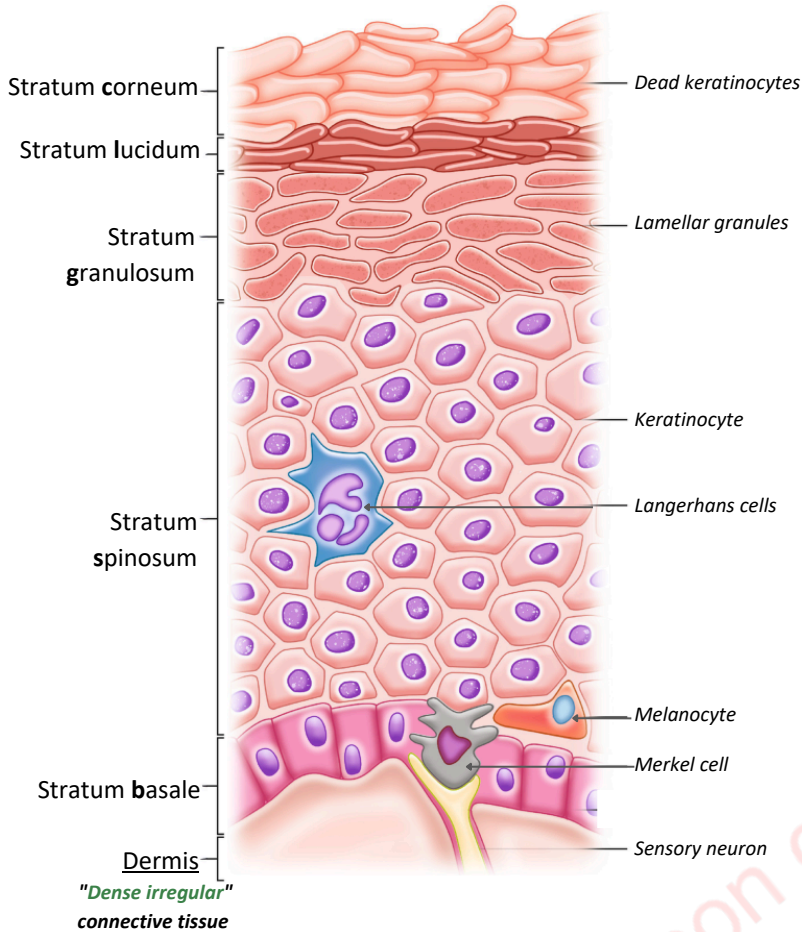


# 1 CHAPTER

# DERMATOLOGY



## Layers of epidermis

Come	Corneum
Lets	Lucidum
Get	Granulosum
Sun	Spinosum
Burn	Basale

### S. Corneum

- Acellular (*dead cells*)
- Flattened keratinocytes
- **No nucleus**

### S. Lucidum

- Only present in **palms and soles**

### S. Granulosum

1. Keratohyaline granules produce **filligrin** (defect causes **Ichthyosis**)
2. Lamellar (**Odland**) bodies form a water barrier (defect causes **asteatotic eczema**)

### S. Spinosum

- **Thickest** layer
- **Spinous** process (**Acanthocytes**)
- **Desmoglein** protein binds the acanthocytes
- APCs of epidermis, **Langerhan's cells** are present in this layer.



**Birbeck Granules**  
(tennis racket shaped)



Seen in  
**Langerhan's cell**  
histocytosis

### S. Basale (2 M)

1. **Merkel cell** : Touch receptor (*slow adapting sensory*)
2. **Melanocytes** : Has *dendritic processes* that supply keratinocytes

**Epidermal melanin unit : 1 : 36**

**Epidermal turnover time : 28 + 28 = 56 days**

**Acanthocytes** →

Desmoglein

**Primary acantholysis**  
Desmoglein broken down

1. Pemphigus vulgaris
2. SSSS
3. Darrier's disease
4. Haley Haley disease

Desmoglein broken down causes **Acantholysis**

← **Acantholytic cell**

**Secondary acantholysis**  
Ballooning of Keratinocytes (**tzank cells**)

1. HSV 1/2
2. Varicella Infections

# Psoriasis

- m/c type : *Psoriasis vulgaris*
- Associated with **Psoriatic arthropathy** (DIP joint inv)
- Scalp, trunk and **extensor surfaces** involved mostly



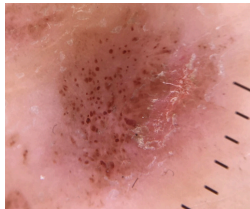
**Erythematous papulosquam.** rash with **silvery scales**  
(Hallmark of Psoriasis)

"Regular nail pitting seen in *Alopecia areata*"



### Psoriatic nails

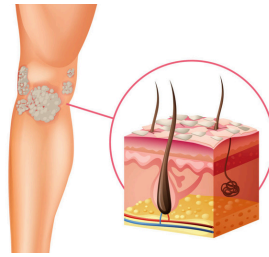
- **Irregular pitting**
- Oil drop sign
- Sub-ungual hyperkeratosis
- Salmon patches



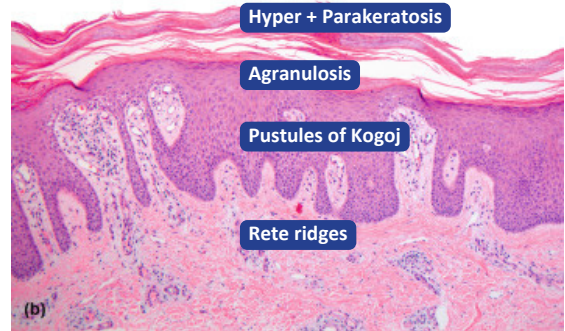
**Auspitz Sign :**  
pinpoint bleeding under the skin's surface (Grattage test)

### Grattage test

- Scrap the lesion with a glass slide
- Petechial spots seen (Auspitz sign)



**hyperkeratinisation of epidermis** and leaky dermal vessels



- **Parakeratosis + Hyperkeratosis**
- *Munro's microabscess* (stratum corneum)
- Stratum Granulosum absent (**Agranulosis**)
- **Pustules of Kogoj** (stratum spinosum)
- **Rete ridges** (elongation of epidermis into dermis)

### Koebner's Phenomenon

- aka Isomorphic Phenomenon
- Shown by **LVP** (*Lichen Planus, Vitiligo, Psoriasis*)
- **Pseudo-Koebner's** shown by viral warts
- **Reverse Koebner's** shown by Psoriasis



## Types of Psoriasis

### Chronic Plaque psoriasis



- **Most common type**
- Involves **extensor surfaces** and **scalp**
- **Management :**
  1. < 10% BSA : **Topical steroids**
  2. > 10% BSA : **Methotrexate** (DOC) or Narrow Band UVB
  3. *Gockerman Regime* : Coal tar (5hrs/day) + NB UVB

### Guttate Psoriasis



- h/o URTI
- DOC : **Macrolides**

### Pustular Psoriasis



- h/o **sudden steroids withdrawal**
- DOC : **Acitretin** (*Teratogenic* : washout period of 3 years)
- *Pustular psoriasis in preg.* : **Impetigo herpeticiformis**
- DOC : **Systemic Steroids** (only indication of systemic steroids in psoriasis management)

### Inverse Psoriasis

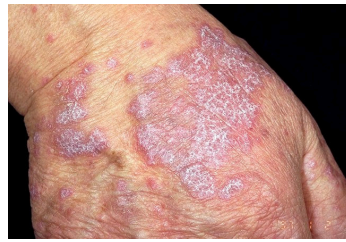


- Follows a **different pattern** of distribution to chronic plaque psoriasis.
- It affects '**Intertriginous**' areas - points where skin touches/rubs together.
- **Scaling is absent** in this type
- Areas affected include the axilla, groin and genital area, inframammary folds and gluteal cleft.

# Lichen Planus



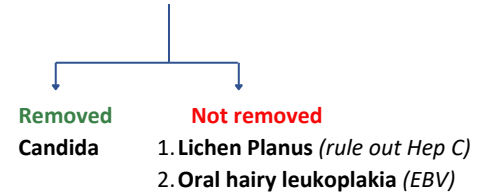
- Cause is **multifactorial** (asso with **Hep C** and **malignancies**)
- Females > Males
- **Oral lichen planus** is the most common form.
- **Bilaterally symmetric** lesions
- Wickham's striae (Pathognomic)



**Wickham's striae:** whitish lines, visible within the lesion in a lace like pattern



**Oral white patch**



- **Planar** (flat topped lesions)
- **Purple** (violaceous)
- **Pruritic**



- 1st line : Topical steroids
- 2nd line : Oral steroids
- 3rd line : Methotrexate

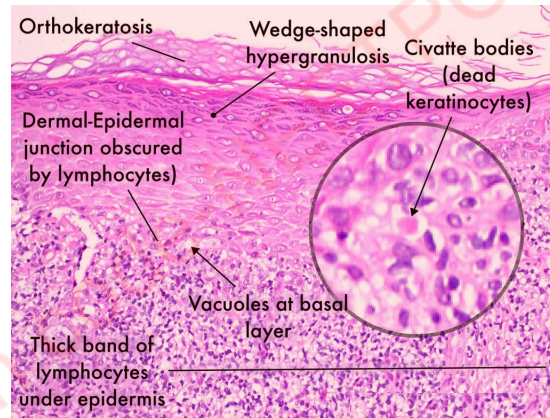
## Nail and Scalp involvement



**Pterygium of nails**

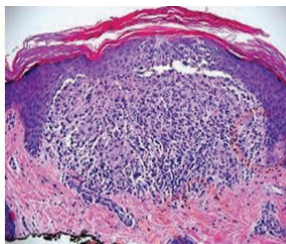


**lichen plano pilaris**  
**Scarring Alopecia**



- Hyperkeratosis without Parakeratosis : **Orthokeratosis** *Ortho bro listening to LP*
- **Hypergranulosis** (*Wickham's striae*)
- S. Basale degeneration : **Max Joseph Space**
- Apoptotic cells : **Civatte Bodies**

## Lichen Nitidus



**Nodular lesions**

- Hyper-granulosis
- **Claw catching a ball** sign

### Psoriasis

1. Hyperkeratosis **with** parakeratosis
2. **Munro's** microabscess
3. **Agranulosis**
4. Pustules of **Kogoj**
5. **Rete ridges**

### Lichen Planus

1. Hyperkeratosis **without** parakeratosis (*Orthokeratosis*)
2. Apoptotic **Civatte** bodies
3. **Hypergranulosis**
4. **Max Joseph** space

# Other Papulo-Squamous disorders

## Pityriasis Rosea



Christmas tree pattern

Herald patch

- Starts with a mother lesion known as Herald Patch
- **Collarette** (*cigarette paper like*) scales
- *Christmas tree pattern*
- **HHV 6/7**
- Spares palm and soles
- Reassure (*spontaneous recovery*)

## Pityriasis versicolor



Meatball on spaghetti  
app. on KOH mount

- **Hypo + Hyperpigmented** lesions
- Fungal infection by **M.Furfur**
- Culture : **SDA + Olive oil** (*lipophilic*)
- **Fried egg colonies**
- on KOH mount : **meatball on spaghetti** 🍝 appearance
- on wood lamp : **Yellow**

### Christmas tree patterns

1. Rash : **P.Rosea**
2. Cataract : **Myotonic dystrophy**
3. **Neurologic Urinary bladder**



### Fried egg patterns

1. Colonies : **M.furfur, Mycoplasma**
2. Appearance : **Hairy cell Leukemia, oligodendroglioma**



# Ichthyosis

## Ichthyosis

### Ichthyosis Vulgaris



- Fishnet pattern over **limbs**
- Antibodies against **filligrin** protein in str. granulosum

### X linked Ichthyosis



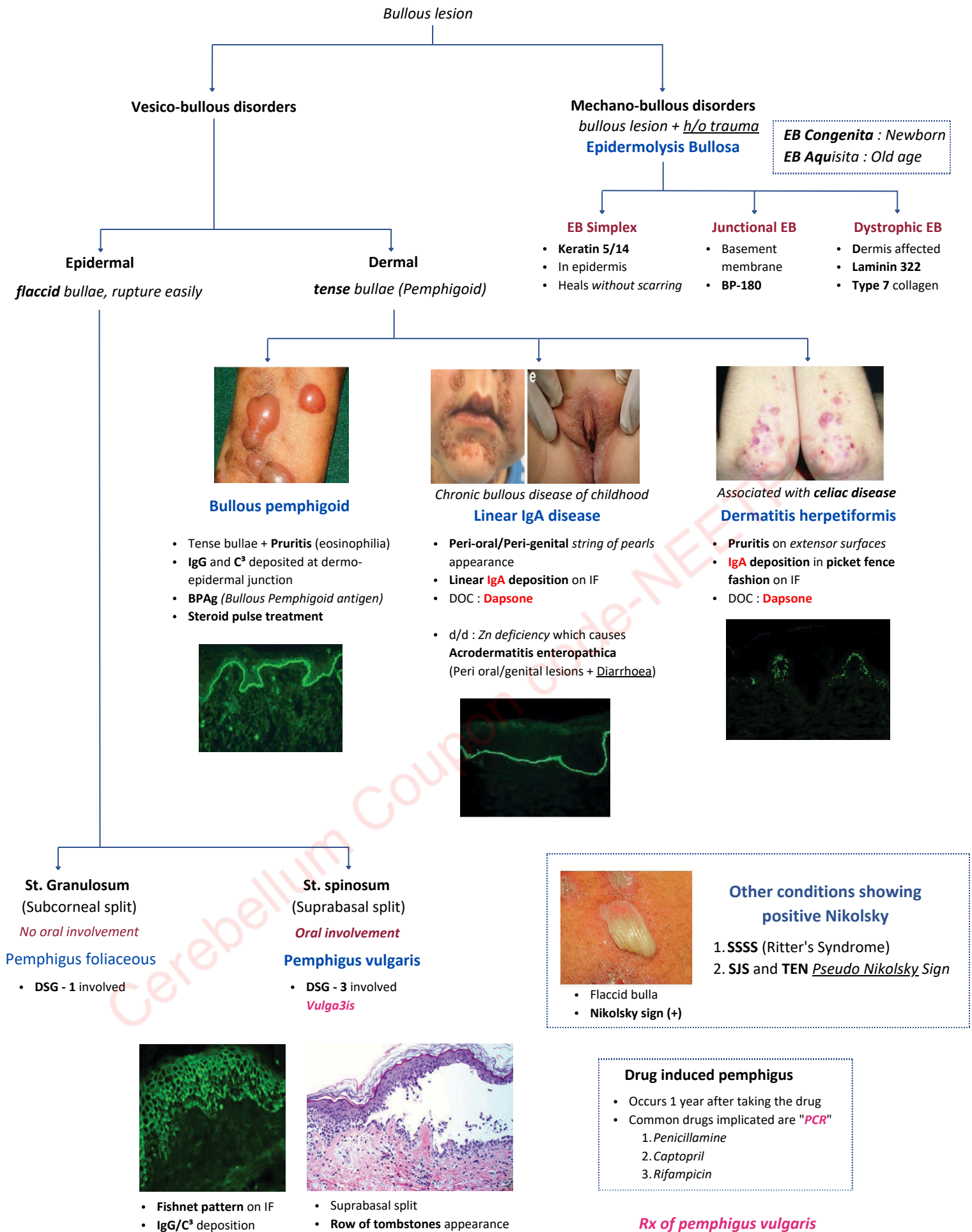
- Fishnet pattern **only over trunk**

### Lamellar Ichthyosis



- Baby born with **membrane** (*Colloidon baby*)
- Membrane sheds off **f/b** fishnet in trunk

# Bullous Disorders



# Pigmentation Disorders

## Pigmentation disorders

### Hyper pigmentation disorders

### Hypo pigmentation disorders

#### Epidermal

- Brown lesions
- On wood's lamp : **Accentuation**

#### Dermal

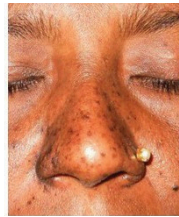
- Slate gray/blue (due to Tyndall effect)
- **No accentuation** on wood's lamp
- Since it's blue, aka ceruloderma [also a s/e of Amiodarone]



**Melasma/Chloasma**

Increased **estrogen/progesterone** stimulate melanocytes to cause hyperpigmentation.

1. **Chloasma** (*mask of pregnancy*)  
**GLOW in pregnancy - Chlo**
2. **Melasma** (*photosensitive*) seen in non pregnant.



**Chik's sign**

Seen in **chikungunya**



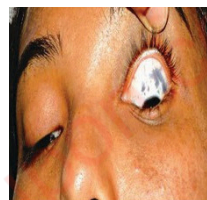
**Becker's nevus**

- Epidermal (*brown*) nevus at back
- **"becker - back"**
- Associated with **hypertrichosis**




**Mongolian spots**

- Seen in **infants**
- *Lumbo-sacral* region
- **Benign**, reassure parents




**Nevus of Ota**

Ota : eye 



**Nevus of ITO**

- Ito -  at back
- **No Hypertrichosis**



**White forelock**



**Contact leukoderma**

*aka Chemical Leukoderma*

1. **Hydroquinone** : **Rubber in slippers**
2. **PTBP** (*para tert. butyl phenol*) : **Bindi**
3. **Parabutyl Catechol** : **Hair dye**



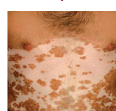
**Nevus anemicus**

- Due to **vasoconstriction**
- **α** receptor dysfunction



*Heterochromia iridis*

**Wardenburg Syndrome**



*Islands of sparing*

**Piebaldism**

(*NCC migration defect*)

- **AD** transmission
- Mutation in **C Kit** gene

# Erythemas



## Erythema Nodosum

- **Tender** nodules on skin due to inflammation of s/c fat
- Asso. with
  1. **Drugs** : Sulfa drugs
  2. **Sarcoidosis** (*Lofgren sx*)
  3. **IBD**
  4. **TB**
  5. **Behcet Sx**



## Erythema Marginatum

- Transient** lesions asso. with **ARF**  
*mARFginatum*



## Erythema Multiforme

- **Typical target lesions** on hand
- Associated with

<b>Infections</b>	<b>Drugs</b>
1. HSV (m/c)	1. NSAIDS
2. Mycoplasma	2. Chloroquine

*Chloroquine also causes Bull's eye maculopathy*

*Atypical target lesions seen with **SJS/TEN***



## Erythema Migrans

- **Single** and **large target lesion** on trunk
- Earliest manifestation of **lyme's disease**  
*Borrelia migrates with lashing motility*



## Erythema gratum ripens

- Para neoplastic syndrome associated with **adenocarcinoma**

# Acne Vulgaris

## Pathophysiology

1. Excess **sebum** production
2. **Follicular plugging** with sebum and keratinocytes
3. **Colonization** of follicles by an anaerobe *Cutibacterium acnes* (formerly *Propionibacterium acnes*)
4. Release of inflammatory mediators

- Most common trigger for acne is **puberty**.
- During puberty, **surges in androgens** stimulate sebum production and hyperproliferation of keratinocytes



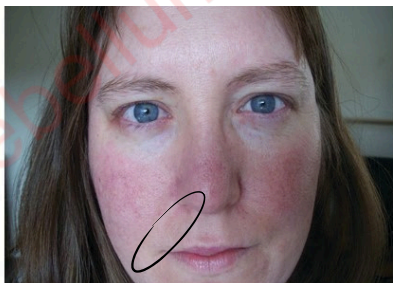
**Comedones**  
*Characteristic of acne*

## Treatment

1. Comedones: **Topical retinoid** (*tretinoin*)
2. Mild inflammatory acne: Topical retinoid + (Topical **Benzoyl peroxide** / Topical **antibiotics**)
3. Moderate acne: **Oral antibiotic** + *topical therapy*
4. Severe acne: **Oral isotretinoin**
5. Nodulo-Cystic acne (*Acne conglobata*): **Intralesional triamcinolone**

# Rosacea

- **h/o triggers** : emotional states, spicy food
- Flushing
- Telangiectasia
- Nasolabial folds (+) *d/d is Malar rash of SLE*



*Nasolabial folds involved*

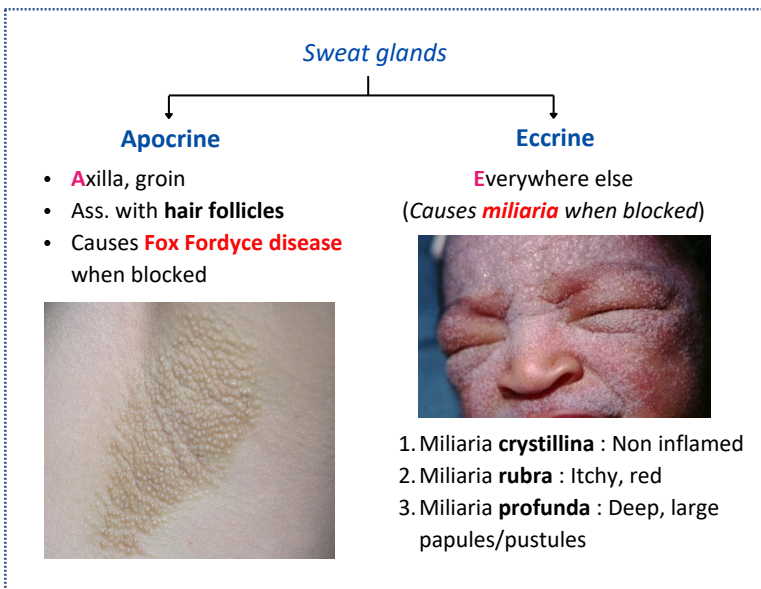
**Rosacea**



*Nasolabial folds spared*

**Malar/butterfly rash of SLE**

# Sweat Glands



**Fordyce spots seen on lips**  
Overgrowth of *ectopic sebaceous glands*  
\*\*Unrelated Fox Fordyce disease



**Acanthosis Nigricans**  
*Marker of*

- Insulin resistance/PCOD/T<sup>2</sup>DM
- Metabolic sx. , Obesity
- **GI adenoma**



*sinuses + induration*

**Hiradenitis Suppurata**

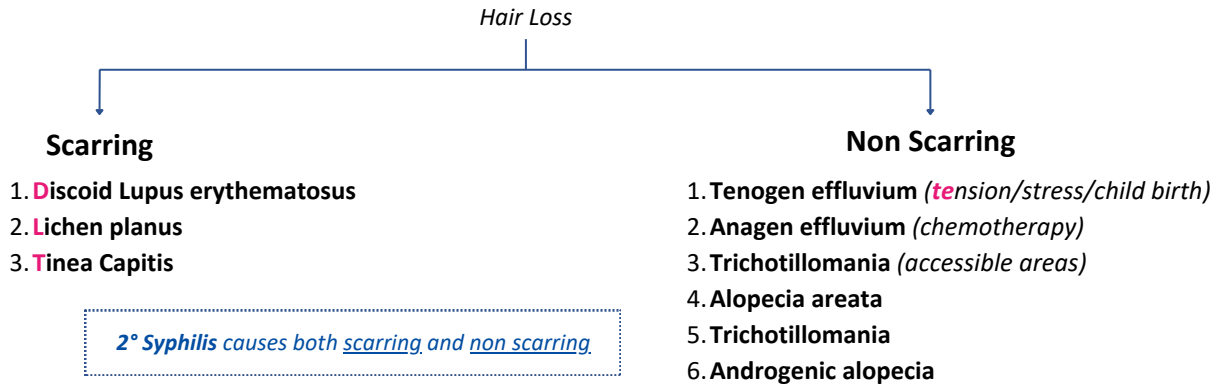
- **Complication** of fox fordyce dis.
- aka **inverse acne**
- Obesity and smoking are risk factors
- Treatment : **Surgical**

# Ca<sup>2+</sup> ATPase channel disorders

- Associated with **Desmoglein dysfunction**
- Example of **primary acantholysis**

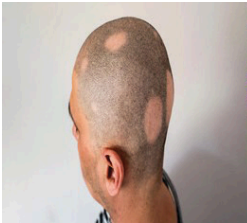


# Alopecia

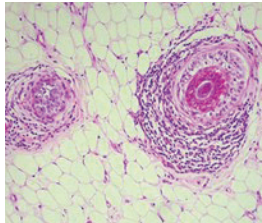


## Alopecia areata

- Autoimmune condition
- Asso. with Type 1 DM, Hashimoto thyroiditis
- "Going bald overnight"
- Nails : **Regular pitting**
- Exclamatory mark sign !

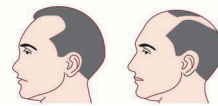


- No inflammation
- No scarring



- Lymphocytes around hair bulb
- Swarm of bees appearance

## Androgenic Alopecia



**Male pattern**  
aka *Hamilton*  
pattern hair loss



**Female pattern**  
aka *Ludwig*  
pattern hair loss

TOC :

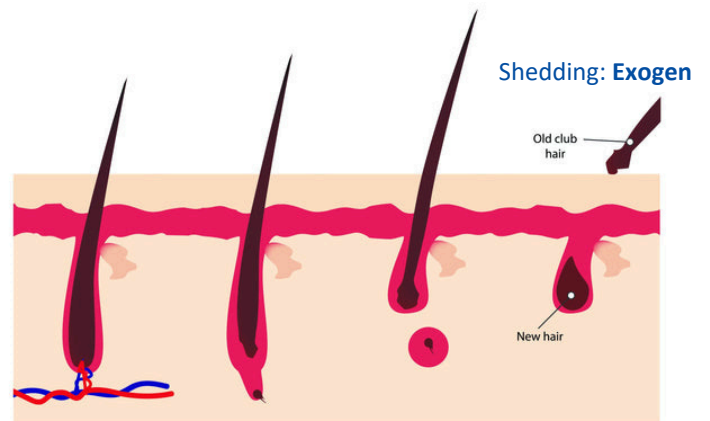
1. Minoxidil
2. Finasteride



## Trichotillomania

- Psychiatric condition (*Impulse control disorder*)
- Hair loss from **accessible areas**

## Stages of hair growth



Anagen  
Active growth phase

Catagen  
Transition phase

Telogen  
Resting phase

Return to Anagen

- 90% hair in this phase
- Proximal hair shaft keratinised.
  - Clubbing

**"ACT"**

State of latency : Kenogen

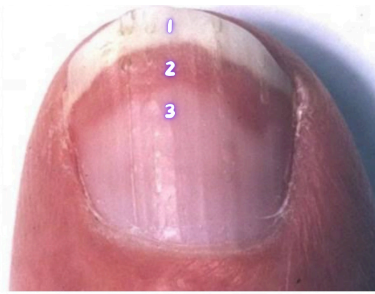
# Nails



## Half and Half nails

Seen in **renal failure**

*2 kidneys 2 zones*



## Terry's nail

Seen in **heart failure**

*Terry : Three*



## Muehrcke's nails

Seen in **hypoalbuminemia**

*(reversible with albumin infusion)*



## Koilonychia (Spoon shaped)

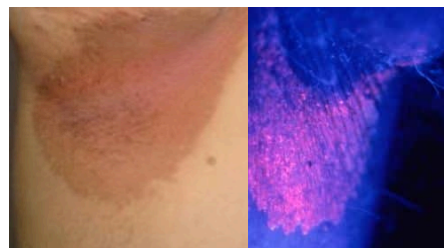
Seen in **iron deficiency anemia**

# Wood's Lamp



- Uses **UV-A** light
- **Barium Silicate** + **NiO** filter
- **365 nm** *365 days in a year*

- Tinea Capitis : **Blue - Green**
- Pityriasis versicolor : **Yellow**
- Erythrasma : **Brilliant coral red**
- Vitiligo : **Bright white (milky)**
- Tuberous Sclerosis : **Pale white**



## Erythrasma

*Caused by **Corynebacterium Minutissimum***

# Dermatitis

## Dermatitis

### Atopic dermatitis

- aka *Eczema*
- Associated with **high serum IgE** levels
- **Family h/o atopy** such as *asthma* or *allergic rhinitis*
- Onset < **2 yr of age** (*mostly seen in children*)
- Involves predominantly **flexural aspect**
- Involves forehead and cheeks in < **4 yr**

### Contact dermatitis

- aka **Irritant dermatitis**
- More common in incidence over atopic dermatitis
- Can occur *in anyone* exposed to the irritant
- Common irritants : **Poison ivy, sumac, oak**



#### Patch test

- For *allergic dermatitis*
- Read at **48 hrs** and **96 hours**

# Hives (Urticaria)

- A skin rash triggered by a **reaction to food, medicine or other irritants** (*allergic*)
- Can be **acute** or **chronic** (> 6 weeks)



Hives



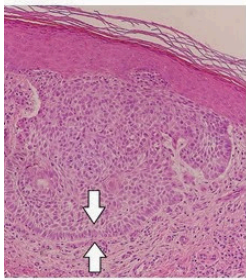
Dermographism (seen in chronic urticaria)

# Skin Malignancies

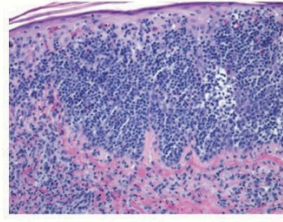


## BCC (Rodent ulcer)

- **Raised pearly** nodules
- **m/c** cutaneous malignancy
- **Good prognosis**
- On H/E : **true palisading**

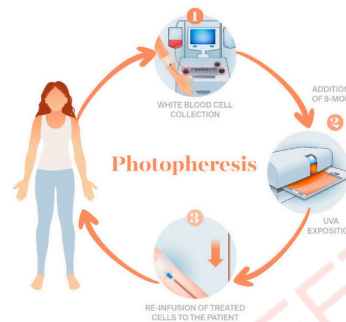


**True palisading**



## Pautrier's microabscess

- Seen in **mycosis fungoides** (*Cutaneous T cell lymphoma*)
- Epidermotropism : Lymphocytic movement towards epidermis
- **Cerebriform nuclei**
- When disseminated in blood : **Scezary syndrome**
- T/t : **Extracorporeal photopheresis**



**Giant melanocytic nevus**     **Hair present on the nevus**

## Melanocytic nevus

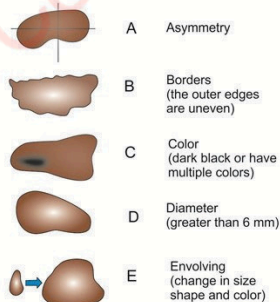
Can transform into malignant melanoma



## Cutaneous horn

- Seen in **actinic keratitis**
- **Premalignant** for Sq.cell carcinoma

ABCDE  
Rule for the early detection of melanoma



## Malignant melanoma

Most important prognostic marker is **depth** of the melanoma  
"Breslow's depth"

## Bowen's disease



- Intra-epidermal sq. cell carcinoma
- **Low potential** of invasive malignancy
- Undergoes spont. resolution



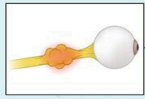
## Seborrheic keratosis

- **Para neoplastic syndrome**
- aka **sign of Leser Trelat**

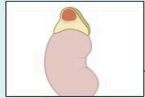
# Neurocutaneous Syndromes

## Neurofibromatosis type 1

### Associated tumors



Optic glioma



Pheochromocytoma



Multiple neurofibromas

### Features of melanocyte dysfunction

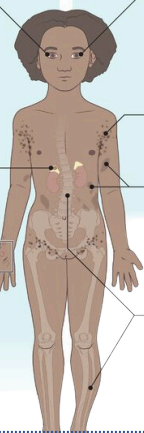


Lisch nodules

Axillary and inguinal freckling

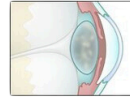
Multiple café au lait spots

Bone involvement (e.g. scoliosis, bone dysplasia)

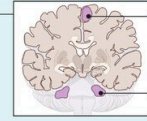


## Neurofibromatosis type 2

### Associated tumors



Early-onset bilateral cataract

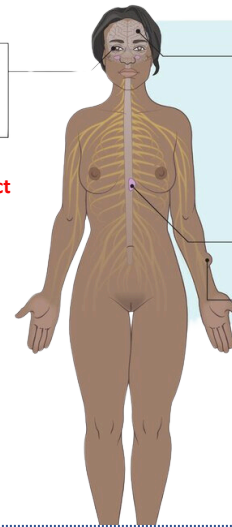


Meningiomas

Bilateral vestibular schwannoma

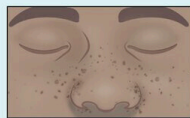
Spinal tumors (e.g., ependymomas)

Skin nodules (e.g., schwannomas)



## Tuberous sclerosis

### Skin

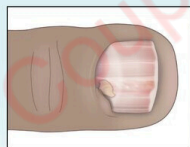


Adenoma sebaceum

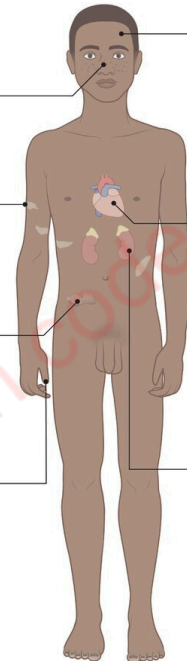
Ash-leaf spots (3 or more)



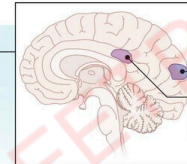
Shagreen patch



Ungual fibroma



### Brain

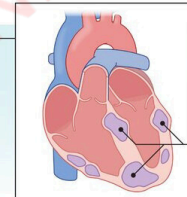


Hamartoma

Giant cell astrocytoma

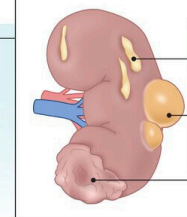
Seizures  
Intellectual disability

### Heart



Cardiac rhabdomyomas

### Kidney



Renal angiomyolipoma

Renal cysts

Renal cell carcinoma

## Sturge Weber Syndrome

### CNS

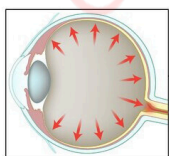
Leptomeningeal vascular malformations, leading to:

Seizures

Intellectual disability

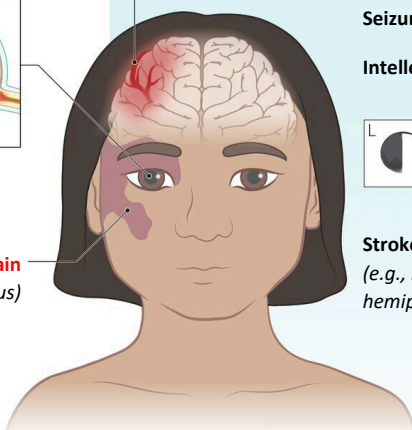


Stroke-like episodes (e.g., hemianopia, hemiparesis)



Glaucoma

Port-wine stain (nevus flammeus)



All neurocutaneous syndromes show **AD transmission** except **Sturge Weber Syndrome**



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