

Contents of infratemporal fossa and pterygopalatine fossa

Dr / Rasha Abdelaziz Abd Ellatif
Associate. Prof. of Human Anatomy and Embryology

Lecture ILOS & Objectives:

By the end of this lecture the student should be able to:

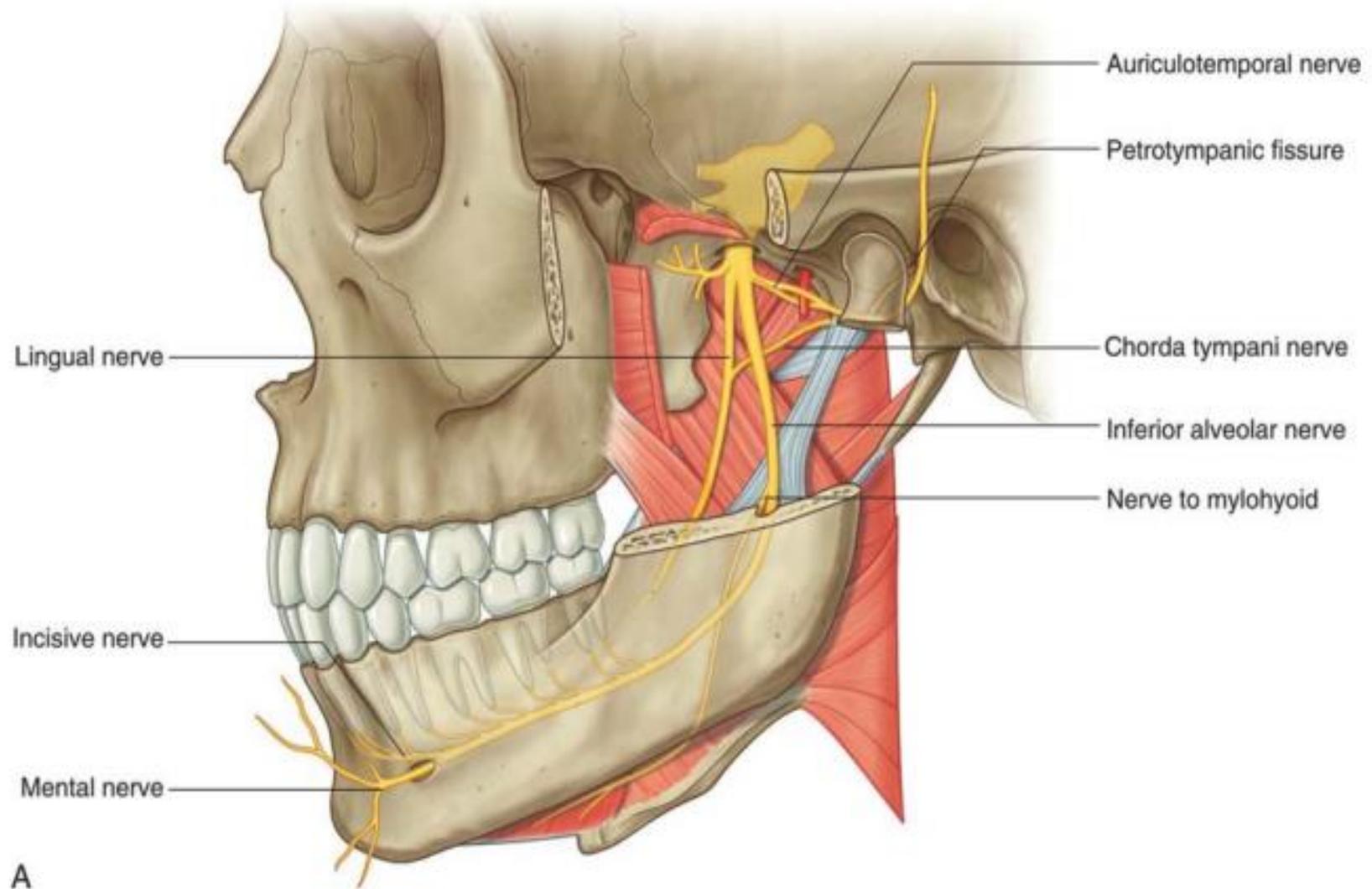
- 1. Describe the course , relations and branches of mandibular nerve**
- 2. List the branches of maxillary artery**
- 3. Define the pterygopalatine fossa.**
- 4. Identify the boundaries of the pterygopalatine fossa.**
- 5. List communications of the pterygopalatine fossa.**
- 6. Define the contents of the pterygopalatine fossa.**

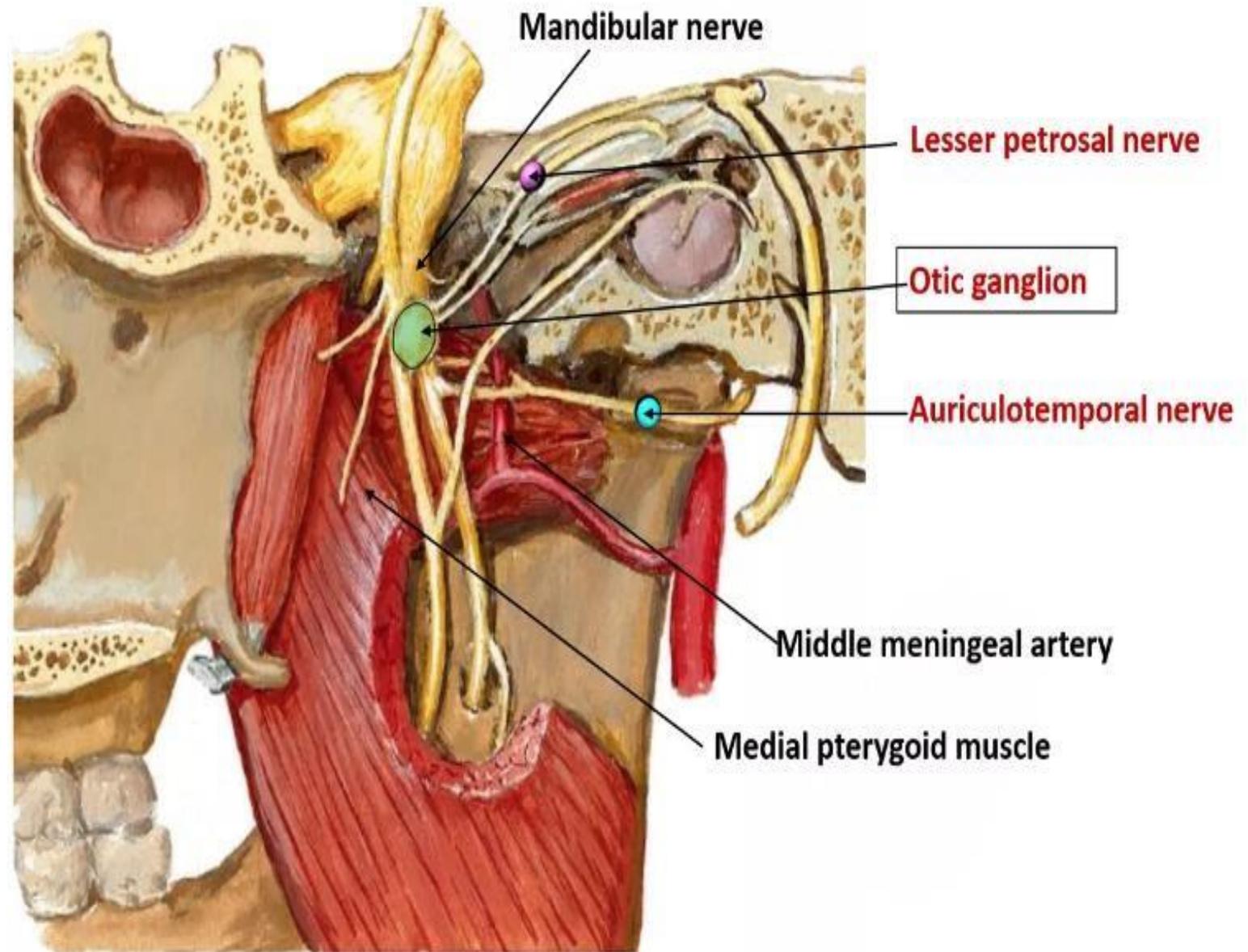
Contents of infratemporal fossa

Mandibular Nerve

Course of Mandibular Nerve:

- It leaves the skull through foramen ovale.
- It lies between:
 1. Lateral pterygoid laterally
 2. Tensor palati medially
 3. Medial pterygoid anteriorly
 4. Middle meningeal artery posteriorly.





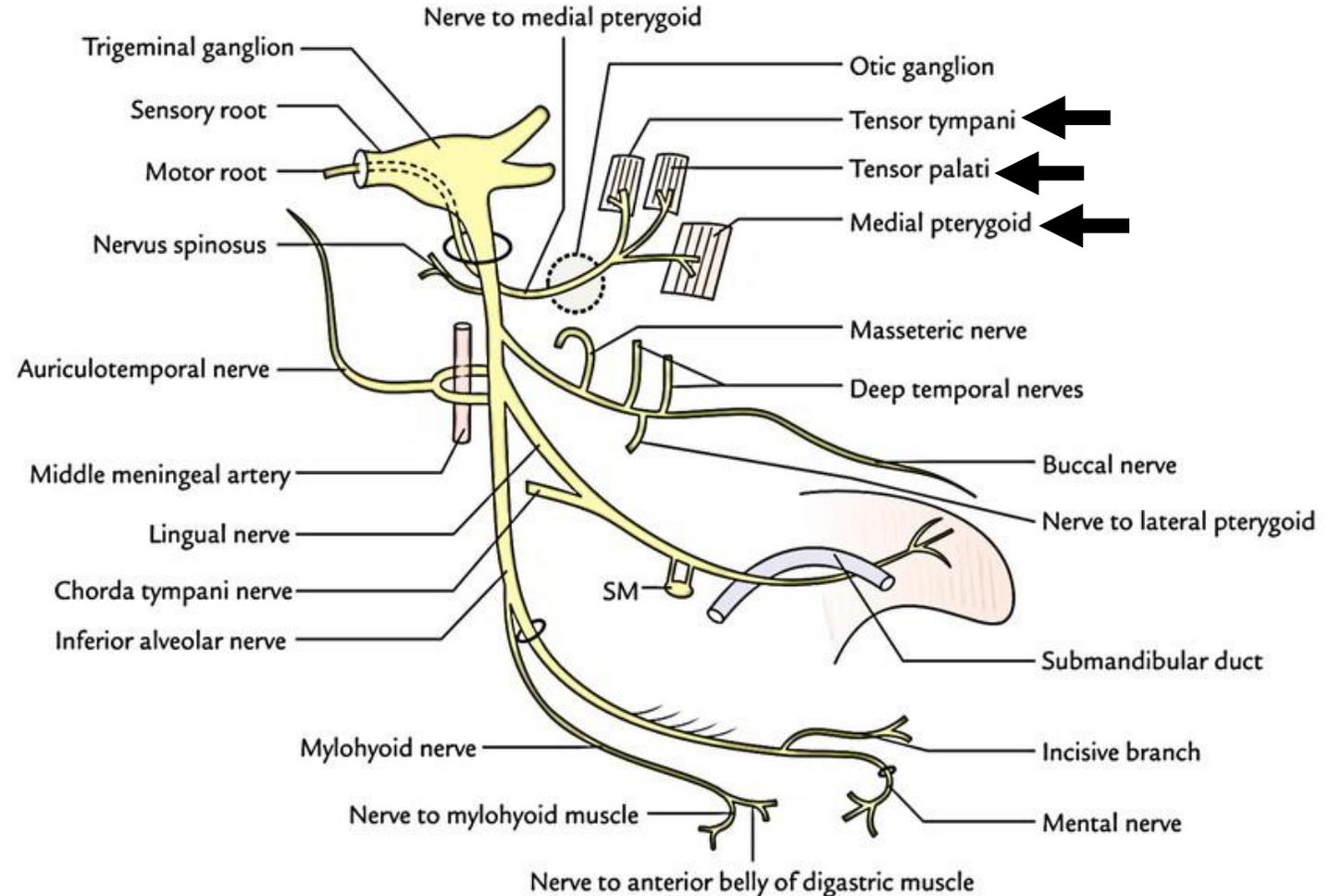
Branches from Trunk of mandibular

- **Nervous spinosus (sensory) :**

- A meningeal branch which enters the skull through the foramen spinosum and supplies the meninges in the middle cranial fossa.

- **Nerve to medial pterygoid (motor):**

- Supplies the medial pterygoid muscle.
- It gives off 2 branches, which pass through the otic ganglion to supply the tensor tympani and tensor palati.



Branches of Anterior Division of Mandibular Nerve

- All are **motor** except the **buccal** nerve

1. Masseteric nerve (motor)

Passes with the corresponding artery through the mandibular notch to the deep surface of masseter.

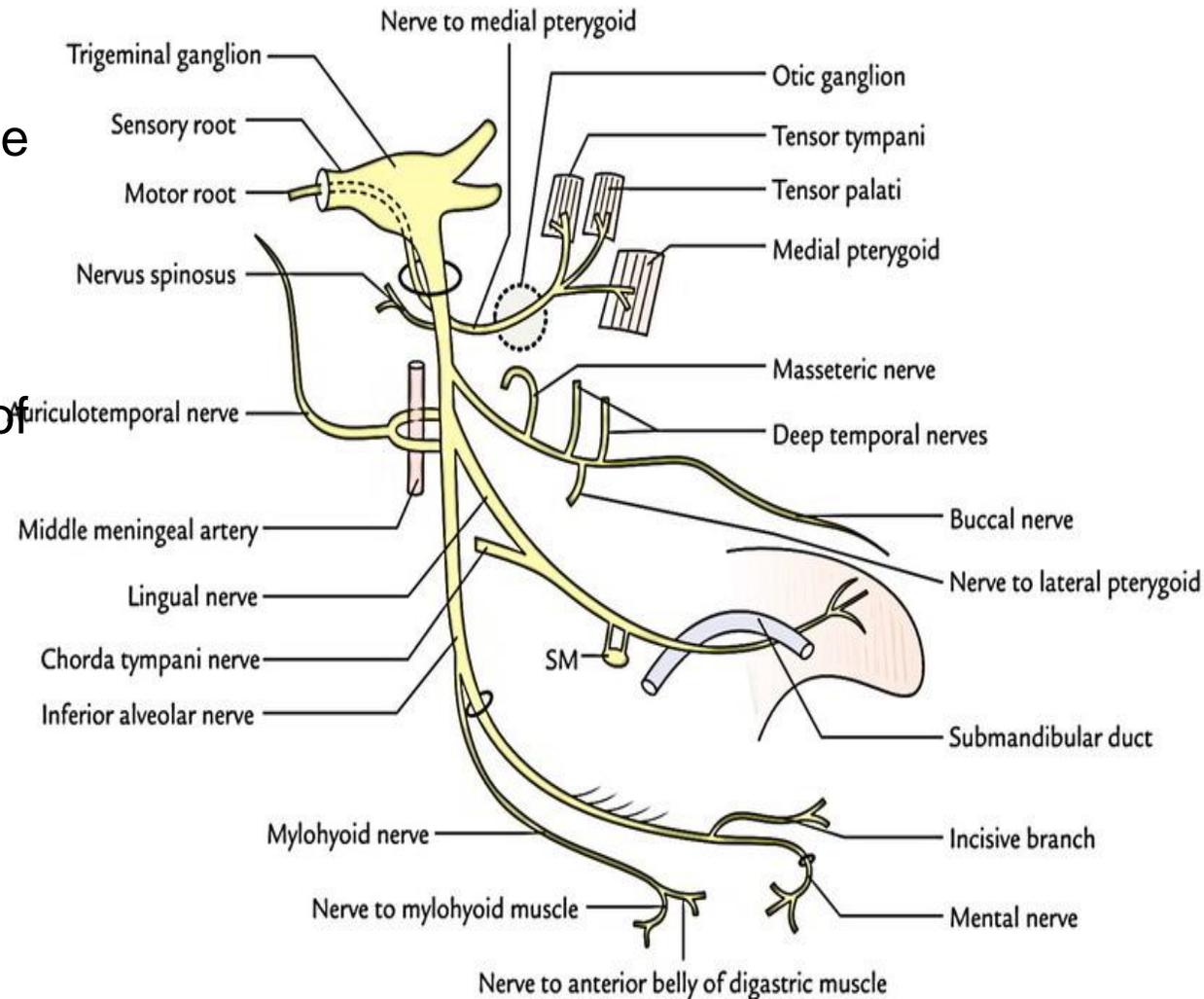
2. Deep temporal nerves (Two nerves motor)

Run upward and emerge to enter the deep surface of the temporalis muscle.

3. Nerve to the lateral pterygoid (motor)

4. The buccal nerve (sensory)

Runs forward between the two heads of the lateral pterygoid. It supplies the skin over the cheek and the mucous membrane lining it.



Branches of Posterior Division of Mandibular Nerve

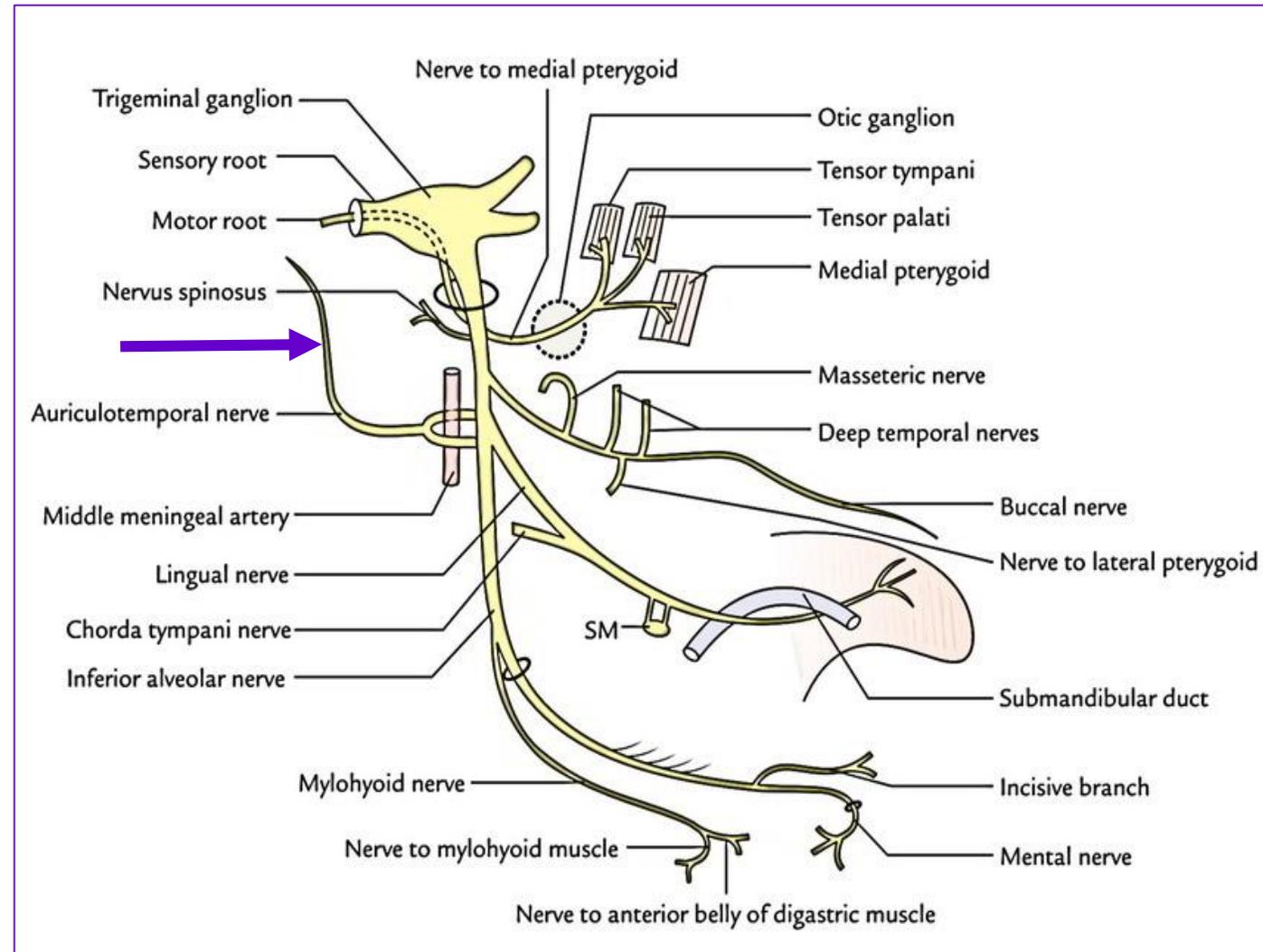
1. Auriculotemporal nerve (sensory) :

- Arises by two roots that surround the middle meningeal artery.

○ It gives:

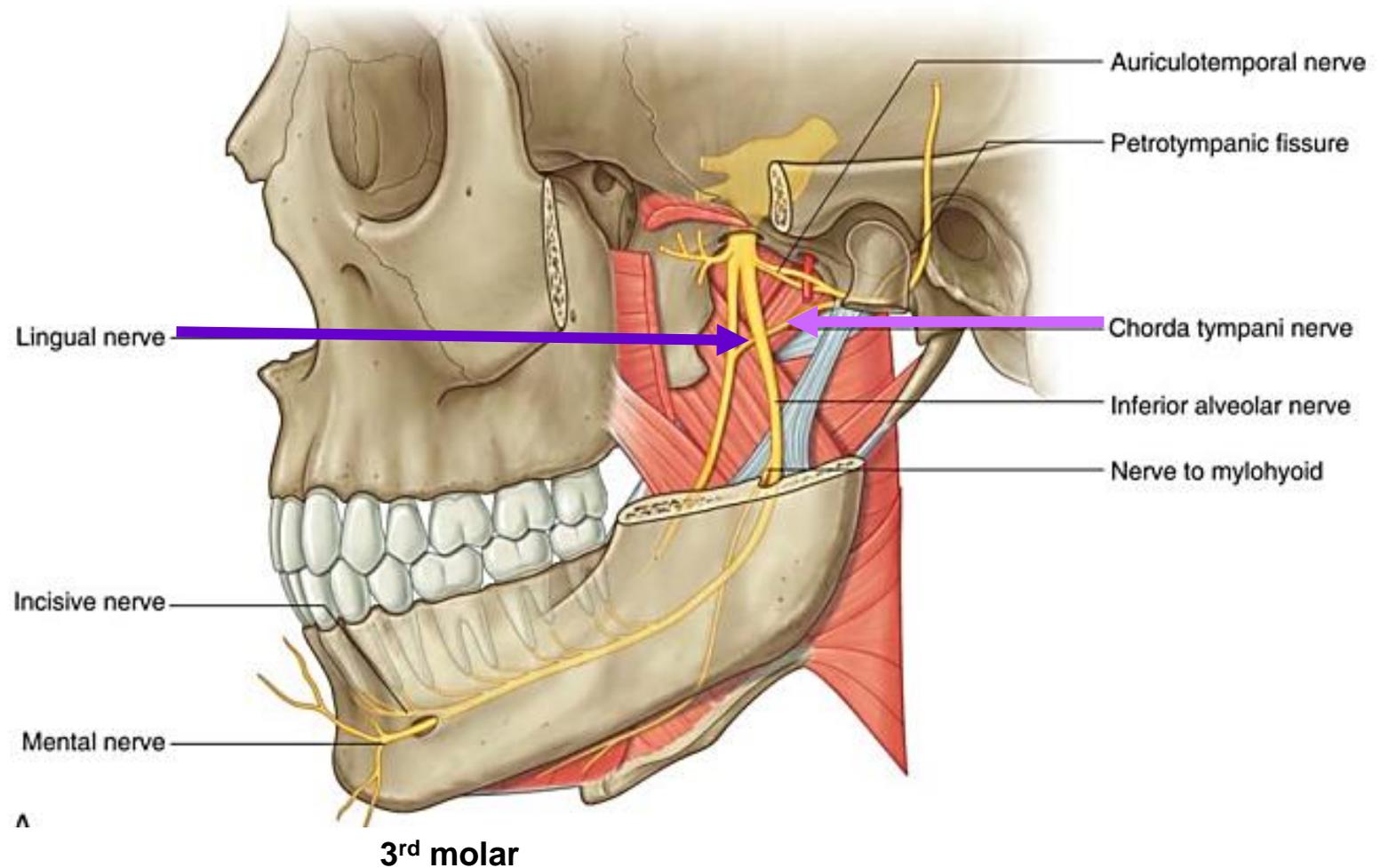
- a. **Sensory fibers** to skin of the external acoustic meatus, auricle, temple, temporo-mandibular joint and parotid gland.

- b. **Postganglionic parasympathetic secretory fibers** from the otic ganglion to the parotid gland.



2. Lingual nerve

- It appears at the lower border of the lateral pterygoid in front of the inferior alveolar nerve.
- It descends superficial to the medial pterygoid where it is joined by the chorda tympani, branch of the facial nerve, at an acute angle.
- It passes on the inner aspect of the mandible close to the medial side of the root of the **3rd** molar tooth.

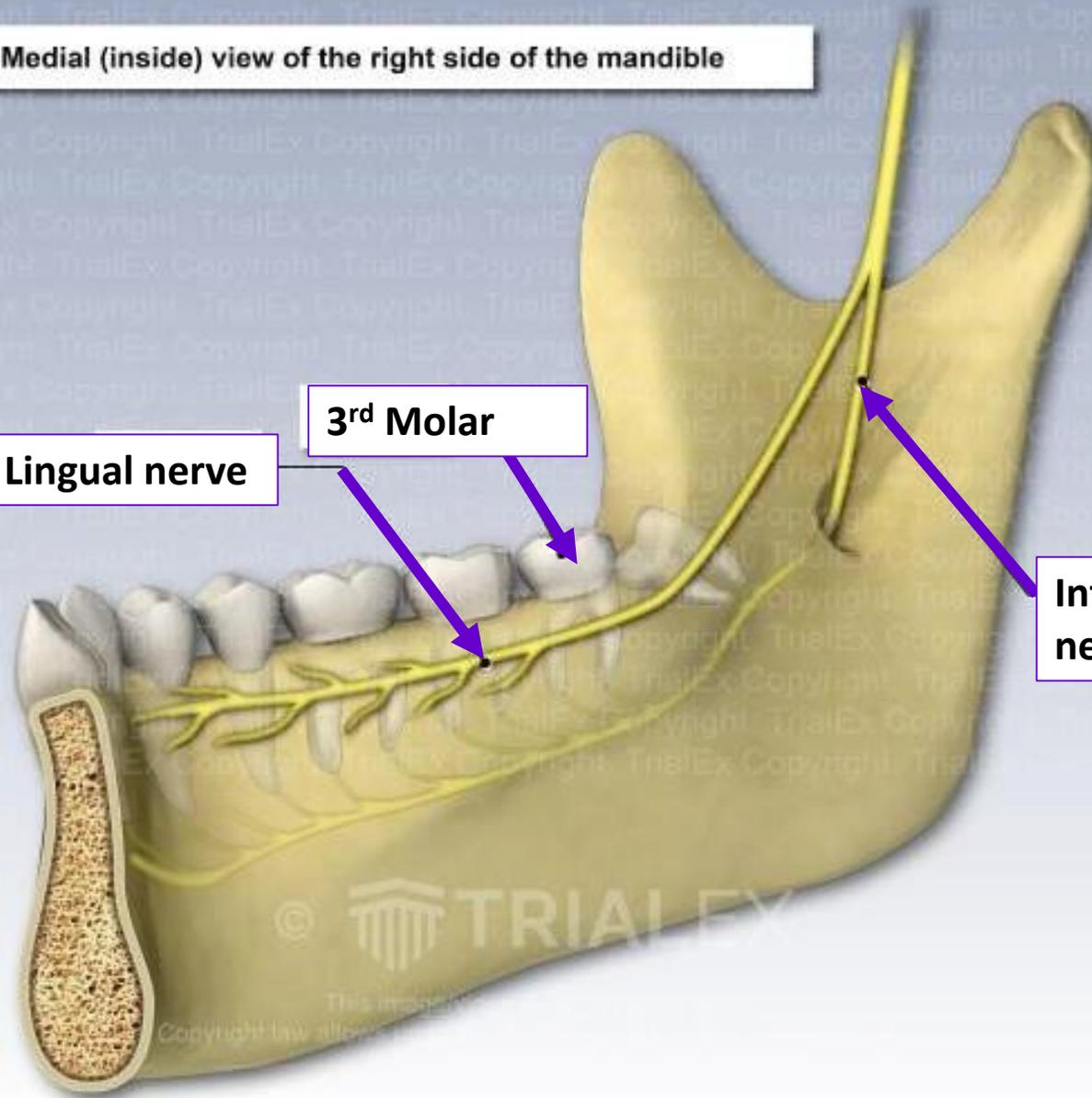


Medial (inside) view of the right side of the mandible

Lingual nerve

3rd Molar

Inferior alveolar nerve

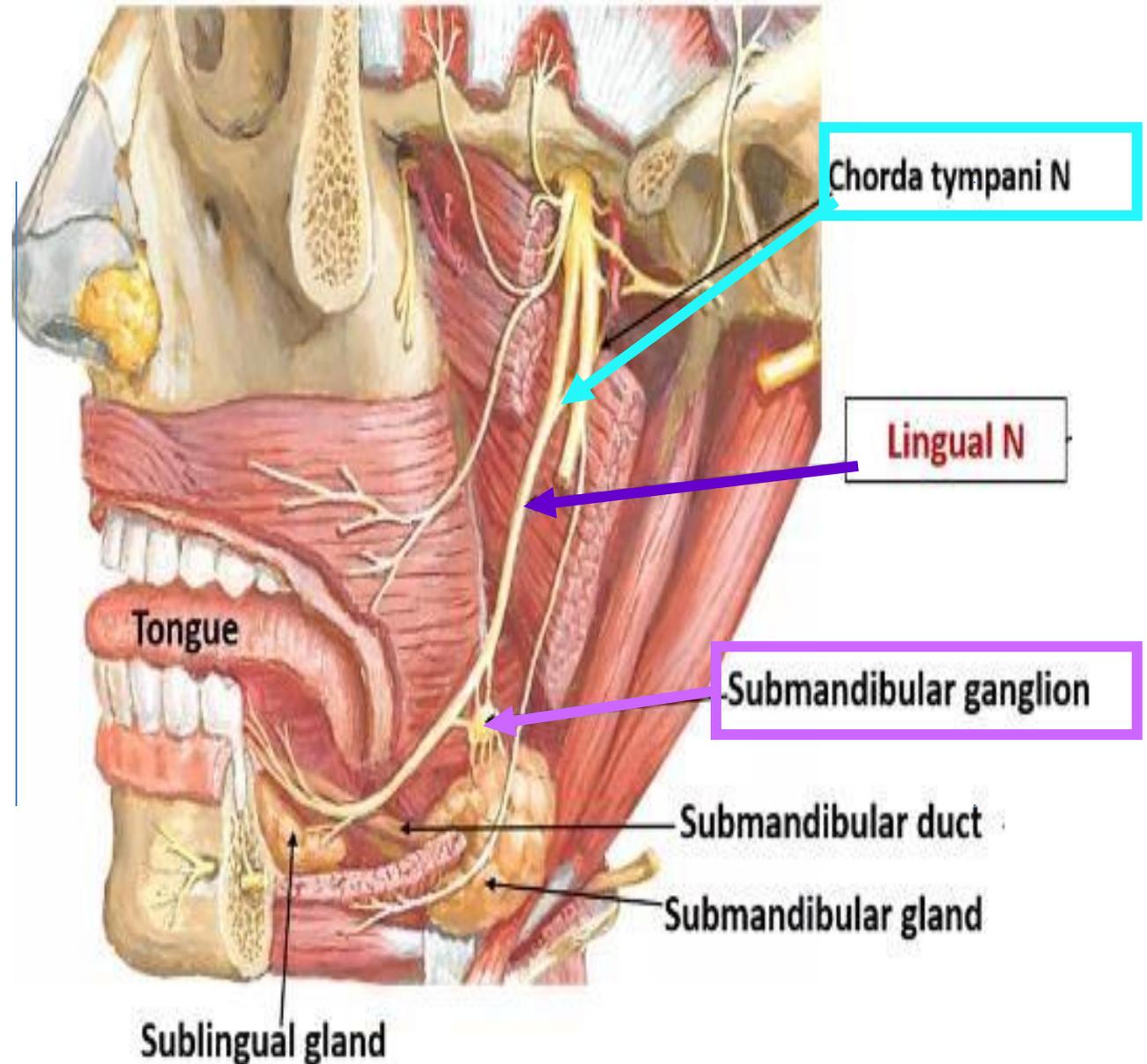


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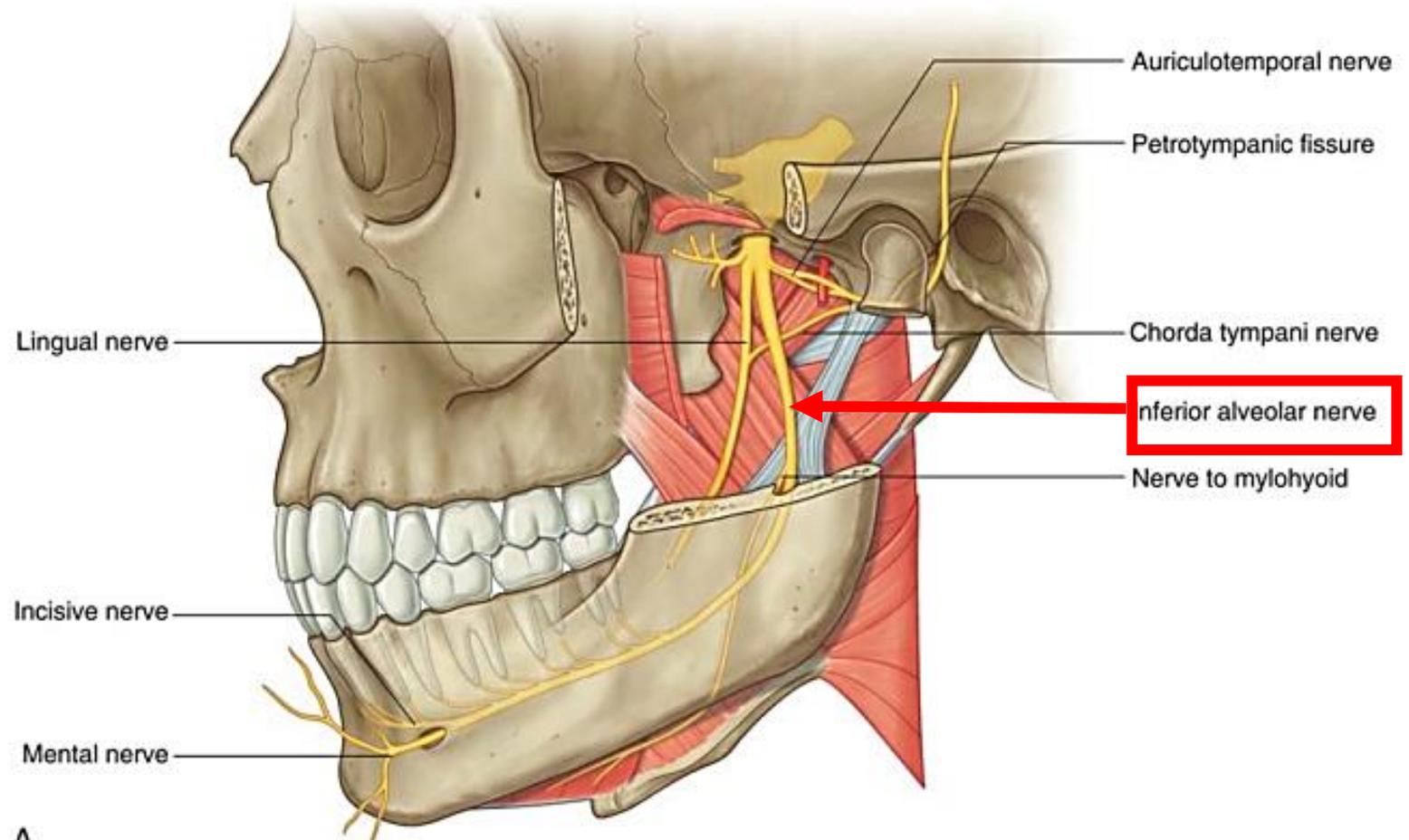
2. Lingual nerve

- It reaches the floor of the mouth where the submandibular ganglion is suspended from it.
- It carries general sensations from the anterior $\frac{2}{3}$ of the tongue
- The chorda tympani fibers carry:
 1. Taste fibers from the anterior $\frac{2}{3}$ of the tongue.
 2. Preganglionic secretomotor which relay in the submandibular ganglion to supply the submandibular and sublingual salivary glands.



3. Inferior alveolar nerve:

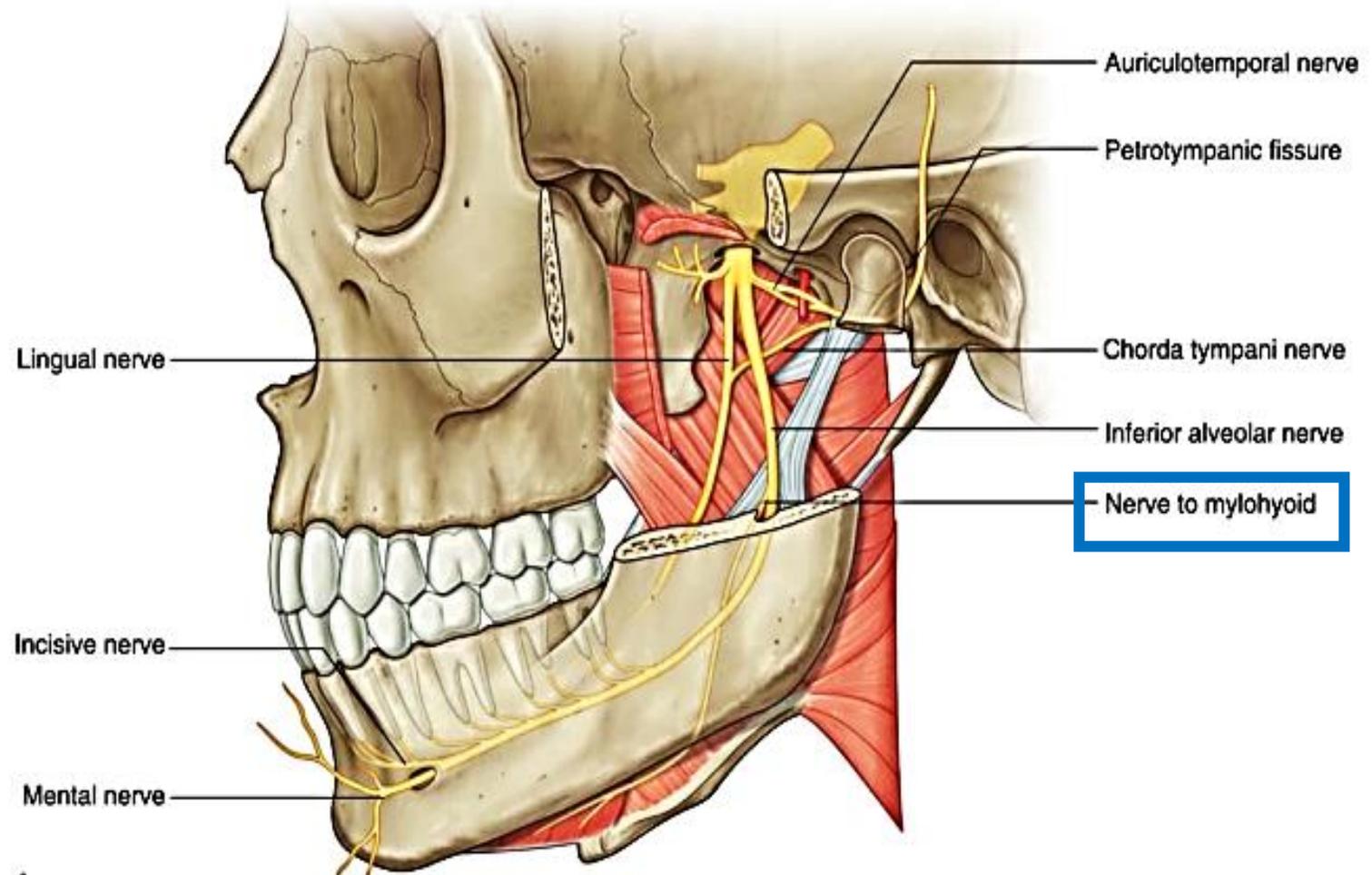
- It appears at the lower border of the lateral pterygoid behind the lingual nerve.
- It descends superficial to the medial pterygoid.
- It then enters the mandibular canal through the mandibular foramen and runs forward below the teeth.



3. Inferior alveolar nerve

Branches

1. Mylohyoid nerve supplies mylohyoid & anterior belly of digastric muscles.
2. Branches to the teeth of the lower jaw.
3. Terminal branches: mental for chin and incisive for incisors of lower jaw.



Maxillary artery

Course: It is divided into 3 parts

- **First part**

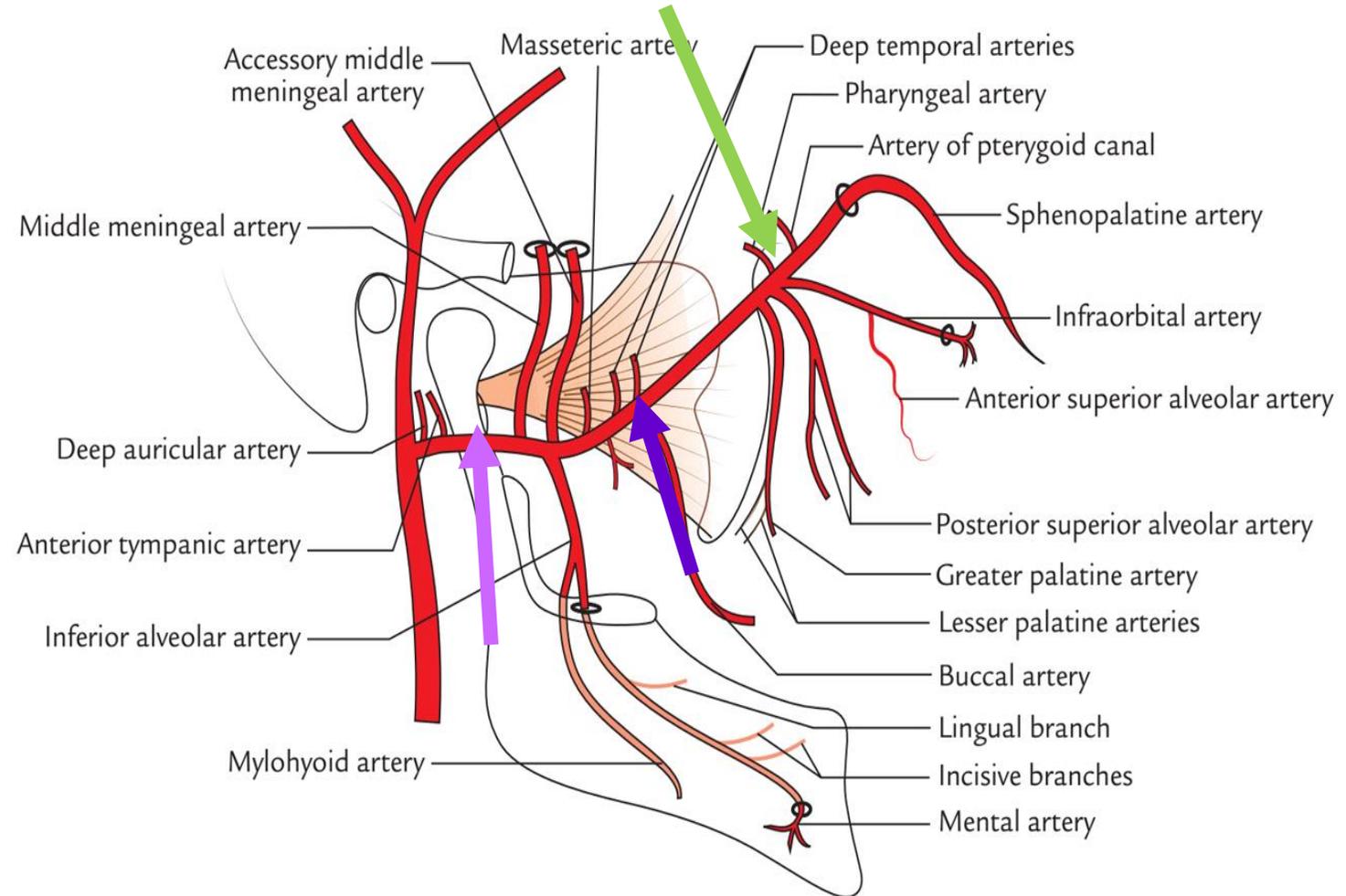
Runs horizontally medial to the neck of mandible along the lower border of the lateral pterygoid muscle.

- **Second part**

Passes upward and forward, either superficial or deep to the lower head of the lateral pterygoid.

- **Third part**

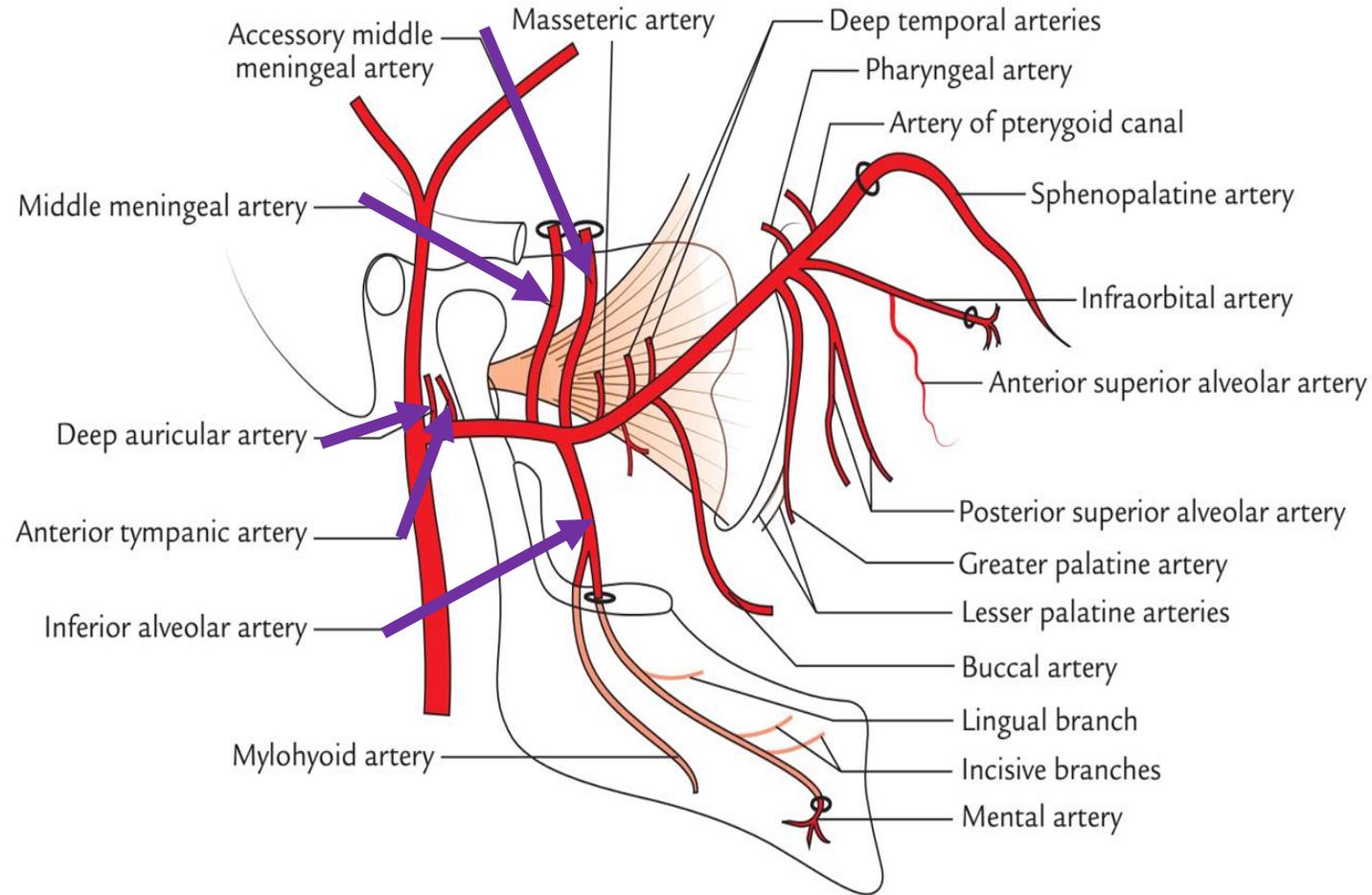
Leaves the infratemporal fossa by passing between the two head of lateral pterygoid muscle to enter the pterygo-palatine fossa



Branches of Maxillary Artery

Branches of 1st part:

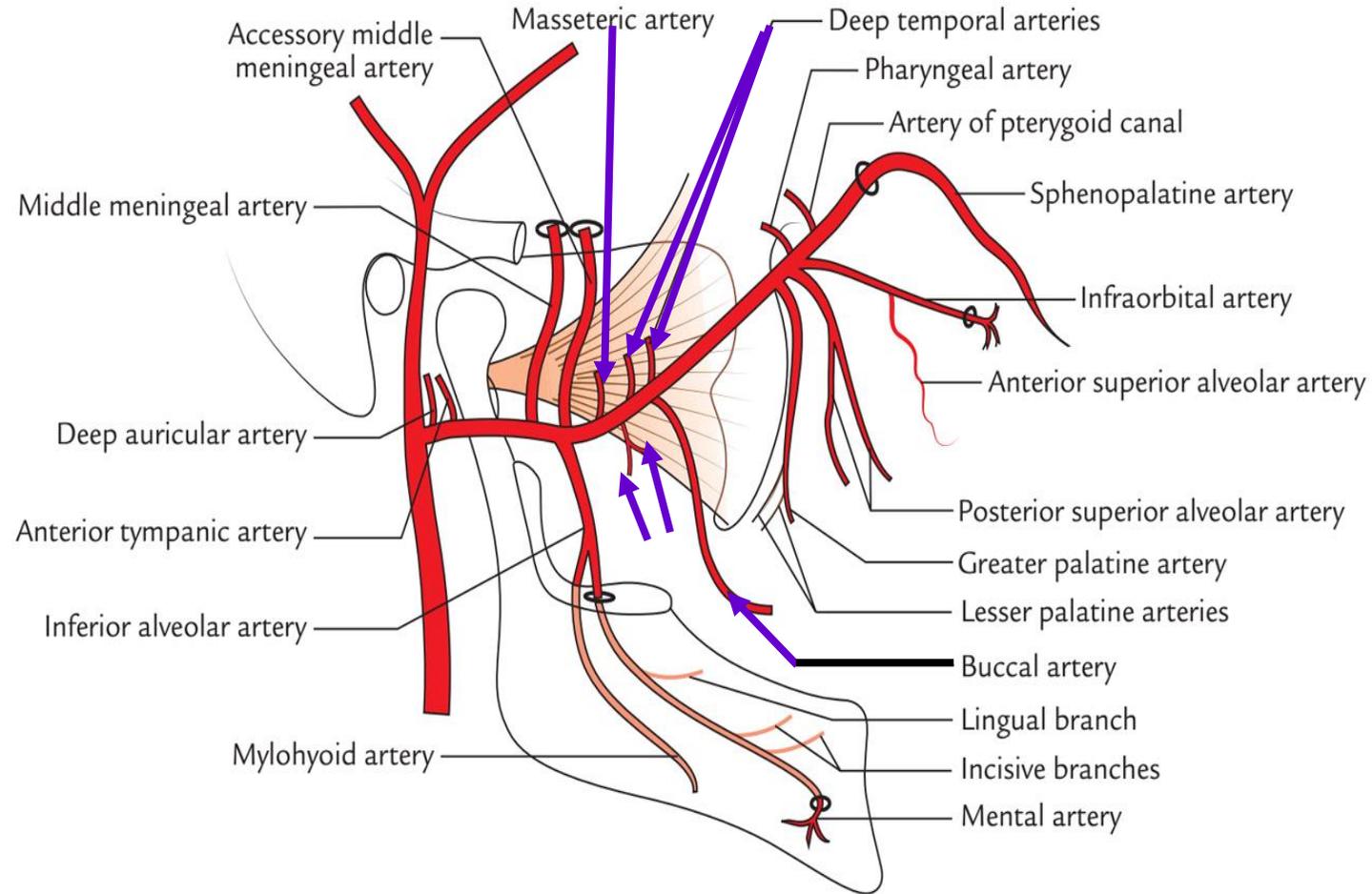
1. **Deep auricular artery:** it supplies external acoustic meatus.
2. **Anterior tympanic artery:** it supplies middle ear cavity.
3. **Middle meningeal artery:** It enters cranial cavity through foramen spinosum to supply dura of anterior and middle cranial fossae.
4. **Accessory meningeal artery:** it enters cranial cavity through foramen ovale to supply meninges of middle cranial fossae and trigeminal ganglion.
5. **Inferior alveolar artery:** it gives mylohyoid branch then enters mandibular foramen to supply teeth of lower jaw, then divides into incisors for incisor teeth and mental for chin.



Branches of Maxillary Artery

Branches of 2nd part:

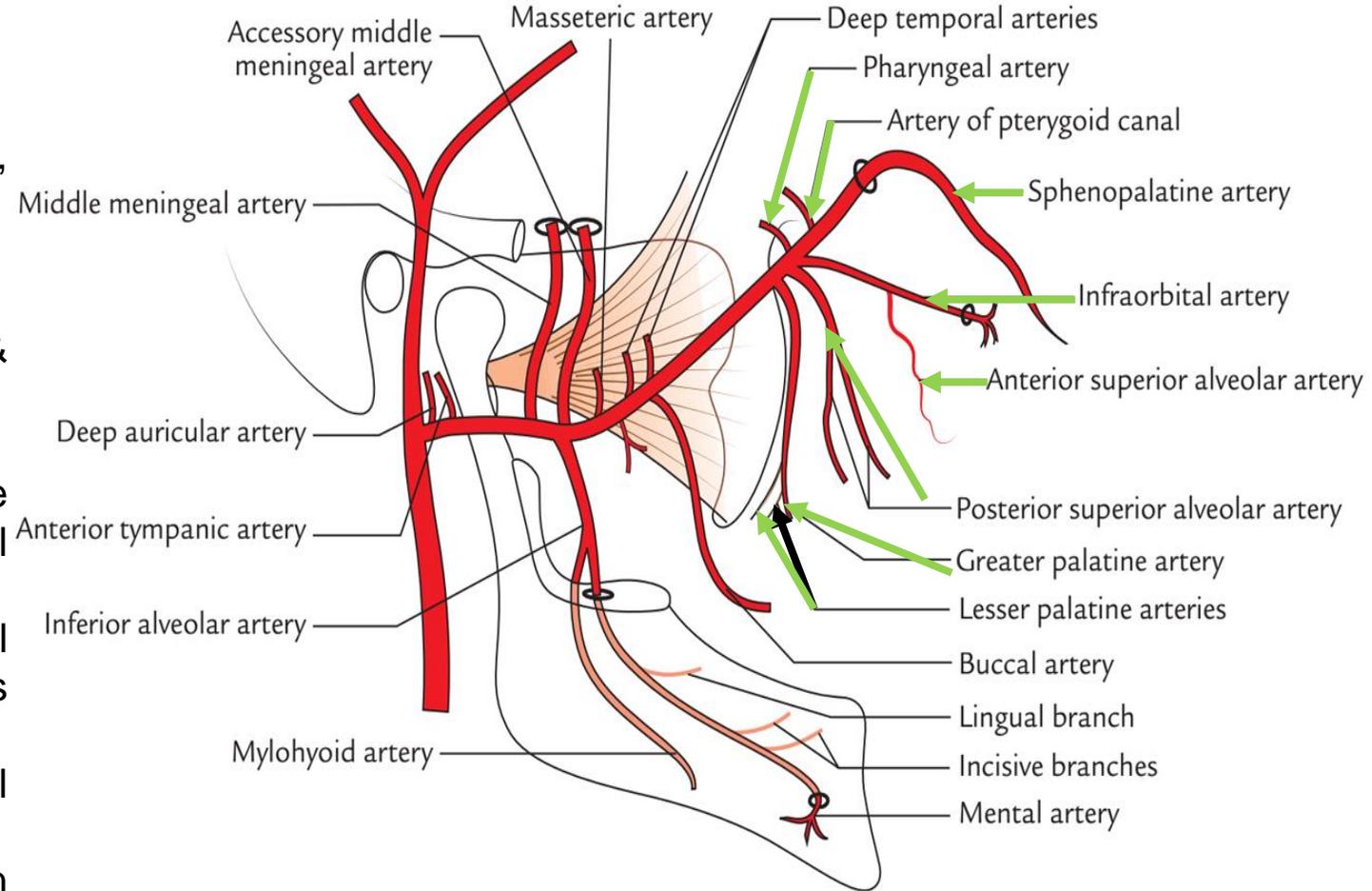
1. **Deep temporal arteries** supplies temporalis muscle.
2. **Lateral and medial pterygoid arteries** supply lateral and medial pterygoid muscles.
3. **Masseteric artery** supplies masseter muscle.
4. **Buccal artery** supplies external surface of buccinator muscle.



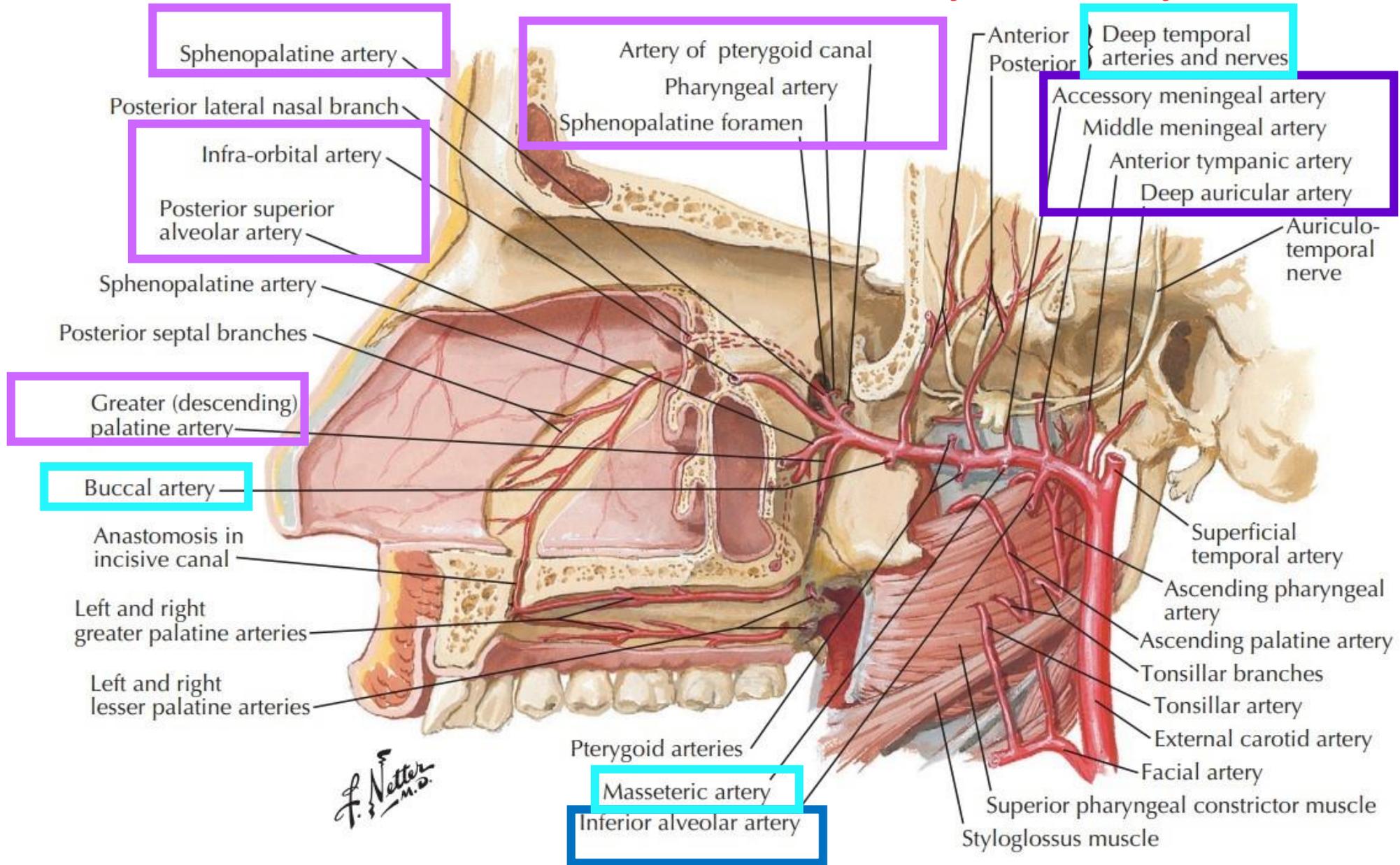
Branches of Maxillary Artery

Branches of 3rd part:

1. **Posterior superior alveolar artery** supplies molars, premolars and maxillary sinus.
2. **Infraorbital artery gives:**
 - Orbital branches
 - Anterior superior alveolar artery supplies canine & incisors
3. **Greater palatine artery:**
 - passes through greater palatine canal to supply the hard palate, then enters nasal cavity through lateral incisive foramina.
4. **Pharyngeal artery** passes through palato-vaginal canal to supply roof of nasal cavity, sphenoid sinus and auditory tube.
5. **Artery of pterygoid canal** passes through the canal to supply mucosa of nasopharynx.
6. **Sphenopalatine artery** passes through its foramen to nasal cavity to supply its lateral and medial walls.



Branches of maxillary artery

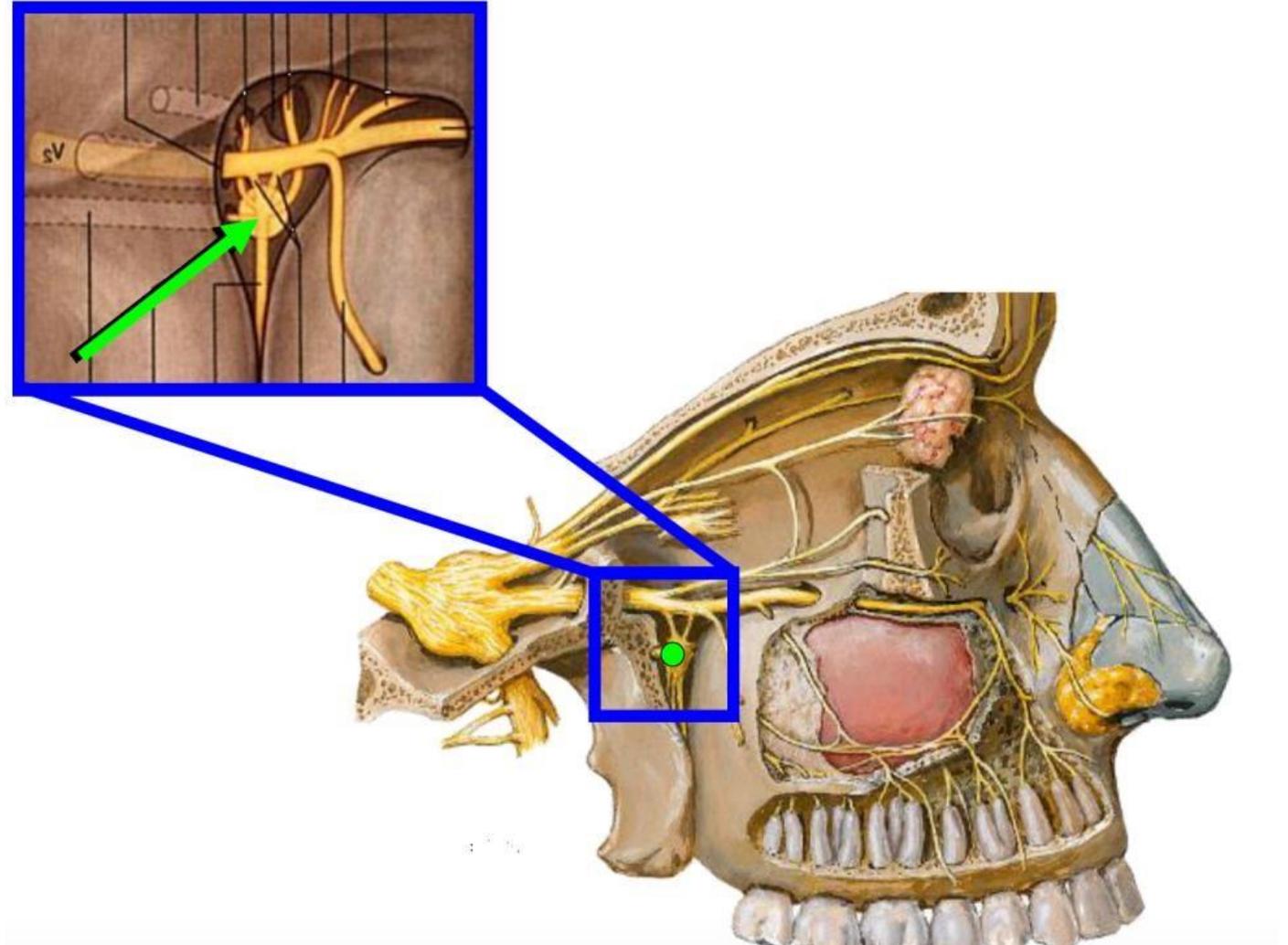


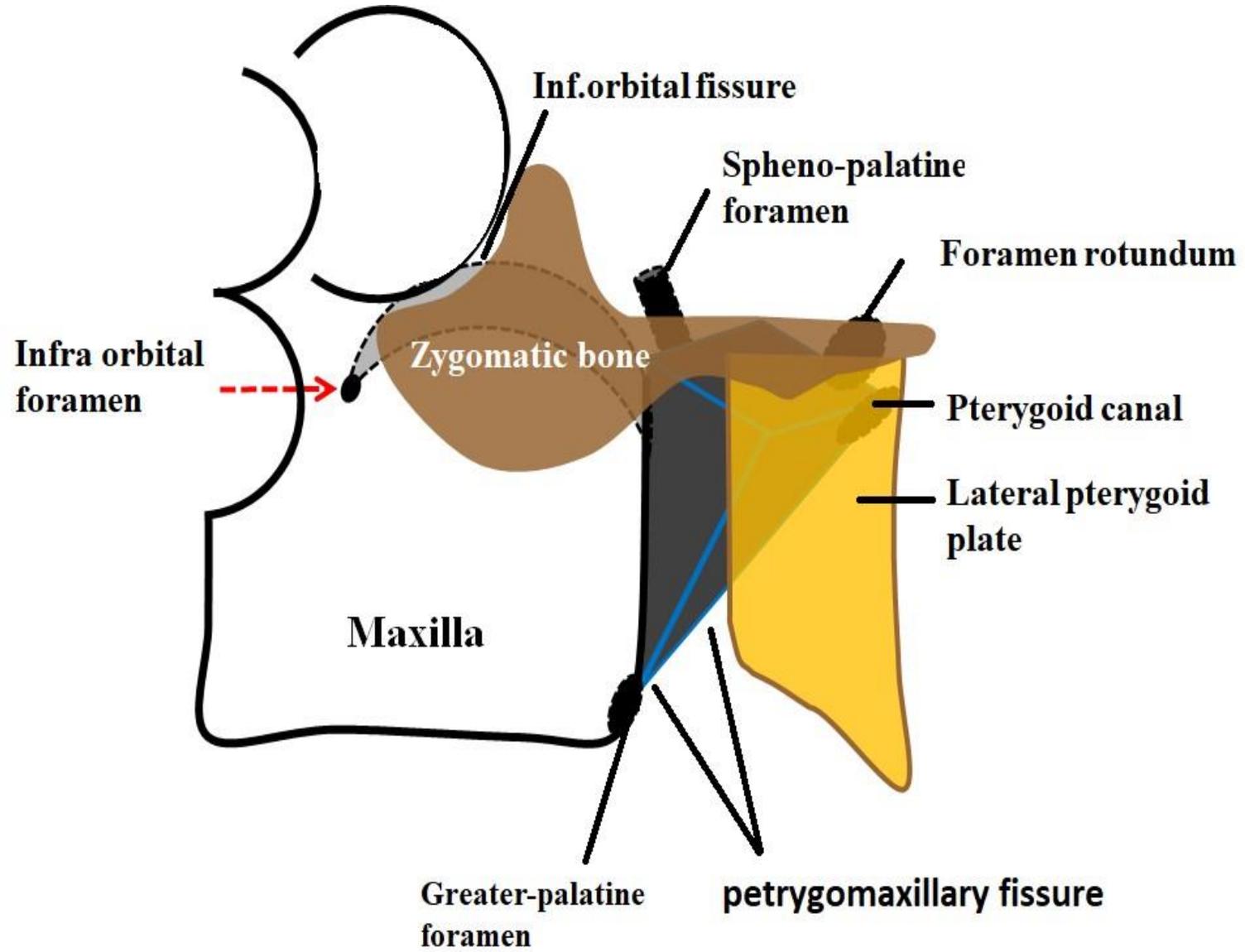
PTERYGOPALATINE FOSSA

Pterygopalatine Fossa

Definition: It is a small, roughly pyramidal-shaped space located in the deep lateral aspect of the head, immediately posterior and inferior to the orbit.

- All the upper teeth receive their innervation and blood supply from maxillary nerve and 3rd part of maxillary artery that pass through pterygopalatine fossa

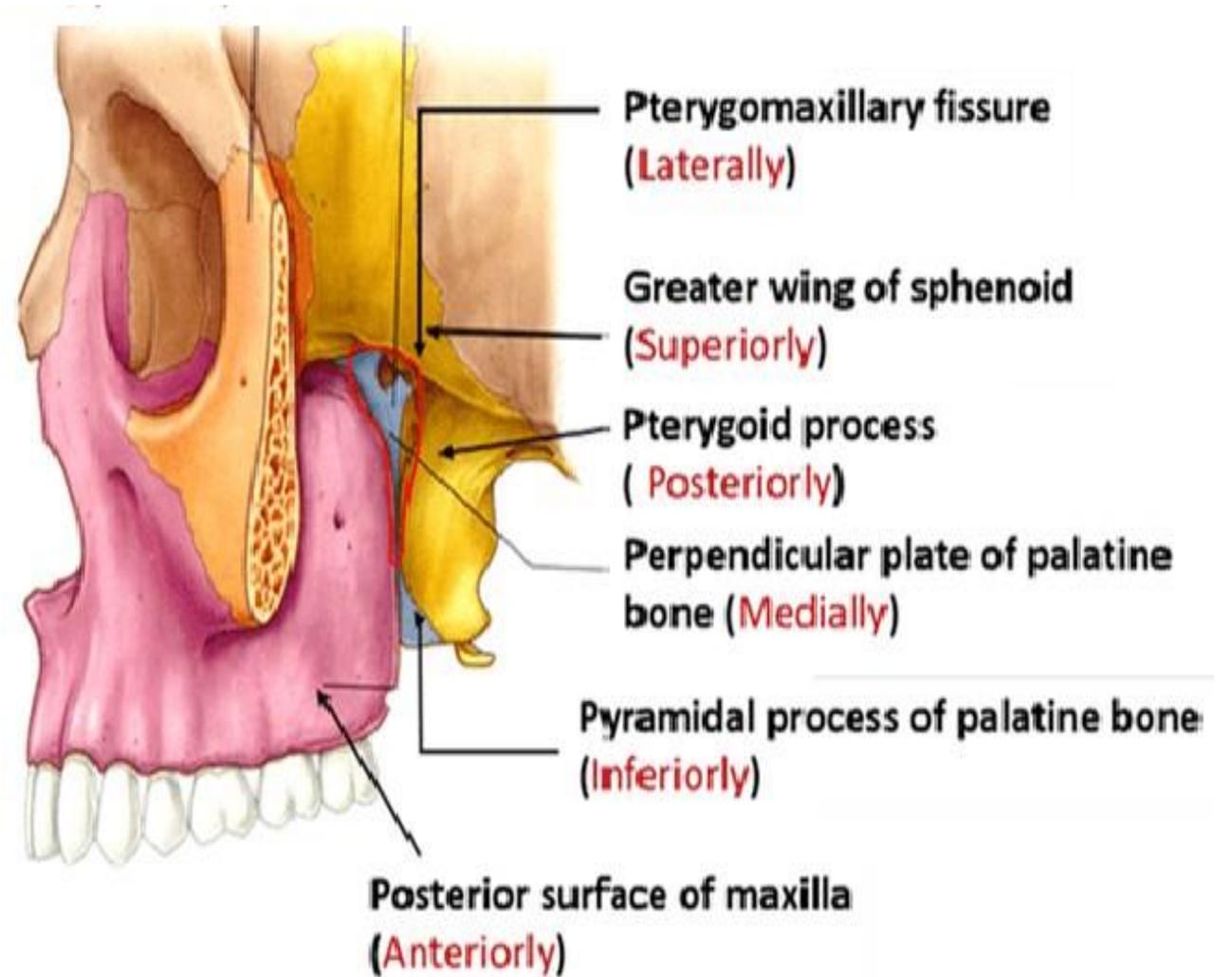




Pterygopalatine Fossa

Boundaries

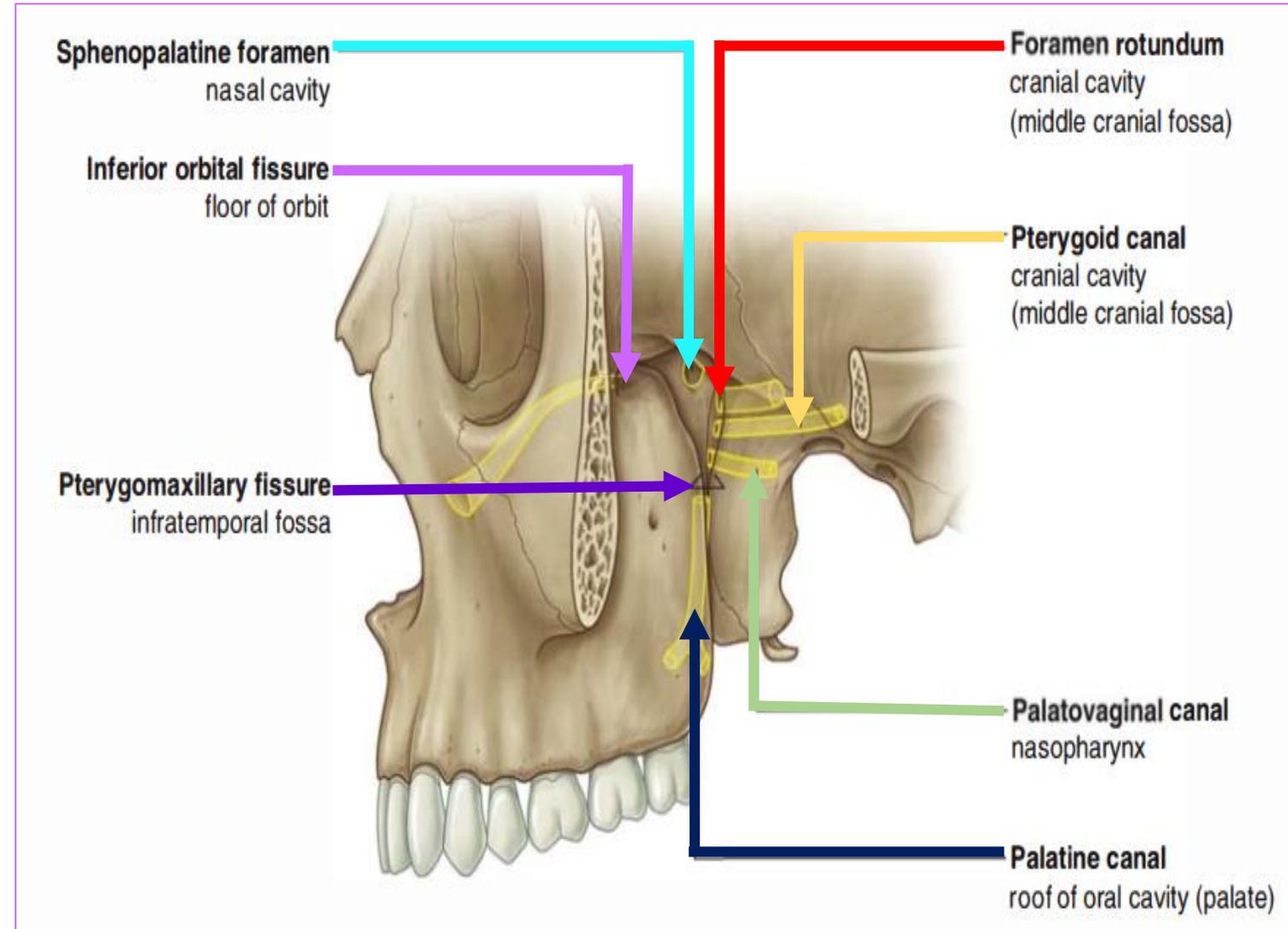
1. **Anterior:** Posterior surface of the maxilla
2. **Posterior:** Base of the pterygoid process of the sphenoid bone
3. **Medial:** lateral surface of the palatine bone
4. **Lateral:** Pterygomaxillary fissure



Pterygopalatine Fossa

Communications

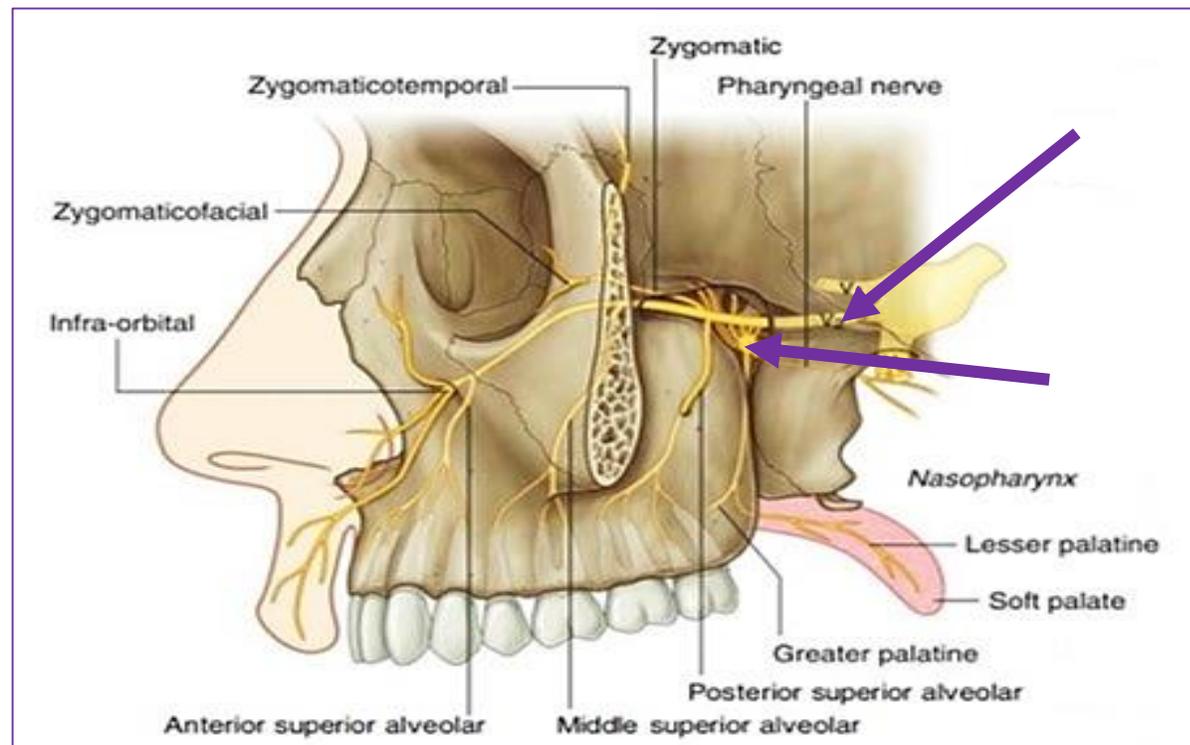
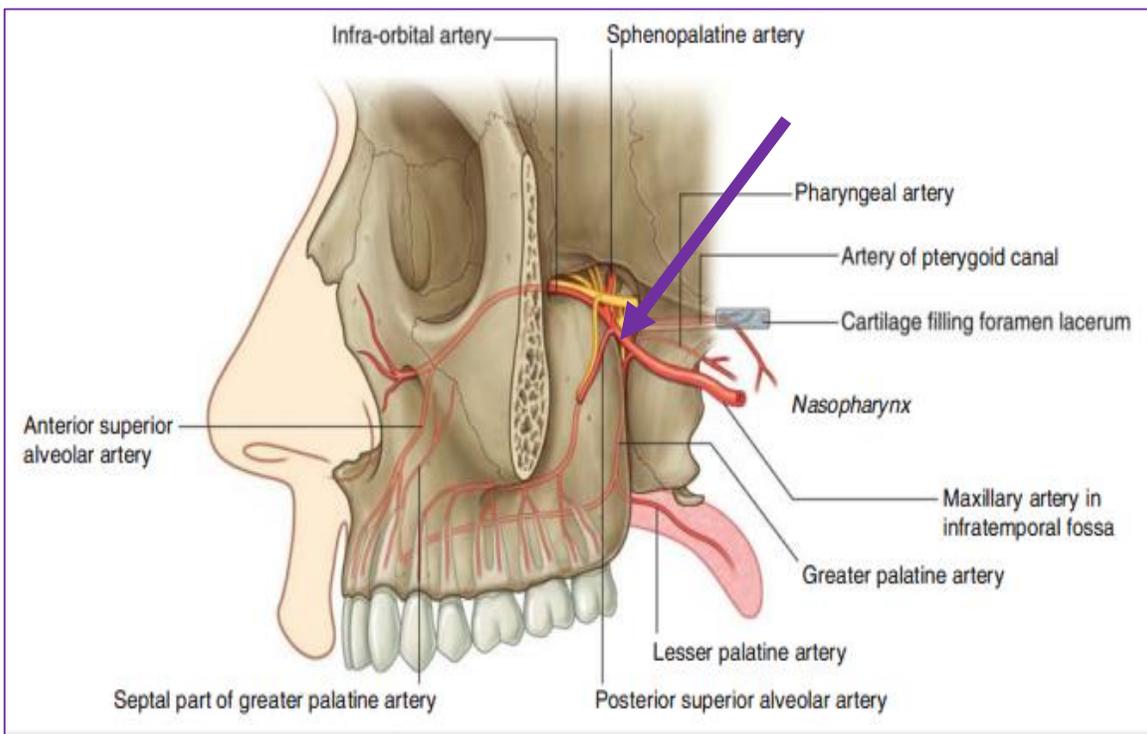
1. Cranial cavity through foramen rotundum.
2. Nasal cavity via sphenopalatine foramen.
3. Orbit by way of inferior orbital fissure.
4. Infratemporal fossa via the pterygomaxillary fissure.
5. Cranial cavity through the pterygoid canal (in foramen lacerum apex).
6. Nasopharynx via the palatovaginal canal
7. Oral cavity through greater palatine canal



Pterygopalatine Fossa

Contents:

1. Maxillary nerve
2. Pterygopalatine ganglion
3. 3rd part of maxillary artery (discussed previously)



REFERENCES

- **Snell`s clinical anatomy by regions ,Tenth Edition**
- **Gray`s Anatomy for students, Third Edition**
- **Grant`s Atlas of Anatomy**

THANK
You! 😊

