

# Cervical plexus

- The **anterior rami of C1-C4** make up the roots of the cervical plexus
- Consists of an irregular series of (primary) nerve loops and the branches that arise from the loops.
- Each participating ramus, **except the first**, divides into ascending and descending branches that unite with the branches of the adjacent spinal nerve to form the loops.

## Relations

1. Anteromedial to the levator scapulae and middle scalene muscles
2. Deep to the SCM.

- The superficial branches of the plexus that initially pass posteriorly are cutaneous (sensory) branches

- The deep branches passing anteromedially are motor branches

Including the roots of the phrenic nerve (to the diaphragm) and the ansa cervicalis

## Ansa cervicalis

### Superior root :

Conveying fibers **from spinal nerves C1 and C2**, briefly joins and then descends from the hypoglossal nerve (CN XII) as it traverses the lateral cervical region

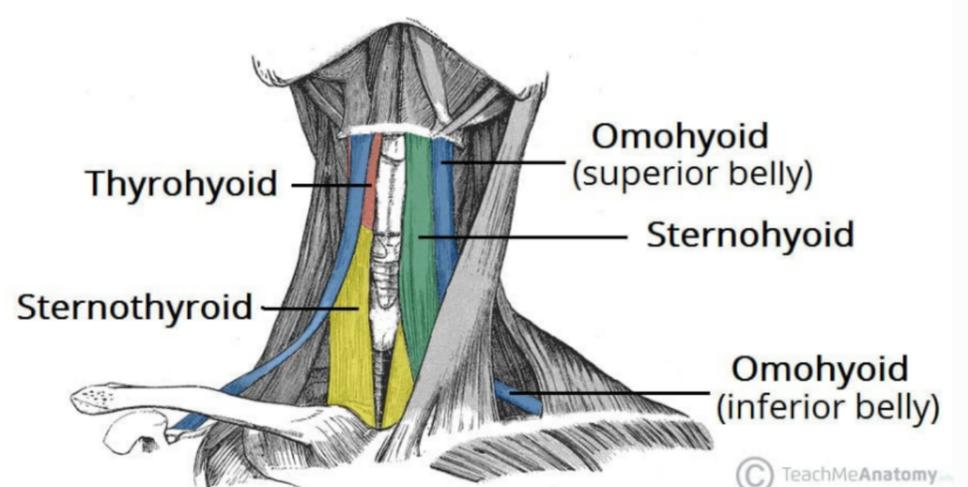
### The inferior root

**Arises from a loop between spinal nerves C2 and C3.**

- The superior and inferior roots of the ansa cervicalis **unite, forming a secondary loop** → consisting of fibers from the C1-C3 spinal nerves

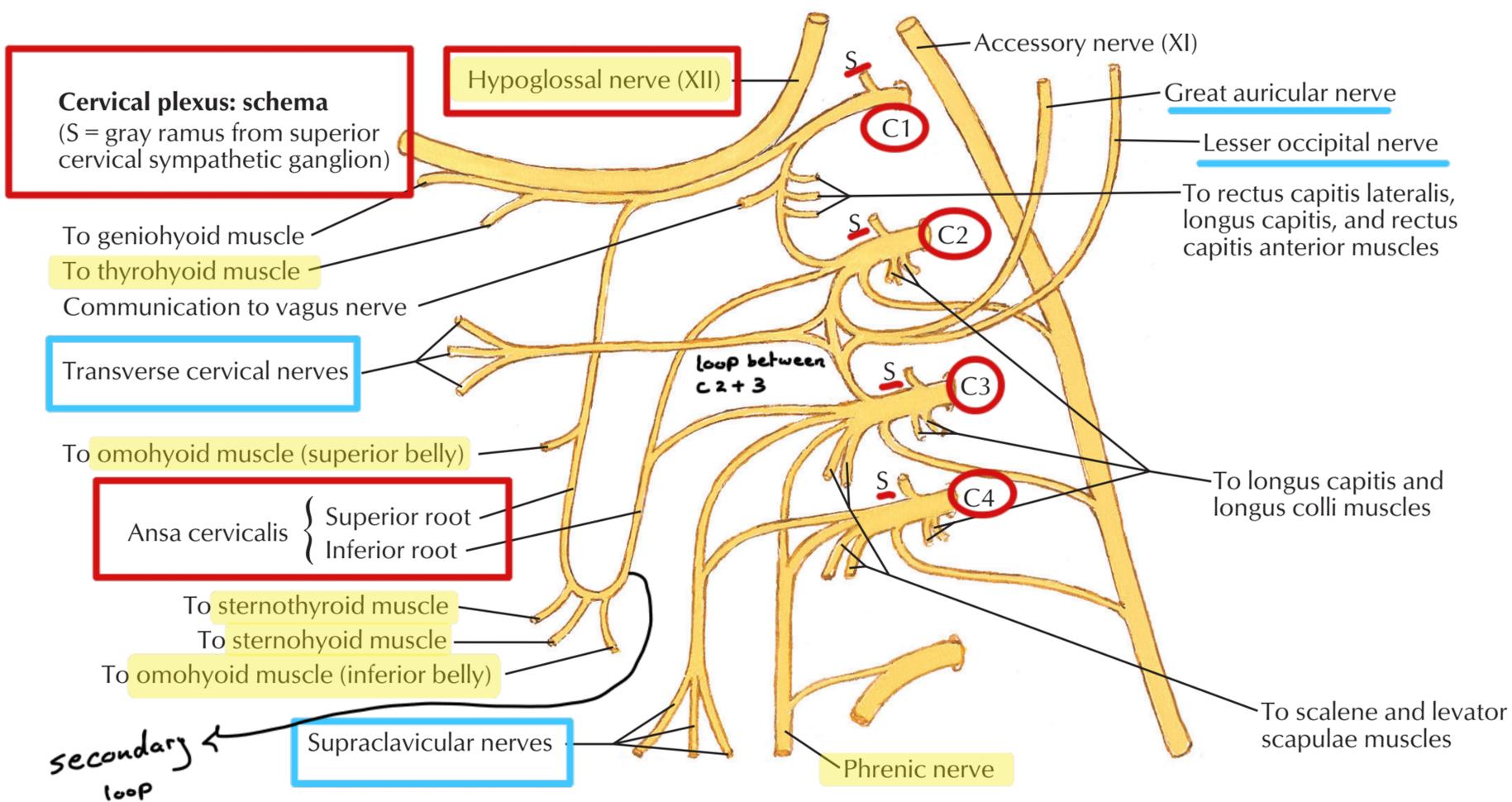
Branches from the secondary loop to supply

- **Infrahyoid muscles** Motor
  - Omohyoid
  - Sternothyroid
  - Sternohyoid

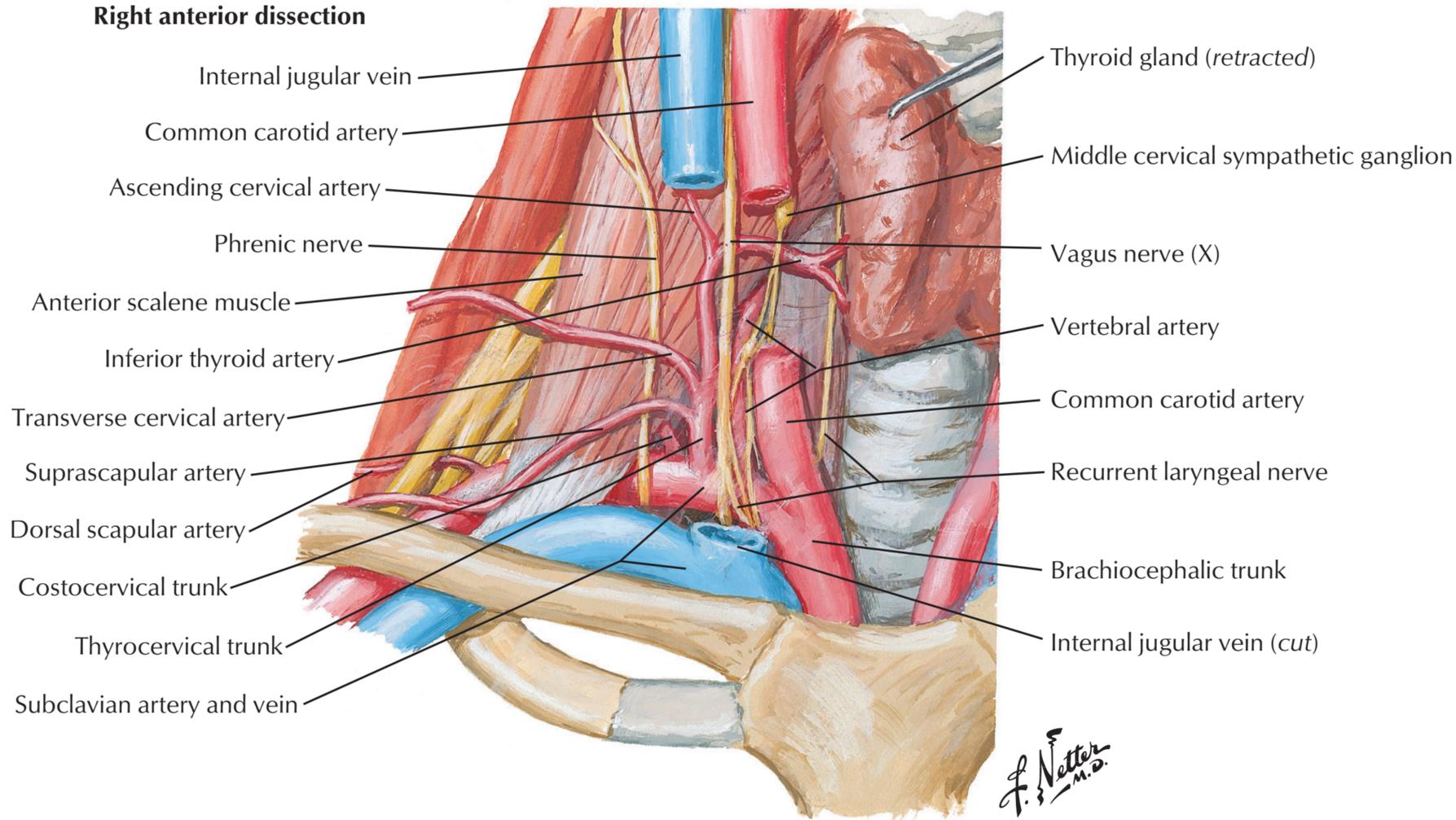


### Thyrohyoid :

**Receives C1 fibers** → which descend independently from the hypoglossal nerve, distal to the superior root of the ansa cervicalis (**nerve to thyrohyoid**)

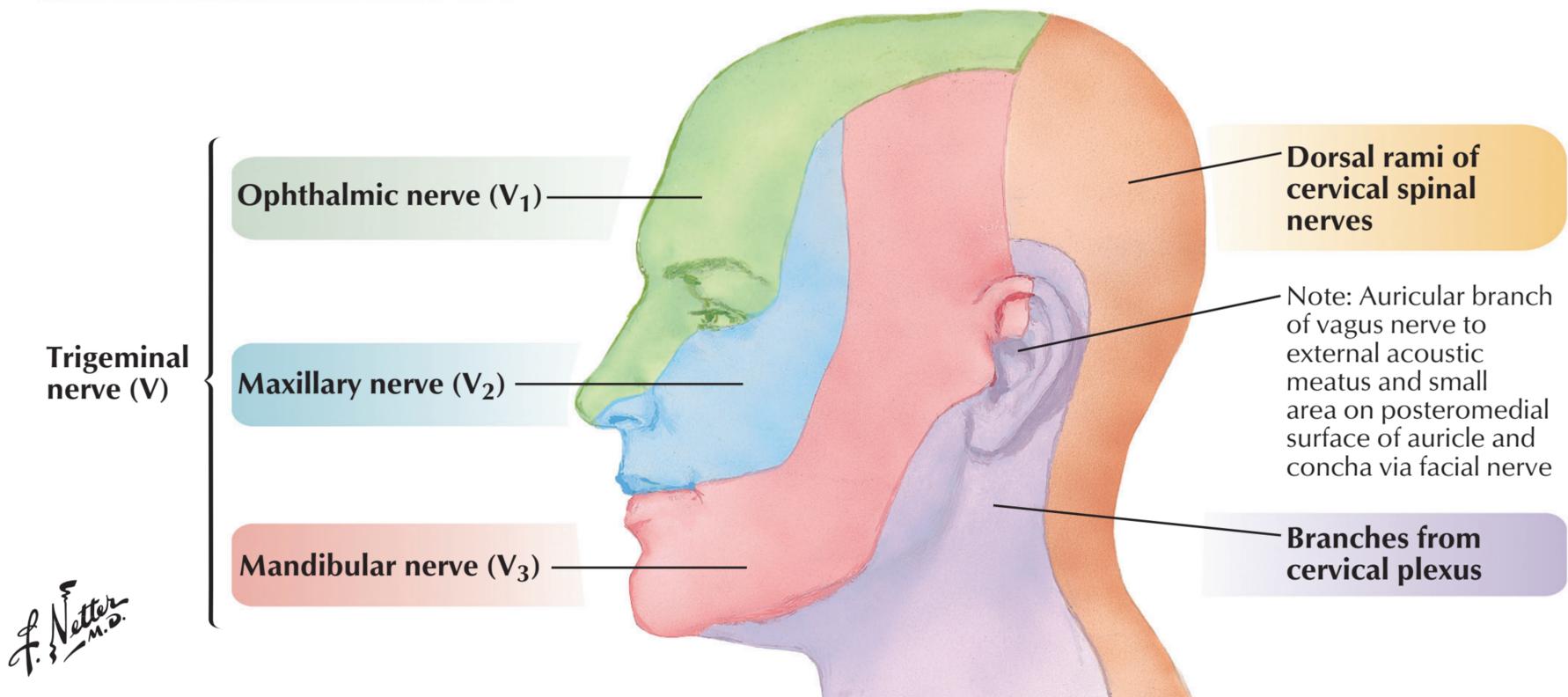
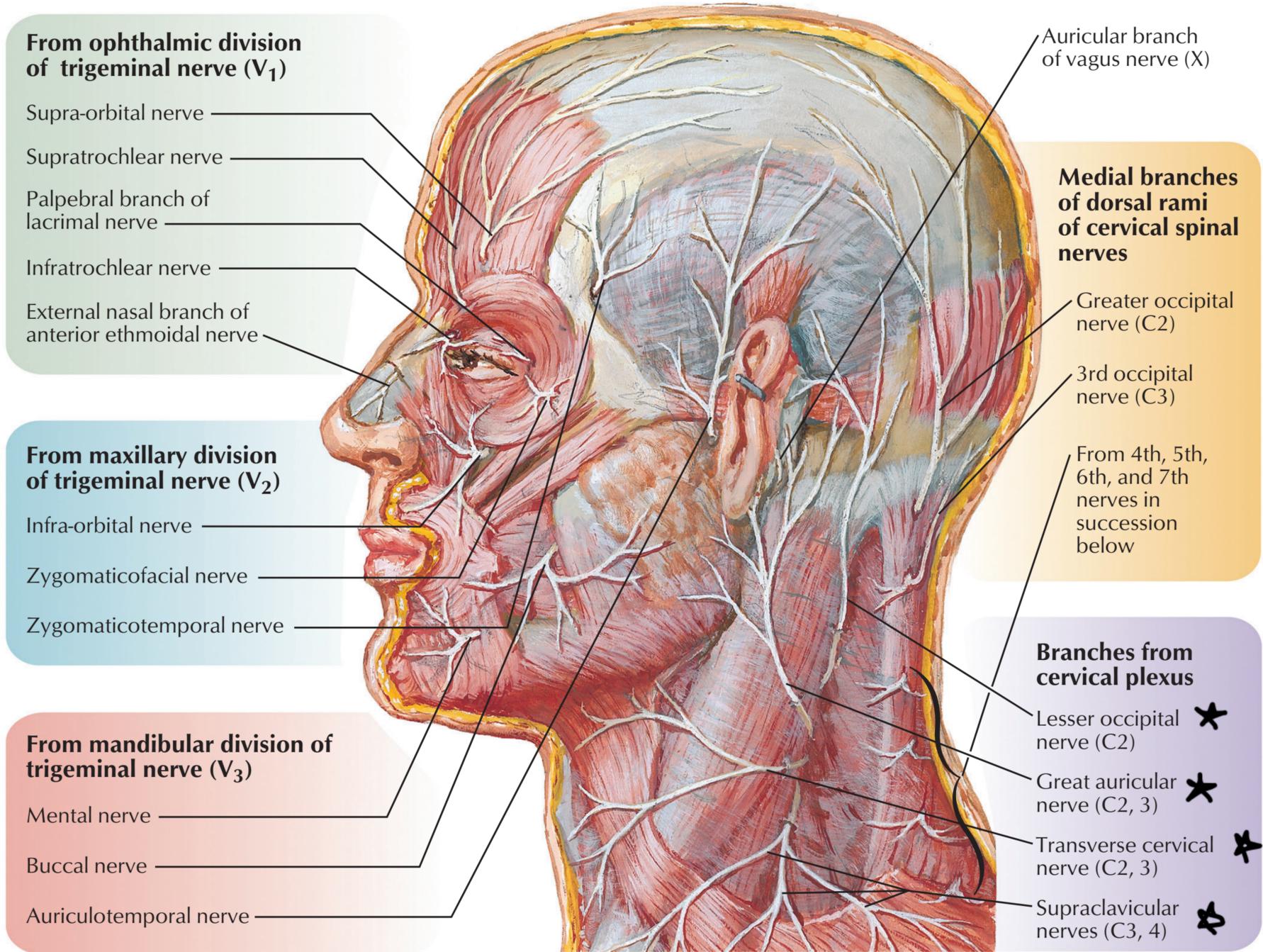


### Right anterior dissection



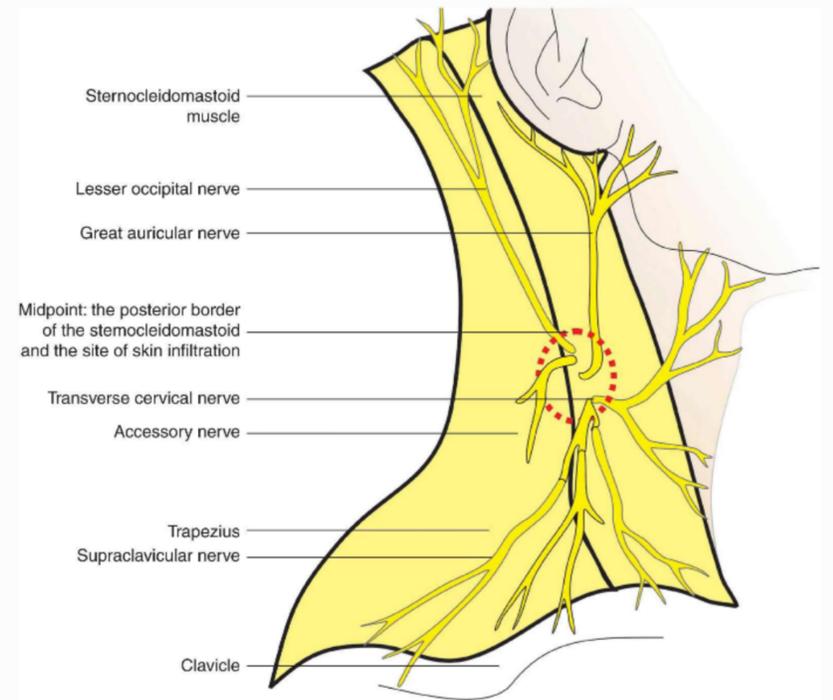
# Cutaneous Nerves of Head and Neck

See also **Plates 32, 35, 52**



## Cutaneous branches of the cervical plexus

- Emerge around the **middle of the posterior border of the SCM**, often called the **nerve point of the neck**
- **Supply:**
  1. **The skin of the neck**
  2. **Superolateral thoracic wall**
  3. **Scalp between the auricle and the external occipital protuberance**



Branches of cervical plexus arising from the nerve loop between the anterior rami of C2 and C3 are the:

### Lesser occipital nerve (C2):

Supplies the skin of the neck and scalp posterosuperior to the auricle.

### Great auricular nerve (C2 and C3):

Ascends vertically across the oblique SCM to the inferior pole of the parotid gland, where it divides to supply:

1. The skin over-and the sheath surrounding- the gland
2. The mastoid process
3. Both surfaces of the auricle
4. An area of skin extending from the angle of the mandible to the mastoid process.

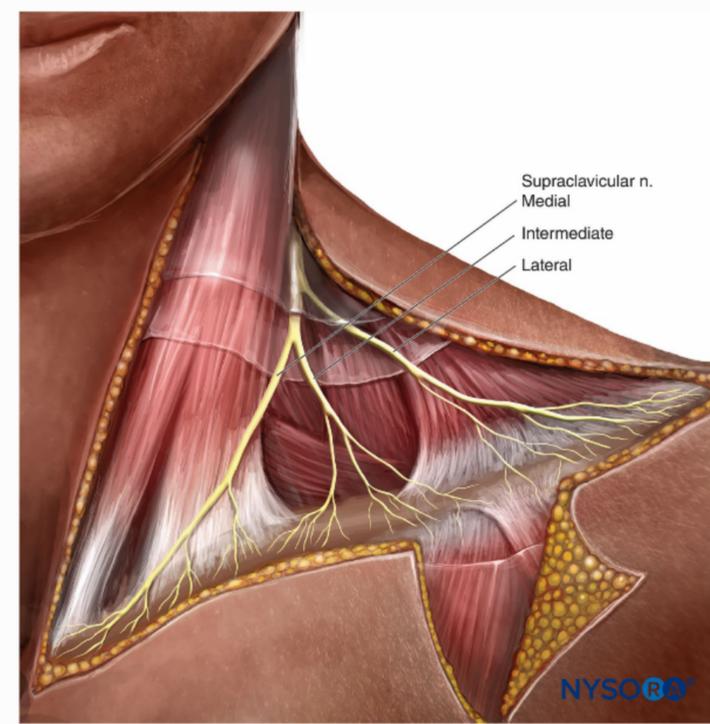
### Transverse cervical nerve (C2 and C3):

- Supplies the skin covering the Anterior cervical region.
- **Curves around the middle of the posterior border of the SCM inferior to the great auricular nerve**
- Passes anteriorly and horizontally across it deep to the EJV and platysma, dividing into superior and inferior branches.

The branches of the cervical plexus arising from the nerve loop formed between the anterior rami of **C3–C4** are the:

### Supraclavicular nerves (C3 and C4):

- Emerge as a common trunk under cover of the SCM.
- Sending small branches to the skin of the neck that cross the clavicle supplying :
  1. Skin over the **upper half of the deltoid muscle.**
  2. **Skin of the pectoral region above the level of sternal angle.**



Close to their origin, the roots of the cervical plexus **receive gray rami communicantes.**

- Most of which descend from the large **superior cervical ganglion** in the superior part of the neck.

These communicating fibres are the **contributions from the sympathetic trunk (sympathetic nervous system)** to the cervical plexus

### Deep motor branches of the cervical plexus

Include branches arising from the roots that supply

1. The **rhomboids** (**Dorsal scapular nerve; C4 and C5**).
2. **Serratus anterior** (**Long thoracic nerve; C5–C7**).
3. Nearby prevertebral muscles

## The phrenic nerves

- Originate chiefly from the C4 nerve but receive **contributions from the C3 and C5** nerves

The phrenic nerves contain:

1. **Motor**
2. **Sensory**
3. **Sympathetic nerve fibers.**

- Provide the sole **motor** supply to the **diaphragm** as well as **sensation to its central part.**
- In the thorax, each phrenic nerve supplies the mediastinal pleura and pericardium
- Receiving variable communicating fibers in the neck from the **cervical sympathetic ganglia** or their branches
- Each nerve forms at the **superior part of the lateral border of the anterior scalene** muscle **at the level of the superior border of the thyroid cartilage.**
- **Descends obliquely with the IJV** across the anterior scalene.
- **Deep to :**
  1. Prevertebral layer of deep cervical fascia
  2. Transverse cervical and suprascapular arteries.

- Left phrenic

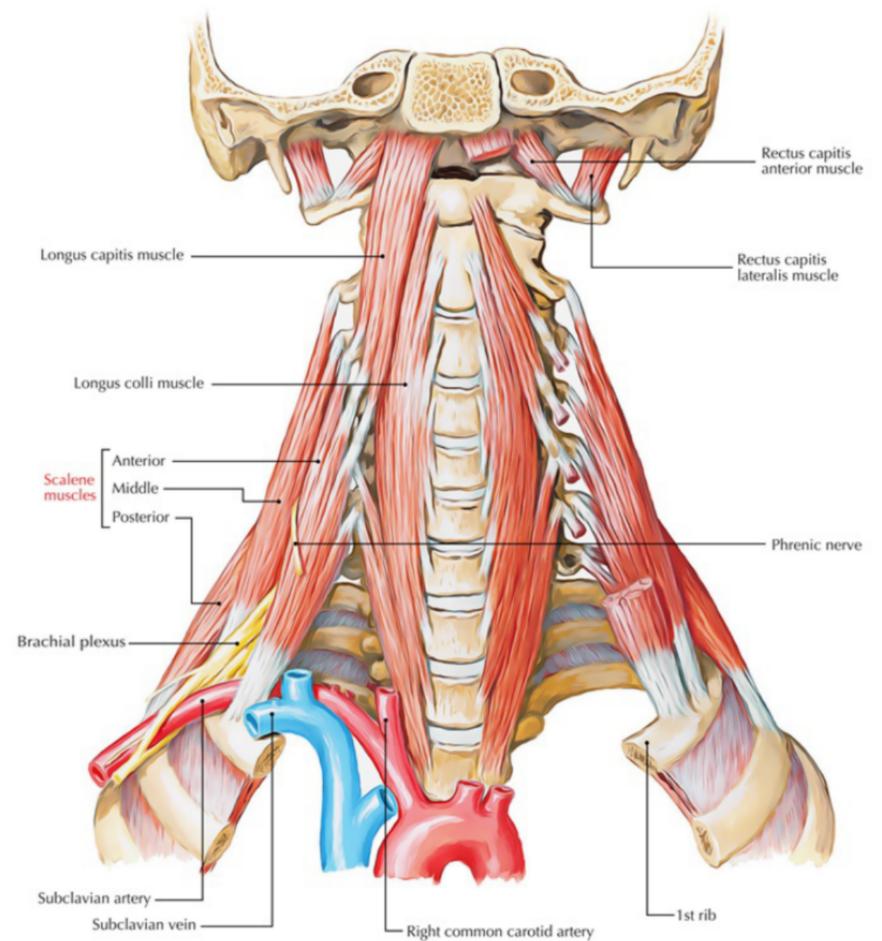
Crosses anterior to the **first** part of the subclavian artery.

- Right phrenic

Lies on the anterior scalene muscle and crosses anterior to the **second part** of the subclavian artery.

- On both sides

Runs **posterior to the subclavian vein** And **anterior to the internal thoracic artery** as it enters the thorax.



# The phrenic nerves

✓ The contribution of the C<sub>5</sub> nerve to the phrenic nerve may be derived from an accessory phrenic nerve

✓ Frequently, it is a branch of the nerve to the subclavius.

✓ If present, the accessory phrenic nerve lies lateral to the main nerve and descends posterior and sometimes anterior to the subclavian vein.

✓ The accessory phrenic nerve joins the phrenic nerve either in the root of the neck or in the thorax.

