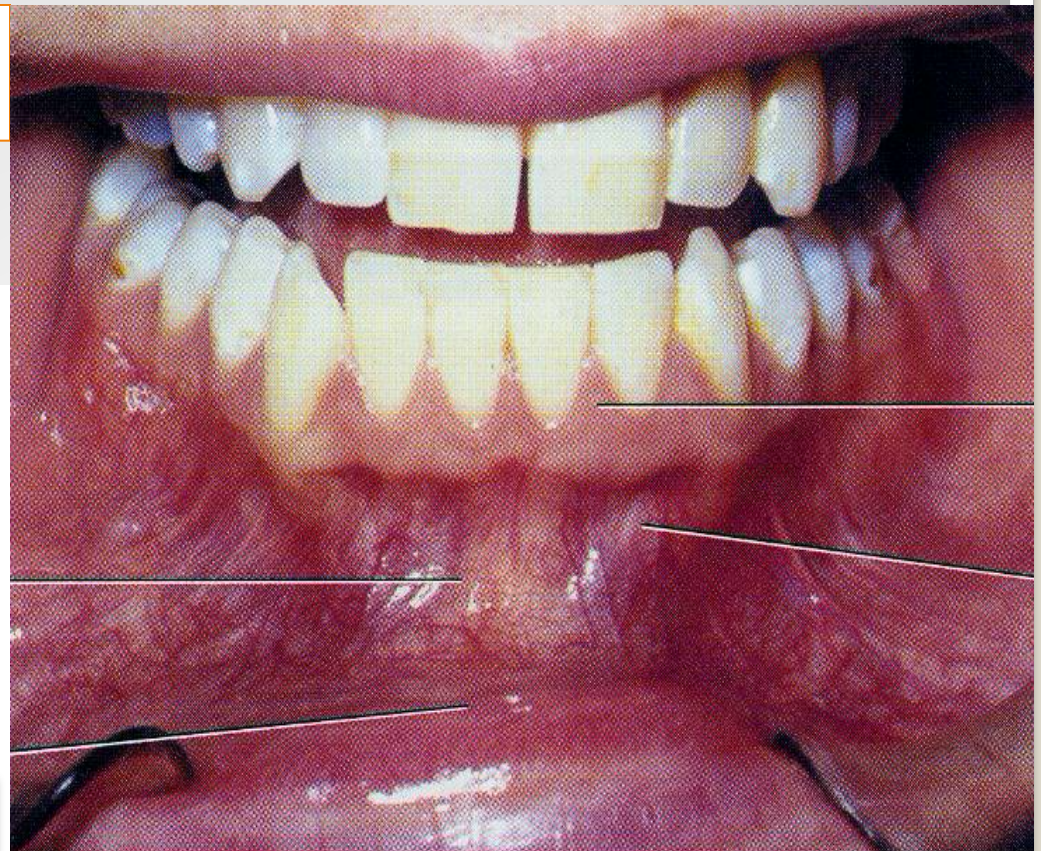


ORAL CAVITY PALATE AND TONGUE

I- ORAL CAVITY

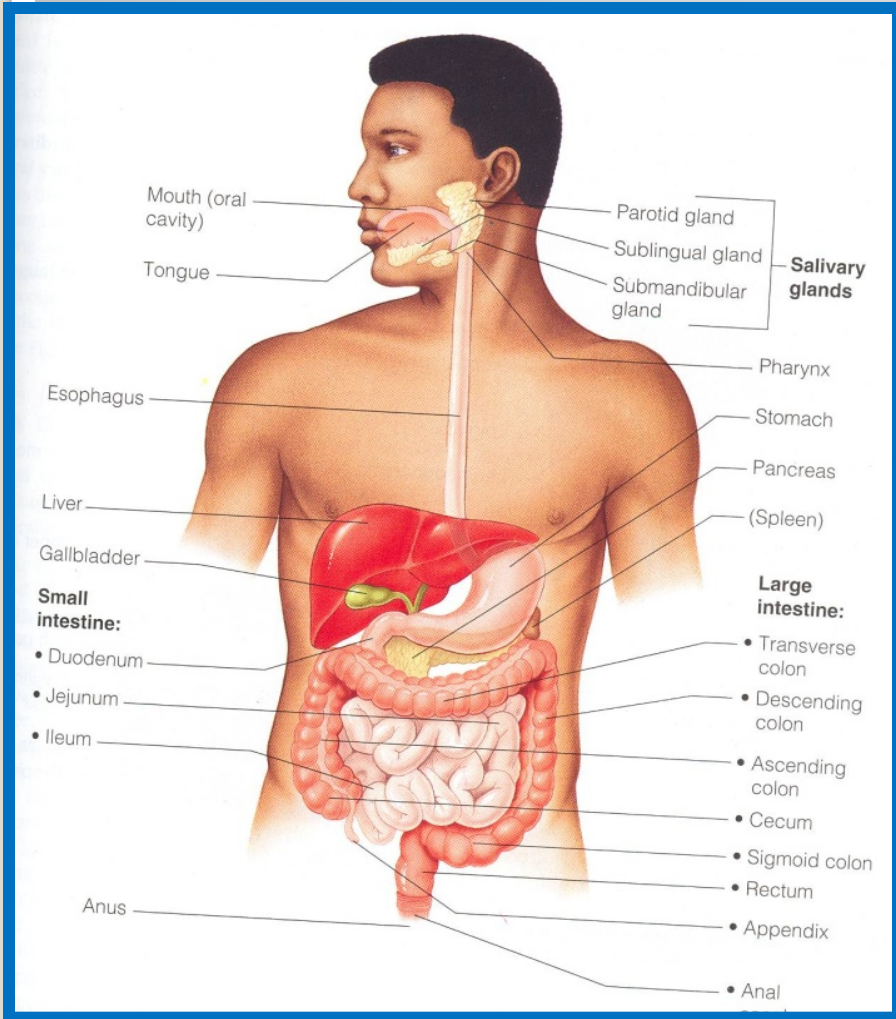


**Dr Jamila
ELMedany**

OBJECTIVES

- **By the end of the lecture you should be able to:**
- Describe the anatomy of the oral cavity, (boundaries, parts, nerve supply).
- Describe the anatomy of the palate, (parts, muscles, nerve & blood supply).
- Describe the anatomy of the tongue, (structure, muscles, motor and sensory nerve supply, blood supply and lymphatic drainage).

ALIMENTARY CANAL (GIT)



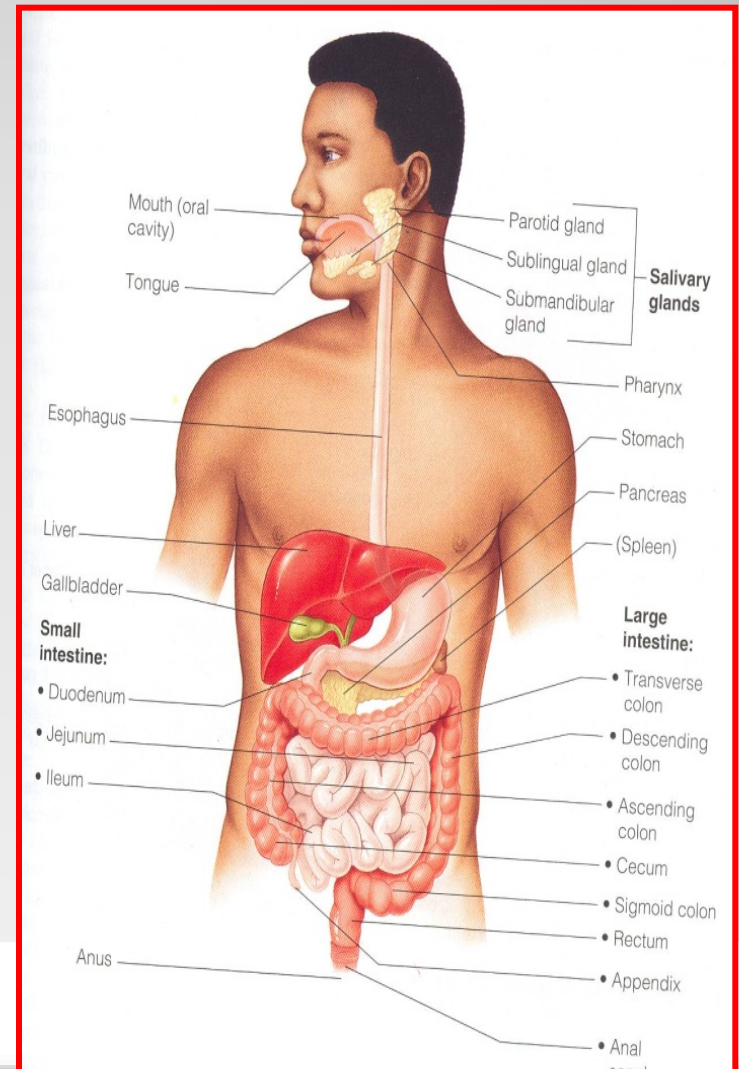
- ***It is a Continuous, Coiled & Hollow Muscular tube.***
- ***It Winds around the ventral body cavity.***
- ***It Opens at both ends***
- ***Length:***
- ***In the cadaver : 9 m.***
- ***In the living person: shorter because of the muscle tone.***
- ***Parts :***
- ***Mouth.***
- ***Pharynx.***
- ***Esophagus.***
- ***Stomach.***
- ***Small intestine.***
- ***Large intestine.***

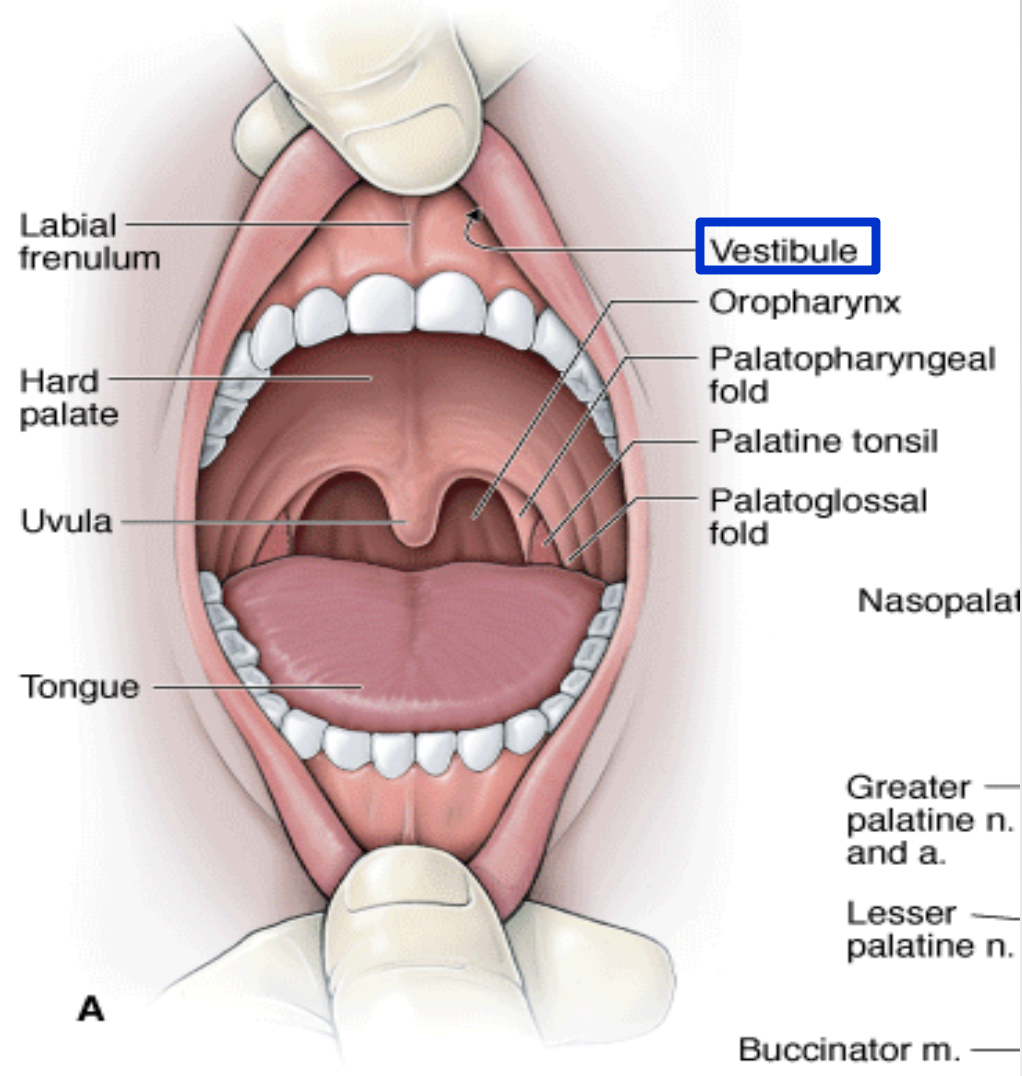
- **FUNCTIONS:**

- **1. Ingestion.**
- **2. Digestion.**
- **3. Absorption.**
- **4. Defecation.**

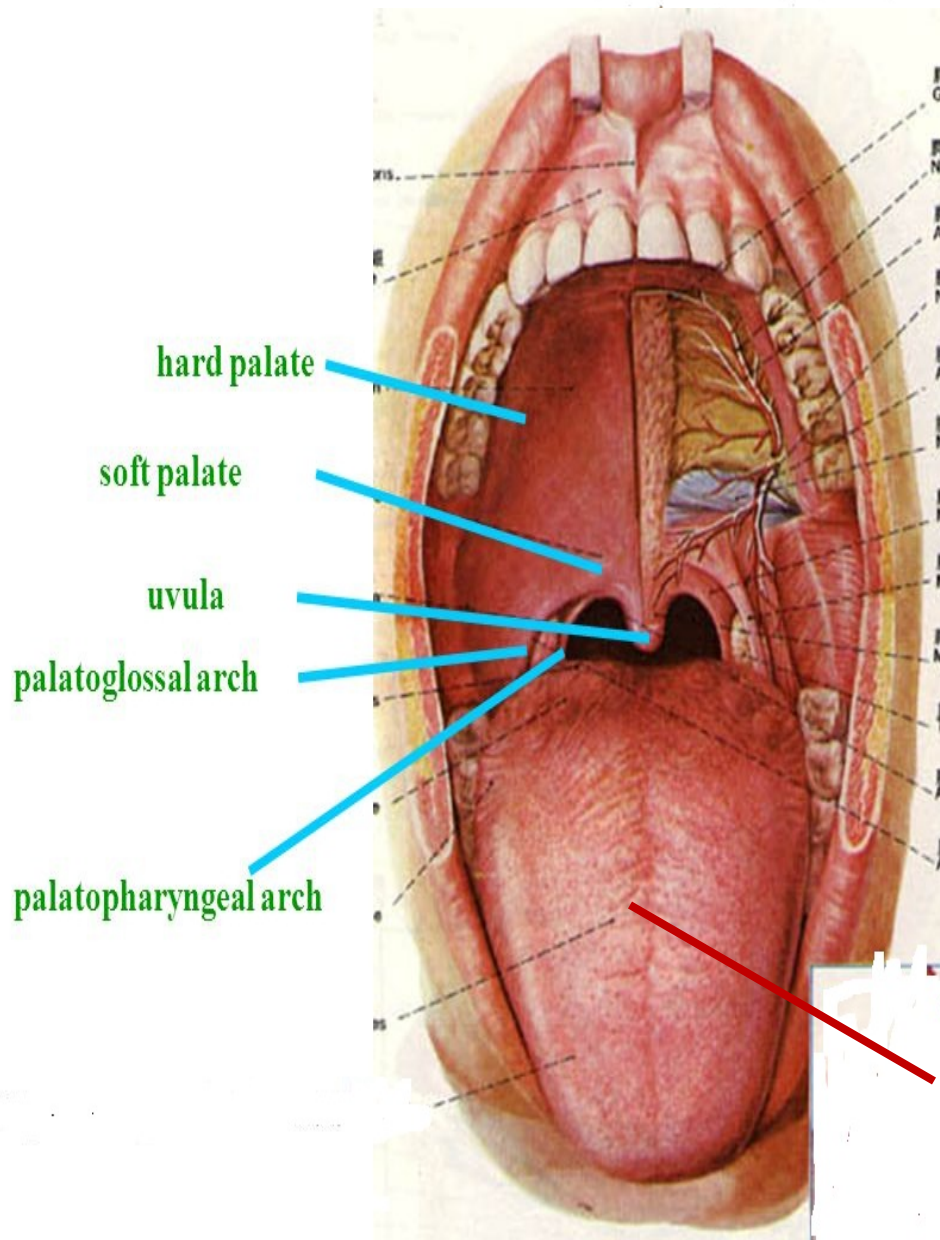
- **COMPONENTS:**

- **(1) Alimentary (Gastrointestinal) tract:** performs the whole digestive functions.
- **(2) Accessory organs :** Assist the process of digestive break down.



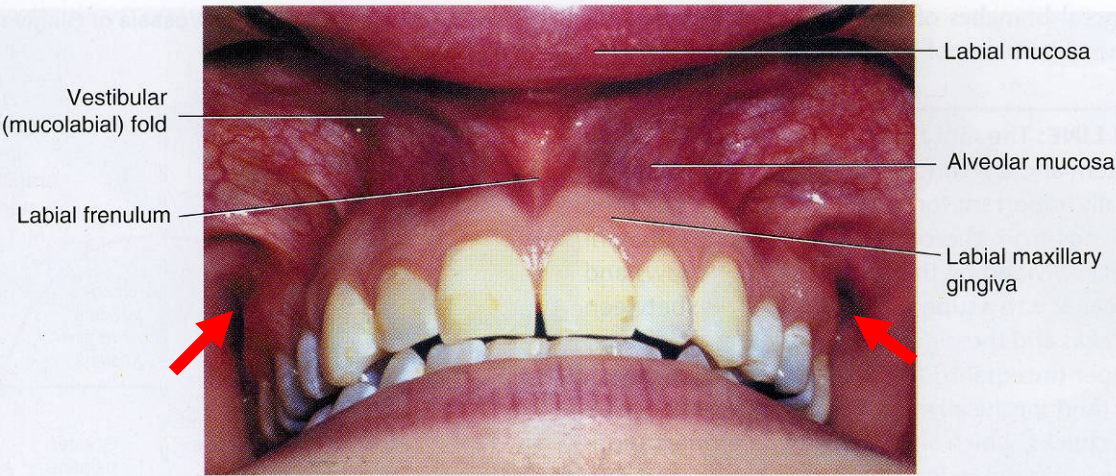


- **The mouth** Extends from lips to **oropharyngeal isthmus**—which is the juncture of mouth and pharynx.
 - Is the junction of mouth and pharynx.
 - Is bounded:
 - Above by the soft palate and the palatoglossal folds
 - Below by the dorsum of the tongue
- It Subdivided into
- 1- **Vestibule:**
- 2- **Mouth cavity proper:**

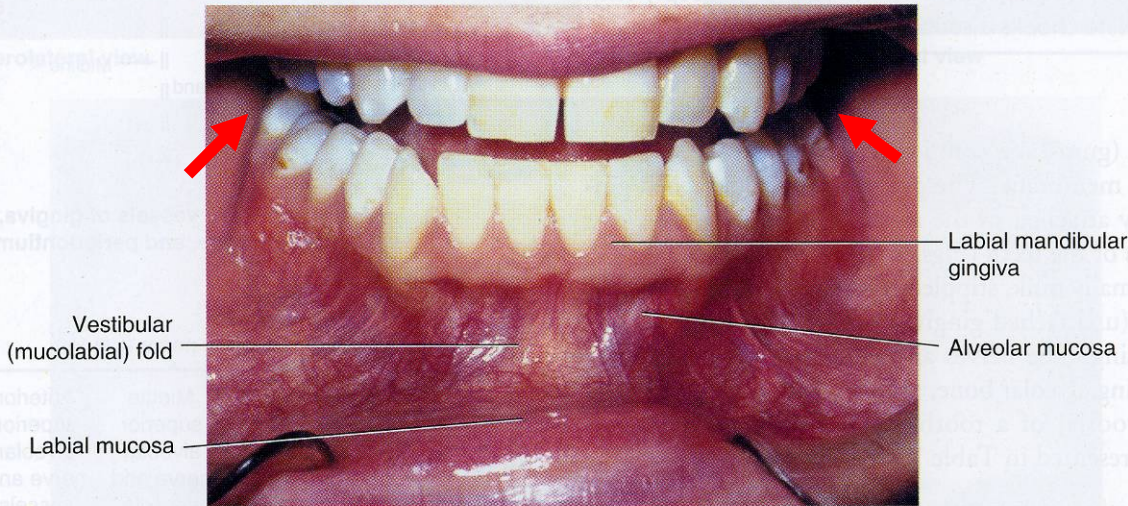


- **Mouth proper:**
- Which lies within the alveolar arches, gums, and teeth.
- has a:
- **Roof:** which is formed by the hard & soft palate.
- **Floor:** which is formed by the anterior 2/3 of the tongue.

11
12
13
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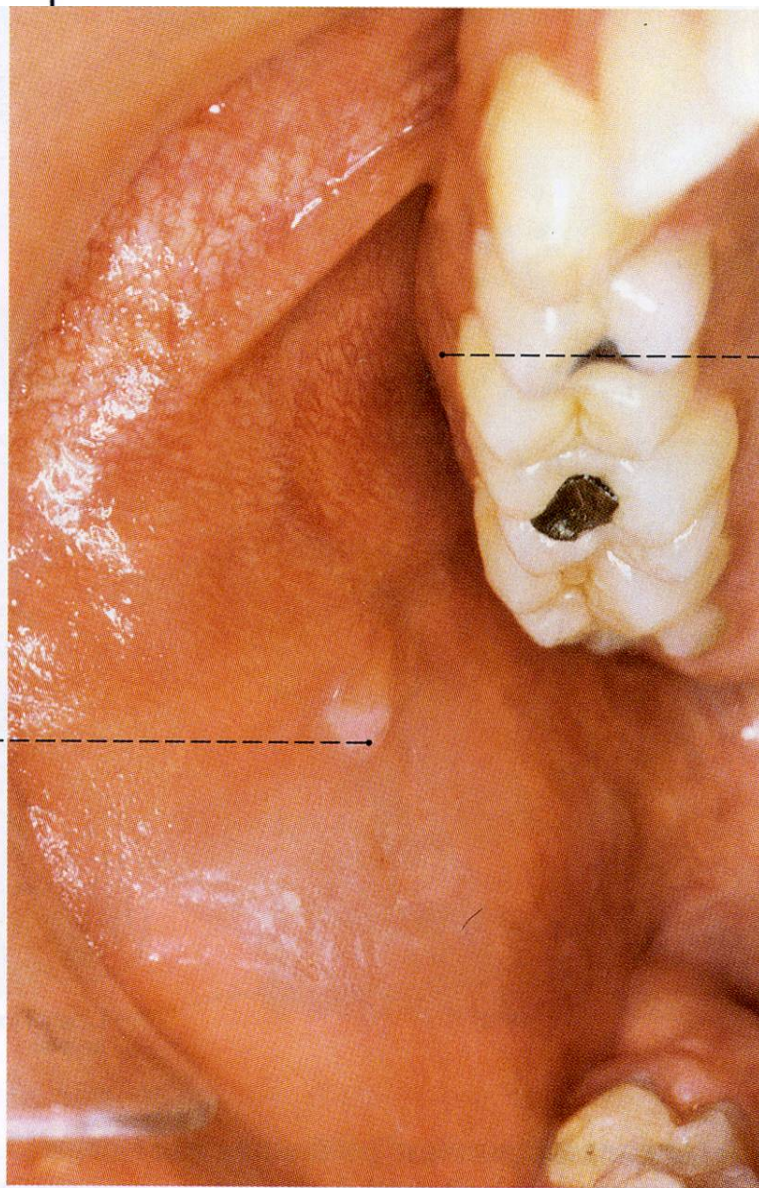


(A)



(B)

- **Vestibule:**
- **It is a slit-like space that lies between gums & teeth internally and lips & cheeks externally.**
- **it communicates with the exterior through the **oral fissure.****
- **When the jaws are closed, it communicates with the mouth proper behind the last molar tooth.**

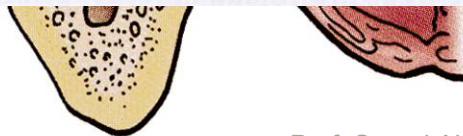


Gingiva

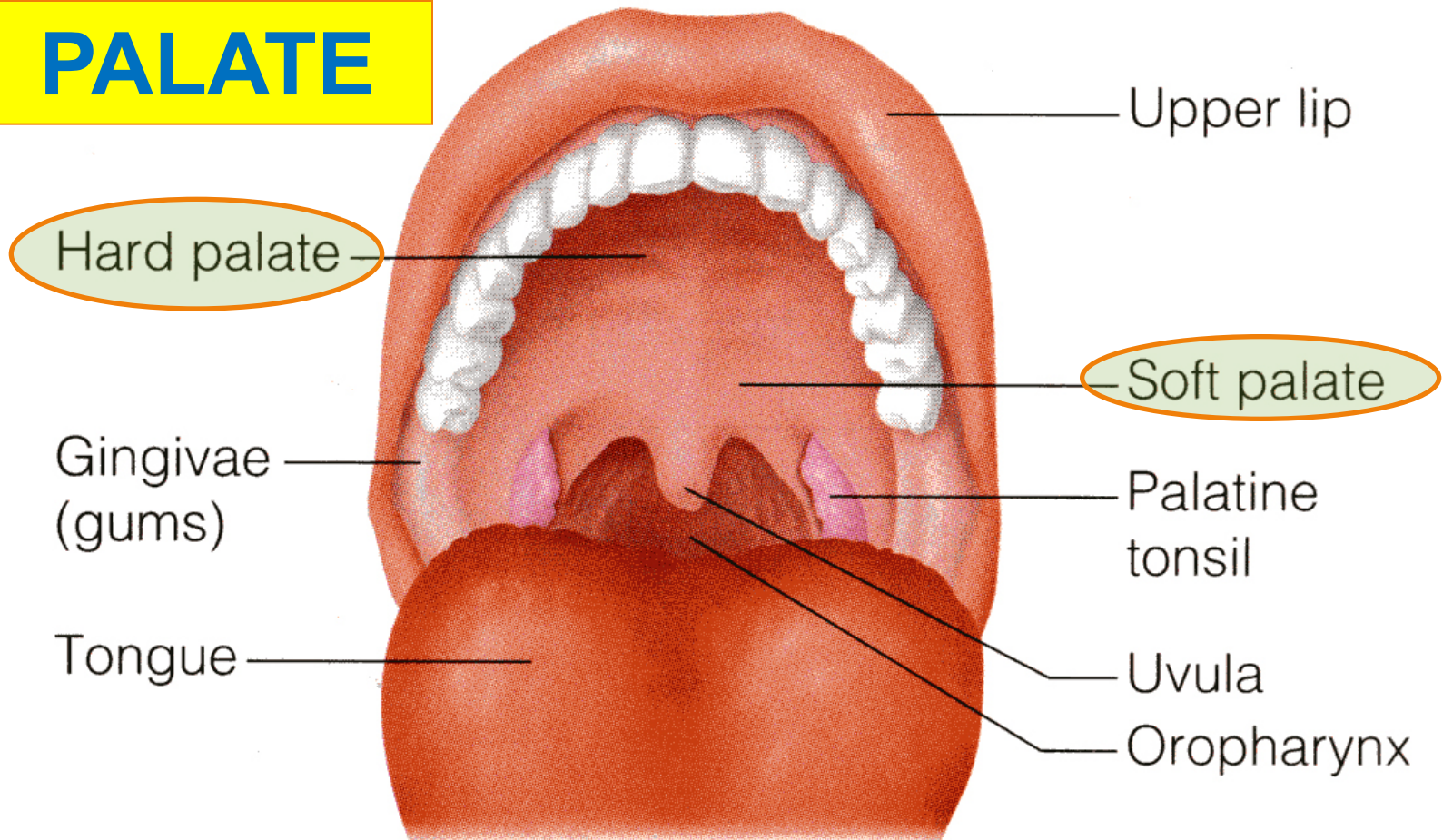
Parotid papilla

- The **cheek** forms the lateral wall of the vestibule and is made up of the ***buccinator muscle***, which is covered by skin and is lined by mucous membrane.
- Opposite the upper second molar tooth, there is a small papilla on the mucous membrane, marking the **opening of the parotid duct.**

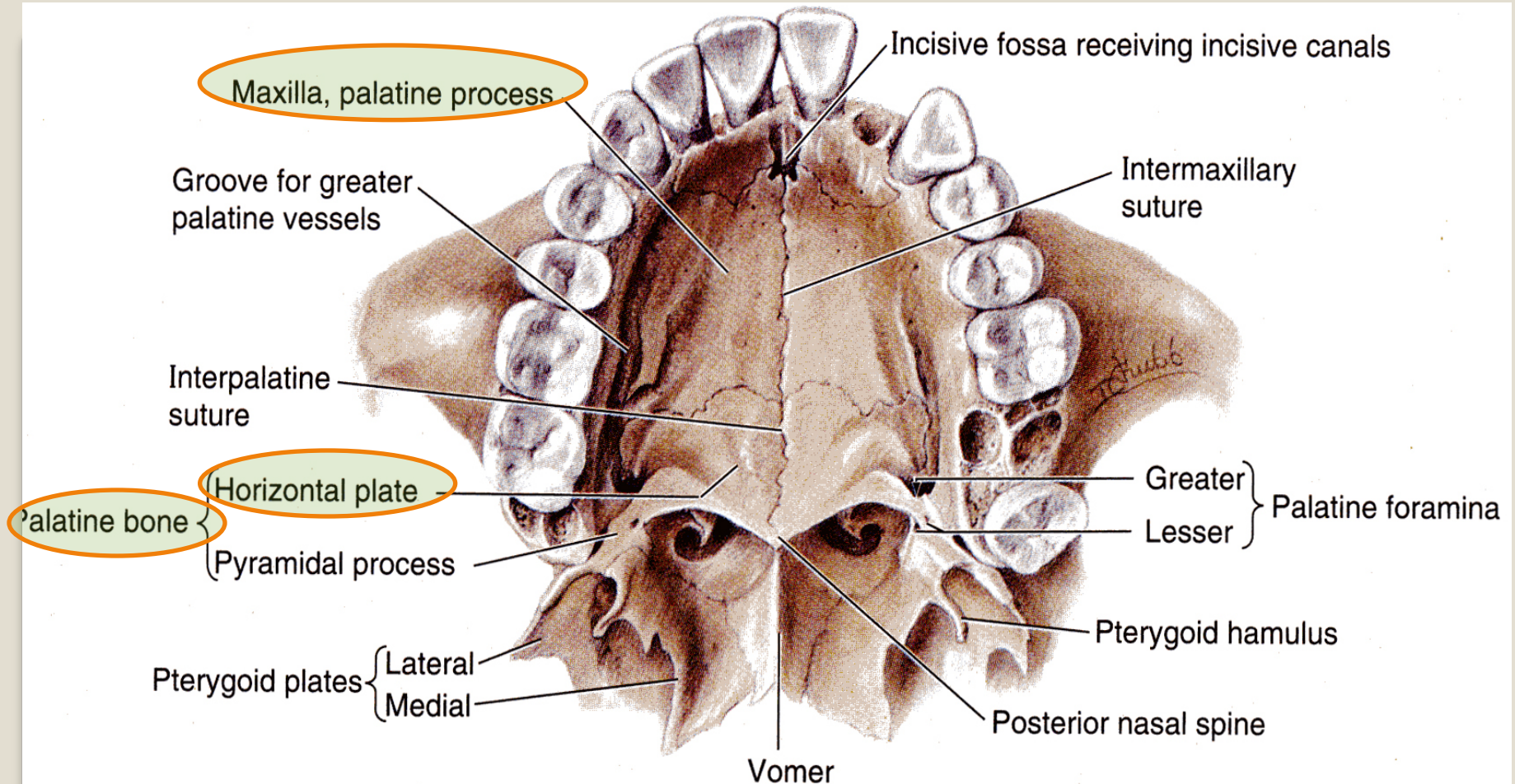
Anterior view of
coronal section



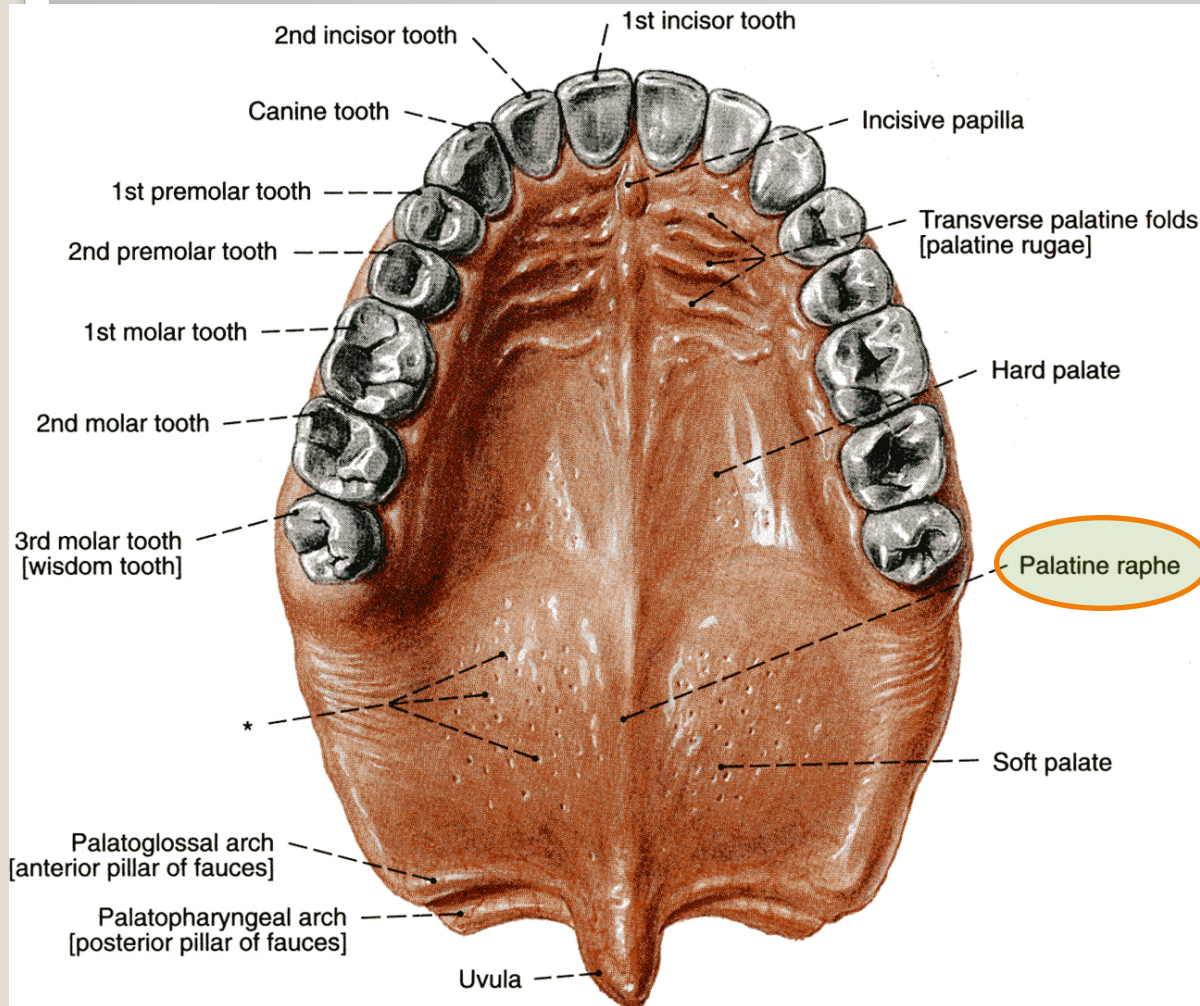
PALATE



- 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.



- The hard palate is formed by 4 bones: **2 palatine processes of the maxillae** anteriorly and the **2 horizontal plates of palatine bones** posteriorly.
- The 4 bones are separated by cruciform suture.
- It is bounded laterally by the alveolar arches, and behind it is continuous with the soft palate.
- It forms the floor of the nasal cavities.



The undersurface of the hard palate is covered with **mucoperiosteum**.

It possesses a **median elevated ridge**.

On either side of the ridge the mucous membrane shows transverse corrugations.

Fig. 191 Hard and soft palate; maxillary [upper] dental arcade; inferior aspect.

*Openings of palatine glands.

SOFT PALATE

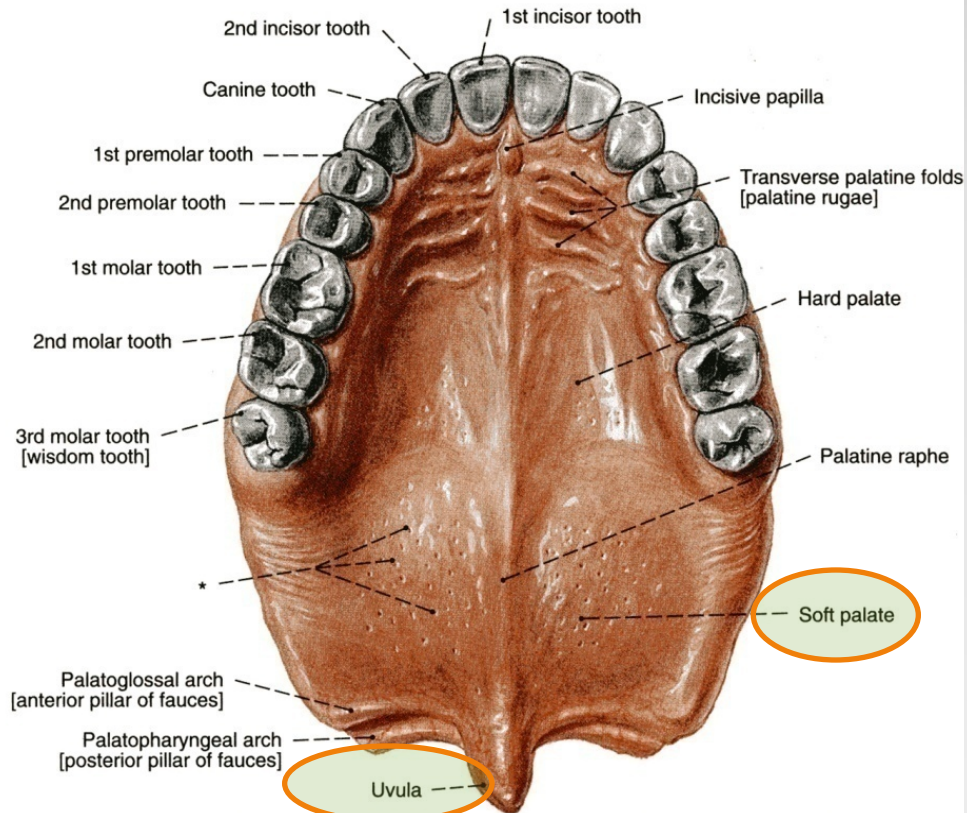
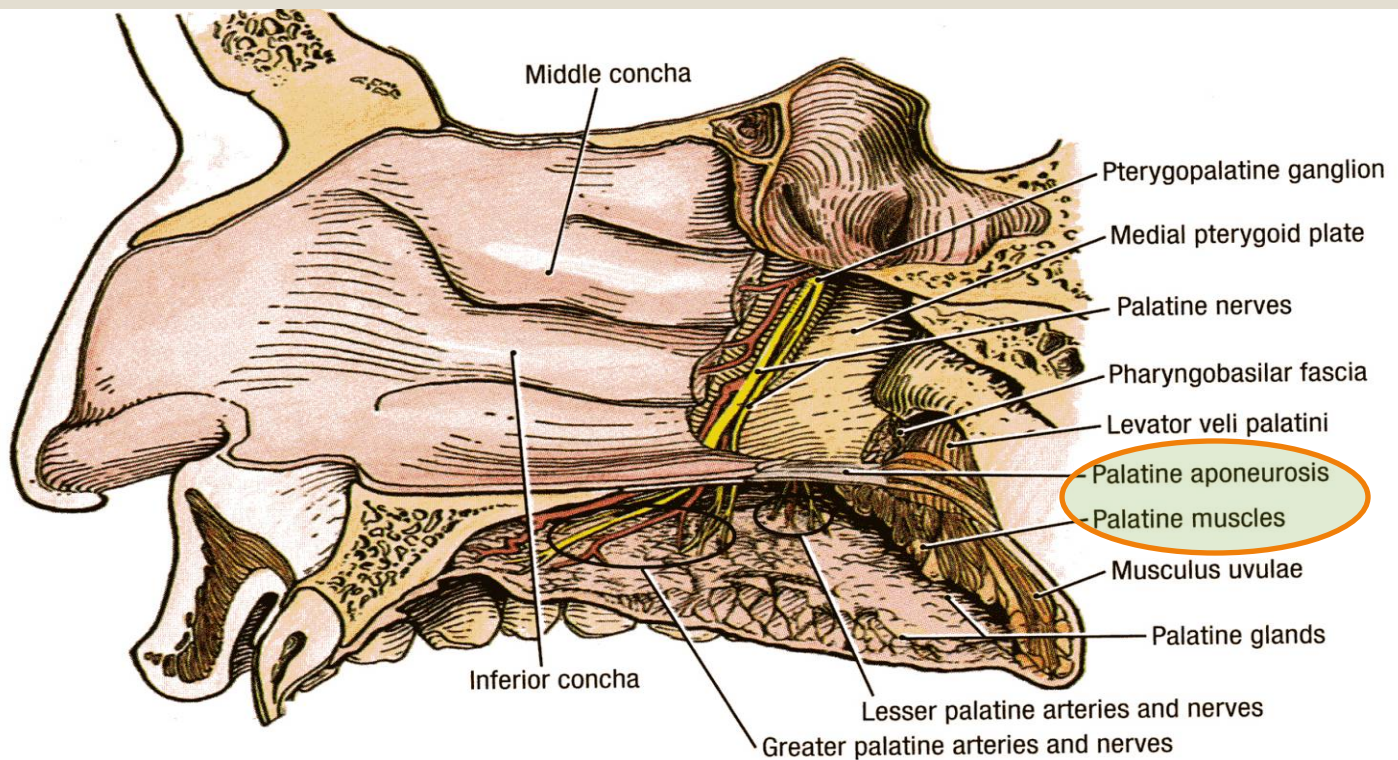
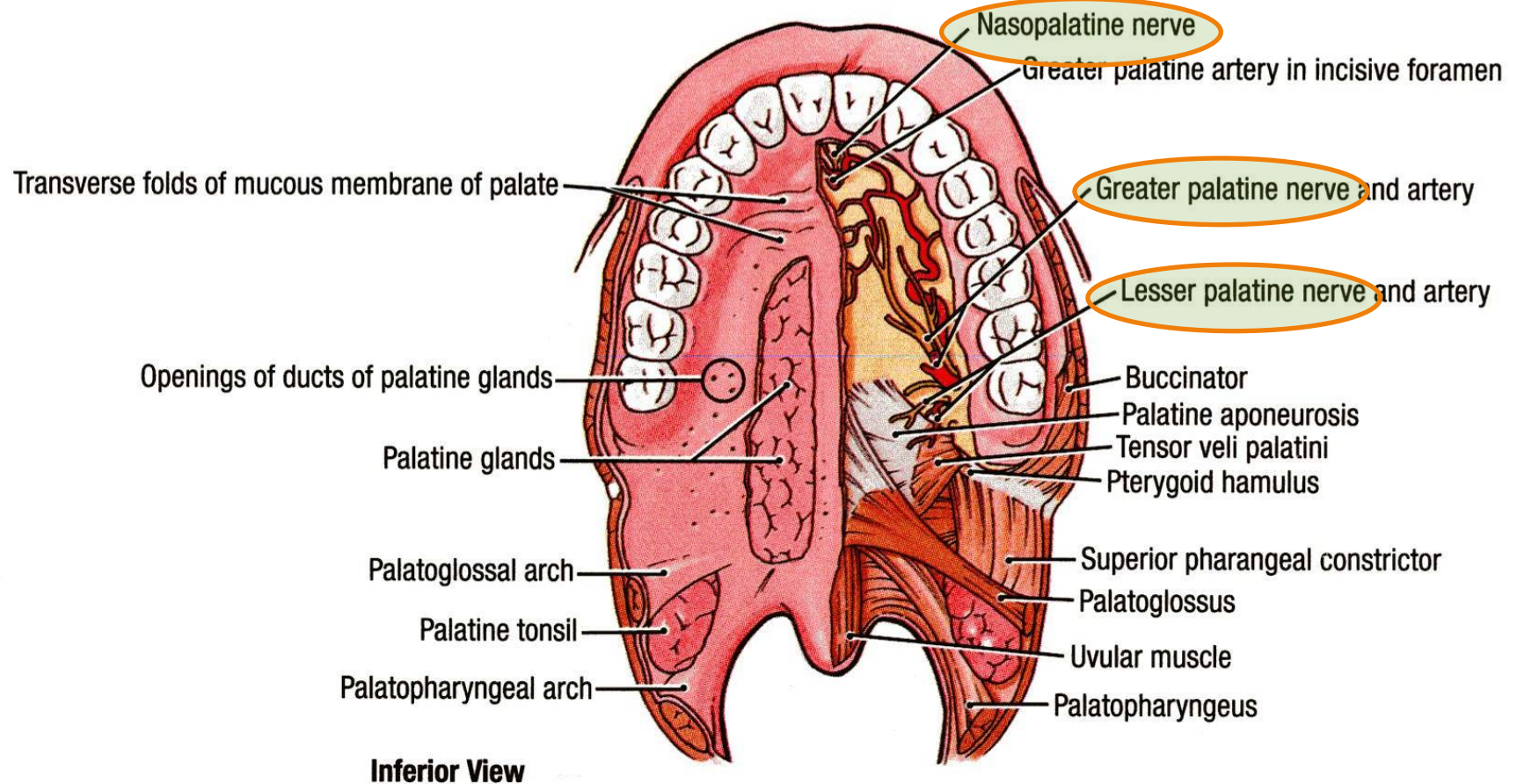


Fig. 191 Hard and soft palate; maxillary [upper] dental arcade; inferior aspect.
*Openings of palatine glands.

- Soft palate is a mobile fold of mucous membrane attached to the posterior border of the hard palate.
- In its free posterior border there is a conical projection called the **uvula**.

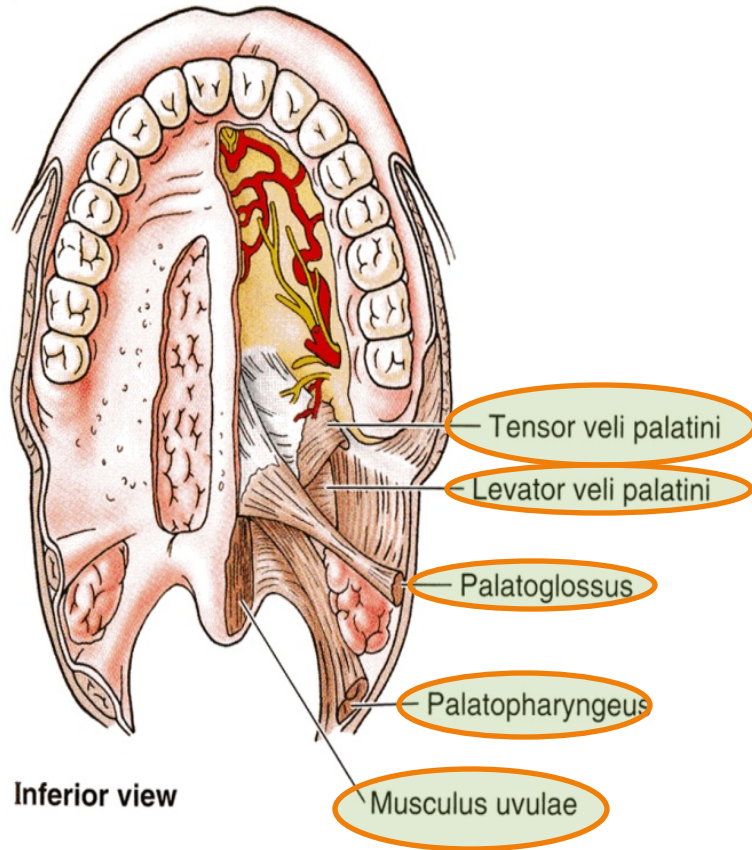


- **The soft palate is composed of:**
- 1- Mucous membrane,
- 2- Palatine aponeurosis,
- 3- Muscles.
- 4- Nerves and vessels.
- **Mucous membrane** covers its upper & lower surfaces.
- **The palatine aponeurosis** is a fibrous sheet attached to the posterior border of the hard palate.
- It is the expanded tendon of the **tensor palatini**.



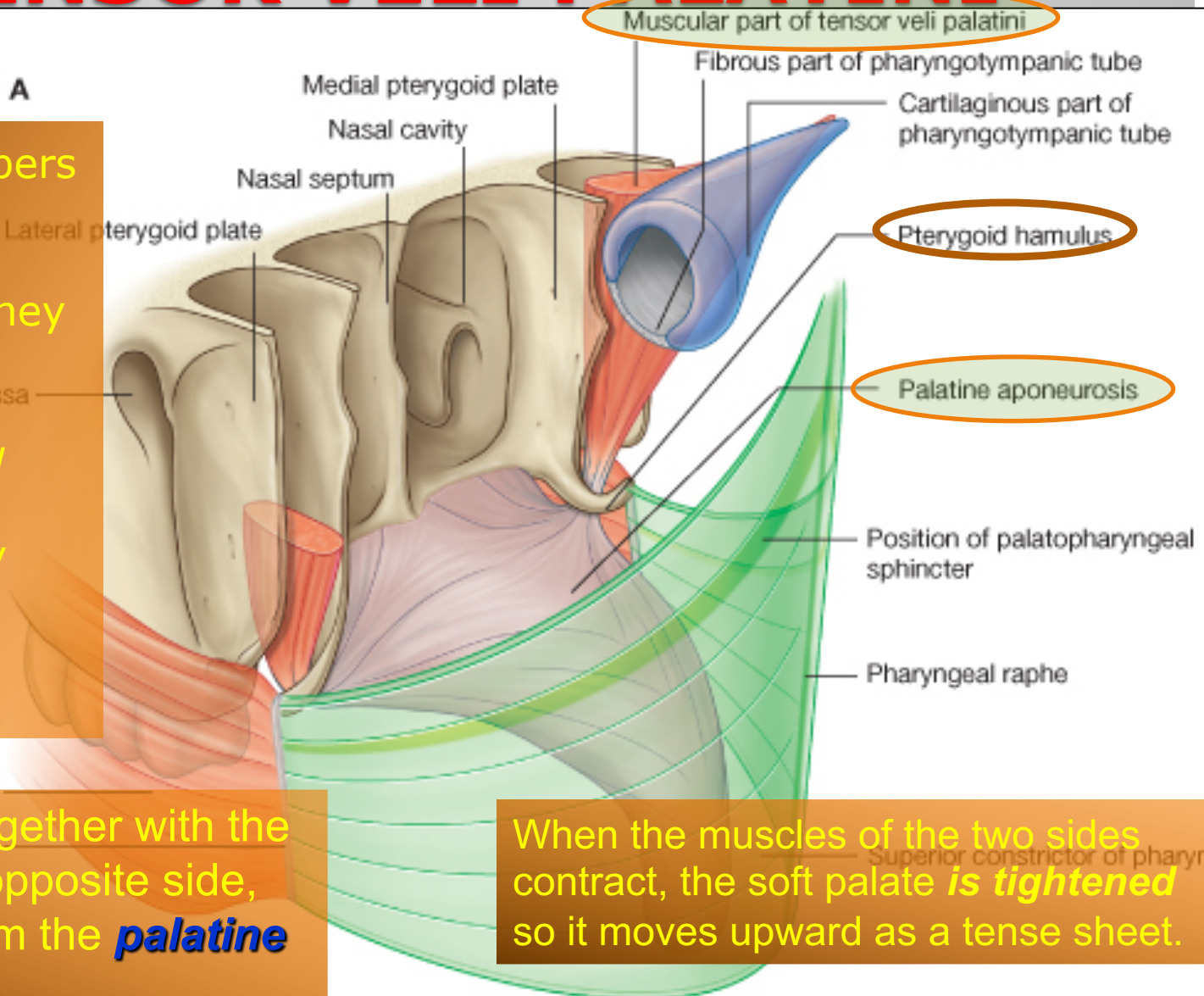
- The **greater** and **lesser palatine nerves** from **maxillary nerve**, enter the palate through greater and lesser palatine foramina.
- The **nasopalatine nerve**, also a branch of the maxillary nerve, enters the palate through the incisive foramen.
- The **glossopharyngeal nerve** also supplies the soft palate.

MUSCLES OF THE SOFT PALATE



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

TENSOR VELI PALATINI

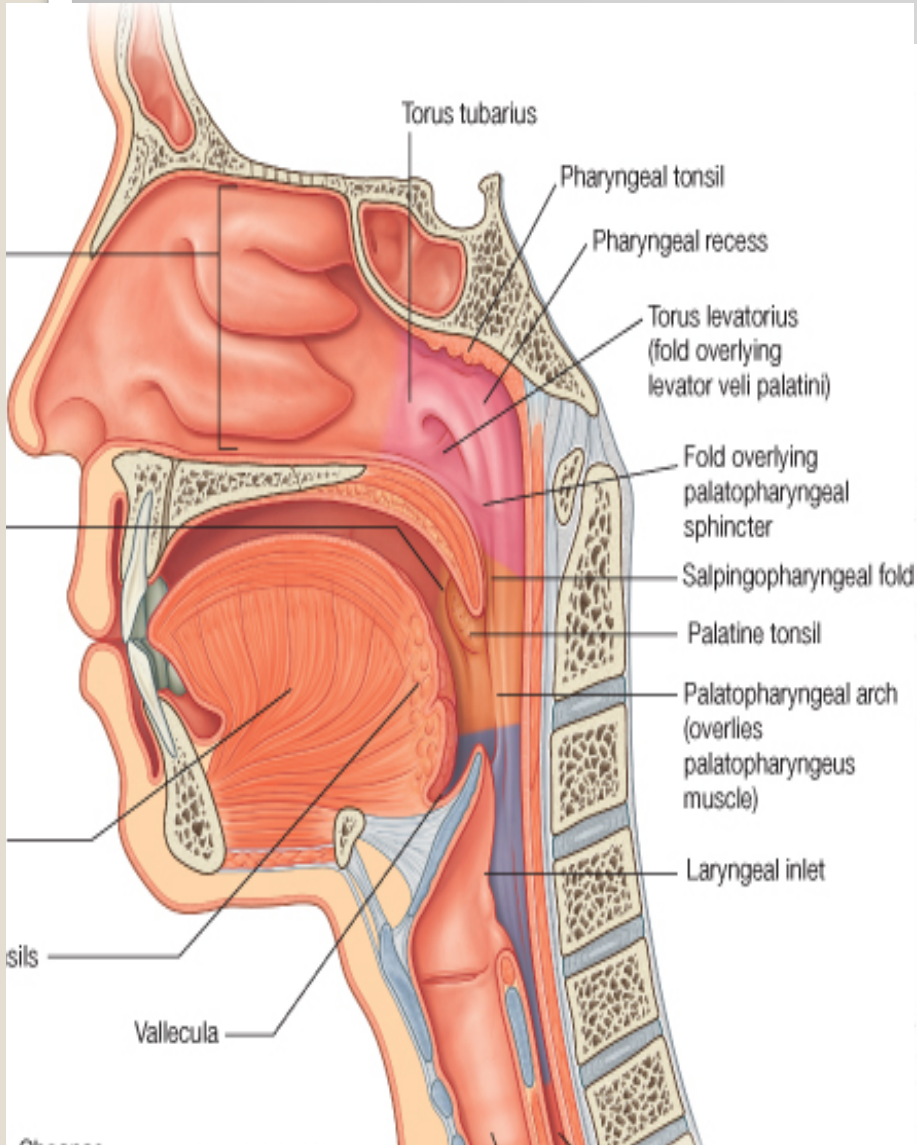


The muscle fibers of the **tensor palatini** converge as they descend from their origin to form a narrow tendon, which turns medially around **the pterygoid hamulus**.

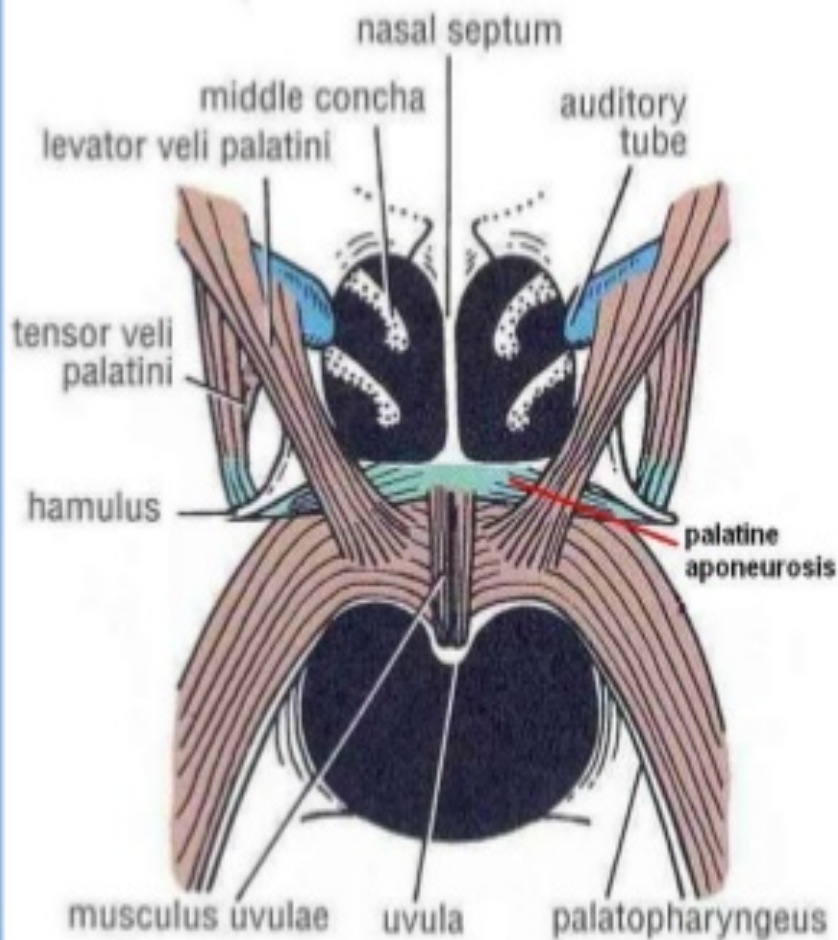
The tendon, together with the tendon of the opposite side, expands to form the **palatine aponeurosis**.

When the muscles of the two sides contract, the soft palate **is tightened** so it moves upward as a tense sheet.

MOVEMENTS OF SOFT PALATE



- **Pharyngeal isthmus:**
- (It is the communication between nasal and oral parts of the pharynx)
- It is the space between the two palatopharyngeal arches. It *is closed by raising the soft palate upward.*
- ***Closure occurs during the production of explosive consonants in speech and swallowing.***
- Soft palate **is raised** by the contraction of the levator veli palatini and Palatopharyngeus.
- At the same time, the superior wall of the pharynx is pulled forward.
- The **palatopharyngeus muscles** on both sides also contract so that the palatopharyngeal arches are pulled medially, like side curtains.
- *By this means the nasal part of*



Muscle	Origin	Insertion	Nerve Supply	Action
Tensor veli palatini	Spine of sphenoid, auditory tube	With muscle of other side, forms palatine aponeurosis	Nerve to medial pterygoid from mandibular nerve	Tenses soft palate
Levator veli palatini	Petrous part of temporal bone, auditory tube	Palatine aponeurosis	Pharyngeal plexus	Raises soft palate
Palatoglossus	Palatine aponeurosis	Side of tongue	Pharyngeal plexus	Pulls root of tongue upward and backward, narrows oropharyngeal isthmus
Palatopharyngeus	Palatine aponeurosis	Posterior border of thyroid cartilage	Pharyngeal plexus	Elevates wall of pharynx, pulls palatopharyngeal folds medially
Musculus uvulae	Posterior border of hard palate	Mucous membrane of uvula	Pharyngeal plexus	Elevates uvula

▪ Motor:

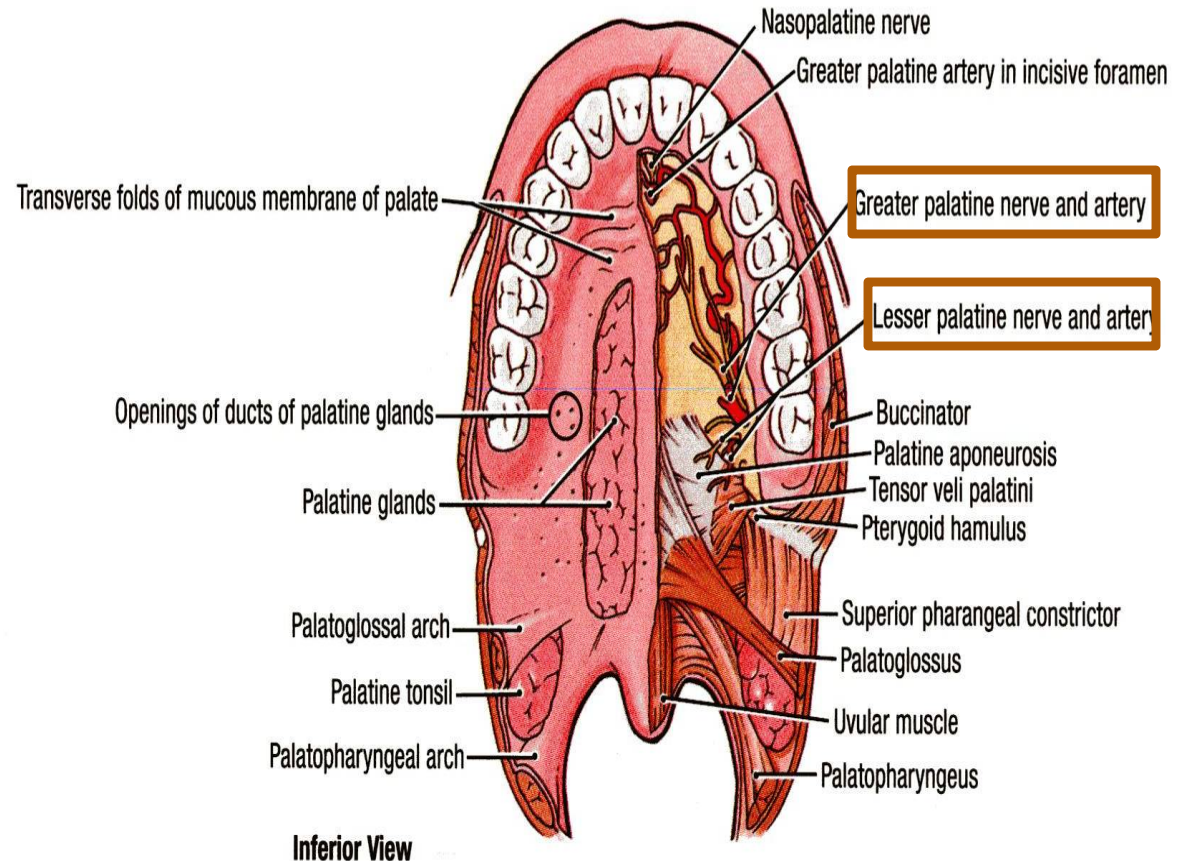
▪ All muscles of the palate are supplied by pharyngeal plexus of nerves **EXCEPT Tensor Veli Palatini** (By **MANDIBULAR NERVE**).

▪ Motor innervation of soft palate can be tested by saying 'Ah', normally soft palate rises upward and the uvula moves backward in the middle.

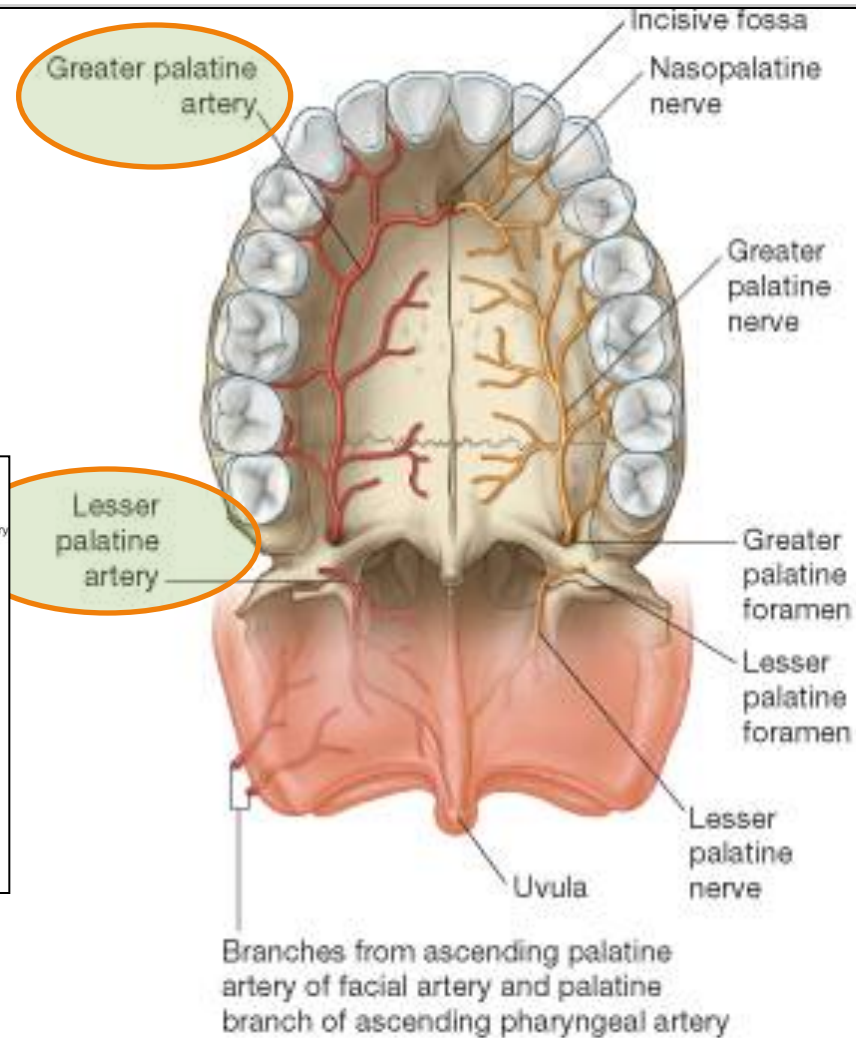
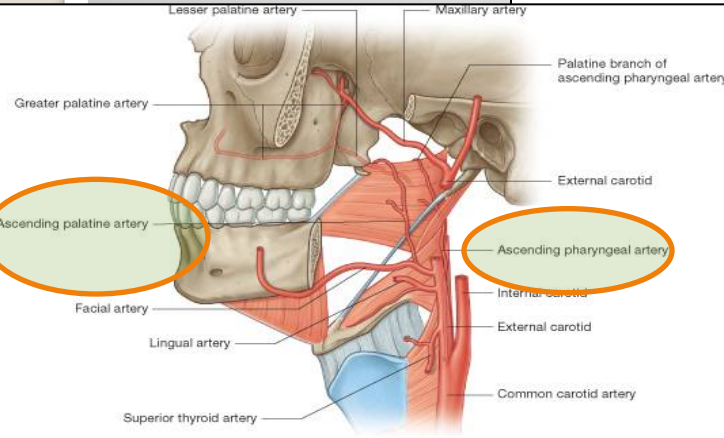
▪ Sensory:

- **Maxillary nerve through: Greater, Lesser palatine & Nasopalatine nerves.**
- **Glossopharyngeal nerve.**

NERVE SUPPLY OF SOFT PALATE

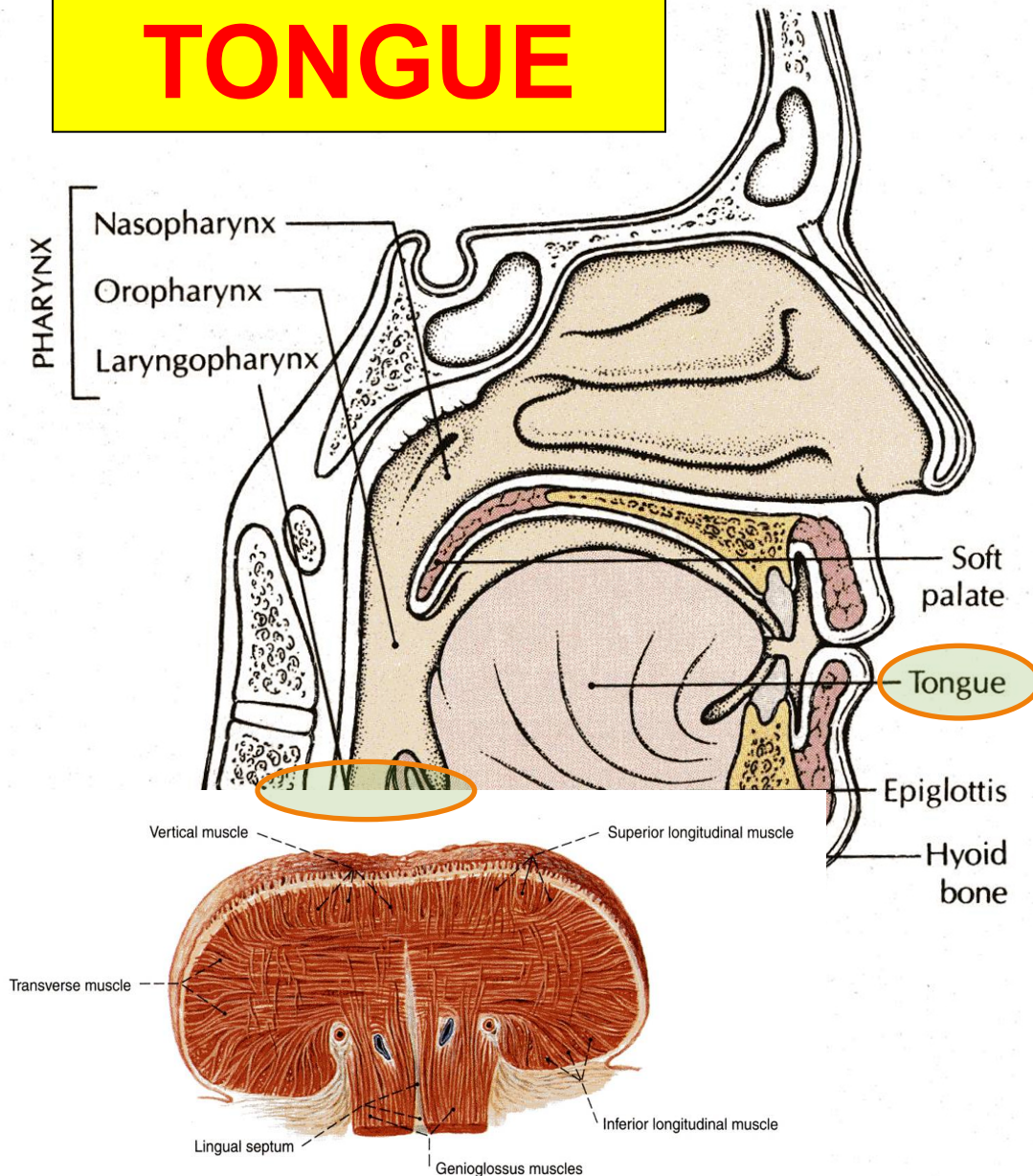


BLO



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

TONGUE

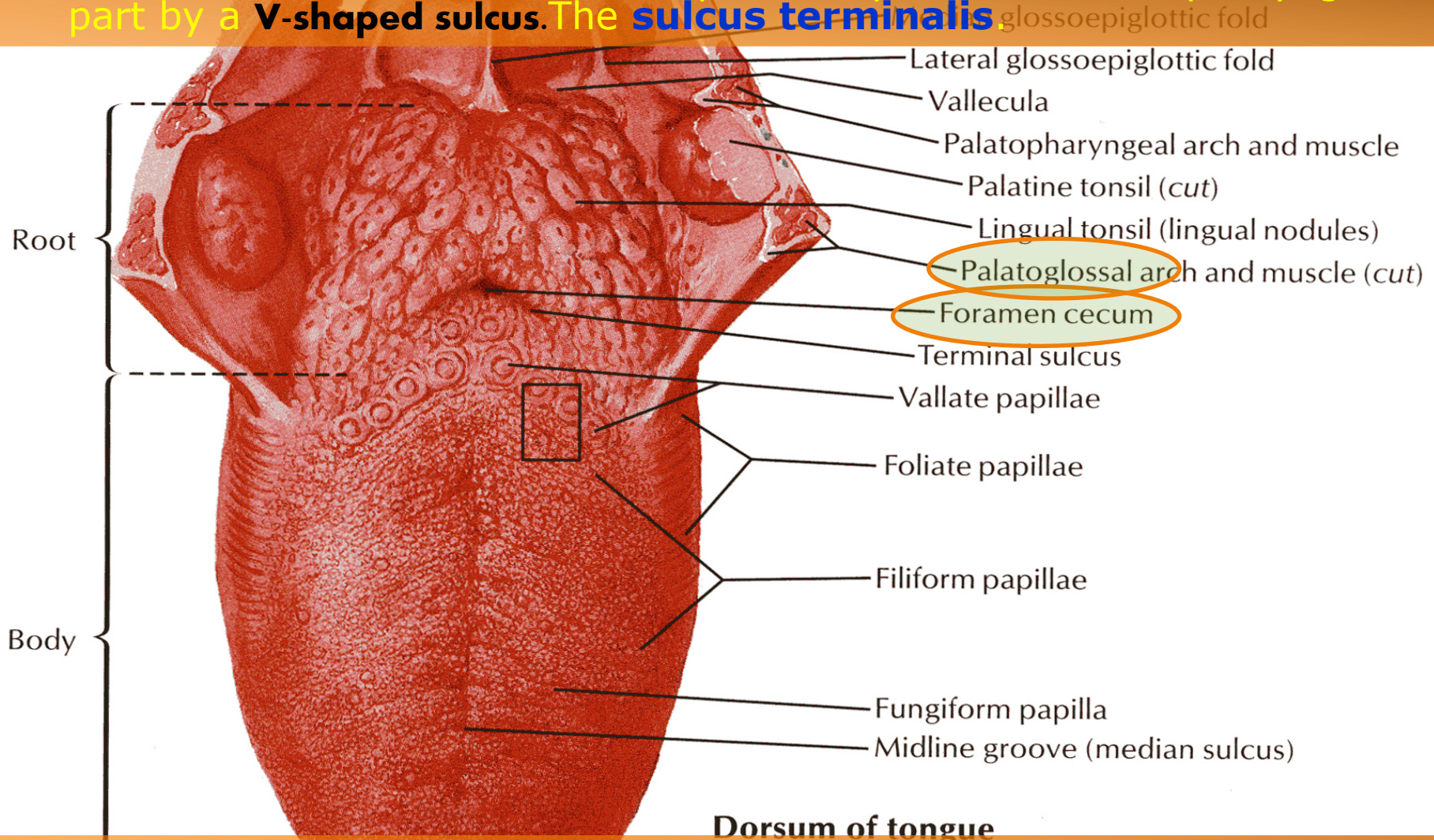


- The tongue is a mass of striated muscle covered with mucous membrane.
- Its anterior 2/3 lies in the mouth, and its posterior 1/3 lies in the pharynx.
- Muscles attach the tongue to the styloid process & soft palate above and to the mandible & the hyoid bone below.
- The tongue is divided into right & left halves by a median **fibrous septum**.

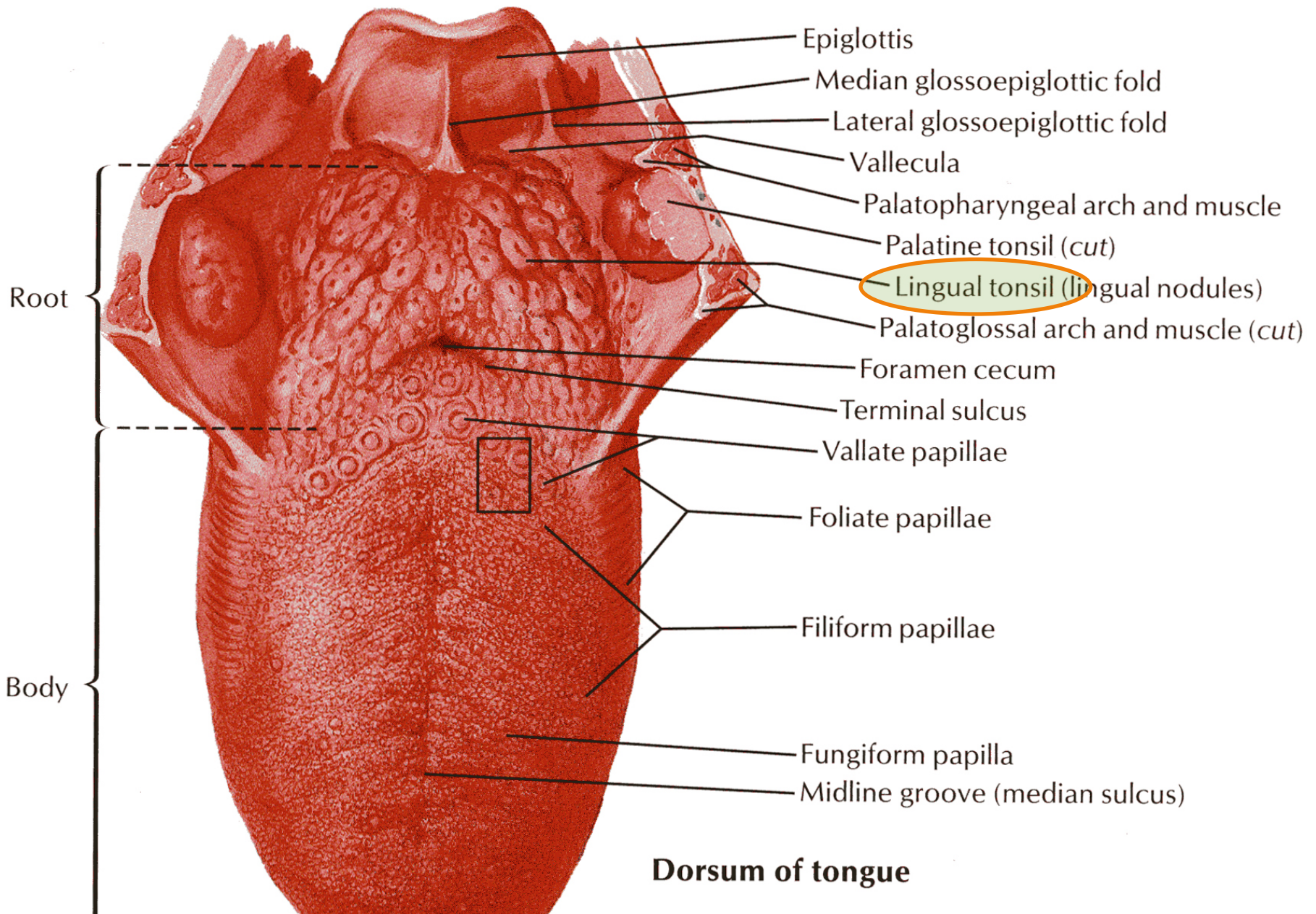
Fig. 197 Tongue; transverse section through middle part of tongue; anterior aspect.

Mucous Membrane of the

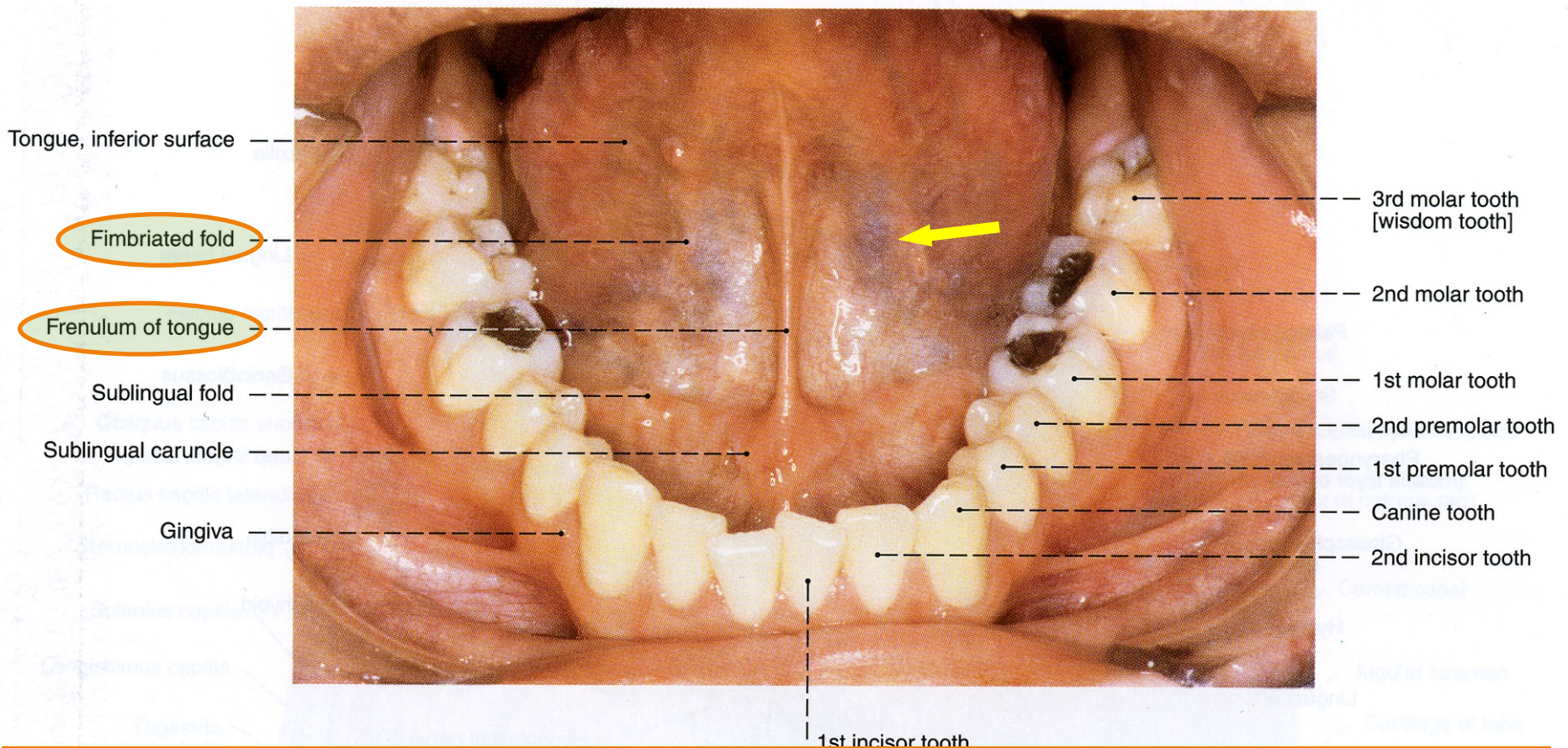
- The mucous membrane of the upper surface of the tongue can be divided into anterior 2/3 or oral part and posterior 1/3 or pharyngeal part by a **V-shaped sulcus**. The **sulcus terminalis**,



- The apex of the sulcus projects backward and is marked by a small pit, the foramen cecum. The foramen cecum is an embryologic remnant which marks the site of the upper end of the thyroglossal duct.

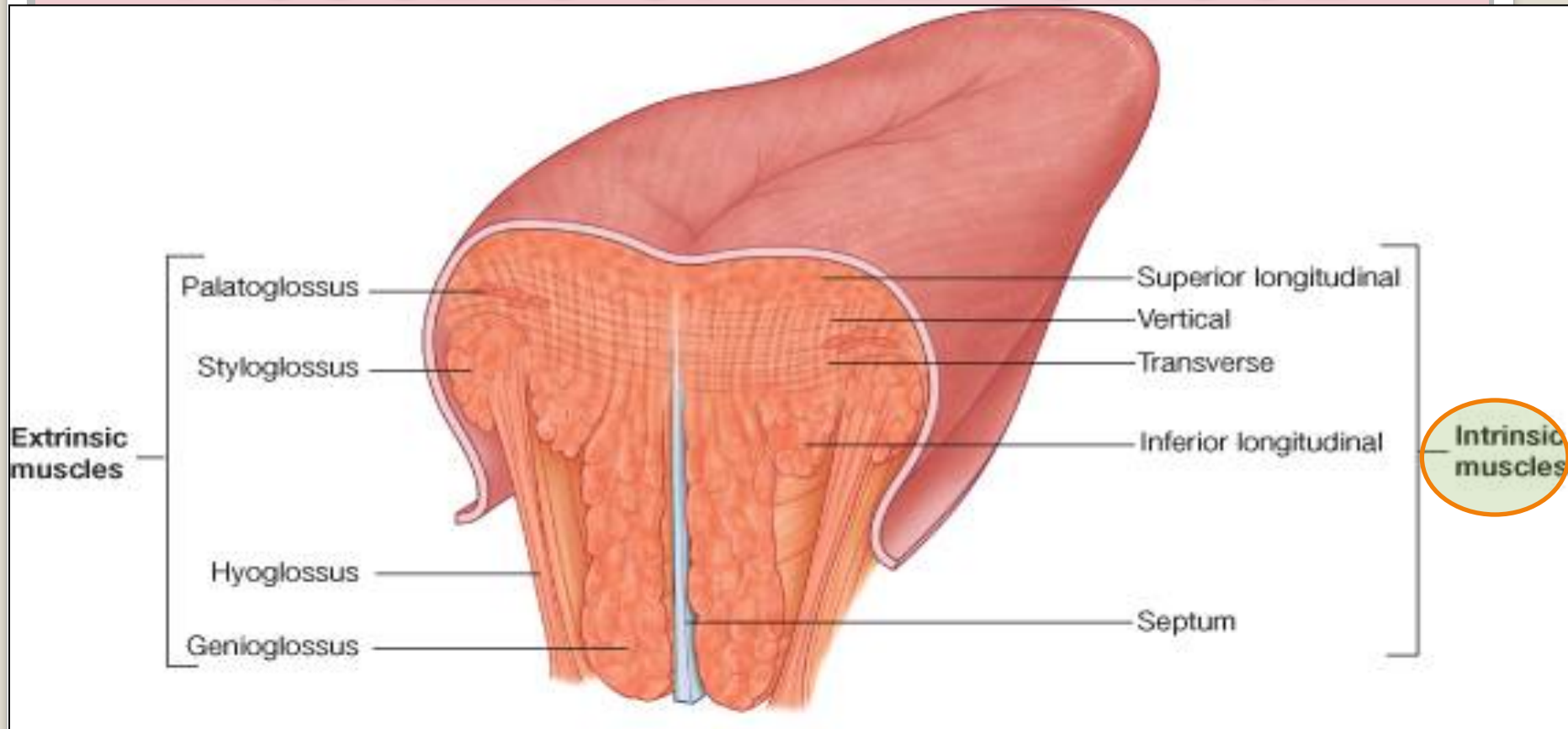


The posterior third has no papillae and only has lingual tonsil

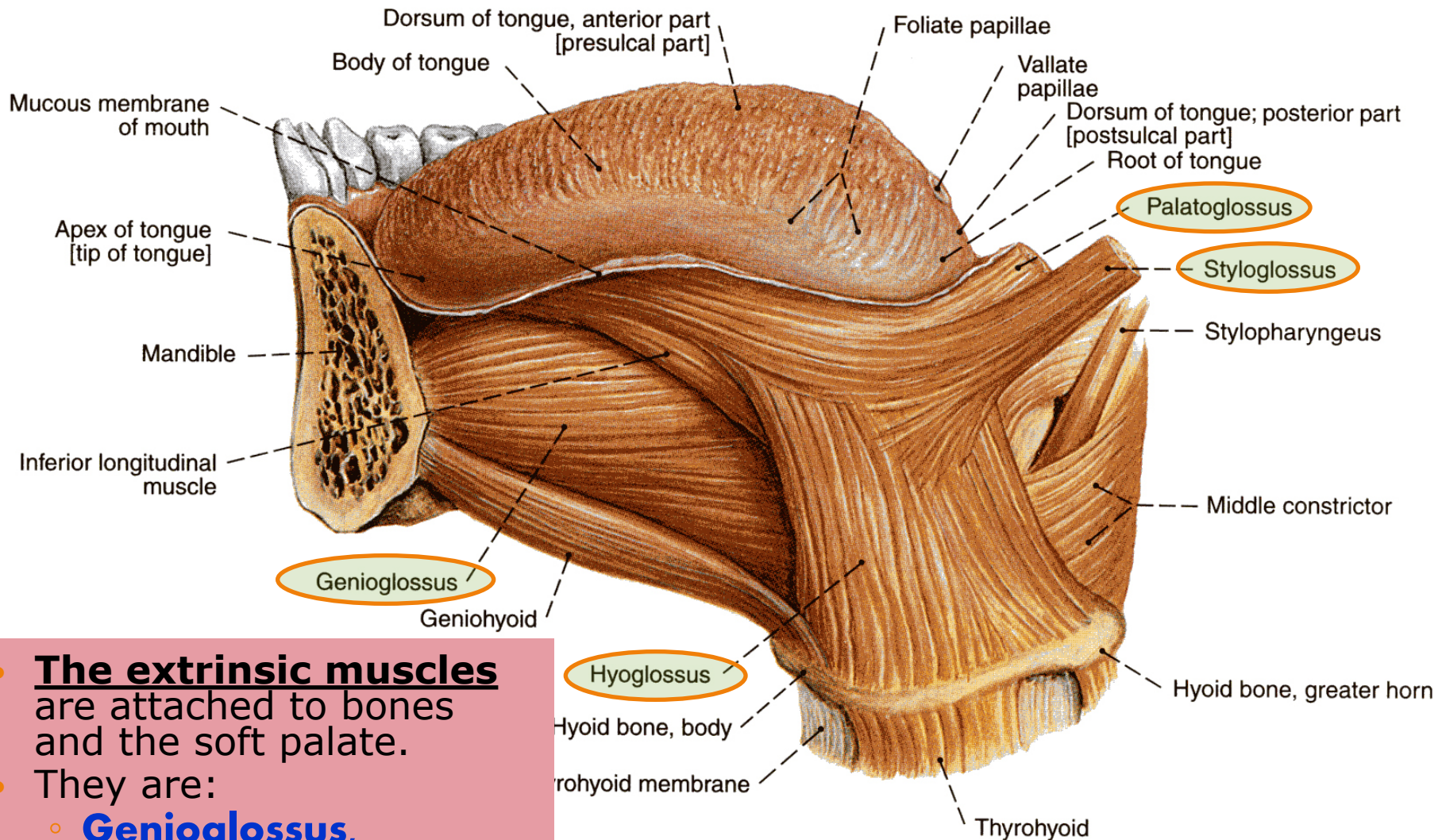


- The mucous membrane on the inferior surface of the tongue is smooth and is reflected from the tongue to the floor of the mouth.
- In the midline, the undersurface of the tongue is connected to the floor of the mouth by a fold of mucous membrane, the **frenulum of the tongue**.
- On the lateral side of the frenulum, the **deep lingual vein** can be seen through the mucous membrane.
- Lateral to the lingual vein, the mucous membrane forms a serrated fold called the **fimbriated fold**.

MUSCLES OF THE TONGUE



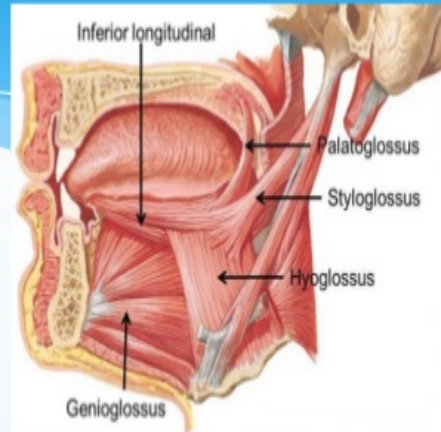
- The muscles of the tongue are divided into **two types**:
- **Intrinsic and extrinsic.**
- **Intrinsic muscles** are restricted to the tongue and are not attached to bone.
- They consist of **longitudinal (superior@inferior), transverse, and vertical fibers.**
- **Action:** Alter the shape of the tongue while it lies within the mouth.



- **The extrinsic muscles** are attached to bones and the soft palate.
- They are:
 - **Genioglossus,**
 - **Hyoglossus,**
 - **Styloglossus, and**
 - **Palatoglossus.**

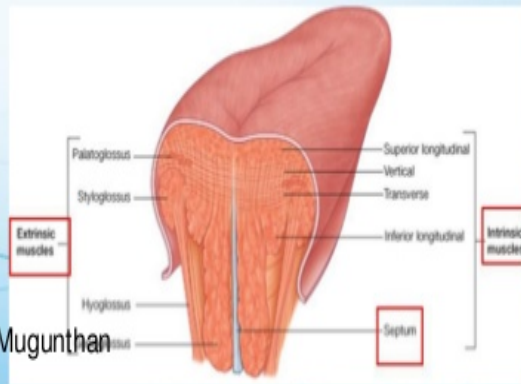
Extrinsic muscles (alter the position of tongue)

1. Genioglossus
2. Hyoglossus
3. Chondroglossus
4. Styloglossus
5. Palatoglossus



Intrinsic muscles (alter the shape of tongue)

1. Superior longitudinal
2. Inferior longitudinal
3. Transverse
4. Vertical

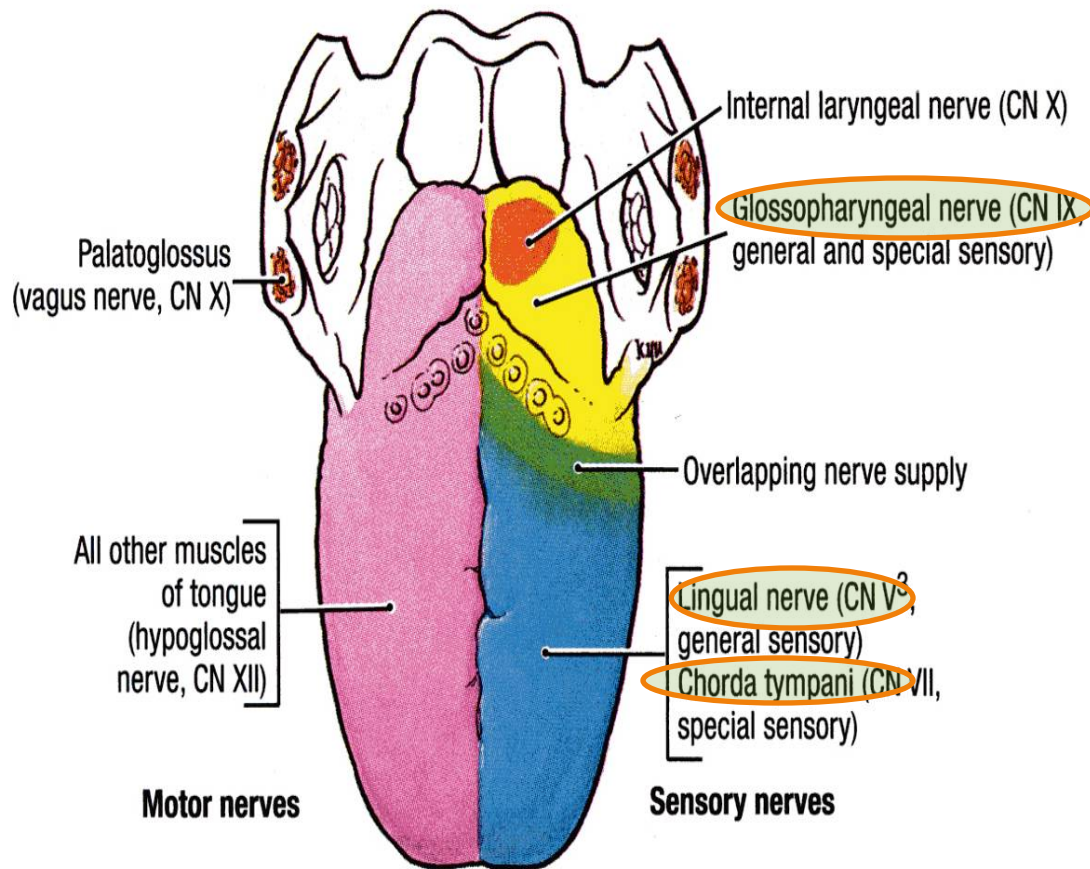


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Muscle	Origin	Insertion	Nerve Supply	Action
<i>Intrinsic Muscles</i>				
Longitudinal	Median septum and submucosa	Mucous membrane	Hypoglossal nerve	Alters shape of tongue
Transverse				
Vertical				
<i>Extrinsic Muscles</i>				
Genioglossus	Superior genial spine of mandible	Blends with other muscles of tongue	Hypoglossal nerve	Protrudes apex of tongue through mouth
Hyoglossus	Body and greater cornu of hyoid bone	Blends with other muscles of tongue	Hypoglossal nerve	Depresses tongue
Styloglossus	Styloid process of temporal bone	Blends with other muscles of tongue	Hypoglossal nerve	Draws tongue upward and backward
Palatoglossus	Palatine aponeurosis	Side of tongue	Pharyngeal plexus	Pulls roots of tongue upward and backward, narrows oropharyngeal isthmus

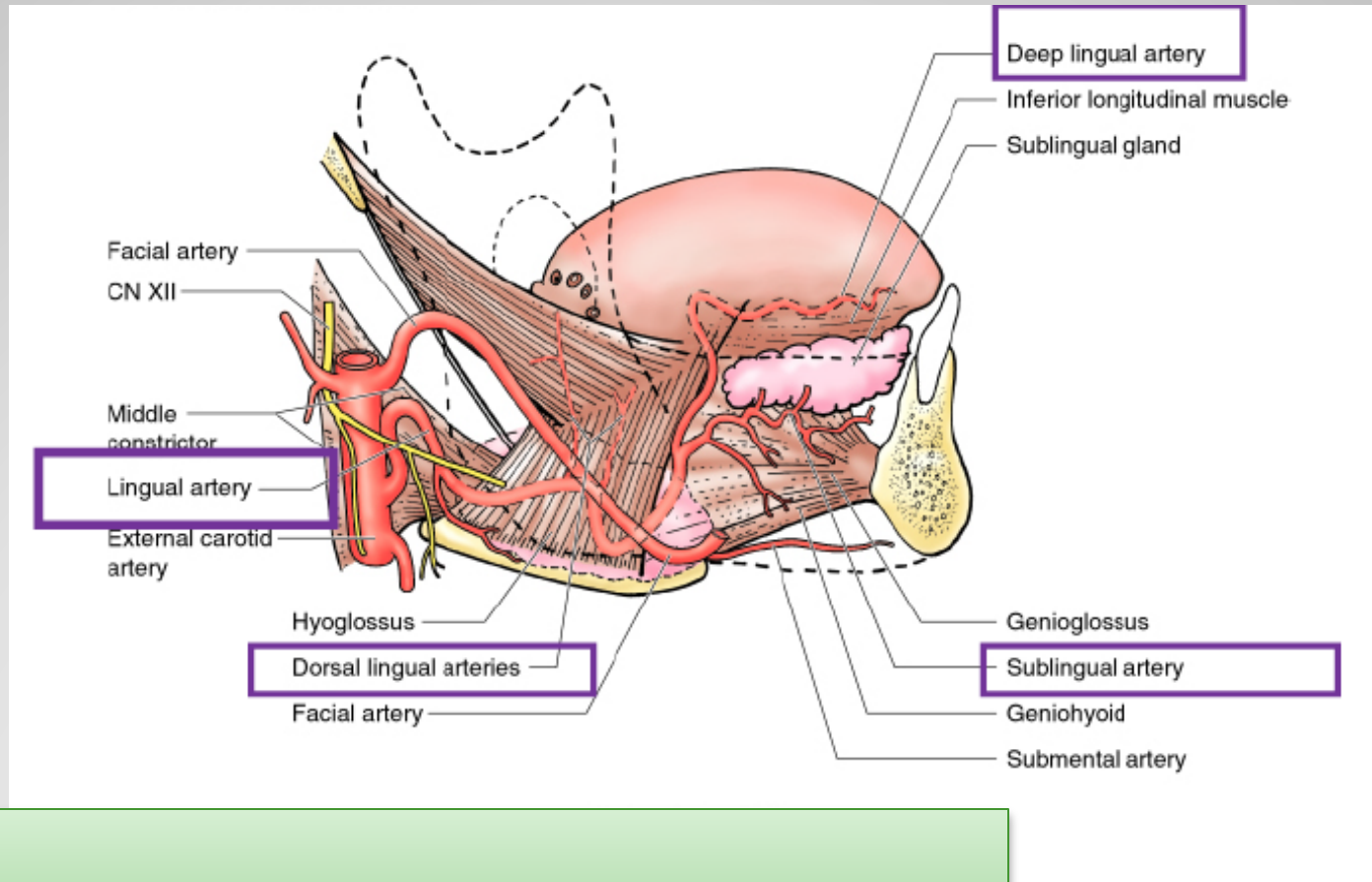
All muscles of the tongue are supplied by the **hypoglossal** nerve EXCEPT **palatoglossus** which is supplied by the pharyngeal plexus

SENSORY INNERVATION



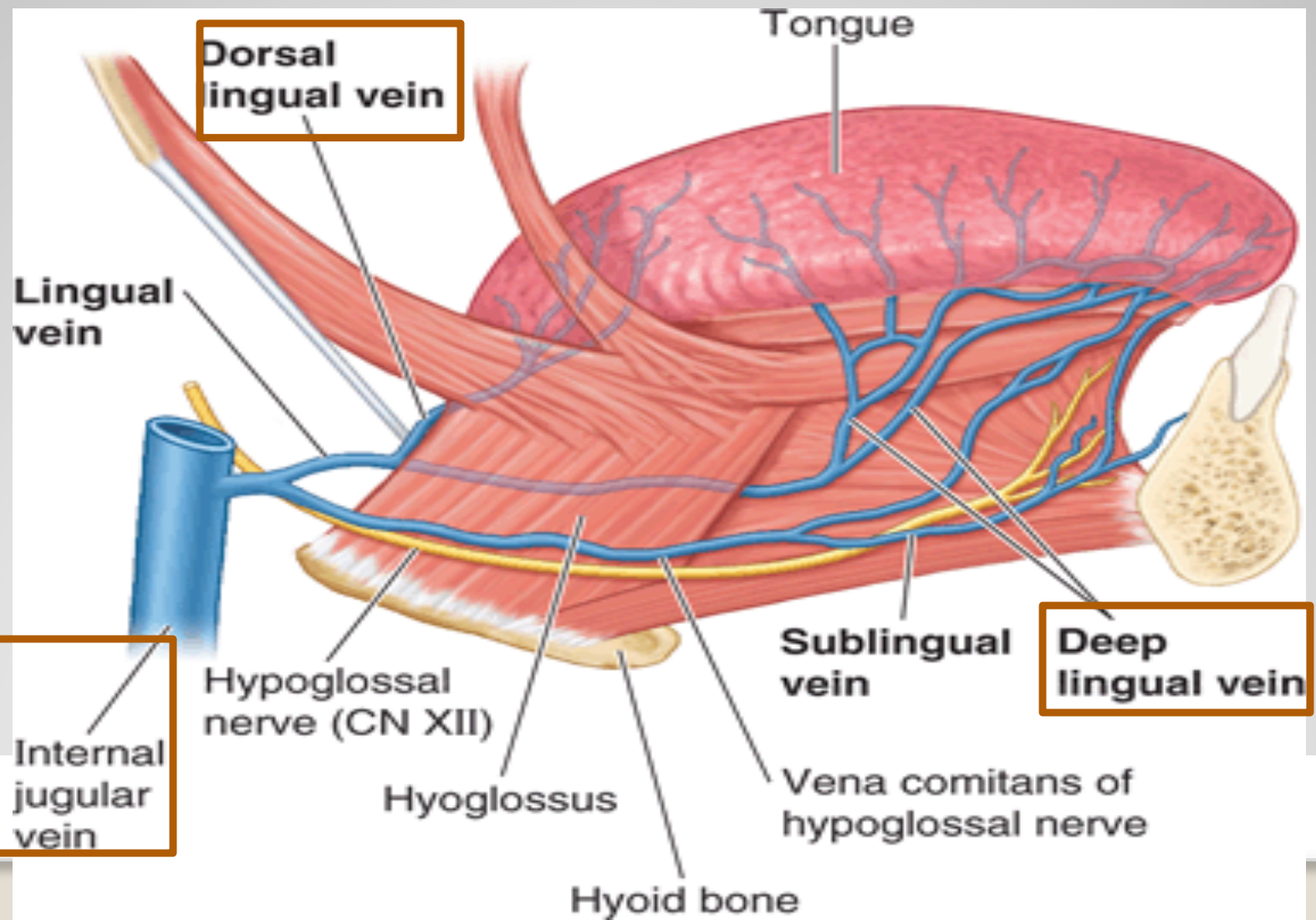
- General sensations from the mucous membrane of the anterior 2/3 of the tongue is supplied by **lingual nerve**.
- Taste fibers from the anterior 2/3 except the vallate papillae, are carried in the **chorda tympani** of the facial nerve.
- General & taste sensation from the posterior 1/3, including the vallate papillae, are carried by the **glossopharyngeal nerve**.

Arterial Supply of Tongue

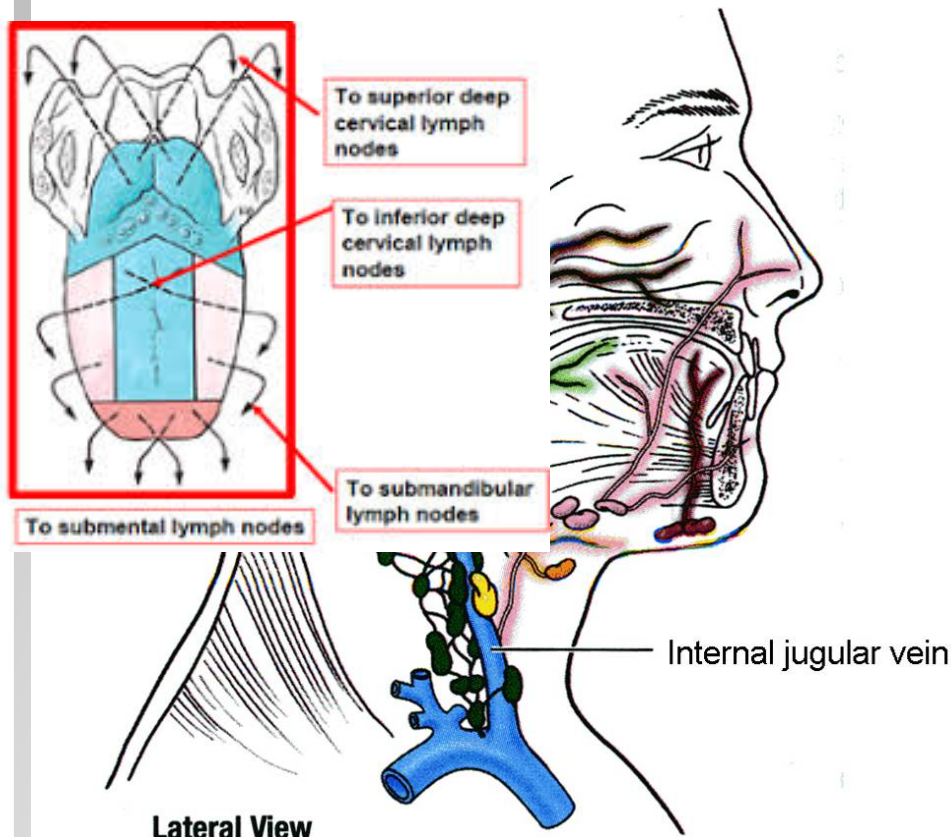









Lingual
Tonsillar branch of facial.
Ascending pharyngeal.

Venous Drainage of Tongue



LYMPH DRAINAGE



	Retropharyngeal		Submental
	Deep cervical		Submandibular
	Jugulo-omohyoid		Infrahyoid
	Jugulodigastric		

- The tip of the tongue drains into **submental** lymph nodes.
- The remainder of the anterior two thirds of the tongue drains into the **submandibular** and **deep cervical** lymph nodes.
- Lymph from the posterior third of the tongue drains into the **deep cervical** lymph nodes.

**THANK YOU
AND GOOD LUCK**