

ANATOMY OF TONGUE

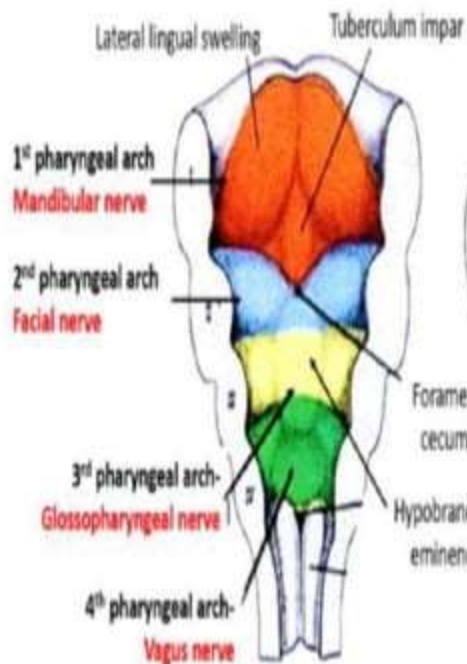
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PGT RADIATION
ONCOLOGY

DEVELOPMENT OF TONGUE

- Begins in 4th week .
- Pharyngeal arches 1-4 froms the mucosa.
- Occipital somites froms musculature.

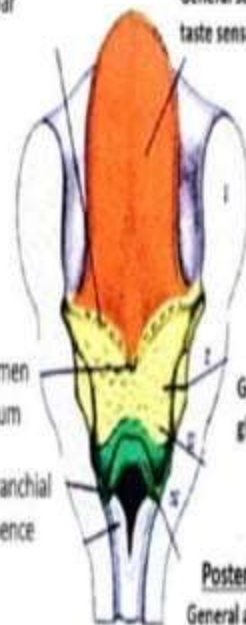
MUCOSAL DEVELOPMENT

- The lateral lingual swelling overgrows the tuberculum impar and merge together forming mucosa of **ant 2/3rd** .
- Within the cupula the 3rd arches overgrows the 2nd arches forming mucosa of the **posterior 1/3rd** .
- **Posterior most** part include vallecula from 4th arches



Anterior 2/3rd of tongue

General sensation by lingual nerve and
taste sensation by chorda tympani



Posterior 1/3rd of tongue

General and taste sensation by
glossopharyngeal nerve

Posterior most part of tongue

General and taste sensation by vagus
nerve

Musculature development

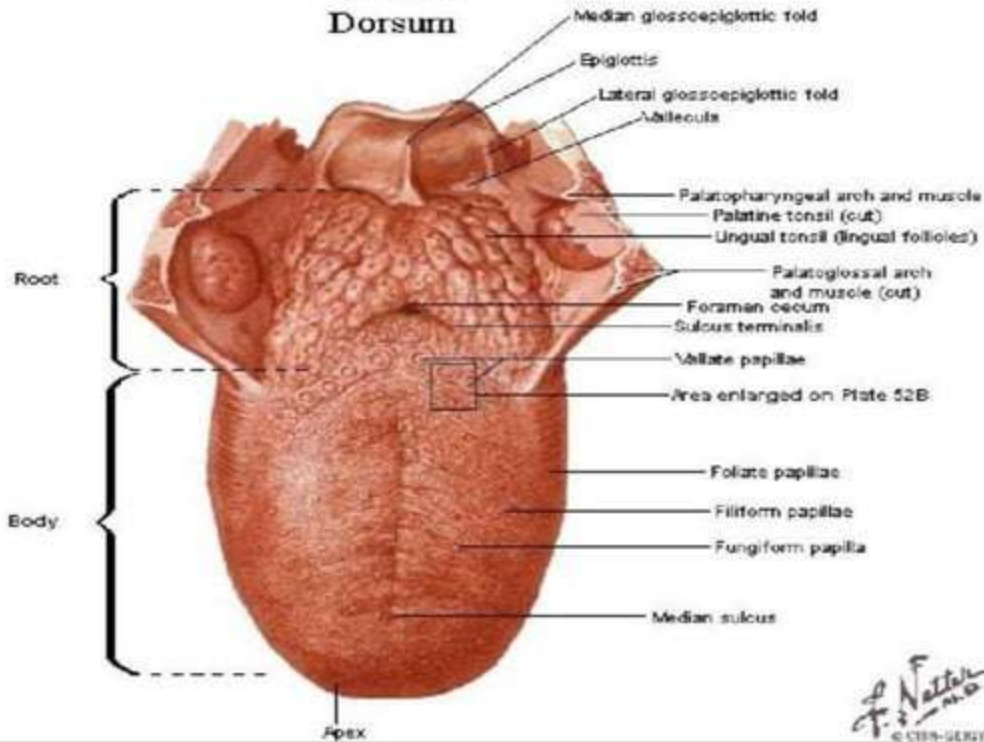
- From the **occipital somites** which are the segments of **mesoderm**.
- Somites migrate from the neck anteriorly to give rise to muscles of the the tongue.
- Supplied by the **hypoglossal nerve**.

ANATOMY OF TONGUE

- Tongue is a **muscular organ** covered by mucus membrane.
- Anterior 2/3rd (oral or presulcal part).
- Posterior 1/3(pharyngeal or postsulcal part).
- **Sulcus terminalis** is the junction of oral and pharyngeal part.
- It has -**Apex/tip**
-**Body** having rough dorsal/superior part
and
smooth ventral/inferior part
-**Base**
-**Root.**

Tongue

Dorsum



F. S. Netter
M.D.
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TIP/APEX

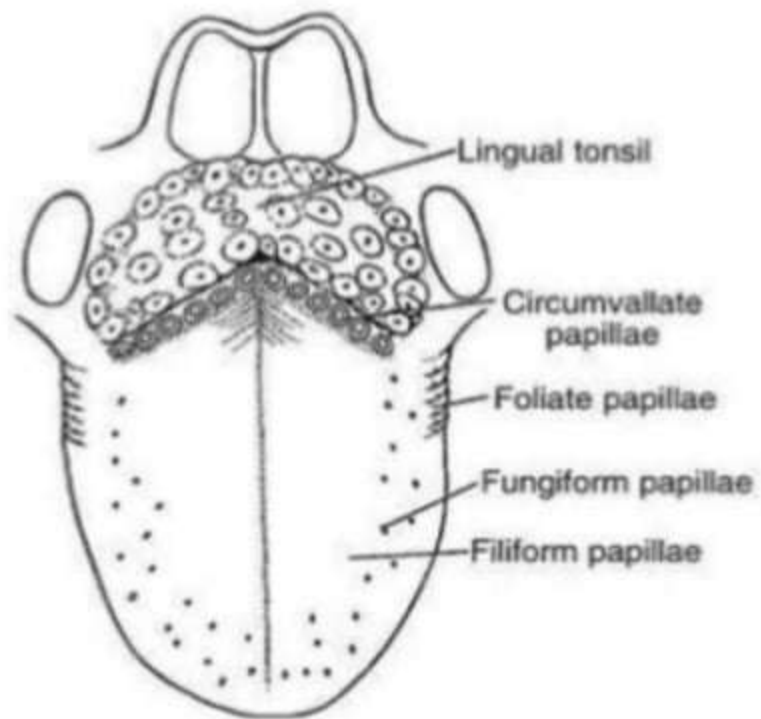
- Most ant and most mobile aspect of the organ.

BODY

- Dorsal part/superior.

Anterior 2/3rd :covered by mucus membrane and roughened by 4 type of papillae.

1. **Filiform papillae**: Conical in projection give velvety appearance to tongue, give texture and touch sensation.
2. **Fungiform papillae**: Club shaped, mostly on tip and sides
3. **Foliate papillae**: Small reddish folds of mucosa, along lateral surface, just in front of the palatoglossal arch.
4. **Vallate papillae**: Dozen in number, each is a cylindrical projection surrounded a circular sulcus and a raised outer wall (Vallum)



- There are mucus and serous glands under the tips and sides.
- On the under surface behind the tip there is a rather large mixed gland on each side of midline
–Ant lingual gland.
- RANULA –Retention cyst of this gland.

Posterior 1/3rd

- Ant wall of oropharynx.
- Extends from sulcus terminalis and epiglottis.
- **Foramen caecum**: small depression at apex of sulcus- upper end of the thyroglossal duct
- Smooth mucus membrane has a nodular appearance constitute the lingual tonsil- part of **waldeyer's ring**.
- Between tongue and epiglottis- **median glossoepiglottic fold**.
- **Lateral glossoepiglottic fold** – extending from the side of epiglottis to the wall of the pharynx.

- Inferior surface/smooth ventral part:

Lateral to lingual frenulum we

have deep lingual vein (visible), Lingual artery/nerve (not visible).

Farther lateral is ant fold of

mucosa -fimbriated .

Some foliate papillae are also



- **Base :**

postsulcal tongue attached to the floor of oral cavity.
populated by numerous lymphoid aggregate known
as
lingual tonsil.

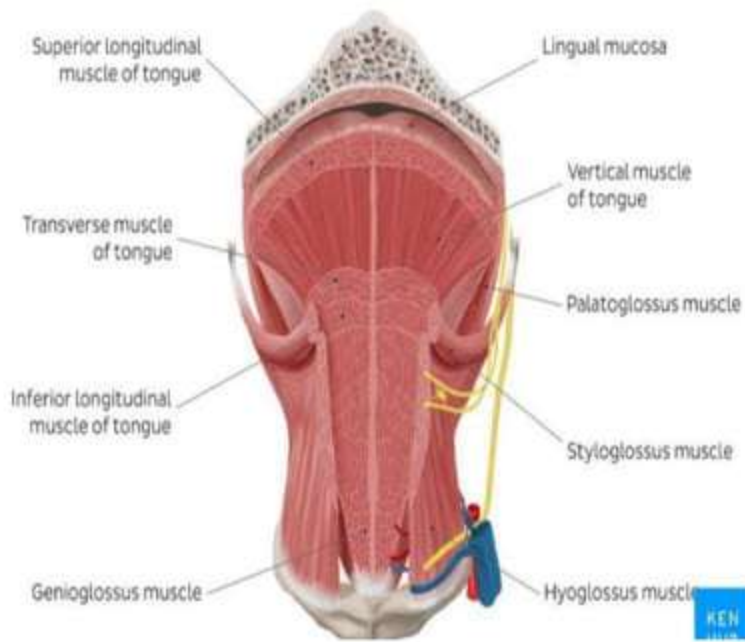
- **Root :**

Part of post sulcal tongue attached to the floor of oral
cavity

MUSCLE OF THE TONGUE

Divided into-

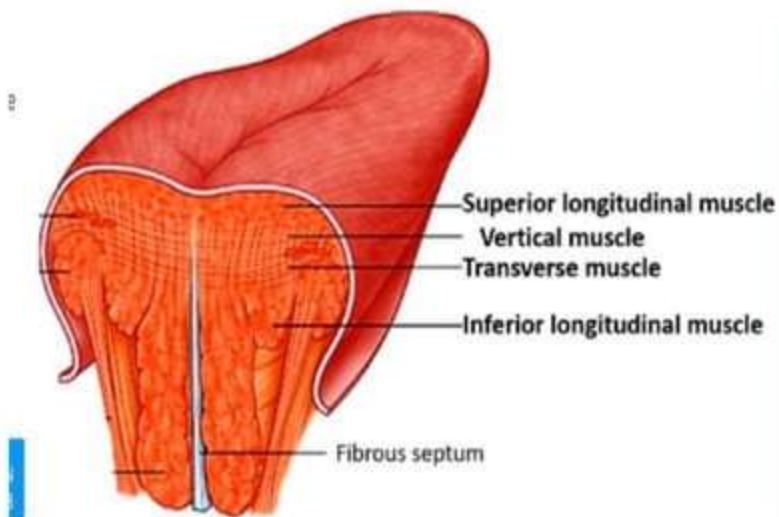
- **INTRINSIC MUSCLE** :wholly within the tongue and not attached to the bone,
 1. Superior longitudinal
 2. Inferior longitudinal
 3. Transverse muscle
 4. Vertical muscle
- **EXTRINSIC MUSCLE**:Attached to bone
 1. Genioglossus
 2. Hyoglossus
 3. Styloglossus
 4. palatoglossus



INTRINSIC MUSCLE

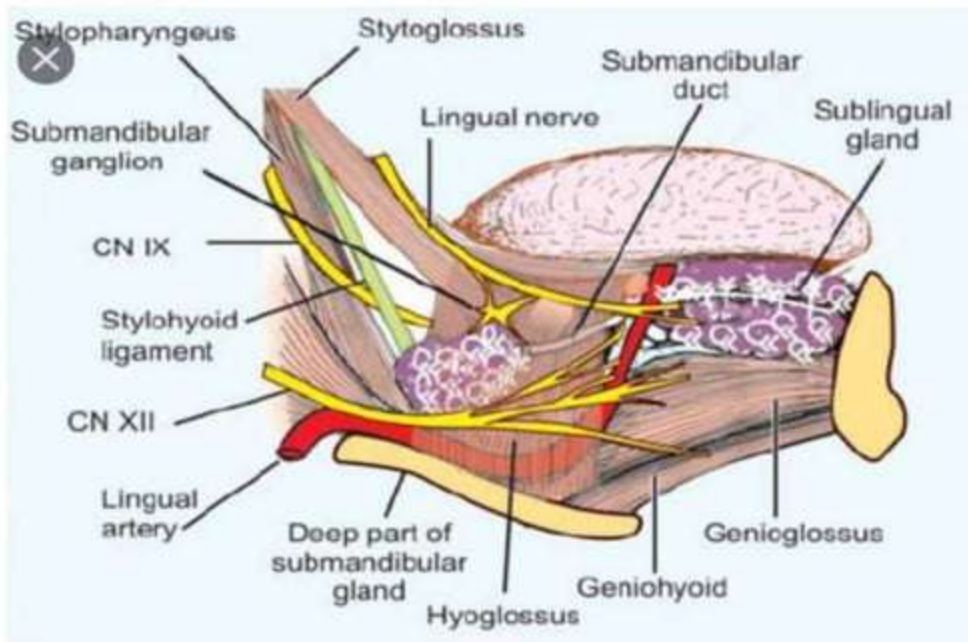
Superior longitudinal	Origin - submucosa of posterior tongue, lingual septum Insertion - apex/anterolateral margins of tongue Innervation - hypoglossal nerve (CN XII) Blood supply - lingual branch of external carotid artery Action - retracts and broadens tongue, elevates apex of tongue
Inferior longitudinal	Origin - root of tongue, body of hyoid bone Insertion - apex of tongue Innervation - hypoglossal nerve (CN XII) Blood supply - lingual branch of external carotid artery Action - retracts and broadens tongue, lowers apex of tongue
Transverse muscle	Origin - lingual septum Insertion - lateral margin of tongue Innervation - hypoglossal nerve (CN XII) Blood supply - lingual branch of external carotid artery Action - narrows and elongates tongue
Vertical muscle	Origin - root of tongue, genioglossus muscle Insertion - lingual aponeurosis Innervation - hypoglossal nerve (CN XII) Blood supply - lingual branch of external carotid artery Action - broadens and elongates tongue

INTRINSIC MUSCLE



EXTRINSIC MUSCLE

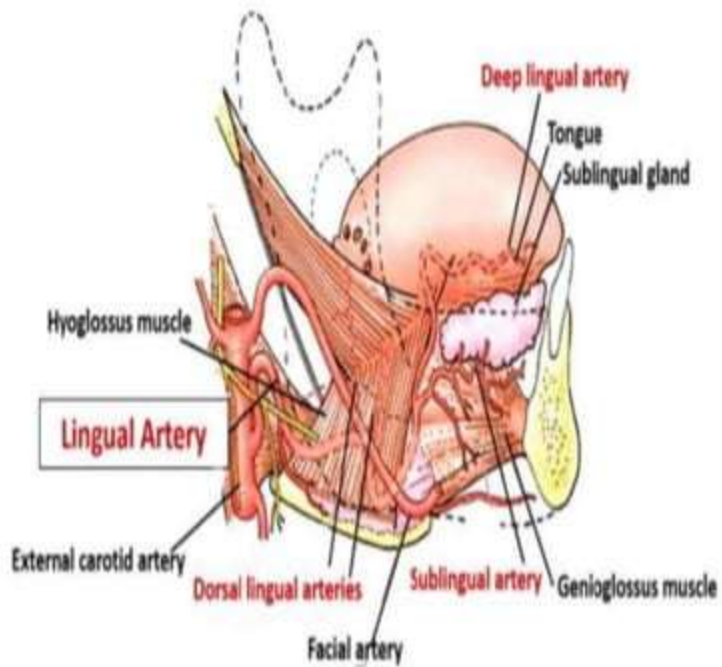
Genioglossus	Upper genial tubercle of mandible	Upper fibres: tip of the tongue Middle fibres: dorsum Lower fibres: hyoid bone	Upper fibres: retract the tip Middle fibres: depress the tongue Lower fibres: pull the posterior part forward (thus protrusion of the tongue from the mouth)
Hyoglossus	Greater cornu, front of lateral part of body of hyoid bone	Side of tongue	Depress the tongue Retracting the protruded tongue
Styloglossus	Tip, anterior surface of styloid process	Side of tongue	Pulls the tongue upwards and backwards during swallowing
Palatoglossus	Oral surface of palatine aponeurosis	Side of tongue (junction of oral and pharyngeal part)	Pulls up root of tongue, approximates palatoglossal arches, closes oropharyngeal isthmus



- Superficial to HYOGLOSSUS muscle from above downward
 1. Lingual nerve
 2. Submandibular duct
 3. Hypoglossal nerve with its accompanying vein
- Deep to HYPOGLOSSUS from above downward
 1. Glossopharyngeal nerve
 2. Styloid ligament
 3. Lingual artery

- **2nd PART:** Passes deep to hypoglossus
Branch-**DORSAL LINGUAL ARTERIES** supply the
posterior part of tongue and palatine
tonsil.

- **3rd PART:** Also called **lingual artery /arteria profunda linguae**- runs upward
along
the ant border of hypoglossus
and then
go forward on on the
undersurface of
tongue.



VENOUS DRAINAGE OF TONGUE

- **DORSAL LINGUAL VEINS:**

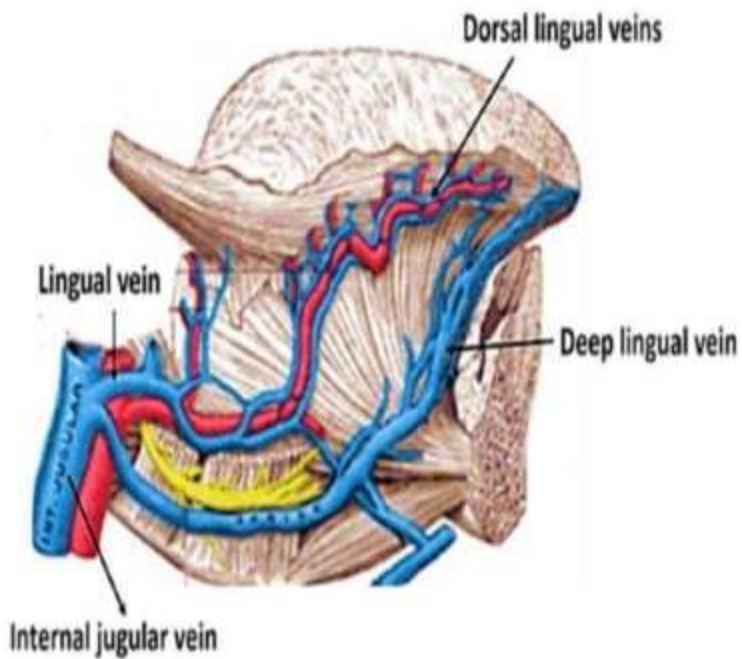
Drain the dorsum and sides of the the tongue
Run and join venaes comitantes and form lingual vein,

accompany the lingual artery

- **DEEP LINGUAL VEIN:**

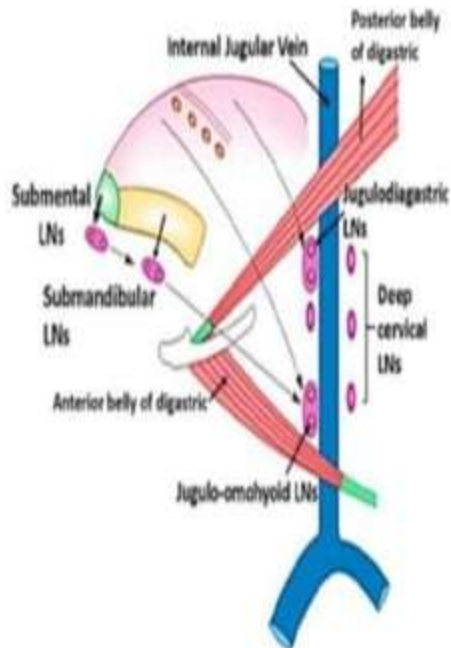
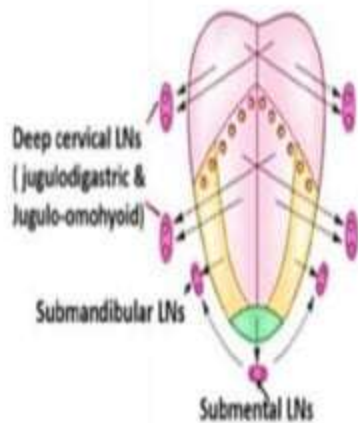
Drain the tip ,and forms the venaes comitantes.
Accompany the hypoglossal nerve

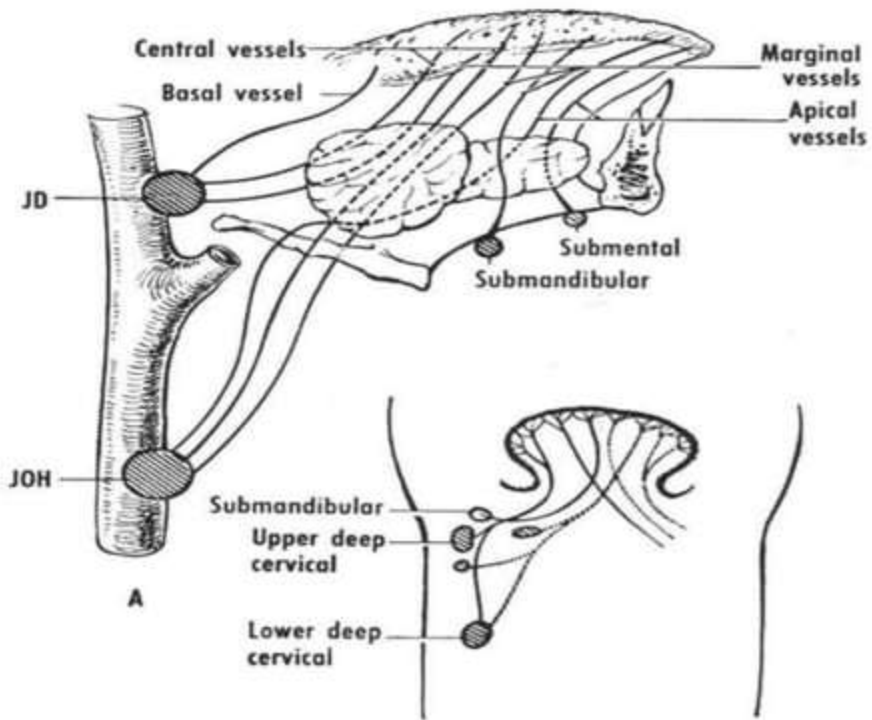
- These veins unite at **posterior border of hypoglossus** which may drain into **lingual vein/internal jugular vein**



LYMPHATICS OF TONGUE

- **APICAL VESSELS**: Drain tip of tongue into submental lymph node.
- **MARGINAL VESSELS**: Drain lateral area of ant 2/3rd of tongue unilaterally into the submandibular lymph node.
- **CENTRAL VESSELS**: Drain the central part of ant 2/3rd of tongue bilaterally into the deep cervical lymph node including jugulo-omohyoid lymph node.
- **BASAL**: Drain posterior 1/3rd of tongue bilaterally into the jugulodiagastica and retropharyngeal lymph node.





NERVE SUPPLY OF TONGUE

- **MOTOR:** All muscle supplied by HYPOGLOSSAL NERVE, except palatoglossus- pharyngeal plexus.

- **SENSORY:**

ANTERIOR 2/3rd of tongue

General sensation –LINGUAL NERVE

Taste sensation- CHORDA TYMPANI

Parasympathetic secretomotor fibers to anterior

lingual gland run in the chorda tympani from superior

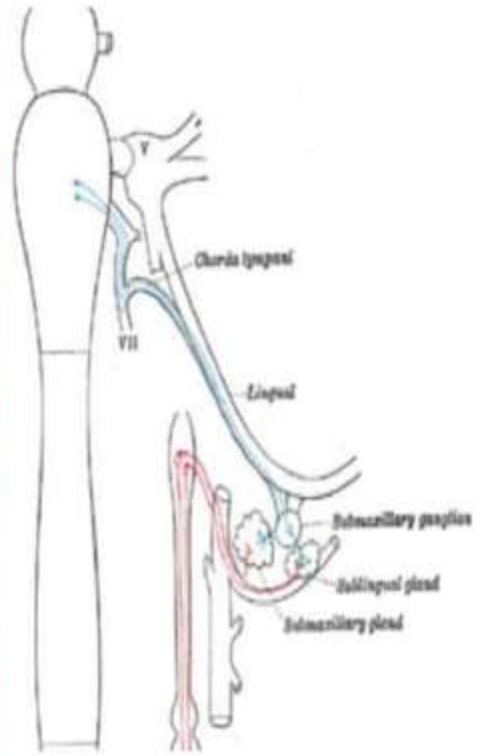
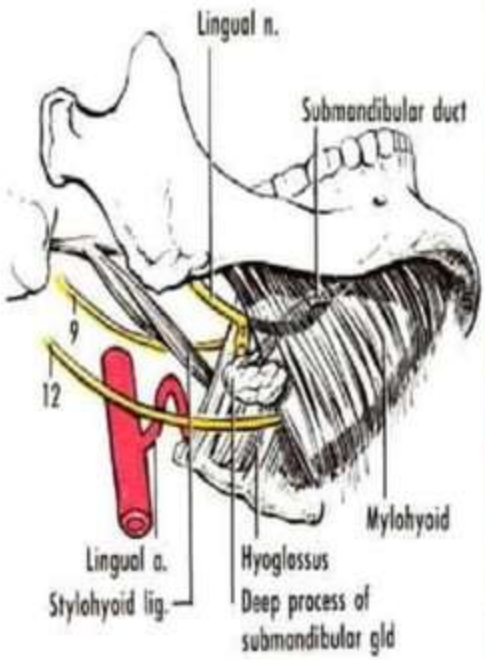
salivary nucleus

- **POSTERIOR 1/3rd**

GLOSSOPHARYNGEAL nerve

- **POSTERIOR MOST PART**

VAGUS nerve through internal laryngeal branch



APPLIED ANATOMY

- GENIOGLOSSUS is the safety muscle of tongue.
- Malignant tumour of posterior 1/3 have poor prognosis.



• **THANK YOU**