

Common oral conditions of the elderly patients







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Attrition

- Matching wear on occluding surfaces
- Possible fracture of cusps or restorations




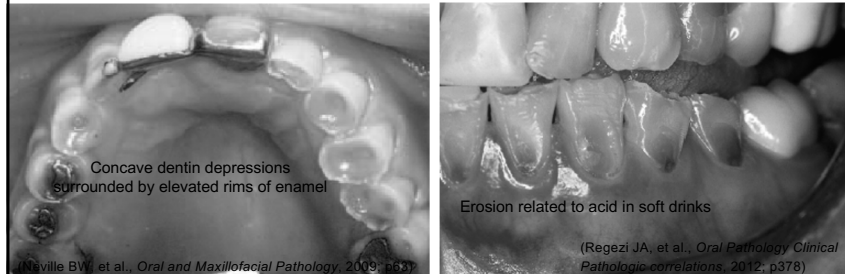
Extensive loss of coronal tooth height
(Neville BW, et al., *Oral and Maxillofacial Pathology*, 2009, p62)

Diffuse and extensive loss of tooth height
(Neville BW, et al., *Color Atlas of Clinical Oral Pathology*, 2003, p47)

2

Erosion

- Broad **concavities** within smooth surface enamel
- Cupping of occlusal surfaces, with dentin exposure
- **Raised** and **shiny** amalgam restorations

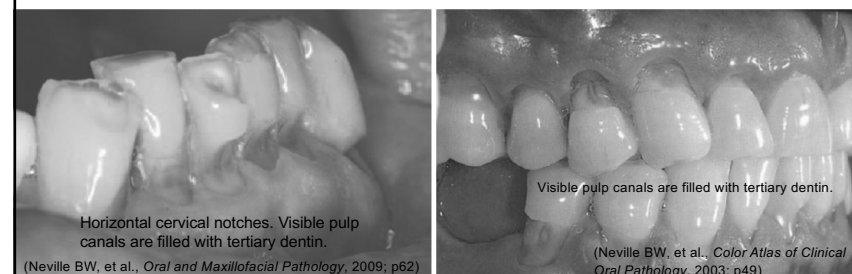
Concave dentin depressions surrounded by elevated rims of enamel
(Neville BW, et al., *Oral and Maxillofacial Pathology*, 2009, p63)

Erosion related to acid in soft drinks
(Regezi JA, et al., *Oral Pathology Clinical Pathologic correlations*, 2012, p378)

3

Abrasion

- Usually located at facial cervical areas
- Lesions more wide than deep



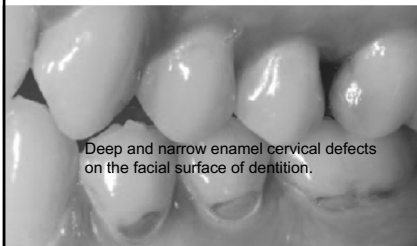
Horizontal cervical notches. Visible pulp canals are filled with tertiary dentin.
(Neville BW, et al., *Oral and Maxillofacial Pathology*, 2009, p62)

Visible pulp canals are filled with tertiary dentin.
(Neville BW, et al., *Color Atlas of Clinical Oral Pathology*, 2003, p49)

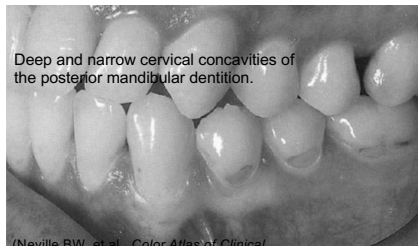
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Abfraction

- Can affect both facial and lingual cervical areas
- **Deep, narrow V-shaped notch**
- Commonly affects single teeth that have occlusal loads



(Neville BW, et al., *Oral and Maxillofacial Pathology*, 2009; p64)



(Neville BW, et al., *Color Atlas of Clinical Oral Pathology*, 2003; p47)

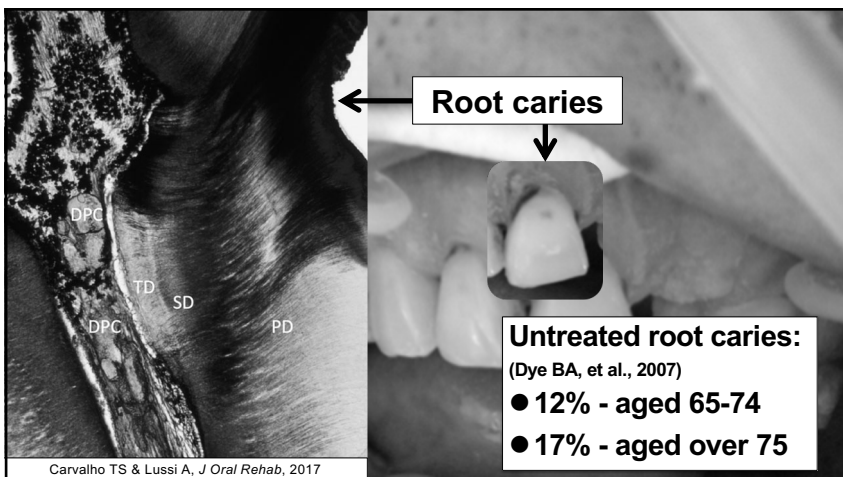
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Clinical considerations for enamel tissue

(Bath-Balogh M, et al., *Illustrated Dental Embryology, Histology, and Anatomy*, 2006; p181)

Hard Tissue Loss	
Term	Definition
Attrition	Loss through tooth-to-tooth contact (mastication or parafunction habits)
Erosion	Loss through chemical means (acid) not involving bacteria
Abrasion	Loss through friction from toothbrushing and/or toothpaste
Abfraction	Possible loss through tensile and compressive forces during tooth flexure (parafunctional habits)
Caries	Loss through chemical means (acid) from cariogenic bacteria

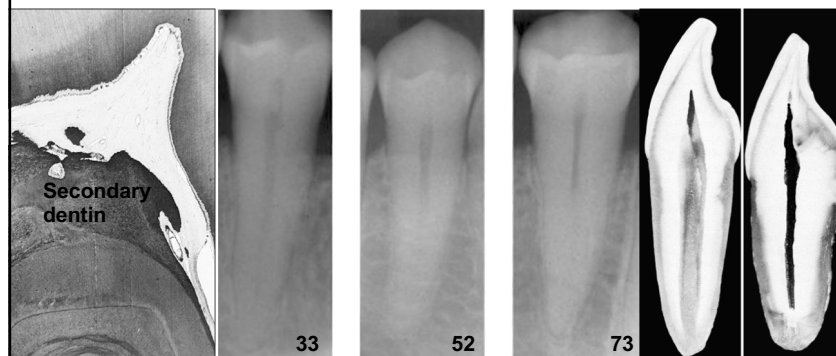
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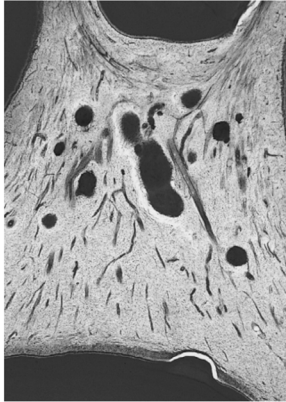
Age changes of dentin-pulp complex

Decreasing volume of the pulp chamber and root canal

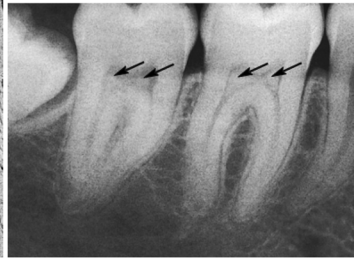


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Age changes of dentin-pulp complex



The occurrence of **pulp stone**.



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Periodontal disease

Age-related risk factors of periodontal disease:

- Diminished general health (or functional impairment)
- Diminished immune system
- Declining cognitive function
- Depression
- Medication side effect



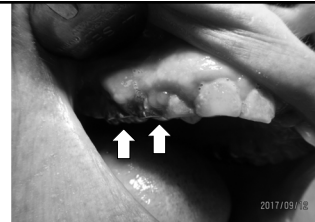
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Medications and symptoms as risk factors for periodontal disease

Medications	Symptoms
Antianxiety	Xerostomia, oral mucositis
Antihypertensives	
Antidepressants	
Calcium-channel blockers	
Cyclosporine, Dilantin	Gingival hyperplasia
Bisphosphonates, Cancer therapies	Osteonecrosis of jaw bone

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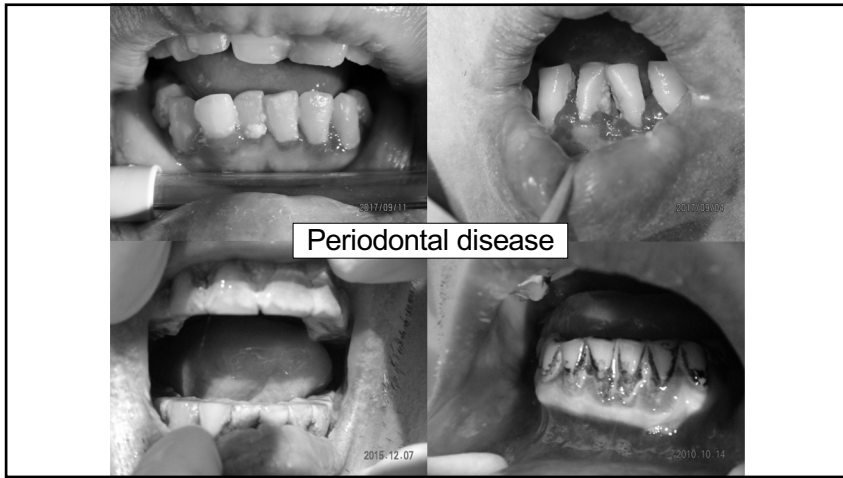
65/F,
seizure after brain surgery,
controlled with **dilantin**



Dilantin-induced gingival hyperplasia



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Candidiasis/Candidosis:

- An **opportunistic** infection
- *Candida albicans* overgrowth

Risk factors:

- poor oral hygiene
- denture wearers
- antibiotic therapy
- uncontrolled DM
- corticosteroids
- immunosuppression
- xerostomia

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Clinical presentation

Hyperplastic

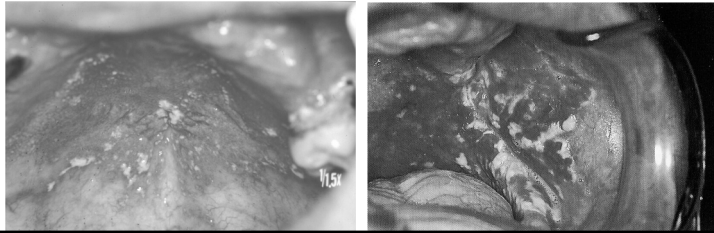
Pseudomembranous

Erythematous/Atrophic

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Pseudomembranous type

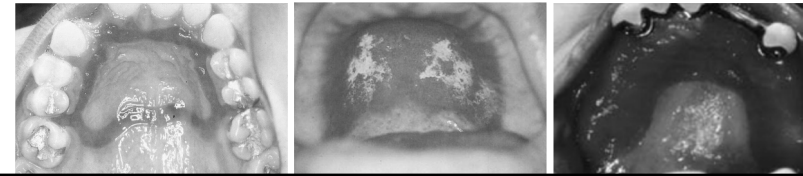
- The **most common** form
- Creamy-white, slightly elevated, **removable** spots or plaques
- Hard palate, tongue, and BM
- May extend into oropharynx



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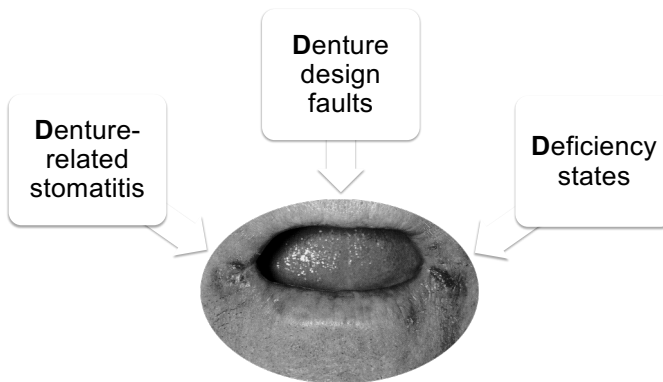
Erythematous type

- **Acute atrophic** (antibiotic sore mouth)
 - ✓ using **broad spectrum antibiotics**
 - ✓ atrophic dorsal surface of tongue
 - ✓ burning sensation
- **Chronic atrophic** (denture stomatitis)
 - ✓ related to removable prostheses
 - ✓ **denture-bearing** oral mucosa



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Erythematous type – angular cheilitis



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- **Candida albicans** or **Staphylococcus aureus**
- Erythema, maceration, fissuring, erosions, and crusting at the **commissures**
- Linear furrows or fissures extending onto the skin

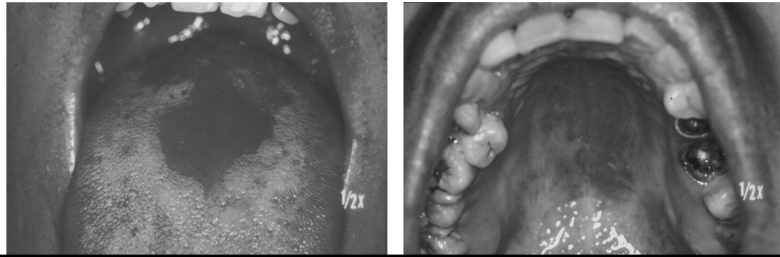
Angular cheilitis

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Erythematous type

Median rhomboid glossitis: (central papillary atrophy)

- Well demarcated **rhomboid** area seen in the midline of the tongue anterior to the circumvallate papilla
- "Kissing lesion" on hard palate



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Treatment

Suspension

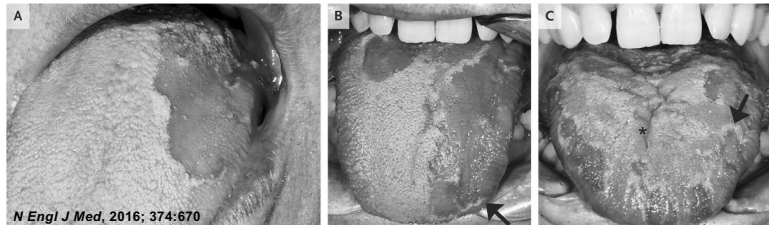
Tablets



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Erythema migrans

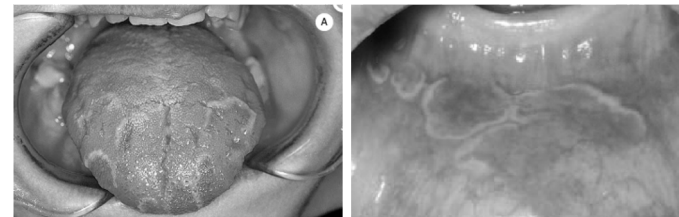
- **Geographic tongue, migratory glossitis**
- Multiple, well-demarcated, erythematous, depapillated patches that surrounded by a slightly elevated whitish border
- Resolve and reappear in a different pattern
- May sensitive to acidic or spicy foods



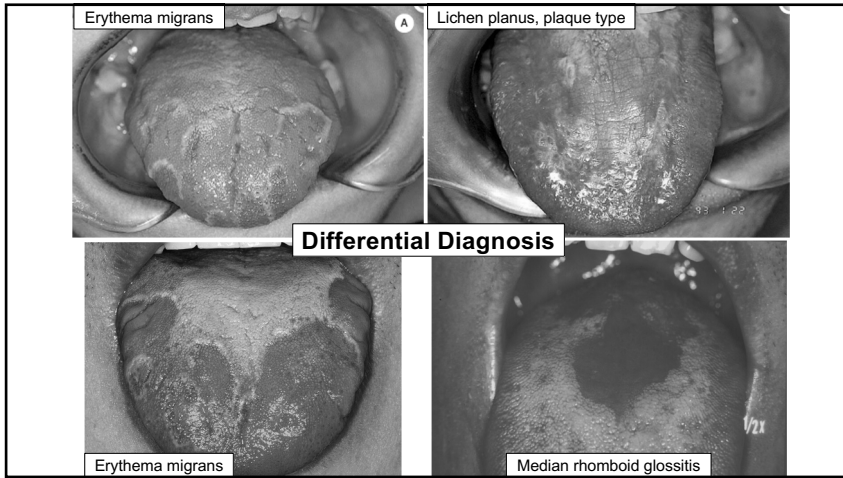
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Erythema migrans

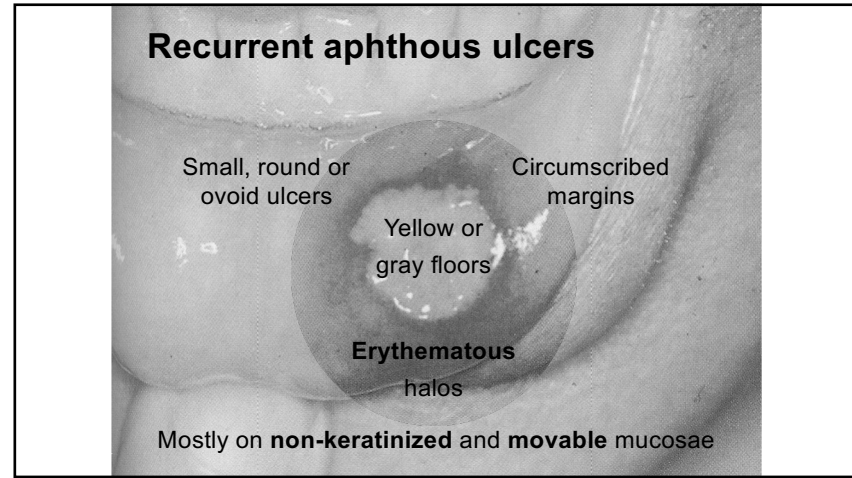
- Usually restricted to the dorsum of the tongue
- Rarely involves other mucosal sites (**geographic stomatitis**)
- No treatment is needed for asymptomatic lesions
- **Topical steroids** for symptomatic lesions
- Candidal infection should be considered in persistently symptomatic cases



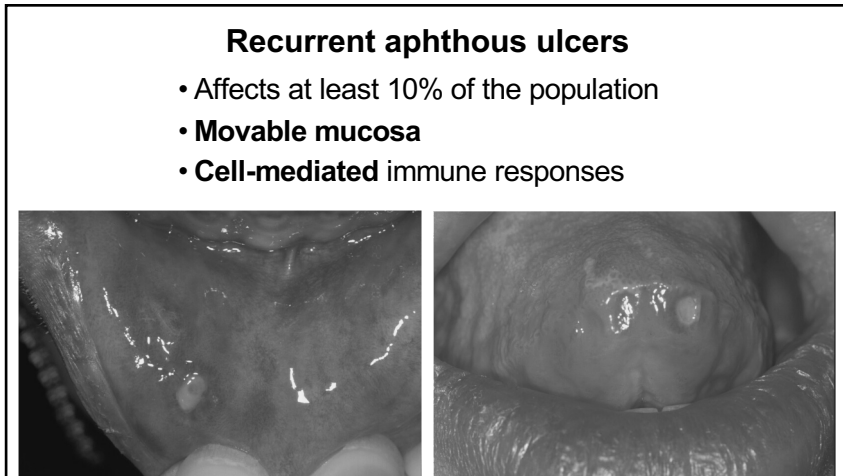
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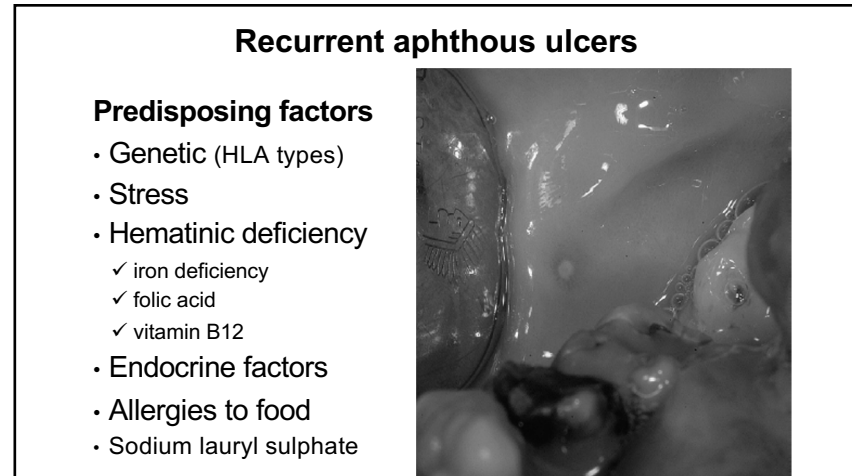
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Sodium lauryl sulfate

Inflammatory reaction of the anterior dorsal tongue presumably to sodium lauryl sulfate within toothpastes: a triple case report

Ronald S. Brown, DDS, MS,^{ab} Langston Smith, DDS,^c and Alison L. Glascoe, DDS, MS^d

Background. Sodium lauryl sulfate (SLS), a popular surface active agent ingredient within toothpastes, is known for its foaming action. Surface active agents increase the effectiveness of toothpastes with respect to dental plaque removal. SLS is a known irritant and also has allergenic potential. The authors report 3 patients with oral pain secondary to inflammation of the dorsal anterior tongue. These patients were all using toothpastes with SLS as an ingredient.

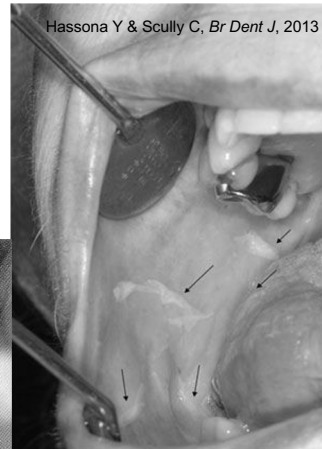
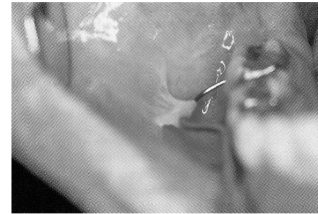
Results. The dorsal tongue lesions and oral pain resolved upon switching to toothpastes without SLS as an ingredient.

Conclusions. Clinicians should be aware of the potential of SLS within toothpastes to cause oral mucosal inflammatory reactions of the anterior dorsal tongue. To our knowledge, these are the first case reports of oral mucosal inflammatory reactions of the anterior dorsal tongue associated with SLS containing toothpastes. (Oral Surg Oral Med Oral Radiol 2017; ■■■■■ ■■■■■)



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Oral epitheliolysis (oral mucosal peeling, shedding oral mucosa) ➤ superficial desquamation of oral mucosa



Hassona Y & Scully C, *Br Dent J*, 2013

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Recurrent aphthous ulcers



prodromal stage



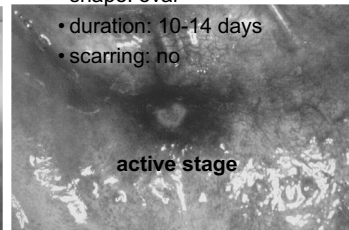
Minor type: 80%

- size: < 1 cm
- shape: oval
- duration: 10-14 days
- scarring: no

healing



active stage

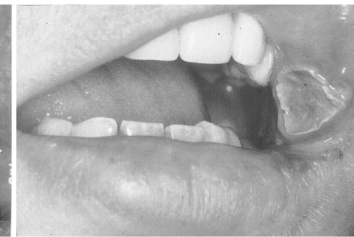


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Major type: 10%

- size: > 1 cm
- shape: ragged oval, crateriform
- duration: > 14 days
- scarring: yes

Recurrent aphthous ulcers



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Herpetiform type: 10%

- size: < 5 mm
- shape: oval
- number: 10-100
- duration: 10-14 days
- scarring: no

Recurrent aphthous ulcers

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Clinical features of aphthous ulcers
(modified from Regezi JA, et al., *Oral Pathology – Clinical Pathological Correlation*, 2012; p38: table 2-3)

	Minor	Major	Herpetiform
Percentage	80	10	10
Size (mm)	<10	>10	<5
Shape	Oval	Ragged, oval, crateriform	Oval
Location	Nonkeratinized mucosa	Nonkeratinized mucosa	Any intraoral site
Duration (days)	10-14	>14	10-14
Scarring	No	Yes	No
Treatment	Topical corticosteroids; tetracycline mouthrinses	Topical/systemic/intralesional corticosteroids; immunosuppressives	Topical/systemic corticosteroids; tetracycline mouthrinses

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Aphthous ulcers compared with secondary HSV infection
(Sciubba JJ, *Gen Dent*, 2007; Regezi JA, et al. *Oral Pathology: Clinical Pathologic Correlations*. 2012; p37, table 2-2)

	Aphthous ulcers	Secondary HSV infection
Cause	Immune dysfunction	HSV-1
Triggers	Stress, trauma, diet, hormones, depressed immunity	Stress, trauma, ultraviolet light, depressed immunity
Prodrome	Little prodrome	Prodromal symptoms
Appearance	No vesicles; single, oval ulceration	Vesicles precede ulcers; multiple, confluent ulcers
Sites	Nonkeratinized mucosa	Keratinized mucosa
Pathology	Nonspecific microscopy	Viral cytopathic changes
Treatment	Corticosteroids, tetracycline	Antiviral treatment

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Blood tests

1. CBC + platelet
2. Iron, TIBC
3. Vitamin B12
4. folic acid
5. Zinc

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WHO definitions

1. Anemia:
 - Hb < 12 g/dL (females)
 - Hb < 13 g/dL (males)
2. Iron deficiency: Iron < 60 µg/dL
3. Vit B12 deficiency: Vit B12 < 200 pg/mL
4. Folic acid deficiency: FA < 4 ng/mL
5. Microcytic anemia: MCV < 76 fL
6. Macrocytic anemia: MCV > 100 fL

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Blood tests

Item	RAU	AG	BMS	OLP
Deficiency (unit: %)				
Hemoglobin	20.9	22.2	22.3	21.9
Iron	20.1	26.7	20.3	13.6
Vitamin B12	4.8	7.4	2.5	7.1
Folic acid	2.6	1.7	1.5	0.3

*RAU: recurrent aphthous ulcer
*AG: atrophic glossitis

*BMS: burning mouth syndrome
*OLP: oral lichen planus

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Treatment for deficiencies

1. Iron deficiency:
 - Iron < 65 µg/dL (women)
 - Iron < 70 µg/dL (men)
2. Vit B12 deficiency: Vit B12 < 450 pg/mL
3. Folic acid deficiency: FA < 6 ng/mL

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RAS management
↓
Treat predisposing factors

↓
Topical medication

Dexaltin oral paste
(0.1% dexamethasone) 2 g/tube
Nincort oral gel
(0.1% triamcinolone acetonide) 6 g/tube

↓
No success

↓
Intralesional steroid

⇨ **Systemic steroid**

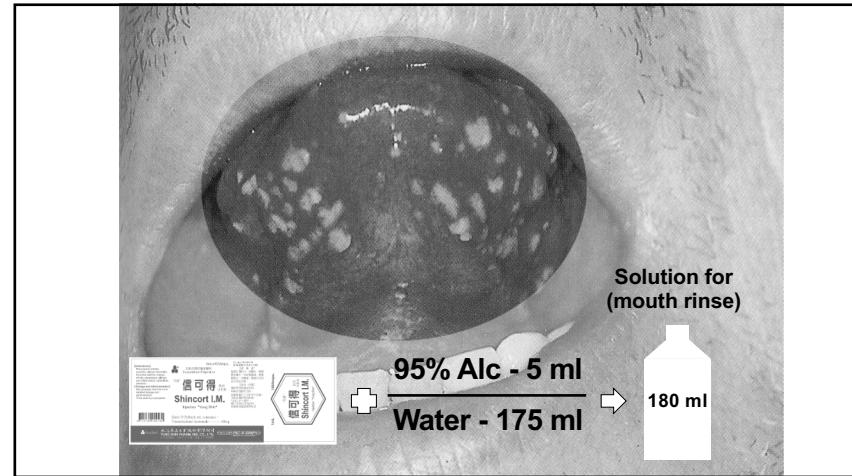
Prednisolone (5 mg 2# tid*7 days)
OR
Prednisolone (5 mg 1# tid) PLUS
Immunomodulator (Imuran)
(50 mg/tablet, 1# tid) – (3-4)*2 wks



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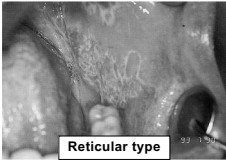
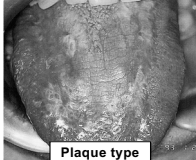
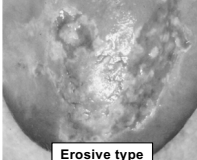
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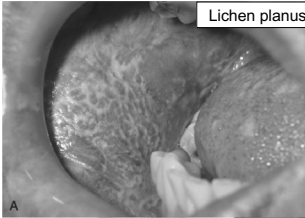
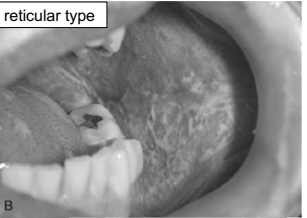
Lichen planus



- Causes are unclear
- T cell-mediated chronic inflammation
- Off-and-on character
- Middle-aged
- Females (3:2) predilection
- Reticular, plaque, papular, atrophic/erosive, ulcerative, bullous

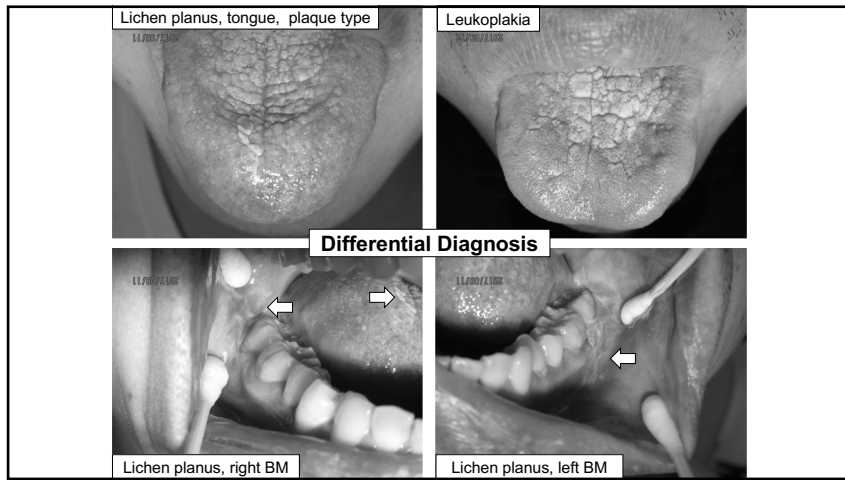
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Differential Diagnosis

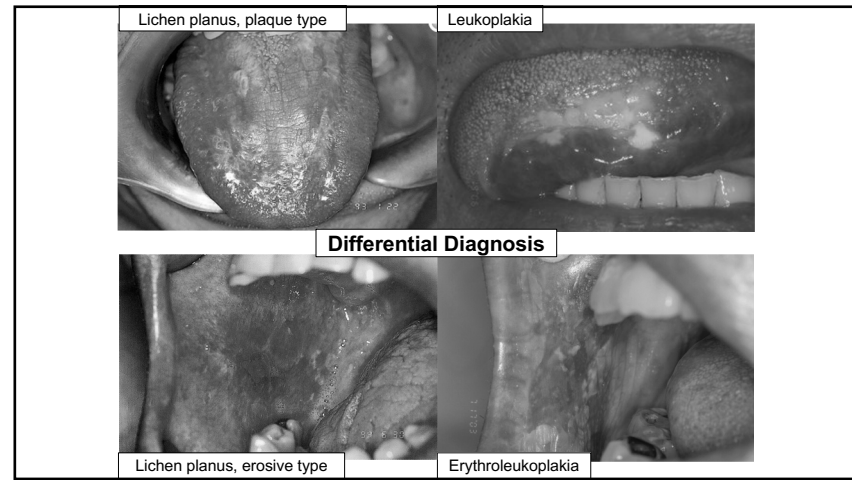



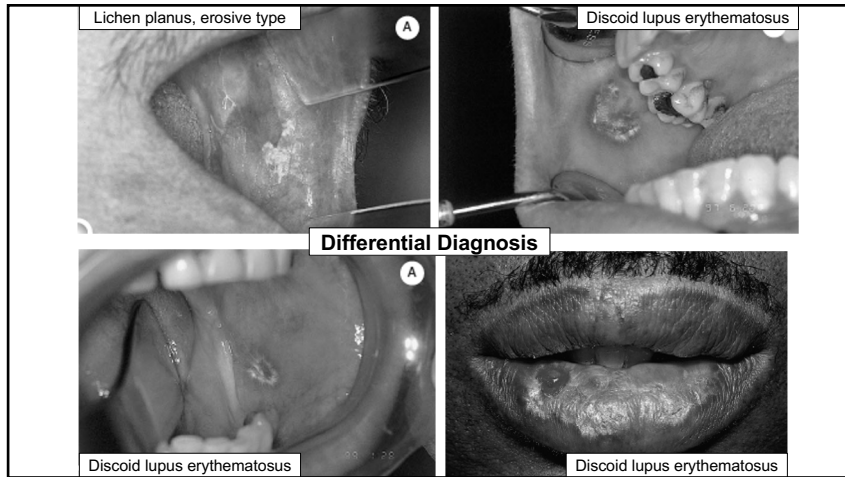
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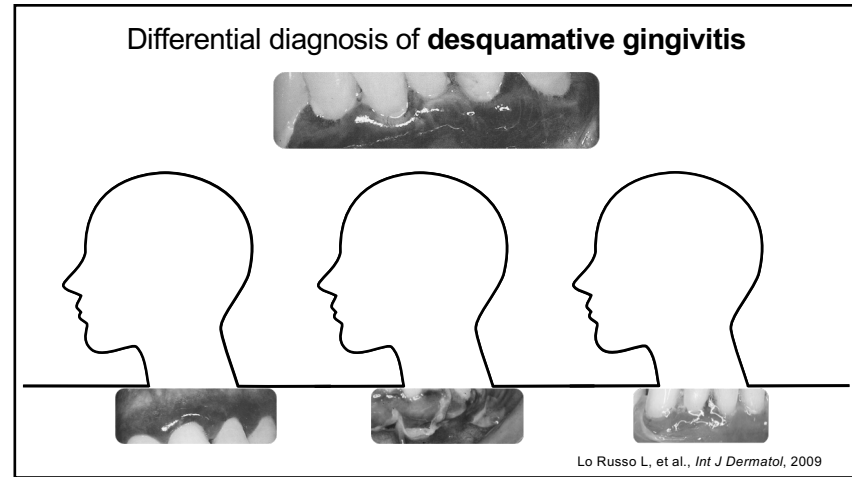
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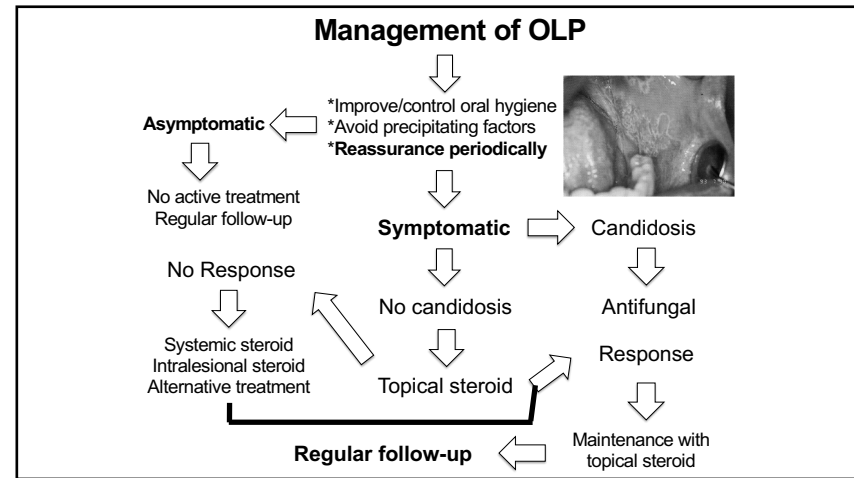


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Differential diagnosis of bilateral buccal mucosal white lesions
(modified from Regezi JA, et al., *Oral Pathology: Clinical Pathologic Correlations*. 2012; p81: table 3-1)

Disease	Features	Action
White sponge nevus	Hereditary; Dose not disappear when stretched	Biopsy (optional)
Lichen planus	White striations; Skin lesions	Biopsy (optional)
Lichenoid drug reaction	White striations	Drug history
Cheek biting	White shaggy lesions along occlusal plane or trauma sites	Careful history taking
Lupus erythematosus	Delicate radiating striae	Biopsy
Candidiasis	Can be wipe off; Look for predisposing factors	Responds to antifungal therapy

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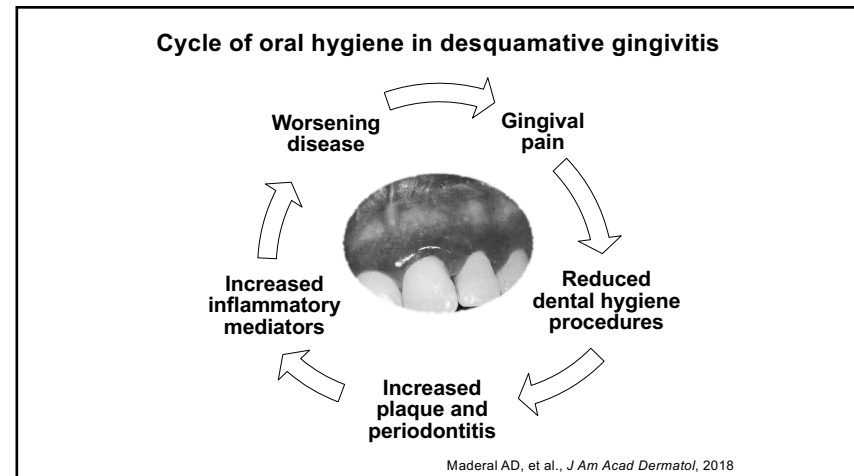
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Treatment of OLP, EM, BMMP, PV
Lu's (盧心玉) therapy

Levamisole 50 mg, tid PLUS
Prednisolone 5 mg, tid
for 3 consecutive days per week

- EM - for 2 weeks
- OLP - for 4-6 weeks
- BMMP and early PV - for 8-12 weeks

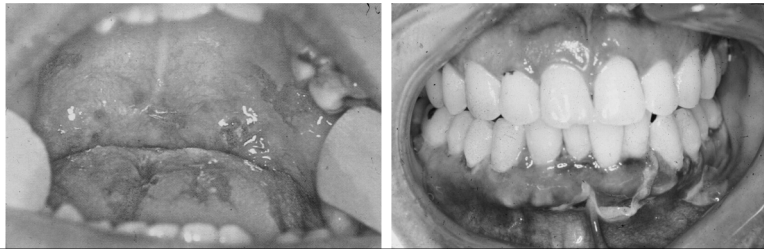
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Pemphigus vulgaris

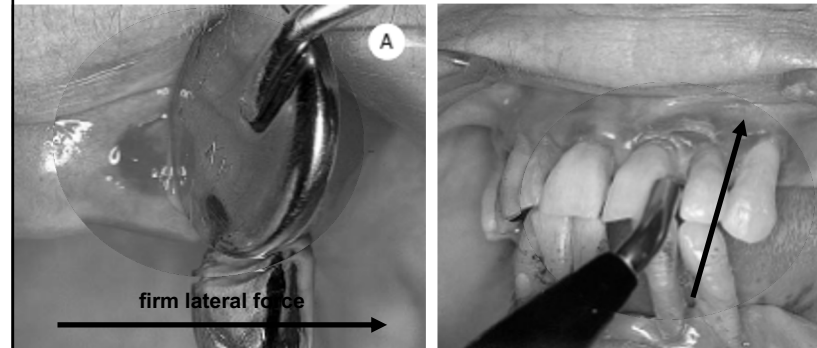
- A severe chronic **autoimmune** mucocutaneous disease
- The **most common** variant (90-95%) of pemphigus
- Oral lesions often precede skin lesions
- **High mortality** when untreated (dehydration, electrolyte imbalance, malnutrition, infection)



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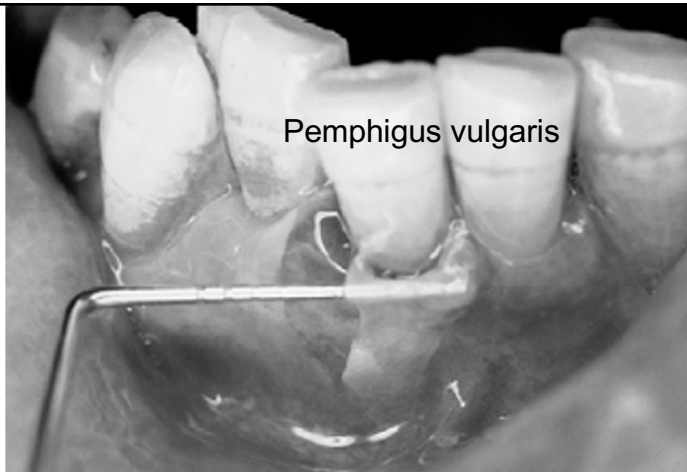
Pemphigus vulgaris

Positive Nikolsky sign



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Pemphigus vulgaris



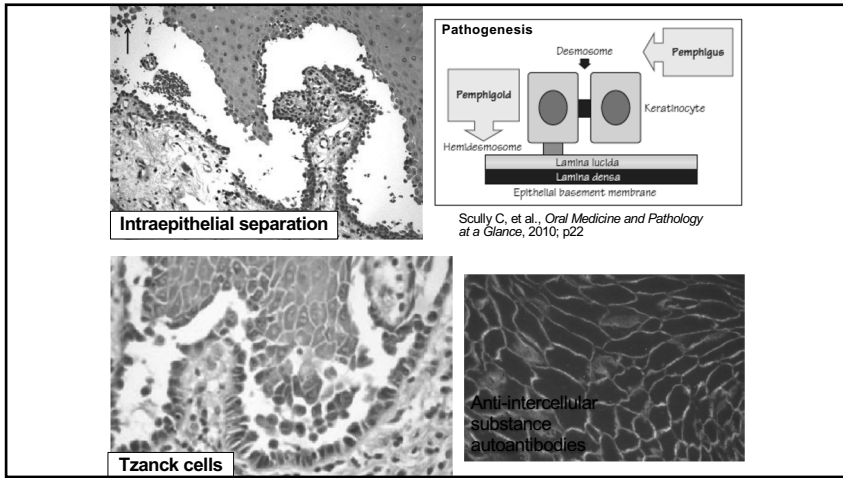
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Pemphigus vulgaris

- Oral lesions:
 - ✓ **the first to show, and the last to go**
 - ✓ blisters are rarely seen
 - ✓ erosions or ulcers with **ragged** border
- Skin lesions:
 - ✓ easily ruptured bullae, persistent eroded areas
- Other lesions: conjunctivae or genitals particularly





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Cicatricial pemphigoid

- **Mucous membrane pemphigoid**
- An autoimmune disease
- 60-80 years of age
- Atrophy or **scarring** of the mucous membrane; rarely affected skin
- **Nikolsky's sign** may be positive

Blindness

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Pemphigoid - pathogenesis

1 Antibody

2 Antibody binds to antigen(s)

3 Complement activated

4 Leukocyte infiltration and BMZ damage

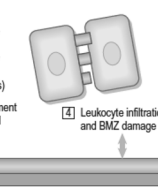
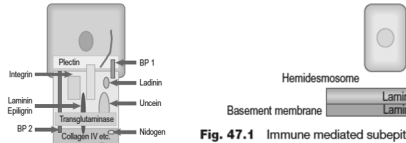


Fig. 47.3 Mucosal pemphigoid pathogenesis



Hemidesmosome, Lamina lucida, Lamina densa, ISEBD

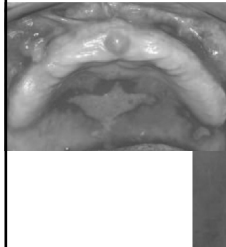
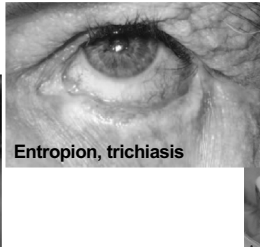

Fig. 47.1 Immune mediated subepithelial blistering diseases – lesion at basement membrane zone (BMZ)

Scully C, *Oral and Maxillofacial Medicine: The Basis of Diagnosis and Treatment*, 3rd ed., 2013

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Cicatricial pemphigoid

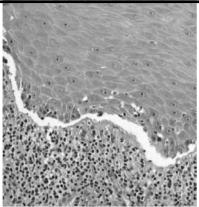
- **Oral lesions:** recurrent **vesicles** or **bullae** that rupture, leaving large, superficial painful ulcerations (often smooth)
- **Gingival involvement:** **desquamative gingivitis**
- **Ocular lesions:** conjunctivitis, symblepharon, entropion, trichiasis, blindness

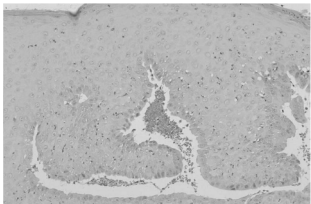
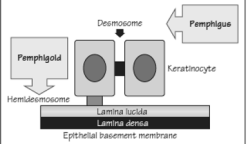
Entropion, trichiasis

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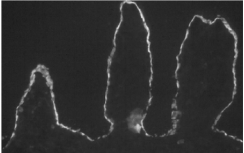
Cicatricial pemphigoid



Subepithelial split

Scully C, et al., *Oral Medicine and Pathology at a Glance*, 2010; p22



Anti-basement membrane autoantibodies

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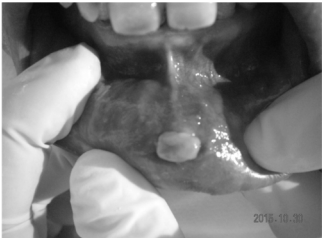

Pemphigus vulgaris compared with cicatricial pemphigoid

	Pemphigus	Pemphigoid
Tissue antibody	IgG, C3; circulating auto-IgG	IgG, C3, IgA; no circulating auto-IgG
Target proteins	Dsg3 (desmosome)	Laminin 5, BP180 (BM)
Vesicles	Intraepithelial	Subepithelial
Sites	Oral and skin	Oral and eyes
Treatment	Corticosteroids	Corticosteroids
Prognosis	Fair; significant mortality if untreated	Good; significant morbidity

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Irritation fibroma

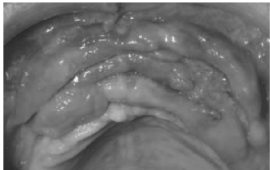
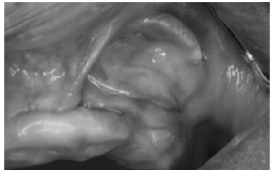

- **Repeated trauma**
- Dome-shaped solitary soft tissue mass
- Excision

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Epulis fissuratum

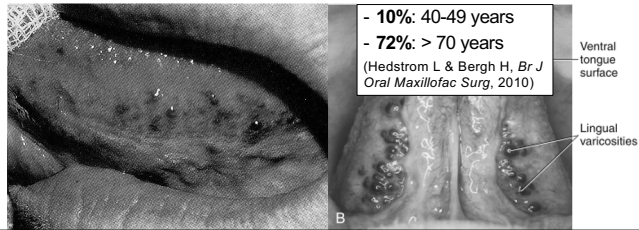
- **Trauma** from an **ill-fitting** or **over-extended** denture
- Overgrowth of fibrous connective tissue
- Single or multiple folds of hyperplastic granulation tissue surrounding the denture flange
- **Excision**, followed by fabrication of new prostheses

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Lingual varicosity (caviar tongue)

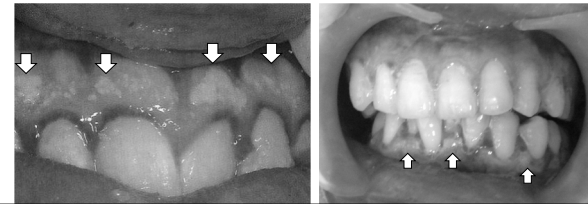
- The incidence increases with age
- **Ventral** aspect and borders of the **tongue**
- Irregular, blue/purple lesions
- Usually multiple with a bilateral linear distribution
- Usually asymptomatic



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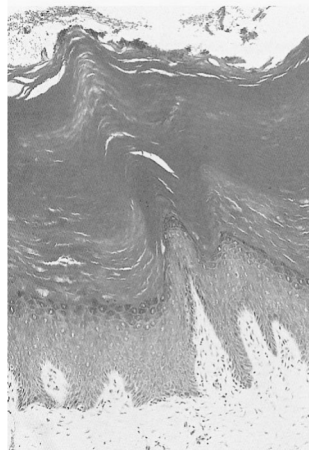
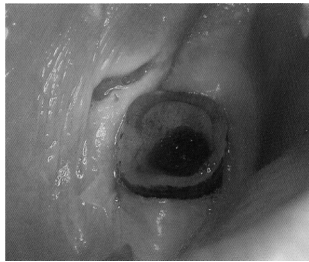
Materia alba

- Accumulation of food debris, dead epithelial cells, and bacteria
- At the **dentogingival margin** or rarely along the **vestibular surface** of the attached gingiva in patients with **poor oral hygiene**
- Soft, whitish plaque that is easily detached after slight pressure



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Frictional (hyper)keratosis



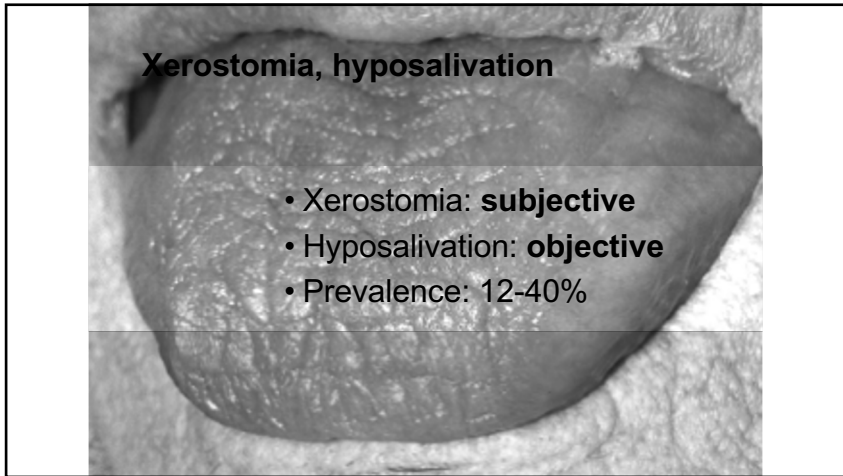
67

Frictional (hyper)keratosis



■ FIGURE 3-6 Focal hyperkeratosis related to tongue-thrusting habit. ■ FIGURE 3-7 Focal hyperkeratosis and erythema associated with an ill-fitting lower denture.

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Xerostomia, hyposalivation

Salivary flow rate

- **Normal salivary flow**
 - stimulated: 1.5 - 2.0 mL/min
 - unstimulated: 0.3 - 0.4 mL/min
- **Hyposalivation**
 - stimulated: ≤ 0.5 - 0.7 mL/min
 - unstimulated: ≤ 0.1 mL/min

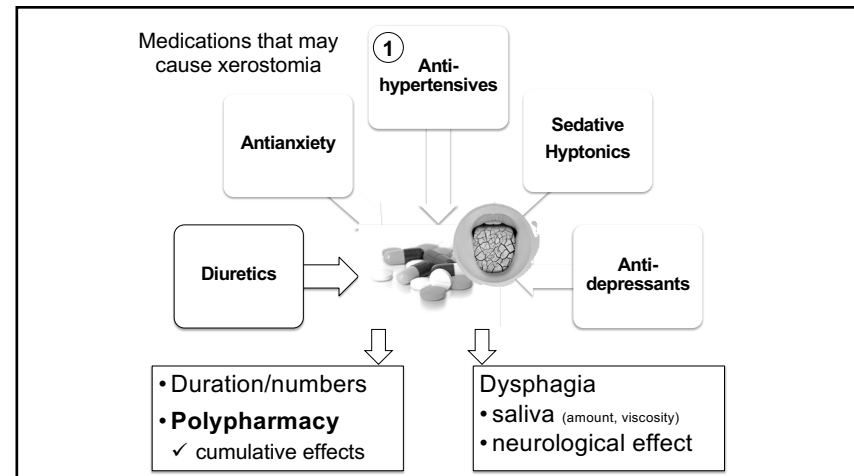
Villa A, et al., Ther Clin Risk Manag, 2015

70

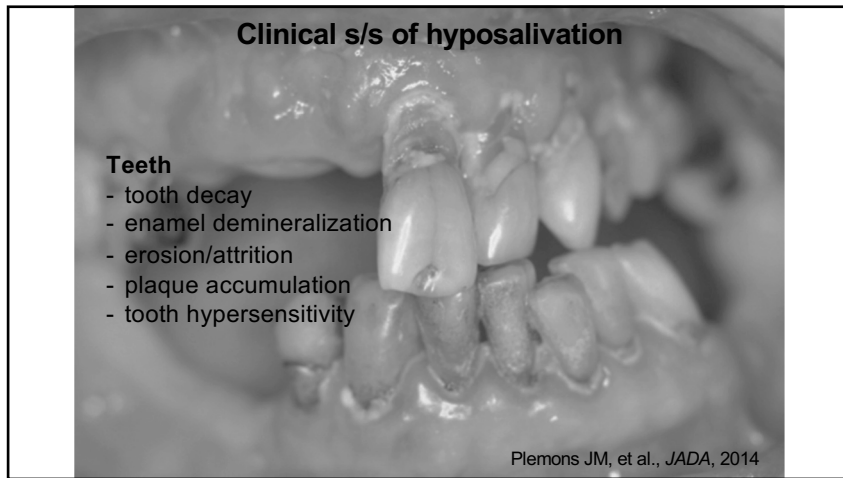
Dry mouth, xerostomia

- **Drugs** that inhibit salivary secretion
 - the most common oral adverse drug reaction
(Yousefi H and Abdollahi M, J Pharm Pharm Sci, 2018)
- Destruction of salivary gland tissue due to **diseases** or **radiation** or **chemotherapy**

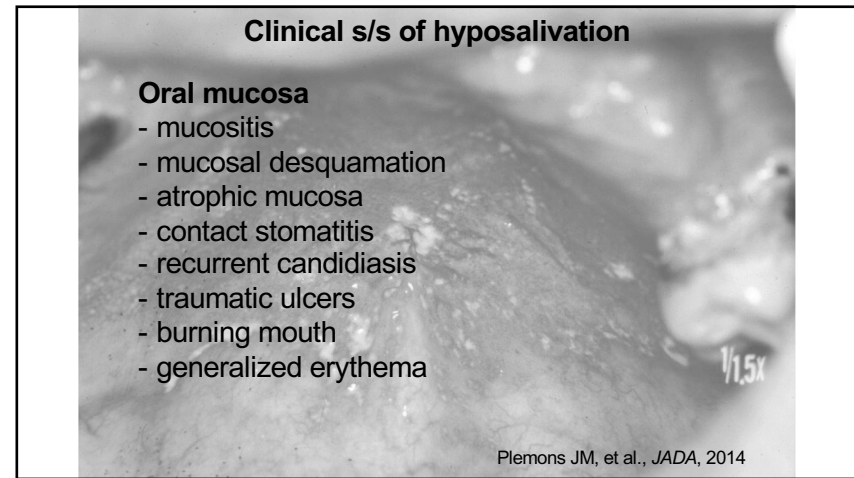
71



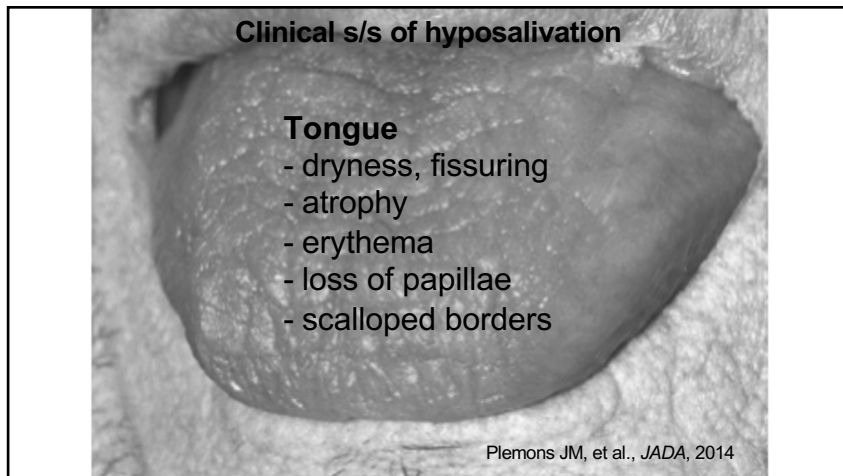
72



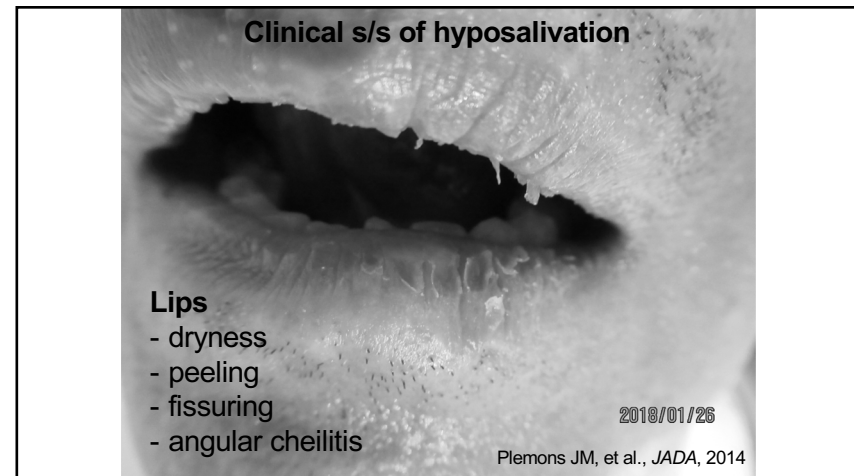
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Clinical s/s of hyposalivation

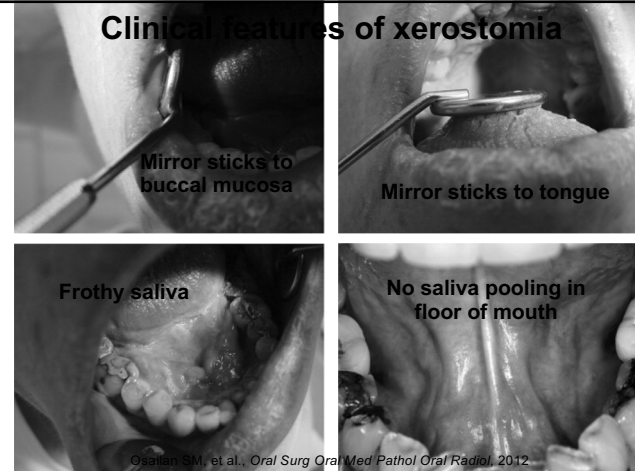
Oral cavity

- contact reactions
- halitosis
- **difficulty talking, chewing or swallowing**
- plaque accumulation
- reduced oral clearance
- altered taste sensation
- food/debris retention

Plemons JM, et al., *JADA*, 2014

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Clinical features of xerostomia



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Clinical features of xerostomia



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Xerostomia

- Burden of chronic xerostomia
 - affect speech, **chewing, swallowing**, denture-wearing, general well-being
- Xerostomia secondary to hyposalivation
 - rampant dental caries
 - oral fungal infections
 - taste changes
 - halitosis
 - burning mouth

Villa A, et al., *Ther Clin Risk Manag*, 2015


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Management of xerostomia




耳下腺

用食指到小指之間共四根手指頭，輕輕按住臉頰，約在上顎後牙的部分，旋轉按摩十圈。



顎下腺

將雙手大拇指沿下顎骨下面內側凹陷，由下往上按摩，前後來回按摩十次。



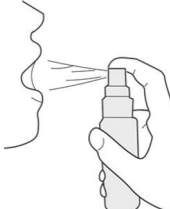

舌下腺

用兩手的大拇指按壓下巴後方凹陷處，共十次。

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Management of xerostomia

- Rectifying any underlying cause
- Avoiding factors that may increase dryness
- Keeping the mouth moist as regularly as possible
 - ✓ water, ice chips
 - ✓ synthetic saliva substitutes
 - ✓ salivary substitutes (lubricants, spray/gel)

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Salagen

- 7.5 mg pilocarpine hydrochloride
- **Pilocarpine** (3-5 mg, tid)
 - a parasympathomimetic and muscarinic agonist
 - particular effect on muscarinic acetylcholine receptor M3
- May cause excessive salivation, excessive sweating, bronchospasm, increased bronchial mucus secretion, bradycardia, vasodilation, and diarrhea

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Evoxac

- Cevimeline (Evoxac, 30 mg/cap, tid)
 - a parasympathomimetic and muscarinic agonist
 - particular effect on M3 receptors
- Stimulates saliva secretion
- For treatment of dry mouth associated with Sjögren's syndrome

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Evoxac

- Side effects: nausea, vomiting, diarrhea, excessive sweating, rash, headache, runny nose, cough, drowsiness, hot flashes, blurred vision, and difficulty sleeping.
- Contraindications: asthma and angle closure glaucoma

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Dysphagia

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