ANATOMY OF

Muscles of mastication &Mandibular N

By

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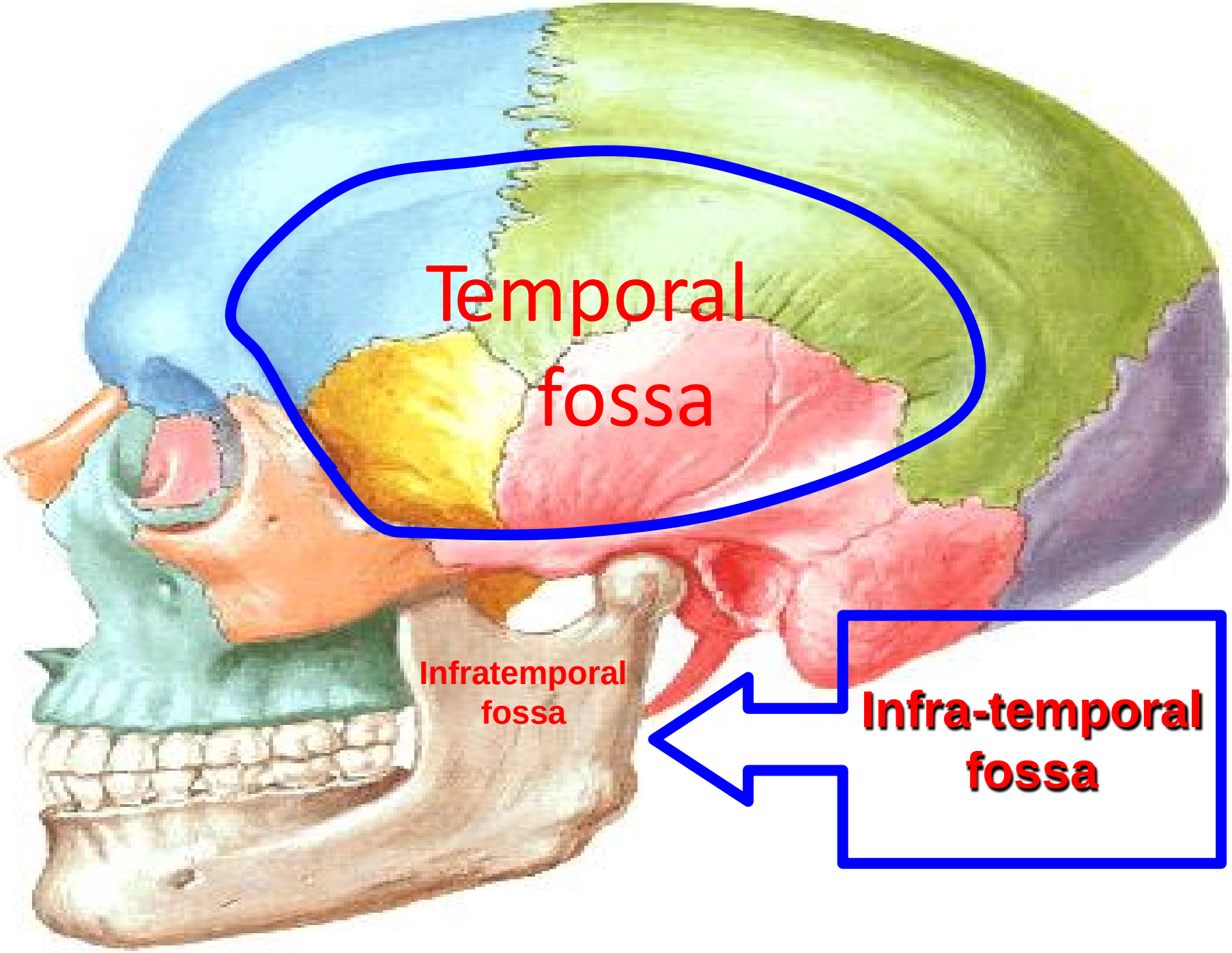

Temporal fossa
Infratemporal fossa
Infra-temporal fossa

MUSCLES OF MASTICATION

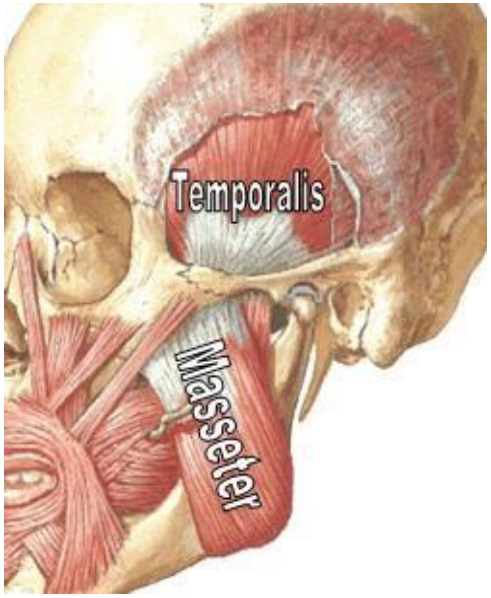
(MASTICATORS)

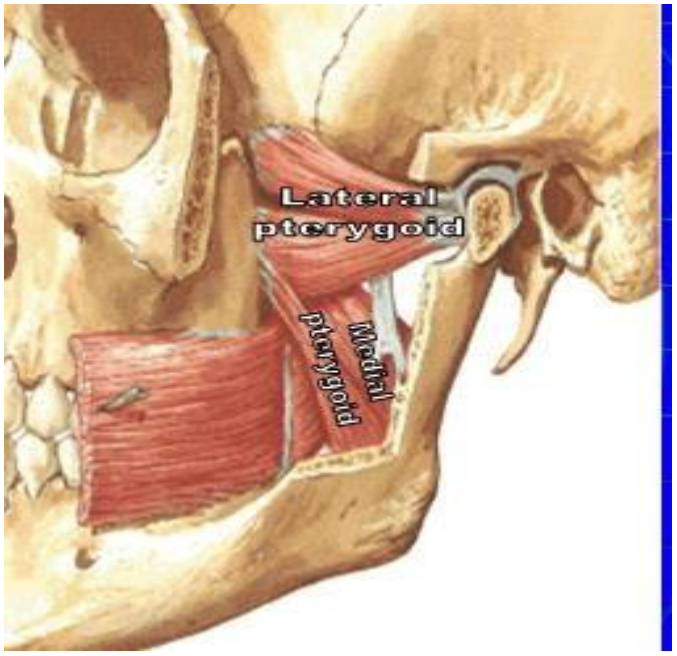
Main muscles of mastication

❶⇨Temporalis.
❷⇨Masseter.
❸⇨Lateral pterygoid.
❹⇨Medial pterygoid .

Accessory muscles of mastication

❶⇨Digastric.
❷⇨Geniohyoid.
❸⇨Mylohyoid.





- **All** arise from bones of skull.
- **All** inserted into ramus of mandible.
- **All** move mandible in mastication. **[see next]**
- **All** receive innervation from deep surface
- **All** are supplied by mandibular nerve.
- **All** are supplied by **anterior division of mandibular nerve *EXCEPT***
  medial pterygoid muscle *is supplied by* trunk of mandibular nerve
- **All** of them elevate the mandible except lateral pterygiod lowers it
- **All** of them protrude the mandible except temporalis which retracts i

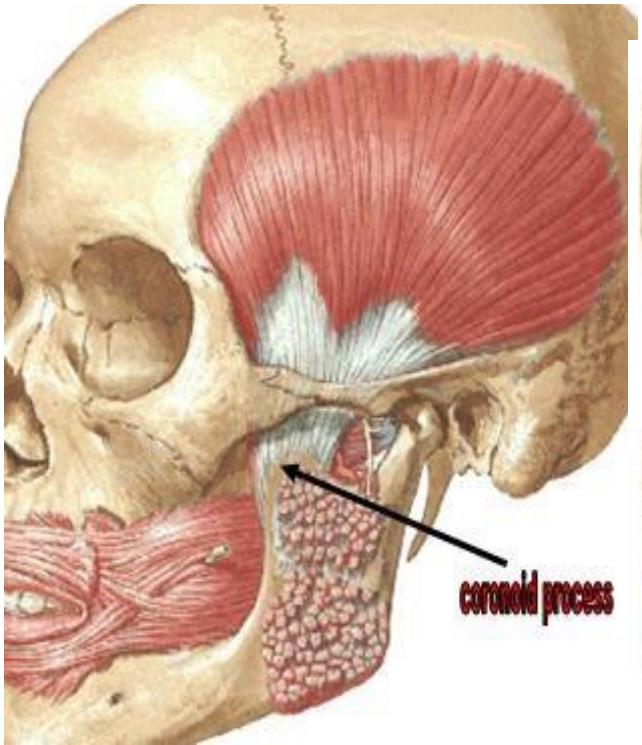
Temporalis

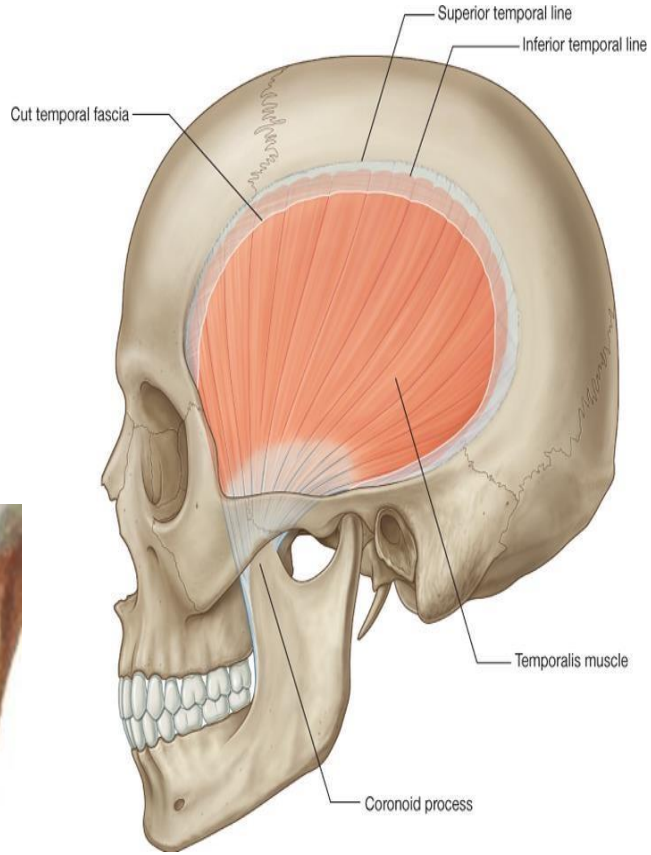
- Fan shaped .
- In temporal fossa.
- Origin: Temporal fossa & Temporal fascia
- Insertion:- Coronoid process:- tip, *medial surface* & anterior border.

2)-Action :-

1)- Elevation of mandible:

2)- Retraction of protruded mandible:





Fan shaped

Masseter

- Quadrangular. [cruciate muscle] muscle
- Origin:-

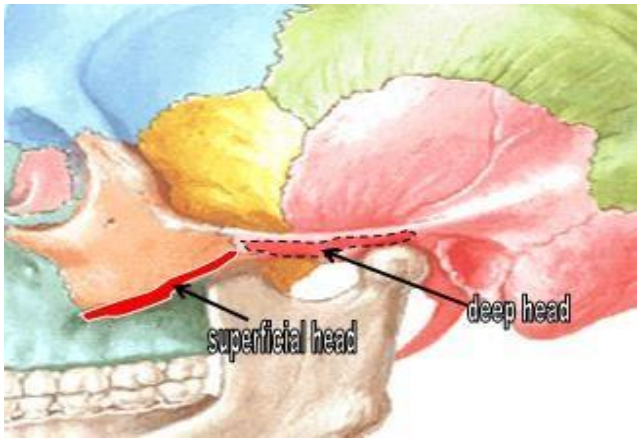
1)-Superficial head:- (tendentious). the largest.
= from the maxillary process of the zygomatic bone
2)-Deep head:-from Inner Surface of zygomatic arch.

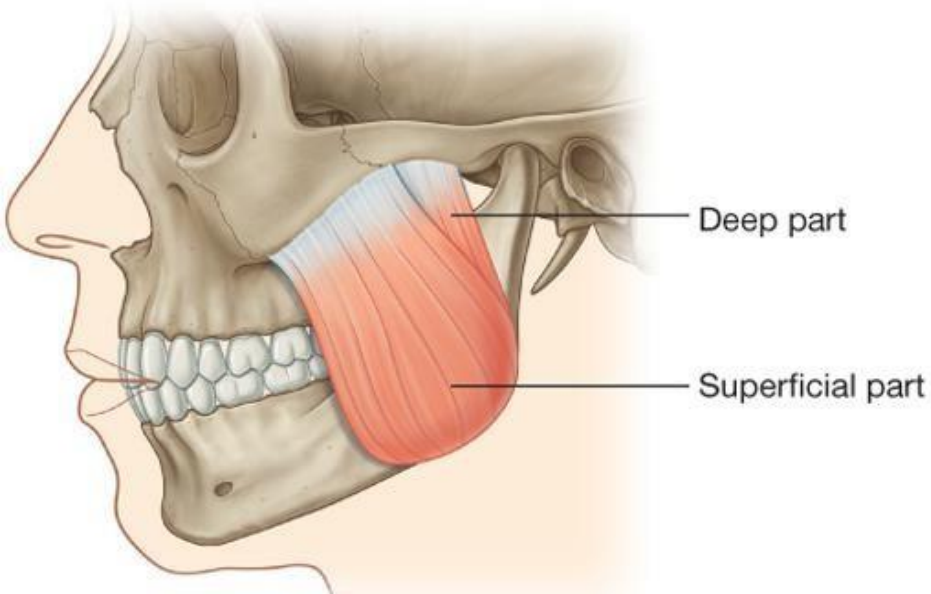
- Insertion:-

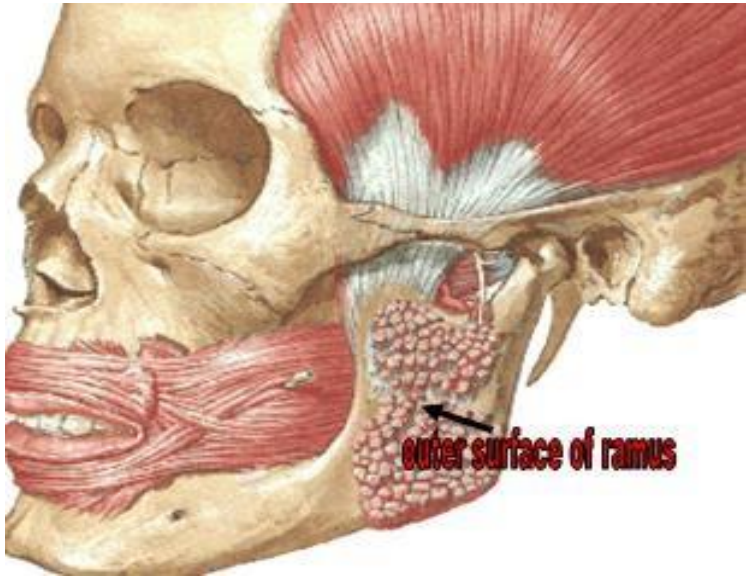
1)outer surface of Coronoid process for deep head.
2)outer surface of Ramus of mandible for superficial hea

- Action :

1)- Elevation of mandible: by vertical fibers. (biting)
2)-Regulate position of angle of mandible in vertical plane.
together with medial pterygoid.







Lateral pterygoid

[V] shaped lies on one side. [infra-temporal fossa gate]

Origin:

① Upper head: tendentious.
=from infra-temporal surface of
greater wing of sphenoid

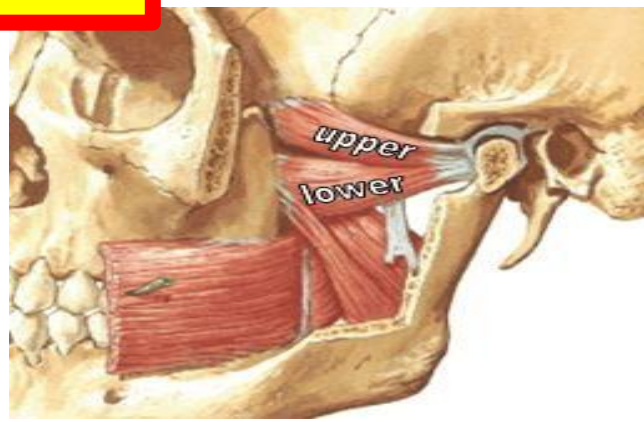
② Lower head: from lateral surface of lateral pterygoid plate of sphenoid.

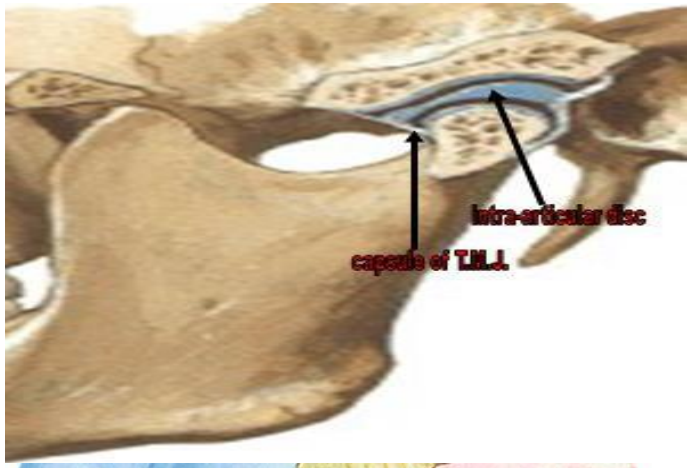
Insertion:

1) T.M.J.: for upper head.
*capsule of T.M.J.& Intra-articular disc.
2)- Neck: for lower head.
into pterygoid fovea (next slide).

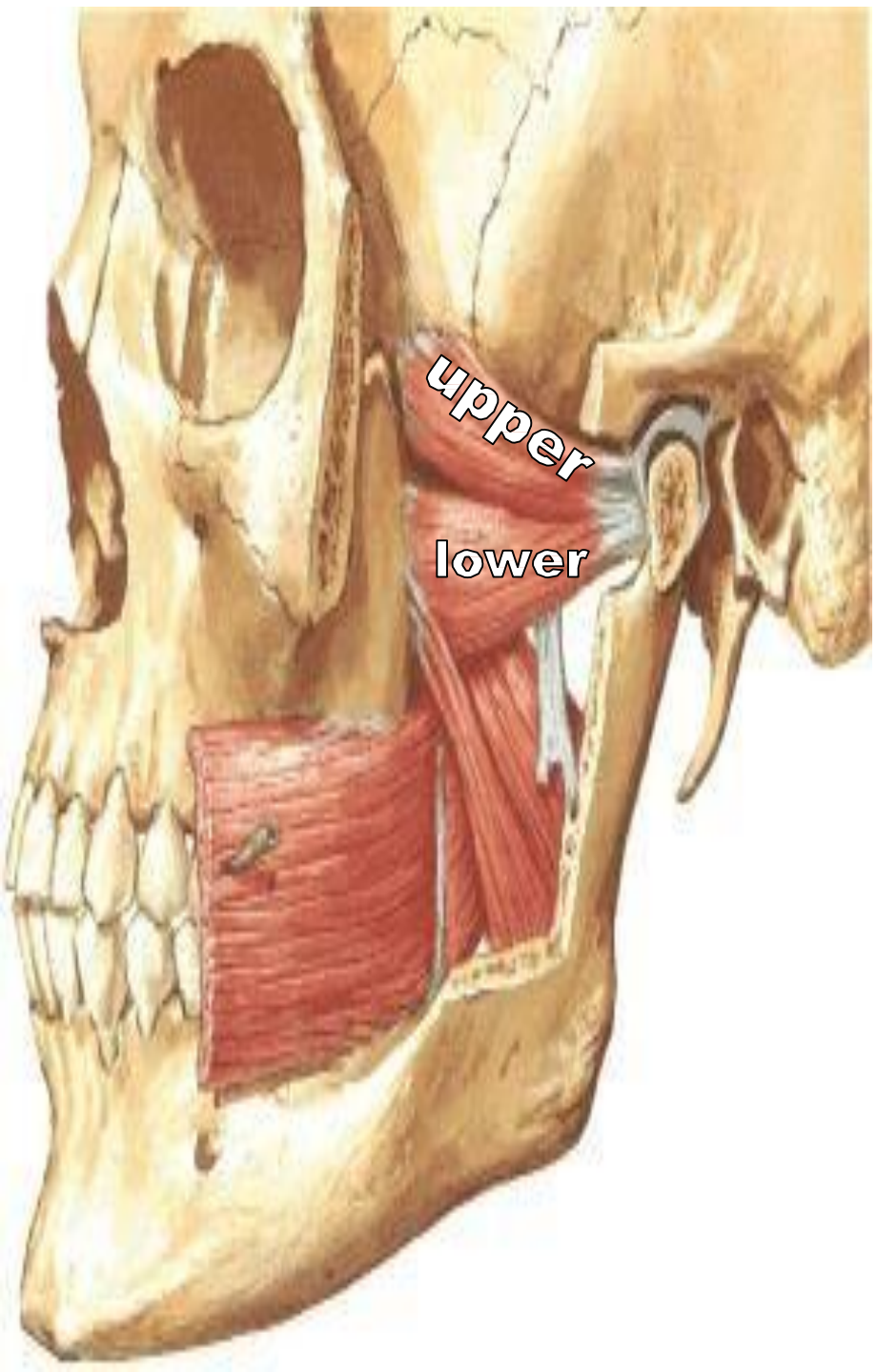
Action :- [P.D.P.]

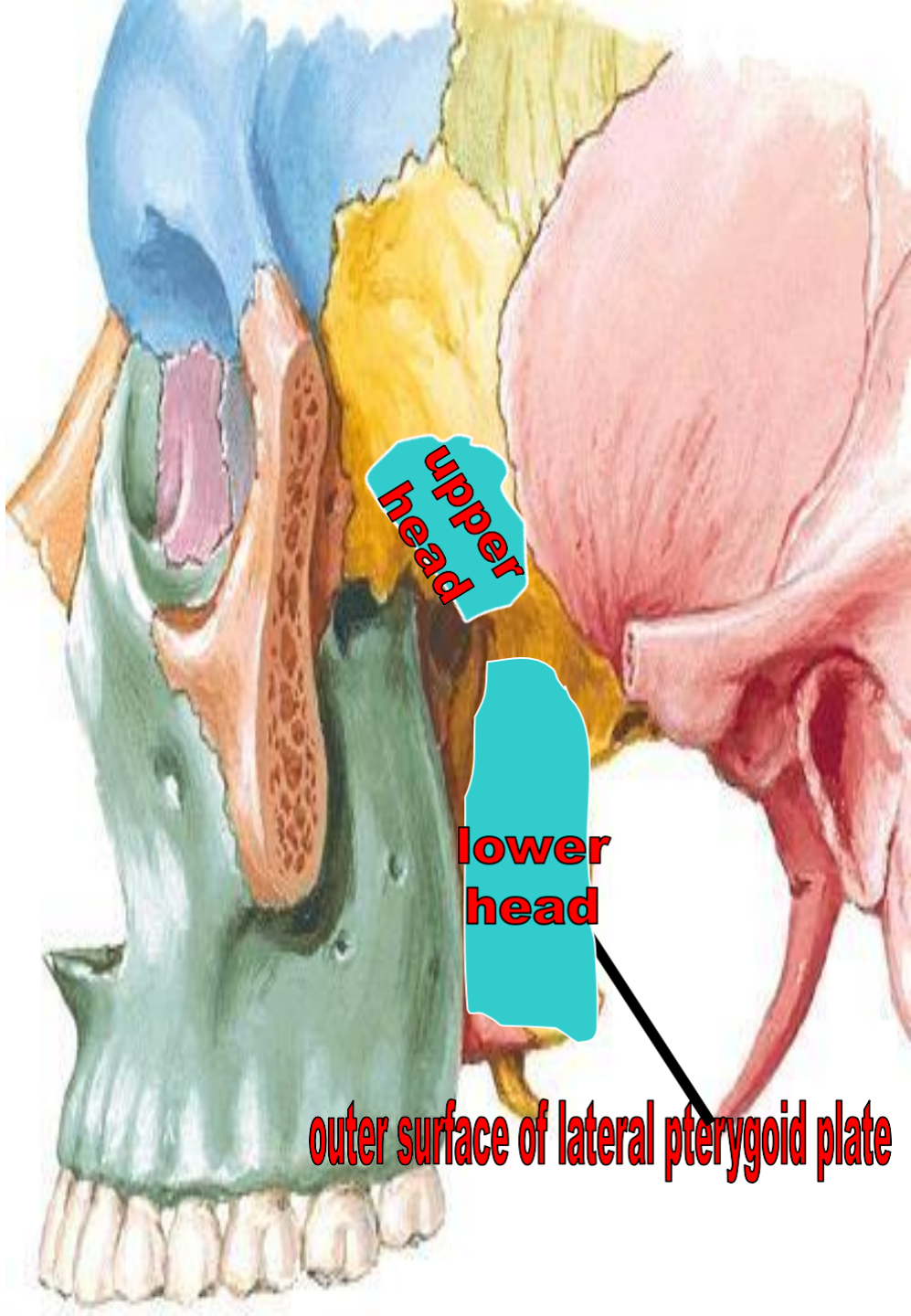
1)-Pushes mandible to opposite side:
➔with ipsilateral medial pterygoid.
2)-Depression of the mandible:
➔with contralateral lateral pterygoid
3)-Protrusion of the mandible:
➔with contralateral lateral pterygoid
& medial pterygoids.

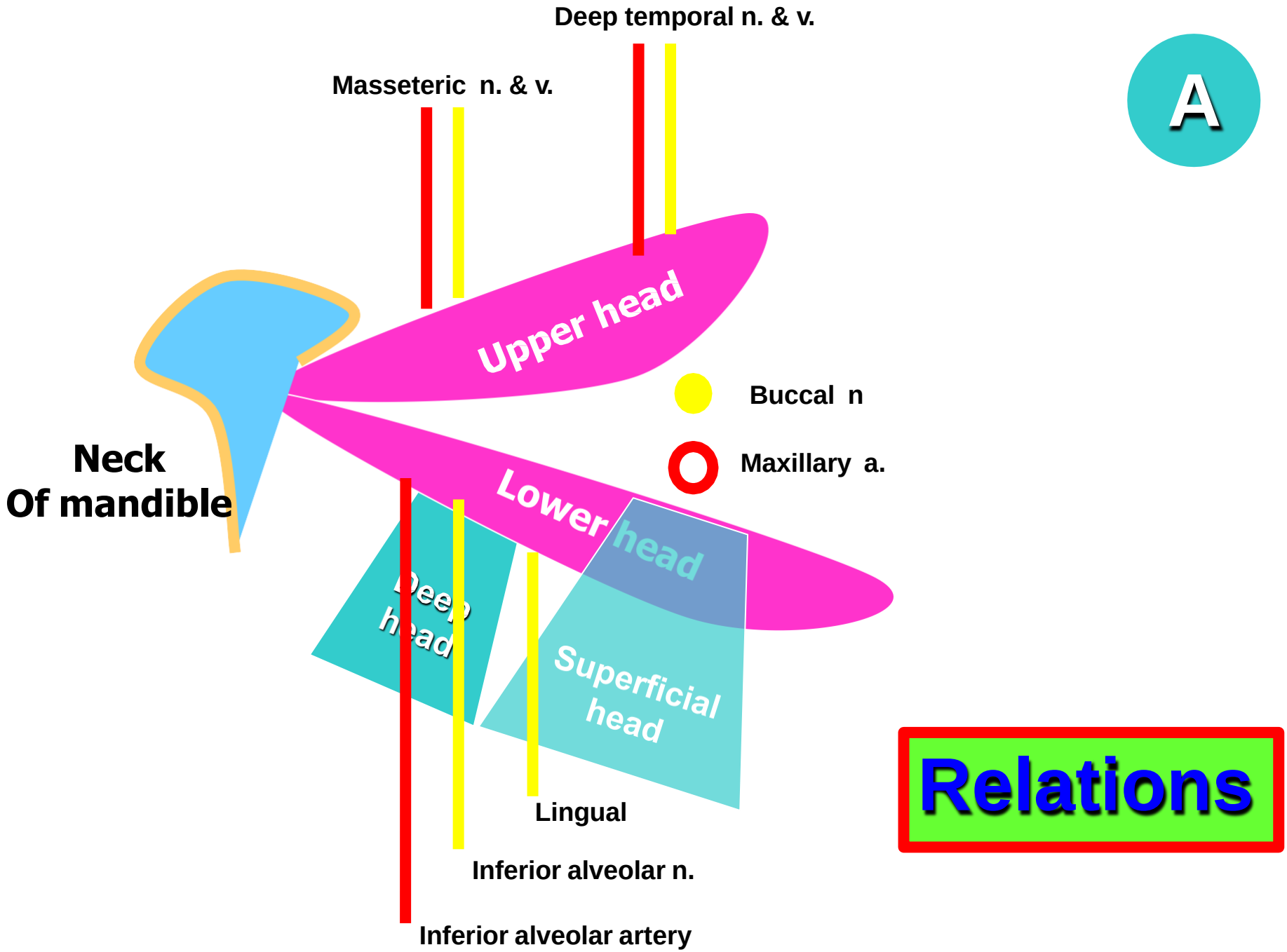





pterygoid pit (fovea)


upper
lower


upper head
lower head
outer surface of lateral pterygoid plate


Deep temporal n. & v.
Masseteric n. & v.
A
Upper head
Buccal n
Maxillary a.
Neck
Of mandible
Lower head
Deep head
Superficial head
Lingual
Inferior alveolar n.
Inferior alveolar artery
Relations

Medial pterygoid

- [V] shaped lies horizontal.
- Origin:-

①Superficial head: from maxillary tuberosity.

②Deep head:from medial surface of lateral pterygoid plate of sphenoid.

- Insertion:- [pterygoid tuberosity]

*on medial surface of Angle of mandible .

- Action :- [P.E.P.]

1)-Pushes mandible to opposite side:

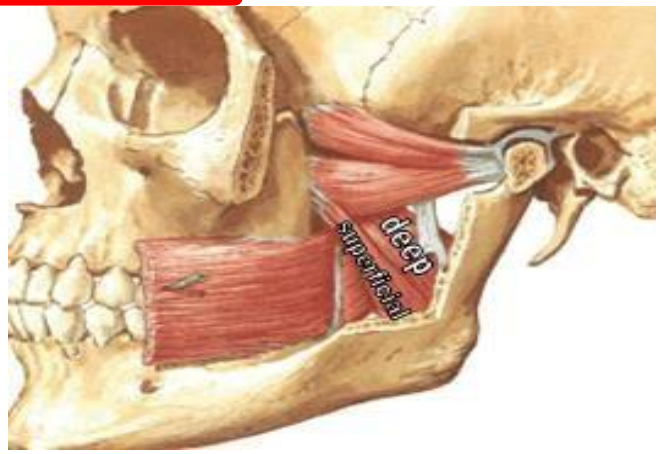
➔with ipsilateral lateral pterygoid.

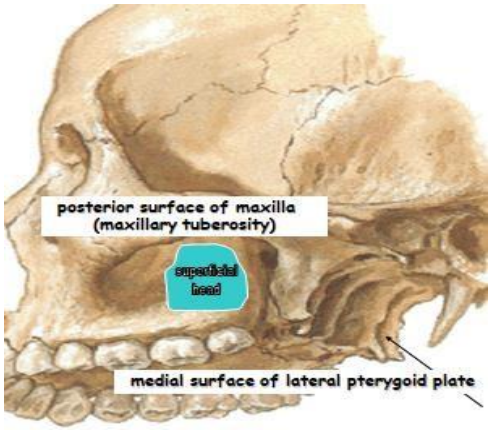
2)-Elevation of the mandible:-

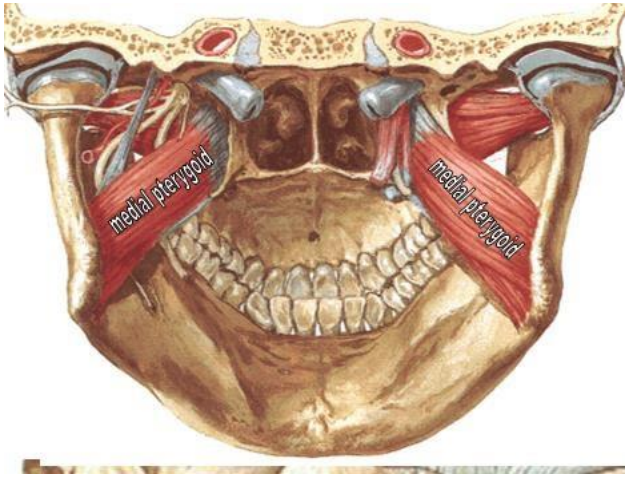
➔with contralateral medial pterygoid.

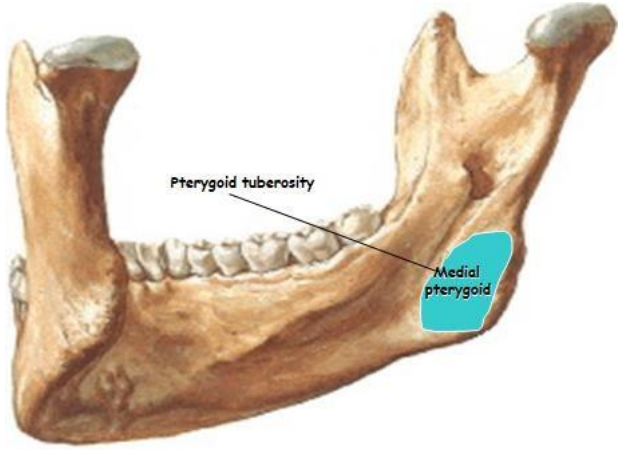
3)-Protrusion of the mandible

➔with contralateral medial pterygoid & lateral pteryg









MANDIBULAR NERVE

traverse the region *vertically* from above downwards.

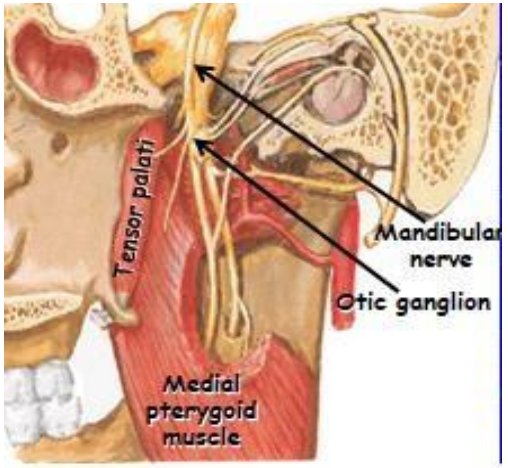
1 **ORIGIN: 3rd branch** of trigeminal nerve.

2 **Type: mixed:-**formed of two roots sensory and motor.

3 **EXIT FROM SKULL:** Via **FORAMEN OVALE**

(roots are separate).

=ENTER **infra-temporal fossa**

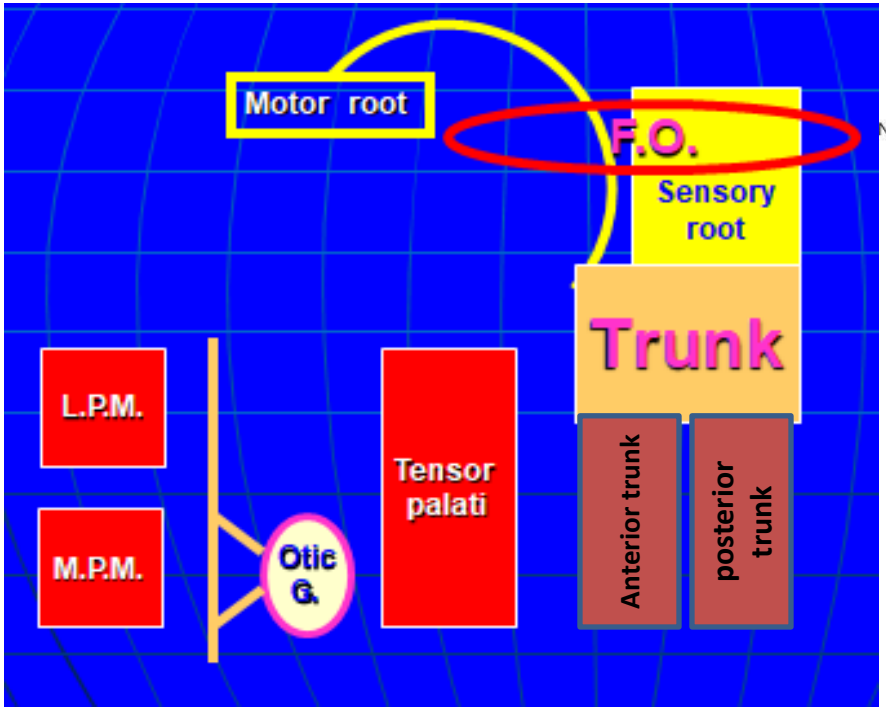


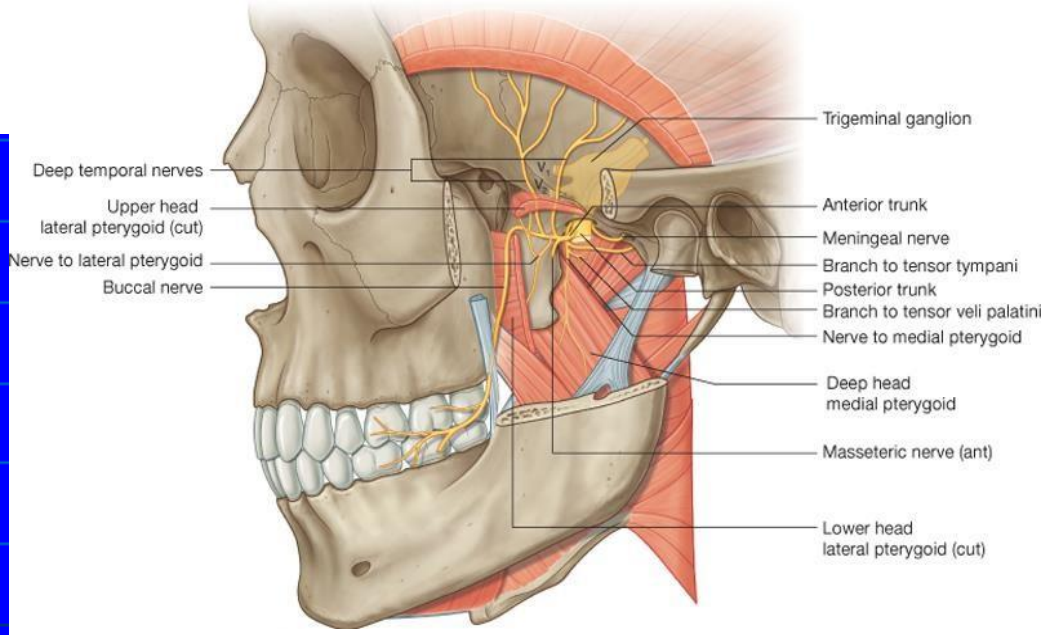
4- COURSE & RELATIONS:-

=below foramen **OVALE** the two roots unite to form trunk of mandibular n.

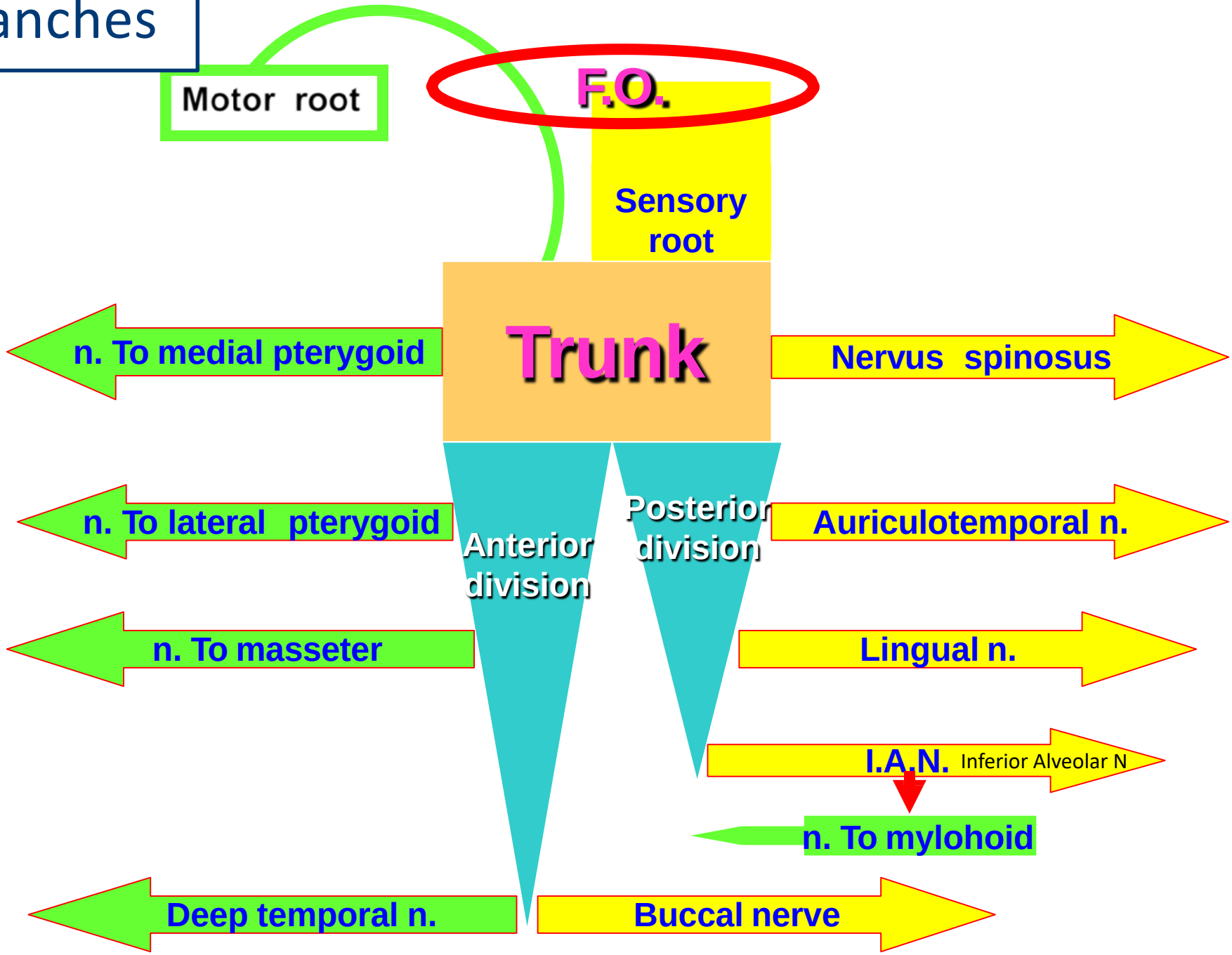
=lies deep to lateral pterygoid muscle

=on front of middle meningeal artery.





Branches


Motor root
F.O.
Sensory root
Trunk
n. To medial pterygoid
Nervus spinosus
n. To lateral pterygoid
Anterior division
Posterior division
Auriculotemporal n.
n. To masseter
Lingual n.
I.A.N. Inferior Alveolar N
n. To mylohoid
Deep temporal n.
Buccal nerve

1)=FROM TRUNK

- **A)Motor:** n. to medial petrygoid

-passes via otic ganglion WITHOUT RELAY.

-supplies:-

1-medial pterygoid.

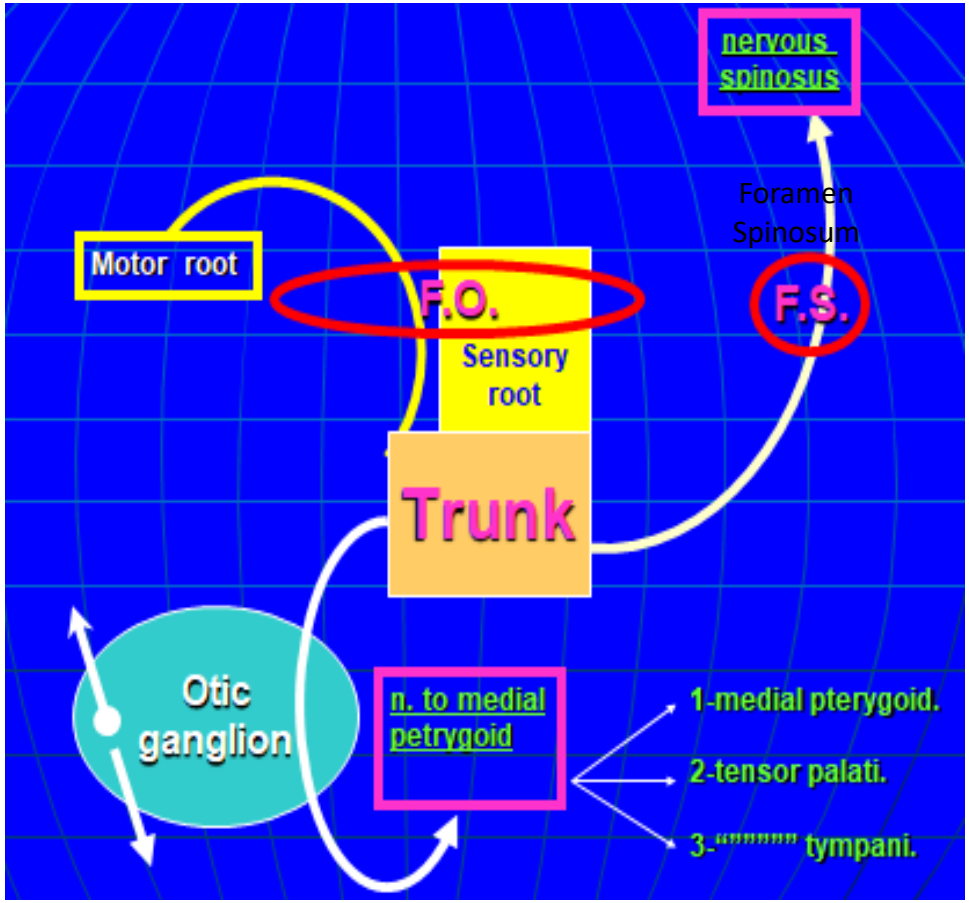
2-tensor palati.

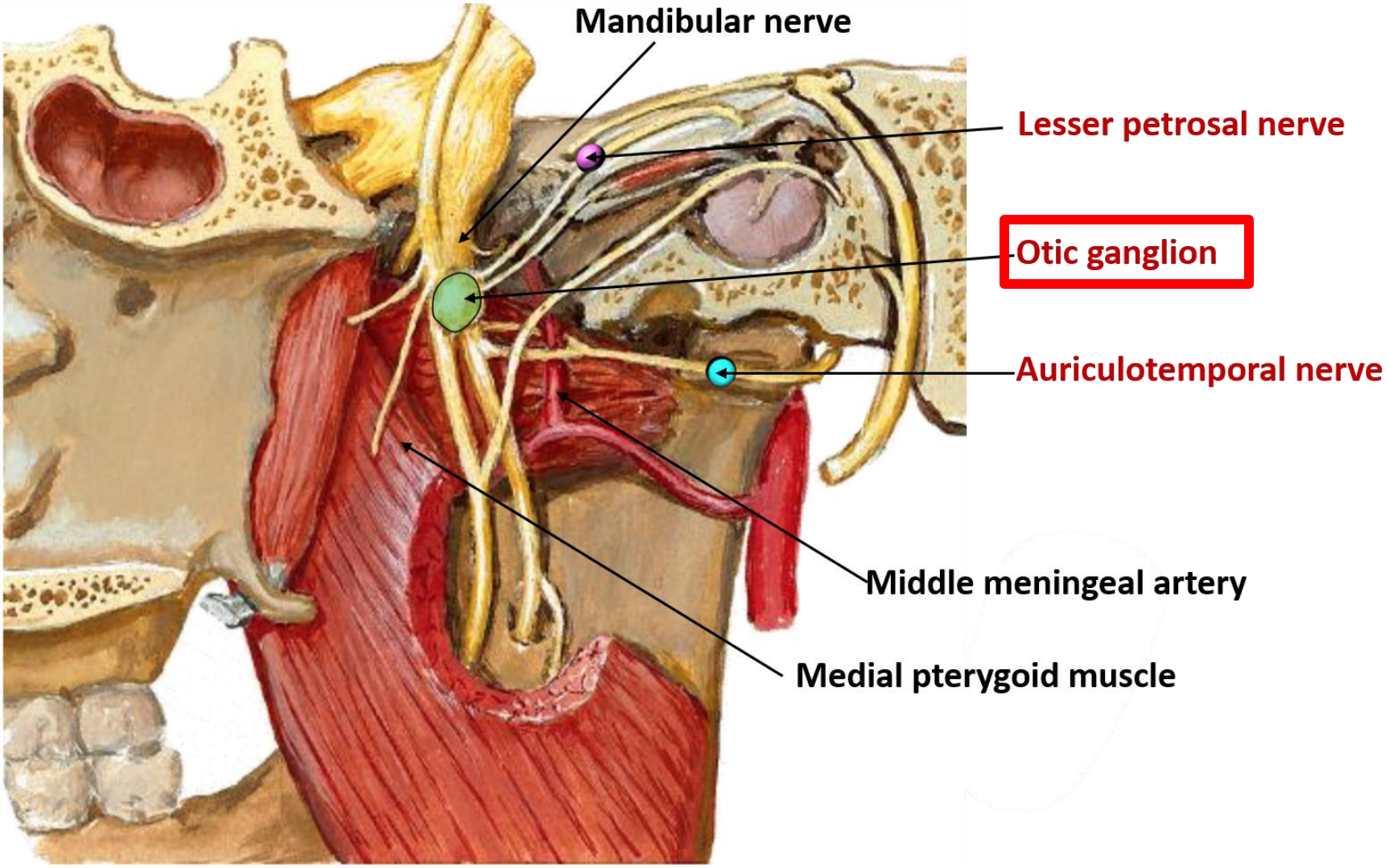
3-tensor tympani.

- **B)Sensory:** nervous spinosus

-passes from foramen spinosum with MIDDLE MENINGEAL ARTERY.

-sensory to large part of dura in middle cranial fossa.




Mandibular nerve
Lesser petrosal nerve
Otic ganglion
Auriculotemporal nerve
Middle meningeal artery
Medial pterygoid muscle

2)=FROM ANTERIOR DIVISION

2)=FROM ANTERIOR DIVISION

A)-Motor branches of anterior division

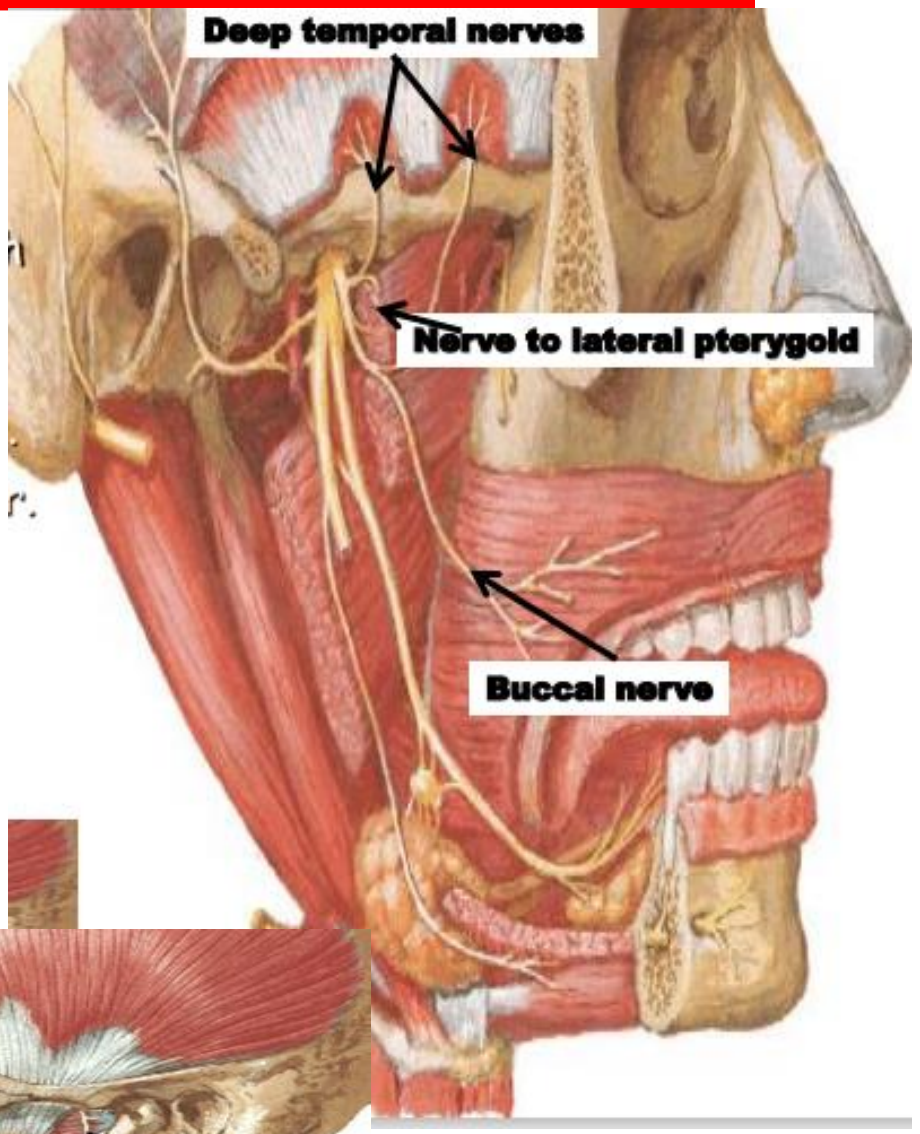
1-n. to lateral pterygoid muscle: 2 in number one for each head.

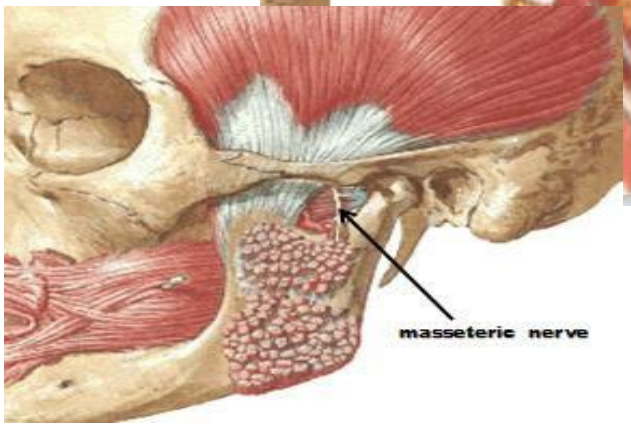
2-n. to temporalis [deep temporal nerves] 2 in number.

3-n. to masseter: 1 in number

B)-Sensory branch of anterior division: BUCCAL NERVE

Supply skin and m.m of cheek as far as angle of mouth.





mm= mucous membrane

3)-FROM POSTERIOR DIVISION

3)-FROM POSTERIOR DIVISION

A)- sensory branch of posterior division

1-AURICULO-TEMPORAL NERVE:-

-**ORIGIN:** Arises by two roots surrounding Middle Meningeal Artery.

-**COURSE:**

=passes backward & upwards to enter upper pole of **parotid gland.**

=leaves gland by **crossing the root OF ZYGOMATIC ARCH.**

=it is accompanied by:- superficial temporal vessels.

- DISTRIBUTION:

A)-Gives sensory branches TO:

1=mandibular joint.

2=front of auricle.

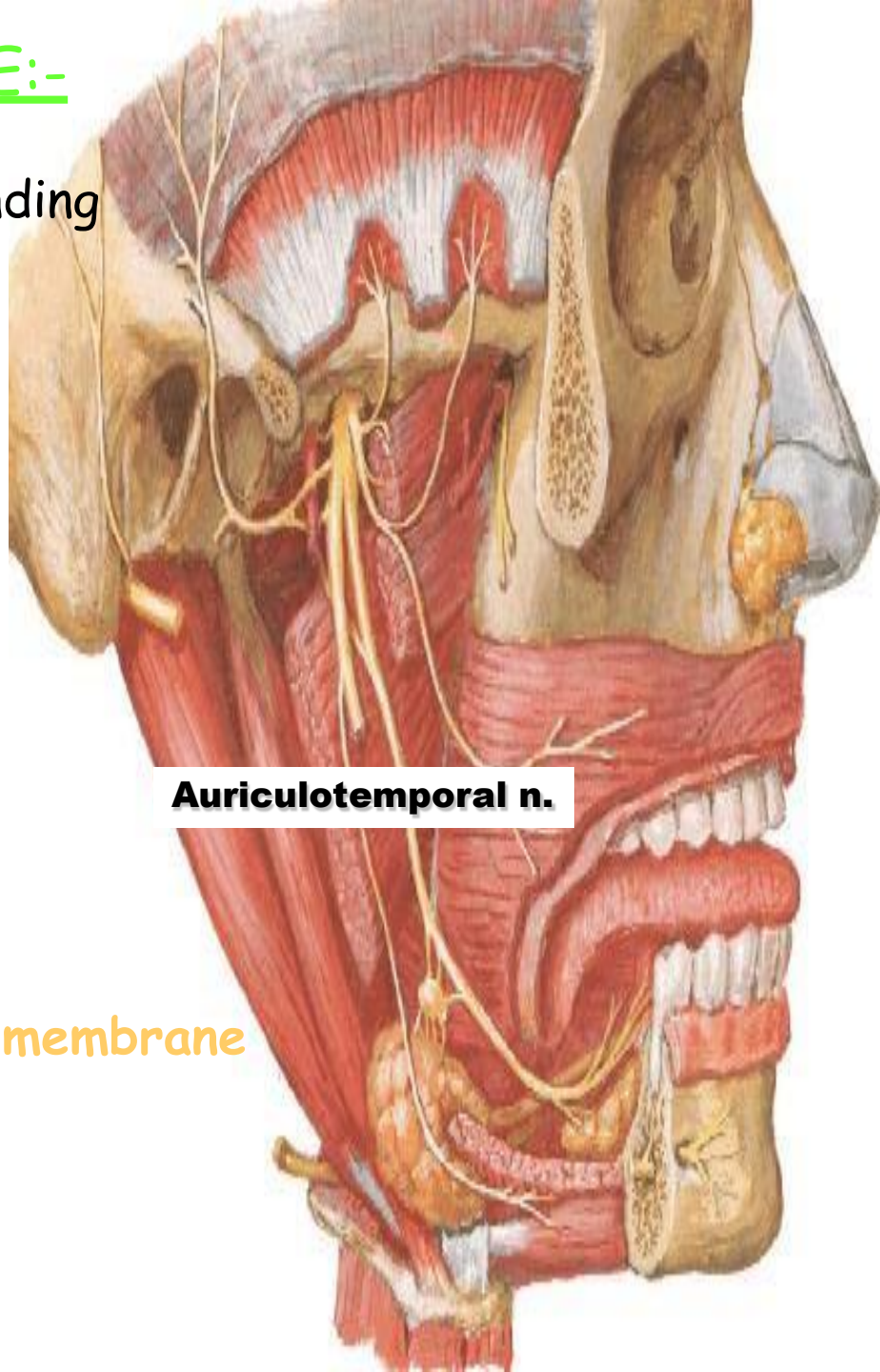
3=m.m. of external acoustic meatus.

4= part of outer surface of tympanic membrane

5= skin OF temporal region.

6= parenchyma of parotid gland.

B) -Gives autonomic branches TO PAROTID GLAND



2- inferior alveolar nerve

ORIGIN:-

=Posterior division of mandibular nerve.

=lies deep to lateral pterygoid (L. P.) muscle.

-COURSE:-

1)-appears at lower border of (L. P.) muscle

=In front of:- inferior alveolar artery.

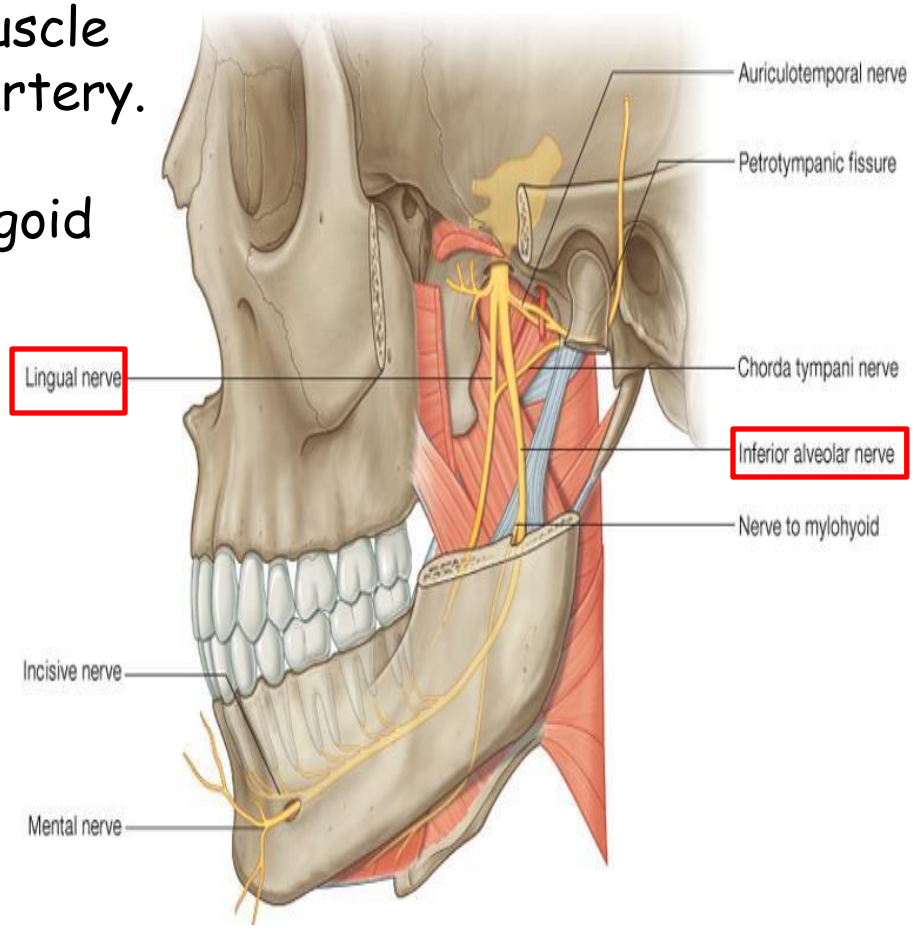
=Behind:- lingual nerve.

=On outer surface of :- medial pterygoid muscle.

2)-about 1 cm. Above **Mandibular foramen:-**

a)=gives off mylohyoid branch.

b)=then enters **mandibular canal.**



DISTRIBUTION (type of fibers):-

1=Mylo-hyoid nerve:-

=only muscular branch of posterior division of mandibular n..

=runs in mylo-hyoid groove together with mylo-hyoid artery.

=The nerve supplies:-

1=anterior belly of digastric muscle.

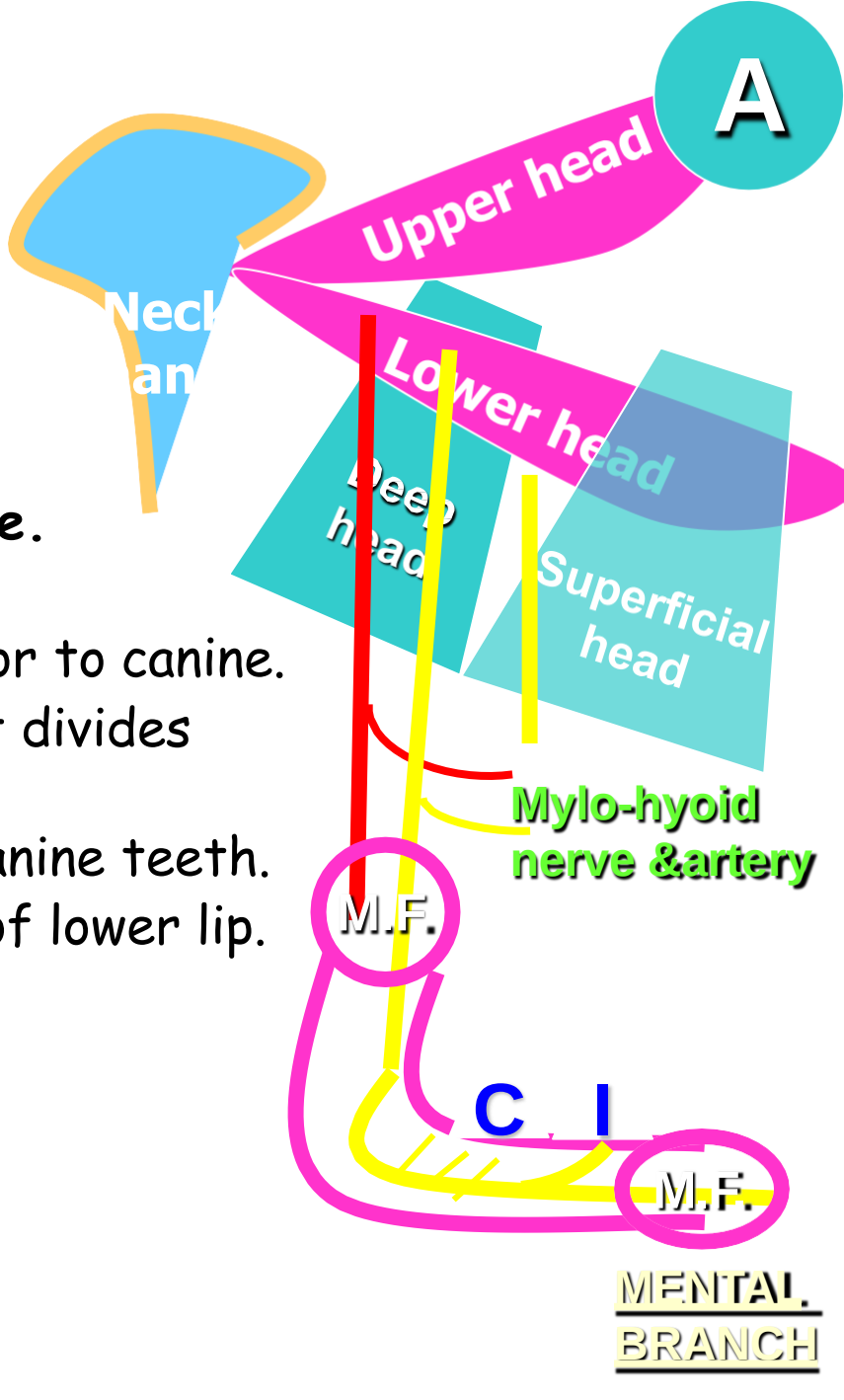
2=mylo-hyoid muscle.

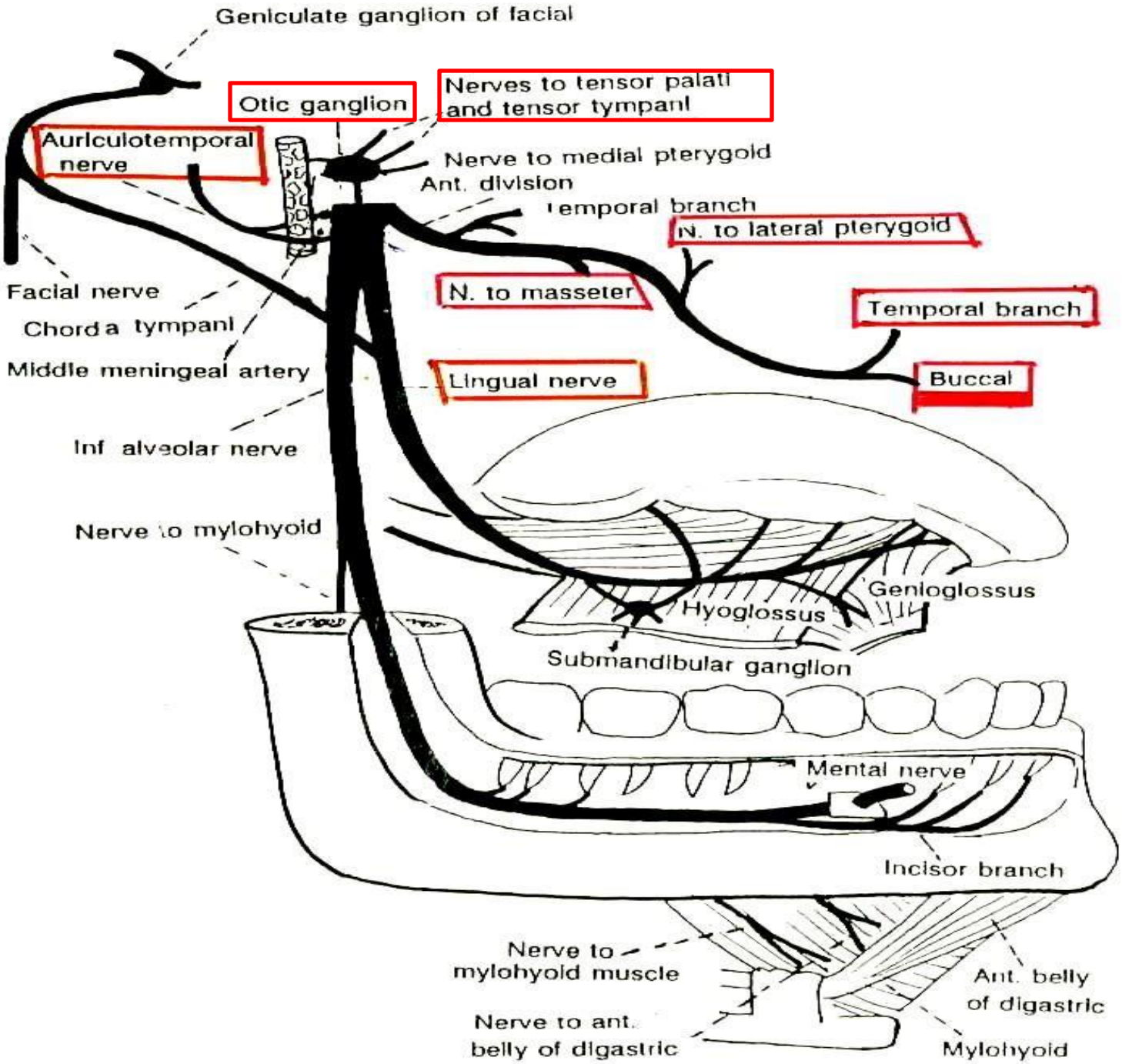
2=WITHIN CANAL: supply teeth posterior to canine.

3=AT LEVEL OF MENTAL FORAMEN: it divides into:-

a)=**INCISIVE BRANCH:-** incisive and canine teeth.

b)=**MENTAL BRANCH:-** skin and m.m. of lower lip.




Geniculate ganglion of facial
Otic ganglion
Nerves to tensor palati and tensor tympani
Auriculotemporal nerve
Nerve to medial pterygoid
Ant. division
Temporal branch
N. to lateral pterygoid
Facial nerve
Chorda tympani
N. to masseter
Temporal branch
Middle meningeal artery
Lingual nerve
Buccal
Inf. alveolar nerve
Nerve to mylohyoid
Genioglossus
Hyoglossus
Submandibular ganglion
Mental nerve
Incisor branch
Nerve to mylohyoid muscle
Ant. belly of digastric
Nerve to ant. belly of digastric
Mylohyoid

3-lingual nerve

-**ORIGIN:**Posterior division of mandibular nerve. joins the chorda tympani branch of the facial nerve.

-**COURSE:**

1)-appears at lower border of (L. P.) muscle

=**In front of:**inferior alveolar nerve.

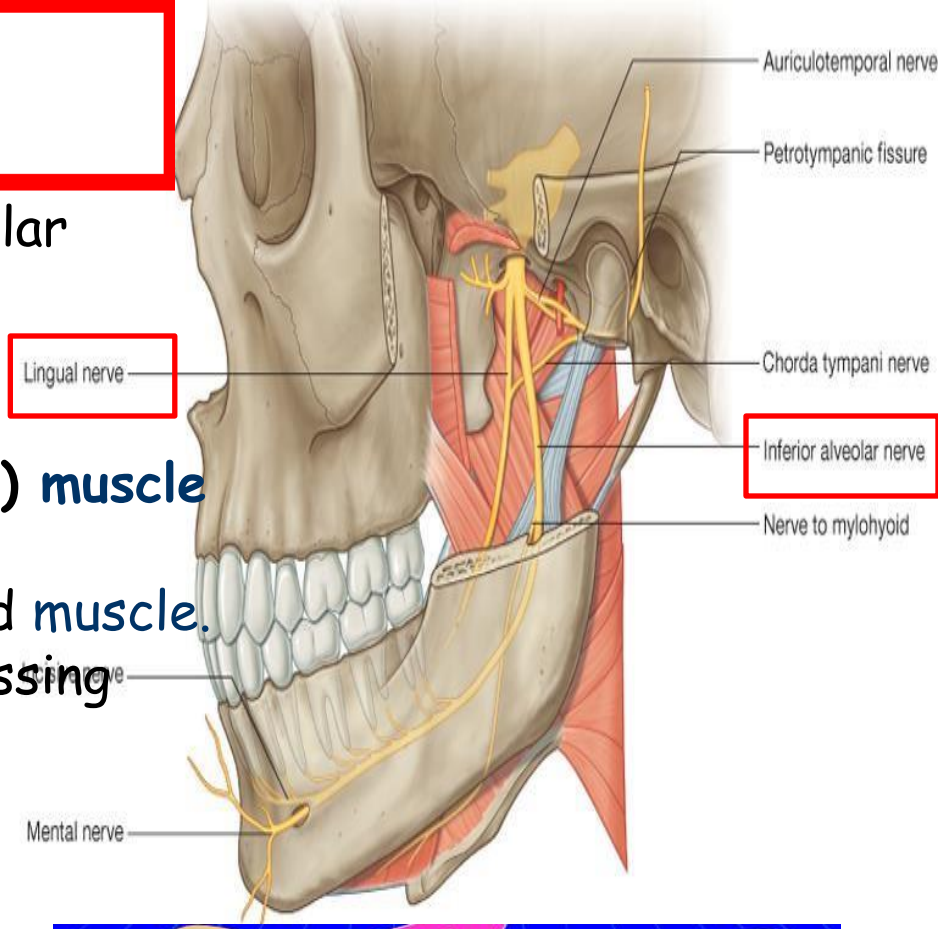
=**On outer surface of:** medial pterygoid muscle.

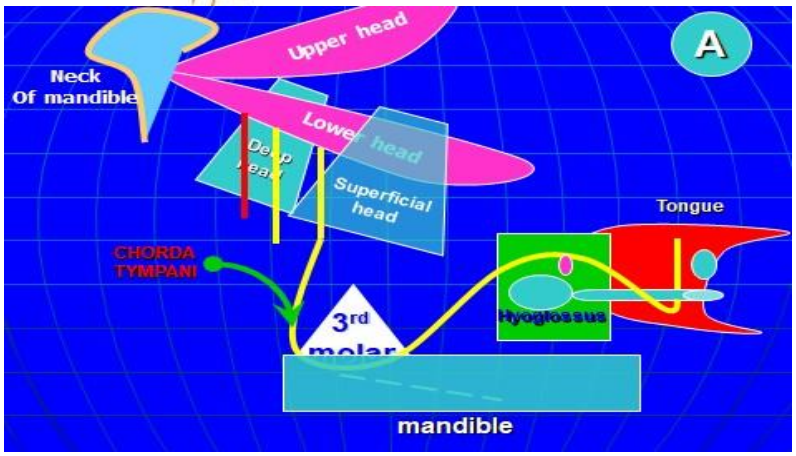
2)-It enters the floor the mouth by passing behind and below the last molar teeth

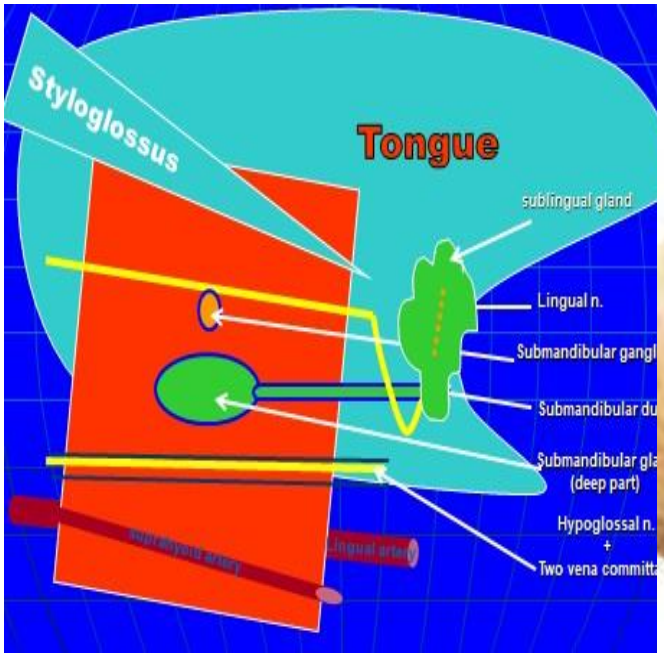
{DANGEROUS POSITION}

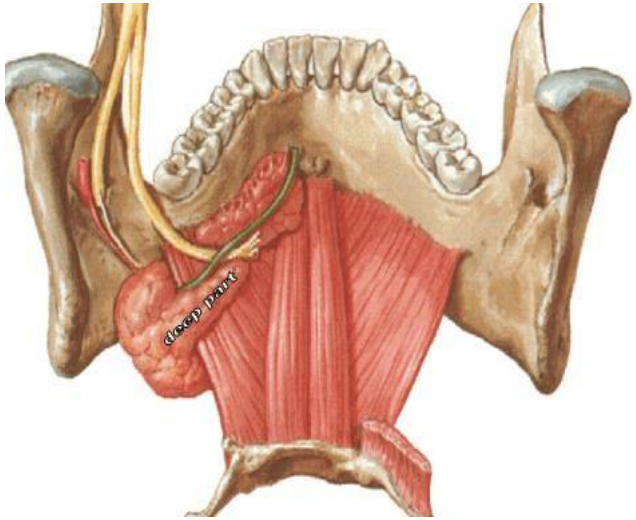
=Then, it enters the submandibular region where it runs forwards on the lateral surface of the hyoglossus muscle deep to the mylohyoid muscle.

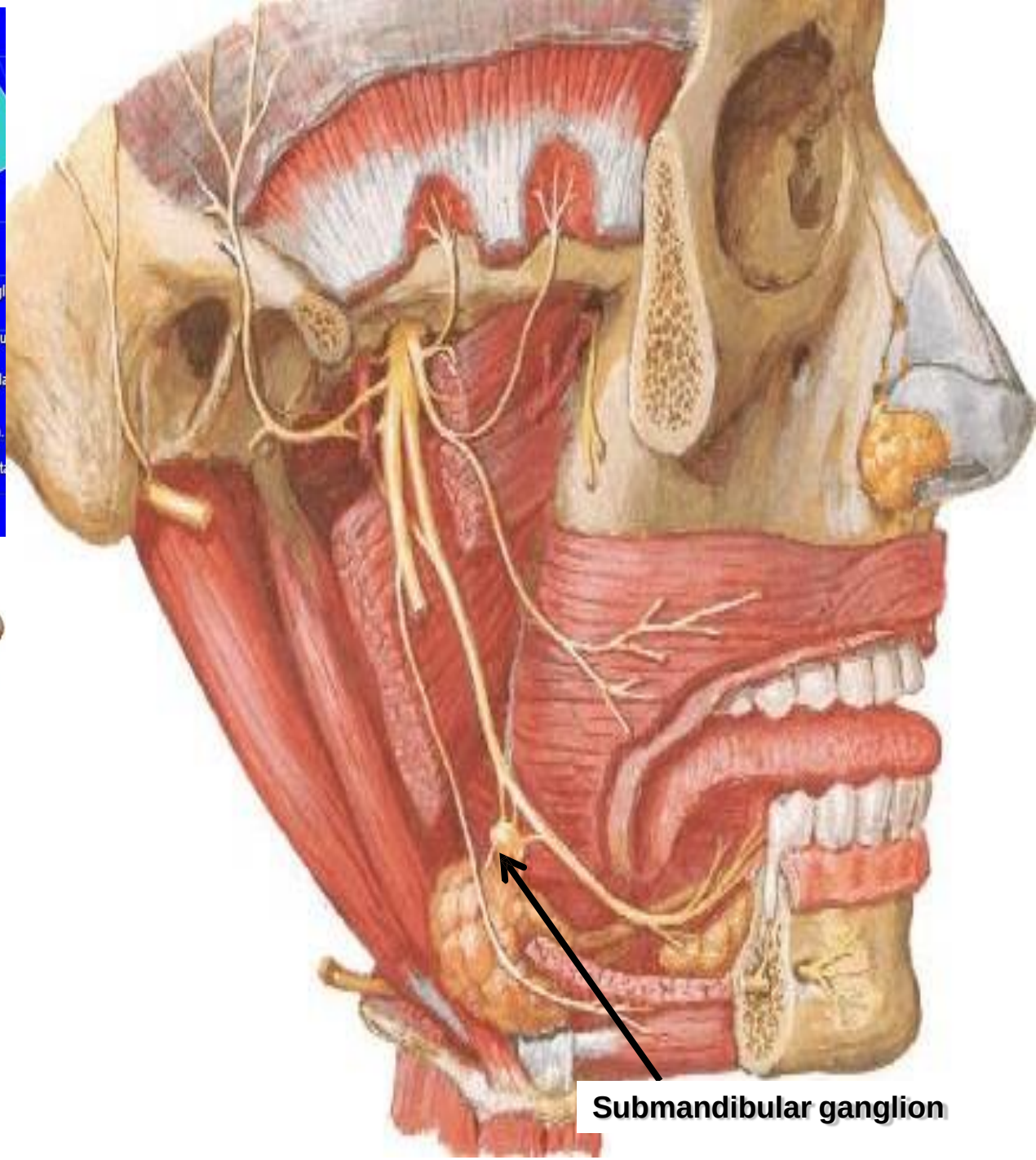
Finally, it reaches the genioglossus muscle, where it hooks around the submandibular duct.






Styloglossus
Tongue
sublingual gland
Lingual n.
Submandibular gangl
Submandibular du
Submandibular gla
(deep part)
Hypoglossal n.
+
Two vena committa


deep part


Submandibular ganglion

-DISTRIBUTION (type of fibers):-

1=TONGUE:-

A -GENERAL SENSATION:=

1 ant. 2/3 of tongue

2 floor of mouth.

3gum on inner side of lower teeth.

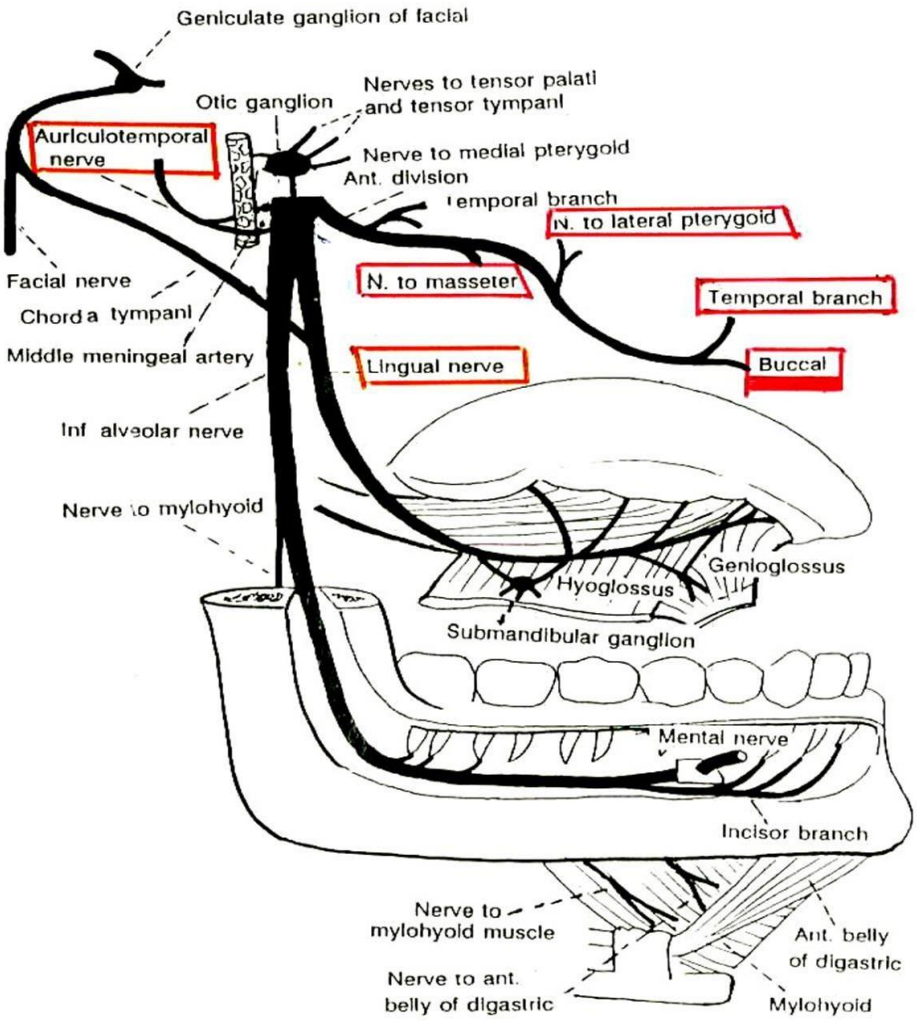
B -SPECIAL SENSATION (taste):

CHORDA TYMPANI

=from facial n.

=carries:- from ant.

2/3 of tongue via lingual n. to facial n.



2=SUB-LINGUAL & SUB-MANDIBULAR SALIVARY GLAND:-

1]-GENERAL SENSATION:- parenchyma

2]-SYMPATHETIC:- vaso-motor.

3]-PARASYMPATHETIC (secreto-motor):

{chorda tympani}