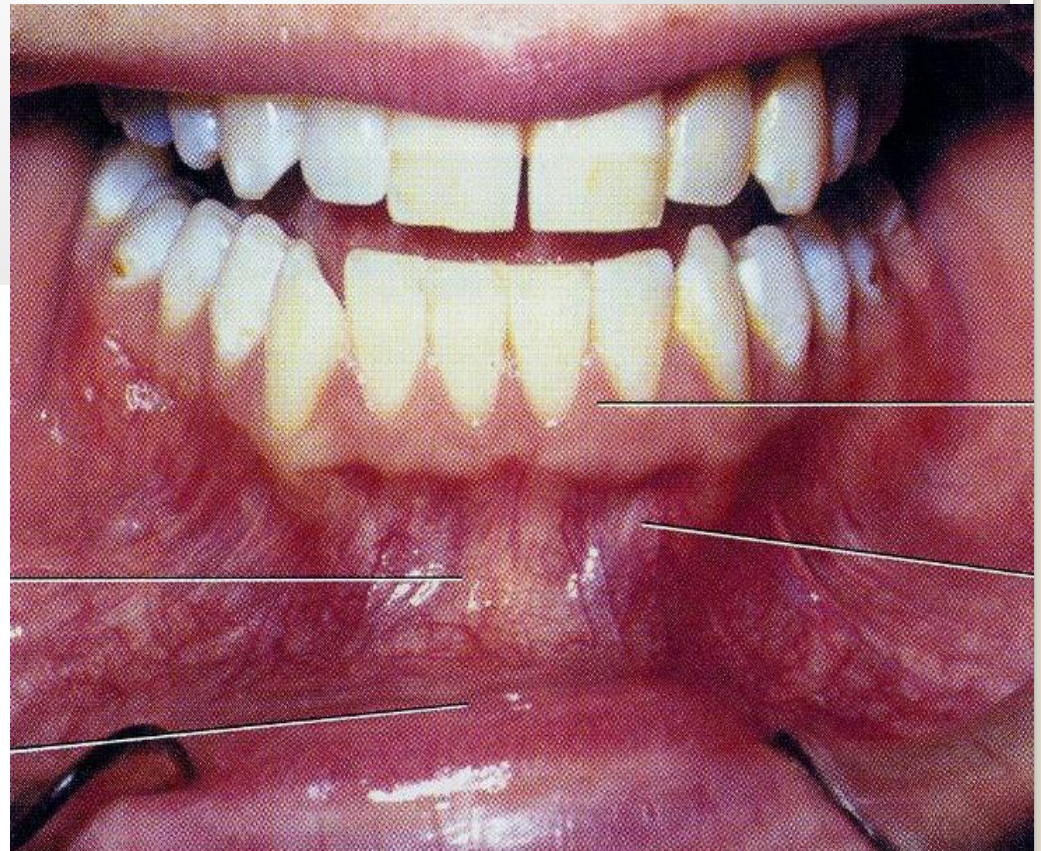


CLINICAL ANATOMY OF ORAL CAVITY



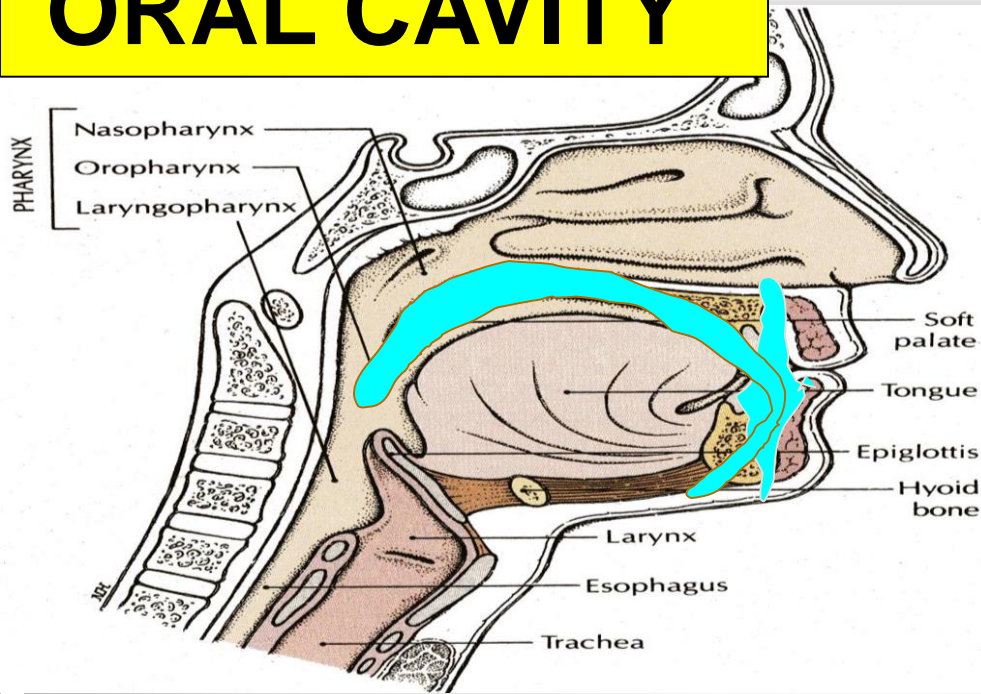
By Dr.Sanaa Alsharawy

Objectives and Clinical Significance of the Oral Cavity :

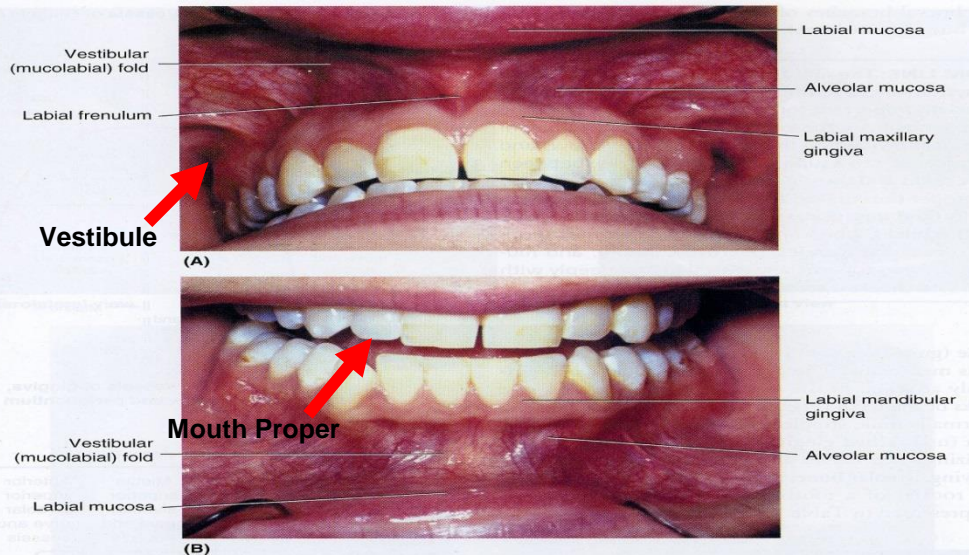
The mouth is one of the important areas that the medical professional is called on to examine, so you should :

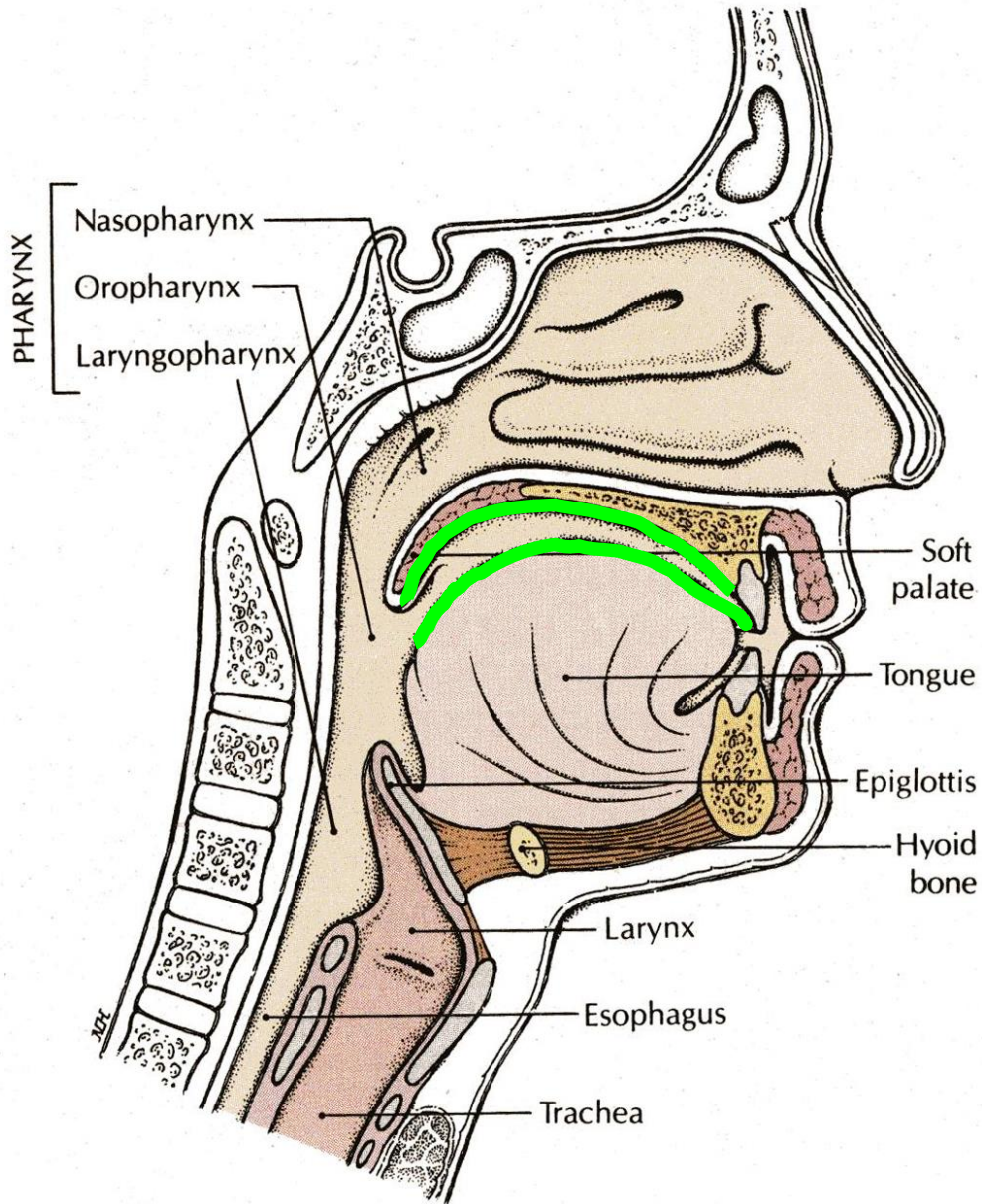
- Knew the nerve supply, blood and lymph drainage of the mouth cavity contents.
- Evaluate the movement of soft palate.
- Examine the oral part of pharynx for tonsillitis.
- Knew the close relation of the submandibular duct and calculus formation.
- Remember the close relation of the lingual nerve to the lower 3rd molar tooth and to the submandibular duct.
- Evaluate the mucous membrane and movement of the Tongue.
- Identify the clinical estimation of hypoglossal nerve.

ORAL CAVITY



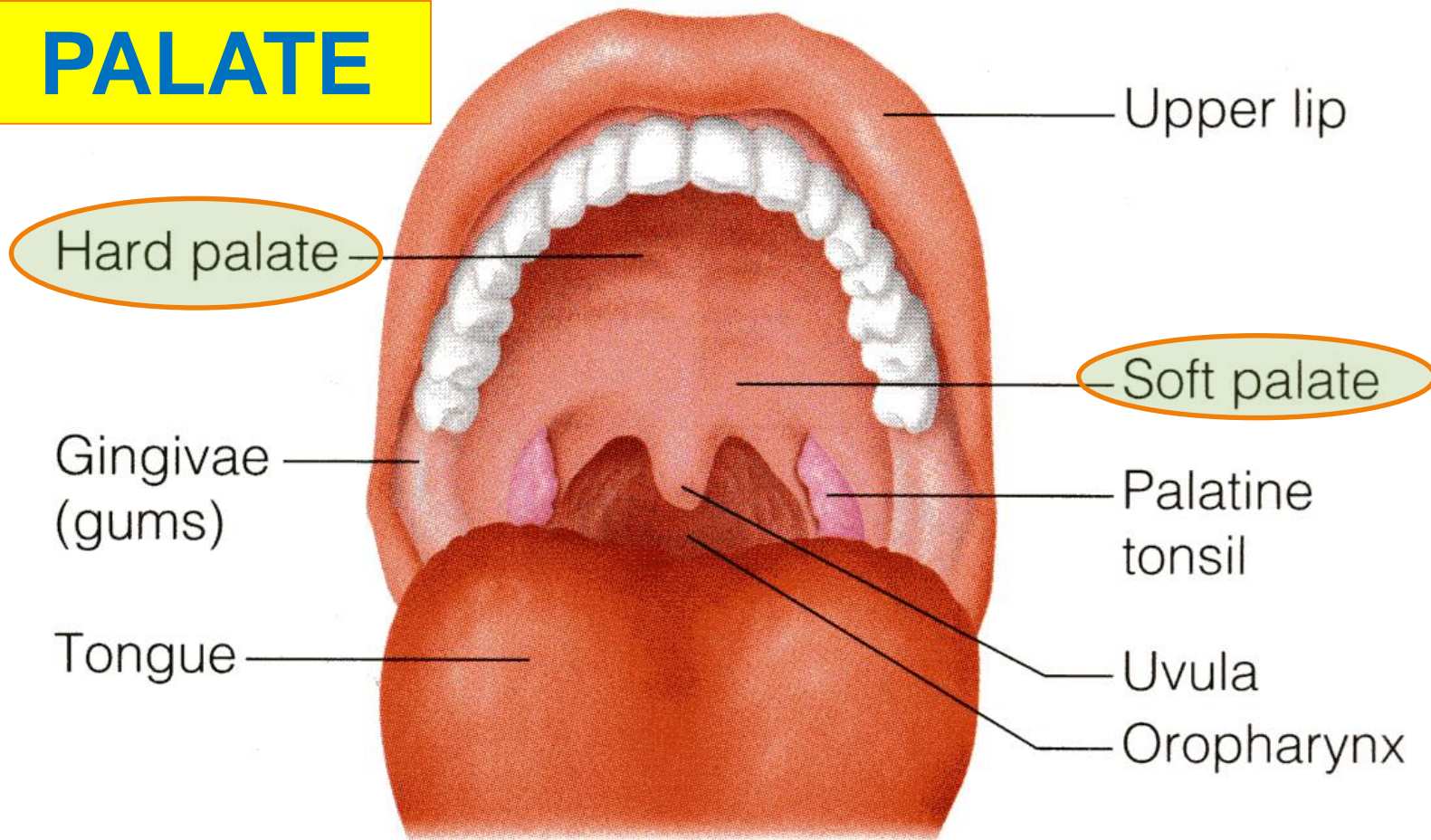
- The mouth :
- It is divided into the **1- Vestibule:**
- Which lies between **teeth & gums internally** and **cheeks & lips externally**.
- The **parotid duct** opens opposite the upper second molar.
- **2- Mouth cavity proper:**
- Which lies within the alveolar arches, teeth and gums.





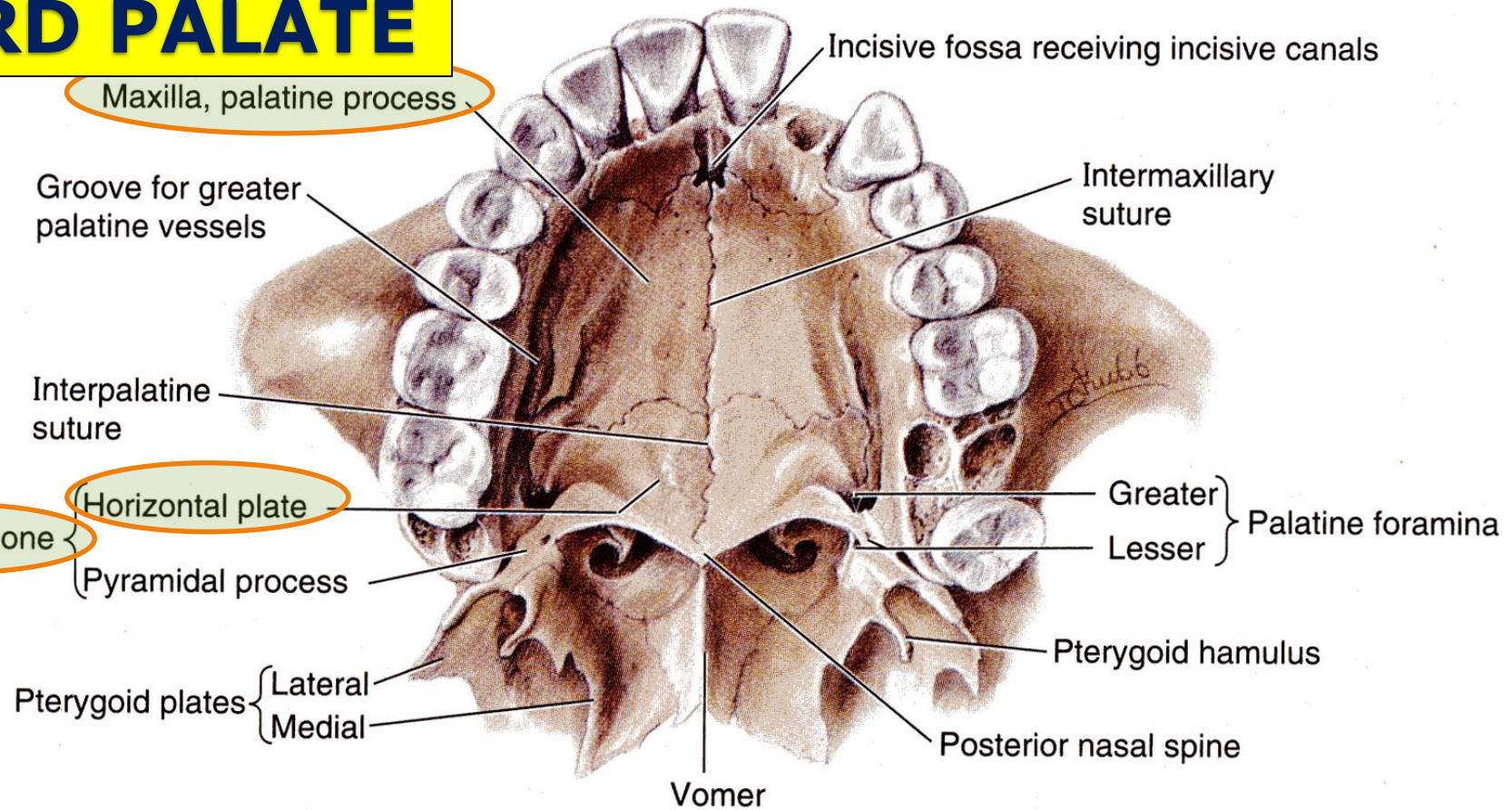
- **Mouth proper:** has a roof, which is formed by the **hard & soft palate**.
- The floor is formed by the **anterior 2/3 of the tongue**

PALATE



- The **palate** forms the roof of the mouth.
- It is divided into two parts:
 - The **hard (Bony) palate** in front and
 - The **soft palate** behind.

HARD PALATE



- **The hard palate** is formed by (4 bones), **palatine processes of the maxillae** and **horizontal plates of palatine bones**.
- It forms the floor of the nasal cavities and the roof of the mouth cavity.

SOFT PALATE

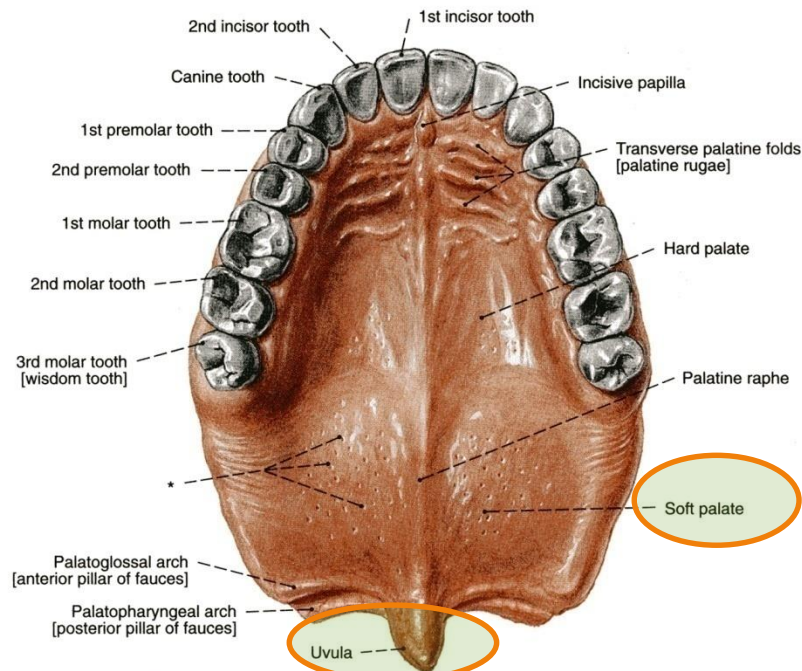
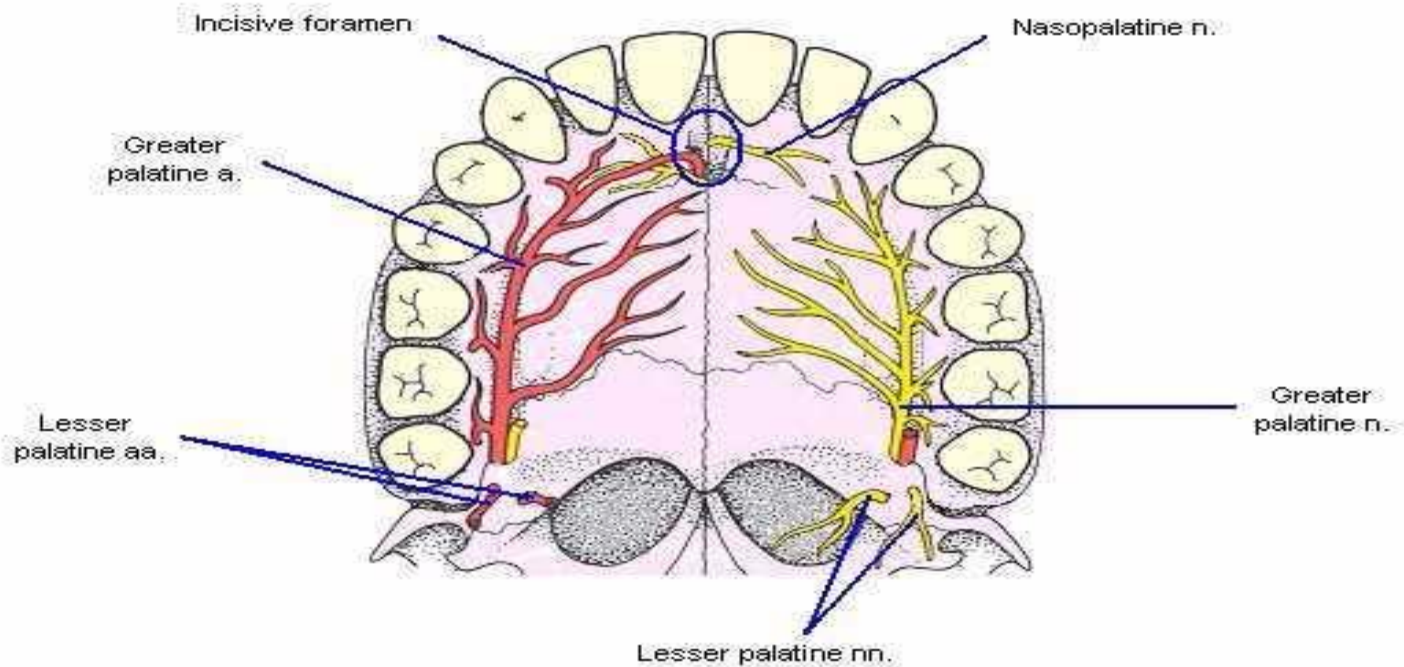


Fig. 191 Hard and soft palate; maxillary [upper] dental arcade; inferior aspect.
*Openings of palatine glands.

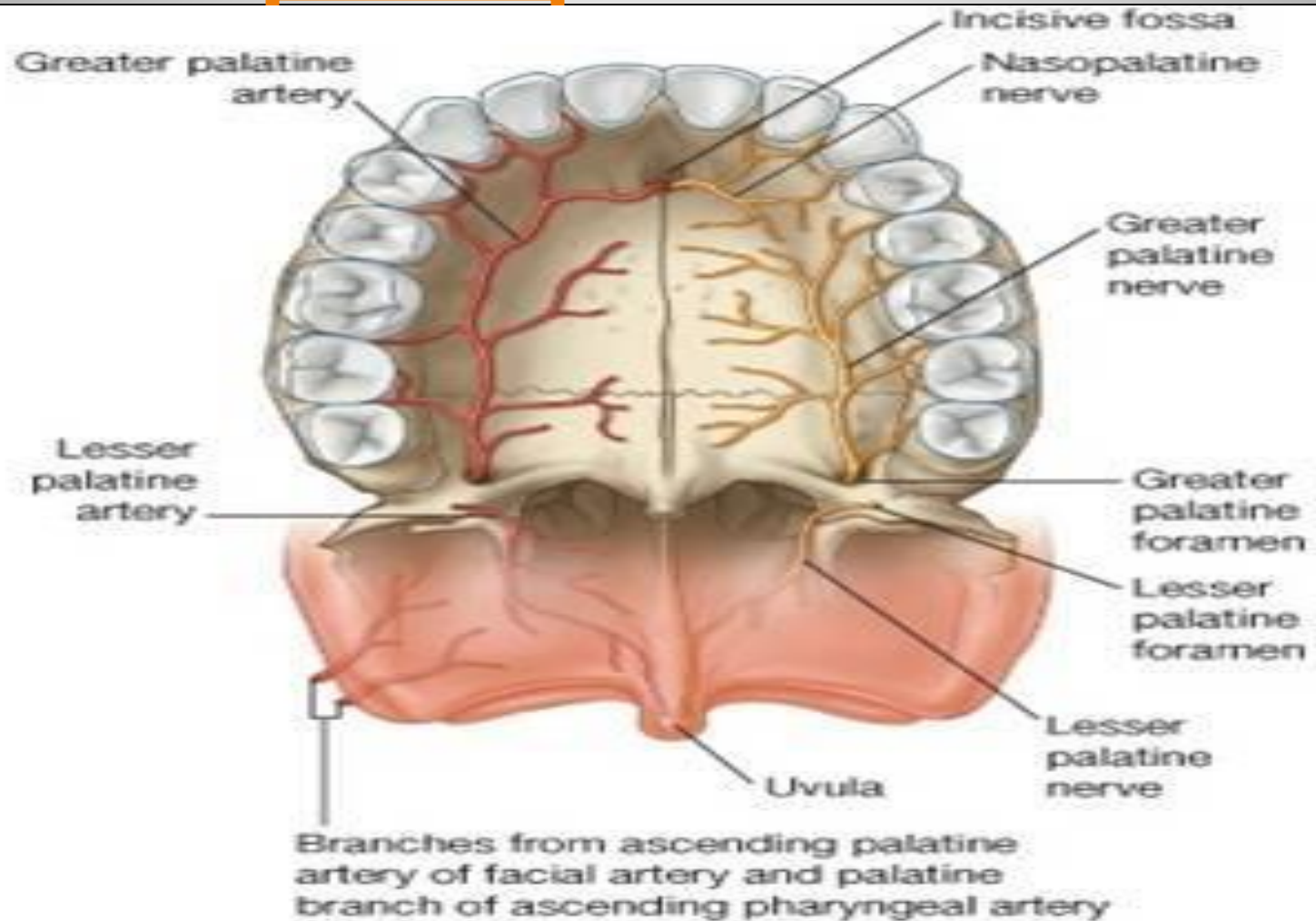
- It is a mobile fold of mucous membrane filled with striated muscles.
- It is attached to the posterior border of the hard palate.
- Its free posterior end is a conical projection called the uvula.

Sensory innervation of Soft Palate



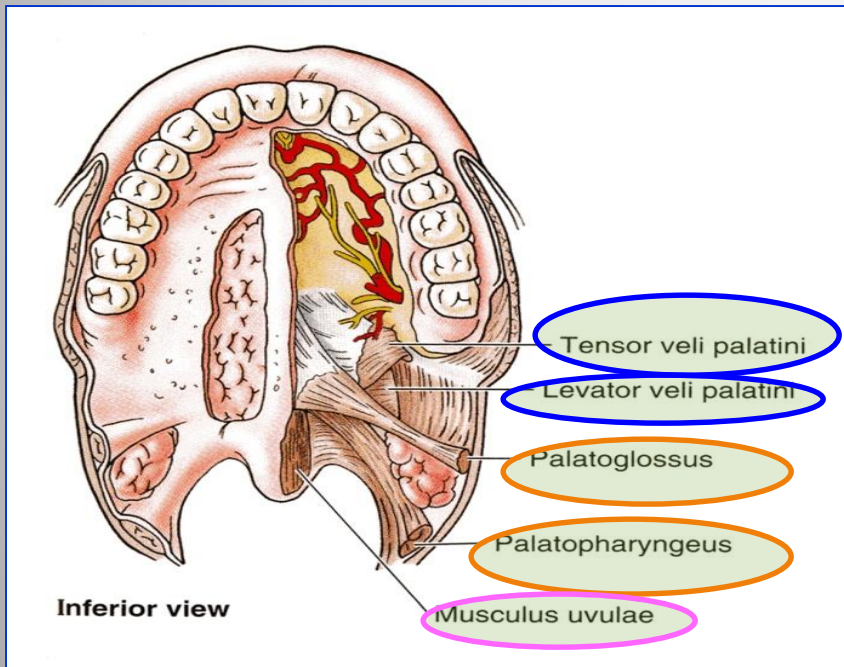
- The **greater** and **lesser palatine nerves** from the **maxillary nerve**.
- The **nasopalatine nerve**, also a branch of the **maxillary nerve**.
- The **glossopharyngeal nerve** also supplies the soft palate.

BLOOD SUPPLY OF THE PALATE



- **Greater & lesser palatine** *branches* of the **maxillary artery**.
- **Ascending palatine** branch of the **facial artery**.
- **Ascending pharyngeal** branch of the **external carotid artery**.

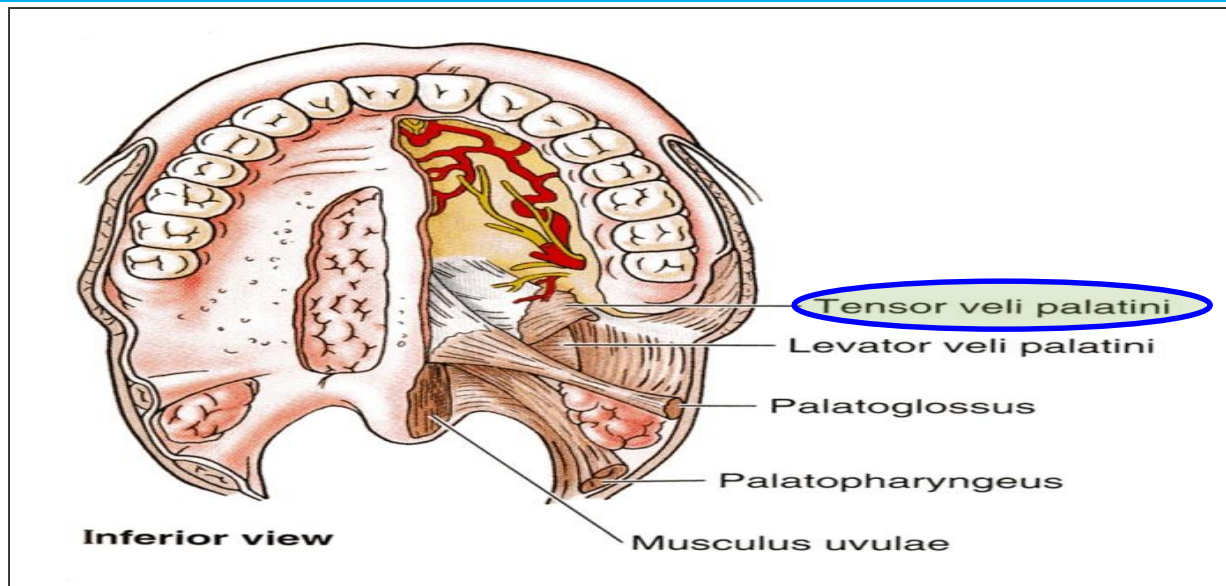
MUSCLES OF THE SOFT PALATE



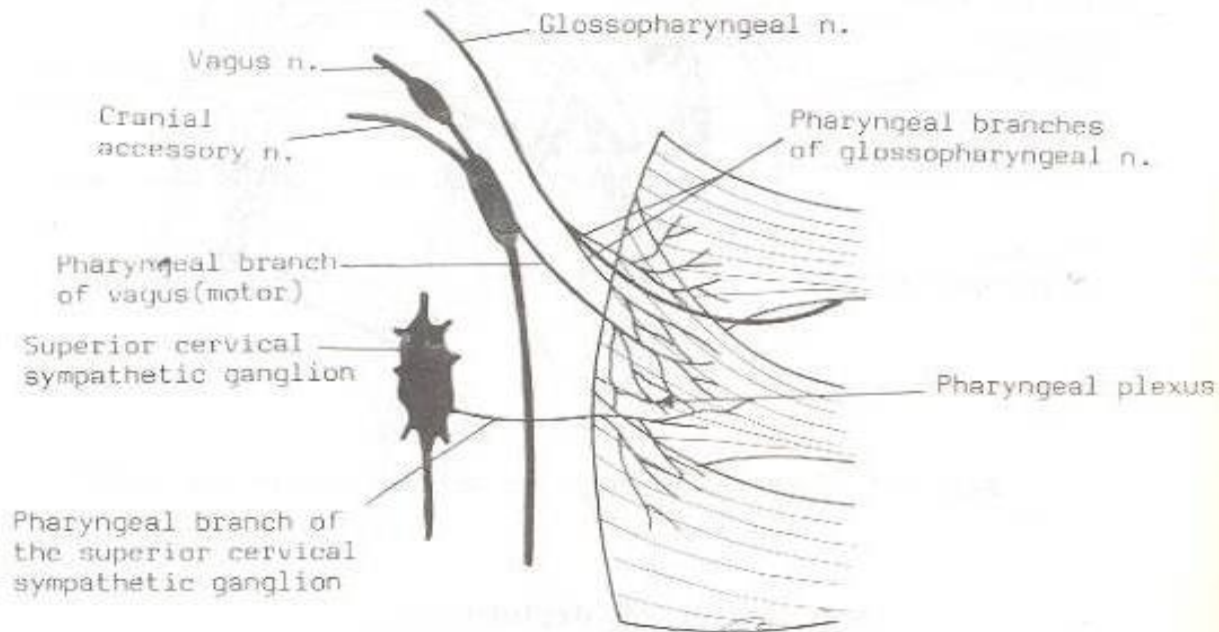
- 5 pairs of muscles**
- 1- Tensor veli palatini,
 - 2- Levator veli palatini,
 - 3- Palatoglossus,
 - 4- Palatopharyngeus,
 - 5- Musculus uvulae.

MOTOR INNERVATION OF SOFT PALATE

▪ **All muscles** are supplied by :
pharyngeal plexus EXCEPT the
tensor veli palatini is supplied by nerve
to medial pterygoid muscle from
MANDIBULAR NERVE



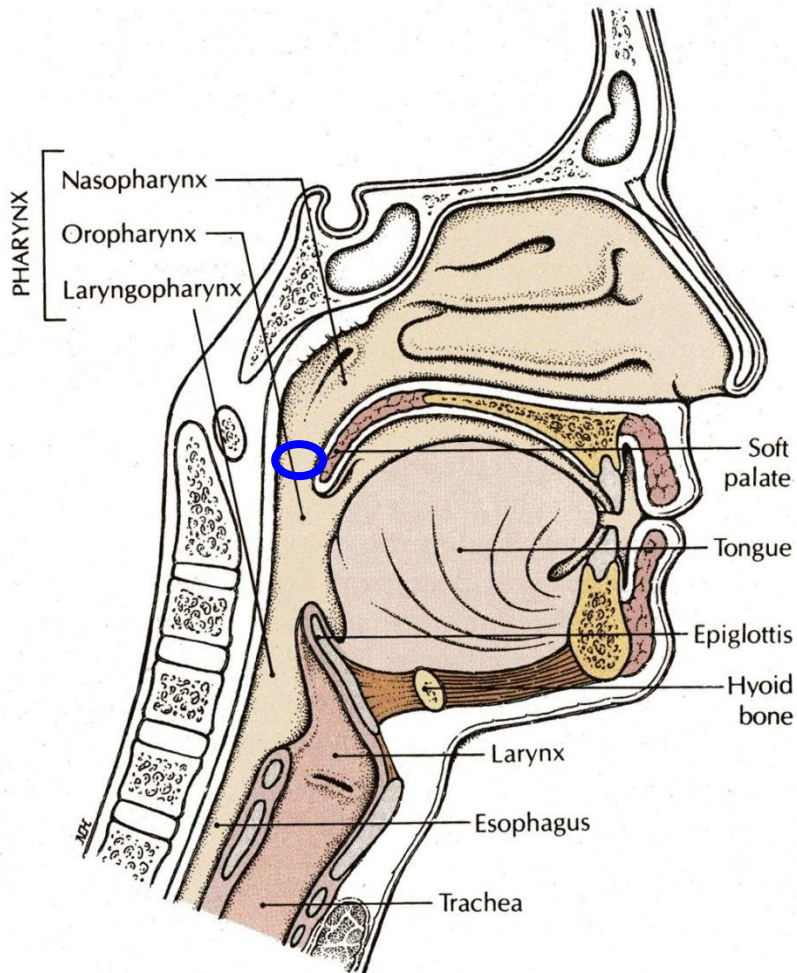
Pharyngeal plexus



- It is a network of nerve fibers innervating most of the **palate**, **pharynx** and **larynx**.
- It lies on the outer wall of pharynx, mostly on the middle constrictor.
- It is formed of pharyngeal branches of glossopharyngeal N., vagus N. including fibres of Cranial root of accessory and superior cervical sympathetic ganglion.

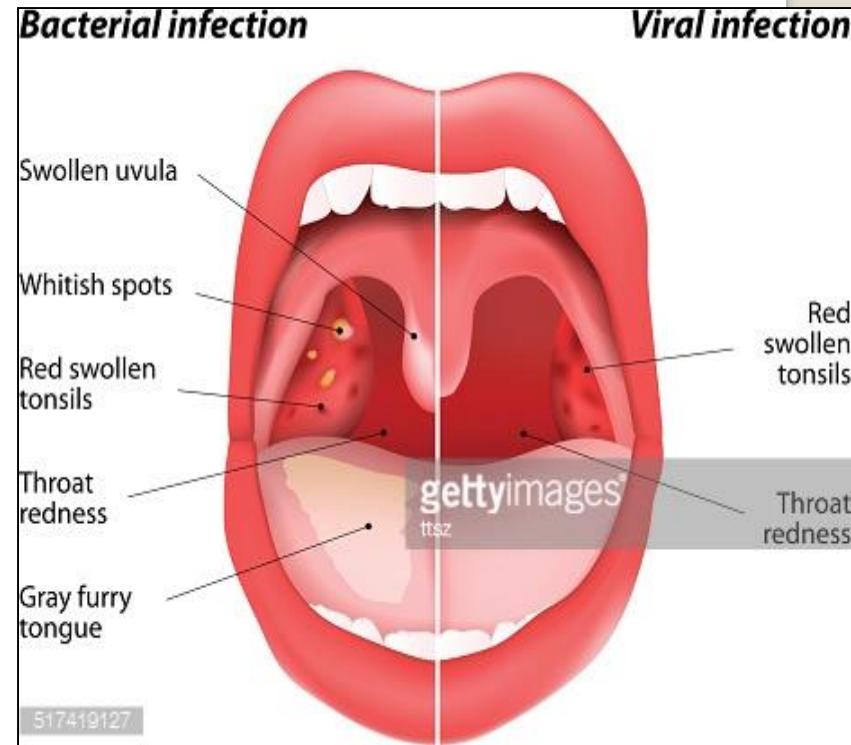
Clinical Estimation of MOVEMENTS OF SOFT PALATE

- **Clinically , Motor innervation of soft palate**
Can be tested by saying 'ah', **Normally soft palate rises and uvula moves backward in the middle.**
- **Pharyngeal isthmus**
(the communication between nasal and oral parts of the pharynx) is closed by raising the soft palate via contraction of *levator palatini*.
Closure occurs during the production of explosive acts in speech & in swallowing.

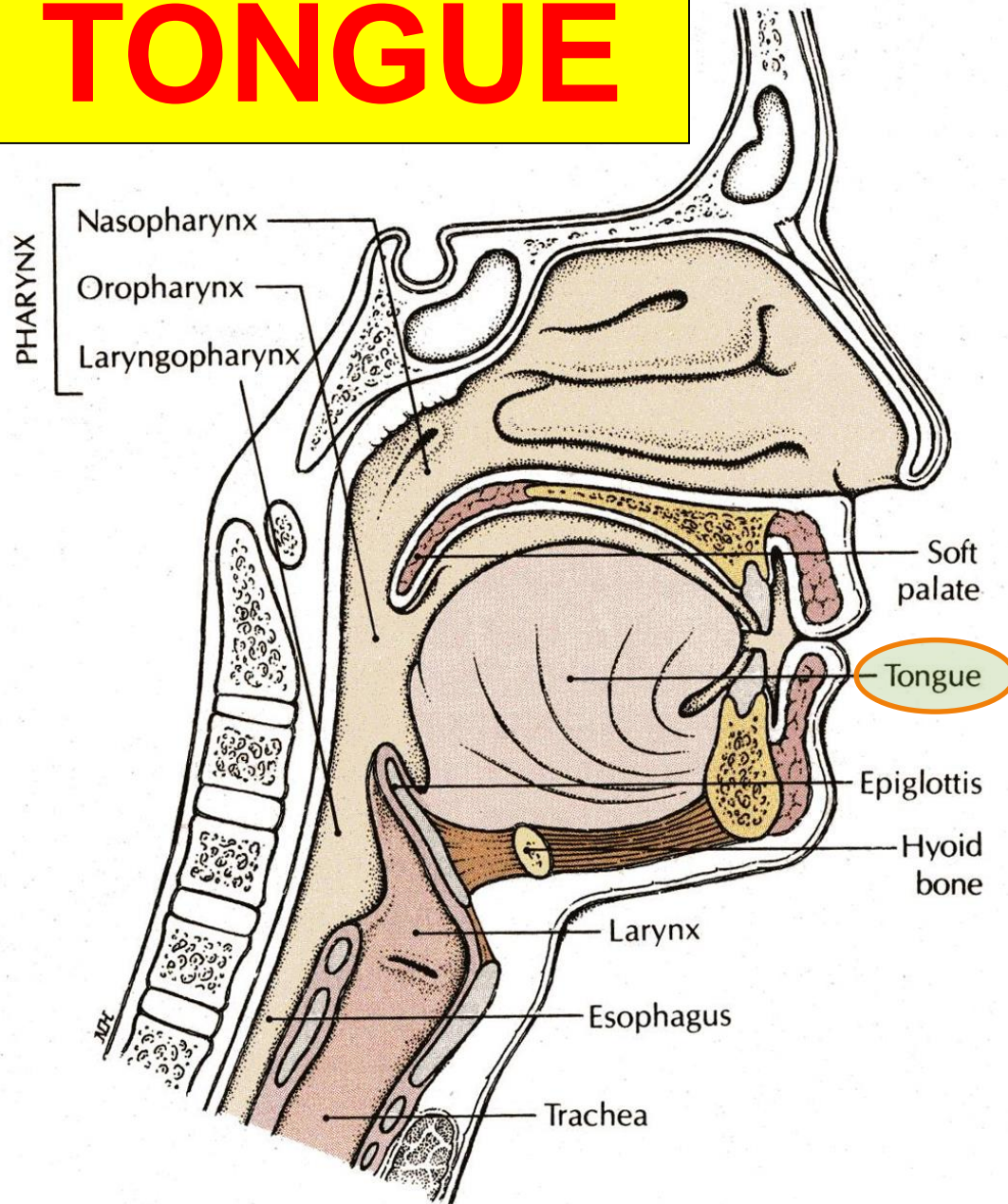


Clinical Significance of the *Oral part of Pharynx*

- **The palatine tonsils** are two masses of lymphoid tissue located in lateral walls of the oral part of pharynx in the tonsillar sinuses.
- The palatine tonsils are the common sites of infection, producing the characteristic tonsillitis.
- The deep cervical lymph node, which situated below and behind the angle of mandible is usually enlarged and tender.
- Recurrent attacks of tonsillitis are treated by tonsillectomy.
- Clinically, the external palatine vein, which lies lateral to the tonsil, may be the source of postoperative bleeding.



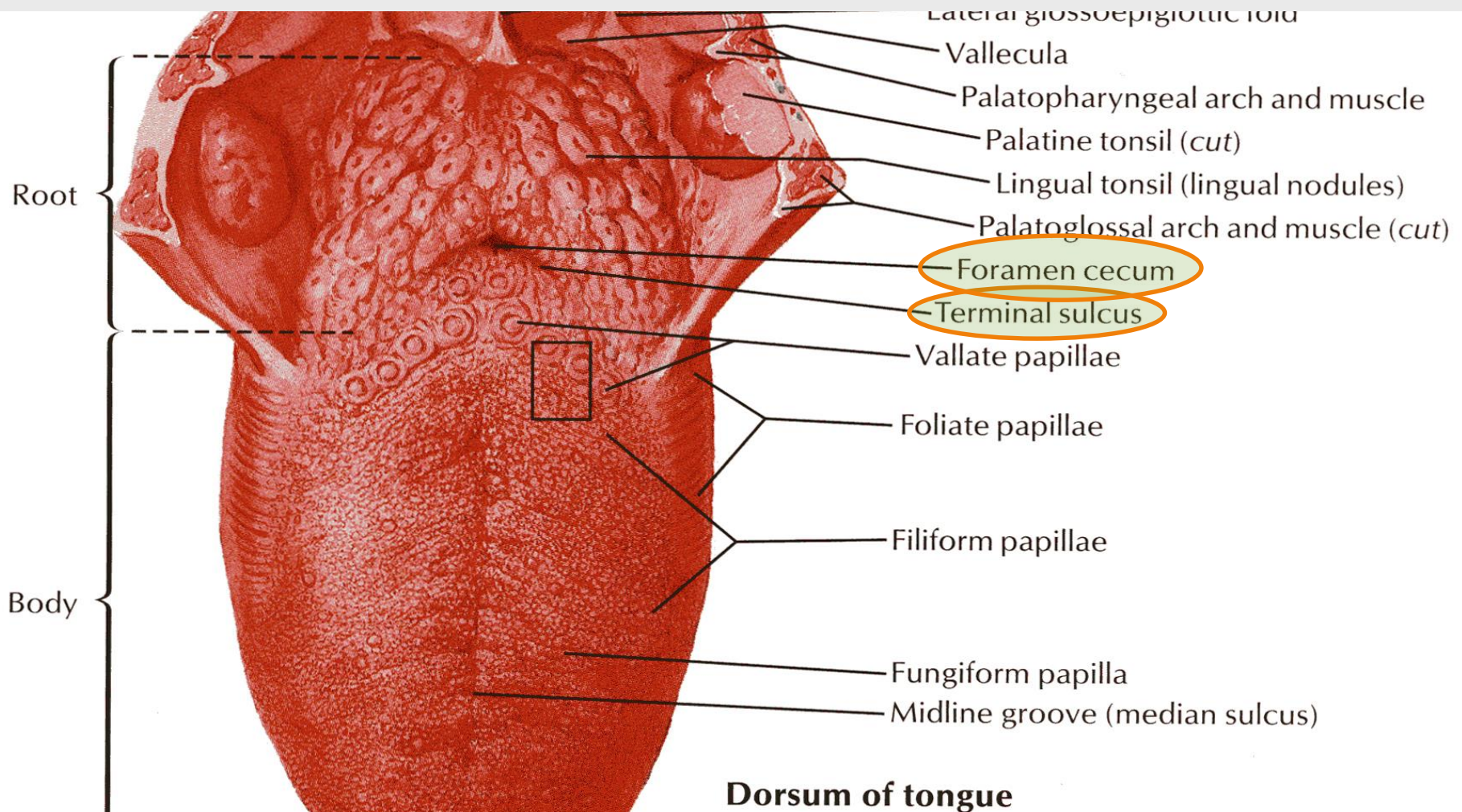
TONGUE



- The tongue is a **mass of striated muscles** covered with **mucous membrane**.
- Its anterior 2/3 lies in the **mouth**, and its posterior 1/3 lies in the **pharynx**.
- It has several **important functions**:
- Normal articulation of the jaw.
- Manipulation of food and swallowing.
- Production of normal speech.

Mucous Membrane of tongue

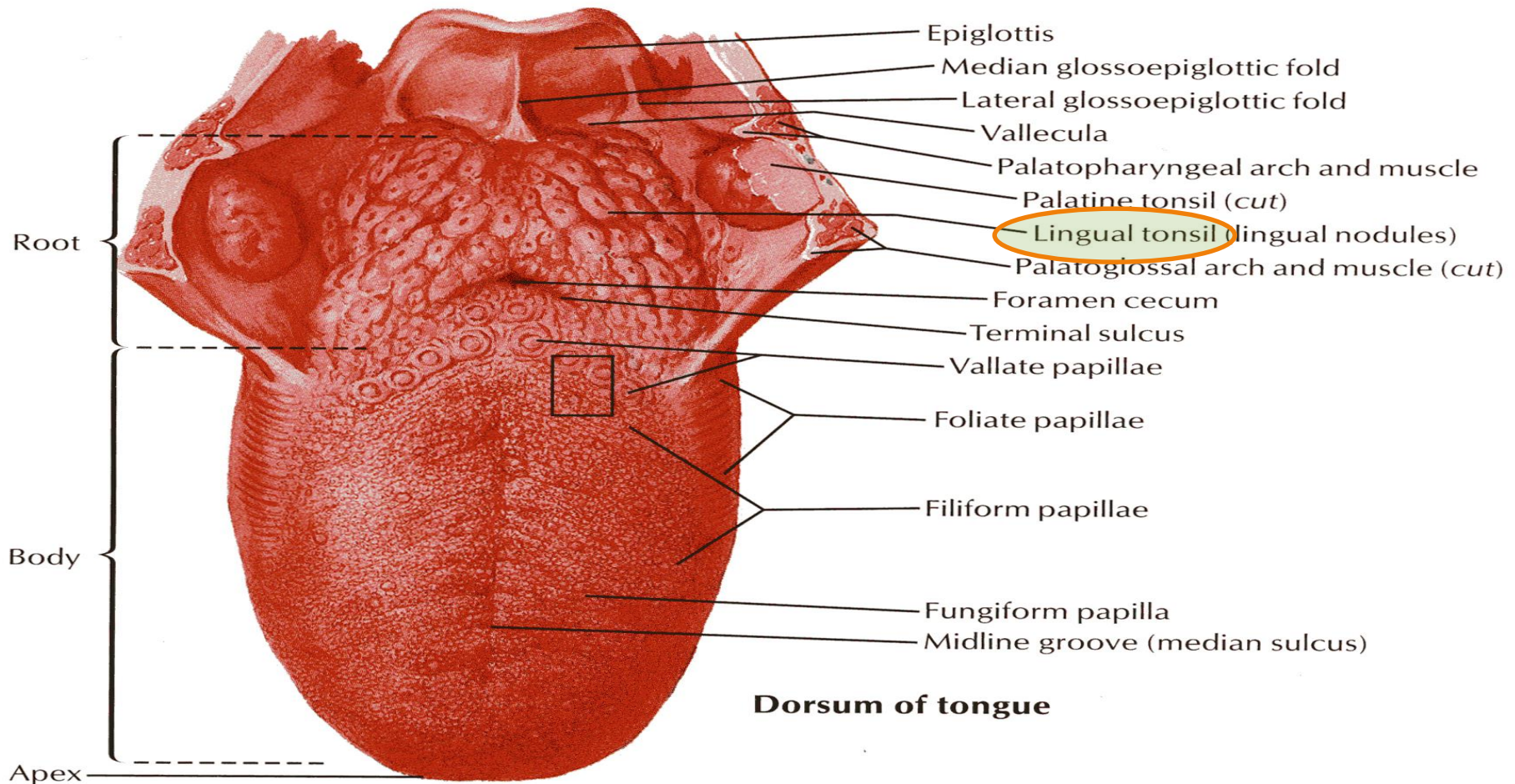
- The upper surface (Dorsum) of the tongue can be **divided into** anterior 2/3 or **oral part** and/ posterior 1/3 or **pharyngeal part** by a V-shaped sulcus. The **sulcus terminalis**.



- The apex of the sulcus is marked by a small pit, the **foramen cecum**.
- It is Embryologic remnant of the upper end of the thyroglossal duct.

Mucous Membrane of tongue

Lingual tonsil



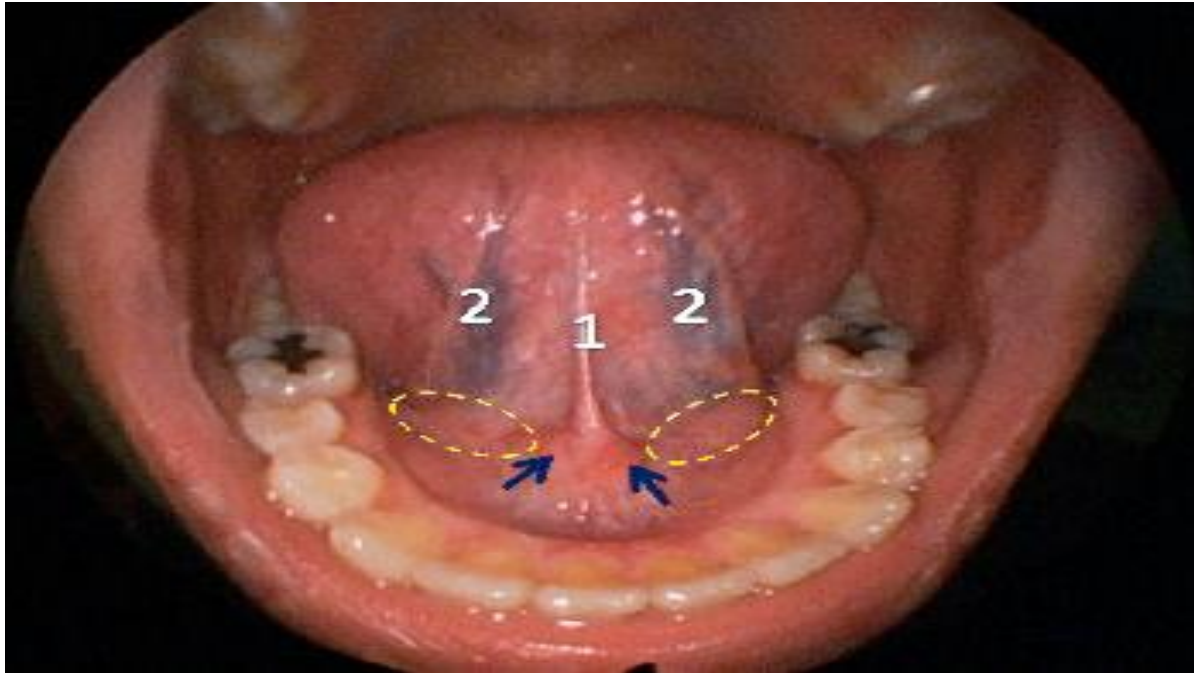
- Three types of papillae are present on the upper surface of the anterior two thirds of the tongue: the **filiform** papillae, the **fungiform** papillae, and the **vallate** papillae.
- The mucous membrane covering the **posterior third** of the tongue is **devoid of papillae** but has a **irregular nodules** caused by the presence of underlying lymph nodules, the **lingual tonsil**.



- Accumulation of keratin on the filiform papillae may be due to increased production of keratin or decrease in the normal keratin desquamation

• **Changes in the mucosa lining the tongue indicate the systemic diseases**, such as diabetes or vitamin deficiency, or the **local effects** of chronic tobacco or alcohol use.

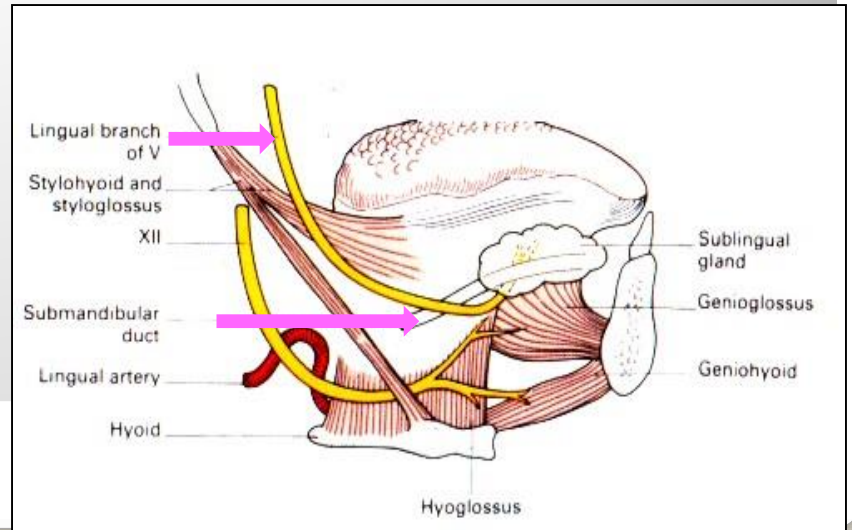
Floor of the Mouth



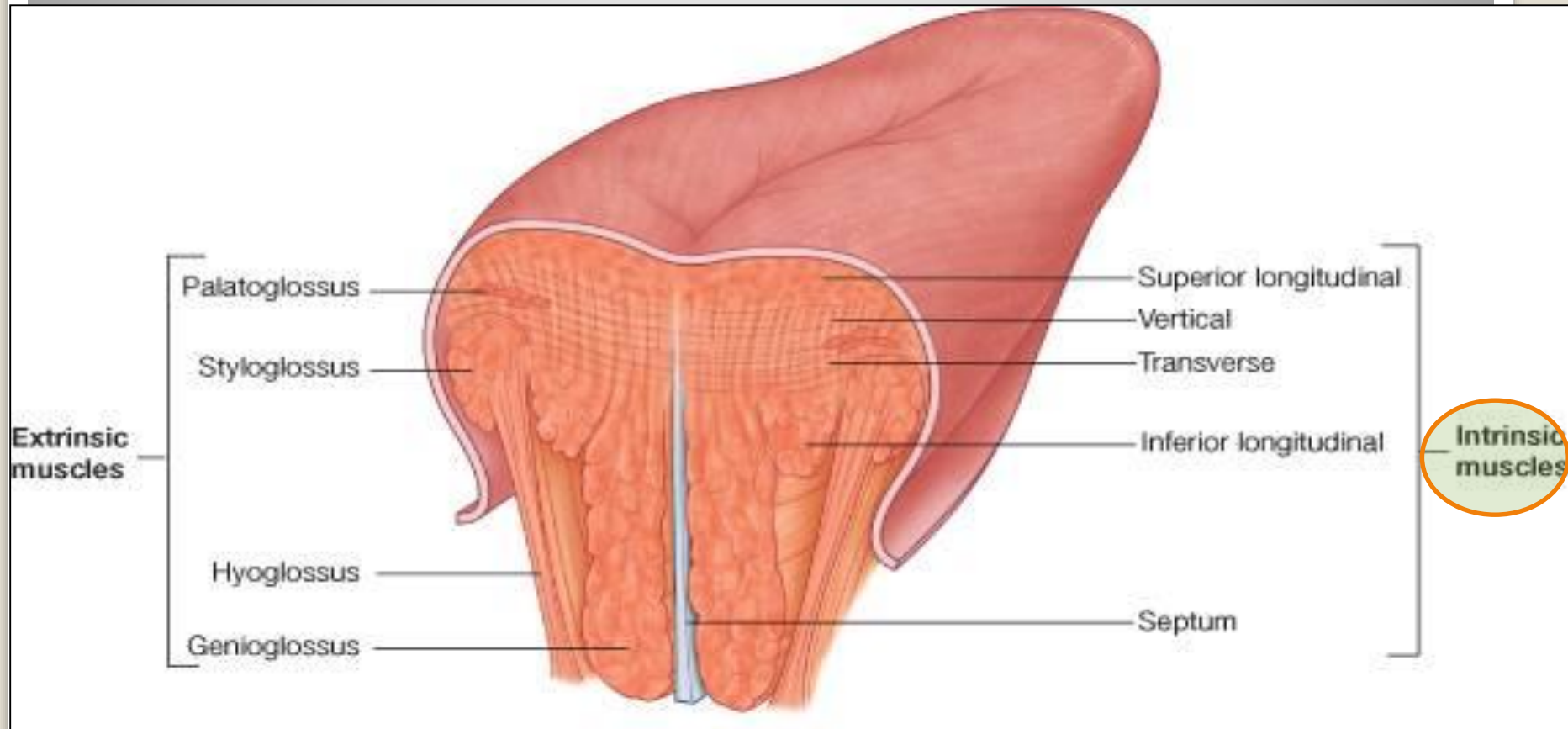
- **Mucous membrane on the under surface of the tongue is smooth.**
- **In the midline, the undersurface of the tongue is connected to the floor of the mouth by a fold of mucous membrane, the **frenulum of the tongue**.**
- **The submandibular duct opens into the floor of mouth on each side of frenulum of tongue.**
- **The sublingual ducts also open by many openings (8-20) into the floor of mouth on the summit of sublingual fold on the lateral side of submandibular duct opening.**

Clinical Anatomy of Submandibular Duct

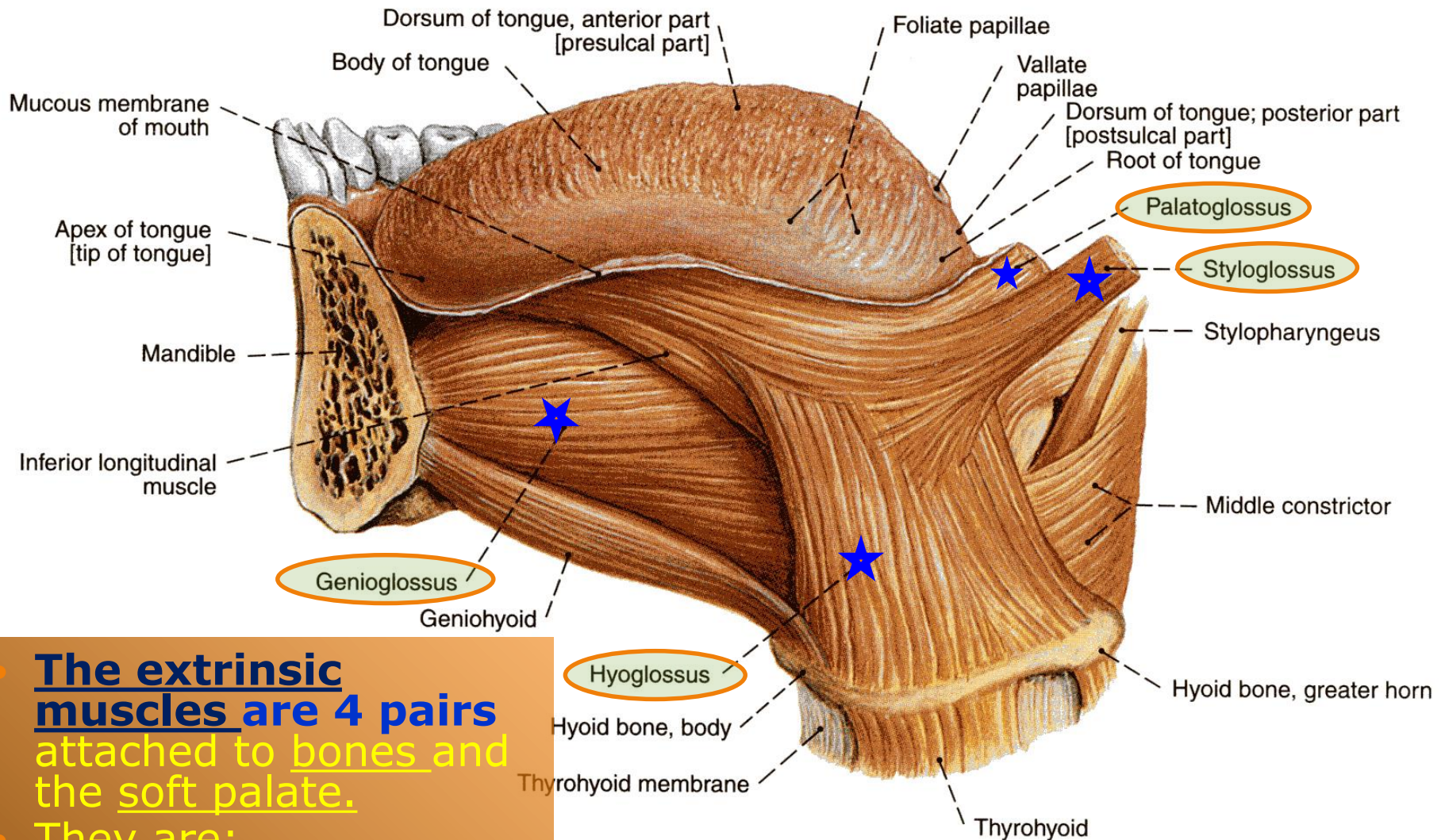
- **Calculus formation :**
- **It is a tense swelling** below the body of the mandible, which is greatest during a meal and is reduced in size or absent between meals (**diagnostic of the case**).
- **Clinically:**
- by examination of floor of mouth, reveals **absence of ejection of saliva** from the orifice of duct.+ **stone can be palpated in the duct**, which lies below m.m. of the floor of mouth.
- **During the operation**, we should remember that the **duct is crossed by the lingual nerve**.



MUSCLES OF THE TONGUE



- The muscles of the tongue are divided into two types:
- **Intrinsic** and **extrinsic**.
- **The intrinsic muscles** are restricted to the tongue and are **not attached to bone**.
- They consist of **longitudinal, transverse, and vertical fibers**.
- **Nerve supply:** Hypoglossal nerve.
- **Action:** Alter the shape of the tongue while it lies in the mouth cavity.



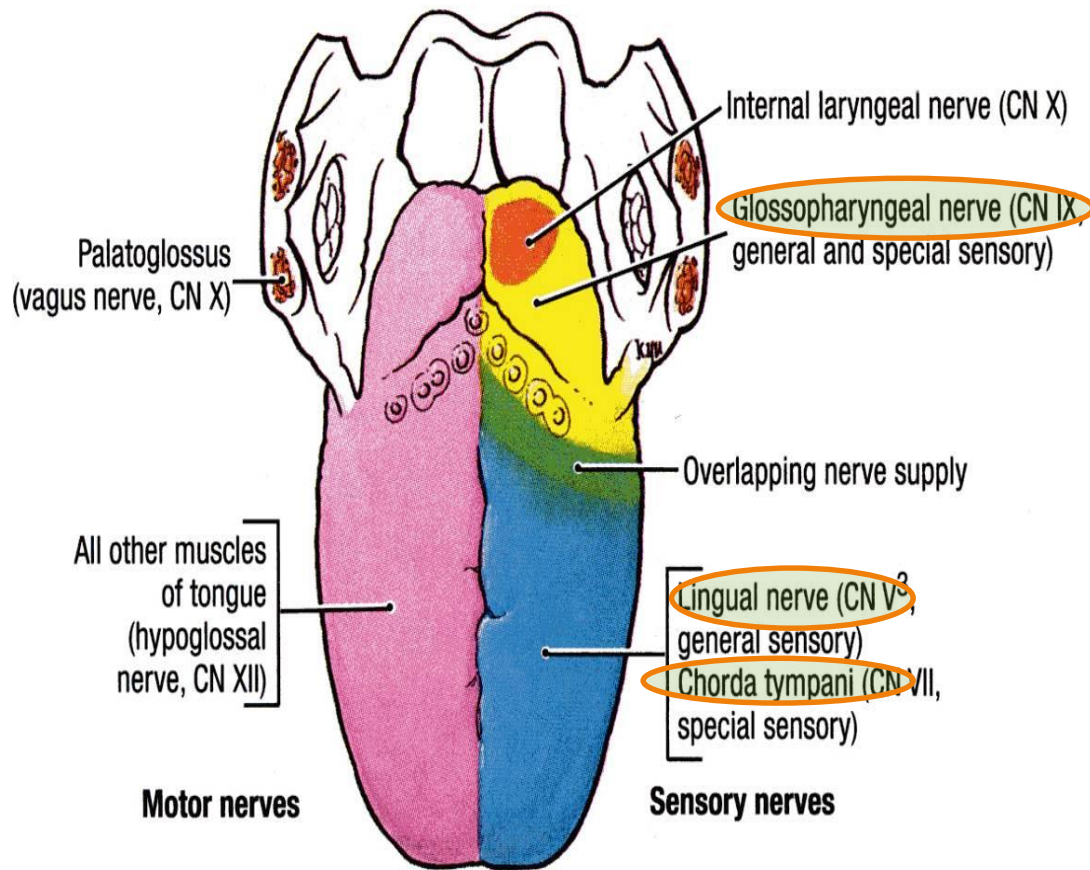
- **The extrinsic muscles are 4 pairs attached to bones and the soft palate.**

- They are:

- Palatoglossus.
- Styloglossus,
- Genioglossus, and
- Hyoglossus.

All muscles of the tongue are supplied by the hypoglossal nerve EXCEPT palatoglossus which is supplied by the pharyngeal plexus

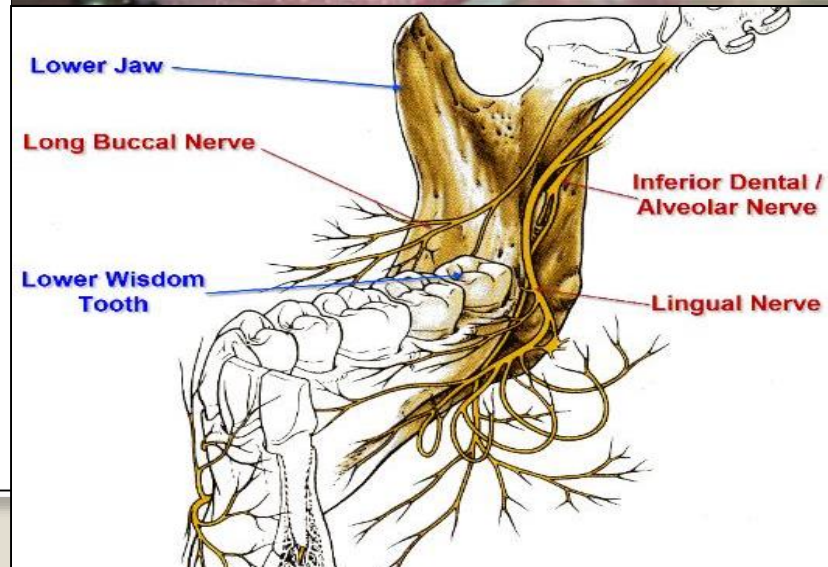
SENSORY INNERVATION



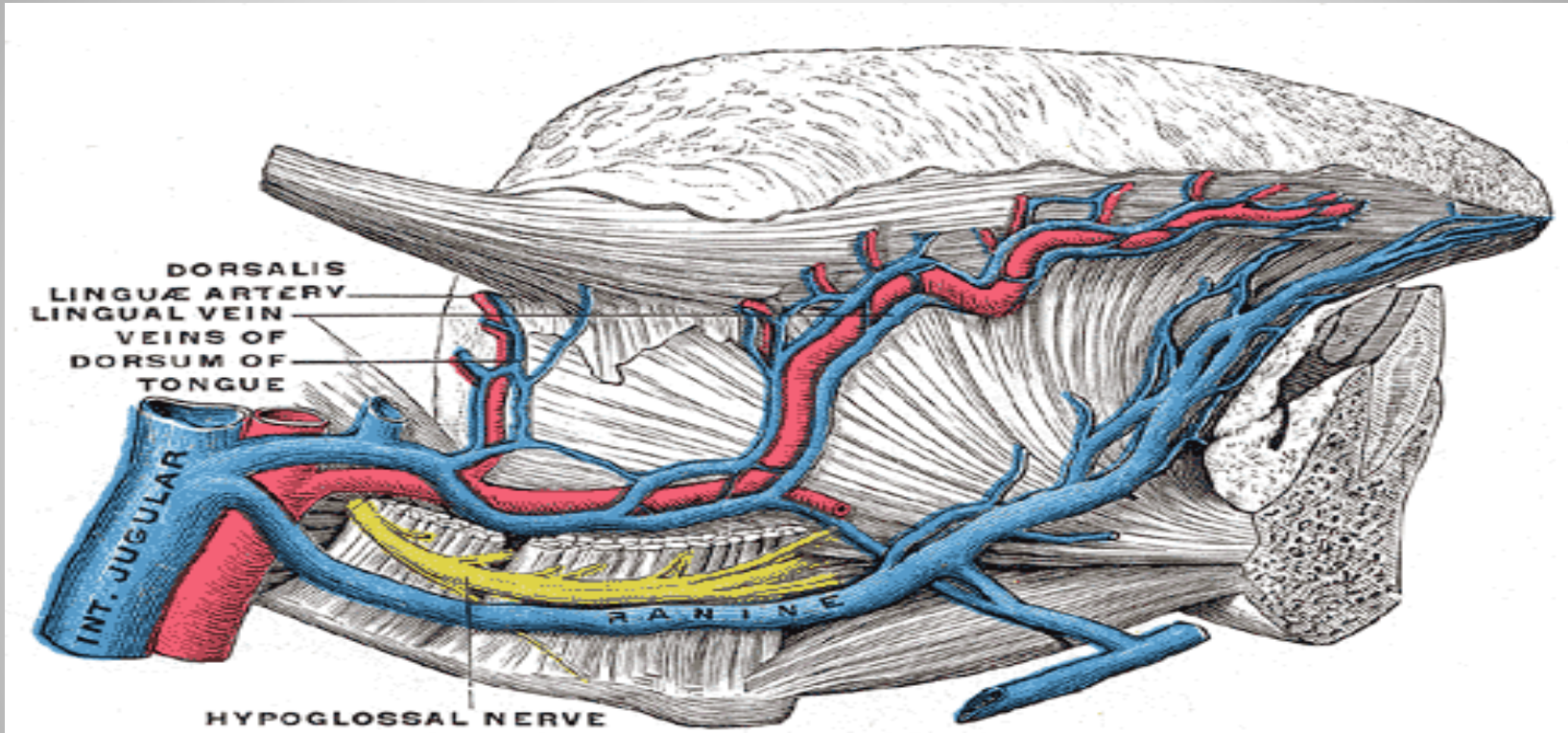
- General sensations from the **anterior 2/3** of the tongue are carried by the **lingual nerve**.
- Taste fibers from the **anterior 2/3** excluding the **vallate papillae**, are carried by the **chorda tympani** of the facial nerve.
- General & taste sensations from the **posterior 1/3**, including the **vallate papillae**, are carried by the **glossopharyngeal nerve**.
- General & taste sensations from **root** of the tongue and epiglottis are carried by the **vagus nerve**.

Injury to Lingual nerve

- **Lingual nerve injury** is a common complication following dental and medical procedures.
- **The most common cause is third molar (wisdom tooth) surgery; The dangerous area during tooth extraction;**
- Here, **Lingual nerve** is closely related to the **lower last molar tooth** and is **liable to be damaged** in cases of **clumsy extraction on an impacted 3rd molar.**



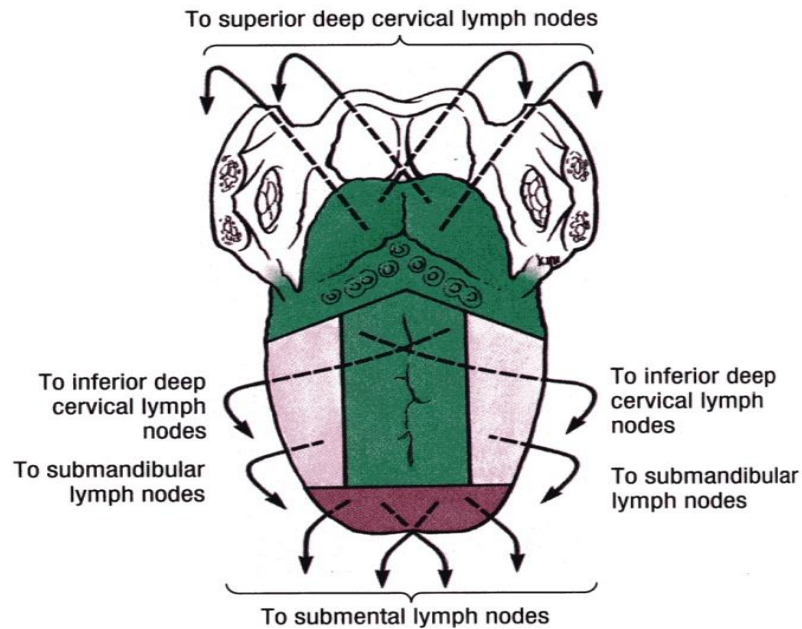
Blood Supply



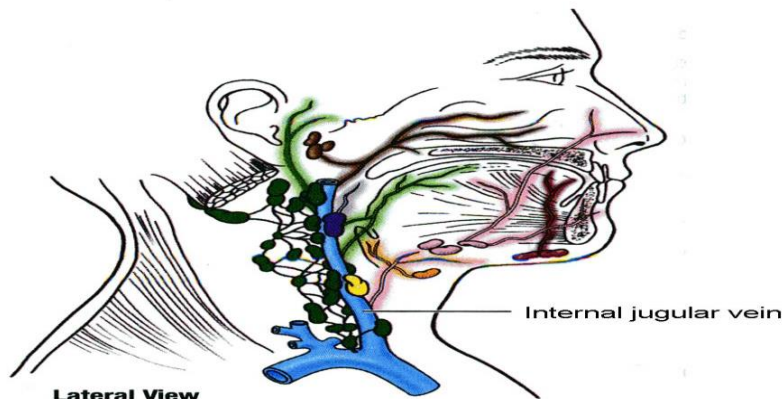
- 1- The main artery is the **lingual artery**
- 2- **Tonsillar branch of the facial artery,**
- 3- **Ascending pharyngeal artery.**
- The veins drain into the **internal jugular vein.**

External Carotid Artery








LYMPH DRAINAGE



- **The tip** of the tongue drains into the **submental** lymph nodes.
- The remainder of the **anterior 2/3** of the tongue drains into the **submandibular & deep cervical** lymph nodes.
- Lymph from the **posterior 1/3** of the tongue drains into the **deep cervical** lymph nodes.
- **The lymphatic drainage is important in the early spread of carcinoma of the tongue.**



Lateral View

| | | | |
|---|-----------------|---|---------------|
|  | Retropharyngeal |  | Submental |
|  | Deep cervical |  | Submandibular |
|  | Jugulo-omohyoid |  | Infrahyoid |
|  | Jugulodigastric | | |

ORAL CANCER

- **Definition**

- Tongue cancers are malignant neoplasms of the tongue affecting oral tongue in the oral cavity **or** tongue base in the oropharynx.

- **Characteristics**

- **Epidemiology**

- The incidence is about 1.6 per 100,000 persons.

- **The common predisposing factors of tongue carcinoma** are smoking and drinking. Betel leaf chewing is the main reason for high incidences of tongue carcinoma in a few Asian countries including India and Taiwan.

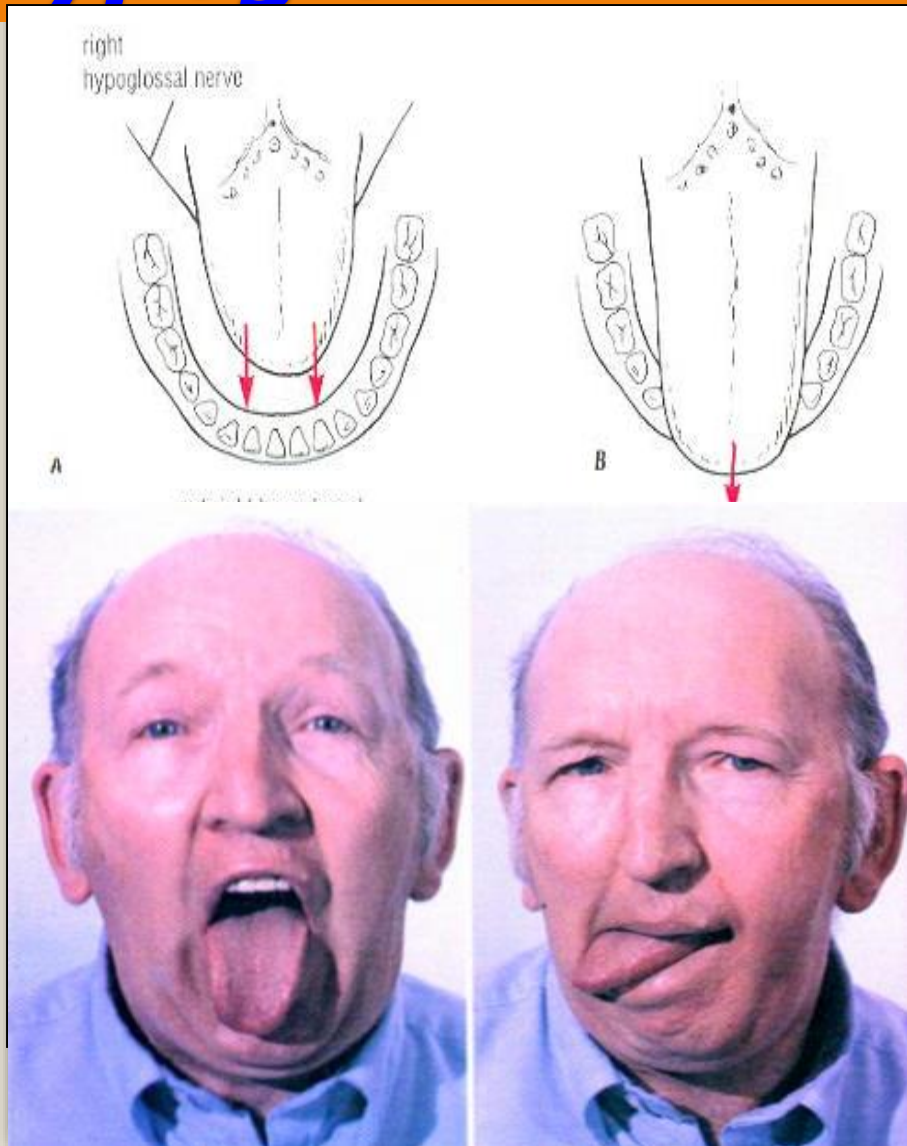
- **Pathology:**

- **The commonest cancer** affecting the tongue is **squamous cell carcinoma (Oral Cancer)** arising from the mucosal epithelial cells.

- **Clinical appearance of a lateral tongue squamous cell carcinoma in an 80-year-old man with a previous history of smoking and regular alcoholic beverage consumption.**



Clinical Estimation of the Hypoglossal Nerve



- Ask the patient to protrude his tongue :
 - **Normally**, Rt.&Lt. genioglossus muscles contract together protruding the tip of tongue anteriorly in the middle line.
 - **Lesion of hypoglossal N. on Rt. side** leads to atrophy & wrinkling of the tongue on the same side of lesion.
 - Asking patient to protrude the tongue, the tip deviates to side of the lesion.

THANK YOU