

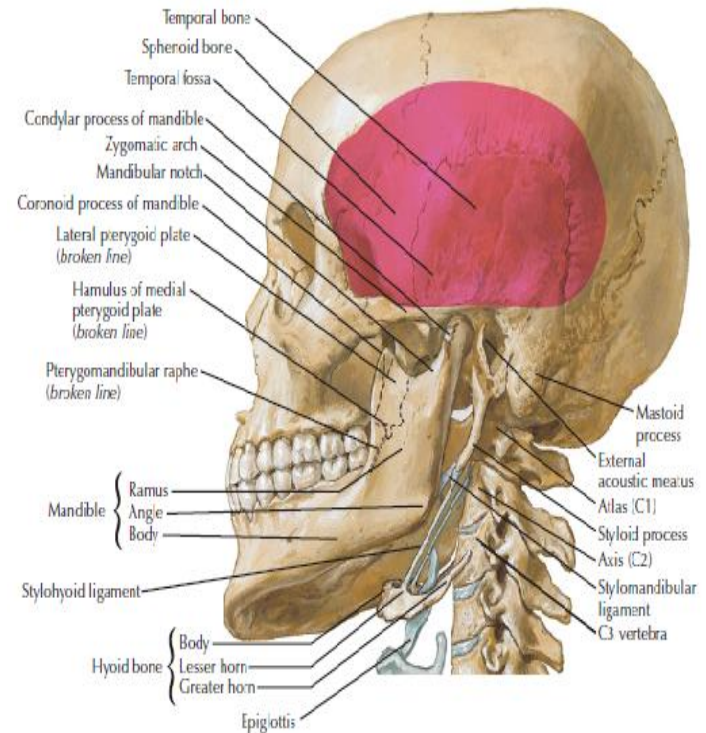
# **TEMPORAL & INFRATEMPORAL FOSSA**

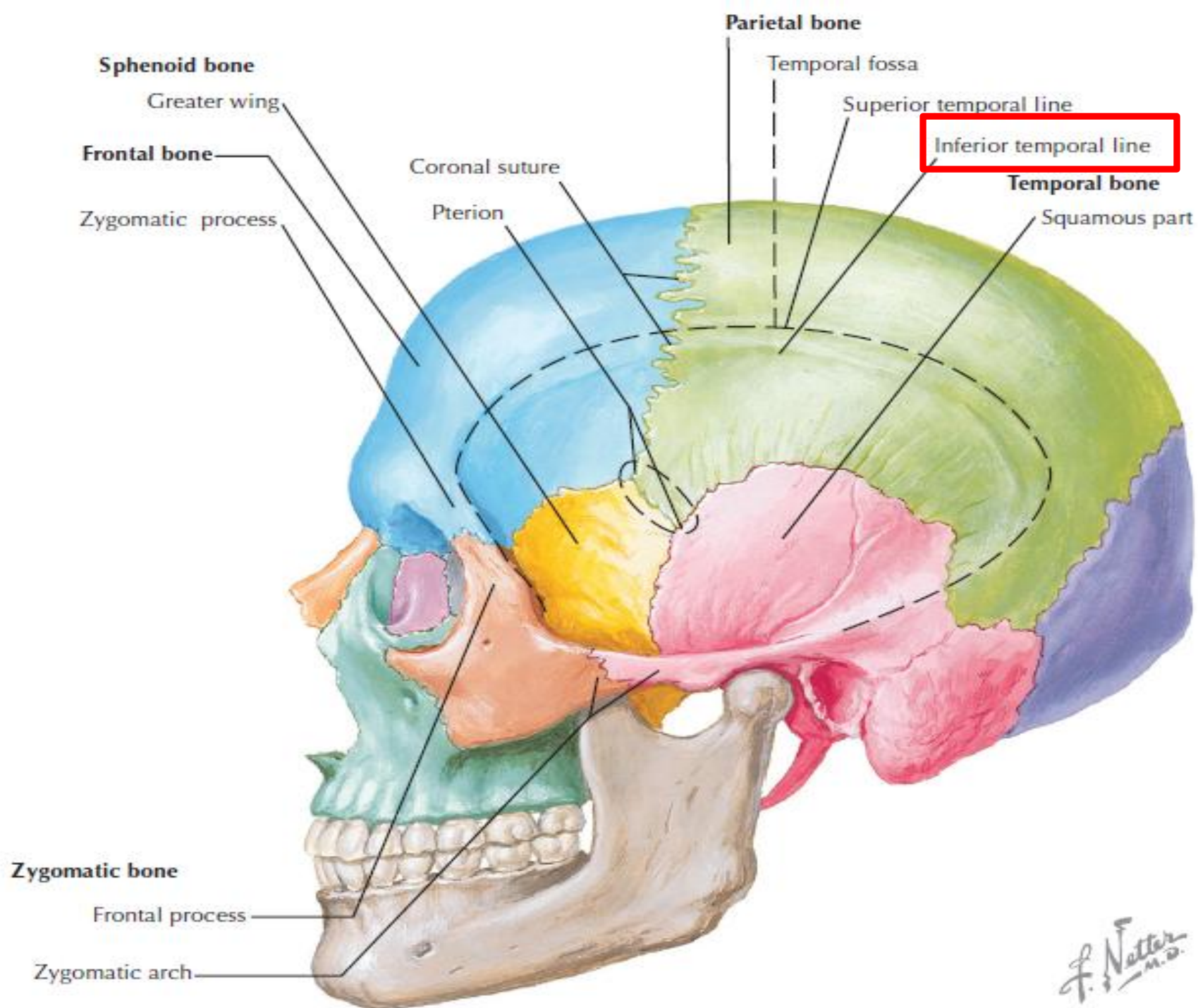
Raed Ogaili

MSc. Human Anatomy

# Temporal Fossa

is a depression in the temporal region lies below the inferior temporal line and it regards one of the largest landmarks on the skull.





# Borders of the Temporal Fossa

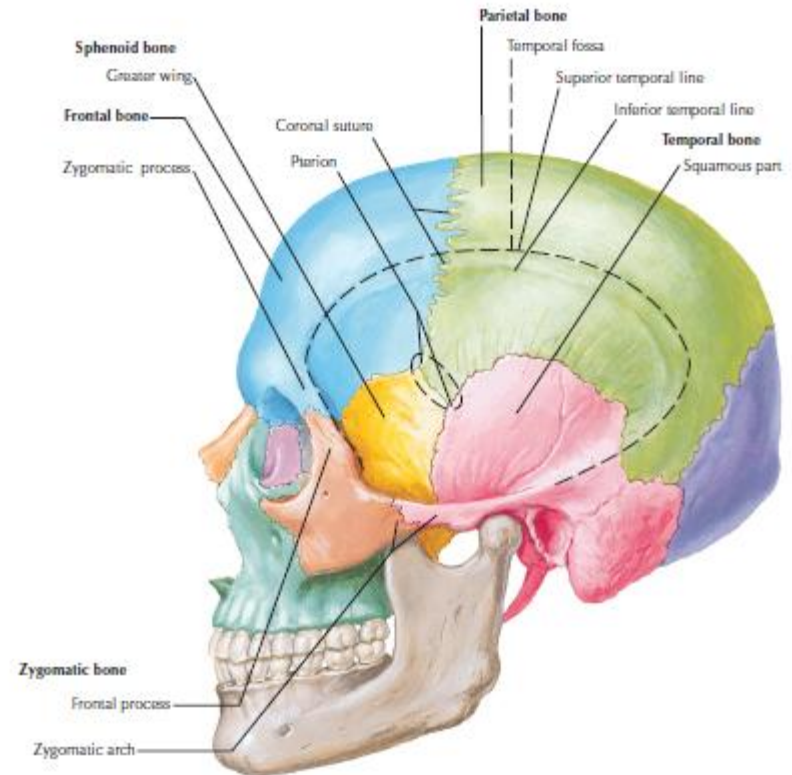
**Superiorly:** superior temporal line

**Inferiorly:** infra temporal crest  
medially & zygomatic arch  
**Laterally**

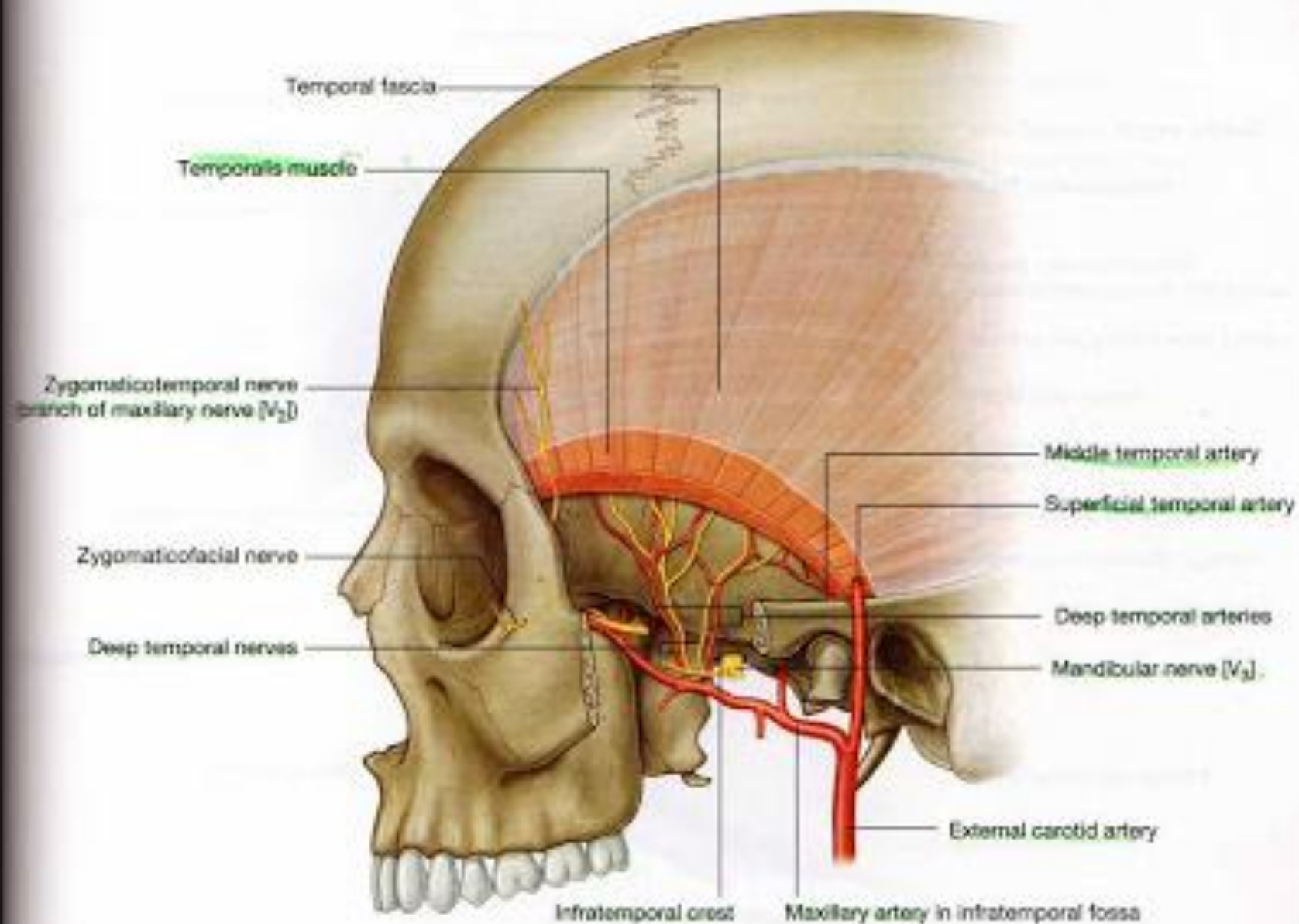
**Anteriorly:** frontal process of  
zygomatic bone & the  
zygomatic process of the  
frontal bone

**Floor:** formed by 4 bones: frontal,  
parietal,  
temporal, and sphenoid  
forming *pterion*

**Laterally;** it is limited by the  
temporalis fascia.



- **Applied Aspect:** Pterion (weakest region of skull) is an important site for burr hole operation to ligate the middle meningeal artery.

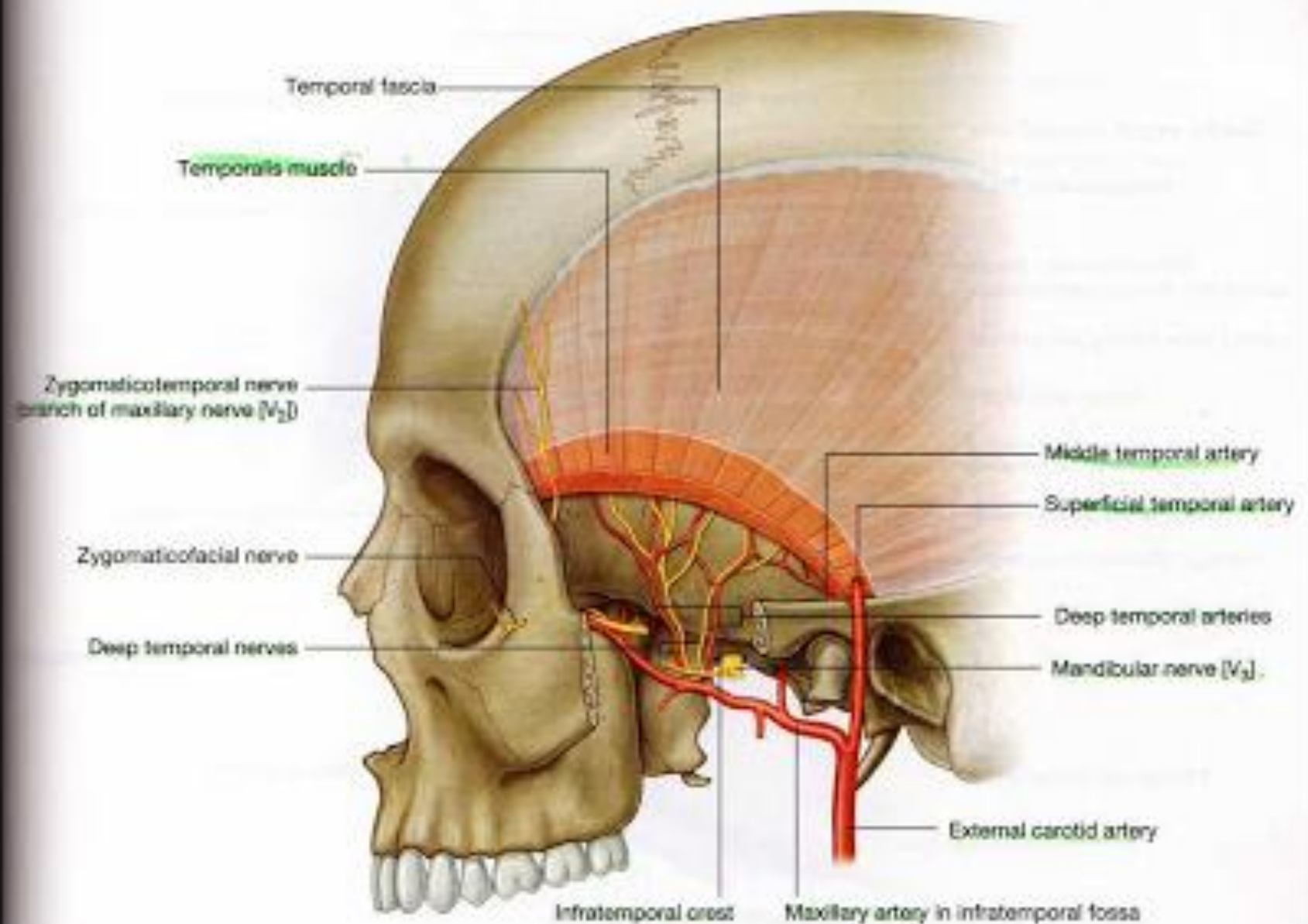




# Contents of Temporal Fossa

## Contents:

1. **Temporalis muscle & fascia**
2. **Deep temporal nerves and vessels.** mandibular nerve [V3]
3. **Zycomaticotemporal nerve.** maxillary nerve [V<sub>2</sub>],
4. **Auriculotemporal nerve.** mandibular nerve [V3]
5. **Superficial temporal vessels.**



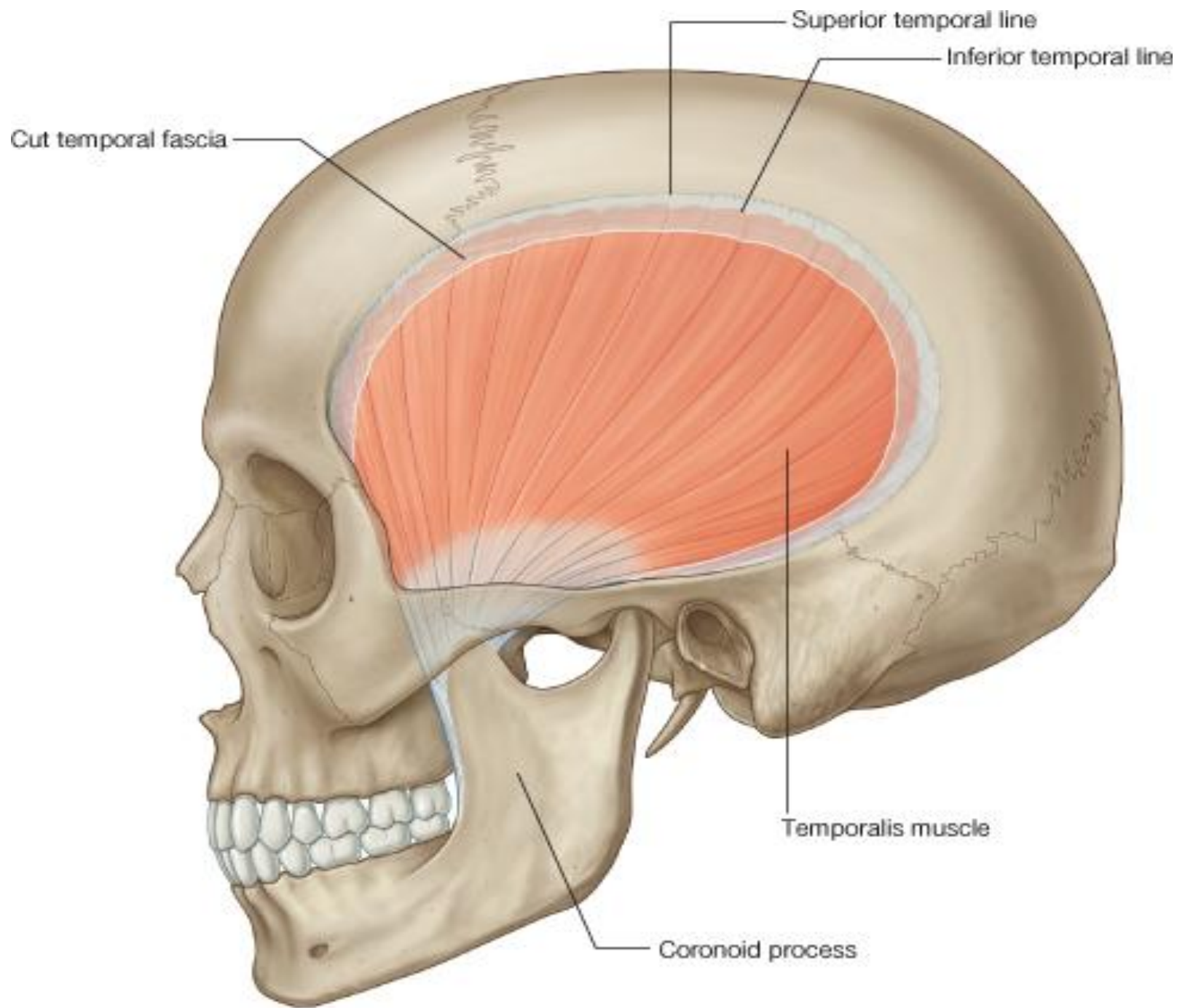
# Temporalis Fascia

- Is a tough fascia that Covers the temporalis muscle
- Attaching
  1. superiorly: superior temporal line.
  2. Inferiorly: the fascia splits into two layers, which attach to the lateral and medial surfaces of the zygomatic arch.



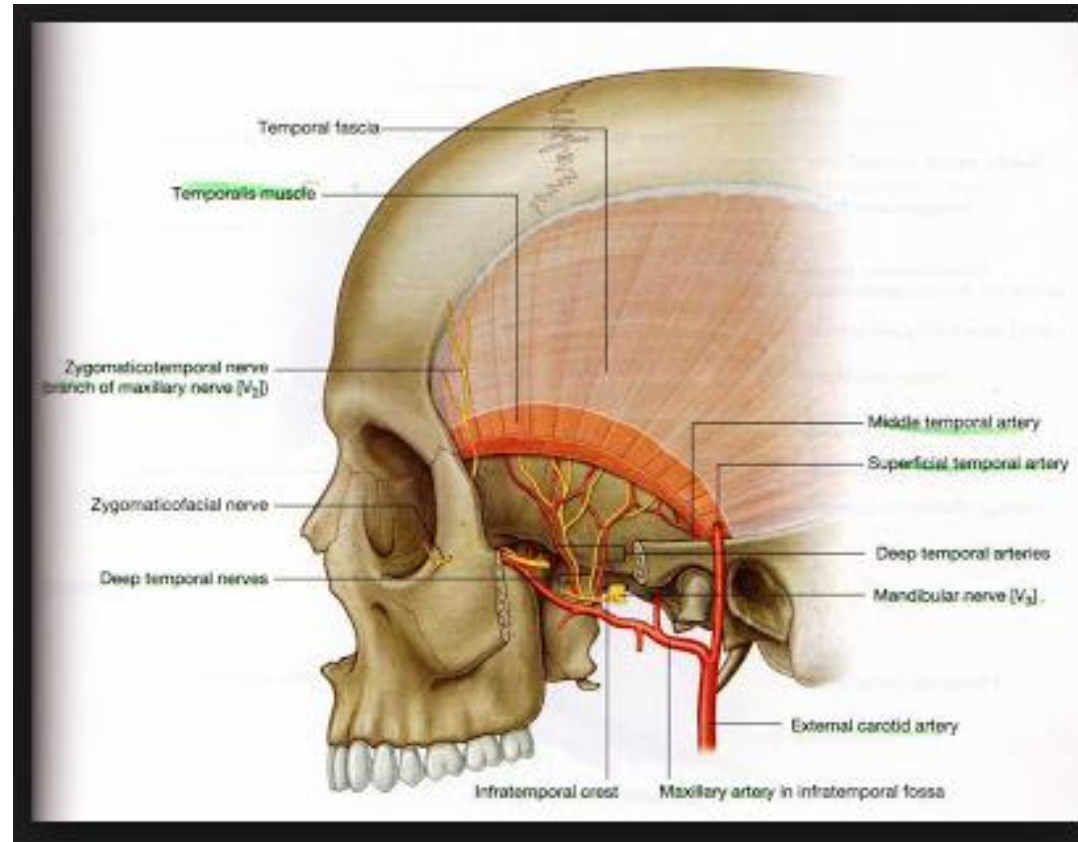
# Temporalis Muscle

- Is a large fan-shaped muscle.
- Origin : *superiorly*; the inferior temporal line and *laterally* temporal fascia.
- Insertion : the coronoid process, ramus of the mandible, almost to the last molar tooth.
- *Action* Elevation, retraction (pull) & side to side movement of mandible.
- *Nerve supply* Deep temporal branch of mandibular nerve.

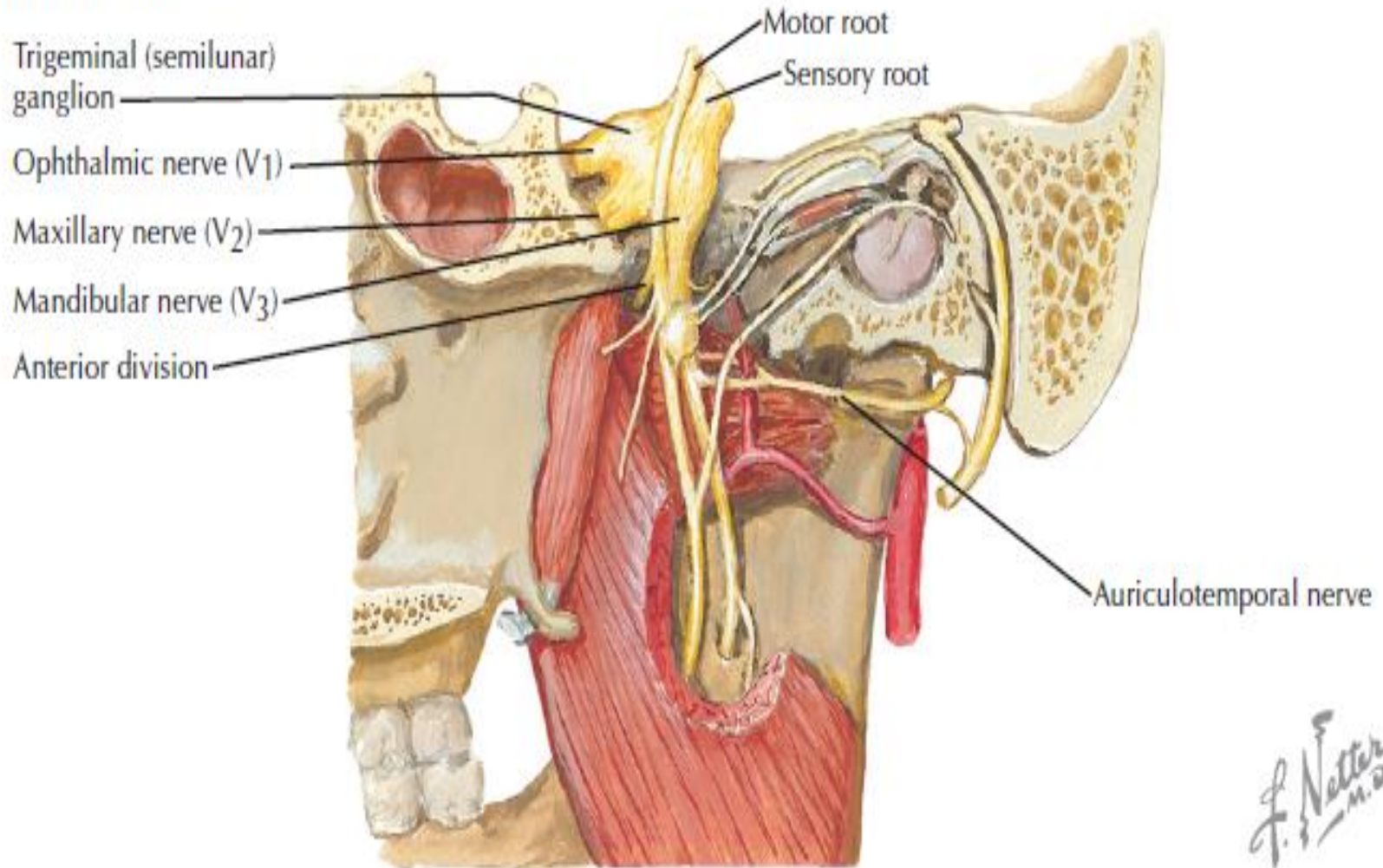


- Blood supply:

❑ Deep temporal arteries, which travel with the nerves, and the middle temporal artery, which penetrates the temporal fascia at the root of the zygomatic arch.



## Medial view

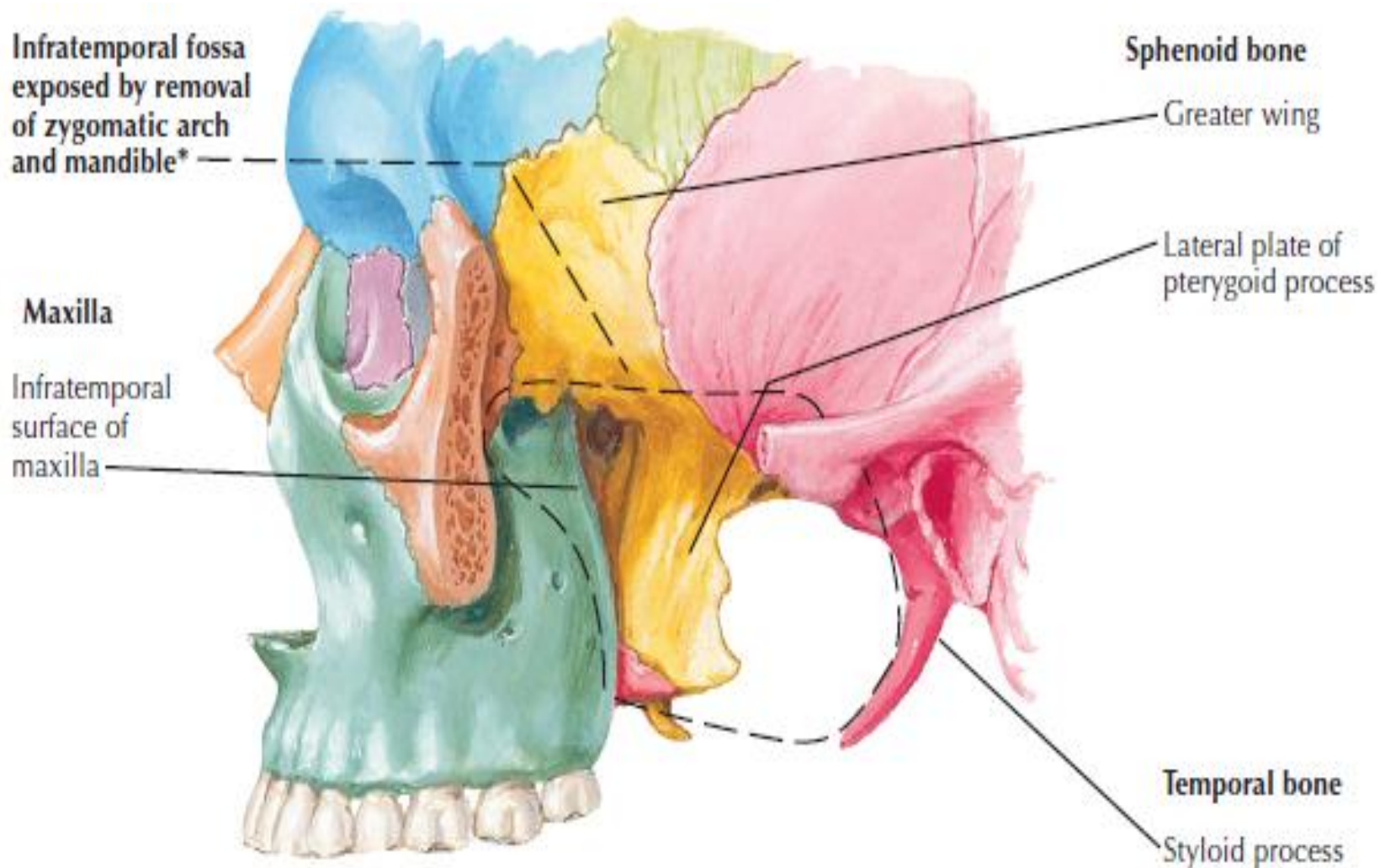


# Infratemporal Fossa

- ✓ A wedge-shaped fossa
- ✓ **Lies *inferior* to the temporal fossa**
- ✓ *Deep and inferior* to the Zygomatic arch
- ✓ Between the ramus of the mandible laterally and the wall of the pharynx medially
- ✓ Opens to the neck posteroinferiorly.







\*Superficially, mastoid process forms posterior boundary

*F. Netter M.D.*



# Infratemporal Fossa

## The Boundaries:

*Laterally:* the ramus of the mandible.

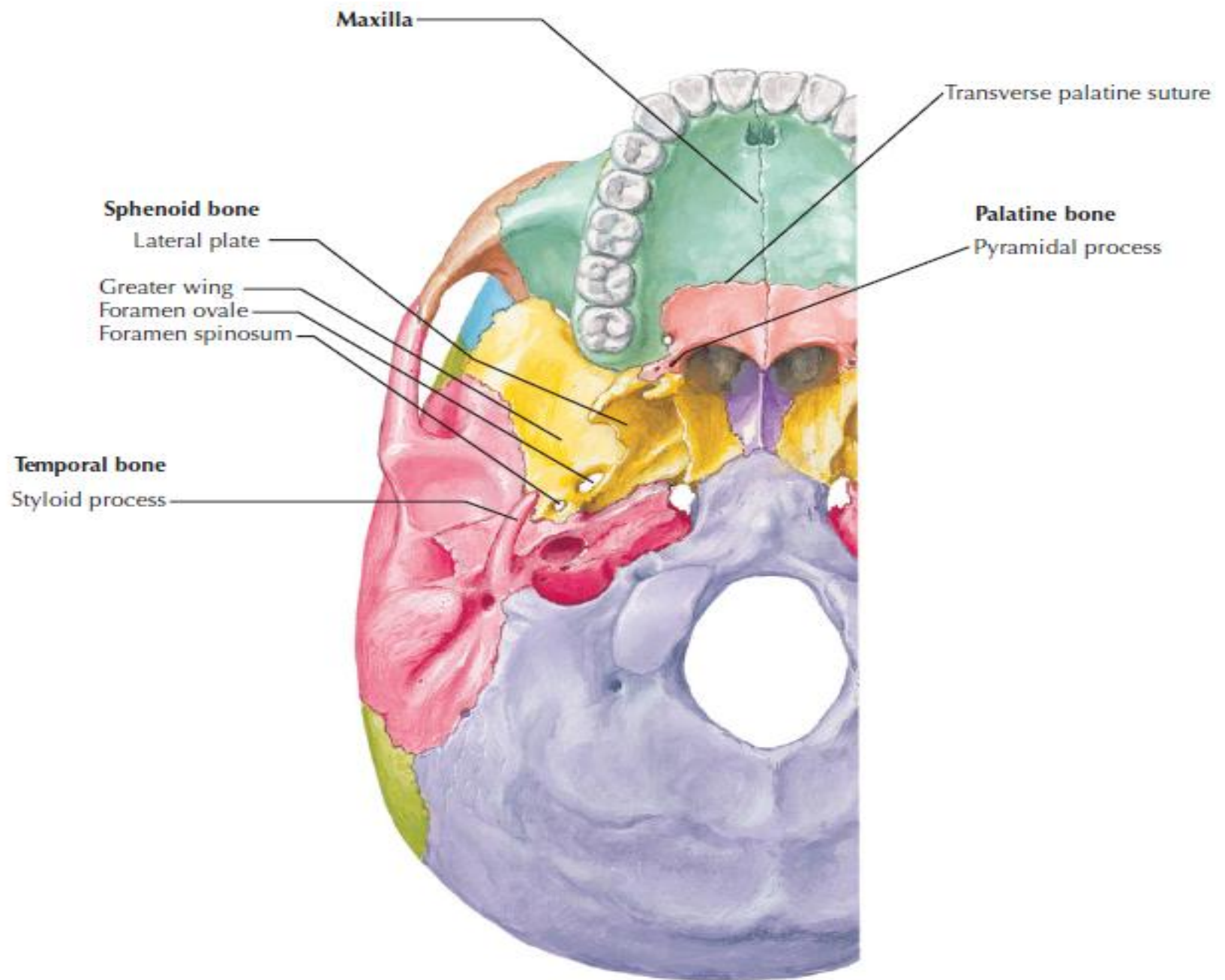
*Medially:* the lateral pterygoid plate.

*Anteriorly:* the posterior aspect of the maxilla.

*Posteriorly:* tympanic plate, mastoid & styloid processes of the temporal bone.

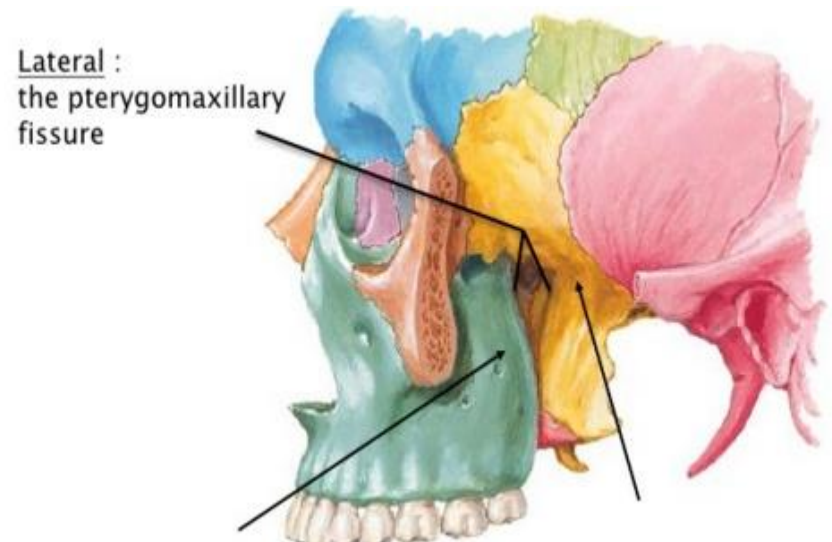
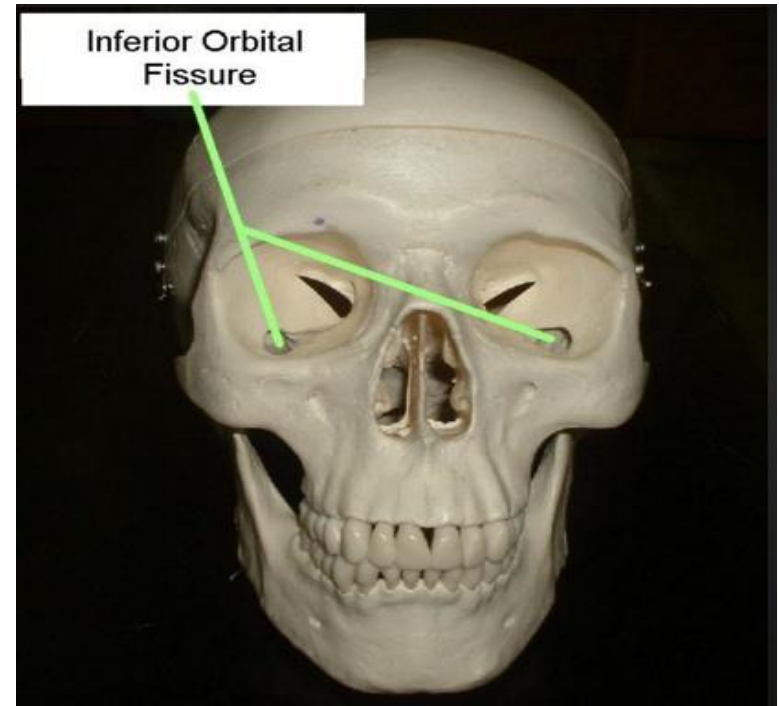
*Superiorly:* the inferior (infratemporal) surface of the greater wing of the sphenoid.

*Inferiorly:* where the medial pterygoid muscle attaches to the mandible near its angle.



# Communications:

- 1\ ***With the temporal fossa*** as the temporalis muscle descends from its origin in the temporal fossa to be inserted onto the coronoid process of the mandible.
- 2\ ***With the middle cranial fossa*** through the foramen ovale & the foramen spinosum.
- 3\ ***With the orbit*** at its most superoanterior aspect via the inferior orbital fissure.
- 4\ ***With the pterygopalatine fossa***, medially through pterygomaxillary fissure



# Contents

- ***Muscles of mastication***

- • Lower part of Temporalis
- • Lateral pterygoid
- • Medial pterygoid

- ***ARTERIES***

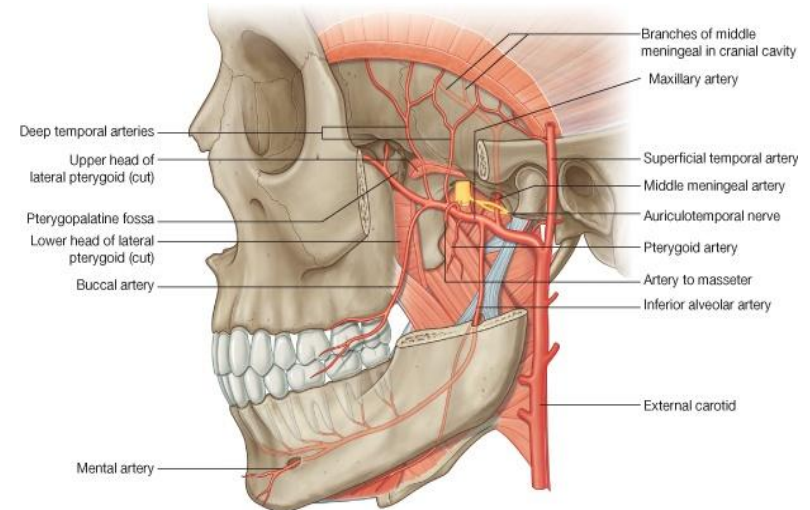
- • Maxillary and its branches

- ***VEINS***

- • Pterygoid plexus of veins and tributaries

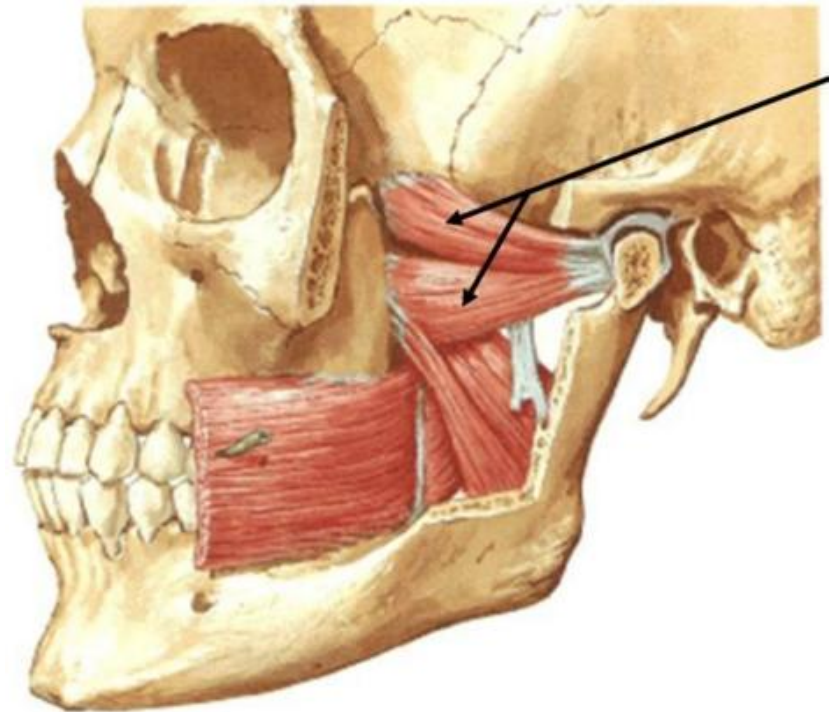
- ***NERVES***

- • Mandibular division of the trigeminal and branches
- • Posterior superior alveolar
- • Chorda tympani branch of the facial
- • Otic ganglion
- • Lesser petrosal



# Lateral pterygoid Muscle

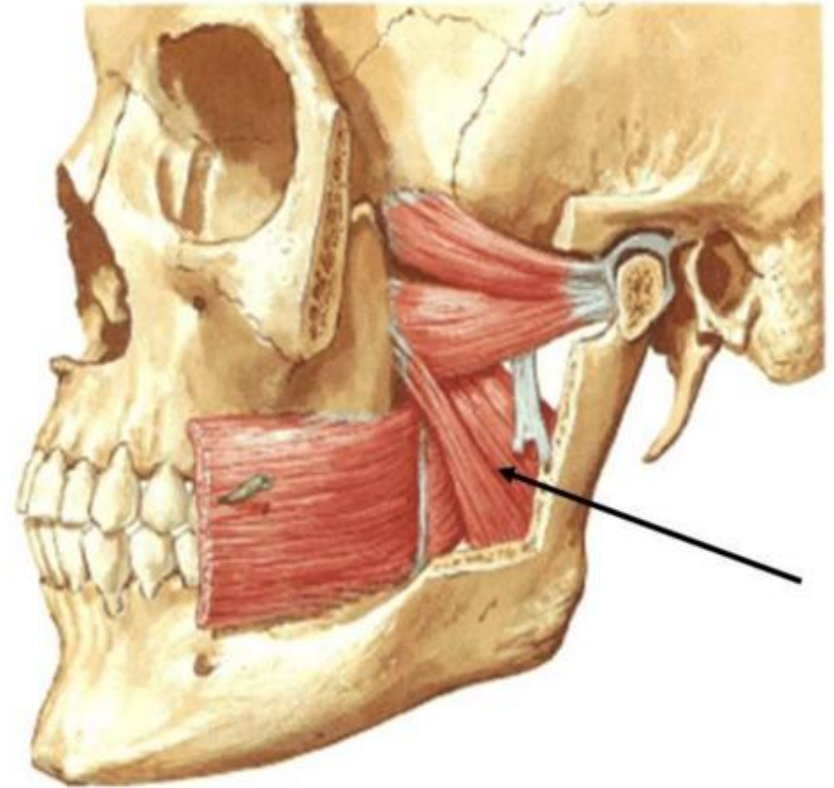
- Origin by 2 heads **upper head** from infratemporal crest of greater wing of sphenoid.  
**Lower head** from lateral pterygoid plate.
- Insertion Neck of mandibular & capsule of TM joint
- N.S. anterior division of mandibular nerve
- Action : opening mouth, chewing & movement side to side of mandible.





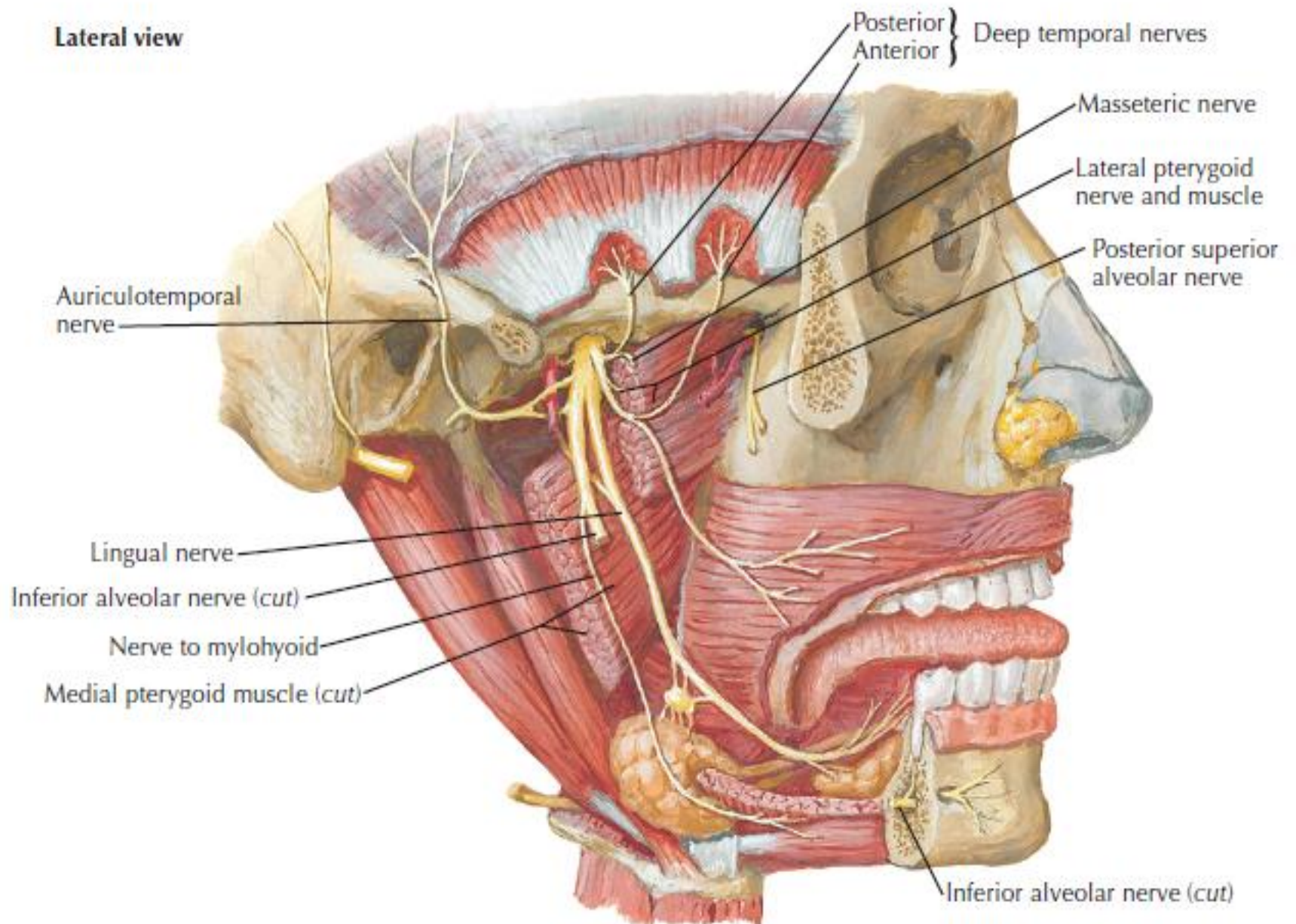
# Medial pterygoid Muscle

- Origin
- having 2 heads **deep head** from lateral pterygoid plate.
- **Superficial head** tuberosity of maxilla
- Insertion medial surface of angle of mandible
- N.S. mandibular nerve
- Action : Elevation of mandible, protrusion side to side movement of mandible.

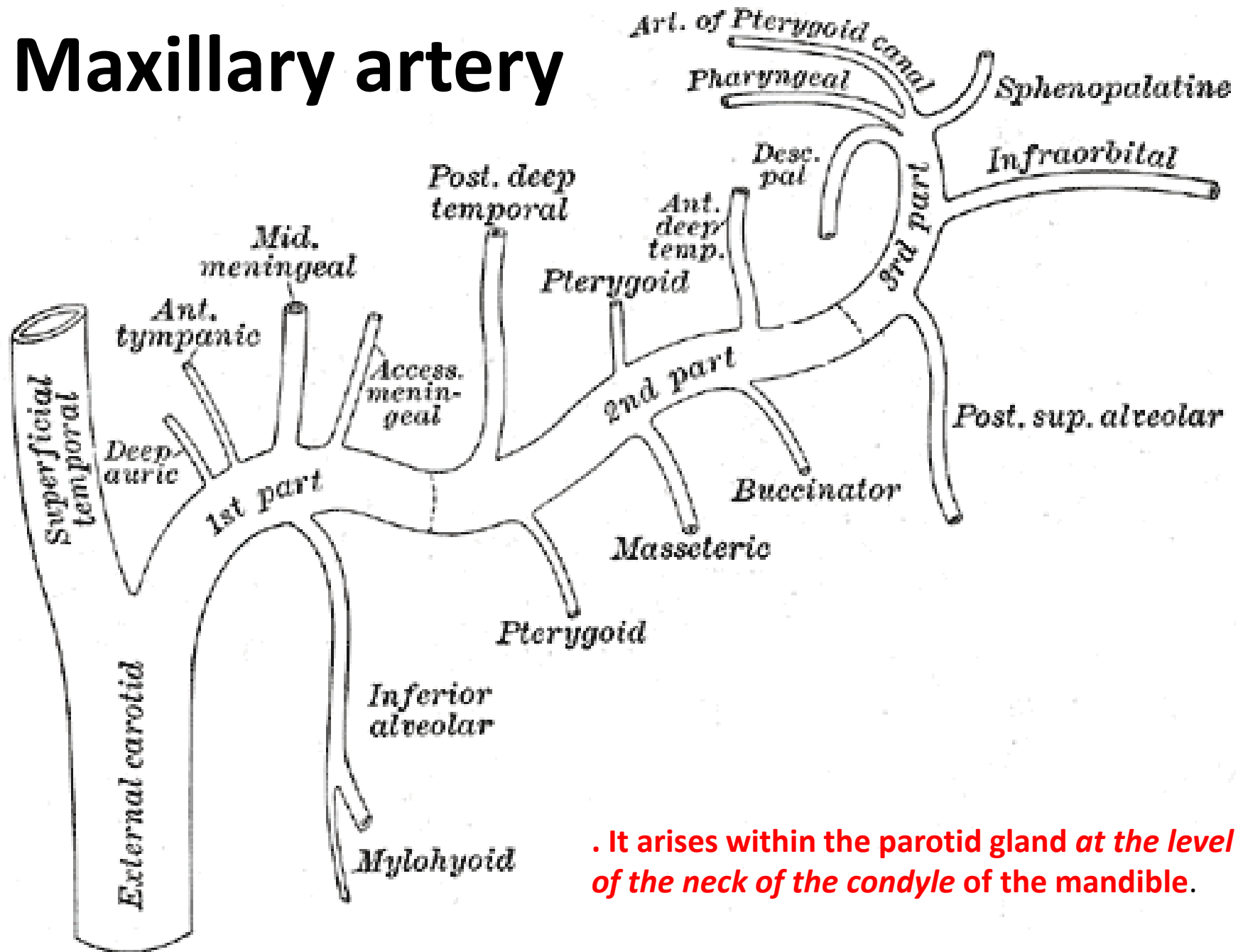




**Lateral view**



# Maxillary artery

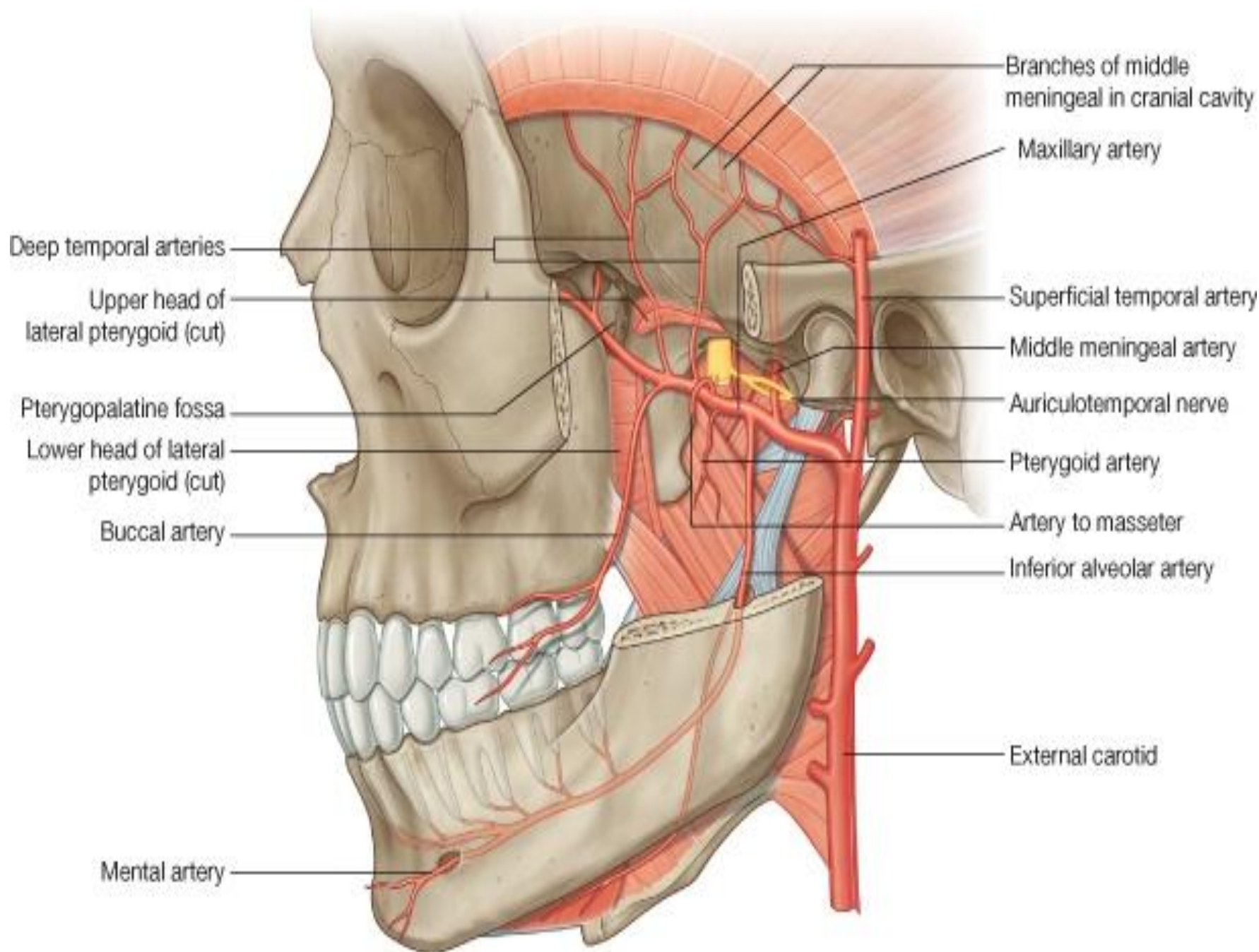


*. It arises within the parotid gland at the level of the neck of the condyle of the mandible.*

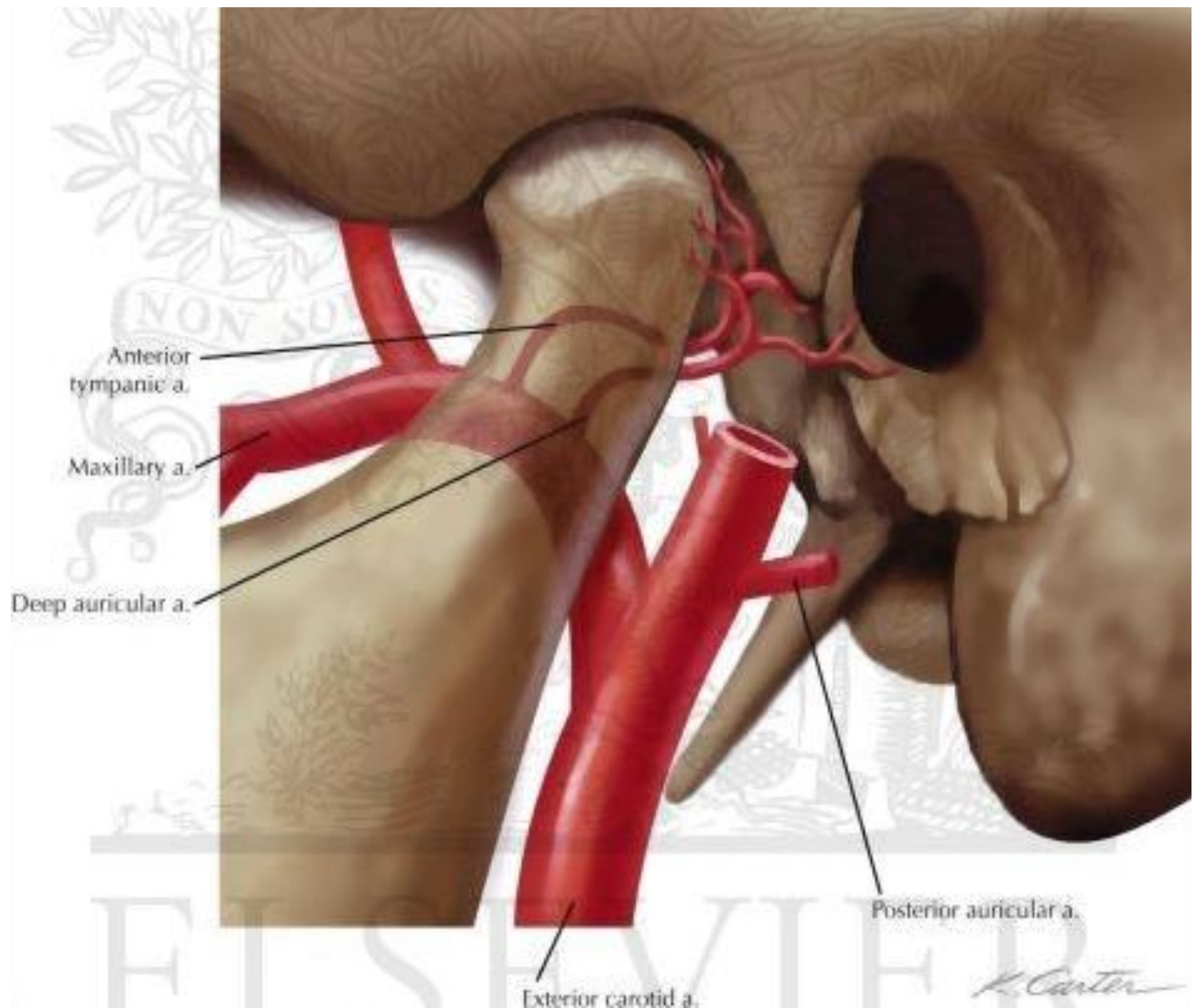
# Maxillary artery

**It is subdivide into three parts:**

- **Before the lateral pterygoid muscle (1<sup>st</sup> or (retro)mandibular part) MIADA**
- **On the lateral pterygoid muscle (2<sup>nd</sup> or pterygoid part)**
- **In the pterygopalatine fossa (3<sup>rd</sup> or pterygopalatine part).**





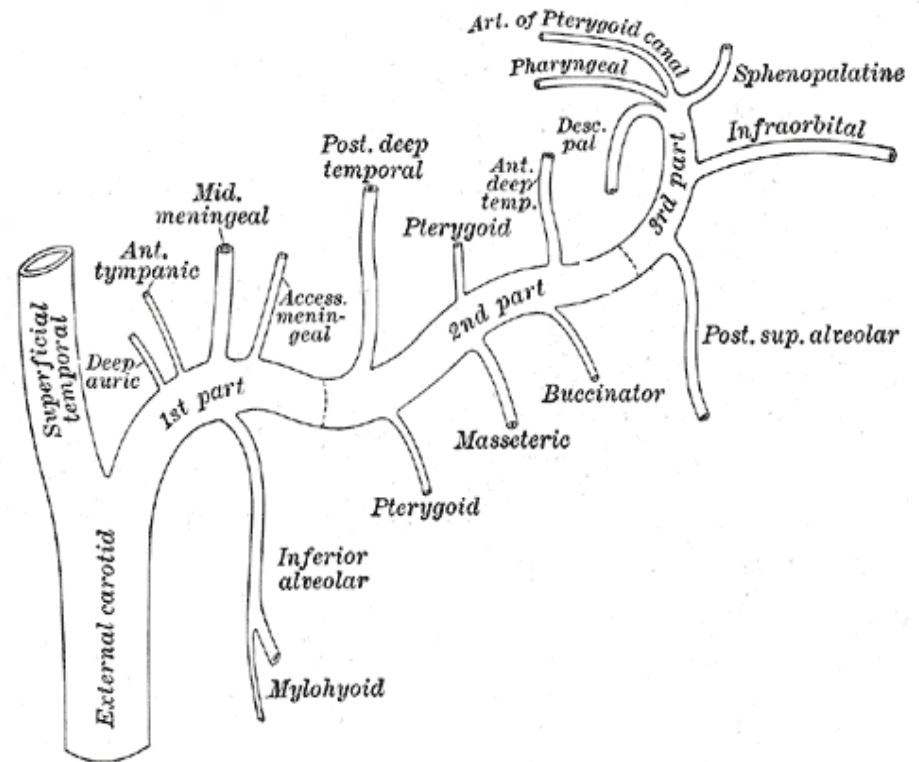


# Maxillary artery

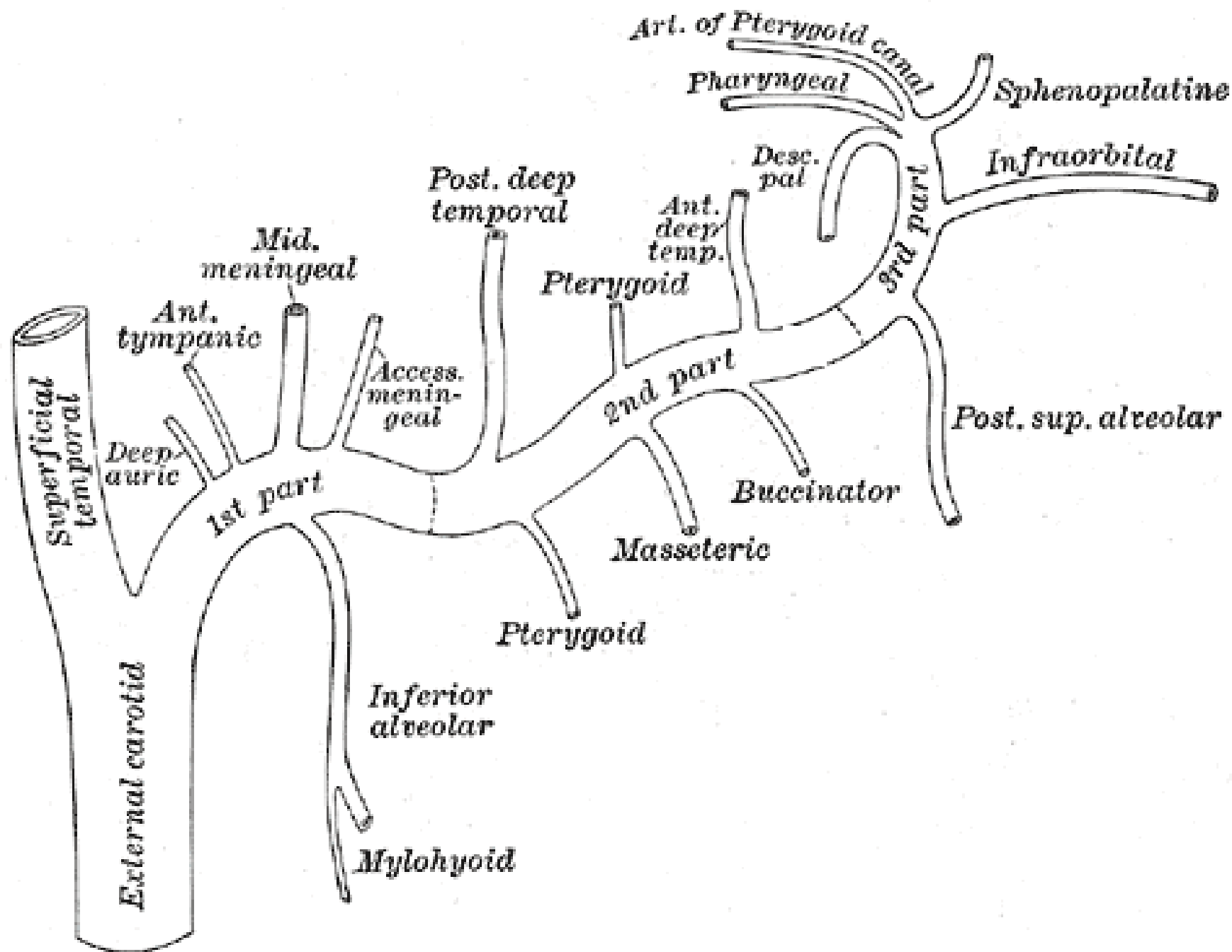
The first part of the maxillary artery has five branches and *all enter bone*.

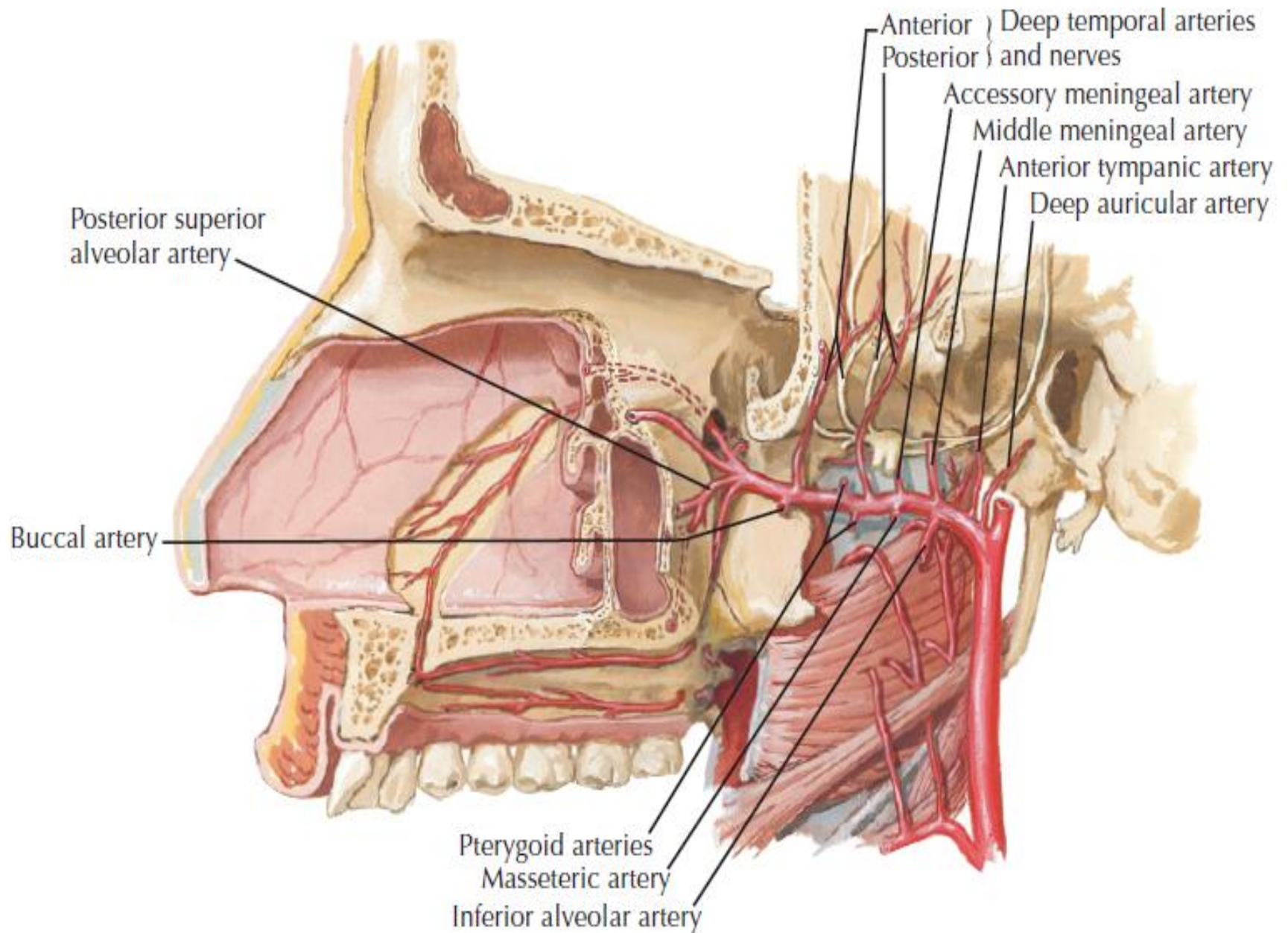
- two major branches (**the Middle meningeal** and **Inferior alveolar arteries**)
- and three smaller branches (**Anterior tympanic**, **Deep auricular** and **Accessory meningeal**).

**M. I. A. D. A.**



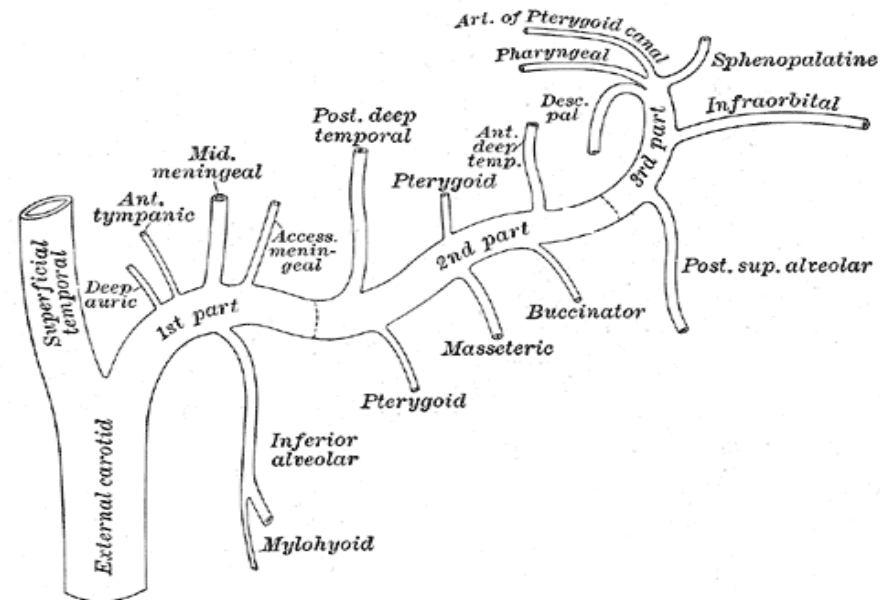






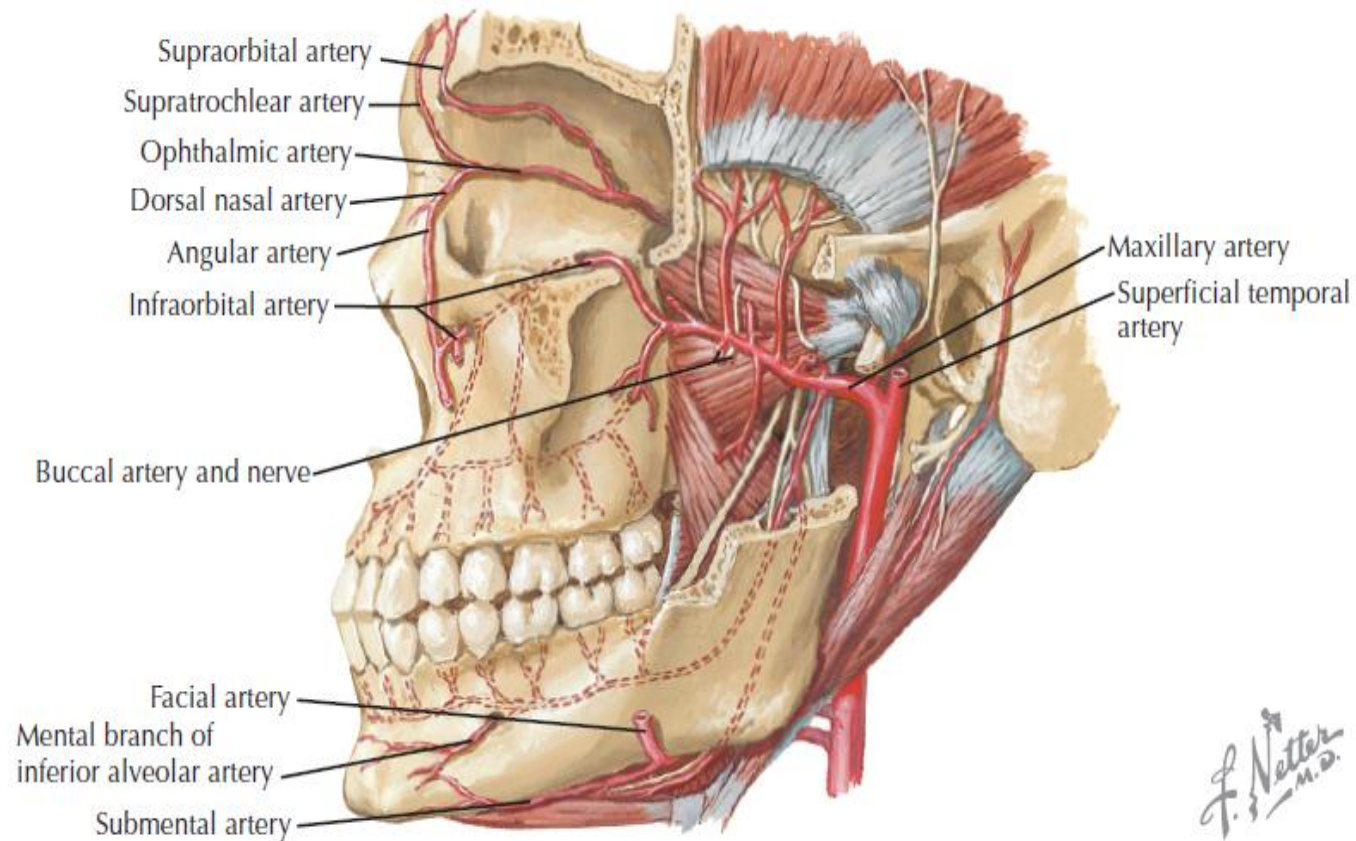
## Maxillary Artery-2<sup>nd</sup> part (Pterygoid Part)

- Has five branches for **mastication muscles & Buccinator M.**
- *The branches are not entering bone.*
- Muscular branches include:
  1. Deep temporal arteries (*anterior and posterior branches*)
  2. *Pterygoid arteries*
  3. *Masseteric arteries.*
  4. *Buccal artery*



## **MAXILLARY ARTERY: 3rd PART (PTERYGOPALATINE PART)**

- Gives branches that accompany the branches of the maxillary nerve (including those associated with the pterygopalatine ganglion).
- Posterior superior alveolar artery
- Arteries for pterygoid canal.
- Infraorbital artery
- Pharyngeal branch
- Descending palatine artery
- Sphenopalatine artery



N.S

B.S

Upper teeth

V2

Maxillary 3<sup>rd</sup>

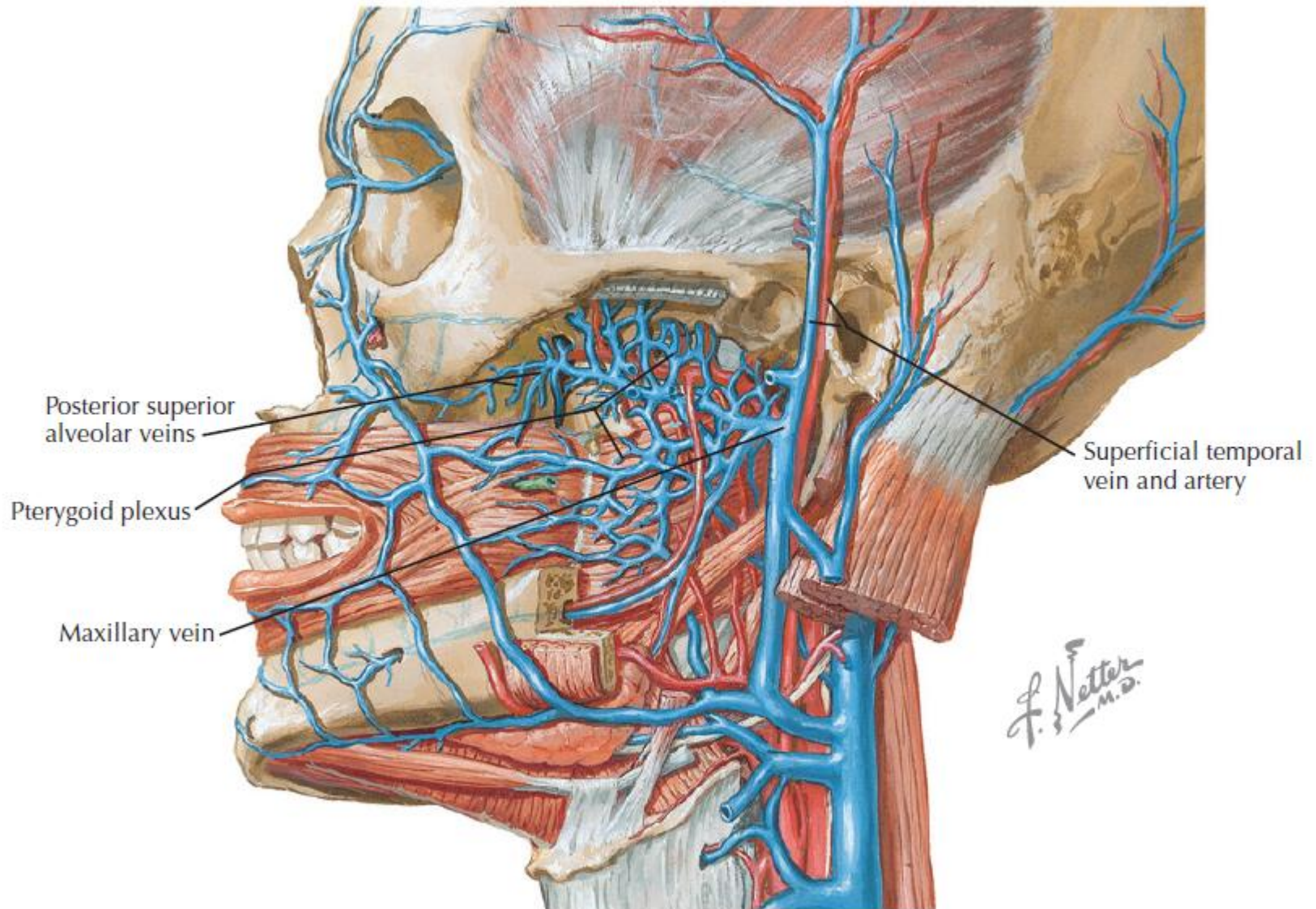
Lower teeth

V3

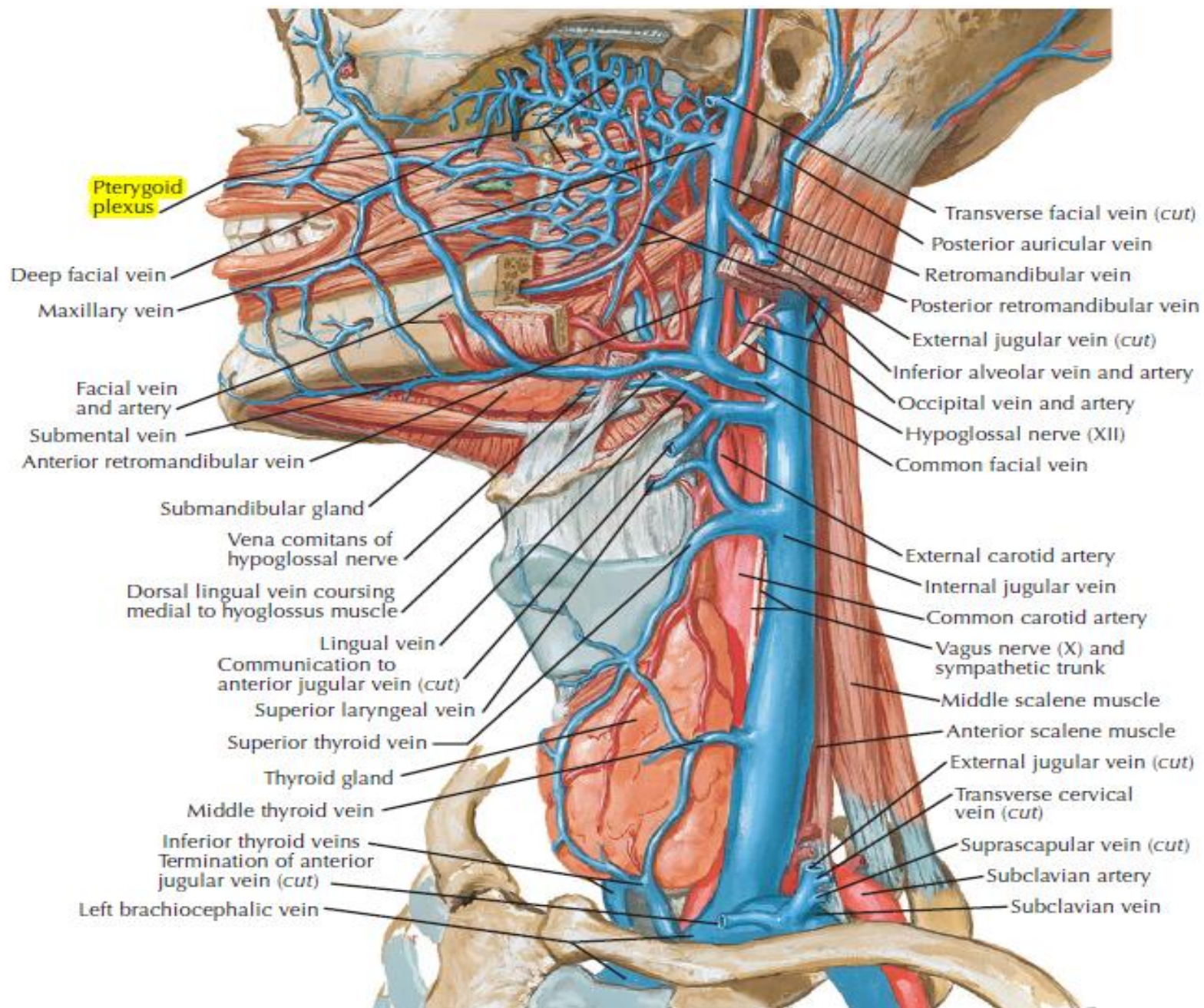
Maxillary 1<sup>st</sup>



# PTERYGOID VENOUS PLEXUS







# PTERYGOID VENOUS PLEXUS

- An extensive network of veins that parallel the 2nd and 3rd parts of the maxillary a.
- Receives branches that correspond with the same branches of the maxillary a.
- The tributaries of the pterygoid plexus eventually converge to form a short maxillary v.
- Communicates with the cavernous sinus, pharyngeal venous plexus, facial v. via the
- deep facial v., and ophthalmic vv.

