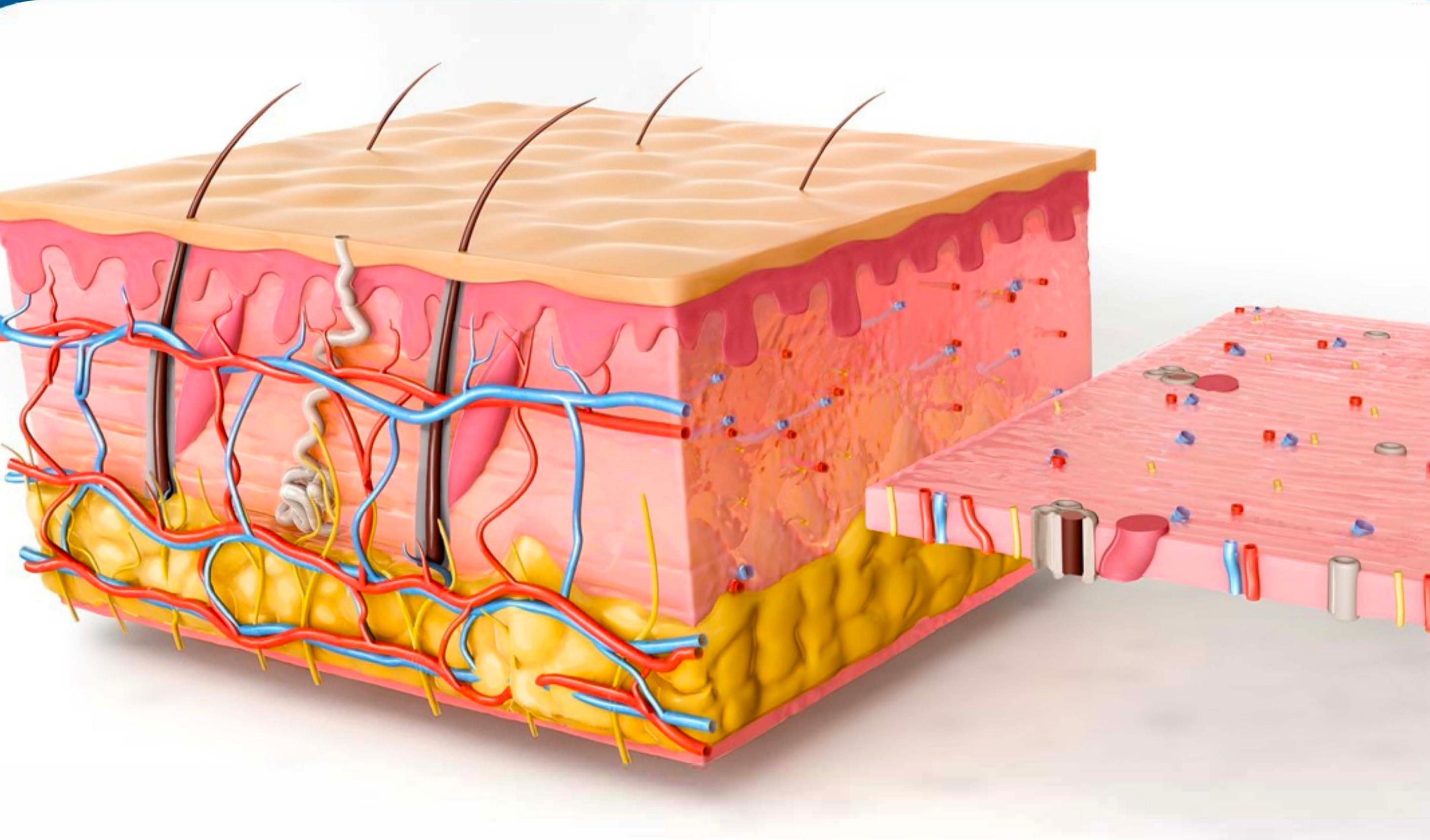


CLINICAL DERMATOLOGY

TAILORED FOR MEDICAL STUDENTS, USMLE, PLAB, PA & NURSING



4th EDITION



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168 PAGES

PROCEDURAL DERMATOLOGY

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Local Anaesthetic:

- **Mechanism of Action:**
 - Use-Dependent blockade of Voltage-Gated Sodium Channels on Nerves
 - → Prevents Action Potential Conduction along Sensory Nerves
 - Note: Very Quick Onset of Action
 - Note: Also causes vasodilation → Short Duration of Action (If without adrenaline)
- **Lignocaine – Most Common:**
 - Rapid Onset (1-5mins)
 - Medium (30-120mins)
 - **Max Dose:** 4mg/kg
 - ≈ 50mL @ 1% Lignocaine
 - (Note: 1% Lignocaine = 1g/1000mL)
- **+ Adrenaline:**
 - → Improves Haemostasis
 - → ↓ Bleeding
 - → ↓ Systemic Absorption
 - → ↓ Risk of systemic toxicity
 - → Prolonged Effect
 - **Max Dose:** 7mg/kg (Higher Dose than without adrenaline)
 - **Note: DO NOT USE IN DIGITS OR PENIS (Or anywhere else with “End Arteries”)**
 - **Note: DO NOT USE in LONG QT-Syndrome**
- **Naropin (Ropivacaine):**
 - Longer onset of action
 - Longer acting than lignocaine
 - **Max Dose:** 2-3mg/kg
- **Topical Anaesthetic:**
 - **Xylocaine Gel** - Useful for Mucosal Surfaces (Eg: Oral Mucosa)
 - **ELMA Cream** – Useful for topical anaesthesia of skin
- **Nerve Blocks:**
 - **Digital Block (Ring Block)**
 - (Most Common)
 - Blocks Digital Nerves
 - Use 2% Lignocaine (Because you want to inject as little as possible)
 - **Wrist Blocks:**
 - Blocks Radial, Median, & Ulnar Nerves
 - → Totally anaesthetizes the hand

Curettage & Electrocautery:

- **Indications:**
 - Warts
 - Keratoses
 - Molluscum contagiosum
 - Curettes can also be used for curette biopsy
- **Wound Healing**
 - The curette wound can take some time to heal
 - If it is just a light curette such as tiny seborrheic keratoses with no cautery they can heal in a few days
 - A full curettage and electrodesiccation on the trunk might take 4 to 6 weeks to heal

Cryotherapy:

- Cryotherapy is a very useful form of treatment for a number of benign skin lesions and few pre-malignant and malignant skin lesions
- Liquid Nitrogen = The gold standard
- **Indications:**
 - **Benign lesions:**
 - Molluscum contagiosum
 - Seborrheic keratosis
 - Skin tags
 - Warts
 - **Premalignant lesions:**
 - Actinic keratoses
 - Actinic Chelitis
 - **Malignant lesions:**
 - Superficial BCC
- **Effects of Cryotherapy – 3 Main Groups:**
 - **1) Those responses we expect to happen:**
 - Pain on treatment and for a period afterwards
 - Oedema and swelling of the treated site and the surrounding tissue (Eg: periorbital swelling after treatment of lesions on the forehead)
 - Vesicle and bulla formation
 - Exudation weeping and crust formation
 - **2) Temporary Adverse Outcomes:**
 - Hypopigmentation
 - Hyperpigmentation
 - Secondary Infection
 - **3) Permanent Adverse Outcomes:**
 - Permanent Hypopigmentation
 - Scarring + Possible Retraction
 - Alopecia
 - Nail Dystrophy

Biopsy Techniques:

- Many different Techniques
- Technique depends on the Nature of the Lesion & Information Required
- **Types:**
 - **Punch biopsy**
 - Leaves Minimal Scarring
 - Best for Cosmetically Sensitive Areas – (Eg: Face)
 - **Shave Biopsy**
 - Fast and easy to perform
 - Requires little equipment
 - A shave biopsy is excellent for nodular bulky lesions which are easy to shave off for histology
 - **Curette biopsy**
 - Fast and easy to perform
 - Requires little equipment
 - A shave biopsy is excellent for nodular bulky lesions which are easy to shave off for histology
 - **Incision Biopsy**
 - A biopsy set is required with scalpel, forceps, needle holders and fine scissors as well as a suture to perform a small incisional ellipse. Be sure to go through the dermis to get a full thickness specimen
 - Advantages:
 - Provides the best specimen for the pathologist to assess the tissue adequately
 - **Excision biopsy**
 - Similar to an incisional biopsy but the whole lesion is excised
 - Good pathology specimen

Wound Design:

- Wounds should be designed so that scars sit in or parallel with the relaxed skin tension lines or the cosmetic junction lines
- Excision margins are important to ensure complete removal of the lesion. For benign lesions the margins are usually 2mm to 5 mm. For malignant lesions the margins can vary from 3mm up to 2 cm depending on the nature of the pathology

Surgical Wound Repair:

- Suture Materials:

- **Synthetic Non-Absorbable:**

- **Nylon**

- Polypropylene

- (Used on external surfaces where they are easily removed)

- **Synthetic Absorbable:**

- Monocryl

- Vicryl (Polylactin)

- (Broken down by the body via Hydrolysis &/or Proteolytic Enzymatic Degradation)

- **Non-Synthetic Non-Absorbable:**

- Silk

- **Non-Synthetic Absorbable:**

- Catgut (Being Phased out)

- Suture Sizes:

- Scale from 1-6 (1 = Thinnest (0.4mm); 2 = Thickest (0.8mm))

- Surgical Wound Repair:

- **Primary Repair:**

- 6-8hrs

- **Delayed Primary Repair**

- In 72hrs

- In surgical conditions

- **Secondary Repair:**

- After 72hrs

- In surgical conditions

- Important Pre-Requisites:

- **Wound needs to be CLEAN!**

- Eliminate Dead Tissue/Dead Space/Haematoma/Foreign Bodies

- **Finest Suture Material**

- **Minimise Tension**

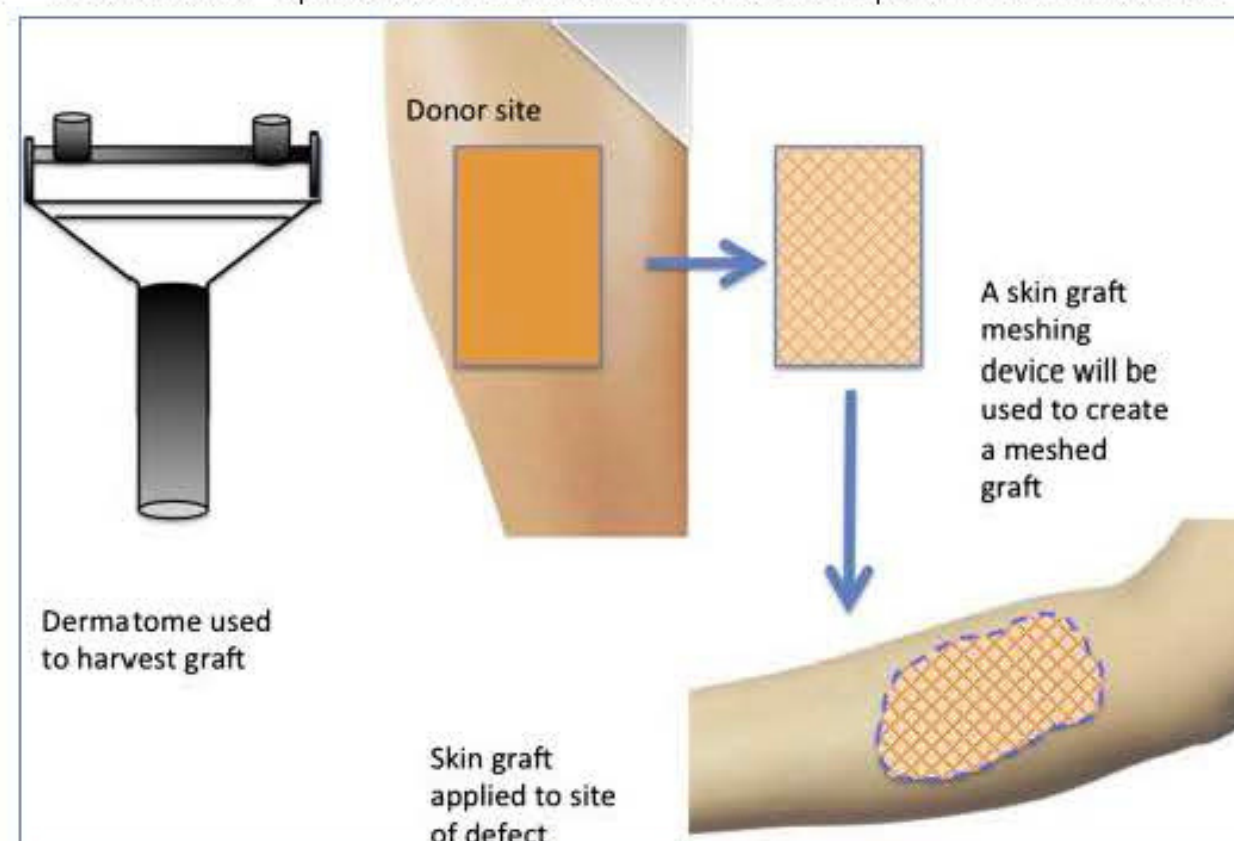
- **Suture Removal @ Appropriate time for site of injury**

- 1-2 wks

Skin Grafts Vs Skin Flaps:

- Skin Grafts:

- Has been totally detached from its original location
- ∴ **Has NO intrinsic Blood Supply**
 - ∴ Must be grafted onto Vascularised Tissue
 - It will initially survive via Simple Diffusion of Nutrients
 - Eventually, Neovascularisation → New Blood Supply
- **Types:**
 - **Full Thickness Graft (FTG)**
 - All of the Dermis & Epidermis
 - **or Split Skin Graft (SSG)**
 - All of the Epidermis & some of the Superficial Dermis



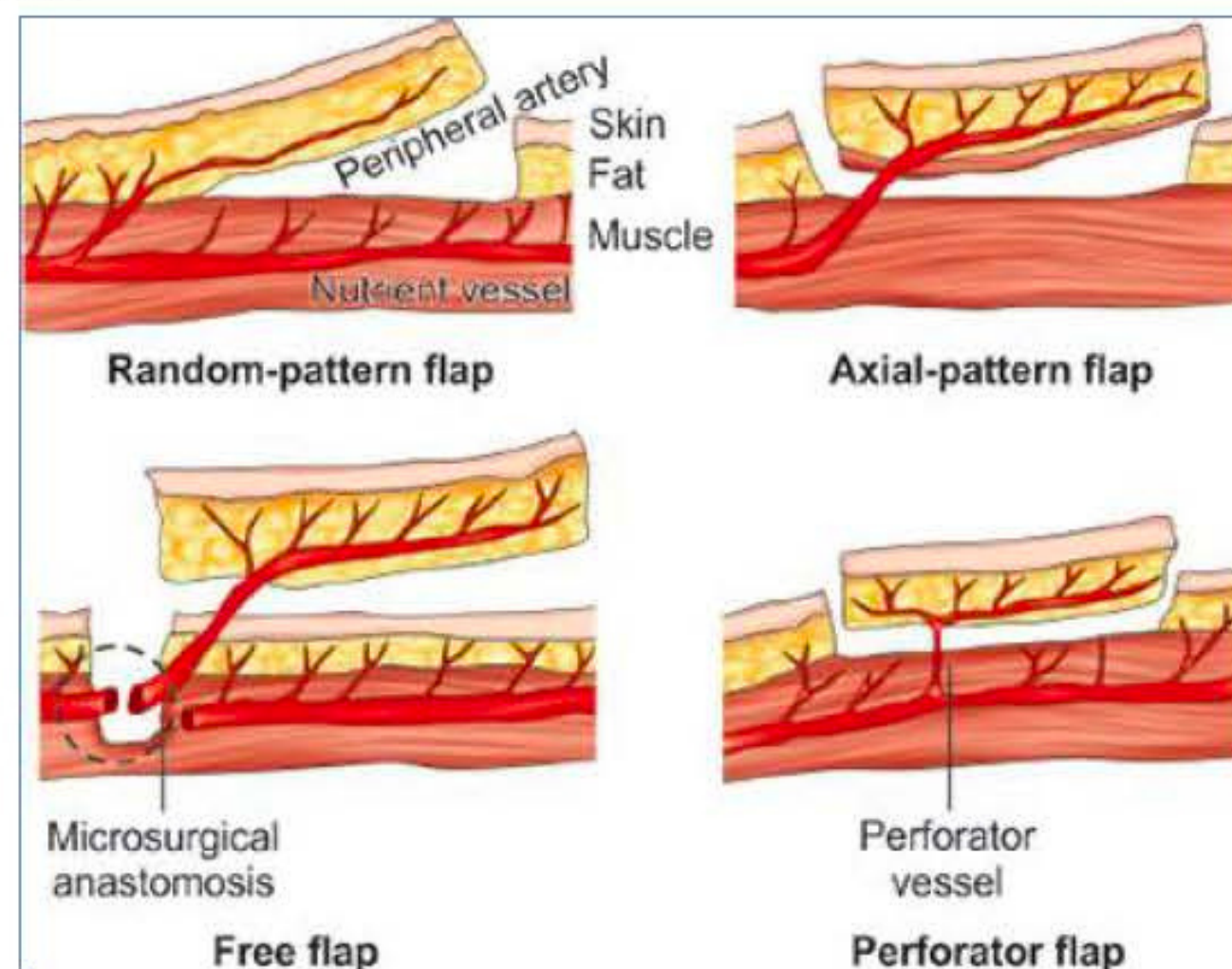
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- Skin Flaps:

- Has NOT been detached from its original location
- ∴ Still Has Intrinsic Blood Supply
- **Indications:**
 - Poor Vascularity of Location (Eg: Bare bone, Bare tendons)
 - Vital Structures (Eg: Exposed Vessels/joints)
 - Cosmetics (Eg: Face) – Usually gives a better result than a skin graft
- **3 Basic Types:**
 - Rotation
 - Advancement
 - Transposition

- “Free” Flaps:

- = Basically a Skin *Graft*, but the Blood Supply is Reconstituted using Microsurgery to reconnect the Artery and Vein



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DERMATITIS (ECZEMA)

DERMATITIS (ECZEMA)

ACUTE DERMATITIS/ECZEMA:

- **Types of Acute Eczema:**
 - CONTACT DERMATITIS (Due to prolonged exposure to allergen)
 - ATOPIC DERMATITIS
 - (Drug eczema)
 - (Photoeczema)
 - (Primary irritant dermatitis)
- **Aetiology:**
 - Type IV Hypersensitivity (T-Cell Mediated) to Allergen
 - Prolonged Contact with Allergen - Urine, Soaps, Antiseptics, Deodorants, Creams, Foreign Body, etc
- **Epidemiology:**
 - Family history – (in 70% of cases)
 - Most Common in Children
 - Genetics – (50% of pts have a deficiency of the Epidermal Protein “Filaggrin”)
 - Hypersensitivity – (Associated with other Atopies (Hay Fever [Allergic Rhinitis], and Asthma))
- **Pathogenesis:**
 - **Initial Exposure:**
 - Ag Processed by Langerhans Cells → Presented to T-Cells in LN → T-Cell Activation
 - **Re-Exposure:**
 - Type IV Hypersensitivity (T-Cell Mediated) reaction to Allergen
 - → Epidermal Oedema + Small Blisters → “Wet Eczema”
 - **Chronic Exposure:**
 - → Hyperplasia, hyperkeratosis (lichenification) – “Dry Eczema”
- **Morphology:**
 - **Gross:**
 - Erythema
 - Small Blisters – (Weeping & Crusting Blisters, Papules and Plaques)
 - Hyperkeratosis (If Chronic)
 - **Microscopic:**
 - Intra-Epidermal Oedema (*Spongiosis*)
 - Epidermal Blistering
 - Perivascular Inflammatory Infiltrate
- **Clinical Features:**
 - Severe Itching
 - Patchy, Erythematous, Poorly Defined Rash
 - Usually in the Popliteal/Cubital Fossae & Face
 - Can be Generalised
 - Dry Skin
 - Excoriation (loss of the surface of the skin from scratching) due to itching and scratching
 - Lichenification (thickening of the skin with accentuated skin lines)
 - Crusting (scabbing) and weeping (loss of fluid through the surface of the skin) due to bacterial infection
 - (Contact dermatitis often has a regular shape (Eg: Square from Band-Aid))
- **Treatment:**
 - Modification of lifestyle to avoid exacerbating factors
 - Remove Allergen
 - Avoid Soaps
 - Use of moisturisers and bath additives
 - Treated with topical Corticosteroids (Symptomatic)
 - Antihistamines (For Itch)

Atopic Dermatitis: *Pathogenesis and clinical findings*

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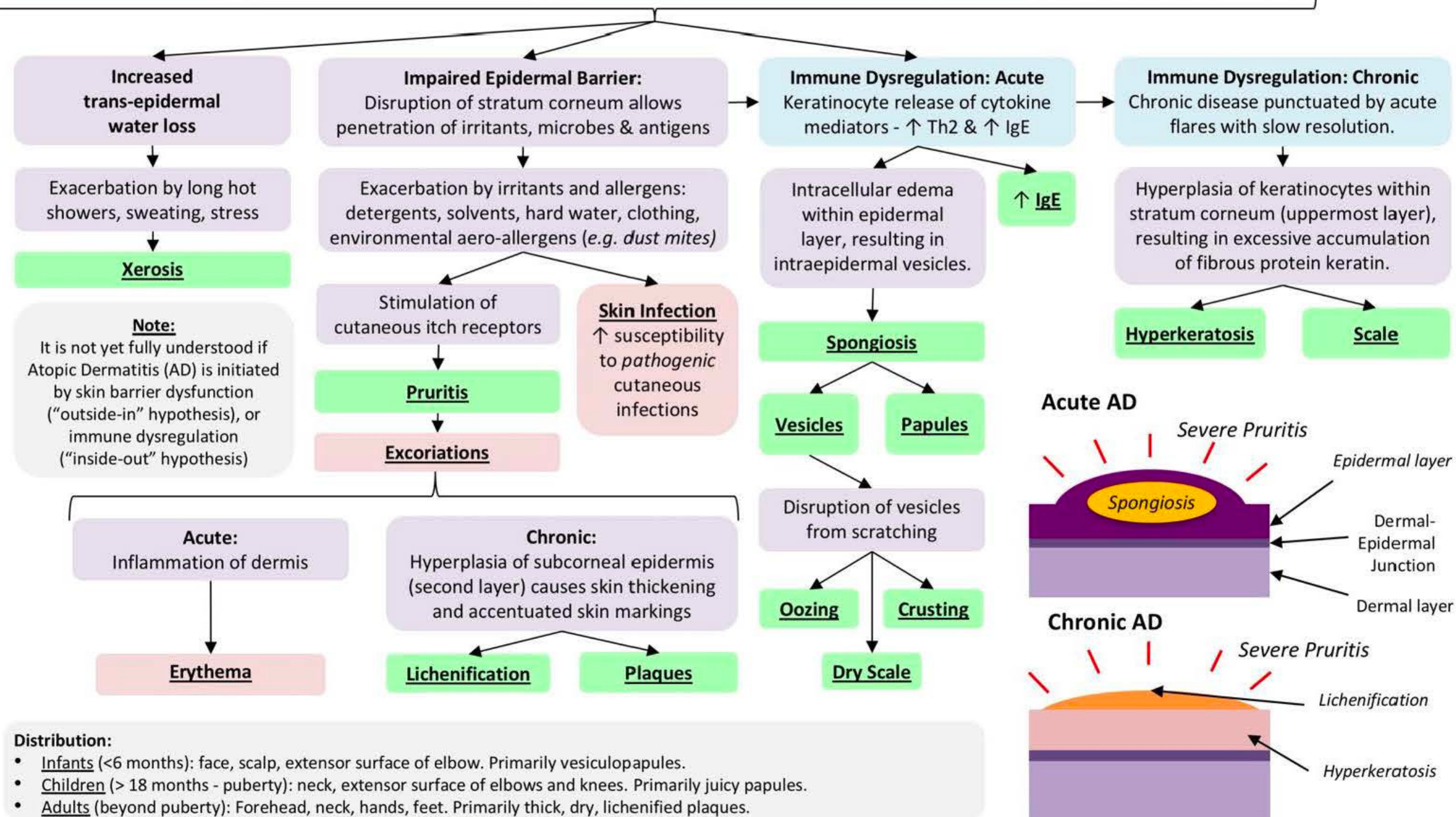
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Impaired Epidermal Barrier
(e.g. *filaggrin* and *SPINK5* gene mutations)

Innate Immune System Defects
Defects in cell-mediated epidermal barrier repair process result in inflammation and leaky junctions between cells

Adaptive Immune System Defects
Overexpression of Type 2 helper (Th2) cytokines and IgE in response to antigens. AD is commonly seen in people with a family history of atopic disease e.g. *allergic rhinitis*, *food allergy*, *asthma*

Altered Skin Microbiome
Skin colonization e.g. *S. aureus* may be an AD trigger (via toxin release) or a consequence



Legend:

Pathophysiology

Mechanism

Sign/Symptom/Lab Finding

Complications

Published December 14, 2018 on www.thecalgaryguide.com

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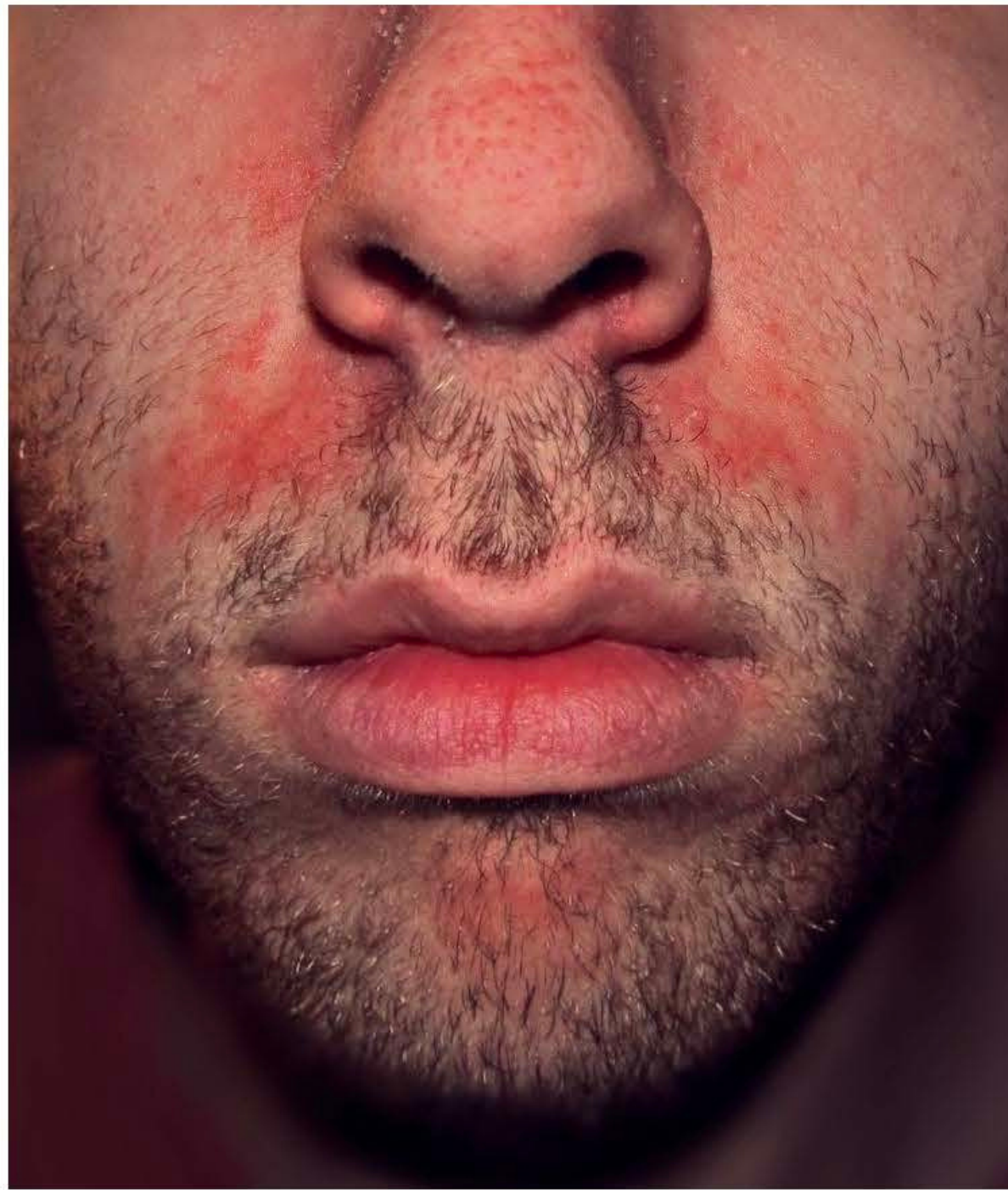


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SEBORRHEIC DERMATITIS

- **Aetiology:**
 - Some heredity
 - Some association with commensal *Malassezia* yeast (fatty acid metabolites may cause inflammatory reaction)
- **Risk Factors:**
 - Oily skin
 - Familial history of dermatitis/psoriasis
 - Immunosuppression
 - Parkinson's disease
 - Sleep deprivation/stress
- **Epidemiology:**
 - Bimodal onset; Infancy (within the first months), or between 20-50yrs old
 - Most common in males
- **Pathophysiology:**
 - Not completely known
- **Clinical Features:**
 - Chronic/relapsing eczema (improves in summer; flares in winter)
 - Primarily affects sebaceous-rich regions (Scalp/face/trunk)
 - Ill-defined, localised scaly patches/scale
 - Blepharitis (scaly red eyelid margins)
 - Salmon-pink thin scaly and ill-defined plaques in skin folds
 - **Infantile Seborrheic Dermatitis:**
 - Numerous Dermatoses in the 1st 3 Months of Life
 - Erythematous but *Non-Itchy* Rash involving the face, scalp, neck, axillae and nappy area. The lesions are well defined and covered in greasy scale
 - **Adult Seborrheic Dermatitis:**
 - Erythema and fine, greasy scale on the cheeks, nose and nasolabial folds
 - Scale and itching of the scalp and eyebrows
 - Well defined but non-scaly erythema of the axillae, groin, scrotum and perianal skin
- **Management:**
 - **Keratolytics** (Eg: Salicylic Acid)
 - **Topical antifungals** (Eg: Ketoconazole)
 - **Mild topical steroids**
 - (Isotretinoin for moderate/severe seborrheic dermatitis)





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STASIS DERMATITIS (VENOUS ECZEMA)

- **Aetiology:**
 - Venous insufficiency + Gravity
- **Epidemiology:**
 - Middle-older-aged patients
 - 20% of over 70yr olds
 - Risk factors:
 - History of DVT in affected limb
 - Varicose veins
 - Venous leg ulcers
- **Pathophysiology:**
 - Venous insufficiency → Failure of calf pump mechanism
 - → blood pools in leg veins → increased venous hydrostatic pressure → oedema
 - Fluid collecting in tissues → Activation of innate immune response
- **Clinical Features:**
 - May form discrete patches or become confluent/circumferential
 - Itchy red, blistered & crusted plaques
 - On one or both lower legs
 - Orange-brown macular pigmentation due to Haemosiderin deposition
 - Champagne bottle shape of lower leg
- **Management:**
 - **Reduce Dependent Oedema:**
 - Elevate feet when sitting
 - Walk regularly
 - Elevate feet above bed level overnight
 - Graduated compressing stockings long-term
 - **Treat Eczema:**
 - Dry up oozing patches with potassium permanganate or dilute vinegar on gauze compress
 - Oral antibiotics to avoid secondary infection
 - Topical steroid
 - Moisturising cream
 - Avoid injury to skin
 - **Treat Varicose Veins:**
 - Consult vascular surgeon
 - Sclerotherapy/laser



LICHEN SIMPLEX CHRONICUS

- **Aetiology:**
 - Repetitive scratching and rubbing, which arises because of chronic localised itch. The primary itch can be due to:
 - Atopic Eczema
 - Contact eczema
 - Venous eczema
 - Psoriasis
 - Lichen planus
 - Fungal infection
- **Epidemiology:**
 - Males and females
 - Unusual in children
 - Association with anxiety/OCD
- **Pathophysiology:**
 - Repetitive scratching/rubbing → hyperkeratosis & inflammation
- **Clinical Features:**
 - Chronic, lichenified eczema/dermatitis
 - May be single or multiple plaques
 - Dry/scaly surface
 - Leathery induration
 - Scratch marks
- **Management:**
 - Potent topical steroids 4-6wks until plaque is resolved
 - Coal tar preparations
 - Moisturisers
 - Antihistamines for itch
 - Antidepressant for psychosomatic aetiologies





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ERYTHEMA MULTIFORME:

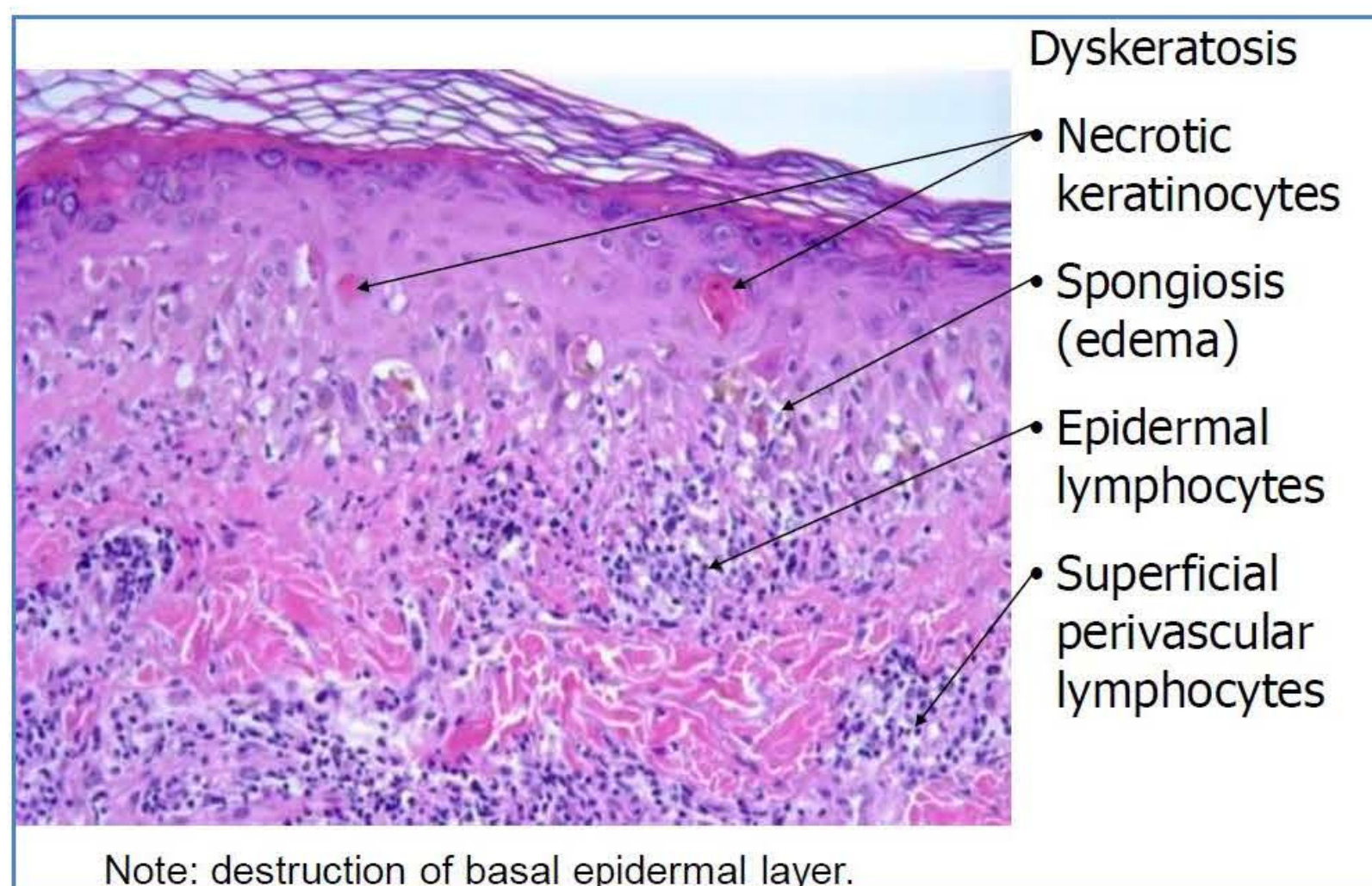
- **Aetiology:**
 - Hypersensitivity reaction
 - Some genetic tissue-type associations (HLA-B15, -B35, -A33, -DR53, -DQB1*0301)
- **Pathogenesis:**
 - Hypersensitivity Response to:
 - Infections (**Herpes simplex, Mycoplasma**) * **Most common**
 - Drugs (Sulphonamides, penicillin, barbiturates)
 - Malignancy (Carcinoma, lymphoma)
 - Auto-Immune (Eg: Lupus, SS, Dermatomyositis)
- **Morphology:**
 - **Gross:**
 - Variable Lesions: Papules/Plaques/Nodules/Blisters/Ulcers
 - Characteristic “*Targetoid*” Lesions
 - Central Grey Necrosis
 - Erythematous raised border
 - **Microscopic:**
 - Dyskeratosis
 - Necrotic Keratinocytes
 - Spongiosis (Epidermal Oedema)
 - Epidermal Lymphocytes
 - Destruction of Basal Epidermal Layer
- **Clinical Features:**
 - Acute & Self-limiting
 - Commonly affects young adults (20-40yrs)



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Note: destruction of basal epidermal layer.

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