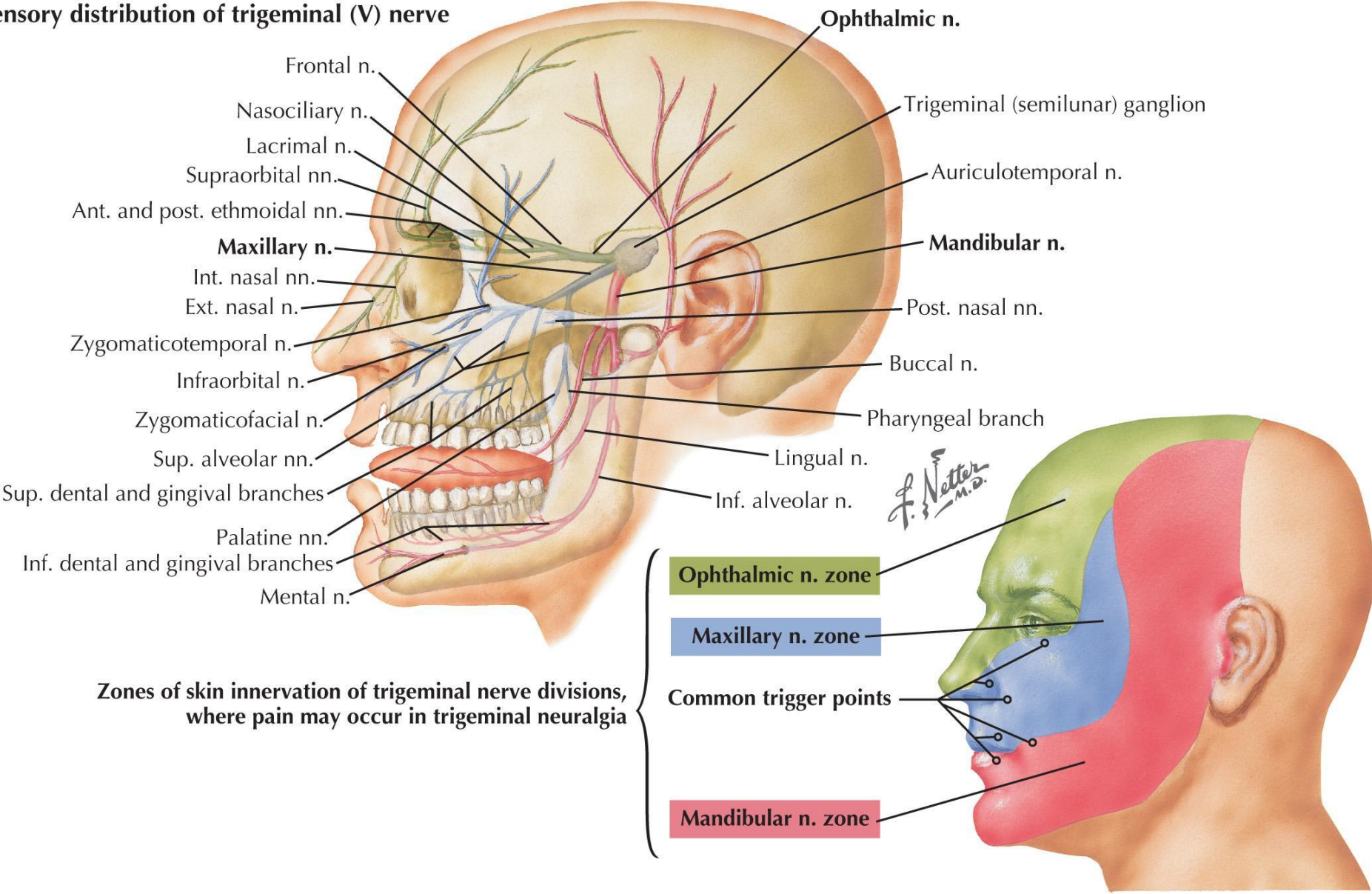


Nerve Supply of Oral Cavity

陳怡孜

Sensory distribution of trigeminal (V) nerve



Infraorbital nerve (V2)

Maxillary nerve (V₂)

Superior labial of
the infraorbital

Buccal nerve (V₃)

Mental nerve (V₃)

The skin of the upper lip

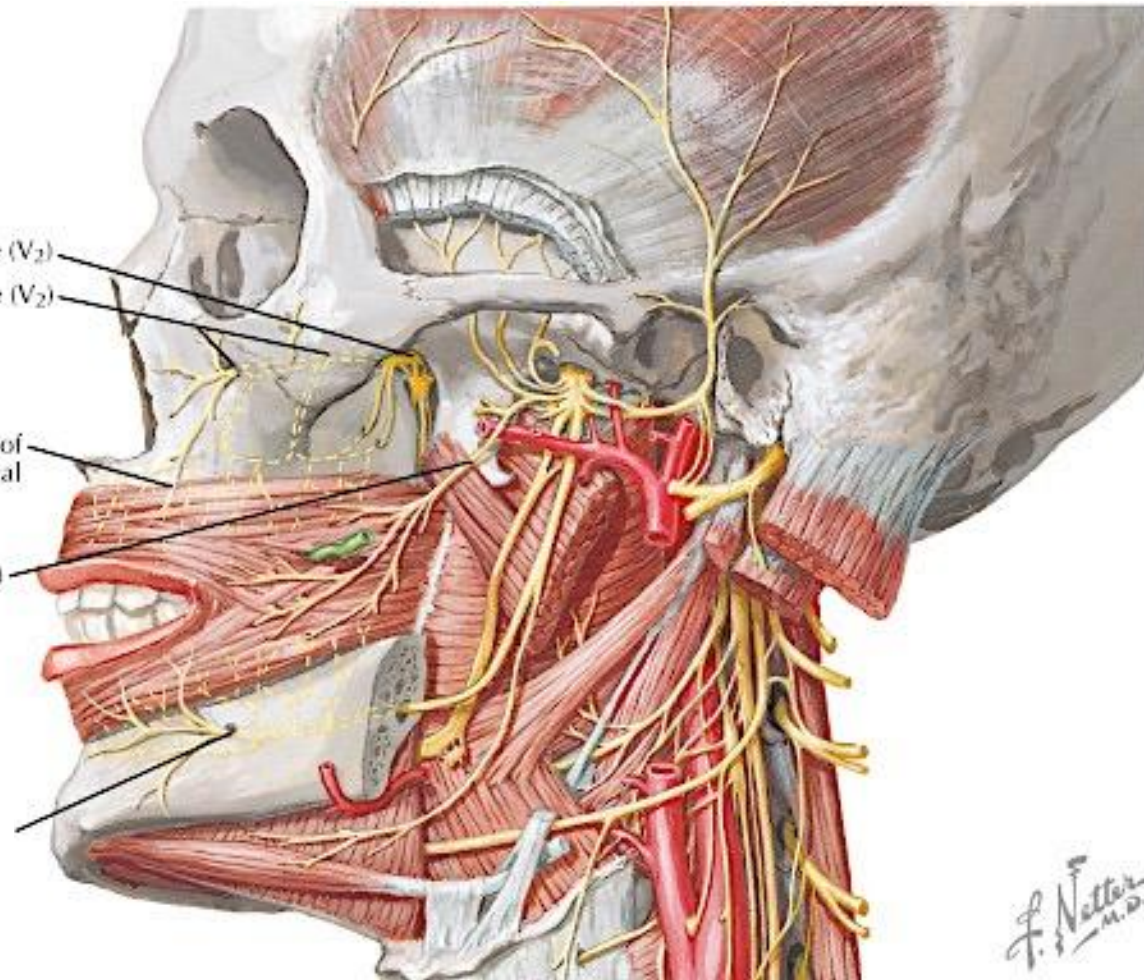
*F. Netter
M.D.*

Maxillary nerve (V₂)
Infraorbital nerve (V₂)

Superior labial of
the infraorbital

Buccal nerve (V₃)

Mental nerve (V₃)

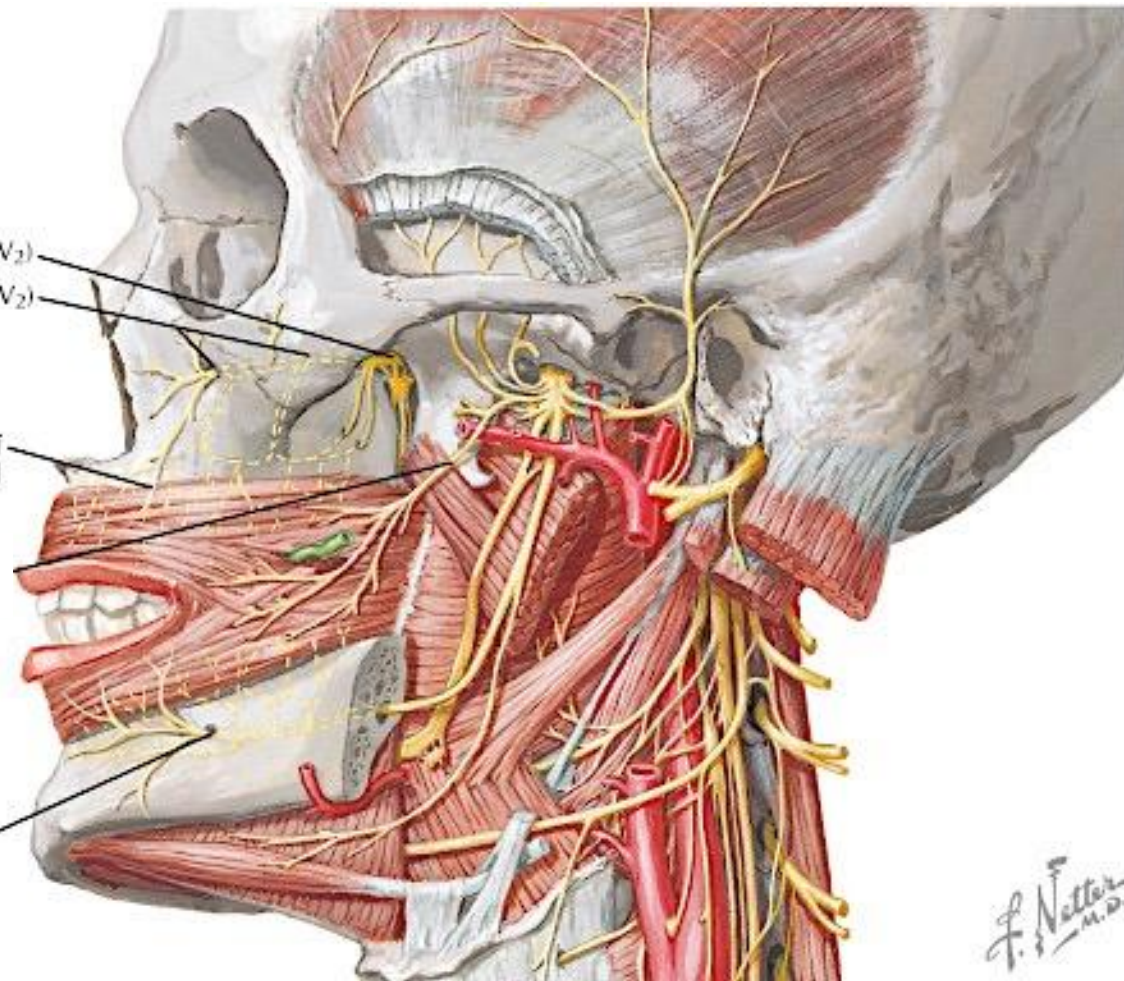


The skin of the lower lip, chin, and facial gingiva (2nd premolar)

Maxillary nerve (V₂)
Infraorbital nerve (V₂)

Superior labial of
the infraorbital

Mental nerve (V₃)



Buccal branch (V₃)

The skin over the buccinator muscle before passing through it
The mucous membrane lining its inner surface
The gingiva along the mandibular molars.

Sensory innervation

Nerve	Source	Course
Superior labial branch of the infraorbital	Infraorbital n. (a continuation of the maxillary division of the CN V)	1 of the 3 terminal branches of the infraorbital n., along with the inferior palpebral and the nasal, as it exits onto the face via the infraorbital foramen Supplies the skin of the upper lip
Mental	Inferior alveolar n.	1 of the 2 terminal branches of the inferior alveolar n. Emerges through the mental foramen of the mandible in the region of the 2nd mandibular premolar Supplies the skin of the lower lip, chin, and facial gingiva as far posteriorly as the 2nd mandibular premolar
Buccal branch of the mandibular division of CN V	Mandibular division of the CN V	Passes anteriorly between the 2 heads of the lateral pterygoid m. Descends inferiorly along the lower part of the temporalis m. to emerge from deep to the anterior border of the masseter m. Supplies the skin over the buccinator m. before passing through it to supply the mucous membrane lining its inner surface and the gingiva along the mandibular molars

Maxillary n.

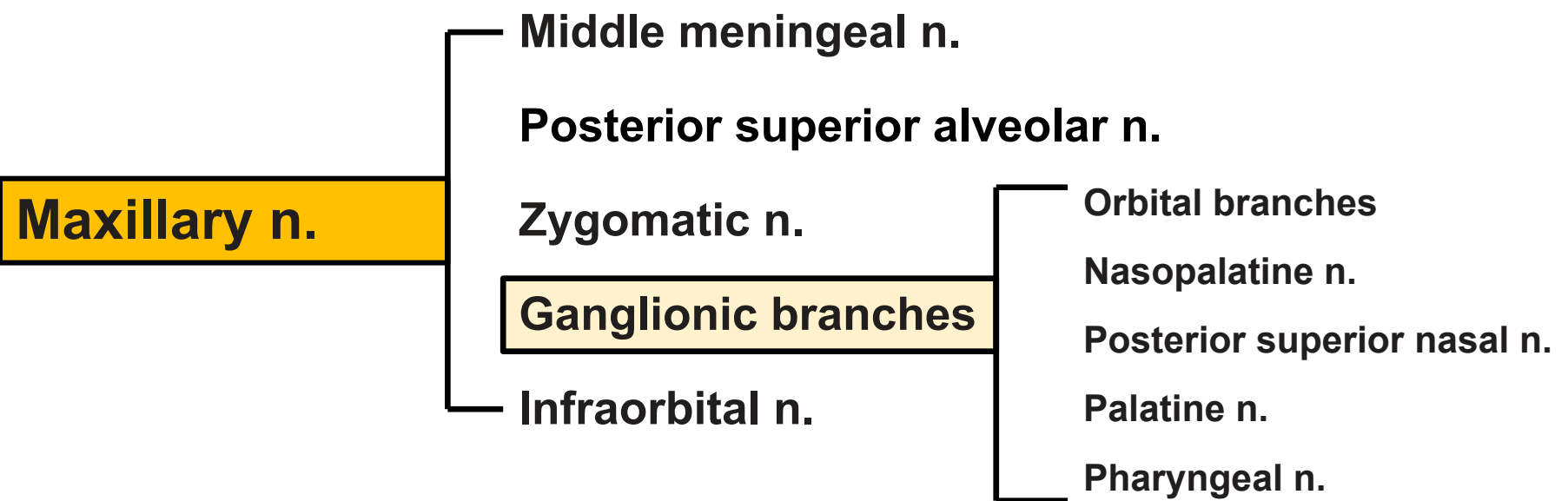
Middle meningeal n.

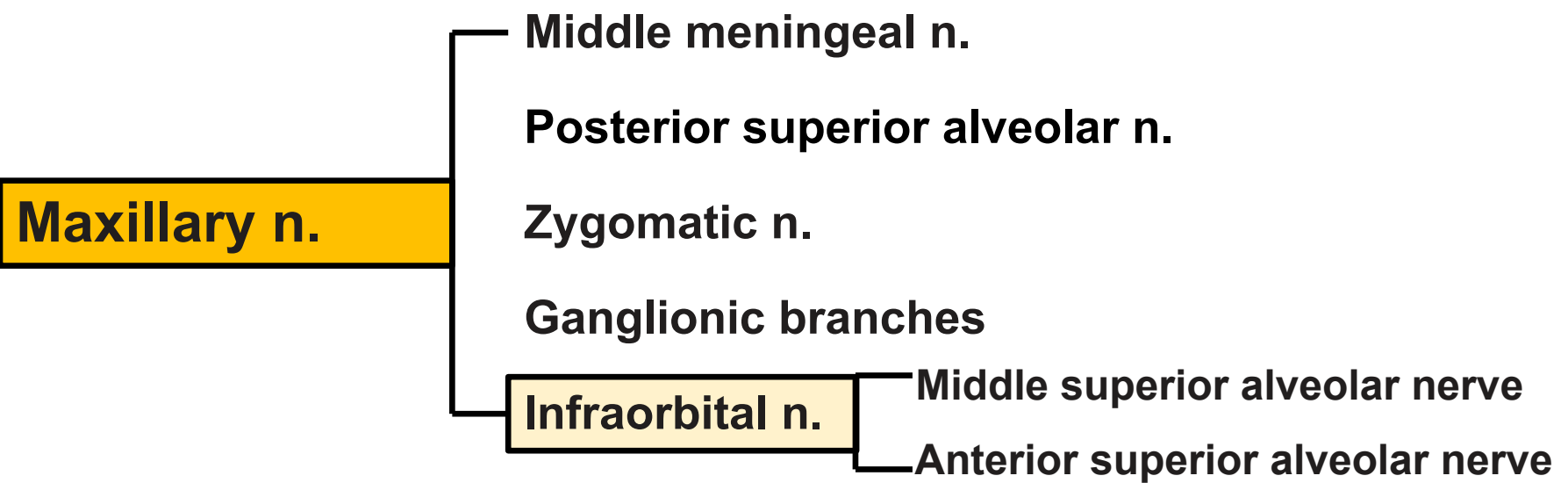
Posterior superior alveolar n.

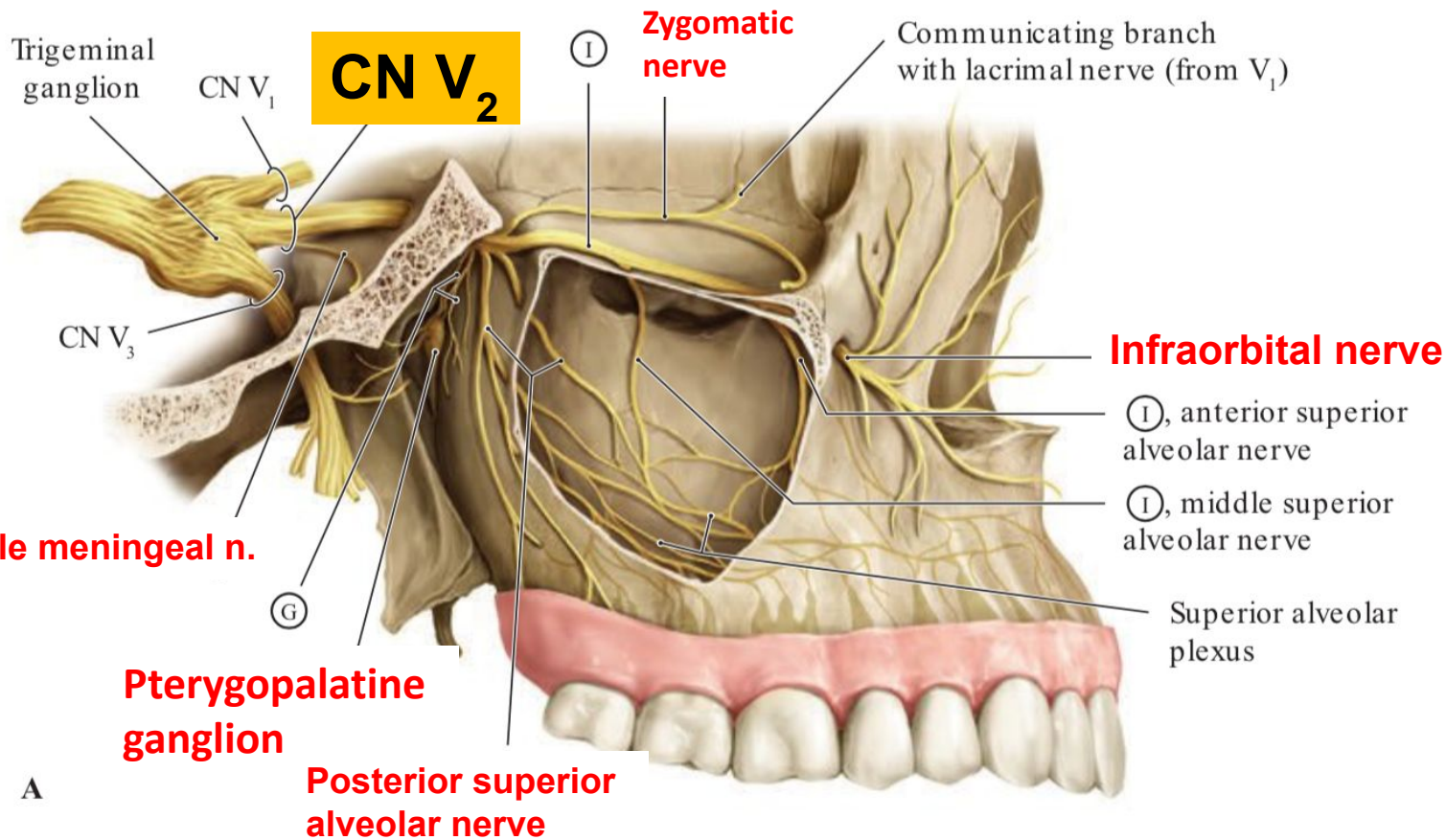
Zygomatic n.

Pterygopalatine ganglionic branches

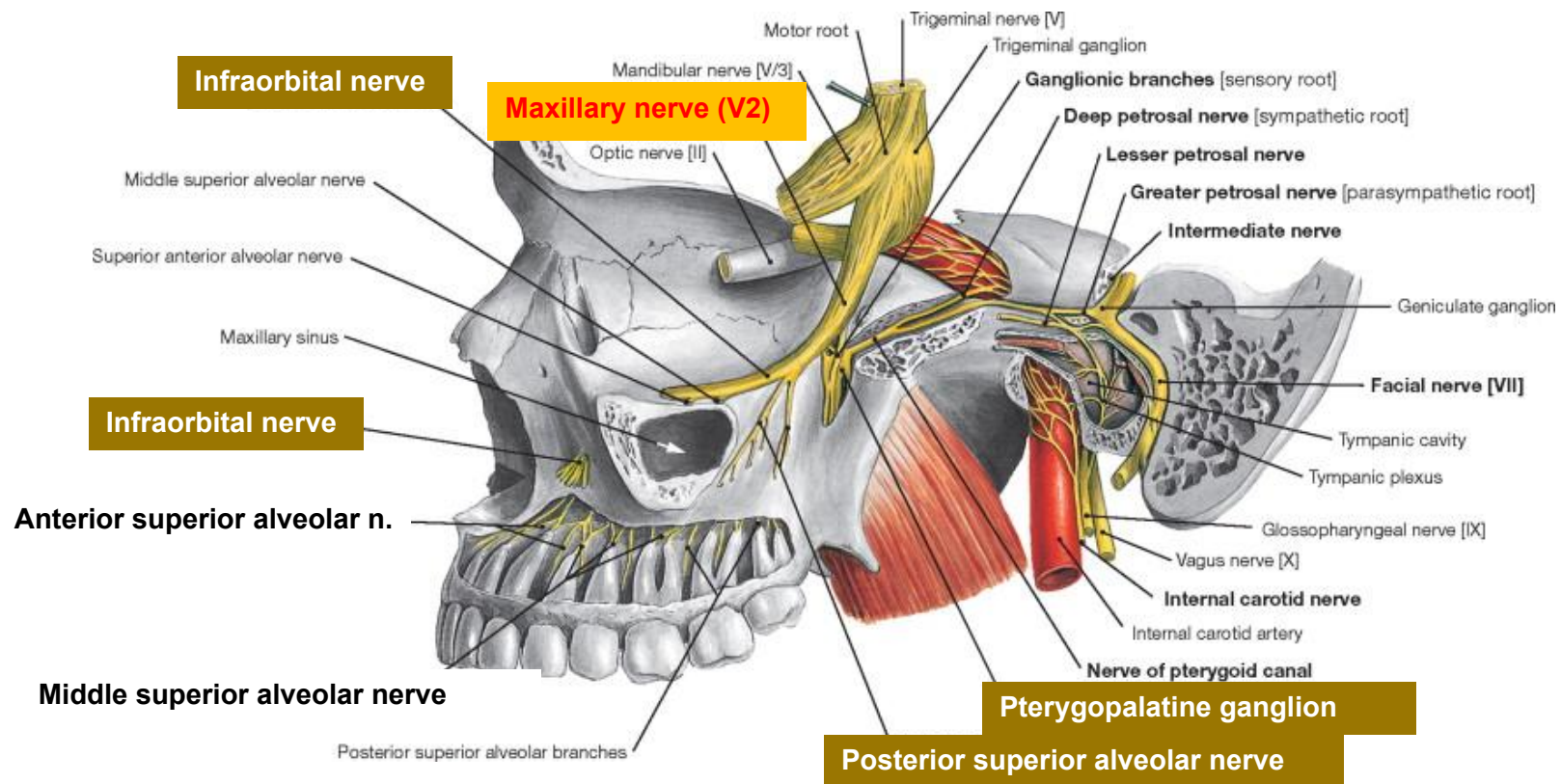
Infraorbital n.

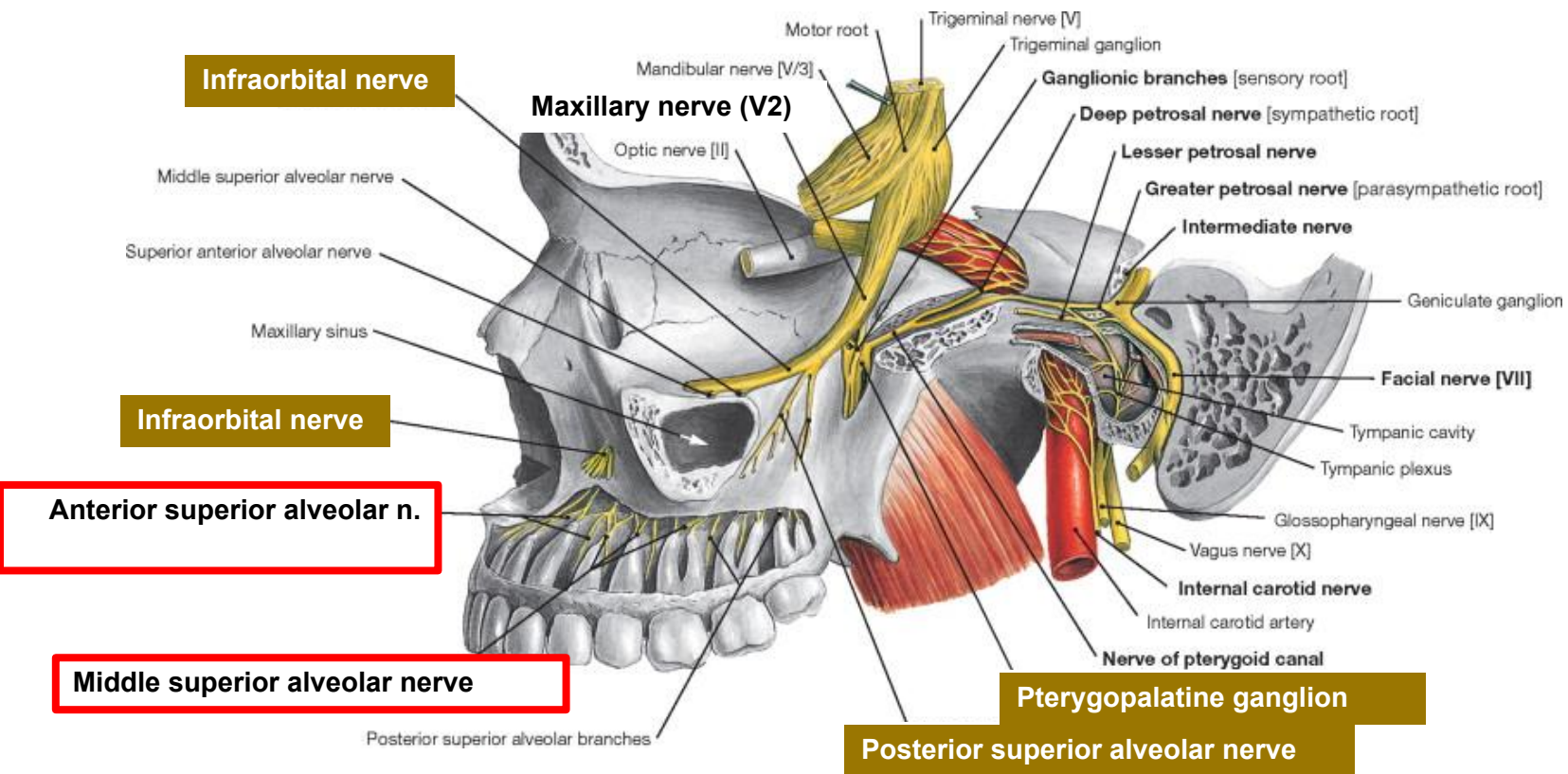


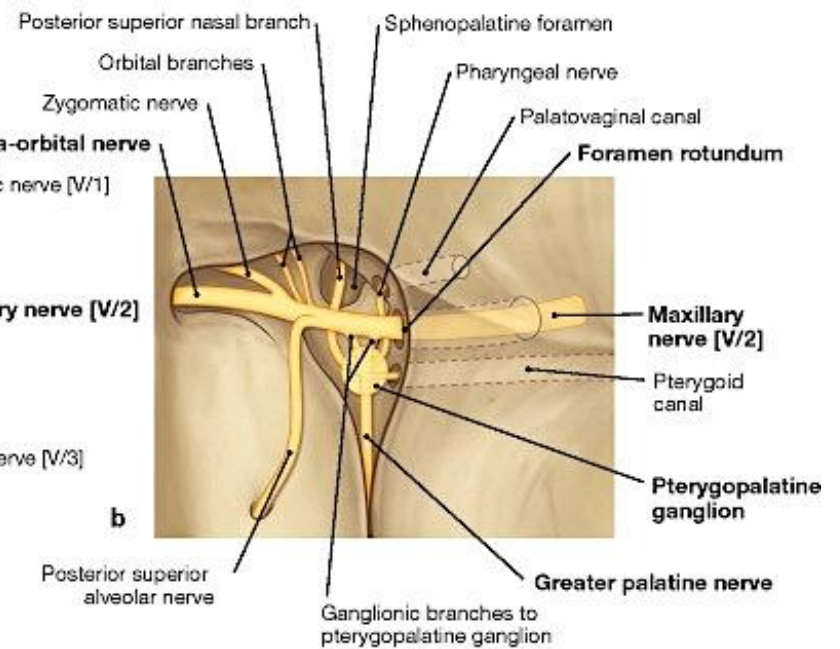
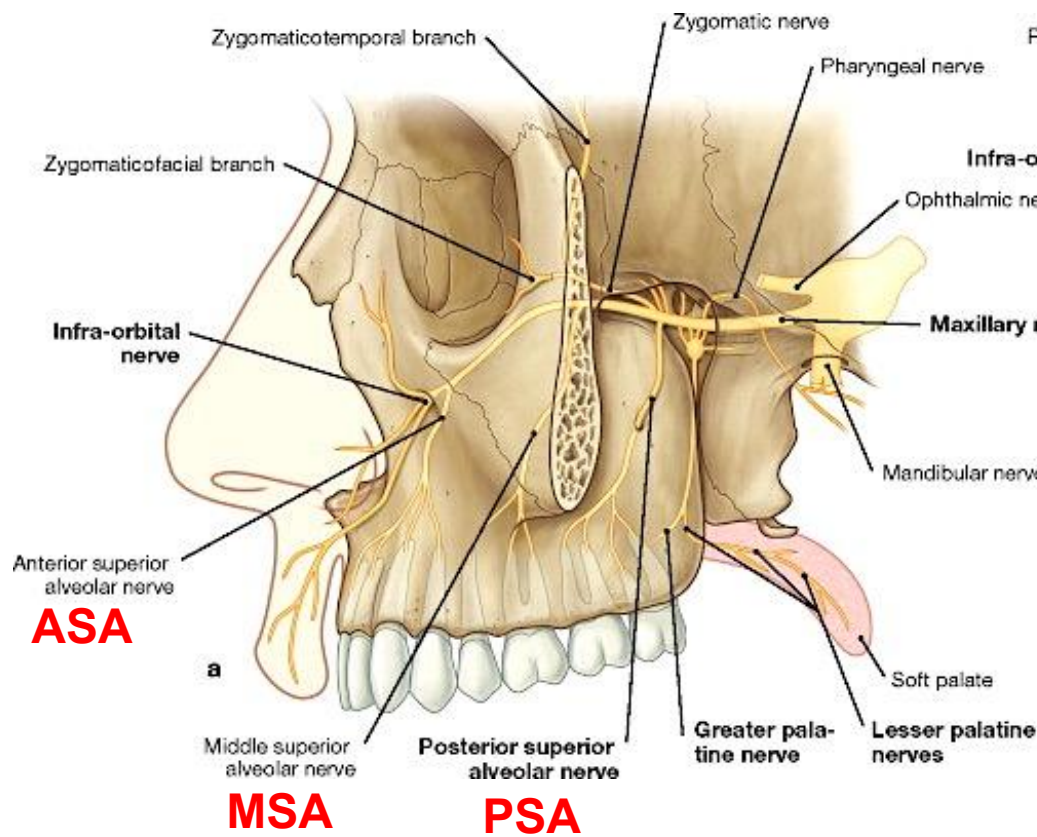




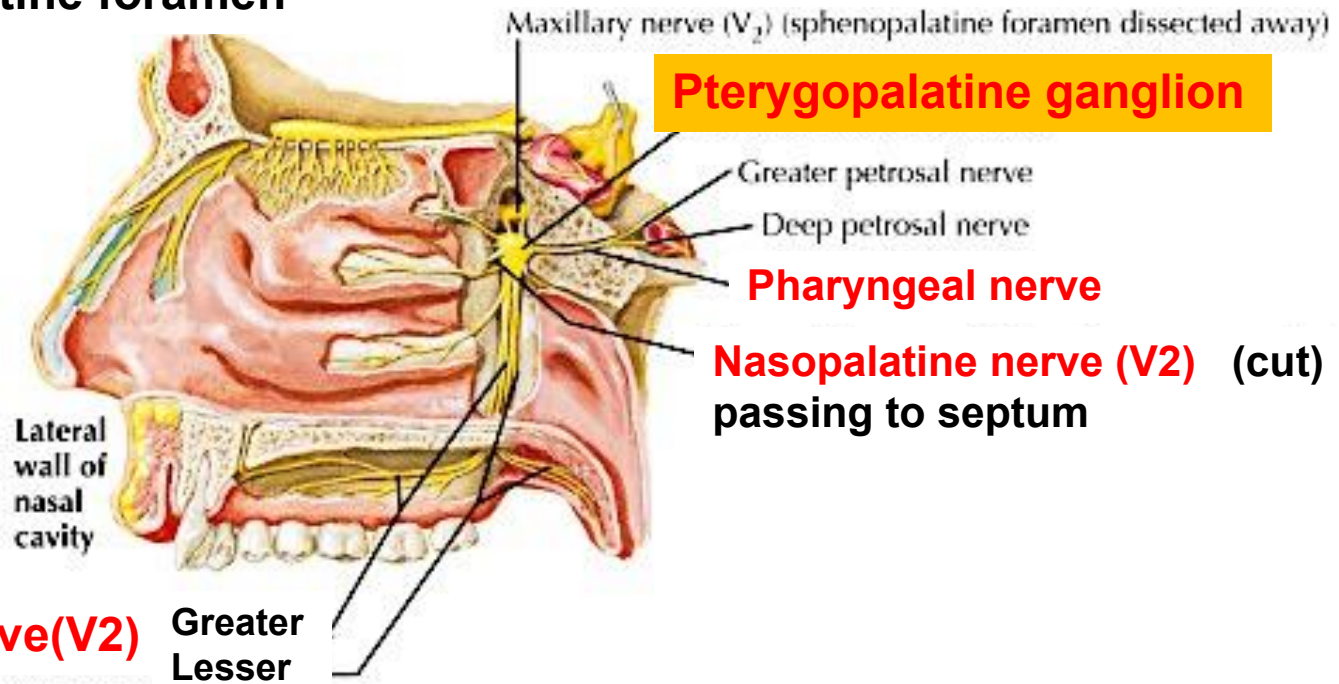
A







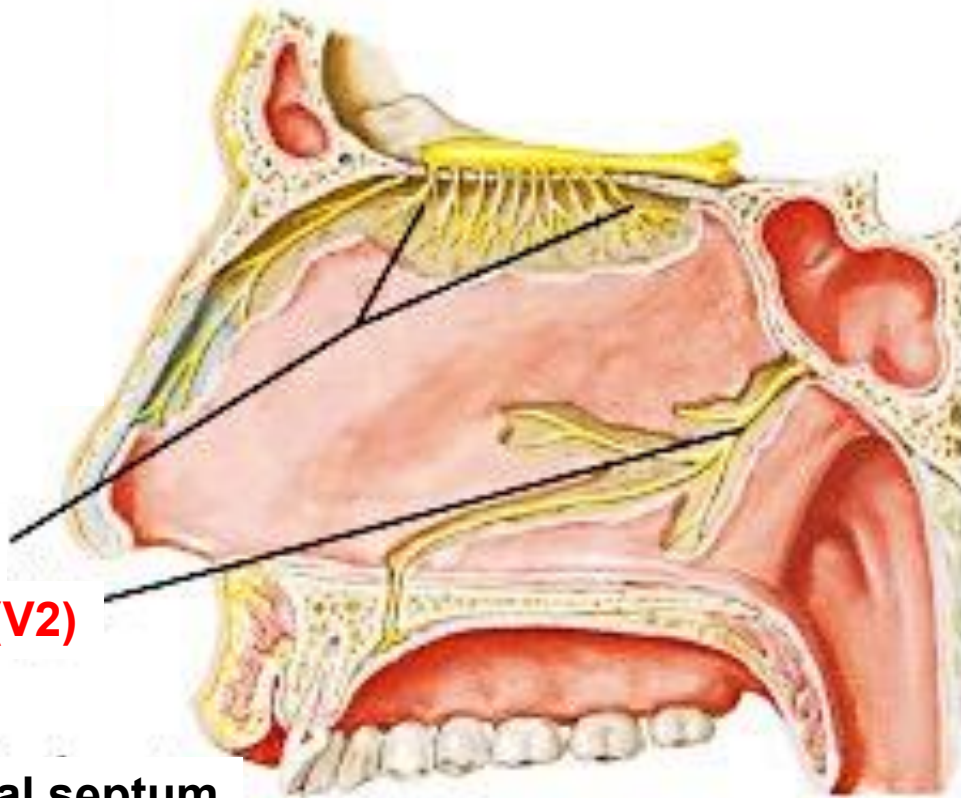
Maxillary nerve(V2) ~~sphenopalatine foramen~~

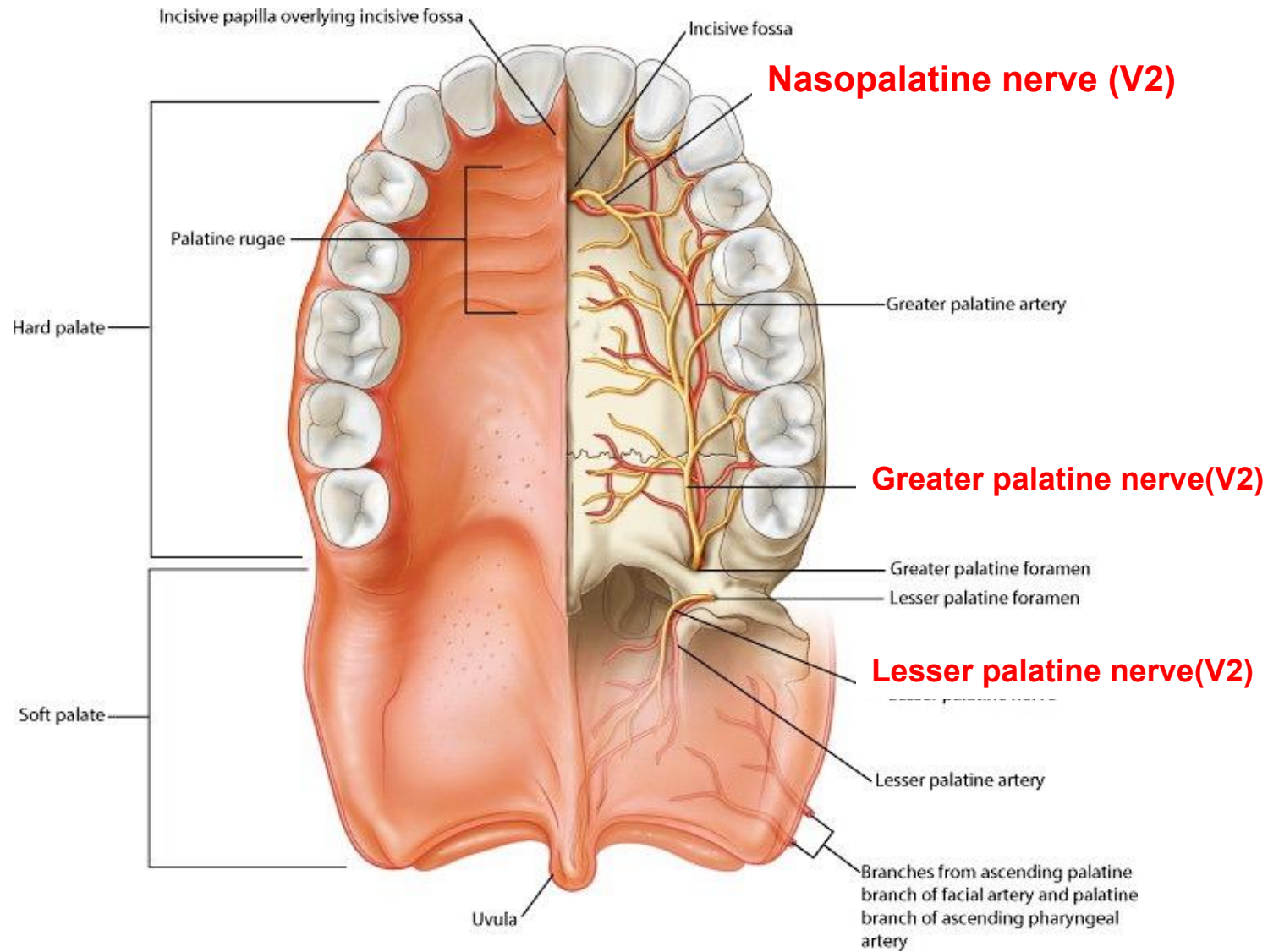


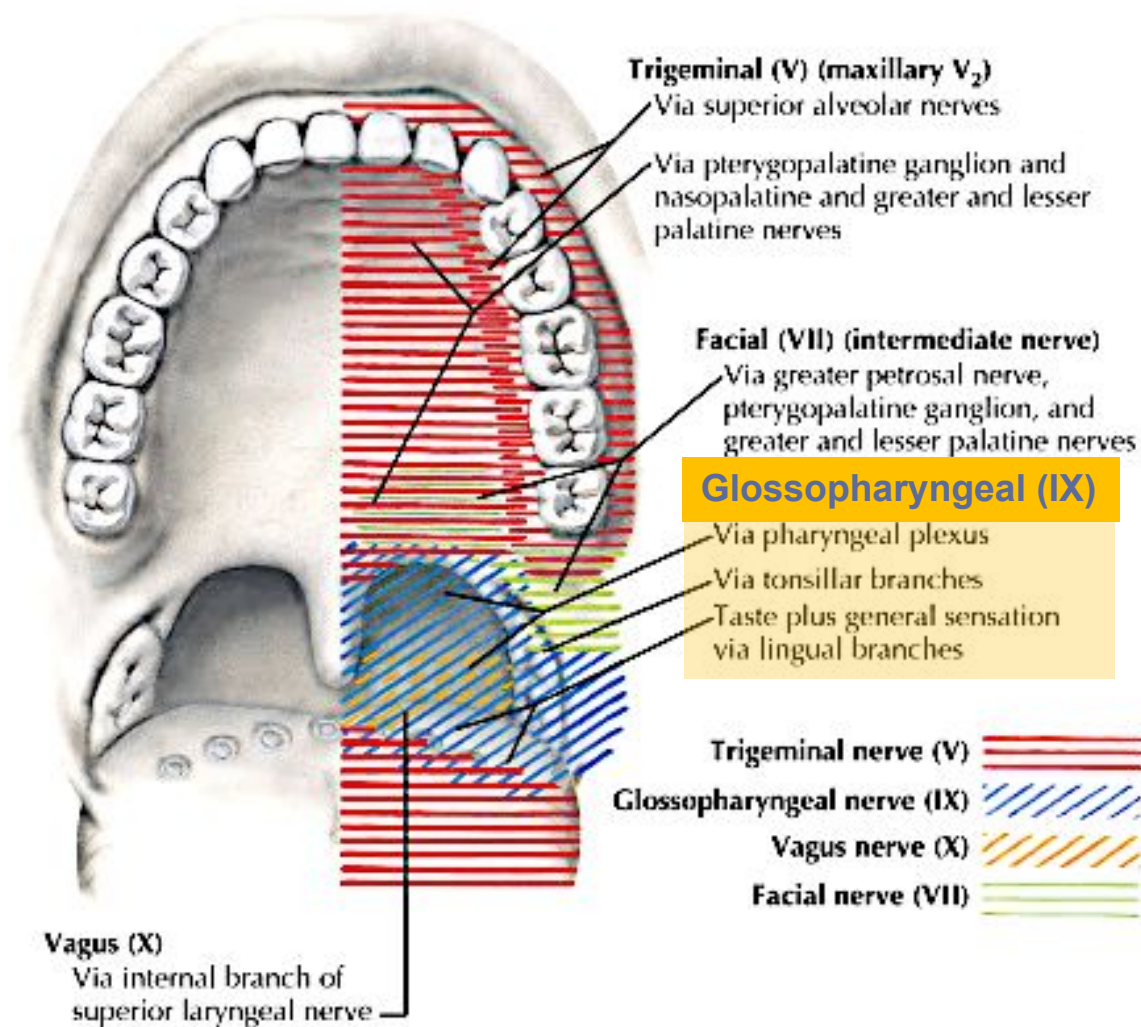
Palatine nerve(V2) Greater
Lesser

Olfactory nerve
Nasopalatine nerve (V2)

Nasal septum







Maxillary teeth

Nerve	Source	Course
Maxillary	Trigeminal n.	Travels along the lateral wall of the cavernous sinus Passes from the middle cranial fossa into the pterygopalatine fossa via the foramen rotundum Within the pterygopalatine fossa, it gives rise to 4 branches: • Infraorbital (continuation of the maxillary) • Ganglionic • Posterior superior alveolar • Zygomatic The infraorbital n. gives rise to 2 branches that form a plexus with the posterior superior alveolar to supply the maxillary arch: • Anterior superior alveolar • Middle superior alveolar

Maxillary teeth

Nerve	Source	Course
Infraorbital	Continuation of the maxillary division of the trigeminal n.	Passes through the inferior orbital fissure to enter the orbit Passes anteriorly through the infraorbital groove and infraorbital canal and exits onto the face via the infraorbital foramen Once the infraorbital n. exits onto the face, it divides into 3 terminal branches: • Nasal—supplies the ala of the nose • Inferior palpebral—supplies the skin of the lower eyelid • Superior labial—supplies the skin of the upper lip

Maxillary teeth

Nerve	Source	Course
Anterior superior alveolar	Infraorbital n. as it travels in the infraorbital canal	As it descends to form the superior dental plexus, it innervates part of the maxillary sinus and generally the incisors and canines
Middle superior alveolar		A variable nerve As it descends to form the superior dental plexus, it innervates part of the maxillary sinus and the premolars and possibly the mesiobuccal root of the 1st molar
Posterior superior alveolar	Maxillary n. in the pterygopalatine fossa	Travels laterally through the pterygomaxillary fissure to enter the infratemporal fossa Enters the infratemporal surface of the maxilla As it descends to form the superior dental plexus, it innervates part of the maxillary sinus and the molars, with the possible exception of the mesiobuccal root of the 1st molar

Palate

Nerve	Source	Course
Nasopalatine	Maxillary division of CN V. Via the pterygopalatine ganglion in the pterygopalatine fossa	Passes through the sphenopalatine foramen to enter the nasal cavity Passes along the superior portion of the nasal cavity to the nasal septum, where it travels anteroinferiorly to the incisive canal supplying the septum Once entering the oral cavity, it provides sensory innervation to the palatal gingiva and mucosa from the area anterior to the premolars

Palate

Nerve	Source	Course
Greater palatine	Maxillary division of the trigeminal n. via the pterygopalatine ganglion in the pterygopalatine fossa	Passes through the palatine canal to enter the hard palate via the greater palatine foramen
Lesser palatine		Sensory innervation to the palatal gingiva and mucosa from the premolars to the posterior border of the hard palate
		Passes through the palatine canal to enter the hard palate via the lesser palatine foramen
		Provides sensory innervation to the soft palate

Palate

Nerve	Source	Course
Glossopharyngeal	Medulla oblongata	Passes through the jugular foramen with the vagus and accessory n. As it passes through the foramen, it passes between the internal carotid a. and internal jugular v. Continues to pass inferiorly and travels posterior to the stylopharyngeus m. Passes anteriorly with the stylopharyngeus and travels between the superior and middle constrictor m. to be located by the palatine tonsils Small lingual branches arise from it and distribute general somatic afferent fibers to the mucous membrane of the posterior 1/3 of the tongue, in addition to the pillars of the fauces

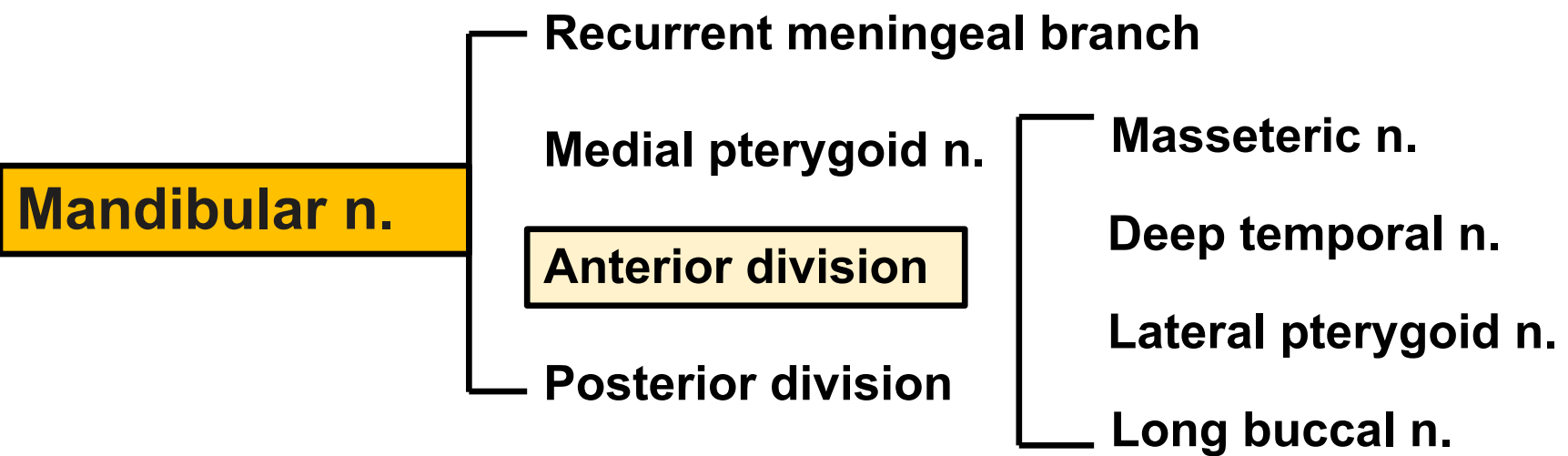
Mandibular n.

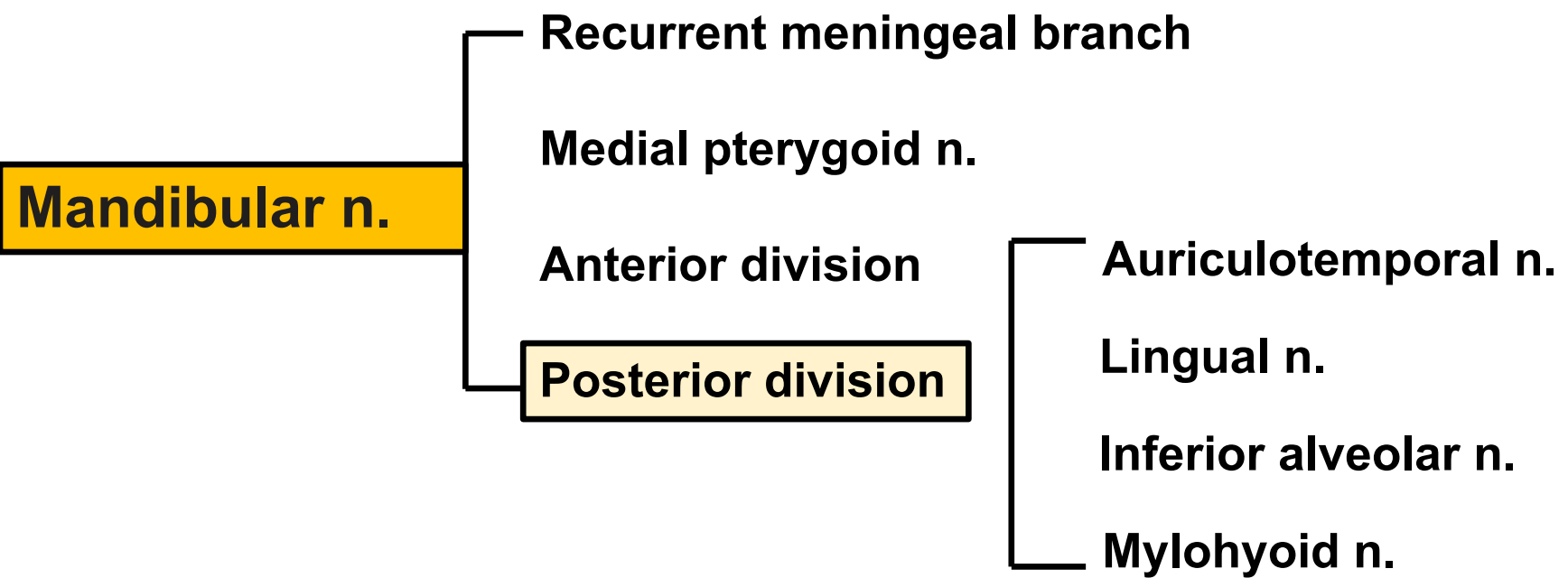
Recurrent meningeal branch

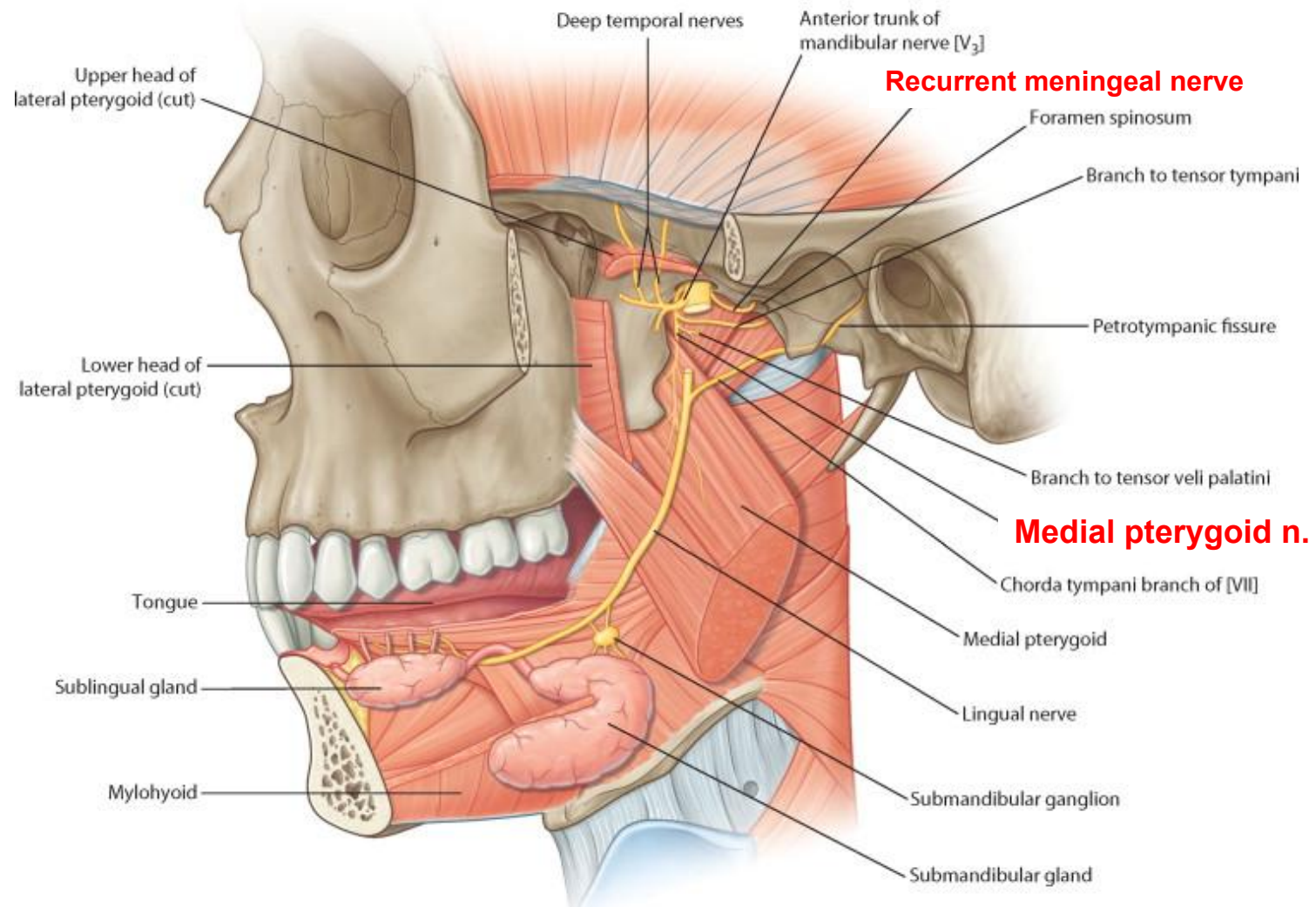
Medial pterygoid n.

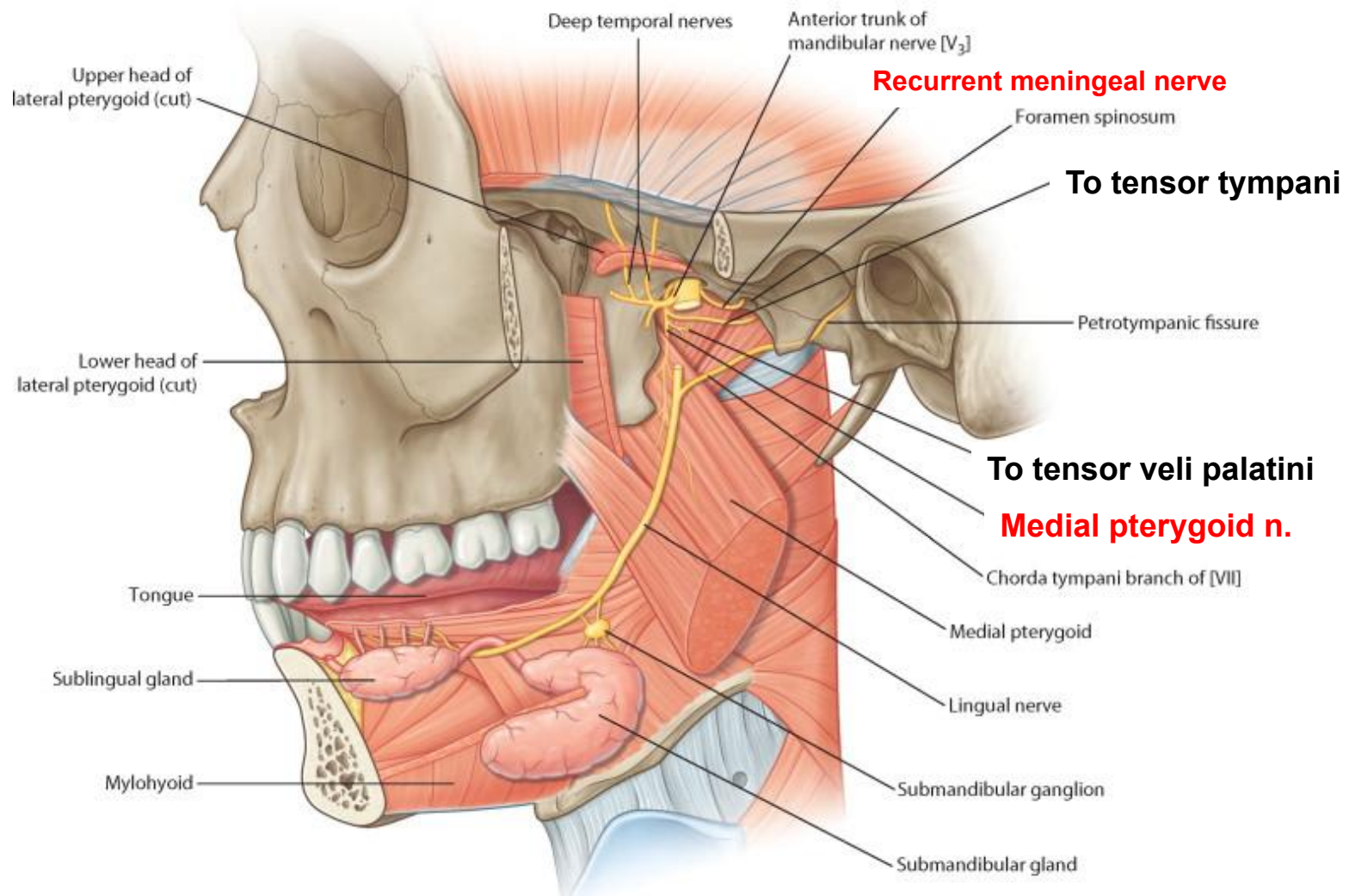
Anterior division

Posterior division









Nerves of the temporal and infratemporal fossa

Zygomaticotemporal nerve
(branch of maxillary nerve [V₂])

Upper head of
lateral pterygoid (cut)

Maxillary nerve [V₂]

Zygomaticofacial nerve
(branch of maxillary nerve [V₂])

Lower head of
lateral pterygoid (cut)

Nerve to Lateral pterygoid

Extension of
tendon of temporalis

Masseteric nerve

Lingual nerve

Buccal nerve

Incisive nerve

Mental nerve

Mylohyoid

Deep temporal nerve

Ophthalmic nerve [V₁]

Auriculotemporal nerve

Anterior trunk of V3

Meningeal nerve

Middle meningeal artery

Posterior trunk of V3

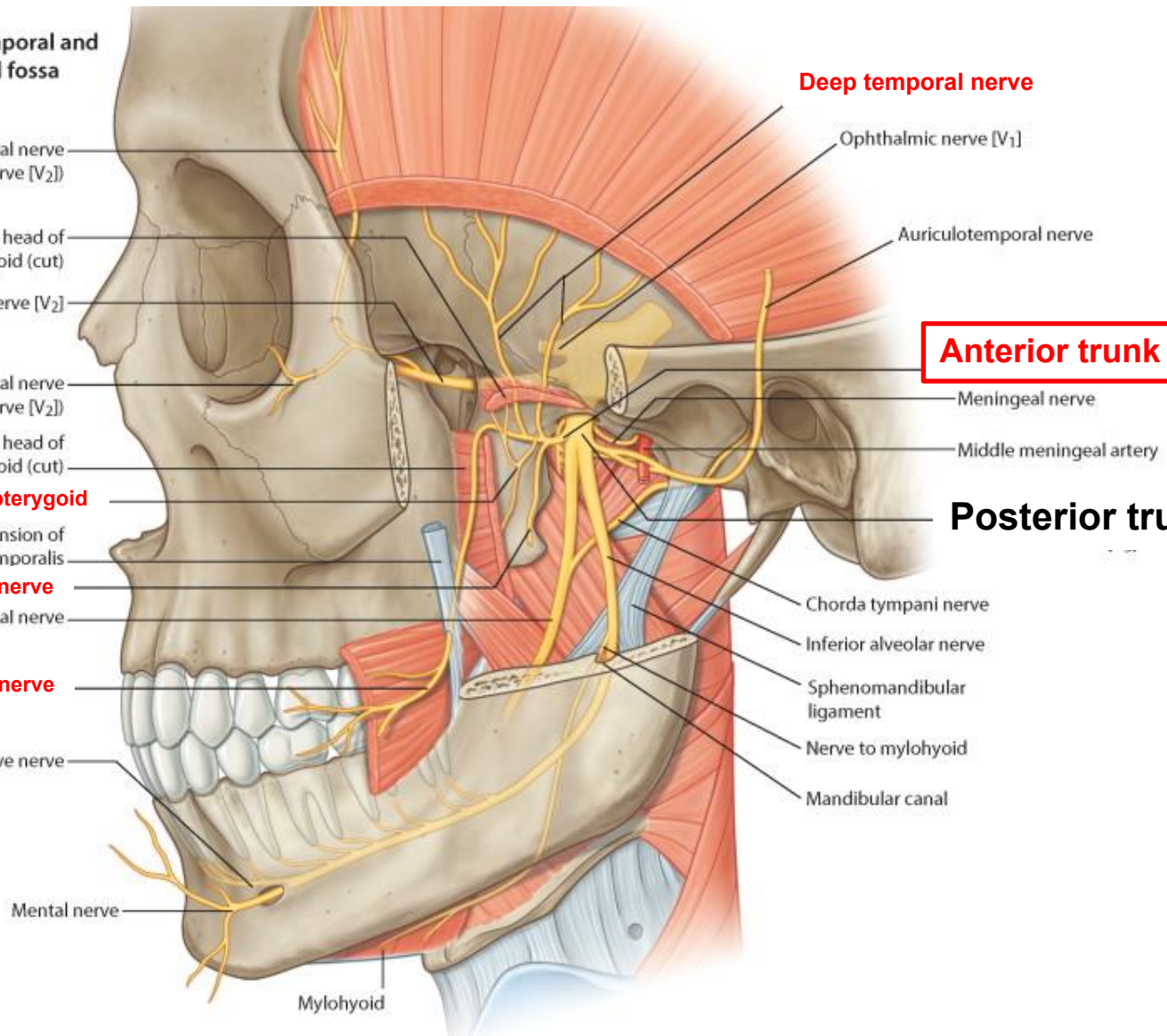
Chorda tympani nerve

Inferior alveolar nerve

Sphenomandibular
ligament

Nerve to mylohyoid

Mandibular canal



Nerves of the temporal and infratemporal fossa

Zygomaticotemporal nerve
(branch of maxillary nerve [V₂])

Upper head of
lateral pterygoid (cut)

Maxillary nerve [V₂]

Zygomaticofacial nerve
(branch of maxillary nerve [V₂])

Lower head of
lateral pterygoid (cut)

Nerve to lateral pterygoid

Extension of
tendon of temporalis

Masseteric nerve

Lingual nerve

Buccal nerve

Incisive nerve

Mental nerve

Mylohyoid

Deep temporal nerves

Ophthalmic nerve [V₁]

Auriculotemporal nerve

Anterior trunk of V3

Meningeal nerve

Middle meningeal artery

Posterior trunk of V3

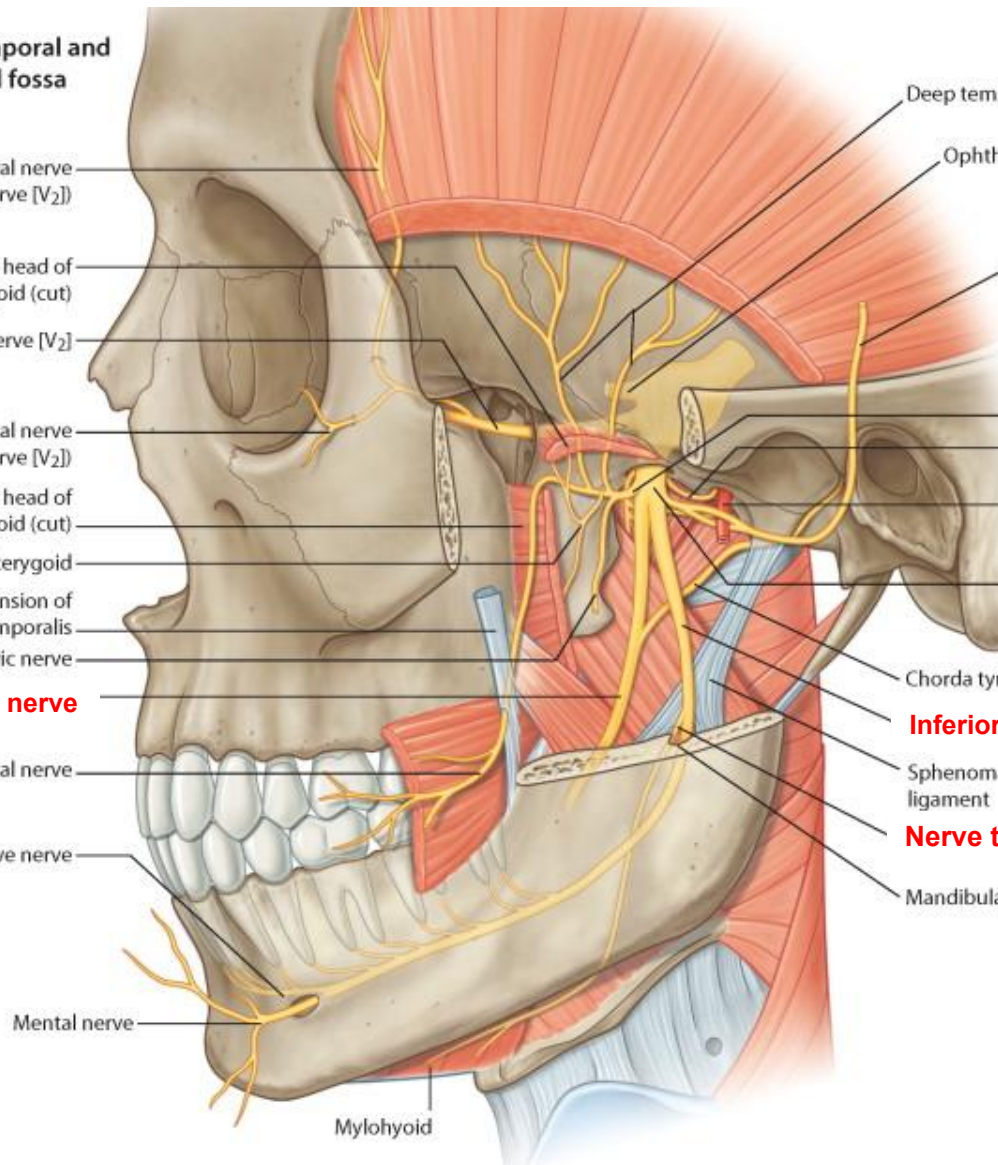
Chorda tympani nerve

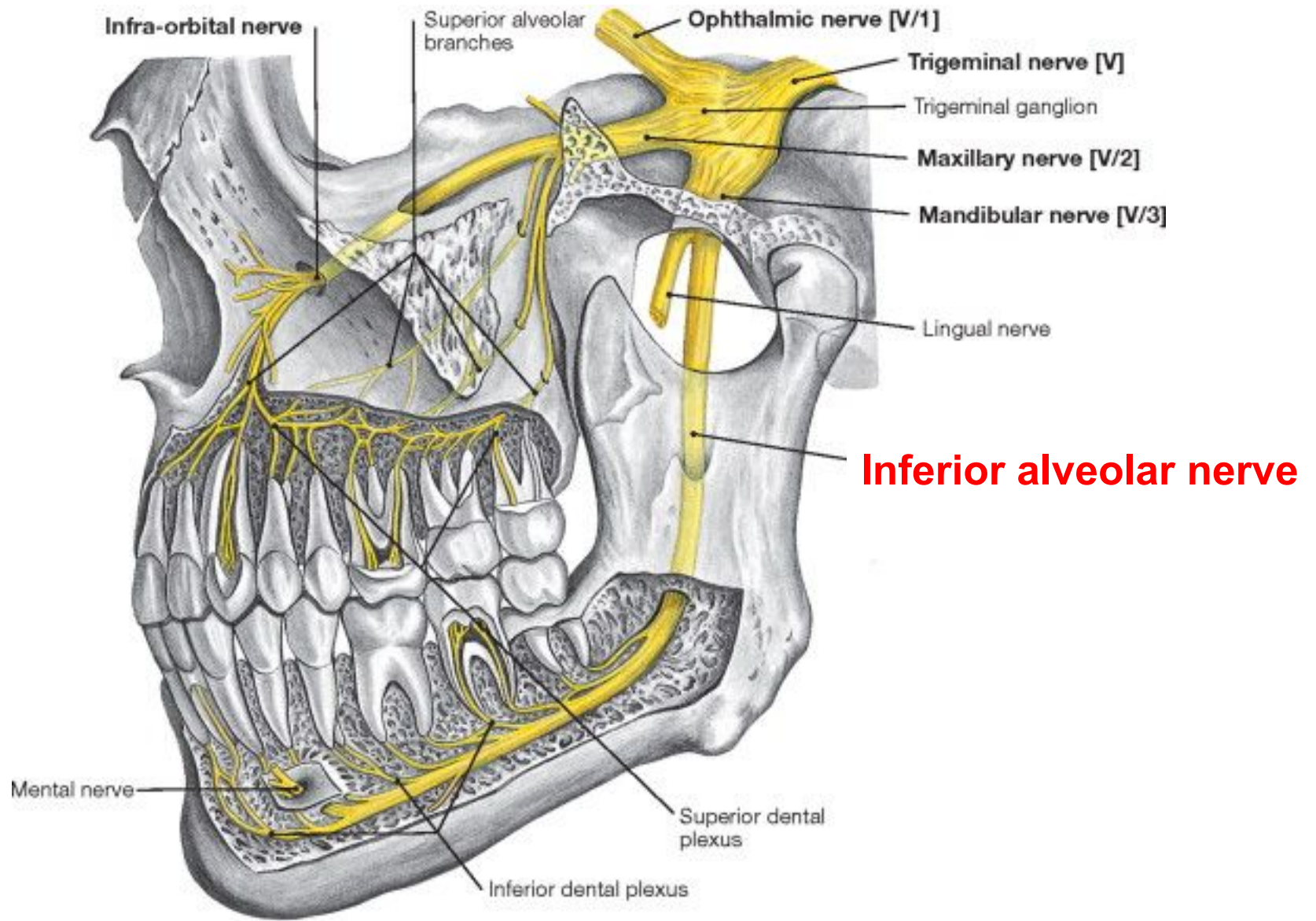
Inferior alveolar nerve

Sphenomandibular
ligament

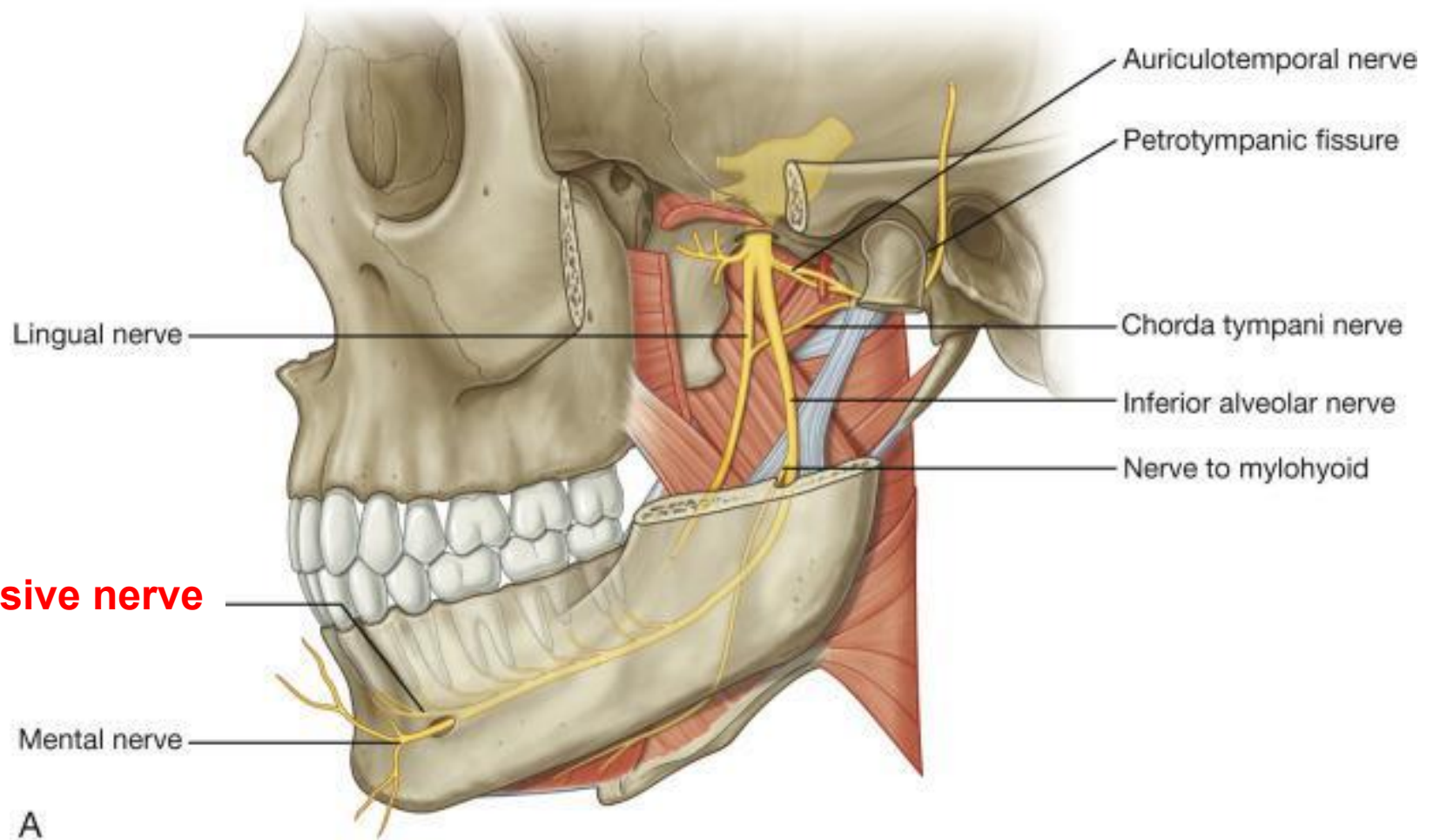
Nerve to mylohyoid

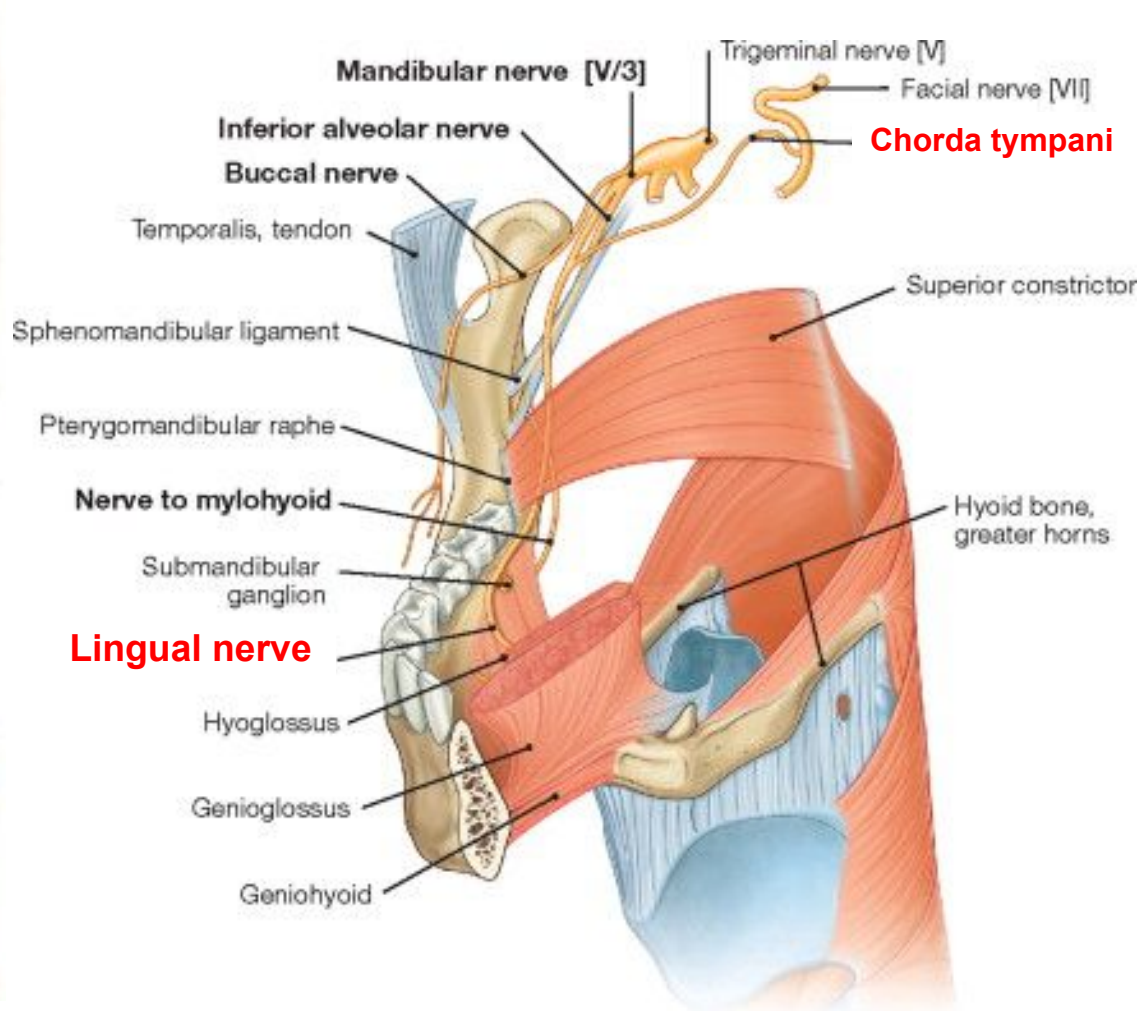
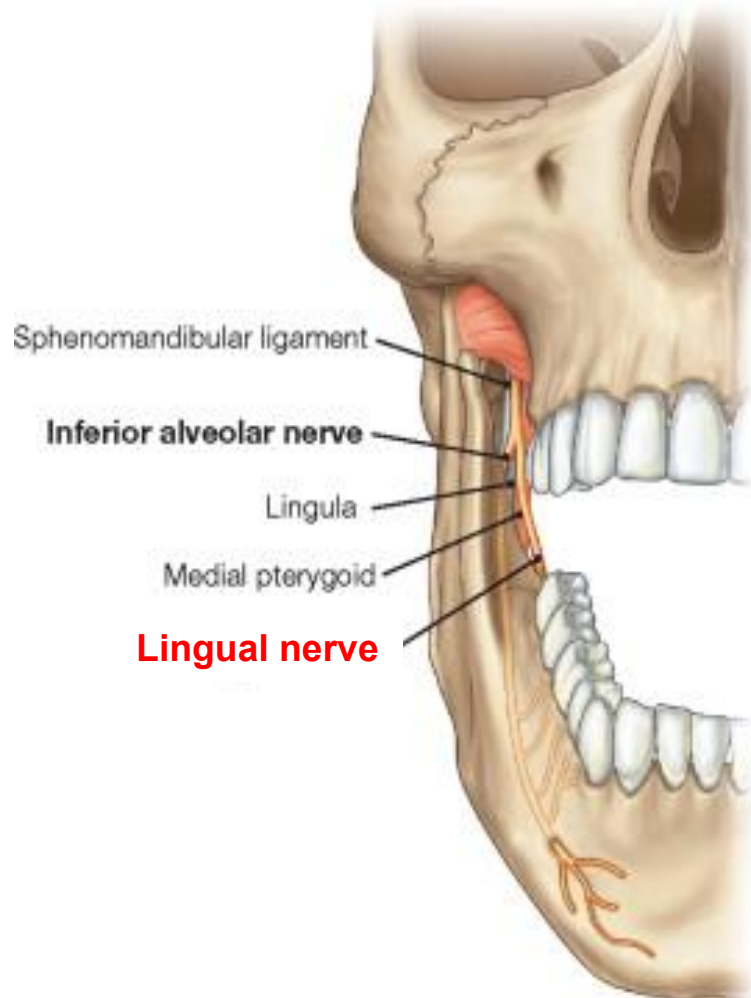
Mandibular canal

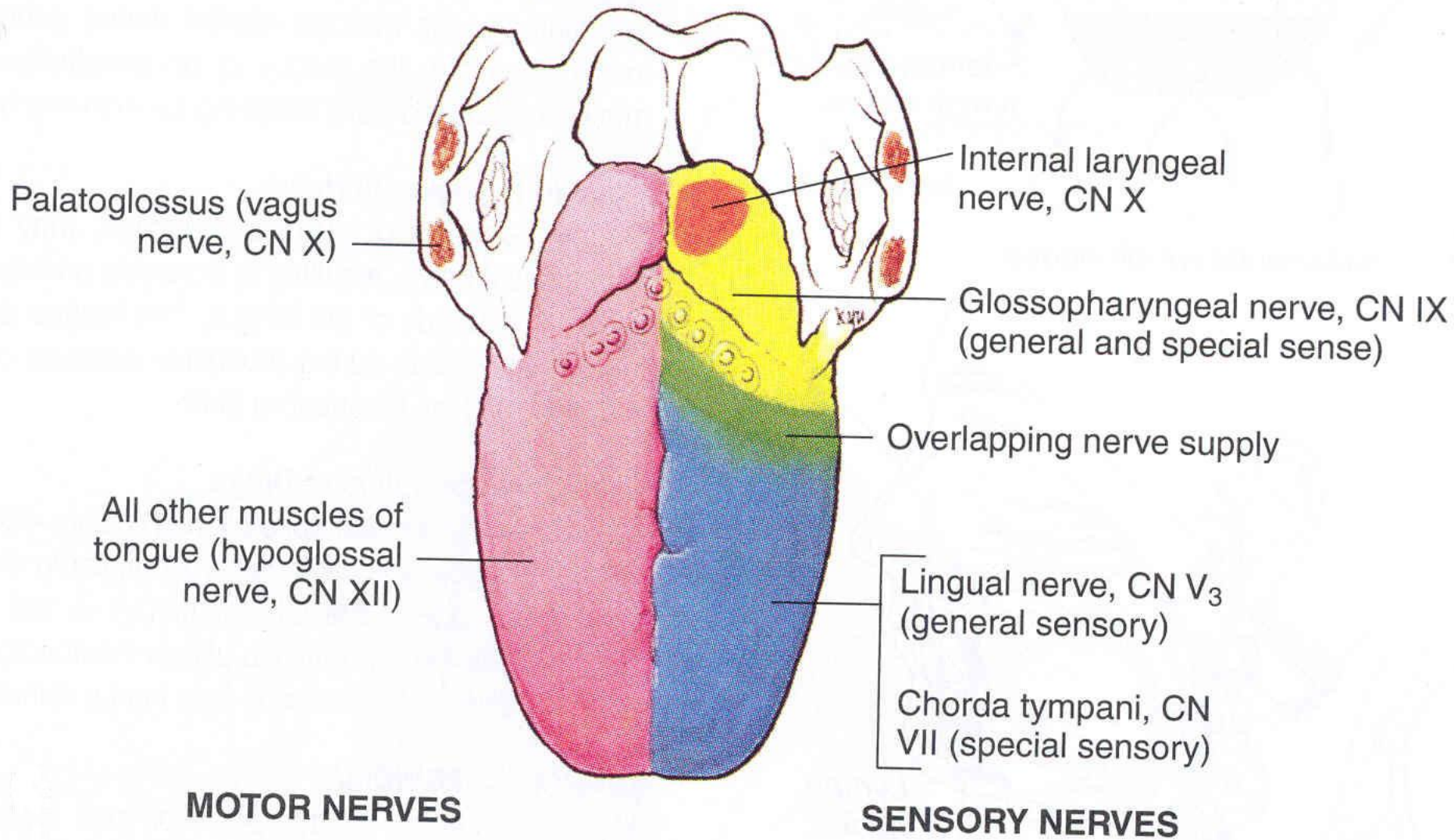


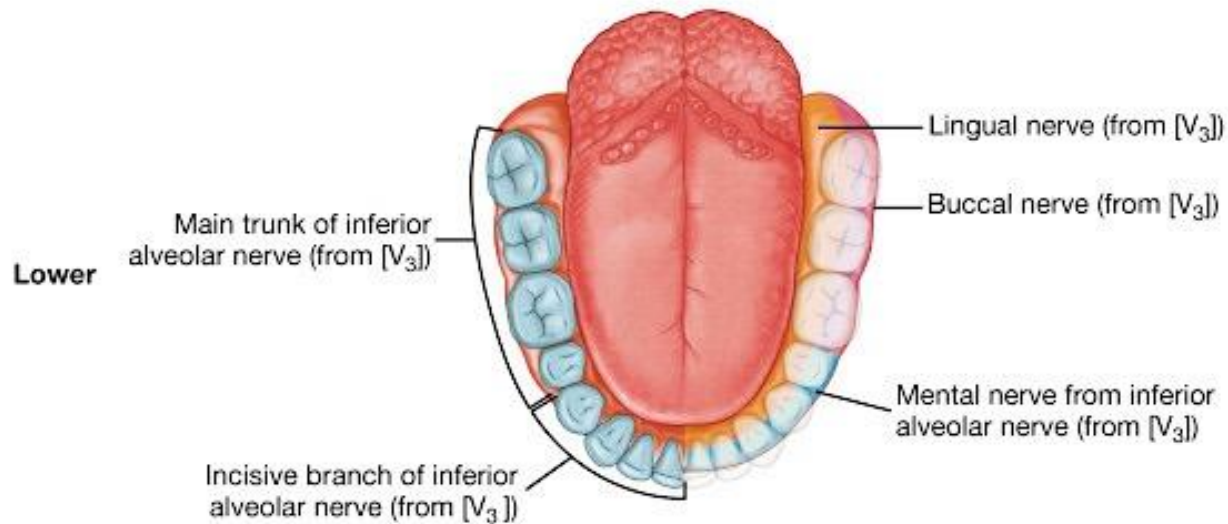
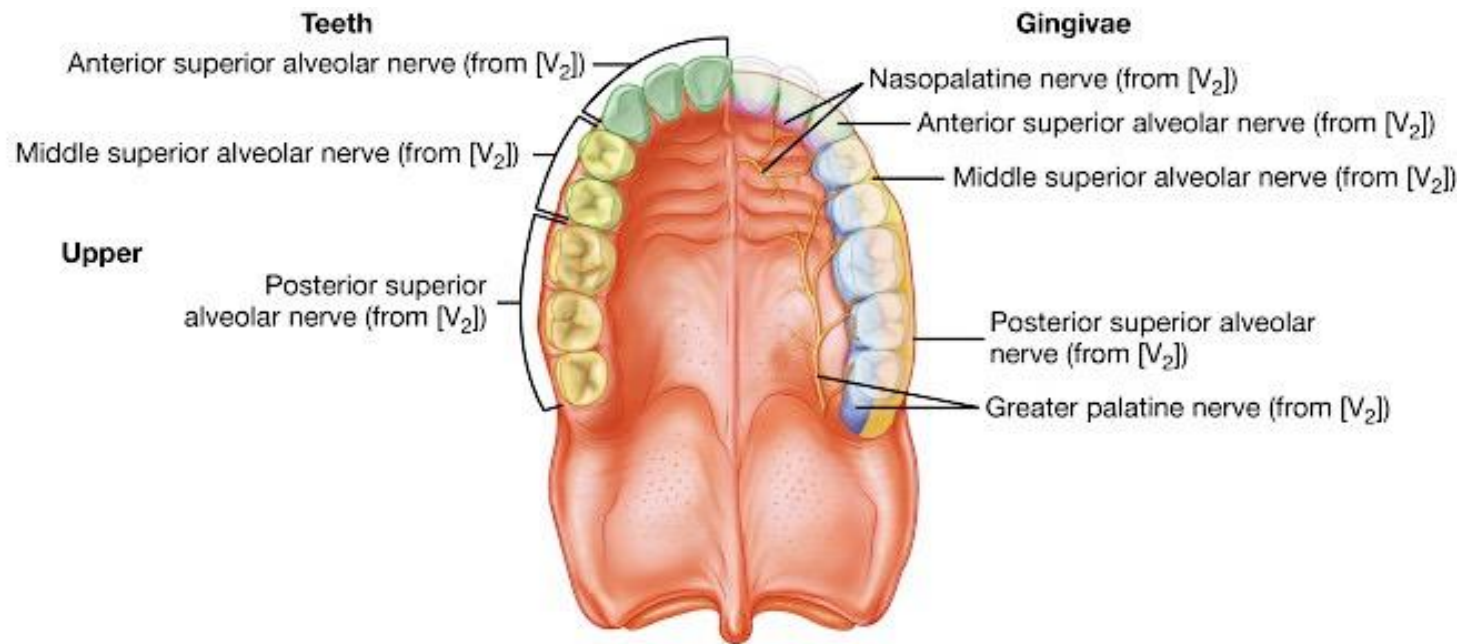


Incisive nerve







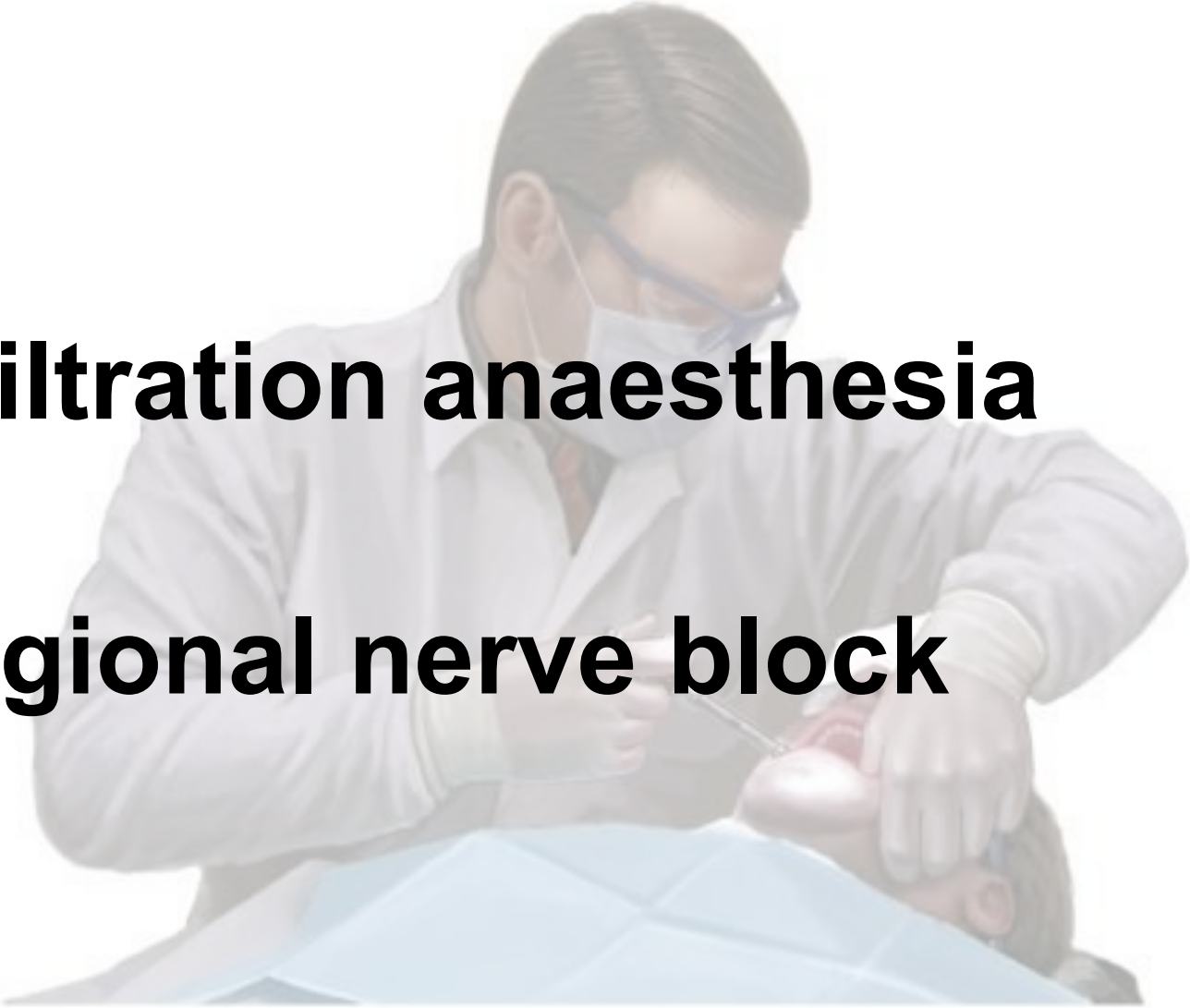


Mandibular teeth

Nerve	Source	Course
Mandibular	Trigeminal n.	This division has motor function in addition to sensory function The largest of the 3 divisions of the trigeminal n. Created by a large sensory and a small motor root that unite just after passing through the foramen ovale to enter the infratemporal fossa Immediately gives rise to a meningeal branch, Medial pterygoid m. and divides into an anterior and a posterior division. Anterior division is smaller and mainly motor, with 1 sensory branch (buccal): • Masseteric • Anterior and posterior deep temporal • Lateral pterygoid • Buccal Posterior division is larger and mainly sensory, with 1 motor branch (mylohyoid): • Auriculotemporal • Lingual • Inferior alveolar • Mylohyoid

Mandibular teeth

Nerve	Source	Course
Inferior alveolar n.	The largest branch of the mandibular division	Descends, following the inferior alveolar a. inferior to the lateral pterygoid and, last, between the sphenomandibular ligament and the ramus of the mandible until it enters the mandibular foramen, where it terminates as the mental and incisive n. in the area of the 2nd premolar Innervates all mandibular teeth (via inferior alveolar and incisive n.), periodontal ligaments (via inferior alveolar and incisive n.), and the gingiva from the premolars anteriorly to the midline (via the mental branch)
Mental n.	Inferior alveolar n.	Supplies the chin, lip, and facial gingiva and mucosa from the 2nd premolar anteriorly
Incisive n.		Supplies the teeth and periodontal ligaments from the 1st premolar anteriorly (depends on the location of the branching of the inferior alveolar n. into the incisive and mental n.)

A dentist wearing a white lab coat, a blue surgical mask, and safety glasses is performing a procedure on a patient. The patient is lying down, and the dentist is using a handpiece on their mouth. The background is a plain, light-colored wall.

Infiltration anaesthesia

Regional nerve block

K. Carter

The bone of the alveolar part of the maxilla is relatively porous □ infiltration anesthesia

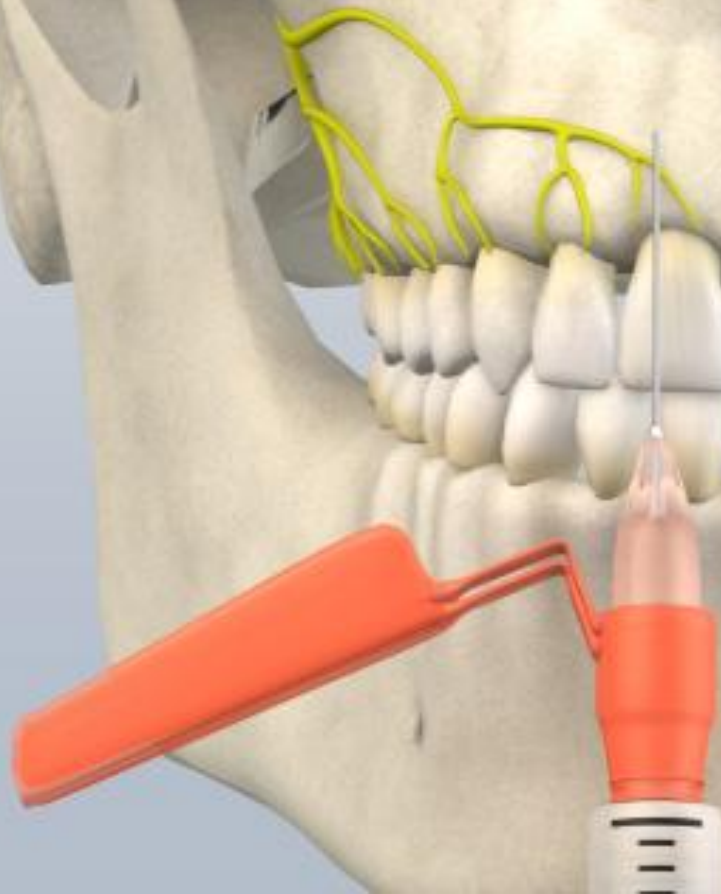
For lower jaw, infiltration anesthesia is usually effective only for the incisors.

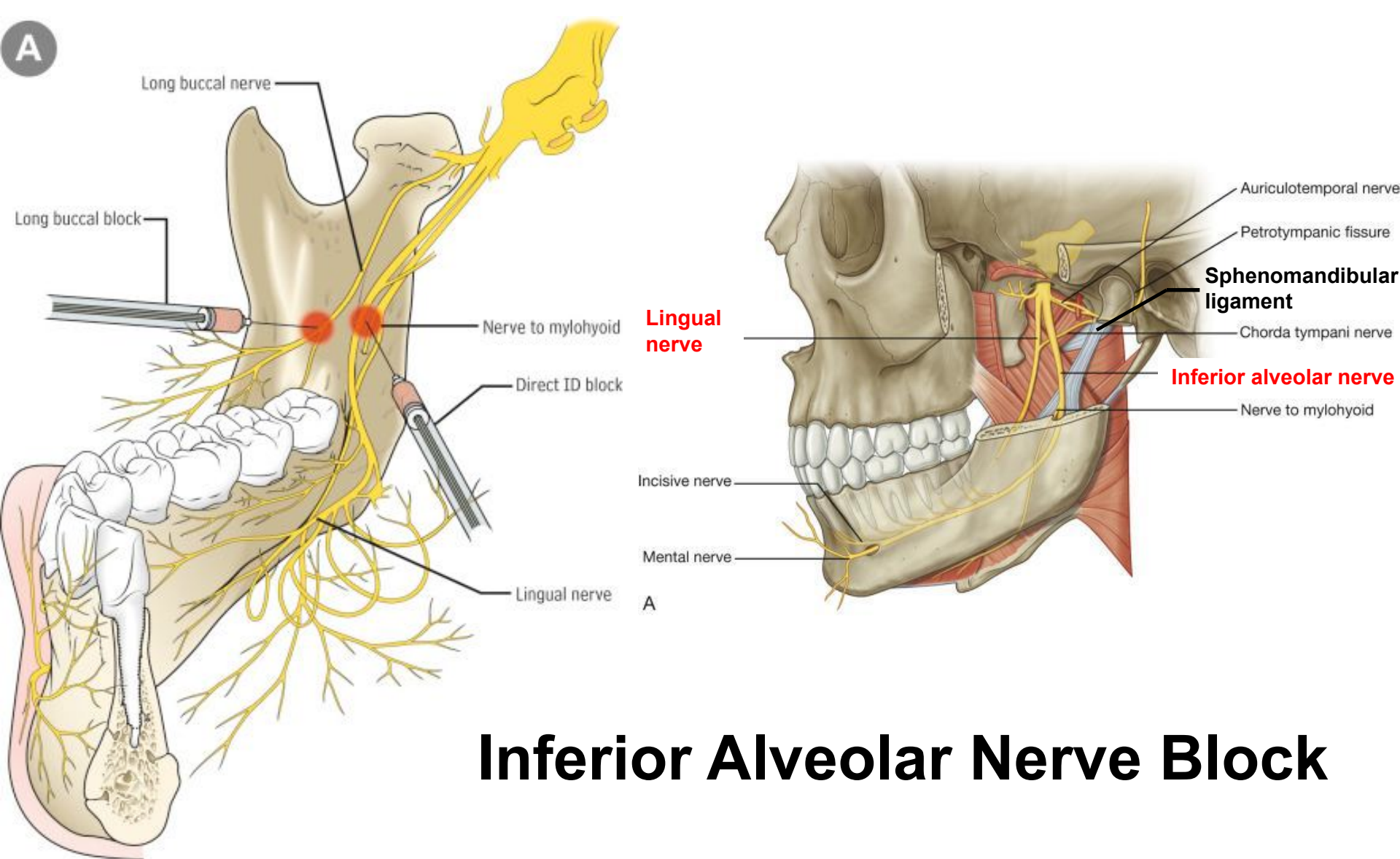
Aspiration should precede all injections

For these teeth, a block of the inferior alveolar nerve is most often required.

Again for tooth extraction it is necessary to block the **lingual and buccal nerves as well.**

Supraperiosteal Infiltrations

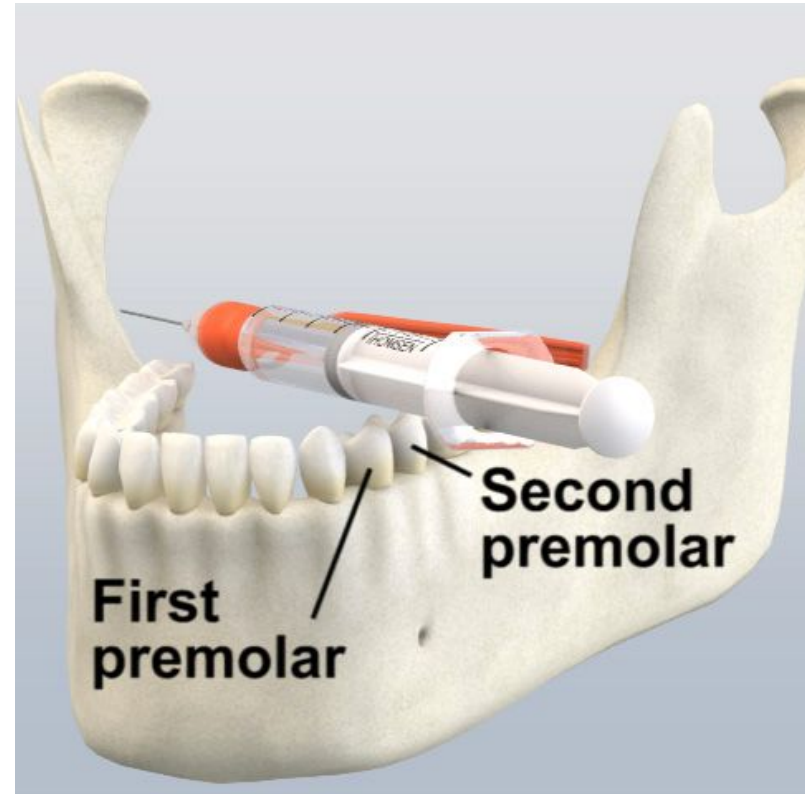
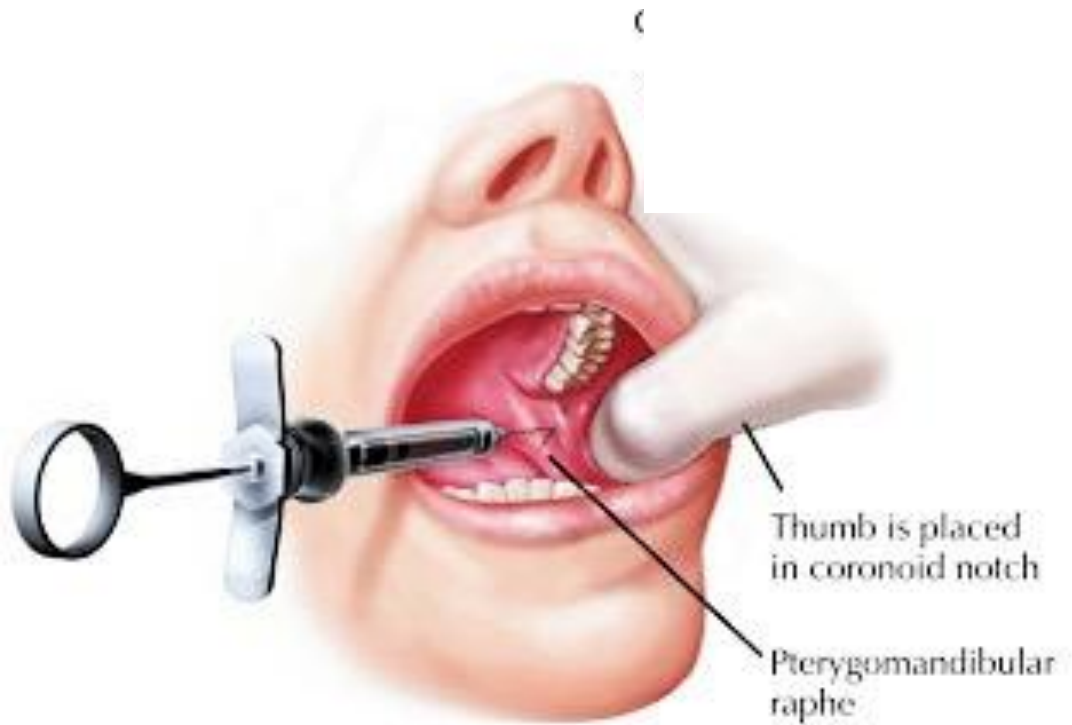




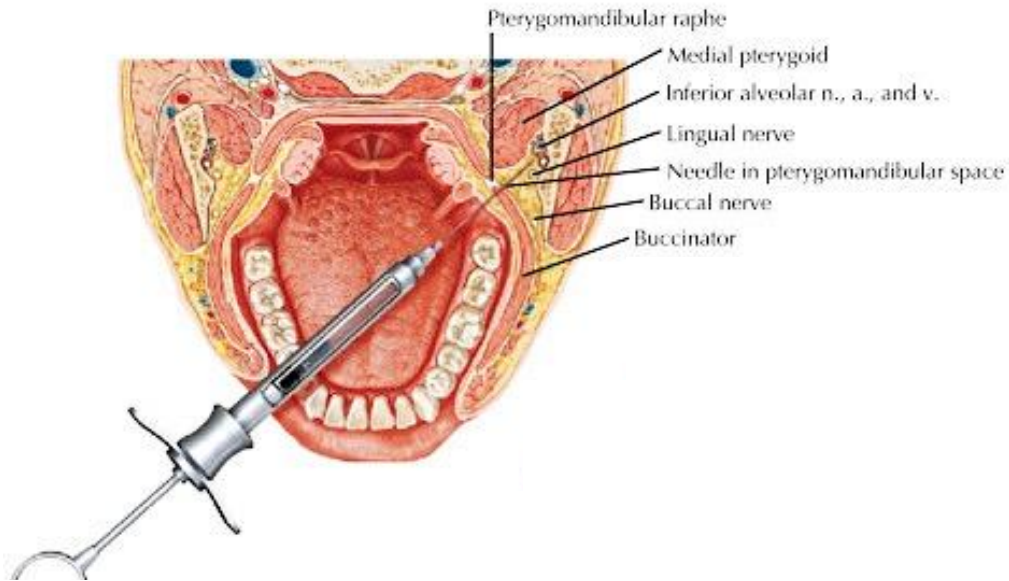
Inferior Alveolar Nerve Block

Inferior Alveolar Nerve Block



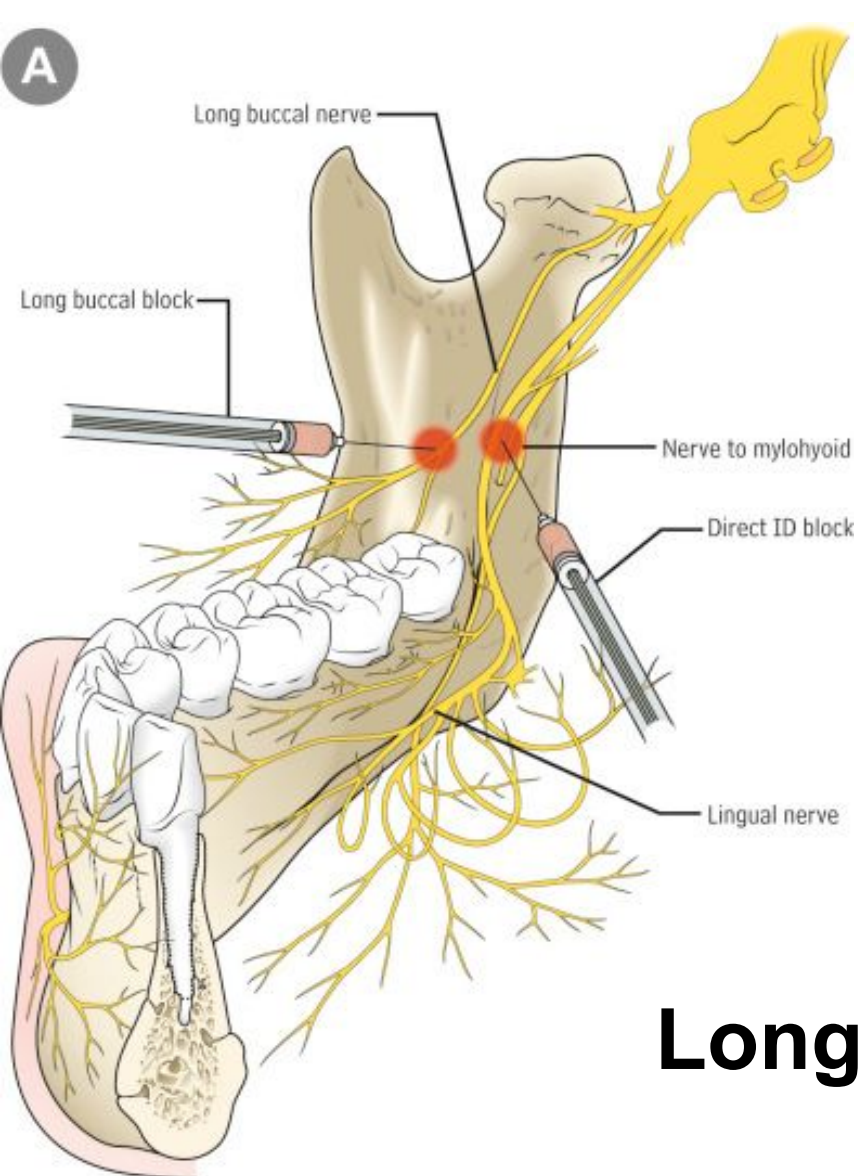


Inferior Alveolar Nerve Block

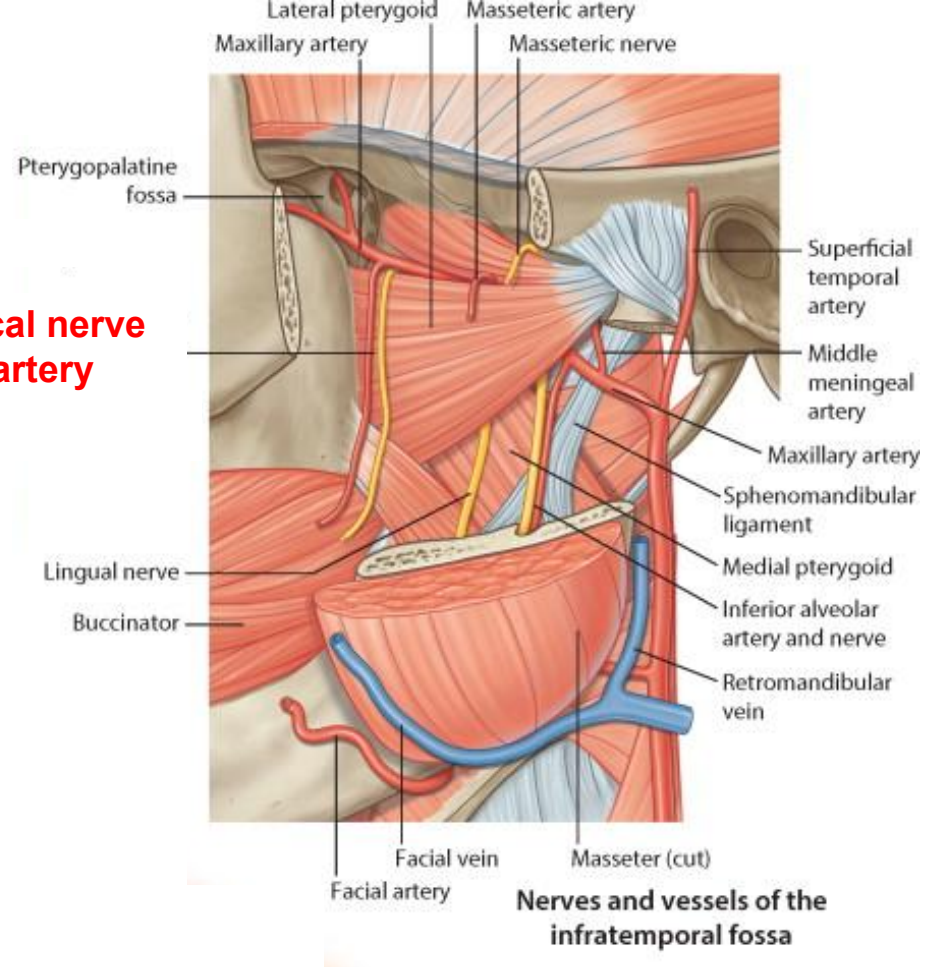


Area anesthetized with an inferior alveolar nerve block

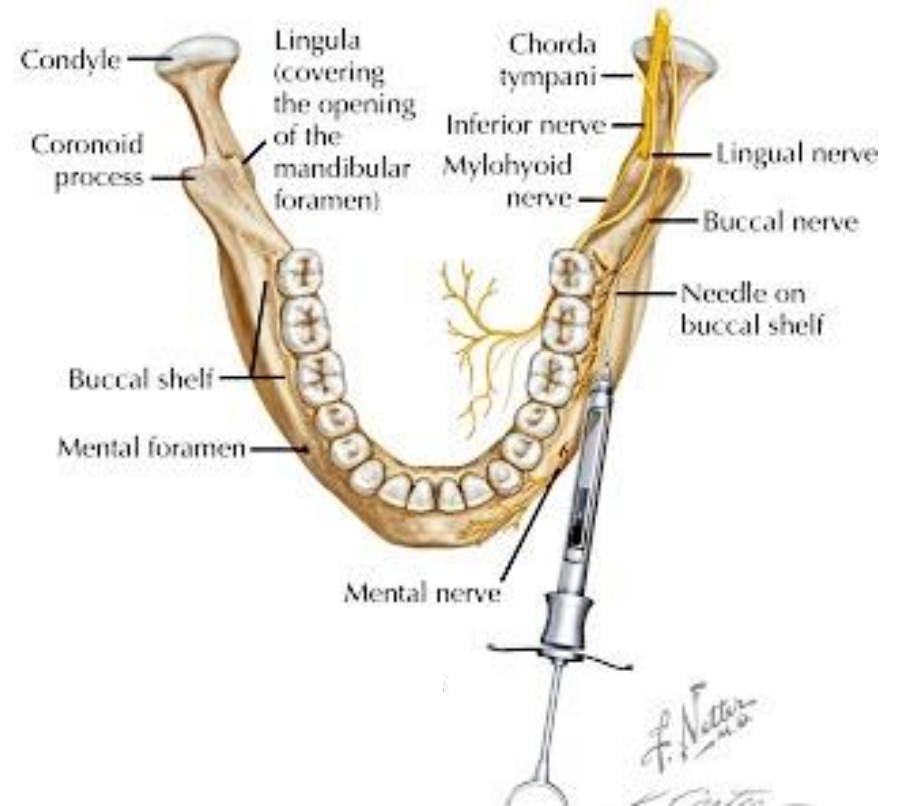
Inferior Alveolar Nerve Block



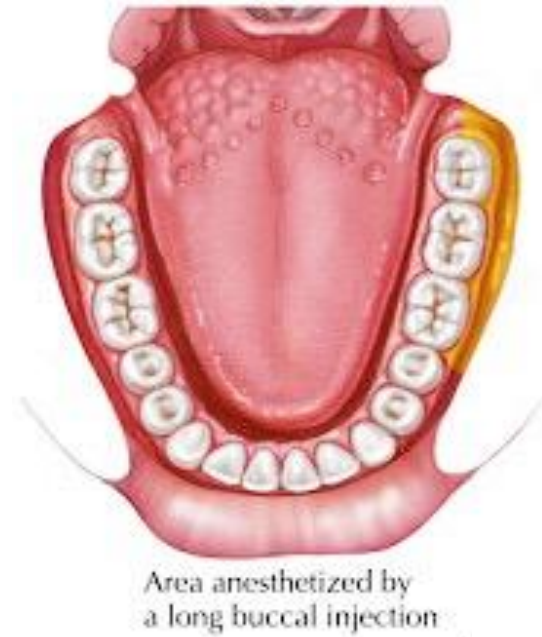
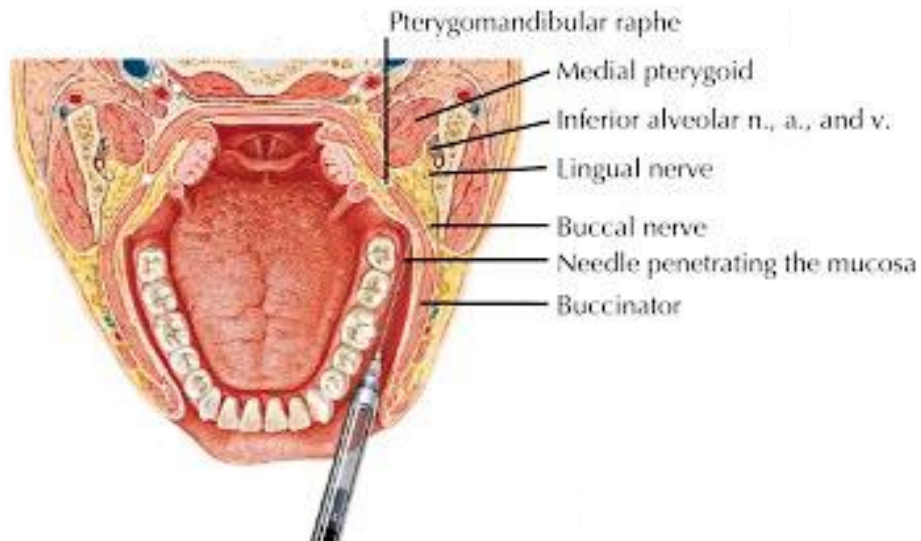
Buccal nerve and artery



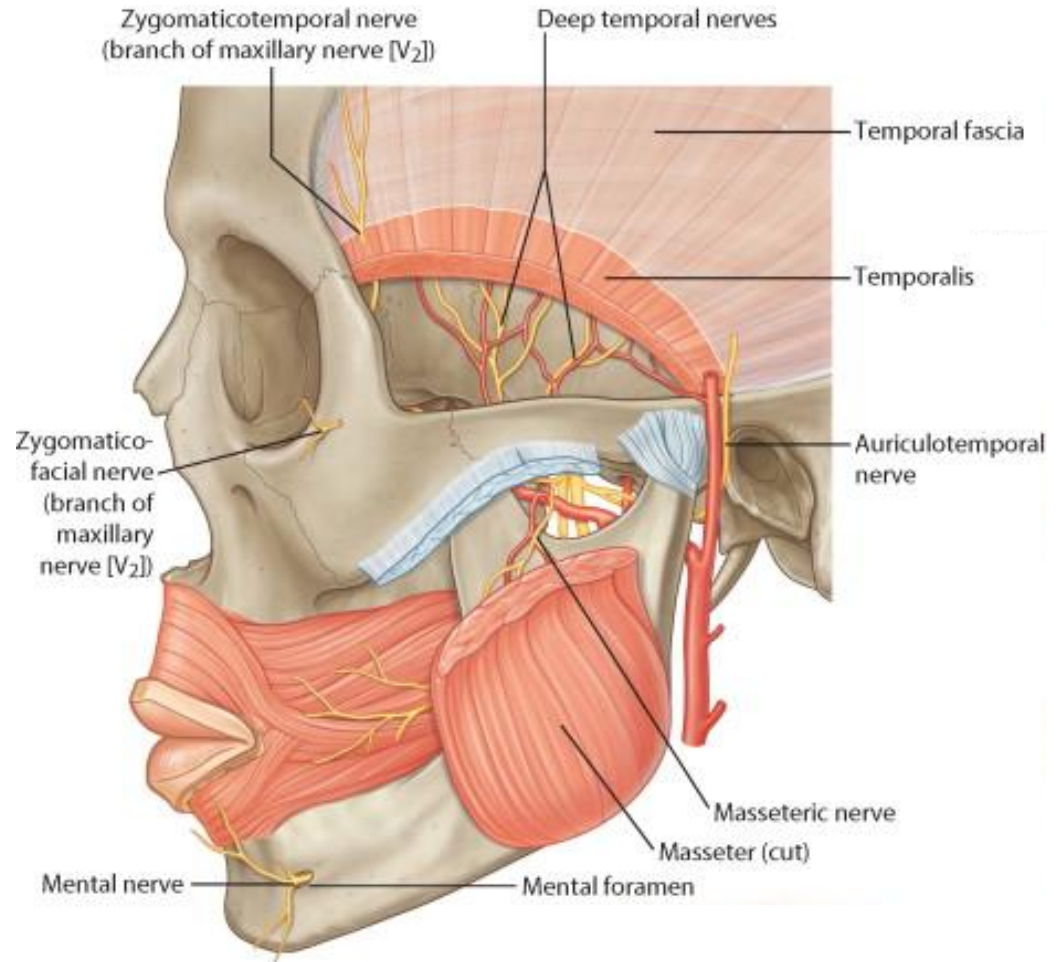
Long Buccal Nerve Block



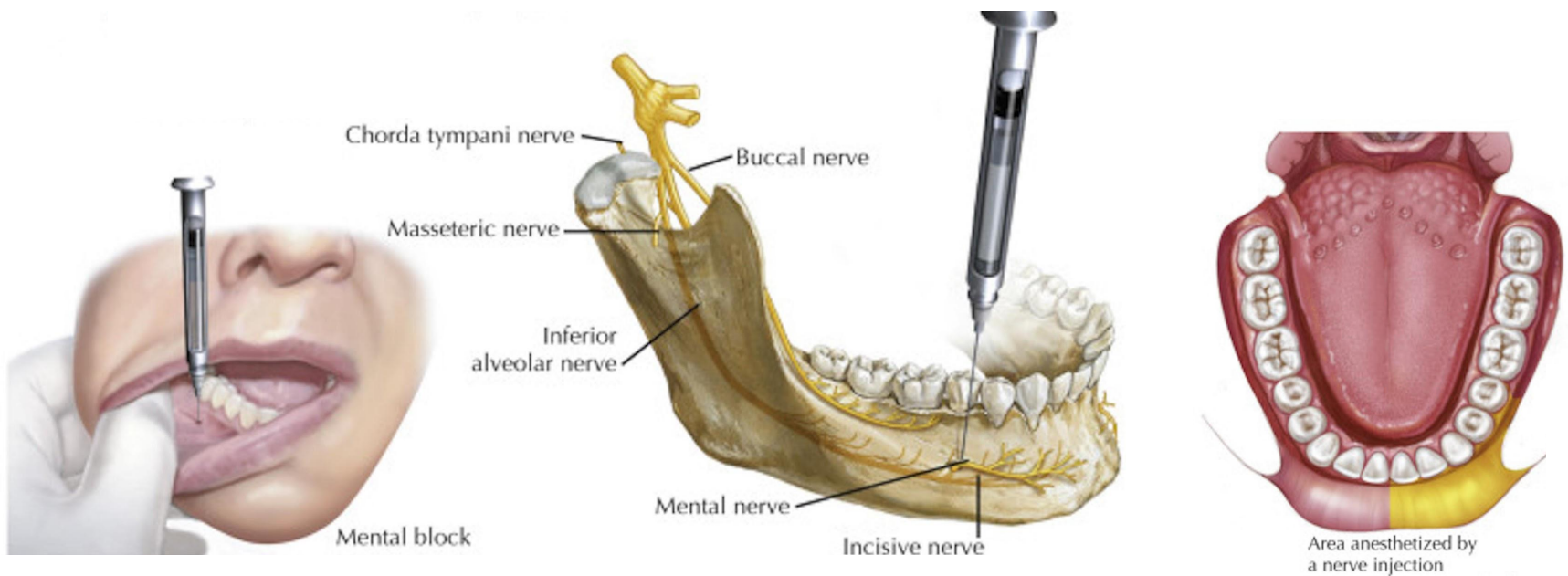
Long Buccal Nerve Block



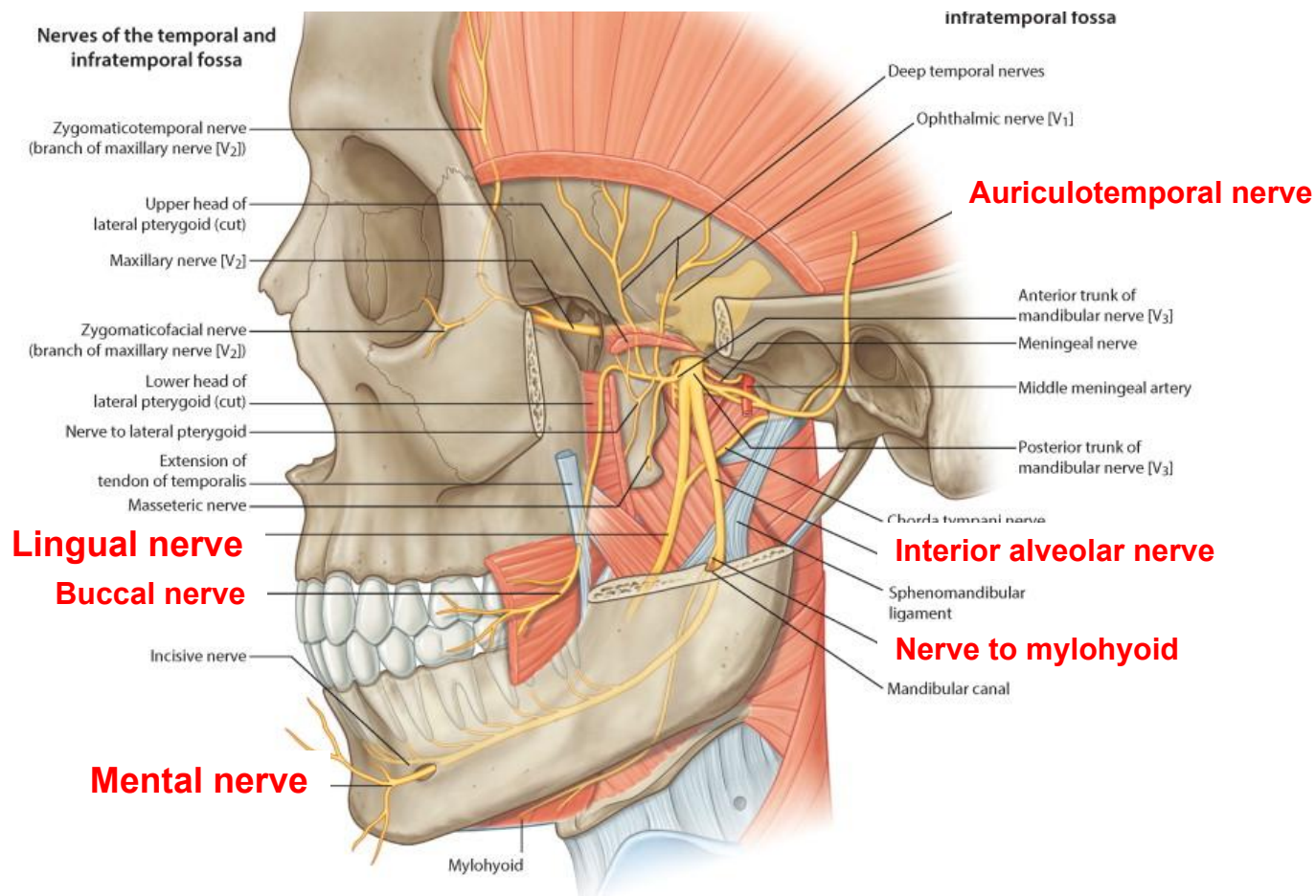
Long Buccal Nerve Block



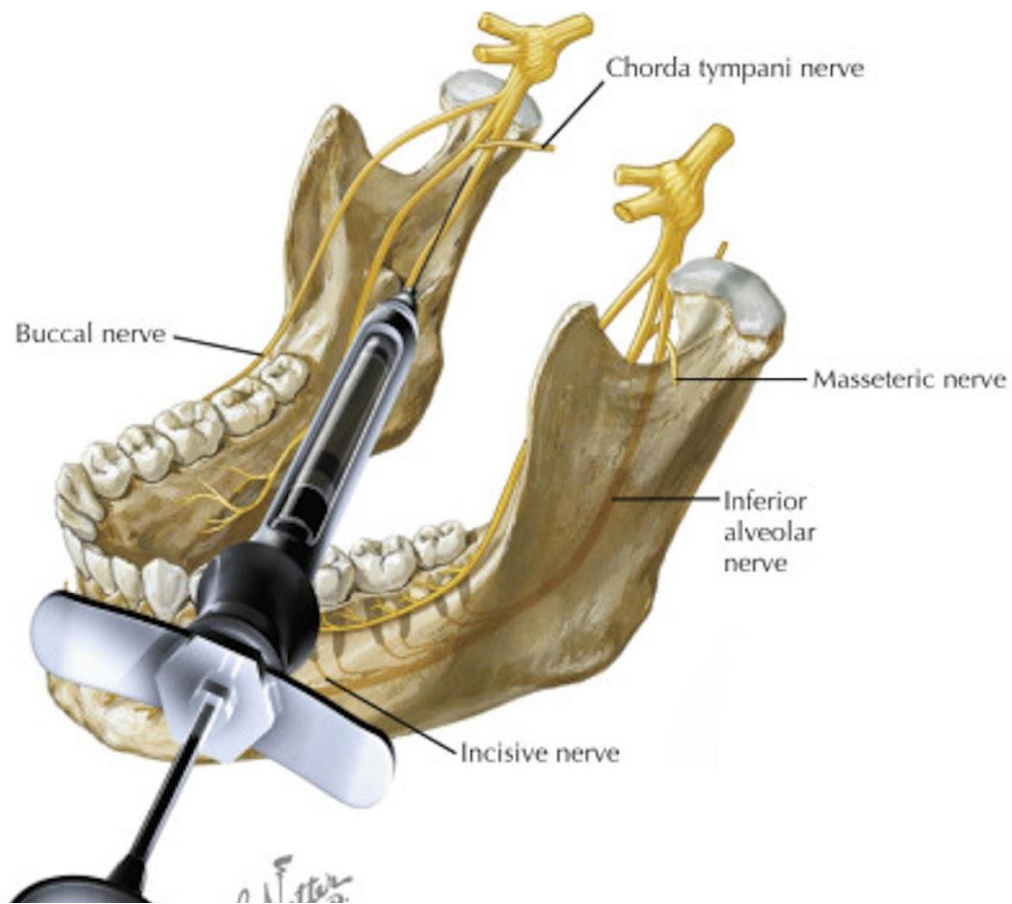
Mental Nerve Block



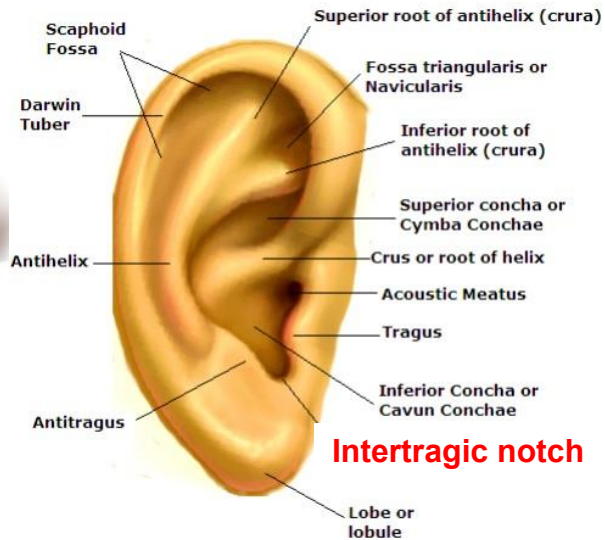
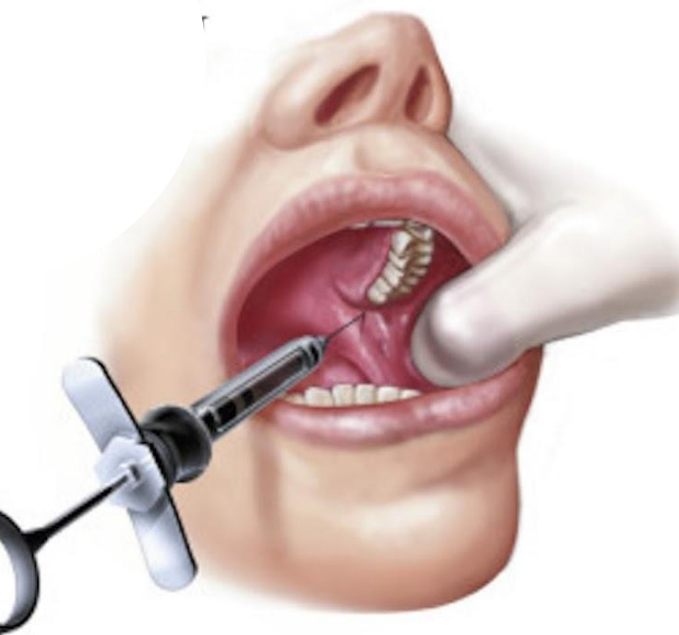
Mental Nerve Block



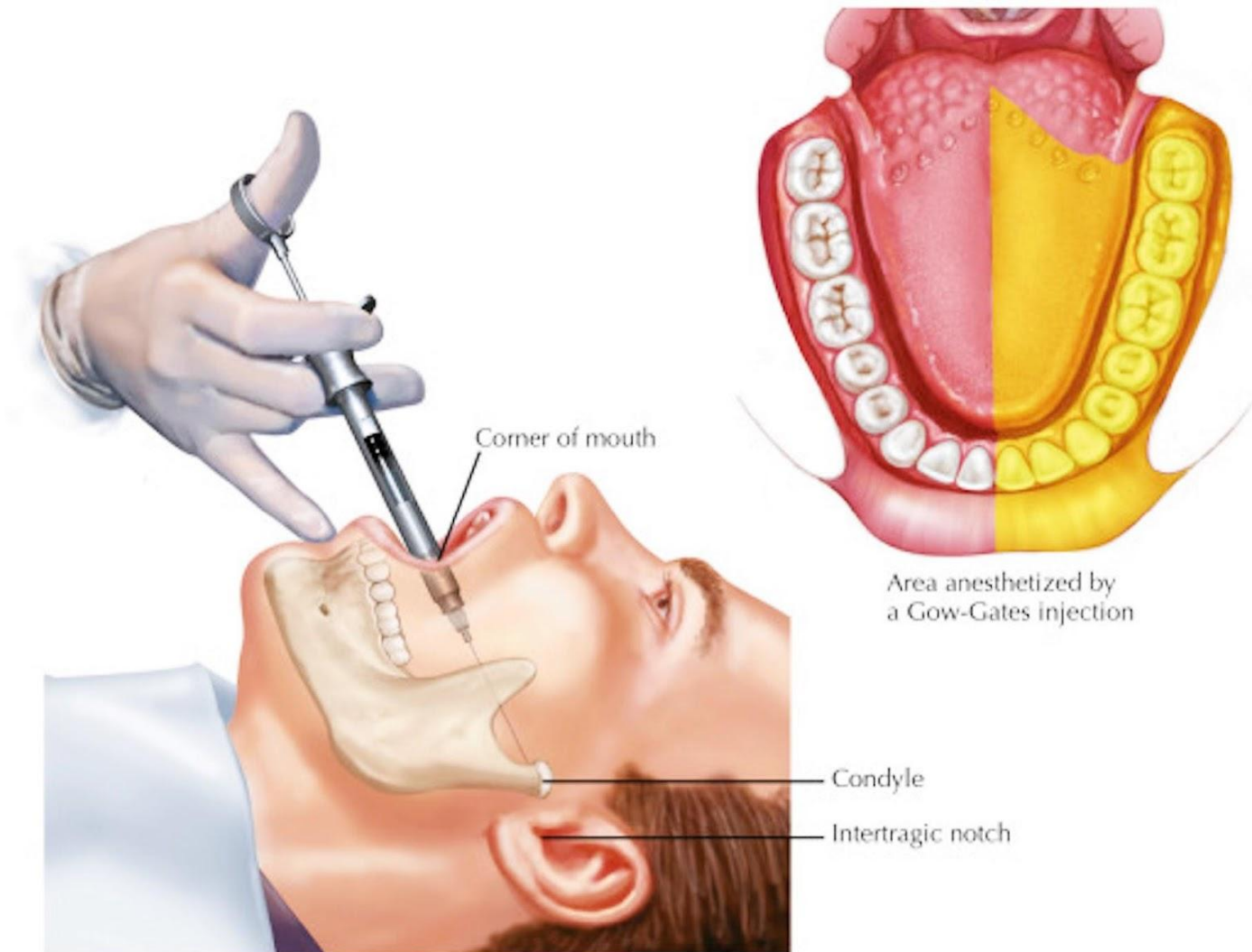
Gow-Gates Block



Gow-Gates Block



Gow-Gates Block



Gow-Gates Block



Vazirani-Akinosi technique

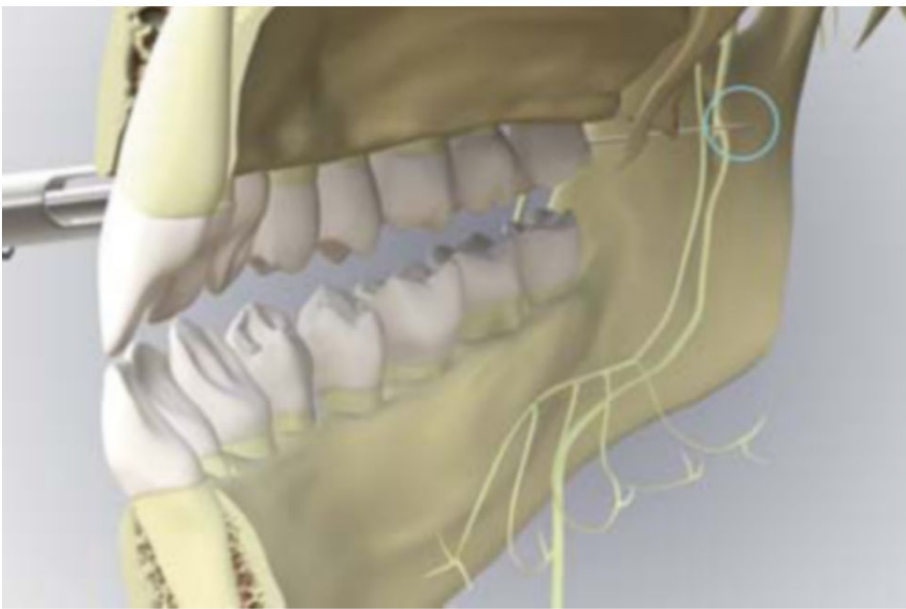


Figure 4. Final needle placement for the Akinosi-Vazirani closed-mouth technique. The circle denotes the needle tip's position within the pterygomandibular space. Reprinted with permission of the Faculty of Dentistry, University of Toronto.

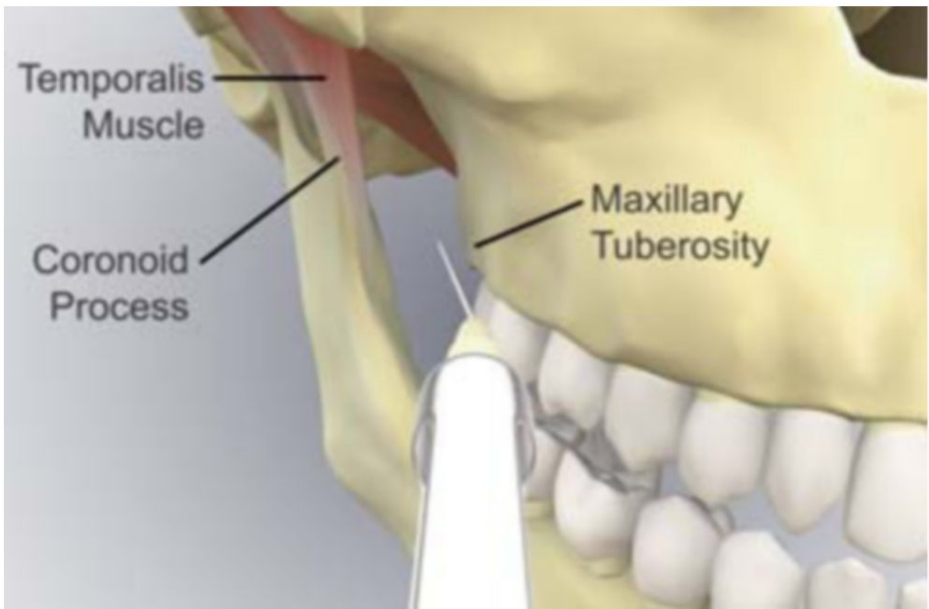
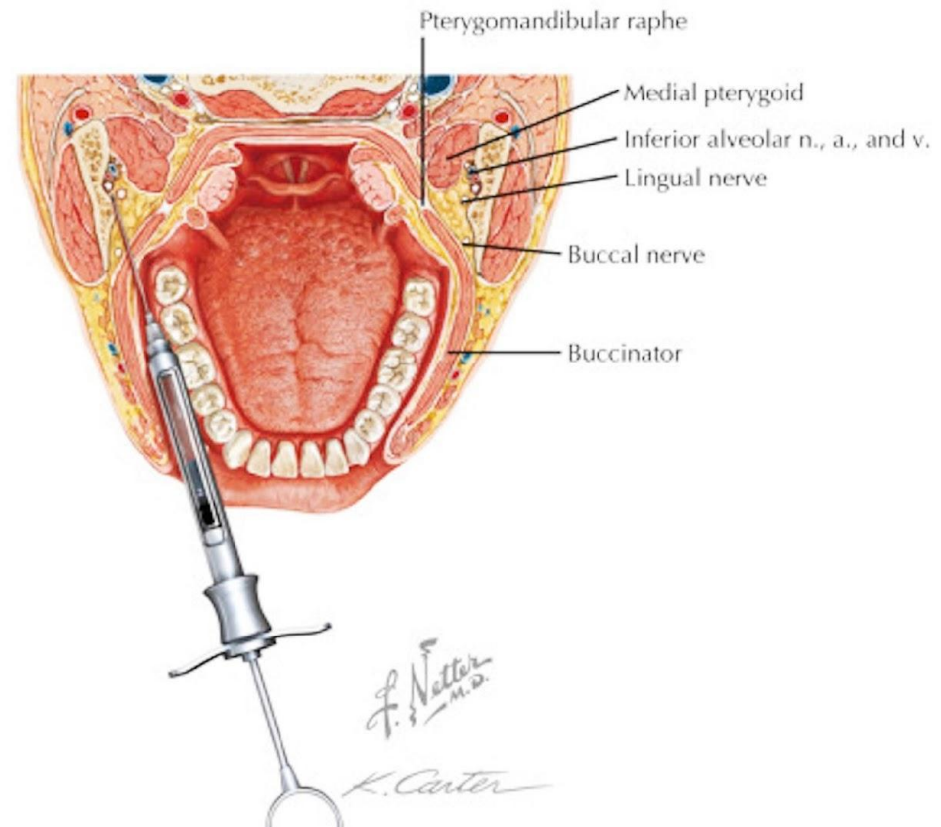
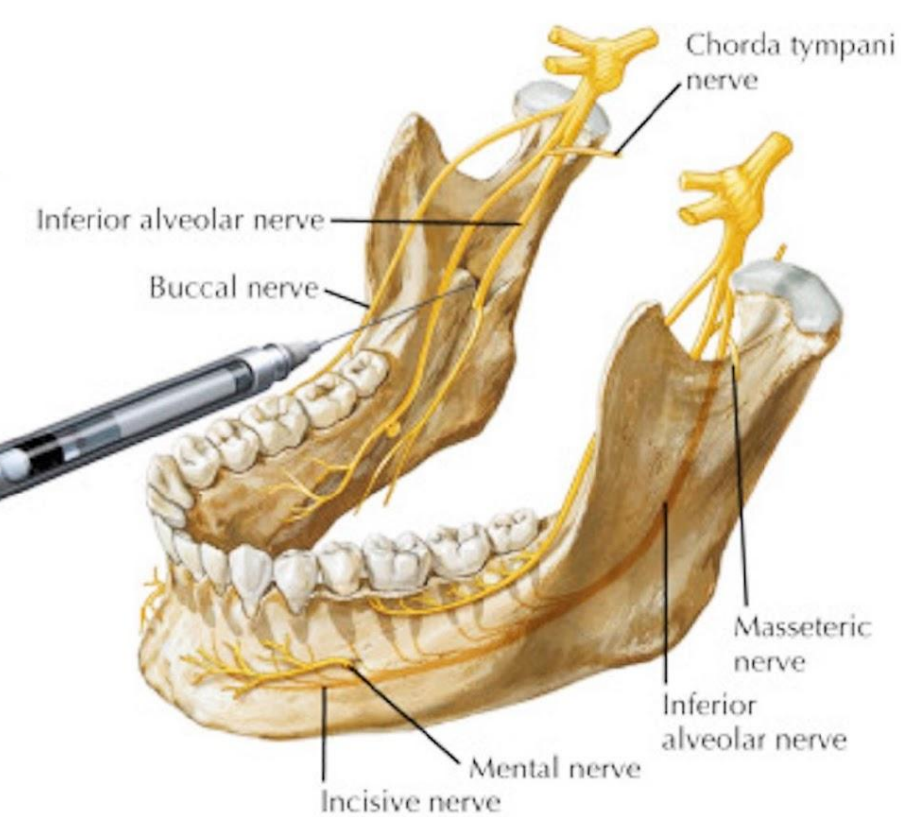
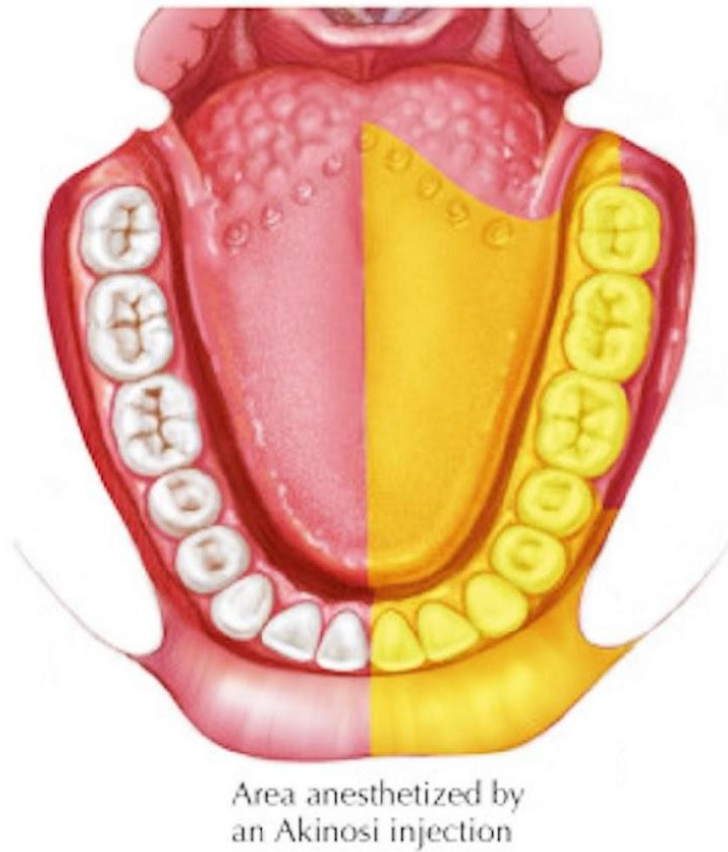


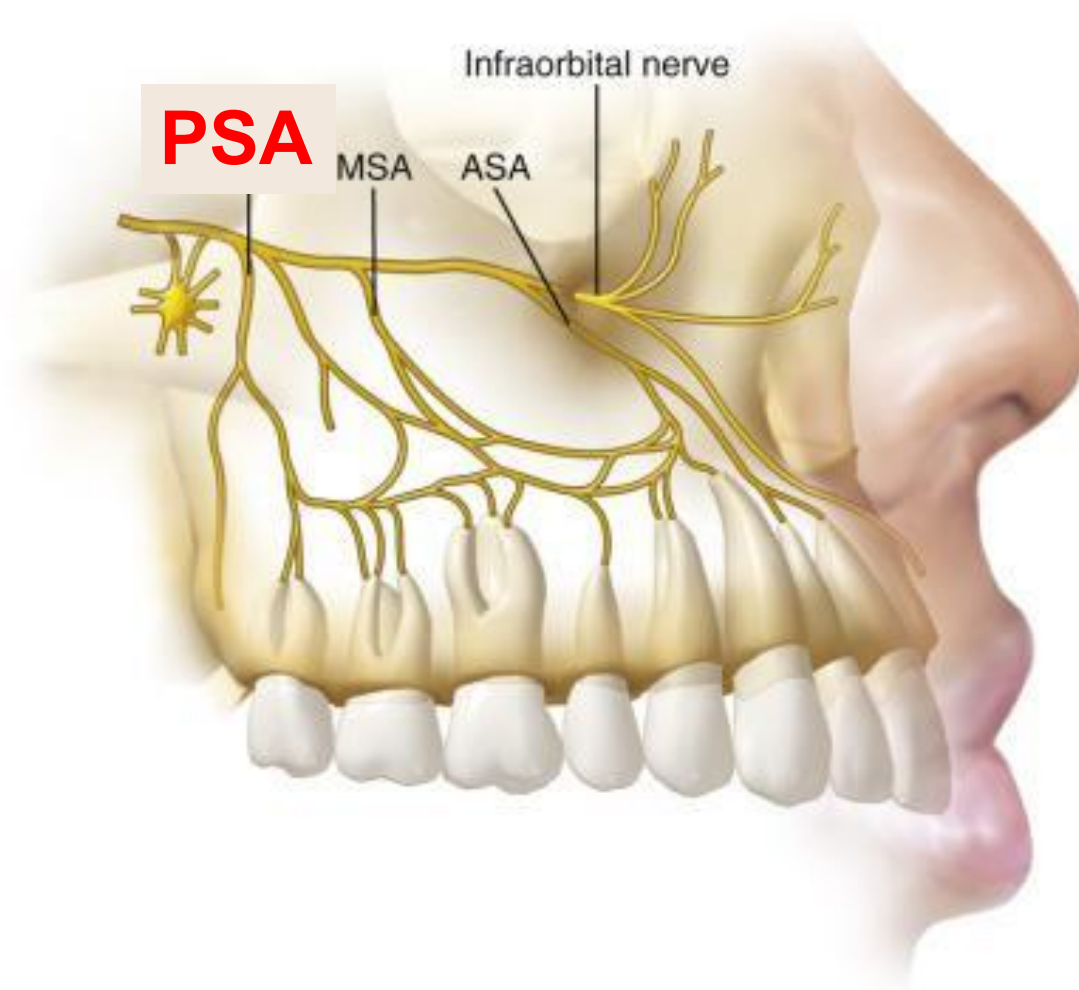
Figure 5. Bony landmarks for the Akinosi-Vazirani closed-mouth technique insertion. Reprinted with permission of the Faculty of Dentistry, University of Toronto.



Vazirani-Akinosi technique



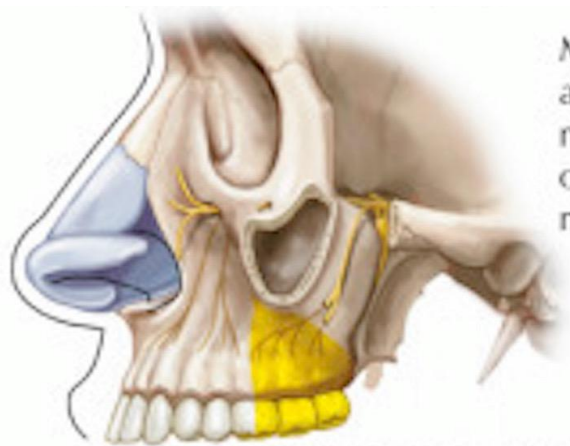
Vazirani-Akinosi technique



Posterior **S**uperior **A**lveolar Nerve Block



Posterior Superior Alveolar Nerve Block



May not always
anesthetize the
mesiobuccal root
of the 1st maxillary
molar

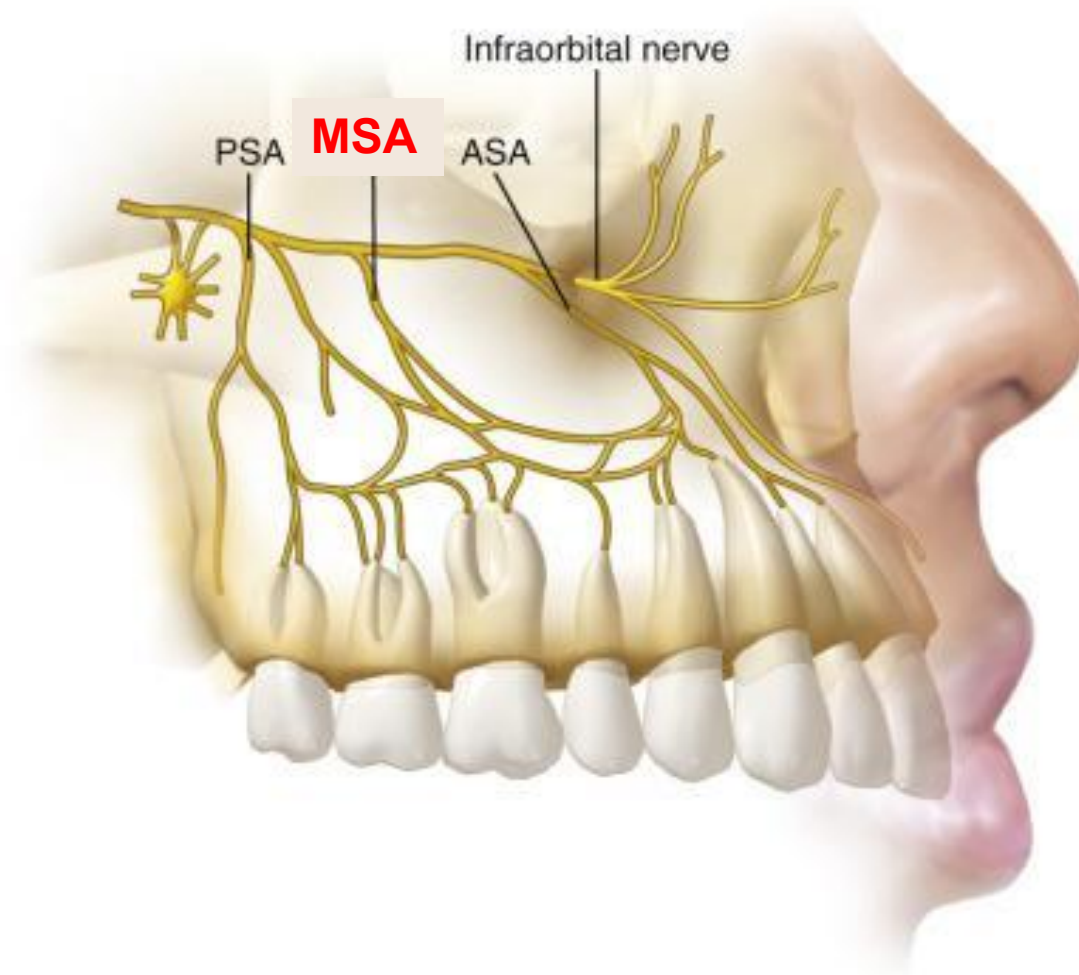
Area anesthetized by a posterior
superior alveolar injection



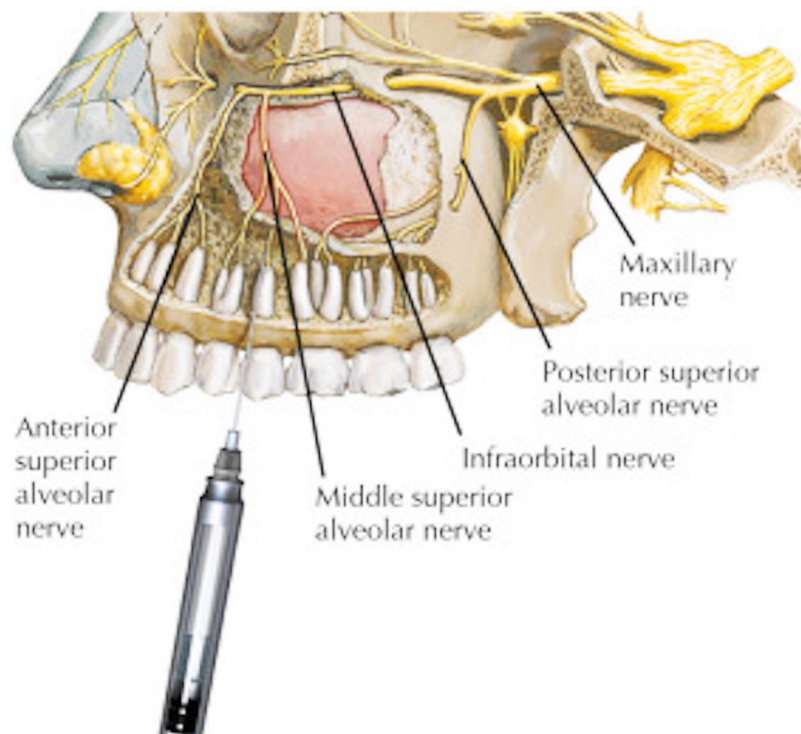
May not always
anesthetize the
mesiobuccal root
of the 1st
maxillary molar

Area anesthetized by a posterior
superior alveolar injection

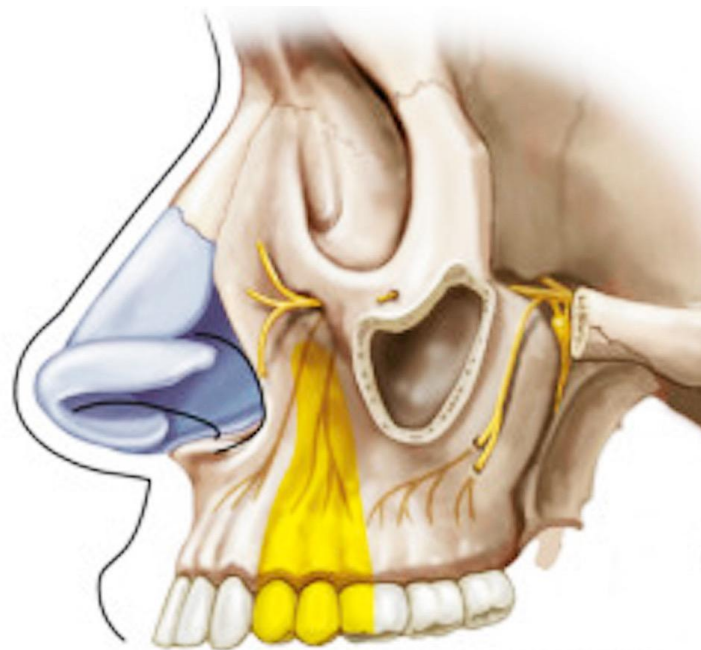
Posterior Superior Alveolar Nerve Block



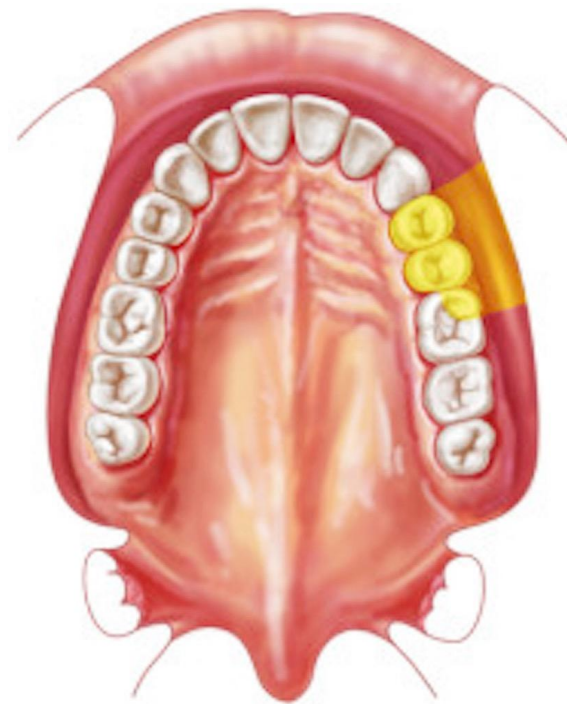
Middle **S**uperior **A**lveolar Nerve Block



Middle Superior Alveolar Nerve Block

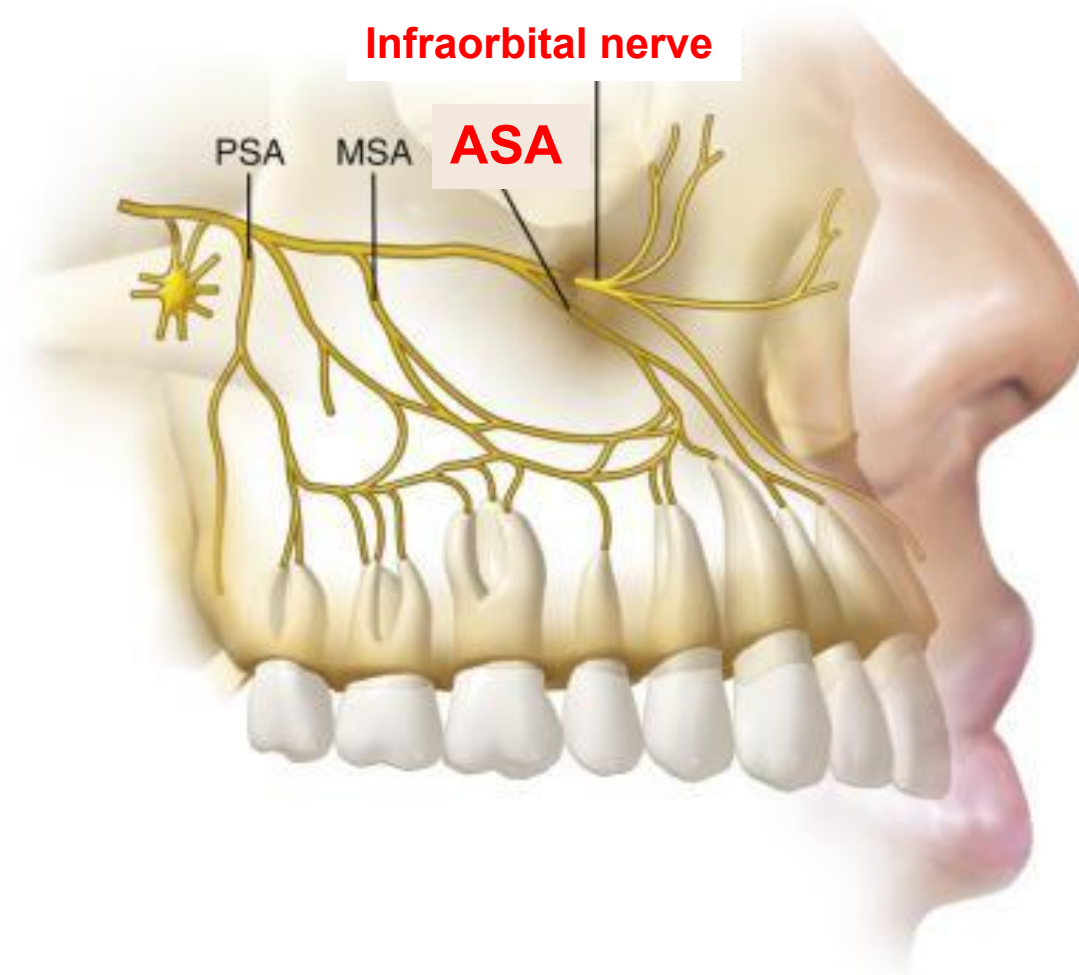


Area anesthetized by a middle superior alveolar injection

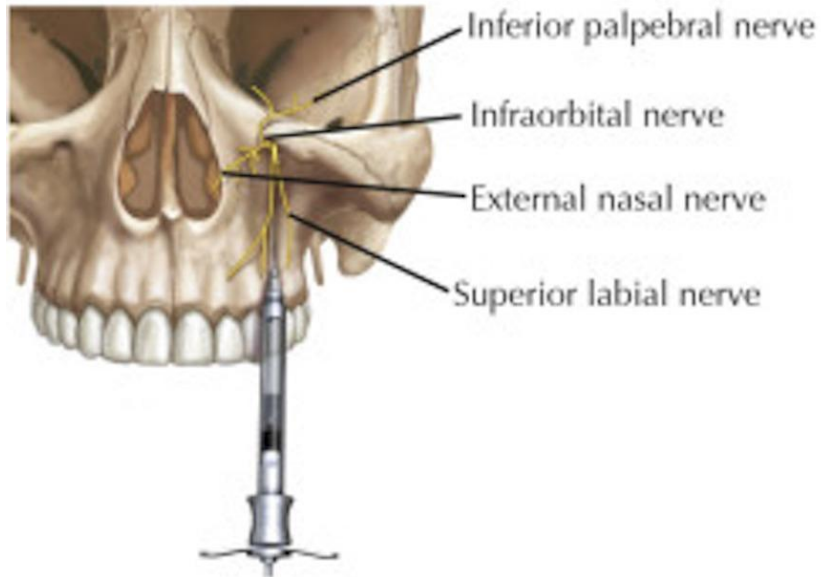


Area anesthetized by a middle superior alveolar injection

Middle Superior Alveolar Nerve Block



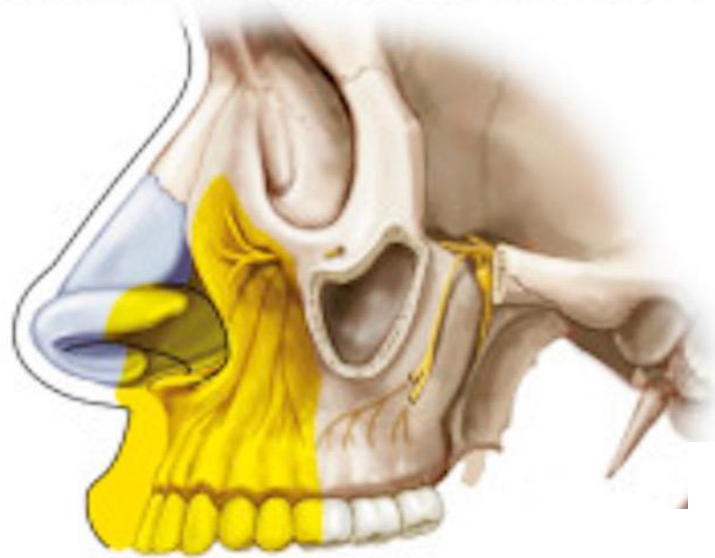
Infraorbital Nerve Block
Anterior Superior Alveolar Nerve Block



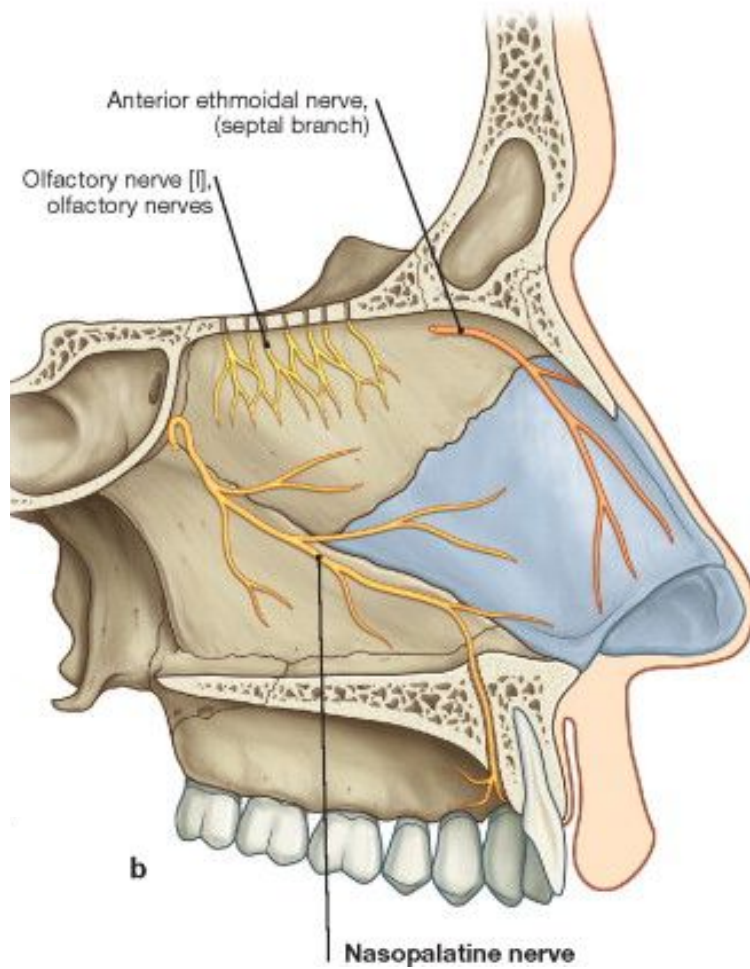
Infraorbital Nerve Block

Anterior Superior Alveolar Nerve Block

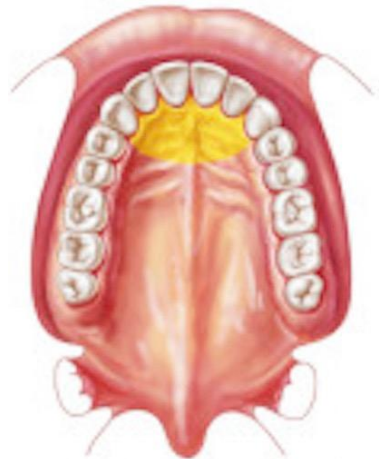
Area anesthetized by an anterior superior injection



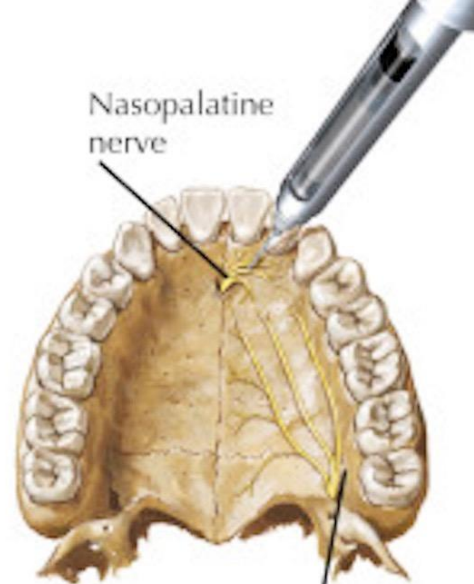
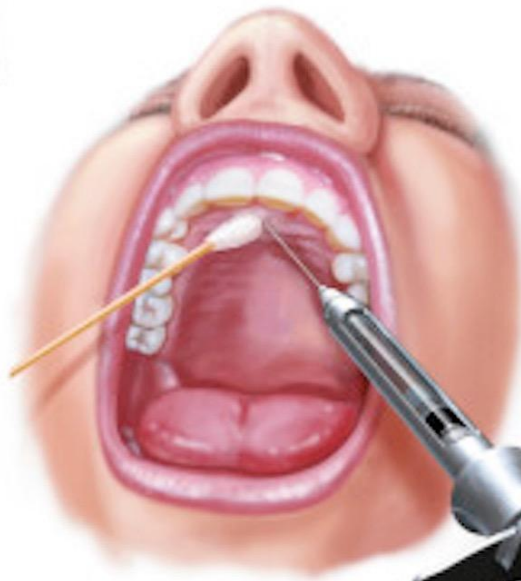
Infraorbital Nerve Block
Anterior Superior Alveolar Nerve Block



Nasopalatine Nerve Block



Area anesthetized
by a nasopalatine
injection

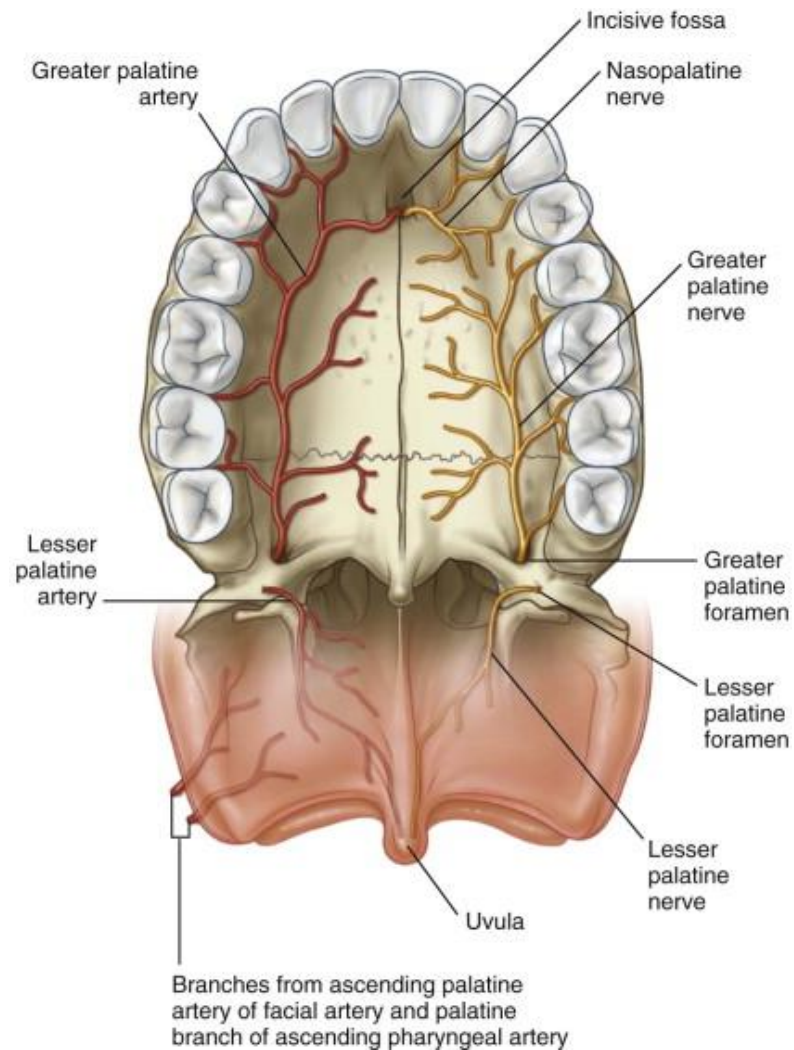


Nasopalatine
nerve

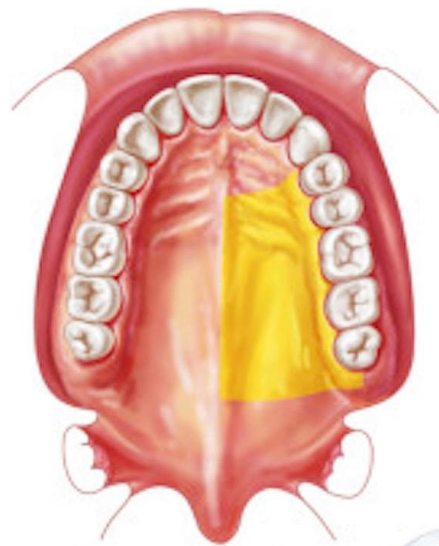
Greater
palatine
nerve



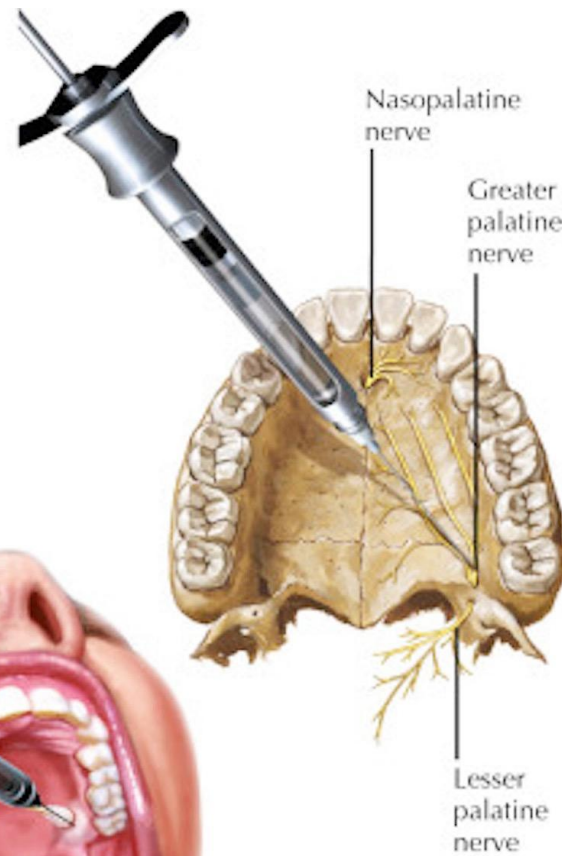
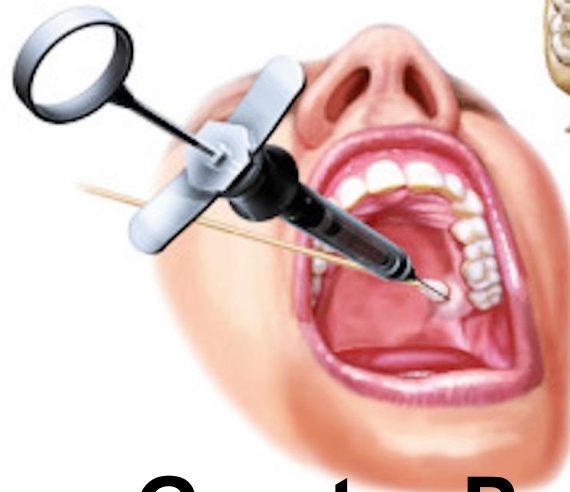
Nasopalatine Nerve Block



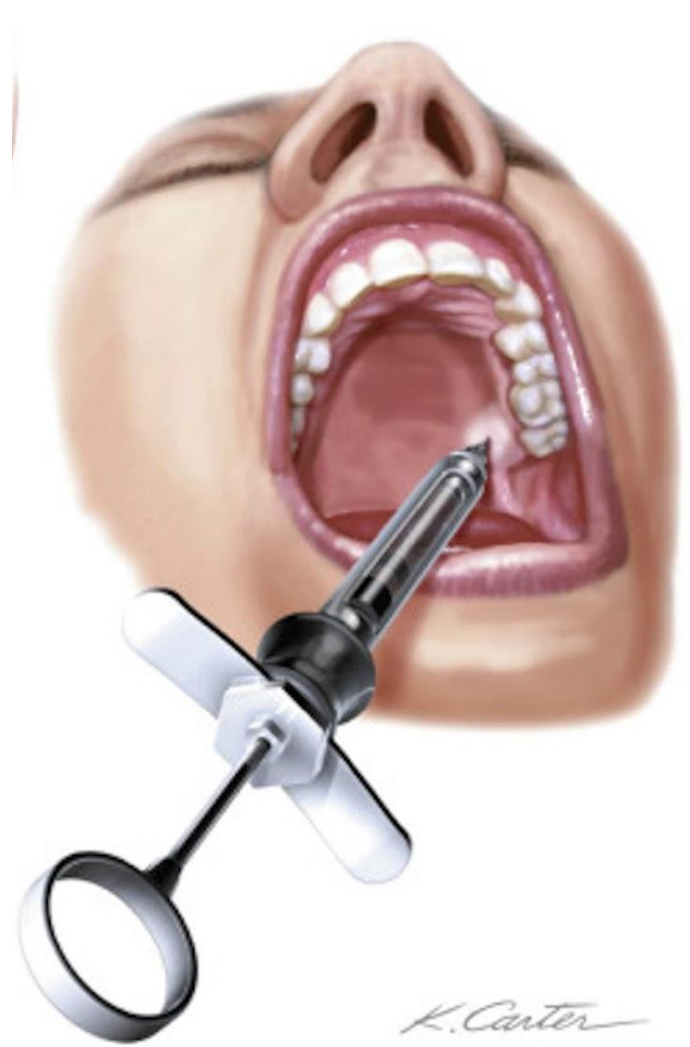
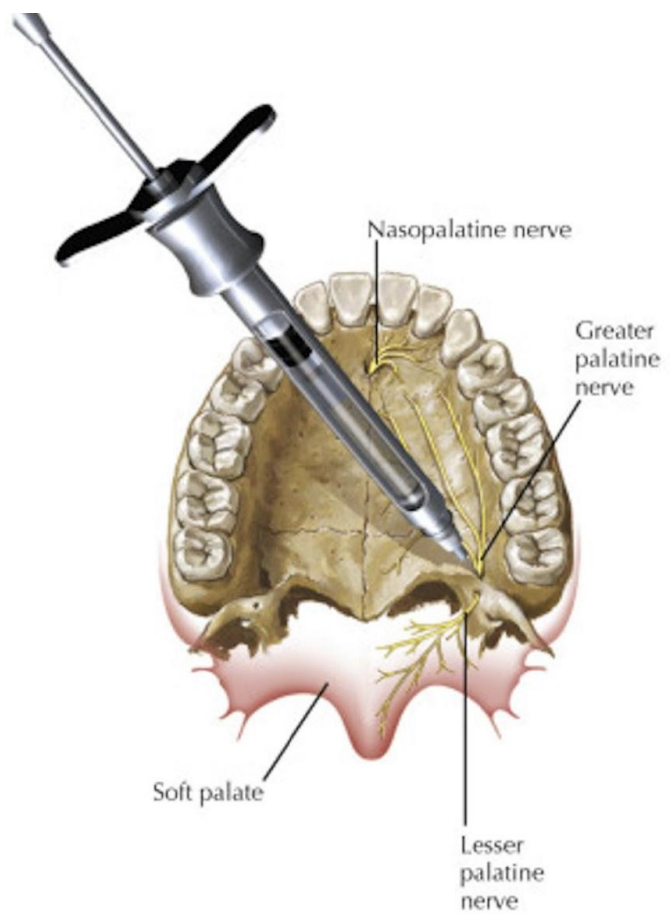
Greater Palatine Nerve Block



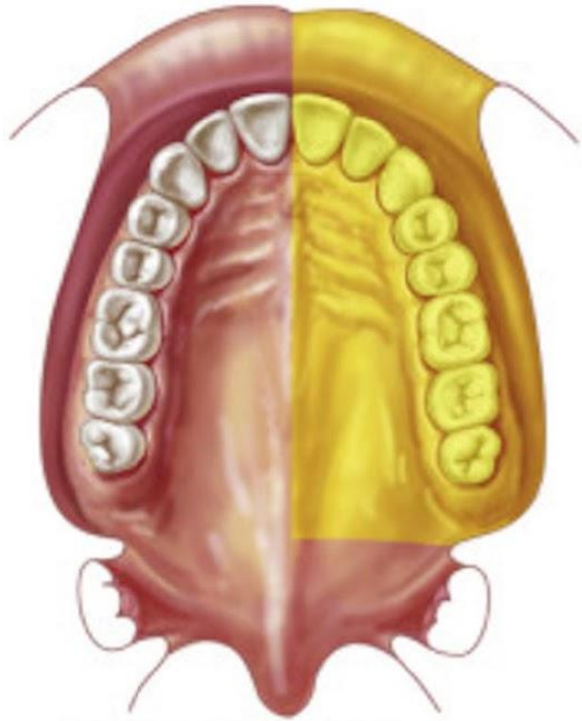
Area anesthetized
by a greater palatine
injection



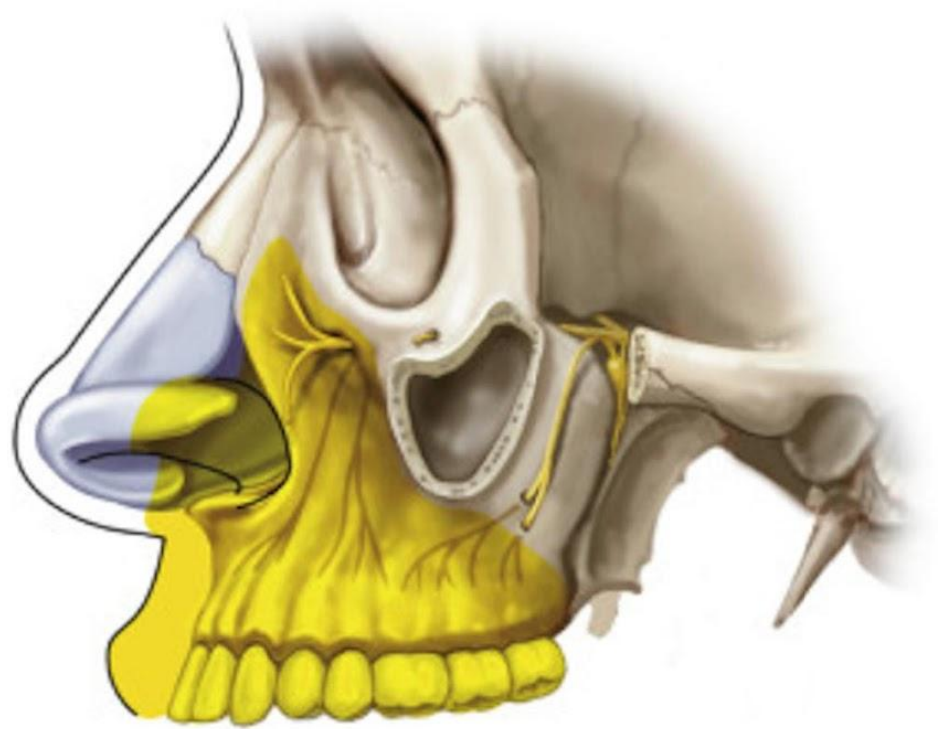
K. Carter
Greater Palatine Nerve Block



Maxillary Division Block



Area anesthetized by
a maxillary division injection



Area anesthetized by a maxillary division injection

Maxillary Division Block