

# SKULL SESSION 2022

NOSE



PARIETAL (2)



CALVARIUM =  
bones above  
this line



FRONTAL  
(1)



SPHENOID (1)

SPHENOID (Gk) = wedge



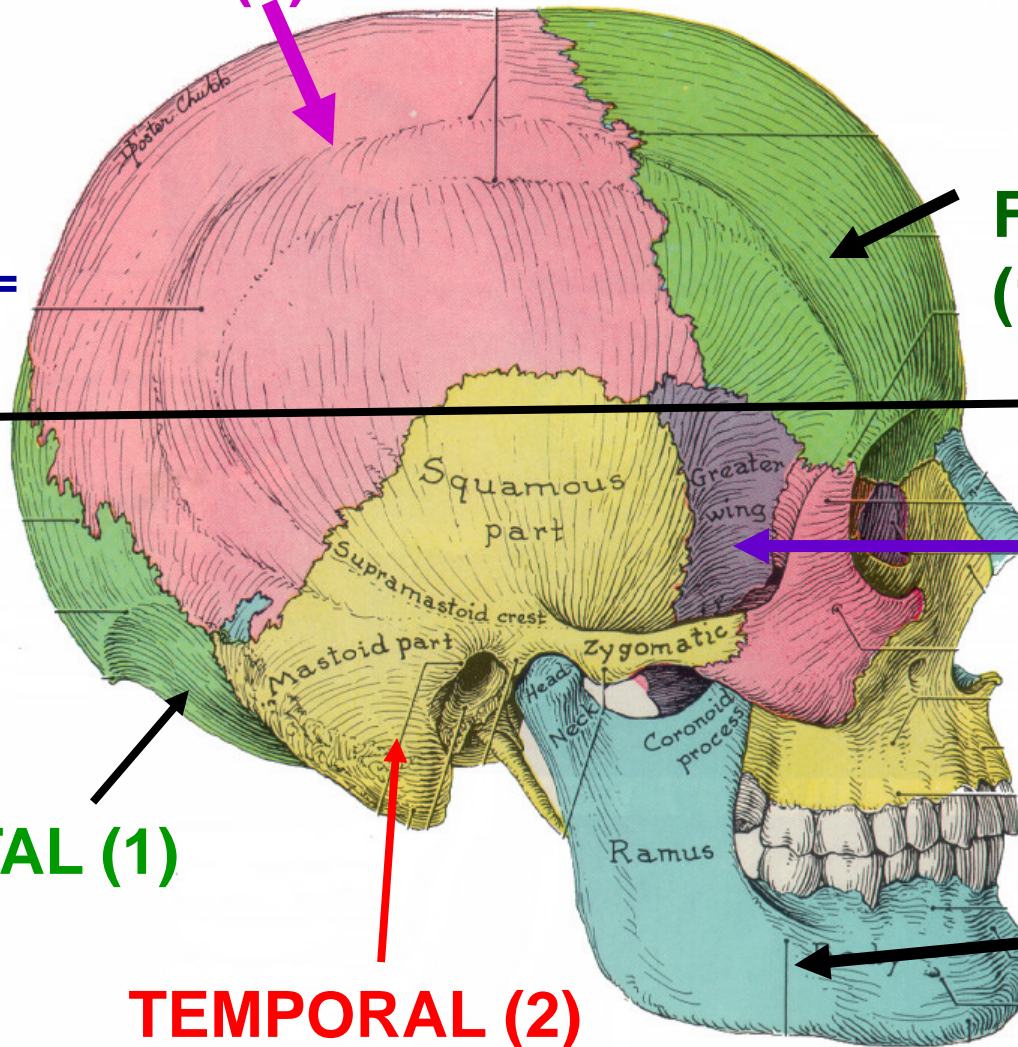
OCCIPITAL (1)



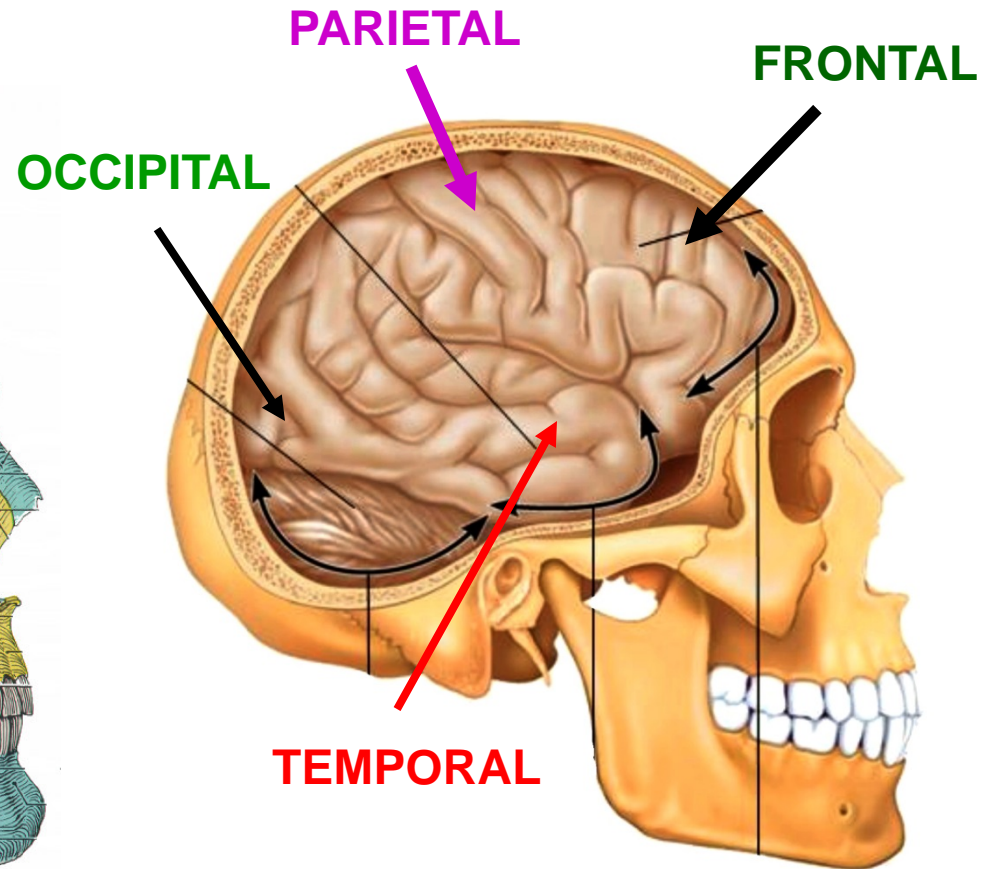
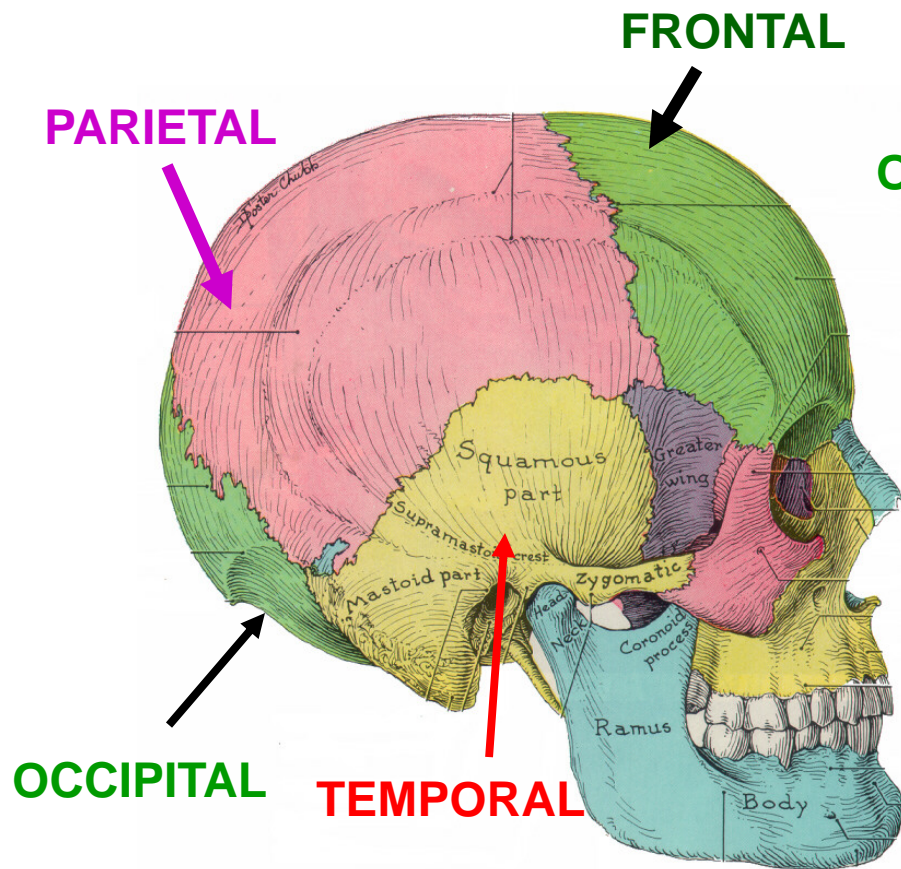
TEMPORAL (2)



MANDIBLE (1) –  
separate bone not part  
of skull



# LOBES OF CEREBRAL CORTEX OF BRAIN ARE NAMED FOR BONES OF SKULL



NOSE



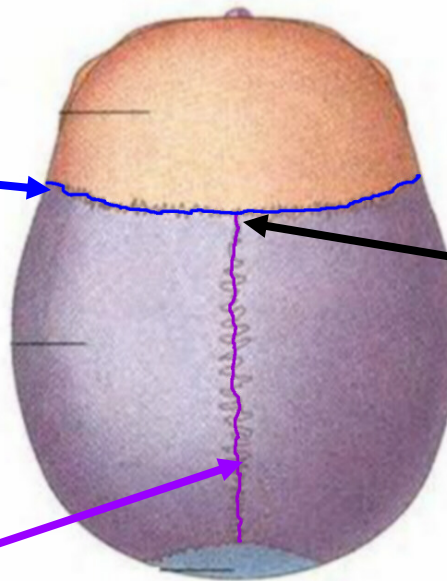
## B. SUTURES

1. CORONAL SUTURE

2. SAGITTAL SUTURE

3. LAMBDOIDAL SUTURE

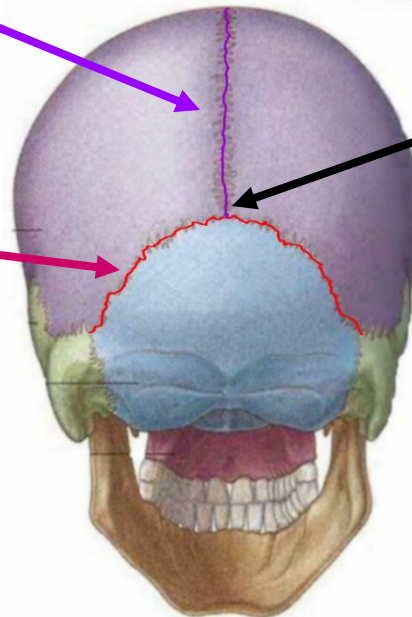
- bones rigidly connected by sutures (connective tissue joints to protect brain, attach move eyes)



## C. LANDMARKS

1. BREGMA – MID-POINT OF CORONAL SUTURE

superior (top) view



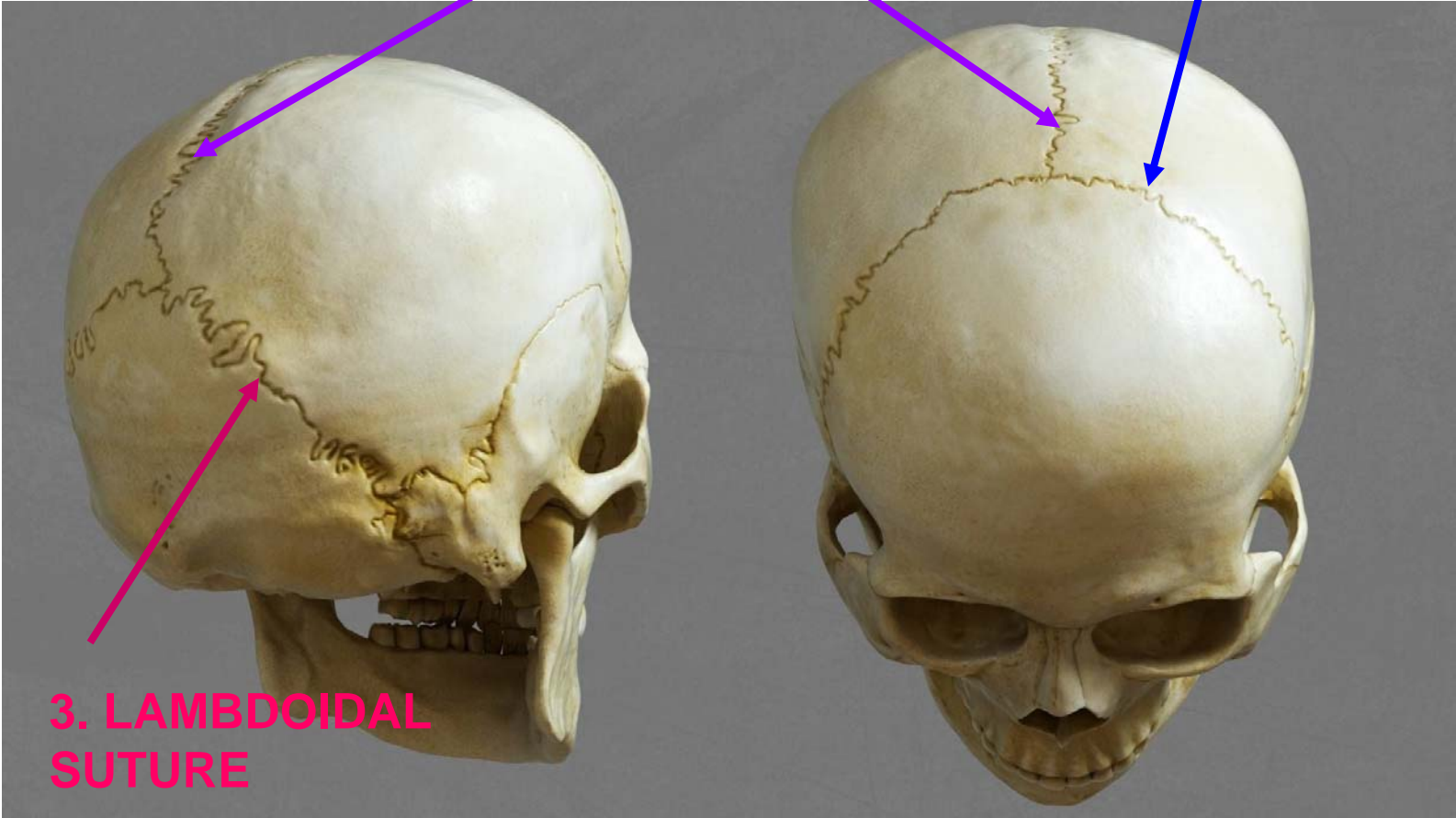
2. LAMBDA – MID-POINT OF LAMBDOIDAL SUTURE

posterior (back) view

**SUTURES LOOK LIKE  
CRACKS IN SKULL**

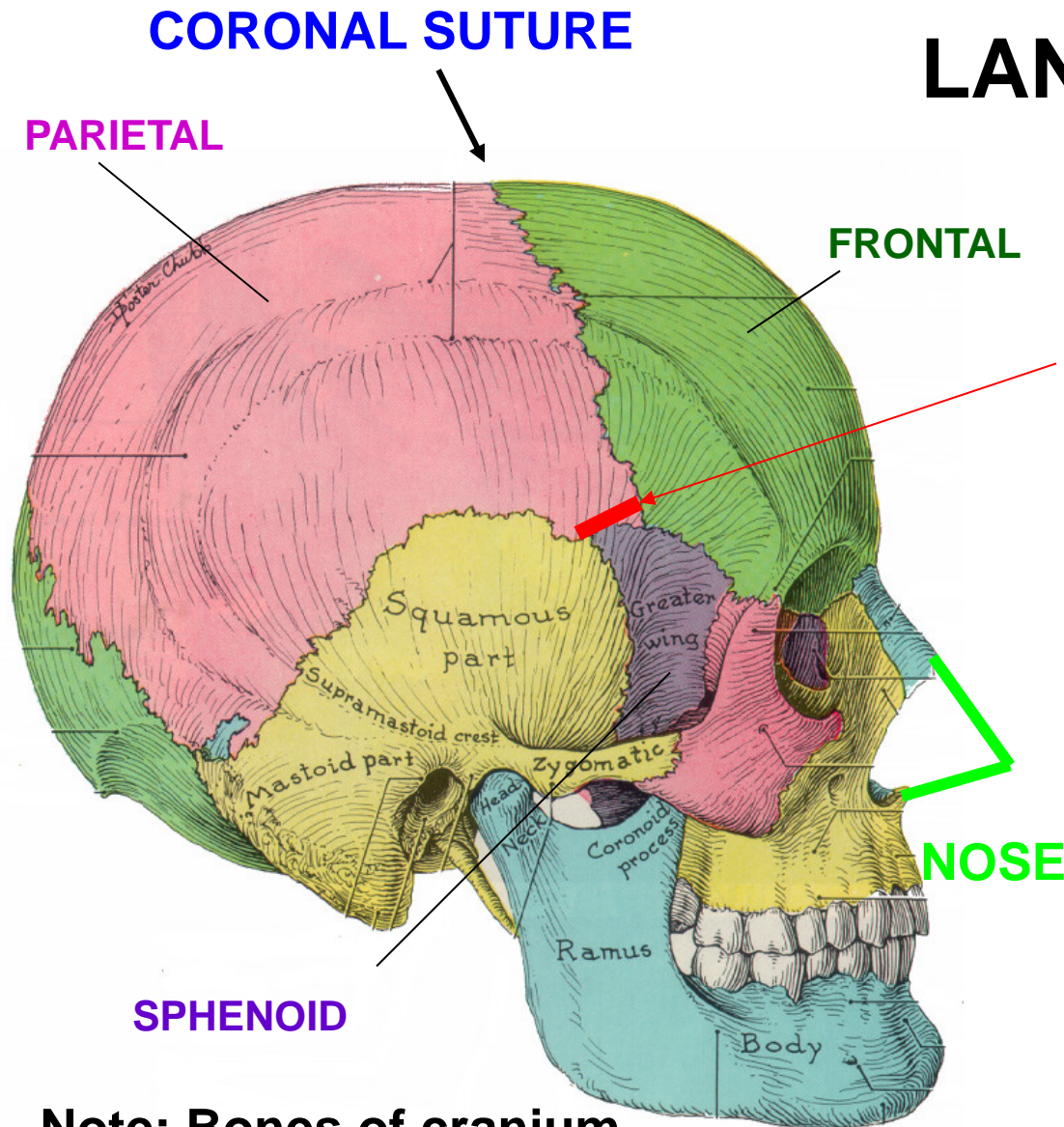
**2. SAGITTAL  
SUTURE**

**1. CORONAL  
SUTURE**



**3. LAMBDOIDAL  
SUTURE**

# LANDMARKS



## 3. PTERION \*\*

- JUNCTION OF  
TEMPORAL SPHENOID  
PARIETAL AND FRONTAL  
BONES

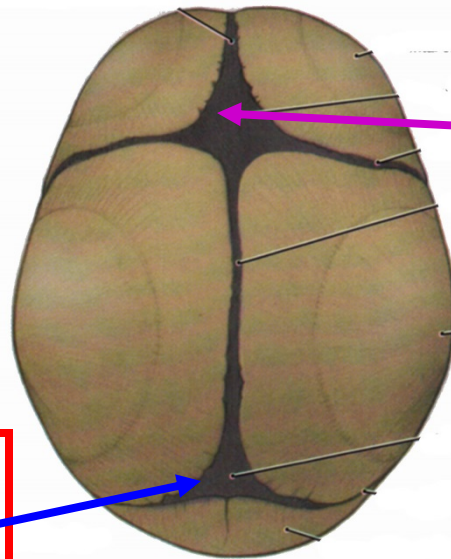
Note: Skull fractures in  
region of pterion  
clinically important  
(Epidural Hematoma)

\*\*

Note: Bones of cranium  
fuse (sutures disappear)  
with age)

# FONTANELLES – Membranes that link bones at birth

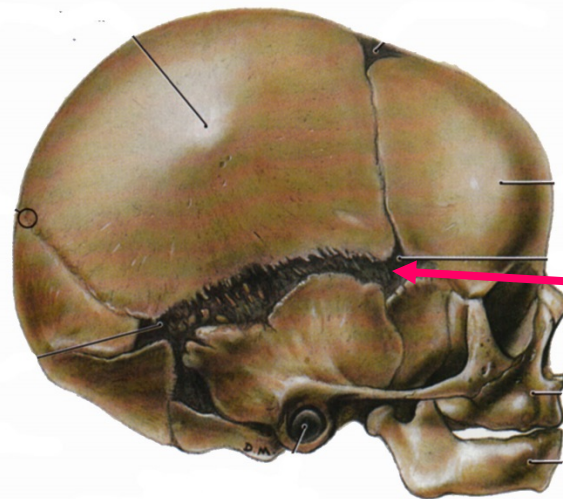
- FONTANELLES ('soft spots') PERMIT CRANIAL COMPRESSION AT BIRTH - CRANIAL GROWTH



1. ANTERIOR FONTANELLE AT BREGMA \*

\* 2. POSTERIOR FONTANELLE - AT LAMBDA

Note: Anterior Fontanelle can be used to access Superior Sagittal venous sinus in neonates \*



3. LATERAL FONTANELLE AT PTERION

# SKULL SESSION 2022

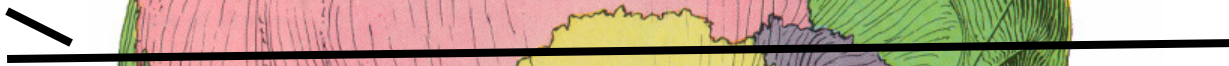
NOSE



PARIETAL (2)



CALVARIUM =  
bones above  
this line

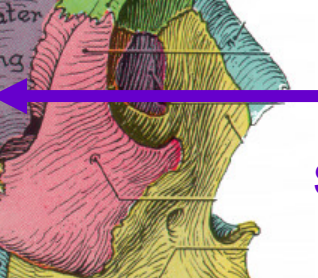


FRONTAL  
(1)



SPHENOID (1)

SPHENOID (Gk) = wedge



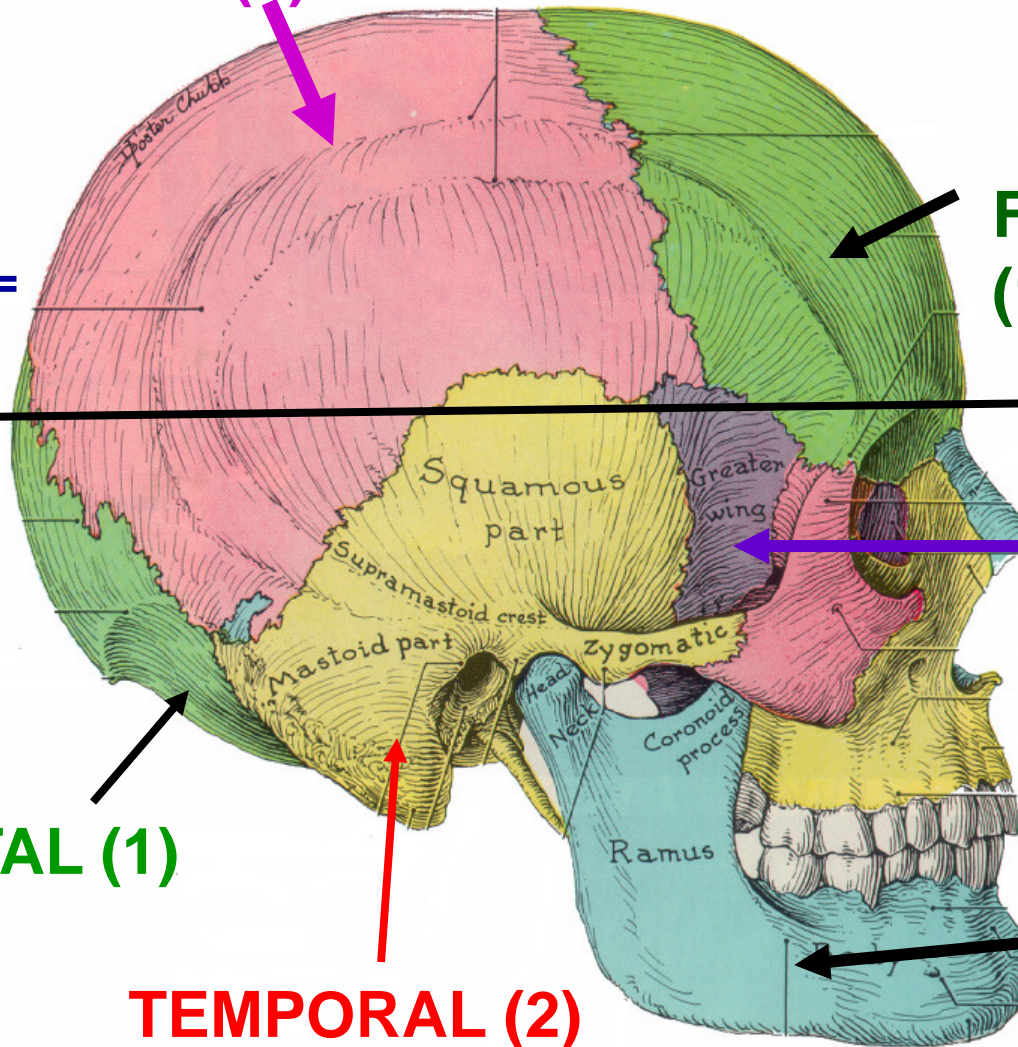
OCCIPITAL (1)



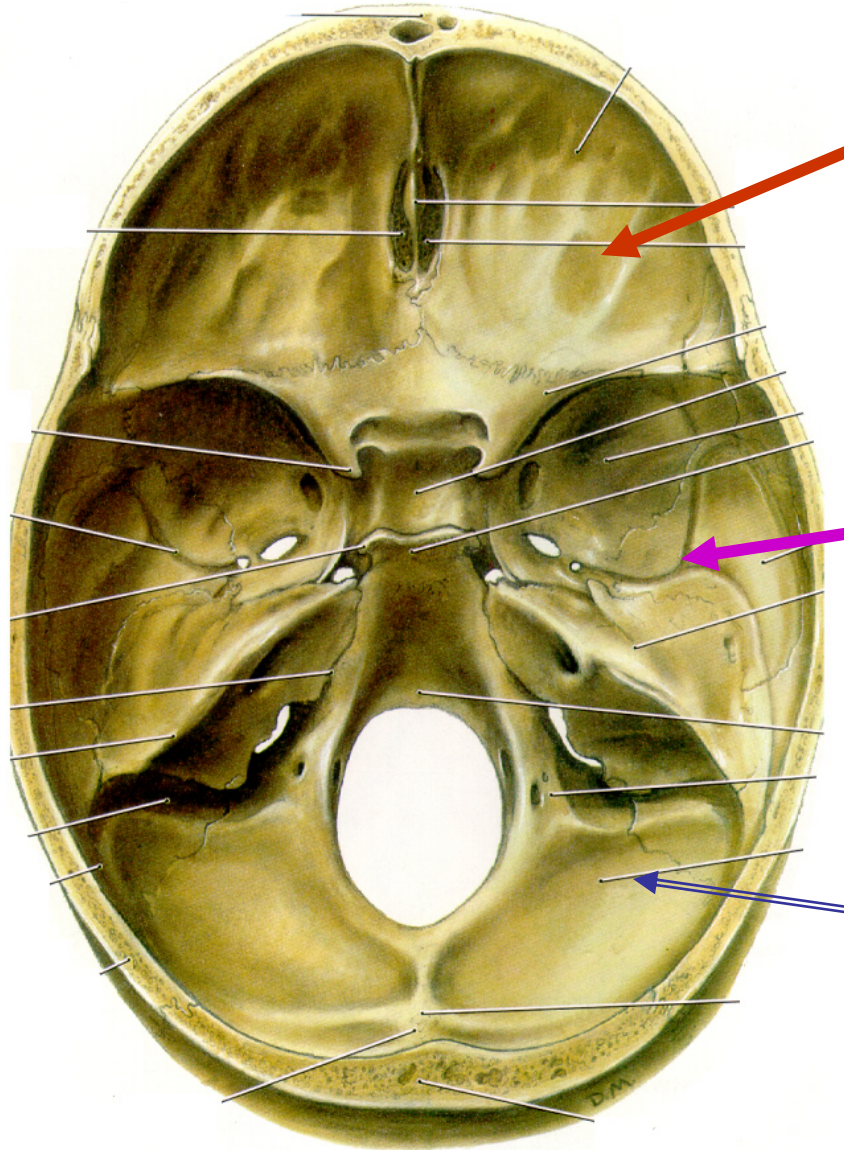
TEMPORAL (2)



MANDIBLE (1) –  
separate bone not part  
of skull



# CRANIAL CAVITY- DIVIDED INTO DEPRESSIONS (FOSSAE)



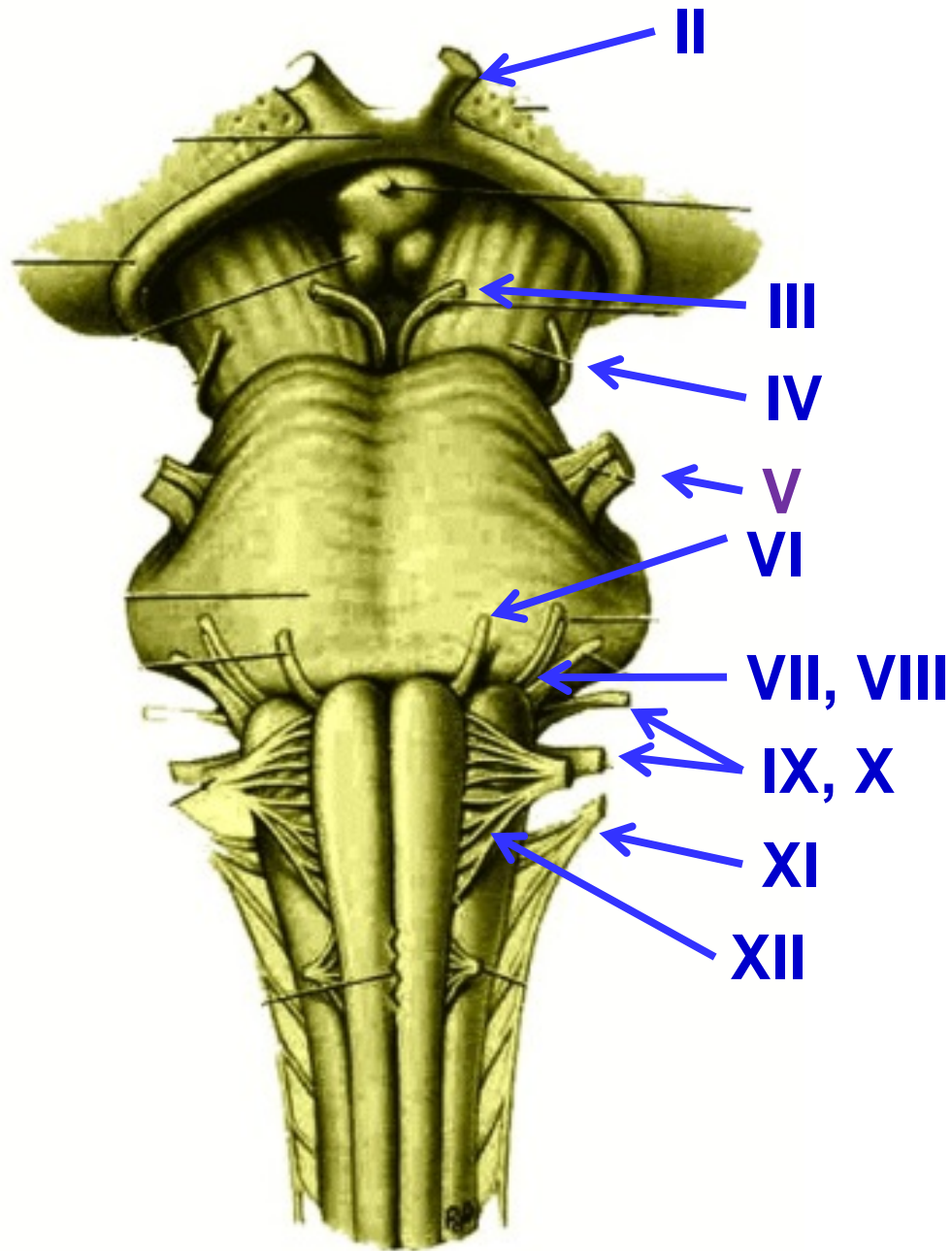
ANTERIOR CRANIAL FOSSA (ROOF OF NASAL CAVITY, ORBIT)

MIDDLE CRANIAL FOSSA (ORBIT, NASAL CAVITY, FACE)

POSTERIOR CRANIAL FOSSA (FACE, ORAL CAVITY, NECK)



**CRANIAL  
NERVES  
ARE  
NUMBERED  
ACCORDING  
TO THEIR  
POSITION  
ON THE  
BRAINSTEM**



# TRIGEMINAL NERVE - 3 DIVISIONS (MAJOR BRANCHES)

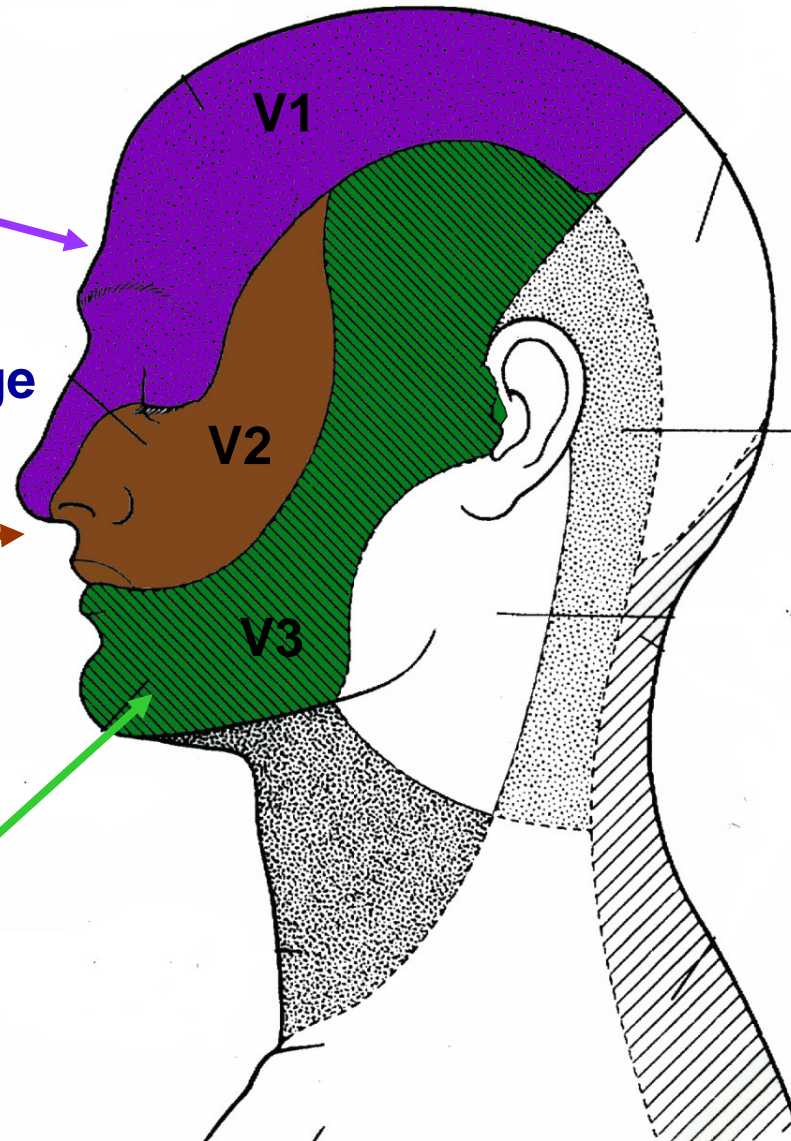
**V1 –  
OPHTHALMIC  
DIVISION**

**V2 –  
MAXILLARY  
DIVISION**

**V3 –  
MANDIBULAR  
DIVISION**

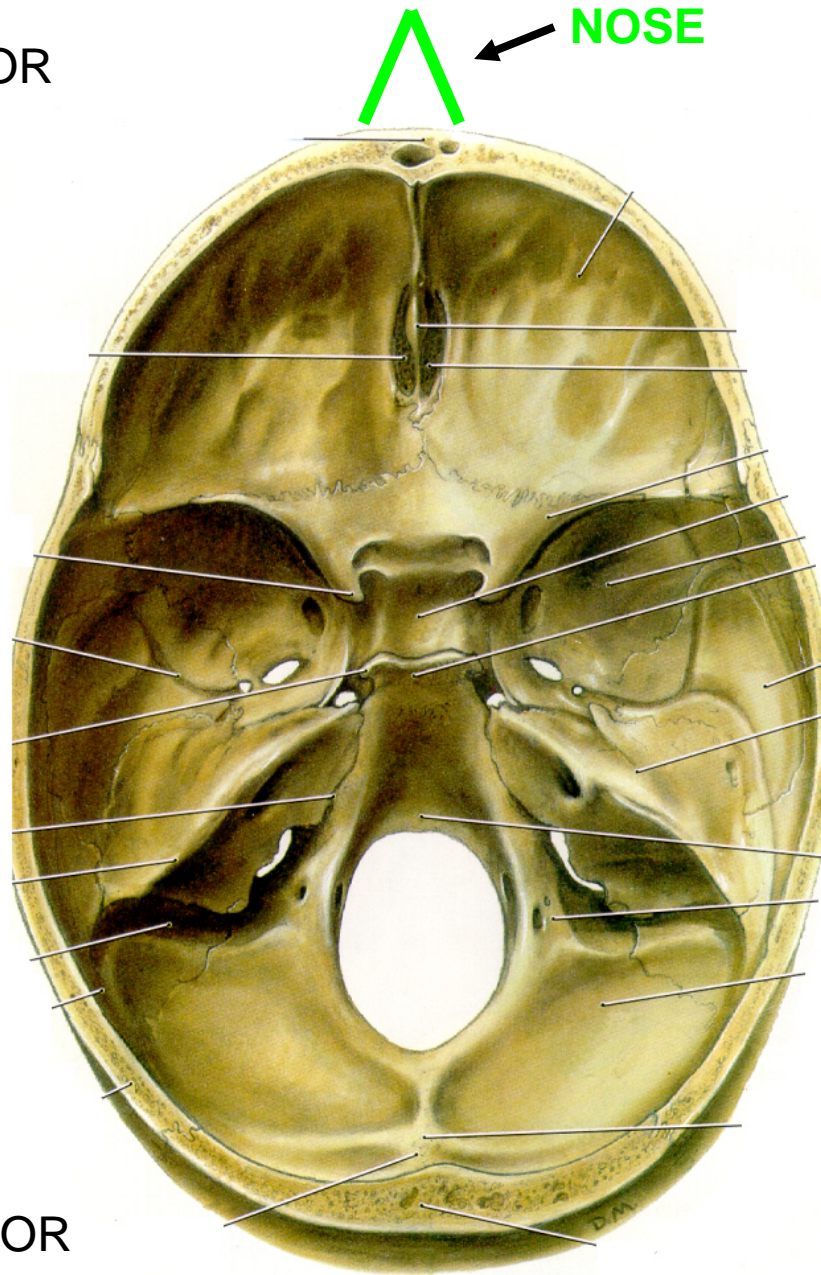
Boundary-  
Lateral edge  
of eye

Boundary  
Lateral  
edge  
of mouth



ANTERIOR

NOSE



POSTERIOR

## CRANIAL NERVES

I

II

III, IV, V1, VI

V2

V3

**Middle Meningeal A.**

VII, VIII

IX, X, XI

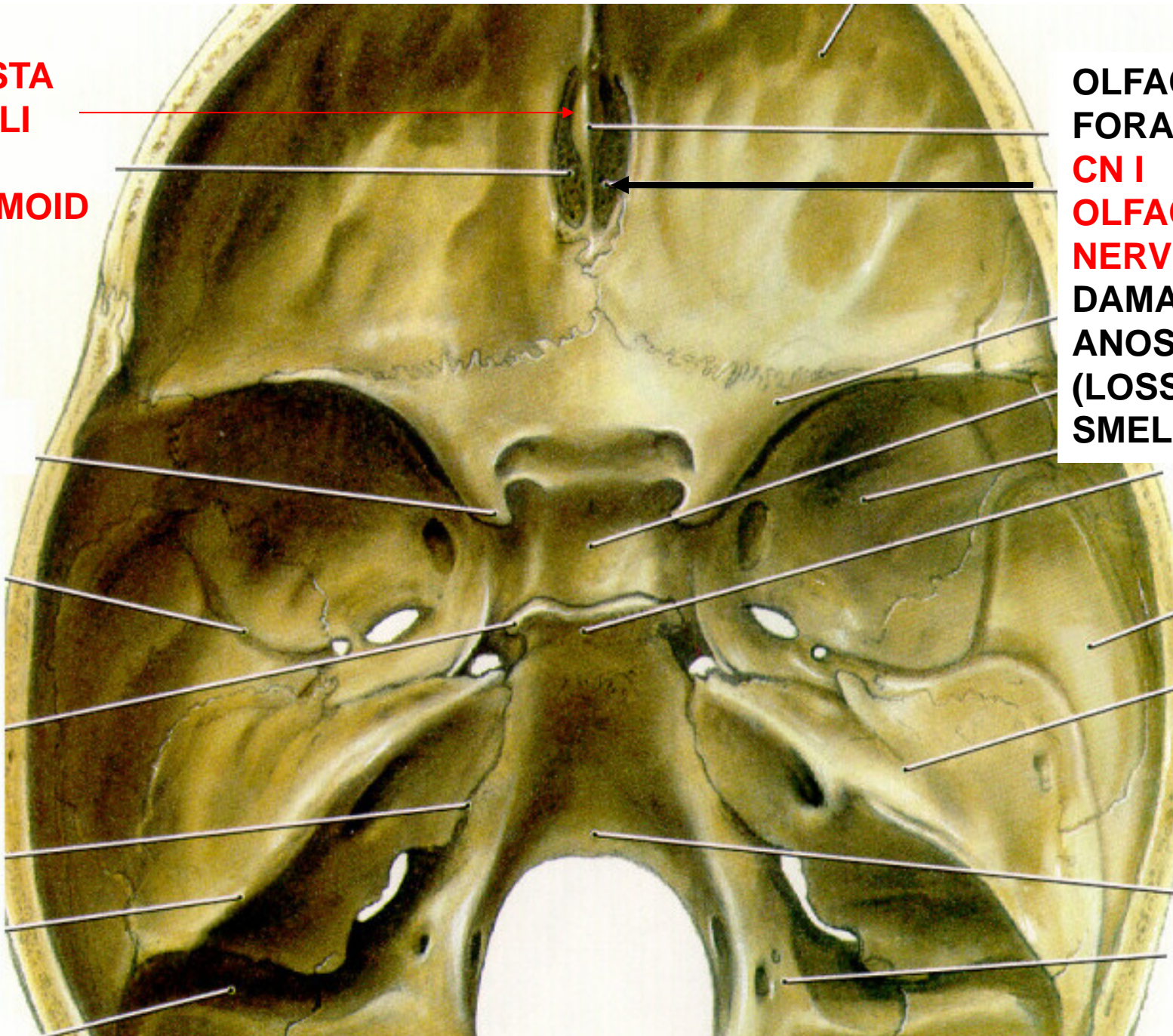
XII

## GO THROUGH CHART FROM HANDOUT – FOCUS (MAINLY) ON CRANIAL NERVES

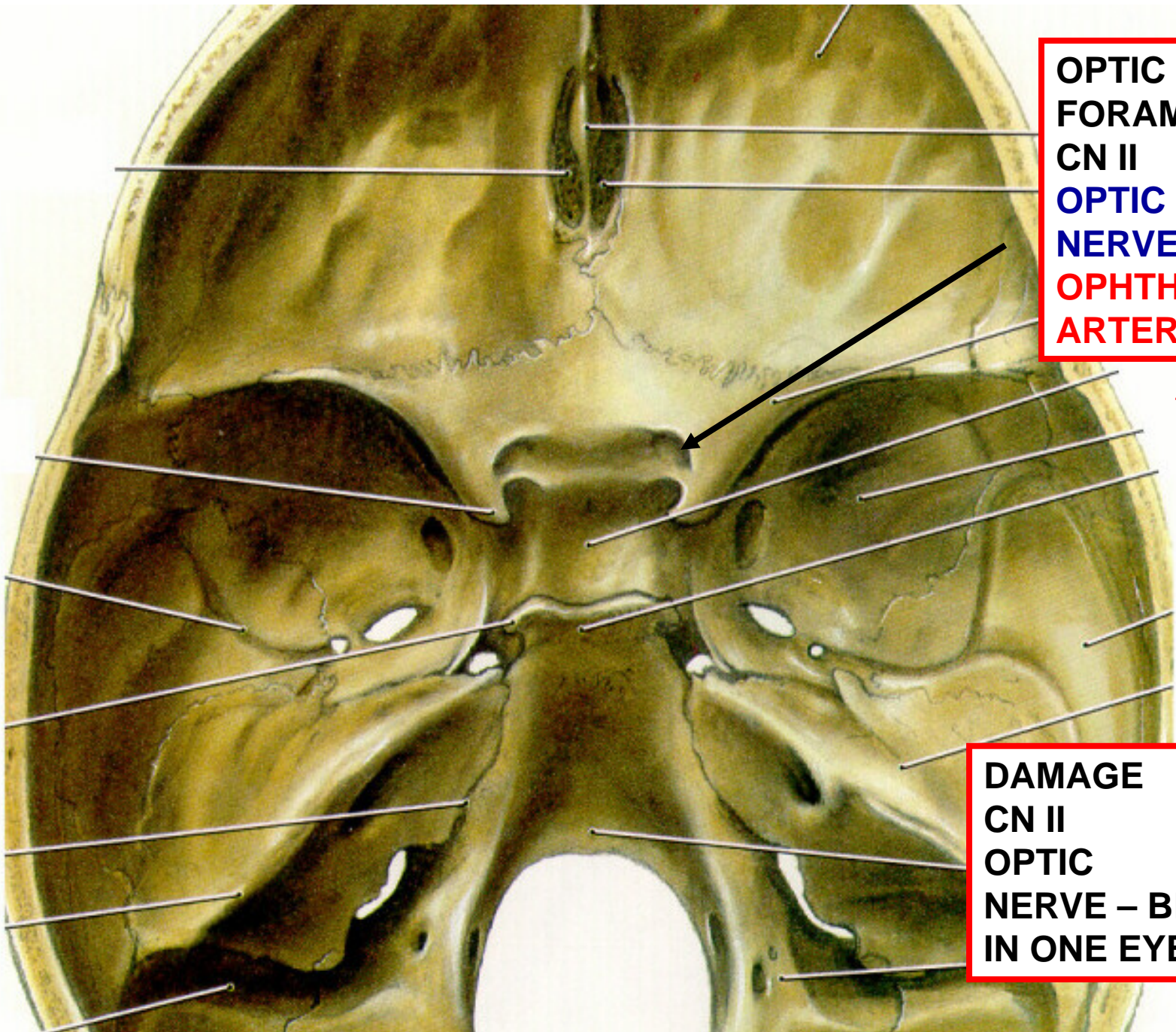
CHART OF FORAMINA FOR SKULL SESSION

Foramen	Contains
Olfactory Foramina	Olfactory nerves (I)
Optic Foramen (canal)	Optic nerve (II), Ophthalmic artery (from Internal Carotid artery)
Superior Orbital Fissure	III, IV, V1 (Ophthalmic division of Trigeminal nerve), VI; Ophthalmic veins
Foramen Rotundum	Maxillary division of Trigeminal nerve (V2).
Foramen Ovale	Mandibular division of V (V3) and Accessory Meningeal artery (when present)
Foramen Spinosum	Middle Meningeal artery and Nervus Spinosus
Carotid canal	Internal carotid artery and Sympathetic plexus surrounding artery
Internal Auditory Meatus	Facial nerve (VII) and Vestibulocochlear nerve (VIII)
Jugular foramen	Glossopharyngeal (IX), Vagus (X) and Accessory (XI) nerves.
Hypoglossal canal	Hypoglossal nerve (XII)
Foramen Magnum	Spinal cord and Vertebral arteries and veins

**CRISTA  
GALLI  
OF  
ETHMOID**



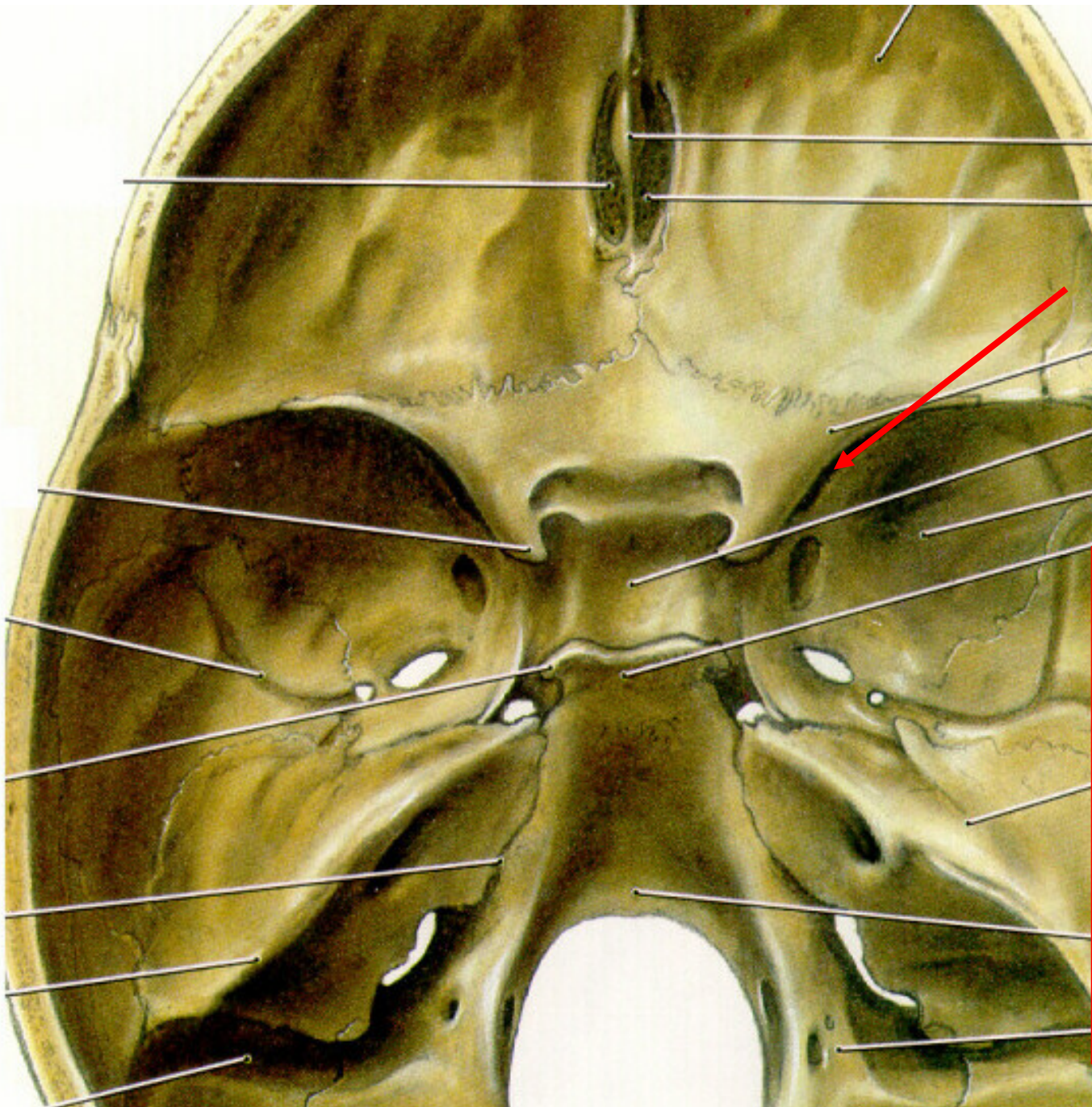
**OLFACTORY  
FORAMEN –  
CN I  
OLFACTORY  
NERVE  
DAMAGE -  
ANOSMIA  
(LOSS OF  
SMELL)**



**OPTIC FORAMEN**  
**CN II**  
**OPTIC NERVE,**  
**OPHTHALMIC ARTERY**



**DAMAGE**  
**CN II**  
**OPTIC NERVE – BLIND**  
**IN ONE EYE**

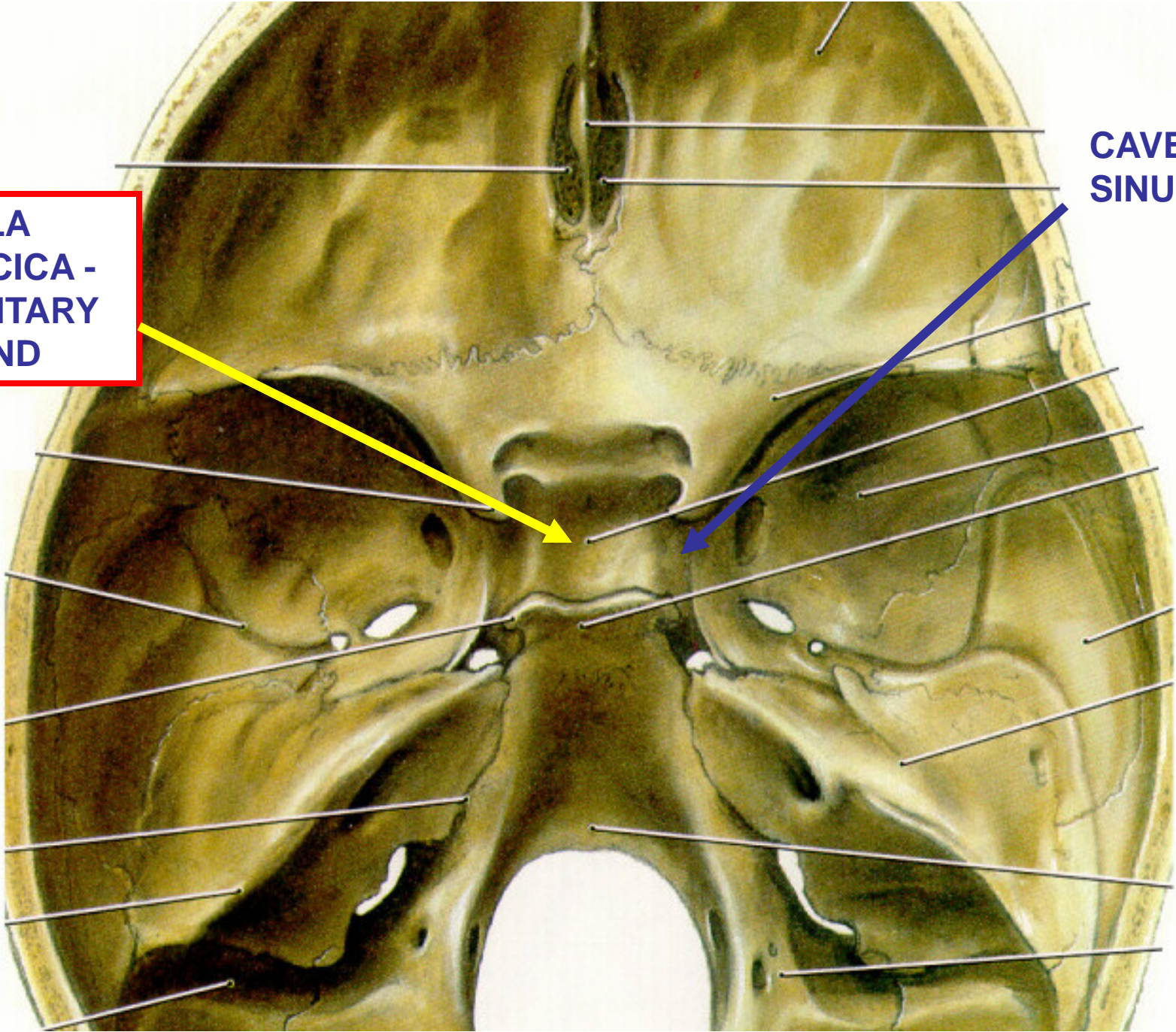


**SUPERIOR  
ORBITAL  
FISSURE –  
CN III, IV  
V1, VI +  
OPHTHALMIC  
VEINS**

**TUMOR AT  
SUPERIOR  
ORBITAL  
FISSURE –  
CN III, IV, VI -  
AFFECT EYE  
MOVEMENTS  
V1 – LOSS,  
DECREASE  
SENSATION TO  
SKIN OF  
FOREHEAD**

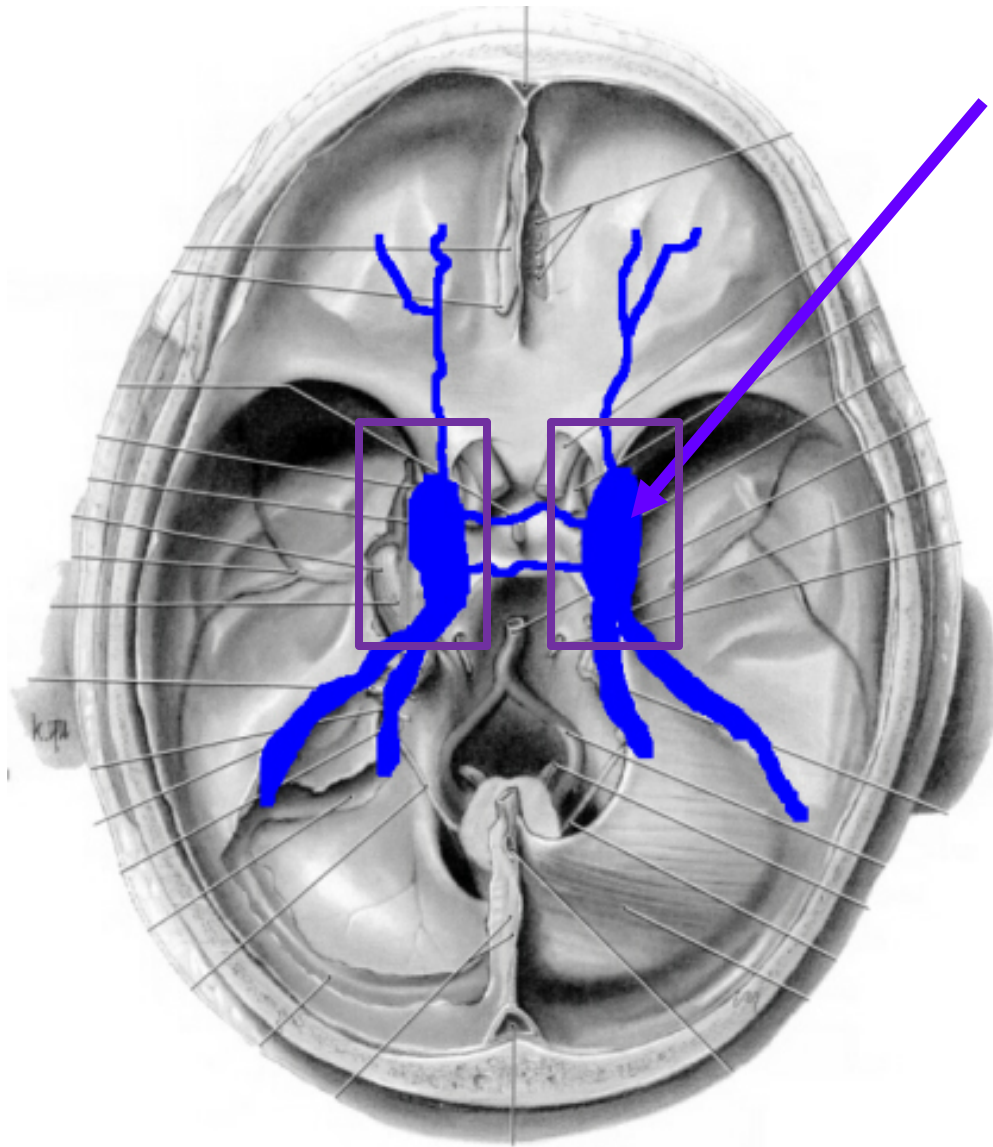
**SELLA  
TURCICA -  
PITUITARY  
GLAND**

**CAVERNOUS  
SINUS**



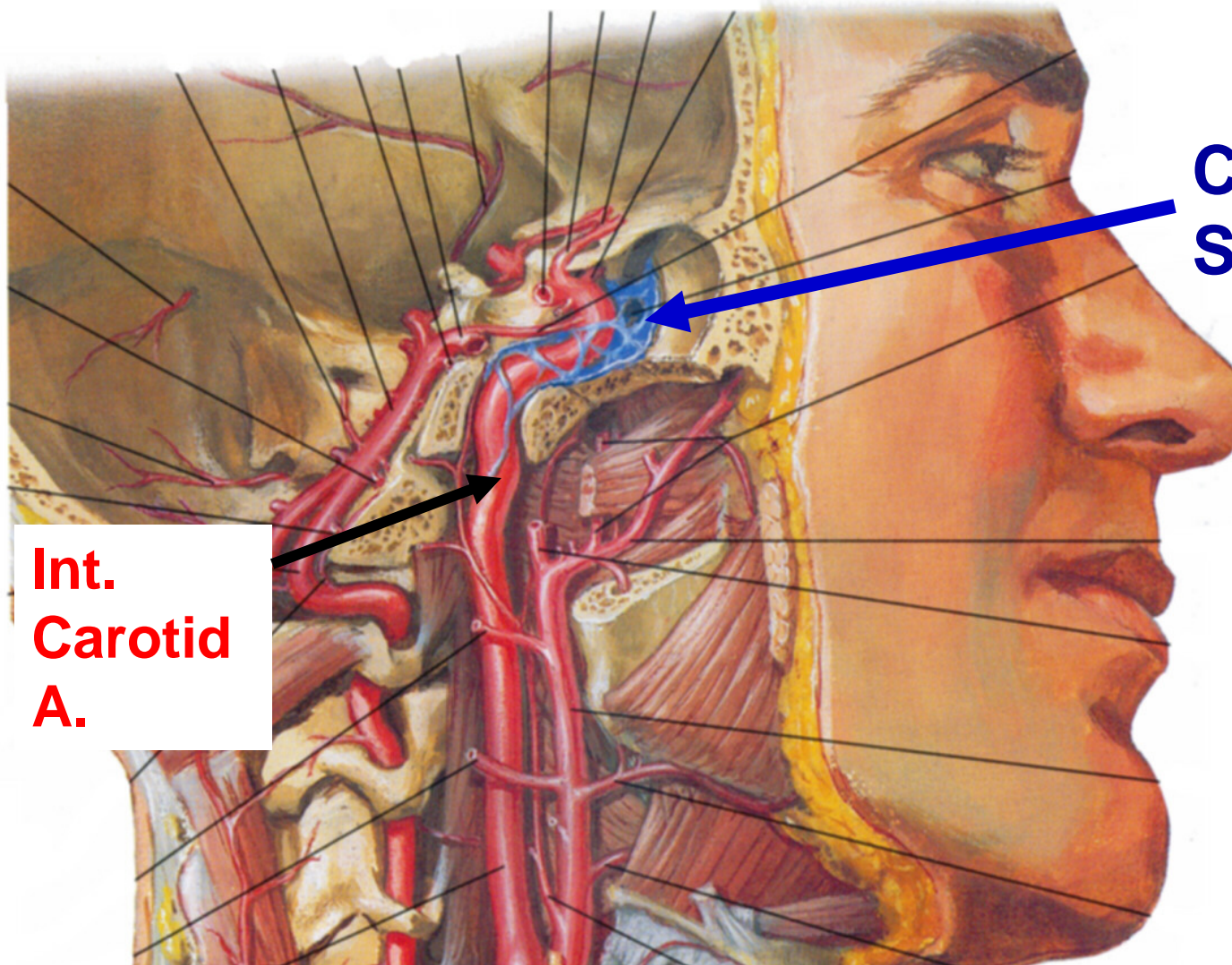


# VENOUS SINUSES



Cavernous sinuses - in middle cranial fossa; receive blood from Sup. and Inf. Ophthalmic veins, Cerebral veins; many structures pass in wall of Cavernous sinus (Cranial nerves III, IV, V1, V2, VI; also Internal Carotid Artery)

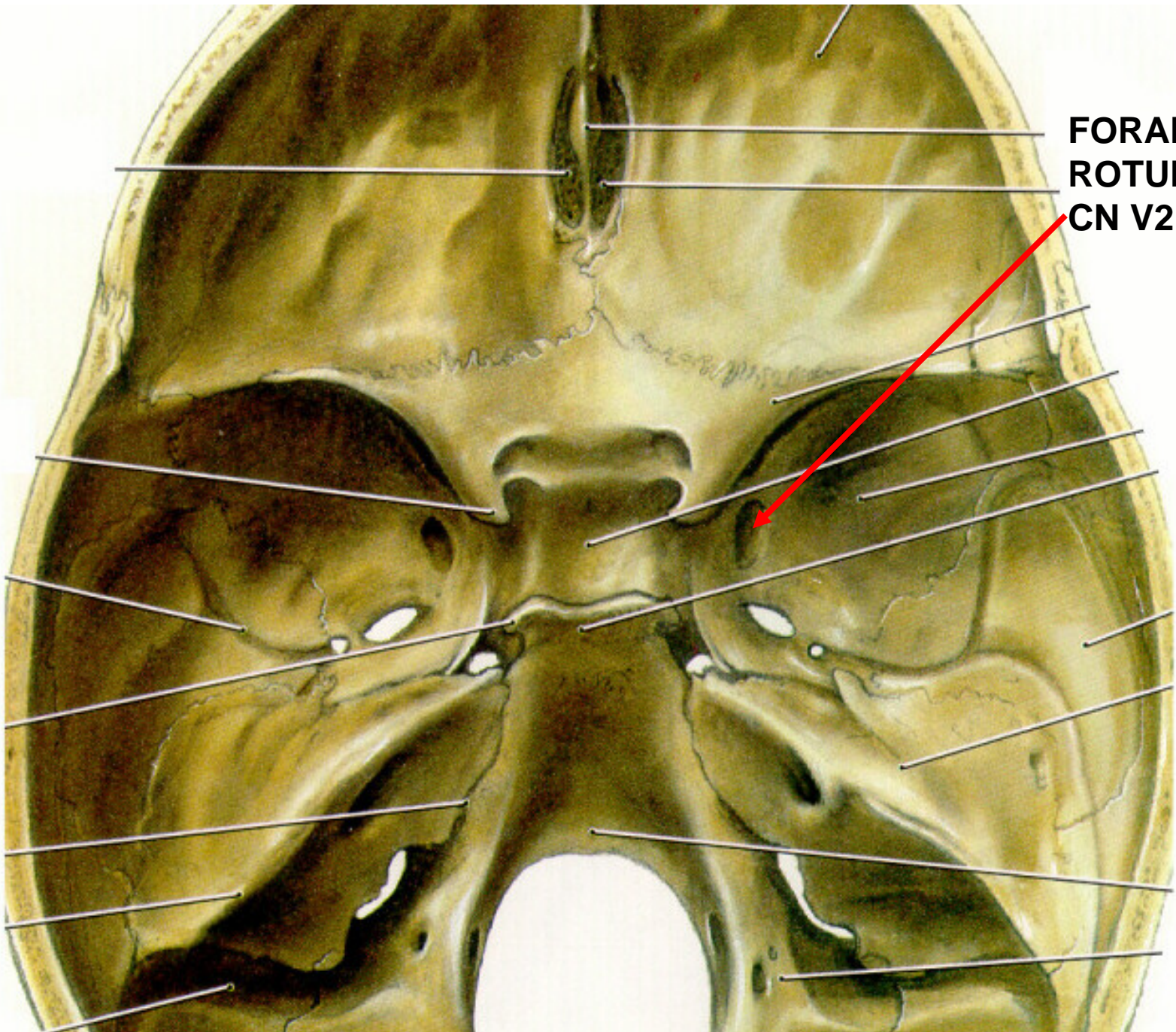
# Internal Carotid Artery – Passes Through Wall of Cavernous Sinus \*\*



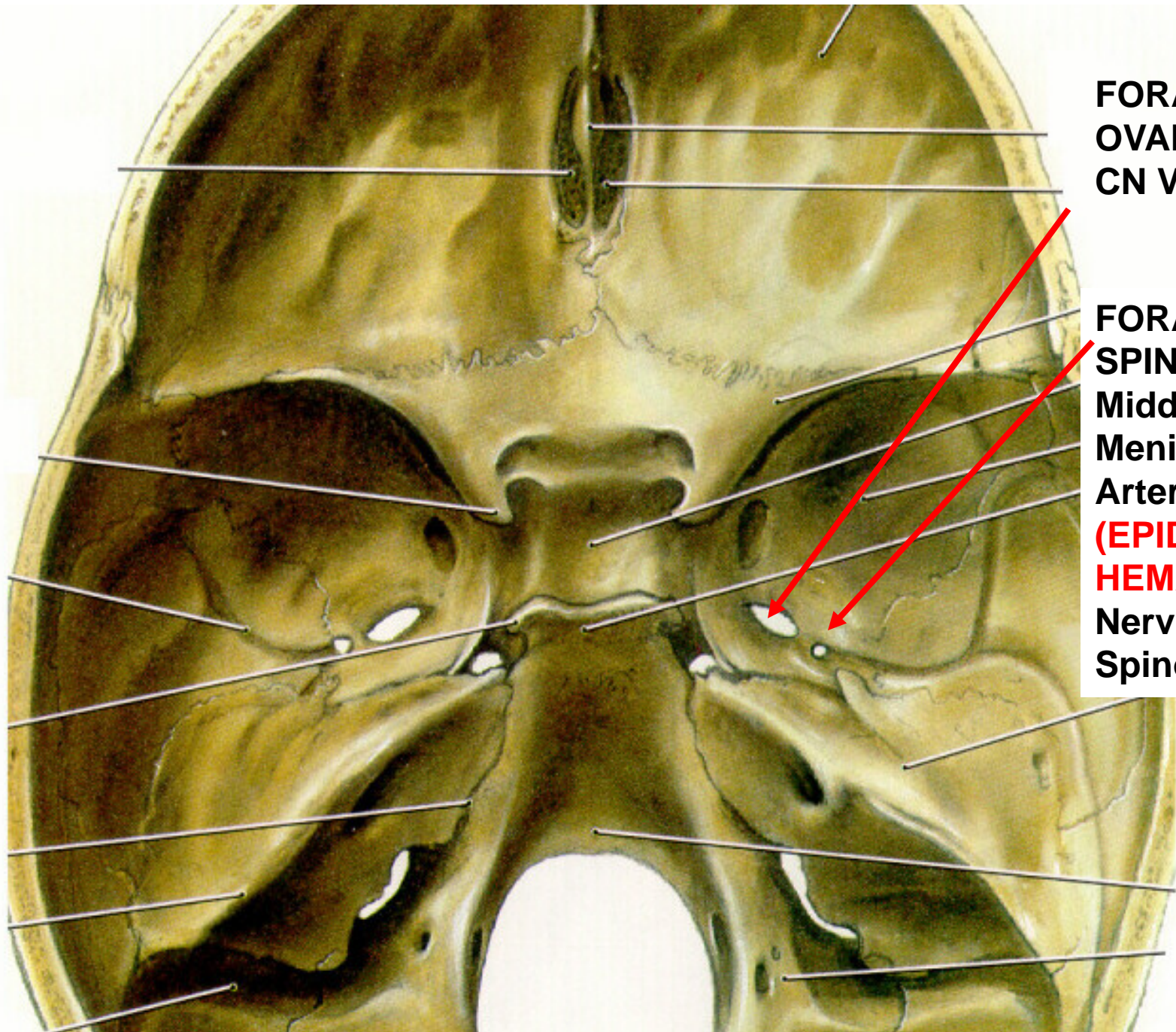
**Cavernous Sinus \*\***

**Int. Carotid A.**

**Carotid-Cavernous  
Fistula -  
Bleed of  
Internal  
Carotid  
Artery inside  
Cavernous  
Sinus**

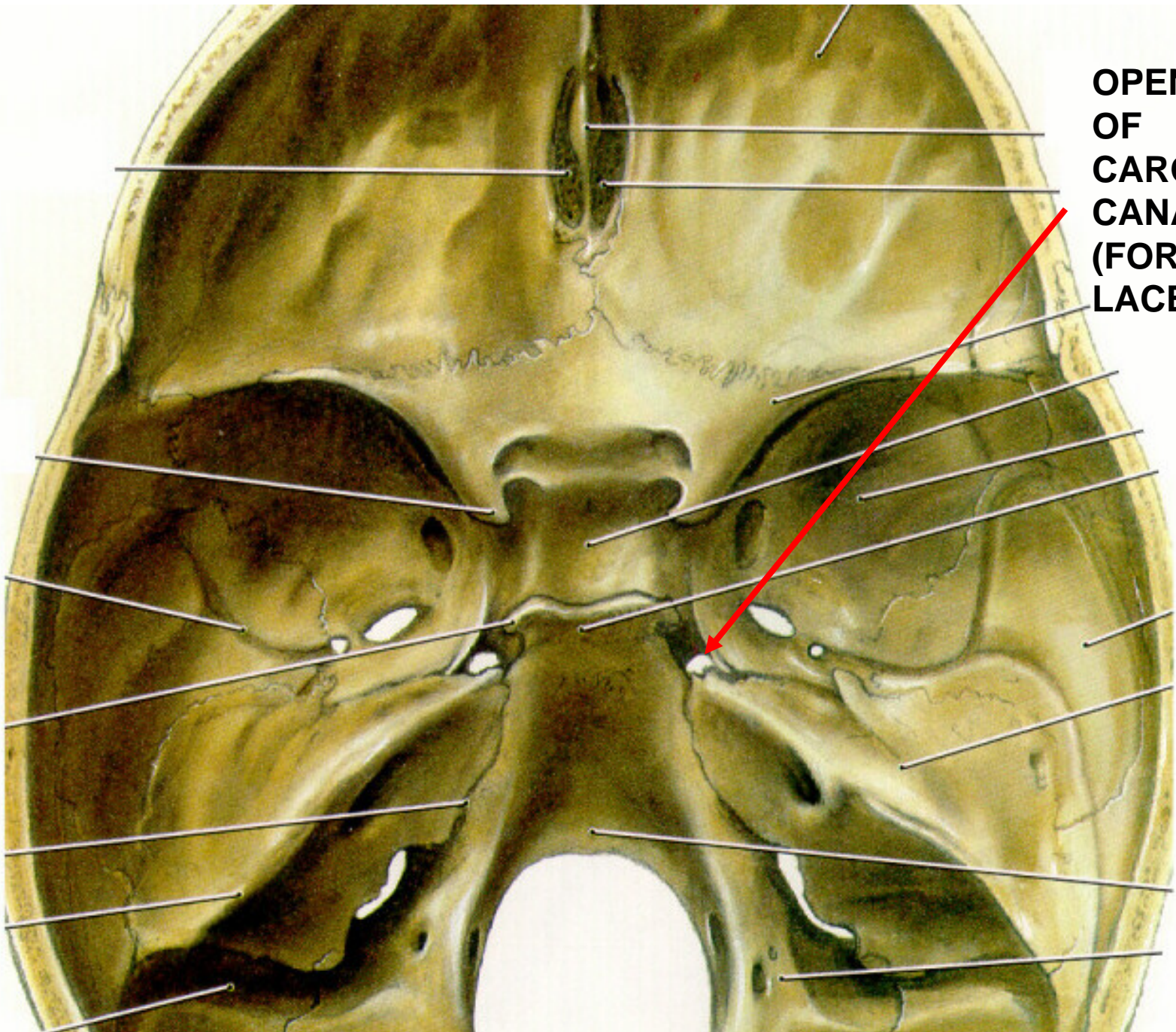


**FORAMEN  
ROTUNDUM –  
CN V2**

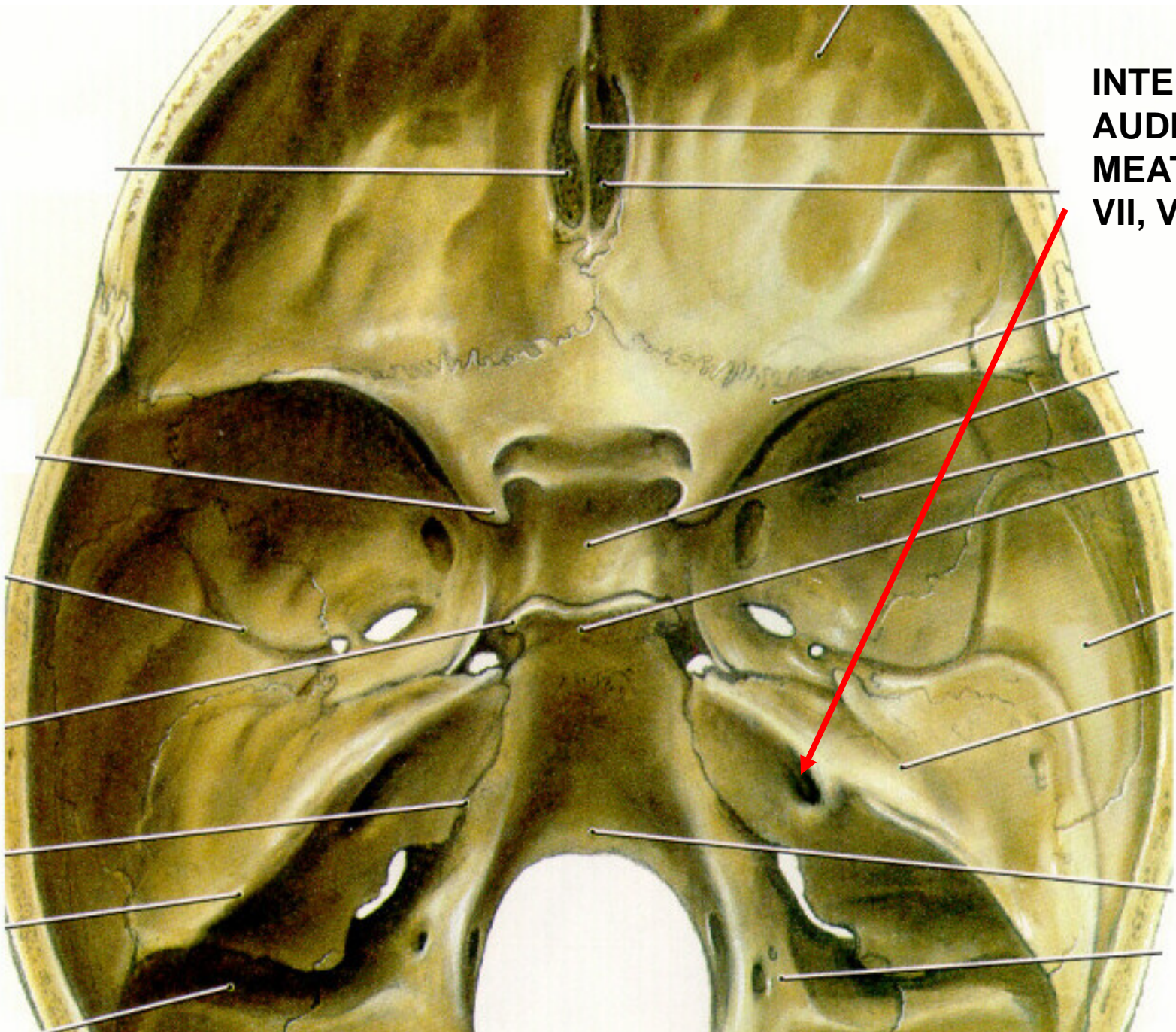


**FORAMEN  
OVALE –  
CN V3**

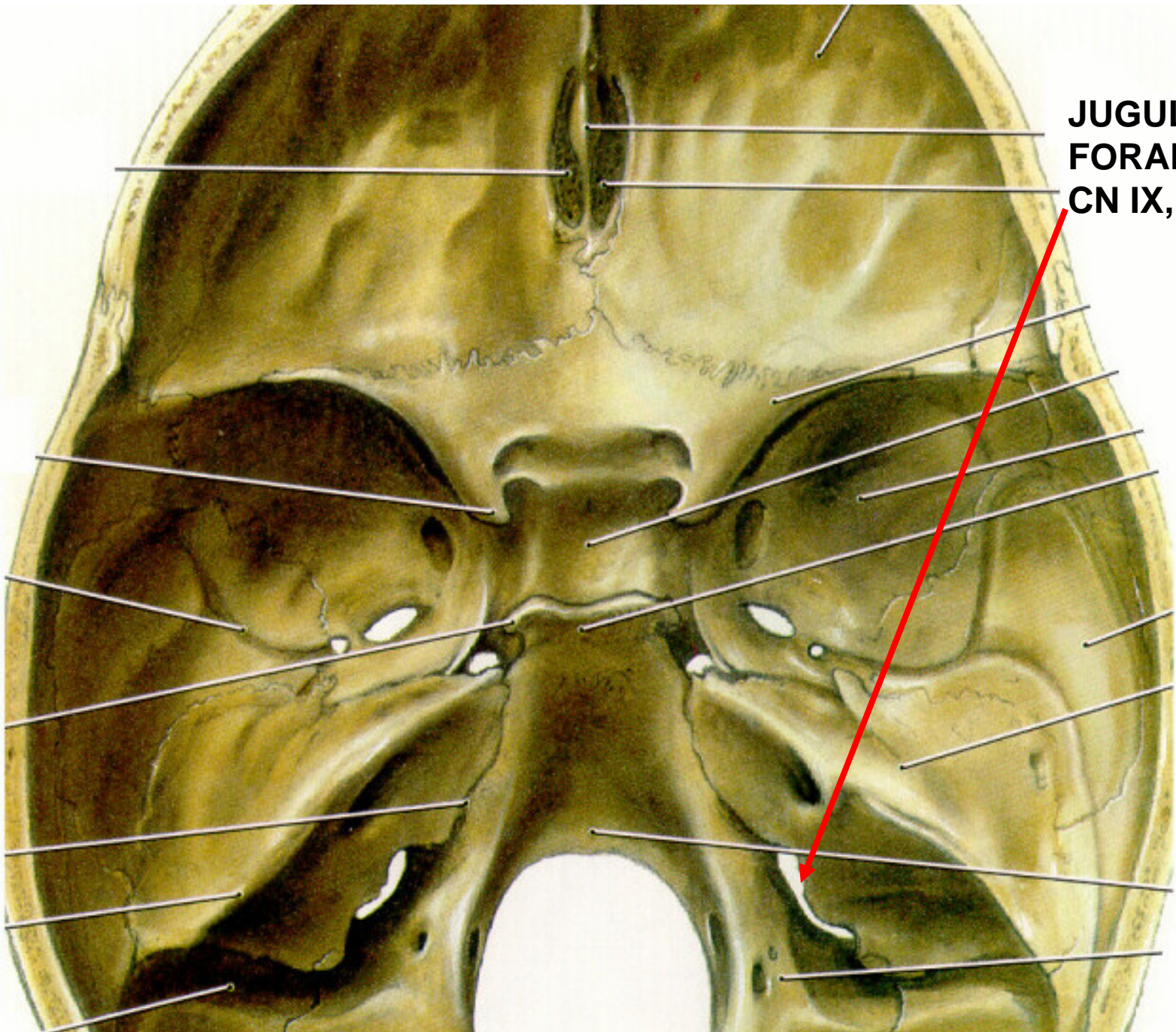
**FORAMEN  
SPINOSUM -  
Middle  
Meningeal  
Artery  
(EPIDURAL  
HEMATOMA),  
Nervus  
Spinosus**



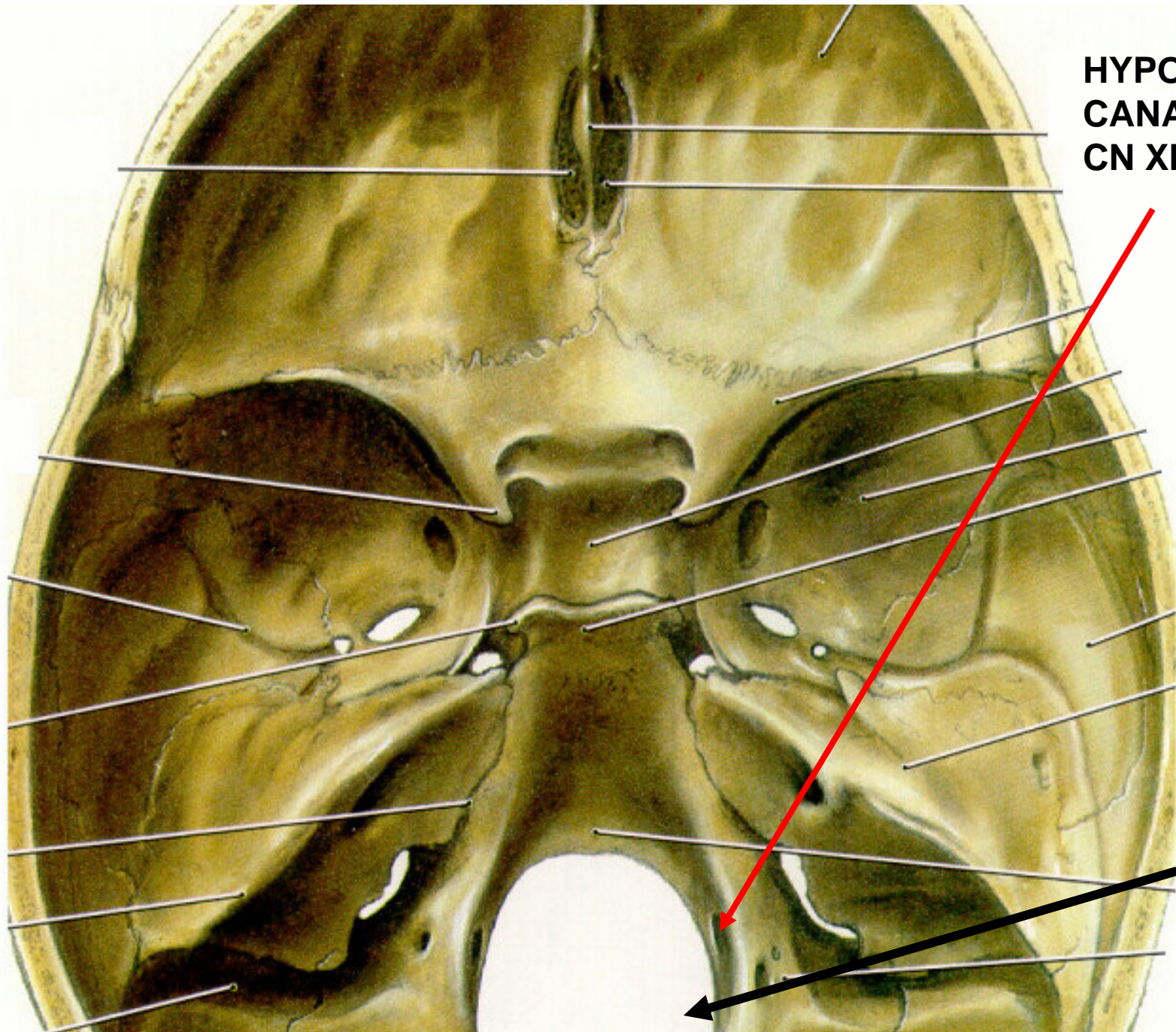
**OPENING  
OF  
CAROTID  
CANAL  
(FORAMEN  
LACERUM)**



**INTERNAL  
AUDITORY  
MEATUS –  
VII, VIII**



**JUGULAR  
FORAMEN -  
CN IX, X, XI**

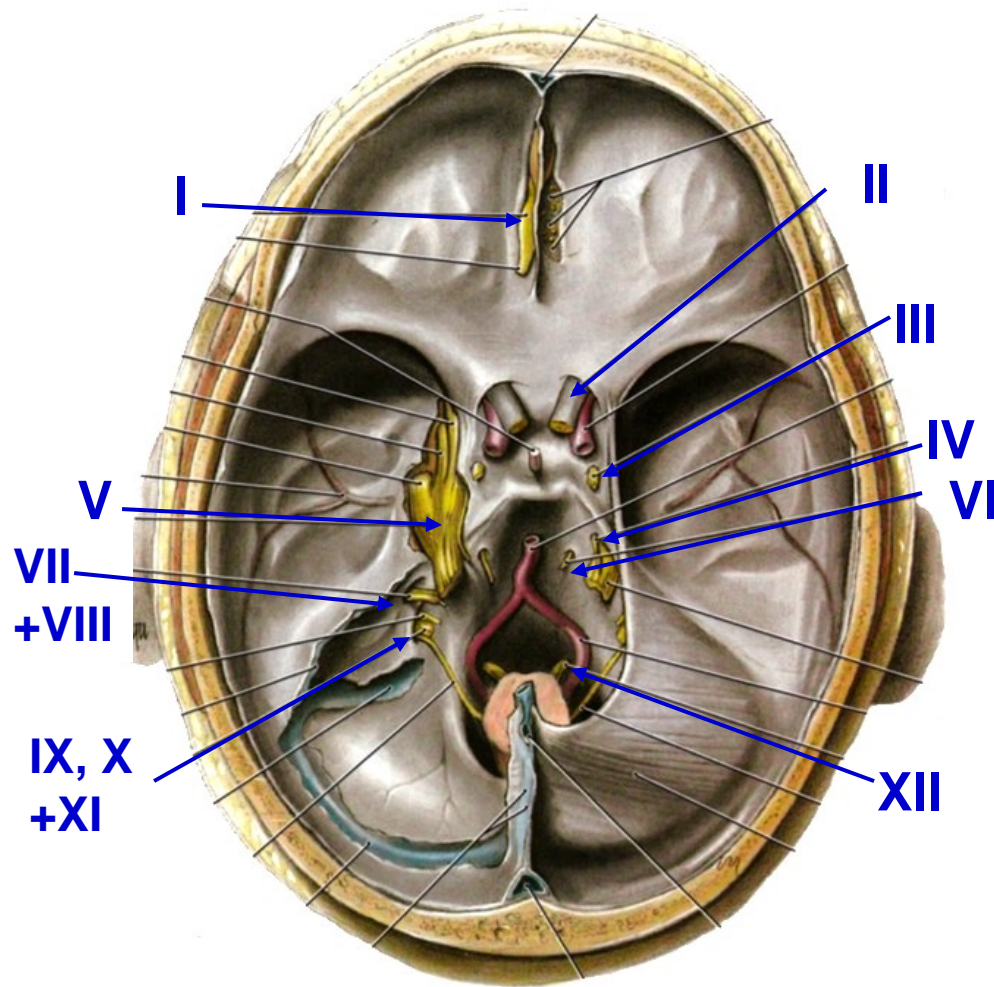


**HYPOGLOSSAL  
CANAL –  
CN XII**

**FORAMEN  
MAGNUM**



# CRANIAL NERVES



- I. OLFACTORY - sense of smell
- II. OPTIC - vision
- III. OCULOMOTOR - eye movement
- IV. TROCHLEAR - eye movement
- V. TRIGEMINAL - touch, general sensation to skin, oral cavity, nasal cavity + more
- VI. ABDUCENS - eye movement
- VII. FACIAL - muscles of facial expression + lots more
- VIII. VESTIBULO-COCHLEAR - hearing and balance
- IX. GLOSSOPHARYNGEAL - sensory to pharynx + more
- X. VAGUS - larynx, pharynx + rest of body
- XI. ACCESSORY - sternocleidomastoid, trapezius
- XII. HYPOGLOSSAL - muscles of tongue

**FOCUS:  
FORAMINA  
ASSOCIATED  
WITH CRANIAL  
NERVES**

**SELLA TURCICA**

**CRIBRIFORM  
PLATE ETHMOID - I**

**OPTIC FORAMEN - II**

**SUP. ORBITAL  
FISSURE -  
III, IV, V1, VI**

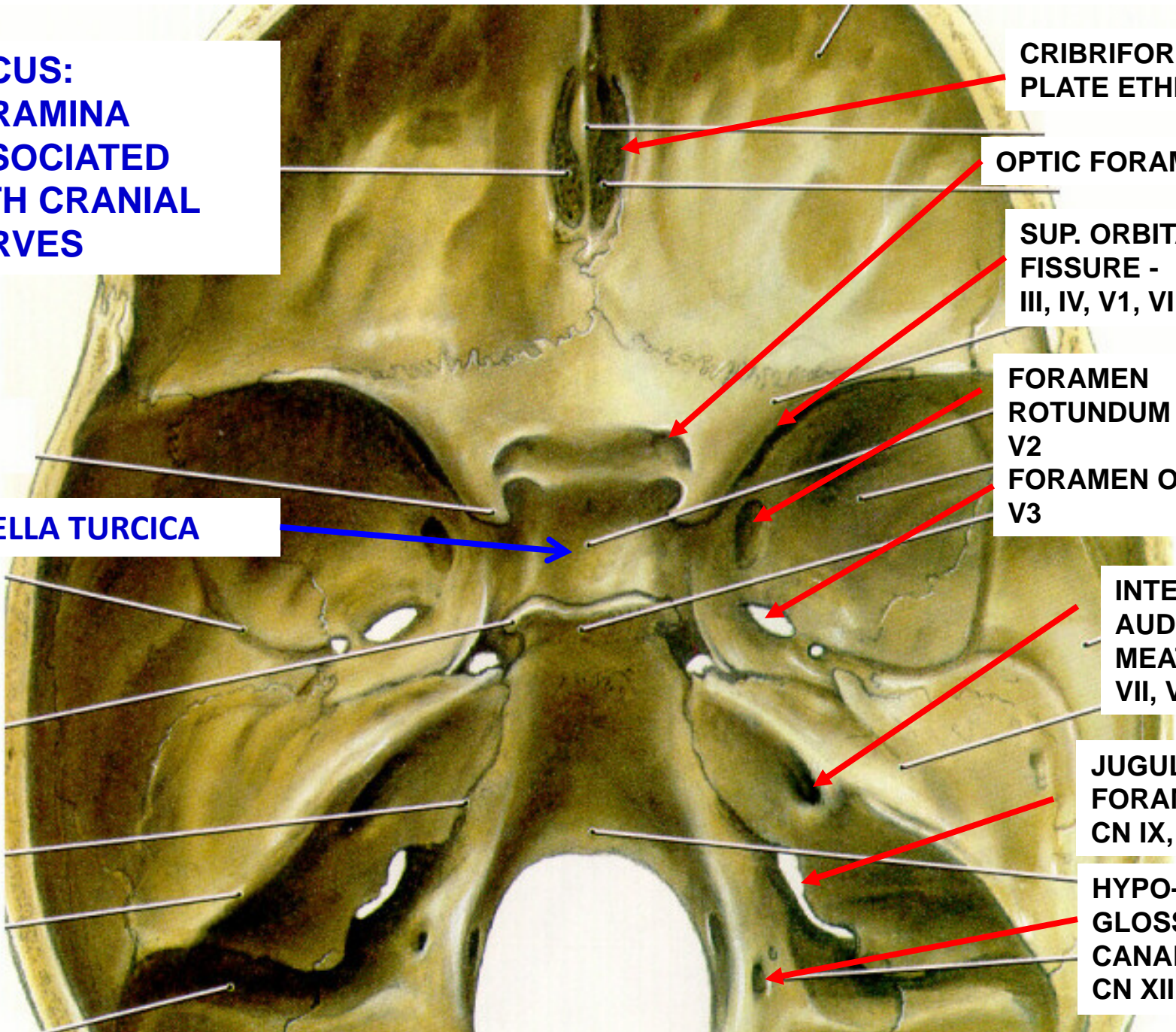
**FORAMEN  
ROTUNDUM -  
V2**

**FORAMEN OVALE -  
V3**

**INTERNAL  
AUDITORY  
MEATUS -  
VII, VIII**

**JUGULAR  
FORAMEN -  
CN IX, X, XI**

**HYPG-  
GLOSSAL  
CANAL -  
CN XII**



**VIEW WITH  
DURA INTACT  
AND  
BRAIN  
REMOVED**

**BRAINSTEM  
PROSECTIONS  
IDENTIFY**

**PITUITARY  
STALK**

**INTERNAL CAROTID A.**

**V1  
V2  
V3**

**MIDDLE  
MENINGEAL A.**

**III**

**V**

**IV**

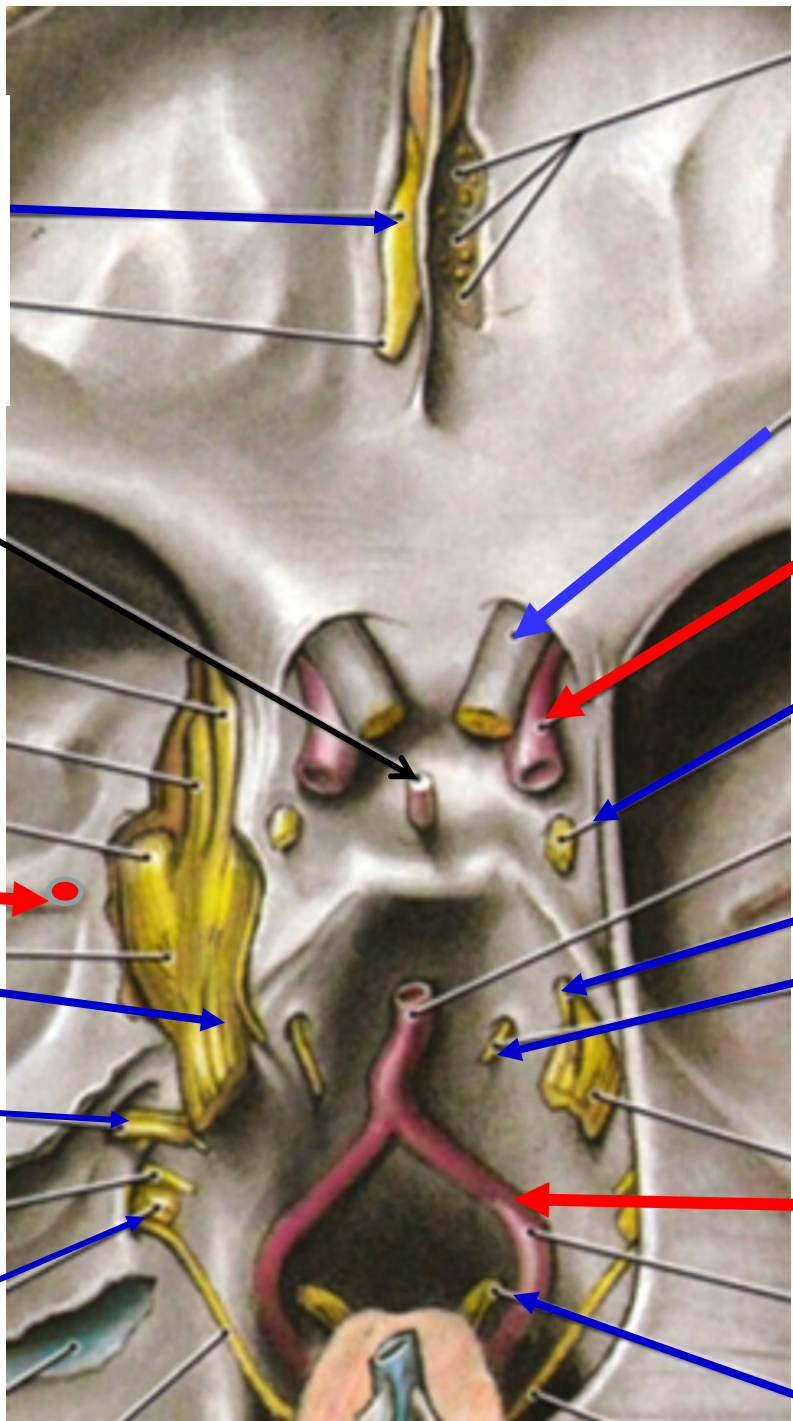
**VII  
+VIII**

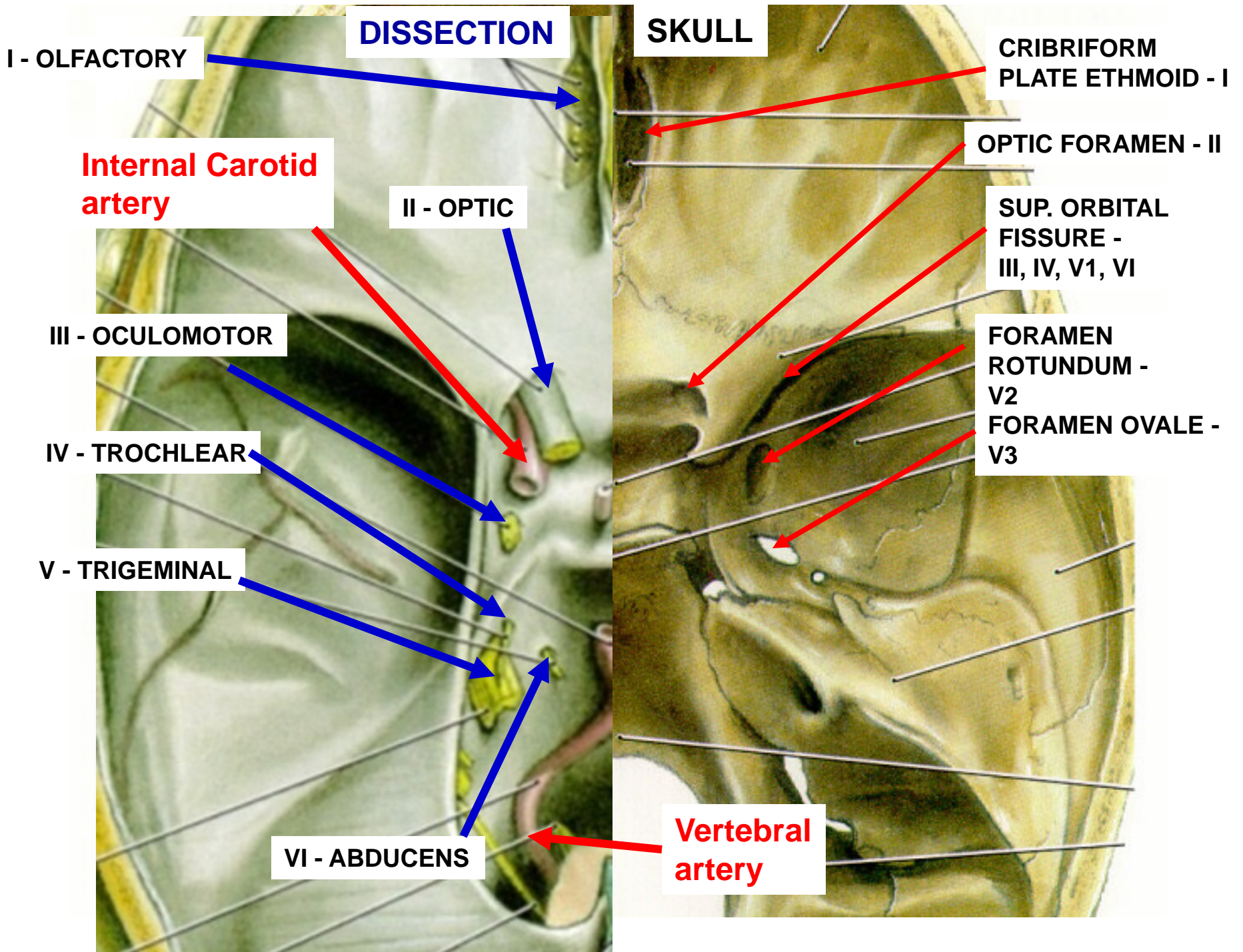
**VI**

**IX, X  
+XI**

**VERTEBRAL A.**

**XII**





**DISSECTION**

**SKULL**

**I - OLFACTORY**

**Internal Carotid artery**

**II - OPTIC**

**III - OCULOMOTOR**

**IV - TROCHLEAR**

**V - TRIGEMINAL**

**VI - ABDUCENS**

**CRIBRIFORM PLATE ETHMOID - I**

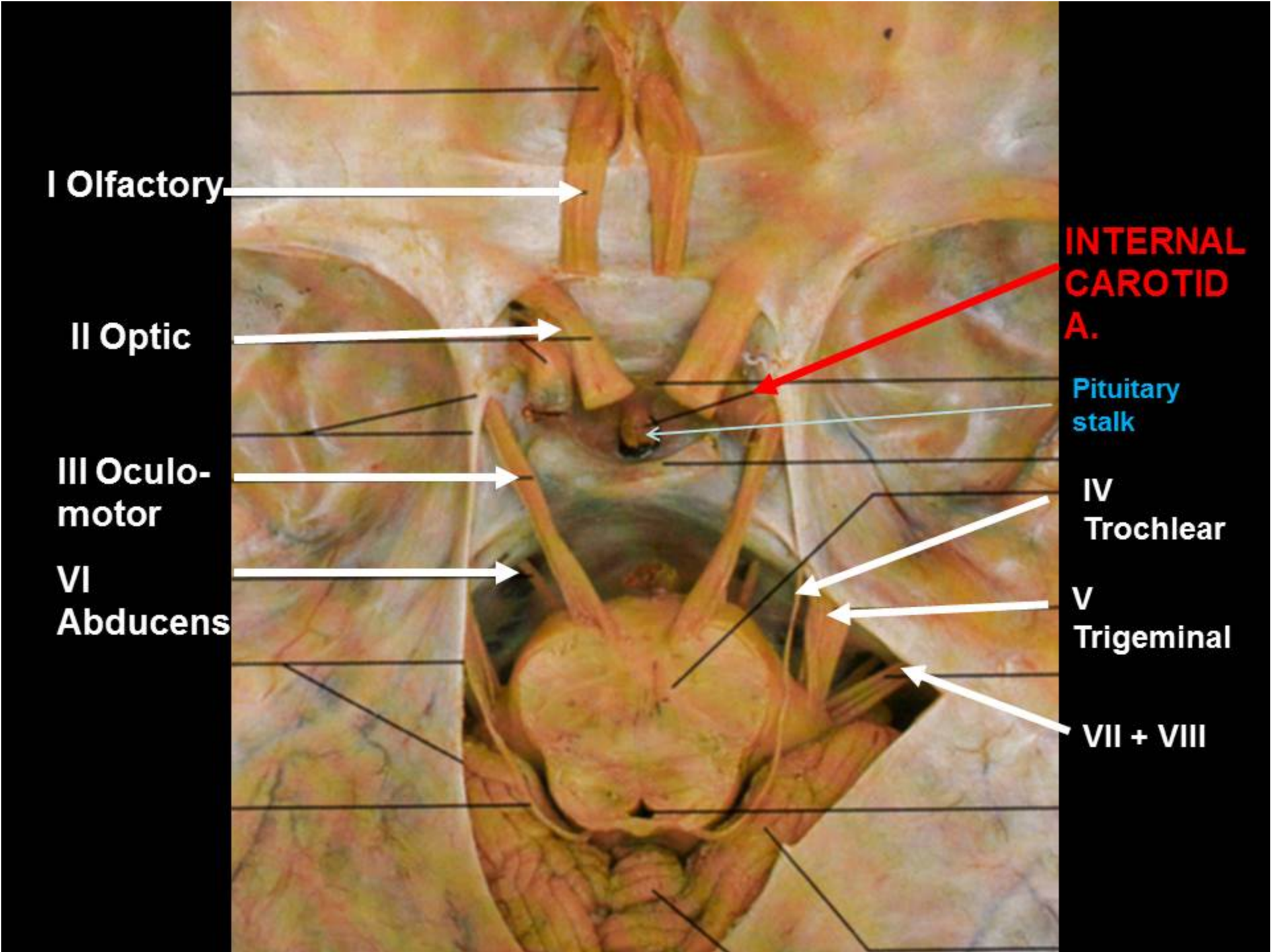
**OPTIC FORAMEN - II**

**SUP. ORBITAL FISSURE - III, IV, V1, VI**

**FORAMEN ROTUNDUM - V2**

**FORAMEN OVALE - V3**

**Vertebral artery**



**I Olfactory**

**II Optic**

**III Oculo-  
motor**

**VI  
Abducens**

**INTERNAL  
CAROTID  
A.**

**Pituitary  
stalk**

**IV  
Trochlear**

**V  
Trigeminal**

**VII + VIII**

**IV**  
**Trochlear**

**II Optic**  
**Chiasm**

**Trigeminal**  
**(Semilunar)**  
**Ganglion**

**III**  
**Oculomotor**

**V**  
**Trigeminal**

**Substantia**  
**Nigra**  
**in**  
**Midbrain**  
**(Parkinson's**  
**Disease)**

