

# Cervical Part of Sympathetic Trunks

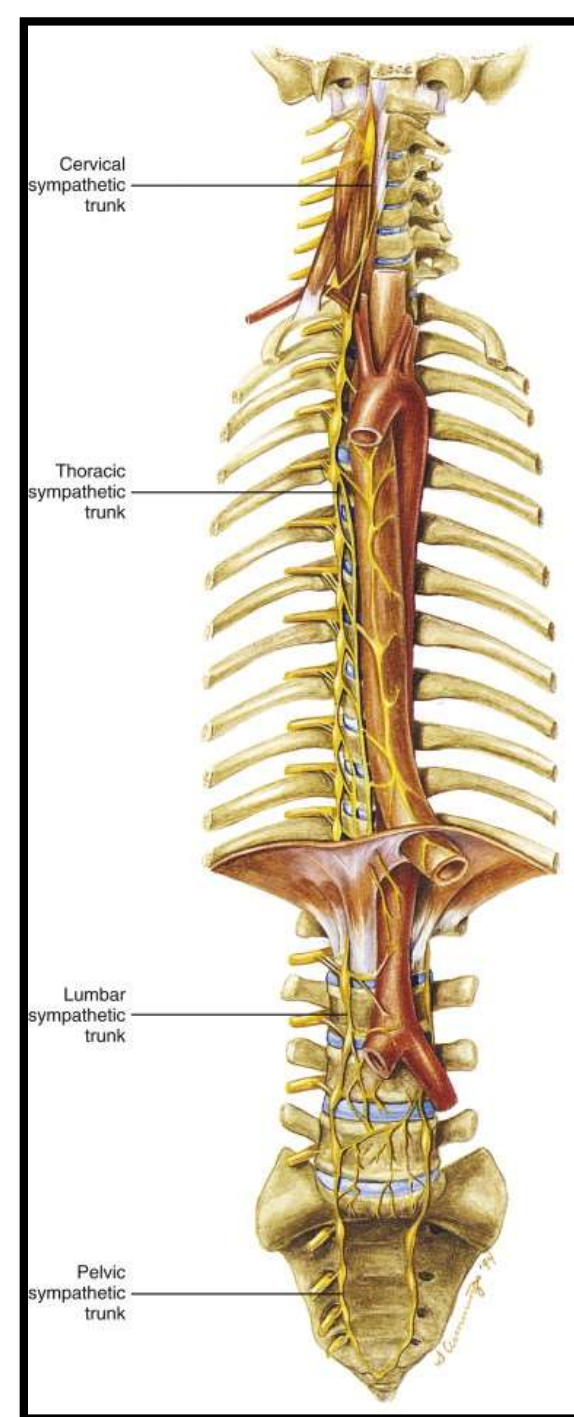
Presented by :- Dr. Sushma Tomar  
Associate Professor  
Department of Anatomy

# Introduction

- There are two sympathetic trunks (right & left) in human body.

## Location-

- Each sympathetic trunk is paravertebral in position.
- Each sympathetic trunk extends from the base of skull to the first coccygeal vertebra (base of coccyx).



# Introduction contd...

- At the base of coccyx, both sympathetic trunks join to form **Ganglion Impar**.

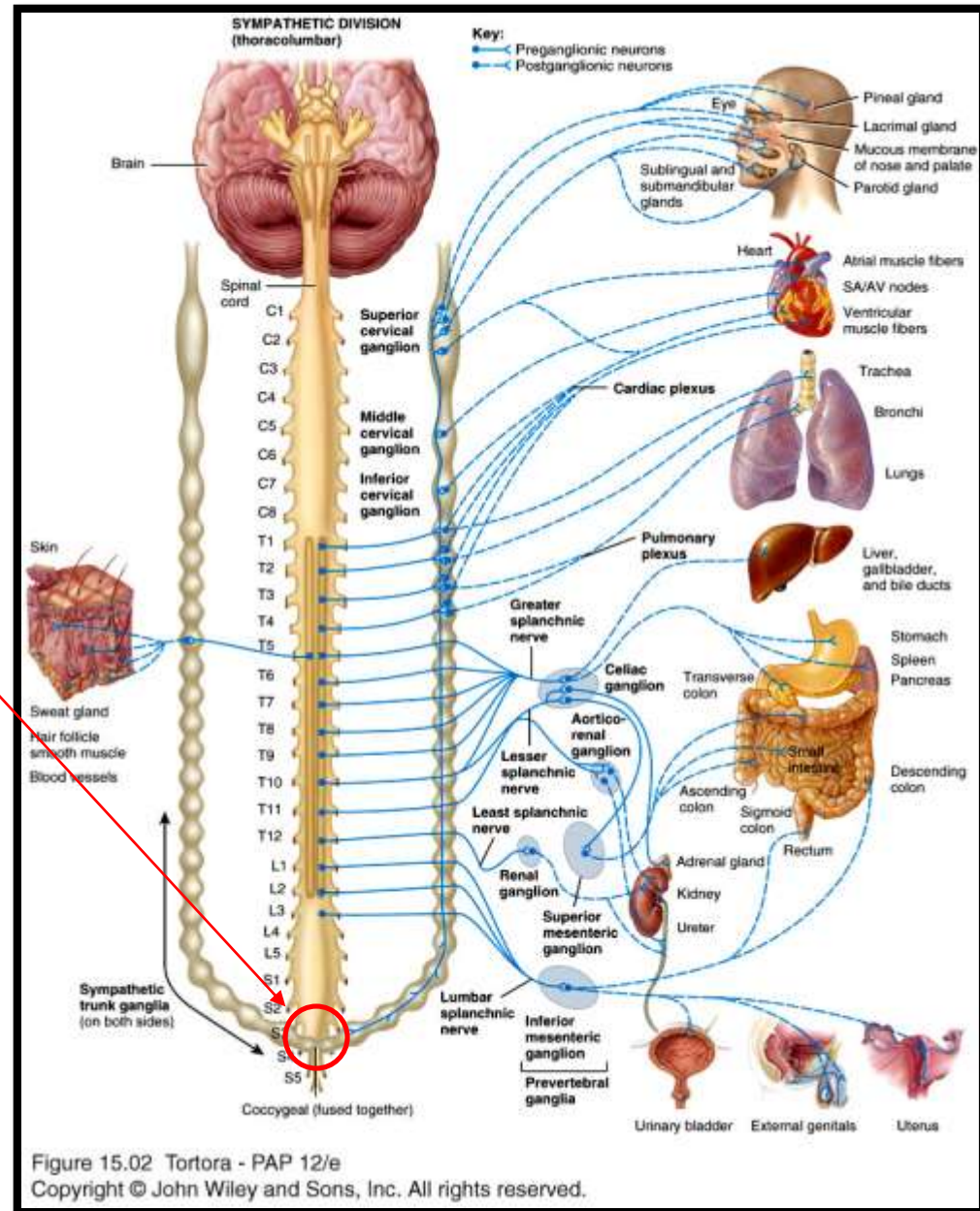
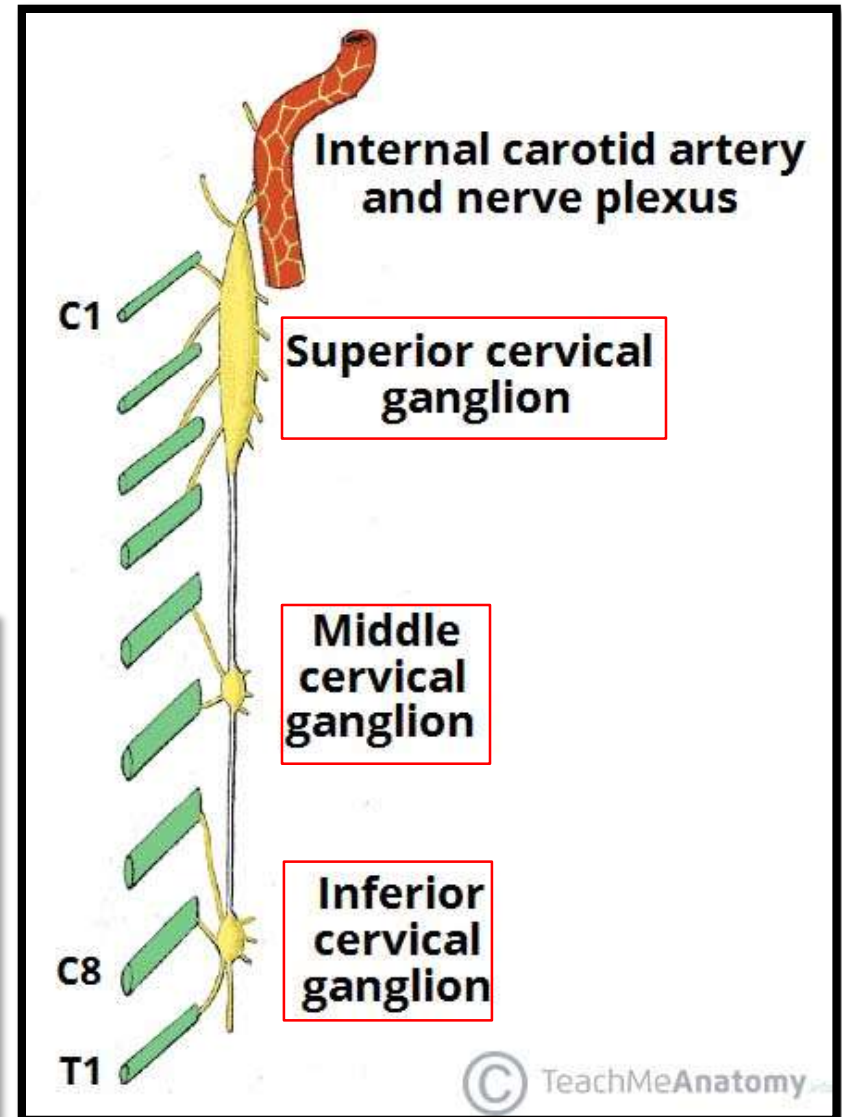
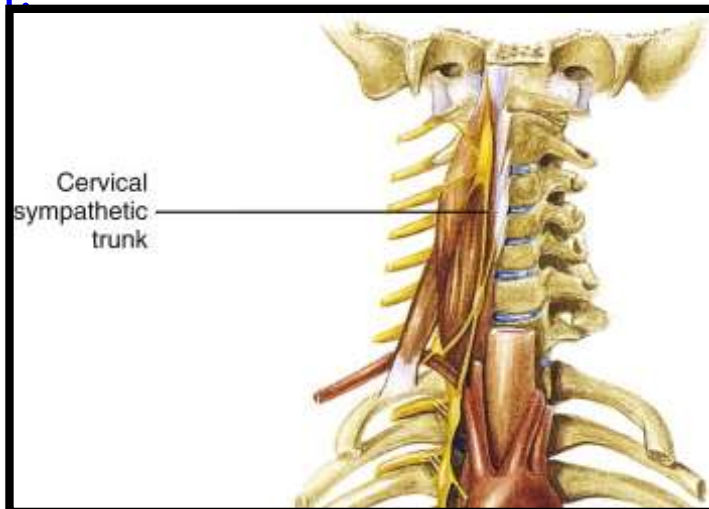


Figure 15.02 Tortora - PAP 12/e  
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# Sympathetic Trunks In The Neck

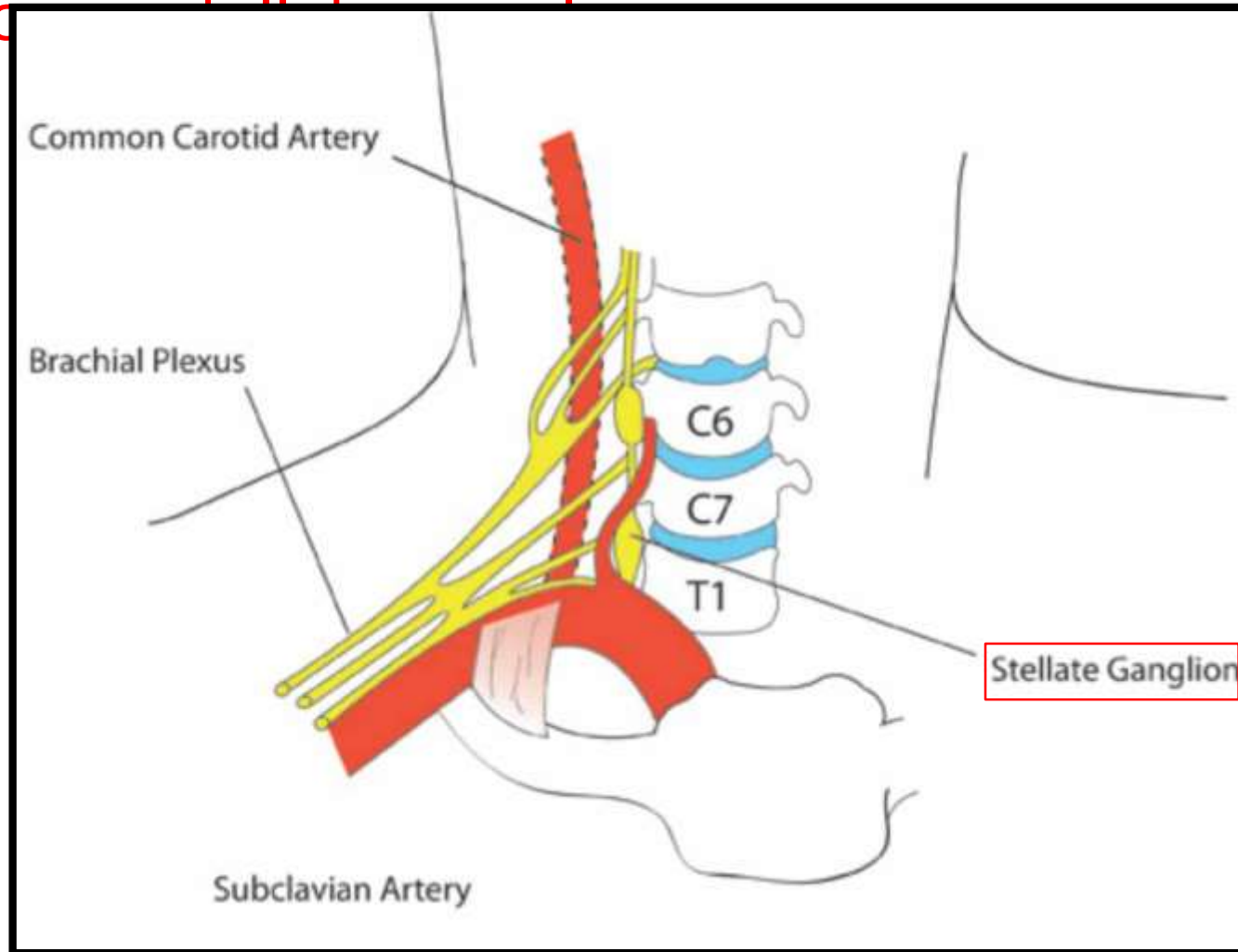
## Location-

- Cervical part of sympathetic trunk lies **in front of transverse processes of cervical vertebrae** and **neck of 1<sup>st</sup> rib**.
- Each sympathetic trunk presents 3 ganglia in the cervical part:-
- Superior.
- Middle.
- Inferior.



# Sympathetic Trunks In The Neck contd...

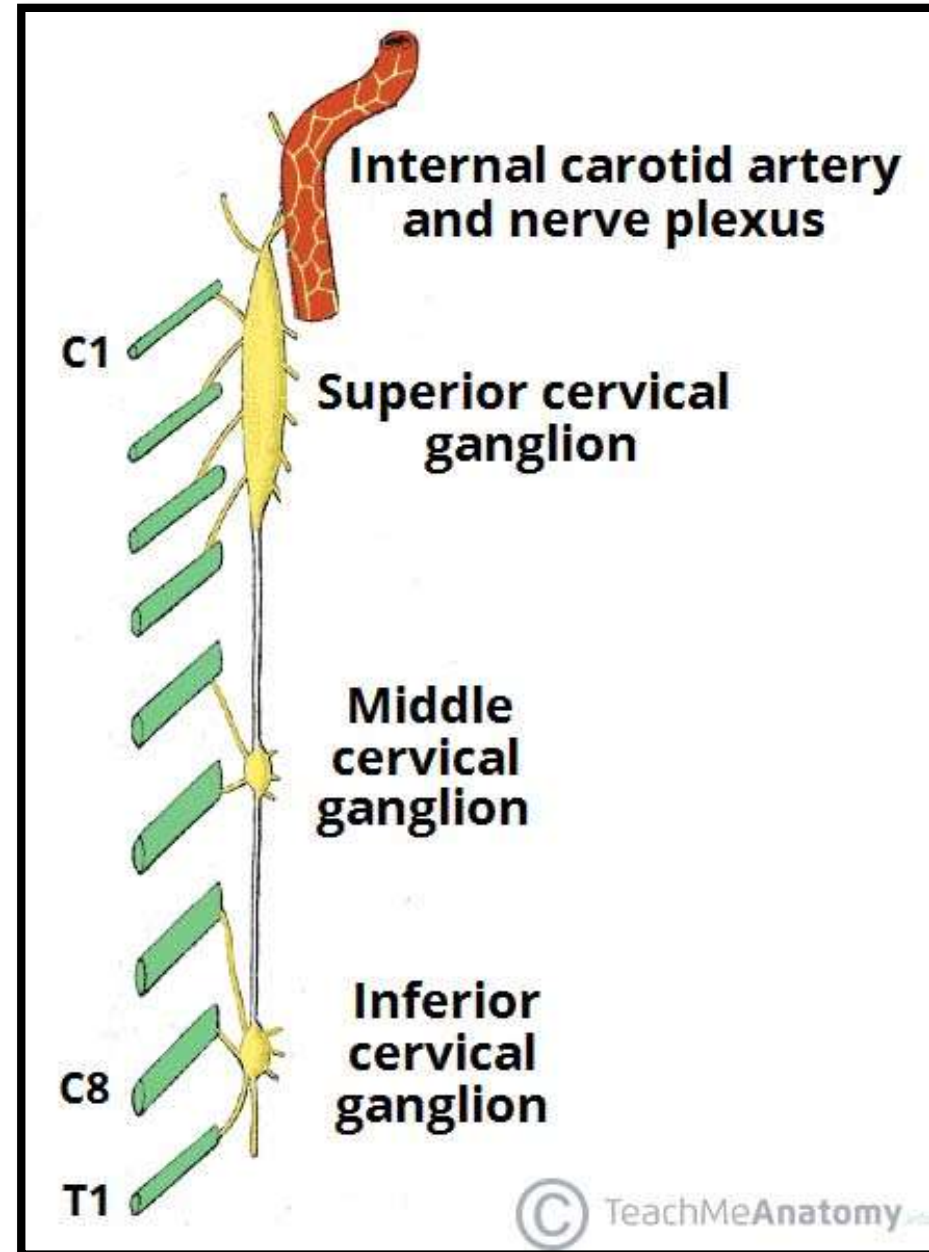
- Sometimes, inferior cervical and first thoracic sympathetic ganglion are fused to form a **cervico-thoracic** ganglion.



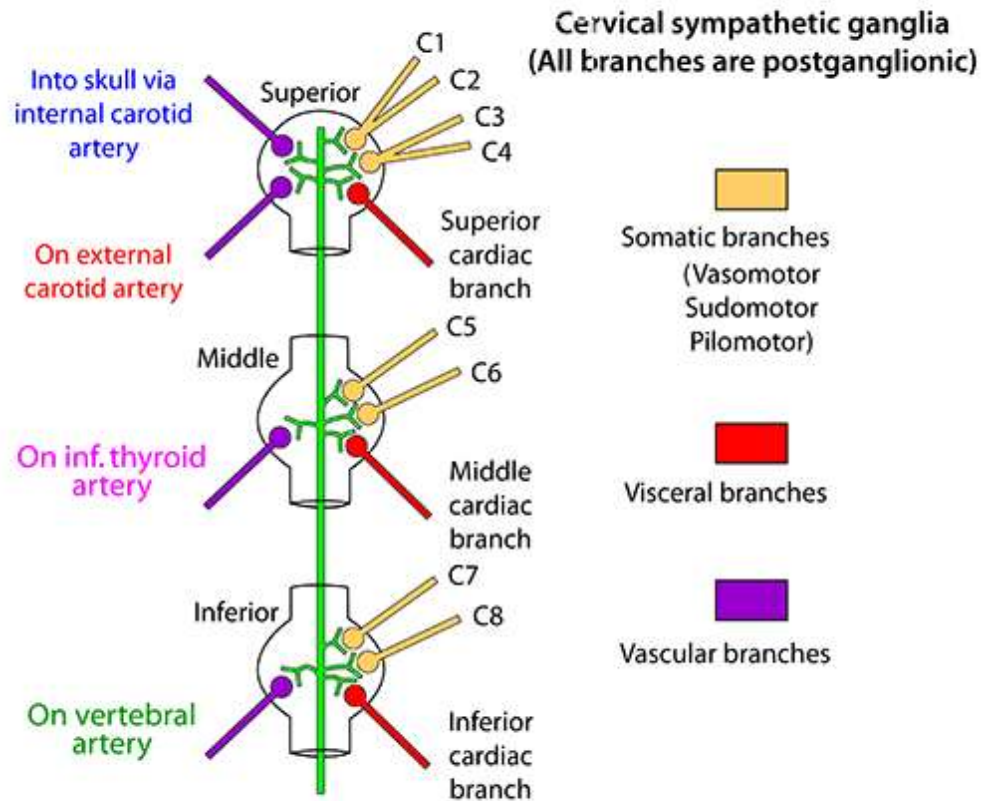


# Sympathetic Trunks In The Neck contd...

- ❖ Initially the number of cervical sympathetic ganglia corresponds with the number of spinal nerves.
- Later, upper 4 cervical ganglia fuse to form **superior cervical ganglion**.
- 5<sup>th</sup> & 6<sup>th</sup> cervical ganglia fuse to form **middle cervical ganglion**.
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## CONNECTIONS OF SYMPATHETIC CHAIN IN NECK



**On internal carotid artery for:**

Vasoconstriction of its branches

Dilator of the pupil

Levator palpebrae superioris

**On external carotid artery for:**

Somatic to skin

Visceral to glands

**On inferior thyroid artery for:**

Visceral to lower larynx, trachea, hypopharynx, oesophagus

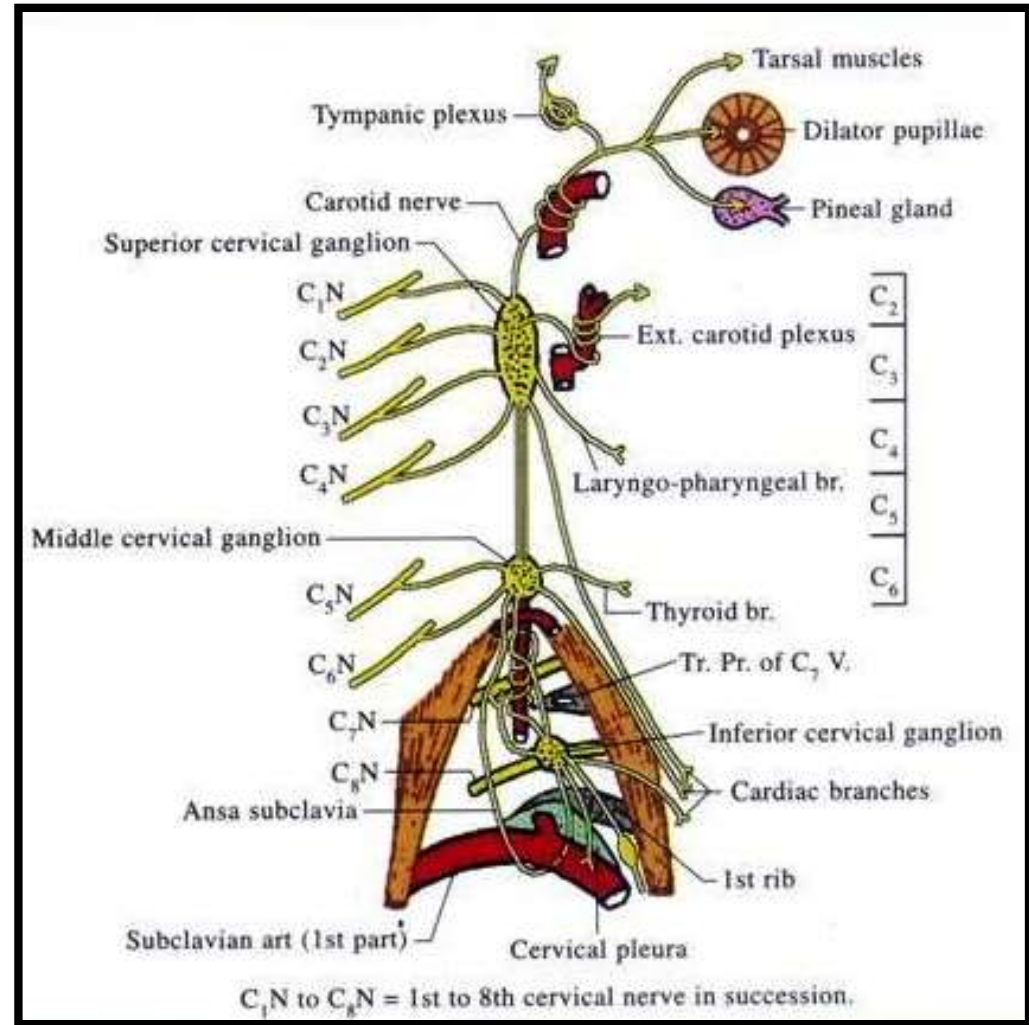
**On vertebral artery for:**

Vasoconstriction of its branches only

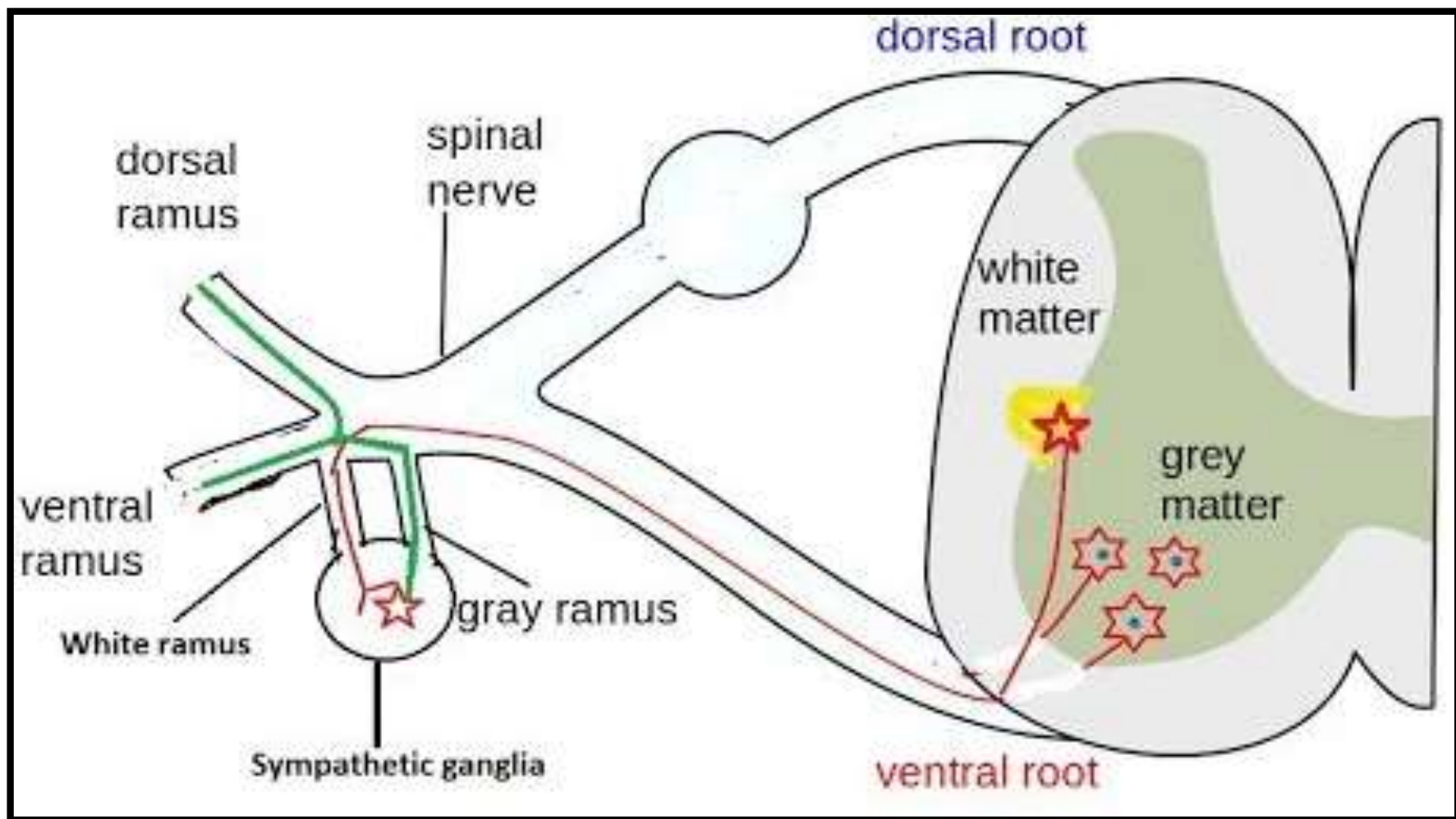
# Cervical Part Of Sympathetic Trunk Contd...

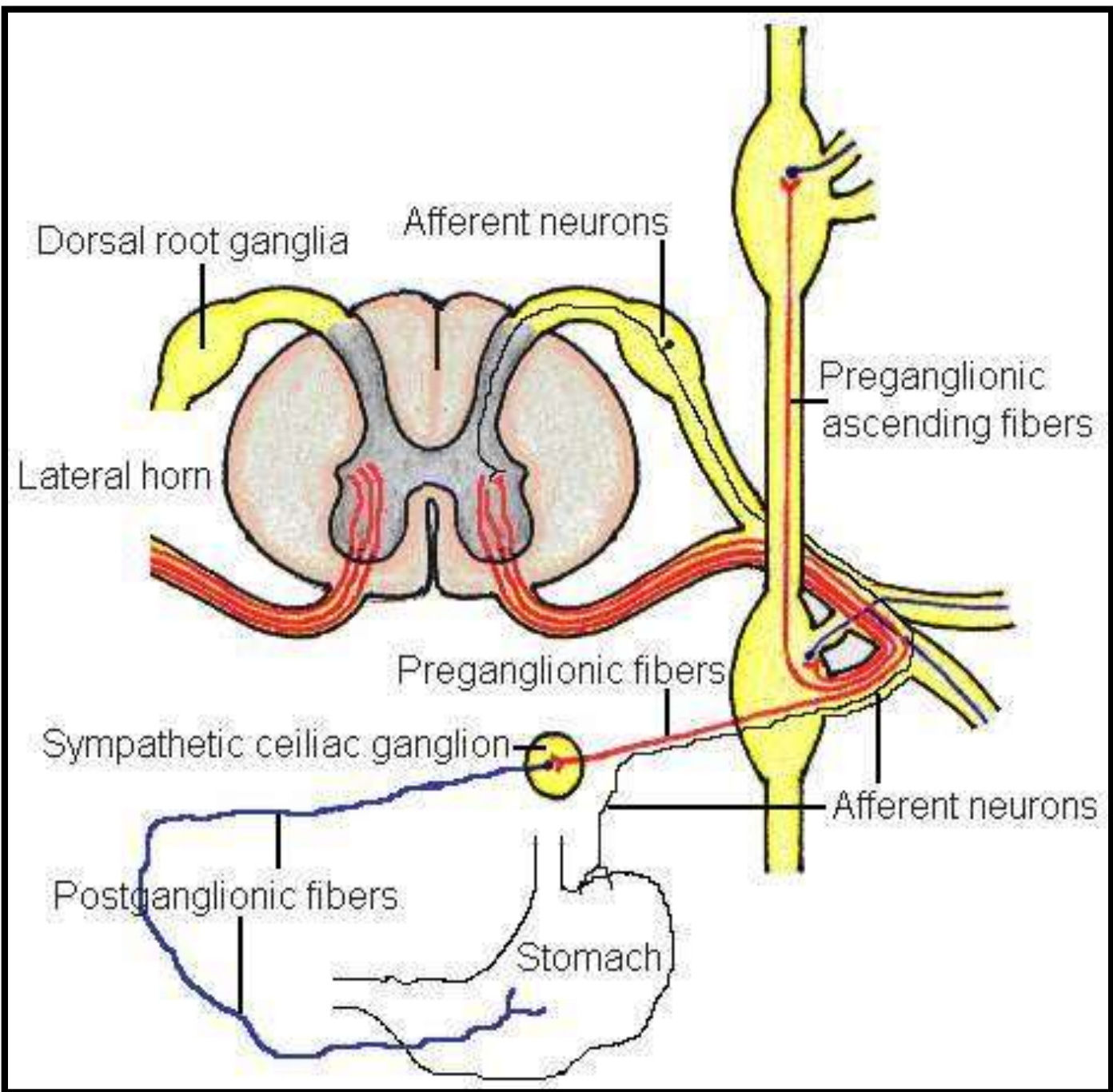
- Cervical part of the trunk does not receive pre-ganglionic fibres through **white rami communicantes** from the cervical segments of the spinal cord.

- Each cervical sympathetic trunk gives post-ganglionic fibres via **grey rami communicantes** to each of the 8th cervical



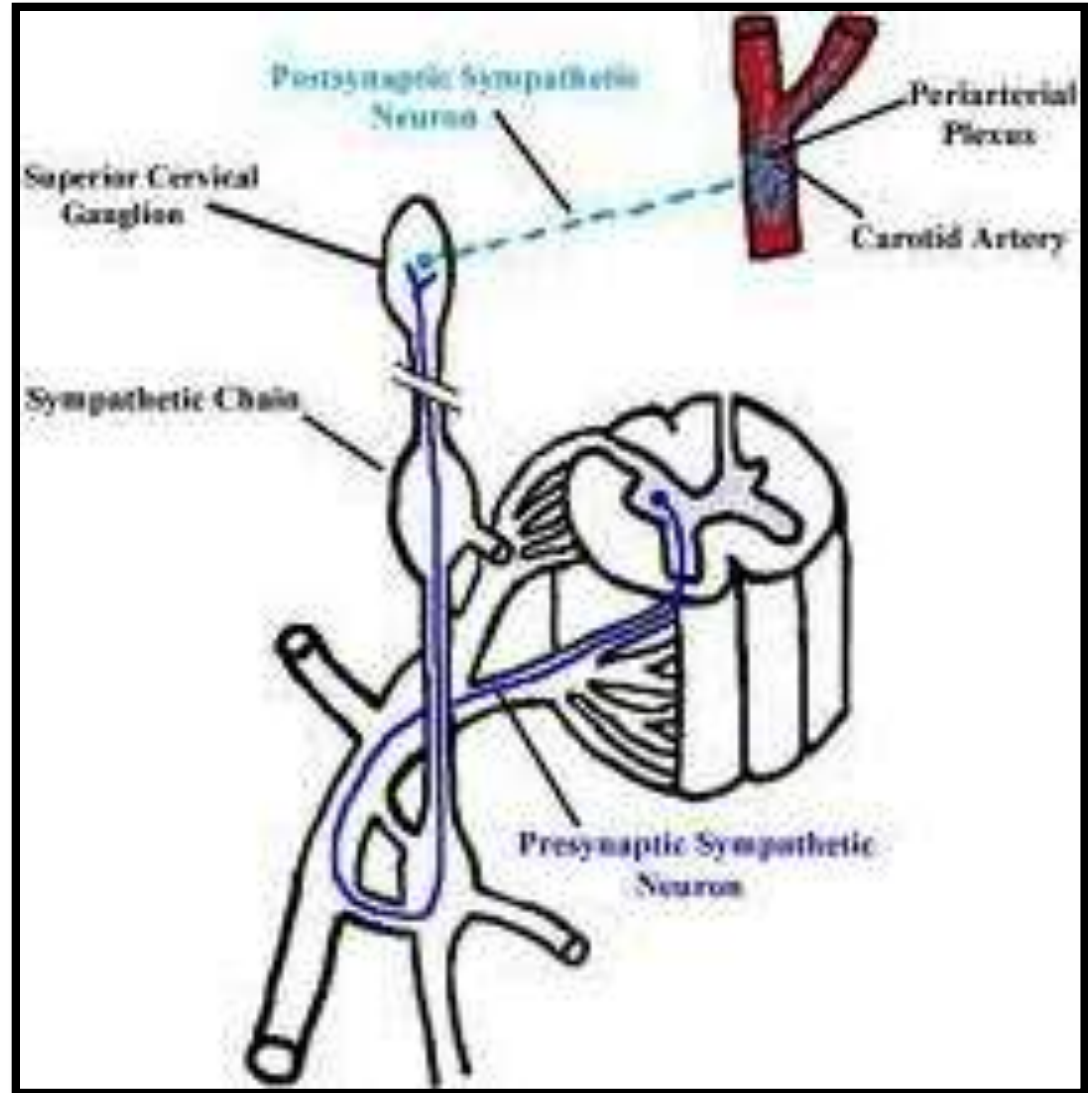






# Cervical Part Of Sympathetic Trunk Contd...

- All pre-ganglionic fibres for the cervical sympathetic trunk are derived from lateral horn cells of **T1-T5** segments of spinal cord.
- These preganglionic fibres ascend through the trunk and finally relayed in 3 cervical sympathetic ganglia.



# Superior Cervical Ganglion

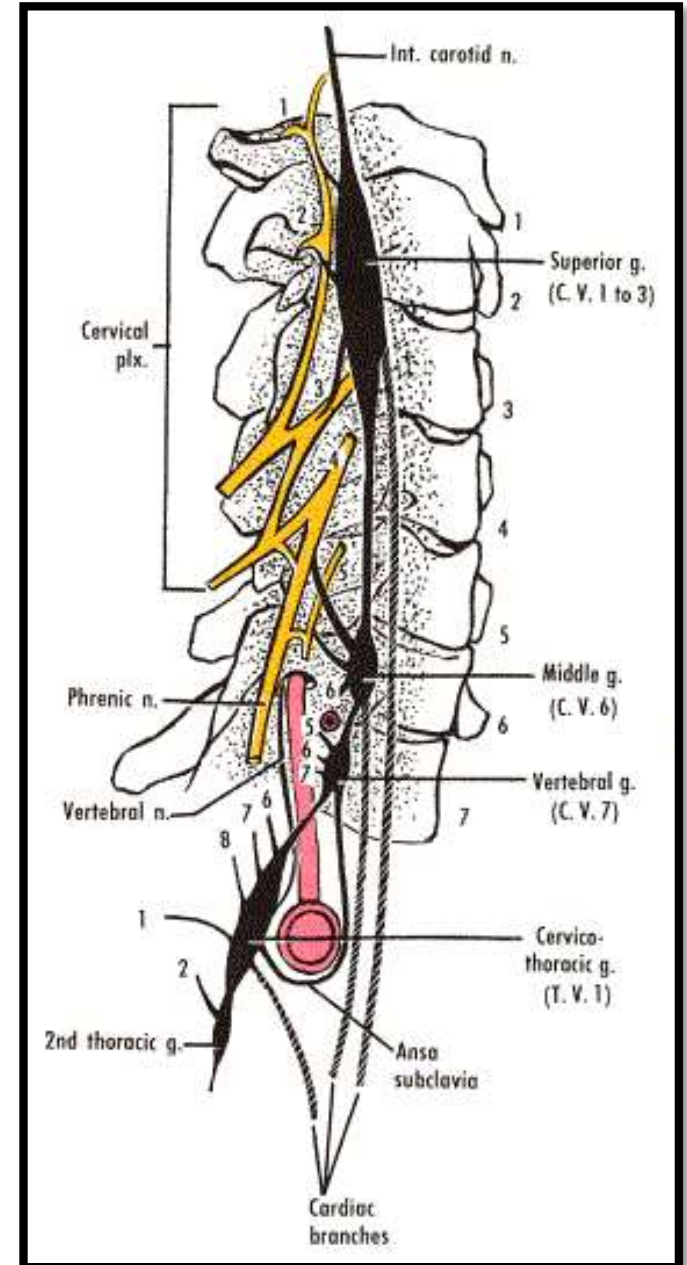
- **Largest** of the cervical sympathetic ganglia.
- Formed by the fusion of **upper 4 cervical sympathetic ganglia**.

**SHAPE**- Fusiform (spindle).

**LENGTH**- ~2.5 cm.

**LOCATION**-

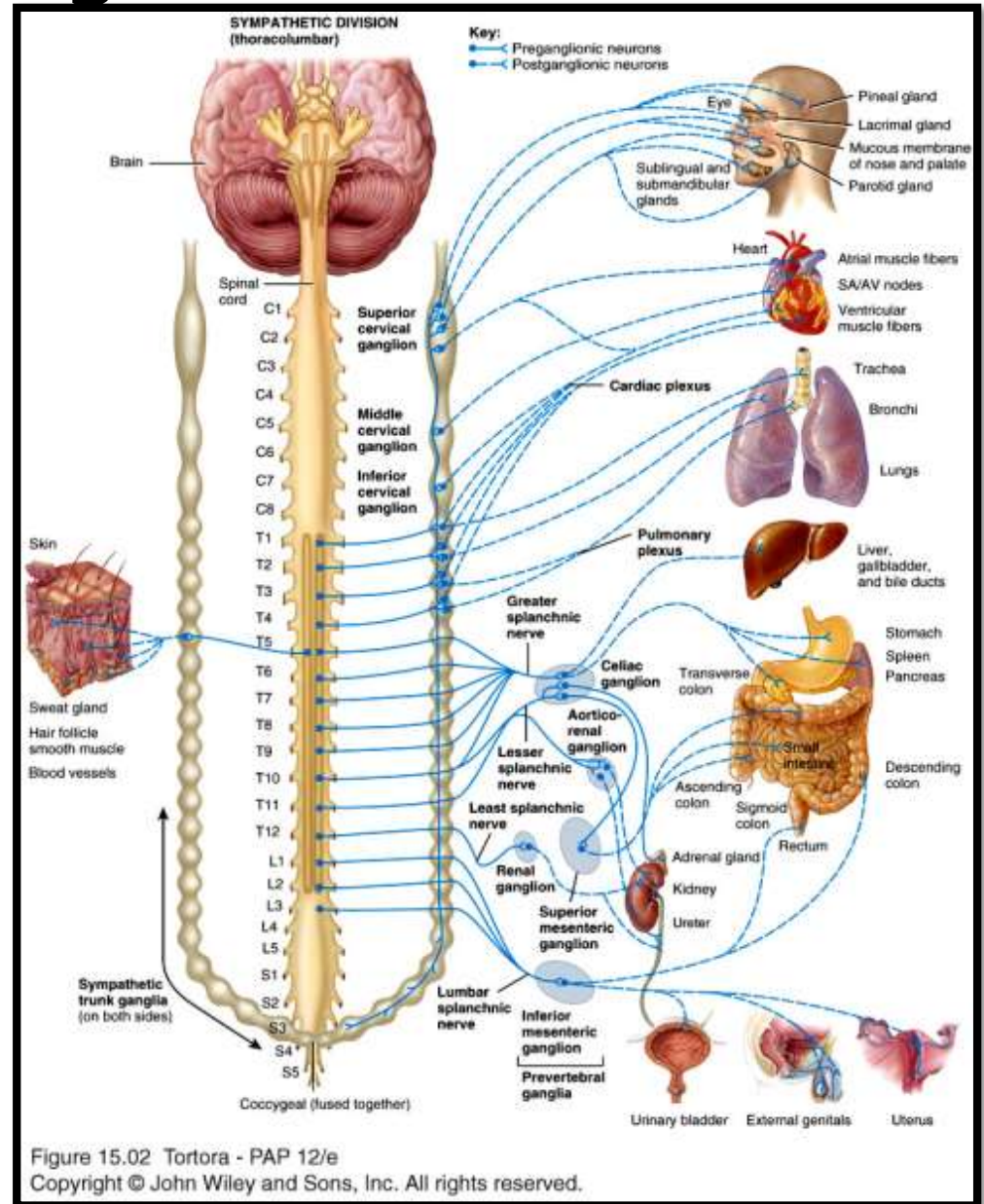
- In front of transverse processes of C2 & C3 vertebrae.





# Superior Cervical Ganglion

- It receives pre-ganglionic fibres mostly from upper 3 thoracic segments of spinal cord.



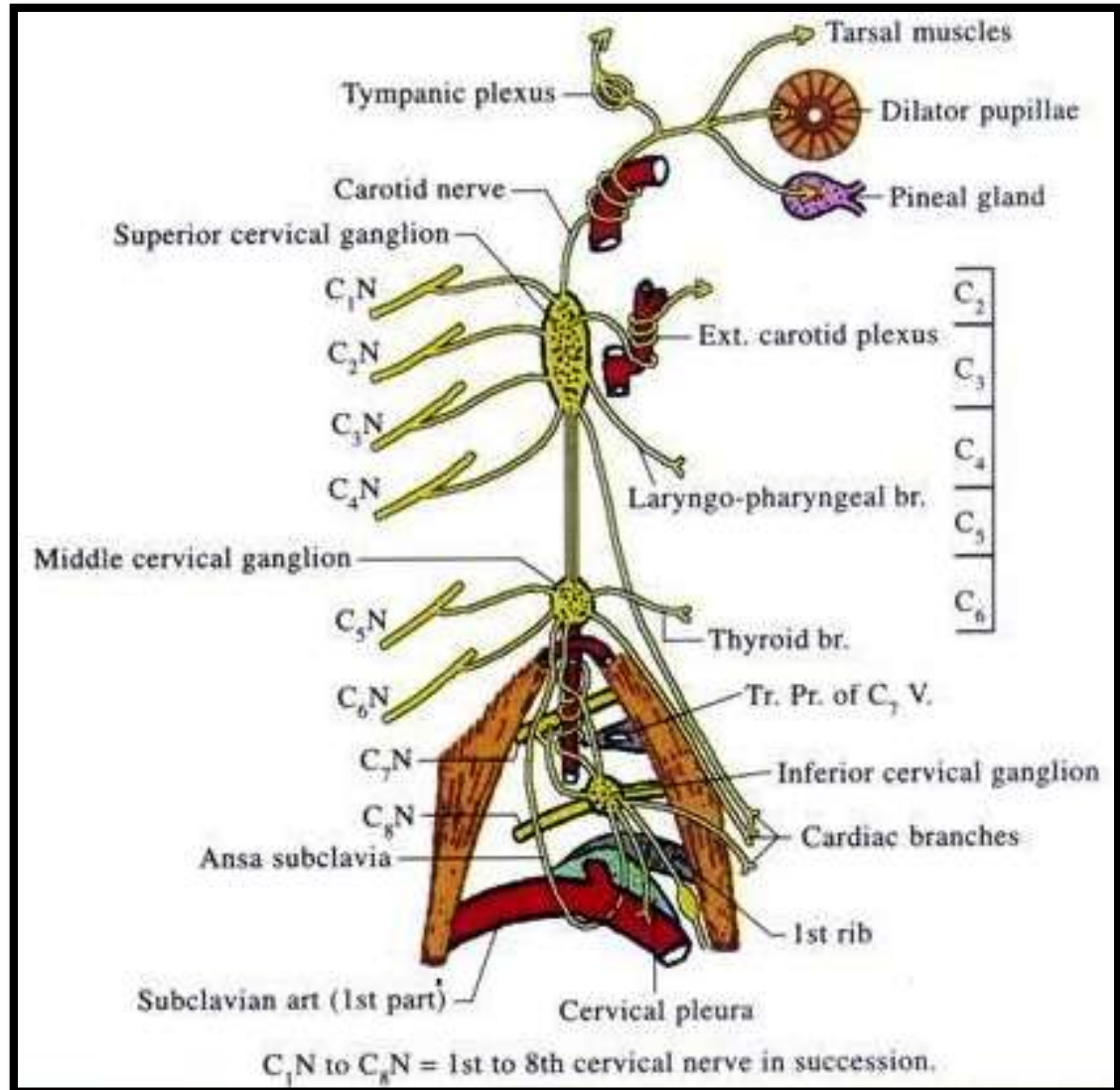


# Branches Of Superior Cervical Ganglion

❖ Divided into following groups:-

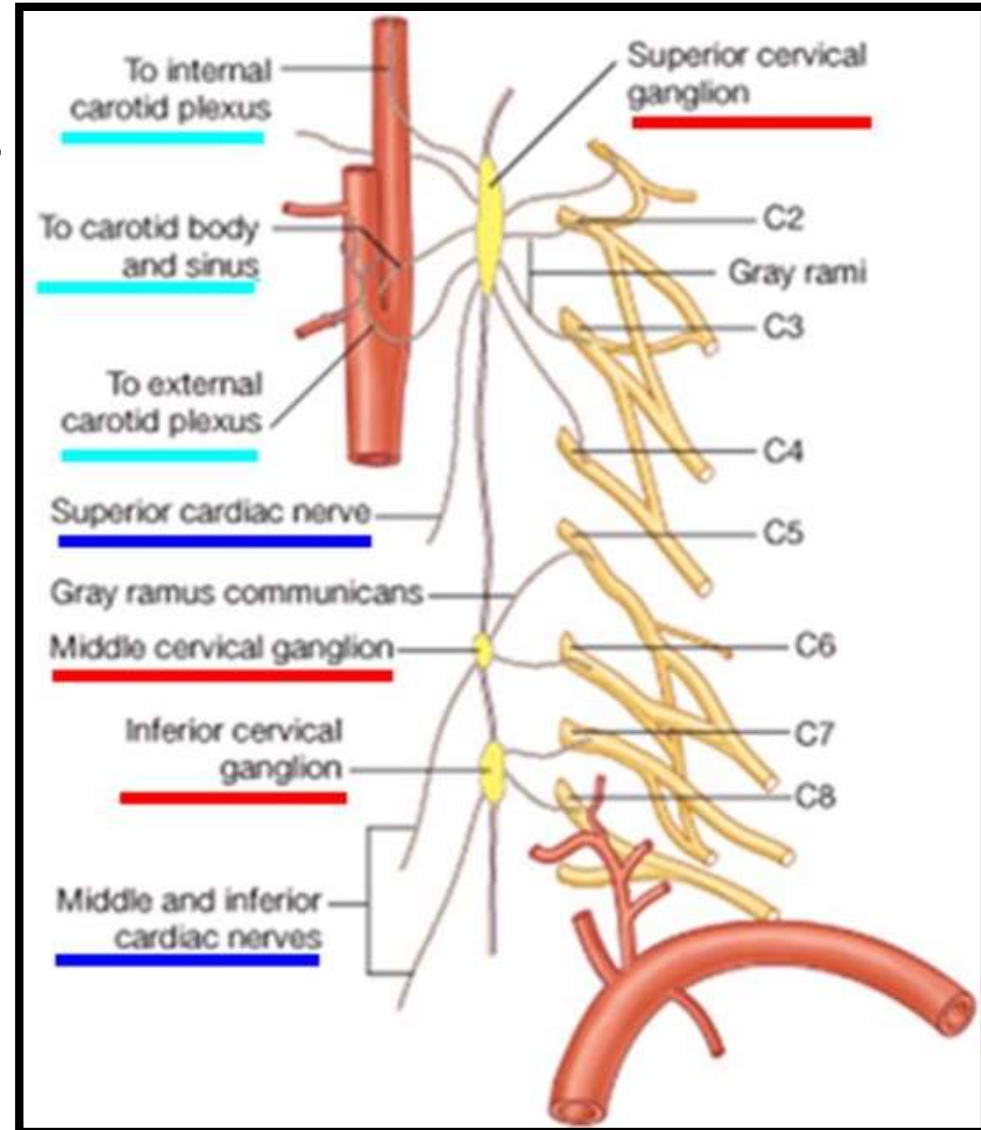
- Lateral.
- Medial.
- Anterior.
- Ascending.

❖ All branches convey post-ganglionic fibres and some sensory fibres from the target organs.



# Lateral Branches Of Superior Cervical Ganglion

- These are **grey rami communicans** to upper 4 cervical nerves.



# Medial Branches Of Superior Cervical Ganglion

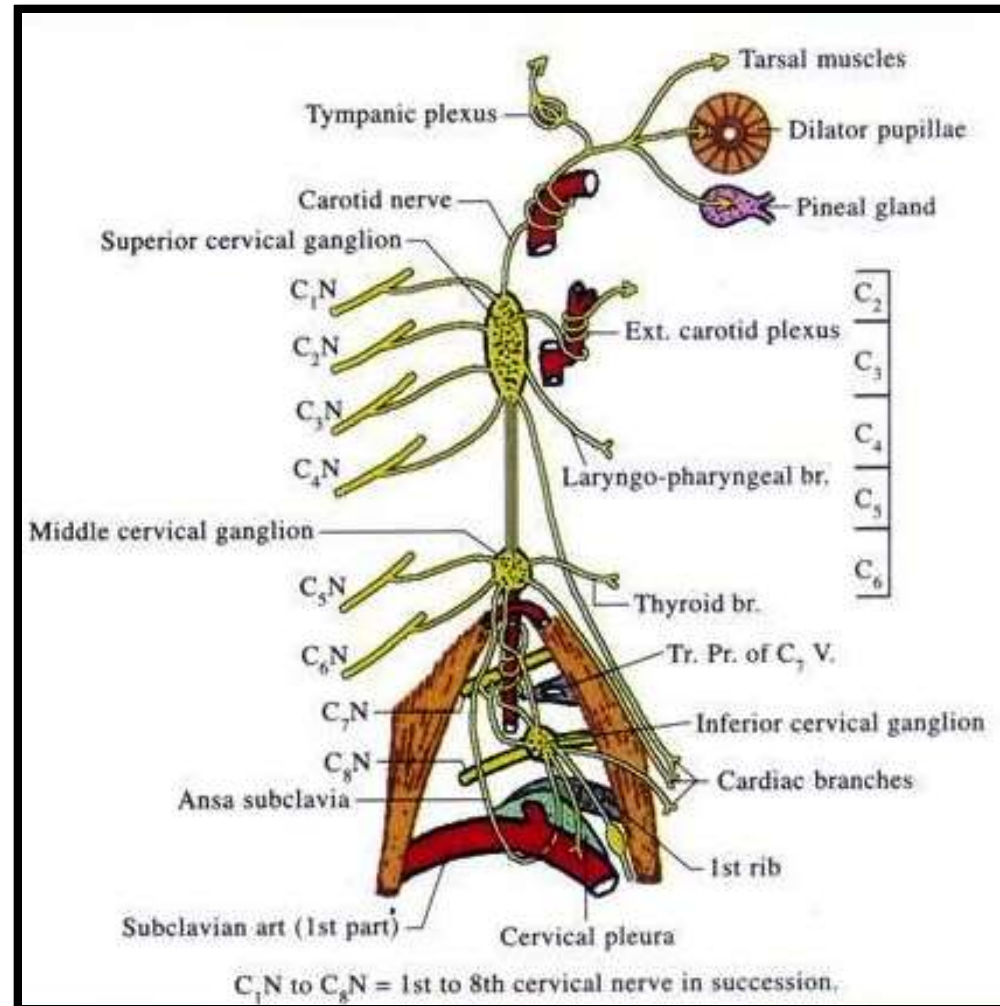
- Laryngo-pharyngeal branches.
- Cardiac branch.

## Laryngo-pharyngeal branches-

- Supply Carotid body.
- Form pharyngeal plexus with 9<sup>th</sup> & 10<sup>th</sup> nerves.

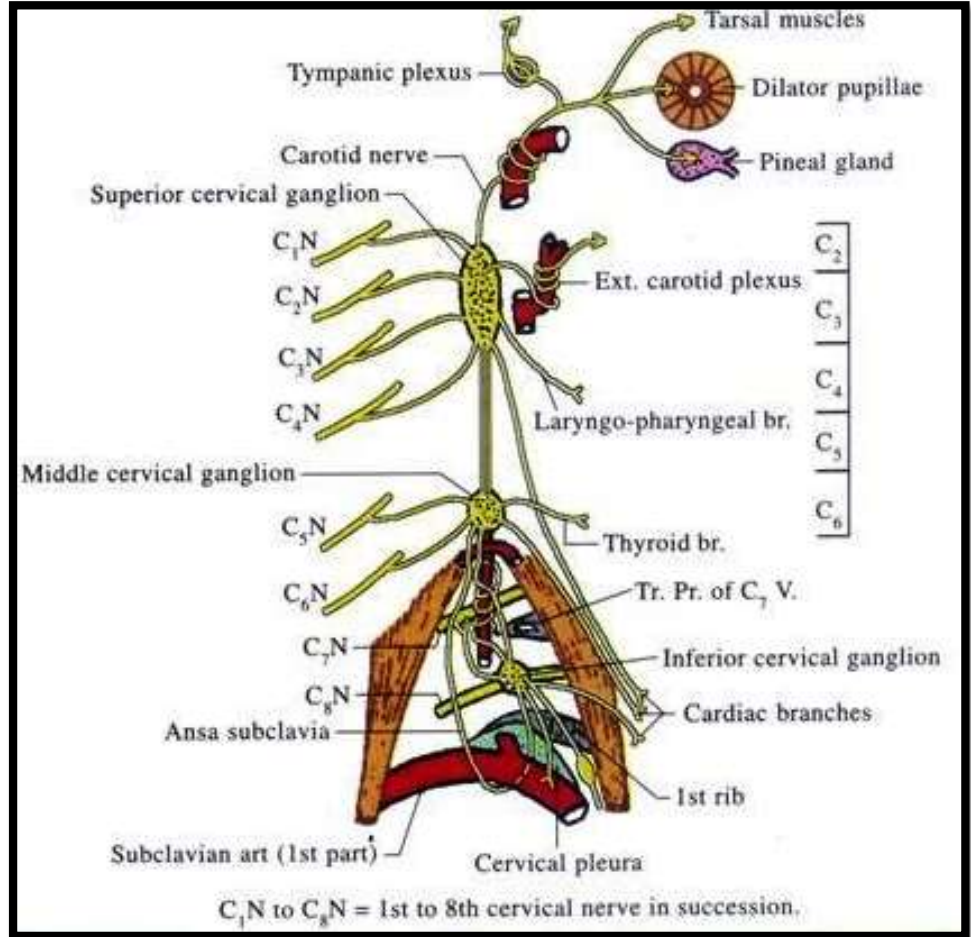
## Cardiac branch-

- Right cardiac branch joins with the **deep** cardiac plexus.
- Left cardiac branch joins



# Anterior Branches Of Superior Cervical Ganglion

- These ramify around **common carotid artery**, **external carotid artery** and its branches.
- Sympathetic plexus around **facial artery** gives a filament to the **submandibular ganglion**.
- Sympathetic plexus around **middle meningeal artery** gives a filament to the **otic ganglion** and another filament to the **genicular ganglion** of facial nerve as



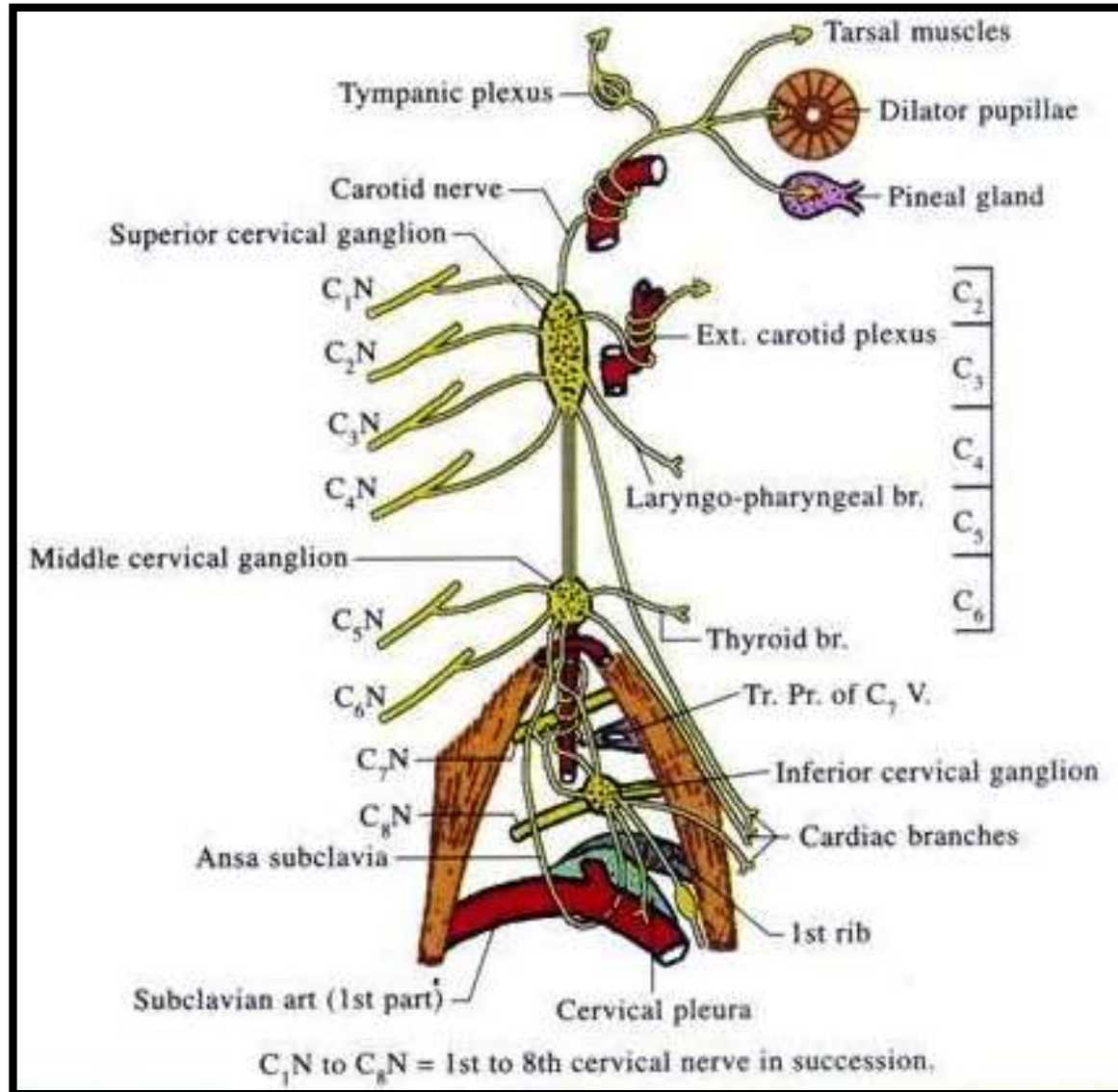


# Ascending Branches Of Superior Cervical Ganglion

## INTERNAL CAROTID NERVE-

### Branches of Sympathetic Plexus around Internal Carotid Artery-

- Carotido-tympanic nerves.
- Deep petrosal nerve.
- Nervus conarii- supply pineal gland.
- Communicating branches- to trigeminal ganglion, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> & 6<sup>th</sup> cranial nerves.



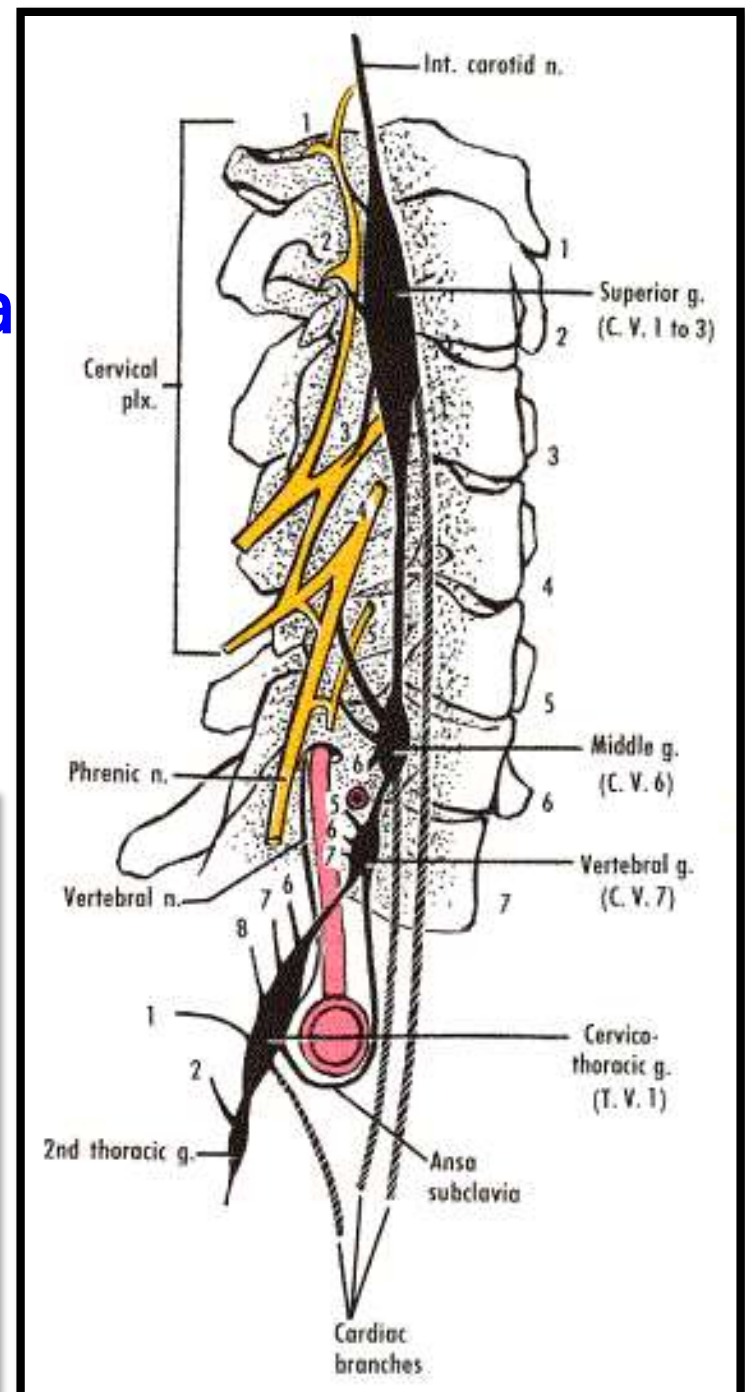
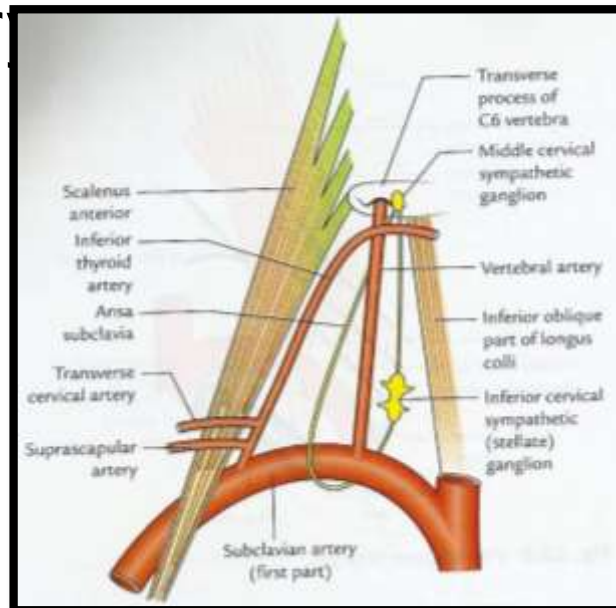


# Middle Cervical Ganglion

- Formed by the fusion of 5<sup>th</sup> & 6<sup>th</sup> cervical sympathetic ganglia

## LOCATION-

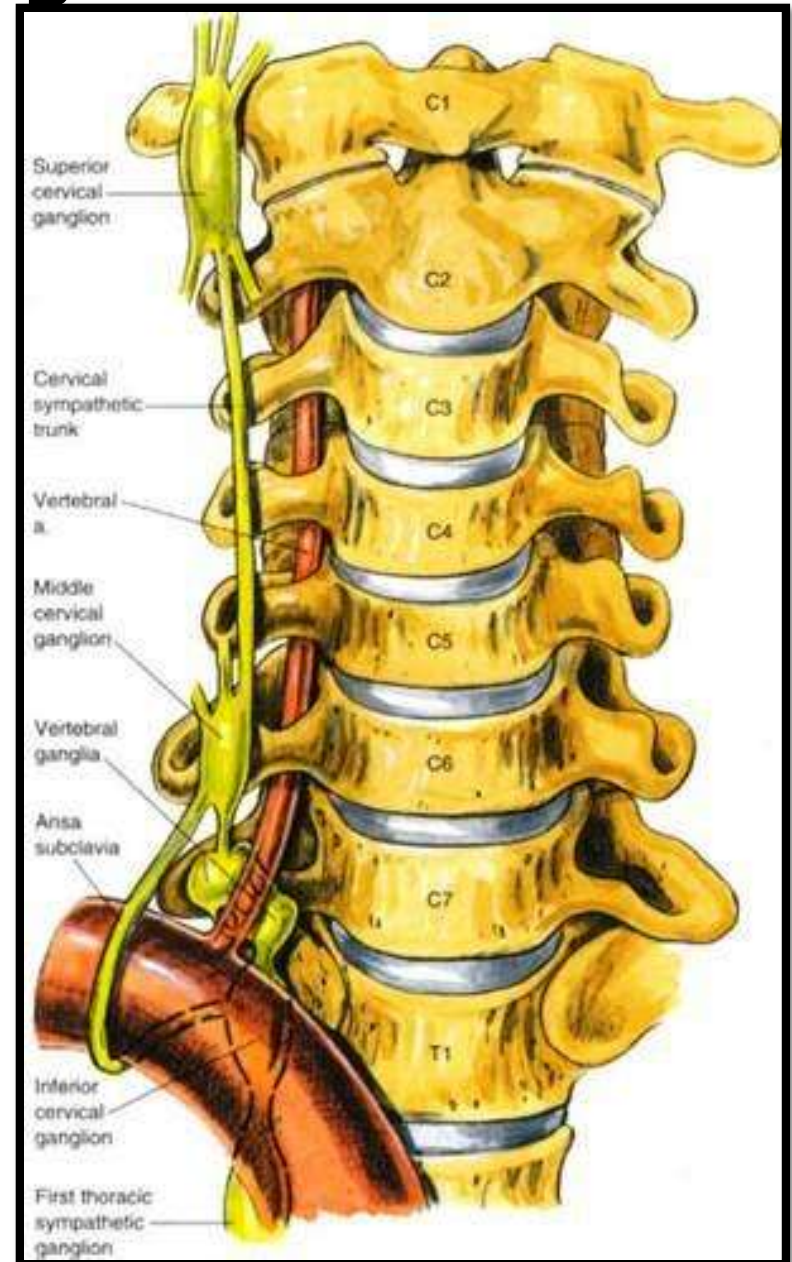
- In front of transverse process of 6<sup>th</sup> cervical vertebra.
- Just above the loop of inferior thyroid artery



# Middle Cervical Ganglion Contd..

## COMMUNICATIONS-

- Connected with inferior cervical ganglion by **ansa subclavia**.
- Ansa subclavia loops in front and below the first part of subclavian artery.



# Branches Of Middle Cervical Ganglion

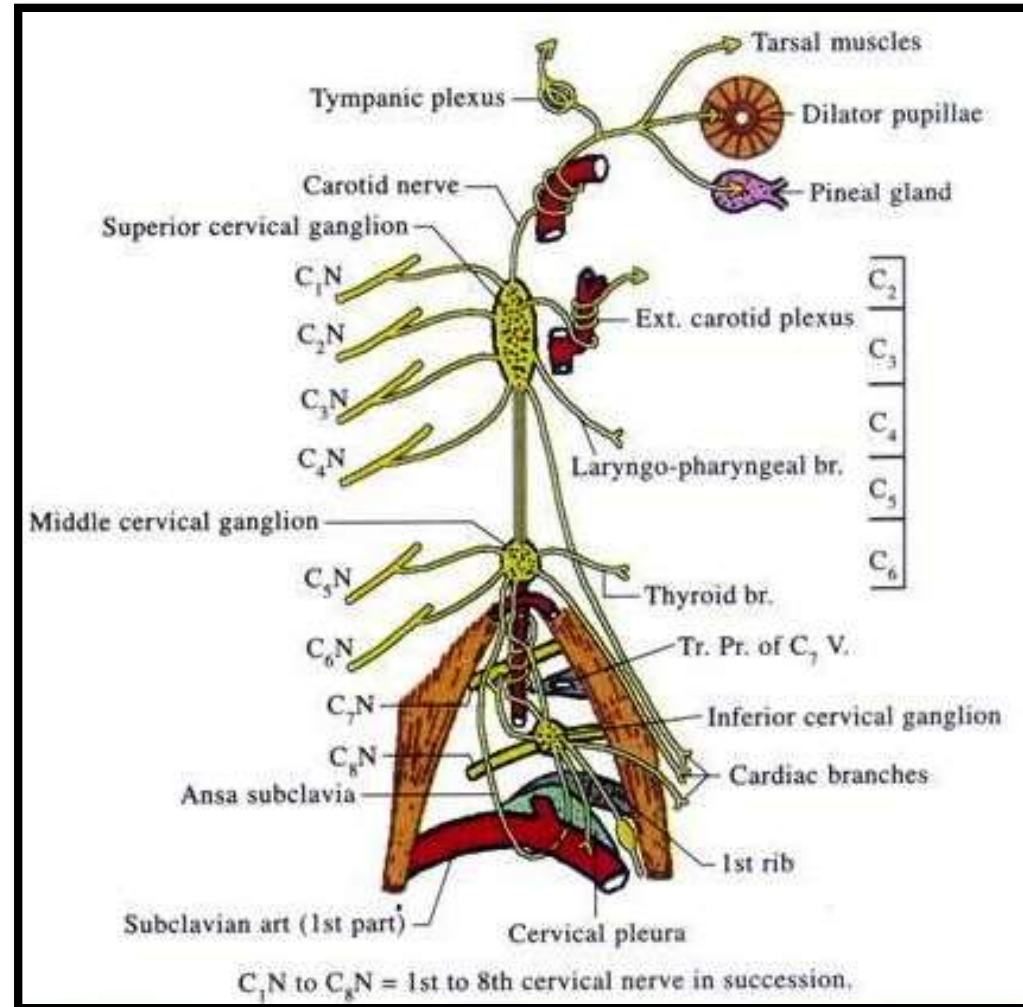
- Lateral.
- Medial.

## Lateral branches-

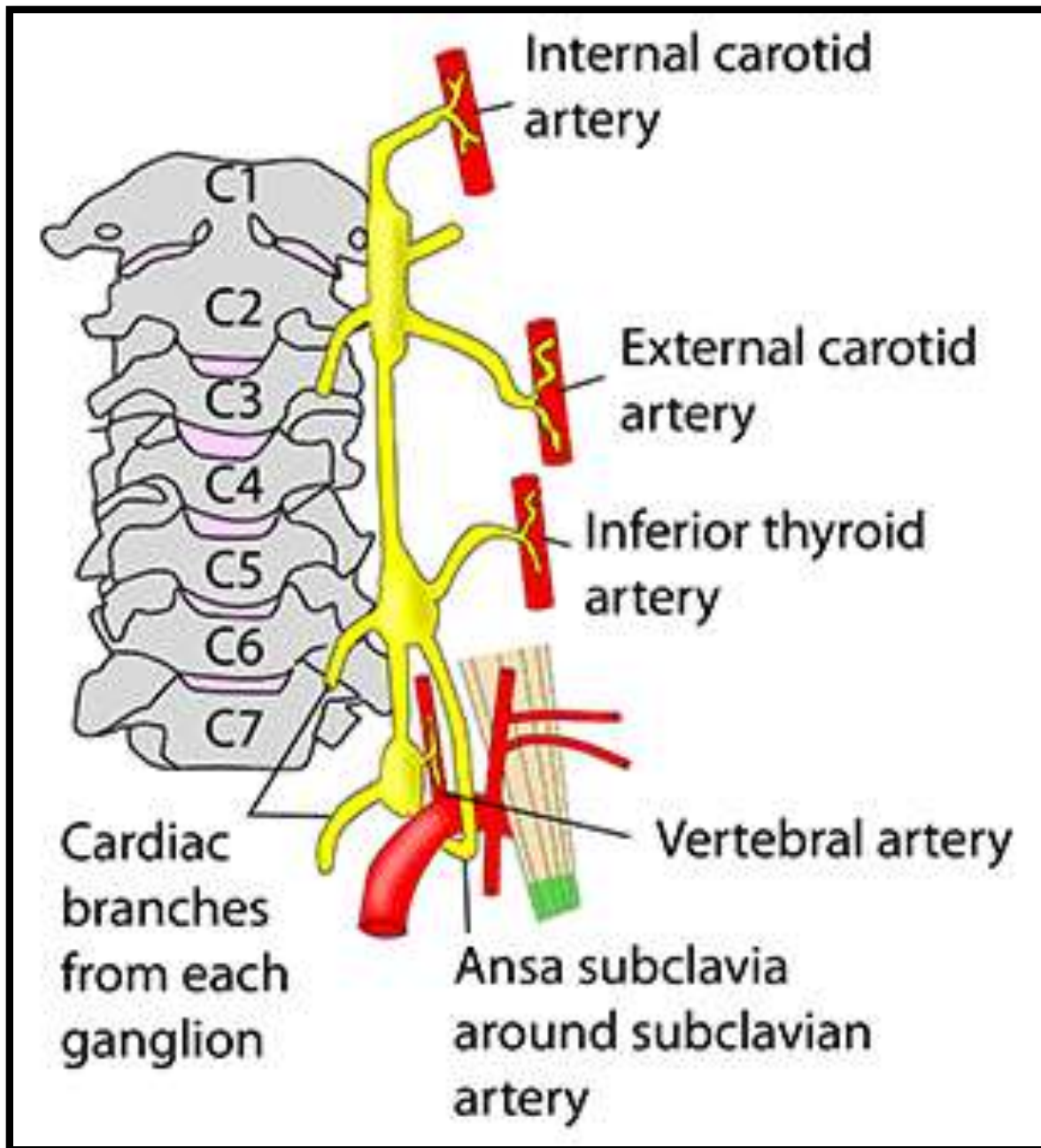
- These are grey rami communicans to 5<sup>th</sup> & 6<sup>th</sup> spinal nerves.

## Medial branches-

- Thyroid branches.
- Cardiac branches.





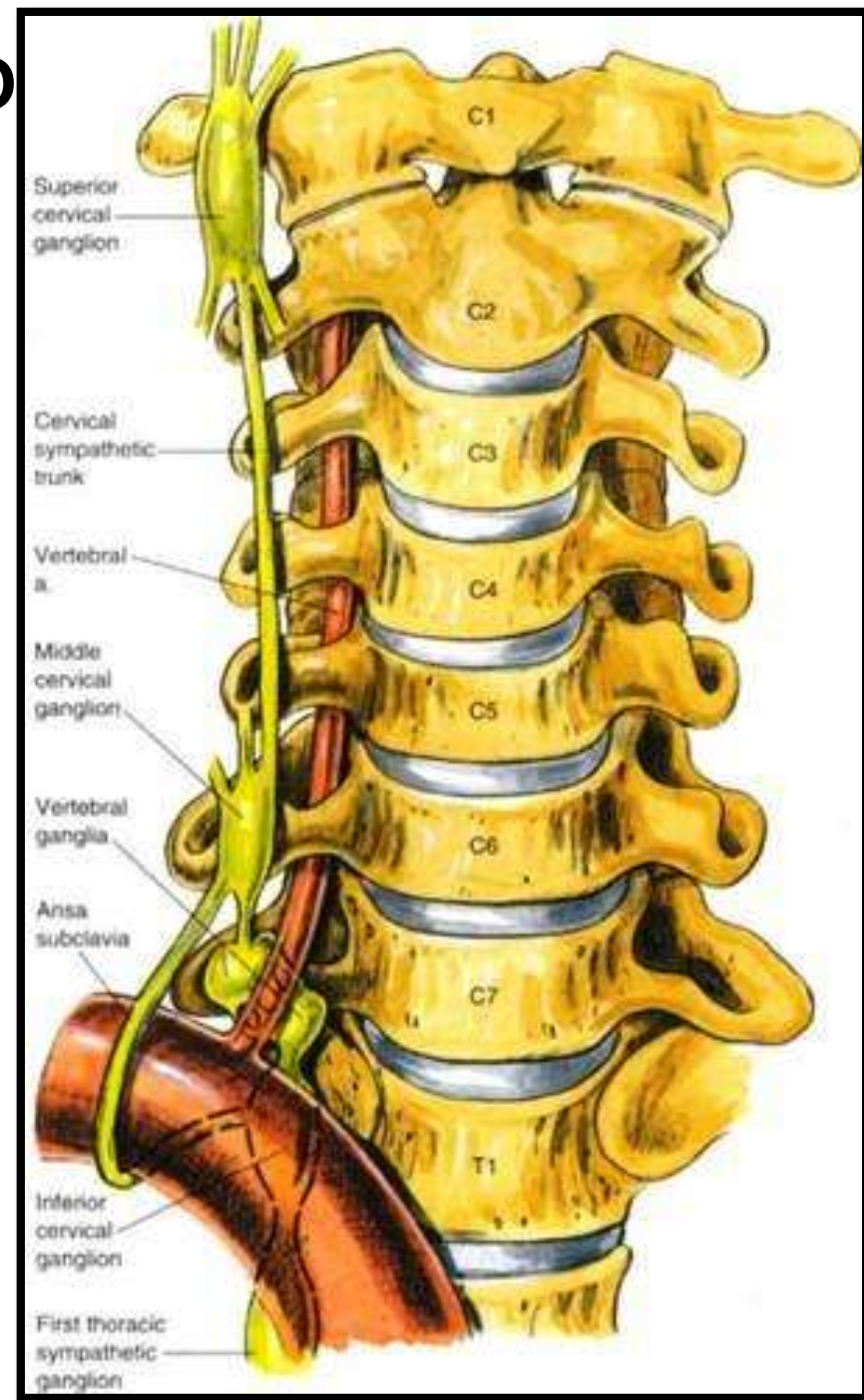


# Inferior Cervical Ganglion

- Formed by the fusion of 7<sup>th</sup> & 8<sup>th</sup> cervical ganglia.

## LOCATION-

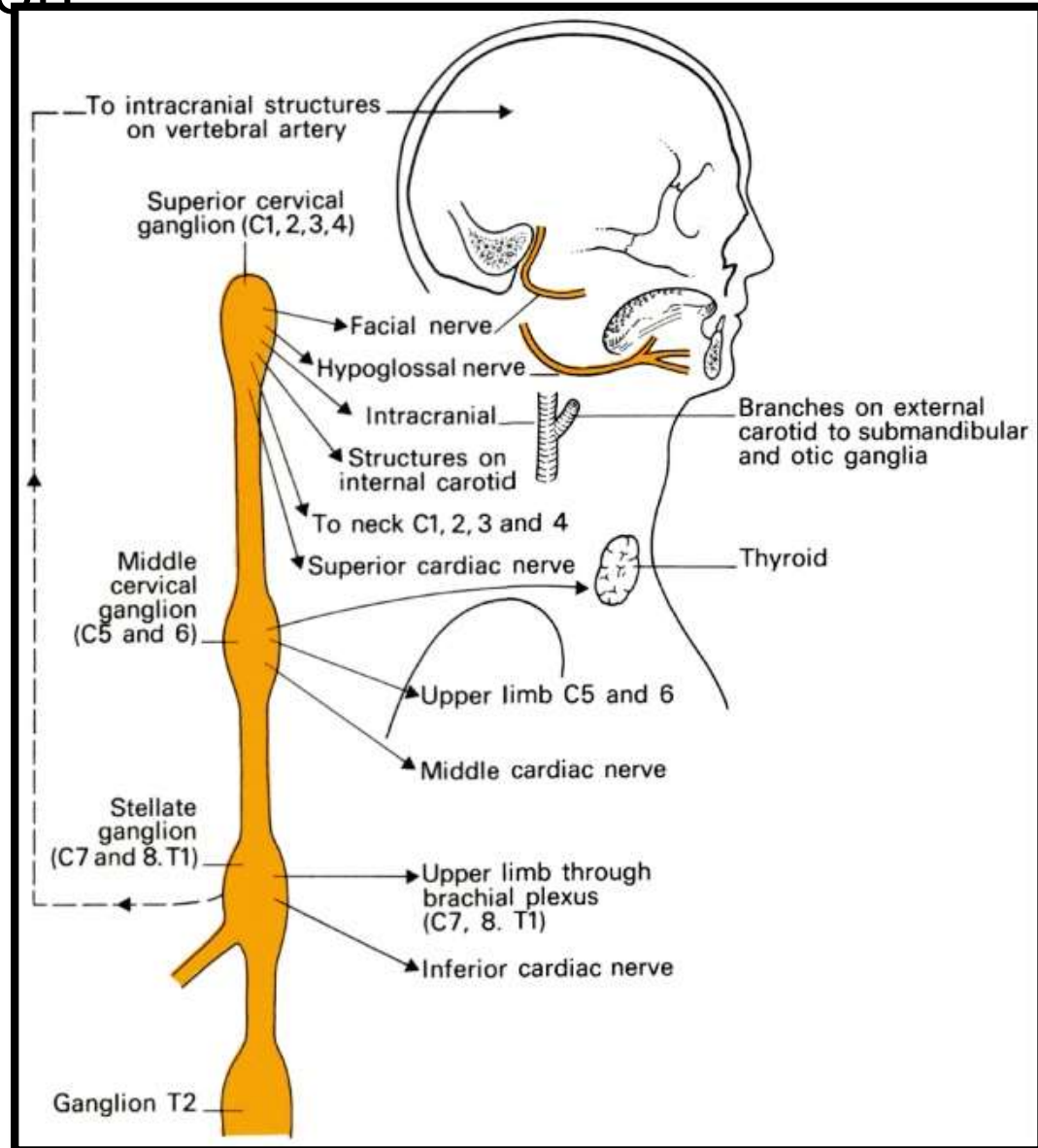
- Between transverse process of C7 vertebra and neck of 1<sup>st</sup> rib.





# Inferior Cervical Ganglion Contd...

- Sometimes this ganglion joins with the first thoracic sympathetic ganglion to form **cervico-thoracic** or **stellate** ganglion.



# Branches Of Inferior Cervical Ganglion

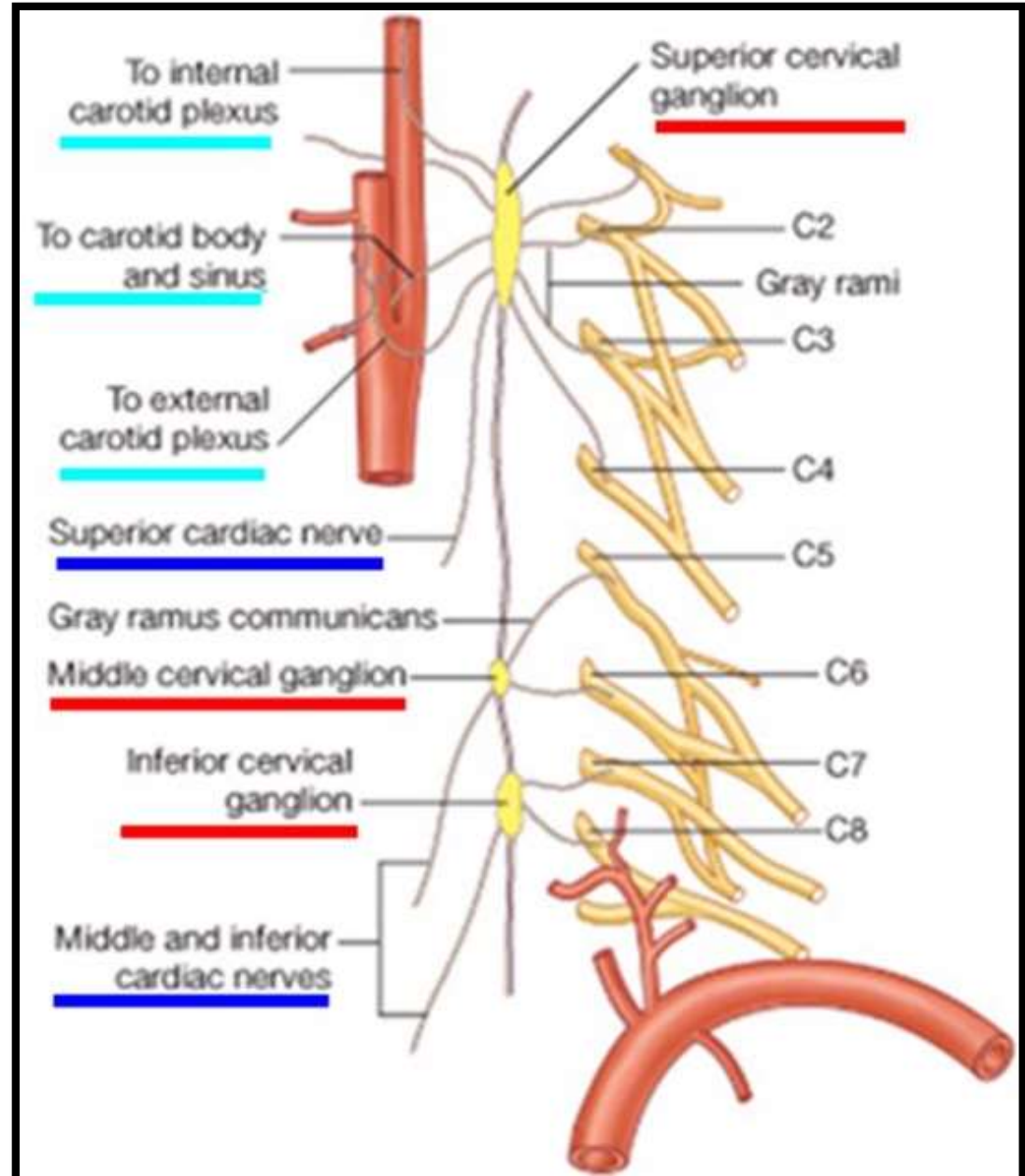
- Grey rami communicans.
- Cardiac branches.
- Vascular branches.

## Grey Rami Communicans-

- To C7 & C8 cervical spinal nerves.

## Vascular Branches-

- Form plexuses around **subclavian artery**, 1<sup>st</sup> part of **axillary artery** and **vertebral artery**.



# Applied Anatomy

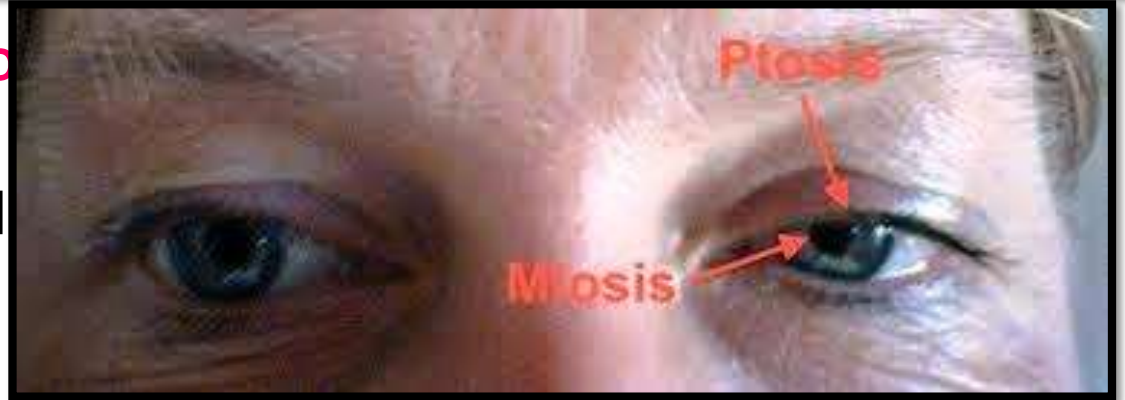
## HORNER'S SYNDROME-

- A lesion affecting the pre-ganglionic fibres from T1 & T2 segments of spinal cord.



## Clinical Features-

- Constriction of pupil (miosis).
- Drooping of upper eyelid (ptosis).
- **Enophthalmos.**
- Absence of sweating on affected half of face and head (anhidrosis).



- Loss of cilio-spinal reflex

*Thank  
you*

