

# Notes in Dermatology for 5th year students

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# Pathological Terms

## Types of Skin Lesions

### PRIMARY LESIONS

Flat discolored, nonpalpable changes in skin color



Macule



Patch

Elevation formed by fluid in a cavity



Vesicle



Bulla



Pustule

Elevated, palpable solid masses



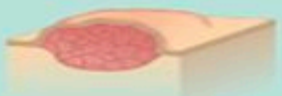
Papule



Plaque



Nodule



Tumor



Wheal

### SECONDARY LESIONS

Loss of skin surface



Erosion



Ulcer



Excoriation



Fissure

Material on skin surface



Scale



Crust



Keloid

### VASCULAR LESIONS



Cherry angioma



Telangiectasia



Petechiae



Ecchymosis

# Primary skin lesions

- Macule : freckles
- Patch ( no scales ) : vitiligo, melasma
- Papule : lichen planus , warts
- Vesicle : dyshidrotic eczema
- Sterile vesicles: bullous dermatoses
- Bulla : burns , friction, impetigo, insect bite
- Wheal : urticaria



Tense bullae with  
vesicles and  
erythema  
Hx of pruritic rash  
up to 3 months  
**Bollous**  
**pemphigoid**



Salmon like  
colored plaque  
with silver  
scales  
**Psoriasis**

Erythrodermal  
psoriasis is  
extensive  
psoriasis



Café au lait macules  
and patch  
If more than 6 and  
bigger than 1.5 cm  
( 0.5 in children)  
then it is  
neurofibromatosis



Depigmented macule

**Ddx** : vitiligo ( Koebner's phenomenon )

Nervous depigmentosa ( since birth , globular pattern on dermoscope )

Idiopathic guttate hypopigmentation



**Dermographism :**  
exaggerated whealing  
tendency





Group of vesicles  
**Herpes simplex or zoster**  
Differentiate by relation of  
onset to pain



Koebner's phenomenon:  
Psoriasis  
Lichen planus  
Vitiligo  
Still's disease  
Small vessel vasculitis



**Ddx:**  
Insect bite  
Infected wound  
orf (viral infection from  
meat)

# The difficulties of diagnosing skin disorders



Approach:  
History ( drug hx  
back to 6 months )  
Physical  
Investigation

# *A methodical approach*

- The recommended approach to the patient with skin disease is as follows:
  - **History.** Obtain a brief history, noting duration, rate of onset, location, symptoms, family history, allergies, occupation, and previous treatment.
  - **Distribution.** Determine the extent of the eruption by having the patient disrobe completely
  - **Primary lesion.** Determine the primary lesion. Examine the lesions carefully; a hand lens is a valuable aid for studying skin lesions. Determine the nature of any secondary or special lesions.
  - **Differential diagnosis.** Formulate a differential diagnosis.
  - **Tests.** Obtain a biopsy and perform laboratory tests, such as skin biopsy, potassium hydroxide examination for fungi, skin scrapings for scabies, Gram stain, fungal and bacterial cultures, cytology (Tzanck test), Wood's light examination, patch tests, dark field examination, and blood tests.

# KOH MOUNT - PROCEDURE

## Sample Collection

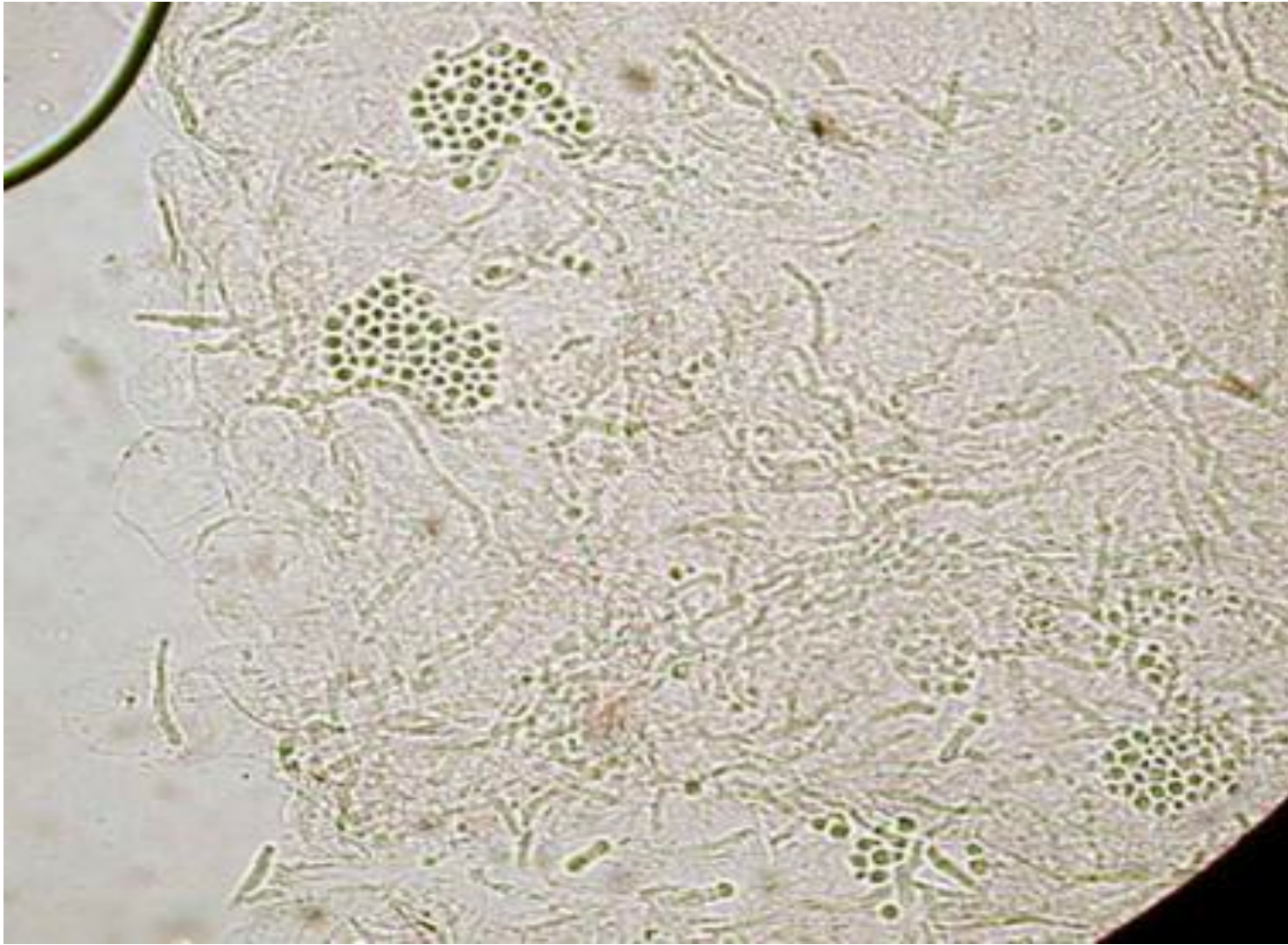
- Skin – cleaned with alcohol, scraped with scalpel
- Hair – plucked with forceps
- Nail – undersurface of nail plate is scraped

## KOH mount

- 10% KOH (20% for nails) added and heated
- Hyperkeratotic specimens – left for half to 2 hours
- Nail – 24 to 48 hours

## Microscopic Examination

- Fungal spores or hyphae are detected



KOH for fungal infections  
Suspect when there are  
scales  
Detects spores , hyphae and  
stratum corneum cells  
Meat and spaghetti pattern



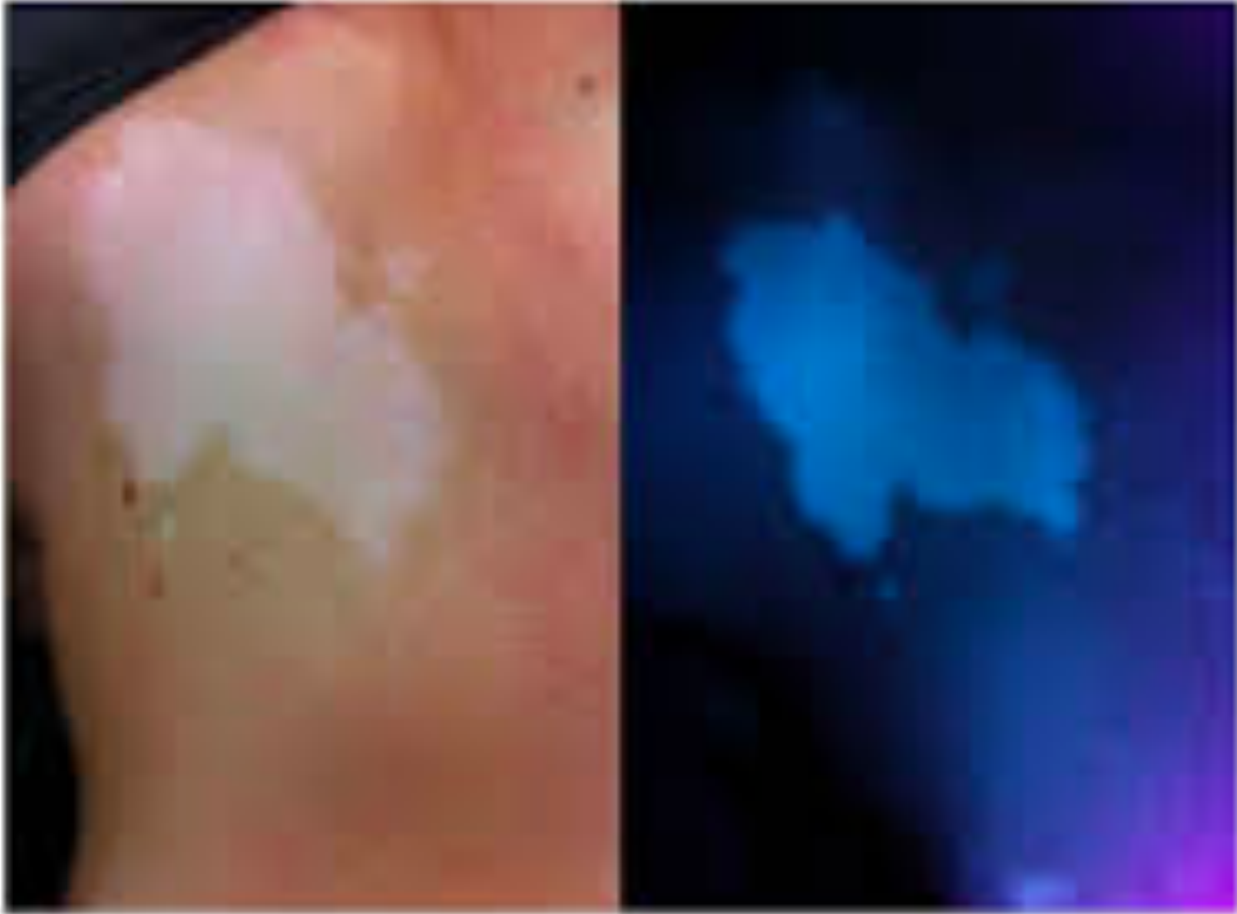
Wood's light test

365 nm

**Uses :** establish contrast between normal skin and hyper or hypo pigmented skin and detect infection

**Colors :** white- vitiligo , pink- erythrasma ( bacterial infection) , green- tinea capitis, golden yellow- tinea versicolor (malassezia furfur , not itchy, not contagious, but treated to avoid hypopigmentation) , pseudomonas- blue





Superficial depigmentation is clearer than deep  
Vitiligo may not be present clinically so check bilaterally

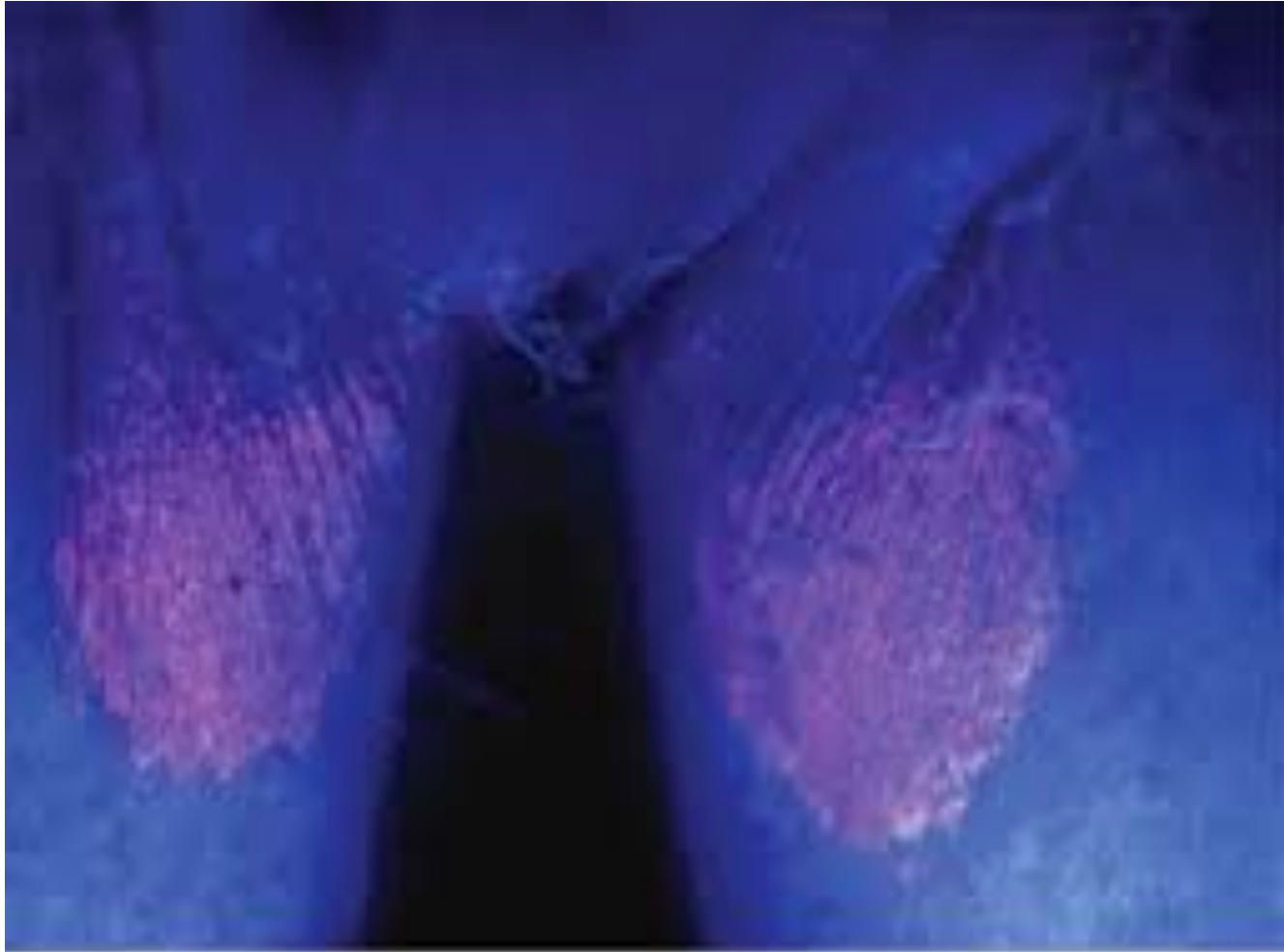
Vitiligo: bright bluish-white fluorescence in Wood's light.



## **Tenia capitis**

Green florescence if  
ectothrix but no florescence  
if endothrix

Patches of hair loss with  
normal scalp is **alopecia  
areata**

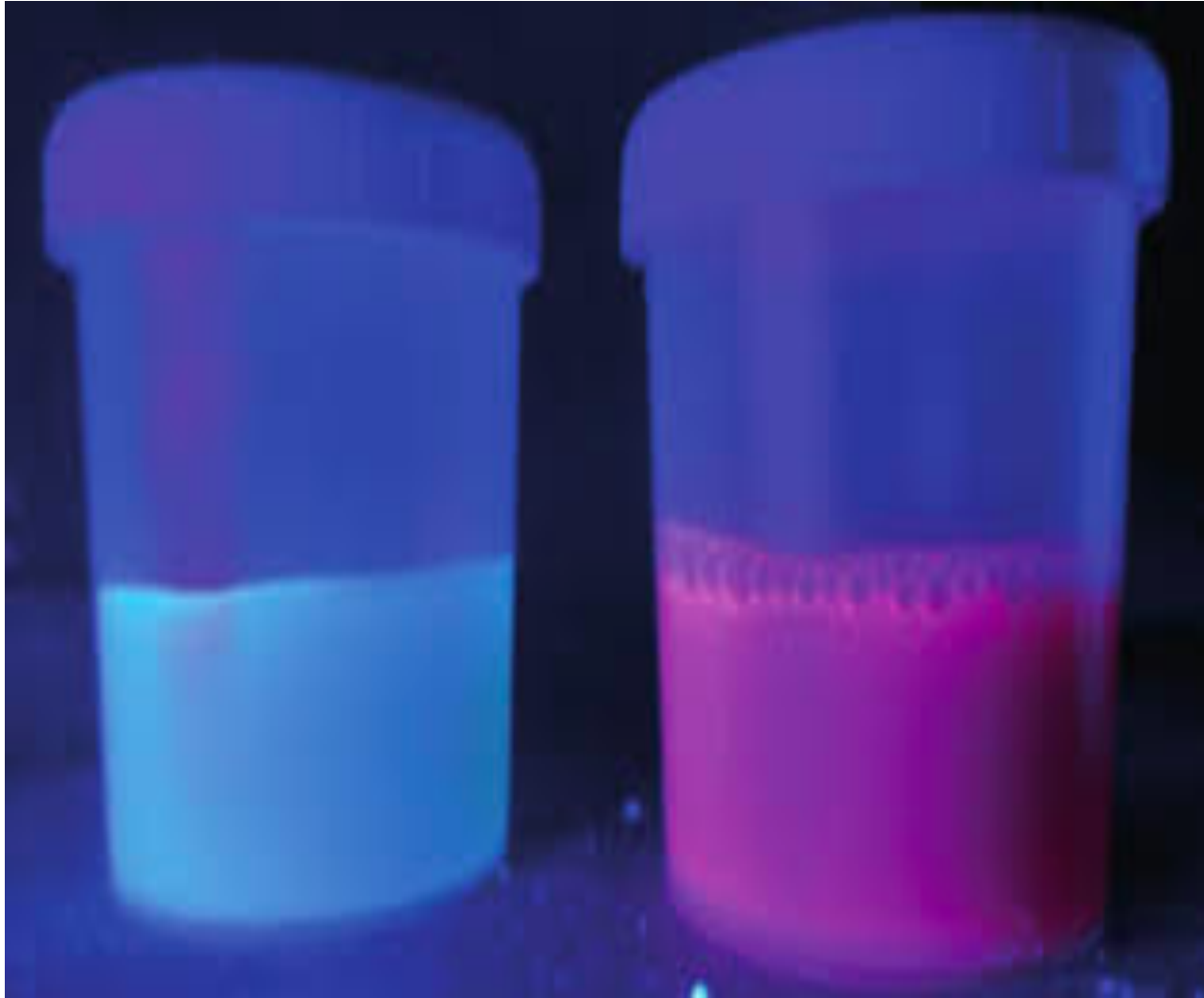


## Erythrasma

Source: Carol Soutor, Maria K. Hordinsky:  
Clinical Dermatology  
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Tinea versicolor



Wood's test on  
urine in case of  
porphyria



Patch test for eczema ,  
allergic or contact  
dermatitis

Wait 24 h but if reactions  
occurred before remove it



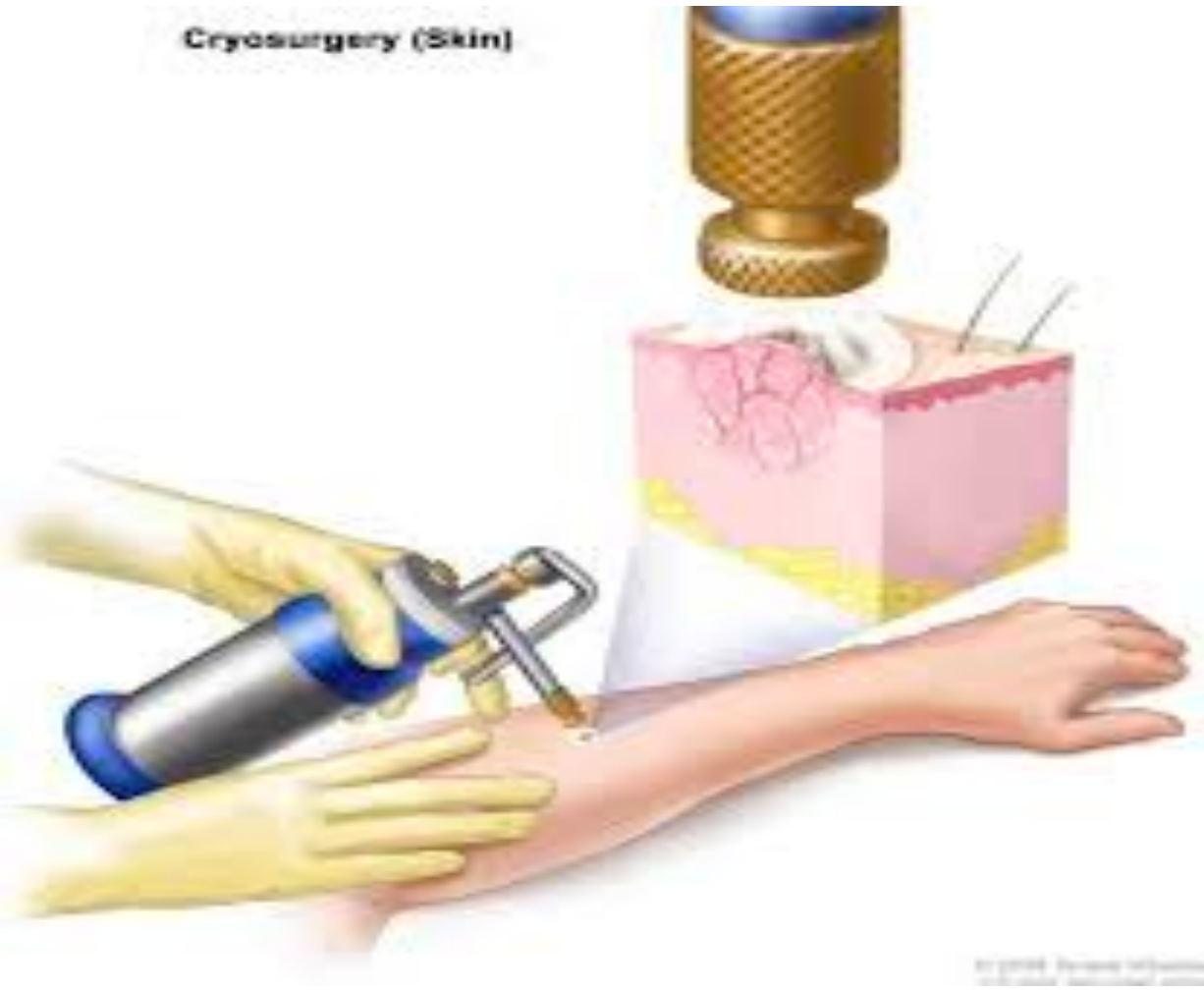
Prick test for respiratory diseases or urticaria



Dermoscope  
Stethoscope of  
dermatologists



## Cryosurgery (Skin)



Cryotherapy  
Liquid nitrogen of  $-196\text{ }^{\circ}\text{C}$   
Uses : warts , orf , actinic  
keratosis

## Treatment Stages of Cryotherapy Liquid Nitrogen



Application



Blister stage



Crusting stage

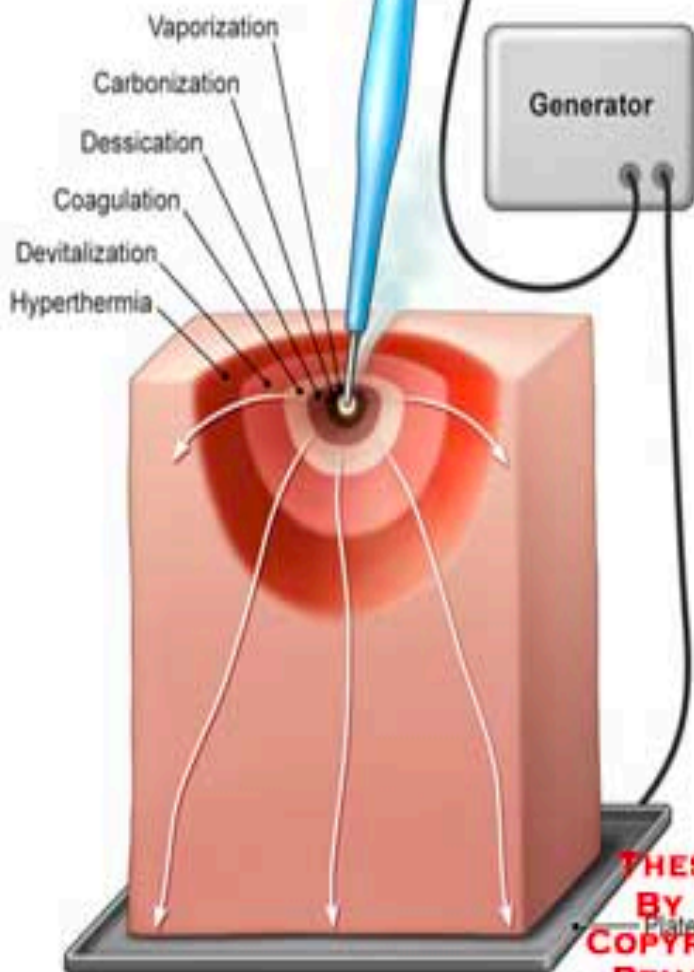


Clearance

# Monopolar Cautery vs. Bipolar Cautery

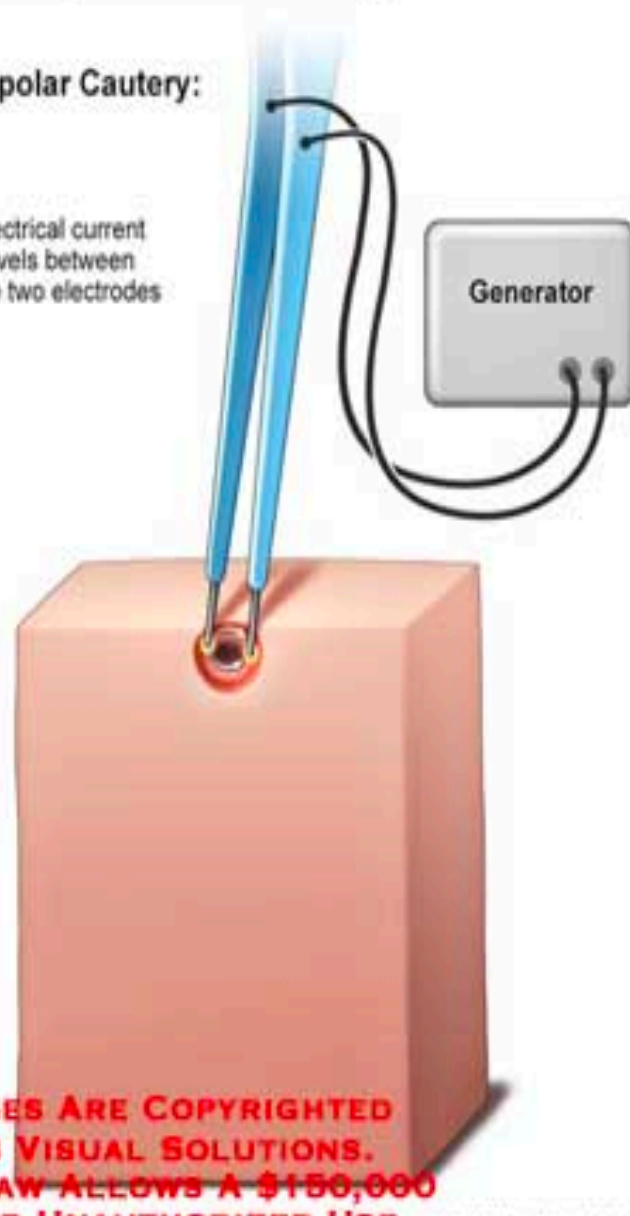
## Monopolar Cautery:

Electrical current travels from the electrode to the plate below

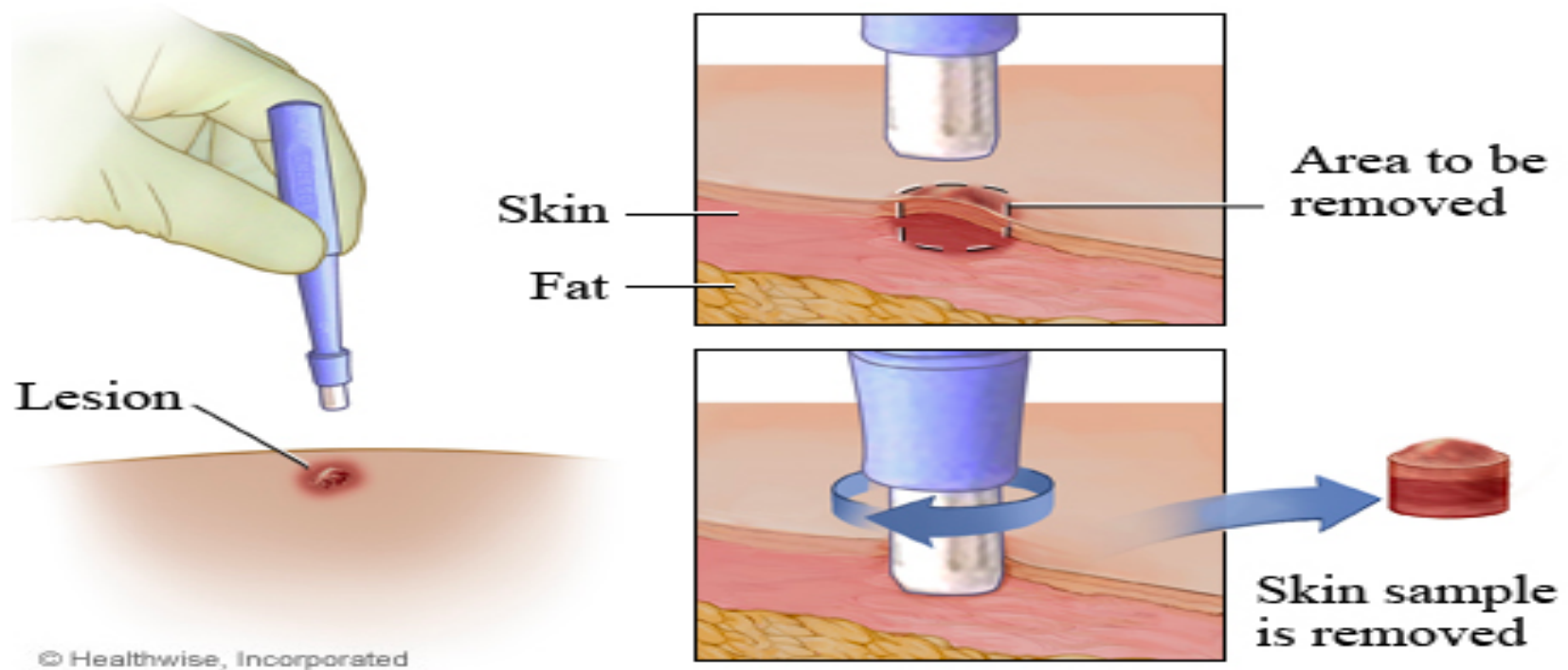


## Bipolar Cautery:

Electrical current travels between the two electrodes

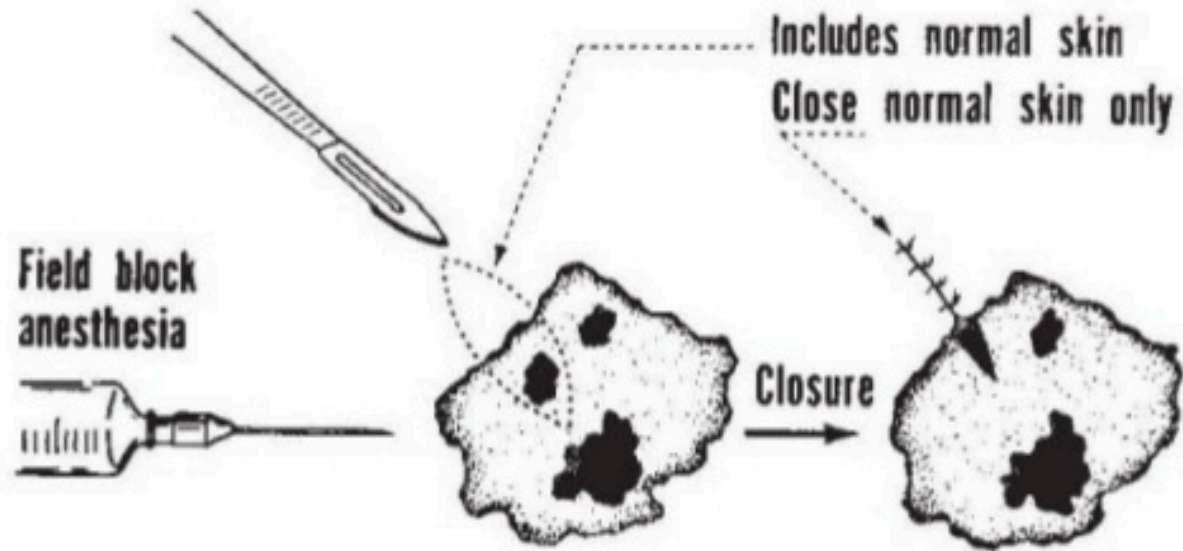


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Punch biopsy

# Incisional biopsy



Elliptical biopsy  
It reaches three zones

# ACNE VULGARIS

Acne vulgaris is a chronic skin disease affecting most teenagers undergoing puberty and often persists into adulthood. Other conditions affecting hormonal levels can also trigger acne, including pregnancy, menstruation, and stress. Occlusion of the skin surface with greasy products (e.g. cosmetics and lotions), tight clothing and sweating can also produce acne. Acne occurs when hair follicles become clogged with dead skin cells and sebum, oil from the skin. **Comedones, blackheads or whiteheads**, form when sebum partially or completely clogs the hair follicle. Trapped within the pore, **Propionibacterium acnes**, bacteria that normally occur in hair follicles, can irritate the epithelium and cause an inflammatory immune response. Inflamed comedones form **pimples**, including **papules** and **pustules**.



Propionibacterium acnes bacteria feed on sebum and cell debris within hair follicles.



## HEALTHY HAIR FOLLICLE

Within the follicle, **sebaceous glands** excrete **sebum**, an oily, waxy substance, into hair follicles to lubricate, waterproof and protect the skin against foreign substances. The size and excretion of sebaceous glands are controlled by hormones called androgens.

## BLACKHEADS

Elevated hormones cause excessive sebum production, which causes a build-up of cell debris and sebum called a **comedone**. Blackheads are open comedones which partially block hair follicles. At the skin surface, the pigment melanin is exposed to the air, which causes oxidation and the characteristic dark appearance of a blackhead.

## WHITEHEADS

If the **comedone** occurs deeper in the follicle, the sebum plug completely clogs the pore and forms a whitehead. In closed comedones, cell debris, sebum and *P. acnes* bacteria cannot exit the hair follicle at all.

## PIMPLES

Trapped *P. acnes* bacteria irritate the epithelium, stimulating the release of inflammatory signals. **Papules**, inflamed acne lesions, are raised red bumps that feel warm and painful. As the inflammation progresses, **pustules** may form if pus containing dead white blood cells and bacteria fill and rupture the walls of the follicle.

## PIMPLE DRAINAGE

Where the abscess is close to the skin, the skin is thin and the pus may break through to drain spontaneously. Drainage of the pustule facilitates the healing of the lesion.

## INFLAMMATION

When the acne lesion becomes inflamed, blood vessels dilate and **neutrophils** and other lymphocytes are recruited to the hair follicle.

## COMEDONES

Blackheads

Whitehead

## PIMPLES

Pustule

Papule

## SCARRING

Abnormal healing of moderate to severe acne lesions can cause scarring due to either excessive or inadequate collagen deposition. There are four main types of acne scars. Laser, radiofrequency, or ultrasound treatments can minimize the appearance of scars.



Hypertrophic



Rolling



Ice-pick



Boxcar

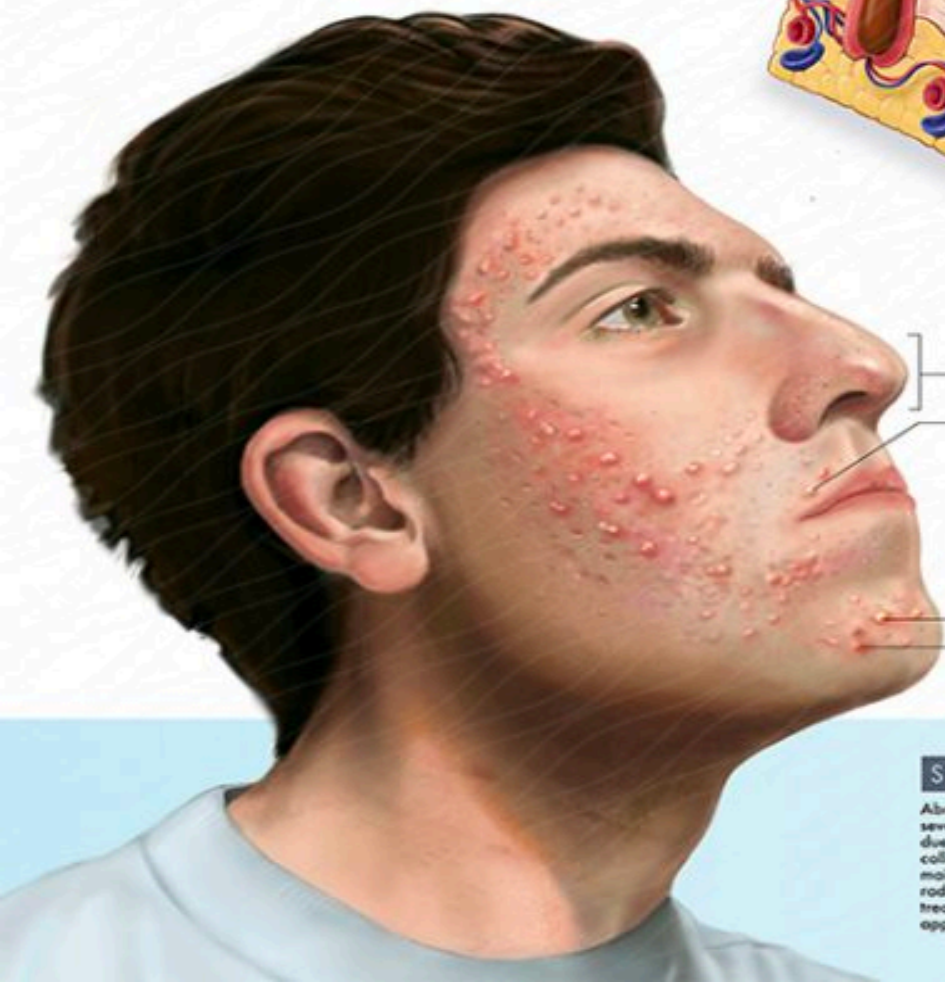
## TREATMENT

Common treatments include benzoyl peroxide, which targets bacteria, and retinoids, which prevent dead cells from clogging pores. In women, oral contraceptives can be used to lower androgen levels, which decreases sebum production.



## MISCONCEPTIONS

Contrary to popular belief, there is no relationship between acne formation and face washing frequency, masturbation or sex. Consumption of chocolate, greasy or spicy foods also do not cause acne. However, there are studies that link dairy consumption, high-glycemic diets and some drugs (corticosteroids, lithium, phenytoin etc.) to acne formation.





## **Rosacea**

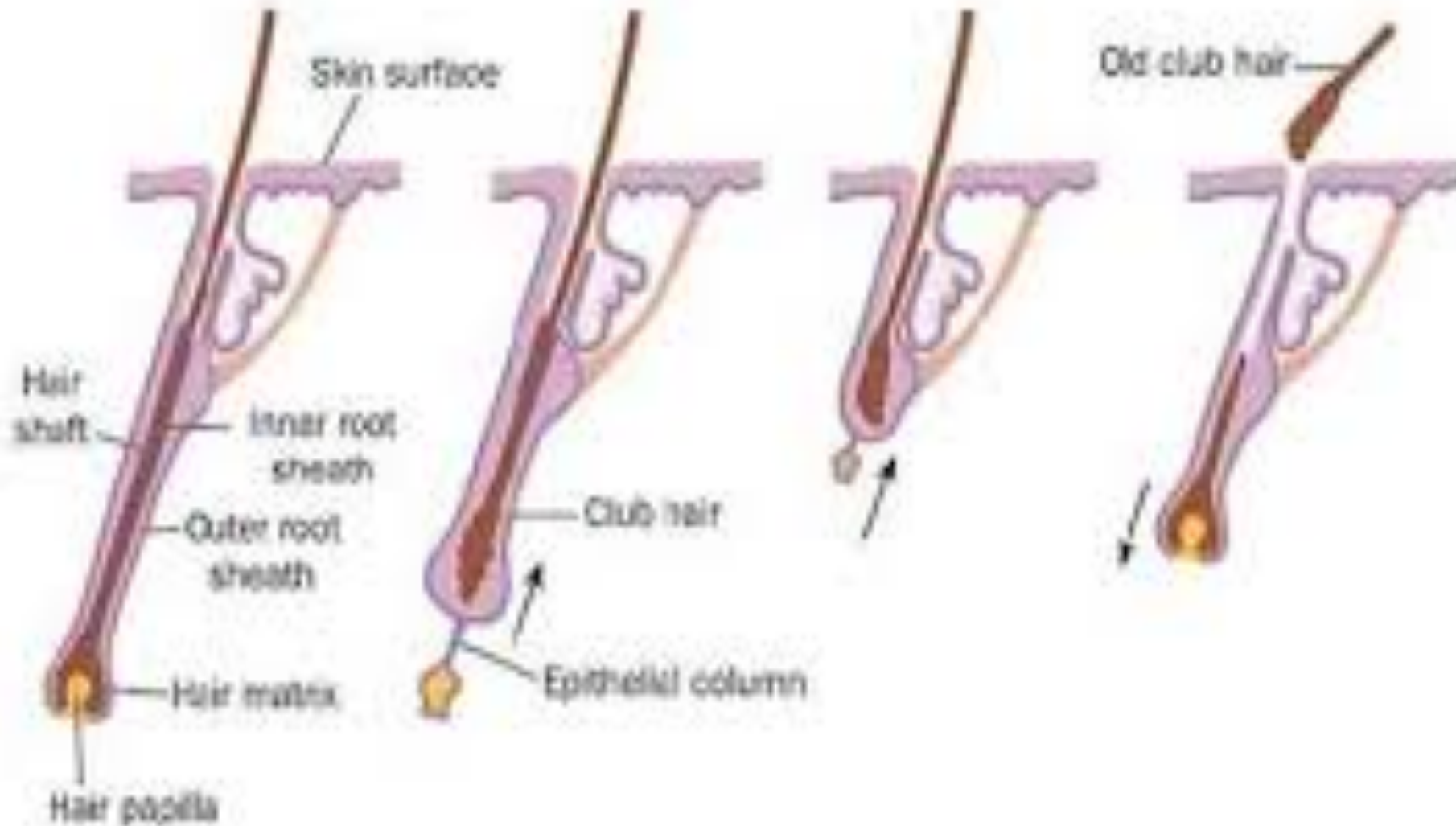
Papules and pustules with background erythema but no scarring



Rhinophyma  
Complication of rosacea



Active anagen (90% hair) → Catagen (1-2 weeks) → Telogen (10%) (5-6 weeks) → Early anagen (3-6 years)



Hair growth rate  
1 cm / month



Alopecia areata  
Dx by dermoscope  
Tests: CBC (pernicious anemia), thyroid function (Hashimoto) , ANA, HbA1c , anti-TPO , celiac



Trichotillomania  
Dx by dermoscope  
If large area consult GI on  
trichobezoar



Tinea capitis



**Acute telogen effluvium :**  
due to stress which is sudden or prevents the person from eating, weight loss, diet , surgeries, general anesthesia, fever, acute medical illnesses, shock

Chronic is due to vit deficiencies or chronic medical illnesses

Anogen effluvium is due to chemotherapy

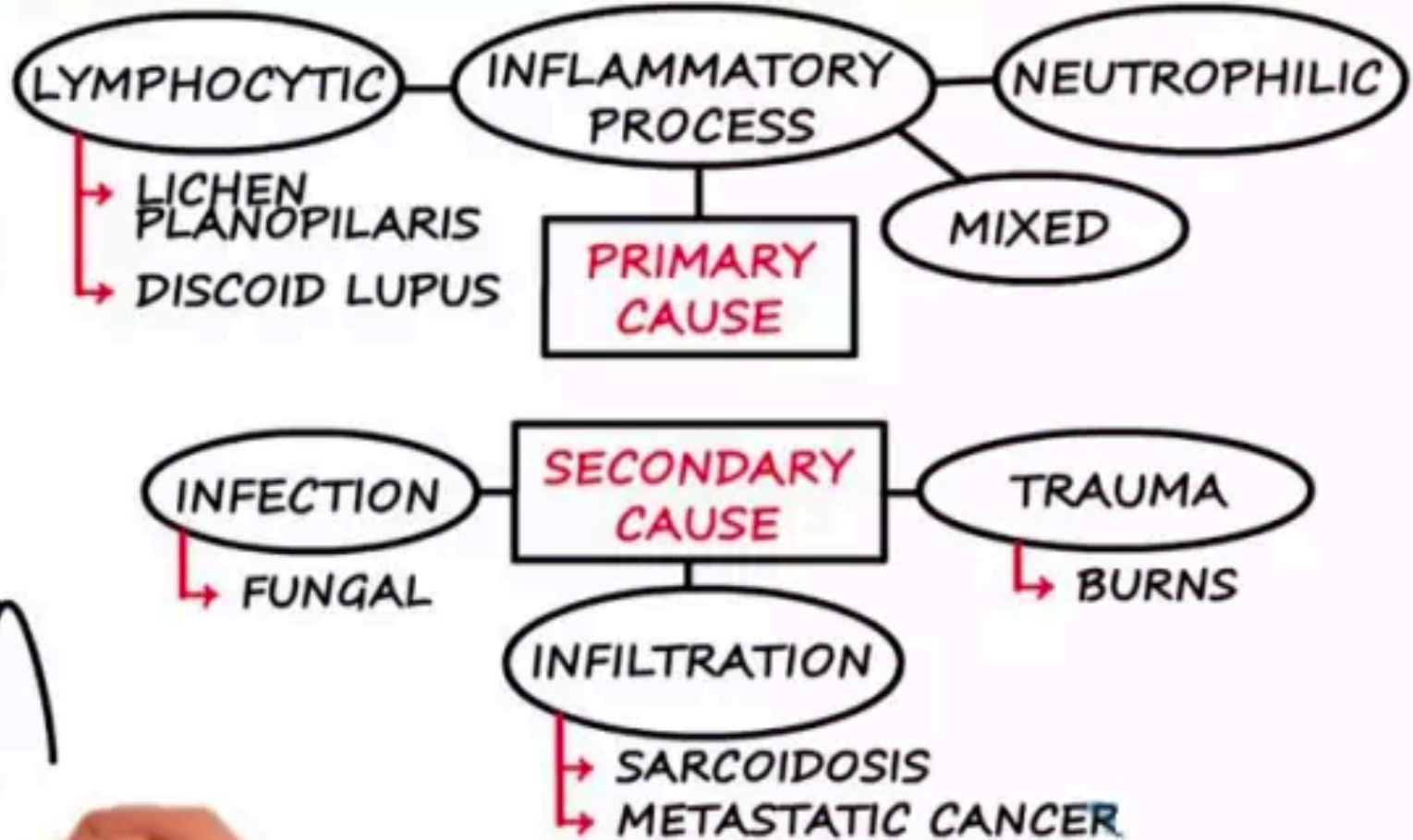


Male pattern  
Female pattern  
Androgenetic alopecia  
difference in the  
frontal part

# SCARRING (CICATRICIAL) ALOPECIA



SCALP





Traction  
Fibrosed hair follicles





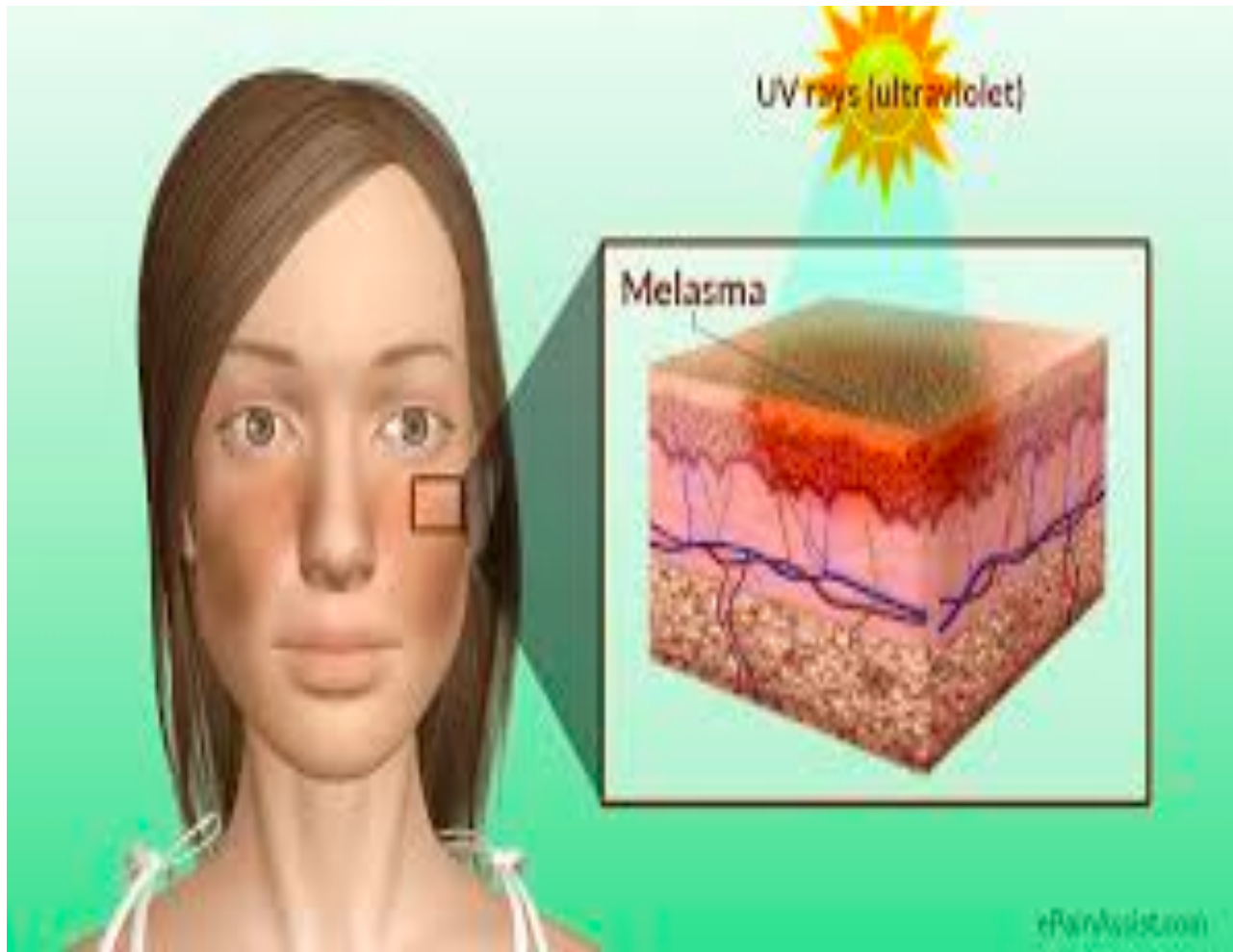
Vitiligo



Café au lait



Freckles  
Only use sunblocks



Melasma  
Hyperpigmentation



Addison's diseases





Well demarcated lesion  
Tinea corporis



Tinea cruris



Tinea pedis





Tinea pedis with  
hyperkeratosis



Pseudomonas



Tinea faciei

Source: Neil S. Prose, Leonard Kristal: Weinberg's  
Color Atlas of Pediatric Dermatology, Fifth Edition  
[www.accesspediatrics.com](http://www.accesspediatrics.com)  
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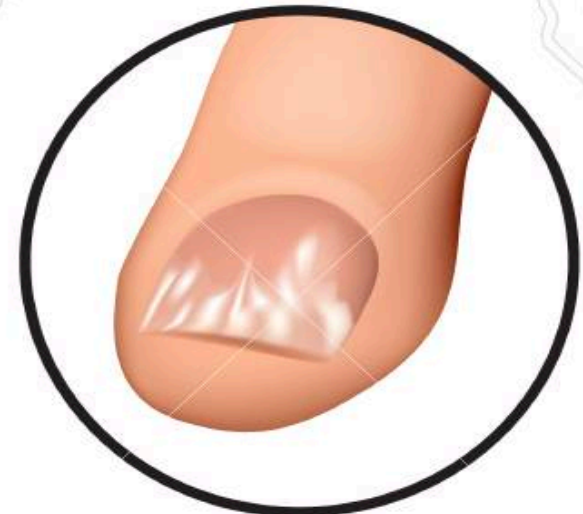


Tinea mania  
Unilateral, well  
demarcated, not itchy

# Onychomycosis



Distal subungual onychomycosis



White superficial onychomycosis



Proximal subungual onychomycosis



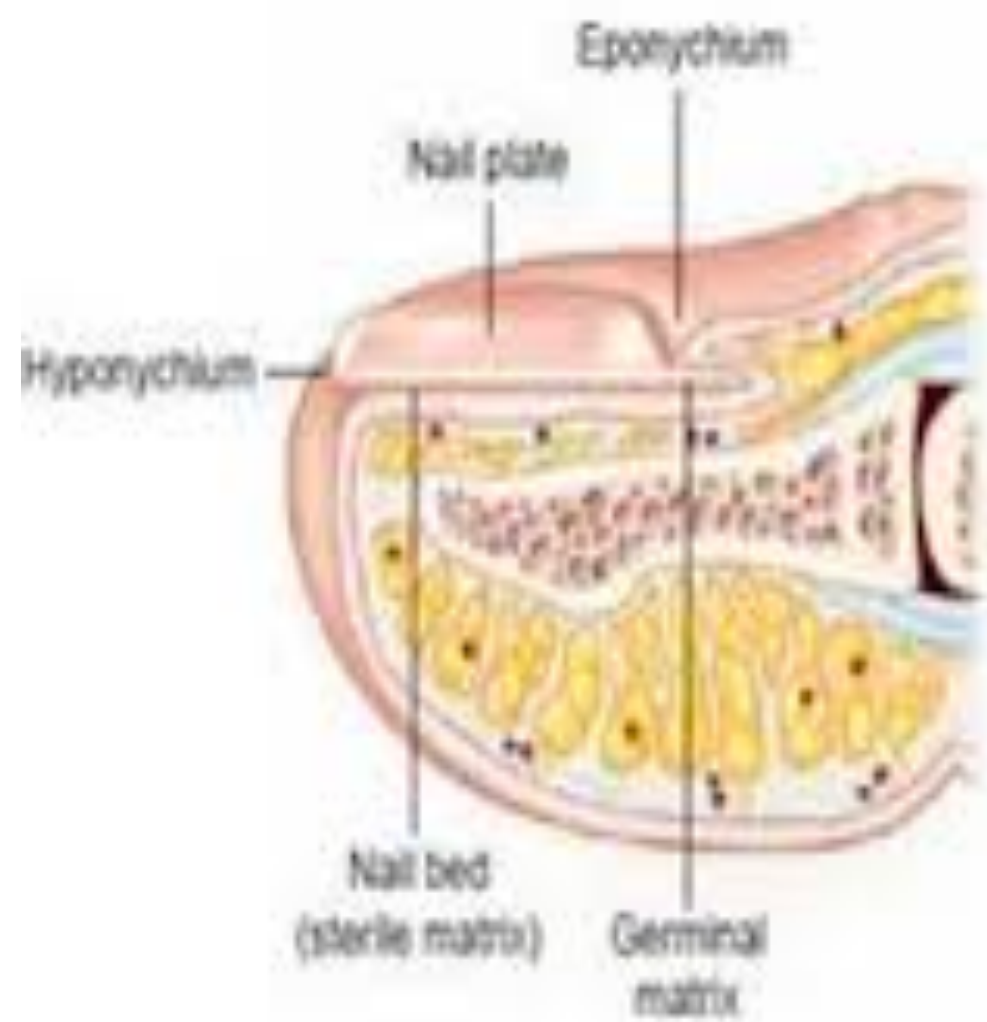
Candidal onychomycosis



Onychomycosis



Chronic paronychia  
Loss of cuticle







Herpes simplex



Herpes simplex



Herpes zoster



If only on the face  
Impetigo contagiosa or  
eczema herpeticum



Common warts by human papilloma virus



Planter warts



Digitate warts  
( thrombosed blood  
vessels which aren't in  
horns )



Plane warts with Koebner's





Genital warts  
Vaccinate the partner



Medications can be applied to break warts apart.

Cryotherapy



Impetigo



Severe impetigo



Pseudofolliculitis

### Superficial folliculitis

- Erythema
- Pustule
- Single-follicle involvement

### Deep folliculitis

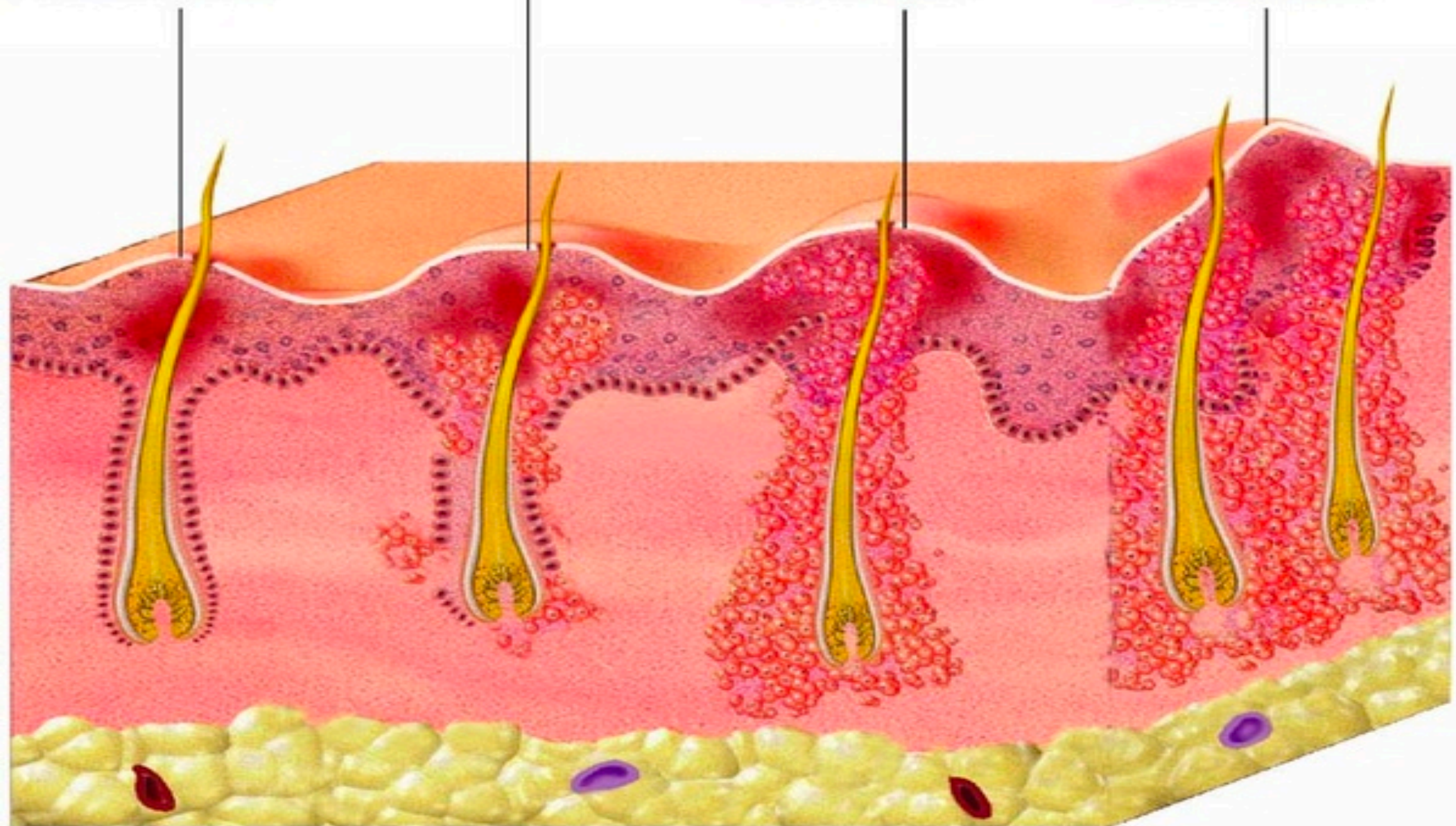
- Extensive follicular involvement

### Furuncle

- Red, tender nodule surrounding a follicle
- Single draining point

### Carbuncle

- Deep follicular abscesses of several follicles
- Several draining points





Folliculitis with boil



Lichen planus





Lichen planus



Mucosal lichen planus:  
cancerous



Koebner's



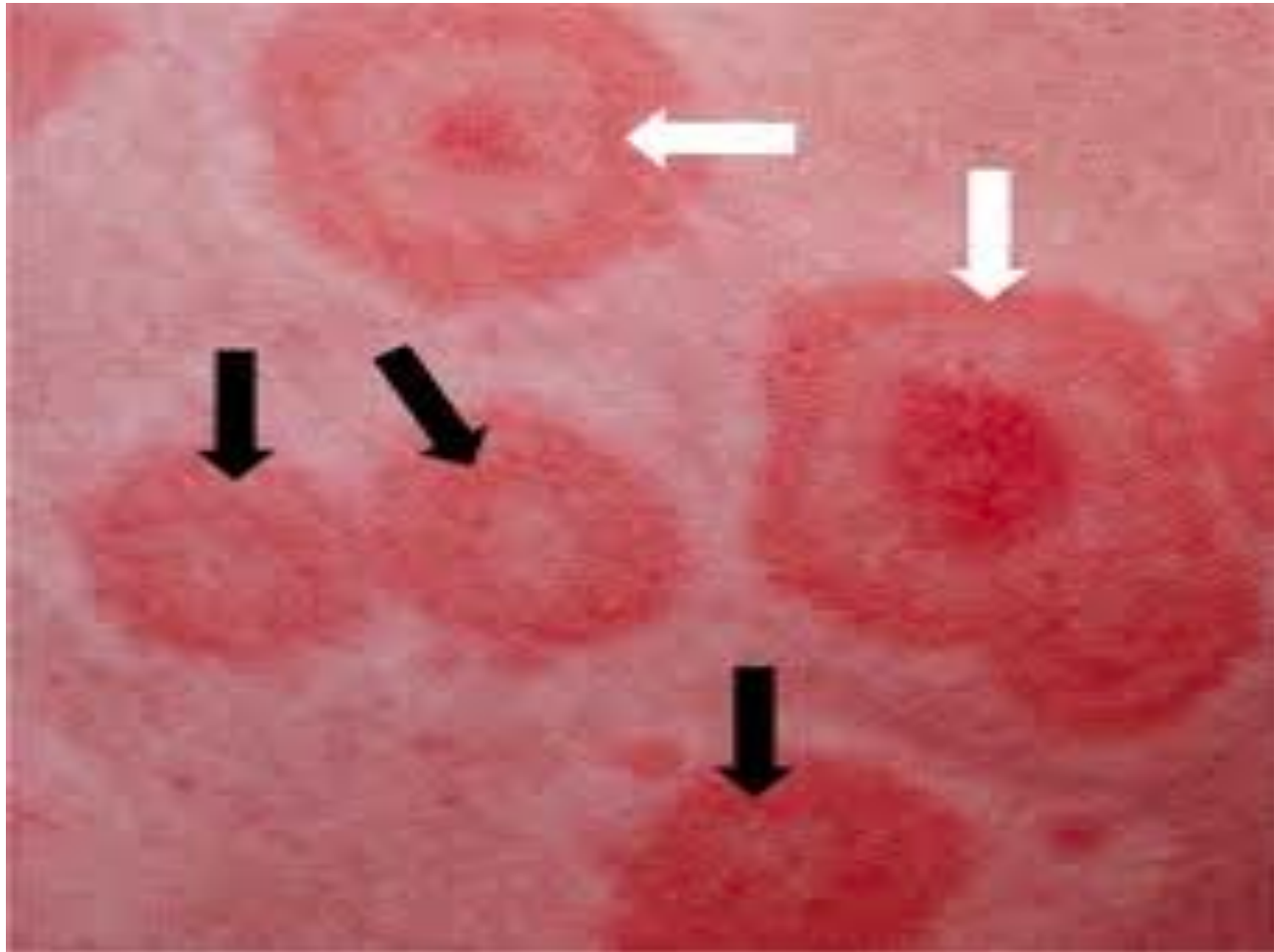
Nail changes | LP :  
Pitting , nail plate  
thickening, multiple  
longitudinal splits



Pityriasis rosea  
No recurrence, no scars ,  
not contagious, collar  
scales, herald patch



Guttate psoriasis



Target lesion of erythema multiforme



Erythema multiforme





Lyme disease  
Erythema marginatum



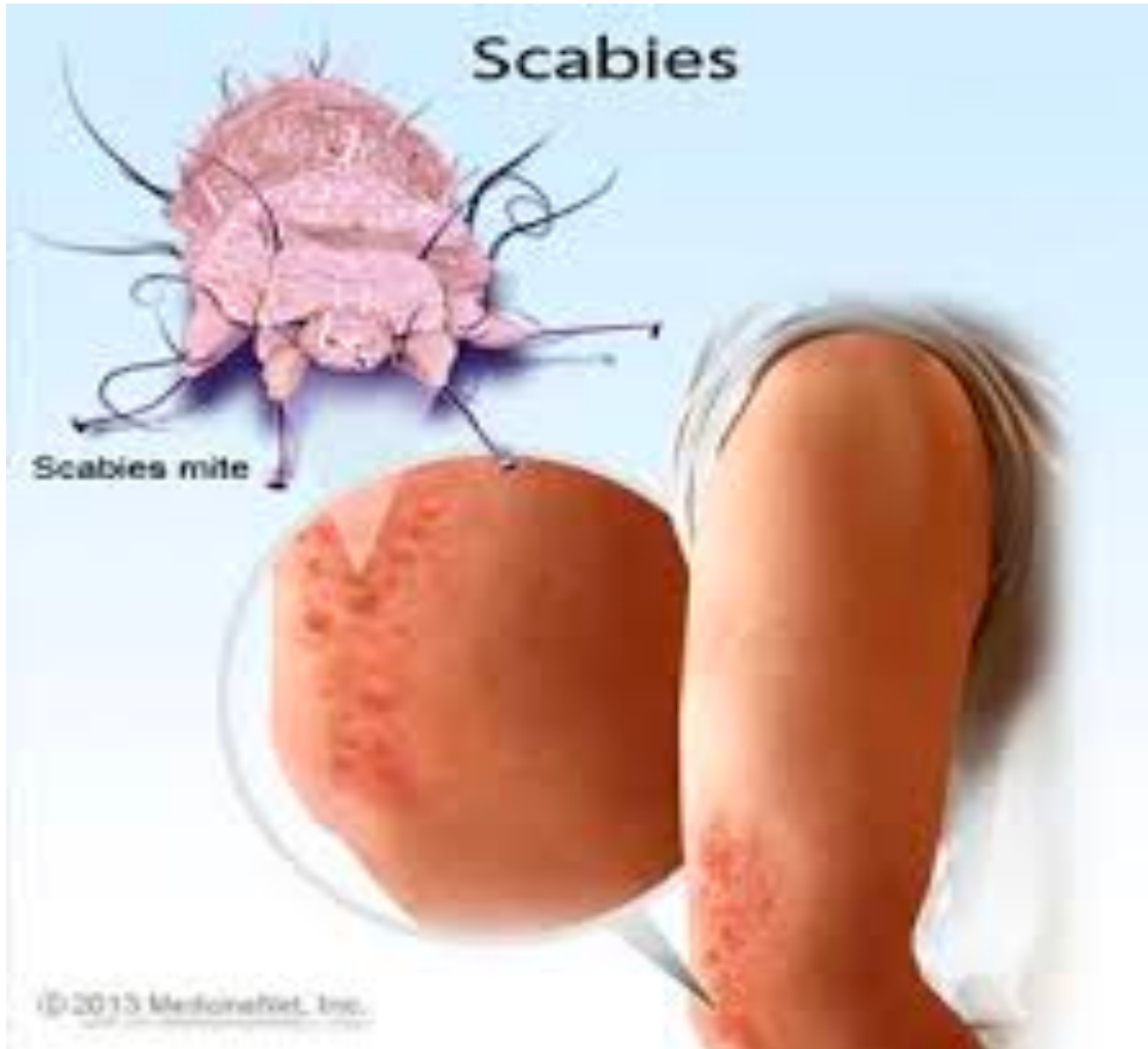
Leishmania



Leishmania



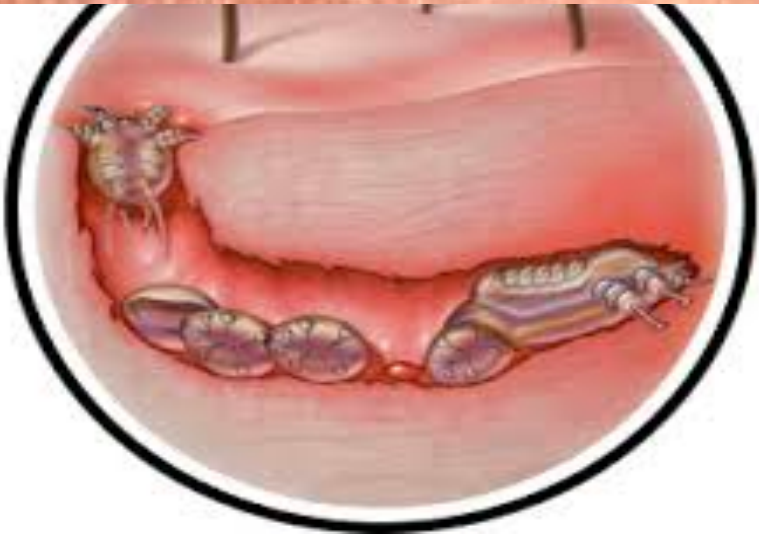
Sandfly

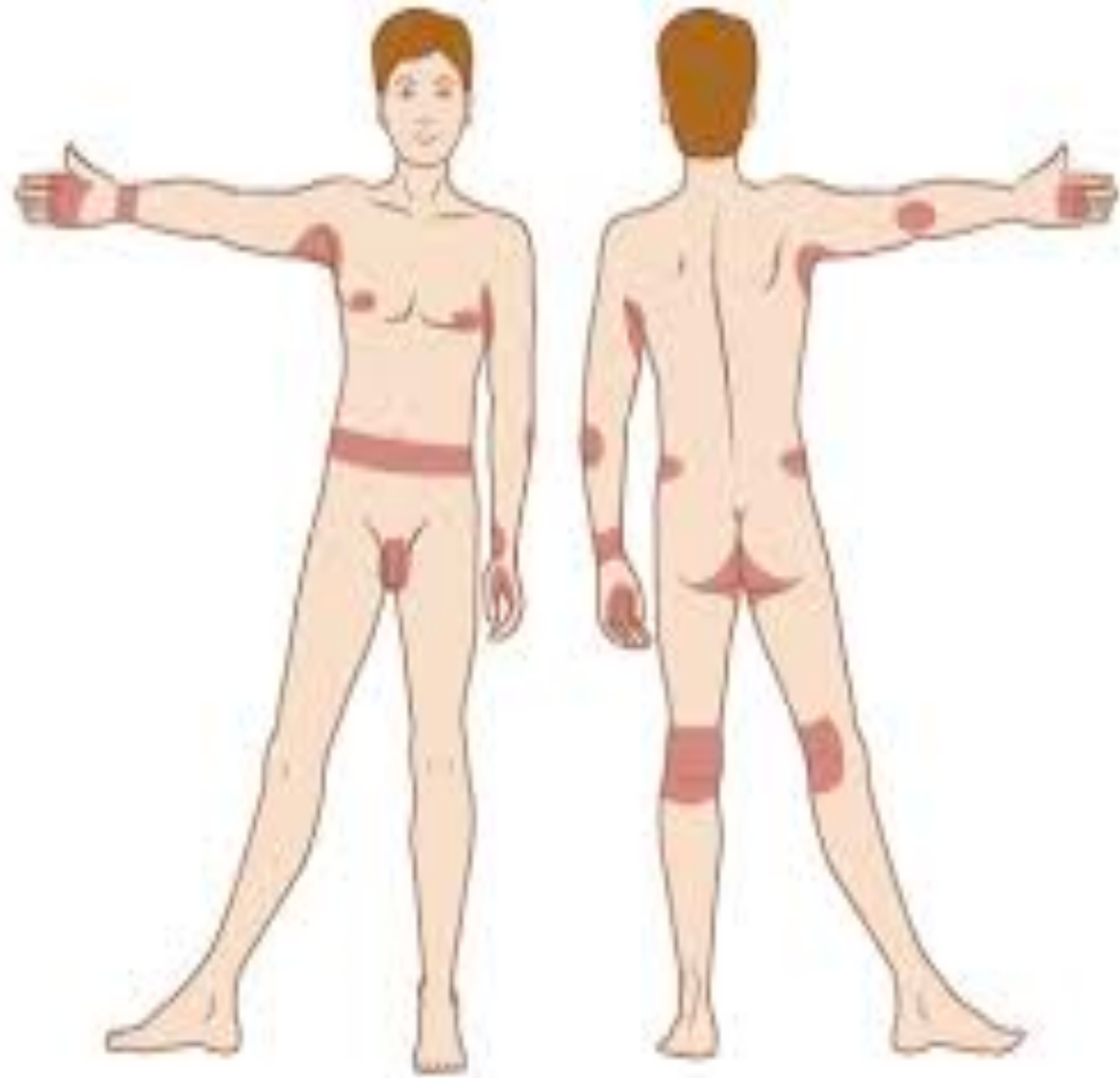


Infestation  
Burrows  
11-17 mites are needed to  
become symptomatic



Burrows  
Few mm  
Egg is cemented



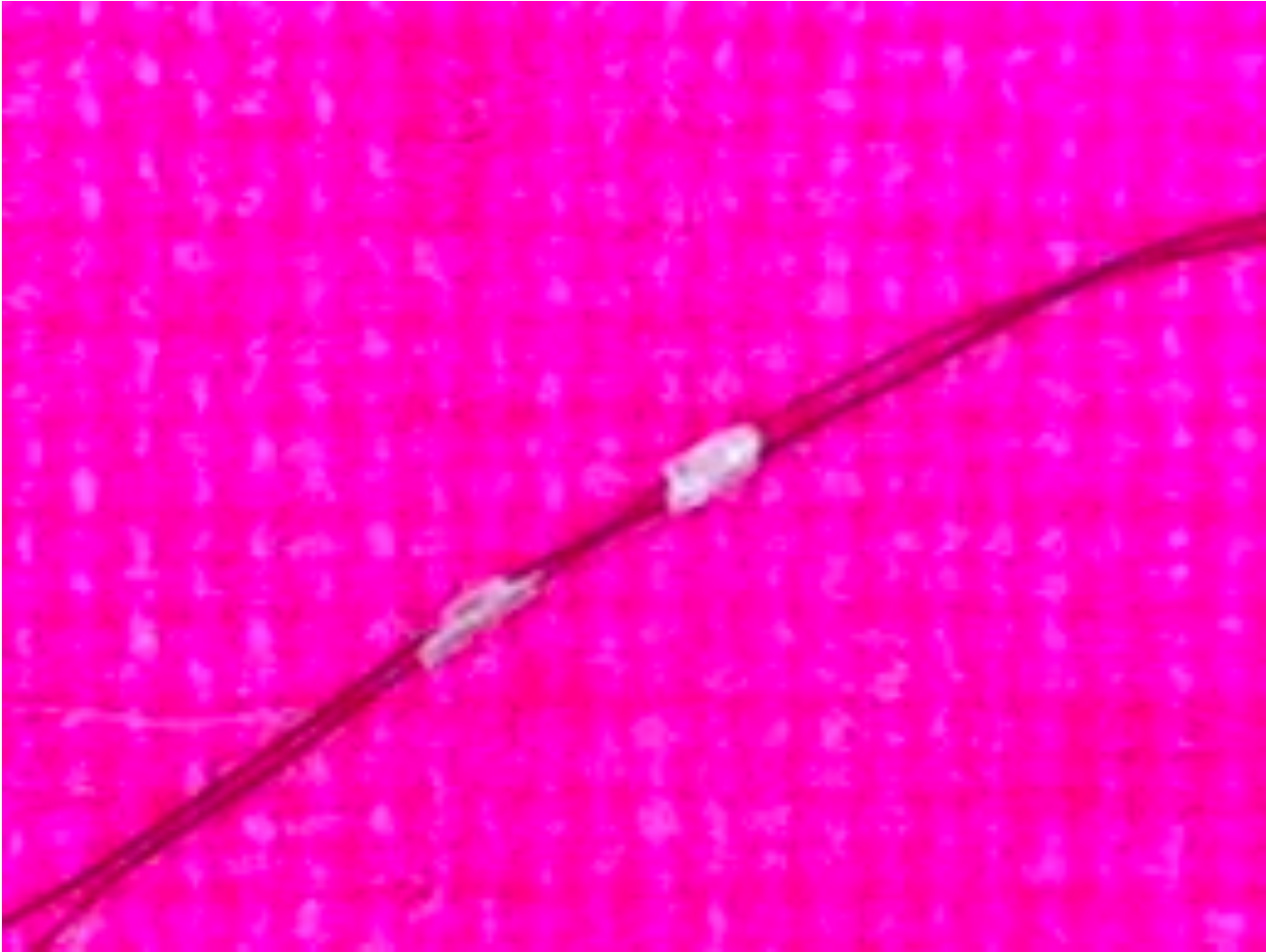


Scabies in adults spares the face and back due to the cidal effect of sebum



But it can affect the face in children





Cast : mobile



Lice : cemented







