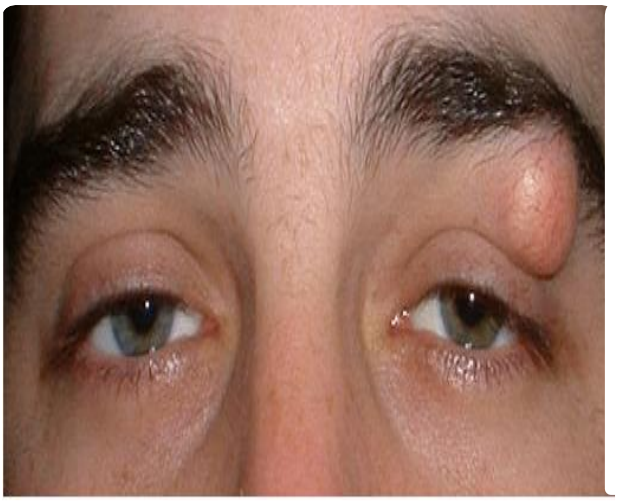
Annular erythematous scaly plaque



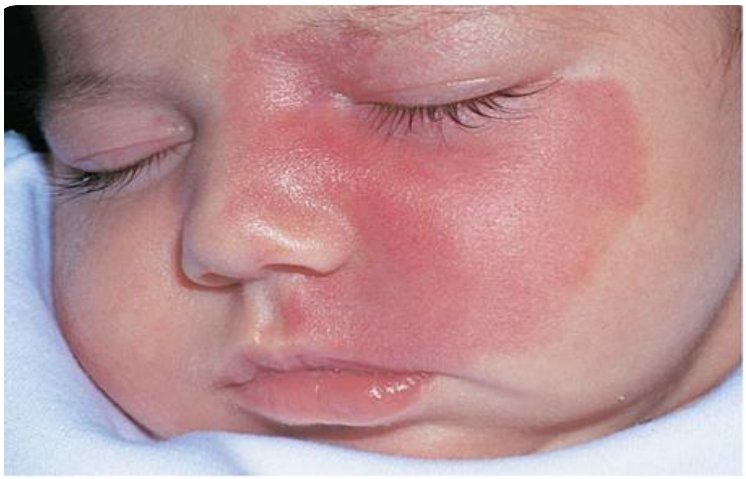
Grouped vesicles on erythematous base



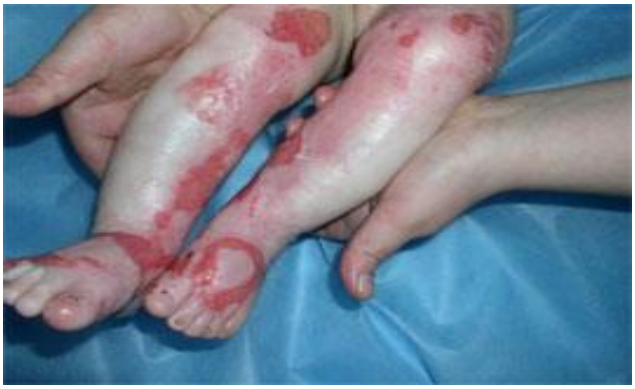
Yellow crust, erosions, flaccid bulla on erythematous base



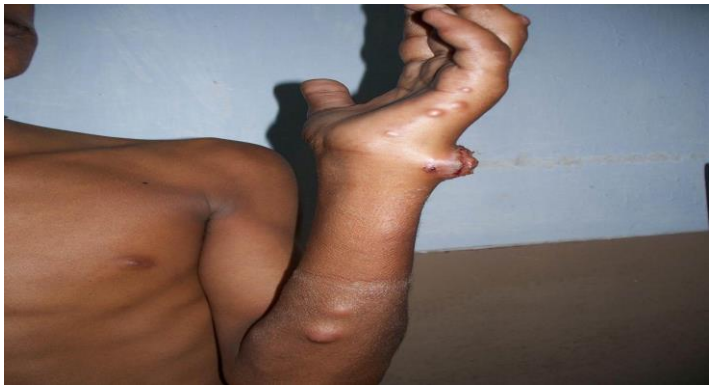
1 cm cyst with telangiectasia



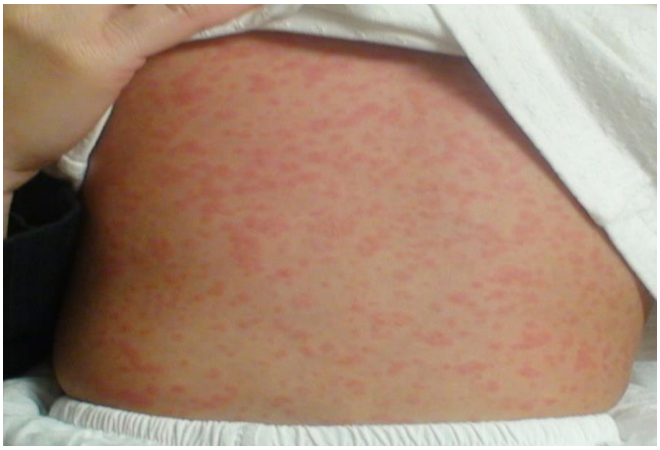
Unilateral erythematous patch



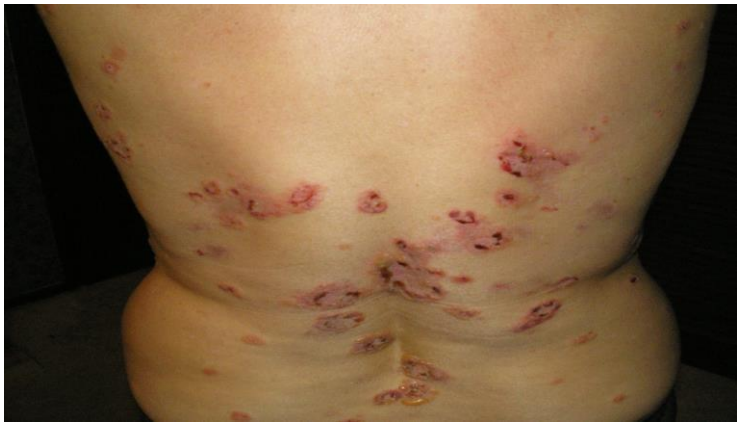
Multiple erosions



Linear nodules with ulceration



Erythematous papules



Erosions, crusts, annular bullae

1- Which One of the following is a Primary lesion:

a) Crust.
b) Fissure.
c) Scale.
d) Ulcer.
e) Vesicle.

2- Pigmentation that cause by trauma called:

a) Ulcer.
b) Koebner phenomena.
c) Fissure.
d) Nikolsky's sign.
e) Parakeratosis.

3- What do you call a flat-topped elevation of the skin (> 1 cm):

a) Macule.
b) Papule.
c) Nodule.
d) Plaque.
e) Pustule.

4- A 10 years old boy presented to your clinic complaining of asymptomatic white patches over face and body for few months. On examination there were multiple well demarcated hypopigmentated macules and patches. In this patient presentation how you would differentiate between a macule and patch?

a) By the size
b) By the color
c) By the depth
d) By the consistency

ANS :

1- E
2- B
3- D
4- A