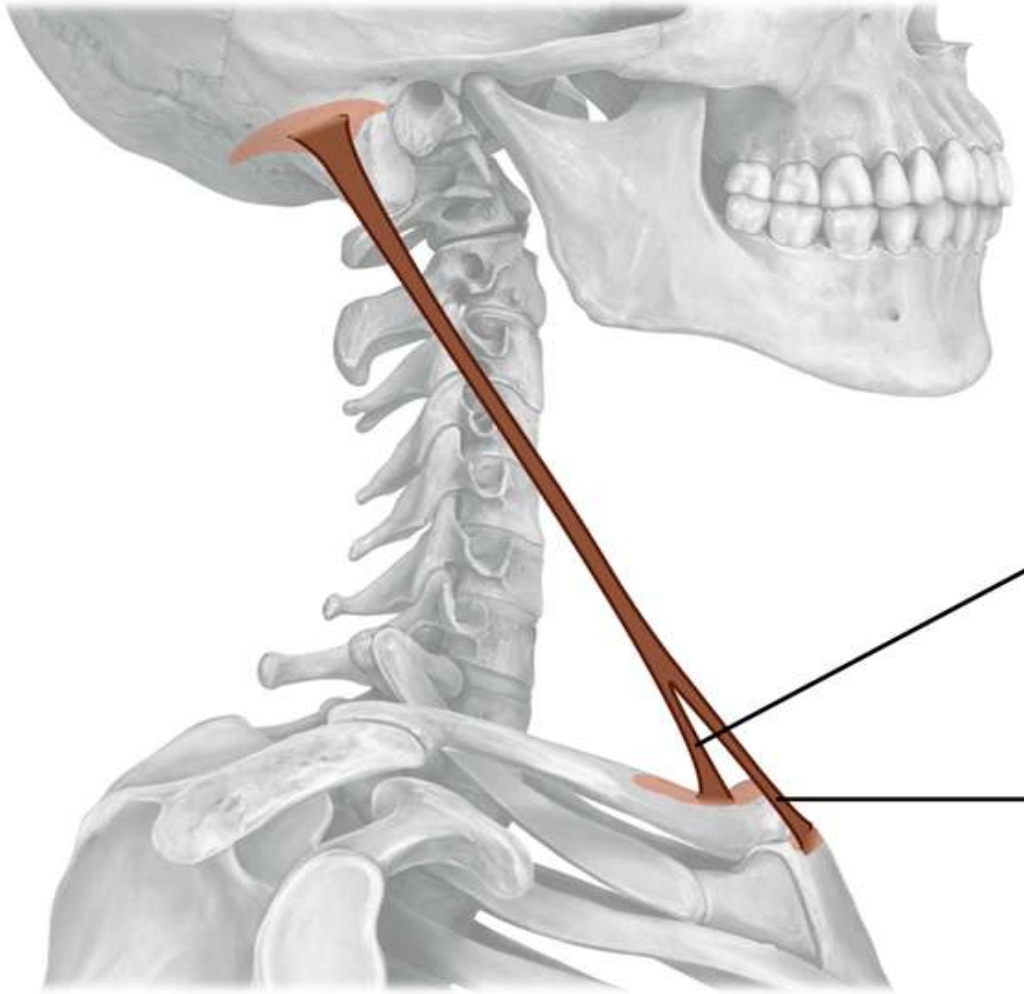
# CAROTID TRIANGLE

Dr. Priyanka Sharma
Assistant Professor
Department of Anatomy
S.B.K.S.M.I. & R.C.

# Competency

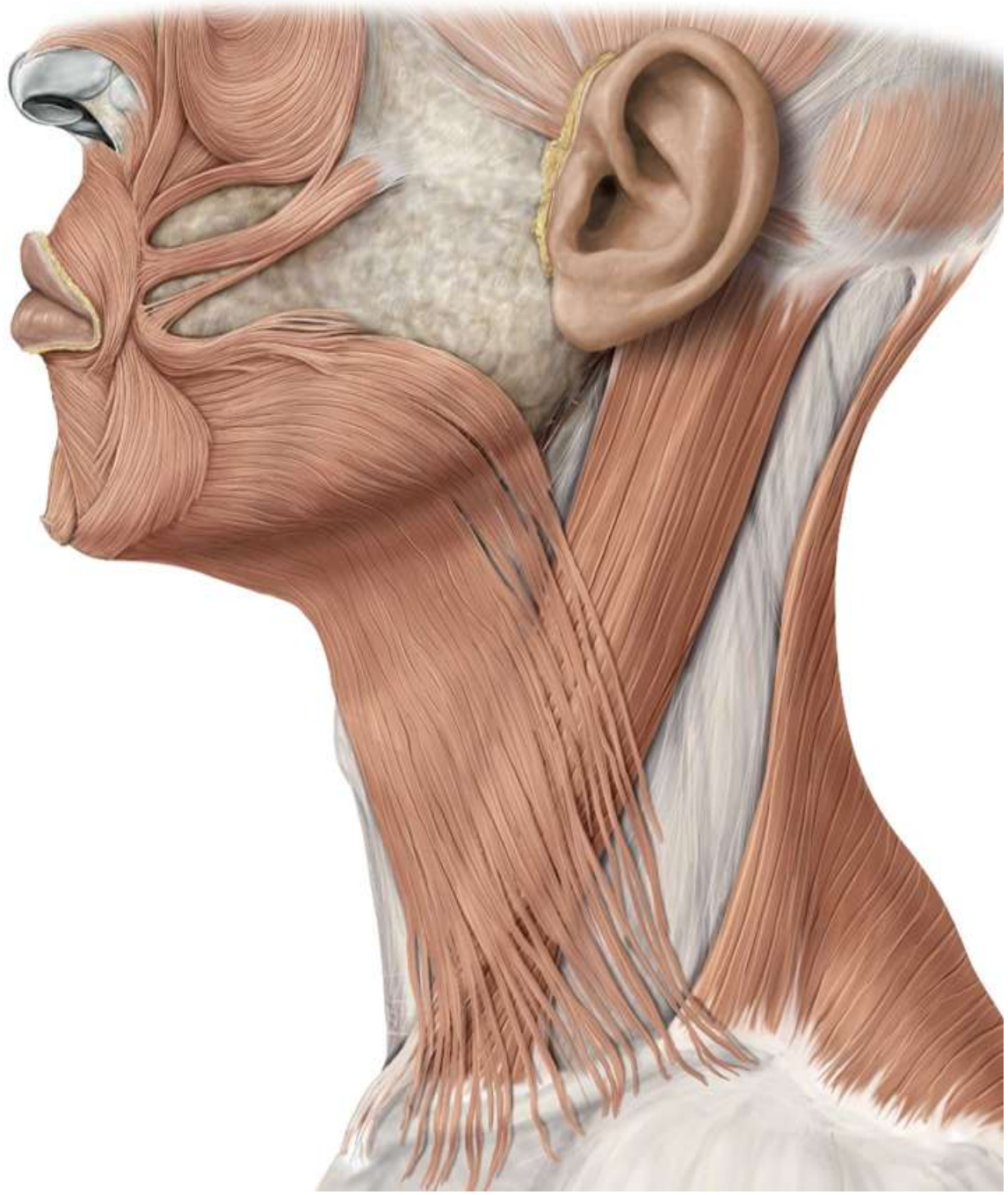
- **AN 32.2 Describe boundaries and contents of carotid triangle with its applied**

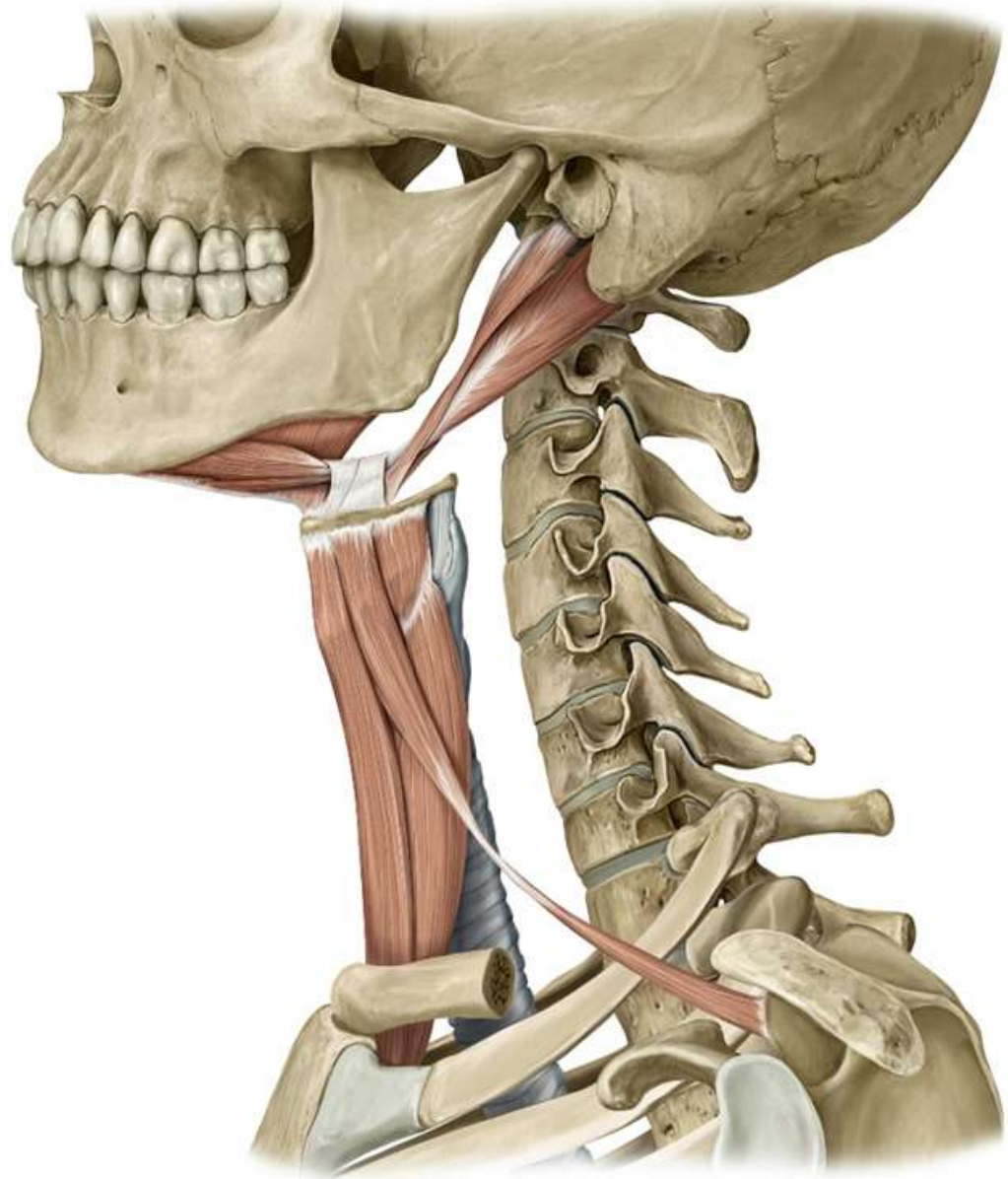
# STERNOCLIEDOMASTOID

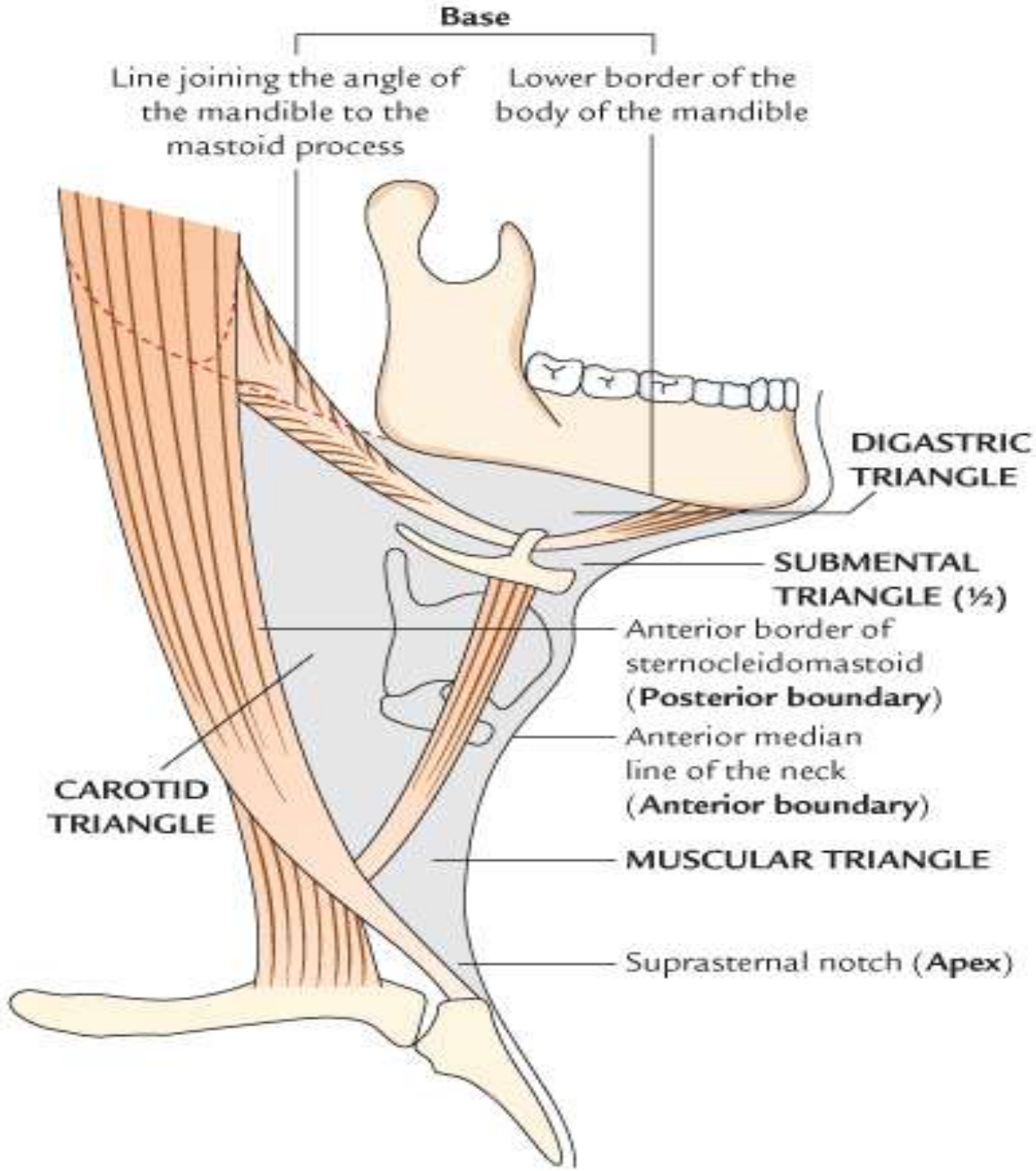


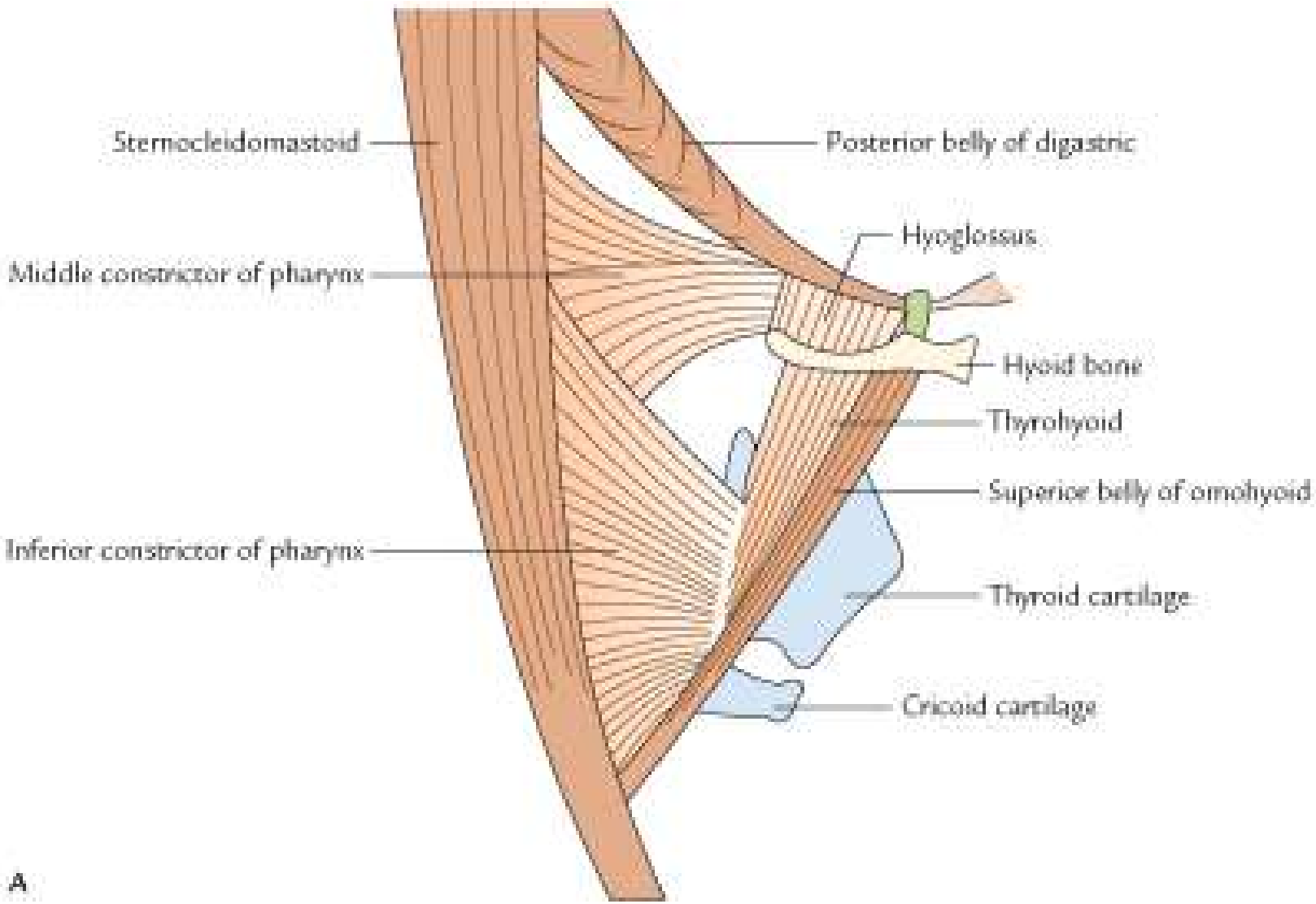
CLAVICULAR HEAD

STERNAL HEAD






Base
Line joining the angle of the mandible to the mastoid process
Lower border of the body of the mandible
DIGASTRIC TRIANGLE
SUBMENTAL TRIANGLE (½)
Anterior border of sternocleidomastoid (Posterior boundary)
Anterior median line of the neck (Anterior boundary)
CAROTID TRIANGLE
MUSCULAR TRIANGLE
Suprasternal notch (Apex)


Sternocleidomastoid
Posterior belly of digastric
Hyoglossus
Middle constrictor of pharynx
Hyoid bone
Thyrohyoid
Superior belly of omohyoid
Inferior constrictor of pharynx
Thyroid cartilage
Cricoid cartilage
A

# CAROTID TRIANGLE

**Boundaries:**

**Posterior: Anterior margin sternocleidomastoid**

**Antero-superior: Posterior belly digastric, Stylohyoid**

**Antero-inferior: Superior belly omohyoid**

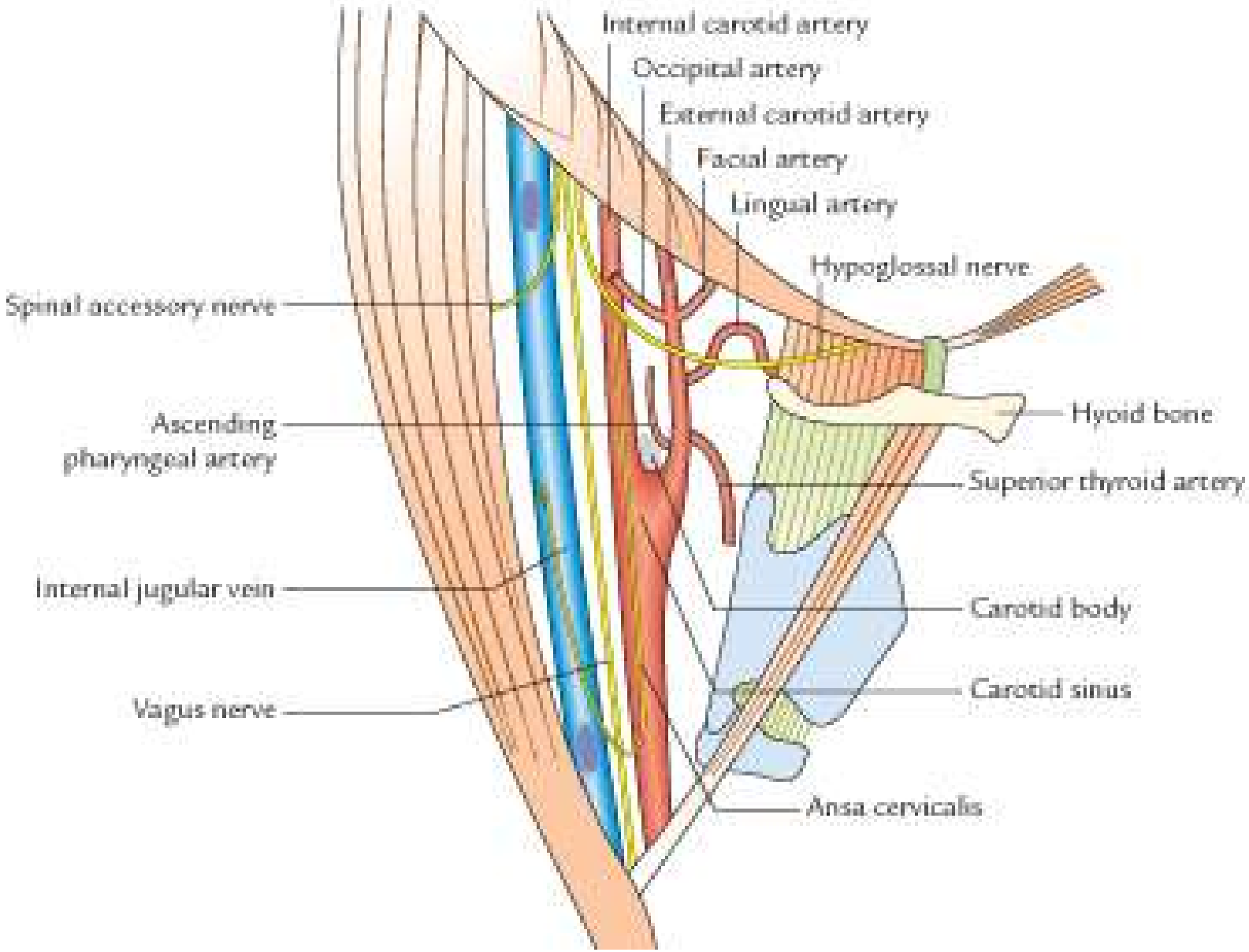
**Roof: Skin, superficial fascia(platysma, cutaneous N.)**

**Deep cervical fascia**

**Floor: Thyrohyoid, Hyoglossus, Middle and inferior constrictors of pharynx**

# CONTENTS

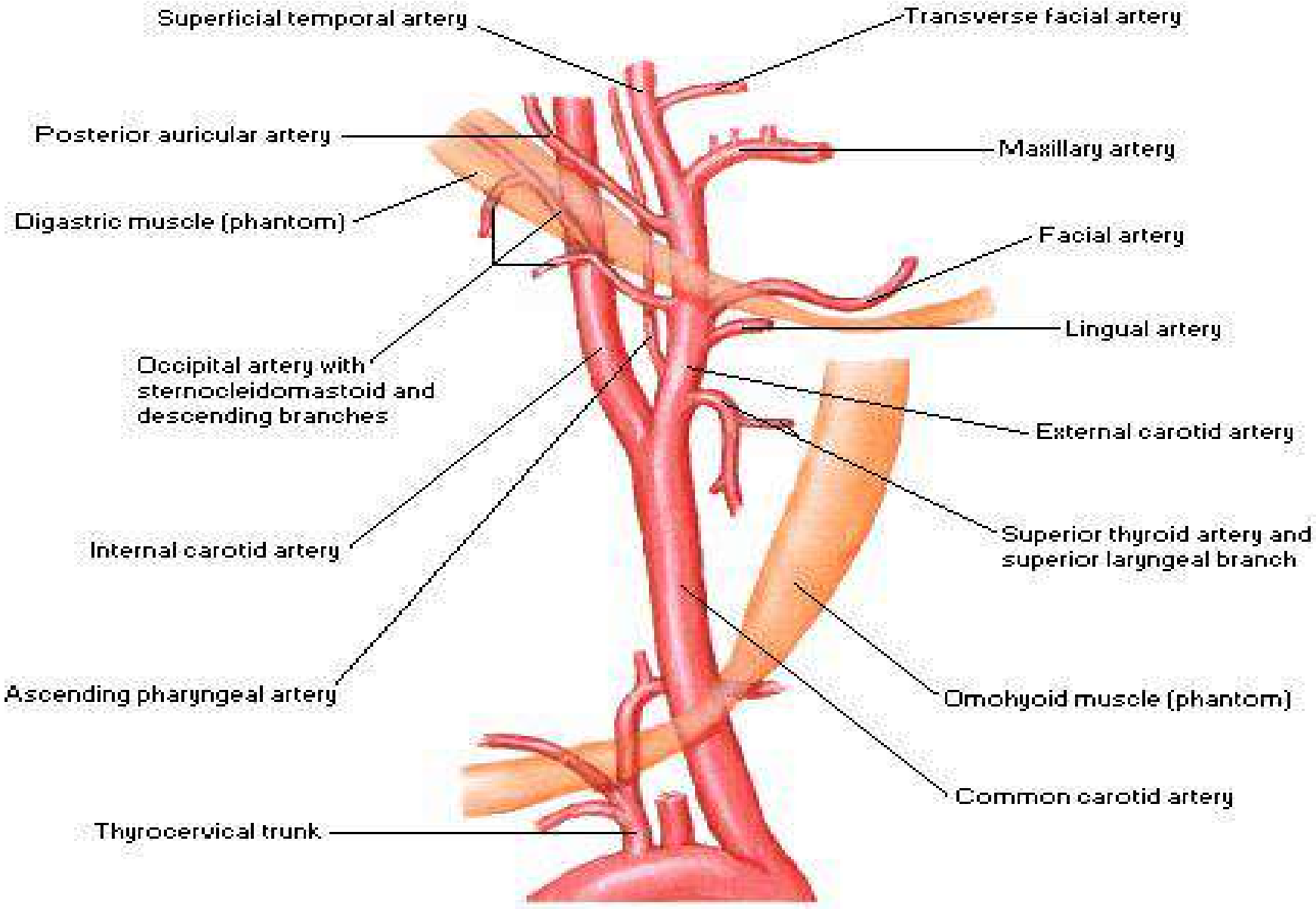
6. Spinal accessory nerve
7. Hypoglossal nerve and the upper root of ansa cervicalis
8. Sympathetic trunk
9. Lymph nodes


Internal carotid artery
Occipital artery
External carotid artery
Facial artery
Lingual artery
Hypoglossal nerve
Spinal accessory nerve
Hyoid bone
Ascending pharyngeal artery
Superior thyroid artery
Internal jugular vein
Carotid body
Carotid sinus
Vagus nerve
Ansa cervicalis

B

# External Carotid Artery and Branches

## Schema



1. **Common carotid artery:**
   - **enters neck behind sternoclavicular joint**
   - **runs upwards laterally to upper border of thyroid cartilage where it divides**
   - **enclosed in carotid sheath**
   - **gives no branches**

## 2. Internal carotid artery:

- begins at upper border of thyroid cartilage, ascends to reach the base of skull and enters carotid canal
- medially related to pharynx
- at the upper end IJV lies posterior to the artery
- between IJV & ICA lies 9, 10, 11 and 12 nerves
- laterally crossed by styloid apparatus

**3. External carotid artery:**

- **arises from CCA at the level of C3-4 disc**
- **terminates behind the neck of mandible within parotid**
- **in lower part lies antero-medial to ICA, in upper part lies lateral to ICA**
- **lower part of the artery lies in carotid triangle**

**Branches in carotid triangle:**

**a) Ascending pharyngeal:**

**- only medial branch**

**b) Superior thyroid:**

**- runs infero-medially accompanied by external laryngeal nerve to reach upper pole of thyroid**

**- it gives off superior laryngeal branch which is accompanied by internal laryngeal nerve**

**c) Lingual artery:**

**- arises opposite the tip of greater cornu of hyoid**

**- hyoglossus divides it into three parts- 1,2,3.**

**- first part lies in carotid triangle superficial to middle constrictor of pharynx**

**- it forms a characteristic upward loop which is crossed by hypoglossal nerve**

**d) Facial artery:**

**- arises just above hyoid and leaves the triangle by passing deep to posterior belly of digastric and stylohyoid**

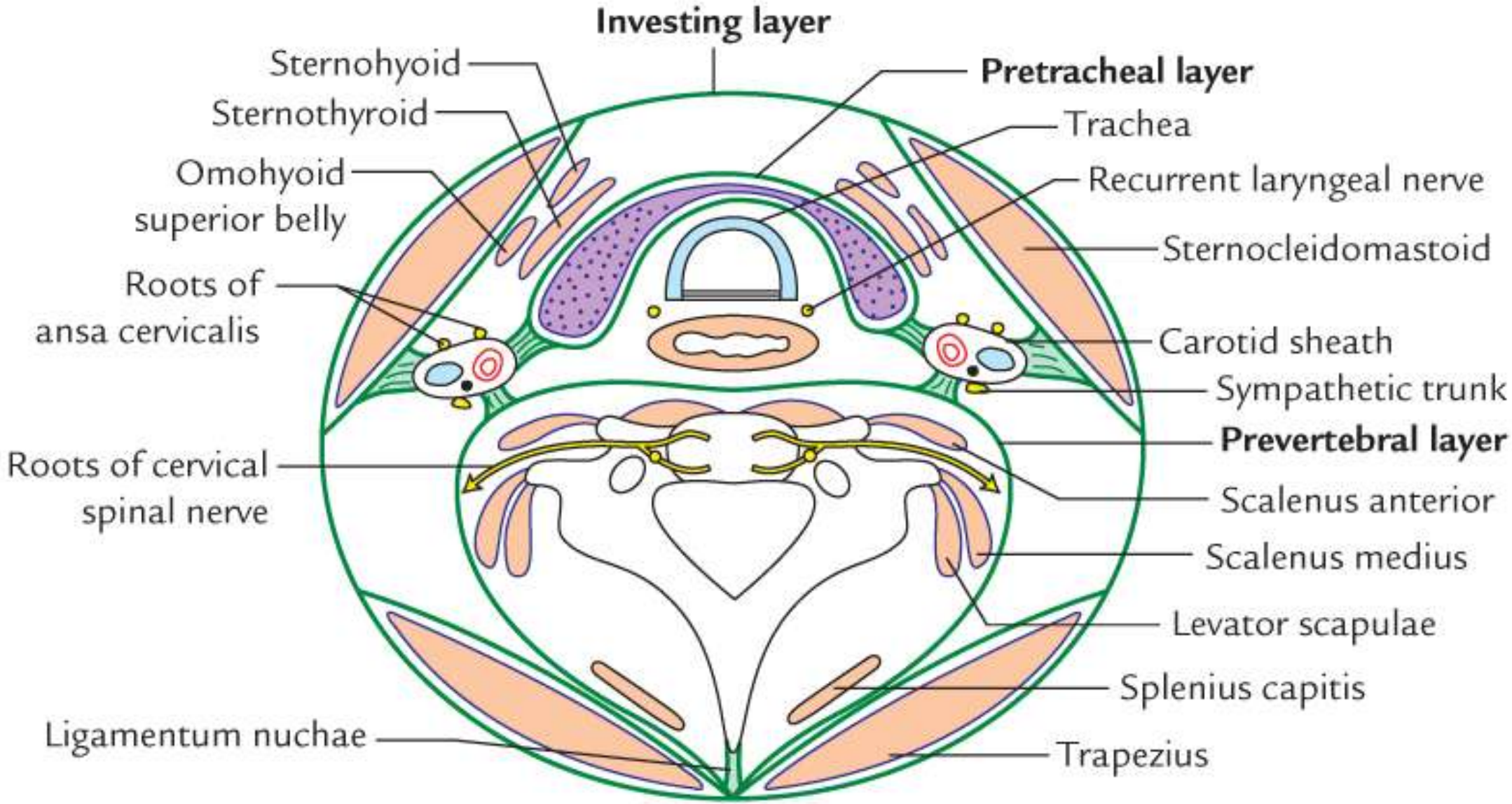
**e) Occipital artery:**

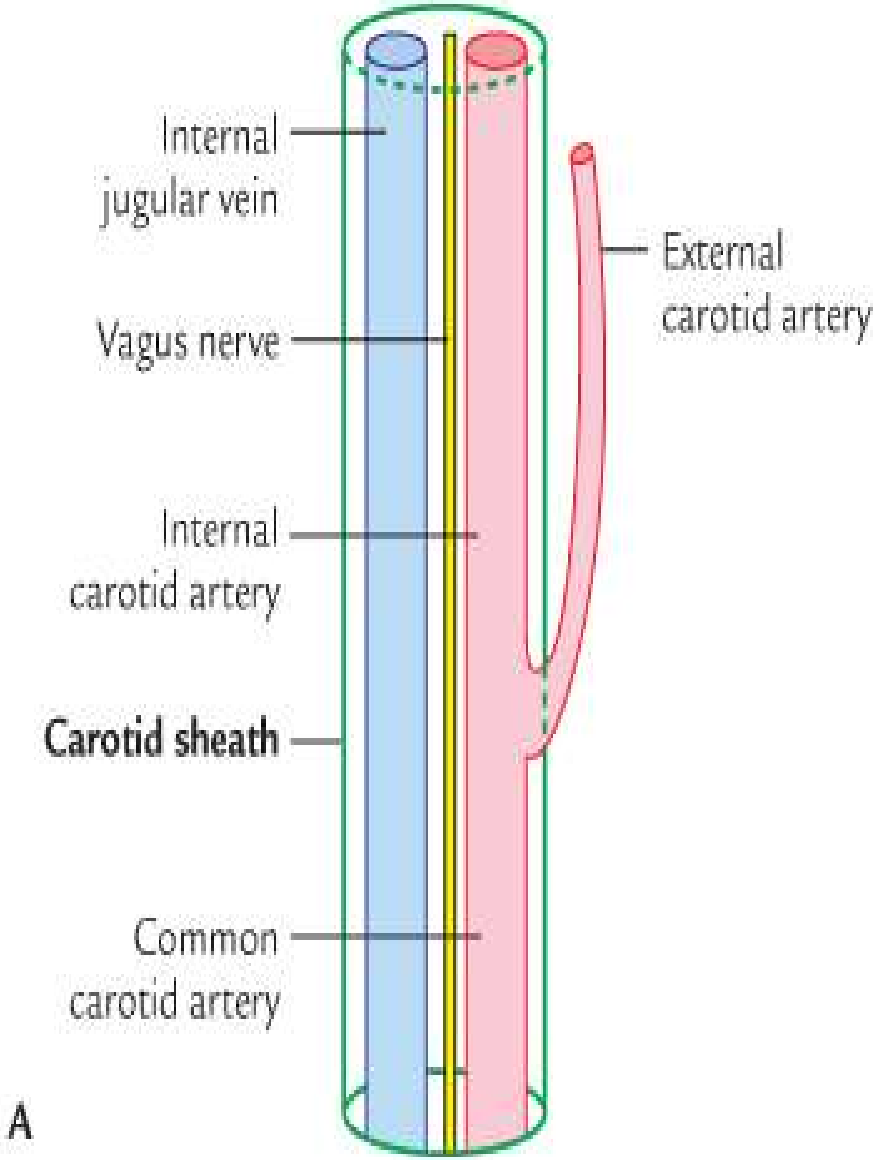
**- from posterior aspect of ECA opposite facial**

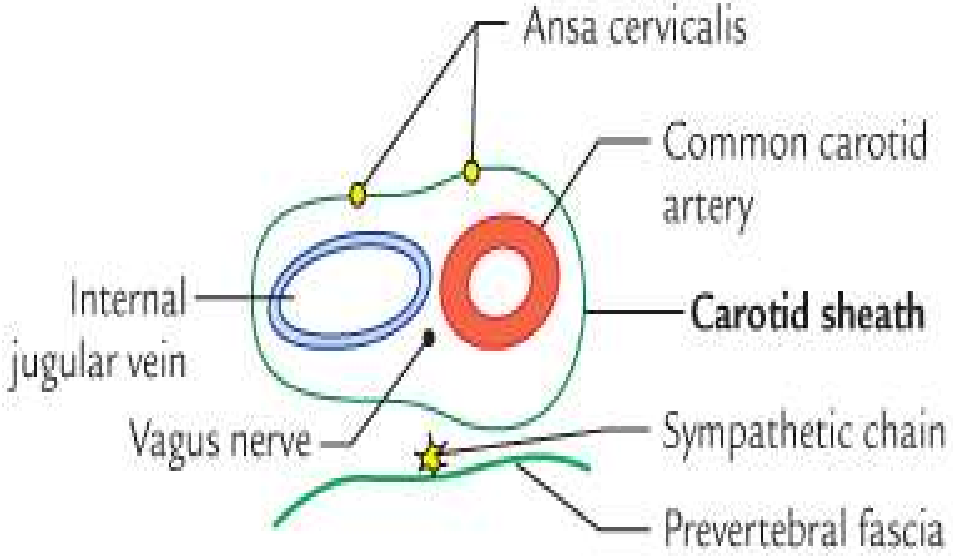
**- runs backwards parallel to digastric and leaves the triangle deep to sternocliedomastoid**

## 4. Internal jugular vein:

- continuation of sigmoid sinus in the posterior compartment of jugular foramen
- descends within carotid sheath and leaves the neck behind the sternal end of clavicle


Investing layer
Sternohyoid
Sternothyroid
Omohyoid
superior belly
Roots of
ansa cervicalis
Roots of cervical
spinal nerve
Ligamentum nuchae
Pretracheal layer
Trachea
Recurrent laryngeal nerve
Sternocleidomastoid
Carotid sheath
Sympathetic trunk
Prevertebral layer
Scalenus anterior
Scalenus medius
Levator scapulae
Splenius capitis
Trapezius


Internal jugular vein
Vagus nerve
Internal carotid artery
Carotid sheath
Common carotid artery
External carotid artery
A


Ansa cervicalis
Common carotid artery
Internal jugular vein
Carotid sheath
Vagus nerve
Sympathetic chain
Prevertebral fascia
B

# CAROTID SHEATH

**- it is a tubular investment of deep cervical fascia around neurovascular bundle of neck**

**Extent: from arch of aorta to base of skull**

**Formation: anterior wall – Pretracheal fascia, attached to sternocleidomastoid**

**- rami of ansa cervicalis are embedded in it**

**: posterior wall – pre vertebral fascia**

**Contents:**

1) **Common and internal carotid arteries medially**
2) **Internal jugular vein laterally**
3) **Vagus lies between and behind artery and vein**

- **The sheath is thick over artery and ill defined over the vein to allow its expansion**
- **Cervical part of the sympathetic trunk lies behind the sheath**

**Structures that pierce carotid sheath:**

**1) External carotid artery**

**2) Tributaries of IJV**

**3) Branches of vagus nerve**

**: Glossopharyngeal**

**: Accessory**

**: Hypoglossal**

**: Cervical**

| TITLE | AUTHOR/ JOURNAL | MATERIAL | RESULT | CONCLUSION |
|---|---|---|---|---|
| **Symptomatic and asymptomatic carotid artery plaque** | **Majid M Mughal,[1] Mohsin K Khan,[2] J Kevin DeMarco,[3] Arshad Majid,[4] Fadi Shamoun,[5] and George S Abela Expert Rev Cardiovasc Ther. 2011 Oct; 9(10): 1315–1330.** | **The pathophysiology, clinical imaging, and management of symptomatic and asymptomatic carotid artery stenosis.** | **Men tend to have more frequent strokes at a younger age (<75 years) but overall, women have more strokes than men. At least 15–20% of all ischemic strokes are attributed to carotid artery atherosclerosis . Furthermore, it is estimated that 5–10% of individuals over 65 years of age have asymptomatic carotid** | Men tend to have more frequent strokes at a younger age (<75 years) but overall, women have more strokes than men. At least 15–20% of all ischemic strokes are attributed to carotid artery atherosclerosis [3]. Furthermore, it is estimated that 5–10% of individuals over 65 years of age have asymptomatic carotid artery atherosclerosis |

# MCQ

**Q. 1 Which structure is not a content of carotid sheath?**

a) **Internal jugular vein**
b) **Internal carotid artery**
c) **External carotid artery**
d) **Vagus**

# MCQ

**Q. 2 How many arteries from external carotid artery in carotid triangle?**

a) 5
b) 4
c) 3
d) 2

# MCQ

**Q. 3 All muscles form the floor of carotid triangle except**

a) **Thyrohyoid**
b) **Omohyoid**
c) **Hyoglossus**
d) **Inferior constrictor**

# MCQ

**Q. 4 How many cranial nerves cross carotid triangle?**

**a) 6**
**b) 5**
**c) 4**
**d) 3**

# MCQ

**Q. 5 Superior laryngeal artery is accompanied by**

a) **Recurrent laryngeal nerve**
b) **Internal laryngeal nerve**
c) **External laryngeal nerve**
d) **Ansa cervicalis**

# MCQ ANSWERS

**Q. 1 c**

**Q. 2 a**

**Q. 3 b**

**Q. 4 d**

**Q. 5 b**