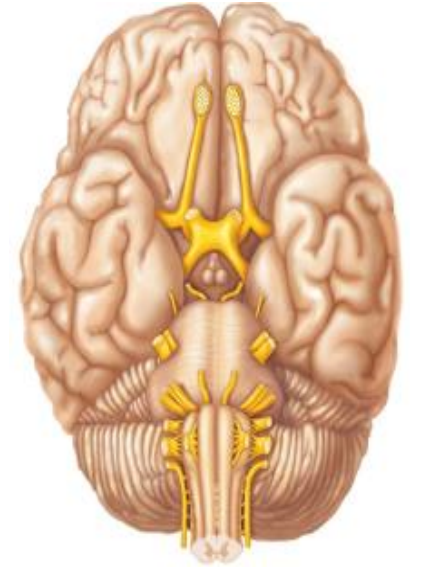


**Cranial nerves originating from
medulla (9,10)**
Course-Distribution and Branches



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Session ILOs

By the end of this lecture, the student should be able to:

- 1. describe the origin of IX, X cranial nerves**
- 2. describe the functions of IX, X cranial nerves**
- 3. describe the course of IX, X cranial nerves**
- 4. describe the branches of IX, X cranial nerves**

Cranial nerves originating from Medulla oblongata

Glossopharyngeal Nerve (IX)

-It is predominantly a sensory nerve and arises from:

➤ Nucleus ambiguus (SVE)

➤ Inferior salivatory nucleus (GVE)

➤ Solitary tract and nucleus (GVA & SVA)

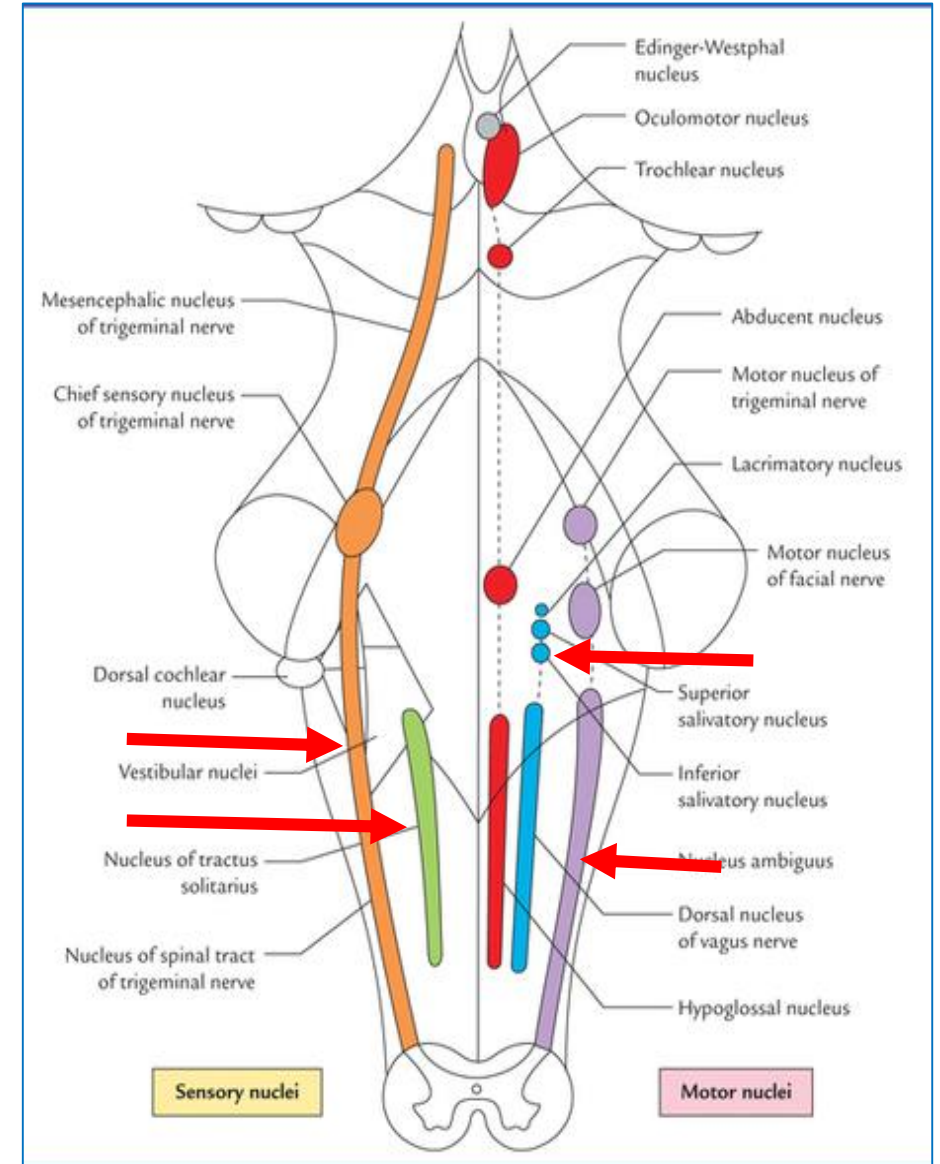
➤ Spinal tract and nucleus of trigeminal nerve

(GSA)

-Leaves the medulla from the postero-lateral sulcus

-It is the nerve of the third branchial arch

-Mediates: Taste, salivation & swallowing.

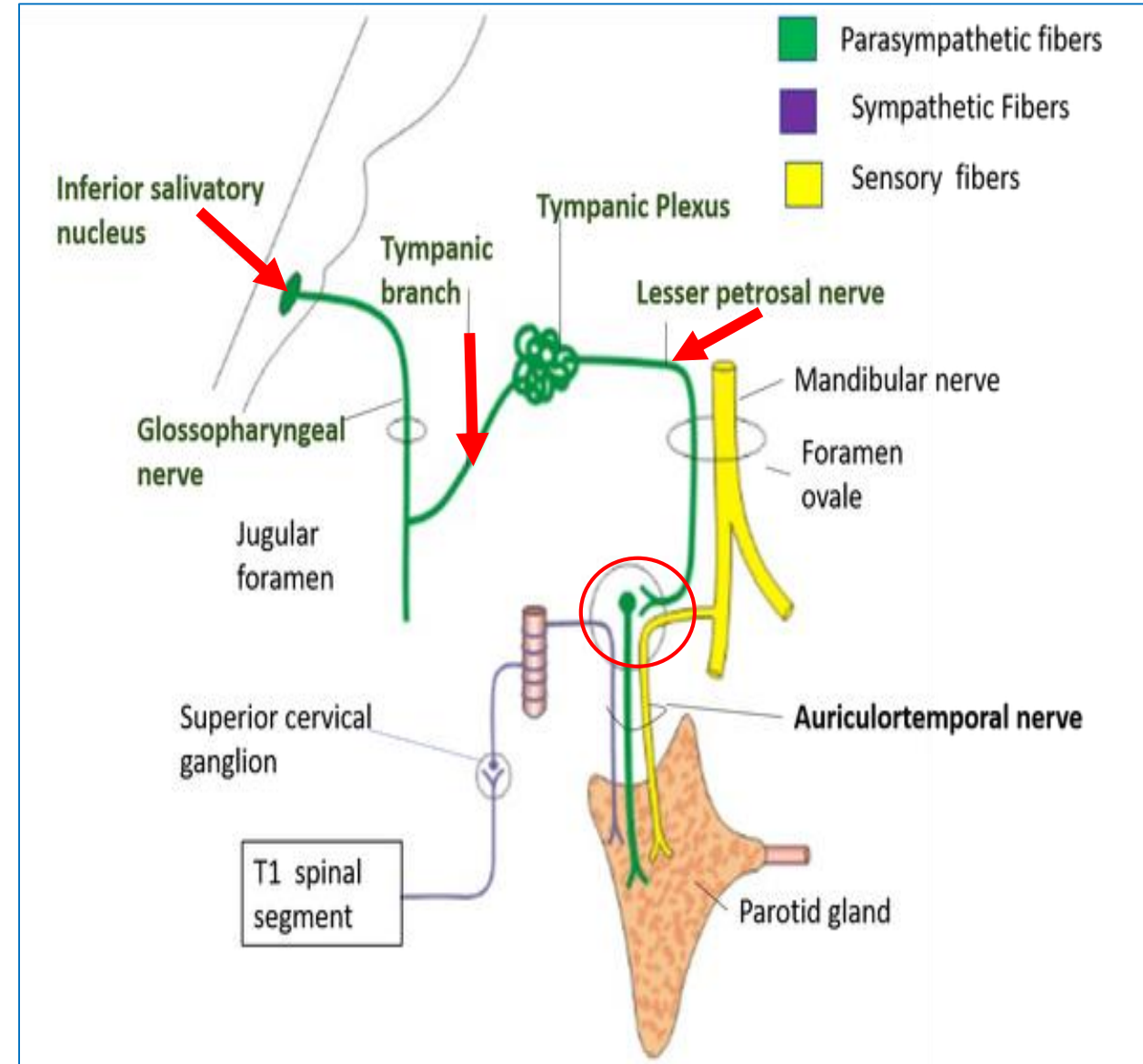


Function

- **Fibers arising from nucleus ambiguus .**
 - Supplies the stylopharyngeus muscle.
- **Fibers Arises from the inferior salivatory nucleus .**

Consists of preganglionic parasympathetic neurons which project their fibres to the otic ganglion.

Post-ganglionic fibres from the otic ganglion pass through the auriculotemporal nerve to supply the parotid gland.



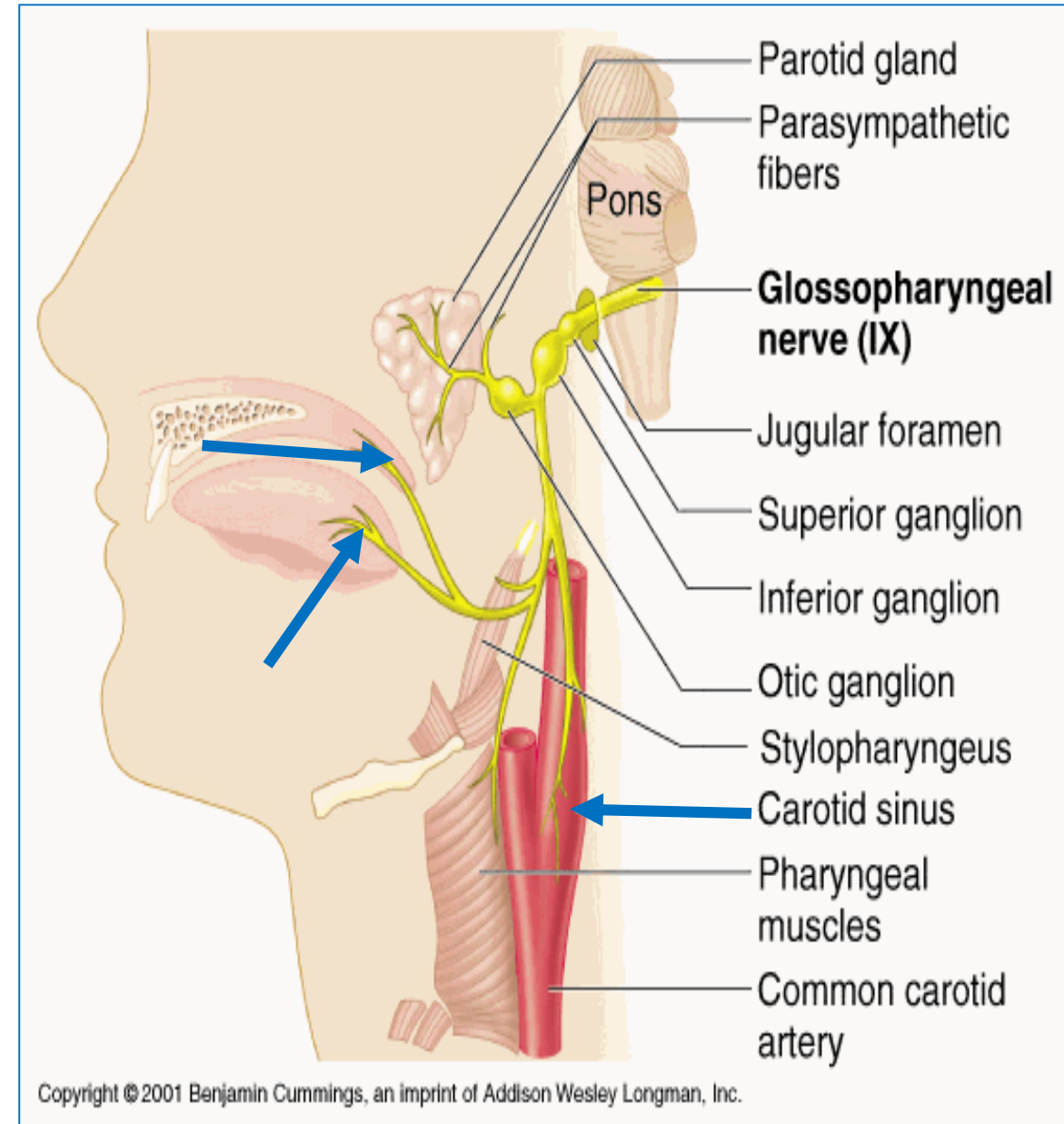
Function

➤ **Fibers ending in the medial part of solitary tract and nucleus.**

- Carries general sensation from the mucous membrane of the posterior auditory tube (**NASOPHARYNX**).
- Carries baroreceptor fibres from the carotid sinus and chemoreceptor fibres from the carotid body .

➤ **Fibers ending in the lateral part of the solitary tract and nucleus.**

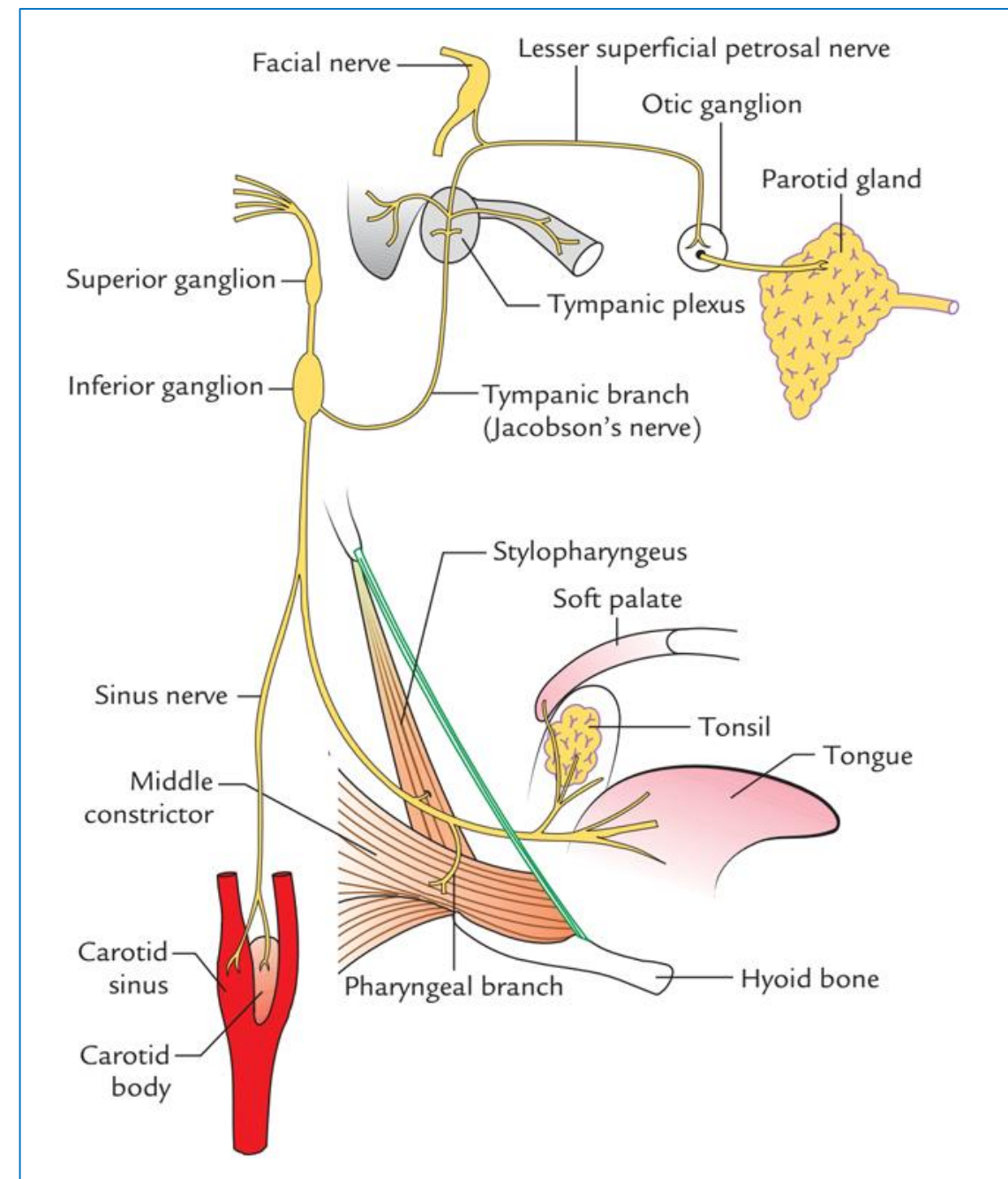
- Carry taste sensation from the posterior 1/3 of the tongue.



Function

➤ **Fibers ending in the spinal tract and nucleus of the trigeminal nerve.**

- Carries general sensation from the external auditory meatus and the tympanic membrane .



Course and relations in the neck:

It leaves the cranial cavity through the jugular foramen.

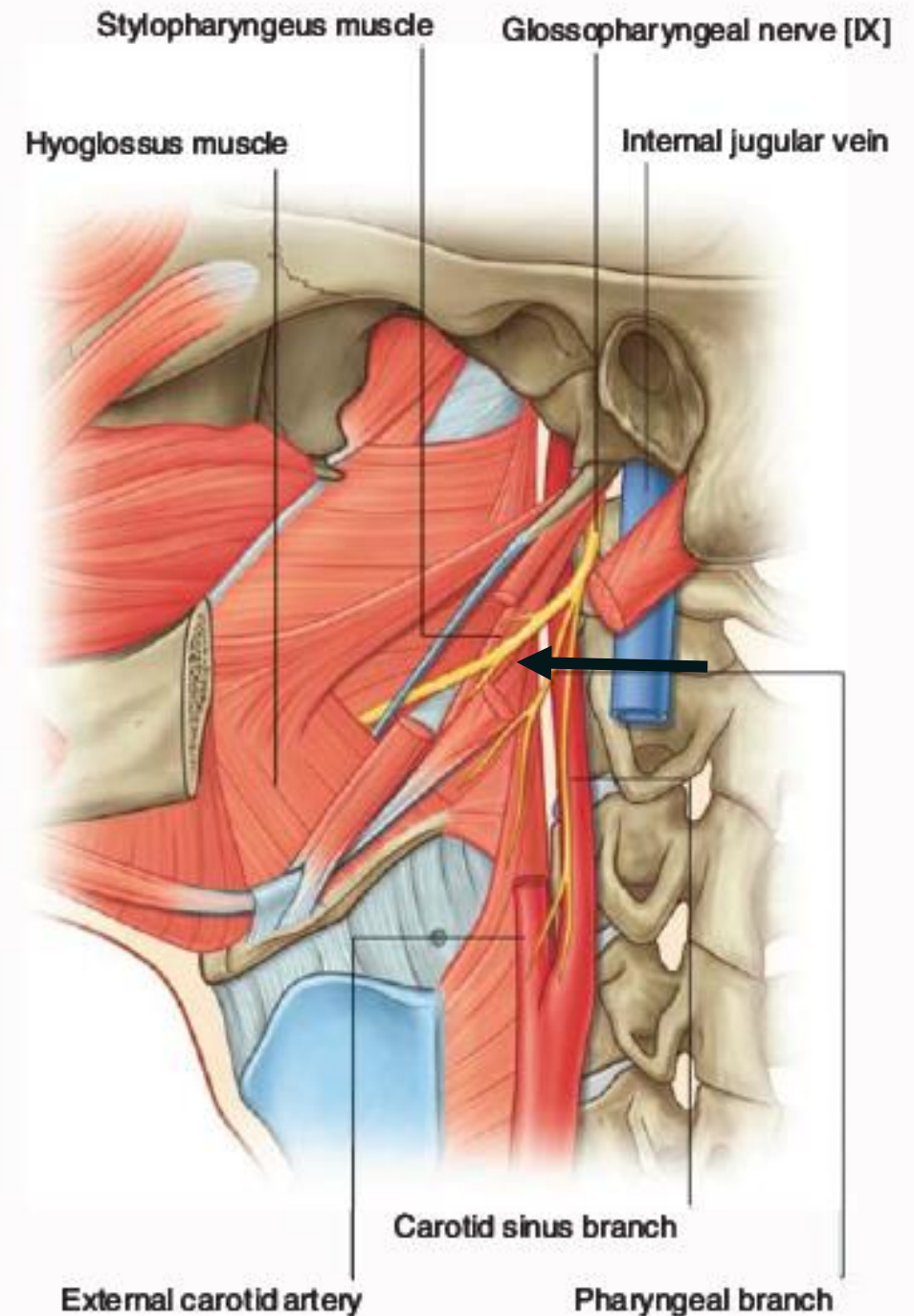
-It descends between :Internal jugular vein and Internal carotid artery

-Then it inclines forwards **with the stylopharyngeus muscle to pass between:** Internal carotid artery and External carotid artery.

-It then winds forwards around the stylopharyngeus muscle to lie on its lateral surface

-It reaches the pharynx by passing between :**Superior constrictor muscles and Middle constrictor muscles.**

-In the submandibular region, **it passes deep to the hyoglossus** and breaks into its terminal branches.



Branches:

1) Communicating branches

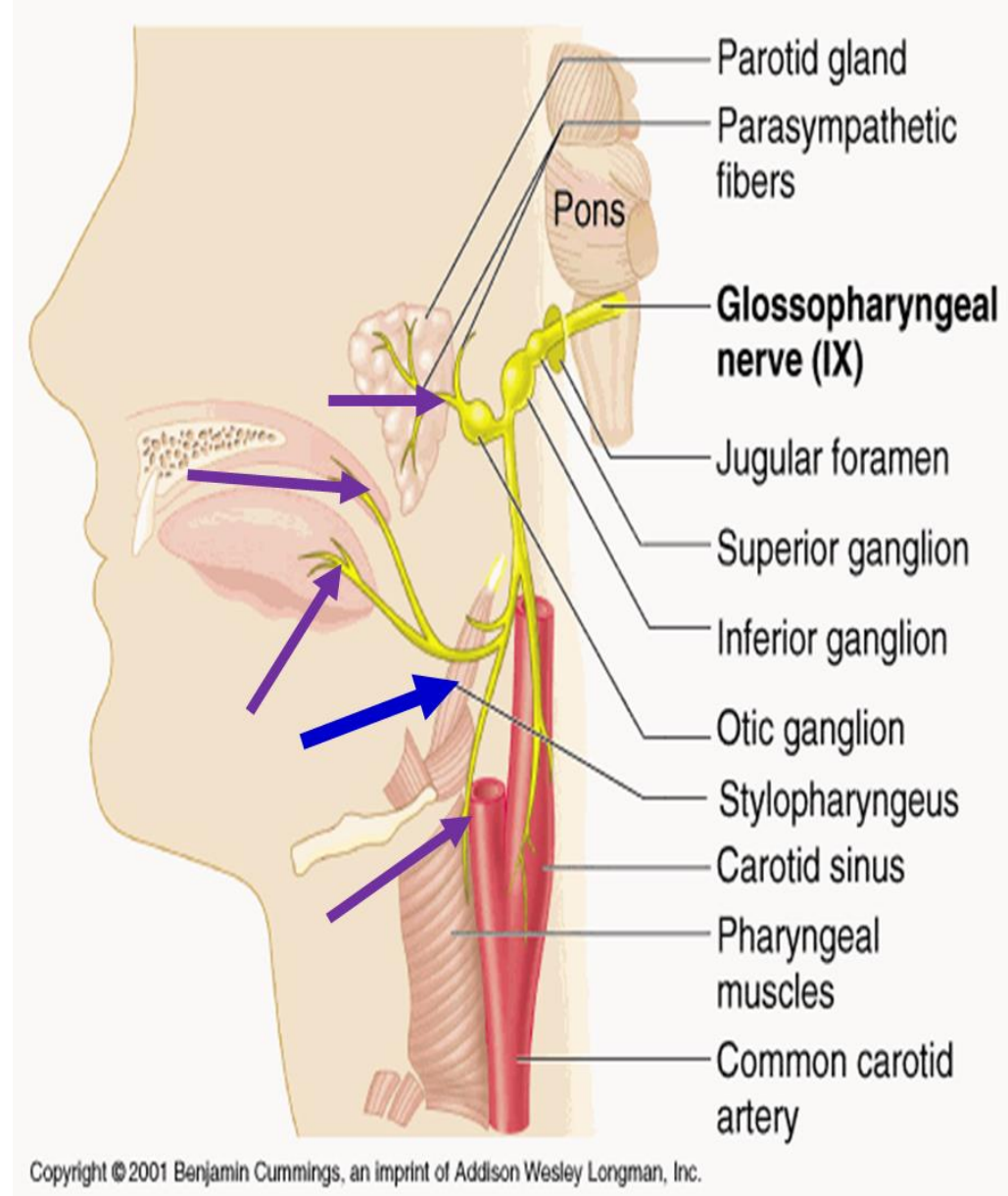
- Arise in the jugular foramen
- Connect it with :Vagus & Superior cervical sympathetic ganglion.

2) Tympanic branch:

- Arises at the jugular foramen and enter the middle ear to join the tympanic plexus
- From the plexus arises the lesser superficial petrosal which relay in the otic ganglion
- The postganglionic fibres from the ganglion supply the parotid gland through the auriculotemporal nerve.

3) Nerve to stylopharyngeus muscle.

- The only motor nerve.



Branches:

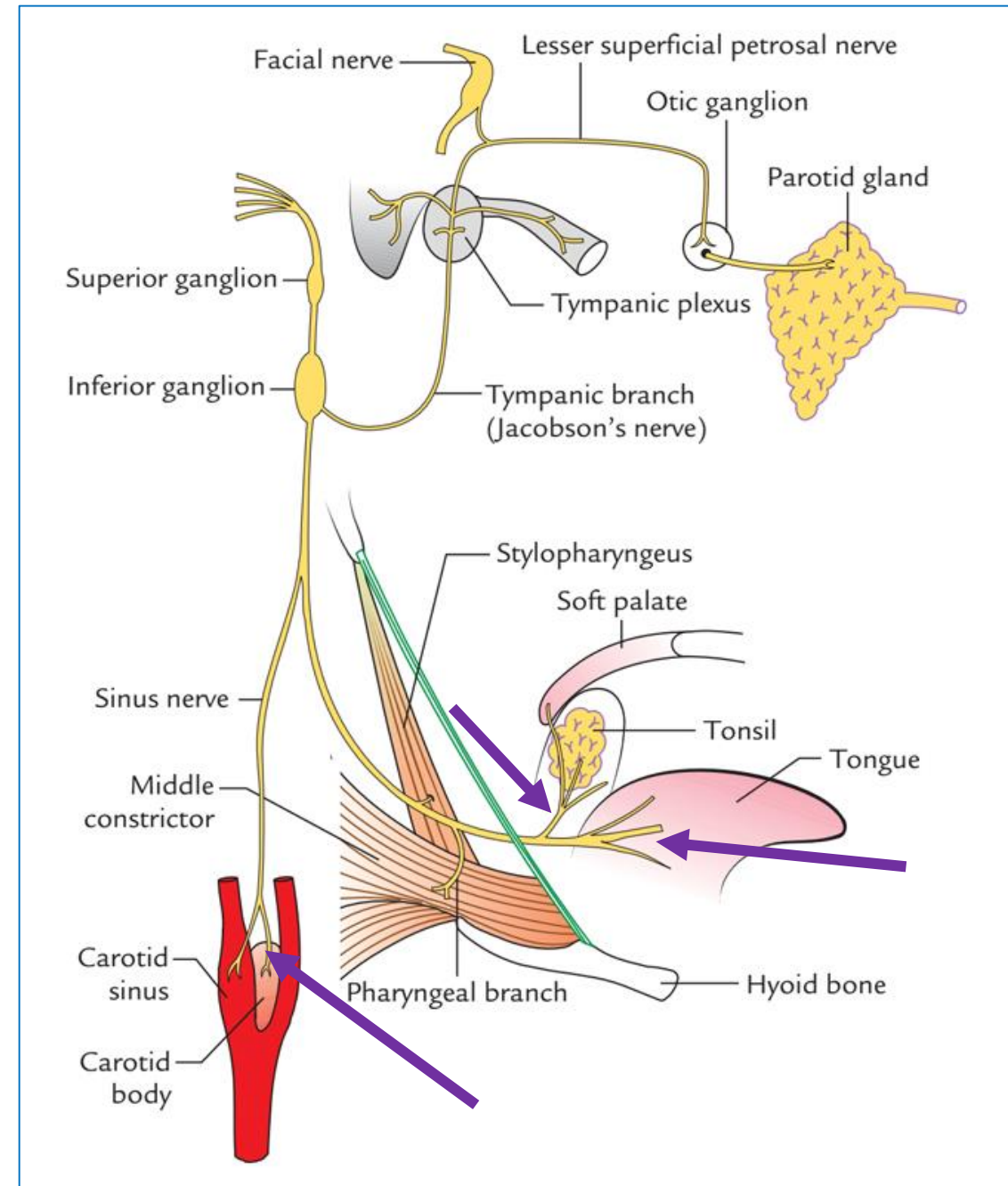
4) Carotid branch:

-Descends on the internal carotid artery to be distributed to the carotid body and sinus.

5) Lingual branches:

Carry general and taste sensations from the posterior 1/3 of tongue.

6) Tonsillar branches: To the tonsil and soft palate.



Branches:

7) Pharyngeal branches:

-Joins the pharyngeal plexus on the outer surface of the middle constrictor

-This plexus contains the following fibres:

* **Sensory:**

From the glossopharyngeal nerve

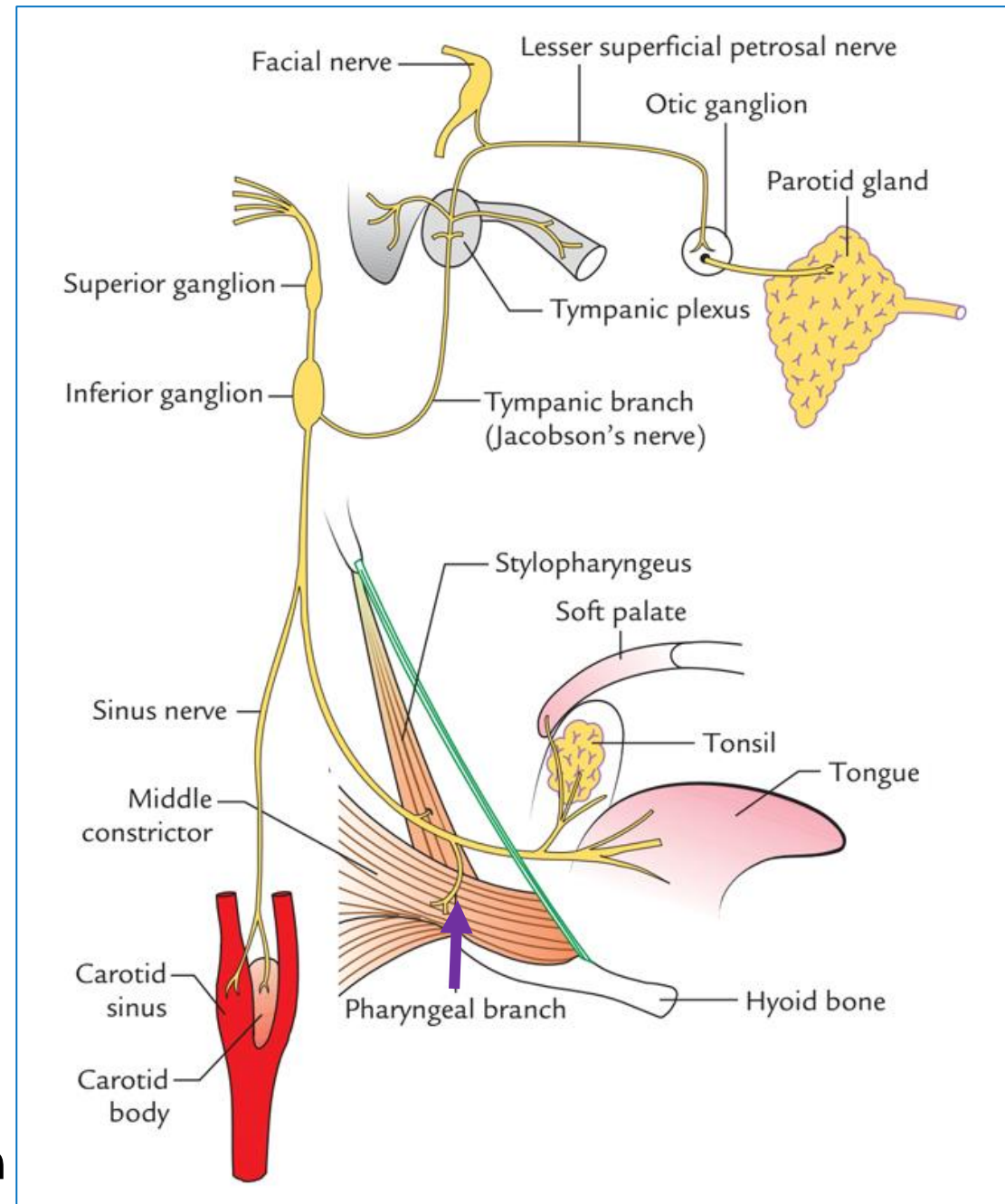
Supplies the mucosa of pharynx, tonsil & soft palate

* **Motor**

Form the vagus

* **Sympathetic :**

From the superior cervical sympathetic ganglion



Vagus nerve (X) cranial nerve

Cranial nerves originating from Medulla oblongata

Vagus Nerve(X)

It is a mixed nerve and it arises from the following cranial nuclei :

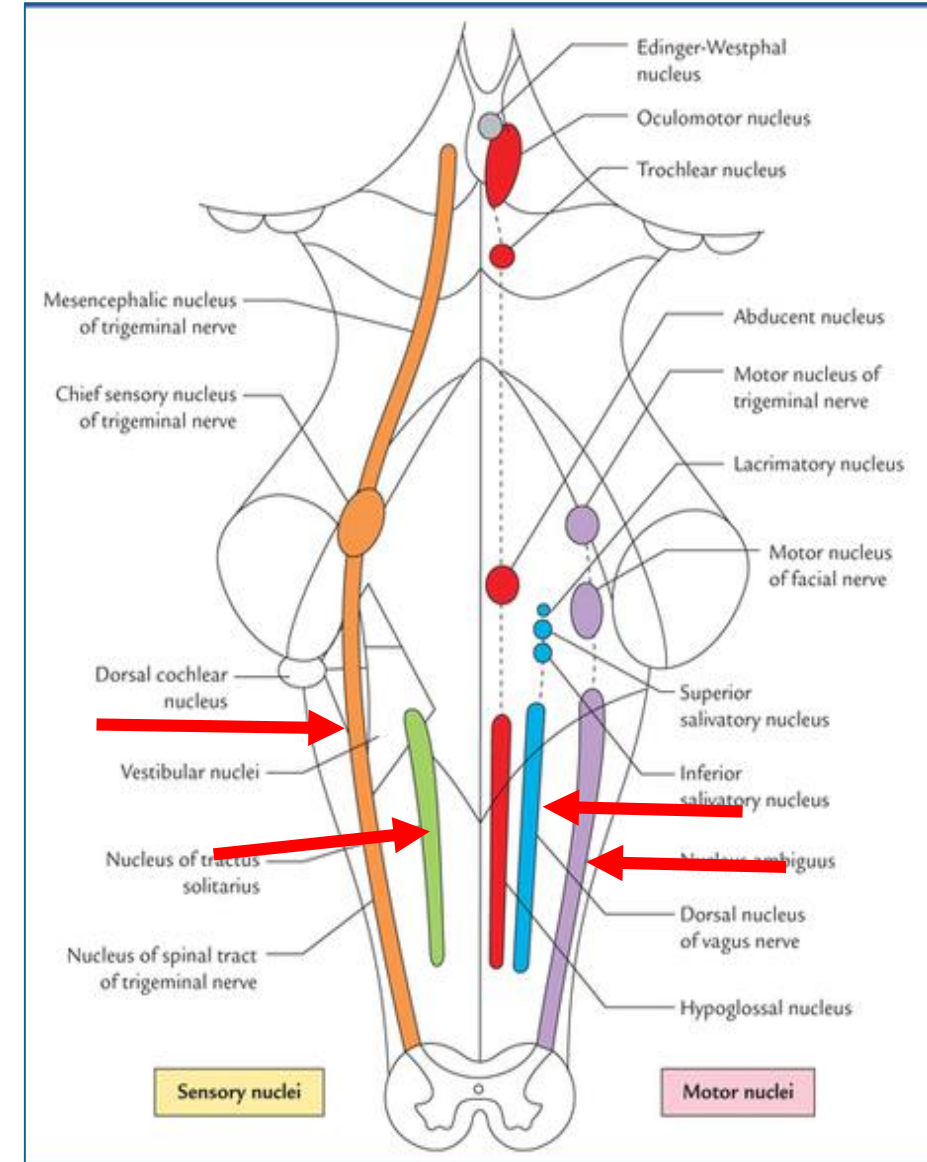
- Nucleus ambiguus (SVE)
- Dorsal nucleus of vagus (GVE)
- Solitary tract and nucleus (GVA & SVA)
- Spinal tract and nucleus of trigeminal nerve (GSA)

-Leaves the medulla from the postero-lateral sulcus .

-It is the nerve of the 4th & 6th branchial arches.

-Mediates phonation , swallowing , elevation of palate and taste.

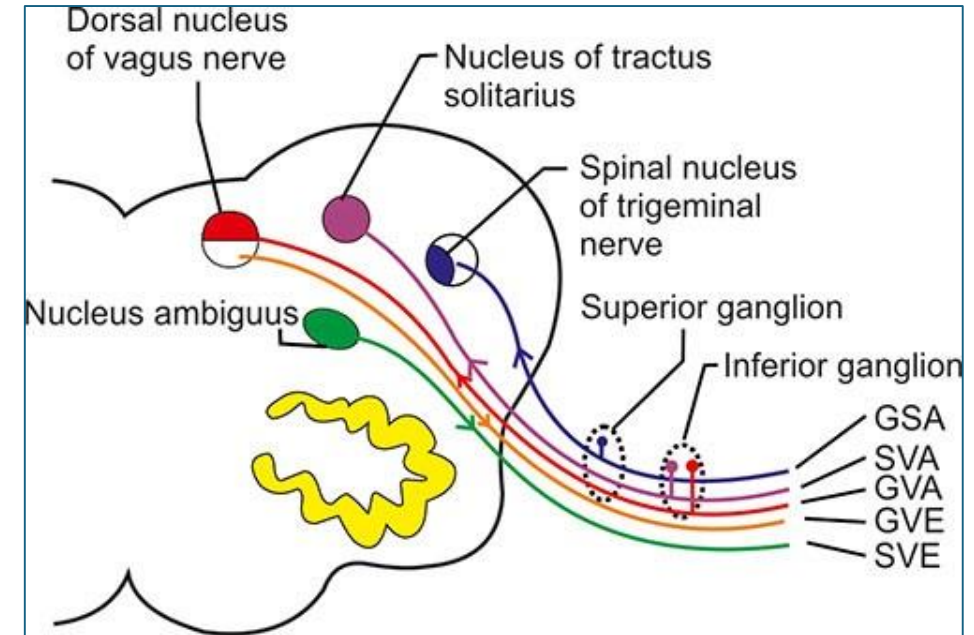
-Innervates viscera of the neck, thorax and abdomen.



Function

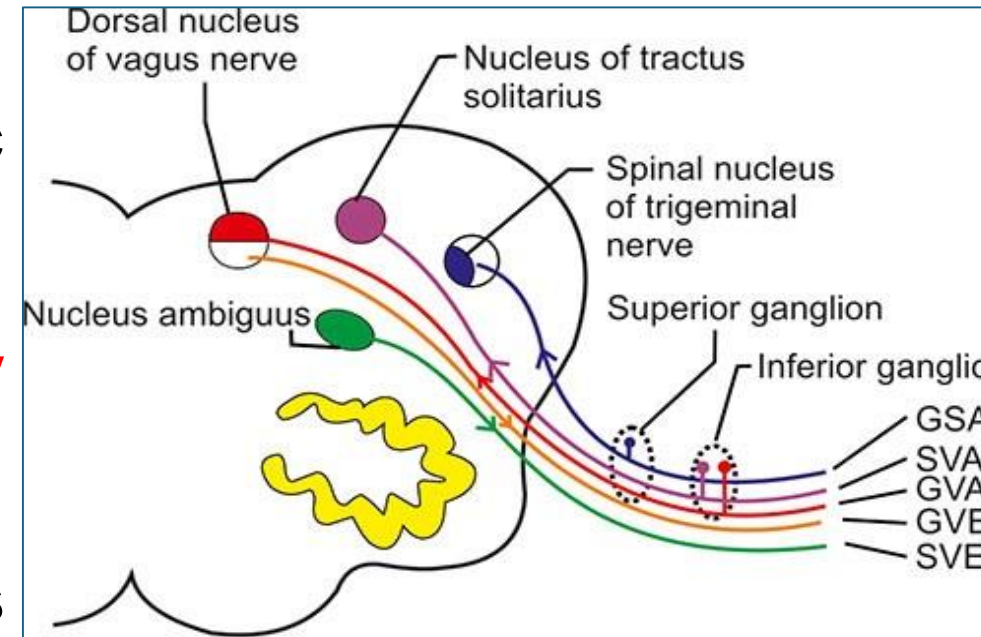
➤ **Fibers arising from nucleus ambiguus .**

- **Receives its fibres from the cranial root of accessory.**
- **Distributed to branchial arch muscles of the larynx and pharynx.**
- **Distributed to striated muscles of the upper esophagus, uvula., levator veli palatini & palatoglossus muscle.**



Function

- **Fibers arise from the dorsal nucleus of vagus.**
 - Consists of preganglionic parasympathetic neurons.
- **Fibers ending in the medial part of the solitary tract and nucleus.**
 - Carry general sensation from the mucous membranes of pharynx, larynx, esophagus, thoracic and abdominal viscera (down to the left colic flexure).



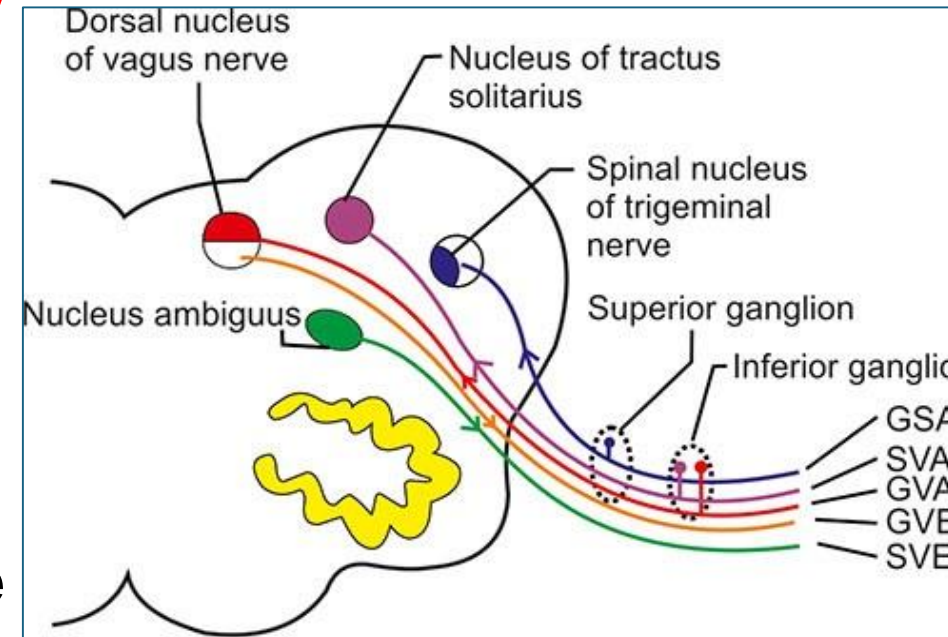
Function

- **Fibers ending in n the lateral part of the solitary nucleus.**

Carry taste sensation from the epiglottis .

- **Fibers ending in the spinal tract and nucleus of the trigeminal nerve.**

Carry general sensation from the dorsal surface of external ear, external auditory meatus and tympanic membrane.



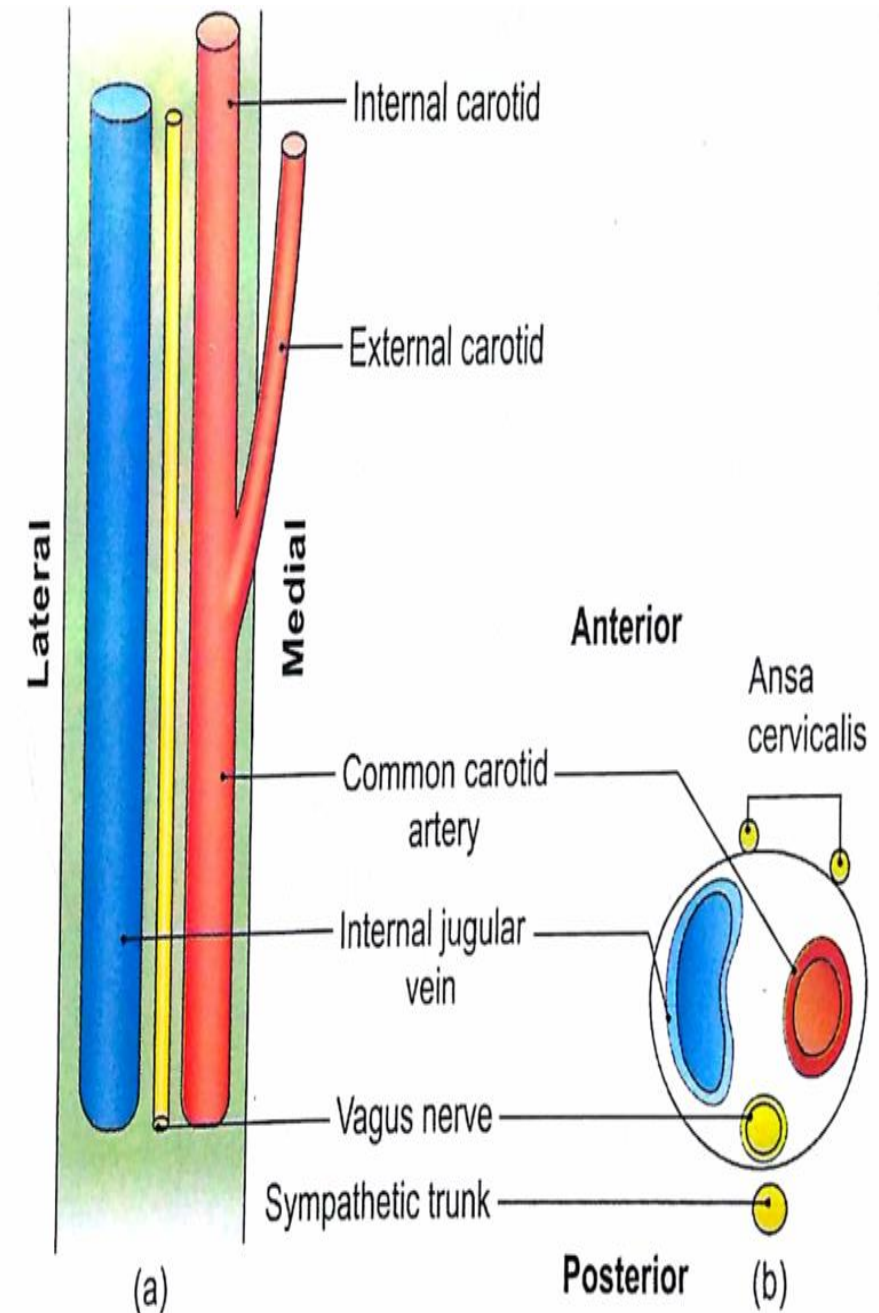
Course and relations in the neck:

leaves the cranial cavity through the jugular foramen.

-Descends vertically within the carotid sheath between Internal carotid artery & internal jugular vein.

Then between :

- Common carotid artery & internal jugular vein
- In the root of the neck, it descends as follows:
- On the right side it descends in front of the 1st part of subclavian artery.
- On the left side it descends between the common carotid and subclavian arteries and crosses the arch of aorta in the thorax
- It enters the thorax and passes through the superior and posterior mediastina.



Branches:

1) Communicating branches :

- To 9th ,11th & 12th cranial nerves
- Superior cervical sympathetic ganglion.
- 1st cervical nerve

2 branches arise from the superior ganglion:

2)-Meningeal branch:

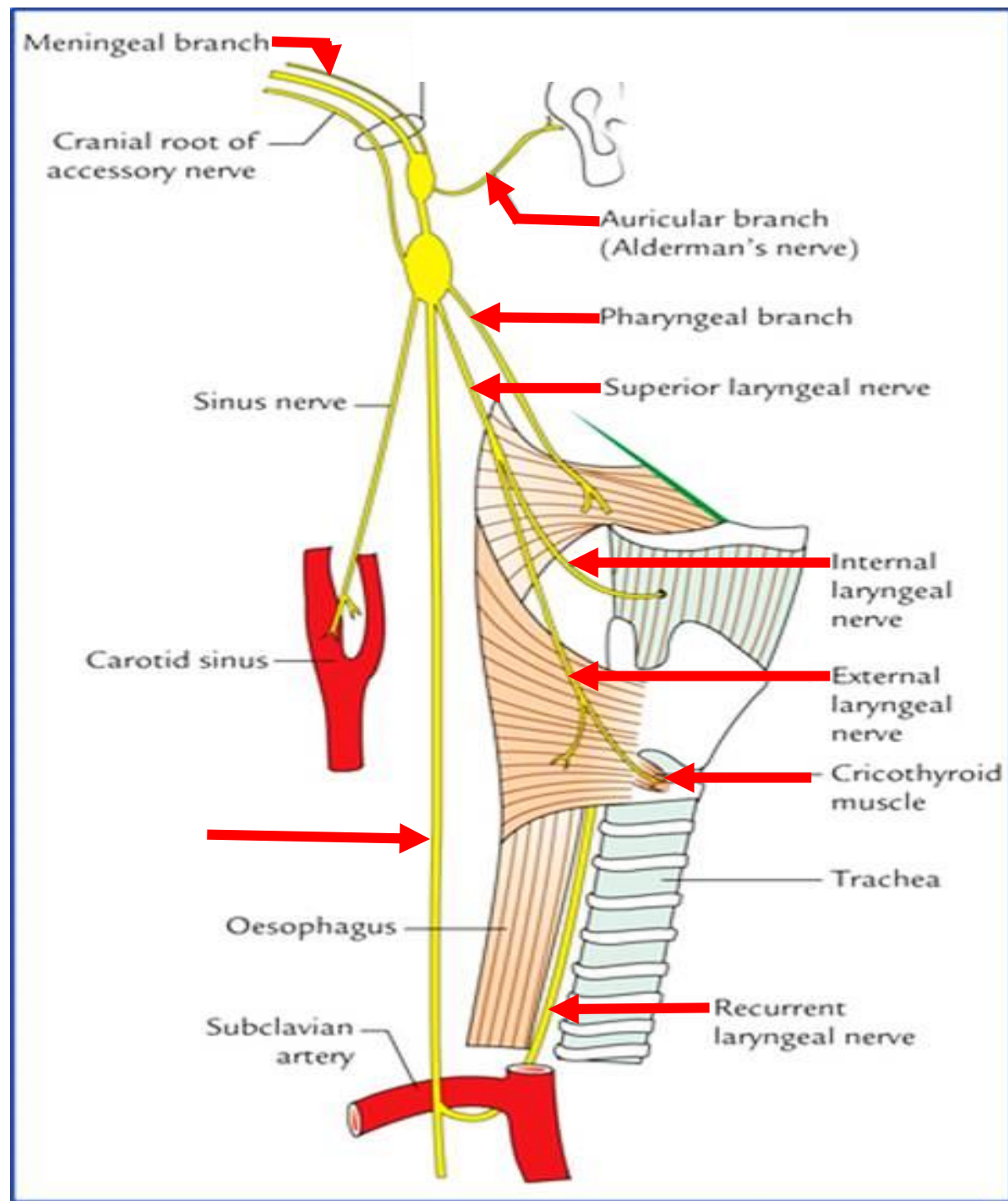
Supplies the dura mater of the posterior cranial fossa

3)-Auricular branch: It supplies :

Medial surface of the auricle

Floor of external auditory meatus

Lower part of the outer surface of ear drum.



Branches:

2 branches arise from the inferior ganglion:

4)- Pharyngeal branch:

joins the pharyngeal plexus. Through this plexus supplies: The muscles of the pharynx and soft palate except stylopharyngeus and tensor palati.

5)- Superior laryngeal branch:

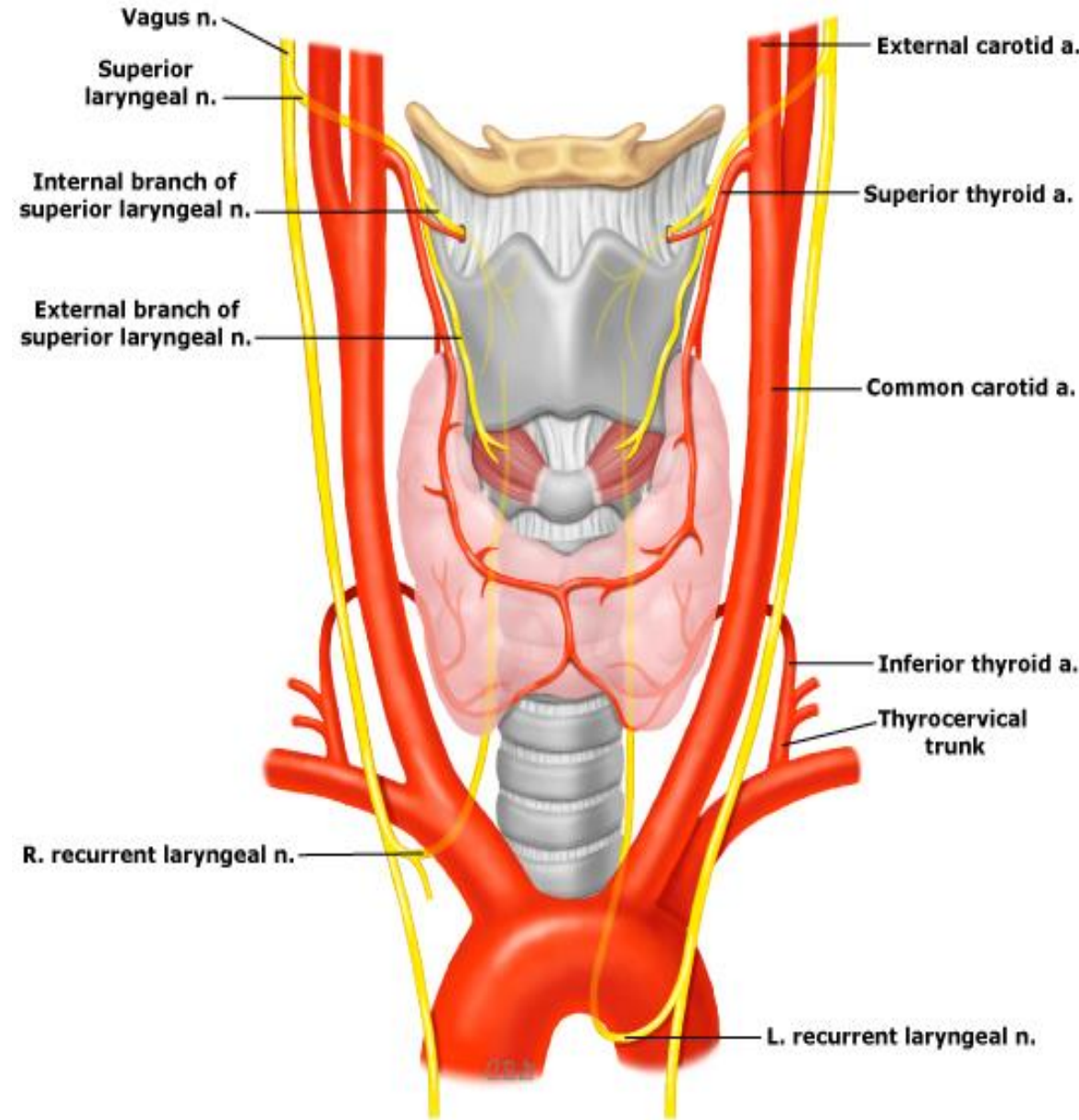
divides into:

* Internal laryngeal:

- = Accompanies the superior laryngeal artery
- = Pierces the thyrohyoid membrane
- = Supplies the mucous membrane of the upper part of larynx down to the level of vocal folds.

* External laryngeal:

- = Accompanies the superior thyroid artery
- = Supplies the cricothyroid muscle.



Branches:

6) Cardiac branches:

Superior and inferior cardiac branches which arise in the neck and join the cardiac plexuses in the thorax

7) Recurrent laryngeal :

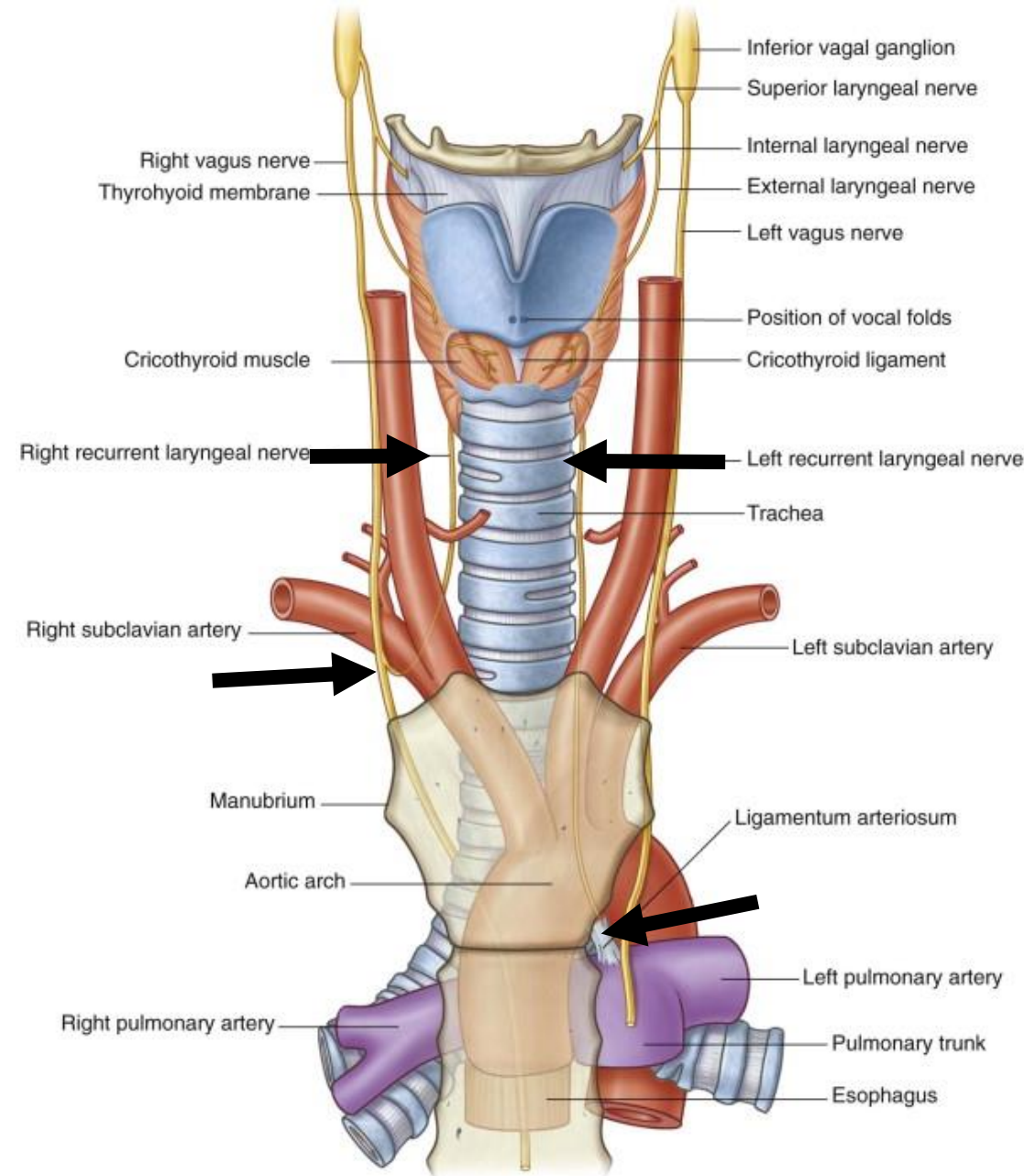
* On the right side :

It arises as the right vagus crosses the 1st part of subclavian artery and hooks around it

* On the left side:

It arises as the left vagus crosses the arch of aorta and hooks around it

- In the neck , it ascends in the groove between the trachea and oesophagus



Thank
you

