

DENT 3005: Introduction to Pharmacology

Dermatological drugs

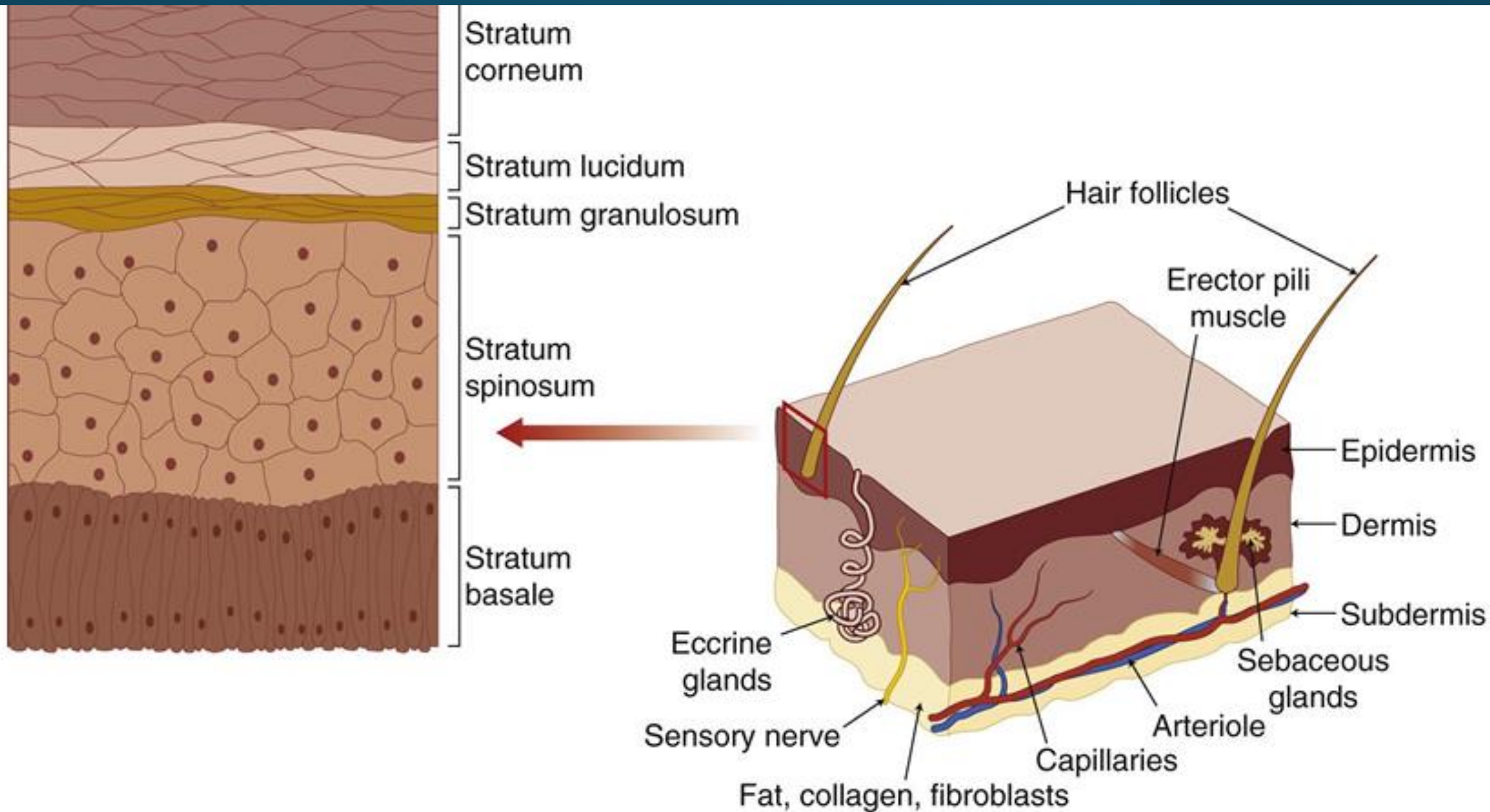
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Learning Outcomes

Learning objectives

- 1) Understand the classes and mechanisms of major classes of dermatological drugs
- 2) Recognise common dermatological conditions relevant to dentistry
- 3) Recognise oral and dental side effects of dermatological drugs
- 4) Understand drugs interactions with dental medications
- 5) Applied knowledge to clinical scenarios





Drugs for eczema

- Aka dermatitis
- Characterized by skin inflammation & itching
- Most common: atopic eczema
- **MOA:** anti-inflammatory, immunosuppressive & anti-mitotic activity against cutaneous fibroblasts
- **Adverse reactions:** depends on potency, length of tx, age, site & extent of disease

Drug therapy	Generic name
Moisturizers	☺
Corticosteroids	Betamethasone Clobetasol Clobetasone Desonide Hydrocortisone Methylprednisolone Mometasone Triamcinolone
Tars	Coal tar Ichthammol Wood tars
Calcineurin iNH	Pimecrolimus

Topical corticosteroid preparations

Drug (brand examples)	Strength	Preparations
Mild corticosteroids [NB1][NB2]		
desonide (Desowen)	0.05%	lotion
hydrocortisone (DermAid)	0.5%, 1%	cream, ointment, topic liquid, spray
hydrocortisone acetate (Cortic-DS, HydroCortic, Hysoderm, Sigmacort)		
Moderate corticosteroids [NB1][NB2]		
betamethasone valerate (Antroquoril, Betnovate 1/5, Celestone-M, Cortival 1/5)	0.02%	cream
betamethasone valerate (Betnovate 1/2, Cortival 1/2)	0.05%	cream, ointment
clobetasone butyrate (Eumovate, Kloxema)	0.05%	cream
triamcinolone acetonide (Aristocort, Tricortone)	0.02%	cream, ointment
Potent corticosteroids [NB1][NB2]		
betamethasone dipropionate (Diprosone, Eleuphrat)	0.05%	cream, ointment, lotion
betamethasone valerate (Betnovate)	0.1%	cream, ointment
methylprednisolone aceponate (Advantan)	0.1%	cream, ointment, fatty ointment, lotion
mometasone furoate (Elocon, Momasone, Novasone, Zatamil)	0.1%	cream, ointment, hydrogel, lotion
Very potent corticosteroids [NB1][NB2]		
betamethasone dipropionate (Diprosone OV)	0.05% in optimised vehicle	ointment in optimised vehicle
clobetasol propionate (Clobex)	0.05%	cream, ointment, lotion, shampoo [NB3]

OV = optimised vehicle

NB1: Potency classification for each drug is based on the results of vasoconstrictor studies. Potency classifications based on vasoconstrictor effect typically correlate with therapeutic potency; however, many other factors determine therapeutic potency in a patient (eg area of application, frequency and duration of treatment).

NB2: Formulation of a drug can affect potency; a topical drug prepared as a cream is less potent than the same drug prepared as an ointment.

NB3: A commercial product is available for clobetasol propionate as a shampoo. Clobetasol propionate as a cream, ointment or lotion is not registered for use in Australia, but is available through the Special Access Scheme (for certain indications) or from compounding pharmacies; only use these under specialist supervision.



Eczema

Drugs for psoriasis

- **Chronic inflammatory disease:** plaque psoriasis is most common form
 - Affecting elbows, knees, buttocks, scalp
- **Drug therapy rationale:** induce remission, reduce severity & extent, relieve sx
- If possible, minimise & eliminate triggers
 - Stress, trauma, smoking, alcohol, infections, drugs induced
- Topical tx adjunct to photo-therapy
- Systemic tx guided by dermatologists due to serious side effects

Drug therapy	Generic name
Topical treatment	Moisturisers Corticosteroids Calcipotriol Salicylic acid Coal tars Dithranol
Systemic treatment	MTX Cyclosporin Acitretin Injectable cytokine modulators IL inH TNF-alpha antagonists
Other drugs	Methoxsalen

Drugs for acne

- **Acne vulgaris:** common skin condition
- **Rationale of tx:** improve complexion, px scarring, limit disease duration, reduce psychological stress
- **Endocrine evaluation**
- **Topical tx choice**
 - Retinoids, benzoyl peroxide & azelaic acid, Antibacterials
- **Oral tx choice**
 - Antibacterials
 - Hormonal tx
 - Isotretinoin

Drug therapy	Generic name
Retinoids (top)	Adapalene Isotretinoin Tazarotene Tretinoin
Retinoids (oral)	Acitretin Isotretinoin
Other	Azelaic acid Benzoyl peroxide

Drug therapy	Generic name
Antibacterial (top)	Clindamycin Erythromycin Metronidazole Mupirocin Silver sulfadiazine Sodium fusidate
Antibacterial (oral)	Doxycycline 1 st line Erythromycin

Excess oils

The oily substance that protects your skin can contribute to acne when too much is produced.

Slower skin cell turnover

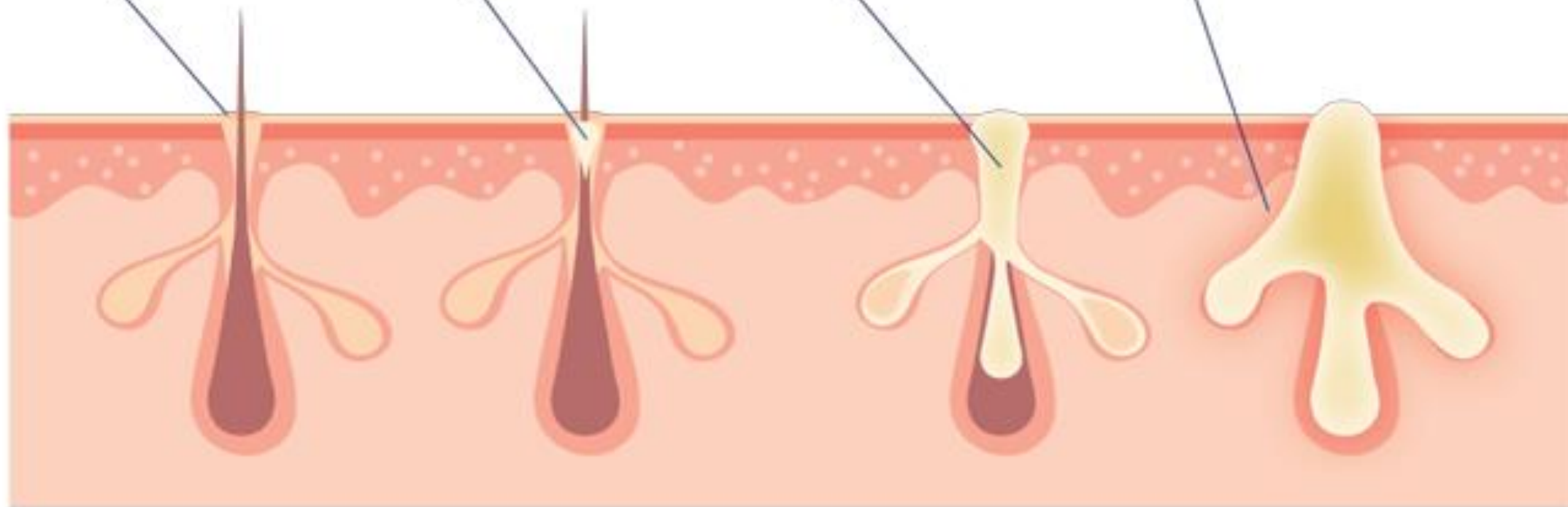
Dead skin cells that normally just fall off can get stuck in skin oils instead and clog your pores.

Bacterial growth

A specific bacteria that is normally harmless begins to multiply if it gets trapped in a clogged pore.

Inflammation

Multiplying bacteria trigger inflammation that results in red, swollen, painful, and pus-filled pimples.



	Mild		Moderate	Moderate to severe	Severe
	Comedonal	Papular/pustular			
First line therapy	Topical retinoid	Topical retinoid + BPO or BPO/topical AB	BPO/topical AB or Topical retinoid + BPO	Topical AB + BPO + topical retinoid or Oral AB + BPO + topical retinoid	Oral isotretinoin
Alternatives	Salicylic acid			Oral isotretinoin	Oral AB + topical retinoid + BPO or BPO/topical AB
Alternatives for female patients			Hormonal therapy ± BPO/topical AB or Topical retinoid	Hormonal therapy ± BPO/topical AB or Topical retinoid	Hormonal therapy + oral AB + topical retinoid ± BPO or BPO/topical AB
Maintenance therapy	Topical retinoid ± BPO or BPO/topical AB		Topical retinoid ± BPO or	Topical retinoid ± BPO or BPO/topical AB	Topical retinoid ± BPO or BPO/AB

Pharmacological Management of Acne – Key Points

- **Benzoyl Peroxide:** Kills *P. acnes*, reduces inflammation, unclogs pores; use with antibiotics to reduce resistance
- **Topical Retinoids** (*Tretinoin, Adapalene*): Increase cell turnover, prevent comedones; Adapalene = fewer side effects
- **COCs + Spironolactone:** Reduce androgen-driven sebum production; ideal for hormonal acne
- **Oral Antibiotics** (*Doxycycline, Erythromycin*): Antibacterial + anti-inflammatory; avoid long-term monotherapy
- **Isotretinoin:** Reduces sebum, bacteria, and inflammation; reserved for severe/refractory acne
- **Important Interactions & Considerations**
 - Use **benzoyl peroxide (AM)** + **retinoids (PM)** to avoid inactivation
 - **Avoid vitamin A supplements** and **tetracyclines** during isotretinoin therapy
 - Avoid **same-class oral + topical antibiotics** to prevent resistance

Drugs for skin infections

- **Tinea: superficial fungal infection**
 - Azoles & other antifungal
 - [Azoles]: lots of drug interactions
- **Antibacterials**
 - Indication: acne vulgaris, rosacea, impetigo, px infection in burns staph infection
- **Antivirals**
 - Indication: mild herpes simplex

Drug class	Generic name
Azoles	Bifonazole Clotrimazole Econazole Ketoconazole Miconazole
Other antifungals	Amorolfine Ciclopirox Nystatin Terbinafine Tonaftate

Indication	Generic name
Herpes labialis	Acyclovir Penciclovir
Cutaneous herpes simplex	Idoxuridine & lignocaine

Scabicides & pediculicides

- Scabies: permethrin 1st line
- Head lice: pediculosis (infestation by louse)
 - Drug & non-drug tx available

Drugs for warts

- Caused by HPV
- Classified according to location & morphology
 - Cutaneous: flat planter & palmar warts
 - Anogenital: involves vulva, vagina, cervix, penis, scrotum, urethra & rectum
 - Extracutaneous: oral & laryngeal lesions

Head lice	Scabies
Benzyl alcohol Dimeticone Isopropyl myristate Maldison Permethrin	Benzyl benzoate Crotamiton Permethrin Ivermectin

Drugs for wart	
Generic name	Brand name
Glutaraldehyde	Diswart
Imiquimod	Aldara
Podophyllotoxin	Wartec
Pophyllum resin	Extemporaneous preps
Salicylic acid	

Imiquimod

- **MOA:** Stimulates immune response via interferon and cytokines
- **Indications:** Genital/perianal warts, superficial BCC (non-surgical), facial/scalp actinic keratoses
- **ADR:** Local skin reactions (e.g. redness, burning, erosion, pigment changes)
- **Brands:** Aldara, Aldiq

Podophyllotoxin

- **MOA:** binds to tubulin, arresting mitosis in metaphase and leading to epithelial cell death
- **Indication:** anogenital warts
- **Brand name:** condyline paint

Drugs for actinic keratosis

- Is a precursor for SCC
- Typically affecting elderly
- Rough, scaly patch on skin cause by prolonged sun exposure

Drugs for alopecia

- Androgenic alopecia
- May marginally stimulate hair growth
 - Benefit stops when tx stops 😞
 - 3-4 mo to notice effect

Drugs for actinic keratosis


Generic name	Brand Name
Diclofenac	Solaraze
5-fluorouracil	Efudix
Imiquimod	Aldara
Ingenol mebutate	Picato
Methyl aminolevulinate	Metvix

Drugs for alopecia

Generic name	Brand Name
Finasteride	Finapen, Propecia
Minoxidil	Regaine

5-Fluorouracil (skin)

- **MOA:** Antimetabolite that blocks DNA/RNA synthesis by inhibiting thymidylate synthase and disrupting RNA function
- **Effect:** Cytotoxic to abnormal skin cells
- **Indications:** Actinic keratoses, Bowen's disease (intra-epidermal SCC)
- **Brands:** Efudix, Tolak



Dermatological drugs Dental implications

- **Corticosteroids: ADRs!!!**
- **Systemic drugs for psoriasis**
 - Cyclosporin: overgrown, thickened, swollen, bleeding gums
 - MTX & adalimumab: mouth ulcers & blisters, bleeding gum
- **Patient education**
 - Routine visits, OH, fluoride
- **Retinoids ADR**
 - Dry lips, mouth & skin: scaling, redness, burning, pain
 - Dry throat: hoarse voice
 - Bleeding and swollen gums



Corticosteroids ADRs

- Infection
- Delayed wound healing
- Steroid rosacea
- Perioral dermatitis
- Skin atrophy
- Bruising
- Acne
- Facial flushing
- Pupura
- Depigmentation
- Telangiectasia
- Steroid induced Cushing's



Dermatological conditions Dental implications

Cold Sores (Herpes Simplex Virus Type 1)

- Highly contagious, especially during blistering/early stages
- Risk of transmission to patients and practitioners even with gloves
- Reschedule non-urgent dental treatments until healed
- Avoid aerosol-generating procedures during active lesions

Extracutaneous Warts

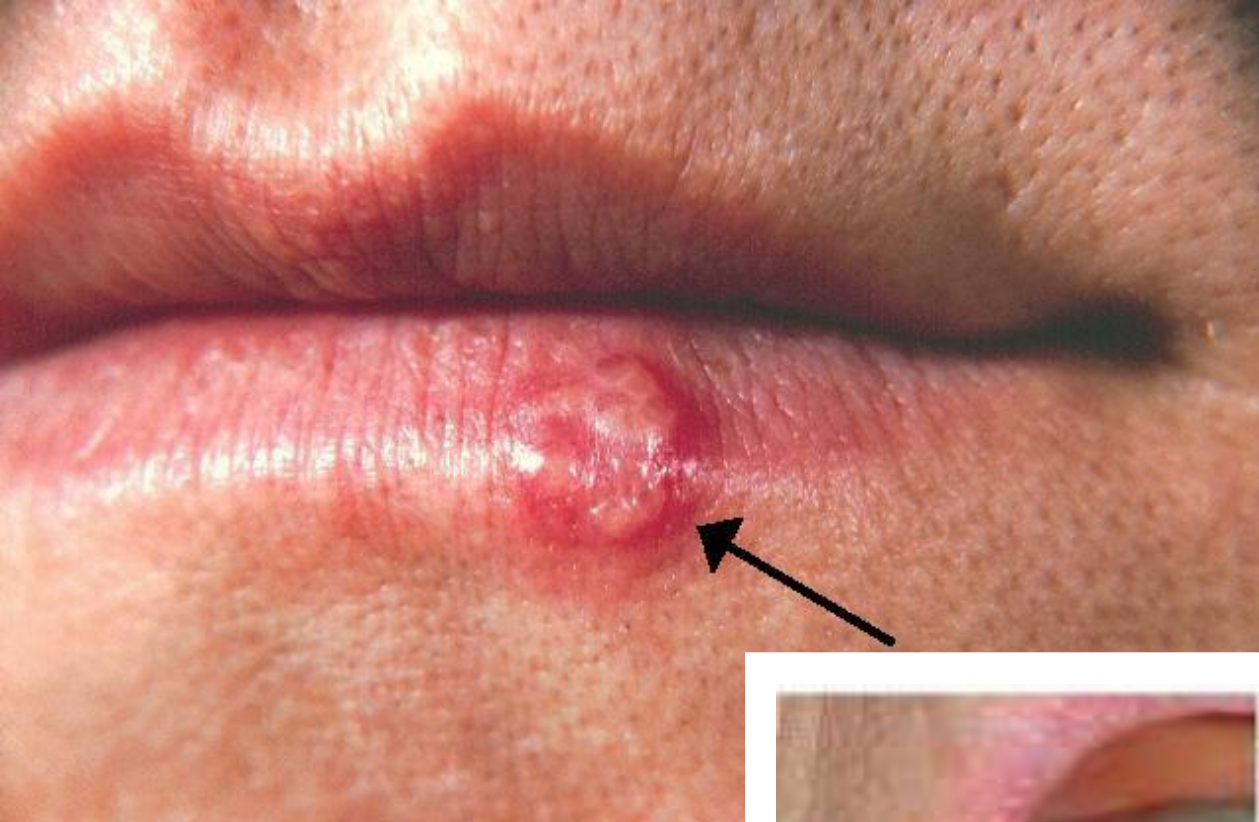
- May be present in the oral cavity
- Refer to oral medicine specialists for persistent or atypical lesions

Actinic Keratosis

- Rough, scaly lesions due to sun exposure
- Potential to progress to squamous cell carcinoma
- Refer for dermatological assessment if identified

Key Takeaways

- Dentists often spot conditions with broader health implications
- Prioritize infection control and early detection in practice



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