Introduction to Dermatology

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Dermatology

- branch of medicine dealing with the skin and its appendages (hair, nails, sweat glands etc)
- includes different subspecialties – dermatological surgery, cosmetology, dermatooncology, plebology, allergology, dermatopathology, etc.
Factors causing skin diseases

External
- Allergens
- Irritants
  - Sunshine
  - Heat and cold
  - Chemicals
  - Infections
  - Trauma Friction

Internal
- Psychological factors
- Genetic factors
- Internal disease
- Drugs
- Infections
Skin – basic facts

• largest body organ:
  • area – 1.8 m²
  • 16% of total body weight
• many functions – barrier is the most important
• three layers:
  • epidermis
  • dermis
  • subcutis
Skin – layers

- Epidermis
- Dermis
- Subcutis
Cells of epidermis

- **Langerhans cell**
  - Dendritic
  - Suprabasal
  - No desmosomes
  - Contains characteristic cytoplasmic organelles

- **Melanocyte**
  - Dendritic
  - Mostly basal
  - No desmosomes
  - Contains melanosomes

- **Merkel cell**
  - No dendrites
  - Basal
  - Desmosomes
  - Contains neurosecretory granules
Terminology

- dermatology has its own unique vocabulary
- lesion – general term for an area of disease (usually small)
- eruption (rash) – more widespread skin involvement (composed from several lesions)
- lesions are divided into two groups – primary and secondary skin lesions
Skin lesions

Primary
- macule
- papule
- plaque
- nodule
- pustule
- vesicle
- bullae
- wheal (hive)

Secondary
- scale
- crust
- erosion
- ulcer
- fissure
- atrophy
- scar
Primary Lesions
Macule

- has no elevation above the skin
- brown, black and blue – melanin
- white – loss of pigment
- red (erythema) – vascular dilatation and inflammation

**Macule** - a circumscribed, flat discoloration that may be brown, blue, red, or hypopigmented
Macule – clinical pictures

Becker's nevus
Erythrasma
Lentigo
Tuberous sclerosis
Phototoxic drug eruption
Idiopathic guttate hypomelanosis
Papule

- an elevated solid lesion up to 0.5 cm in diameter; color varies; papules may become confluent and form plaques

- different forms of papules – flattopped, domeshaped, accuminate, etc.
- due to epidermal or dermal changes
Papule – surface contours

- Dome-shaped
- Pedunculated
- Verrucous
- Umbilicated
- Flat-topped
- Acuminate (spire-like)
Papule – clinical pictures

- Basal cell epithelioma
- Wart (cylindrical projections)
- Wart (mosaic surface)
- Nevi (dermal)
- Lichen planus
- Lichen sclerosis et atrophicus
Plaque - a circumscribed, elevated, superficial, solid lesion more than 0.5 cm in diameter, often formed by the confluence of papules

- most commonly seen in psoriasis
Plaque – clinical pictures

Pityriasis rosea

Eczema

Seborrheic dermatitis

Pityriasis rosea

Syphilis (secondary)

Psoriasis
Nodule

- A circumscribed, elevated, solid lesion more than 0.5 cm in diameter; a large nodule is referred to as a tumor

- can be solid or oedematous
- often such conditions as dermatofibroma or skin deposits
Nodule – clinical pictures

Basal cell carcinoma
Squamous cell carcinoma
Keratoacanthoma
Melanoma
Hemangioma
Kaposi's sarcoma
Pustule

- contains pus
- pustules usually indicate infection

**Pustule** - a circumscribed collection of leukocytes and free fluid that varies in size
Pustule – clinical pictures

- Chicken pox
- Folliculitis
- Gonococccemia
- Impetigo
- Keratosis pilaris
- Herpes simplex
Vesicle

- vesicle is a small blister
- consisting of fluid
- can be intraepidermal or subepidermal

**Vesicle** - a circumscribed collection of free fluid up to 0.5 cm in diameter
Bullae

- a circumscribed collection of free fluid more than 0.5 cm in diameter

- similar to vesicle but larger
Vesicle and bullae – clinical pictures

- Eczema (acute)
- Chicken pox
- Dermatitis herpetiformis
- Erythema multiforme
- Herpes simplex
- Herpes zoster
**Wheal (hives)**

- **Wheal** - a firm edematous plaque resulting from infiltration of the dermis with fluid; wheals are transient and may last only a few hours.

- *wheal is a transitory, compressible papule or plaque of dermal oedema*
- *red or white in colour*
- *usually signifying urticaria*
Wheal – clinical pictures

Angioedema  Angioedema  Dermographism

Hives  Urticaria pigmentosa  Cholinergic urticaria
Secondary Lesions
Scales

- accumulation of thickened, horny layer keratin
- scales usually indicate inflammatory change and thickening of the epidermis
- they may be fine, as in 'pityriasis'; white and silvery, as in psoriasis; or large and fish-like, as seen in ichthyosis

Scales – excess dead epidermal cells that are produced by abnormal keratinization and shedding
Scales – clinical pictures

- Lythema craquele (dense scale)
- Ichthyosis—dominant (quadrangular)
- Ichthyosis—sex-linked (quadrangular)
- Psoriasis (silvery)
- Pityriasis rosea (collarette)
- Linea versicolor (fine)
Crust

- Crusts usually present after an exudation

**Crust** – a collection of dried serum and cellular debris; a scab

- crusts usually present after a exudation
Crust – clinical pictures

- Atopic (lips)
- Impetigo (honey colored)
- Pemphigus foliaceus
- Tinea capitis
Erosion

- circumscribed areas of epithelium defect

Erosion – a focal loss of epidermis; erosions do not penetrate below the dermoeppidermal junction and therefore heal without scarring.
Erosion – clinical pictures

*Linea Pedis*  
*Candidiasis*  
*Neurotic excoriations*
Ulcer

- ulcers are usually the result of impairment of the vascular or nutrient supply to the skin
- very often due to peripheral arterial disease (e.g. leg ulcers)

**Ulcer** – a focal loss of epidermis and dermis; ulcers heal with scarring
Ulcer – clinical pictures

Ulcer

Chancroid

Pyoderma gangrenosum
Fissure

- linear split in the epidermis
- usually extending into the dermis

**Fissure** – a linear loss of epidermis and dermis with sharply defined, nearly vertical walls
Fissure – clinical pictures
Atrophy

- atrophic skin is thin, translucent and wrinkled with easily visible blood vessels

**Atrophy** – a depression in the skin resulting from thinning of the epidermis or dermis
Atrophy – clinical pictures

Lichen sclerosis et atrophicus

Morphea

Topical and intralcsional steroids
Scar

- after injury or surgery scars are initially thick and pink but with time become white and atrophic

**Scar** – an abnormal formation of connective tissue implying dermal damage
Scar – clinical pictures

- Keloid
- Herpes zoster
- Porphyria