Oral Medicine

Lecture 5

INTRA ORAL EXAMINATION
The Intraoral Examination (principles in dealing)

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Normal structures that may be mistaken for lesions

A .Stensen's duct: is the duct of the parotid gland. It opens into the mouth on the posterior buccal mucosa opposite the maxillary molars. The duct opening may be flat or slightly raised.

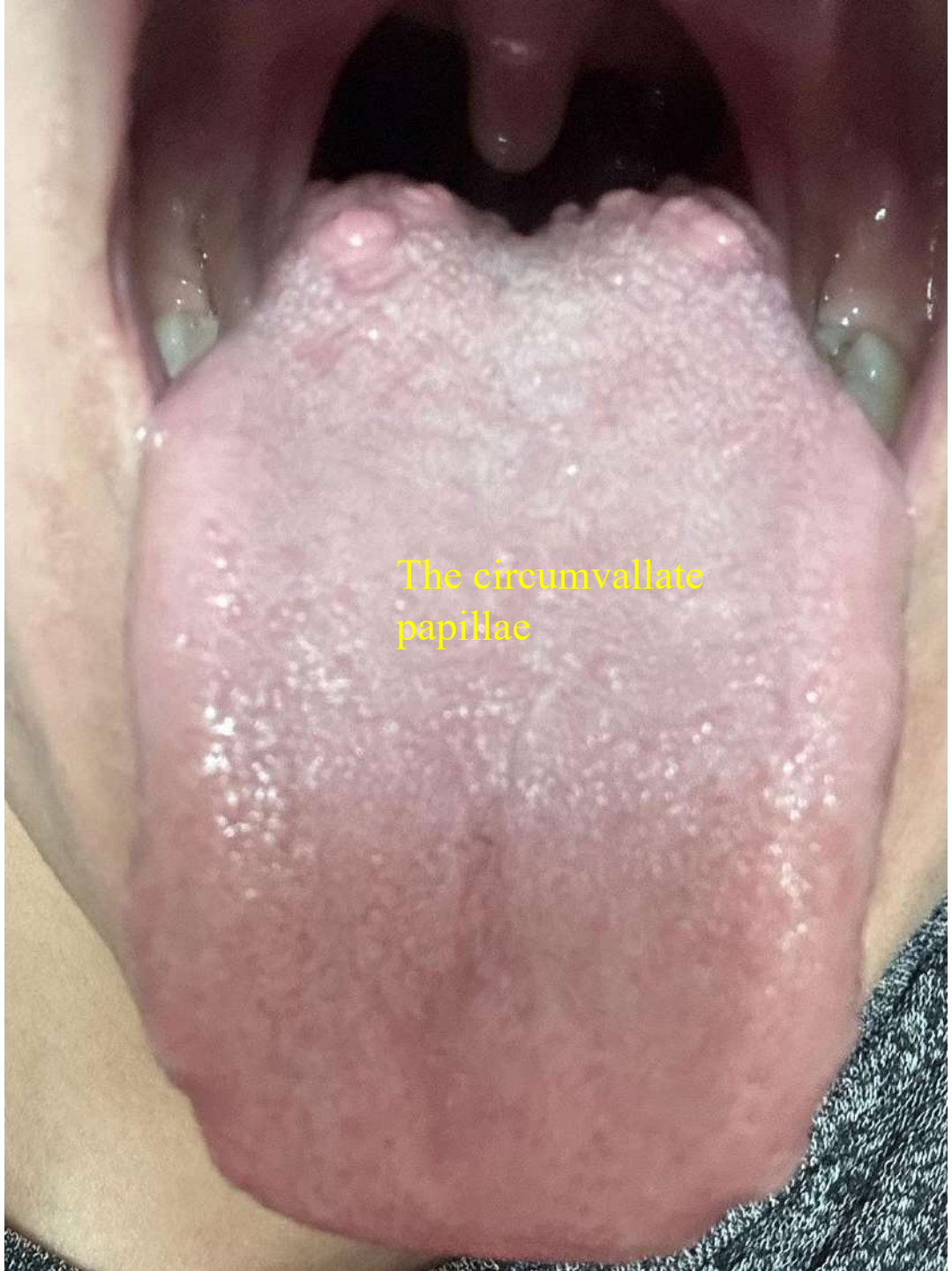
B. The circumvallate papillae: form a V-shaped row of rounded papillae at the junction of the anterior 2/3s and the posterior 1/3 of the tongue.

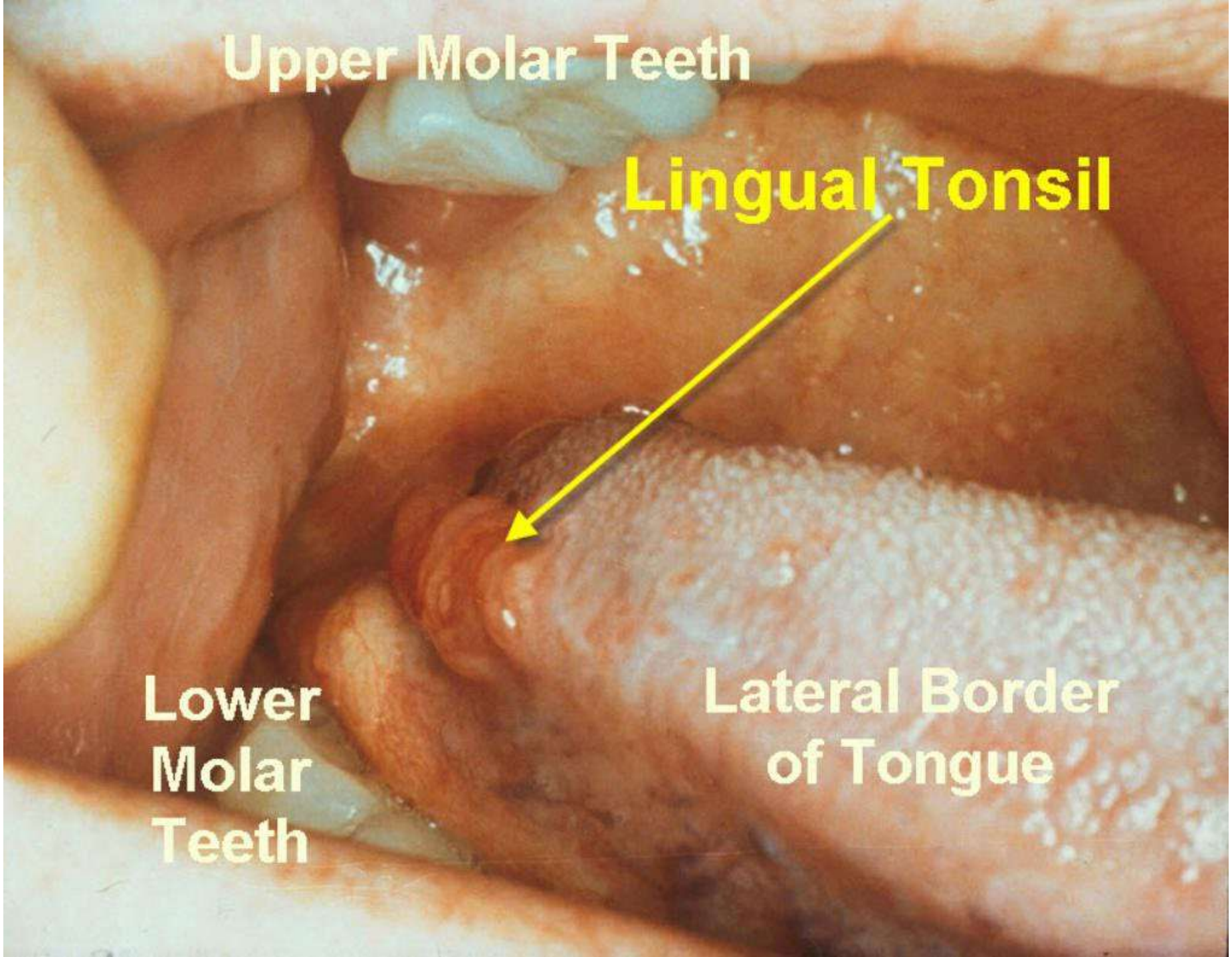
C. The lingual tonsils :are found on the posterior-lateral aspect of the oral tongue. They may become enlarged with viral infections.

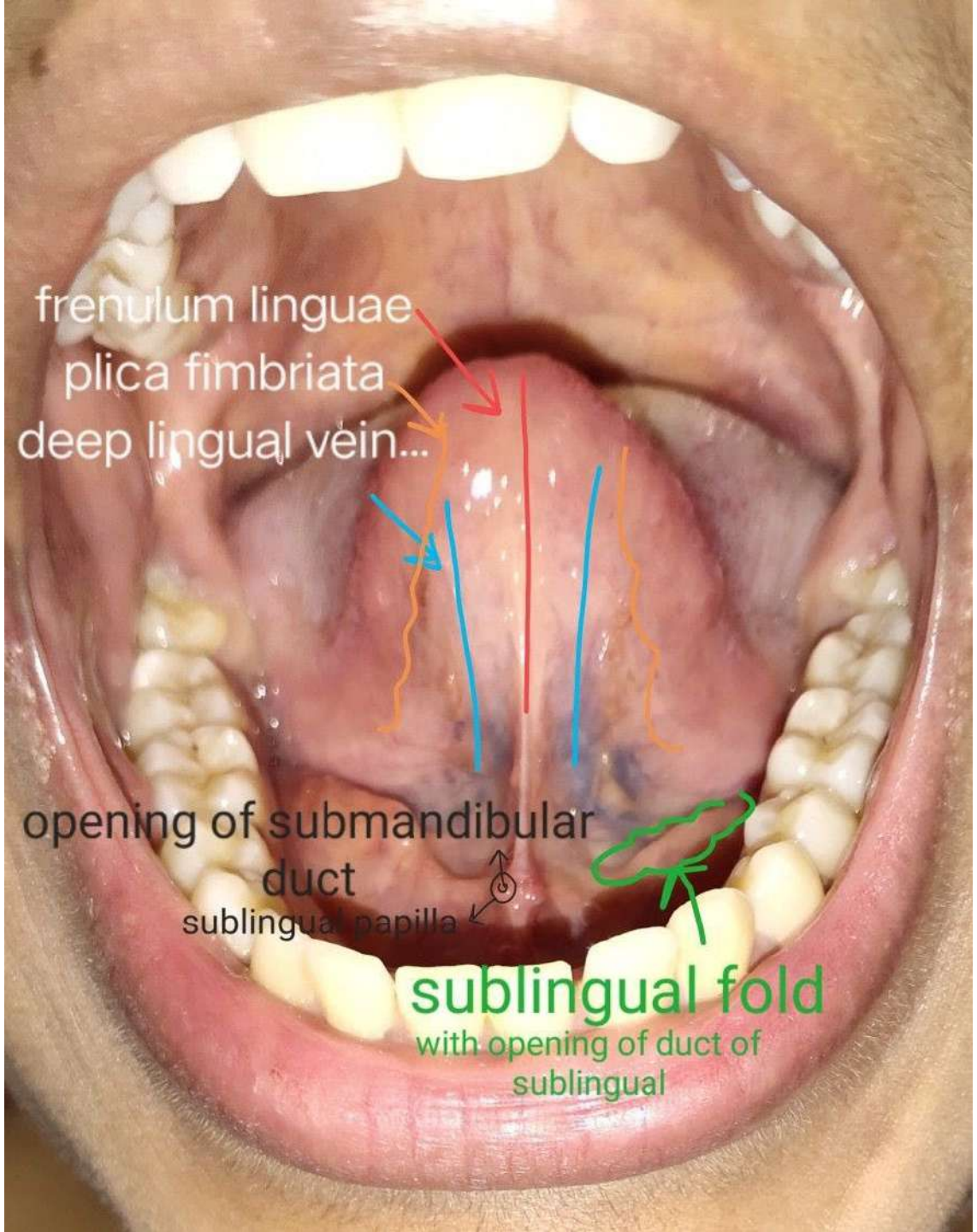
D. Plicafimbriata :are folds of mucosa on the ventral surface of the tongue on either side of the lingual frenum. The folds may look fringed due to mucosal tags.




Stensen's duct


The circumvallate
papillae


Upper Molar Teeth
Lingual Tonsil
Lower
Molar
Teeth
Lateral Border
of Tongue


frenulum linguae
plica fimbriata
deep lingual vein...
opening of submandibular duct
sublingual papilla
sublingual fold
with opening of duct of sublingual

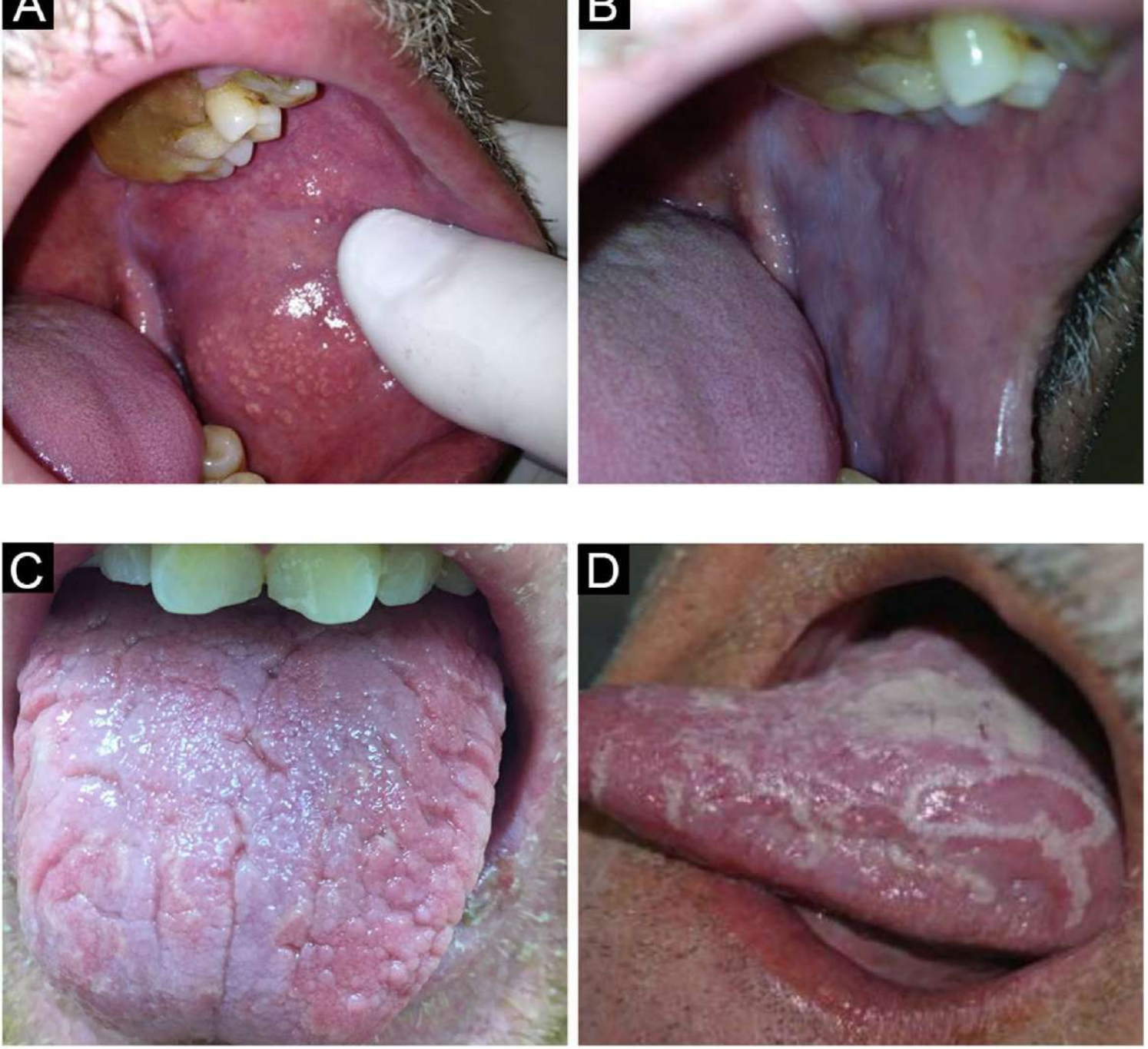
Variations of Normal

- Fordyce granules are ectopic sebaceous glands that occur on the oral mucosa. They are commonly seen on the buccal mucosa or the lateral vermillion of the upper lip. They appear as groups of yellowish-beige slightly raised areas (papules) measuring 1 to 3 mm diameter.
- Varicosities are enlarged veins, commonly seen on the ventral tongue. These are usually seen in older patients. Varicosities blanch on pressure. A glass slide or glass test tube can be used to press on the varicosity. The pressure causes collapse of the vein with disappearance of the purple color. On releasing the pressure, the blood flows back into the vein, and the purple color returns.



- **Leukoedema** It is a condition of the oral mucosa often found in black-skinned individuals, although it is not exclusive in this population. Leukoedema is an anatomical variation of the oral cavity . It mainly affects the buccal region, which acquires a grayish-white, milky and opalescent appearance. More rarely, it affects the sides of the tongue. A maneuver that facilitates the diagnosis is to make it disappear by stretching the buccal mucosa; the lesion is once again seen when the maneuver is discontinued.

- **Fissured tongue** This is a common anatomical variant, characterized by a varied number of grooves that affect the dorsum of the tongue with variable depth . Some individuals have only one longer central fissure. It can be seen in both children and adults, with prevalence increasing with age. There is a strong relationship between fissured tongue and geographic tongue, with several individuals displaying both conditions. The patient should be advised to brush the tongue during oral hygiene



(A) Fordyce granules. (B) Leukoedema. (C) Fissured tongue. (D) Geographic tongue



Varicosities

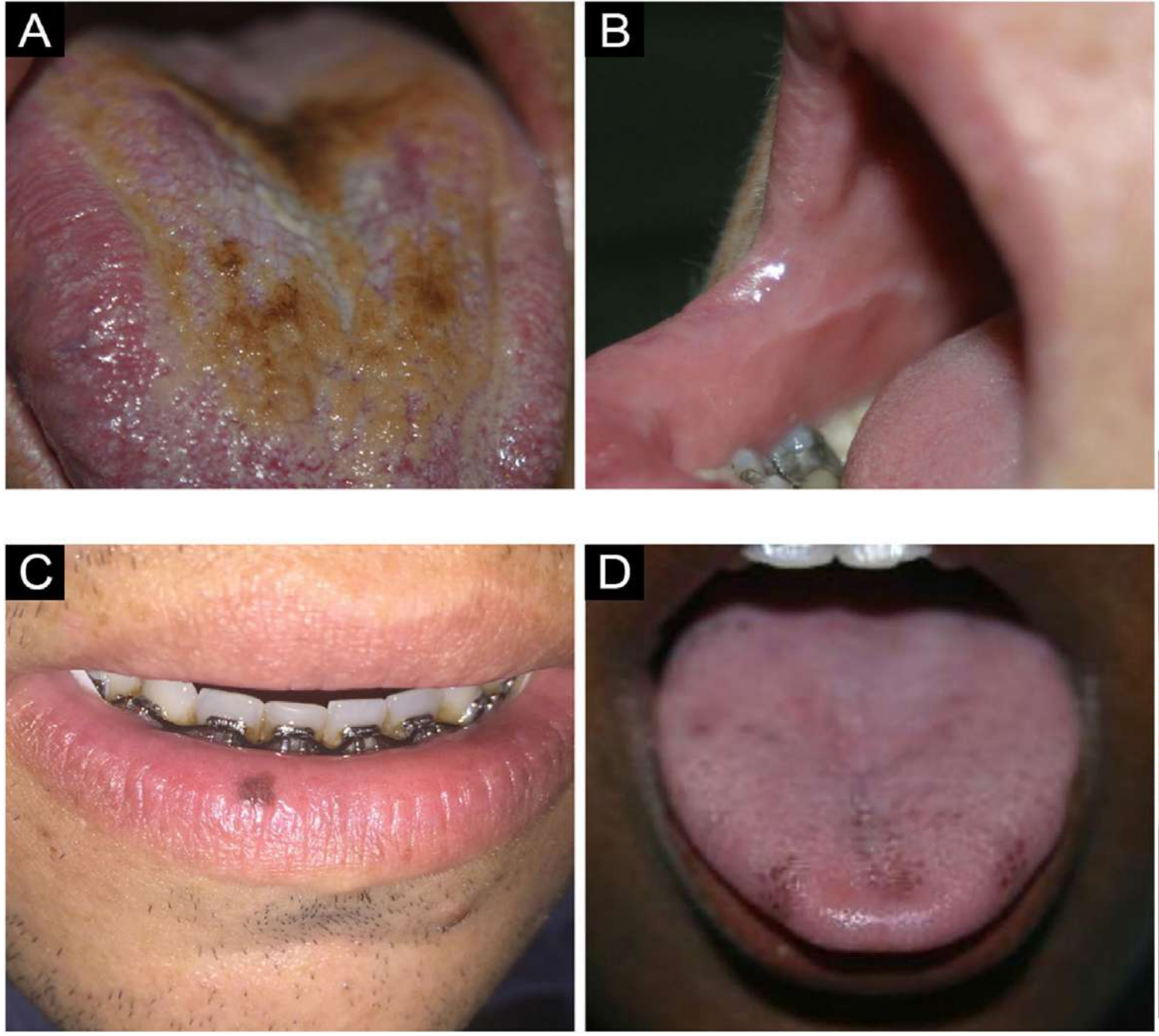
- **Coated tongue/black hairy tongue** It occurs due to the accumulation of keratin over the filiform papillae on the dorsum of the tongue, which become more elongated, giving it a hairy appearance . It is more frequent in smokers, people with poor oral hygiene, debilitated patients and individuals with a history of head and neck radiotherapy. It represents an increase in the production of keratin or a decrease in its normal desquamation. When there are no hairy projections, it is called coated tongue. It may have a yellowish, brown, or black color due to the presence of pigment-producing bacteria

- **Linea alba/occlusal line** The Linea alba is an alteration in the buccal mucosa, associated with pressure or suction trauma between the vestibular surfaces and the teeth, in the occlusal region .Clinically, a raised, white line, usually bilateral, varying in prominence, is observed. Histopathology of this type of lesion shows hyper orthokeratosis covering normal mucosa. When the same raised line occurs with normal color, not white, it is called an ‘occlusal line’

Oral melanotic macule The oral melanotic macule is usually single, well delimited, brownish or black in color . It occurs mainly in the lower lip semi-mucosa when it can also be called lip melanotic macule; sun exposure is questioned as a causal factor by some authors. It can also affect the buccal mucosa, gingiva and palate. It is more frequent in women, with no predilection for any age group. On histopathology, it is characterized by increased melanin production with morphologically normal basal layer melanocytes

Physiological pigmentation Physiological pigmentation is characterized by circum-scribed areas, either single or multiple, of hyperpigmentation on the oral mucosa, usually in people with high phototypes, affecting mainly the gingiva, buccal mucosa, and palate . It must be differentiated primarily from drug-induced pigmentation, such as due to minocycline, which causes blue-gray discoloration by drug metabolites deposition







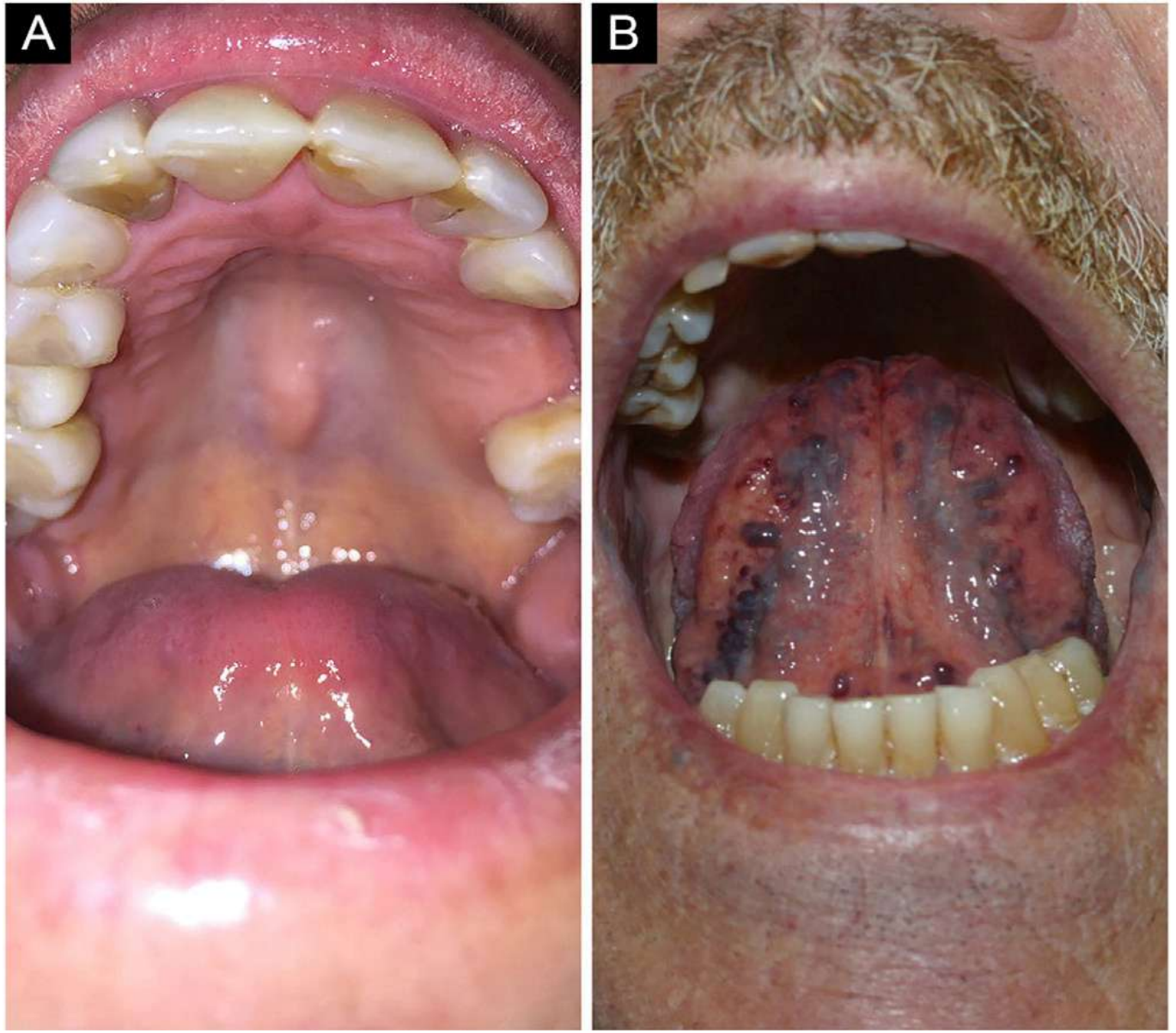
(A) Hairy black tongue. (B) Linea alba. (C) Oral melanotic macule. (D) Physiological hyperpigmentation

Palatine and mandibular torus : Palatine torus (plural form: tori) is a common exostosis that occurs on the roof of the oral cavity. It manifests as an elevated bone mass covered by normal mucosa arranged along the suture in the midline of the hard palate, and may have a flat, nodular, or lobular appearance . They are usually small and asymptomatic masses, smaller than 2 cm. Inspection and palpation of the lesions are sufficient to characterize them. Torus mandibularis or mandibular torus is a common exostosis that appears as a bony protuberance along the mandible, above the mylohyoid line, in the premolar region .Bilateral involvement occurs in 90% of cases and usually consists of single nodules, which may also be multiple. Its prevalence is lower than that of a palatine torus. Most cases are diagnosed clinically.



Lingual varicose veins: Varicose veins are abnormally dilated and tortuous veins. They are very common in the elderly and rare in children, suggesting that this condition is an age-related degeneration due to the loss of the connective tissue that supports the vessels.

It is estimated that they occur in 2/3 of the population over 60 years of age. It is not associated with systemic diseases. Classically, they present as multiple bluish or purplish elevations, most commonly on the ventral part of the tongue



(A) Palatine torus. (B) Lingual varicose veins

The examination of the teeth (number and morphology)

Hypodontia :is missing one to six teeth (not counting wisdom teeth).

- Upper lateral incisors (the smaller teeth on either side of the top two front teeth).

- Upper second premolars (the teeth just in front of the molars on the top).

- Lower second premolars (the teeth just in front of the molars on the bottom).

Some people with hypodontia may also develop symptoms of ectodermal dysplasias.
People with ectodermal dysplasia may have:

- ✓ Nail abnormalities.
- ✓ Thinning hair.
- ✓ Poor hearing.
- ✓ Poor vision.
- ✓ A lack of sweat glands.
- ✓ more common in the permanent dentition than in the primary dentition
- ✓ Cleft lip or cleft palate.
- ✓ Low birth weight.
- ✓ Genetic disorders, such as Down syndrome or ectodermal dysplasia.
- ✓ Infectious diseases, such as candida or rubella.
- ✓ Chemotherapy.
- ✓ Radiation therapy.



Oligodontia :may refers to the absence of 6 or more teeth (not including third molars)

- ✓ Be isolated or associated with syndromes, Oligodontia can occur in association with various genetic syndromes, like ectodermal dysplasia, Van Der Woude syndrome, Down syndrome and Reiger syndrome or as a non syndromic isolated familial trait, or as an infrequent finding.

Oligodontia is often related with conical shaped teeth, microdontia, delayed eruption of permanent teeth, an increased freeway space and retention of deciduous teeth.

- ✓ Syndromic and non syndromic form of Oligodontia can be differentiated by conducting thorough physical examination of hairs, nails, sweat glands, eyes and to check for any other congenital disorders.



Anodontia :is the complete absence of teeth

- ✓ The main sign of anodontia is when a child has not developed any of their permanent teeth by the age of 12.
- ✓ Another sign of anodontia can include the absence of baby teeth when the baby has reached 12 to 13 months.

Symptoms that are associated with anodontia include: alopecia, lack of sweat glands, cleft lip or palate, and missing fingernails.
Typically, these symptoms are seen because anodontia is typically associated with ectodermal dysplasia. In the rare case that ectodermal dysplasia is not present, anodontia will be caused from an unknown genetic mutation.

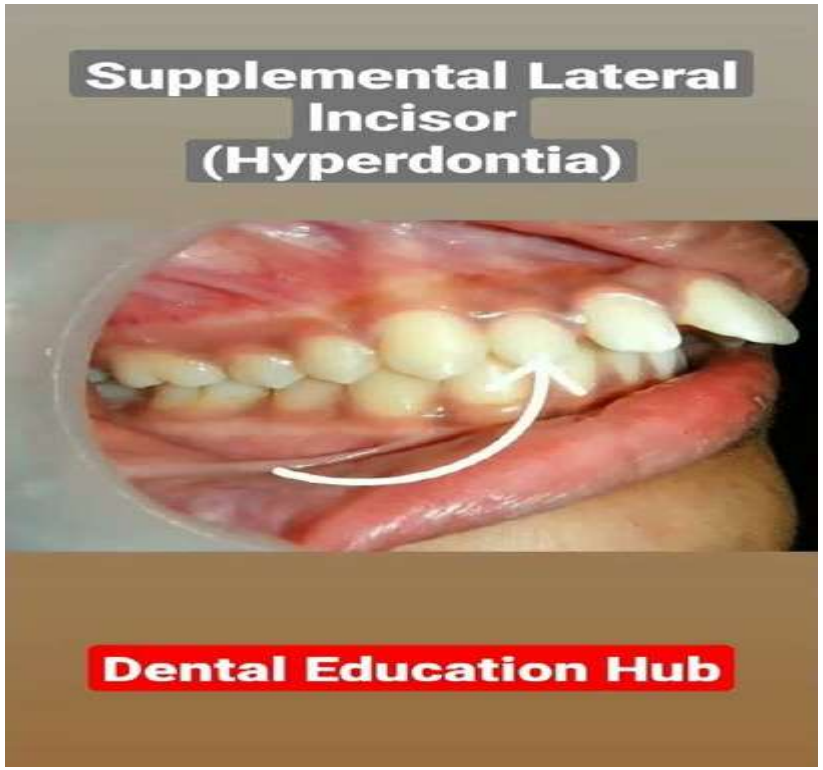


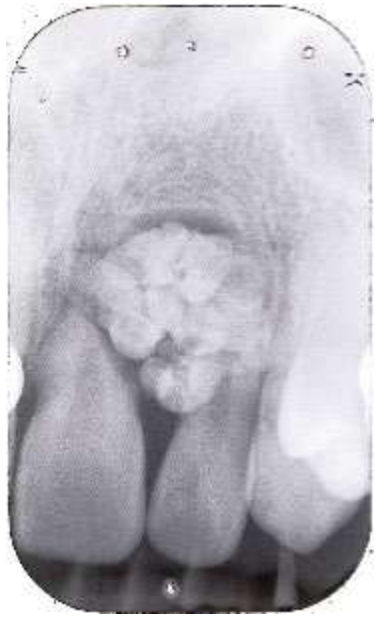
- ✓ • **Supernumerary teeth** are classified according to morphology and location (In the primary dentition, morphology is usually normal or conical.)
- ✓ There is a greater variety of forms presenting in the permanent dentition.
- ✓ Four different morphological types of supernumerary teeth have been described:

- conical
- Tuberculate
- Supplemental
- Odontome.






Supplemental Lateral Incisor (Hyperdontia)
Dental Education Hub



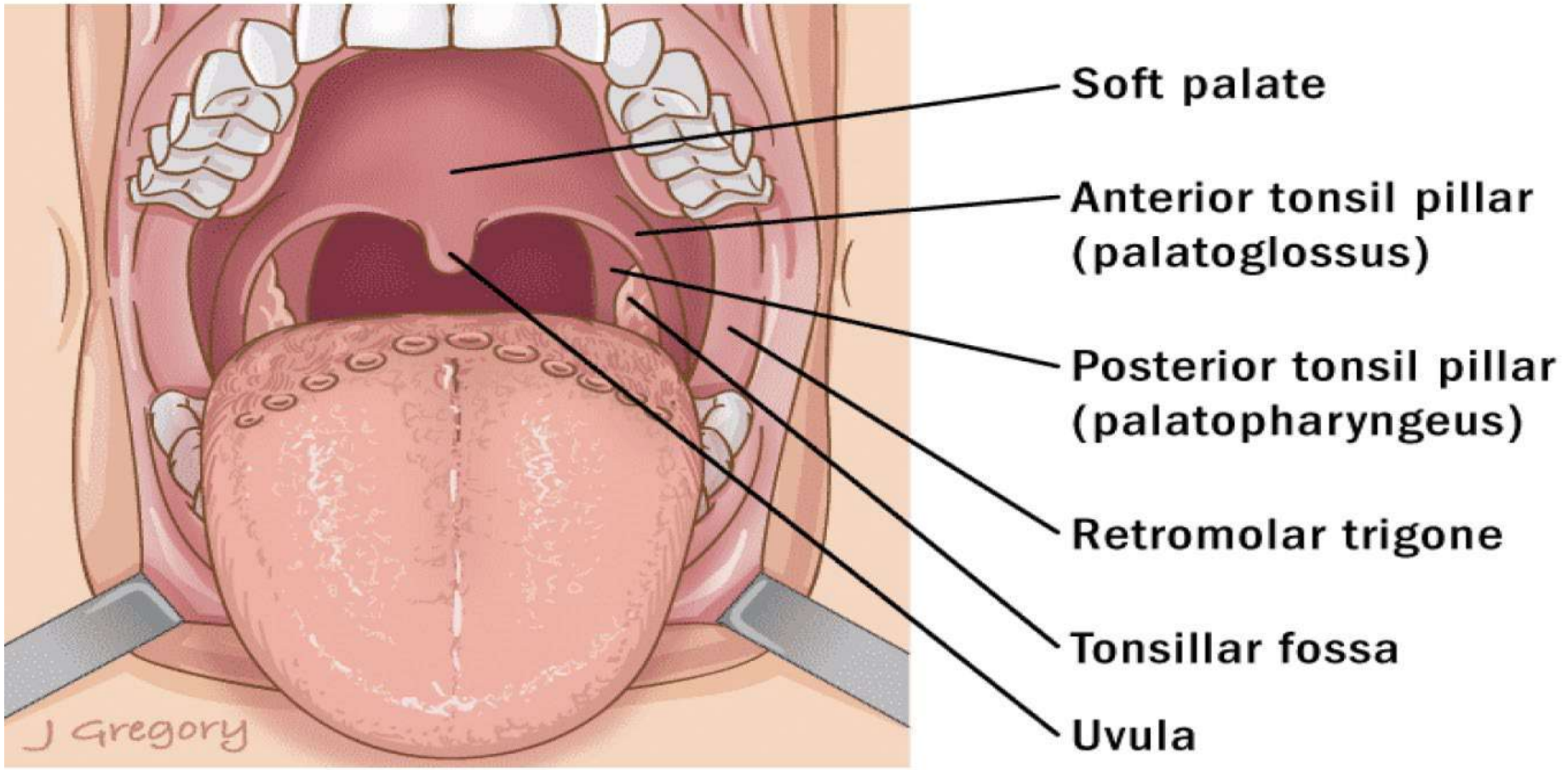
Oropharynx

Examine the oropharynx by placing a mirror or tongue depressor on the dorsal surface of the tongue applying gentle pressure without having the patient stick their tongue out.

The dentist should be able to visualize the posterior pharyngeal wall, anterior and posterior pillars and the tonsillar crypt and tonsils, if present .

The areas are normally not palpated unless there is a need.




Soft palate
Anterior tonsil pillar
(palatoglossus)
Posterior tonsil pillar
(palatopharyngeus)
Retromolar trigone
Tonsillar fossa
Uvula
J Gregory

Posterior Pharyngeal Wall

The tissue in this area should appear very vascular but otherwise homogenous in color tending towards reddish pink. The surface may be smooth or appear to have small coral pink to translucent, gelatin-like, homogenous surface prominences which are consistent with normal areas of scattered lymph tissues (lymphoid aggregates).

Pathologic findings include:

- Homogenous and non-tender erythema associated with post nasal drip and/or smoking
- Erythema and purulent exudate associated with pharyngitis (infection of the pharynx) may cover portions of the pharyngeal wall
- Ulcers, erosions or noticeable enlargements or growths

Anterior and Posterior Pharyngeal Pillars

The anterior and posterior pillars should appear vascular, smooth and symmetrical
Atypical findings one may encounter include lymphoid aggregates (as found on the posterior pharyngeal wall), areas of pale scarring in a radial or stellate pattern from tonsillectomy, or torn or absent pillars also a result of this surgery.
Pathologic findings include:

- ❑ Asymmetry, unless due to tonsillectomy
- ❑ Lesions of any kind
- ❑ Erythema associated with tenderness or exudates





Streptococcal infection of the tonsils

Tonsillar Crypt

The tonsils are examined using direct visualization. dentist will observe rough, lobular, and coral to light pink tissue of varying amounts between the anterior and posterior pharyngeal pillars .

- Atypical presentations include excessively large or asymmetrical tonsils, cratered surfaces without evidence of erythema or exudates.
- Occasionally, individuals have large crypts in the tonsils that collect food debris, bacteria and hardened material.
- Patients with this type of cryptic tonsil often complain of halitosis.
- after a tonsillectomy one may observe residual tonsil tissue or a regrowth of lymph tissue in the area.
- Pathologic findings include:

 Swelling, asymmetry, erythema and/or surface exudates

 Erythema and/or dysphagia may also be associated with mouth breathing nasal obstruction.

Soft Palate and Uvula

This area is examined using direct vision and is normally not palpated unless necessary. If palpation is necessary a topical anesthetic should be used by the dentist and the tissues should be palpated from the mid line out towards the lateral surfaces. Normally, this area is slightly less vascular than the oropharynx and is usually reddish pink in color.

- ❑ Observe the area as the patient says “ah.” The tissue should appear loose, mobile and symmetrical during function. The tissue will have a homogenous, spongy consistency on palpation.
- ❑ Atypical observations include yellowish coloring due to increased adipose tissue (especially in older patients), excessively long or short uvulas and uvulas that appear slightly asymmetrical at rest. Occasionally one will discover a bifid (cleft) uvula. Pathologic findings include:

• Lesions of any kind
• Loss of function or lack of symmetry during function



Examination of the hard palate

The dentist should use firm pressure and try not to slide the fingers along the tissue of the hard palate

• In general, the tissue is a homogenous pale pink color, firm to palpation towards the anterior and lateral to the midline while more compressible towards the posterior and medial to the apices of the teeth.

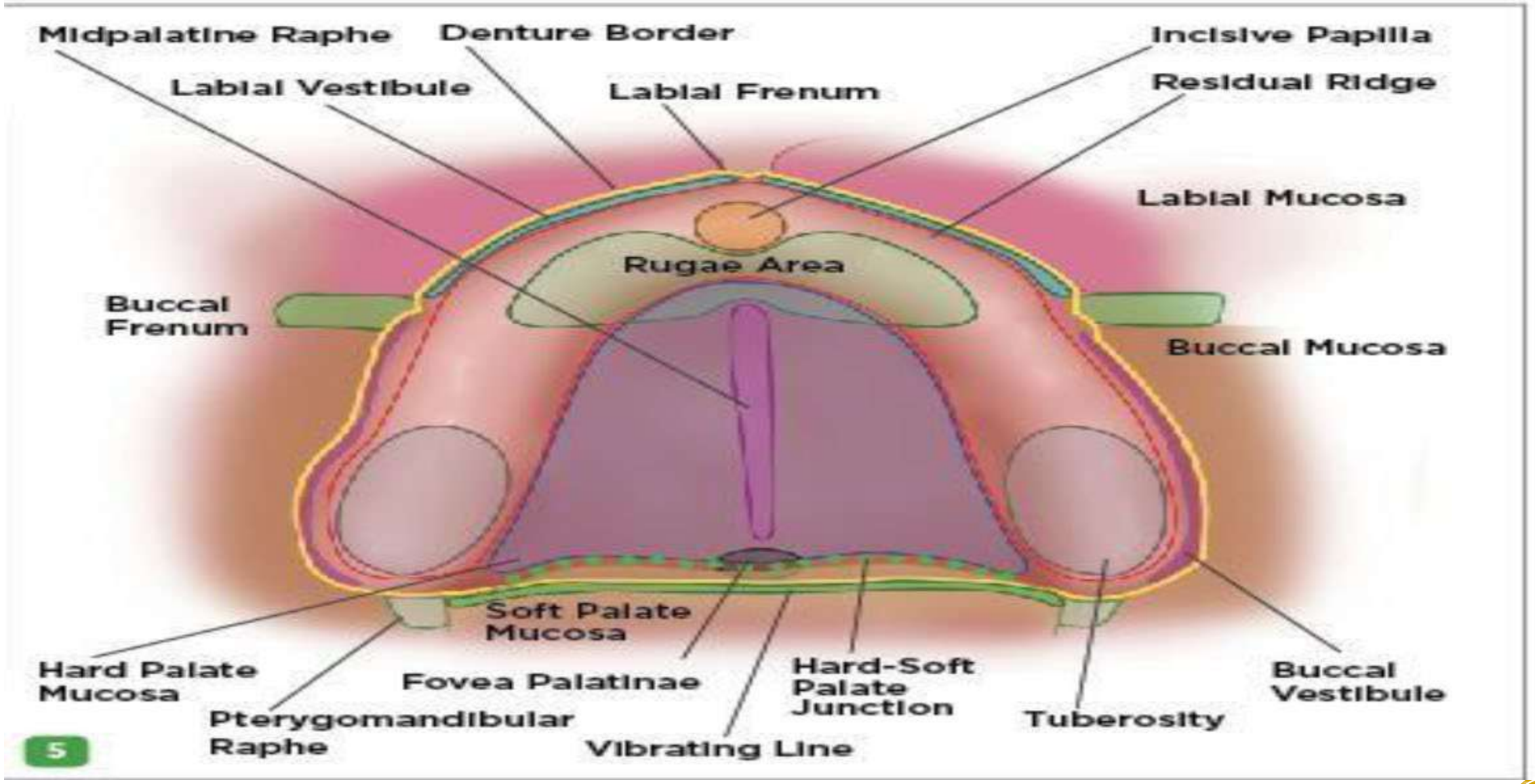
✓ The normal structures of the hard palate should be identified:

• Incisive papilla – protuberance of soft tissue lingual to the maxillary central incisors which covers the incisive foramen and normally appears redder than the surrounding tissues

• Raphe – slightly elevated line extending from the incisive papilla to the soft palate)

• Rugae – corrugated ridges radiating laterally from the raphe





Normal structures of the anterior hard palate

Normal structures of the posterior hard palate

- Maxillary tuberosities – area distal to the last molars the tissue should be a homogenous pink color and firm to palpation
- The torus palatinus is the most common atypical finding in the hard palate. These tori may range have a smooth surface texture. Often the larger tori will have traumatic ulcers or other traumatic lesions on their surfaces.
- Tori are not usually considered a problem unless prosthetic appliances are being considered. Tori also make it difficult to expose intraoral radiographic films.

Multilobulated torus palatinus.





The dentist should use firm pressure and try not to slide the fingers along the tissue of the hard palate

while **the Pathologic findings include:**

 Pigmented macules – pigmented lesions of any type should be identified to rule out melanoma.
 Tattoos, resulting from pencil leads being jabbed into the tissues(graphic tattoo) or amalgam tattoo
 Thermal burns – the anterior palate is the most common area for this type of traumatic injury
 Nicotine stomatitis – whitening and fissuring of the attached gingiva palate and inflammation of the minor salivary gland ducts
 Papillary hyperplasia – development of finger-like projections usually under a poorly fitting full or partial denture
 Traumatic lesions – abrasions and lacerations resulting from eating injuries
 Systemic related lesions – lesions related to lupus are commonly found in the palate and the palate is a prime location for the blue nevus





Nicotine stomatitis



Papillary hyperplasia



Tattoos



Thermal burns

Buccal Mucosa

The buccal mucosa is examined using direct and indirect vision followed by bidigital palpation of the entire area. Be sure to pull the tissues away from the retromolar area and stretch the mucosa away from the mucogingival junction

The buccal mucosa should be bidigitally palpated pressing the tissue between the index finger and thumb of one hand

Normal tissues of the buccal mucosa appear moist and pink/dark pink.

They are soft and pliable on palpation with no discernible indurations.

- Stensen's duct should be identified with or without the presence of a parotid papilla.
- Linea alba
- Fordyce's granules and leukoedema are common atypical findings on the buccal mucosa.
- Feeling small papules within the tissues usually indicative of sclerotic or fibrotic minor salivary glands.

Varicosities may often present on the buccal mucosa of older patients. The buccal mucosa is also a prime area for stress related habits such as cheek chewing (morsicatio buccarum).

 Traumatic injuries – thermal burns, cheek bites, ulcers, traumatic fibroma

Leukoplakia associated with spit tobacco

 Neoplastic changes – erythroplakia, speckled leukoplakia and pigmented lesions

Systemic disease – oral lichen planus, lupus, lipomas, aphthous ulcers, erythema multiforme, and Crohn's disease ,\



Leukoplakia associated with spit tobacco

Labial Mucosa

The labial mucosa is examined using direct vision by averting the tissues over the fingers or thumbs followed by bidigital palpation of the tissues of the lips.

Move the tissues from side to side and visualize the frena. Normal lip tissues are a homogenous deep pink color which changes gradually to a deep red color with more prominent vascularity near the mucolabial vestibule. Tissues should be moist and have uniform consistency and thickness when palpated





Bidigital palpation of the upper labial mucosa.

Sclerotic minor salivary glands are common atypical findings and also Fordyce's granules.



<u>Pathologic findings include the following:</u>

- Traumatic injuries – abrasions, lacerations
- Dry, cracked lips
- Angular cheilitis – human herpes virus, Candida Albicans
- Aphthous ulcers
- Neoplastic changes

Mandible

The body of the mandible will be examined using direct and indirect vision followed by digital palpation of the entire structure. The tissues of the floor of the mouth should be stretched away from the inferior border of the mandible with a mouth mirror

Mandibular tori and exostoses are the most common atypical findings in this area.

The retromolar area may present with partially erupted third molars or scarring from third molar extraction. This area is also prone to hyperkeratosis from constant friction from masticatory function.

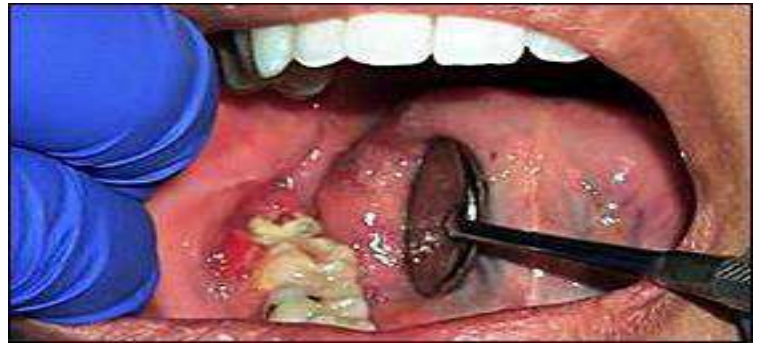


The mirror is used to visualize the anterior lingual portion of the mandible

Pathologic findings include:

- Traumatic lesions – ulcers, abrasions
- Infections – pericoronitis
- Neoplastic growths
- Leukoplakia associated with spit tobacco





Painful pericoronitis surrounding partially erupted tooth

Use digital palpation pressing the tissues against the body of the mandible for both the lingual and the facial aspects.

Attached Gingiva

The tissues should appear pale pink and homogenous in color and texture following the visual examination, the attached gingiva is palpated using a digital technique.

The tissue should feel firm to touch and tightly attached to the bone. The most common atypical finding in the area of the attached gingiva is exostoses



Extensive exostoses on the maxillary facial surfaces



Digital palpation of the mandibular facial attached gingiva

Pathologic findings include:

• Inadequate zones of attached gingiva – the clinician should determine the presence of adequate amounts of attached gingiva in all areas. Less than 1 mm of attached gingiva is considered to be inadequate in most cases and the patient should be referred to a periodontist for evaluation of the affected area

• Mucogingival involvement – areas with no attached gingiva or areas of extreme recession

• Frena problems – tight frenum attachments or pulls

• Traumatic lesions – ulcers, abrasions, burns

• Mucosal disease such as lichen planus, pemphigus vulgaris, mucous membrane pemphigoid, lupus, and allergic type responses



Salivary Flow and Consistency

Some abnormal findings must be noted such as frothy saliva or thick ropy saliva.

Xerostomia should be suspected based on information collected from the medical/dental histories. Sometimes the patient's perception of dryness must be assessed as well. The patient may voice a concern of overall oral dryness, while the actual flow of saliva appears normal.

The mixture of serous and mucous saliva affects the perception of dryness as well.

When problems arise with the parotid gland, the flow from Stensen's duct will be diminished. Milking the salivary glands from the tail toward the mid line assists the clinician in visually assessing the Stensen's duct orifice found next to the maxillary first molar.





Use gauze to dry off the buccal mucosa then press the area above the duct to milk the gland

Gauze should be used to dry the floor of the mouth and visually asses the flow from the Wharton's duct orifice and other ducts of both the sublingual and submandibular glands

Conclusion

- Carefully examination of the dentist to all the structures of the oral cavity
- The examination including the teeth gingiva the pharyngeal area ,tonsil buccal mucosa ….etc
- Whether theses alteration during examination may related to the systemic diseases or need further investigation
- The most common types of lesion and ulcer found in the above mention structures


THANK YOU!