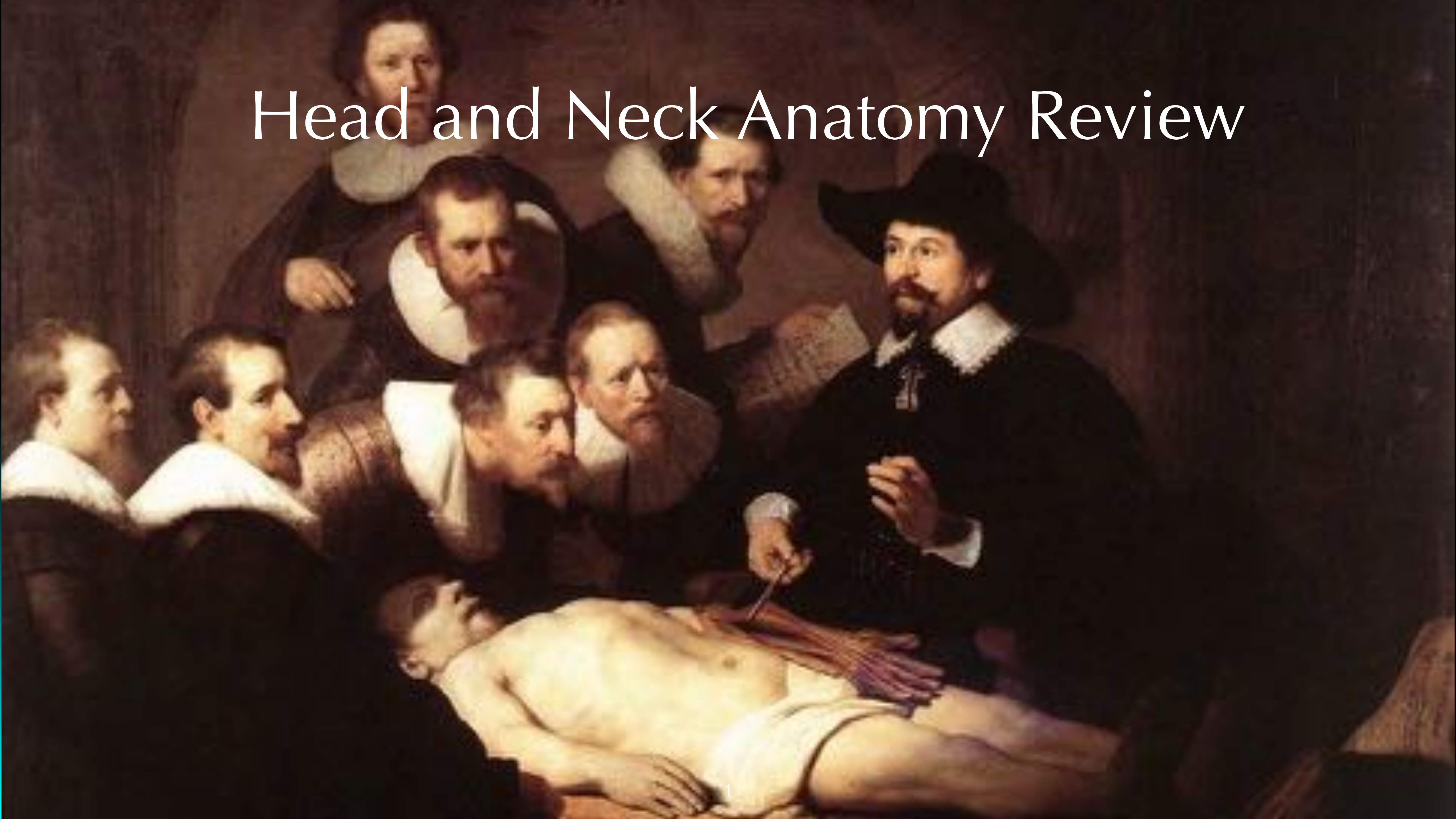
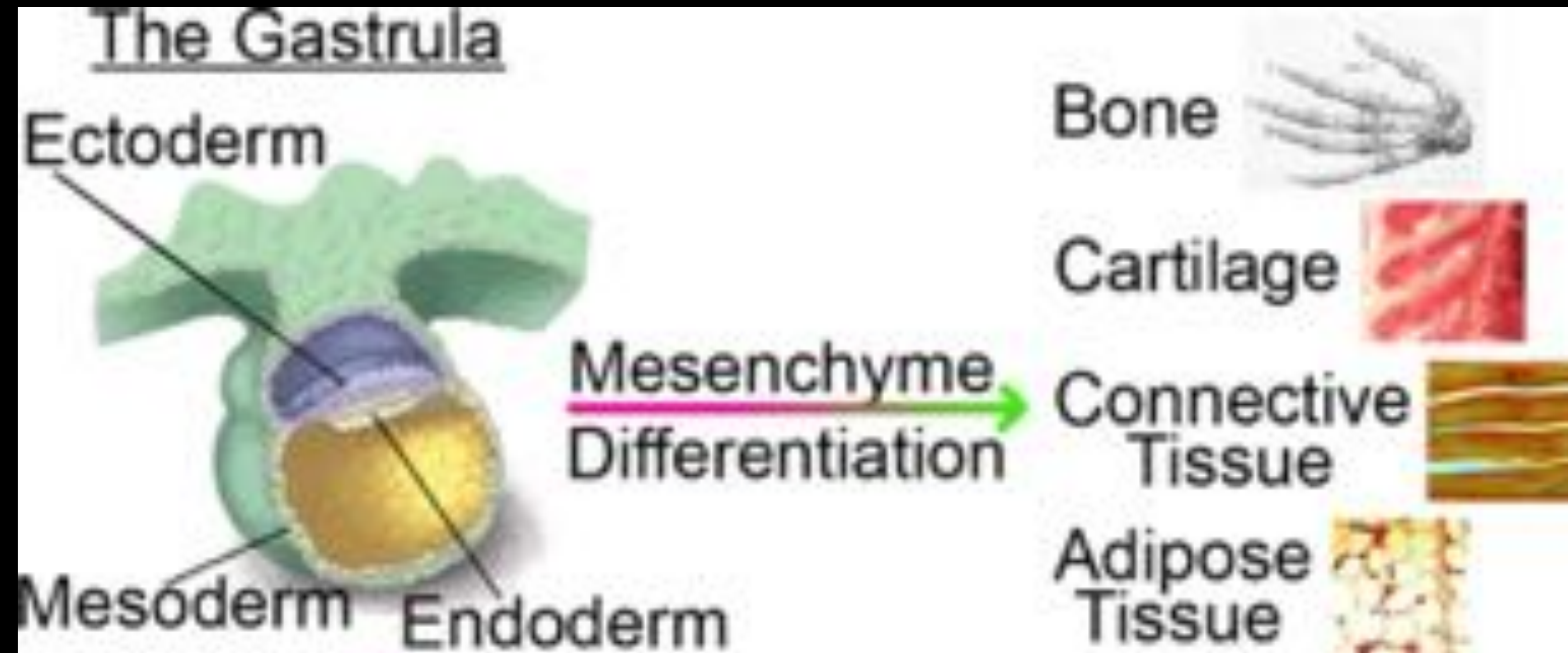
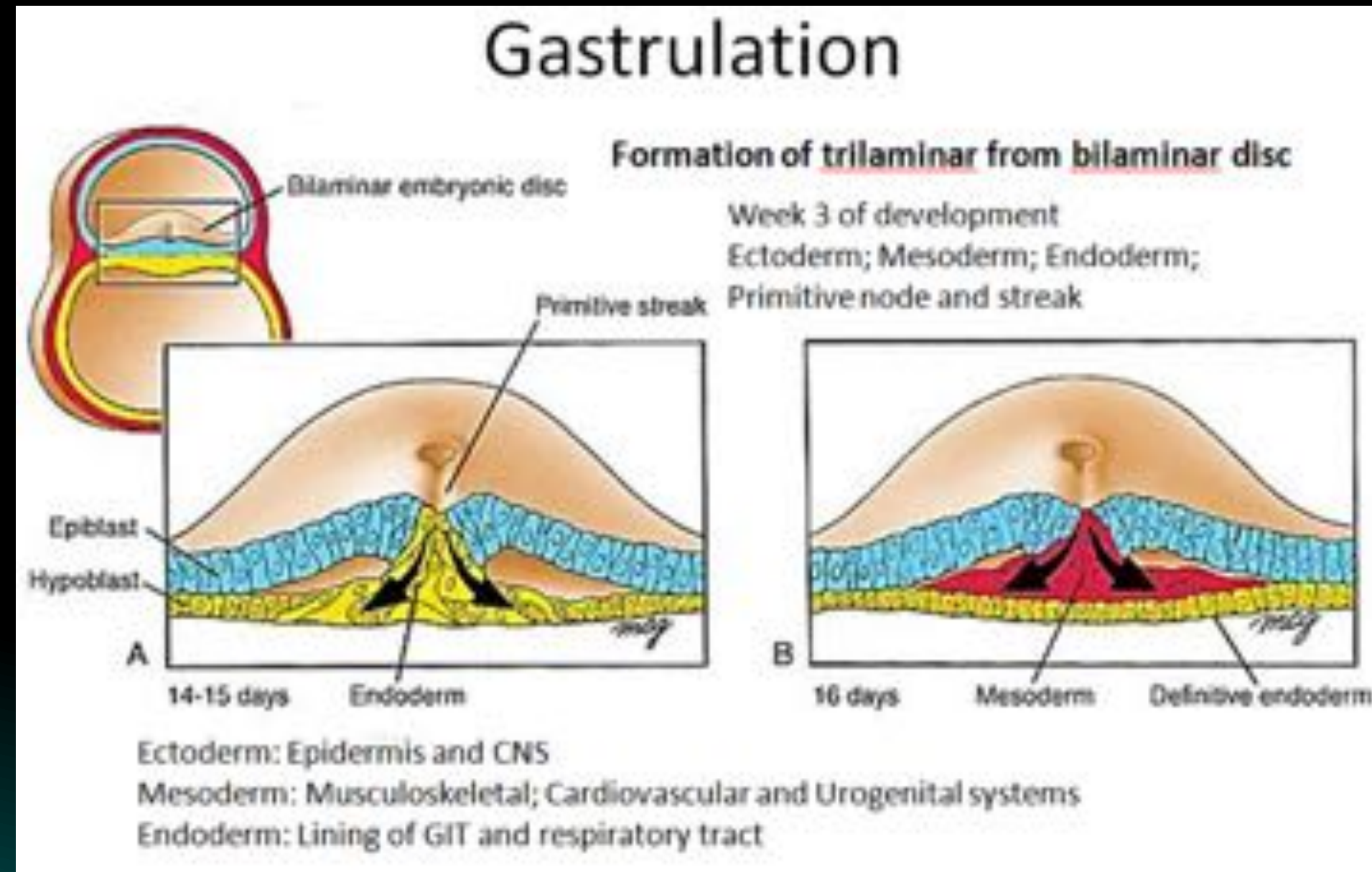
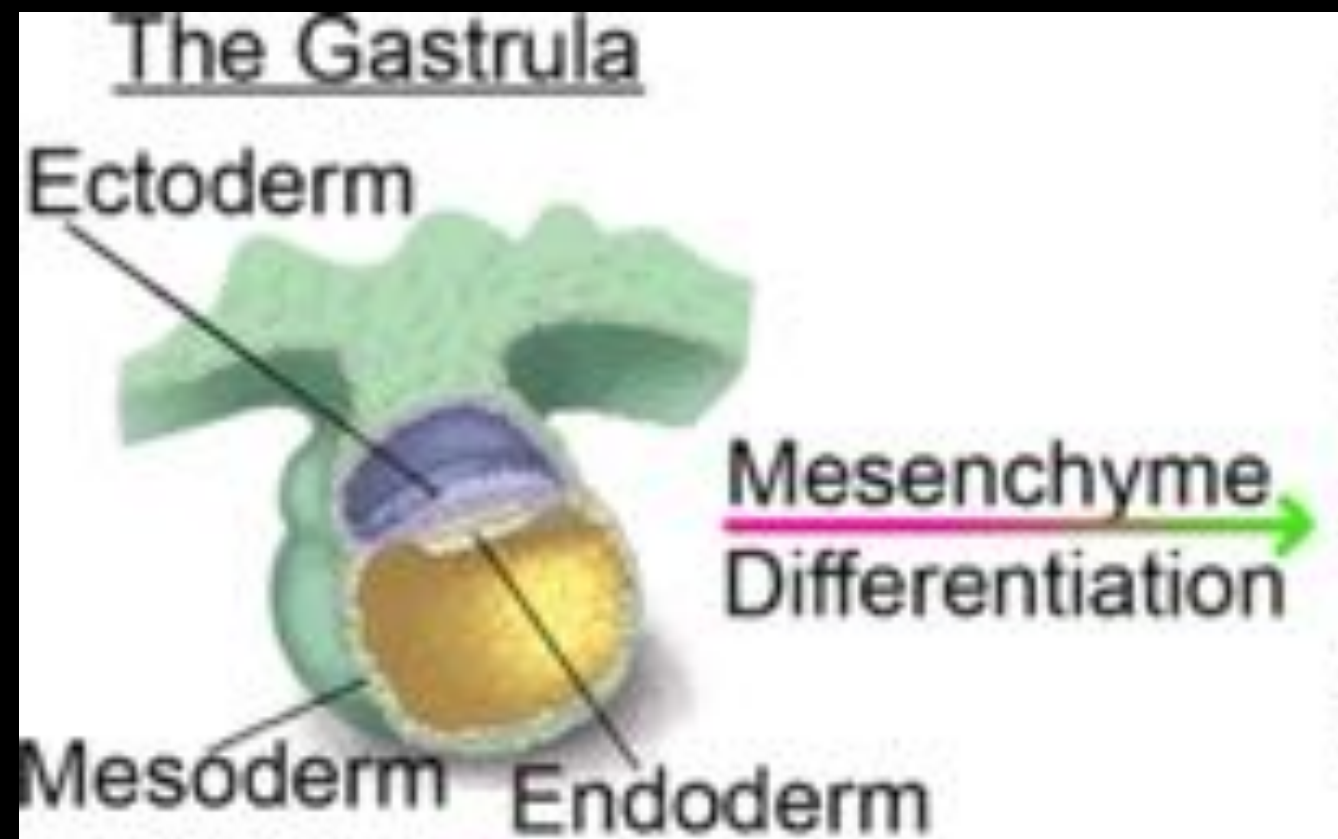


Head and Neck Anatomy Review



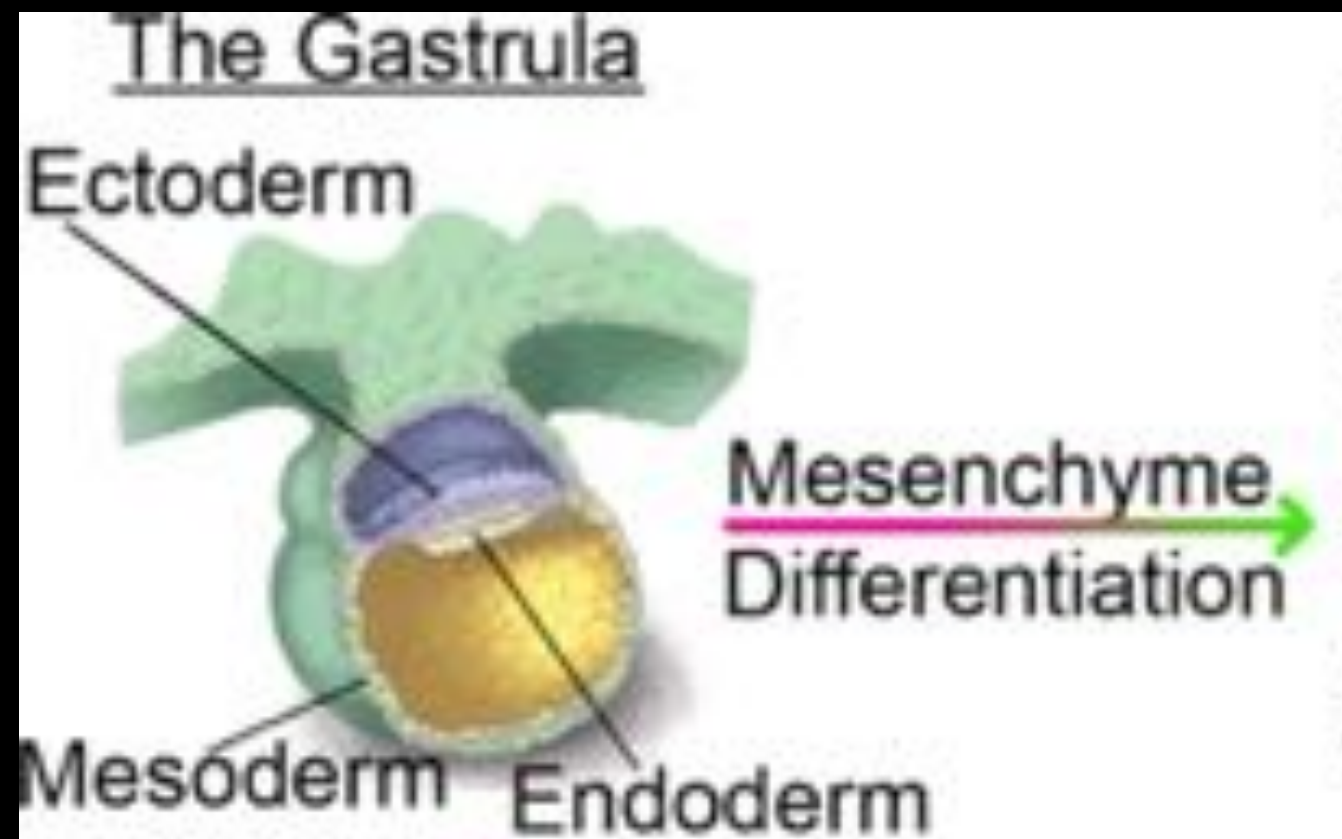
Embryology (Where it all began)





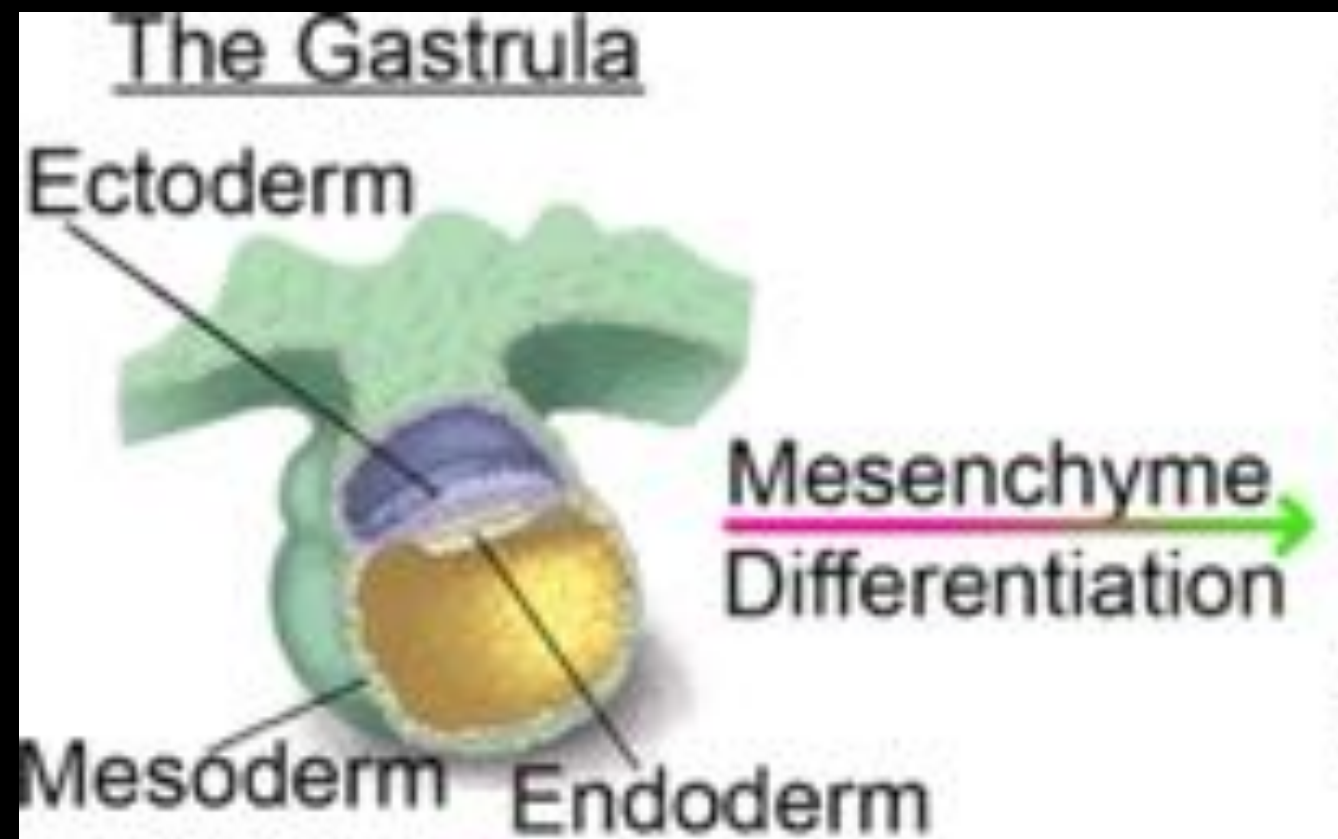
Embryology

- Ectoderm
 - Nervous system
 - Sensory epithelium of eye, ear, nose
 - Epidermis, hair, nails
 - Mammary and cutaneous glands
 - Epithelium of sinuses, oral and nasal cavities, intraoral glands
 - **Tooth enamel**



Embryology

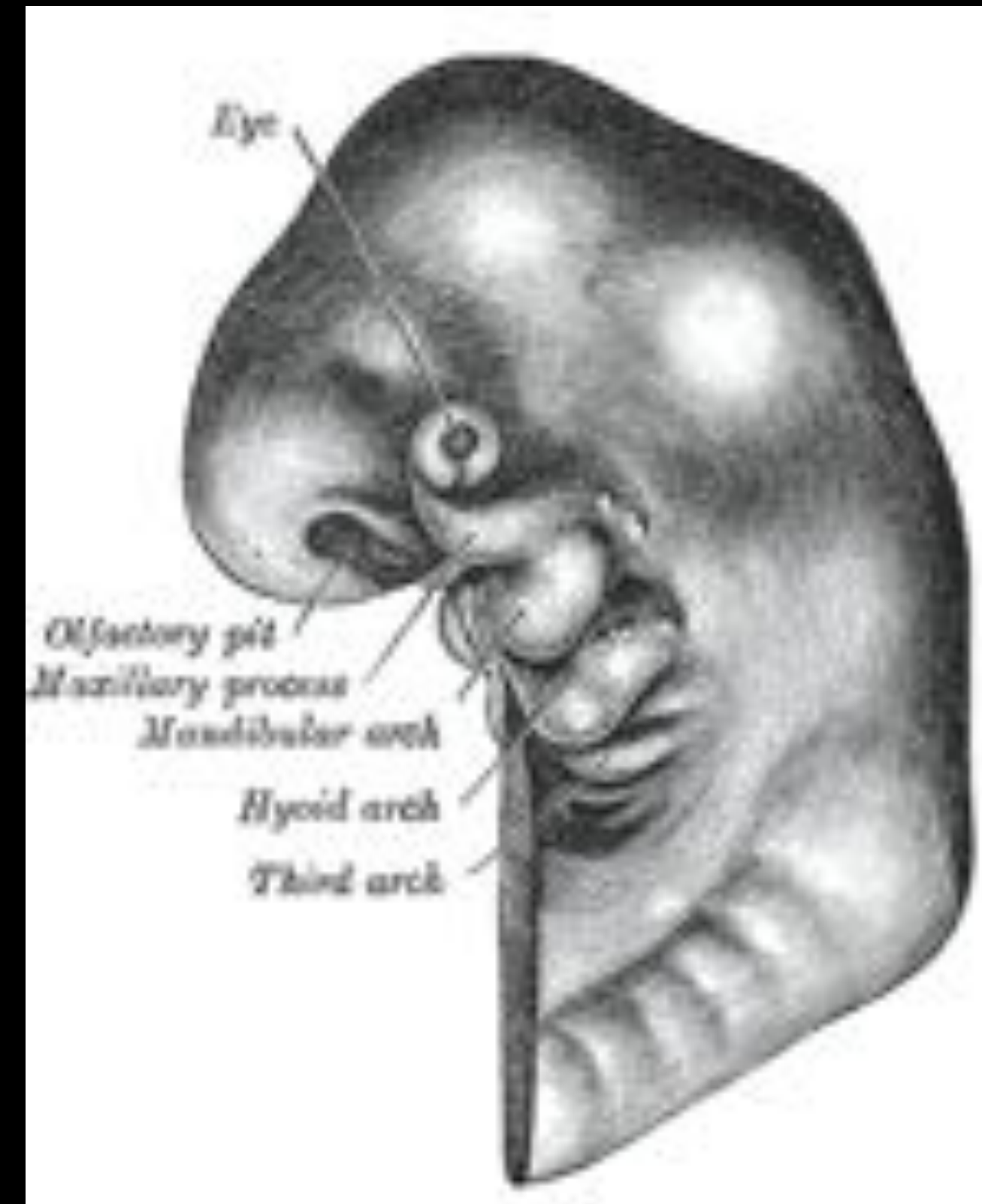
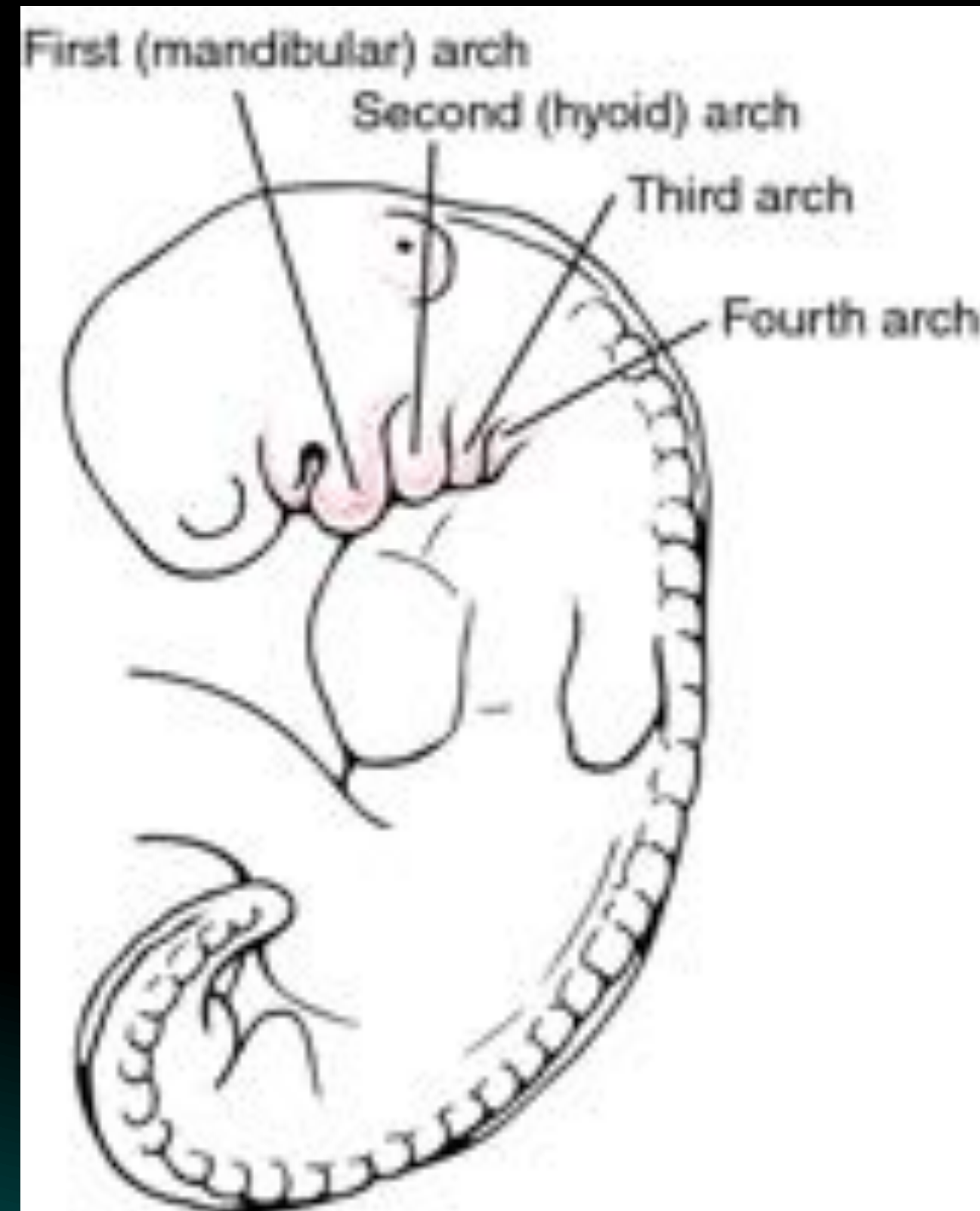
- Mesoderm
 - Muscles
 - Connective Tissue Derivatives: Bone, cartilage, blood, **dentin, pulp, cementum, PDL**



Embryology

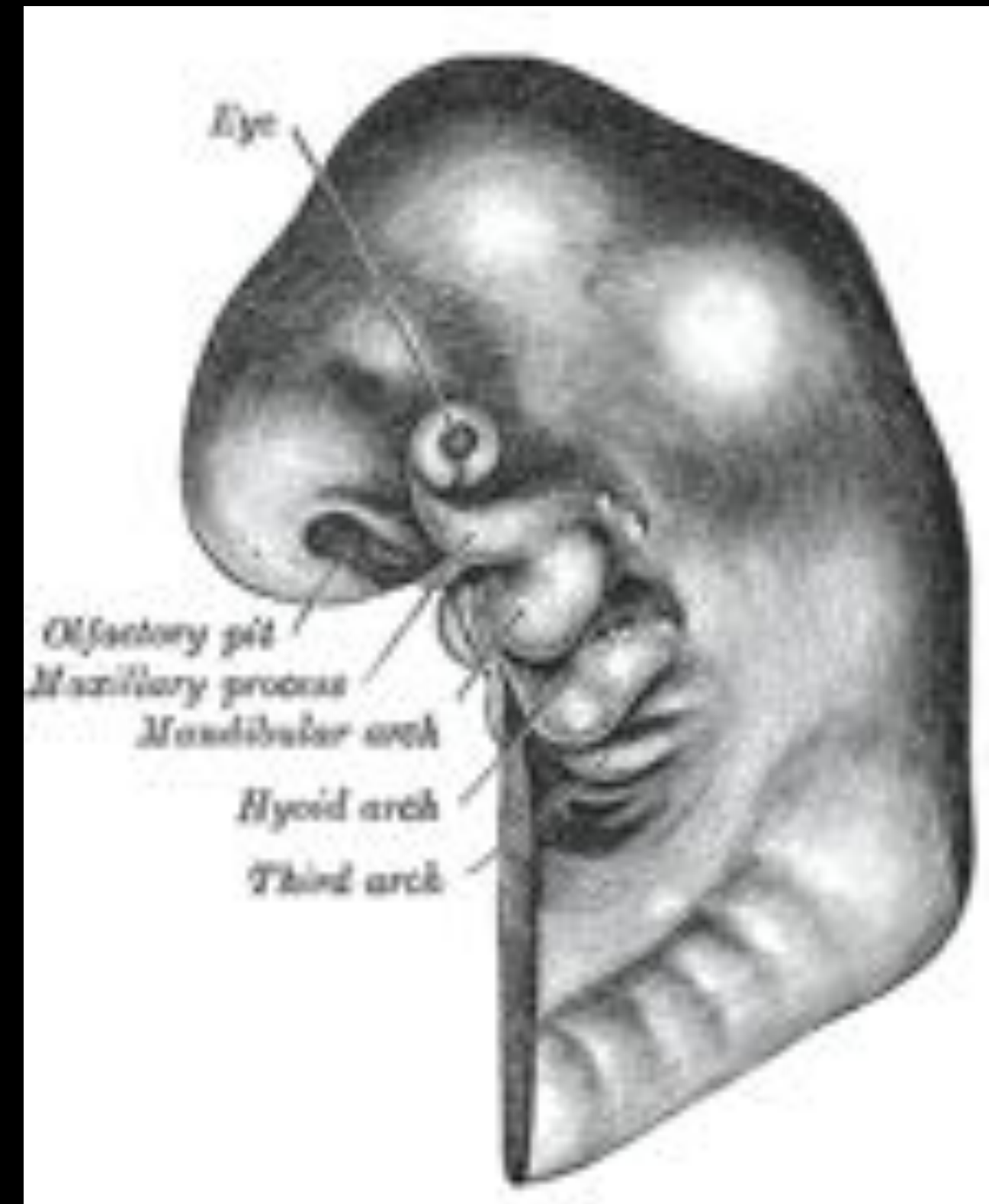
- Endoderm
 - Gastro-intestinal tract epithelium and associated glands

Branchial Arches



Mandibular (1st) Arch

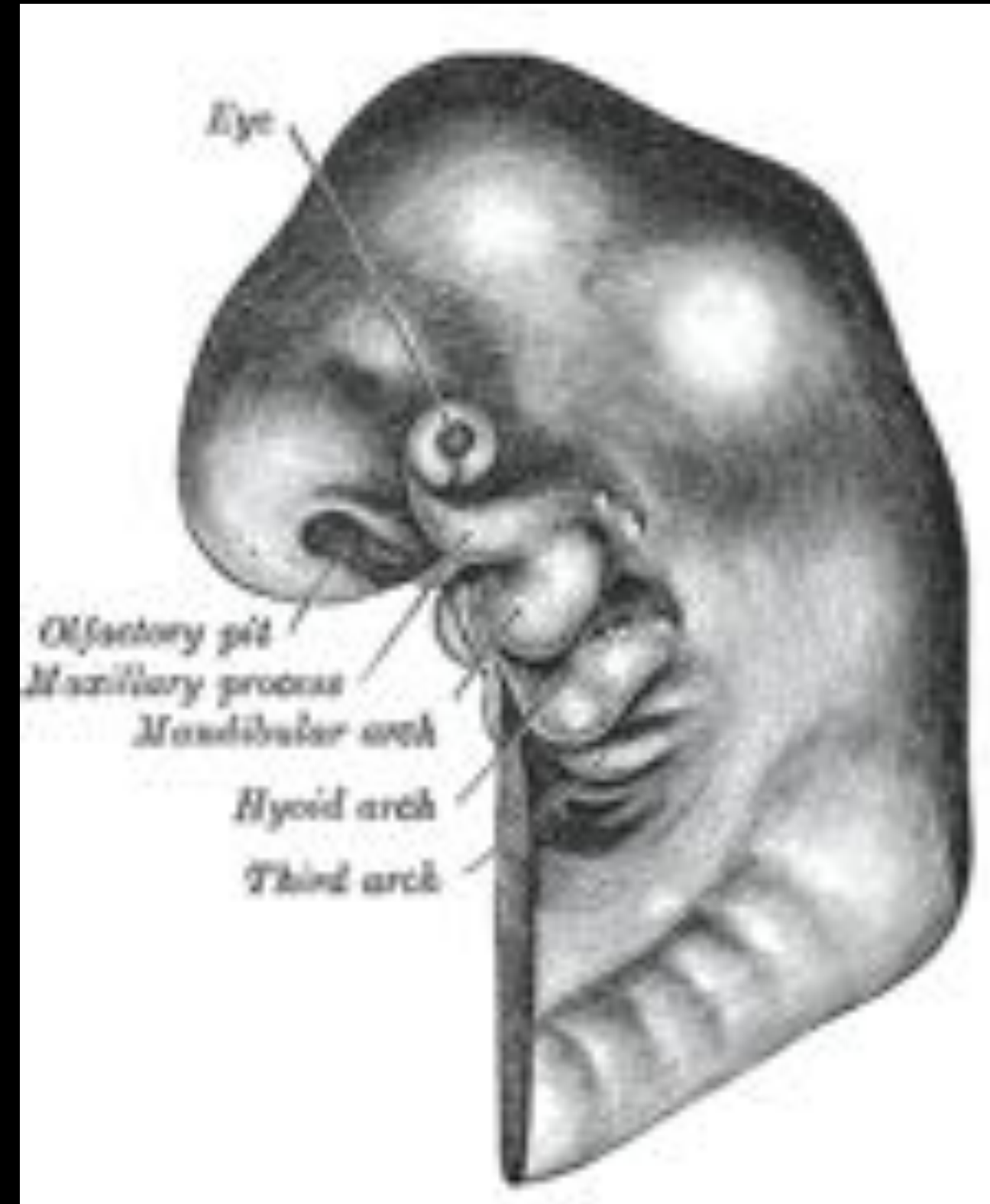
- Forms
 - Trigeminal nerve
 - Muscles of mastication
 - Mylohyoid
 - Ant. belly of digastric
 - Tensor tympani
 - Tensor veli palatini



Mandibular (1st) Arch

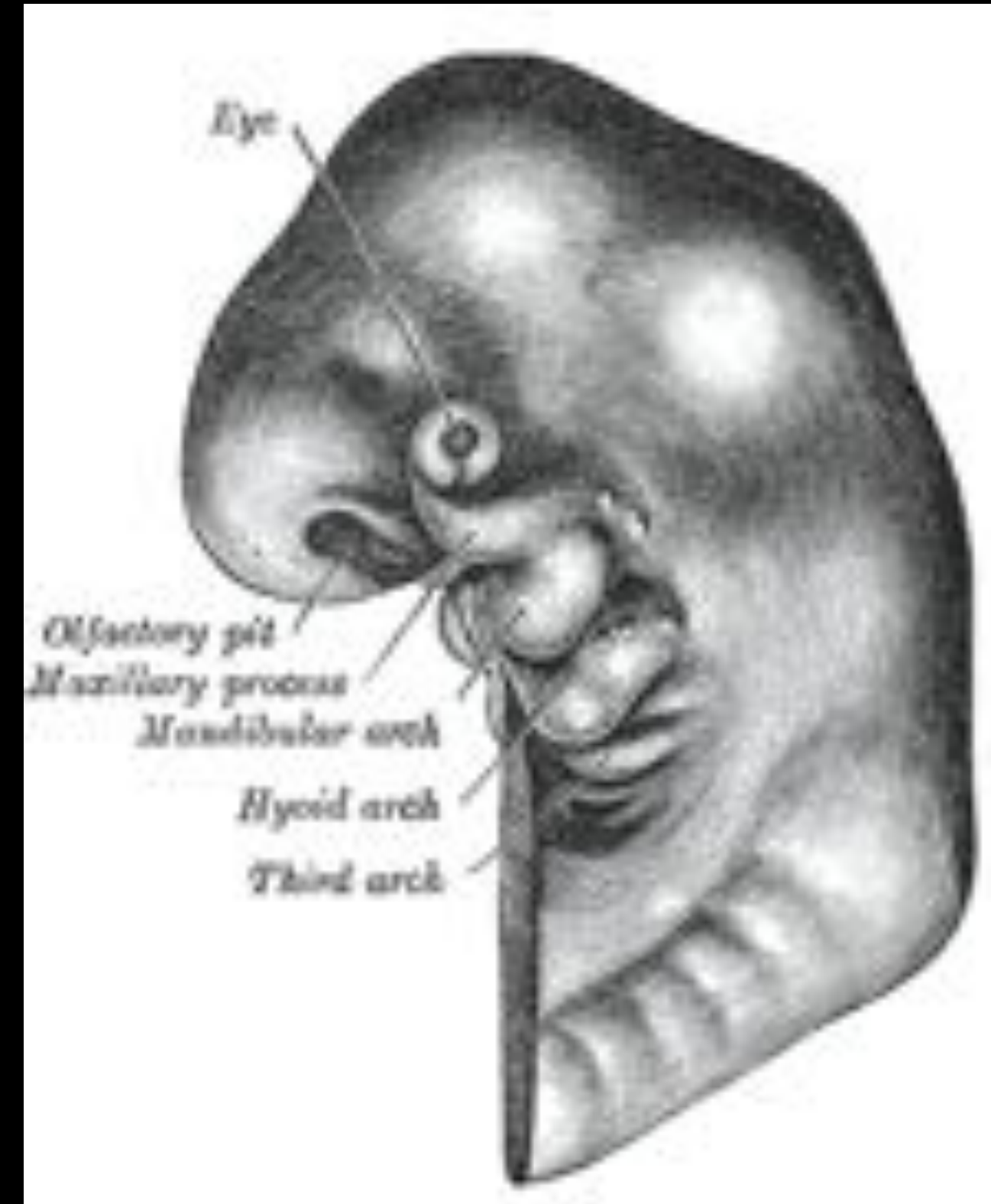
- Forms (continued)
 - Malleus and incus
 - Ant. ligament of malleus
 - Sphenomandibular ligament
 - Portions of the sphenoid bone
 - Lower lip, lower face and mandible

Associated with Meckel's cartilage



Hyoid (2nd) Arch

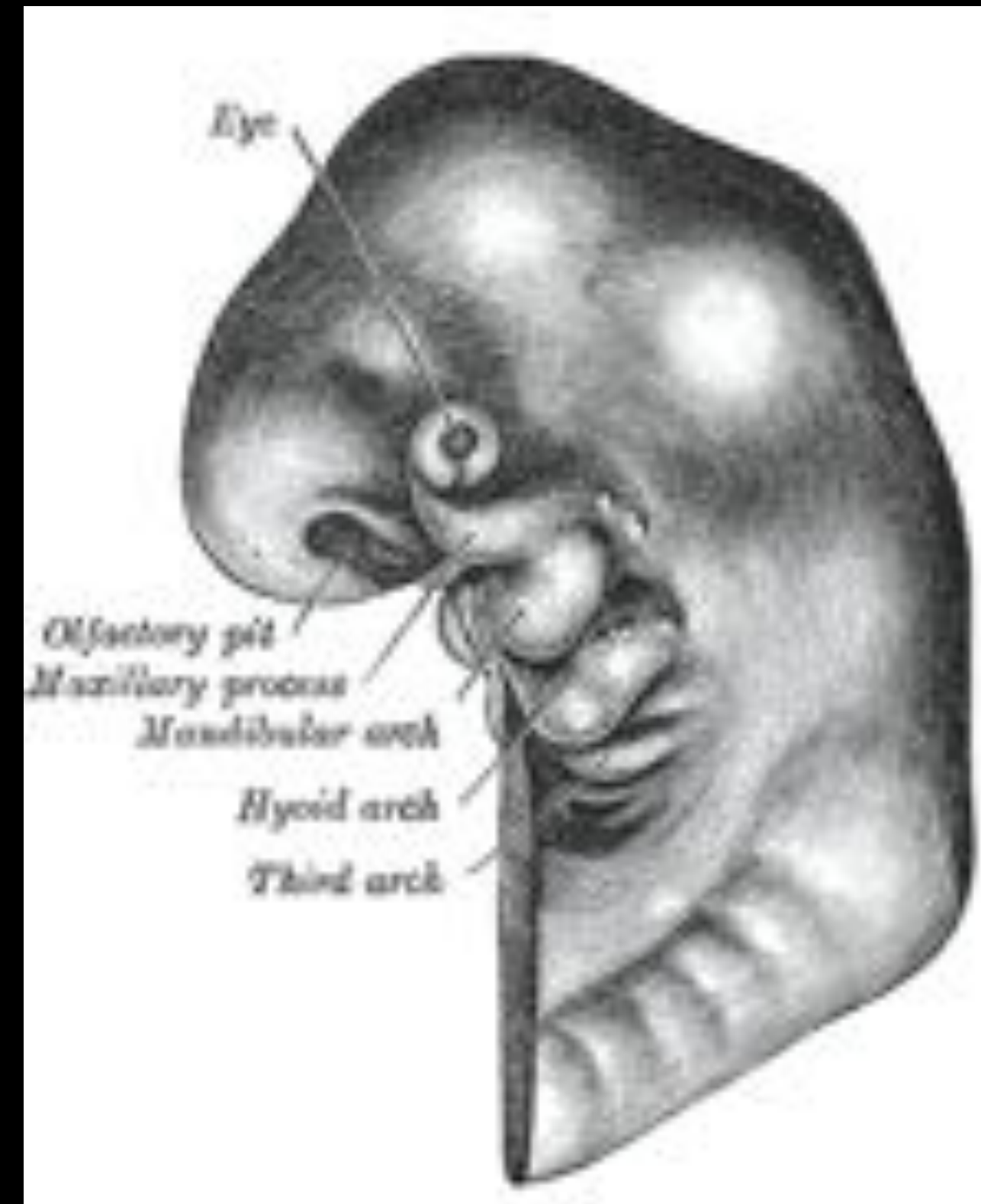
- Forms
 - Facial nerve
 - Stapedius muscle
 - Muscles of facial expression
 - Posterior belly of digastric
 - Stylohyoid



Hyoid (2nd) Arch

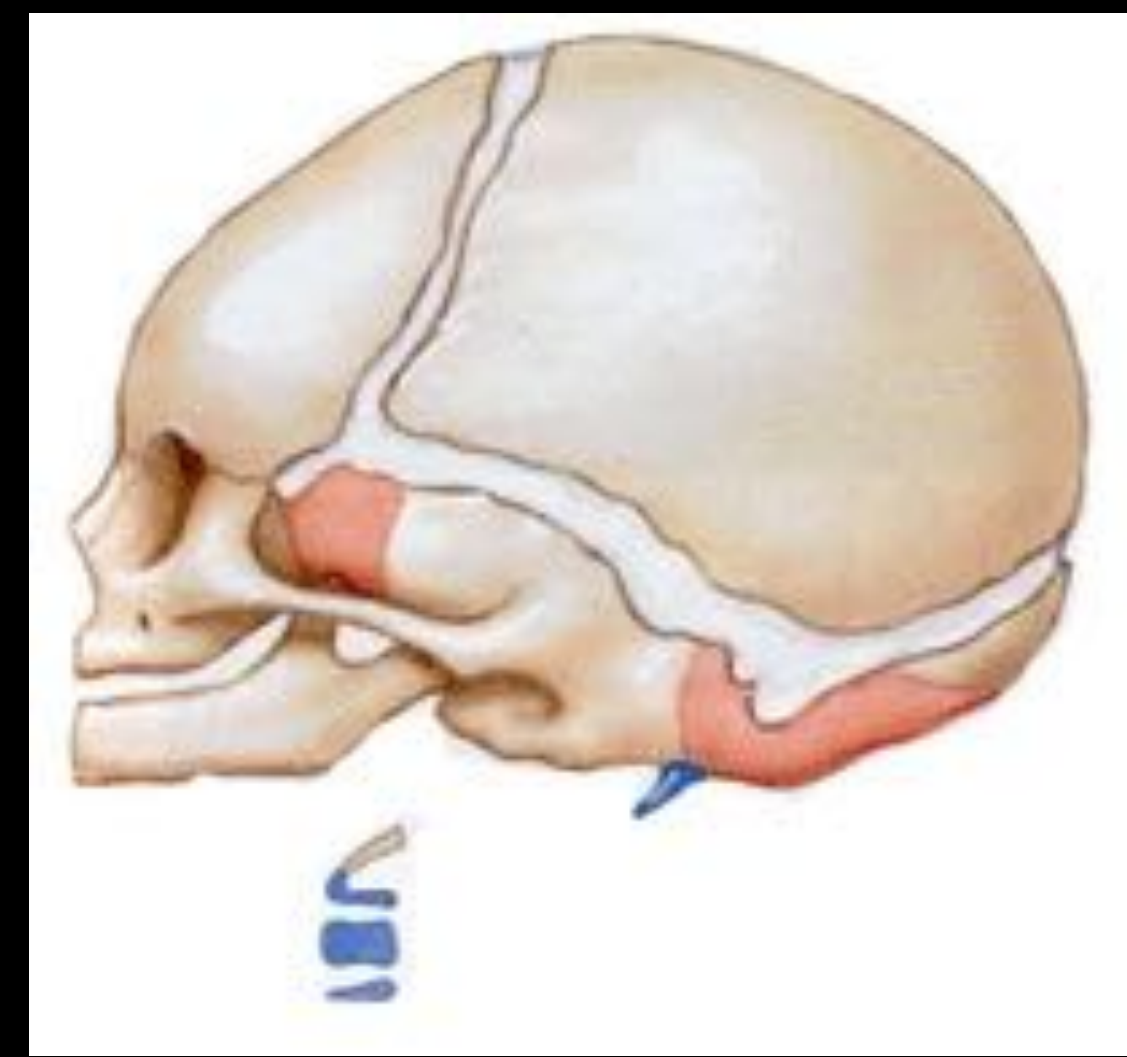
- Forms
 - Stapes and portions of malleus and incus
 - Stylohyoid ligament
 - Styloid process of temporal bone
 - Lesser cornu of the hyoid bone
 - Upper portion of body of the hyoid

Associated with Reichert's cartilage

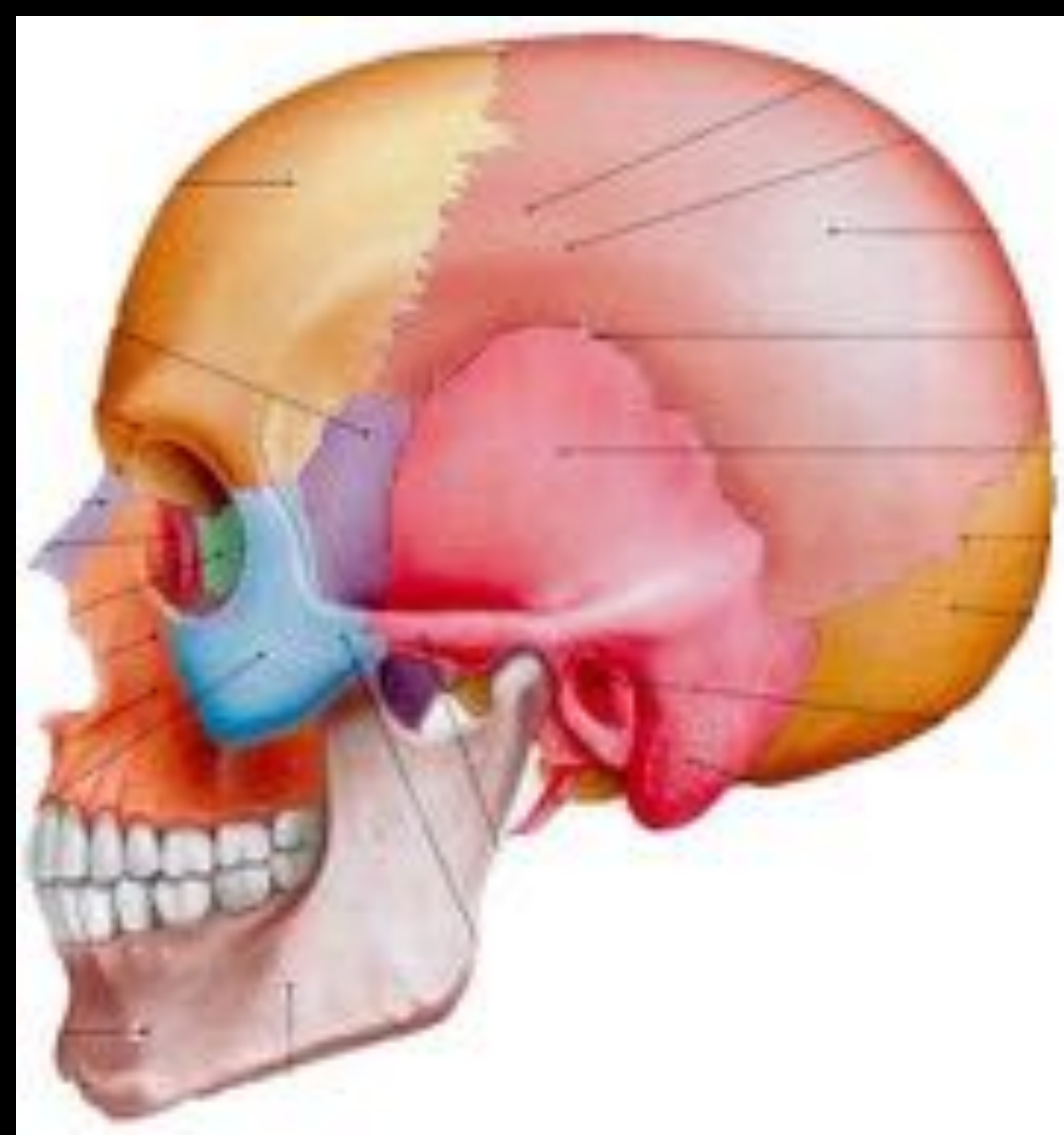
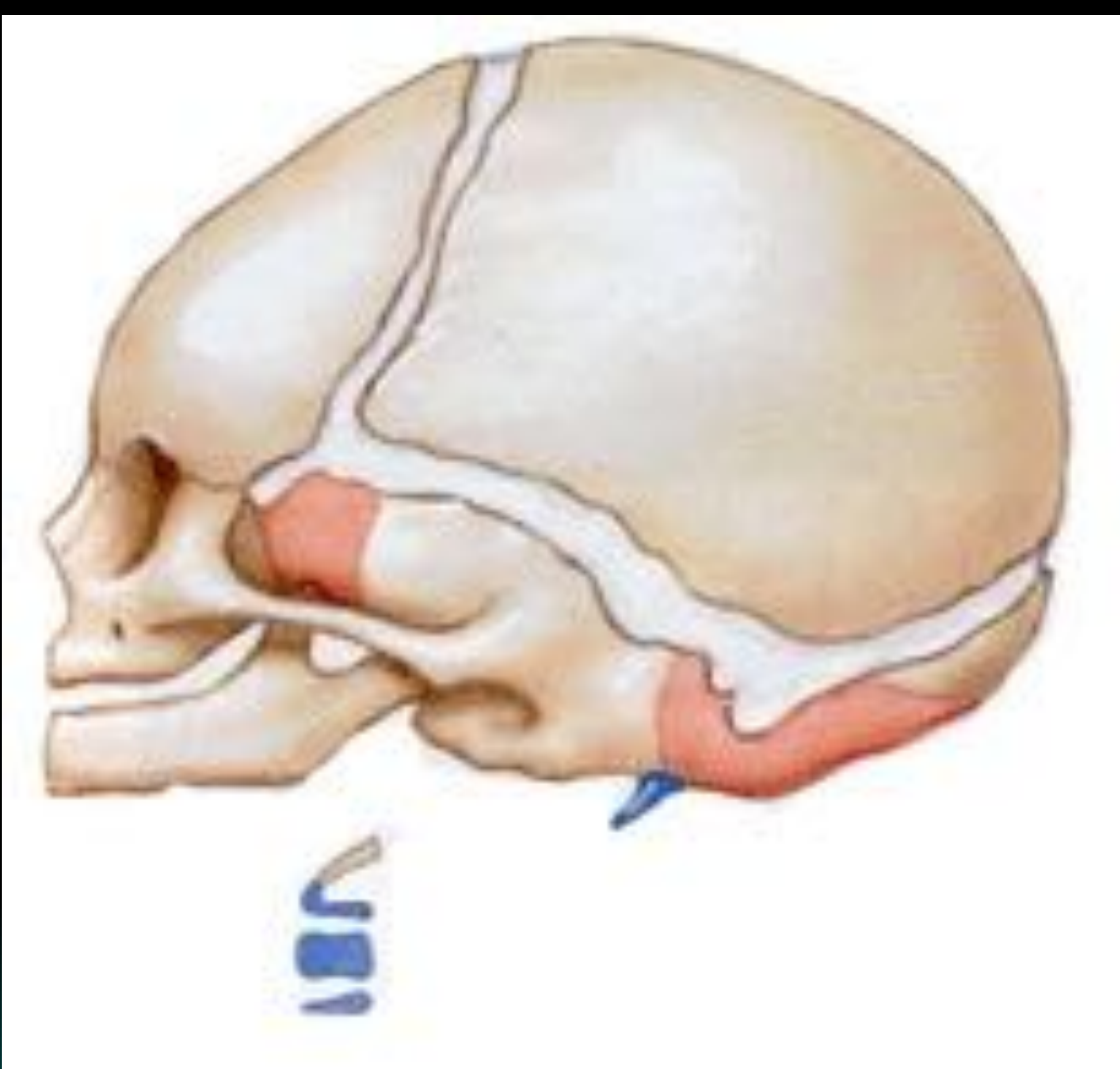


Osteology Review

Jamison Spencer



Jamison Spencer



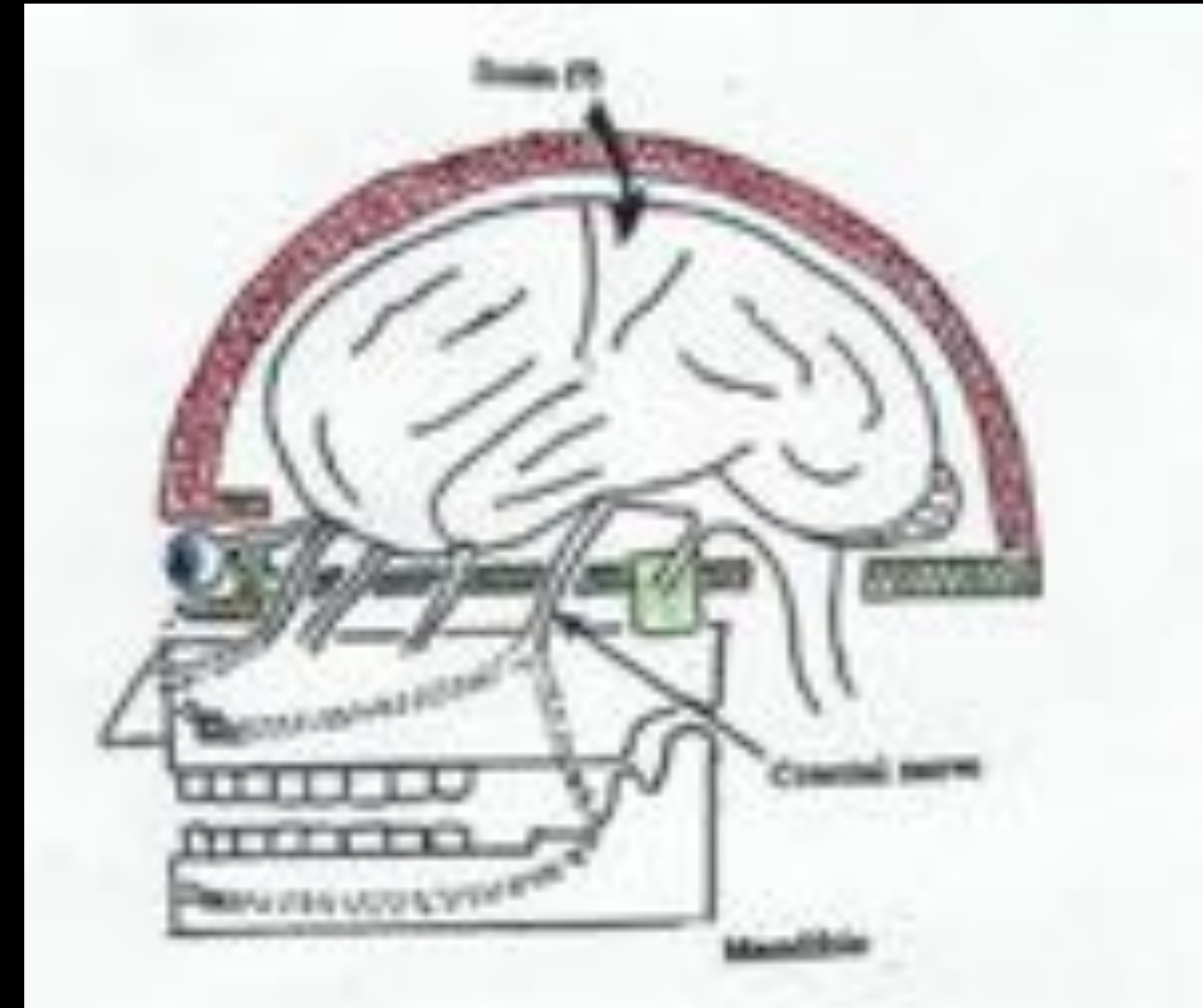
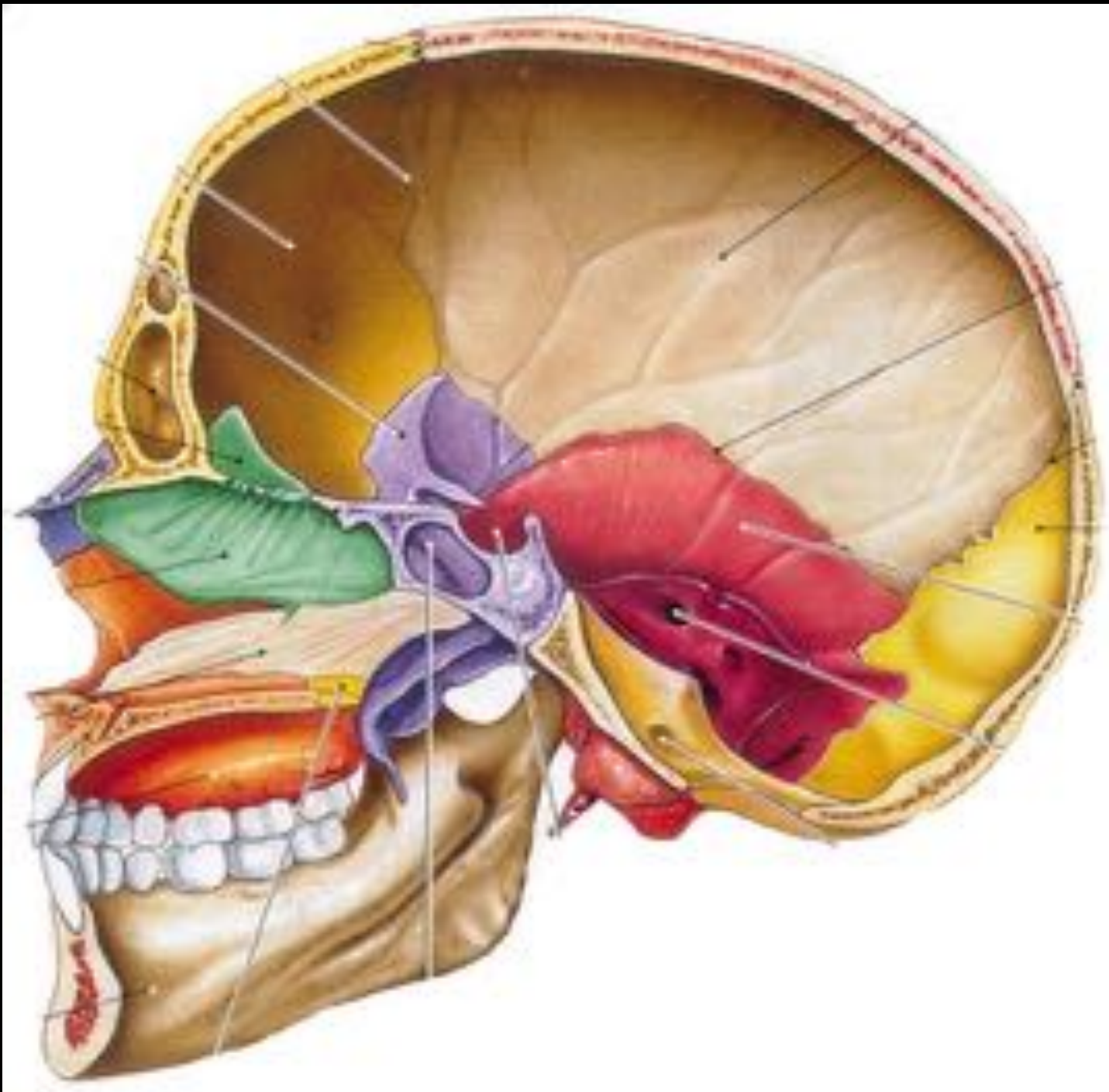
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Cranial Bones

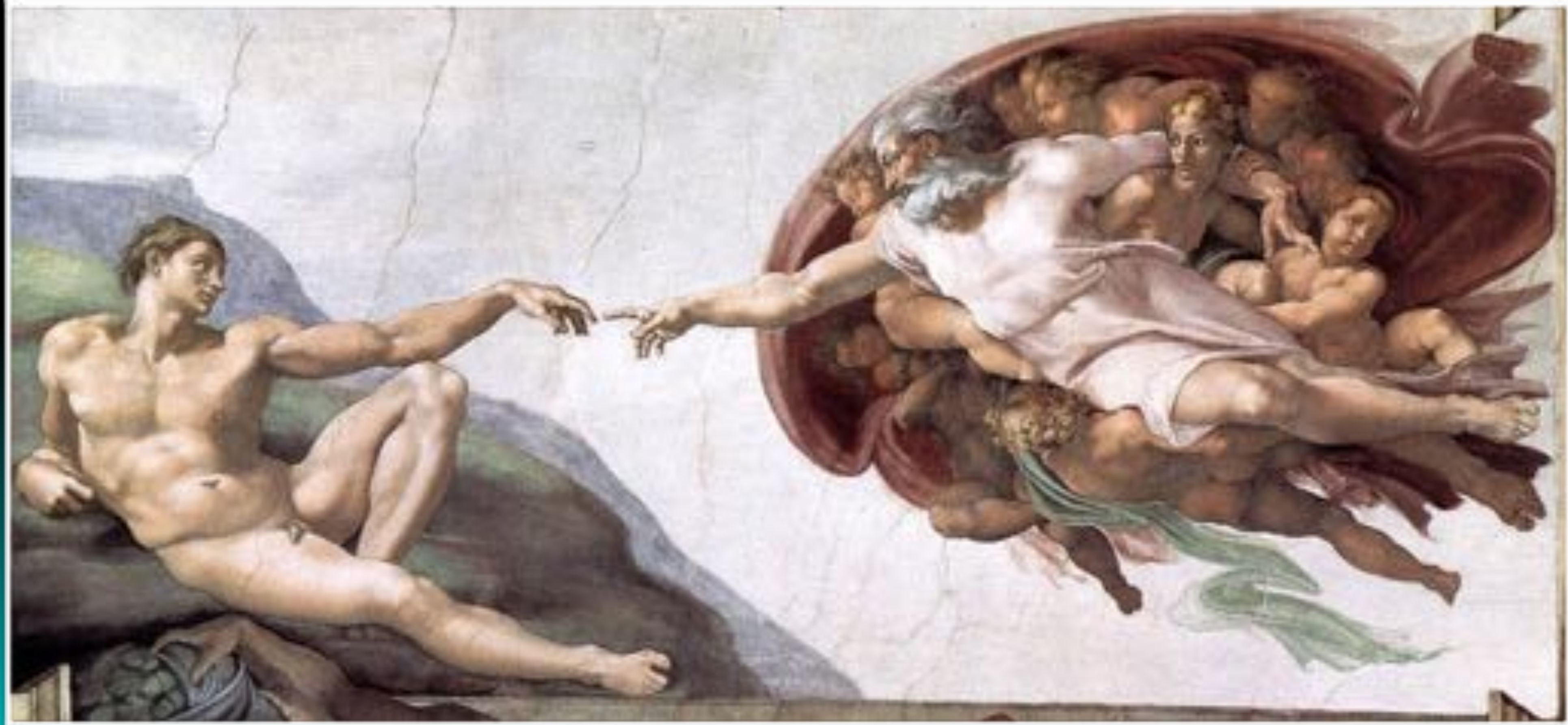
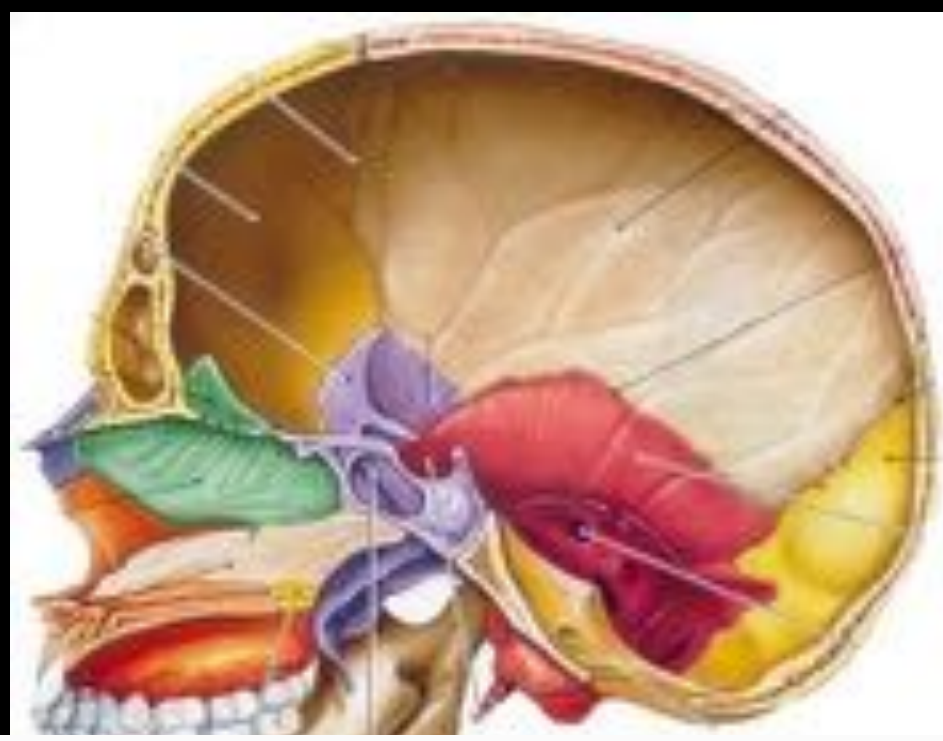
- Occipital bone
- Frontal bone
- Parietal bones
- Temporal bones
- Sphenoid bone
- Ethmoid bone

Facial Bones

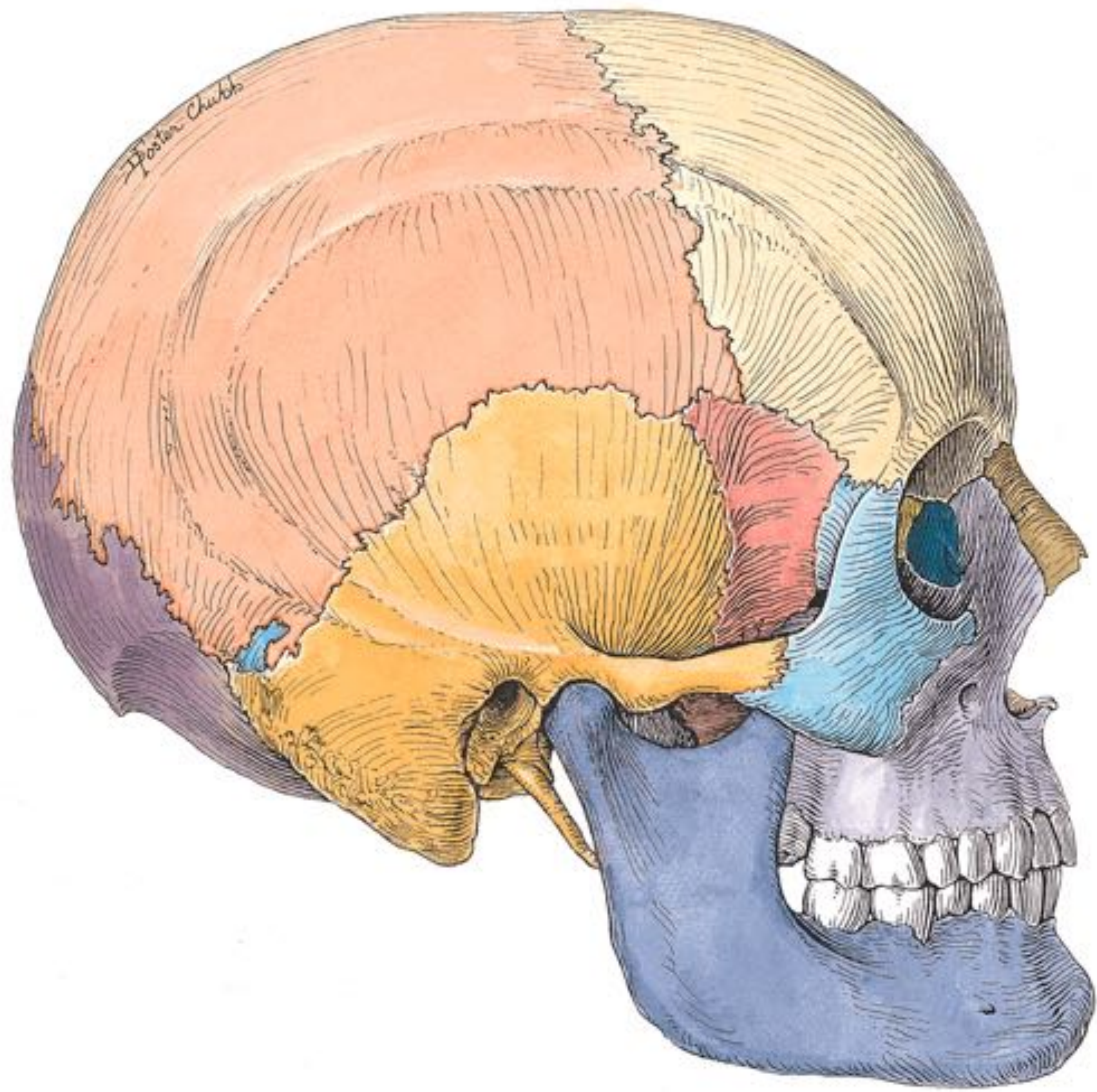
- Vomer
- Lacrimal bones
- Nasal bones
- Inferior nasal conchae
- Zygomatic bones
- Maxillary bones
- Mandible

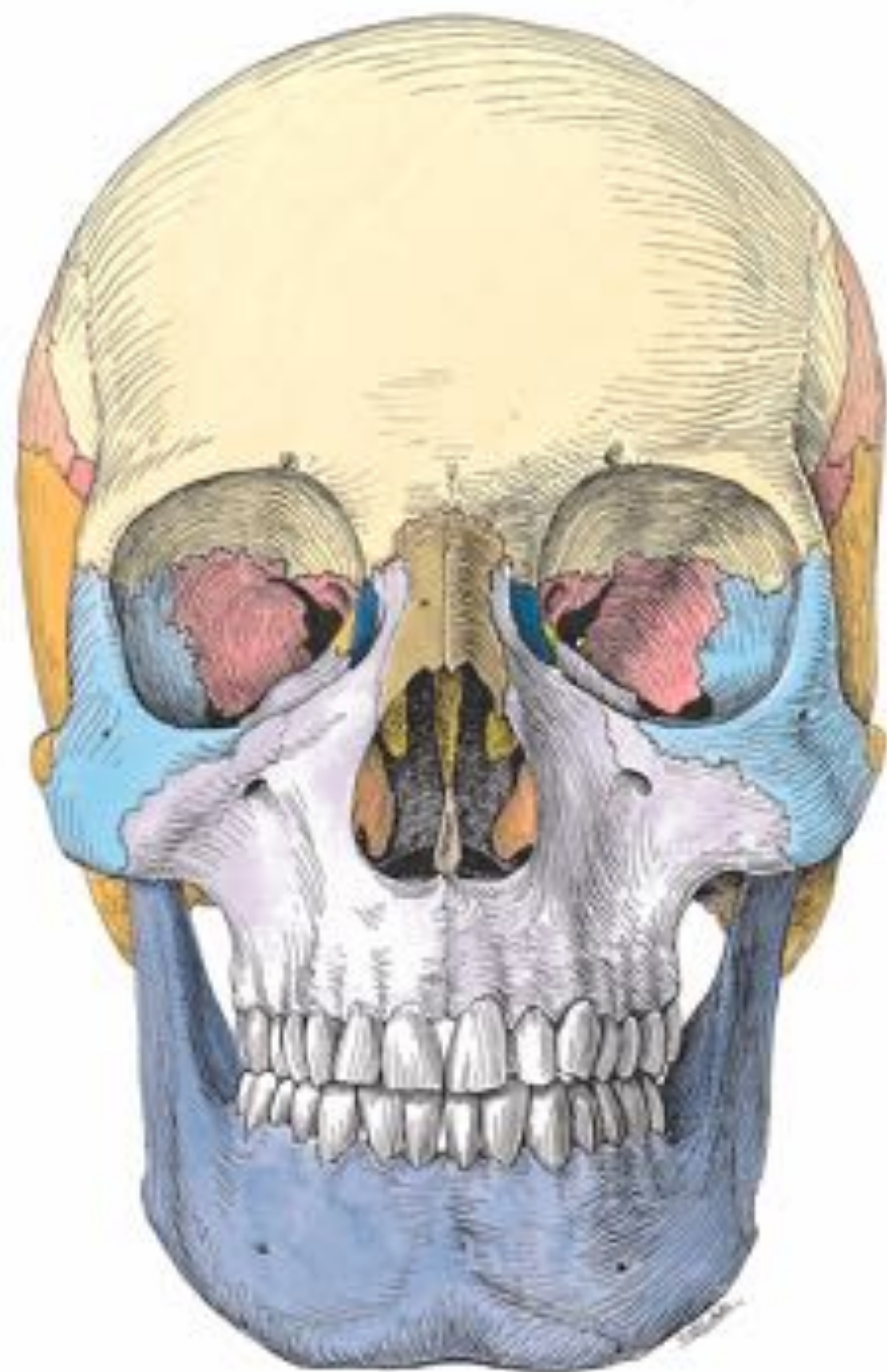


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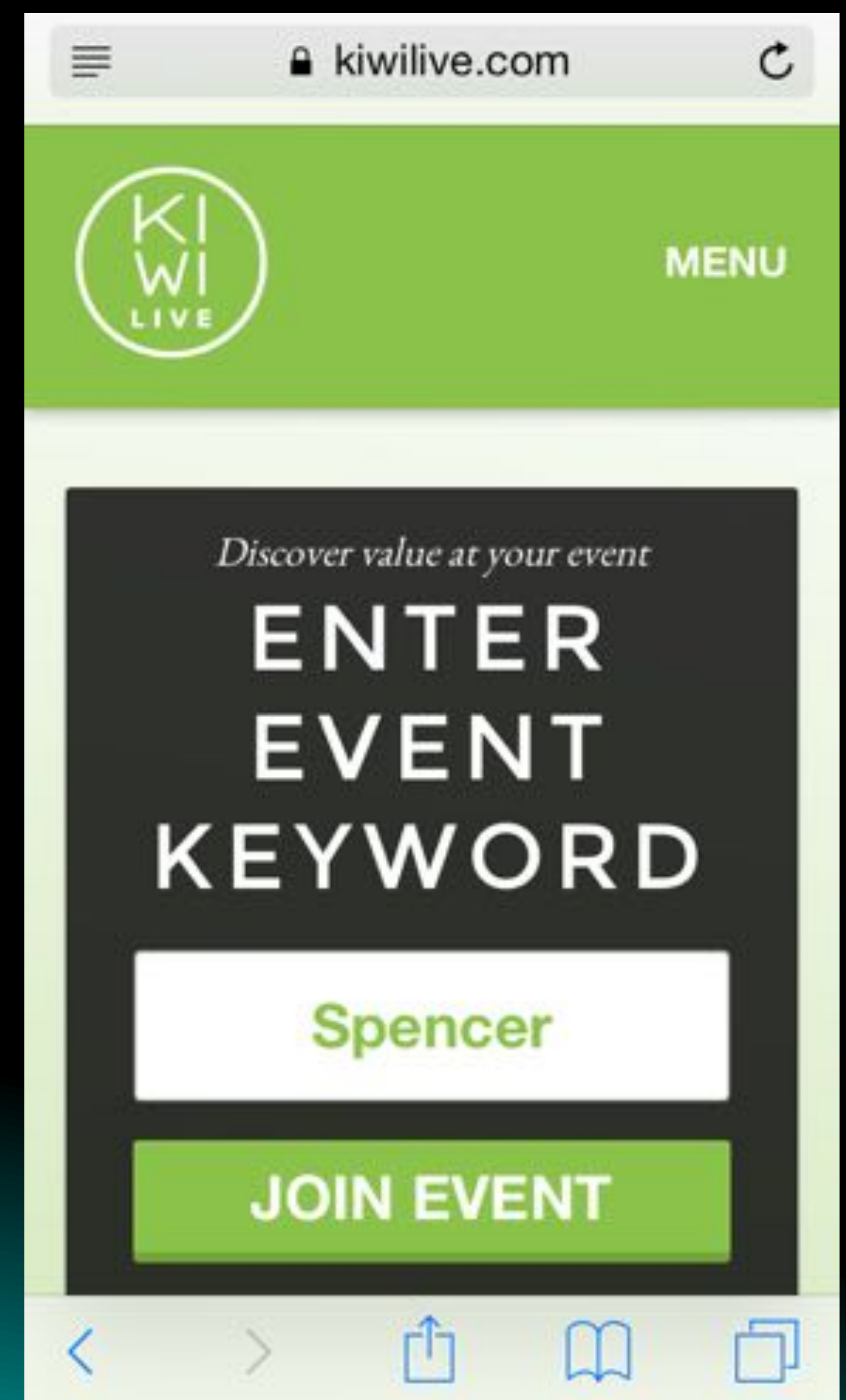


Jamison Spencer





For **Handouts** and
other cool stuff
go to KiwiLive.com
Keyword = Spencer

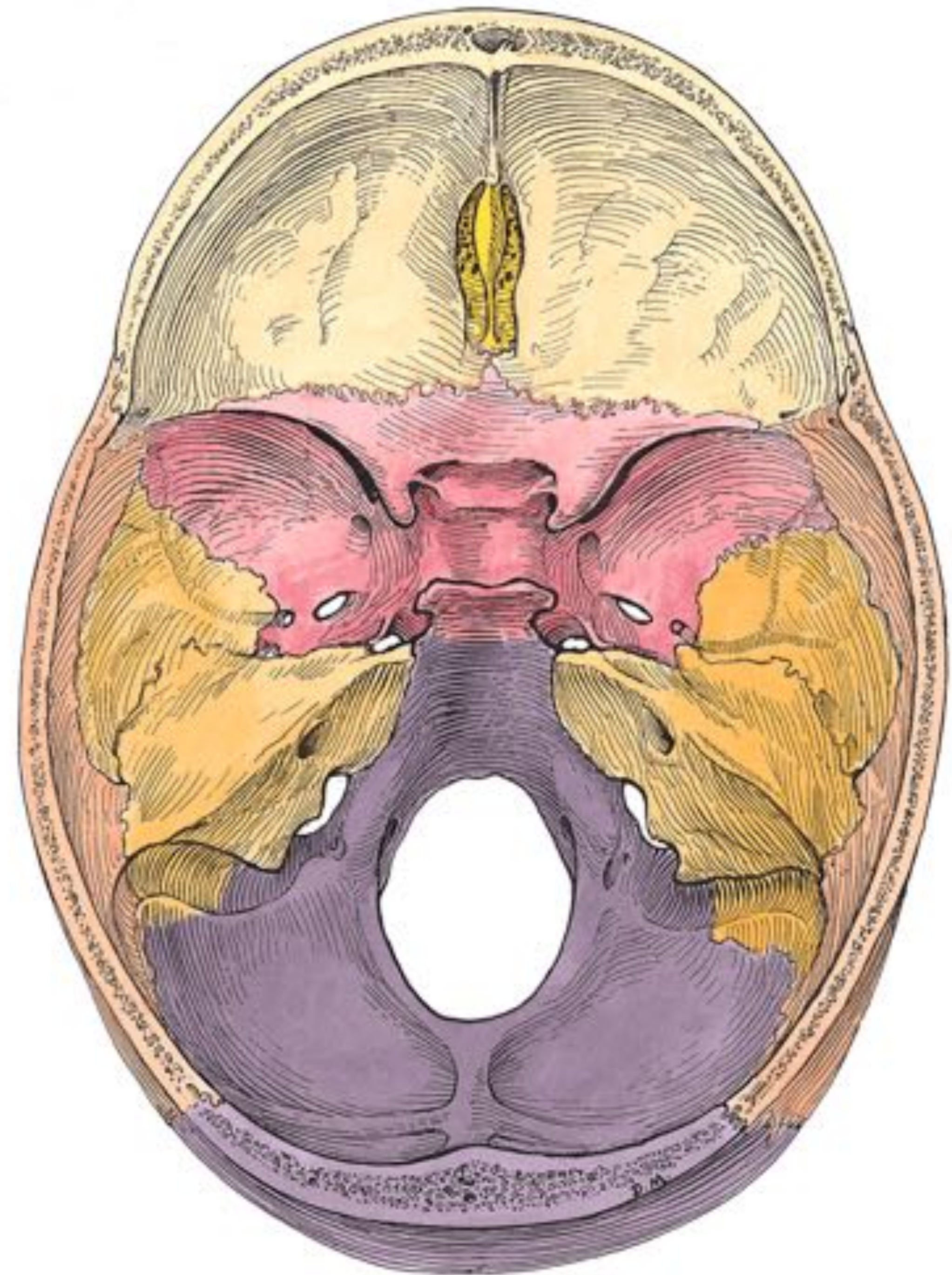


Jamison Spencer

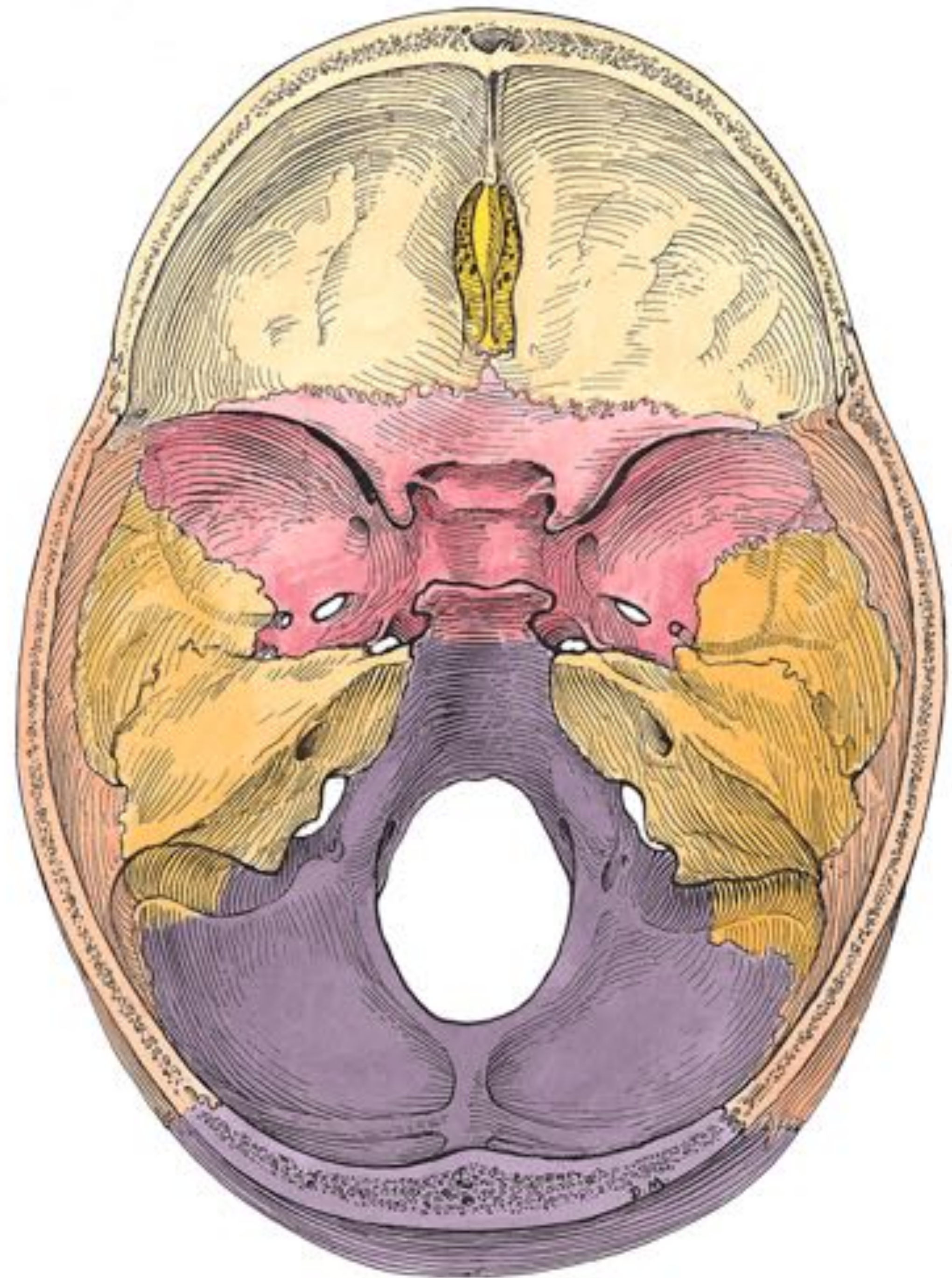
Bony Openings in the Skull

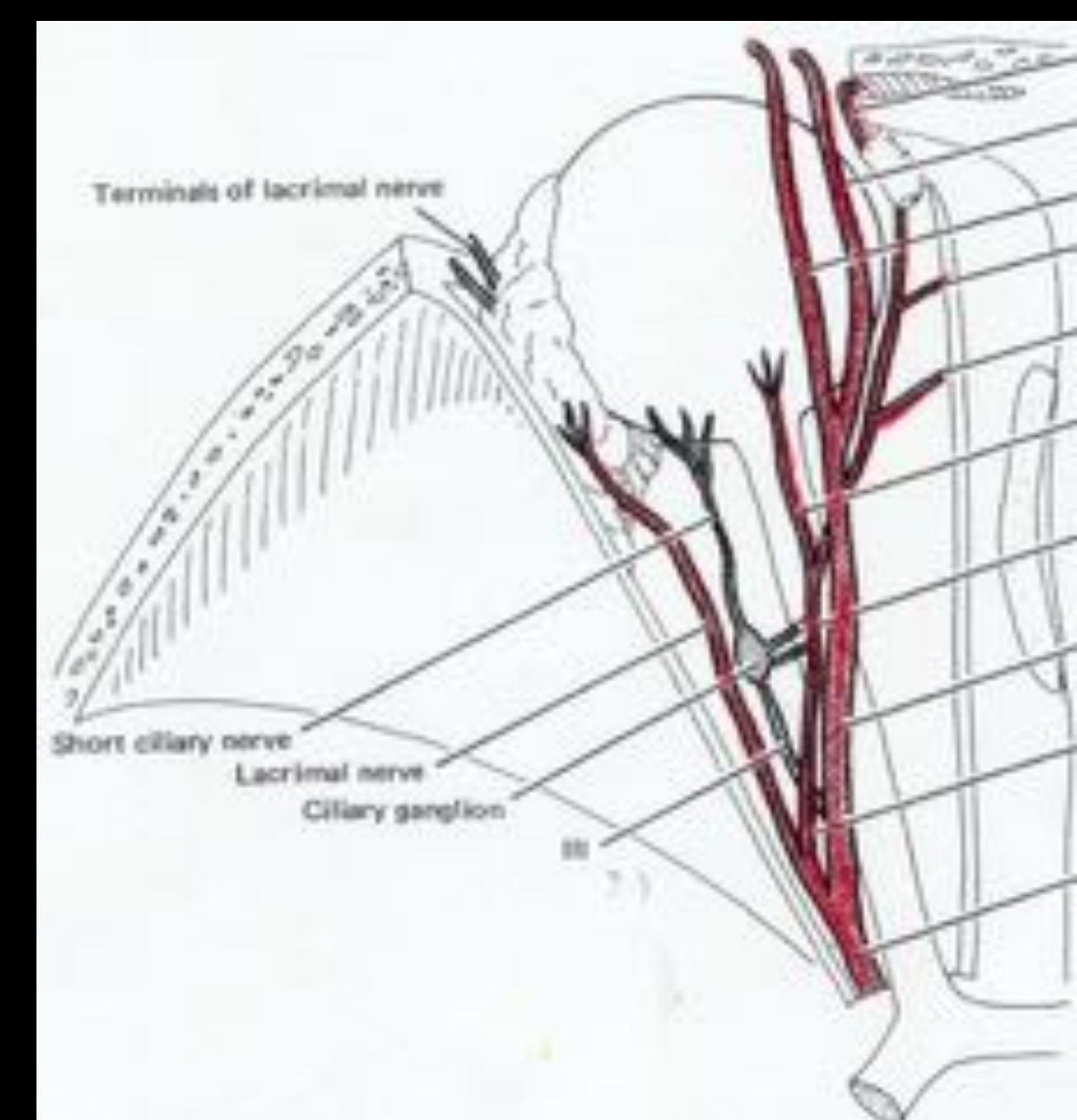
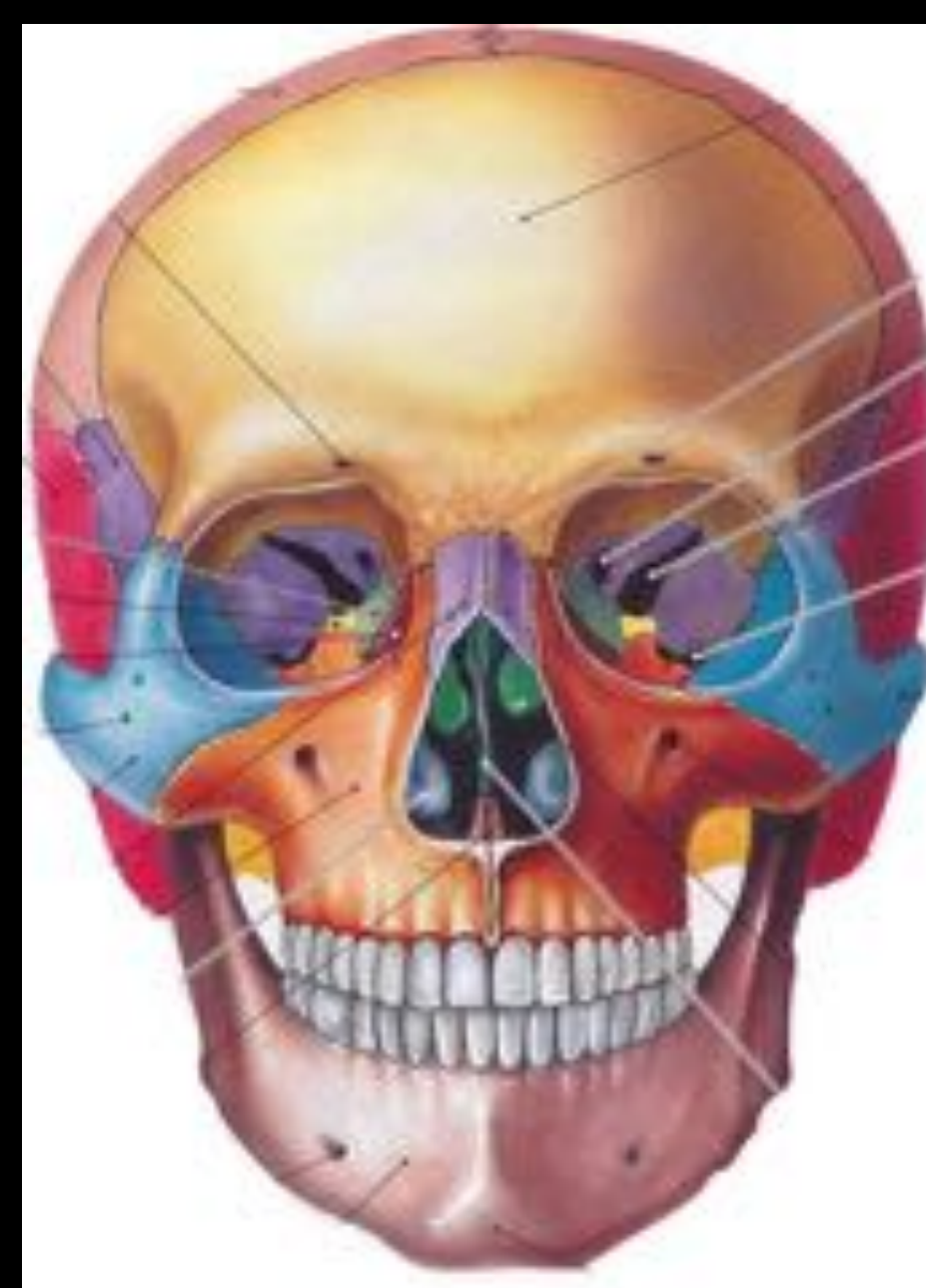
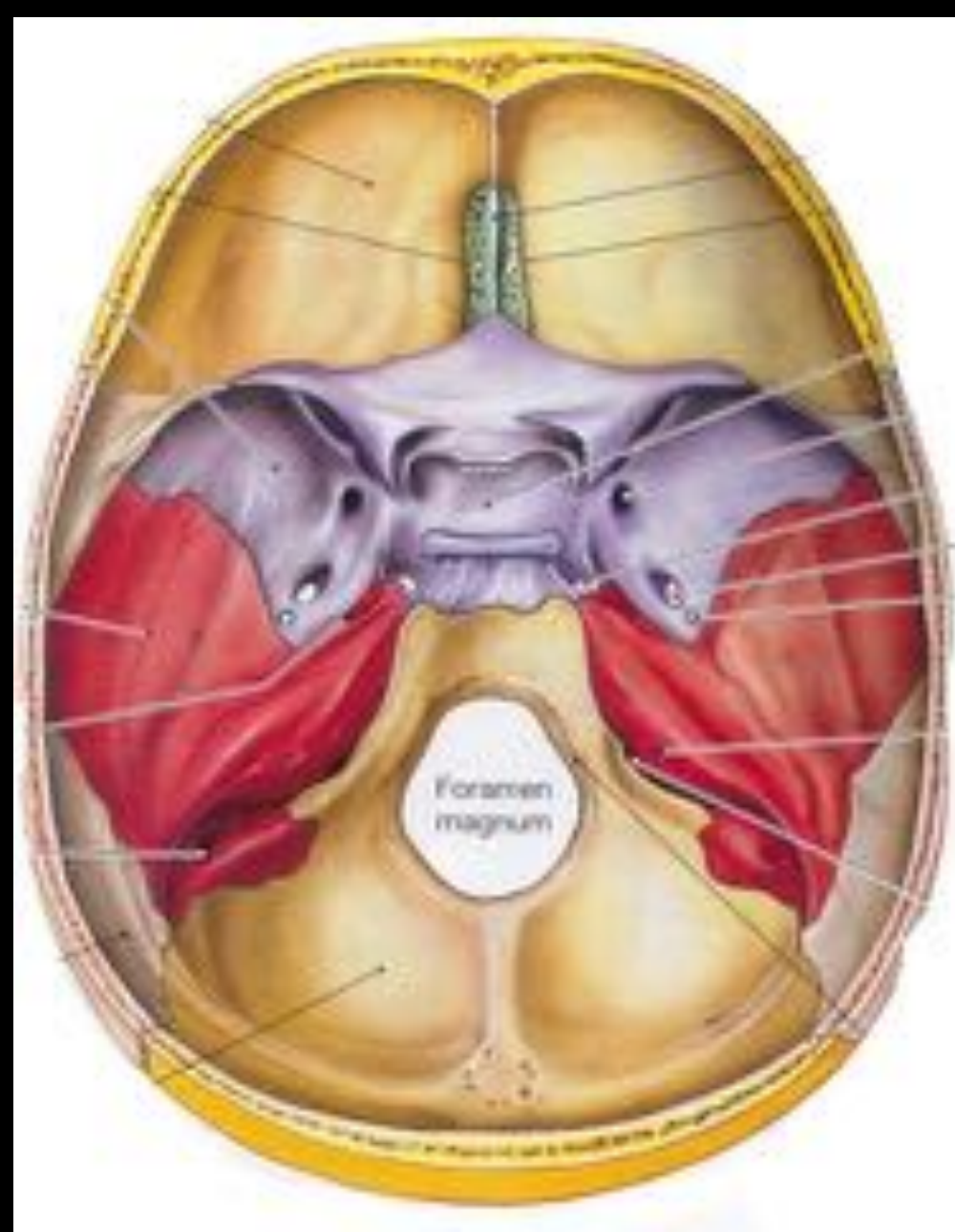
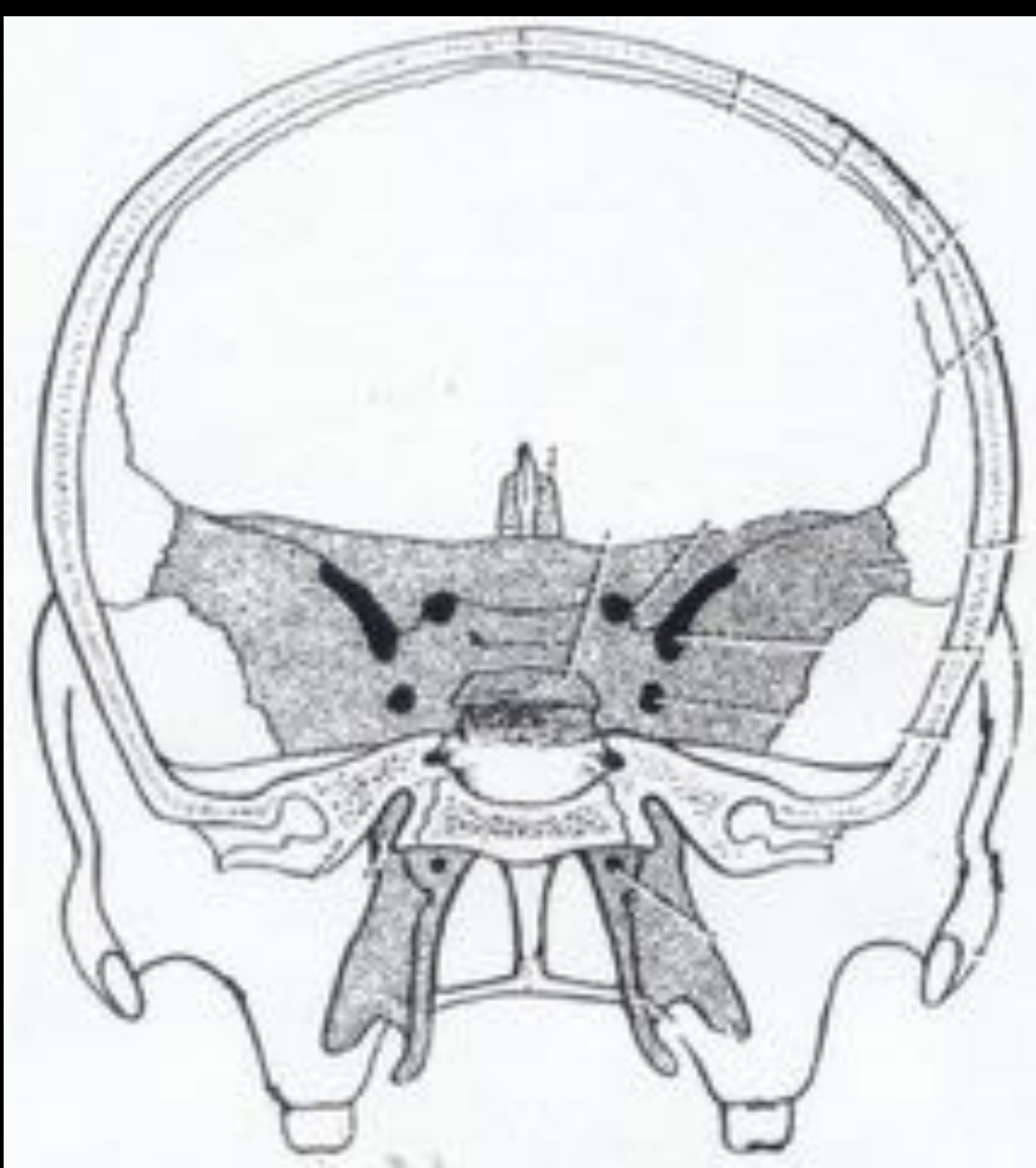
Jamison Spencer

- Foramen cecum: emissary vein
- Cribriform plate: olfactory nerves
- Optic canal: optic nerve
- Sup. Orbital fissure: oculomotor nerve (III), trochlear nerve (IV), Ophthalmic division of Trigeminal nerve (V1), Abducens nerve (VI)
- Foramen rotundum: Maxillary division of Trigeminal nerve (V2)
- Foramen ovale: Mandibular division of Trigeminal nerve (V3),



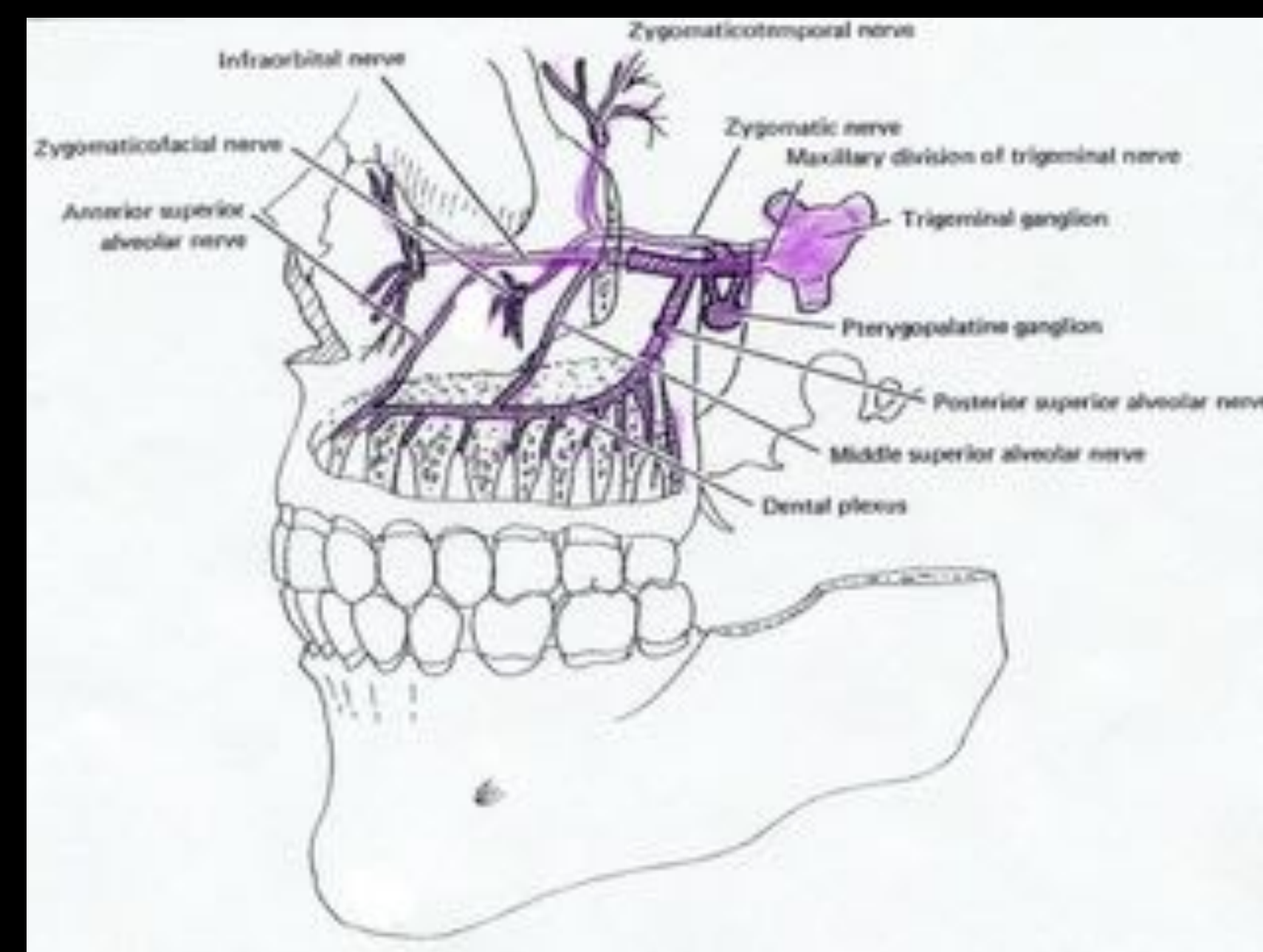
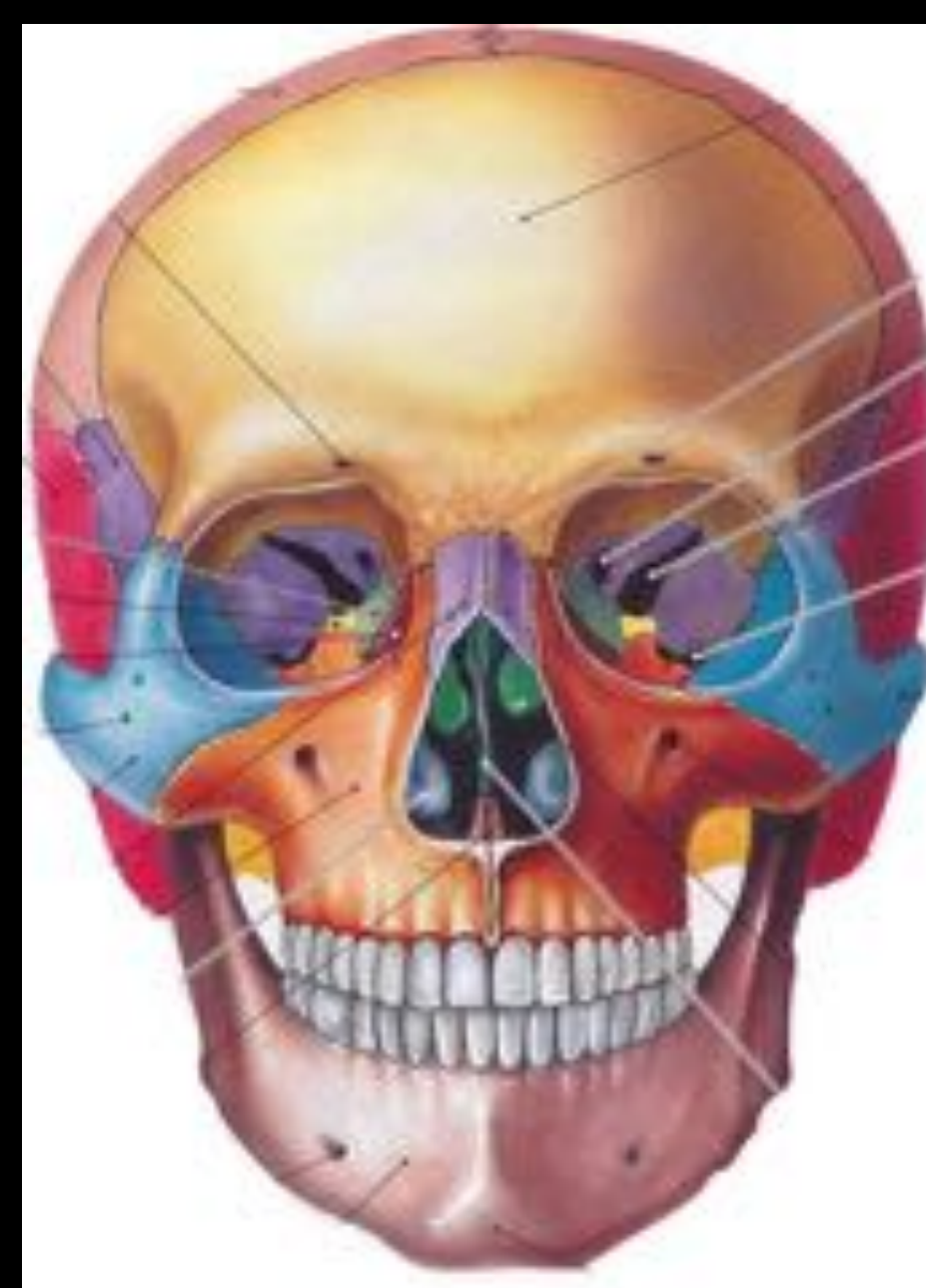
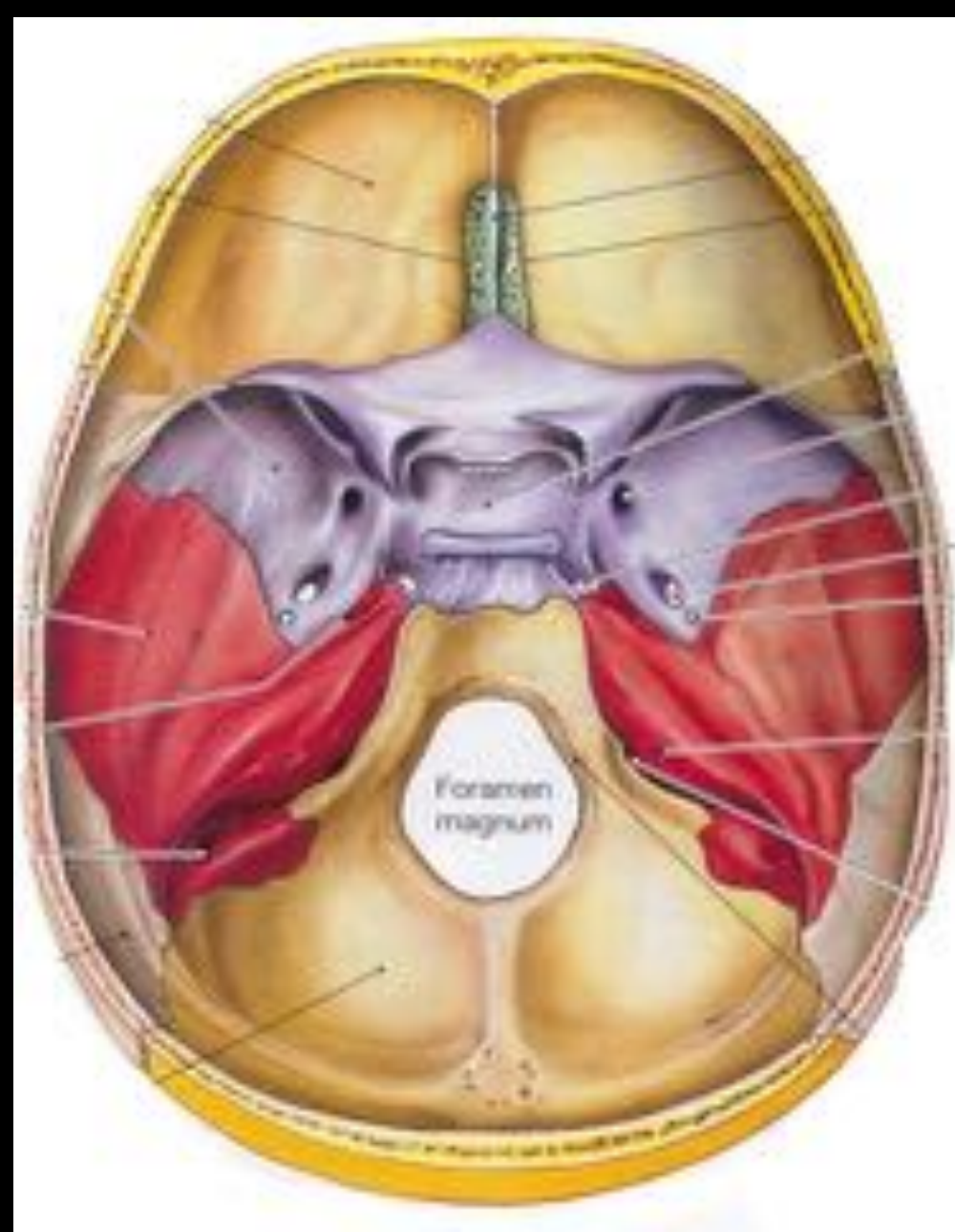
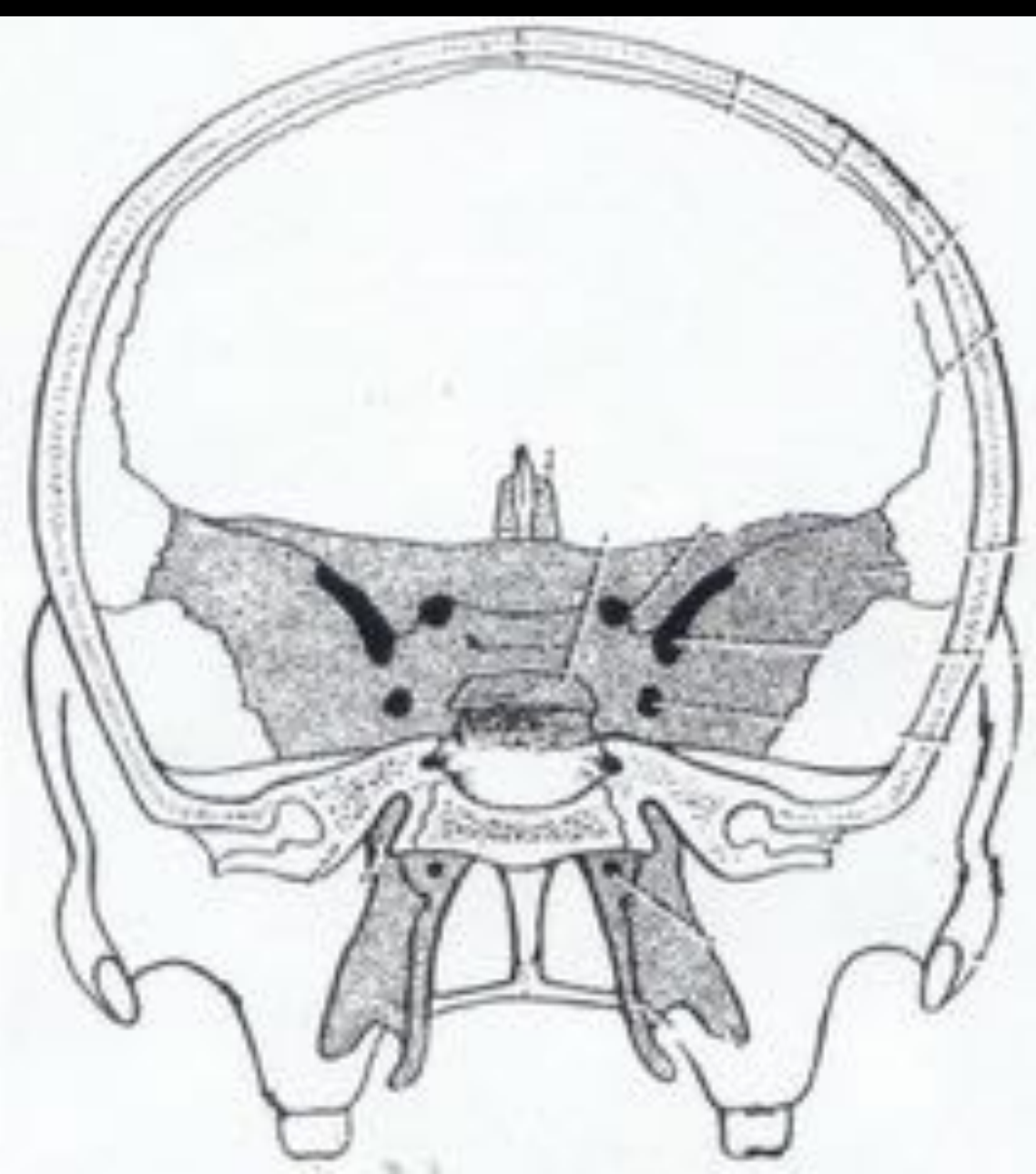
- Foramen spinosum: **Meningeal branch of V3**
- Foramen lacerum: greater petrosal nerve
- Carotid canal: int. carotid artery
- Internal acoustic meatus: Facial nerve (VII), Vestibulocochlear nerve (VIII)
- Jugular foramen: Glossopharyngeal nerve (IX), Vagus nerve (X), Accessory nerve (XI)
- Hypoglossal canal: Hypoglossal nerve (XII)





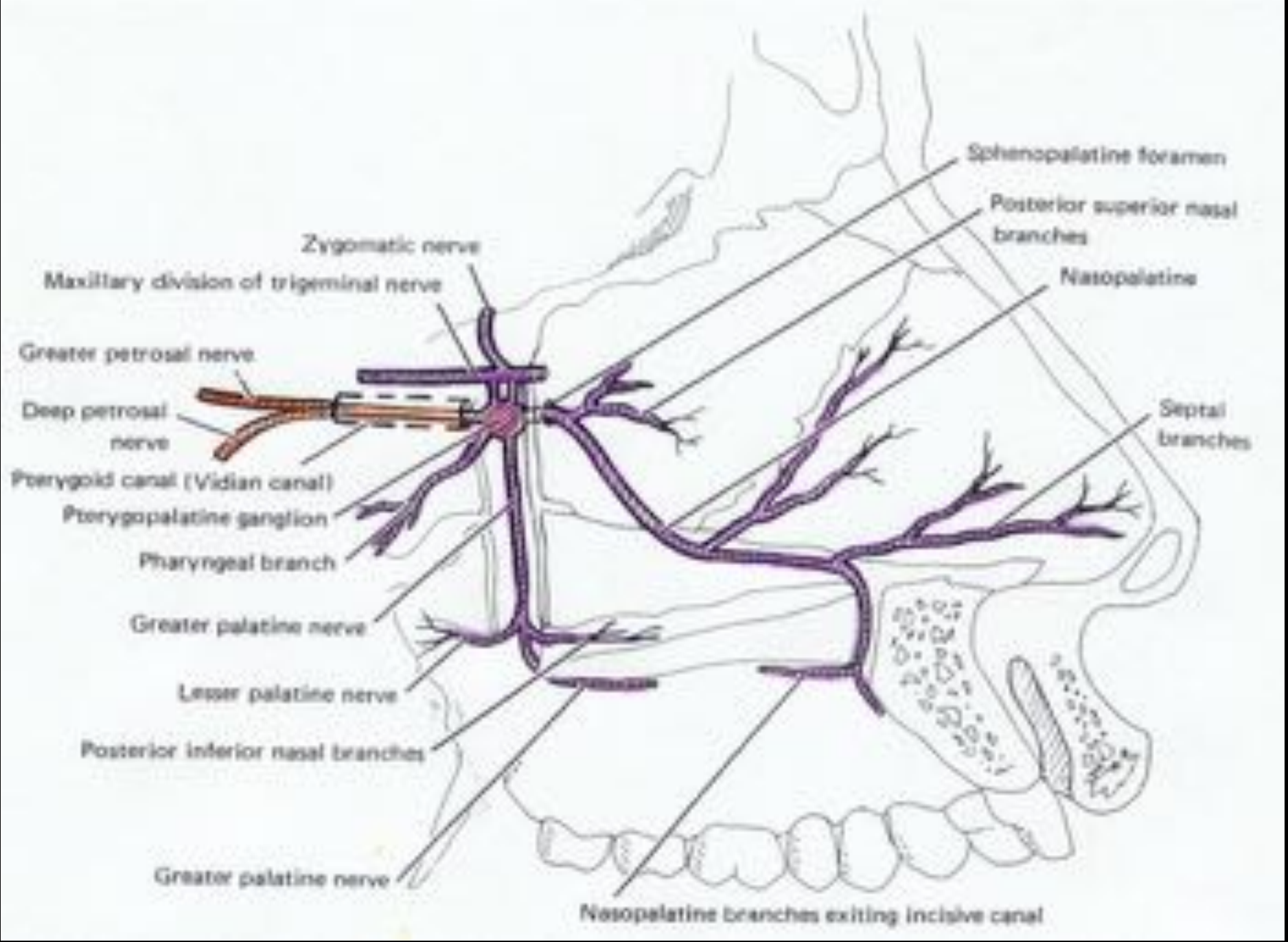
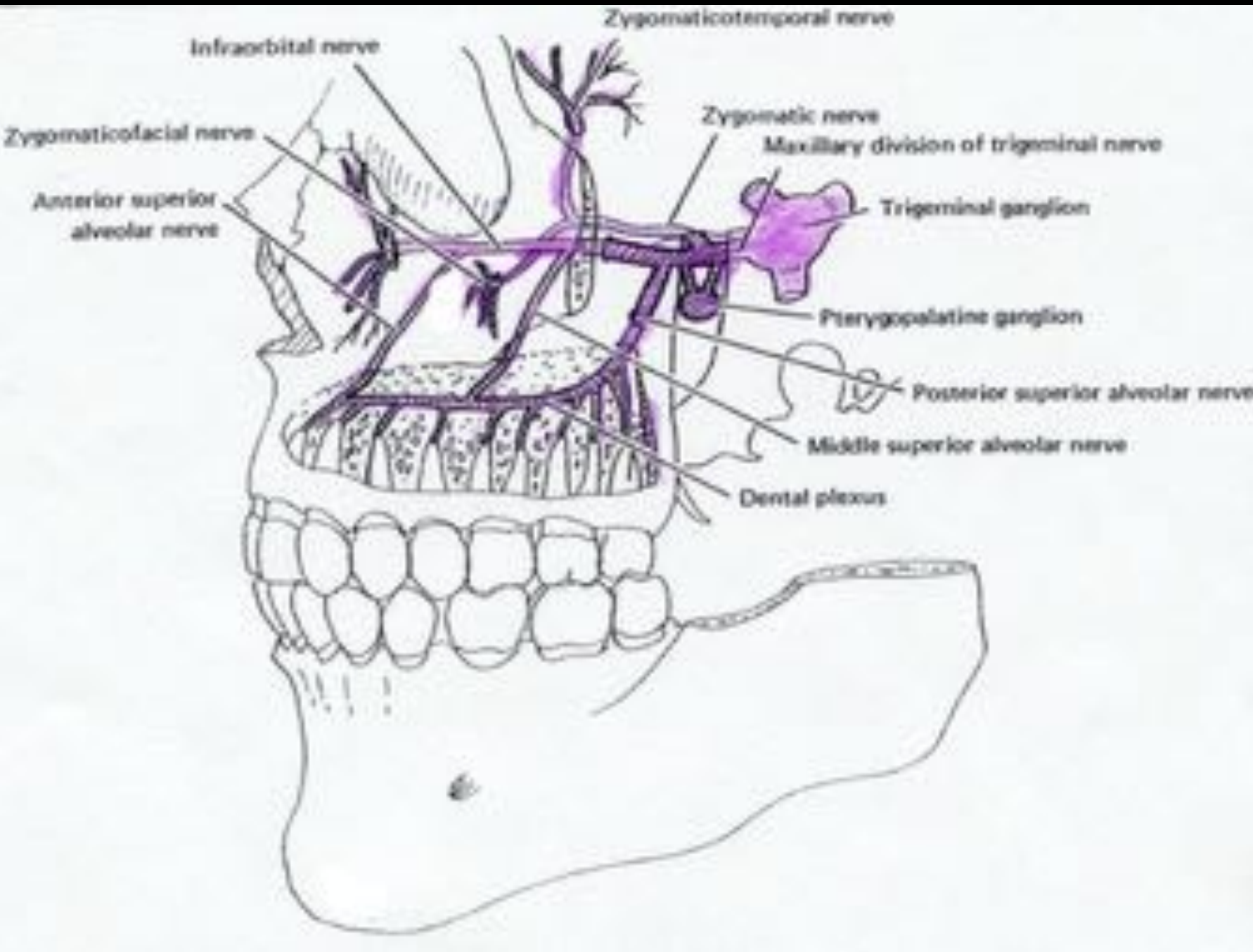
OPHTHALMIC DIVISION – TRIGEMINAL NERVE

Jamison Spencer



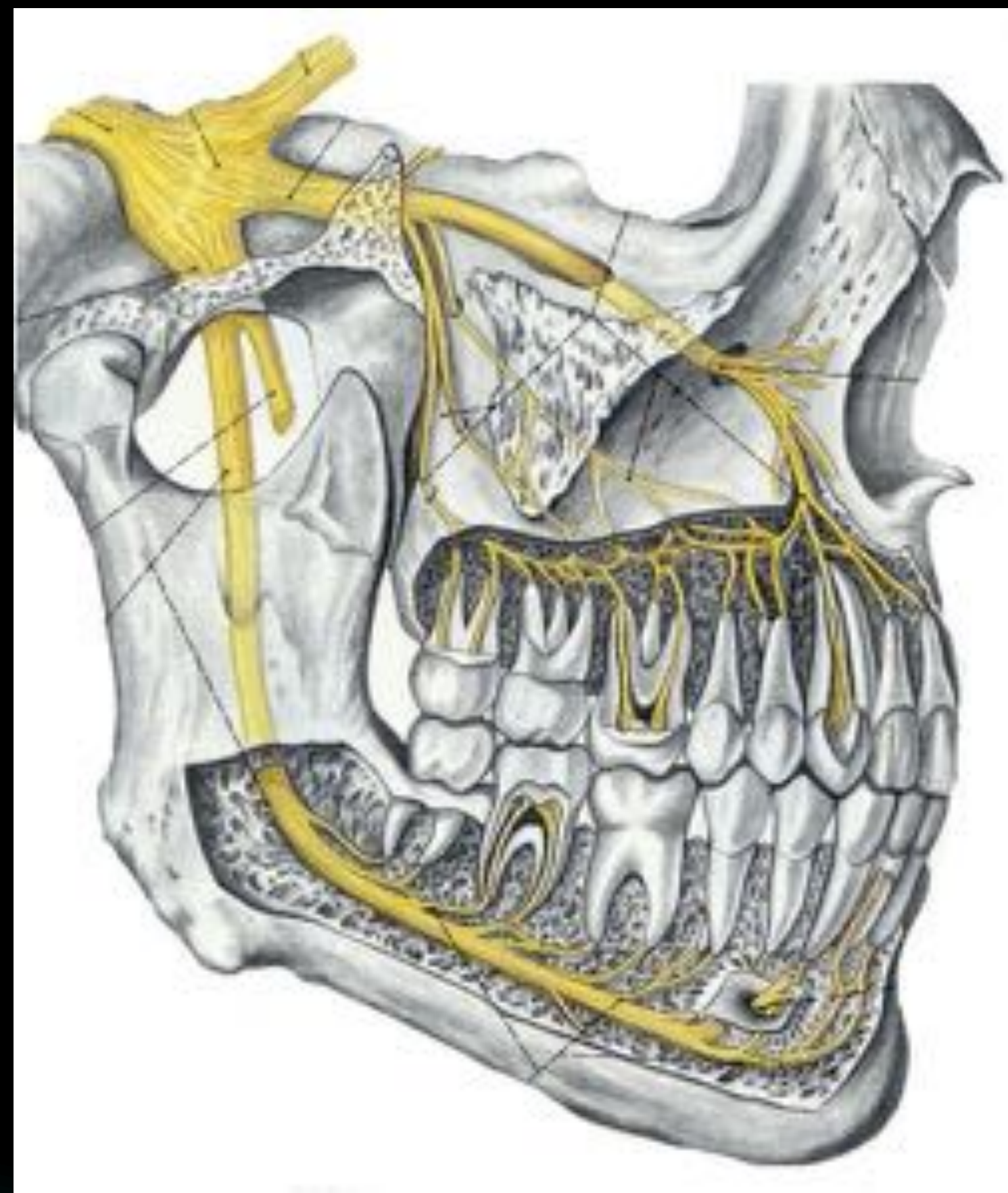
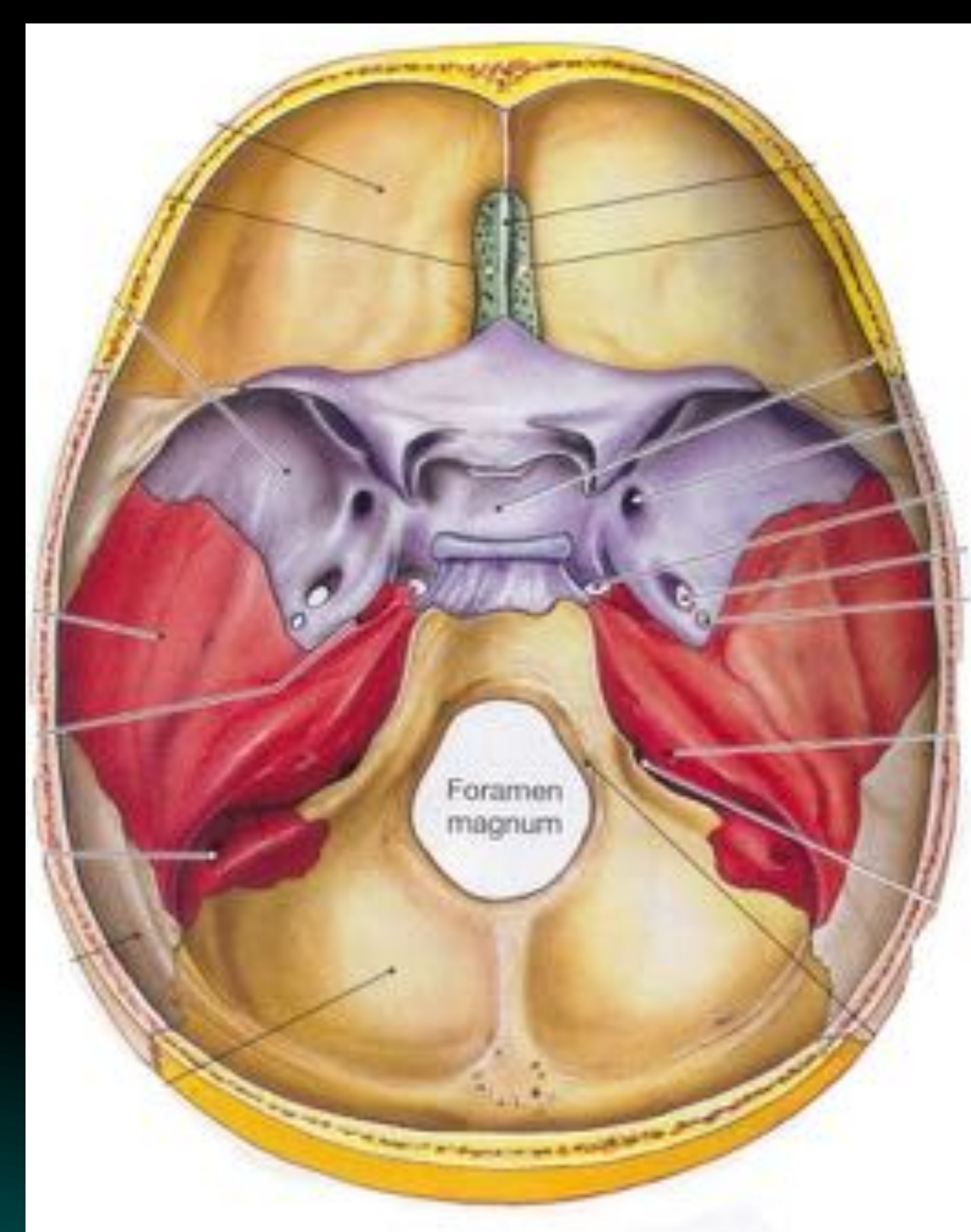
MAXILLARY DIVISION – TRIGEMINAL NERVE

Jamison Spencer



Pterygomaxillary fissure

Jamison Spencer



MANDIBULAR DIVISION – TRIGEMINAL NERVE

Jamison Spencer



Jamison Spencer



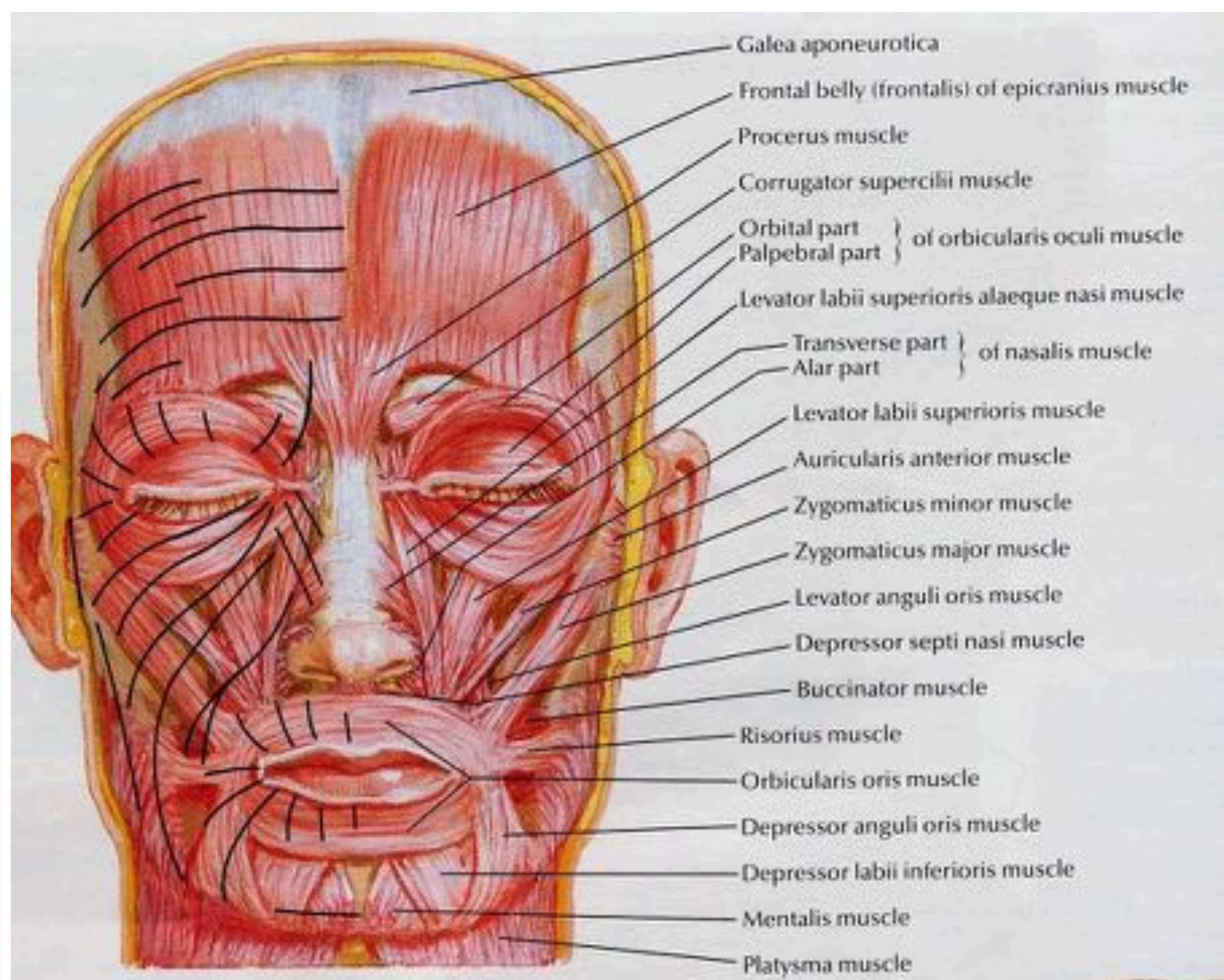
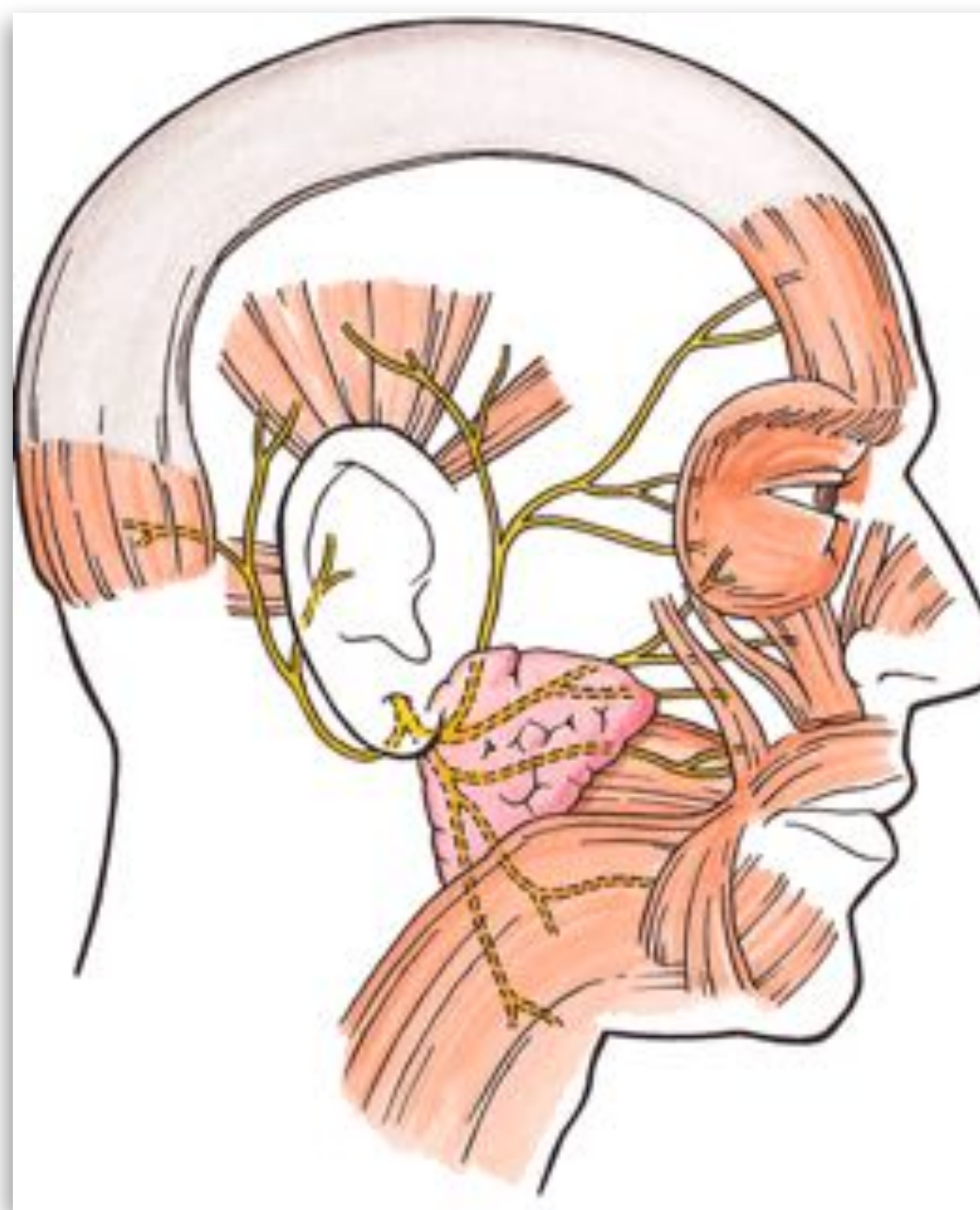
Jamison Spencer

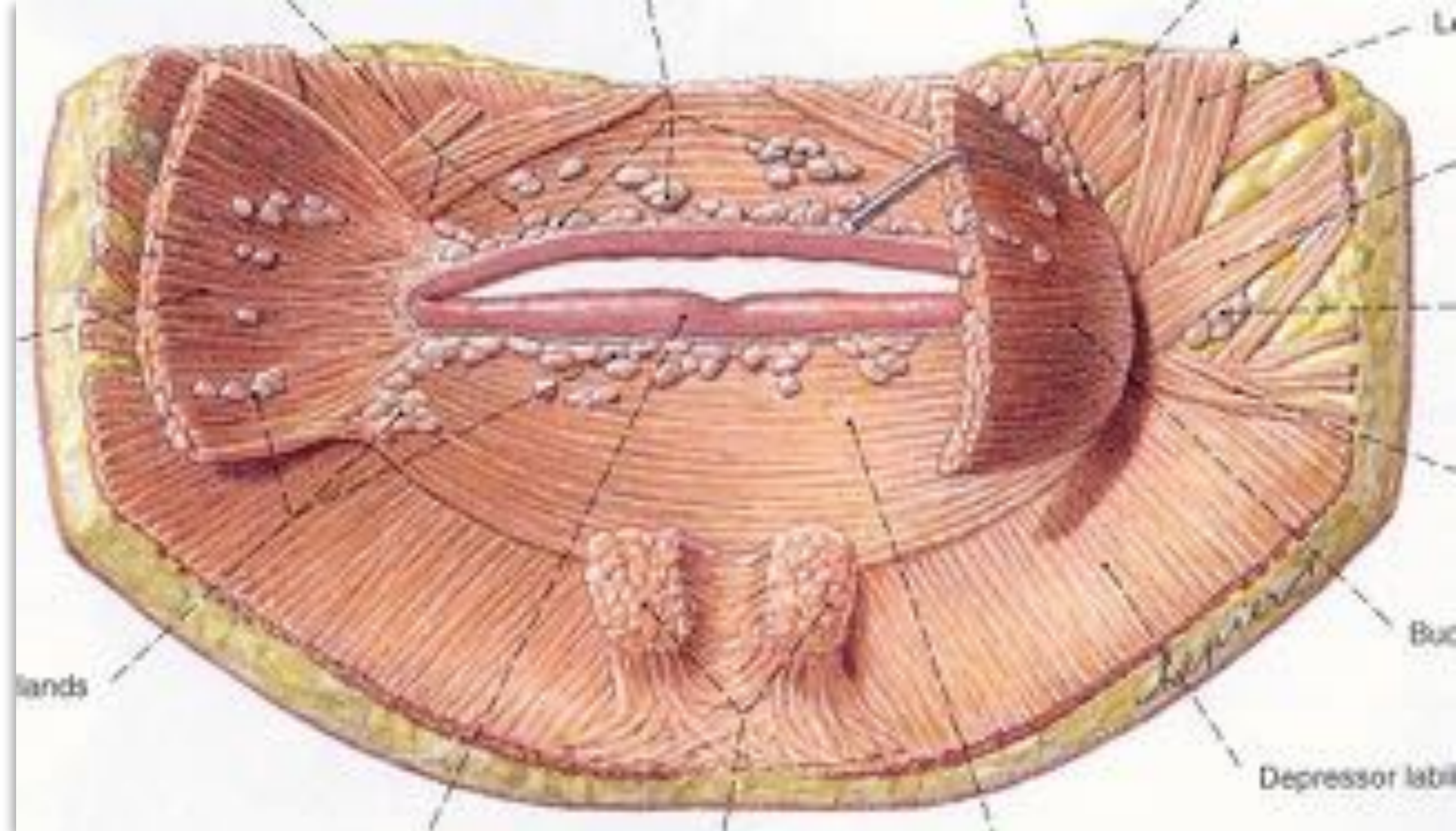
Muscles of the Head and Face

Jamison Spencer

Muscles: Rules of Innervation

- The muscles of facial expression are all innervated by the facial nerve, which also supplies the stapedius, stylohyoid and the posterior belly of the digastric.



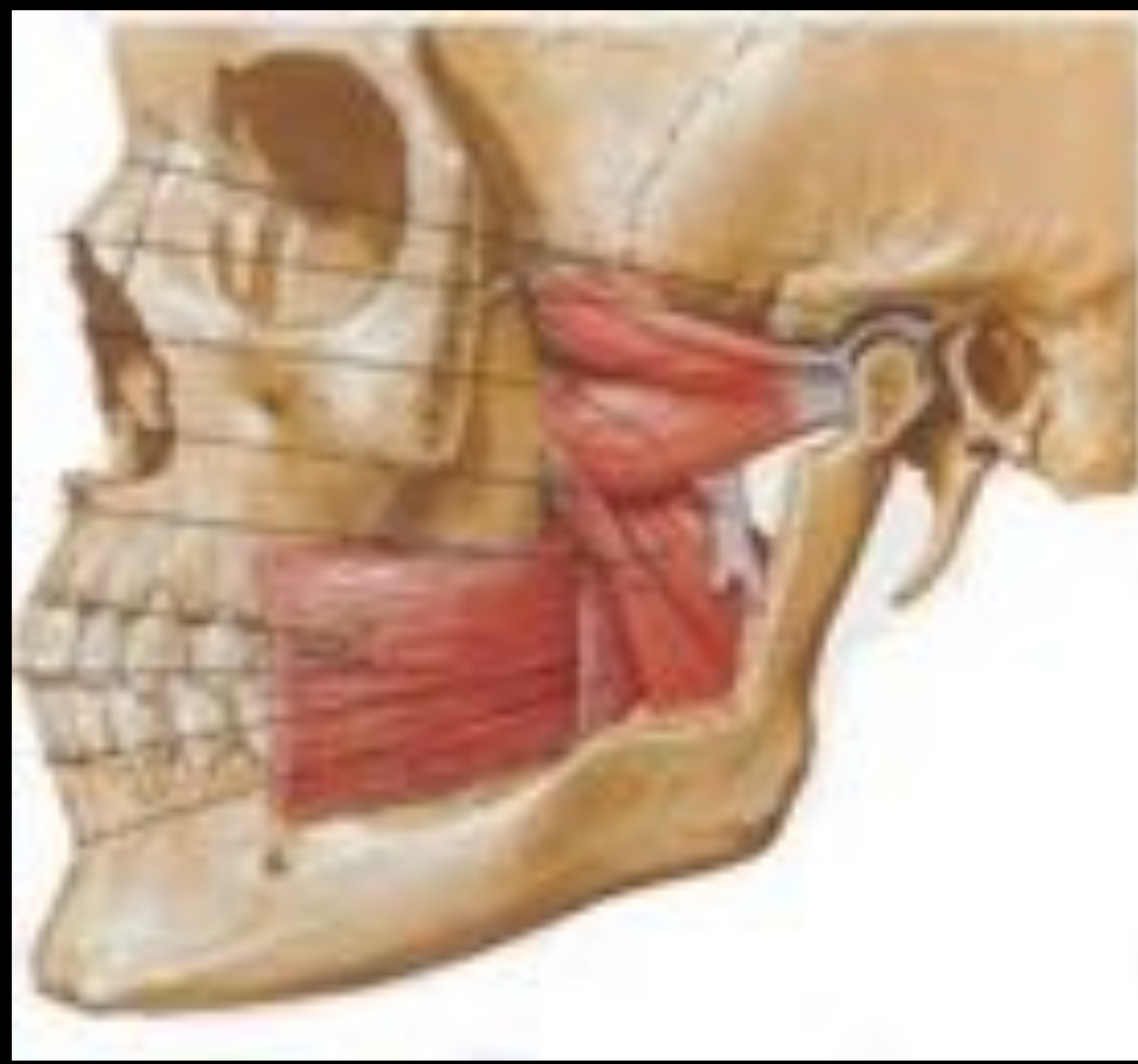


Muscles of Mastication

Jamison Spencer

Muscles: Rules of Innervation

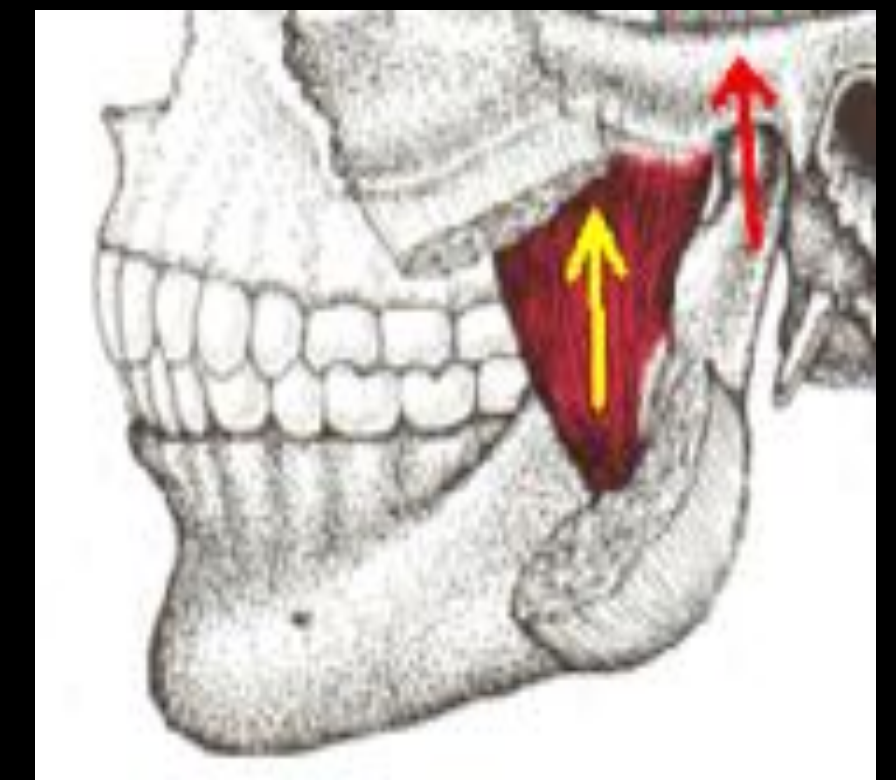
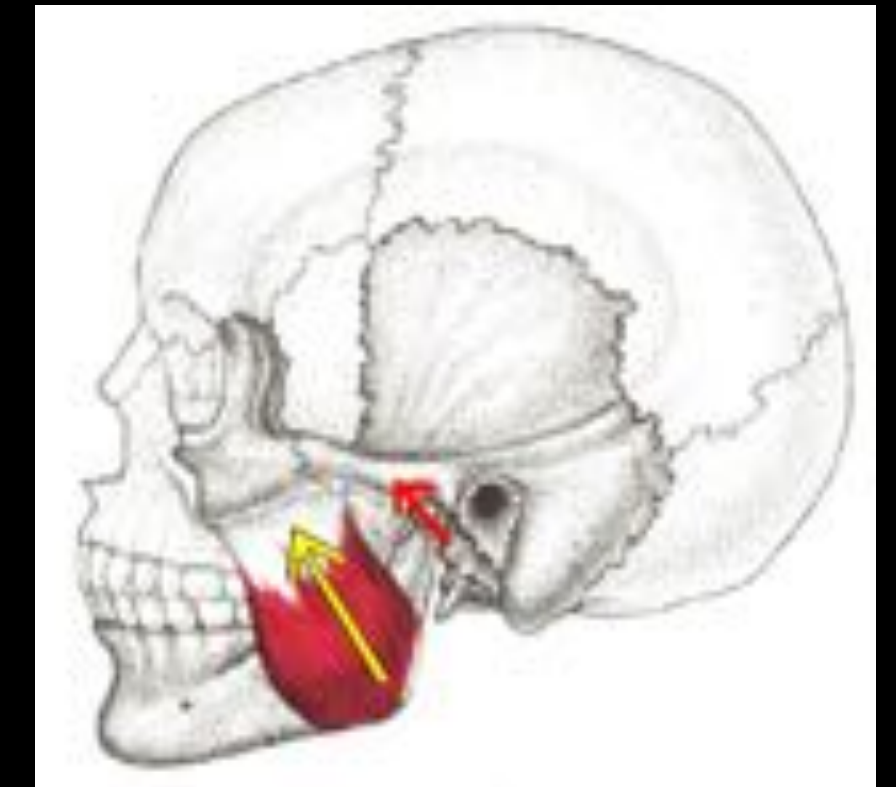
- The muscles of mastication are all innervated by the trigeminal nerve, which also supplies the tensor veli palatini, tensor veli tympani, the mylohyoid and the anterior belly of the digastric.



Jamison Spencer

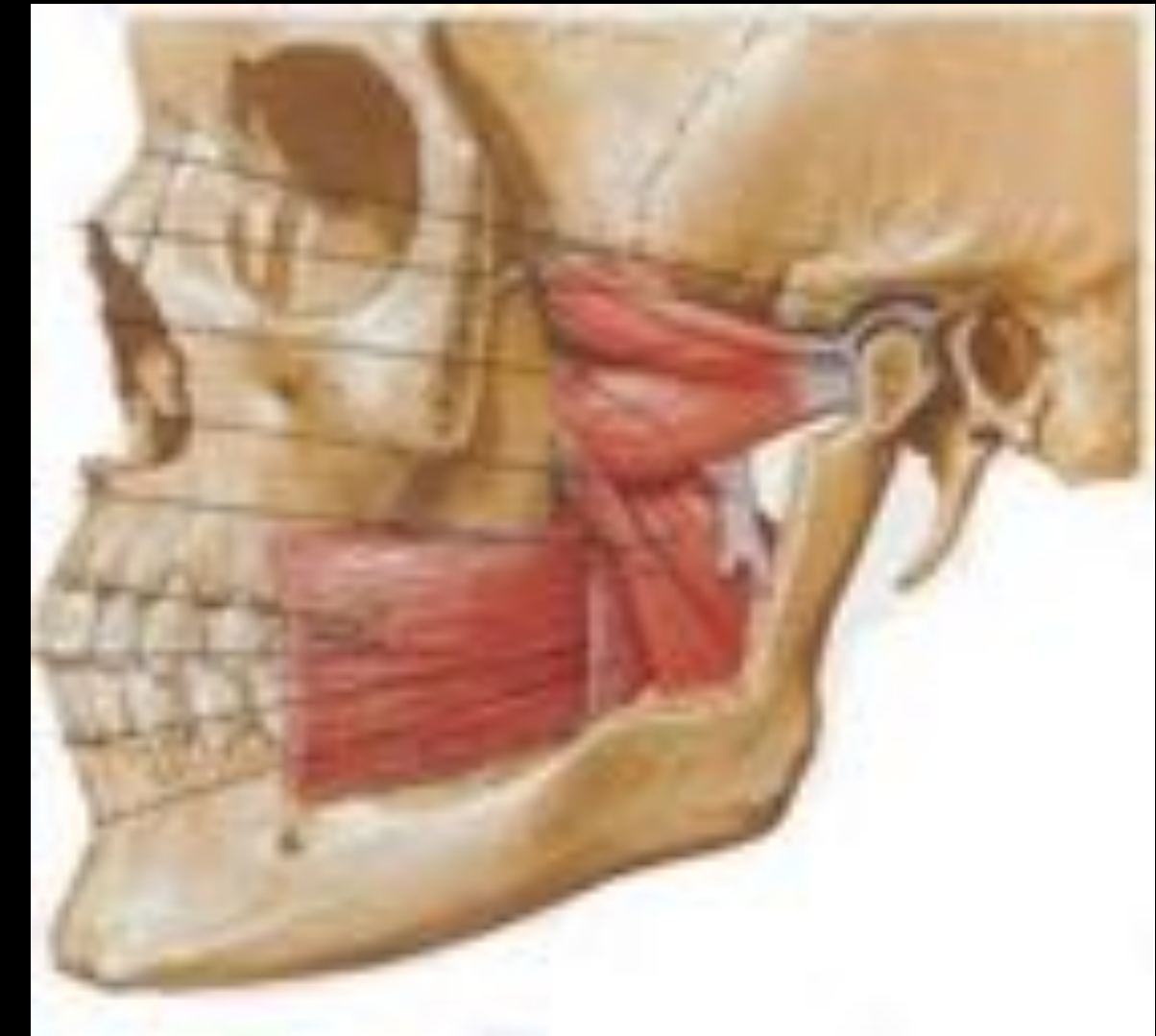
Muscles of Mastication

- Masseter
 - Origin: Zygomatic Arch
 - Insertion: Angle and Ramus
 - Innervation: Masseteric n.
 - Actions: Elevates the Mandible



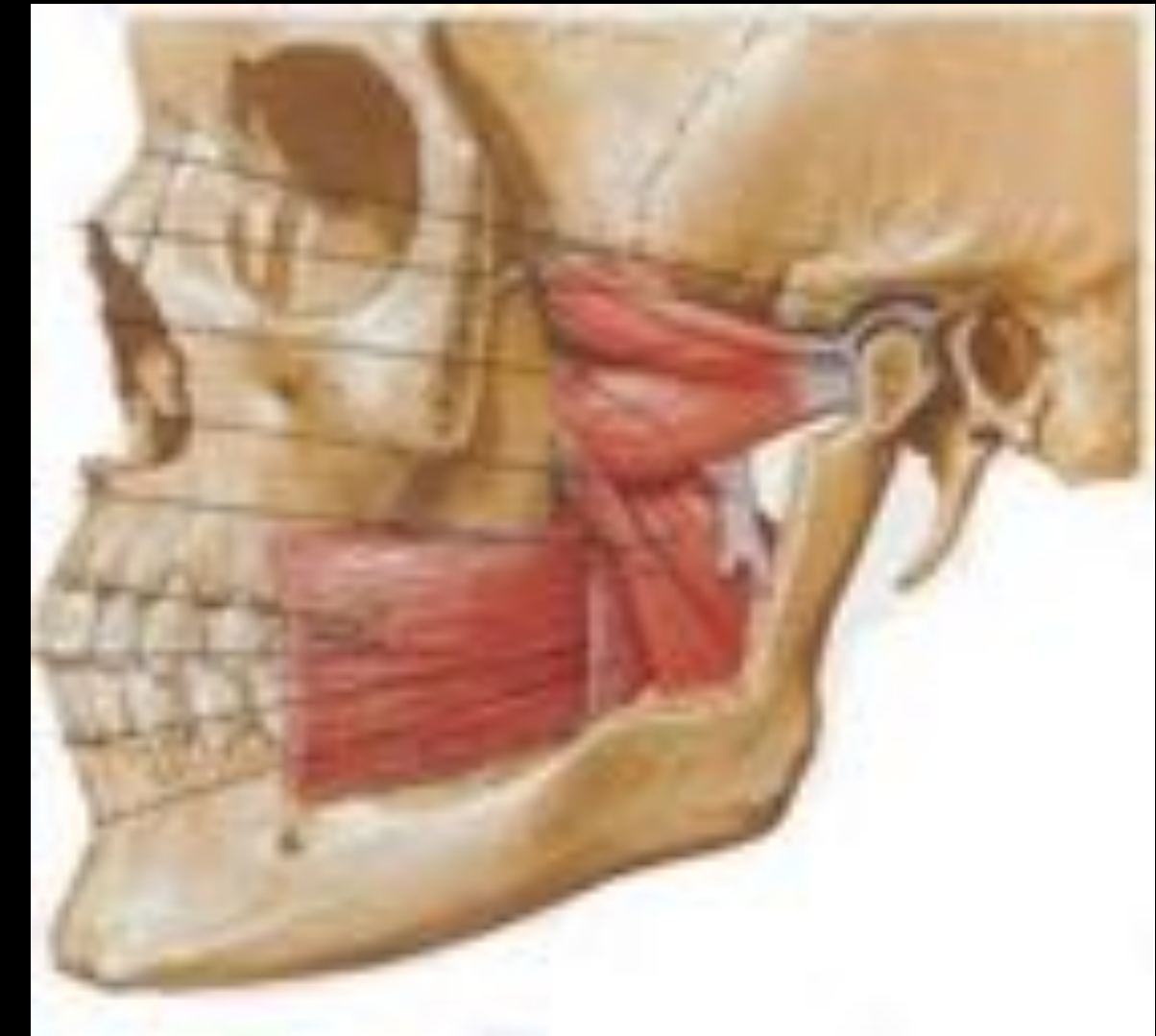
Muscles of Mastication

- Lateral Pterygoid: Inf. Belly
 - Origin: Lateral surface of the lateral pterygoid plate
 - Insertion: Condylar neck; joint capsule; articular disc
 - Innervation: Lateral pterygoid n.
 - Action: Depresses mandible (translation)



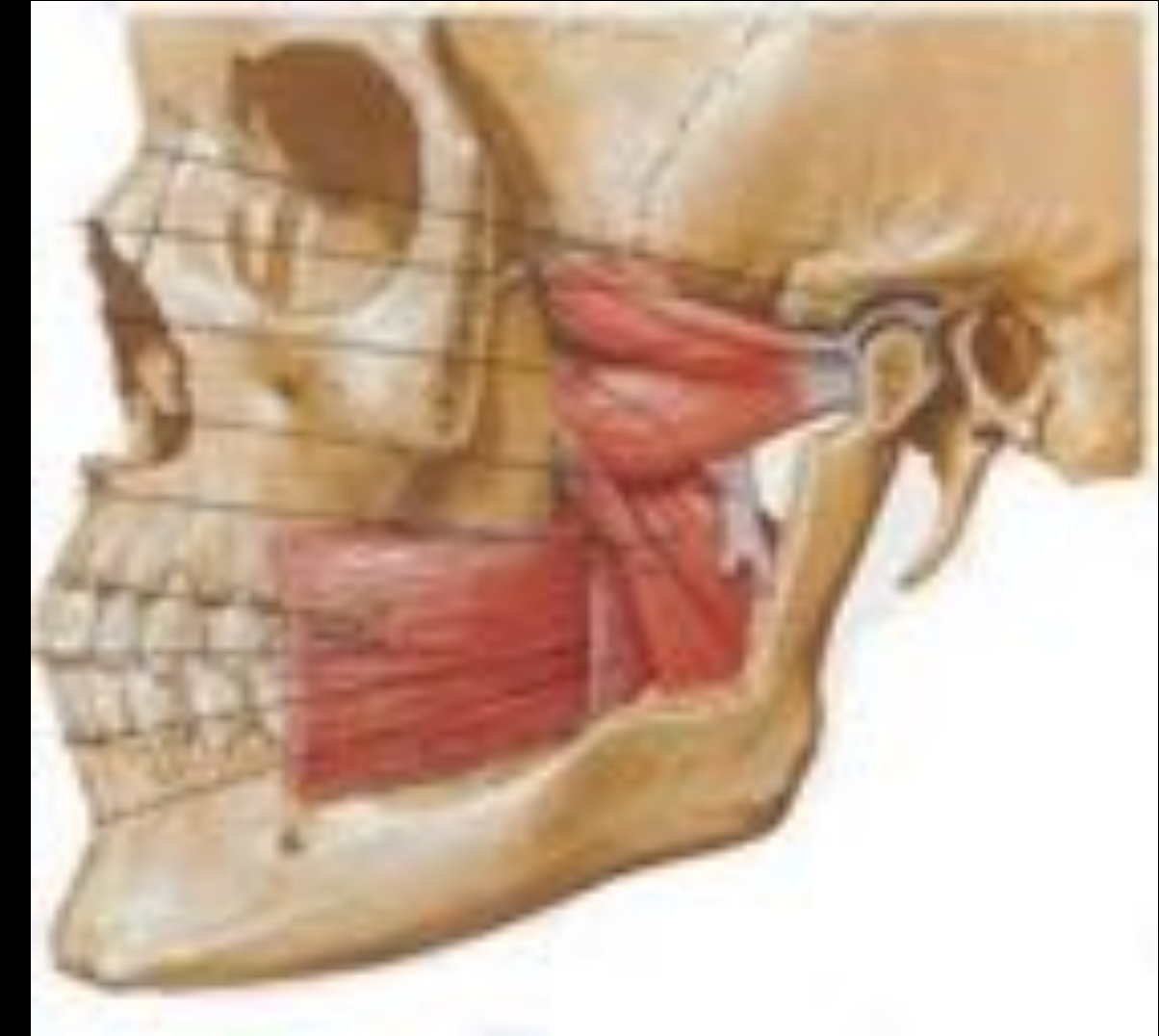
Muscles of Mastication

- Lateral Pterygoid: Sup. Belly
 - Origin: Inf. Surface of the greater wing of the sphenoid
 - Insertion: Articular disc; condylar head and joint capsule
 - Innervation: Lateral pterygoid n.
 - Actions: Maintains articular disc position during condylar rest and movement.



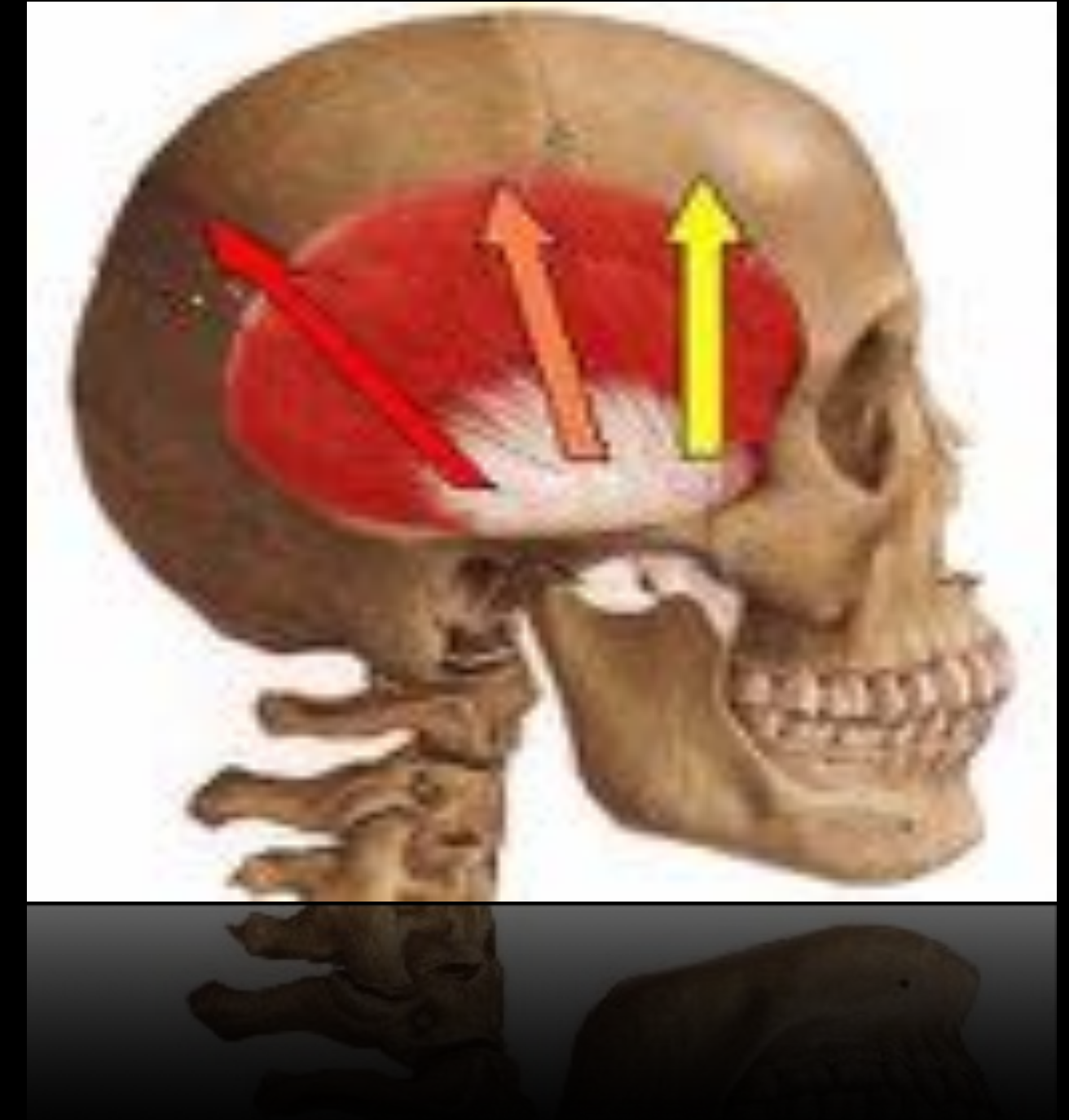
Muscles of Mastication

- Medial Pterygoid
 - Origin: Medial surface of the lateral pterygoid plate
 - Insertion: Medial surface of the mandible
 - Innervation: Medial pterygoid n.
 - Actions: Protrudes the mandible, elevates the mandible



Muscles of Mastication

- Temporalis
 - Origin: Temporal fossa
 - Insertion: Coronoid process of the mandible
 - Innervation: Temporalis n.
 - Actions: Elevates the mandible and retrudes

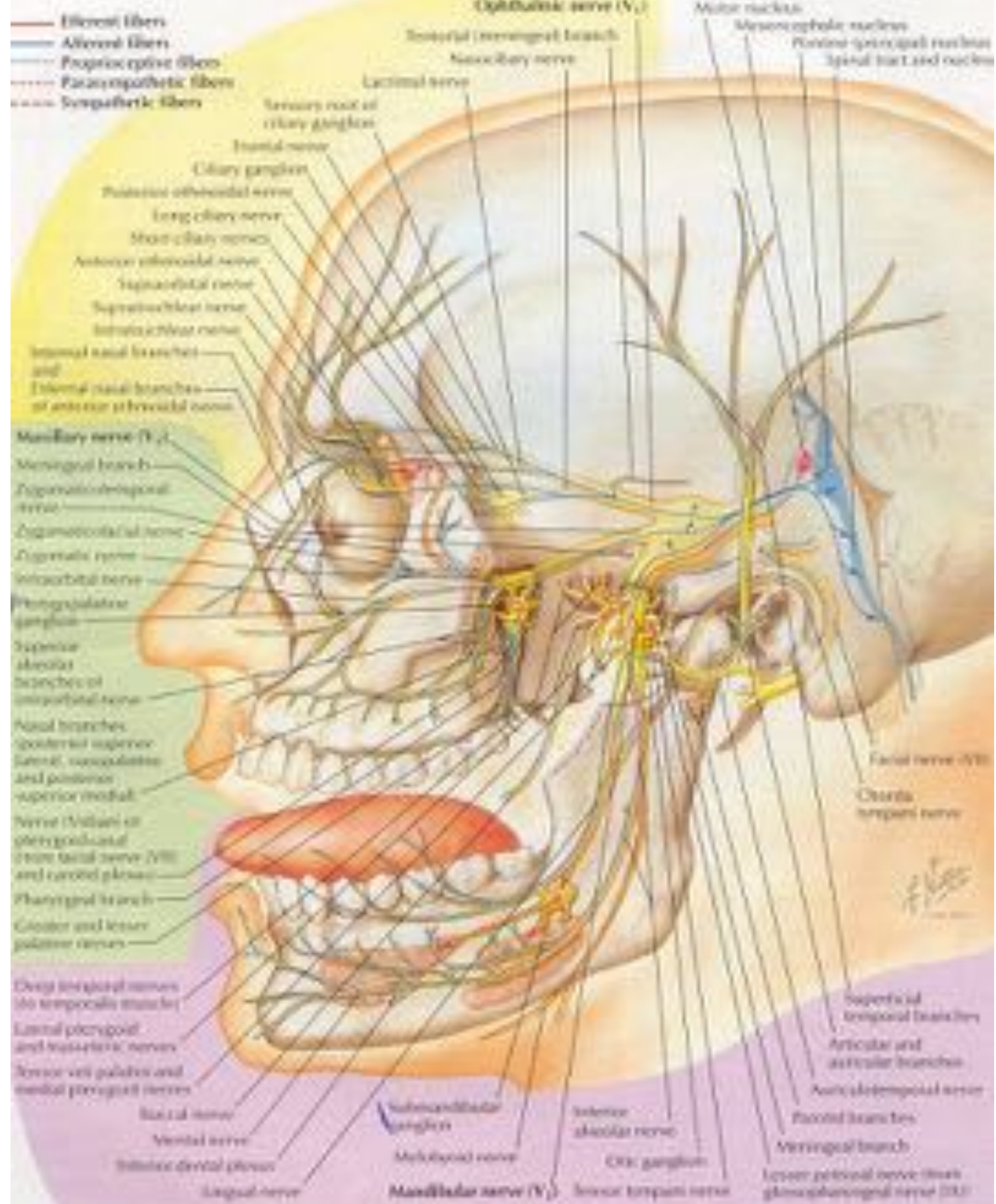


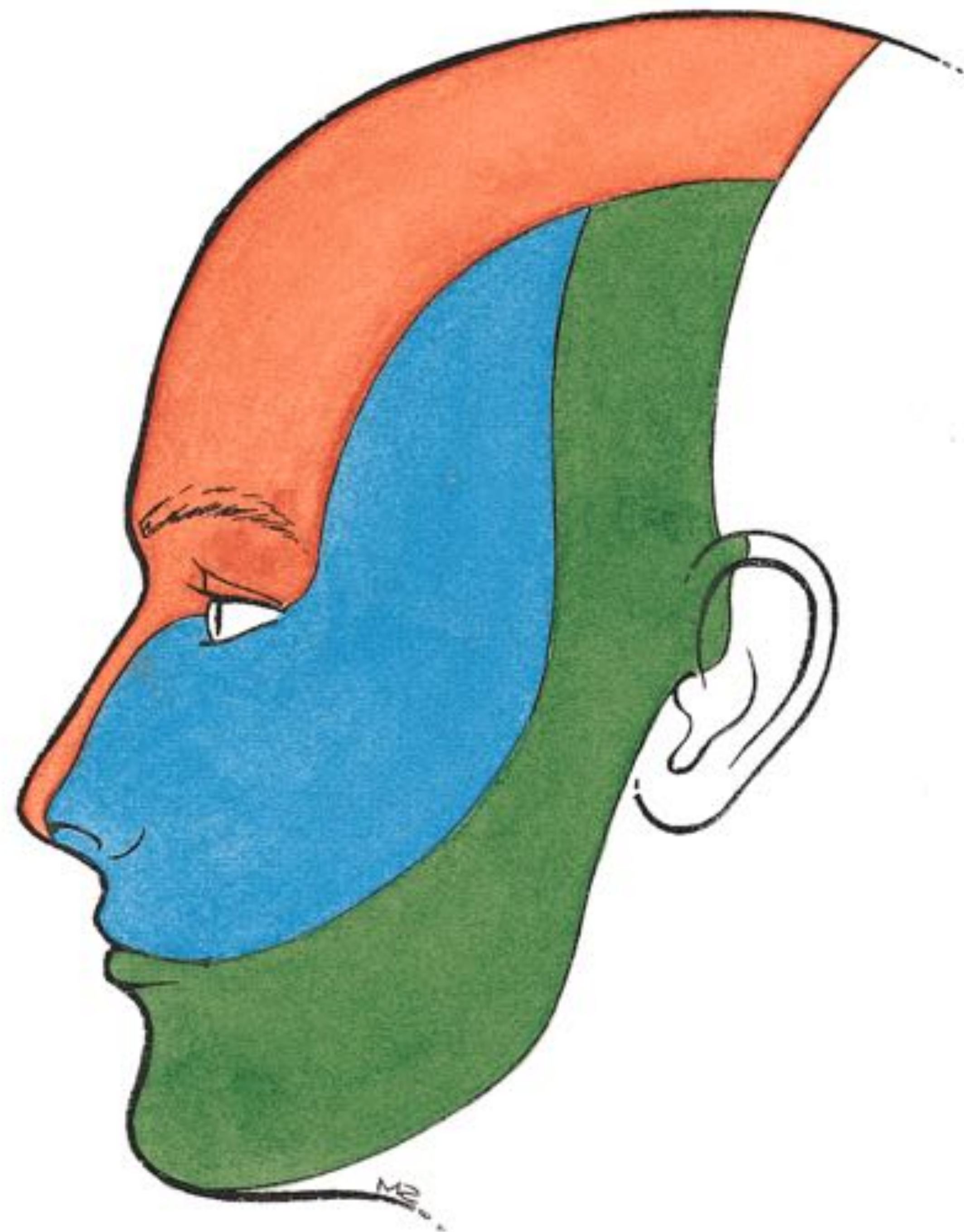
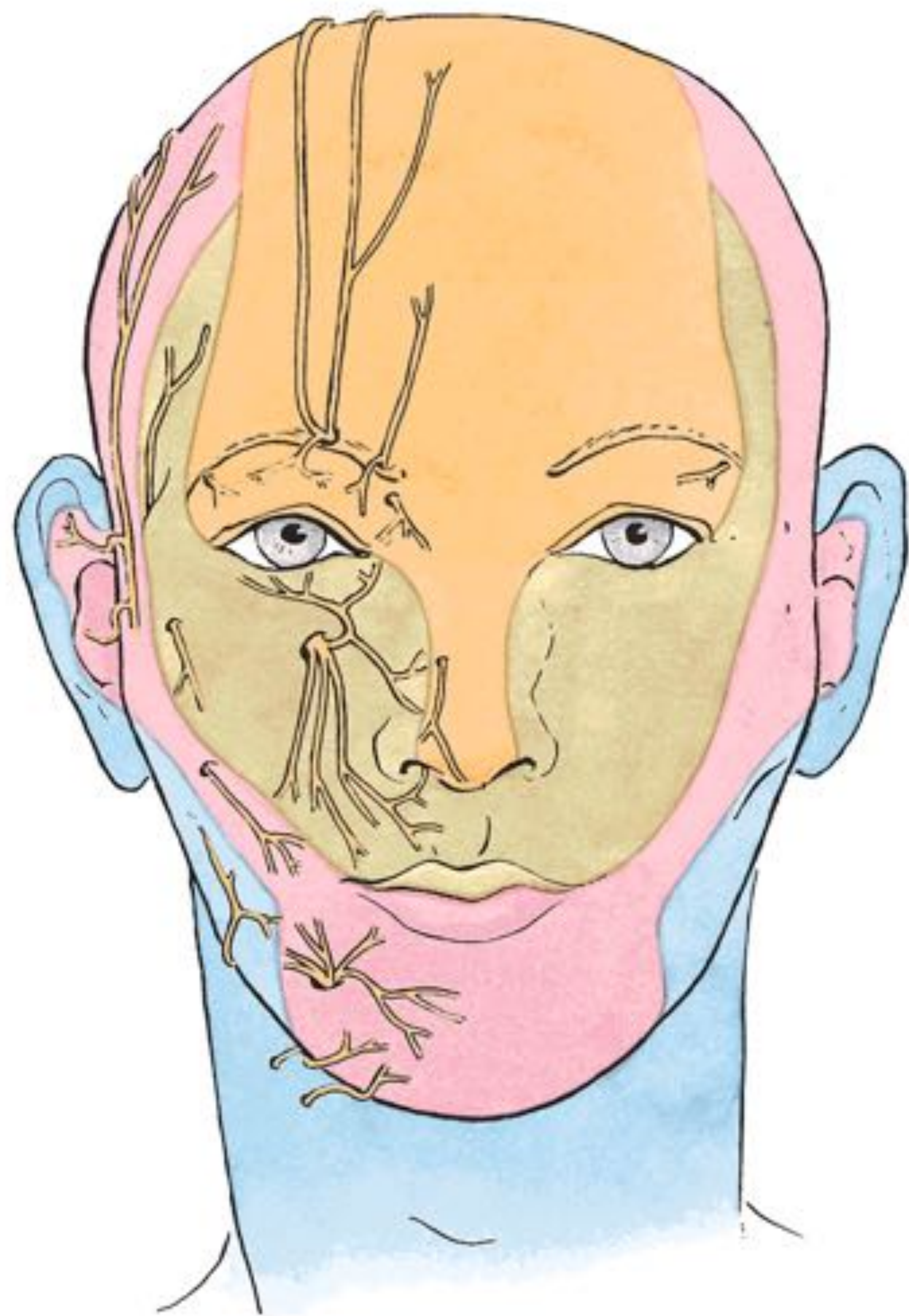
The Trigeminal Nerve

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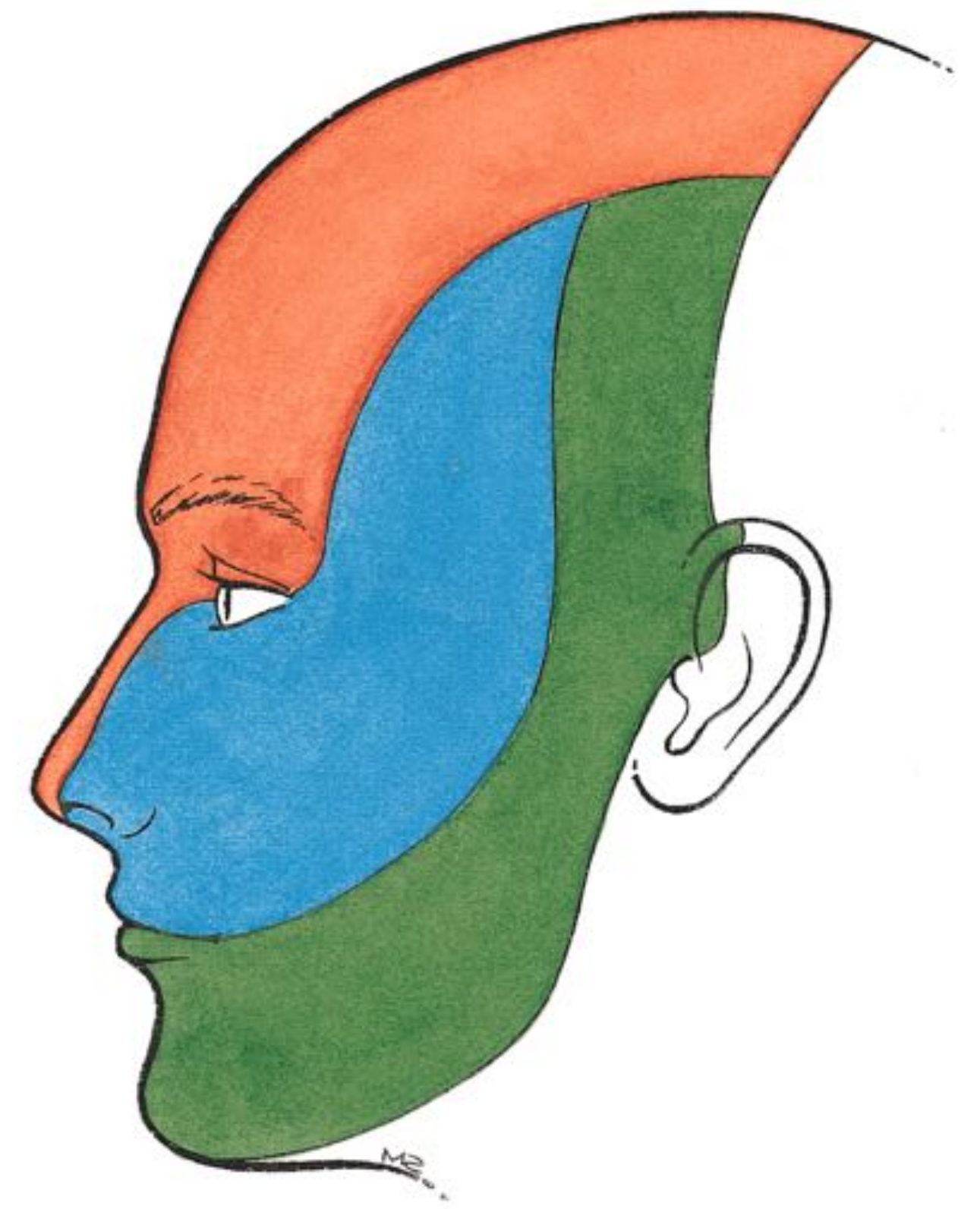
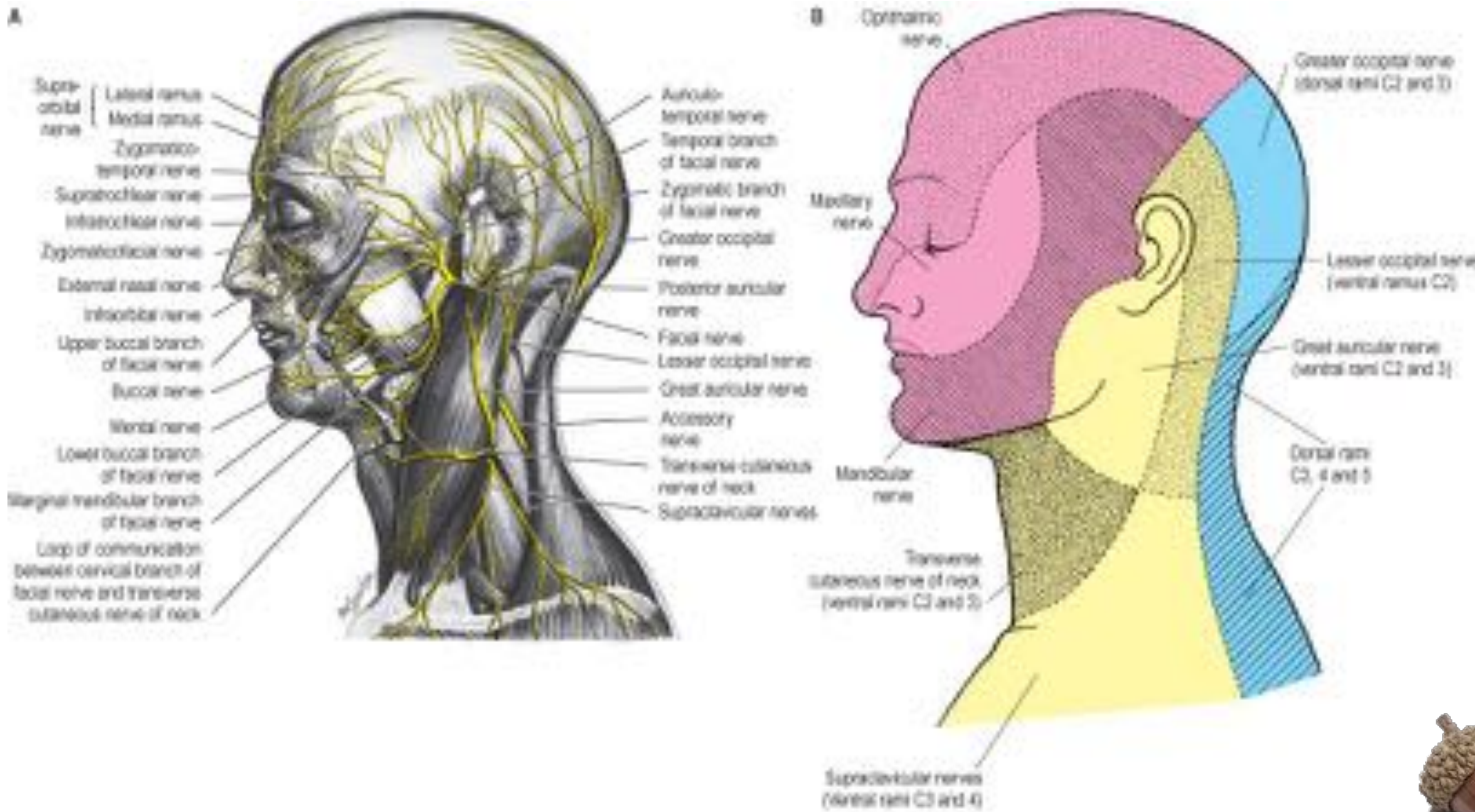
Trigeminal Nerve: Schema

SEE ALSO PLATES 38, 37, 38, 40, 43, 333





Cutaneous Nerves of the Head and Neck



The Temporomandibular Joint

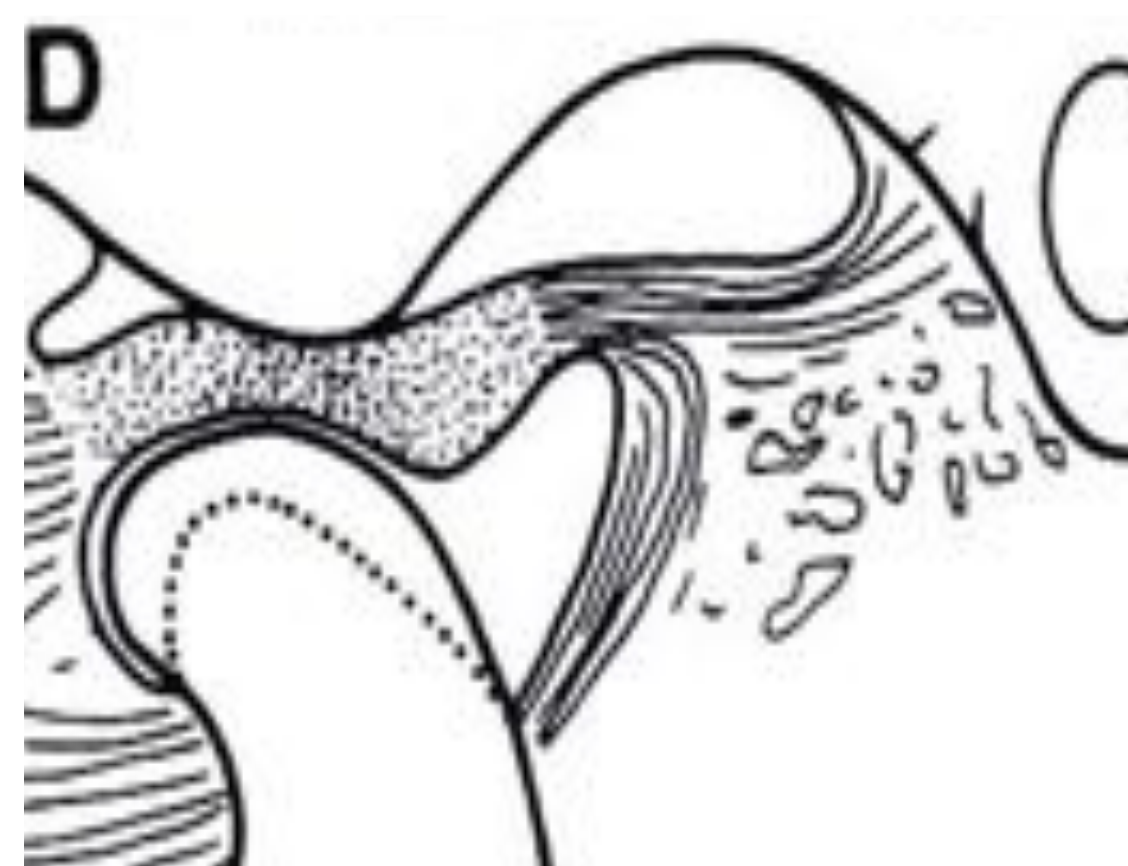
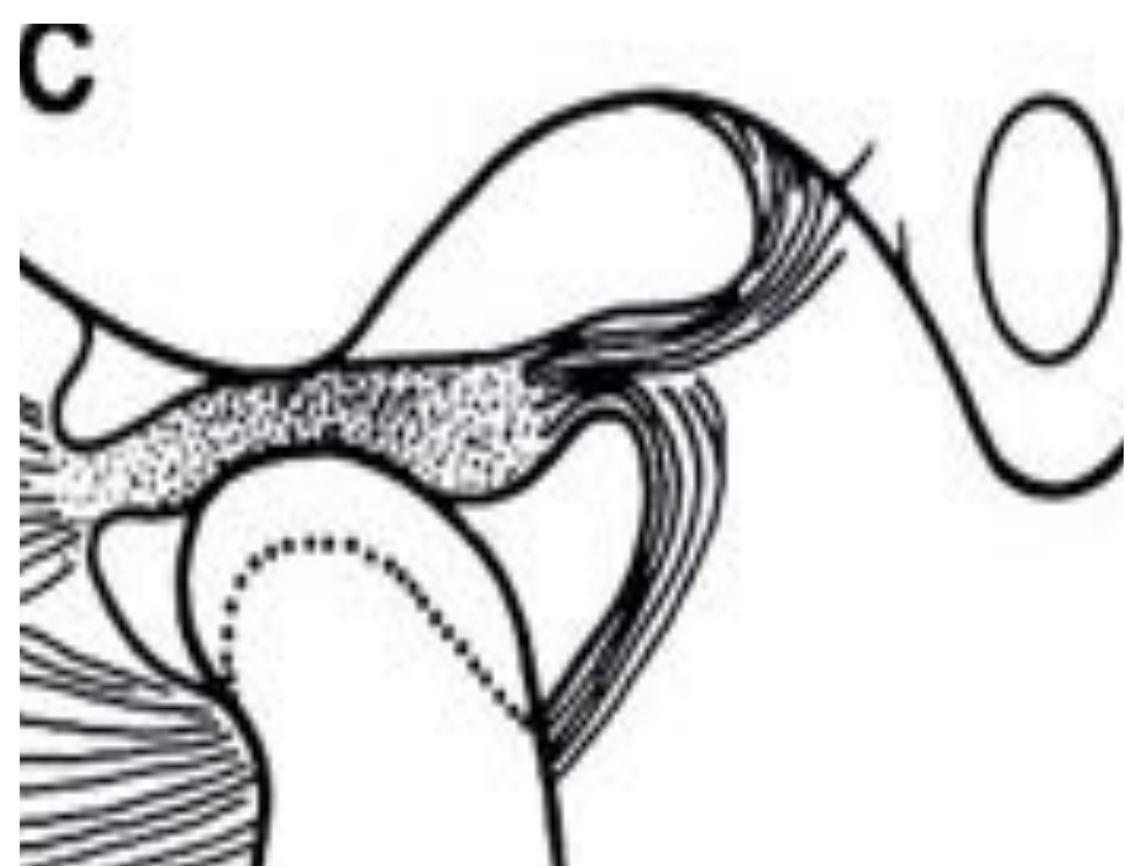
Jamison Spencer

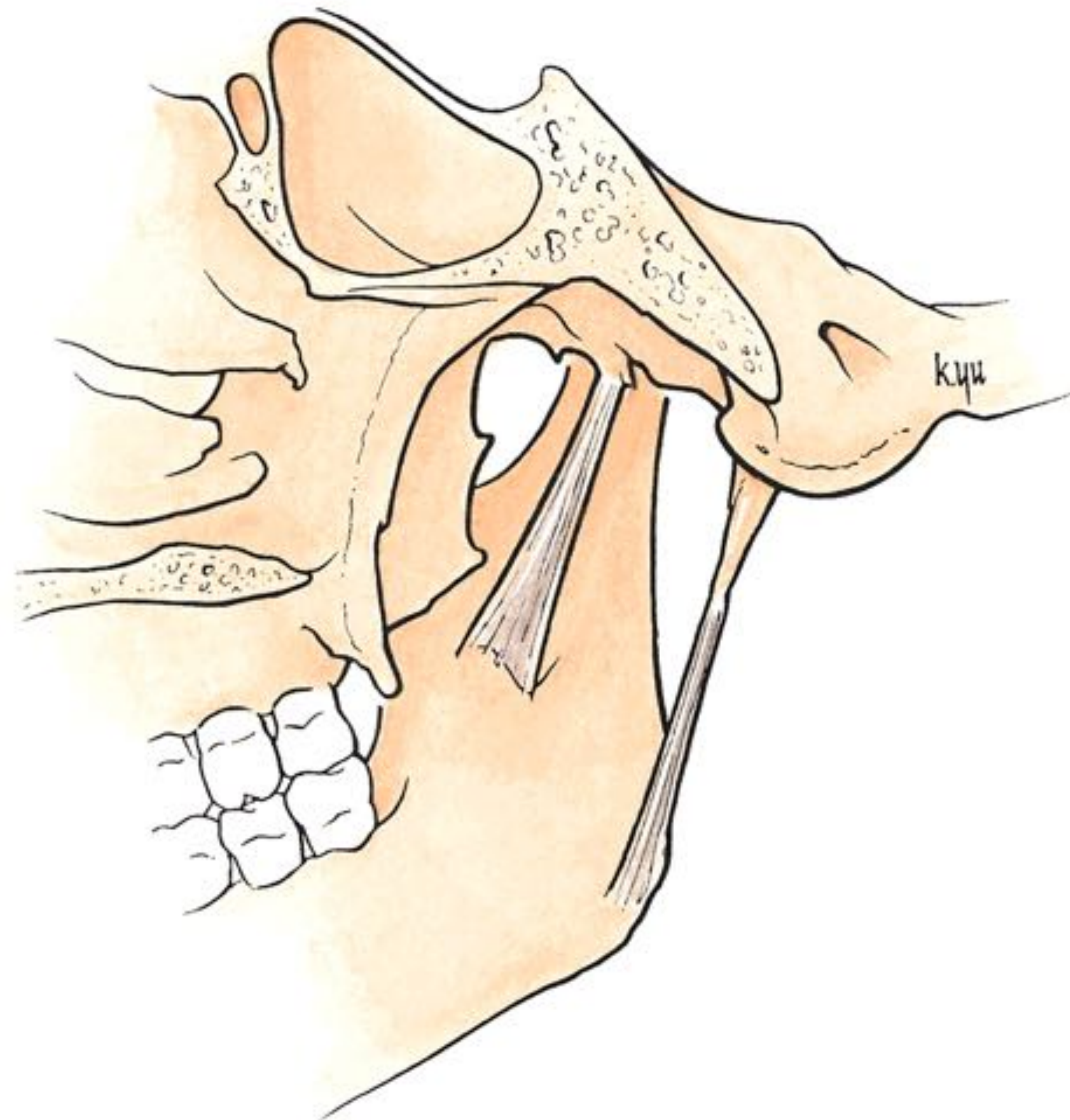
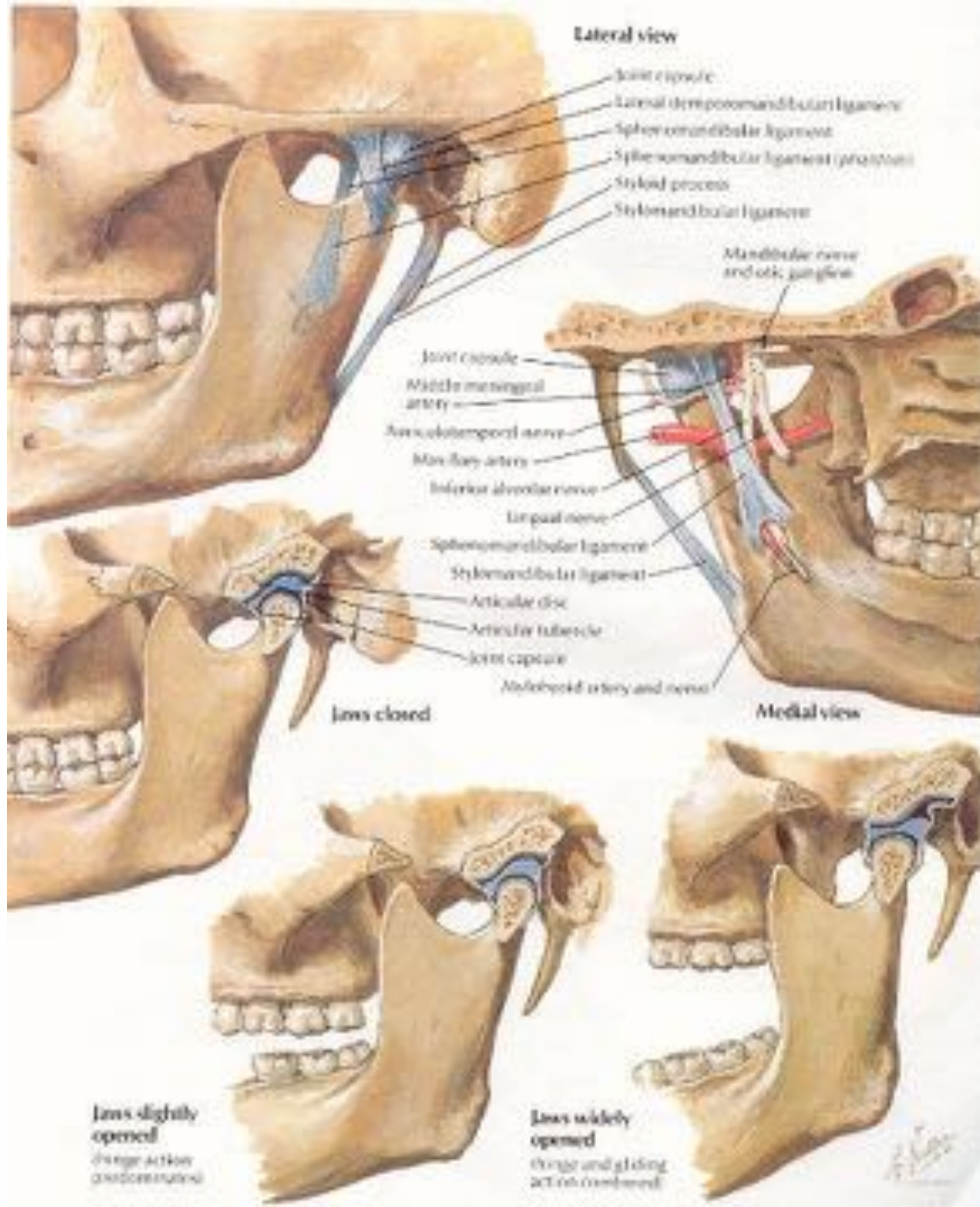
The Temporomandibular Joint

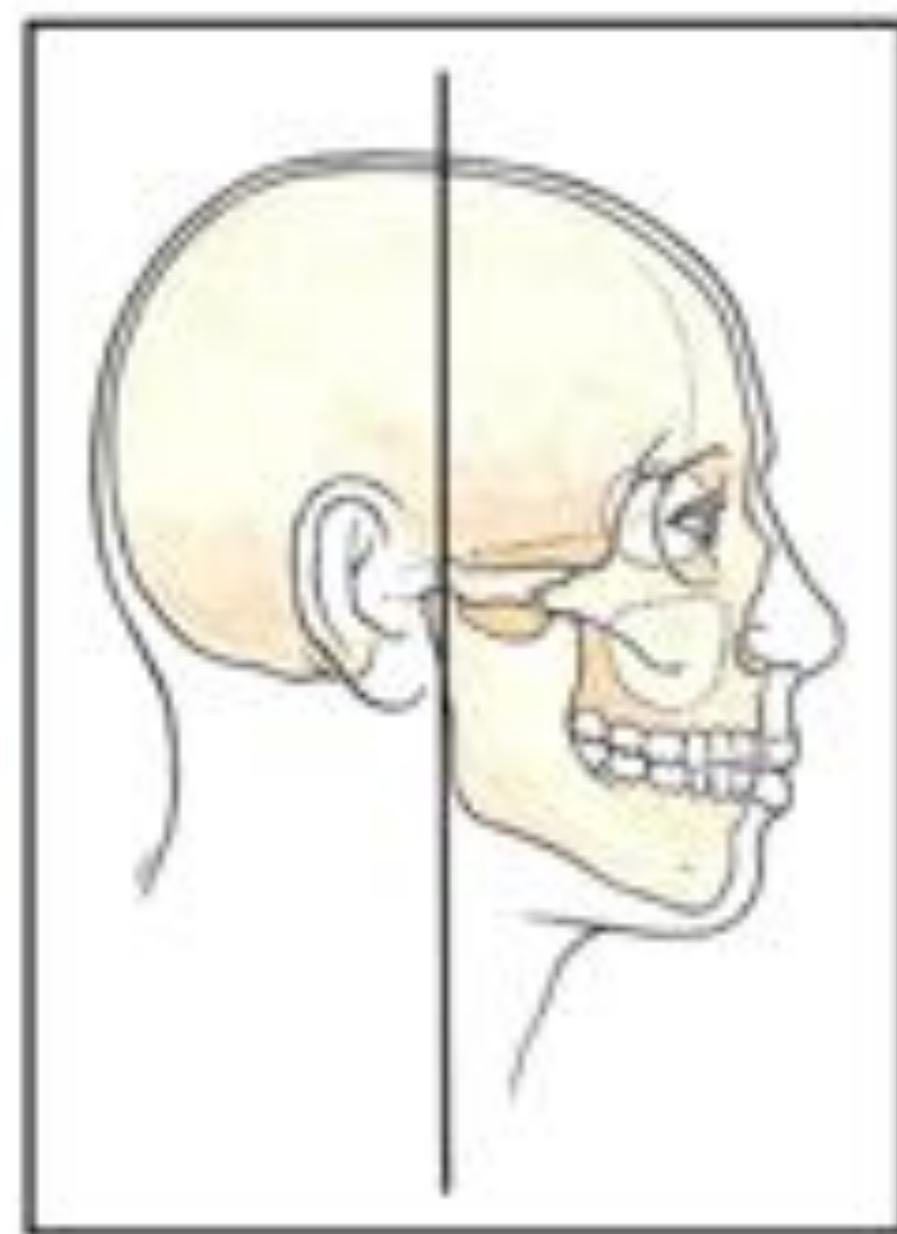
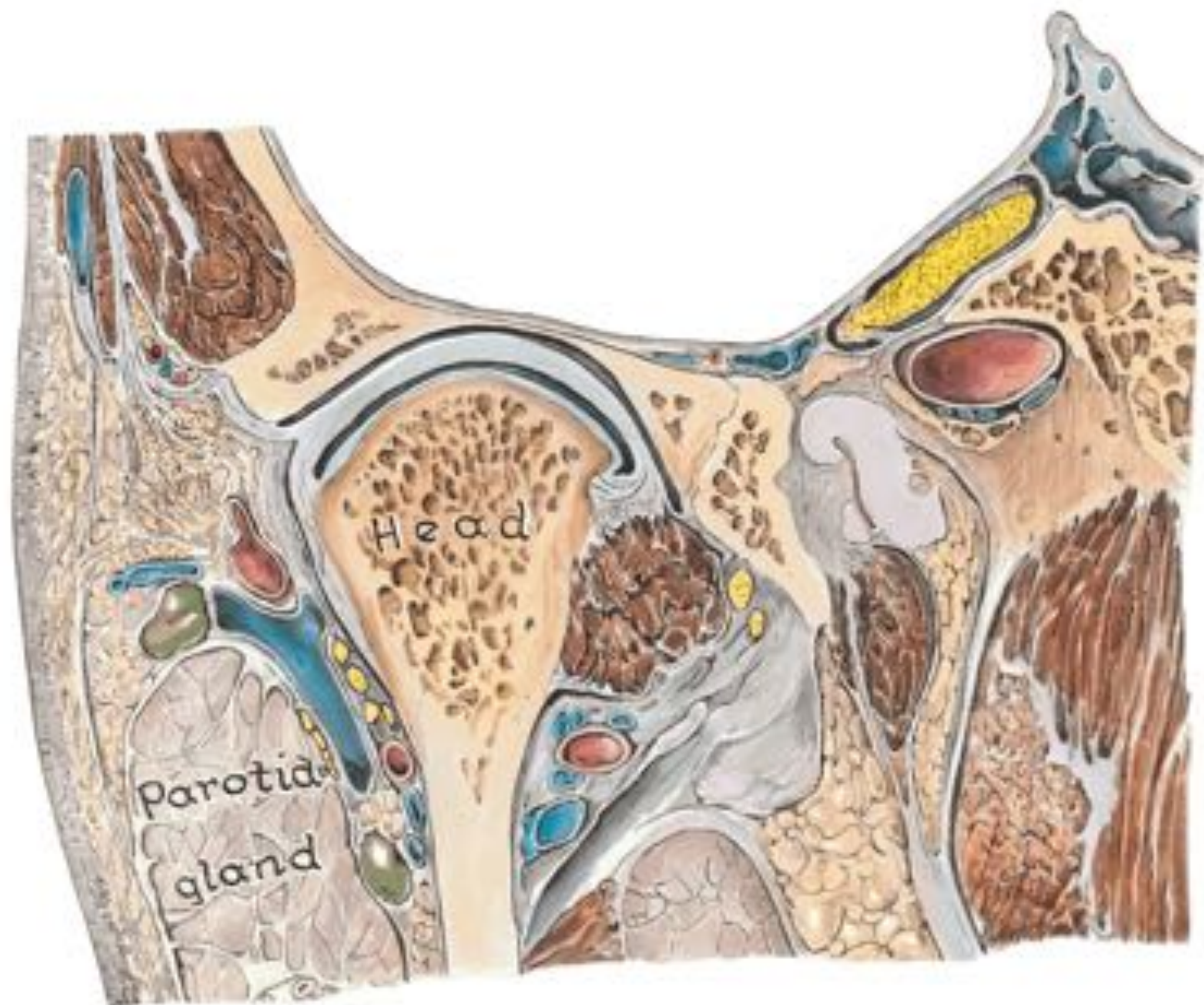
- An “arthroginglymoidal” joint
- Rotation occurs in the upper joint compartment (arthrodial)
- Translation occurs in the lower compartment (ginglymoid)

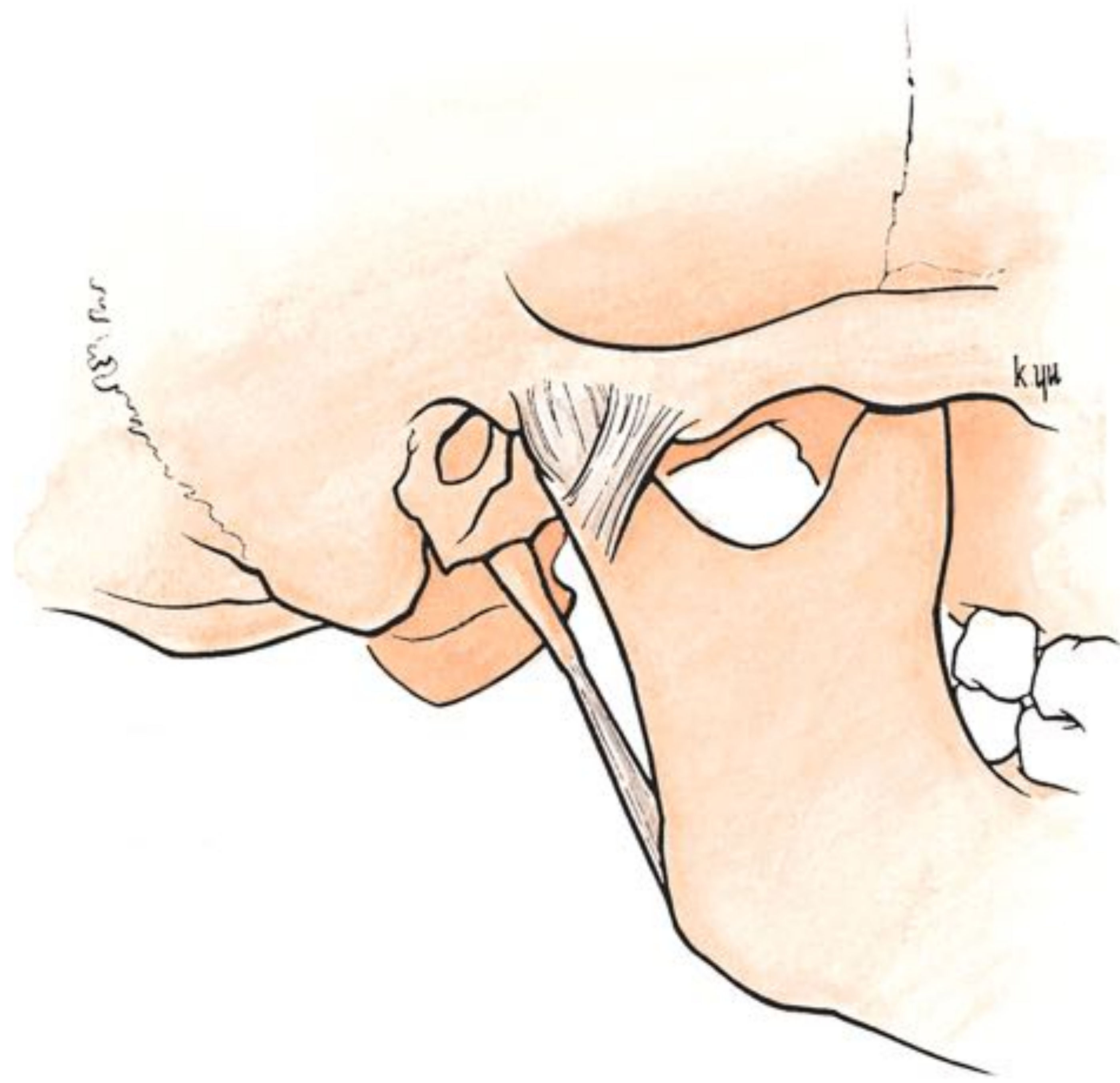
The Temporomandibular Joint

- Innervation- Branches of the Mandibular Division
 - Auricular branch of the auriculotemporal nerve (75%)
 - Posterior deep temporal nerves
 - Masseteric nerve







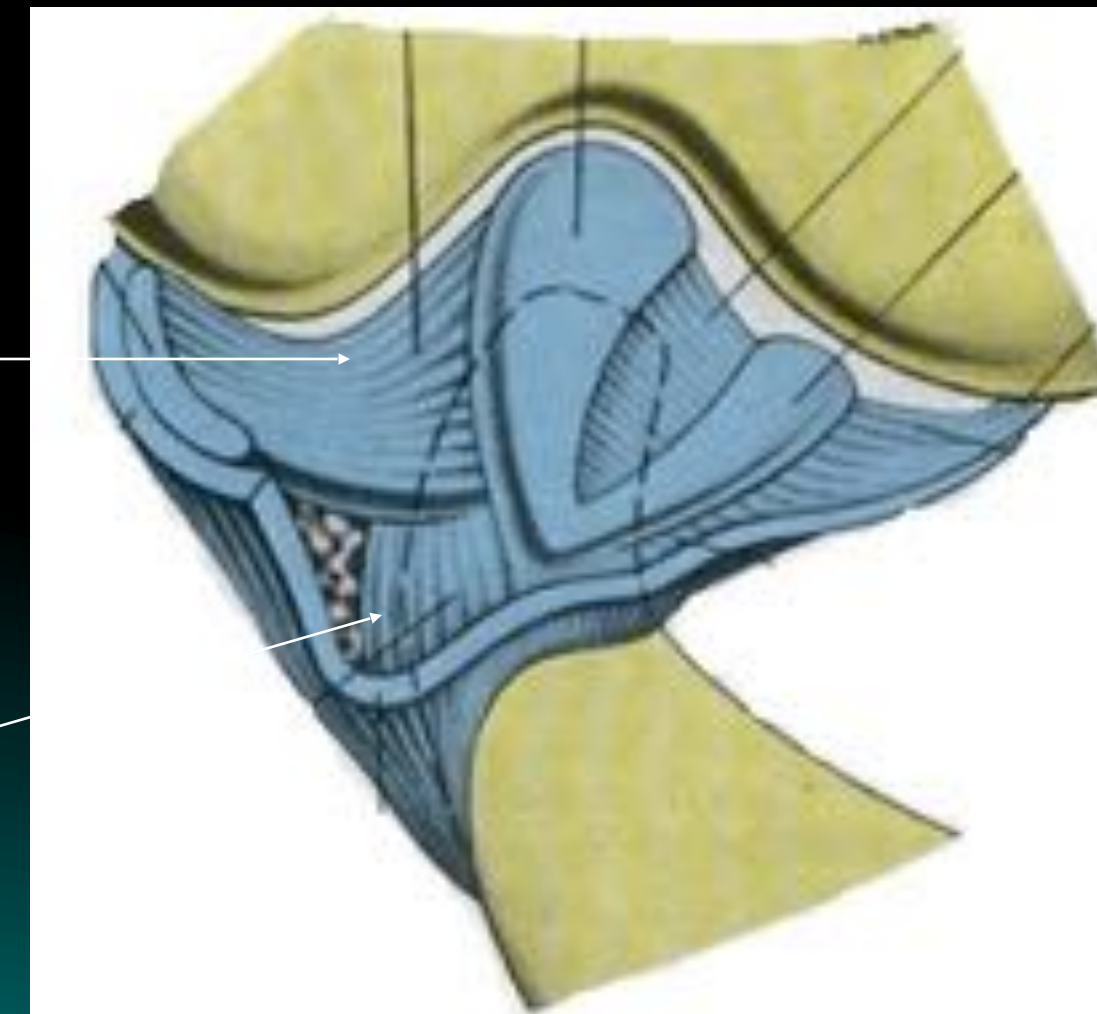




“RETRODISCAL PAD”

Posterior temporal
attachment or
“superior lamina”

Posterior mandibular
attachment or
“inferior lamina”

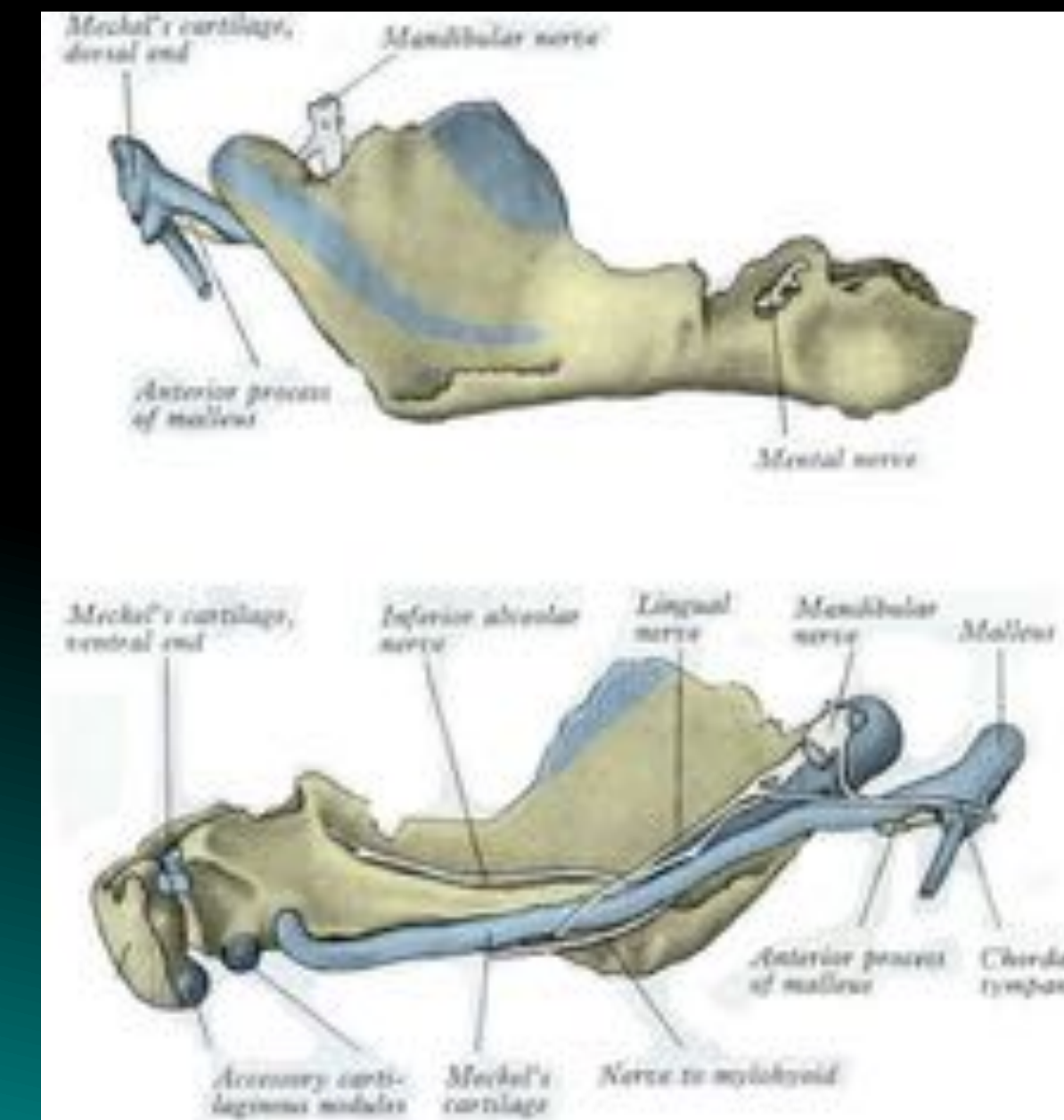
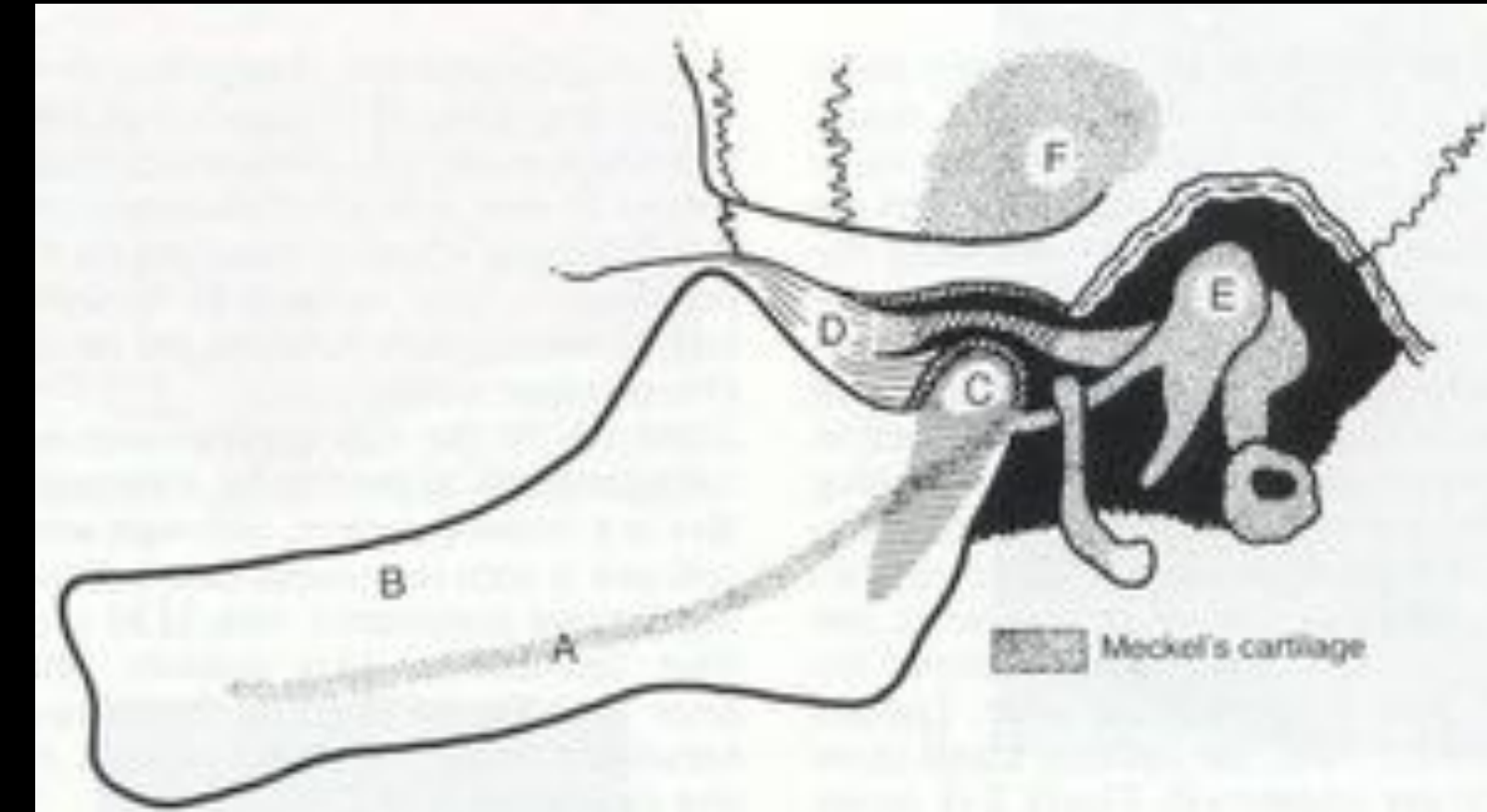
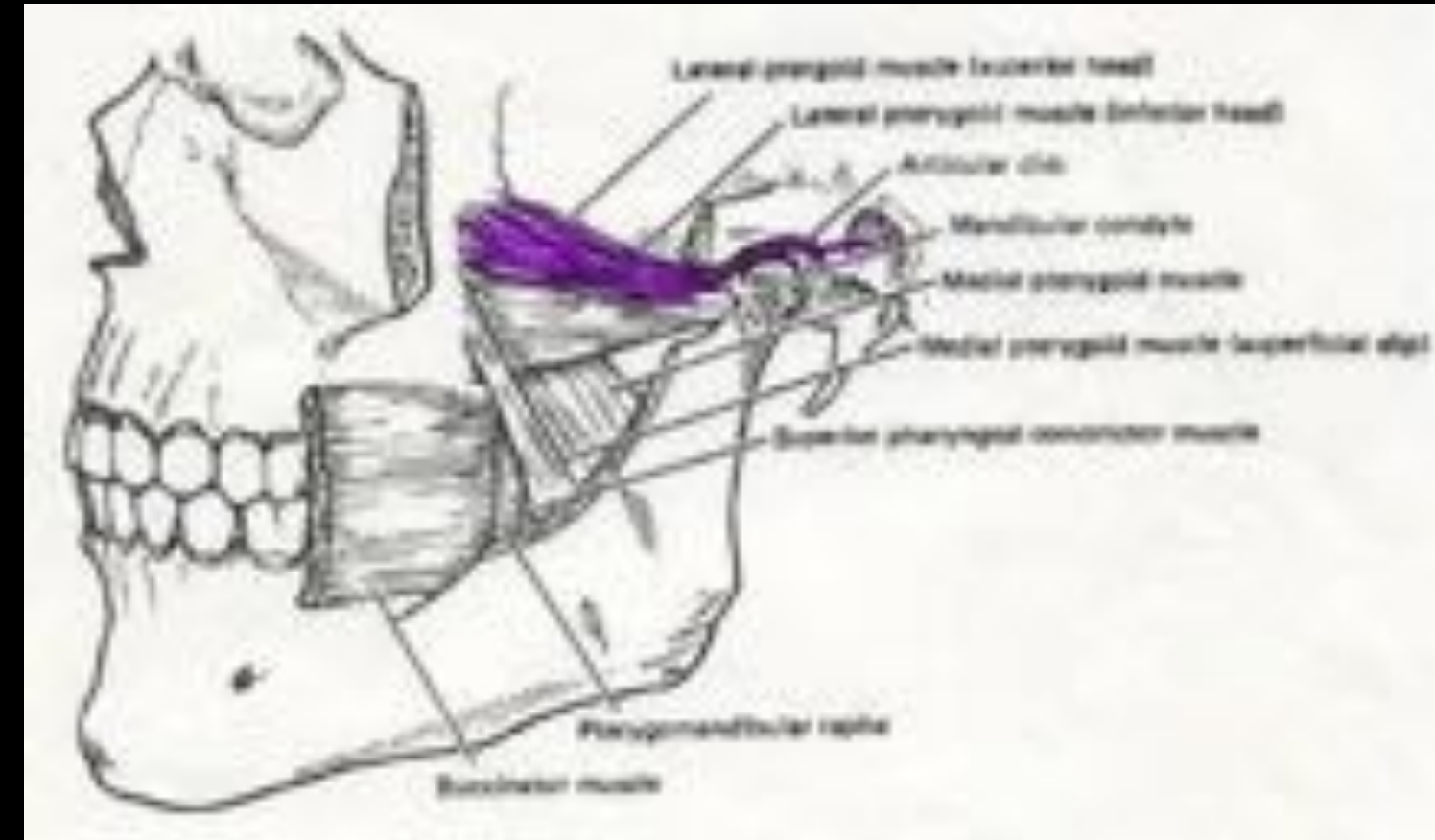
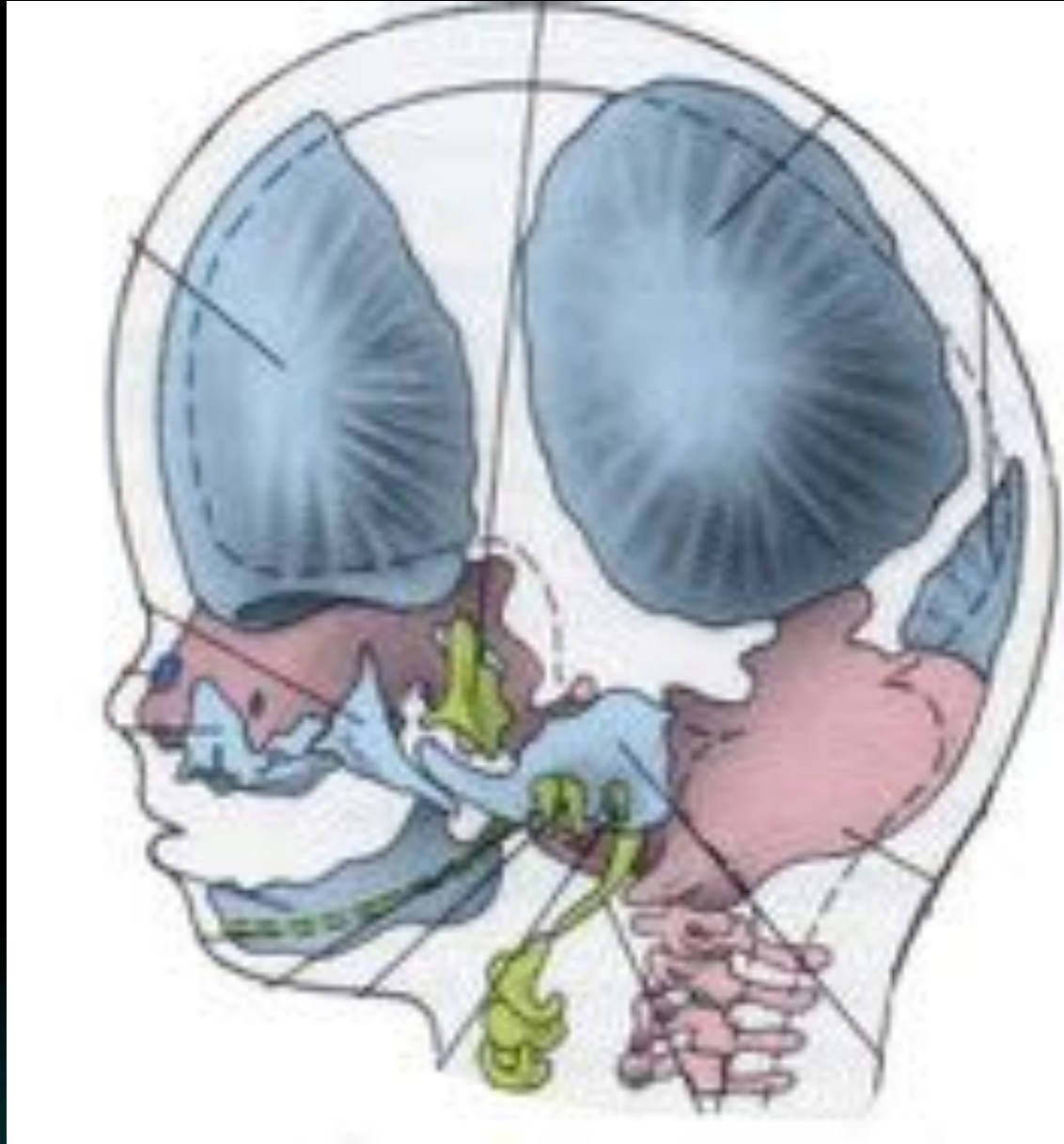




Fibers of the superior head of
the lateral pterygoid muscle attach
to the disc.



Pinto's ligament – malleomandibular ligament



Craniofacial Pain Examination

Jamison Spencer



Sleep Apnea & Snoring
TMJ Disorders
Head & Facial Pain

404 W. Church Rd., Ste. 301, Wake, RI 02894
401.5.743.6600

Caroline A. Kachue, DMD, MS
Jonathan B. Spencer, DMD, MS
Rachael L. Busch, DMD, MS

CRANIOFACIAL PAIN QUESTIONNAIRE

This questionnaire was designed to provide important information regarding the history of your pain or condition. The information you provide will assist in reaching a diagnosis and determining the source of your problem. Please take time to answer each question as completely and honestly as possible.

PATIENT INFORMATION

☐ MR. ☐ MRS. ☐ MISS ☐ MS. ☐ DR. Today's Date: _____

NAME: _____ FIRST _____ MIDDLE INITIAL _____ LAST _____

ADDRESS: _____ CITY/STATE/ZIP _____

HOME PHONE: _____ BUSINESS PHONE: _____ ☐ MALE ☐ FEMALE

CELL PHONE: _____ EMAIL ADDRESS: _____

SOCIAL SECURITY NUMBER: _____ DATE OF BIRTH: ____/____/____ AGE: ____

RESPONSIBLE PARTY: _____ PHONE: _____

ADDRESS: _____ CITY/STATE/ZIP: _____

EMPLOYER: _____ ADDRESS: _____

PRIMARY INSURANCE: _____	SECONDARY INSURANCE: _____
POLICY HOLDER: _____	POLICY HOLDER: _____
POLICY HOLDER DOB: _____	POLICY HOLDER DOB: _____

☐ Please check box if you are pregnant or think you might be, and let our office know.

WHAT ARE THE CHIEF COMPLAINTS FOR WHICH YOU ARE SEEKING TREATMENT?

1. Please number your complaints with #1 being the most important, #2 the next important, etc.	2. Then rate your complaints for frequency and intensity. Frequency: 1=NEVER, 2=OCCASIONAL, 3=FREQUENT, 4=EVERY DAY Intensity: 1=NO PAIN and 10 is the MOST SEVERE PAIN
--	---

Number	Frequency		Number	Frequency	
	Intensity	Intensity			
	1-4	1-10		1-4	1-10
Back pain	_____	_____	Muscle Twitching	_____	_____
Disorders	_____	_____	Neck Pain	_____	_____
Ear Congestion	_____	_____	Pain when Chewing	_____	_____
Ear Pain	_____	_____	Ringings in the Ears	_____	_____
Eye Pain	_____	_____	Shoulder Pain	_____	_____
Facial Pain	_____	_____	Sinus Congestion	_____	_____
Fatigue	_____	_____	Throat Pain	_____	_____
Headaches	_____	_____	Visual Disturbances	_____	_____
Jaw Joint Noises	_____	_____	Other symptoms:	_____	_____
Jaw Locking	_____	_____	Would you be interested in a consult for technology style issues? Yes <input type="checkbox"/> No <input type="checkbox"/>	_____	_____
Jaw Pain	_____	_____		_____	_____
Limited Mouth Opening	_____	_____		_____	_____

Patient Name _____ Date _____

Certified Accreditation, American Academy of Dental Sleep Medicine

(208) 376-3000 | Fax (208) 376-3000 | www.sleepshhs.com

14

LIST ANY MEDICATIONS/SUBSTANCES WHICH HAVE CAUSED YOU TO HAVE AN ALLERGIC REACTION:

LIST ANY MEDICATIONS CURRENTLY BEING TAKEN (including over the counter medications, vitamins, and supplements) AND THE REASON FOR TAKING THE MEDICATION:

REFERRED BY: _____

ADDRESS: _____ CITY: _____ STATE: _____ ZIP: _____ PHONE NUMBER: _____

FAMILY DENTIST: _____

ADDRESS: _____ CITY: _____ STATE: _____ ZIP: _____ PHONE NUMBER: _____

FAMILY PHYSICIAN: _____

ADDRESS: _____ CITY: _____ STATE: _____ ZIP: _____ PHONE NUMBER: _____

PLEASE LIST ALL TREATMENTS AND HEALTH PROFESSIONALS THAT YOU ARE CURRENTLY SEEING OR HAVE SEEN FOR THIS PROBLEM:

Practitioner: _____ MEDICIN Specialty: _____

ADDRESS: _____ CITY: _____ STATE: _____ ZIP: _____ PHONE NUMBER: _____

Diagnosis/Treatment: _____ Date of Treatment: _____

Practitioner: _____ MEDICIN Specialty: _____

ADDRESS: _____ CITY: _____ STATE: _____ ZIP: _____ PHONE NUMBER: _____

Diagnosis/Treatment: _____ Date of Treatment: _____

Which of the following have you tried to help your pain/condition? On a scale of 1-5, please rate how effective each was in relieving your symptoms (1=not effective, 2=slightly effective, 3=moderately effective, 4=very effective, 5=most effective)

<input type="checkbox"/> Wearing night guard	1 2 3 4 5	<input type="checkbox"/> Massage	1 2 3 4 5	Medications (including Advil, etc)	1 2 3 4 5
<input type="checkbox"/> Chiropractic treatment	1 2 3 4 5	<input type="checkbox"/> Relaxation techniques	1 2 3 4 5		1 2 3 4 5
<input type="checkbox"/> Chiropractic heat	1 2 3 4 5	<input type="checkbox"/> Biofeedback	1 2 3 4 5		1 2 3 4 5
<input type="checkbox"/> Physical therapy	1 2 3 4 5	<input type="checkbox"/> Pain management	1 2 3 4 5	<input type="checkbox"/> Other:	1 2 3 4 5

Patient Name _____ Date _____

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15

WHEN DID YOUR CONDITION FIRST OCCUR? _____

WHAT DO YOU BELIEVE IS THE CAUSE OF YOUR PAIN OR CONDITION? _____

	DATE	DESCRIPTION OF INJURY
<input type="checkbox"/> Motor Vehicle Injury	____/____/____	_____
<input type="checkbox"/> Worker's Compensation Injury	____/____/____	_____
<input type="checkbox"/> Accidental Injury	____/____/____	_____
<input type="checkbox"/> Disease/Injury	____/____/____	_____
<input type="checkbox"/> Unknown Cause	____/____/____	_____

Describe and give approximate dates of any other trauma to the head, neck or back; any accidents, sports injuries, or other injuries that could have affected the head and neck (even as a child): _____

What other information is important for us to know about your pain or condition? _____

MEDICAL HISTORY (Please specify dates next to conditions marked YES)

YES NO Adverse reaction	YES NO Current pregnancy	YES NO Glaucoma
YES NO Swallow disorder	YES NO Depression	YES NO Gout
YES NO Anemia	YES NO Diabetes	YES NO Hay fever
YES NO Arteriosclerosis	YES NO Difficulty concentrating	YES NO Hearing impairment
YES NO Asthma	YES NO Dizziness	YES NO Heart disease
YES NO Autoimmune disorder	YES NO Emphysema	YES NO Heart disorder
YES NO Bleeding easily	YES NO Epilepsy	YES NO Heart paroxysm
YES NO High blood pressure	YES NO Excessive thirst	YES NO Heart palpitations
YES NO Low blood pressure	YES NO Fluid retention	YES NO Heart valve replacement
YES NO Bruising easily	YES NO Frequent cough	YES NO Hemophilia
YES NO Cancer	YES NO Frequent illness	YES NO Hepatitis
YES NO Chemotherapy	YES NO Frequent stressful situations	YES NO Hypertension
YES NO Chronic fatigue	YES NO General anesthesia	YES NO Insulin levels
YES NO Cold hands & feet	YES NO Muscle spasms or cramps	YES NO Shortness of breath
YES NO Immune system disorder	YES NO Muscular dystrophy	YES NO Sinus problems
YES NO Injury to face	YES NO Needing extra pillows to help breathing at night	YES NO Skin disorder
YES NO Injury to mouth	YES NO Nervous system instability	YES NO Sleep apnea
YES NO Injury to neck	YES NO Nervous system instability	YES NO Sleep disorders
YES NO Injury to teeth	YES NO Nervousness	YES NO Slow healing areas
YES NO Incontinence	YES NO Headache	YES NO Speech difficulties
YES NO Intestinal disorders	YES NO Osteoarthritis	YES NO Stroke
YES NO Jaw joint surgery	YES NO Osteoporosis	YES NO Swollen, stiff, or painful joints
YES NO Kidney problems	YES NO Ovarian cysts	YES NO Tendency for frequent colds
YES NO Liver disease	YES NO Parkinson's disease	YES NO Tendency for ear infections
YES NO Menstrual disorders	YES NO Poor circulation	YES NO Tendency for sore throat
YES NO Menstrual cramps	YES NO Prior orthodontic treatment	YES NO Tired muscles
YES NO Multiple sclerosis	YES NO Psychiatric care	YES NO Tuberculosis
YES NO Muscle aches	YES NO Radiation treatment	YES NO Tumors
YES NO Muscle clanking (creaking)	YES NO Rheumatic fever	YES NO Urinary disorders
YES NO Throat problems	YES NO Rheumatoid arthritis	YES NO Wisdom teeth extraction

YES NO Other Medical Dental History: _____

Date of Initial Screening: ____/____/____		MR. _____	DOB: ____/____/____	S&D to L & R TMJ: _____
MR. _____	<input type="checkbox"/> Right <input type="checkbox"/> Left <input type="checkbox"/> Both	<input type="checkbox"/> MR. <input type="checkbox"/> L <input type="checkbox"/> R	<input type="checkbox"/> MR. <input type="checkbox"/> L <input type="checkbox"/> R	<input type="checkbox"/> MR. <input type="checkbox"/> L <input type="checkbox"/> R
MR. _____	<input type="checkbox"/> PT <input type="checkbox"/> Right <input type="checkbox"/> Left <input type="checkbox"/> Both	<input type="checkbox"/> PT <input type="checkbox"/> L <input type="checkbox"/> R	<input type="checkbox"/> PT <input type="checkbox"/> L <input type="checkbox"/> R	<input type="checkbox"/> PT <input type="checkbox"/> L <input type="checkbox"/> R
MR. _____	<input type="checkbox"/> MR. <input type="checkbox"/> L <input type="checkbox"/> R	<input type="checkbox"/> MR. <input type="checkbox"/> L <input type="checkbox"/> R	<input type="checkbox"/> MR. <input type="checkbox"/> L <input type="checkbox"/> R	<input type="checkbox"/> MR. <input type="checkbox"/> L <input type="checkbox"/> R

Patient Name _____ Date _____

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16

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Initial Examination

- Health history: what to look for
 - Current use of SSRI antidepressants 
 - Trauma
 - Rheumatoid Arthritis/inflammatory diseases
 - Previous Treatment 
 - Migraine headaches: temporalis headaches 

SSRI Induced Bruxism

- Buspirone as an Antidote to SSRI Induced Bruxism in 4 Cases

J Clinical Psychiatry, December 1999, Bostwick, Jaffee

Initial Examination

- Health history: what to look for
 - Current use of SSRI antidepressants 
 - Trauma
 - Rheumatoid Arthritis/inflammatory diseases
 - Previous Treatment 
 - Migraine headaches: temporalis headaches 



Acetaminophen, Aspirin, and Caffeine

Jamison Spencer



Acetaminophen, Aspirin, and Caffeine

Jamison Spencer





Advil® Migraine

This is the most current labeling information and may differ from labels on product packaging. If there are any differences between this website labeling and product package labeling, this website labeling should be regarded as the most current.

Drug Facts

Active ingredient (in each brown oval capsule)	Purpose
Solubilized ibuprofen equal to 200 mg ibuprofen (NSAID)* (present as the free acid and potassium salt)	Pain reliever
*nonsteroidal anti-inflammatory drug	

Jamison Spencer

The *Mystery*
is in the
History





O
P
Q
R
S
T

O = onset

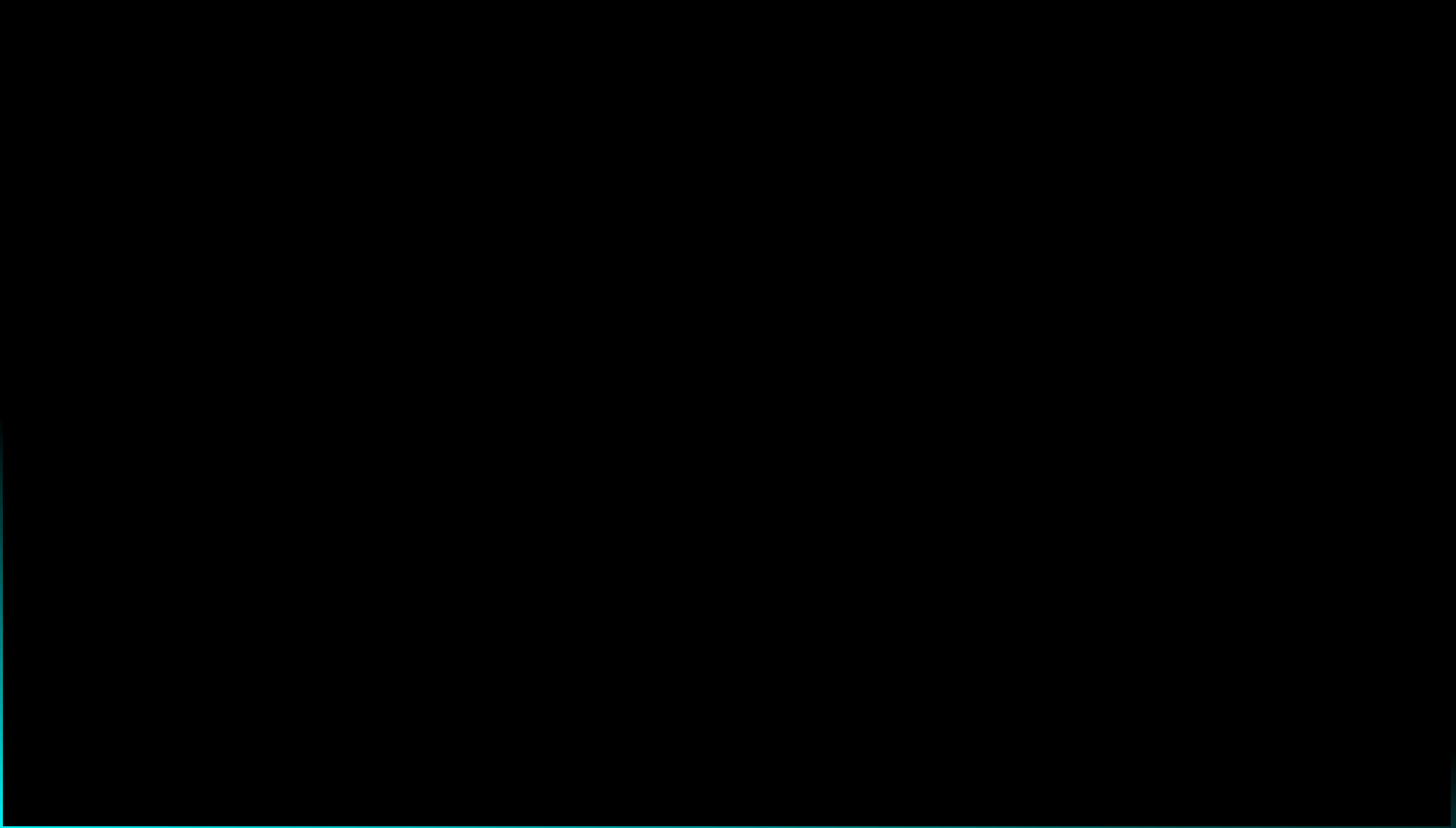
P = palliate or provoke

Q = quality

R = region

S = scale

T = time



Onset

- What were you doing when it started?



Provoke or Palliate

- Does anything make it worse?
- Does anything make it better?



Provocation or Palliation

- Does anything make it worse?
- Does anything make it better?

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Quality

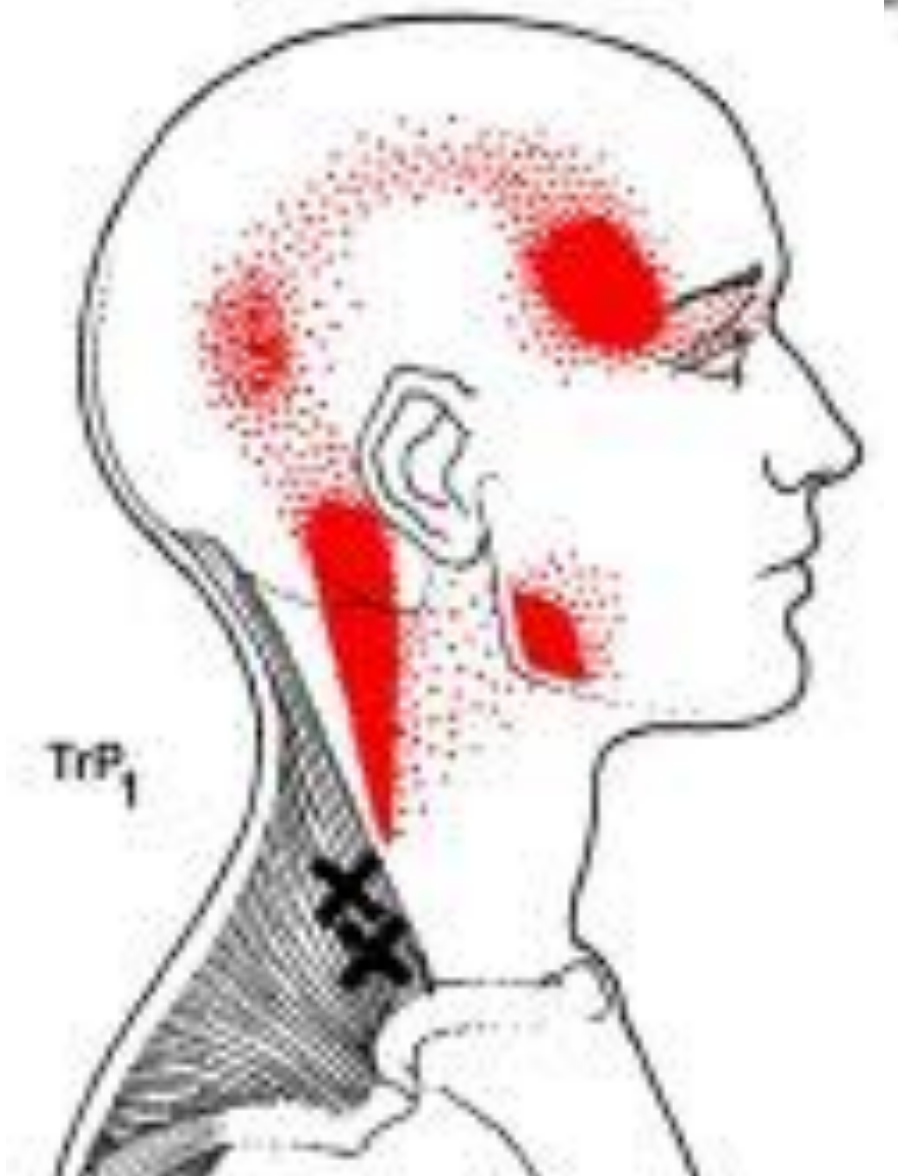
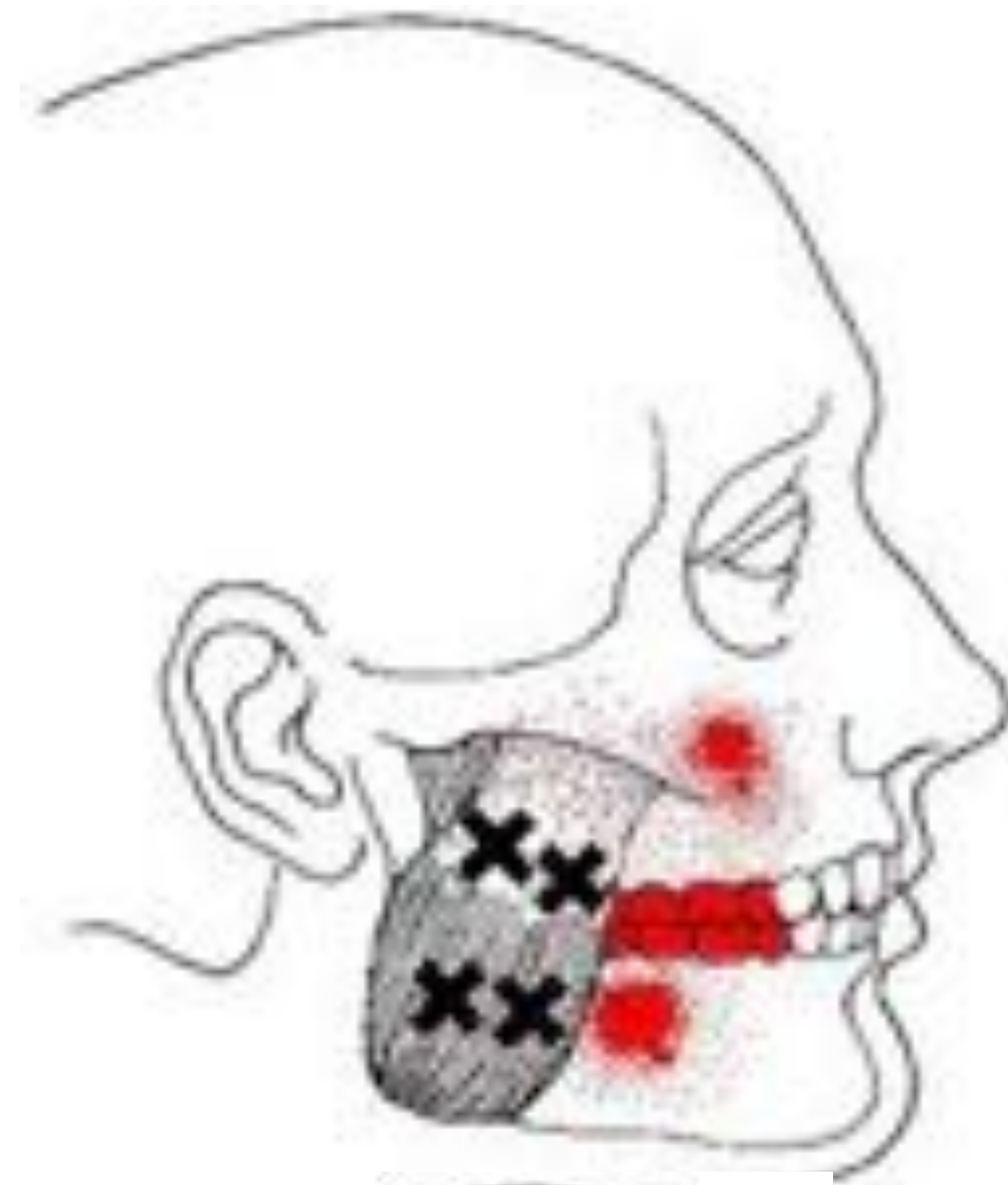
- Can you describe it (the pain) to me? Is it sharp, dull, constant, intermittent, throbbing, electrical, an ache?



Region and Radiation



- Where exactly does it hurt (point with one finger)?
- Does the pain start in one place and move to another place or places?



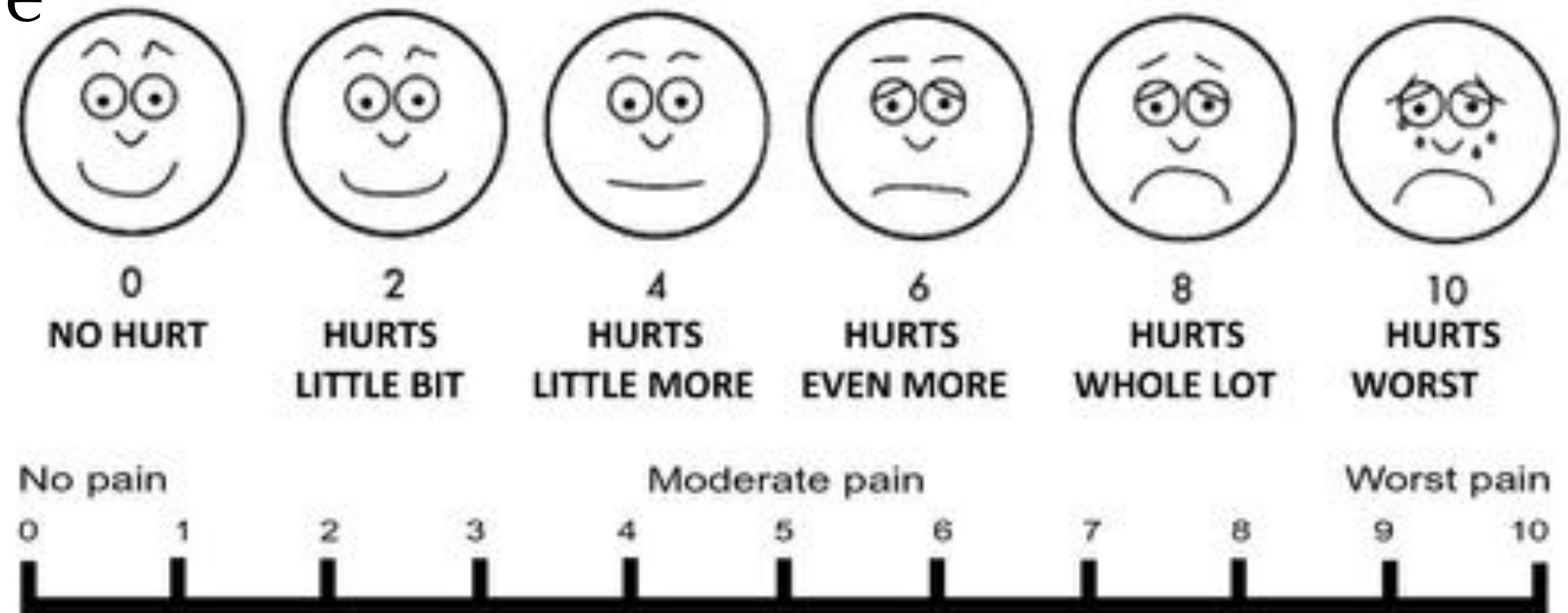
Severity

- On a scale of 0 to 10, where 10 is **being burned alive**, how bad is the pain...

- On average?

- At its worst?

- At its best?



- When does this (pain) bother you the most?

- All the time

- Morning, afternoon, evening

- Random

- After meals, when eating



Initial Examination

- History of TMD
 - WHAT is the chief complaint
 - WHERE does it hurt
 - WHEN did the symptoms start



Initial Examination

- History of TMD
 - WHAT is the chief complaint
 - WHERE does it hurt
 - WHEN did the symptoms start



Range of Motion

- “Normal” = 48-52mm, or 3 Fingers
- Hyper = > 52mm, or more
- Reduced = < 48mm, or less than 3 knuckles
 - Suspect of
- Limited = 2 knuckles
 - Suspect a
- Severely limited = 1 knuckle
 - Suspect t



Initial Examination

- Palpation of TM joints
 - Reducing Disc Displacement (RDD)
 - Crepitus
 - Normal
 - Unilateral or bilateral
 - Able to capture with anterior positioning (RDD)
 - Patient perceives noise on the same side you detect it
 - Unable to detect noise the patient hears
 - Eminence “clicking”



Initial Examination

- Spray and Stretch Procedure
 - Ethyl chloride or Fluori-Methane
 - Spray over painful joint or muscle on stretch
 - Have the patient open and close a few times, measure their MO, and then have them relax
 - Ask the patient “does that make the discomfort worse, better or no change?”



Initial Diagnosis

- No Tx indicated
- Initial trial of anti-inflammatories, home PT, and Aqualizer
 - 600 mg ibuprofen q6h for 6 days
 - Ice 10 minutes with gentle stretching followed by 10 minutes moist heat
 - Aqualizer as much as possible and definitely at night

the AQUALIZER™



AQUALIZER ultra



Aqualizer Ultra

The Aqualizer Ultra is a new improved version of the Aqualizer designed for increased gum comfort and improved retention. Used for average size mouths.

- *Low volume 2 mm thick
- *Medium volume 4 mm thick
- *High volume 6 mm thick

Our Best Seller

AQUALIZER MINI



Aqualizer Mini

The Aqualizer Mini is the new improved Ultra shape in a shorter arch length with smaller, and thinner pads.

- For kids and small adult mouths.
- *Low volume 1 mm thick
- *Medium volume 2 mm thick
- *High volume 3 mm thick

AQUALIZER



Aqualizer Classic

The Aqualizer Classic is our original design. The V shape in the front irritated some patients, leading to the Ultra design. Used for average size mouths.

- *Low volume 2 mm thick
- *Medium volume 4 mm thick
- *High volume 6 mm thick

Aqualizer Size Selection: All Aqualizer models are available in three different vertical dimensions: "Low," "Medium" and "High,"

The thickness is controlled by the amount of fluid in the Aqualizer.

Medium volume Aqualizers are used by most (90%) patients.

Low volume Aqualizers are used for bite registration and Patients with restricted opening or inadequate freeway space.

High volume Aqualizers are used when a patient has excessive freeway space and/or needs a greater vertical dimension to fill the space between the upper and lower occlusal surfaces.

the AQUALIZER™

Float away tension, muscle pain and headaches.



- PRE-MADE, READY TO INSERT ORAL SPLINT
Fast, No Waiting, Boiling or Fitting
- INCREASE YOUR SUCCESS TREATING:
Headache, TMI, Tinnitus, Neck and Shoulder Pain

The Aqualizer's water system perfectly balances and cushions the bite. Muscles relax, moving the jaw into the most comfortable position stopping the occlusal trigger of spasm and referred pain throughout the head, neck and shoulders.

Proven effective, over a million used

ORDER TODAY

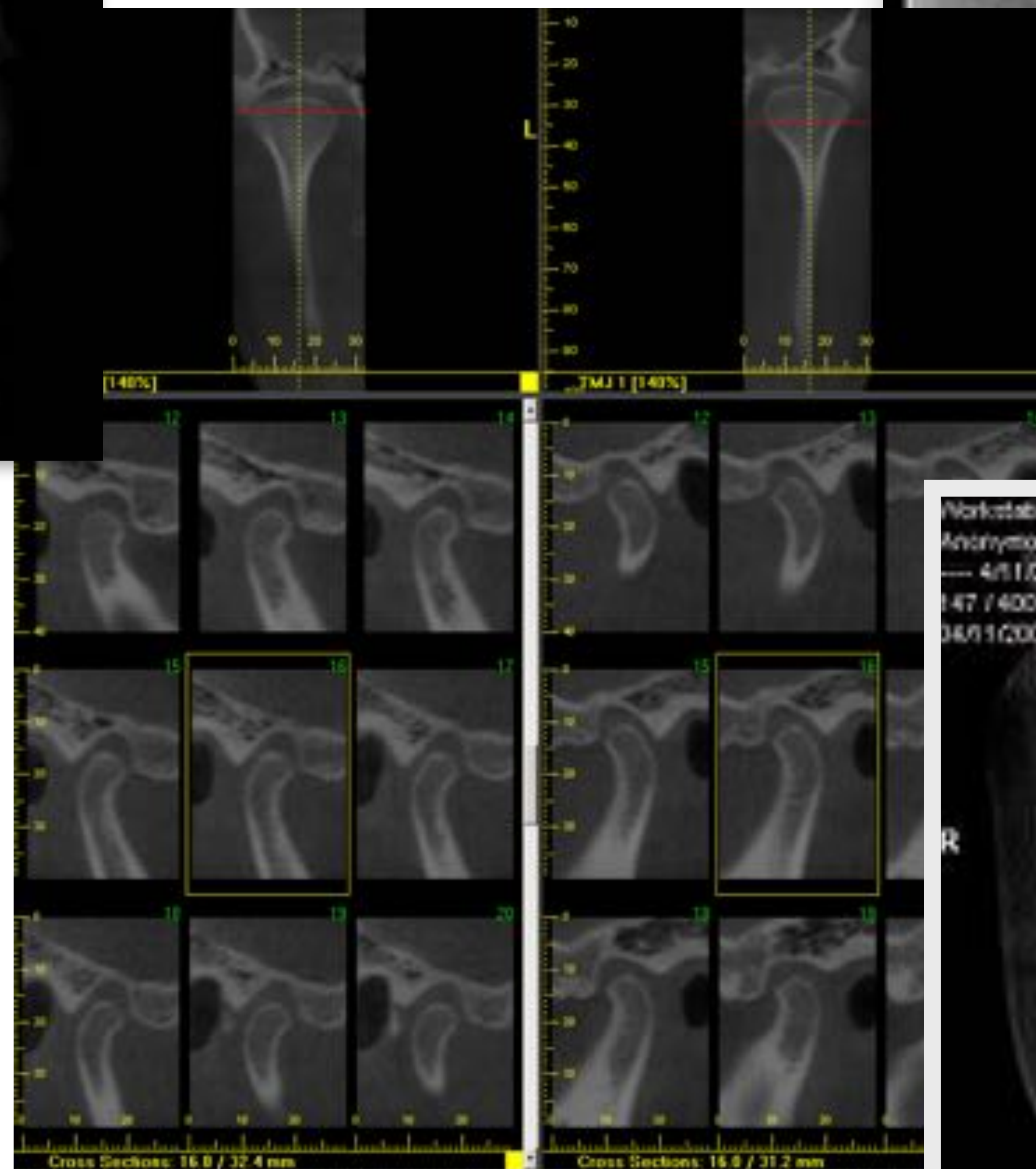
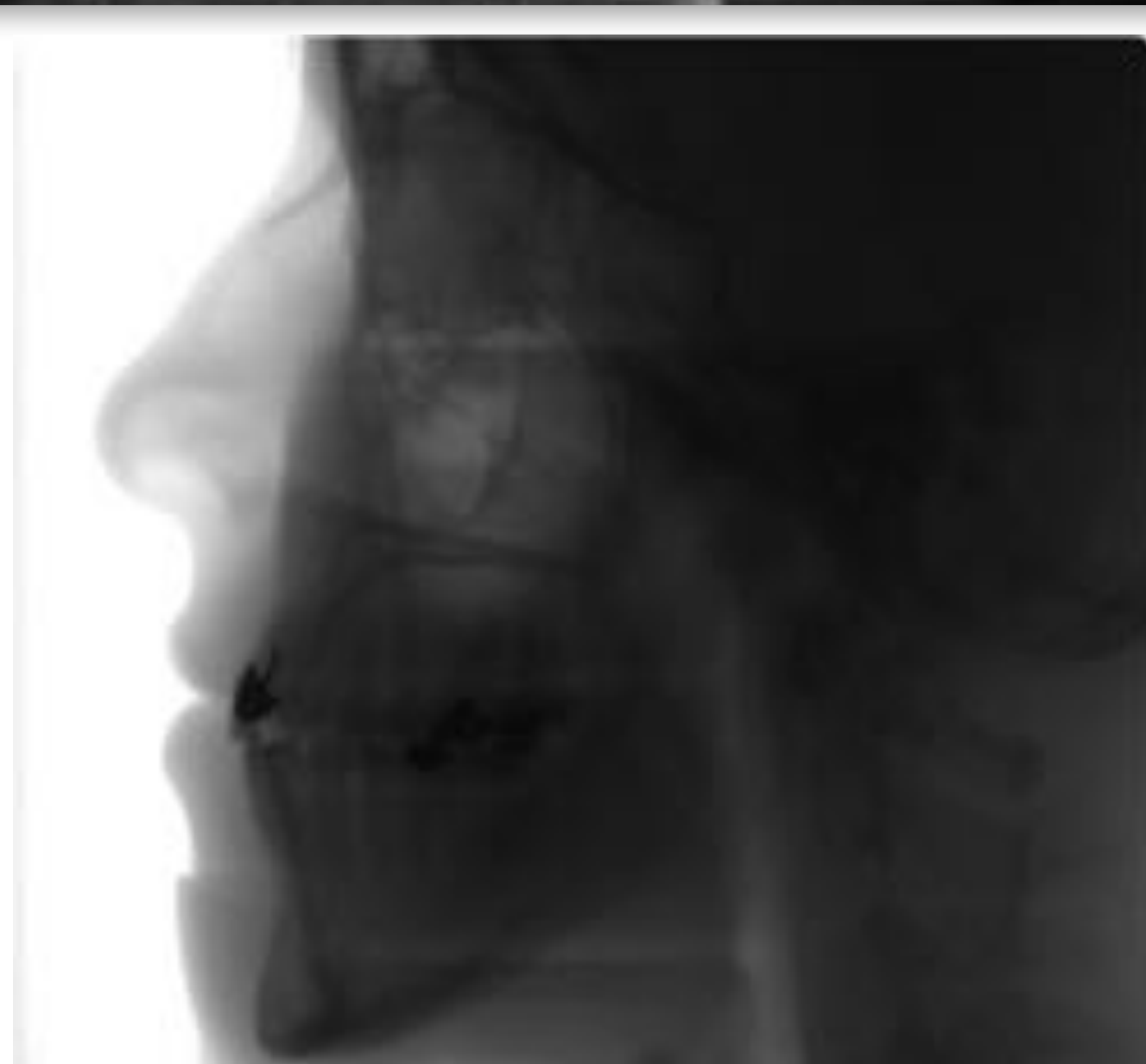
**1-800-HELP-TMD
(1-800-435-7863)**

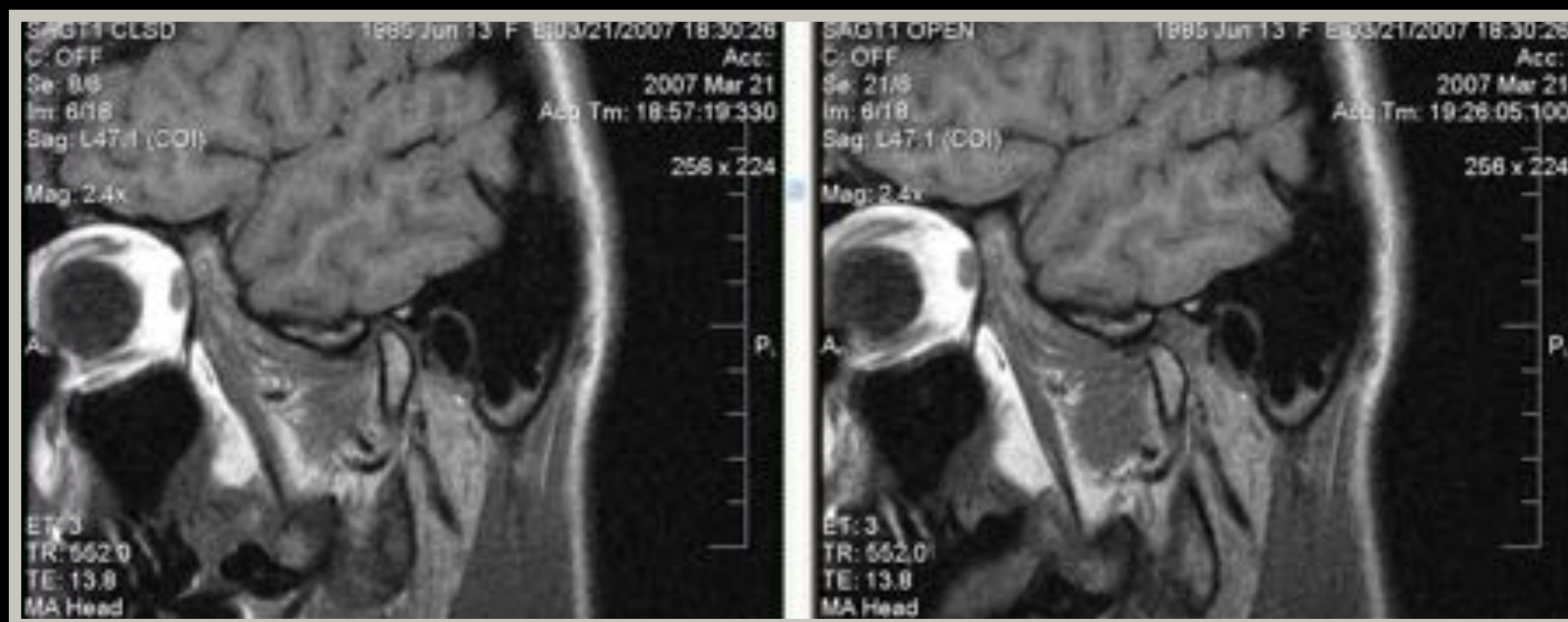
Initial Treatment Plan

- Refer for Physical Therapy
- Refer to another healthcare provider
- Or, obtain further records
 - Study models
 - Radiographs
 - MRI

Imaging Records

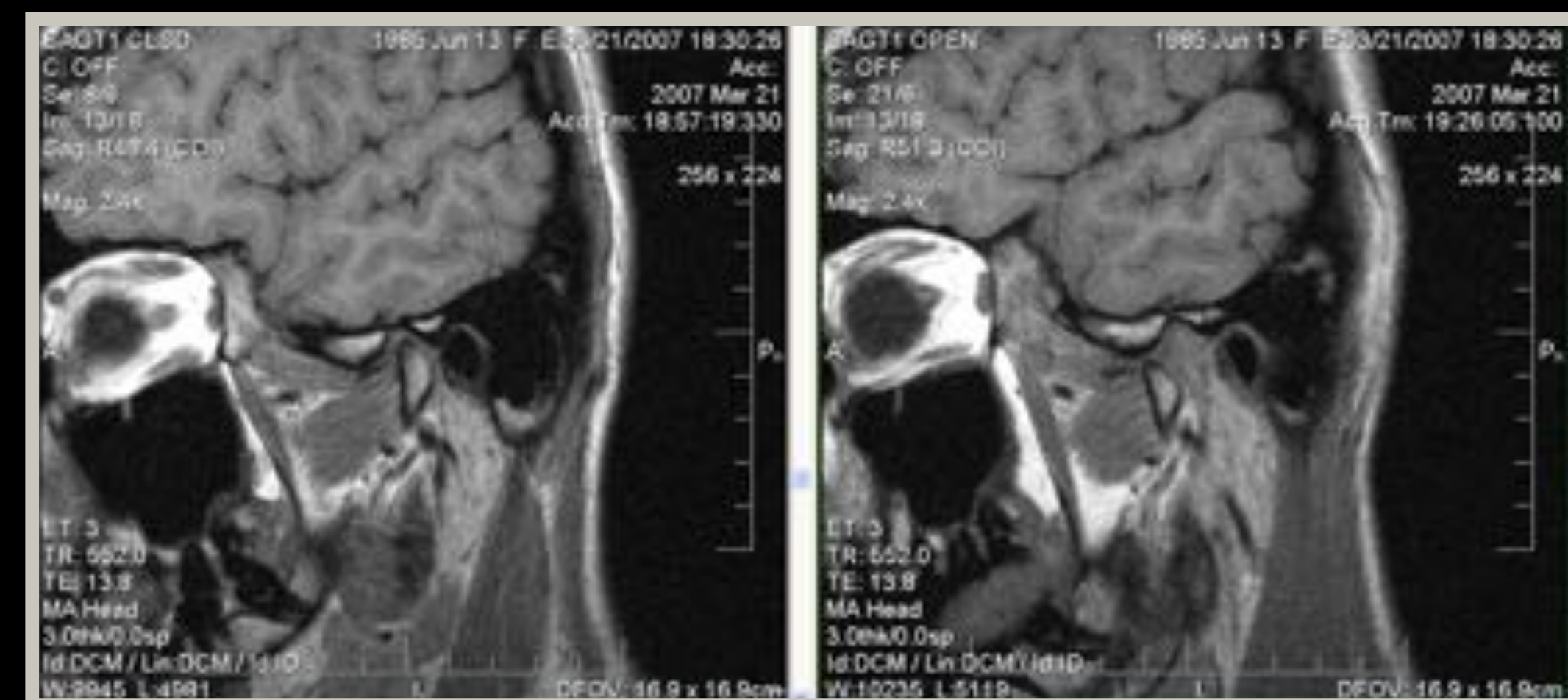
- Computer Aided Tomography
- Magnetic Resonance Imaging





Left Closed

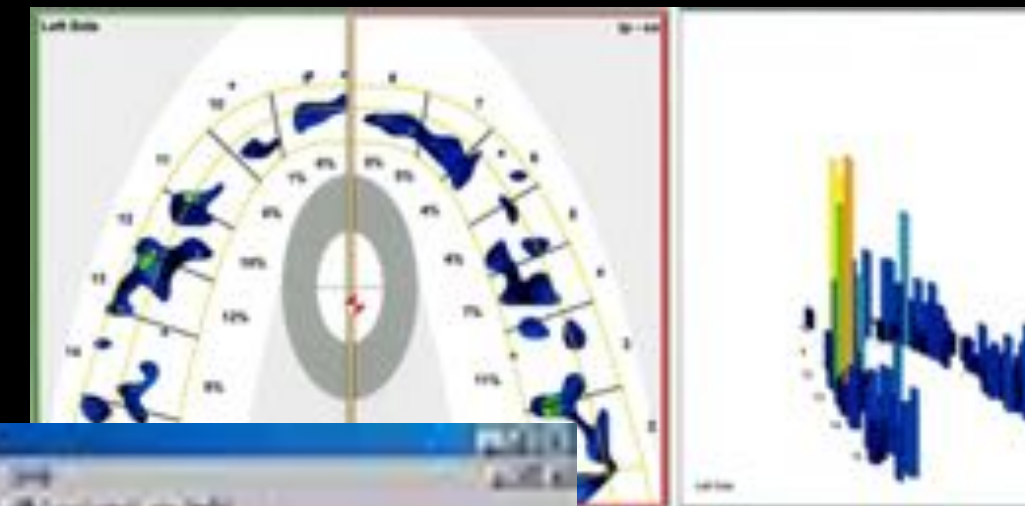
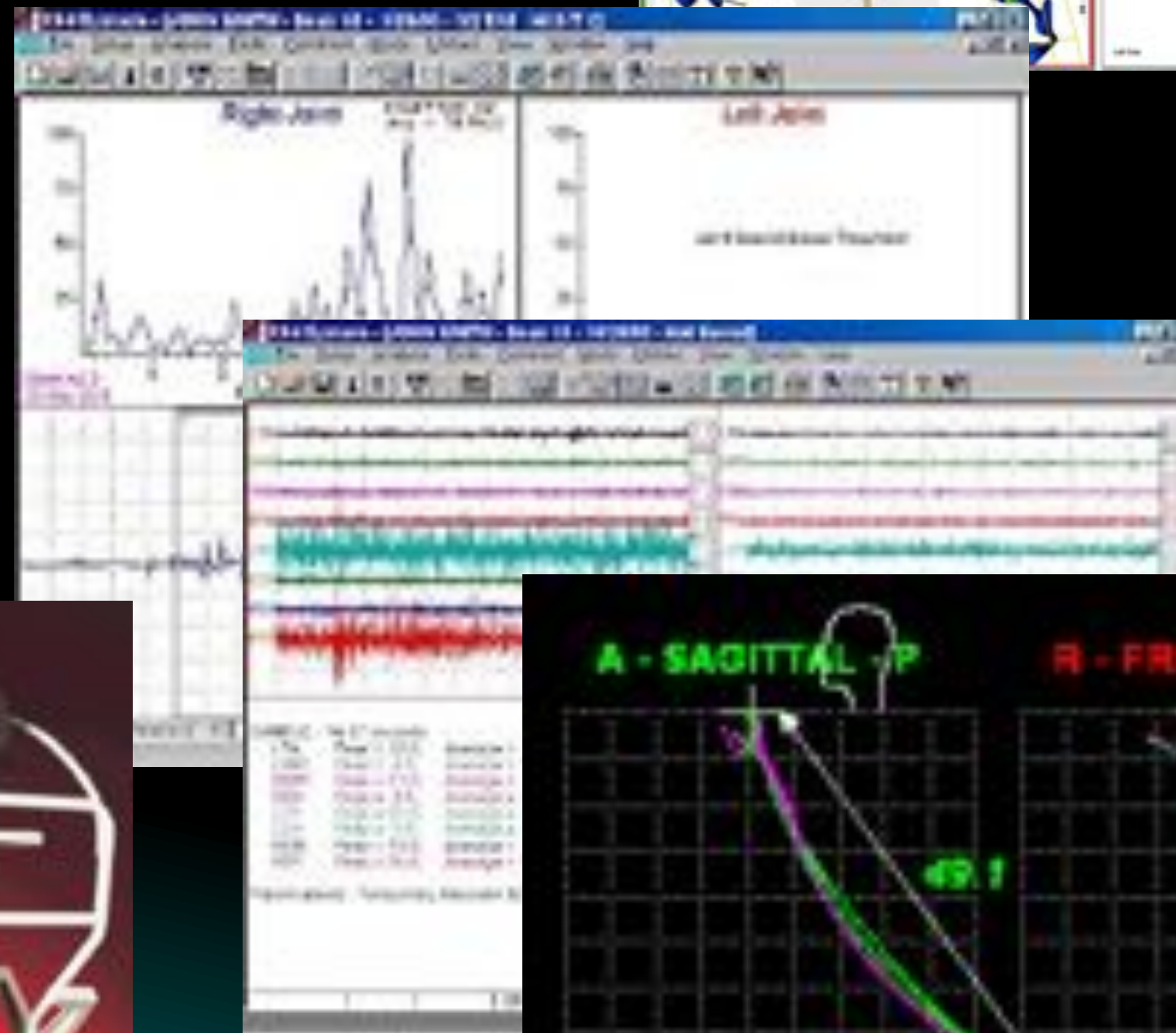
Left Open



Right Closed

Right Open

Additional Records?





Dr. Spencer's Super Awesome TMJ Diagnosis Kit



On sale now!

TMD: Basic Differential Diagnosis

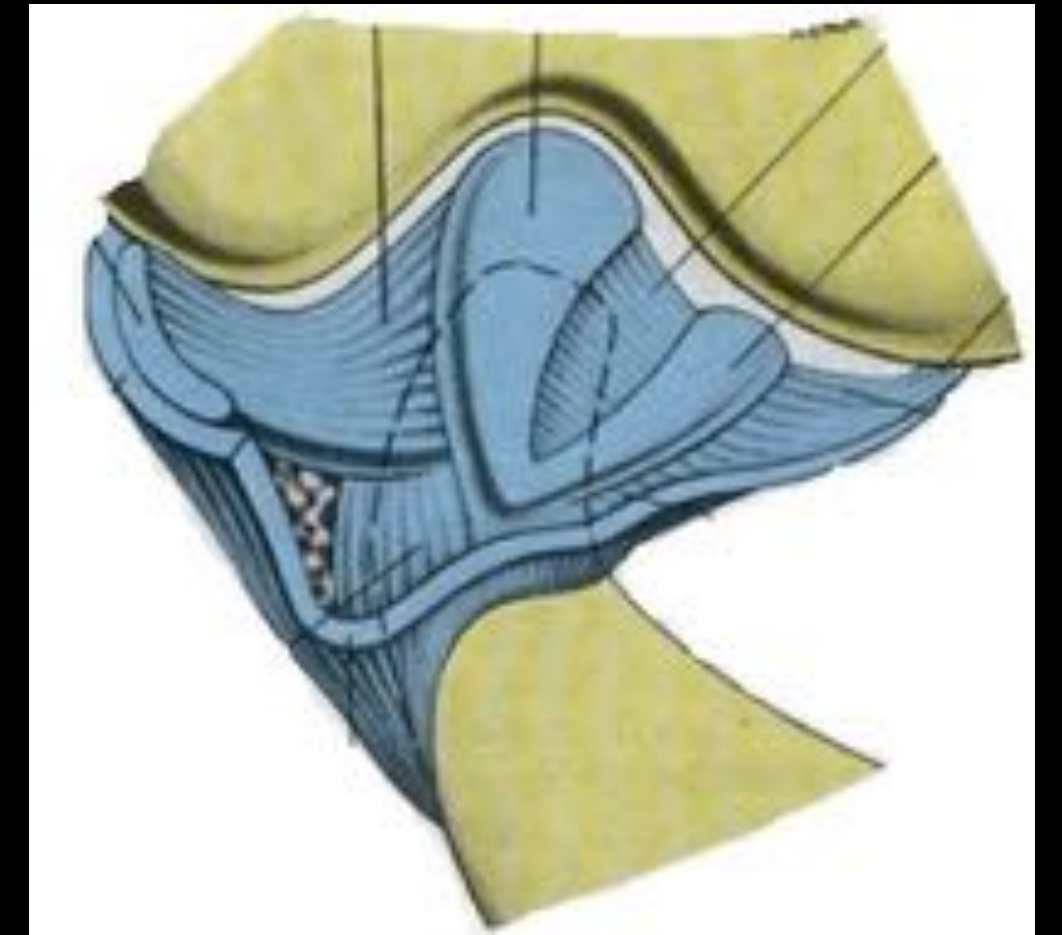
- Or...Everyday,

Normal Dental Office,

Craniofacial Pain Disorders

Capsulitis

- Diagnosis
 - History of Trauma
 - Continuous TMJ Pain
 - Tenderness to Palpation
 - ROM not necessarily reduced
 - Acute malocclusion on injured side
 - Pain with Clenching
 - No pain with clenching on a tongue depressor



Capsulitis

- Treatment
 - Anti-inflammatories
 - Physical Therapy
 - Aqualizer or soft splint
 - Hard splint if necessary

Capsulitis Treatment

- Anti-inflammatories
 - 600 mg Ibuprofen q6h for 4-7 days
 - Medrol dose pack (methylprednisolone)

Capsulitis Treatment

- Iontophoresis
 - A non-invasive method of pushing medication transdermally using a charged pad.
- Phonophoreis
 - A non-invasive method of pushing medication transdermally using ultrasound.



Capsulitis Treatment

- Splint therapy
 - Any splint for acute capsulitis should be temporary—for use until the inflammation is resolved.
 - The perfect splint for a capsulitis case would self adjust as the inflammation reduces...

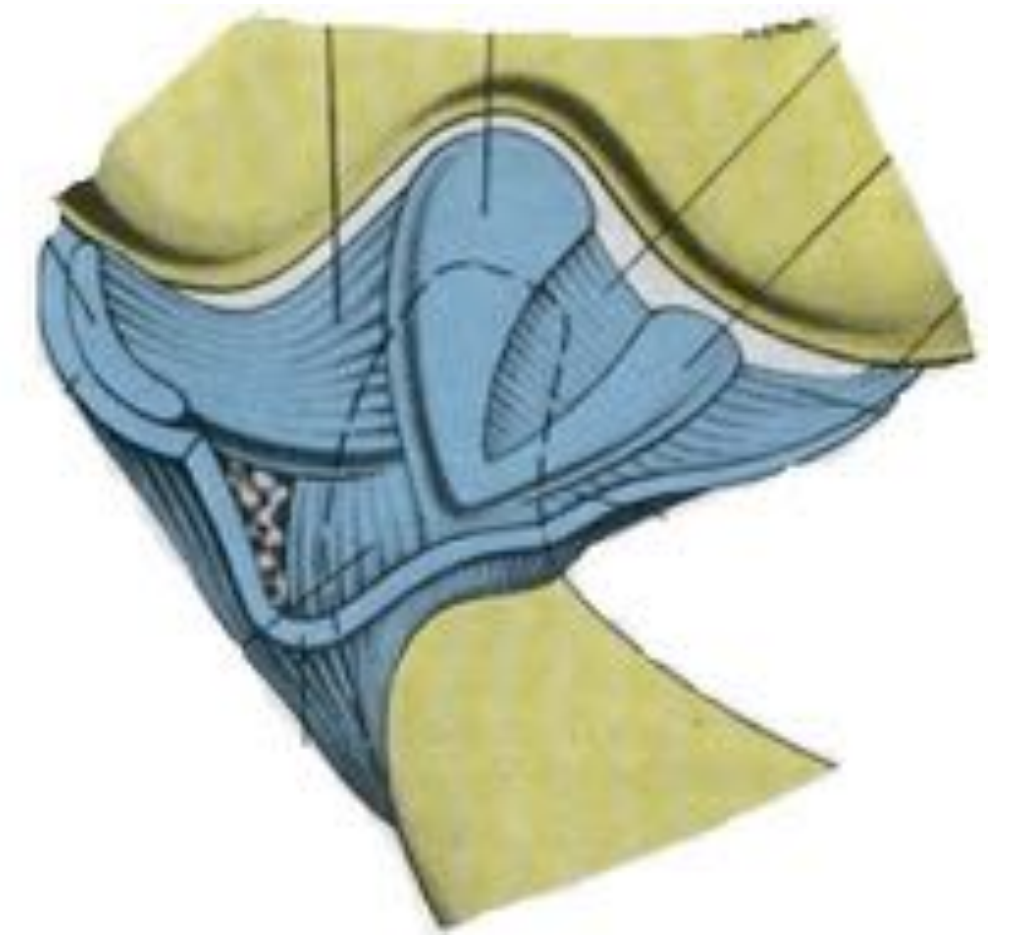


Capsulitis Treatment

- Splint therapy
 - Once the initial capsulitis has resolved, a nightguard or daysplint (or both) may be indicated to reduce adverse joint loading.

Capsulitis Recap

- Pain in/around the TM joint
- Posterior open bite
- Pain on trying to occlude
- No pain biting on a **tongue depressor** on the affected side
- **Anti-inflammatories and an Aqualizer**



Internal Derangements

What is that CLICKING?

Normal



RDD



NRDD



Dr. Per-Lennart
Westesson and Dr.
Lars Eriksson
University of Lund,
Sweden.

Internal Derangements



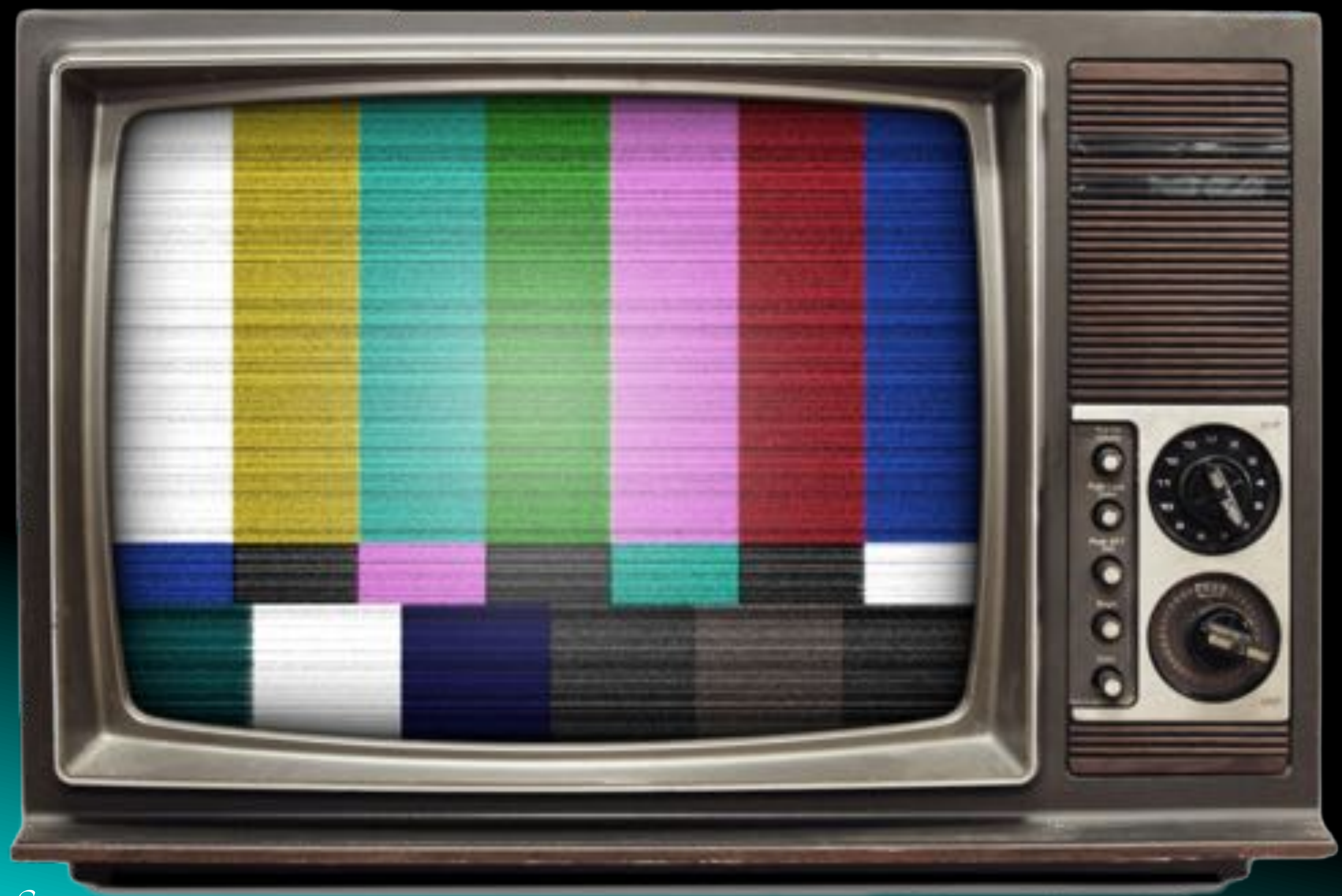
DJD

Internal Derangements

- A (Very) Simplistic Overview
 - Reducing Disc Displacement
 - Non-Reducing Disc Displacement

The Normal TM Joint

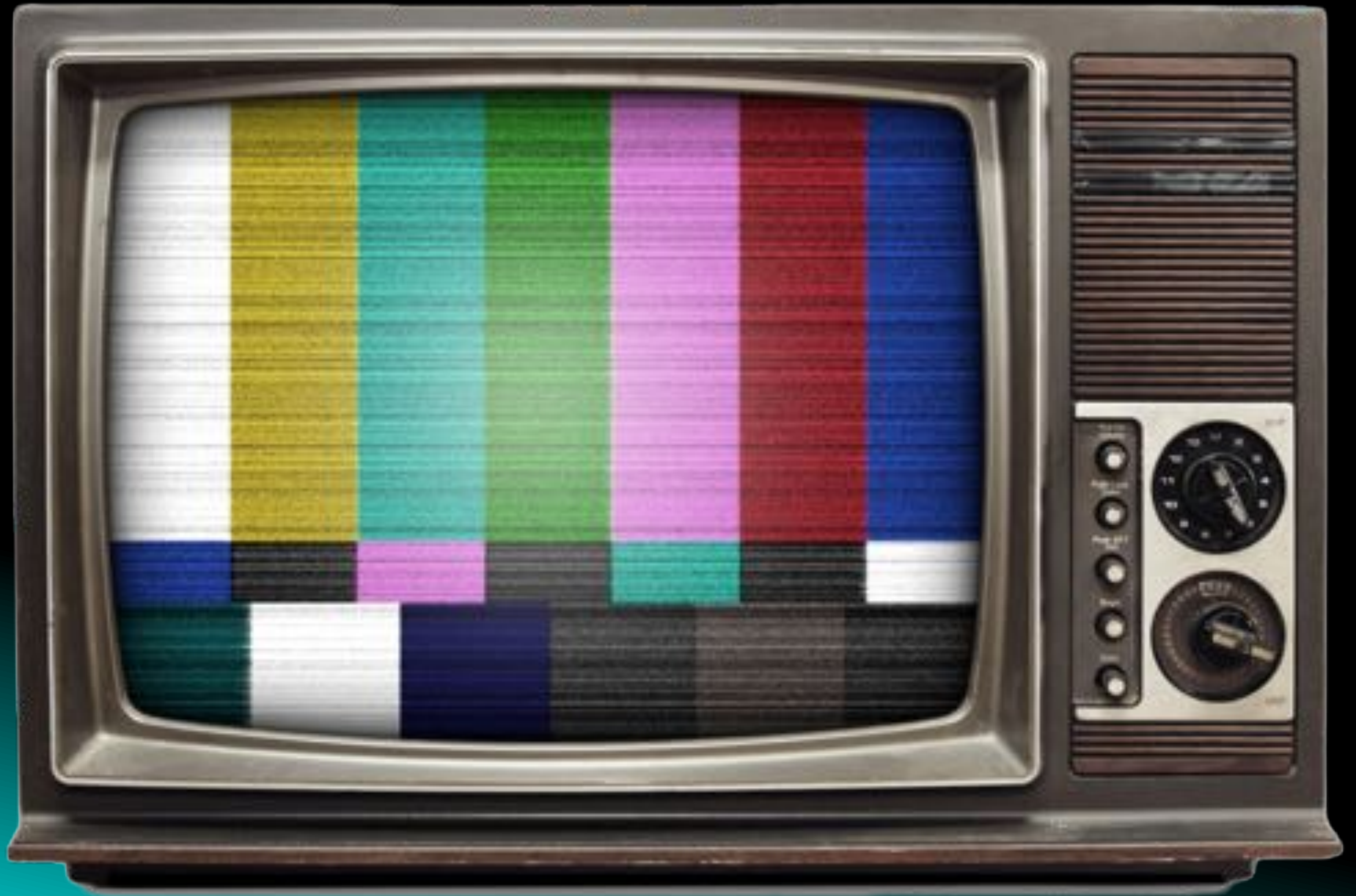
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Discal Dislocation with Reduction

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And now, a brief discussion of...

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And now, a brief discussion of...



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GPT 5th Edition 1987

- “the maxillomandibular relationship in which the condyles articulate with the thinnest avascular portion of their respective disks with the complex in the anterior-superior position against the shapes of the articular eminencies.”

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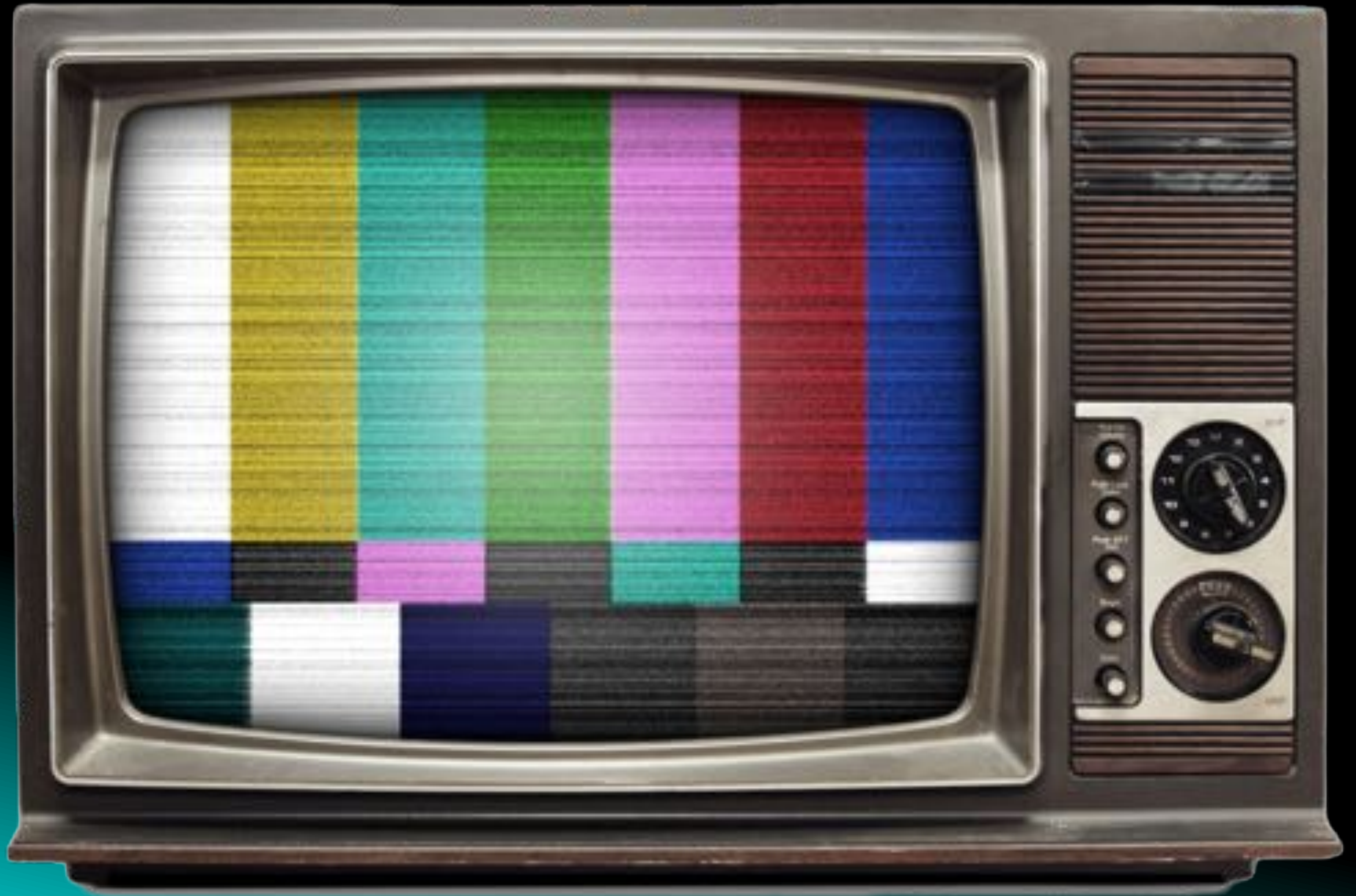
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Discal Dislocation without Reduction

Jamison Spencer



Jamison Spencer

Discal Dislocation without Reduction

- Diagnosis
 - Based on History
 - Based on History plus MRI

Discal Dislocation without Reduction Diagnosis



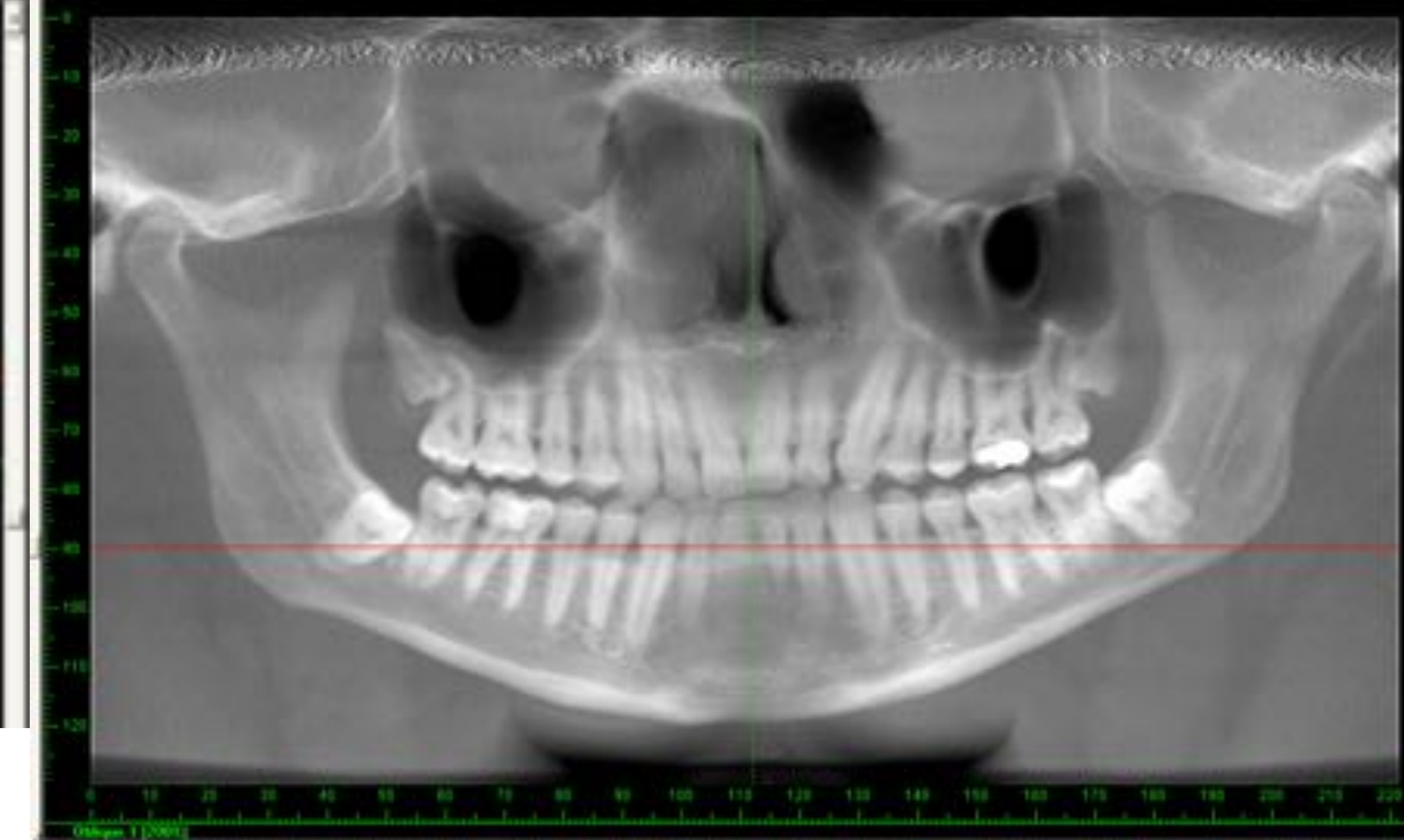
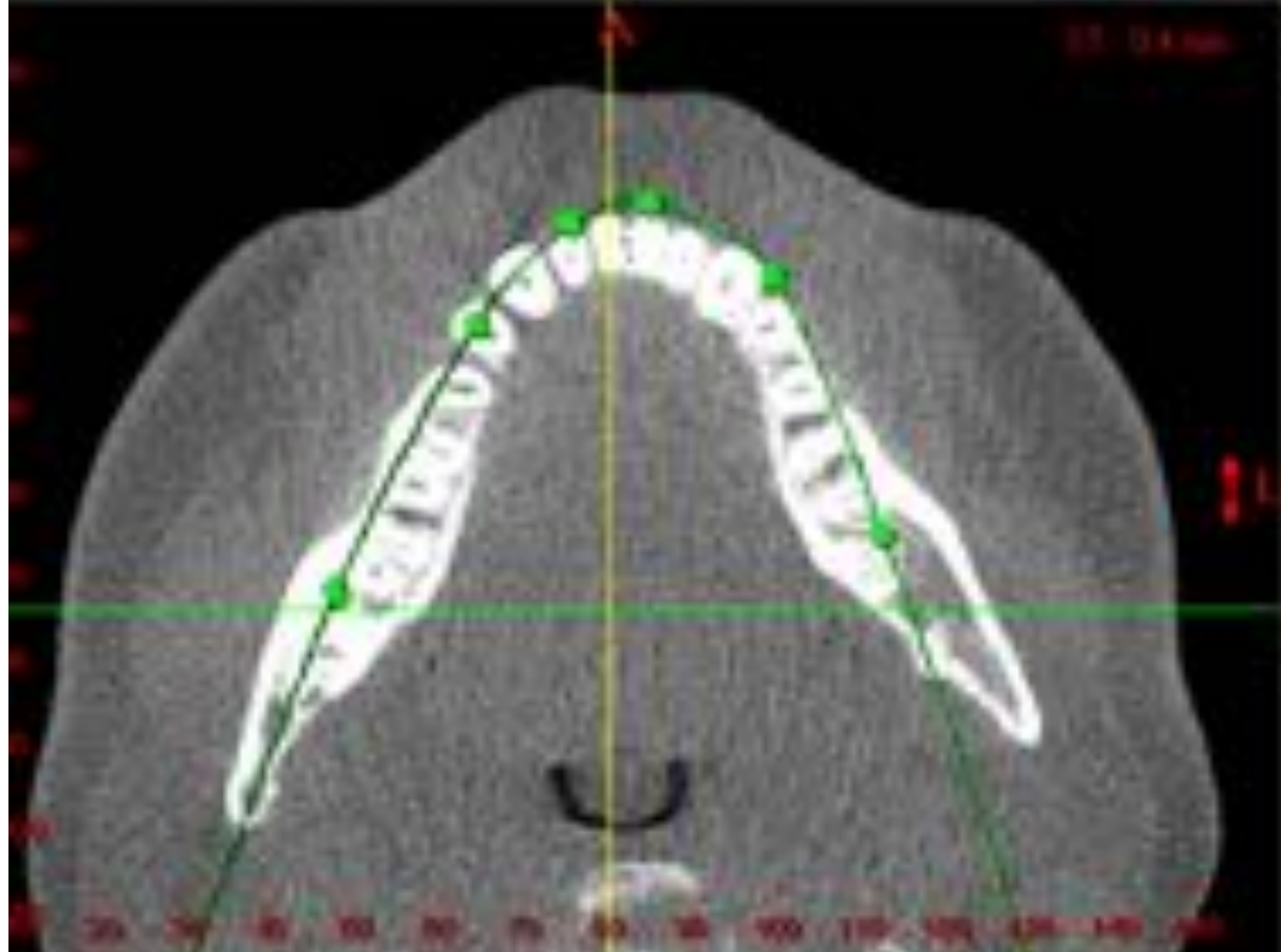
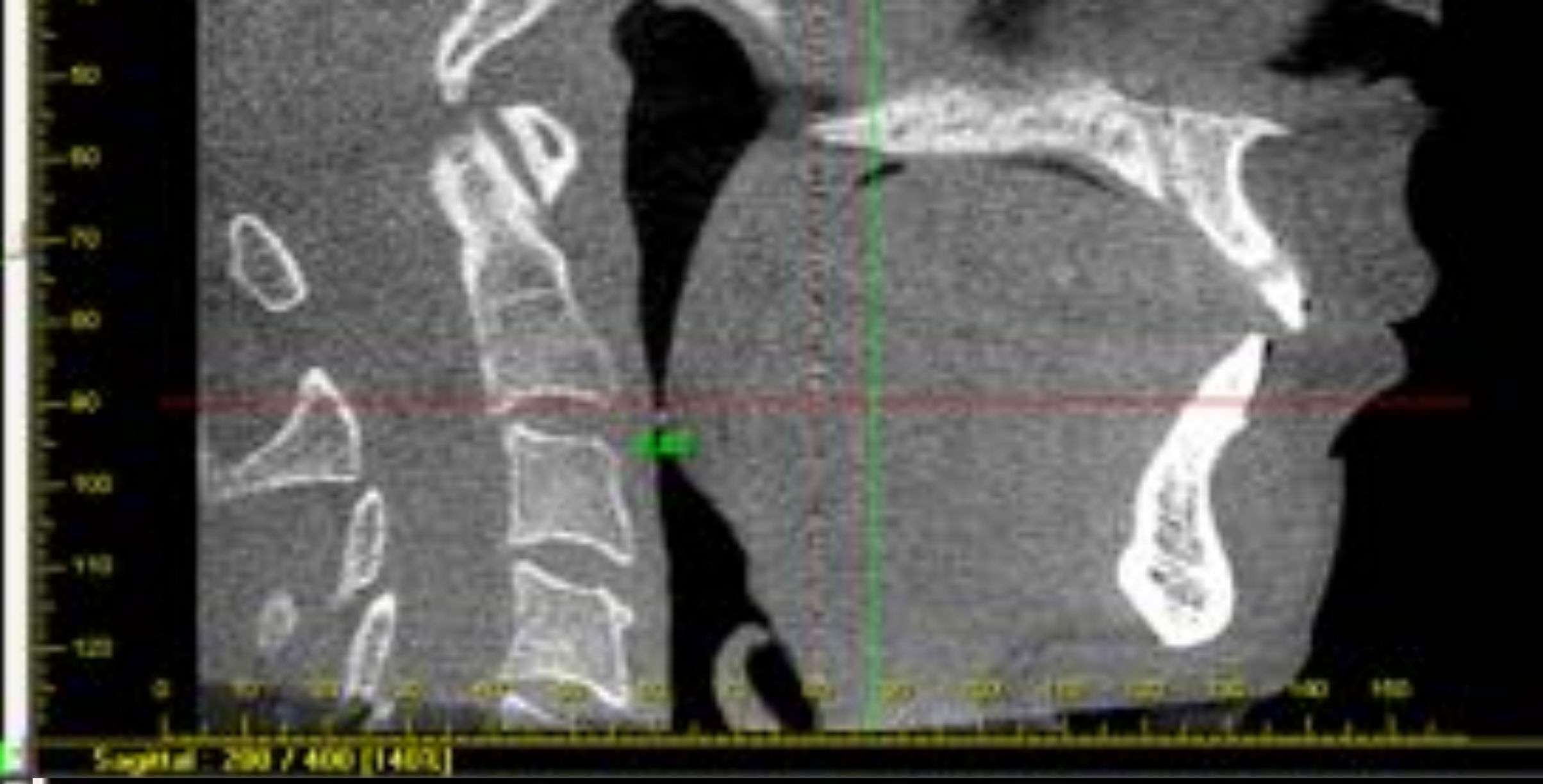
- Based on History
 - Maximum opening of approximately 26mm.
 - Typically deflection to the affected side.
 - History of reducing disc displacement.
 - Often, history of locking episodes.
 - History of a traumatic event (accident, injury, iatrogenic, etc.), or the patient will usually wake locked.

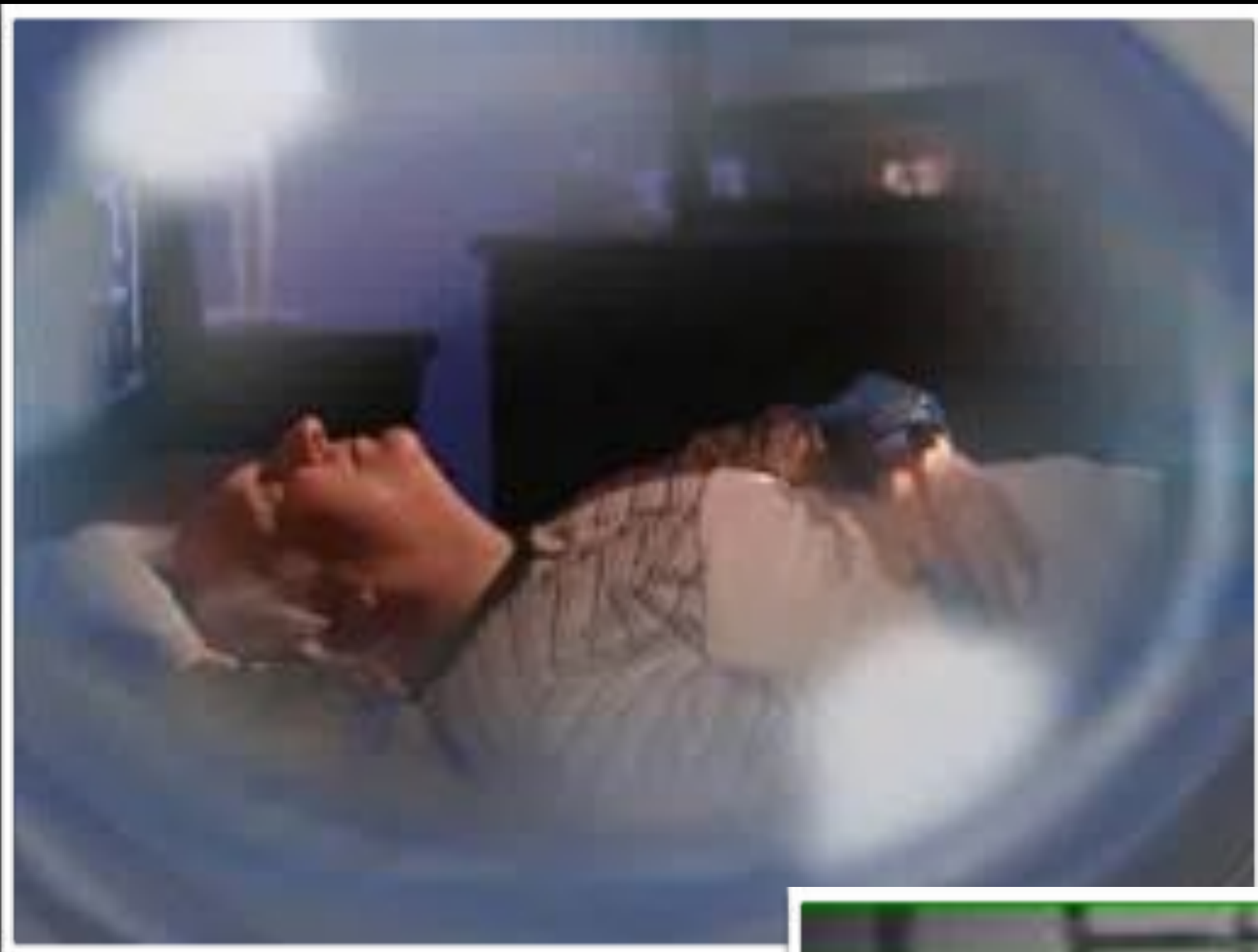
Macro Trauma



Micro Trauma

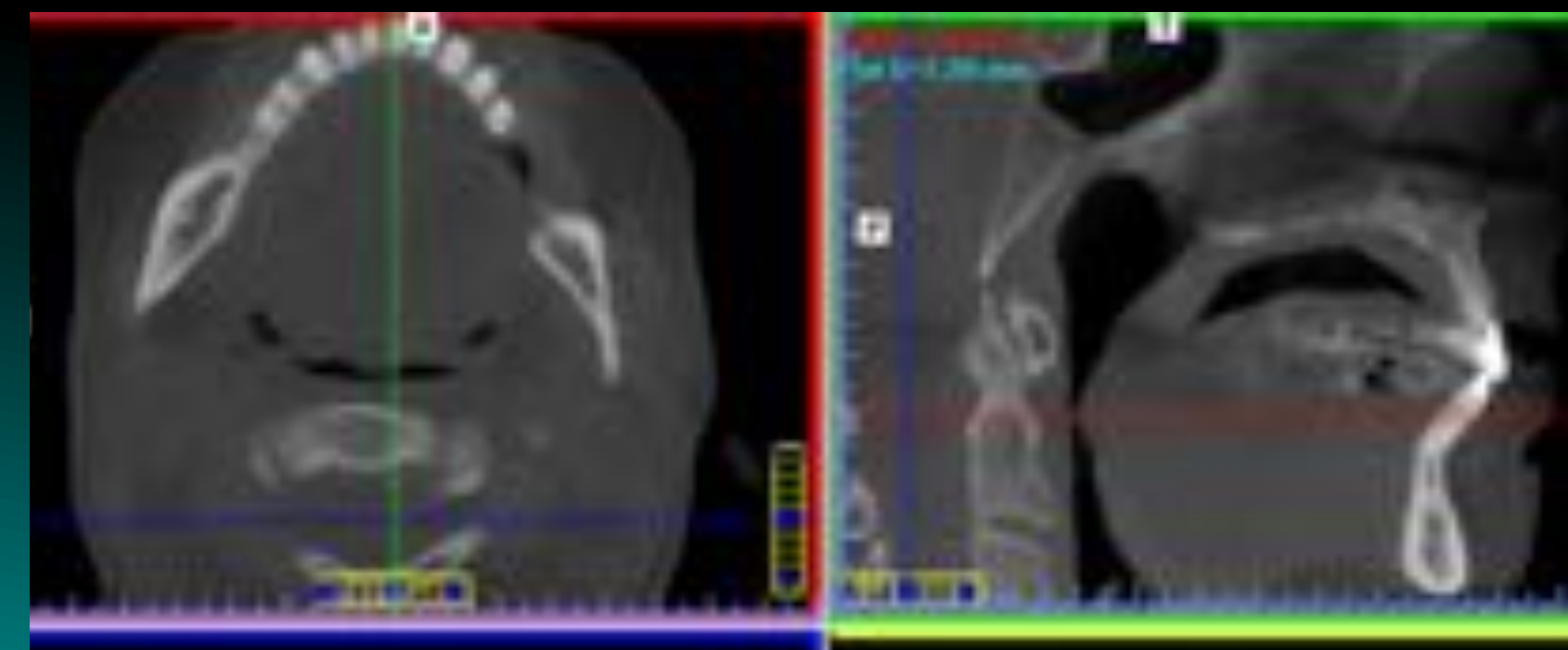






Jamison Spencer

The cause of bruxism???



Discal Dislocation without Reduction

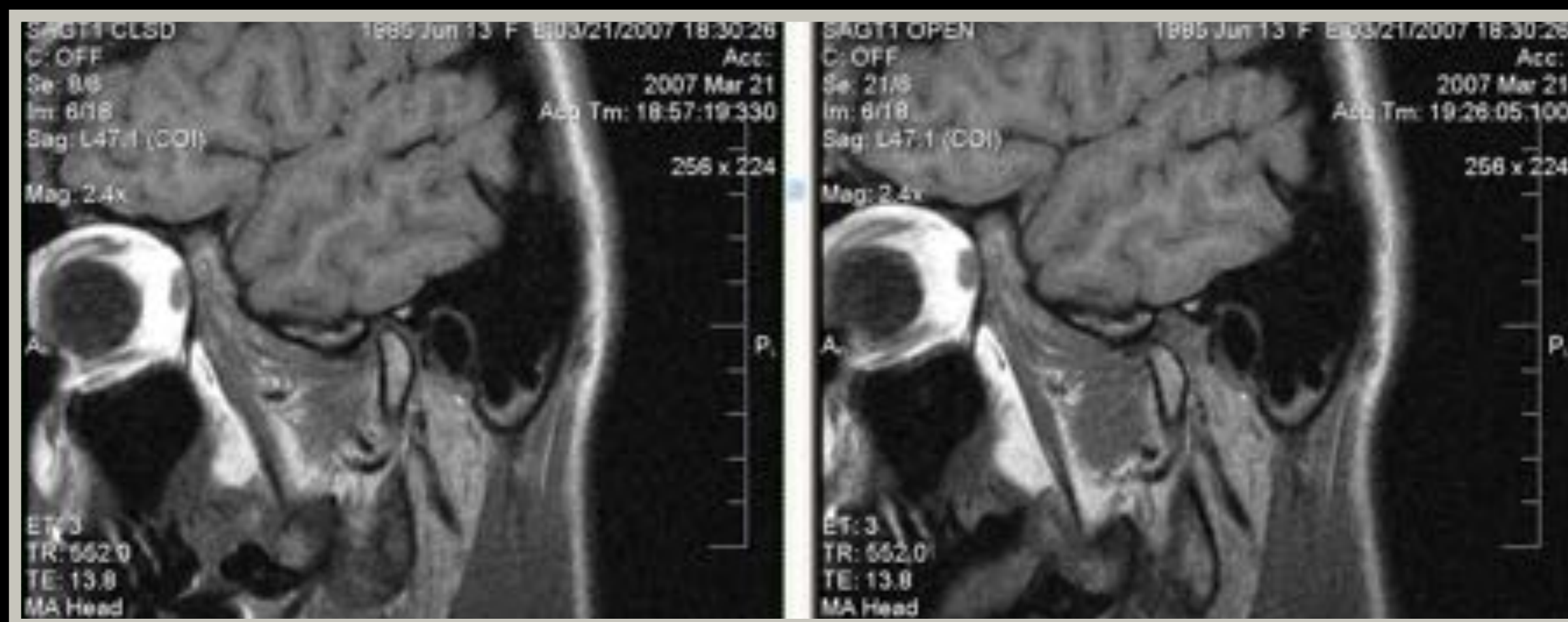
- Acute
 - Sudden onset with pain and swelling
 - Pain with forced maximum intercuspatation
 - Deflection to the affected side on opening
 - Maximum opening is usually around 26mm

Discal Dislocation without Reduction

- Chronic
 - History of joint clicking
 - History of reduced range of motion (usually in the 30's)
 - Usually no pain

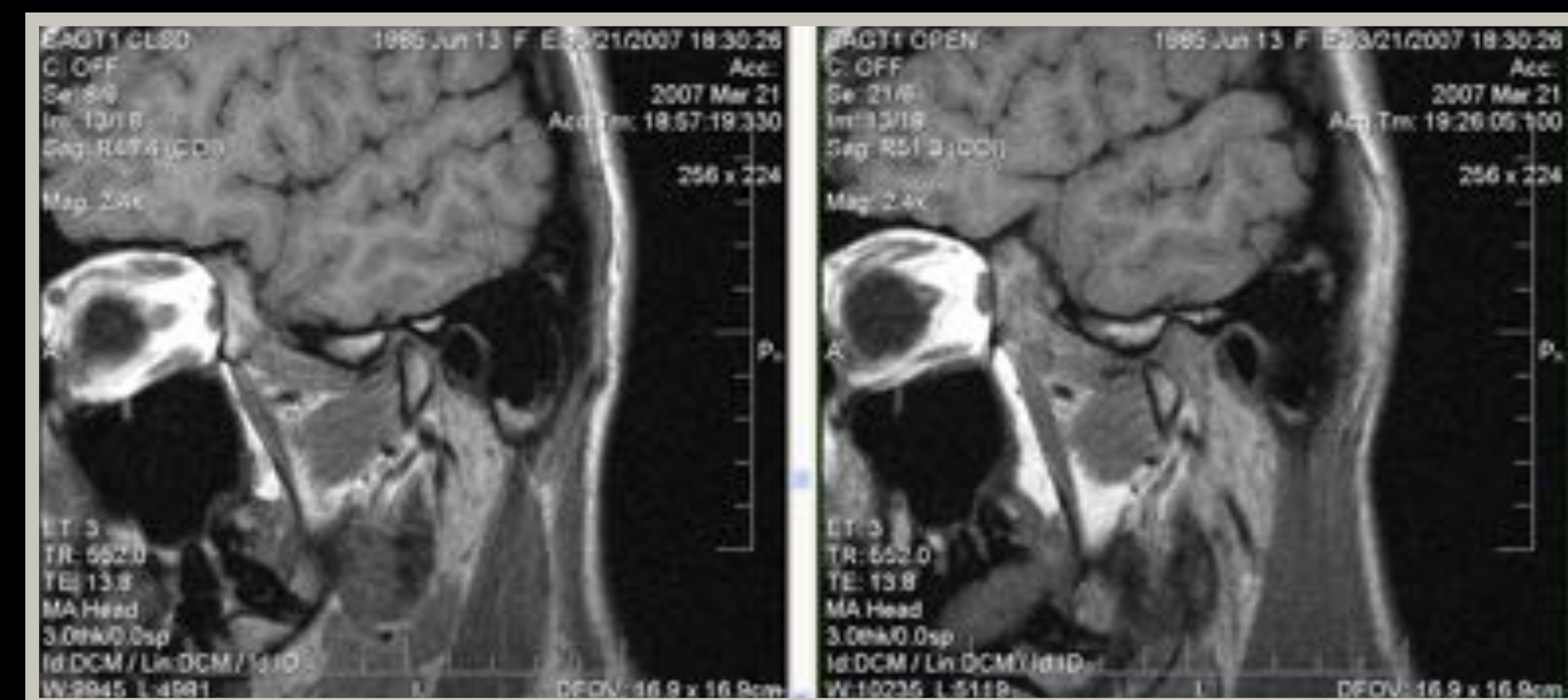
Diagnostic Imaging

- MRI
 - Needed to absolutely confirm DDw/oR.
 - Critical to have the MRI taken correctly.
 - Write the prescription for closed and wide open views.
 - Provide a bite block for the open view.
 - Read the film yourself and discuss with the radiologist if you disagree with the interpretation.



Left Closed

Left Open



Right Closed

Right Open

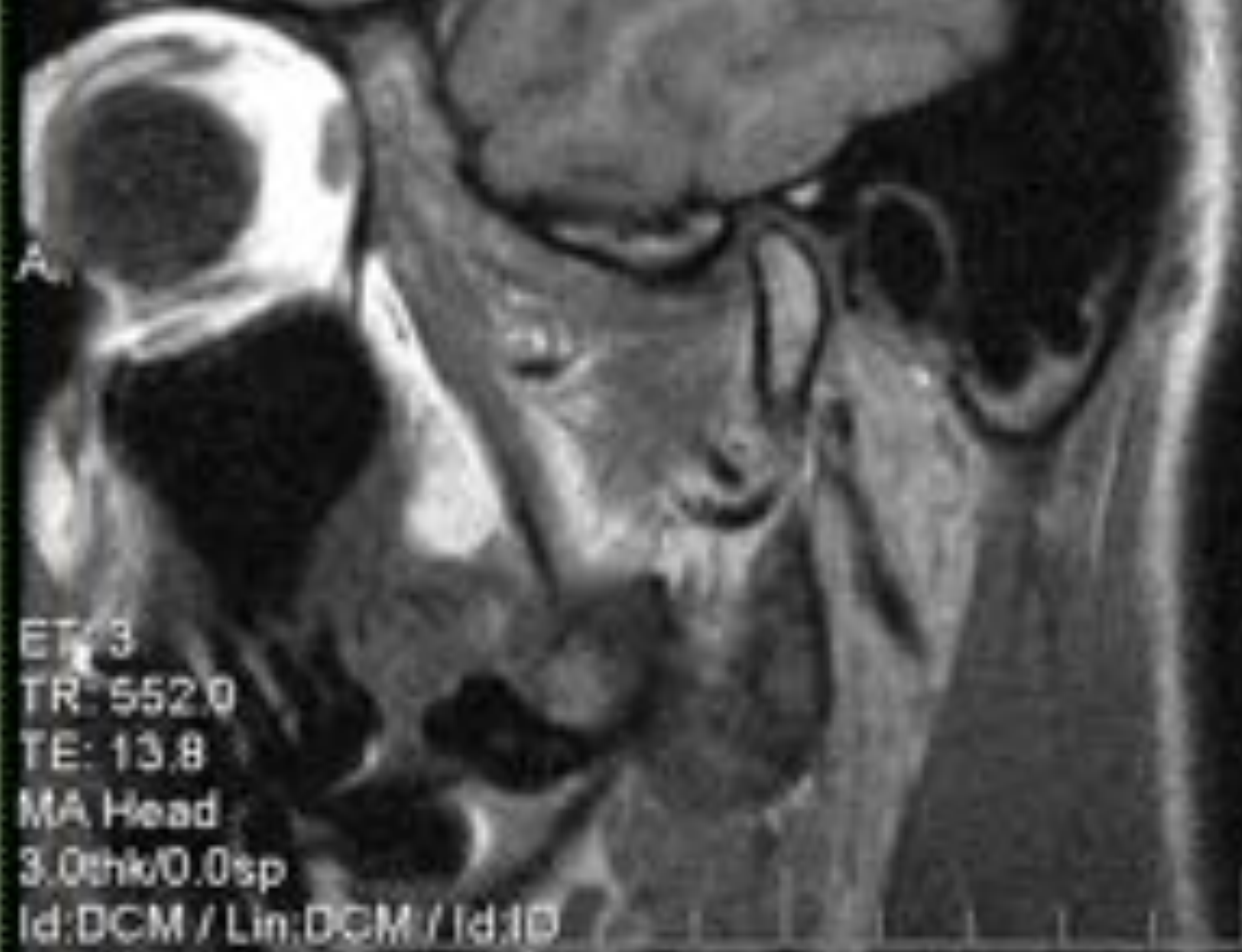
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C: OFF
Se: 8/8
Im: 6/18
Sag: L47.1 (COI)

1985 Jun 13 F E03/21/2007 18:30:26

Acc:
2007 Mar 21
Acq Tm: 18:57:19:330

Mag: 2.4x

256 x 224



ET: 3
TR: 552.0
TE: 13.8
MA Head
3.0thk/0.0sp
Id:DCM / Lin:DCM / Id:10

P_L

Jamison Spence

EC: 03/21/07
SAGT1 OPEN
C: OFF
Se: 21/0
Im: 6/18
Sag: L47.1 (COI)

1985 Jun 13 F E03/21/2007 18:30:26

Acc:
2007 Mar 21
Acq Tm: 19:28:05:100

256 x 224

Mag: 2.4x

A

P_L

ET: 3
TR: 552.0
TE: 13.8
MA Head
3.0thk/0.0sp
Id:DCM / Lin:DCM / Id:10
W:10235 L:5119

DFOV: 16.9 x 16.9cm

Jamison Spencer

RAGT1 CL5D

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C: OFF

Acc:

Se: 8/8

2007 Mar 21

Im: 13/18

Acc Tm: 18:57:19.330

Sag: R48/A (COI)

256 x 224

Mag: 2.4x



ET: 3

TR: 552.0

TE: 13.8

MA Head

3.0thk/0.0sp

Id:DCM / Lin:DCM / Id:10

W:9845 L:4981

DFOV: 16.9 x 16.9cm

Jamison Spencer

SAGT1 OPEN
C: OFF
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Im: 13/18
Sag: R51.3 (COI)

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Acc:
2007 Mar 21
Acc Tm: 19:28:05.100

256 x 224

Mag: 2.4x



ET: 3
TR: 552.0
TE: 13.8
MA Head
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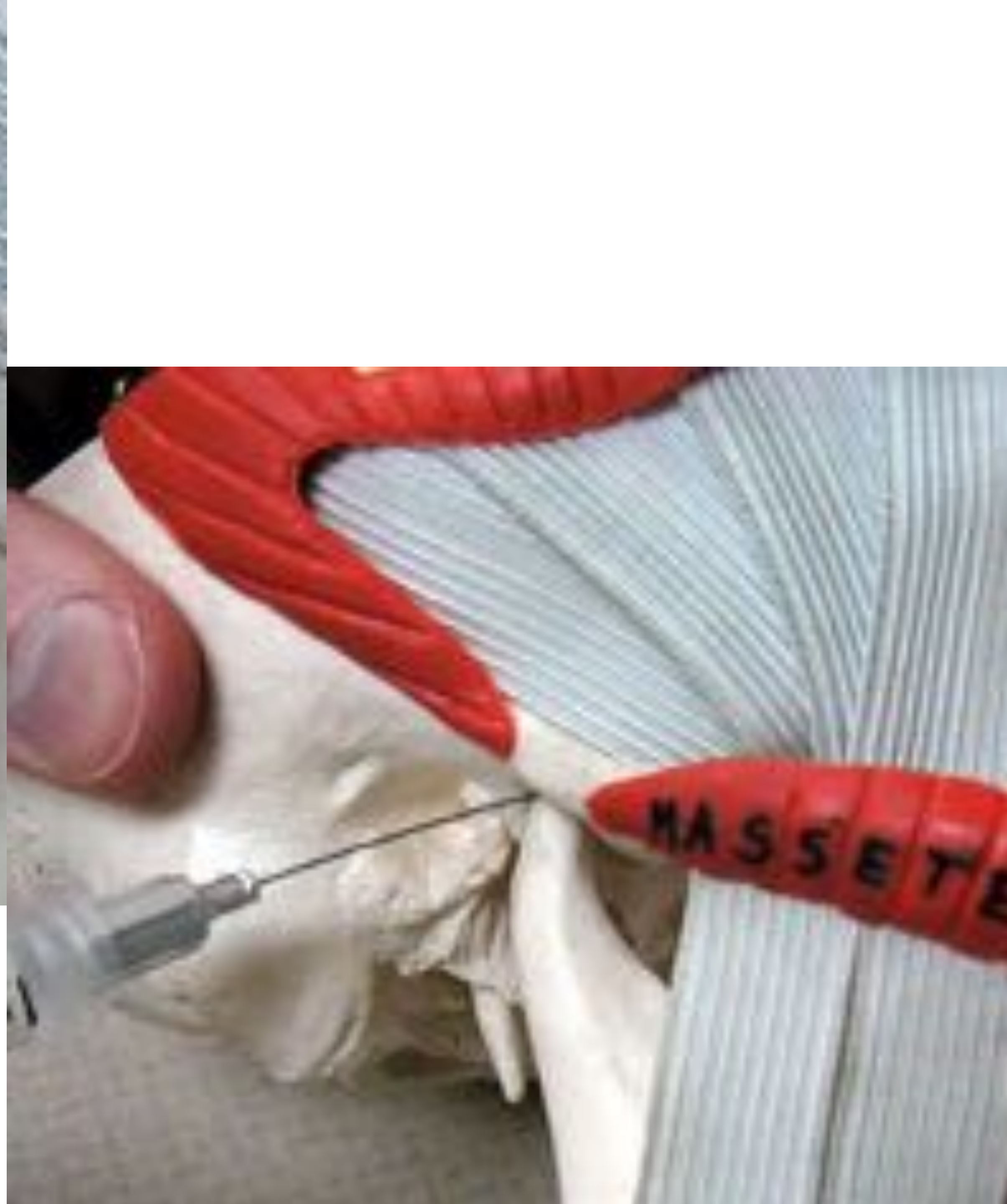
DFOV: 16.9 x 16.9cm

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Discal Dislocation without Reduction

- Treatment
 - Acute
 - Attempt to Reduce (yourself or give the patient exercises)
 - Treat with splint, PT and meds
 - Chronic
 - Attempt to Reduce?
 - No treatment
 - Palliative (meds, home PT, splint)

Reduction (“unlocking”) Technique













Spencer Bilaterally Indexed Gnathological Early Guidance Orthotic



Jamison Spencer



Spencer
BIG EGO

Jamison Spencer

Patient Education

- It is EXTREMELY important to educate the patient to help them feel and know when they are locked and when they are unlocked.

Follow Up

- The patient is to call the next morning
- The patient returns in one week for follow up
- The patient is educated as to the importance of nightguard therapy or daysplint therapy to stabilize the proper disc position (CR)



Thermal Plastic Temporary Splint Fabrication

Jamison Spencer







What about Arthrocentesis?

- Images from [Mayoclinic.org](https://www.mayoclinic.org)



METHODS: Eighty-five joints (85 patients) with unilateral internal derangement or osteoarthritis that were successfully treated were included in this study. The patients were divided into four groups as follows: splint therapy group, pumping manipulation group, arthrocentesis group, and arthroscopic surgery group. Changes in the disc position, mobility, and morphology before and after treatment were compared among the four groups using MRI. Ohnuki, T. Fukuda, M. Nakata, A. Nagai, H. Takahashi, T. Sasano, T. Miyamoto, Y.

Evaluation of the position, mobility, and morphology of the disc by MRI before and after four different treatments for temporomandibular joint disorders. Dento-Maxillo-Facial Radiology. 35(2):103-9, 2006 Mar.

RESULTS: All discs showed anterior disc displacement (ADD) without reduction before treatment. Only 10% of the joints became ADD with reduction after treatment, and the other joints remained ADD without reduction in spite of treatment. Discs treated by arthroscopic surgery were located more anteriorly compared with pre-treatment. The disc deformity advanced after arthrocentesis and arthroscopic surgery.

Evaluation of the position, mobility, and morphology of the disc by MRI before and after four different treatments for temporomandibular joint disorders.

Dento-Maxillo-Facial Radiology. 35(2):103-9, 2006 Mar.

Jamison Spencer

Study design. The study comprised 28 patients with a clinical unilateral TMJ disorder of internal derangement type III and capsulitis/synovitis. Bilateral MRI was immediately performed preoperatively and at a 2-month follow-up.

- Magnetic resonance imaging findings of internal derangement, osteoarthritis, effusion, and bone marrow edema before and after performance of arthrocentesis and hydraulic distension of the temporomandibular joint

Rüdiger Emshoff, MD, DMD,^a Stefan Gerhard, MD, DMD,
Thomas Ennemoser, MD, DMD, and Ansgar Rudisch, MD, Innsbruck, Austria
Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2006;101:784–790

Comparison of the pretreatment MRI findings with the 2-month follow-up data showed for the TMJ internal derangement type III and capsulitis/synovitis side a slight decrease in the diagnoses of internal derangement from 28 (100%) preoperatively to 25 (89.3%) postoperatively, and a slight increase in those of OA

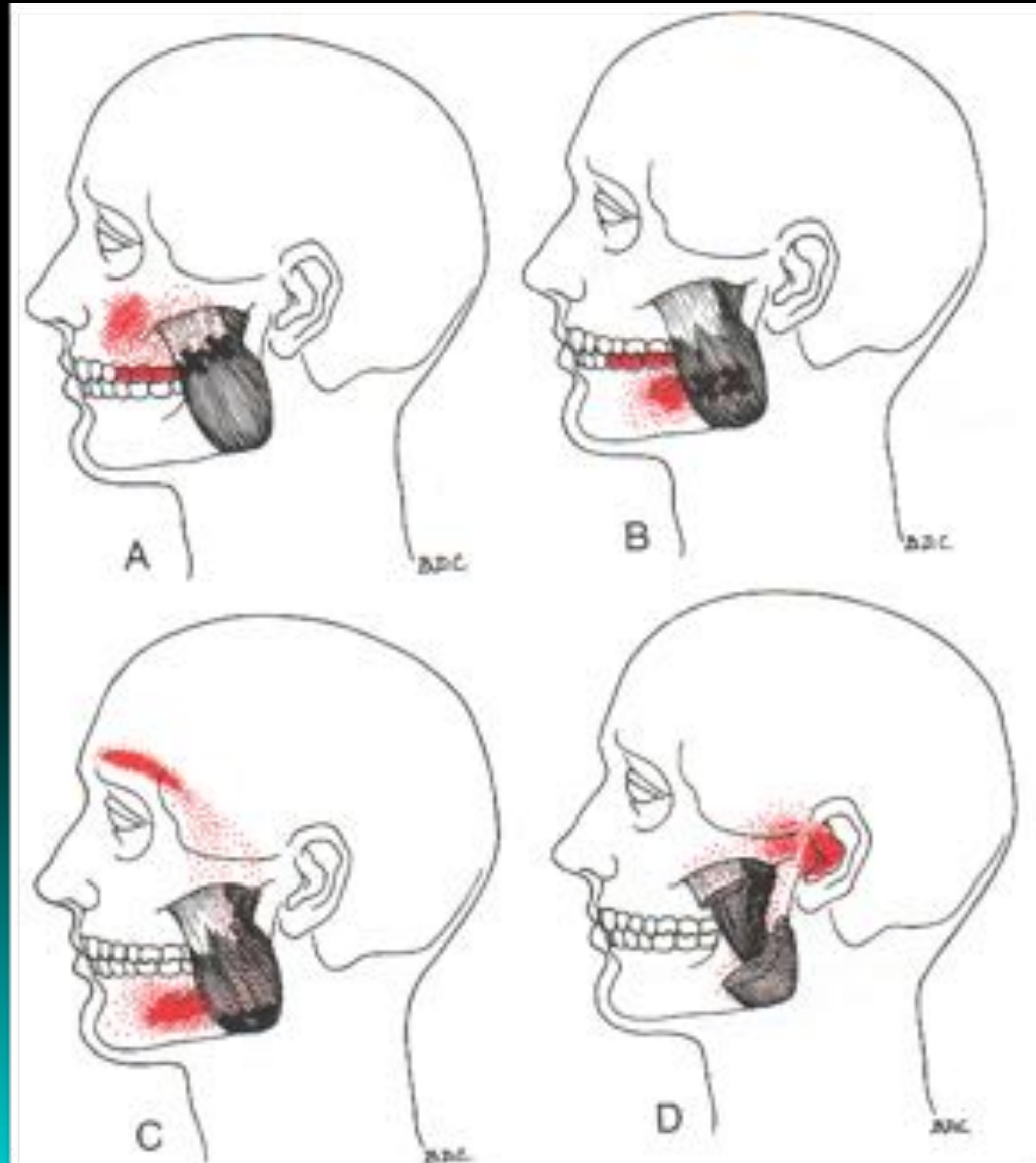
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NRDD Recap

- Approximately 26mm inter-incisal opening
- History of clicking
- History of occasional locking episodes or “catching”
- No clicking since the jaw “locked”
- Perform unlocking procedure or refer ASAP (for unlocking procedure... not to PT or Chiro)

Myofascial Pain Dysfunction



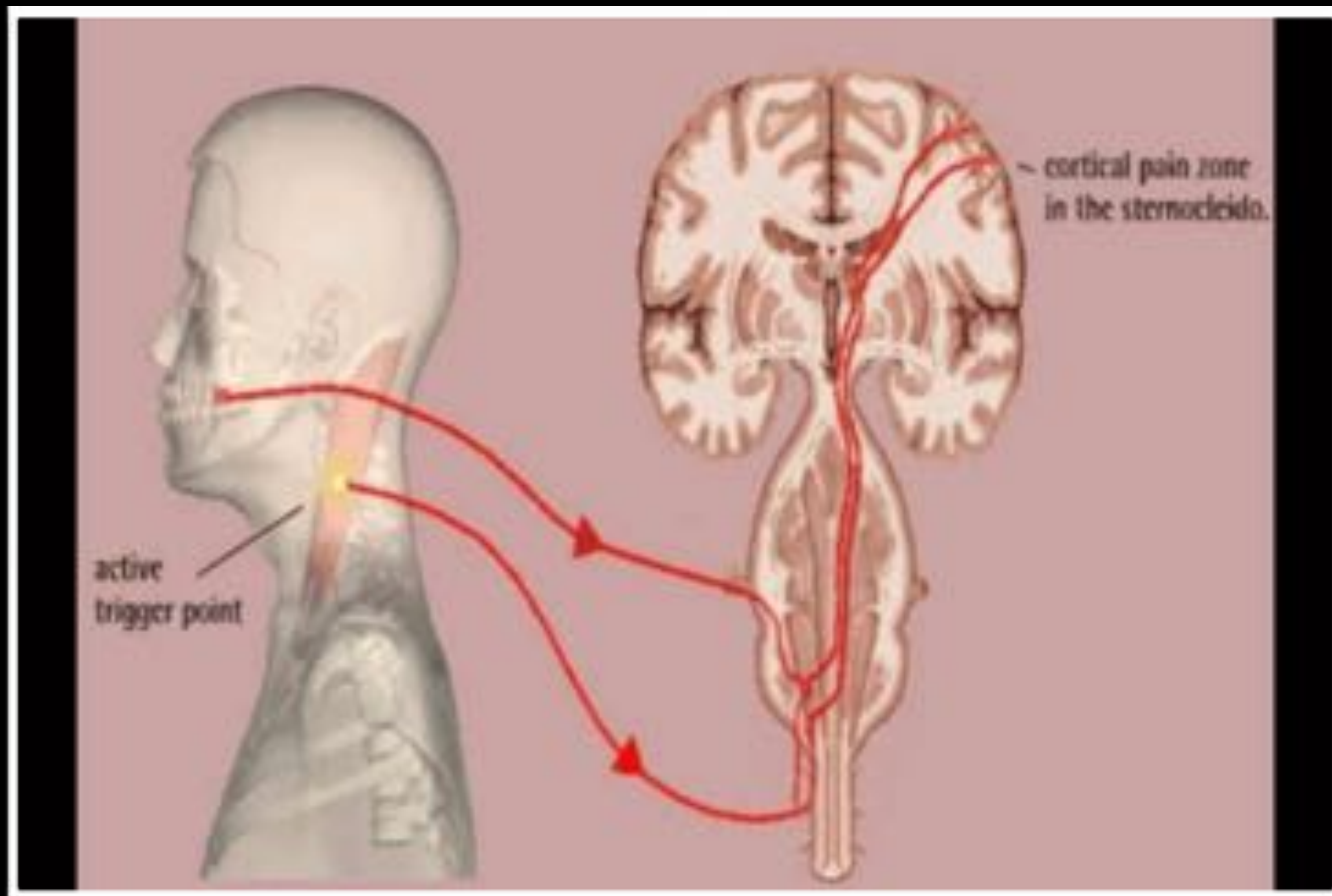
Myofascial Pain Dysfunction

- Not specific to TMD
- Variable muscle pain
- Restricted ROM
- Trigger Points with referral patterns

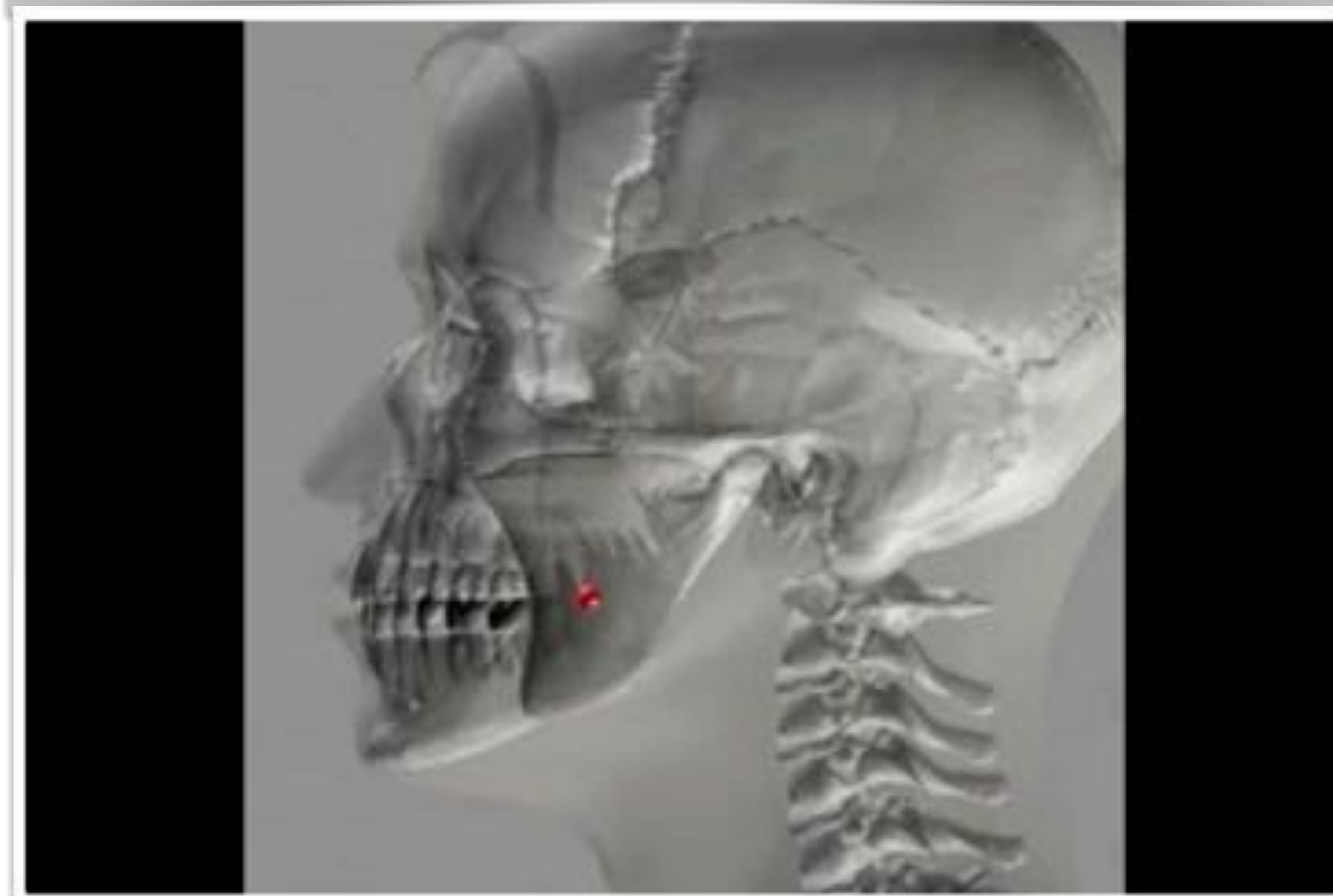
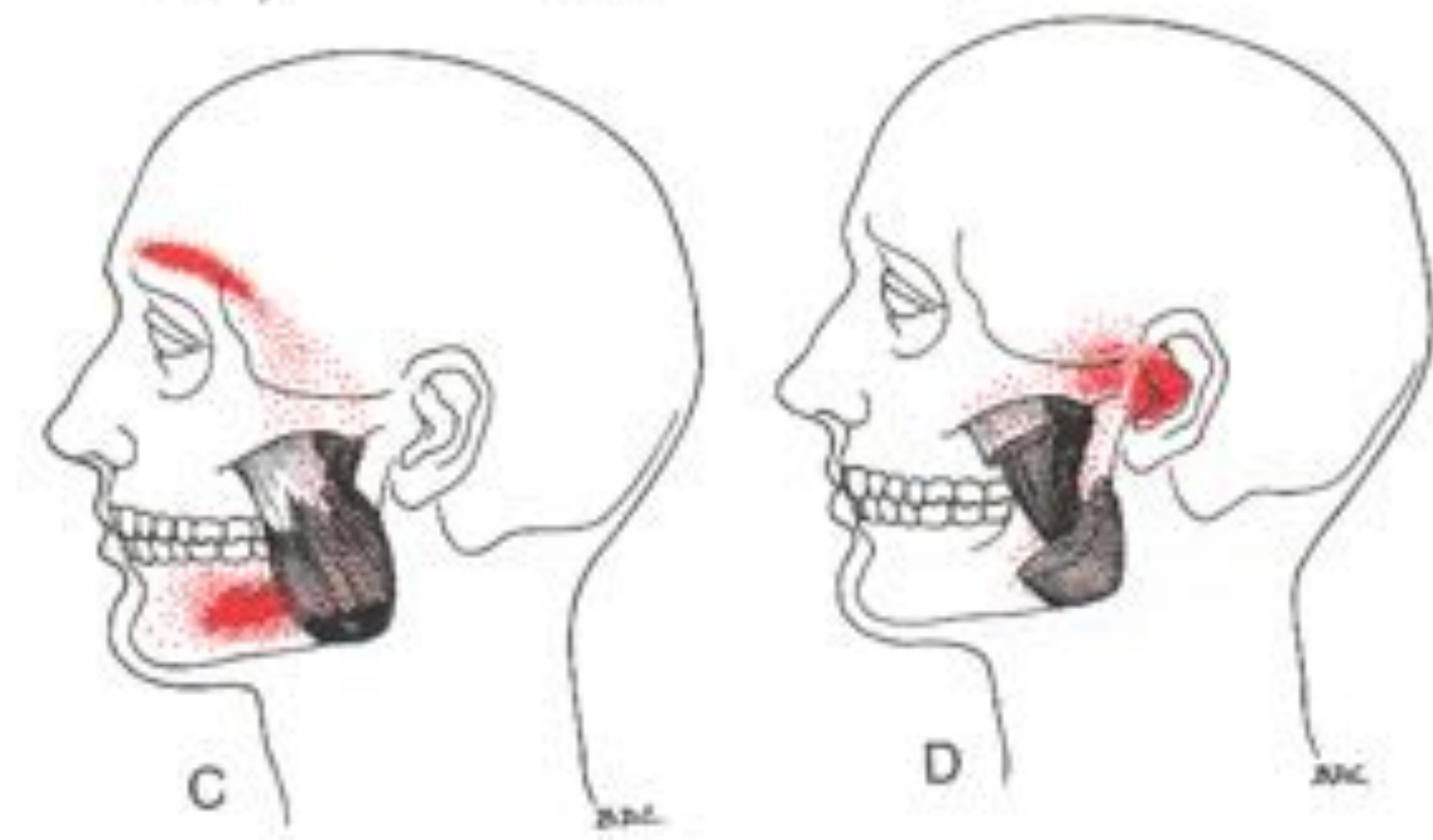
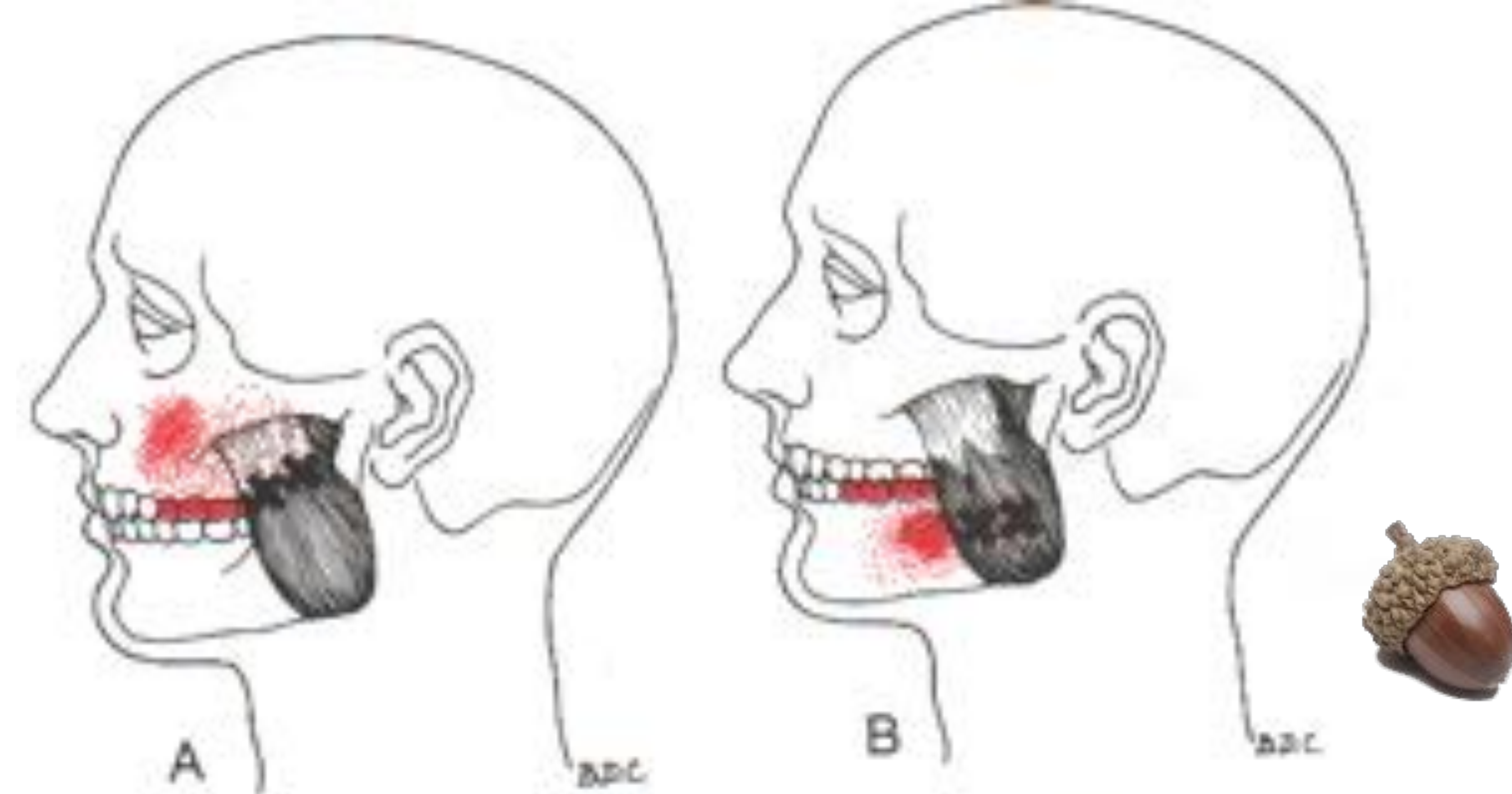
Trigger Points

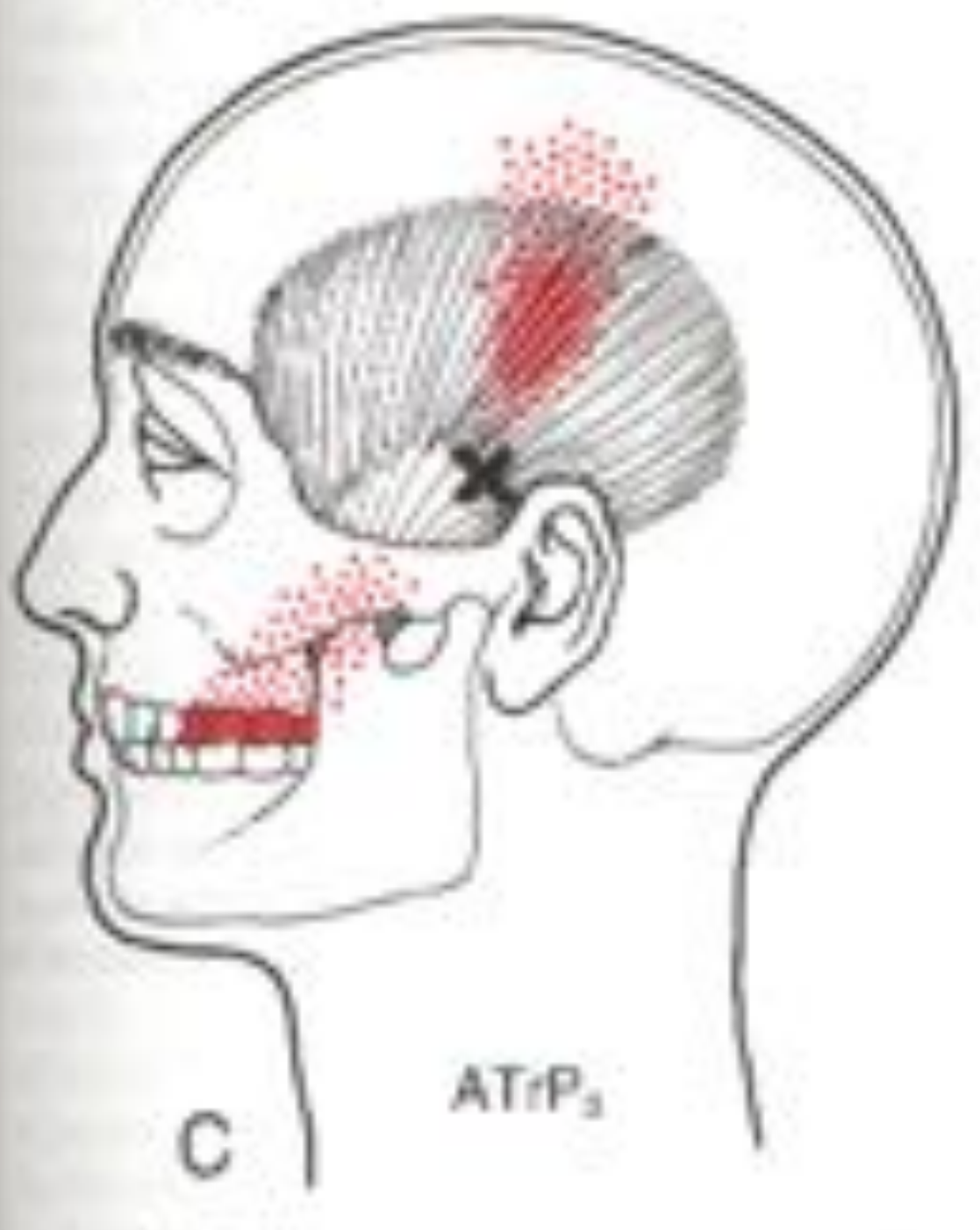
- Definition: A hyperirritable spot in skeletal muscle that is associated with a hypersensitive palpable nodule in a taut band. The spot is painful on compression and can give rise to characteristic referred pain, referred tenderness, motor dysfunction, and autonomic phenomena.

Travell & Simons' *Myofascial Pain and Dysfunction*



Jamison Spencer





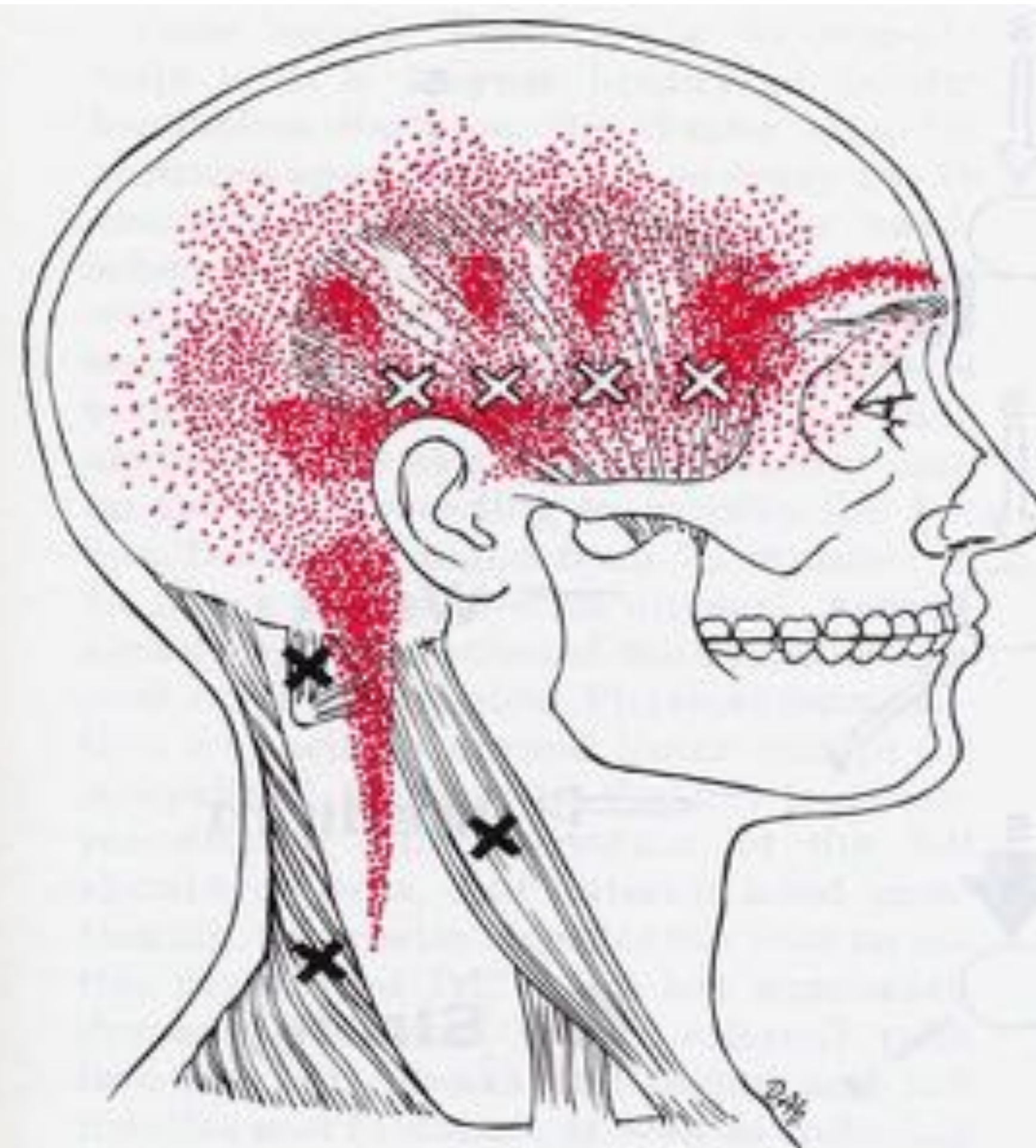
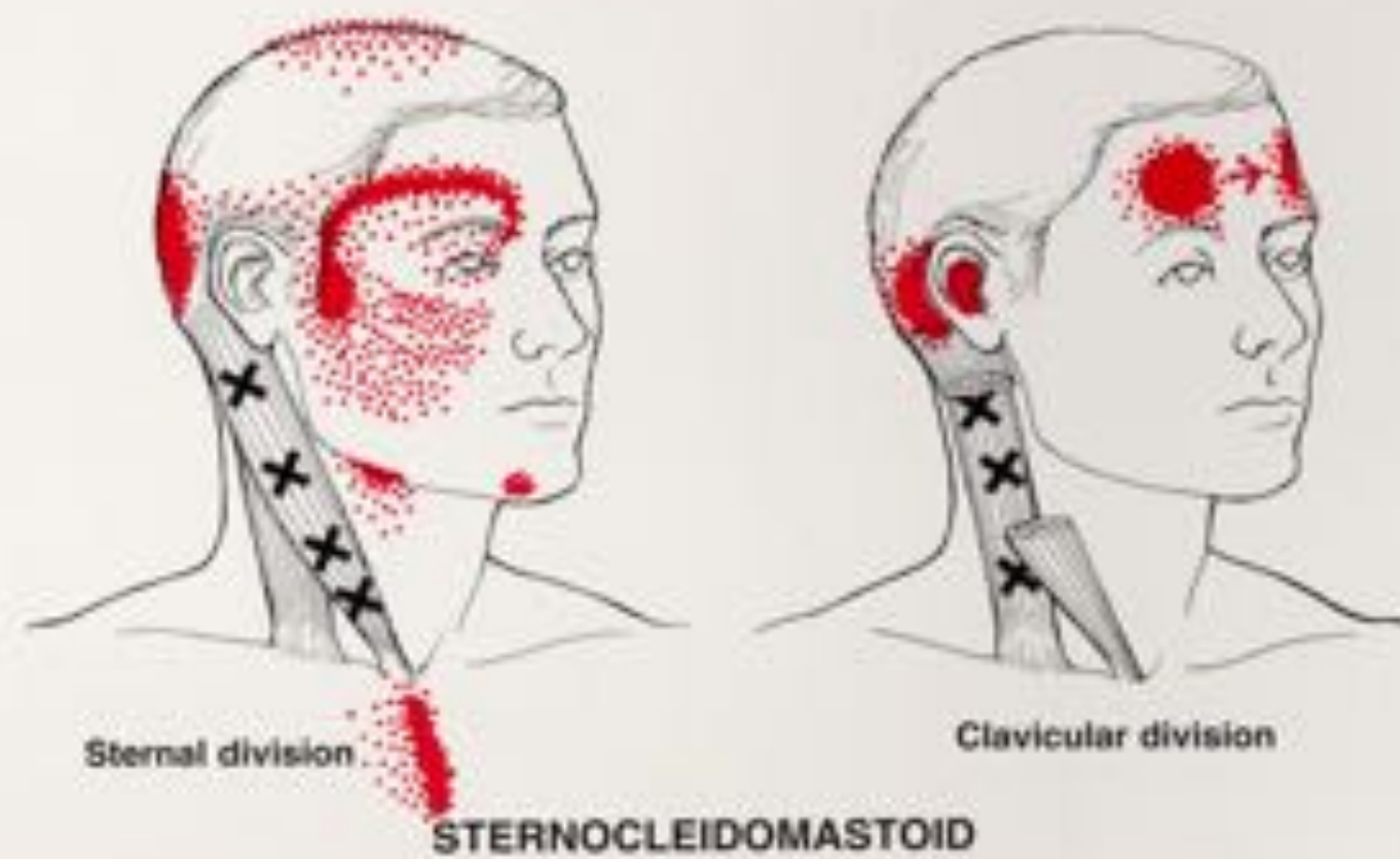
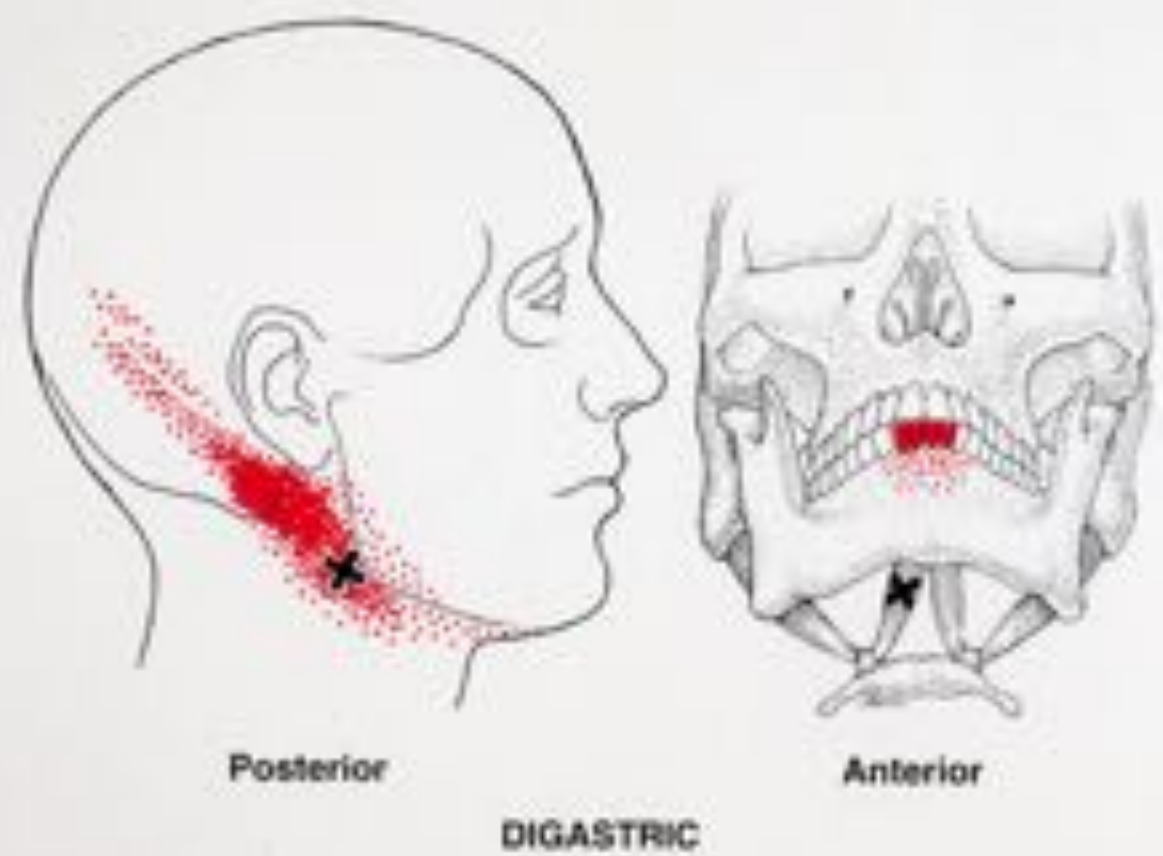
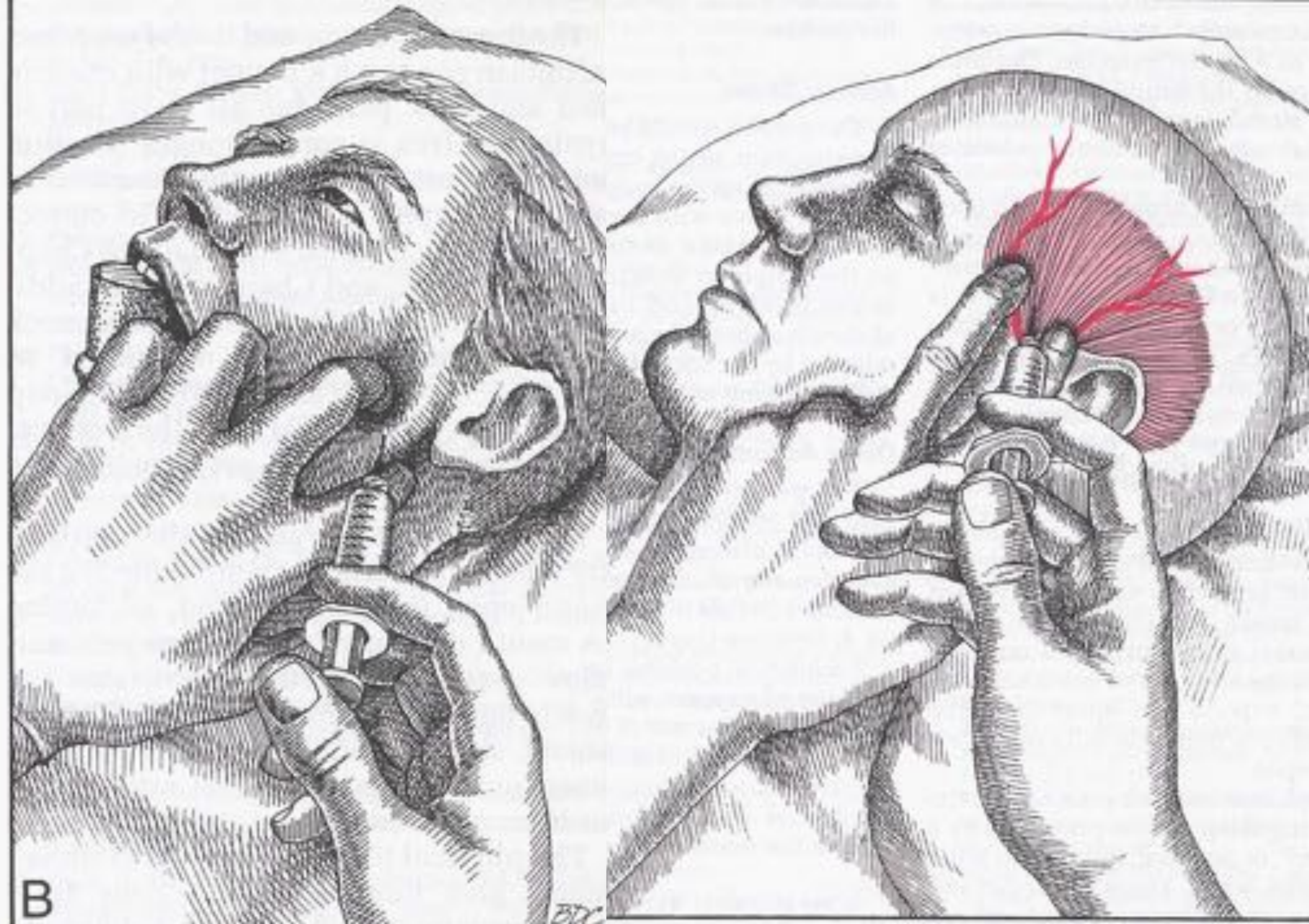
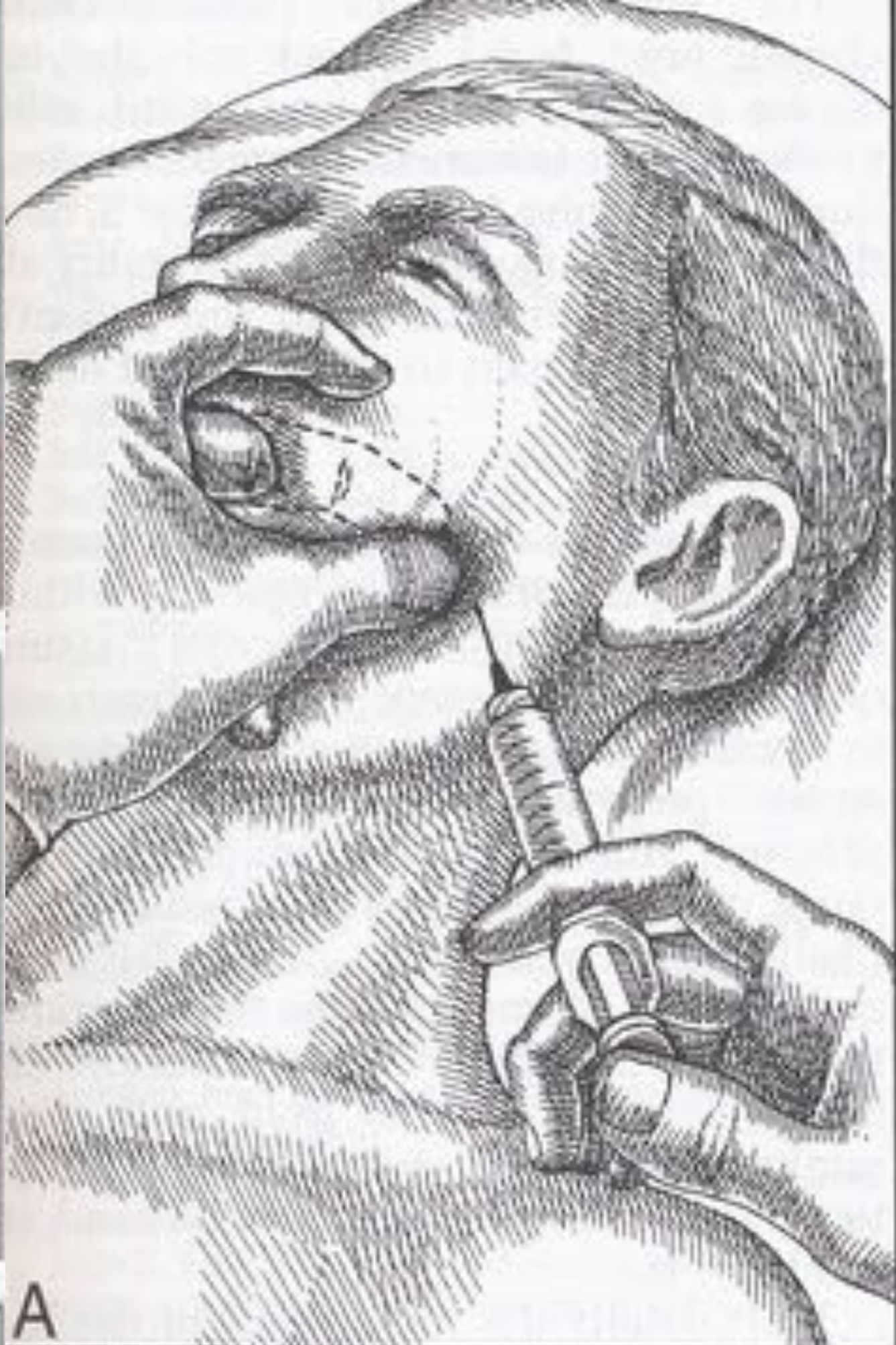
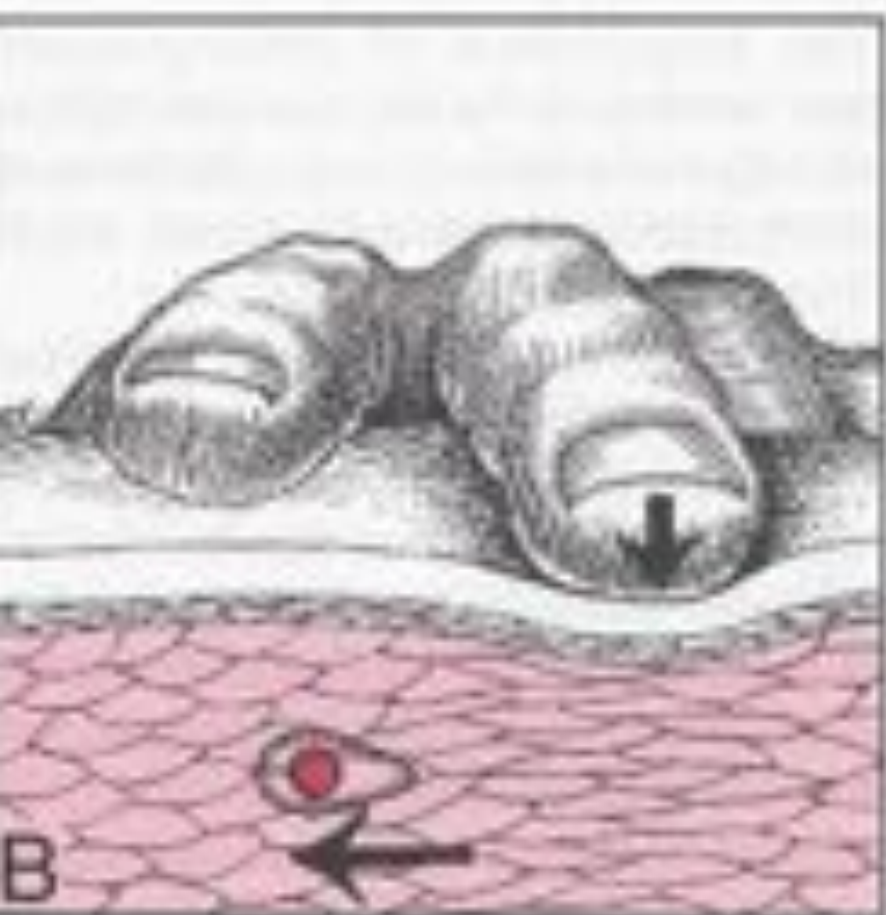
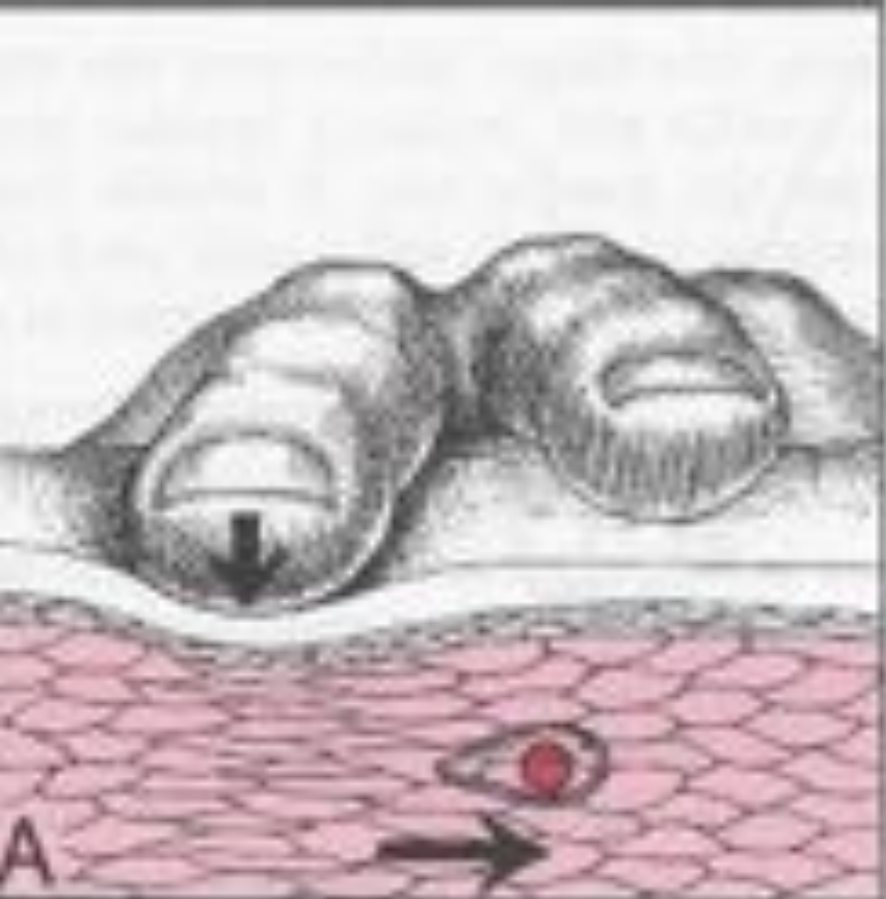
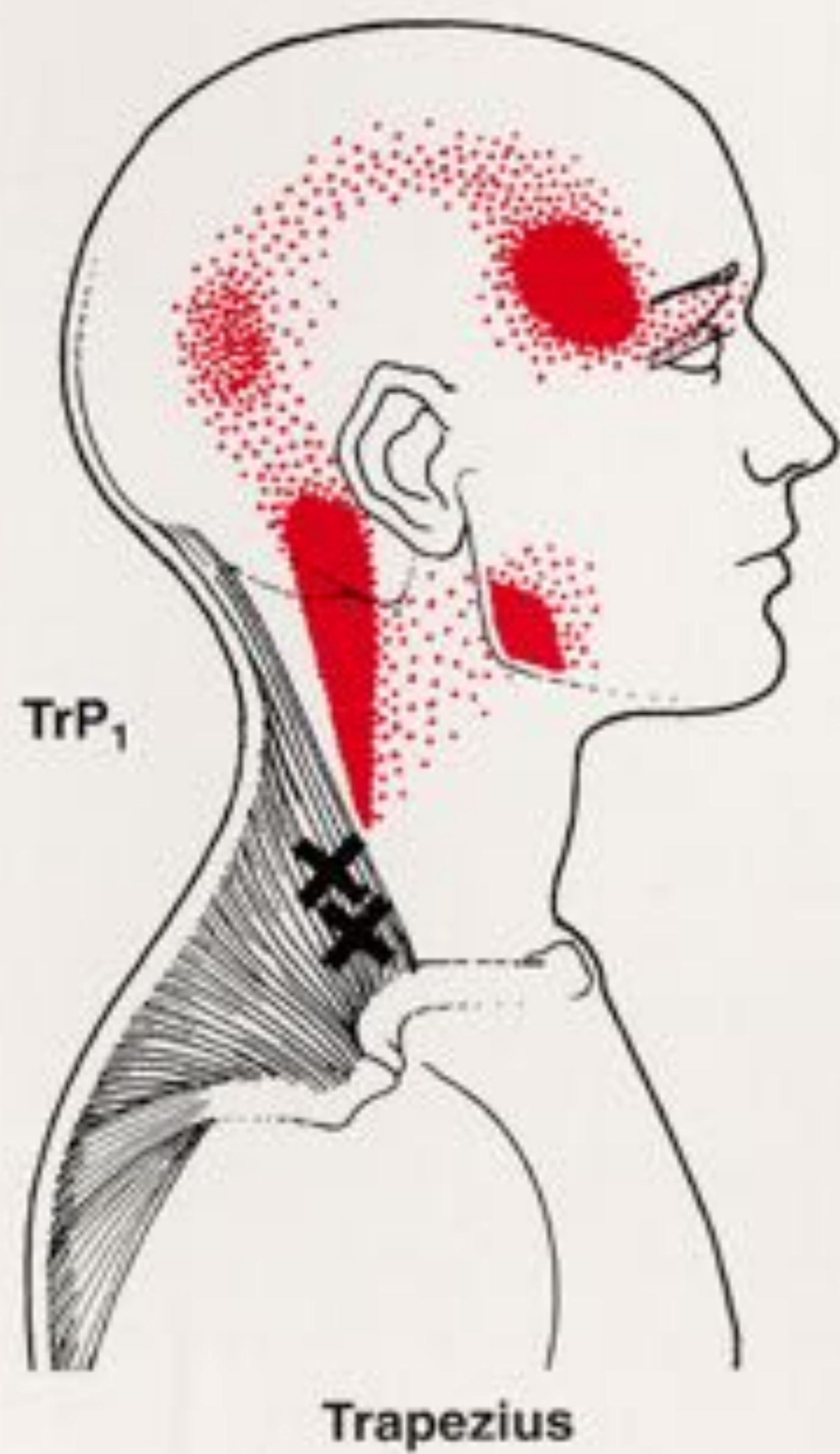


Figure 5.2. Overlapping pain referral patterns (red) from myofascial trigger points (Xs) in various masticatory and cervical muscles produce typical unilateral or bilateral migraine or tension-type headache pictures.





TMD Recap

- **Capsulitis:**
 - Tongue Depressor Test
 - Aqualizer and Advil
- **Non-Reducing Disc Displacement:**
 - 26mm of range of motion, without clicking, with a history of recent clicking
 - Unlocking procedure (or refer ASAP)
- **Myofascial Trigger Points:**
 - Tender points in muscles that give rise to characteristic referred pain patterns
 - Trigger point injections and/or Physical Therapy



Not



Understanding



Their



Symptoms





Jamison@JamisonSpencer.com
208-861-5687



Someone



That



Understands



Now