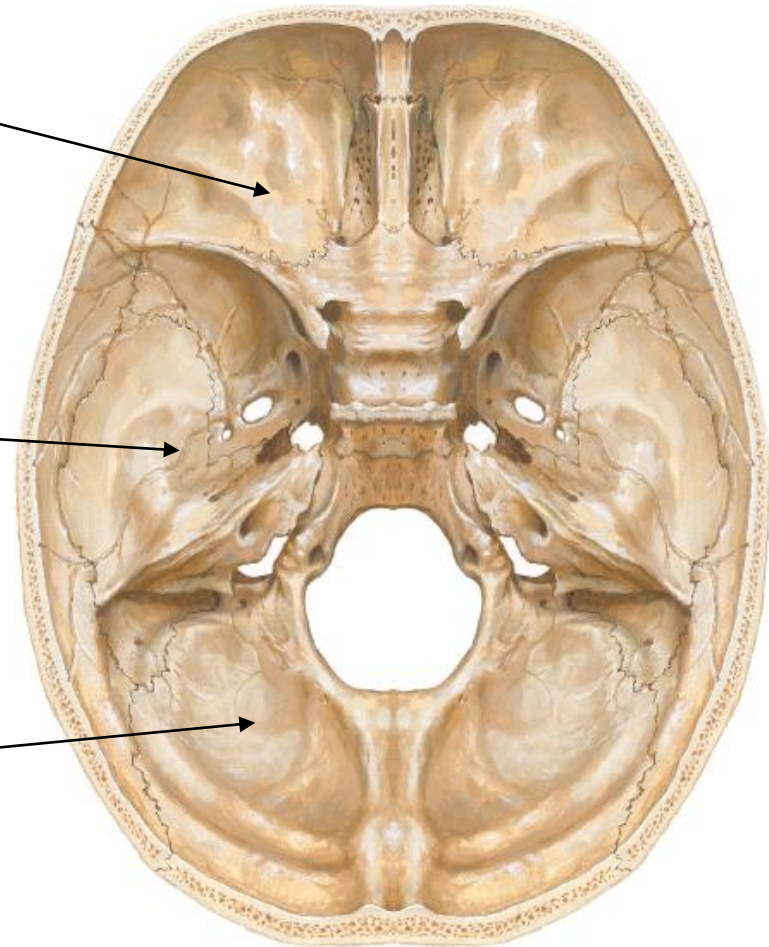


**LEBKA**

**jámy**

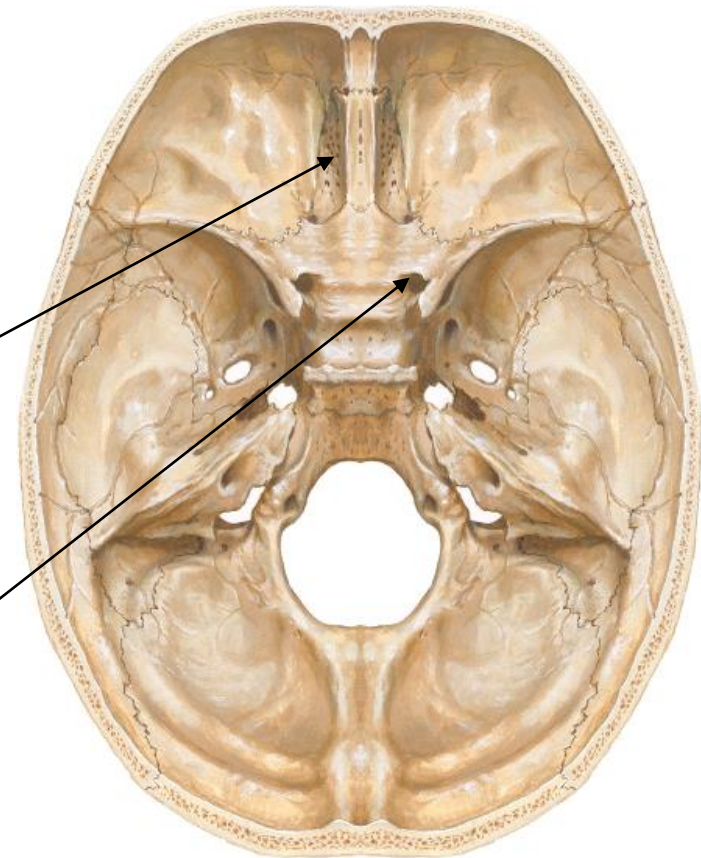
# Basis cranii interna

- fossa cranii anterior  
(přední lebeční jáma)
- fossa cranii media  
(střední lebeční jáma)
- fossa cranii posterior  
(zadní lebeční jáma)



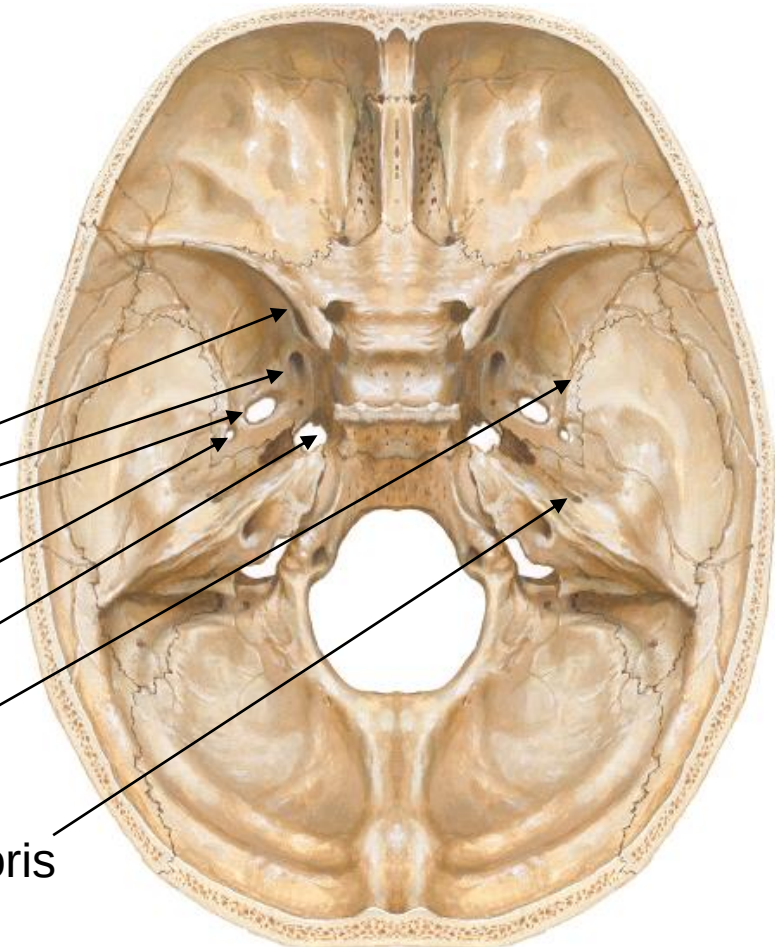
# Fossa cranii anterior (přední lebeční jáma)

- hranice
  - přední obvod spodiny
  - zadní okraj alae minores ossis sphenoidalis a zadní okraj sulcus chiasmaticus
- útvary
  - partes orbitales ossis frontalis
  - crista galli
  - foramen caecum
- průchody
  - lamina cribrosa
    - foramina cribrosa
    - canalis orbitocranialis
  - canalis opticus



# Fossa cranii media (střední lebeční jáma)

- hranice
  - zadní hranice fossa cranii anterior
  - dorsum sellae, processus clinoidei posteriores, margo superior partis petrosae ossis temporalis
- útvary
  - fossa hypophysialis
  - sella turcica
  - sulcus caroticus
  - sulcus sinus petrosi superioris
  - impressio trigeminalis
  - processus clinoideus posterior
  - synchondrosis sphenopetrosa
- průchody
  - fissura orbitalis superior
  - foramen rotundum, ovale, spinosum
    - foramen venosum, petrosum
  - foramen lacerum
  - sulci arteriae meningae mediae
  - hiatus canalis nervi petrosi majoris et minoris

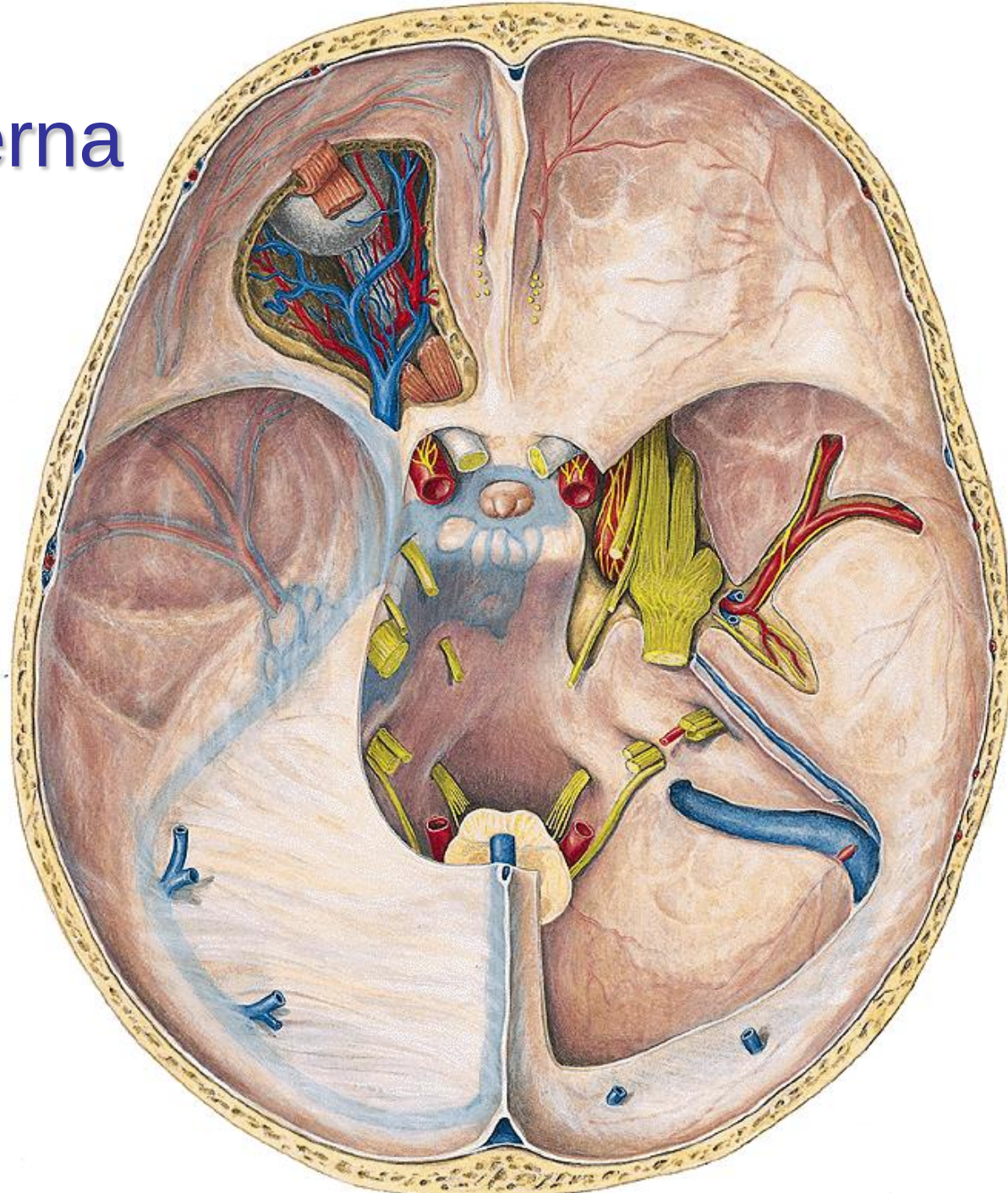




# Basis cranii interna

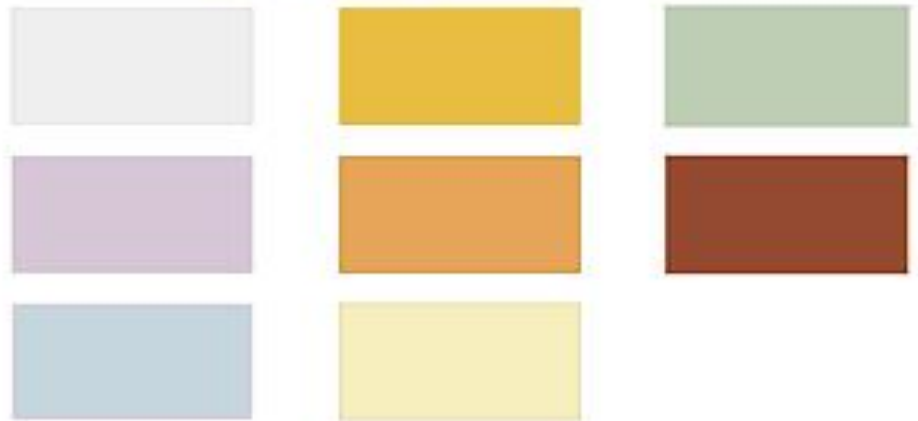
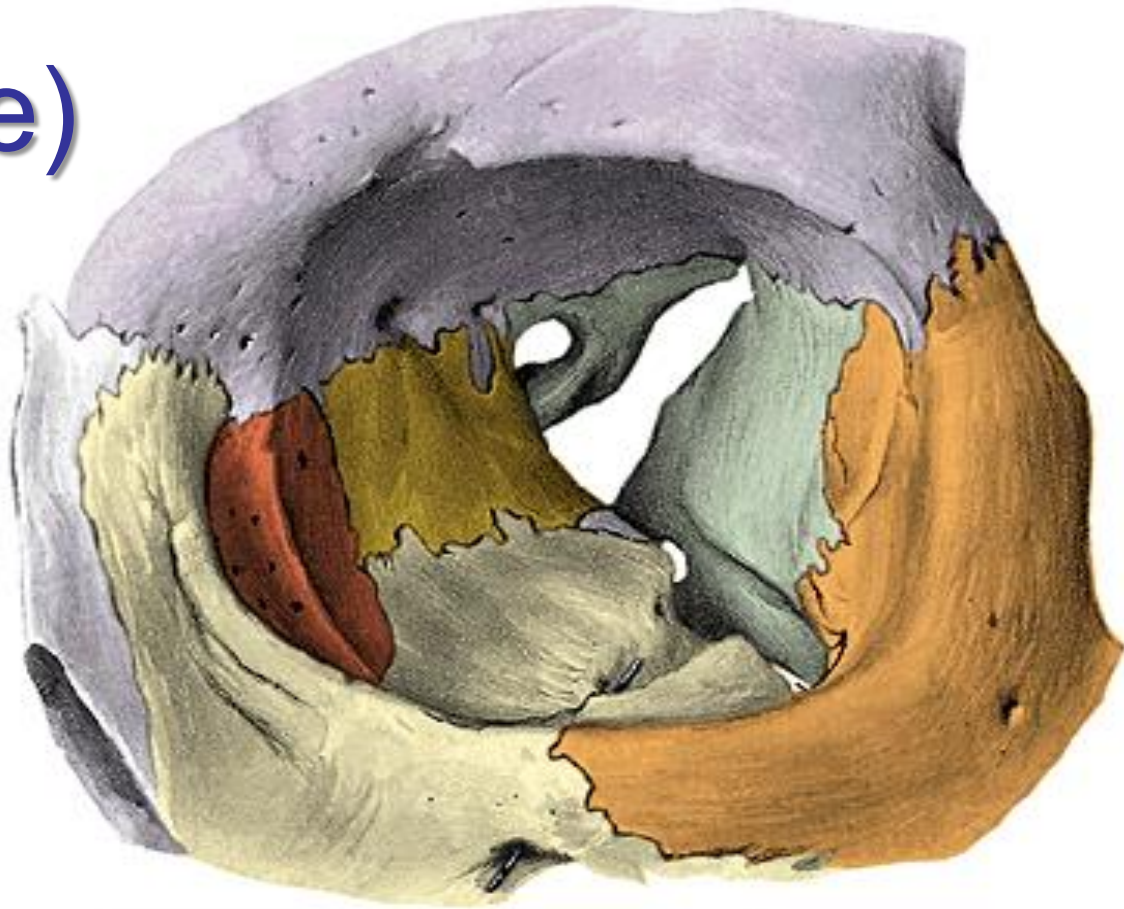
## **průchody**

- mícha
- nervy
- tepny
- žíly (splavy)



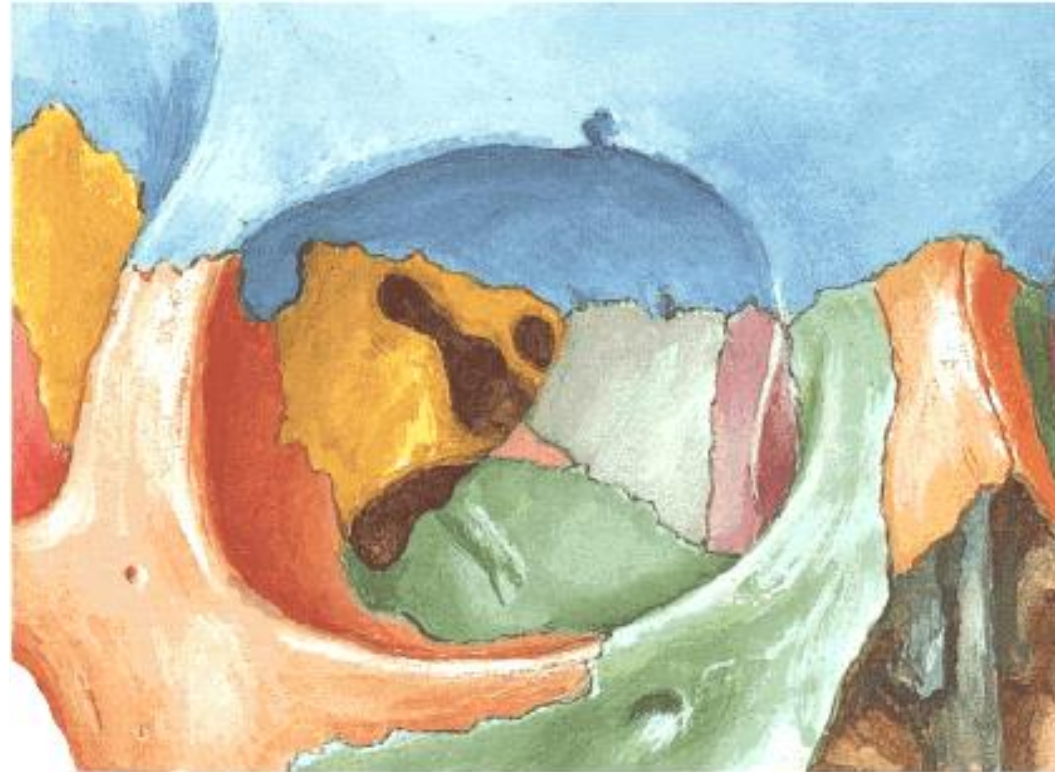
# Orbita (Očnice)

- tvar 4-bokého jehlanu svrženého vzad
- aditus orbitae
- apex orbitae = canalis opticus
- 10 otvorů + obsah
- m. orbitalis *Mülleri* – *hladký sval* ve fissura orbitalis inferior
- obsah: oční koule, svaly, tukové těleso a přídatné orgány



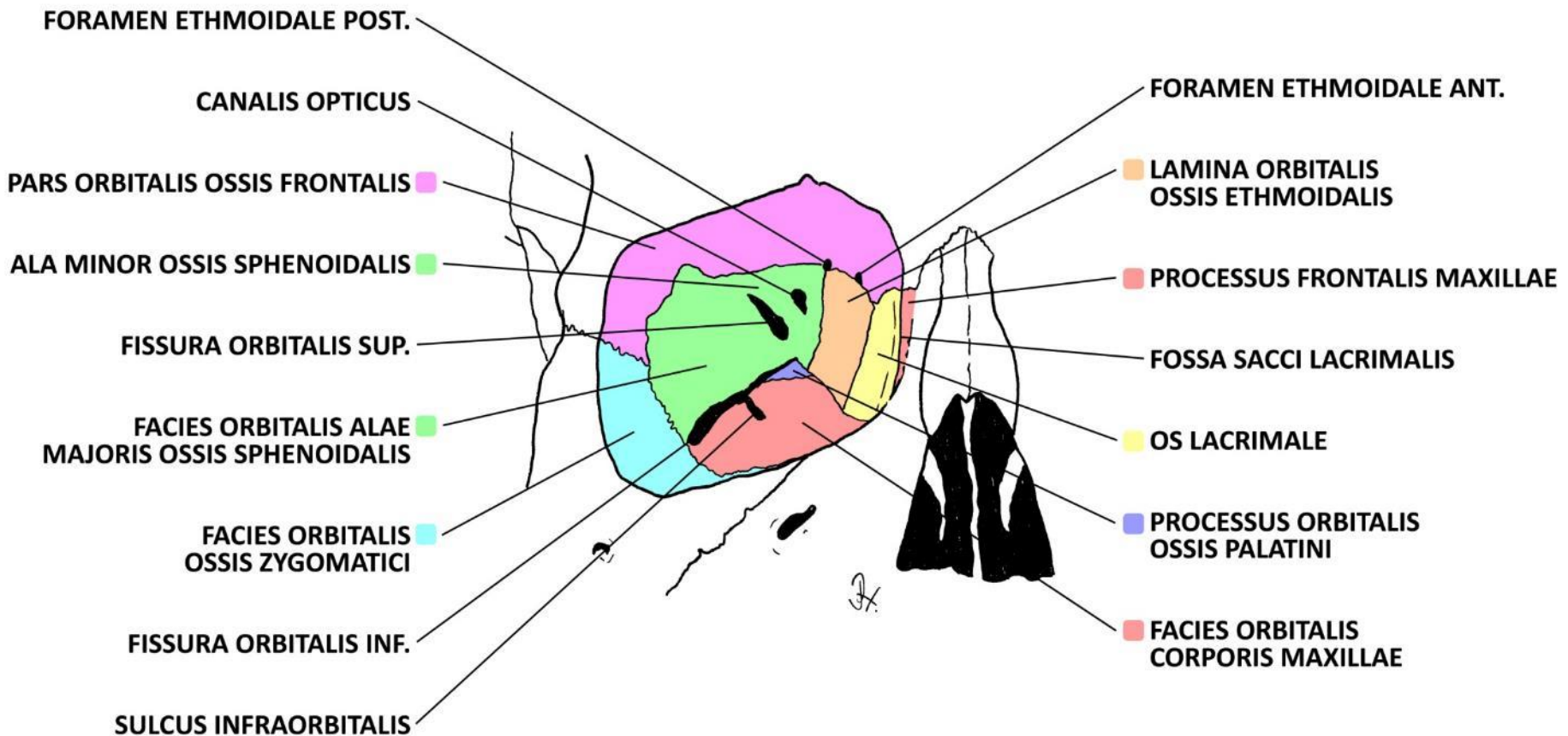
- **strop**
  - pars orbitalis ossis frontalis
  - ala minor ossis sphenoidalis
- **dno**
  - os zygomaticum
  - corpus maxillae
  - processus orbitalis ossis palatini
- **mediální stěna**
  - processus frontalis maxillae
  - os lacrimale
  - lamina orbitalis ossis ethmoidalis
  - ala minor ossis sphenoidalis
- **laterální stěna**
  - os zygomaticum
  - ala major ossis sphenoidalis

# Orbita (Očnice) ohraničení



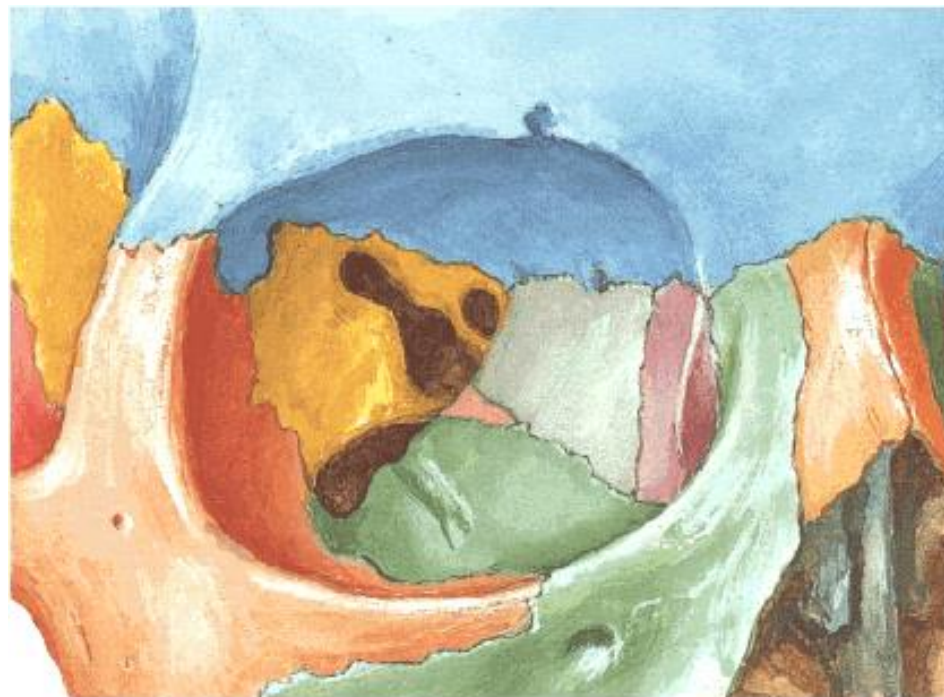
# Orbita (Očnice)

## ohraničení a otvory



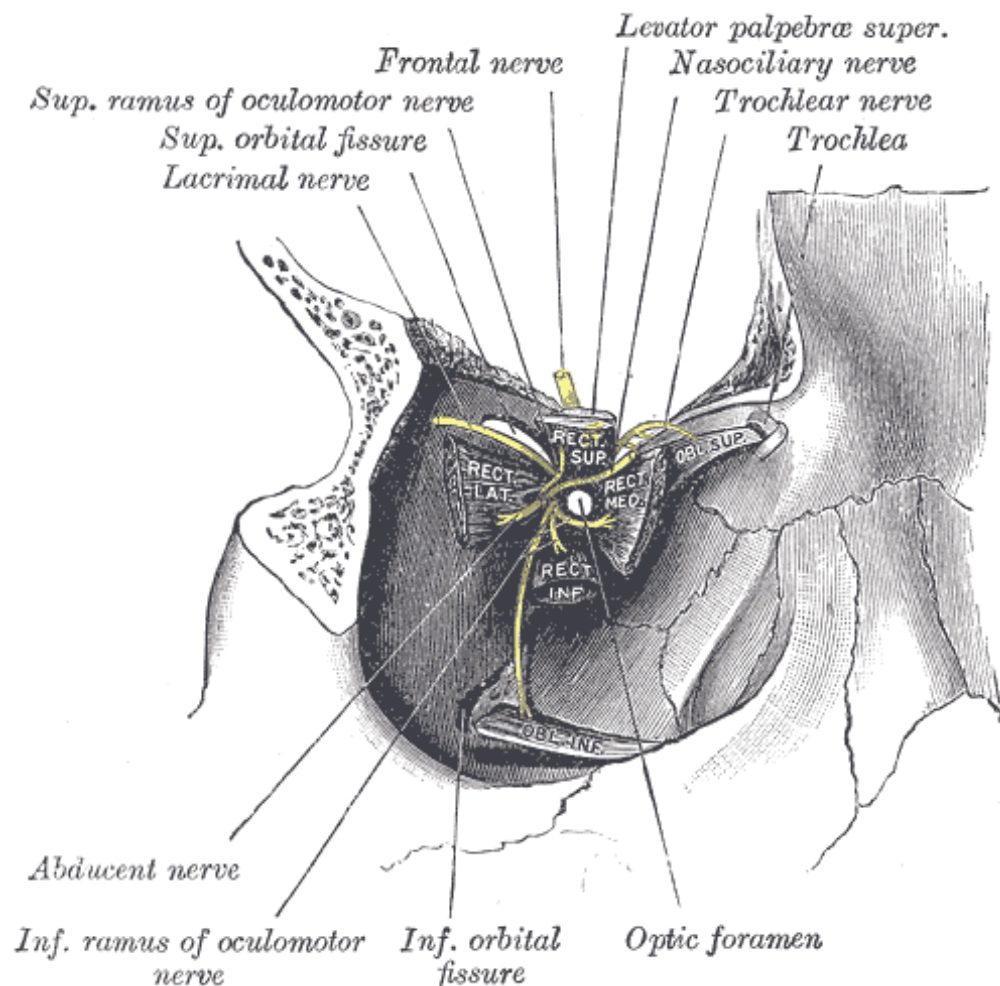
- aditus → apex
- otvory
  - canalis opticus
  - fissura orbitalis superior
  - fissura orbitalis inferior
  - foramen ethmoidale ant. +post.
  - sulcus + canalis infraorbitalis
  - foramen zygomaticoorbitale
  - incisura/foramen supraorbitalis/e
  - incisura/foramen frontalis/e (50 %)
  - canalis nasolacrimalis
- obsah:
  - bulbus oculi
  - mm. recti (4) et obliqui (2), m. levator palpebrae superioris
  - corpus adiposum orbitae
  - a. ophthalmica a její větve, a. infraorbitalis
  - v. ophthalmica sup. et inf. a jejich přítoky
  - n.III+IV+VI, n.V1. a jejich větve
  - ganglion ciliare
  - glandula et saccus lacrimalis

# Orbita (Očnice) otvory a obsah

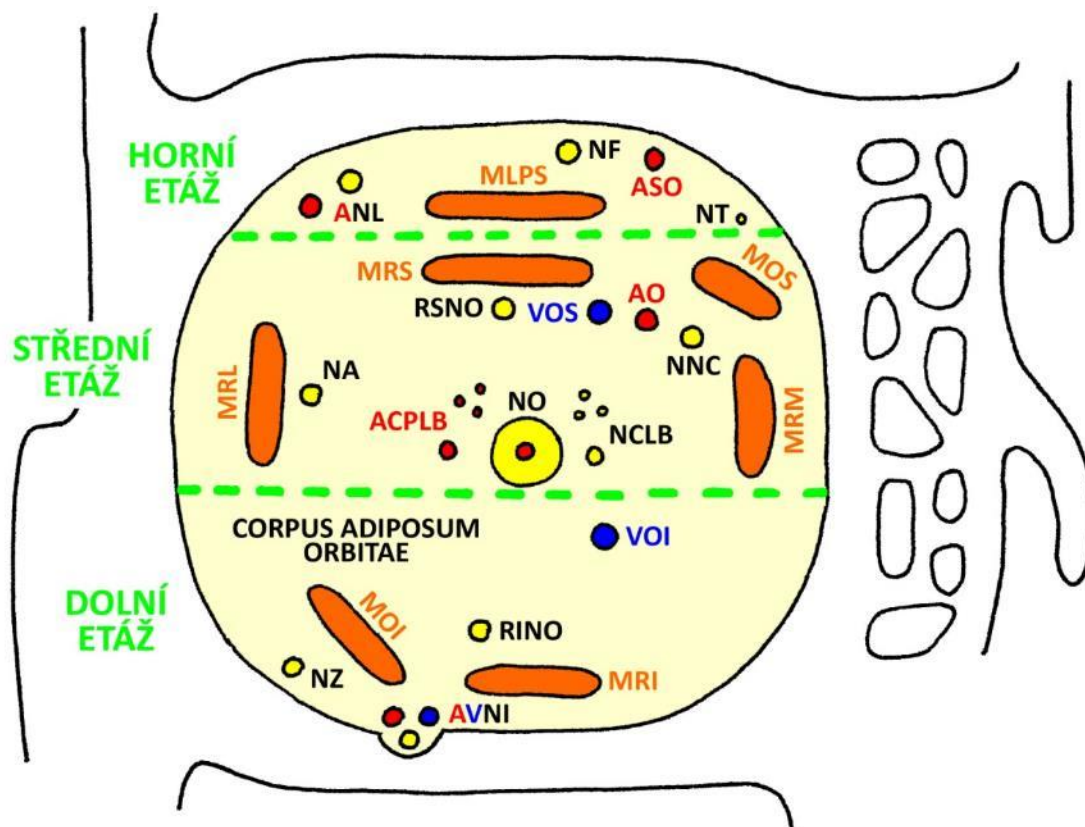


# Fissura orbitalis superior (Horní očníková štěrбина)

- n. oculomotorius
- n. trochlearis
- n. abducens
- n. nasociliaris
- n. lacrimalis
- n. frontalis
- v. ophthalmica sup.



# Orbita (Očnice) – otvory a obsah



ANL - A. ET N. LACRIMALIS  
 MLPS - M. LEVATOR PALPEBRAE SUP.  
 NF - N. FRONTALIS  
 ASO - A. SUPRAORBITALIS  
 NT - N. TROCHLEARIS

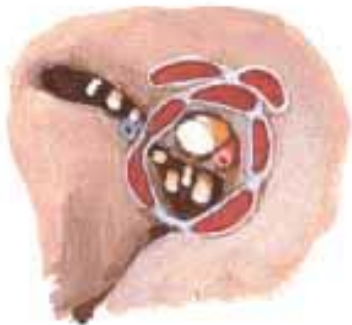
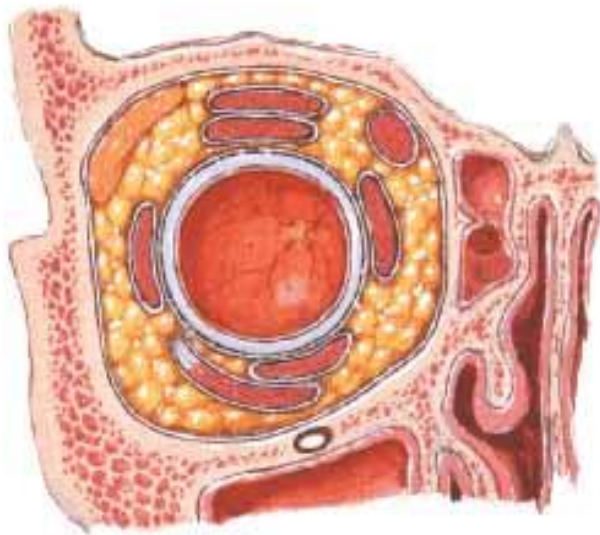
MRL - M. RECTUS LAT.  
 NA - N. ABDUCENS  
 ACPLB - AA. CILIARES POST. LONGI ET BREVES  
 NO - N. OPTICUS + A. CENTRALIS RETINAE  
 NCLB - NN. CILIARES LONGI ET BREVES  
 MRS - M. RECTUS SUP.  
 RSNO - R. SUP. N. OCULOMOTORII  
 VOS - V. OPHTHALMICA SUP.  
 AO - A. OPHTHALMICA  
 NNC - N. NASOCILIARIS  
 MOS - M. OBLIQUUS SUP.  
 MRM - M. RECTUS MED.

VOI - V. OPHTHALMICA INF.  
 NZ - N. ZYGOMATICUS  
 MOI - M. OBLIQUUS INF.  
 AVNI - A., V. ET N. INFRAORBITALIS  
 RINO - R. INF. N. OCULOMOTORII  
 MRI - M. RECTUS INF.

# Svaly oční

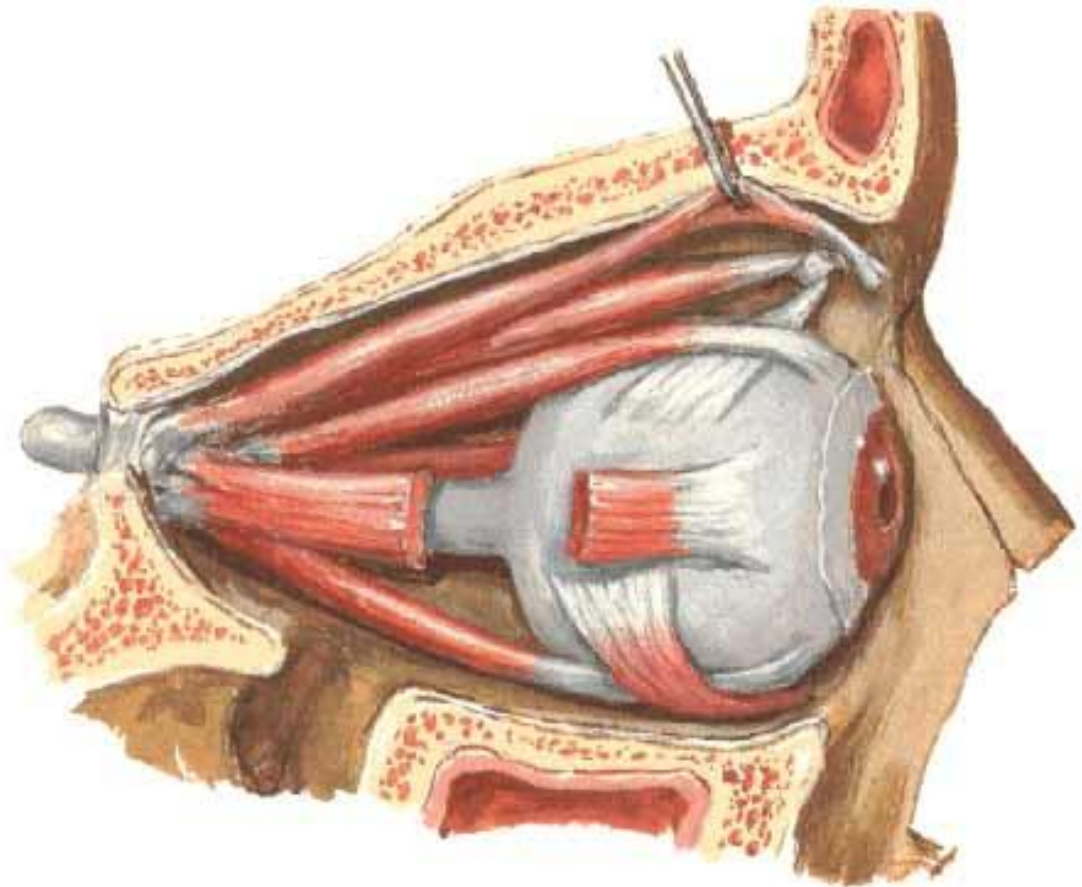
## Fascia of Orbit and Eyeball

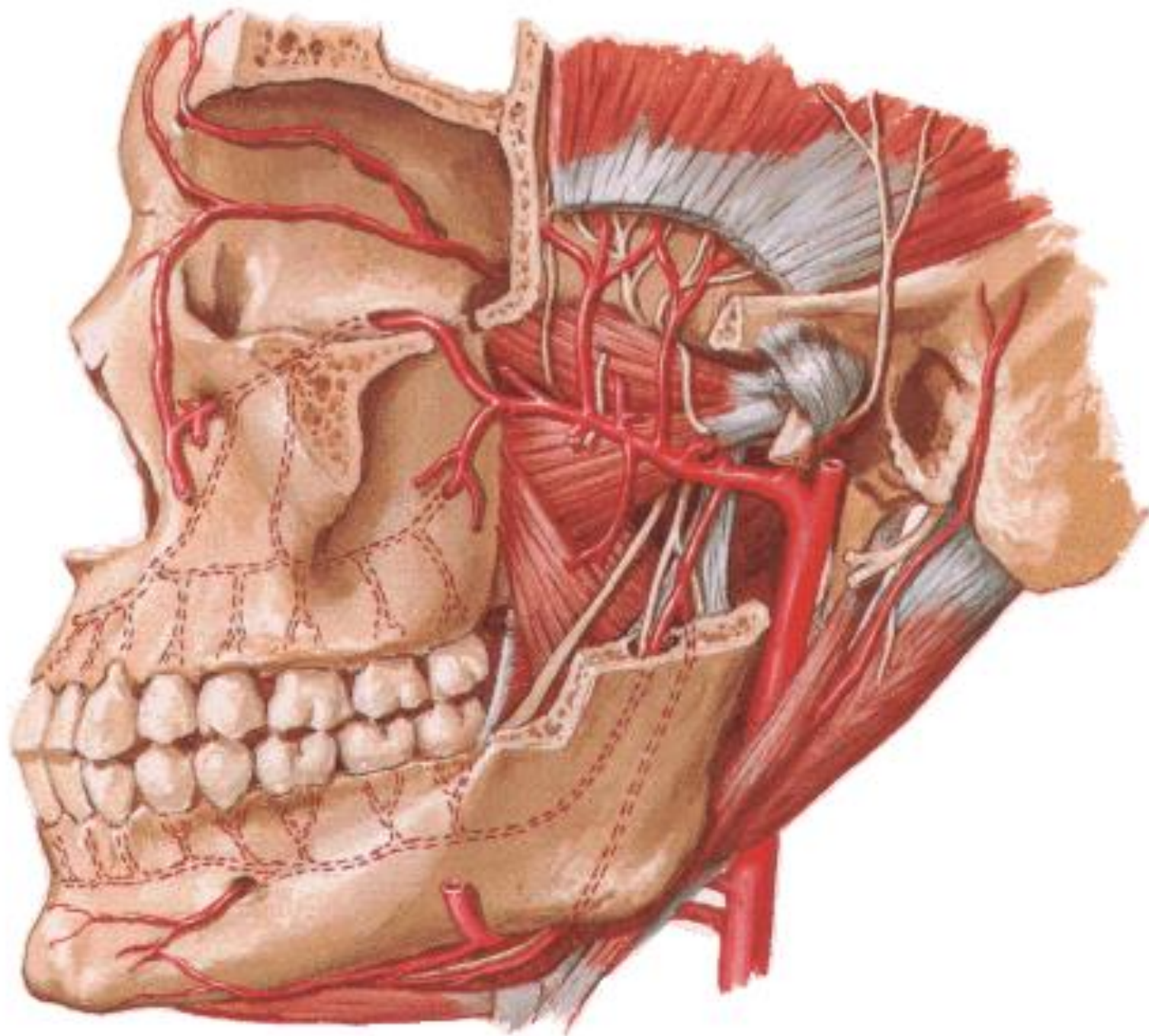
Frontal Section and Entering Structures



## Extrinsic Eye Muscles

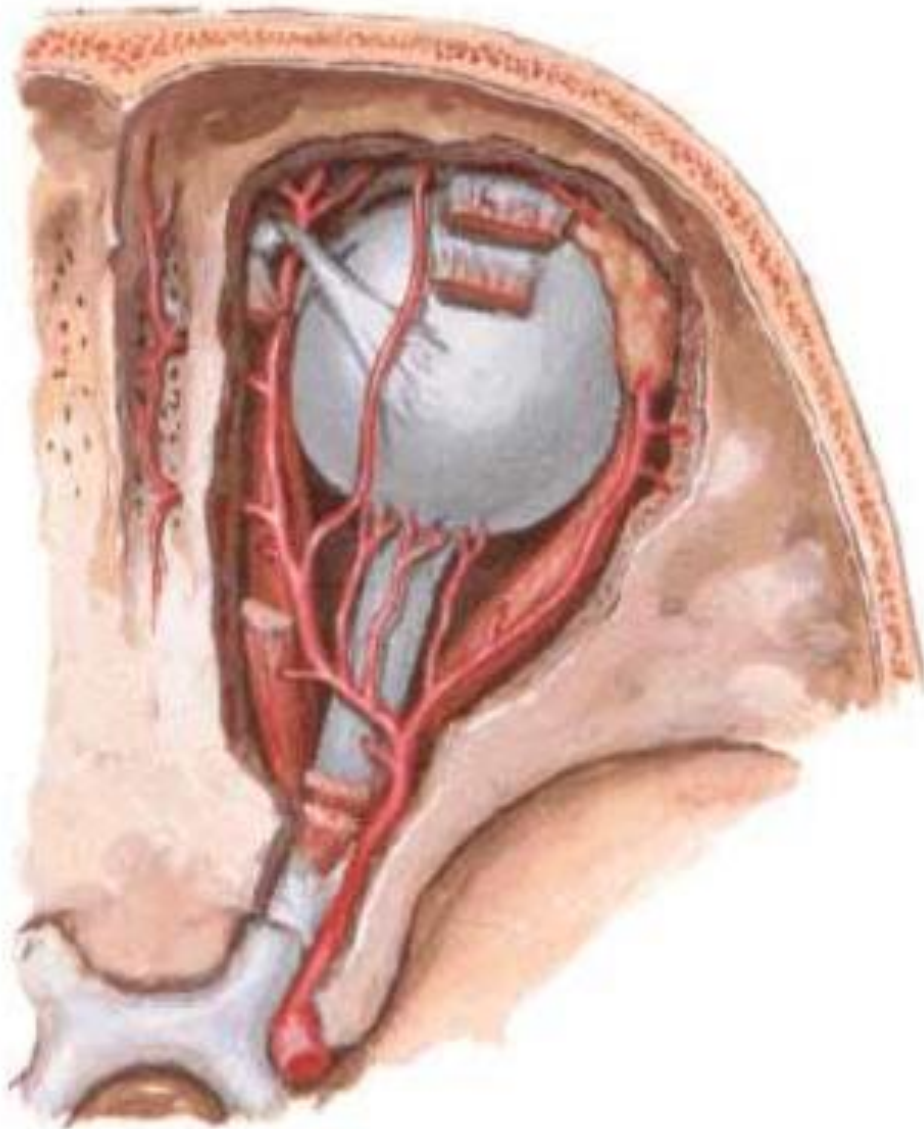
Right Lateral View





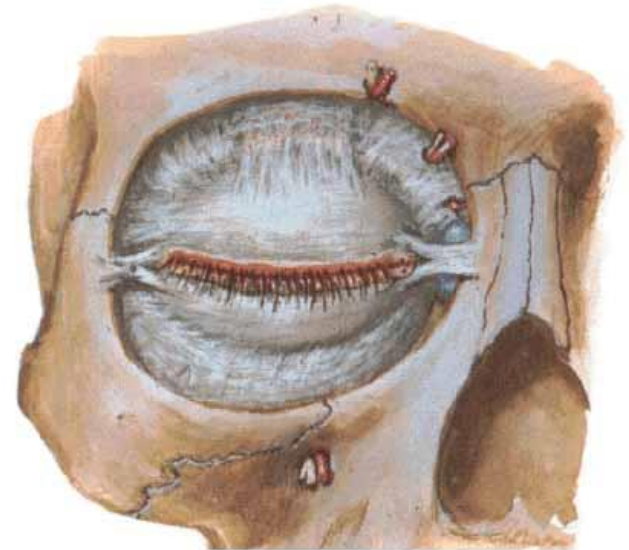
# Arteries and Veins of Orbit and Eyelids

Superior View



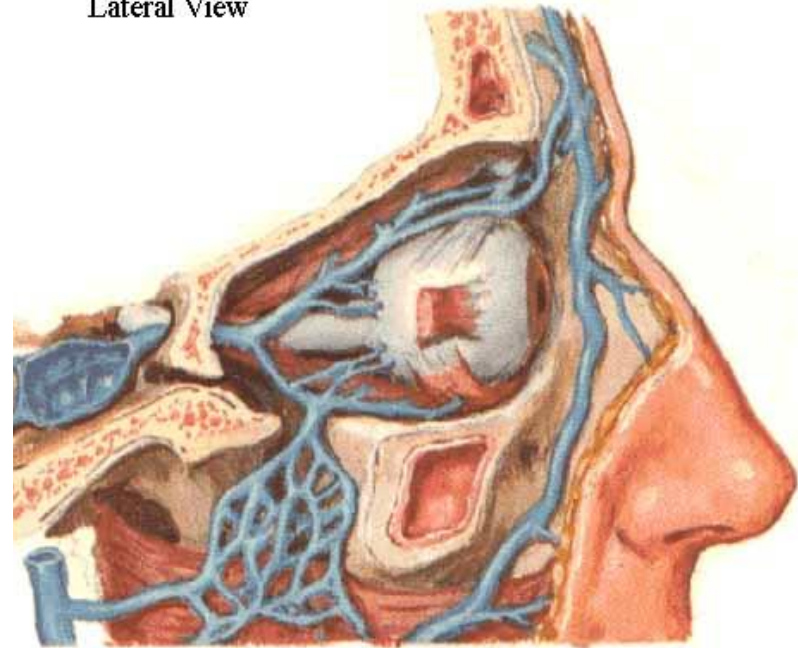
Eyelids - Dissection

Anterior View



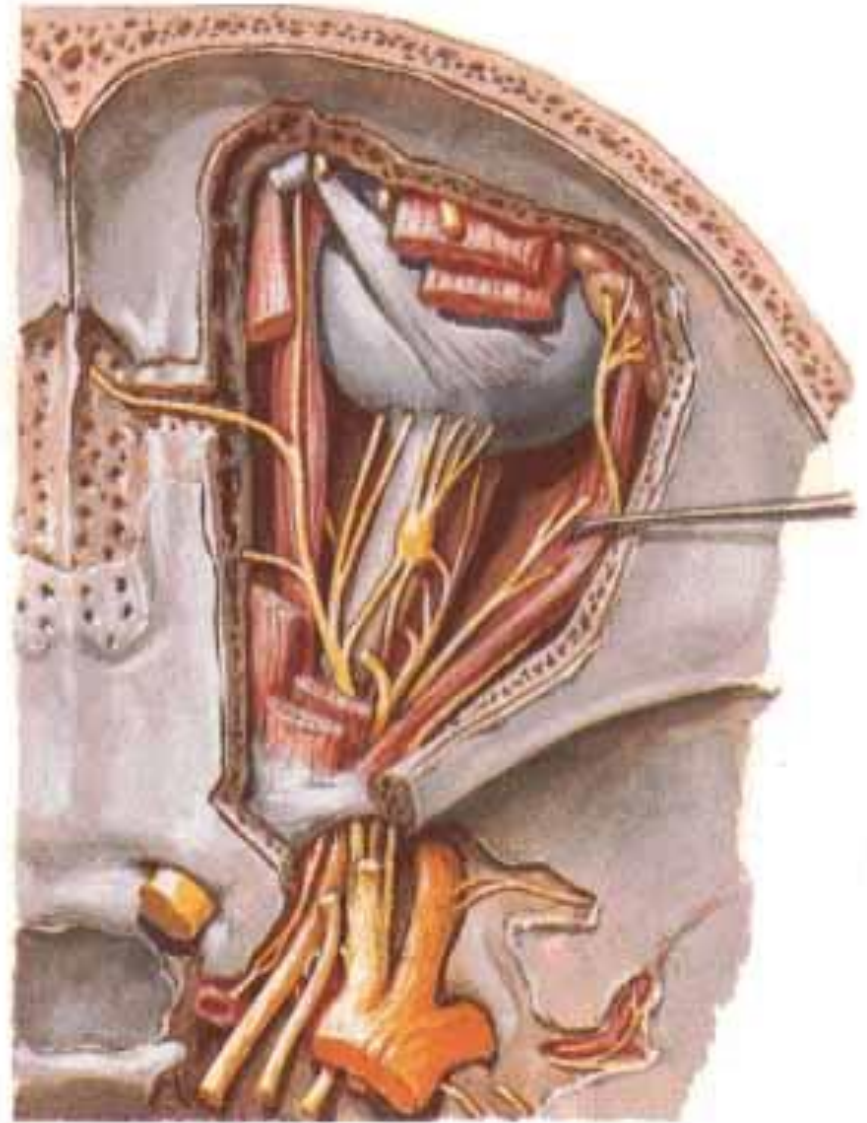
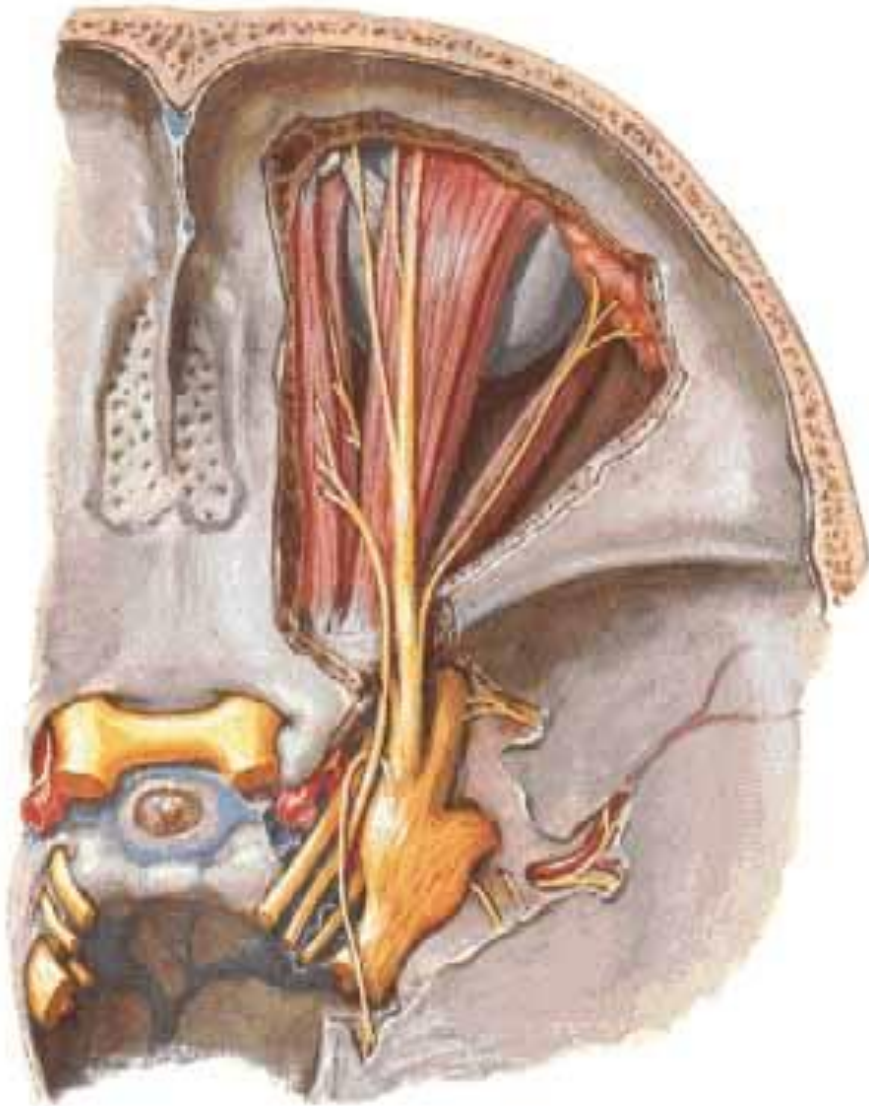
Veins of Orbit

Lateral View



# Nerves of Orbit

## Superior View

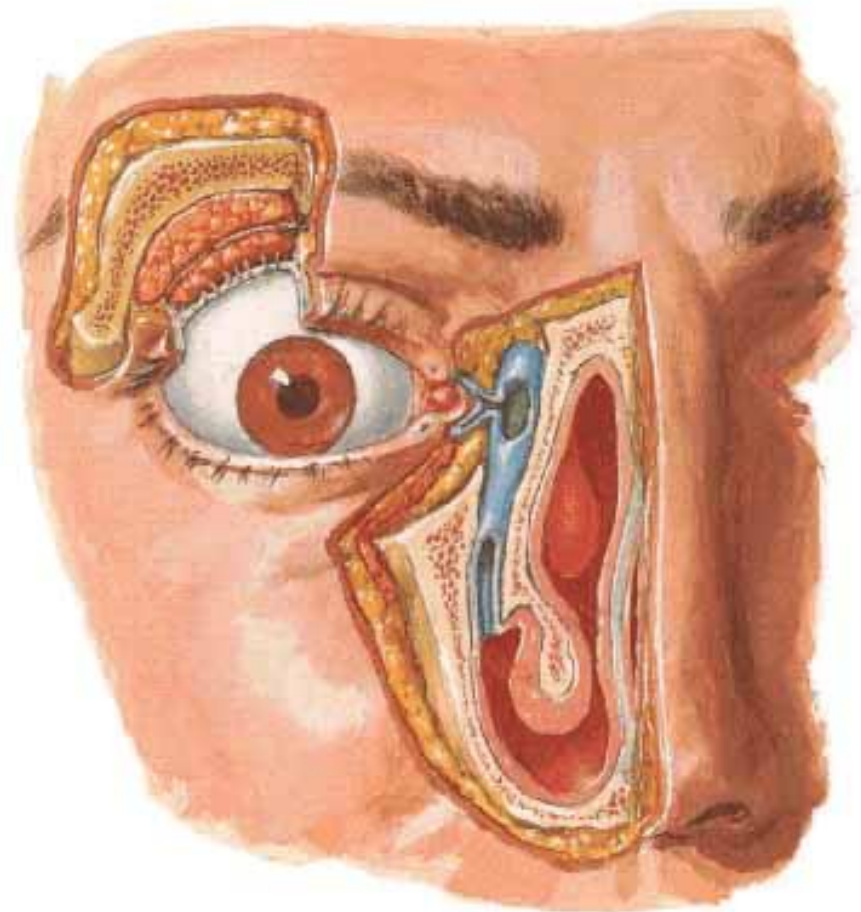


# Slzná žláza a slzné cesty

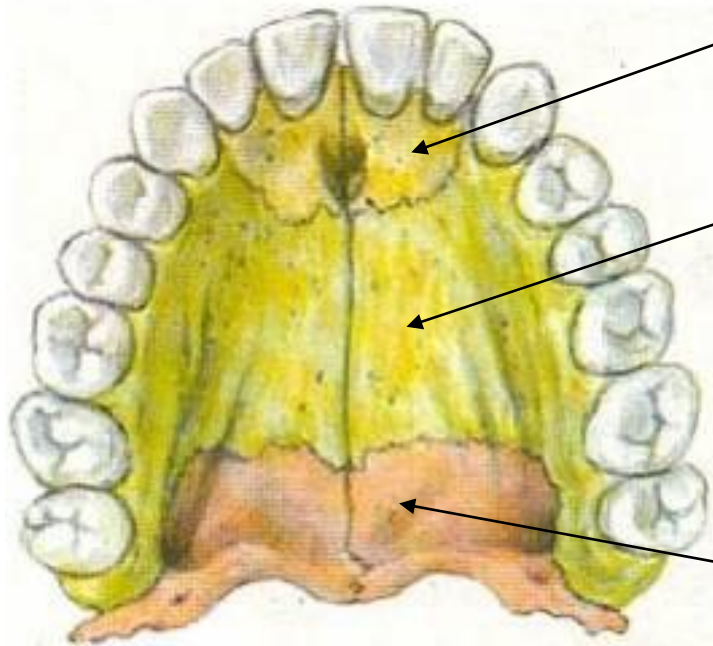
**Lacrimal Apparatus in Situ**



**Lacrimal Apparatus  
Dissection**



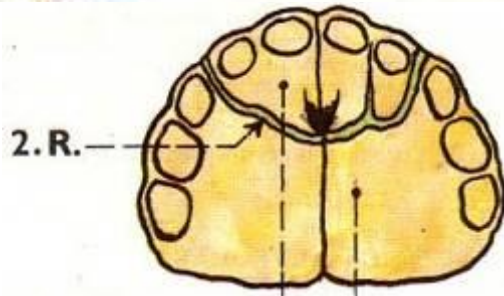
# Palatum durum (tvrdé patro)



os incisivum

processus  
palatinus  
maxillae

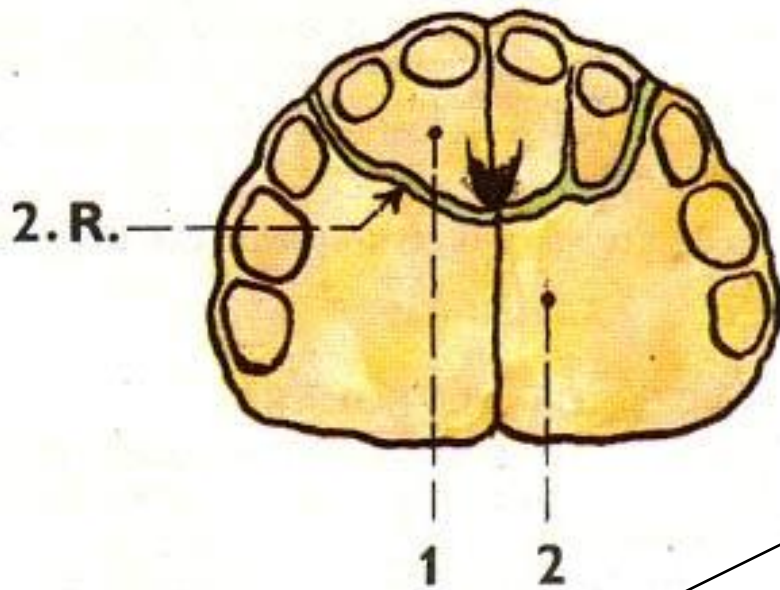
lamina  
horizontalis  
ossis palatini



- foramen incisivum (n. nasopalatinus)
- foramen palatinum majus (n. palatinus major, vasa palatina majora)

**rozštěp rtu + čelisti:**  
porucha splývání  
maxilárního +  
frontonazálního výběžku  
ret (s/bez patra) 1:1000,  
patro 1:1500

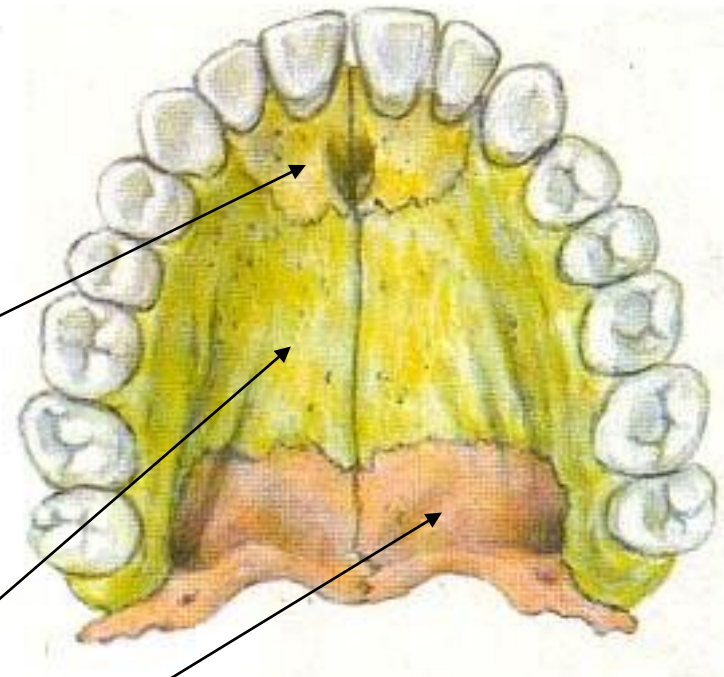
# Palatum durum (tvrdé patro)



os incisivum

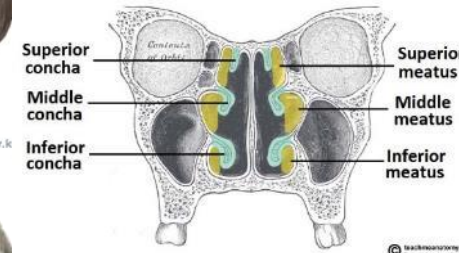
maxilla (processus palatinus)

os palatinum



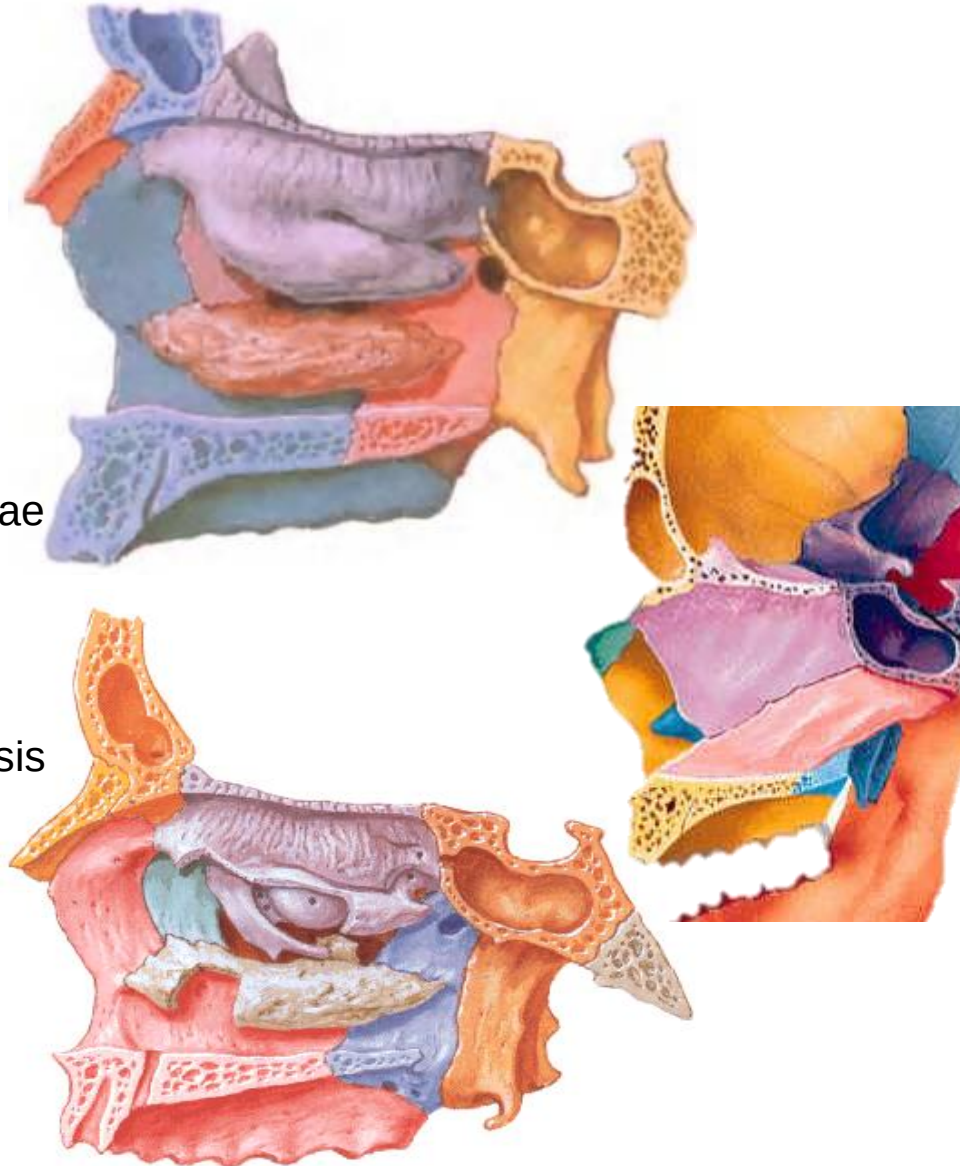
# Cavitas nasi ossea (kostěná nosní dutina)

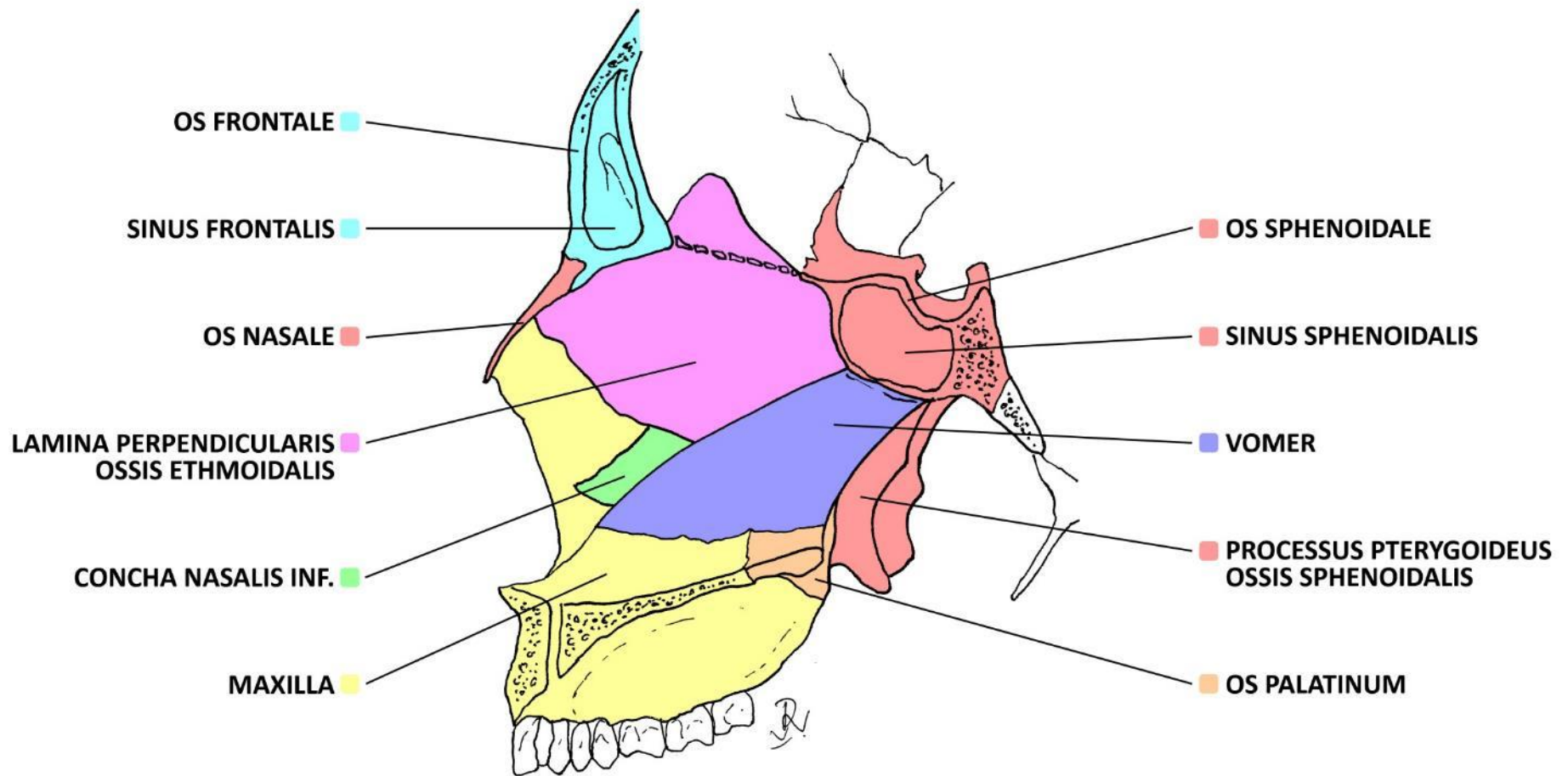
- apertura piriformis
- choanae
- septum nasi osseum
- conchae nasales
  - superior, media, inferior
  - (suprema, sphenoidalis)
- meatus nasi (nosní průduchy)
  - meatus nasi superior+ medius + inferior
  - communis, nasopharyngeus
- sinus paranasales (vedlejší nosní dutiny)
- ohřev, čištění, zvlhčování vzduchu, čich



# Cavitas nasi (nosní dutina)

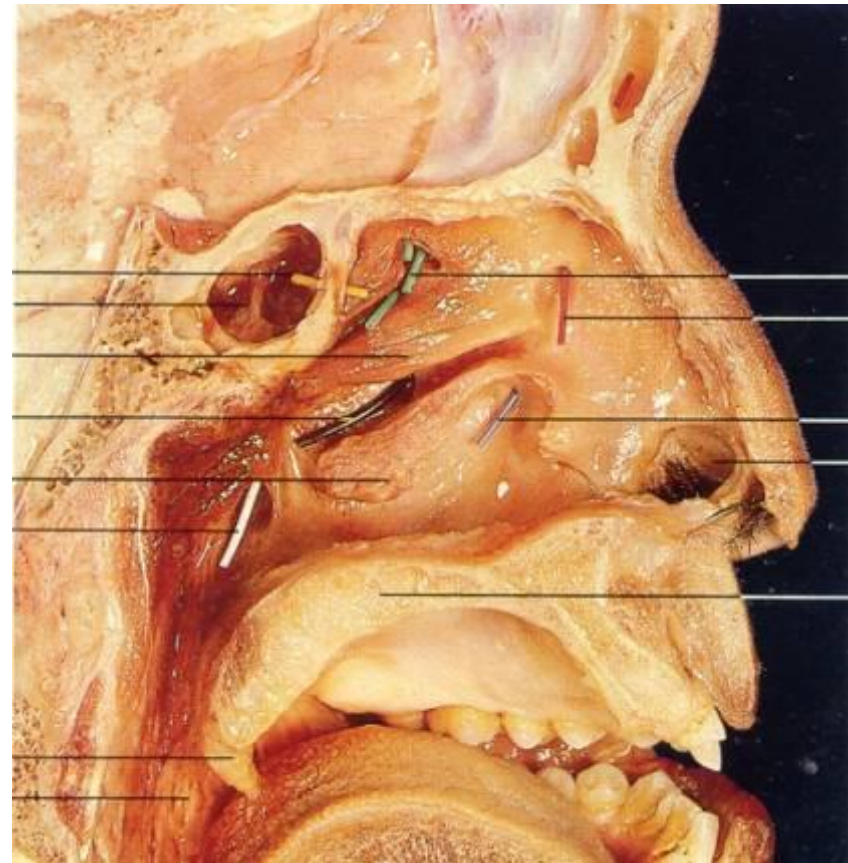
- **strop**
  - ossa nasalia
  - pars nasalis ossis frontalis
  - lamina cribrosa ossis ethmoidalis
  - corpus ossis sphenoidalis
- **dno**
  - palatum durum (+ palatum molle)
- **laterálně**
  - processus frontalis + facies nasalis maxillae
  - os lacrimale
  - labyrinthus ethmoidalis
  - lamina perpendicularis ossis palatini
  - lamina medialis processus pterygoidei ossis sphenoidalis
- **mediálně**
  - *cartilago septi nasi*
  - septum nasi (pars ossea)
    - lamina perpendicularis ossis ethmoidalis
    - vomer

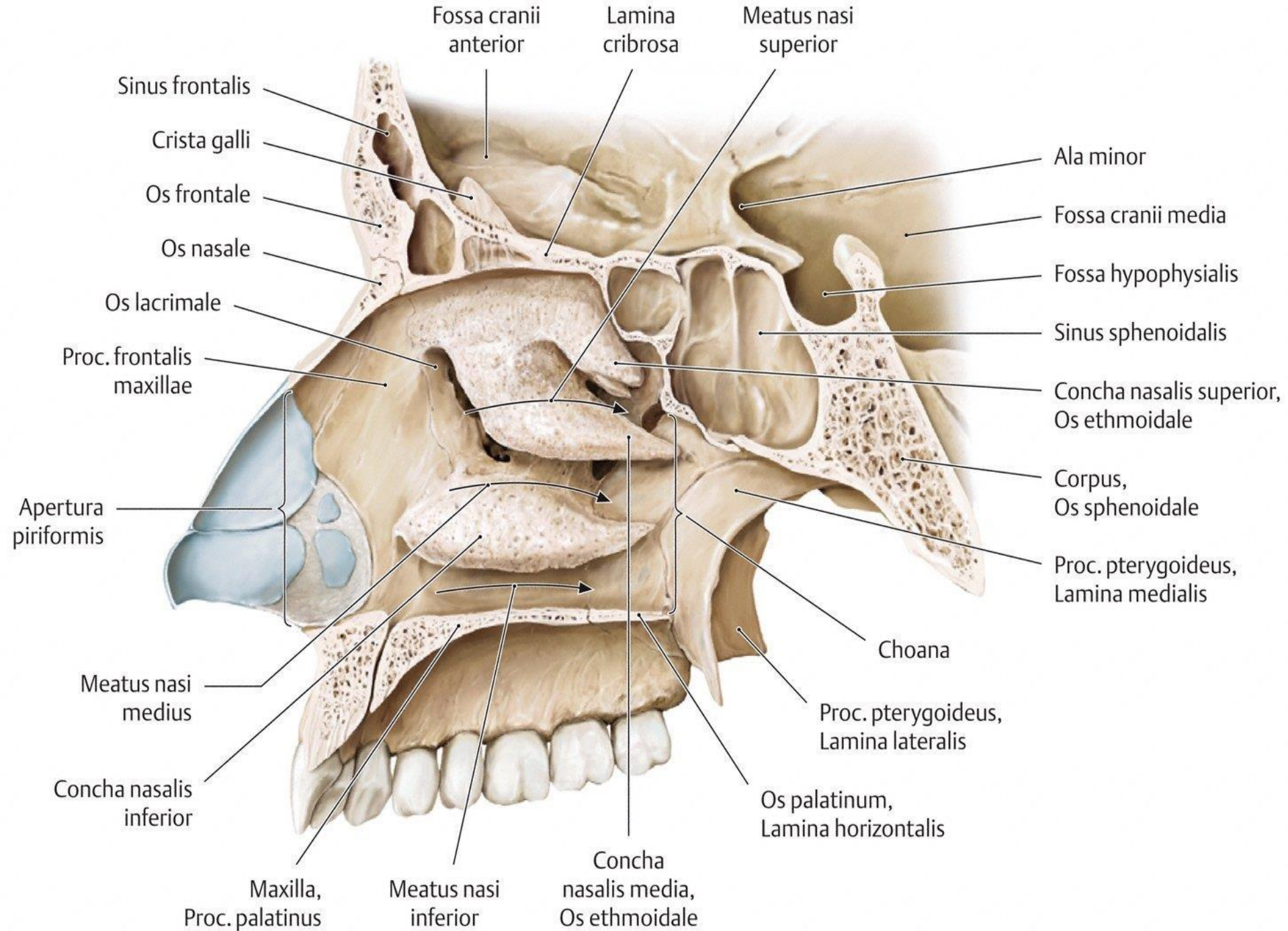


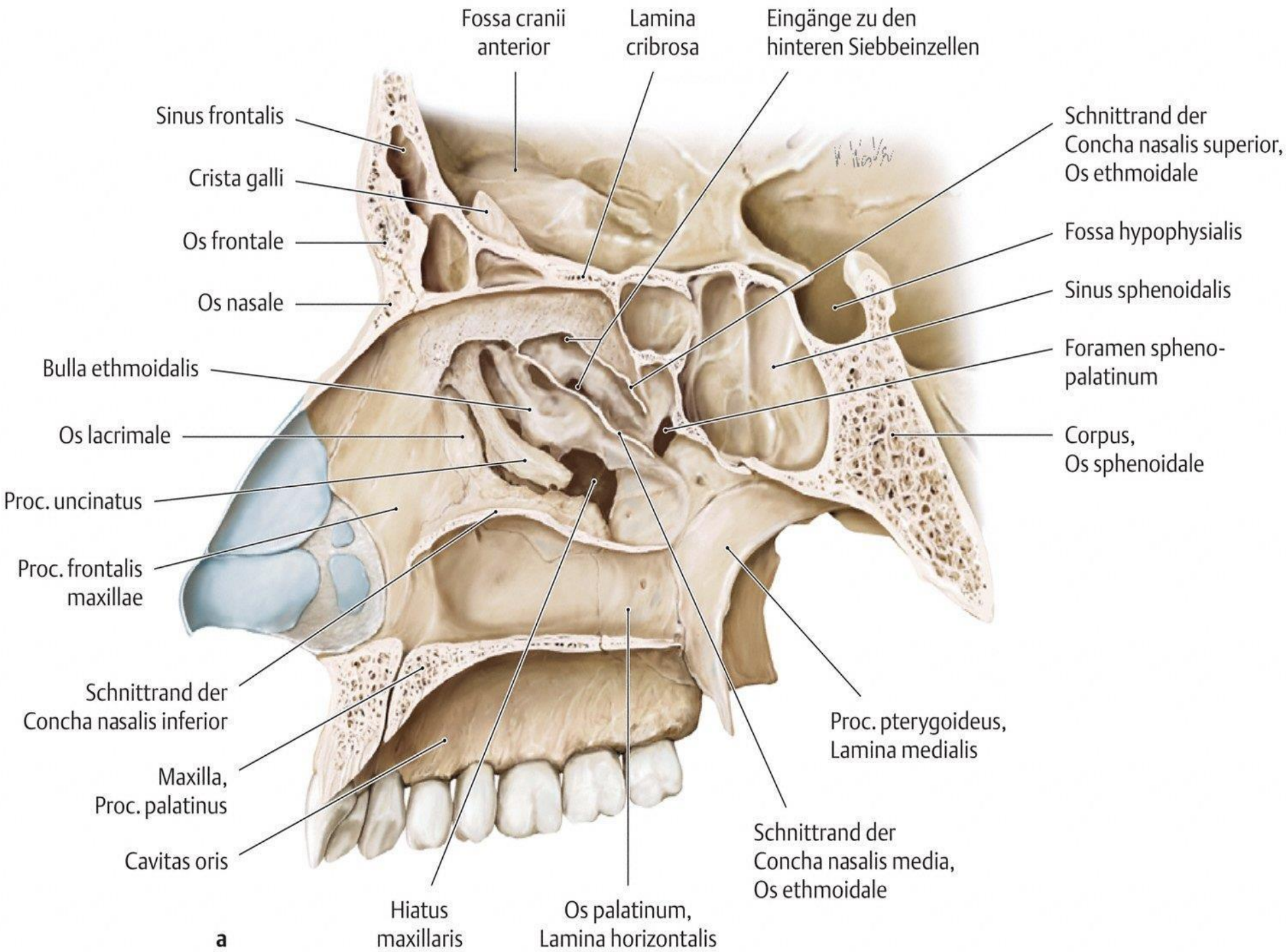


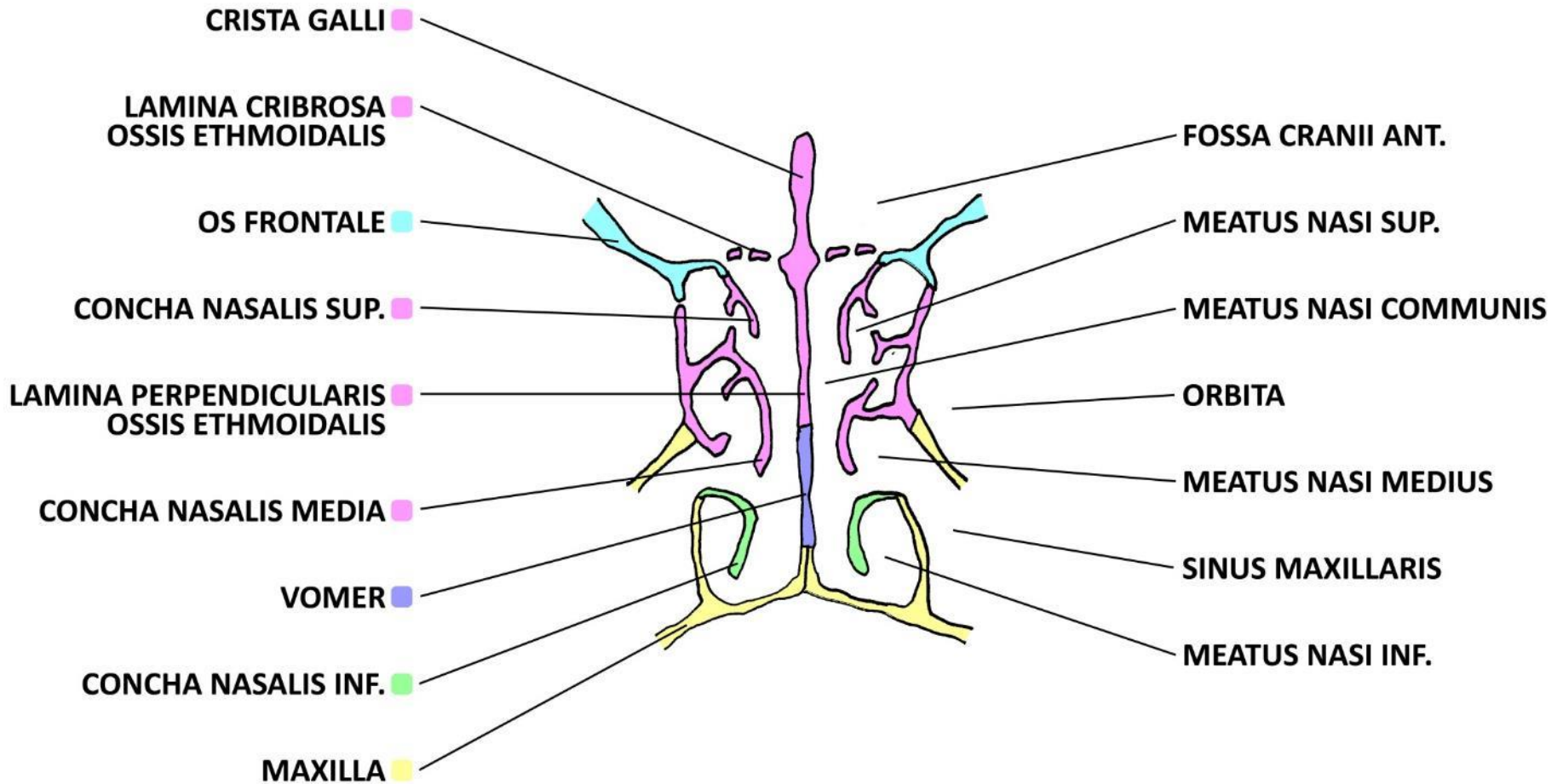
# Meatus nasi (nosní průduchy)

- **meatus nasi superior**
  - nad střední nosní skořepou
  - ústí sinus sphenoidalis a cellulae ethmoidales posteriores
- **meatus nasi medius**
  - mezi střední a dolní nosní skořepou
  - ústí sinus maxillaris, sinus frontalis, sinus ethmoidales ant. (+ med.)
- **meatus nasi inferior**
  - pod dolní nosní skořepou
  - ústí ductus nasolacrimalis
- **meatus nasi communis**
  - prostor mediálně od skořep, mezi nimi a nosním přepážkou
- **meatus nasopharyngeus**
  - prostor za skořepami, dozadu až k choanám

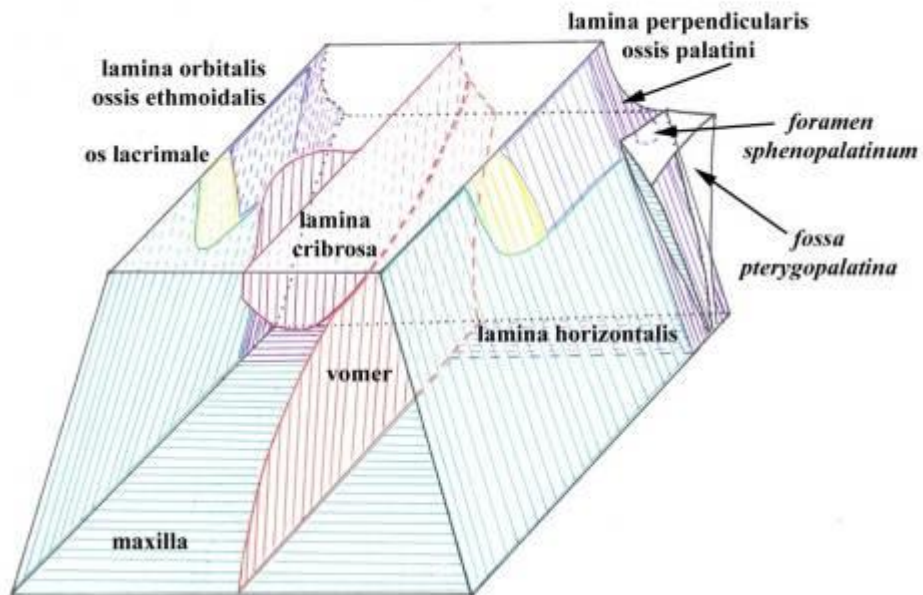




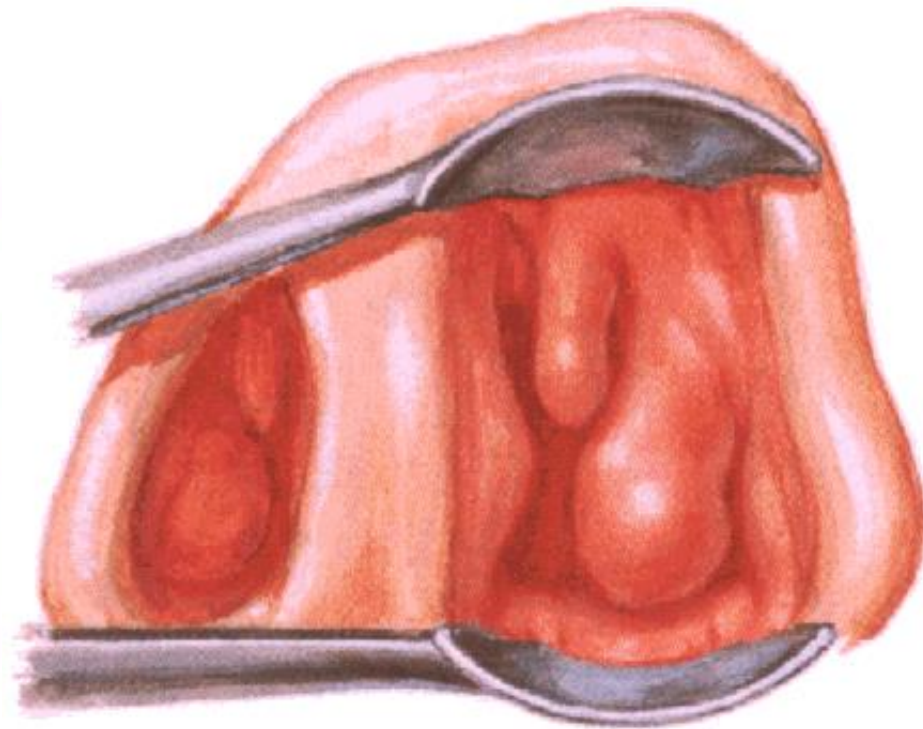
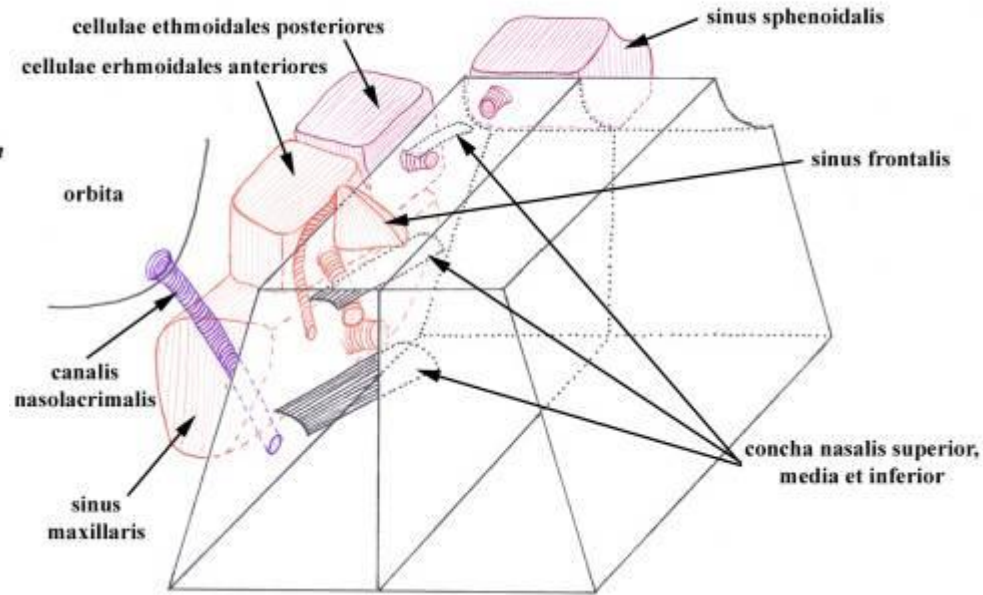




## CAVITAS NASI - ohraničení



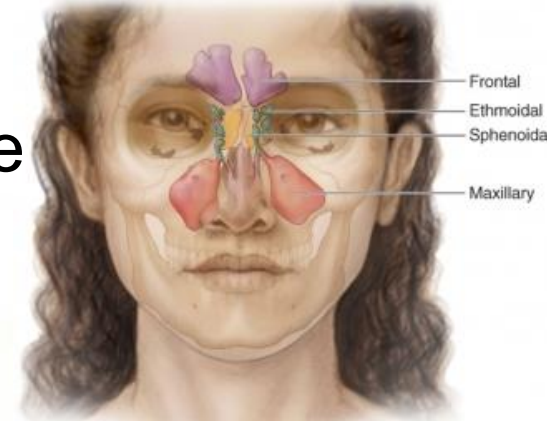
## CAVITAS NASI + SINUS PARANASALES



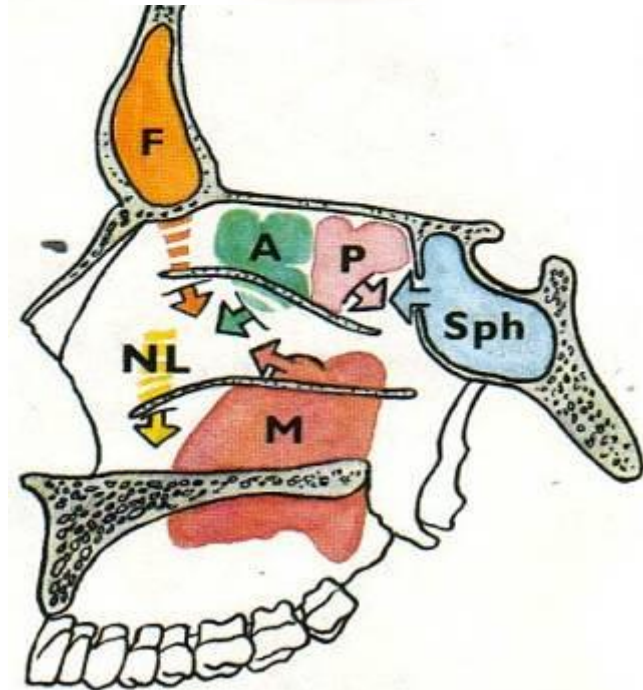
# Sinus paranasales (vedlejší nosní dutiny)

- výchlípky sliznice z laterální nosní stěny
- konečné velikosti nabývají až po 20. roce
- ohřev, čištění, zvlhčování vzduchu
- rezonanční prostory při tvorbě hlasu
- dodávají hlasu osobitou barvu

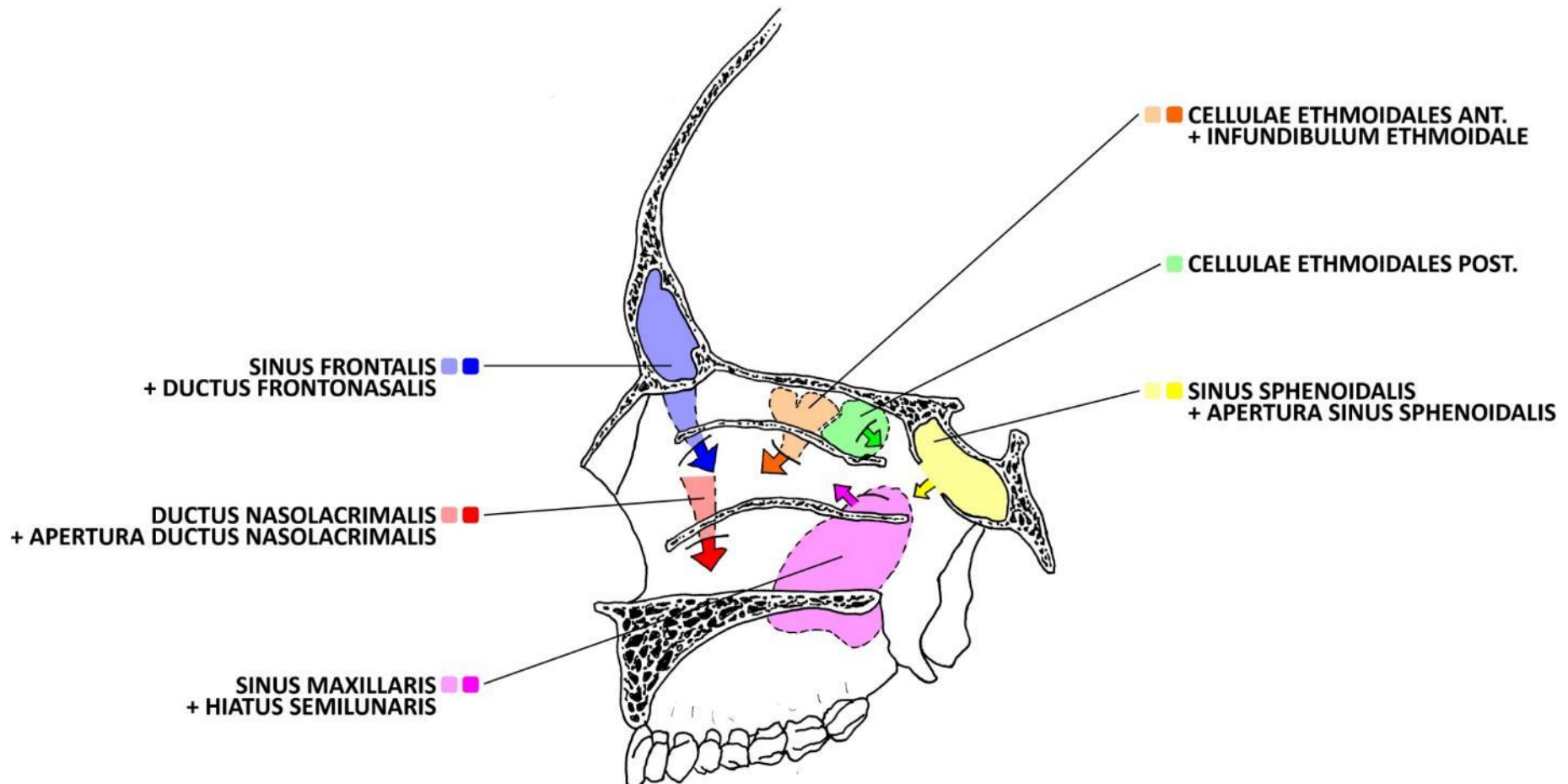
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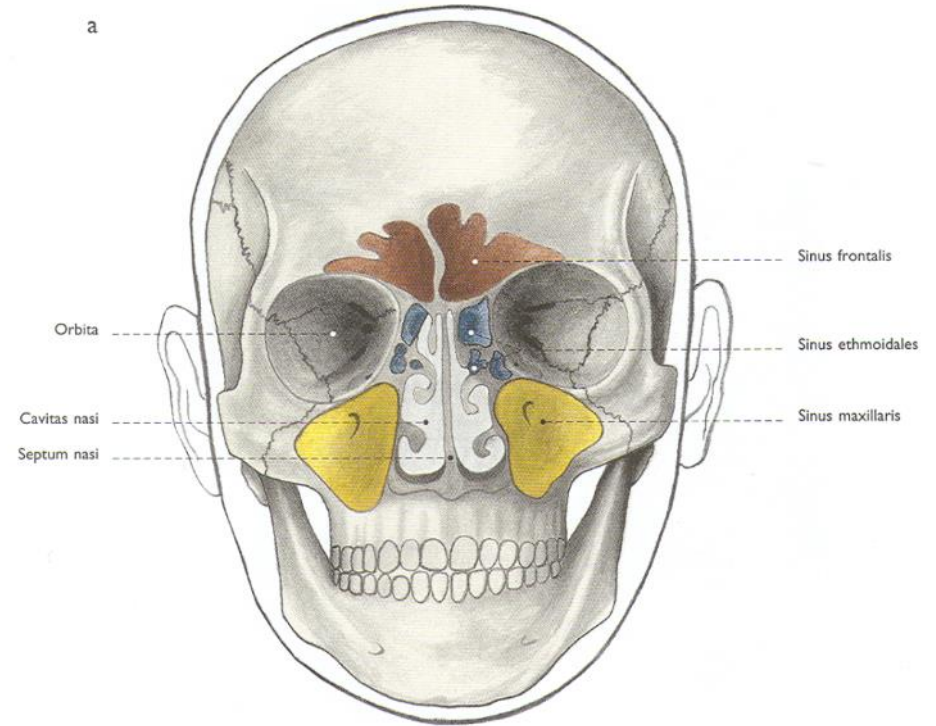
- sinus maxillaris
- sinus frontalis
- sinus sphenoidalis
- cellulae ethmoidales anteriores (+ mediae)
- cellulae ethmoidales posteriores



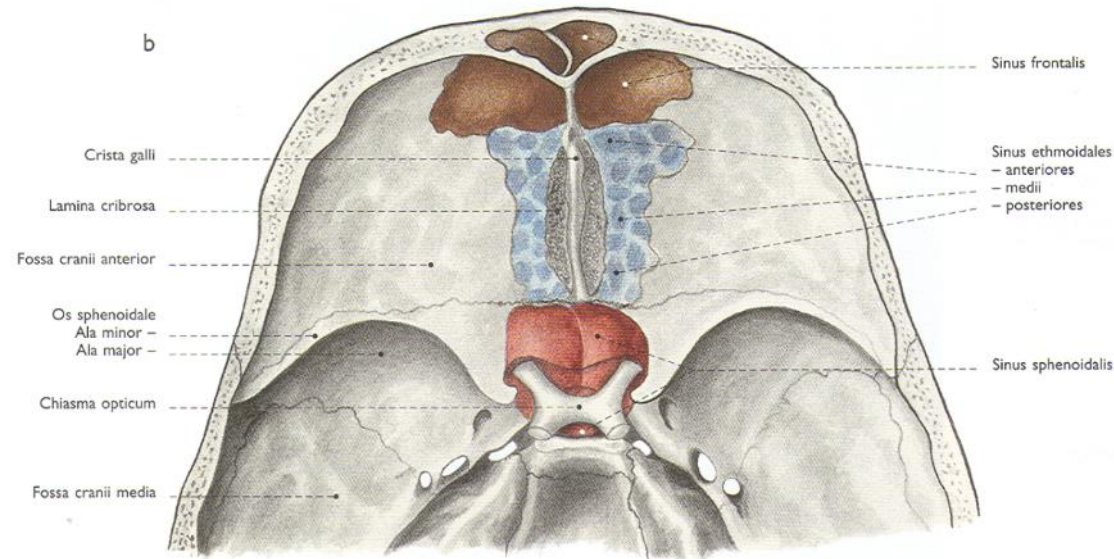
# Ústí vedlejších nosních dutin



a

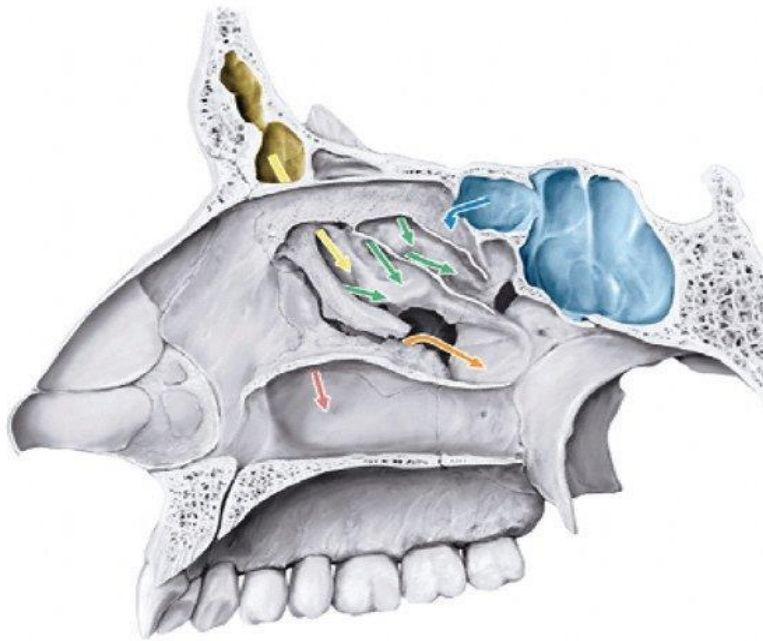


b



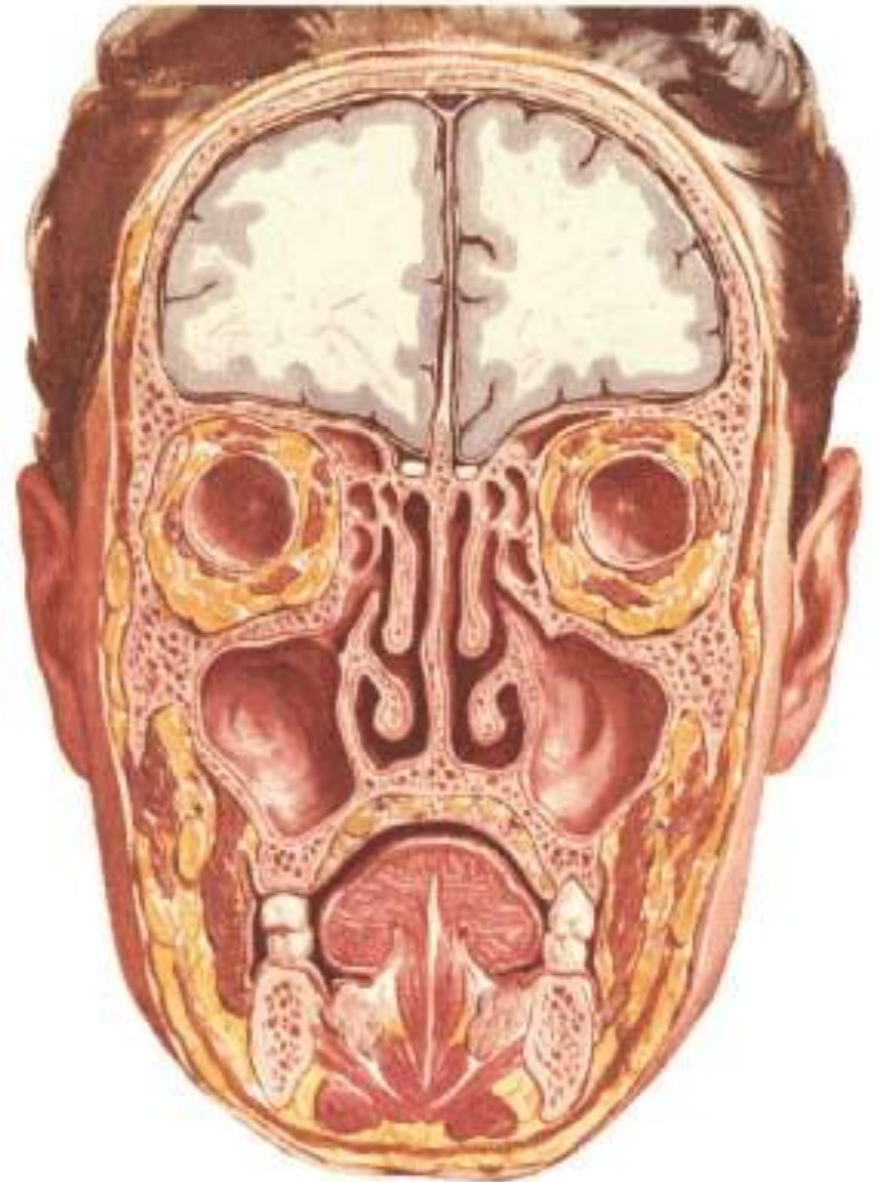
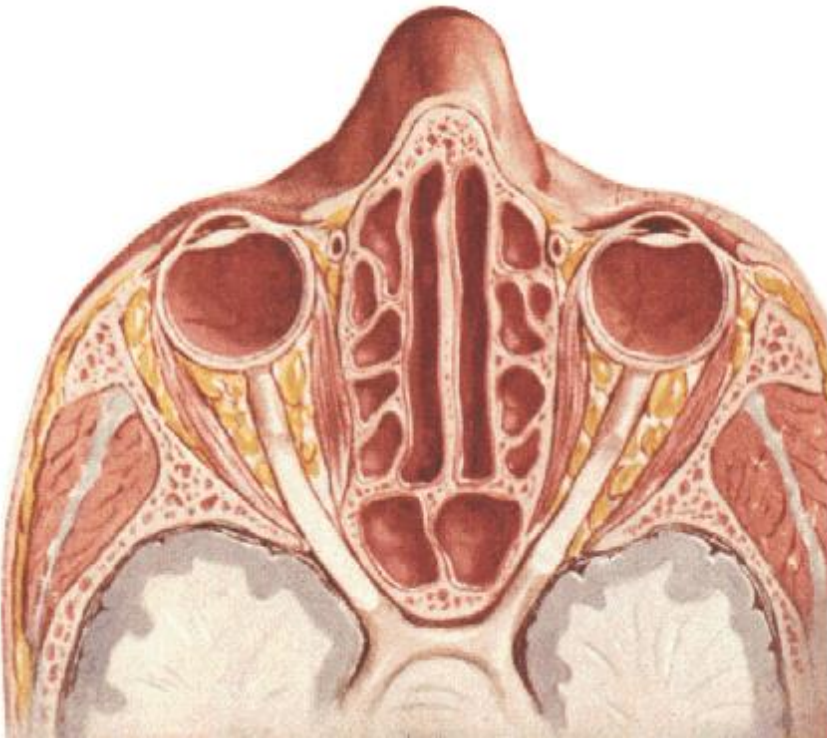
Sinus frontalis
  Sinus ethmoidales
  Sinus maxillaris
  Sinus sphenoidalis

b

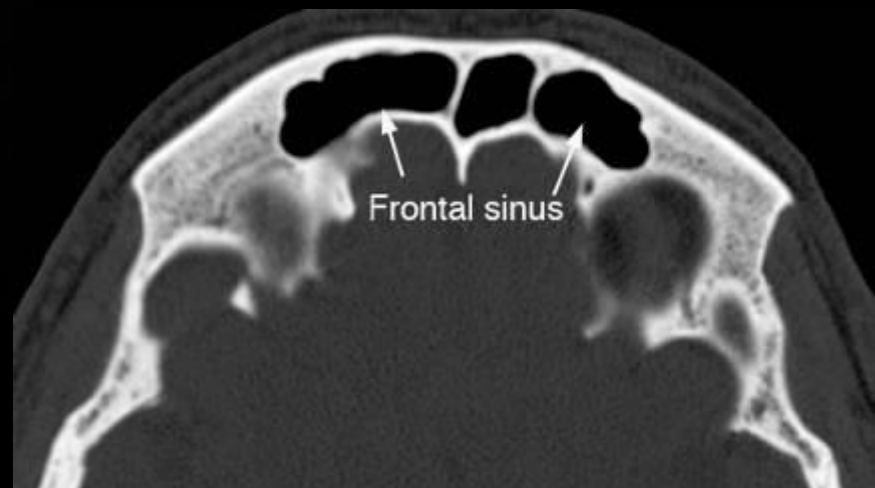
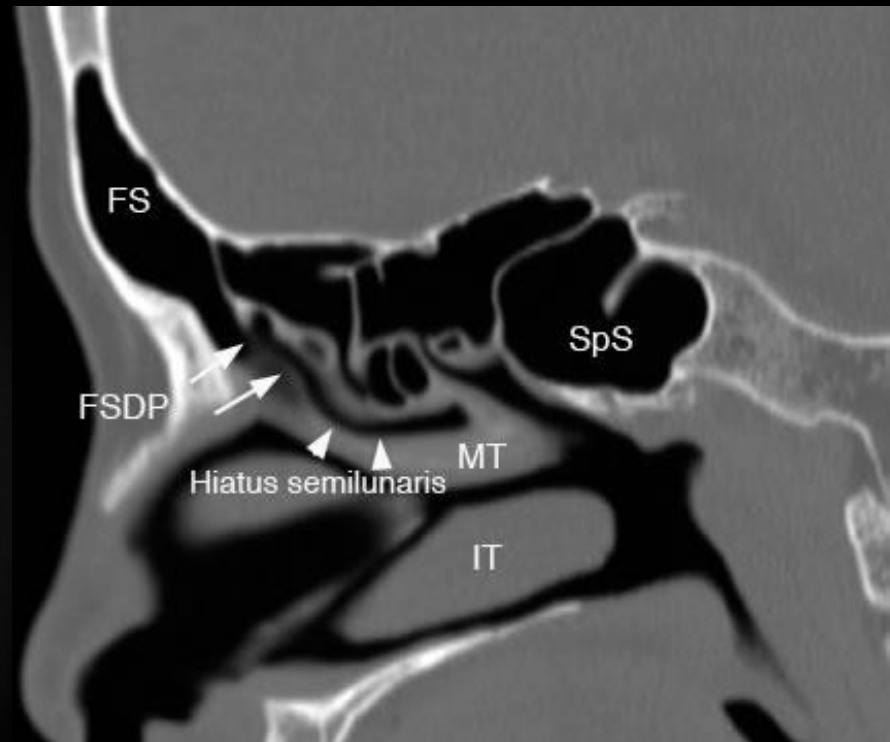


# Sinus paranasales

## Paranasal Sinuses Coronal Section

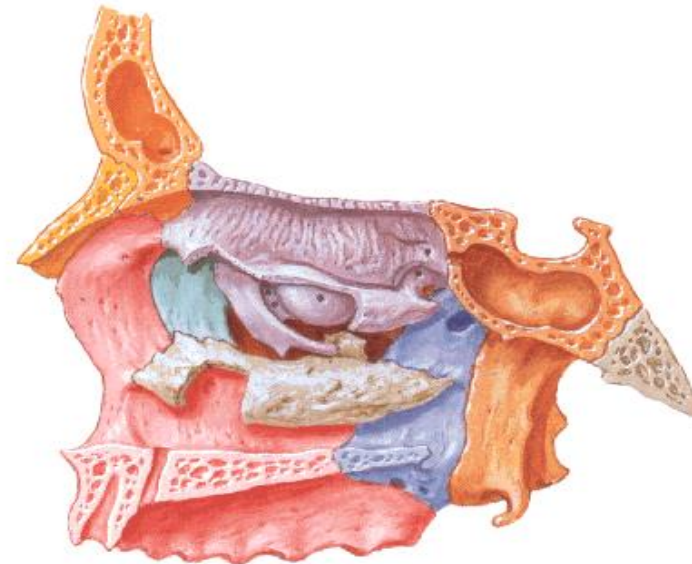
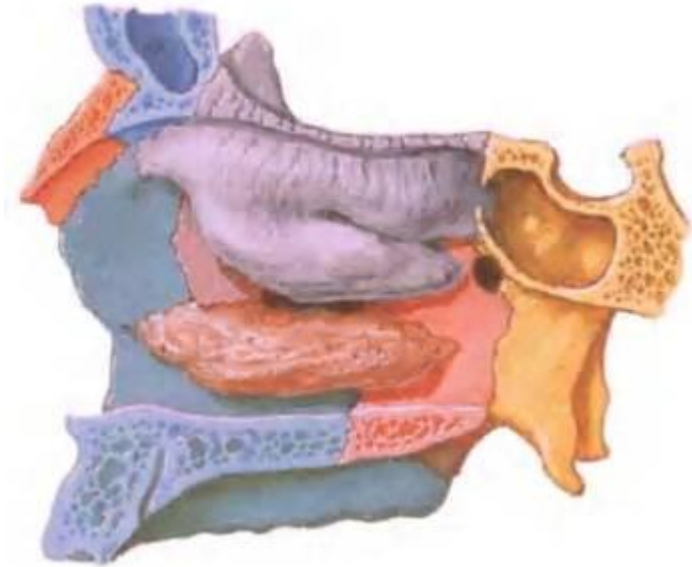


# Vedlejší nosní dutiny



# Cavitas nasi (nosní dutina) - otvory

- **strop**
  - foramen nasale
  - lamina cribrosa ossis ethmoidalis
  - (foramen caecum)
- **dno**
  - canalis incisivus
- **laterálně**
  - meatus nasi superior
    - apertura sinus sphenoidalis
    - aperturae cellulae ethmoidales posteriores
  - meatus nasi medius
    - hiatus semilunaris (*sinus maxillaris*)
    - infundibulum ethmoidale (*cc.ethm.ant.*)
    - ductus frontonasalis (*sinus frontalis*)
  - meatus nasi inferior
    - apertura ductus nasolacrimalis (*slzovod*)
  - meatus nasopharyngeus
    - foramen sphenopalatinum (*f.pterygopalatina*)



## RTG snímek – okcipitofrontální pohled



CT – frontální řez



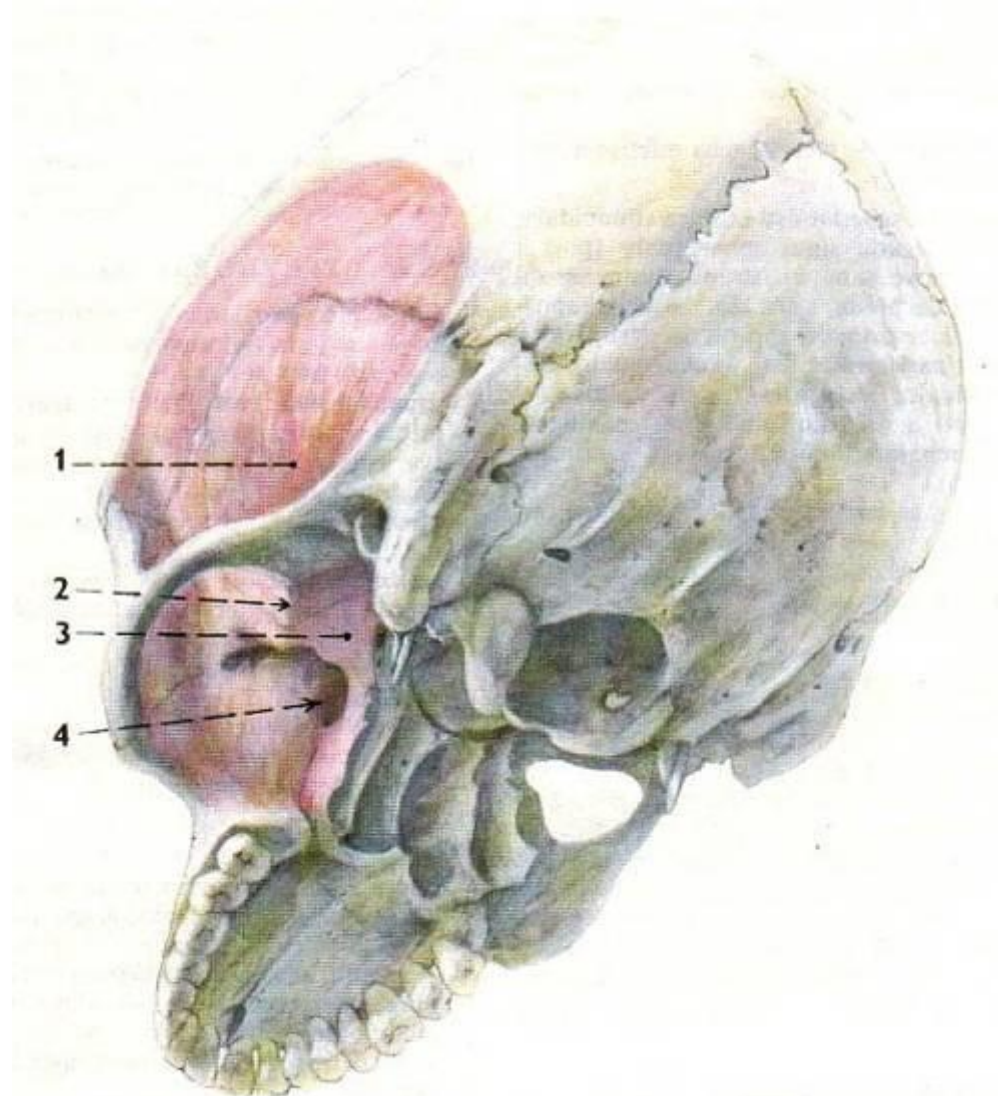
MRI – sagitální řez



# Fossa temporalis (spánková jáma)

## Fossa infratemporalis (podspánková jáma)

- crista infratemporalis
- žvýkácí svaly
  - m. temporalis
  - m. pterygoideus medialis
  - m. pterygoideus lateralis
- tvářové tukové těleso (*corpus adiposum buccae*)



# Fossa temporalis (spánková jáma)

- kraniálně
  - linea temporalis superior
- laterálně
  - arcus zygomaticus
  - fascia temporalis
- kaudálně
  - crista infratemporalis
  - ossis sphenoidalis
- mediálně
  - squama ossis temporalis
- ventrálně
  - facies temporalis ossis zygomatici

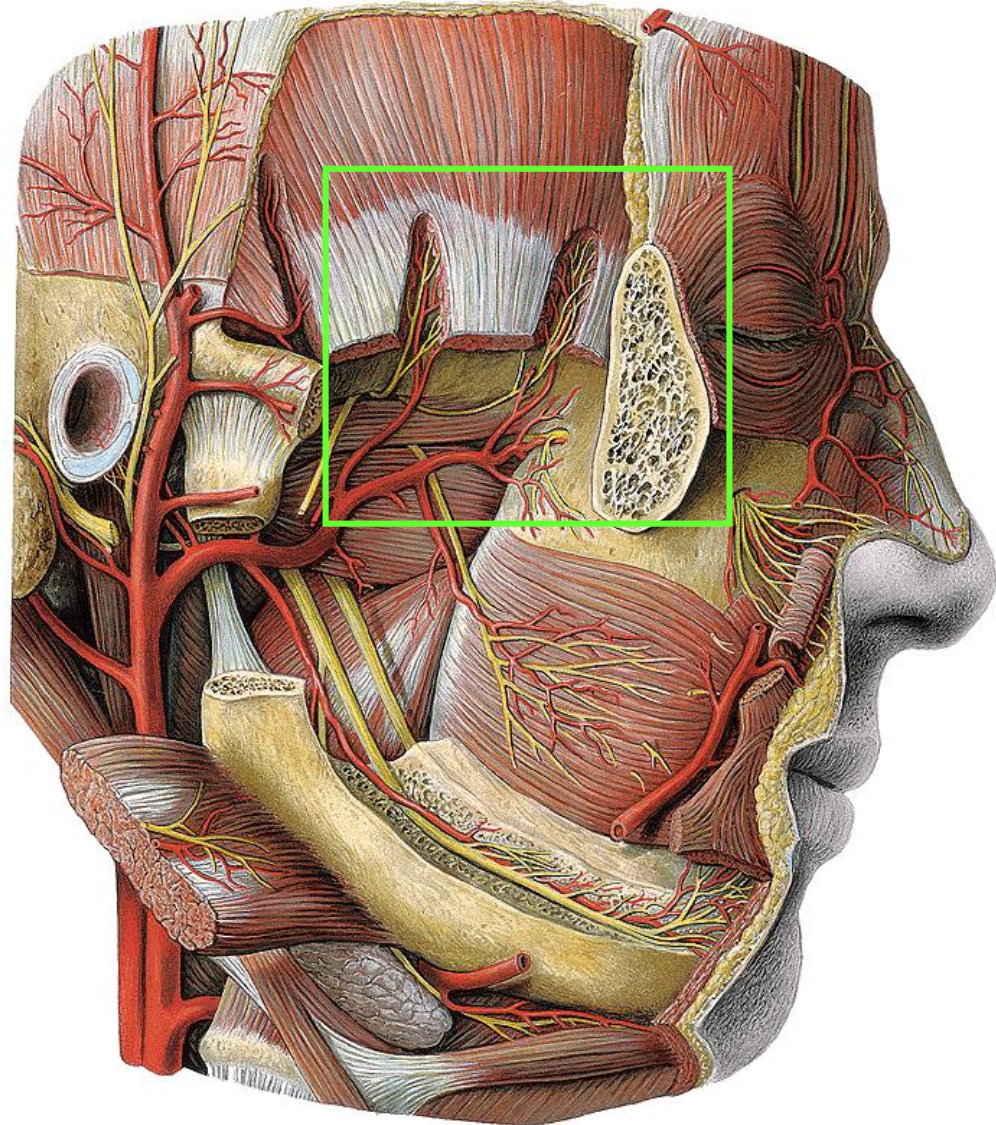


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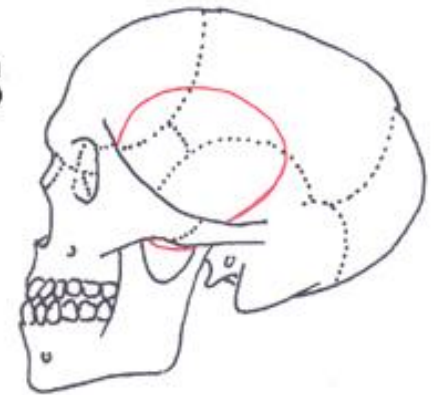
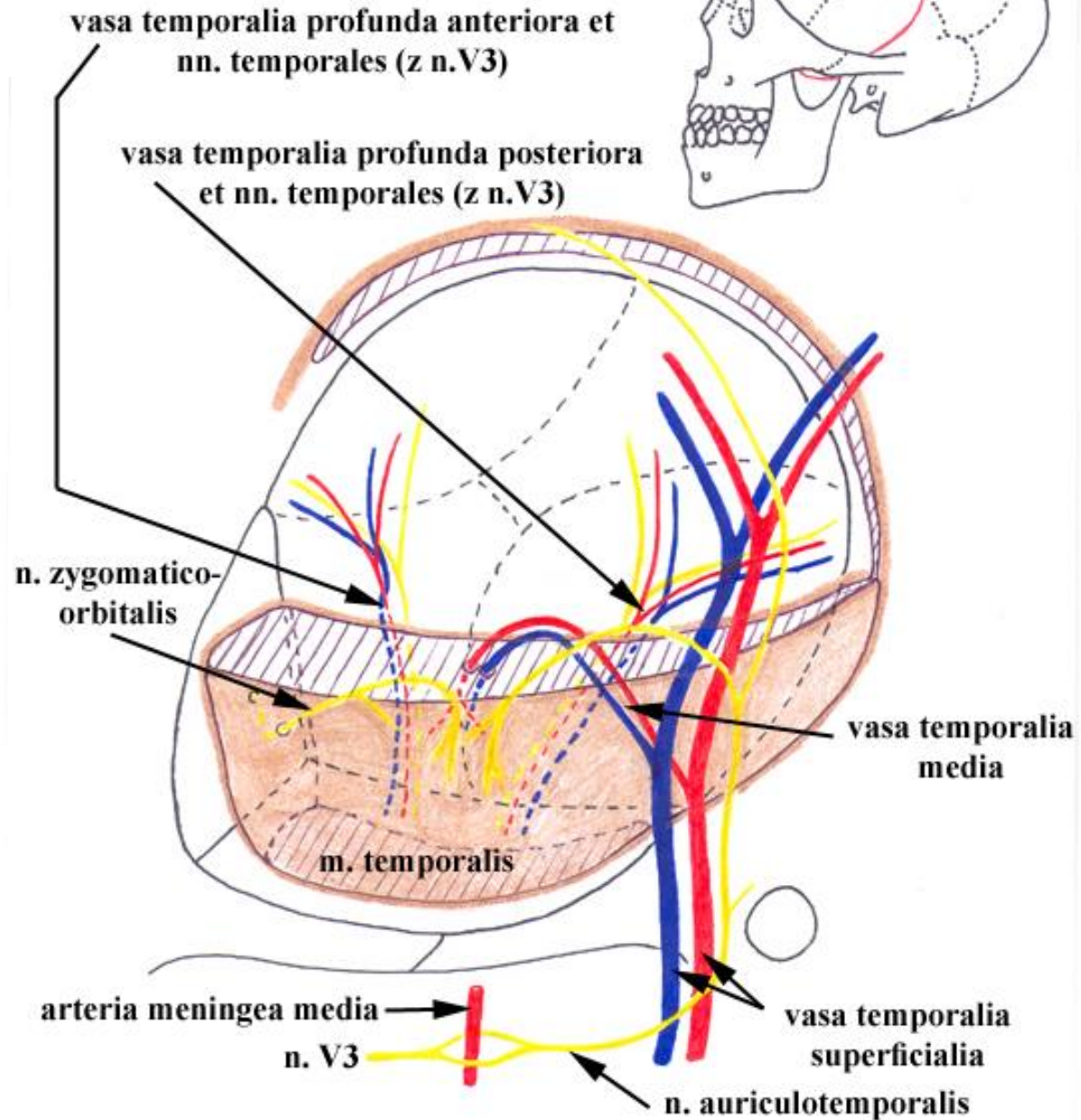
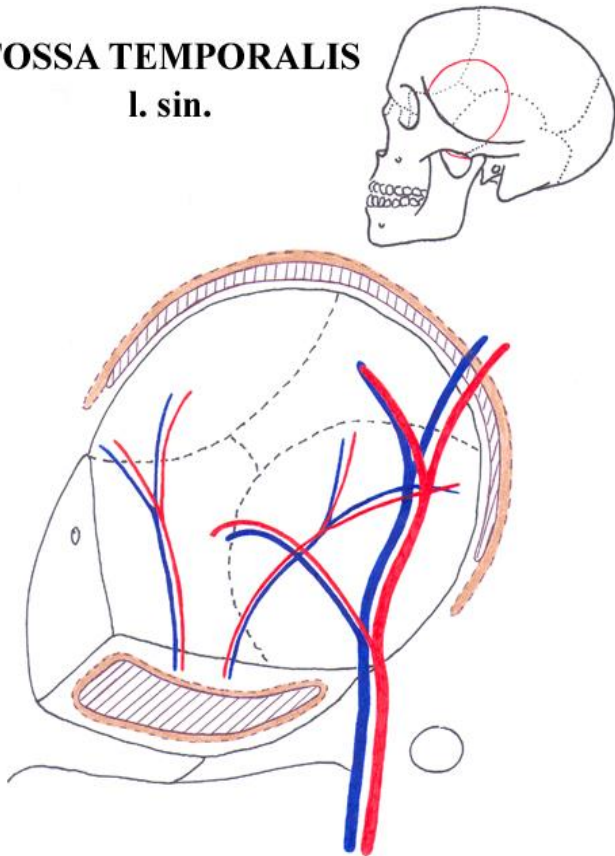
# Fossa temporalis – obsah

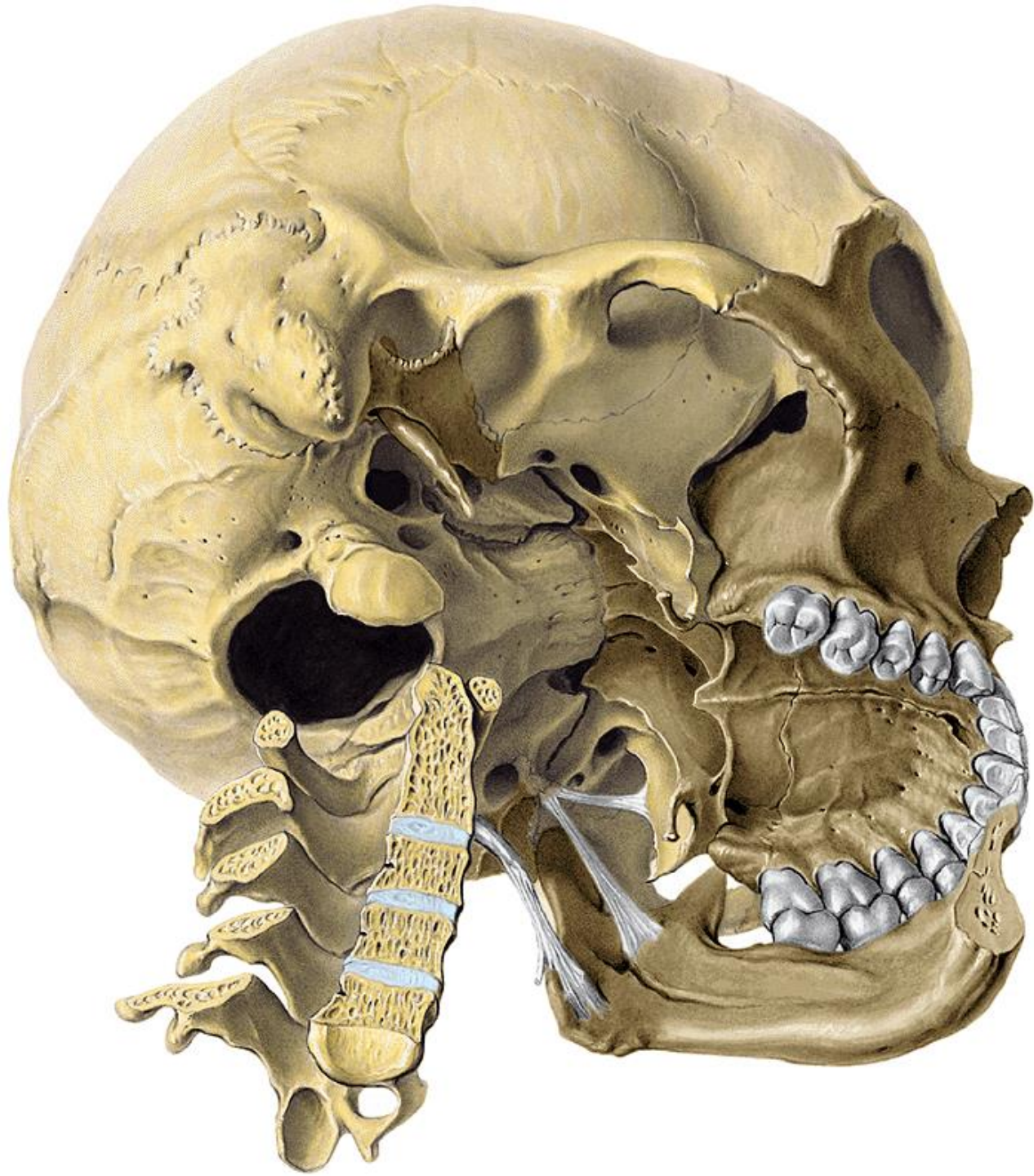
- pteryon (punctum Sylvii)
- m. temporalis
- a. temporalis profunda anterior + posterior
- nn. temporales (z n. V3)
- a. temporalis media
- corpus adiposum buccae
- r. zygomaticotemporalis  
n. zygomatici



# FOSSA TEMPORALIS

## FOSSA TEMPORALIS l. sin.





PALATINE  
PROCESS

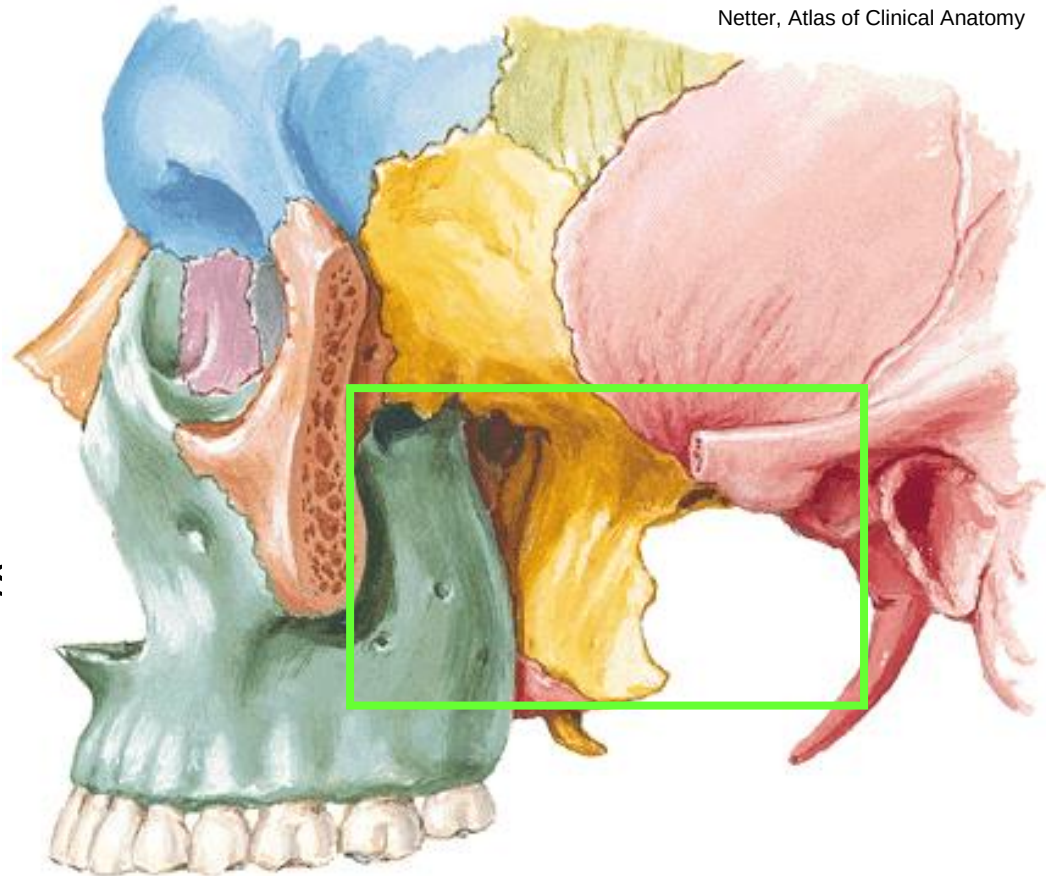
INFRATEMPORAL FOSSA

BASILAR  
PROCESS



# Fossa infratemporalis (podspánková jáma)

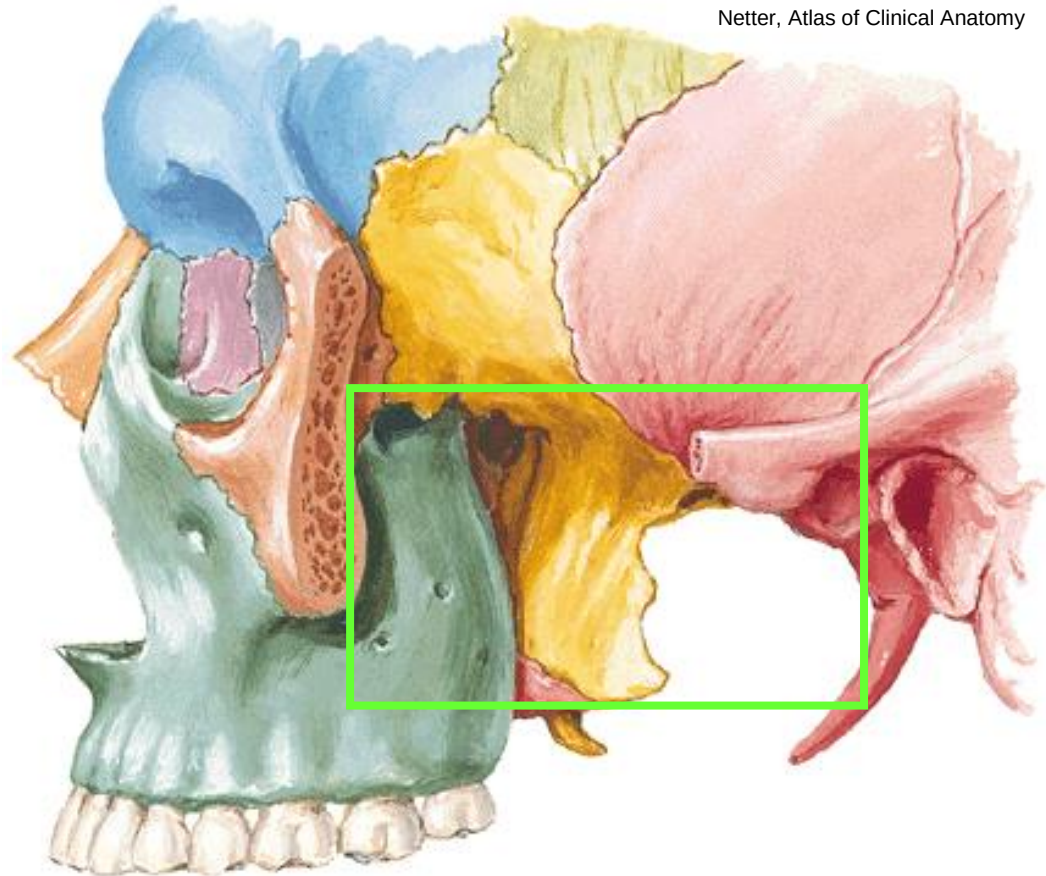
- kraniálně
  - facies infratemporalis ossis sphenoidalis
  - squama ossis temporalis
- laterálně
  - ramus mandibulae
- mediálně
  - lamina lateralis processus pterygoidei ossis sphenoidalis
  - processus pyramidalis ossis palatini
- ventrálně
  - tuber maxillae



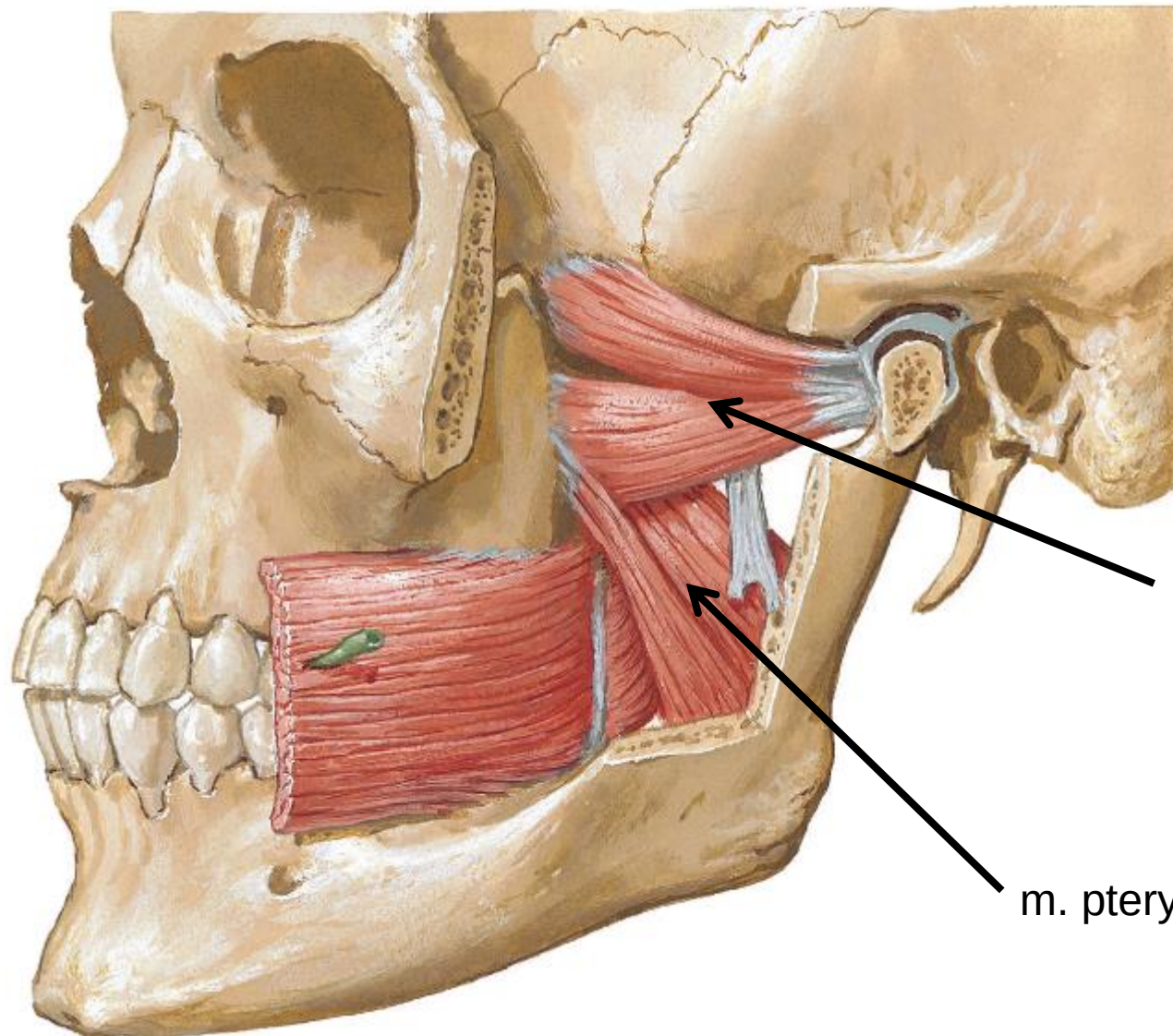
kaudálně a dorzálně otevřená  
do spatium prestyloideum

# Fossa infratemporalis – otvory

- kraniálně
  - foramen ovale
  - foramen spinosum
  - foramen petrosum
  - foramen lacerum
- laterálně
  - foramen mandibulae
- mediálně
  - fissura pterygomaxillaris
  - fissura petrotympanica
- ventrálně
  - foramina alveolaria

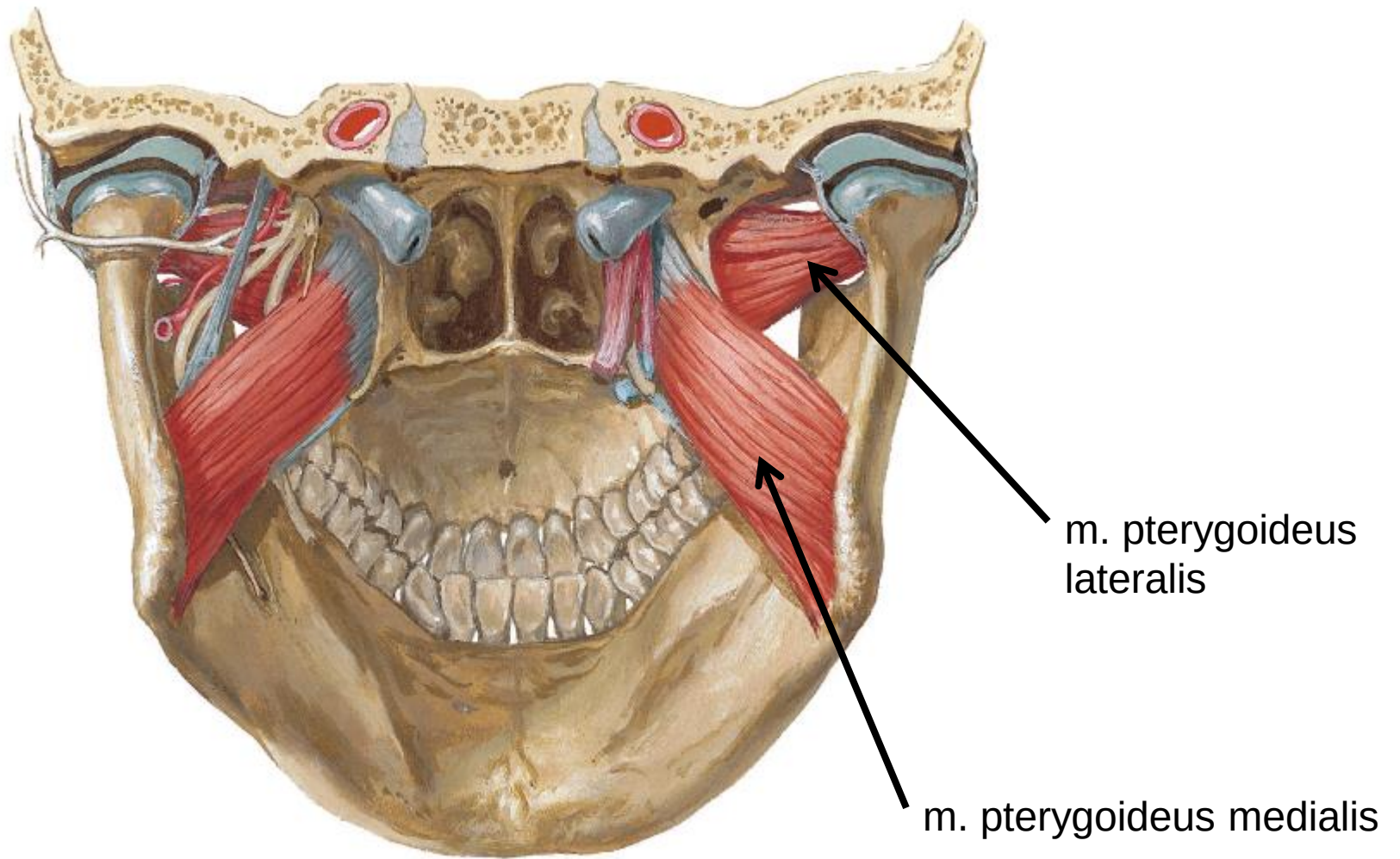


kaudálně a dorzálně otevřená  
do spatium prestyloideum



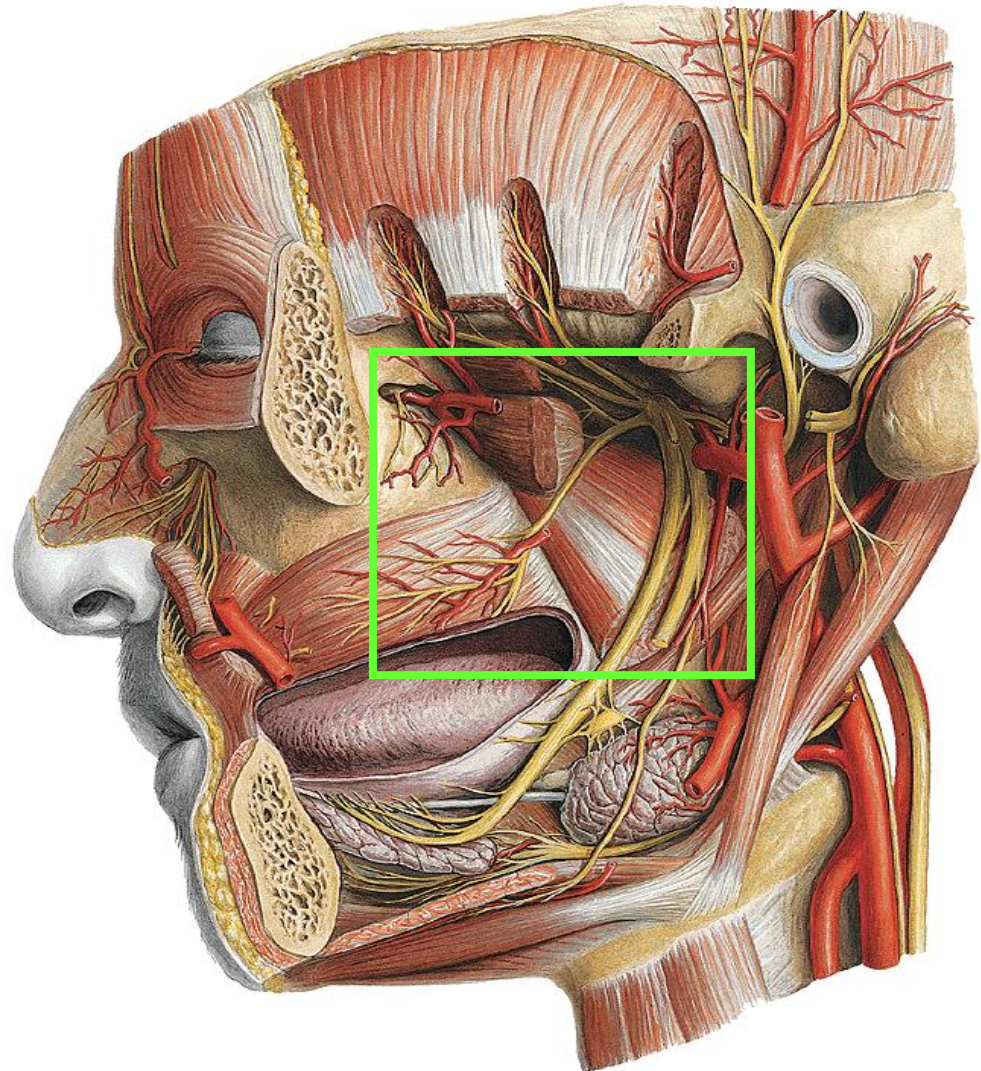
m. pterygoideus  
lateralis

m. pterygoideus medialis

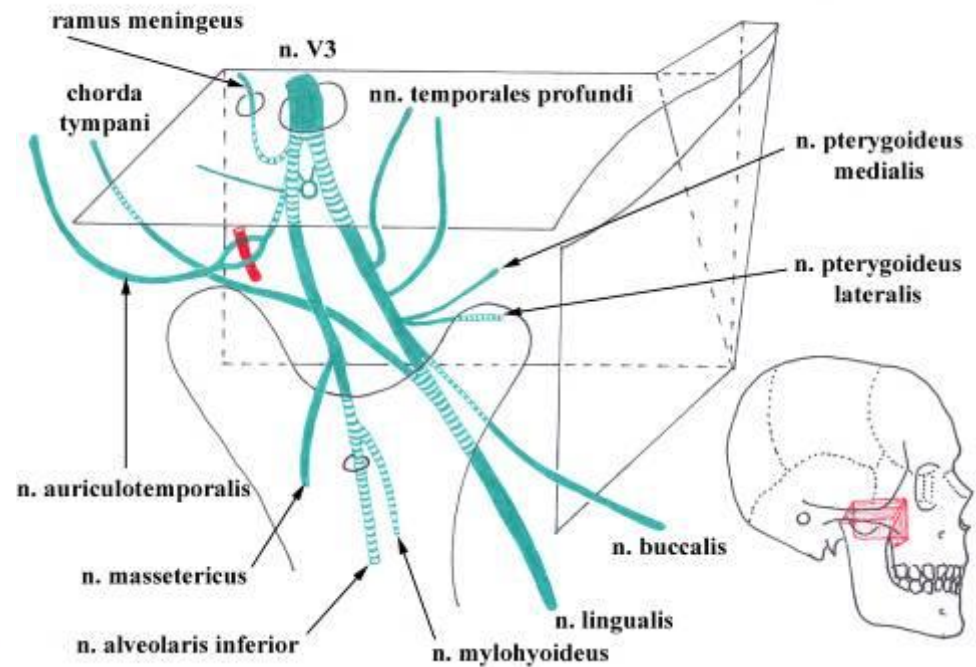
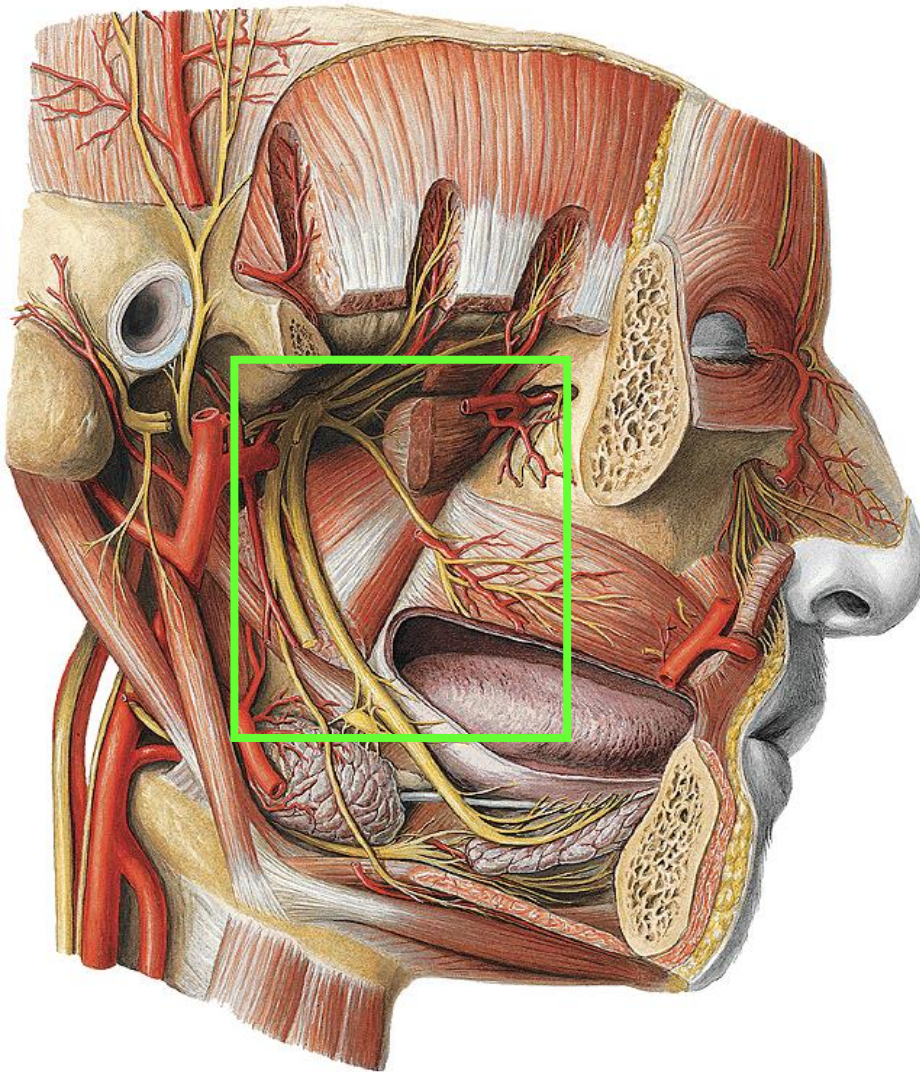


# Fossa infratemporalis – obsah

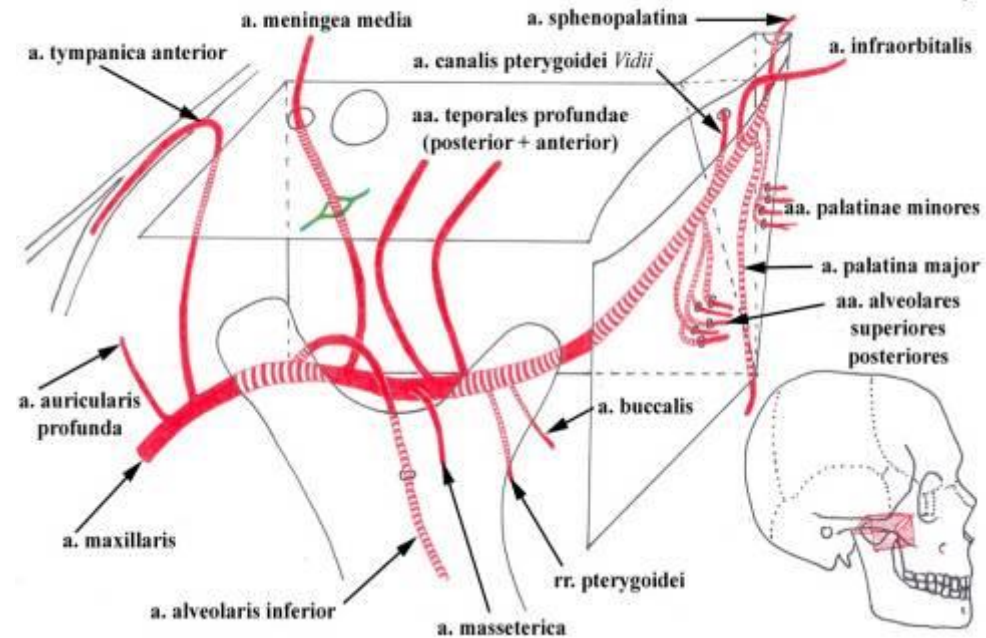
- m. temporalis (úpon)
- m. pterygoideus med.+lat.
- a. maxillaris (pars pterygoidea) a její větve
- plexus pterygoideus a jeho přítoky
- n. mandibularis a jeho větve
- ggl. oticum
- n. petrosus minor
- chorda tympani
- (vasa alveolaria sup.post + nn. alveolares sup. post.)
- corpus adiposum buccae



# FOSSA INFRATEMPORALIS - l.dx.



## FOSSA INFRATEMPORALIS + PTERYGOPALATINA l. dx. - cévy

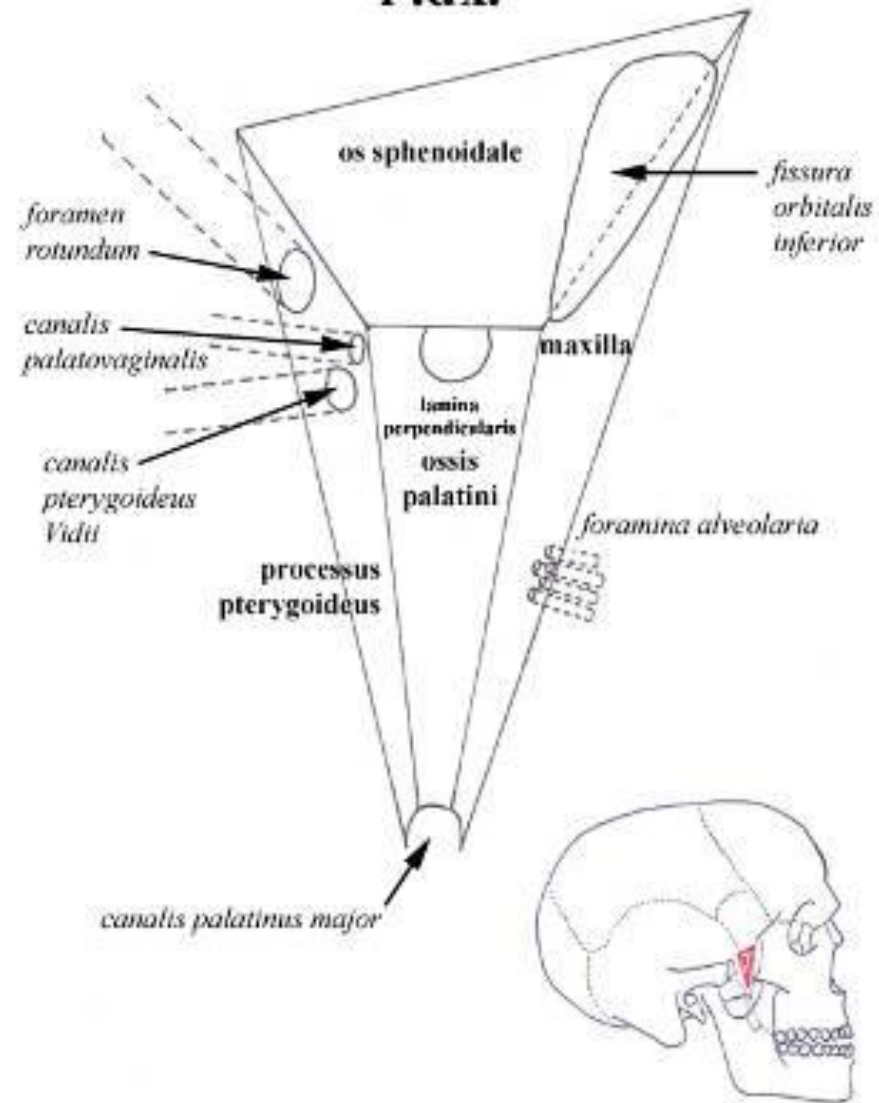


# Fossa pterygopalatina

- kraniálně
  - facies maxillaris alae majoris ossis sphenoidalis
- kaudálně
  - *canalis palatinus major*
- mediálně
  - lamina perpendicularis ossis palatini (*foramen sphenopalatinum*)
- laterálně
  - *fissura pterygomaxillaris*
- ventrálně
  - facies infratemporalis maxillae (*fissura orbitalis inferior*)
- dorzálně
  - processus pterygoideus ossis sphenoidalis (*canalis pterygoideus Vidii* + *canalis palatovaginalis*)

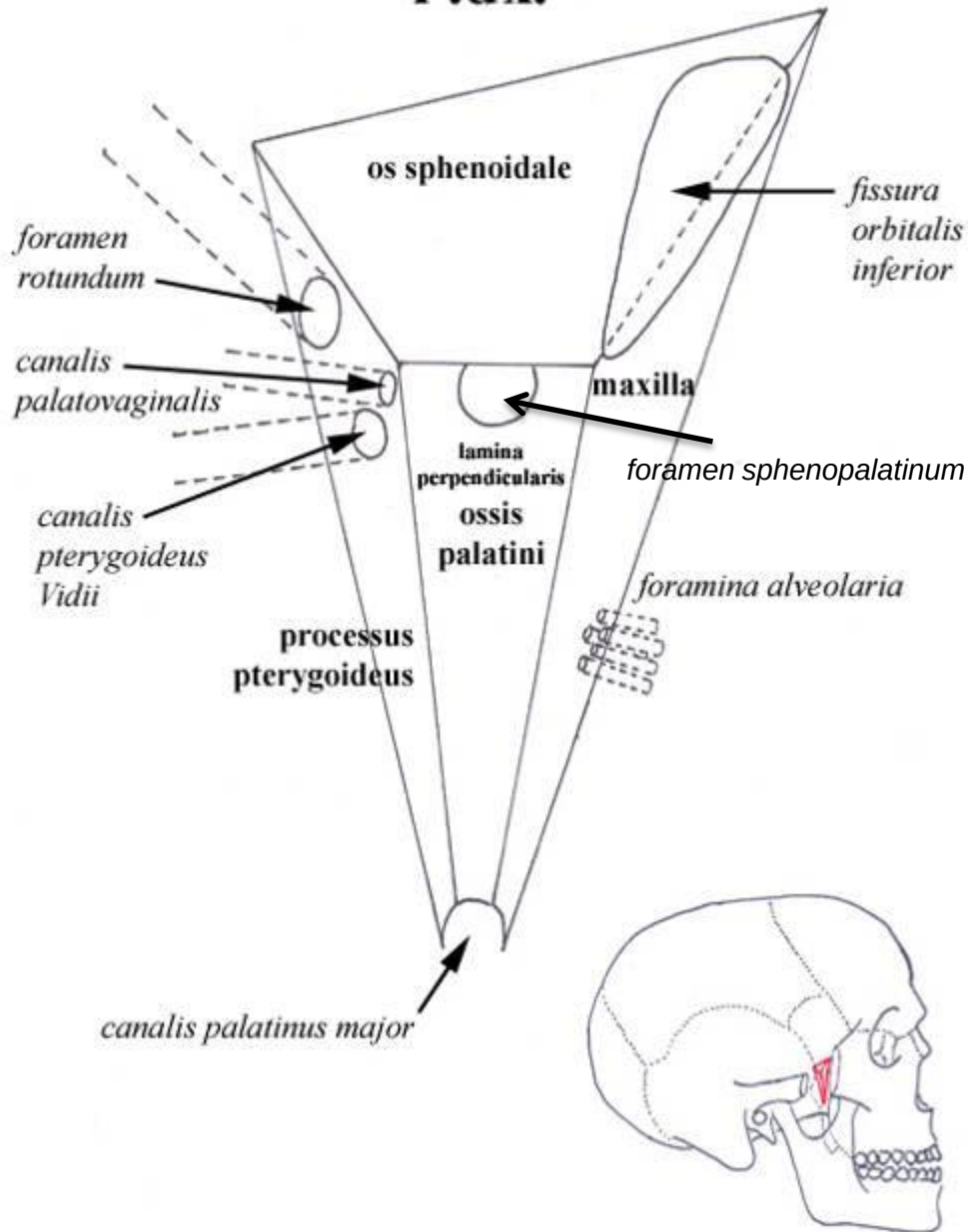
## FOSSA PTERYGOPALATINA

I .dx.



# FOSSA PTERYGOPALATINA

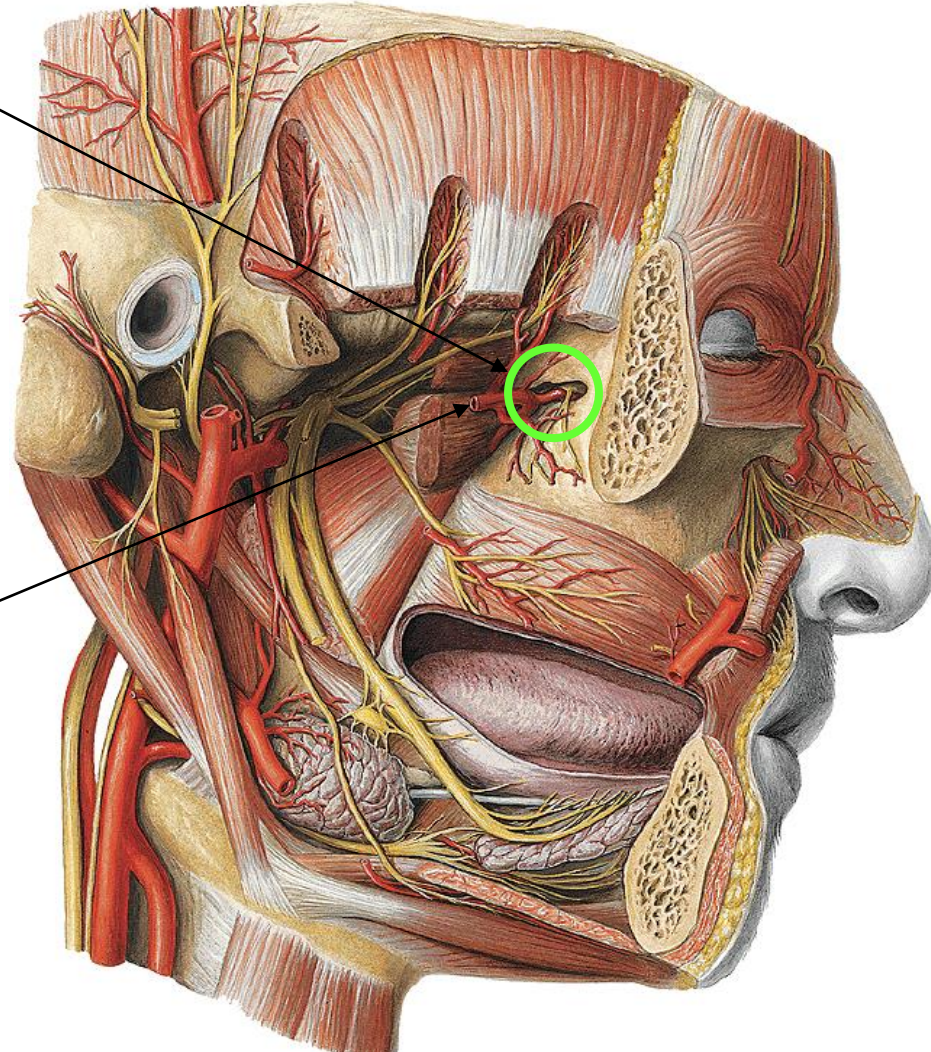
I .dx.



- fissura orbitalis inferior
  - n. infraorbitalis
  - n. zygomaticus
  - a. infraorbitalis
  - v. ophthalmica inferior
  - *m. orbitalis (hladký)*
- foramen sphenopalatinum
  - a. sphenopalatina
  - rr. nasales posteriores sup. lat. et med. (větve n. V2)
- foramen rotundum
  - n. maxillaris
- canalis pterygoideus (Vidii)
  - n. canalis pterygoidei
    - n. petrosus major (z n. VII)
    - N. petrosus profundus (z plexus caroticus int.)
  - a. canalis pterygoidei
  - v. canalis pterygoidei
- canalis palatovaginalis
  - n. pharyngeus
  - r. pharyngeus (větve a. maxillaris)
- canalis palatinus major
  - n. palatinus major
  - a. palatina major
  - v. palatina major
- (canales papalini minores)

# Fossa pterygopalatina (Křídlopatrová jáma)

- **fissura pterygomaxillaris**
  - vstup
  - a. maxillaris
  - přítoky do plexus pterygoideus
- **obsah:**
  - ggl. pterygopalatinum
  - n. canalis pterygoidei
  - a. maxillaris (pars pterygopalatina) a její větve
  - žíly podél tepen
  - n. maxillaris a jeho větve



# Fossa pterygopalatina

kraniálně

facies maxillaris alae majoris ossis  
sphenoidalis

kaudálně

*canalis palatinus major*

mediálně

lamina perpendicularis ossis  
palatini (*foramen  
sphenopalatinum*)

laterálně

*fissura pterygomaxillaris*

ventrálně

facies infratemporalis maxillae  
(*fissura orbitalis inferior*)

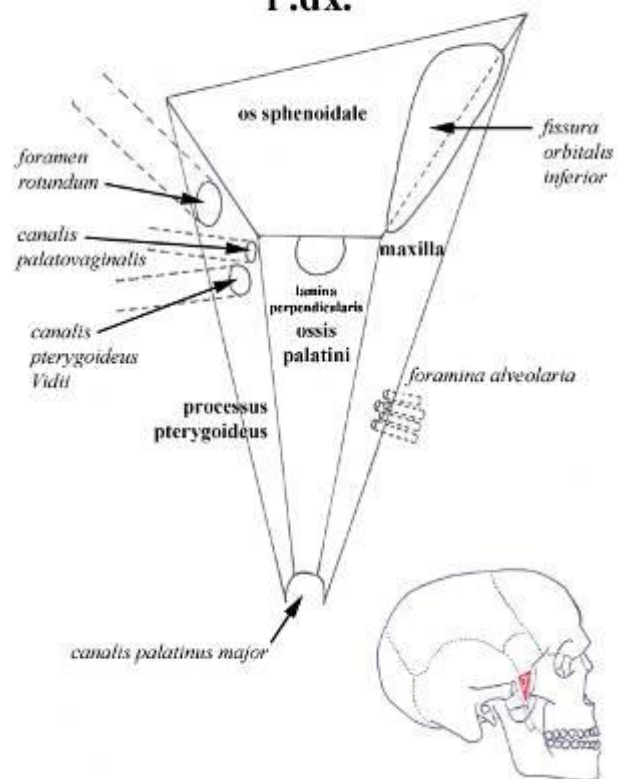
dorzálně

processus pterygoideus ossis  
sphenoidalis (*canalis pterygoideus  
Vidii + canalis palatovaginalis*)



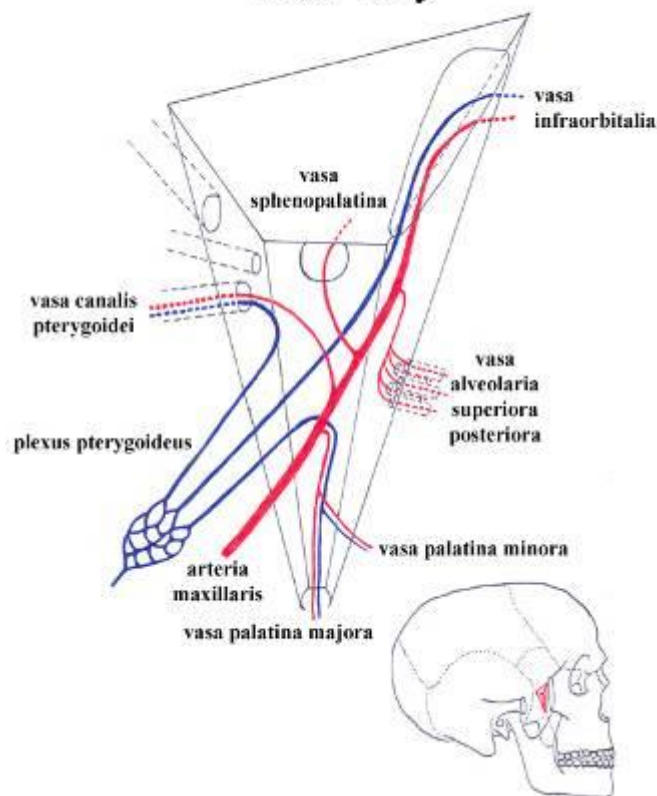
# FOSSA PTERYGOPALATINA

l.dx.



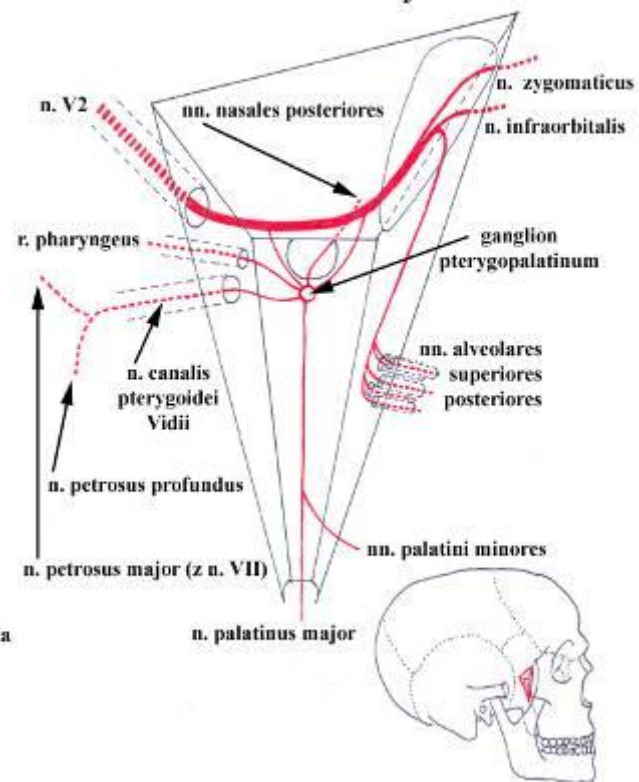
# FOSSA PTERYGOPALATINA

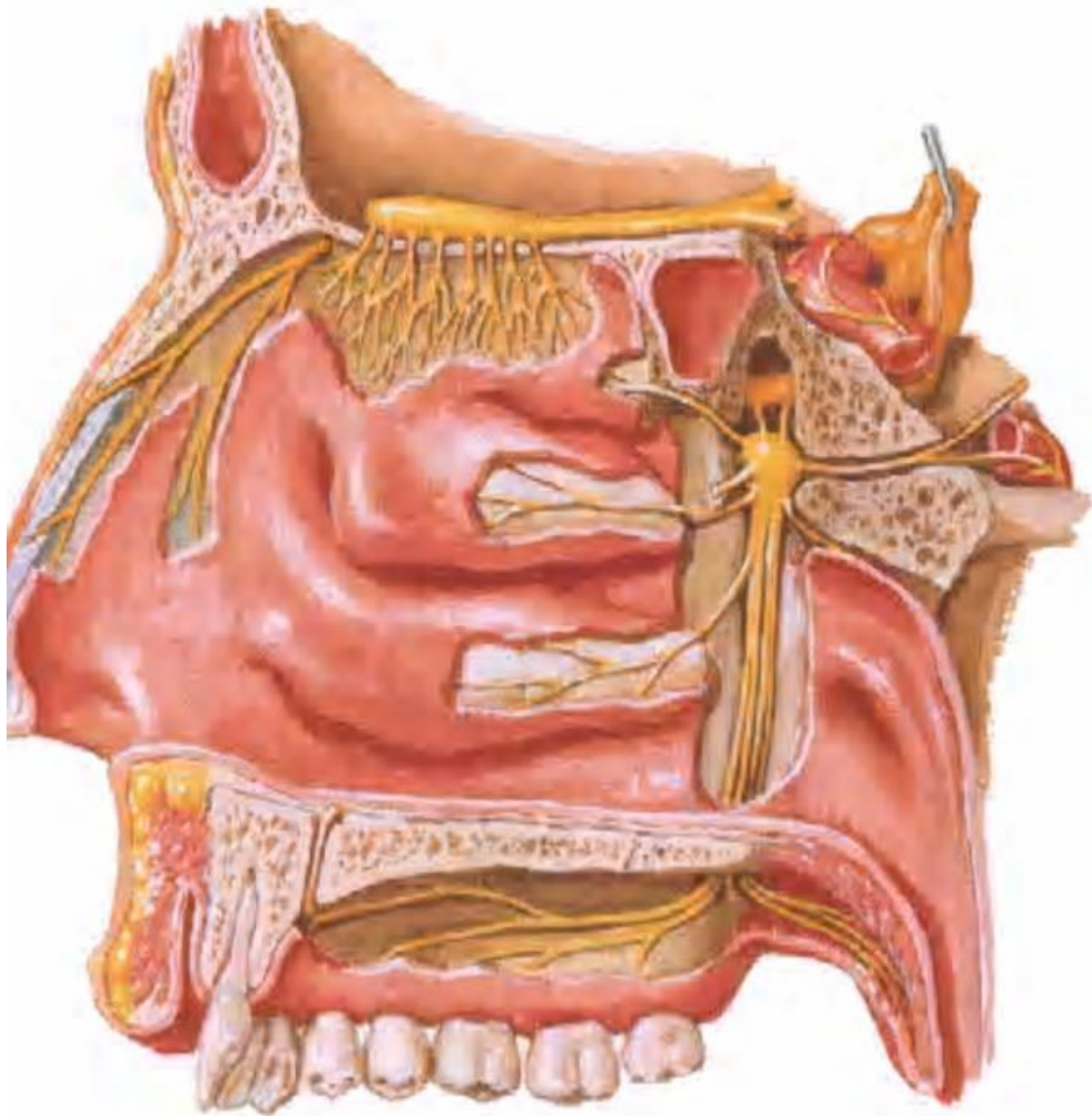
l.dx. - cévy

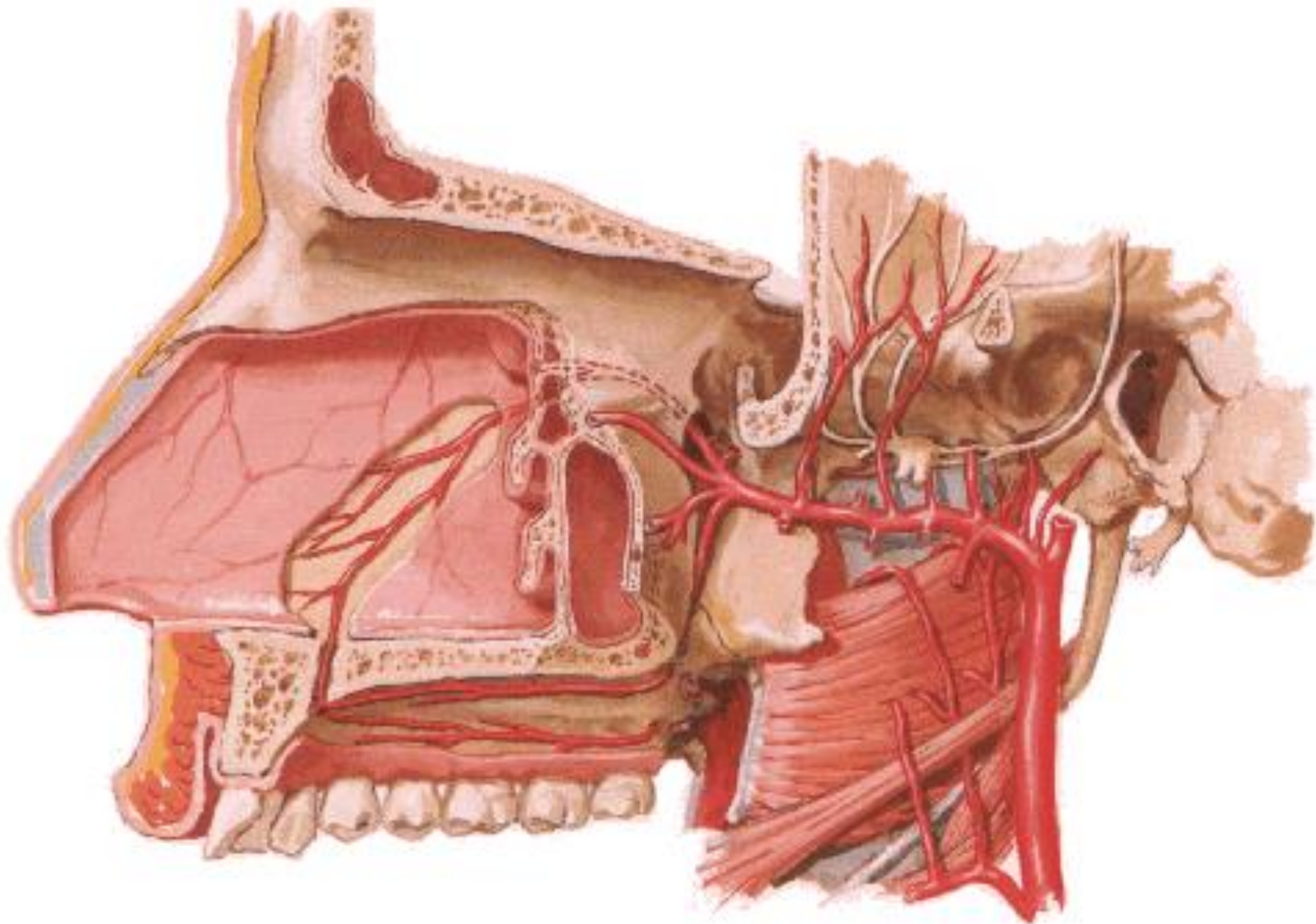


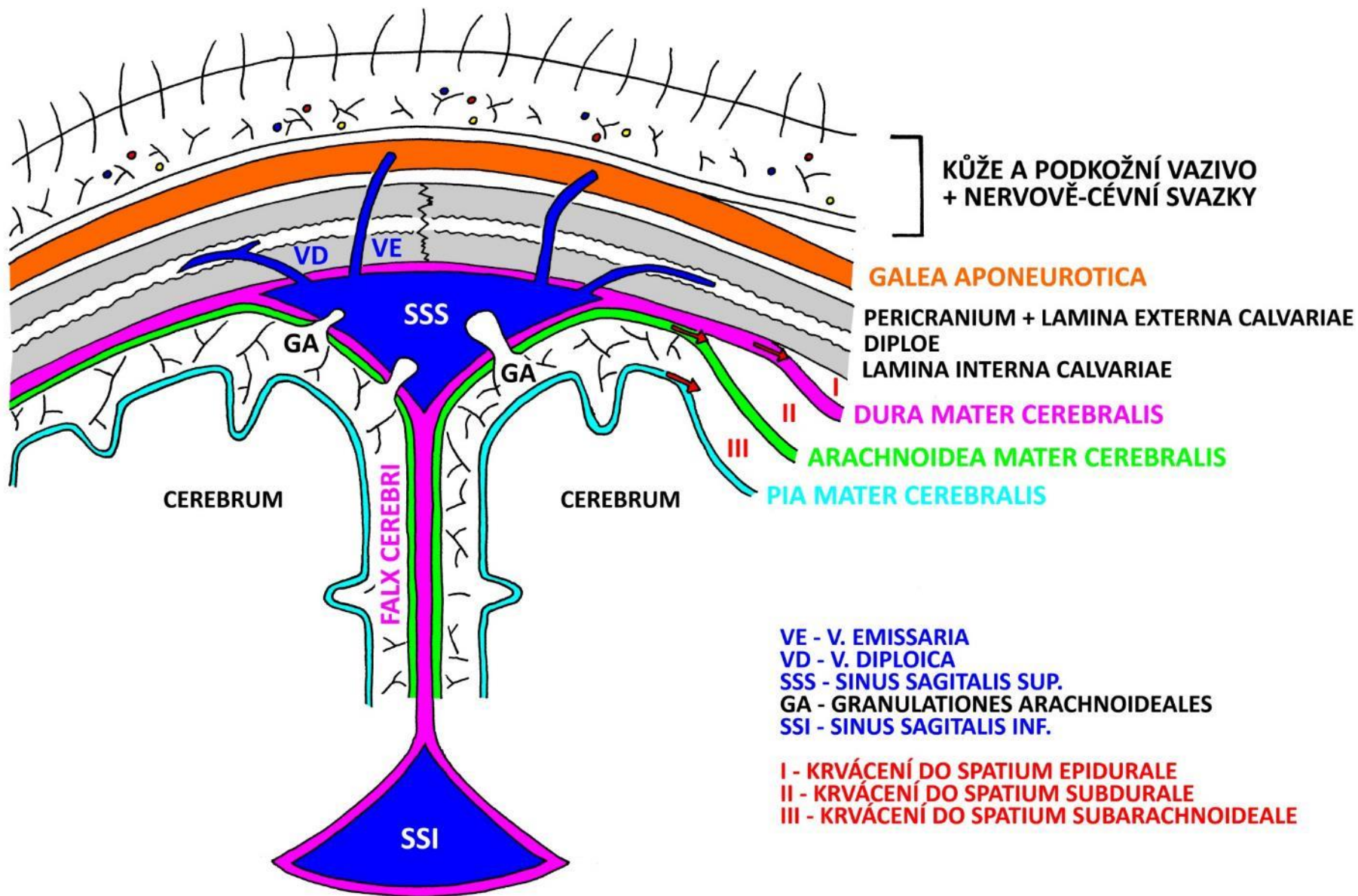
# FOSSA PTERYGOPALATINA

l.dx. - nervy











## NORMA BASALIS CRANII s úpony svalù dle pùvodu a inervace

