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Session Learning Outcomes

At the end of the session, student should be able to:

- Define Acne Vulgaris and discuss the cause, pathophysiology, clinical features, investigations and management of Acne vulgaris.
- Define Rosacea and discuss aetiology, pathophysiology, clinical features, investigations, and management of Rosacea.
- Discuss the causes and general management of Pressure sore.
- Describe various benign skin tumours and discuss their clinical features and management.
- Describe the risk factors, clinical features, diagnosis, and management for malignant skin tumours.
Session Plan

- Acne vulgaris
- Rosacea
- Pressure sores
- Skin tumours
  - Benign tumours
    - Melanocytic naevi (moles)
    - Seborrhoeic warts (Basal cell papilloma)
    - Keratoacanthoma
  - Malignant tumours
    - Basal cell carcinoma
    - Squamous cell carcinoma
    - Malignant melanoma
Acne vulgaris
Acne Vulgaris

○ Definition: It is a chronic inflammation of the pilosebaceous units. Acne lesions are commonly referred to as pimples, spots, plooks or "zits".

○ Aetiology:
  • Increased sebum production
  • Increased proliferation of the keratinizing epidermal cells that form the sebaceous cells
  • The colonization and proliferation of Propionibacterium acnes
  • Genetic factors
  • Hormones
Acne Vulgaris

- Pathophysiology:
  Sebaceous gland hypersensitive to hormones → increased sebum production and hyperkeratinisation → follicular articulation lost → comedones development → colonisation of pilosebaceous ducts by Propionibacterium acnes → inflammation → occlusion of pilosebaceous ducts → sebum and keratinizing cells trapped within follicle → Rupture of obstructed sebaceous gland, with release of contents into dermis
Acne Vulgaris

Acne Vulgaris

- **Clinical features:**
  - Affects the face and often the trunk
  - Seborrhoea
  - Open comedones (blackheads) and closed comedones (whiteheads)
  - Inflammatory papules, nodules and cysts
  - Scarring and keloid

- **Diagnosis:**
  - Mainly depend on clinical history and examination

- **Management:**
  - Topical benzoyl peroxide or retinoids
  - Topical antibiotics
  - Systemic tetracycline
  - Oral contraceptives
  - Physical measures
Acne Vulgaris: A chronic inflammation of the pilosebaceous units

- **Sebaceous gland hypersensitive to hormones**
  - Increased proliferation of the keratinizing epidermal cells that form the sebaceous cells
  - Follicular articulation lost
  - Comedones development
  - Inflammation
  - Occlusion of pilosebaceous ducts
  - Sebum and keratinizing cells trapped within follicle dermis
  - Rupture of obstructed sebaceous gland

- **Increased sebum production**
  - The colonization and proliferation of *Propionibacterium acnes*
  - Open comedones (blackheads) and closed comedones (whiteheads)
  - Inflammatory papules, nodules and cysts

- **Seborrhoea**
  - Diagnosis: Based on clinical history and examination
  - Management:
    - Topical benzoyl peroxide or retinoids
    - Topical antibiotics
    - Systemic tetracycline
    - Oral contraceptives
    - Physical measures

- **Inflammation**
  - Seborrhoea

**Pathophysiology**

**Clinical features**

**Definition**

**Aetiology**

**Complications**

**Management**

**Diagnosis**

**Colour Key:**
Rosacea
Rosacea

- **Definition:** It is a chronic inflammation affecting the central face and consists of flushing, erythema, papules, pustules and telangiectasia.

- **Aetiology:**
  - Cause unknown
  - Triggers:
    - Vascular instability
    - Climatic exposures
    - Degeneration of dermal matrix
    - Chemicals and ingested agents
    - Microbial organisms
    - Antimicrobial peptides: cathelicidins
Rosacea

Pathophysiology:

Rosacea

○ Clinical features:
  • Mostly affects fair-skinned, middle-aged females
  • Typically involves the convexities of nose, forehead, cheeks and chin
  • Intermittent flushing, followed by fixed erythema and telangiectasia
  • Papules and pustules
  • Sebaceous gland hyperplasia
  • Soft tissue overgrowth of the nose (rhinophyma) particularly in males.
  • Conjunctivitis and blepharitis
  • Facial lymphoedema
Rosacea

Typical erythematous papulopustular rosacea

Rosacea

- **Diagnosis:**
  - Mainly depends on clinical history and examination

- **Differential diagnosis**
  - Acne vulgaris
  - Systemic lupus erythematosus
  - Photosensitivity disorders
  - Seborrhoeic dermatitis

- **Management:**
  - Topical antimicrobials
  - Systemic antibiotics
  - Laser therapy or surgery
Pressure sores
Pressure Sores

- **Definition:** Pressure ulcers are ischemic lesions of the skin and underlying structures caused by unrelieved pressure that impairs the flow of blood and lymph. Also known as decubitus ulcers or bedsores.

- **Aetiology:**
  - **Cause**
    - Prolonged pressure induced ischaemia
  - **Main risk factors**
    - Immobility
    - Hypotension
    - Reduced oxygen availability
    - Malnutrition
    - Skin conditions
Pressure Sores

- Clinical features:
  - Sore starts at localised area of erythema and progresses to superficial blister or erosion

Pressure Sores

○ Management:
  • Dressing – non-occlusive and moist
  • Systemic antibiotics
  • If refractive to treatment, then debridement and skin grafting
  • Prevention – maintain circulation, frequent repositioning when immobile, gel/flotation cushions over bony protuberances, good hygiene, nutrition and hydration, appropriate choice of clothing and equipment in contact with skin and bedsides / transfer equipment / mattresses
Skin Tumours
Skin Tumours

- Benign tumours
  - Melanocytic naevi (moles)
  - Seborrhoeic warts (basal cell papilloma)
  - Keratoacanthoma
- Pre-malignant
  - Actinic keratosis
  - Intra-epidermal carcinoma
- Malignant
  - Basal cell carcinoma
  - Squamous cell carcinoma
  - Malignant melanoma
Benign tumours
Melanocytic Naevi (Moles)

• Definition: Localised benign proliferations of melanocytes which are clonal.

○ Classification:
  • Junctional
  • Compound
  • Intradermal

Melanocytic Naevi (Moles)

- Clinical features:
  - Junctional: Macular, circular or oval, mid to dark brown.
  - Compound and intradermal: Nodules, because of the dermal component, and may be hair-bearing
  - Intradermal: Less pigmented than compound with smooth, cerebriform, hyperkeratotic or papillomatous surface
  - Blue or halo naevi

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Blue naevi
(www.patient.co.uk)

Halo naevi
(www.visualphotos.com)
Melanocytic Naevi (Moles)

- **Diagnosis:**
  - Check for changes in already existing naevi
    - Asymmetry
    - Border irregularity
    - Colour change
    - Diameter more than 6 mm
    - Elevated edges
  - Dermatoscopy

- **Management:**
  - No excision required unless malignancy is suspected or when they become repeatedly inflamed or traumatised
Seborrhoeic Warts

• Definition: Also called senile keratosis, this is a benign superficial growth on the epidermis usually found on the chest, neckline, back or forehead.

○ Clinical features:
  • Round, flat, coin-like plaques, millimetres to several centimetres in diameter
  • Golden brown to black colour
  • Appear one at a time as small rough bumps which usually thicken and develop a rough warty surface.
  • Develop more with age.

○ Management:
  • Curettage or freezing
Seborrhoeic Warts
Keratoacanthoma

- **Definition:** Characterised by a period of rapid growth of a lesion that may be 4 to 5 cm or even larger, with central keratin plug in a dome shaped nodule.

- **Clinical features:**
  - Dome shaped nodule often of 5 cm or more in diameter, with a central keratin plug
  - Associated with chronic sun exposure and most commonly occurs on the central face.

- **Diagnosis:**
  - Wedge biopsy or cross sectional biopsy

- **Management:**
  - Curettage or freezing
Keratoacanthoma

The classical lesion of Keratoacanthoma. Clinically and histologically, the lesion often resembles squamous cell carcinoma (SCC)

Pre-malignant Tumours
Actinic keratosis

- They are hyperkeratotic erythematous lesions arising on chronically sun-exposed sites. Increase in size, ulceration, bleeding, pain or tenderness can be indicative of transformation into SCC.

Intra-epidermal Carcinoma

- It presents as a slowly enlarging, erythematous, scaly plaque on the lower legs of fair-skinned elderly women but may occur at other sites. It can be confused with eczema, psoriasis or basal cell carcinoma. Transformation into SCC occurs in 3% or less.
Actinic keratosis

Intra-epidermal Carcinoma

Malignant Tumours
Basal cell carcinoma (BCC)

• Definition: A slow-growing malignant tumour of the skin, whose cells resemble the normal basal cells (stratum basale) of the epidermis.

  o Clinical features:
    • Early BCCs: Pale, translucent papules or nodules, with overlying superficial telangiectatic vessels.
    • Superficial BCC: usually presents as a red/brown plaque or patch with a raised, thread-like edge.

  o Diagnosis:
    • Biopsy

  o Management:
    • Surgery
Basal cell carcinoma (BCC)

A nodular BCC showing the translucent nature of the tumour and the abnormal arborising vessels.

An ulcerated BCC showing the raised rolled edge.

Squamous Cell Carcinoma (SCC)

- **Definition:** A malignancy that arises from epidermal keratinocytes.

- **Clinical features:**
  - Occurs on chronically sun-exposed sites, such as bald scalp, tops of ears, face and back of hands.
  - Rapid development of a painful keratotic nodule in a pre-existing area of dysplasia.
  - De novo presentation: An erythematous, infiltrated, often-warty nodule or plaque that may ulcerate.
  - Metastatic potential

- **Management:**
  - Surgical excision or Radiotherapy
Squamous Cell Carcinoma (SCC)

Centrally keratinous, symmetrical, well-differentiated SCC.

An SCC arising from an area of epidermal dysplasia

Malignant Melanoma

- **Definition:** A malignant tumour of epidermal melanocytes and has metastatic potential

- **Risk factors:**
  - Fair skin
  - Freckles,
  - Red hair
  - Number of naevi
  - Sunlight exposure
  - Family history of melanoma

- **Classification:**
  - Superficial spreading
  - Lentigo maligna
  - Nodular
  - Acral lentiginous
  - Subungual melanoma
Malignant Melanoma

A. A superficial spreading malignant melanoma with a palpable area indicative of vertical growth phase
B. A nodular malignant melanoma arising de novo and with Breslow thickness 3.5 mm.

Diagnosis:
- Dermatoscopy

Management:
- Surgical excision
- Chemotherapy

Reading and Resources

- Crowley LV, 2012, *An Introduction to Human Diseases – Pathology and Pathophysiology Correlations*, 9th edn, Jones and Bartlett Learning
Reading and Resources

- Mosby’s dictionary of medicine, nursing and health professions 2013, 9th edn, Elsevier, St. Louis, MO.
- VanMeter, KC & Hubert, RJ 2014, *Gould's pathophysiology for the health professions*, 5th edn, Elsevier, St Louis, MO.
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