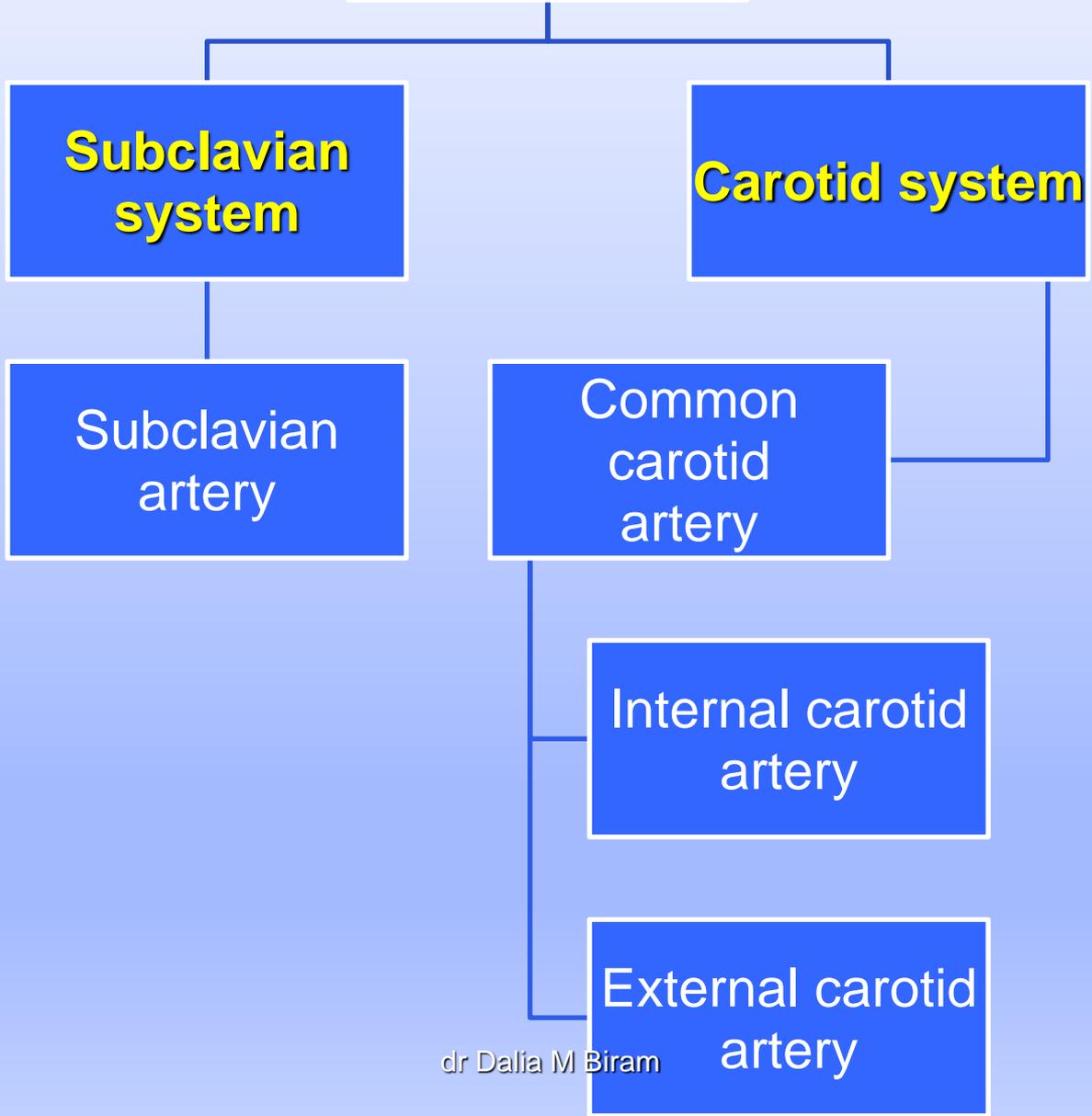


Blood vessels of the head& neck I

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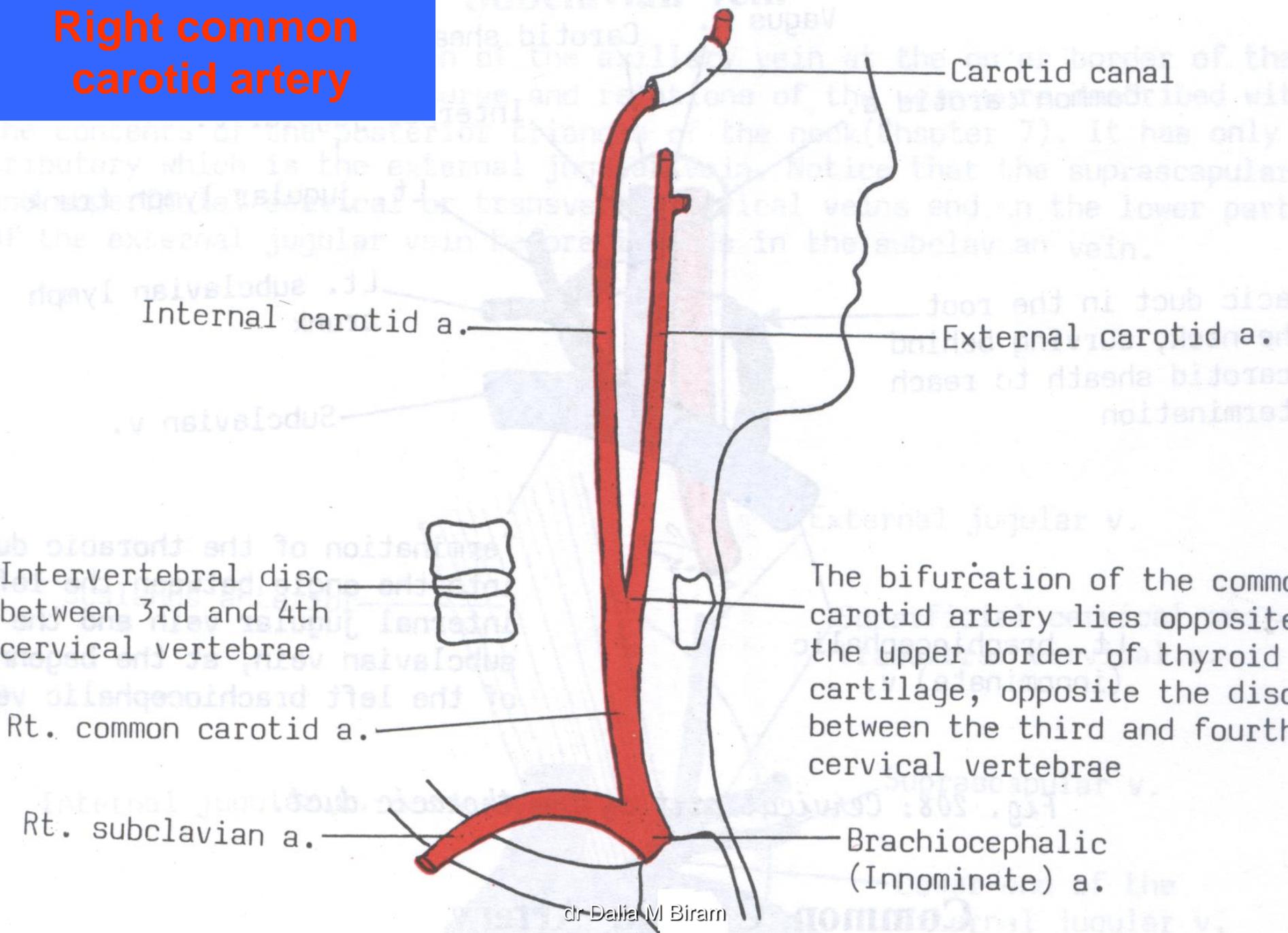
Main Arteries of the neck



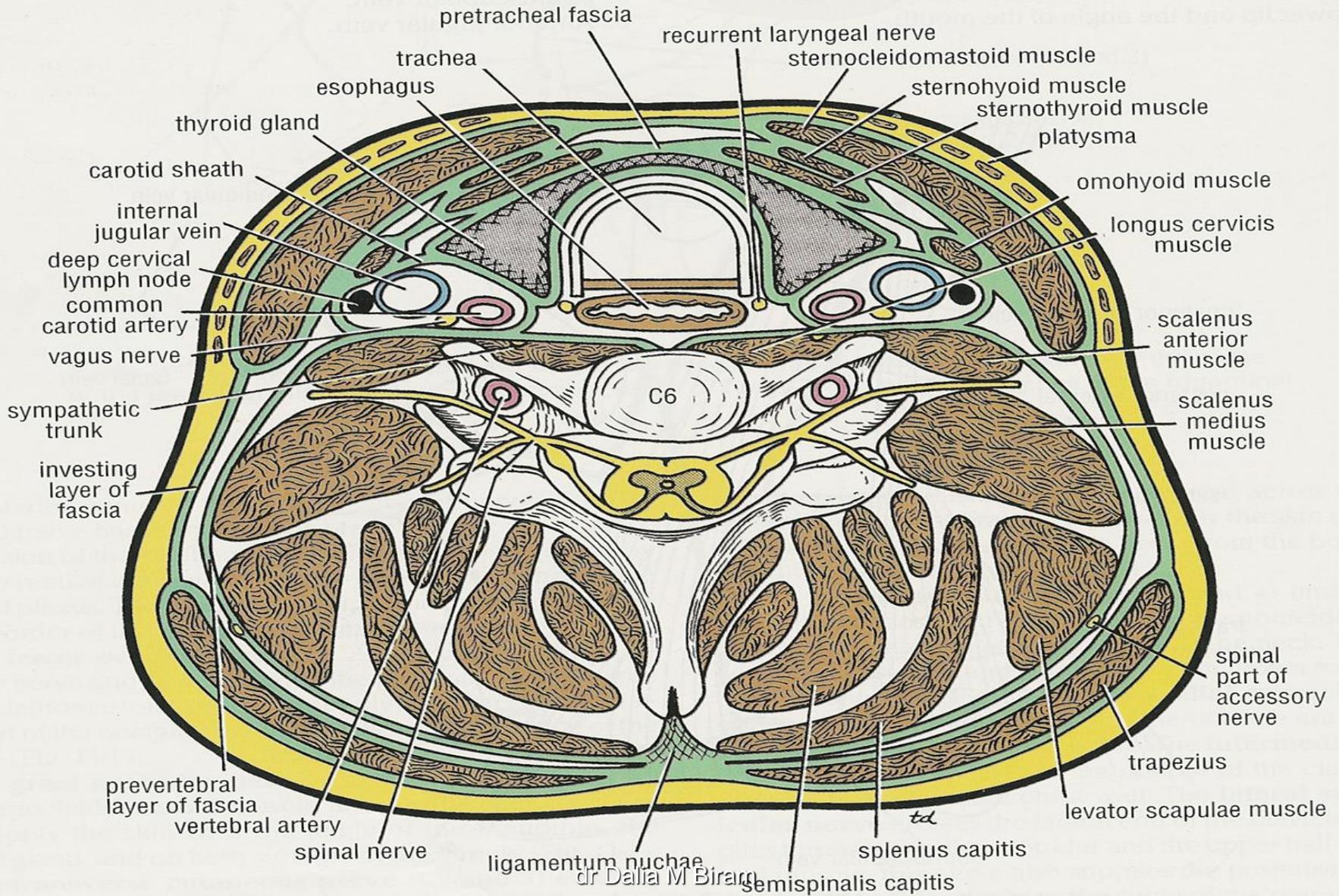
Common Carotid Artery

- **Beginning**: the right from the brachiocephalic trunk behind the 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.

Right common carotid artery



Common Carotid Artery

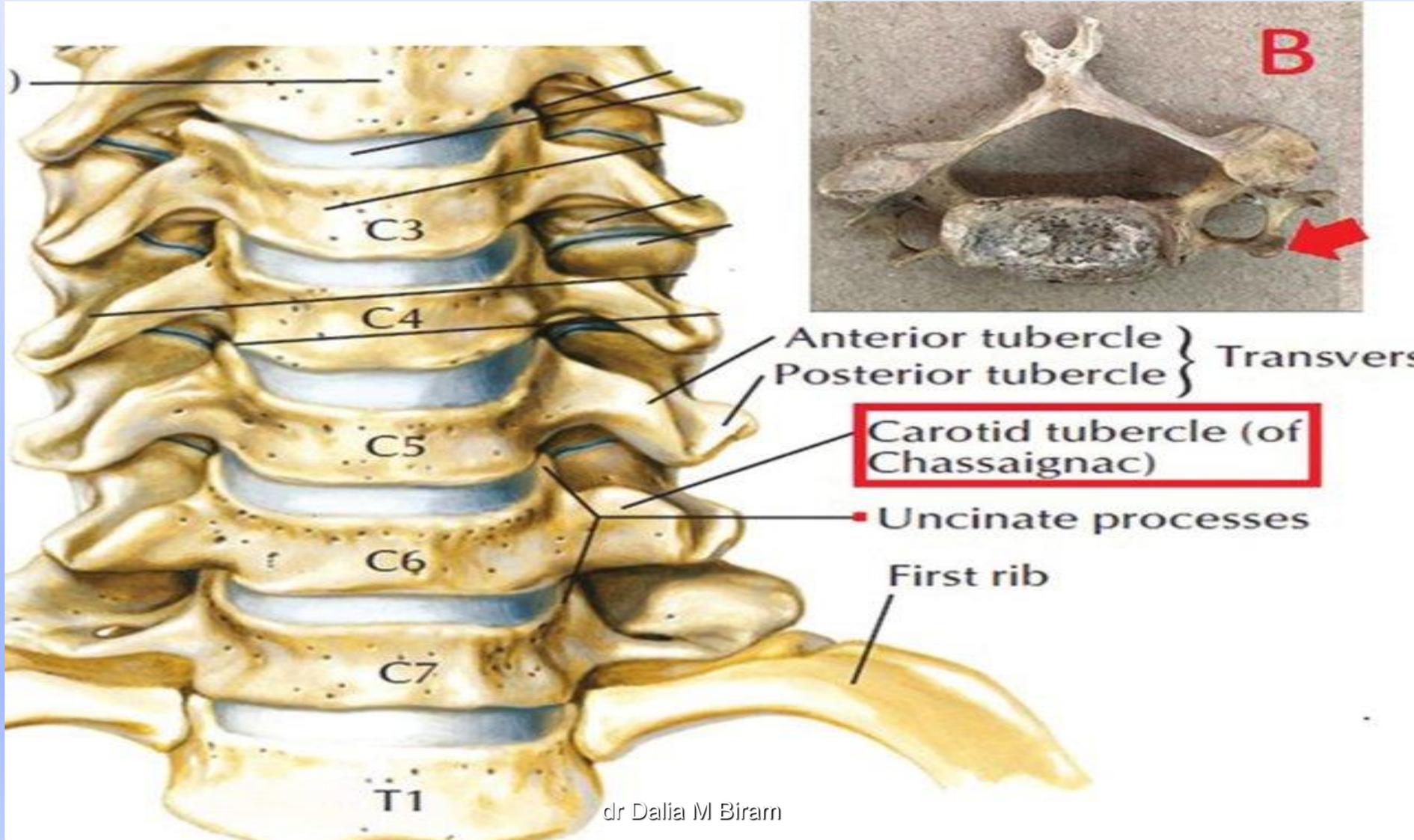


Common Carotid Artery

Course and Relations

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

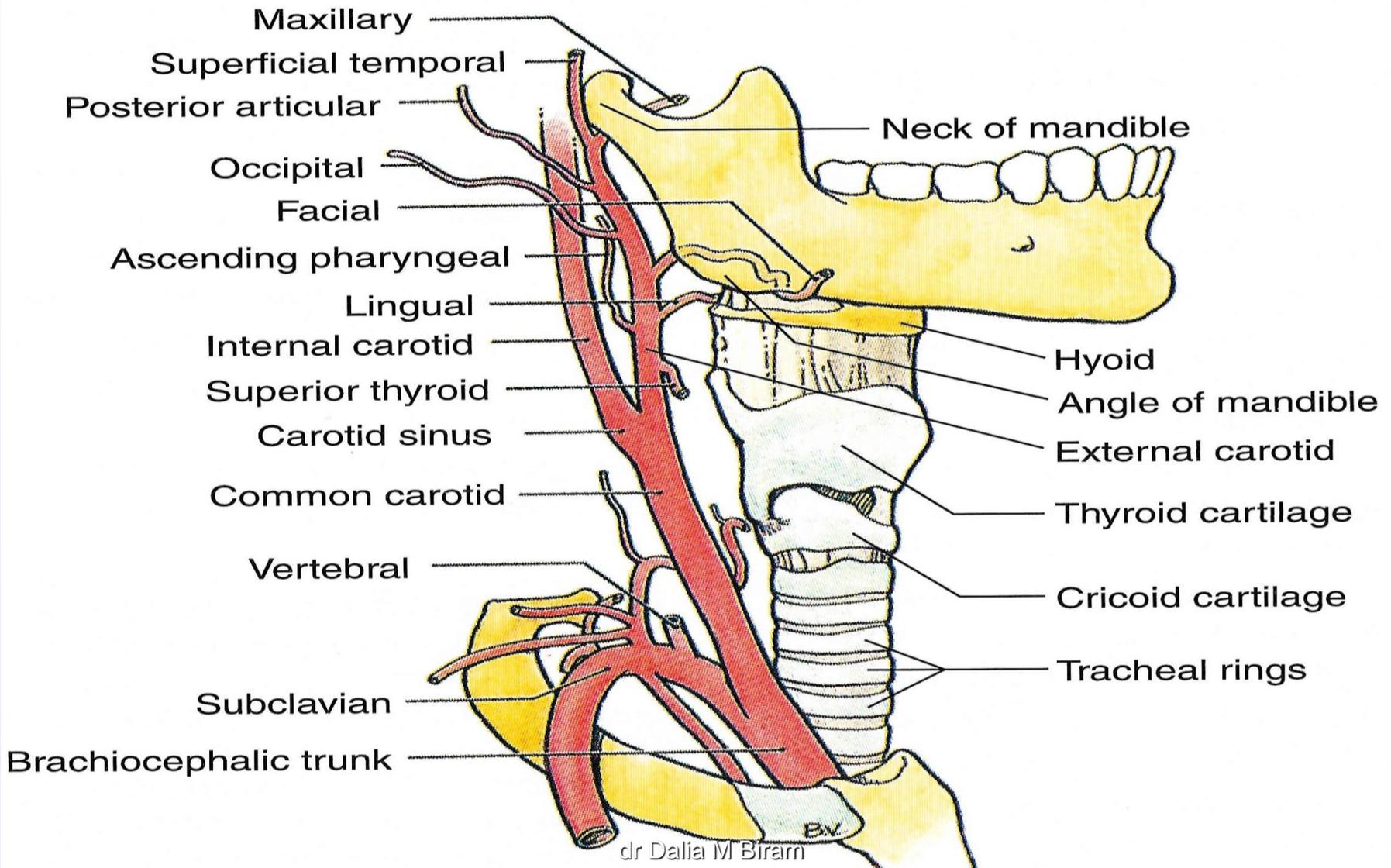
Where to feel the pulsation of common carotid artery CCA



External Carotid Artery

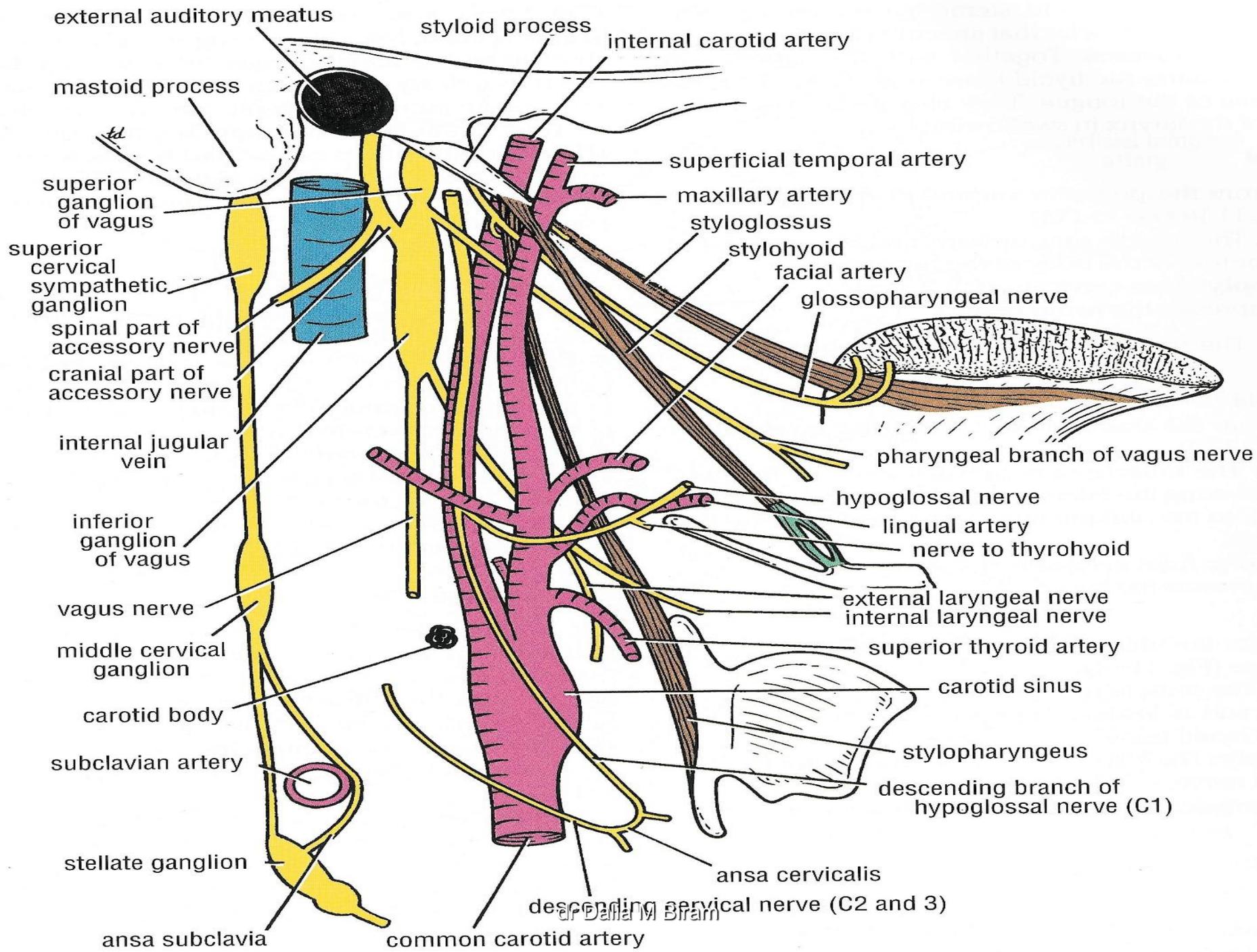
- **Beginning**: One of the two terminal branches of the common carotid artery. It begins at the level of the upper border of thyroid cartilage.
- **End**: behind the neck of the mandible, within the substance of parotid gland by dividing into maxillary and superficial temporal arteries.
- At its beginning, the artery lies medial to the internal carotid artery but as it ascends in the neck passes backward and laterally.
- It is crossed by the posterior belly of digastric and stylohyoid muscles.

External Carotid Artery



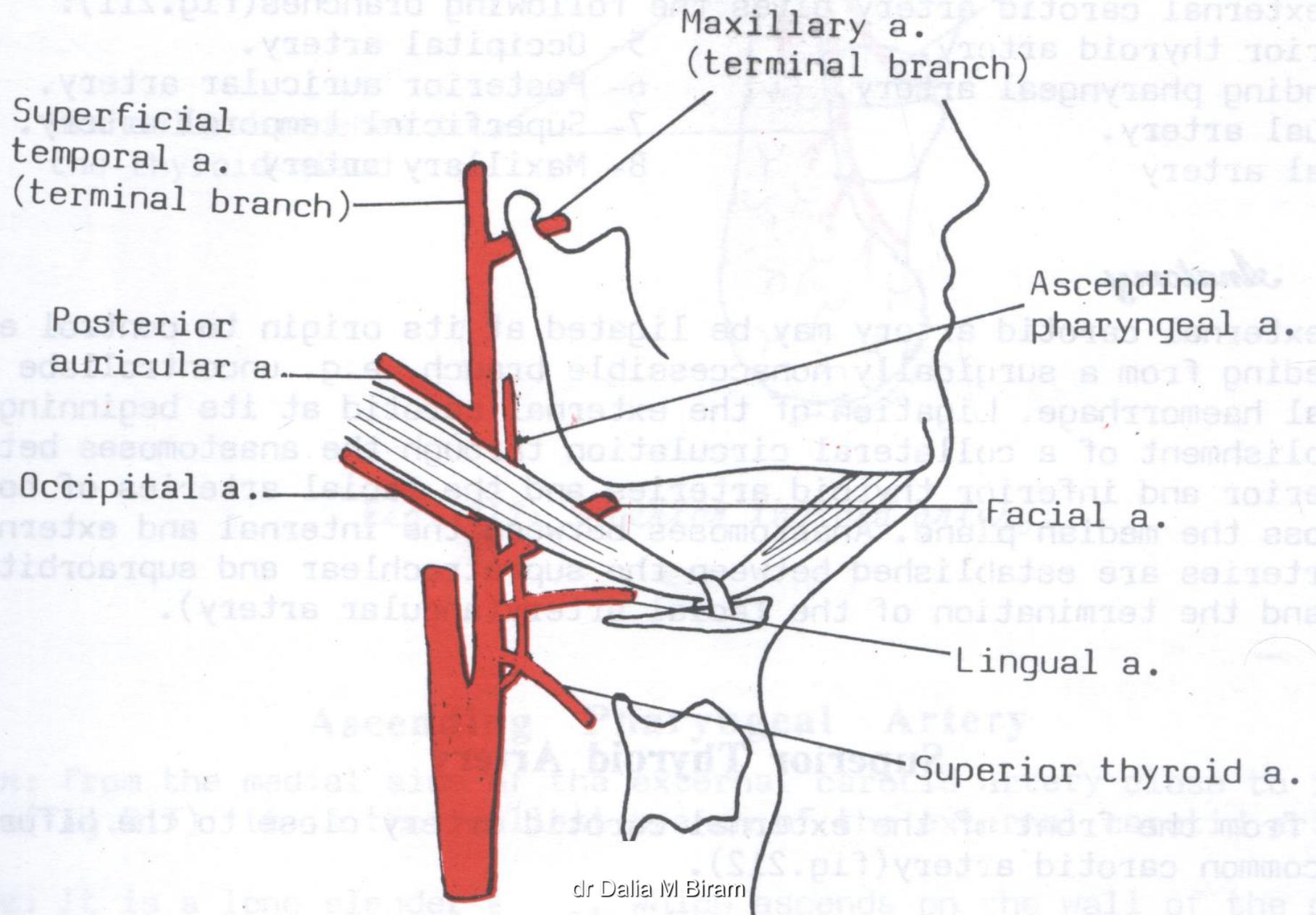
Relations OF External Carotid Artery

- **Anterolateral relations:** At its beginning, it is overlapped by sternocleidomastoid. Above, it is covered by skin, superficial fascia, investing deep fascia. It is crossed by hypoglossal nerve, posterior belly of digastric and stylohyoid. Within parotid gland, it is crossed by facial nerve.
- Internal jugular vein first lies lateral then posterior to the artery.
- **Medial relations:** pharynx, internal carotid artery.
- **Structures passing between external and internal carotid arteries:** Styloid process, stylopharyngeus muscle, glossopharyngeal nerve, pharyngeal branch of vagus and parotid gland.



Dr. Datta M. Bhat

Branches of external carotid artery



- **Branches:** ECA gives the following branches:
 - 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.

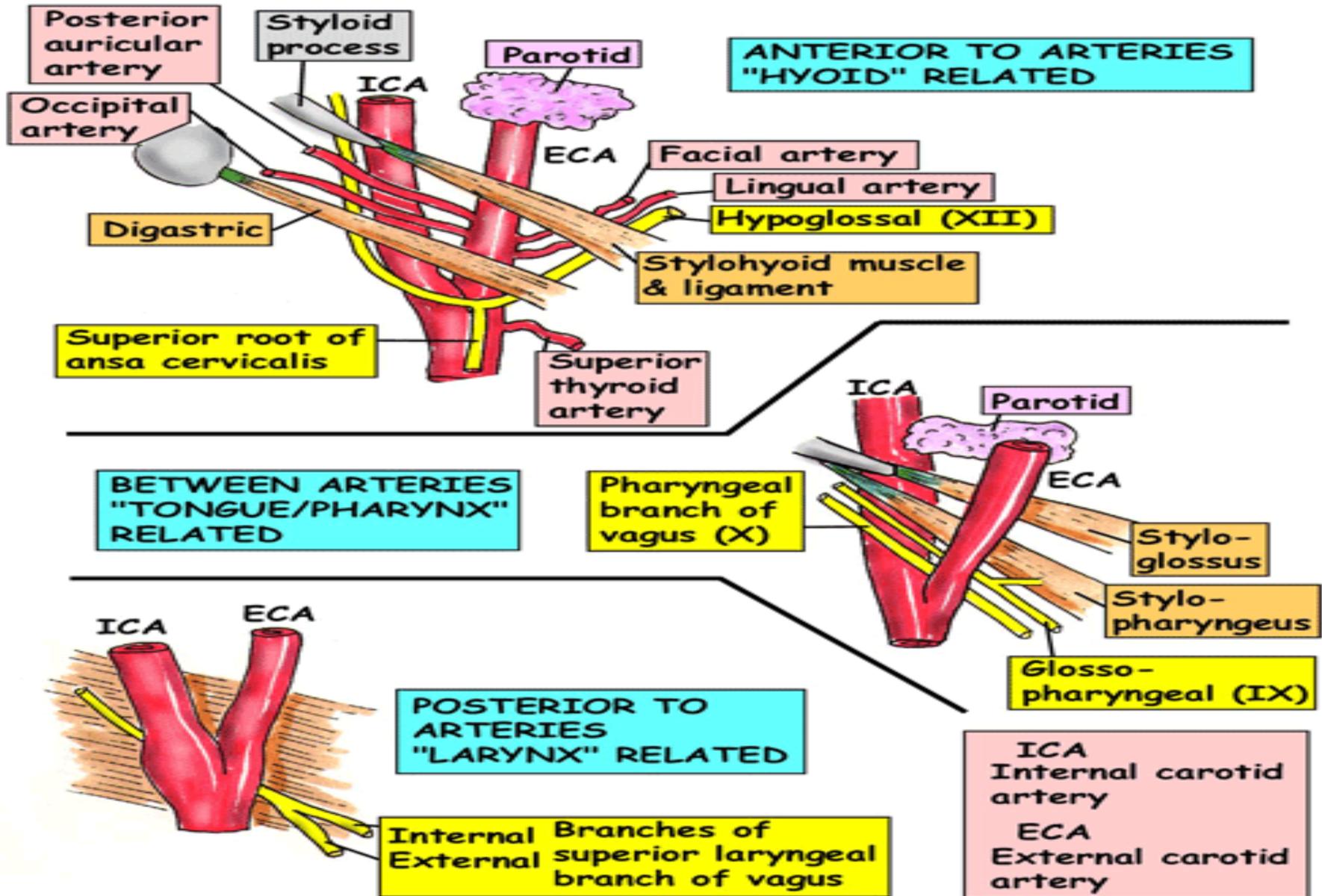
3-Lingual artery: arises opposite the tip of the greater cornu of hyoid bone it forms S-shaped course to reach the tongue.

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

RELATIONS OF THE BIFURCATION OF THE CAROTID ARTERIES



- **Surface anatomy:** It is represented by a line extending from the upper border of thyroid cartilage to the midpoint of a line joining the mastoid process and the angle of the mandible.

■ Internal Carotid Artery ICA

■ Origin:

- It is one of the two terminal branches of the common carotid artery.
- It takes origin at the level of upper border of thyroid cartilage, opposite the disc between 3rd & 4th cervical vertebrae.

■ Termination:

- It ascends vertically upwards inside the carotid sheath to the base of the skull where it passes into the carotid canal to reach the cranial cavity.
- It ends (lateral to optic chiasma) by dividing into: anterior & middle cerebral arteries.

Cervical part:

- This part ascends vertically upwards (in line with CCA) inside the carotid sheath to the base of the skull where it passes into the carotid canal to reach the cranial cavity.
- **Relations:**
 - The ICA is enclosed with the IJV & vagus N. inside the carotid sheath. The IJV is lateral to the ICA while the vagus lies behind and between the 2 vessels.

– *Anterolaterally:*

– **Skin, superficial fascia, platysma, deep fascia. .**

■ **As the artery ascends, it is crossed by the posterior belly of digastric muscle.**

■ **Above the digastric muscle, it lies deep to the ECA, but it is separated from it by the following:**

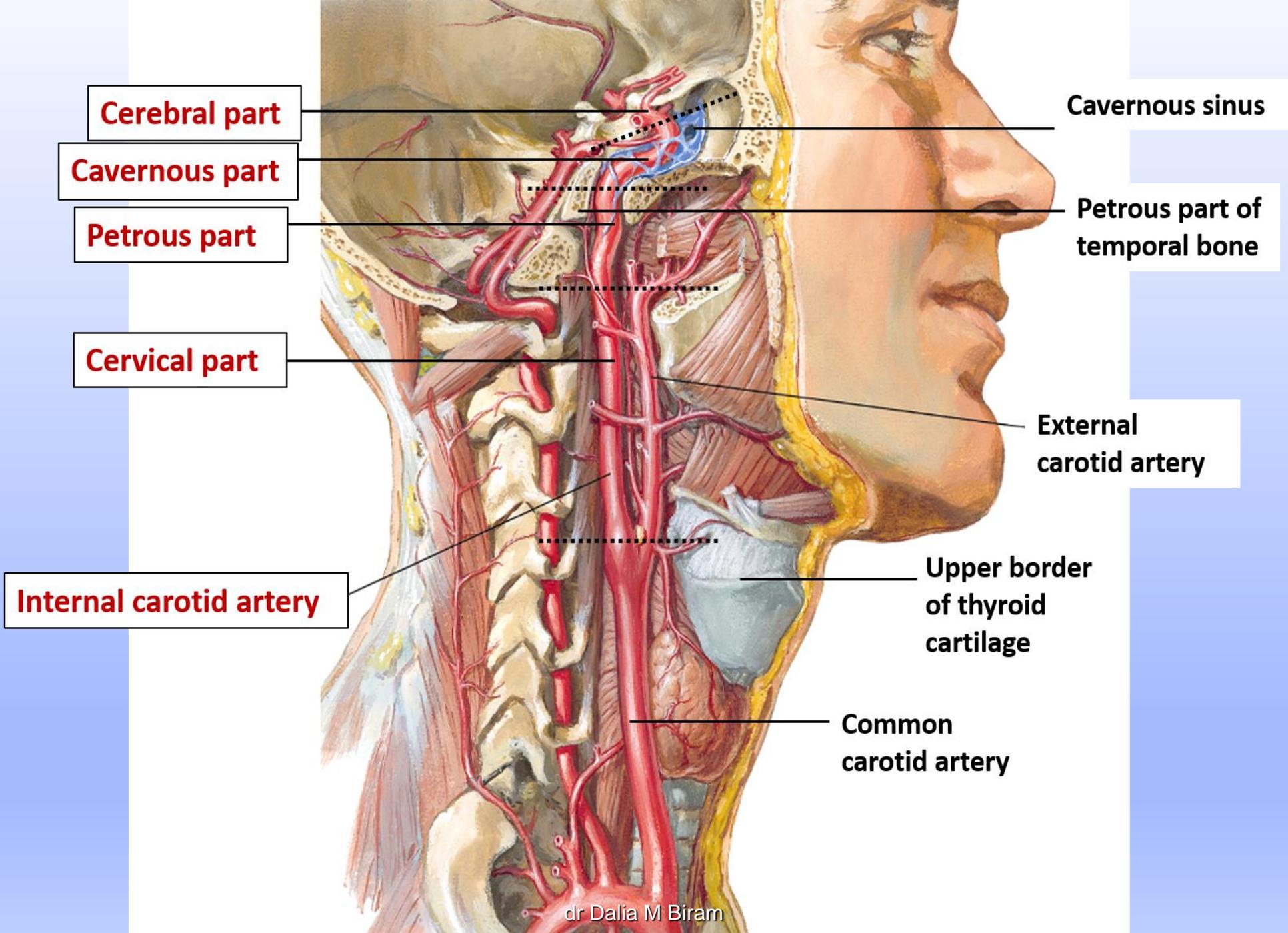
– **styloid process.**

– **Stylopharyngeus.**

– **Glossopharyngeal nerve.**

– **Pharyngeal branch of vagus nerve.**

– **A part of the parotid gland.**



Cerebral part

Cavernous part

Petrous part

Cervical part

Cavernous sinus

Petrous part of temporal bone

External carotid artery

Upper border of thyroid cartilage

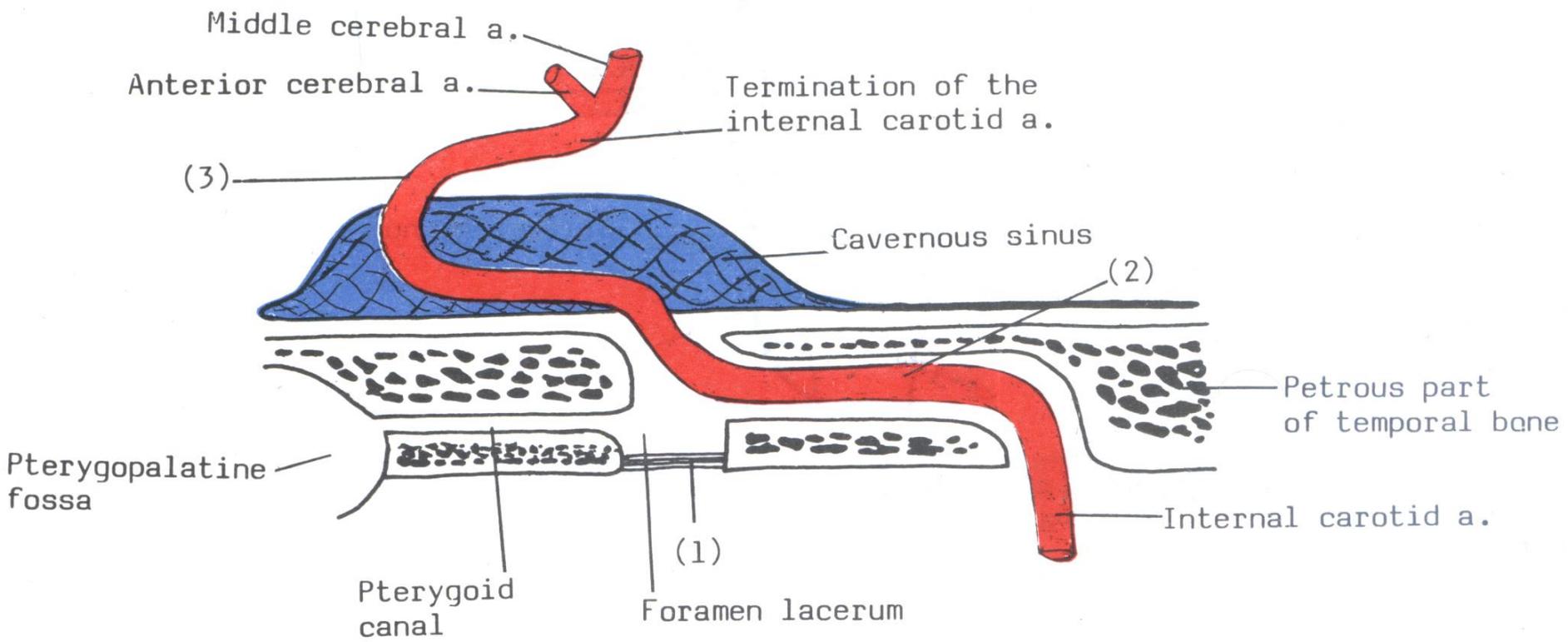
Common carotid artery

Internal carotid artery

Course, parts of ICA:

- A- Cervical part.
- B- Petrous part.

- C- Cavernous part.
- D- Cranial part.



Intracranial course of the internal carotid artery.
(1)=Cartilage plate closing the foramen lacerum.
(2)=Internal carotid artery in the carotid canal.
(3)=Internal carotid artery after piercing the roof of the cavernous sinus.

- **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) **Intrapetrous part:** in carotid canal inside petrous part of temporal bone.
 - (3) **Intracavernous part:** inside the cavernous sinus.
 - (4) **Intracranial 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

• Branches of ICA

A- Cervical part: no branches in the neck.

B- Branches in the carotid canal:

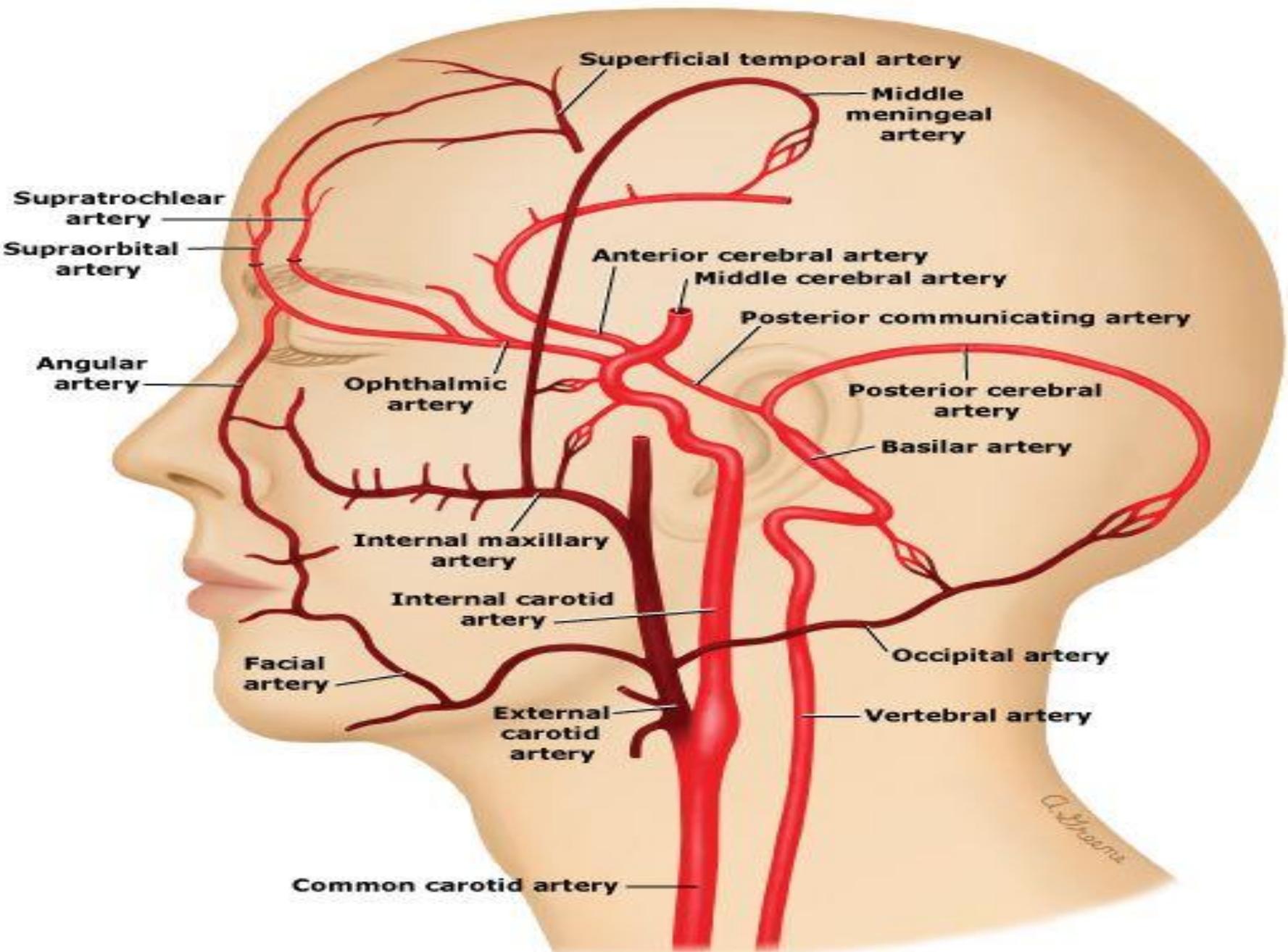
- (1) Caroticotympanic artery to the middle ear cavity
- (2) Artery to the pterygoid canal.

C- Branches within the cavernous sinus:

- (1) Cavernous branches.
- (2) Superior and inferior hypophyseal arteries to 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.



THANK YOU