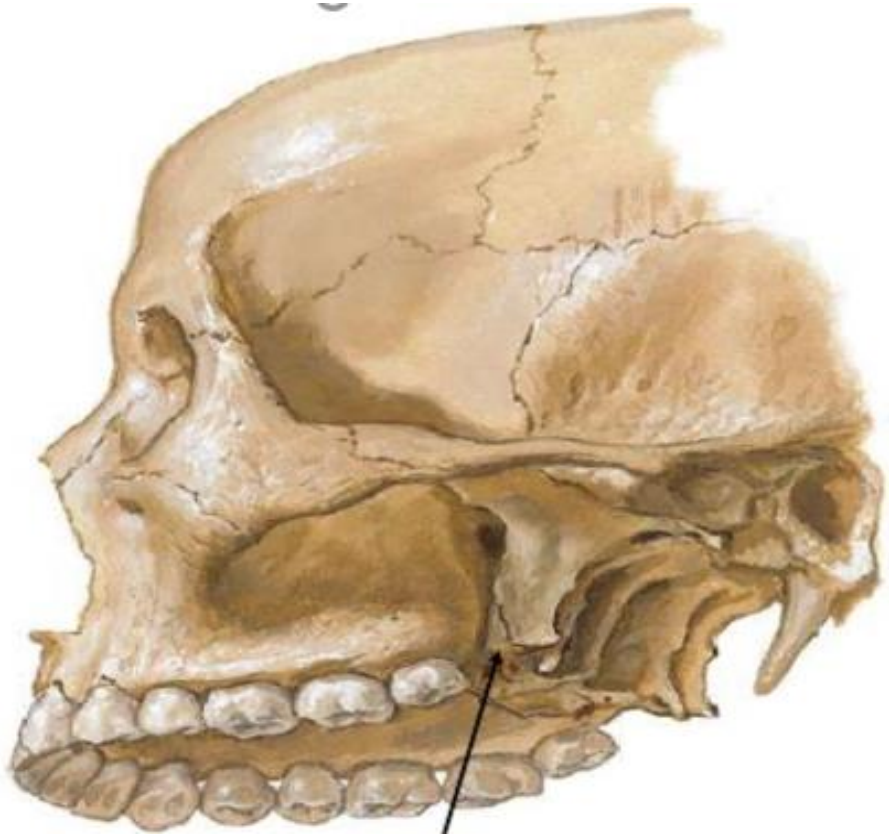

بسم الله الرحمن الرحيم

Special Senses Module
Pterygopalatine Fossa (SGD)

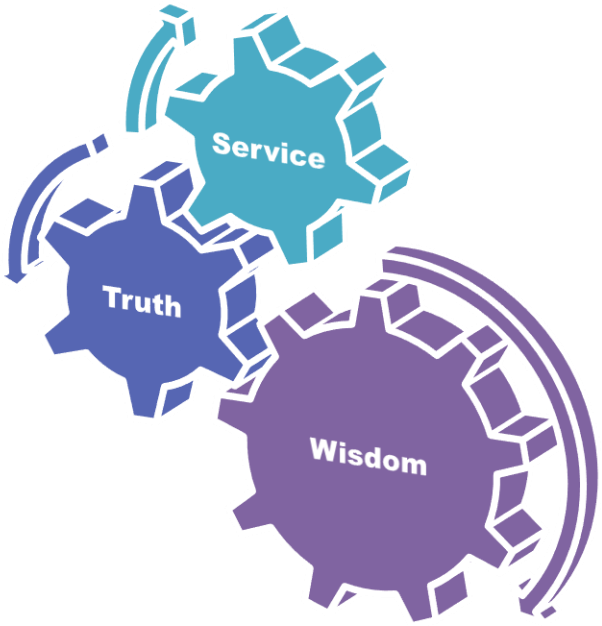


Dr.Sara Bano

Assistant Professor Anatomy

Date:-24-04-2025

Motto Vision ;The Dream/Tomorrow



- To impart evidence based research oriented medical education
- To provide best possible patient care
- To inculcate the values of mutual respect and ethical practice of medicine

Prof. Umar's Model of Teaching Strategy

Self Directed Learning Assessment Program

Objectives :To cultivate critical thinking, analytical reasoning, and problem-solving competencies.

To instill a culture of self-directed learning, fostering lifelong learning habits and autonomy.

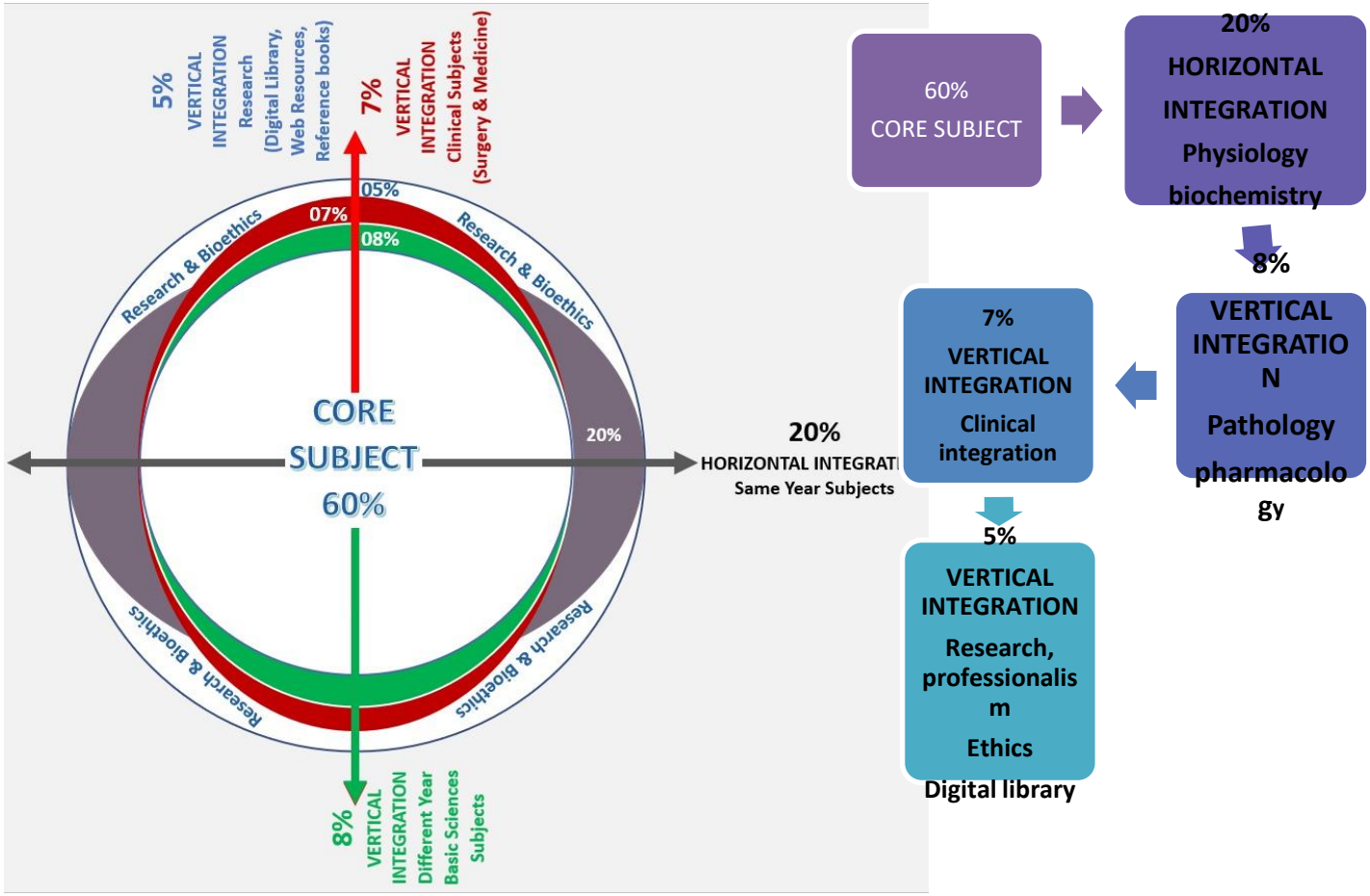
How to Assess?

➢Ten randomly selected students will be evaluated within the first 10 minutes of the lecture through 10 multiple-choice questions (MCQs) based on the PowerPoint presentation shared on Students Official WhatsApp group, one day before the teaching session.

➢The number of MCQs from the components of the lecture will follow the guidelines outlined in the Prof. Umar model of Integrated Lecture.

Component of LGIS	Core Knowledge	Horizontal Integration	Vertical Integration	Spiral Integration
No. of MCQs	6-7	1-2	1	1

Professor Umar Model of Integrated Lecture



Learning Objectives

Discuss the boundaries&contents of Pterygopalatine fossa
Discuss the communications of Pterygopalatine fossa
Understand the biophysiological aspects of arches

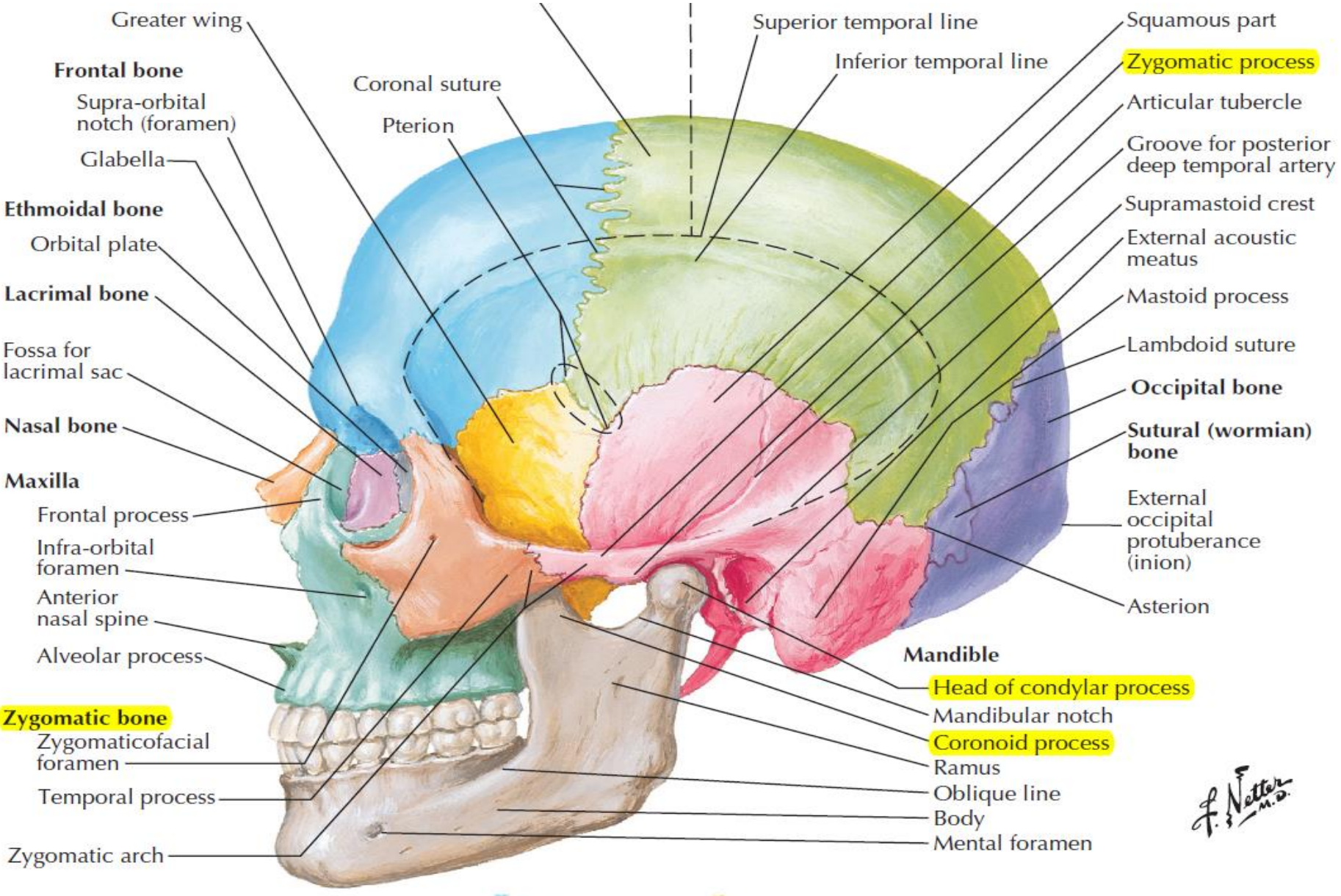
- Related physiology and biochemistry(horizontal integration).
- Relate clinical/congenital abnormalities(vertical integration).
- Bioethics.
- Professionalism / communication skills.
- Related research article.
- HEC digital library.
- Learning resources.

Interactive Session

- **Transantral Approach to**
- **Pterygopalatine Fossa**
- Surgical access to the deeply placed pterygopalatine
- fossa is **gained through the maxillary sinus**.
- After elevating the upper lip, the maxillary gingiva
- and anterior wall of the sinus are transversed to enter the
- sinus. The posterior wall is then chipped away as needed to
- open the anterior wall of the pterygopalatine fossa. In the
- case of **chronic *epistaxis (nosebleed),*** *the third part of the*
- maxillary artery may be ligated in the fossa to control
- the bleeding.

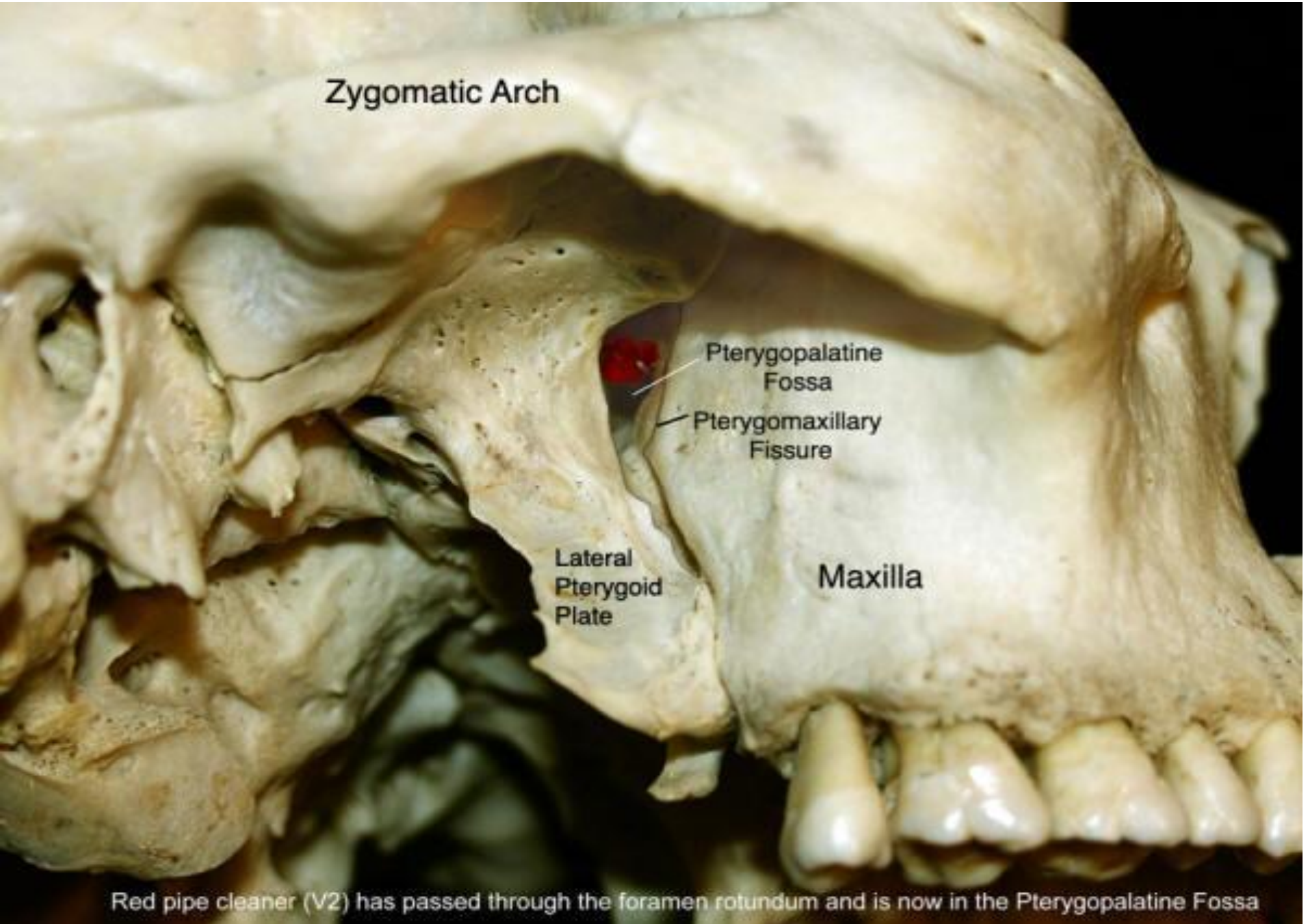
Core Knowledge

PTERYGOPALATINE FOSSA



Core Knowledge

PTERYGOPALATINE FOSSA



Core Knowledge

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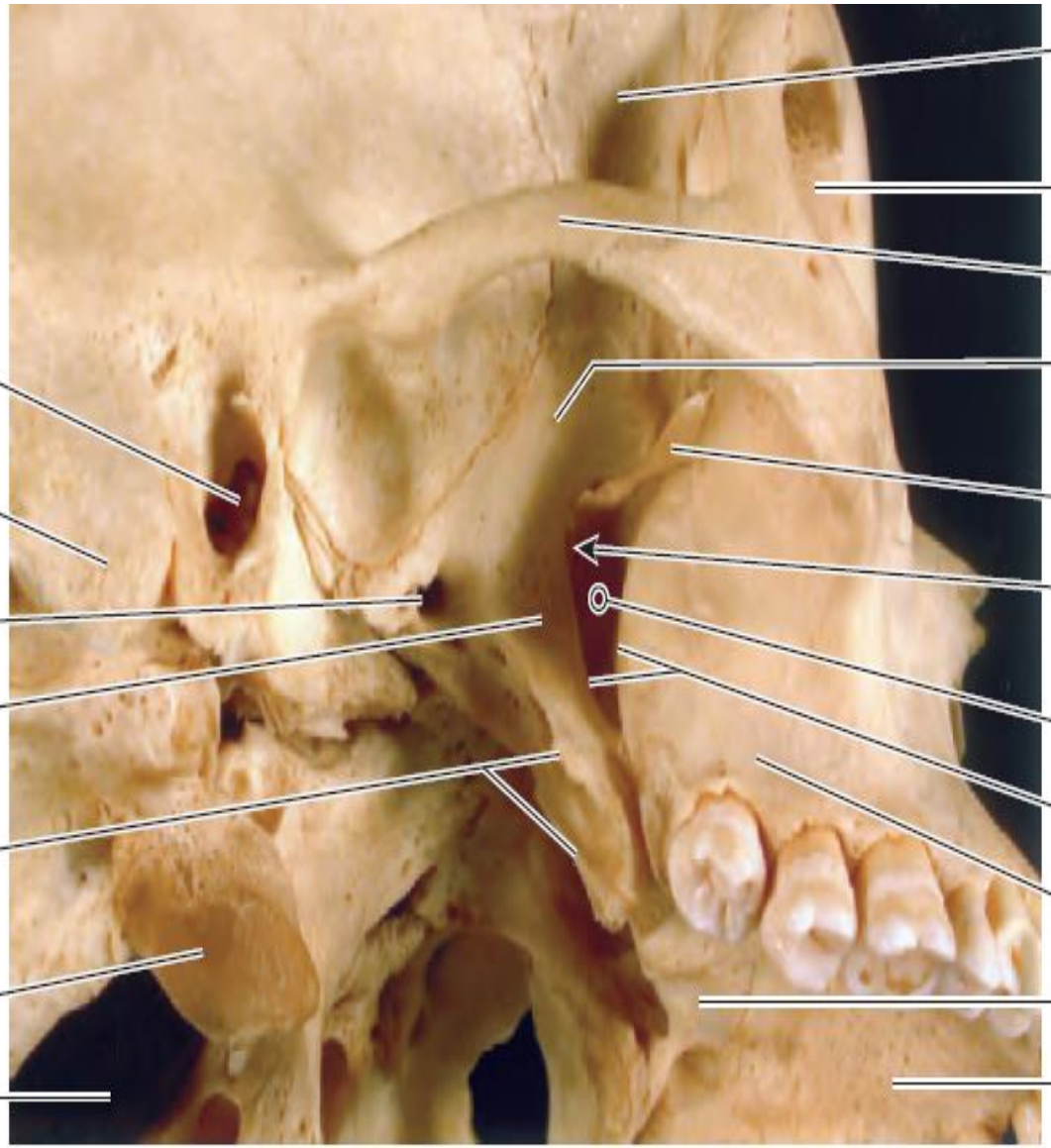
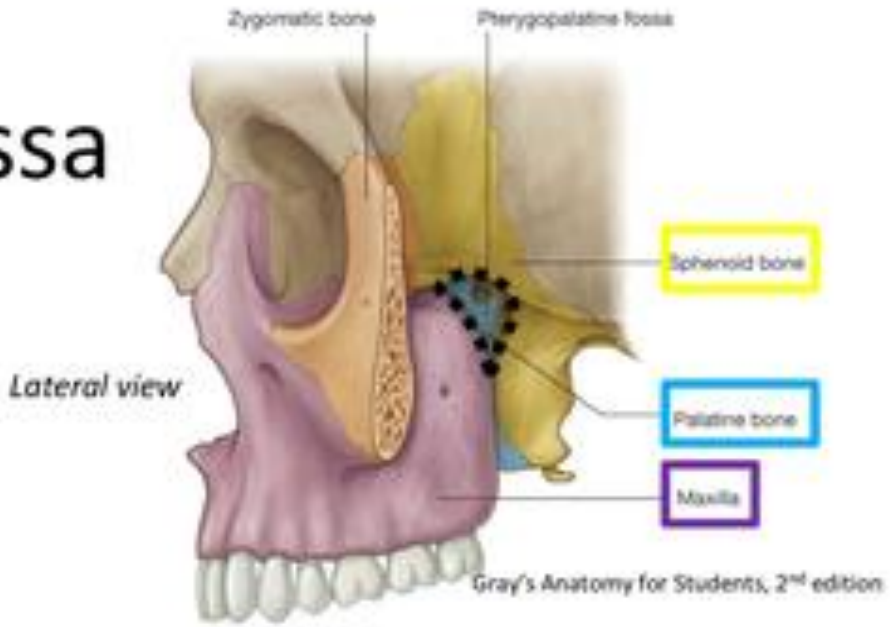


Inferolateral and slightly posterior view, looking into infratemporal and pterygopalatine fossae

Core Knowledge

Pterygopalatine Fossa

- **Boundaries**
  - Anterior
    - Maxilla
  - Posterior
    - Pterygoid process (sphenoid)
  - Lateral
    - Infratemporal fossa
  - Medial
    - Palatine bone (vertical plate)
  - Superior
    - Greater wing of sphenoid
  - Inferior
    - Palatine bone (pyramidal



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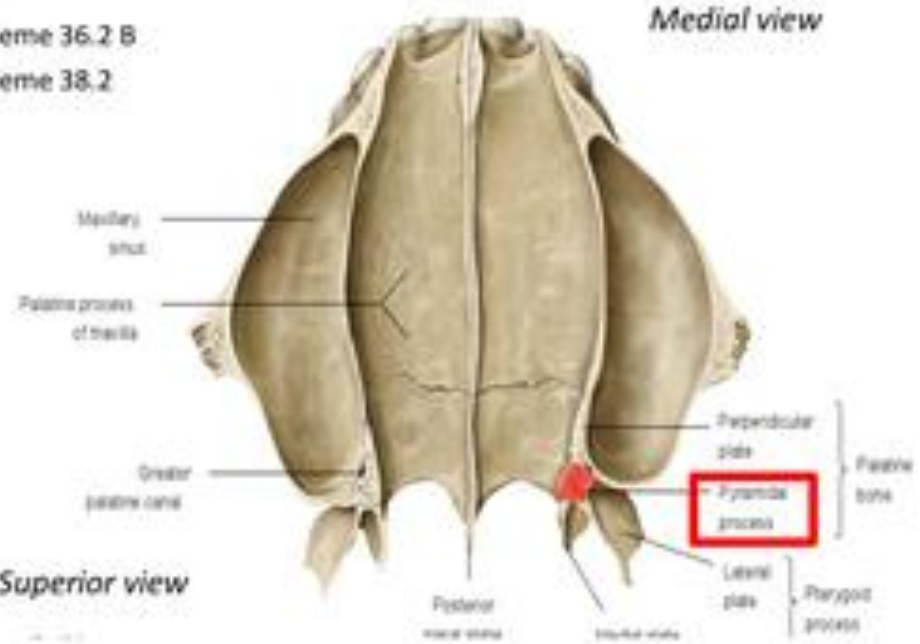
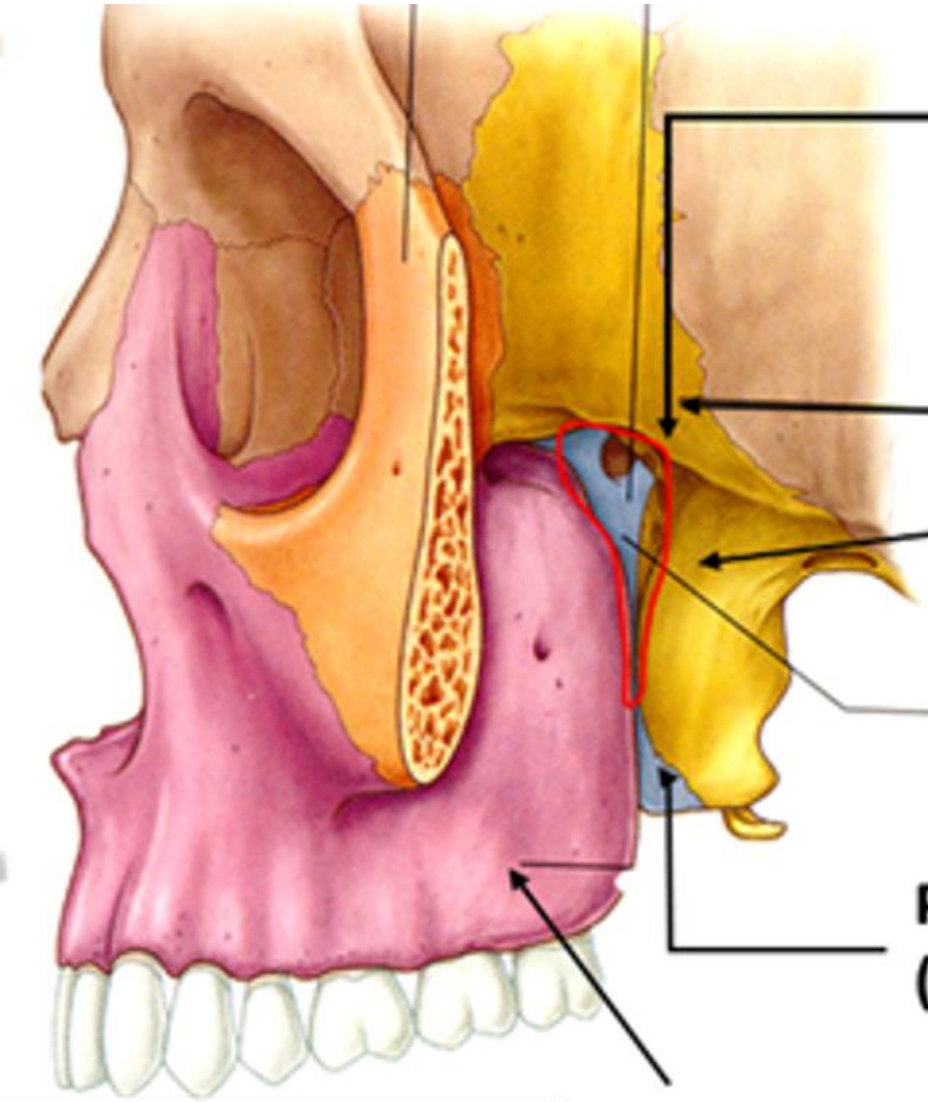


Core Knowledge

Relations of Pterygopalatine fossa



Pterygomaxillary fissure (Laterally)

Greater wing of sphenoid (Superiorly)

Pterygoid process (Posteriorly)

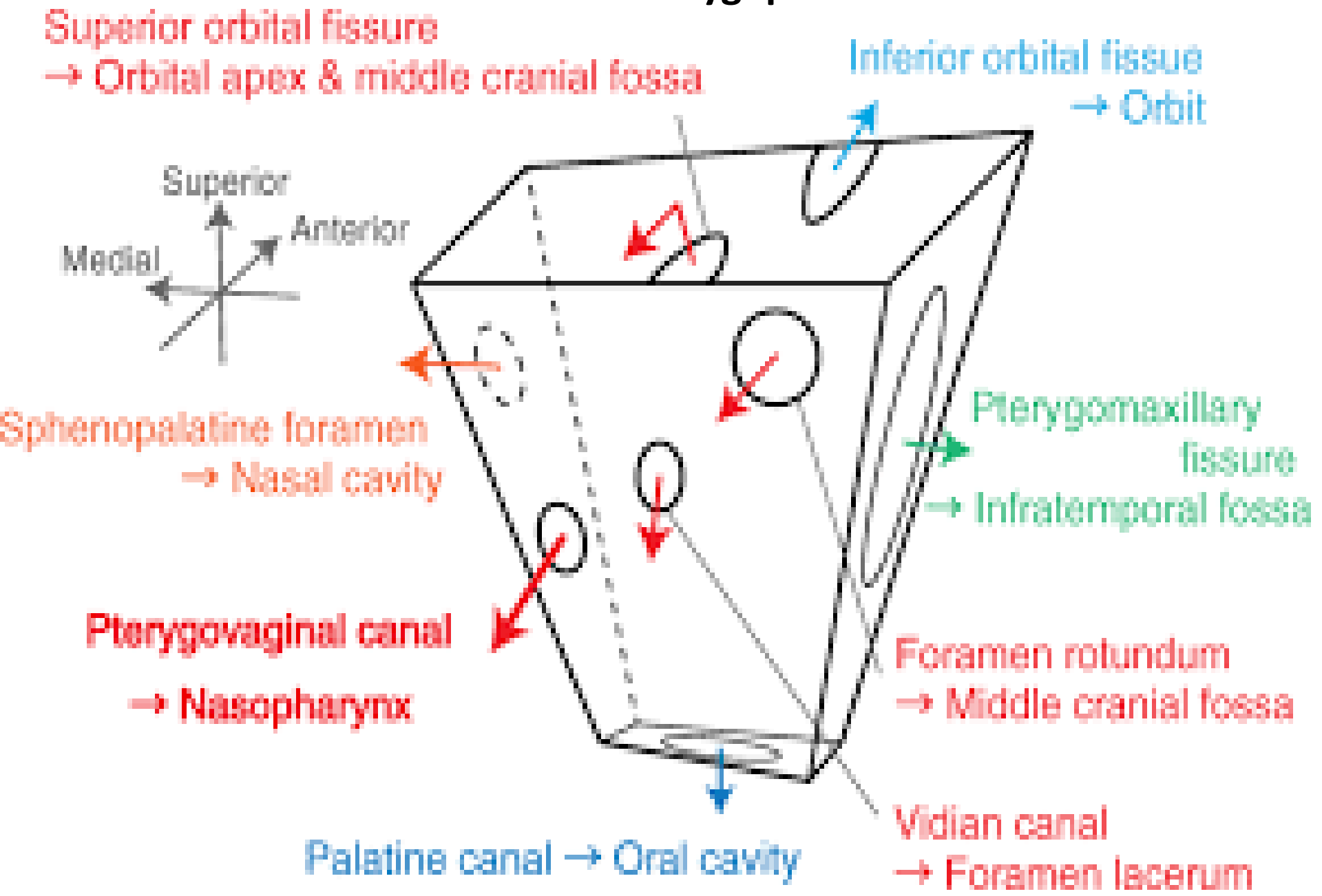
Perpendicular plate of palatine bone (Medially)

Pyramidal process of palatine bone (Inferiorly)

Posterior surface of maxilla (Anteriorly)

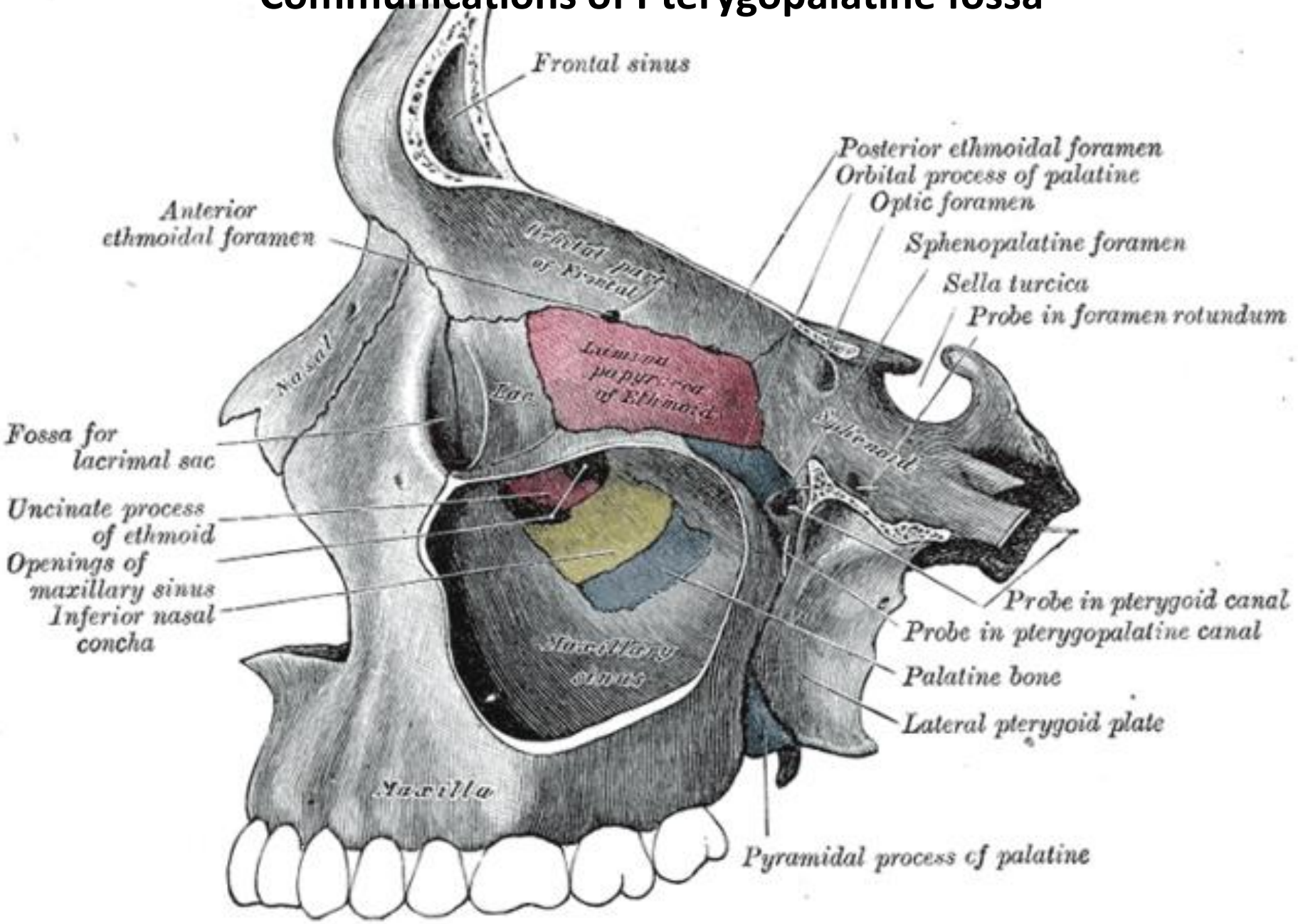
Core Knowledge

Communications of Pterygopalatine fossa



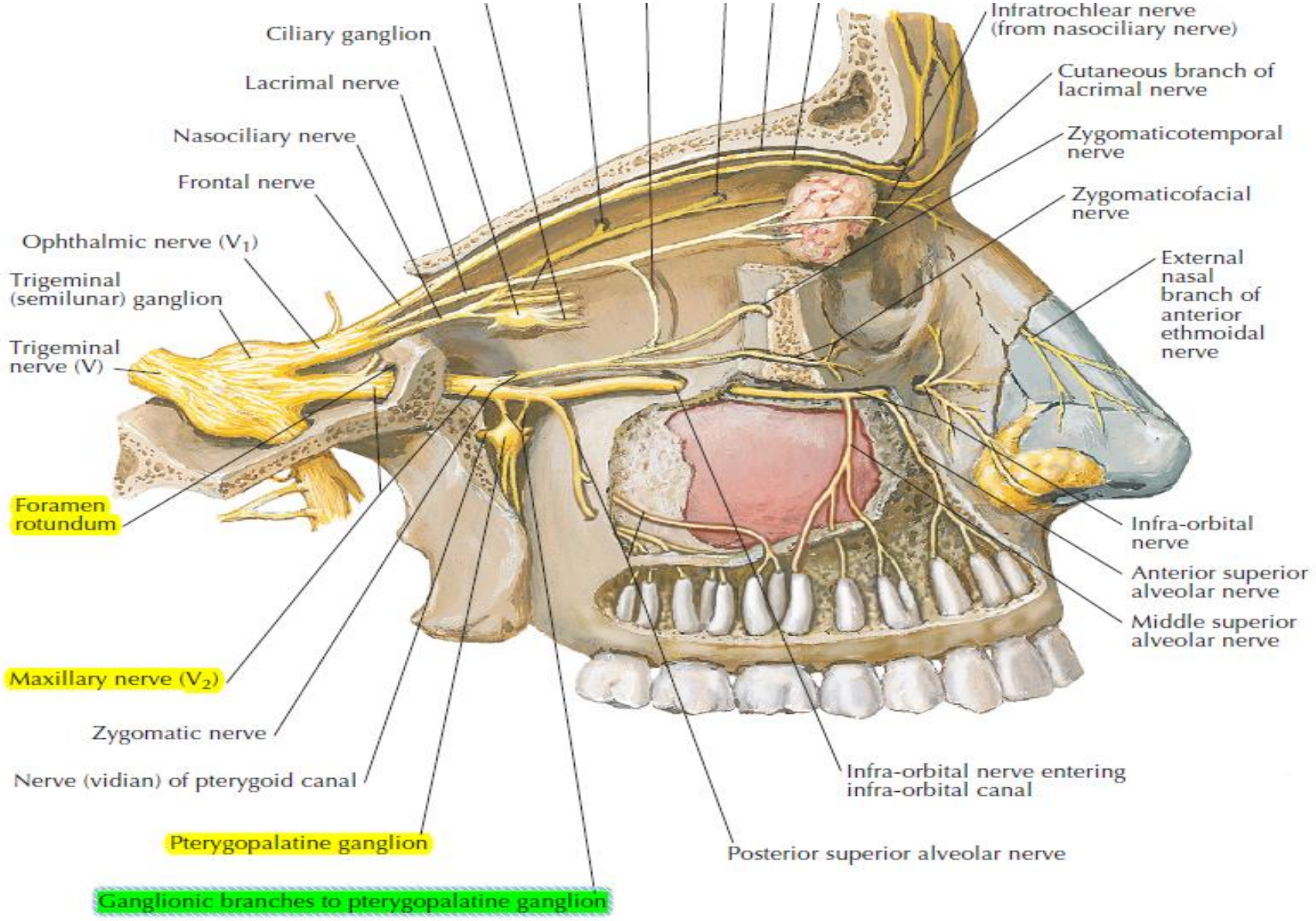
Core Knowledge

Communications of Pterygopalatine fossa



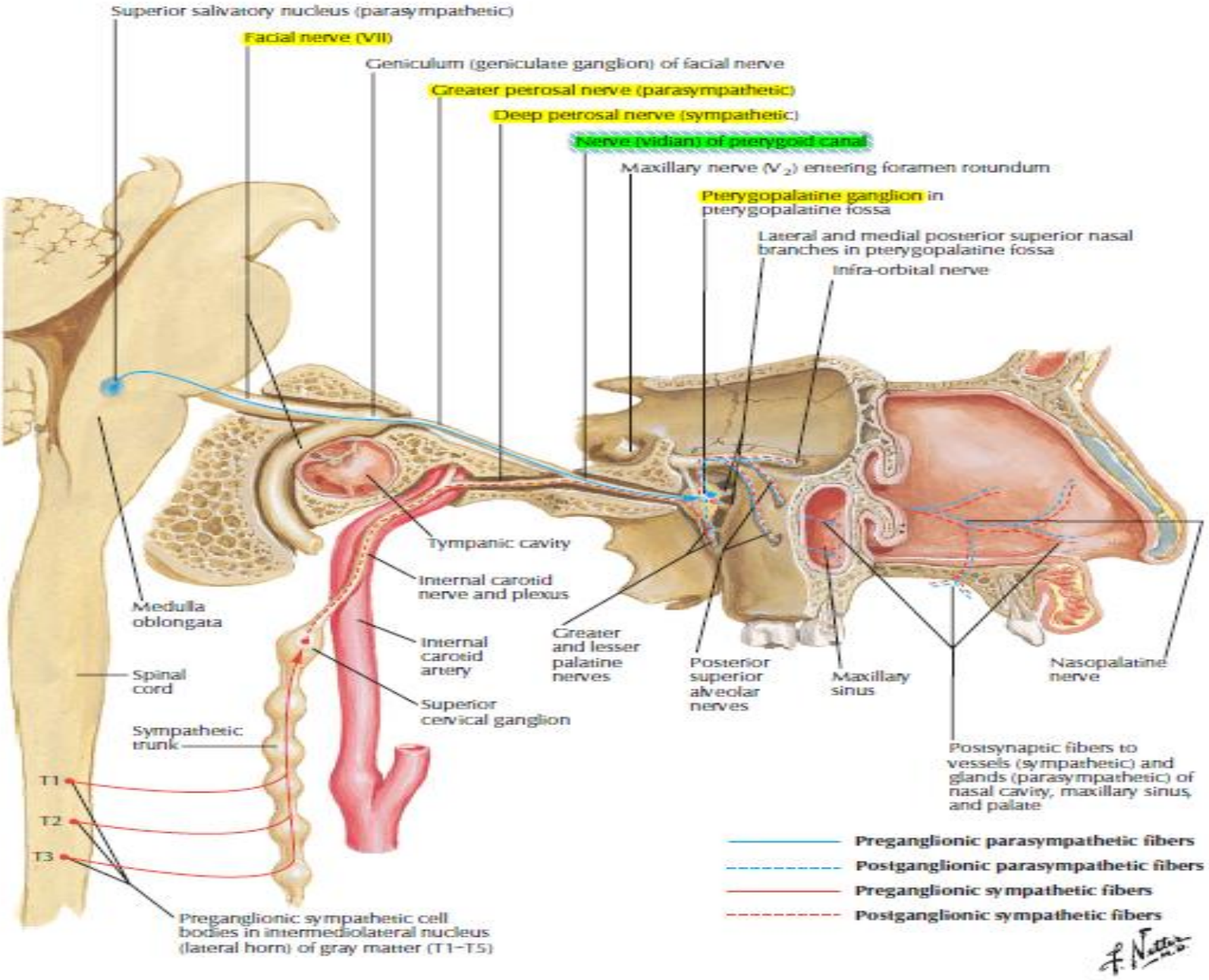
Core Knowledge

Pterygopalatine Ganglion



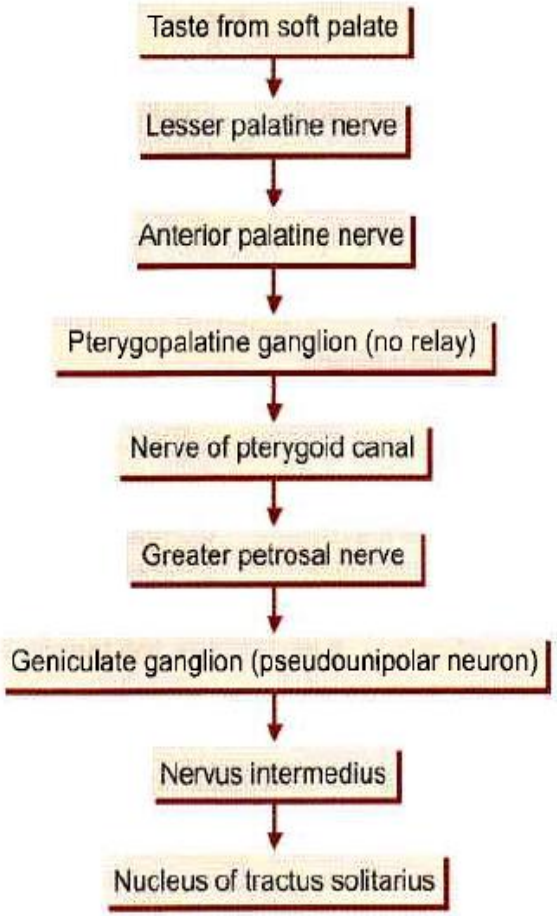
Core Knowledge

Pterygopalatine Ganglion

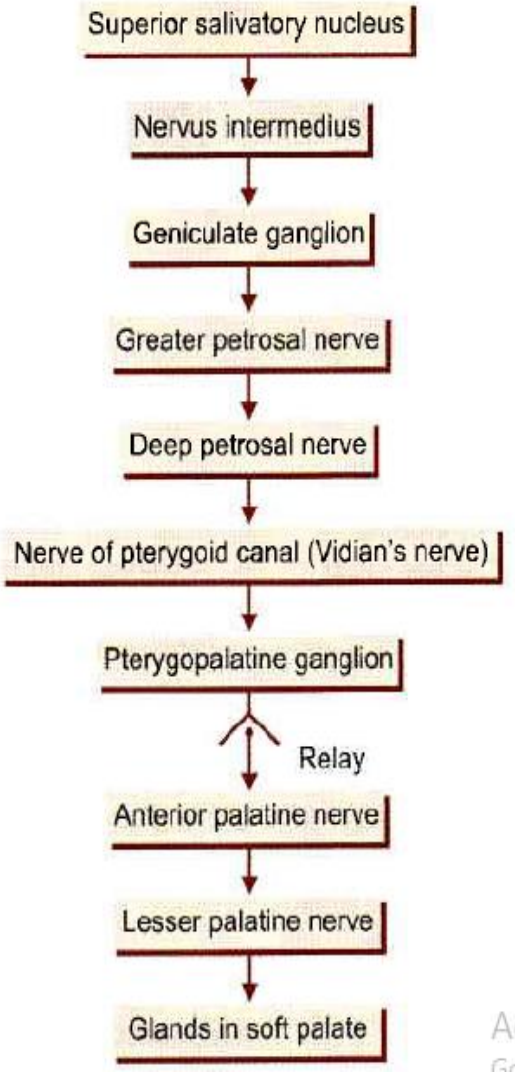


Core Knowledge

Flow chart 14.1: Gustatory nerves

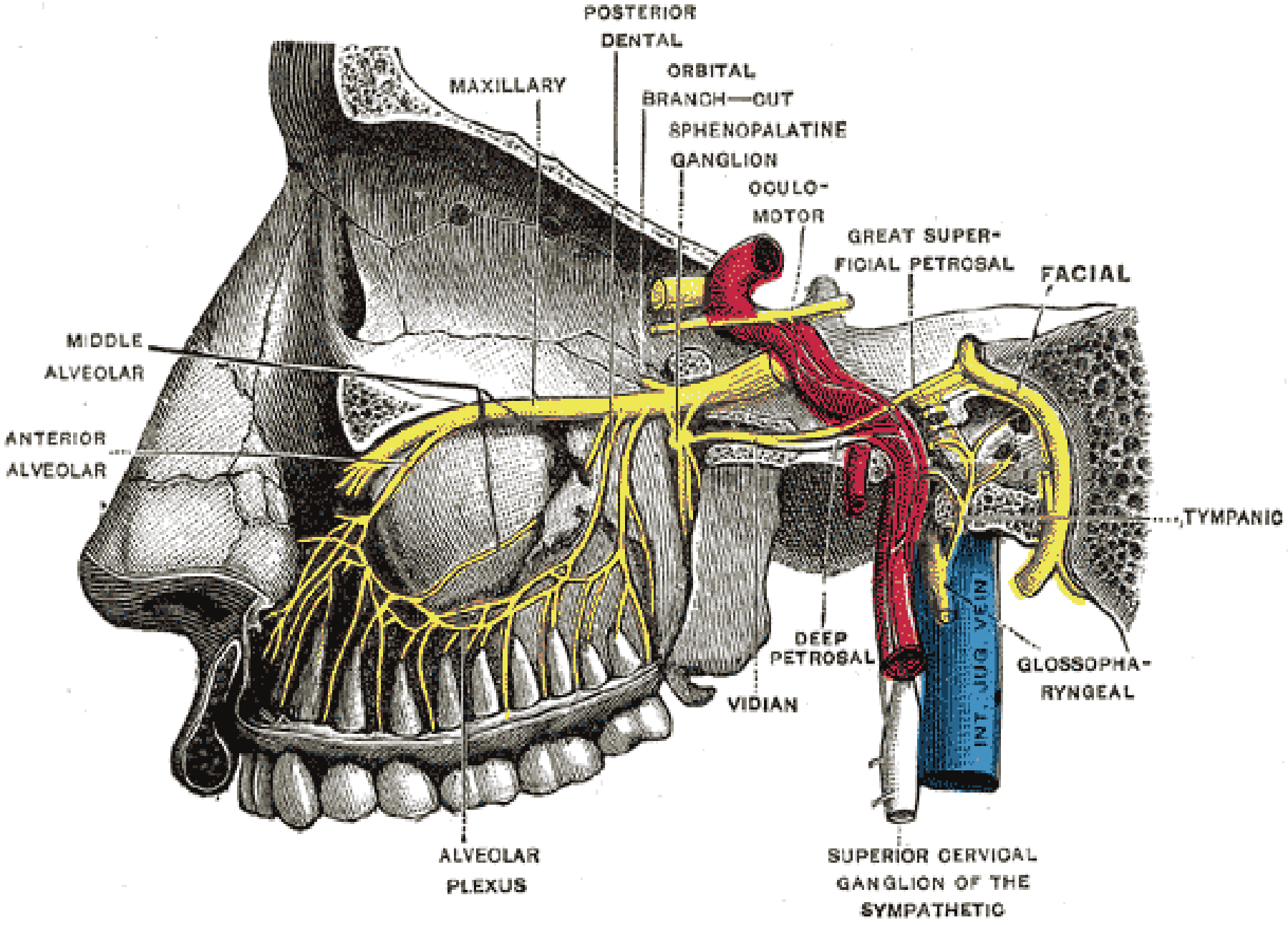


Flow chart 14.2: Secretomotor nerves



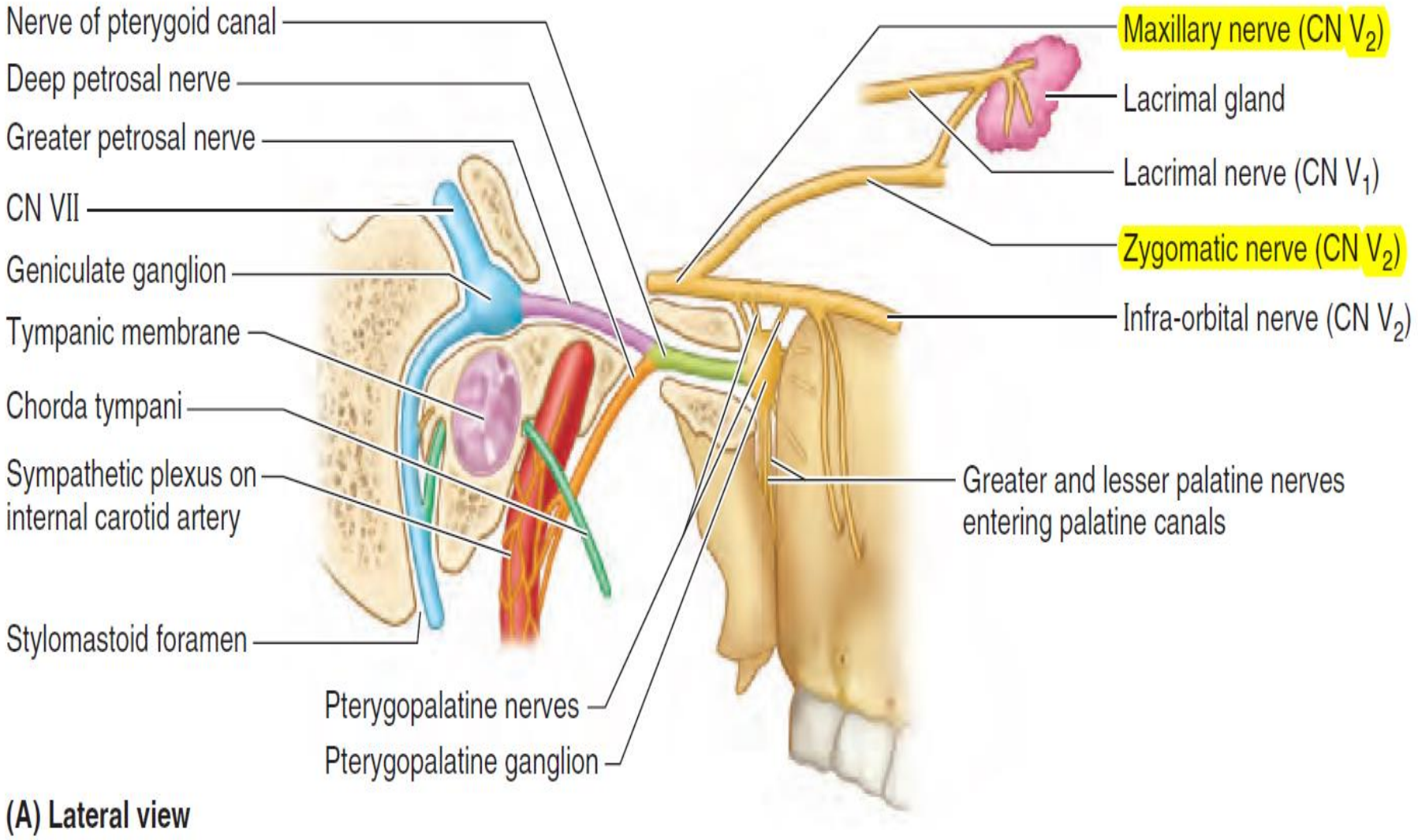
2 It separates the oropharynx from the nasopharynx by locking Passavant's ridge during the second stage of swallowing, so that food does not enter the nose

Core Knowledge



Core Knowledge

Maxillary Nerve

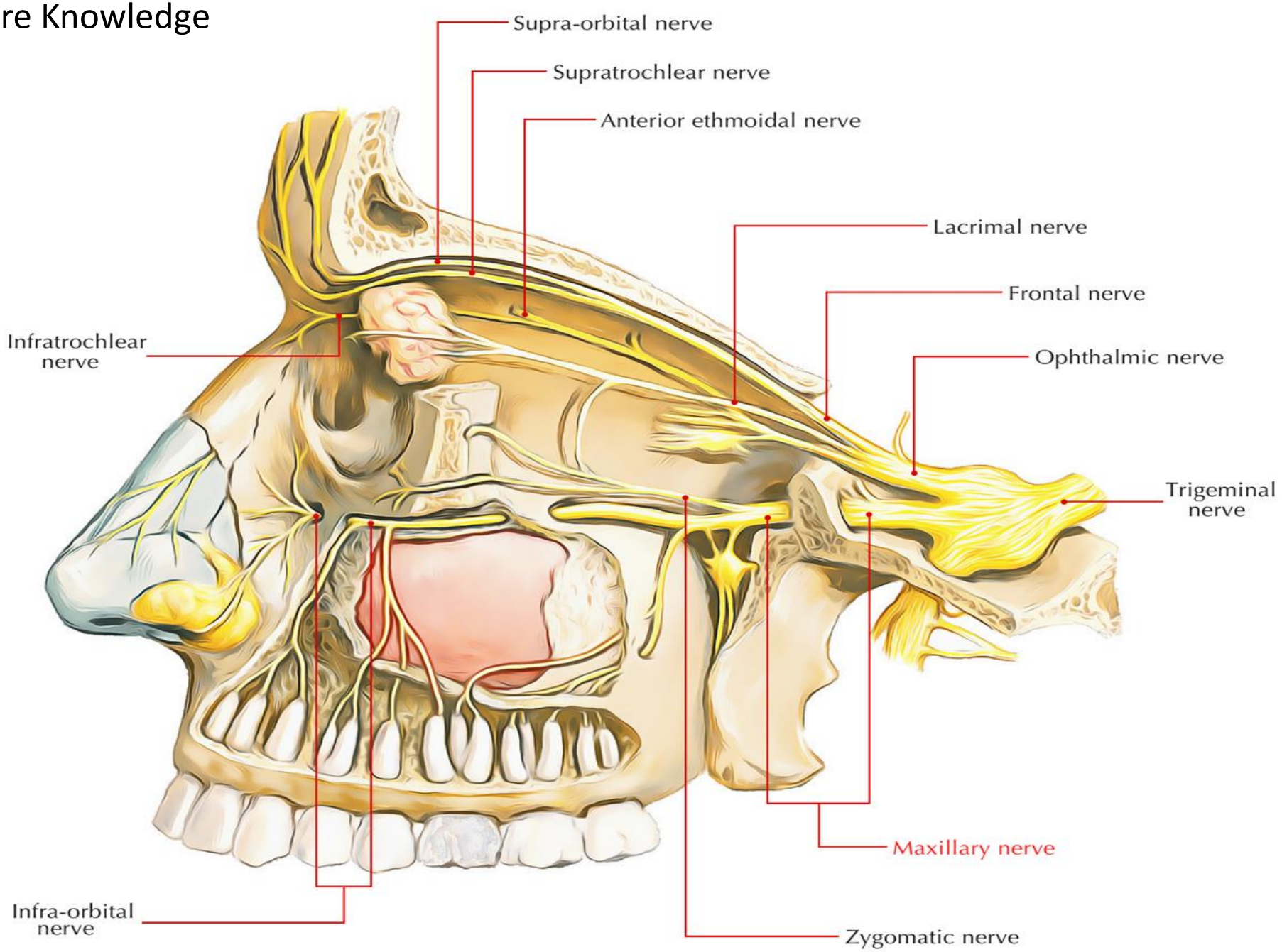


(A) Lateral view

Maxillary Nerve

- Intracranial branch:
  - meningeal branch: supplies dura mater of middle cranial fossa
- branches in pterygopalatine fossa:
  - ganglionic branches: connect maxillary nerve with *pterygopalatine ganglion* (parasympathetic ganglion located in pterygopalatine fossa, inferior to maxillary nerve) The ganglionic branches contain mostly sensory fibers (also contain a few postganglionic parasympathetic fibers for lacrimal gland)
  - zygomatic nerve: enters orbit via inferior orbital fissure & run anteriorly, along lateral wall of orbit, and divides into zygomaticofacial and zygomaticotemporal nerves

Core Knowledge



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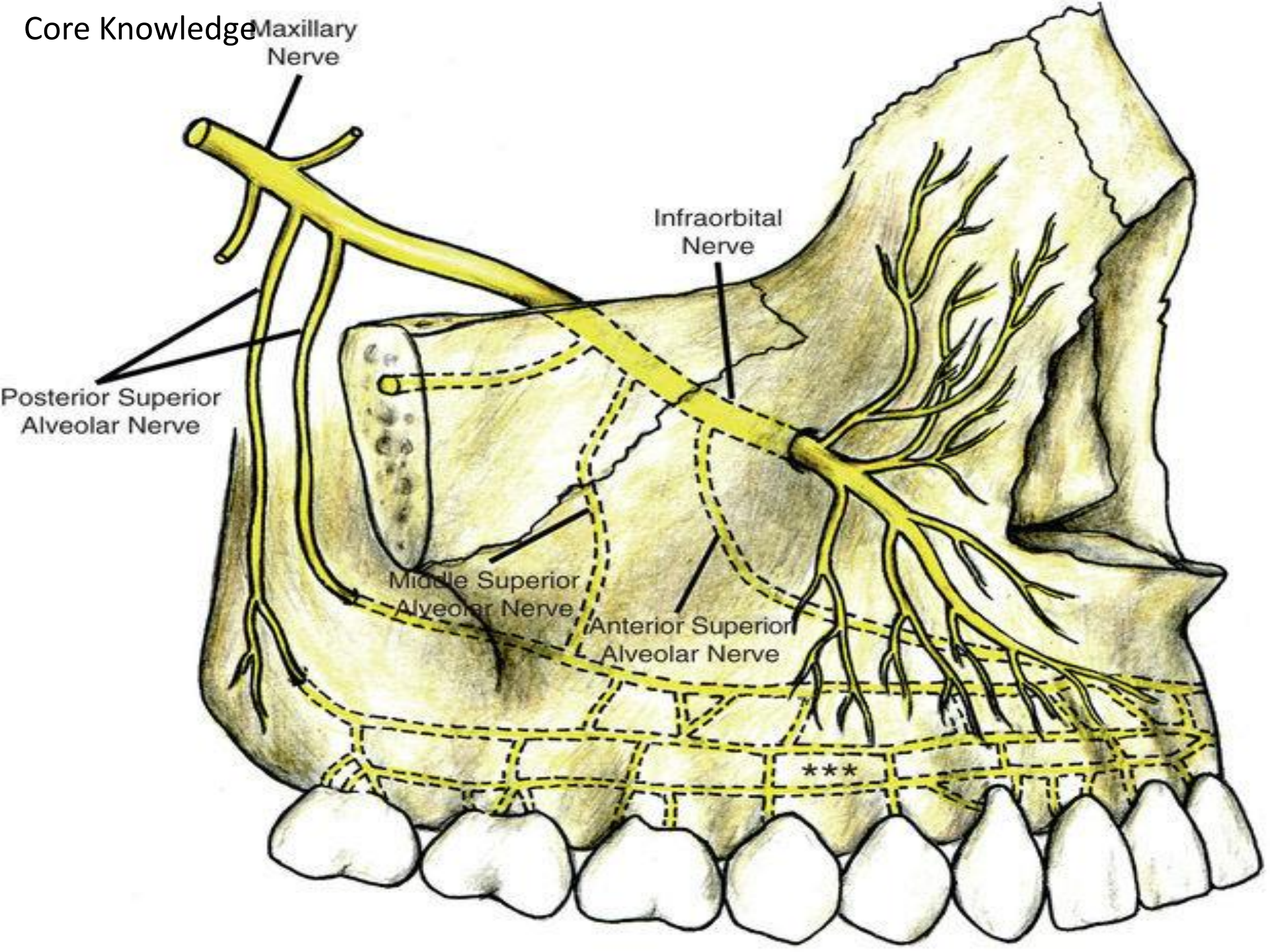


Core Knowledge

Maxillary Nerve Division

In Middle Cranial Fossa

Meningeal branch

In Pterygopalatine Fossa

1 Ganglionic branches
2 Zygomatic:
   a. Zygomaticotemporal } Sensory
   b. Zygomaticofacial }
3 Posterior superior alveolar

In Infraorbital Canal

1 Middle superior alveolar
2 Anterior superior alveolar

On Face

Infraorbital
a. Palpebral } Sensory
b. Labial }
c. Nasal

NERVE OF PTERYGOID CANAL (VIDIAN NERVE)

- The nerve of the pterygoid canal (Vidian nerve) is formed by the junction of the great petrosal nerve and the deep petrosal nerve within the pterygoid canal containing the cartilaginous substance which fills the foramen lacerum.
- It passes forward through the pterygoid canal with its corresponding artery (artery of the pterygoid canal) and is joined by a small ascending sphenoidal branch from the otic ganglion. It then enters the pterygopalatine fossa and joins the posterior angle of the pterygopalatine ganglion.

VIDIAN NEURECTOMY

Indications:-

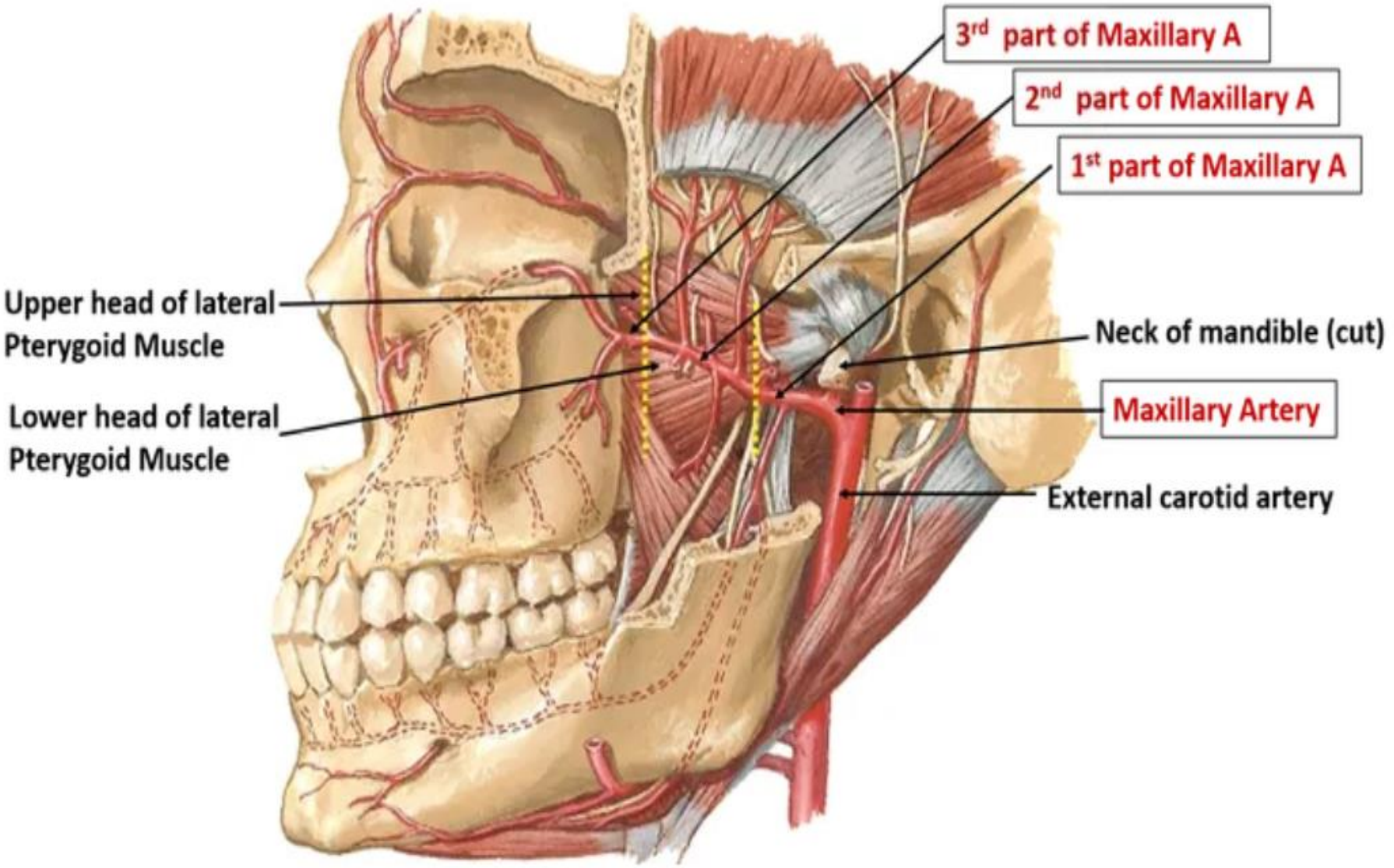
- Severe intractable vasomotor rhinitis
- Crocodile tears
- Senile nasal drip
- Severe recurrent nasal polyposis

General anaesthesia-hypotensive-60 mm/Hg

Antrum opened (wider) as for Caldwell Luc procedure- preserve infra orbital nerve

Core Knowledge

Maxillary Artery



Core Knowledge

BRANCHES OF MAXILLARY ARTERY

A.First Part:-

1.Deep Auricular Artery
2.Anterior Tympanic
3.Middle Meningeal Artery
4.Accessory Meningeal Artery
5.Inferior Alveolar Artery

B.Second Part:-

1.Deep Temporal
2.Pterygoid
3.Masseteric
4.Buccal

C.Third Part:-

1.Posterior Superior Alveolar
2.Infraorbital
3.Greater Palatine
4.Pharyngeal
5.Artery Of Pterygoid Canal
6.Sphenopalatine Artery
[Terminal part of maxillary artery]

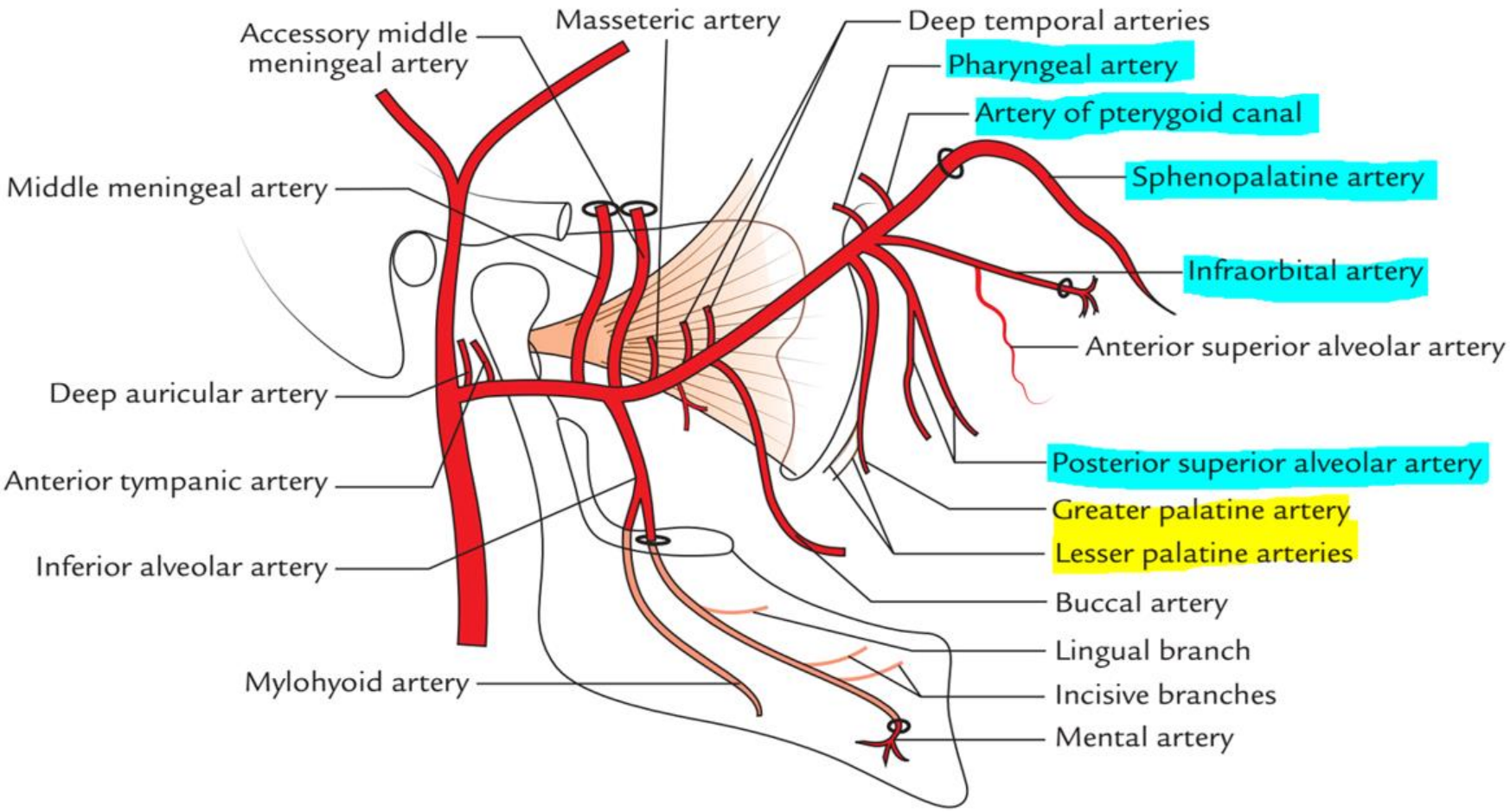
Core Knowledge

Parts of Maxillary Artery

Third (pterygoid-palatine)	Distal (anteromedial) to lateral pterygoid muscle; passes between heads of lateral pterygoid and through pterygomaxillary fissure into pterygopalatine fossa	Posterior superior alveolar artery	Descends on maxilla's infratemporal surface with branches traversing alveolar canals to supply maxillary molar and premolar teeth, adjacent gingiva, and mucous membrane of maxillary sinus
		Infra-orbital artery	Traverses inferior orbital fissure, infra-orbital groove, canal, and foramen; supplies inferior oblique and rectus muscles, lacrimal sac, maxillary canines and incisors teeth, mucous membrane of maxillary sinus, and skin of infra-orbital region of face
		Artery of pterygoid canal	Passes posteriorly through pterygoid canal; supplies mucosa of upper pharynx, pharyngotympanic tube, and tympanic cavity
		Pharyngeal branch	Passes through palatovaginal canal to supply mucosa of nasal roof, nasopharynx, sphenoidal air sinus, and pharyngotympanic tube
		Descending palatine artery	Descends through palatine canal, dividing into greater and lesser palatine arteries to mucosa and glands of hard and soft palate
		Sphenopalatine artery	Terminal branch of maxillary artery, traverses sphenopalatine foramen to supply walls and septum of nasal cavity; frontal, ethmoidal, sphenoid, and maxillary sinuses; and anteriormost palate

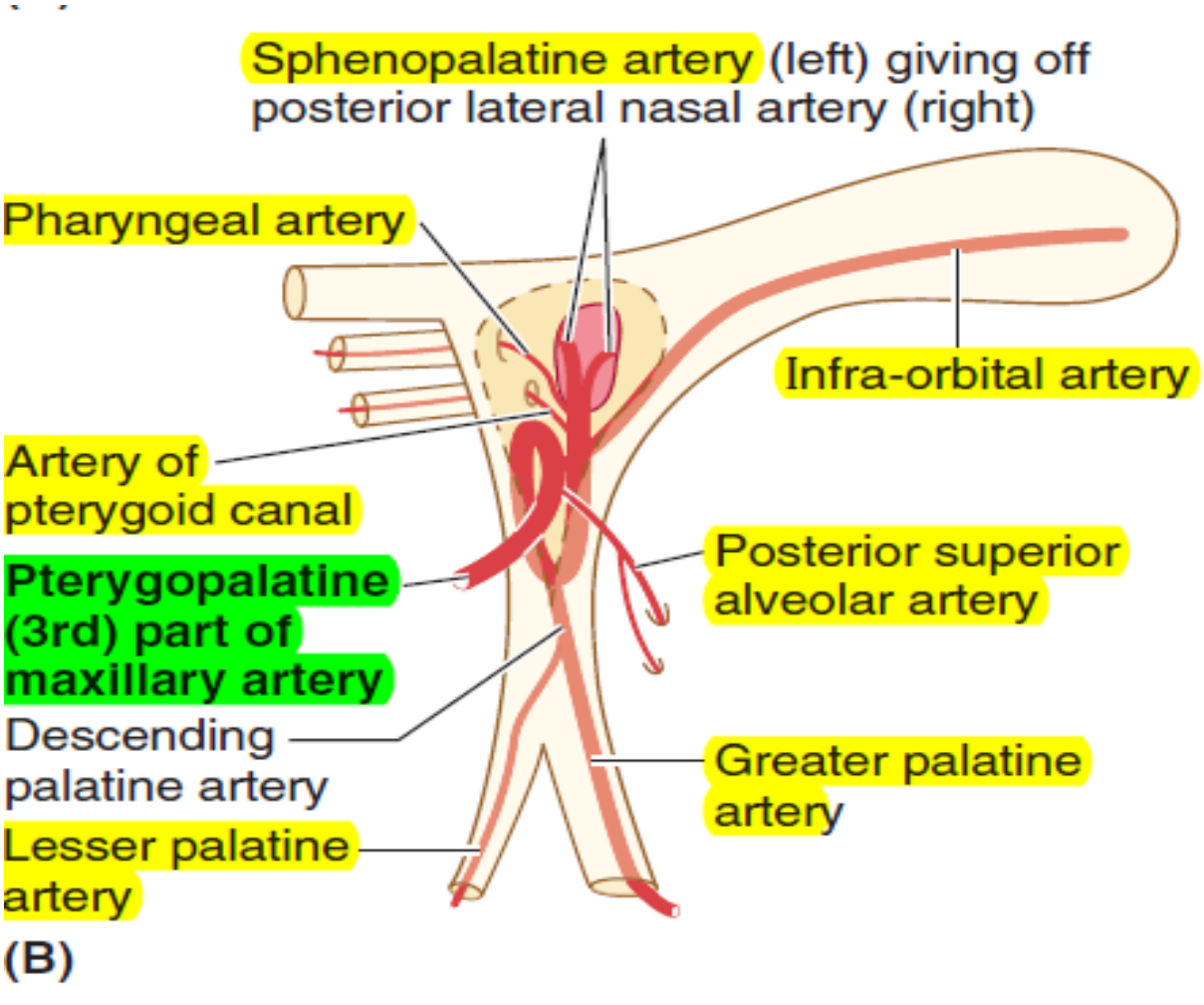
Core Knowledge

Parts of Maxillary Artery

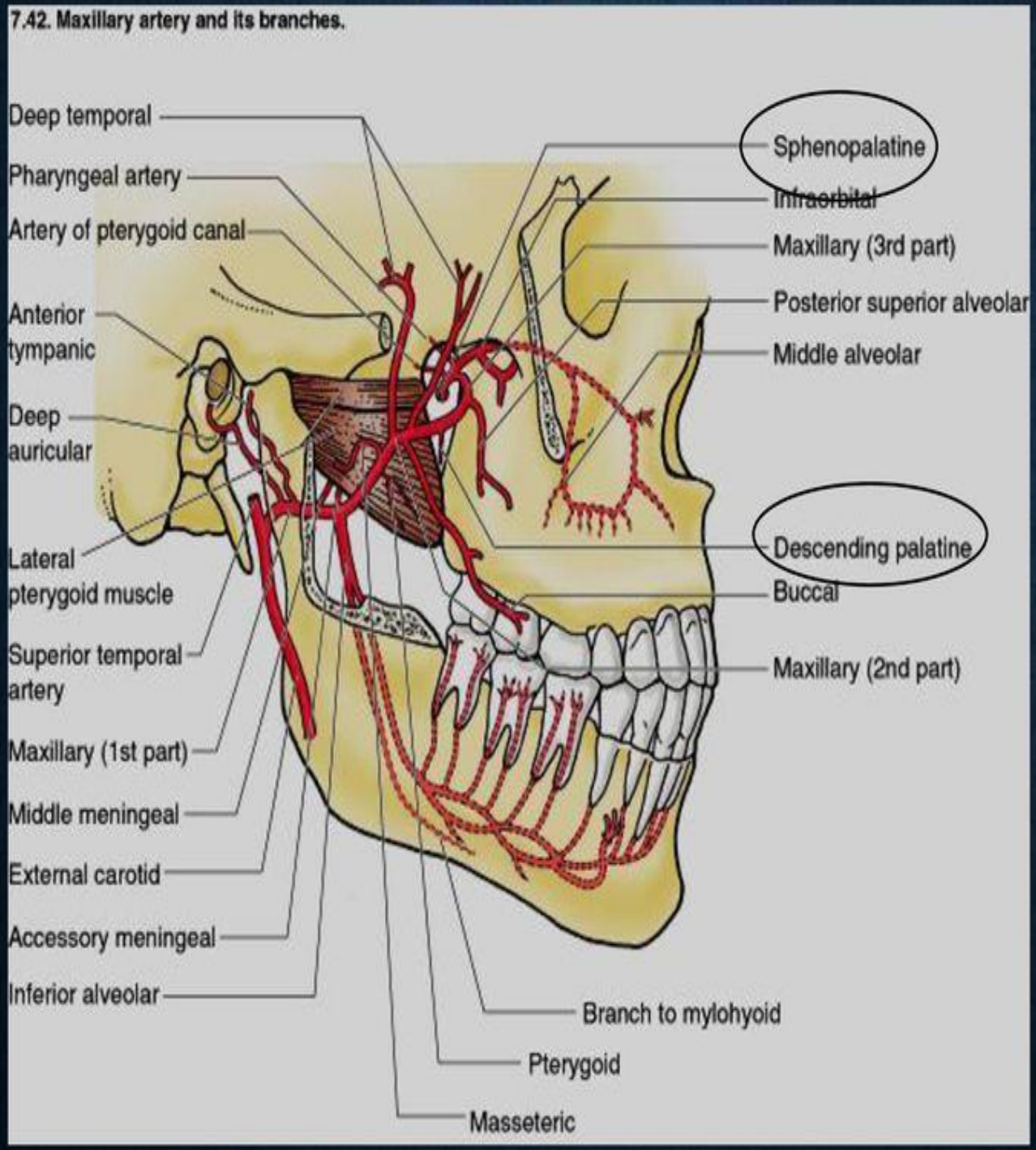


Core Knowledge

Parts of Maxillary Artery



7.42. Maxillary artery and its branches.



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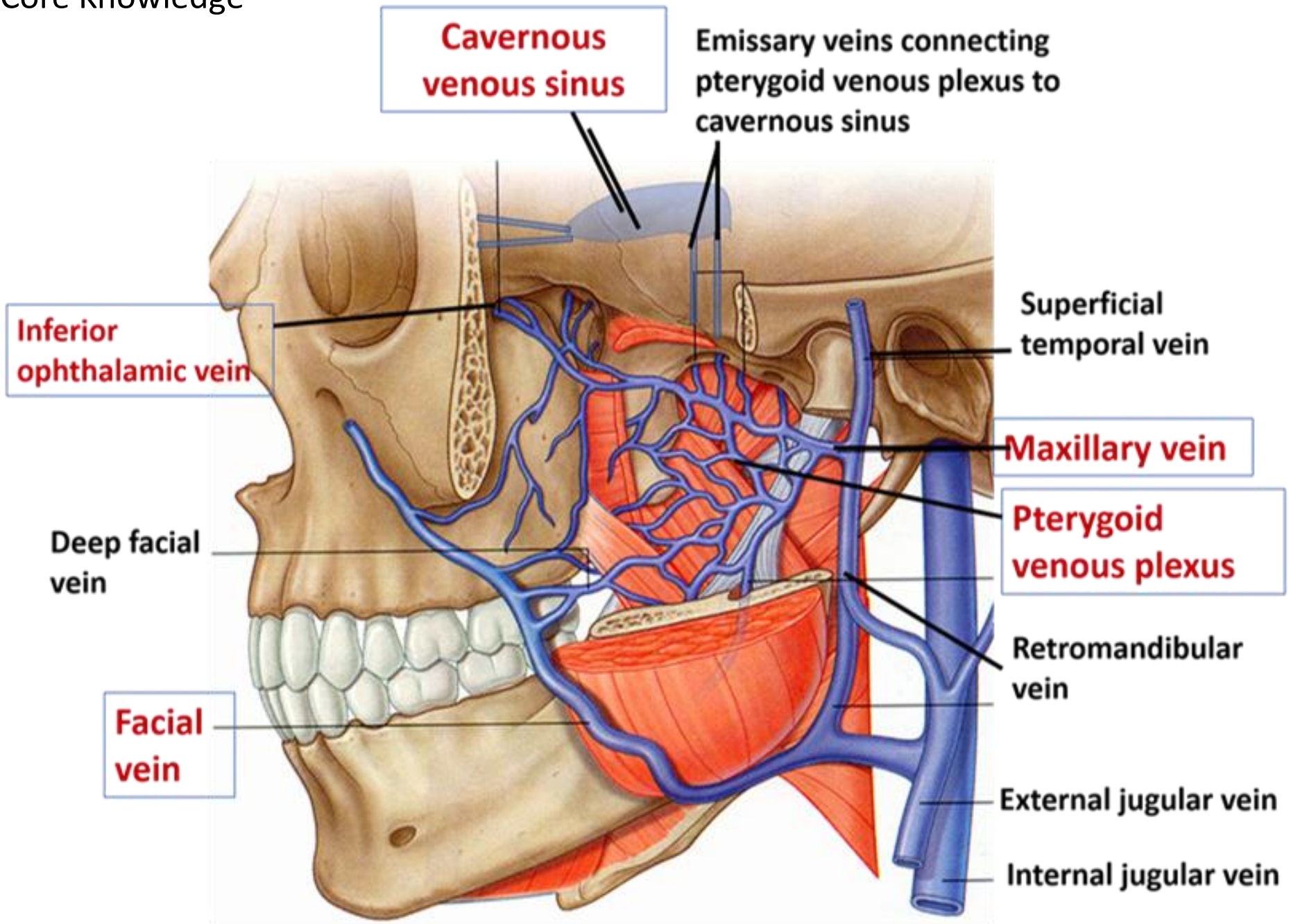

Vertical Integration

APPLIED ANATOMY OF MAXILLARY ARTERY

- **Surgeries involving condyle-** Injury to maxillary artery can occur as it lies medial to condyle.

- Can be used as **arterial donor** in repair of ICA dissections and aneurysms, due to close proximity of the artery to the cranial base.

- Control of **epistaxis**---If epistaxis is not controlled after nasal packing,it can be controlled by ligating IMA via endonasal , transantral or intraoral approach.

Vertical Integration

Trigeminal Neuralgia

Spiral Integration

Family Medicine

Demyelination

Genetic tendency

Stress

Trauma

Compression

tumour &multiple sclerosis

Immunological factors

Factors responsible for Trigeminal neuralgia

Related Research Article

- **Case Study: Dr. Jude Fabiano, DDS (et. al) on Trigeminal Nerualgia with Intraoral Trigger Points**

•The Endoscopic Prelacrimal Recess Approach to the Pterygopalatine Fossa and Infratemporal Fossa

Spiral Integration

Four principles of bioethics

Framework[a]

Principle	Description
Respect for Autonomy	Respect for the individual patient and his or her ability to make decisions with regard to own health and future; right to self-determination
Beneficence	Doing and promoting good; preventing and removing evil or harm
Nonmaleficence	Doing no harm; avoiding harming
Justice	Maximizing benefit to patients and society while emphasizing equality, fairness, and impartiality

[a] Adapted from Beauchamp and Childress.[3]

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5. A page will appear showing the resources of the institution
6. Journals and Researches will appear
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Video


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Trigeminal Neuralgia


thank you