



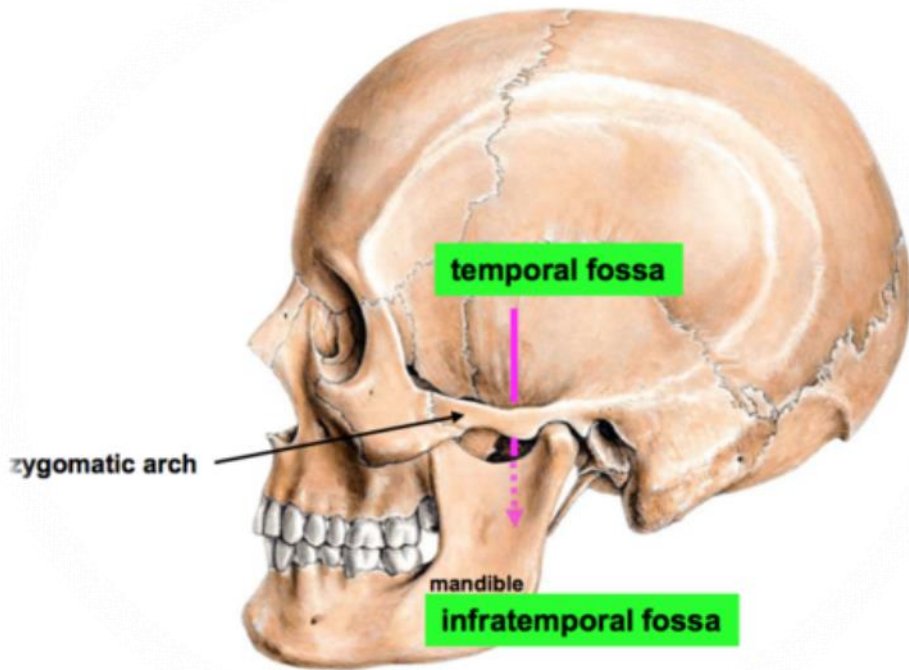
Human Anatomy -2nd year

Infratemporal Fossa Lecture (8)

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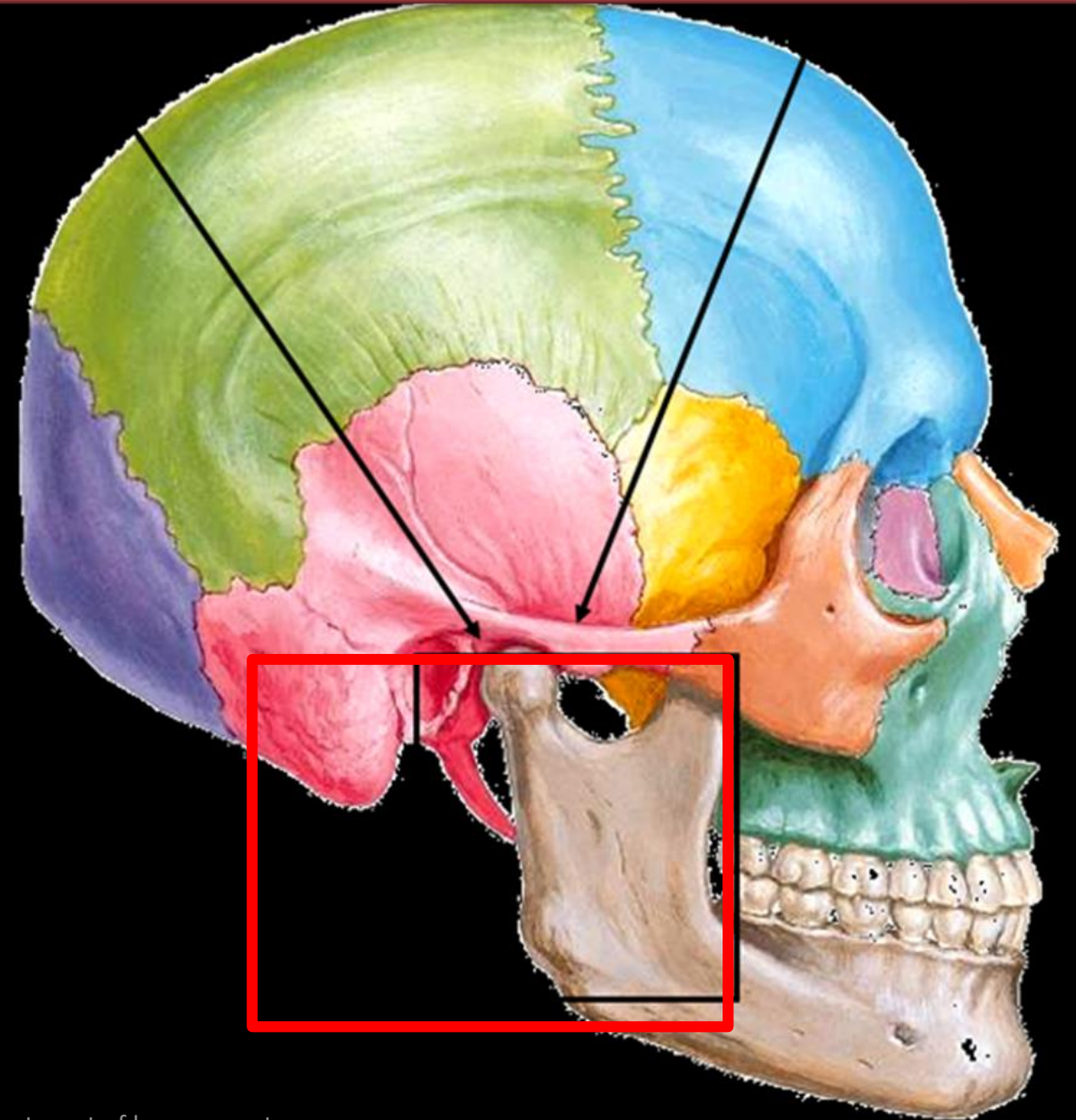


Infratemporal fossa

***It is an irregular shaped complex area located deep to the masseter muscle and zygomatic arch.**

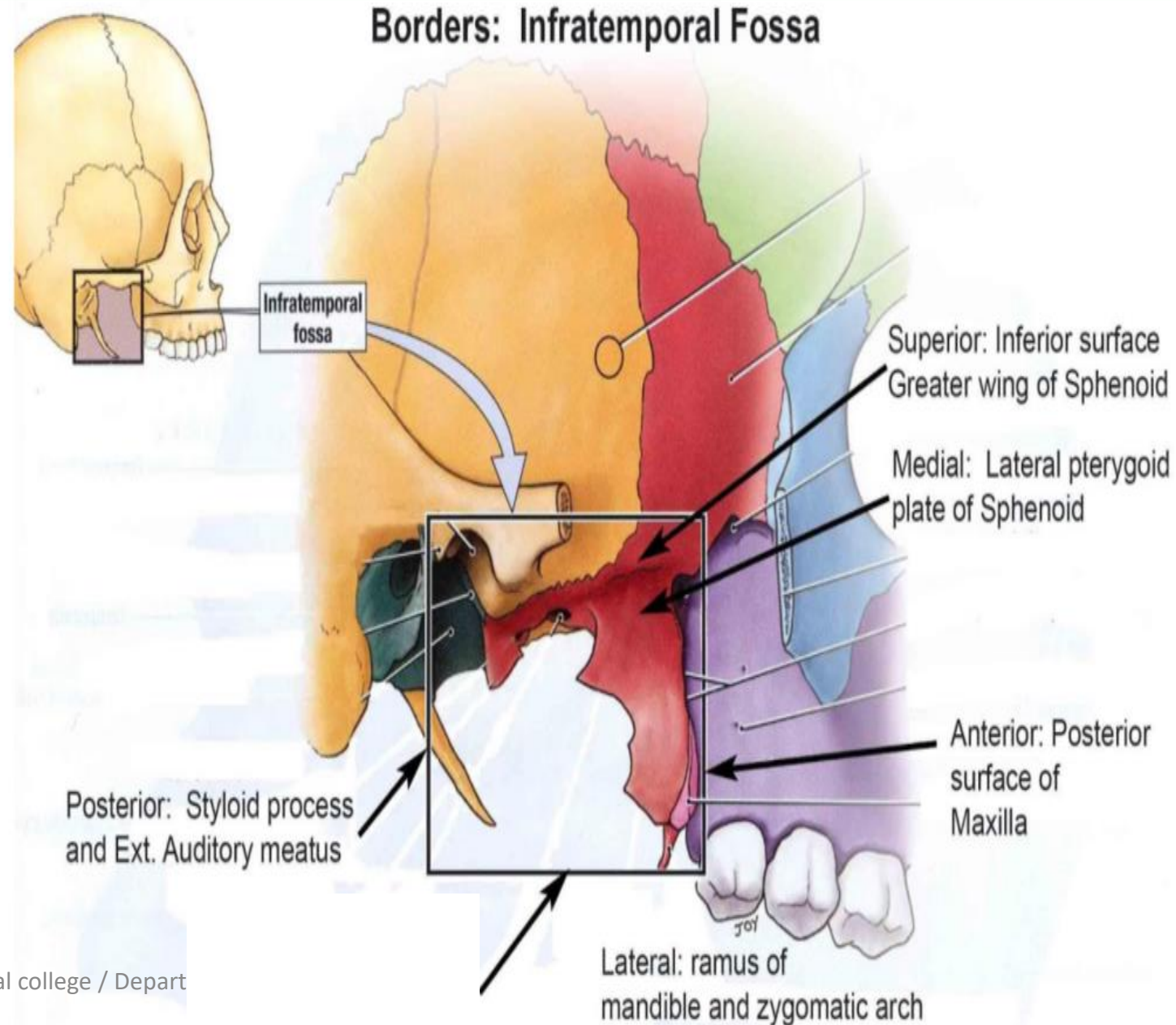
***The fossa is closely associated with both the pterygopalatine fossa, via the pterygomaxillary fissure, and also communicates with the temporal fossa, which lies superiorly .**

***Acts as a conduit for neurovascular structures entering and leaving the cranial cavity.**



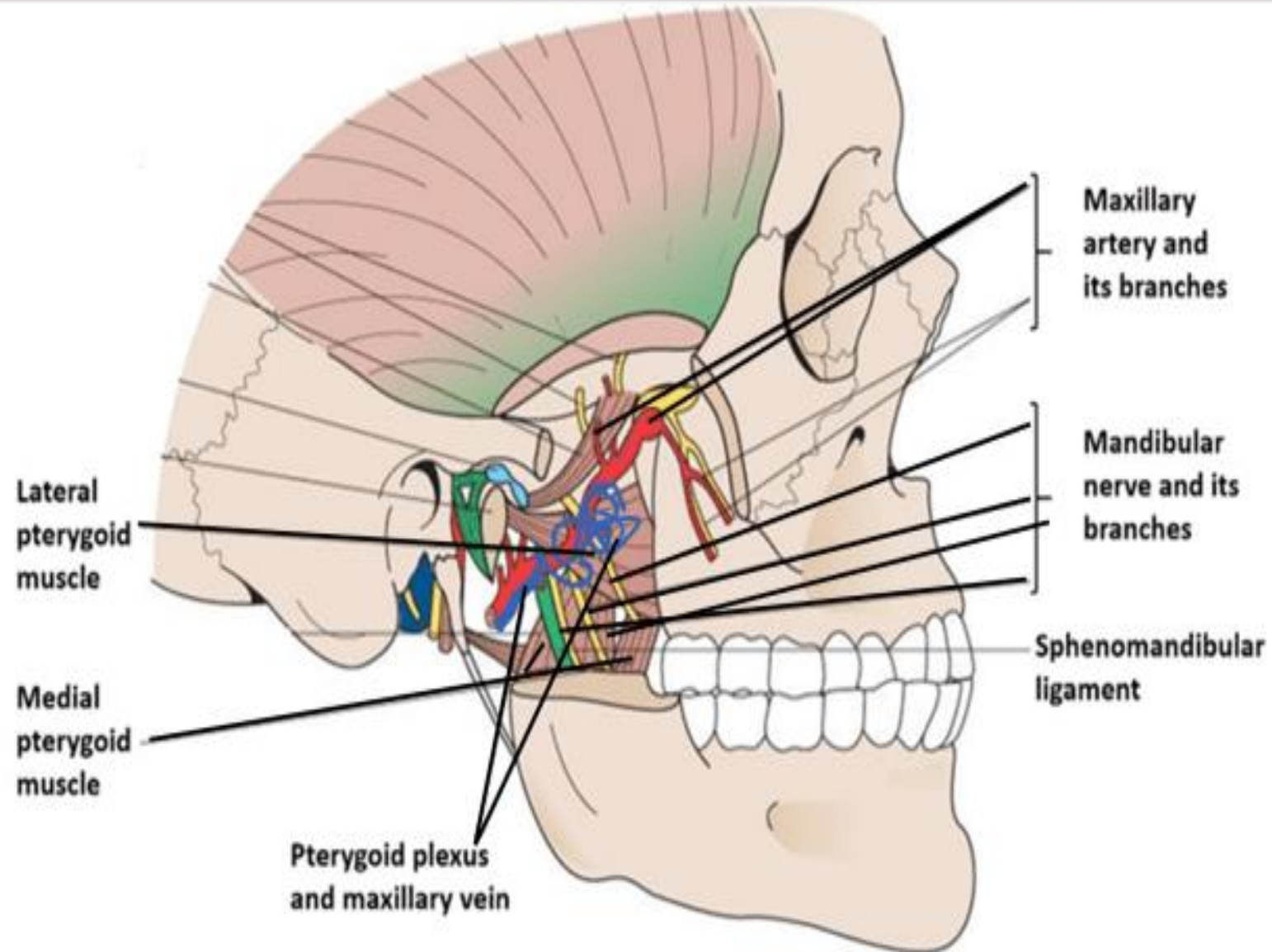
Boundaries

- * **Laterally** - ramus of the mandible and zygomatic arch
- * **Medially** - lateral pterygoid plate
- * **Anteriorly** - posterior border of the maxillary sinus
- * **Posteriorly** - styloid process, external auditory meatus carotid sheath
- * **Superiorly** - greater wing of the sphenoid bone
- * **Inferiorly** - Medial pterygoid muscle.



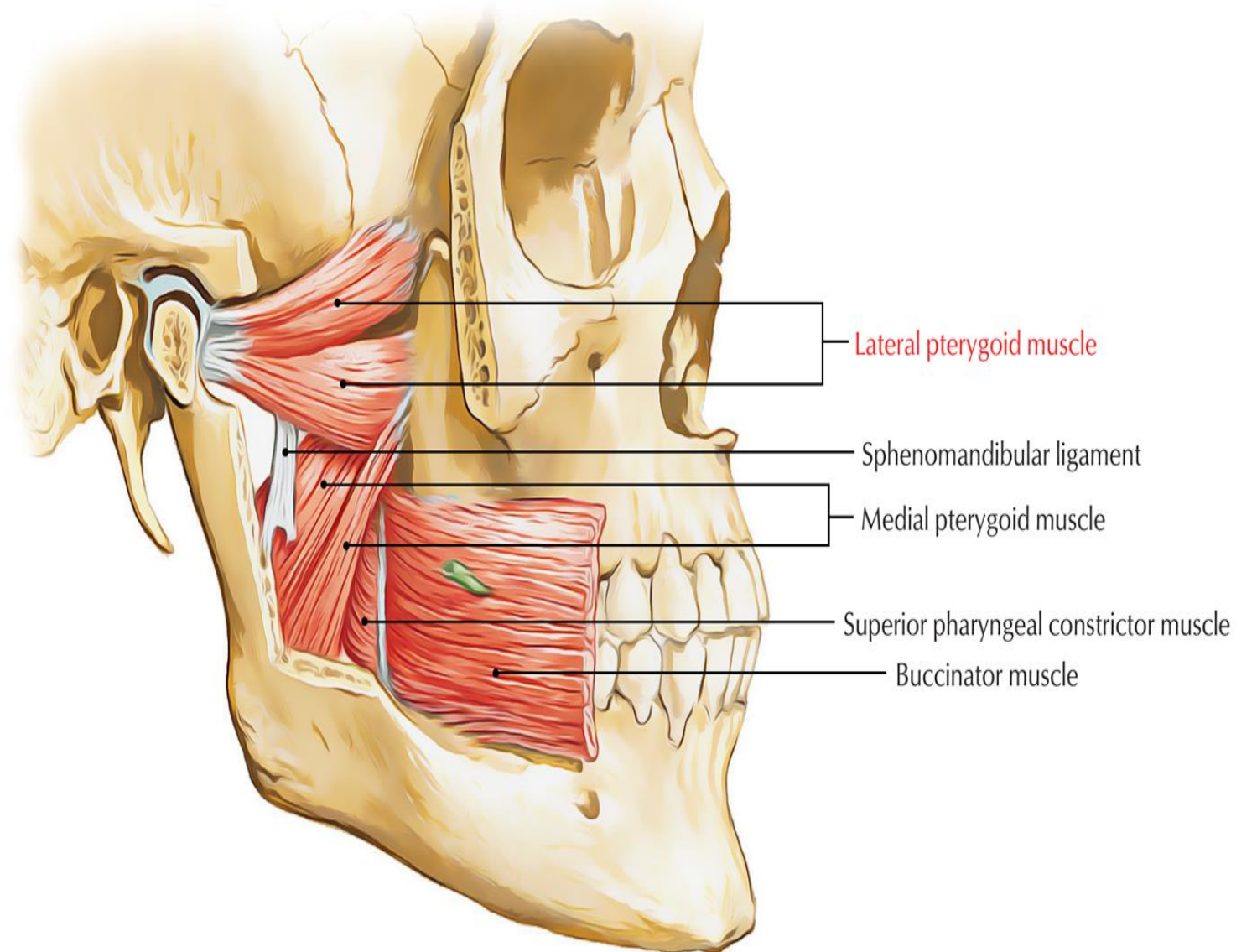
Infratemporal Fossa Contents

- 1) Inferior part of the temporalis muscle
- 2) Lateral and medial pterygoid muscles
- 3) Maxillary artery
- 4) Pterygoid venous plexus
- 5) Mandibular nerve and its branches
- 6) chorda tympani nerves
- 7) Otic ganglion



Pterygoids Muscles

The infratemporal fossa is associated with the muscles of mastication. The medial and lateral pterygoids are located within the fossa itself, whilst the masseter and temporalis muscles insert and originate into the borders of the fossa



Mandibular Nerve

Mandibular nerve is a branch of the trigeminal nerve

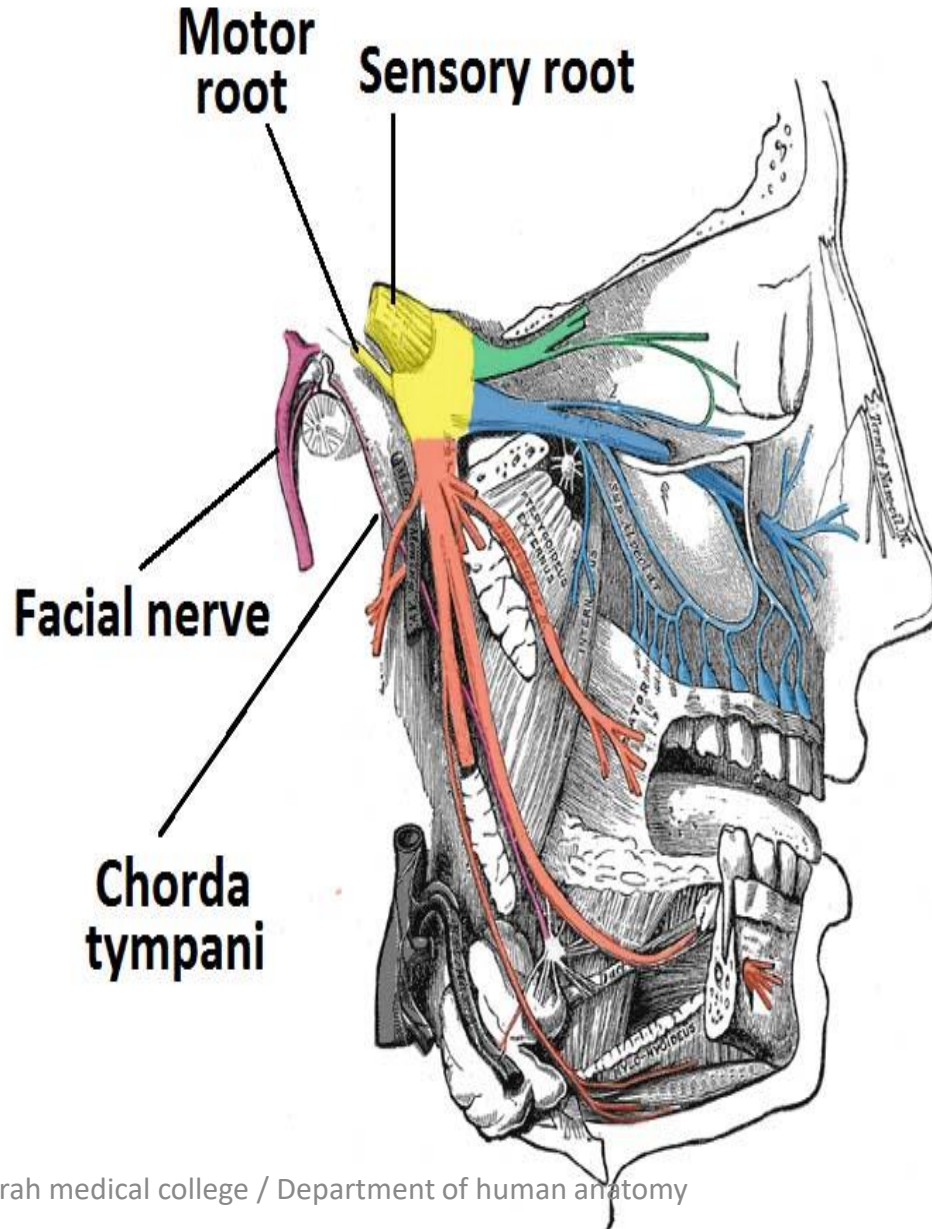
✓ Formed of 2 roots: motor & sensory

✓ Both roots emerge separately through foramen ovale to infratemporal fossa

✓ The 2 roots unite, below foramen ovale

✓ Then divides into two divisions

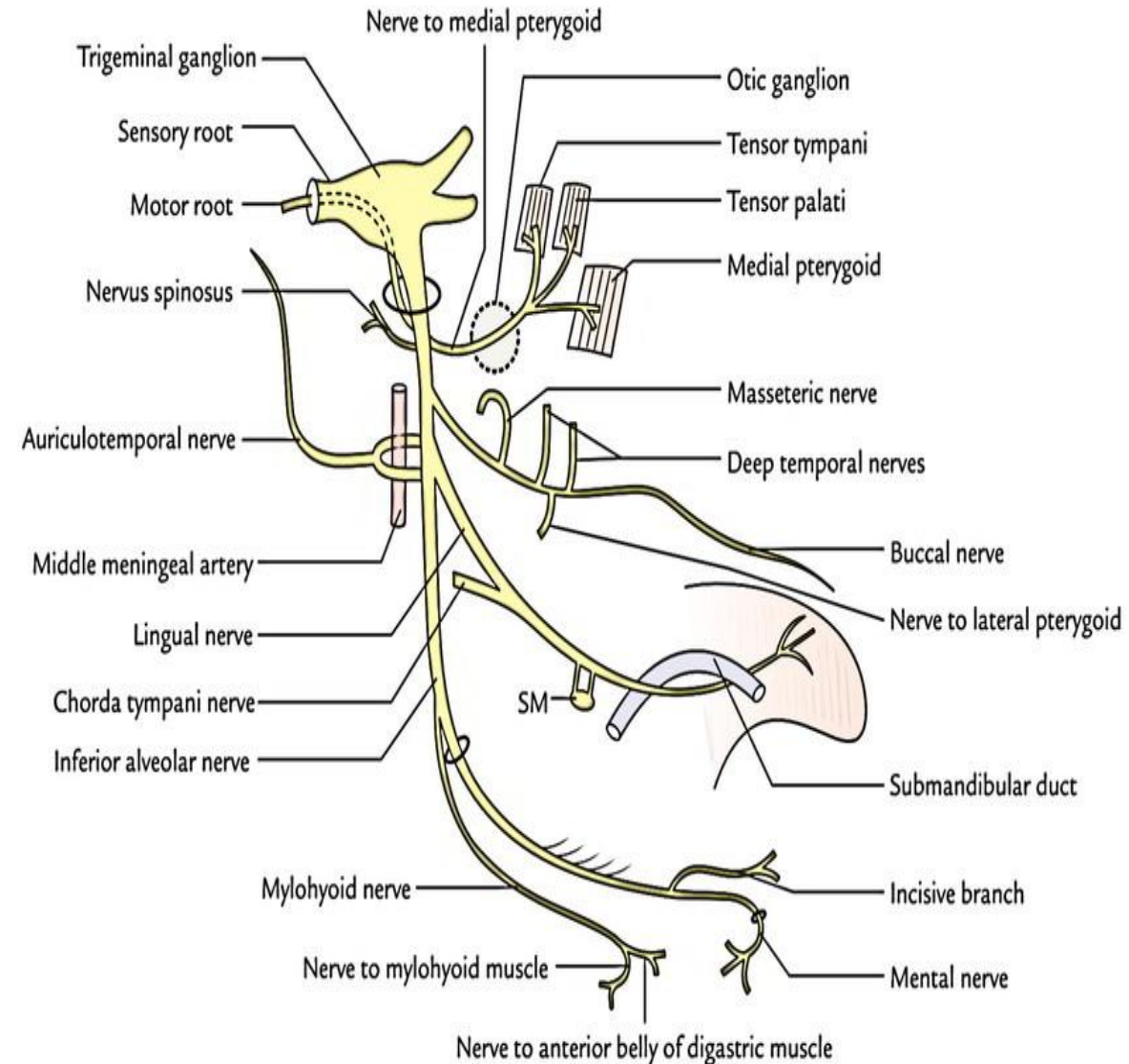
✓ a small anterior
✓ a large posterior



- Ophthalmic (V1)
- Maxillary (V2)
- Mandibular (V3)

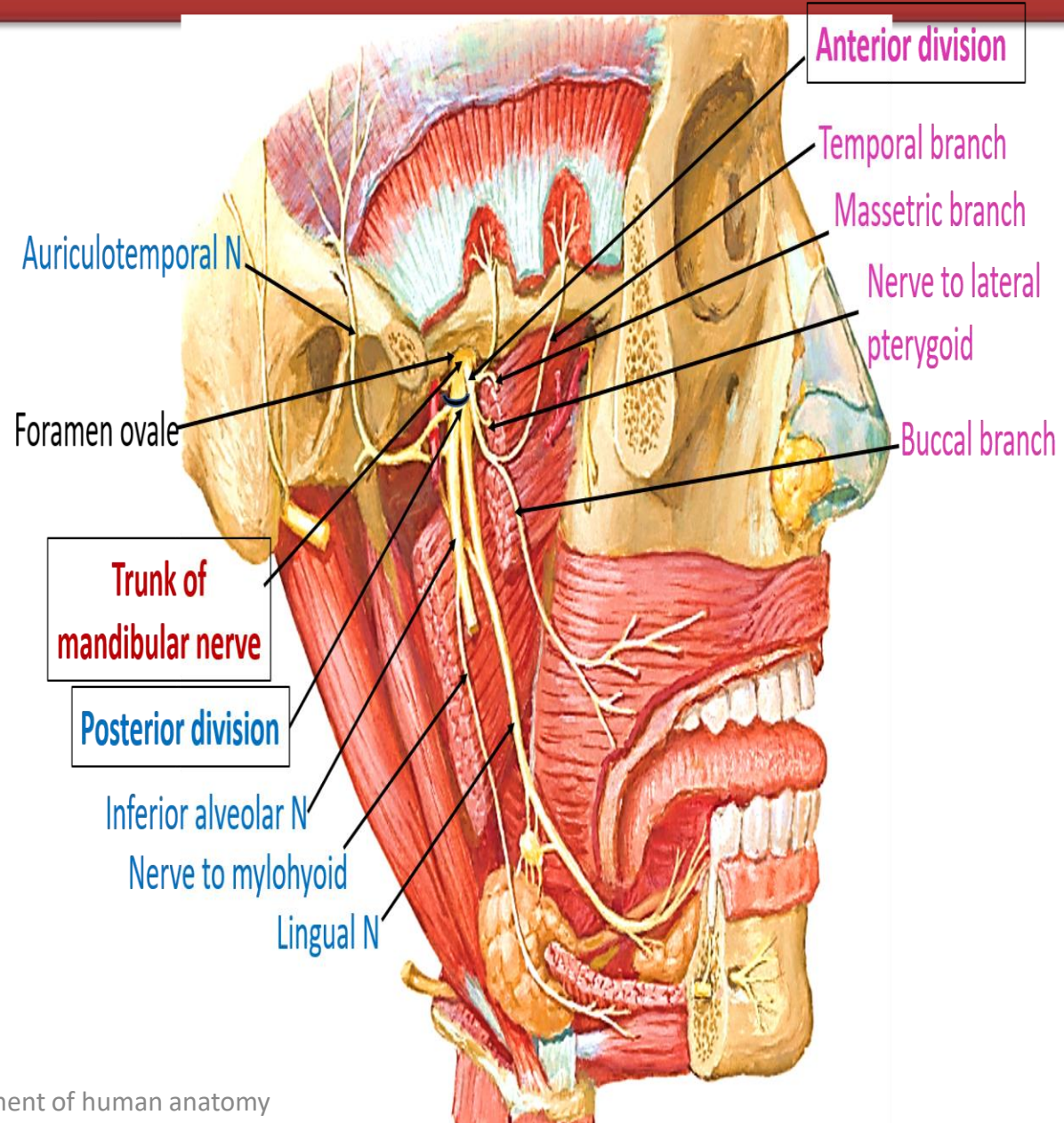
Branches Of Main Trunk Mandibular Nerve

- **Sensory:** meningeal branch (nervus spinosus) passing through foramen spinosum to supply meninges of middle cranial fossa.
- **Motor:** Nerve to medial pterygoid and gives off 2 branches that pass through otic ganglion supply tensor palati & tensor tympani muscles



Branches of anterior division

- 1. Masseteric nerve(motor to masseter muscle)
- 2. Deep temporal nerves anterior and posterior (motor to temporalis muscle)
- 3. Buccal nerve (a sensory nerve to the cheek)
- 4.Motor Nerve to lateral pterygoid muscle

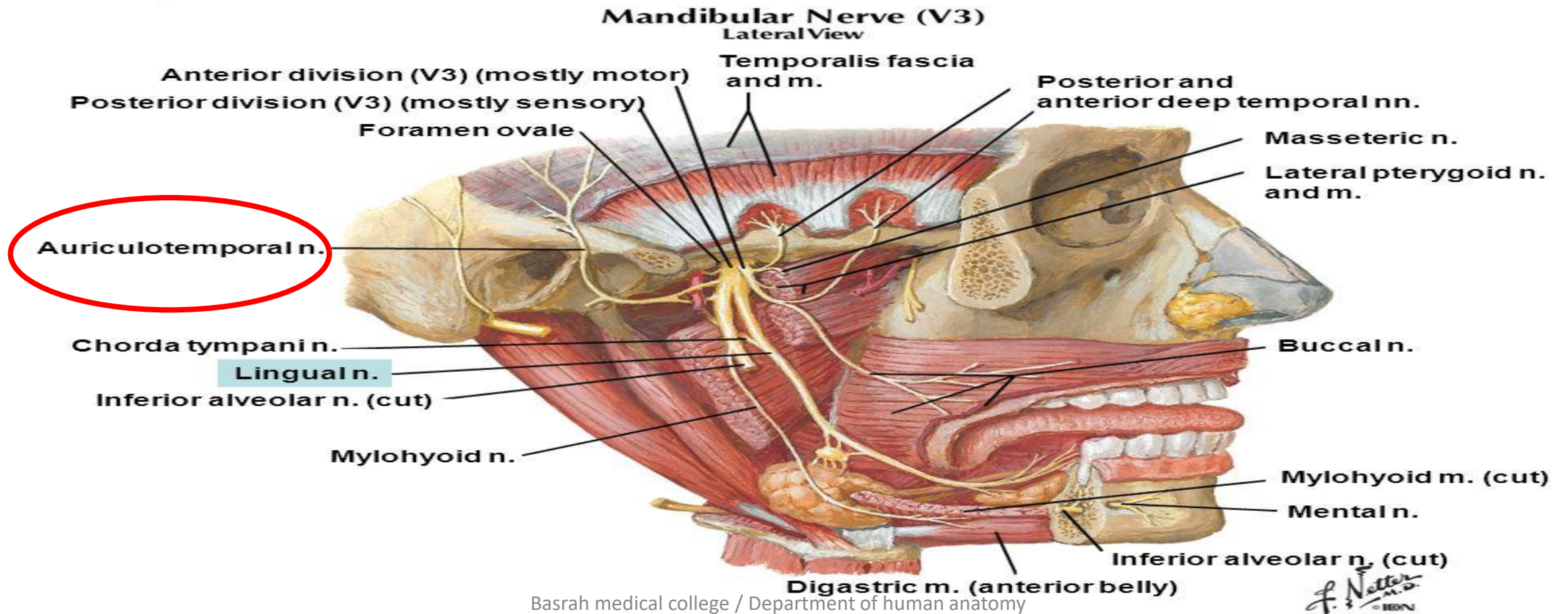


Posterior Division Branches

Four branches (Three sensory and one motor)

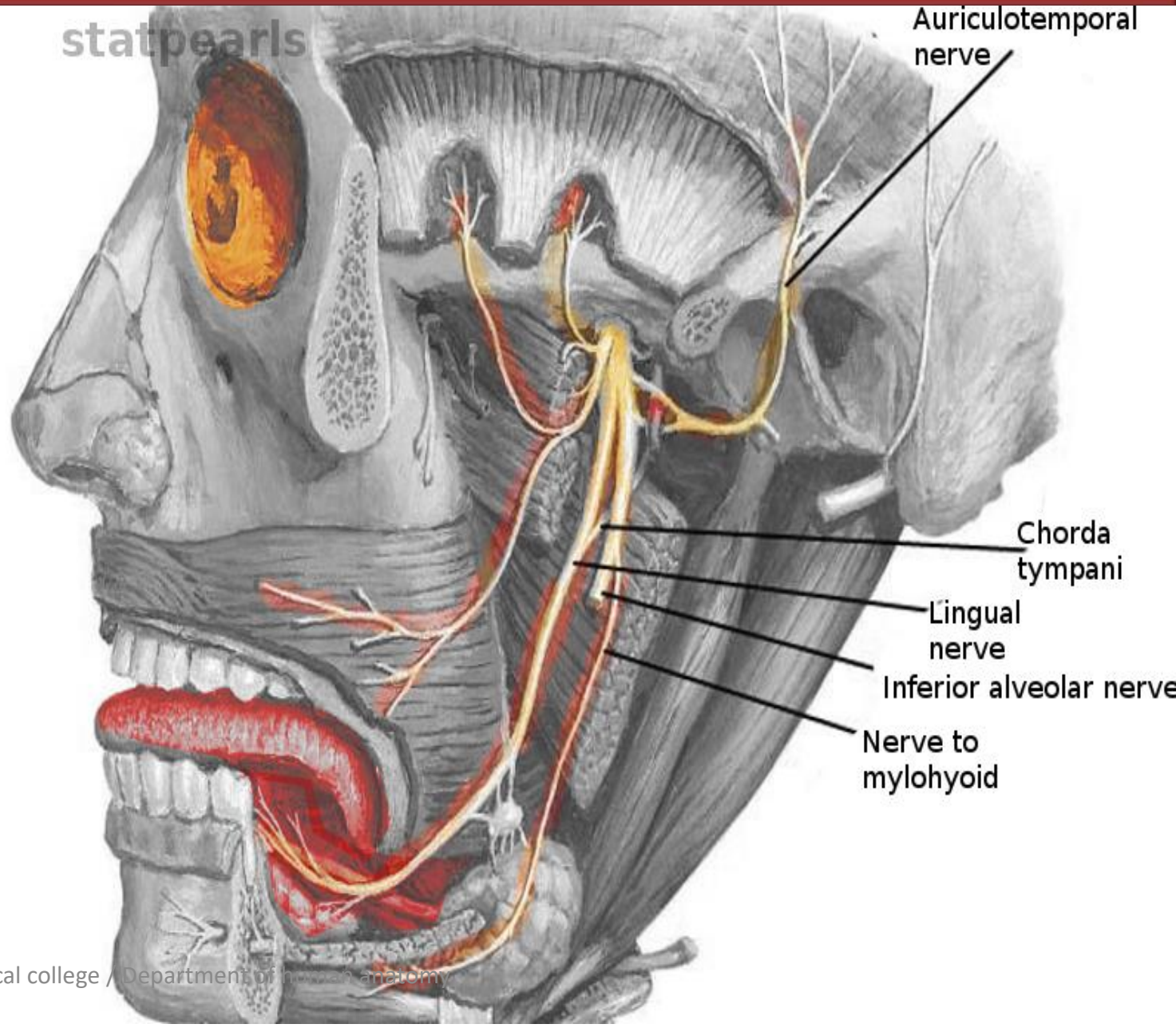
***Sensory**

1. Auriculotemporal nerve:



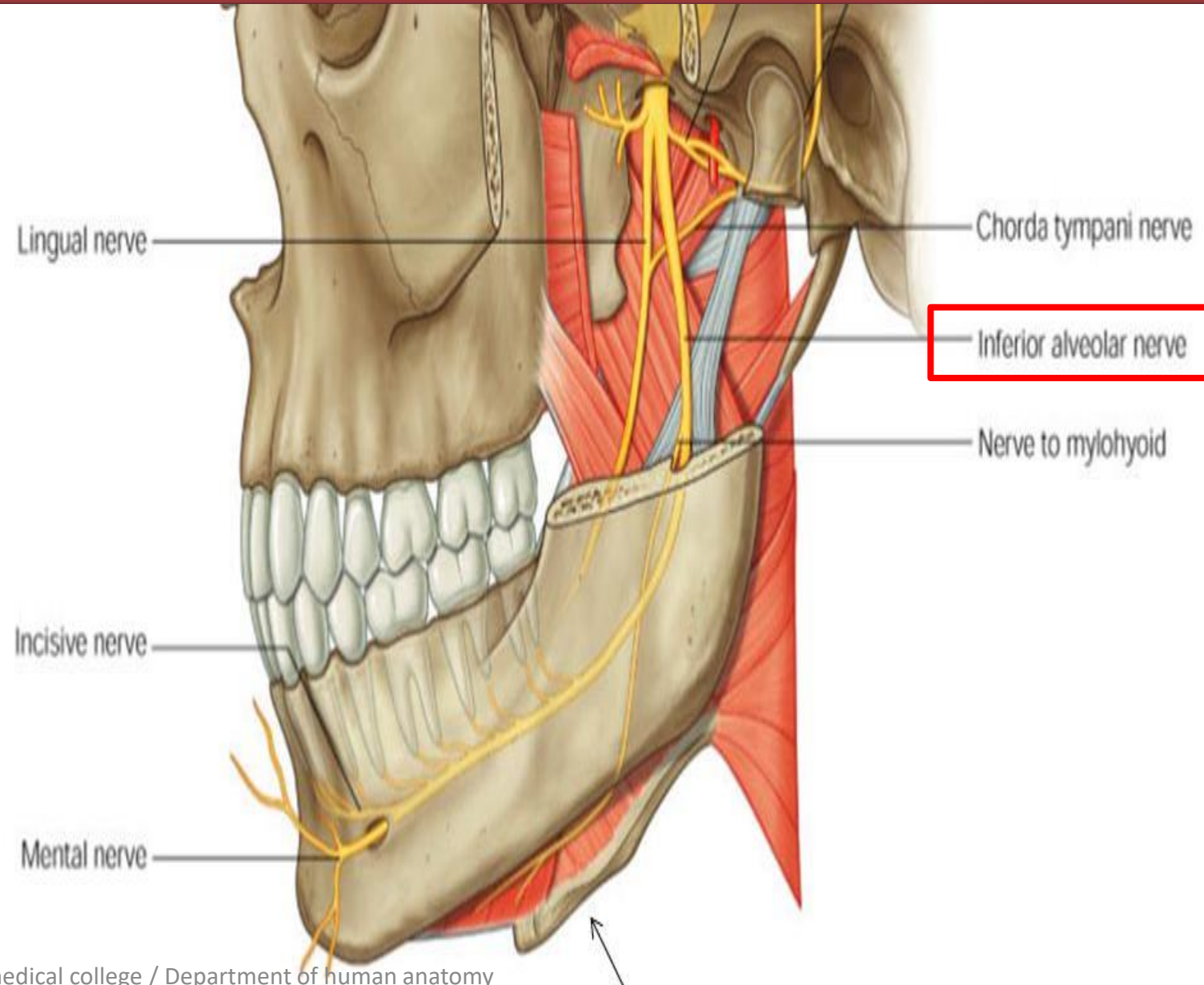
2. Lingual Nerve

- Emerges through lower border of lateral pterygoid then superficial to medial pterygoid muscles.
- Joins chorda tympani branch of facial nerve
- Runs just below 3rd molar tooth)
- Provides General sensation (pain ,touch ,temperature) to the anterior 2\3rd of tongue

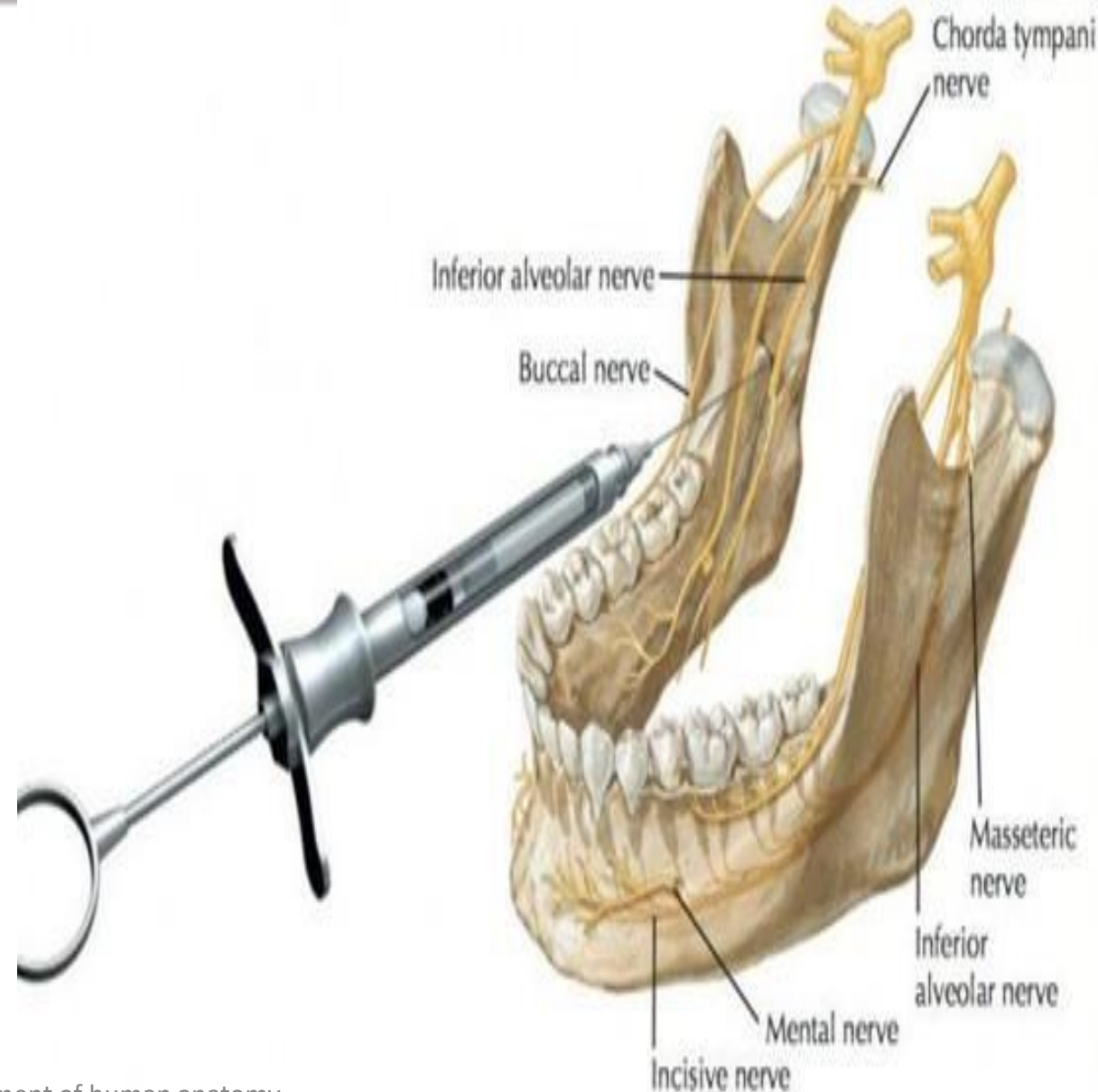


3. Inferior Alveolar Nerve

- Emerges through lower border of lateral pterygoid then superficial to medial pterygoid, behind lingual nerve.
- Passes through mandibular foramen & canal to supply lower teeth.
- Emerges through mental foramen as mental nerve supplying skin of lower lip & chin.

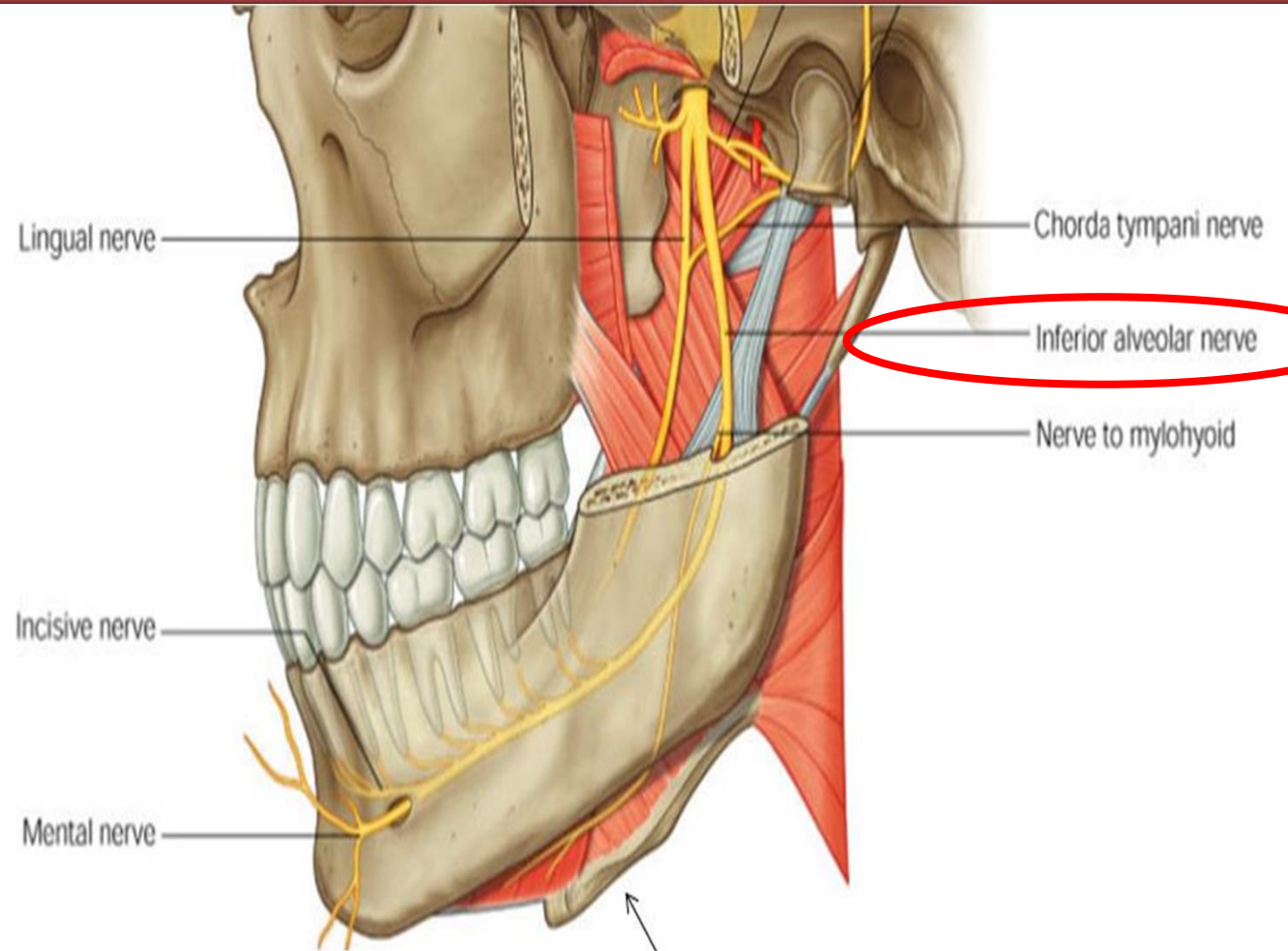


- **Inferior alveolar nerve block, a common procedure in dentistry, involves the insertion of a needle near the mandibular foramen in order to deposit a solution of local anesthetic near to the nerve before it enters the foramen.**



Nerve To Mylohyoid Muscle (Motor)

- **A branch of inferior alveolar nerve just above mandibular foramen**
- **Passes in mylohyoid groove of mandible**
- **Supplies mylohyoid & anterior belly of digastric muscles**



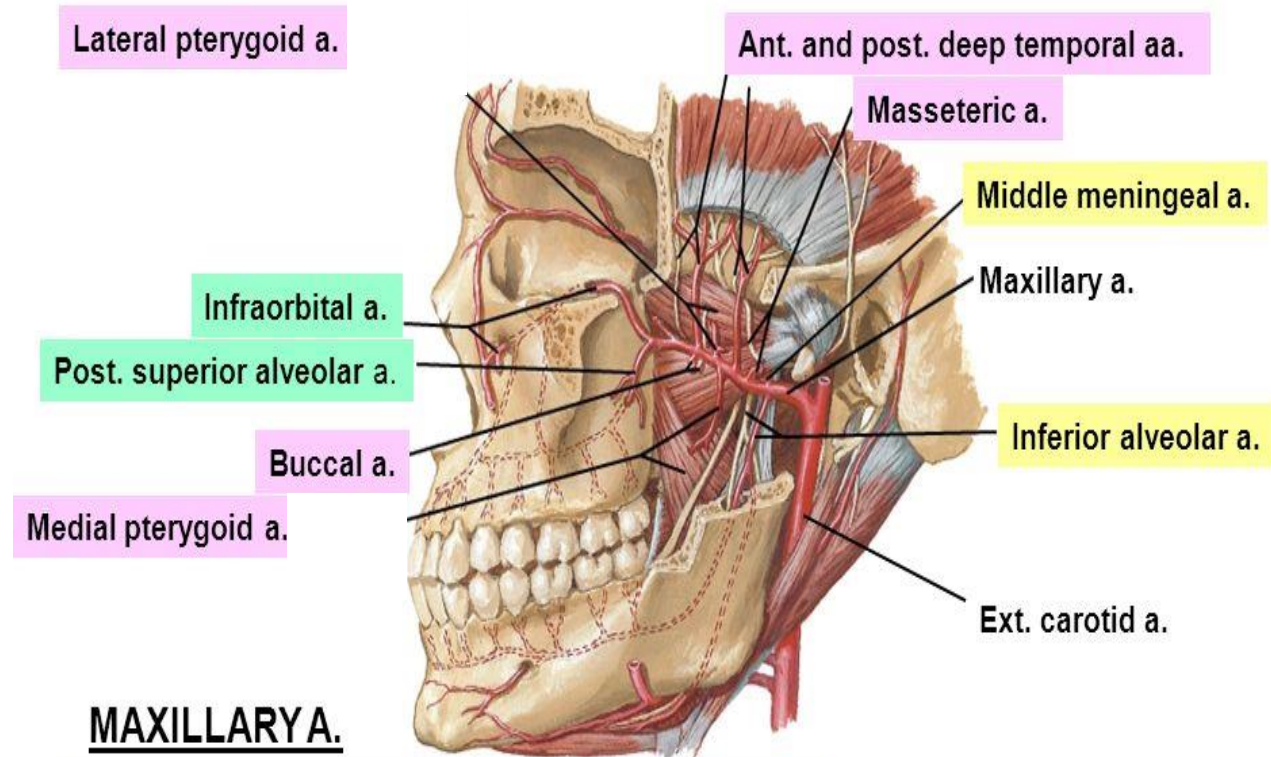
Nerve to
mylohyoid
muscle

Maxillary artery

- is the larger of the two terminal branches of the external carotid artery.
- Arises posterior to the neck of the mandible and is divided into 3 parts based on its relation to the lateral pterygoid muscle.

- *1st (mandibular) part: Deep to the condyle of mandible
- *2nd (pterygoid) part: Neighbourhood of lateral pterygoid muscle
- *3rd (pterygopalatine) part: Inside the infratemporal fossa (extends into the pterygopalatine fossa).

MAXILLARY ARTERY



MAXILLARY A.

BRANCHES OF 1ST (MANDIBULAR) PART

BRANCHES OF 2ND (PTERYGOID) PART

BRANCHES OF 3RD (PTERYGOPALATINE) PART

Chorda tympani nerve

A branch of Facial nerve 7th cranial nerve.

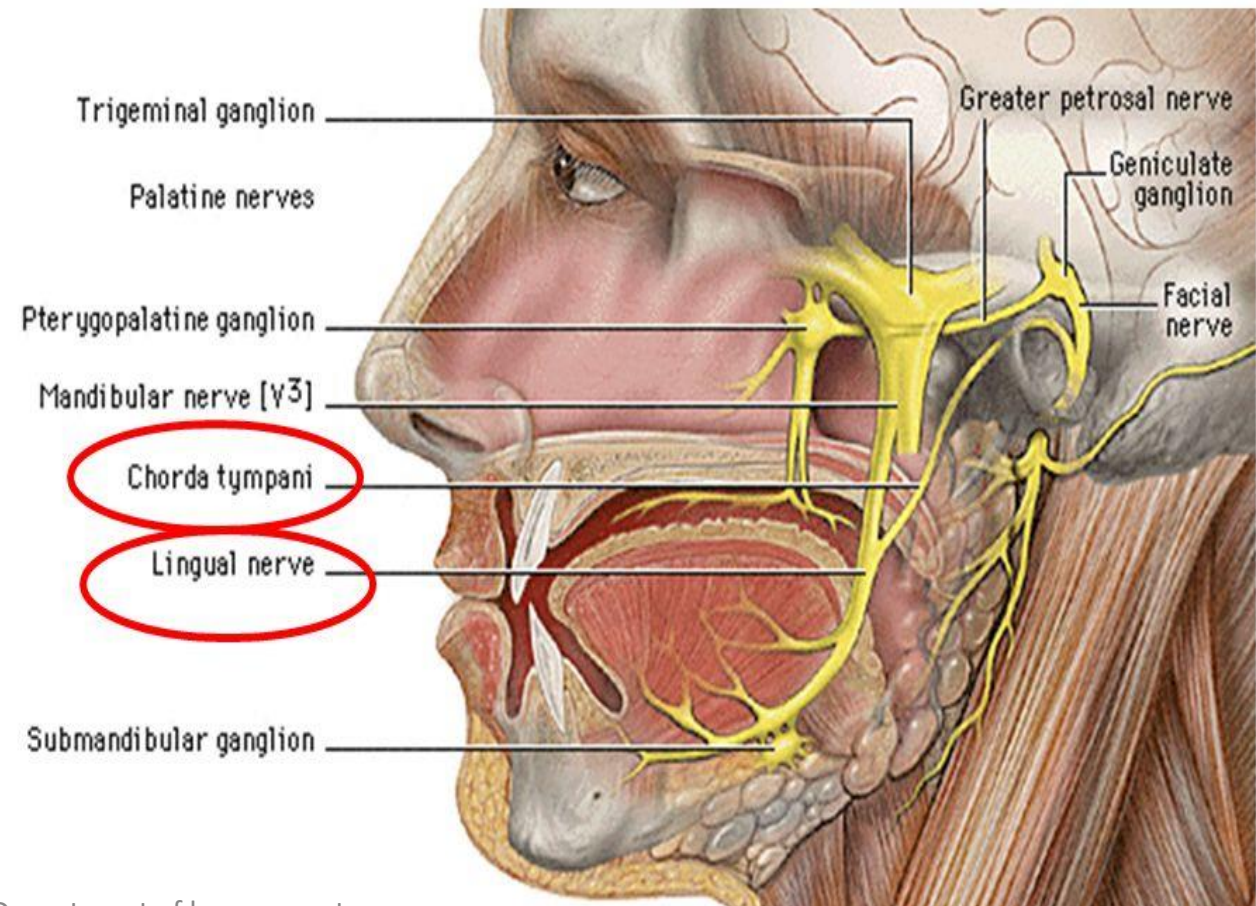
*Provides taste fibers to the anterior two thirds of the tongue.

➤ Joins the lingual nerve in the infratemporal fossa.

➤ Also carries secretomotor fibers for the submandibular & sublingual salivary glands.

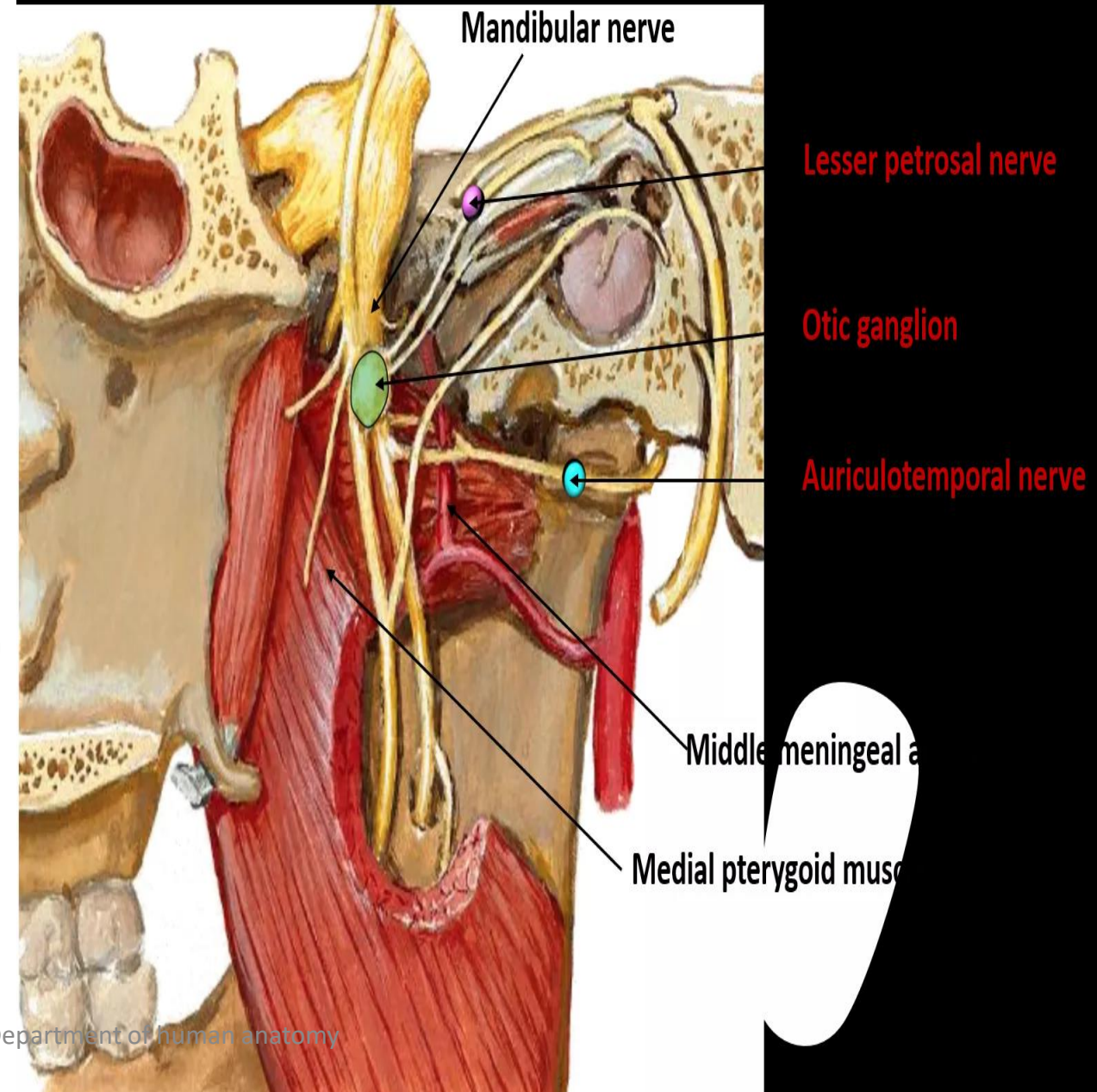
Innervation of the Tongue

- chorda tympani nerve - branch of CN VII
- The chorda tympani joins the lingual nerve and runs anteriorly in its sheath.



Otic ganglion (parasympathetic)

- is one of four parasympathetic ganglia of the head and neck.
- It receives parasympathetic fibers from the glossopharyngeal nerve.
- It is located immediately below the foramen ovale in the infratemporal fossa and on the medial surface of the mandibular nerve.
- parasympathetic fibers, secretory to the parotid gland, pass from the otic ganglion to this gland through the auriculotemporal nerve.

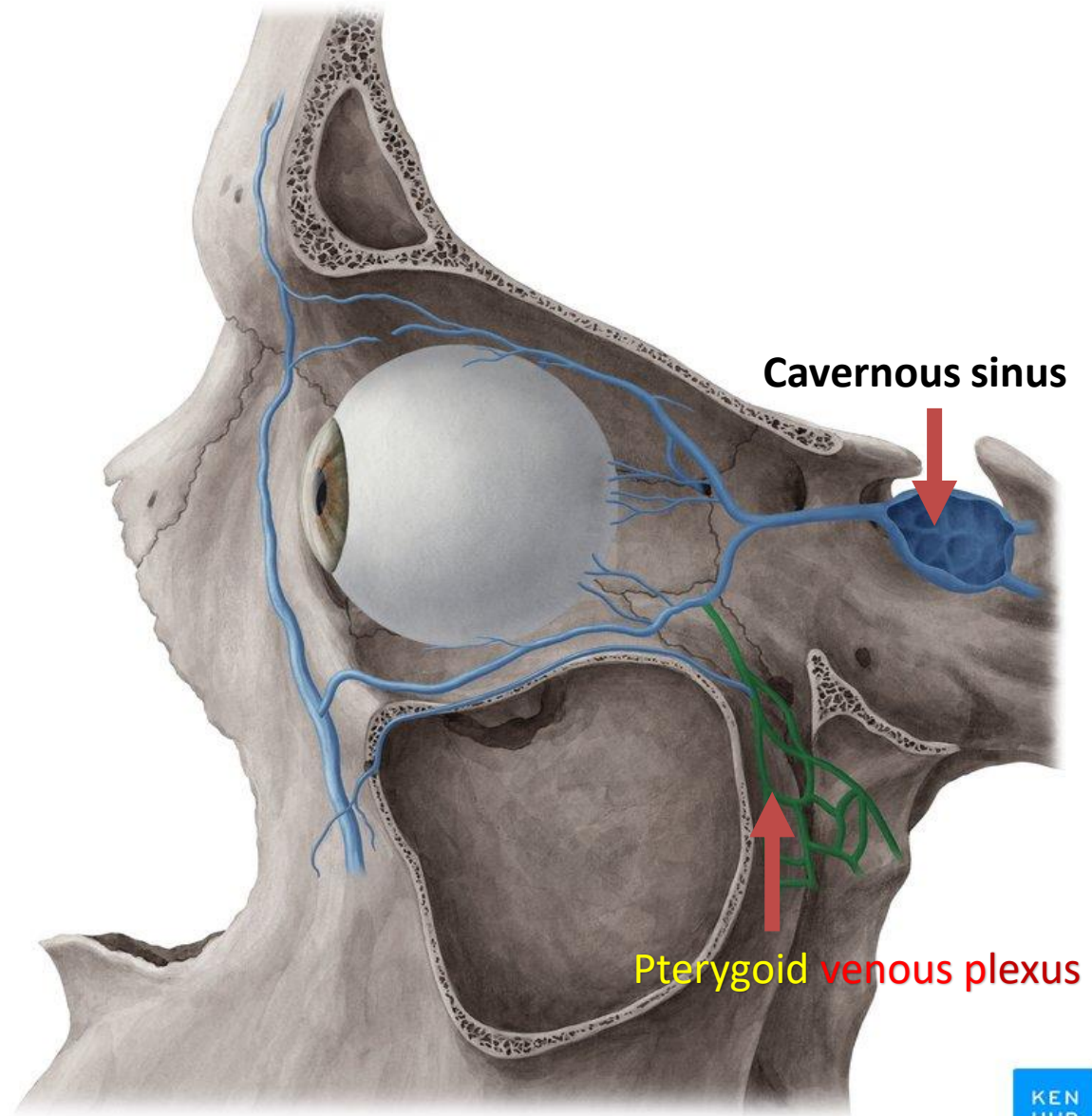


Pterygoid venous plexus

The pterygoid venous plexus is consisted of a small veins connected together and it is directly connected to the cavernous sinus

Clinical note :

Infections of the skin of face and eye socket are able to track back into this plexus within the fossa and up into the cavernous sinus, causing cavernous venous thromboses and making meningitis is a substantial risk.



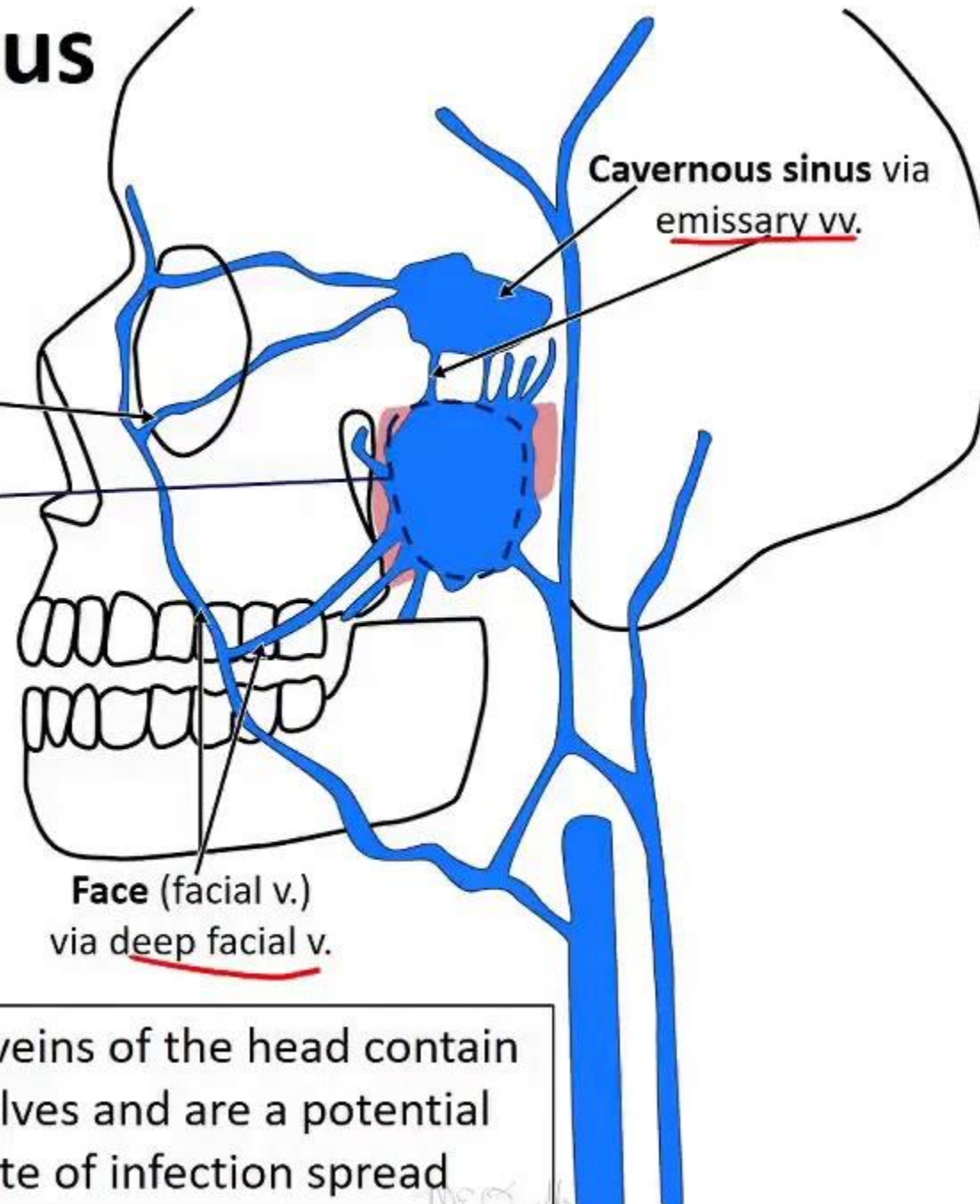
Pterygoid Venous Plexus

Communications with the orbit,
cavernous sinus, & face

Orbit via
inferior ophthalmic v.

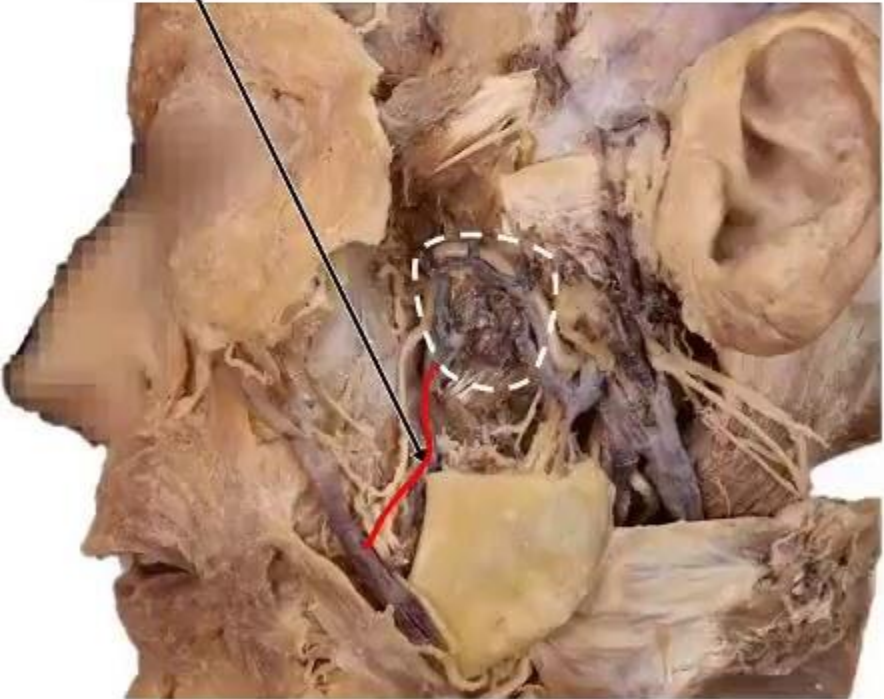
Pterygoid venous plexus

Deep facial v.



Cavernous sinus via
emissary vv.

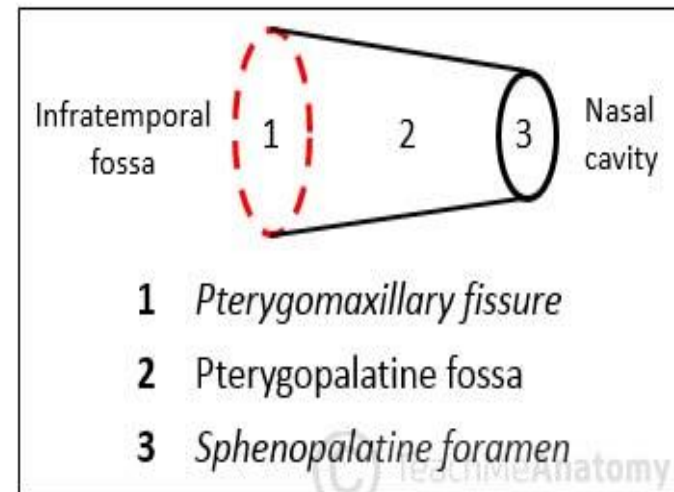
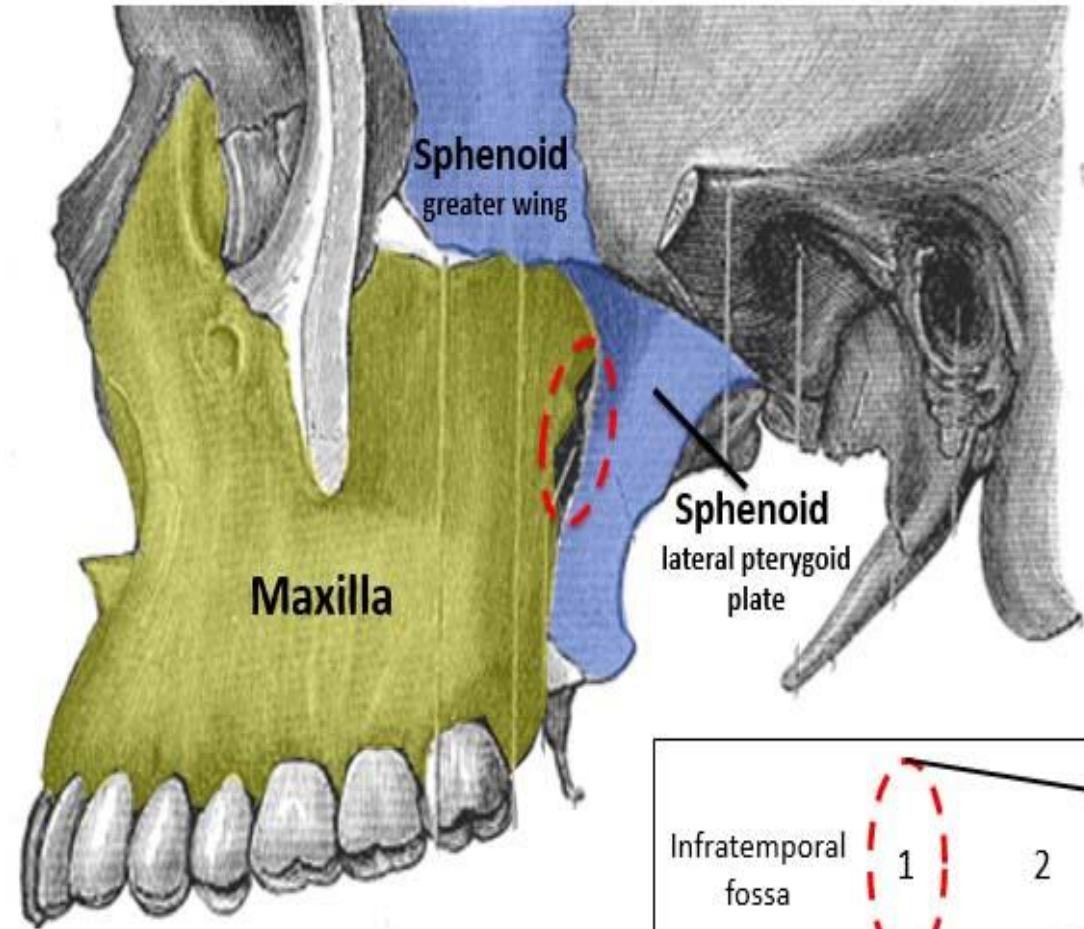
Face (facial v.)
via deep facial v.



Many veins of the head contain
no valves and are a potential
route of infection spread

Pterygopalatine fossa

The pterygopalatine fossa It is a bilateral, cone-shaped depression extending deep from the infratemporal fossa all the way to the nasal cavity via the sphenopalatine foramen. It is located between the maxilla, sphenoid and palatine bones, and communicates with other regions of the skull and facial skeleton via several canals and foramina.



Pterygoplatine fossa

**It is bordered by
palatine, maxilla
and sphenoid
bones**

