

# TOPOGRAFIE HLAVY





## **Hranice hlavy proti krku**

**Povrchová:**

**protub. occipit. ext.**

**linea nuchae sup.**

**porus acusticus ext.**

**okraj mandibuly**

**Hluboká:**

**basis cranii ext.**

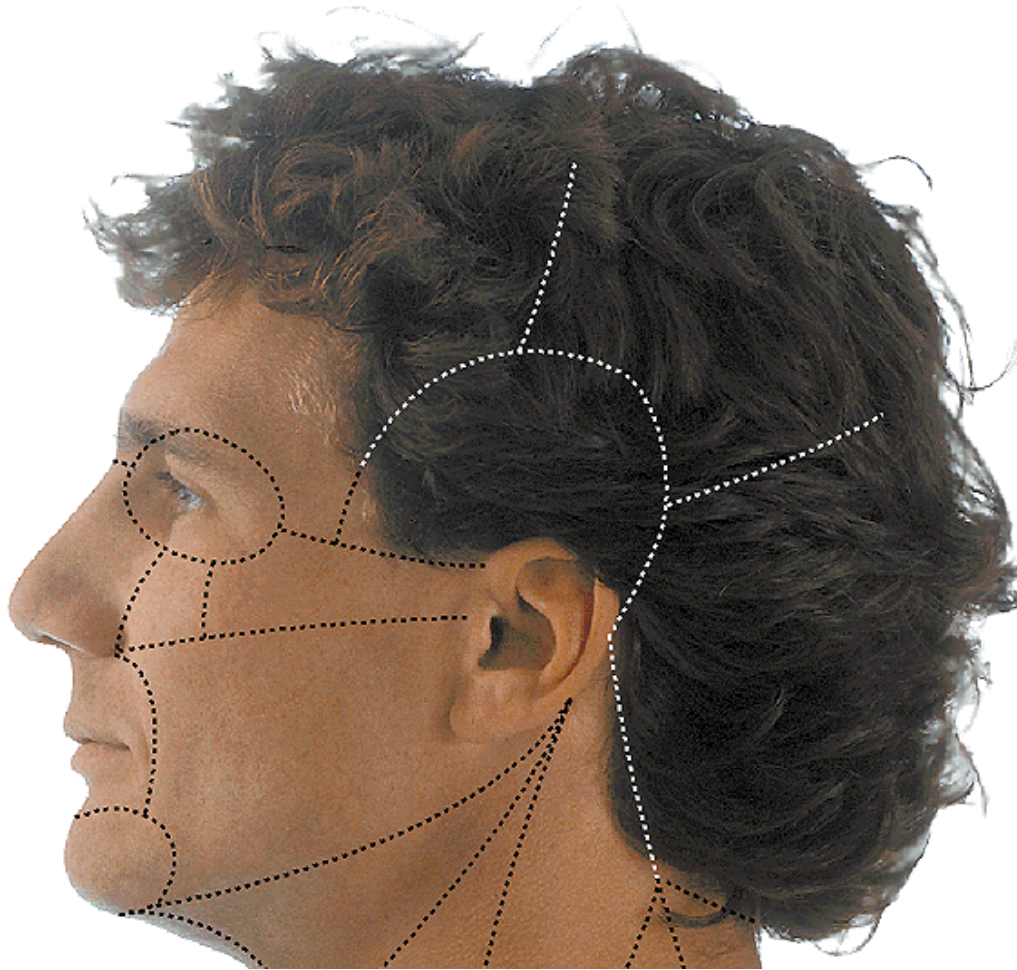
## **Hranice – mozková a obličejová část**

**glabela - porus acust. ext.**



# Mozková část hlavy (klenba a báze lebni)

**Hranice:** glabella - protub. occip. ext.



## **Povrchové krajiny:**

regio frontalis

regio parietalis

regio occipitalis

regio temporalis

## **Hluboké krajiny**

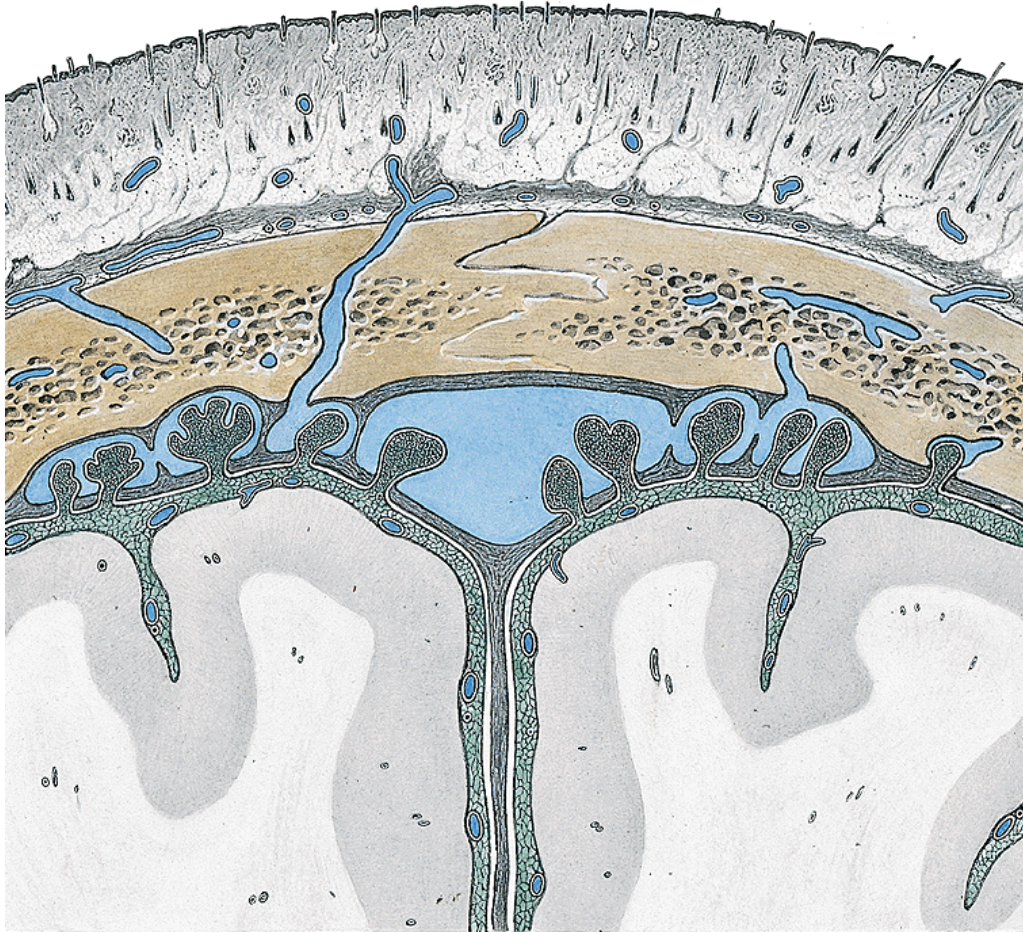
basis cranii int.

basis cranii ext.





# Krajiny klenby lební



## Vrstvy:

1. kůže (+ vlasy)
2. podkožní vazivo
3. galea aponeurotica
4. řídké subgaleální vazivo
5. periost
5. kost  
(lamina ext., diploe, lamina int.)
6. dura mater encephali





# Krajiny klenby lebni – regiones frontoparietooccipitales

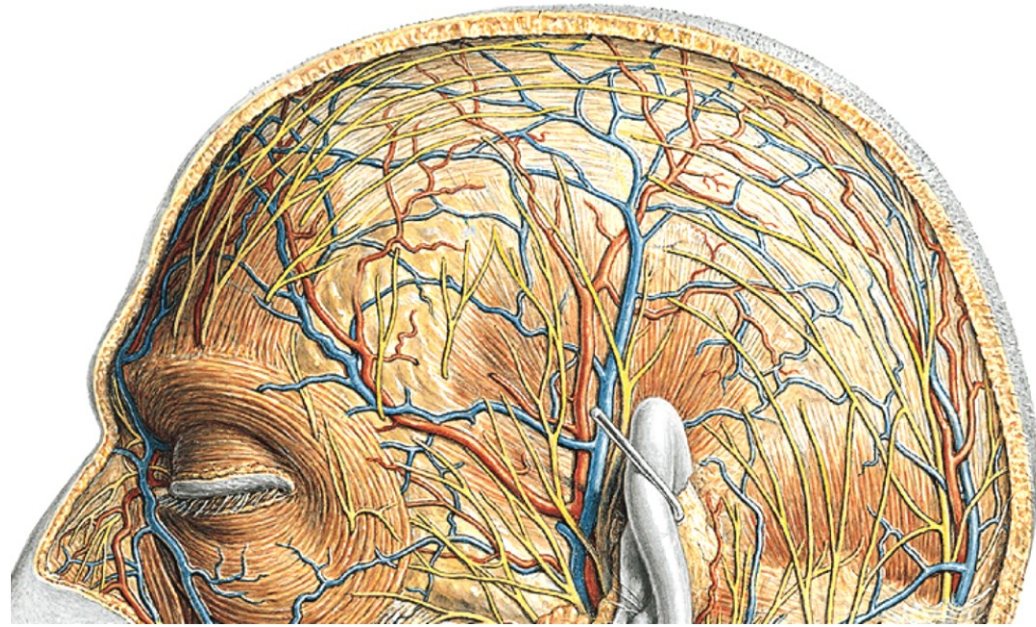
a., v. et n. supraorbitalis a supratrochlearis

a., v., n., zygomaticotemporalis

a. et v. temporalis superficialis, n. auriculotemporalis, n. auricularis magnus

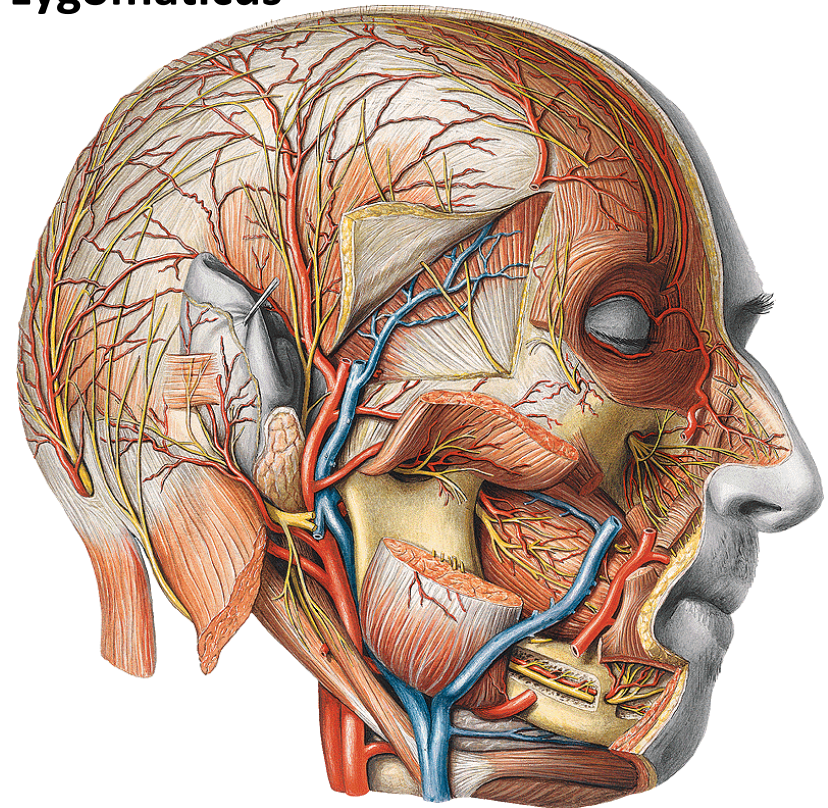
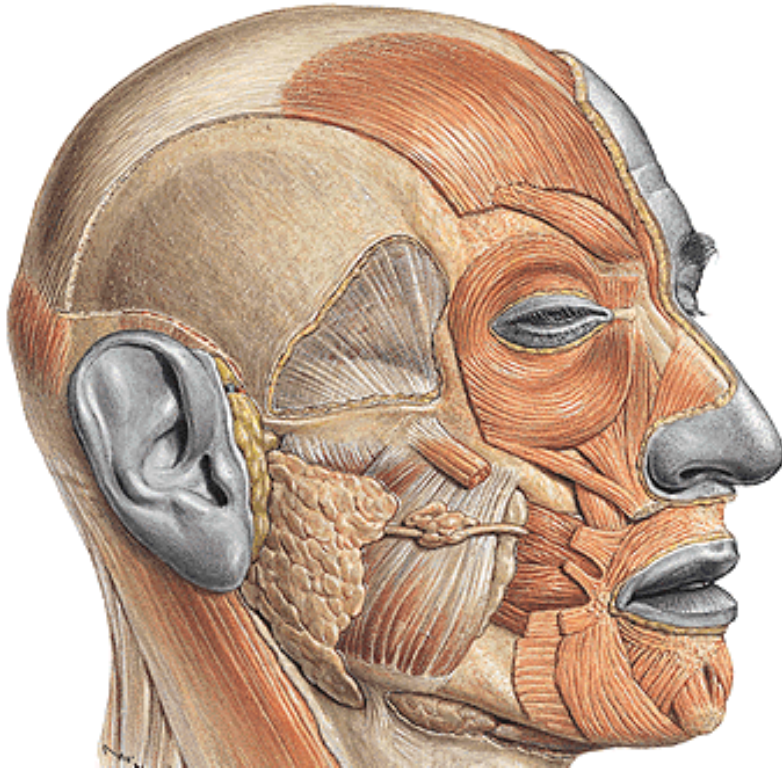
a. et v. auricularis post.

a. et v. occipitalis, n. occipitalis major et minor



# Regio temporalis

**Ohraničení:** linea temporalis sup., arcus zygomaticus



**kůže**

**n. auricularis magnus**

**m. temporoparietalis (n.VII.)**

**a., v. temporalis spf. (v. retromandibularis)**

**n. auriculotemporalis**

**fascia temporalis (dva listy)**

**m. temporalis**

**a.,v., n. temporalis prof.**



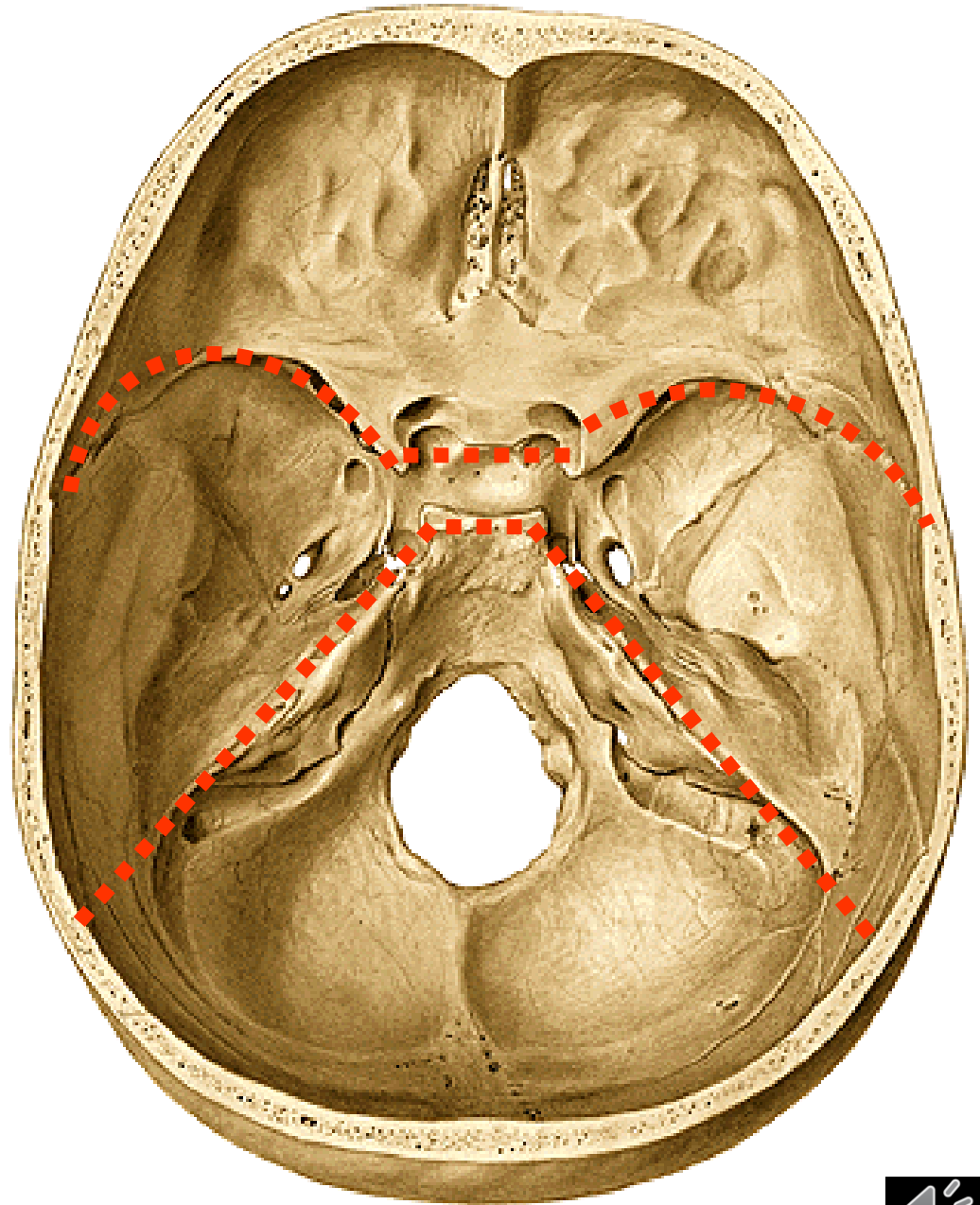


# BASIS CRANII INTERNA

Fossa cranii anterior

Fossa cranii media

Fossa cranii posterior





# BASIS CRANII INTERNA – Fossa cranii anterior



**os frontale:**

partes orbitales - sinus frontalis

pars nasalis

crista frontalis - falx cerebri + žilní splavy

**os ethmoidale:**

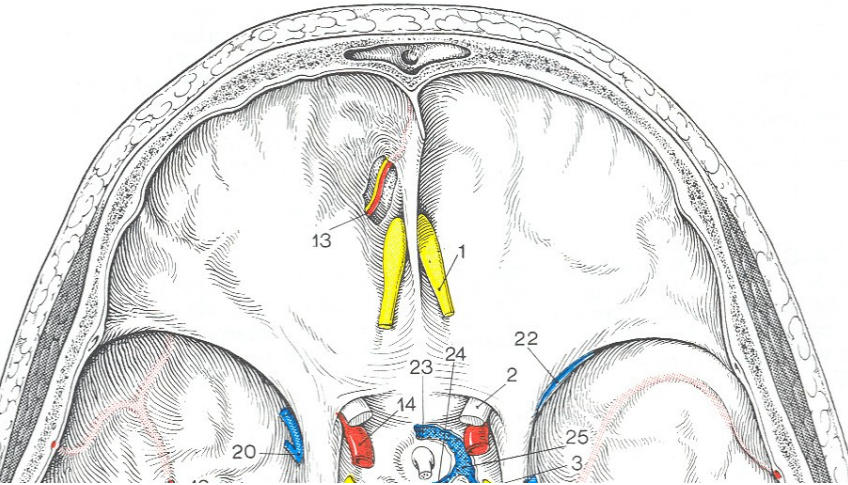
lamina cribrosa - nn. olfactorii,  
a. meningea ant.  
n. ethmoidalis ant.  
(rr. nasales)

crista galli

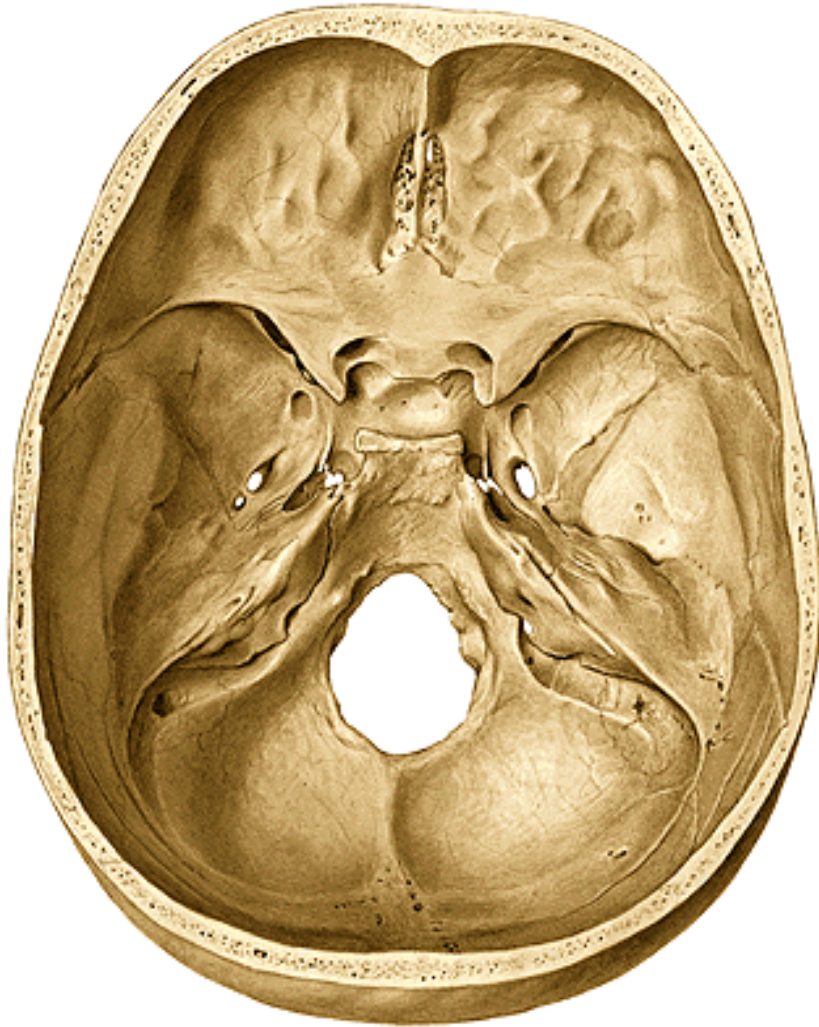
**os sphenoidale:**

allae minores – canalis opticus  
(n. opticus, a. ophthalmica)

sulcus praechiasmaticus - chiasma opticum



# BASIS CRANII INTERNA – Fossa cranii media



**os sphenoidale:**

facies cerebralis alae majores

sella turcica

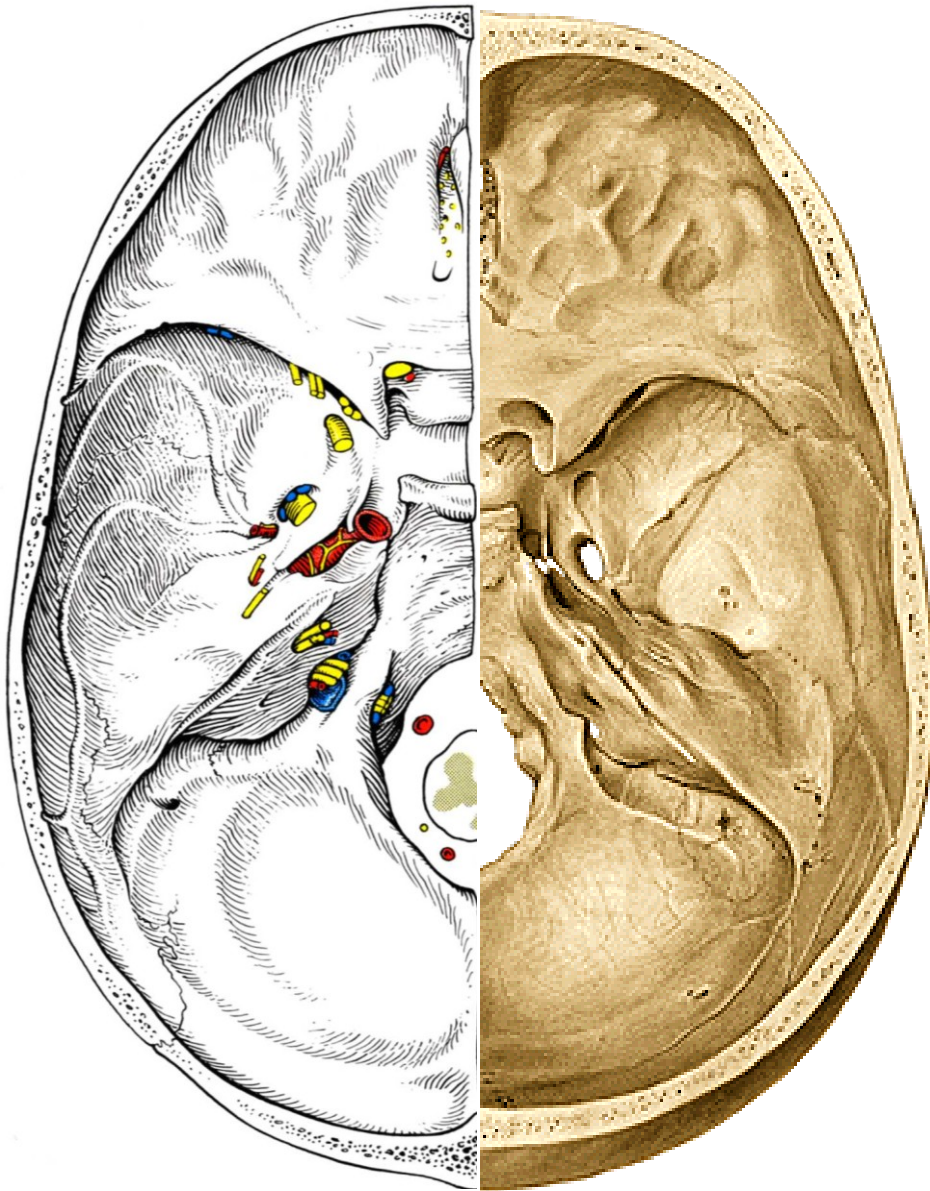
**os temporale**

facies ant. pyramidis

squama ossis temporalis



# Fossa cranii media - útvary



**fossa hypophysialis:**

hypofýza

**sulcus caroticus:**

sinus cavernosus

(a. carotis int., žilní splav,

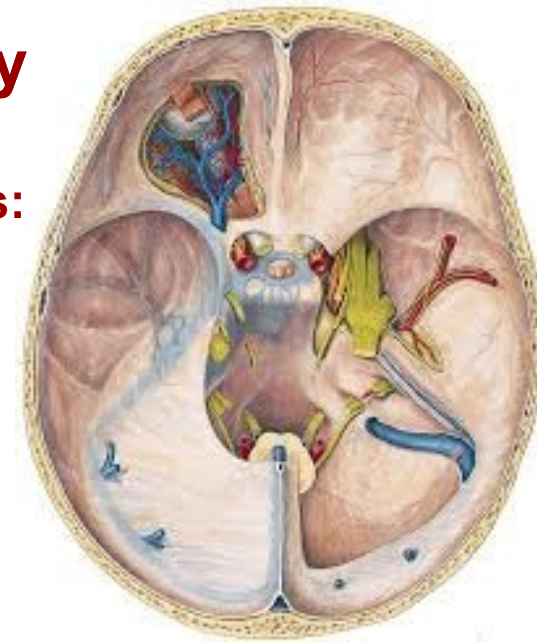
okohybné nervy, větve n. trigeminus)

**sulcus sinus petrosi superioris**

sinus petrosus superior

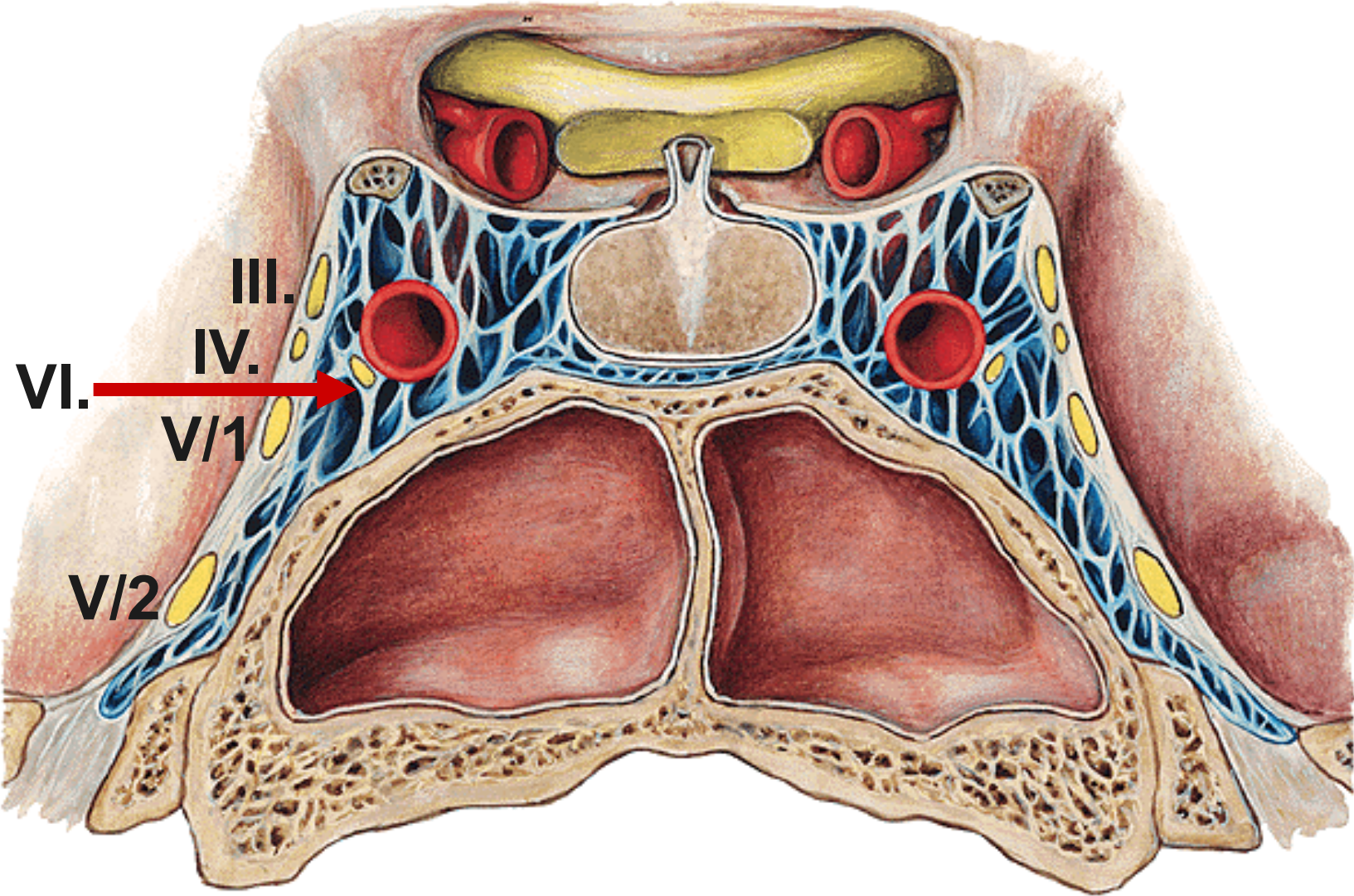
**impressio trigemini**

ganglion trigeminale





# Sinus cavernosus - útvary



# Fossa cranii media - otvory

## fissura orbitalis superior

okohybné nervy (III., IV., VI.)

větve n. ophthalmicus (z n. V.)

vena ophthalmica sup.

## apertura int. canalis carotici

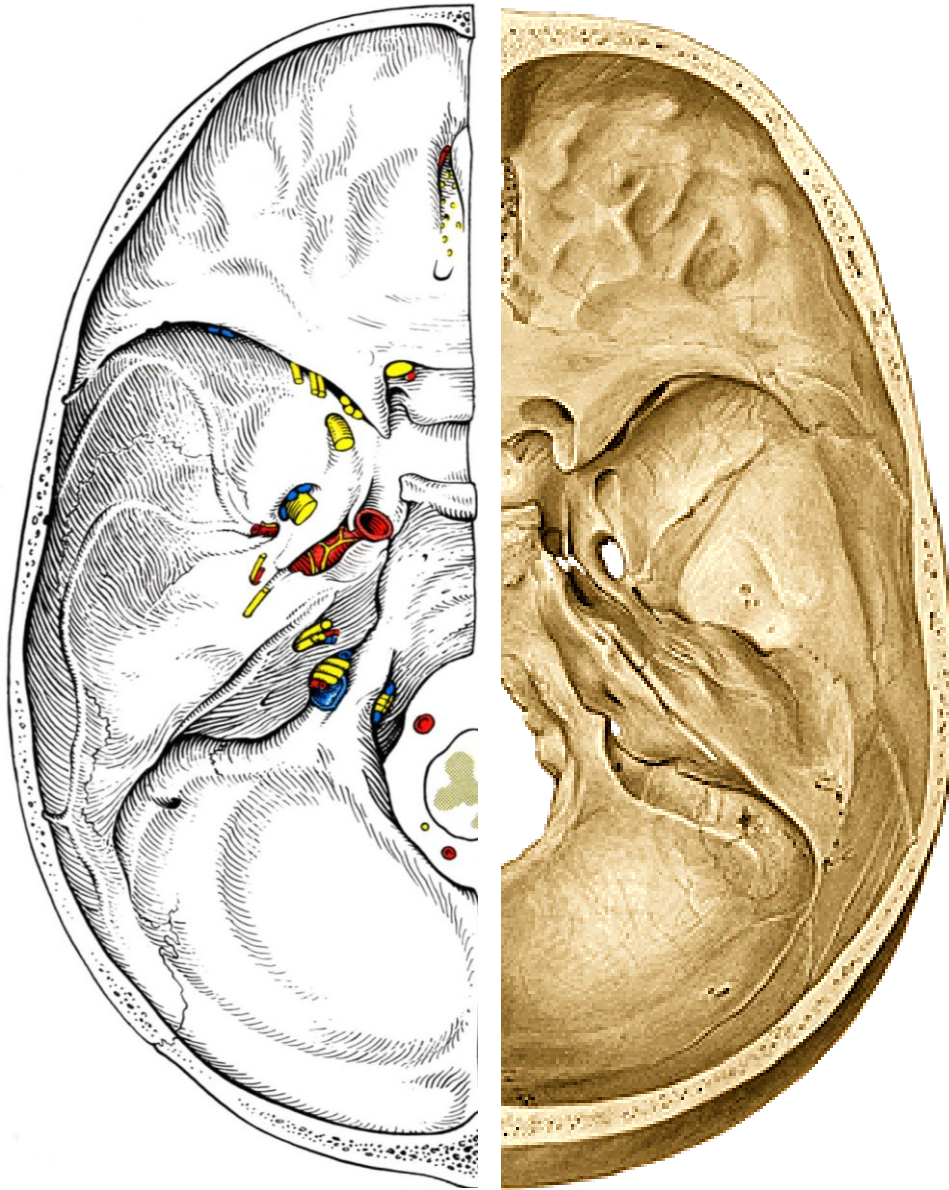
a. carotis int.

## hiatus canalis n. petrosi majoris

n. petrosus major

## hiatus canalis n. petrosi minoris

n. petrosus minor





## Fossa cranii media - otvory



**foramen rotundum**

n. maxillaris

**foramen ovale**

n. mandibularis, žíly

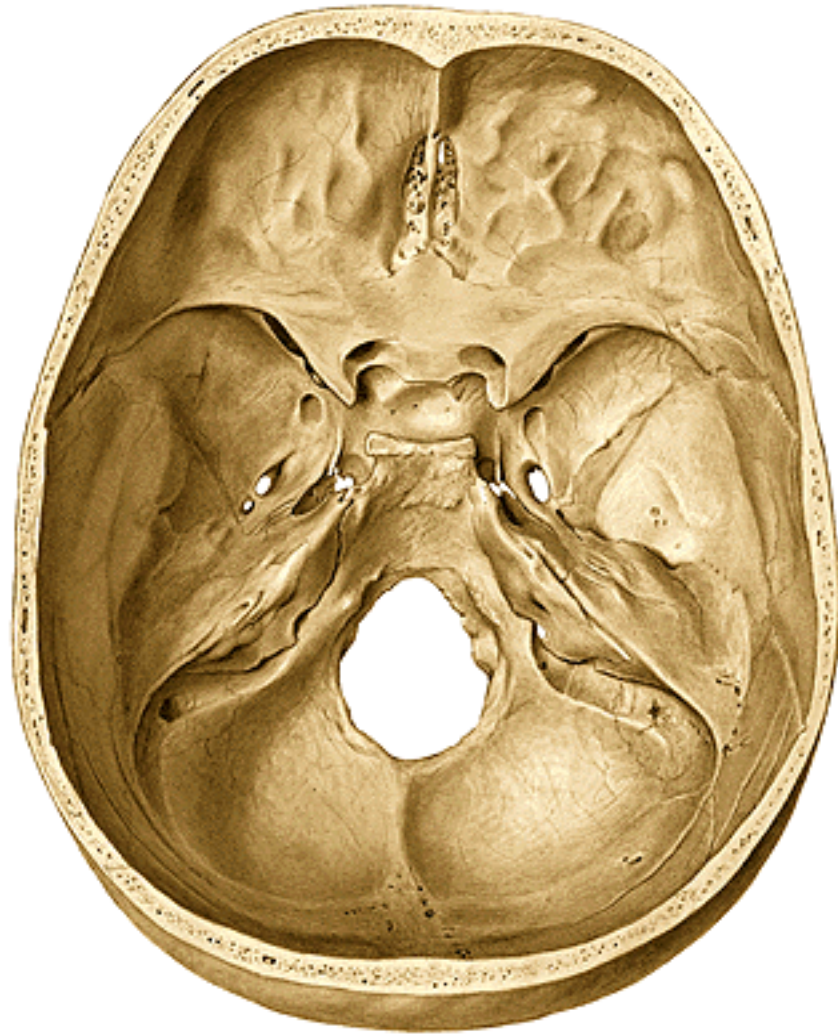
**foramen spinosum**

a. meningea media, r. meningeus n. mandibularis





# BASIS CRANII INTERNA – Fossa cranii posterior



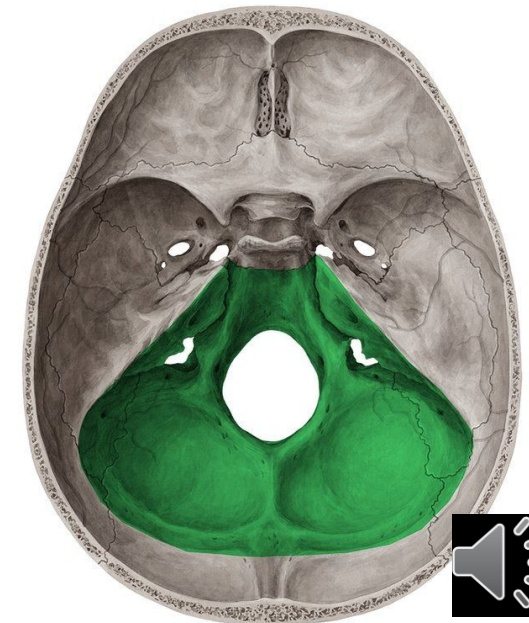
**os sphenoidale**

**clivus (synchondrosis sphenoccipitalis)**

**os temporale**

**facies post. pyramidis**

**os occipitale**



# Fossa cranii posterior

Útvary podmíněné dura mater enceph.

protuberantia occipitalis interna

eminentia cruciformis

Žlábky podmíněné žilními splavy

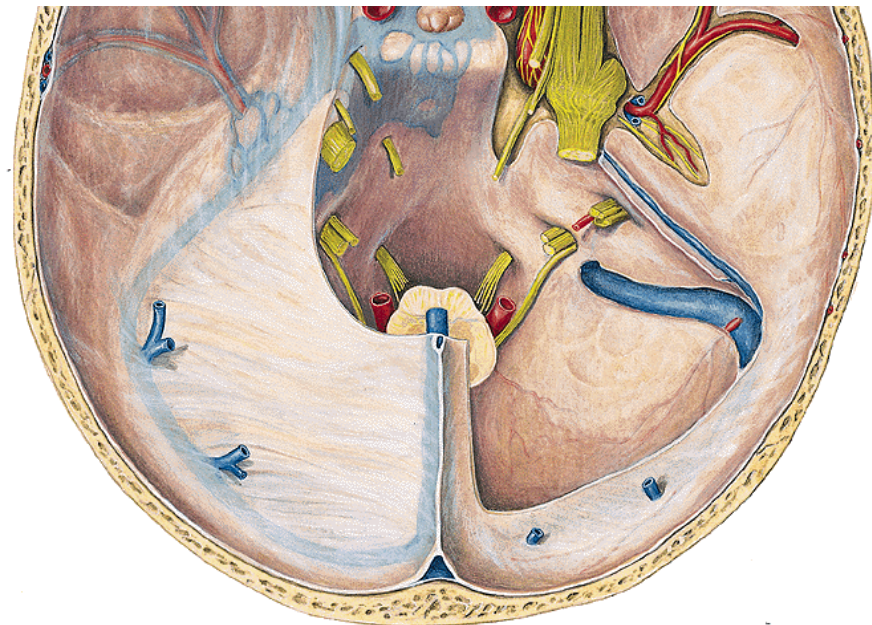
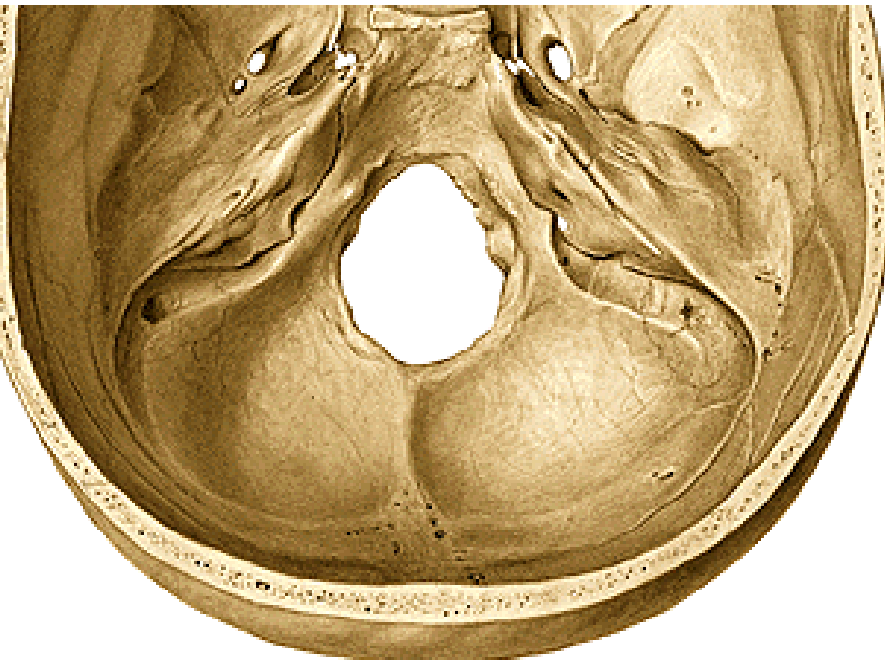
sulcus sinus sagittalis superioris

sulcus sinus transversi

sulcus sinus sigmoidei

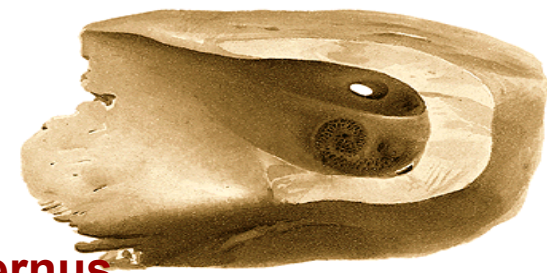
sulcus sinus petrosi superioris

sulcus sinus petrosi inferioris





# Fossa cranii posterior – otvory



**porus acusticus internus**

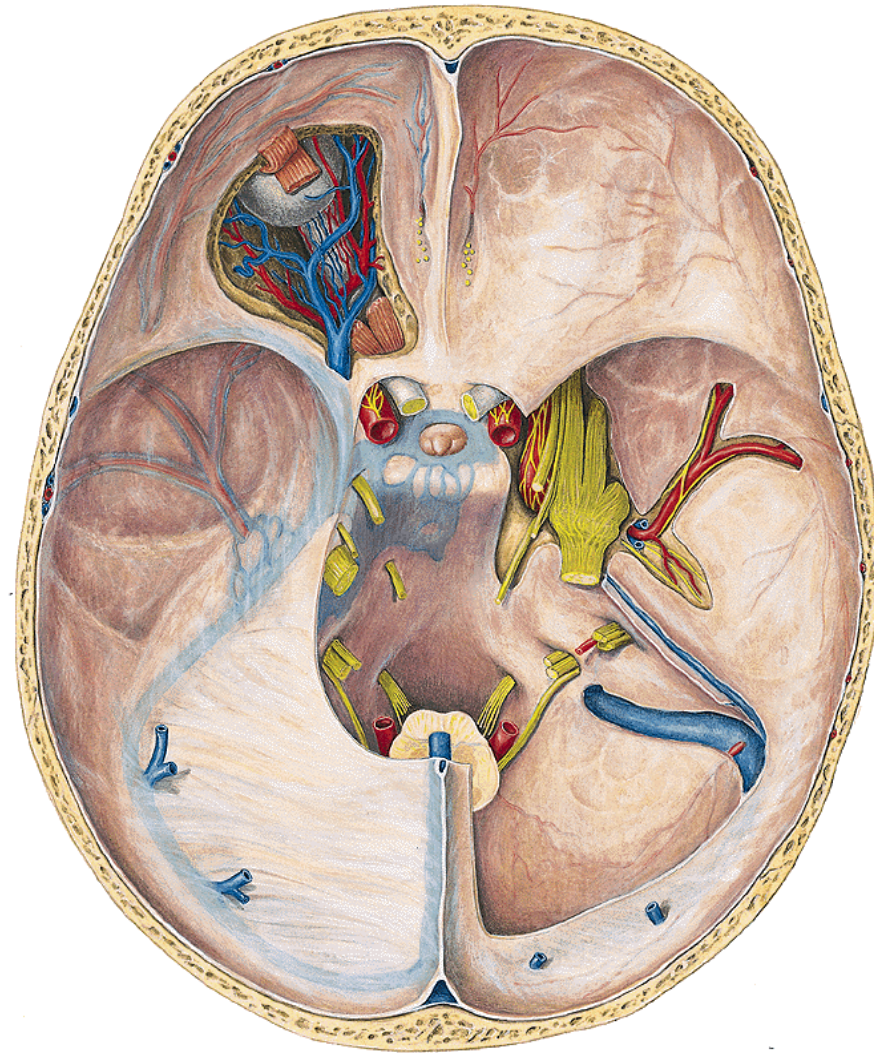
**canalis n. facialis (VII.), n. VIII.**

**apertura externa aqueductus vestibuli**

**ductus endolymphaticus**

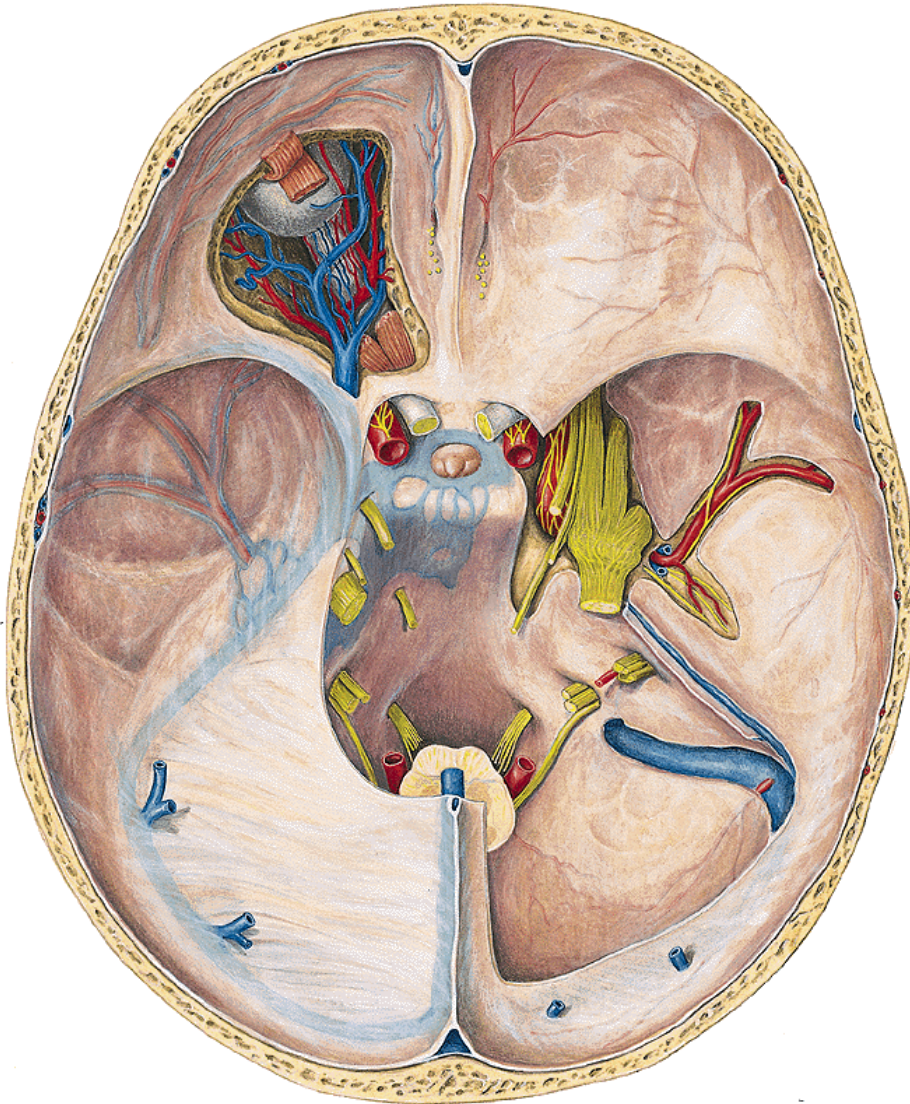
**apertura externa canaliculi cochlae**

**odtok perilympha**





# Fossa cranii posterior – otvory



**foramen jugulare**

**nn. IX., X., XI., vena jugularis interna**

**canalis hypoglossi**

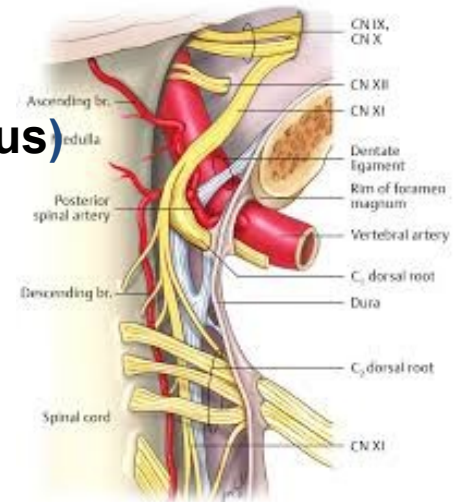
**n. XII (n. hypoglossus)**

**canalis condylaris**

**emissarium**

**foramen magnum**

**mícha, a. vertebralis, n. XI., žíly**

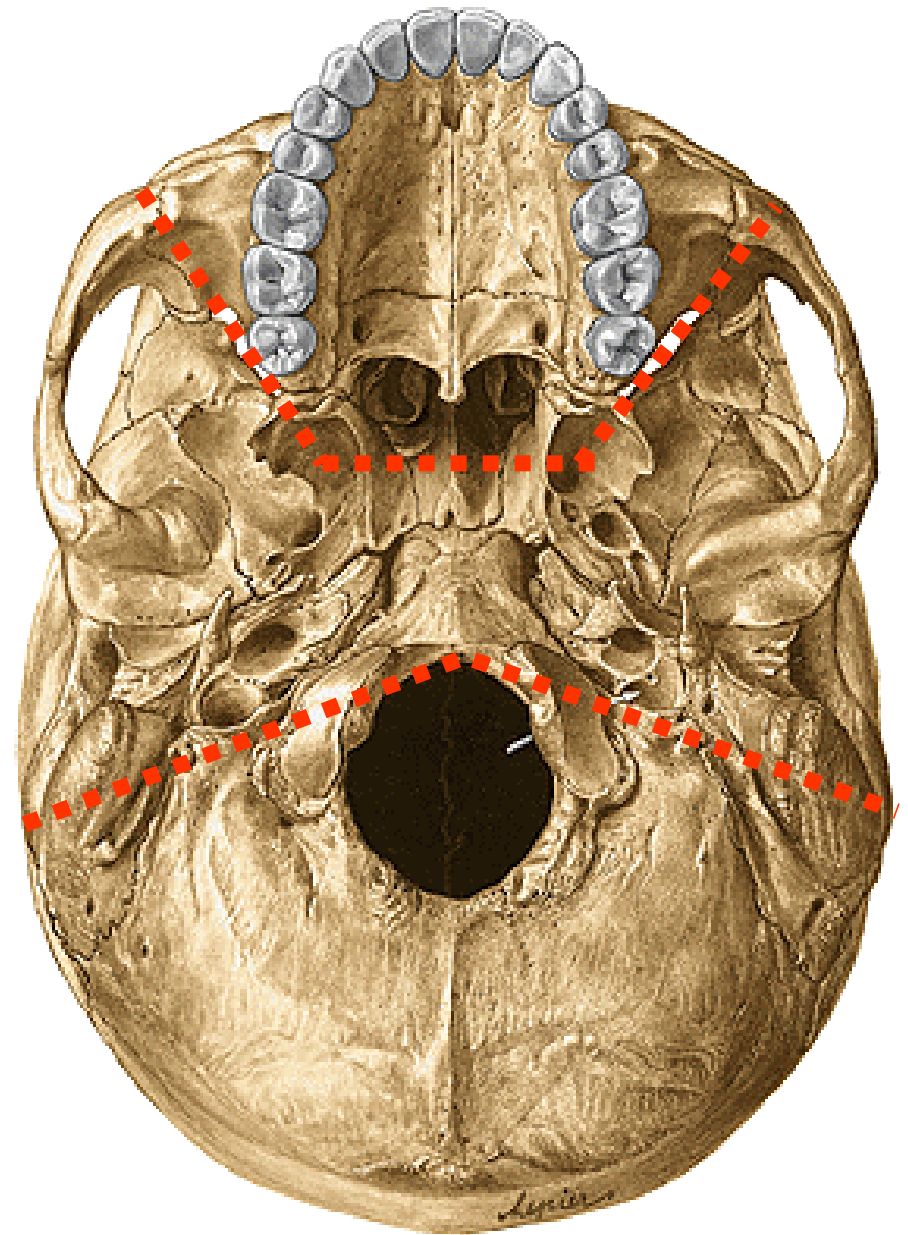


# BASIS CRANII EXTERNA

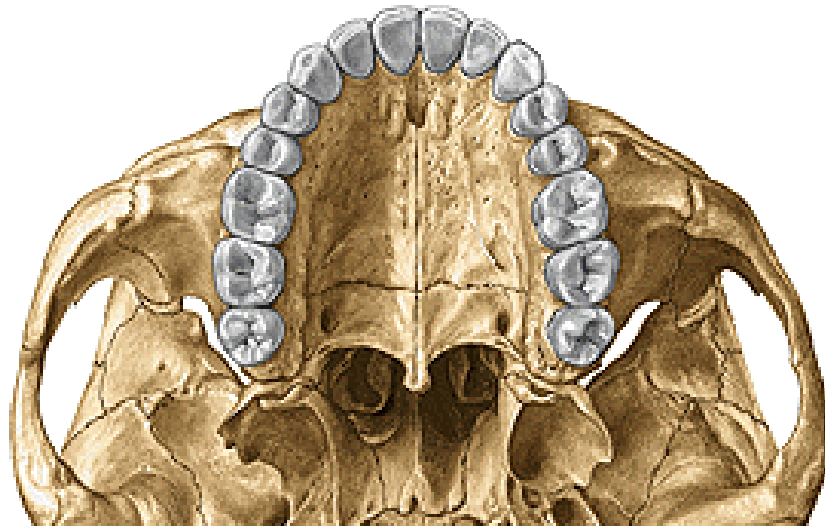
Fossa cranii anterior

Fossa cranii media

Fossa cranii posterior



# BASIS CRANII EXTERNA – fossa cranii anterior



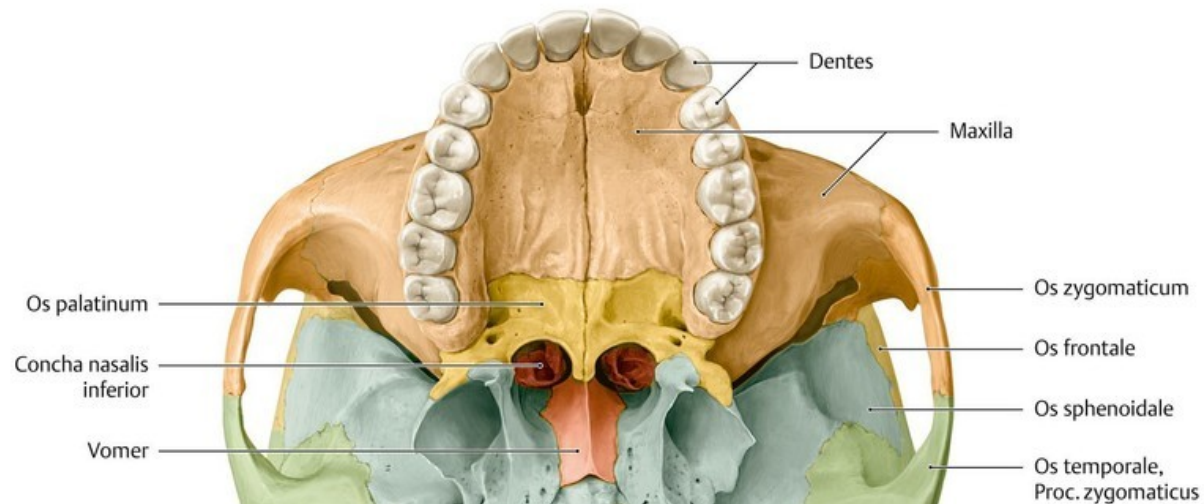
**Palatum durum**

**processus palatini maxillarum**

**laminae horizontales patrových kostí**

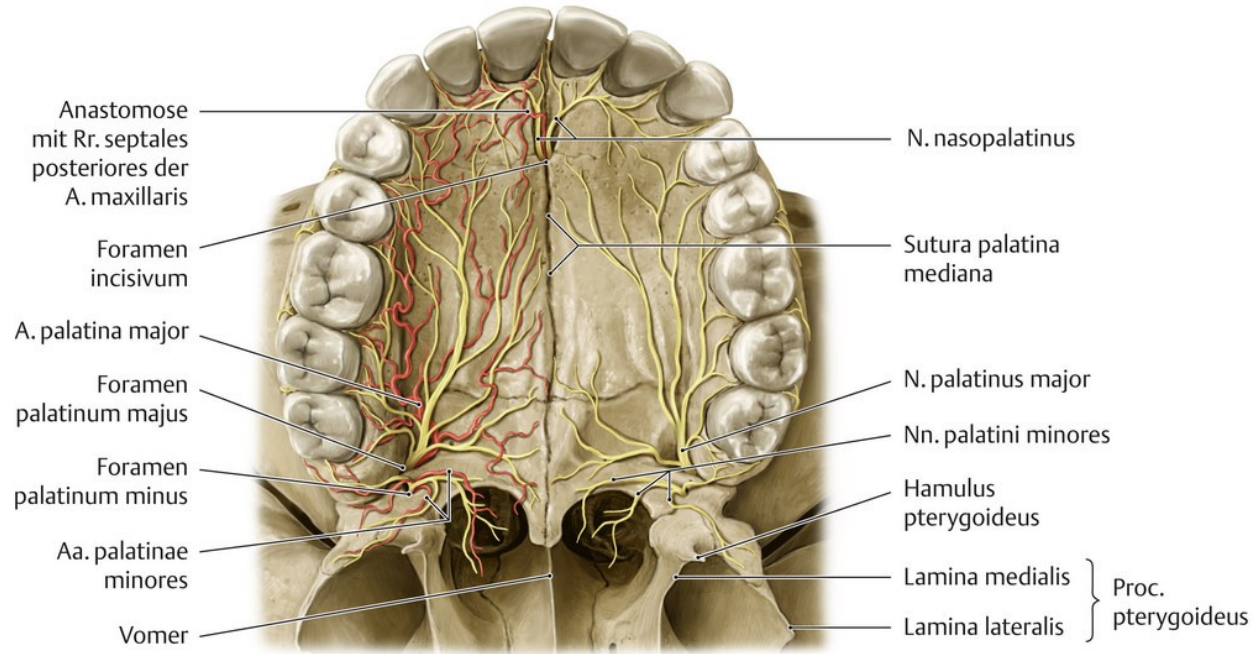
**choanae**

**maxilla**





# BASIS CRANII EXTERNA – fossa cranii anterior



## Palatum durum:

**foramen palatinum majus** – nervus palatinus major, arteria palatina major

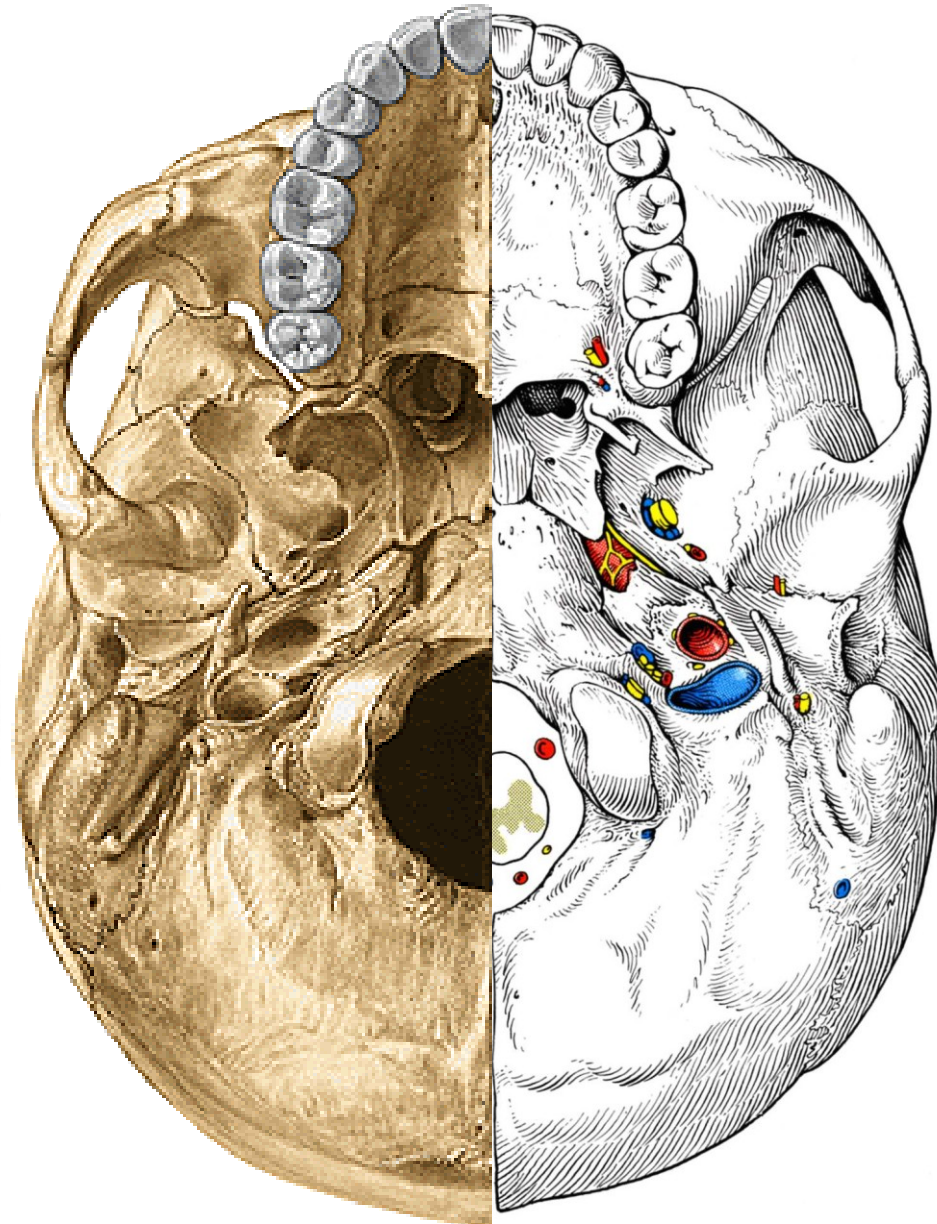
**foramina palatina minora** – nervi palatini minores, arteriae palatinae minores

**foramen incisivum** – nervus nasopalatinus, drobné septální větve a. maxillaris

**Choanae** – cavitas nasi



## BASIS CRANII EXTERNA – fossa cranii media



**Os sphenoidale:**

**corpus** – crista et vomer (choanae)

**allae majores**

foramen ovale – n. mandibularis

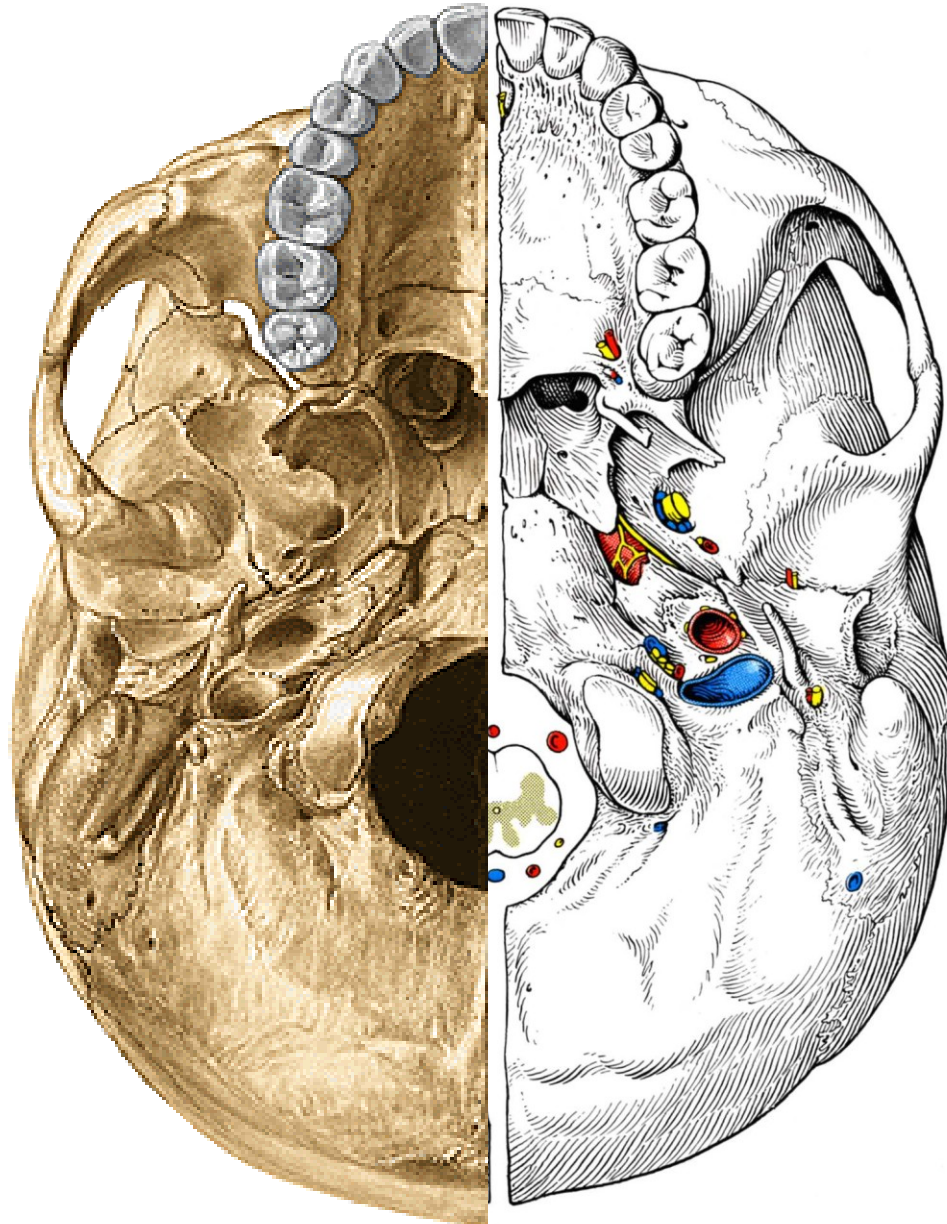
foramen spinosum – a. meningea media,  
r. meningeus

**processus pterygoideus**

canalis pterygoideus – n. canalis pteryg.  
(n. petrosus prof. + n. petrosus major)



## **BASIS CRANII EXTERNA – fossa cranii media (os temporale)**



**synchondrosis sphenopetrosa  
(n. petrosus major et minor)**

**apertura externa canalis carotici  
(a. carotis int., plexus caroticus)**

**canalis musculotubarius  
(m. tensor tympani, tuba auditiva)**

**apertura externa canaliculi tympanici  
(n. tympanicus)**

**apertura externa canaliculi cochlae  
(odtok perilymfy)**

**fossa jugularis (v. jugularis int.)**

**canaliculus mastoid. (n. auricularis)**

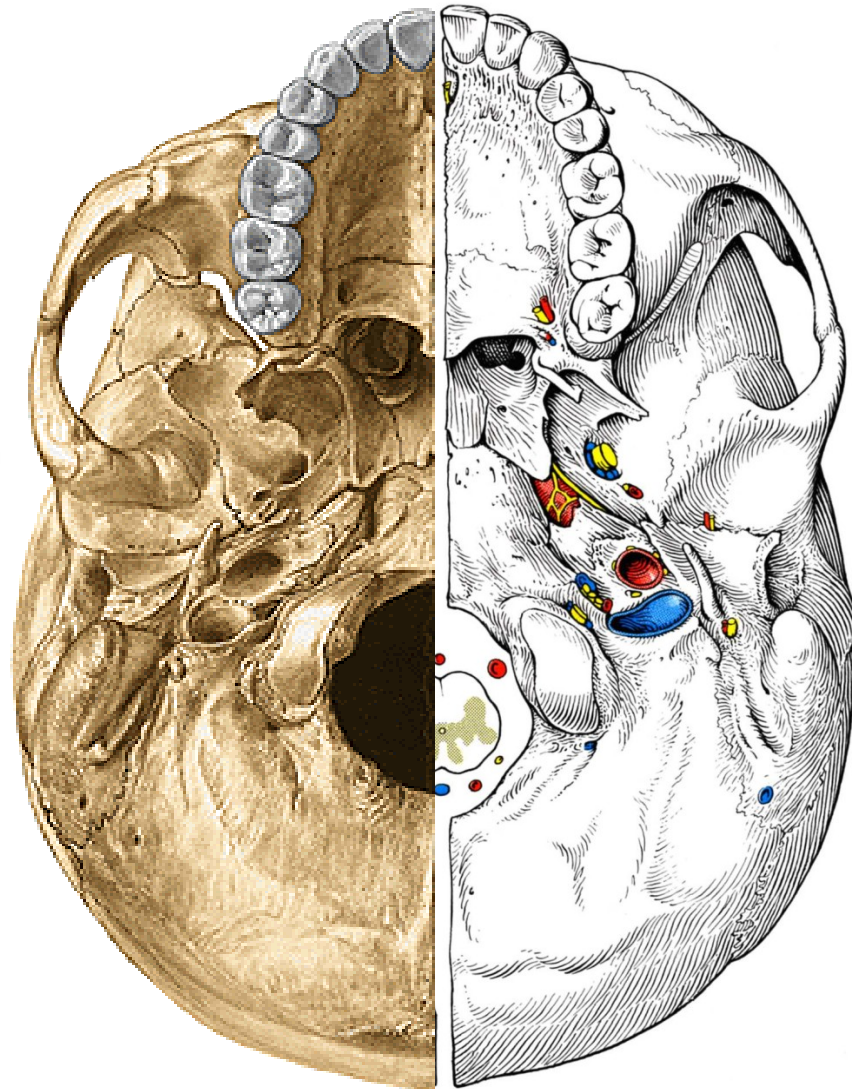
**foramen jugulare (nn. IX., X., XI.)**

**foramen stylomastoideum (n. VII.)**





## **BASIS CRANII EXTERNA – fossa cranii media (os temporale)**



**processus mastoideus  
(m. sternocleidomastoideus)**

**incisura mastoidea  
(m. digastricus)**

**sulcus arteriae occipitalis  
(a. occipitalis)**

**fossa mandibularis et tuberculum articulare  
(art. temporomandibularis)**

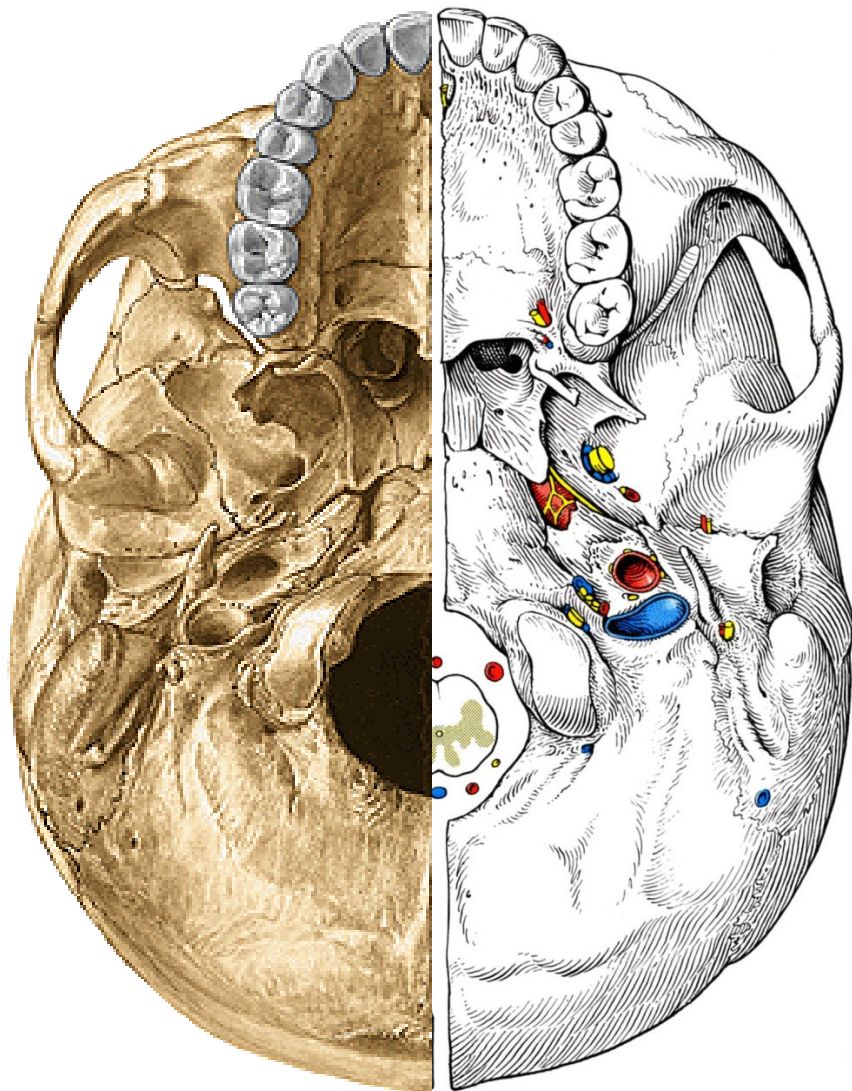
**os tympanicum – sulcus  
(membrana tympani)**

**fissura petrotympanica  
(chorda tympani)**

**fissura tympanomastoidea  
(n. auricularis n. X.)**



# BASIS CRANII EXTERNA – fossa cranii posterior (os occipitale)



**foramen magnum**

medula spinalis,

a. vertebralis

a. spinalis ant. + aa. spinales post.

plexus venosi vertebrales int. + basilaris

radix spinalis n. XI.

**condyli occipitales** – art. atlantooccipitalis

**canalis n. hypoglossi** – n. XII.

**canalis condylaris** – emmisarium

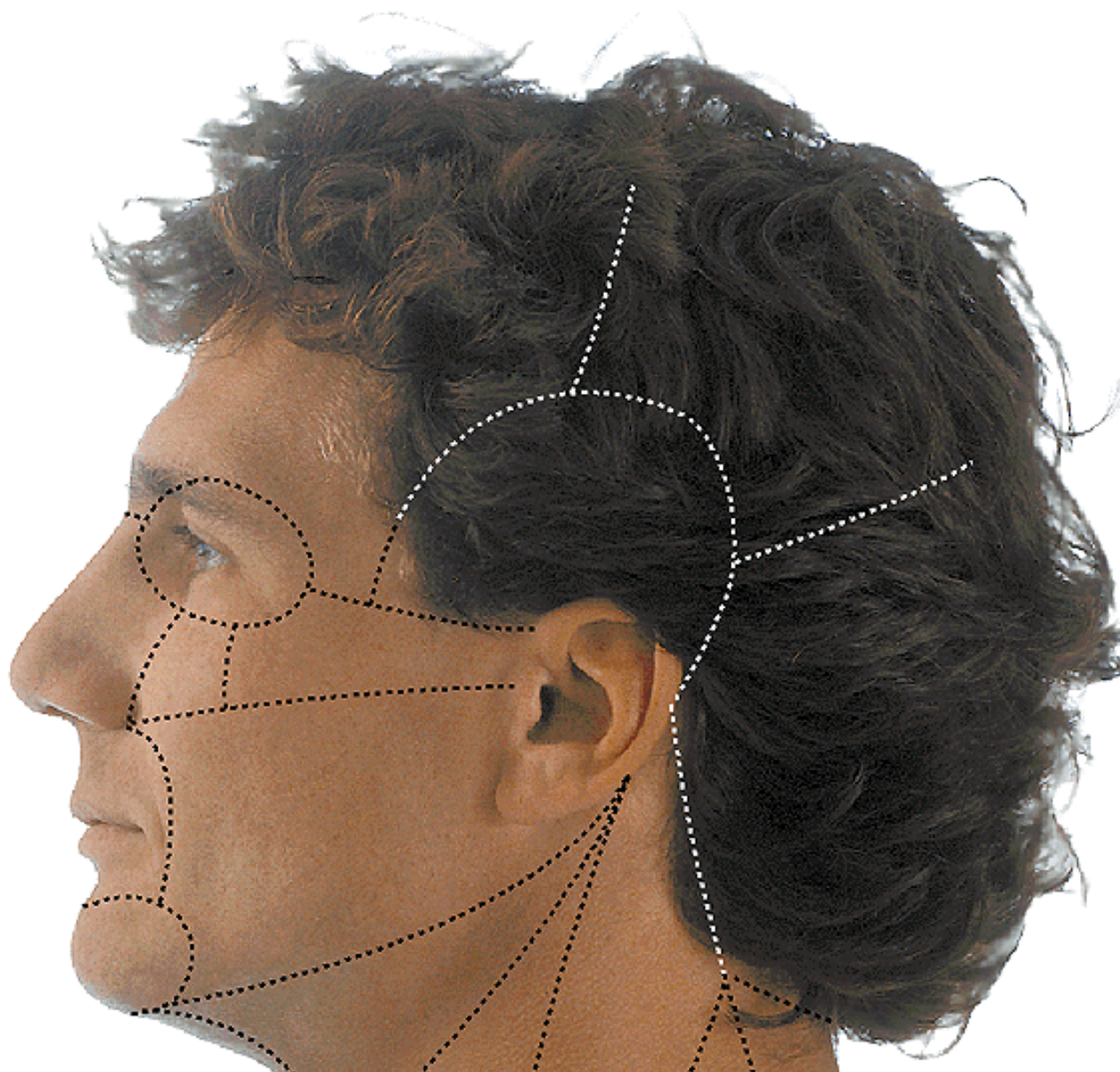
**protuberantia occip. ext. + crista occipit.**

lig. nuchae

**lineae nuchae** aurochtonní šíjové svaly



# OBLIČEJOVÁ ČÁST HLAVY



## Povrchové krajiny

regio orbitalis

regio nasalis

regio labialis

regio mentalis

regio infraorbitalis

regio zygomatica

regio buccalis

regio parotideomasset.





# Regio parotideomasseterica

## Ohraničení:

nahoře - arcus zygomaticus

ventrální okraj m. masseter

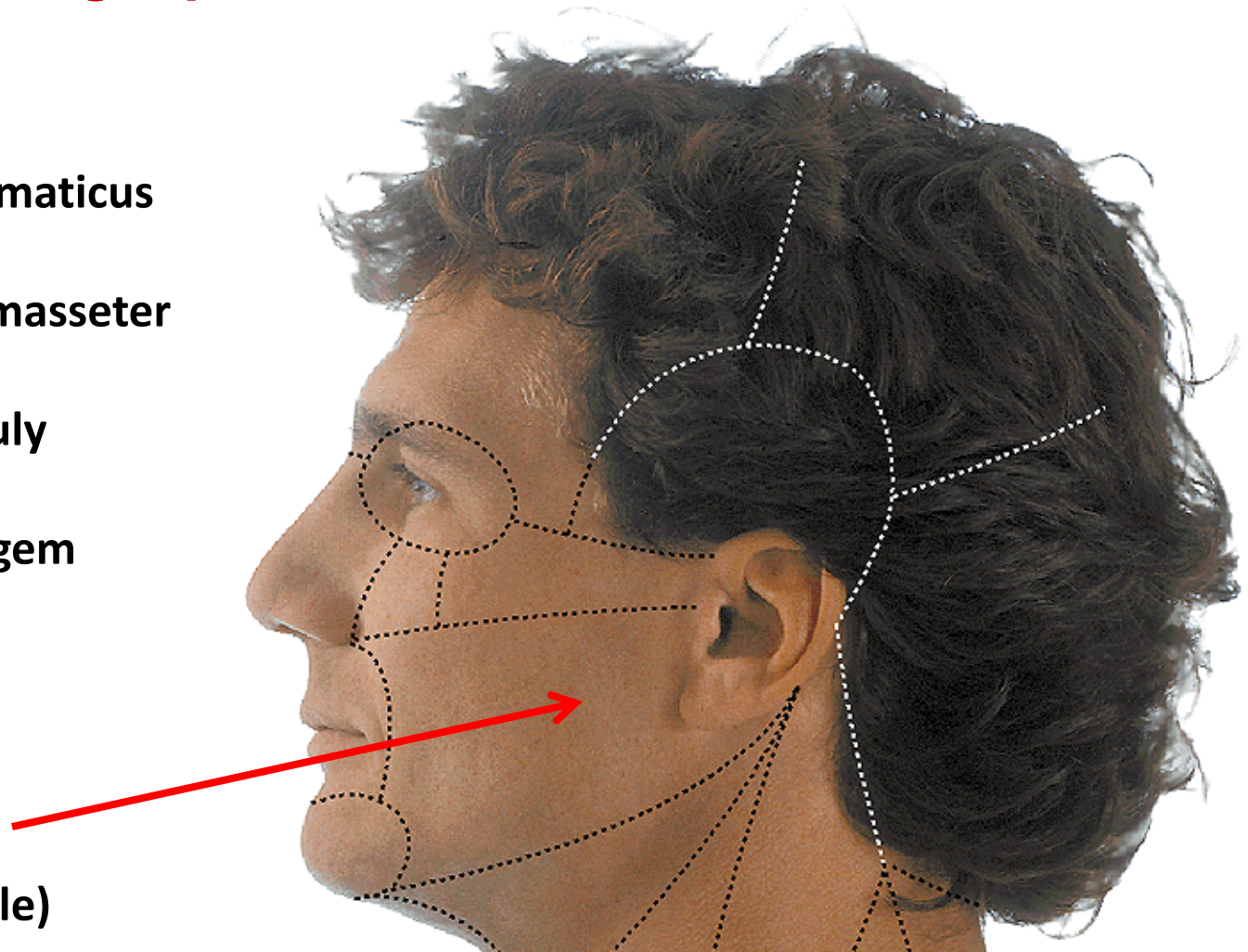
dolní okraj mandibuly

kolmice vedená tragem

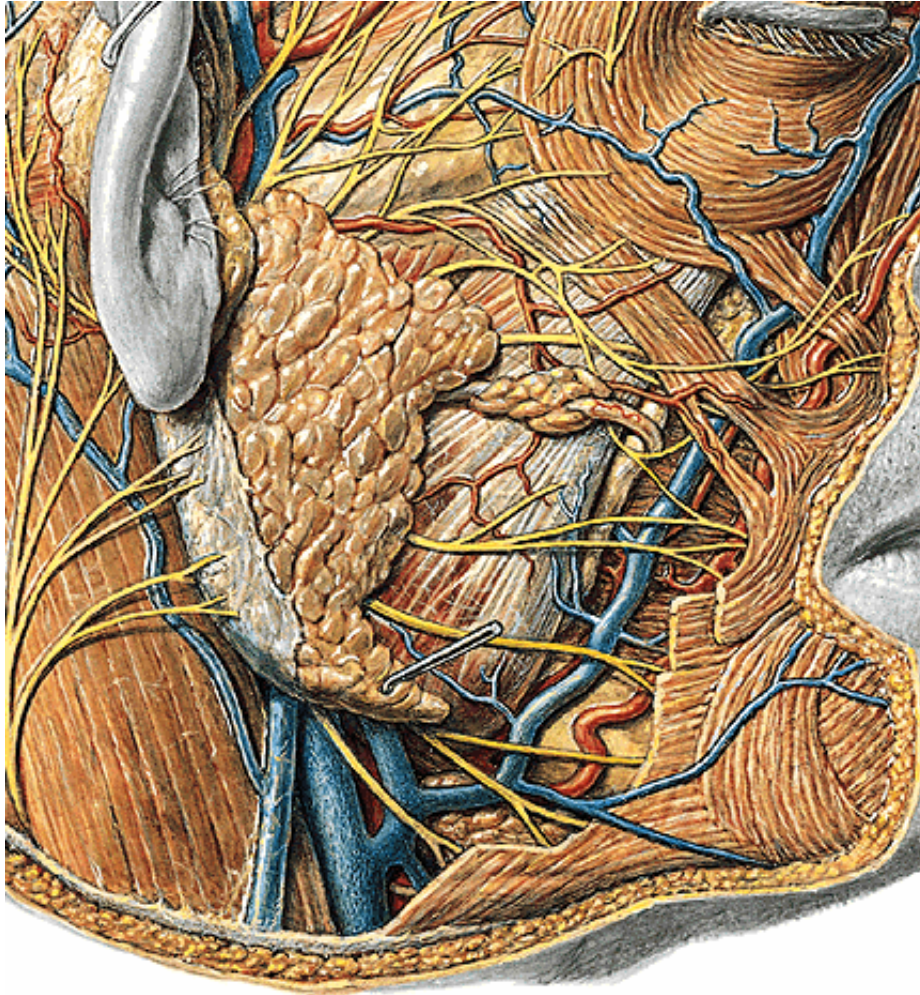
## Obsah:

glandula parotis

cévy a nervy (viz dále)



# Regio parotideomasseterica



**glandula parotis**

**fascia parotideomasseterica**

**ductus parotideus**

**plexus parotideus n. VII.**

**pars spf. et prof. gl. parotis**

**a. temporalis spf.**

**a. transversa faciei**

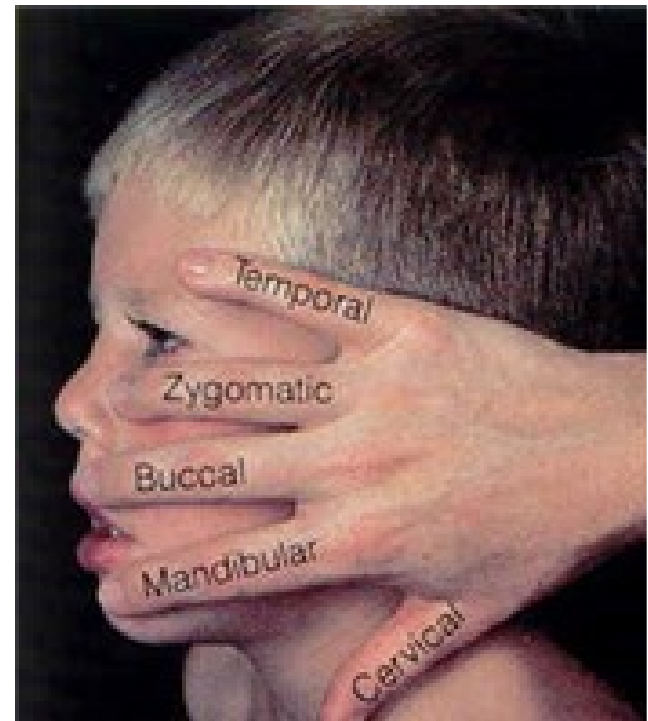
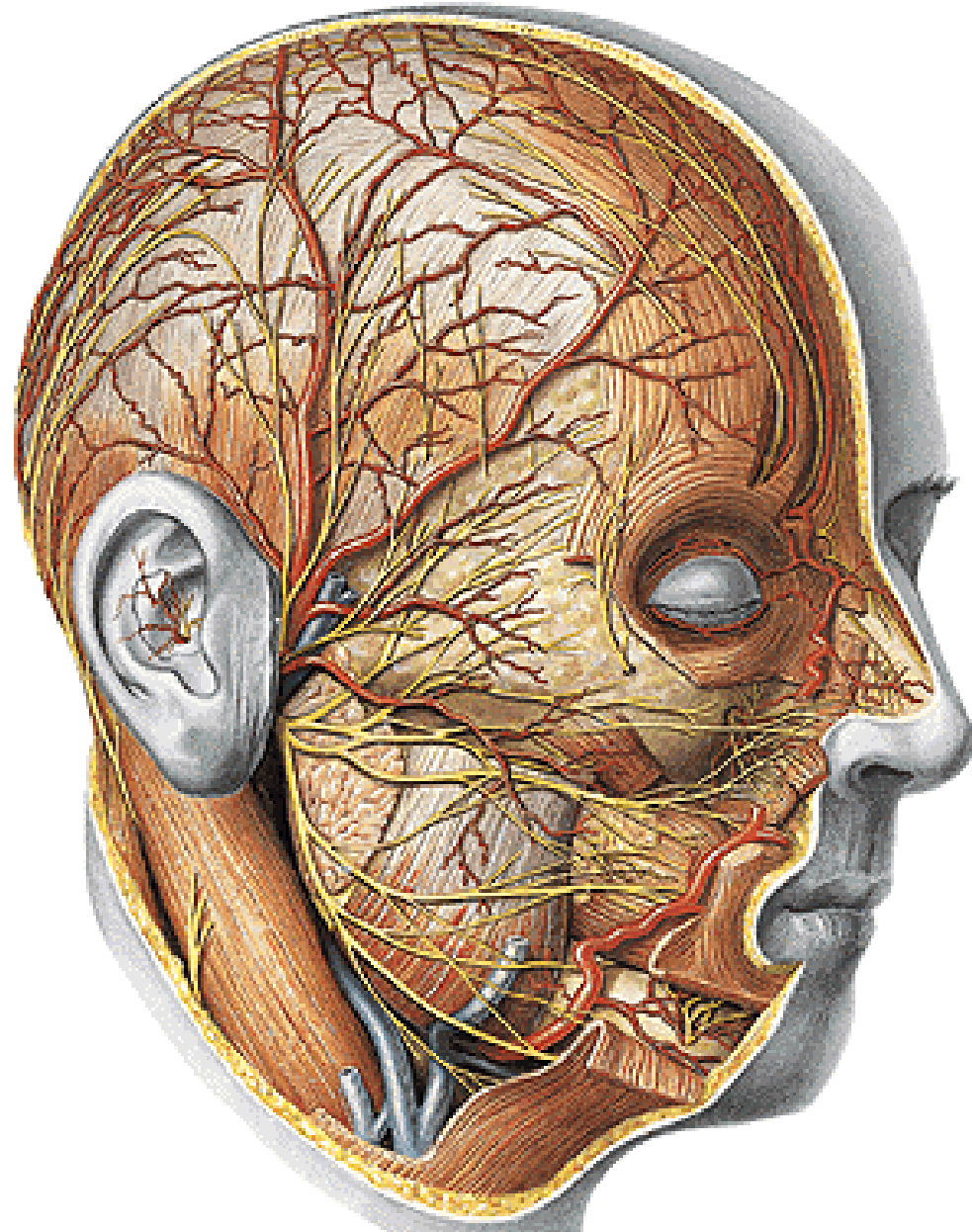
**v. temporalis spf., v. retromandibularis**

**n. auriculotemporalis**





## NERVUS VII. - plexus parotideus



rr. temporales

rr. zygomatici

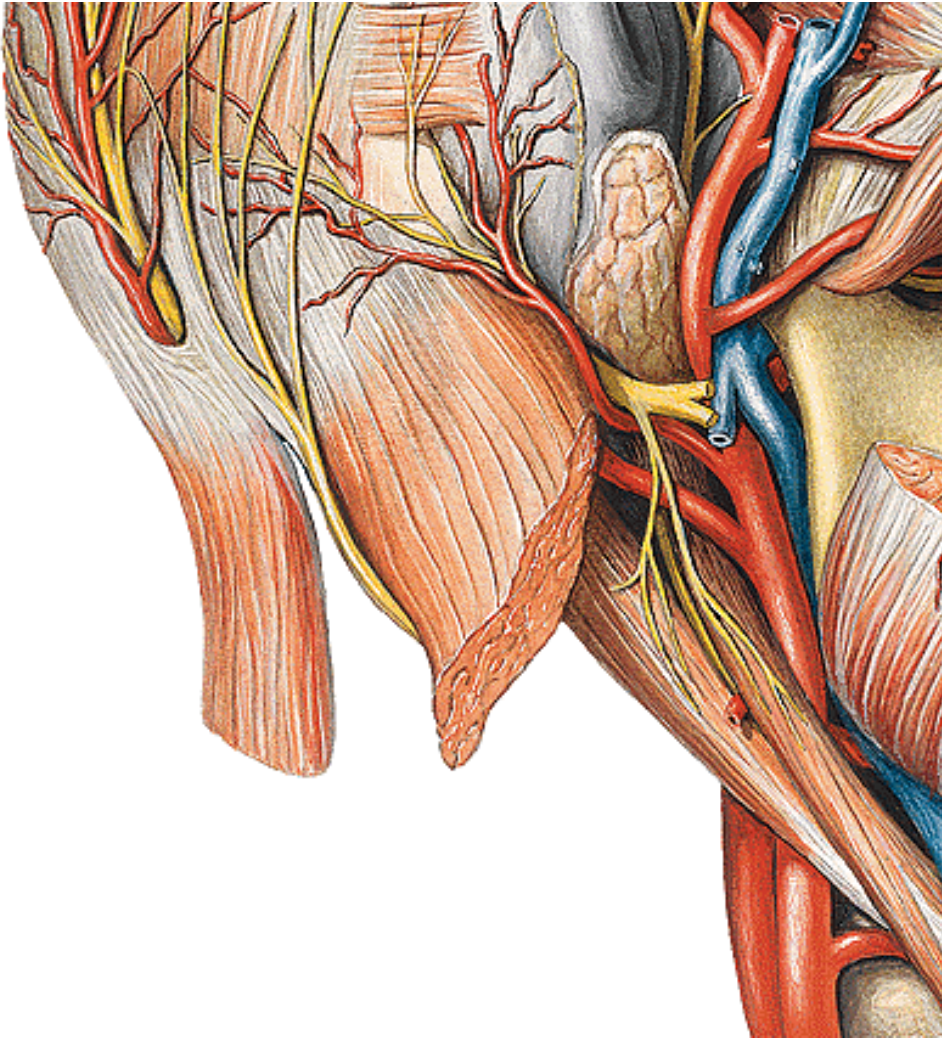
rr. buccales

r. marginalis mandibulae

r. coli (ansa cervicalis spf.)



# Retromandibulární krajina



**n.VII.**

**r. stylohyoideus**

**(m. stylohyoideus)**

**r. digastricus**

**(venter post. m. digastrici)**

**n. auricularis post.**

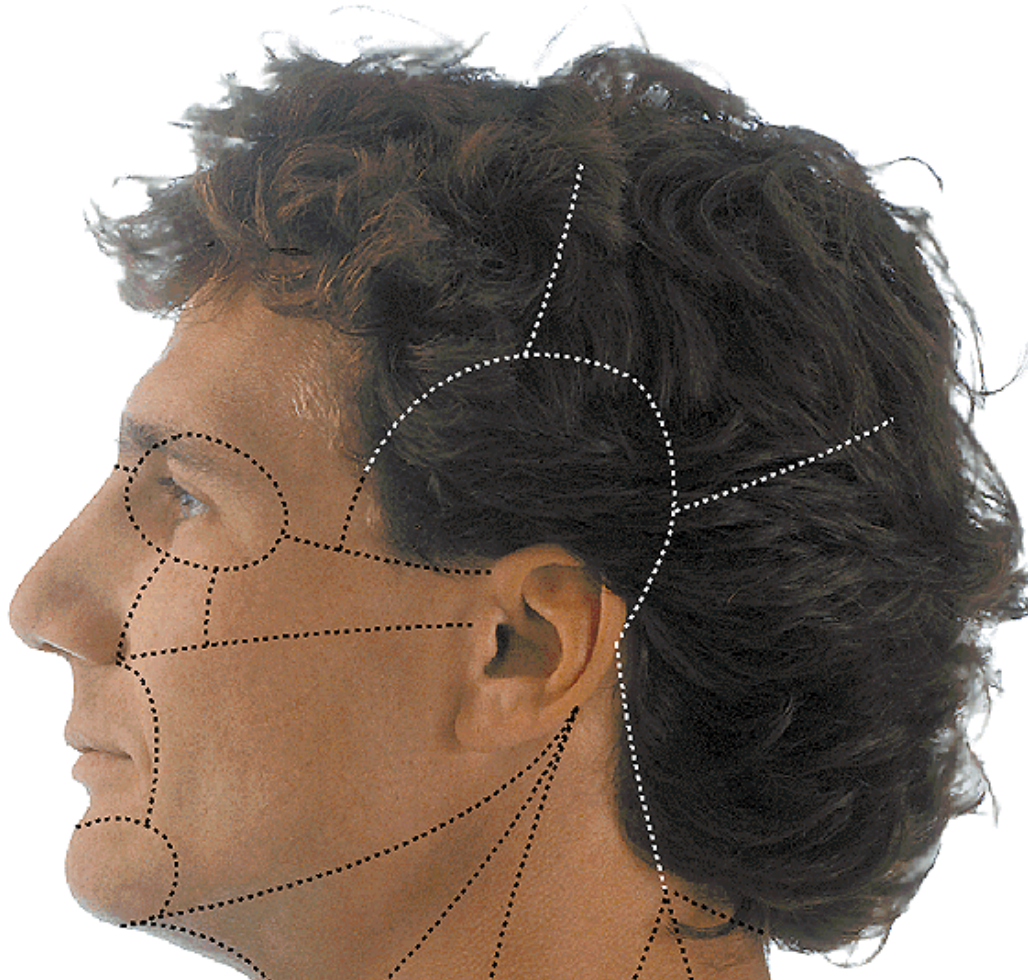
**a. auricularis post.**

**(a. carotis ext.)**



# Ostatní povrchové obličejové krajiny

Regiones: orbitalis, nasalis, infraorbitalis, buccalis, zygomatica mentalis



## VRSTVY:

kůže a podkoží

inervace n. V.

mimické svaly

inervace n. VII.

cévní zásobení

a. et v. facialis

(větve a. maxillaris et ophthalmica)

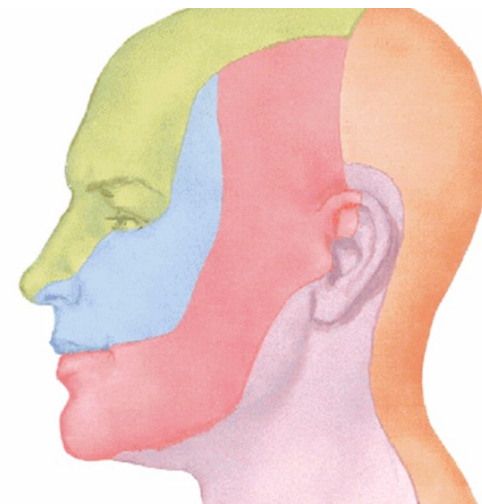
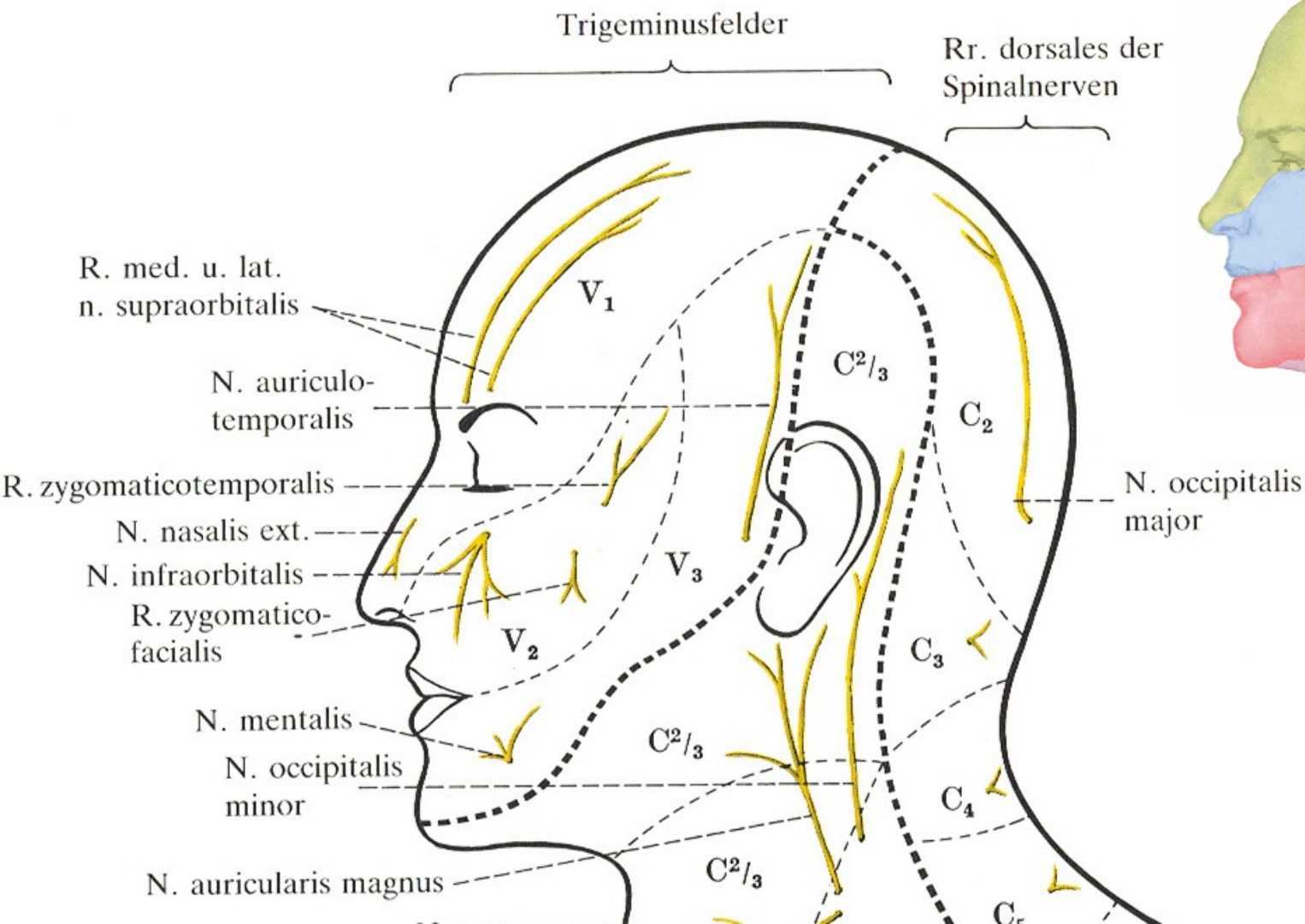
podslizniční vazivo a sliznice

gll. labiales, buccales, nasales

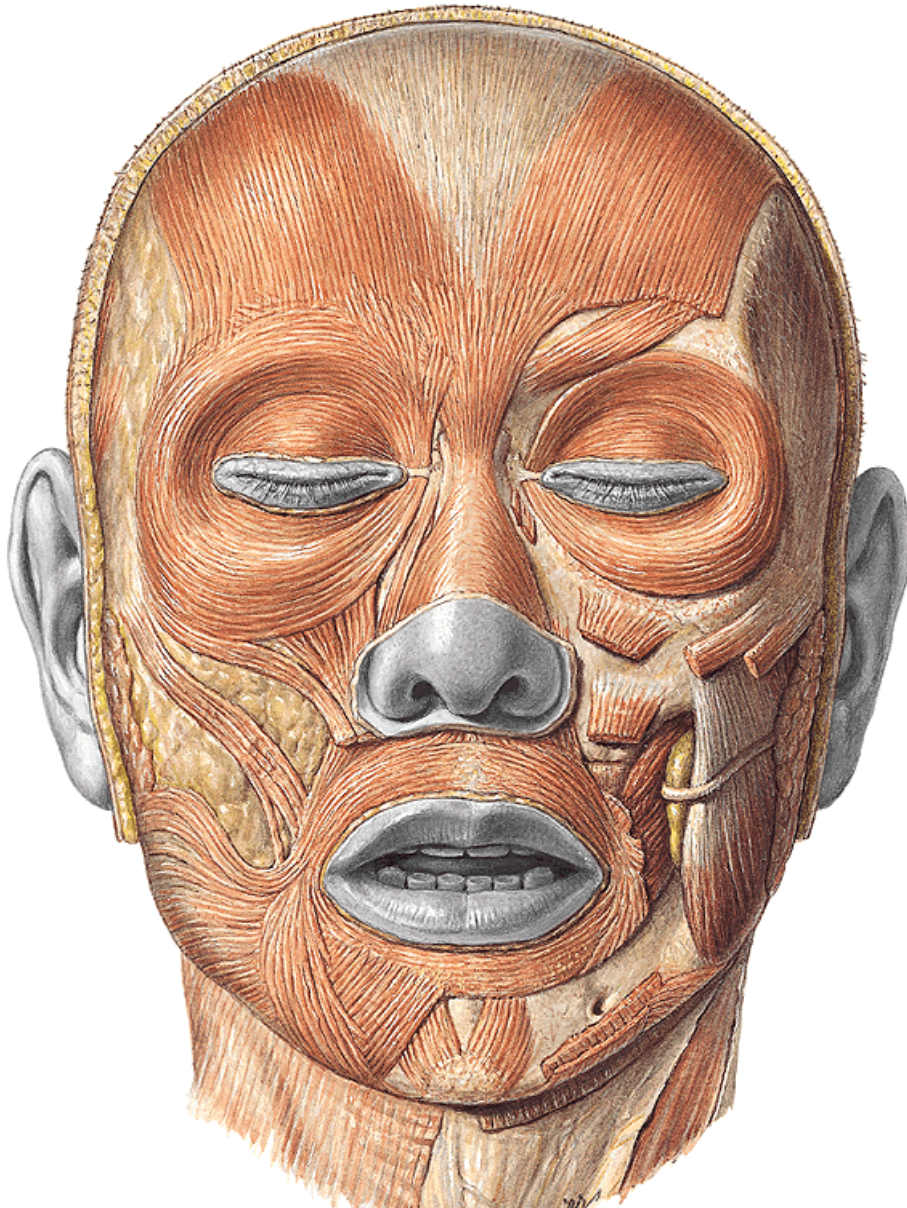




# Kožní inervace – obličejové krajiny



# Mimické svaly obličejové krajiny (inervace plexus parotideus n VII.)



## Svaly kolem štěrbině oční

m. orbicularis oculi

m. procerus

m. corrugator supercilii

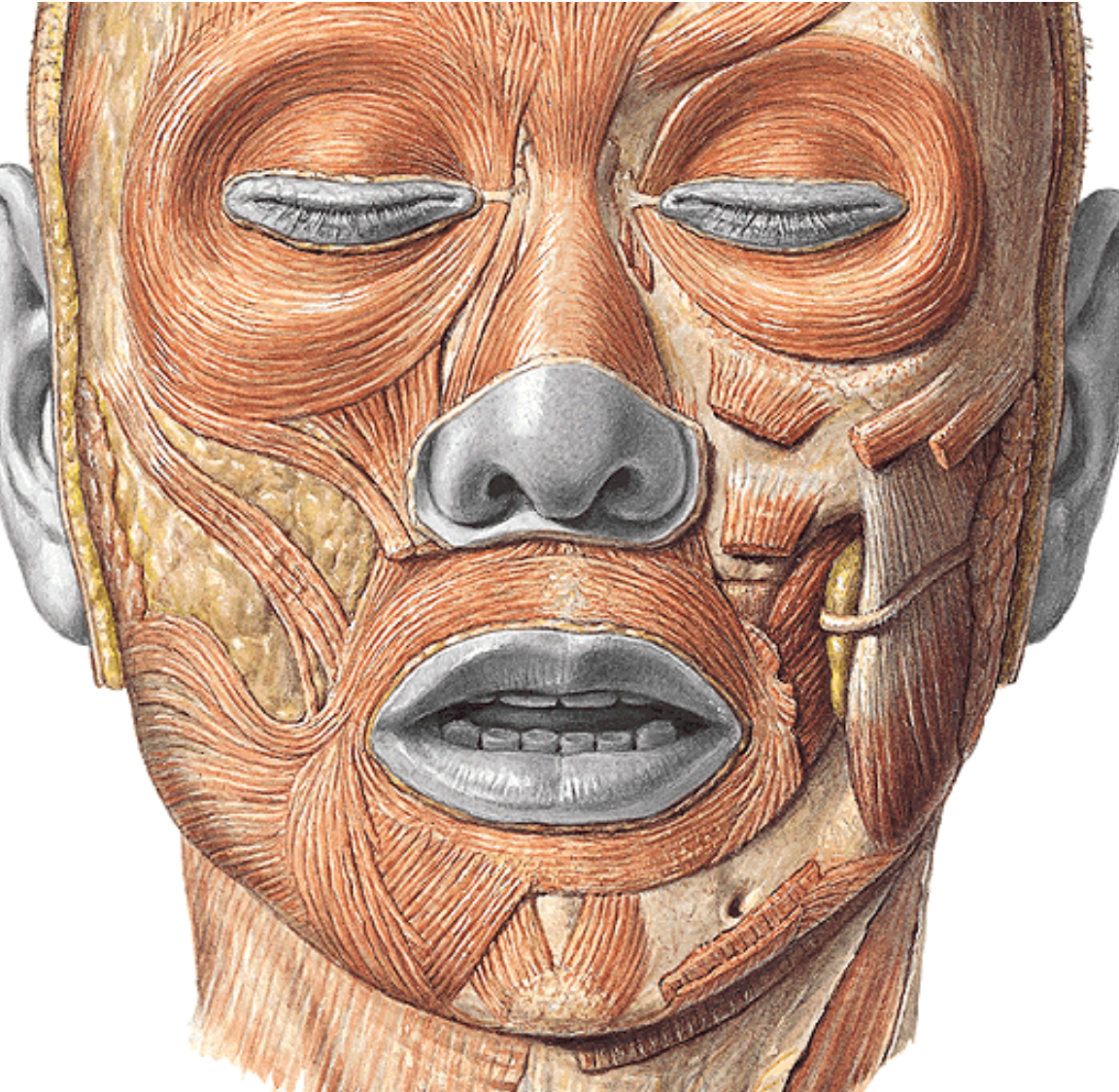
## Svaly kolem nosu

m. nasalis





# Mimické svaly obličejové krajiny



## Svaly kolem šterbiny ústní

**m. levator labii sup.**

**m. levator labii sup. al. nasi,**

**m. levator anguli oris**

**m. zygomaticus major et minor**

**m. buccinator**

**m. risorius**

**m. orbicularis oris**

**m. depressor anguli oris**

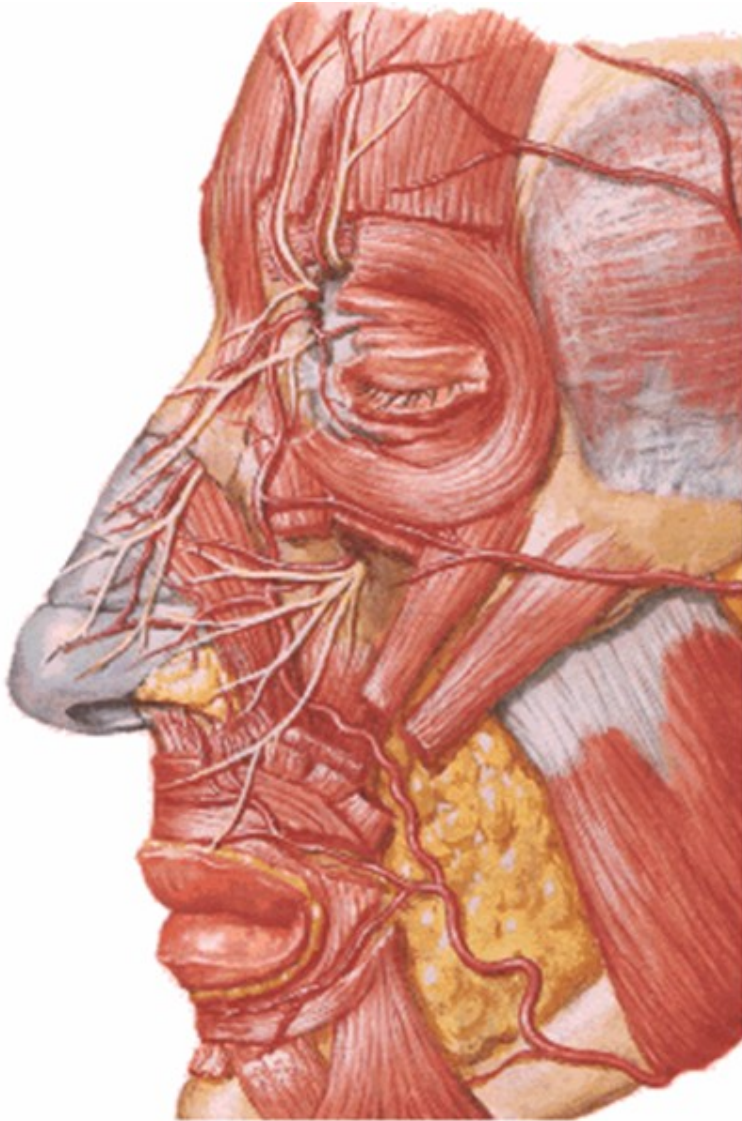
**m. depressor labii inf.**

**m. mentalis**





# Cévní zásobení obličejových krajin



## a. facialis

a. labialis sup. et inf.  
(circulus arteriosus oris)

a. alaris nasi

a. angularis

## a. maxillaris

a. mentalis

a. infraorbitalis

## a. ophthalmica

a. supraorbitalis

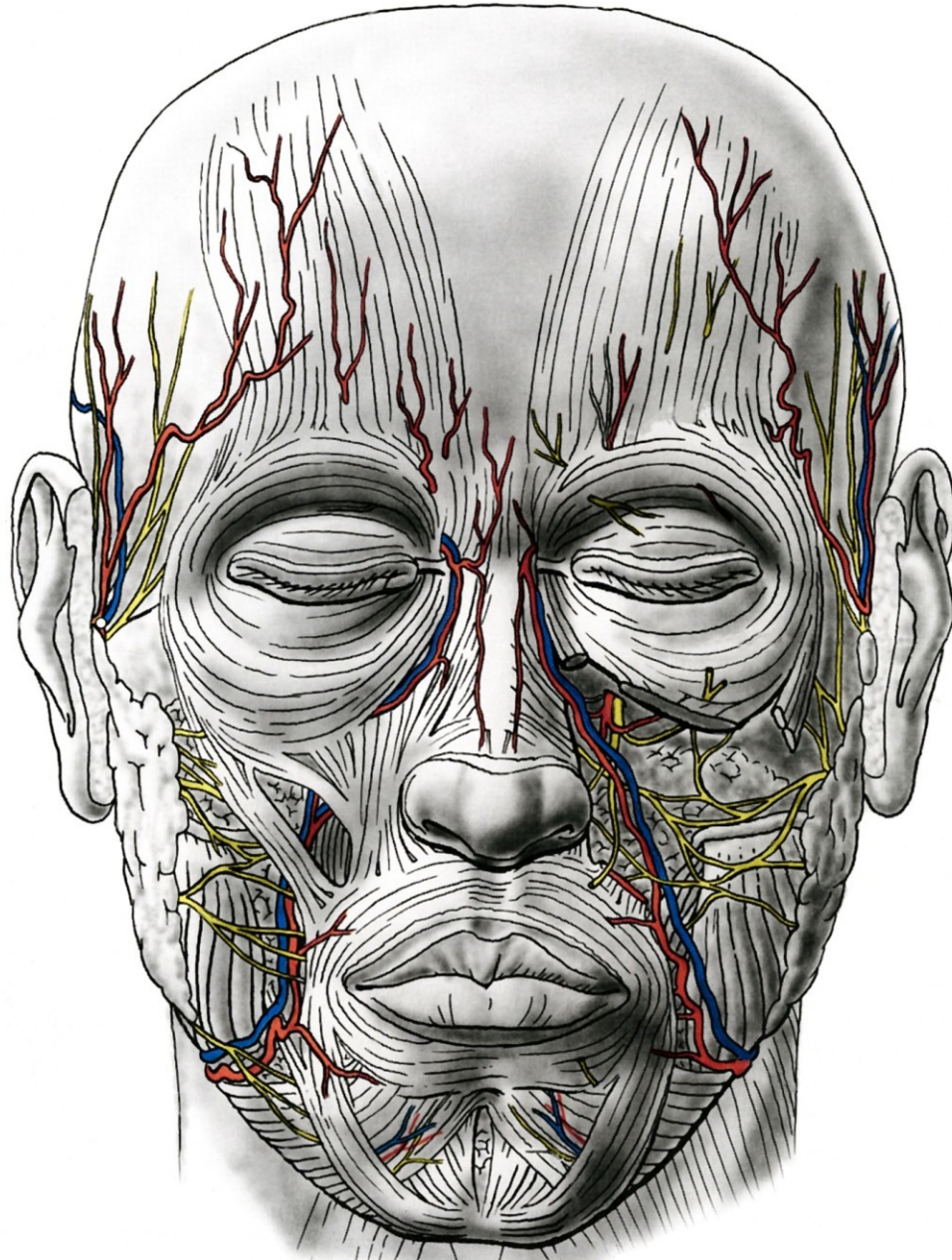
a. supratrochlearis et infratrochlearis

## a. temporalis spf.

a. transversa faciei



# Cévní zásobení obličejových krajin



**v. facialis**

stejné přítoky jako tepna větve

vena faciei profunda

(spojka s plexus pterygoideus)

**plexus pterygoideus (v. maxilaris)**

**v. mentalis**

**v. infraorbitalis**

**v. ophthalmica sup. et. Inf.**

**v. supraorbitalis**

**v. palpebralis med. et lat.**

**v. supratrochlearis et infratrochlearis**



# Regio infratemporalis

## Horní stěna

crista infratemporalis alae majoris ossis sphenoidalis

## Mediální stěna

lamina lateralis processus pterygoidei  
laterální stěna pharyngu

## Ventrální stěna

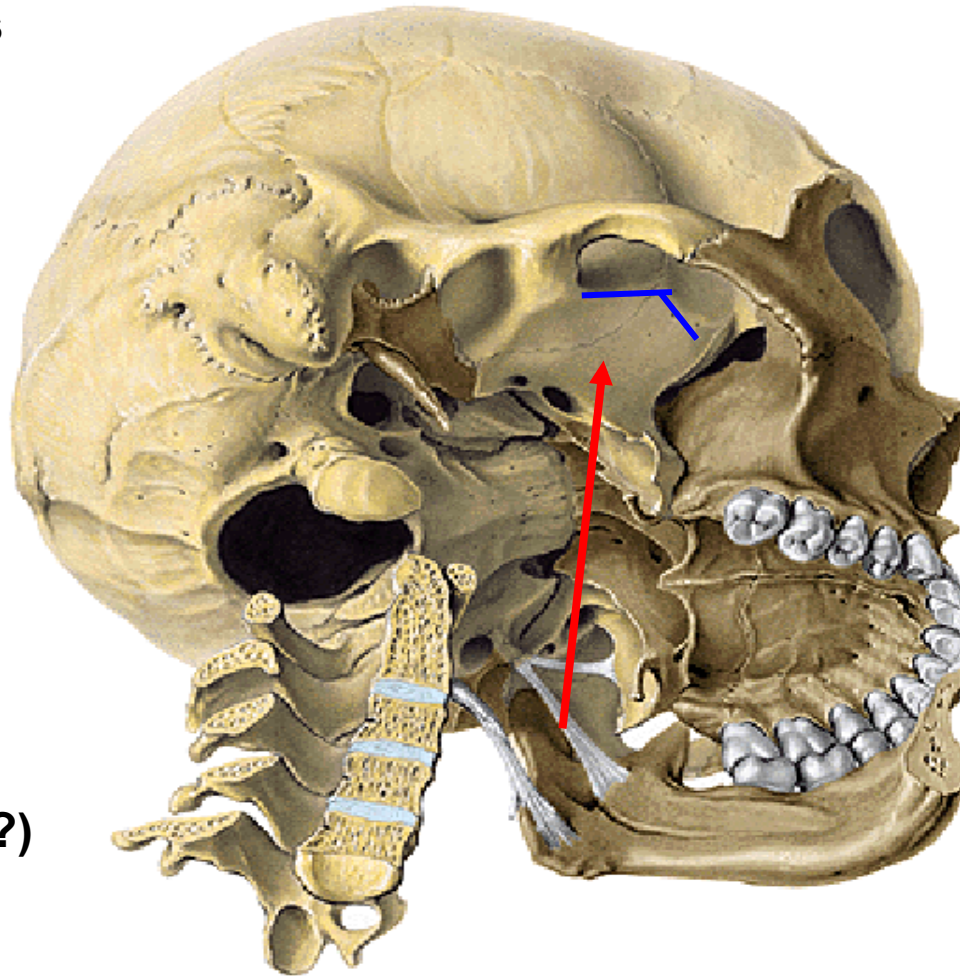
facies infratemporalis corporis maxillae

## Laterální stěna

ramus mandibulae

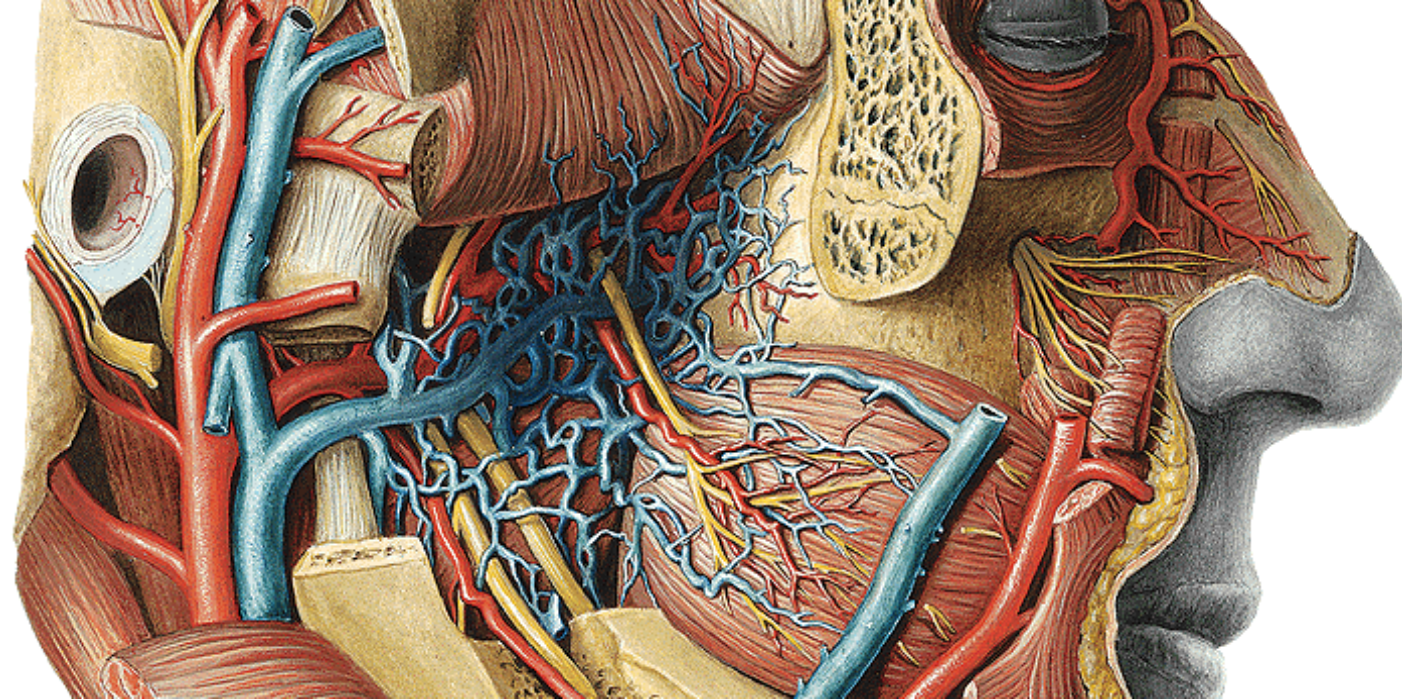
## Dorsální stěna

styloidní septum (retrostyloidní prostor?)





# Regio infratemporalis



**musculus pterygoideus med. et lat.**

**n. mandibularis**

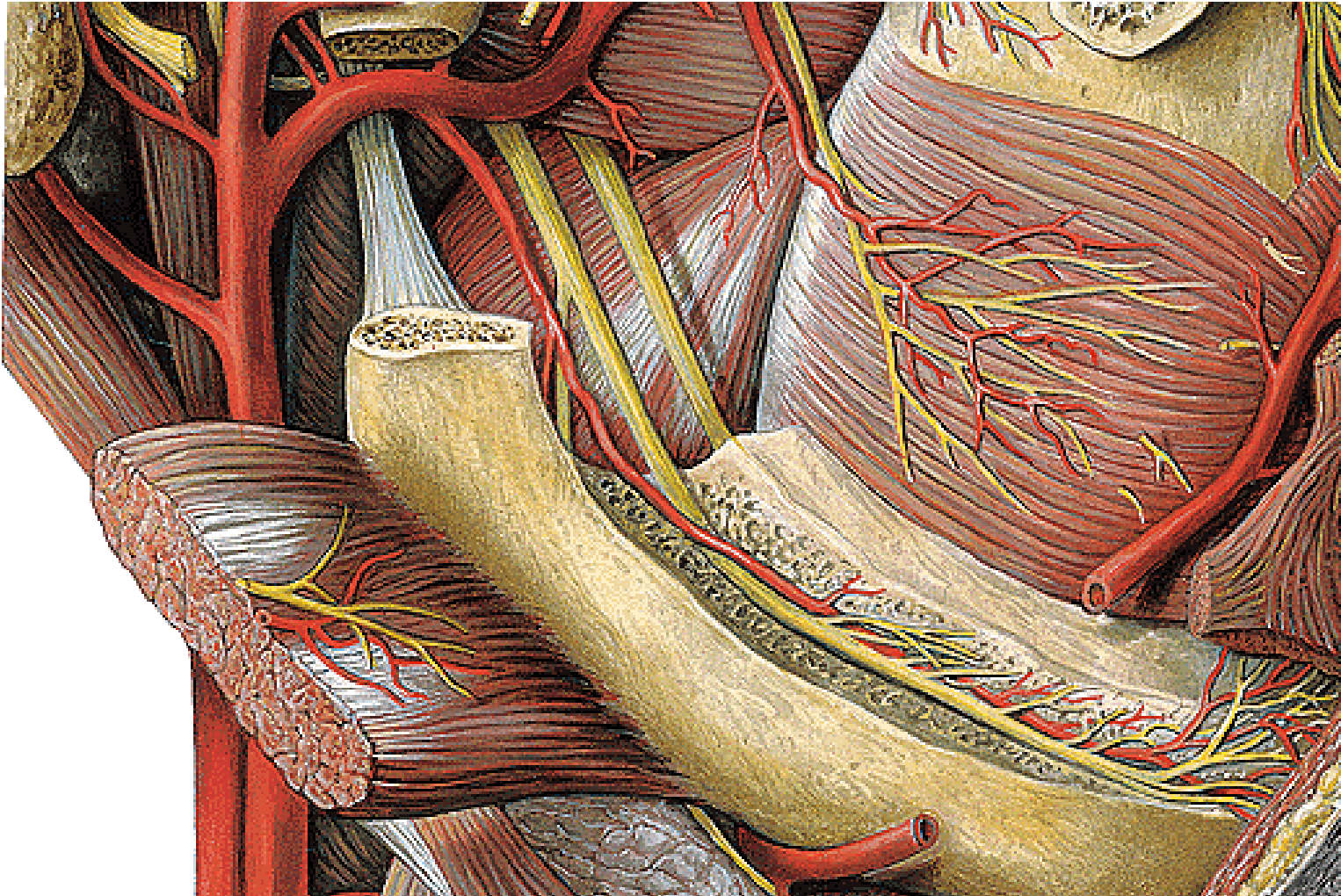
větve k žvýkacím svalům, k m. tensor tympani a veli palatini,  
n. buccalis, n. auriculotemporalis, n. lingualis, n. alveolaris inf.

**a. maxillaris** (pars mandibularis et pterygoidea)

**plexus pterygoideus** (venózní pleteň)



# Regio infratemporalis



**Canalis mandibulae:**

a. et n. alveolaris inf. (nervus mylohyoideus), n. buccalis, n. lingualis

# Spatium praestyloideum et retrostyloideum

## Styloidní septum

m. sternocleidomastoideus

venter posterior m. digastrici

m. stylohyoideus

m. stylopharyngeus

m. styloglossus

## Spatium praestyloideum

a. carotis ext.

v. retromandibularis

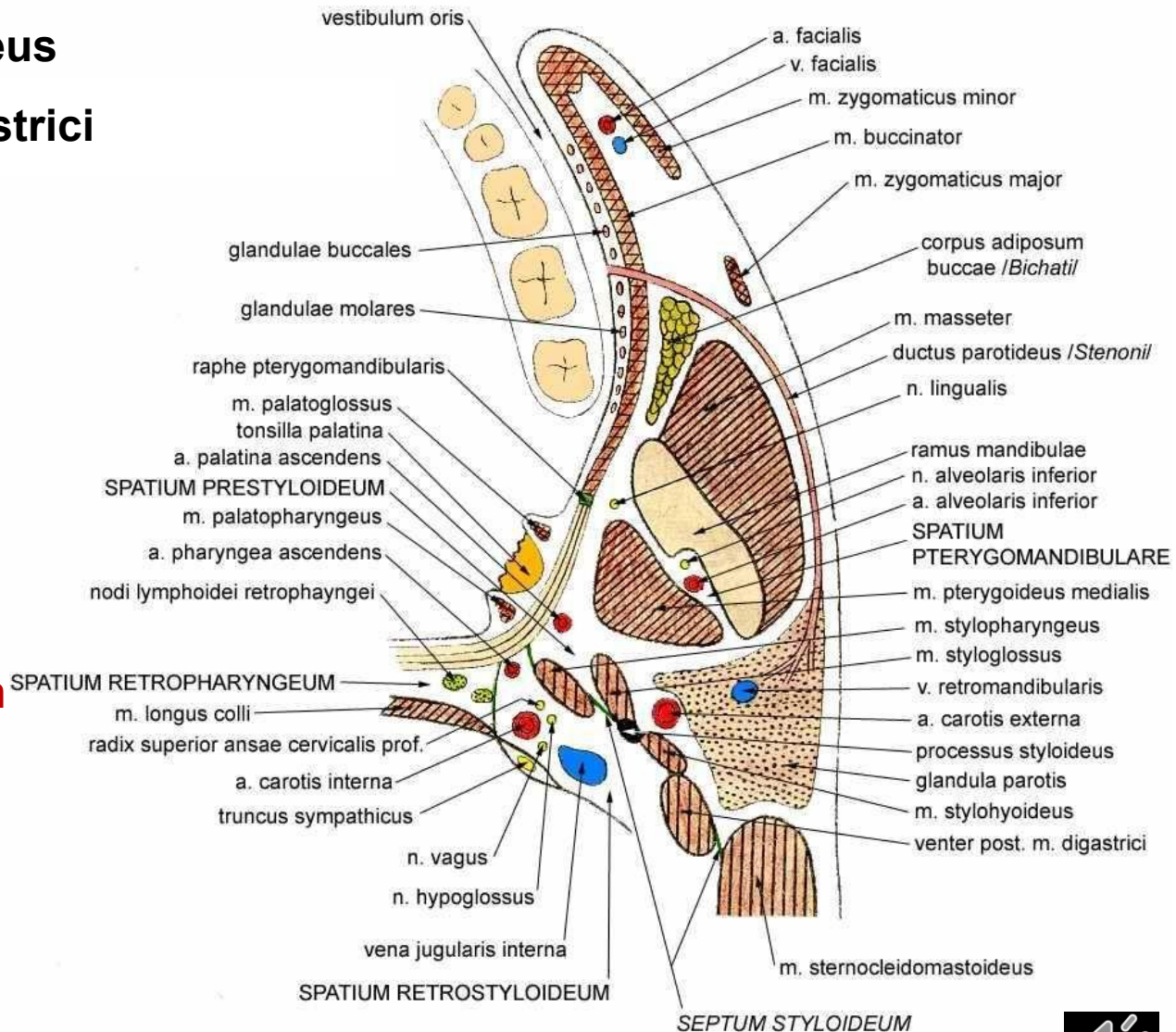
## Spatium retrostyloideum

a. carotis int.

v. jugularis int.

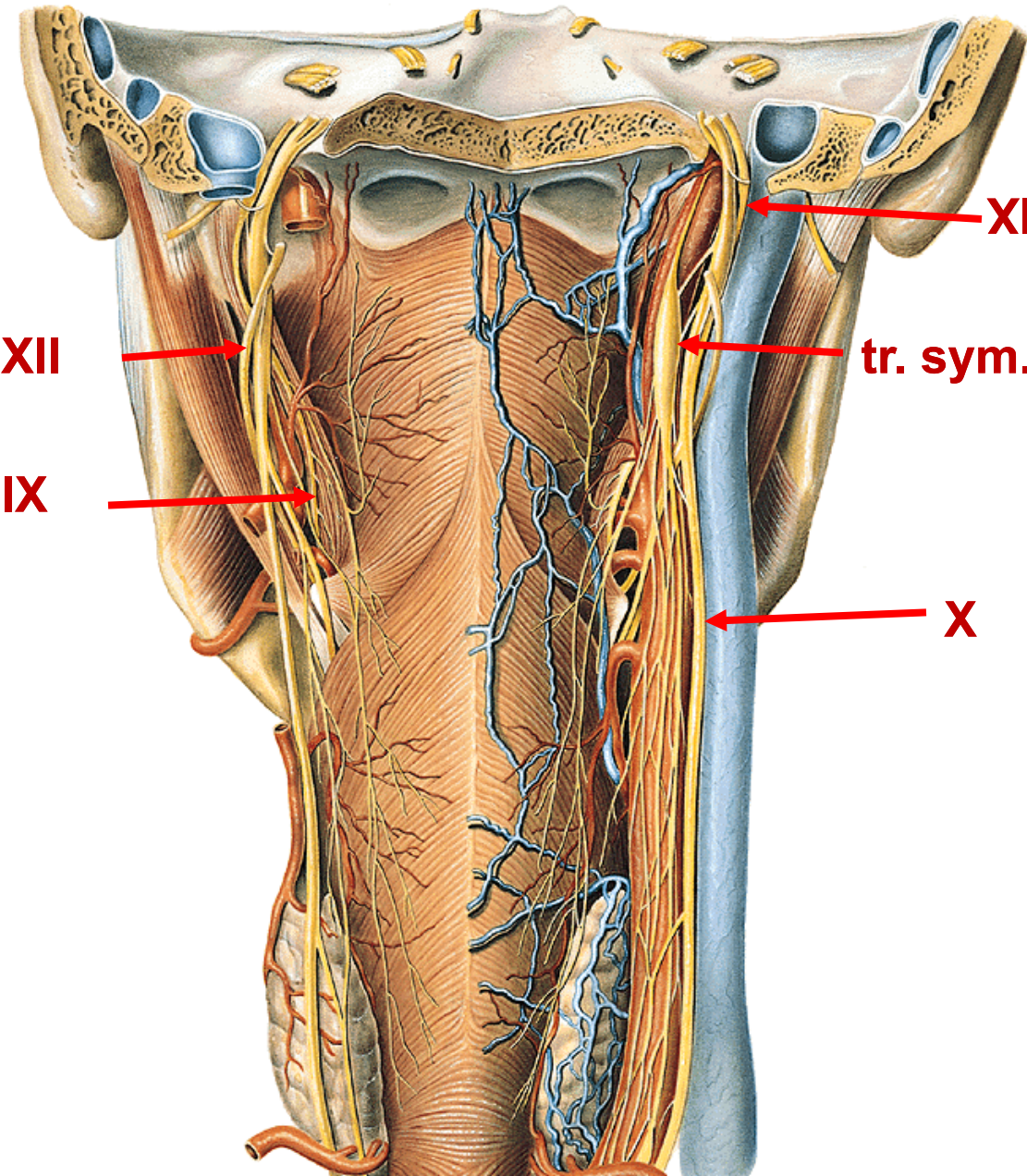
nn. IX., X., XI., XII.

tr. sympathicus





# Spatium parapharyngeum



a. carotis int.

XI  
a. pharyngea asc.

v. jugularis int.

plexus venosus pharyngeus

n. IX. (m. stylopharyngeus)

n. X. (vagina carotica - dors.)

n. XI. (m. sternocleidomast.)

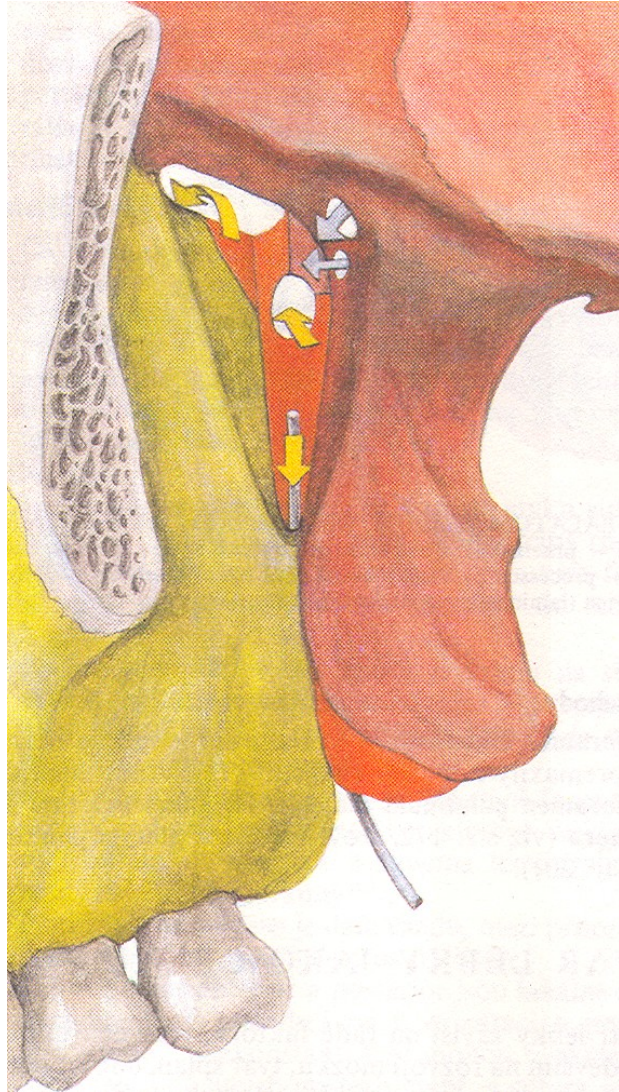
n. XII. (arcus n. hypoglossi)

tr. sympathicus

(praevertebrální fascie)



# Fossa pterygopalatina



## Horní stěna

facies maxillaris alae majoris ossis sphenoidalis

foramen rotundum (fossa cranii media)

fissura orbitalis inferior (orbita)

## Mediální stěna

lamina perpendicularis ossis palatini

foramen sphenopalatinum (cavum nasi osseum)

## Ventrální stěna

tuber maxillae (foramina alveolaria)

## Dorzální stěna

processus pterygoideus ossis sphenoidalis

canalis pterygoideus (basis cranii externa)

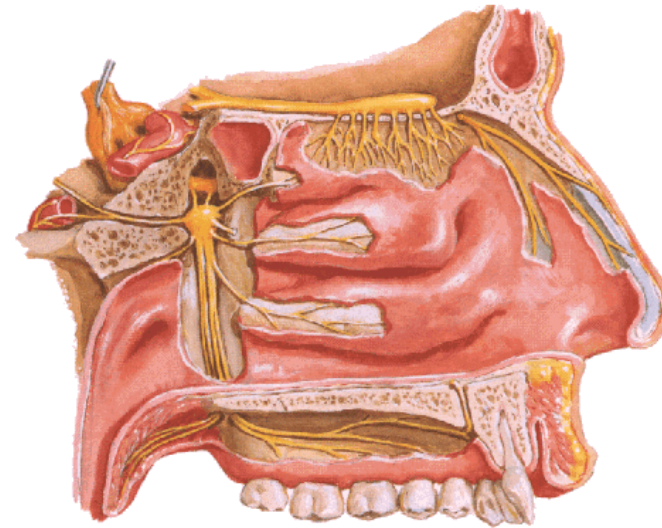
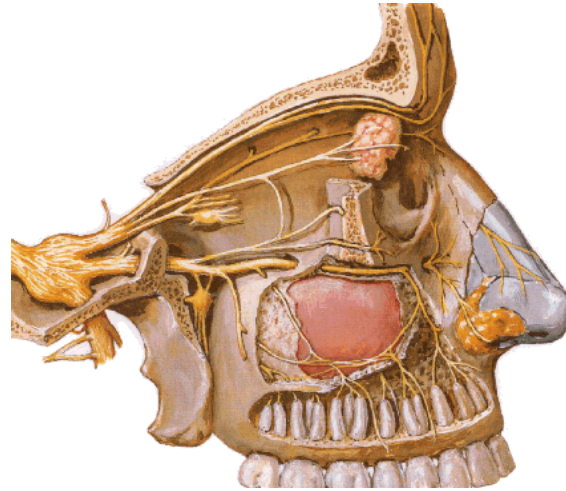
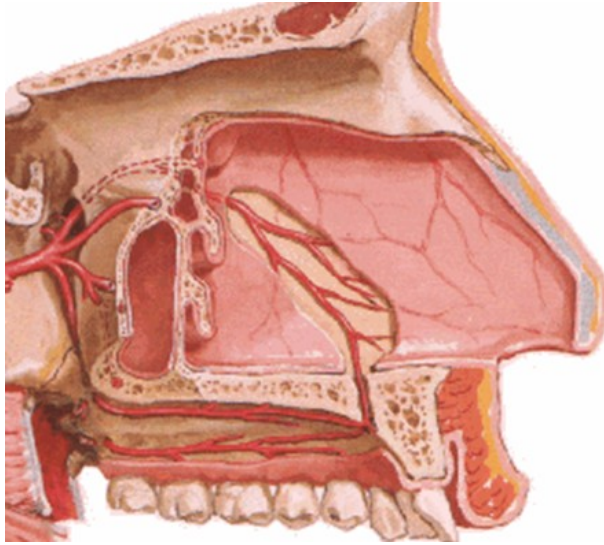
## Kaudálně:

canalis palatinus major (cavum oris)





# Fossa pterygopalatina - obsah



**a. maxillaris (pars pterygopal.)**

a. infraorbitalis

a. alveolaris sup. post.

a. palatina descendens

a. canalis pterygoidei

a. sphenopalatina

**n. maxillaris**

n. infraorbitalis

n. zygomaticus

nn. pterygopalatini

**ggl. pterygopalatinum**

nn. palatini (major et minores)

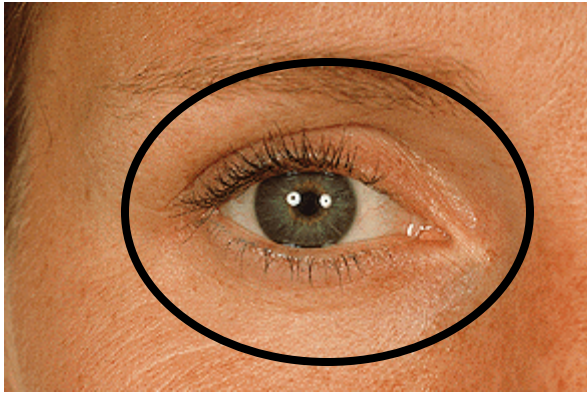
n. canalis pterygoidei (n. petrosus maj., prof.)

nn. nasales post., rr. orbitales





# Regio orbitalis + orbita



## Skladba palpebra sup. et inf.

kůže

podkožní vazivo - řídké

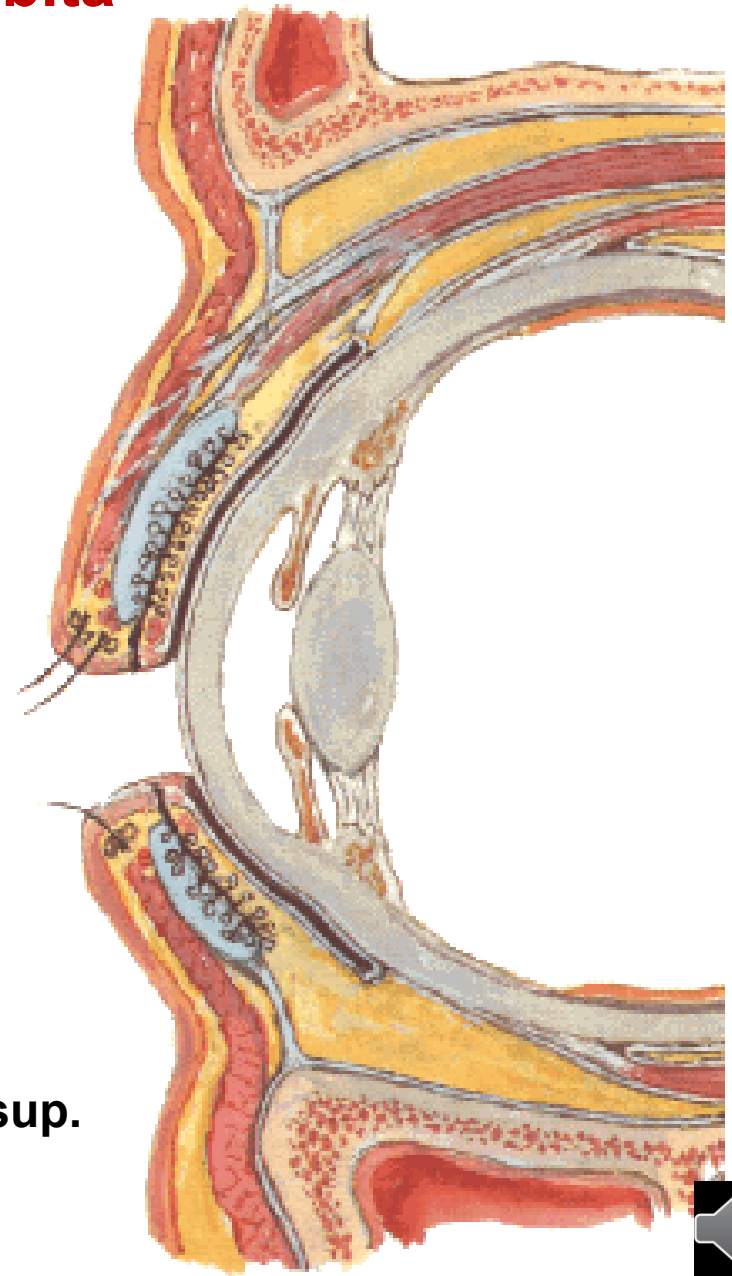
m. orbicularis oculi

septum orbitale + tarsus sup. et inf.

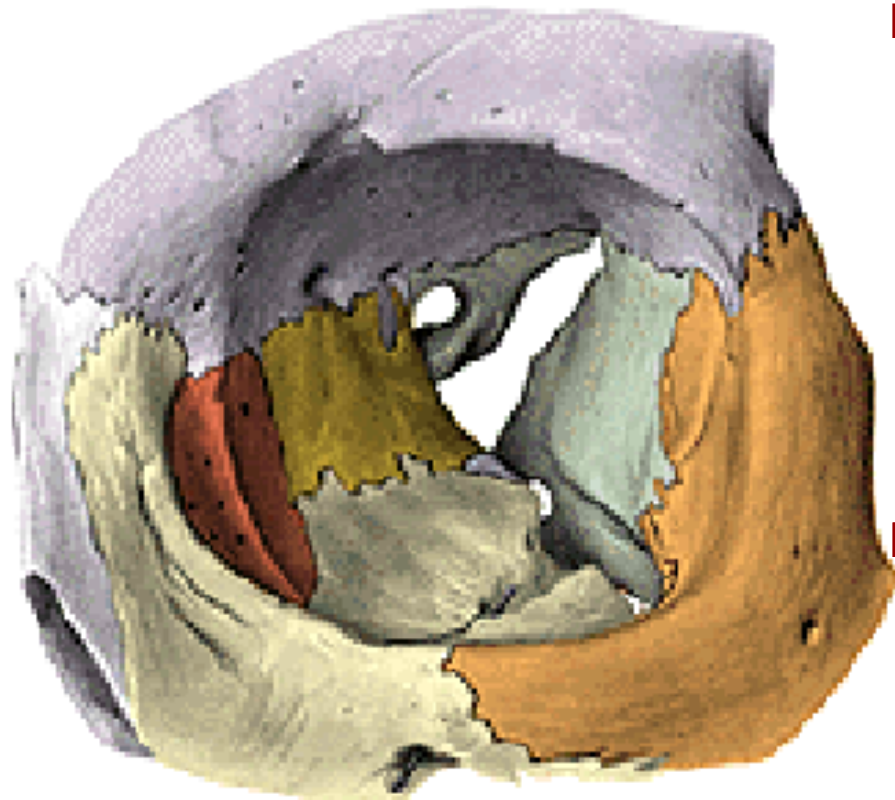
(gl. tarsales - Meiboni)

m. tarsalis sup. et inf., m. levator palpebrae sup.

tunica conjunctiva palpebrarum



# Orbita – kostěná část



## Aditus orbitae

margo supraorbitalis, infraorb.

## Horní stěna

pars orbitalis ossis frontalis  
ala minor ossis sphenoidalis

## Mediální stěna

processus frontalis maxillae  
os lacrimale  
lamina orbitalis ossis ethmoidalis  
ala minor ossis sphenoidalis

## Laterální stěna orbity

facies orbitalis ossis zygomatici  
facies orbitalis alae majoris ossis sphenoid.  
fissura orbitalis superior et inferior

## Kaudální stěna orbity

facies orbitalis corporis maxillae  
facies orbitalis ossis zygomatici  
processus orbitalis ossis palatini



# Orbita – obsah

## periorbita

fissura orbitalis sup. et inf. (m. orbitalis)

## vagina bulbi

splývá s fasciemi svalů

## okohybné svaly a jejich facie

mm. recti (sup., inf. med., lat.)

mm. obliqui (sup., inf.)

m. levator palpebrae sup.

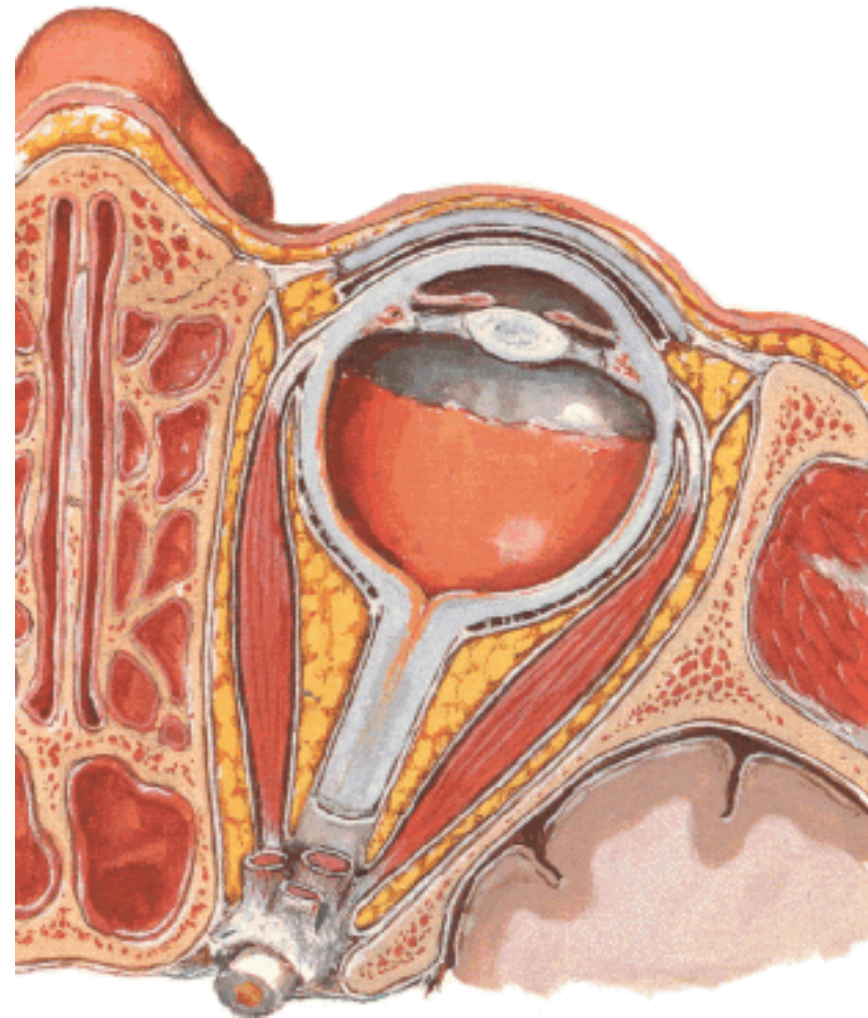
## spatium episclerale

řídke vazivo

## corpus adiposum orbitae

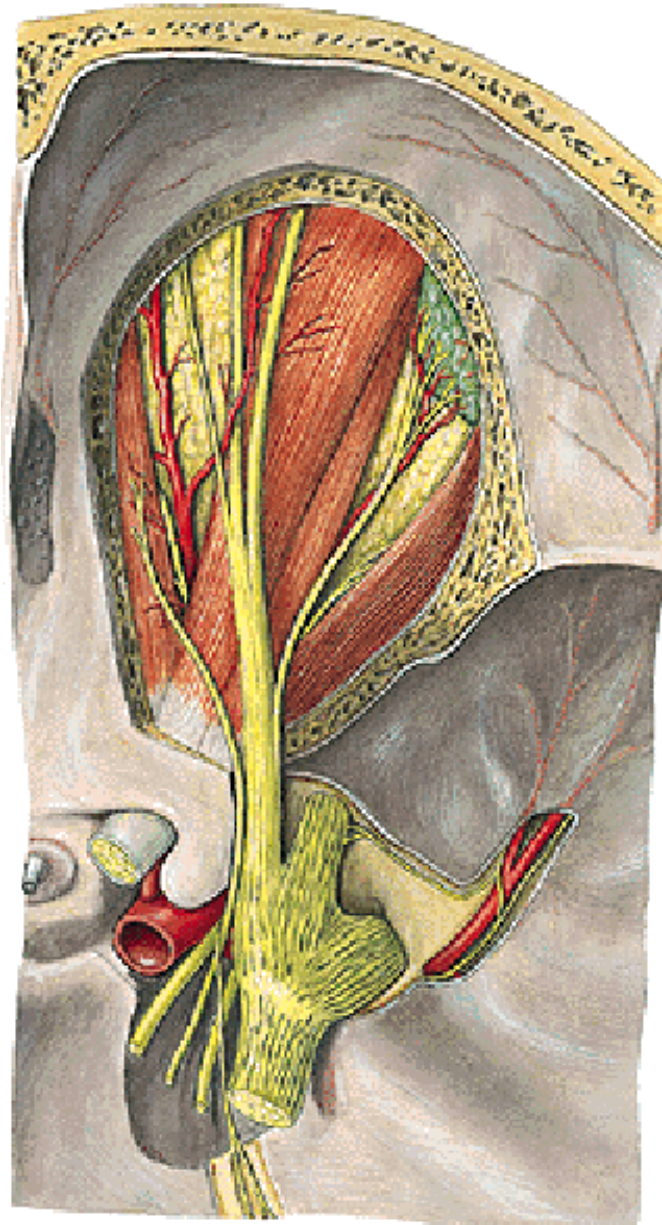
tuková tkáň, zejména v retrobulbárním prostoru

## bulbus oculi





# Retrobulbární prostor – horní etáž



## Ohraničení:

periorbita

m. levator palpebrae sup.

## n. lacrimalis

r. comm. cum n. zygomatico

## n. frontalis

n. supraorbitalis (med., lat.)

n. supratrochlearis

## n. trochlearis

m. obliquus bulbi sup.



# Retrobulbární prostor – střední etáž

**ohraničení:** m. levator palpebrae sup. + rovina proložená skrze n. opticus

## **n. abducens**

m. rectus lat.

## **radix sup. n. oculomotorii**

m. levator palpebrae sup

m. rectus sup. et med.

## **radix motoria n. oculomotorii**

směřuje do ggl. ciliare

## **ggl. ciliare**

nn. ciliares breves

## **n. nasociliaris**

n. ethmoidalis ant., post., n. infratrochlearis

## **a. ophthalmica**

a. ethmoidalis ant., post., a. infratrochlearis

## **v. ophthalmica sup.**



# Retrobulbární prostor – dolní etáž

**ohraničení:** rovina proložená skrze n. opticus + spodina očnice



**radix inf. n. oculomotorii**

**m. rectus inf.**

**m. obliquus bulbi inf.**

**a. + n. infraorbitalis**

**směřuje do canalis infraorbitalis**

**a. + n. zygomaticus**

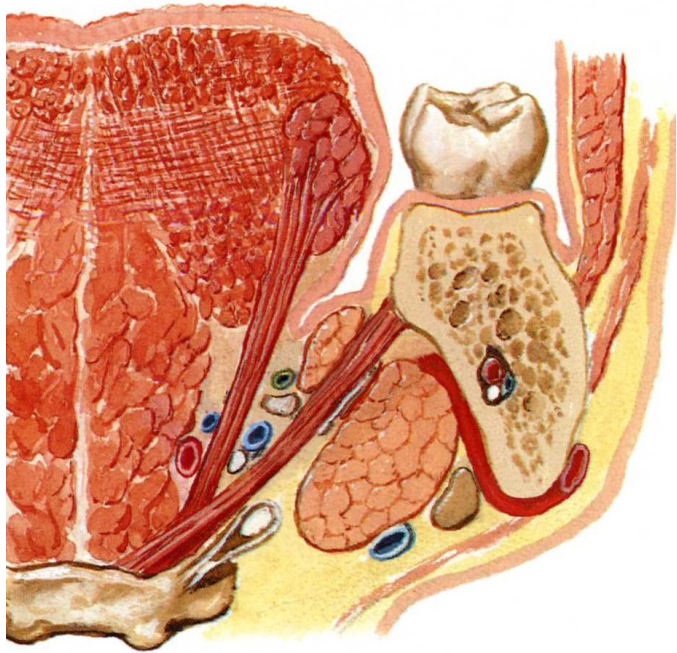
**směřuje do foramen zygomaticoorbitale**

**v. ophthalmica inf..**





# Regio sublingualis



**Ohraničení:**

**kran.:** sliznice spodiny dutiny ústní

(plica sublingualis, caruncula sublingualis)

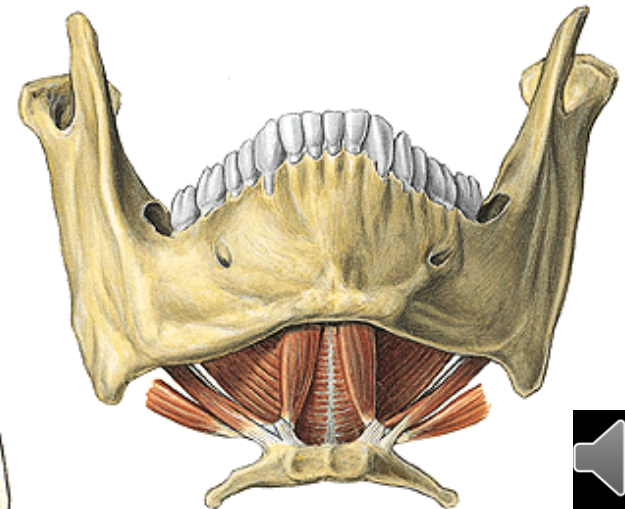
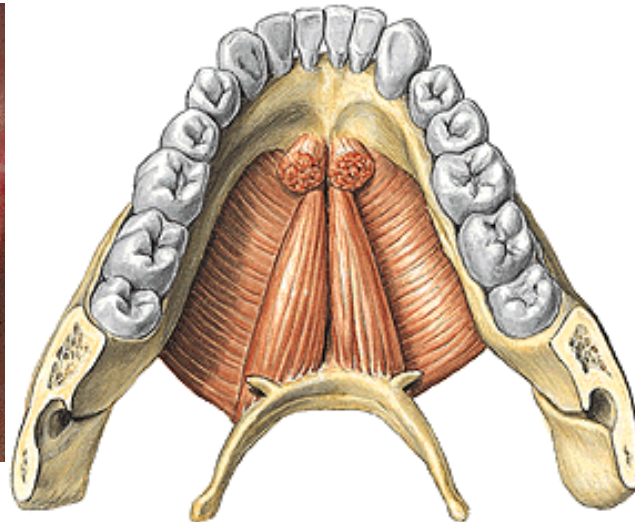
**kaud.:** diaphragma oris

(m. mylohyoideus, m. geniohyoideus,

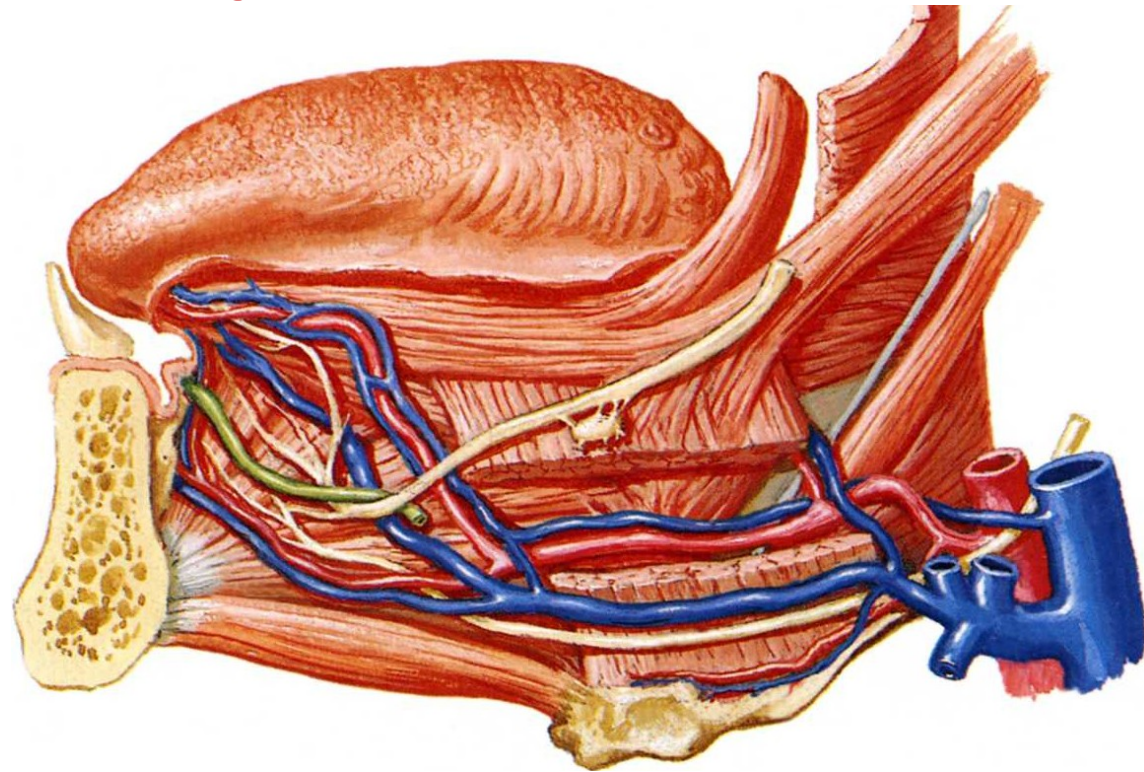
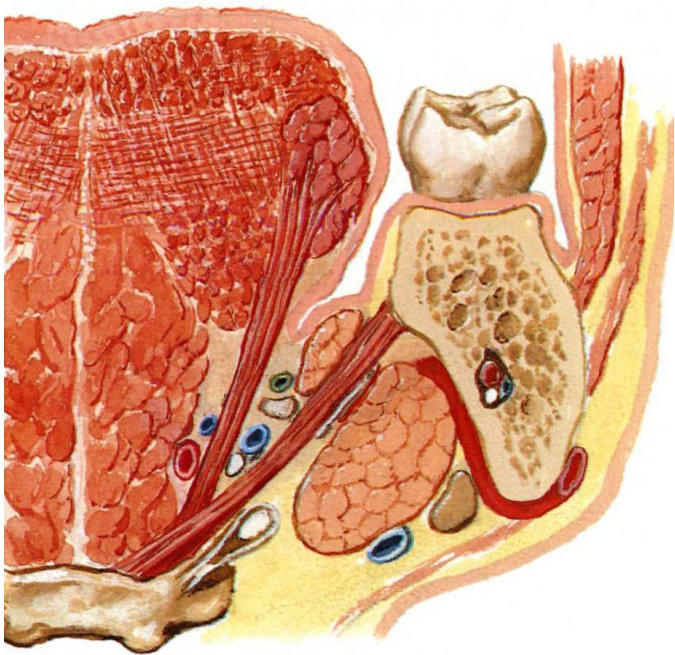
m. digastricus, m. stylohyoideus)

**lat.:** mandibula

**med.:** jazyk



## Regio sublingualis



**gl. submandibularis + ductus submandibularis (kříží shora n. lingualis)**

**gl. sublingualis + ductus sublingualis major et minores**

**a., n. lingualis**

**n. hypoglossus**

**v. commitans n. hypoglossi**



## **Použité materiály**

**Čihák, R.: Anatomie 3. Praha, Grada, 2001, 2004**

**Sobotta, J.: Atlas of Human Anatomy Vol 1–2 Munich, Urban und Schwarzenberg, 1993**

**Williams, P. & Warwick, R.: Gray s Anatomy, 37 ed, Churhill Livingstone, 1996**

**Netter, F.: Atlas of Human Anatomy, 4th ed., Elsevier, USA, 2006**

