

# **Neuroradiologia**

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**Tudományos főmunkatárs**

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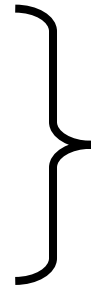
# Systema nervorum centrale: investigatio

- **Röntgen**

- fluoroscop O
- **film**

– os, Ca, aer

- Pneumoencephalographia
- Ventriculographia
- Myelographia (+CT)



- Invasiv

- **US**

- **CT** (rtg !, c.m.)

- neonatus
- 3D, CTA, Dynamic
  - os, sanguis, encephalon, aqua

# Systema nervorum centrale: investigatio

- **MRI**  $H^+$ 
  - multiplanar, tissue contrast, bone-artefact O, white matter
  - O Ca, sangius (ictus), clipps
  - mass effectus, vascularitas, vasc. (SAH, AVM) preoperativ . Intervencio +!
  - circulation, metabolismus
- **Angiographia**
  - c.m., catheter
- **Nuclearis medicina**
  - SPECT = > PET

# MRI

- mit vizsgálunk
- közeg
- energia
- mágnesek
- T1, T2 relaxatio
- jellocalisatio
- áramlási fenomen
- kontraszt anyagok
- műtermékek
- veszélyek, kontraind.
- a jövő

H

magnetic field

RF impulse

stabil, electro

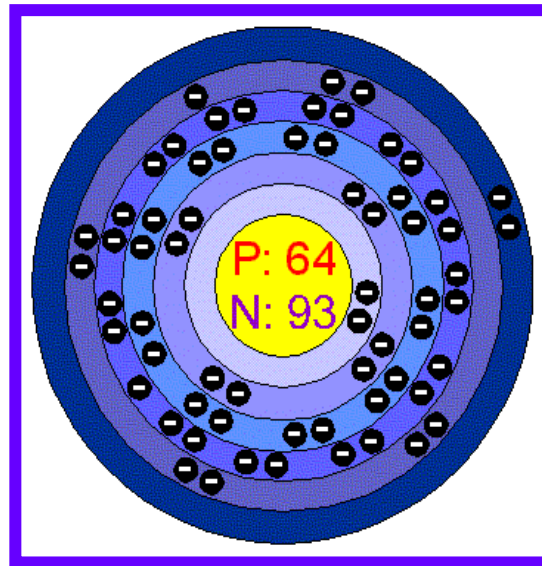
signal void

Gd, SPIO

- what is the target
- environment
- energy
- magnets
- T1, T2 relaxation
- signal localisation
- flow phenomenon
- contrast materials
- artefacts
- hazards, contraind.
- the future

# Contrast material (T1, Gd paramagnetic)

*Klinikum: urination probl*



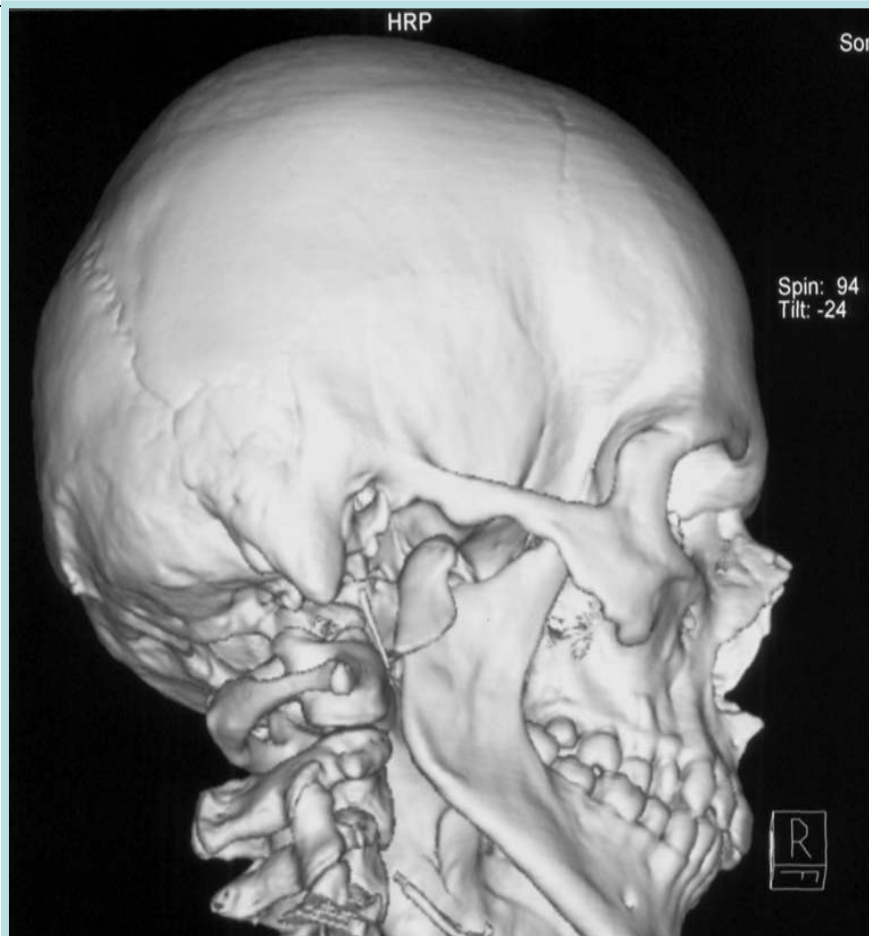
# CNS pathologia

- **Cerebrovascularis**
  - Parenchyma (infarctus):
    - anaemias
    - haemorrhagiás
  - Haematoma
    - subduralis
    - extraduralis
  - SAH
- **Trauma**
  - fractura
  - haemorrhagia
  - contusio

# CNS pathologia

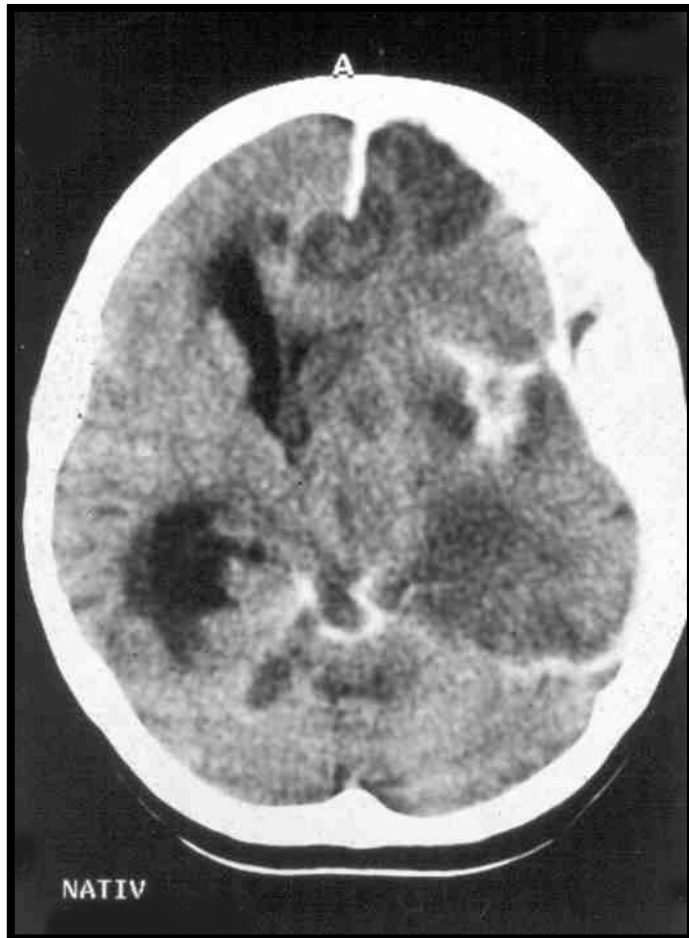
- **Tumor**
  - supra-, infratentorialis
  - extra-, intraaxialis
    - (sellaris, parasellaris)
  
- **Inflammatio**
  - bacterialis (meninx, parenchyma)
  - viralis
  - parasita
  
- **Parenchyma laesio**
  - demyelinisatio

# fractura condylaris inferior, extracapsular





# Haematoma subdurale



# epidurale

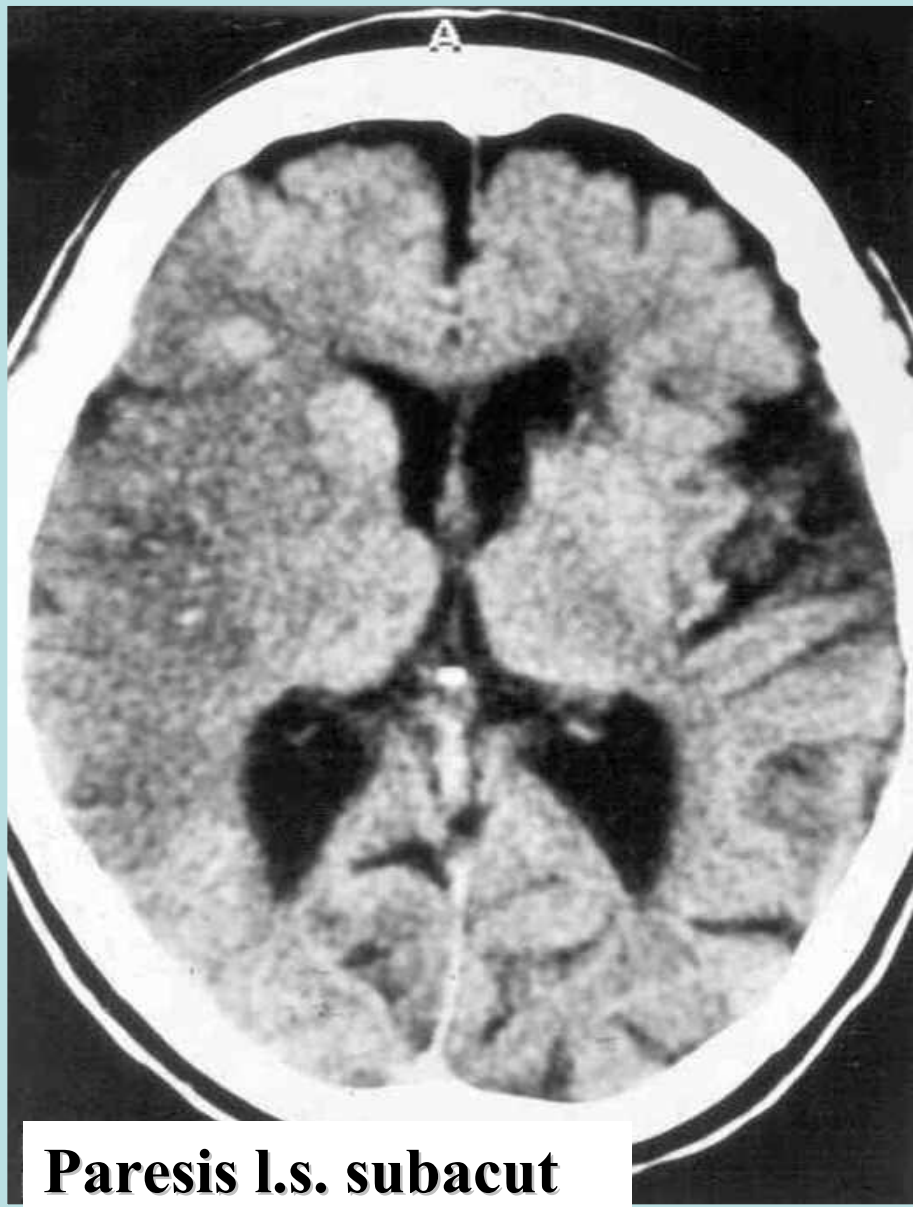


# CT: infarctus cerebri

- **Hyperacut infarctus** ( < 12 h)
  - normal (50-60 %)
  - hyperdens arteria (25-50 %)
  - nucleus lentiformis O
- **Acut** (12-24 h)
  - ganglia bas. hypodens
  - cortex- medulla O (insular)
  - sulci O
- **1-3 ds**
  - mass effect
  - hypodensitas (cortex + medulla)
  - transformatio haemorrhagica (ganglia bas. + cortex)

# Infarctus cerebri

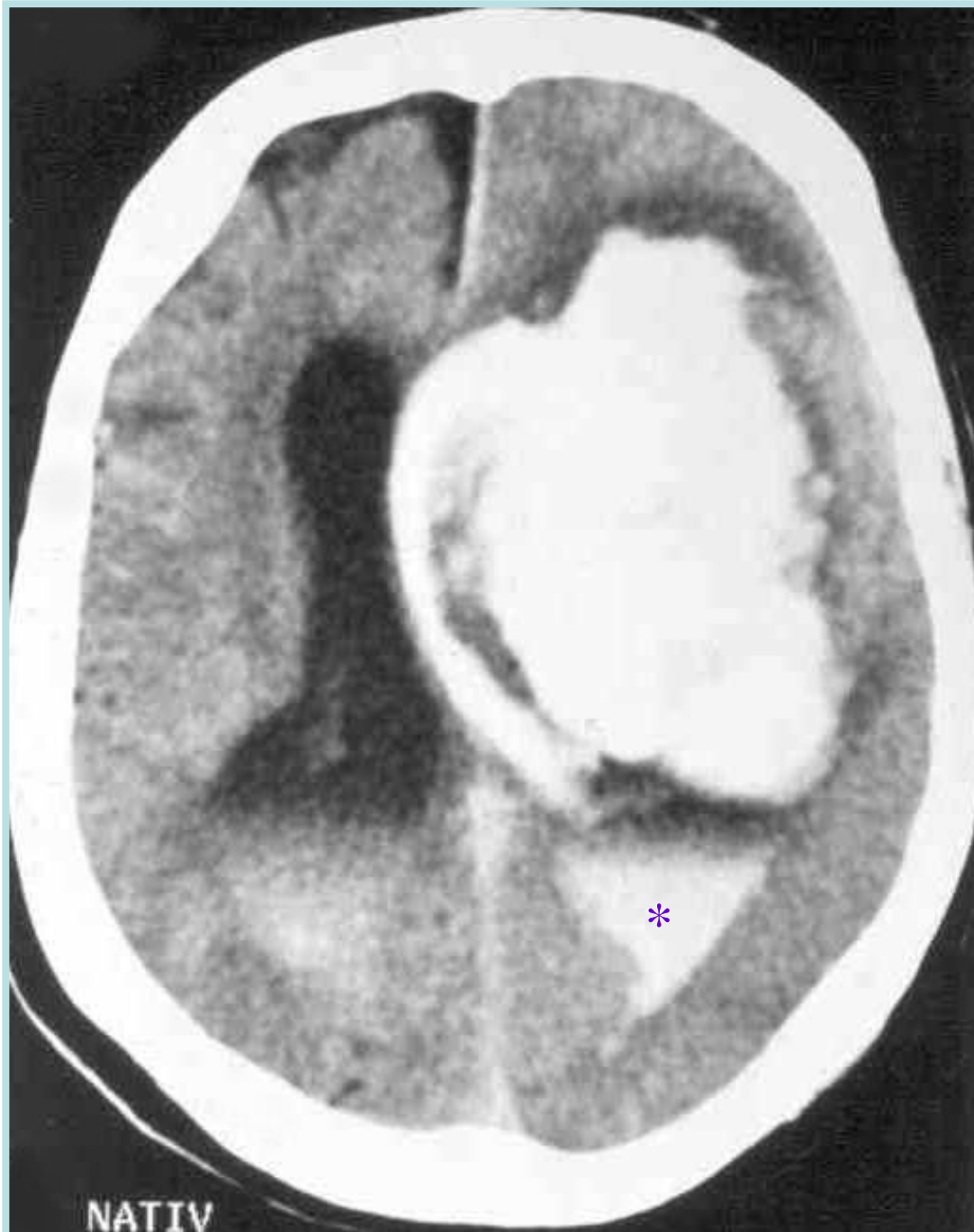
- **4 – 7 ds**
  - gyri : enhancement
  - mass effect, oedema persistens
- **1 – 8 ss**
  - persistens enhancement
  - mass effect ↓
  - transiens calcificatio (infant.)
- **ms – annos**
  - encephalomalacia (cysta), volumen ↓
  - (calcificatio)



**Paresis l.s. subacut**



**72 hs**



Apoplexia cerebri  
Haemorrhagia

# Haemorrhagia subarachnoidealis CT

50 f, oph. aneurysma



**vasospasmus**

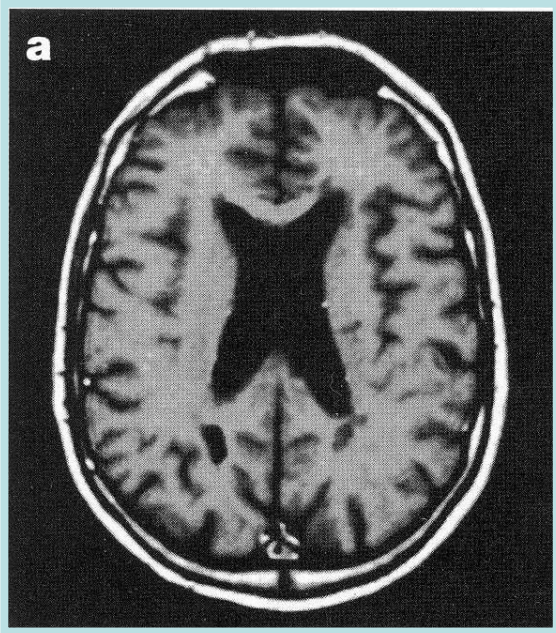
Tumorok

# Glioblastoma multiforme

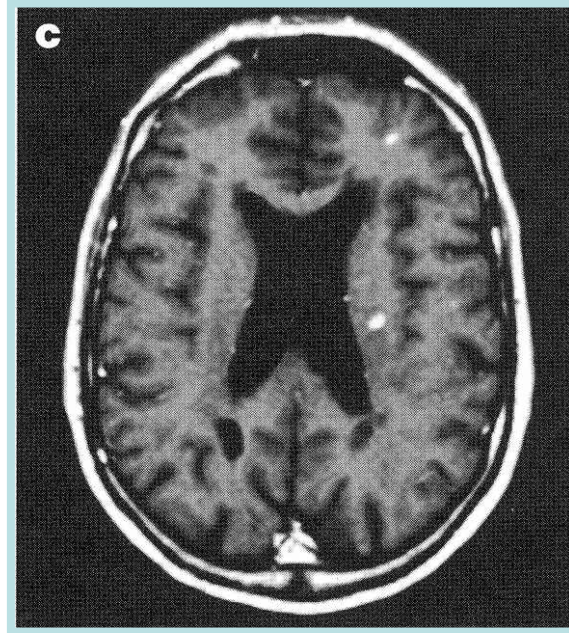




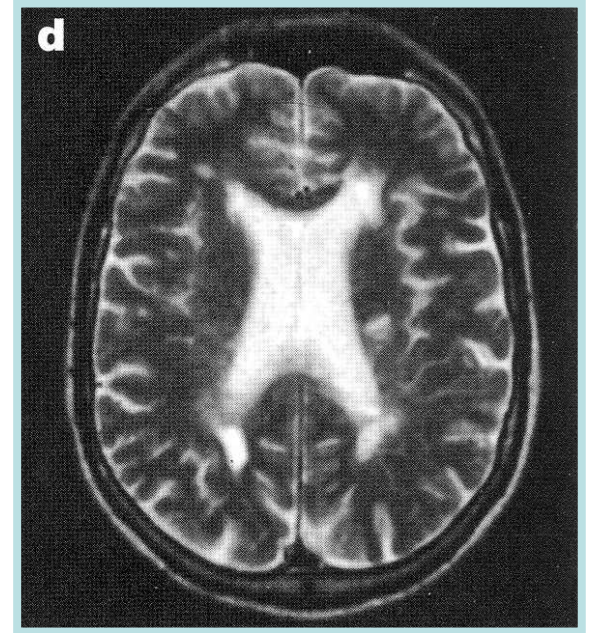
# Sclerosis multiplex



T1

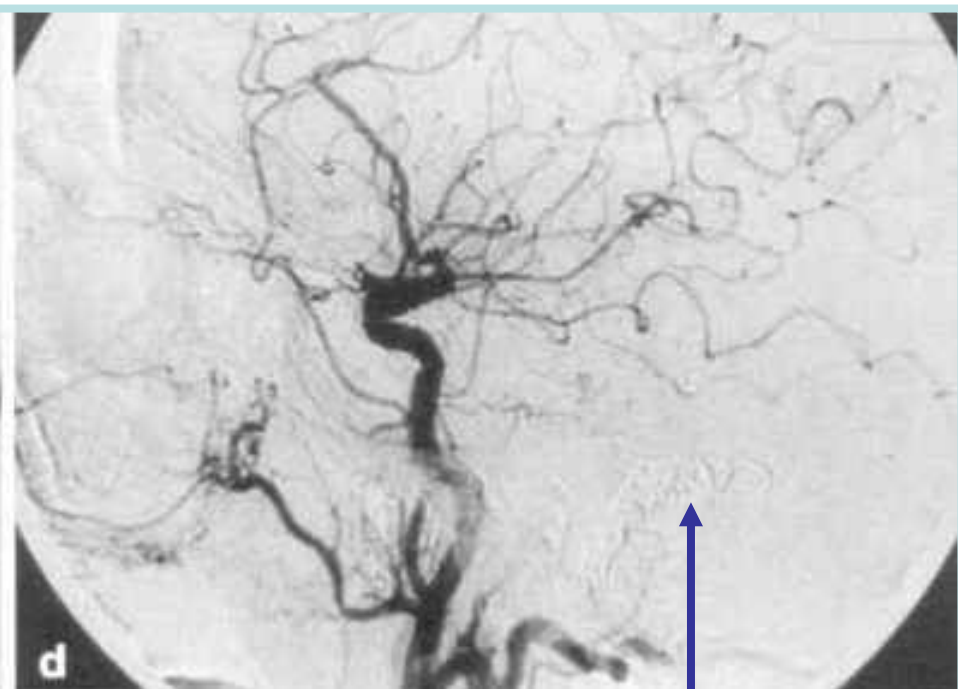
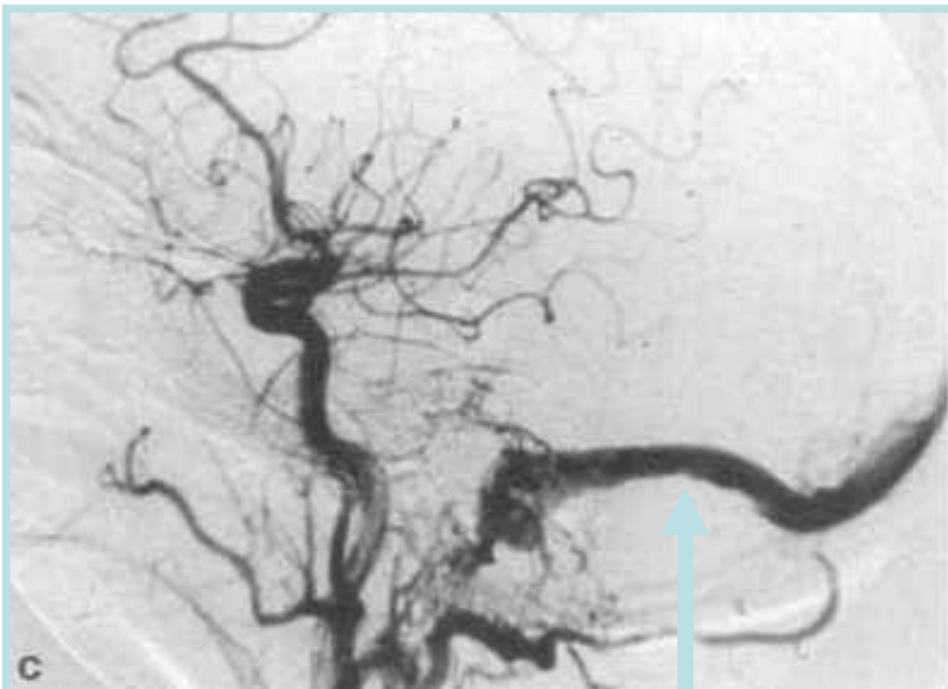


c.m.

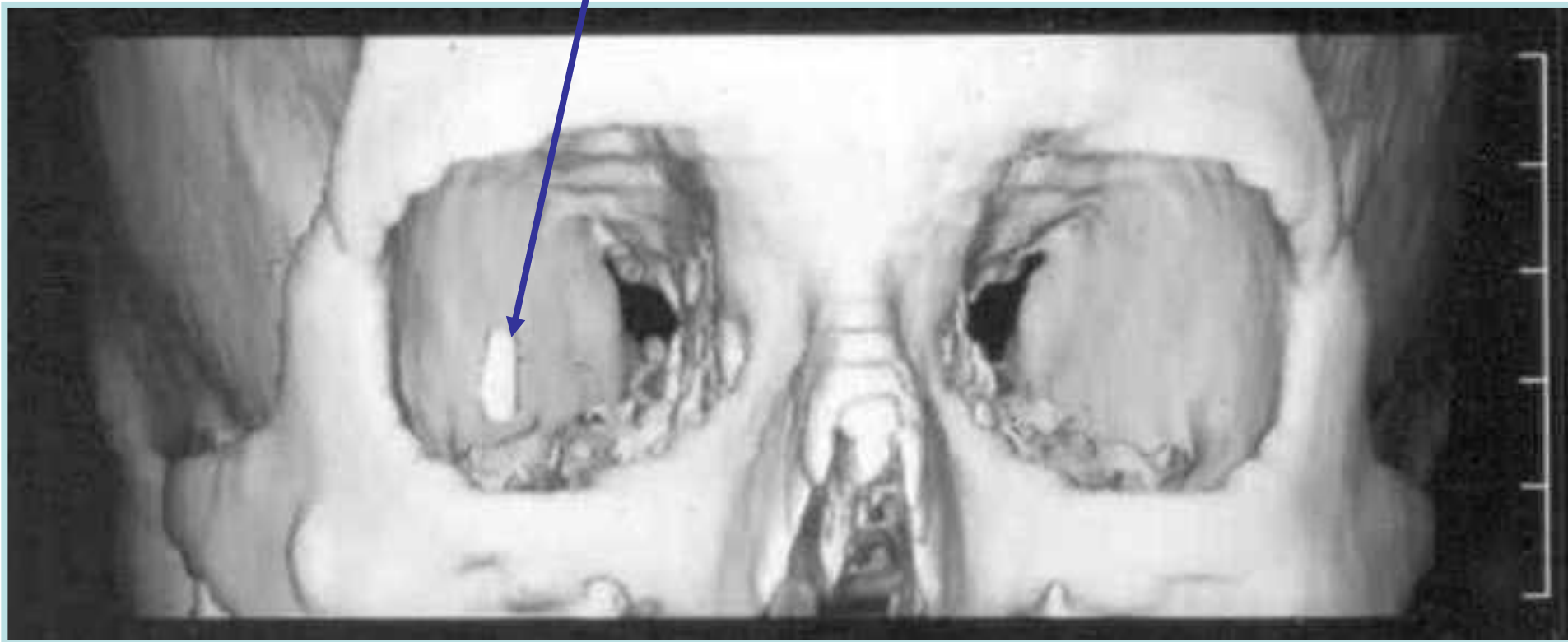


T2

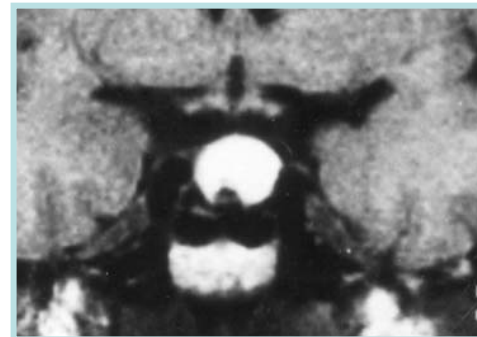
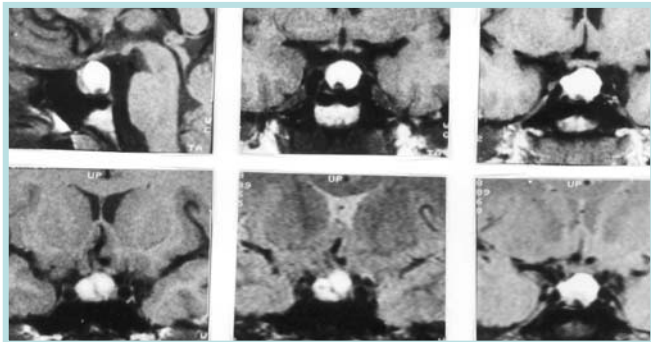
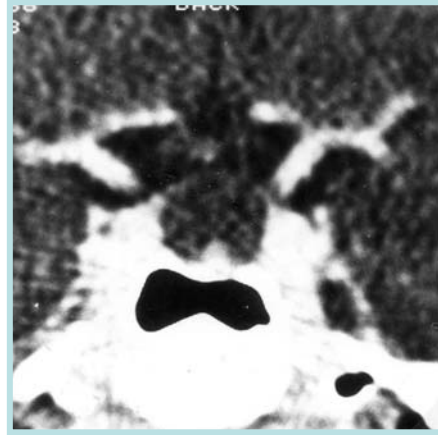
## Intervencio / oclusio



# IOFB 3DCT



# Craniopharyngeoma DI



- ictus /stroke :
  - ischaemic , haemorrhagic (CT,MR)
- haematoma sub-/epidurale
- columna vertebralis v.s. myelon (CT, MR)