Layers of Skin

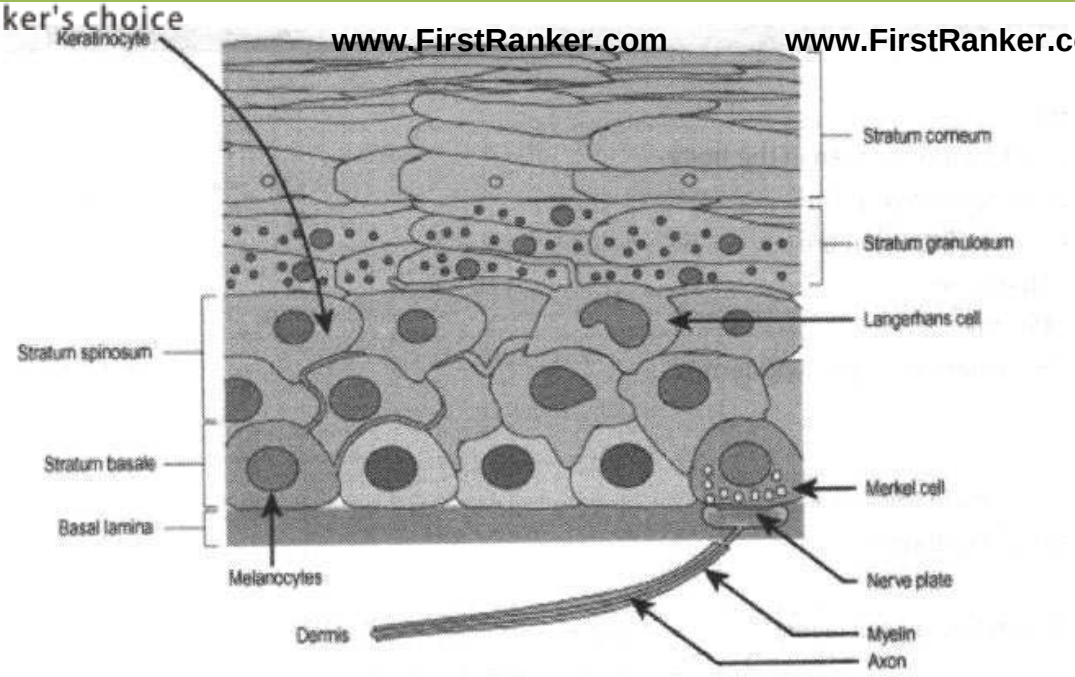
- Skin is the largest organ in the body.
- Total surface area: $1.7m^2$.
- The layers of the skin are
  - Epidermis
  - Dermis
  - Subcutaneous fat/ hypodermis

EPIDERMIS

- 0.4 -1.6 mm in thickness
- Layers of epidermis:

Stratum corneum (Horny cell layer)	• Outermost layer • Made of flat, anucleated cells • No cell organelles • Underdeveloped in preterm infants for 2-3 weeks.
Stratum lucidum	• Transparent layer • Seen only in palm & sole
Stratum granulosum	• Made of intracellular basophilic **kerato hyaline granules** • Forms a **water impermeable** layer • Contains abundant **Odland bodies.** • Layer absent in nail bed & matrix
Stratum spinosum or Prickle cells layer [Malphigian layer]	• Provides mechanical strength to the skin • **Langerhan cells present.**
Stratum basale or Stratum germinatum	• Single layer of columnar/ cuboidal cells • Contains mitotically active **keratinocytes & melanocytes**

- **Langerhans cells –** antigen-presenting cells, derived from bone-marrow and found in the prickle cell layer.
- Langerhans cells are found scattered evenly **throughout the epidermis.**
- **Merkel cells** are normally located in the **basal layer**
- **Merkel's (Tastzellen) cells** – slow adapting mechanoreceptors found in prickle cell layer.
- Keratin filaments are hallmark of keratinocyte
- **Keratinization**: conversion of keratinocyte into keratin (4 weeks)
- **Adamson's fringe:** beginning of Keratinization
- **Abrupt Keratinization:** seen in pilomatricoma
- **Keratin expressed in basal layer:** K5, K14
- **1 epidermal melanocyte unit:** 36 keratinocytes
- **Skin doubling time:** 4 weeks
- **Epidermal turn over time:** 1 month



- **Accelerated** cell turnover: psoriasis and ichthyosiform erythroderma [2 to 4 days]
- Lichen planus: the granular cell layer is focally increased.
- Nail first develops at: **3 months of intra uterine life**
- **Finger nail growth:** 0.1mm/day
- **Scalp hair growth:** 0.35 mm/day
- **Number of hair normally lost pev day**:50-100
- **Factors stimulating skin development** (Epidermopoiesis): EGF, TGF-a, IL-II & fibroblast growth factor.
- **Factors inhibiting skin development:** Chalones, TGF-B, a and y interferons, TNF
- **Grenz zone:** narrow clear zone B/W epidermis & dermis.
- The **stratum corneum of the palms and soles is about 0.5 mm thick** and much thicker than that on the trunk and limbs.
- Stratum corneum is permeable in preterm infants and becomes similar to the adult and full term infant after 2-3 weeks, postnatal maturation.
- Acantholytic cells are derived from stratum basale in pemphigus vulgaris.
- In humans there are two classes, the **brown-black eumelanin**, and the **red-yellow phaeomelanin**, both derived from the substrate tyrosine.
- Most natural melanins are mixtures of eumelanin and phaeomelanin, and phaeomelanic pigments, trichochromes, occur in red hair.
- Racial variations in pigmentation are due to **differences in melanocyte morphology** and activity rather than to differences in frequency or distribution

DERMIS

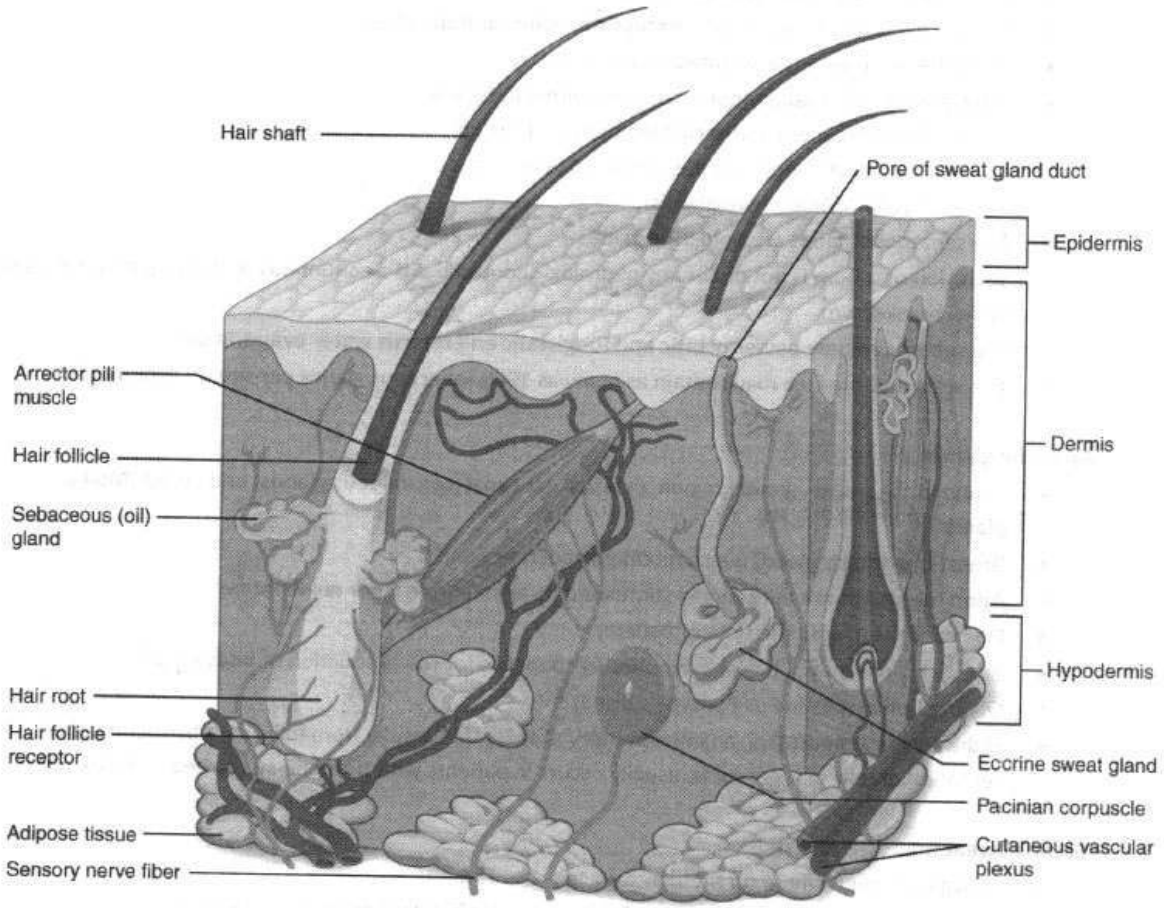
- Consists of connective tissue, cellular elements, and ground substance.
- Contains pilosebaceous, apocrine and eccrine structures.
- Anatomically, it is divided into two compartments.

❖ ***Adventitial dermis:*** *consists of thin collagen* ***(Type III/reticulin)*** *fibers located beneath the epidermis (papillary dermis) and surrounding adnexal structures (periadnexal dermis).*

❖ ***Reticular or deep dermis:*** *composed of thick collagen (****Type I****) bundles & comprises the bulk of the dermis.*

- **Type IV collagen** is a major constituent of the **basal lamina of the dermo-epidermal junction.**

- Constitutes the largest volume of adipose tissue in the body.
- It provides protection from physical trauma and insulation to temperature changes.



Blaschko's Lines:

- Represent the developmental growth pattern of skin.
- Do not correspond to any known nervous, vascular or lymphatic structures.
- Blaschko's lines are **characteristic of mosaicism and lionization.**

BLOOD SUPPLY OF SKIN

- **No blood vessels in epidermis**
- Necessary oxygen + nutrients diffuse from capillaries in the dermal papillae.
- **Glomus body:** most commonly seen on the tips of the fingers and the toes, and under the nails.
- Each glomus body consists of a venous and arterial segment, called the **Sucquet-Hoyer canal**.

SKIN GLANDS/APPENDAGES

Sebaceous glands:

- Small saccular structures **lying in the dermis.**
- Hair follicle + **Sebaceous glands** + arrector pill muscle → **Pilosebaceous unit**
- Present everywhere on the skin, **except the palms and the soles.**
- In most areas they are associated with hair follicles.
- Sebaceous glands that are not associated with hair follicles:
  - Buccal mucosa and vermillion border of the lip
  - Nipple, and areola of the breast, labia minora
  - Eyelids (**Meibomian glands**).
- The sebaceous glands are **holocrine** glands.
- Secretion of sebum is not under any neurologic control but is a continuous outflowing of the material of cell breakdown.

- The sebum is **mildly bacteriostatic and fungistatic and retards water evaporation.**
- The scalp and the face may contain as many as 1000 sebaceous glands per square centimetre

Apocrine glands:

- Found in the axillae, genital region, external ear canal (**ceruminous glands**) and eyelid (**Moll's glands**).
- **Breast** (mammary gland) is also modified apocrine gland.
- **Apocrine glands are adrenergic;** stimulated by epinephrine > nor epinephrine
- Do not develop until the time of puberty.
- The secretions may act as **pheromones** (responsible for the production of **body odor**).
- Obstruction results in Fox Fordyce's disease
- **Hidradenitis suppurativa**, an inflammatory process that results from follicular obstruction and retention of follicular products, usually occurs in patients with the **acne-seborrhea** complex.

Eccrine sweat (merocrine) glands:

- Distributed everywhere on the skin surface
- Most numerous on sole of foot (620/cm2) and least abundant on the back (64/cm9
- Glands first appear on volar surface of hands & feet in 3.5 month old fetus
- Develop as a **downgrowth from the primitive epidermis**.
- The eccrine sweat glands and the vasculature of the skin maintain **stable internal body temperature**.
- Their prime stimulus is heat and their activity is under the control of **hypothalamus**.
- Both **adrenergic** and **cholinergic** fibers innervate the glands.
- Blockage of the eccrine ducts results in **miliaria (prickly heat).**
- If eccrine glands are congenitally absent, as in **anhidrotic ectodermal dysplasia**, a life-threatening hyperpyrexia may develop.

Fox Fordyce's Spot (Disease)

- Fordyce spots are **visible sebaceous glands** without hair follicles.
- Extremely common, benign condition.
- **Tiny white** / yellowish focally grouped papules in buccal mucosa and **vermilion border of lips**, scrotum, shaft of penis and labia
- No treatment is indicated other than reassurance.

Epidermal Stem Cells

- Three main locations of epidermal stem cells in the adult skin
  - **Bulge region of the hair follicle**
  - **Interfollicular epidermis (IFE)**
  - **Sebaceous gland**

❖ Stem cells of small blood vessels: **Pericytes**
❖ Skin stem cells occur in the **basal layer of the epidermis** and at the **base of hair follicles.**

TERMINOLOGIES

- Acantholysis: loss of cohesion between epidermal cells, seen in all types of pemphigus.
- Acanthosis: increased thickness of the prickle cell layer due to stimulation of basal layer.
- Dyskeratosis: premature keratinization of epidermal cells.
- Foam cells: lipid-laden macrophages containing dead lepra bacilli.
- Hydropic degeneration of basal cells: vacuolization of basal cells seen in LE, dermatomyositis, early lichen planus.
- Hyperkeratosis: Increased thickening of stratum corneum.
- Parakeratosis: presence of immature nucleated cells in stratum corneum.
- Spongiosis: accumulation of fluid between epidermal cells, seen in acute eczema.

Skin Lesions
Flat lesions:

- **Macule:** < 2 cm, colored. Examples: white (vitiligo), brown (café au lait spot), purple (petechia).

- **Patch:** > 2 cm, colored.
- **Purpura:** Extravasation of RBCs in the skin, blanches on pressure.
- **Telangiectasia:** Permanent dilatation of superficial vessels.

Elevated lesions:

- **Papule:** < 1 cm, solid. **Examples: acne, warts, small lesions of psoriasis.**
- **Nodule:** 1-5 cm, solid. **Examples: tumors, granuloma annulare**
- **Tumor:** > 5 cm, solid.
- **Plaque:** > 1 cm, flat topped. **Example: psoriasis.**
- **Vesicle:** < 1 cm, fluid-filled. **Example: blisters of herpes simplex.**
- **Bullae**: > 1 cm, fluid-filled. **Example: bullous impetigo.**
- **Pustule**: Vesicle filled with leukocytes. **Examples: acne, folticulitis.**
- **Wheal**: circumscribed, flat-topped, firm elevation of skin resulting from tense edema of the papillary dermis. Example: urticaria

Secondary changes	
Scales	Dry, thin plates of keratinized epidermal cells (stratum corneum) Example: psoriasis,
Lichenification	Induration of skin with exaggerated skin lines and a shiny surface resulting from chronic rubbing of the skin. Example: atopic dermatitis.
Impetiginization	Bacterial infection resulting in exudation and golden-yellow crusting
Erosion and oozing	A moist, circumscribed, slightly depressed area representing a blister base with the roof of the blister removed. Examples: burns, impetigo. Most oral blisters present as erosions.
Crusts	Dried exudate of plasma on the surface of the skin following acute dermatitis. Examples: impetigo, contact dermatitis.
Fissures	A linear split in the skin extending through the epidermis into the dermis. Example: angular cheilitis.
Scars	A flat, raised, or depressed area of fibrotic replacement of dermis or subcutaneous tissue.
Atrophy	Depression of the skin surface caused by thinning of one or more layers of skin. Example: lichen sclerosis.
Configuration of lesions	
Annular (circular)	Annular nodules represent granuloma annulare; annular scaly papules are more apt to be caused by dermatophyte infections.
Linear (straight lines)	Linear papules represent **lichen striatus**; linear vesicles, **incontinentia pigmenti**; linear papules with burrows, scabies.
Grouped	Grouped vesicles occur in herpes simplex or zoster.

INTRA-EPIDERMAL BLISTERS:			
Granular layer	**Spinous layer**	**Supra basal layer**	**Basal Layer**
Friction blister Pemphigus foliaceous Sub corneal pustular dermatosis Staphylococcal skin scald syndrome / Bullous impetigo	Eczematous dermatitis Herpes virus infection Familial benign pemphigus	Pemphigus vulgaris Darier's disease	Lupus erythematosus Lichen planus Epidermolysis bullosa simplex

BLISTERS AT DERMAL EPIDERMAL JUNCTIONS:

Junctional (at the lamina lucida)	**Dermolytic (Below basal lamina)**

Bullous Pemphigoid **Erythema multiforme** Junctional Epidermolysis bullosa	Epidermolysis bullosa dystrophicans Epidermolysis bullosa acquisita Porphyria cutanea tarda **Dermatitis herpetitiformis**

DIAGNOSTIC TECHNIQUES

Disease	Diagnosed by
Atopic Dermatitis	Clinical evaluation
Contact Dermatitis	Patch Test
Donovanosis (GI)	Microscopy (Donovan bodies/Safety pin appearance)
Chancroid	Gram staining(gram negative rods/ school of fish / rails road appearance

- **Grattage test:** Psoriasis
- **Pethergy test:** Behcet's syndrome
- **Patch test:** Contact dermatitis
- **Dermatoscopy (Epiluminescence microscopy, dermoscopy):** method of observing superficial layers of skin using 10-100 X magnification under oil immersion.

Tzanck Smear

- Most commonly used in the diagnosis of **herpes virus infection** – shows multinucleated giant cells.
- Also used in **pemphigus** – shows acantholysis.

SKIN BIOPSY

There are four principal techniques for performing skin biopsies:

- **Surgical excision with suturing:**
  - Good cosmetic result
  - Entire lesion is removed.
  - Disadvantage: most time consuming of the three techniques, removal of the sutures.
- **Punch biopsy:**
  - Inadequate for evaluation of vesiculobullous diseases
  - Should be deep enough to include subcutaneous fat if used for diagnosis of panniculitis or
  - tumors in a subcutaneous location.
  - Pigmented lesions should not be punched unless they can be completely excised.
- **Excision with scissors:**
  - Useful for certain types of elevated lesions and in areas in which the cosmetic result is not too important.
  - Advantage of this procedure is the speed and the simplicity with which it can be done.
- **Shave biopsy:**
  - Can be performed superficially or deeply.
  - Hemostasis can be accomplished by pressure, light electrosurgery, Monsel solution, or aluminium chloride solution.
  - Not recommended for excision of melanocytic lesions or other potentially malignant tumor where margin assessment is required.

WOOD'S LAMP

It is a source of ultra violet light (mainly long wave UV-**A, at a wavelength of 360nm**), from which virtually all variable rays have been excluded by filter (made **of nickel oxide i.e. Ni02 and Si**). It is used in:

- Fungal infections like:
  - **Tinea capitis** = yellow green fluorescence.
  - **Pityriasis versicolor** = golden yellow / apple green
- Bacterial infections like:
  - Erythrasma & Acne = **Coral red / pink**
  - Pseudomonas pyocyanea = yellow-green
- Pigmentary disorder

- **Vitiligo = total white**
- Ash-leaf macules in tuberous sclerosis = blue white

- Urine examination in **Porphyria (red / pink urine)**
- **Squamous cell carcinoma of skin = red fluorescence**

Type of collagen	Location
I	Bone
II	Cartilage, vitreous tumour, Intervertebral disc
III	Extensive - **skin**, lung, hollow organ (vascular system)
IV	**Basement membrane**, Eye lens
VII	Anchoring fibrils at Dermo-epidermal junction
VIII	Endothelium
X	Hypertrophic cartilage
XVII	Skin, hemidesmosomes
XVIII	Liver, kidney
XIX	Rhabdomyasarcoma cells

Distributions of Glycosaminoglycans (GAGS):

Hyaluronic acid	Synovial fluid, Vitreous humour, Loose connective tissue
Chondroitin sulphate	Cartilage, bone, cornea
Keratan sulphate-I	Cornea
Keratan sulphate-II	Loose connective tissue
Heparin	Mast cells
Heparan sulfate	Skin, Fibroblasts
Dermatan sulphate	Wide distribution

PANNICULUS ADIPOSUS

- The panniculus adiposus is the fatty layer of the subcutaneous tissues, superficial to a deeper vestigial layer of muscle, the panniculus carnosus.
- It includes structures that are considered fascia by some sources but not by others.
- Eg: Fascia of Camper, superficial cervical fascia.

ULTRA VIOLET RADIATIONS

- **UVR of wavelength 250-400 nm** is of major importance as far as skin is concerned.
- **Narrow-band UVR** is UVR at a wavelength of **311 nm**

UV-A (Long-wave UVR)	**UV-B (Medium-wave UVR)**	**UV-C (Short-wave UVR)**
320-400 nm	**280-320 nm**	**250-280 nm**
• 1000-fold less effective at causing erythema • Penetrate to the dermis • Play a role in causing the dermal degeneration known as solar elastosis, which is responsible for the appearance of ageing & the cause of skin cancer • Responsible for photosensitivity reactions	• **UV-B [around 290 nm]: mainly responsible for sunburn, suntan and** • **skin cancer.** • UVB penetrates as far as the basal layer of the epidermis, but causes the death of scattered **keratinocytes (sunburn cells)** & damages others → release cytokines and mediators. • 2 days after UVR injury, there is an increase in the rate of melanin synthesis.	• Mostly filtered Out by the ozone layer

Polymorphic light eruption (PMLE)

- A common disorder, occurring in young and middle-aged women
- **Itchy papules and papulovesicles** on exposed sites — particularly the forearms
- The rash develops **shortly after sun exposure** throughout the spring and summer months
- PMLE is **chronic** in nature
- The action spectrum of PMLE may also extend into the **long ultraviolet wavelengths (UVA; 320-400 nm)**
- Patients improve when they avoid sun exposure and use sunscreens blocking UVA
- Treatment: Weak topical corticosteroids
- For severe rashes — hydroxychloroquine or even azathioprine

Photodermatitis

- Painful or pruritic erythema, edema, or vesiculation on sun-exposed surfaces: the face, neck, hands, and **"V"** of the chest.
- These eruptions may become generalized with time to involve even photoprotected areas
- Sunscreens with an SPF of 30-60 and broad UVA coverage, containing **dicamphor sulfonic acid,** avobenzone, titanium dioxide, and micronized zinc oxide, are useful
- **Photosensitivity due to porphyria is not prevented by sunscreens** and requires barrier protection (clothing) to prevent outbreaks.

Dermatoses aggravated by solar exposure: Lupus erythematosus, Rosacea, Atopic dermatitis
Dermatoses improved by sun exposure: Psoriasis, Acne

- ❖ The stratum corneum is an excellent barrier to pathogenic micro-organisms
- ❖ The following organism live in the follicular lumina without normally causing harm
  - Gram-positive cocci **(Staphylococcus epidermidis)**
  - Gram-positive lipophilic microaerophilic rods (**Propionibacterium acnes**)
  - Gram-positive yeast-like organism (**Pityrosporum ovale or Malassezia furfur**)
- ❖ Dermatophyte infections are restricted to the stratum corneum, the hair and the nails (i.e. horny structures).

PITYRIASIS VERSICOLOR

- Caused by yeast-like micro-organism **Pityrosporum ovale (orbiculare) or Malessezia furfur**
- Becomes pathogenic when its growth is encouraged by increased sebum secretion or depressed immunity
- Pale, scaling **hypopigmented macules** develop over the **skin of the chest and back** in young adults (Picture III-E)
- **Fine velvety scales** that are **not visible** but are **seen by scraping the lesion.**
- **Central upper trunk** the most frequent site.
- Microscopy: **grape-like clusters** of spores and a meshwork of **pseudomycelium in skin scrapings** made more transparent by soaking the scales for **20 minutes in 20 per cent potassium hydroxide**.
- **Skin surface biopsy**
  - Permanent preparation made using cyanoacrylate adhesive to remove a strip of superficial stratum corneum from the skin surface on a glass slide
  - The slide is 'rolled off' the skin after 20 seconds and then stained with **periodic acid- Schiff reagent**
  - The skin patches often fluoresce an **apple green** in long-wave UVR **(Wood's light)**.
- Treatment
  - Topical imidazole creams (e.g. miconazole, clotrimazole, econazole) for 6 weeks or
  - Ketoconazole shampoo to wash the affected areas once daily for 5 days

TINEA INFECTIONS

- Also called **Dermatophytoses or Ring worm**
- ***Trichophyton, Microsporon and Epidermophyton*** species are responsible for this group of infections.
- ***T. rubrum, T. mentagrophytes and E. floccosum*** are the M/c causes of dermatophyte infection
- Inflammatory ringworm can be caught from cattle **(T. verrucosum)** and horses **(T. equinum)**.
- Hypersensitivity to fungal antigens – vesicular lesions - dermatophytids **(id reaction)**
- Hypersensitivity can be demonstrated by skin testing with fungus antigen – **trichophytin**
- **Favus** - chronic type of ring worm which leads to alopecia and scarring
- **Kerion** – scalp infection with marked inflammation producing severe boggy swellings
- The diagnosis is confirmed by microscopy of skin scrapings, hair or nail clippings treated with **20% potassium hydroxide** for 20 minutes and identification of fungal hyphae.
- Use of the cyanoacrylate **'skin surface biopsy technique'** makes identification quite easy.

TRICHOPHYTON	MICROSPORUM	EPIDERMOPHYTON
• Infects Hair, nail and skin • Abundant microconidia • Scanty macroconidia (pencil shaped)	• Infect hair and skin but not nails • Scanty microconidia • Abundant macroconidia (spindle shaped)	• Infects skin and nails but not hair • Microconidia absent • Macroconidia are pear or club shaped

Tinea corporis or Tinea circinata (Body ring worm)

- Pruritic, ring-shaped lesions with an **advancing scaly border** and **central clearing**
- Can be distinguished from eczema or psoriasis by history and the presence of mycelium in the scales.

Tinea cruris or Groin ring worm (Jock itch or Dhobis's itch)

- A disorder of young men
- Marked itching in intertriginous areas, usually **sparing the scrotum.**

- Peripherally spreading, sharply demarcated, scaly, erythematous lesions usually affecting the medial aspects of both groins
- These gradually extend down the thigh and on to the scrotum unless treated

Tinea manuum

- **One palm** is involved which is usually dull red with silvery scales in the palmar creases
- T. rubrum is the usual cause

Tinea capitis

- Ringworm of the scalp occurs in **children exclusively**
- Mainly due to ***M. canis*** or ***Trichophyton tonsurans***
- It invades the **hair cuticle (ectothrix infection),** causing pink, scaling patches on the scalp skin
- There is patchy loss of hair (only broken hair) with variable degrees **of inflammation** (to differentiate from alopaecia areata - no inflammation and total loss of hair from the root)
- It is easily spread by the sharing of hairbrushes.
- Infected areas sometimes fluoresce a light green under long-wave UVR (Wood's light)
- Scalp ringworm caused by **T. schoenleini**, invades the **interior of the hair shaft (endothrix)** and causes intense inflammation on the scalp, with swelling, pus formation and scalp scarring.

Tinea unguium (Onychomycosis)

- Ringworm infection of the nail plate and the nail bed.
- The fungi responsible are T. rubrum, T. metagrophytes or E. floccosum.
- Onycholysis occurs and subungual debris collects
- More common in the toenails than in the fingernails

Tinea incognito

- Eextensive ringworm with an atypical appearance
- Due to the inappropriate use of topical corticosteroids.

Tinea barbae

- Also called **barber's itch or Tinea Sycosis**
- Caused by T. **Mentagrophytes & T. Verrucosum**

Dermatophytoses	Causative agent
Tinea capitis	Microsporum, Trichophyton
T corporis	T rubrum
T cruris	E floccosum, T rubrum
T pedis (atheletes foot)	E floccosum, T rubrum
Favus	T schoenleinii, T violaceum

Treatment

- Topical imidazole-containing preparation (miconazole, econazole and clotrimazole) used twice daily for a 3-4-week period is usually adequate
- When topical treatment fails
  - Griseofulvin (500 mg b.d.) - only active in ringworm infections
  - Ketoconazole (200 mg daily) or Itraconazole - active in both yeast and dermatophyte infections.

CANDIDIASIS (MONILIASIS, THRUSH)

- Caused by a yeast pathogen - **Candida albicans**
- A commensal of oral cavity, lower GIT and vagina
- Inflammatory papules and plaques with **satellite pustules**, frequently in **intertriginous** areas
- Treatment with the imidazole preparations, topical and systemic
- Serious Candida infections respond to systemic fluconazole.

Staphylococcus aureus

- Impetigo contagiosa
- Bullous impetigo
- Ecthyma
- Botryomycosis
- Superficial folliculitis (follicular or Bockhart impetigo)
- Folliculitis (sycosis barbae)
- Furncle (boil), carbuncle
- Blistering distal dactylitis
- Paronychia

Group A Streptococci

- Impetigo
- Ecthyma
- Blistering distal dactylitis (in nonintertriginous skin) and intertrigo
- Vulvovaginitis
- Perianal cellulitis

❖ Pyoderma gangrenosum, pyoderma faciale & impetigo herpetiformis are not pyodermas.
❖ **Trichomycosis axillaris & pubis** is a bacterial (aerobic **corynebacterium**) not fungal infection of hair shaft.
❖ Erythrasma is superficial bacterial infection of skin caused by corynebacterium minutissimum.

IMPETIGO (PYODERMA)

- It is a contiguous, superficial pyogenic infection of skin
- Pyodermas are infection in epidermis, just below the stratum corneum or in hair follicles.
- Two main clinical forms
  - **Bullous impetigo** caused by S. aureus mostly
  - **Nonbullous impetigo (or impetigo contagiosa or Tilbury Fox)** may be caused by Staphylococcus aureus (most common); by group A-beta haemolytic streptococci (mainly in developing nations) or by both.
- Most **commonly affects children**
- Most common bacterial infection of children
- Occurs in all age including adults and neonates (called pemphigus neonatorum)
- Spread by close contact (contagious).
- Bullous impetigo
  - Bullae are less rapidly ruptured
  - Larger (1-2cm)
  - Persist for 2-3 days
  - After rupture thin, flat brownish crusts are formed.
- Streptococcal impetigo may lead to
  - Post streptococcal acute glomerulonephritis (AGN)
  - Scarlet fever
  - Erythema multiforme
- Rheumatic fever is not a complication of streptococcal impetigo

IMPETIGO CONTAGIOSA

- Caused by **Staphylococcus aureus and/or beta hemolytic Streptococci**
- It is mostly a disorder of **prepubertal** children
- Initial lesion is a very thin walled vesicle on an erythematous base which ruptures so rapidly that its seldom seen
- Gradual, irregular, peripheral extension occurs without central healing
- Lesions are usually **not painful**, heals without scarring, **no fever** and patient is not ill
- Characteristic feature
  - **Golden or Honey colored crust**
  - **Neutrophils beneath stratum corneum**

- **Face around nose and mouth)** and [illegible] most commonly affected

Erysipelas

- Caused by the beta-haemolytic Streptococcus
- Sudden onset of a well-marginated, painful and swollen erythematous area, on the face or lower limbs.
- The inflammation may be very intense and the area may become haemorrhagic and even blister.
- There is usually **an accompanying pyrexia and malaise.**

Pyoderma faciale

- Also called **rosacea fulminas or rosacea conglobate**
- Occurs mainly in adult women (in 20s)
- Sudden, severe eruption of confluent papules, nodules, pustules, cystic swellings which may be interconnected by draining sinuses usually confined to face, involving checks, chin, nose, & forehead
- Comedones are usually absent or inconspicuous, as are other features of acne vulgaris or rosacea
- Some cases may develop during pregnancy or **medication** (interferon alpha-2B & ribavirin therapy for hepatitis C)

TOXIC EPIDERMAL NECROLYSIS/ STAPHYLOCOCCAL SCALDED SKIN SYNDROME (SSSS)

Also called **LyeII syndrome**

- Caused by **ET (Exfoliative / Erythematogenic toxin)** producing **Staph. aureus** (phage group II)
- Most common site of infection is **extracutaneous**
- Wide spread erythematous blisterous eruption with striking desquamation of large areas of **skin (Nikolsky sign positive)** as seen in scald or burn.
- Mucosa is not involved.
- Initial findings are redness & tenderness of central face, neck, truck & interiginous zone followed by short lived flaccid bullae & slough or exfoliation or peeling of superficial epidermis.
- **Treated by IV antibiotics**

CUTANEOUS TUBERCULOSIS

Lupus Vulgaris

- Slowly progressive, granulomatous plaque on the skin
- It slowly increases in size, over one, two or three decades.
- Blanching with a glass microscope slide (diascopy) will reveal **grey-green foci (apple jelly nodules)**

Tuberculosis Verrucosa Cutis (Warty Tuberculosis)

- Seen on the **backs of the hands, knees, elbows and buttocks** whenever abrasive contact with the earth and tubercle bacilli has been made.
- Thickened, warty plaques are present - sometimes misdiagnosed as viral warts

Different types of cutaneous TB

- Lupus vulgaris (Apple-jelly nodules)
- Lupus miliaris disseminate faciei
- Lichen scrofulosoeum
- Scrofuloderma (skin T.B. secondary to underlying structure)
- Tuberculosis cutis orificalis (TB. of orifices - oral, anal, urogenital)
- Papulo necrotic tuberculids
- Erythema nodosum
- Erythema induratum
- Acne agmination

Other Mycobacterial Infections

Swimming pool granuloma

- Caused by **Mycobacterium marinum**
- Causes plaques, abscesses and erosions on the elbows and knees in particular.

- The condition responds to minocycline or a trimethoprim-sulfamethoxazole combination.

Buruli ulcer

- **Mycobacterium ulcerans** is responsible for this disorder
- Surgical removal is currently the best treatment.

SARCOIDOSIS

- Bluish chilblain-likeswellings of the fingers, nose and ears **(lupus pernio)** – infiltrated by typical sarcoid tissue
- Erythema nodosum – not infiltrated by typical sarcoid tissue
- Histologically of the typical Sarcoid lesion: **'naked' tubercle,** which contains foci of macrophages and giant cells without many surrounding lymphocytes.

LYME DISEASE

- Caused by the ***Borrelia burgdorfii***
- Early stages - **erythema chronicum migrans**
- Late stages - **skin atrophy (acrodermatitis chronica atrophicans)**, or fibrosis

Viral infection of the skin

HERPES SIMPLEX

- Type I is responsible for the common herpetic infection of the face and oropharynx
- Type II herpes simplex infects the genitalia
- 20 % suffer from recurrent **'cold sores'**, precipitated by minor pyrexial disorders or sun exposure.
- Commonly, the lesions occur around the mouth or on the lip.
- Genital herpes affects the glans penis and the shaft of the penis.
- In women, the vulval region or labia minora is usually involved

HERPES ZOSTER (SHINGLES)

- Mostly affects those past the age of 50 years
- Also affects immunosuppressed individuals
- Due to the reactivation of a latent virus in a posterior root ganglion of a spinal nerve
- Starts with paraesthesiae or pain in the distribution of one or more dermatomes (Picture III-F)
- Dermatome frequently affected - **thoracic**
- Involvement of one of the branches of the trigeminal ganglion, with lesions in the distribution of the maxillary, mandibular or ophthalmic sensory nerves, is common
- Lesions are confined to the skin innervated by the **dorsal primary root** (s) infected

VIRAL WARTS

- Caused by a member of the human papillomavirus family
- **Epidermodysplasia vericuformis**
  - Congenital condition
  - Plane warts spread extensively on the arms, face, trunk and limbs
  - Some lesions can transform to squamous cell carcinoma
- Verruca vulgaris (Picture III-G)

Clinical type	Most common antigenic type of HPV associated
Common warts of hands and fingers (verruca vulgaris)	2, 4
Deep plantar warts (myrmecia warts)	1
Plane warts	3, 10
Mosaic warts	2
Epidermodysplasia verruciformis	5, 8 (but many others isolated on occasion)
Genital warts (condyloma acuminatum)	6, 11 (NB. Types 16 and 18 are also responsible occasionally, and these are known to be associated with carcinoma of the cervix)
Laryngeal papilloma	6, 11

Treatment

- Cryotherapy (tissue freezing with **liquid nitrogen** or solid carbon dioxide)
- Curettage
- Cautery
- Chemical destruction with topical preparations containing **salicylic acid, lactic acid, podophyllin or glutaraldehyde.**
- Intracutaneous injections of cytotoxics such as bleomycin and injections of recombinant interferon.

MOLLUSCUM CONTAGIOSUM

- Caused by virus of **pox virus** group
- Transmitted by skin to skin contact and is a STD.
- Typical lesion is **pink or skin** colored, **umbilicated papule** containing a **grayish central plug**
- **Face & genitals are commonly involved**
- Face is most commonly involved in children
- Pathology: Cup shaped epidermal thickening with characteristic degenerative change in granular cell layer **& Molluscum bodies on giemsa stain is pathognomic.**

LEISHMANIASIS

- ***Cutaneous form*** seen in Mediterranean and North America (Old World leishmaniasis)
  - Ccaused by ***Leishmania major and L. tropica.***
  - A boil-like lesion appears, usually on an exposed site **('Baghdad boil')**
  - Later, this breaks down to produce a sloughy ulcer **('oriental sore'),** which persists for some months before healing spontaneously, with scarring and the development of immunity.
- ***Mucocutaneous forms*** occur mainly in South America (New World leishmaniasis)
  - Caused by L. ***mexicana and L. brasiliensis.***
  - Small ulcers develop **(Chiclero's ulcer)** that seem more destructive than the Old World types
  - Also more persistent, and later in the disease destructive lesions appear, affecting **nasal mucosa** in about half of the patients

ECTOPARASITES	
Phthirus pubis	Pubic lice infestation
Pediculus humanus	Pediculosis
Sarcoptes scabiei	Scabies

SCABIES

Epidemiology:

- Infestation caused by **Acarus hominis/Sarcoptes scabie.**
- Incubation period is 2-4 weeks.
- Itching worse at night is most common symptom.
- Family history of similar itchy eruptions in close contact
- On an average, an adult has **12 mites** and an infant **20 mites.**

Primary lesions:

- **Serpentine (S-shaped) burrows** traversed by parasite in **stratum corneum** (pathognomic lesion)
- Most common sites involved: Inter digital space, Anterior wrist, Ulnar border of hand
- An imaginary circle intersecting the main sites of involvement—axillae, elbow flexures, wrists and
- hands and groins **- 'circle of Hebra'.**
- In infants and elderly: Scalp, Face, Neck, Palms & Soles, Penis also involved
- Papules & papulo-vesicles: due to **hypersensitivity** to the mite.
- Fine pin head size **follicular papules**

Secondary lesions:

- Pustules due to 2° infection is one of commonest form of presentation.
- **Eczematized crusted lesion**, in infants & children are predominant lesions.
- **Nodular lesions** are seen on scrotum (most common), groin, and anterior axillary fold **(Nodular scabies).**

Types:

- **Crusted or Norwegian scabies**
  - Most severe form
  - The average number of mites in these cases is **2 million**
  - Seen in immuno compromised, mentally ill patients, GVDH, leprosy, leukemia
  - Psoriatiform or warty lesions accompanied by **nail hyperkeratosis**
  - **No burrows**
  - **Minimal itching**
  - Highly contagious
  - **Ivermectin** is the treatment of choice
- **Scabies incognetio -** wrongly treated with steroids.

Treatment

- Drug of choice : 5% **Permethrin** (1^{st}) **BHC** (2^{nd}).
- Oral drug (Only): Ivermectin.
- Other drugs : **Benzyl benzoate** 25%, **Crotamiton** 10%, Malathion, Monosulfiram.
- Drug safe in pregnancy & infants < 2 months: **precipitated sulfur 5-10%.**
- Scabicides should be applied to the whole body (below jaw line in adults) **to all members of family whether symptomatic or not.**

PEDICULOSIS

- **Macula cerulea** (bluish stain on the skin d/t louse bite) is **a typical lesion of Pediculosis**

P. Capitis

- Transmitted by **Head louse**
- Involves scalp → **mobile dandruff**
- Common in girls with long hairs
- The diagnosis is made by seeing the lice in the scalp or more often, **nits glued to the hair shaft**

P. Corporis (Vagabond's disease.)

- Transmitted by **Body louse**
- The body louse transmits
  - **Epidemic typhus**
  - **Trench fever**
  - **Relapsing fever**
- The diagnos s is positively established by finding the **lice or nits in the seams** of clothing
- Treatmeot: **disinfection of clothes with 10% DDT or 1% BHC + Pediculocide drug application**

Pthirus Pubis (Pubic louse):

- Is a STD, can also infest body, axillary, and **eyelash hairs**
- In children the common areas of involvement are the eyebrows and eyelashes (pediculosis palpebrum)
- Diagnosis is made on seeing black speck like bodies attached to the root of hair at an angle—t.,e crab **lice**

URTICARIA (nettlerash, 'weals' and 'hives')

- Urticaria is a vascular reaction pattern characterised by transient, erythematous, oedematous papules or plaques (wheals) of varying sizes and shapes which are usually pruritic.
- **Angioedema** is the same process but involves the deep dermis, subcutaneous and submucosal tissues
- **Urticaria — dermal edema**
- **Angioedema — subcutaneous, submucosal edema**
- Result of histamine release from **mast cells** in the skin.
- **Type I hypersensitivity** mediated by histamine.
- Lesions **are itchy**, red papules and plaques of variable size that arise suddenly, often within a few minutes

THE 'PHYSICAL' URTICARIAS

Cold urticaria

- Occur after **exposure to the cold.**
- The reaction can be elicited by an ice block.
- There is a familial form.

Pressure urticaria

- Lesions develop some time (up to several hours) after pressure on the skin
- For example from belts or other tight clothing, or from the rungs of a ladder.

Dermographism

- Many patients with urticaria mark easily when their skin is rubbed firmly, for example with a key.
- This is an **exaggerated 'triple response'** and is quite troublesome to some patients

Solar urticaria

- Urticaria spots develop on exposed skin a few minutes after exposure to the sun.
- It is a skin sign of one systemic disease**— erythropoietic protoporphyria**

Cholinergic Urticaria

- Irritating, small urticaria spots develop after **exercise**, hot baths, emotions
- Occurs after stimuli that evoke sweating from the post-ganglionic cholinergically enervated sweat glands.

DRUG-INDUCED URTICARIA

- Penicillin
- NSAIDs
- Sulphonamides
- Aspirin

Urticaria lesions are seen in patients with

- **Mastocytosis (urticaria pigmentosa)**
- Hypo- or hyperthyroidism
- Systemic-onset juvenile idiopathic arthritis (**Still's disease**)

ERYTHEMA MULTIFORME (EM)

- **EM minor:** an acute, self-limiting, usually mild, often recurrent inflammatory syndrome characterised by symmetrically distributed erythematous papular, urticaria and typical **iris/target shaped lesions (Picture:V-A)**
  - Cause: **Herpes simplex virus** – most common cause of recurrent EM
- **EM major:** more severe variant with extensive mucous membrane involvement and constitutional symptoms
  - Cause: **HSV, Mycoplasma, Drugs** (sulfonamides, phenytoin, barbiturates, aminopenicillins, non-nucleoside reverse transcriptase inhibitors, and carbamazepine)
  - **Hemorrhagic crusts of lips**

- The term "erythema multiforme major" has been replaced by three terms
  - Stevens-Johnson syndrome (SJS), with < 10% BSA skin loss
  - Toxic epidermal necrolysis (TEN) when there is > 30% BSA skin loss
  - SJS/TEN overlap for cases with between 10% and 30% BSA denudation.
- Skin biopsy is diagnostic.
- Direct immunofluorescence studies are negative

ERYTHEMA NODOSUM

- Painful crops of nodules develop in response to antigenic stimuli mostly in shins & forearms.
- Women are predominantly affected by a ratio of 10:1 over men

Causes of erythema nodosum

- Tuberculosis – most common
- Sarcoidosis
- Leprosy (lepromatous type LL & BL)
- Brucellosis
- Streptococcal infection
- Ulcerative colitis & Crohn's disease
- Oral contraceptives

LUPUS ERYTHEMATOSUS

- Skin involvement is the 2nd most common clinical manifestation after joint inflammation and is found in up to 70% of patients
- The two most common forms of chronic cutaneous lupus erythematosus (CCLE) are
  - Chronic scarring (discoid) lesions (DLE)
  - Erythematous non-scarring red plaques (Subacute cutaneous LE) (SCLE).

- **Discoid LE (DLE) or Chronic cutaneous LE**
- The lesions are most commonly found on face and neck
- **Permanent hair loss (scarring alopecia)** and loss of pigmentation are common sequelae of discoid lesions.
- There is atrophy, telangiectasia, depigmentation, and **follicular plugging** by scales
- When the scale is removed, its underside shows small excrescences that correlate with the openings of hair follicles **(carpet tacking or thumbtack like)**
- The disorder may be aggravated or initiated by exposure to the sun.
- Histology: epidermal degenerative changes are more marked, with scattered **cytoid body formation** and patchy epidermal atrophy and thickening

Treatment

- Sun avoidance and use of sunscreens
- Individual lesions sometimes respond to potent topical corticosteroid
- For unresponsive lesions - **hydroxychloroquine (200-400 mg per day)** is often helpful.

SYSTEMIC SCLEROSIS

Progressive systemic sclerosis

- The disease is mostly seen in young women
- Gradual thickening and stiffening of the skin of the hands and face
- This causes a characteristic **beak-like facial appearance**, with narrowing of the mouth
- There are pigmentary changes over the face and neck in the form of hyperpigmentation and depigmentation (**pepper-salt pigmentation**) (Picture V-B)
- **Telangiectatic macules** appear over the face and deposits of calcium develop in the skin.
- **Fingers: sclerodactyly or sausage shaped** fingers with taut skin over the fingers and thimble pitted scars over fingertips
- **Raynaud's phenomenon** is almost a constant feature
- **CRST syndrome (Calcinosis cutis, Raynaud phenomenon, Sclerodactyly, and Telangiectasia)**
- When there is also **dysphagia** due to **Esophageal** involvement - **CREST** syndrome

- **Linear scleroderma** - involvement of the face and/or forehead manifesting as **Parry-Romberg syndrome and 'en coup de sabre** (depressed sclerotic groove over the frontal/frontoparietal region of the scalp)
- **Anti-topoisomerase II antibodies** have been detected in 76% of patients with localised scleroderma and in 85% of cases of generalised morphea
- These antibodies, in contrast to antitopoisomearsel/scl-70 antibodies have been found in 14% of the patients with systemic scleroderma.

DERMATOMYOSITIS

- An idiopathic inflammatory myopathy of striated muscles along with characteristic cutaneous findings
- Linked to human leucocyte antigen (HLA) **DR3, DRS, DR7**
- The pathognomonic cutaneous features
  - **Heliotrope rash** (periorbital confluent macular mauve or violaceous erythema)
  - **Gottron's papules** (papules having violaceous hue overlying the dorsolateral aspect of interphalangeal or metacorpophalangeal joints)
- Other cutaneous features are
  - Malar erythema
  - **Poikiloderma** (variegated telangiectasia along with atrophy and hyperpigmentation)
  - Periungual and cuticular changes (cuticular hypertrophy with haemorrhagic infarcts)
  - **Mechanics hands** (fingertip erythema and scaling).
  - **Calcinosis cutis** - firm yellow or flesh coloured nodules extruding calcium through the skin

IMMUNE MEDIATED BULLOUS DISORDERS:

Intra-epidermal bullae	Sub-epidermal bullae
• Pemphigus vulgaris • Pemphigus vegetans • Pemphigus foliaceous • Pemphigus erythematosus • Drug induced pemphigus • Paraneoplastic pemphigus	• Bullous pemphigoid • Cicatricial pemphigoid • Dermatitis herpetiformis • Linear IgA buloous dermatosis • Pemphigoid gestationis • Epidermolysis bullosa aquisita

	Clinical	Histology	Immunopathology	Auto antigens
Pemphigus foliaceous	Crusts and shallow erosions on scalp, central face, upper chest and back	Acantholytic blister formed in superficial layer of epidermis;	Cell surface deposits of IgG on keratinocytes (epidermis)	Desmogleins (Dsg1)
Pemphigus vulgaris Picture: V-C	Flaccid blisters, Painless, MC site: buccal mucosa Nikolsky sign: + ve	Acantholytic blister formed in supra basal layer of epidermis	Cells surface deposits of IgG on keratinocytes (epidermis)	Dsg 3 (+ Dsg 1 in patient with skin involvement)
Bullous Pemphigoid Picture: V-D (Senile	Large tense blisters, Painless MC site: extremities Nikolsky sign: - ye	Blister formed in sub epidermal region; eosinophil-rich infiltrate	Linear band of IgG and C3 across the basement embrane zone (BMZ)	Proteins in basal keratinocytes Bullous Pemphigoid AntiGen. Two

pemphigoid) Pemphigoid gestationis	Associated with Lymphoma Pruritic, urticaria plaques, rimmed by vesicles & bullae on the trunk and extremities	Acantholysis, tear Teardrop-shaped, sub epidermal blister in dermal papillae; eosinophil-rich infiltrate.	Linear band of C3 in epidermal BMZ.	Target antigens: BP 230 and BP180 (BPAG 1, BPAG 2) BPAG2 (plus BPAG1 in some patients).
Linear IgA bullous disease or	large tense bullae filled with clear or haemorrhagic fluid on	Sub epidermal blister with neutrophils in	Linear band of IgA, in epidermal BMZ	LAD
Chronic bullous disease of childhood	or near genitalia, arciform blister, cluster of jewels appearance	dermal papillae		
Cicatricial pemphigoid	Erosive and / or blistering lesions of mucous membranes and possibly the skin;	Sub epidermal blister	Linear band of IgG, and /or C3 in epidermal BMZ	BPAG2
Epidermolysis bullosa acquisita	Blisters, erosions, scars, and milia on sites exposed to trauma; nflammatory, tense blisters seen initially	Sub epidermal blister	Linear band of IgG, and /or C3 in epidermal BMZ	Type VII collagen.
Dermatitis herpetiformis	Extremely pruritic small and vesicles mostly on elbows, knees, buttocks	Sub epidermal blister with neutrophils in dermal papillae	Granular deposits of IgA in dermo-epidermal junction.	Epidermal transglutaminase

Pemphigus histology

- The superficial portion of epidermis sloughs off, leaving the bottom layer of cells on the "floor" of the blister
- This bottom layer of cells is said to have a "**tombstone appearance".**

❖ **The Asboe-Hansen sign (bullae spread sign)** — characteristic of pemphigus

DERMATITIS HERPETIFORMIS

- Intensely itchy vesicles, papulovesicles and urticaria papules symmetrically distributed over **extensor surfaces** (elbows, knees, buttocks, back, scalp, and posterior neck)
- Almost all have an associated, usually subclinical, **gluten-sensitive enteropathy**
- >90% express the HLA-**B8/DRw3** and **HLA-DQw2** haplotypes
- Biopsy of new lesions - vesicle forms subepidermally and develops from collections of inflammatory cells in the papillary tips **(the papillary tip abscess)**
- Direct IF- presence of **IgA in the papillary tips** in the skin around the lesions
- **Treatment**
  - **Gluten-free diet**
  - **Dapsone therapy**
- Patients are at increased risk for development of **gastrointestinal lymphoma**

- Systemic mastocytosis is defined by a clonal expansion of **mast cells** that in most instances is indolent and nonneoplastic
- **Cutaneous mastocytosis (CM)**
  - Urticaria pigmentosa (UP)/maculopapularcutaneous mastocytosis (MPCM)
  - Variants: plaque form, nodular form; telangiectasia macularis eruptiva perstans (TMEP); diffuse cutaneous mastocytosis (DCM)
  - Solitary mastocytoma of skin
- The cutaneous lesions of urticaria pigmentosa are **reddish-brown macules or papules that respond to trauma with urtication and erythema (Darier's sign).**
- Urticaria pigmentosa is the most common manifestation of mastocytosis, both in adults & children.

Diseases with numerous telangiectasias

- cirrhosis of the liver,
- Osler-Weber-Rendu disease, which also has mucous membrane involvement,
- lupus erythematosus
- scleroderma,
- dermatomyositis,
- cutaneous polyarteritis,
- metastatic carcinoid syndrome,
- ataxia telangiectasia,
- angiokeratoma corporis diffusum,
- telangiectasia macularis eruptiva perstans, and
- rosacea.
- overlying basal cell cancers

Sexually transmitted agents

Bacteria	Virus
• Neisseria gonorrhoeae • Chlamydia trachomatis (D-K) • Chlamydia trachomatis (L1, L2, L3) • Treponema pallidum • Haemophilus ducreyi • Calymmatobacterium granulomatis • Mycoplasma hominis • Ureaplasma urealyticum • Gardnerella vaginalis • Group B β-haemolytic Streptococcus	• Herpes simplex virus 1, 2 • Human papilloma virus • Hepatitis B virus • Cytomegalovirus • Molluscum contagiosum virus • Human immunodeficiency virus • Human T-lymphotropic virus

Protozoa	Fungi	Ectoparasites
• Trichomonas vaginalis	• Candida albicans	• Phthirus pubis • Sarcoptes scabiei

DISTINGUISHING FEATURES OF GENITAL ULCERS

Features	Syphilis (1° chancre)	Chancroid	Lympho - granuloma venereum	Donovanosis (Granuloma inguinale)	Herpes genitalia
Organism	Treponema palladium	Haemophilus ducreyi	Chlamydia trachomatis (L1, L2,L3)	Calymmato bacterium granulomatosis	Herpes simplex virus type II (rarely type I)
No. of attacks	Only one (1)	1 or 2	Only one (1)	Only one (1)	Recurrent
No. of lesions	Usually 1	Usually multiple may coalesce	Usually 1	Variable	Multiple, may coalesce
Early 1° lesion Diameter **Depth** Edges	**Papule** 5-15 mm **Superficial or deep** Sharply demarcated, elevated, round / oval	**Pustule** Variable **Excavated** Undermined, ragged, irregular	**Papule, Pustule** 2-10 mm **Superficial or deep** Elevated, round or oval	**Papule** Variable **Elevated** Elevated, irregular serpiginous	**Vesicle** 1-2 mm **Superficial** Erythematous
Base	Smooth, non-purulent, non-vascular	Purulent, bleeds easily	Variable nonvascular	**Red & velvety (beefy red),** bleeds easily, with exuberant **granulation tissue**	Serous, Erythematous, nonvascular

Features	Syphilis (1° chancre)	Chancroid	LGV	Donovanosis (Granuloma inguinale)	Herpes genitalis
Induration	Firm	Soft	Occasionally firm	Firm	None
Pain	Uncommon	Usually very tender	Variable	Uncommon	Frequently tender
Lymphadenopathy	Firm, non tender, shotty, bilateral	Tender, may suppurate, loculated, usually unilateral **(Bubo)**	Tender, may suppurate, loculated, uni or bilateral **(Bubo)** Nodes enlarge above & below Poupart's ligament, - **Groove sign (Pic: VI-A)**	No lymphadenopathy **pseudo buboes** (subcutaneous nodules in inguinal region, may ulcerate)	Firm, tender often bilateral
Diagnosis	-Dark field Microscopy -Serological tests	-Clinical features -Gram Staining (gram-ye cocco-bacilli with **rail road appearance)**	-Demonstration of LGV as elementary & inclusion bodies **-Frie's test** -Hyper gamma-globulinemia -Complement fixation +ve	-Tissue smear & histopathological microscopy show 1**. Donovan bodies** **2.Safety pin appearance**	-Multinucleated giant cell on Tzanck smear -Culture is confirmatory
Treatment	**Penicillins**/ Doxycycline / tetracycline	Azithromycin Erythromycin Ceftriaxone Ciprofloxacin	Doxycycline Tetracycline Erythromycin	Doxycycline / tetracycline Azithromycin / erythromycin (in pregnancy)	Acyclovir

PIC: Groove sign in LGV

	Lymphadenopathy	Ulcer
DONOVANOSIS	Nil	Indurated, painless, bleeding
SYPHILIS	Painless lymphadenopathy	Painless, non bleeding, indurated, usually single
LGV	Painful, suppurated, matted **(BUBO)**	Asymptomatic, painless, non bleeding ulcer
CHANCROID	Painful. fluctuant, suppurative nodes	Multiple, painful, bleeding, r, indurated
HERPES	Painful lymph nodes	Multiple, painful. Bleeding, non indurated

STDs & Incubation Period (mean)

- Primary chancre : 9 to 90 days (21 days)
- Chancroid : One to several weeks (5 to 8 days)
- Donovanosis : 9 to 50 days (17 days)
- Lymphogranuloma venereum : 5 to 30 days (10 days)
- Herpes genitalis (primary) : 5 to 7 days (5 days)
- Genital warts : 1 to 8 months (3 months)
- Gonococcal urethritis : 1 to 14 days (2 to 5 days)
- Non-gonococcal urethritis : 7 to 21 days (10 days)

- ❖ **Esthiomine:** vaginal & rectal strictures & elephantiasis of the vulva (Seen in LGV)
- ❖ **Lipschutz ulceration:** Non veneral ulcer of the vulva or lower vagina. **(Ulcus Vulvae acutum)** seen in Behcet's disease. Similar to aphthous ulcers

MANAGEMENT OF STD's

CHANCROID:

- **Based on history: sexual exposure with infected person, short incubation period & morphology.**
- Confirmed by demonstration of organisms from smears taken from bubo.
- Smears are stained with gram's or **Pappenheim's stain.**
- **Ito-Reenstierna intradermal test:** becomes positive 1 or 2 weeks after appearance of sore & persists positive for life.
- Injection of 0.1ml of suspension of **killed organism & inferred as positive if a nodule of > 5mm appears after 24 hours.**
- **Treatment: erythromycin & Ceftriaxone.**

LGV:

- History of occurrence of herpetiform lesions on the genitals, few days after intercourse, followed by painful unilateral, multilocular inguinal bubo.
- **Culture, Frei's intrademal test, complement fixation test can be done.**
- Tetracyclines are the DOC.

GRANULOMA INGUINALE:

- **Confirmed by demonstration of Donovan bodies** in the tissue smears & also by HPE.
- **Giemsa stain.**
- Few large cells containing cystic spaces, often with nuclei pushed to one side & darkly staining **(cells of Greenblatt)** are conspicuous.
- **Rx: streptomycin, tetracyclines & cotrimoxazole.**

REACTIVE ARTHRITIS (REITER'S SYNDROME)

- 50 – 80% **are HLA B27 positive**
- Oligoarthritis, conjunctivitis, urethritis, and mouth ulcers most common features
- Most cases of reactive arthritis develop within 1-4 weeks after either a gastrointestinal infection (with *Shigella, Salmonella, Yersinia, Campylobacter)* or a sexually transmitted infection (with *Chlamydia trachomatis or Ureaplasma urealyticum)*
- Psoriasiform skin lesions develop on the soles and toes
- These are often severe, persistent, aggressive and pustular **(keratoderma blenorrhagica)**
- Inflamed, red, scaling patches may also develop on the glans penis **(circinate balanitis)**

Types of eczema

Endogenous eczema	Exogenous eczema
• Atopic dermatitis • Seborrhoeic dermatitis • Nummular eczema • Pompholyx (Dyshidrotic eczema) • Asteatotic eczema • Stasis dermatitis • Juvenile plantar dermatitis • Lichen simplex chronicus	• Irritant contact dermatitis • Allergic contact dermatitis • Photodermatitis • Infectious eczematoid dermatitis

ATOPIC DERMATITIS

- Synonyms: **Neurodermatitis, Besnier's prurigo, Infantile eczema**
- Positive **family history** of allergic rhinitis, asthma or eczema
- **Pruritis** is the most common symptom
- Course marked by exacerbations and remissions
- Clinical course lasting longer than 6 weeks
- **Lichenification** of skin
- **Infantile pattern:** involves face, neck, extensor surfaces and groin.
- **Childhood and adolescent pattern:** involves flexural skin, particularly in the **antecubital fossa** and popliteal fossa.
- Cutaneous stigmata of AD
  - Perioral pallor
  - Extra fold of skin beneath the lower eyelid (**Dennie-Morgan folds**)
  - Increased palmar skin markings
  - Increased incidence of cutaneous infections, particularly Staphylococcus aureus
- **Diagnosis: clinically** - dry skin, severe itching, flexural lichenification, hand eczema, nipple eczerr and eyelid eczema in adults, history of atopy in the family/patient, and **raised IgE serum** levels.

CONTACT DERMATITIS

Irritant contact dermatitis

- **Synonyms: Occupational dermatitis, Housewive's eczema**
- Materials may injure by direct toxic action (irritants)
- Due to contact with irritants like detergents, acids, alkaline chemicals, oils, organic solvents etc
- Housewife's eczema, diaper dermatitis and industrial dermatitis are examples of cumulative irritant contact dermatitis.
- Most common site affected is **hand**.
- Most common cause of contact dermatitis in Indian women – **detergent**.

Allergic contact dermatitis

- May induce immunological reaction of delayed hypersensitivity type (allergens) – **Allergic contact dermatitis**
- Most common metal causing contact dermatitis is **nickel.**
- Most common cause of air-borne contact dermatitis– **parthenium**.
- **Barloque dermatitis** due to cosmetics.
- Diagnosis: **Patch test.**
  - Skin hypersensitivity test (delayed type).
  - Readings are made after 48 hours.

Differences Between Irritant and Allergic Contact Dermatitis

		Irritant CD	Allergic CD
Symptoms	Acute	**Stinging, smarting → itching**	**Itching → pain**
	Chronic	Itching/pain	Itching/pain
Lesions	Acute	Erythema → vesicle → erosion → crust → scaling	Erythema → papules → vesicles → erosions → crust → scaling
	Chronic	Papules, plaques, fissures, scaling, crusts	Papules, plaques, scaling, crusts
Margination and site	Acute	**Sharp, strictly confined to site of exposure**	Sharp, confined to site of exposure **but spreading in the periphery; usually tiny papules; may become generalized**
	Chronic	III-defined	III-defined, **spreads**
Evolution	Acute	Rapid (few hours after exposure)	**Not so rapid** (12 to 72 h after exposure)
	Chronic	Months to years of repeated exposure	Months or longer; exacerbation after every reexposure
Causative agents		**Dependent on concentration of agent and state of skin barrier; occurs only above threshold level**	**Relatively independent of amount applied, usually very low concentrations sufficient but depends on degree of sensitization**
Incidence		**May occur in practically everyone**	**Occurs only in the sensitized**

Hand Eczema

- Caused by chronic exposure to water and detergent.
- Dryness and cracking of the skin of hands with variable erythema and edema
- Diagnosis: Scratch test with latex extract.

Nummular (Discoid) Eczema

- Characterized by circular or oval **'coin-like'** lesion.
- Most common sites are – trunk and extensor surfaces of extremities (pretibial skin and dorsum of hands)
- Most commonly affects men in middle age group.

Asteatotic Eczema

- Also called the **'Winter-itch' or Xerotic eczema or Eczema craquelee**
- Seen in elderly people in **dry** season.
- Characterized by fine cracks in the areas of dry skin over the anterior surface of legs.

Venous eczema (Gravitational eczema or Stasis Dermatitis)

- Due to venous incompetence and chronic edema.
- Site – over the **medial aspect of the ankle.**

Seborrheic Dermatitis

- Most common in infants and very young. Most common location is the **scalp.**
- Greasy scales overlying erythematous patches or plaques
- Scaling of the external auditory canal is common
- In the first week of life, it typically occurs in the **scalp ("cradle cap"),** face, or groin
- In adults, it is seen in patients with Parkinson's disease, CVA and HIV infection
- **Leser-Trelat sign:** Sudden eruption of multiple seborrheic keratosis lesions in associated internal malignancy

Lichen Simplex Chronicus (Circumscribed neuro dermatitis)

- End stage of various eczematous disorders
- Lichenification (thickening) of skin due to chronic scratching and rubbing.
- Most common sites – nuchal region, dorsum of feet and ankles

- Affects young adults
- Characterised by sudden crops of highly pruritic, deep-seated sago-like vesicles on the palms, sides of fingers and/or soles

PELLAGRA

- Deficiency disease caused by lack of niacin (nicotinic acid), occurs chiefly in countries where corn (maize), a poor source of tryptophan is basic food stuff.
- Its clinical presentations is "3-D"
  - Dementia
  - Diarrhea
  - Dermatitis
    - Most characteristic manifestation
    - Occurs in form of pigmented, scaly, sharply demarcated & frequently changing cracked skin on parts exposed to sunlight
    - Various types on location
      - **Pellagrous glove** [lesion on hand]
      - **Pellagrous boot** [lesion on boot]
      - **Casal necklace** [lesion around neck]
- ❖ Deficiency of vitamin A leads to follicular hyperkeratosis and roughening of the skin (phrynoderma).

ACRODERMATITIS ENTEROPATHICA

- Autosomal recessive
- Inherited form of zinc deficiency
- Result of a mutation in a zinc transport protein - decreased ability to absorb zinc from dietary sources
- Triad of
  - **Acral dermatitis (face, hands, feet, anogenital area)**
  - **Alopecia**
  - **Diarrhea**
- Requires **lifelong zinc** supplementation
- 1-3 mg/kg of zinc gluconate or sulfate is administered orally each day

- ❖ **Acrodermatitis chronica atrophicans:** skin atrophy in Lyme's disease
- ❖ **Acrodermatitis continua/ Acrodermatitis pustulosa:** form of pustular psoriasis

EXFOLIATIVE DERMATITIS (EXFOLIATIVE ERYTHRODERMA)

- Generalized **redness and scaling of the skin of >30% BSA.**
- A **preexisting dermatosis** is the cause of exfoliative dermatitis in two-thirds of cases, including
  - Psoriasis
  - Atopic dermatitis
  - Contact dermatitis
  - Pityriasis rubra pilaris
  - Seborrheic dermatitis.
- Reactions to topical or systemic drugs account 20-40% of cases
- Cancer (lymphoma, solid tumors and, most commonly, **cutaneous T cell lymphoma)** for 10-20%.

PSORIASIS

- Typical lesions are erythematous (red), raised, **scaly, well demarcated** plaques
- Characteristically presents with **silvery mica scales.**
- Sites: **extensor aspect of trunk & limbs** preferentially
- **Due to increased cell turn over resulting in marked epidermal skin thickening (acanthosis)**
- 50% have positive family history
- Associated with HLA-**Cw6 (most common)**
- Deletion of 2 **late cornified envelope (LCE) genes,** LCE3C and LCE3B, is a common genetic factor for susceptibility to psoriasis
- **Obesity** is another factor associated with psoriasis. Weight loss results in significant improvement

Triggering factors

- Trauma (Koebner phenomenon)
- Season (worsens in winter)
- Emotional stress
- Upper respiratory tract infections
- Drugs like beta-blockers, lithium and chloroquine
- Withdrawal of systemic steroids can lead to precipitation of pustular psoriasis.

Variants

Plaque type

- **Most common type**
- Slow, indolent course
- The most commonly involved areas: **elbows, knees** and scalp

Inverse psoriasis

- Affects the **intertriginous regions** including the **axilla, groin, submammary region**, and navel
- May be moist and without scale due to their locations

Guttate psoriasis (eruptive psoriasis)

- Most common in children and young adults
- It develops acutely in individuals without psoriasis or in those with chronic plaque psoriasis
- Patients present with many small erythematous, scaling papules, frequently after **upper respiratory tract infection with β-hemolytic streptococci**

Pustular psoriasis

- Generalized eruption of **sterile pustules**
- Fever
- **Intense erythema**
- Local irritants, **pregnancy, medications, infections,** and systemic **glucocorticoid withdrawal** can precipitate this form of psoriasis
- **Types**
  - Palmo plantar
  - Acrodermatitis continua
  - Pustular bacterids
  - Generalized pustular **(Von Zumbusch disease)**

Psoriatic arthritis (PsA)

Occurs in 5 – 10% of patients with psoriasis. There are five subtypes

- **Symmetric:** resembles rheumatoid arthritis, but is usually milder
- **Asymmetric:** can involve any joint; present as **sausage digits (Pencil in cup or Opera glass deformity)**
- **Distal interphalangeal predominant (DIP): the classic form**

- **Spondylitis**
- **Arthritis mutilans:** severe and deforming, affects primarily the **small joints of the hands and feet.**

❖ Scalp psoriasis: **Pityriasis amaintaceae**
❖ **Rupoid psoriasis:** classically present in **Reiter's syndrome (HLA-B 27)**

Koebner's / Isomorphic phenomenon

- Psoriasis appears at the site of **minor injury** such as scratch or graze.
- Koebner phenomenon is also seen in
  - **Lichen planus**
  - **Vitiligo**
  - **Toxic Epidermal Necrolysis**
  - **Molluscum contagiosum**
  - **Kaposi sarcoma**
  - **Necrobiosis lipoidica**
  - **Discoid lupus erythematosus.**
- Appears usually 7 to 14 days after injury (i.e. trauma or surgery).
- It is an **all or none phenomenon** (i.e. if psoriasis occurs at one site of injury it does so means will occur at all sites of injury)

❖ **Reverse Koebner phenomenon (reaction)** is clearing of existing psoriasis lesions following injury. It also obeys an all or none rule, and Koebner and reverse Koebner reactions are mutually exclusive.
❖ **Pseudo – isomorphic phenomenon** is due to autoinoculation & is seen in infections like
  - Plane warts
  - Molluscum contagiosum

- **Auspitz sign -**a characteristic finding of psoriasis in which removal of scales leads to pinpoint bleeding
- Removal of scales reveals a glistening red **membrane** of **Berkeley**
- **Grattage Test —** on scratching scales appear
- **Wornoff Ring** — White halo around lesion
- **Candle grease sign**
- **In nails**
  - Onycholysis (separation of nail plate from nail bed)
  - **Thimble-pitting of nail plate**
- **Not seen in psoriasis**
  - Alopecia
  - Mucosal involvement
  - CNS involvement
- Histological features
  - Elongation of rete-ridges
  - Parakeratosis
  - Hypogranulosis
  - **Munro's micro abscesses in the horny layer**
  - **Spongiform pustules of Kogoj**
- The psoriatic epidermis shows **rapid transition of epidermal cells** in as fast as **2 days** as compared to **13 days** in normal epidermis
- Itching may or may not present

Key diagnostic points for psoriasis

❖ **Erythematous scaly plaques**
❖ **Well-defined border**
❖ Scales **dry loose and micaceous**
❖ **Koebner phenomenon** seen
❖ **Auspitz sign** positive
❖ **Regular, circular pits on nail plates**
❖ Involvement of **DIP** joints of fingers and toes

- ❖ Histopathological: **Spongiform pustules of Kogoj**

Treatment

- Treatment of choice: PUVA therapy
- DOC for psoriatic arthropathy: **Methotrexate**
- Tar preparations, Vit-D3 analogs like calcipotriol, Anthralin etc... can be used locally
- DOC in AIDS with psoriasis & pustular psoriasis: **Synthetic retinoid — acitretin**
- Biological agents used in the treatment of psoriasis
  - ➢ **Alefacept (anti-CD2)**
  - ➢ Etarnacept, Adalimumab, Infliximab **(anti-TNFα)**

Differential diagnosis of round, red, scaling patches	
Disease	**Features**
Psoriasis	Well-defined, thickened, scaly plaques, usually multiple
Discoid eczema	Moderately well-defined edge; slightly scaly, pink patches, limited in number
Ringworm	Annular with central clearing; microscopy and culture of scales will reveal fungal mycelium
Bowen's disease	Often slightly irregular in shape; edge is well defined; biopsy is decisive

PHOTO CHEMOTHERAPY (PUVA)

- Photosensitizing drug **Psoralen + UV-A (300-400nm)**
- The UV-A is supplied by special fluorescent lamps housed in cabinets or special frames over beds
- The main psoralen used is **8-methoxy psoralen**
- Psoralen is given orally 2 hours before exposure & the dose 0.6 mg/kg
- Decrease DNA synthesis in psoriasis & increase melanin synthesis in Vitiligo
- UV-light therapy is contraindicated in patients receiving **cyclosporine**

Uses	Side effects
• Psoriasis • Vitiligo • Cutaneous T Cell Lymphoma (Mycosis fungoides) • Pityriasis lichenoides chronica • Atopic dermatitis • Pompholyx	• Long term (Major): ➢ Skin cancer ➢ Cataract ➢ Photo (premature) aging • Minor (Short term): Nausea, Burning, Pruritis, Xeroderma

LICHEN PLANUS

- Affects the skin, scalp, nails, and mucous membranes
- The primary cutaneous lesions are **pruritic, polygonal, flat-topped, violaceous papules.**
- Close examination of the surface of these papules reveals a network of gray lines **(Wickham's striae)**
- The skin lesions but have a predilection for the **wrists, shins, lower back, and genitalia**
- **Buccal mucosa** is particularly involved

Variants

- **Hypertrophic lichen planus-** commonest variant, thickened, mauvish papules or nodules of irregular shape with a warty or scaling surface.
- **Annular lichen planus:** ring-type configuration, on the male genitalia and lower abdomen.
- **Lichen nitidus:** is a rare variant, numerous tiny, pink, flat-topped papules develop.
- **Bullous lichen planus:** blistering occurs on some lesions.
- **Lichen plano-pilaris:** predominantly involves the **hair follicles**. Affected sites lose their terminal hair and develop horny spines. Involvement of scalp results in **scarring alopecia**

Clinical presentation of Lichen planus

Lesions	Characteristic features	Histology
• Plain **(flat) topped** • Polygonal • Purple (violaceous) • **Pruritic** • Papule • **Pterygium (thinning) of nails** • **Pigmentation** on healing	• Wickham's stria • **Lace-like pattern** due to involvement of **buccal and vaginal mucosa** • Koebner's phenomenon • Scarring alopecia	• **Band-like infiltration of lymphocytes** in the upper dermis • Formation of **saw tooth profile & cytoid (civatte)** body. • Epidermal thinkening • **Subepidermal lichenoid band** • **Max Joseph histological cleft**

- ❖ Associated with: **Squamous cell carcinoma, Hepatitis — C**
- ❖ **Treatment:** topical **steroids** are the mainstay of treatment

PITYRIASIS ROSEA

- The exact aetiology of PR is not known though **HHV-6 and 7** have been implicated.
- First manifestation is an annular lesions of 2-6 cm diameter **(the herald patch)**
- The centers of the lesions have a **crinkled or "cigarette paper" appearance**
- Followed by smaller annular or papular lesions, predominantly on the **trunk** along the cleavage lines.
- The eruption has a characteristic **'bathing suit' distribution (trunk and proximal parts of limbs)**
- Lesions on the back are parallel to ribs giving **'Christmas tree'** appearance **or 'hanging curtain sign'**
- PR shares many clinical features with the eruption of secondary syphilis, but **palm and sole lesions are extremely rare in PR** and common in secondary syphilis.
- Course — usually self-limiting.

PITYRIASIS RUBRA PILARIS

- **Reddish orange scaly plaques**
- **Palmoplantar keratoderma**
- **Keratotic follicular papules**
- Disease begins on the **face and scalp,** with pinkness and scaling
- The histological appearance: distinctive **accentuation of the dermal papillae** and the undulations of the dermoepidermal junction are much less marked than in psoriasis.

MILIARIA

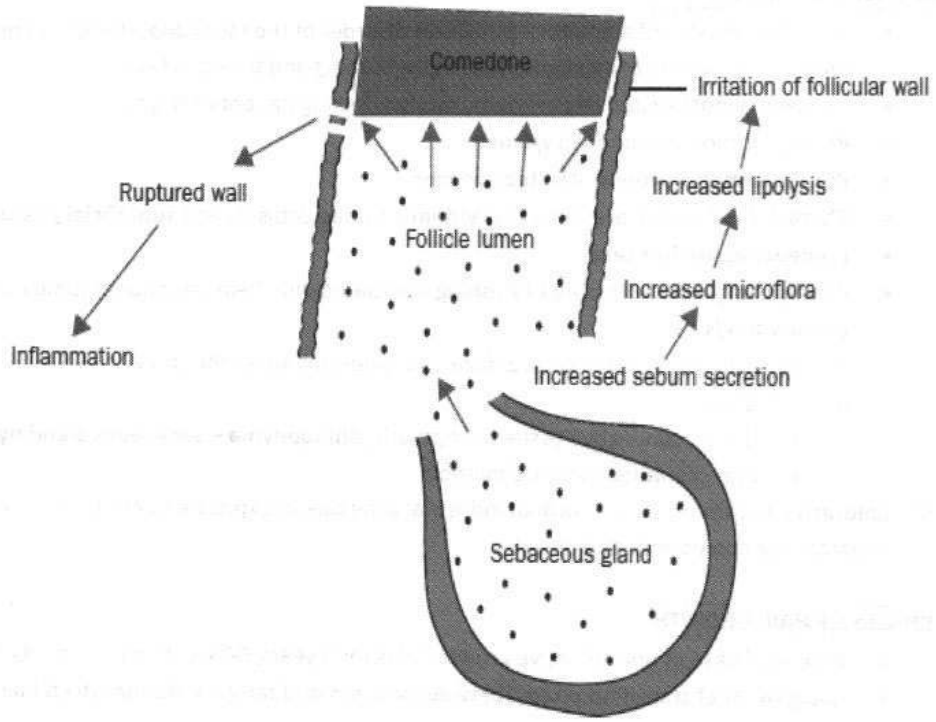
- Results from blockage of the **acrosyringium**, the long thin duct that carries sweat from the coiled secretory portion located in the reticular dermis and the subcutaneous fat to the skin surface
- There is **secondary leakage of sweat** in the epidermis and papillary dermis.

Types

- **Miliaria crystalline (sudamina)**
  - Obstruction is superficial in stratum corneum
  - Vesicle is **subcorneal**.
  - It is common in **infants** in warm ICU conditions where cholinergic & adrenergic agents are employed.
- **Miliaria rubra (prickly heat):**
  - **Leakage of sweat into epidermis & upper dermis**
  - Papules around sweat pores
  - Intense itching
  - **Miliaria pustulosa:** miliaria rubra becoming pustular
- **Miliaria profunda**
  - Obstruction of acrosyringium at deeper level
  - **Sweat leaking into deeper dermis**
  - Papules are non-itchy

ACNE VULGARIS

- A self-limited disorder primarily of **teenagers and young adults**
- The earliest feature is an **increased rate of sebum secretion**, making the skin look greasy **(seborrhoea)**
- A disorder in which hair follicles develop obstructing horny plugs (comedones).
- Small **pseudocysts**, called **comedones**, form in hair follicles due to blockage of the follicular orifice
- The clinical hallmark is the comedone, which may be **closed (whitehead)** or **open (blackhead)**



- The activity of bacteria ***(Propionibacterium acnes)*** within the comedones releases free fatty acids from sebum, causes inflammation within the cyst, and results in **rupture of the cyst wall**

- The first lesions, usually comedones, develop on the forehead **(pre-adolescent acne)**
- At its peak, acne covers the **entire face (adolescent acne)**
- In mature adults (25 years plus) it settles on the **jaw area and the adjacent neck (adult acne).**
- The scars formed after healing are often quite irregular and tend to form 'bridges'
- Even the smaller inflamed papules can cause scars - pock-like or triangular indentations **(ice-pick scars).**
- **Acne fulminans**
  - Lesions quite suddenly become very inflamed
  - Affected individual is unwell and develops fever and arthralgia.
- **Treatment:**
  - Oral tetracycline or erythromycin.
  - Topical — retinoic acid (for nodulocystic acne), benzoyl peroxide, salicylic acid.
  - Sebum production is decreased by sebotrophic agents (directly) and antiandrogens (indirectly)
    - Tretinoin (all trans retinoic acid)-1st generation (1G)
    - Isotretinoin (13-cis isomer of tretinoin)-2G
    - Adapalene — 3G
    - Tazarotene — 4th generation

ROSACEA (ACNE ROSACEA)

- Common chronic inflammatory acneiform disorder of the facial pilosebaceous units, coupled with an increased reactivity of capillaries leading to flushing and telangiectasia.
- It is seen almost exclusively in adults, rarely affecting patients <30 years.
- Rosacea is more common in **women**
- But those **most severely affected are men**
- Characterized by the presence of **erythema, telangiectases, and superficial pustules**
- **Comedones are not seen**
- Predisposing factors: History of **flushing** associated with heat, emotional stimuli, alcohol, hot drinks or spicy foods.
- Site: typically involves the **central face**. This does not affect the trunk.
- Complications
  - Nose – connective tissue overgrowth **(Rhinophyma – sebaceous gland hypertrophy)**
  - Eye – keratitis, uveitis, chalazion.

❖ **Chloracne-** extremely severe form of industrial acne due to exposure to complex chlorinated naphthalenic compounds and dioxin.

PHASES OF HAIR GROWTH

- **Anagen:** Phase of normal active growth, lasts for 3 years, 90% of hairs are in this phase
- **Catagen:** Brief transition phase (between anagen and telogen) during which hair growth stops, lasts for 3 weeks
- **Telogen:** Resting phase, lasts for 3 months
- **Exogen:** Hair shedding phase (relationship between hair shaft and base of telogen follicle)
- Duration and rate of growth of anagen phase determine the ultimate length of hair in that area.
- Eyebrows, eyelashes, and axillary pubic hair: **anagen phase is short; telogen phase prolonged.**
- Scalp, beard: relatively **long anagen phase**.
- Terminal scalp hair follicles: 100,000 at birth; genetically determined to produce long, thick pigmented hairs.
- **Vellus hairs:** present over most of the body; genetically predestined to produce hairs that are short, fine, non-pigmented.

HAIR LOSS (ALOPECIA)

- Shedding of hair is termed **effluvium or defluvium**

PATTERN ALOPECIA or MALE ALOPECIA or ANDROGENIC ALOPECIA

- **Most common type**
- Autosomal dominant
- Progressive form of alopecia

- Mostly seen in men
- The earliest changes occur at the anterior portions of the calvarium on either side of the "widow's peak" and on the crown (vertex).
- Loss of hair starts in both **temporal regions.**

Treatment:

- Chemical castration with anti-androgen-prostagen combination in women by cyproterone acetate & ethinylestranol – **Dianette**.
- Anti hypertensive (Vasodilator) **– Minoxidil & Tretinoin**
- 5-alpha-reductase inhibitor – **Finasteride**.

ALOPECIA AREATA

- Autoimmune disorder of hair follicles causing loss of hair in sharply defined areas of skin
- Results from **arrest of hair follicles in late anagen phase.**
- 10-20% patients give a family history
- **Polygenic** inheritance
- HLA DR4, DR5, DQ3 are associated with severe alopecia
- HLA DQ3 and DR11 – associated with alopecia totalis & universalis
- **'Exclamation mark'** hairs at the margin of the lesions.
- **Non scarring & non patterned alopecia**
- Particularly common between the ages of 15 and 30 years.
- Alopecia totalis is total or almost total loss of scalp hair.
- **Alopecia universalis is loss of all body hair.**
  - **Sites of Predilection:** Scalp, eyebrows, eyelashes, pubic hair, beard.
  - **Nails:** Fine pitting ("hammered brass") of dorsal nail plate, mottled lunula, trachyonychia (rough nails), onychomadesis (separation of nail from matrix).
- **Ophiasis** is alopecia along scalp margin. (band-like hair loss in the occipital and temporal scalp),
- **Sisaipho** (predilection for parietal scalp mimicking androgenetic alopaecia),
- Classical feature is sparing of gray/white hairs.
- Positively associated with autoimmune disorders
- **Alopecia Aerata + Vitiligo + Uveitis Vogt Koyanagi syndrome**
- Dense **'bee swarm'**-like cluster of lymphocytes can be seen around the follicles in biopsies.
- **Treatment**: Potent topical steroids or systemic steroids, PUVA, dithranol, allergic sensitization with diphencyprone and topical minoxidil

TELOGEN EFFLUVIUM

- Transitory increase in the number of hairs in the telogen (resting) phase of the hair growth cycle.
- This may occur spontaneously, may appear at the termination of pregnancy, may be precipitated by crash dieting, high fever, stress from surgery or shock, malnutrition, or hormonal contraceptives.
- Telogen effluvium usually has a latent period of 2-4 months
- The prognosis is generally good

ALOPECIA MUCINOSA

- Non scarring alopecia
- Mucin deposition in hair follicles & sebaceous glands causing epithelial reticular degeneration
- MC site: face & scalp

SCARRING/CICATRICAL ALOPECIA

- Due to inflammatory process like discoid lupus erythematosus and lichen planus
- Result in permanent loss of hair in the affected area.

- Most common **congenital cicatrial alopecia is aplasia cutis congenita** (i.e. focal absence of epidermis with or with out other layers).
- **Pseudopelade** - small, rounded patches of scarring alopecia without any inflammation.

DISORDERS OF NAILS

Koilonychia (Spoon nail) The nail is concave with raised edges	**Iron deficiency anemia** Lichem planus Hypothyroidism
Racquet Nail Width of nail bed & nail plate is greater than their length	Premature obliteration of epiphyseal line
Anonychia Absence of all or part of one or several nails	Lichen panus With tong. bone anomalies
Beau's Line Poor nutrition to matrix 1/t a defective band of nail formation resulting in transverse groove of thin nail plate.	Any severe systemic illness
Onychomadesis : Separation of nail from matrix	
Longitudinal ridges with beaded and/or Fir tree appearance	Median canaliform dystrophy of Heller
Trachyonychia (Rough sand paper nail)	20 nail dystrophy (alopecia areata) External chemical treatment
Leuconychia : White discolouration of nail	Nail matrix dysfunction
Apparent leuconychia White appearance d/t changes in underlying tissue	Tery's nail, half & half nail Muehrck's paired narrow white band
Onychogryphosis (Ram's horn or Oyster – Nail) Nail is severly distorted, thickened, opaque, brownish, sparaled & with out attachment to nail bed	Pressure from foot wear in elderly
Hook Nail	Lack of support from short bony phalynx
Pterygium	Dorsal pterygium in lichen planus Ventral pterygium in scleroderma with Raynaud's phenomenon, causalgia of median nerve, formaldehyde containing nail cosmetics.
Onycholysis : Detachment of nail plate from its bed starting at its distal &/or lateral attachment	**Psoriasis** **Reiter's syndrome**
Onychorrhexis : Splitting & roughness of nail plate	**Lichen planus**
Onychoptosis defluvium (Alopecia unguim) Component of alopecia	Alopecia areata
Koenen's Periungal Fibroma	Tuberous sclerosis (50% cases)
Mee's Line	Arsenic Poisoning.
Pitting	Deep & irregular pits: psoriasis, atopic dermatitis Superficial & geometric pits in alopecia areata.
Melanonychia Presence of melanin in nail plate presenting as single / multiple longitudinal brown — black band.	-Single band: nail matric nevus or melanoma (deserve biopsy), trauma (usually in 4/5th toe nail) -Multiple band: dark race, pregnancy, inflmatory nail disorder, Lauiger — Huntziker syndrome (with pigmented macules on lip & genitals), AIDS, Addison syndrome
Muehrck's lines	Hypoalbuminemia

Brown nail	Heavy metal poisoning Addison's disease
Blue nail	Wilson's disease

X. GENODERMATOSES & DISORDERS OF KERATINIZATION

Genodermatoses: diseases which are transmitted genetically from parents to children.

NEUROFIBROMATOSIS (VON RECKLINGHAUSEN'S DISEASE)

- Autosomal dominant
- **Plexiform neurofibroma** - soft, doughy, subcutaneous swelling having a **bag of worm feeling** and run along nerves
- Multiple, **brownish macules (Café au lait macules)**
- Tiny specks of brownish macules in the axilla **(axillary freckling)**

TUBEROUS SCLEROSIS (SYN. BOURNEVILLES DISEASE)

- Two third cases – **sporadic**, others - Autosomal dominant,
- Multiple, brown, soft, grouped papules present in the perinasal area and cheeks in a butterfly distribution These are called **facial angiofibromas** (misnamed as **adenoma sebaceum)**
- Ungual or **subungual fibromas, (Koenen's tumours)** are small fleshy tumours that grow around and under the toenails or fingernails
- **Hypomelanotic macules ('ash leaf spots')** are white or light coloured patches on skin **(only visible sign of tuberous sclerosis at birth)**
- **Shagreen patches** are areas of thick leathery skin which is dimpled like an orange peel and is usually found on the lower back or nape of the neck
- **Café au lait macules** can be seen

ICTHYOSIS

- Characterised by the accumulation of 'fish-like' scales due to abnormal epidermal cell kinetics
- **Autosomal dominant Icthyosis**
  - **Icthyosis vulgaris** – most common type
  - **X-linked icthyosis (seen in boys only)**
- Autosomal recessive Icthyosis – more severe than the dominant form
  - **Lamellar icthyosis**
  - **Icthyosiform erythroderma**

Icthyosis vulgaris

- Begins in the first year of life
- Dry, scaly skin over the **extensor aspects** of the arms and legs
- The scales are larger over the lower extremities
- Mild **keratoderma** or (thickening of the skin over the palms and soles)
- The dryness becomes **worse during winters** and improves in summers and humid weather
- Histologically, the only abnormality detectable is a much diminished granular cell layer.

X-linked ichthyosis

- Deficiency of **steroid sulphatase**
- The scales are dirty brown in colour and affect **both the extensor and flexural surfaces** of the extremities with prominent involvement of the **neck and trunk**
- These male children are often the products of **postmature pregnancies and difficult labours.**
- Associated disorders: **cryptorchidism, ectropion**

❖ **Acquired icthyosis:** The most important cause underlying malignant disease – particularly lymphoma –such as **Hodgkin's disease**
❖ **Tylosis:** Marked **thickening of palmar and plantar skin** due to localized abnormality of keratinization.

XERODERMA PIGMENTOSUM

- An autosomal recessive **disorder of DNA repair**
- The most common defect - **nucleotide excision repair (NER) enzymes** are mutated.
- History - the child cries on exposure to light
- Skin turns erythematous on exposure to sun
- Development of **freckles and lentiginosis** on the exposed area of the body, such as the extensor aspect of arms, face and the neck are early signs
- Later by adulthood **squamous cell carcinoma, basal cell carcinoma, and malignant melanoma** may form

EPIDERMOLYSIS BULLOSA

- An inherited defect in the keratin formation
- Characterised by the formation of **multiple blisters on gentle rubbing** or on **minimal skin trauma** especially over the trauma prone areas of the body
- There may be blisters in the pharynx, larynx, eyes and the genital mucosa.
- There may be contractures and **mitten like deformities** of hands in the severe variants
- **Pyloric stenosis and squamous cell carcinoma** are other complications

PALMOPLANTAR KERATODERMA

- Inherited defects due to mutations in the enzymes involved in the synthesis of keratin
- Skin over **palms and soles** becomes hard, thick, dry and hyperkeratotic

REFSUM'S SYNDROME (HEREDOPATHIA ATACTICA NEURITIS FORMIS)

- Autosomal recessive,
- Accumulation of **phytanic acid** in all the tissues
- Cerebellar ataxia, polyneuritis, retinitis pigmentosa, nerve deafness, generalized ichthyosiform scaling.

DARIER'S DISEASE (KERATOSIS FOLLICULITIS)

- Inherited as an **autosomal dominant** disorder, but also occurs sporadically.
- Appearance of groups of **brownish, horny papules** over the central trunk, shoulders, face and elsewhere
- Oral cavity shows: **Cobble stone appearance**
- V shaped nicking of nails seen
- Presence of tiny pits on the palms
- There is a curious **loss of cohesion between keratinocytes** above the basal layer

NEONATAL DERMATOLOGY

Transient Neonatal Pustular Melanosis

- Onset at birth
- Common in darkly pigmented infants
- Smear of sterile pustule shows numerous neutrophils
- Histology: **subcorneal pustules** with neutrophils

Erythema Toxicum Neonatorum

- Onset typically 24 – 48 h after birth
- Occurs in half of all full-term infants
- Presents with blotchy erythematous macules, papules, pustules, and wheals
- Smear of sterile vesicle/pustule shows **eosinophils**
- Histology: **subcorneal pustules** with eosinophils, associated with pilosebaceous unit

Neonatal Cephalic Pustulosis (Neonatal Acne)

- Onset typically within first 30 days
- **Malassezia spp**. implicated in pathogenesis
- Presents with erythematous follicular comedones, papules, and pustules on face
- Histology: follicular pustules with neutrophils

Sclerema Neonatorum

- Onset usually within first week of life
- Form of panniculitis in severely ill, premature infants; often fatal
- Presents with diffuse **woody hardening of skin**
- Spares genitalia, palms, and soles
- Histology: **needle-shaped clefts with necrotic adipocytes** with little surrounding inflammation

Seborrheic Dermatitis

- Onset typically 1 week after birth; lasts several months, mostly resolves by 1 year of age
- Presents with ill-defined erythematous patches with waxy scale over scalp **("cradle cap"),** ± axillae and groin

Aplasia Cutis Congenita (ACC)

- Onset before birth
- Localized defect in epidermis, dermis and/or fat
- Typically along midline
- Presents with erosion, ulceration, scar, or membranous defect (ovoid lesion covered by an epithelial membrane)
- **Hair collar sign:** ring of dark long hair encircling lesion; ± marker of underlying neural tube defect

Cutis Marmorata Telangiectatica Congenita (CMTC)

- Onset at birth
- Typically improves with age
- Presents with blanching reticulated vascular pattern on trunk/extremities with segmental distribution
- Associated anomalies in 1/2 of patients (varicosities, nevus flammeus, macrocephaly, ulceration, hypoplasia, and/or hypertrophy of soft tissue and bone)

Infection	Clinical Findings	Extracutaneous Findings	Important Points
Cytomegalovirus (CMV)	Petechiae, purpura, vesicles, and **"blueberry muffin"** lesions Blueberry muffin lesions: red-blue papules/nodules due to dermal erythropoiesis	Intrauterine growth retardation, chorioretinitis, intracranial calcification	⇒ Leading infectious cause of **deafness** and mental retardation ⇒ Typical findings on histology: **enlarged endothelial cells with intranuclear inclusions**
Herpes Simplex Virus (HSV)	Localized or disseminated skin lesions (vesicles, erosions, scarring)	Encephalitis (predilection for **temporal** lobes), multi-organ failure, ocular infection	⇒ Majority HSV2, 85% acquired perinatally ⇒ **50–75% mortality** if left untreated
Rubella	**"Blueberry muffin"** lesions	Cataracts, deafness, congenital heart disease, CNS findings (microcephaly, hydrocephaly), hepatosplenomegaly (HSM)	⇒ 50% chance of deafness ⇒ Severe birth defects if within **first 16 weeks** of pregnancy ⇒ Non-immune pregnant woman transfer the virus to the fetus
Toxoplasmosis	**"Blueberry muffin"** lesions favoring the trunk	Ocular abnormalities (chorioretinitis, blindness), CNS abnormalities (deafness, mental retardation, seizures), thrombocytopenia, intracranial calcification	
Varicella	**Cicatricial** skin lesions	Ocular abnormalities (chorioretinitis, cataracts), cortical atrophy, psychomotor retardation, hypoplastic limbs	⇒ Greatest risk in **first 20 weeks** ⇒ 2% risk of embryopathy in women with infection within first two trimesters
Syphilis, Early Congenital	Syphilitic pemphigus, **rhagades** (radial furrows/ fissures in perioral area, turn into parrot lines), papulosquamous macules/ papules (like secondary syphilis)	**Snuffles** (rhinitis, secondary to ulcerated mucosa), enlarged lymph nodes and spleen, neurosyphilis Be able to differentiate early and late congenital syphilis findings	⇒ Early congenital syphilis occurs from **birth to 2 years of age** ⇒ Only congenital syphilis may show **bullous lesions** ⇒ Papulosquamous lesions common in the diaper area
Syphilis, Late Congenital	Hutchinson's teeth, Higoumenakis sign, mulberry molars, saddle nose, saber shins, parrot lines and furrows	Interstitial keratitis, gummas along long bones/skull, tabes dorsalis, generalized paresis	⇒ Includes permanent sequelae of early congenital signs ⇒ Higoumenakis sign: congenital thickening of the medial aspect of the clavicle

PAPULOSQUAMOUS AND ECZEMATOUS DERMATOSES

Psoriasis

- 25% patients will have presentation before age 15
- Guttate psoriasis more common in children
- Presents with **raindrop-like papules** in an eruptive pattern

Acropustulosis of Infancy

- Onset from 6 months to 2 years; resolves by age 3
- Presents with recurrent crops of pruritic pustules on palms, soles, distal extremities (may mimic scabies infection so prudent to perform mineral oil scraping)
- Treatment: topical corticosteroid

Lentigines

- Presents as brown macules with increased number of melanocytes
- No relationship to sunlight
- Multiple lentigines may be associated with the following:

LEOPARD Syndrome Autosomal dominant	PTPN11 gene mutation Café-noir macules ECG changes Hypertelorism Pulmonary stenosis Abnormal genitalia Growth retardation Deafness
Carney Complex (LAMB or NAME syndrome) Autosomal dominant	PRKAR1A gene mutation Psammomatous melanotic schwannomas, Cardiac/cutaneous myxomas Blue nevi Endocrine overactivity
Peutz–Jeghers Syndrome Autosomal dominant	STK11 gene (serine threonine kinase) Mucocutaneous (oral/acral) lentigines ntestinal polyposis, ± intussusception Various malignancies
Laugier–Hunziker Syndrome	Mucocutaneous lentigines Longitudinal melanonychia Genital melanosis
Bannayan–Riley-- Ruvalcaba Syndrome Autosomal dominant	PTEN gene mutation Penile > vulvar lentigines Lipomas Hemangiomas

Ephelides (Freckles)

- Light brown macules in sun-exposed areas
- More prominent in children with fair skin and during summer time
- Onset typically within first 3 years of age
- Can be a marker for UV-induced damage if acquired
- Histology: normal number of melanocytes, increased pigment in keratinocytes

Congenital Nevus (CN)

- Onset at birth or first year typically
- Slight ↑ risk of melanoma (highest in large CNs)
- Axial nevi with greatest risk of developing melanoma
- Neurocutaneous melanosis: ↑ intracranial pressure, leptomeningeal melanoma, spinal cord compression

Spitz Nevus (Epithelioid or Spindle Cell Nevus)

- Presents as dome-shaped red-brown or tan-pink smooth surfaced papule
- Typically occurs within first two decades
- Histology: **K amino bodies (PAS + globules)**
- Characteristic **starburst dermoscopic** finding in pigmented Spitz nevi

Becker's Nevus (Becker's Melanosis)

- Acquired unilateral lesion found in males (second or third decade) typically on shoulder, upper chest, or back

- Hyperpigmented hypertrichotic patch or plaque associated with underlying smooth muscle hamartoma (arrector pili)
- Histology: ↑ **melanin** in epidermis, often smooth muscle hamartoma present in dermis

Blue Nevus

- Congenital or acquired (typically early childhood)
- Multiple blue nevi associated with Carney complex (LAMB/NAME syndrome)
- Histology: normal epidermis, many elongated dendritic melanocytes within dermis, large amounts of melanin often seen within melanocytes

Nevus of Ota (Nevus Fuscoceruleus Ophthalmomaxillaris, Oculodermal Melanocytosis, Congenital melanosis bulbi)

- Onset either near birth or during puberty
- Mostly in women
- Caused by the **entrapment of melanocytes in the upper third of the dermis**
- Presents as **unilateral (90%), blue-gray hyperpigmented macules** in the face (forehead, temple, malar area, or **periorbital skin)**
- Typically involving **ophthalmic and maxillary branches** of trigeminal nerve
- Most common extracutaneous sites: **sclera** (increased risk of glaucoma)
- Malignant melanoma develops very rarely
- **Mongolian spot -** a birthmark caused by **entrapment of melanocytes** in the **dermis but is located in the lumbosacral region.**

Nevus of Ito (Nevus Fuscoceruleus Acromiodeltoideus)

- Similar presentation to nevus of Ota
- Usually unilateral
- Typically occurs in **shoulder** region (supraclavicular, scapular, and deltoid)

Hori's Nevus (Acquired Nevus of Ota-like Macules)

- Onset in late adolescence
- **Bilateral** nevus of Ota-like macules of the **zygomatic region**
- May be misdiagnosed as melasma

Nevus achromicus (Nevus depigmentosus)

- An uncommon birthmark characterised by a **well-defined pale patch.**
- Often, smaller **hypopigmented macules** arise around the edges, resembling a **splash of paint**
- Achromic naevus is not completely white (differentiates from vitilligo)
- Achromic naevi are usually solitary (in contrast to tuberous sclerosis, where multiple pale patches occur and are called ash-leaf spots)
- Most commonly seen on the upper chest, but may also arise on the limbs

Congenital Dermal Melanocytosis (Mongolian Spot)

- Common in infants with pigmented skin
- Presents with **blue-gray macules** or patches typically over lumbosacral skin or buttocks

TELANGIECTASIAS

Spider Angioma (Spider Nevus)

- Common acquired lesion seen in children and adults
- Comprised of central arteriole with radiating thin walled vessels
- Temporary obliteration seen with compression
- Multiple lesions associated with liver disease, pregnancy, and estrogen therapy

- Normal human skin colour is primarily related to **size and the arrangement of melanosomes** in melanocytes.

HYPO PIGMENTATION

Melanocytopaenic (Melanocytes decreased or absent)	Melanopaenic (Melanin decreased or absent)	Non-melanotic (No melanin defect)
❖ Piebaldism ❖ **Vitiligo** ❖ Vogt-Koyanagi-Harada syndrome ❖ Xeroderma pigmentosum ❖ Mycosis fungoides ❖ Pityriasis lichenoides chronica ❖ Halo naevus ❖ Leucoderma acquisitum centrifugum ❖ Burns (Ionising, Thermal, UV) ❖ Trauma ❖ Alopaecia areata ❖ Scleroderma	❖ Albinism ❖ Homocystinuria ❖ Nevus of Ito ❖ Nevus depigmentosus ❖ Tuberous sclerosis ❖ Leprosy ❖ Pityriasis alba ❖ Pityriasis versicolour ❖ Discoid lupus (Post-inflammatory) ❖ Melanoma ❖ Post-dermabrasion ❖ Post-laser	❖ Nevus anemicus ❖ Woronoff's ring (hypopigmentation around psoriasis lesions)

VITILIGO

- A typical vitiligo macule has a chalk or milky white colour, round to oval in shape often with **convex margins** which are usually well defined
- Associated with various **autoimmune diseases, most commonly thyroid disorders**
- **Localized Vitiligo** – focal, segmental or mucosal
- **Generalized Vitiligo** is the most common type characterised by few to many to widespread macules
  - **Acrofacial**: distal fingers and periorificial areas
  - **Vulgaris**: scattered patches that are widely distributed
  - **Mixed**
- **Universal Vitiligo** indicates almost total involvement of the body with few remaining areas of pigmentation - associated with various endocrinopathy syndromes.
- In the sharply demarcated, symmetrical macular lesions there is **loss of melanocytes** and melanin.

Treatment

- **Limited disease: Topical corticosteroids** (triamcinolone)are the 1st line treatment
- **Topical tacrolimus** (0.03% and 0.1%) ointment - safe and effective in childhood vitiligo.
- Generalised Vitiligo: **Narrow band UVB**
- **Topical or oral psoralen** (8 methoxy psoralen) with UV-A (320 – 400nm) radiation (PUVA)
  - Topical PUVA is used for old lesion involving <20% of body surface area
  - Oral psoralen is used in extensive disease or in patients not responding to topical PUVA

Albinism

- Genetic abnormalities of melanin synthesis (in hair, skin and eye)
- **Normal number and structure of melanocytes**
- Characteristic albino with white hair, white skin and blue eyes.

Piebaldism

- Autosomal dominant
- Congenital
- Stable leucoderma
- Characterised by chalk or milk-white macules like that of vitiligo
- Typical **white forelock.**

- Vitiligo
- Pityriasis alba/ Post-inflammatory hypopigmentation
- Age related hypopigmentation
- Tinea versicolor/ Tuberous sclerosis (ash-leaf macule)
- Congenital birthmark
- Hansen's (leprosy)

HYPERPIGMENTATION

Melanocytotic **(increase in number of melanocytes)**	**Melanotic** **(increase in melanin)**	
• Lentigines • Peutz-Jegher syndrome • PUVA therapy • Lentigo, solar, UV (radiation tanning)	• Café-au-lait macules • Freckles • Naevus spilus • Hemochromatosis • Melasma • Exogenous ACTH	• Chronic pruritis • Post inflammatory • Melanoma, • Mastocytosis • Acanthosis nigricans

MELASMA

- Dark areas appear symmetrically across the cheeks, around the eyes and over the forehead, giving a mask-like appearance
- It is much more common in **women**
- Seen more often in people with **dark skin**
- The majority of cases appear related **to pregnancy or oral contraceptives**
- High expression of **α-MSH** in the lesional keratinocytes plays an important role in the melanisation of skin
- **Topical hydroquinone (2% to 4%)** with retinoids and or steroids is the usual treatment

PARANEOPLASTIC SIGNS OF INTERNAL MALIGNANCY

- **Acanthosis nigricans** - Brown-back velvety plaques over neck and flexures
- **Acute febrile neutrophilic dermatosis** - Tender, red plaques over limbs and face in a middle-aged lady
- (Sweet's syndrome)
- **Acquired Ichthyosis** - Dry fish-like skin most commonly in Hodgkin's lymphoma
- **Clubbing** - Severe grades of clubbing with lung carcinoma
- **Dermatomyositis** - 10% cases have associated with internal malignancy
- **Erythema gyratum repens** - Concentric rings of erythema and scaling over trunk (Ca bronchus)
- **Hypertrophic osteoarthropathy** - Subperiosteal new bone formation
- **Migratory thrombophlebitis –** Pancreatic cancer
- **Myeloma-associated amyloidosis** - Skin nodules and purpura

Associated with endocrine neoplasm

- **Necrolytic migratory Erythema** – Glucagonoma
- **Necrobiosis lipoidica diabeticorum** – Diabetes mellitus
- **Addisonian pigmentation** - Adrenal corticotropin hormone (ACTH) secreting neoplasms
- **Carcinoid tumours** - Flushing of face and upper trunk

ACANTHOSIS NIGRICANS

- It is a **velvety hyperpigmentation**, thickening & increased rugosity of skin
- Primarily involves **flexures – axilla & groin.**
- Thickened areas bear **skin tags** & seborrheic warts
- In majority of patients, it is associated with **obesity** (pseudo acanthosis nigricans) **and insulin resistance**
- The skin changes are reversible on weight reduction.
- It can reflect internal malignancy – **most commonly gastrointestinal malignancy**
- Also seen in: **Endocrine diseases** like Cushings syndrome, Acromegaiy, Poiycystic ovarian disease, insulin resistant DM
- **HAIR- AN syndrome:** in women, the triad of
  - Hyperandrogenism
  - Insulin-resistance
  - Acanthosis nigricans

NECROBIOSIS LIPOIDICA DIABETICORUM

- A disorder of **collagen degeneration** with a granulomatous response, thickening of blood vessel walls, and fat deposition
- The main complication of the disease is **ulceration**, usually occurring after trauma
- Strongly associated with **diabetes mellitus**
- Usually present with **shiny, asymptomatic patches** that slowly enlarge over months to years
- The patient's main complaint is the **unsightly cosmetic appearance** of the lesions.
- Most cases of necrobiosis lipoidica occur on the **pretibial area**

ERYTHEMA MARGINATUM

- Major criteria for diagnosis of rheumatic fever
- Extremely rare in Indians
- Erythematous pink rashes with a clear center and round or serpiginous margin.
- Not raised above the skin
- They are brought on by application of heat
- **Most commonly seen on the trunk and proximal parts of extremities, but never on face.**

BASAL CELL CARCINOMA, SQUAMOUS CELL CARCINOMA & MALIGNANT MELANOMA
Refer SPEED VISION— PATHOLOGY SECTION

MYCOSIS FUNGOIDES

- Also known as **cutaneous T cell lymphoma**
- More common in males and in blacks.
- An indolent lymphoma with patients often having several years of eczematous or dermatitic skin lesions before the diagnosis is finally established
- **Pruritus** is a frequent complaint
- In advanced stages, the **lymphoma can spread to lymph nodes and visceral organs**
- Lymph node enlargement may be due to benign expansion of the node **(dermatopathic lymphadenopathy)** or by specific involvement with mycosis fungoides.
- Patients may develop generalized erythroderma and circulating tumor cells, called **Sezary's syndrome,** a picture sometimes referred to as **L'Homme rouge**
- The skin biopsy remains the basis of diagnosis
- Circulating malignant T cells **(Sêzary cells)** can be detected in the blood **(T cell gene rearrangement test)**

The abnormality underlying some inherited skin disorders

Skin disorder	Abnormality in
Ehlers–Danlos syndrome	Collagen and the extracellular matrix
Dystrophic epidermolysis bullosa	Type VII collagen
Pseudoxanthoma elasticum	Elastic tissue
Xeroderma pigmentosum	DNA repair
Simple epidermolysis bullosa	Keratins 5 and 14
Epidermolytic hyperkeratosis	Keratins 1 and 10
Palmoplantar keratoderma	Keratins 9 and 16
Junctional epidermolysis bullosa	Laminins
X-linked recessive ichthyosis	Steroid sulphatase
Darier's disease	Epidermal cell adhesion
Albinism (tyrosinase negative type)	Tyrosinase

Diseases that pyoderma gangrenosum may occur with

- Ulcerative colitis
- Crohn's disease
- Rheumatoid arthritis
- Monoclonal gammopathy
- Leukaemia

XANTHOMA & LIPOPROTEIN DISTURBANCES	
Xanthoma tendineum	Familial hypercholesterolemia (typella)
Xanthelasma palpebrarum	Normolipemic (50%) Familial hypercholesterolemia Familial dybetalipidemia
Xanthoma eruptivum (or tubero eruptivum)	Familial dybetalipidemia Familial combined hypertriglyceridemia Familial lipoprotein lipase deficiency (rare)
Xanthoma striatum palmare	Familial dybetalipidemi (type Ill)
Xanthoma planum (generalized)	Patients often develop a monoclonal gammopathy associated with myeloma (type Ill), macroglobulinemia, or lymphoma, and with normal plasma lipid levels. Less commonly, FHT may be present.

CONDITION	www.FirstRanker.com CAUSE www.FirstRanker.com
Necrotizing fasciitis Erysipelas	Strep. Pyogenes
Ecthyma	Pseudomonas
Erythrasma	Corynebacterium minuttissmus
Erythema migrans	Borrelia burgdorferi
Erythema Ab Igne	Repetitive exposure to infrared rays
Erythema annulare centifugum	Hypersensitivity [gyrate erythema]
Erythema gyratum repens	Associated with malignancy [M/C: lung, esophagus, breast]
Erythema dyschromicum perstans	Ashy dermatosis, idiopathic
Erythema chronicum migrans	Cutaneous manifestation of stage I Lyme disease
Erythema elevatum diutinum	Localized fibrosing small vessel vasculitis
Erythema induratum of Bazin	Tuberculosis
Erythema infectiosum	Parvovirus B 19

Lesion	Found in
Erythema pernio (chill blain)	Cold
Lupus pernio & Epitheloid granuloma	Sarcoidosis
Lupus profundus	SLE
Lupus Vulgaris	Cutaneous TB
Phrynoderma	Vit-A deficiency Essential fatty acid deficiency
Sauroderma/Crocodile skin	Icthyosis Vulgaris
Weldt sores	Desert areas
Black hairy tongue	Broad spectrum antibiotics
Oral Hairy Leukoplakia	AIDS (not candidiasis)
Rain drop pigmentation	Chronic Arsenic Poisoning
Pyoderma Gangrenosa	Ulcerative Colitis
Slapped Cheek appearance	Erythema infectiosum
Honey Crust	Impetigo
Angioid Streak	Pseudoxanthoma Elasticum
Axillary freckling & Lisch nodule (Iris hamartoma)	Neurofibromatosis
Cradle cap appearance	Seborrheic Dermatitis (Pityriasis capitis)
Coyenne pepper stippling (d/t hemosiderin)	Plasma cell balenitis of Zoom

NIKOLSKY SIGN: Positive in

- Pemphigus Vulgaris / foliaceous & Epidermolysis bullosa congenita
- Staphylococcal Skin Scald Syndrome (SSSS) & Toxic Epidermal Necrolysis (TEN)
- Stevens Johnson Syndrome
- Leukemia
- Herpes

❖ **The Asboe-Hansen sign ("indirect Nikolsky sign" or "Nikolsky II sign")** refers to the extension of a blister to adjacent unblistered skin when pressure is put on the top of the bulla

SIGNS IN DERMATOLOGY

- Antenna sign – Keratosis Pilaris
- Asboe Hansen sign (Bulla spread sign) – Pemphigus
- Auspitz sign – Psoriasis
- Button hole sign – Neurofibromatosis.
- Birbeck's granules: Langhan cell histiocytosis

- Chandelier's sign - Gonorrhea in women
- Candle sign & last cuticle sign: Psoriasis
- Carpet tack's sign – DLE
- Cerebriform tongue sign – Pemphigus vegetans
- Coup'd'ongue sign –Tinea versicolor
- Crowe's sign – Axillary freckling in Neurofibromatosis
- Comby sign: Measles
- Russell's sign: Bulimia Nervosa
- Premalatha Sign: Pemphigus Vulgaris
- Deckchair sign: Papulo erythrodema
- Dimple sign (Fitzpatrick sign) – Dermato fibro sarcoma protuberans, differentiates dermatofibroma
- from malignant melanoma
- Dubois sign – Short little finger in congenital syphilis
- Dory flap sign: Primary chancre
- Flag sign – Kwashiorkor
- Forscheimer sign – Enanthema on soft palate in Rubella
- Groove sign of Greenblat – LGV
- Head light sign – Perinasal and periorbital pallor in Atopic dermatitis
- Hertoghe's sign – Loss of lateral third of eyebrow in Atopic dermatitis
- Higouminaki's sign – Congenital syphilis; thickened sternal portion of clavicle.
- Leopard sign: Onchocerciasis
- Milian's ear sign – Erysipelas can spread into the pinna (being cuticular infection), whereas cellulitis cannot spread to the pinna due to close adhesion of skin to cartilage of ear (without any areolar tissue.)
- **Oil drop sign** – Discoloration of nail bed in Psoriasis.
- Ollendorf sign – Papule is very tender to touch in secondary syphilis
- Osler's sign – Alkaptonuria
- Pillow sign – Netherton's syndrome; hair shaft defect patient sees hair on pillow on getting up in the morning
- Trichrome sign – Vitiligo
- Romana's sign -T.Cruzi; Chaga's disease
- Shawl sing – Erythema over the upper back and shoulders in dermatomyositis
- Wrist sign , Thumb sign or Steinberg's thumb – Marfan syndrome

IMPORTANT PEARLS:

- **Area of skin: 1.7m^2, constitutes 4kg of body weight in adult man.**
- **Spongiform pustule of Kogoj:** accumulation of neutrophils in Malphigian layer.
- **Tzanck cell:** keratinocyte.
- **Clue cells:** vaginal epithelial cells
- **Fordyce spots:** ectopic sebaceous glands
- **Target lesions:** Erythema multiforme
- **Binkley's spots:** Diabetic dermatopathy
- **Muehrcke's nail:** seen in chronic hypoalbuminemia
- **Circle of Hebra:** seen in scabies
- **Ritter's disease:** caused by Staph. aureus
- **Lichen nitidus:** claw clutching a ball appearance
- **Anatomist's wart:** Tuberculosis verrucosa cutis/Warty TB
- **Remote reverse Koebner phenomenon:** Vitiligo
- **Dermographism:** Urticaria
- **White dermographism:** Atopy
- **Myrmecia warts:** Plantar warts
- **Dermatomyositis:** Helitrope rash/ Gottron sign/ Gottron papule
- **Most common form of oral candidiasis:** acute pseudo membranous
- **M/c dermatophyte producing favus:** T. schoenleinii
- **M/c photodermatoses:** Polymorphic Light Eruptions (PLE)
- **M/c form of cutaneous TB:** Lupus Vulgaris

- M/c manifestation of gonococcal infection in males: Anterior urethritis
- M/c manifestation of acute gonococcal infection in females: **endocervicitis**
- M/c cause of vaginal discharge in India: **Bacterial vaginosis**
- M/c cosmetic allergen: **fragrances > hair dye**
- M/c site of trophic ulcer: **ball of great toe**
- M/c teeth affected in leprosy: **upper incisors**
- **Black Piedra/ Trichomycosis nodularis:** Piedraia hortae.
- **White piedra:** Trichosporon ovoides
- **Copper penny bodies:** Chromomycosis
- **Endothrix dermatophytosis in India is due to:** T. Violaceum
- **Profeta's law:** fetus maybe born normal but may develop signs of early congenital syphilis during first few weeks/months
- **Colle's law:** syphilitic infant may not infect its own mother but is capable of infecting others.
- **Truck driver's disease:** Hydradenitis suppurative of perianal region in males
- **Kligman's formula/ Triluma cream:** 5% hydroxyquinone, 0.1% dexamethasone, 0.1% Tretinoin (For Chloasma)
- **Thinning of nails :** involves nail matrix
- **Dilapidated brick walls:** Hailey-Hailey disease
- **Syringoma:** Tadpole like appearance
- **Miescher's granuloma:** Erythema nodosum
- **Cork screw hair:** Scurvy
- **Selenium deficiency:** Pseudoalbinism
- **Louis bar syndrome:** Ataxia telangiectasia
- **Pseudo-Hutchinson's sign:** Bowen's disease
- **Hutchinson's sign:** Melanoma in nail matrix
- **Keratosis follicularis squamosa:** lotus leaves on water appearance
- **Jigsaw puzzle appearance:** cylindroma
- Trimethylamine: fish odour syndrome
- **Urbach Wiethe disease:** lipoid proteinosis
- **Mauserung phenomenon:** icthyosis bullosa of Siemens
- **Basal cell carcinoma:** Bazex syndrome
- **Erythema induratum affecting legs of young women:** Bazin's disease
- **Mouse ear appearance:** X- ray feature of psoriatic arthritis
- Least affected in Atopic dermatitis: Mid chest
- Pharyngeal dysmotility: seen in polymyositis
- **Green nail syndrome with fruity odor:** Pseudomonas aeruginosa
- Haverhill fever/ erythema arthriticum: Streptobacillus moniliformis
- **Jungle sore:** cutaneous diphtheria
- **Woody fibrosis:** actinomycosis
- **Mickey mouse ears:** Cockayne syndrome
- **Subcutaneous fat necrosis:** Carcinoma pancreas
- **Cigarette paper scars:** Ehler Danlos Syndrome
- **Hot tub follicles:** Pseudomonas aeruginosa
- **Slavic leprosy:** Rhinoscleroma
- **Pretibial fever:** leptospirosis
- **Alkaptonuria:** sweat that stains
- **Pseudo-Cushing's disease:** chronic alcoholism
- **Angel's kiss:** Nevus flammeus
- **Bath itch:** Polycythemia rubra vera
- **Nostalgia parasthetica:** itch in interscapular region
- Effective drug for pruritus due to polycythemia rubra vera: Aspirin
- Mediator of pruritus in Hodgkin's Lymphoma: Leukopeptidase
- Syphilitic gumma: involves left atrium & septum
- Secondary syphilis **never involves: bone**

- **Photopatch testing:** patch testing + UV irradiation to document photoallergy
- **Worm eaten skull:** Gummatous osteoperiosteitis of skull bones in syphilis
- **Earliest feature of congenital syphilis:** nasal discharge
- **Pseudo paralysis of parrot in congenital syphilis:** due to osteochondritis.
- **Olympian brow:** Supra orbital thickening in syphilis
- **Wooly headedness:** adverse effect of Dapsone
- **Blaschko's lines:** system of lines along which many linear nevus & dermatoses arrange themselves.
- **Weber Christian panniculitis:** seen in pancreatic disorders
- **Shell nail:** seen in bronchiectasis
- **Foshay test:** 48-hour intradermal test that, if positive, indicates tularemia.
- **The intradermal reaction (sporotriquin test)** - confirm the diagnosis for **sporotrichosis**.
- **Berloque dermatitis:** increased pigmentation due to cosmetics
- **Treatment of choice for pruritis due to Uremia:** UV light
- Acantholytic cells can be seen in **bedside Tzanck test**
- **Pigmented purpuric dermatoses:** shows recent **pinpoint cayenne pepper—colored hemorrhages** associated with older hemorrhages and hemosiderin deposition.

*****END*****