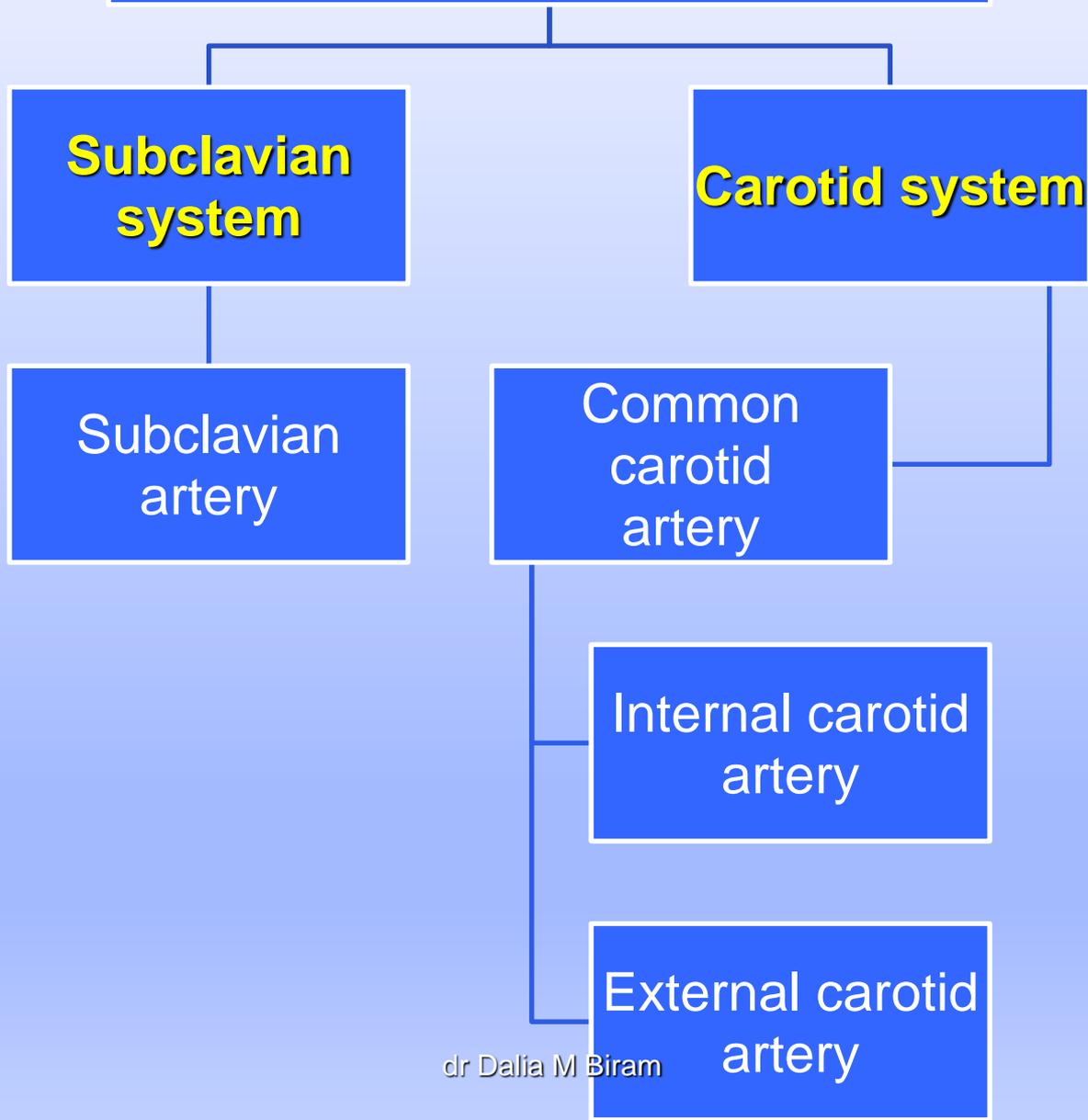


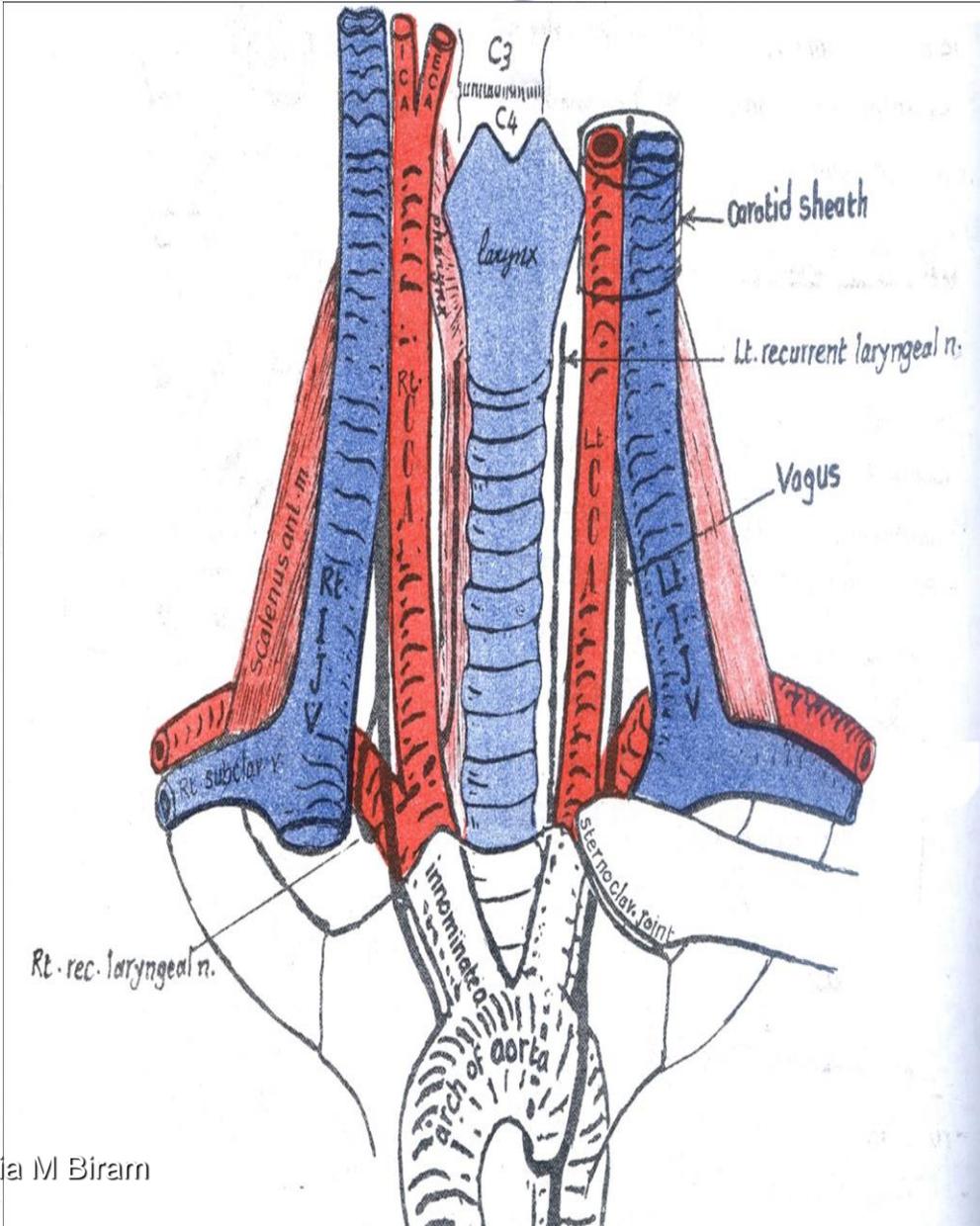
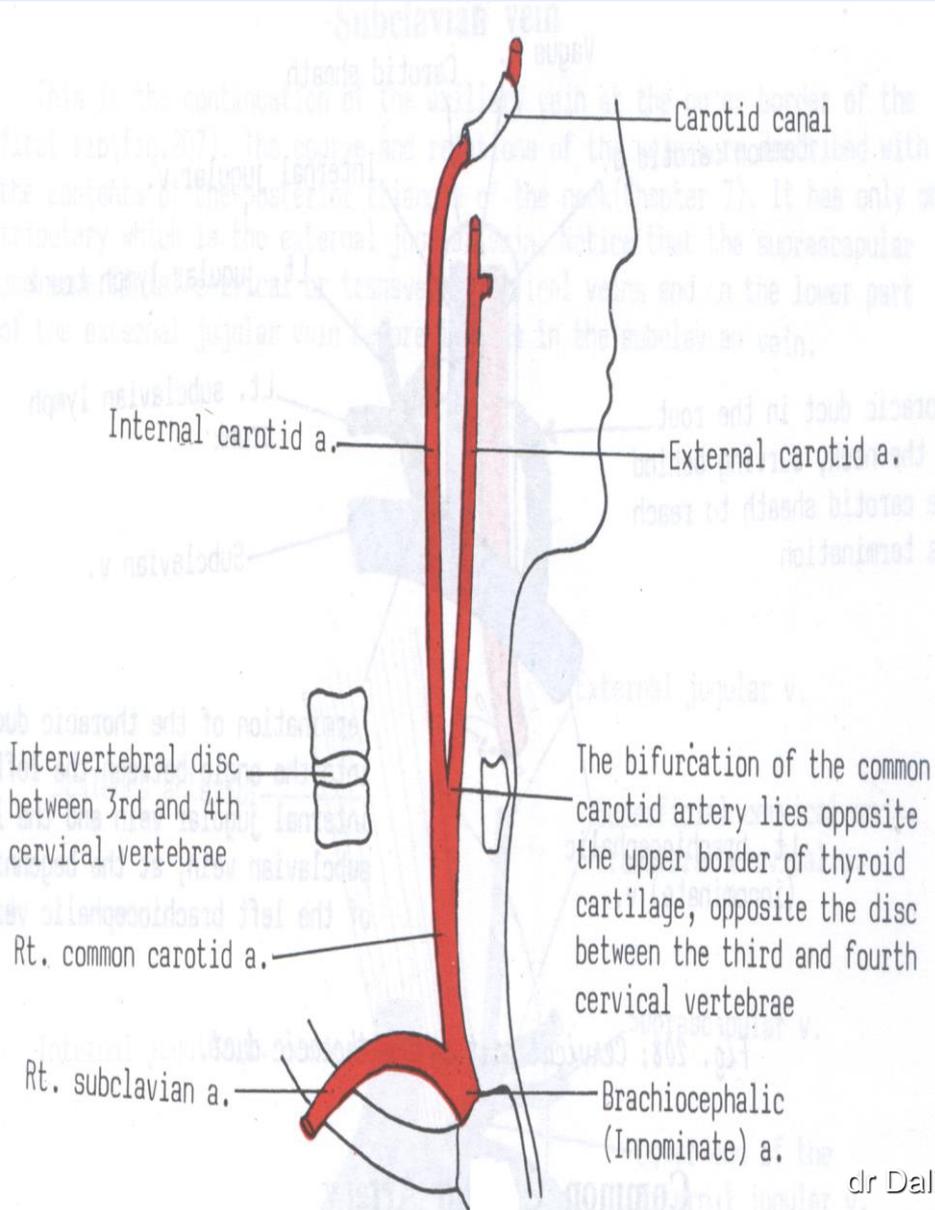
Blood vessels of the head& neck I

**BY DR./DALIA M. BIRAM
ASSISTANT PROFESSOR OF
ANATOMY&EMBRYOLOGY**

Main Arteries of The &head neck



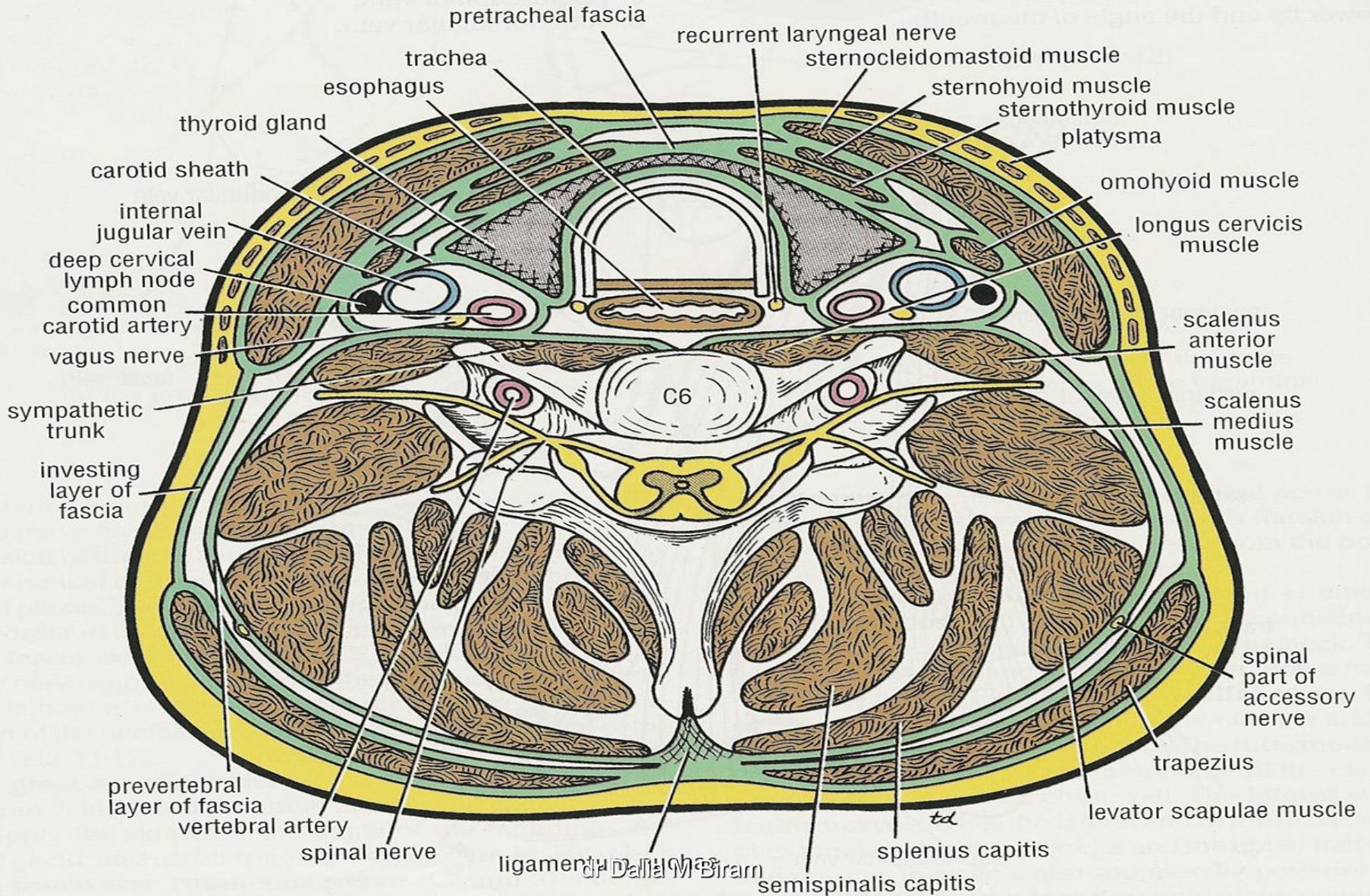
Common Carotid Artery CCA



Common Carotid Artery

- **Beginning**: the right arises from the brachiocephalic trunk behind the right sternoclavicular joint. The left arises directly from the arch of aorta in the superior mediastinum of thorax.
- **End**: at the level of the upper border of thyroid cartilage (disk between c3&c4) by dividing into internal and external carotid arteries.
- At its end (or beginning of internal carotid) there is a dilatation called **carotid sinus** which is sensitive to blood pressure changes. It has pressure receptors which are innervated by glossopharyngeal nerve.

Common Carotid Artery



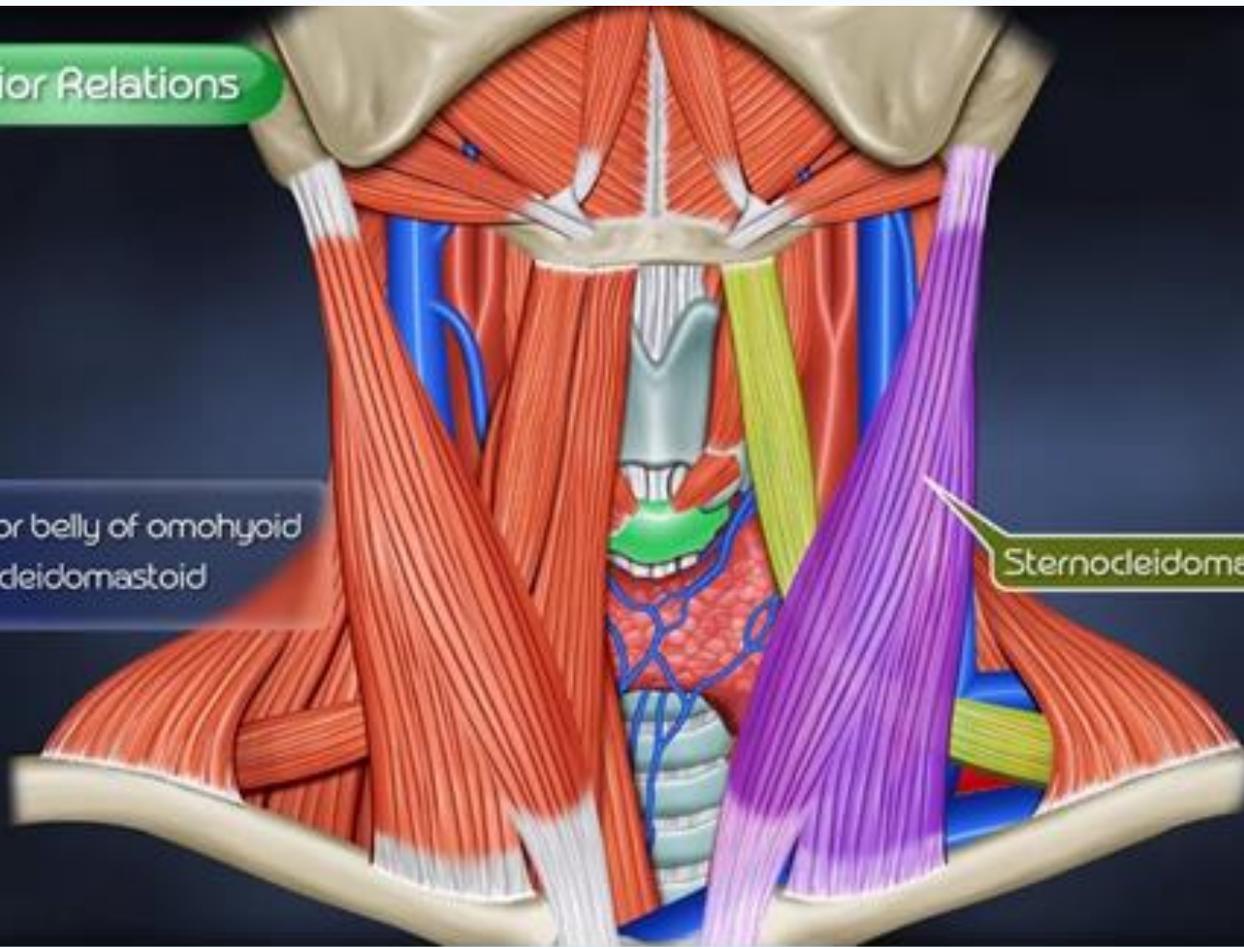
Course and Relations of CCA

- it ascends in the neck, enclosed in the carotid sheath with internal jugular vein and vagus nerve.
- **Anterolateral relations:** sternocleidomastoid, sternohyoid, sternothyroid and superior belly of omohyoid and thyroid gland.
- **Posterior relation:** Transverse processes of lower 4 cervical vertebra, prevertebral muscles, Inferior thyroid artery, vertebral artery and sympathetic trunk.
- **Medial relations:** larynx, pharynx,, trachea and esophagus.
- **Lateral relation:** Internal jugular vein and (Posterolaterally) vagus nerve

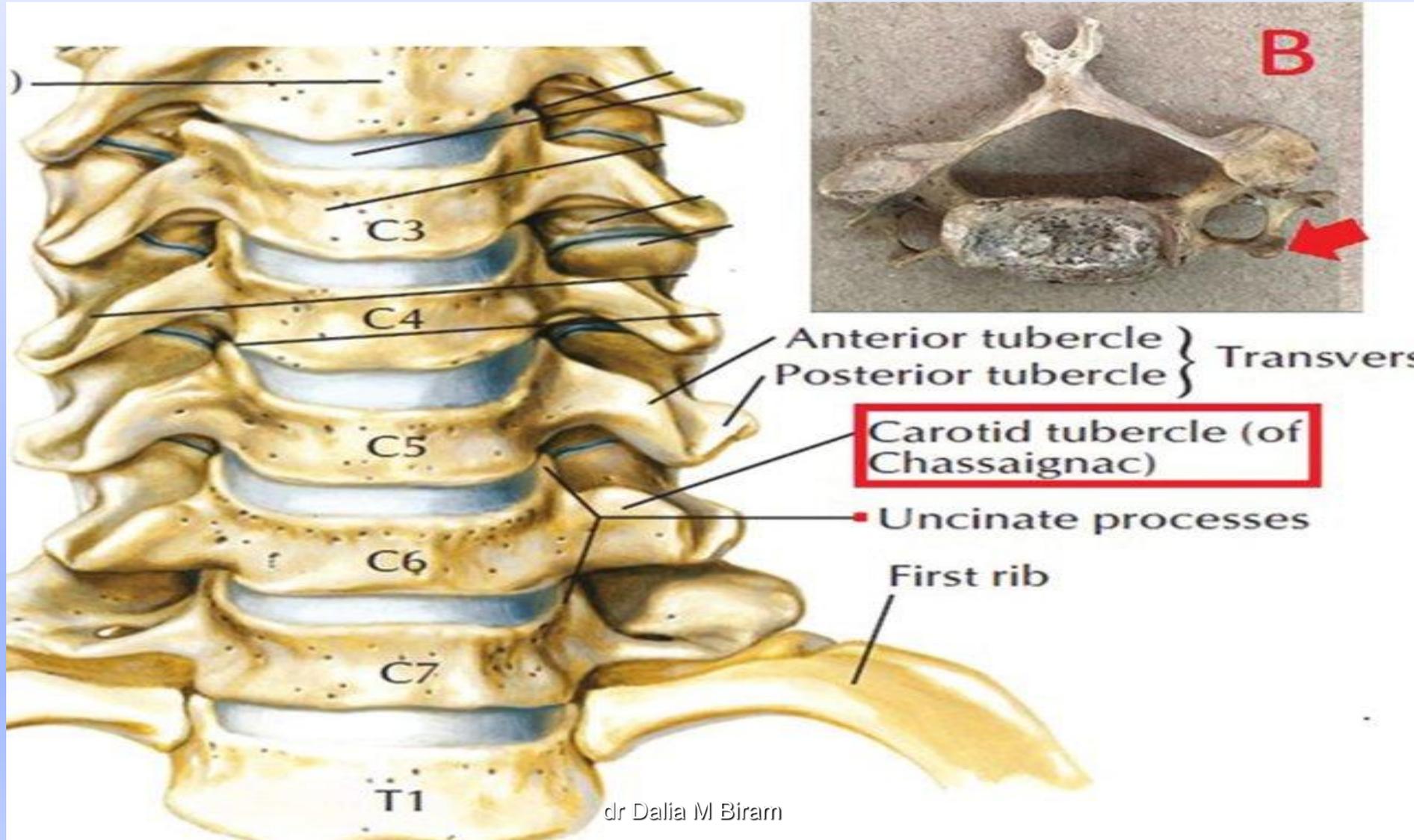
Anterior Relations

- Superior belly of omohyoid
- Sternocleidomastoid

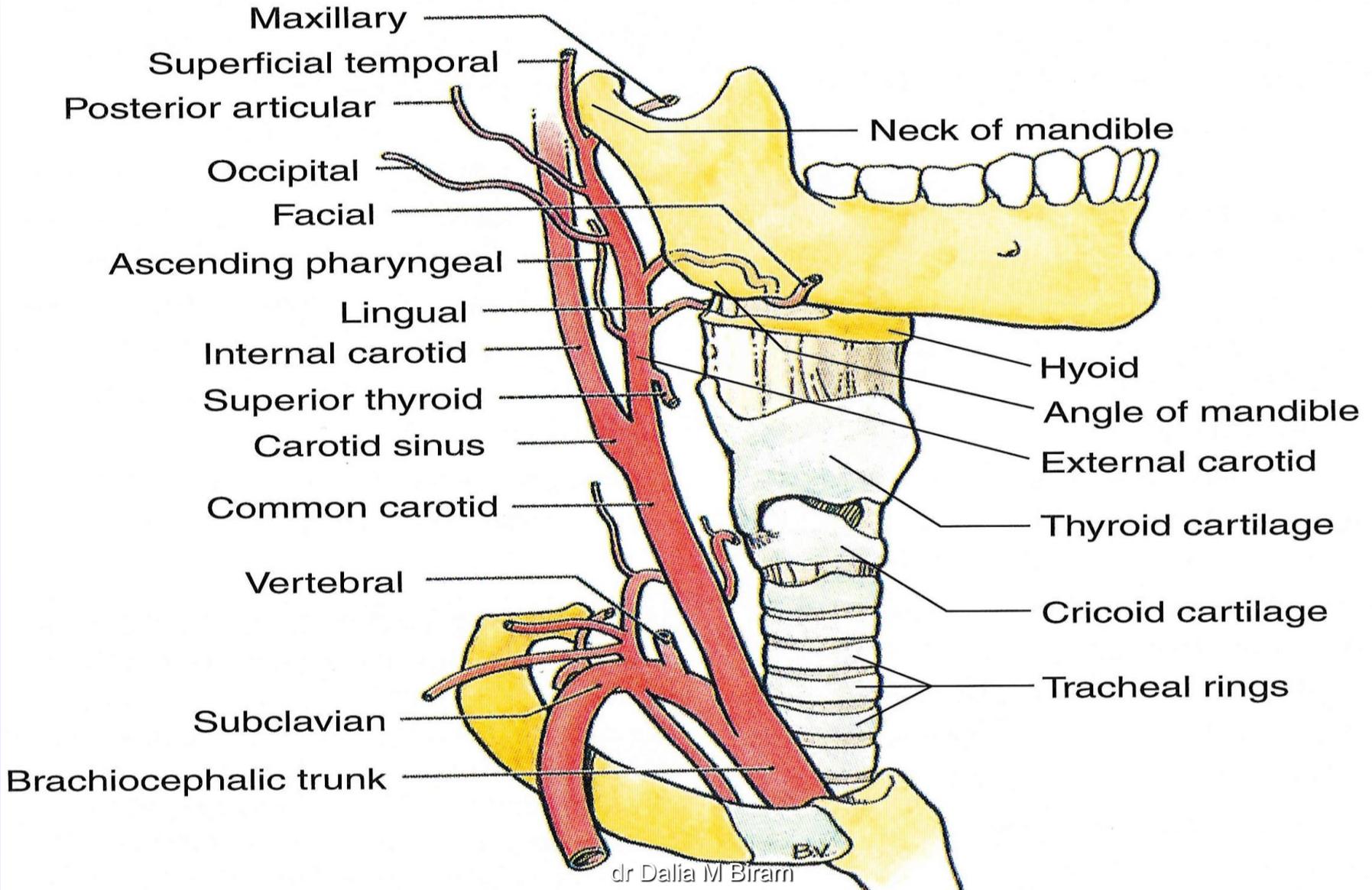
Sternocleidomastoid



Where to feel the pulsation of common carotid artery CCA



External Carotid Artery ECA



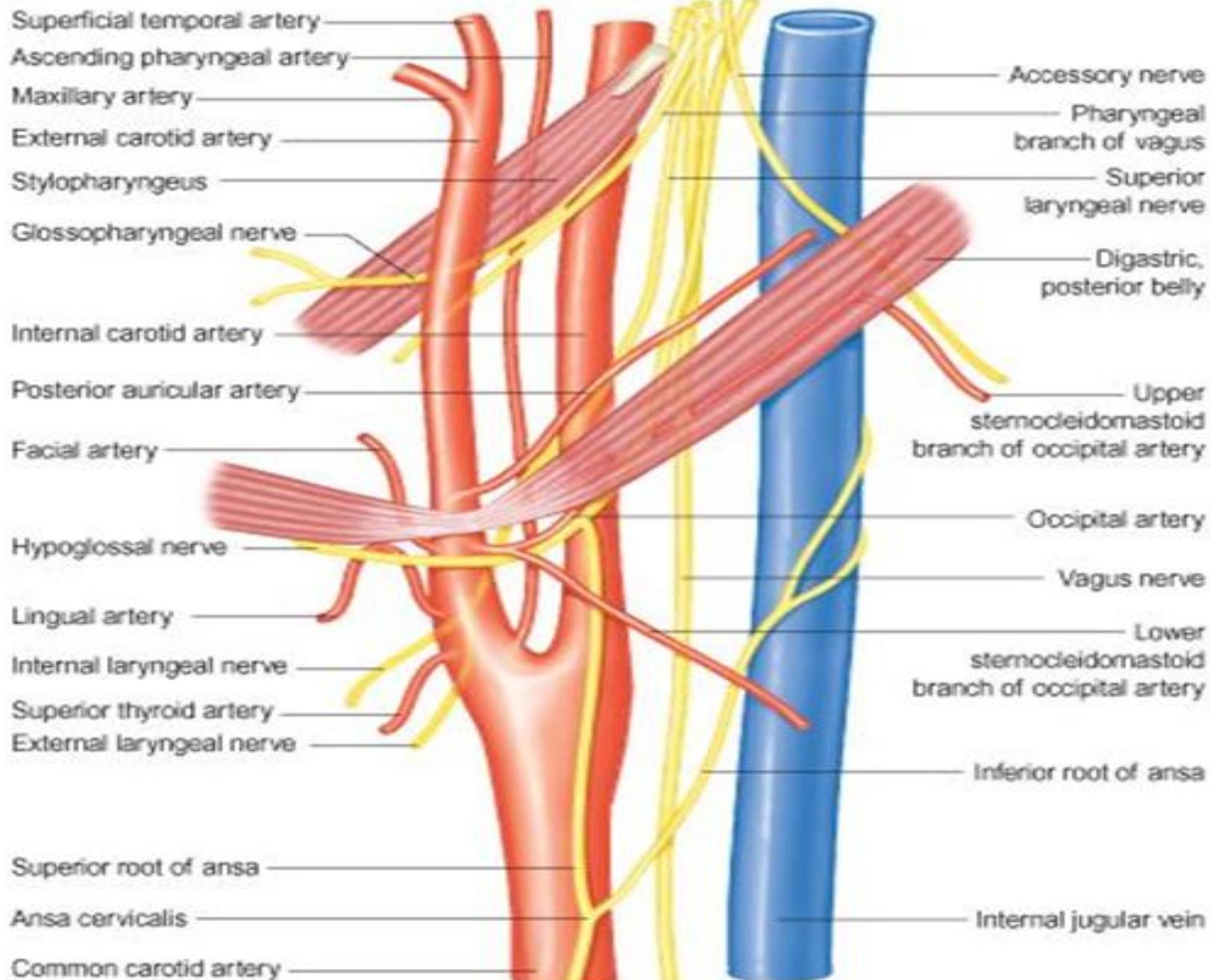
External Carotid Artery

- **Beginning**: One of the two terminal branches of the common carotid artery. It begins at the level of the upper border of thyroid cartilage.
- **Course and termination**:
 - It ascends anteromedial to internal carotid artery outside carotid sheath.
 - It ends behind the neck of mandible inside the substance of parotid gland by dividing into superficial temporal and maxillary arteries.
- It is **crossed** by the posterior belly of digastric and stylohyoid muscles.

Relations OF External Carotid Artery

A- **Superficial relations** (3 muscles, 2 veins, one nerve, one gland):

- Three muscles: Sternomastoid, posterior belly of digastric with stylohyoid muscles pass along its upper border.
- Two veins: Lingual and common facial veins.
- One nerve: Hypoglossal nerve crosses medially below posterior belly of digastric muscle.
- Parotid gland: With the retromandibular vein and facial nerve inside the gland.



dr Dalia M Biram

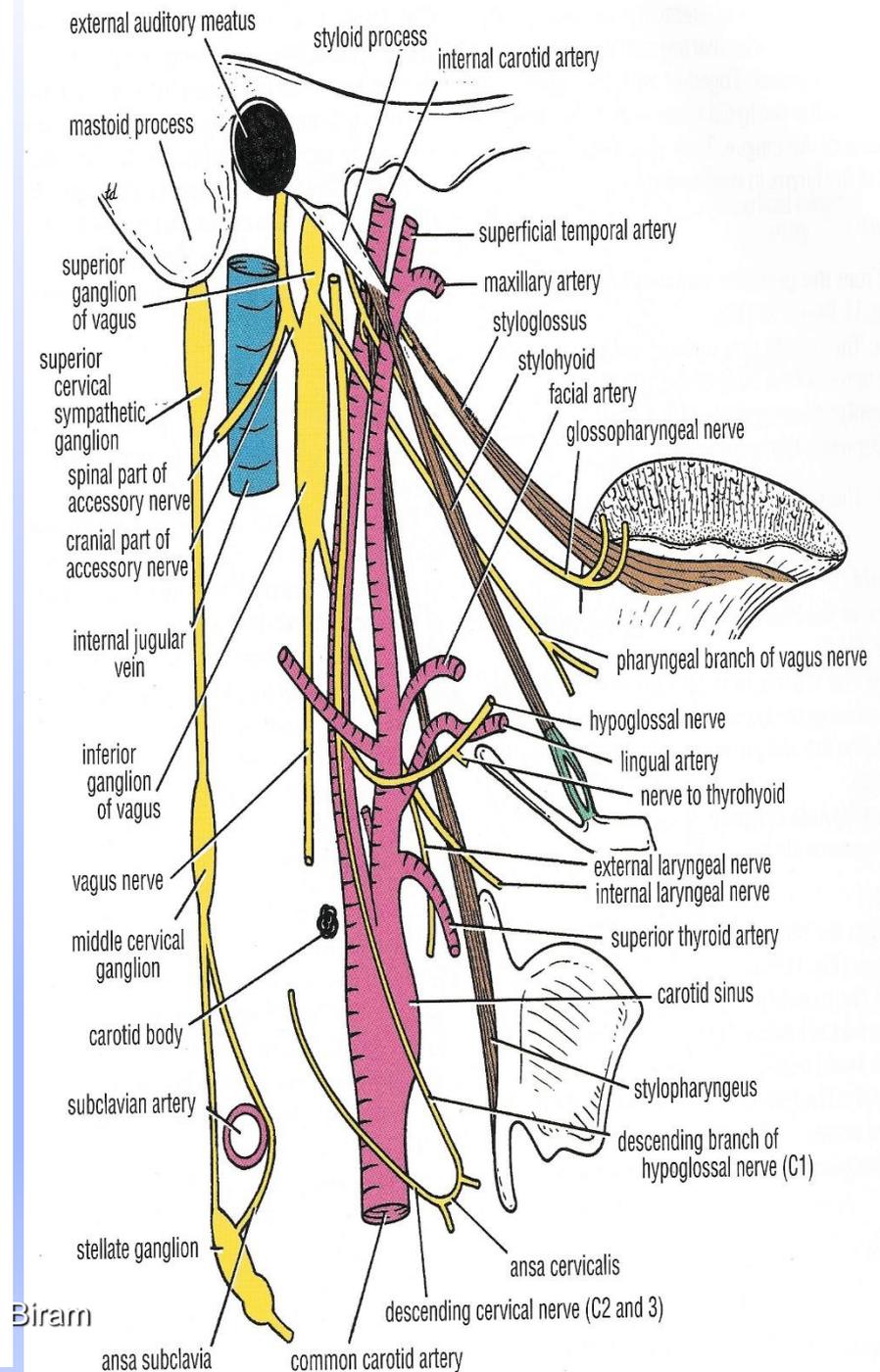
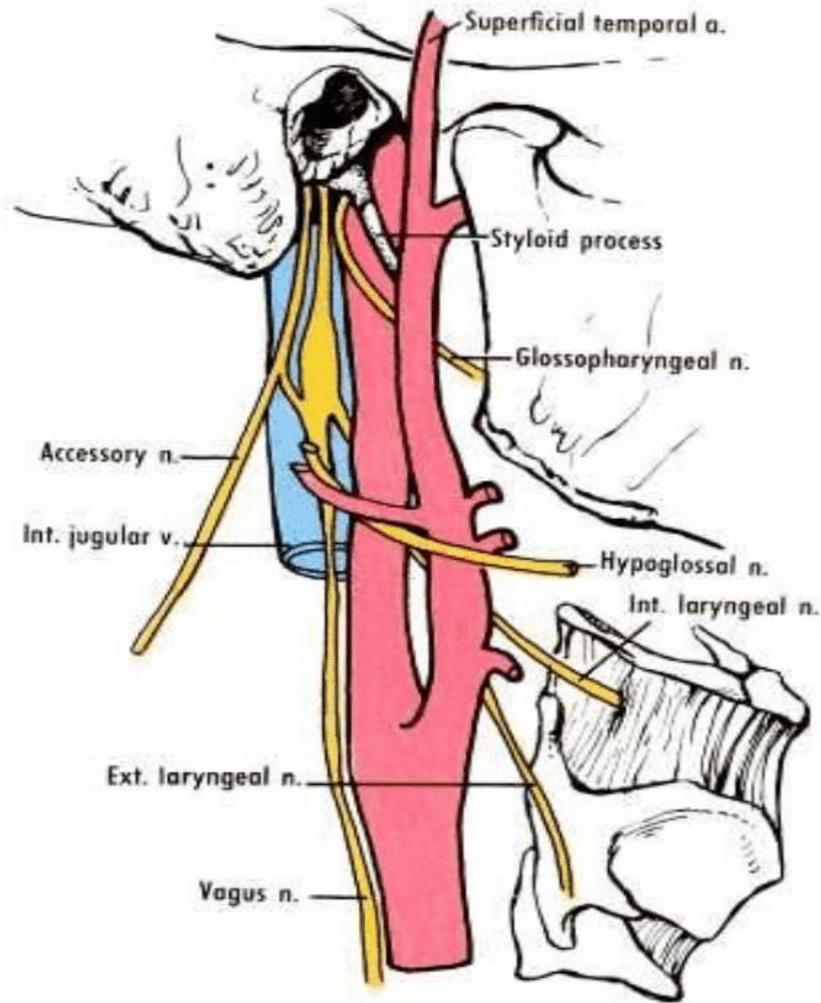
Relations OF ECA

■ B- Deep relations:

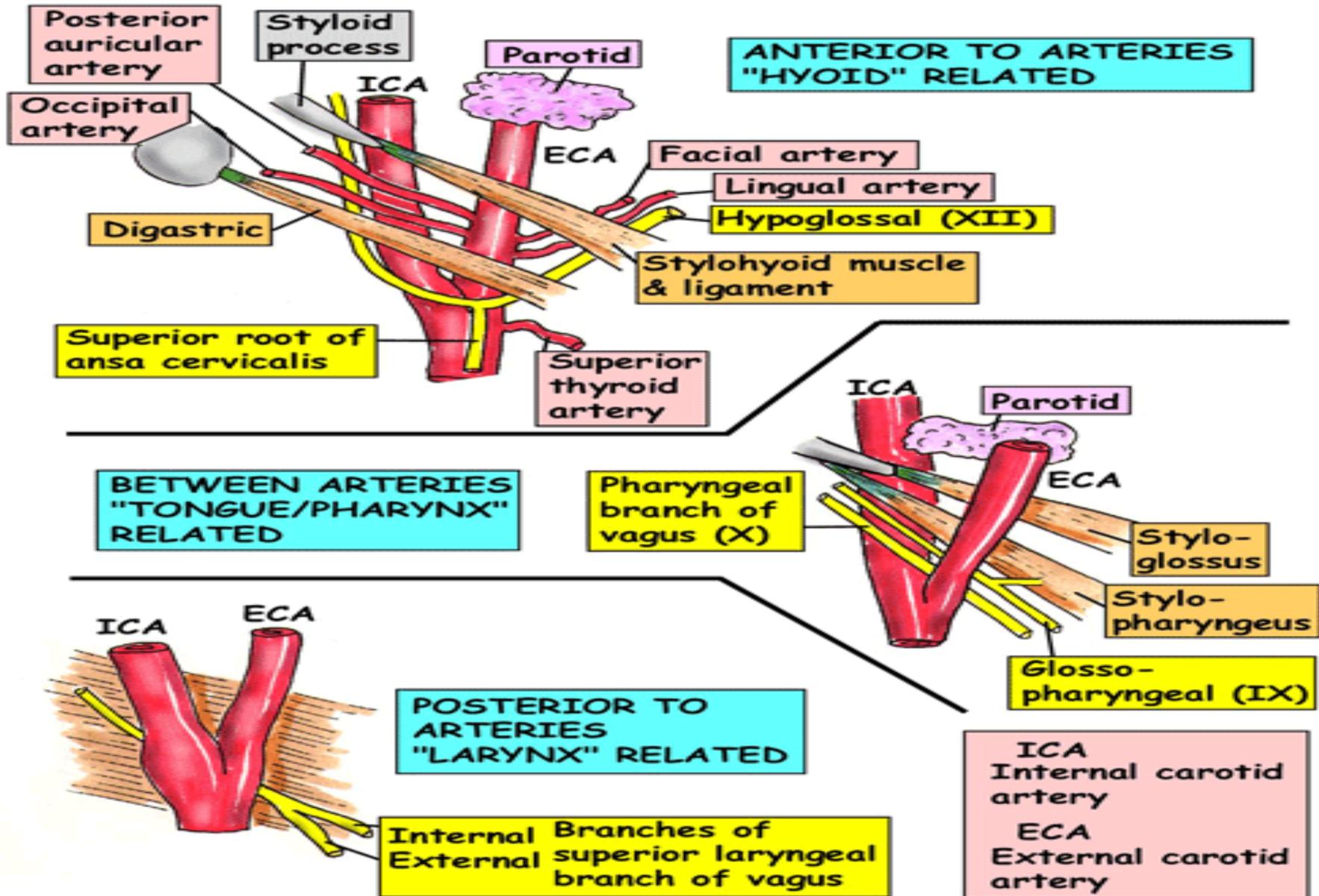
■ 1- Pharynx.

■ 2- ICA with the following structures passing between ICA and ECA:

- • Styloid process with styloglossus and stylopharyngeus muscles.
- • Glossopharyngeal nerve and pharyngeal branch of vagus.
- • Part of parotid gland.



RELATIONS OF THE BIFURCATION OF THE CAROTID ARTERIES



Branches of ECA

1 branch from its medial side:

- Ascending pharyngeal artery.

3 branches from its front:

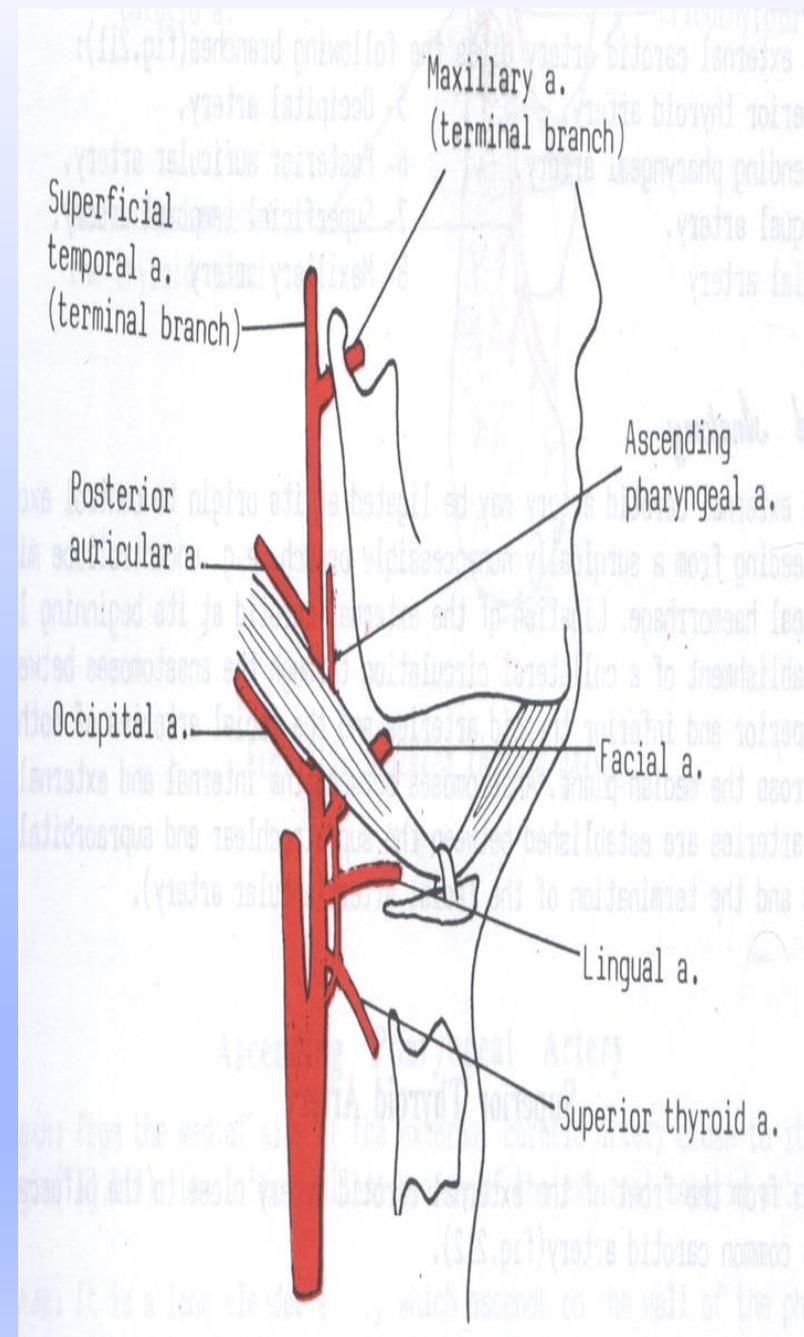
- Superior thyroid artery.
- Lingual artery.
- Facial artery.

2 branches from its posterior side:

- Occipital artery.
- Posterior auricular.

2 terminal branches:

- Superficial temporal artery.
- Maxillary artery.



1-superior thyroid artery: passes deep to sternohyoid and sternothyroid muscles to reach thyroid gland.

2-Ascending pharyngeal artery: ascends along the wall of the pharynx supplying it.

3-Lingual artery: arises opposite the tip of the greater cornu of hyoid bone it forms S-shaped course to reach the tongue.

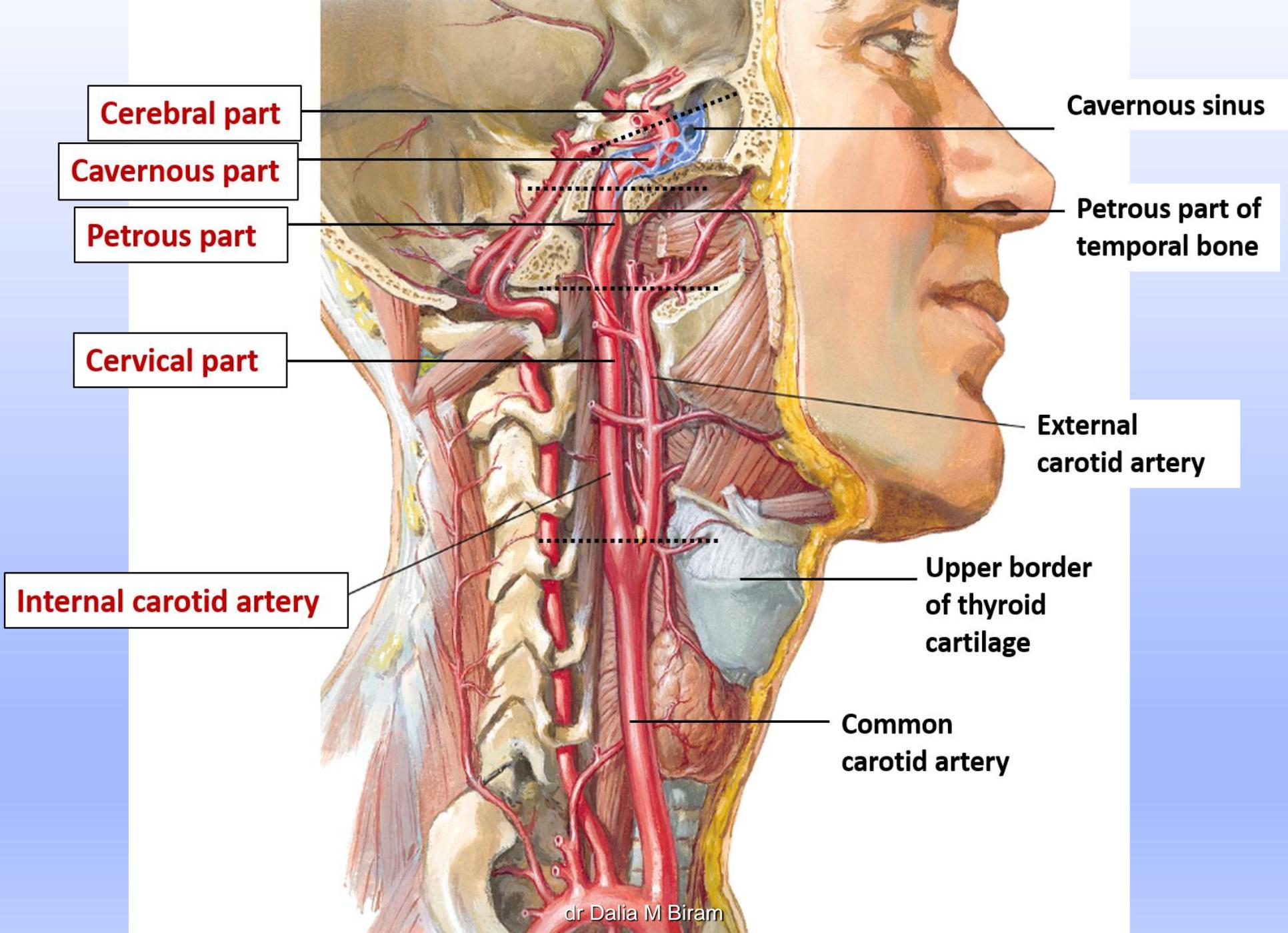
4-Facial artery: arises just above the tip of greater cornu of hyoid bone, winds around lower border of mandible to reach the face.

5-Occipital artery: pierces the trapezius muscle one inch lateral to the external occipital protuberance to supply the scalp.

6- Posterior auricular artery to supply The posterior surface of the auricle and scalp behind the auricle.

- **INTERNAL CAROTID ARTERY (I. C. A)**

- **Beginning:** one of the 2 terminal branches of C.C.A at the upper border of thyroid cartilage (disc between C3 & C4)
- **Termination:** below the base of the brain in the cranial cavity by dividing into anterior and middle cerebral arteries.
- **Course:** its course is dividing **into 4 parts:**
 - (1) **Cervical part:** ascends inside the carotid sheath.
 - (2) **petrous part:** in carotid canal inside petrous part of temporal bone.
 - (3) **cavernous part:** inside the cavernous sinus.
 - (4) **cerebral part:** terminal part of the artery
- The ICA has bends that damp down the pulsation and give more a regular stream of blood for brain



Cerebral part

Cavernous part

Petrous part

Cervical part

Cavernous sinus

Petrous part of temporal bone

External carotid artery

Upper border of thyroid cartilage

Common carotid artery

Internal carotid artery

PARTS OF ICA:

1-Cervical part:

- 1) It lies inside carotid sheath with IJV lateral, vagus posterolateral and sympathetic chain posterior to it.
- 2) **Superficial relations:**
 - External carotid artery.
 - Structures between ECA and ICA (See before ECA).
- 1) **Deep relations:** Superior laryngeal nerve and constrictors of the pharynx.
- 2) **At the base of the skull:** ICA lies anterior to the IJV with the lower 4 cranial nerves in between.
- **Branches:** It has no branches in the neck.

2-Petrous part

The artery runs upwards in **carotid foramen**, then passes forwards and medially in the **carotid canal** to reach the **foramen lacerum**.

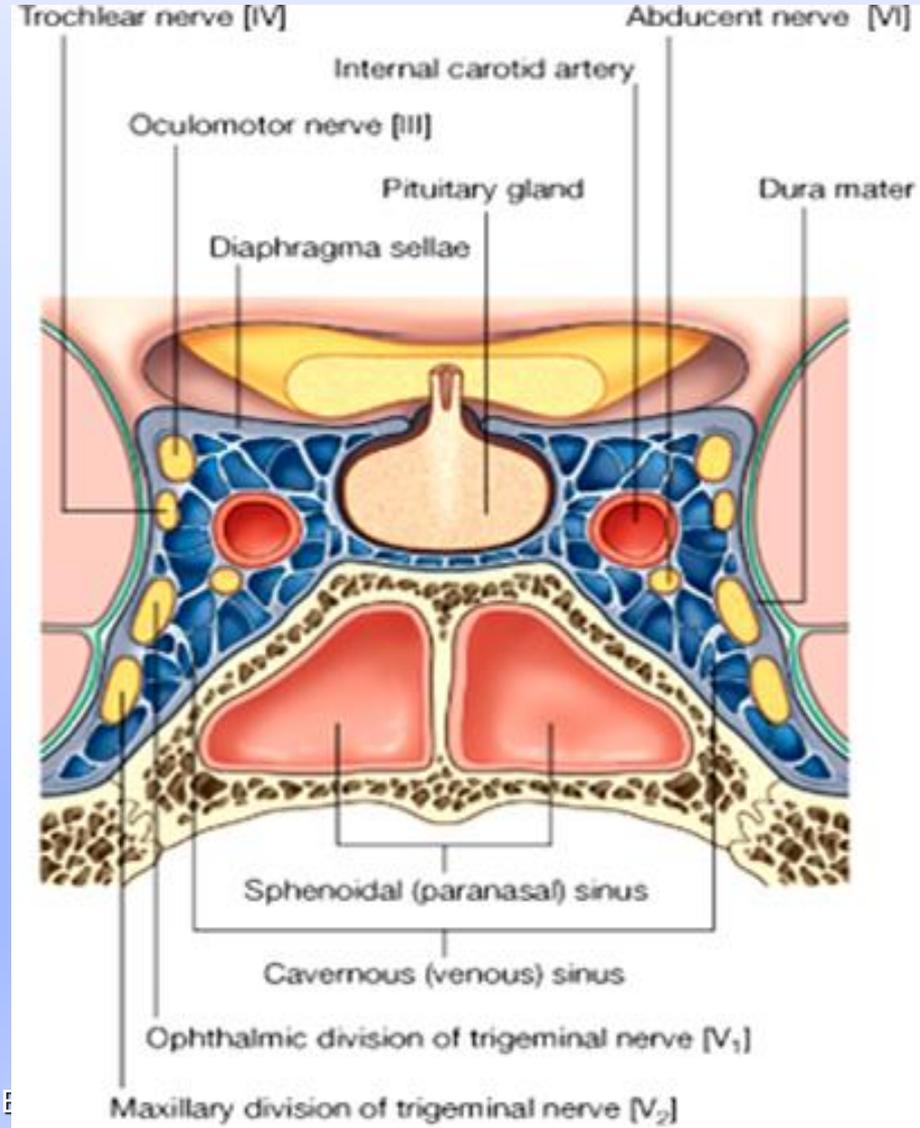
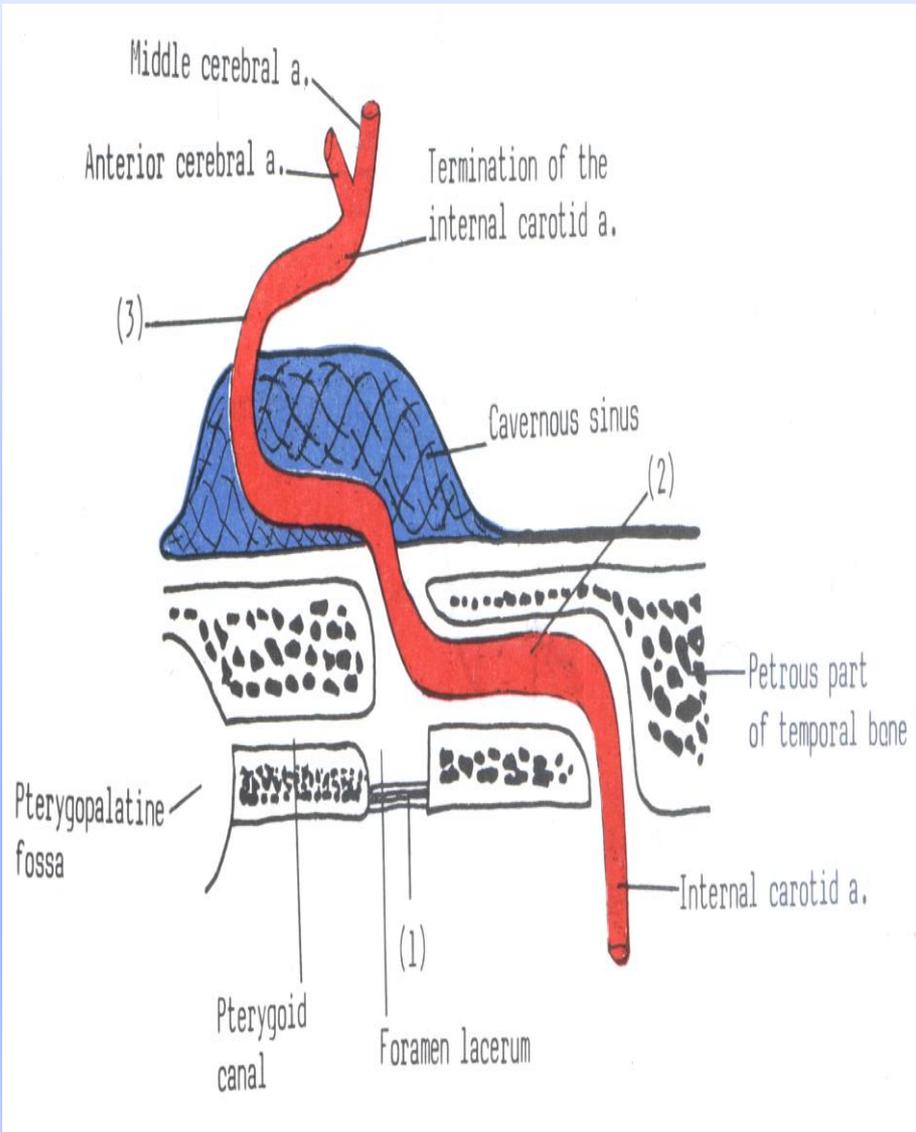
- It passes upwards in the foramen lacerum to enter the cavernous sinus.

3-Cavernous part:

Inside the cavernous sinus, the artery runs in a sinuous course (upwards, then forwards and finally upwards). It leaves the sinus through its roof. The artery is related laterally to Abducent nerve (6th cranial nerve) and medially to the body of the sphenoid inside the sinus.

4- Cerebral part:

After leaving the roof of cavernous sinus, the artery ends just below the anterior perforated substance of the base of the brain by dividing into its two terminal branches (anterior & middle cerebral arteries).



• Branches of ICA

A- Cervical part: no branches in the neck.

B- Branches in the carotid canal:

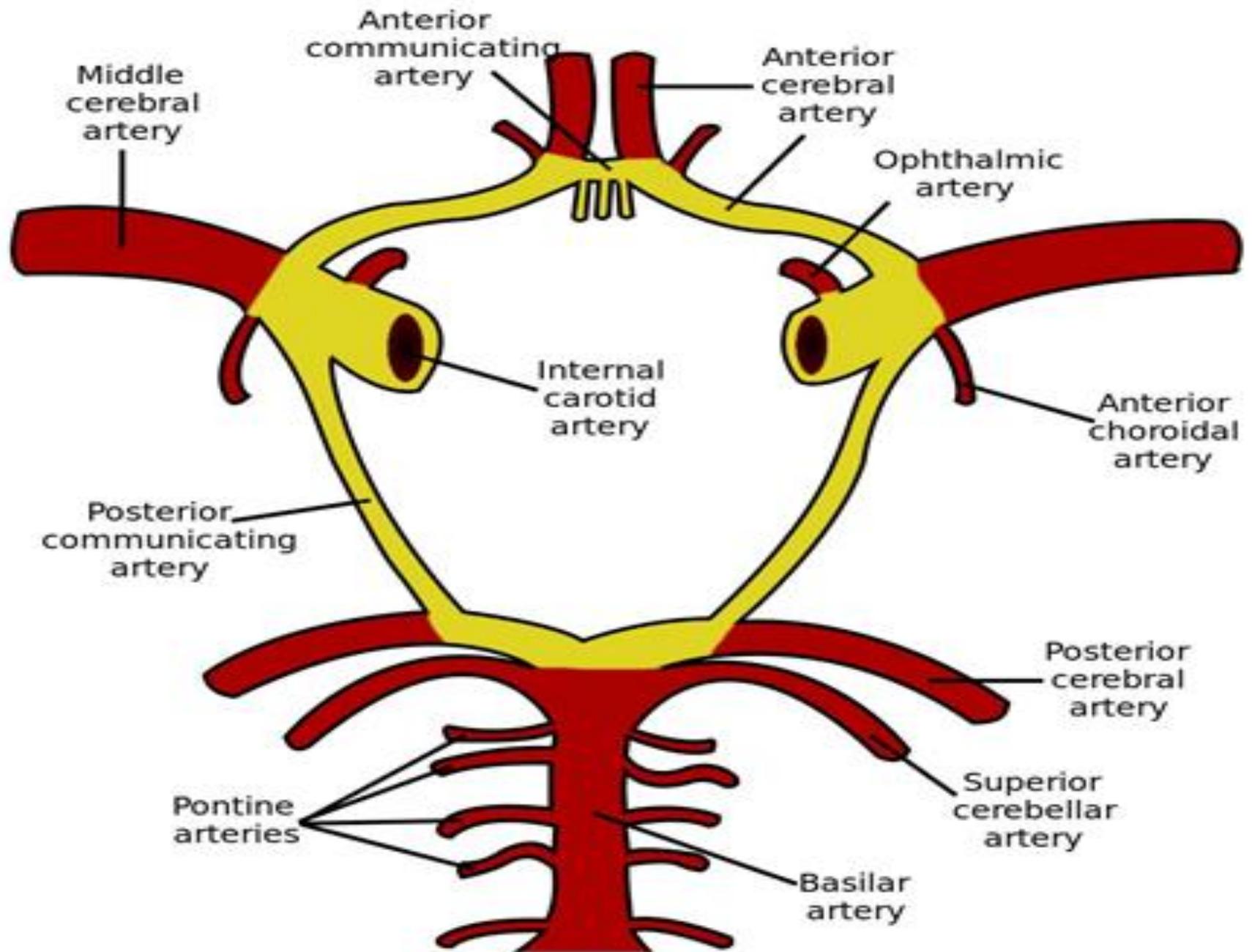
- (1) Caroticotympanic artery to the middle ear cavity
- (2) Artery of pterygoid canal to the pharynx.

C- Branches within the cavernous sinus:

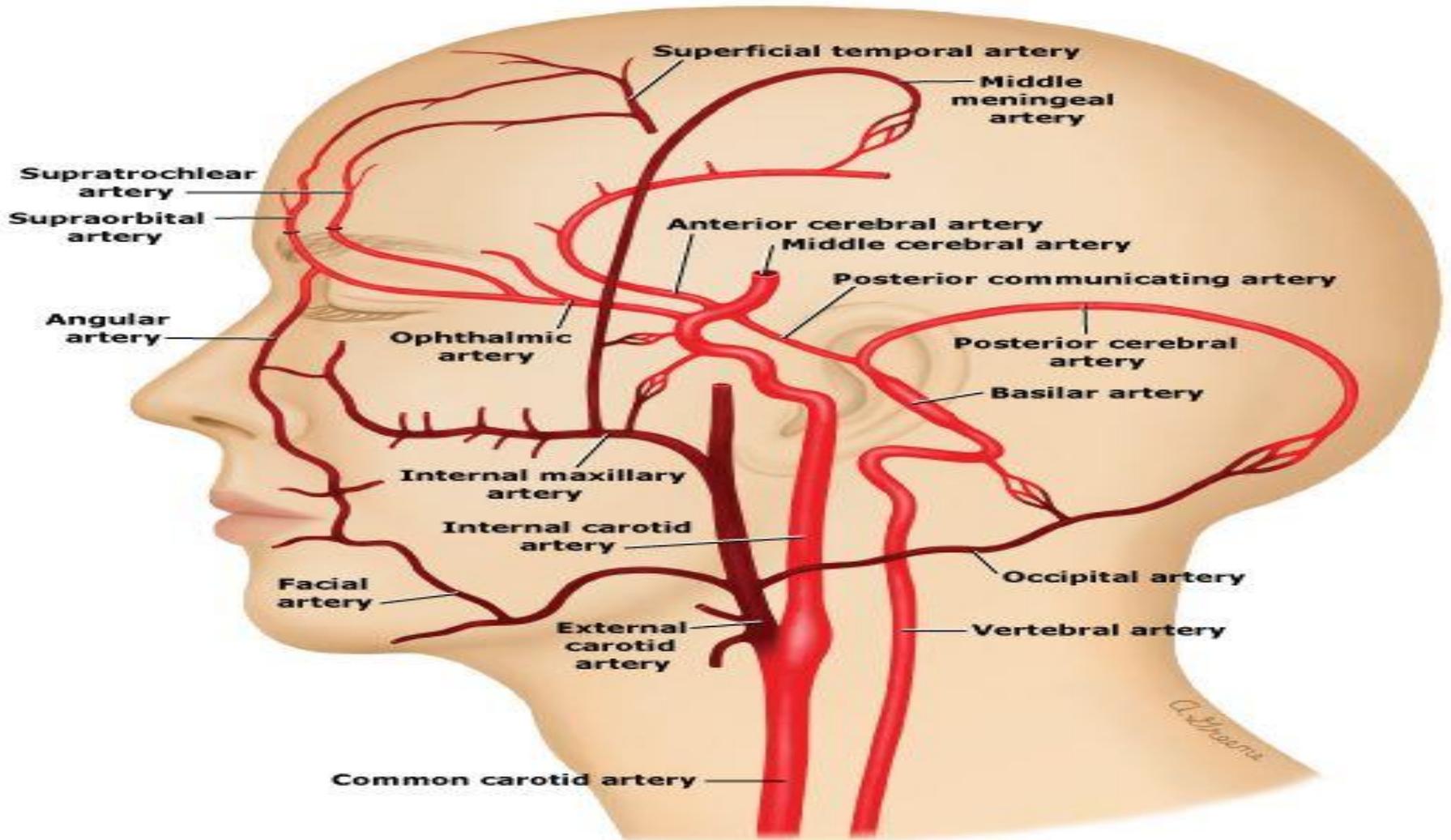
- (1) Cavernous branches.
- (2) inferior hypophyseal artery to posterior lobe of pituitary gland.

D- Branches Outside the cavernous sinus:

- (1) **Ophthalmic** artery.
- (2) **Anterior** choroidal artery.
- (3) **Posterior** communicating artery.
- (4) **Anterior cerebral** artery.
- (5) **Middle cerebral** artery.



Anastomosis Between ECA AND ICA



THANK YOU

dr Dalia M Biram