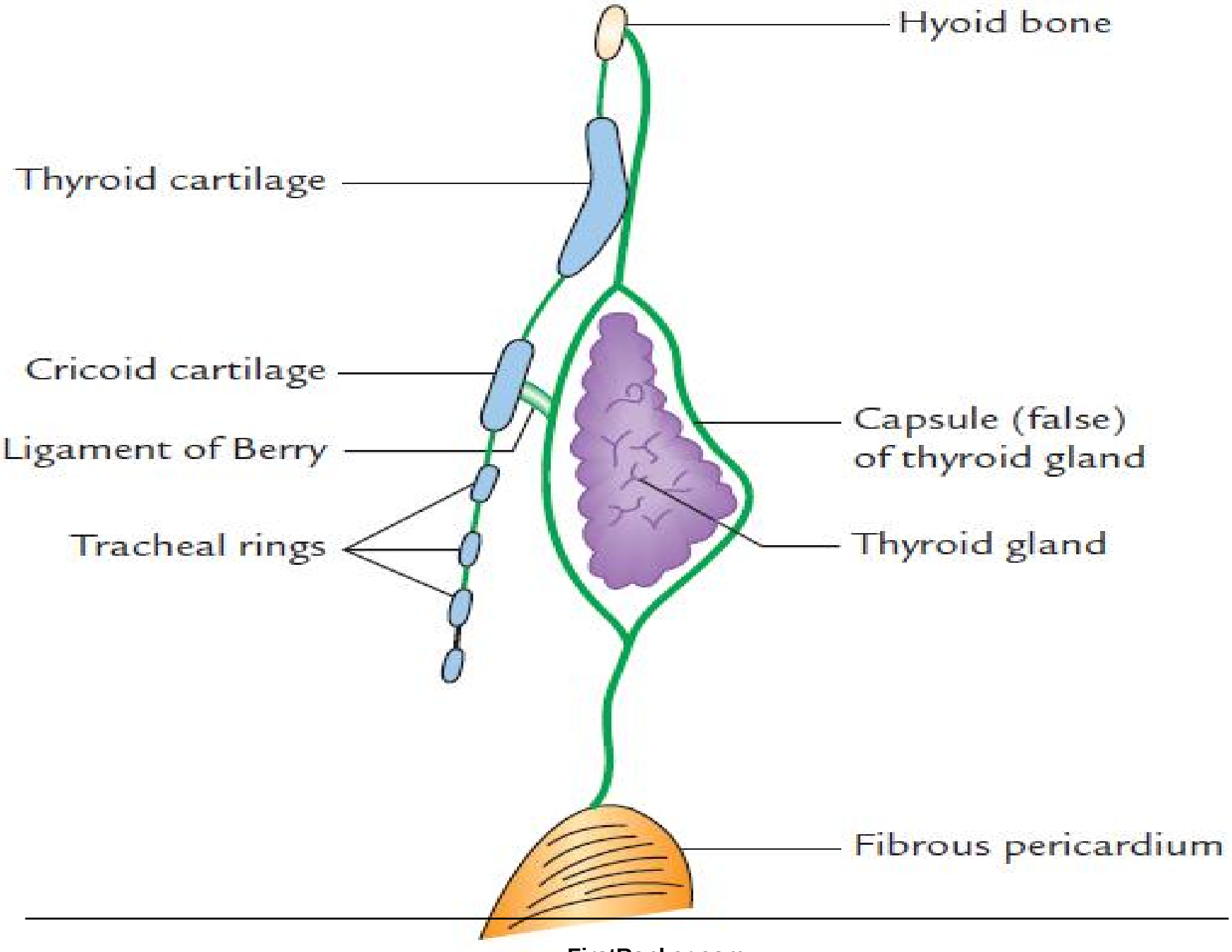
- **Pretracheal fascia**
- This layer of deep cervical fascia covers the front and sides of trachea, hence its name—*pretracheal fascia.*
- *It splits to enclose the thyroid gland forming its* capsule and is attached to the oblique line of thyroid cartilage and to the arch of cricoid cartilage anteriorly.
- **Ligament of Berry** is derived from this fascia and connects the capsule of the lateral lobe of the thyroid gland to the cricoid cartilage



- ***Tracing of the pretracheal fascia***
- **Horizontal tracing:**
- It merges with the investing layer of deep cervical fascia enclosing the sternocleidomastoid and the anterior wall of the carotid sheath.

- **Vertical tracing:**
- It is attached to the hyoid bone and when traced below, it enters the thorax in front of the trachea and blends with the apex of the fibrous pericardium.

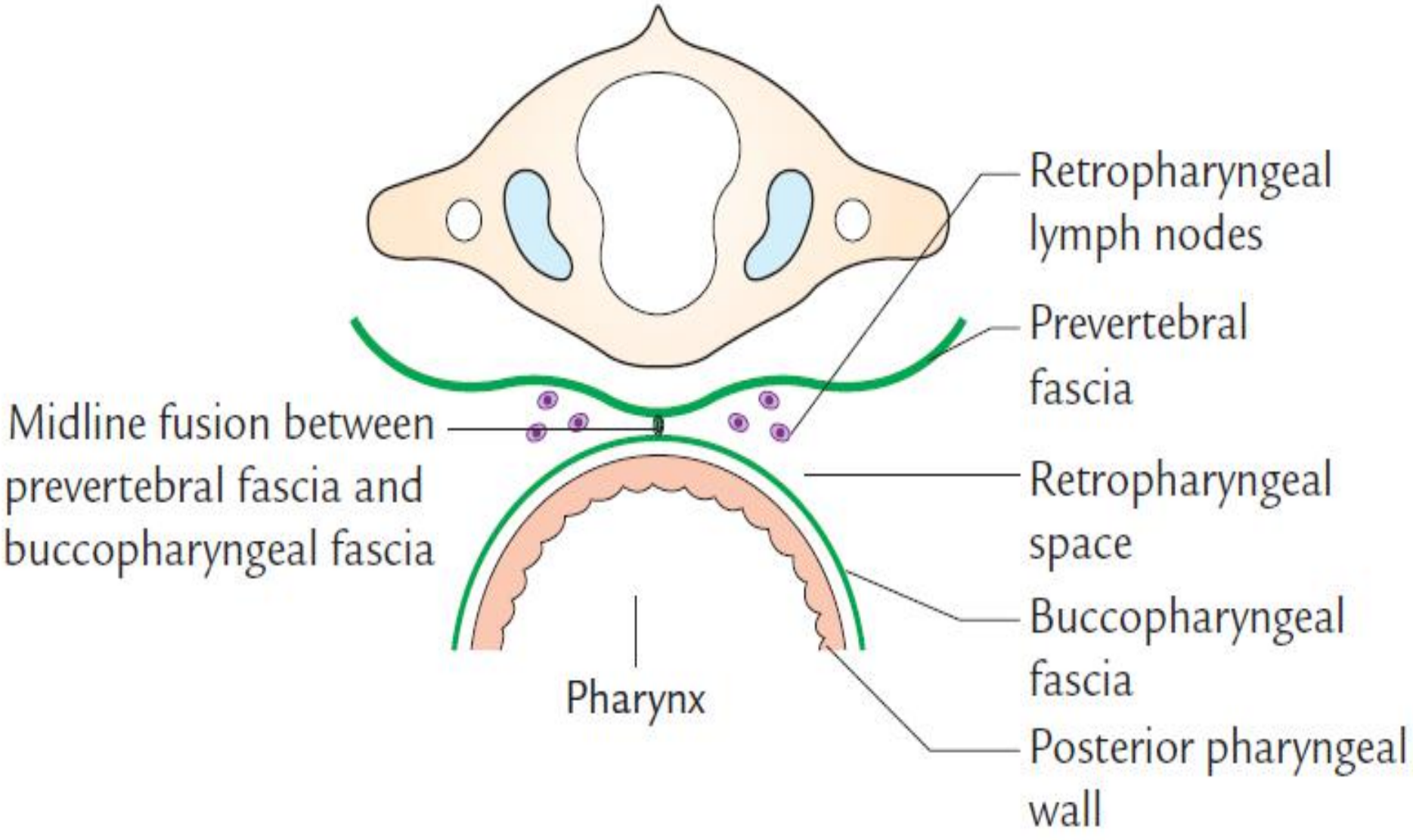
- **Prevertebral fascia**
- It is extremely strong and lies in front of the prevertebral muscles
- ***Tracing of the prevertebral fascia***
- **Horizontal tracing:**
- It forms the fascial carpet of the posterior triangle.
- It also forms **axillary sheath,** which may extend up to the elbow.
- Subclavian and axillary veins lie outside the sheath

- **Vertical tracing:**
- *Traced above*→extends up to the base of the skull to which it is attached.

- **Traced below**→ continues downwards and blends with the anterior longitudinal ligament of the upper thoracic vertebrae (T1 to T3).

Retropharyngeal space

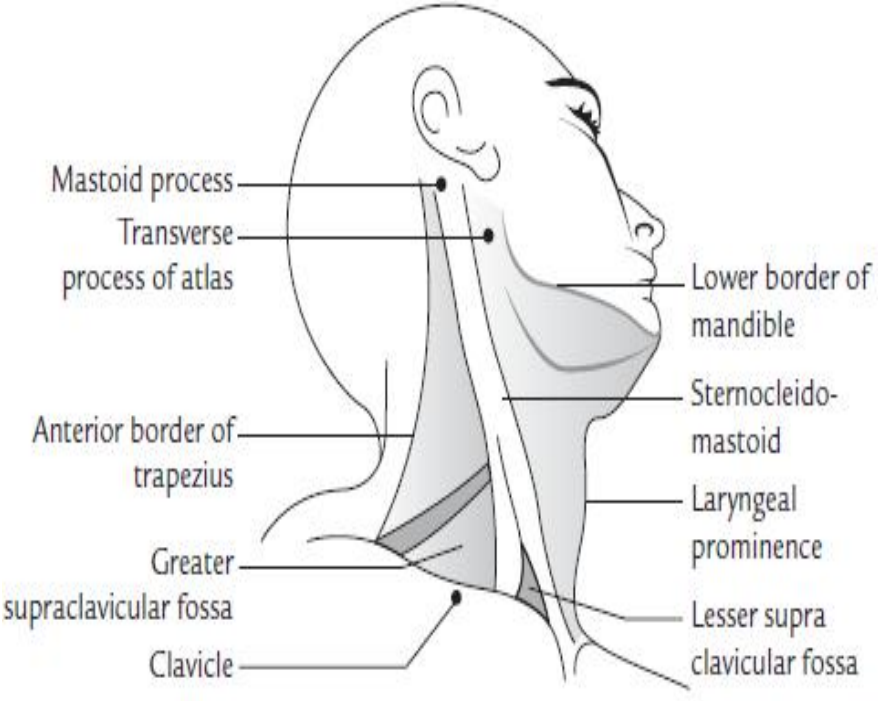
- Anteriorly, the prevertebral layer of deep cervical fascia is separated from posterior aspect of the pharynx and its covering, buccopharyngeal fascia, by a potential space called **retropharyngeal space.**
- The retropharyngeal space is continuous with the **parapharyngeal spaces** at the sides of the pharynx.
- The retropharyngeal space is divided into two lateral compartments (**spaces of Gillette)** by a midline fibrous raphe.
- The space behind the **prevertebral fascia** and in front of the vertebral bodies is called **prevertebral space.**



SIDE OF THE NECK

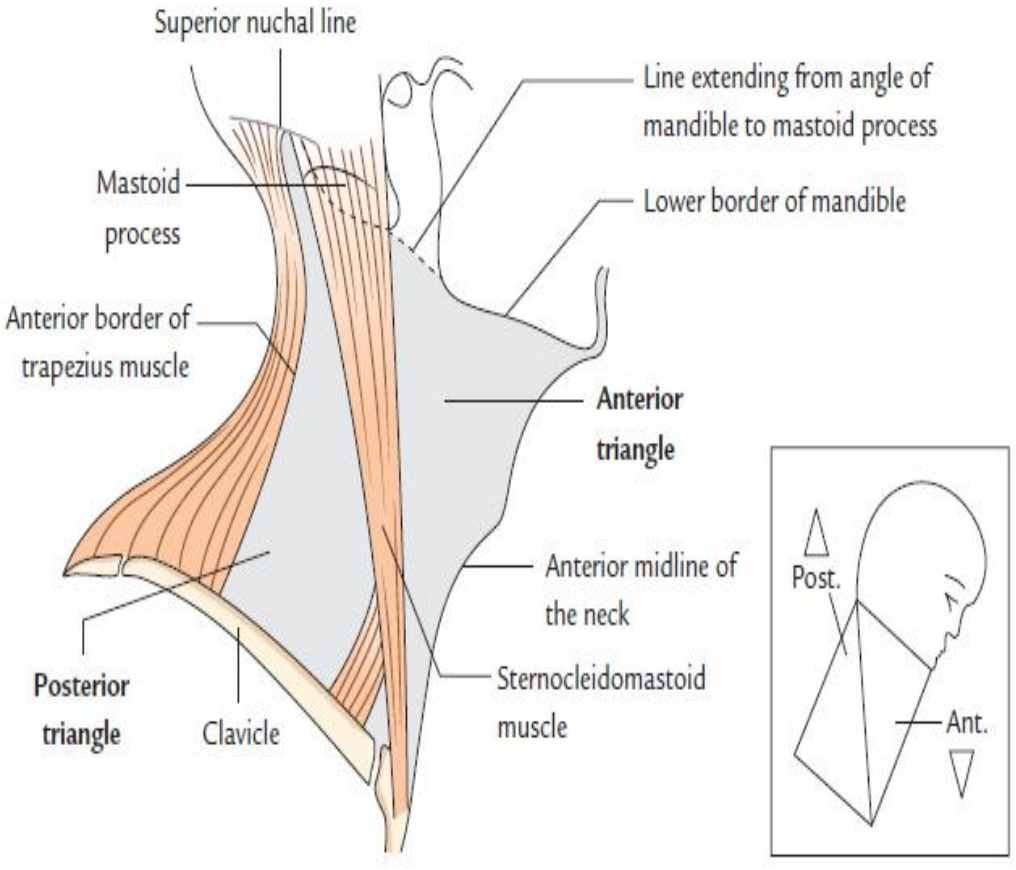
Side of the Neck

- **Quadrangular in shape.**
- It is bounded→
- *Anteriorly → anterior midline of the neck*
- *Posteriorly → anterior border of the trapezius*
- *Superiorly →* lower border of the body of the mandible and a line extending from the angle of the mandible to the mastoid process
- *Inferiorly → clavicle.*



Triangles on the side of the neck

- This quadrilateral area is divided into large *anterior* and *posterior* triangles by the sternocleidomastoid muscle
- Which runs across this area diagonally from mastoid process to the upper end of the sternum.



Sternocleidomastoid Muscle

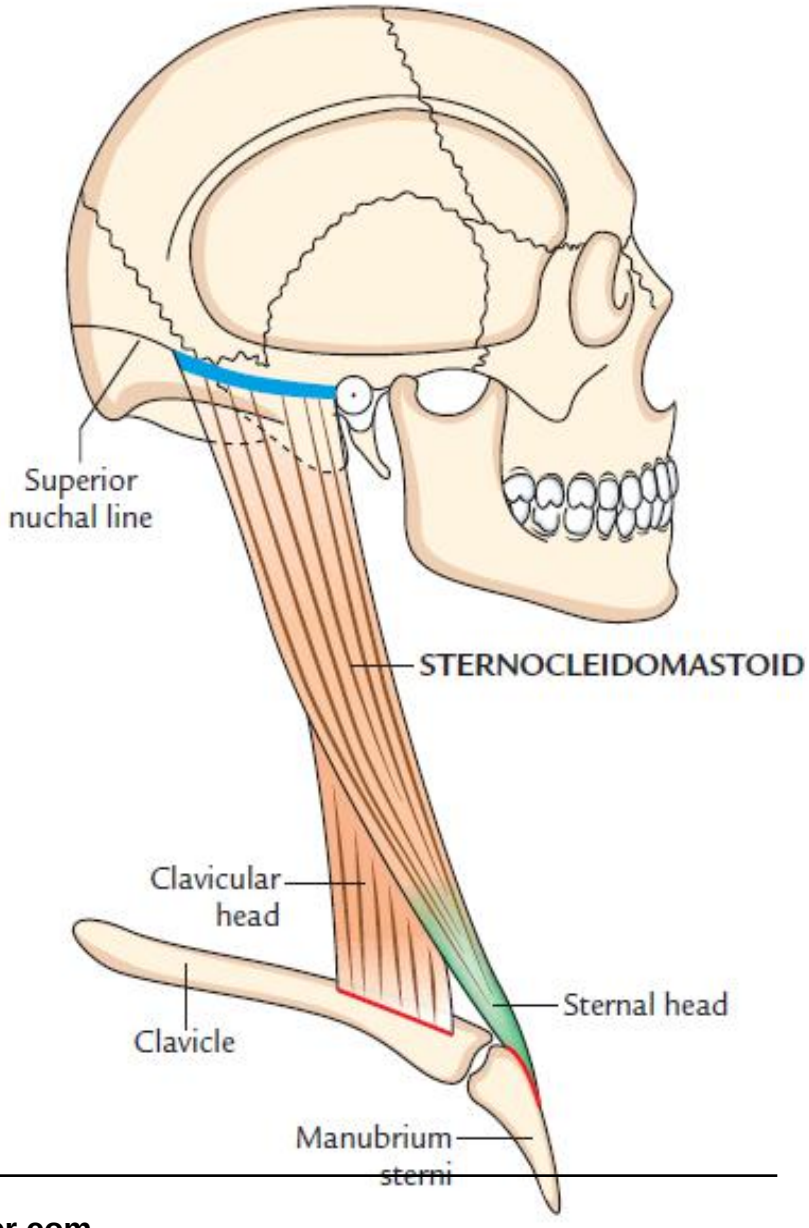
Origin

Sternal head→arises by a rounded tendon from the superolateral part Of the front of the manubrium sterni, below the suprasternal notch.

Clavicular head→ flat and musculoaponeurotic. It arises from the medial third of the superior surface of the clavicle.

Insertion

by a thick tendon on the lateral surface of the mastoid process and by a thin aponeurosis into the lateral half of the superior nuchal line of the occipital bone



- **Arterial Supply**
- The sternocleidomastoid is supplied by branches of following arteries:

Upper part→ occipital and posterior auricular art.

Middle part→ superior thyroid artery.

Lower part→ suprascapular artery.

- **Nerve Supply**
- Supplied by the **spinal accessory nerve**.
- It is also supplied by the ventral rami of C2 and C3, which are mostly sensory and carry proprioceptive sensations from the muscle.

- **Actions**
- When muscle acting alone , it tilts the head towards the shoulder on the same side and rotates the head so that chin turns to the opposite side. This movement occurs during an upward sideways glance.

- When muscles of both sides contract together they draw the head forwards as in lifting the head from the pillow or bending the head during eating food.

- If the head is fixed by prevertebral muscles, the two sternocleidomastoid muscles act as accessory muscles of respiration during forced inspiration.

Torticollis or wry neck

- Head is bent to one side and chin points to the opposite side.
- This occurs due to spasm of sternocleidomastoid and trapezius muscles supplied by spinal accessory nerve.

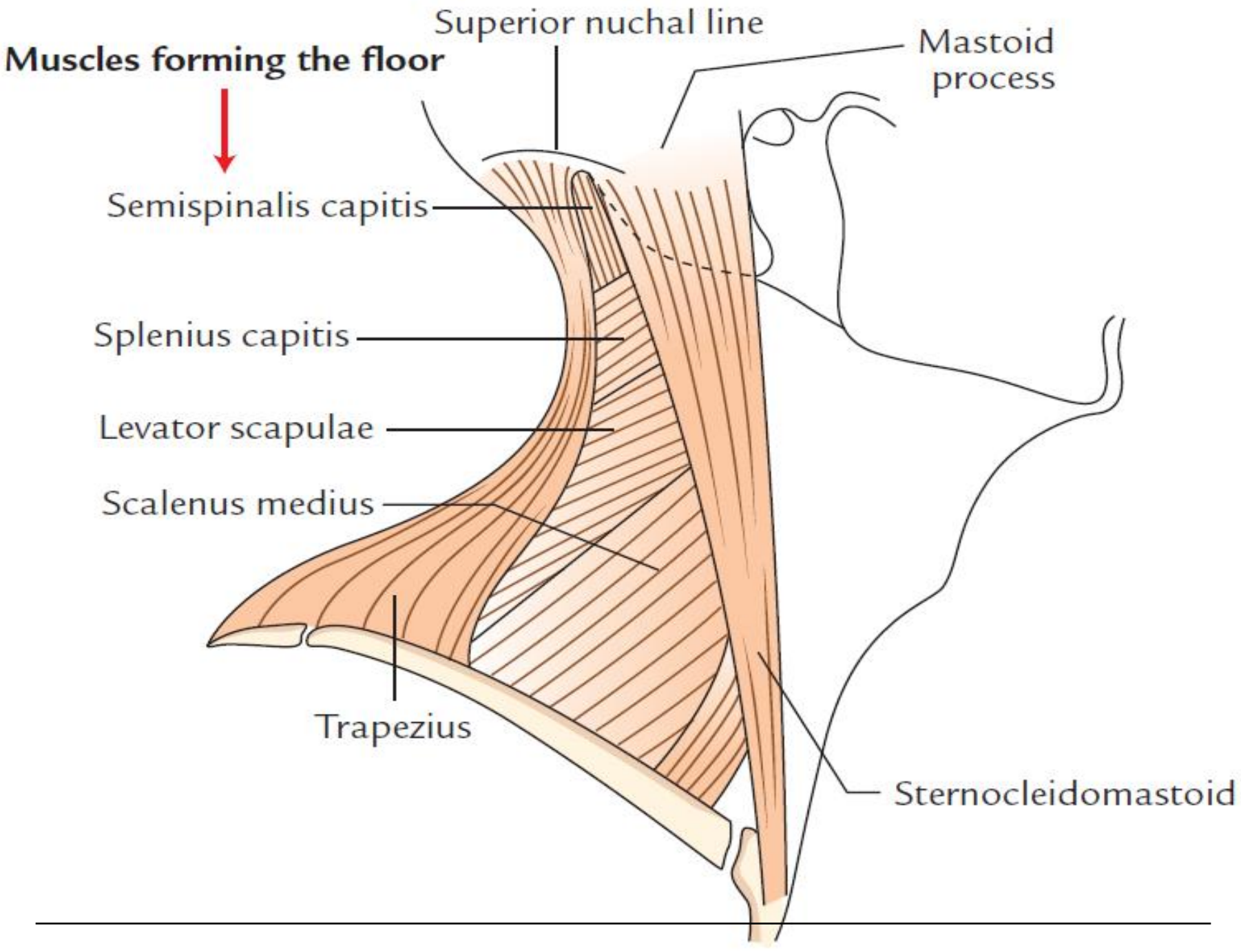
– ***Spasmodic torticollis*** *is characterized by repeated* painful contractions of the trapezius and sternocleidomastoid muscles on one side. Caused by exposure to cold and maladjustment of pillow during sleep.

– ***Reflex torticollis*** *occurs due to irritation of spinal* accessory nerve caused by inflamed or suppurating lymph nodes.

– ***Congenital torticollis*** *occurs due to birth injury to* muscle. Permanent torticollis may occur due to subsequent ischemic contracture

POSTERIOR TRIANGLE

- It is the triangular space on the side of neck behind the sternocleidomastoid muscle. Its apex is directed upwards and backwards towards the mastoid process and base downwards towards the clavicle.
- **Boundaries**
- ***Anterior:*** *Posterior border of sternocleidomastoid* muscle.
- ***Posterior:*** *Anterior border of trapezius muscle.*
- ***Inferior (base):*** *Superior aspect of middle third of the* clavicle.
- ***Superior (apex):*** *Meeting point of sternocleidomastoid and* trapezius muscles at the superior nuchal line of the occipital bone



- ***Roof***
- Formed by→ investing layer of the deep cervical fascia
- superficial fascia overlying the roof contains *platysma*, *external jugular* and *posterior jugular veins*, and *cutaneous nerves* and *vessels.*
- ***Structures piercing the roof of the posterior triangle are***

1. Four cutaneous branches of cervical plexus

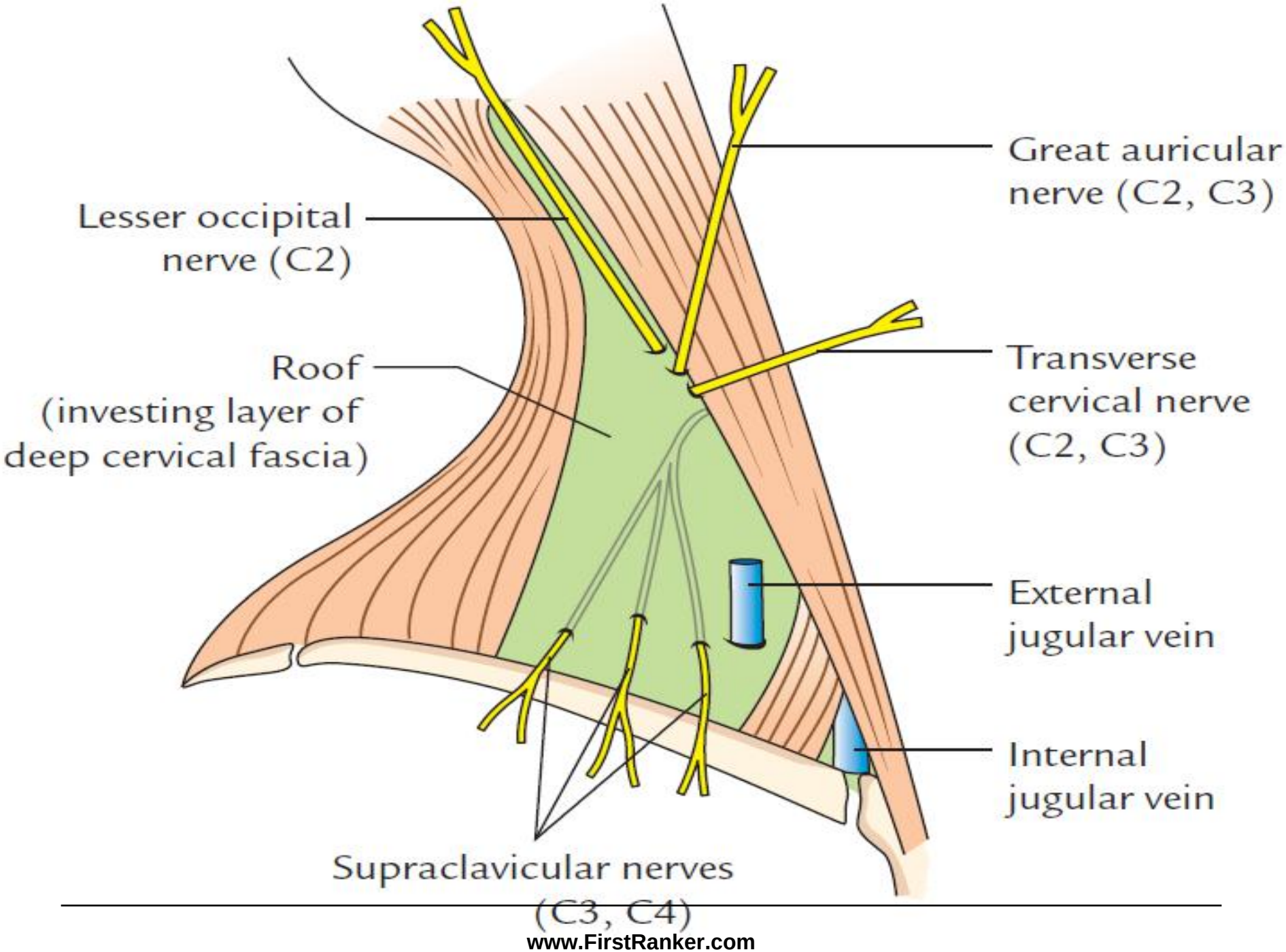
(a) Lesser occipital nerve (C2)

(b) Great auricular nerve (C2, C3)

(c) Transverse cervical nerve (C2, C3)

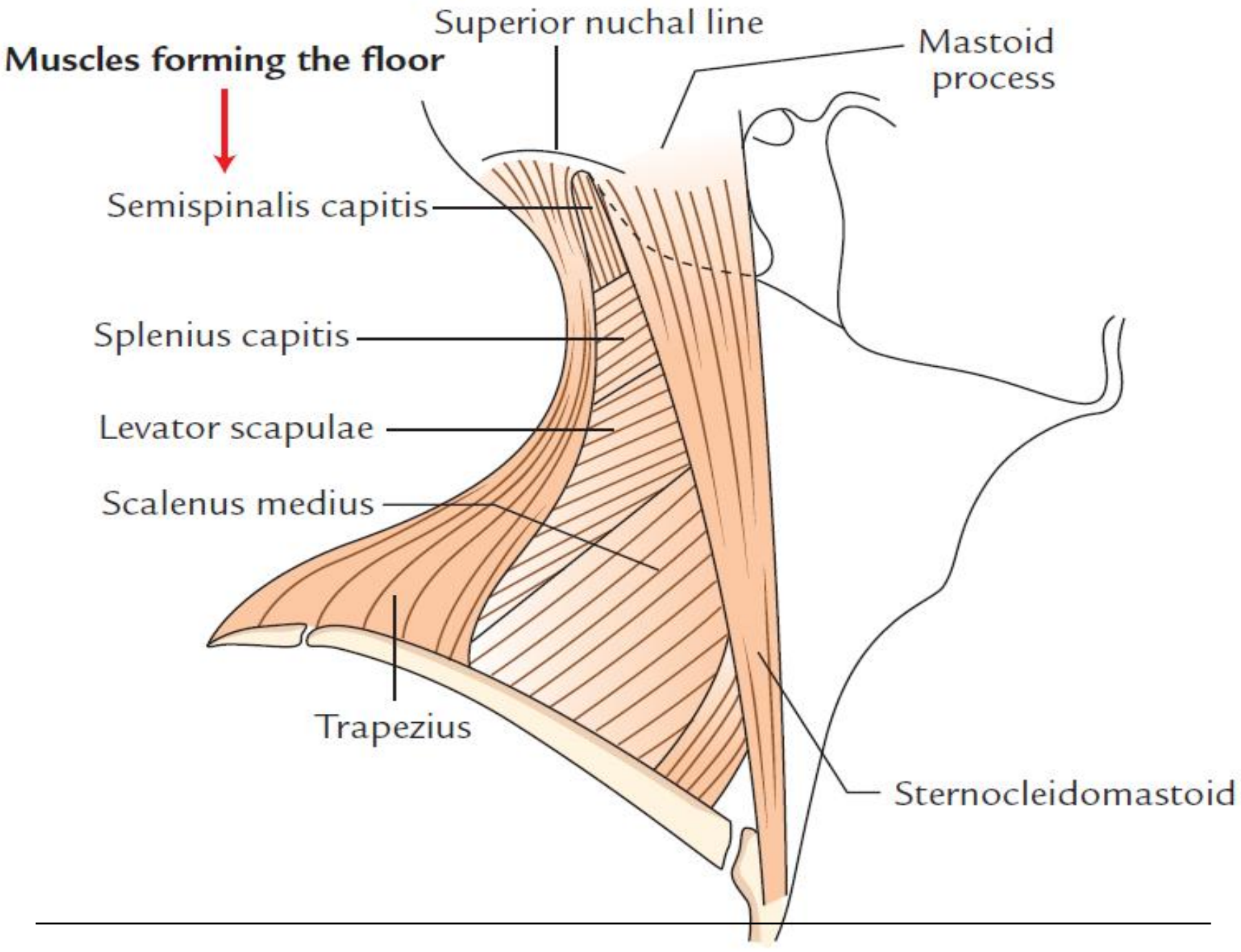
(d) Supraclavicular nerves (C3, C4).

2. External jugular vein

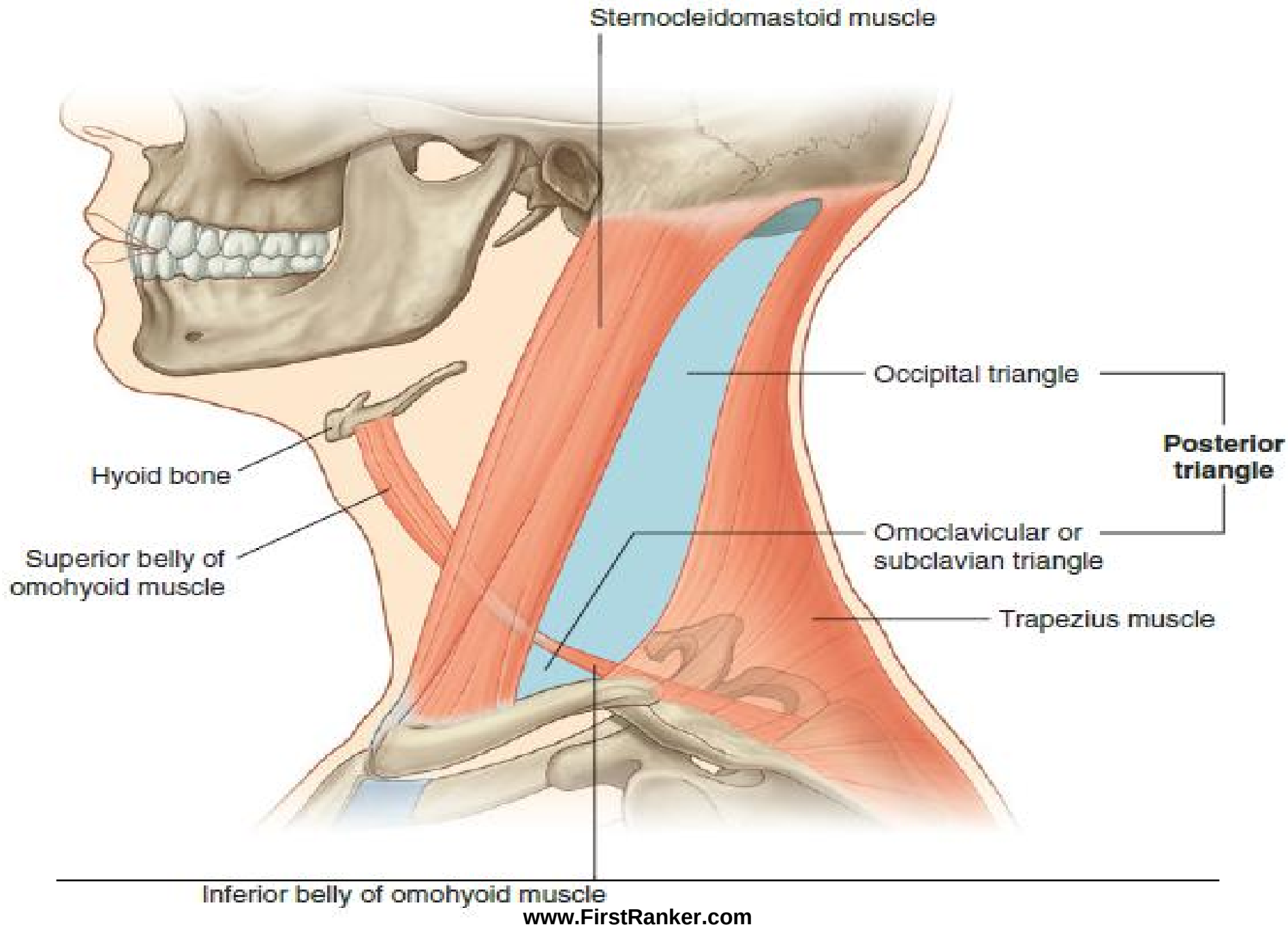


- ***Floor***
- The floor of posterior triangle is muscular.
- Formed from above downwards by→

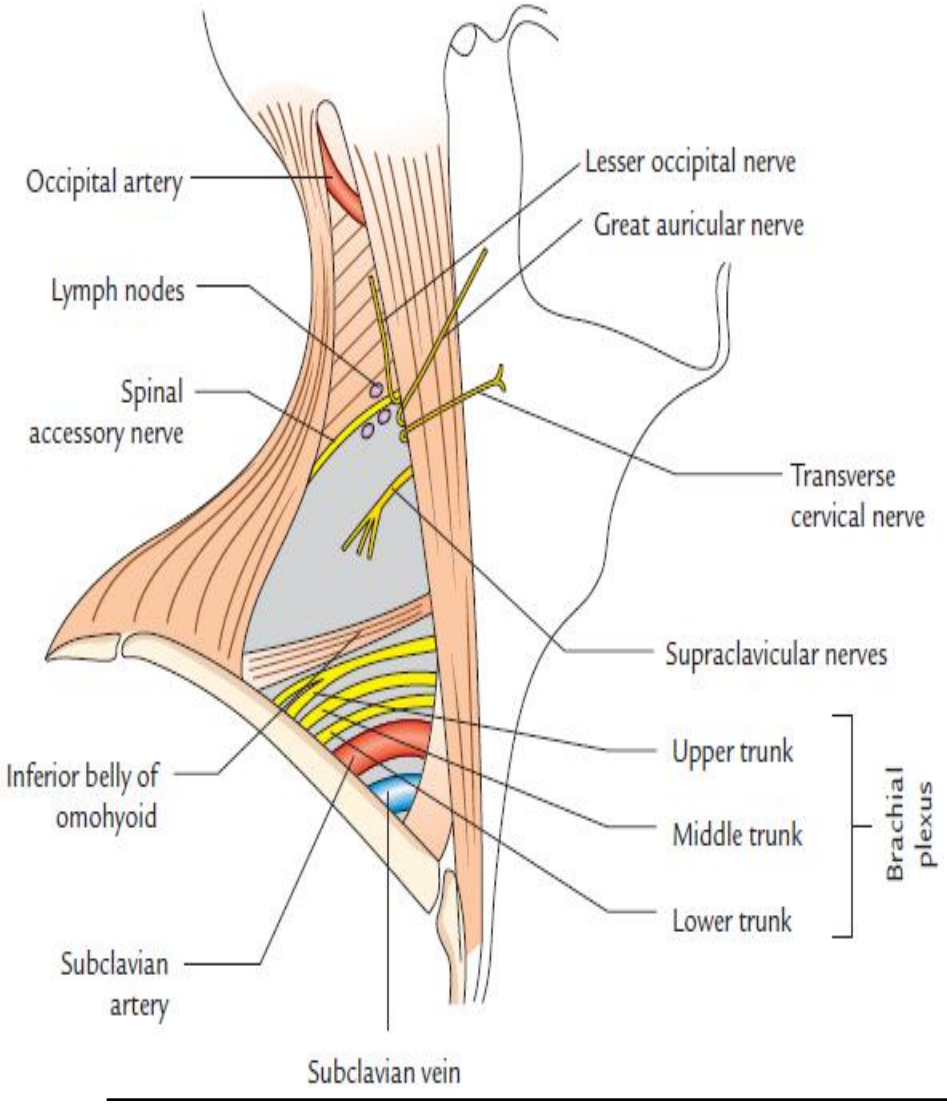
1. **Semispinalis capitis.**
2. **Splenius capitis.**
3. **Levator scapulae.**
4. **Scalenus medius.**
5. **First digitation of serratus anterior** (sometimes).

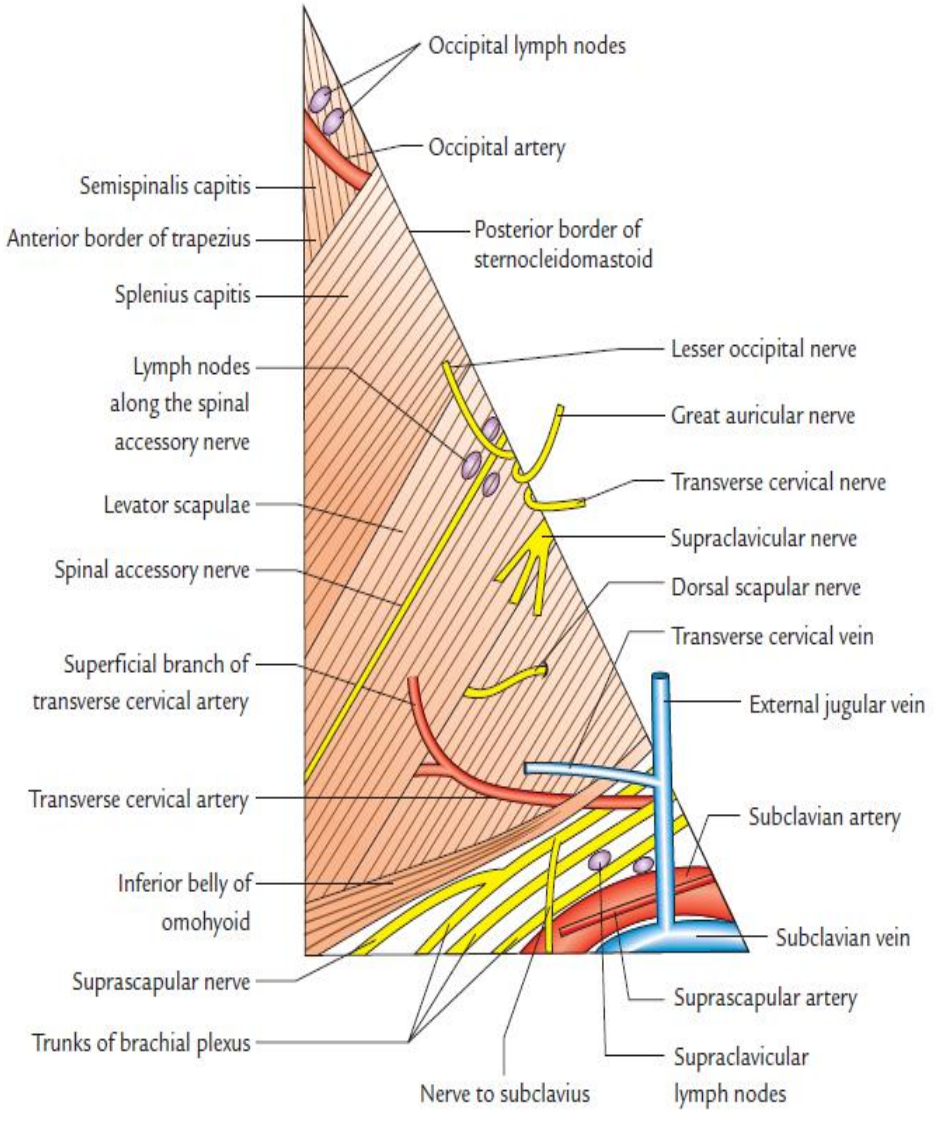


- ***Fascial carpet of the posterior triangle***
- The muscular floor of posterior triangle is covered by prevertebral layer of deep cervical fascia, which forms the fascial carpet of the floor of the posterior triangle.
- It forms axillary sheath around subclavian artery and brachial plexus travelling from the root of the neck to the upper limb.
- The lower part of the posterior triangle is crossed by inferior belly of omohyoid superficial to the fascial carpet.



- **Subdivisions**
- The posterior triangle is subdivided into two parts by the inferior belly of the omohyoid.
- **(a) occipital triangle** a upper larger part.
- ***(b) subclavian (supraclavicular) triangle*** small lower part.
- These parts are so named because they contain occipital and subclavian arteries, respectively.





- **Contents**

1. In the occipital triangle

(a) Spinal accessory nerve

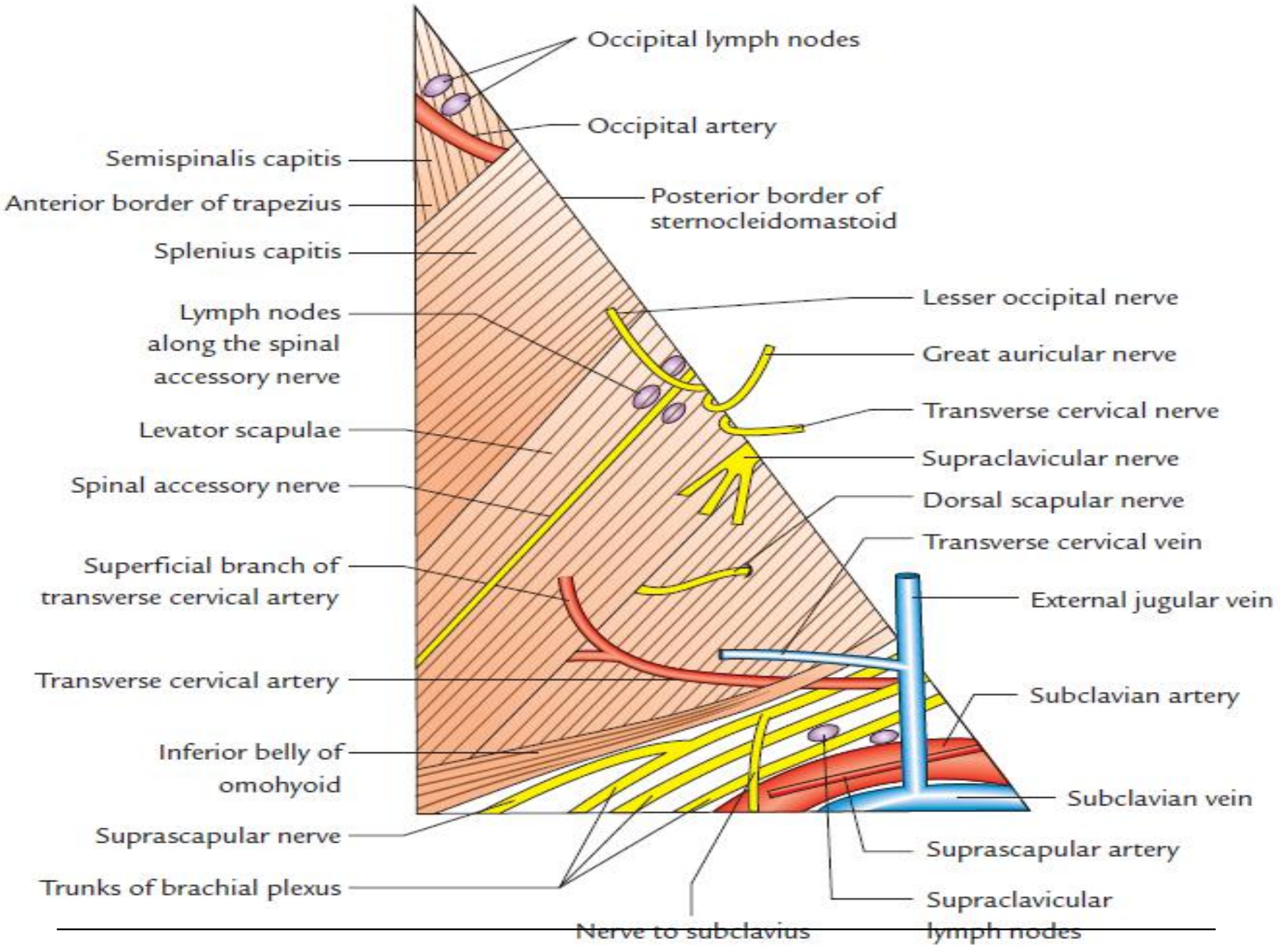
(b) 3rd and 4th cervical nerves providing branches to levator scapulae and trapezius muscles

(c) **Dorsal scapular nerve (C5)**

(d) **Four cutaneous branches of cervical plexus** (initial parts)

(e) **Superficial transverse cervical artery**

(f) **Occipital artery**



2. In the subclavian(supraclavicular triangle)

(a) **3rd part of the subclavian artery**

(b) **Subclavian vein**

(c) Terminal part of **external jugular vein**

(d) **Trunks of brachial plexus**

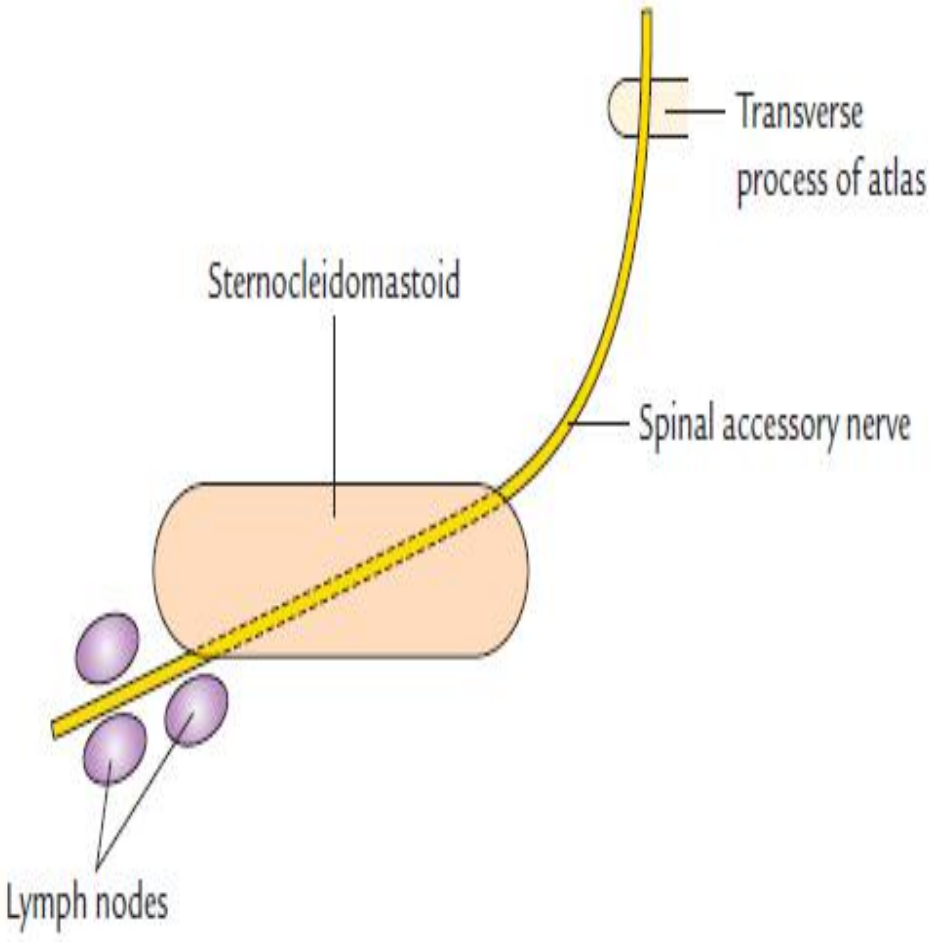
(e) **Superficial (transverse) cervical, suprascapular, and dorsal scapular arteries**

(f) **Lymph nodes**

- All the important contents of the posterior triangle lie *deep to the fascial carpet* of the floor
- *except spinal accessory nerve*, which lies just underneath the roof.
- In operations on the posterior triangle all the structures except spinal accessory nerve are safe, provided fascial carpet of posterior triangle is left intact.

Spinal accessory nerve

- This nerve emerges in the posterior triangle by piercing the posterior border of the sternocleidomastoid (a little above the middle of this border).
- It is related to lymph nodes of the upper deep cervical chain .
- The nerve running downwards parallel to the fibres of levator scapulae muscle to
- Disappear underneath to the anterior border of trapezius and supplies trapezius muscle.
- In the posterior triangle it is adherent to the deep aspect of the fascial roof of this triangle.



Four cutaneous branches of cervical plexus

- It emerge at the midpoint (just above) of the posterior border of the sternocleidomastoid by piercing the deep cervical fascia.

(a)lesser occipital nerve

→auricle and head behind the auricle.

(b) great auricular nerve

→anterior and posterior branches.

→skin on angle of the mandible mastoid

region and auricle (lower part).

(c) transverse cervical nerve

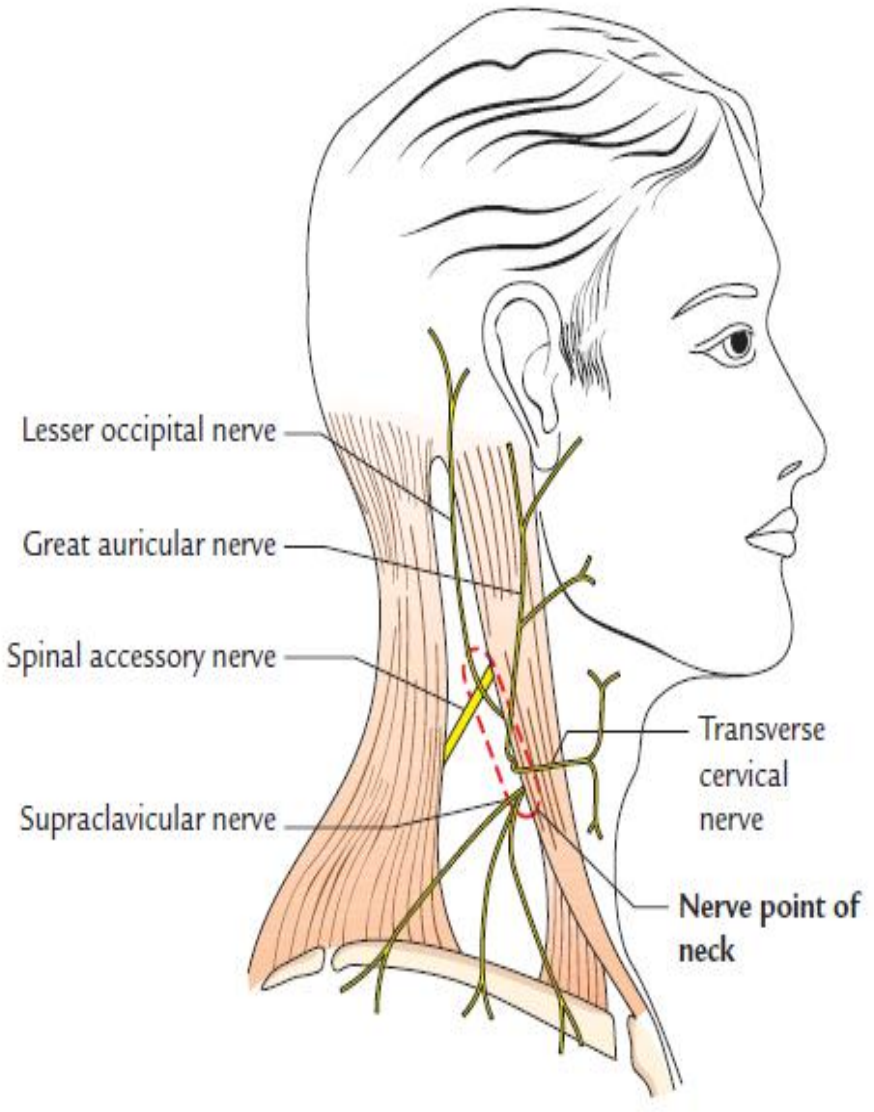
→ascending and descending br.

→skin of the front of the neck.

(d) supraclavicular nerve

→medial, intermediate, lateral supraclavicular

→skin on chest up to the 2nd rib, front of the chest, deltoid muscle(upper half)



- **Transverse cervical artery:** branch of thyrocervical trunk of the first part of subclavian artery.
- **Suprascapular artery:** branch of thyrocervical trunk
- **Dorsal scapular artery:** It arises from the third part of the subclavian artery.
- **Occipital artery:** branch of external carotid artery
- **Subclavian artery**

Lymph nodes

- These are deep cervical lymph nodes found at the following sites in the posterior triangle:

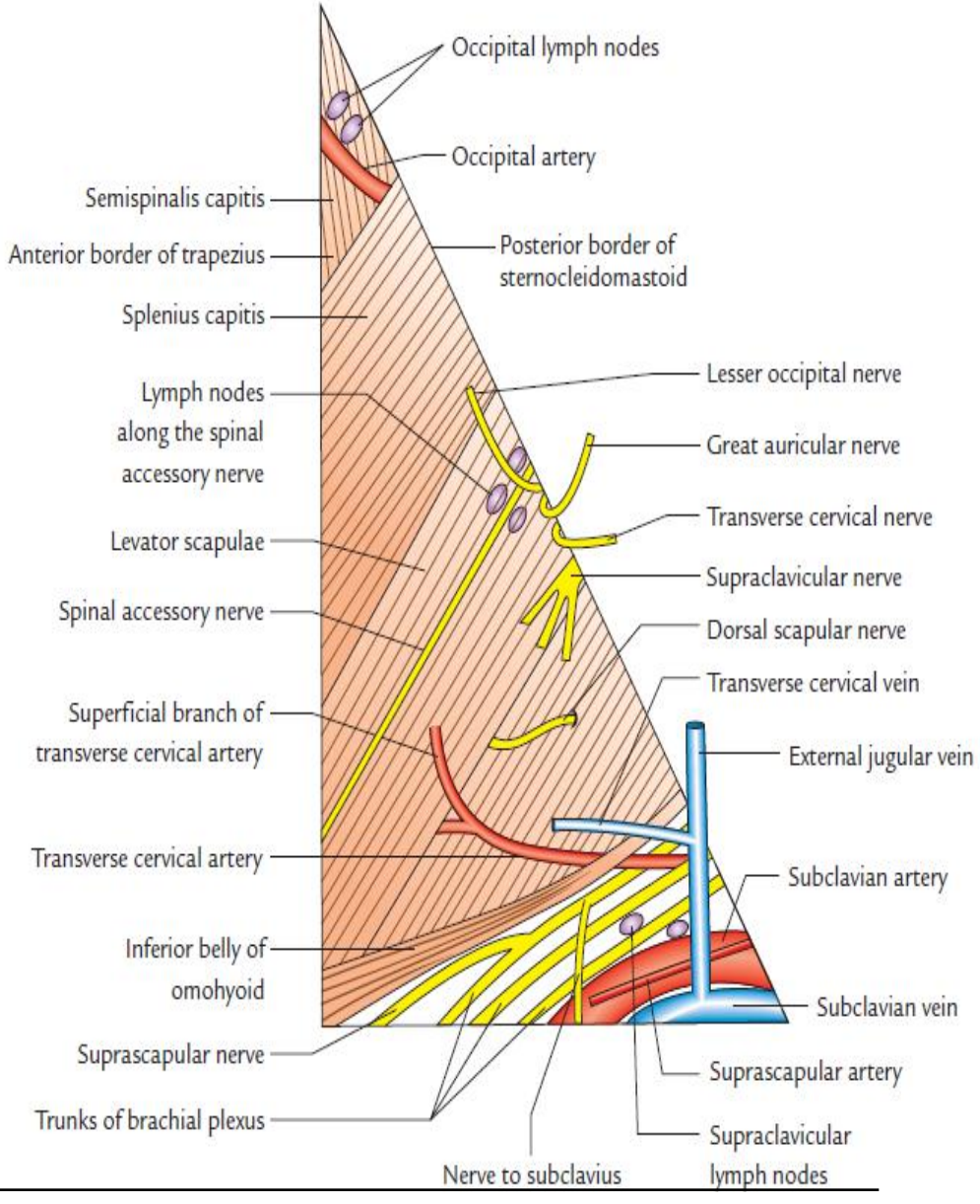
(a) A chain of nodes along the posterior border of sternocleidomastoid.

(b) A chain of nodes along the spinal accessory nerve.

(c) A few nodes in the apical region of the triangle called occipital lymph nodes.

(d) A group of supraclavicular lymph nodes.

- These nodes lie superficial to brachial plexus and subclavian vessels.



Swelling in the posterior triangle

- Most common cause of swelling in the posterior triangle is due to enlargement of lymph nodes.
- Supraclavicular lymph nodes are commonly involved and enlarged in tuberculosis, Hodgkin's disease, and malignant growth of breast, arm, and chest.
- Left supraclavicular lymph nodes (*Virchow's lymph nodes) are commonly* involved in metastasis from cancer stomach, cancer testis, and cancer of other abdominal organs.
- The biopsy of these lymph nodes is helpful in early diagnosis of distant malignancies.