

DERMATOLOGY

RR-8.0

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DERMATOLOGY REVISION - 1

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

Structure of Skin

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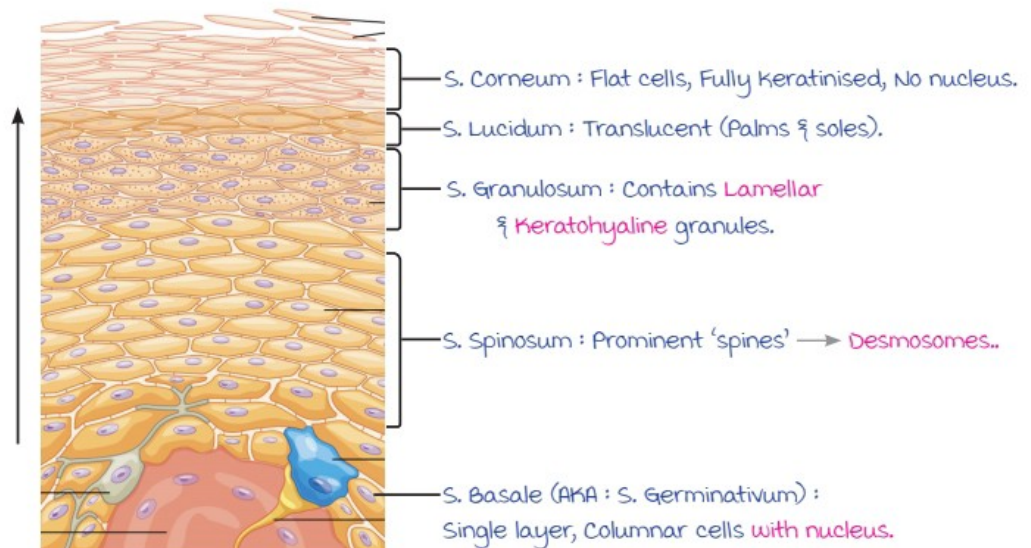
Layers of skin : Epidermis, dermis and hypodermis.

EPIDERMIS

Layers of Epidermis :

Epidermal transit time :
(Basale → Corneum)

- Normal : 28 days.
- Psoriasis : 3-5 days



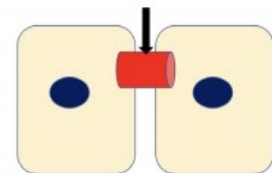
Granules in S. granulosum :

1. Lamellar (AKA Odland bodies) $\xrightarrow{\text{Produce}}$ Lipid \rightarrow Barrier function.
2. Keratohyaline : Contain filaggrin $\xrightarrow{\text{Involved in}}$ Ichthyosis vulgaris and atopic dermatitis.

(Filament aggregating protein.)

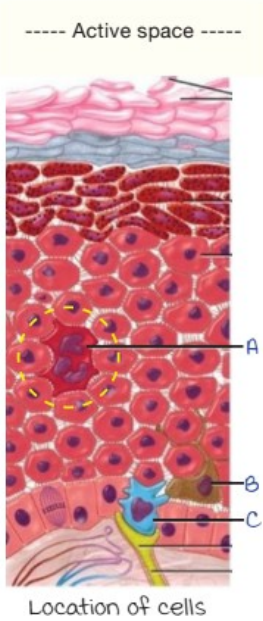
Desmosomes :

- Intraepidermal, intercellular connections between keratinocytes.
- Involved in pemphigus group of disorders.



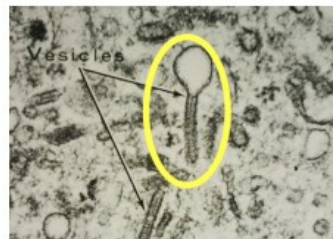
Cells of Epidermis :

1. Keratinocytes (90%) : Ectodermal cells with Keratin intermediate filaments.
(Hallmark)
2. Non-Keratinocytes : Langerhan's cells, melanocytes and merkel's cells.

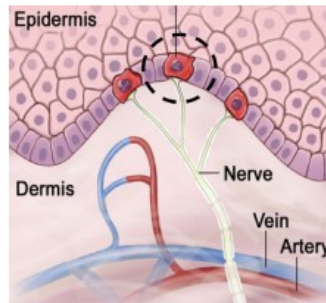


	Langerhan's cells (A)	melanocytes (B)	merkel's Cells (C)
Location	S. spinosum	S. basale	S. basale
Embryology	Bone marrow (mesoderm)	Neural crest	Ectoderm
Content	Birbeck granules	melanosomes	Neurosecretory granules
Function	Antigen presenting cells.	melanin	Slow adapting, Low threshold mechanoreceptors (Touch)
markers	In LHC : S100, CD1a & CD207/Langerin (most specific)	S100, HMB-45 and melan-A	In merkel Cell Ca : Cytokeratin -20

LHC → Langerhans Cell Histiocytosis.



Birbeck granules
Electron microscopy : Tennis racquet appearance



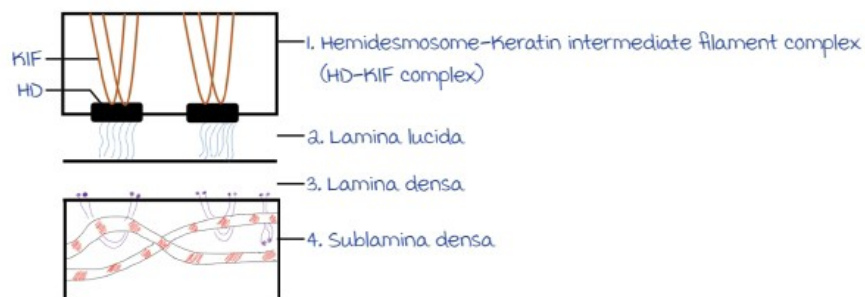
merkel cell

DERMOEPIDERMAL JUNCTION :

AKA Basement membrane Zone.

Function : Connects S. basale to underlying dermis.

Zones :



DERMIS (70% COLLAGEN)

Arrangement of Collagen :

	Papillary dermis	Reticular dermis
Fibres	Finer	Thicker
Arrangement	Loose & regular	Dense & irregular
Function	Supports capillary network in dermal papilla.	Structural support to dermis.

HYPODERMIS/SUBCUTANEOUS TISSUE

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Compartments :

- 1. Septal compartment : Connective tissue
 - 2. Lobular compartment : Adipocytes
- } Inflammation : **Panniculitis**

Dermatopathological Terms

00:12:47



Layer involved	Term	Pathological change
Stratum corneum(SC)	Hyperkeratosis	Thick SC
	Parakeratosis	Nucleated SC
Stratum spinosum	Acanthosis	Thick S. spinosum
	Spongiosis (Eg : Acute eczema)	Intraepidermal, intercellular edema
	Acantholysis ; Causes : <ul style="list-style-type: none"> • Autoimmune : pemphigus group • Infection : Bullous impetigo, Staph. Scalded Skin Syndrome(SSSS), HSV. • Genetic : Hailey-Hailey disease, Darier's disease. 	Loss of attachment b/w keratinocytes. Polyhedral keratinocytes $\xrightarrow{\text{Desmosome targeted}}$ Acantholytic cells/ Tzanck cells ↓ Circular, Prominent nucleus, Perinuclear halo

Scales in Dermatology :

Visible exfoliation of the stratum corneum.

Scales	Pathology
Branny	Pityriasis versicolor
Micaceous	Pityriasis Lichenoides chronica
Silvery-white	Psoriasis
Collarette	Pityriasis Rosea

Annular vs. Nummular Lesions :

	Annular lesion	Nummular lesion
Shape	 Ring	 Disc/Coin
Active region	Periphery	Centre + Periphery
Causes	<ul style="list-style-type: none"> • Pityriasis rosea • Tinea corporis • mid-borderline Hansen's (BB-HD) 	<ul style="list-style-type: none"> • Discoid eczema • Discoid lupus erythematosus

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Lines in Dermatology

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1. Langer's lines :

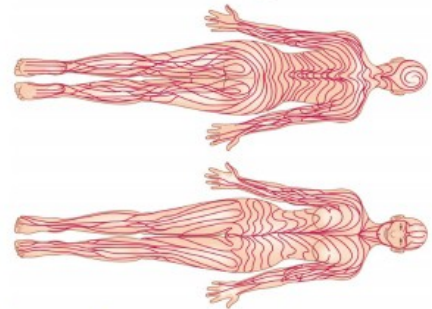
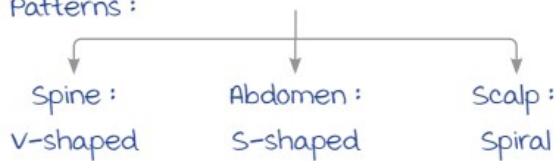
- Lines of skin tension.
- Represents orientation of collagen fibres in dermis.

Applied aspect : Surgical incisions are made along them.
(Good scar healing).



2. Blaschko's lines :

- Represent epidermal cell migration.
- Patterns :



Applied aspect : Incontinentia pigmenti (X-linked dominant) → Lesions along Blaschko's lines.

Dermatological Investigations

00:20:17

Diascopy :

a. Erythema vs. Purpura :



Glass slide pressed over lesion

Differentiates

- Erythema (D/t vasodilatation) → Blanching response.
- Purpura (D/t RBC extravasation) → Non-blanching response.

b. Apple jelly nodules :



Pressure →



Yellow-brown color → Apple Jelly nodules d/t dermal granulomas.

Seen in :

- Lupus vulgaris.
- Sarcoidosis.
- Cutaneous leishmaniasis.

Wood's Lamp (Diagnostic):

- Skin examination under UV light. (365nm)
- Filters : Barium silicate + 9% Nickel oxide.

Disease	Color on Wood's lamp
Erythrasma	Coral red
Pityriasis Versicolor	Yellow fluorescence
Microsporum Species	Blue green
Trichophyton schoenleinii	Dull blue
Vitiligo	Milky white colour

Dermatological Therapies

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Phototherapy :

- Agent ultraviolet radiation
- Types
 - NB-UVB : $311 \pm 2\text{nm}$.
 - PUVA : Psoralen (Photo sensitiser) $\xrightarrow{F/b}$ UVA.
- Indications :
 - Psoriasis.
 - Vitiligo.
 - Atopic dermatitis.

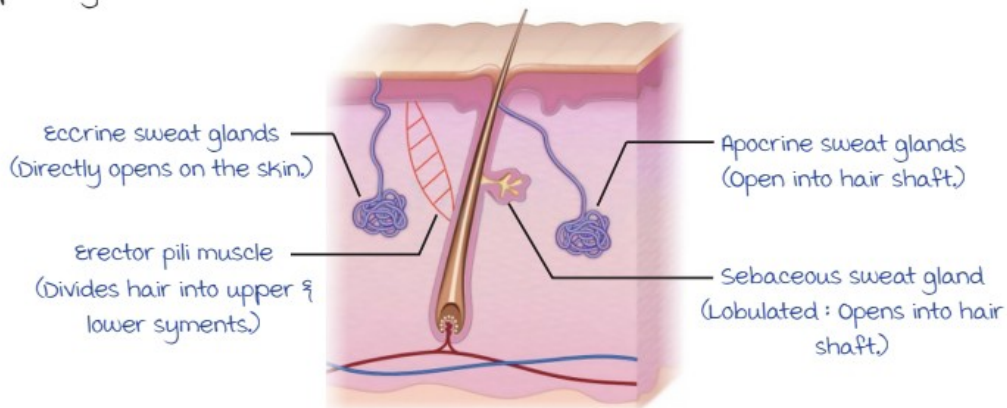
Cryotherapy :

- Agent : Liquid nitrogen
- Temp : -196°C
(Freezes the tissue).
- Indication : Warts Rx.

Appendages and Disorders

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Appendages :



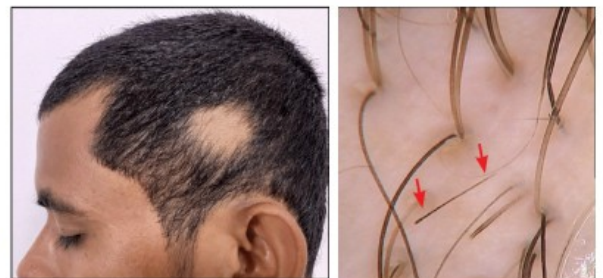
ALOPECIA : NON CICATRICAL/NON SCARRING

1. Patchy : Alopecia areata, Trichotillomania, Tinea capitis (Non-inflammatory), 2° syphilis.
2. Diffuse :
 - **Anagen effluvium** : 2° to chemo/radiotherapy.
 - **Telogen effluvium** : 2° to severe systemic stress (3-4 months after stressor).
3. Patterned : Androgenetic alopecia.
4. Systemic : SLE and thyroid dysfunction.

Alopecia Areata :

- **Autoimmune condition.**
- **Well defined**, circular, smooth patch of **complete** hair loss.

margin of lesions : **exclamation mark (!) hair**
(Broad distal & tapering proximal ends).



Exclamation mark hair

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Nails : **Fine, regular and superficial pitting**
(Geometric pattern).

R_x → Localised : Intralesional triamcinolone.
→ Extensive : Systemic steroids.



Trichotillomania :

- Pathological hair plucking (OCD).
- Incomplete hair loss **within a patch**
(A/w perifollicular hemorrhage).
- A/w trichophagia → **Trichobezoar**

↓
Intermittent gastric obstruction.



Trichotillomania

Androgenetic Alopecia :

Male Androgenetic Alopecia		Female Androgenetic Alopecia
		
<ul style="list-style-type: none"> • Fronto temporal recession. • Balding of vertex. 		<ul style="list-style-type: none"> • Frontal hairline maintained. • Diffuse thinning along central scalp.

R_x :

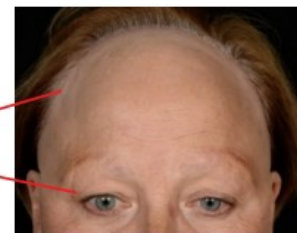
- **minoxidil** : 2% for women; 5% for men.
- **Finasteride** : 5 α reductase inhibitor (↓es levels of dihydrotestosterone).

ALOPECIA : CICATRICAL/SCARRING

1. Papulosquamous : Lichen planus.
2. Granulomatous : Sarcoidosis.
3. Connective tissue disease : DLE; Discoid lesions of SLE.
4. Infection : Tinea capitis (Inflammatory type).

Frontal fibrosing alopecia :

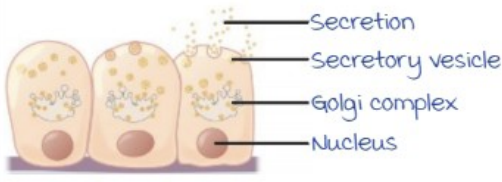
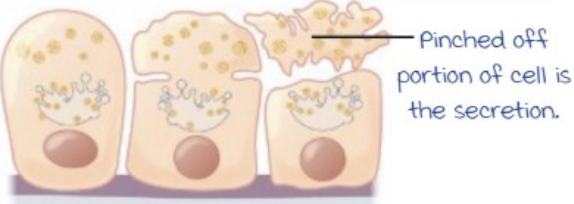
- Variant of **lichen plano-pilaris**.
- Band-like frontotemporal distribution.
- A/w **madarosis**.



DISORDERS OF SWEAT GLANDS

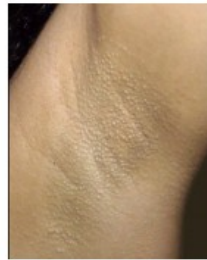
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Eccrine & Apocrine Sweat Glands :

	Eccrine glands	Apocrine glands
Mechanism	 <p>Labels: Secretion, Secretory vesicle, Golgi complex, Nucleus</p>	 <p>Label: Pinched off portion of cell is the secretion.</p>
Function	Produce sweat	Produce body odour
Secretion	merocrine (Intact cell border)	Apocrine (Cell apex pinched off)
Blockage leads to	miliaria	Apocrine miliaria

Fox-Fordyce disease :

- AKA Apocrine miliaria.
- Sites → Axilla, areola of nipple.
- Pruritic skin colored papules



Ectopic sebaceous glands :

- Sebaceous glands not a/w hair follicles
- Example → Fordyce spots (yellow micropapules ; Buccal mucosa/upper lips).



Acne vulgaris :

Chronic inflammatory disease of the pilosebaceous unit. (Propionibacterium/ Cutibacterium acnes).

Types of skin lesions :



Open comedone Closed comedone
Grade 1

Rx : Retinoids
(Tretinoin, Adapalene).



Papules
Grade 2



Pustules
Grade 3



Nodulo-cystic
Grade 4

Rx : Oral retinoids
(Isotretinoin).