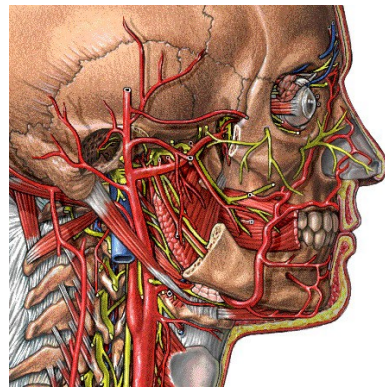
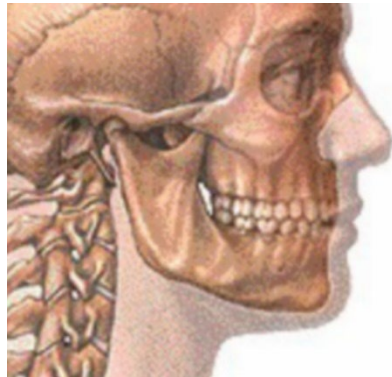
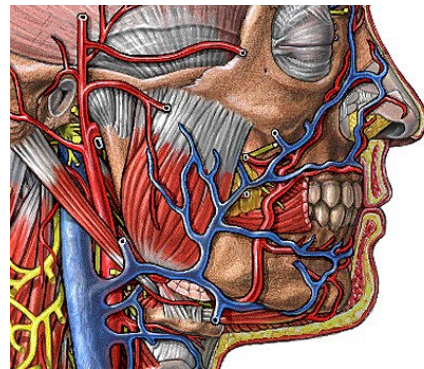
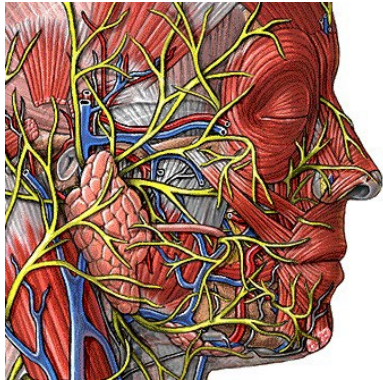


PAROTID AND INFRATEMPORAL REGIONS

DISSECTION OF INFRATEMPORAL FOSSA - Superficial to Deep



OUTLINE

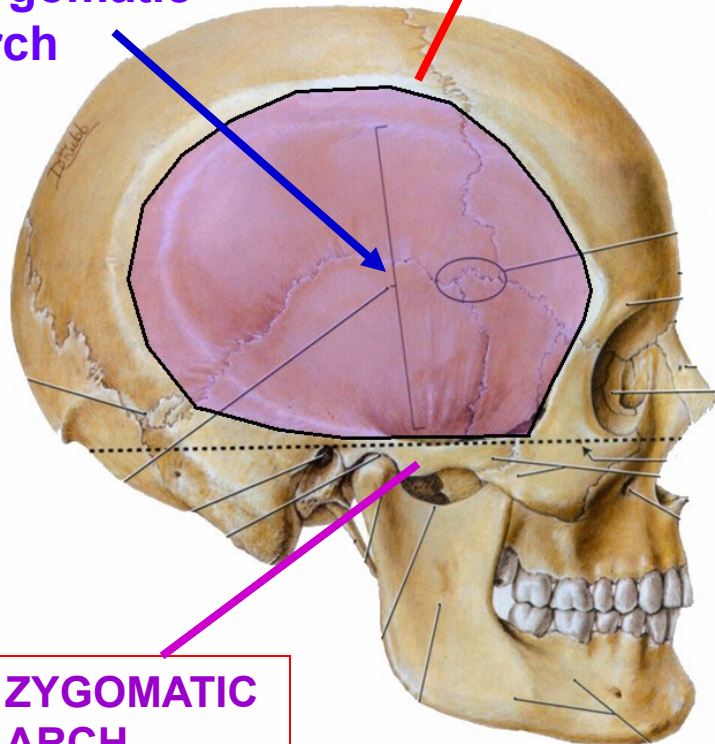
- I. TEMPORAL FOSSA
- II. INFRATEMPORAL FOSSA
- III. MAXILLARY ARTERY
- IV. PTERYGOID VENOUS PLEXUS
- V. TEMPORO-MANDIBULAR JOINT (TMJ)
- VI. MUSCLES OF MASTICATION
- VII. PAROTID REGION

COMPLEX, CLINICALLY IMPORTANT AREA - source of blood supply to nasal cavity, calvarium, oral cavity, middle ear; location of muscles of mastication

I. TEMPORAL FOSSA

TEMPORAL FOSSA -
area above
zygomatic
arch

SUP. TEMPORAL LINE



ZYGOMATIC ARCH

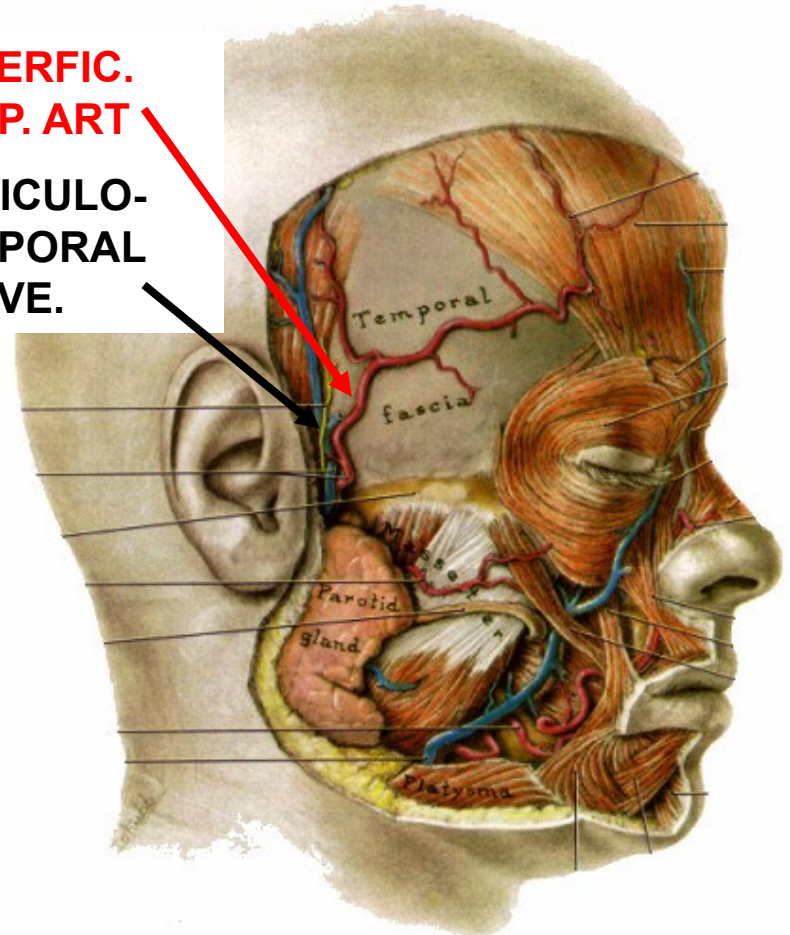
BOUNDARIES:

SUP. - SUPERIOR TEMPORAL LINE

INF. - ZYGOMATIC ARCH

SUPERFIC. TEMP. ART

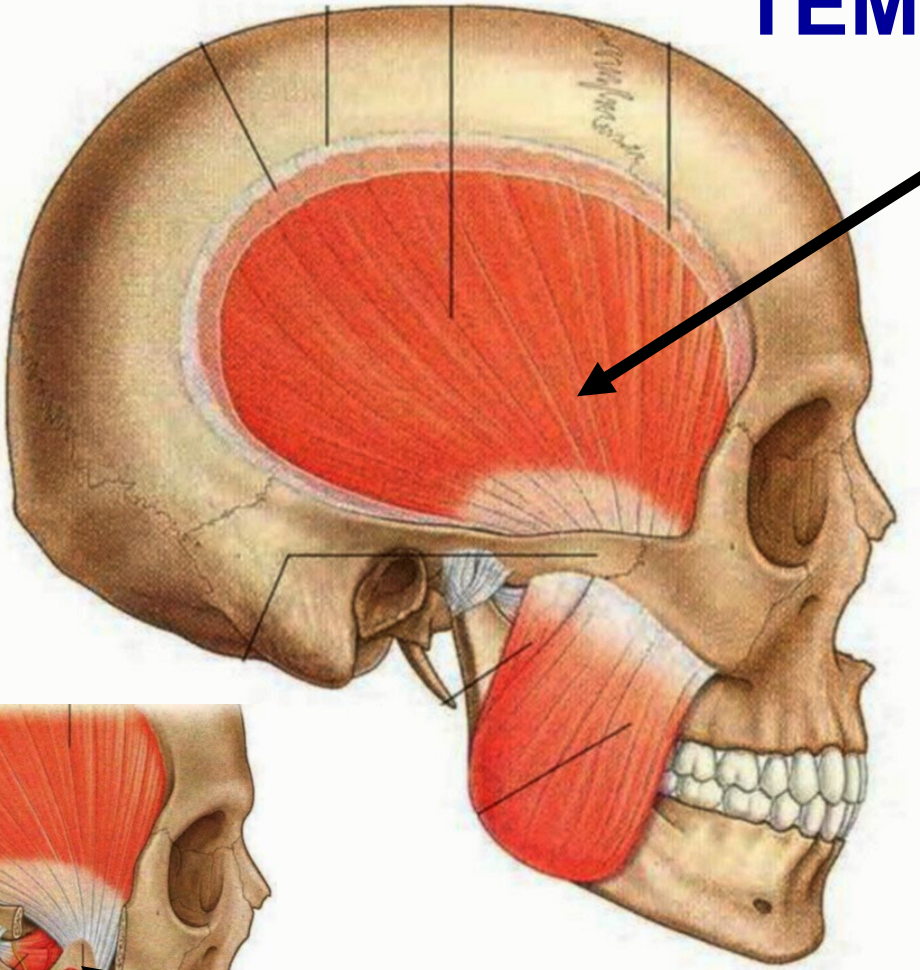
AURICULO-TEMPORAL NERVE.



CONTAINS

- 1) SUPERFICIAL TEMPORAL ARTERY
- 2) AURICULO-TEMPORAL NERVE (V3)

TEMPORAL FOSSA

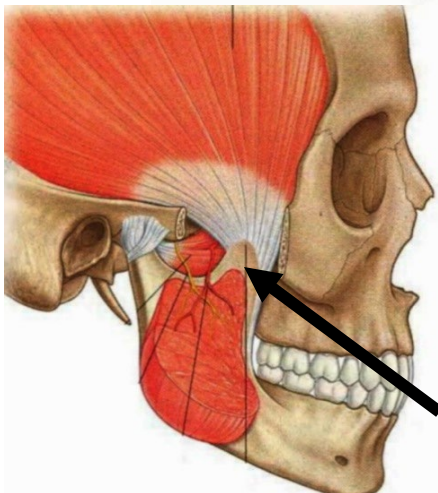


**TEMPORALIS
MUSCLE**

CONTAINS

**1) TEMPORALIS
MUSCLE**

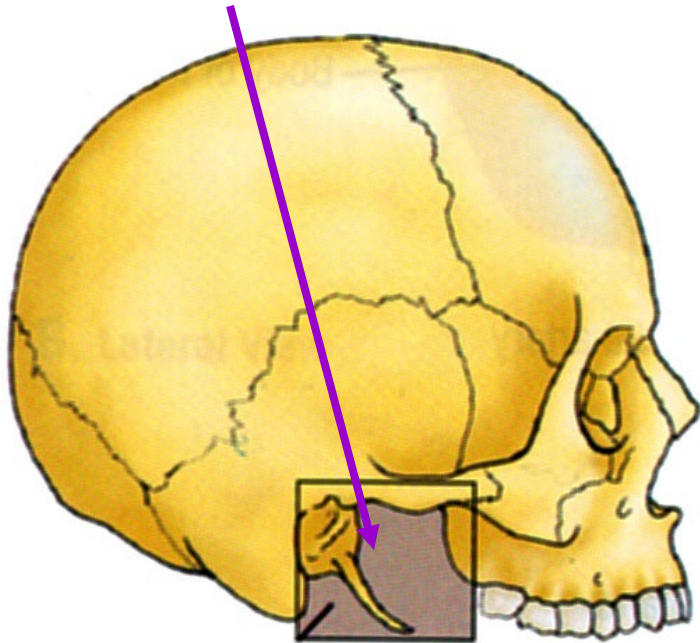
**2) DEEP
TEMPORAL
ARTERIES AND
NERVES (DEEP
TO TEMPORALIS
MUSCLE)**



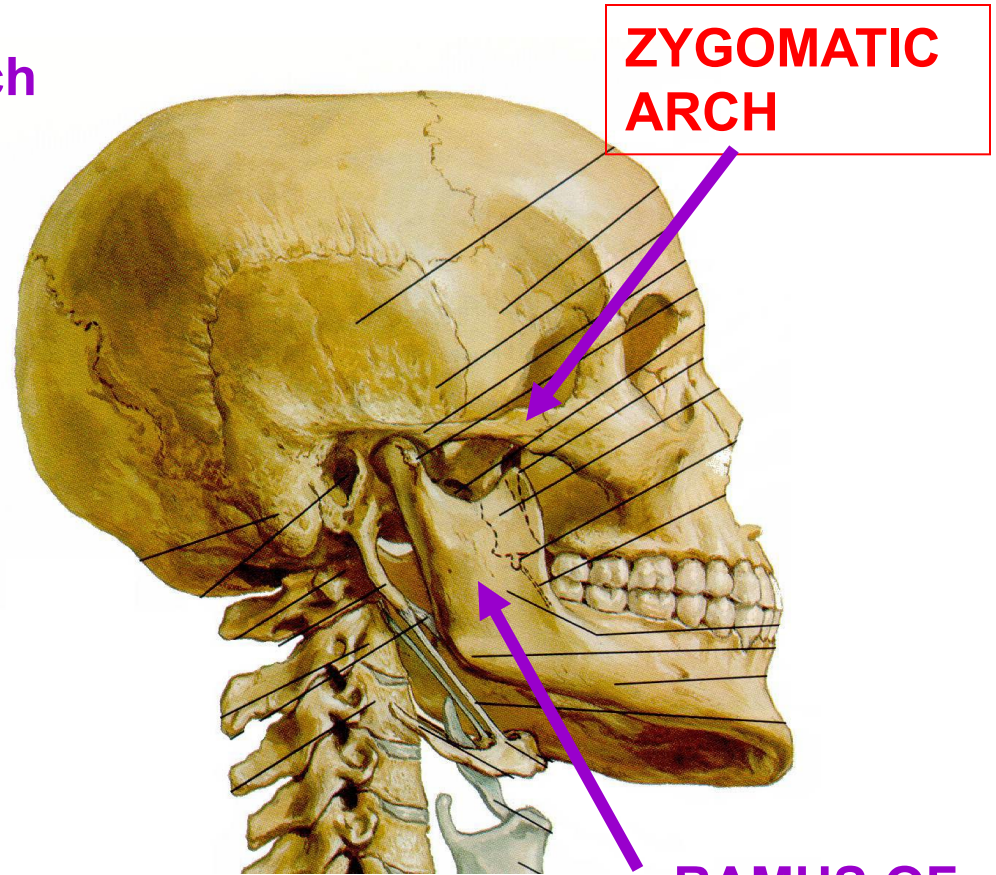
**TEMPORALIS MUSCLE INSERTS
TO MANDIBLE (CORONOID
PROCESS) MEDIAL TO
ZYGOMATIC ARCH**

II. INFRATEMPORAL FOSSA

INFRATEMPORAL FOSSA -
area inferior to zygomatic arch



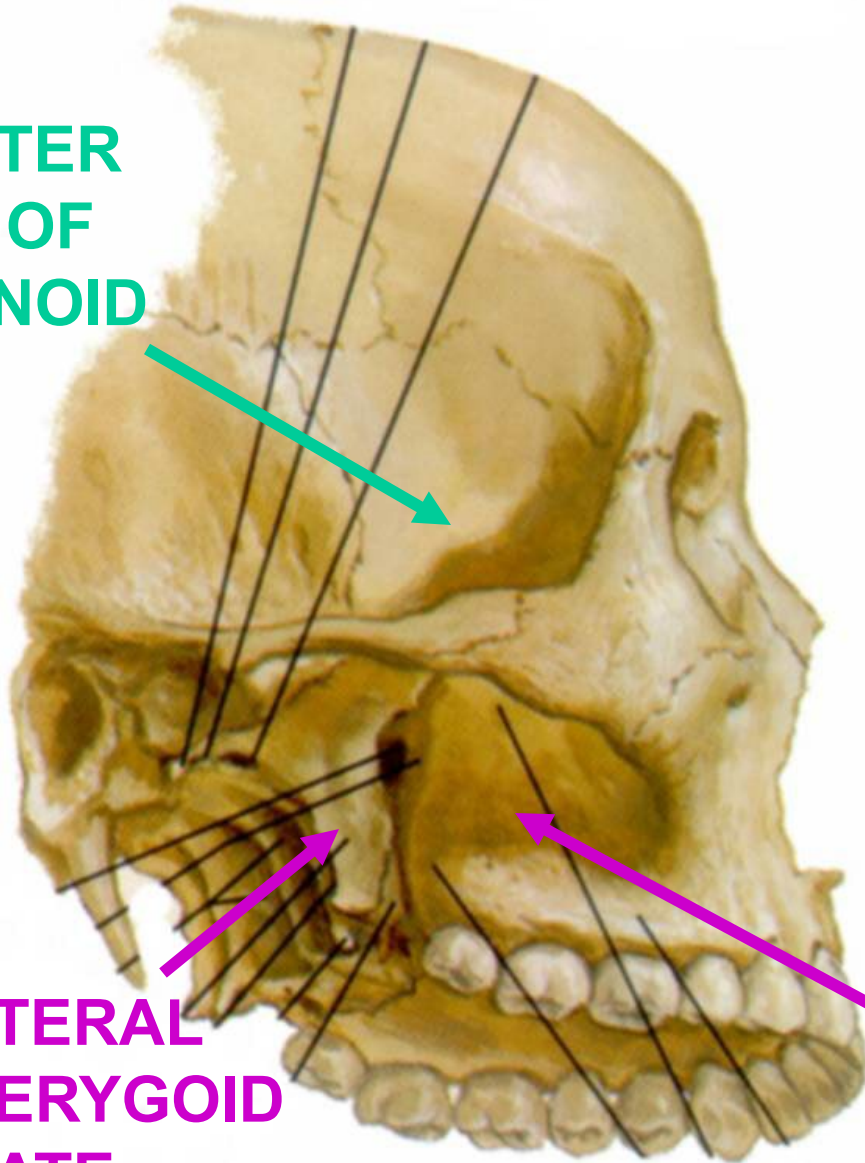
BOUNDARIES
SUPERIOR - ZYGOMATIC ARCH
LATERAL - MANDIBLE (RAMUS)



**RAMUS OF
MANDIBLE**

INFRATEMPORAL FOSSA – remove mandible

**GREATER
WING OF
SPHENOID**



**SUPERIOR
BOUNDARY ALSO -
GREATER WING OF
SPHENOID**

**MEDIAL- LATERAL
PTERYGOID
PLATE**

**LATERAL
PTERYGOID
PLATE**

**ANTERIOR -
POST.SIDE
MAXILLARY BONE**

INFRATEMPORAL FOSSA: FORAMINA

FORAMINA

1. FORAMEN OVALE

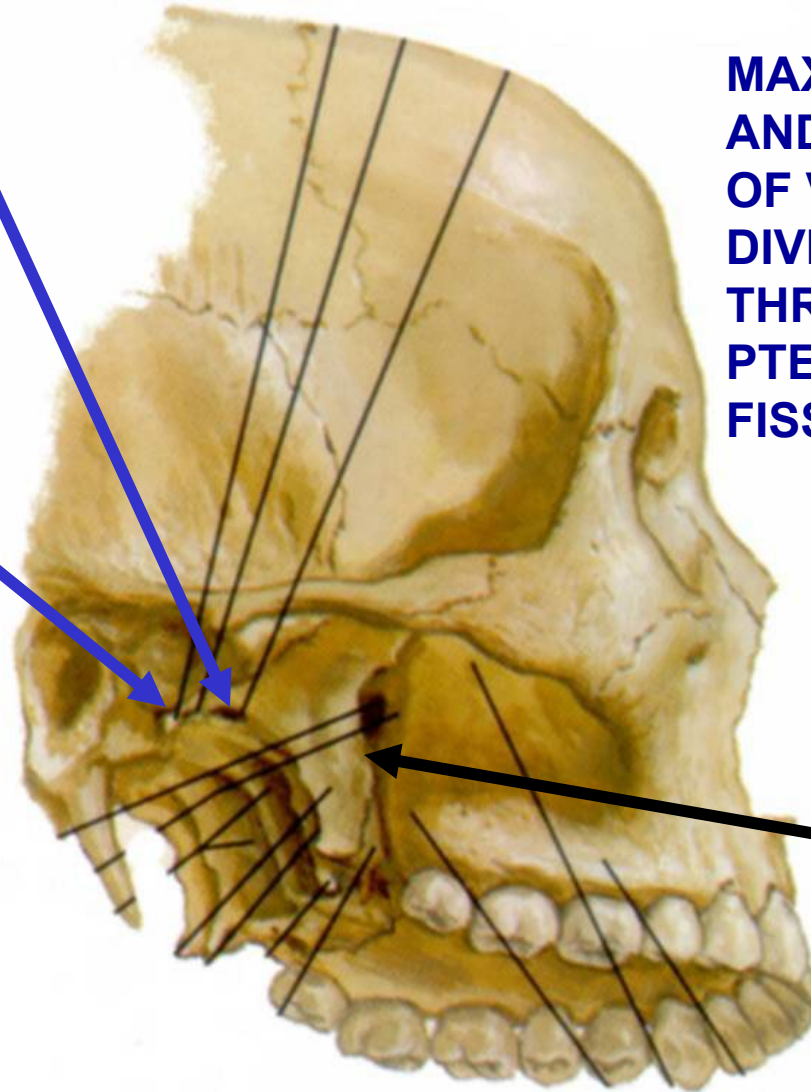
- V3; ACCESSORY
MENINGEAL
ARTERY;

2. FORAMEN SPINOSUM -

MIDDLE
MENINGEAL
ARTERY AND
NERVOUS
SPINOSUS

3. MANDIBULAR FORAMEN -

INFERIOR
ALVEOLAR NERVE,
ARTERY, VEIN



MAXILLARY ARTERY
AND BRANCHES
OF V2 (MAXILLARY
DIVISION OF V) PASS
THROUGH
PTERYGOMAXILLARY
FISSURE

4. PTERYGO- MAXILLARY FISSURE -

LEADS
TO
PTERYGO-
PALATINE
FOSSA

MANDIBLE (= JAW BONE) - PARTS AND LANDMARKS

MANDIBULAR NOTCH

CONDYLE

NECK

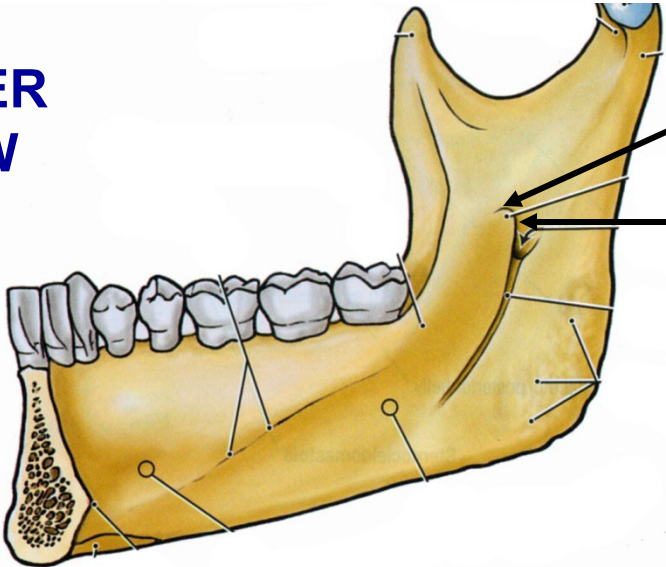
CORONOID PROCESS

MANDIBLE-
JAW BONE
PARTS AND
LANDMARKS

RAMUS

BODY

OUTER
VIEW



INNER
VIEW

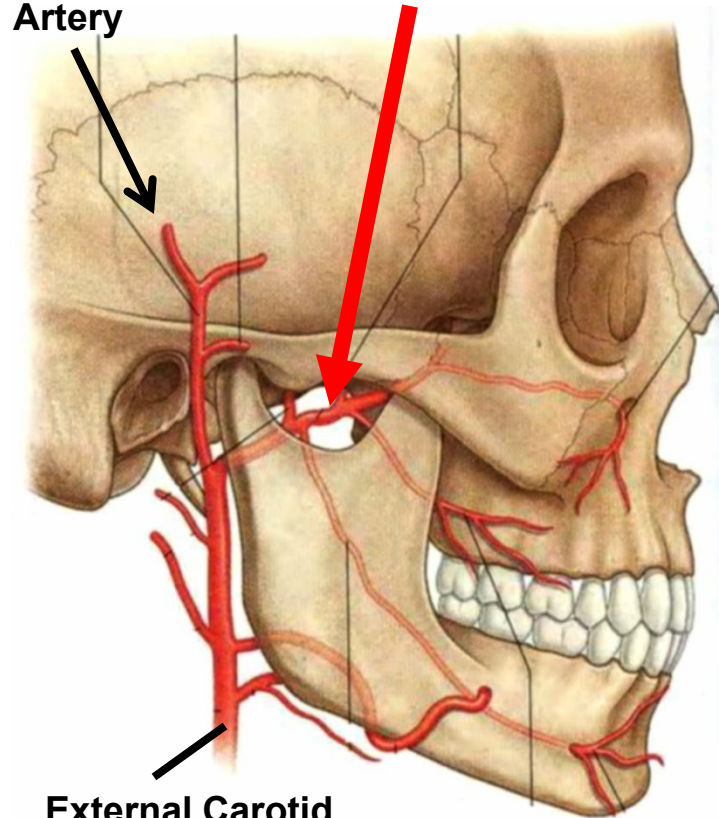
LINGULA

MANDIBULAR
FORAMEN

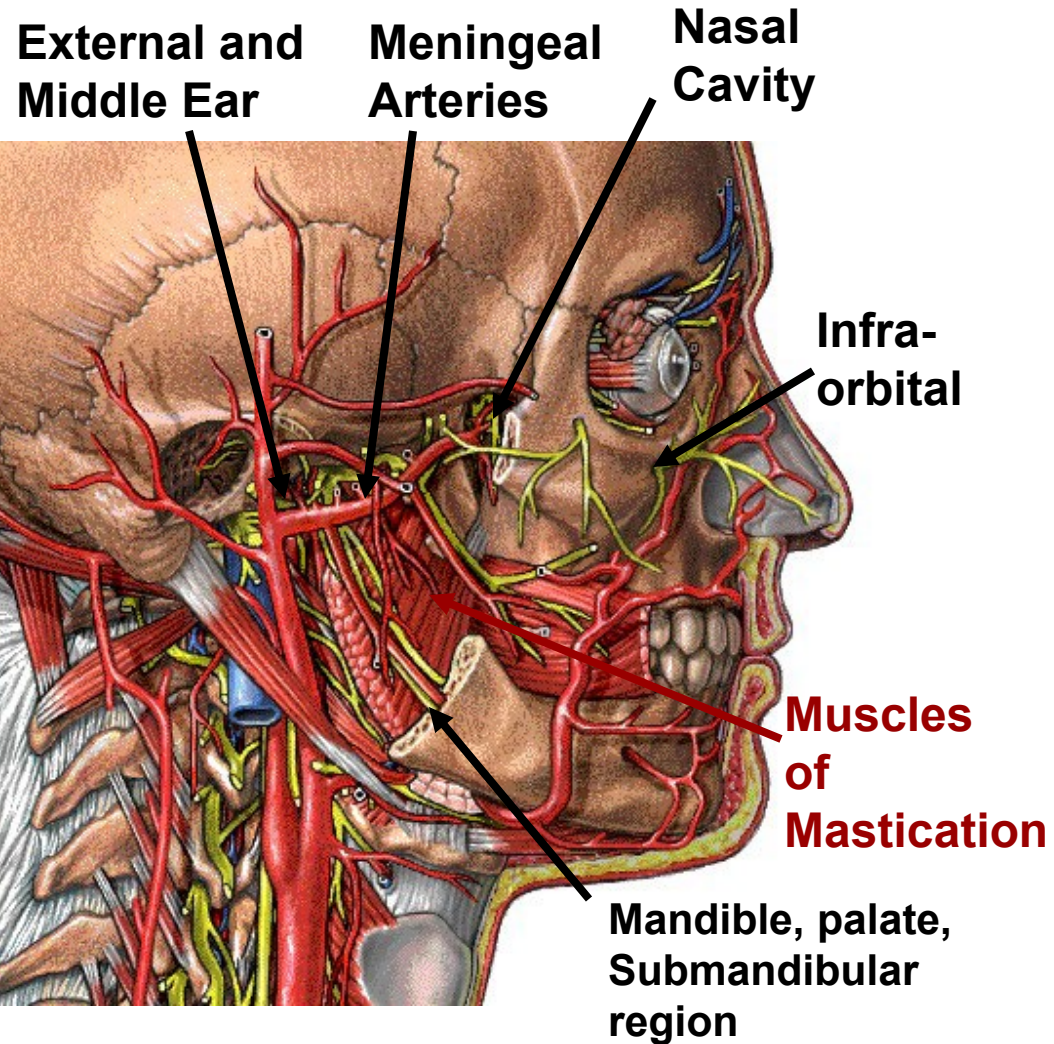
INFRATEMPORAL FOSSA, MAXILLARY ARTERY

MAXILLARY ARTERY

Superficial Temporal Artery



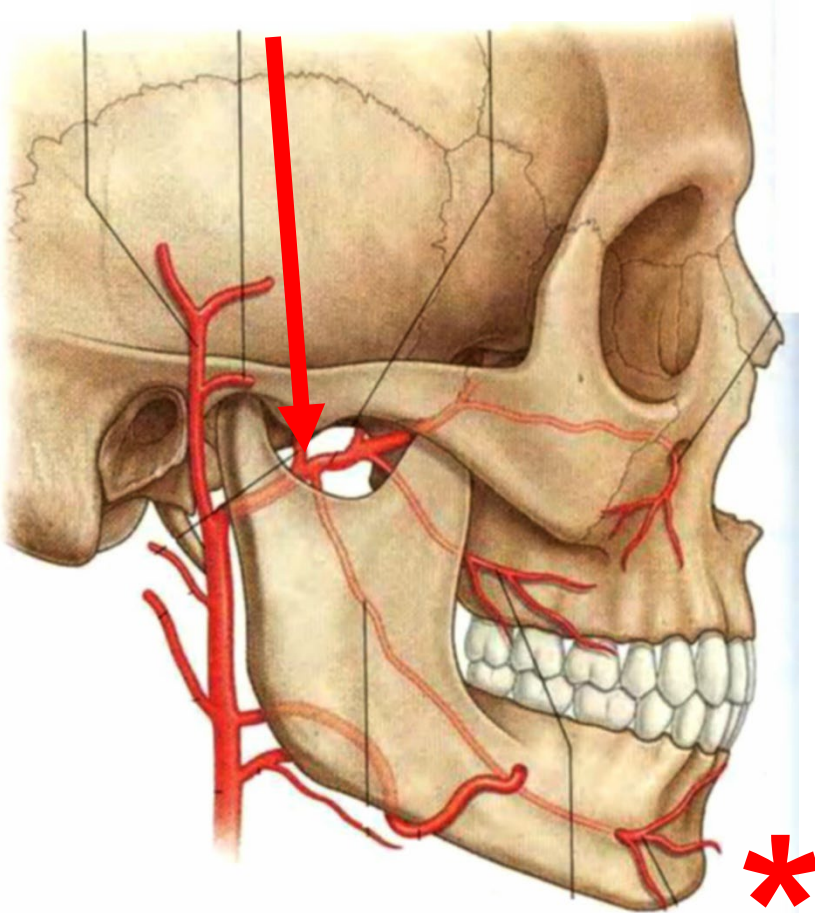
External Carotid Artery



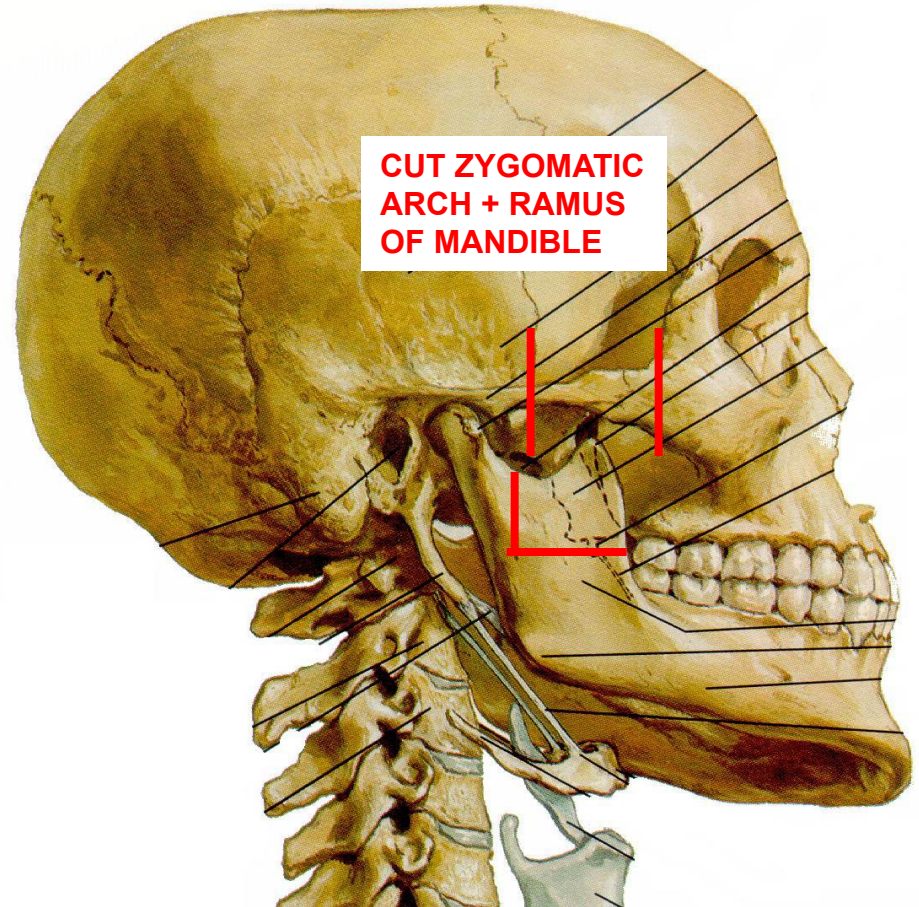
COMPLEX, CLINICALLY IMPORTANT AREA - source of blood supply to nasal cavity, calvarium, oral cavity, middle ear; location of muscles of mastication

INFRATEMPORAL FOSSA

MAXILLARY ARTERY

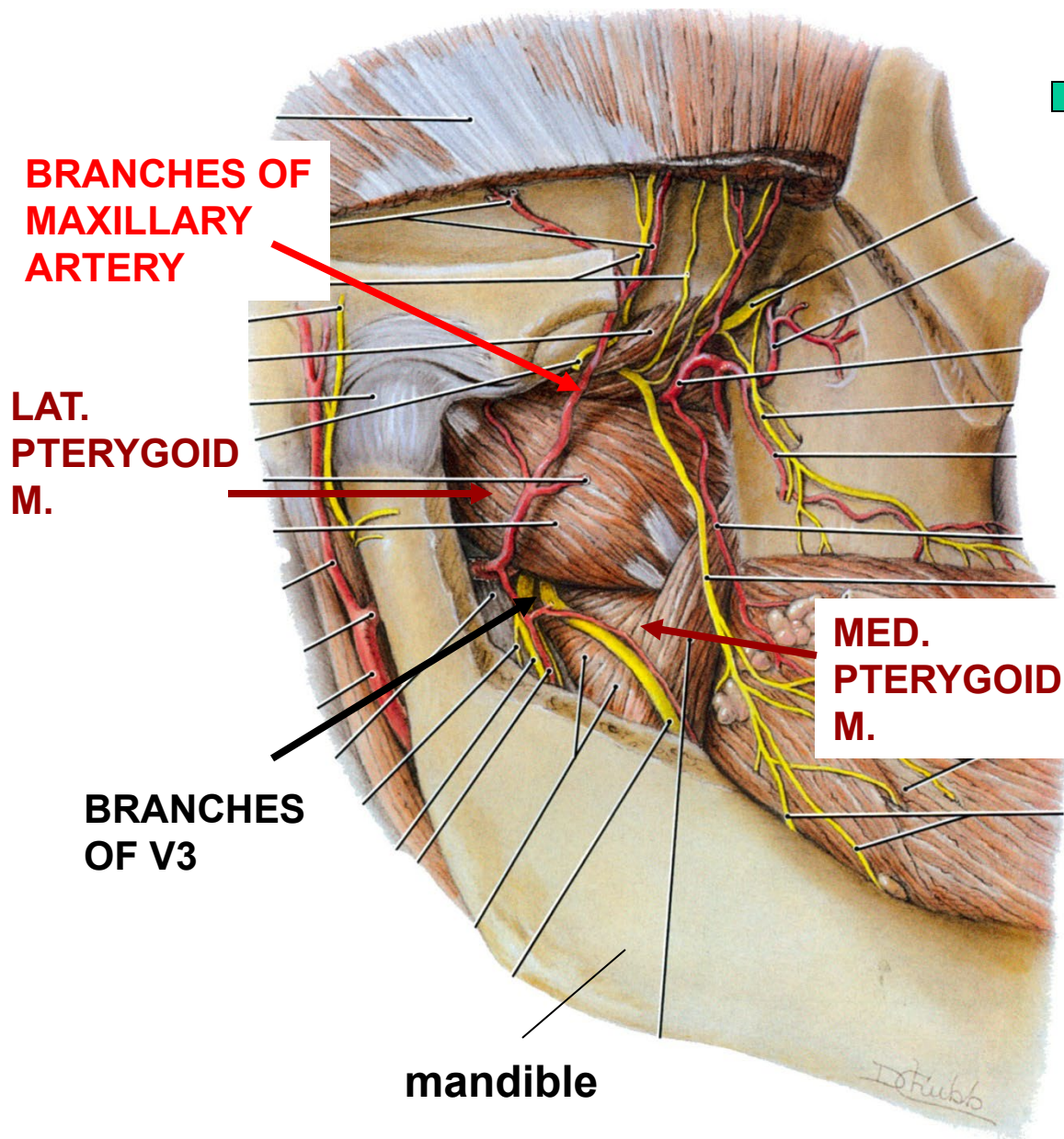


**CANNOT EFFECTIVELY LIGATE
MAXILLARY ARTERY - bleeding (ex.
nosebleed = epistaxis) treated by
cauterization of branches**



**DISSECTION OF MAX. ARTERY
(ORIENT ON PROSECTIONS) - SAW
THROUGH ZYGOMATIC ARCH,
CORONOID PROCESS AND RAMUS OF
MANDIBLE**

INFRATEMPORAL FOSSA

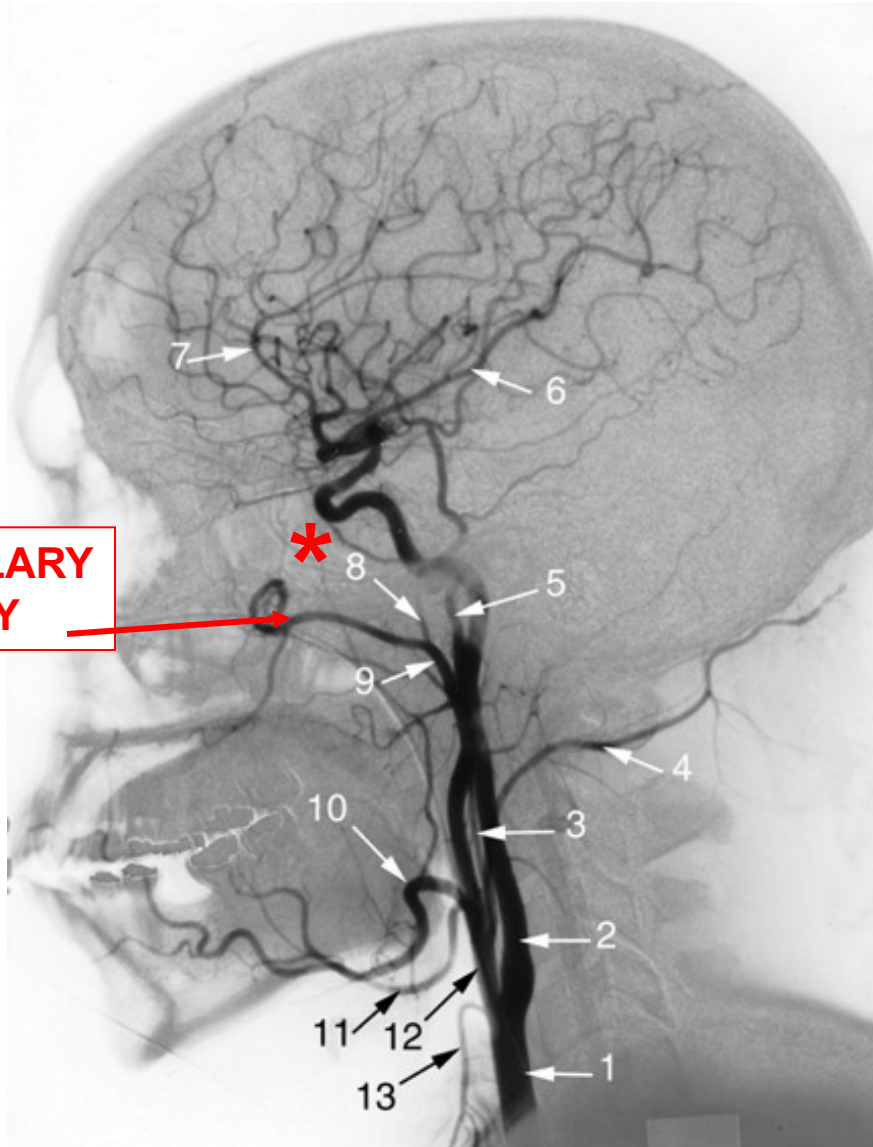


CONTENTS

- 1) MEDIAL & LATERAL PTERYGOID MUSCLES
- 2) BRANCHES OF V3 from FORAMEN OVALE
- 3) MAXILLARY ARTERY & PTERYGOID VENOUS PLEXUS

MAXILLARY ARTERY

TABLE OF BRANCHES

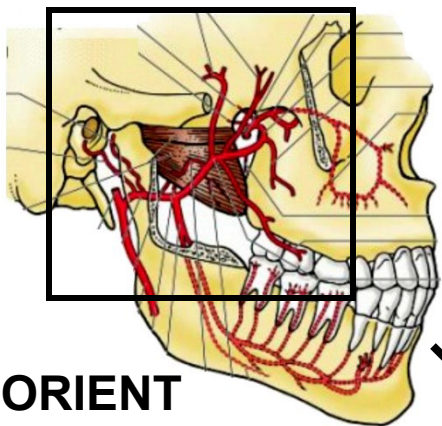


**MAXILLARY
ARTERY**

| First part - posterior and medial to neck of mandible | | |
|---|---|---|
| 1. Deep Auricular Artery | External Auditory Meatus | Outer Ear, Tympanic Membrane |
| 2. Anterior Tympanic Artery* | Petrotympanic Fissure | Middle Ear |
| 3. Middle Meningeal Artery* | Foramen Spinosum | Calvarium, Middle Cranial Fossa |
| (4. Accessory Meningeal A.)* | Foramen Ovale | Calvarium, Middle Cranial Fossa |
| 5. Inferior Alveolar Artery* | Mandibular Foramen | Mandibular teeth; branch - Mental A. to chin |
| Second part - superficial to or within Lateral Pterygoid muscle | | |
| 1. Deep Temporal Artery | ----- | Temporalis muscle |
| 2. Pterygoid Arteries | ----- | Med. and Lat. Pterygoid m. |
| 3. Masseteric Artery | ----- | Masseter |
| 4. Buccal Artery | ----- | over Buccinator to Cheek |
| Third part - within Pterygopalatine fossa | | |
| 1. Post. Superior Alveolar Artery* | Post. Sup. Alveolar Foramen | Posterior Maxillary Teeth |
| 2. Descending Palatine Artery* | Greater and Lesser Palatine Foramina | Hard and Soft Palate |
| 3. Artery of Pterygoid Canal | Pterygoid Canal | Upper pharynx, Auditory tube |
| 4. Sphenopalatine Artery* | Sphenopalatine Foramen | Nasal Cavity, Palate |
| 5. Infraorbital Artery* | Infraorbital Foramen | Skin below orbit; branches: Anterior Maxillary Teeth |

*** - 8- MIDDLE MENINGEAL ARTERY**

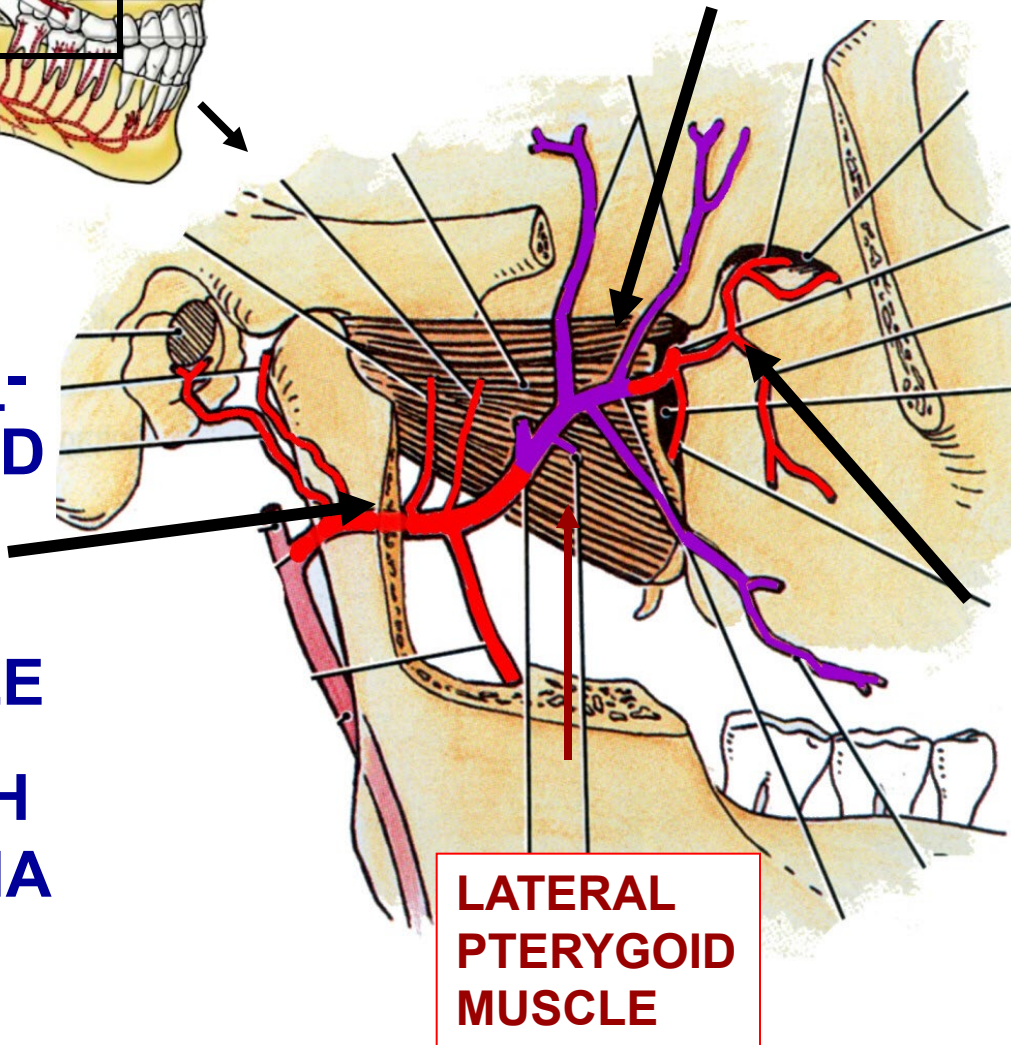
A. COURSE OF MAXILLARY ARTERY - three parts



ORIENT

1) PART 1-
POST. AND
MED. TO
NECK OF
MANDIBLE
THROUGH
FORAMINA

2) PART 2- SUPERF. TO
OR WITHIN LATERAL
PTERYGOID



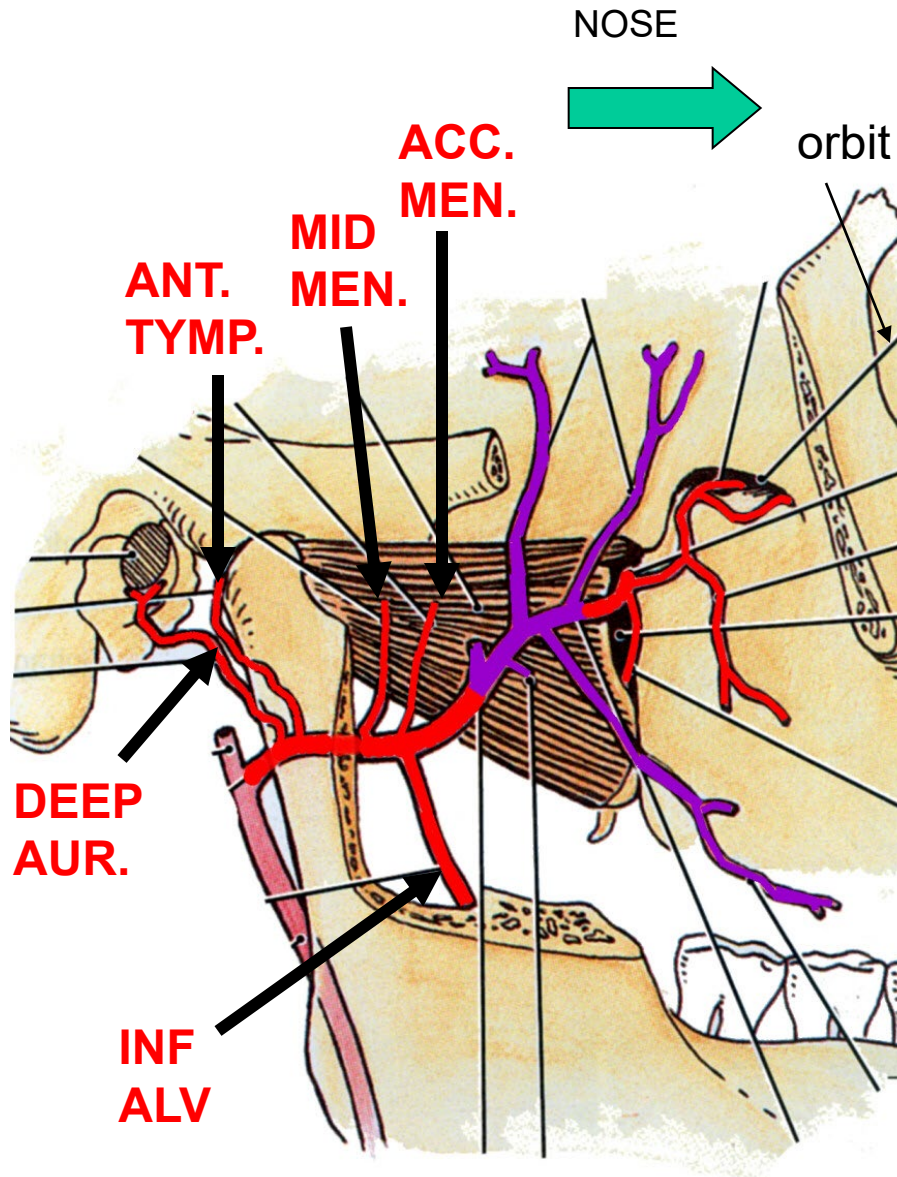
orbit

N
O
S
E

3) PART 3 - IN
PTERYGO-
PALATINE
FOSSA
THROUGH
FORAMINA

LATERAL
PTERYGOID
MUSCLE

MAXILLARY ARTERY- FIRST PART THROUGH FORAMINA



1. DEEP AURICULAR - EXT. AUD. MEATUS - OUTER EAR, TYMPANIC MEMBRANE
2. ANTERIOR TYMPANIC - PETROTYMPANIC FISSURE TO MIDDLE EAR
3. MIDDLE MENINGEAL - FOR. SPINOSUM TO MID. CRAN FOSSA, CALVARIUM
4. ACCESSORY MENINGEAL - FOR. OVALE TO MID. CRAN FOSSA, CALVARIUM
5. INF. ALVEOLAR - MANDIB. FOR. - LOWER TEETH - branch - MENTAL ART TO CHIN

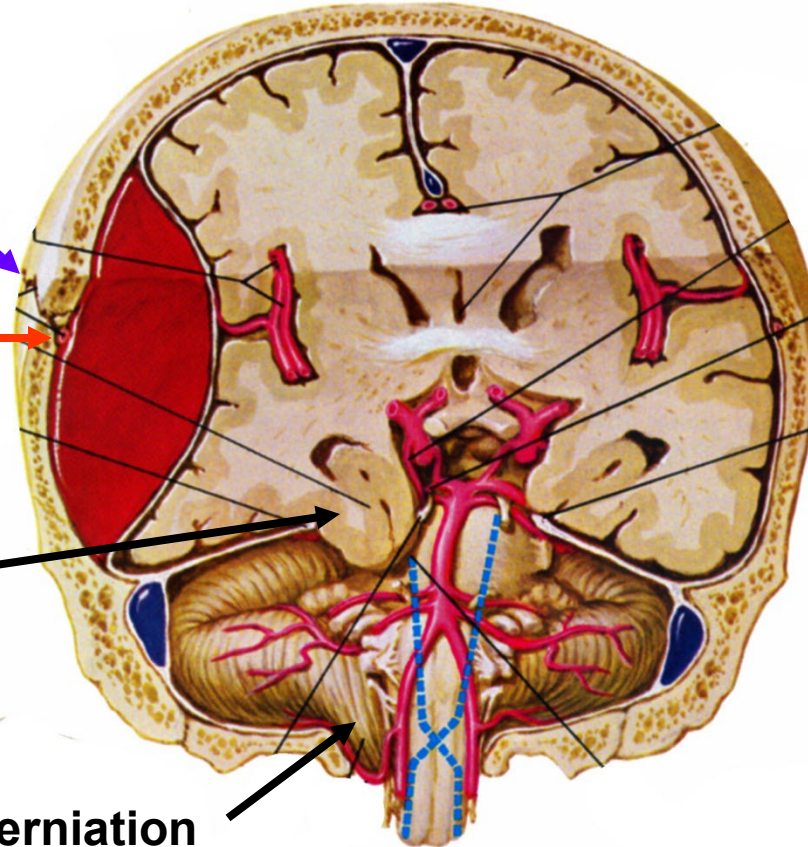
DAMAGE MIDDLE MENINGEAL, [ACCESSORY MENINGEAL ARTERIES] - EPIDURAL HEMATOMA

Skull Fracture Near Pterion

Tear Middle Meningeal Artery

Uncal herniation

Tonsillar herniation



1) Skull fracture near Pterion

2) Tear Middle Meningeal Artery

3) Blood 'peels' dura from bone

4) Lens shaped (biconvex) mass on CT

5) mass can displace brain

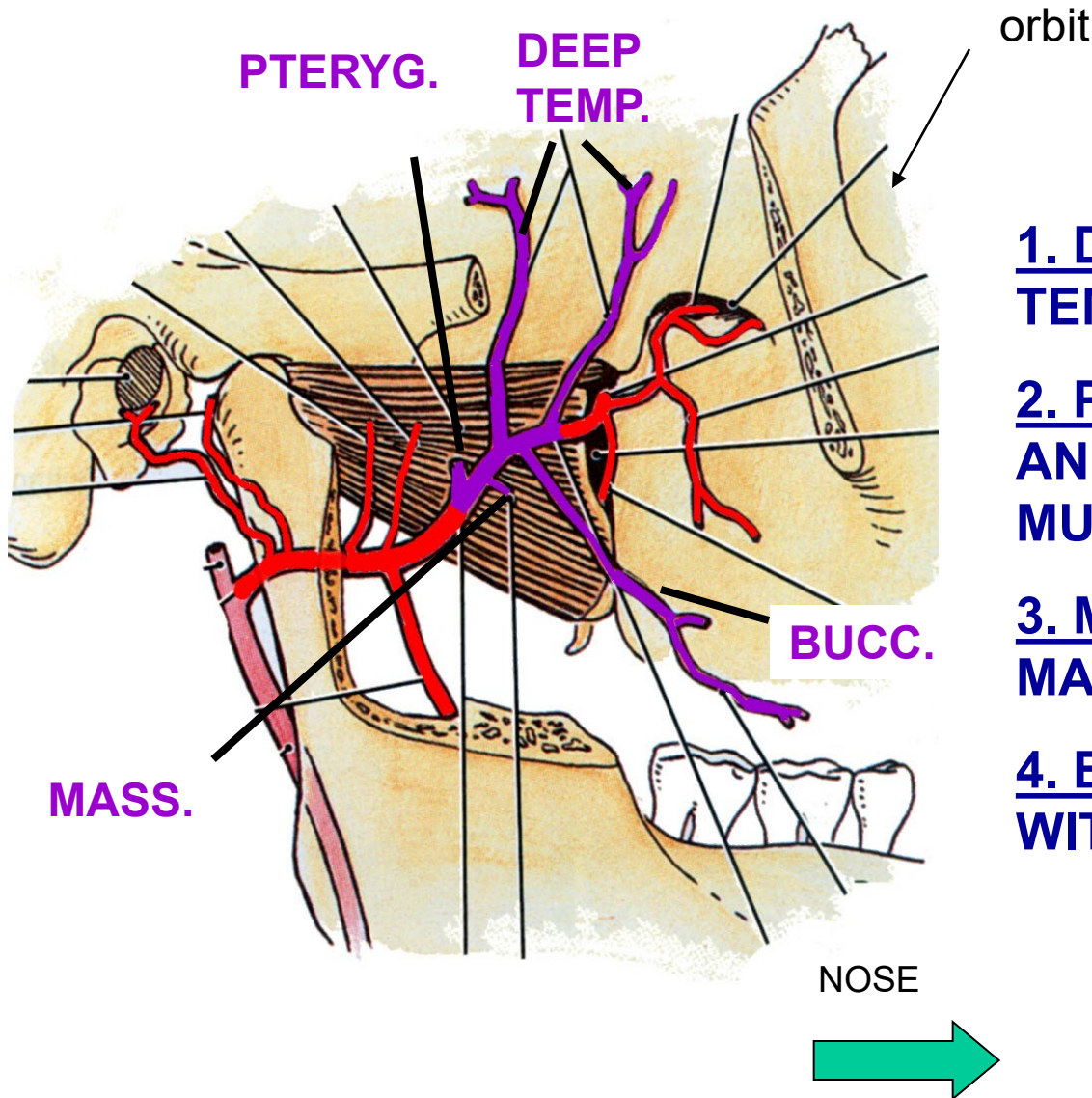
6) Herniation -

i. **Uncal herniation** - push Temporal lobe (uncus) through **tentorial notch**

ii. **Tonsillar herniation** - push Cerebellum (tonsil) through foramen magnum

Clinical - bleeding is arterial – can be profuse and rapid; - ex, car accident – patient lucid at first - can be fatal within hours if herniation occurs

MAXILLARY ARTERY- SECOND PART - MOSTLY MUSCLES



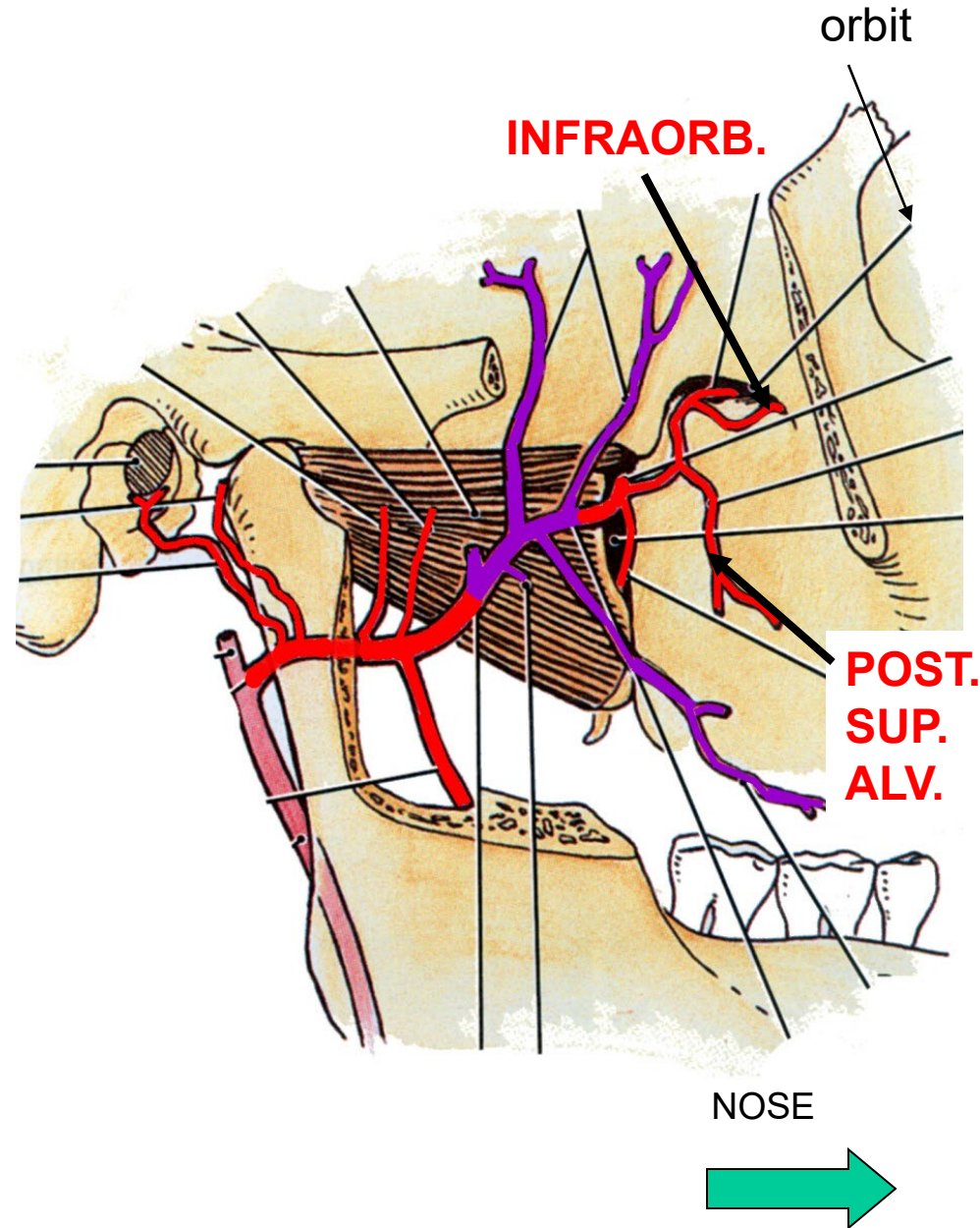
1. DEEP TEMPORAL A. - TEMPORALIS

2. PTERYGOID A. - MED. AND LAT. PTERYGOID MUSCLES

3. MASSETERIC A. - MASSETER

4. BUCCAL A. - TO CHEEK WITH BUCCAL BR. V3

MAXILLARY ARTERY- THIRD PART THROUGH FORAMINA



1. POST. SUP. ALVEOLAR -
POST SUP ALV. FOR TO POST
MAX TEETH

2. DESCENDING PALATINE -
GREATER AND LESSER PAL.
FOR. - TO PALATE

3. ARTERY OF PTERYGOID
CANAL - PTERYGOID CANAL-
PHARYNX AND AUD. TUBE

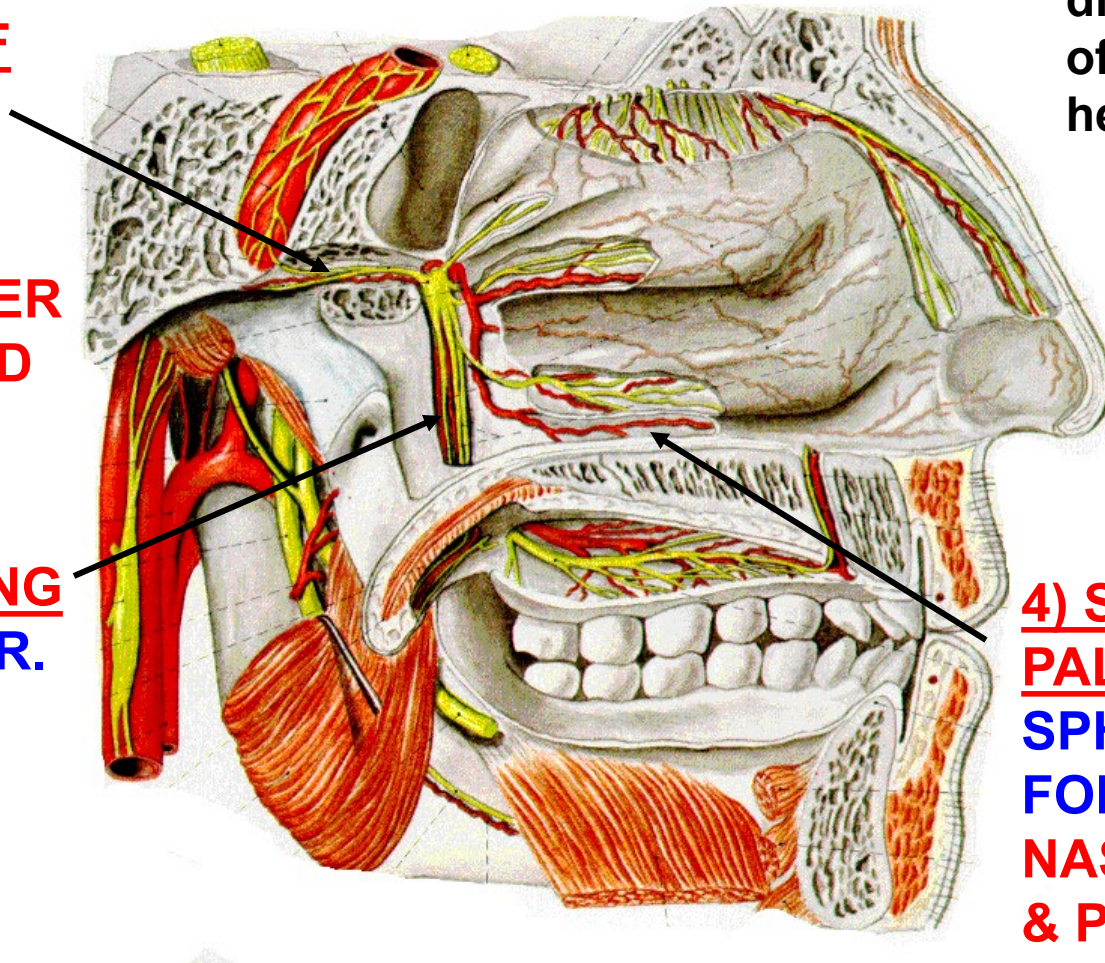
4. SPHENOPALATINE A. -
SPHENOPALATINE FORAMEN -
NASAL CAVITY

5. INFRAORBITAL A. -
INFRAORB. FORAMEN- FACE -
branch - ANT. SUP. ALVEOLAR
A. - ANT. MAX. TEETH

MAXILLARY ARTERY THIRD PART - BISECT HEAD TO SEE DEEP STRUCTURES

3) ARTERY OF PTERYGOID CANAL - PTERYGOID CANAL - UPPER PHARYNX AND AUDITORY TUBE

2) DESCENDING PALATINE - GR. & LESS PAL. FOR. - HARD AND SOFT PALATE



dissection of bisected head

NOSE

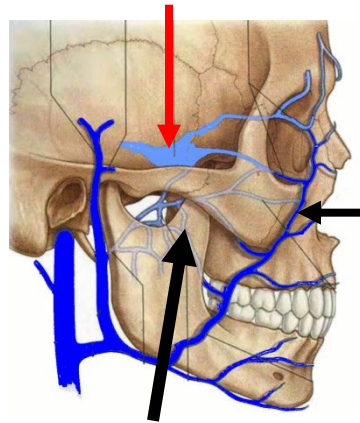
4) SPHENO-PALATINE A. - SPHENOPAL. FORAMEN NASAL CAVITY & PALATE

IV. PTERYGOID VENOUS PLEXUS

NOSE →

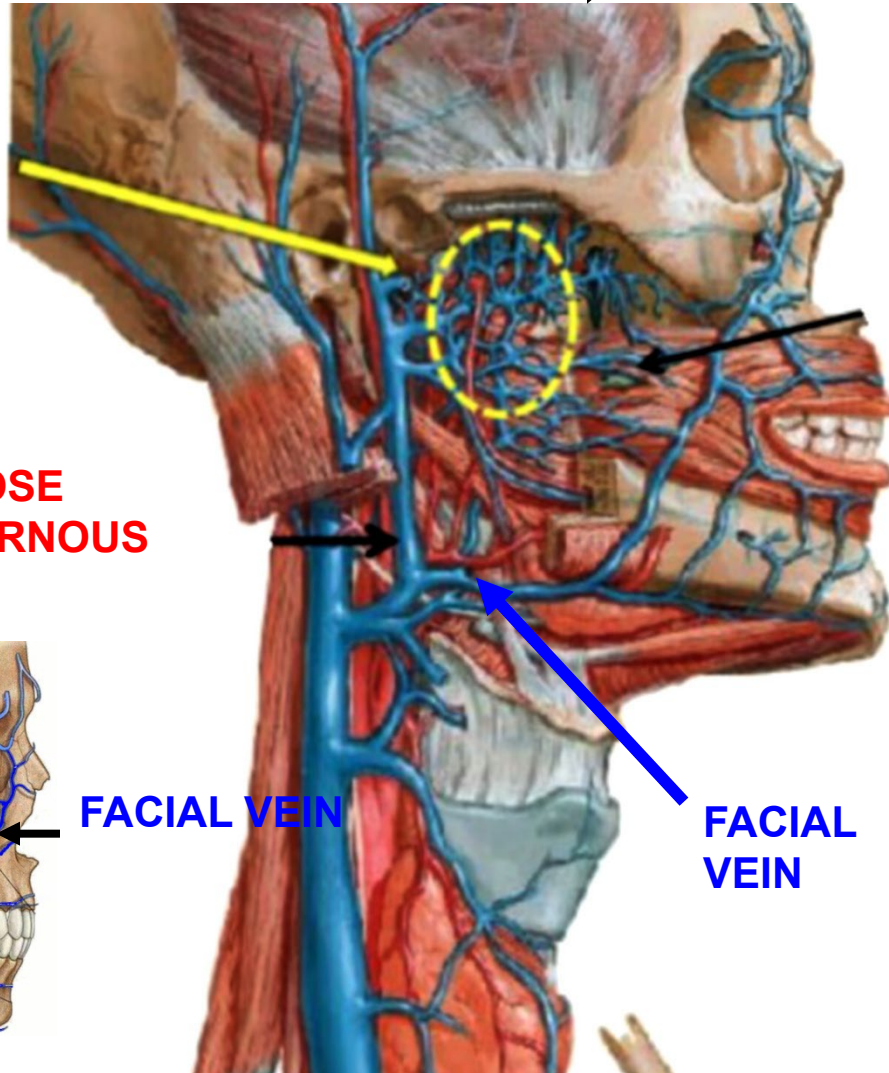
PTERYGOID
VENOUS
PLEXUS

ANASTOMOSE
WITH CAVERNOUS
SINUS



FACIAL VEIN

PTERYGOID
VENOUS PLEXUS



FACIAL VEIN

1) Branches of Maxillary artery have accompanying veins.

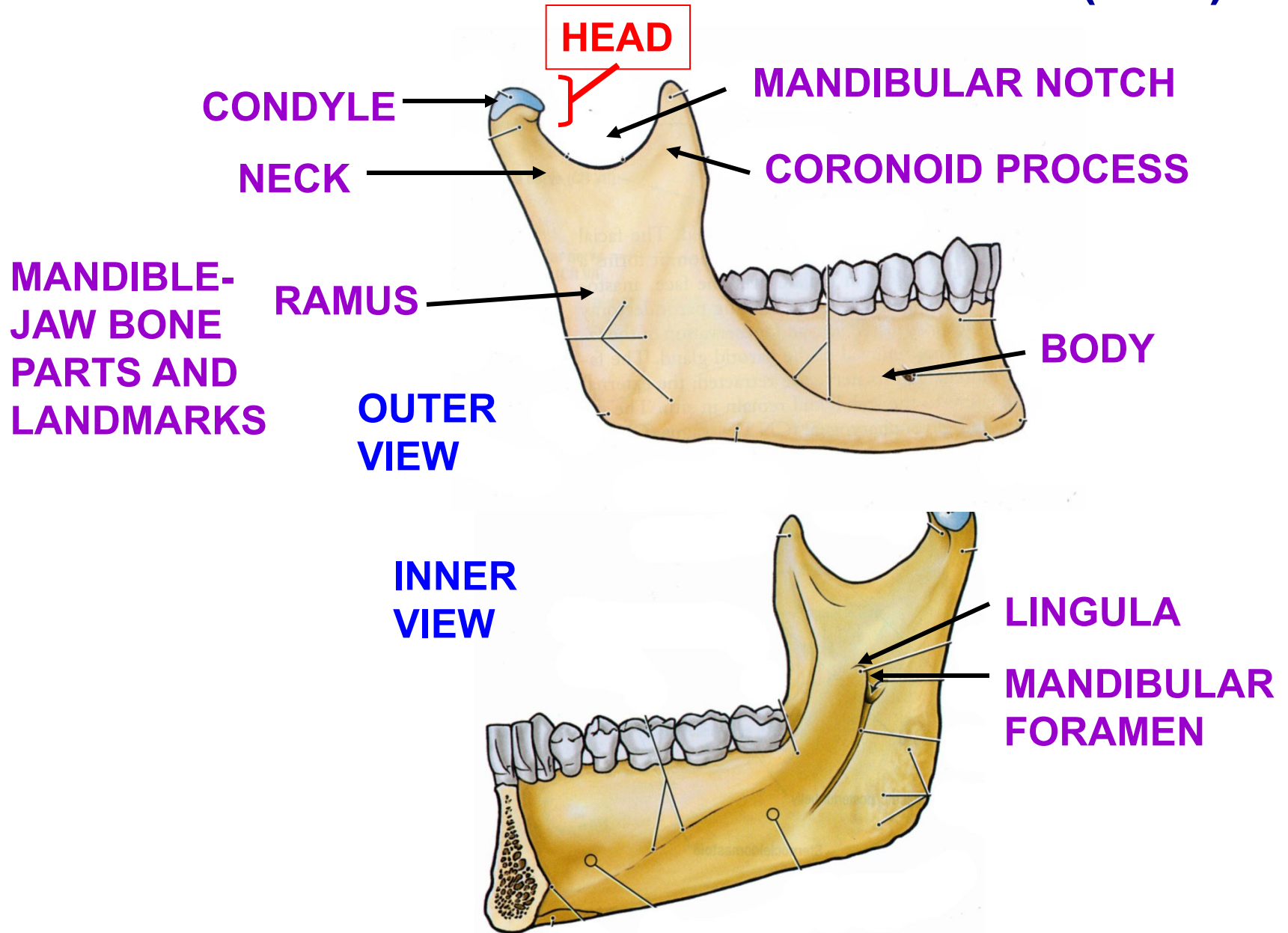
2) Drain to Pterygoid Venous Plexus (Superficial to

3) ANASTOMOSE WITH CAVERNOUS SINUS AND FACIAL VEIN

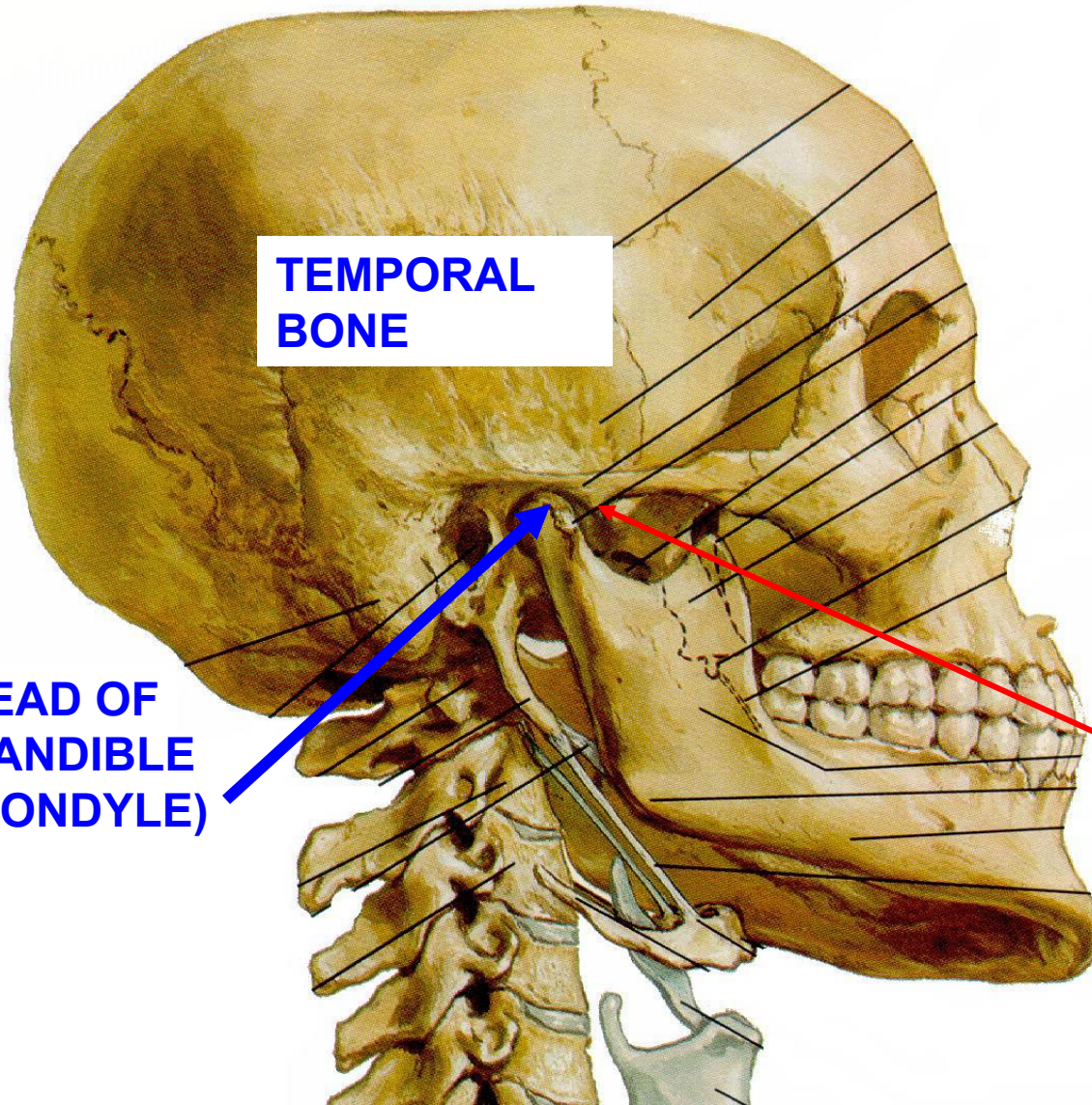


Clinical Note: Pterygoid venous plexus has anastomoses with veins that drain to Cavernous Sinus; Infections can spread from teeth, nasal cavity, palate, etc. to brain (similar to anastomoses of Facial Vein).

V. TEMPORO-MANDIBULAR JOINT (TMJ)



V. TEMPORO-MANDIBULAR JOINT (TMJ)



TEMPORAL BONE

HEAD OF MANDIBLE (CONDYLE)

SYNOVIAL JOINT BETWEEN HEAD OF MANDIBLE (CONDYLE) AND MANDIBULAR FOSSA OF TEMPORAL BONE

***NOTE: ARTICULAR TUBERCLE ** (EMINENCE) ANTERIOR TO JOINT**

TEMPORO-MANDIBULAR JOINT (TMJ)

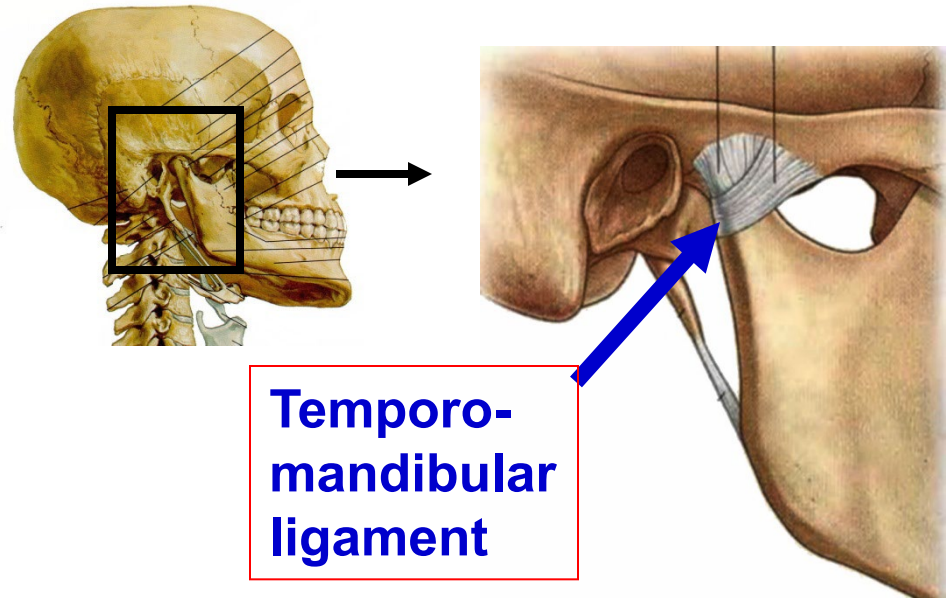
A. CAPSULE - SURROUNDS JOINT - TIGHTLY ATTACHED TO MANDIBLE, LOOSELY TO TEMPORAL BONE

C. LIGAMENTS

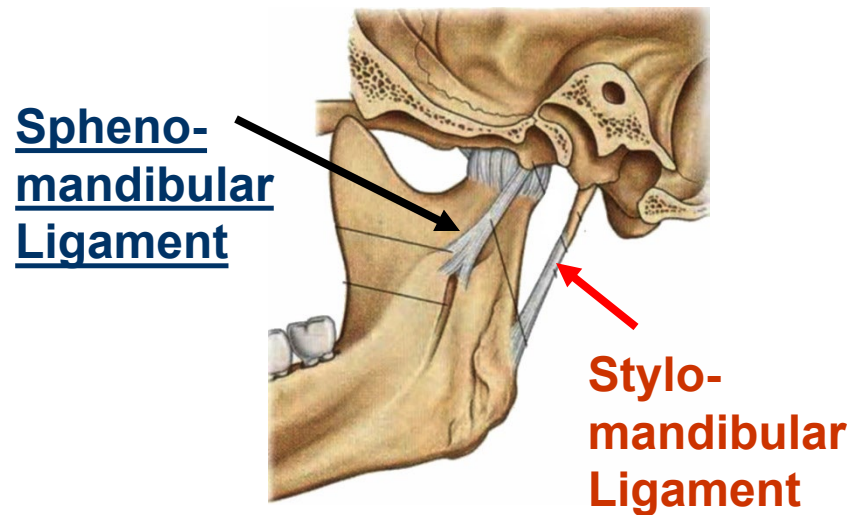
1) Temporo-mandibular (Lateral) Ligament - lateral thickening of capsule - Prevents movement posteriorly and inferiorly

2) Sphenomandibular ligament - spine of sphenoid bone to lingula of mandible; function unclear.

3) Stylomandibular ligament - Styloid process of temporal bone to posterior border of mandible; function unclear.

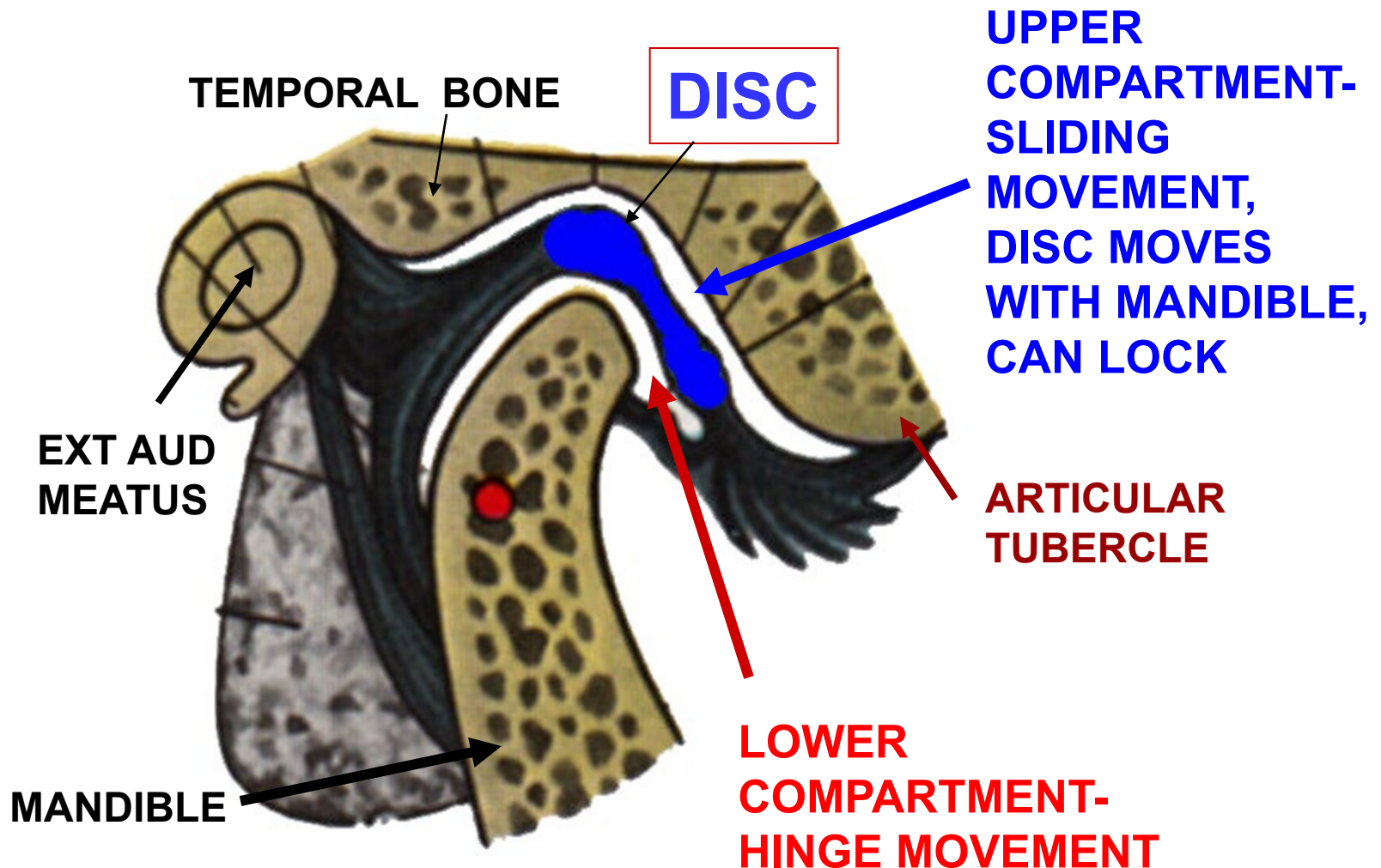


inner surface



B. ARTICULAR DISC OF TMJ

TMJ DISC TIGHTLY ATTACHED TO MANDIBLE; ARTICULAR DISC-CARTILAGINOUS; DIVIDES JOINT INTO TWO COMPARTMENTS



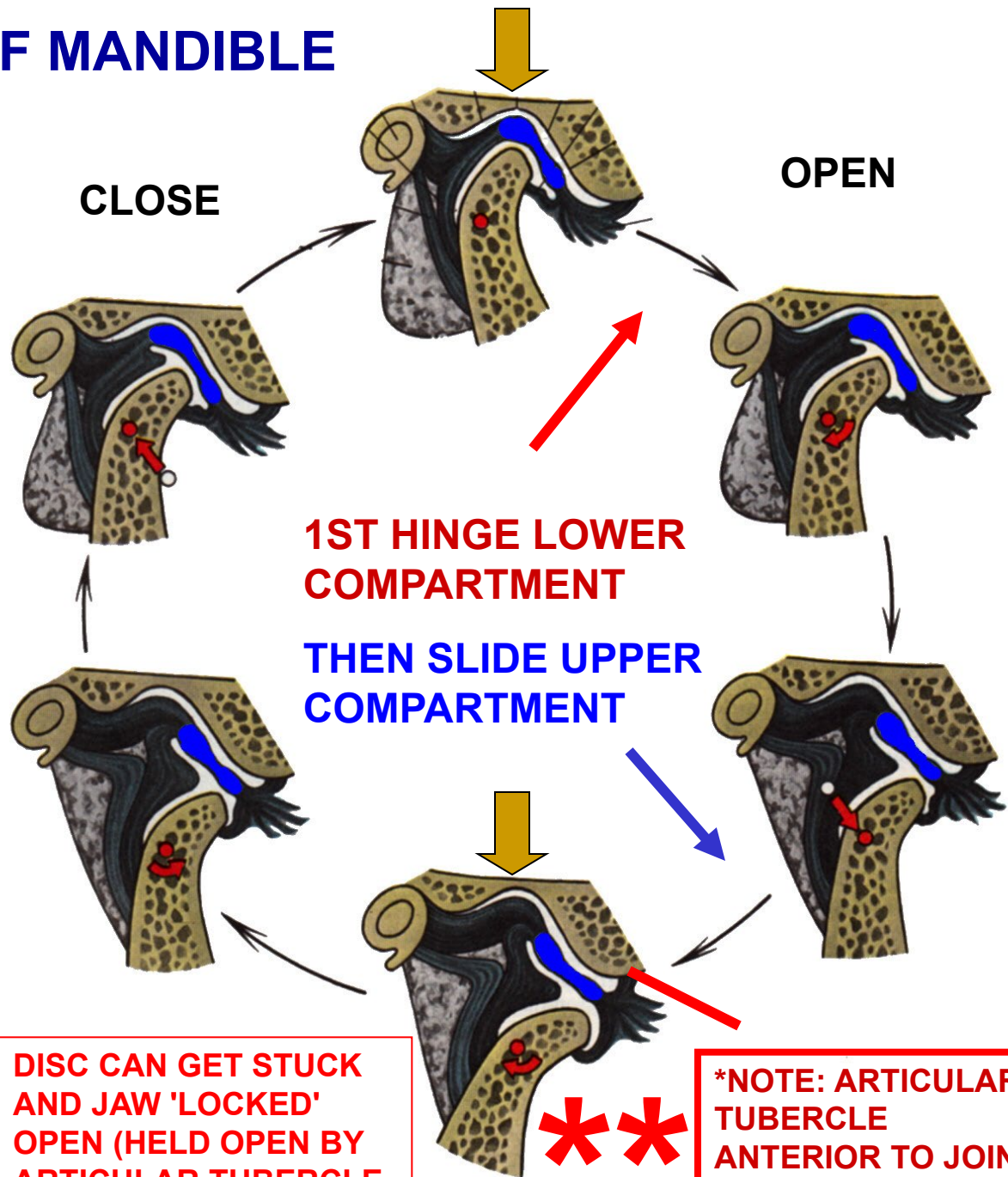
D. MOVEMENTS OF MANDIBLE

- 'LOCKED' JAW

1. DEPRESSION/ ELEVATION - OPEN/CLOSE MOUTH - FIRST HINGE IN LOWER COMPARTMENT THEN SLIDE IN UPPER COMPARTMENT

2. PROTRUDE/ RETRUDE

3. LATERAL MOVEMENT - BOTH SLIDE UPPER COMPARTMENT



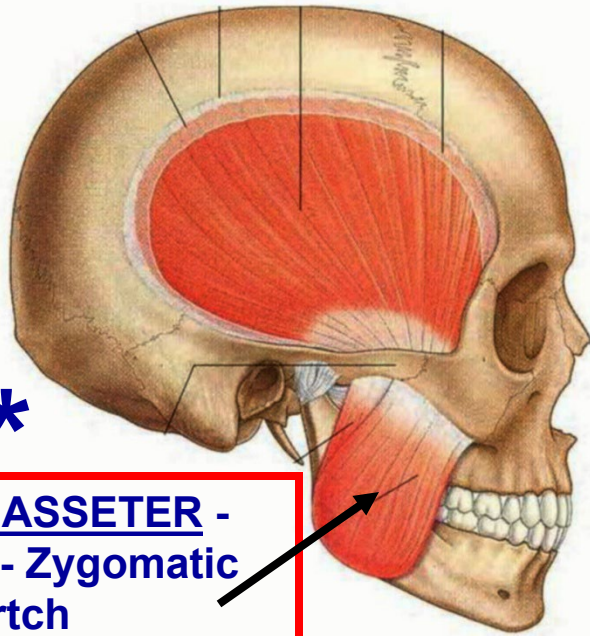
DISC CAN GET STUCK AND JAW 'LOCKED' OPEN (HELD OPEN BY ARTICULAR TUBERCLE)

*NOTE: ARTICULAR TUBERCLE ANTERIOR TO JOINT

VI. MUSCLES OF MASTICATION

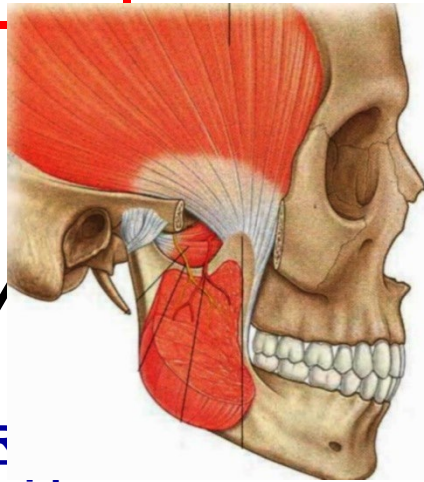
- ALL INN BRANCHIOMOTOR V3

- ELEVATE = CLOSE; DEPRESS = OPEN MOUTH



*

MASSETER -
O- Zygomatic
artch
I Ramus, A -
Elevate



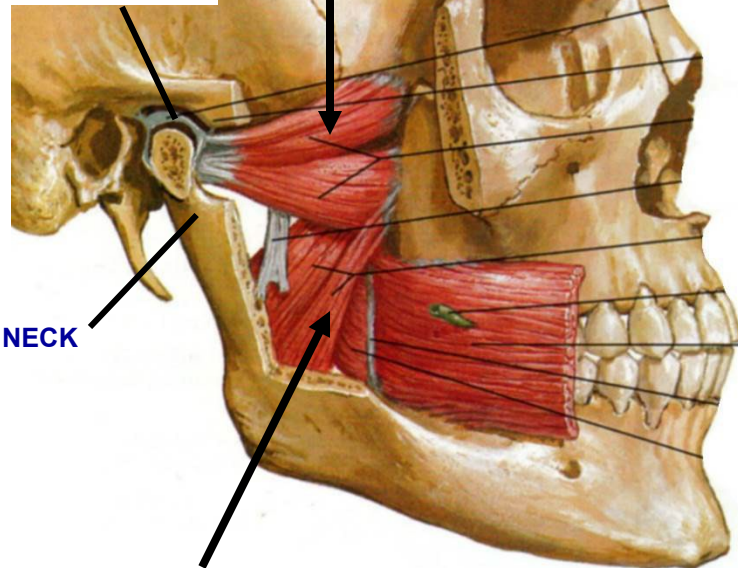
CORONOID
PROCESS

TEMPOF
I, Coronoid process
A - Elevate, Retrude

PTERYGOID MUSCLES - O - Lateral
Pterygoid Plate

LAT. PTERYGOID - I - Neck, Articular
Disc A - Depress, Protrude Pull Disc
Forward

ARTICULAR
DISC TMJ

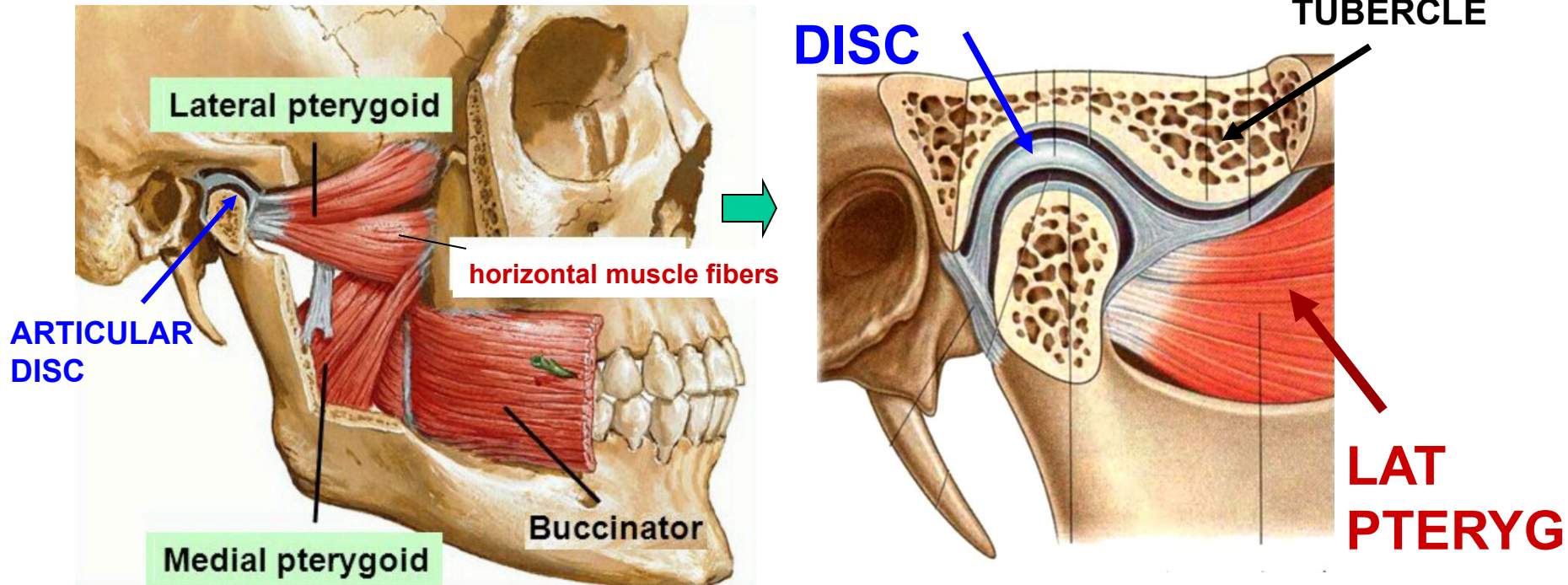


NECK

MED. PTERYGOID - I -
Ramus, A - Elevate

MUSCLES OF MASTICATION

LATERAL PTERYGOID - ATTACHES TO ARTICULAR DISC OF TMJ



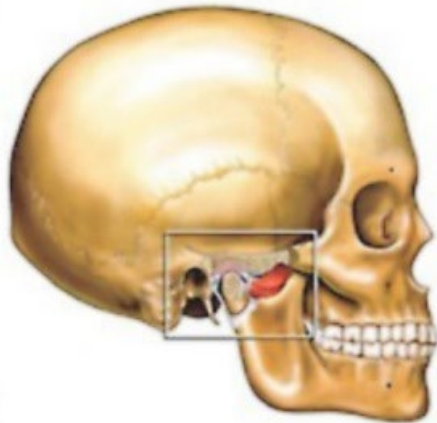
PULLS DISC ANTERIORLY WHEN OPEN MOUTH



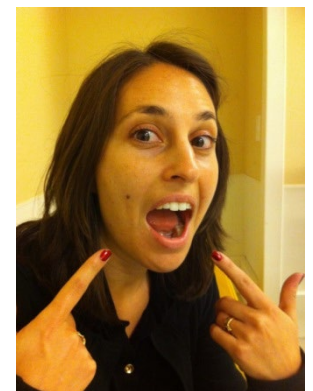
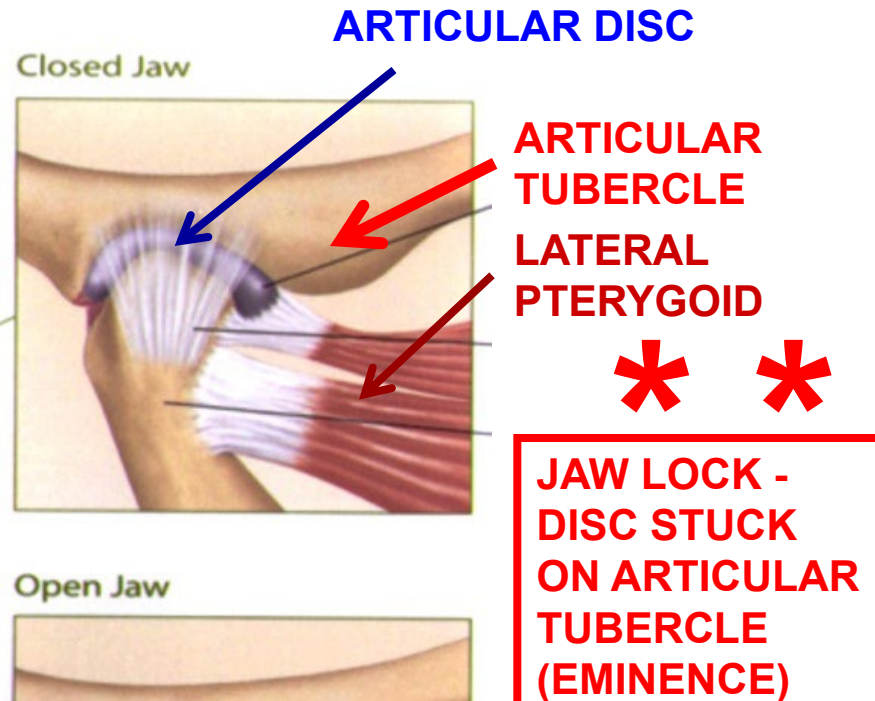
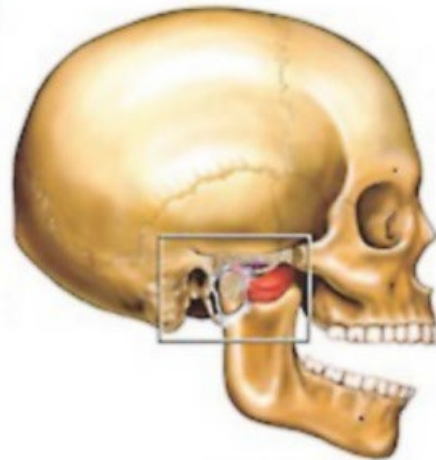
TMJ JAW LOCK - mandible stuck in partial depression

**OPEN MOUTH =
depress mandible**

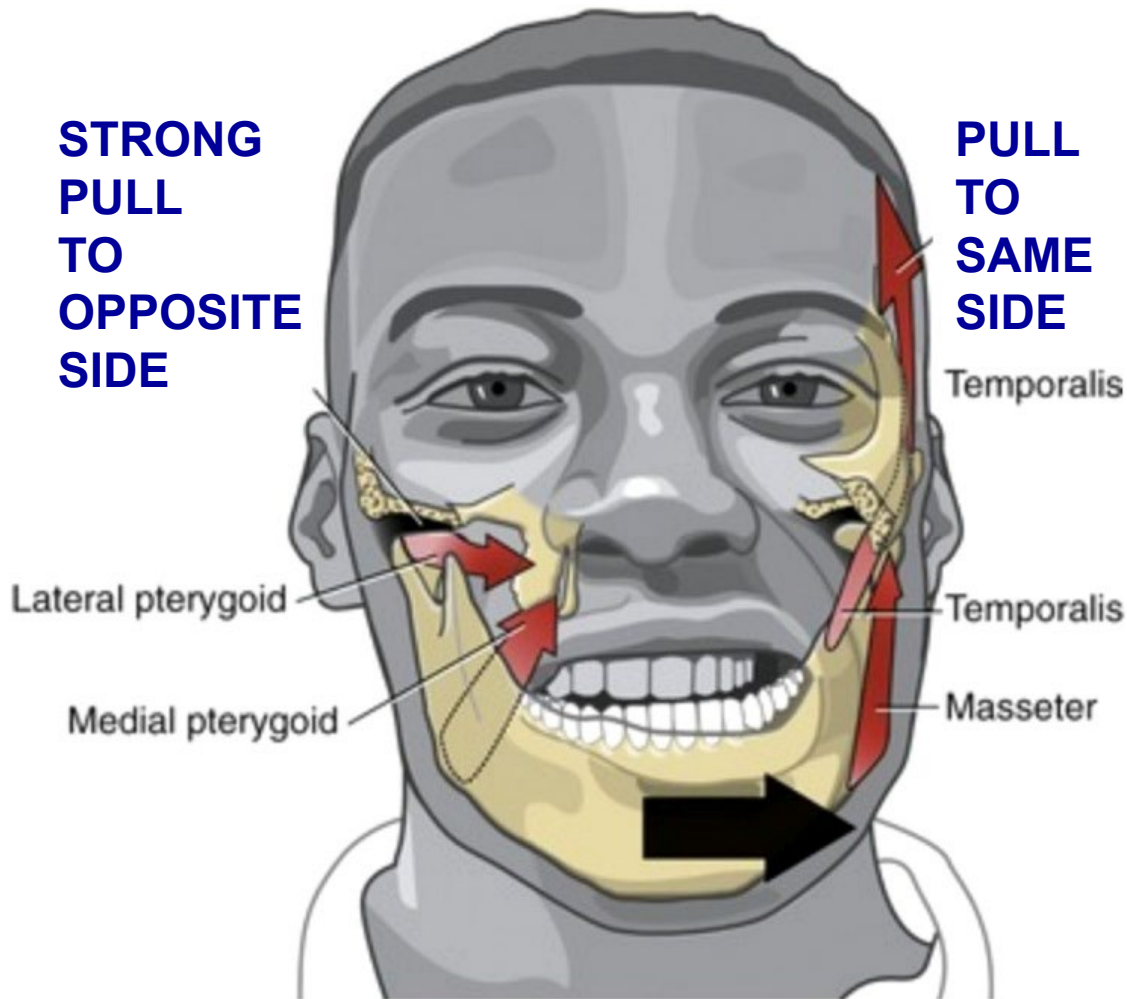
**FIRST
HINGE
LOWER
COMPART
MENT**



**THEN
SLIDE
UPPER
COMPART
MENT**



LATERAL MOVEMENTS OF JAW - occur in chewing



Lateral movements

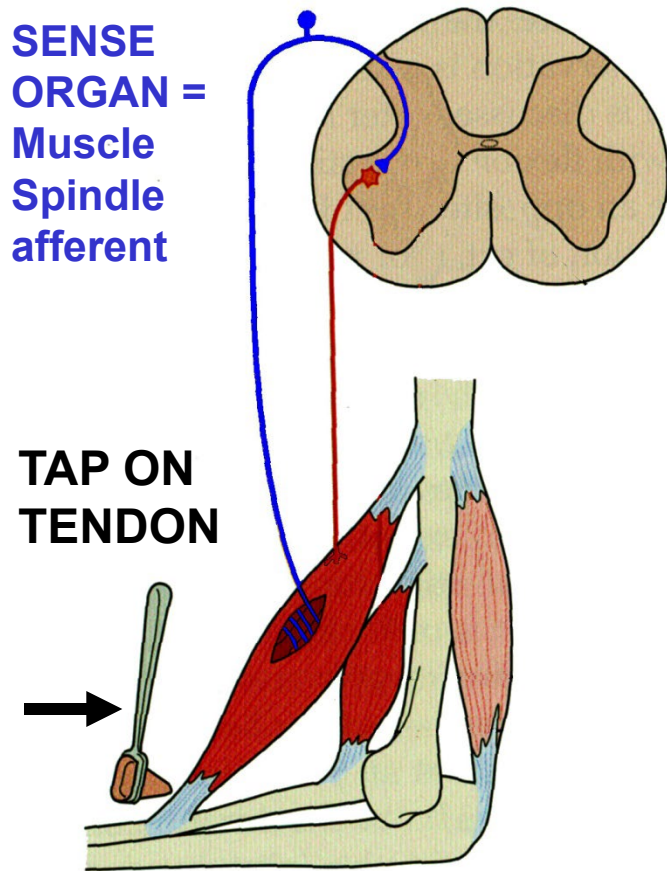
- 1) Lateral and Medial Pterygoid (inside mandible) pull toward opposite side
- 2) Temporals and Masseter (outside mandible) pull toward same side



TRIGEMINAL NERVE DAMAGE (LMN) - Jaw deviates TOWARD paralyzed side (patient opens mouth); unopposed action of Lateral Pterygoid muscle of intact side

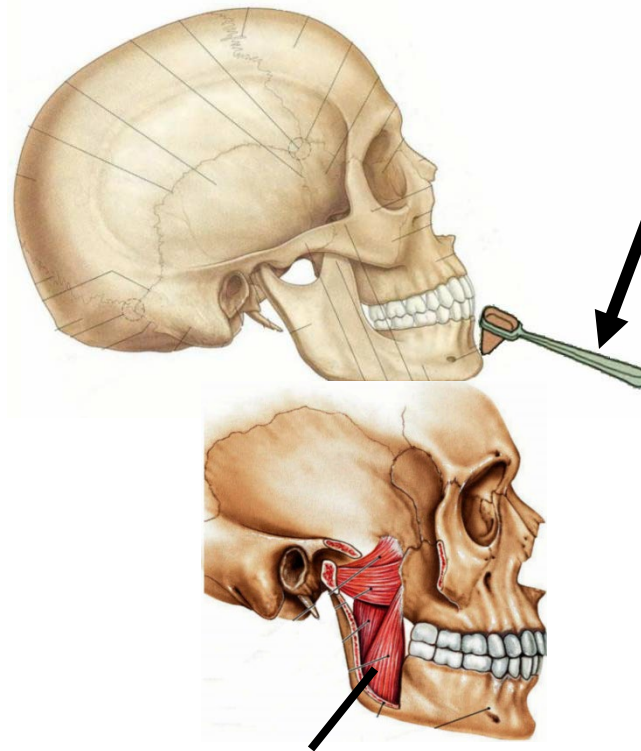
JAW JERK REFLEX = STRETCH REFLEX OF MUSCLES OF MASTICATION - sensory and motor in V3

STRETCH REFLEX IN BICEPS



STRETCH REFLEX IN MUSCLES OF MASTICATION

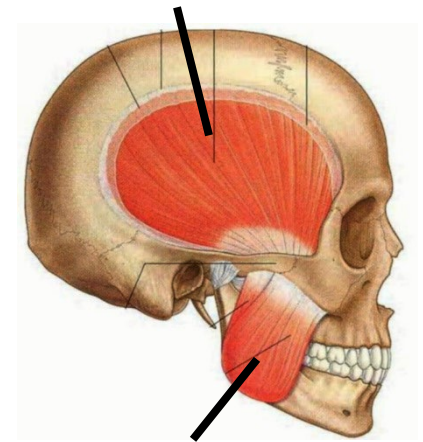
TAP DOWN ON CHIN



MEDIAL PTERYGOID

STRETCH MUSCLES THAT CLOSE MOUTH (ELEVATE MANDIBLE)

TEMPORALIS

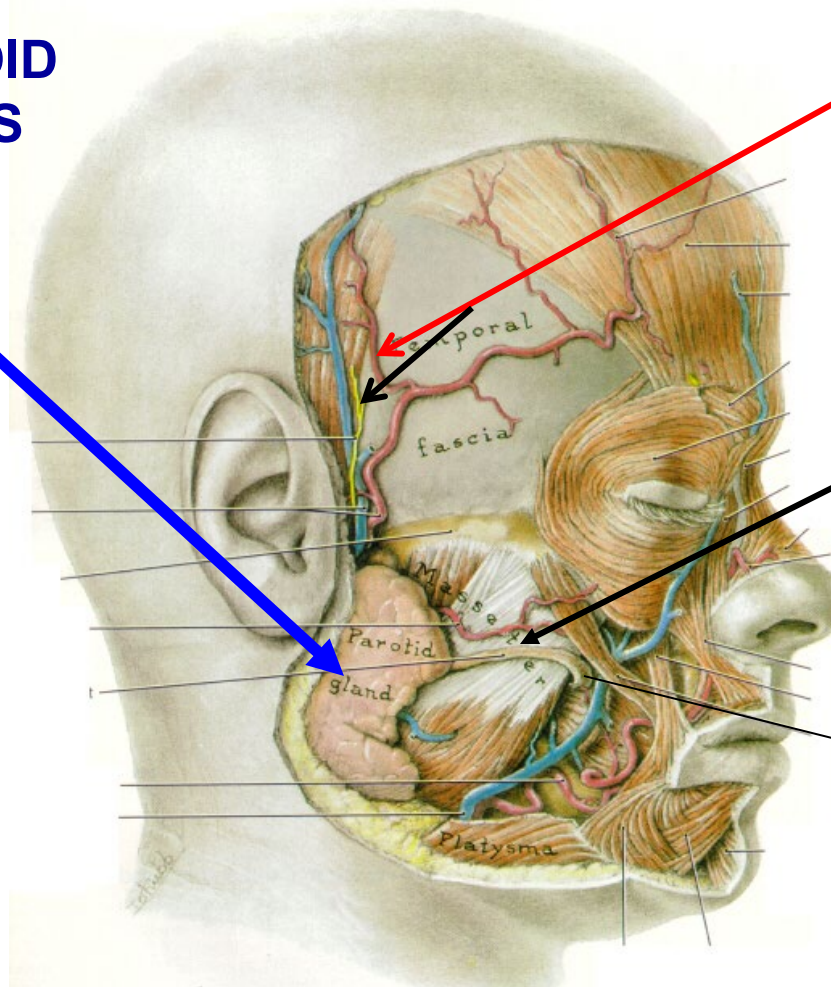


MASSETER

VII. PAROTID REGION

- BETWEEN MASTOID
PROCESS & RAMUS
MANDIBLE

PAROTID GLAND -
CAPSULE - FROM
INVESTING LAYER
- ATTACHED TO
ZYGOMATIC ARCH
AND TEMPORAL
BONE (TYMPANIC
PART); VERY
TOUGH



**SUPERFICIAL
TEMPORAL ARTERY
AND AURICULO-
TEMPORAL NERVE**

**PAROTID
DUCT**

**90 DEGREE
TURN**

**PAROTID DUCT- ENTERS MOUTH, PIERCES BUCCINATOR OPPOSITE
2ND MANDIBULAR MOLAR TOOTH; MAKES 90 DEGREE TURN -
ACTS AS PASSIVE VALVE, LETS YOU BLOW UP BALLOONS**

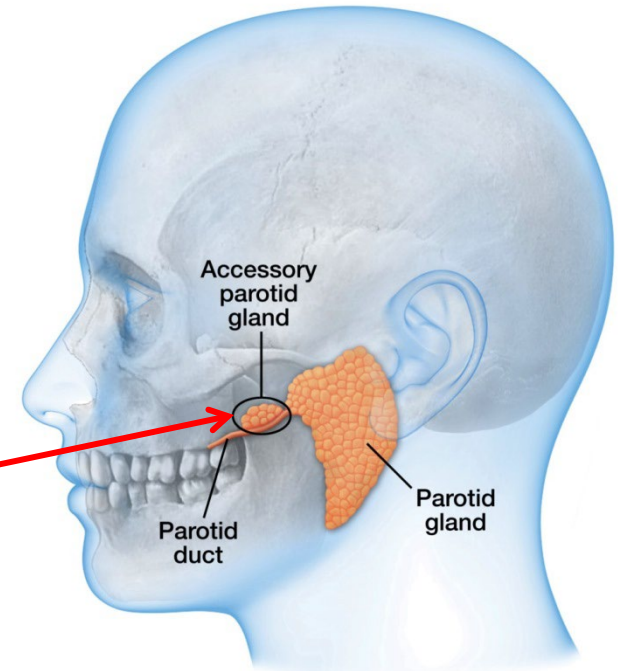
DEVELOPMENT OF PAROTID

OUTPOCKETINGS OF MOUTH



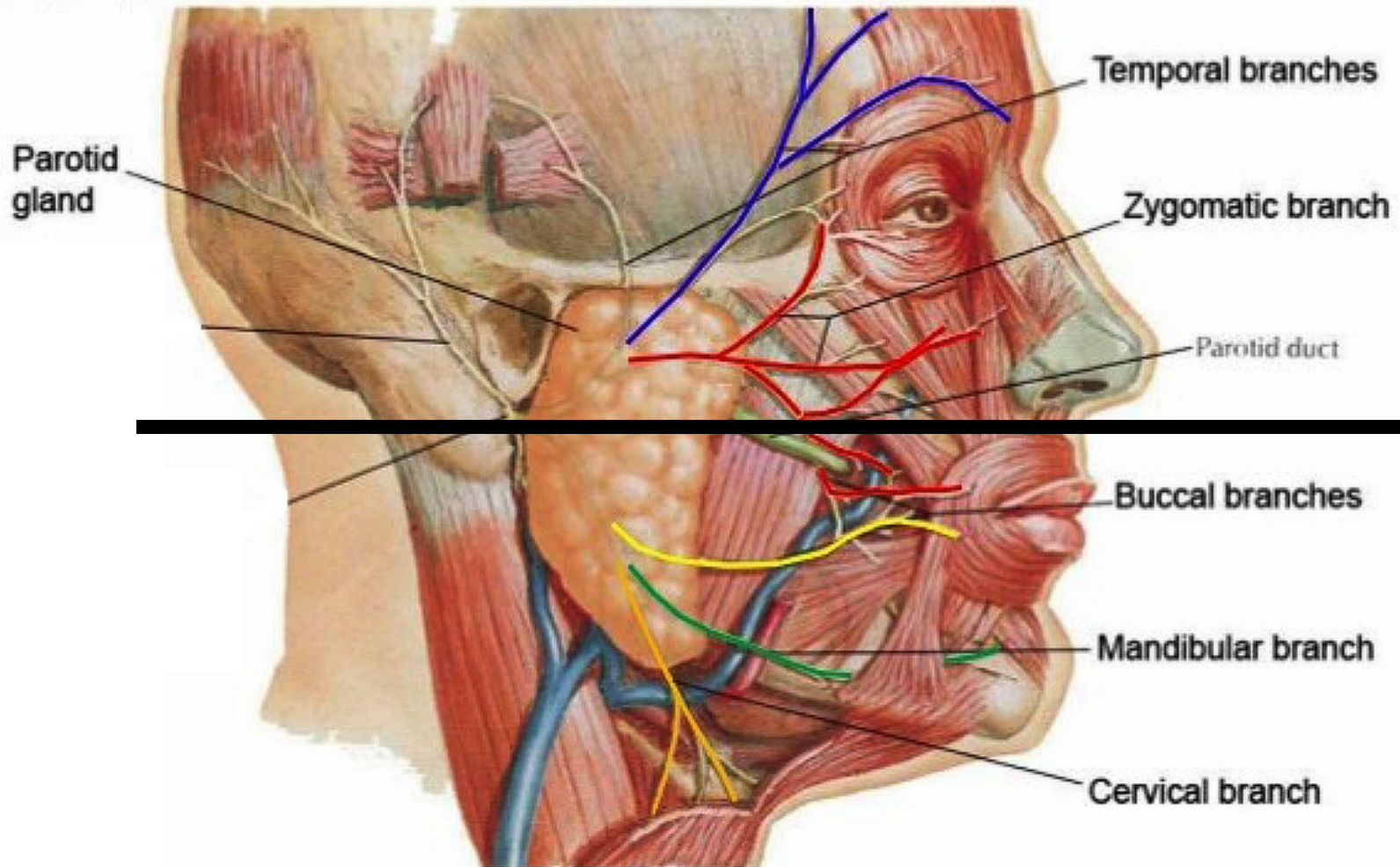
7 WEEKS

- 1) BUDS FROM ECTODERM OF PRIMITIVE MOUTH
- 2) EXTEND TO FORM CORDS - DEVELOP LUMENS – FORM DUCTS
- 3) DUCTS JOIN



Note: can have Accessory Parotid Glands if ducts join incompletely; no clinical consequence

ORIENT - HORIZONTAL SECTION THROUGH PAROTID GLAND

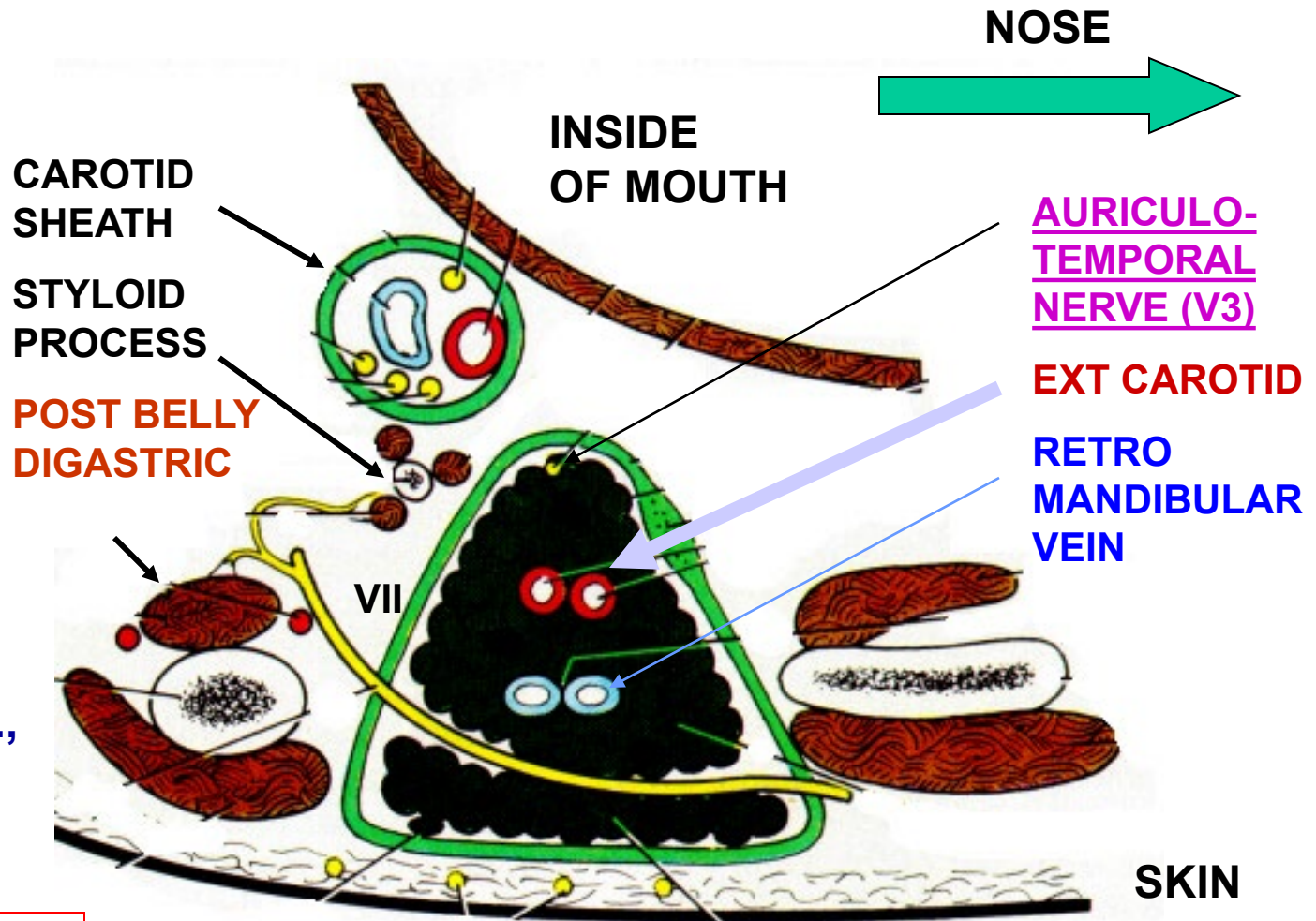


PAROTID REGION - DEEP STRUCTURES

DEEP- POST
BELLY
DIGASTRIC,
STYLOID
PROCESS,
CAROTID
SHEATH

WITHIN PAROTID-

- 1) VII,
- 2) RETROMANDIBULAR VEIN,
- 3) EXT CAROTID A.,
- 4) AURICULO-TEMPORAL N.



INNERV. OF PAROTID -
VISCERAL MOTOR
(PARASYMP)
OF IX
(GLOSSPHARYNG. N)

NOTE: MUMPS: VIRAL INFECTION OF PAROTID;
SWELLING PAINFUL DUE TO TIGHTNESS CAPSULE;
REFERRED PAIN TO EAR - COMPRESSION OF AURICULO-TEMPORAL NERVE (ALSO PAROTID TUMOR) *