

MUSCULOSKELETAL SYSTEM

PTERYGOPALATINE FOSSA

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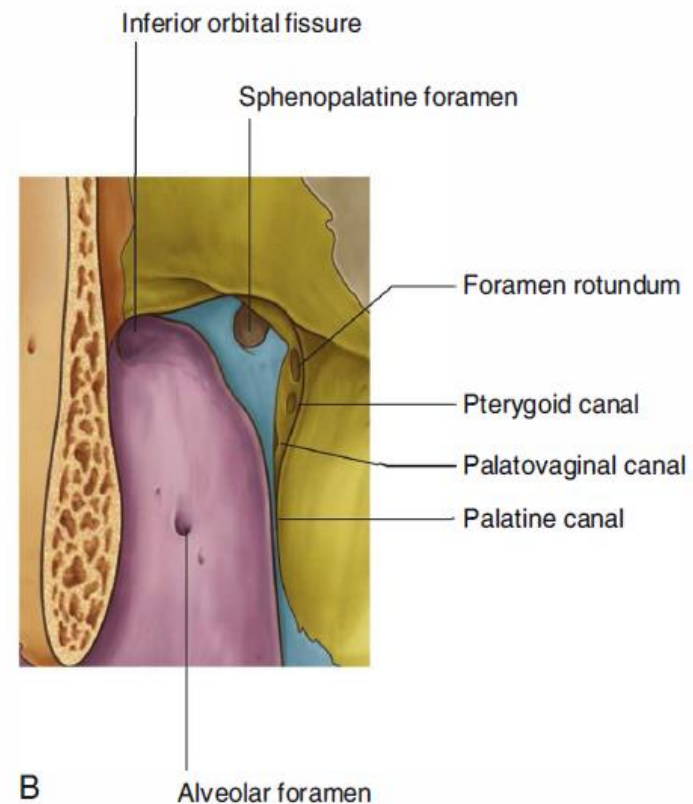
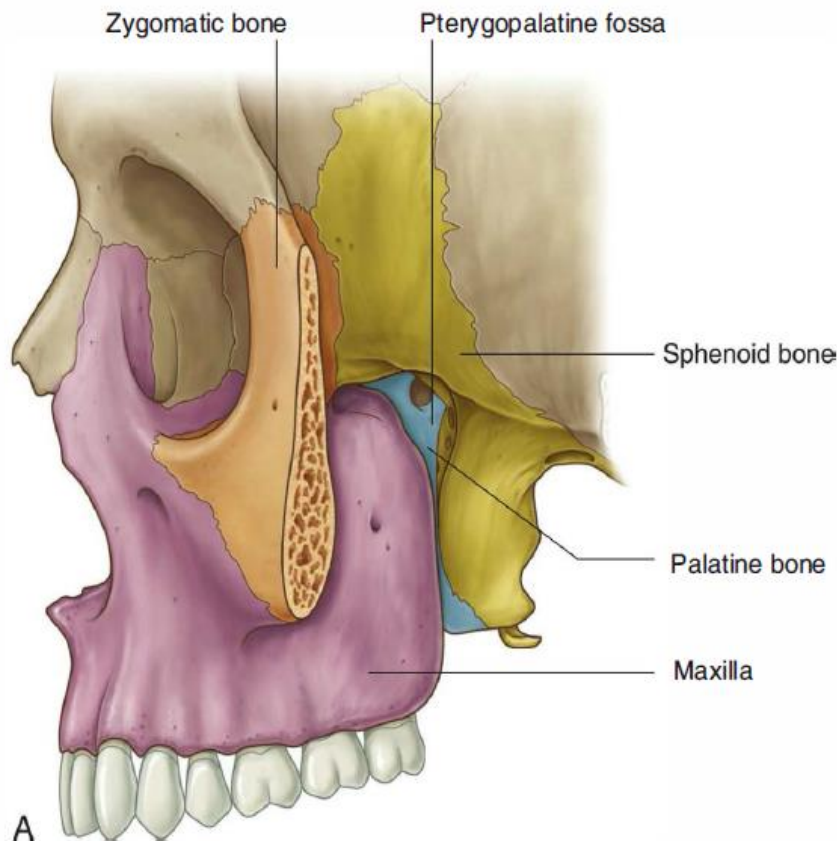
**College of Medicine / The Hashemite
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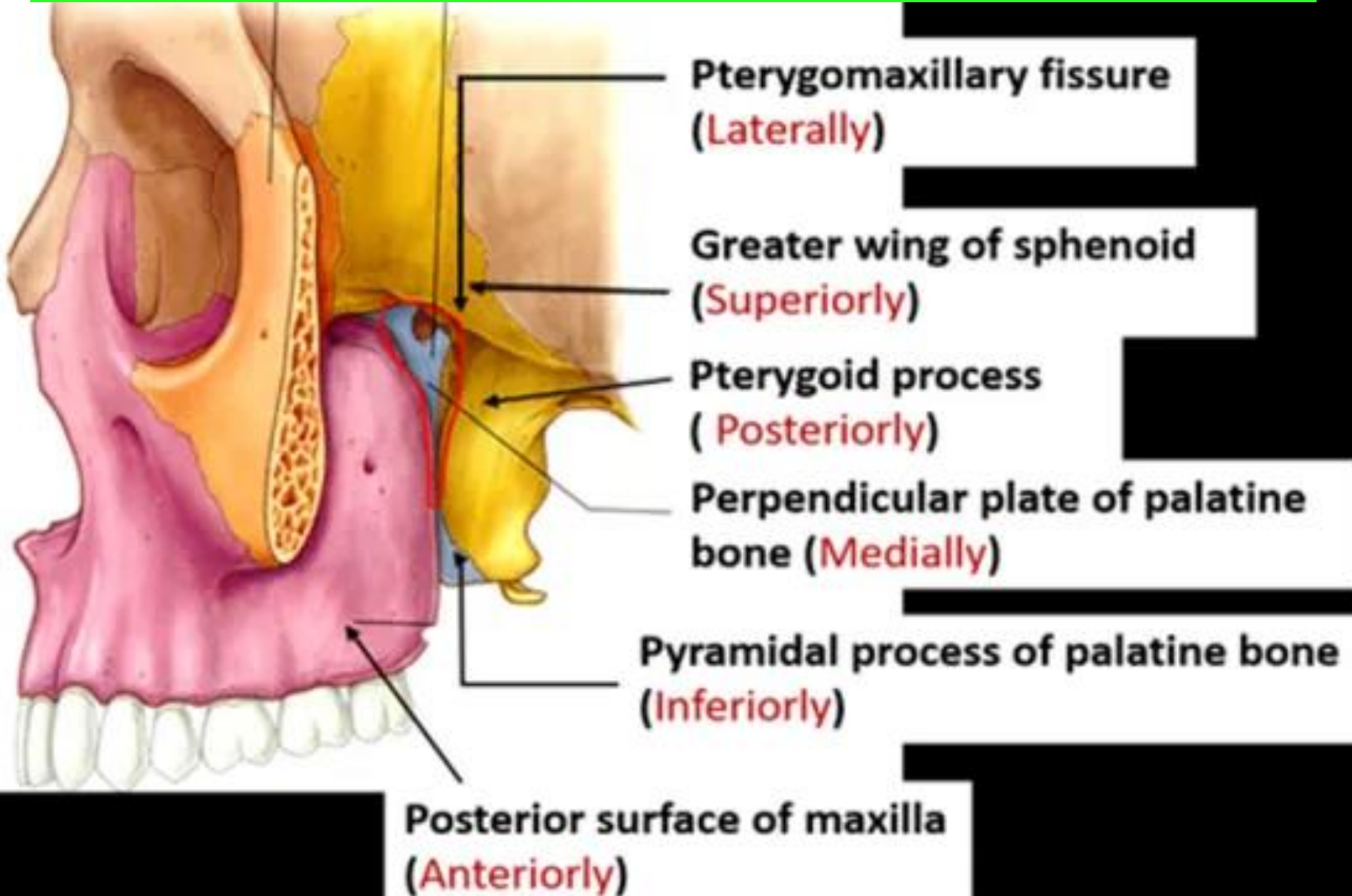
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Pterygopalatine Fossa

- The pterygopalatine fossa is a small pyramidal space inferior to the apex of the orbit (behind and below the orbital cavity) between the pterygoid process of the sphenoid bone, maxilla and palatine bone.

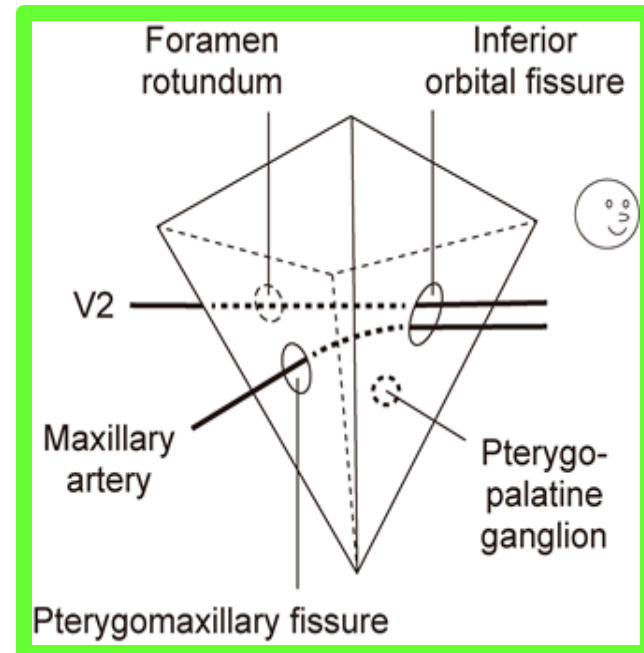


Pterygopalatine Fossa boundaries

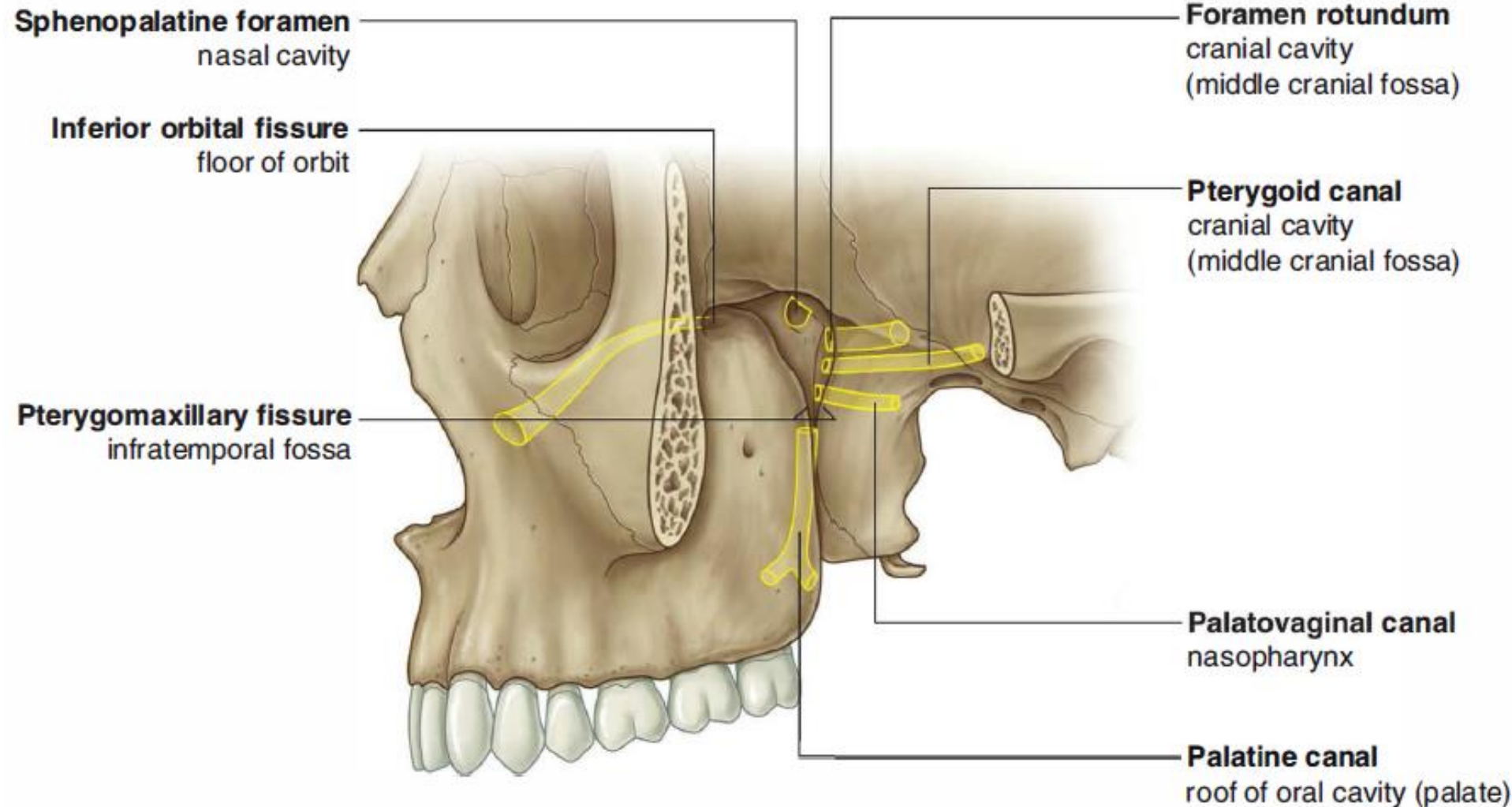


Pterygopalatine Fossa Communications

- **Anterosuperiorly** with the orbit through the inferior orbital fissure.
- **Posterosuperiorly** with the middle cranial fossa through the foramen rotundum and pterygoid canal
- **Medially** with the nasal cavity through the sphenopalatine foramen.
- **Laterally** with the infratemporal fossa through the pterygomaxillary fissure.
- **Inferiorly** with oral cavity through the palatine foramina

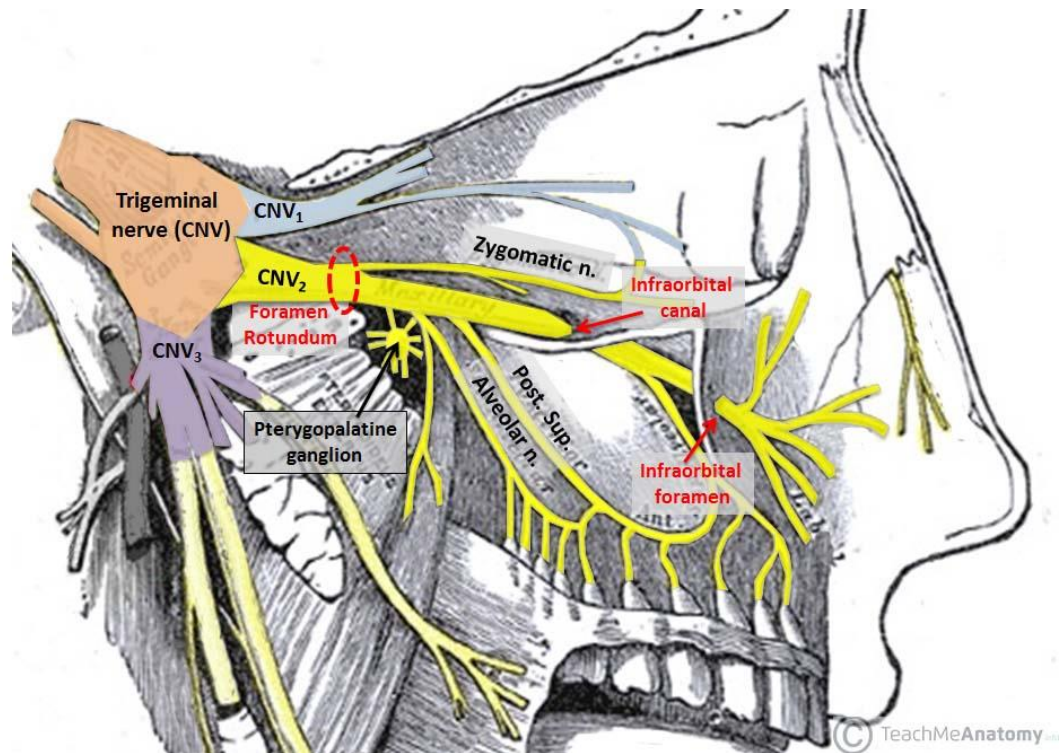


Pterygopalatine Fossa communications



Pterygopalatine Fossa Contents

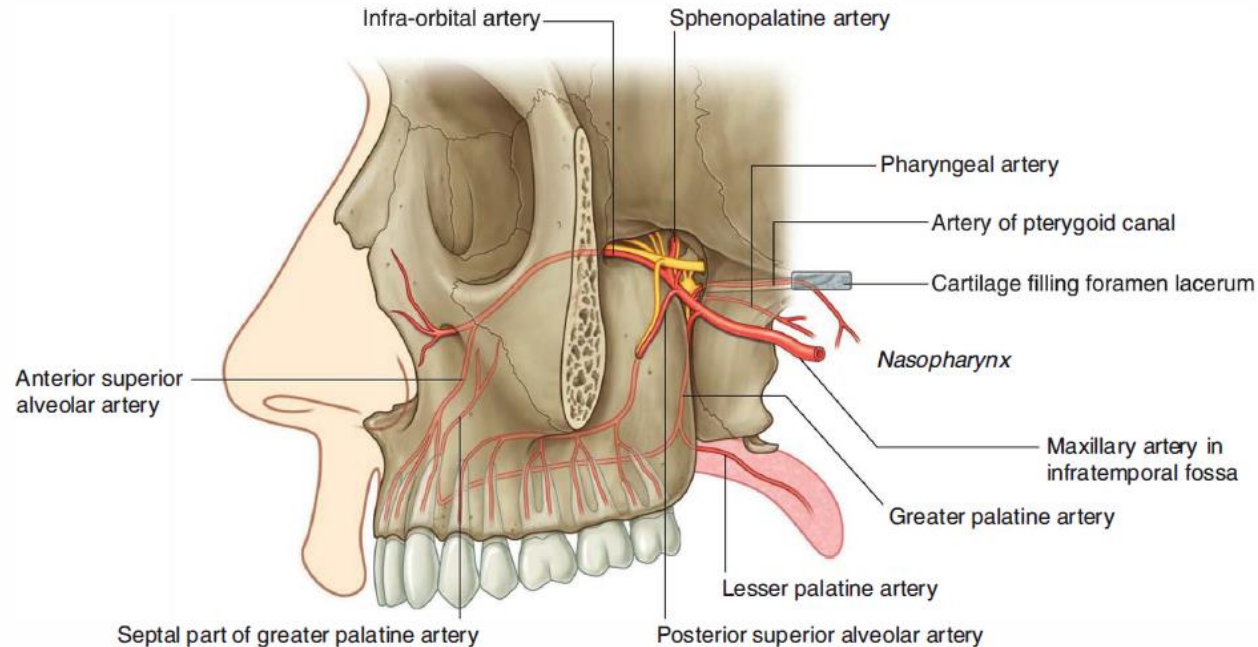
1. **Maxillary Artery:** Terminal (pterygopalatine or third part)
2. **Maxillary nerve,** with which are associated the:
 - a. **Nerve of the pterygoid canal**
 - b. **Pterygopalatine ganglion.**



Pterygopalatine Fossa Contents

Maxillary Artery 3rd Part

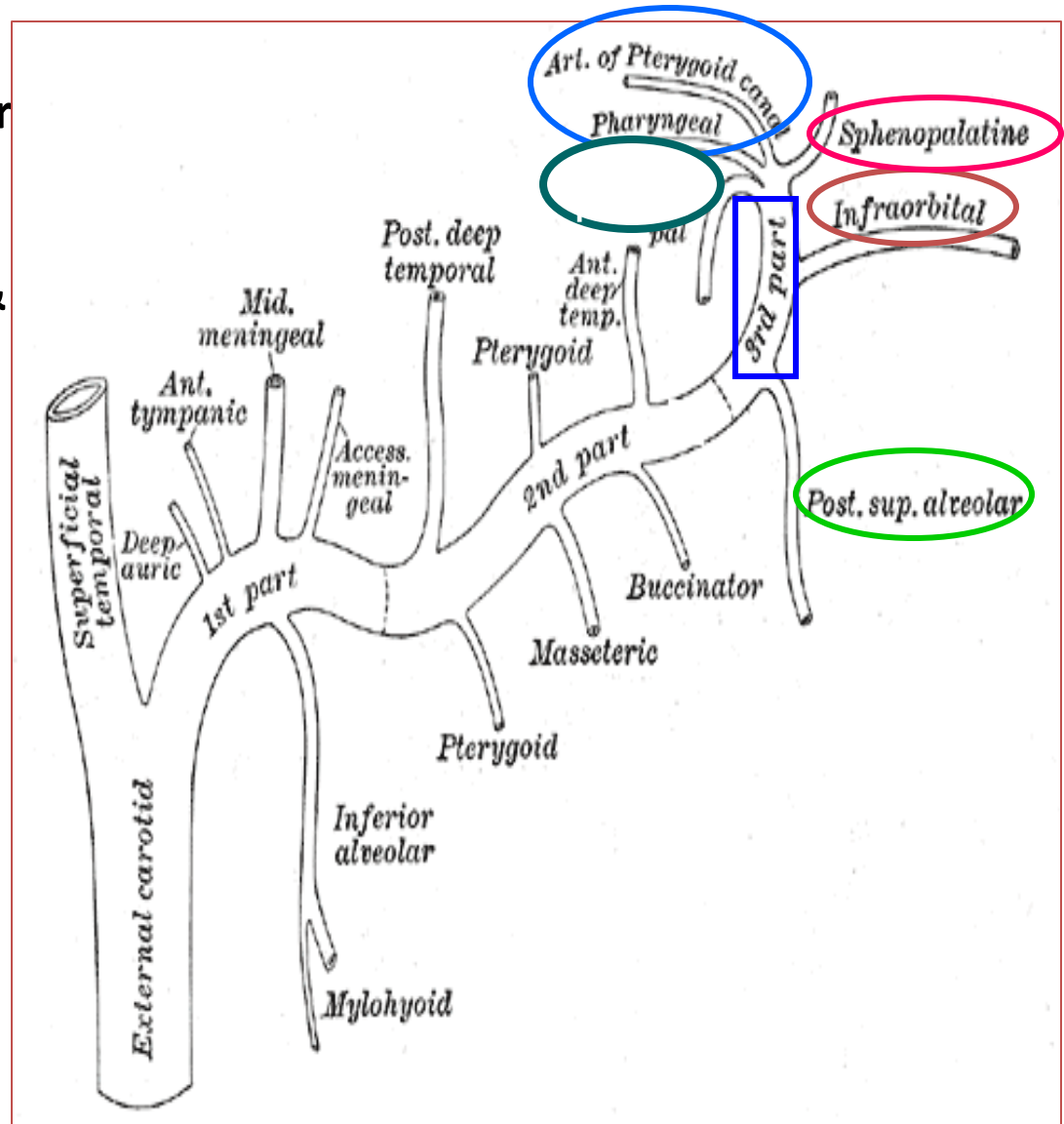
- **The 3rd part of the maxillary artery** enters the fossa through the **pterygomaxillary fissure**
- It lies anterior to the pterygopalatine ganglion
- It gives rise to **six branches** that accompany all nerves in the fossa with the same names.



Branches of maxillary artery

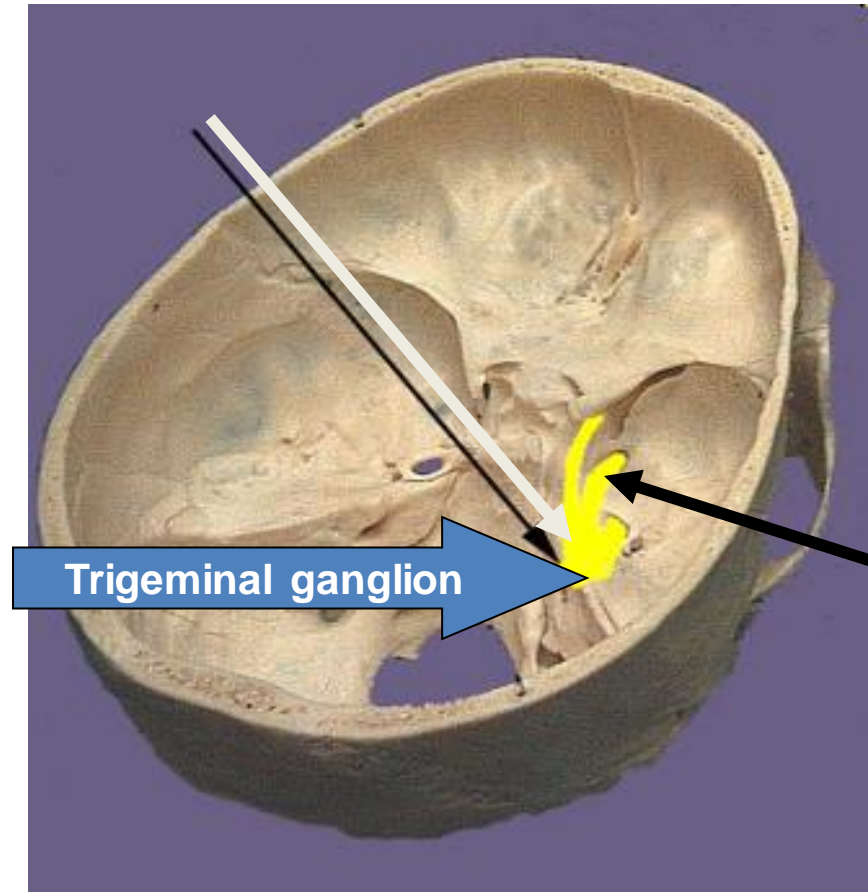
@ Branches of 3rd part :

1. Post. sup. Alveolar A. → upper molars & premolars.
2. Infraorbital A. → infraorbital foramen → upper incisors & canines.
3. Sphenopalatine A. → nose.
4. To nasopharynx & auditory tube → Artery of pterygoid canal & pharyngeal branches.
5. Greater & lesser palatine As. → upper gums & roof of mouth.



Maxillary Nerve

- @ It is a Purely sensory nerve.
- @ It arises from Trigeminal ganglion.
- @ Runs in lat. wall of cavernous sinus.
- @ Passes through foramen rotundum to reach the pterygopalatine fossa.



Branches of maxillary nerve

(A) In cranial cavity:

1. **Meningeal branch** → to dura mater.

(B) In pterygopalatine fossa:

1. **Two Ganglionic branches** to suspend pterygopalatine ganglion.

2. **Zygomatic N.** → enters the orbit through the inferior orbital fissure & divides into:

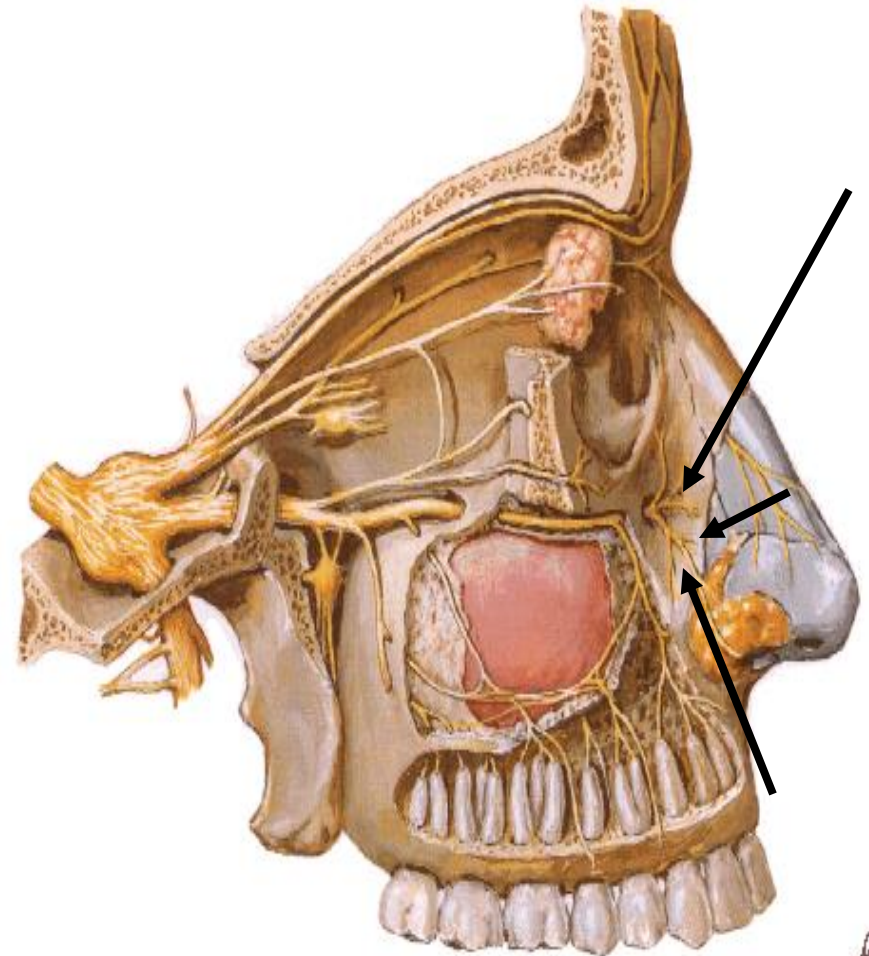
a. **zygomaticotemporal nerve:**

gives a communicating br. to lacrimal N. & gland & exits through its F. → to supply skin of non-hairy part of temple.

b. **zygomaticofacial nerve:** exits through its F. → to supply skin of cheek.

3. **Post. sup. Alveolar N.** → to supply upper molars & its related gums.

4. **Infraorbital nerve:** inferior orbital fissure



Branches of maxillary nerve

(C) In infraorbital groove:

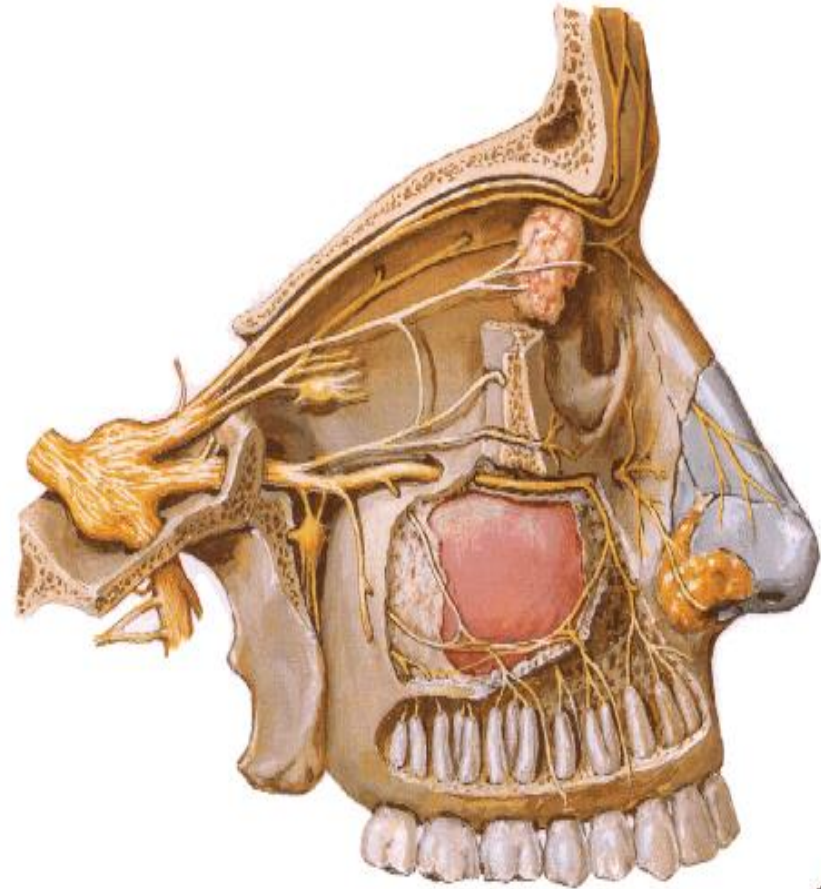
- * Middle sup. Alveolar → descends in lat. Wall of maxilla → supplies upper premolars & its related gums. It may be absent.

(D) In infraorbital canal:

- * Ant. sup. Alveolar → descends in ant. Wall of maxilla → supplies upper incisors & canines & their related gums.

N.B: The Posterior, middle and anterior superior alveolar nerves share in the formation of superior dental plexus & the 3 supply maxillary air sinus.

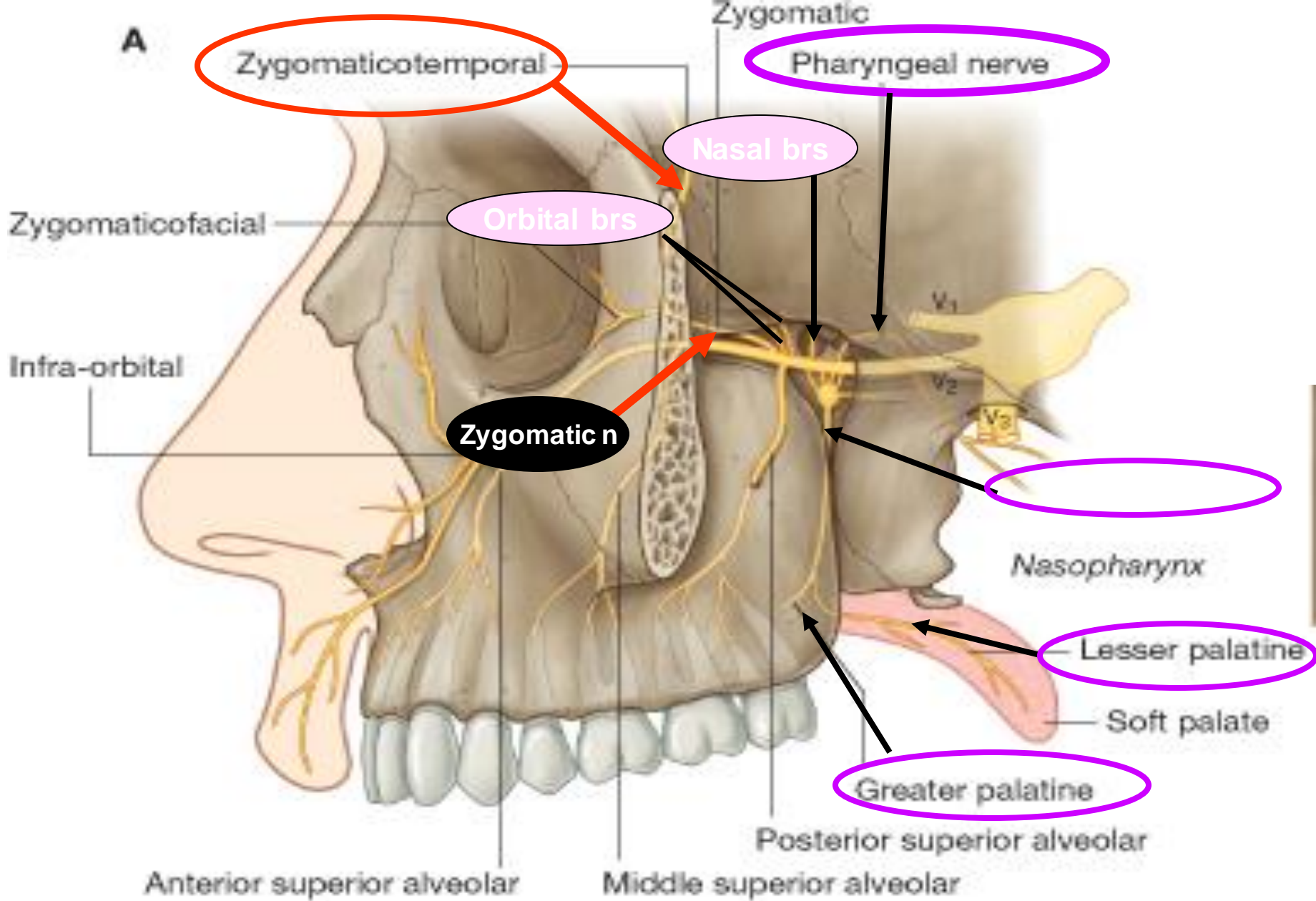
- ** Branches of Pterygopalatine ganglion are considered as branches of Maxillary nerve.



Pterygopalatine Fossa Contents

Pterygopalatine ganglion

- Parasympathetic Pterygopalatine ganglion lies in the superior part of the pterygopalatine fossa
- Connected to maxillary nerve by two pterygopalatine nerves
- Receives **the nerve of the Pterygoid Canal** (Sympathetic & Parasympathetic)
- **Branches:**
 1. Greater and lesser palatine nerves
 2. Orbital branches
 3. Pharyngeal branch
 4. Nasal branch



B

Nerve of pterygoid canal

Inferior orbital fissure

Pterygopalatine fossa

zygomatic

orbital

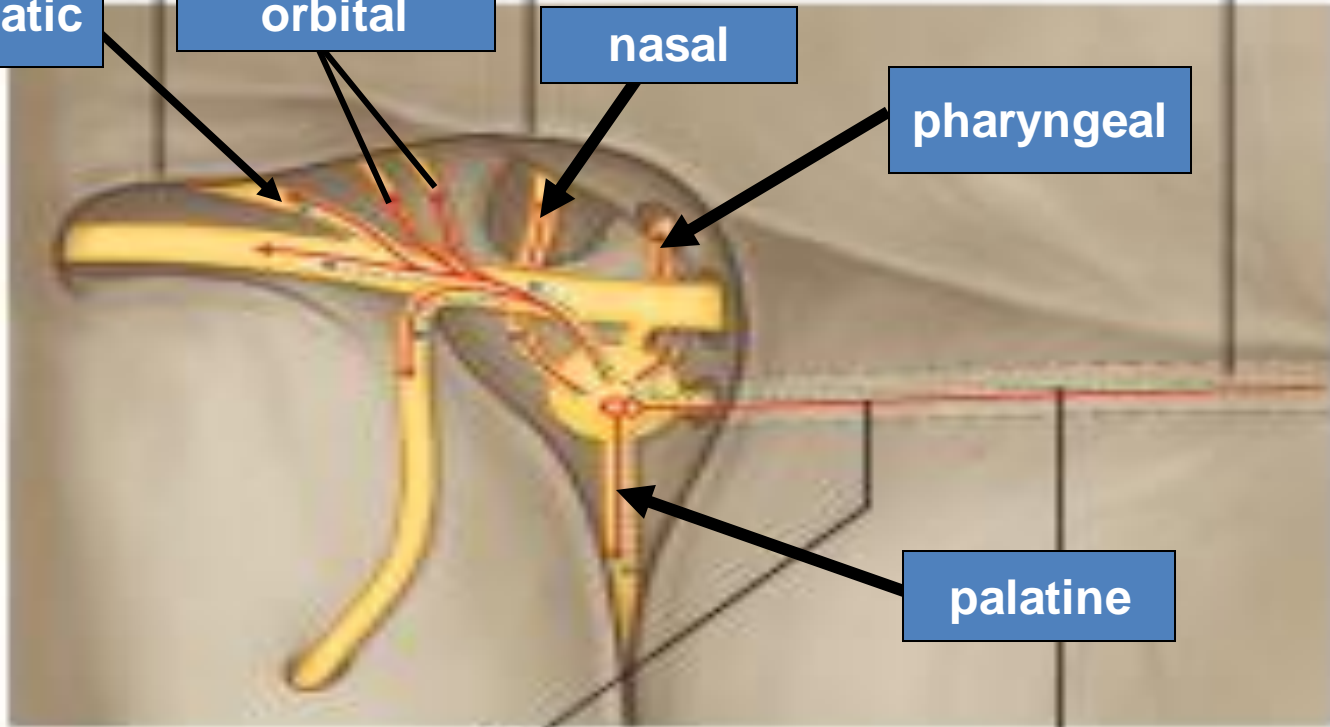
nasal

pharyngeal

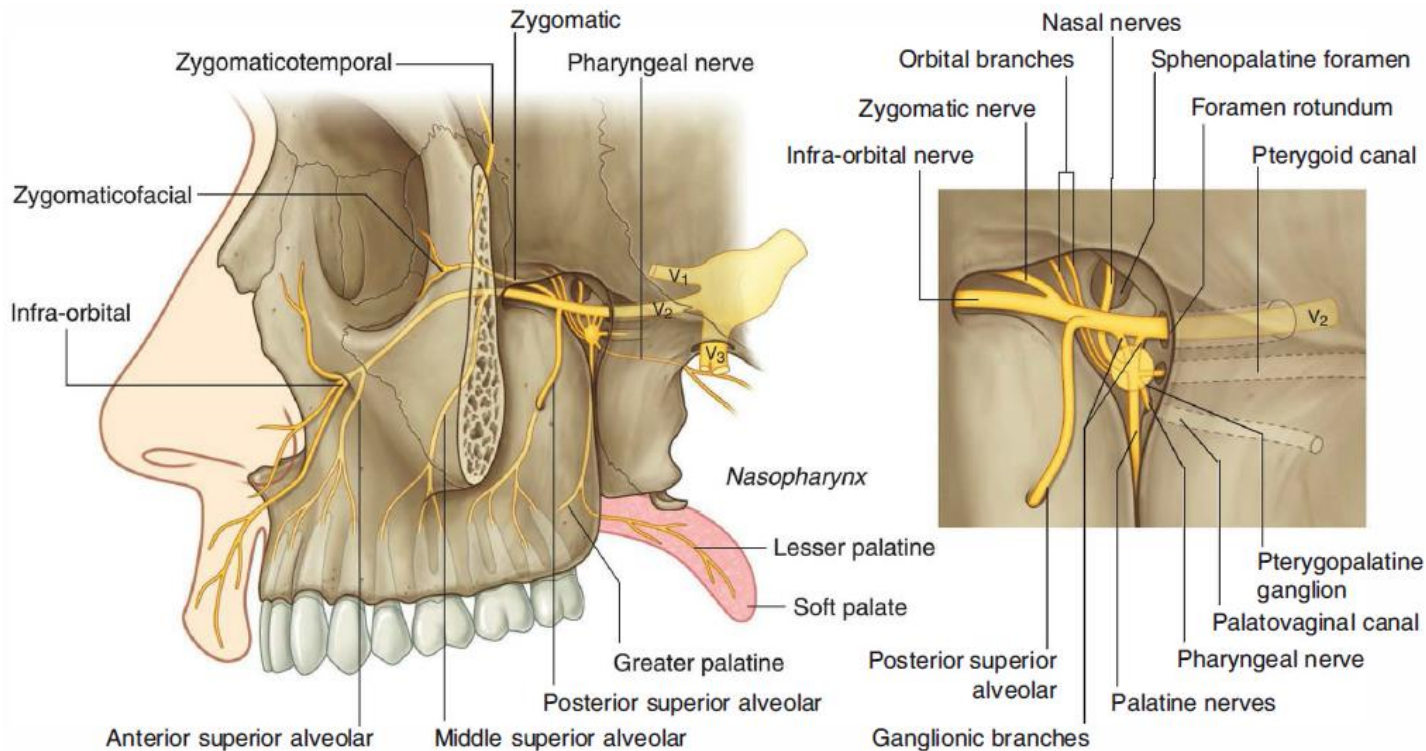
palatine

Preganglionic
parasympathetic
nerves

Postganglionic
sympathetic
nerves



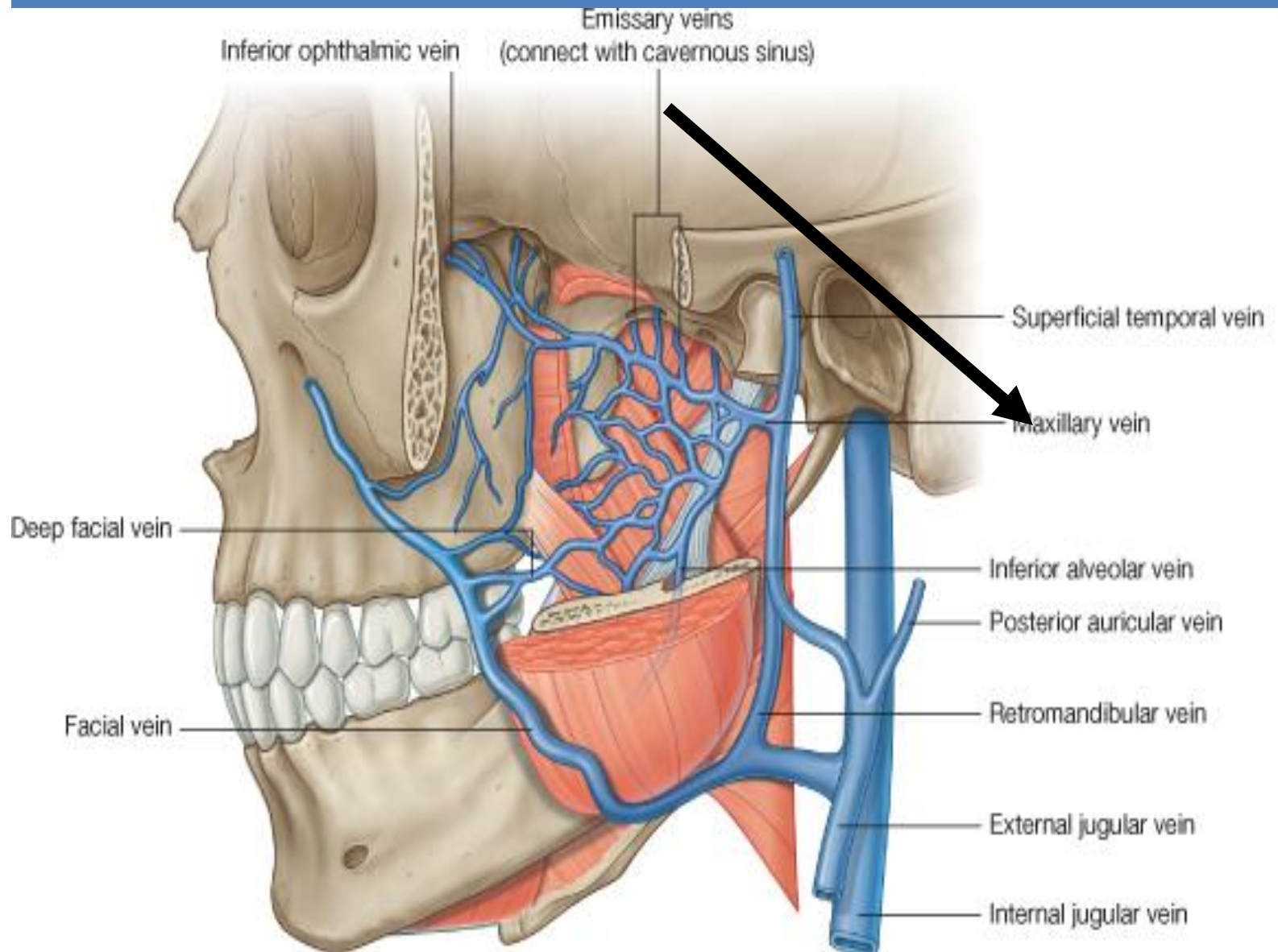
- **The parasympathetic fibers** to the pterygopalatine ganglion come from the **facial nerve** by way of its first branch, the **greater petrosal nerve**
- **The sympathetic fibers** to the pterygopalatine ganglion come from **the internal carotid plexus** by way of **the deep petrosal nerve**
- **@ N.B.: Greater & deep petrosal nerves join together to form nerve of pterygoid canal (Vidian nerve).**



Pterygoid Plexus of Veins

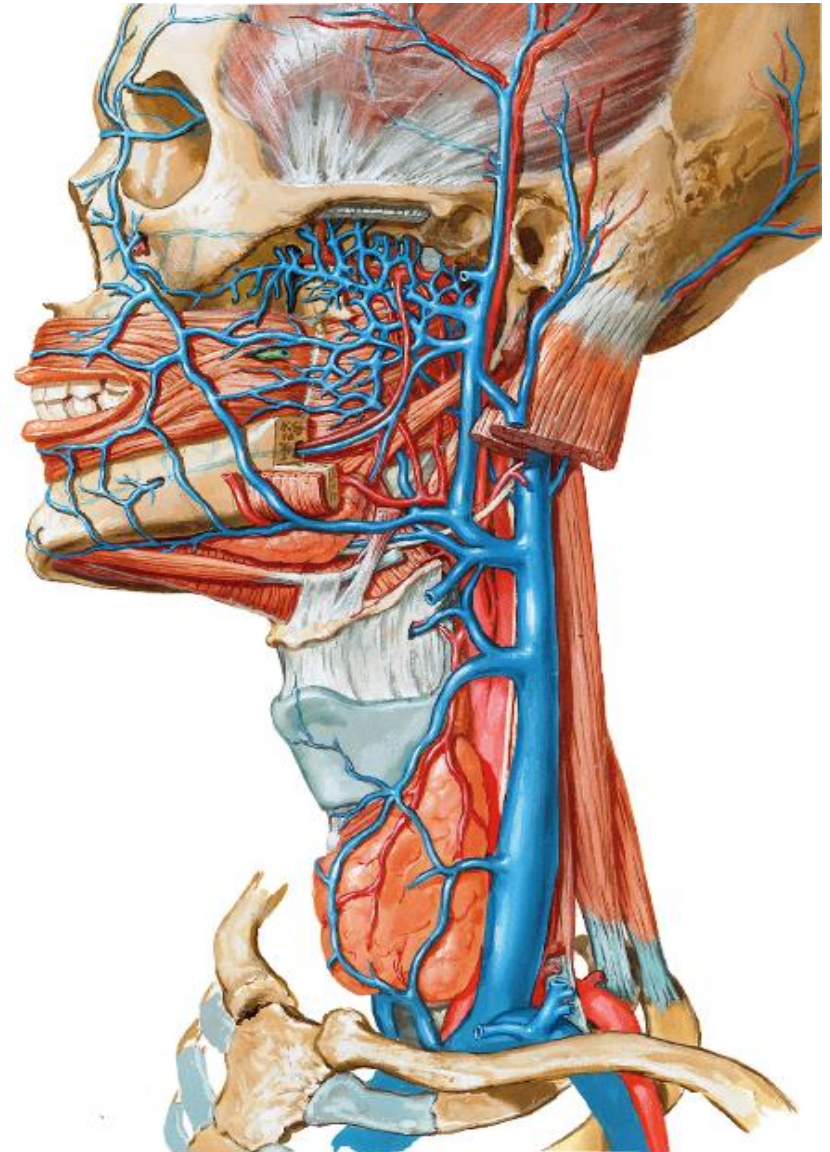
- Veins that drain areas supplied by branches of the terminal part of the maxillary artery generally travel with these branches back into the pterygopalatine fossa. Then through the pterygomaxillary fissure to join the **Pterygoid Plexus** of veins in the **infratemporal fossa**. A plexus of veins that lies lateral pterygoid muscle.

Pterygoid Plexus of Veins



Pterygoid Plexus of Veins

- @ The veins from the posterior end of the plexus collect into the **maxillary vein**.
- @ Maxillary vein **accompanies 1st part of maxillary artery** behind the neck of mandible & joins superficial temporal v. to form **retromandibular vein inside parotid gland**.



Pterygoid Plexus of Veins

@ The plexus

communicates with :

1. The cavernous sinus through a number of emissary veins.
2. Inferior ophthalmic v. through the inferior orbital fissure.
3. Facial vein through the deep facial v.

Pterygoid plexus of veins

Deep facial v

