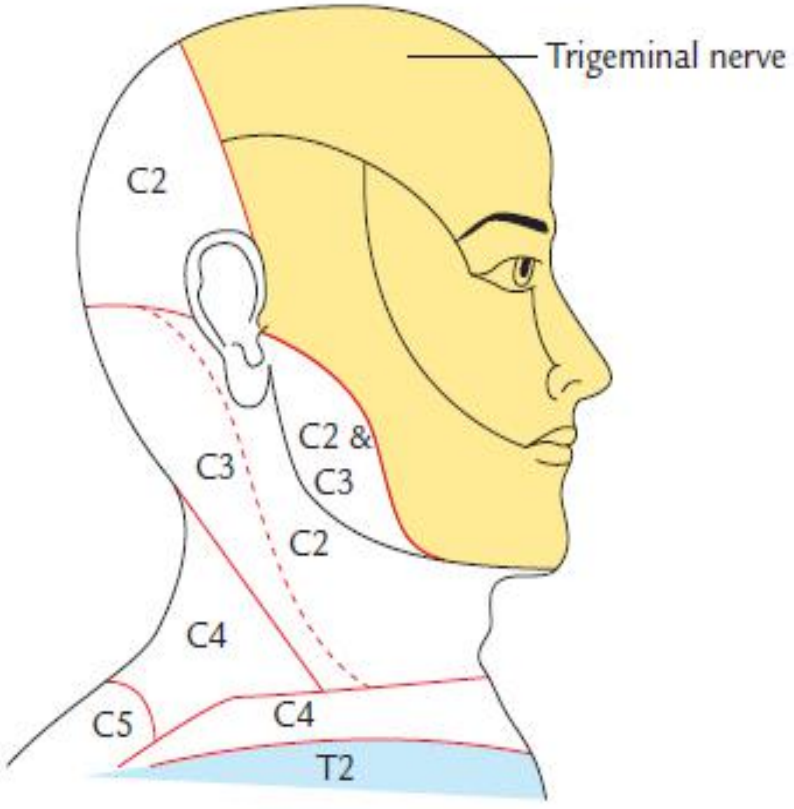
SKIN, SUPERFICIAL FASCIA, AND DEEP FASCIA OF THE NECK

SKIN

- The skin in the region of neck is thin and normally under tension.
- The direction of tension lines (*cleavage lines or Langer's lines) often correspond with the wrinkle lines.*
- The cleavage (*Langer's) lines are disposed transversely around* the neck. Therefore, surgical incisions made along these lines, i.e., transverse incisions, in neck heal with invisible scars.

CUTANEOUS INNERVATION

- The cutaneous innervation of the neck is derived from C2, C3, and C4 spinal segments.
- The skin on the anterolateral aspect of the neck is supplied by cutaneous nerves derived from ventral rami of C2, C3, and C4 spinal nerves.
- *The skin on the* posterior aspect of the neck is supplied by dorsal rami of C2, C3, and C4 spinal nerves.

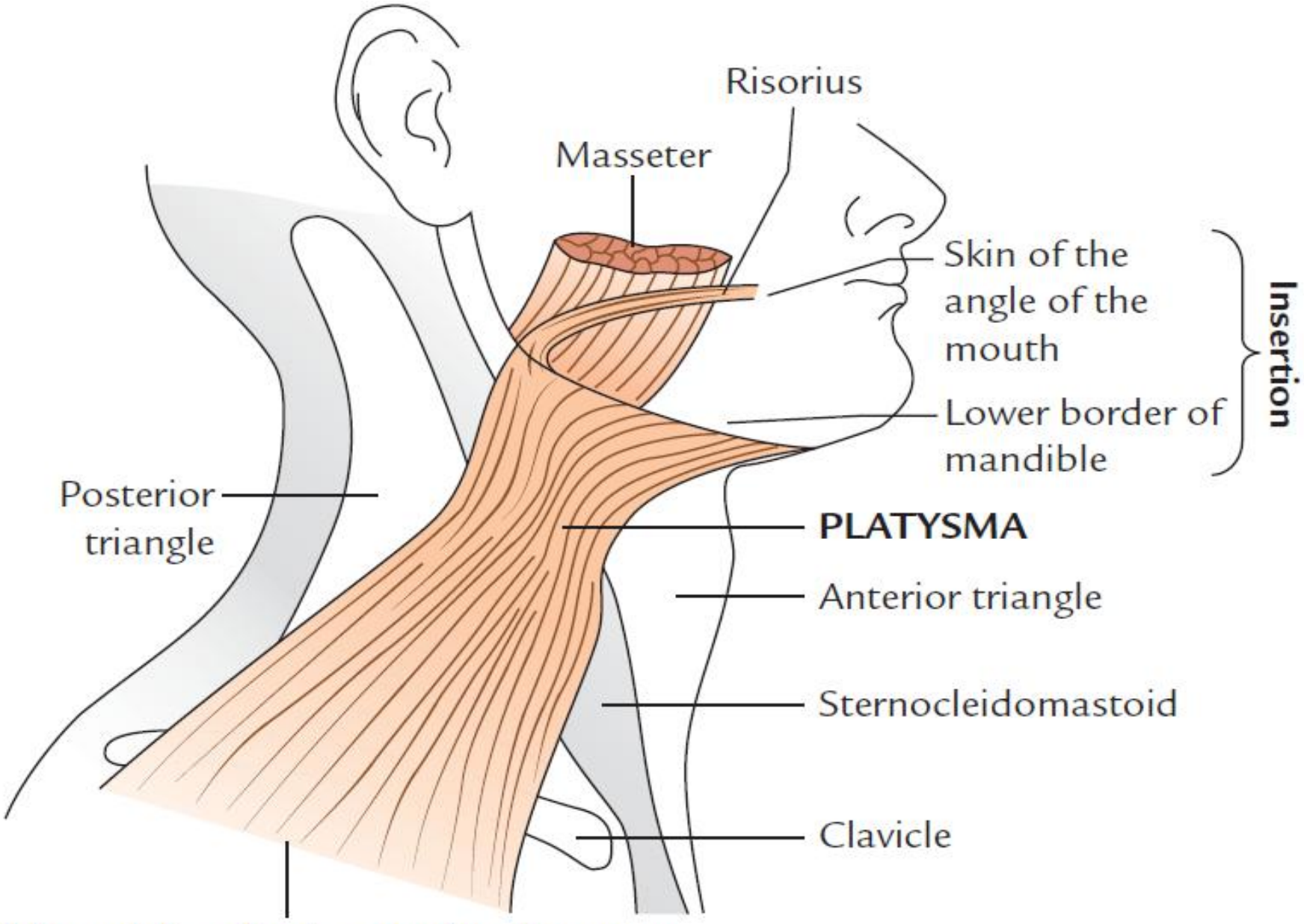


SUPERFICIAL FASCIA

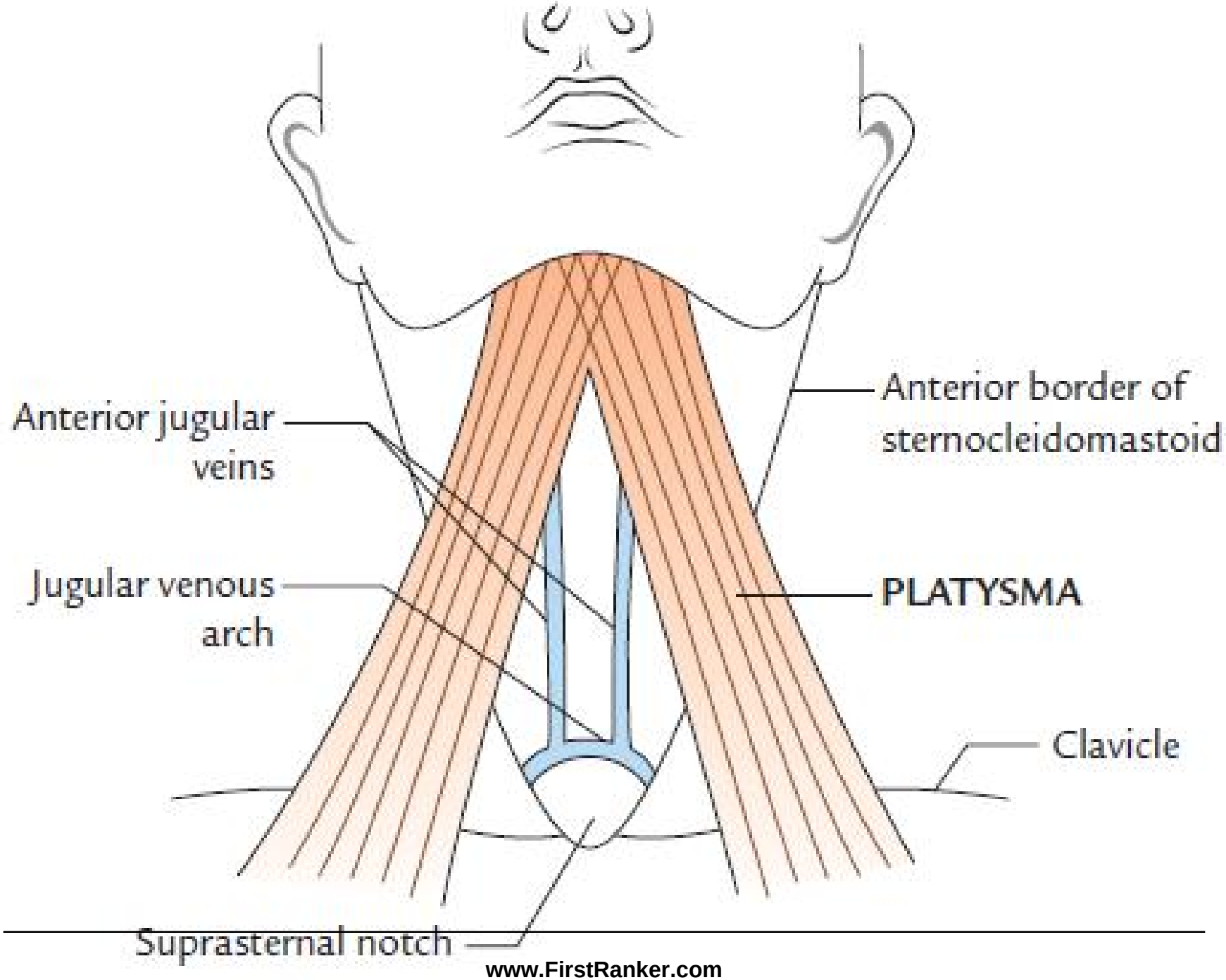
- The superficial fascia of the neck consists of a thin layer of loose areolar tissue and contains a thin sheet of muscle called **platysma.**
- It also contains cutaneous nerves, superficial veins, superficial lymph nodes, and lymph vessels.
- *The cutaneous nerves and veins lie deep to the platysma.*
- Amount of subcutaneous fat is more in children and women.

PLATYSMA

- It is a thin quadrilateral broad sheet of muscle in the superficial fascia of the side of the neck.
- It ascends onto the face from the front of the neck.
- **It develops** from the 2nd pharyngeal arch.
- It covers the anteroinferior part of the posterior triangle and superior part of the anteriortriangle of the neck.



- **Origin**
- Arises from skin and deep fascia covering the upper parts of the pectoralis major and anterior part of the deltoid muscle.
- **Insertion**
- After origin, the fibres sweep upwards and forwards superficial to the clavicle and sternocleidomastoid.
- It crosses over the lower part of the posterior triangle and upper part of the anterior triangle to reach the lower border of the mandible, where anterior fibres decussate with the corresponding fibres of the opposite side across the midline for about 2.5 cm below and behind the symphysis menti.



- Intermediate and posterior fibres are inserted into the lower border of the body of the mandible.
- Some posterior fibres pass superficial to the angle of the mandible and masseter muscle and then turn medially to insert into the skin of angle of the mouth through risorius.
- **Nerve Supply**
- The platysma is supplied by the cervical branch of the facial nerve.

- **Actions**

1. **Acting from above, the platysma produces vertical** ridges in the skin of the neck releasing the pressure of skin over the underlying veins and thus helps in the venous return. It, therefore, serves to ease the pressure of tight collar.
2. **Acting from below, it helps to depress the mandible and** draws the angle of the mouth downwards and laterally as in expression of terror/horror.

SUPERFICIAL VEINS OF THE NECK

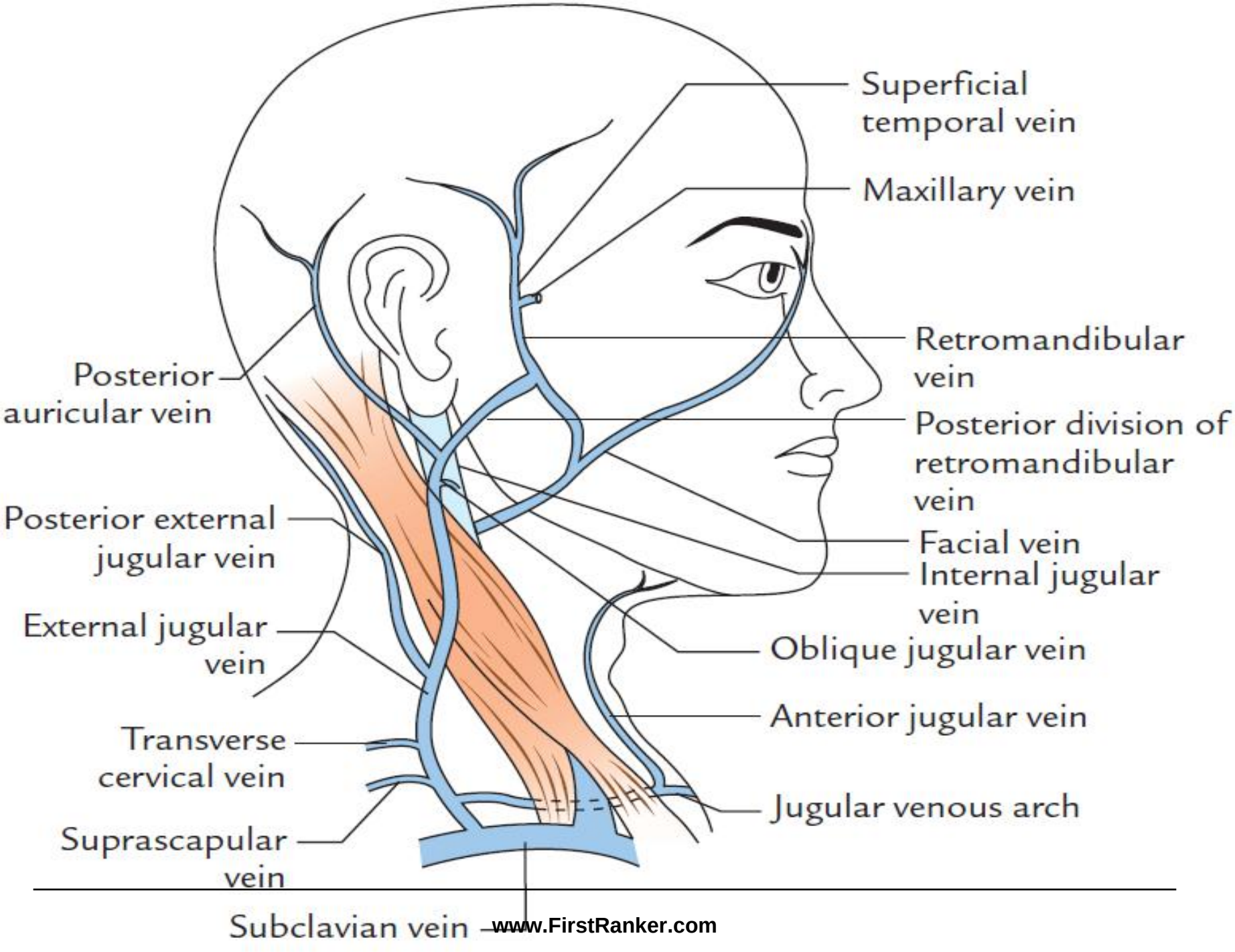
- There are two superficial veins of the neck.

1. External jugular vein.

2. Anterior jugular vein

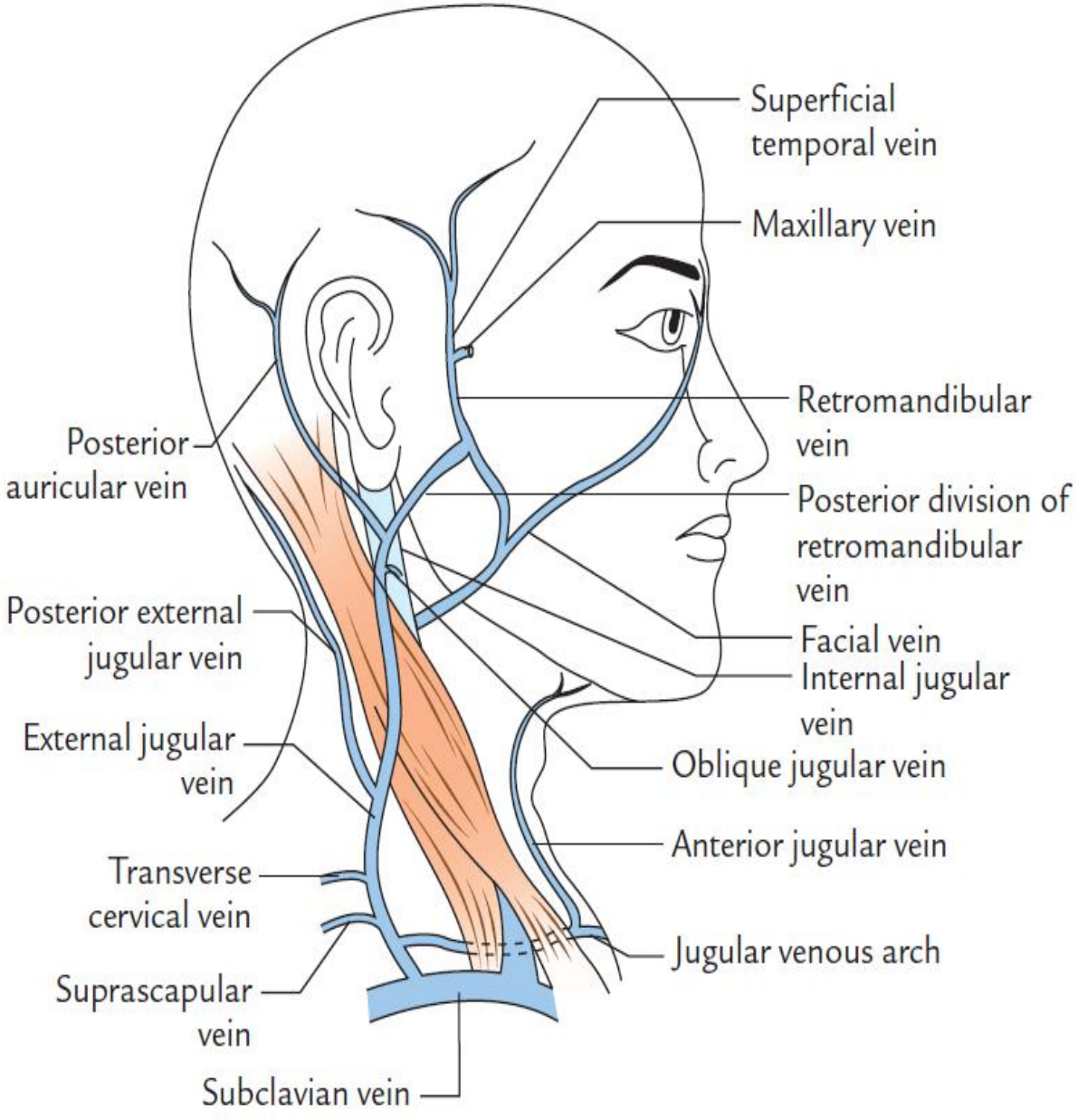
1.External jugular vein → It begins just below the angle of the mandible by the union of

- posterior division of retromandibular vein and posterior auricular vein.
- Runs vertically downward across the sternocleidomastoid under the cover of platysma
- Pierce the deep cervical fascia about 2.5 cm above and terminates in the subclavian vein.



- **Its tributaries are→**

1. Posterior auricular vein
2. Retromandibular v
3. Posterior external jugular v.
4. Oblique jugular v.
5. Transverse cervical v.
6. Suprascapular v.
7. Anterior jugular v.

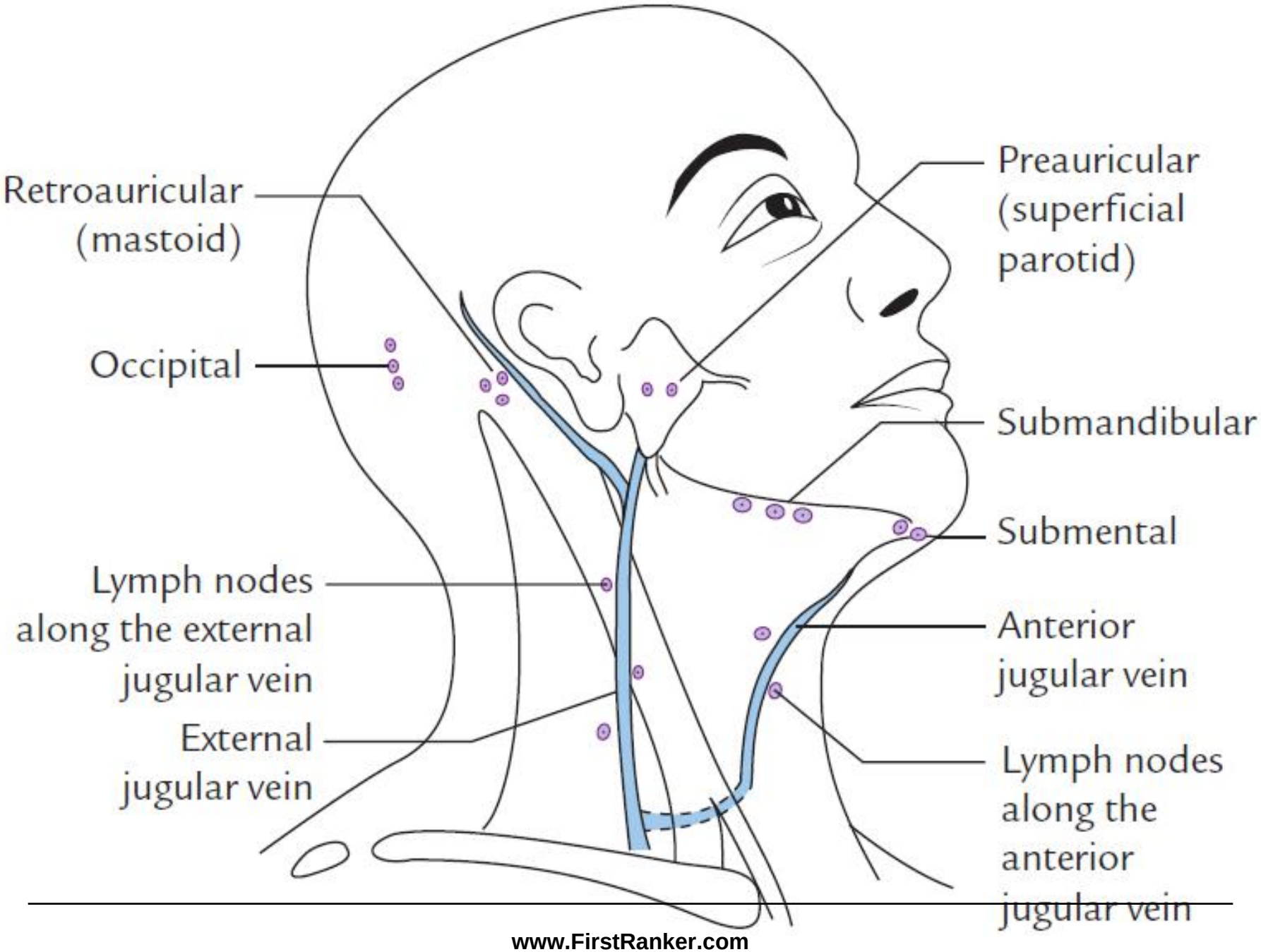


2.Anterior jugular vein → It begins below the chin in the submental region by the union of small unnamed veins from the chin.

- It pierces investing layer of deep cervical fascia and enter **suprasternal space(of Burns)**, then it turns lat. & passes deep to sternocleidomastoid and terminates in the *external jugular vein.*
- In this space, anterior jugular vein is united in the midline to its fellow of opposite side by a transverse venous channel called ***jugular venous arch.***

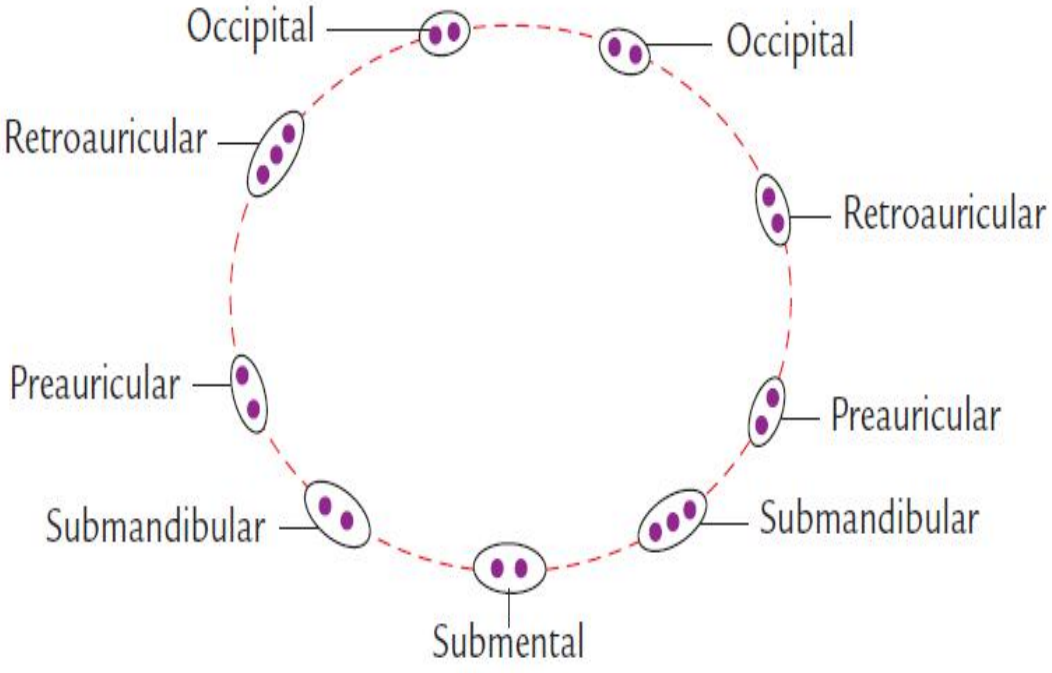
SUPERFICIAL LYMPH NODES AND LYMPH VESSELS

- Situated around the junction of head with the neck.
- They drain all the superficial structures and some deep structures of the head.
- Most of the *efferent lymph vessels* from these lymph nodes pass to *deep cervical lymph nodes* arranged along the internal jugular vein.
- A few scattered superficial nodes are found along the external and anterior jugular veins. They also drain into deep cervical lymph nodes.



- Situated around the junction of head and neck to form *pericervical/cervical collar.*
- They are arranged into groups→

1. ***Submental nodes***.
2. ***Submandibular nodes***.
3. ***Superficial parotid (preauricular) nodes***.
4. ***Retroauricular nodes***.
5. ***Occipital nodes***.



1.Submental nodes

- Number--Three or four
- Lie on mylohyoid muscle
- Below the symphysis menti (chin) and
- Receive the lymph from→

→Tip of the tongue,

→Lower lip, and

→Chin.

2.Submandibular nodes

- Number-- Half a dozen
- Lie on the surface of the submandibular gland and
- Receive the lymph from→

→Face,

→Cheek

→Nose,

→Upper lip,

→Gums, and

→Tongue.

3.Parotid (preauricular) nodes

- Lie superficial to parotid fascia
- Drain the lymph from→

→Scalp,

→Auricle,

→Eyelids, and

→Cheeks.

4.Mastoid (postauricular) nodes

- Number--One or two
- Lie on the mastoid process and
- Drain the lymph from→

→Scalp and

→Auricle.

5.Occipital nodes

- Number-- One or two
- Lie on trapezius about 2.5 cm inferolateral to the inion and
- Drain the lymph from→

→scalp.

- They are palpable in **German measles.**

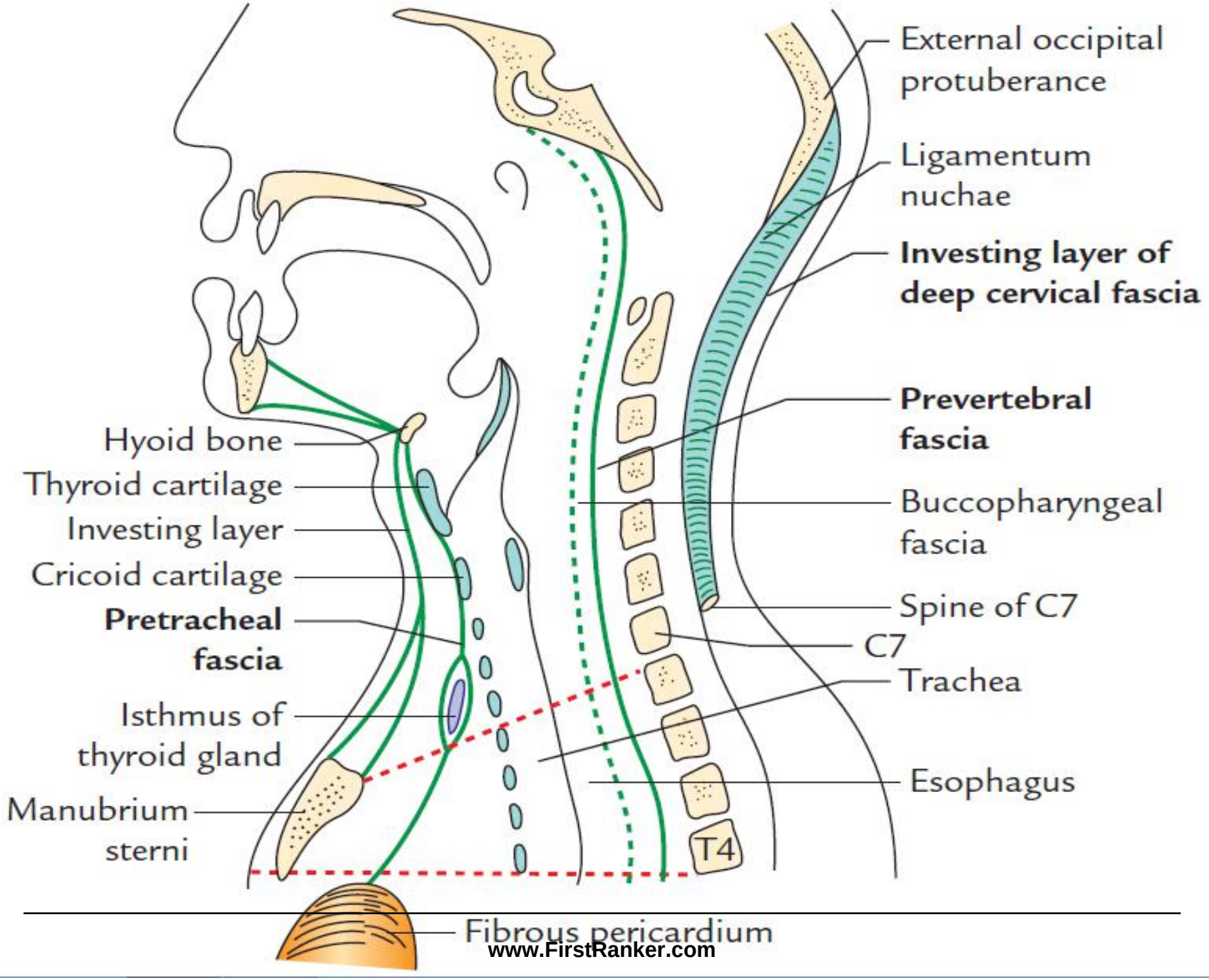
- These groups form a ring of lymph nodes at the junction of the head and neck and called ***necklace of lymph nodes at the craniocervical junction***

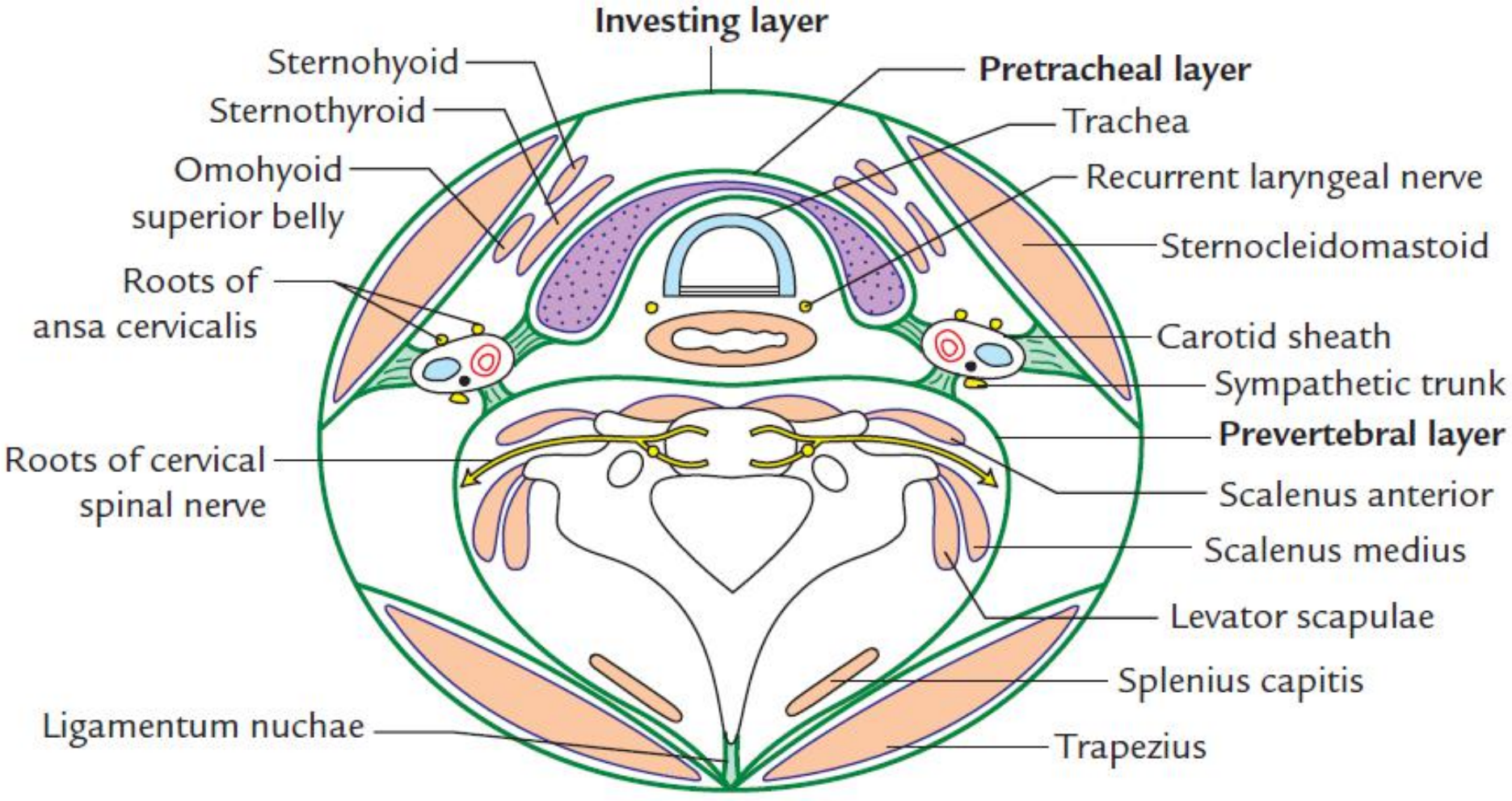
DEEP CERVICAL FASCIA (FASCIA COLLI)

- Clinically very important as it forms various fascial spaces in the neck.
- It also provides capsules to the glands and invests the muscles in the region.
- It also forms protective sheaths around neurovascular structures.
- The layers of deep cervical fascia form fascial planes to direct the spread of infection or pus in the neck.

- The deep cervical fascia of the neck consists of three layers.
- From outside inwards these are as follows:

1. **Investing layer of deep cervical fascia.**
2. **Pretracheal fascia.**
3. **Prevertebral fascia**.





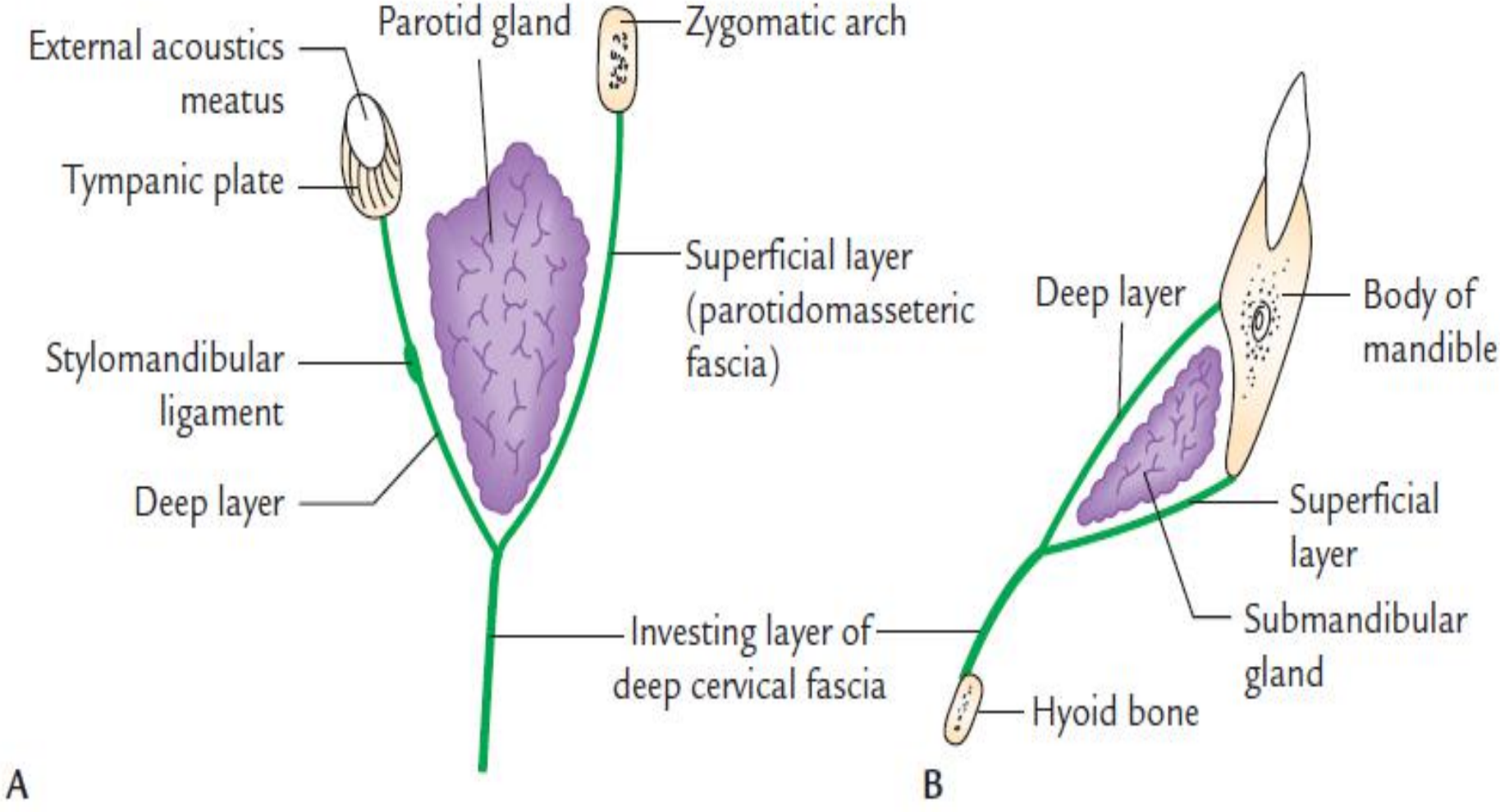
- ***Investing fascia***
- This layer encircles the neck like a collar.
- Lies deep to platysma and superficial fascia.
- It encloses the sternocleidomastoid and trapezius.
- ***Attachments***

1. **Superiorly→** attached to external occipital protuberance, superior nuchal line, mastoid process, and lower border of mandible from behind forwards.
2. **Inferiorly→**attached to the spine of scapula, acromion process, upper aspect of clavicle, and jugular notch of manubrium sterni from behind forwards.

3. **Anteriorly→** across the midline, it becomes continuous with its counter part of the other side. In the anterior midline it is attached to symphysis menti, hyoid bone jugular notch from above downwards.

4. **Posteriorly→**attached to ligamentum nuchae and spine of 7th cervical vertebra.

- ***Tracing of the investing layer***
- **Vertical tracing:** When traced upwards above the hyoid bone
- It splits to enclose the submandibular salivary gland
- The superficial layer is attached to the lower border of the body of the mandible.
- The deep layer attached to the mylohyoid line of the mandible.



- At the lower pole of the parotid gland, it splits to enclose parotid gland
- The superficial layer is strong and covers parotid gland as **parotidomasseteric fascia** to get attached to the lower border of the zygomatic arch.
- The deeper layer get attached to the lower border of the tympanic plate and styloid process of the temporal bone.
- Between the styloid process and the angle of mandible condenses to form the **stylomandibular ligament** which separates the parotid gland from submandibular gland.

- When traced downwards, the fascia splits twice to enclose two spaces:
- Above the suprasternal notch, it splits into two layers to enclose **suprasternal space (of Burns)** before being attached to the anterior and posterior borders of the suprasternal notch.

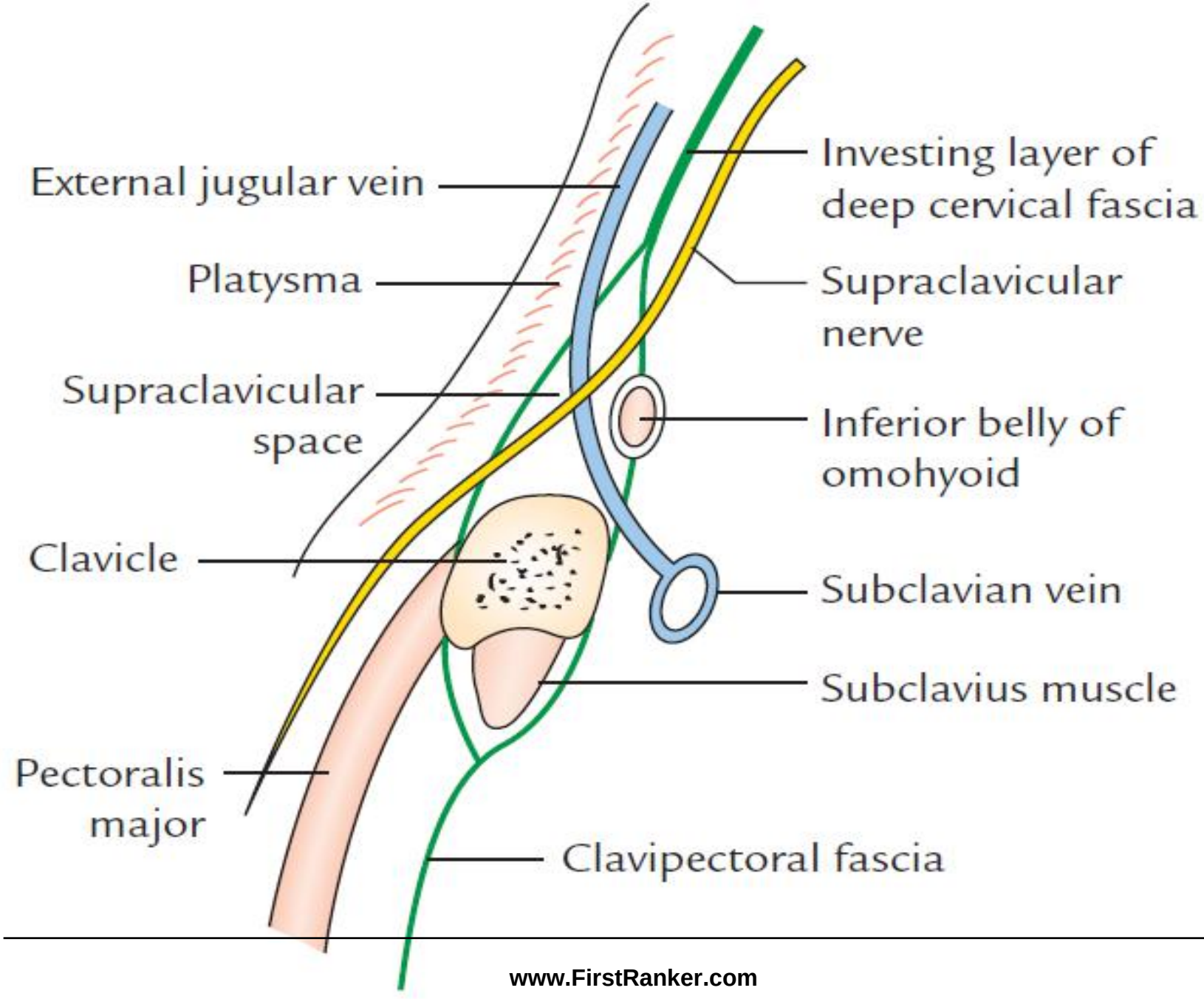
- The *suprasternal space contains:*

(a) sternal heads of sternocleidomastoid muscles,

(b) jugular venous arch,

(c) interclavicular ligament, and

(d) lymph node.



- Above the middle third of clavicle:
- it splits into two layers to enclose the **supraclavicular space .**
- **The anterior** and posterior layers get attached to the anterior and posterior borders of the upper surface of the clavicle.
- The posterior layer encloses the **inferior belly of omohyoid** and it becomes continuous with the posterior layer of **clavipectoral fascia.**
- The *supraclavicular space contains:*

(a) terminal part of the external jugular vein, and

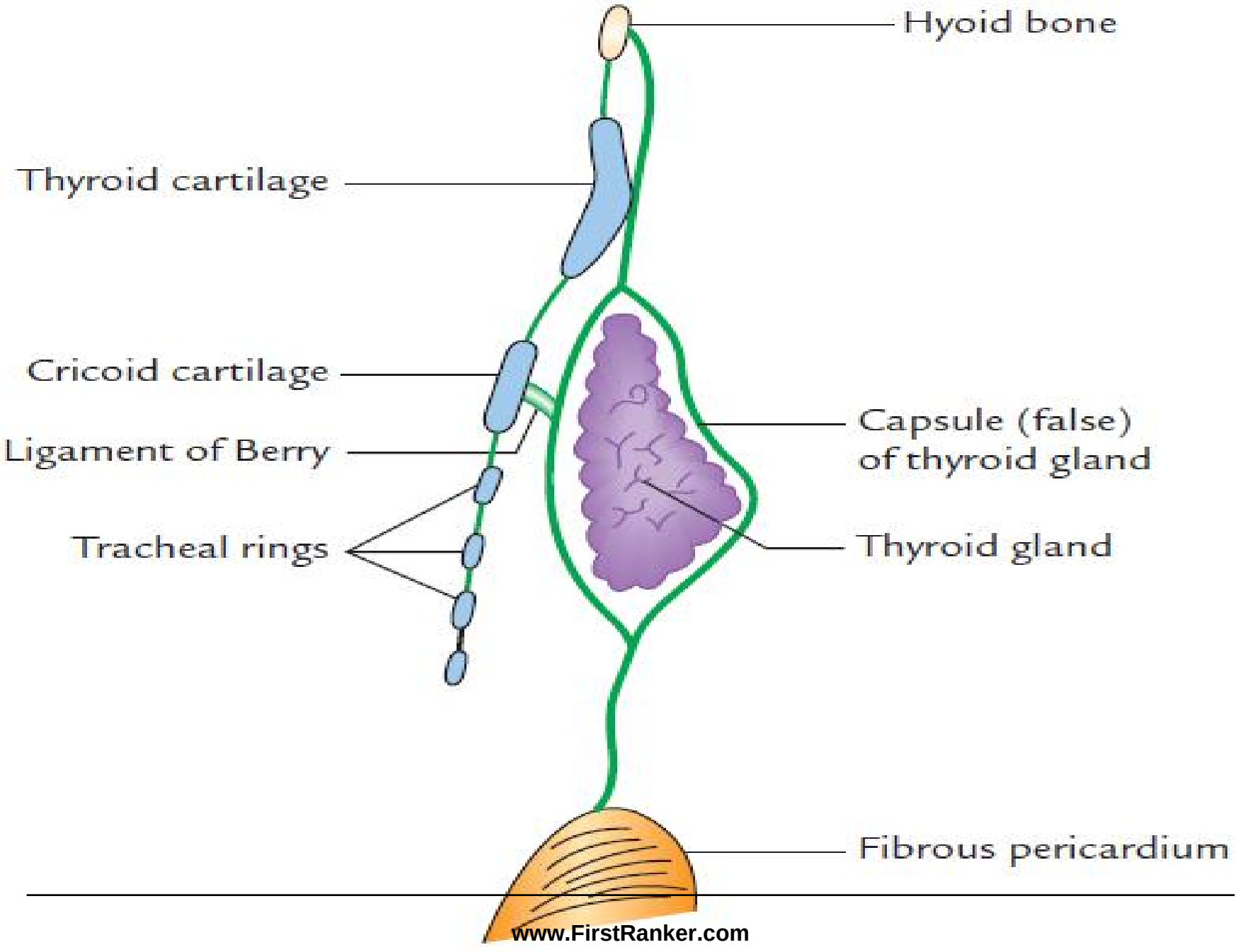
- (b) supraclavicular nerves before they become cutaneous.
- The investing layer also forms **fascial pulleys** to anchor the **tendons of the digastric** and **omohyoid muscles**.

- **Horizontal tracing:**
- When traced forwards from its attachment to ligament nuchae--
- It first splits to enclose the trapezius, then forms the roof of the posterior triangle.
- Again splits to enclose the sternocleidomastoid, and finally forms the roof of the anterior triangle.

'Rule of 2'

- Encloses 2 muscles → ***trapezius and sternocleidomastoid.***
- Forms roofs of 2 triangles → ***anterior and posterior triangles.***
- Splits to enclose 2 glands → ***submandibular and parotid.***
- Splits to enclose 2 spaces → ***suprasternal and supraclavicular.***
- Forms 2 fascial slings (pulleys) → ***inferior belly of omohyoid*** and tendon of ***digastric muscle***.

- **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 cartilageand 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.**