

# Normal Skin

# Skin

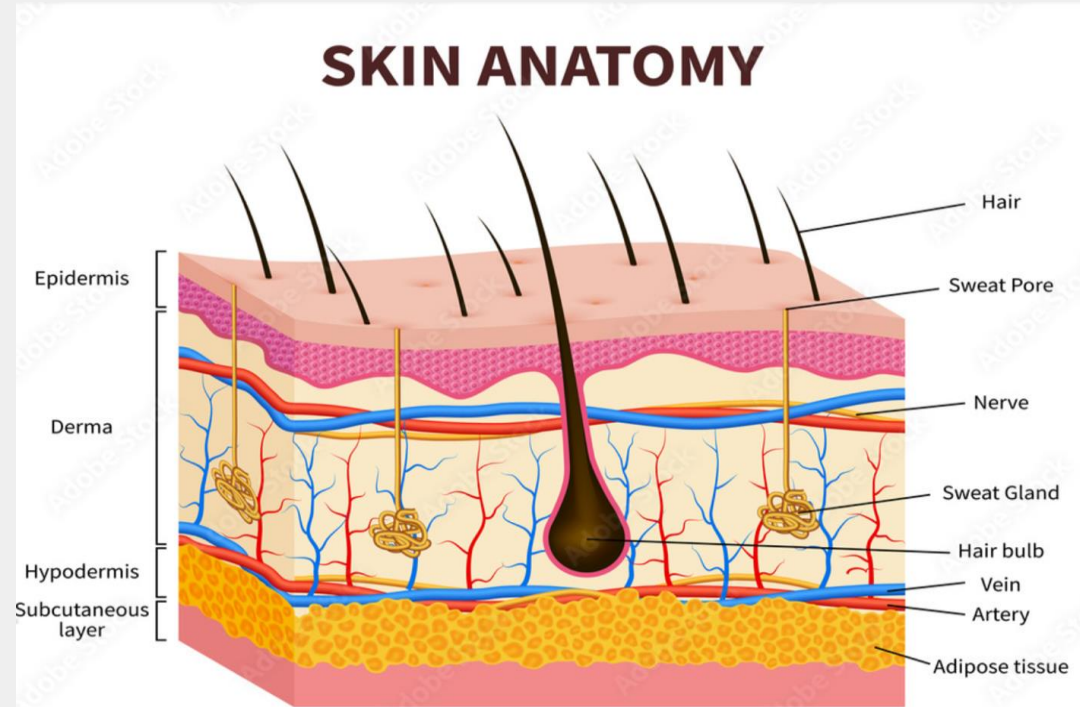
- Largest organ in the body
- Barrier against infection and ultraviolet rays
- Prevents water loss and insulates the body

- Three layers

- Epidermis: keratinocytes (squamous epithelial cells)
- Dermis: connective tissue, vessels, nerves
- Hypodermis (sometimes called Subcutaneous fat or subcutis)

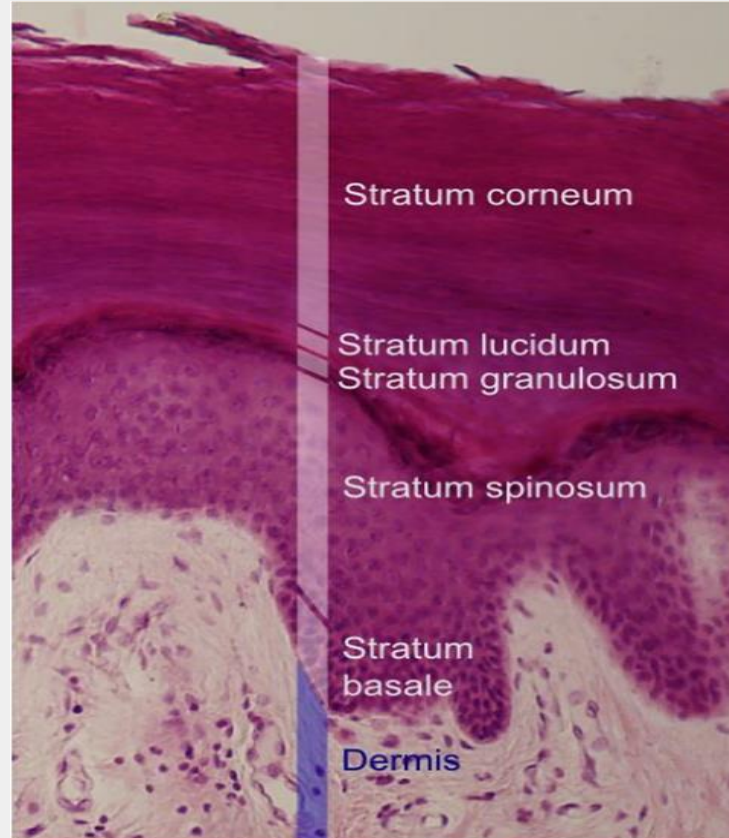
- Accessory structures

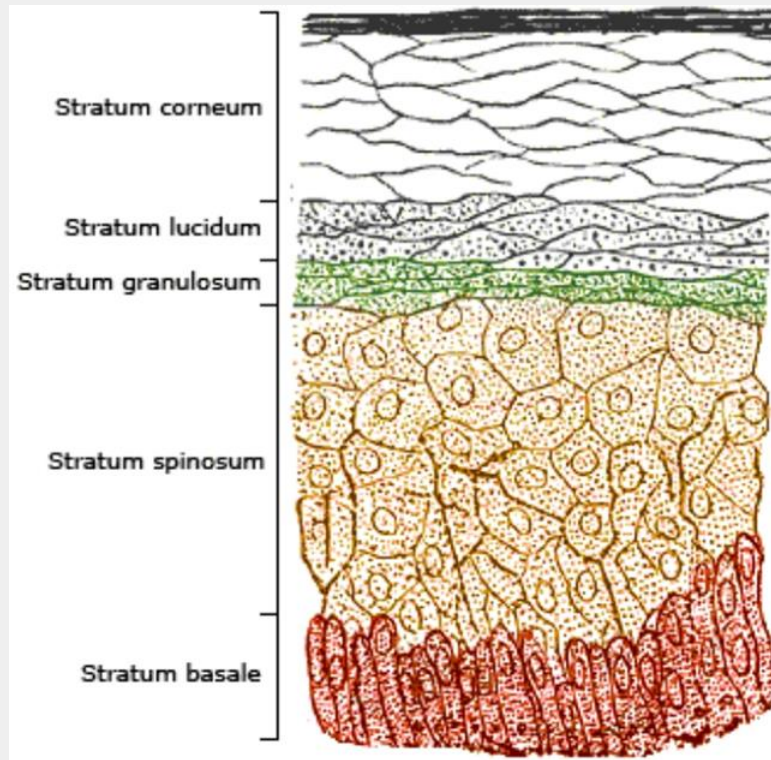
- Hair
- Sebaceous glands
- Sweat glands



- Epidermal Layers (In Ascending Order):

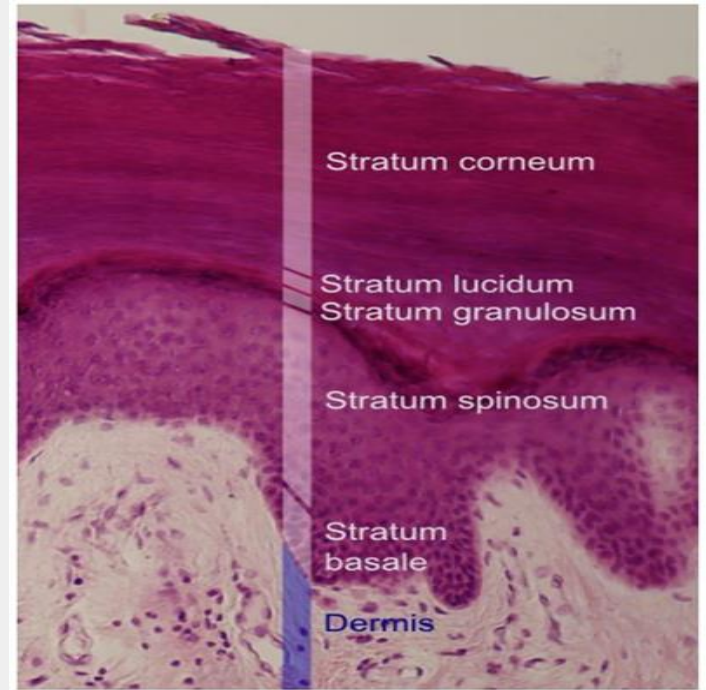
1. Stratum Basalis
2. Stratum Spinosum
3. Stratum Granulosum
4. Stratum Lucidum
5. Stratum Corneum





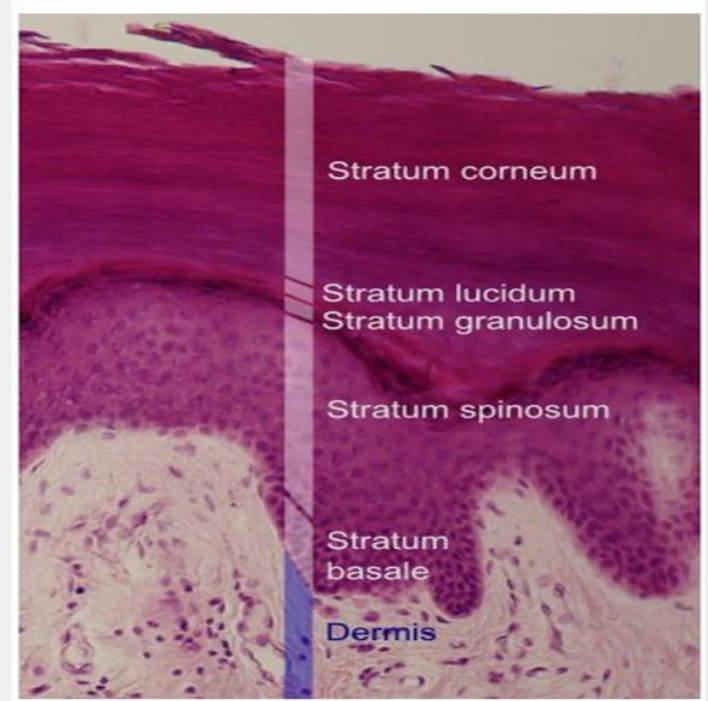
# Epidermal Layers

- Stratum Basalis
  - **Stem cells**
- Stratum Spinosum
  - **Desmosomes** form spines
- Stratum Granulosum
  - Keratohyalin granules
  - Form keratin filaments



# Epidermal Layers

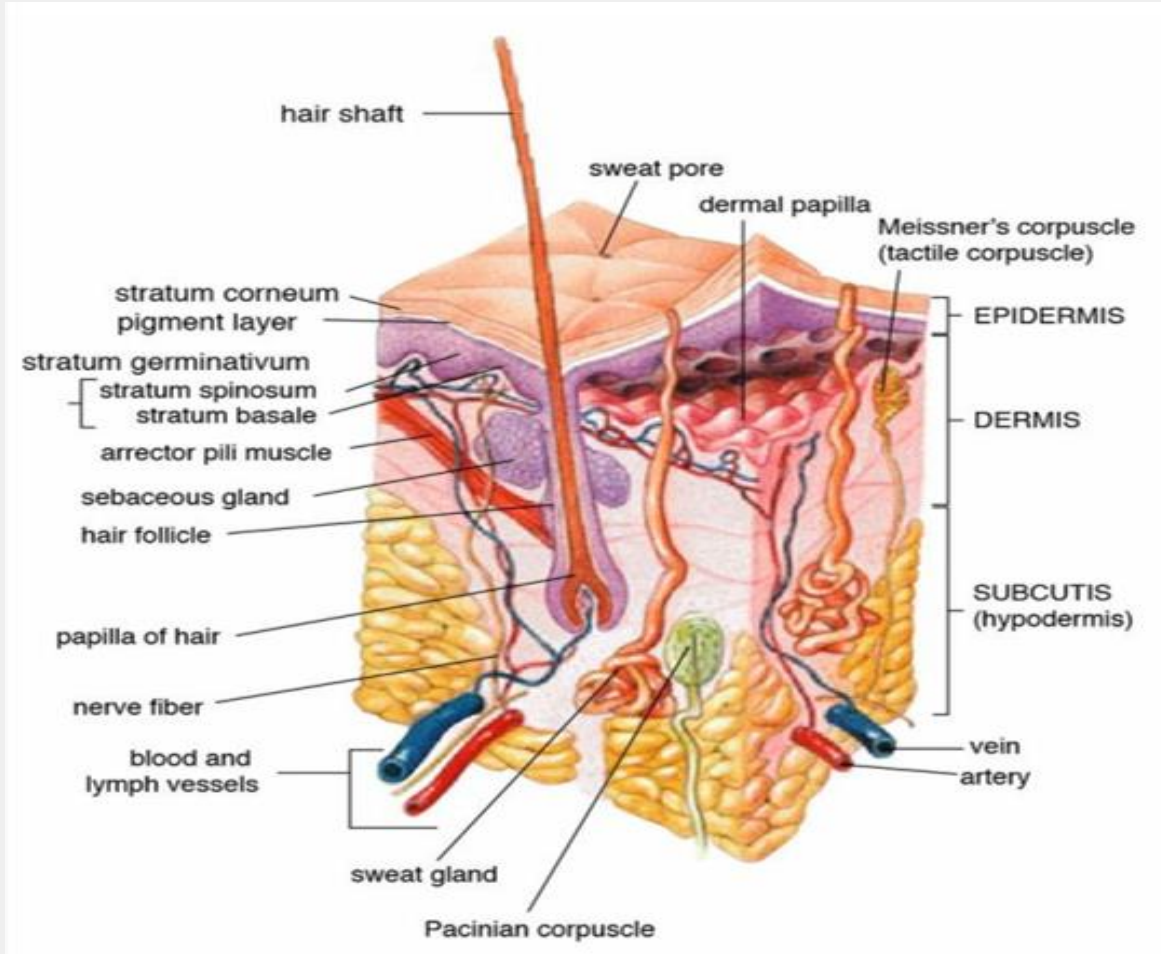
- Stratum Lucidum
  - Clear layer of dead skin cells
- Stratum Corneum
  - **Anucleated** cells
  - Filled with keratin filaments





# Dermis

- Connective tissue
- Blood vessels
- Nerves





# Histopathology

- Terms used to describe **microscopic** findings
- Used in analysis of **skin biopsies**
- Hyperkeratosis
- Parakeratosis
- Hypergranulosis
- Spongiosis
- Acantholysis
- Acanthosis

# Hyperkeratosis

- Thickening of **stratum corneum**
- Excess quantity of keratin



# Hyperkeratosis

Psoriasis

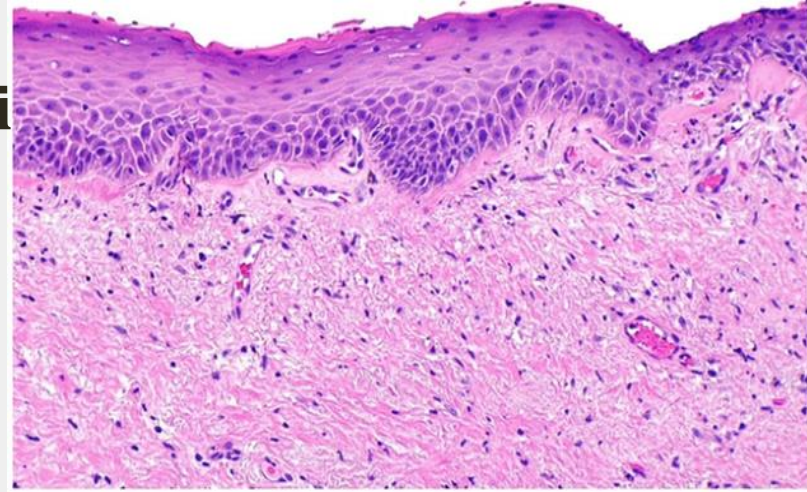


Callus



# Parakeratosis

- Hyperkeratosis + **retained nuclei** in stratum corneum
- Indicates hyperproliferation
- Seen in skin diseases (psoriasis) and malignancies



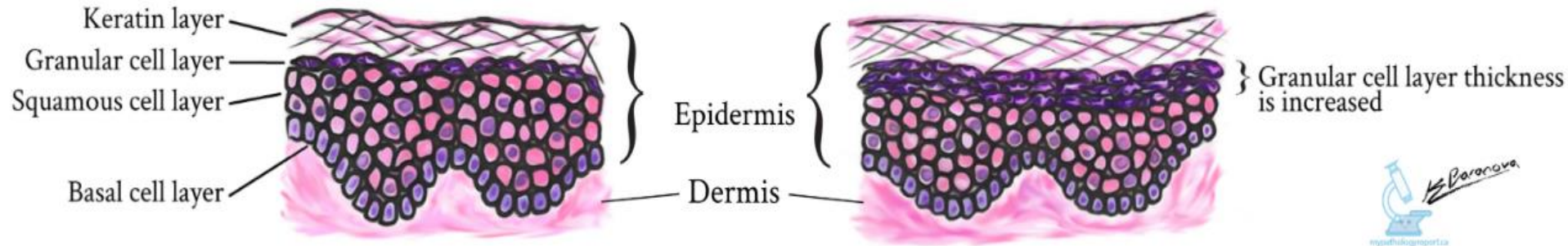
# Hypergranulosis

- Increased thickness of **stratum granulosum**
- Classic finding in **lichen planus**



Normal skin

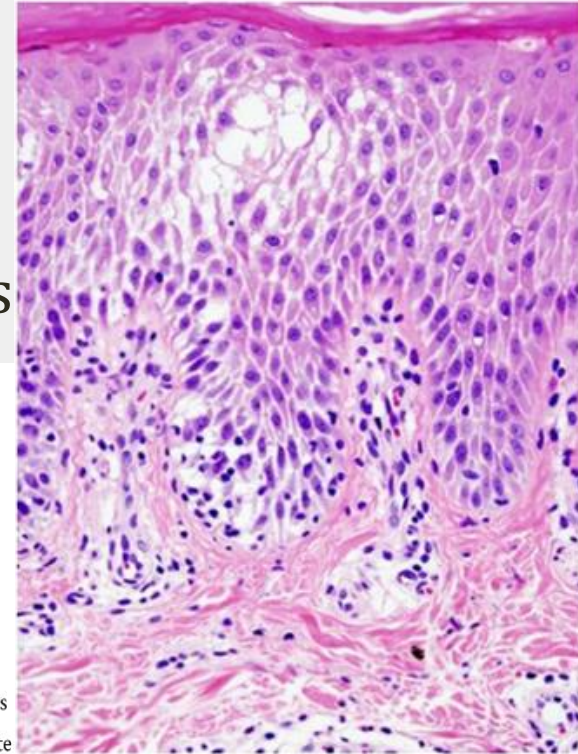
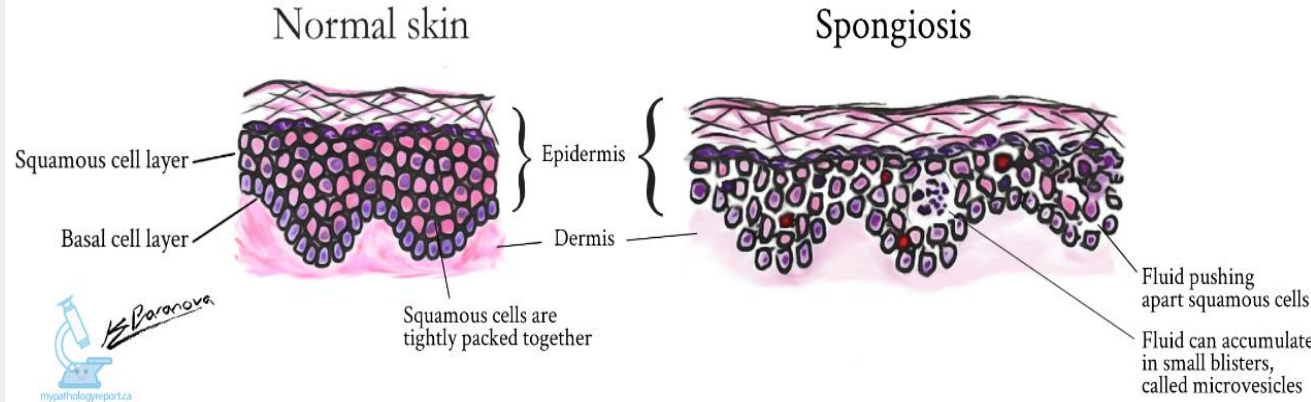
Hypergranulosis





# Spongiosis

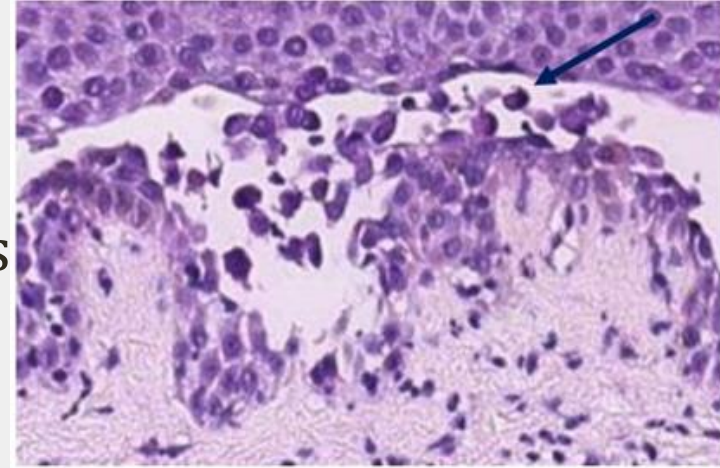
- Fluid accumulation (edema) of epidermis
- Seen in eczema, many other skin disorders



# Acantholysis

*acanth-* (“spine”) + *-lysis* (“destruction”)

- **Loss of connections** between keratinocyte
- Often loss of desmosomes
- “Rounded” keratinocytes
- Detached, floating freely in epidermis



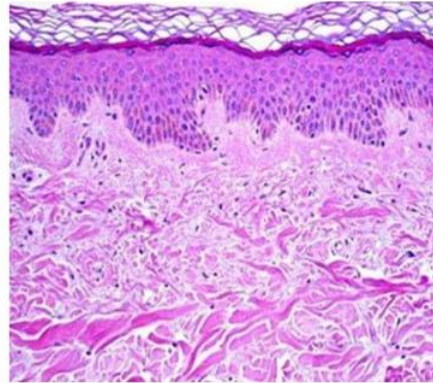


# Acanthosis

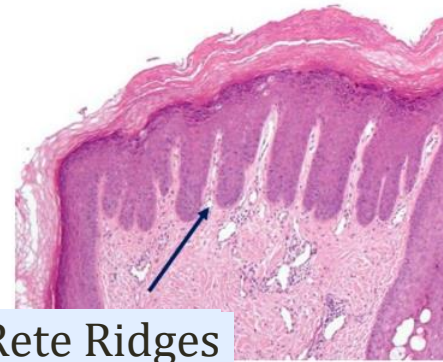
acanthus (“spine”) + -osis (“diseased condition”)

- Diffuse epidermal hyperplasia
- Elongated rete ridges
- **Spinous layer** thickening

Normal

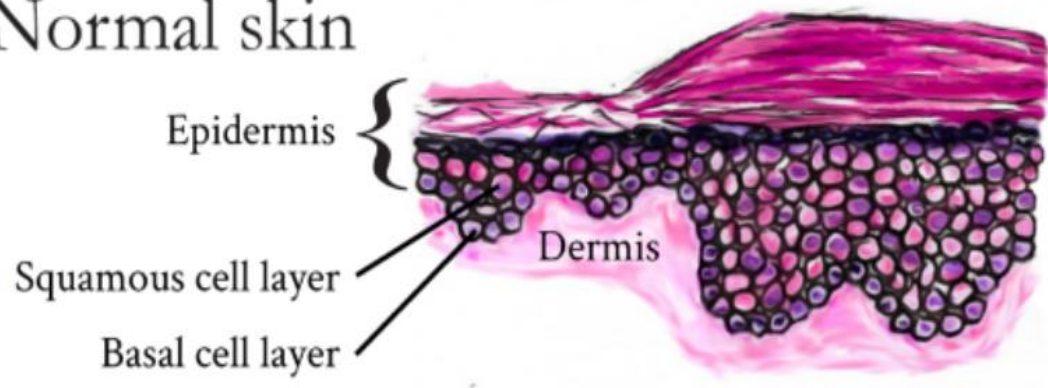


Acanthosis



Rete Ridges

## Normal skin



} Acanthosis  
Thickening of the epidermis  
caused by an increased number  
of squamous cells

# Acanthosis vs Acantholysis

More Information Online [WWW.DIFFERENCEBETWEEN.COM](http://WWW.DIFFERENCEBETWEEN.COM)

	Acanthosis	Acantholysis
DEFINITION	Acanthosis is the thickening of epidermis and elongation of rete ridges	Acantholysis is the separation of keratinocytes in the epidermis due to the loss of cohesion between keratinocytes
CAUSE	Due to thickening of the spinous layer and enlargement of rete pegs	Loss of intercellular connections between keratinocytes
OUTCOME	Thickening of the epidermis	Formation of rounded, detached cells and intraepidermal blisters
DISEASES	Malignant melanoma, papillomatosis and hyperkeratosis	Pemphigus vulgaris and related disorders

# Acanthosis Nigricans

- Nigricans = darkened
- Hyperpigmented (dark) plaques on skin
- Intertriginous sites (folds)
- Classically neck and axillae
- Associated with insulin resistance
  - Often seen obesity, diabetes
- Rarely associated with malignancy
  - Gastric adenocarcinoma most common



# Skin Lesions

- **Primary lesions**
  - Directly caused by disease process
  - Described using standard terminology
  - Macules, papules, vesicles, bulla
- **Secondary lesions**
  - Modification of primary lesion
  - Or caused by trauma, external factors
  - Scale, crust, erosion, fissure, ulcer

# Identifying Skin Lesions

- Site? Shape? Color?
- Itchy? Painful? Burning?
- Associations:
  1. ask about involvement in mucosal membranes, nails and hair
  2. Ask about systemic diseases (ex. Hep C, Diabetes Mellitus,...)
- Ask about scar tendency after healing

# Primary Lesions

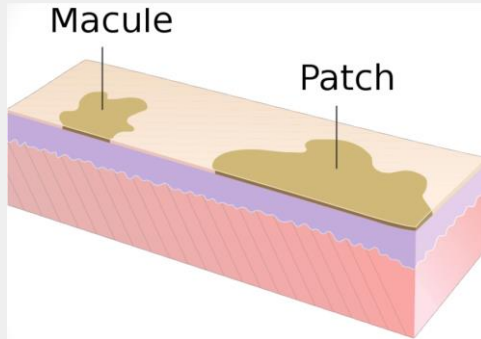
Change in color but  
no elevation

Less than 1 cm

More than 1 cm

Macule

Patch



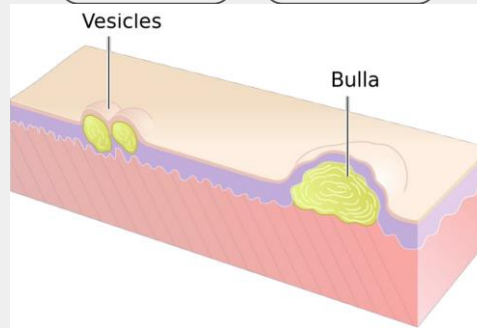
Fluid

Less  
than  
0.5 cm

More  
than  
0.5 cm

Vesicle

Bulla



Change in elevation

Pus

Pustule

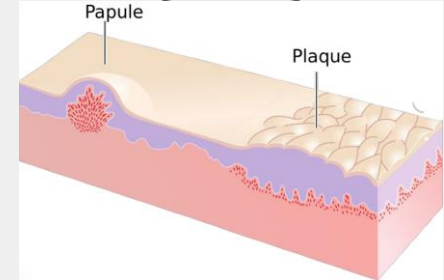
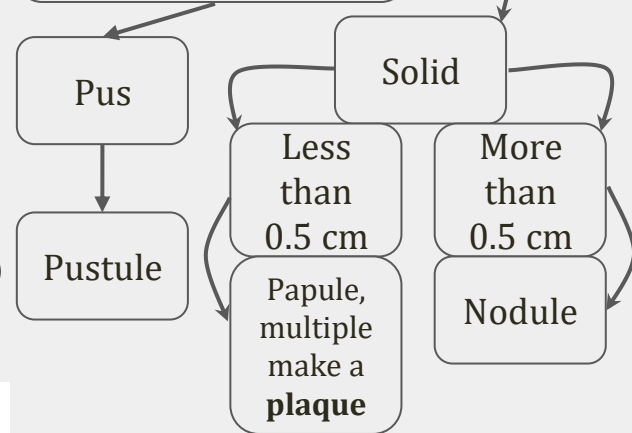
Solid

Less  
than  
0.5 cm

More  
than  
0.5 cm

Papule,  
multiple  
make a  
**plaque**

Nodule





# Macules and Patches

- Flat lesions (not raised)
- Macule:  $<1\text{cm}$
- Patch:  $>1\text{cm}$

Freckle  
(macule)



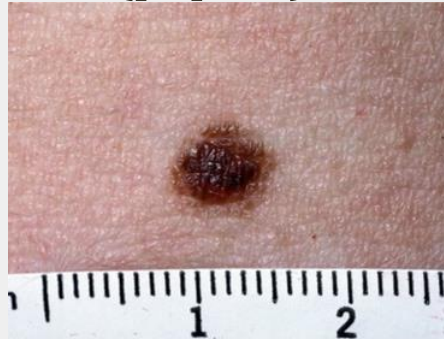
Stork Bite Birthmark  
(Patch)



# Papules and Plaques

- Raised lesions
- Papule: <1cm
- Plaque: >1cm

Mole/nevus  
(papule)



Psoriasis  
(plaque)



# Vesicles and Bulla

- Fluid-filled lesions (blisters)
- Vesicle: <1cm
- Bulla (plural = bullae): >1cm

Chickenpox  
(vesicles)



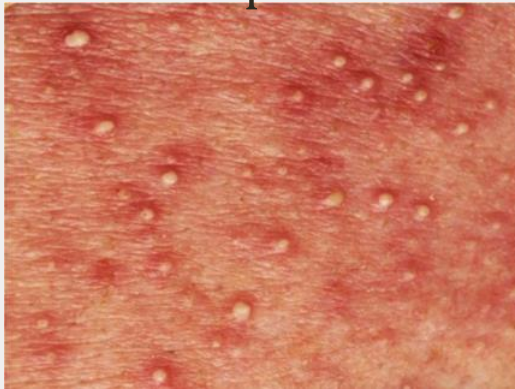
2nd degree burn  
Bulla



# Pustule

- Pus-filled vesicle
- White center

Pustular psoriasis



Acne



# Wheal

- Smooth, elevated papule or plaque
- Surrounded by erythema (redness)
- *Itchy*
- Caused by **dermal** edema
- Component of urticaria (allergic reaction)

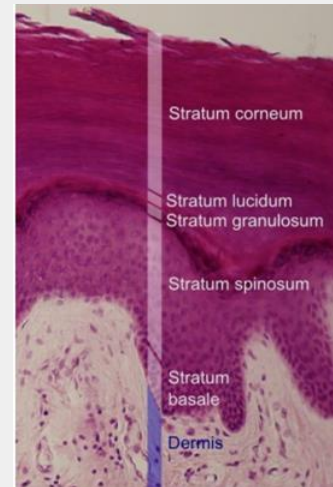


# Secondary Lesions

- Modification of primary lesion
- Or caused by trauma, external factors
- Scale, crust, erosion, fissure, ulcer

# Scale

- Secondary lesion
- Peeling/flaking of **stratum corneum**





# Crust

- Secondary lesion
- **Dried exudate** of skin lesion

Impetigo



## Fissure

Linear cleavage of the skin



## Erosion

Superficial break of the epidermis only



Heals without scarring

## Ulcer

Loss of skin extending into dermis



THANK YOU