

# last 4 CRANIAL NERVES

By

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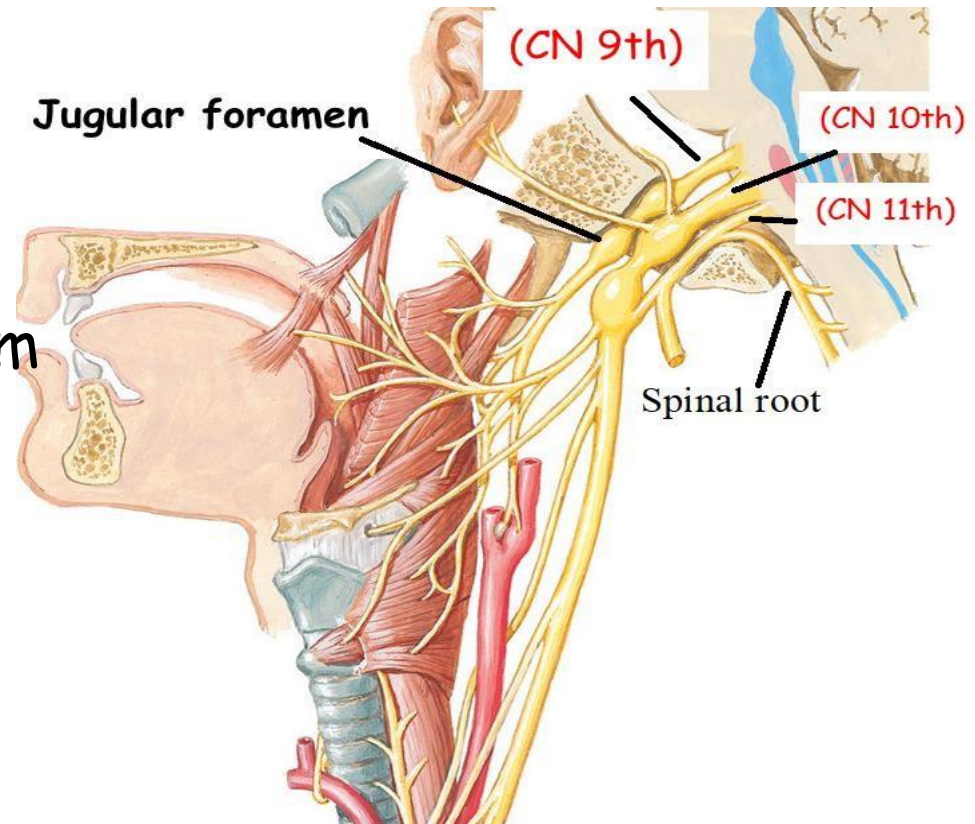
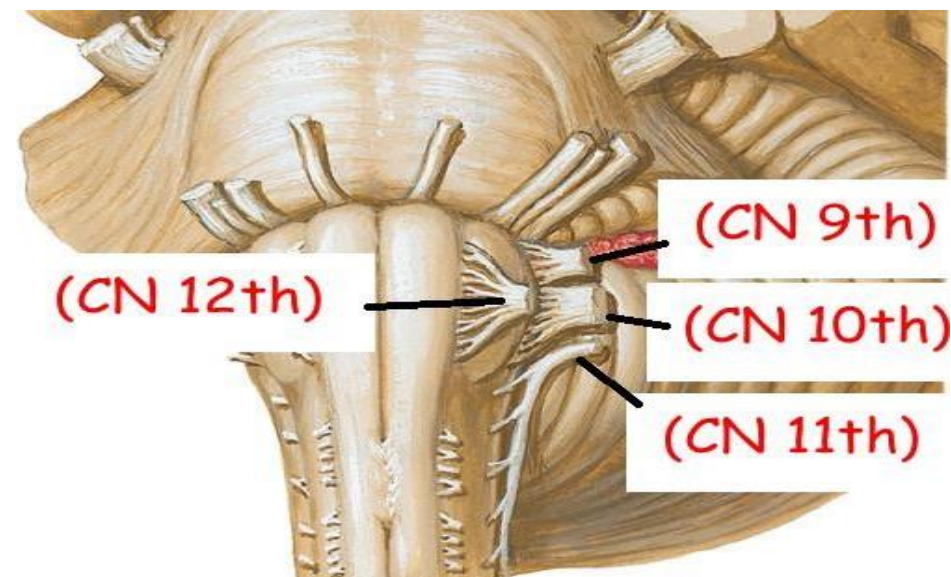
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## Last 4 cranial nerves

- 1 Glossopharyngeal nerve (CN 9th)
- 2 Vagus nerve (CN 10th)
- 3 Accessory nerve (CN 11th)
- 4 Hypoglossal nerve (CN 12th)

All 4 nerves exit from ventral surface of **medulla oblongata**

The ( 9th, 10th& 11th) exit from skull through **Jugular foramen** but (CN 12th) through **Hypoglossal canal**



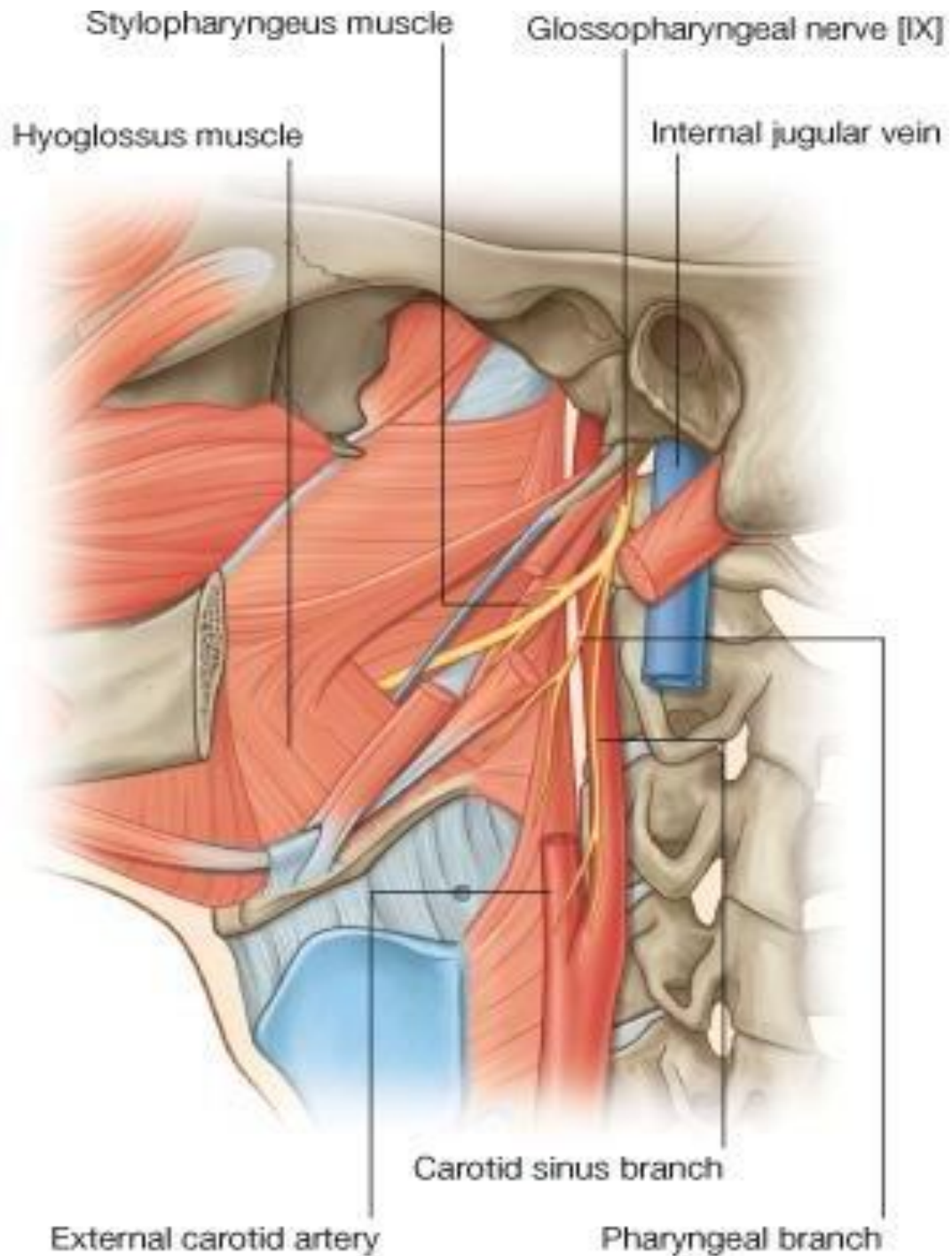
**GLOSSOPHARYNGEAL NERVE**

**9<sup>TH</sup> CRANIAL NERVE**

**Type:** a mixed nerve.

**Course and relations:**


descends in the upper part of the carotid sheath till the lower border of the stylopharyngeus muscle where it leaves the sheath and runs forwards deep to the hyoglossus muscle to reach the back of the tongue.



# Remember...

## Contents of carotid sheath

Upper part	Lower part
Internal carotid artery Internal jugular vein Last 4 cranial nerves	common carotid artery Internal jugular vein vagus nerve



9-glossopharyngeal nerve.  
10-vagus nerve.  
11-accessory nerve.  
12-hypoglossal nerve.

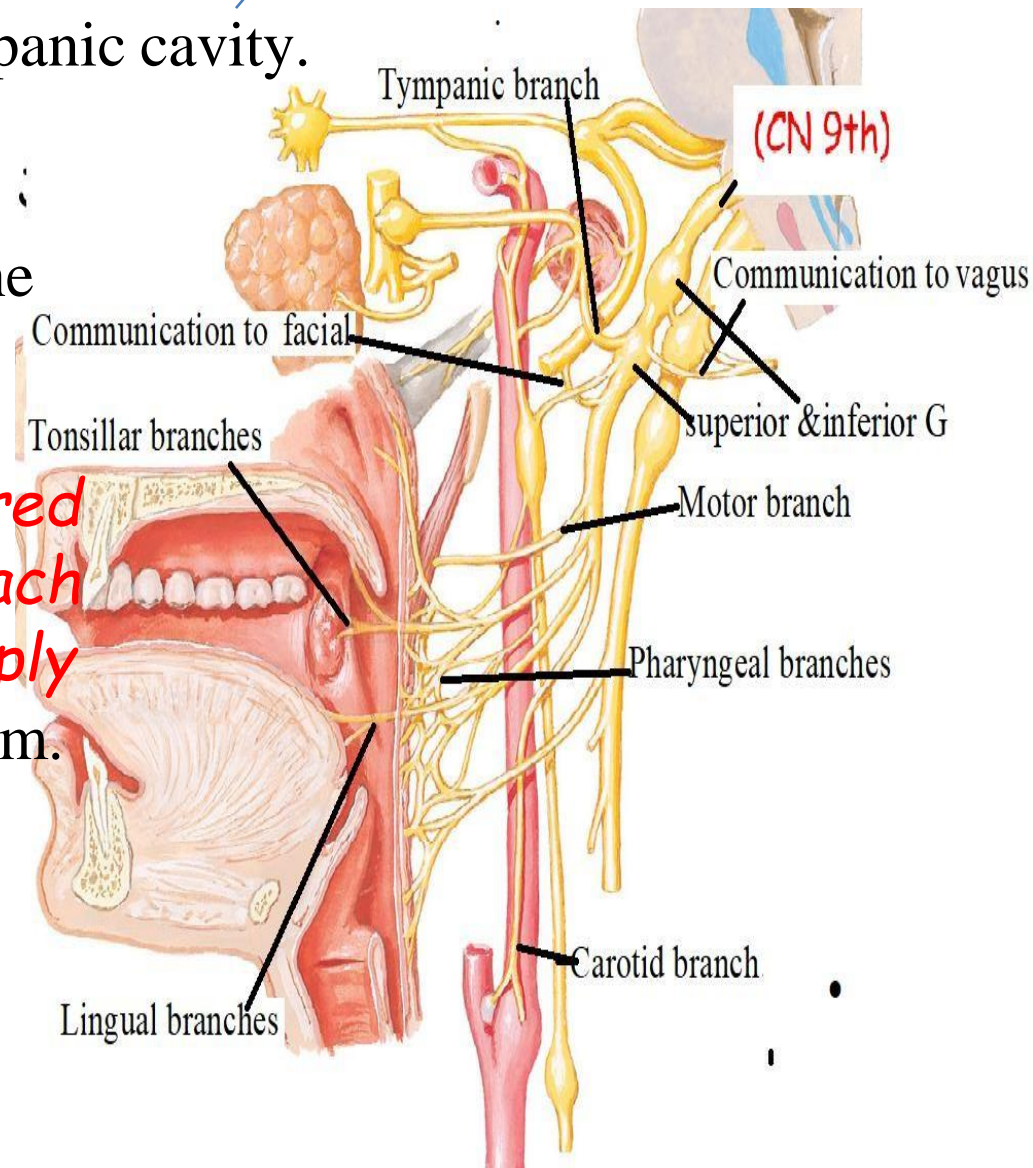


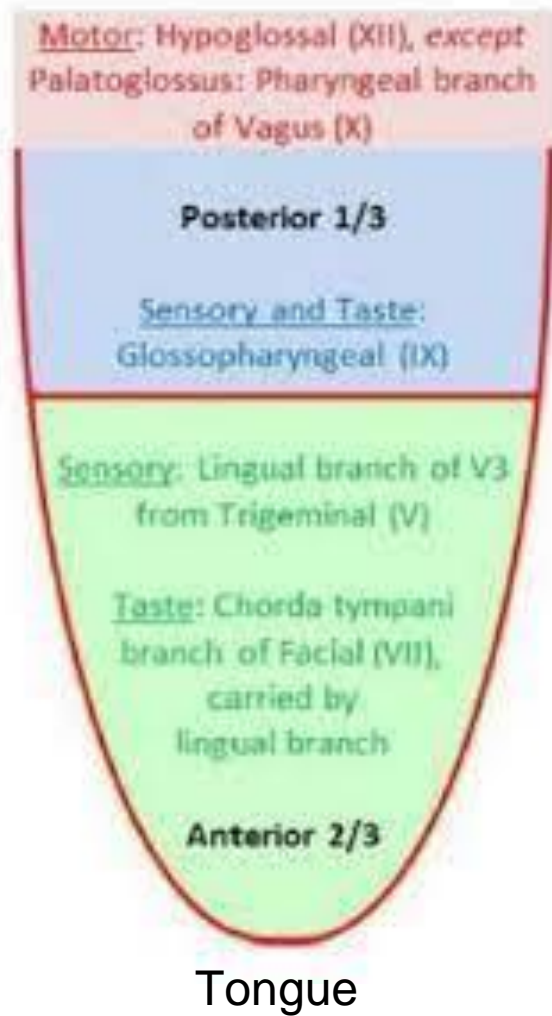
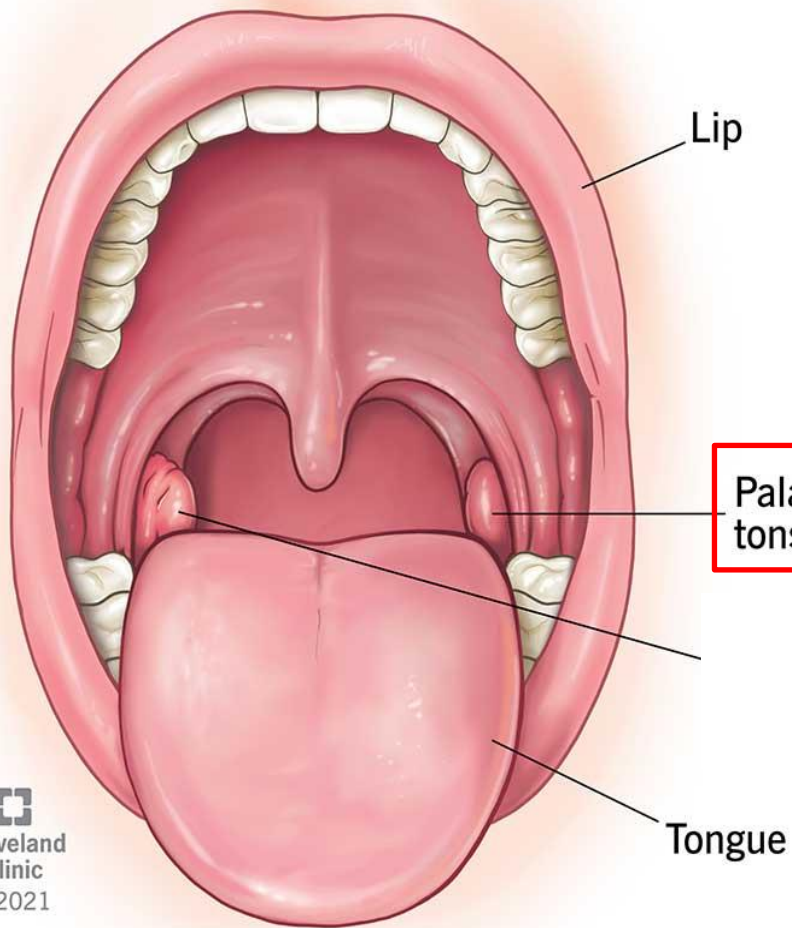
## Branches and distribution:

1. **Meningeal branch:** To the meninges of posterior cranial fossa
2. **Tympanic branch:** supply tympanic cavity.
3. **Carotid branch:** To carotid Sinus and carotid body.
4. **Tonsillar branches:** To palatine tonsil, the pharynx and the auditory tube.

***NB: Tonsillitis causes referred pain in the middle ear, As each of them have same nerve supply***

4. **Motor branch:** stylopharyngeus m.
5. **Terminal branches:**
  - a. **Lingual branches:** sensory To Mucous membrane & taste from posterior 1/3 of the tongue.
  - b. **Pharyngeal branches:** To the pharyngeal plexus.





**VAGUS NERVE**

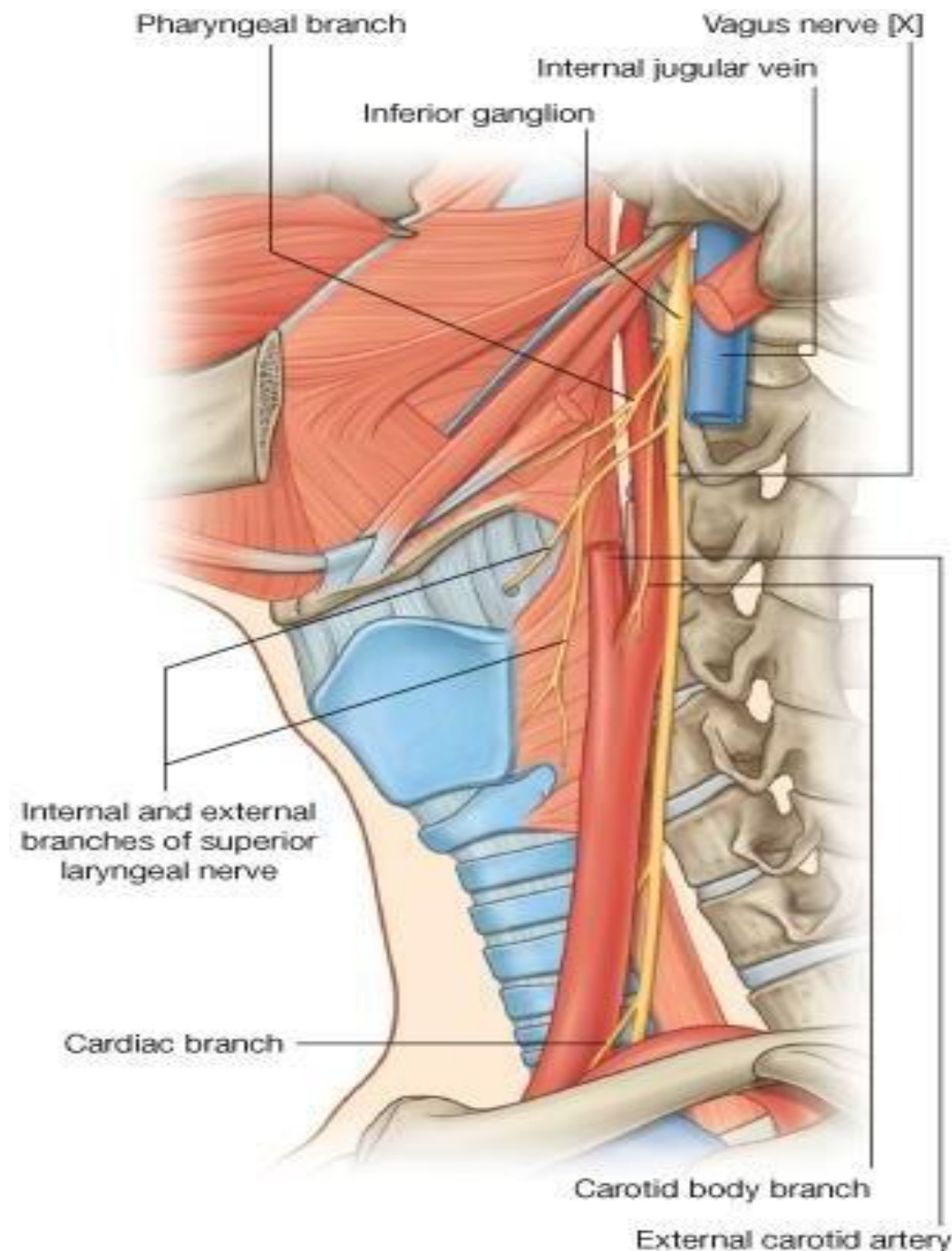
**10<sup>TH</sup> CRANIAL NERVE**



**Type:** a mixed nerve.

**Course and relations:**

- Descends in the carotid sheath between the I.J.V. and the I.C.A. then between the I.J.V. and the C.C.A.
- At the root of the neck, It crosses over the 1<sup>st</sup> part of the **subclavian artery** to enter the thoracic cavity.

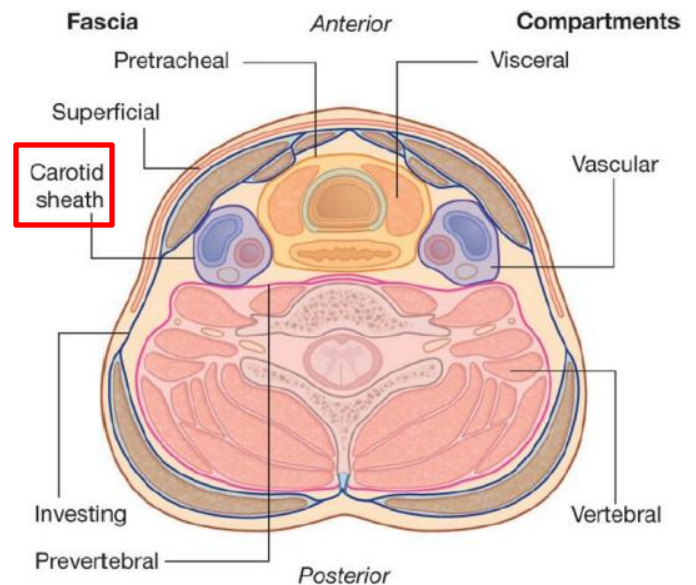


# Remember...

## Contents of carotid sheath

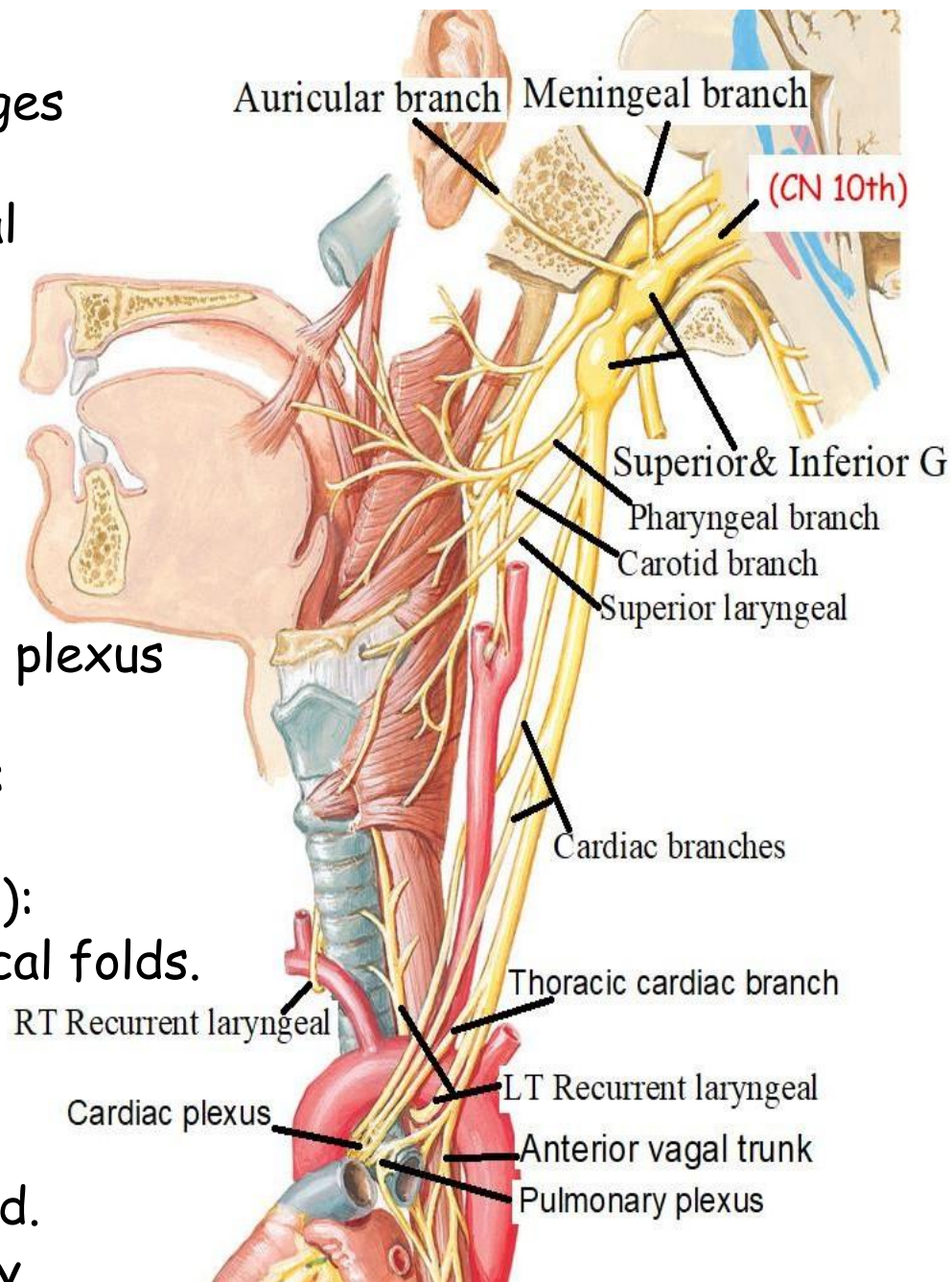
Upper part	Lower part
<div>{</div> <div>Internal carotid artery Internal jugular vein Last 4 cranial nerves</div>	<div>{</div> <div>common carotid artery Internal jugular vein vagus nerve</div>

9-glossopharyngeal nerve.  
10-vagus nerve.  
11-accessory nerve.  
12-hypoglossal nerve.



# Branches:

1. **Meningeal branch:** To the meninges of posterior cranial fossa
2. **Auricular branch:** To the external auditory canal and the outer surface of the tympanic membrane.
3. **Carotid branch:** To the carotid sinus and the carotid body.
4. **SUP & INF Cardiac branches:** To the cardiac plexus.
5. **Pharyngeal branch:** To pharyngeal plexus
6. **Superior laryngeal:** gives
  - A-External laryngeal branch (motor): supplies the **cricothyroid muscle**.
  - B-Internal laryngeal branch (sensory): To the laryngeal cavity above the vocal folds.&Taste from the root of tongue
7. **RT & LT Recurrent laryngeal N:**
  - **Motor** → To all the intrinsic muscles of larynx except cricothyroid.
  - **Sensory** → To the laryngeal cavity below the vocal folds.



**ACCESSORY NERVE**

**11<sup>TH</sup> CRANIAL NERVE**



**Type:** a motor nerve.

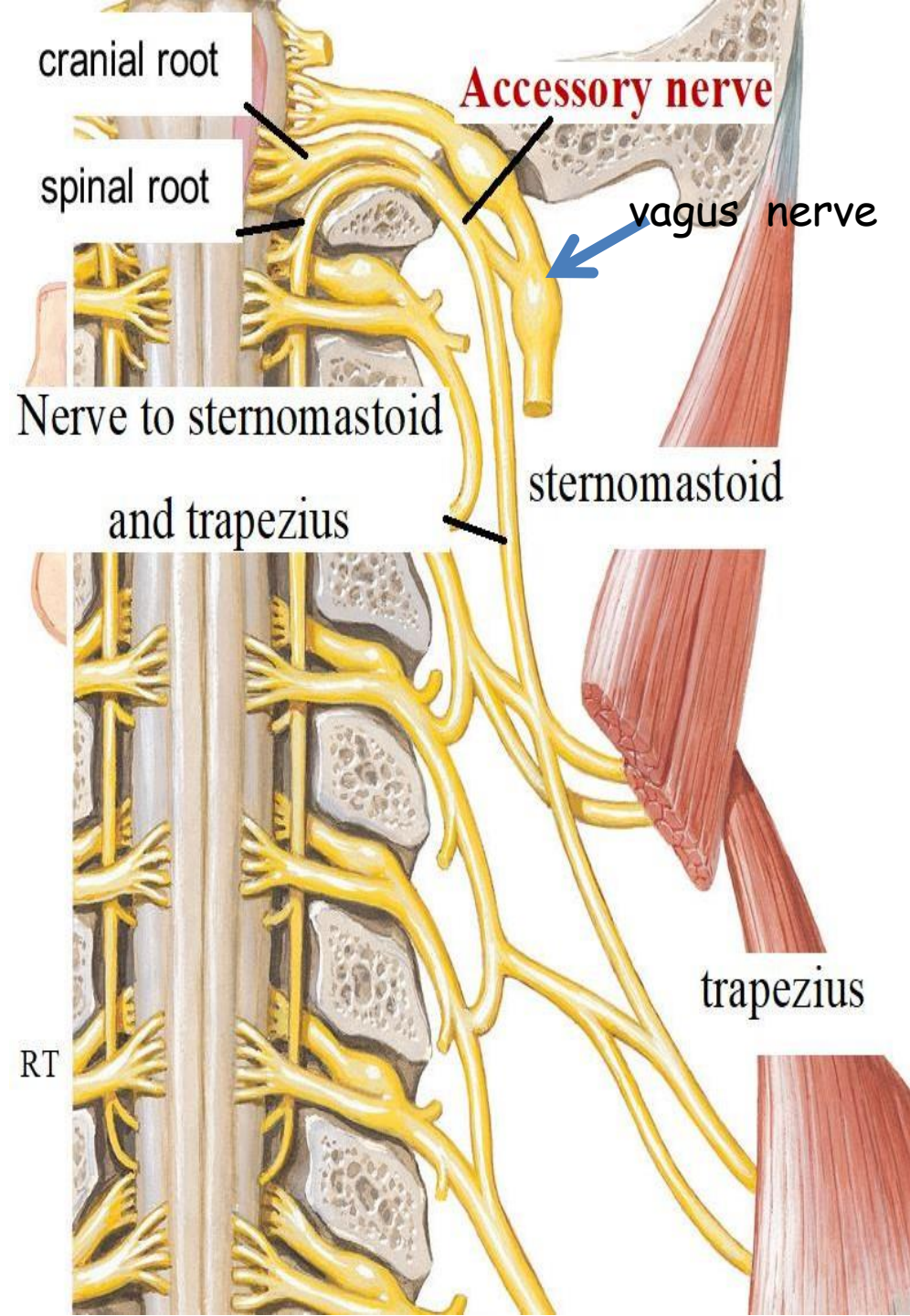
**Parts:** consists of:

**a. Cranial root:**

- joins the vagus nerve and distributed through its pharyngeal and laryngeal branches.

**b. Spinal root:**

from upper five cervical segments of the spinal cord & supply sternomastoid and trapezius





# Pharyngeal plexus( vago-accessory complex )

The chief nerve supply of the pharynx.

**\*Formation:-** three roots;

**1)Motor root:** Pharyngeal branch of vagus (cranial accessory)

**2)Sensory root:** Pharyngeal branch of glosso-pharyngeal nerve.

**3)Sympathetic root:** Pharyngeal branches of superior cervical

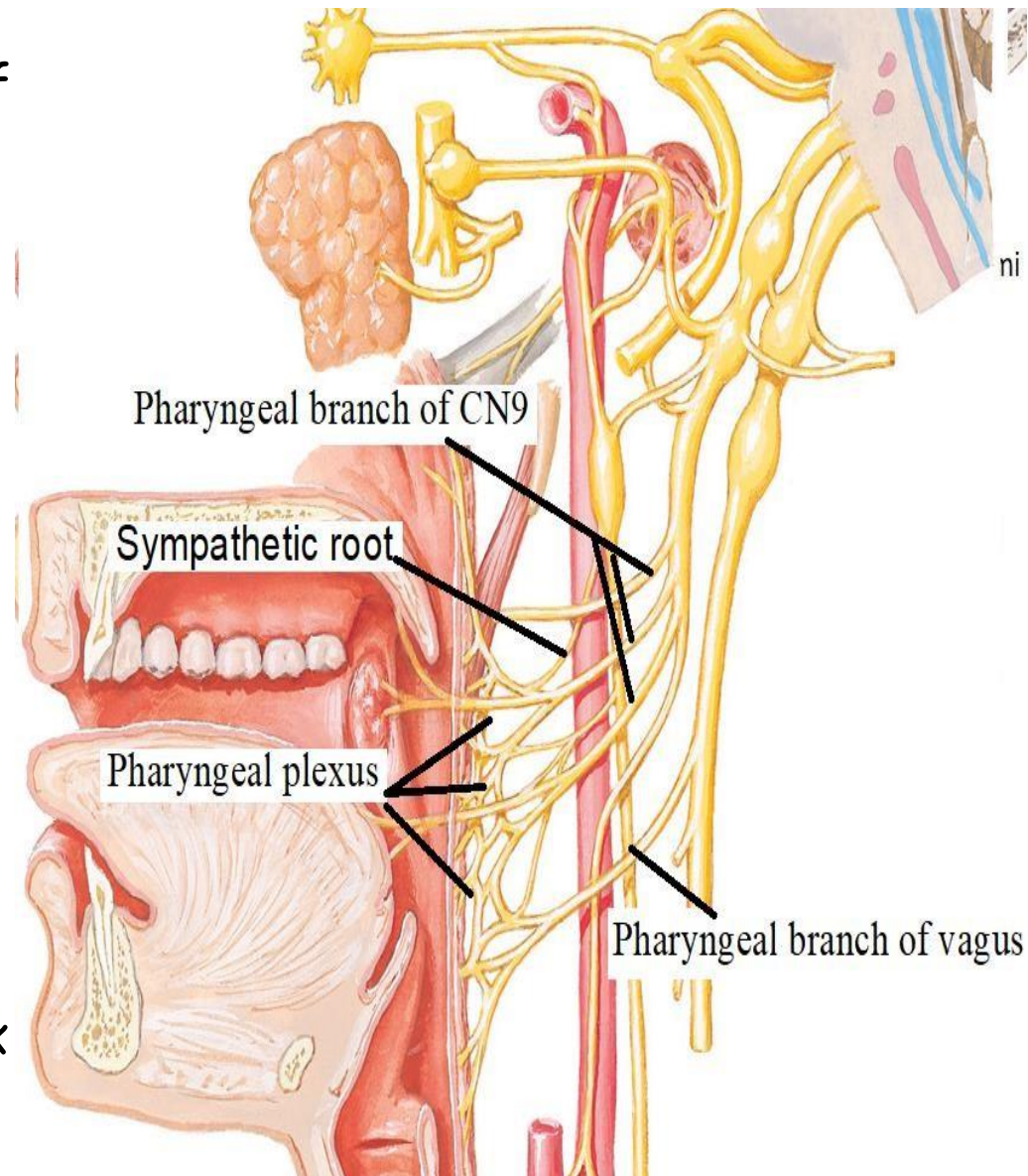
**Distribution:-**

**1)Motor root:** All muscles of pharynx EXCEPT stylo-pharyngeus which is supplied by glosso-pharyngeal nerve.

→ All the muscles of the palate EXCEPT tensor palati which is supplied by mandibular division of trigeminal (n. to medial pterygoid).

**2)Sensory root:** M M of pharynx

**3)Sympathetic root:** smooth muscle fibers of blood vessels of pharynx.



**HYPOGLOSSAL NERVE**

**12<sup>TH</sup> CRANIAL NERVE**

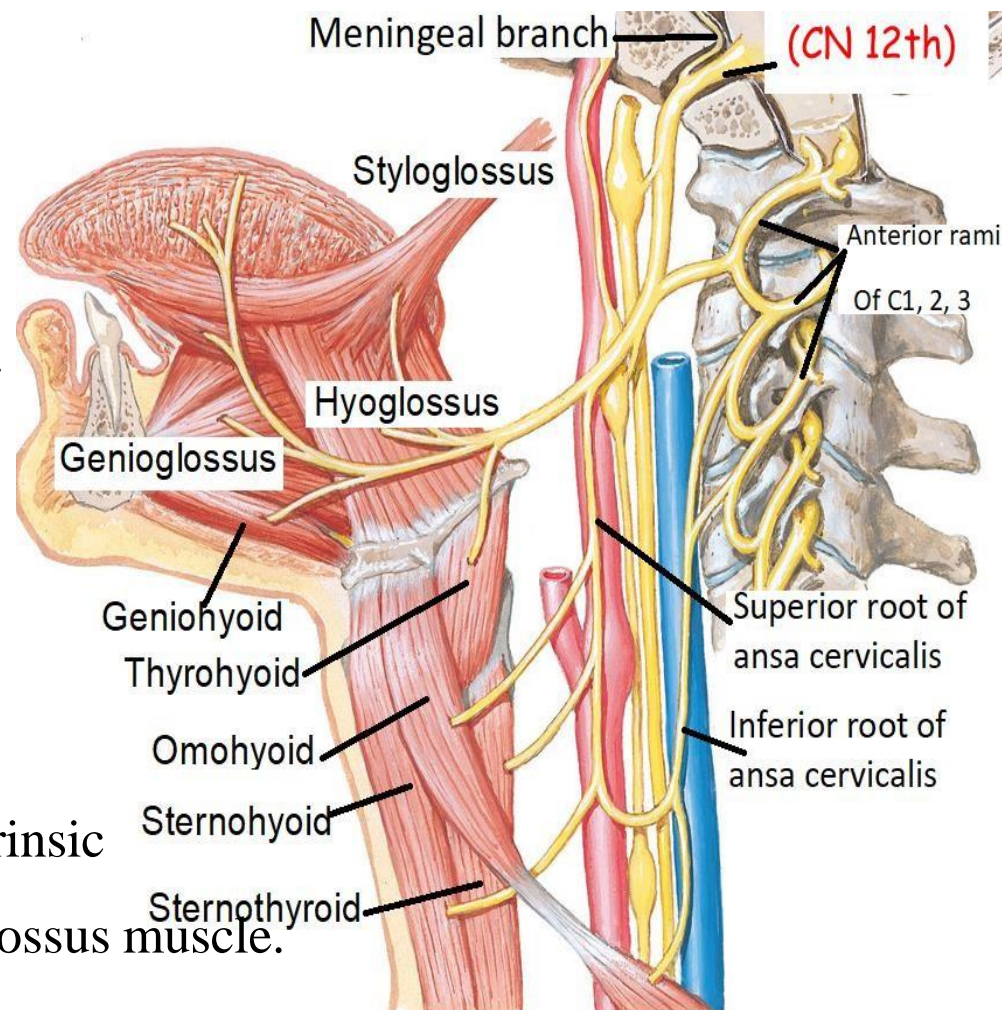
**Type:** a pure motor nerve.

### **Course and relations:**

1. descends in the upper part of the carotid sheath & leaves it At the lower border of the posterior belly of digastric to enter the carotid triangle.
2. Then, runs superficial to hyoglossus & genioglossus Ms to enter the tongue.

### **Branches and distribution:**

1. **The nerve itself:** all intrinsic and extrinsic muscles of the tongue except the palatoglossus muscle.
2. **From C<sub>1</sub> fibers**
  1. **Meningeal branch:** to the meninges of the posterior cranial fossa.
  2. **Descending branch** (descends hypoglossi): to the ansa cervicalis.
  3. **Muscular branches:** to thyrohyoid and geniohyoid muscles.



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2-carotid triangle

