

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

# BLOOD SUPPLY AND LYMPHATIC DRAINAGE OF FACE

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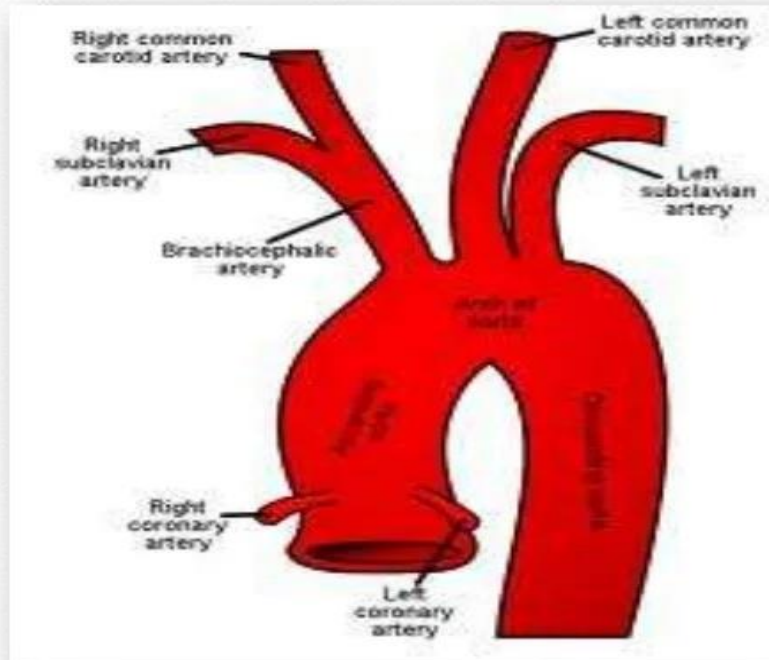
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# ARTERIES OF FACE

- Face is richly vascular & the main arteries that supplies the face are as follows-
  1. Common carotid artery –  
External & Internal carotid artery
  2. **External carotid artery**
    - a) **facial artery**
    - b) Transverse facial artery
    - c) Maxillary artery
  3. Internal carotid artery- Ophthalmic artery

# AORTA

- Begins at the base of left ventricle



## KEY FACTS ABOUT THE FACIAL ARTERY

### Source

External carotid artery

### Branches

Cervical branches:

- Ascending palatine
- Tonsillar
- Submental
- Glandular

Facial branches:

- Inferior labial
- Superior labial
- Lateral nasal
- Angular

*Mnemonic: Anna, PLS SIT (Ascending palatine artery, Premasseteric artery, Lateral nasal artery, Submental artery, Superior labial artery, Inferior labial artery, Tonsillar artery)*

### Supplies

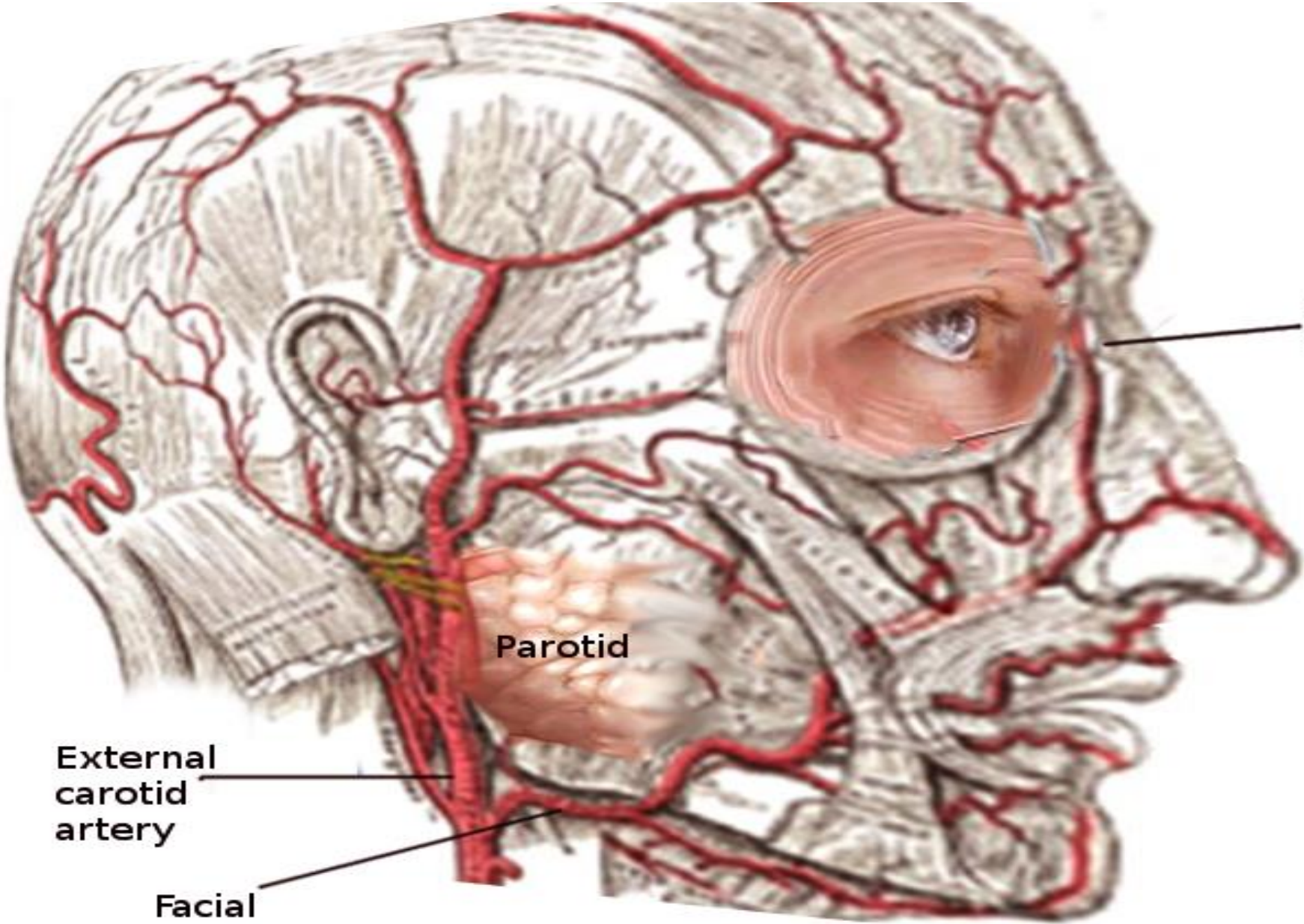
Muscles and skin of the face

### **3. FACIAL ARTERY**

- It is **chief artery of face**
- It arises from the ECA just **above the tip of the greater cornu of the hyoid bone**
- Two parts of facial artery-
  1. **Cervical part-** runs upwards in the neck
  2. **Facial part-** on the face

#### **CERVICAL PART-**

- It runs upwards on the pharynx deep to the posterior belly of the digastric & to the ramus of mandible
- It grooves the posterior border of submandibular gland



Angular artery

Parotid

External carotid artery

Facial artery

- **BRANCHES OF CERVICAL PART-**

- 1. Ascending palatine-**

- supplies the tonsil & root of the tongue

- 2. Tonsillar-**

- supplies the tonsils

- 3. Submental-**

- supplies the submental triangle & sublingual salivary gland.

- 4. Glandular branches-**

- supplies submandibular salivary gland & lymph nodes



## KEY FACTS ABOUT THE CERVICAL BRANCHES OF FACIAL ARTERY

### ASCENDING PALATINE ARTERY

Supplies: auditory tube, palatine tonsil, superior pharyngeal constrictor, soft palate

### TONSILAR BRANCH

Supplies palatine tonsil

### SUBMENTAL ARTERY

Supplies: submental muscle, submental region skin

### GLANDULAR BRANCHES

Supply: submandibular salivary glands and lymph nodes

## FACIAL PART-

### Course-

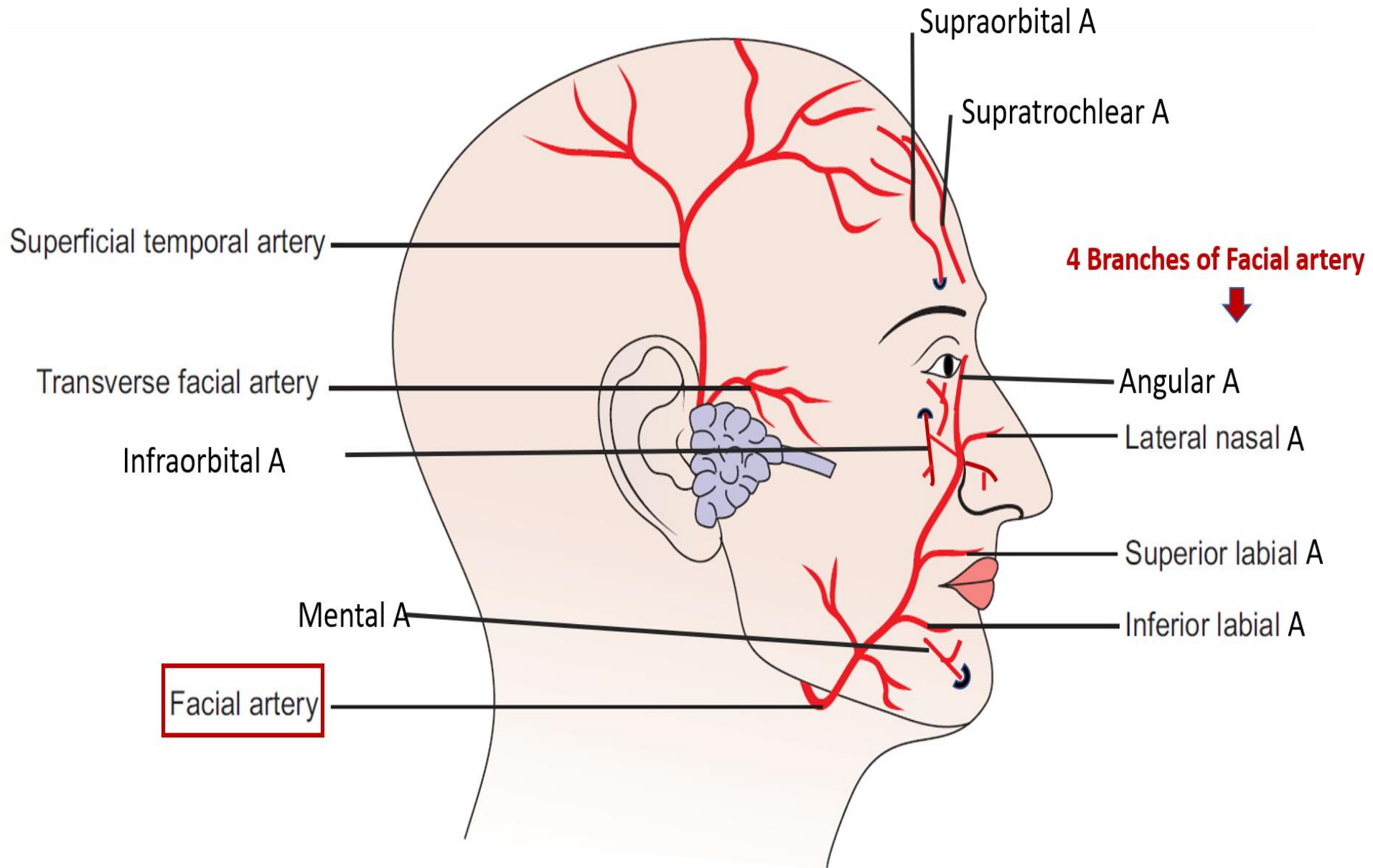
- It enters the face by winding around the base of the mandible, by piercing the deep cervical fascia at the antero-inferior angle of the masseter muscle.
- **First** it runs **upwards & forwards** to a point half an inch lateral to the angle of the mouth.
- Then it **ascends by the side of the nose up to the medial angle of the eye**, where it terminates by supplying the lacrimal sac & by **anastomosing with the dorsal nasal branch of the ophthalmic artery**.
- The facial artery is **very tortuous**. (Tortuosity of the artery prevents its walls from being unduly stretched during movement of mandible, lips & the cheeks)

## **BRANCHES OF FACIAL PART-**

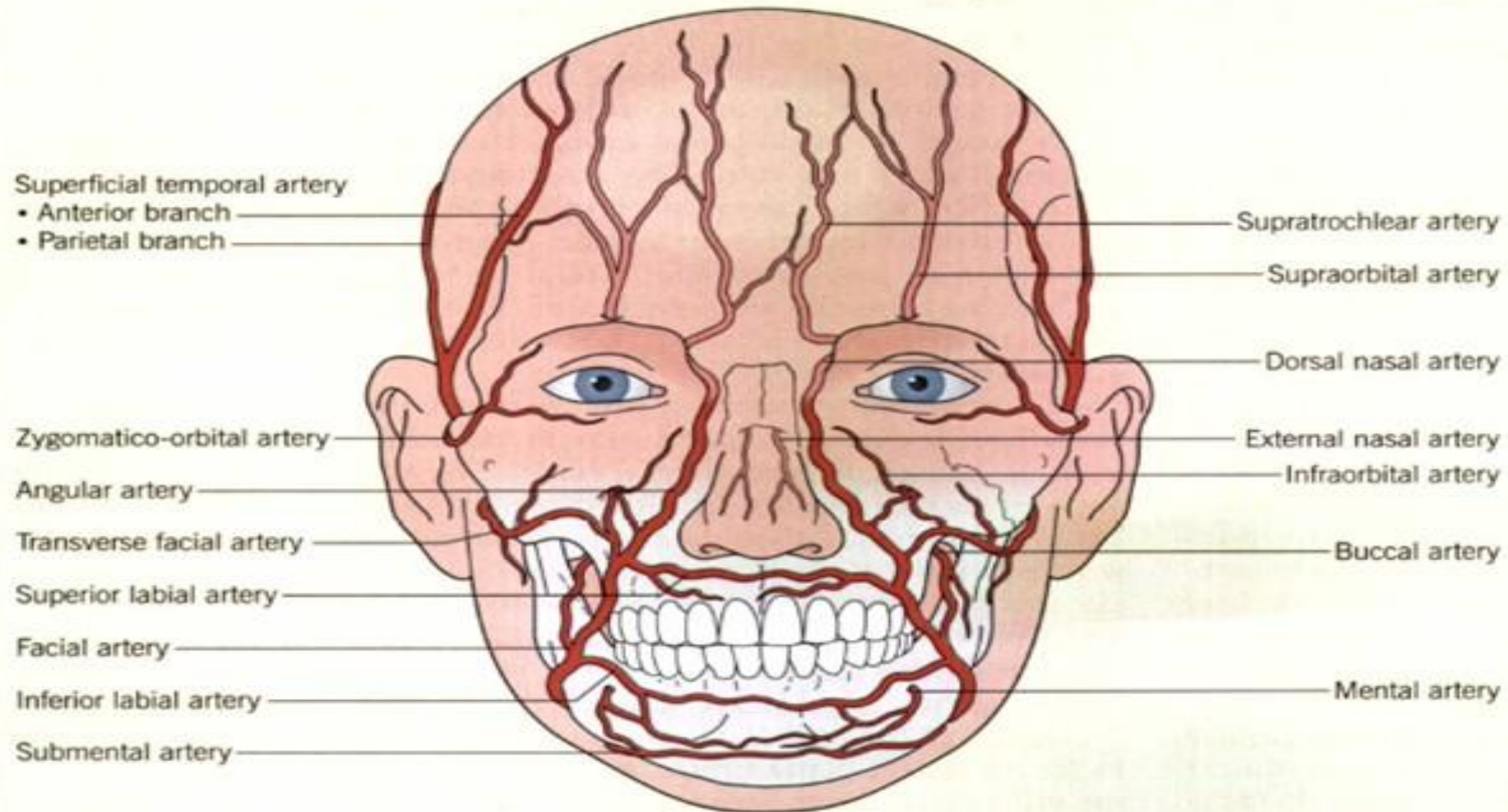
- 1. Inferior labial –**  
- supplies lower lip
- 2. Superior labial-**  
- supplies the upper lip & the anteroinferior part of the nasal septum.
- 3. Lateral nasal-**  
- supplies to the ala & dorsum of the nose.

## KEY FACTS ABOUT THE FACIAL BRANCHES OF FACIAL ARTERY

Inferior labial artery	Supplies: lower lip, labial glands
Superior labial artery	Supplies: upper lip, nasal septum, ala of the nose
Lateral nasal branch	Supplies: dorsum of the nose, ala of the nose
Angular artery	Supplies: lacrimal sac, orbicularis oculi muscle



## ARTERIAL SUPPLY OF THE FACE



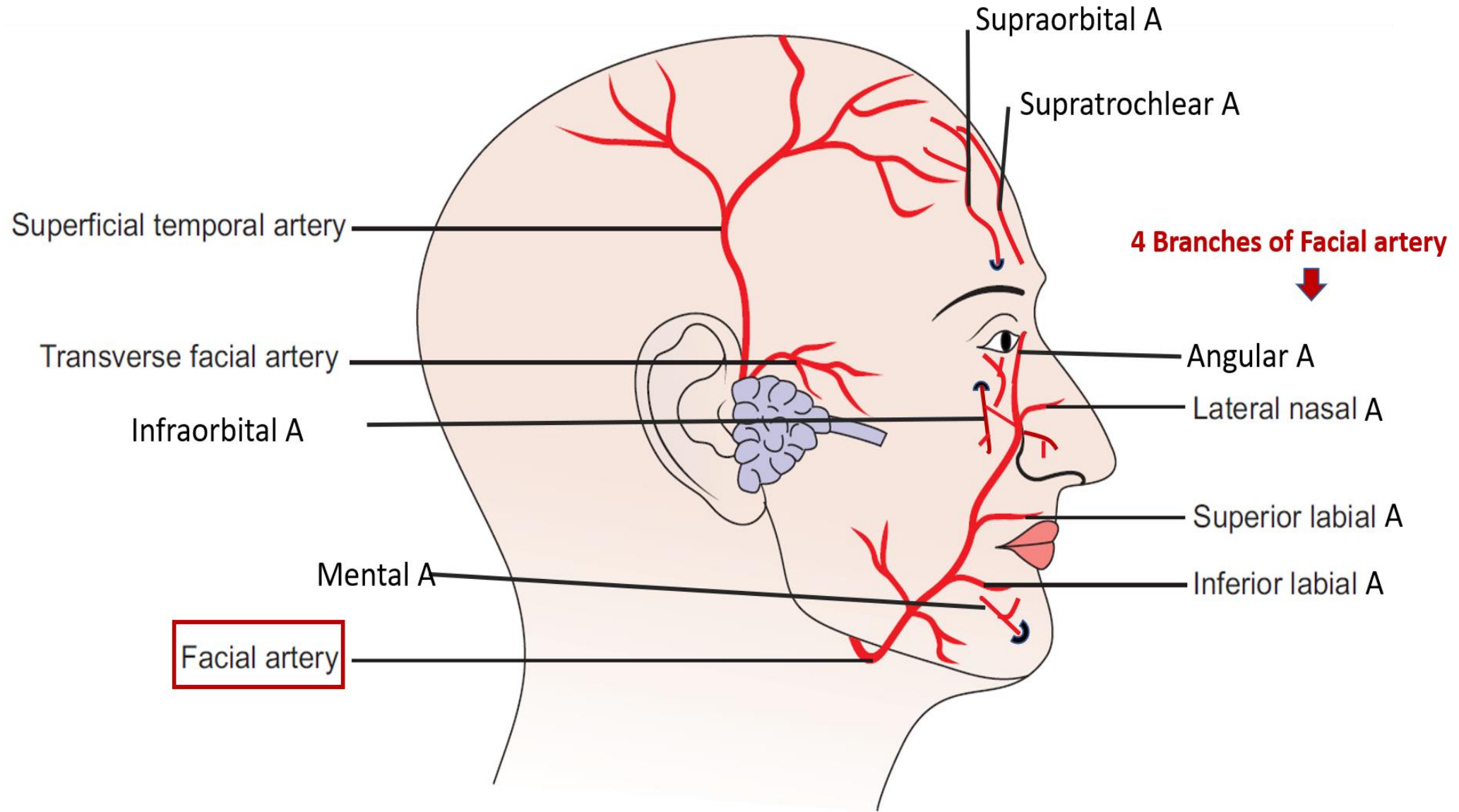
## ANASTOMOSES-

- The large anterior branches anastomoses with similar branches of the opposite side & with the submental artery.
- At the medial angle of the eye terminal branches of the facial artery anastomoses with branches of the ophthalmic artery (it is the site for anastomosis between the branches of ECA & ICA)

## TRANSVERSE FACIAL ARTERY

- **Branch of superficial temporal artery.**
- After emerging from the parotid gland, it runs forward over the masseter between the parotid duct & zygomatic arch.
- Accompanied by the upper buccal branch of facial nerve.
- It **supplies the parotid gland & its duct**, the masseter & overlying skin.





# SUPERFICIAL TEMPORAL ARTERY

- The superficial temporal artery is a terminal branch of the [external carotid artery](#).
- It originates at the level of the neck of the [mandible](#).
- After traversing the [parotid gland](#), it runs [superficially](#) to the [zygomatic](#) process of the [temporal bone](#).

Superficial temporal artery



Temporal arteritis



**Superficial temporal artery gives off several branches that include:**

- **Parotid branch**
- Transverse facial artery
- Anterior auricular branch
- Zygomatico-orbital artery
- Middle temporal artery
- Frontal branch
- Parietal branch

## Key facts about the superficial temporal artery

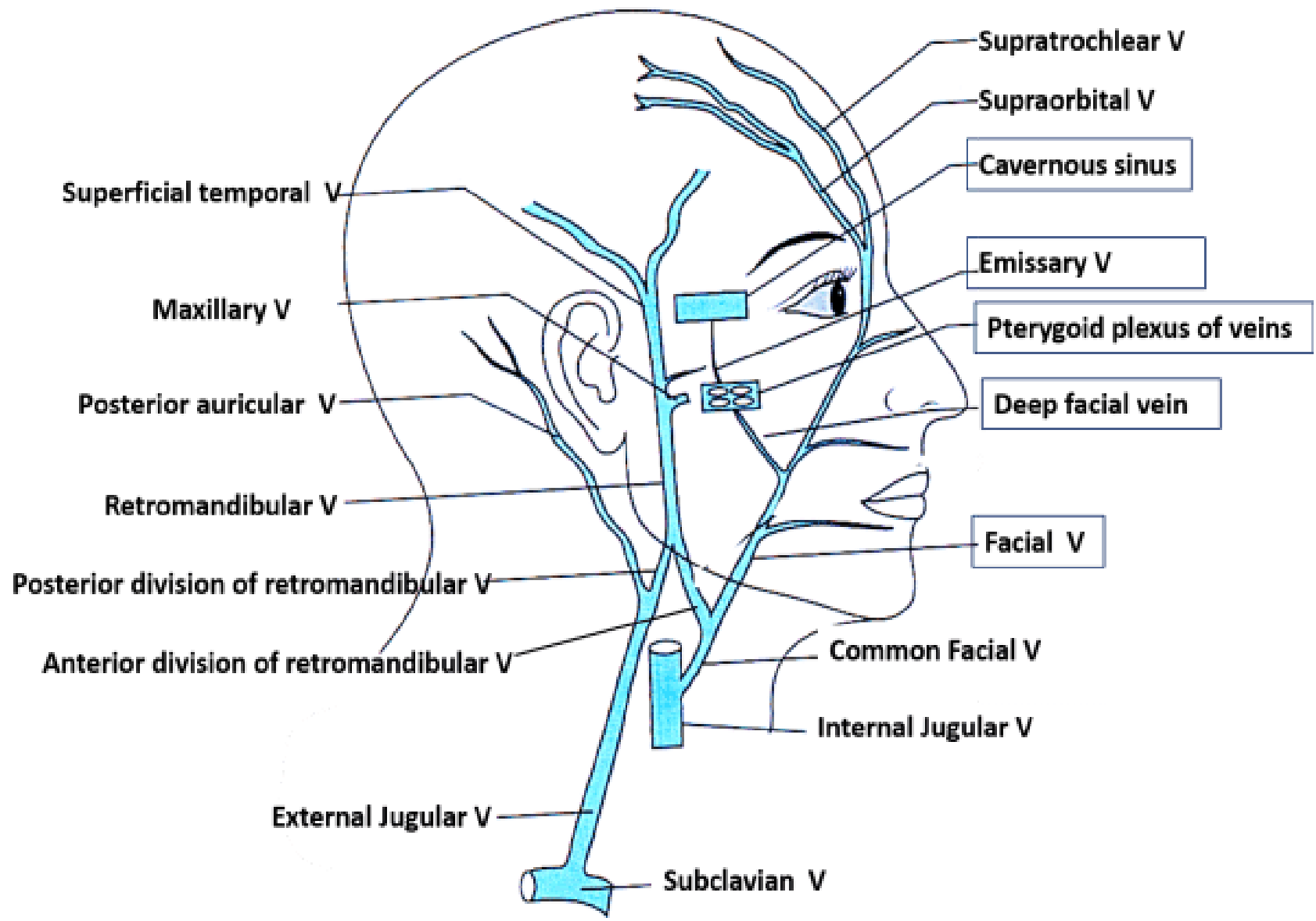
Origin	Terminal branch of external carotid artery
Branches	Parotid branch, transverse facial artery, anterior auricular branches, zygomatico-orbital artery, middle temporal artery, frontal branch, parietal branch
Supply	Skin and muscles at the side of the face and in the scalp, parotid gland, temporomandibular joint

## VEINS OF FACE

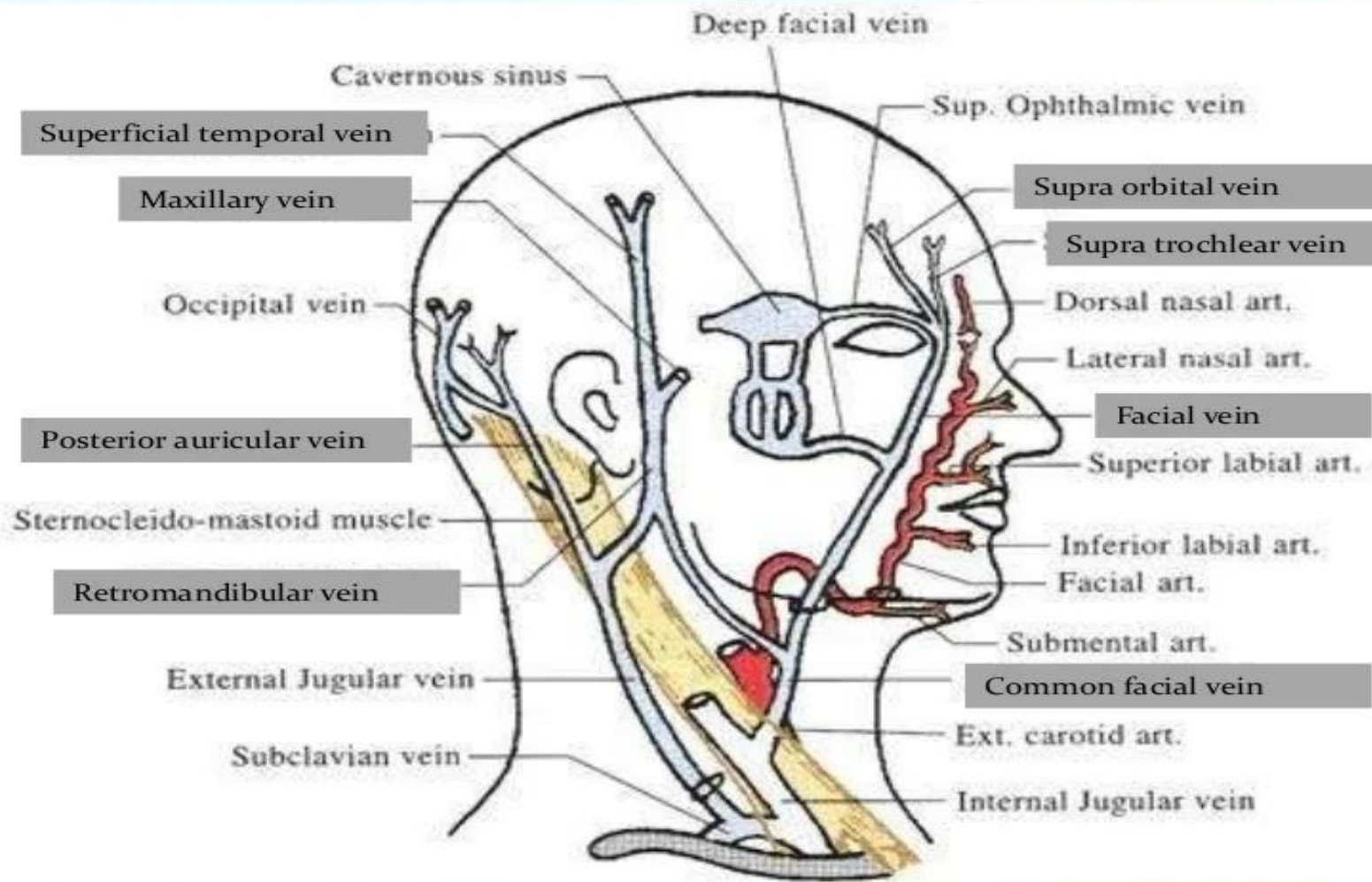
1. **Facial vein - major vein draining the face**
2. Transeverse facial vein

## FACIAL VEIN

- **Facial vein** is the **major vein draining the face.**
- Its begins as the angular vein at the medial angle of the eye.
- It is **formed by the union of the supratrochlear and supraorbital veins.**
- The angular vein continues as the facial vein, running downwards & backwards behind the facial artery.
- It crosses the anteroinferior angle of the masseter, pierces the deep fascia, crosses the submandibular gland & joins the anterior division of retromandibular vein (below the angle of the mandible) to form common facial vein.
- Drains into internal jugular vein.







## *TRANSVERSE FACIAL VEIN*

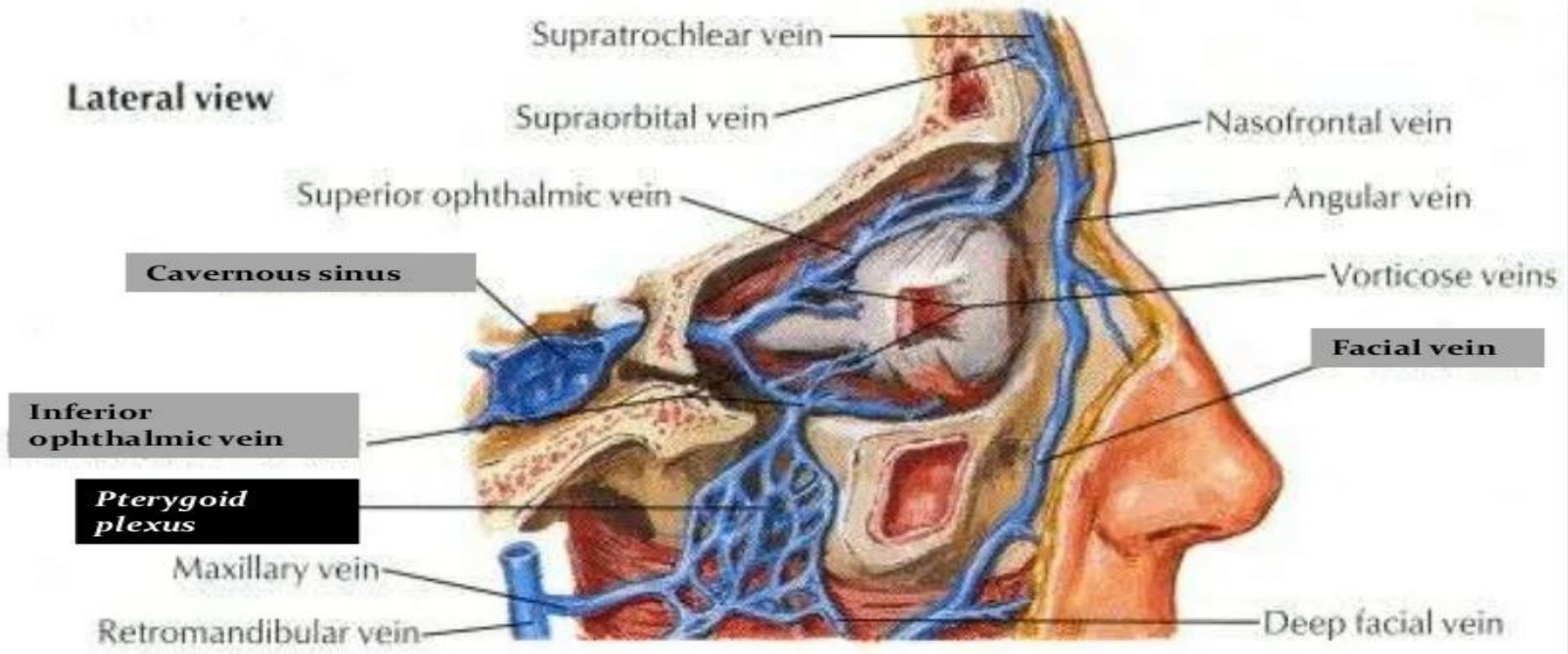
- Small vein supplies the face.
- It empties into the superficial temporal vein within the substance of parotid gland.

## INTRACRANIAL VENOUS CONNECTION

- The facial vein has numerous connections with venous channels passing into deeper regions of the head.
  1. Near the **medial corner of the orbit it communicates with ophthalmic veins.**
  2. In the area of the cheek it communicates with veins passing into the infra orbital foramen.
  3. It communicates with veins passing into deeper regions of the face (i.e. the deep facial vein connecting with the pterygoid plexus of veins).

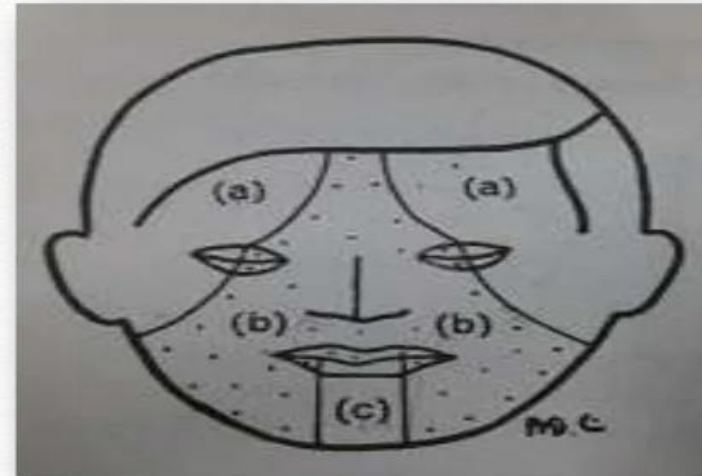
- All these venous channels have **interconnections with the intracranial cavernous sinus through emissary veins** that connect intracranial with extracranial veins.
- There are **no valves in the facial vein** or any others venous channels in the head,so blood can move in any direction.
- So infection from the face can spread in the retrograde direction & cause **thrombosis of the cavernous sinus**.
- This is specially likely to occur in presence of infection in upper lip & lower part of the nose, this area is therefore called as ***dangerous area of the face***.

**Lateral view**



## LYMPHATIC DRAINAGE OF FACE

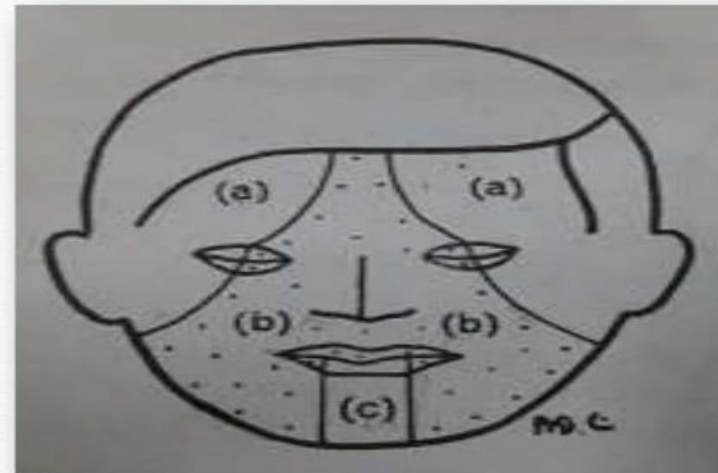
- The face has 3 lymphatic territories-
1. **Upper territory- *Preauricular (parotid) nodes***
    - including the greater part of the forehead
    - Lateral halves of the eyelids
    - The conjunctiva
    - Lateral part of the cheek
    - Parotid area



*(a) Upper territory*

## 2. Middle territory- Submandibular nodes

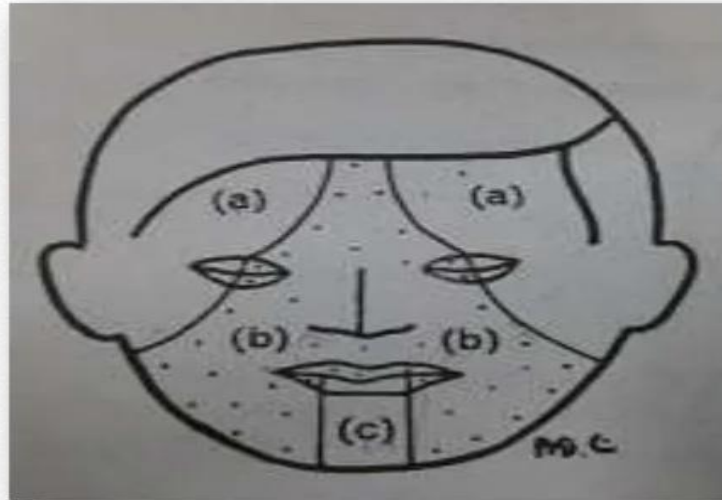
- Median part of the forehead
- External nose
- Upper lip
- Lateral part of lower lip
- Medial halves of eyelids
- Medial part of cheek
- Greater part of the lower jaw



**(b) middle territory**

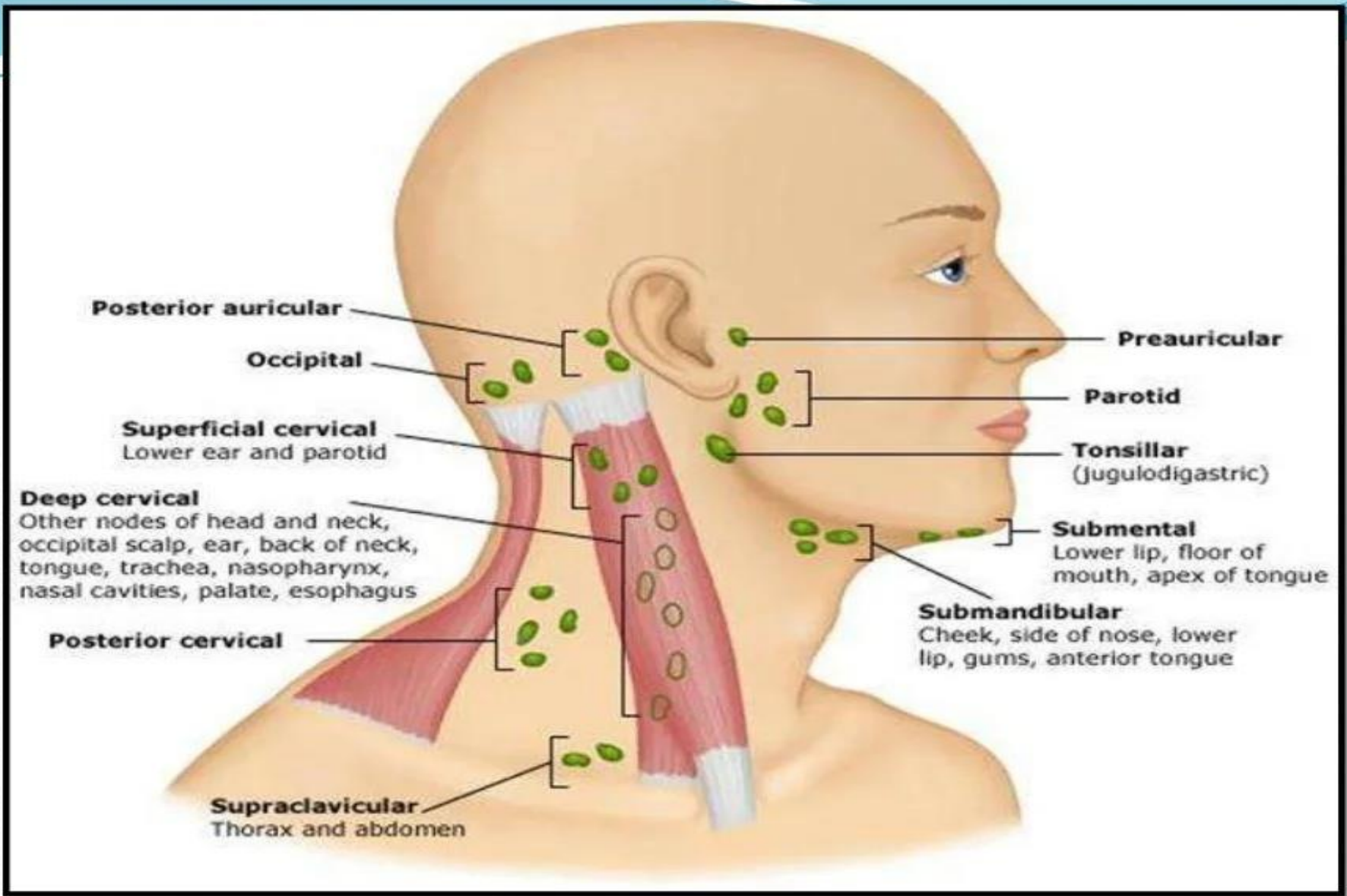
### 3. Lower territory - Submental nodes

- Central part of the lower lip
- Chin

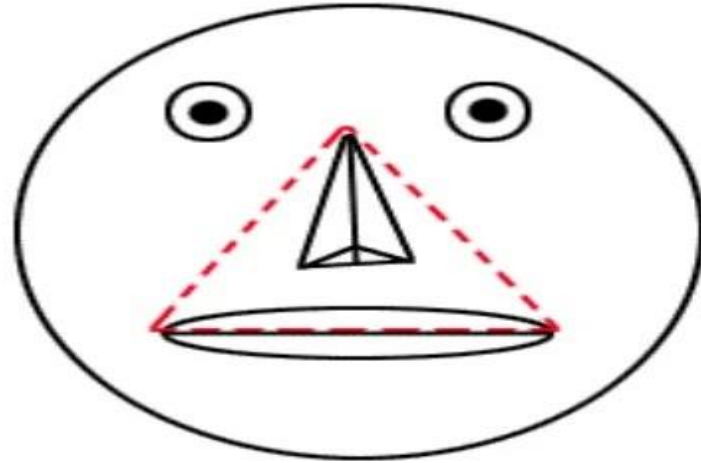


*(c) lower territory*





## **Dangerous area of the face**



## CAVERNOUS SINUS THROMBOSIS

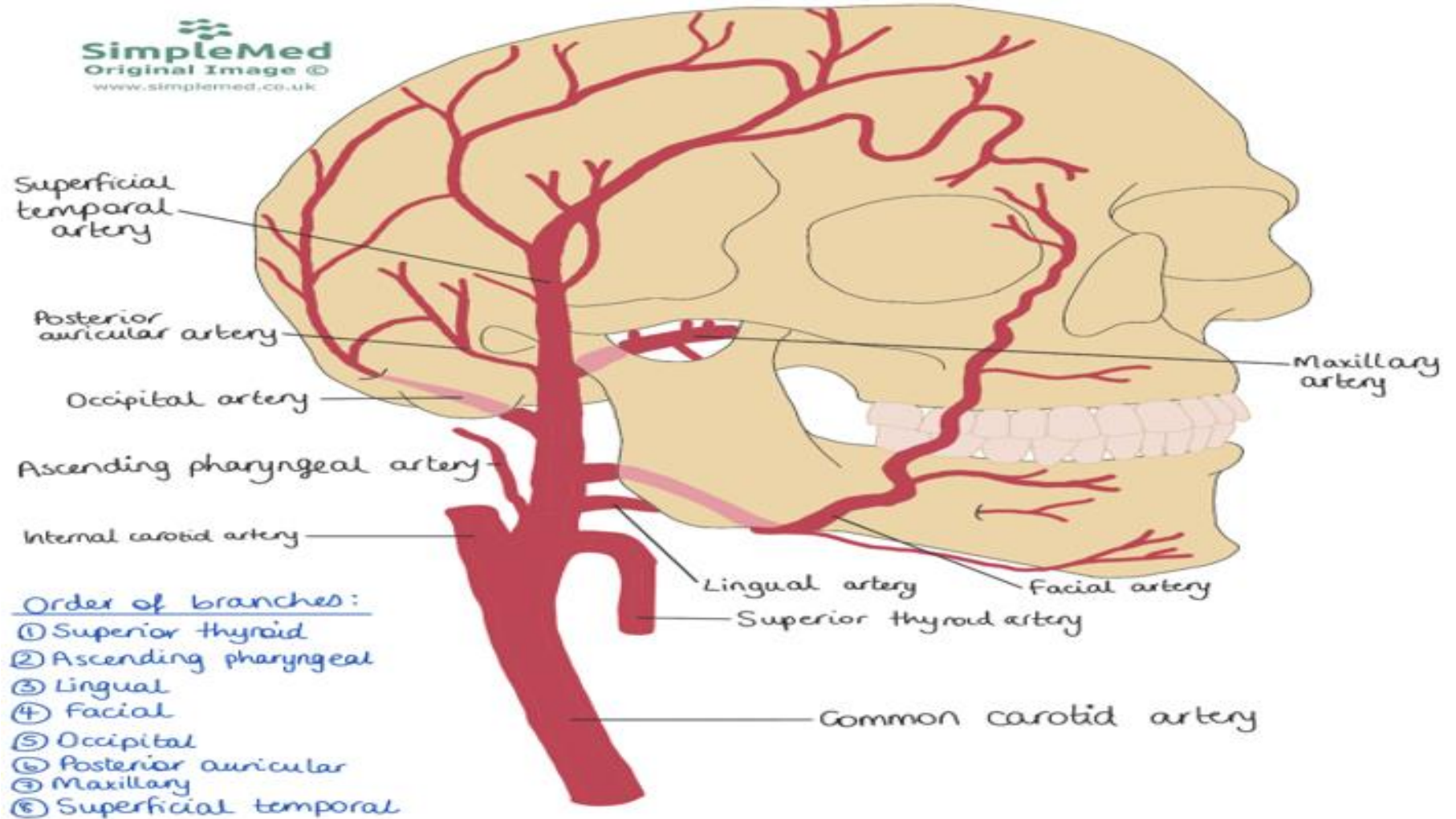
### Cavernous sinus-

- It is **paired sinus** & present against the lateral aspect of the body of sphenoid bone on either side of sella turcica.
- It receives blood not only from cerebral vein but also from –
  - a) **Ophthalmic vein** (from orbit)
  - b) **Emissary veins** (from the pterygoid plexus of veins in the infratemporal fossa)
- These connections provide pathways for infections to pass from the extracranial sites into intracranial locations.
- Structure pass through the cavernous sinuses are located in the walls of these sinuses they are vulnerable to injury due to inflammation.

# MAXILLARY ARTERY

- The maxillary artery is one of the two terminal divisions of the external carotid artery in the head.
- distributes the blood flow to the upper (maxilla)
- and lower (mandible) jaw bones,
- deep facial areas,
- cerebral dura mater
- the nasal cavity
- terminal branch is the superficial temporal artery.

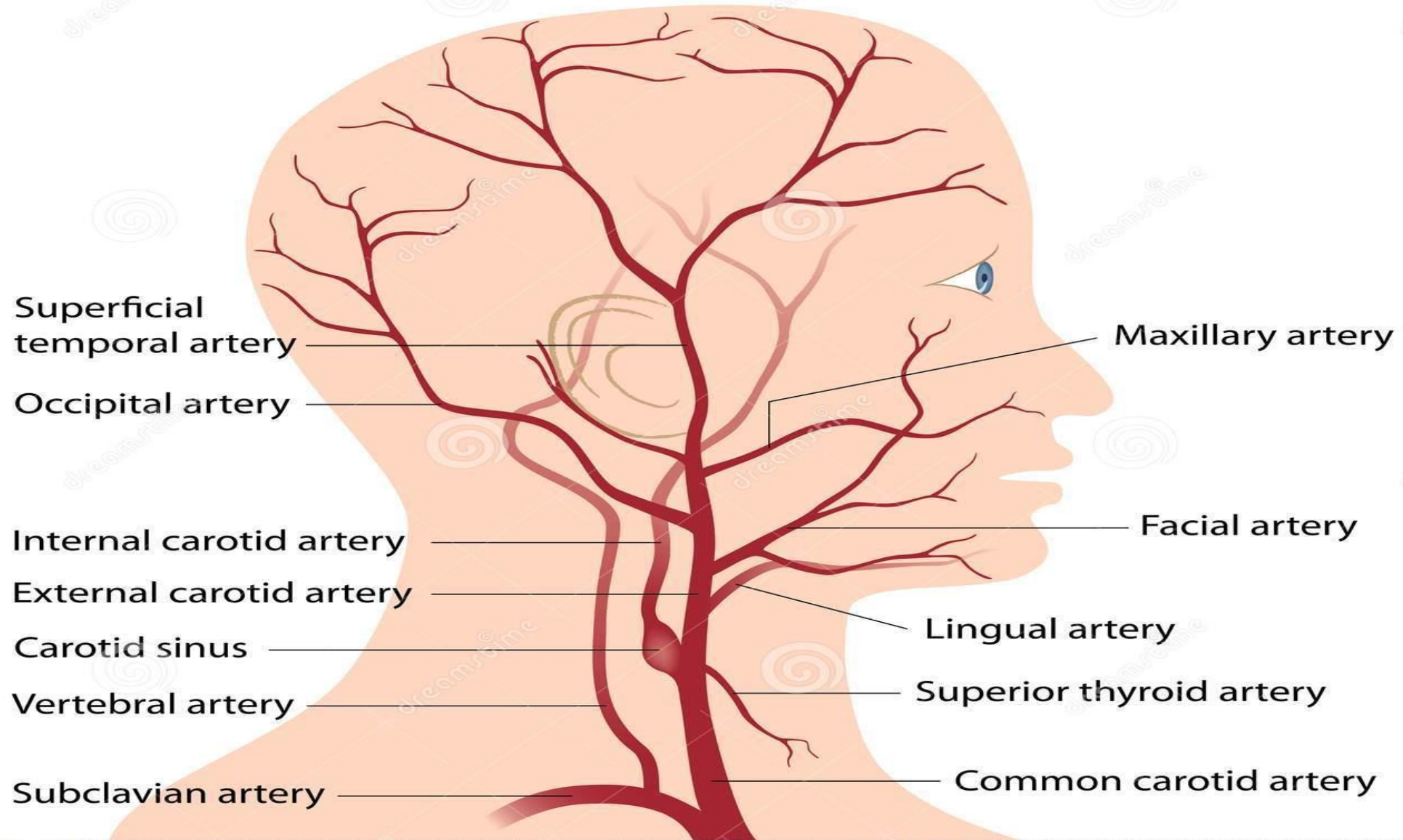
supports both hard and soft tissues in the maxillofacial region



## Cont.....

- The main trunk of the maxillary artery is divided into three parts, which are named according to related structures along the artery's course (path of travel). These three parts are the:
  1. **Mandibular part (1st part)** – named as such because it winds around deep to the neck of the mandible,
  2. **Pterygoid part (2nd part)** – it has this name because it travels between the two heads of the lateral pterygoid muscle,
  3. **Pterygopalatine part (3rd part)** – this part derived its name from the pterygopalatine fossa, into which it enters.

# Blood Supply of the Head and Neck



# cont

- From the mandibular part

1. Deep auricular artery.....external acoustic meatus

2. Anterior tympanic artery....tympanic membrane

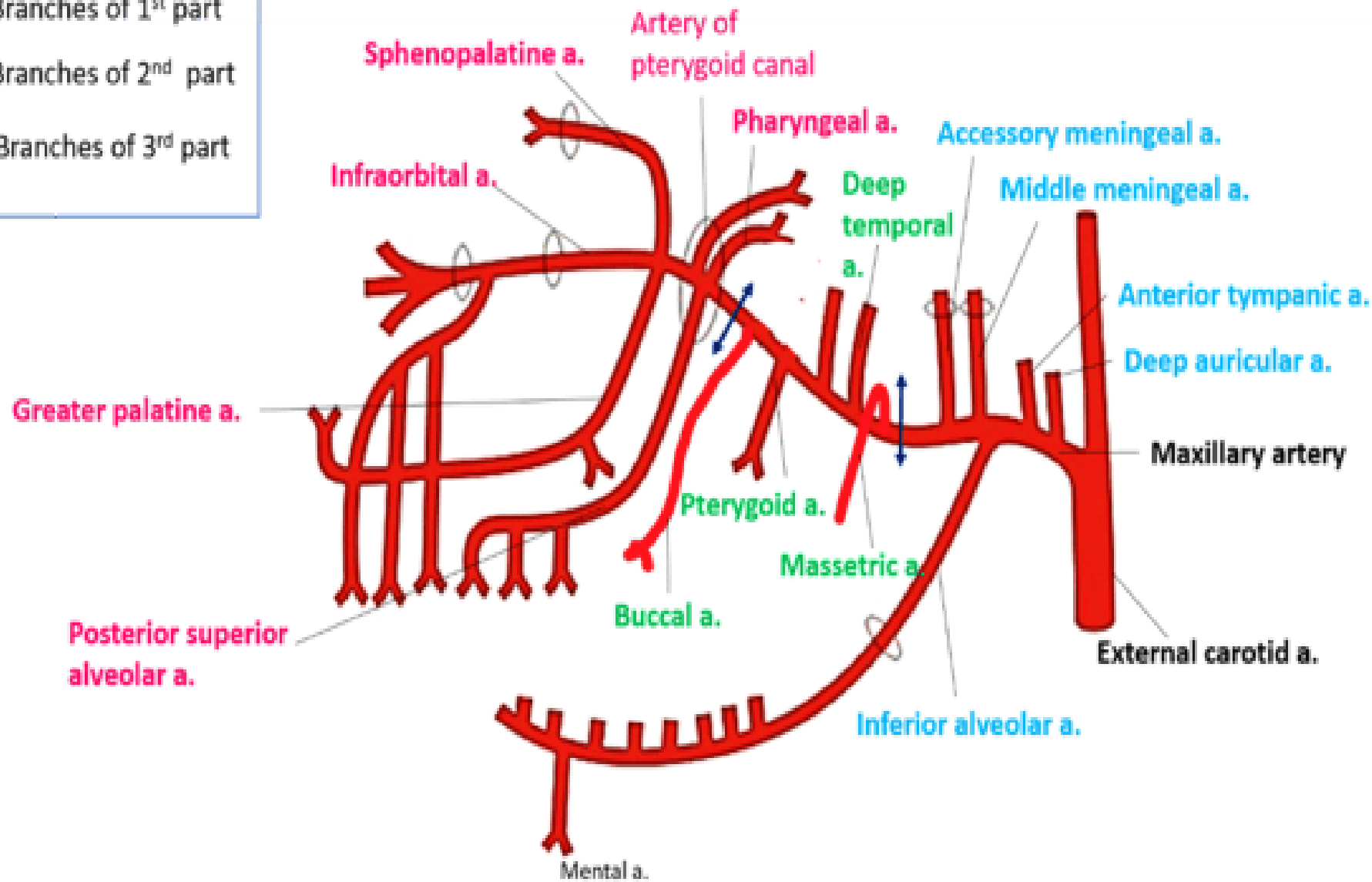
3. Middle meningeal artery.....face, dura

4. Inferior alveolar artery.....mandible

5. Accessory meningeal artery.....middle cranial fossa

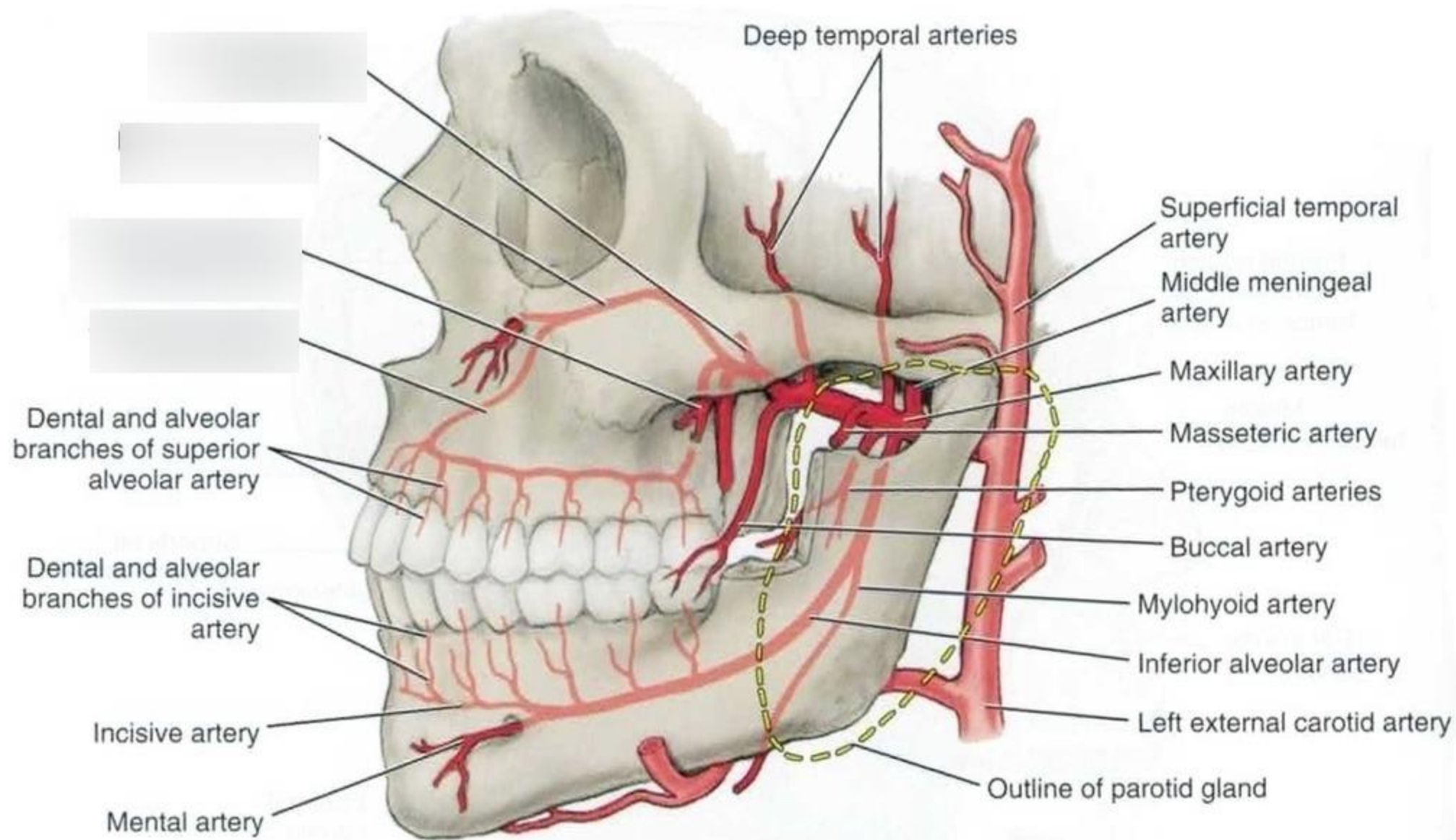


- Branches of 1<sup>st</sup> part
- Branches of 2<sup>nd</sup> part
- Branches of 3<sup>rd</sup> part



- From the pterygoid part
- Masseteric artery.....masseter muscle
- Pterygoid artery.....lateral and med pterygoid
- deep temporal artery ....lat face and scalp.
- buccal or buccinator artery.....buccinator

- From the pterygopalatine part
- sphenopalatine artery-----nasal cavity
- descending palatine artery -----palate
- infraorbital artery.....floor of orbit
- posterior superior alveolar artery.....maxillary teeth
- middle superior alveolar artery.....branch of infra orbital
- pharyngeal artery.....pharynx
- anterior superior alveolar artery..... branch of infra orbital
- artery of the pterygoid canal.....pharynx



**FIGURE 6-9** Pathway of the maxillary artery (except those branches to nasal cavity and palate).

# MNEMONIC:

- DAM I AM Piss Drunk But Stupid Drunk I Prefer, Must Phone Alcoholics Anonymous

THANK YOU