

# **Klinická anatomie hlavy**

# Hmatné útvary na hlavě



t. frontale

glabella

s. frontozygomatica

i. supraorbitalis et supratrochlearis

c. lacrimalis ant., lig. palp. mediale

c. infraorbitalis, s. zygomaticomaxillaris

sp. nasalis ant., ap. piriformis

c. infrazygomatica

juga alveolaria

f. canina

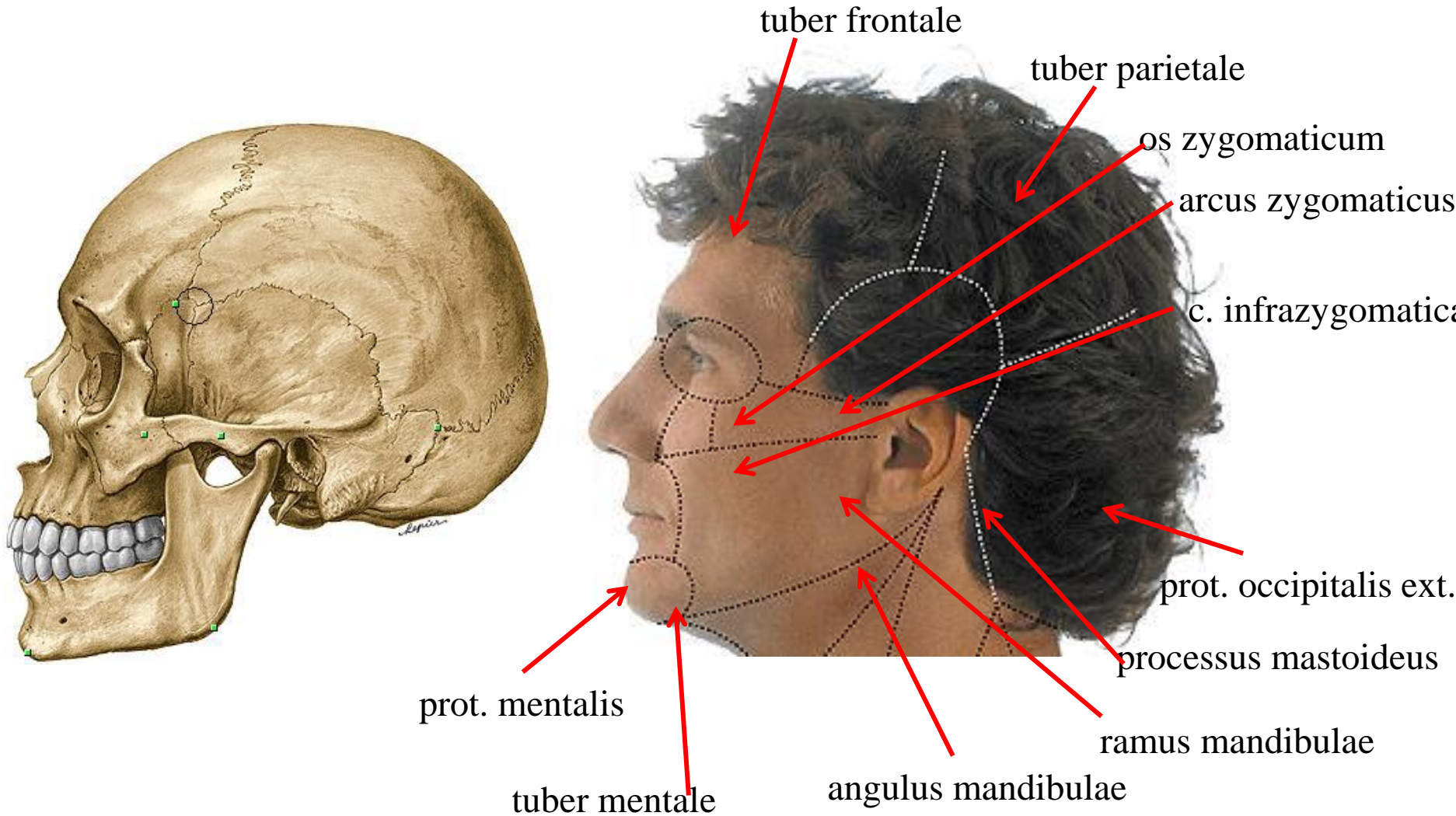
ang. mandibulae

corp. mandibulae

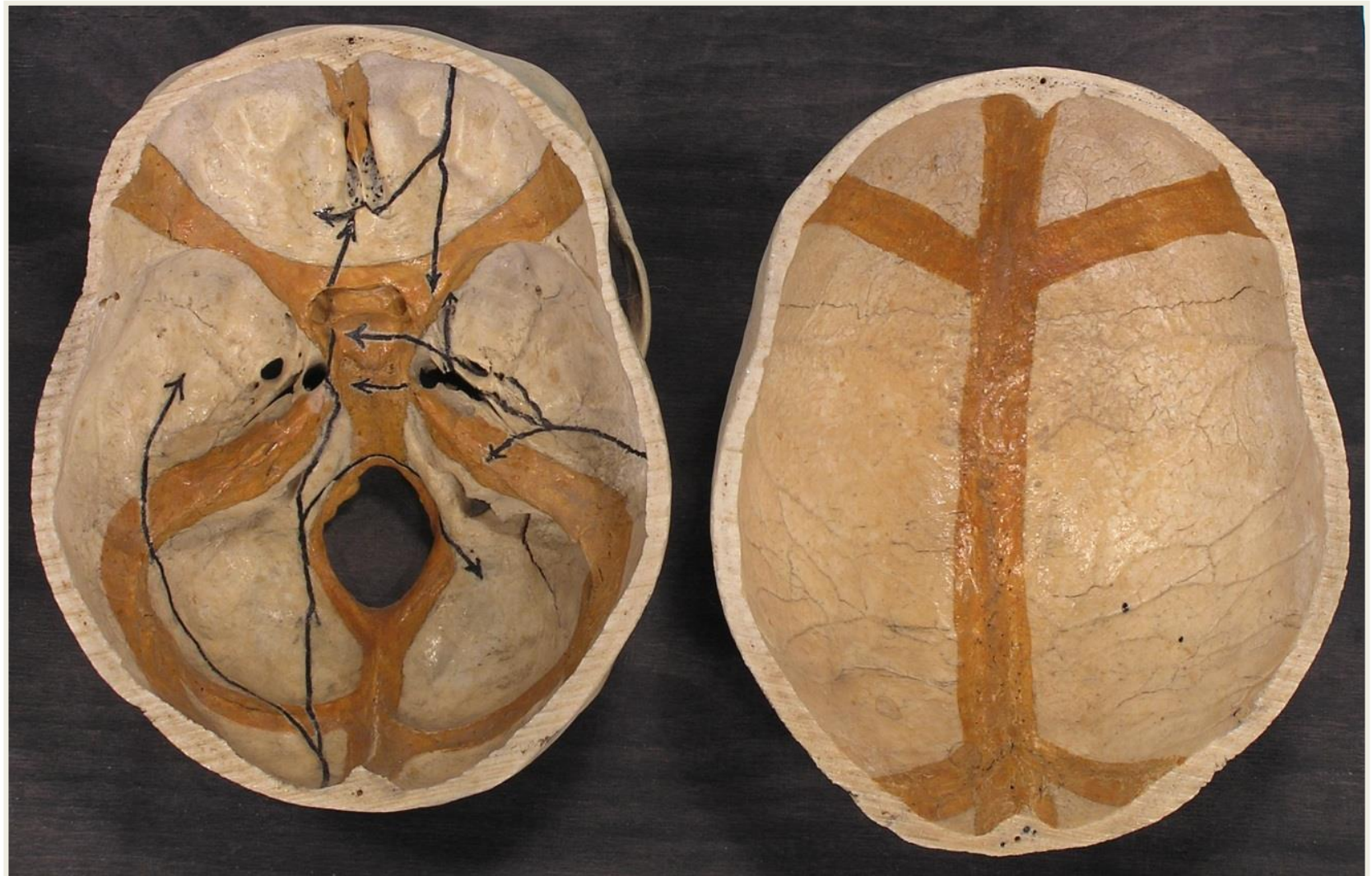
prot. mentalis

tub. mentale

# Hmatné útvary na hlavě



# Zlomeniny baze lebni

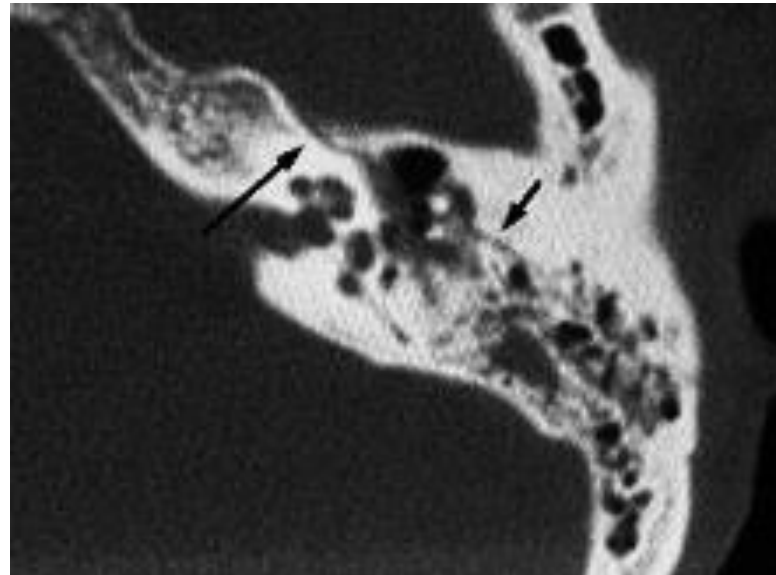
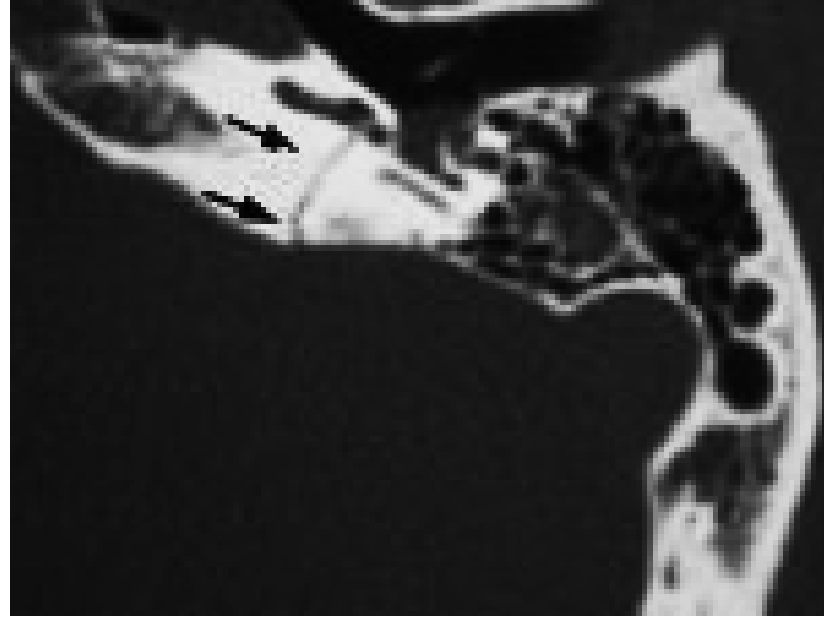




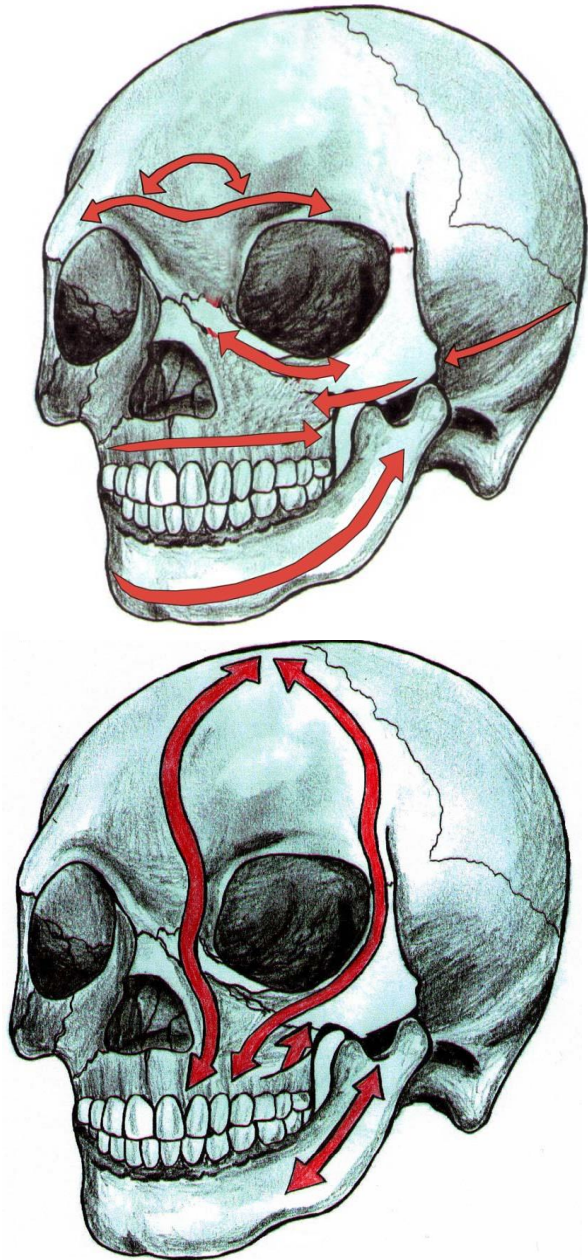
# Zlomeniny spánkové kosti



„Battle sign“



## Pilře splachnokrania

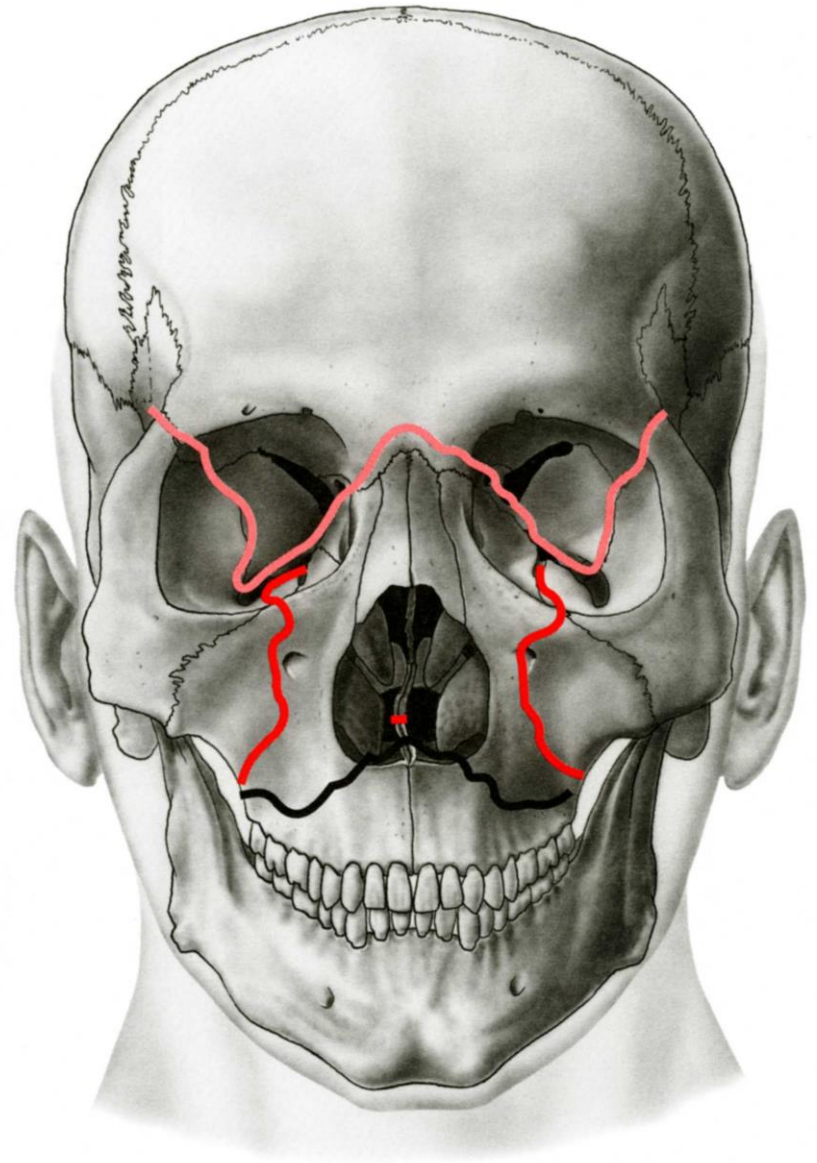


## Le Fortovy zlomeniny

III

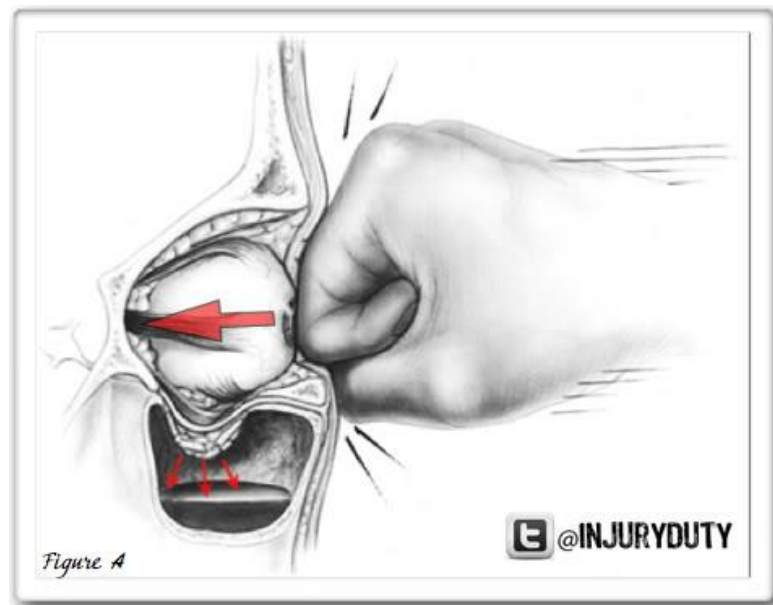
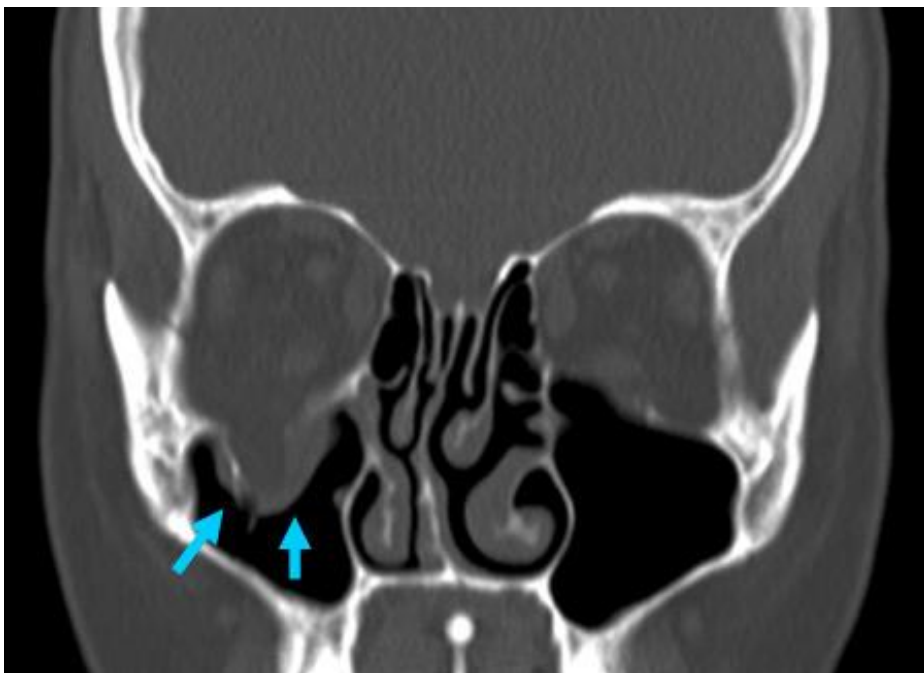
II

I



# Hydraulická zlomeniny spodiny očnice „Blow-out“

- Musculus rectus bulbi inferior
- N. et vasa infraorbitalia





# Zlomeniny mandibuly

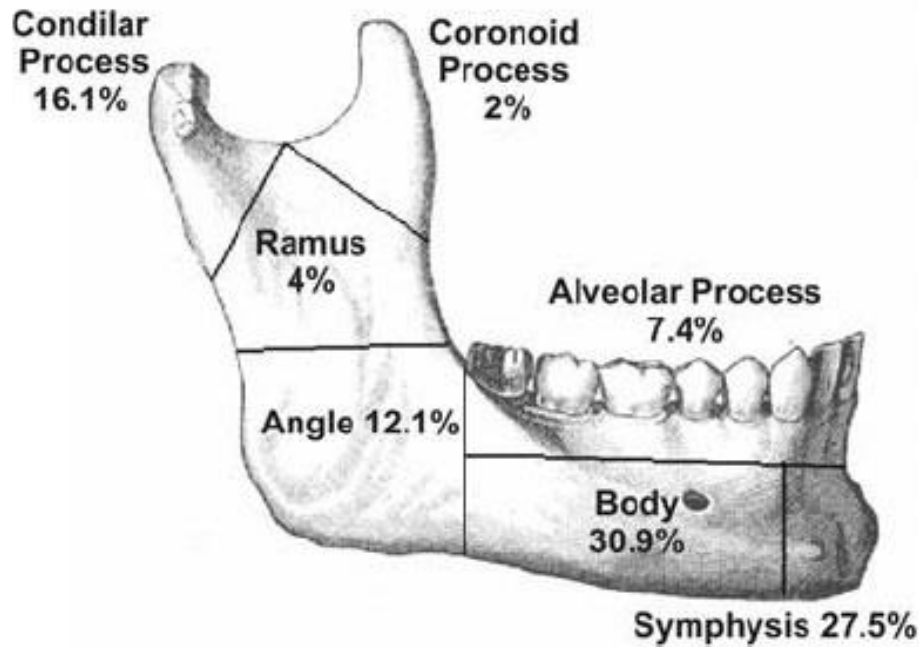
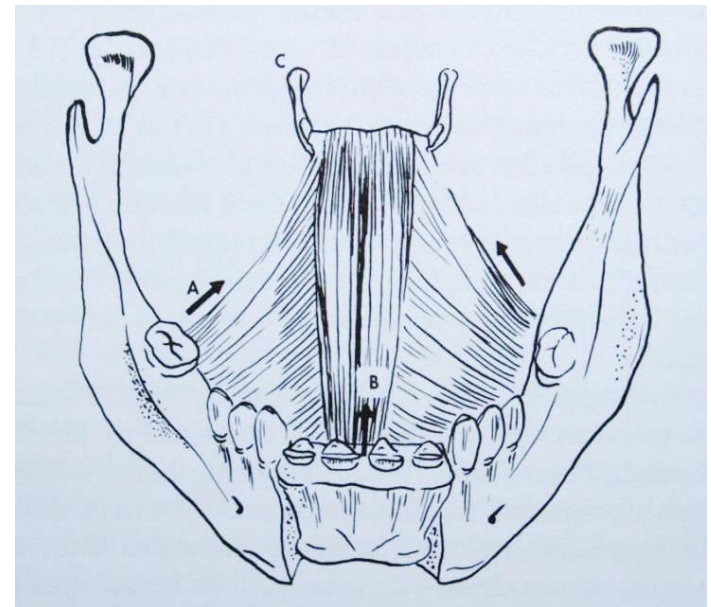
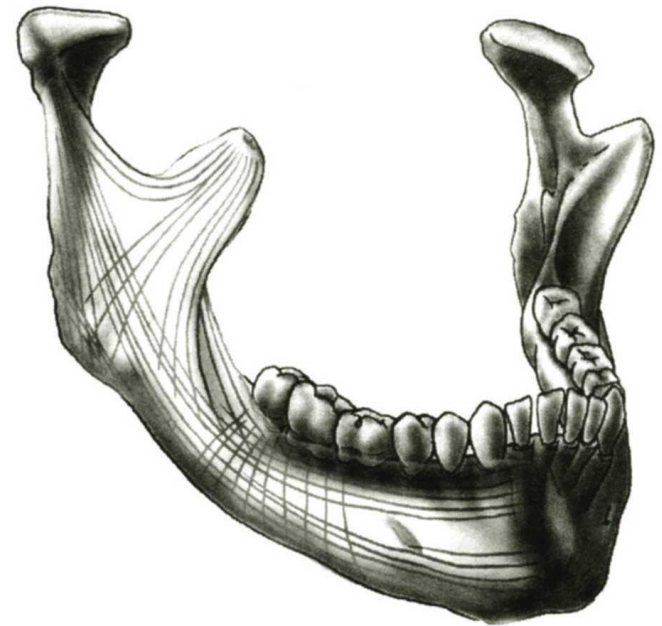
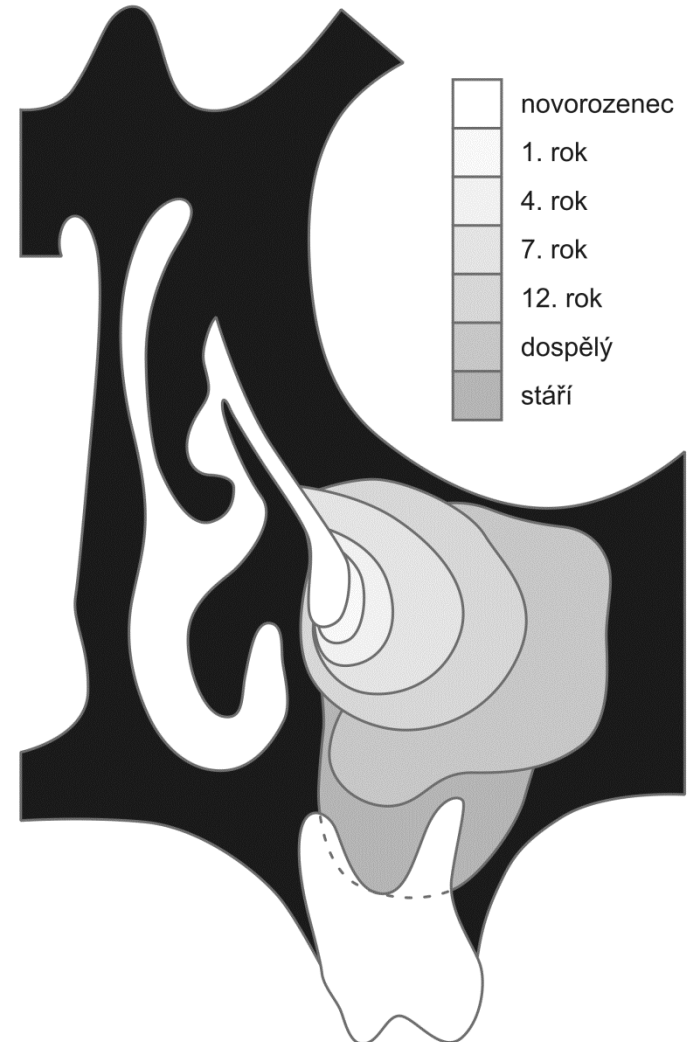


Figure 6. Distribution of the anatomical fracture sites (Modified from Gray, H.: Anatomy of the human body, 1918).

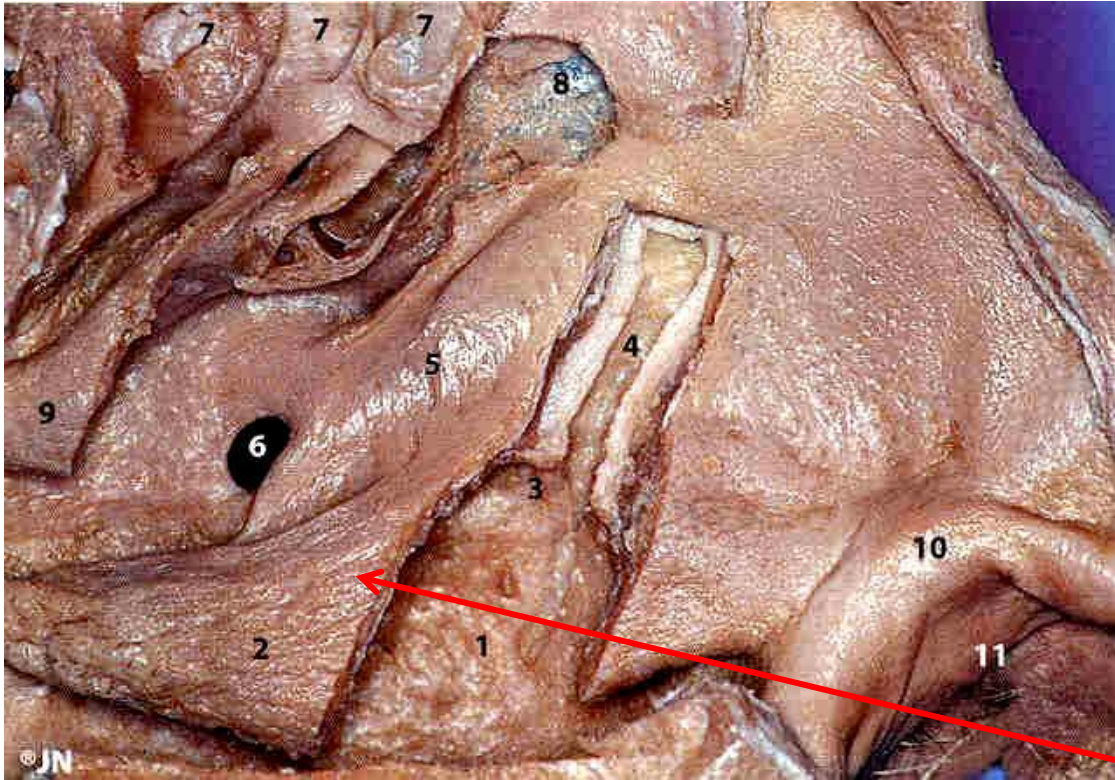
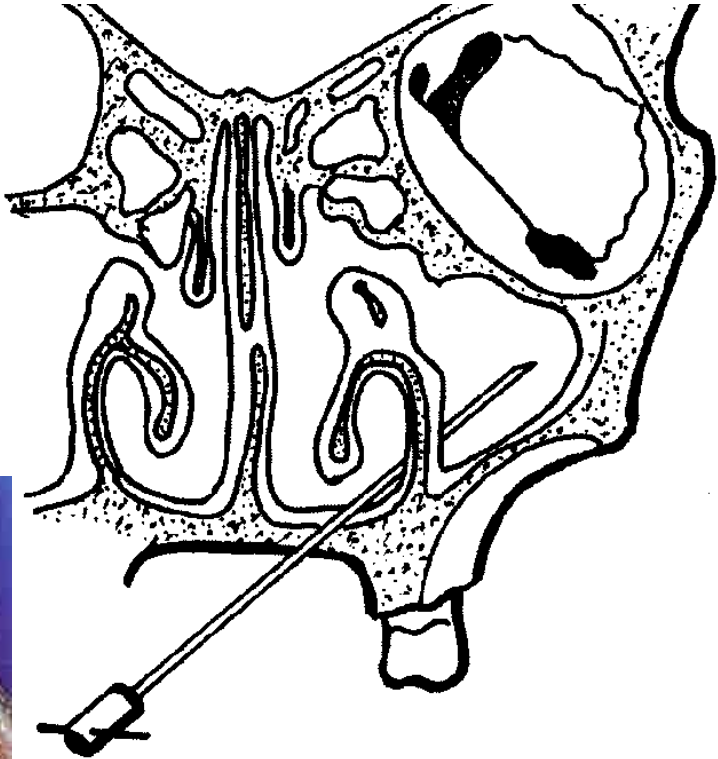


## Sinus maxillaris

- Novorozenec - 5x10x3,5 mm
- Bifazický růst – 0-3; 7-12 yrs
- RTG - 5 m
- Hiatus sinus maxillaris, accesorius
- Topografie: orbita (n. et vasa infrorbitalia), fossa infratemporalis, fossa pterygopalatina, kořeny M1-M3, P2



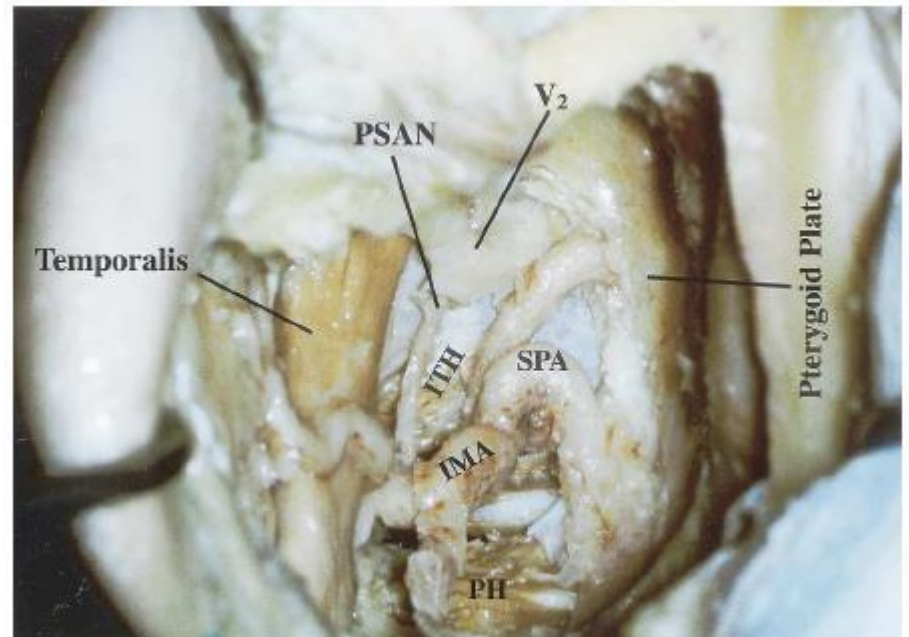
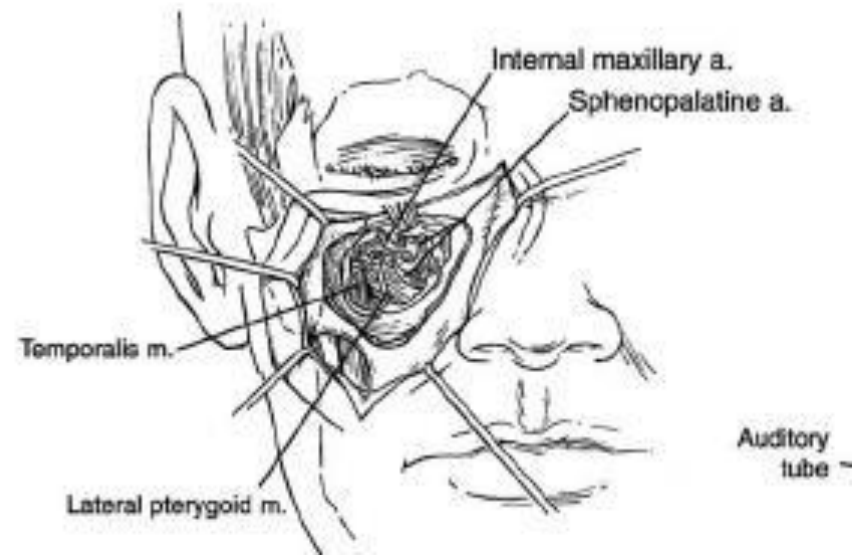
# Punkce sinus maxillaris



# Chirurgické přístupy – sinus maxillaris

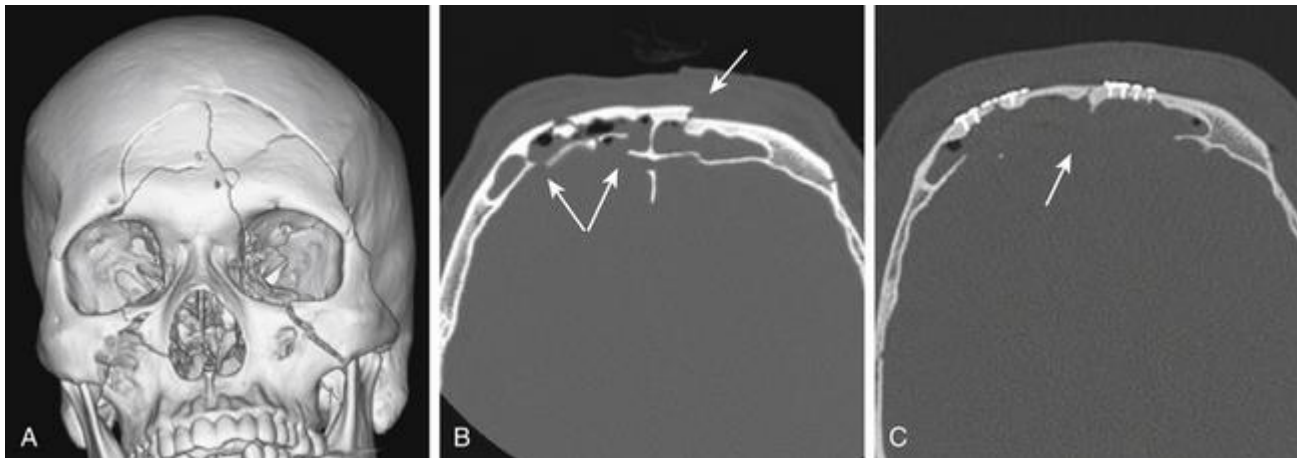
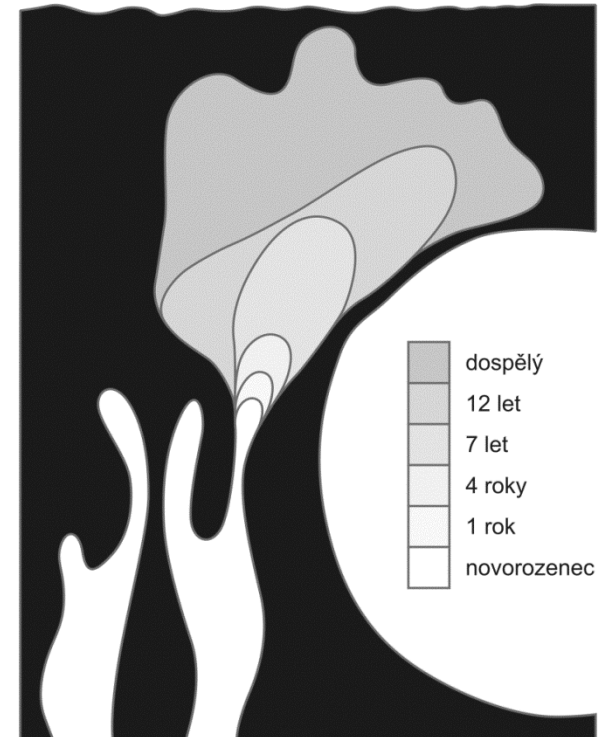


Sectio Caldwell-Luc



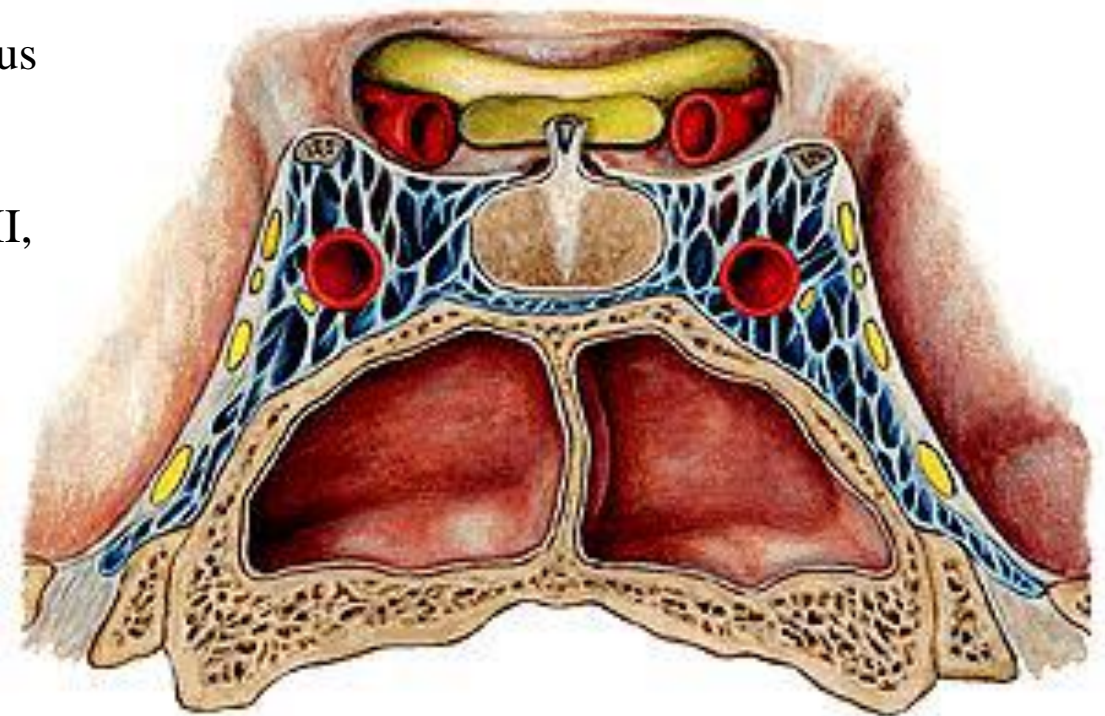
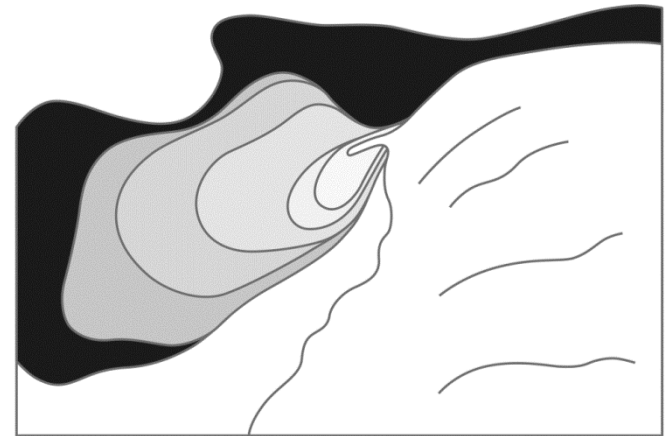
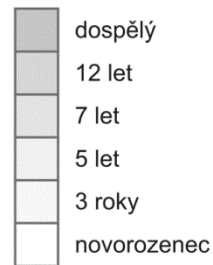
# Sinus frontalis

- Recessus frontalis
- RTG - 2 roky
- Invaze do čelní kosti: 5-8 let
- Adolescence: 17x28x27 mm
- Zdvojení stropu očníce
- Topografie: fossa cerebri anterior, orbita
- Zlomeniny

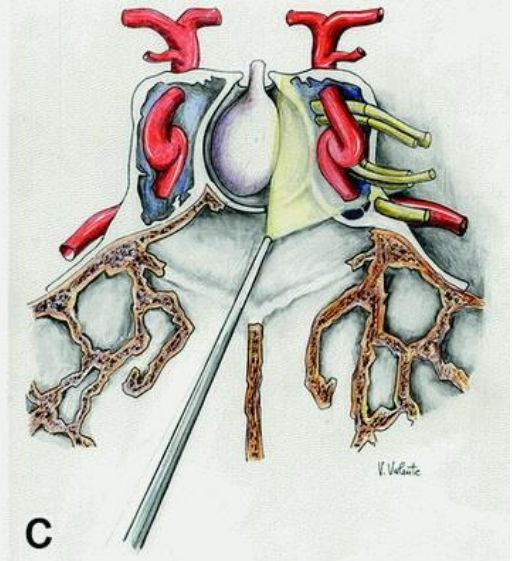
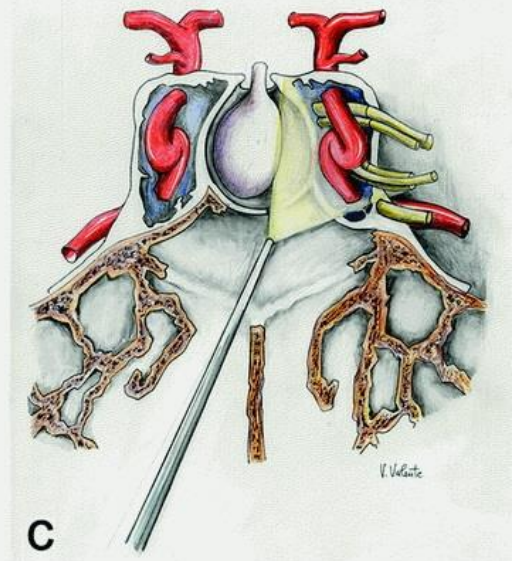
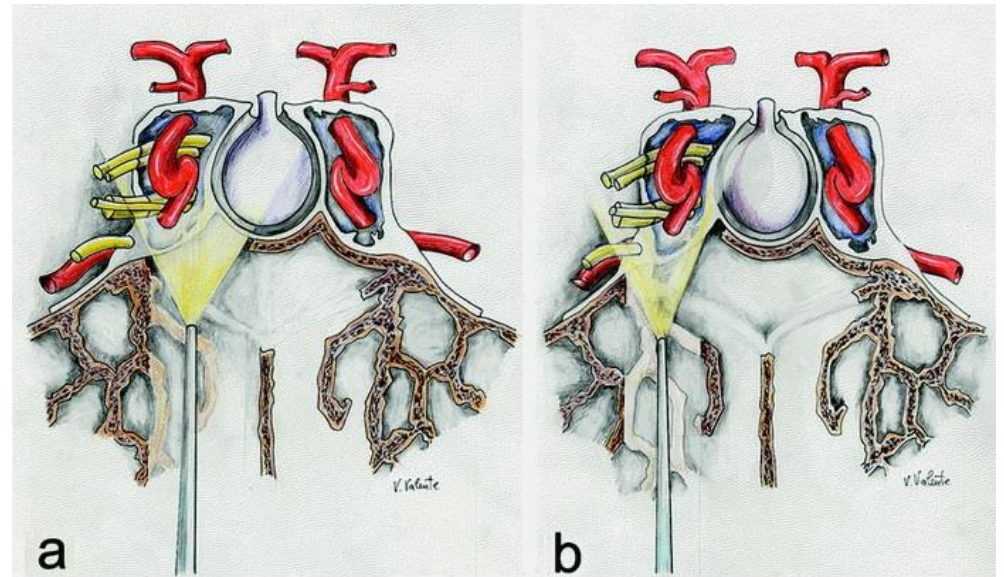
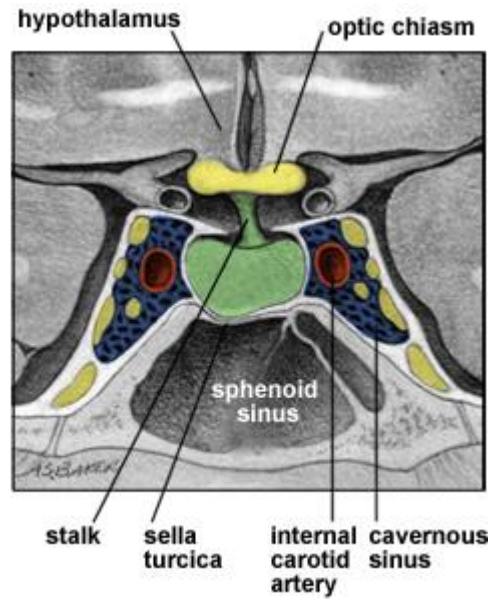
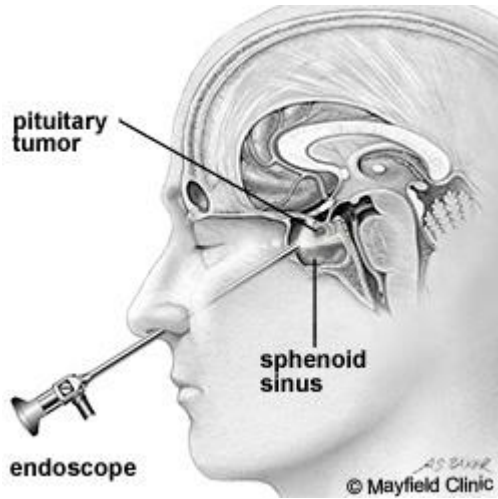


# Sinus sphenoidalis

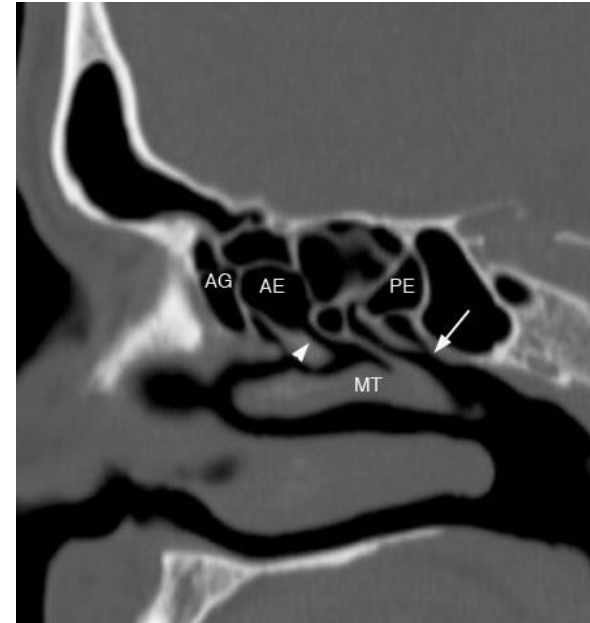
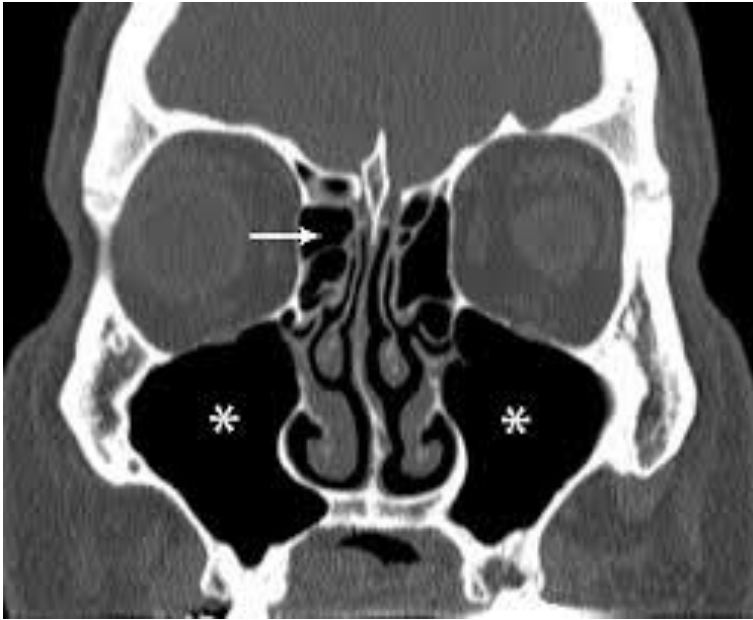
- Novorozenec: slepý váček
- Pneumatizace po 3. roce
- 7. rok: sella turcica
- 18 let: 23x20x17 mm
- Variabilní dosah: alla major, clivus, processus pterygoideus med., os palatinum
- Topografie: sella turcica, n. II, a. carotis interna, sinus cavernosus



# Transsphenoidální přístup



# Sinus ethmoidalis



Klinické dělení: anterior (AEC) and posterior ethmoid cells (PEC)

-bazální lamela – „groundlamela“

AEC: meatus nasi medius

Novorozenec: 2x4x2 mm

18 let: 20x22x10 mm

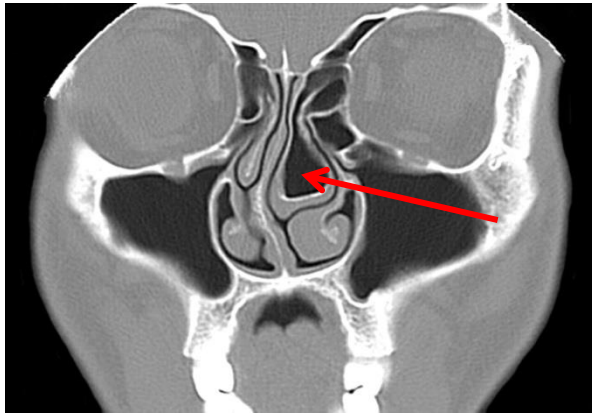
PEC: meatus nasi superior

4 m gestace

18 let: 20x20x10 mm



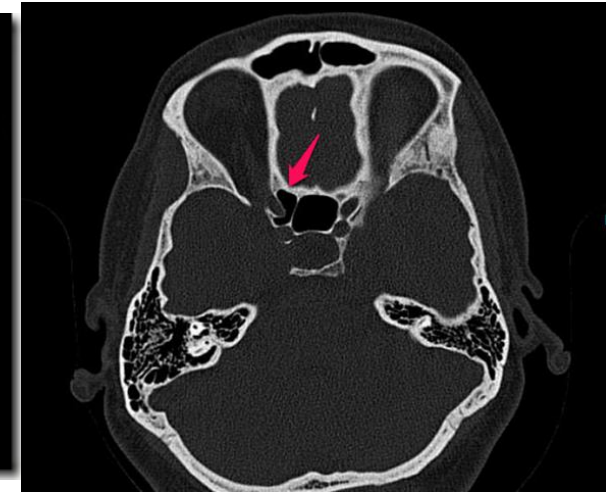
# Variabilita cellulae ethmoidales



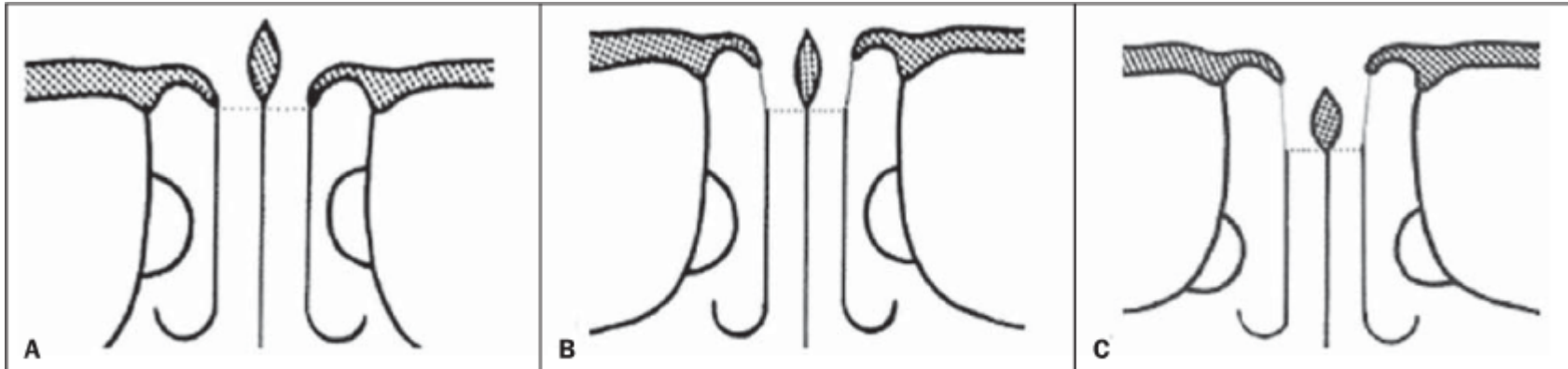
Concha bullosa



Hallerův sklípek

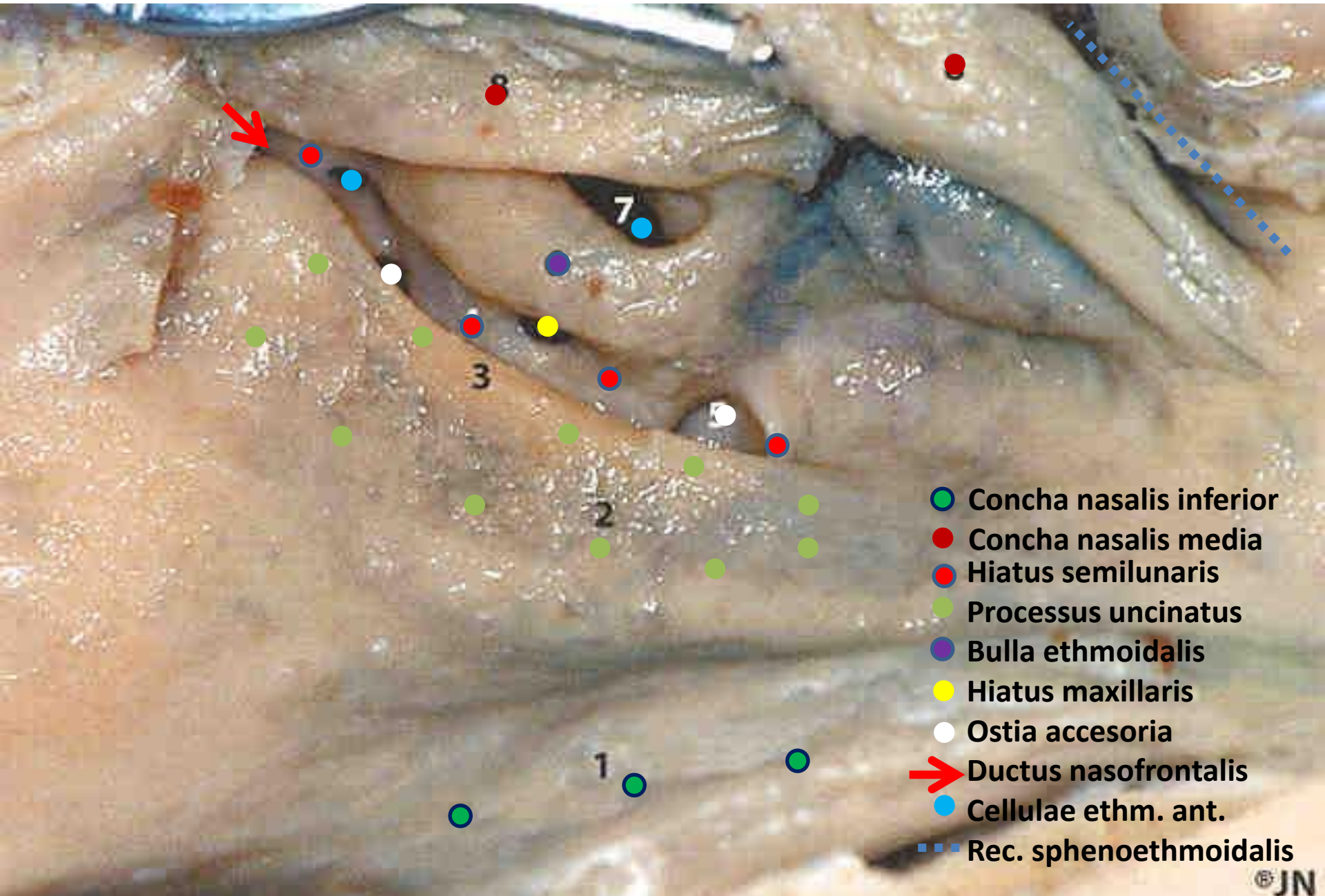


Onodiho sklípky

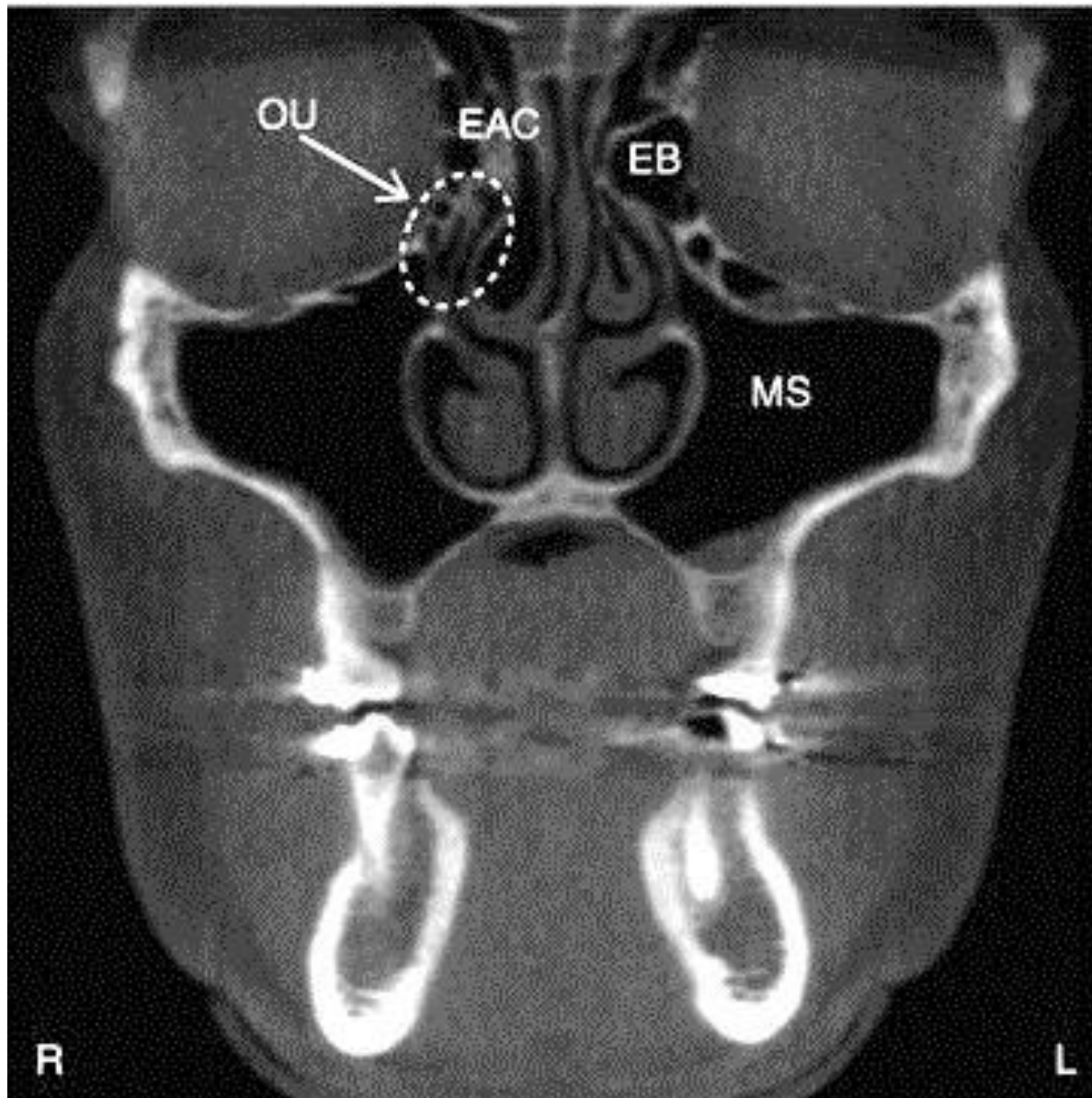


Kerosova klasifikace – typ I-III

# /stí paranasálních dutin



# Ostiomeatální komplex



- Infundibulum ethmoidale
- Processus uncinatus
- Hiatus semilunaris
- Bulla ethmoidalis
- Meatus nasi medius

# Komplikace sinusitid

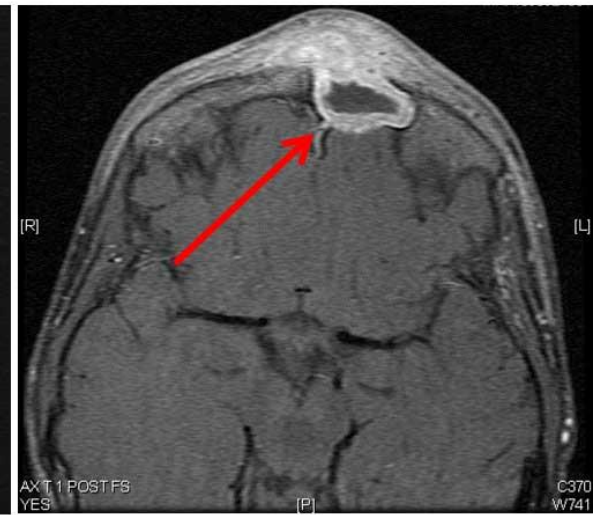


## Extrakraniální: osteomyelitis

Sinusitis Complication in Child with Sickle Cell Anemia: Brain Abscess



Coronal MRI



Axial MRI

## Intrakraniální:

meningitis

empyem

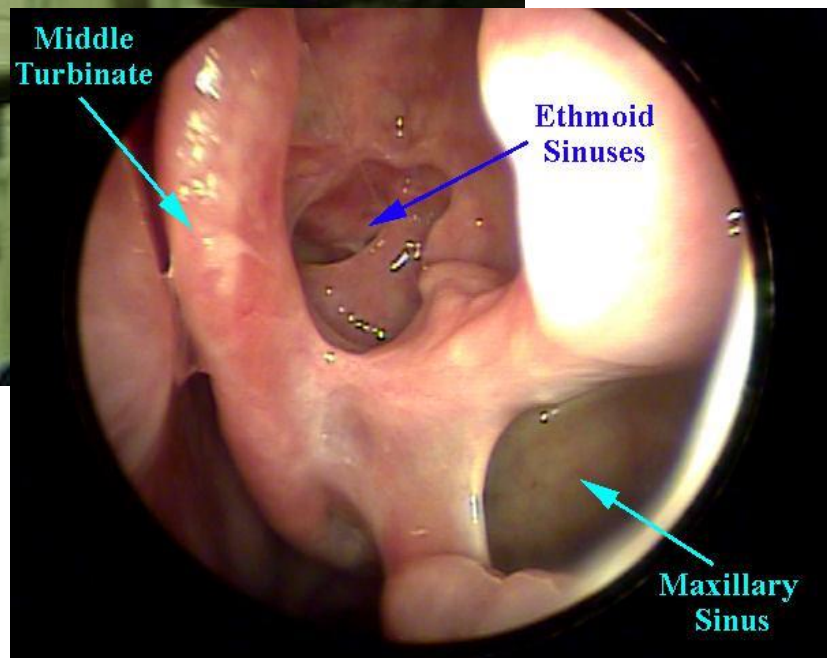
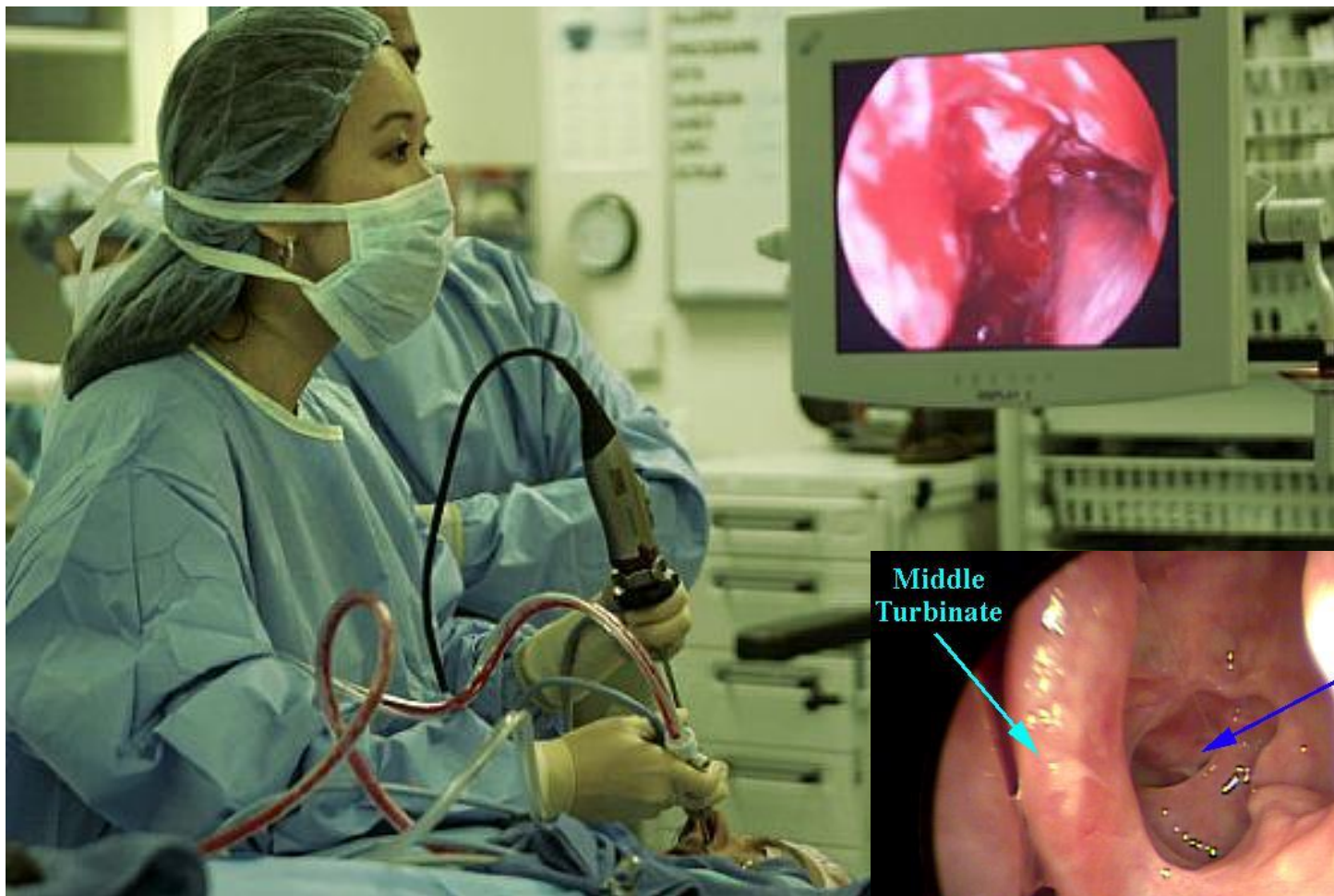
absces

Trombosis sinus cavernosus

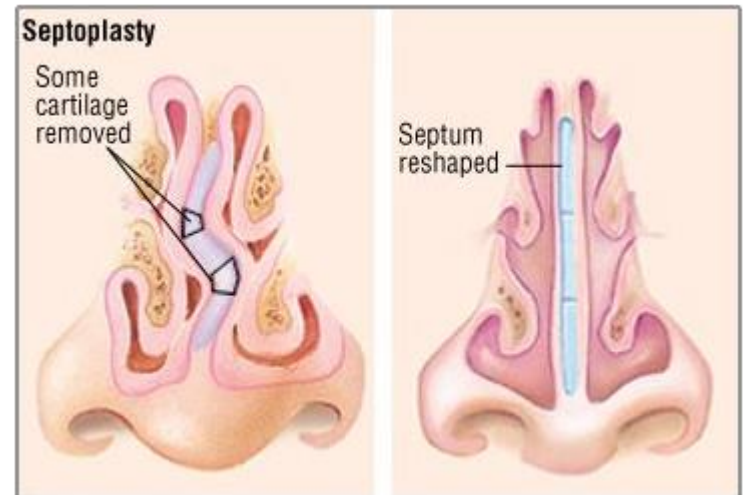
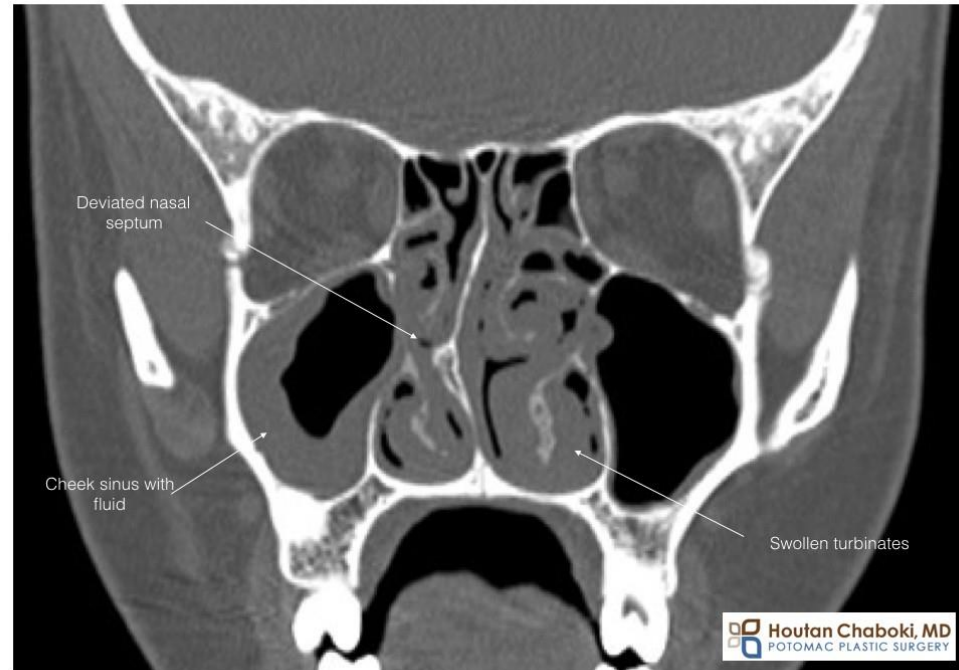
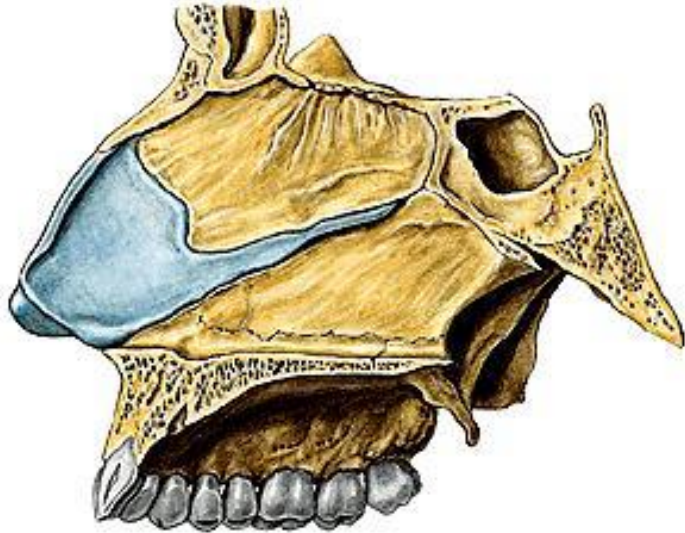
Orbita: orbitocelulitis, absces, neuritis n. II



# FESS – Functional endoscopic sinus surgery

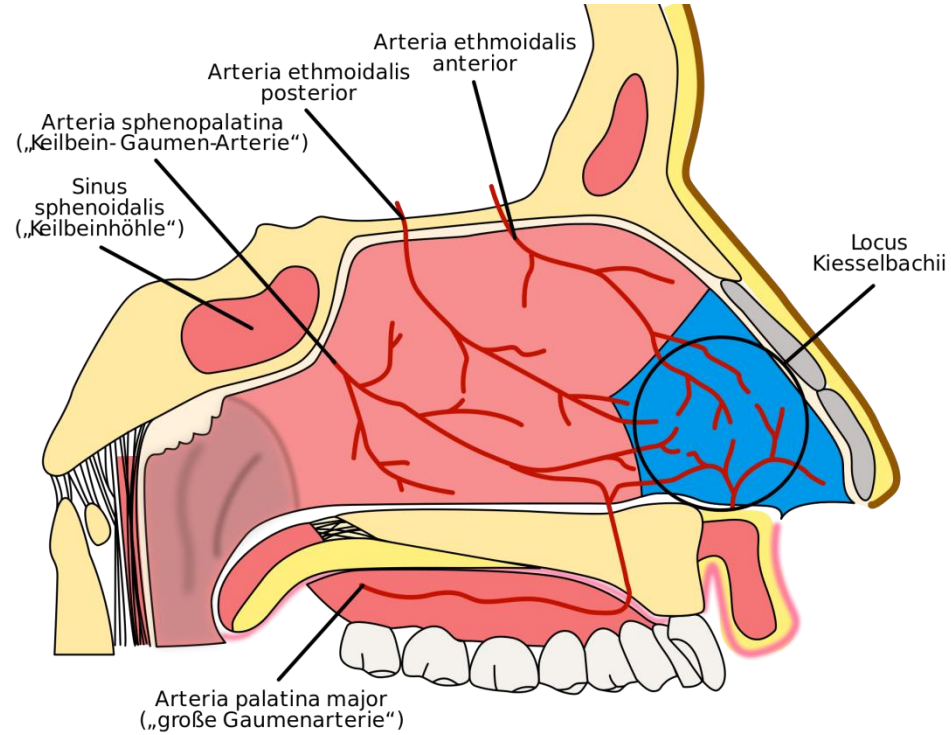
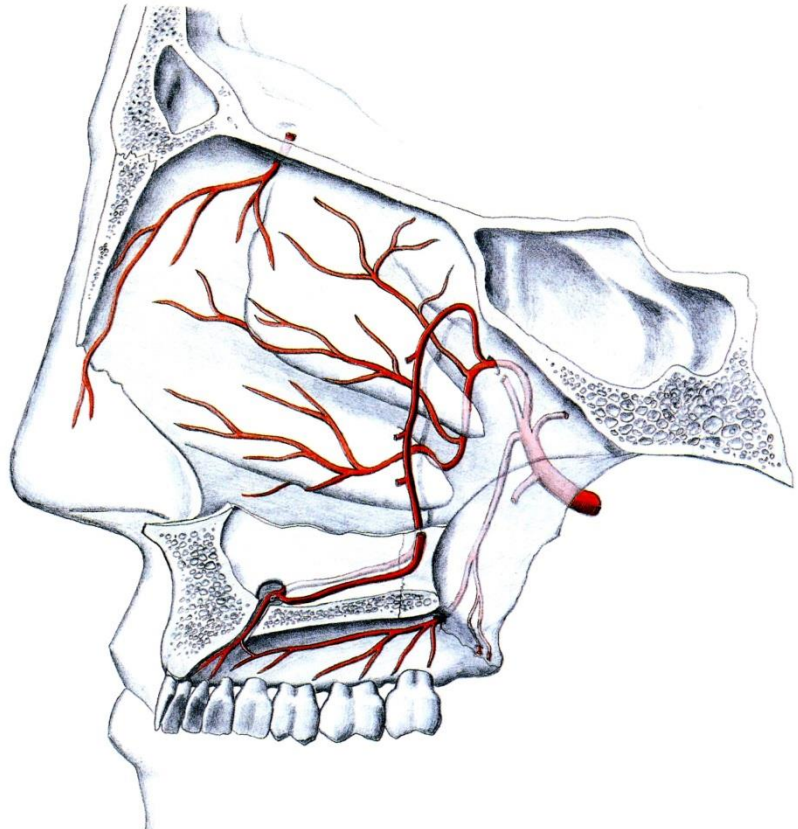
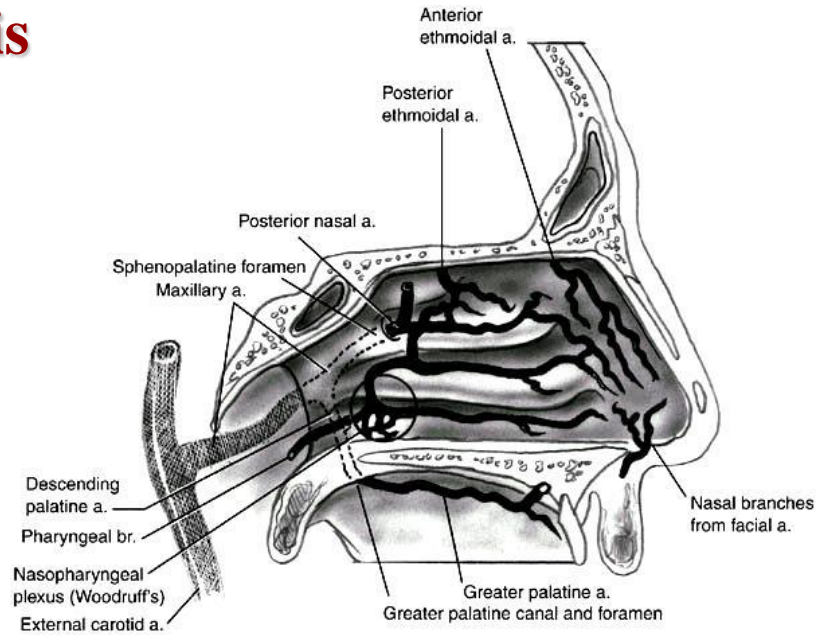


# Deviace nosního septa

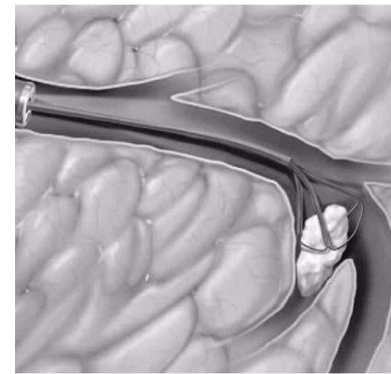


# Epistaxis

- ICA: arteria ethmoidalis anterior
- ECA: arteria sphenopalatina
- Woodruffův nasopharyngeální plexus (zadní epistaxe)
- Locus Kieselbachi – septum

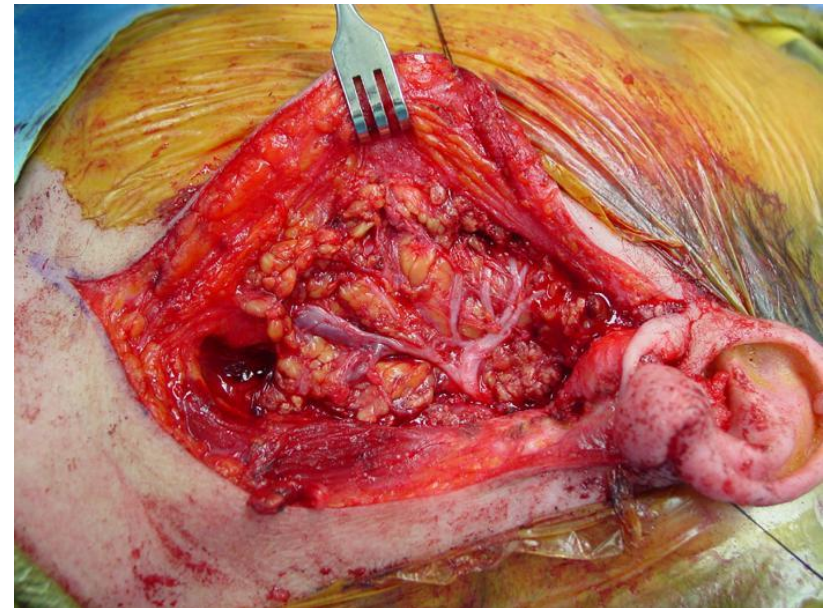
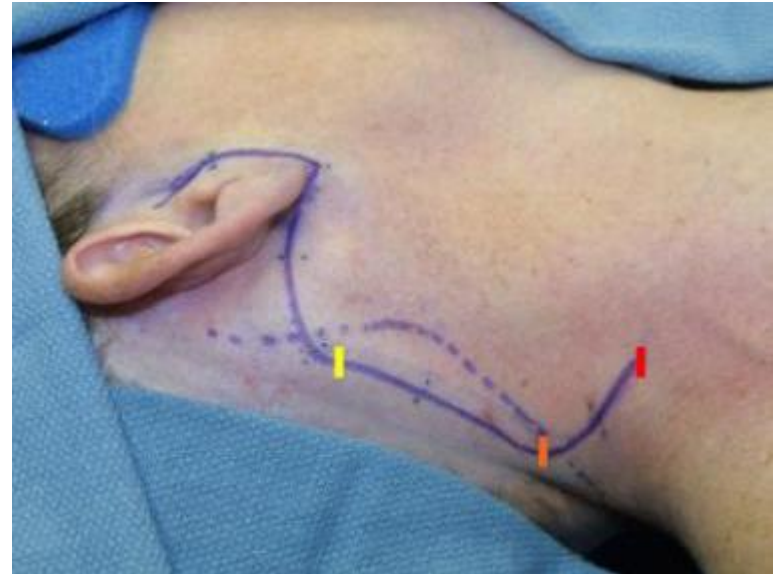
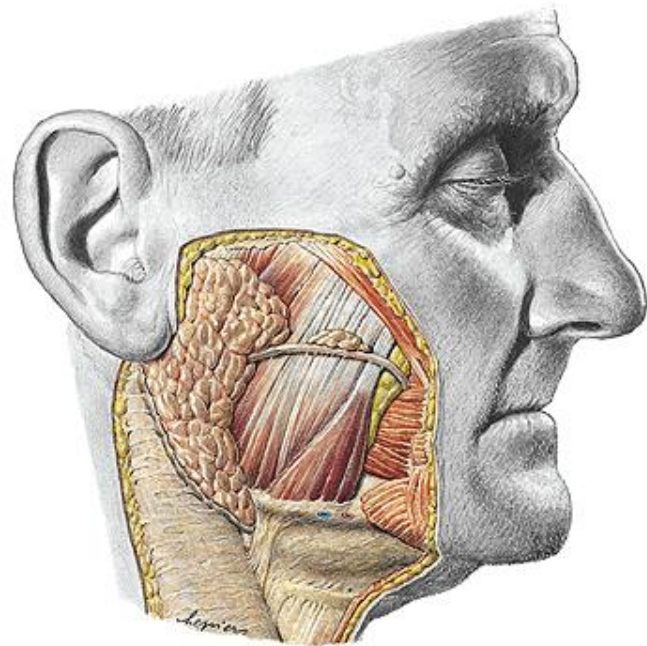


# Slinné žlázy

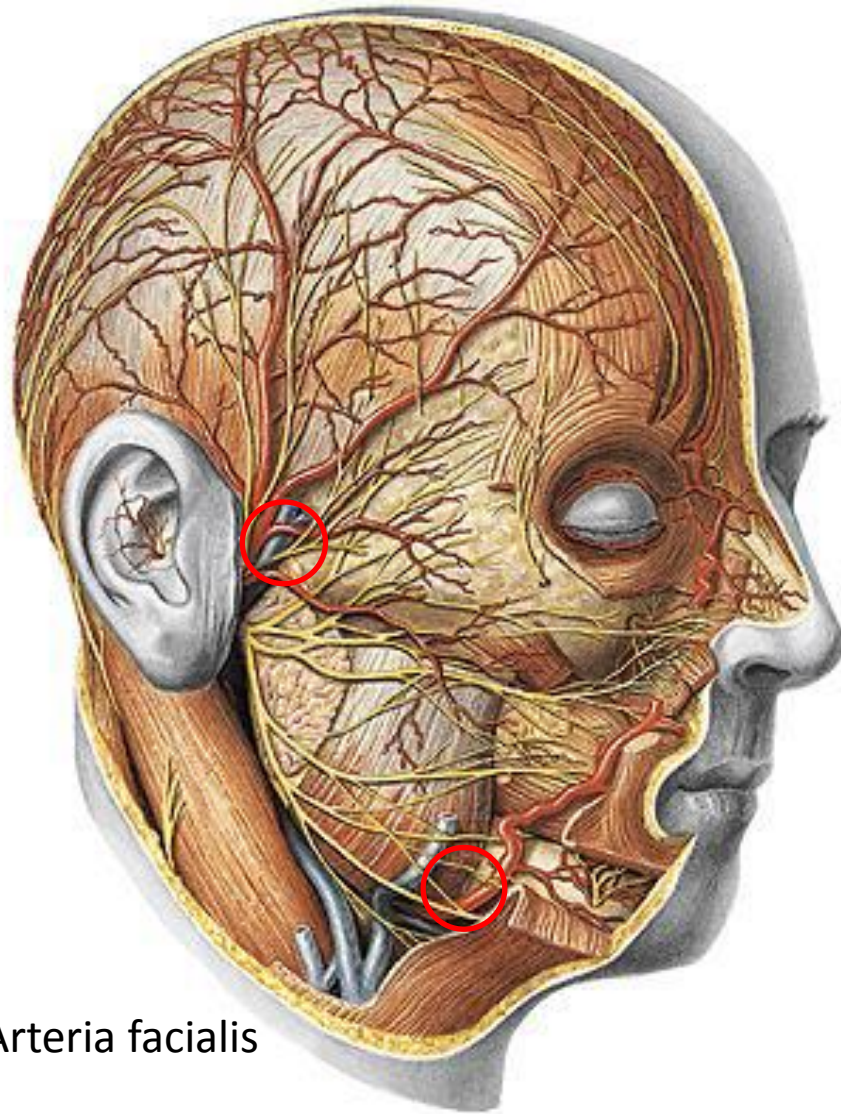




# Povrchová parotidektomie



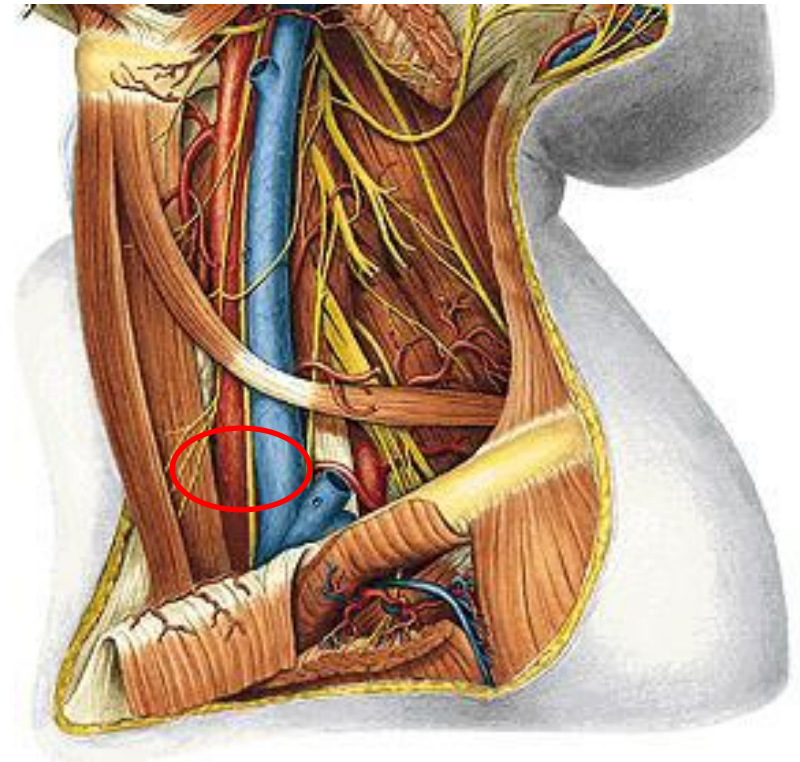
# Kompresní body tepen



Arteria facialis

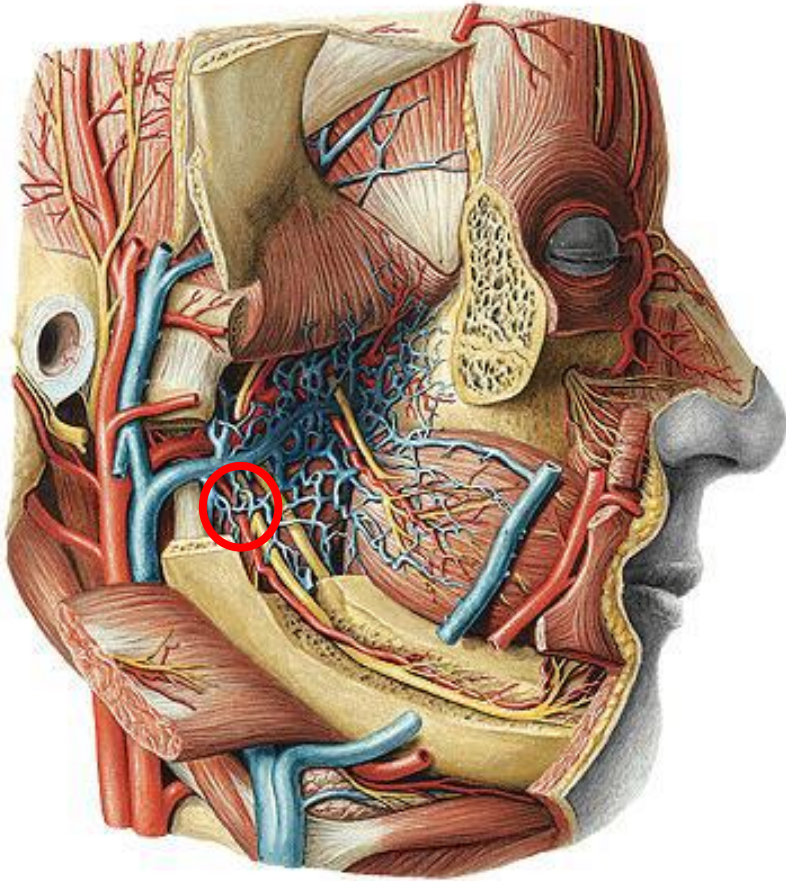
Arteria temporalis superficialis

Arteria carotis communis– C6

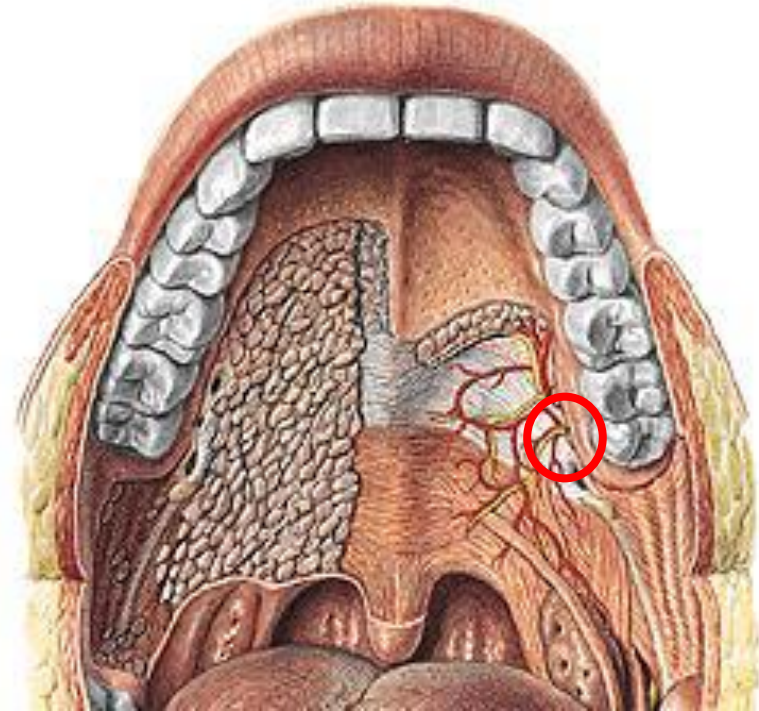


# Arterial compression points

Arteria alveolaris inferior



Arteria palatina major



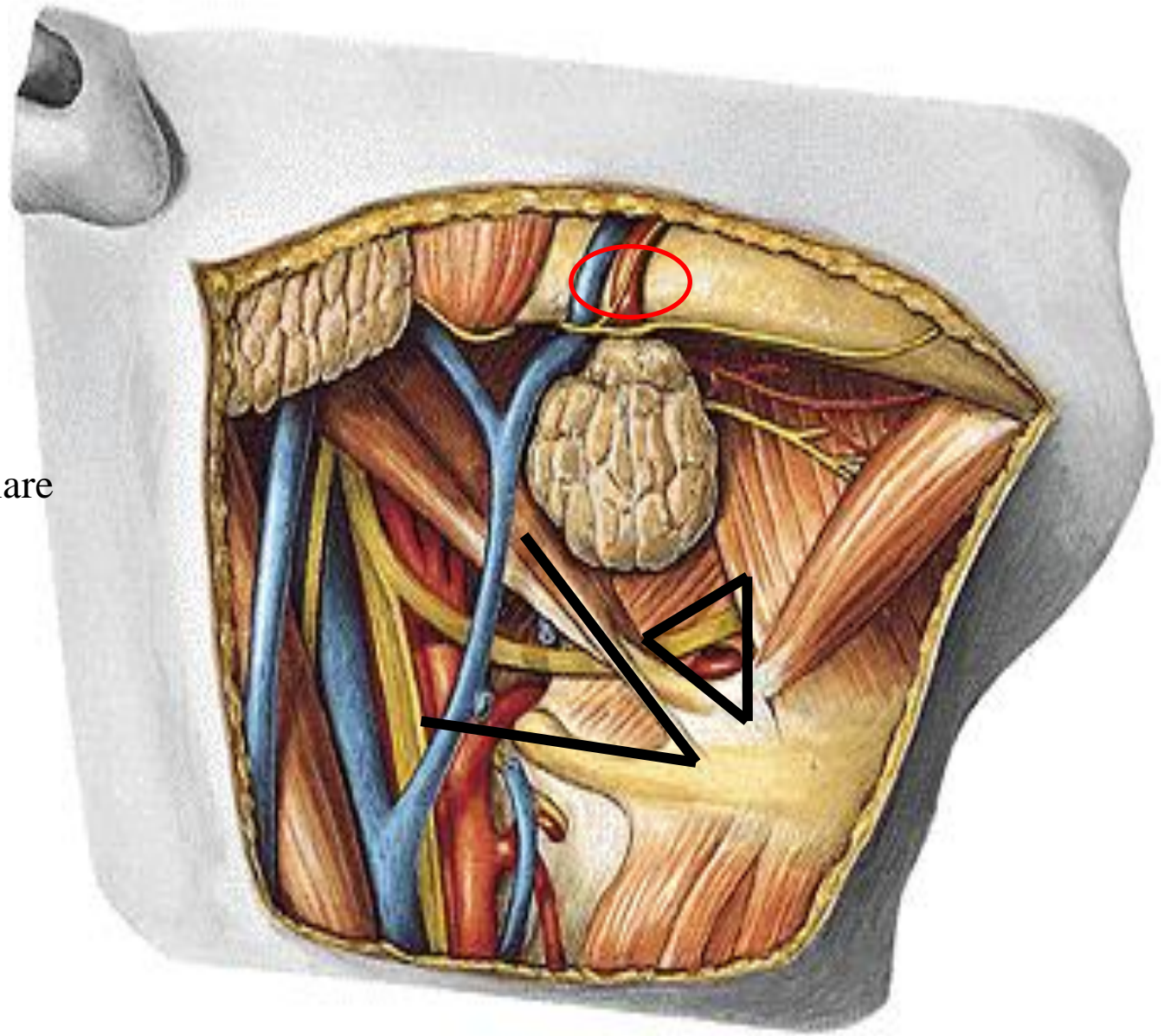
## Podvazy tepen

Arteria lingualis:

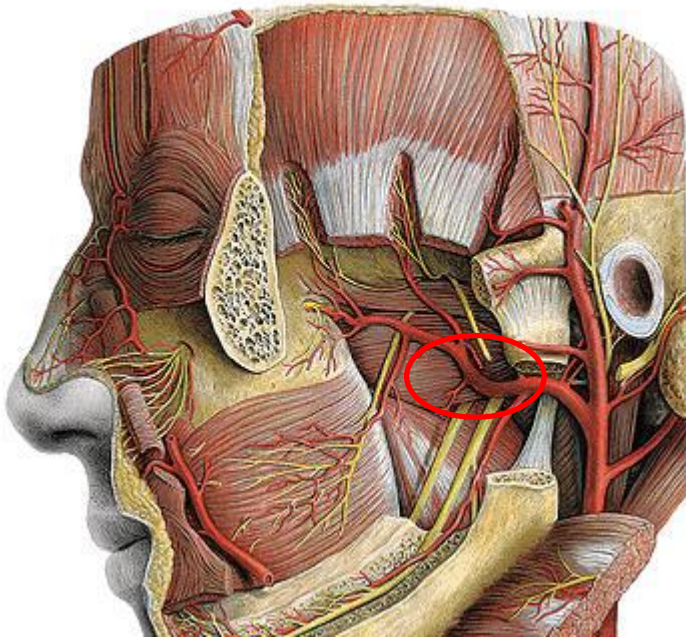
- trigonum Pirogovi
- Béclardův úhel

Arteria facialis:

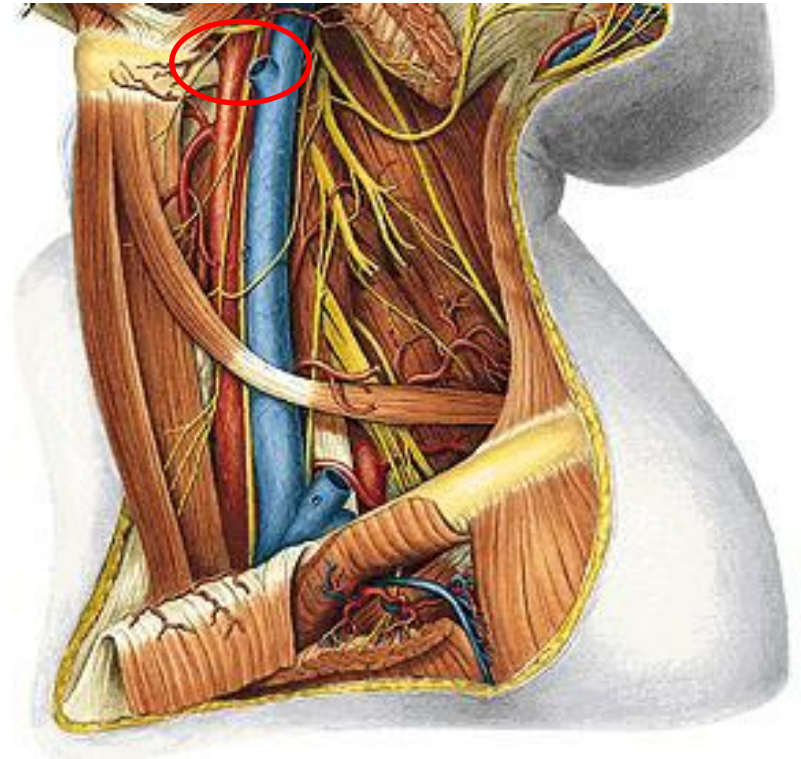
- trigonum submandibulare



## Podvazy tepen



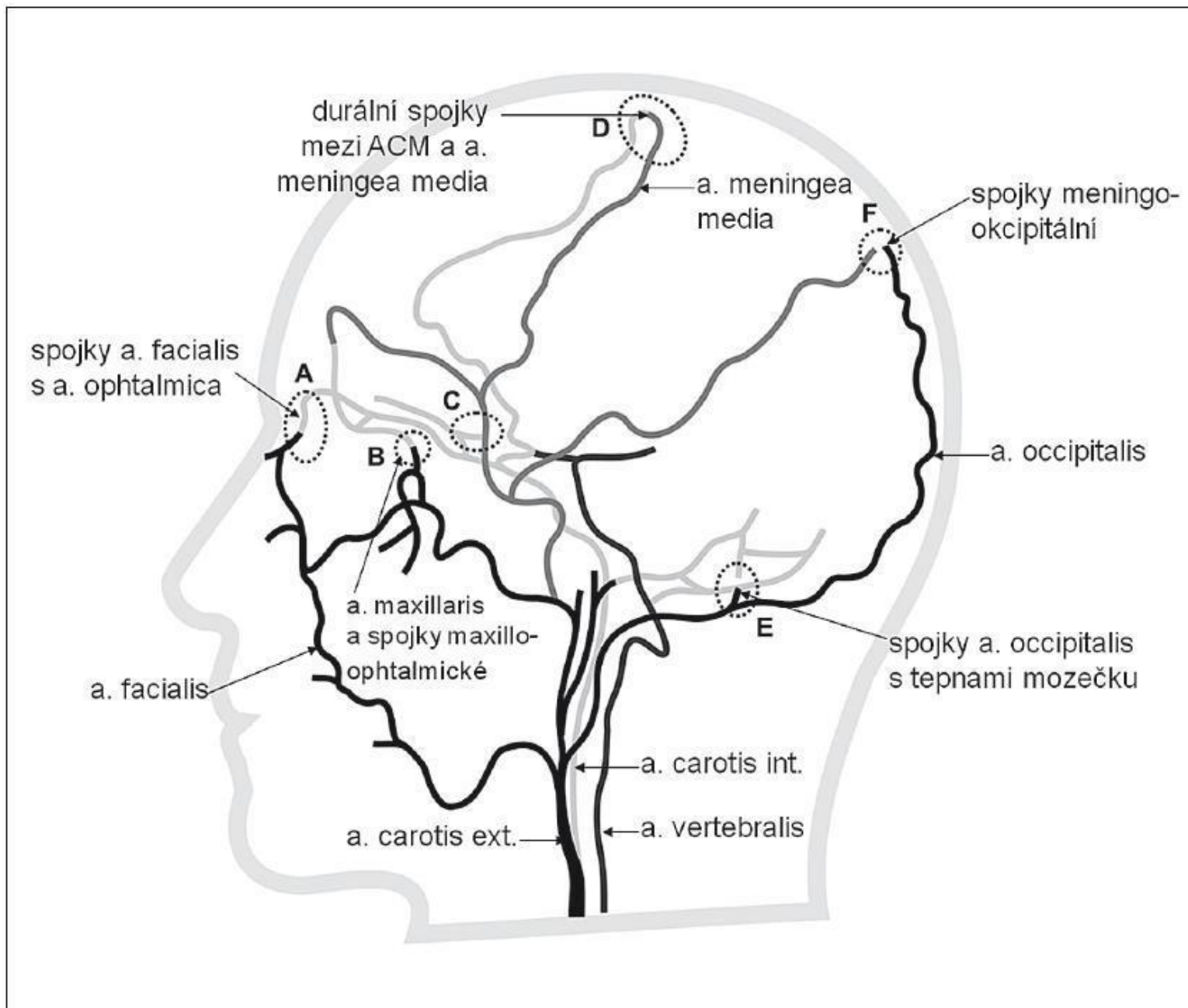
Arteria maxillaris

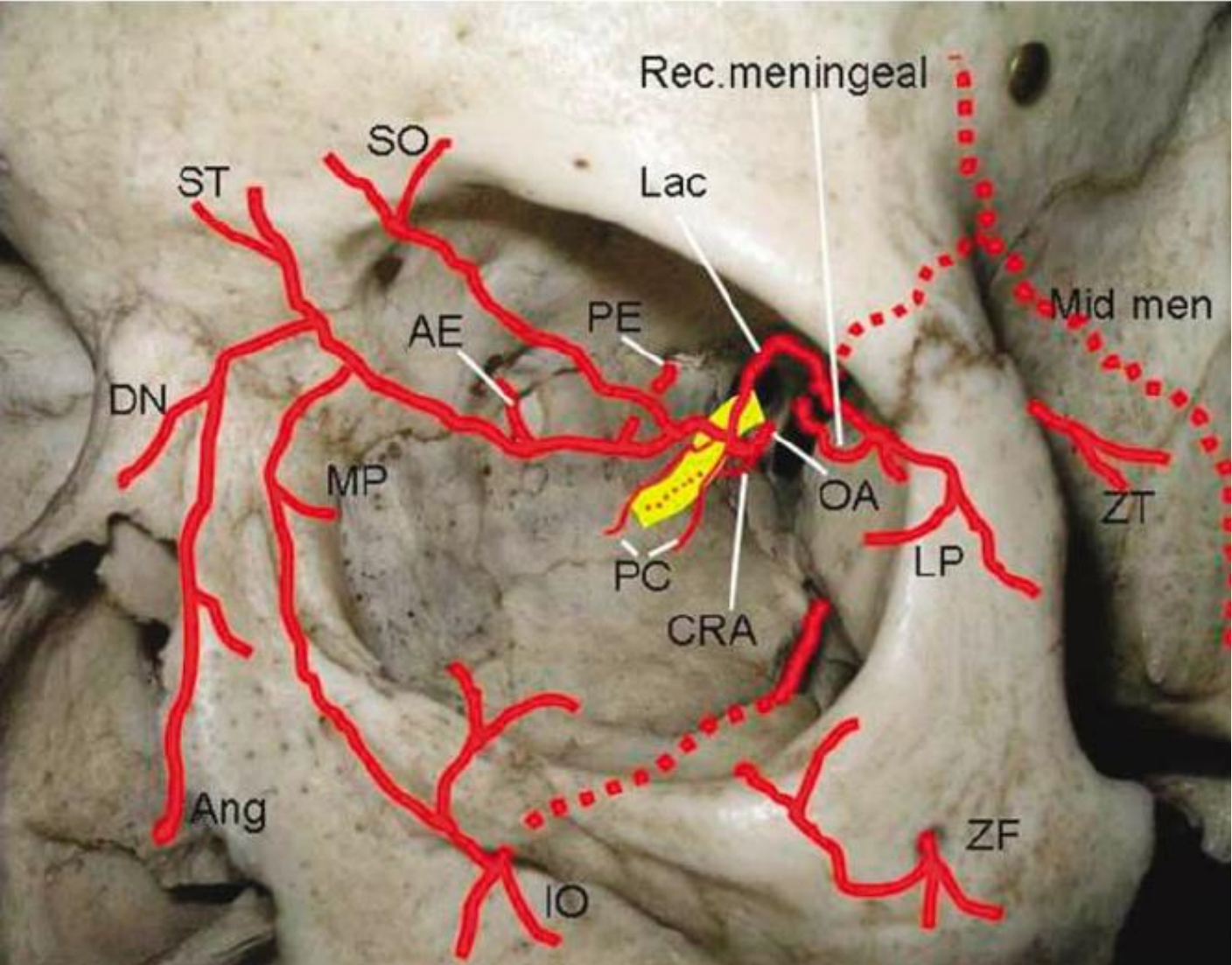


Arteria carotis externa – trigonum caroticum

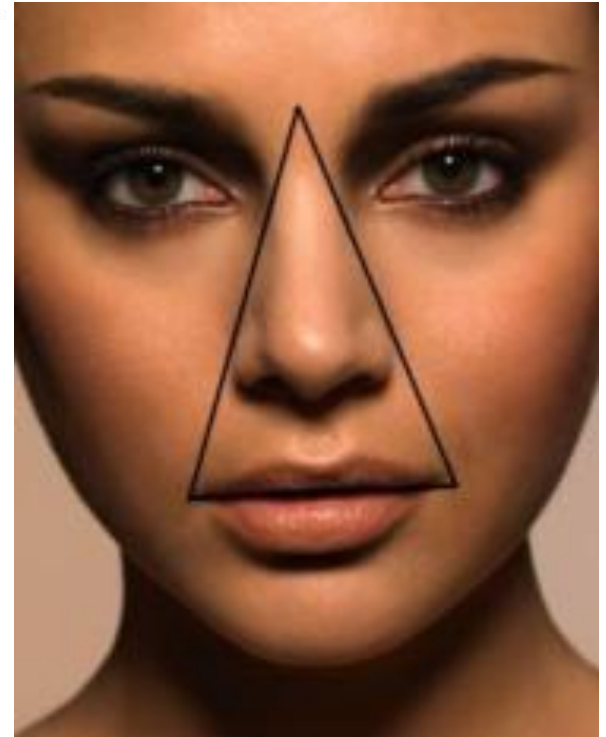
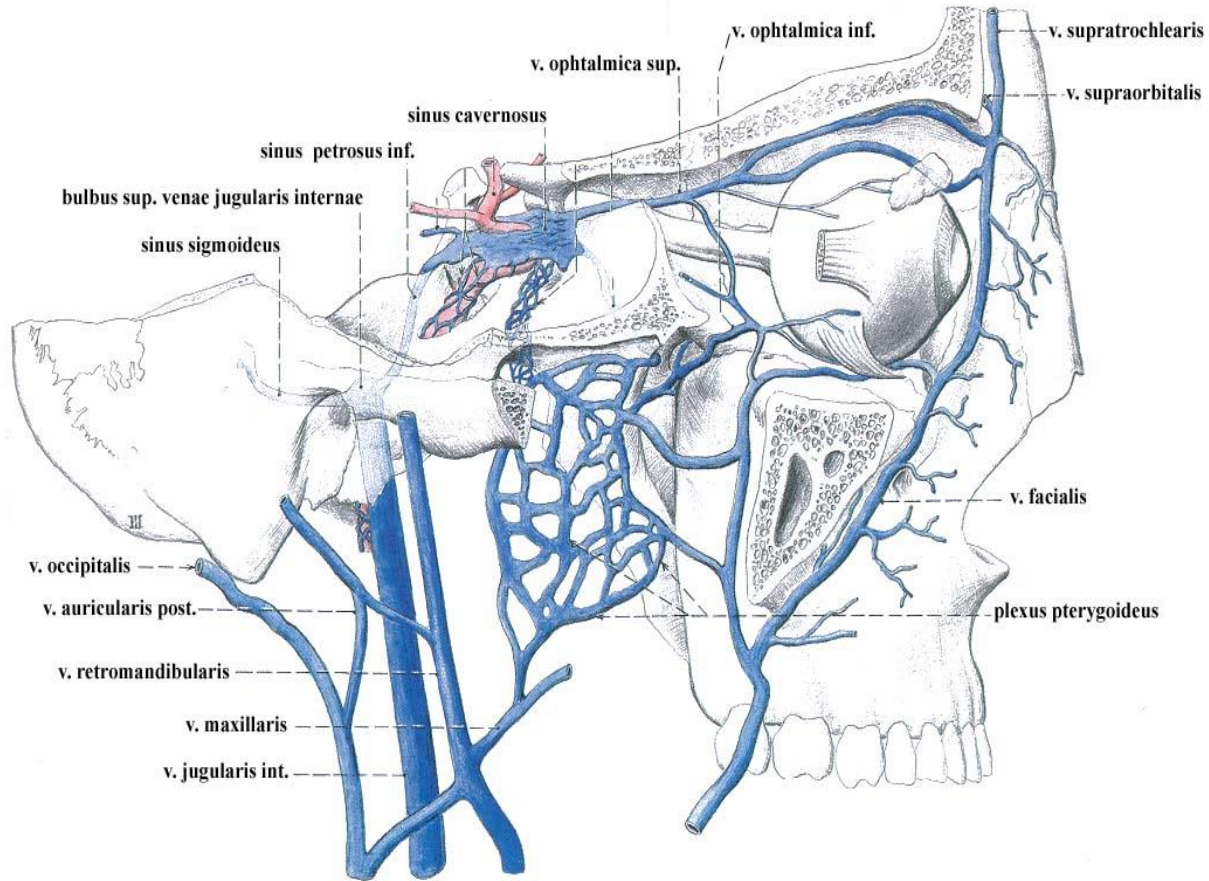
CAVE: arteria carotis interna – žádné větve!!!

# Kolaterální cirkulace





# Žilní anastomózy

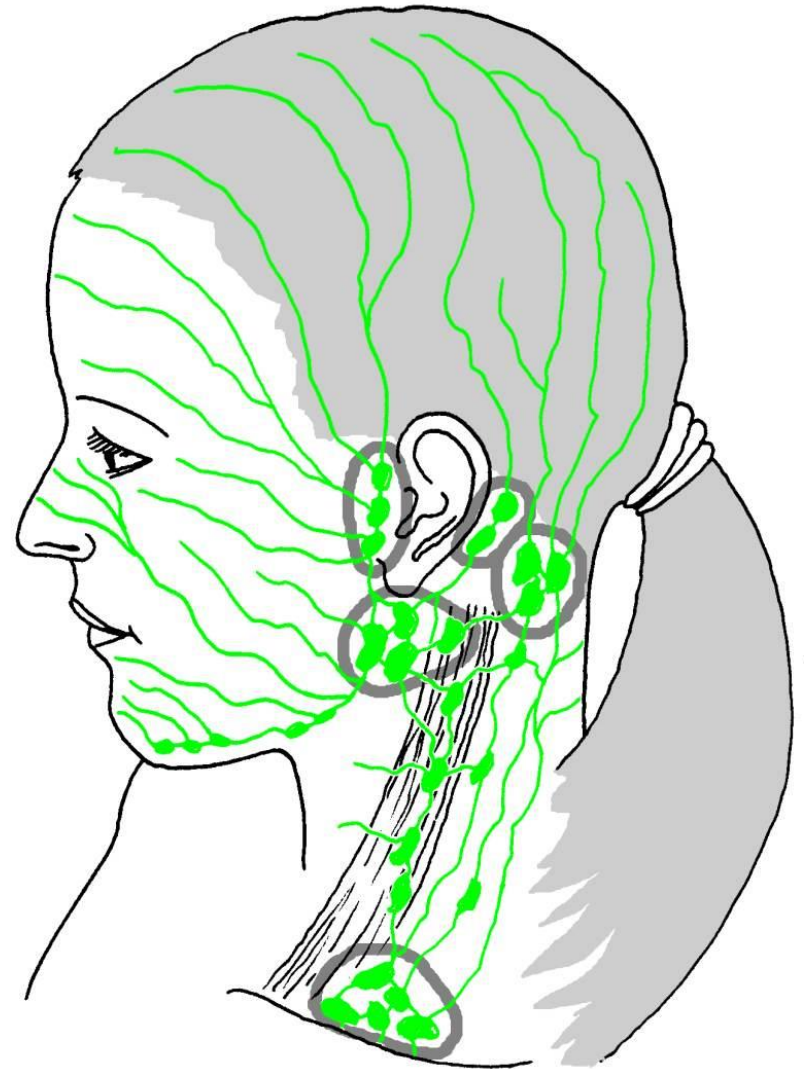




- **nodi lymphatici occipitales**
- **nodi lymphatici retroauriculares**
- **nodi lymphatici parotidei**
- **nodi lymphatici submandibulares**
- **nodi lymphatici submentales**
- **nodi lymphatici retropharyngei**



**nll. cervicales superficiales**  
**nll. cervicales profundi**

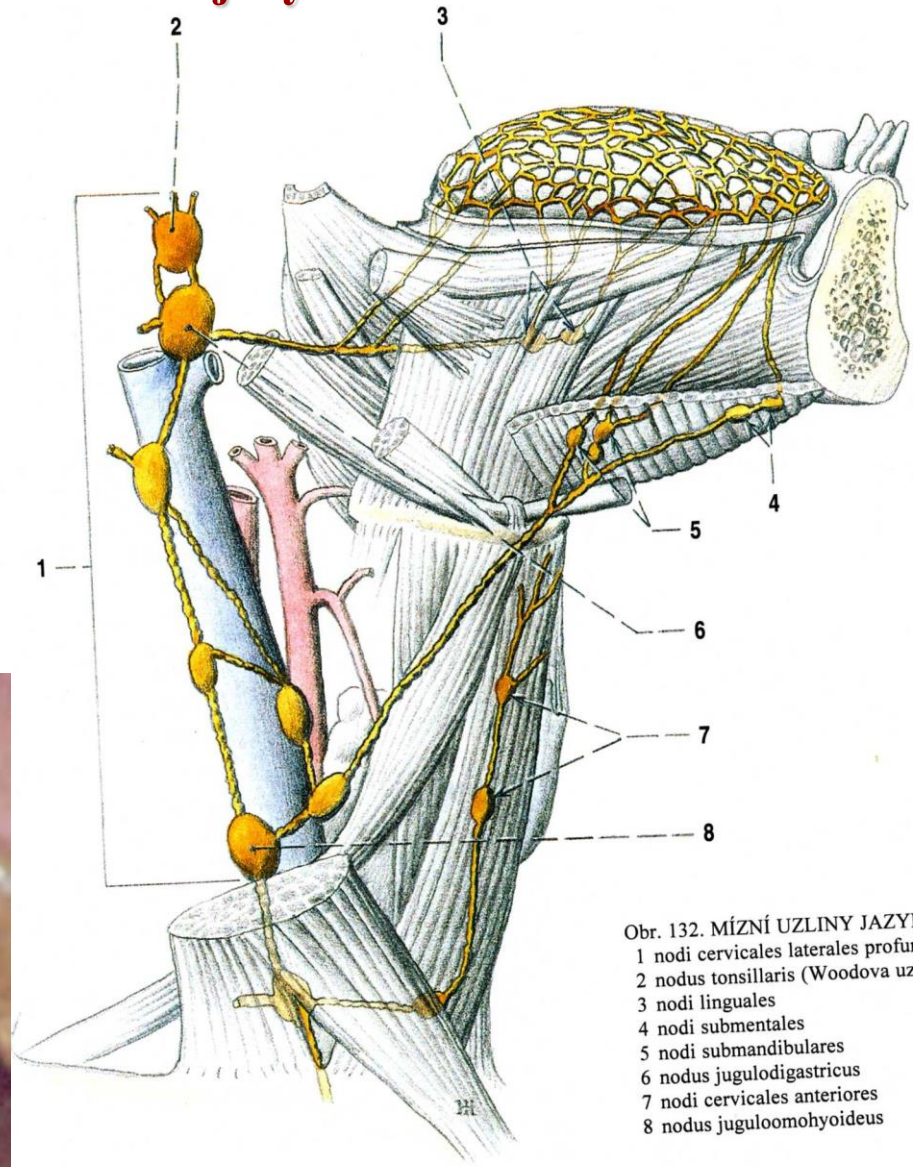


## Lymfatická drenáž jazyka

**Nl. tonsillaris**  
(Wood)

**Nl. jugulodigastricus**  
(Küttner)

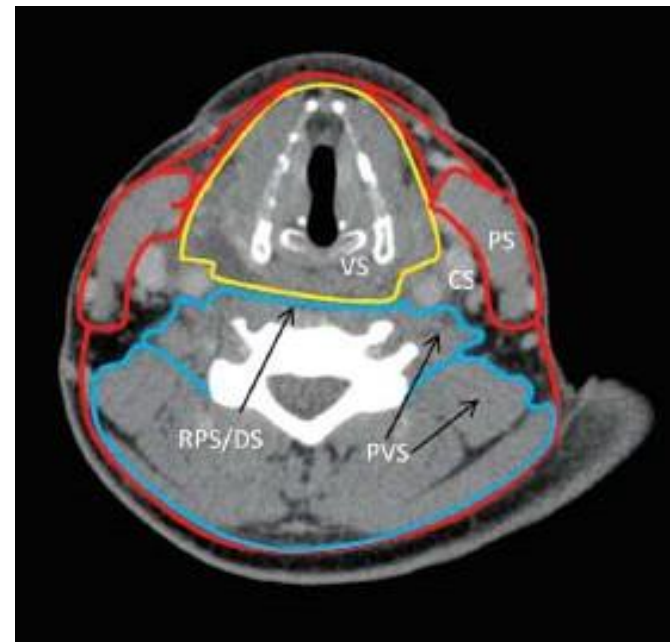
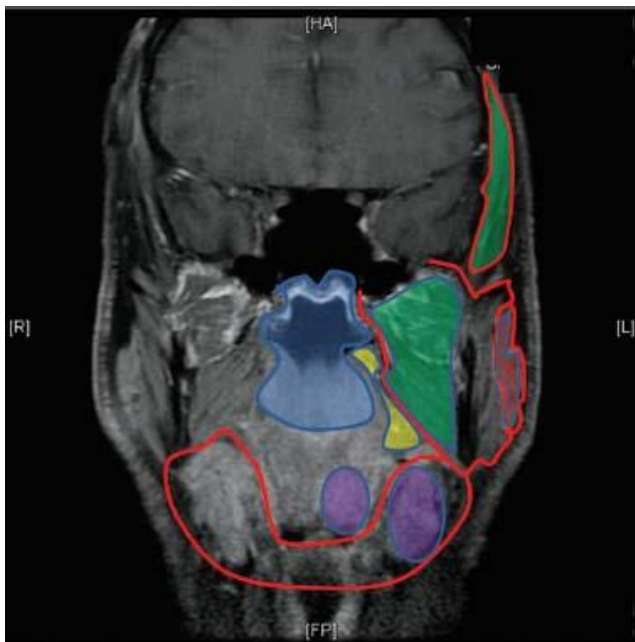
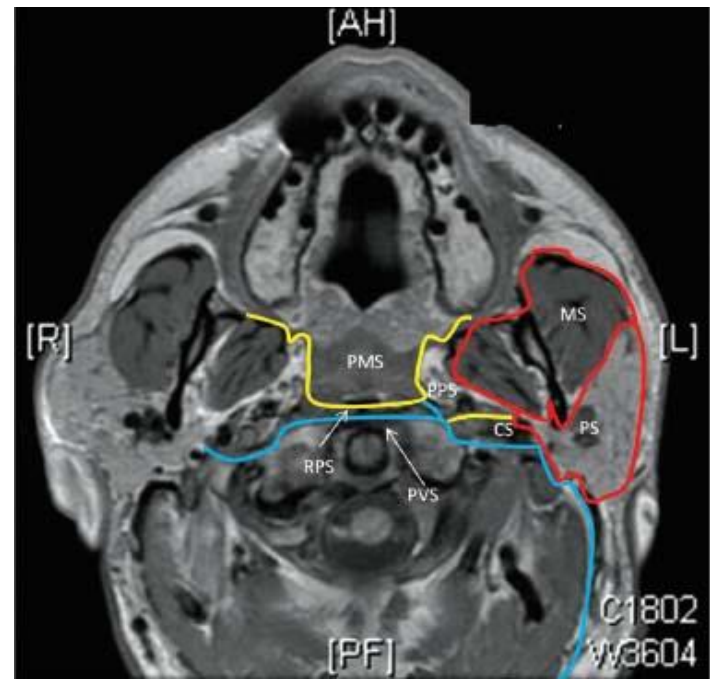
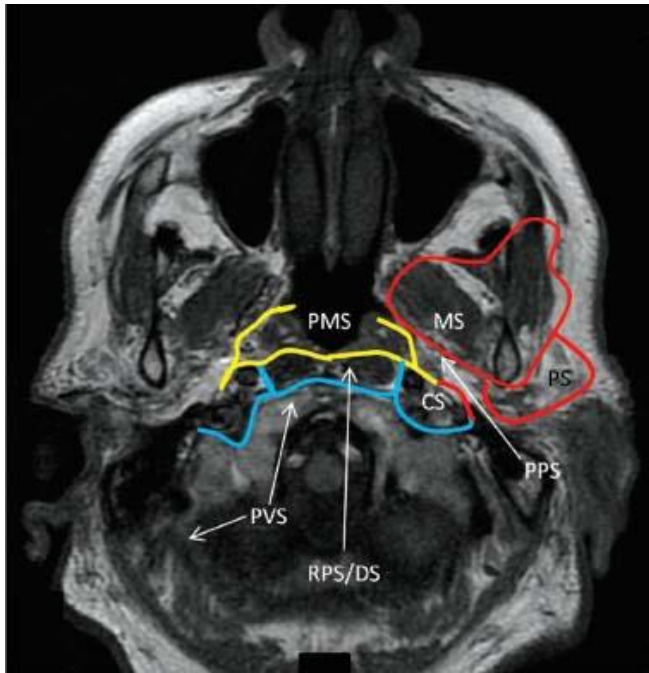
**Nl. juguloomohyoideus**



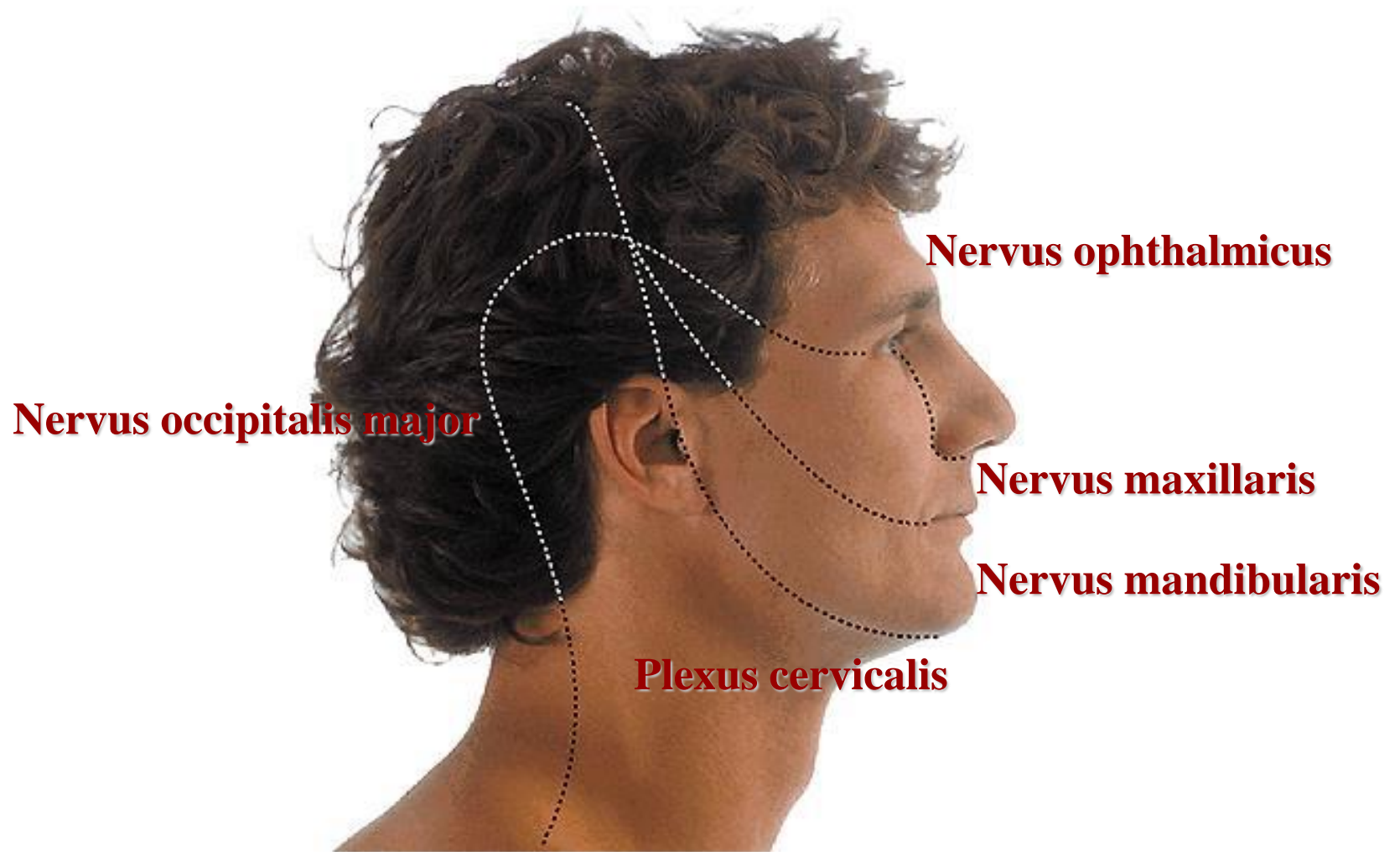
Obr. 132. MÍZNÍ UZLINY JAZYKA (schéma)  
1 nodi cervicales laterales profundi superiores  
2 nodus tonsillaris (Woodova uzlina)  
3 nodi linguales  
4 nodi submentales  
5 nodi submandibulares  
6 nodus jugulodigastricus  
7 nodi cervicales anteriores  
8 nodus juguloomohyoideus

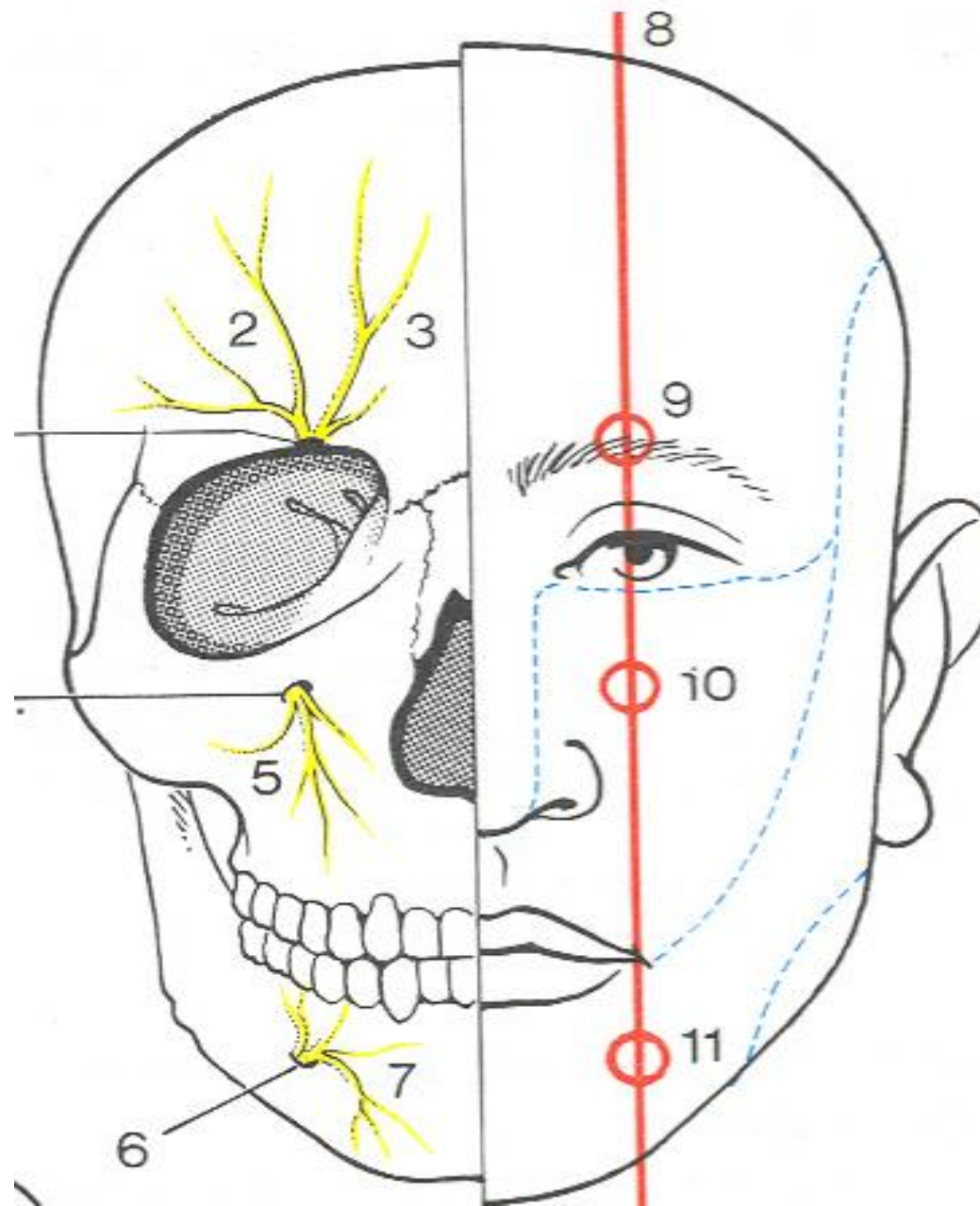


# Fasciální prostory hlavy

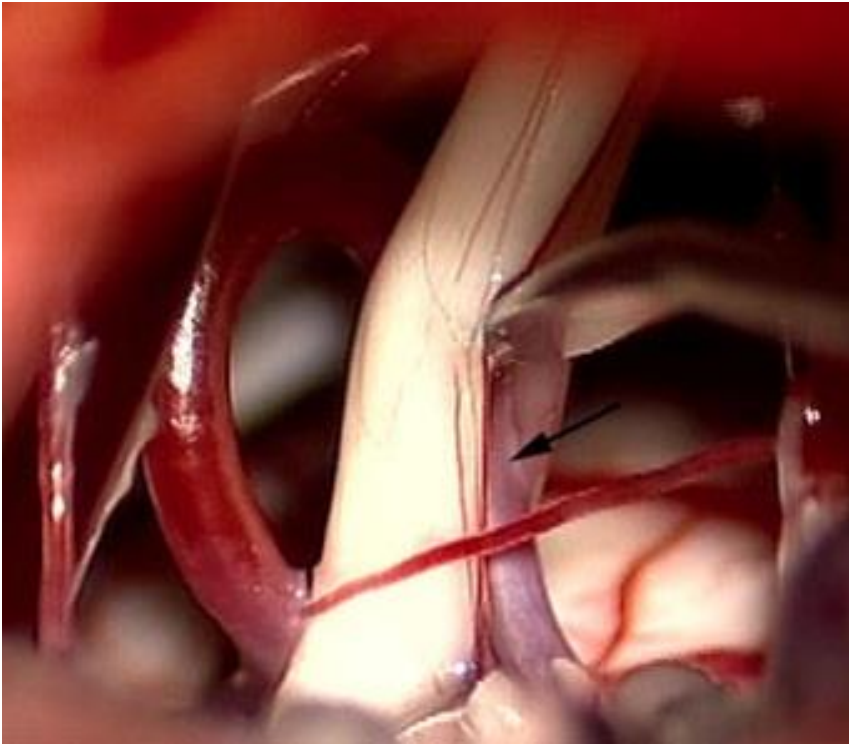


## **Senzorická inervace hlavy**

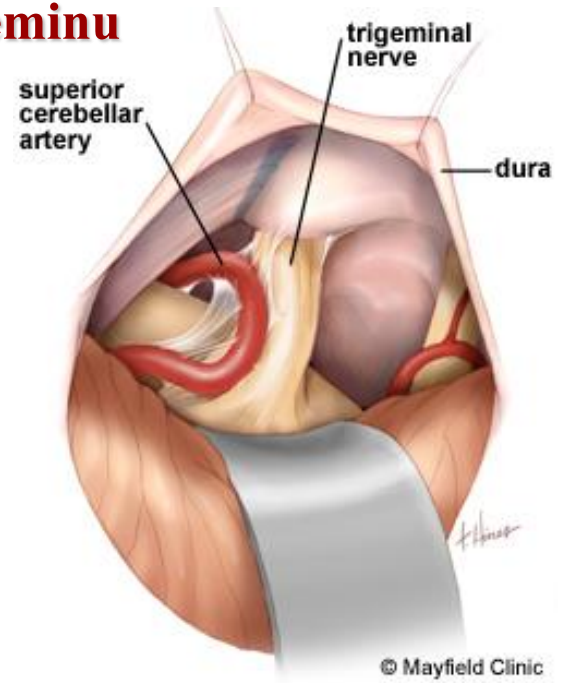




# Esenciální neuralgie trigeminu

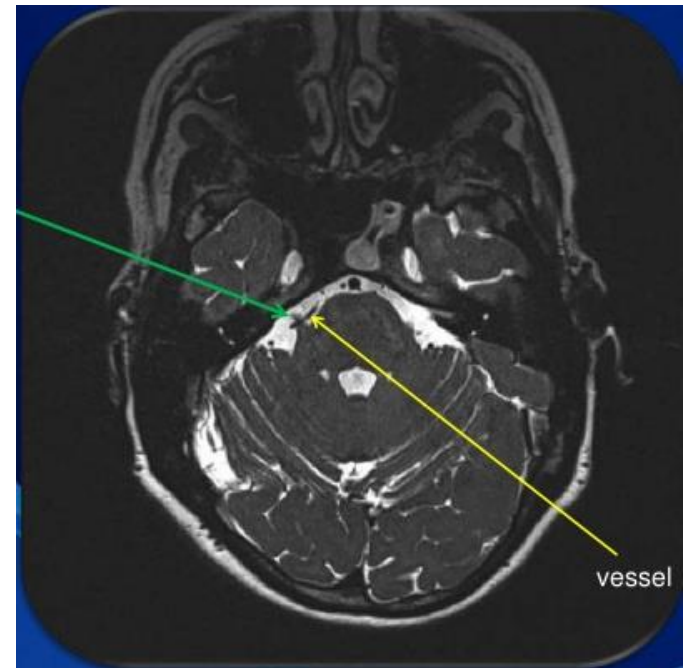


Neurovaskulární komprese



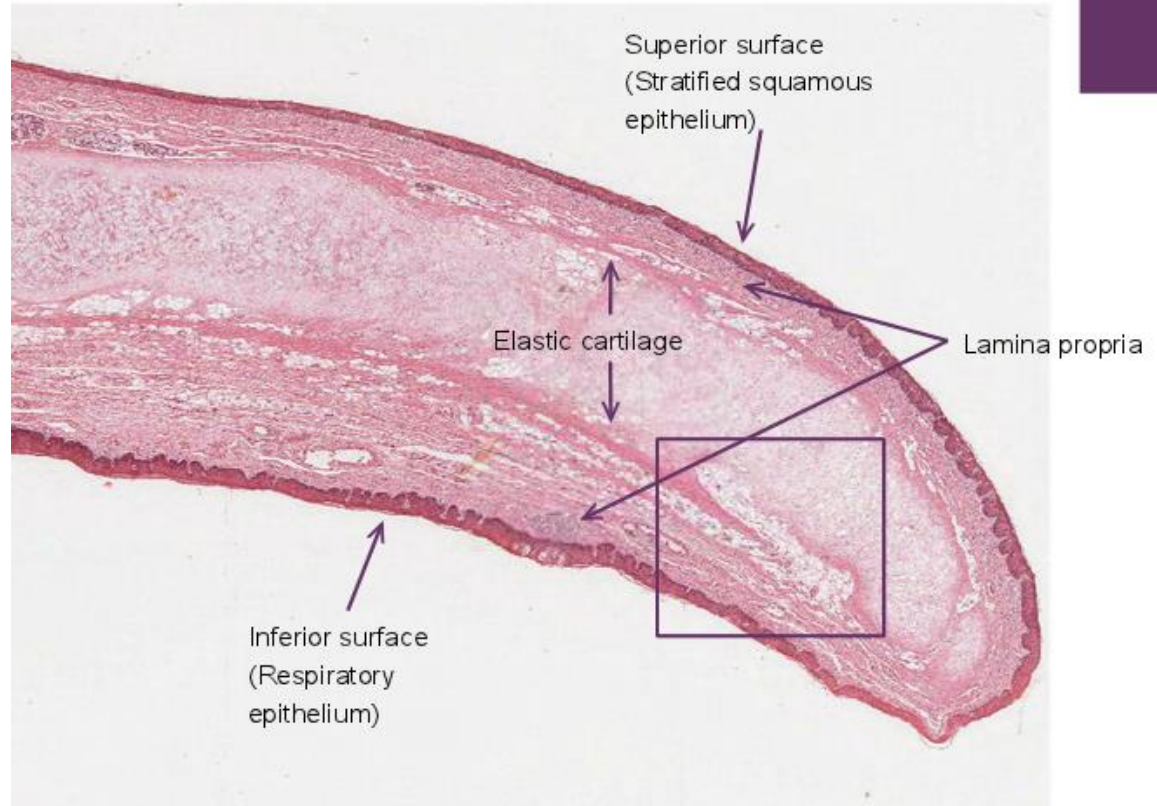
© Mayfield Clinic

nerv

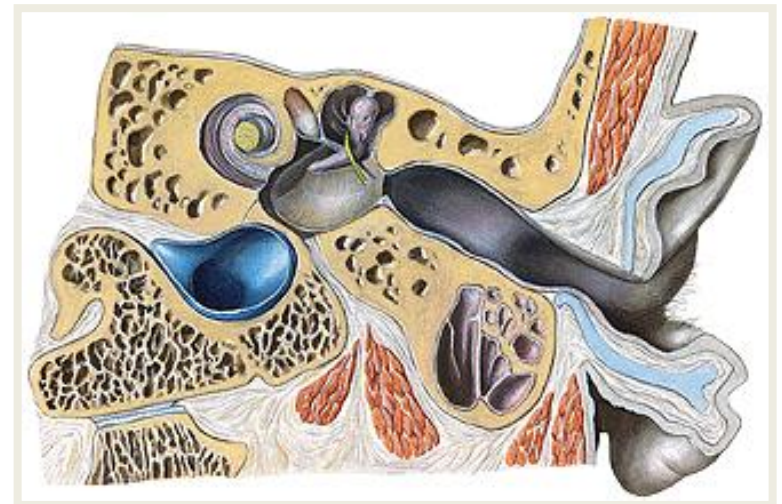
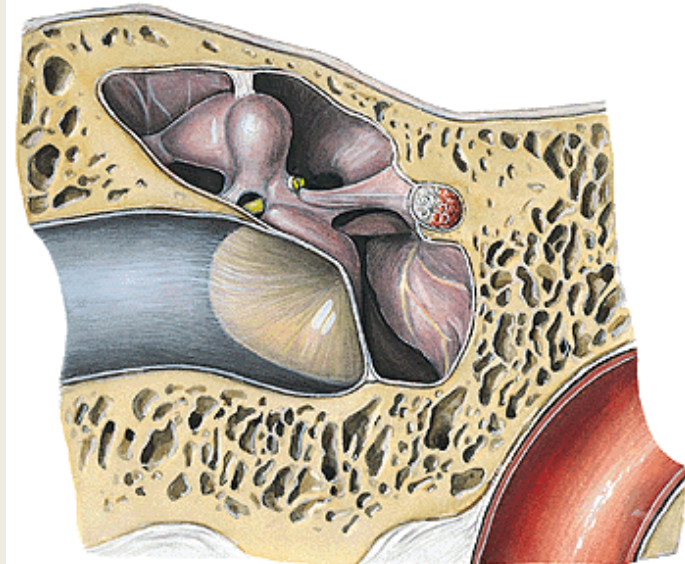
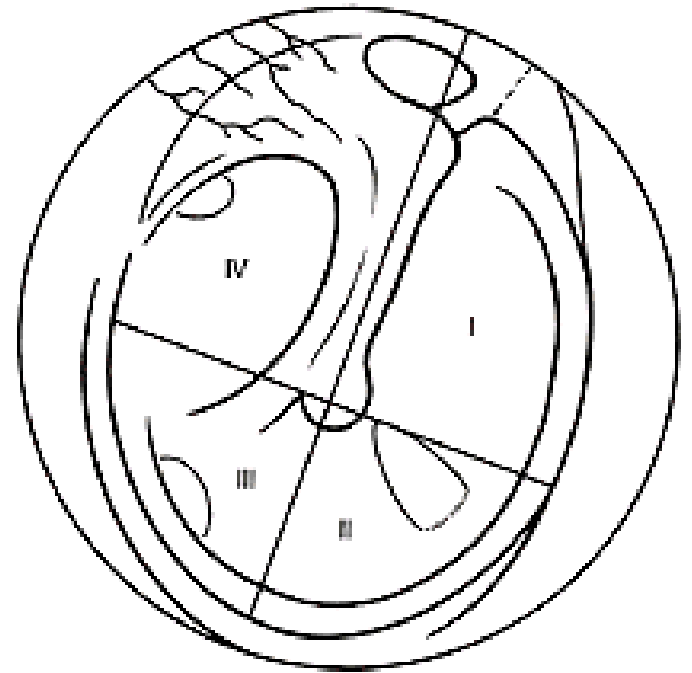


vessel

# Othaematoma

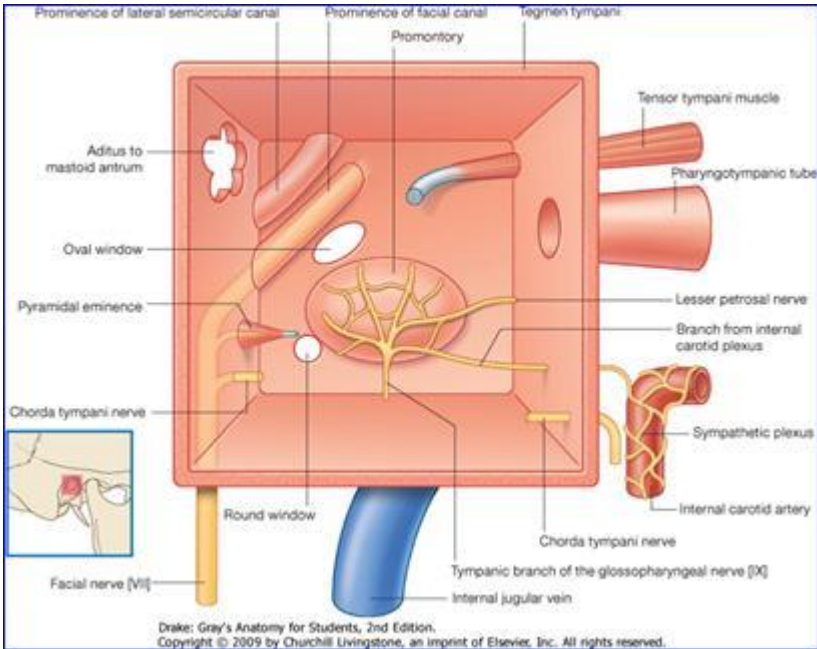
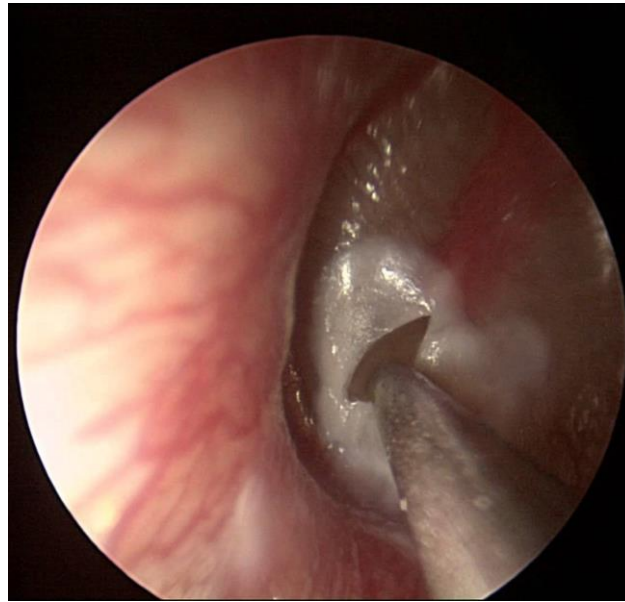
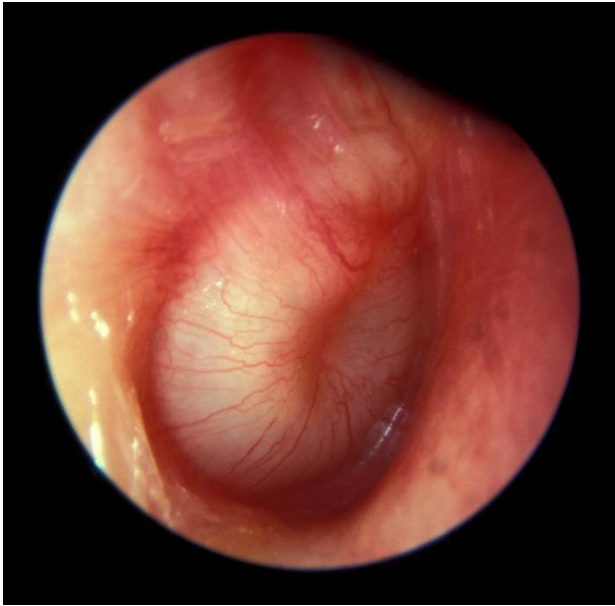


# Otoscopy





# Paracentesis



## Komplikace otitid

Temporální:

Mastoiditis

Subperiostální absces

Paresis n. VII

Labyrinthitis

Petrositis

Intrakraniální:

Meningitis

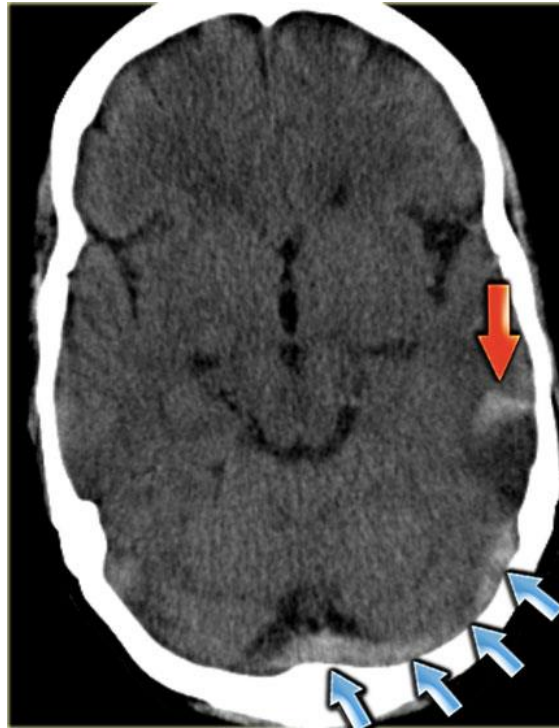
Subdurální empyem

Epidurální absces

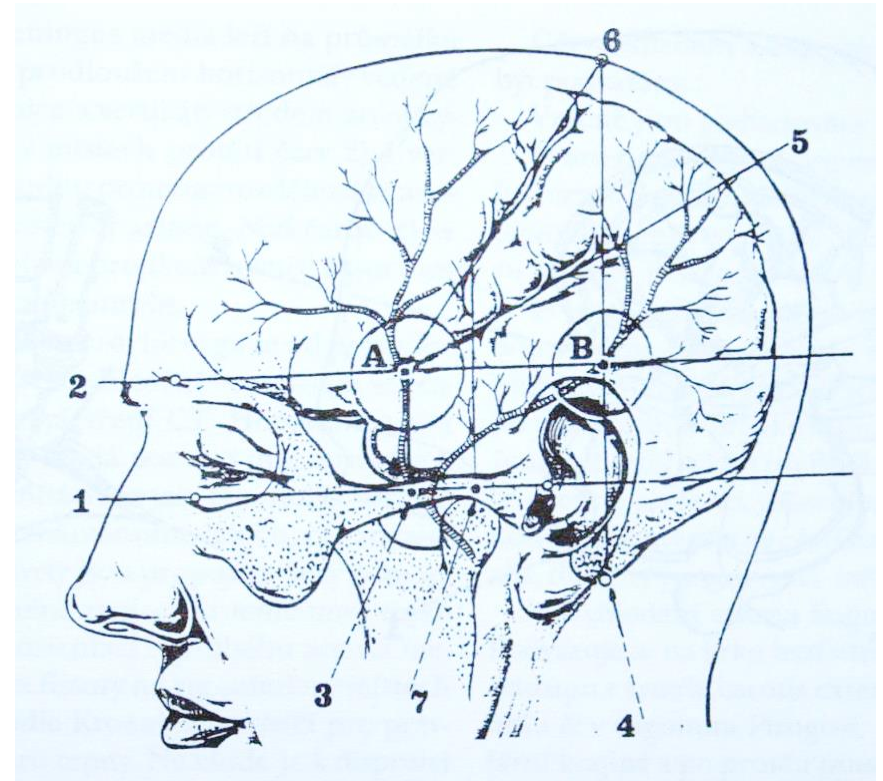
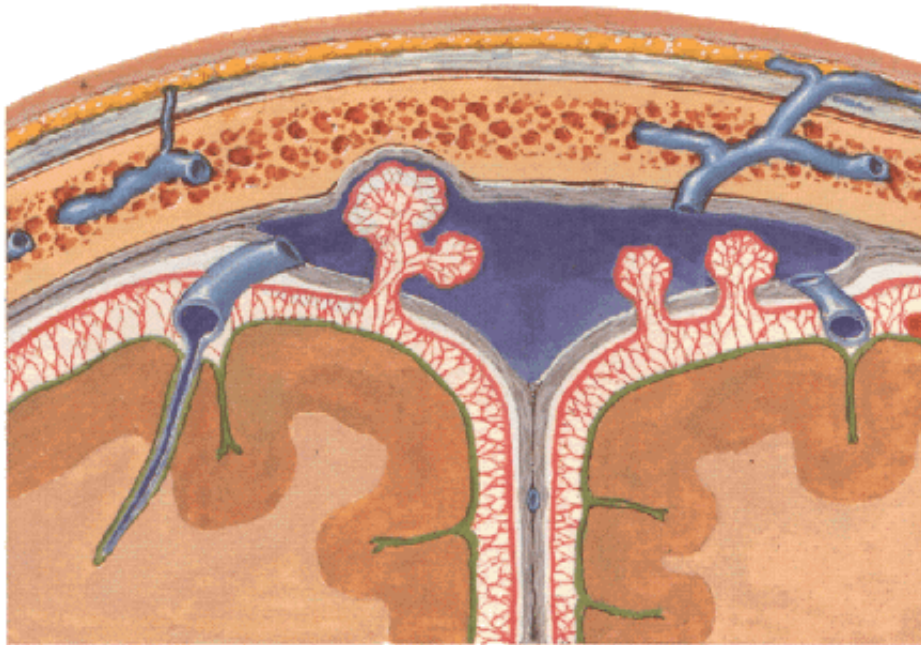
Cerebrální absces

Thromboflebitis sinus sigmoideus

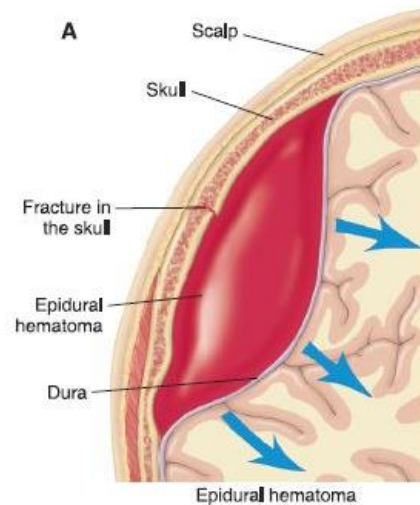
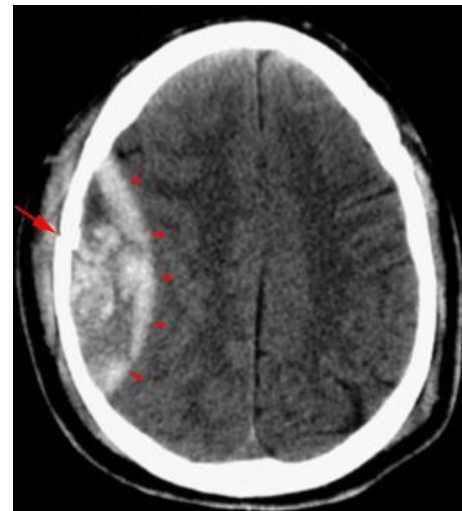
Hydrocephalus



# Epidurální krvácení



Kroenleiova projekce

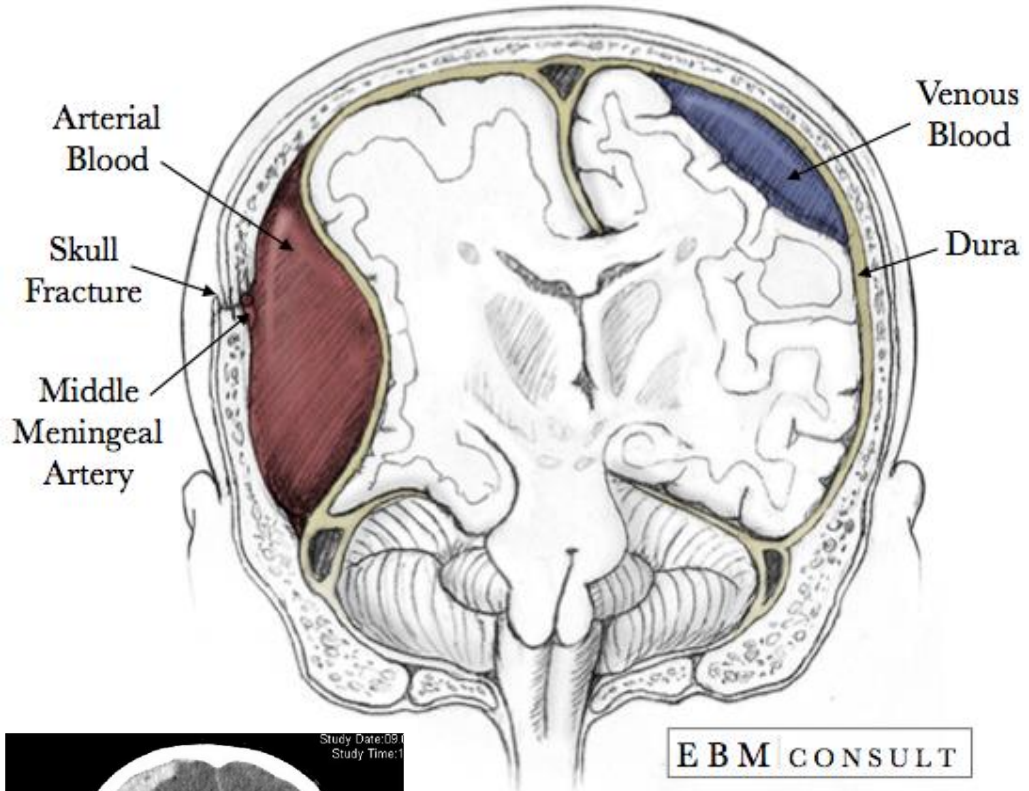
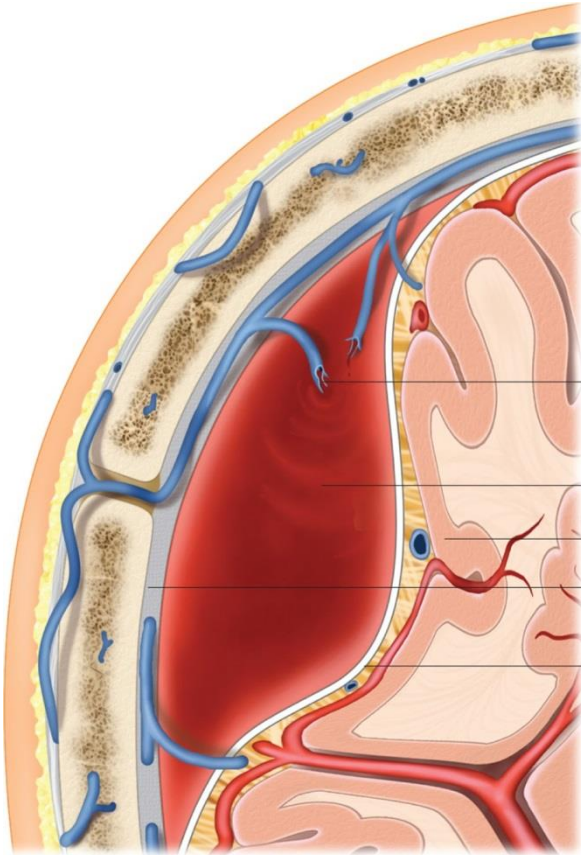


- Arterie meningea anterior
- Arterie meningea media
- Arterie meningea posterior
- Venae diploicae

# Subdurální krvácení

**Epidural Hematoma**  
(Does Not Cross Suture Line)

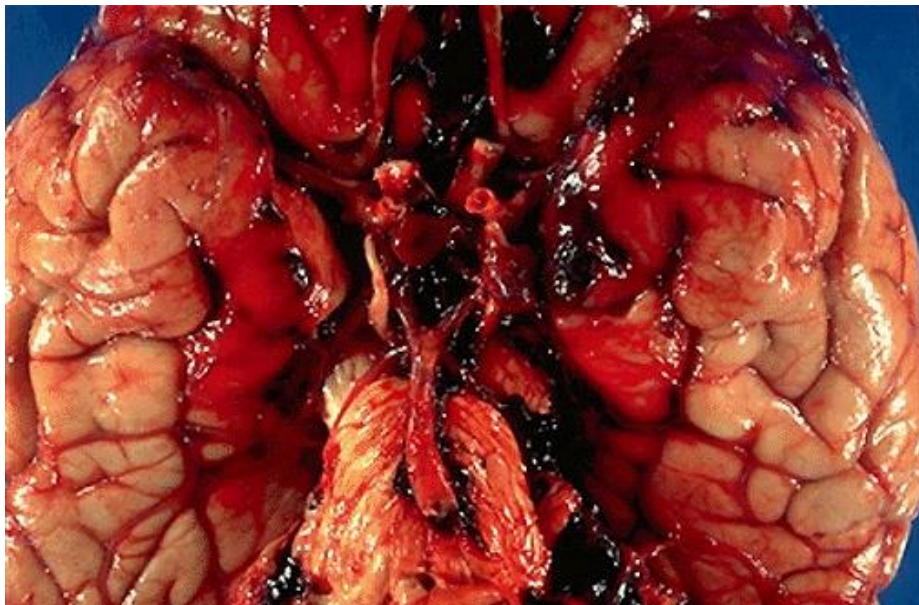
**Subdural Hematoma**  
(Crosses Suture Line)



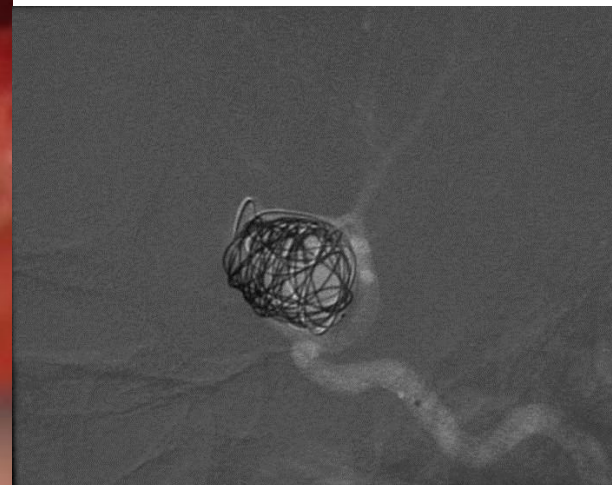
Vv. Cerebri sup. et inf.



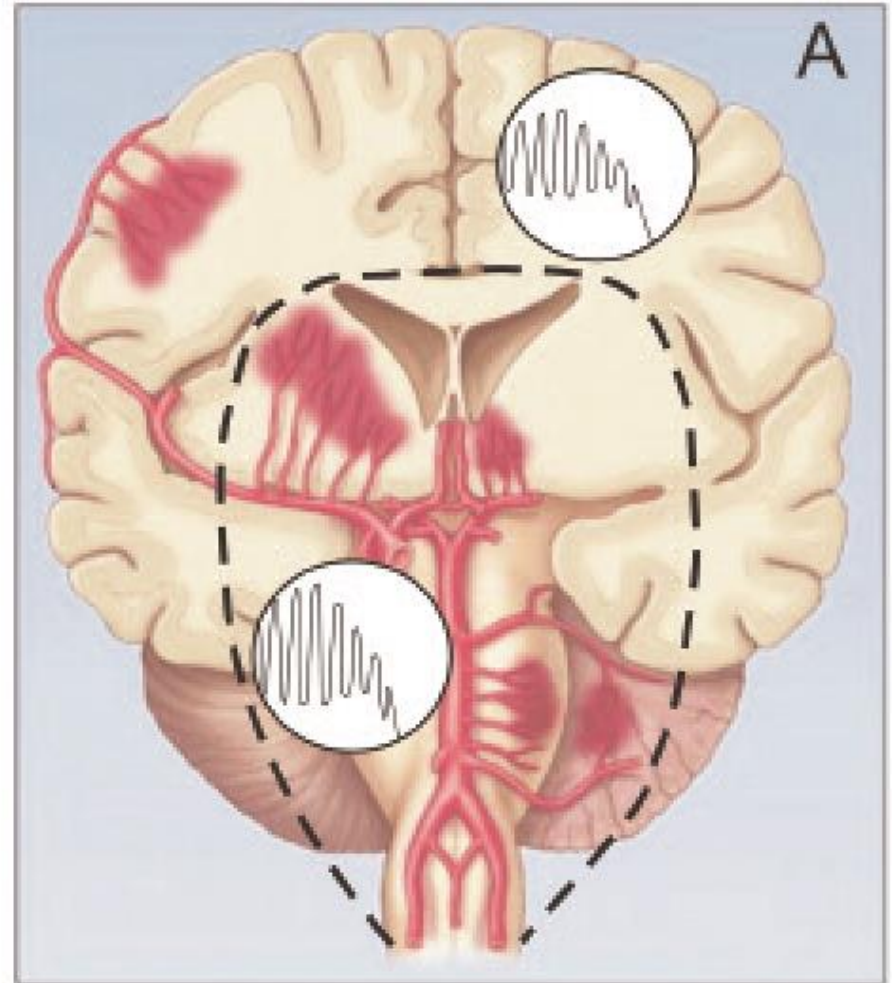
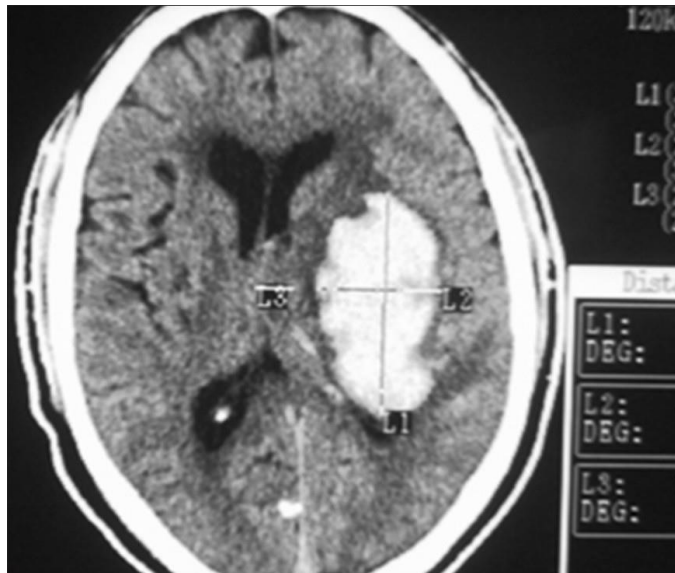
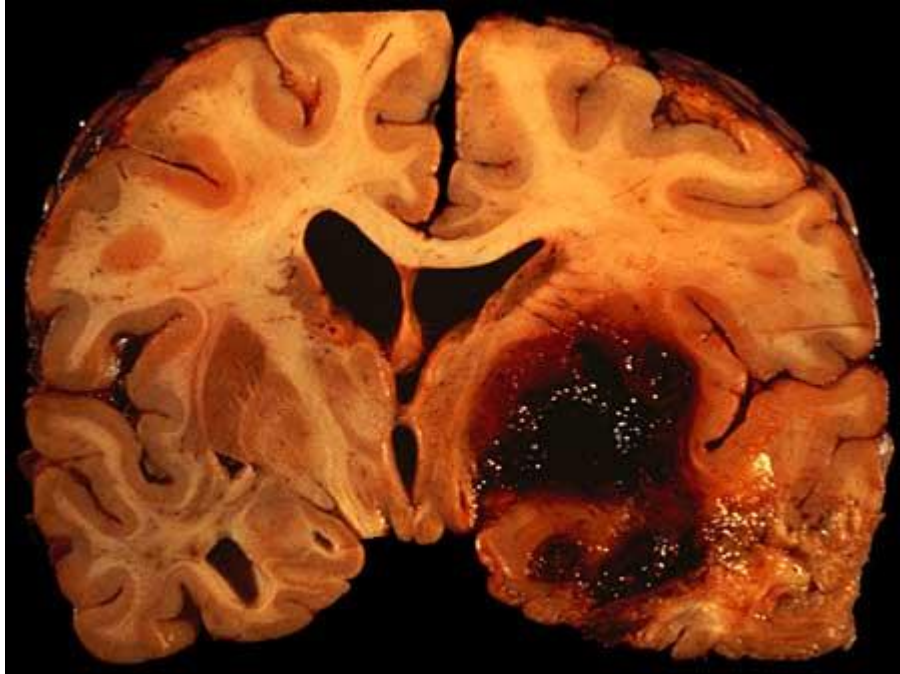
# Subarachnoidální krvácení



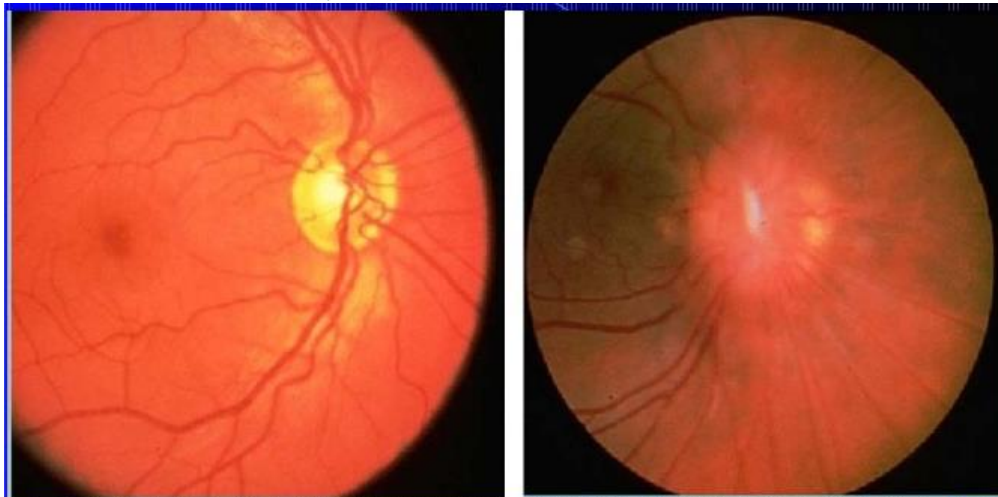
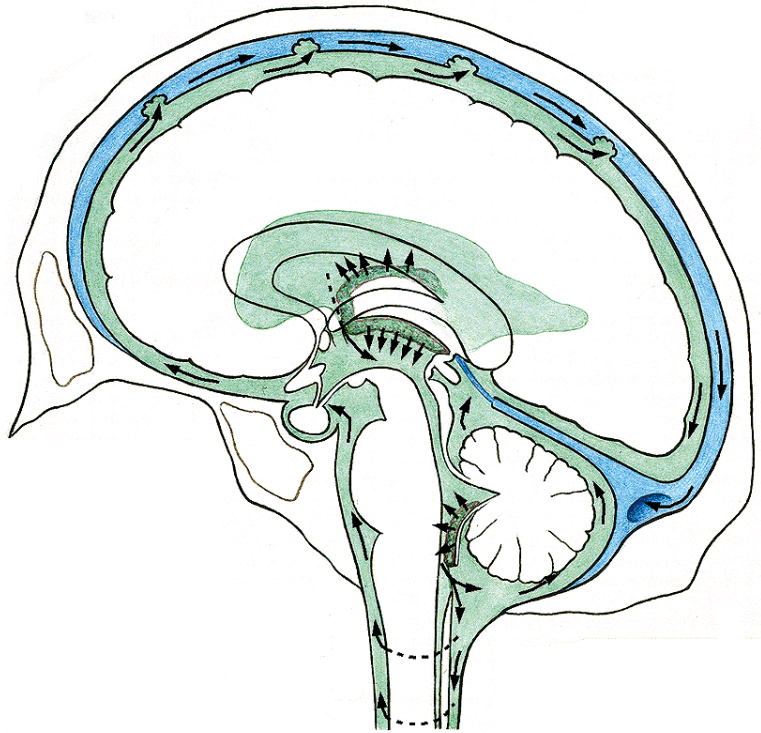
Tepenné aneuryzma



# Intracerebrální krvácení



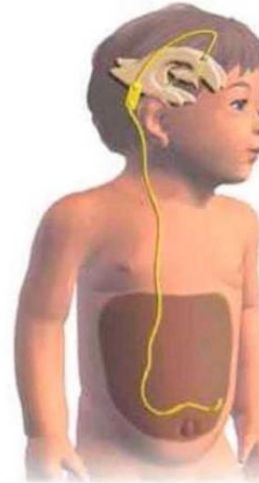
# Hydrocephalus



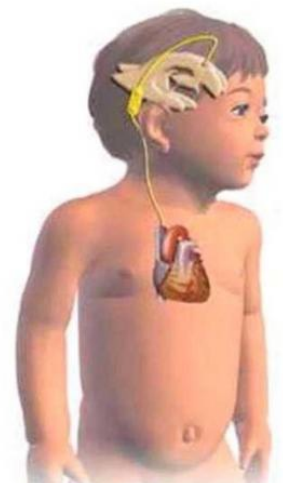
Normal papilla of optic nerve

Papilledema

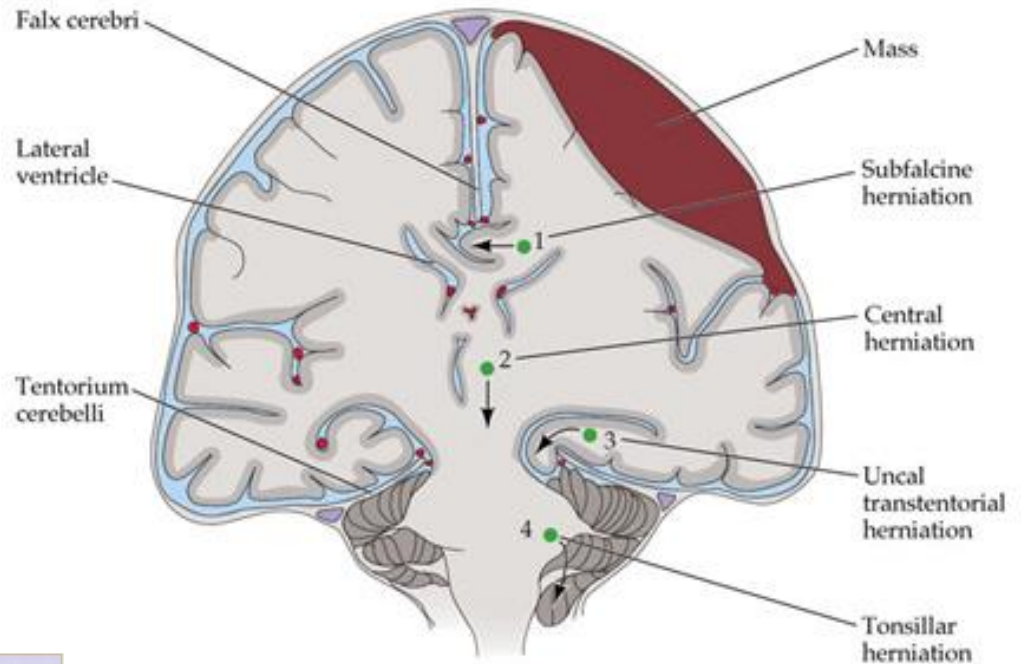
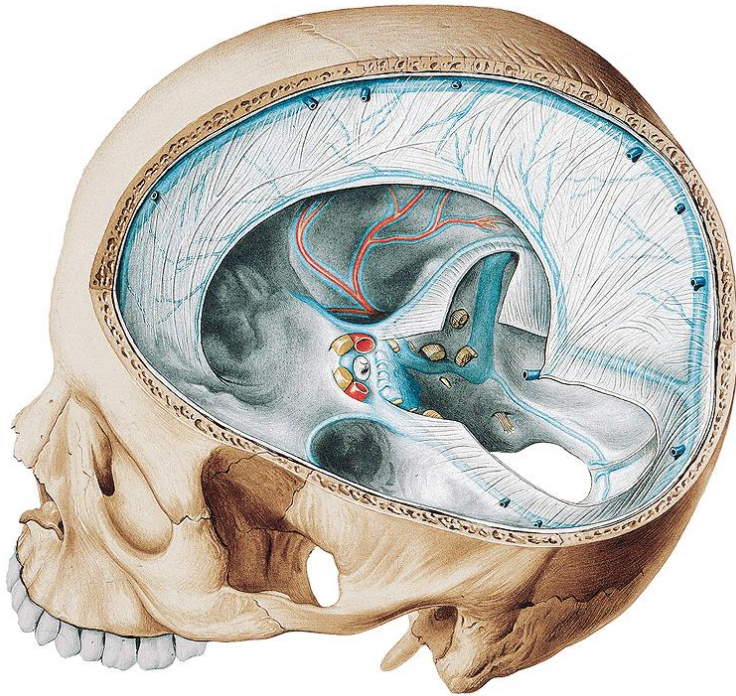
VP SHUNT



VA SHUNT



# Intrakraniální hypertenze



© 2002 Elsevier Associates, Inc.

**Table 3 -** Normal ICP levels by age group and their maximum acceptable variations

Age group	ICP (mmHg)
Newborns and infants	Up to 5
Children	6 - 15
Adolescents and adults	< 15

Significant intracranial hypertension:

20 - 24 mmHg/30 minutes

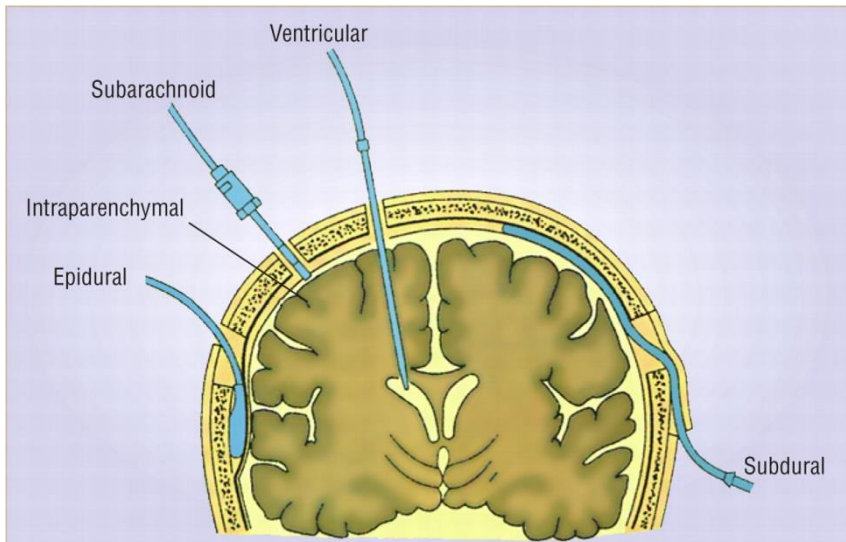
25 - 29 mmHg/10 minutes

> 30 mmHg/1 minute

Mild hypertension: 15 - 25 mmHg

Moderate hypertension: 25 - 40 mmHg

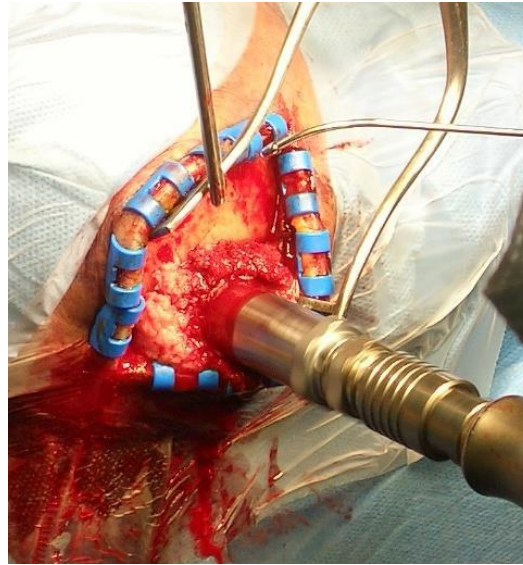
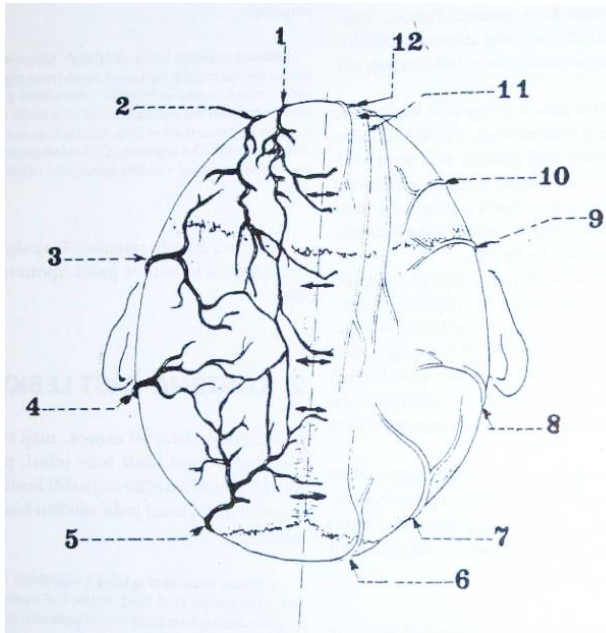
Severe hypertension: > 40 mmHg



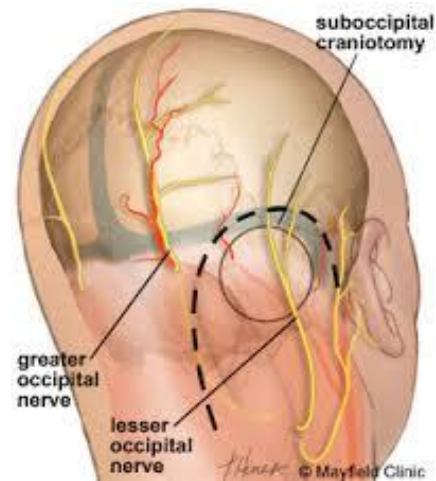
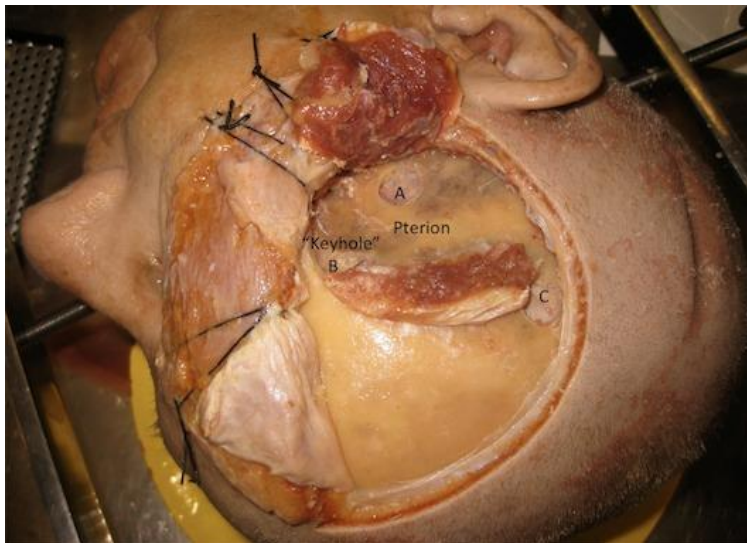
Adapted from Kerr and Crago,<sup>33</sup> with permission from Elsevier.



# Trepanace a kraniotomie

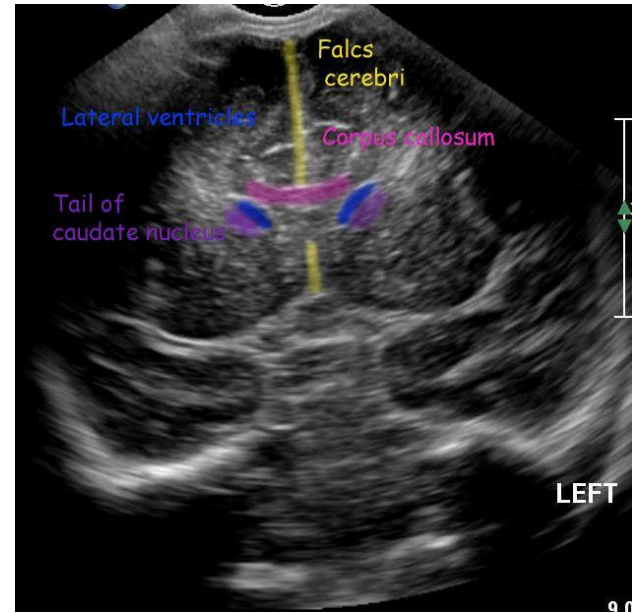
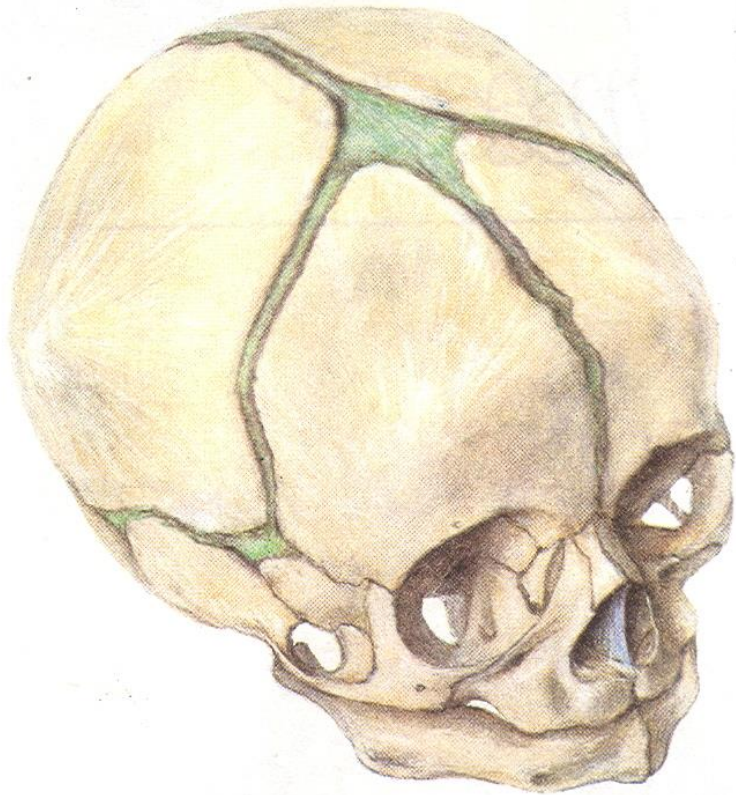


## Trepanace



## Kraniotomie

# Fontanely



- Orientace při porodu
- Hydrocephalus
- Dehydratace
- Transkraniální US
- Punkce



## Langerovy a Kreisslovy linie

