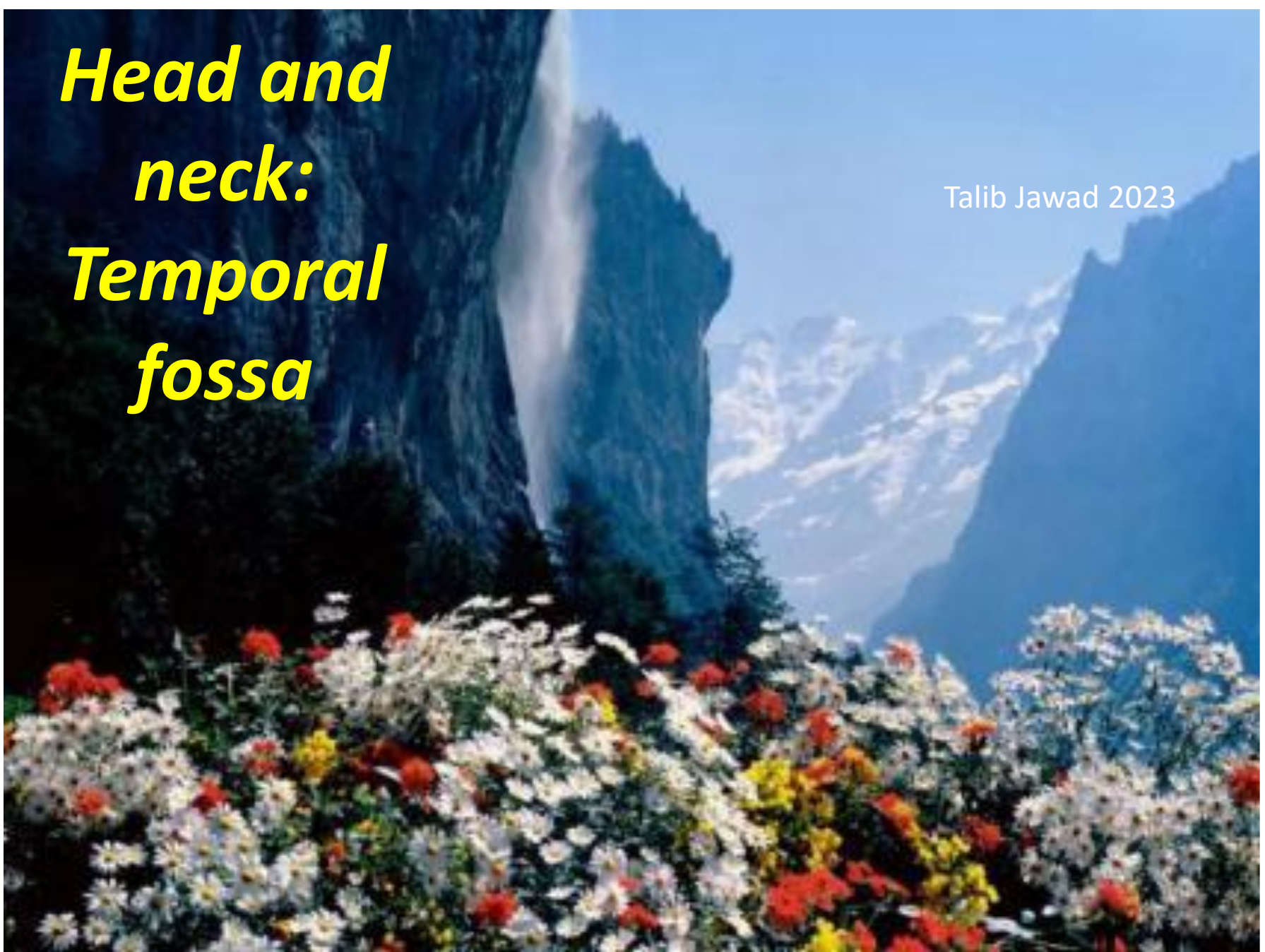


***Head and  
neck:  
Temporal  
fossa***

Talib Jawad 2023

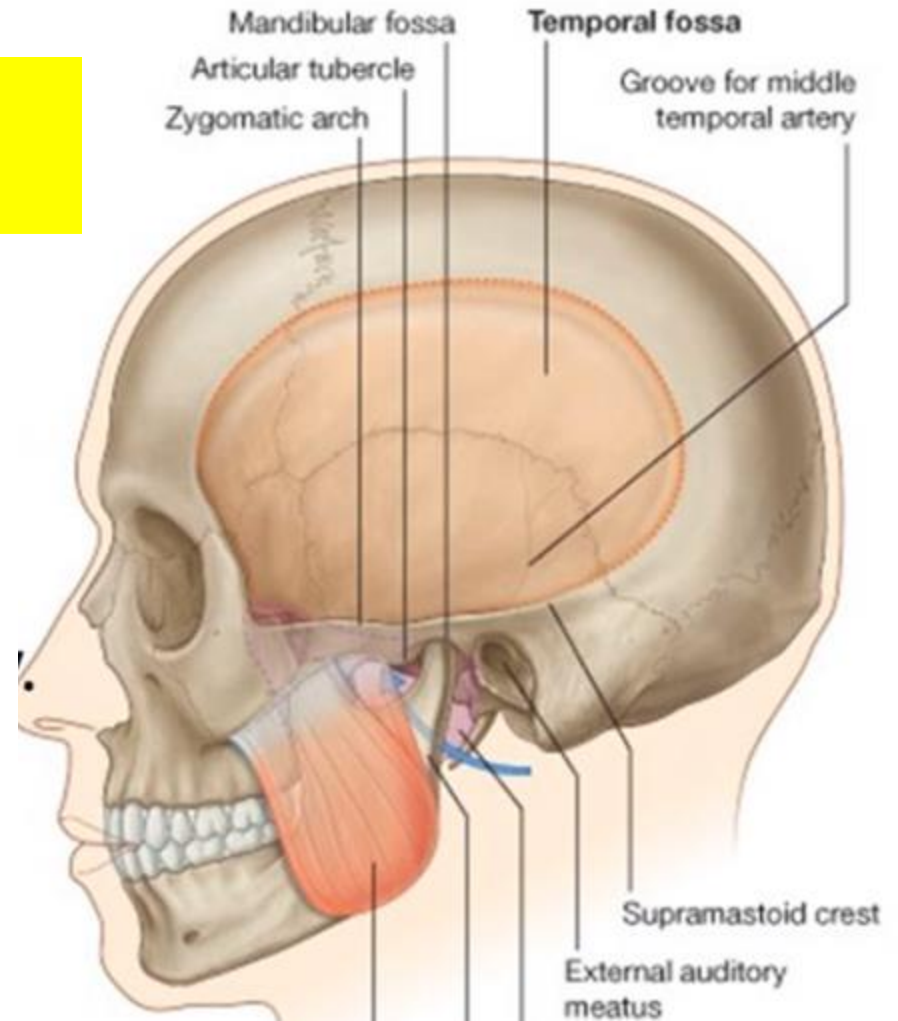


# Objectives

- Definition of T.F
- Boundaries and walls
- Communication
- Content , muscle and vessels and nerves
- Clinical applied anatomy

## The temporal region

**It is the region of the head that lies laterally and includes the temporal and infra temporal fossae, above and below the zygomatic arch, respectively.**

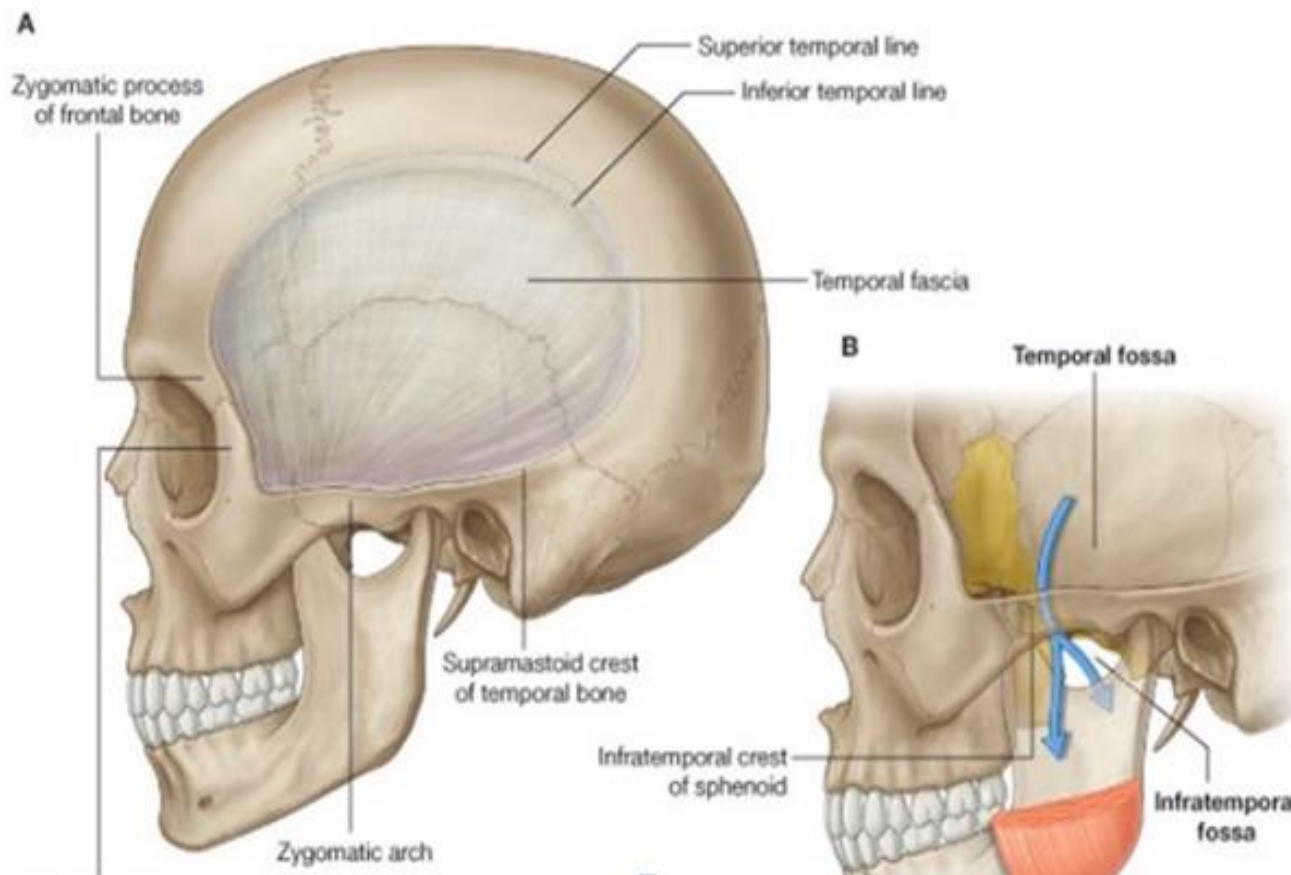


# The temporal region

- The temporal region can be subdivided into two main regions: the superior region (**temporal fossa**) and the inferior region (**infratemporal fossa**), separated by the zygomatic arch.
- ***The temporal fossa*** represents the wide area of the lateral skull above the zygomatic arch.

# The Temporal Fossa

It is a narrow fan-shaped space that covers the lateral surface of the skull. It is connected (open) at its lower part: medially to the infratemporal fossa and laterally to the region containing the masseter muscle.



# Definition of temporal F

- The temporal fossa is a shallow depression on the temporal region of the skull bounded by the temporal lines and terminating below the level of the zygomatic arch. It forms one of the largest landmarks of the skull and is located superior to the zygomatic arch and inferior to the superior temporal line.

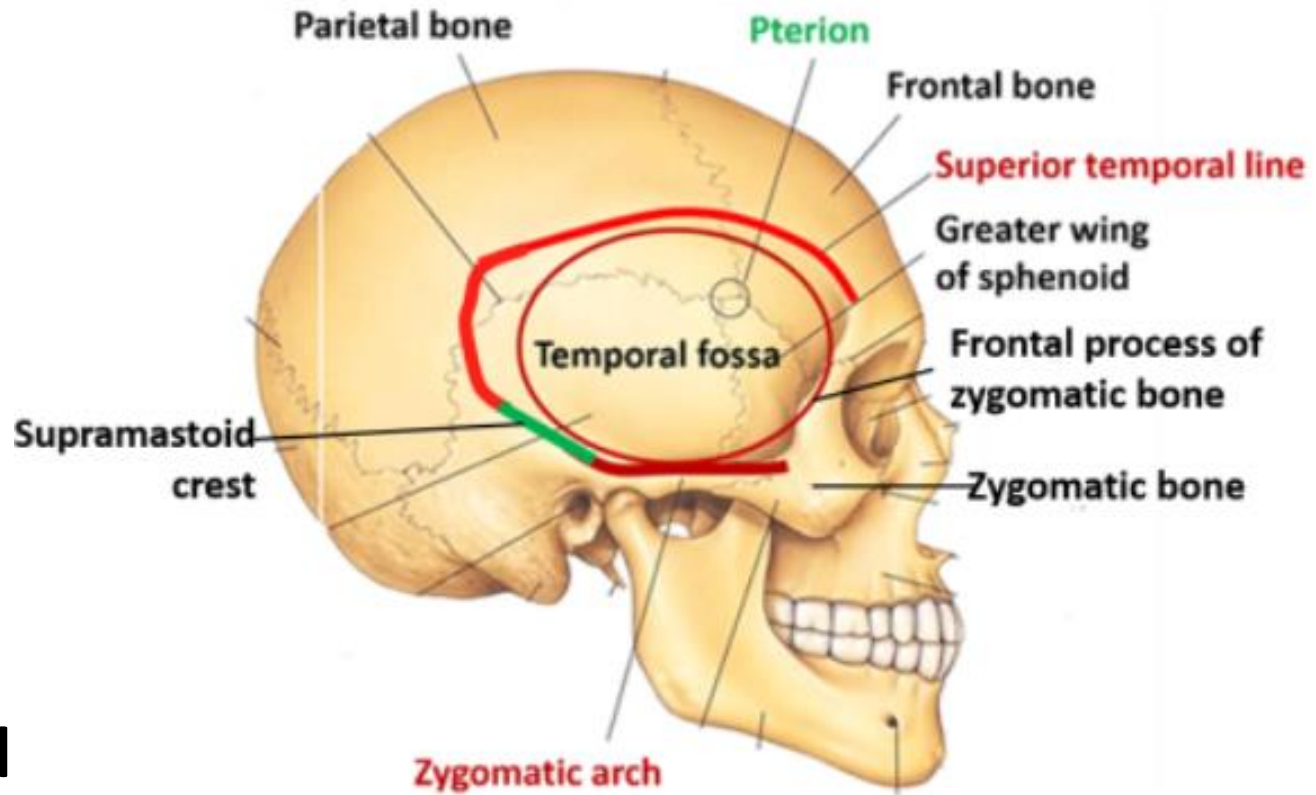
- The floor of the temporal fossa is somewhat vertically oriented. It is formed by the four skull bones that meet at their junction called the pterion. These bones include:
  - The posterior part of the frontal bone
  - The anteroinferior part of the parietal bone
  - The lateral aspect of the greater wing of the sphenoid bone
  - The squamous part of the temporal bone

# Boundaries

- Superior and posterior: superior temporal line.
- Anteriorly: Frontal process of the zygomatic bone, zygomatic process of frontal bone
- Inferiorly: Zygomatic arch, infratemporal crest of greater wing of sphenoid
- Laterally: Temporal fascia, zygomatic arch

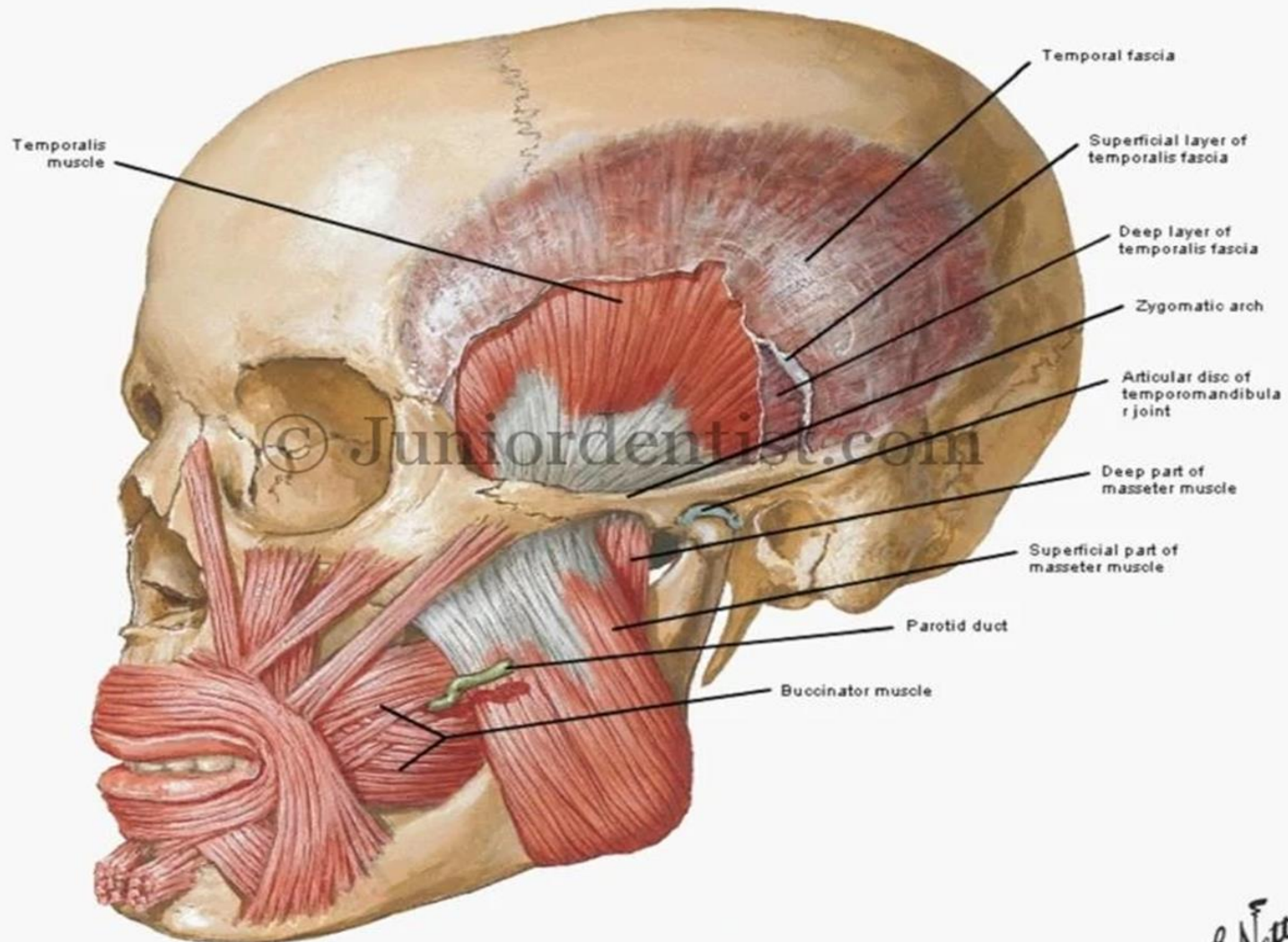


The temporal fossa has a large floor, which is comprised of four skull bones (parietal, temporal, frontal and sphenoid bones). The fossa is mainly occupied by the temporalis muscle which has a wide attachment spread across the fossa.



# Muscles Involved in Mastication

## Lateral View



# The temporal fossa also harbors some important neurovascular structures

## Muscles:

Temporalis muscle

## Vessels:

Superficial temporal artery and vein, middle temporal artery and vein, deep temporal arteries and veins

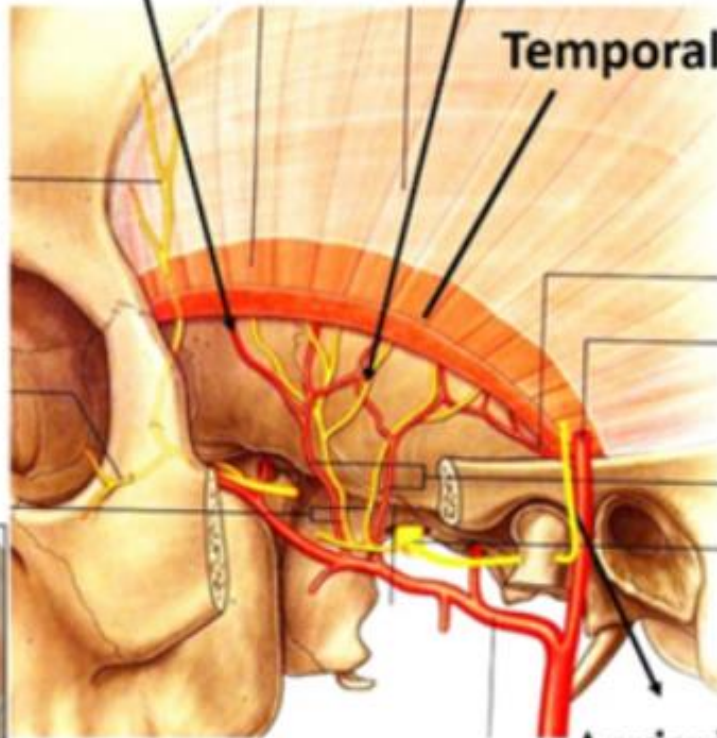
**Nerves:** Deep temporal nerves, zygomaticotemporal nerve, auriculotemporal nerve and temporal branches of the facial nerve

**Deep temporal arteries:** branches of maxillary artery.

**Deep Temporal Nerves:** branch of mandibular nerve -supply temporalis muscle.

**Zygomaticotemporal branch zygomatic nerve-**supplies skin of the temple.

**Temporal br. of Facial N**



**Temporalis muscle**

**Middle temporal artery:** branch of Superficial temporal artery.

**Auriculotemporal nerve**

# Temporal Fossa - Contents

## 1- Temporalis Muscle:

**Shape:** fan-shaped muscle that fills the temporal fossa.

**Origin:** from the bony floor of temporal fossa & overlying temporal fascia.

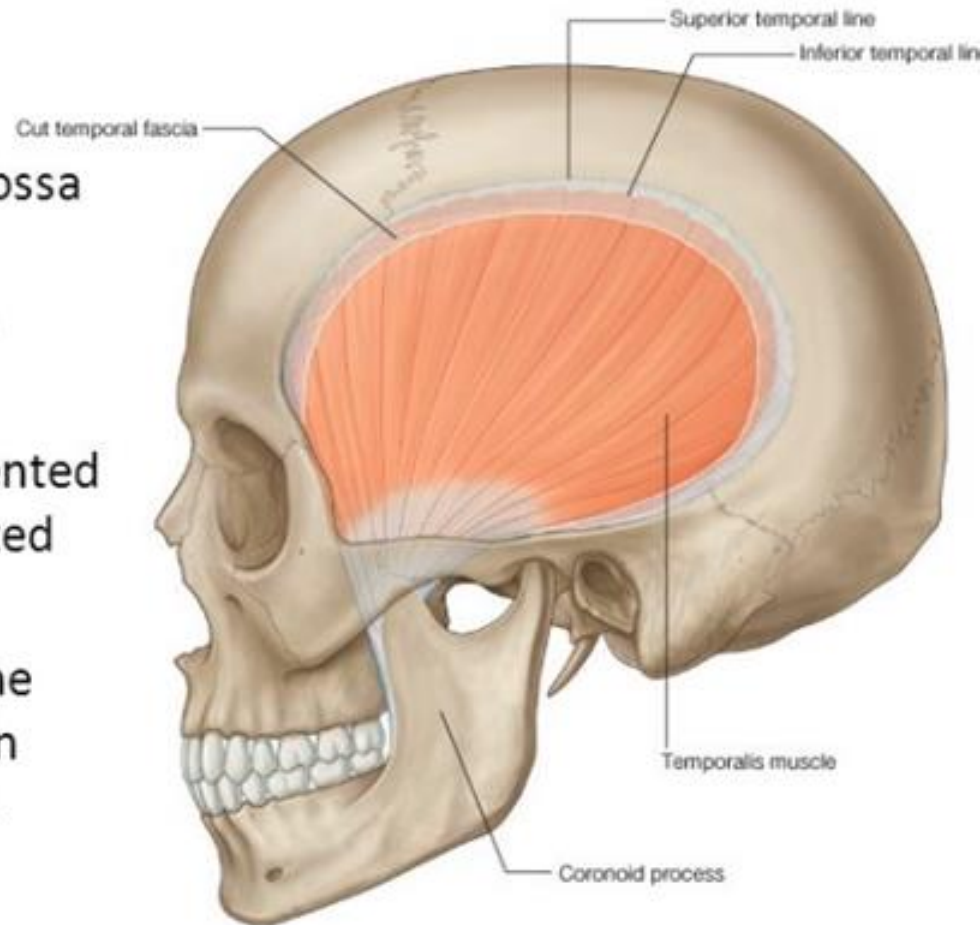
**Insertion:** on the coronoid process of the mandible.

**Fiber Orientation:** anterior fibers are oriented vertically while posterior fibers are oriented horizontally.

**Actions:** elevate the mandible, retracts the mandible (pulls it posteriorly) and helps in side-to-side movements of the mandible.

**Nerve Supply:** by deep temporal nerves (mandibular nerve branches).

**Blood Supply:** by deep temporal arteries and middle temporal artery.

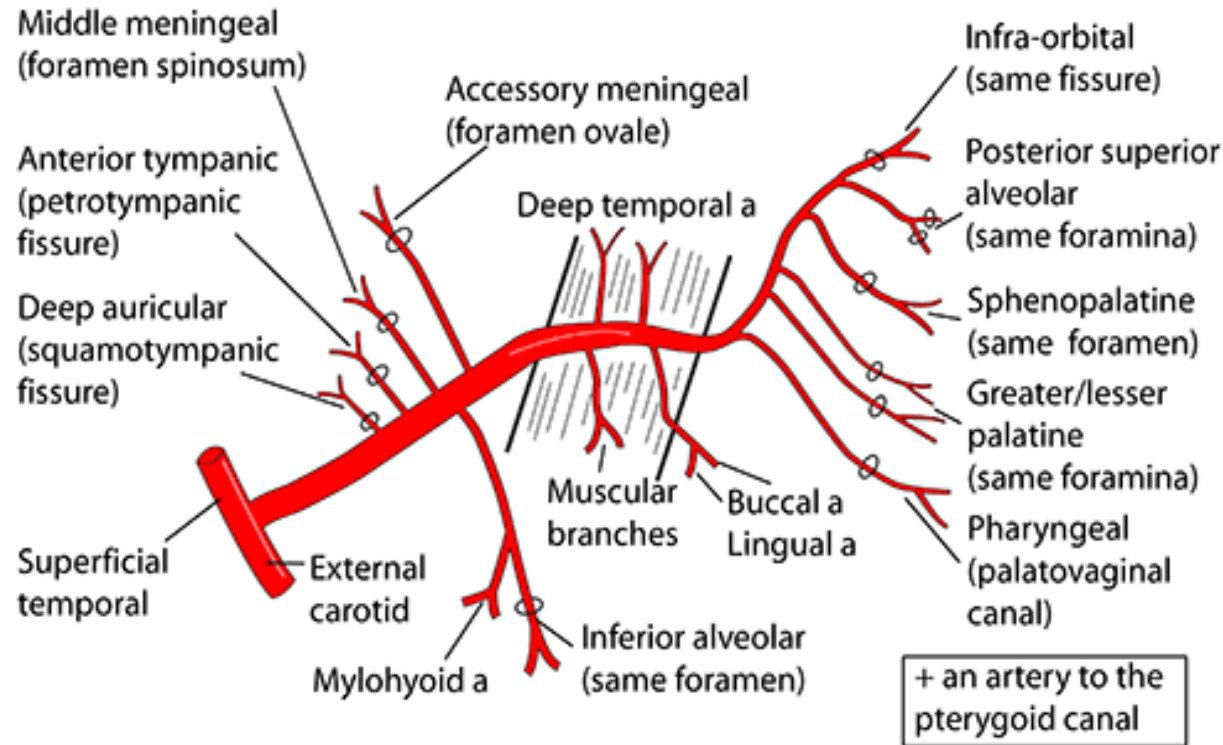


# The maxillary artery is divided into three portions by its relation to the lateral pterygoid muscle:

- first (mandibular) part: posterior to lateral pterygoid muscle (five branches)
- second (pterygoid or muscular) part: within lateral pterygoid muscle (five branches)
- third (pterygopalatine) part: anterior to lateral pterygoid muscle (six branches including terminal branch)

## MAXILLARY ARTERY

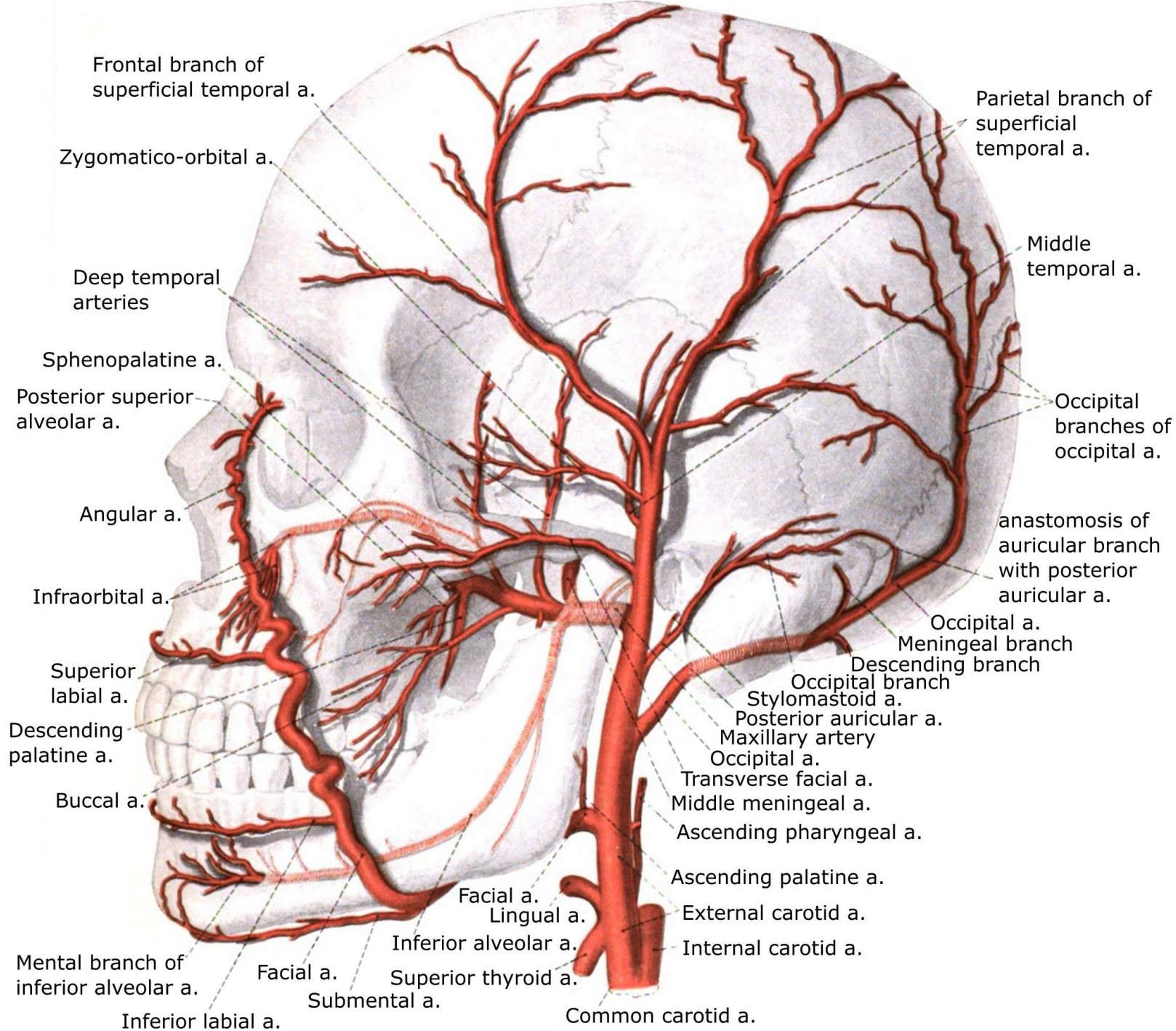
In infratemporal fossa, either within or lateral to the superficial head of lateral pterygoid muscle. This muscle is shown below



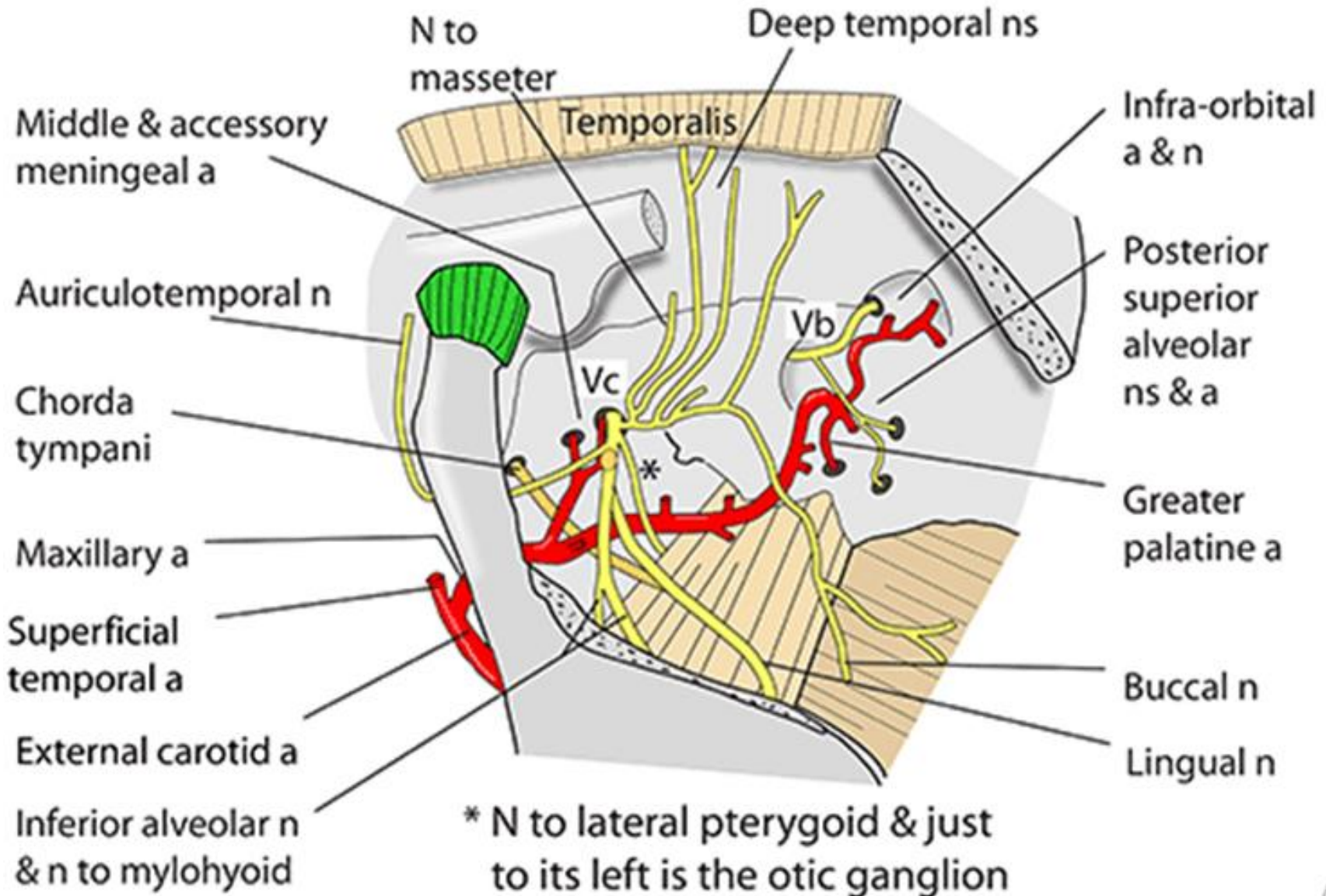
**BEFORE LATERAL  
PTERYGOID  
5 BRANCHES  
INTO BONE**

**LATERAL OR  
WITHIN LATERAL  
PTERYGOID. 4/5  
BRANCHES TO  
SOFT TISSUE**

**BEYOND  
LATERAL  
PTERYGOID  
5/6 BRANCHES  
WITH NERVES**

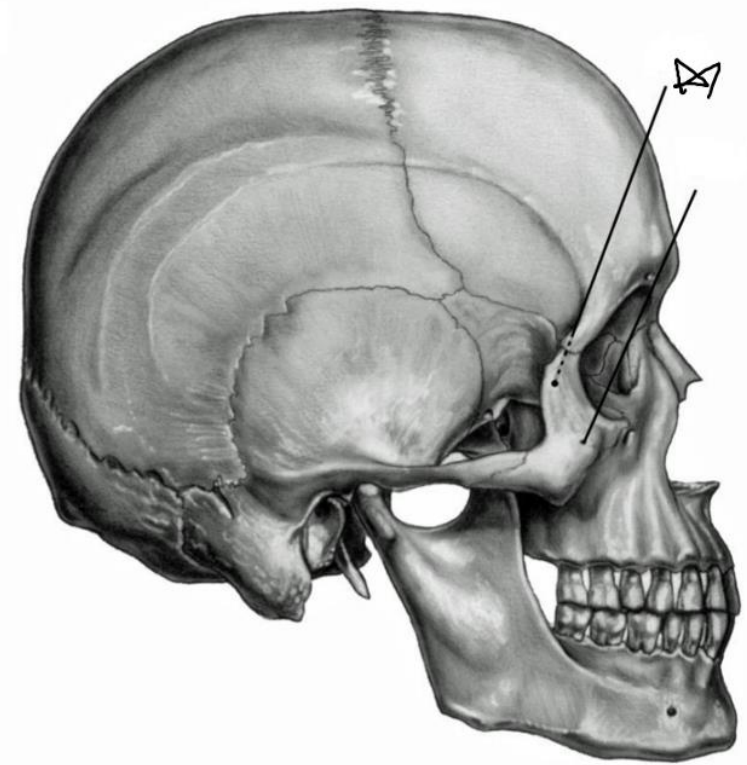


# Nerves and vessels



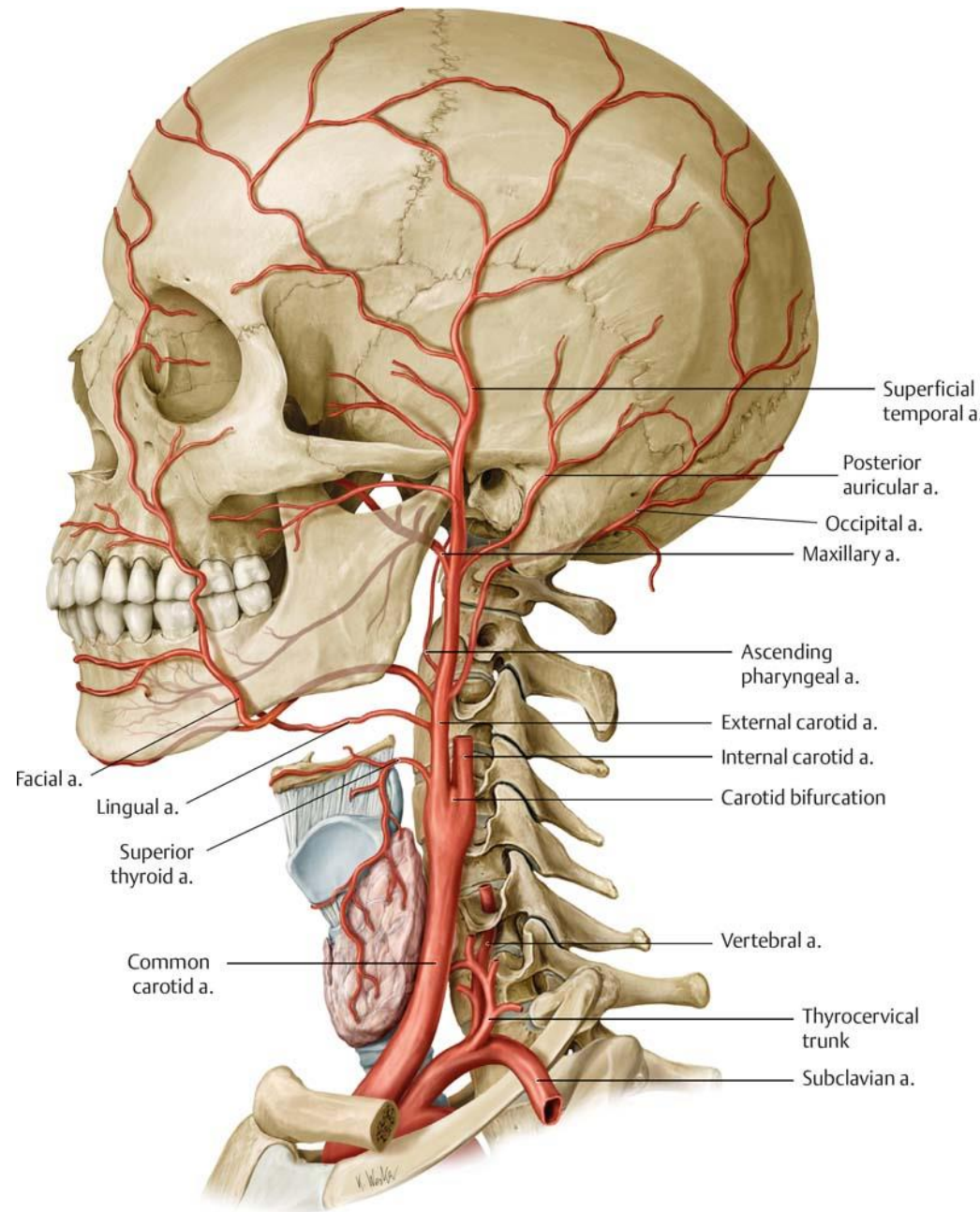
# Communication

- The temporal fossa is continuous with the infratemporal fossa inferiorly via the opening located deep to the zygomatic arch. **This is an important clinical point, mainly for spreading infections.**
- An additional connection is formed with the **zygomaticotemporal foramen** on the anteromedial surface of the zygomatic bone. This passageway allows for the transmission of the zygomaticotemporal nerve.



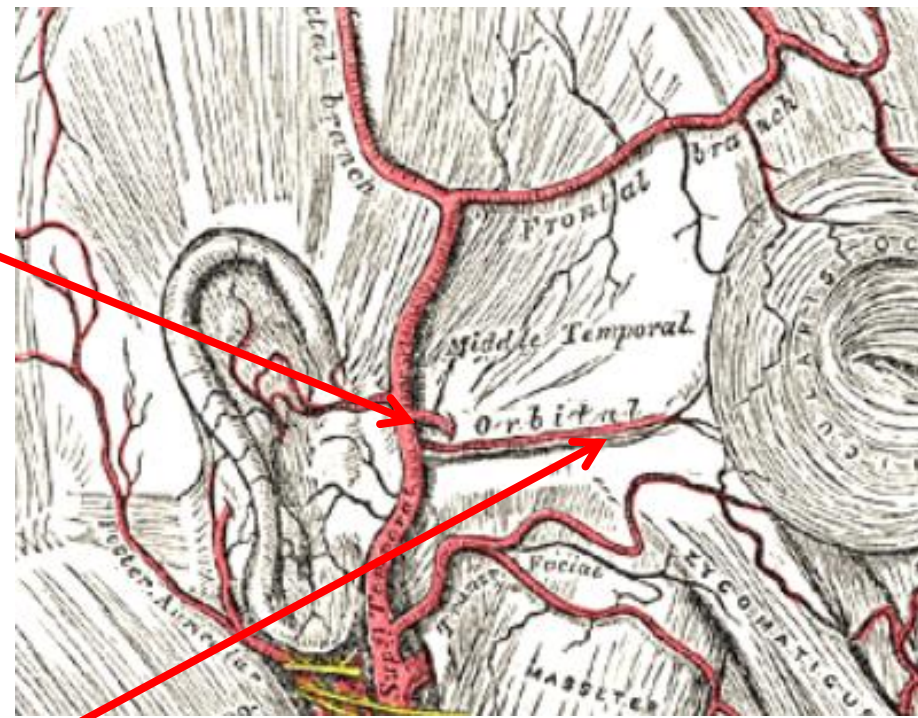


- **The superficial temporal artery**, a terminal branch of the external carotid artery, traverses the temporal fossa coursing superiorly above the superficial temporal fascia. **This is an important clinical landmark for palpating the pulse in the temporal region.** A large branch of the superficial temporal artery is the middle temporal artery that supplies the temporalis muscle.



In anatomy, **the middle temporal artery is a major artery** which arises immediately above the zygomatic arch, and, perforating the temporal fascia, gives branches to the temporalis, anastomosing with the deep temporal branches of the maxillary.

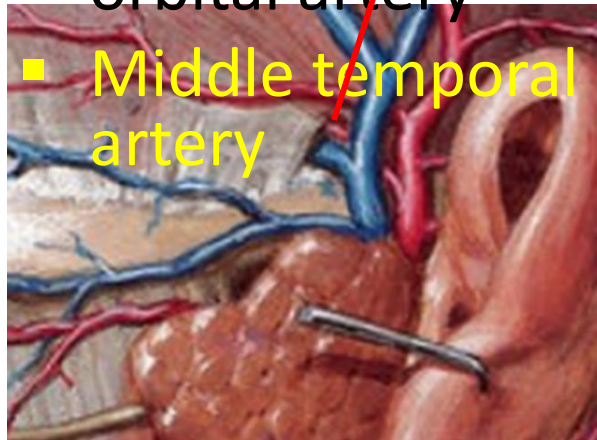
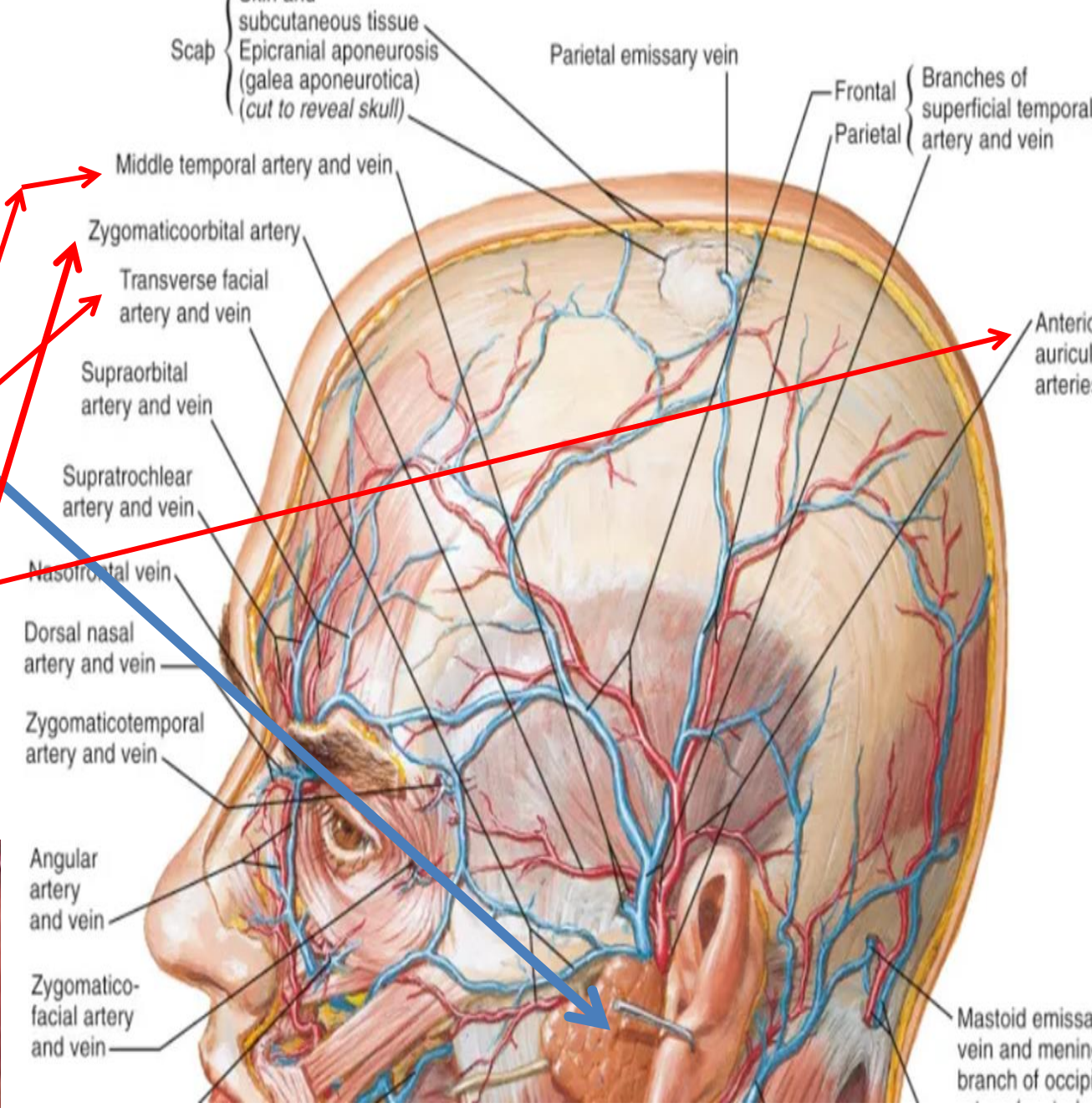
It occasionally gives off a **zygomatico-orbital branch**, which runs along the upper border of the zygomatic arch, between the two layers of the temporal fascia, to the lateral angle of the orbit.

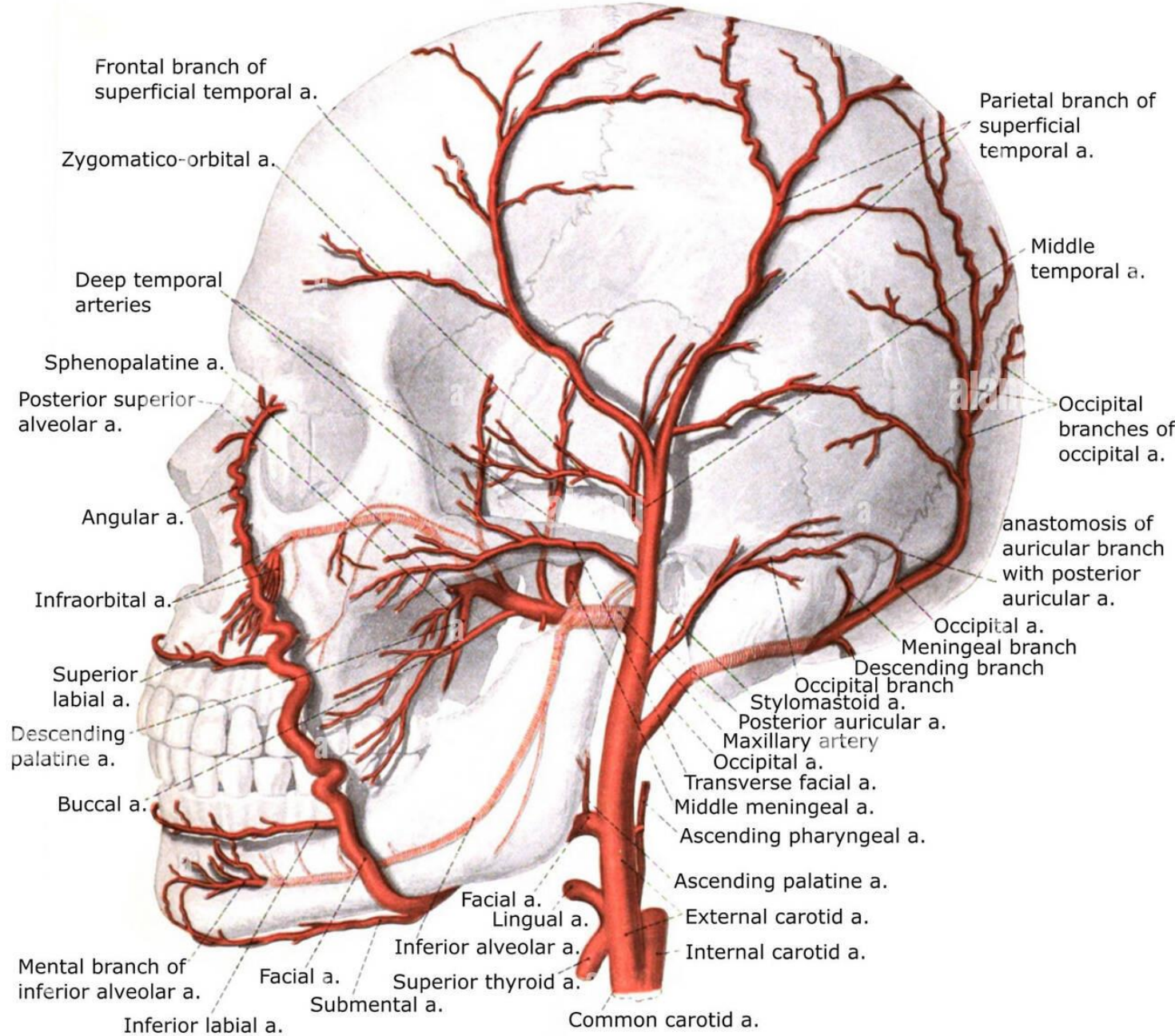


- Superficial temporal artery gives off several branches that include:

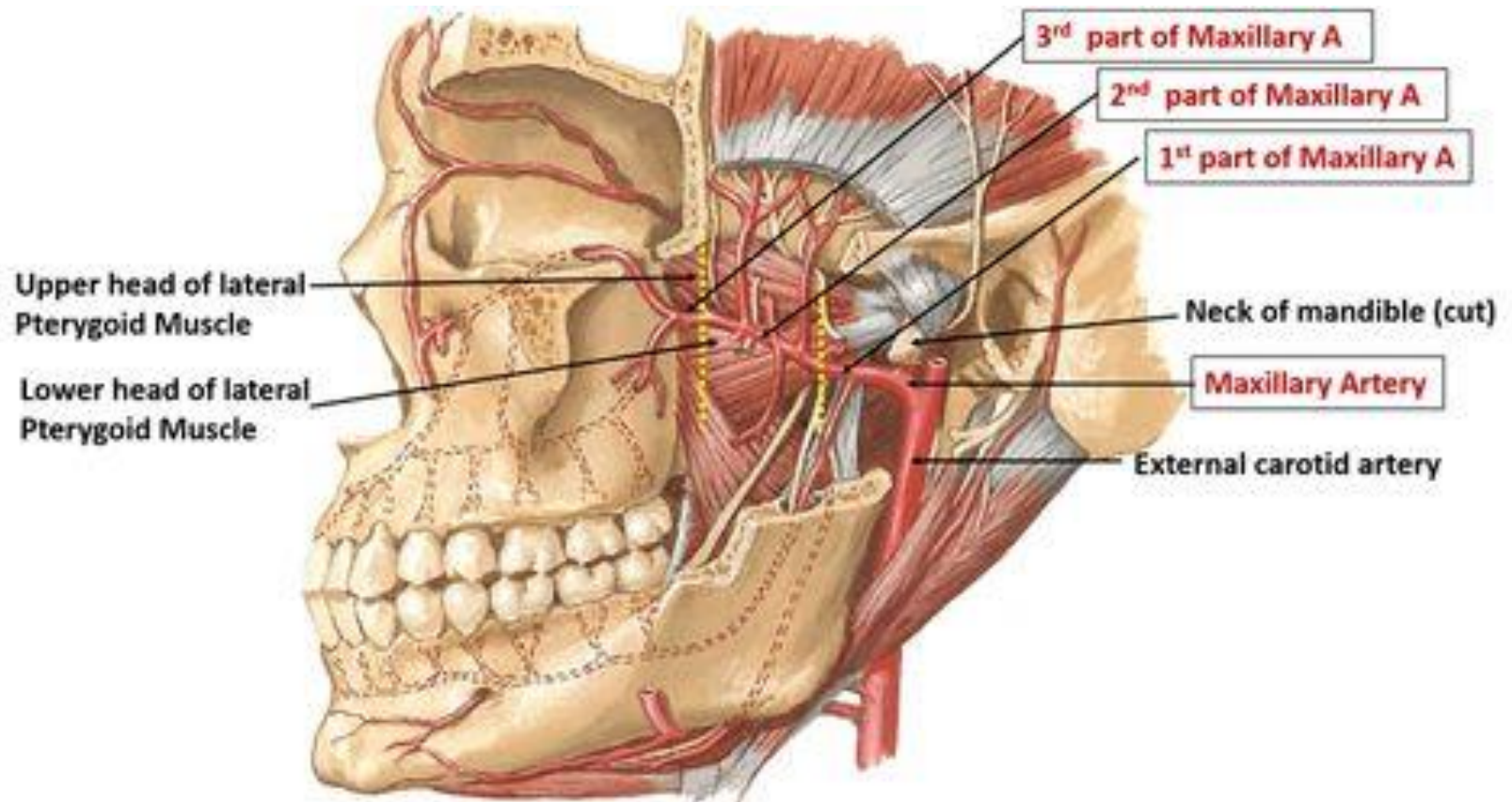
- Parotid branch
- Transverse facial artery
- Anterior auricular branch
- Zygomatico-orbital artery

- Middle temporal artery





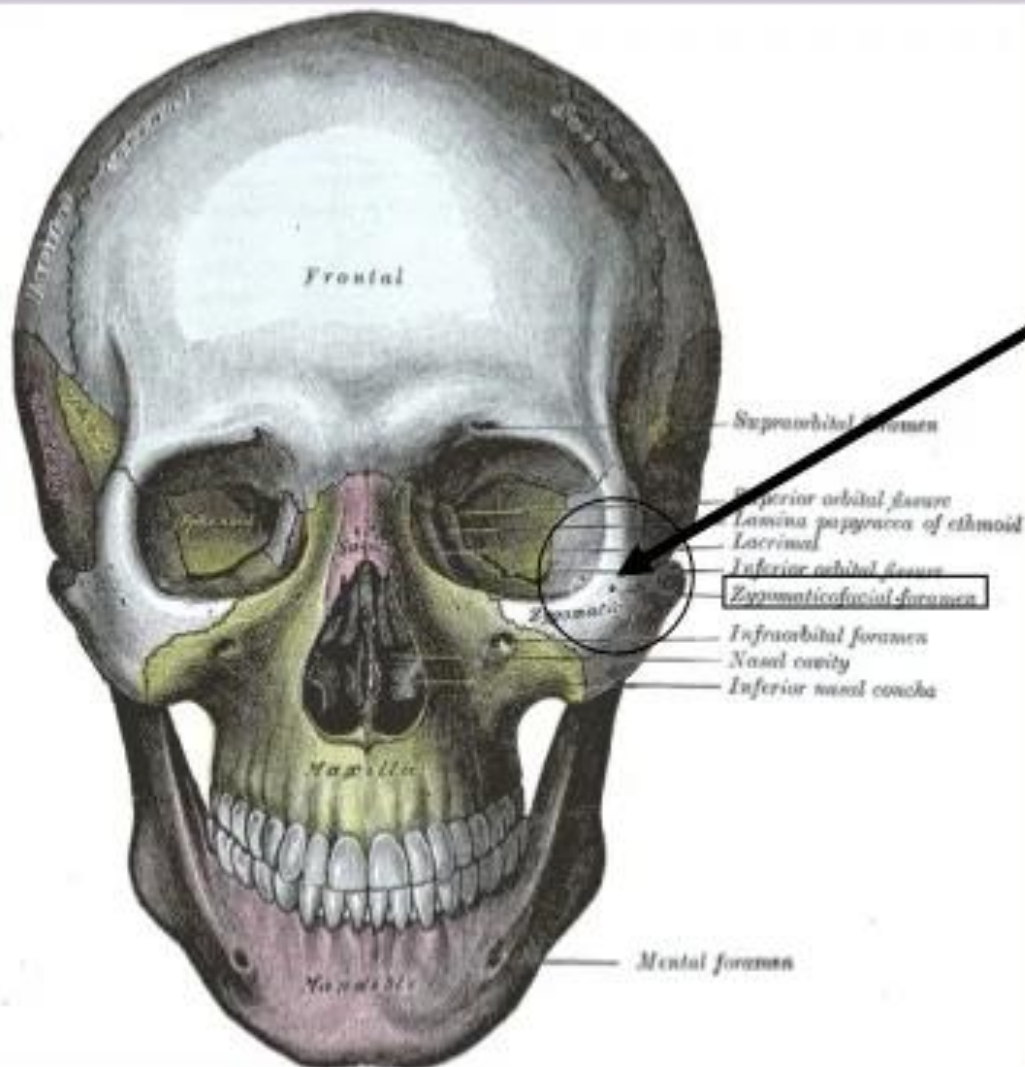


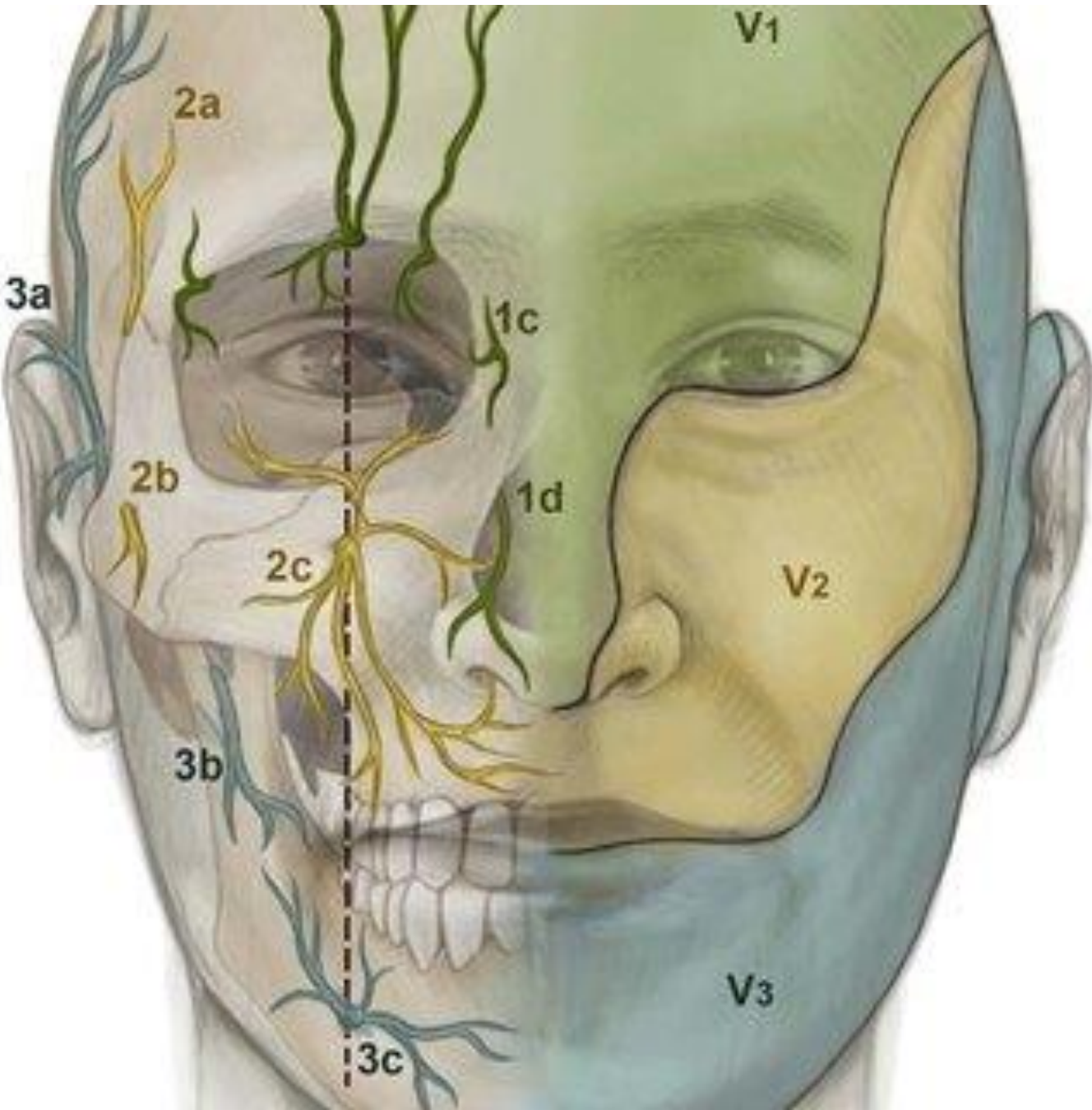


- The **deep temporal arteries** (anterior, middle and posterior) are branches from the second part of the maxillary artery. They course superiorly between the temporalis muscle and the pericranium supplying the overlying muscle. These arteries are also usually accompanied by the **corresponding veins that** drain the deep aspects of the temporal fossa.

# Zygomaticofacial foramen

The malar surface of the zygomatic bone is convex and perforated near its center by a small aperture, the **zygomaticofacial foramen**, for the passage of the zygomaticofacial nerve and vessels; below this foramen is a slight elevation, which gives origin to the Zygomaticus.

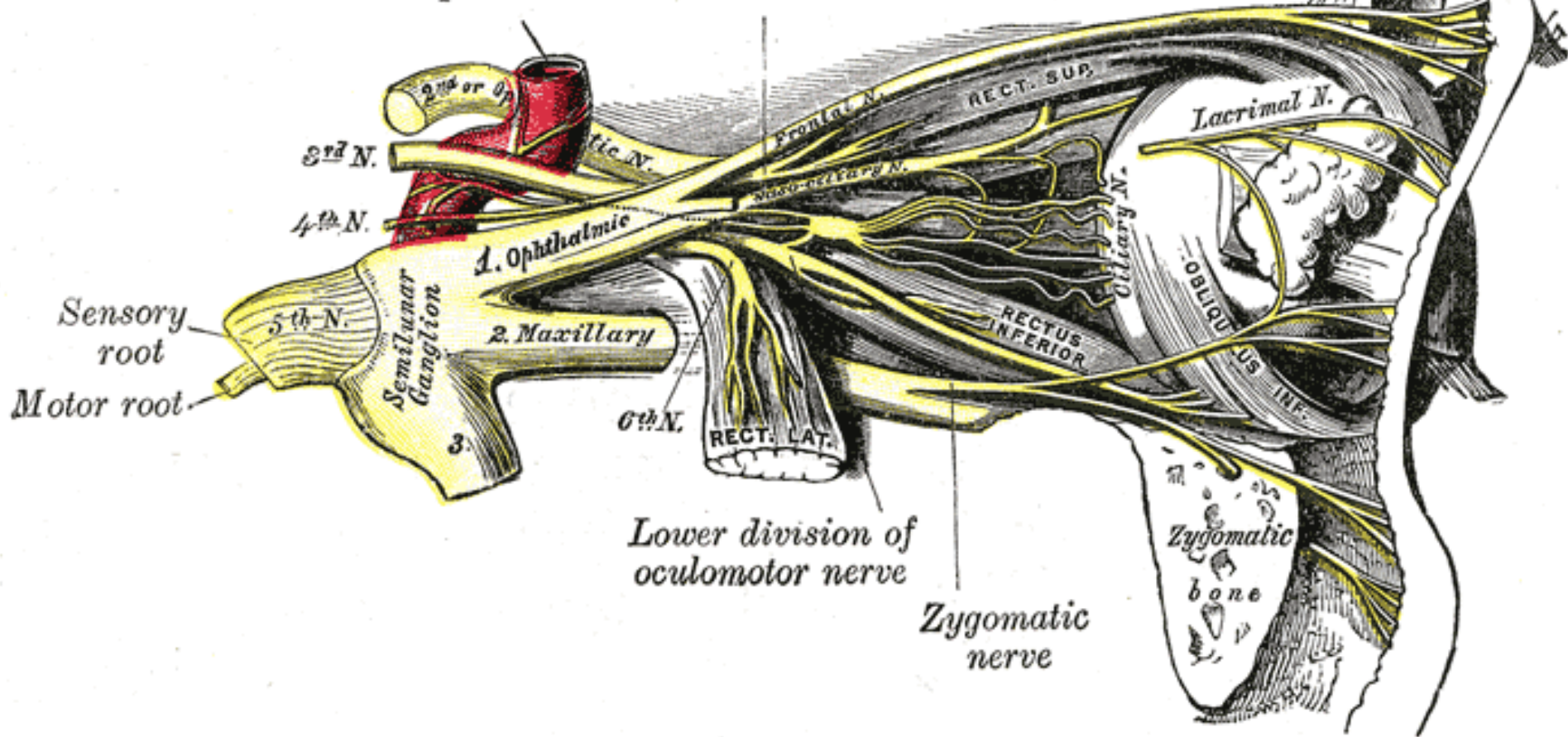






*Internal carotid artery  
and carotid plexus*

*Upper division of  
oculomotor nerve*





Thanks