PHARYNX-III

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Lesson Plan

- Muscles of Pharynx.
- Constrictor muscles.
- Applied aspects.
- Gaps in pharyngeal wall.
- Longitudinal muscles.
- Nerve supply of pharynx.
- Pharyngeal Plexus of nerves.
- Arterial supply of pharynx.
- Venous and Lymphatic drainage of pharynx.

Muscles of Pharynx

Constrictor Muscles

❖ Constrictor muscles form the bulk of muscle layer.

Origin-

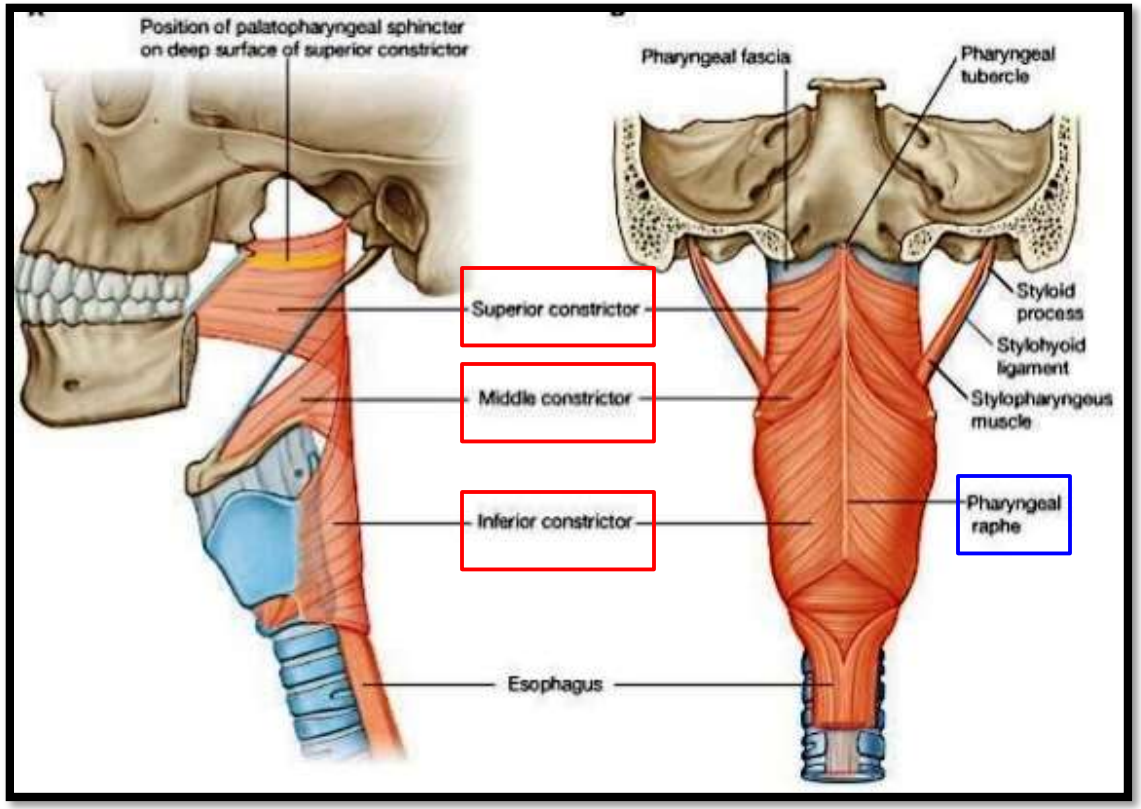
- From the margins of posterior openings of nasal, oral, and laryngeal cavities.

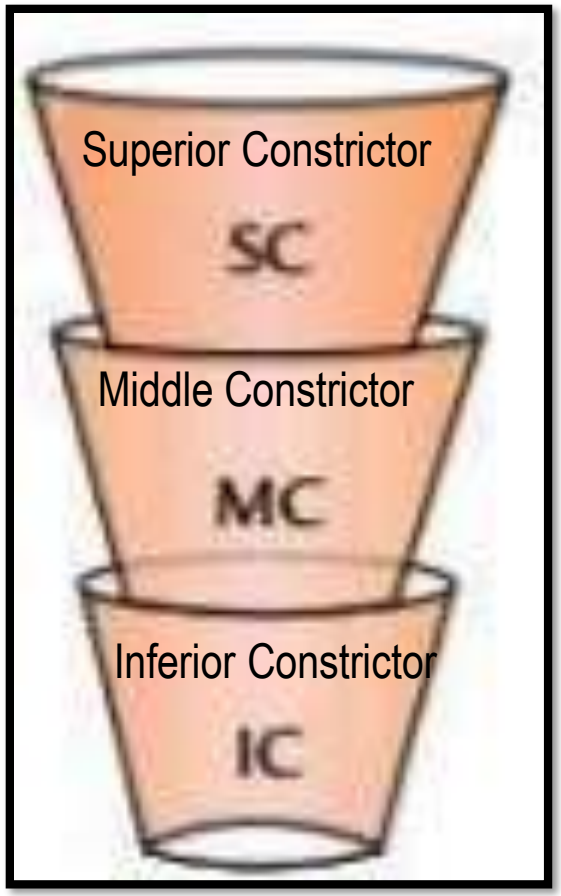
Insertion-

- Into the median fibrous raphe on the posterior aspect of pharynx.

❖ Inferior constrictor overlaps the middle constrictor.

❖ Middle constrictor overlaps the superior constrictor.





Superior Constrictor

Origin-

•Pterygoid hamulus.

•Pterygomandibular raphe.

•Medial surface of mandible at upper end of mylohyoid line.

•Side of posterior part of tongue.

Insertion-

•Pharyngeal tubercle.

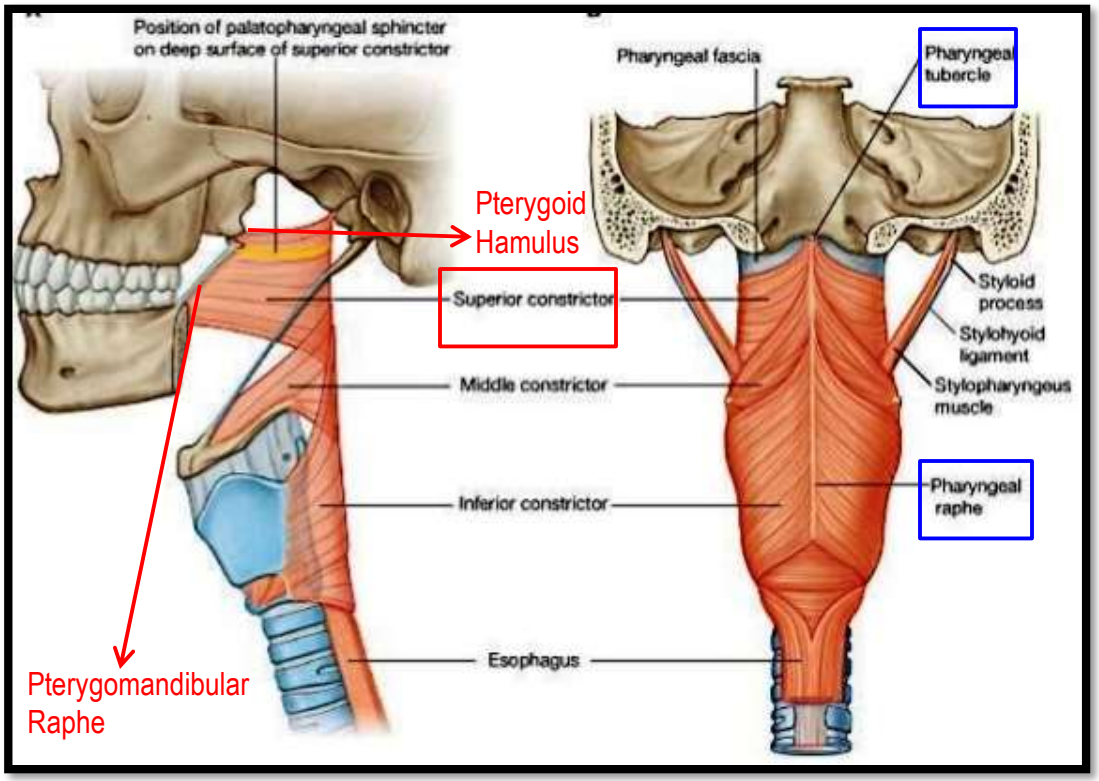
•Pharyngeal raphe.

Nerve supply-

•Pharyngeal branch of Vagus nerve (carrying fibers of cranial root of accessory nerve).

Action-

•Helps in deglutition.



Middle Constrictor

Origin-

•Lower part of Stylohyoid ligament.

•Lesser cornu of hyoid bone.

•Upper border of greater cornu of hyoid bone.

Insertion-

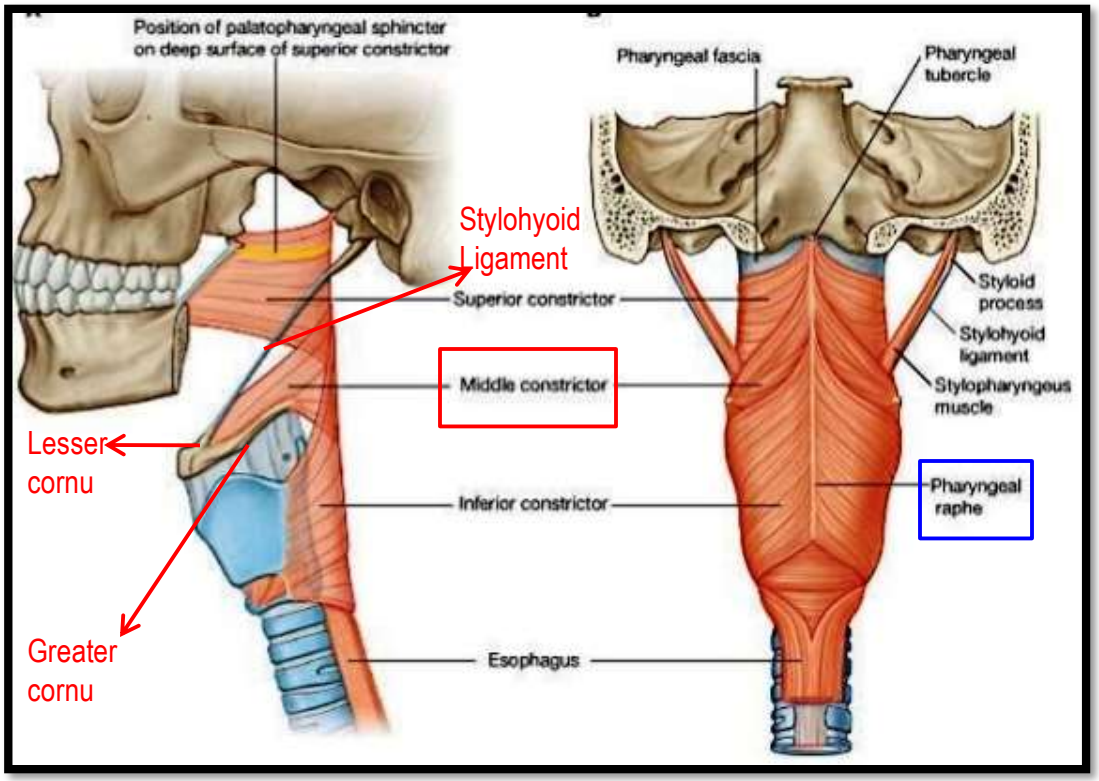
•Pharyngeal raphe.

Nerve supply-

•Pharyngeal branch of Vagus nerve (carrying fibers of cranial root of accessory nerve).

Action-

•Helps in deglutition.



Inferior Constrictor

❖It has 2 parts:
•*Thyropharyngeus.*
•*Cricopharyngeus.*

Thyropharyngeus-
Origin-

•Oblique line on lamina of thyroid cartilage
•Tendinous band between thyroid tubercle and cricoid cartilage

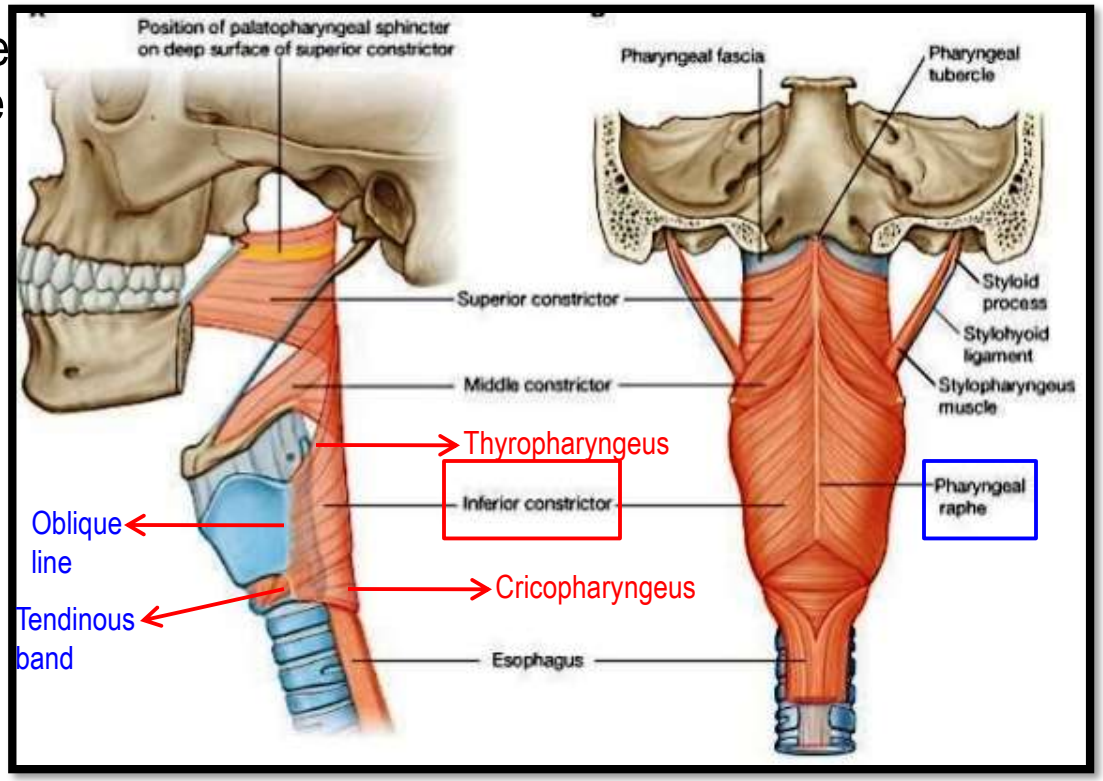
Insertion-

•Pharyngeal raphe.

Nerve supply-

•Pharyngeal plexus.
•External laryngeal nerve [b/o Superior Laryngeal Nerve].

Action-
•Helps in deglutition.



Inferior Constrictor contd…

Cricopharyngeus-

Origin-

•Cricoid cartilage.

Insertion-

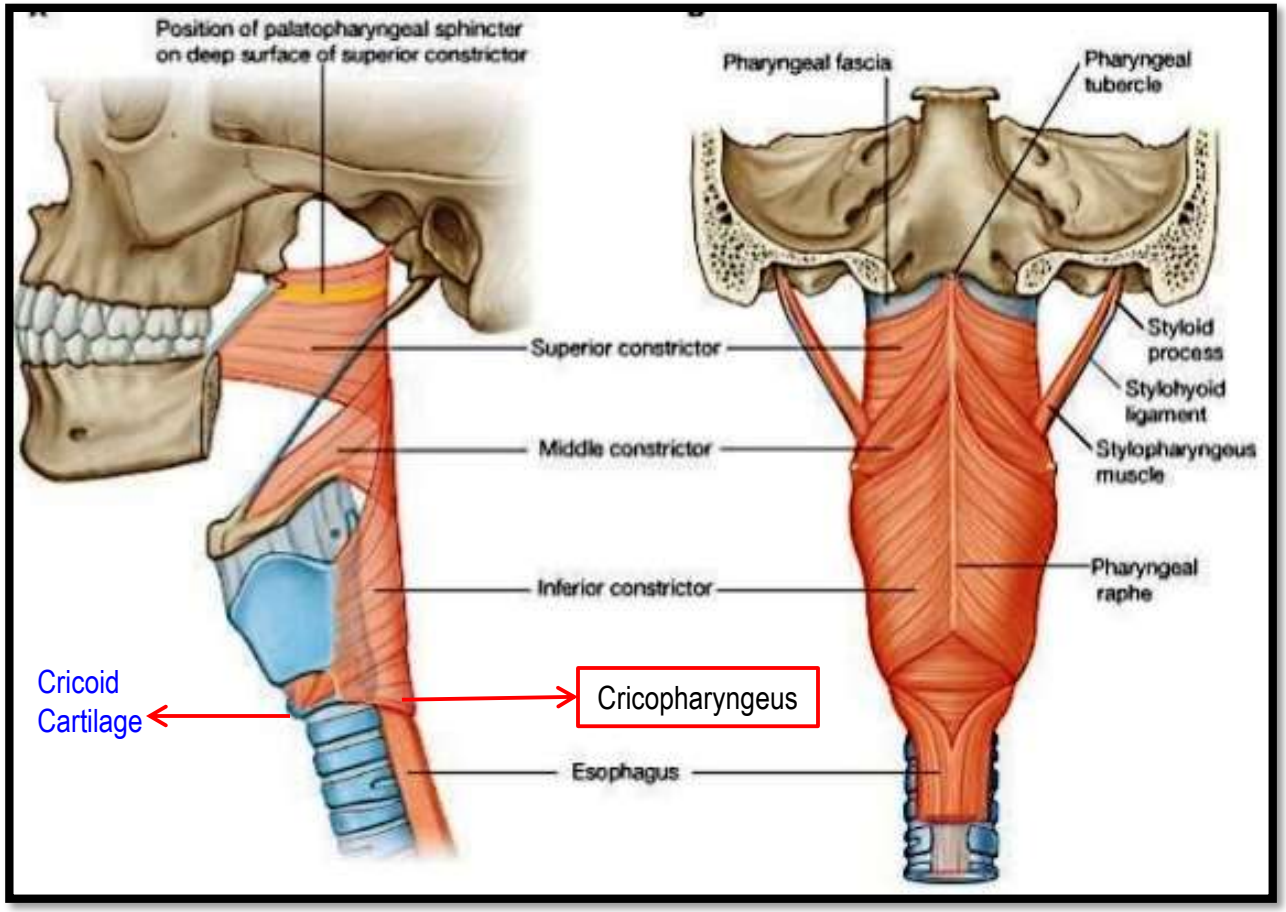
•Pharyngeal raphe.

Nerve supply-

•Recurrent laryngeal nerve [b/o Vagus nerve].

Action-

•Helps in deglutition.



Applied Aspects

Killian's Dehiscence-

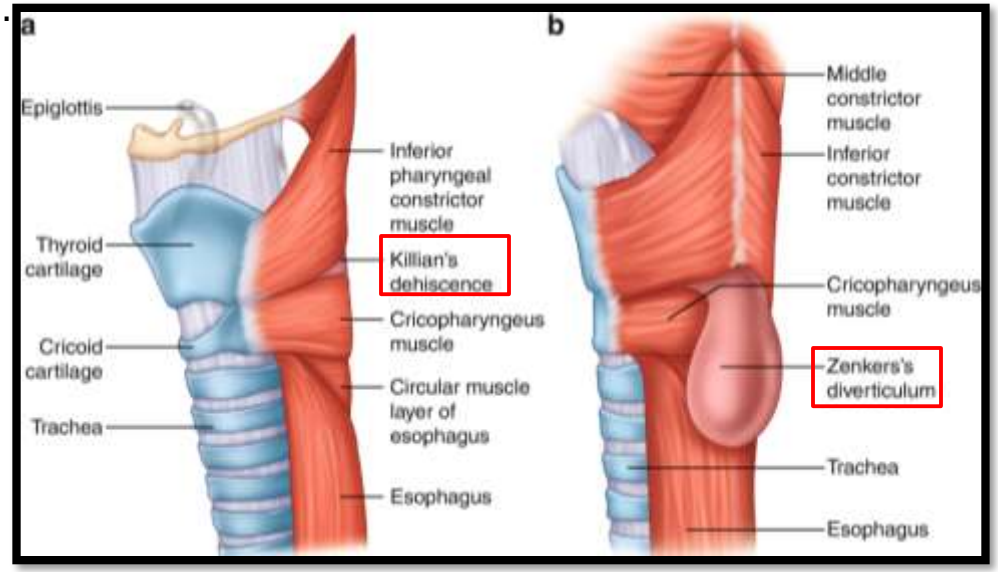
- Potential gap posteriorly between Thyropharyngeus and Cricopharyngeus.

Pharyngeal Pouch (Zenker's Diverticulum)-

- A diverticulum which is formed by bulging of mucosa and submucosa of pharynx through the Killian's dehiscence.

Reason: *Neuromuscular incoordination* between Thyropharyngeus and Cricopharyngeus as both are supplied by different nerves.

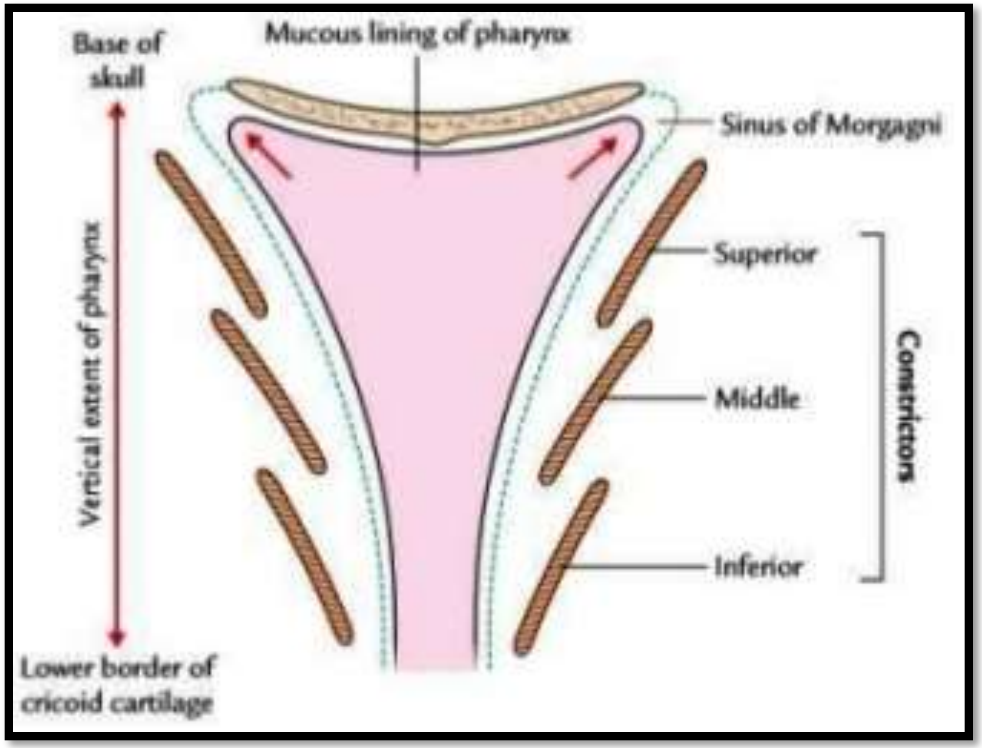
- Thyropharyngeus has oblique fibers and is propulsive in nature.
- Cricopharyngeus has transverse fibers and is sphincteric in nature.
- If Cricopharyngeus fails to relax when Thyropharyngeus is contracting, bolus of food is pushed backwards and tends to produce a diverticulum.



Gaps in Pharyngeal Wall in Relation to Constrictor Muscles

❖ 4 gaps:

- 1 above superior constrictor.
- 1 between superior and middle constrictor.
- 1 between middle and inferior constrictor.
- 1 below inferior constrictor.

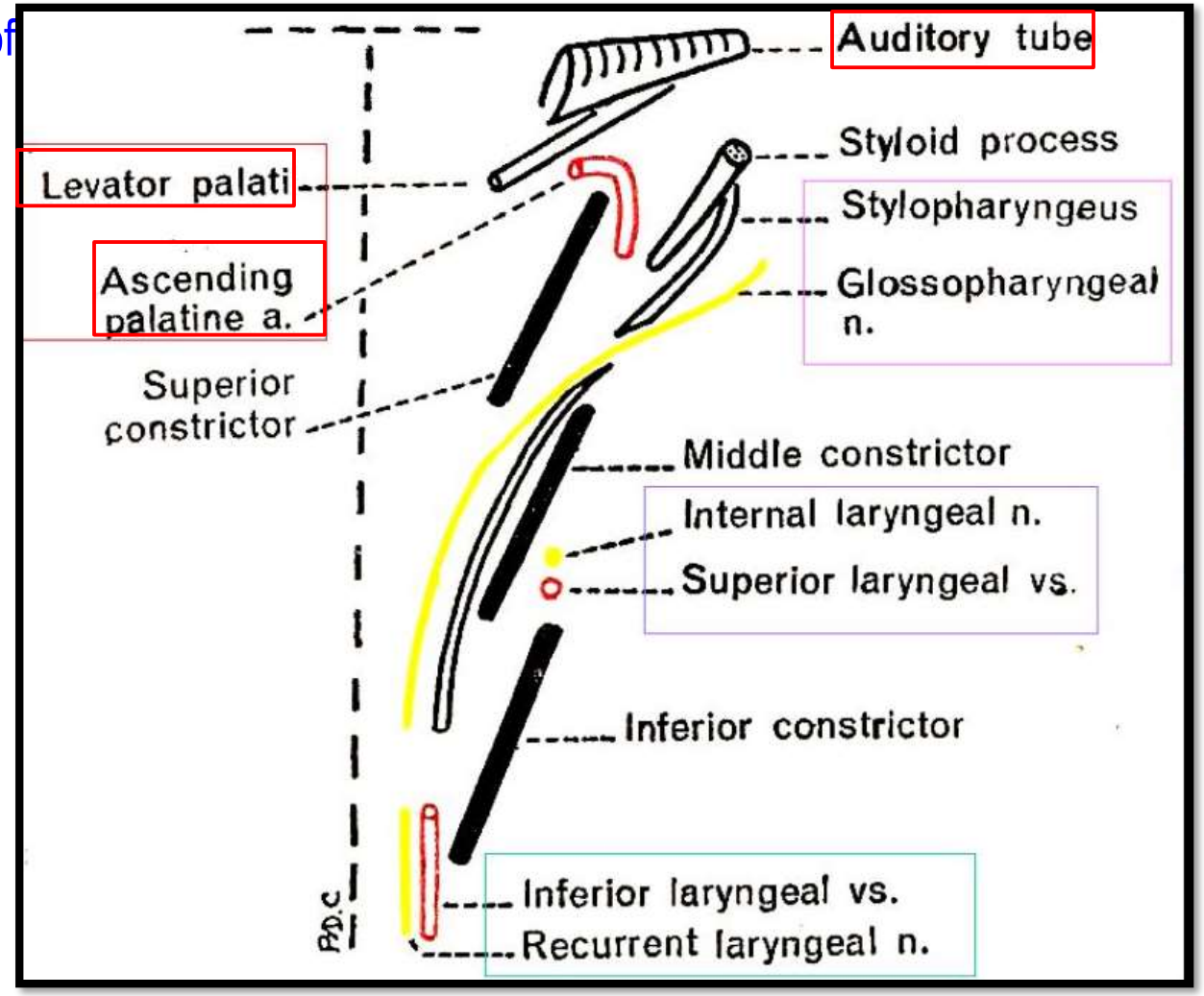


Gap Between the Base of Skull and Upper border of Superior Constrictor

- This gap is known as Sinus of Morgagni.

- **Structures passing:**

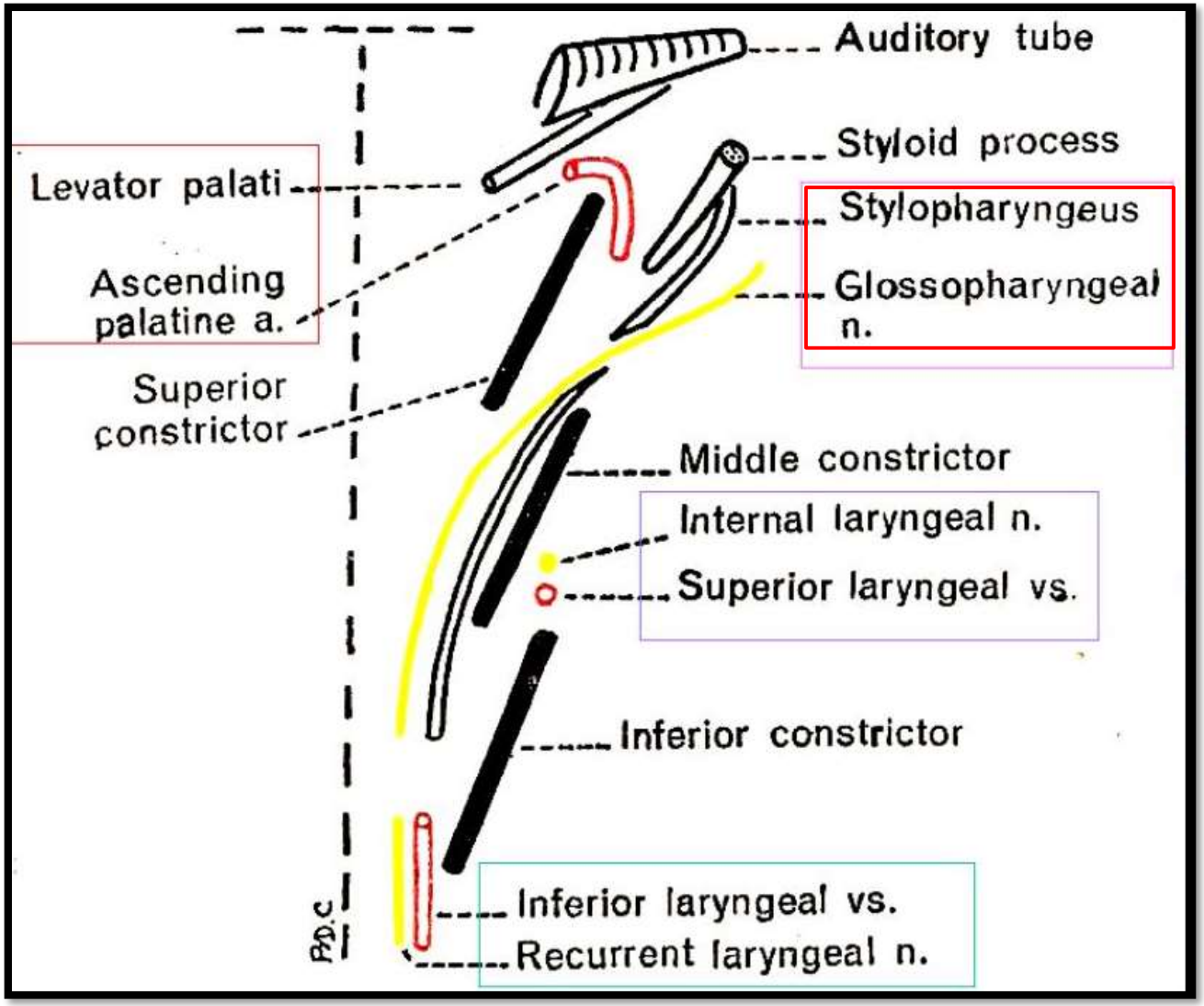
- Auditory tube.
- Levator Palati Muscle.
- Ascending Palatine Artery.
- Palatine branch of Ascending Pharyngeal Artery.



Gap Between the Superior Constrictor and Upper border of Middle Constrictor

❖ **Structures passing:**

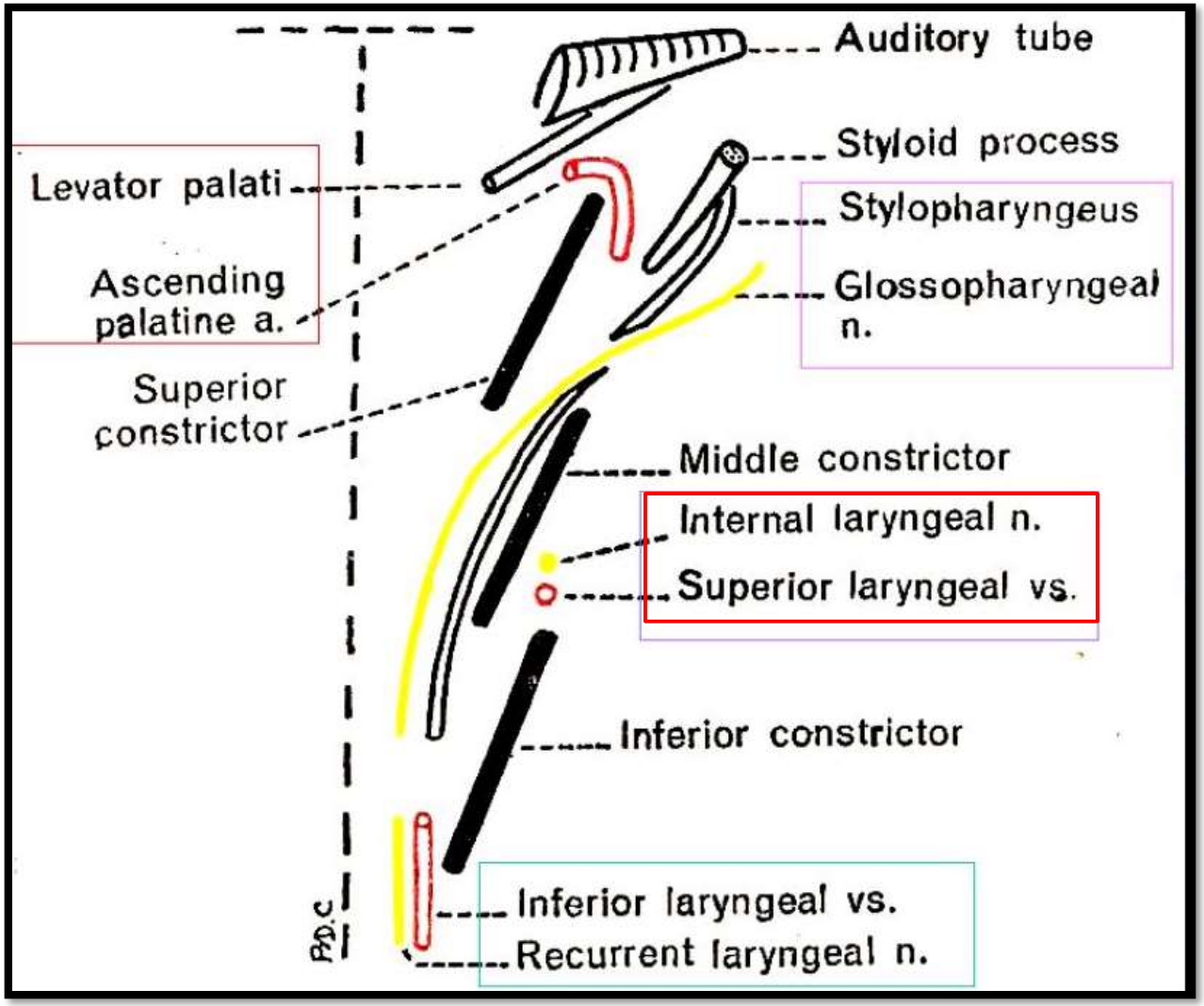
- Stylopharyngeus Muscle.
- Glossopharyngeal Nerve.



Gap Between the Middle Constrictor and Upper border of Inferior Constrictor

❖ **Structures passing:**

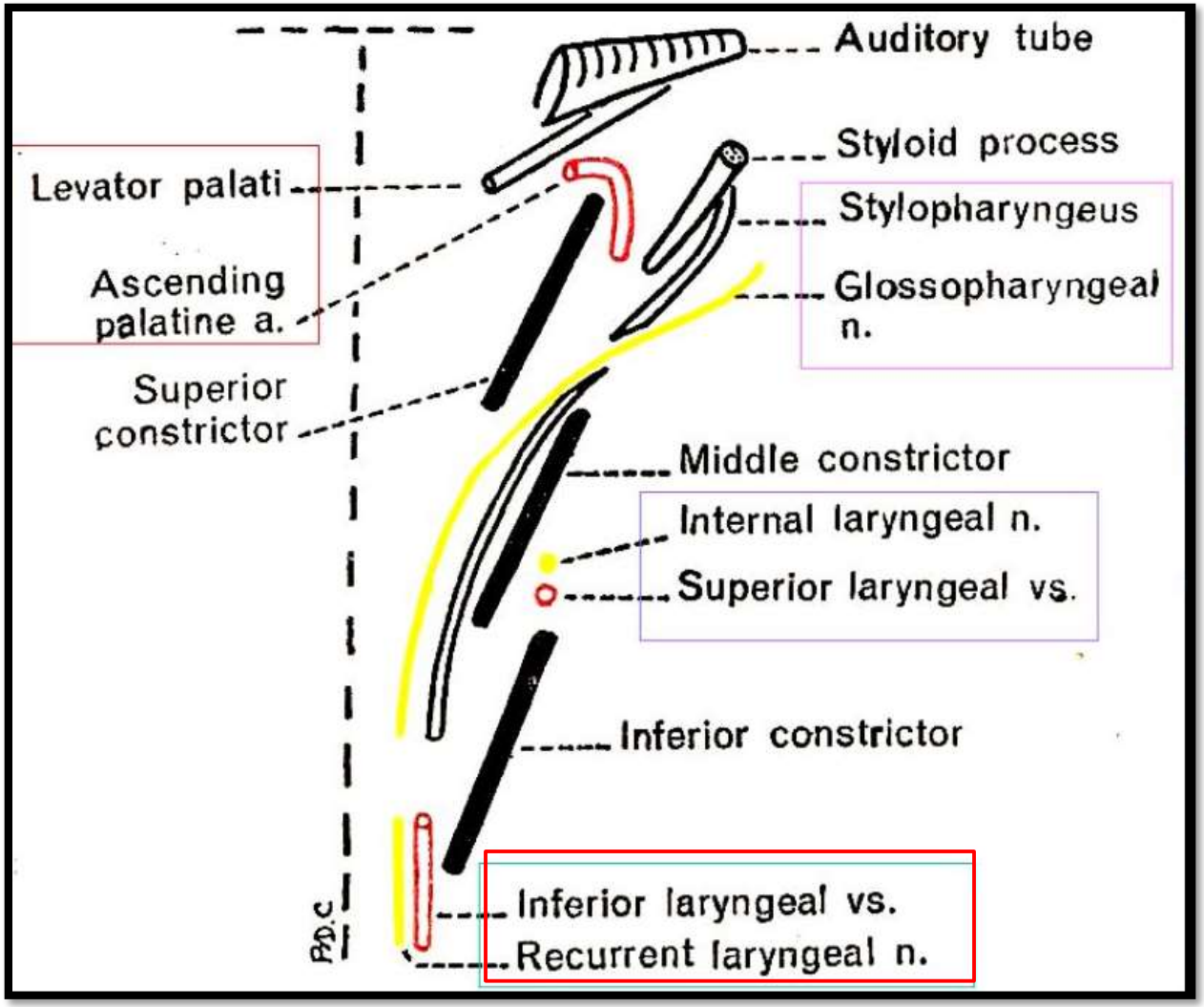
- Superior Laryngeal vessels.
- Internal Laryngeal Nerve.



Gap Below the Lower border of Inferior Constrictor

❖ **Structures passing:**

- Inferior Laryngeal vessels.
- Recurrent Laryngeal Nerve.



Longitudinal Muscles

STYLOPHARYNGEUS

Origin-

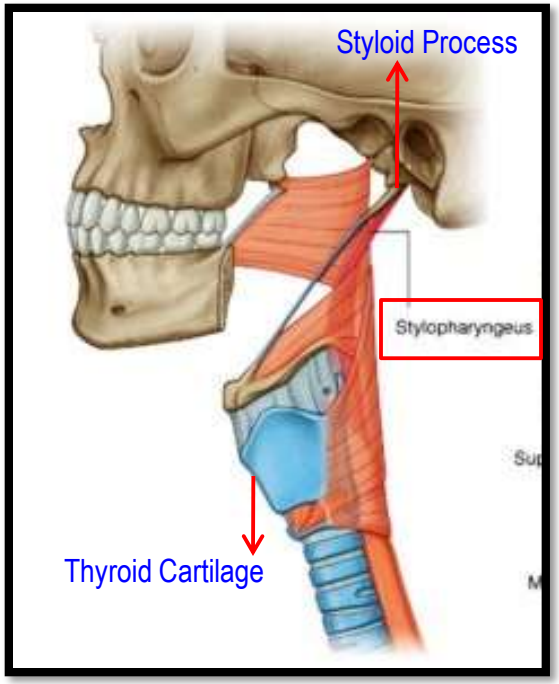
•Medial surface of base of Styloid process.

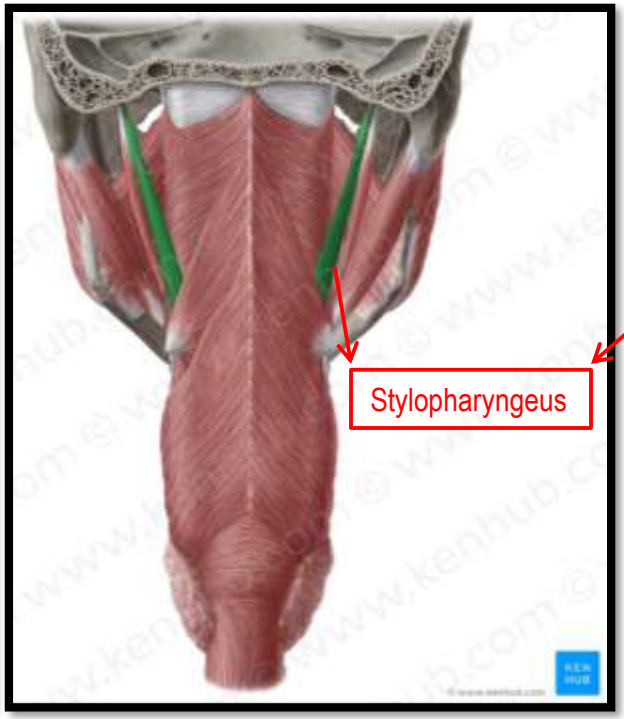
Insertion-

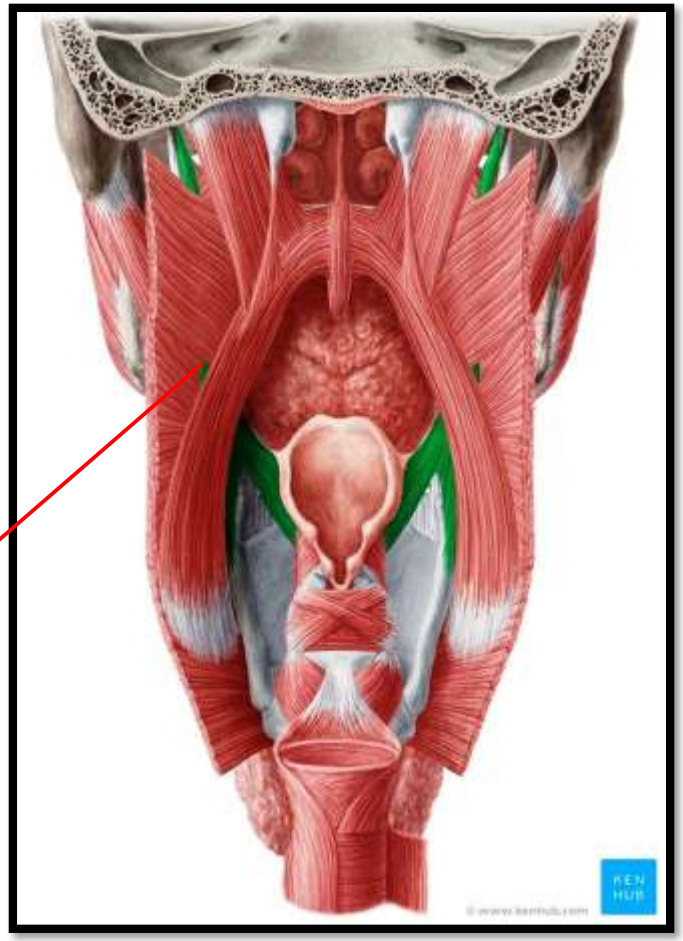
•Posterior border of lamina of Thyroid cartilage.

Nerve Supply-

•Glossopharyngeal Nerve.







Palatopharyngeus

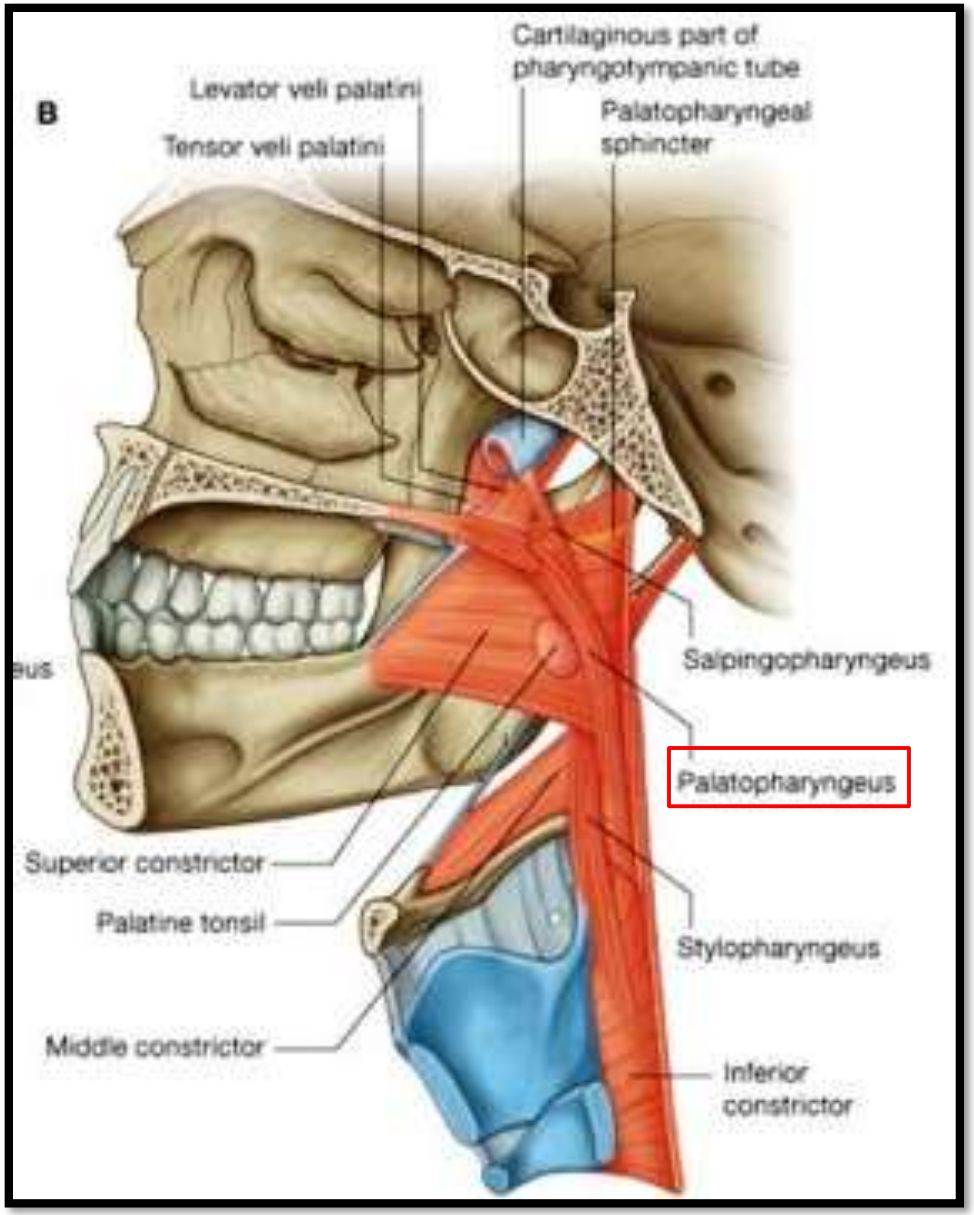
Origin- by 2 fasciculi:
•*Anterior fasciculus.*
•*Posterior fasciculus.*

Anterior fasciculus- from posterior border of hard palate
Posterior fasciculus- from upper surface of palatine aponeurosis.

•These fasciculi are separated by Levator Palati muscle.

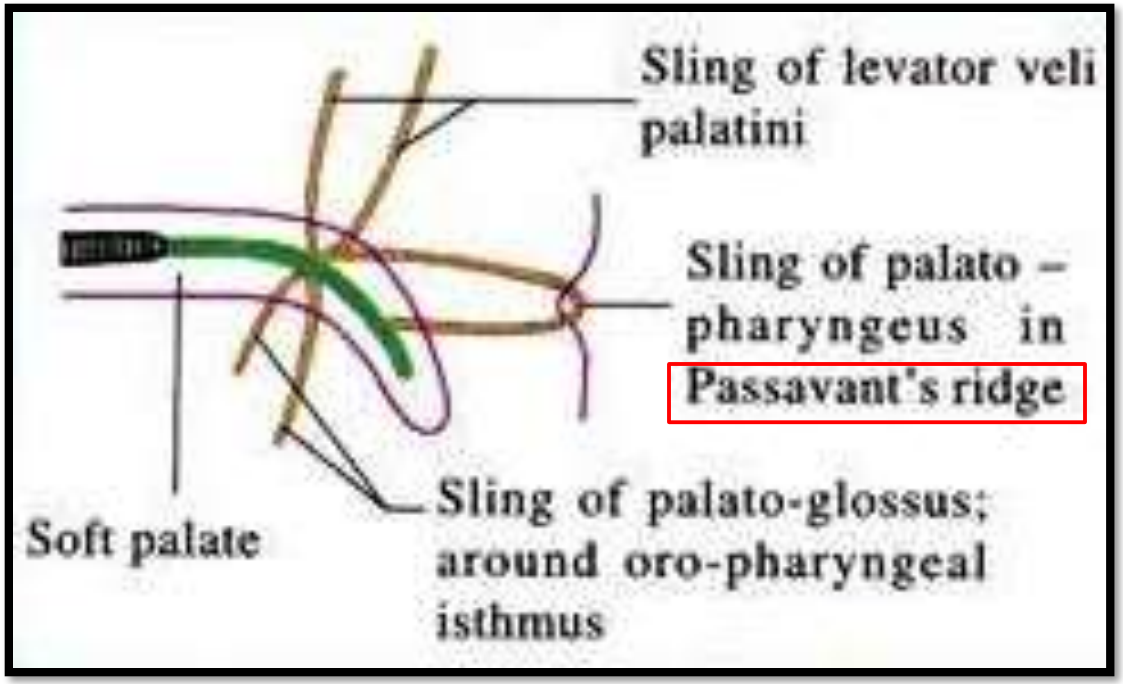
Insertion-
•Pharyngeal raphe.
•Posterior border of lamina of Thyroid cartilage.

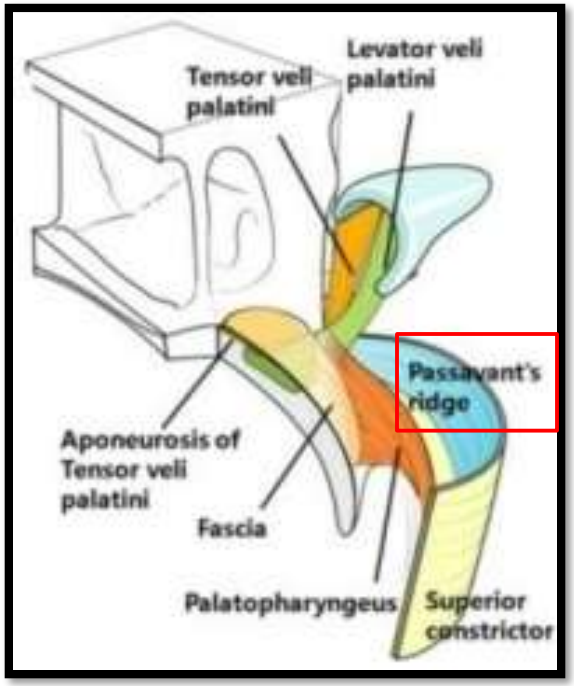
Nerve Supply-
•Cranial root of Accessory Nerve via pharyngeal plexus.

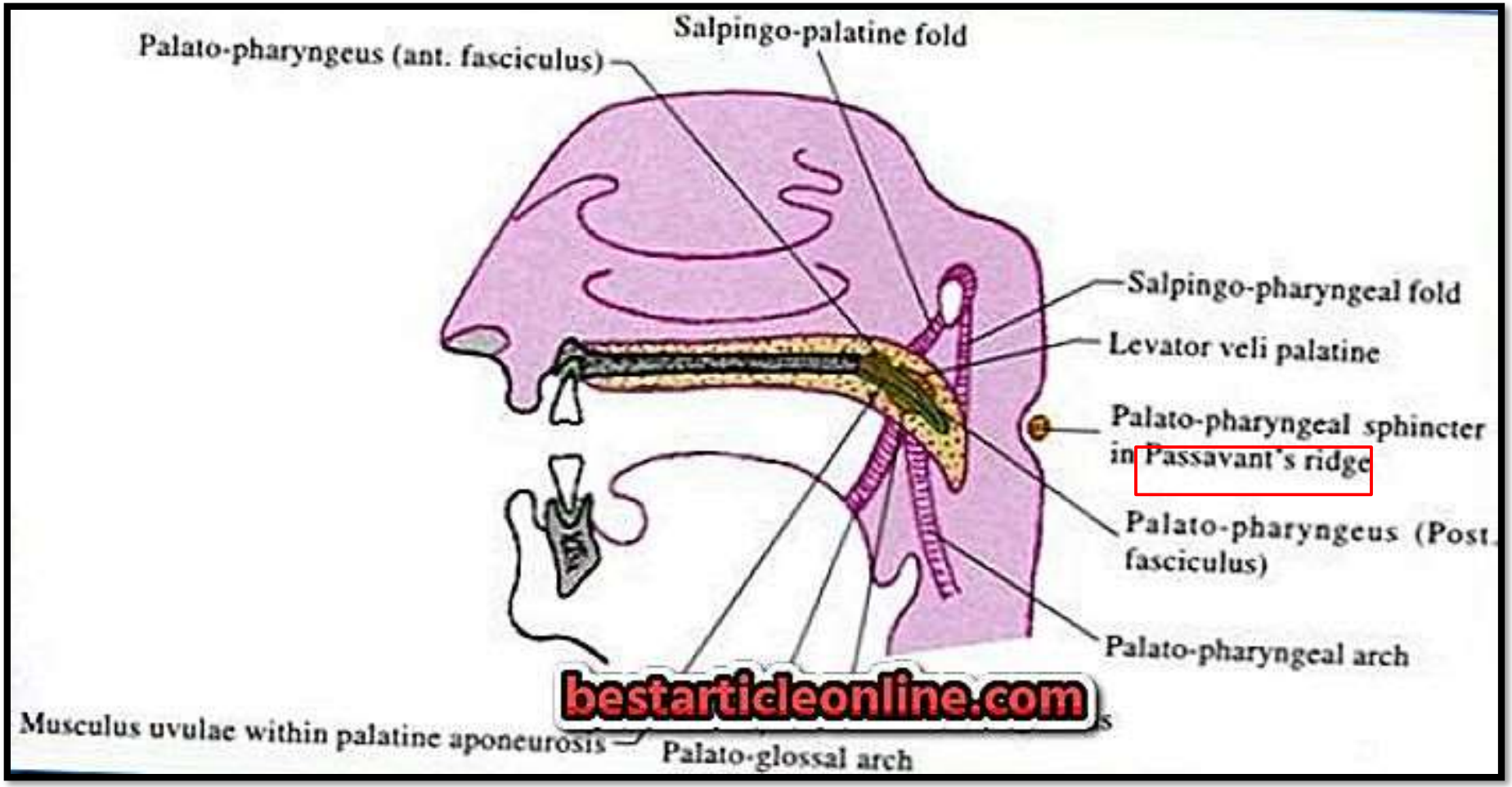


Passavant's Ridge

•It is ridge raised by fibres of Palatopharyngeus & Superior Constrictor in the posterior pharyngeal wall underneath the mucosa.
•Some fibres of Palatopharyngeus sweep horizontally backwards and join the upper fibres of Superior Constrictor.
•These fibres encircles the posterior and lateral wall of Nasopharyngeal Isthmus.
•This 'U' shaped muscle loop is known as Palatopharyngeal Sphincter.
•During deglutition and speech, soft palate comes in contact with Passavant's ridge to close the nasopharyngeal isthmus.







Salpingopharyngeus

Origin-

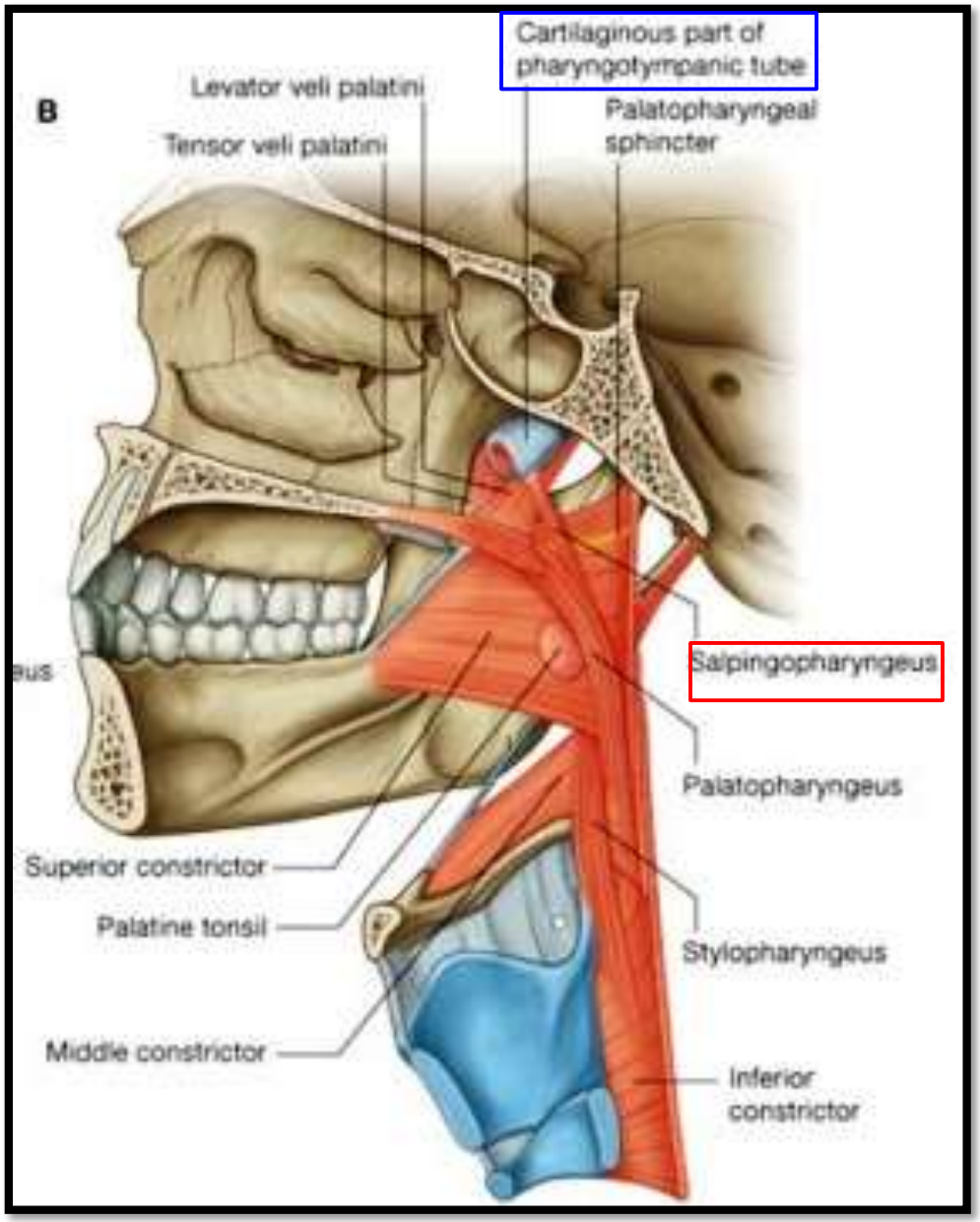
• Lower aspect of cartilaginous part of auditory tube.

Insertion-

•Posterior border of lamina of Thyroid cartilage.

Nerve Supply-

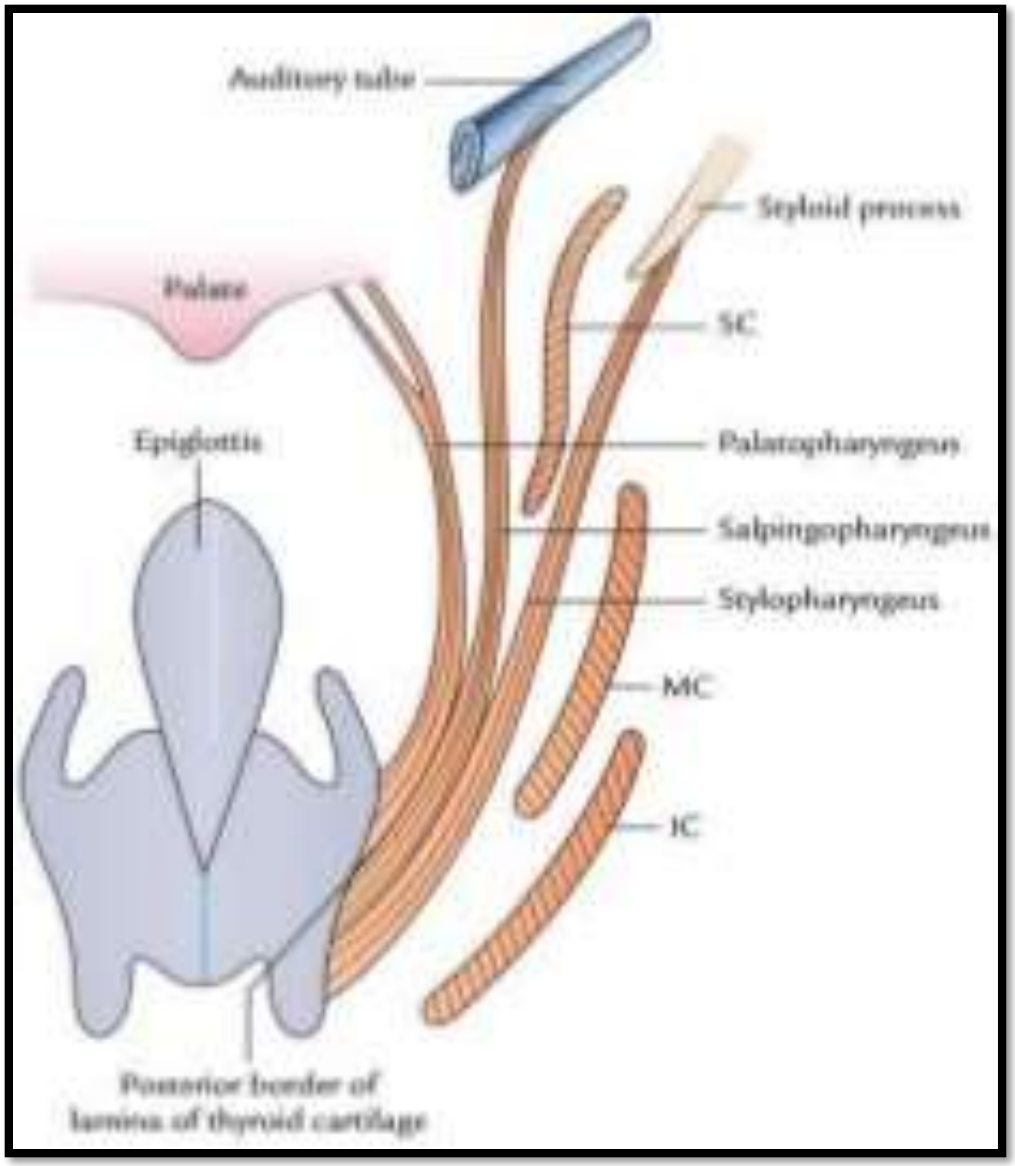
•Cranial root of Accessory Nerve via pharyngeal plexus.



Actions of Longitudinal Muscles

- Elevate the Larynx and shorten the pharynx during deglutition.

- Palatopharyngeal sphincter closes the pharyngeal isthmus during deglutition and speech.



Nerve Supply of Pharynx

Motor-

- All the muscles of pharynx are supplied by cranial root of Accessory Nerve except Stylopharyngeus.

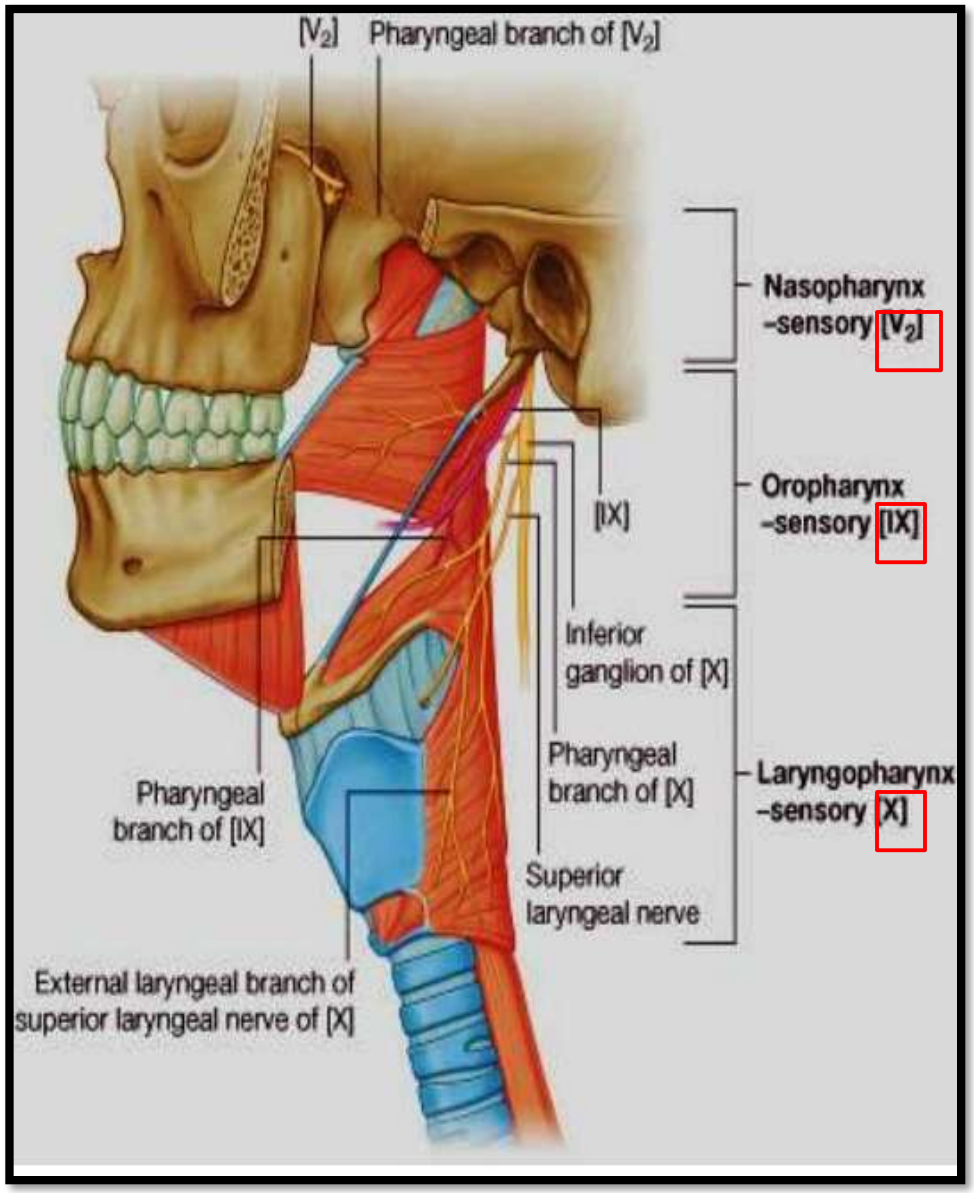
- **Stylopharyngeus** is supplied by Glossopharyngeal nerve.

Sensory-

Nasopharynx- by pharyngeal branch of Pterygopalatine ganglion [carrying fibres from maxillary nerve (V2)].

Oropharynx- by Glossopharyngeal nerve [IX].

Laryngopharynx- by Internal Laryngeal nerve [branch of Superior Laryngeal Nerve].



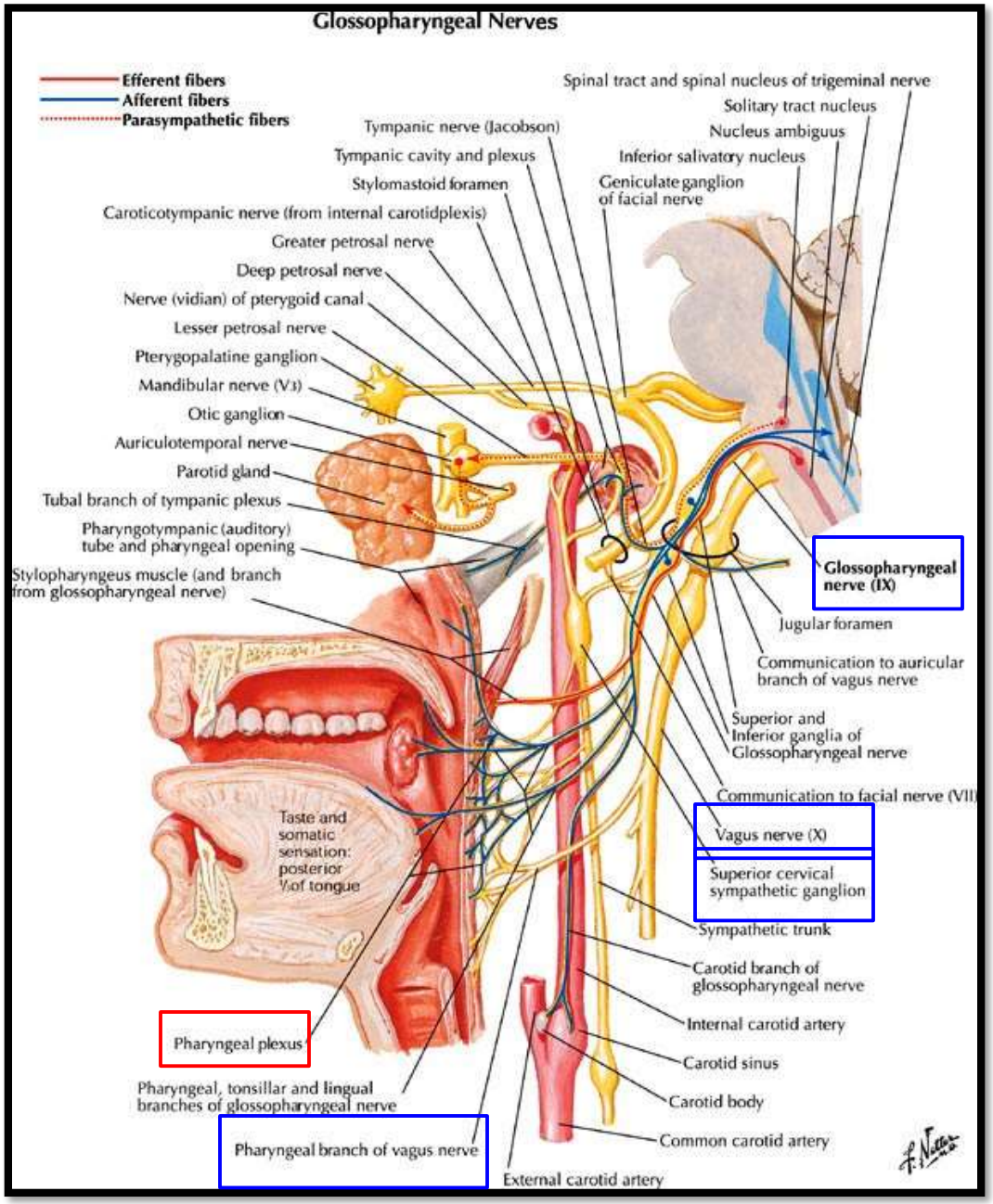
Pharyngeal Plexus of Nerves

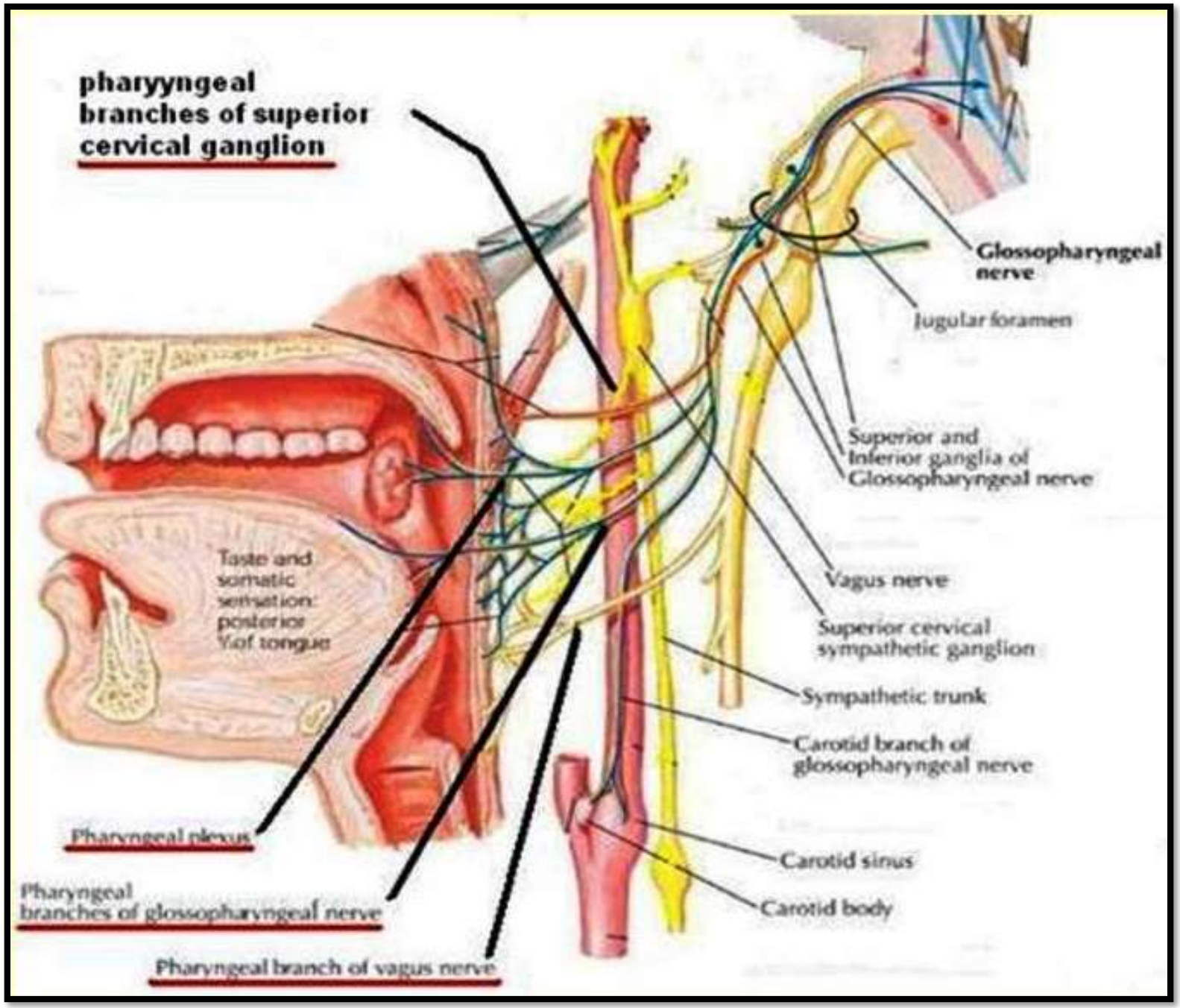
Location-

- Posterolateral aspect of pharynx over the middle constrictor.

Formation-

- Pharyngeal branch of Vagus [carrying fibres from cranial root of Accessory Nerve].
- Pharyngeal branch of Glossopharyngeal.
- Pharyngeal branch of Superior Cervical Sympathetic Ganglion.

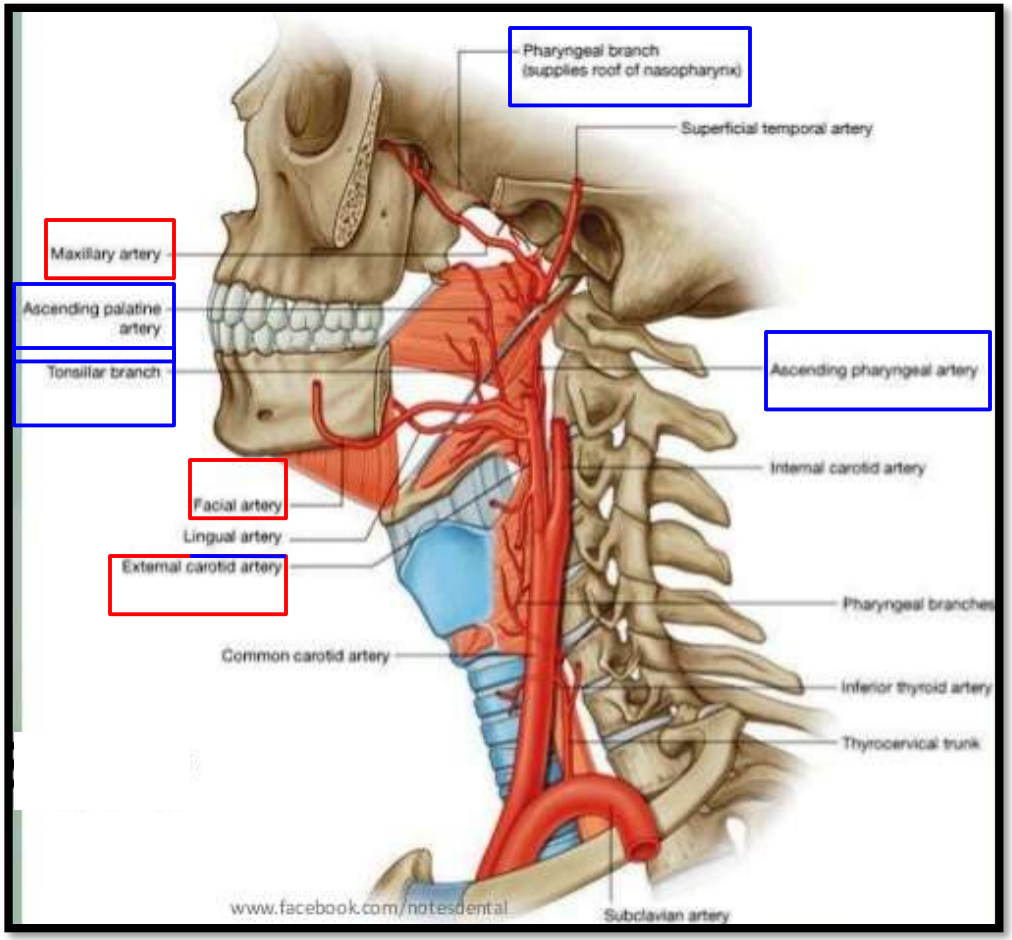



pharyyngeal branches of superior cervical ganglion
Glossopharyngeal nerve
Jugular foramen
Superior and Inferior ganglia of Glossopharyngeal nerve
Vagus nerve
Superior cervical sympathetic ganglion
Sympathetic trunk
Carotid branch of glossopharyngeal nerve
Carotid sinus
Carotid body
Taste and somatic sensation: posterior ⅓ of tongue
Pharyngeal plexus
Pharyngeal branches of glossopharyngeal nerve
Pharyngeal branch of vagus nerve

Arterial Supply of Pharynx

❖ Following three arteries supply the pharynx:

- External Carotid Artery [Ascending Pharyngeal & Lingual branches].
- Facial Artery [Ascending Palatine & Tonsillar branches]
- Maxillary Artery [Greater Palatine & Pharyngeal branches].



Venous & Lymphatic Drainage of Pharynx

Venous Drainage-

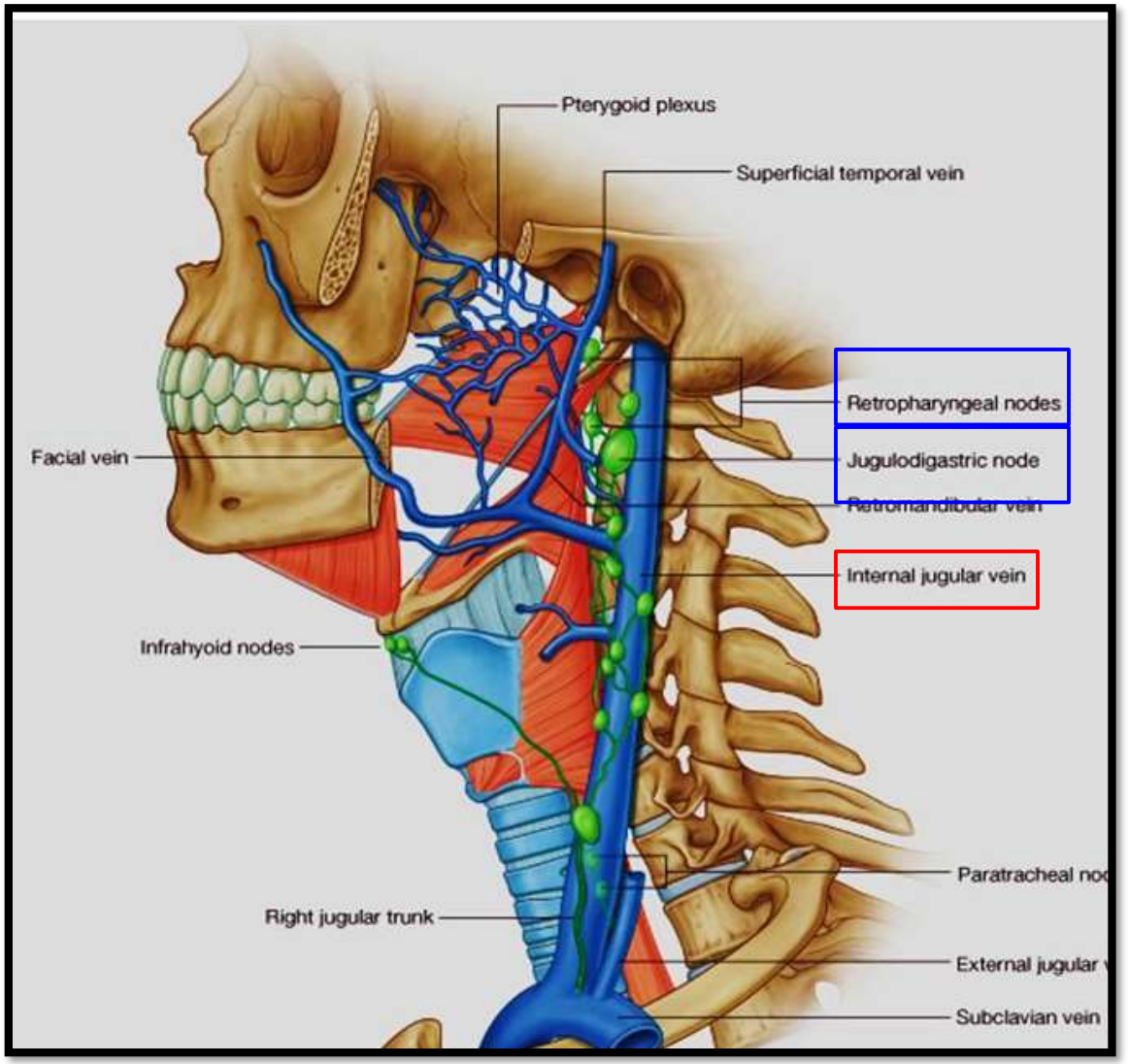
- Into Pharyngeal Venous Plexus.

- Pharyngeal Venous Plexus drains into Internal Jugular Vein.

Lymphatic Drainage-

- Upper and Lower deep cervical lymph nodes.

- Retropharyngeal lymph nodes.




THANKS