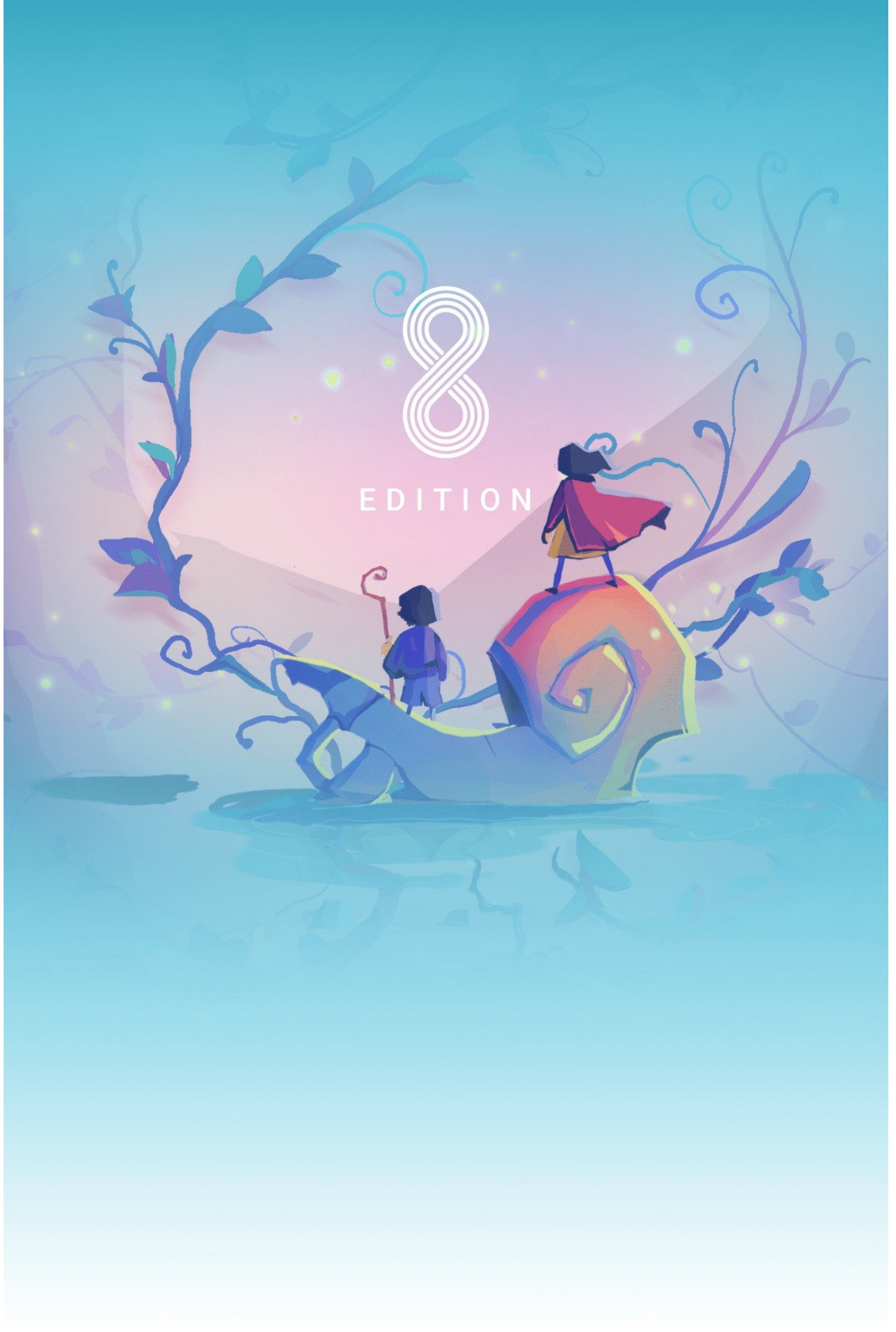




EDITION



BASICS OF DERMATOLOGY : PART 1

----- Active space -----

Skin

00:00:34

Weight : 4-5 kg.

Area : 1.7 m².

Layers of skin :

Outermost to innermost

- Epidermis : Above dermis.
- Dermis.
- Hypodermic : Below dermis.

Epidermis

00:01:27

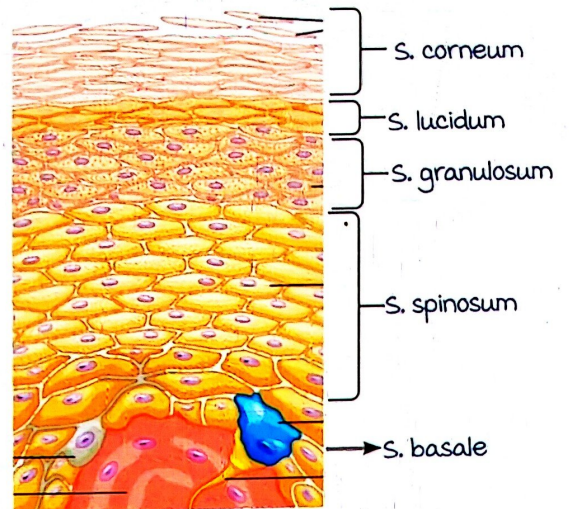
Layers :

From outer to inner.

Histology : Stratified squamous epithelium.

Stratum corneum

- "Stratum" : Layer; "Corneum" : Keratin.
- Shape : Flat.
- Composition : Fully Keratinised
- Nucleus : **Absent** (Dead protein).
- Function : Barrier function
 - Prevents entry of microbes, allergens, irritants.
 - Prevents exit of dermal fluid (Trans epidermal water loss).



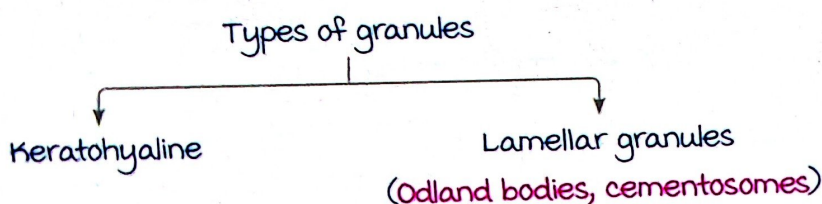
Stratum Lucidum :

khanirfan0392@gmail.com

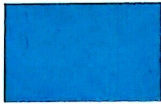
- "Lucidum" : Clear.
- Location : **Palms & soles.**

Stratum Granulosum :

- "Granulosum" : Granule (Prominent).



2



Dermatology

----- Active space -----

Components : Proflaggrin (inactive)

Lipid

↓
Filaggrin (Active)
 (Filament aggregating protein)

Function : Aggregation of keratin intermediate filaments

Barrier function of skin

Disease : D/t mutation of filaggrin

- Ichthyosis vulgaris (vulgaris is m/c). (Fish like scales)
- Atopic dermatitis.

khanirfan0392@gmail.com

Note : "vulgaris" indicates most common.

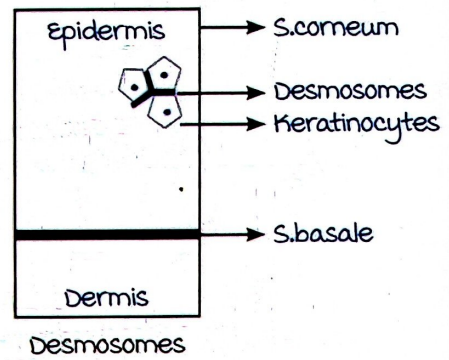
Stratum spinosum

- Spines are most prominent in s.spinosa.
- Spines correspond to protein : **Desmosomes**.

Desmosomes :

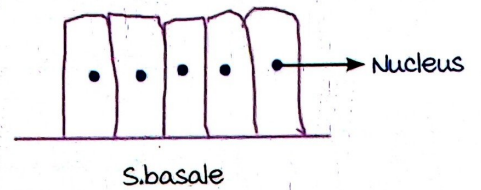
- Intra epidermal intercellular connections.
- Lies between keratinocytes (Cells of epidermis).
- Importance : Autoantibodies to desmosomes

↓
 Pemphigus group of disorders



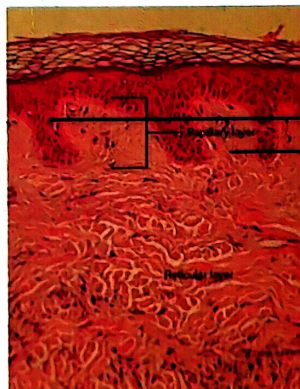
Stratum basale :

- synonym : S. germinativum.
- Single layer.
- Columnar cells.
- Central nucleus.



Note : malpighian layer : S. spinosum + S. basale.

Rete ridges vs dermal papilla



→ Rete ridges : Projection of epidermis into dermis
 → Dermal papilla : Extension of dermis into epidermis

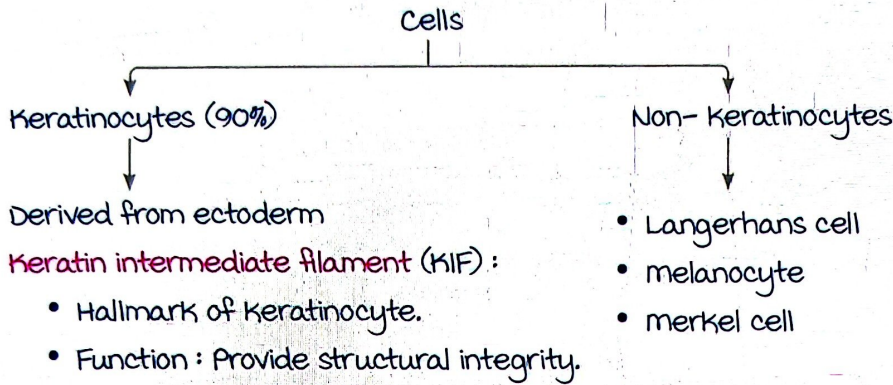
Epidermal transit time :

• Cells move from S. basale $\xrightarrow[\text{4 weeks}]{\text{Time taken}}$ S. corneum.


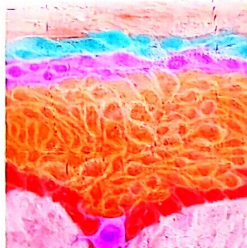
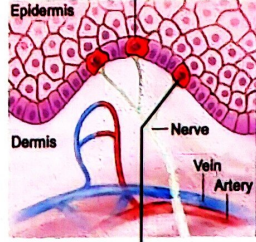
----- Active space -----

• Psoriasis : ↓ epidermal transit time.

Cells :



Non Keratinocytes :

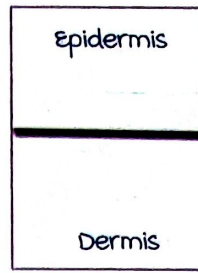
	Langerhans cell	melanocyte	merkel cell
Location	S. spinosum	s. basale	s. basale
Embryology	mesoderm (Bone marrow)	Neural crest	Ectoderm
Content	Birbeck granules	melanosomes	Neuro secretory granules
Function	Antigen presenting cells (APC) : Dendritic langerhan cells present antigens to T cells in lymph node.	Tyrosine (Aminoacid) ↓ melanin (Protection from uv light)	Fine touch mechano receptors (Slow adapting, low threshold)
markers for diagnosis	• S100, CD1a, CD 207 (Langerin) : most specific. • Dx of LCH.	• S100, HMB 45, melan A. • Dx of melanoma.	• Cytokeratin 20. • Dx of merkel cell carcinoma.
Additional points	Dendritic cell	Dendritic cell	
Image	 Tennis racket appearance Birbeck granules (Electron microscope)	 melanocyte	 merkel cell



----- Active space -----

Dermo epidermal junction (DEJ) :

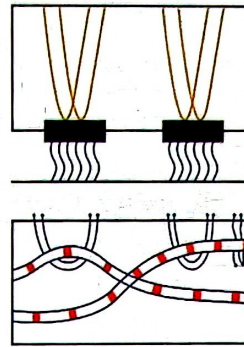
- Synonym : basement membrane zone (BMZ).



BMZ/DEJ : Connects epidermis to dermis.

Layers :

1. Hemidesmosome - KIF complex.
2. Lamina lucida.
3. Lamina densa.
4. Sublamina densa.



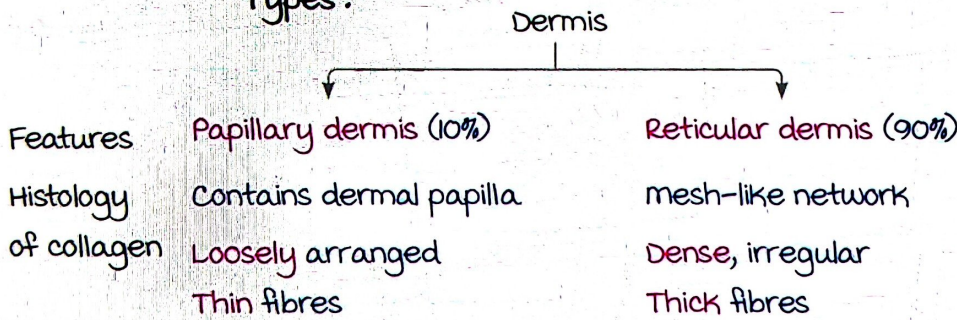
Hemidesmosome-Keratin Intermediate filaments (KIF)
 → Lamina lucida
 → Lamina densa
 → Sublamina densa

Basement membrane zone

Dermis

00:19:01

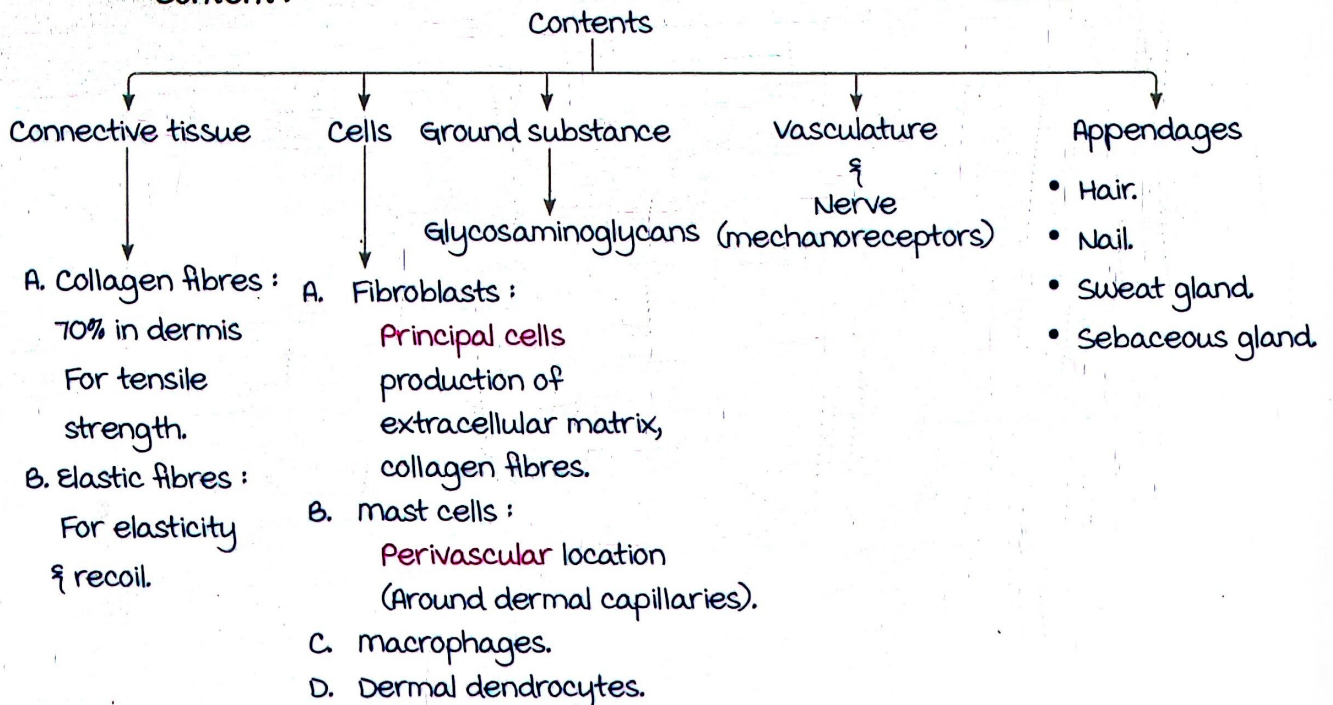
Types :

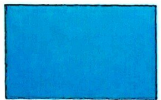


Papillary layer
 Reticular layer

Dermis

Content :





Collagen :

- m/c type of collagen : Type 1 > Type 3.
- Type of collagen in cartilage : Type 2.

----- Active space -----

Hypodermis

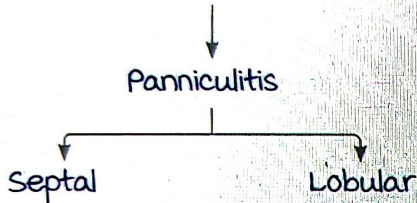
00:23:12

Overview :

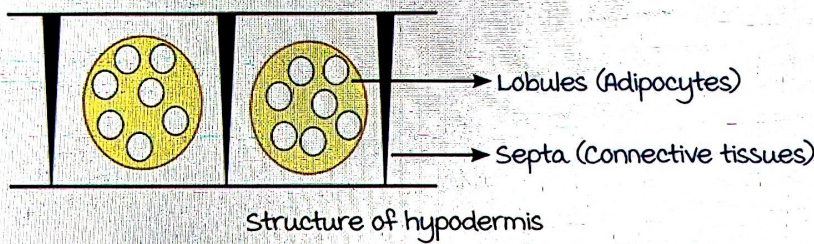
- AKA subcutaneous tissue.
- Function : Insulation, Thermal regulation (D/t presence of subcutaneous fat).

Panniculus :

- " Panniculus " : Fat.
- Inflammation of subcutaneous fat.



Structure :

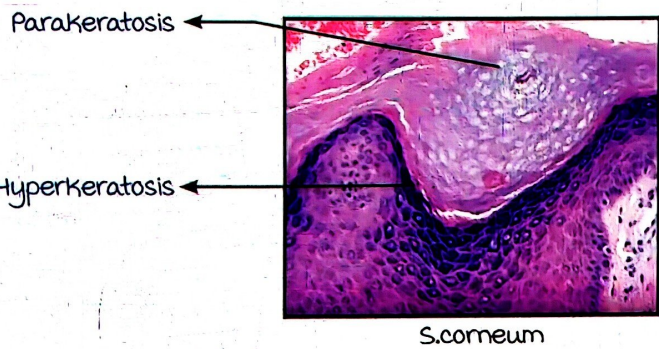


Dermopathology

00:24:16

S. corneum :

- Thickening : Hyperkeratosis.
- Presence/retention of nucleus : Parakeratosis.



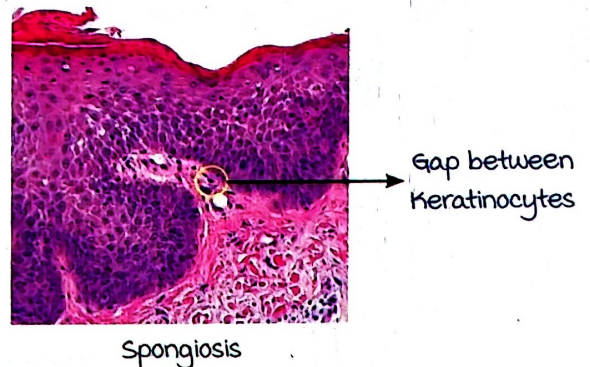
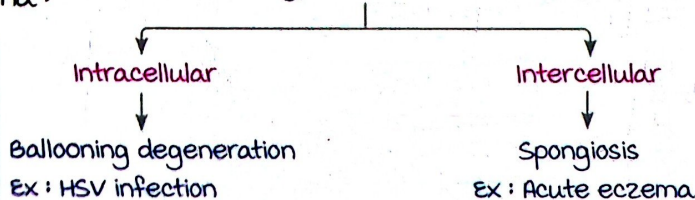
S. granulosum :

- Wedge shaped hypergranulosis : Lichen planus.
- Absent / decreased granular layer. :
 - a. Psoriasis.
 - b. Ichthyosis vulgaris.

S. spinosum :

Edema :

Types of edema

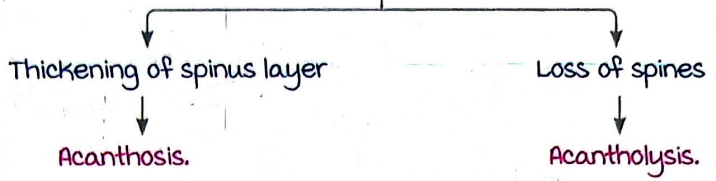




----- Active space -----

Layers :

Types



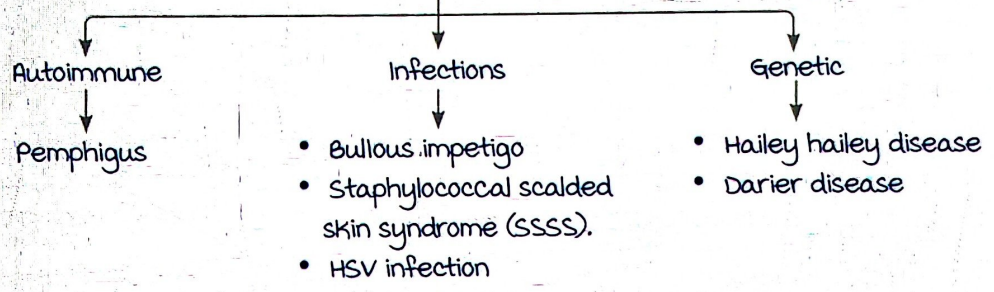
Acantholysis :

- Pathology : Loss of attachment b/w Keratinocytes.

Polyhedral Keratinocytes $\xrightarrow{\text{Loss of desmosomes}}$ Circular Keratinocytes.

- Circular Keratinocytes have prominent nucleus.
- Called as tzanck cells /acantholytic cells.

Cause of acantholysis



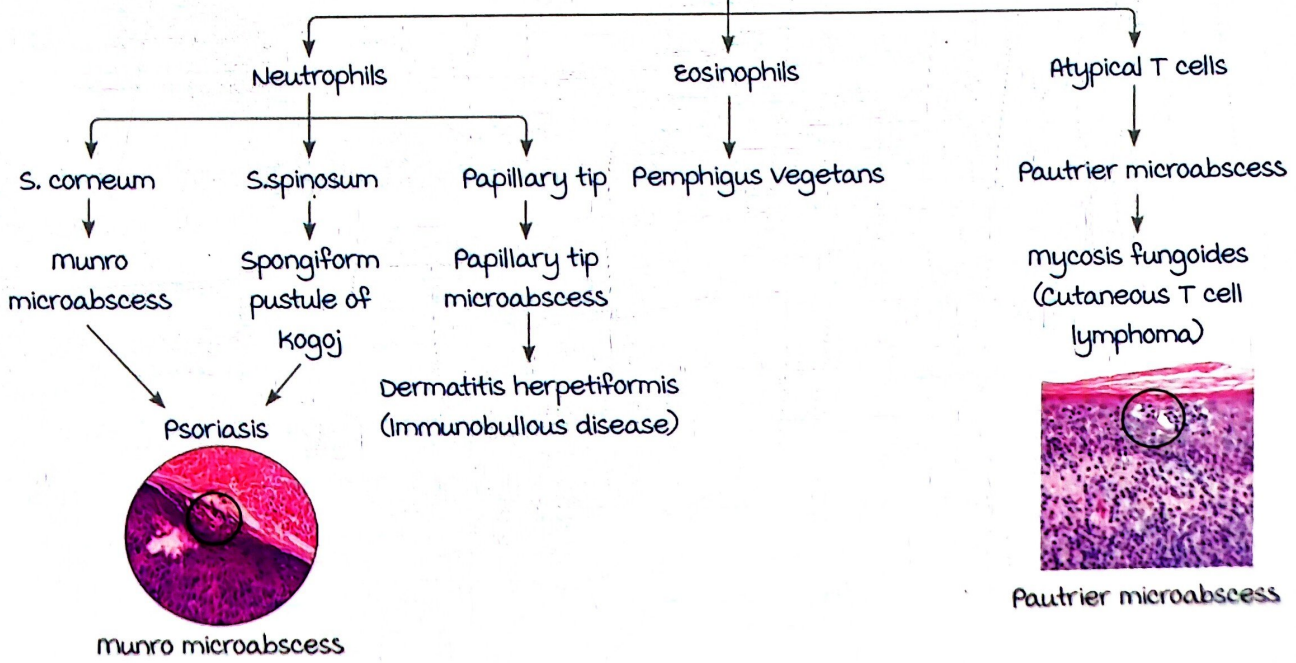
Dyskeratosis :

- Abnormal, premature, Keratinisation of individual Keratinocytes.
- Ex :
 - Bowens disease (Carcinoma in situ).
 - Darier disease.
 - Squamous cell carcinoma.

microabscess :

- microscopic collection of cells.

Types



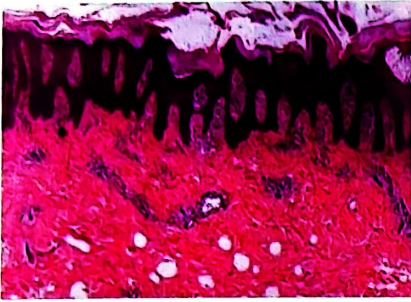
----- Active space -----

Rete ridges

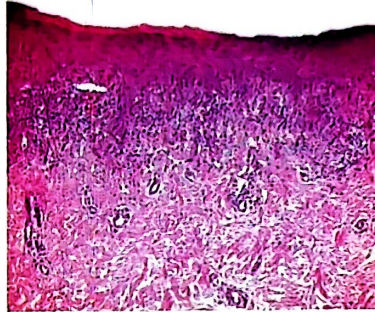
2 appearances

Regular elongation : Psoriasis

Saw toothed appearance : Lichen planus



Regular elongation



Saw toothed

----- Active space -----

BASICS IN DERMATOLOGY : PART 2

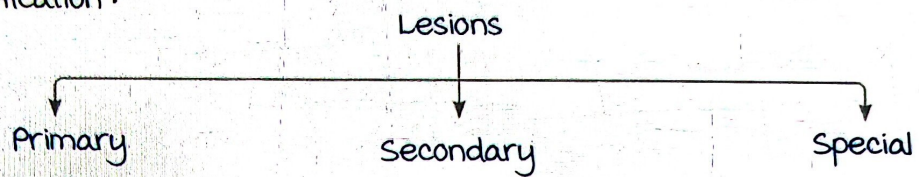
Principles of clinical diagnosis :

- morphology.
- Configuration.
- Distribution.

Morphology

00:00:38

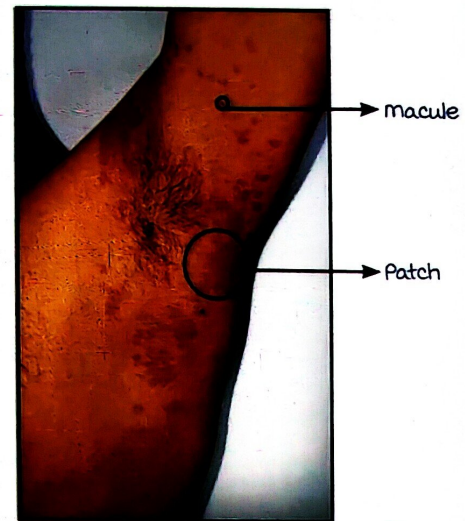
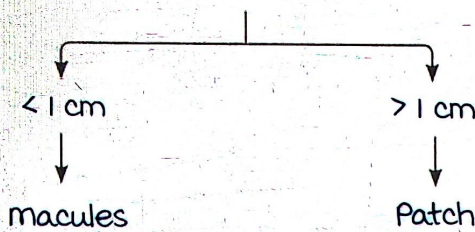
Classification :



Primary skin lesions :

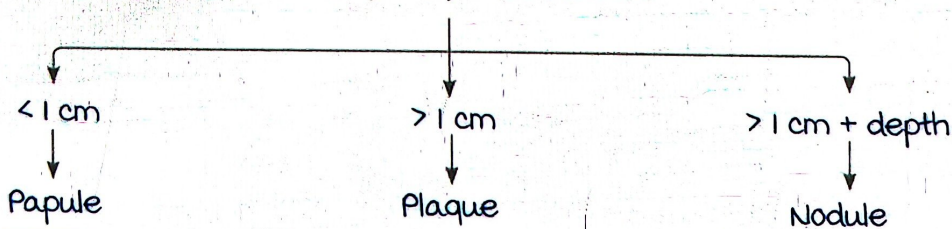
- Initial skin lesions.
- Non-modified lesions.

A. Flat non-palpable



Flat non-palpable lesions

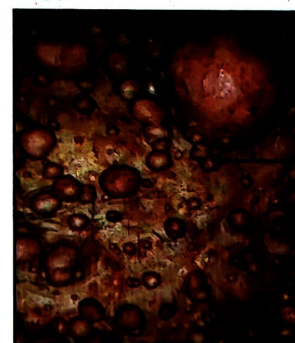
B. Circumscribed, solid, raised lesions



Papule



Plaque

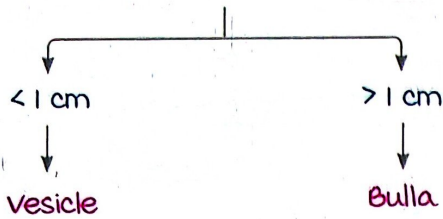


Nodule

Seen in neurofibromatosis

khanirfan0392@gmail.com

C. Clear fluid filled lesions



Vesicle



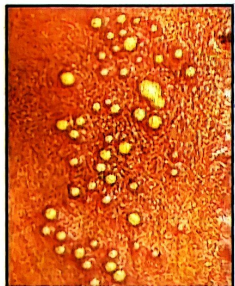
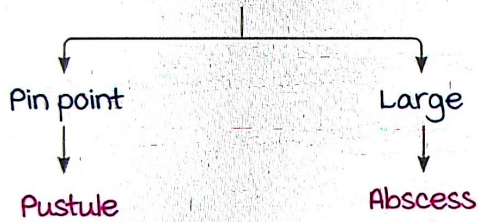
Bulla

Vesicular rash :

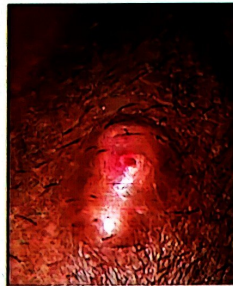
----- Active space -----

1. Herpes labialis/zoster.
2. Varicella.
3. Hand foot mouth disease.

D. Pus filled lesions

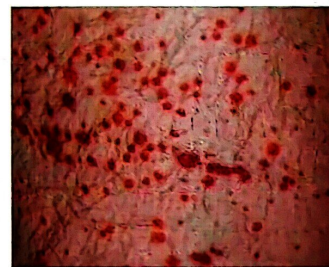
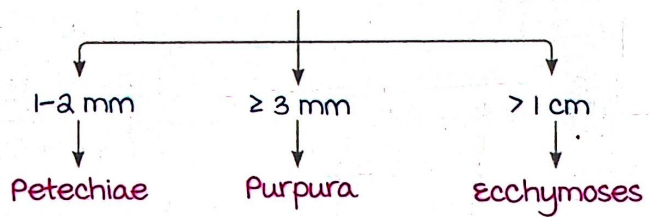


Pustule



Abscess

E. RBC extravasation into skin/mucous membrane



Purpura

F. Wheals :

- Plaques which are :
 - a. Pruritic.
 - b. Erythematous.
 - c. Edematous.
 - d. Transient.
- Seen in urticaria

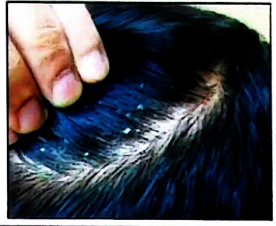



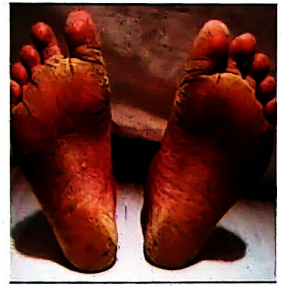




Wheals


----- Active space -----

Secondary skin lesions :

- Skin lesions modified $\xrightarrow{D/t}$ Itching/treatment.


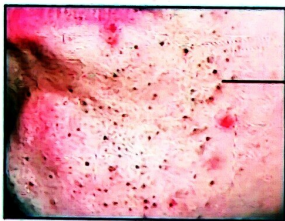

Lesion	Features	Images
A. Scale	<ul style="list-style-type: none"> • visible exfoliation of stratum corneum. • Scalp scaling : <i>Seborrhoeic dermatitis, psoriasis.</i> 	
B. Crust	<ul style="list-style-type: none"> • Hard exudate. • D/t drying of serum, pus, blood. • Golden brown (honey color crust) : <i>Non-bullous impetigo.</i> 	
C. Erosion	<ul style="list-style-type: none"> • Focal/total loss of epidermis. • Eg : <i>pemphigus vulgaris.</i> 	
D. Ulcer	Loss of epidermis leads to partial/total of dermis which in turn leads to molecular death	
E. Fissure	<ul style="list-style-type: none"> • Linear deep cleft in skin. • Eczema. 	
F. Excoriation	<ul style="list-style-type: none"> • Punctate/linear abrasions resulting due to scratching • Scratch marks 	
G. Lichenification	<ul style="list-style-type: none"> • Thickening of skin. • Hyperpigmentation. • Exaggerated skin markings. • D/t chronic scratching. 	

----- Active space -----

Lesion	Features	Images
H. Atrophy	<ul style="list-style-type: none"> Decreased/absent structural component of skin. Clinically : Wrinkling + Eg : in topical steroid abuse. 	

Special lesions :

Specific to a particular disease.

Lesion	Features	Images
A. Burrow	<ul style="list-style-type: none"> Wavy, grayish white tunnel. Level : S. corneum. Seen in scabies. 	
B. Comedones	<ul style="list-style-type: none"> Folliculo-centric lesion plugged by sebum + keratin. Seen in acne vulgaris. Types : <ol style="list-style-type: none"> Open comedones : Black in color due to oxidation of sebum Closed comedones : White color 	<div style="display: flex; flex-direction: column; align-items: center;">  <p style="margin-left: 150px;">Open comedone</p>  <p style="margin-left: 150px;">Closed comedone</p> </div>
C. Target lesion	<p>3 zones :</p> <ul style="list-style-type: none"> Centre : Dusky red hue. Intermediate : Pale edema. Periphery : Erythema. - Seen in erythema multiforme. 	

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Feedback

12






Dermatology

----- Active space -----

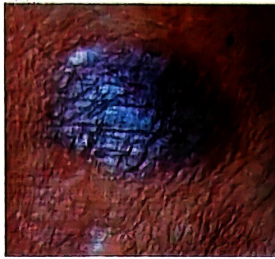


Configuration/pattern

00:13:05

- Refers to arrangement of skin lesion.

Pattern	Features	Images
A. Grouped	<ul style="list-style-type: none"> • Clustered. • Seen in herpes labialis. 	
B. Dermatomal	<ul style="list-style-type: none"> • Along area supplied by single nerve. • Seen in herpes zoster, shingles. 	
C. Linear	<ul style="list-style-type: none"> • Line like pattern. 	
D. Blaschkoid	<ul style="list-style-type: none"> • Wavy/whorled. 	
E. Annular	<ul style="list-style-type: none"> • Shape : Ringlike • Centre : Clear. • Periphery : Active. • Seen in : <ul style="list-style-type: none"> - Pityriasis rosea, - mid borderline leprosy (BB), - Tinea corporis. 	




----- Active space -----

Pattern	Features	Images
F. Discoid/ Nummular	<ul style="list-style-type: none"> • Shape : Coin. • Centre : Active. • Periphery : Active. • Seen in : <ul style="list-style-type: none"> - Discoid lupus erythematosus - Discoid eczema. 	
G. Discrete	<ul style="list-style-type: none"> • Individual/separately present 	
H. Confluent	<ul style="list-style-type: none"> • multiple lesions merge together. 	

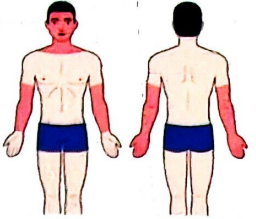
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Distribution

00:16:48

Pattern	Distribution	Images
A. Acral	<ul style="list-style-type: none"> • Extremities 	
B. Flexor	<ul style="list-style-type: none"> • Flexor aspect. 	
C. Extensor	<ul style="list-style-type: none"> • Extensor aspect (Elbows, knees). 	

----- Active space -----

Pattern	Distribution	Images
D. Photodistributed	<ul style="list-style-type: none"> • Sun exposed areas. 	

Lines In Dermatology

00:17:35

Langer's lines :

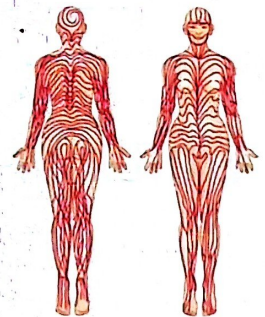
- Represent : Skin tension lines.
- Along the orientation of collagen fibres in dermis.
- Importance :
 - a. Surgical incisions are made along these lines.
 - b. Incisions across these lines → Hypertrophic scars.



Langers lines

Blaschko's lines :

- Represent : Epidermal cell migration during embryologic development.
- Patterns :
 - Upper spine : V shaped.
 - Abdomen : S shaped.
 - Lower extremities : Perpendicular down.
 - Scalp : Spiralled.
- Importance : *Incontinentia pigmenti* (X-linked dominant disease) → Follows these lines.



Blaschko lines

Dermatological Diagnosis and Investigations

00:20:38

DERMATOLOGICAL SIGNS

Nikolsky sign :

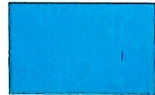
Tangential pressure applied over skin



upper layer separates from lower layer.



Nikolsky sign



----- Active space -----

Types of Nikolsky sign

Nikolsky sign : True

mechanism : Acantholysis

- Ex :
1. Pemphigus foliaceus
 2. Pemphigus vulgaris
 3. Staphylococcal scalded skin syndrome (SSSS)

Pseudo

Necrosis of keratinocytes

1. Toxic epidermal necrolysis (TEN)

Diascopy/Vitropression test :

Glass slide pressed over an erythematous lesion

Blanching response (vasodilation)

Ex : Erythema

Non-blanching response (Extravasation of RBC → results in degeneration → Staining of vessel wall)

Purpura

Non-blanching response (purpura)

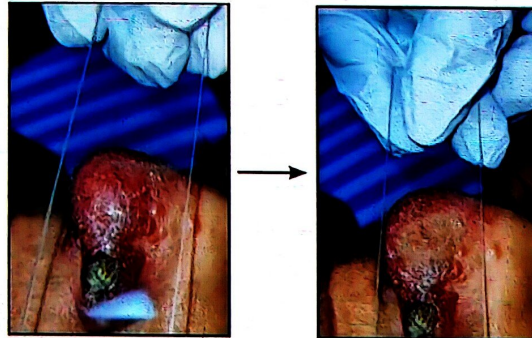


Diascopy test

Apple jelly nodules :

- Yellowish-brown color on diascopy.
- Suggests granulomatous diseases.

Ex : Lupus vulgaris, Sarcoidosis, Cutaneous leishmaniasis.



Apple jelly nodules

DERMATOLOGICAL INVESTIGATIONS

Wood's lamp :

- Outpatient/office procedure.
- Wavelength : 364 nm.
- Filter : 9% Nickel oxide, Barium silicate.



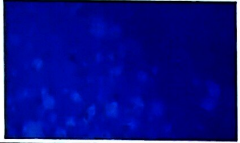

Woods lamp

Feedback

----- Active space -----

Users of woods camp

a. Infections :

Disease	Organism	Wood Lamp color	Image
Tinea Capitis	microsporum species Trichophyton schoenleinii (causes favus)	→ Blue/green → Dull blue	
Pityriasis versicolor	malassezia globosa/ furfur	Yellow color	
Erythrasma	Corynebacterium minutissimum	Coral red (d/t coproporphyrin III)	

b. Pigmentary diseases :

- Ash leaf macule : Tuberos sclerosis.
- Vitiligo : milky white fluorescence.
- Melasma.



Pink urine



Erythrodonia

c. Metabolic diseases :

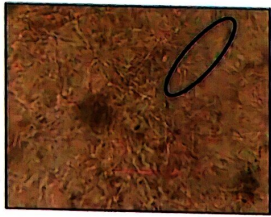
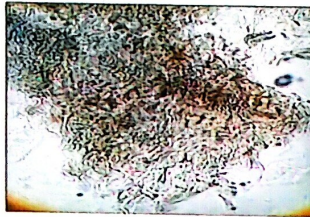

- Porphyria cutanea tarda : Pink urine.
- Congenital erythropoietic porphyria : Red teeth (Erythrodonia).

Lab investigations :

Potassium hydroxide (KOH) mount :

- Sample : Skin scrapings, nail, hair clippings.
- Procedure : Scrape the active border → slide → microscope

Findings :

	Dermatophytosis (Tinea Infections)	Pityriasis versicolor	Chromoblastomycosis (Subcutaneous mycosis)
Findings	Refractile branching hyphae	Short hyphae + round spores Spaghetti & meatballs	Round, brown, thick-walled bodies : medlar/ sclerotic/ copper penny bodies
Images			

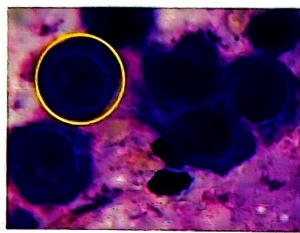
Tzanck smear :

----- Active space -----

- Type of test : Cytodiagnostic.
- Sample : Fluid filled (vesicle/bulla).
- Procedure : De-roof the vesicle → scrape floor/roof → slide → giemsa stain → microscope.

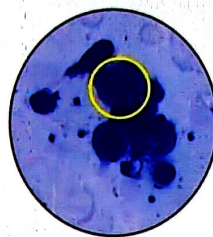
Findings :

1. Acantholytic cells : Round cells with prominent nuclei.



Pemphigus group

2. multinucleated giant cells



HSV 1, 2, VZV

Dermatological Therapy

00:32:04

CRYOTHERAPY

Agent : Liquid nitrogen.

Type : -196°C.

Mechanism :

Freeze tissue → Osmolarity changes → Cell ruptures.

Uses :

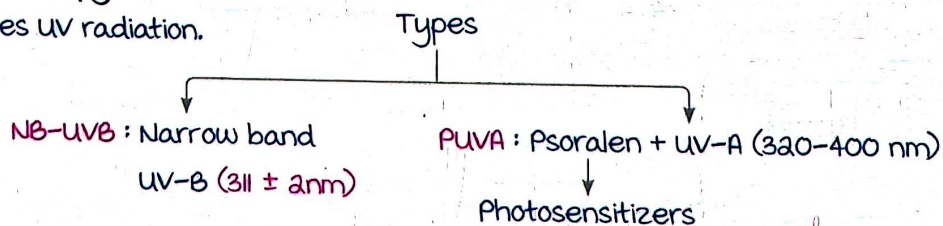
- Verruca vulgaris (warts).
- Keloids.



Cryotherapy

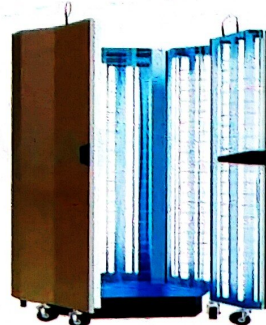
Phototherapy :

- uses UV radiation.



Uses :

- Psoriasis.
- Vitiligo vulgaris.
- Atopic dermatitis.



whole-body phototherapy unit

Feedback

----- Active space -----

PAPULOSQUAMOUS DISEASES : PART 1

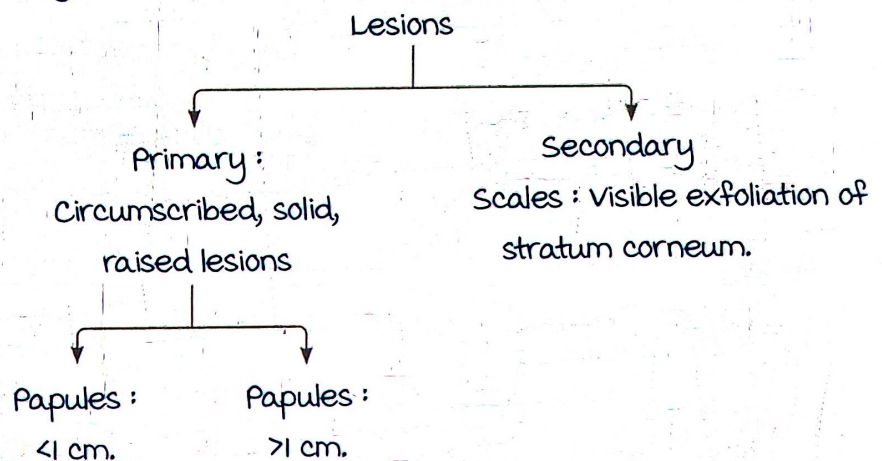
Psoriasis

00:00:30

Papulo : Papules & plaques.

Squamous : Scales.

Definition : Chronic, T cell mediated, inflammatory disease affecting the skin and other systems.

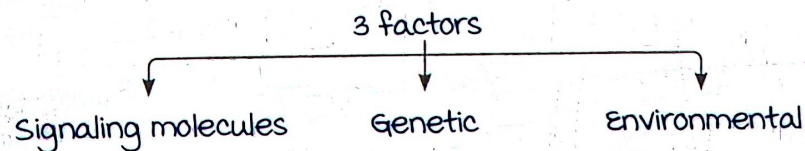


khanirfan0392@gmail.com

Etiopathogenesis of Psoriasis

00:01:30

Etiology :



Signaling molecules/cytokines :

↑ in proinflammatory cytokines.

T-cell	Cytokine produced
Th 1	IL-2, TNF α , INF γ
Th 17	IL-17
Th 22	IL-22

Genetic factors :

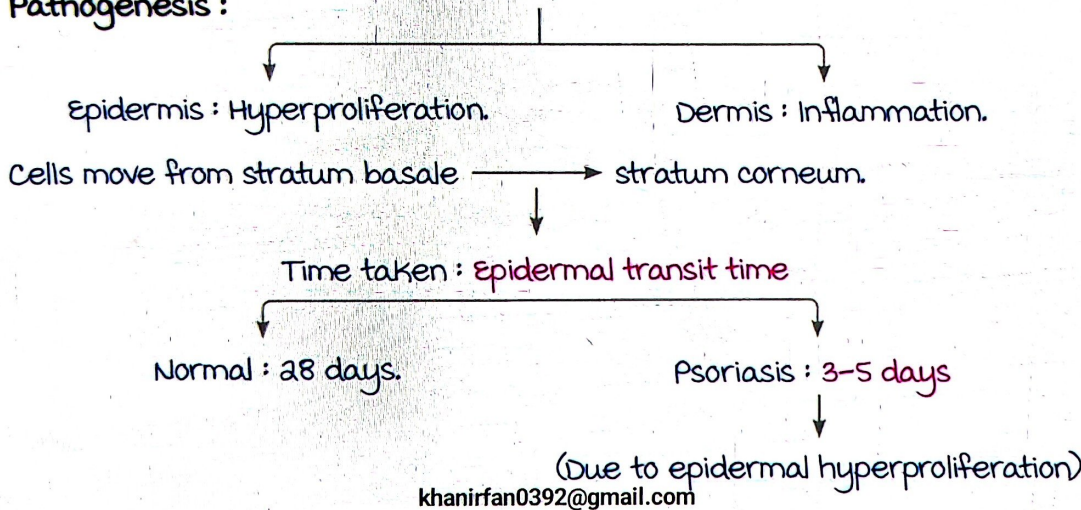
Gene	Associated condition
1. HLA CW6	Early onset psoriasis
2. HLA B27	Psoriatic spondylitis
3. PSORS1 (Psoriasis susceptibility gene)	50% hereditary risk of acquiring psoriasis

Environmental factors :

----- Active space -----

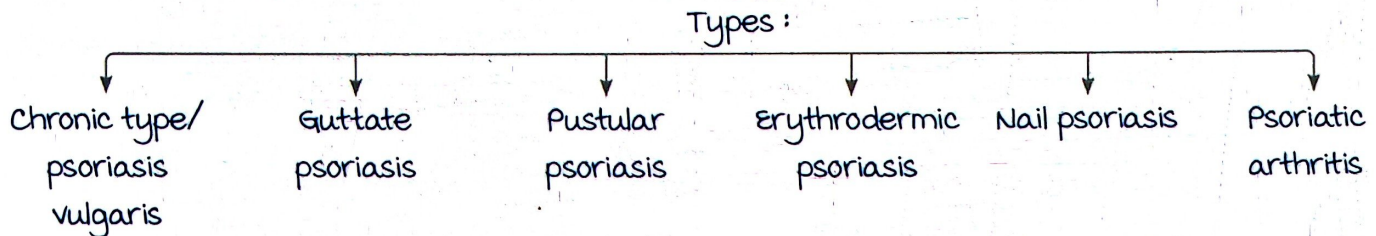
Factors	
Drugs	1. Lithium 2. Antimalarials 3. β blockers 4. NSAIDs 5. Sudden stopping of systemic steroids
Infections	1. Group A streptococci \rightarrow Guttate psoriasis 2. HIV
Seasonal	\uparrow in winters
Substance abuse	1. Alcohol 2. Smoking

Pathogenesis :



Clinical Types and Features of Psoriasis

00:05:26



Guttate psoriasis :

Age group : Children.

H/o : Sore throat/pharyngitis.

Trigger : Group A β hemolytic streptococci.

Lesion :

Gutta : multiple rain drop like lesions.

Site : Trunk.

Doc : macrolide antibiotics.



Guttate psoriasis