

وسهلا

أهلا



الأستاذ الدكتور يوسف حسين

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دكتورة من جامعة كولونيا المانيا

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Cervical plexus

- **It is formed by the ventral rami of upper four cervical nerves (C1 to C4)**
- **It is formed in the posterior triangle**

Cutaneous branches

Sternomastoid

Lesser occipital nerve (C2)

Great auricular nerve (C2-C3)

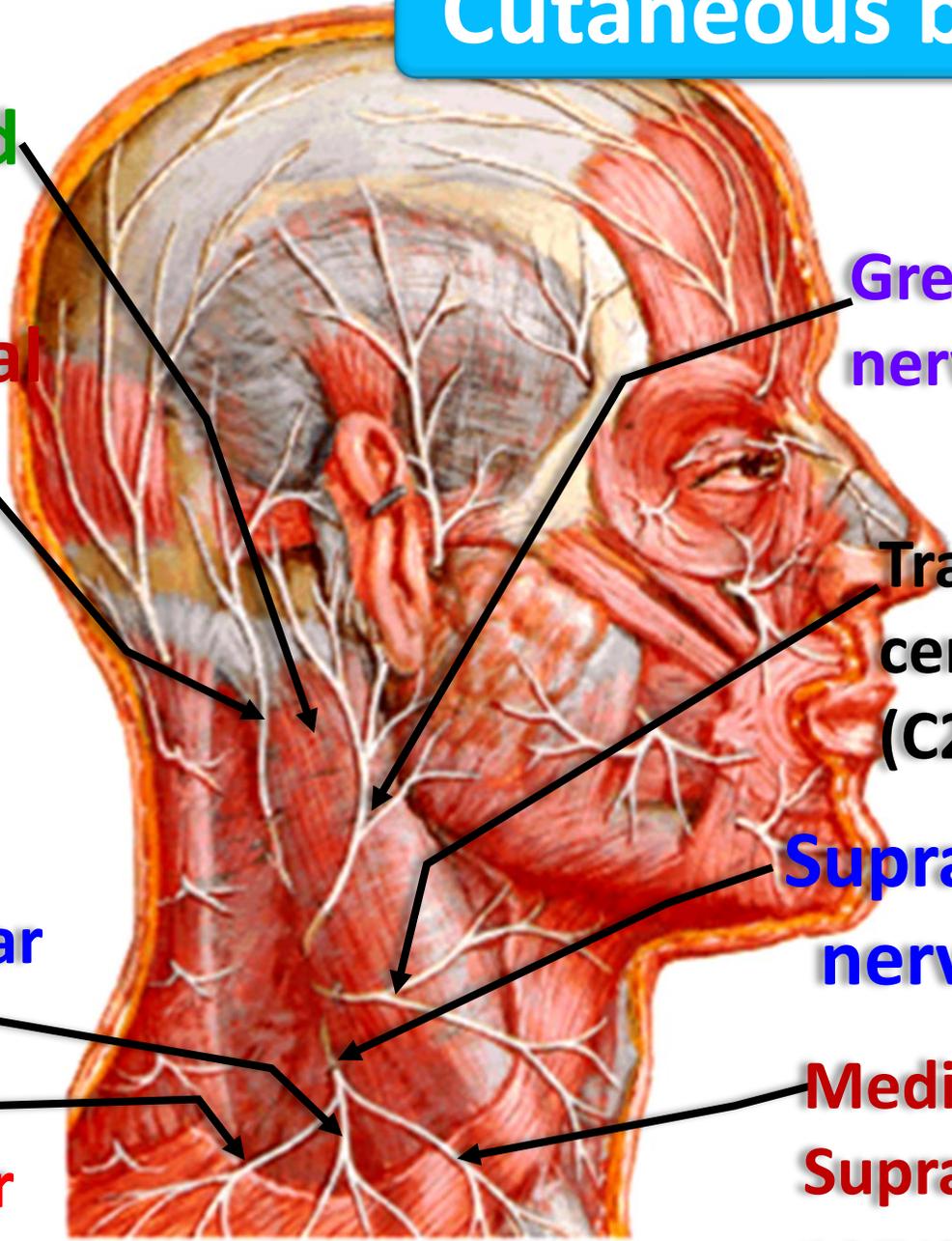
Transverse cervical nerve (C2-C3)

Middle Supraclavicular nerve

Supraclavicular nerves (c3-c4)

Lateral Supraclavicular nerve

Medial Supraclavicular nerve



A- Cutaneous branches

- They appear in the middle of posterior border of sternomastoid muscle.

1- Lesser occipital nerve (ventral rami of C.2)

- It ascends upwards along posterior border of sternomastoid muscle.

- **It supplies;**

- a- Skin behind the auricle.

- b- Skin of the upper 1/2 of the inner surface of auricle.

2- Great auricular nerve (ventral rami of C2, 3)

- It ascends on sternomastoid muscle towards the angle of the mandible.

- **It supplies;**

- a- Skin behind the auricle.

- b- Skin of the lower 1/2 of the auricle (outer and inner surface).

- c- Skin over the angle of mandible.

A- Cutaneous branches

- They appear in the middle of posterior border of sternomastoid muscle.

3- Transverse cervical nerve (ventral rami of C2, 3)

- It runs transversally forwards superficial to the sternomastoid.
- It divides into upper and lower branches supplying skin of anterior triangle of neck.

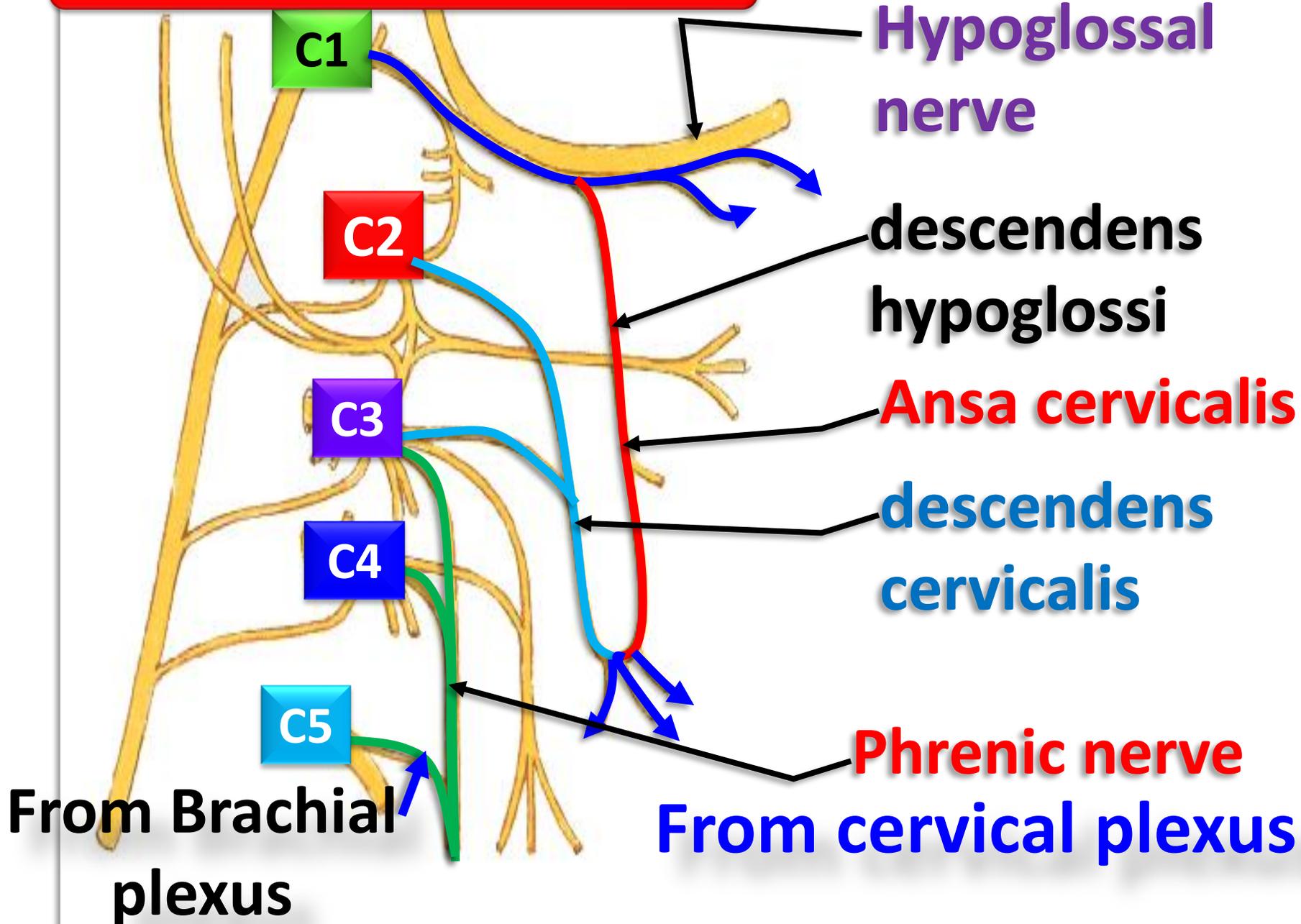
4- Supraclavicular nerves (ventral rami of C3, 4)

- They arise by a common trunk, and then divide into (medial, intermediate and lateral).
- They descend superficial to the clavicle supplying,
 - 1) Skin over the upper 1/2 of the deltoid muscle.
 - 2) Skin of the pectoral region above the level of sternal angle.

N.B: No cutaneous branch to C1

**** Cutaneous nerve block of the neck (Punctum Nervosum);** can be done by injection of local anesthetic at the middle of posterior border of sternomastoid

Muscular branches



B- Muscular branches;

- 1) Descendens hypoglossi (C1)** that joins the hypoglossal nerve forming upper limb the ansa cervicalis.
- 2) Descendens cervicalis (C2, 3):** forming lower limb of the ansa cervicalis.
- 3) Phrenic nerve (C3 ,4 mainly from C4).** C5 from brachial plexus shares in the formation of phrenic nerve.
- 4) Proprioceptive branches to sternomastoid (C3, 4).**
- 5) Proprioceptive branches to trapezius (C3, 4).**
- 6) Motor to levator scapulae (C3, 4).**

- **Ansa Cervicalis (ansa = loop)**

- * **Site:** it lies in front carotid sheath.

- * **Formation:** it is a nerve loop formed by the union of 2 descending nerves.

(1) Descendens hypoglossi (upper limb) :

- Its fibers arise from C1, join the hypoglossal nerve, and then leave it to joint the descendens cervicalis.

(2) Descendens cervicalis (lower limb)

- Its fibers arise from C 2 & 3 and join the descendens hypoglossi.

- * **Branches :**

- 1- Branches to sternohyoid, sternothyroid and omohyoid muscles (C1, 2 & 3).
- 2- Branches to geniohyoid and thyrohyoid (C1) through hypoglossal nerve.

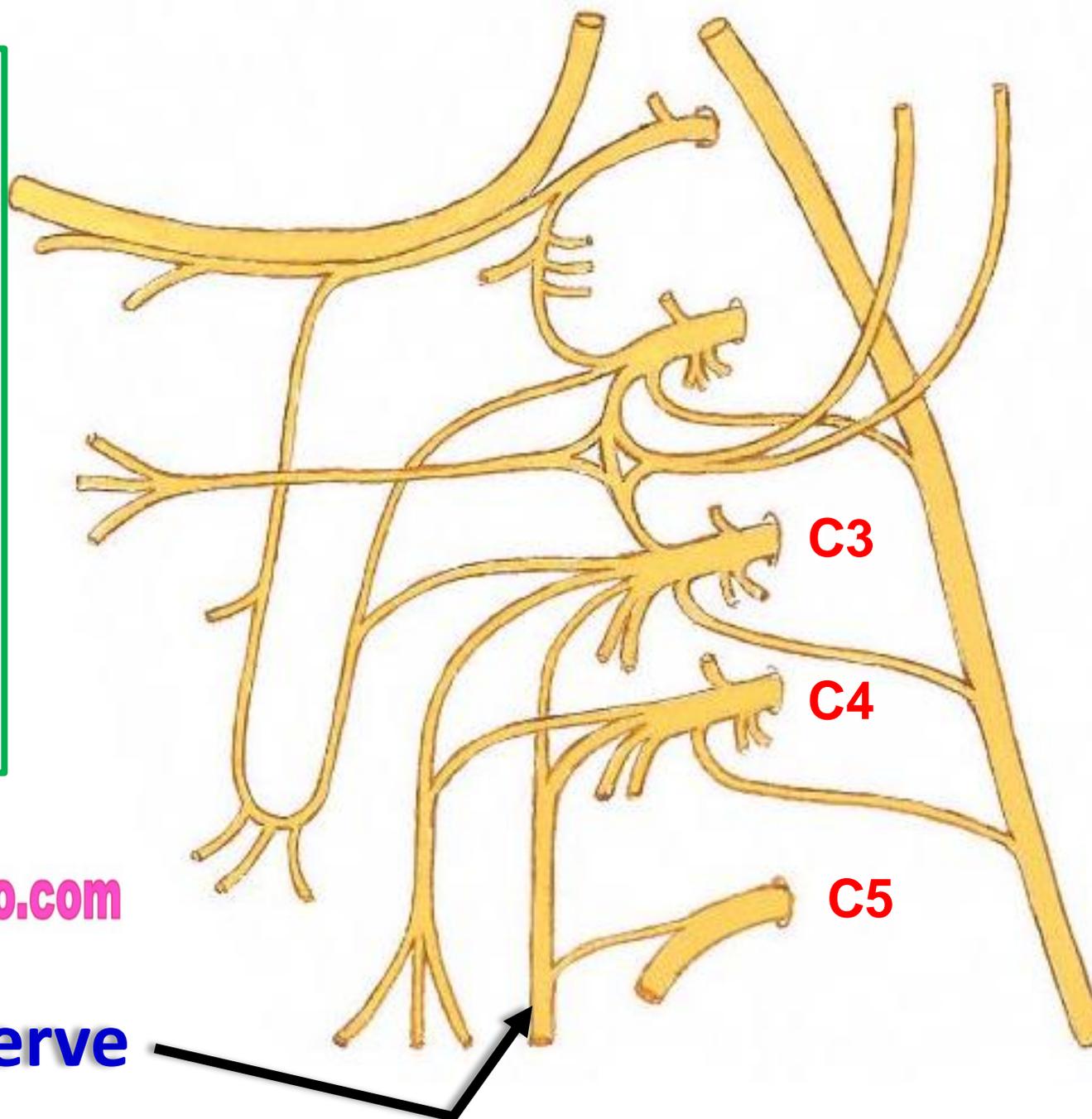
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Phrenic nerve

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- **Phrenic nerve** is a mixed nerve.
- **Roots**, they arise from the ventral rami of C3, C4 and C5 (**mainly from C 4**).
- **C3 and C4** from **cervical plexus**
- **C5** from **brachial plexus**



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Phrenic nerve

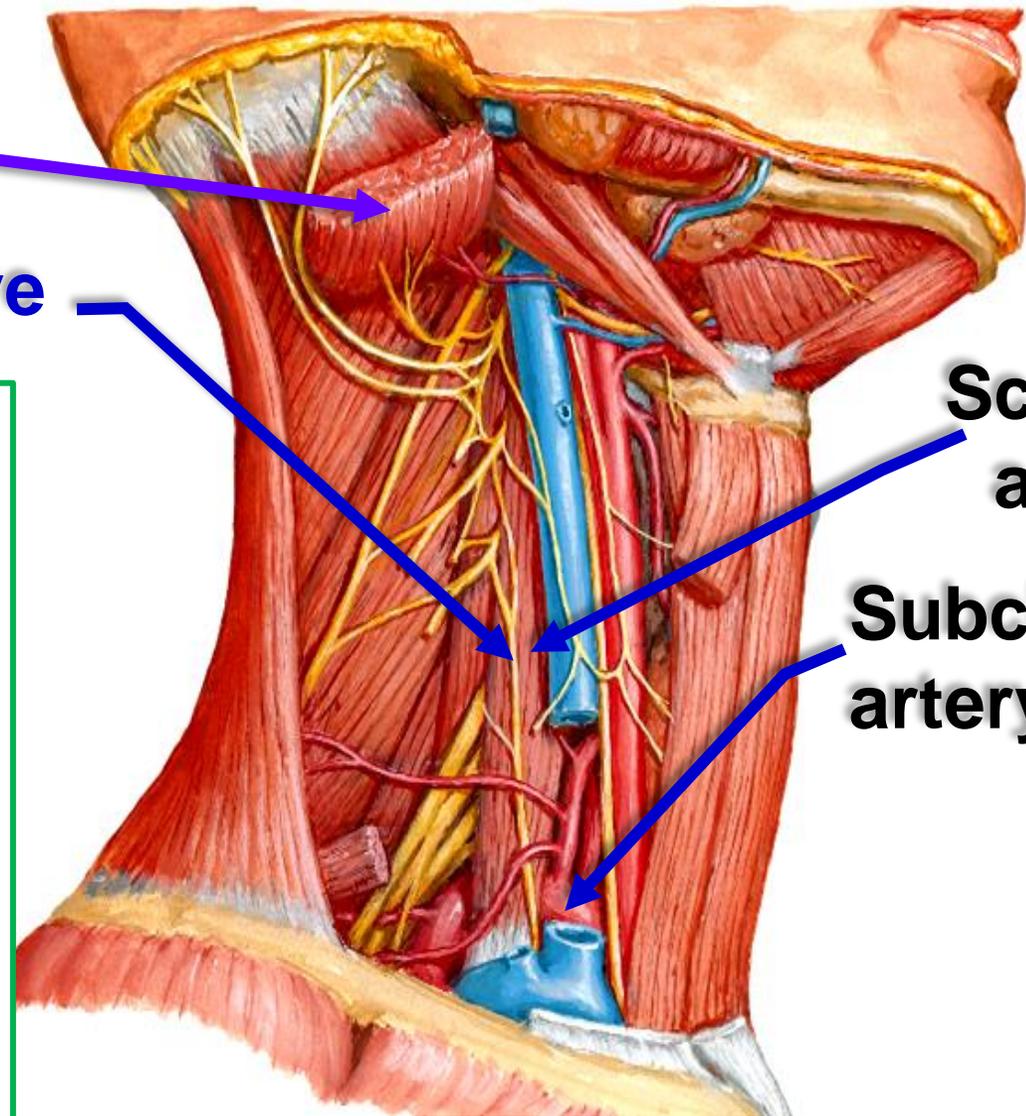
Sternomastoid

Phrenic nerve

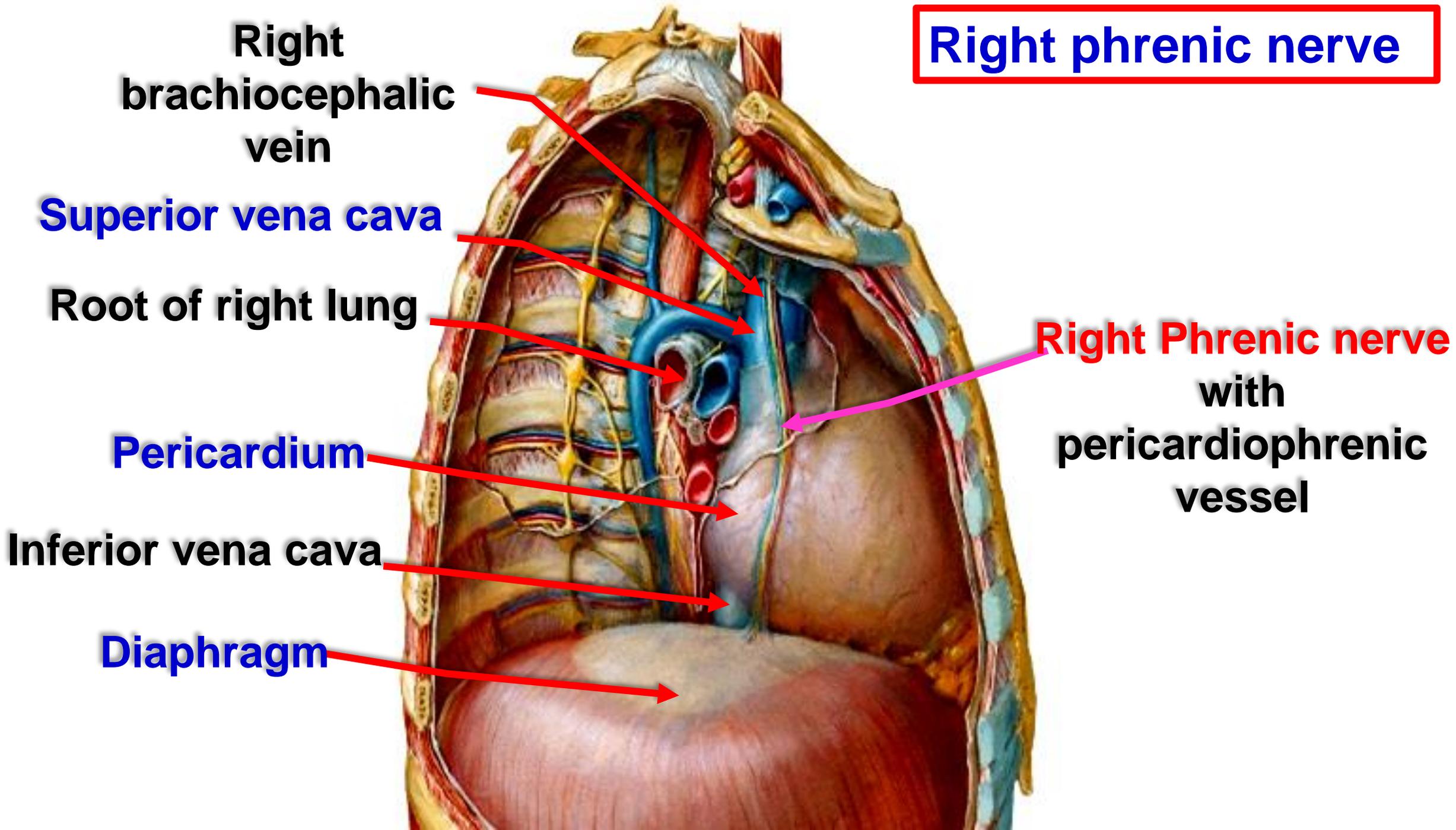
Scalenus anterior

Subclavian artery

- **Course In the neck,**
 - It descends **in front of** scalenus anterior between muscle and its fascia.
 - **Behind** carotid sheath and sternomastoid muscle.
 - Then **cross** the first part of subclavian artery.
 - It **enters the thorax by crossing** the internal thoracic artery.



Right phrenic nerve



**** Course of Phrenic Nerves In the thorax:**

- They descend in the **superior** mediastinum then in the **middle** mediastinum **with the pericardiophrenic vessels.**

A) Right phrenic nerve

- It descends in **front of the root of the right lung**; on the right side of:
 - 1- Right brachiocephalic vein.
 - 2- Superior vena cava.
 - 3- Pericardium.
 - 4- Inferior vena cava.
- **It enters the abdominal cavity** through the I.V.C. opening of diaphragm.

Left phrenic nerve

Left Phrenic nerve
with
pericardiophrenic
vessel

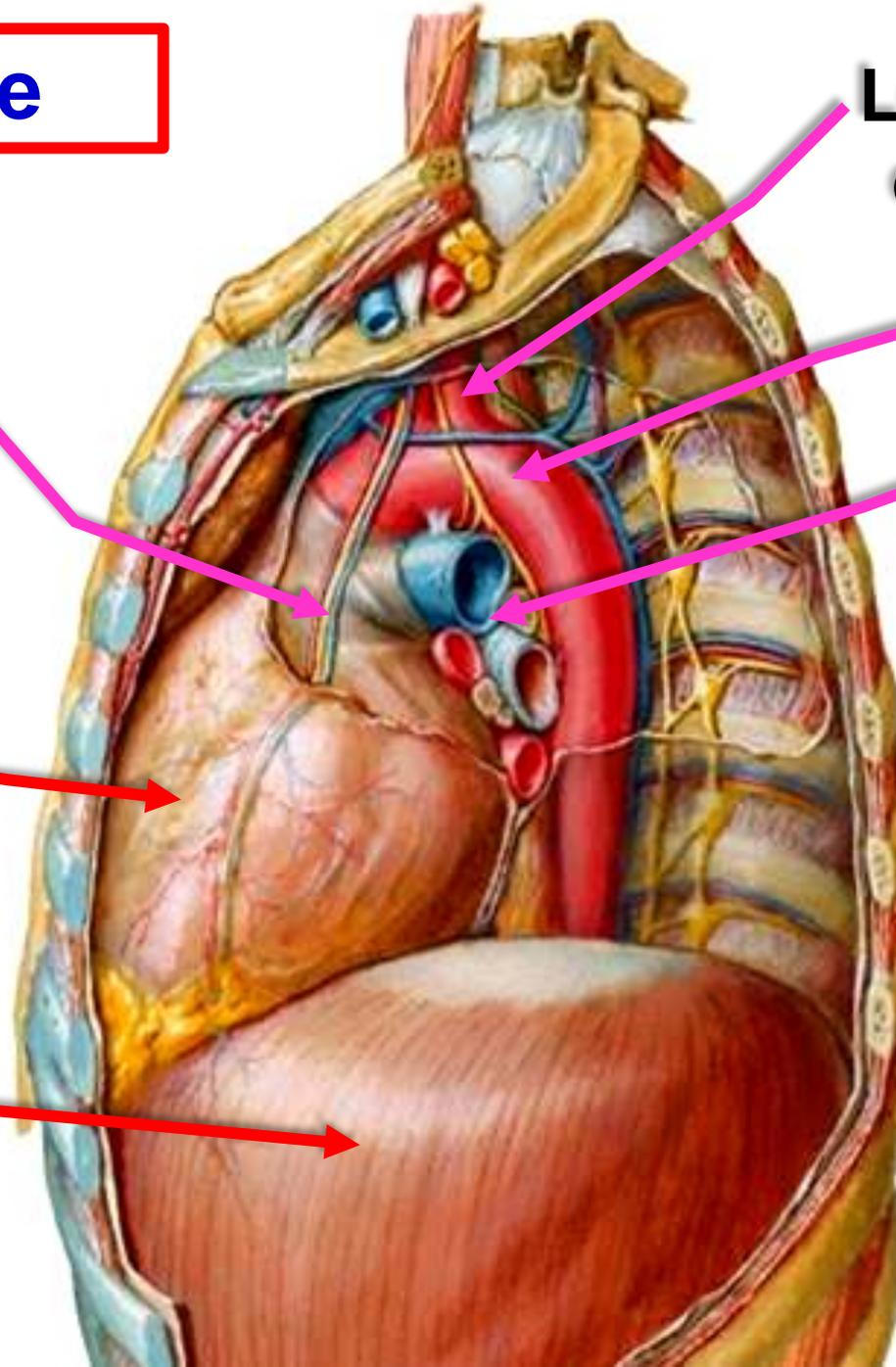
Pericardium

Left copula of
Diaphragm

Left subclavian
carotid artery

Arch of aorta

Root of left lung



B) Left phrenic nerve:

- It descends between the left common carotid and left subclavian arteries.
 - * Then crosses the arch of aorta.
 - * In front of the root of the left lung.
 - * Then on the pericardium.
- **It enters the abdominal cavity** by piercing the left cupola of the diaphragm.

**** Branches of both phrenic nerves**

a- Motor to the diaphragm through its abdominal surface.

b- Sensory to

- **3 P** (**P**leura, **P**ericardium and **P**eritoneum).

- **The right phrenic nerve supply:**

- Gall bladder and upper surface of the liver.
- Right Suprarenal gland.

**** Clinical anatomy**

- **Left phrenic nerve Longer than the right: because**
 - 1- The right nerve is straight.
 - 2- The right cupola of the diaphragm is higher than the left.
- **Referred pain** from gall bladder is felt in right shoulder **because the right phrenic nerve and right supraclavicular nerves arise from ventral rami of C3, C4**
- **It supplies the diaphragm** because it is developed from the transverse septum in the neck then descends.
- **It supplied the diaphragm through its abdominal surface** because after folding of the embryo the diaphragm is reversed.
- **Injury of the phrenic nerve in one side** leading to **paradox movement** (diaphragm ascends during inspiration and descends during expiration)
- **Injury of both sides** (medical emergency) The patient can not breathe and require ventilator.
- **Hiccough (Hiccup)** repeated **spasmodic sharp contraction of the diaphragm**

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