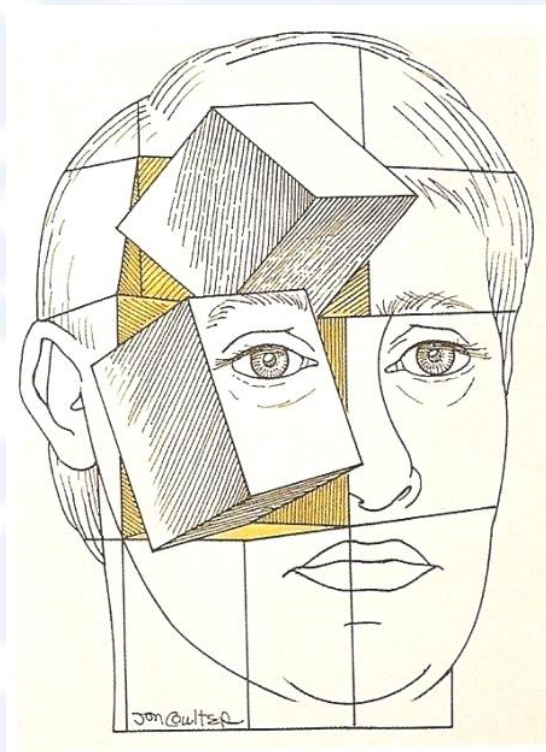


KLINICKÁ ANATOMIE HLAVY

(klinické aplikace)

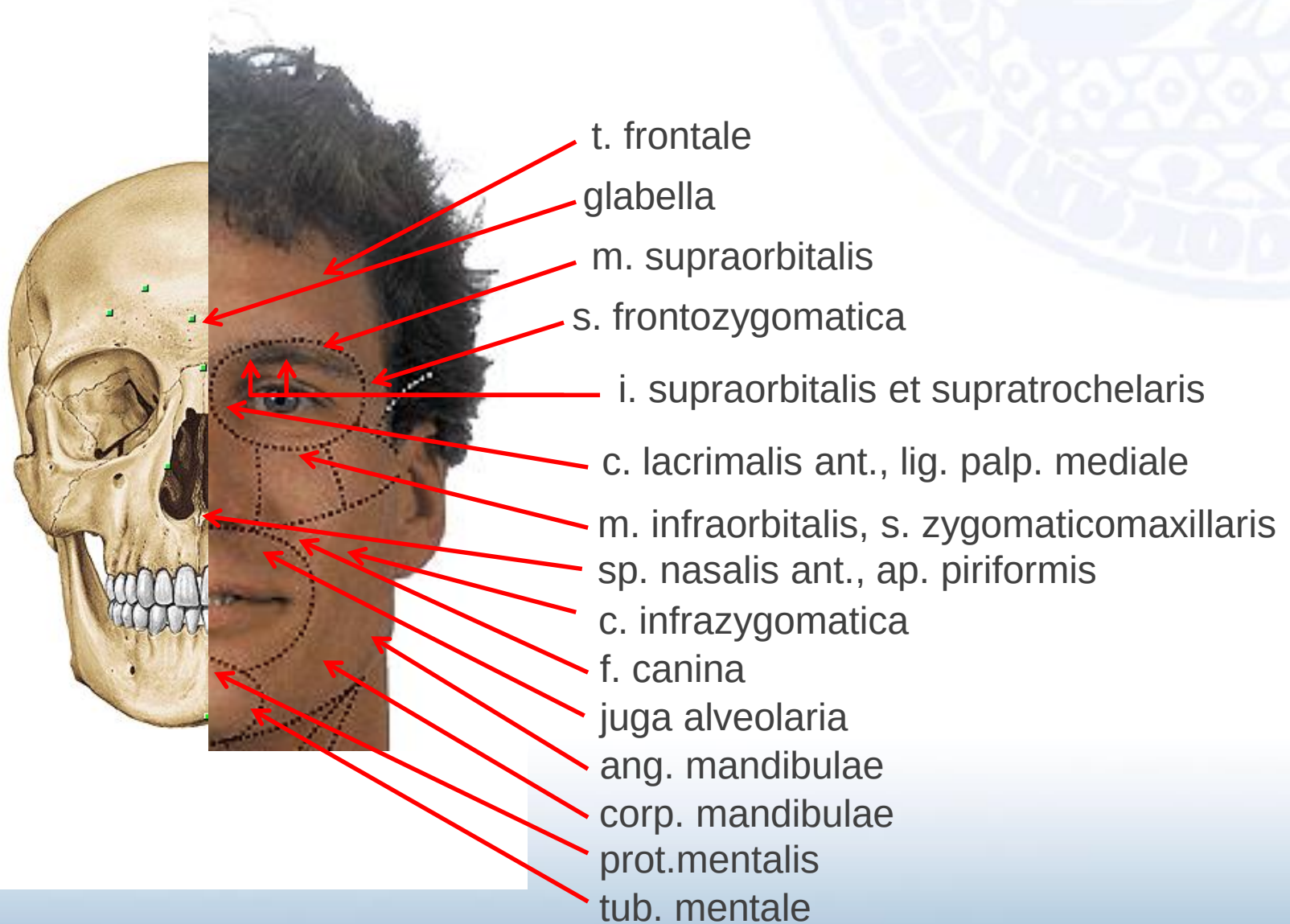


Chovanec M^{1,2}

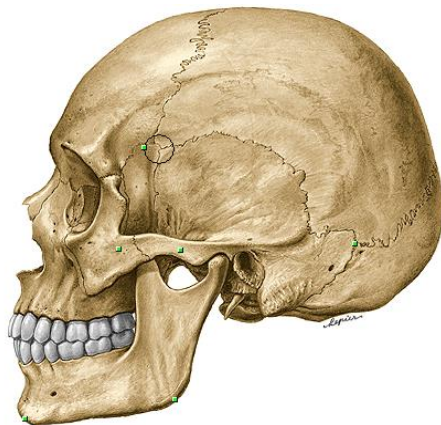
¹Otorinolaryngologická klinika 3. LF UK a FN Královské Vinohrady

²Anatomický ústav 1. LF UK

Hlava – hmatné útvary



Hlava – hmatné útvary

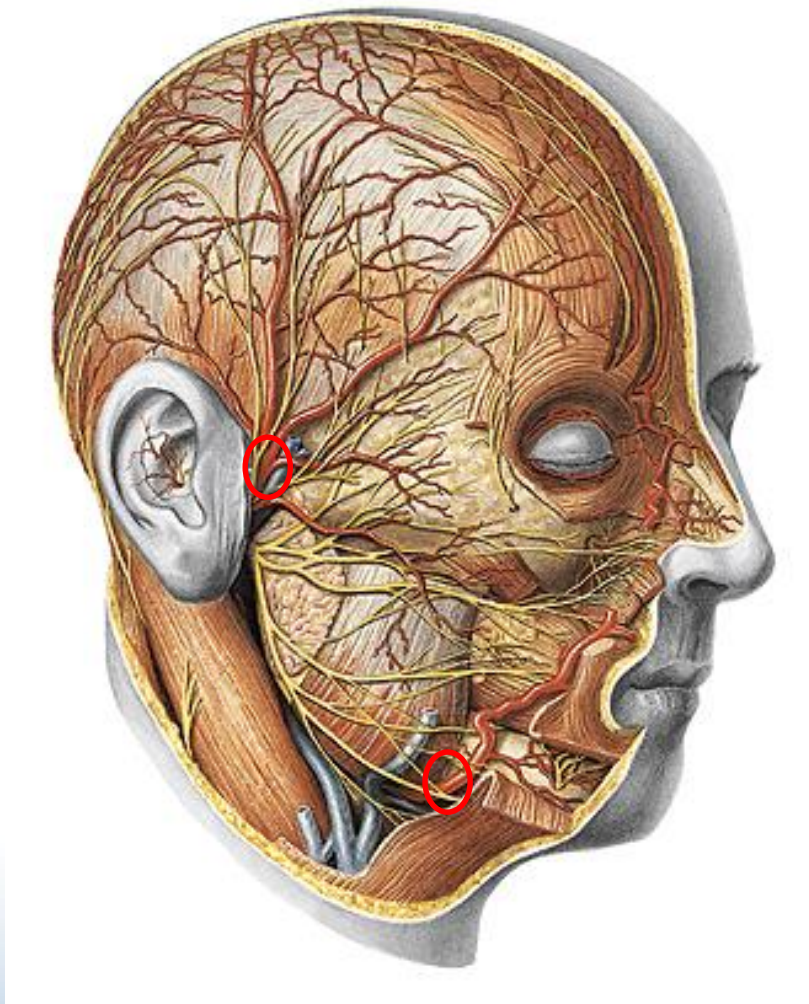


Cévní zásobení hlavy

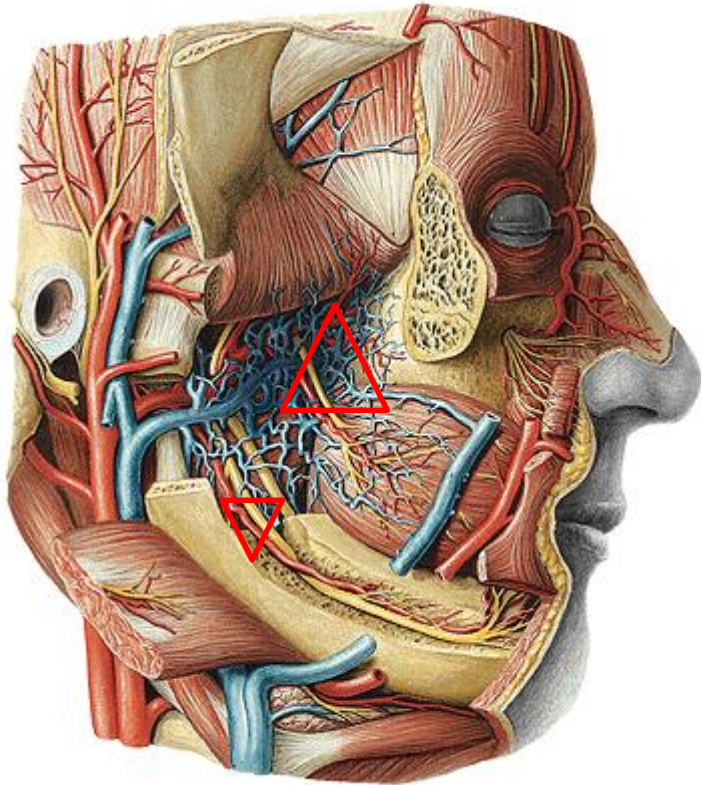
krváčení - místa komprese

a. facialis

a. temporalis superf.



Cévní zásobení hlavy

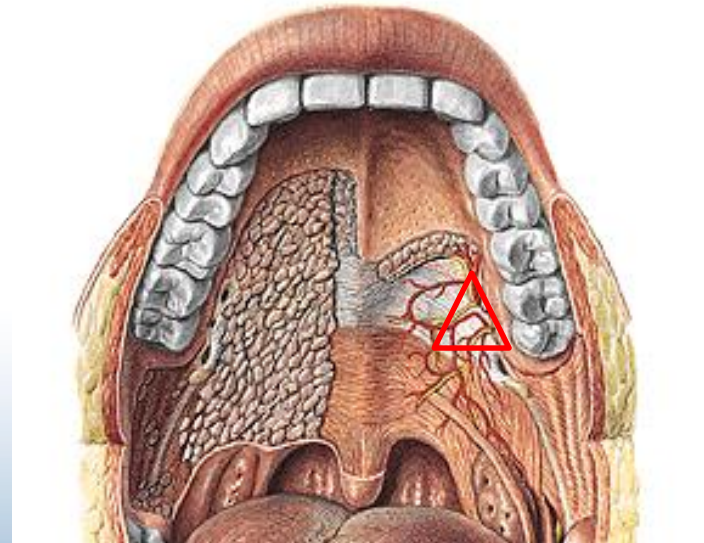


krváčení - místa komprese

a. palatina major

a. alveolaris inf. – lůžko po extrakci

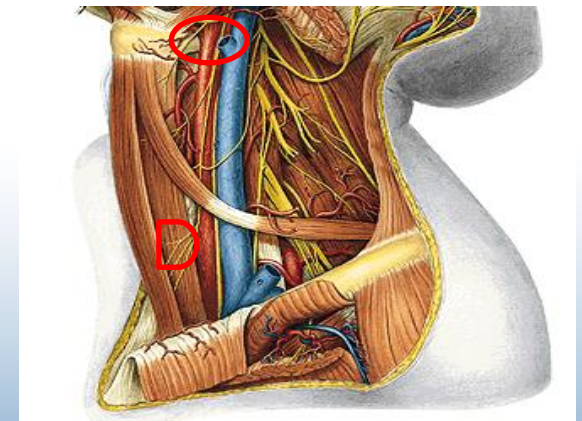
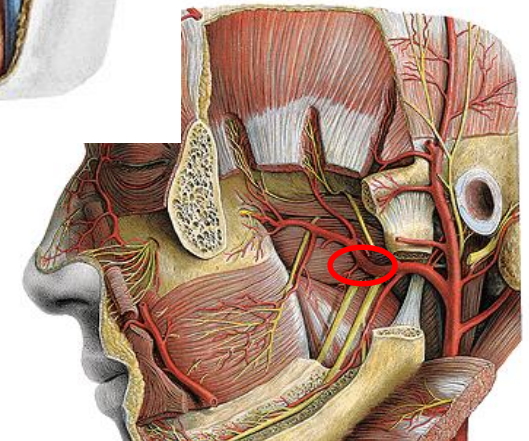
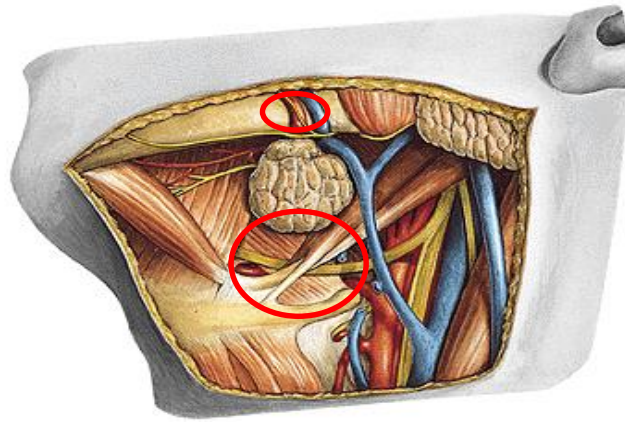
pl. v. pterygoideus



Cévní zásobení hlavy

krvácení - podvaz

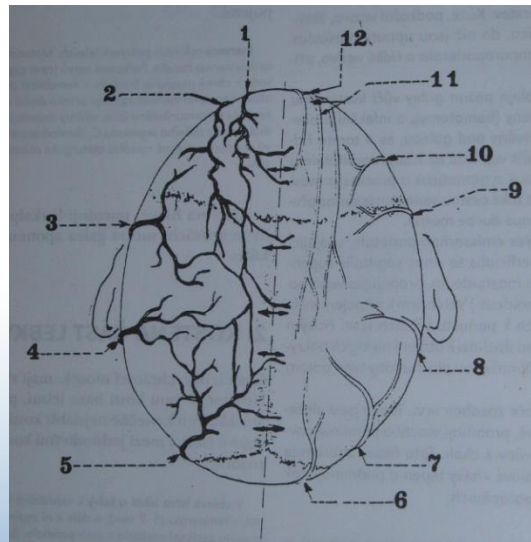
- a. lingualis
(tr. Pirogovi, Béclardův úh.)
 - a. facialis
(tr. submandibulare)
 - a. maxillaris
(ve f. infratemporalis)
 - a. carotis externa
(tr. caroticum)
 - a. carotis comunis et interna
(circ. arteriosus Willisii!)
-
- a. carotis communis
(komprese – t. caroticum - pr. transv. C6)



Cévní zásobení hlavy



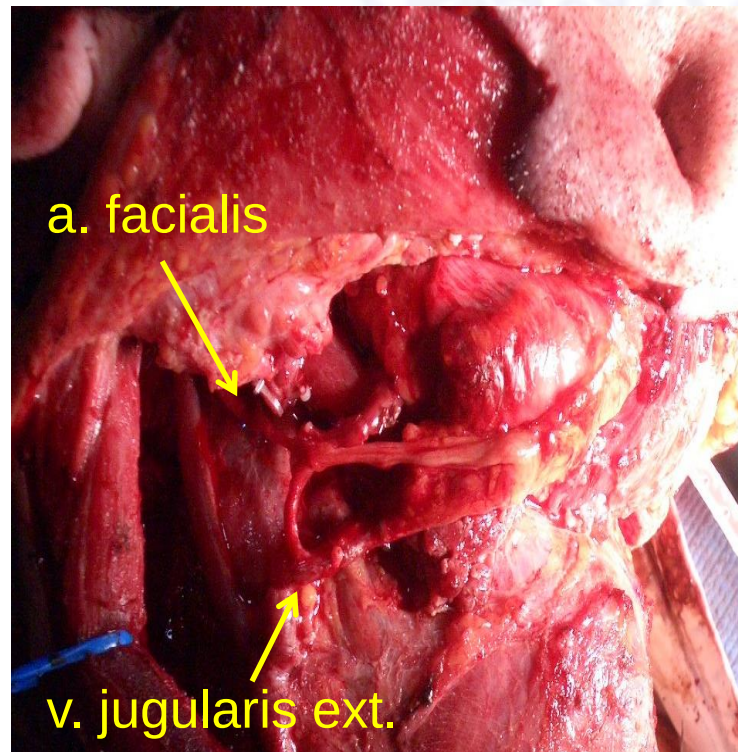
kožní řezy



tepny a nervy měkkých pokrývek lebních

- 1 - a. supratrochlearis
- 2 - a. supraorbitalis
- 3 - a. temporalis superf.
- 4 - a. auricularis sup.
- 5 - a. occipitalis
- 6 - n. occipitalis tertius
- 7 - n. occipitalis maj.
- 8 - n. occipitalis min.
- 9 - n. auriculotemporalis
- 10 - n. zygomaticotemporalis
- 11 - n. supraorbitalis
- 12 - n. supratrochlearis

Cévní zásobení hlavy



mikrovaskulární rekonstrukce
(m. rect. abdominis free flap)

Cévní zásobení hlavy

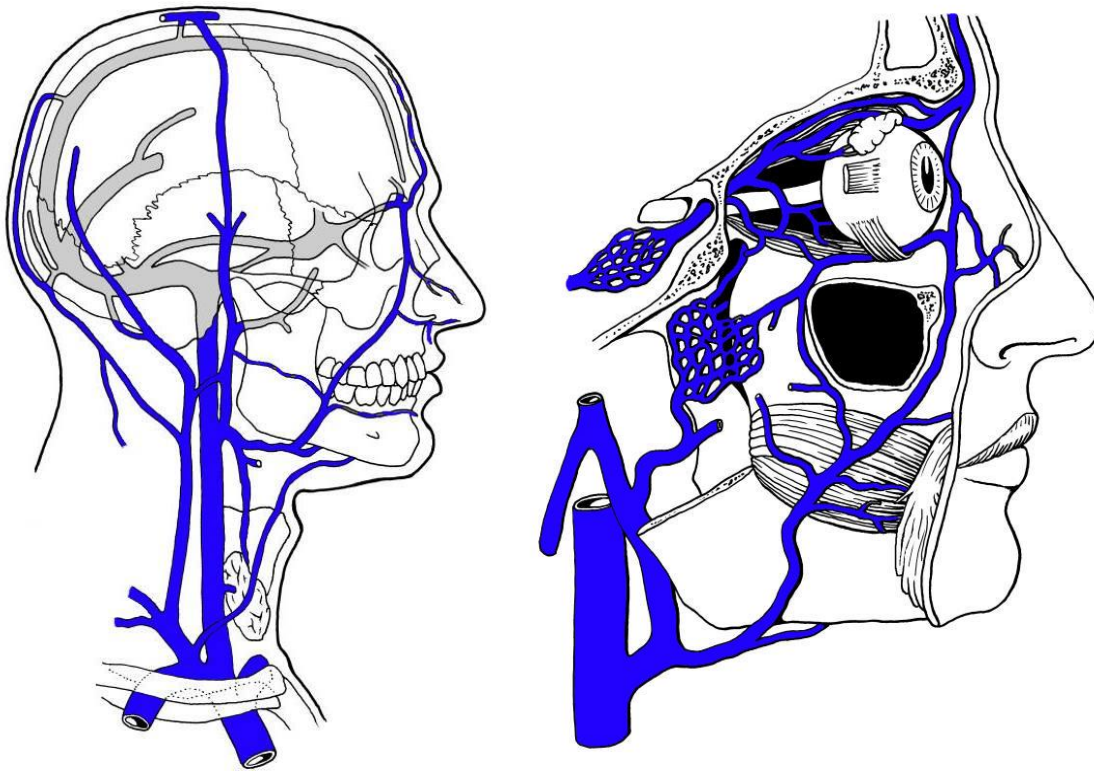


CAVE:! anastomozy
a. carotis interna a externa
a. supratrochl./a. angularis



angiofibrom nosohltanu (f. sphenopalatinum)
a. maxillaris - angiografie a embolizace

Cévní zásobení hlavy

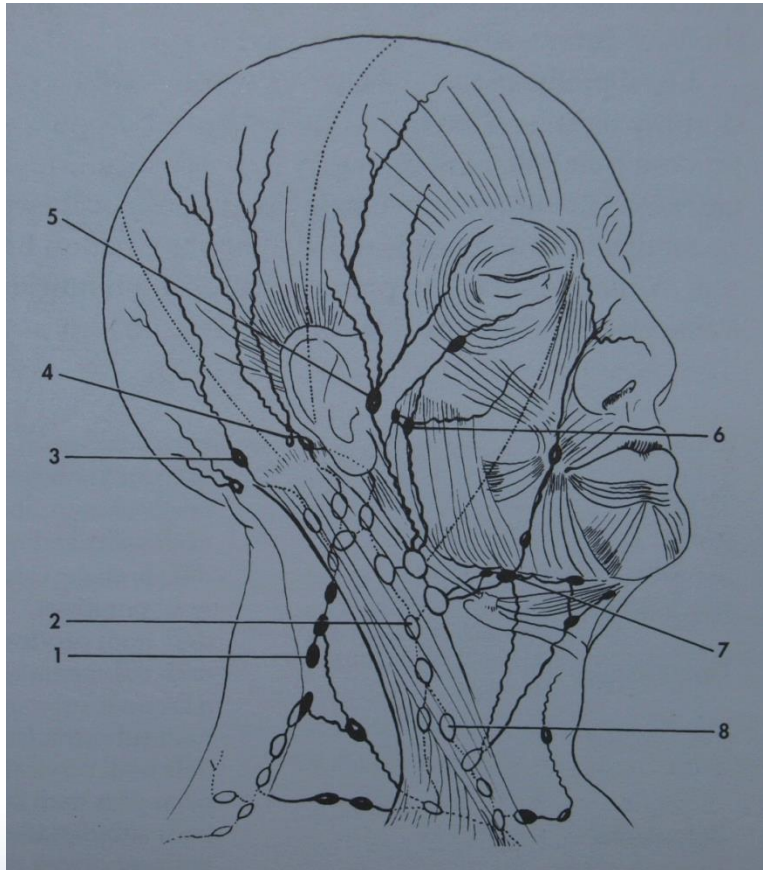


venosní anastomosisy (šíření infekce)

- v. facialis • v. supraorbitalis/v supratrochlearis •
- v. ophthalmica sup. et inf. • s. cavernosus •
- pl. pterygoideus • v. maxillaris •
- v. retromandibularis • v. palatina ext. • v. faciei prof. •
- v. temp. superf. et med. • vv. parotideae • v. transv. faciei



Lymfatická drenáž hlavy



Lymfatické uzliny hlavy a krku

(dle Borovanského 1976)

- 1 - n. cervic. superf.
- 2 - n. cervic prof. sup.
- 3 - n. okcipitales
- 4 - n. retroauriculares
- 5 - n. preauriculares
- 6 - n. parotidei
- 7 - n. submandibulares
- 8 - n. cervicales prof. inf.

Sensitivní inervace hlavy

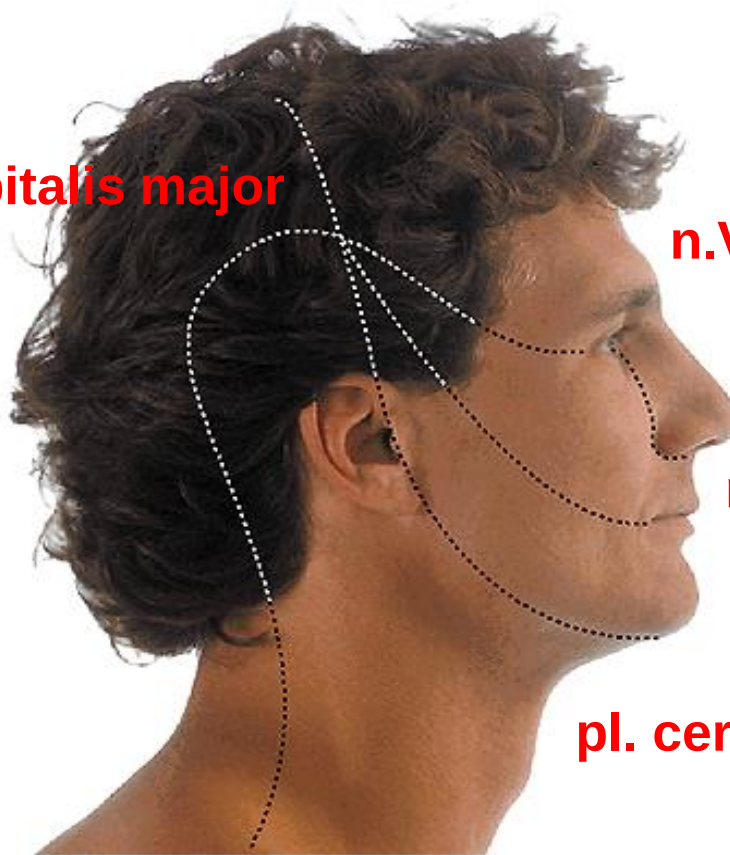
n. occipitalis major

n.V/1

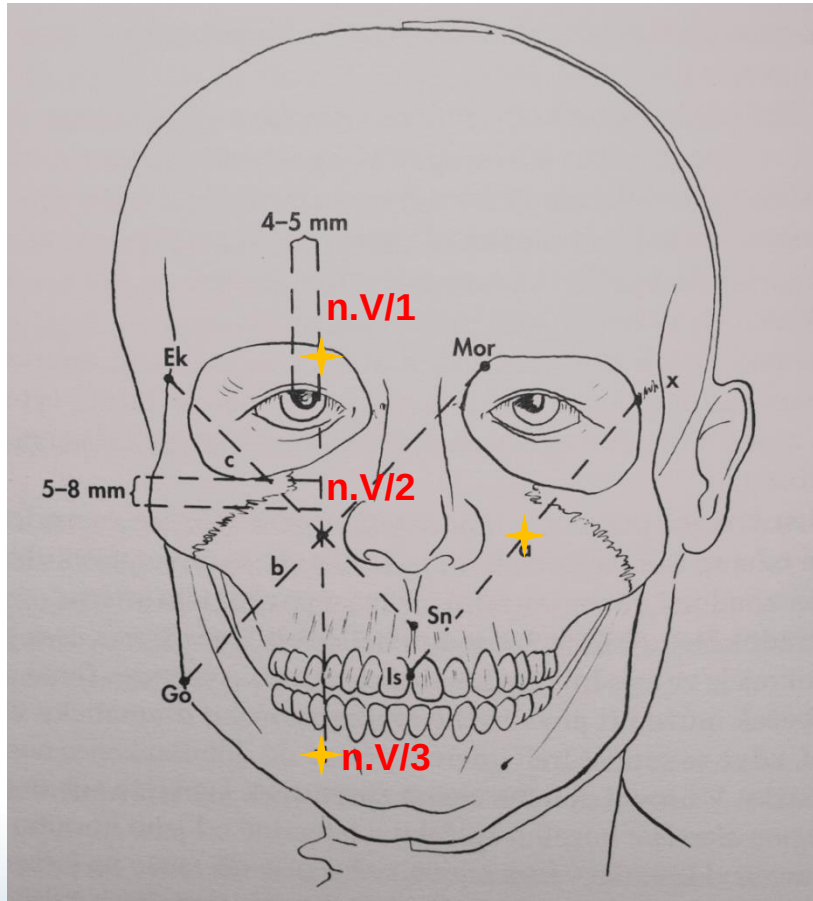
n.V/2

n.V/3

pl. cervicalis



Sensitivní inervace hlavy



Určování výstupů větví n. V

Ek - ektokonichion

Go - goniale

Is - incisale superius

Mor - medioorbitale

x- sutura frontozygomatica

a - Černého přímka

b - spojnice Mor a Go

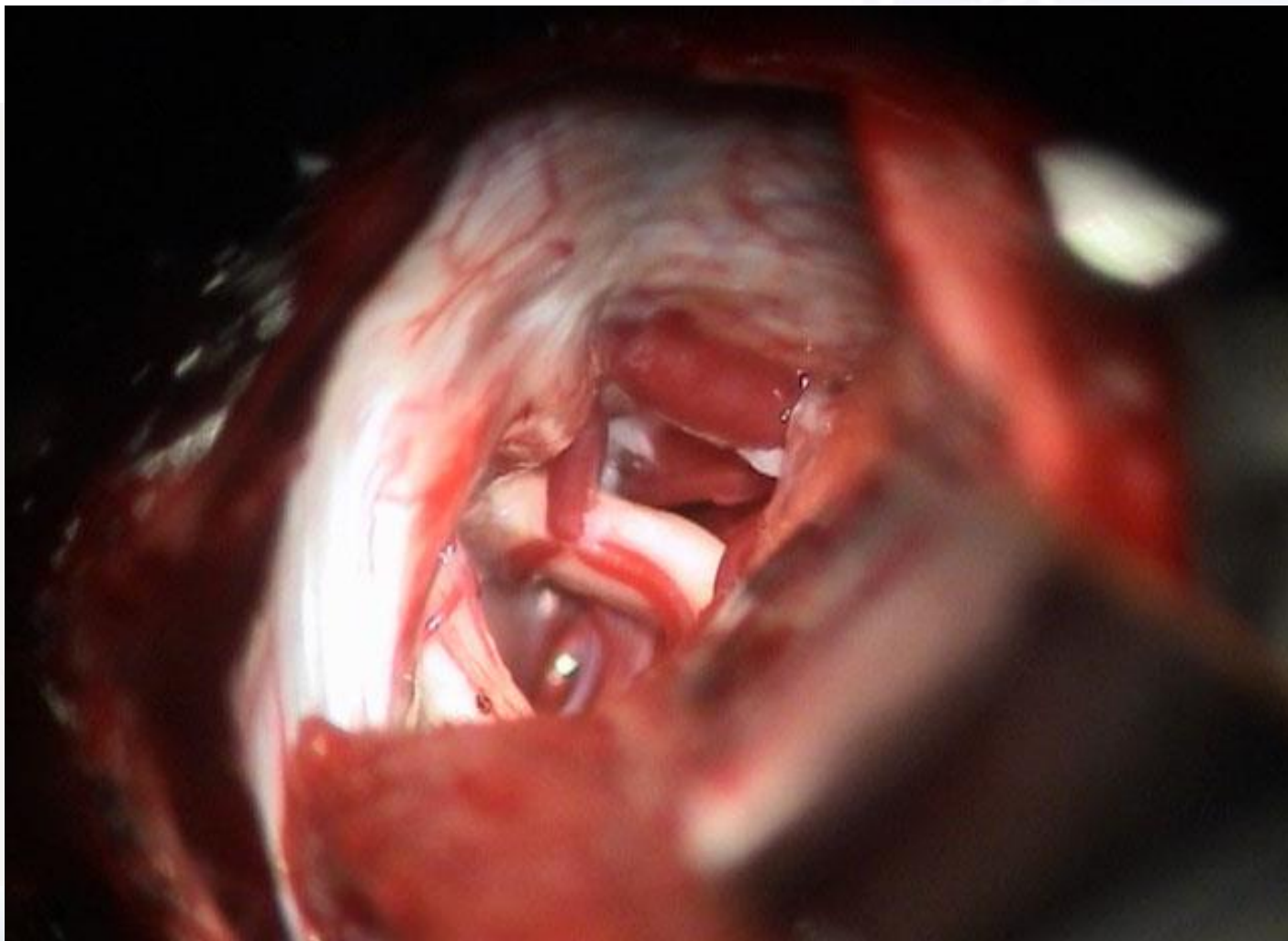
c - spojnice Sn a Ek

Sensitivní inervace hlavy



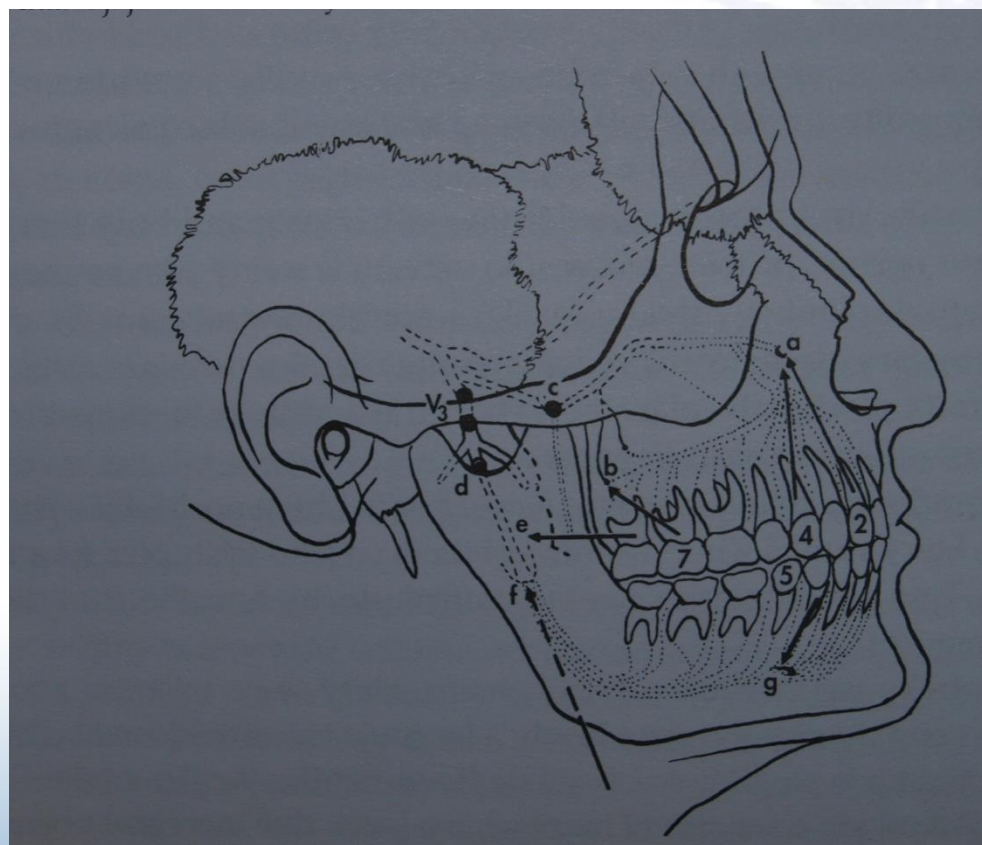
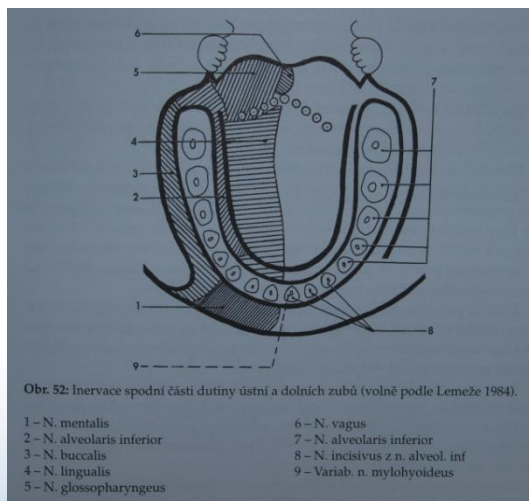
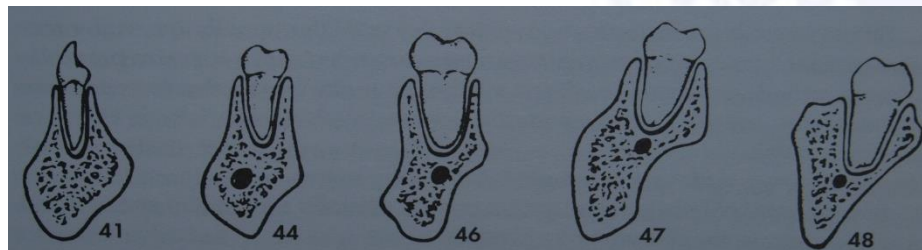
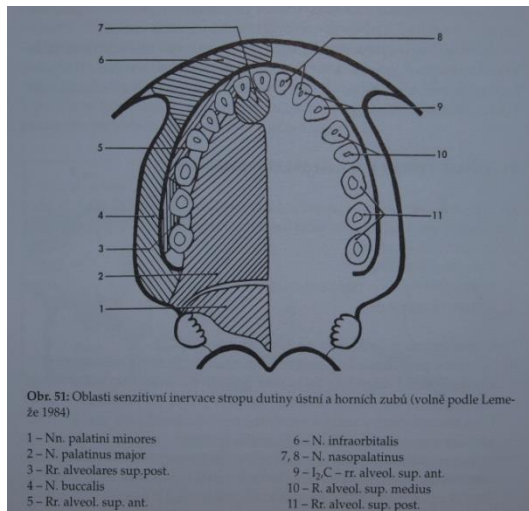
vyšetření výstupů n.V

Esenciální neuralgie n. V

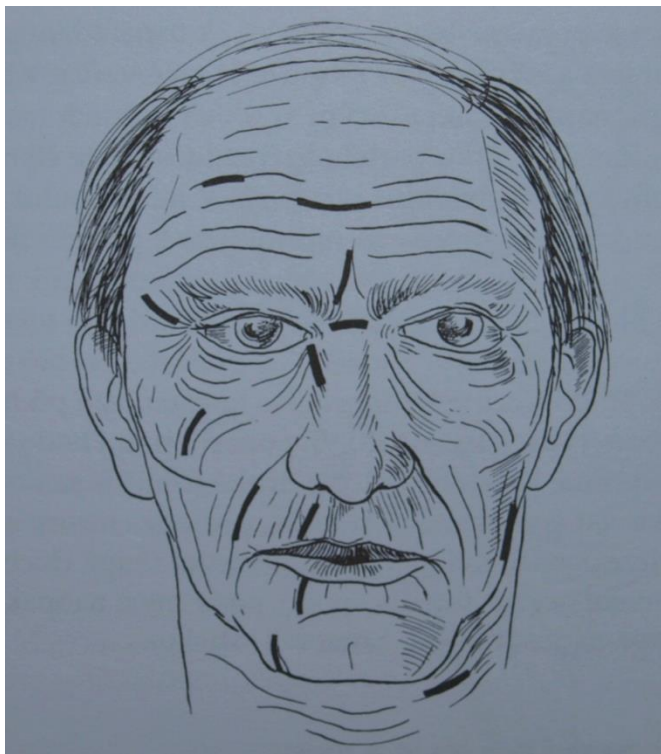


neurovaskulární konflikt

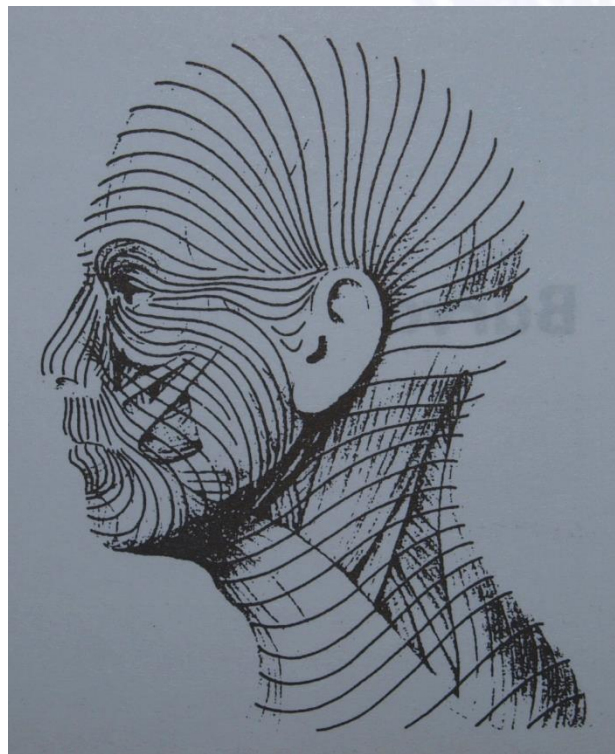
Anestezie v dutině ústní



Vedení kožních řezů v obličeji

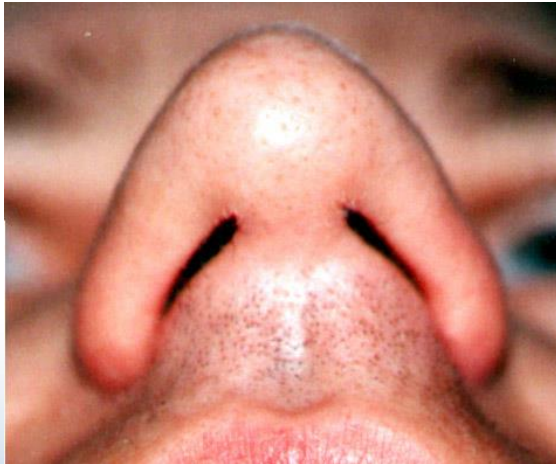
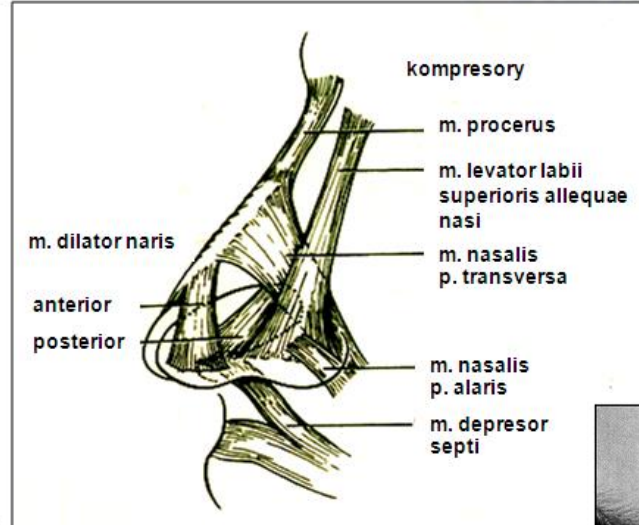
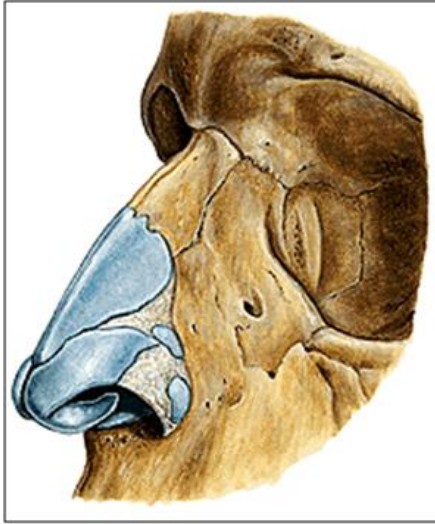


štěpitelnost kůže a
typické vrásky na obličeji
(dle Mrázkové a Doskočila)

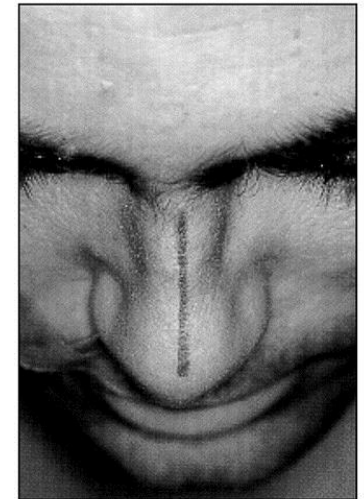
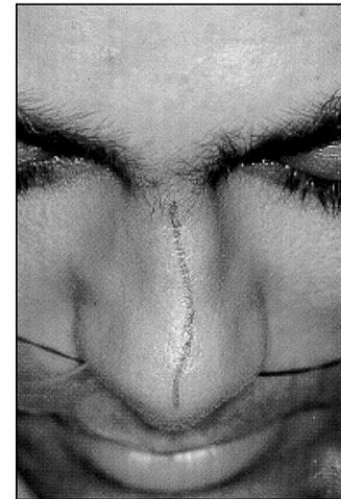


(dle Kraislla 1951)

Zevní nos



kolaps nosní chlopně

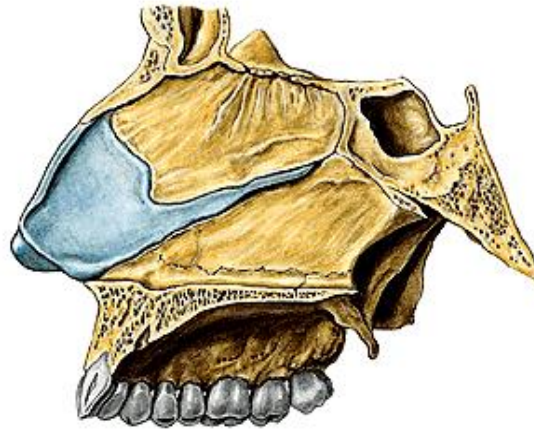


deviace zevního nosu
(rhinoplastika)

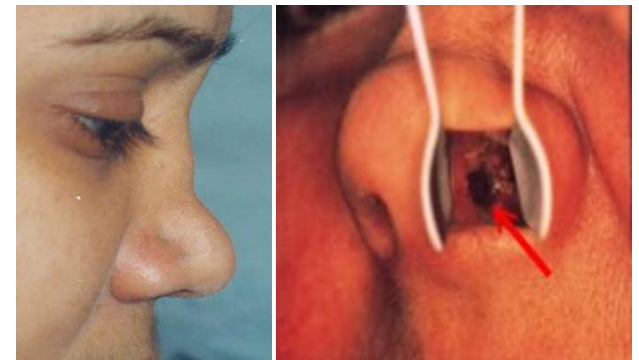
Septum nasi



deviace septa

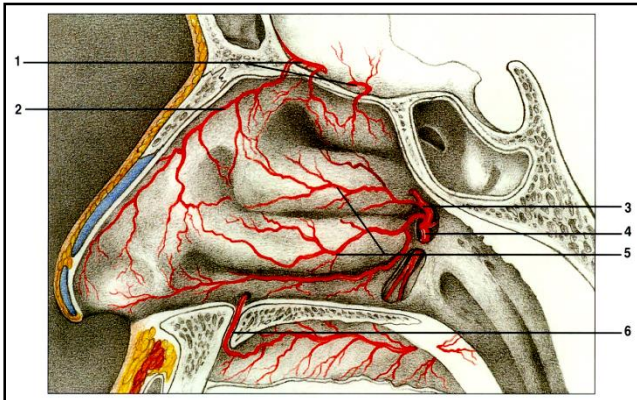
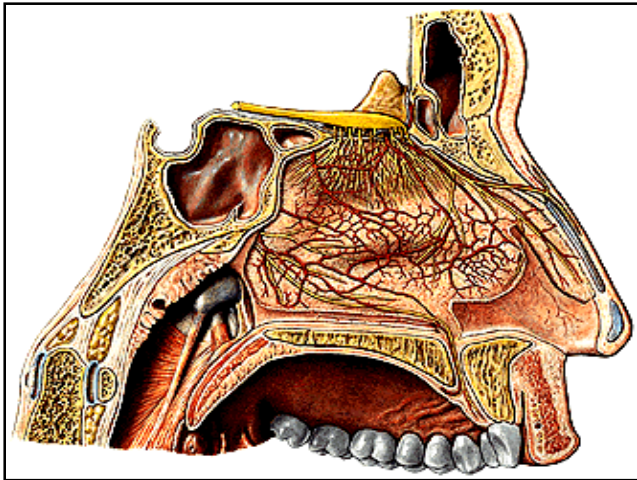


haematom septa

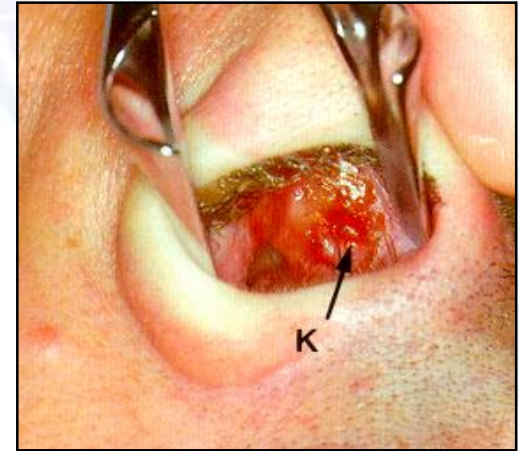


sedlovitá deformita a
perforace septa

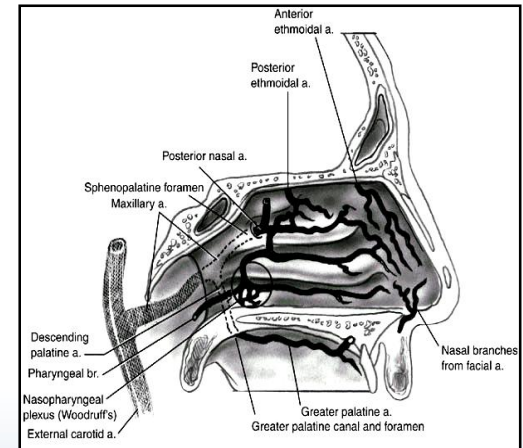
Epistaxe



a. carotis ext.
a. carotis int.

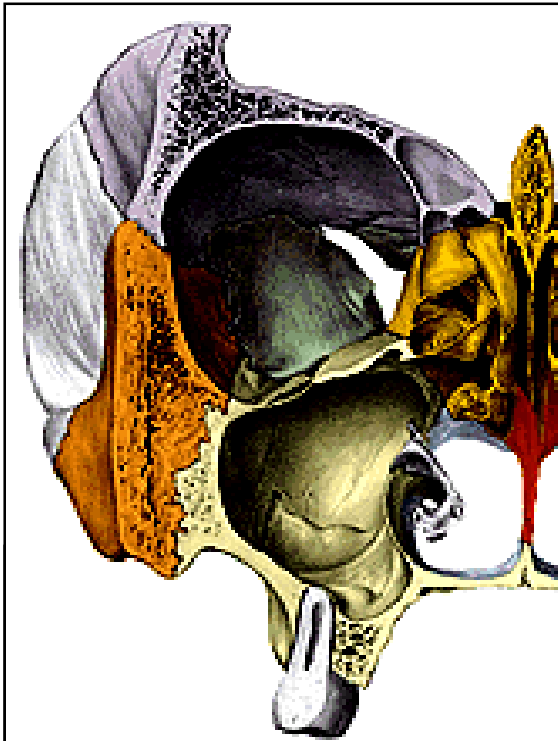


Locus Kieselbachii

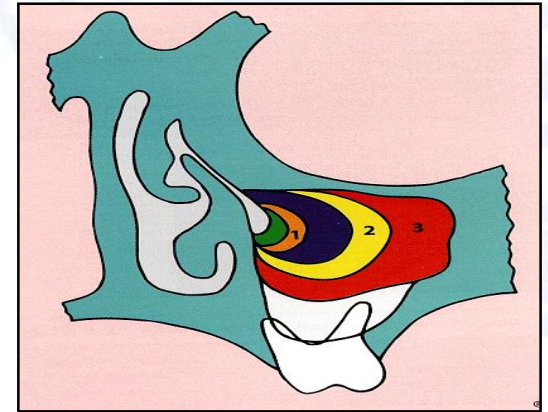


Woodrofuův naso-nasopharyngeální plexus/Naso-nasopharyngeal plexus

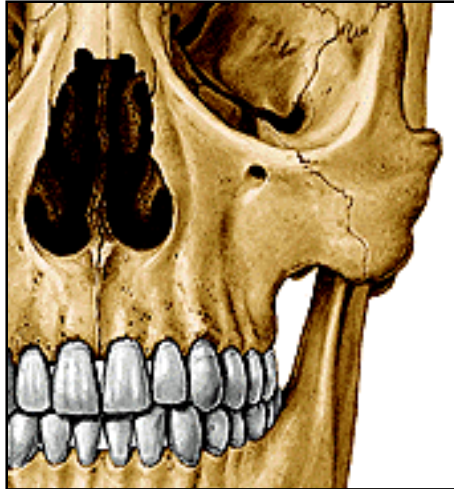
Sinus maxillaris



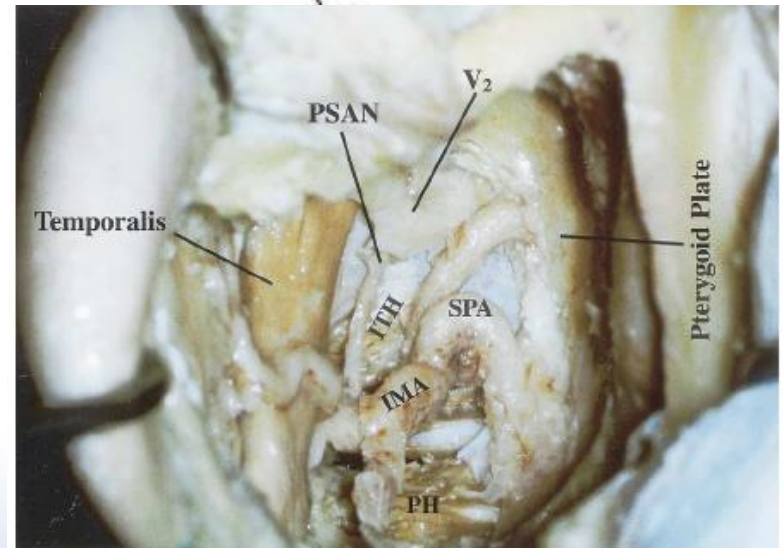
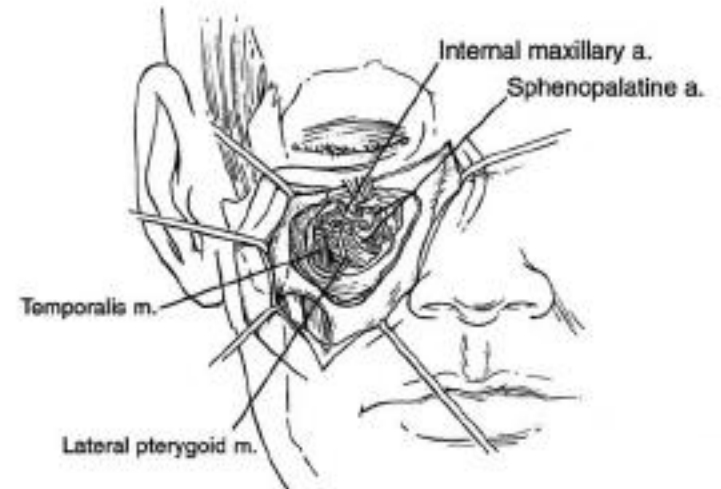
- antrum Highmori
- narození
7x4x4 mm
- RTG
4-5 měsíc
- bifasický růst
0-3 let & 7-12 let
- 18 let: 34x33x23 mm
- topografie
orbita - n. + vasa infraorbitalia
pr. alveolaris – M1, M2, PM2, M3, C
f. pterygopalatina & infratemporalis
MNM – ostium + akces. ostia



Sinus maxillaris

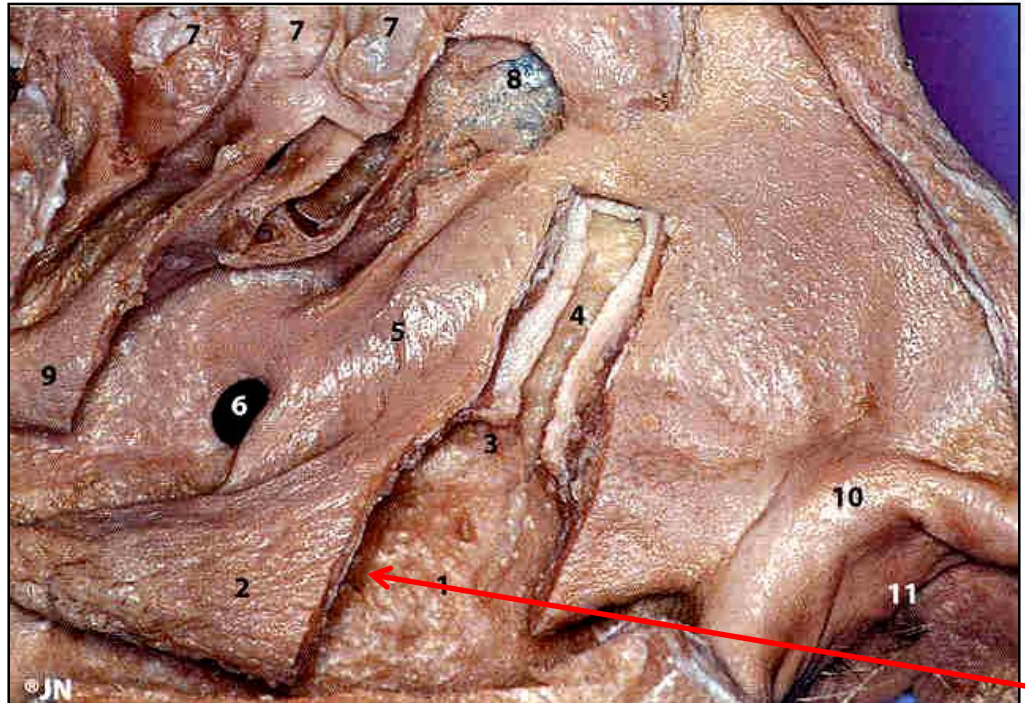
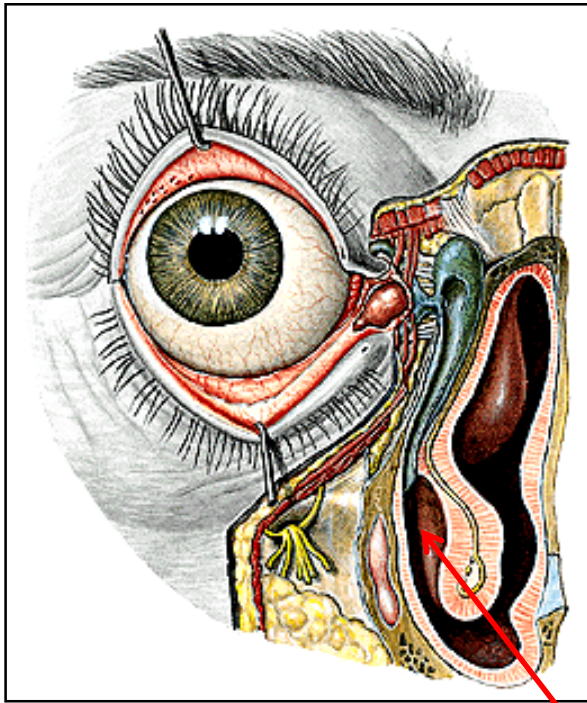


op sec. Caldwell Luc



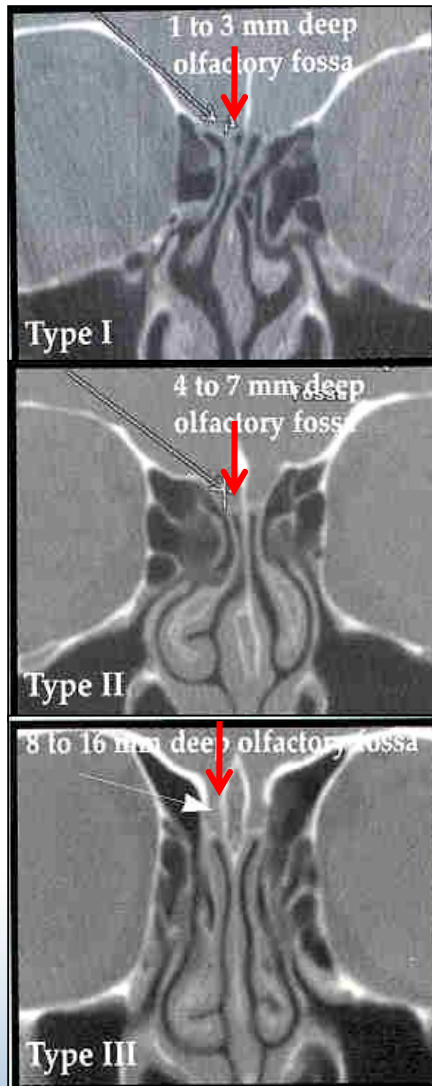
přístup do f. infratemporalis

Punkce sinus maxillaris



ostium s. maxillaris- d. nasolacrimalis 4-9 mm

Sinus ethmoidales

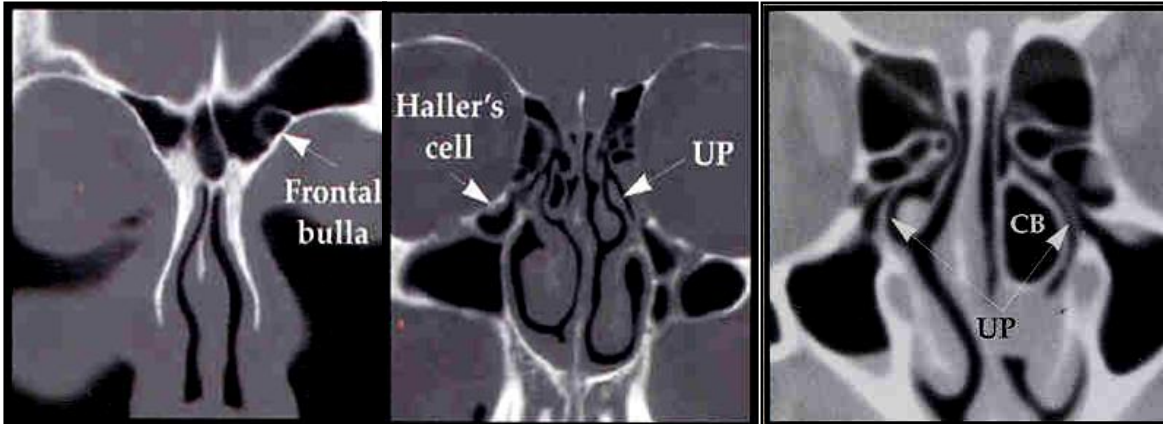


- anteriores (SEA) et posteriores (SEP)
- basální lamela – „ground lamela“
- SEA: meatus nasi medius
narození: 2x4x2 mm
18 let: 20x22x10 mm
- SEP: meatus nasi posterior
4 ms gestace
18 let: 20x20x10 mm



Sinus ethmoidales

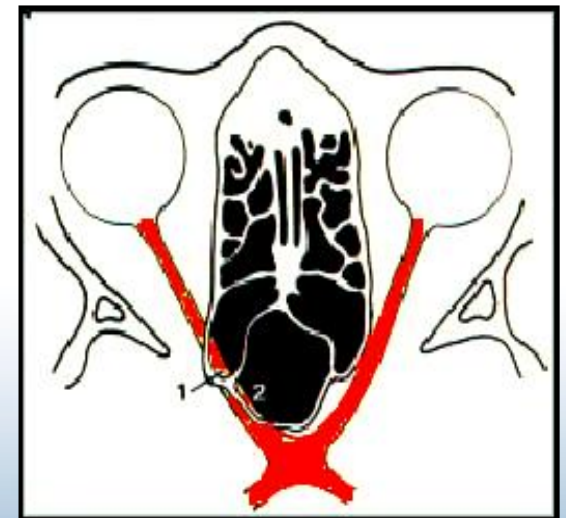
concha bullosa



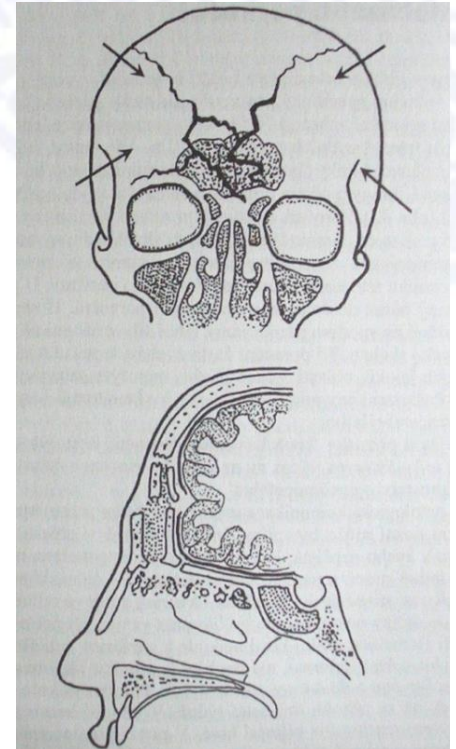
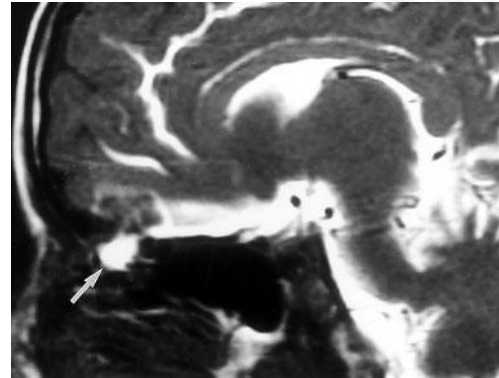
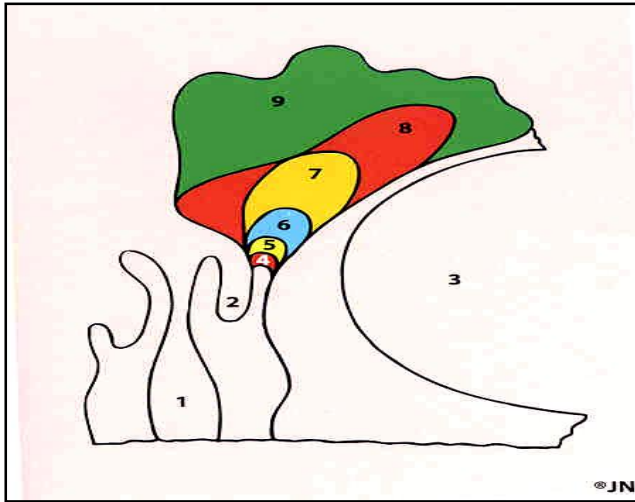
bulla frontalis

Hallerský sklípek

Onodiho sklípek

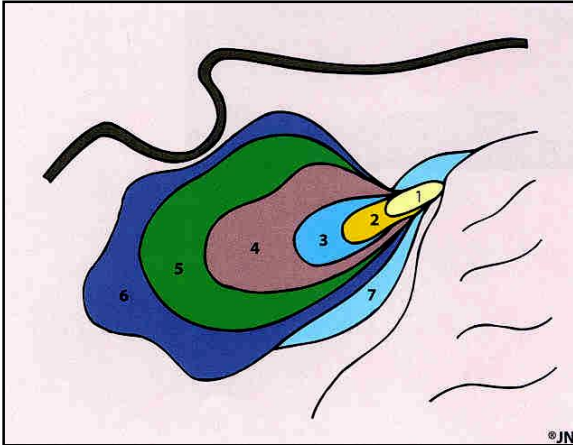


Sinus frontalis

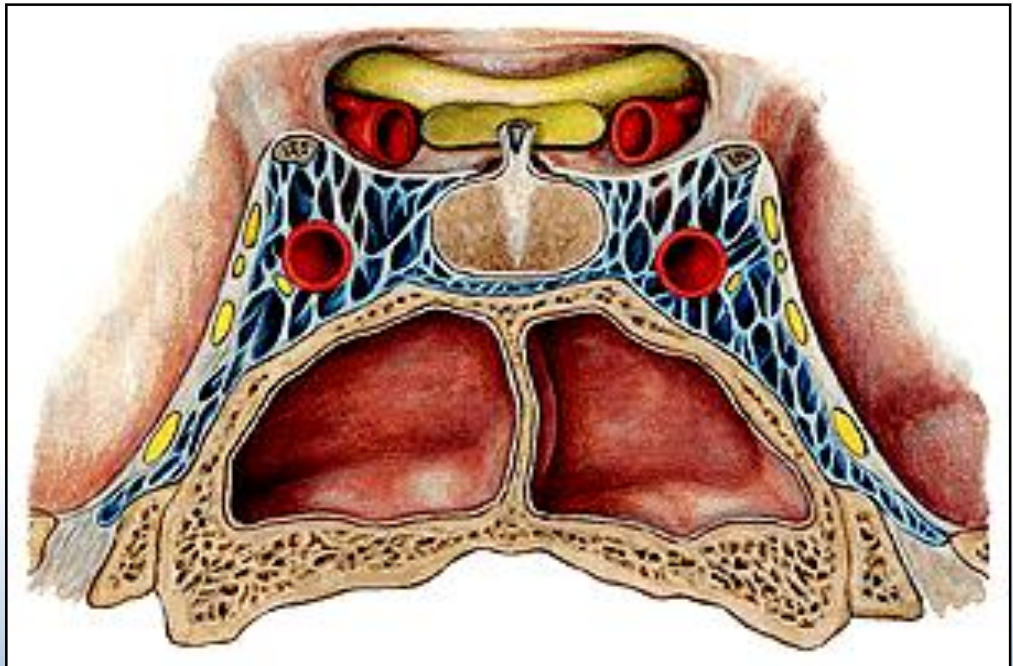


- RTG: 2 rok
- invaze os frontale: 5 rok
- adolescence: 17x28x27 mm
- unilaterální aplazie: 7% (4-15%)
- lamina anterior et posterior: diploe, ant./post. = 2/1
- topografie: fossa cerebri anterior, orbita

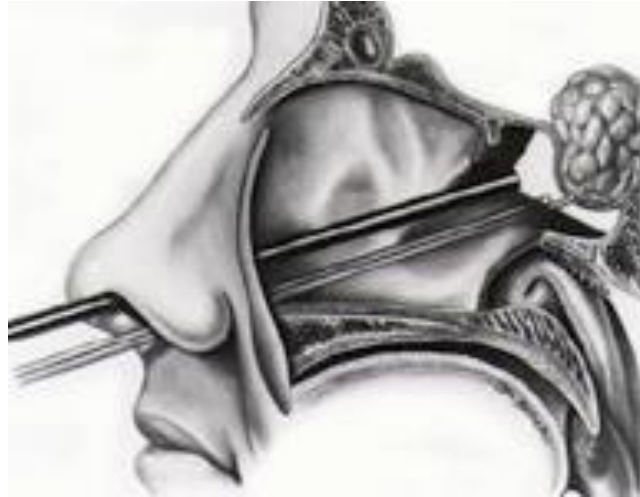
Sinus sphenoidalis



- po 3. roce pneumatizace, 7. rok: sella turcica
- 18 let: 23x20x17 mm
- ev. invaze: alla major ossis sph., clivus, pr. pterygoideus med., os palatinum
- topografie: sella turcica, n. II, a. carotis interna

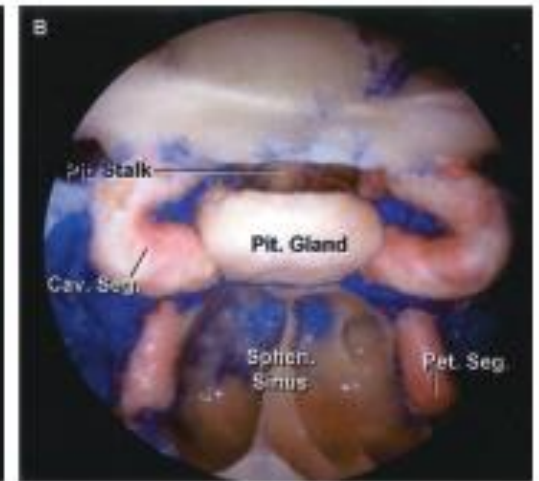
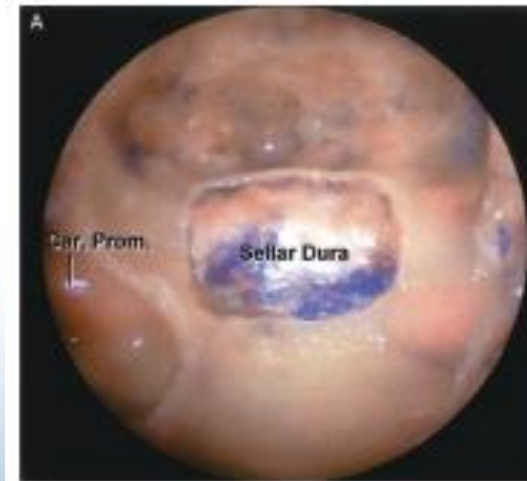


Sinus sphenoidalis



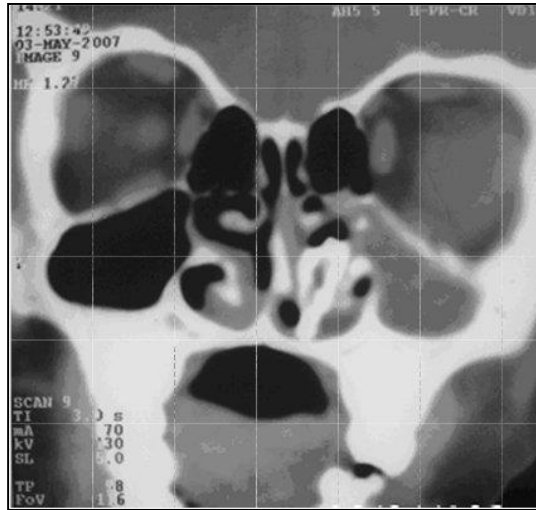
adenomy hypophysy
dekomprese n. II
jiné patologie baze lební

transsphenoidální přístup



Komplikace sinusitid

Kraniální: osteomyelitis

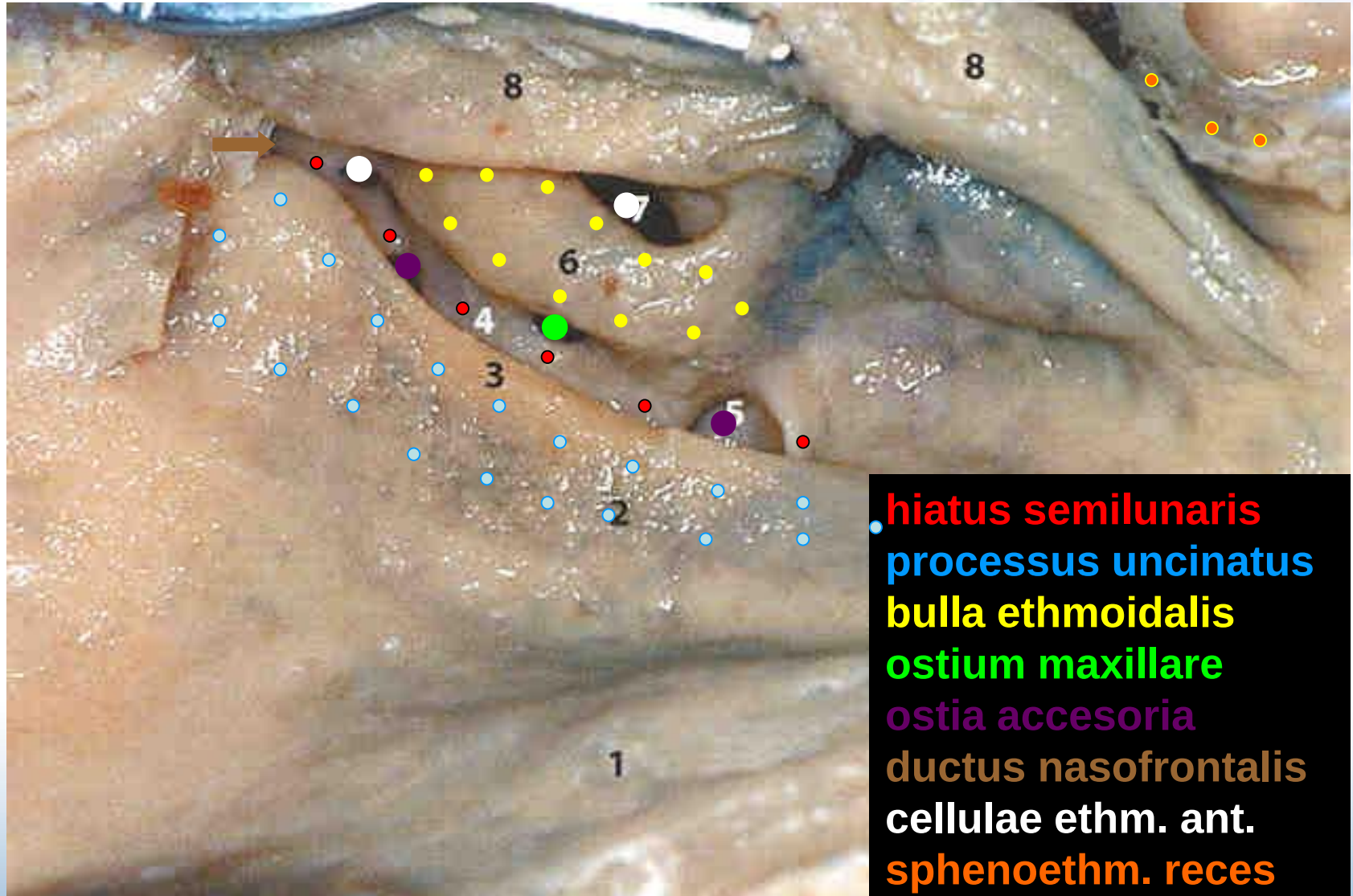


Orbitální: orbitocelulitis, absces, neuritis n. II

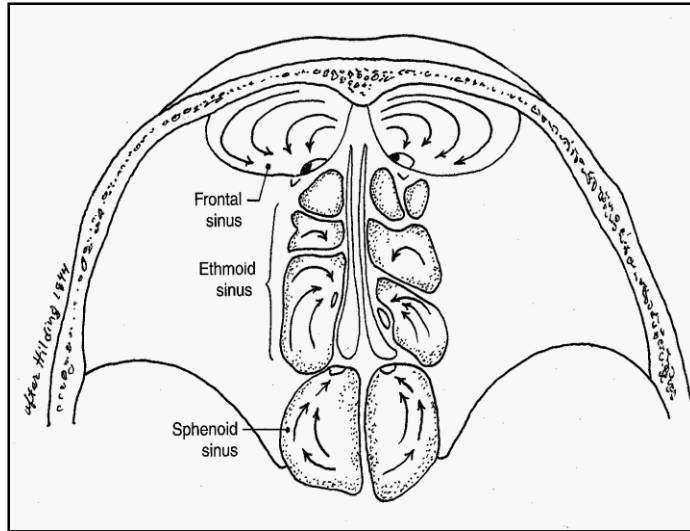
Intrakraniální:
meningitis
empyem
absces
tromboza s. cavernosus



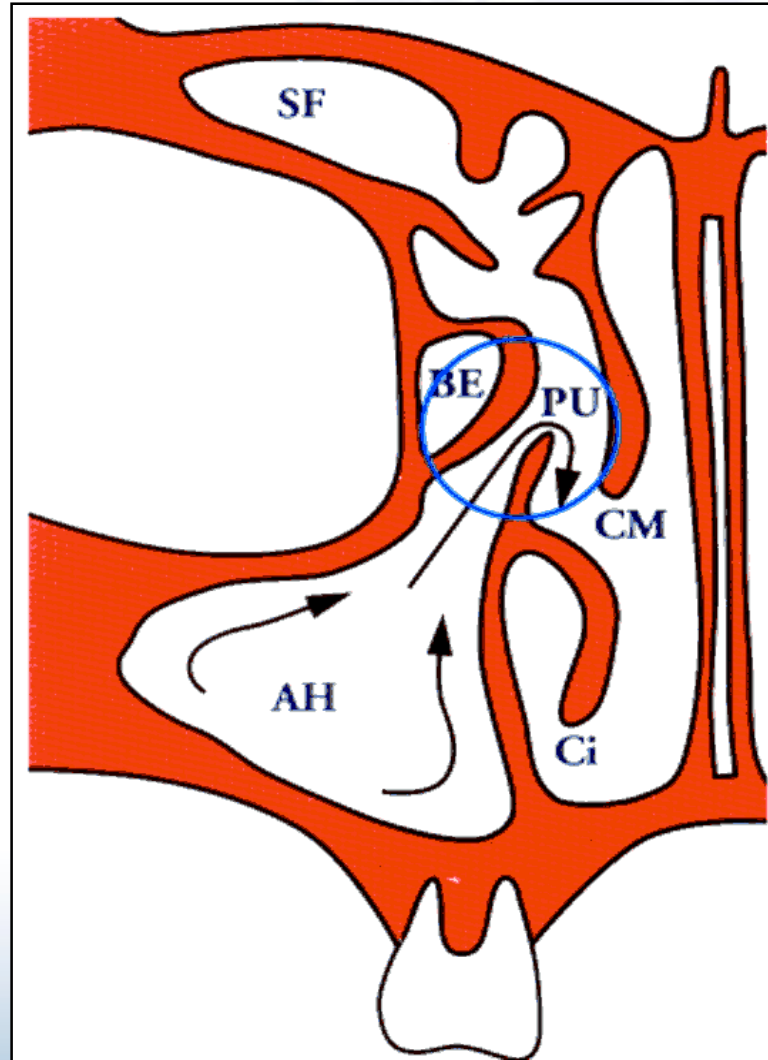
Ústí paranasálních dutin



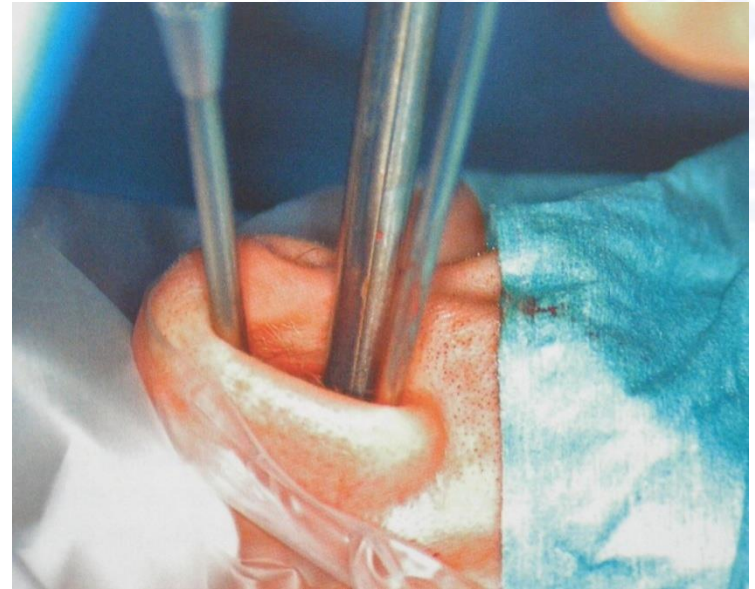
Ostiomeatální komplex



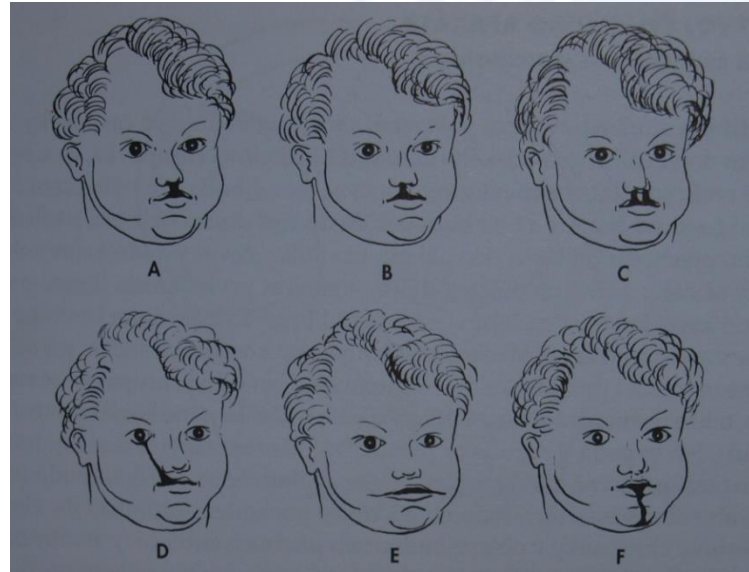
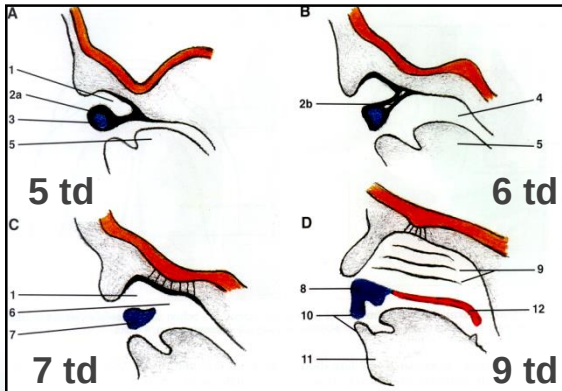
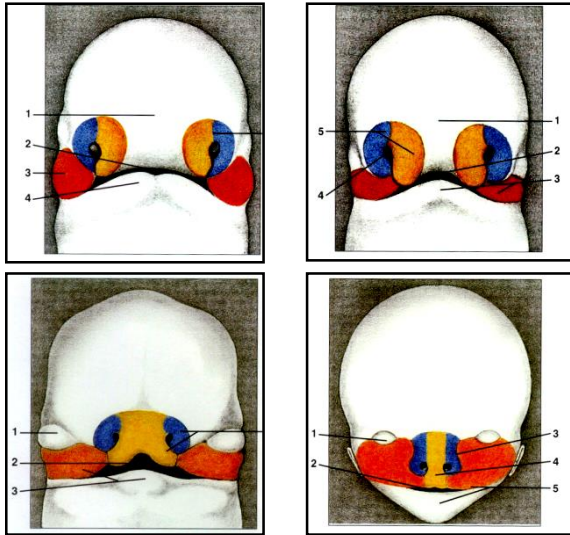
mukociliární clearance



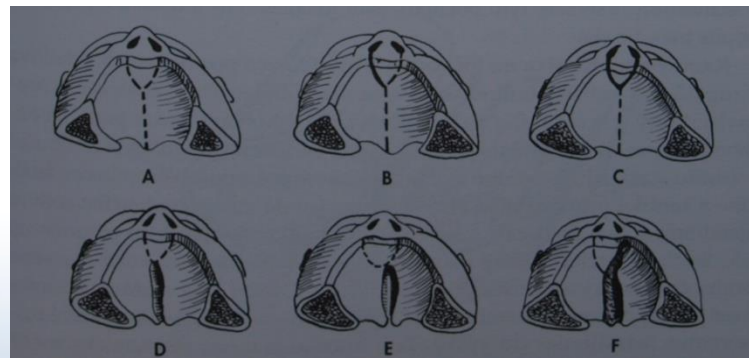
FESS – Functional endoscopic endonasal surgery



Rozštěpové vady

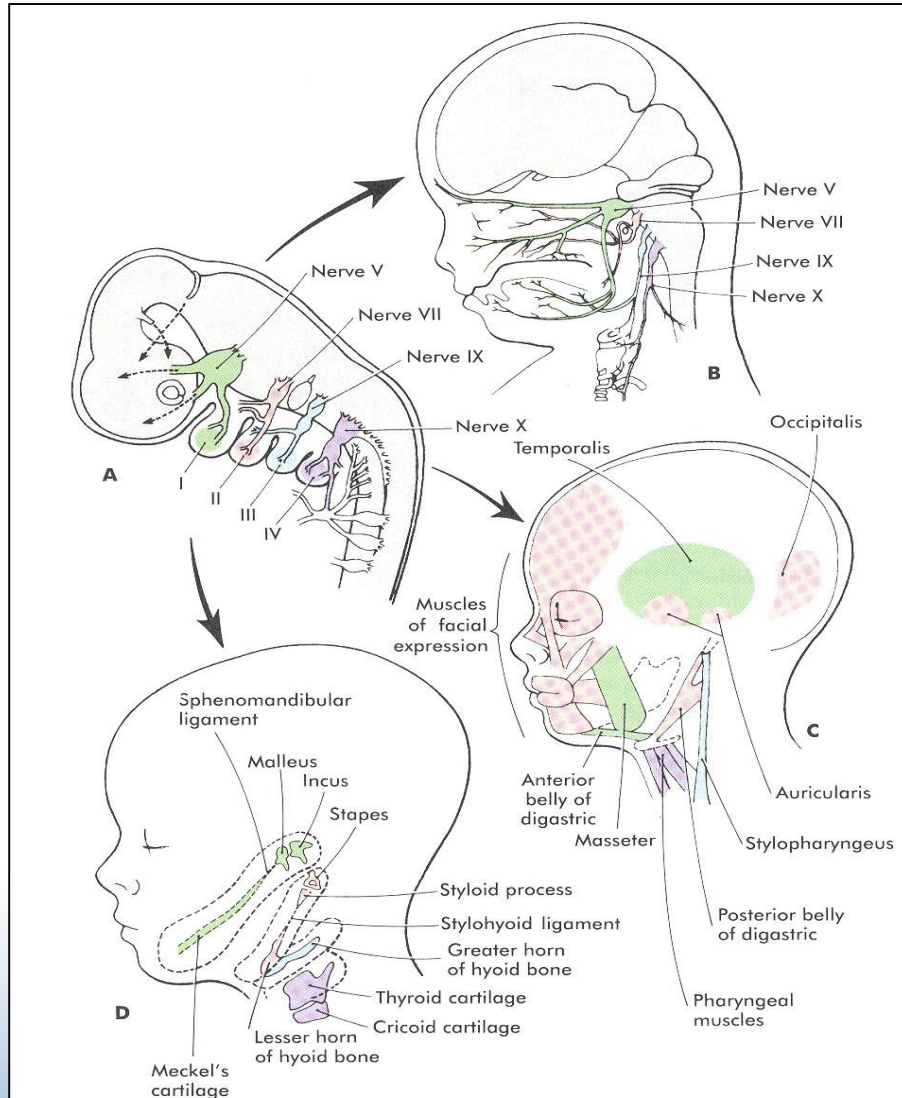


rozštěpy obličeje (dle Schumachera)



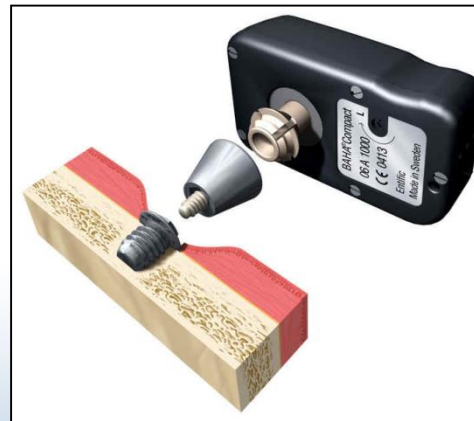
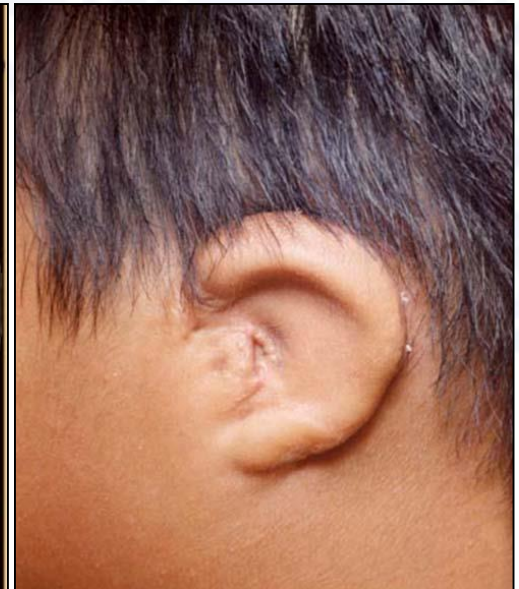
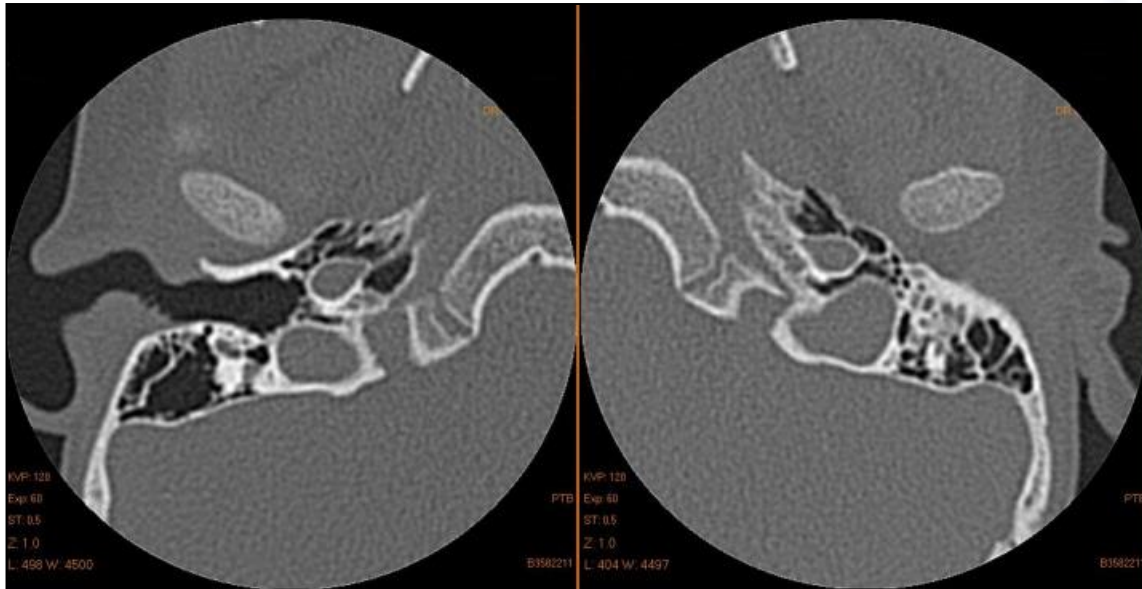
rozštěpy rtu, čelisti a patra (dle Schumachera)

Vývoj zevního ucha



Treacher Collins syn.

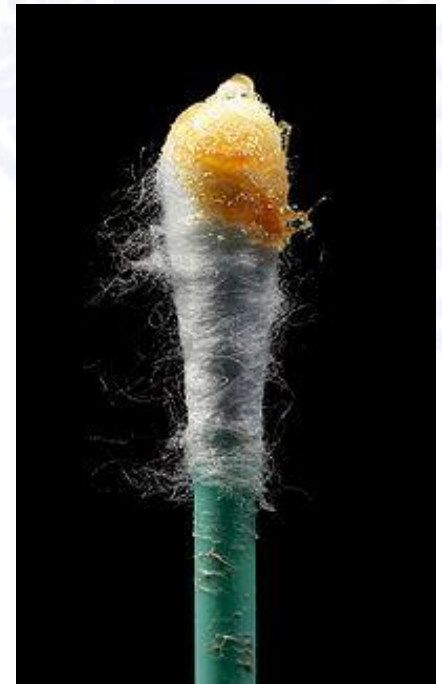
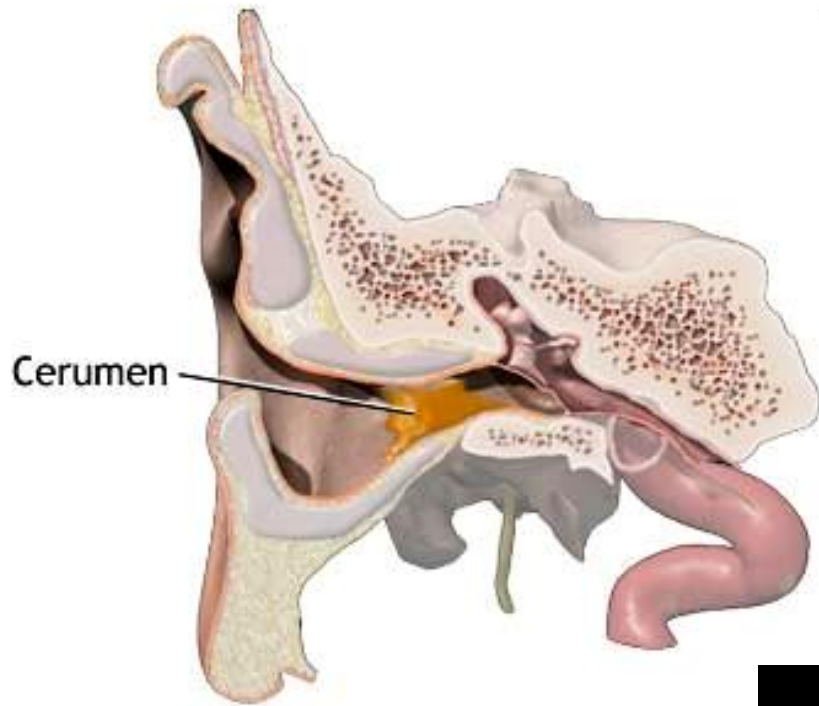
Atrezie zvukovodu



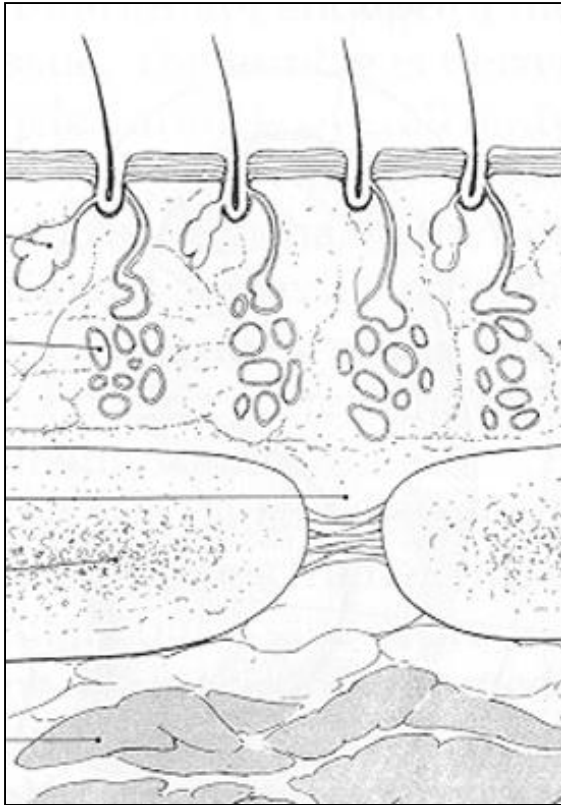
BAHA

Bone Anchored Hearing Aid

Zevní zvukovod



Zevní zvukovod

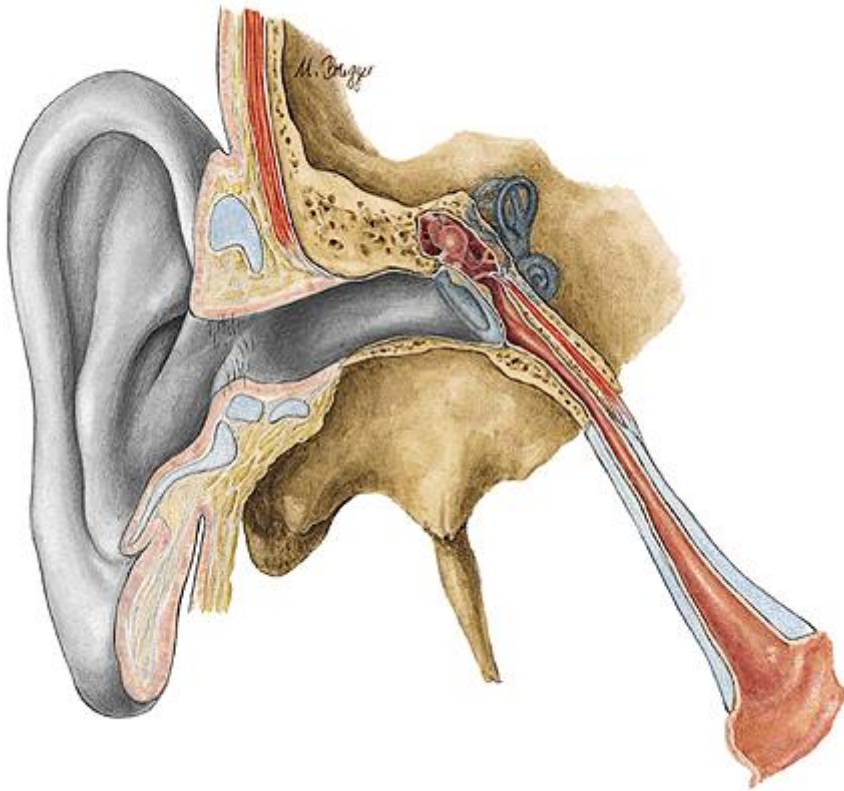


**Apopilosebaceosní
jednotka**



Otitis externa

Fissurae Santorini



ca gl. parotis



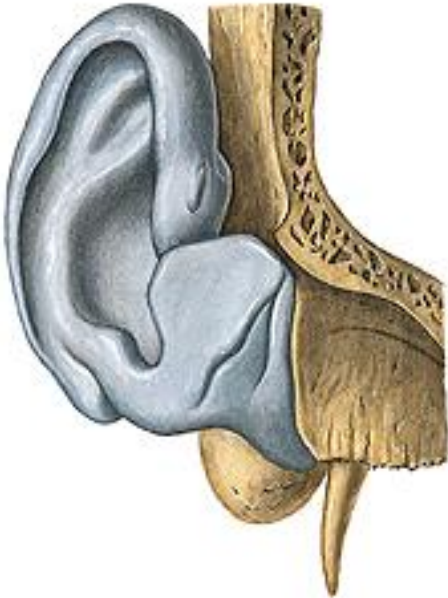
ca meatus ac. ext.

Zevní zvukovod



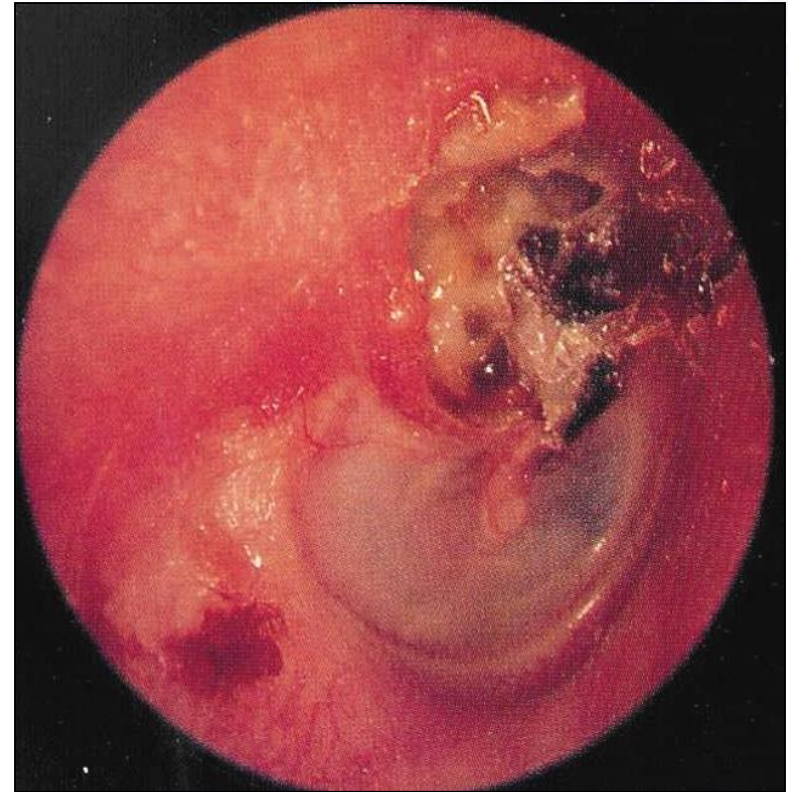
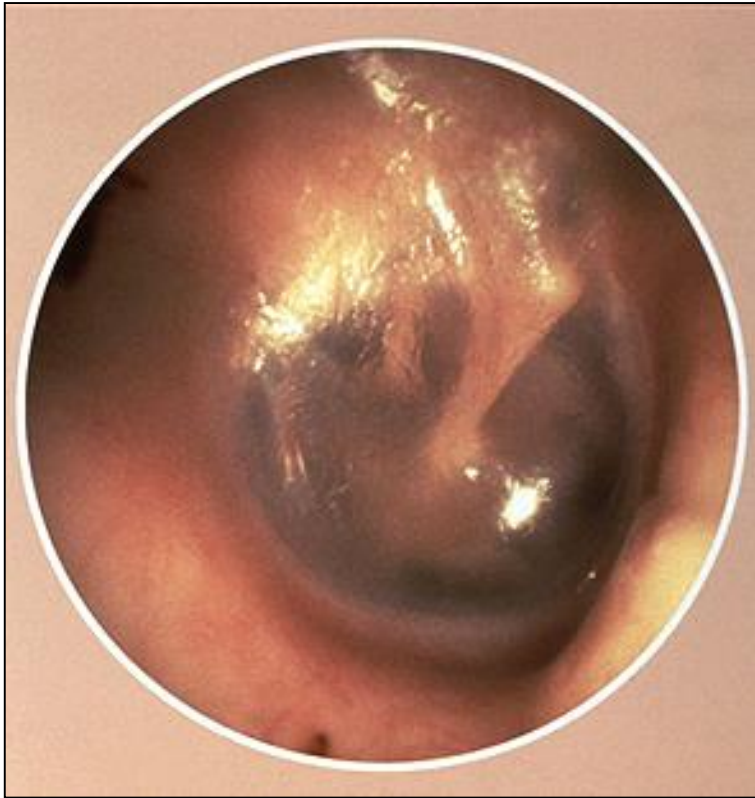
Boltec

othaematom

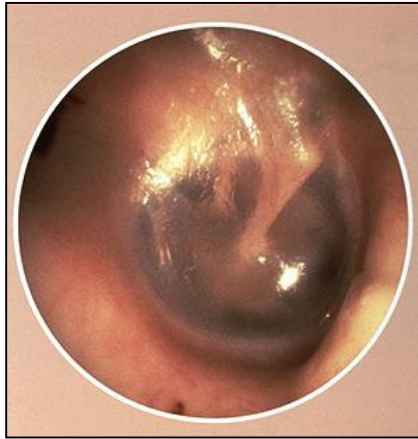


„kvěťákové ucho“

Otoskopie



Cholesteatom



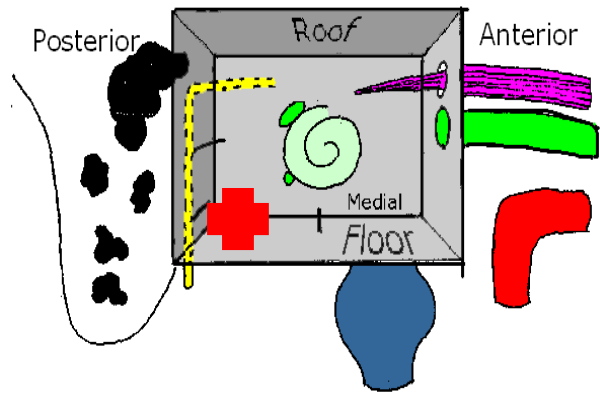
Otoskopie



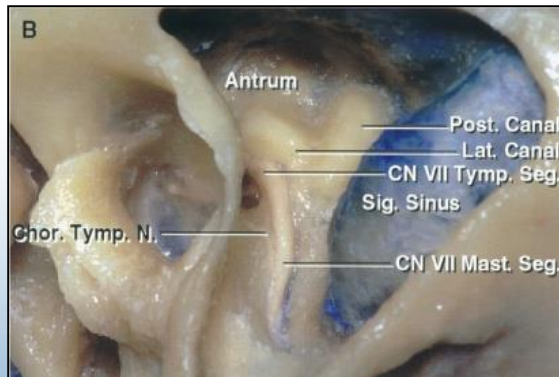
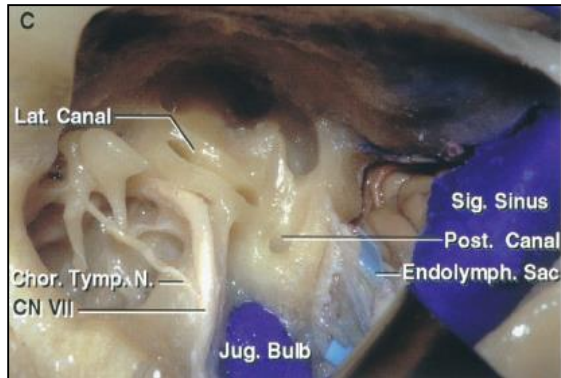
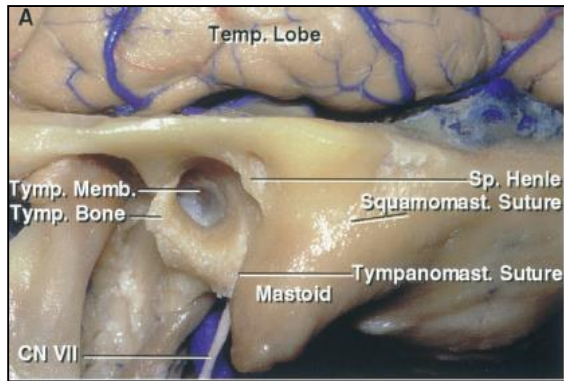
Otitis media acuta



Paracentéza



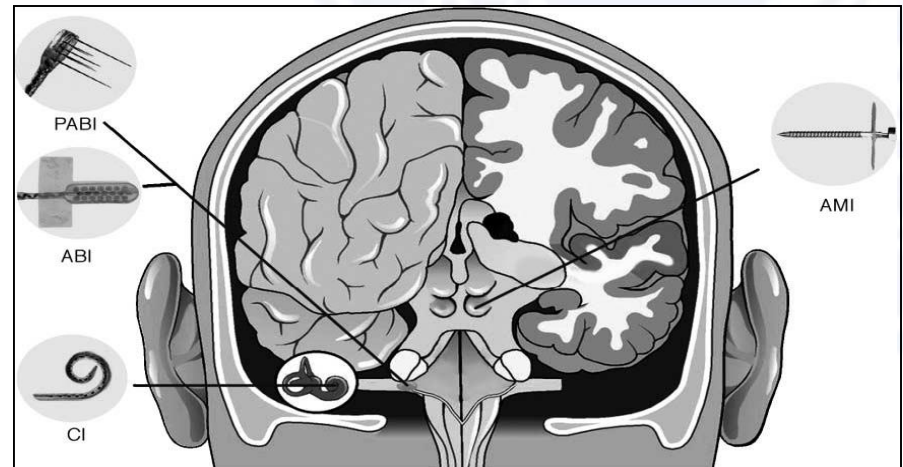
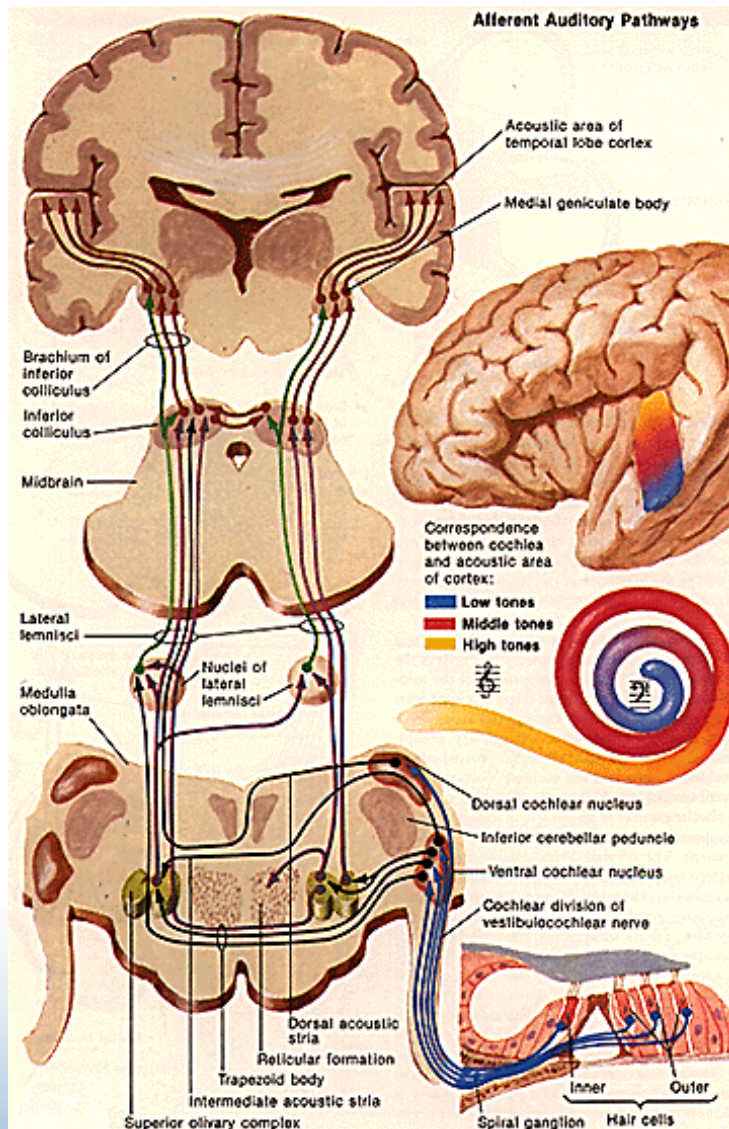
Komplikace otitid



Temporální
mastoiditis
subperiostální absces
paréza n. VII
labyrinthitis
petrositis

Intrakraniální
meningitis
subdurální empyem
epidurální absces
mozkový absces
trombofelbitis s. sigmoideus
hydrocefalus

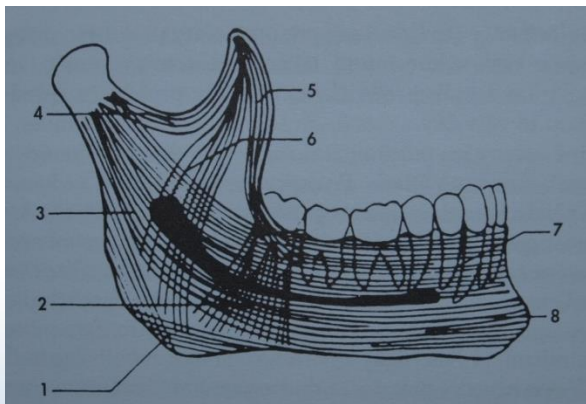
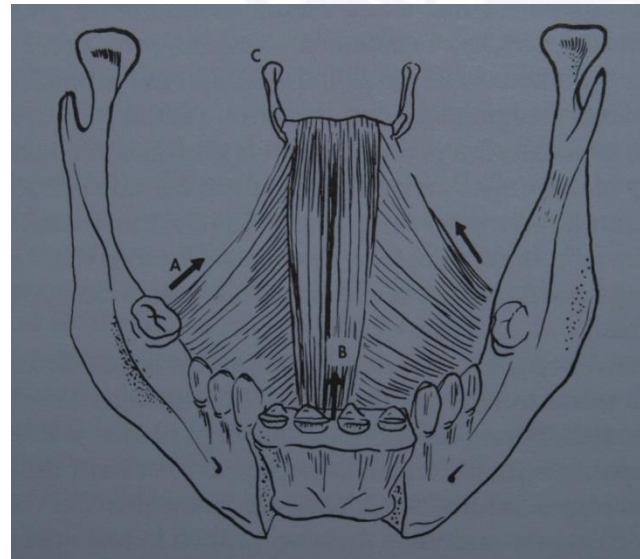
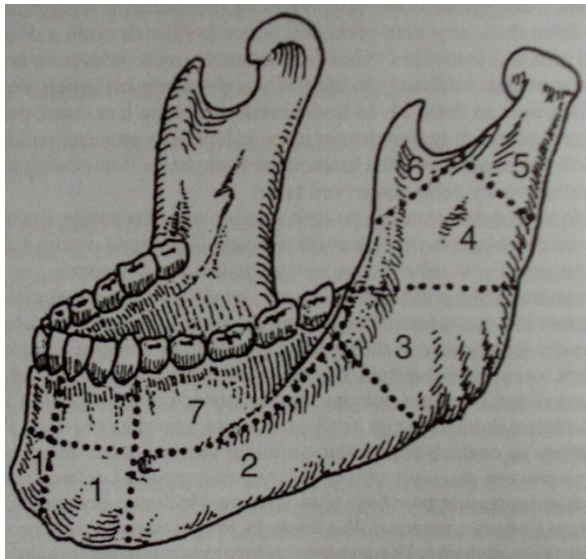
Rehabilitace hluchoty



kochleární implantát
auditory brainstem i.
auditory midbrain i.

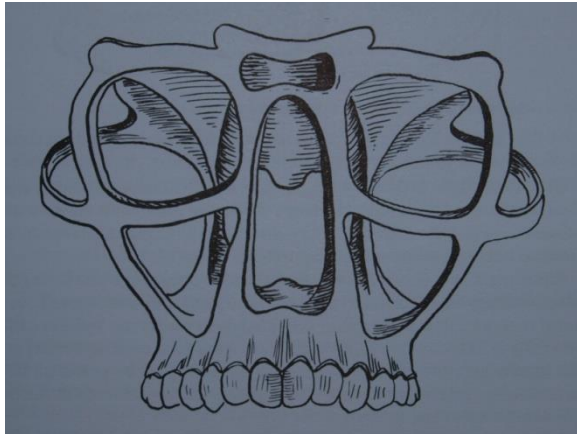


Fraktury mandibuly

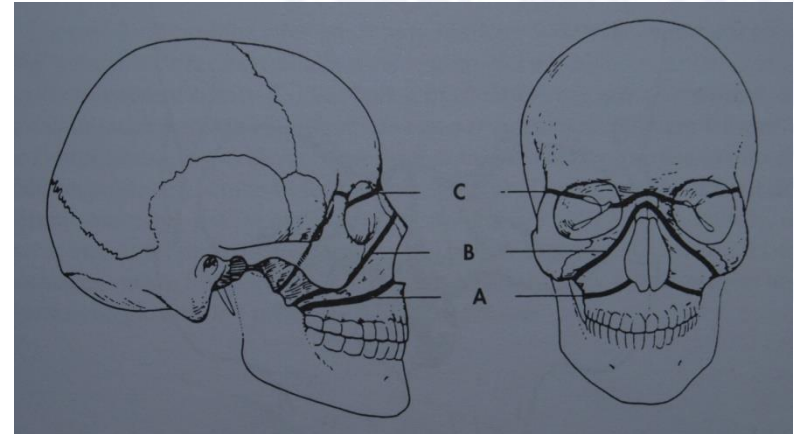


zahuštěné proudy kostní trámčiny v mandibule.

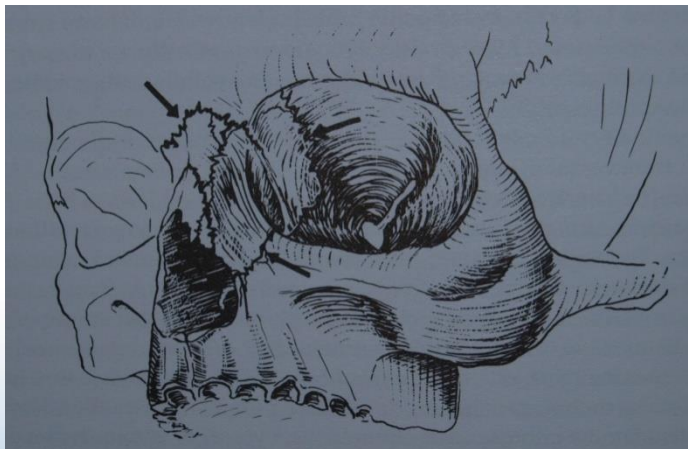
Fraktury střední obličejové etáže



kostní pilíře



Le Fortovy fraktury

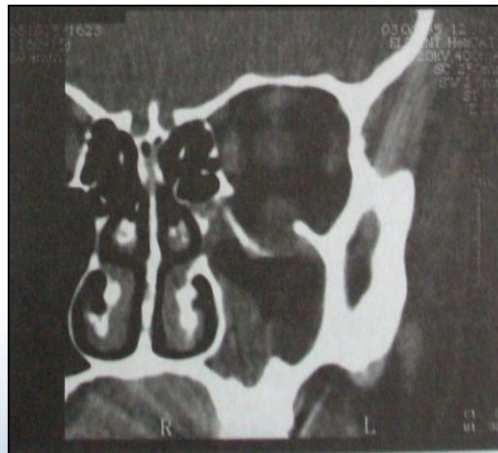
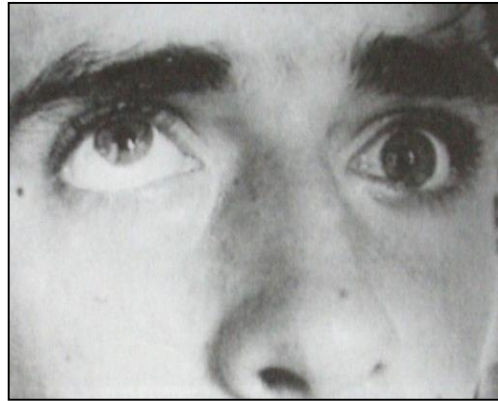
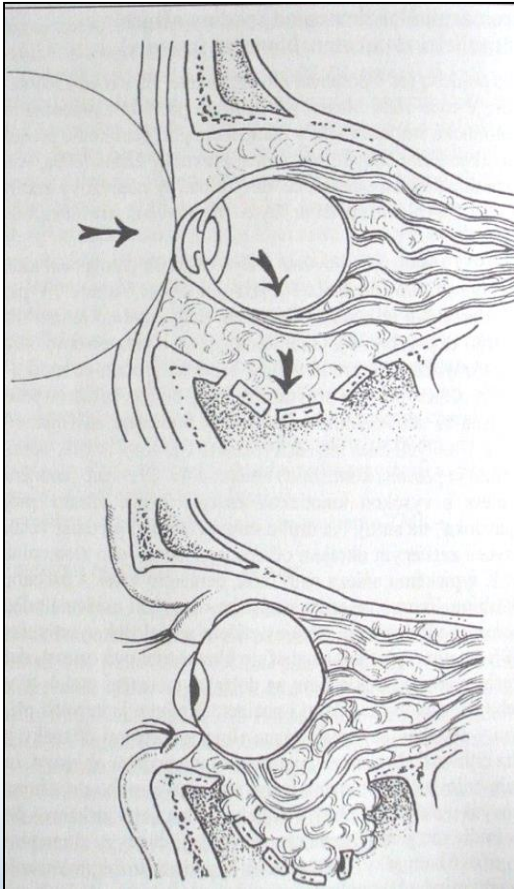


fr. nasomaxilárního komplexu



fr. zygomaticomaxilárního komplexu

Pneumatická fraktura spodiny očnice/ Blow-out fracture

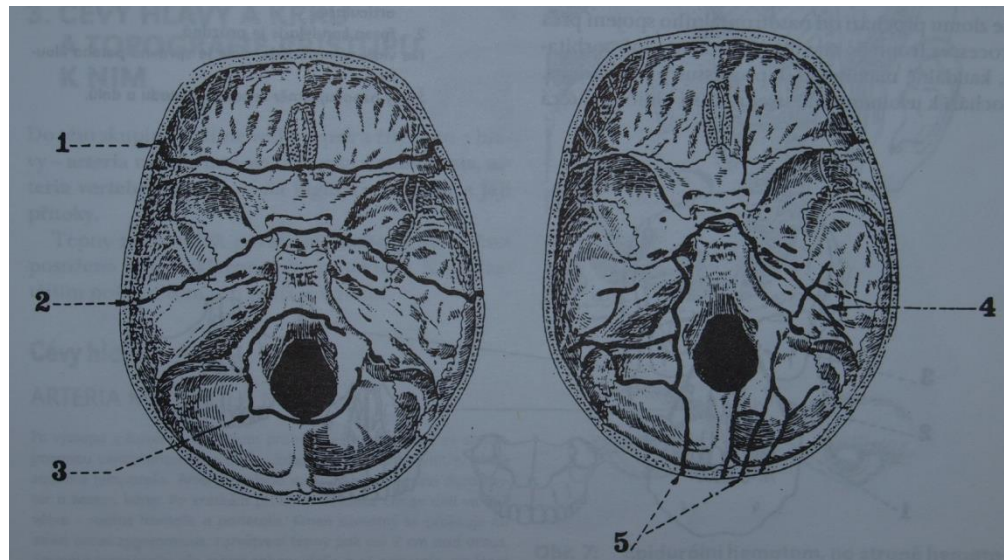


m. rectus bulbi inferior

n. infraorbitalis

a. et v. infraorbitalis

Fraktury baze lební



- 1 - transv. fr. před. baze lební
- 2 - transv. fr. stř. baze lební
- 3 - fr. obkr. f. magnum
- 4 - fr. spánkové kosti
- 5 - podélné fr. zadní jámy lební

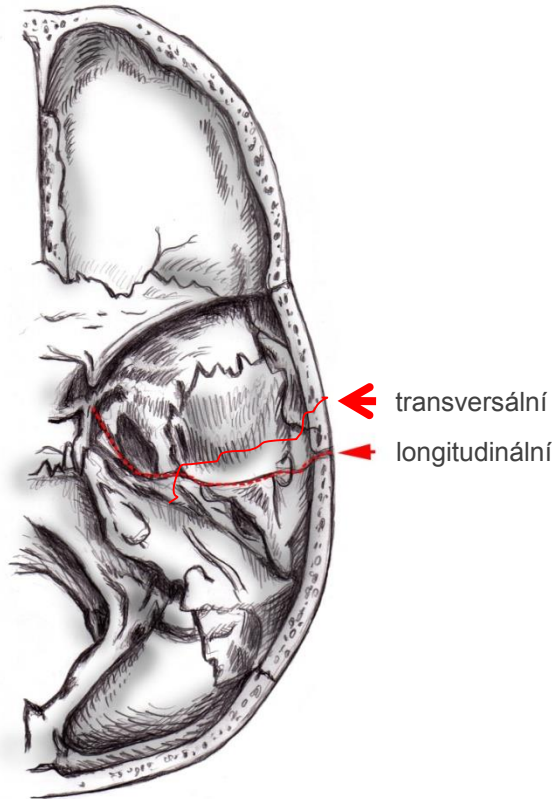


„raccoon eyes“

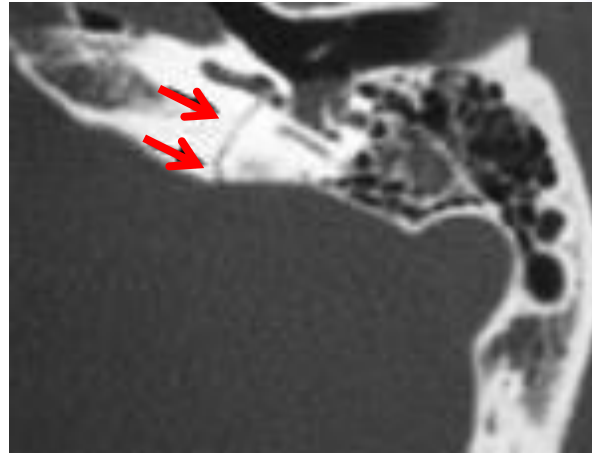


rhinoliqourhea

Fraktury os temporale

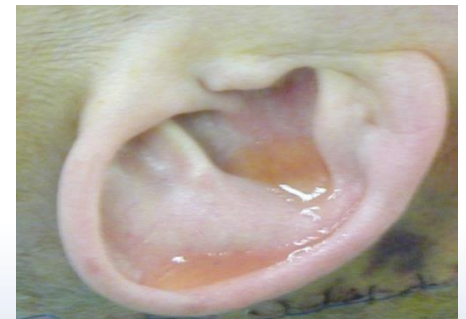


transversální



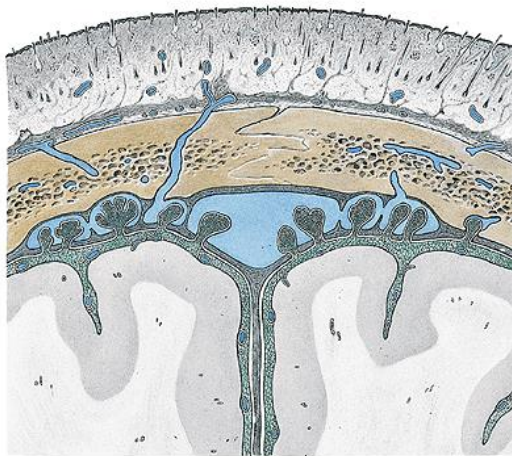
„battle sign“

longitudinální



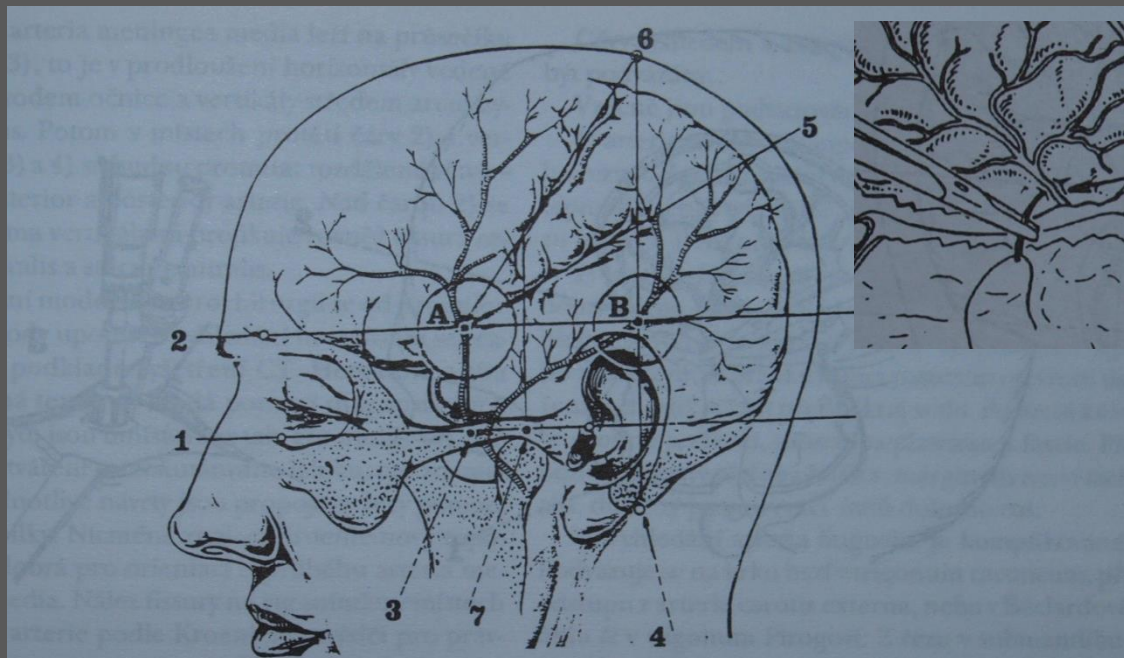
otoliquorhea

Epidurální krvácení



a. meningeal media

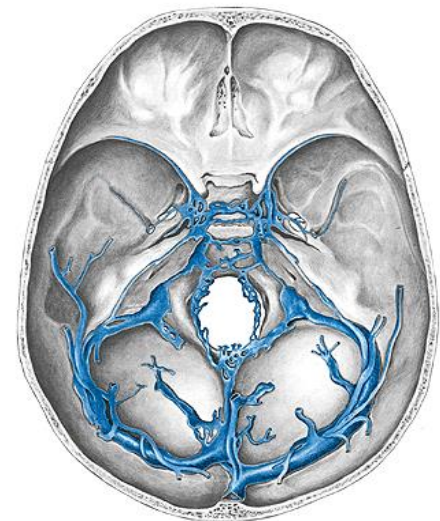
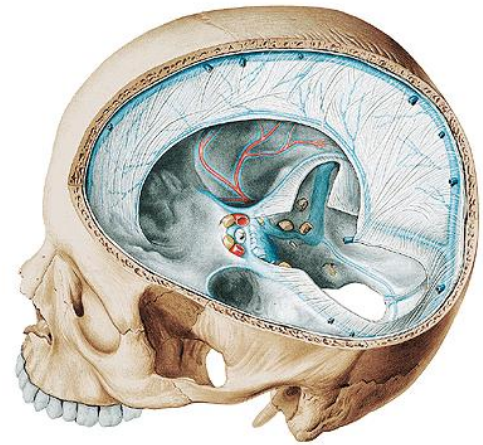
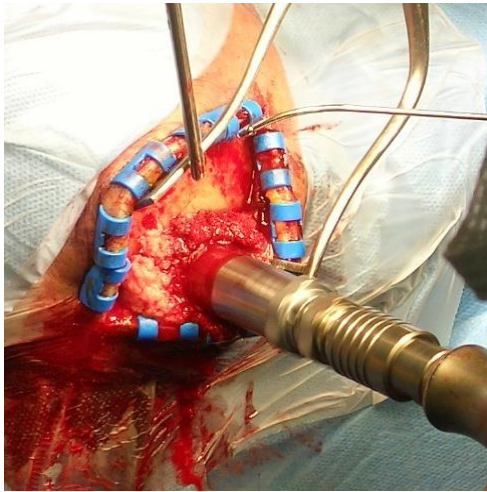
a. meningeal ant. et post.
vv. diploicae



Arteria meningeal media v KROENLEIN-ově projekci

- | | |
|---|--|
| 1 – horizontála, vedená dolním okrajem orbity | 6 – projekce sulcus centralis |
| 2 – horizontála, vedená horním okrajem orbity | 7 – bod na arcus zygomaticus, do kterého se promítá hlavička mandibuly |
| 3 – kolmice na střed arcus zygomaticus | A – projekce přední větve arteria meningeal media |
| 4 – kolmice na zadní okraj processus mastoideus | B – projekce zadní větve arteria meningeal media |
| 5 – projekce fissura cerebri lateralis | |

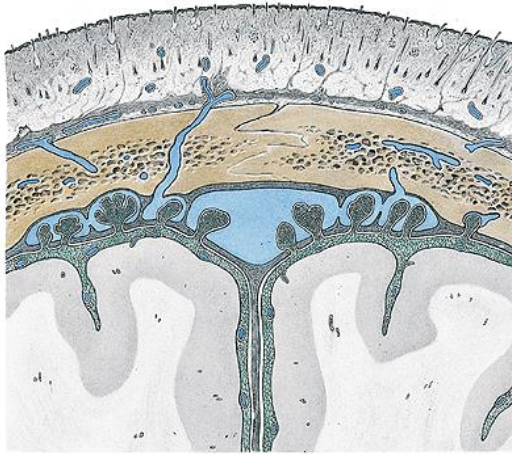
Transkraniální přístupy



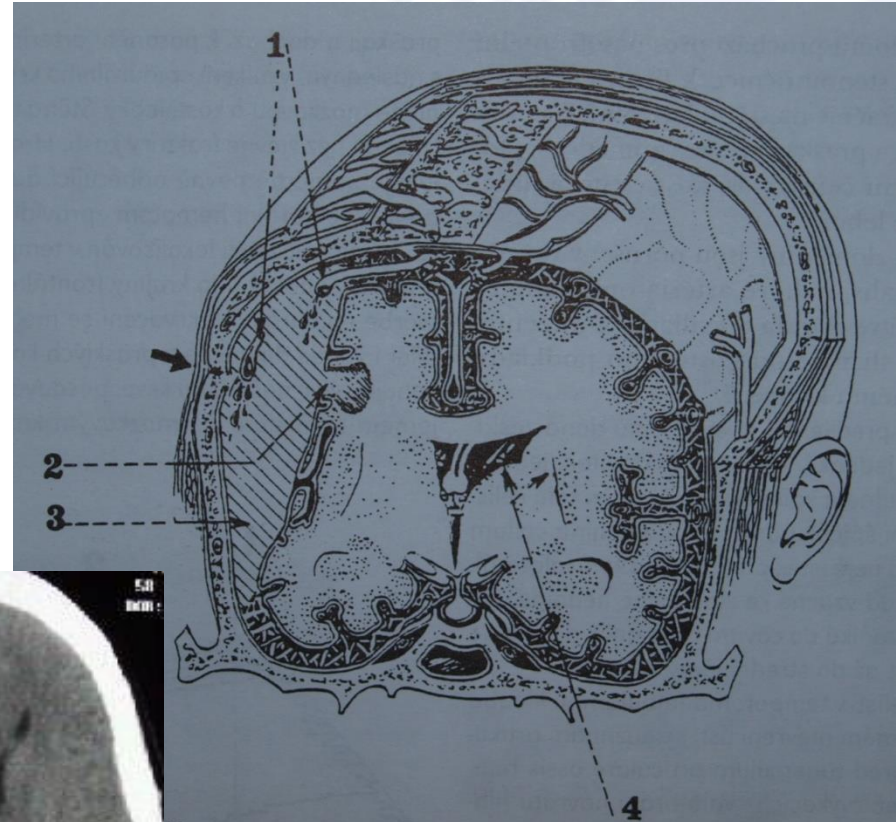
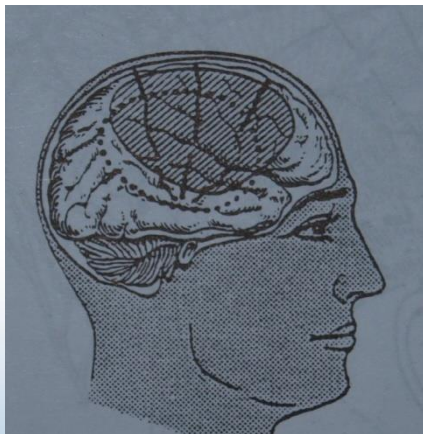
trepanační návrt

kraniotomie

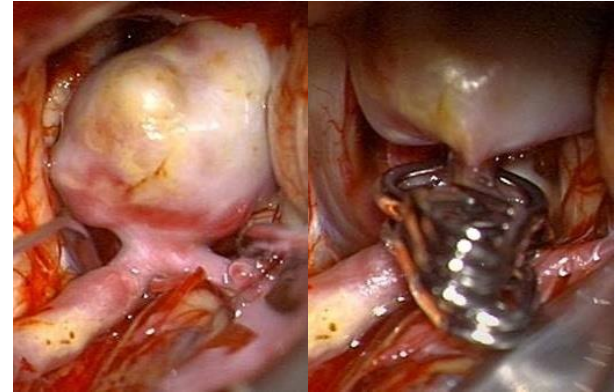
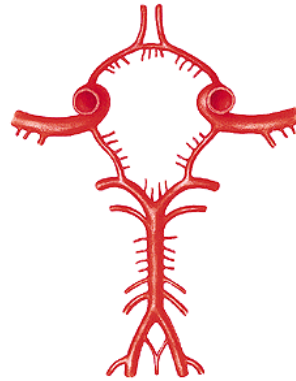
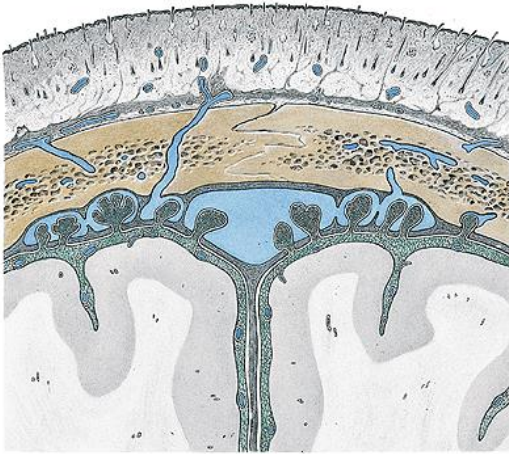
Subdurální krvácení



vv. cerebri sup. et inf.

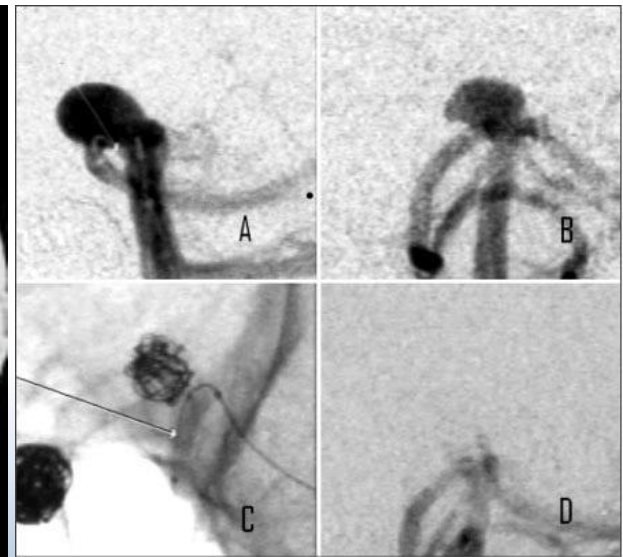


Subarachnoidální krvácení



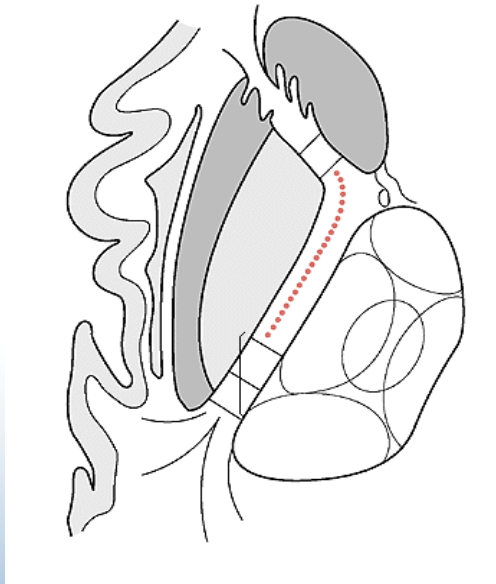
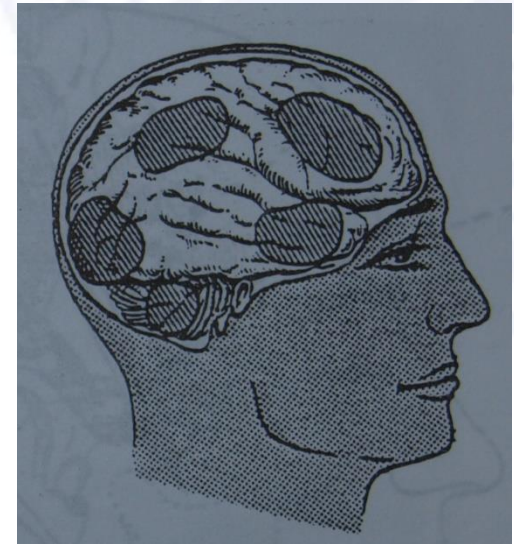
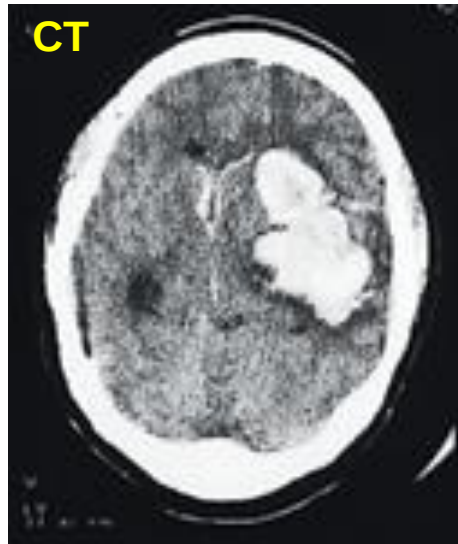
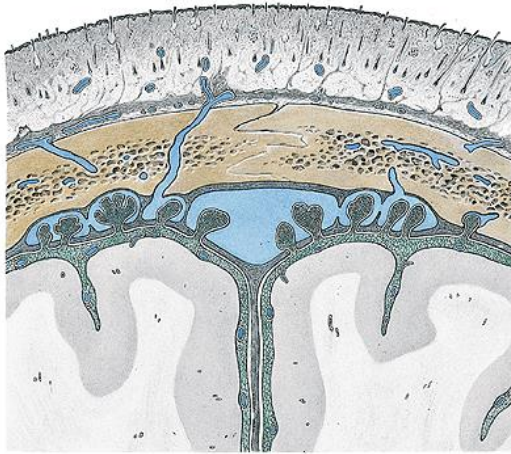
aneurysma - clipping

trauma
aneurysma
AV malformace



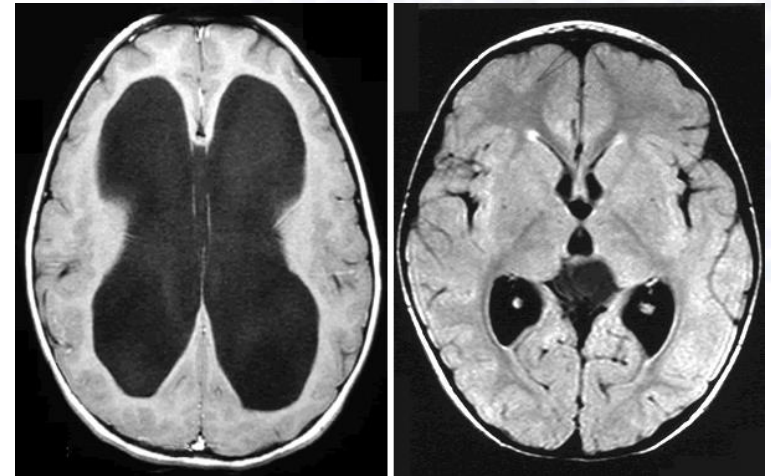
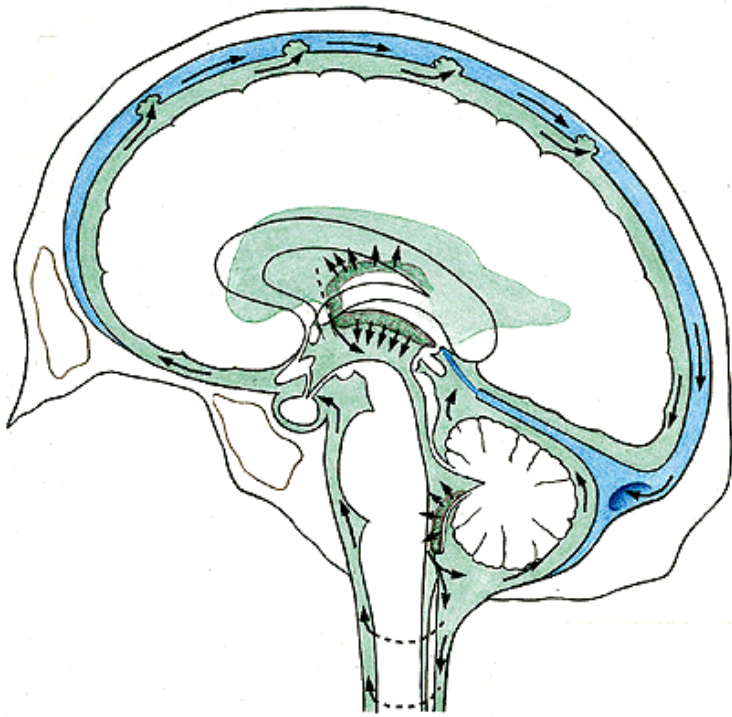
aneurysma - coiling

Intracerebrální krvácení

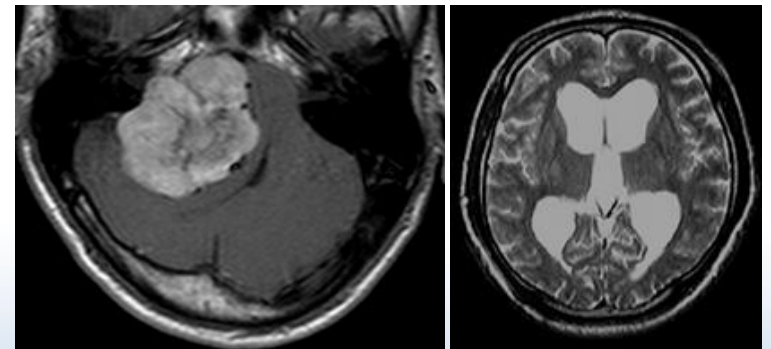


hemocefalus

Hydrocephalus

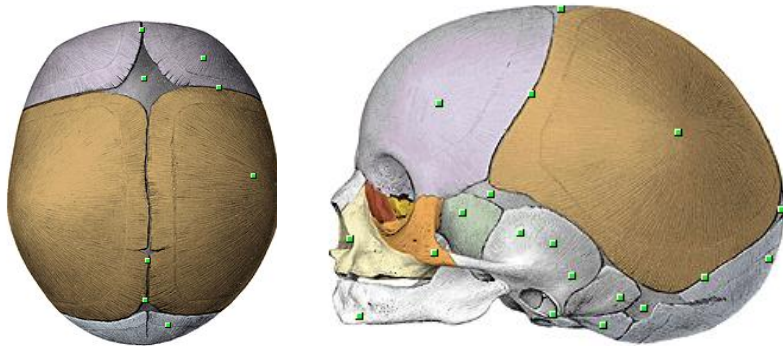


komunikující (stp meningitis)

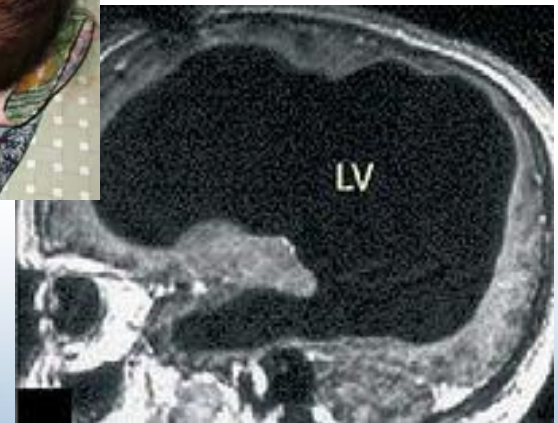


nekomunikující (TU MMK)

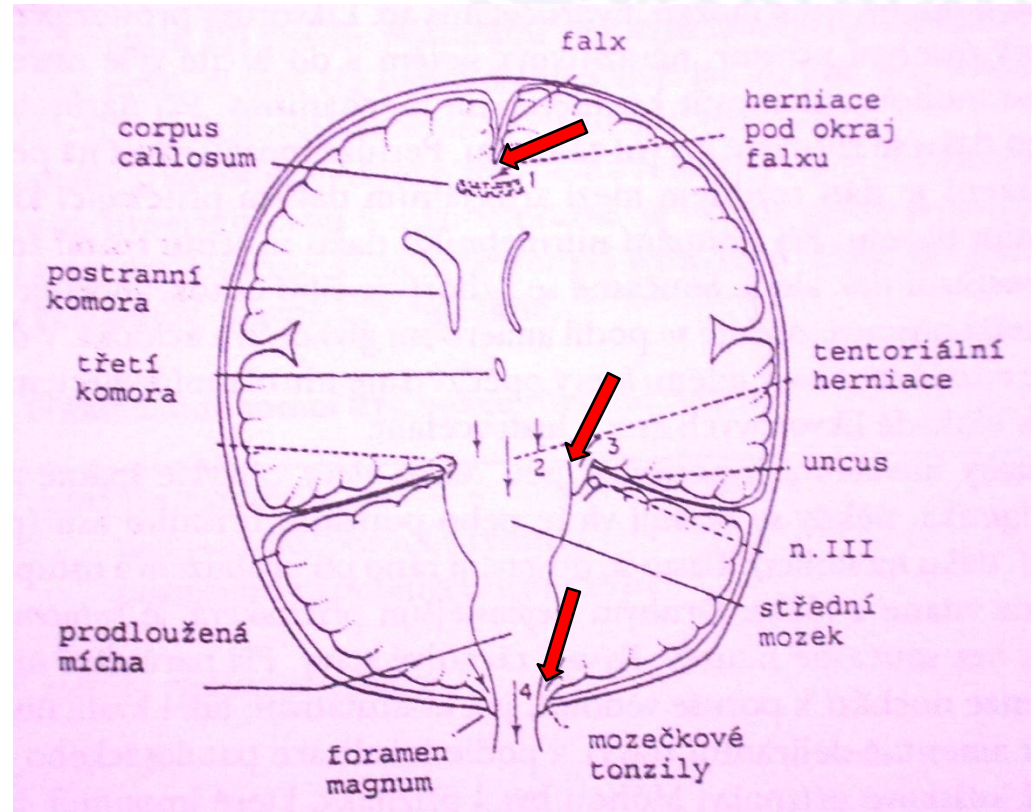
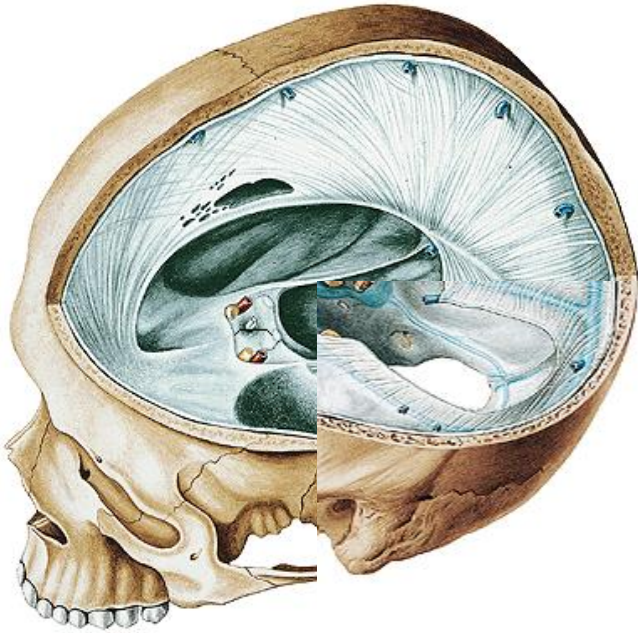
Fontanely



orientace při porodu
hydrocefalus
dehydratace
transkaniální US
punkce

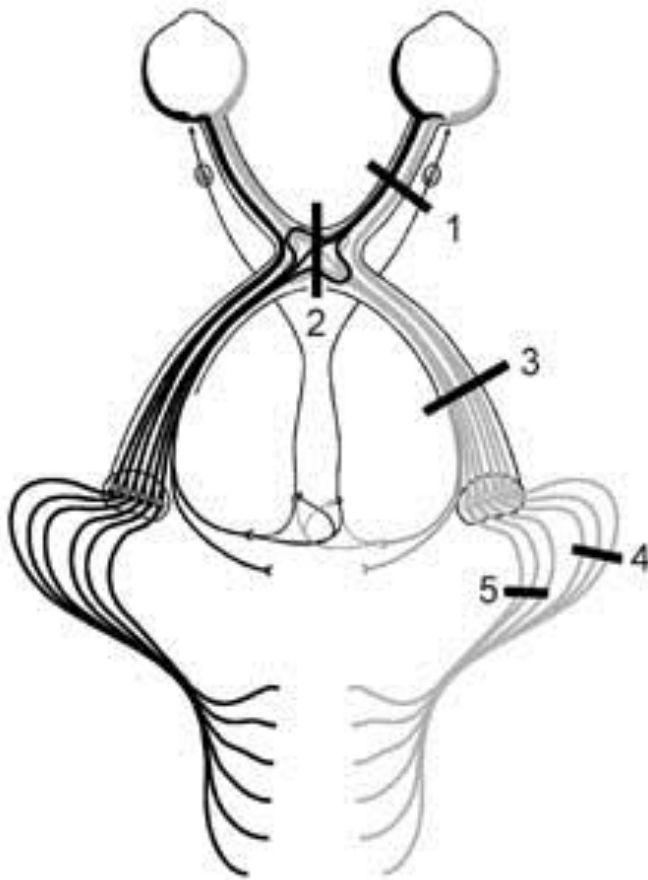


Intrakraniální hypertenze



intrakraniální herniace
konusy

N. II



amaurosis



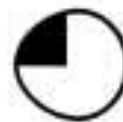
bitemp. heteronym.
hemianopsia



kontralat. homonym.
hemianopsia



kontralat. homonym.
quadrantopsia inf.



kontralat. homonym.
quadrantopsia sup.

N. III, IV, VI

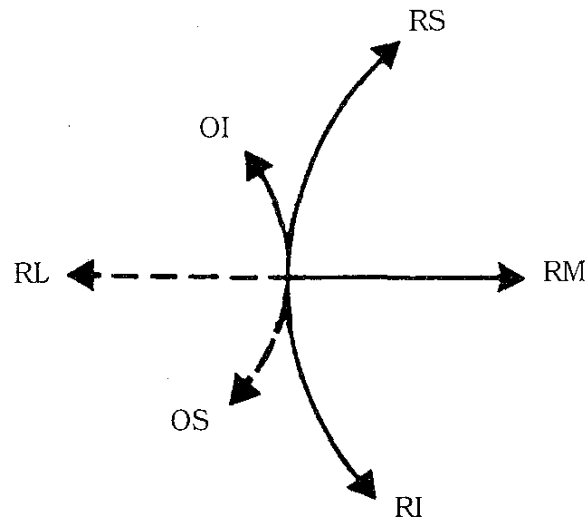
Směr a velikost šipek ukazují pohyb bulbem při kontrakci příslušného svalu.

OI – m. obliquus inferior
OS – m. obliquus superior
RI – m. rectus inferior
RL – m. rectus lateralis
RM – m. rectus medialis
RS – m. rectus superior

U svalů znázorňují použité čáry: silná plná – n. III.,
čárkovaná – n. IV., tenká přerušovaná – n. VI.



paresa n. VI



paresa n. IV



paresa n. III

Hornerův syndrom

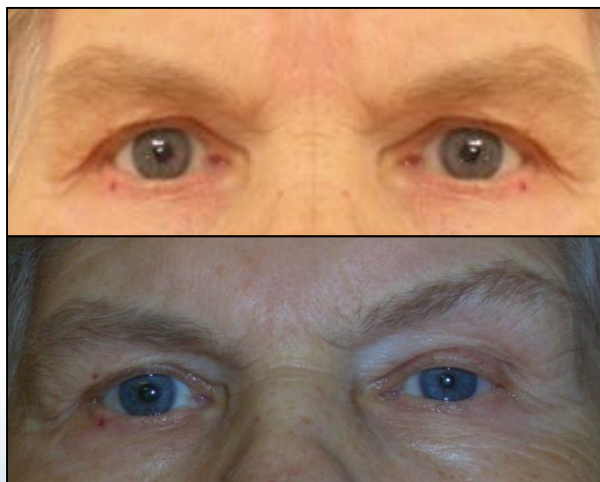
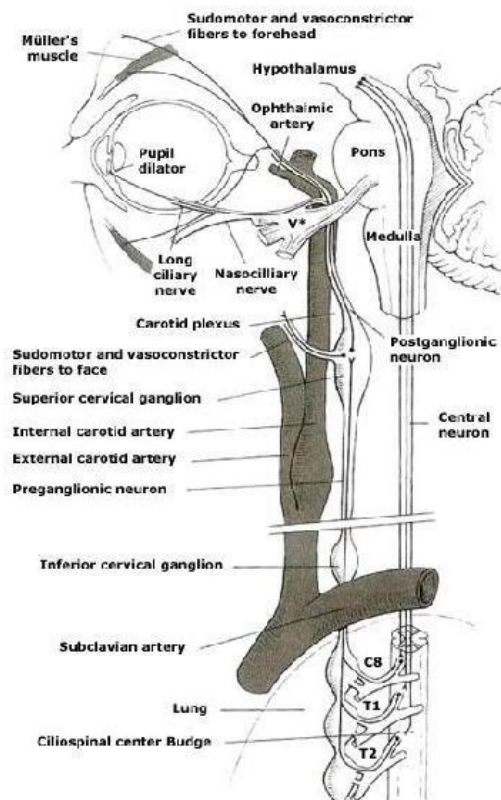
léze tr. sympathicus

mioza

ptoza

enofthalmos

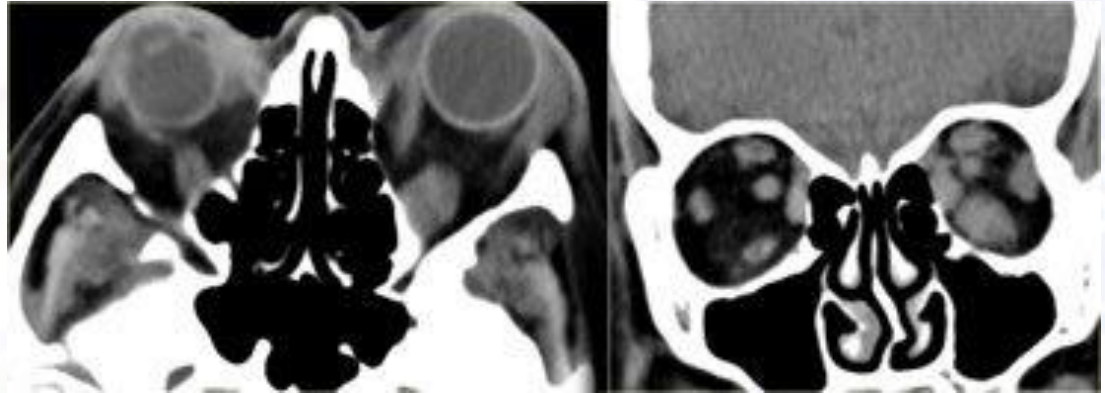
hemifacialni anhydroza



kong. Hornerův syn.

schwannom tr. sympathicus – stp operaci

Exoftalmos et proptosis

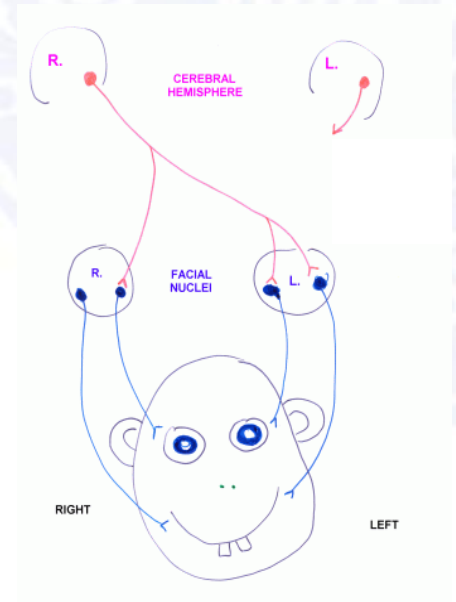
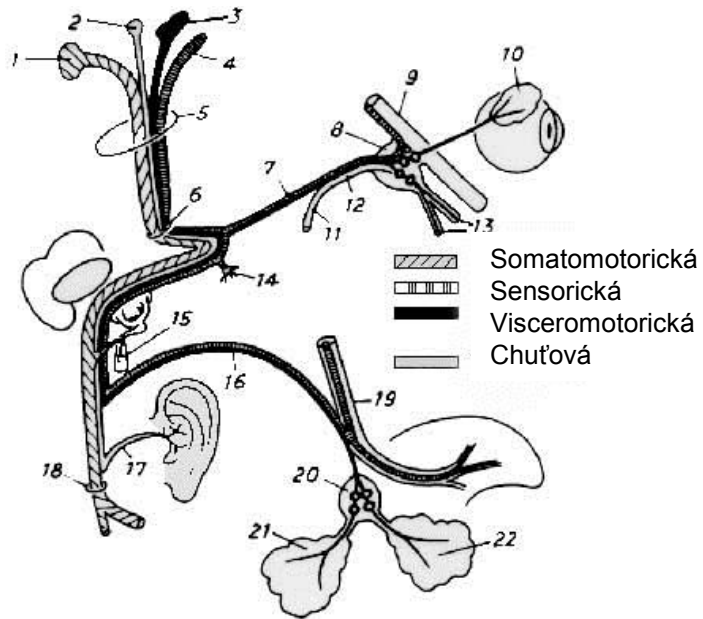


thyroidní ophtalmopathie



granulocytární sarcom

N. VII



perif. paresa n. VII (léze v MMK)

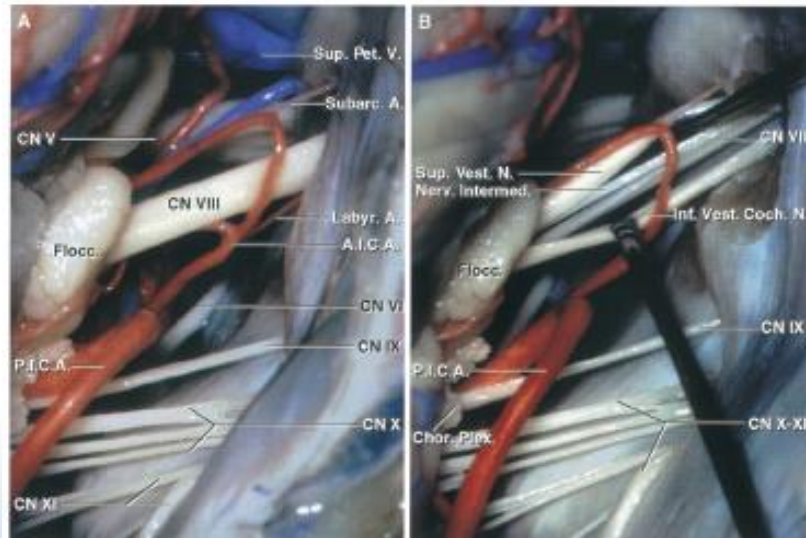


kong. paresa n. VII

N. VIII



fundus meatus ac. int. I.d.x.



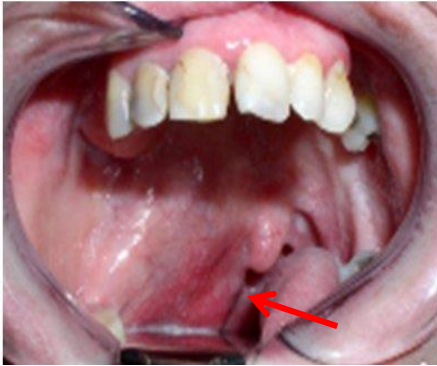
ang. pontocerebel. I.d.x.

percepční nedoslýchavost
tinnitus
perif. vestibulární syndrom

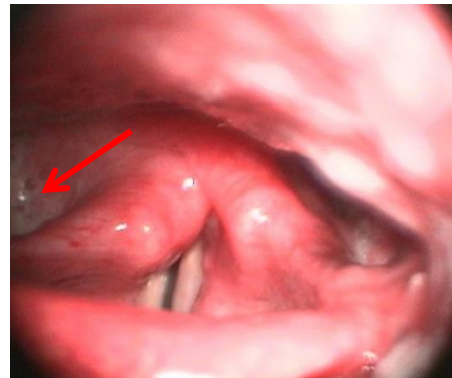
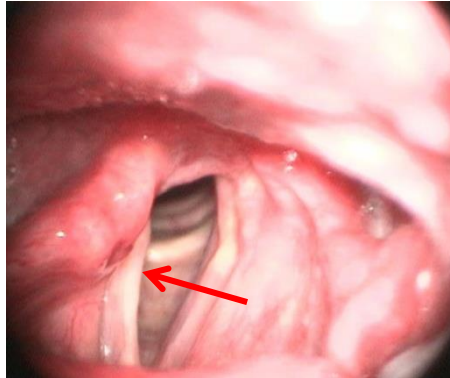


nystagmus

N. IX, X, XI



paresa n. IX



paresa n. X



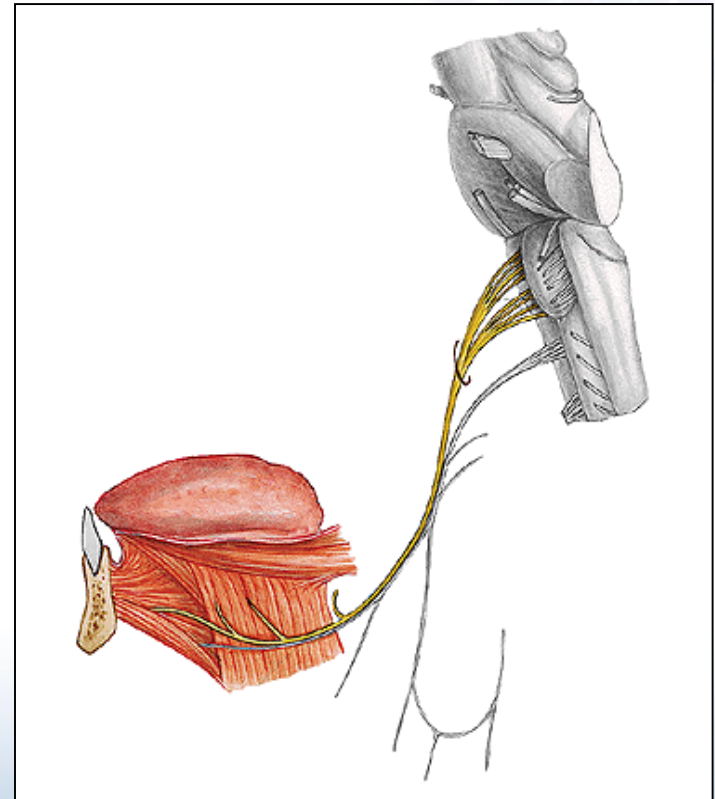
paresa n. XI

N. XII



schwannom n. XII l.sin.

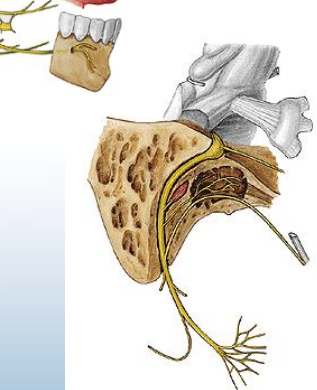
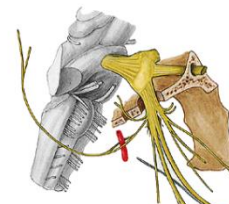
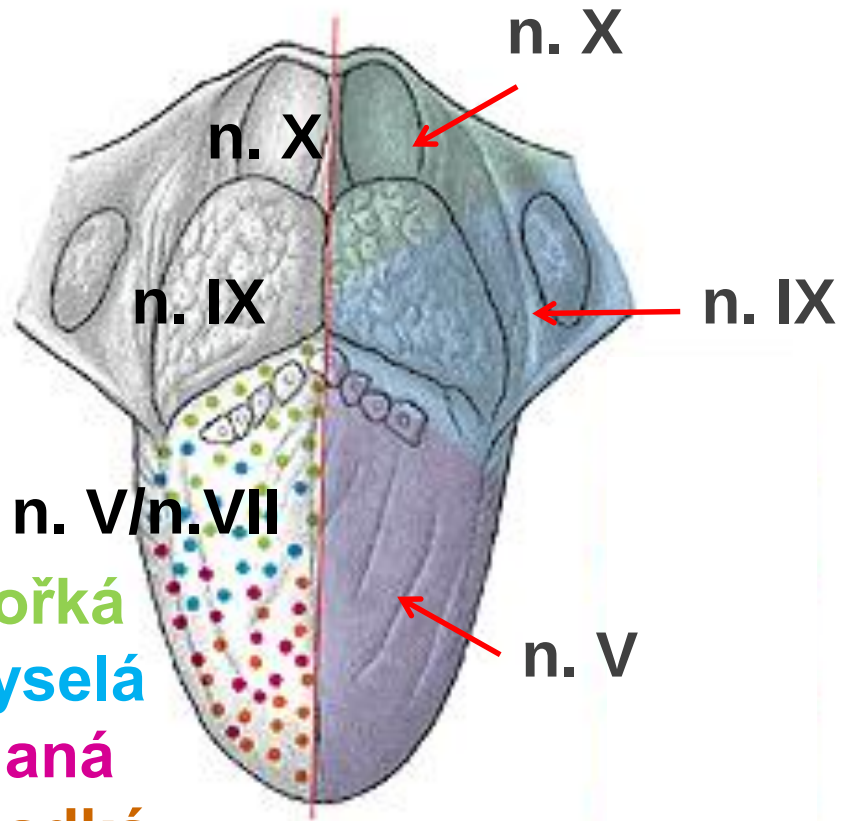
paréza n. XII



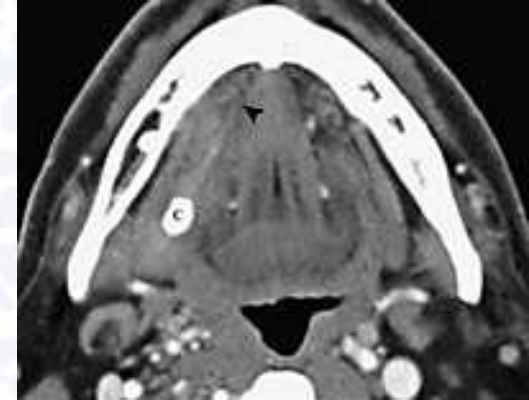
Inervace jazyka

chut'

sensitivita



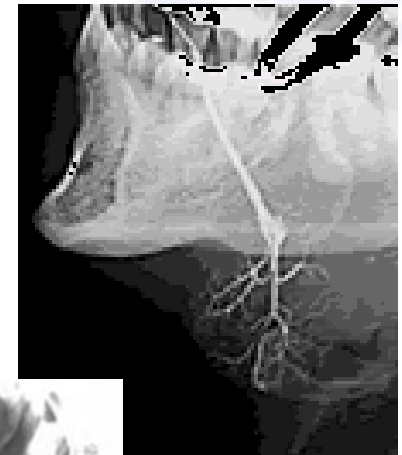
Velké slinné žlázy



sialolithiasis



sialoendoskopie



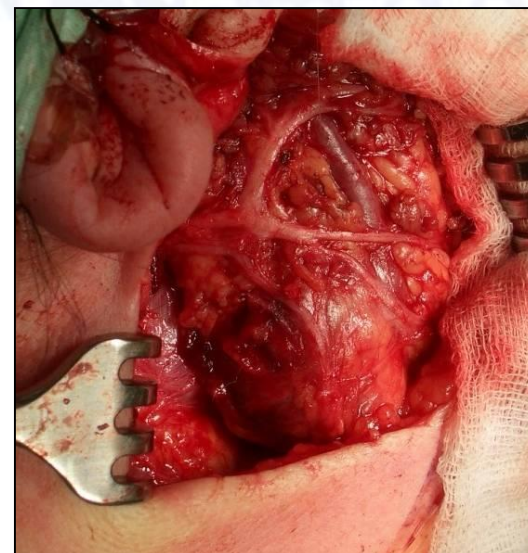
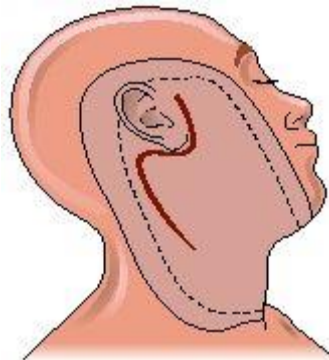
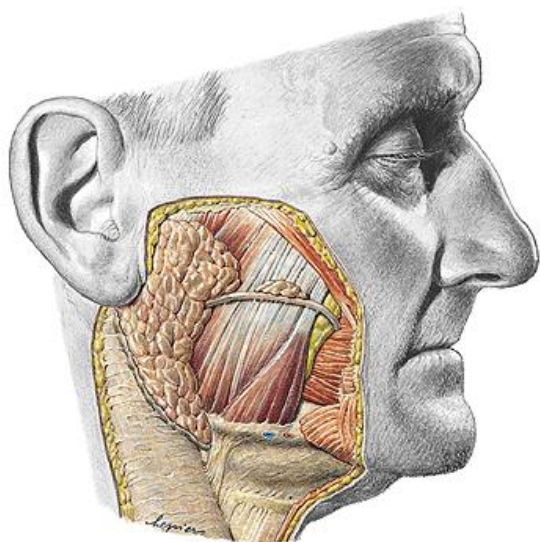
gl. submand.



gl. parotis

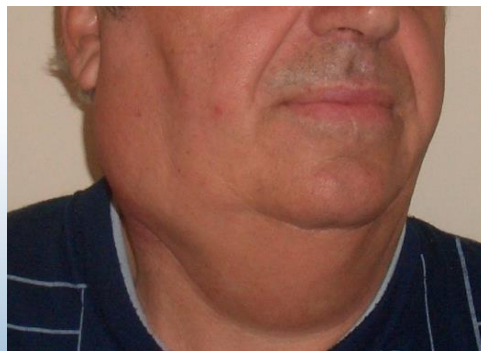
sialografie

Glandula parotis



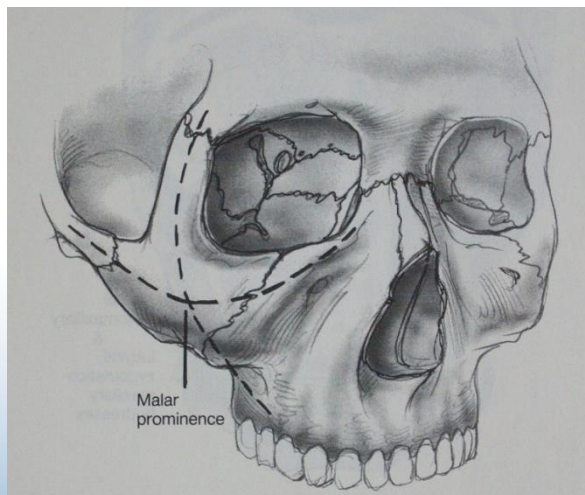
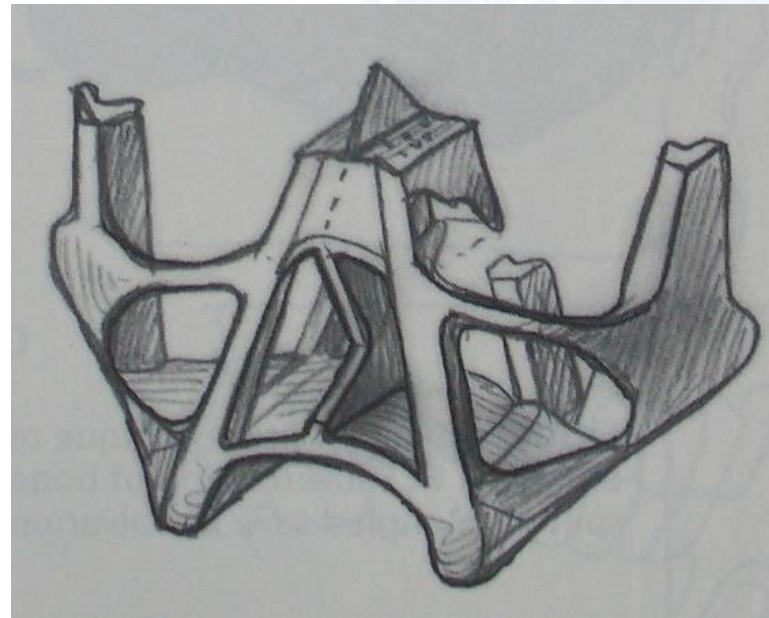
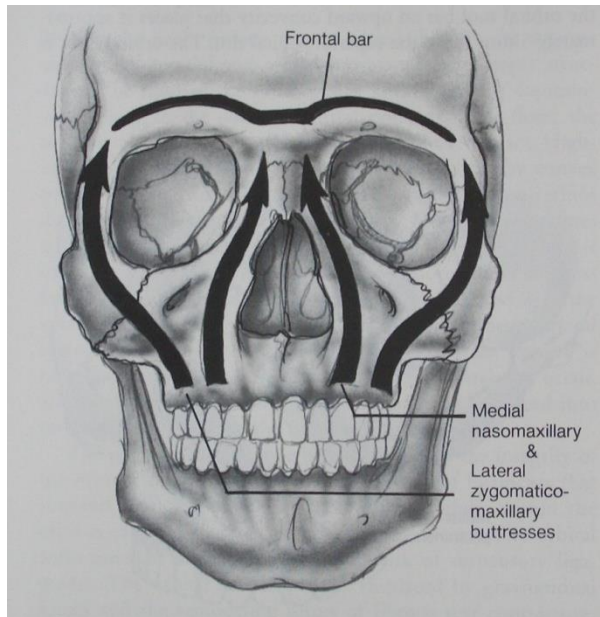
superf. parotidectomie

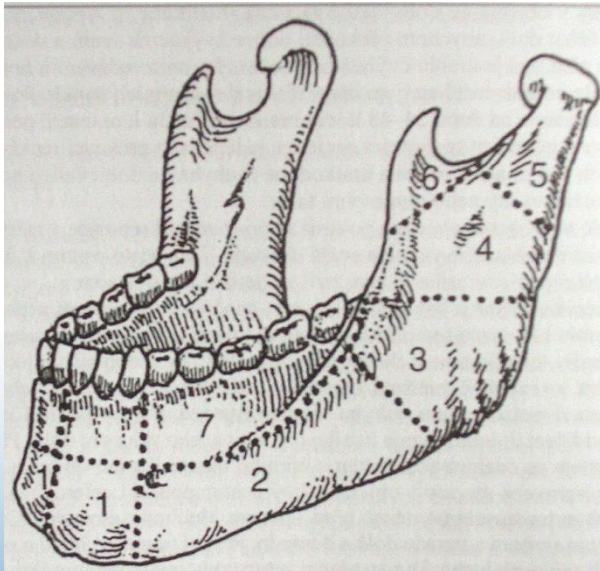
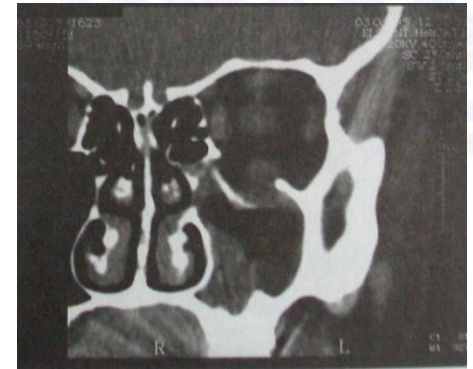
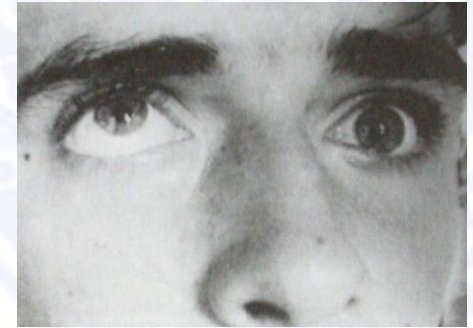
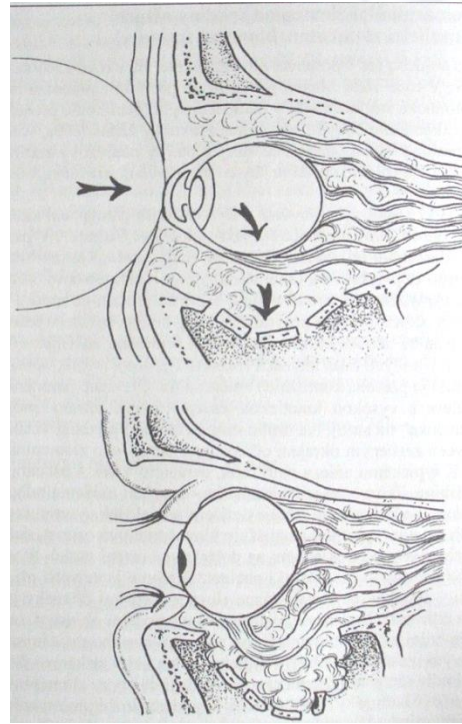
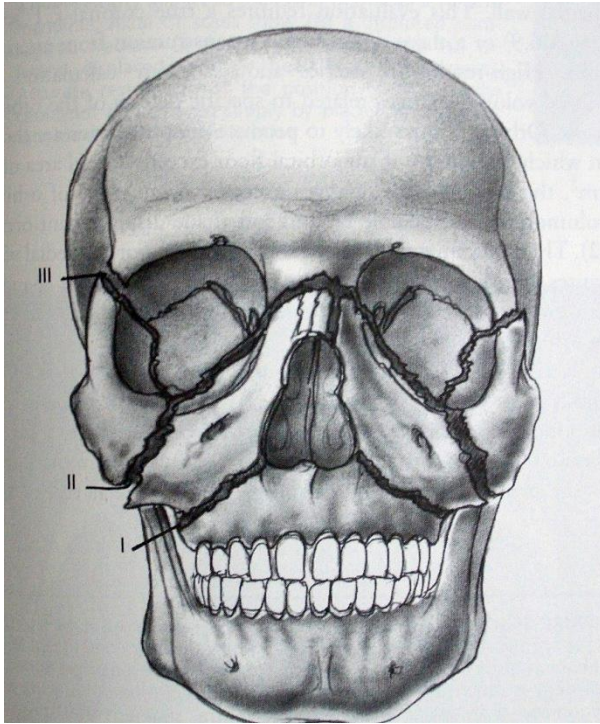
metastáza do parotických uzlin

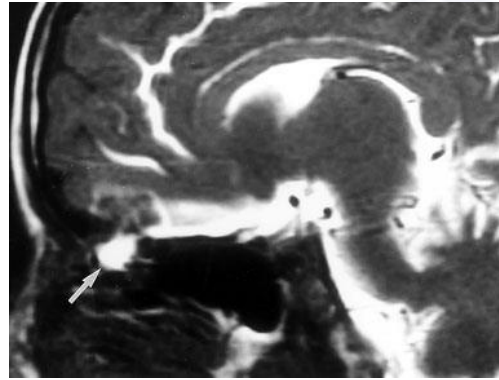
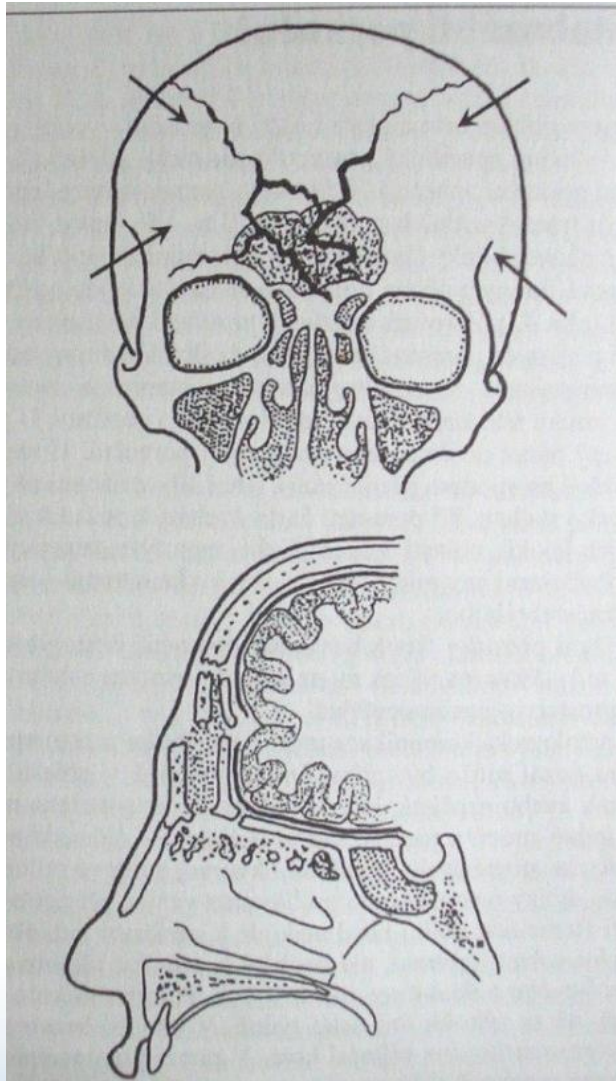


DĚKUJI ZA POZORNOST











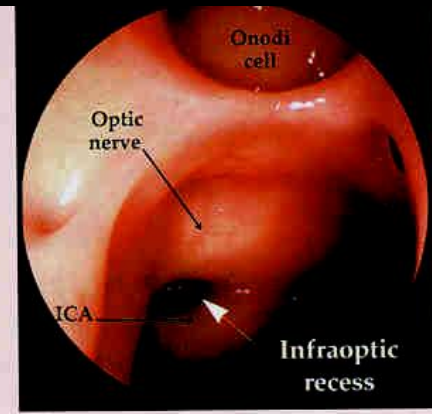
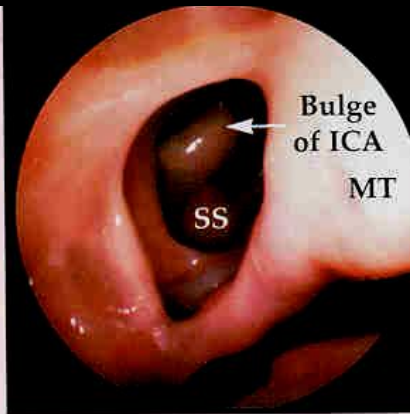
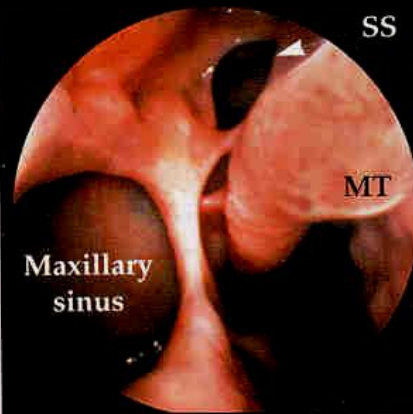




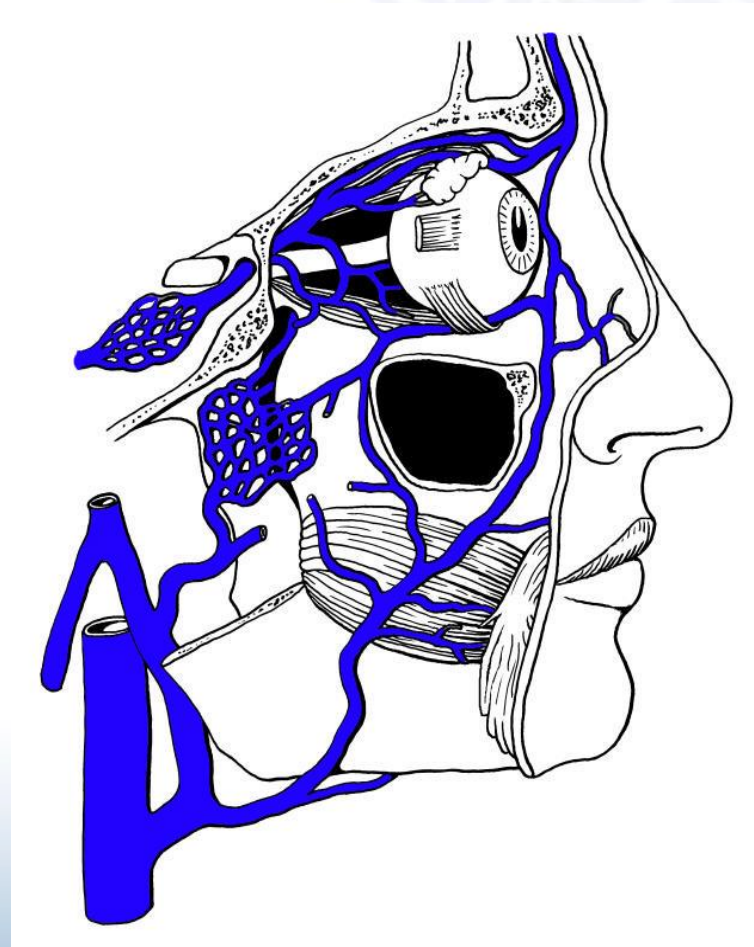
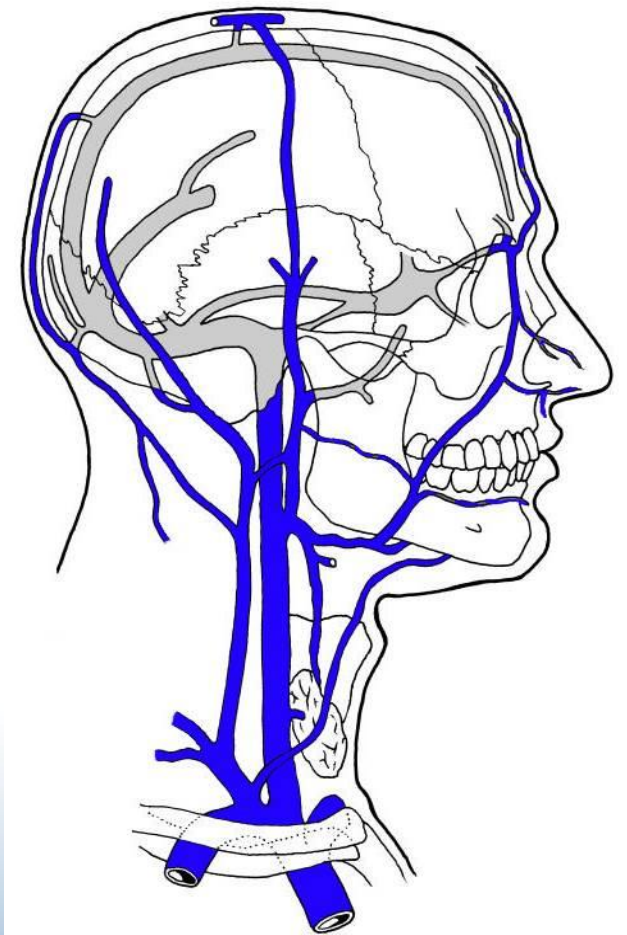




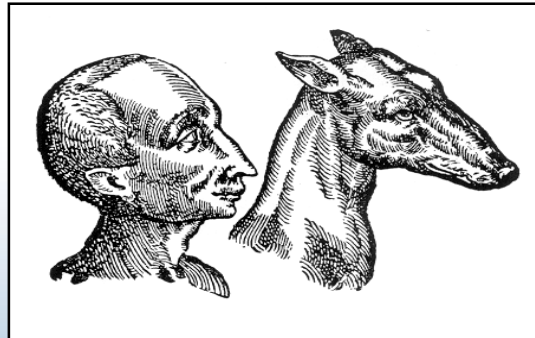
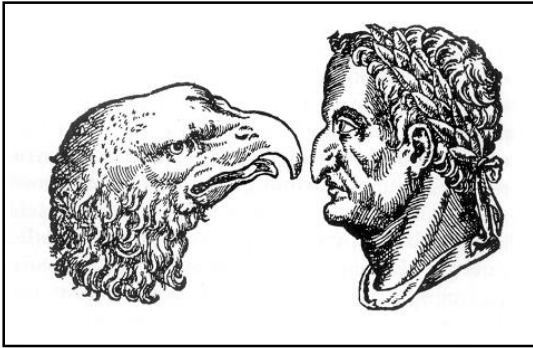
SINUS SPHENOIDALIS



Komplikace sinusitid



Hlava



**měkké pokrývky lební
lebka
dutiny nosní a VDN
očnice
ucho a skaní kost
dutina ústní
slinné žlázy**