

Scalpel Erasmus 2nd online session

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Hydrocephalus

- Definition
- Childhood vs. Adulthood (aquired + NPH)
- Acute vs. Chronic
- CSF functions
- Symptoms

Hydrocephalus

- Diagnostics
 1. Clinical and neurological exam
 2. Tap test
 3. Brain imaging
 4. Lumbar puncture and/or drainage

Derivative procedures in hydrocephalus (HCP)

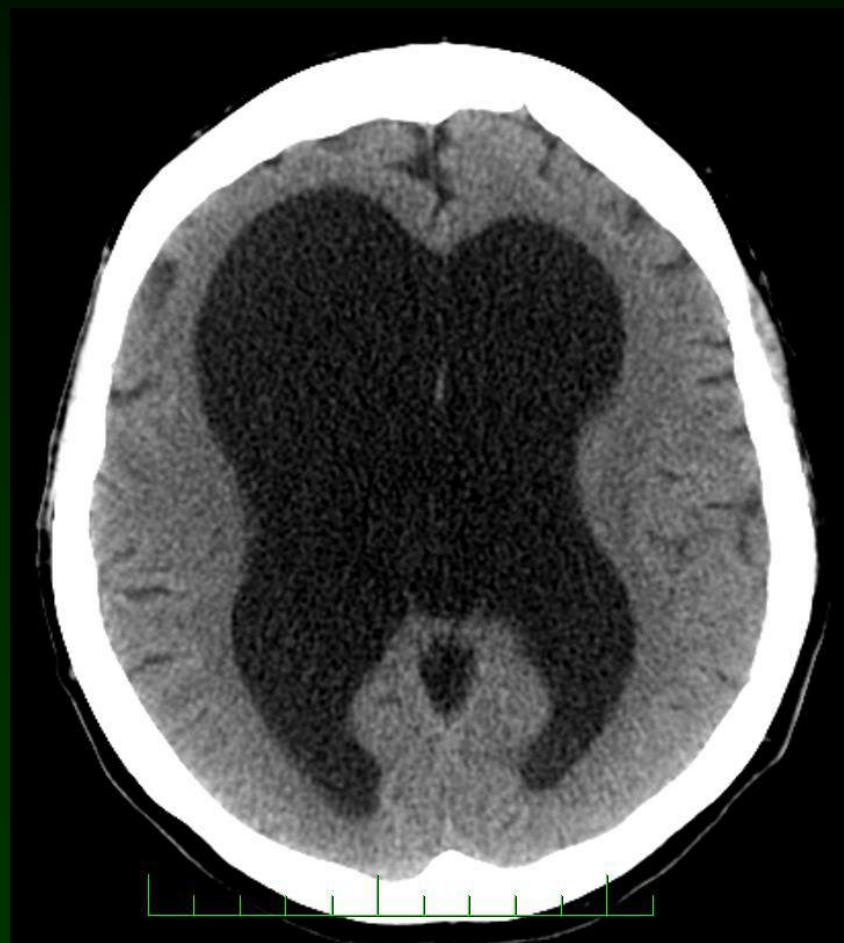
Treatment of hydrocephalus

- observation
- conservative treatment
- surgery
 - temporary (acute HCP)
 - external ventricular drainage
 - external lumbar drainage
 - permanent (chronic HCP)
 - shunt
 - neuroendoscopy
 - other
(Torkildsen drainage etc.)

Case 1

- female, 67 years
- sudden onset – confusion, impairment of speech
- duration of symptoms: 10-15 min.
- no other symptoms
- physical exam negative

Case 1



Case 1

- TIA
- congenital hydrocephalus
- no symptoms = no treatment

Case 2

- male, 60 years
- sudden onset of headache (unknown so far), vomiting
- meningeal signs, no focal neurological deficit
- Consciousness disorder

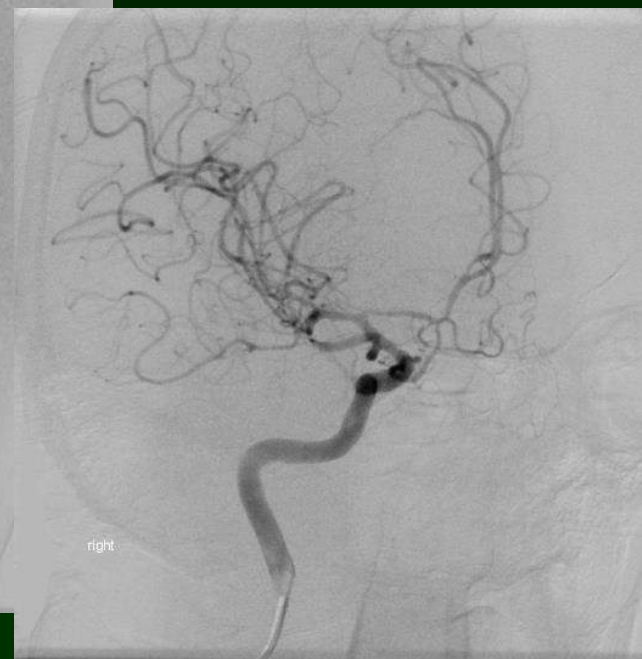
Case 2



Case 2



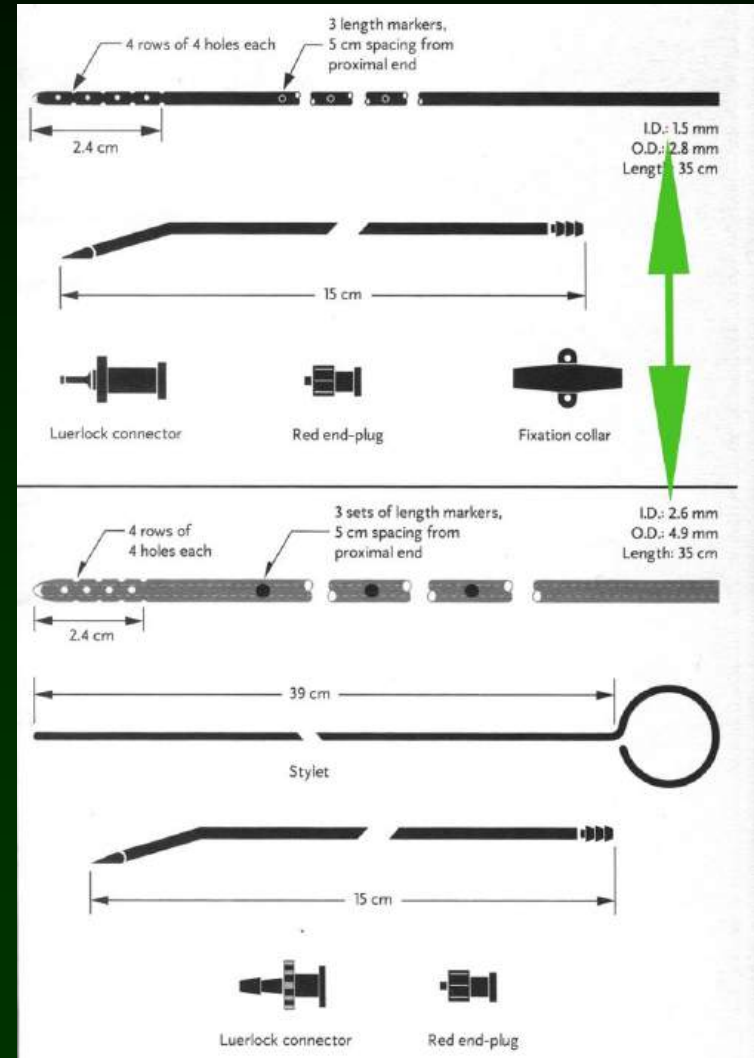
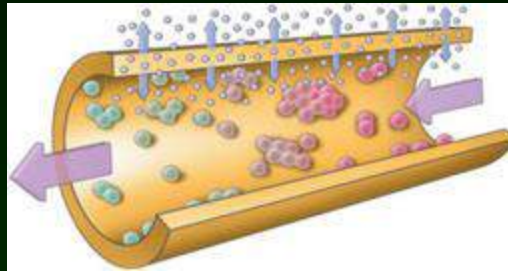
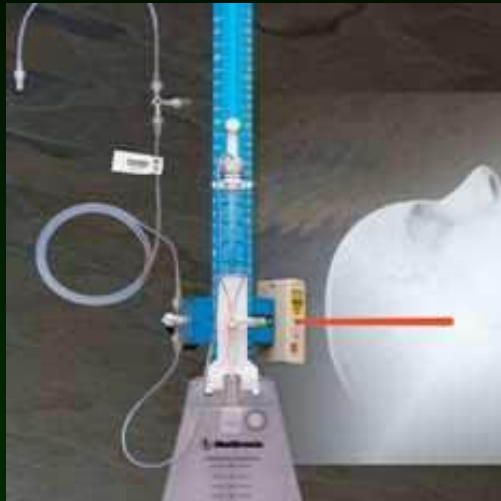
Case 2



Case 2



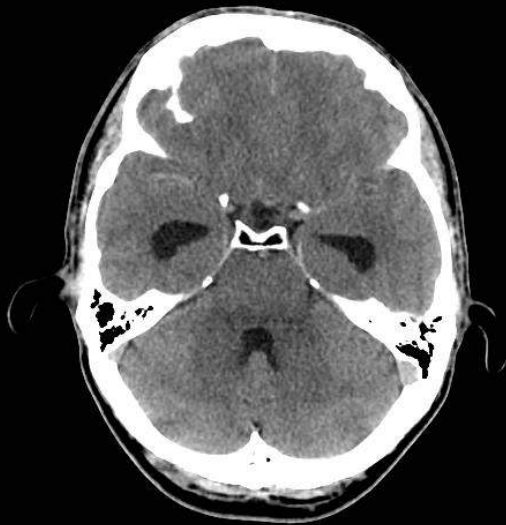
Case 2



Case 3

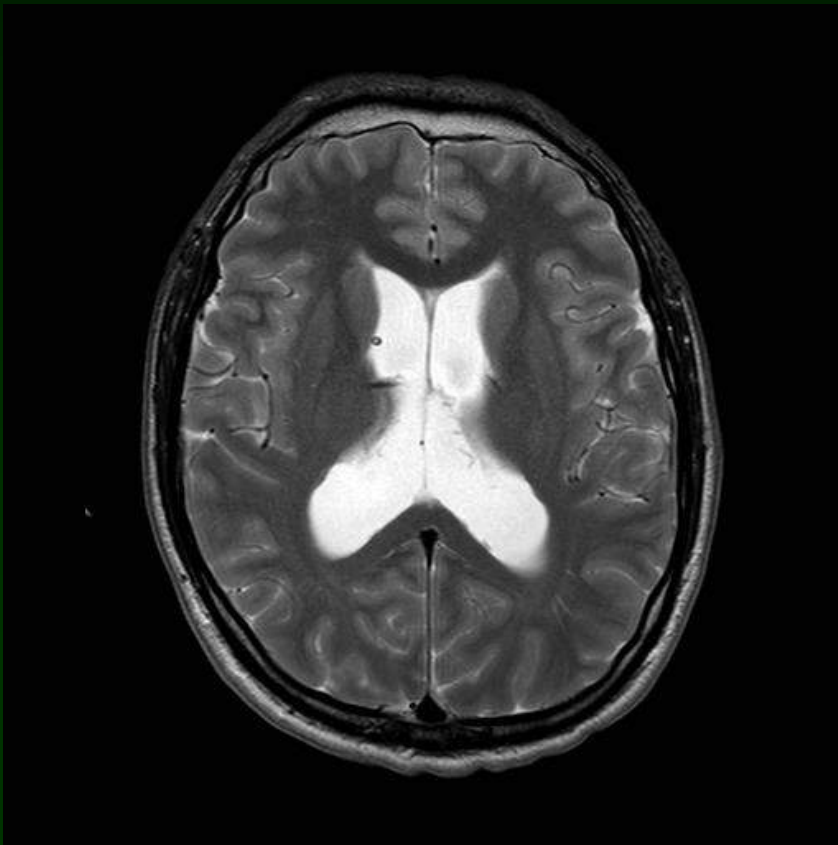
- male, 40 years
- sudden onset – headache, nausea, vomiting
- CT exam – hydrocephalus
- ophthalmoscopy – the edges of the optic disc unclearly defined
- psychomotor slowing, dystaxia, no meningeal signs

Case 3



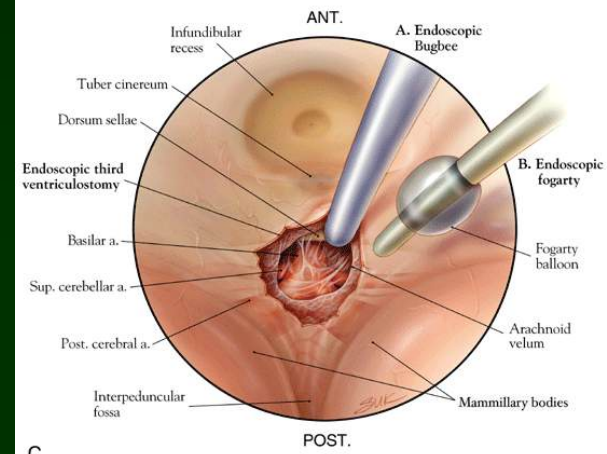
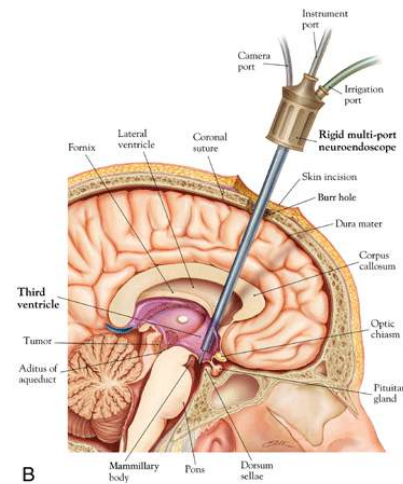
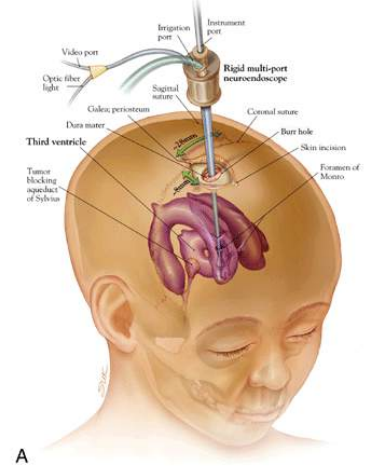
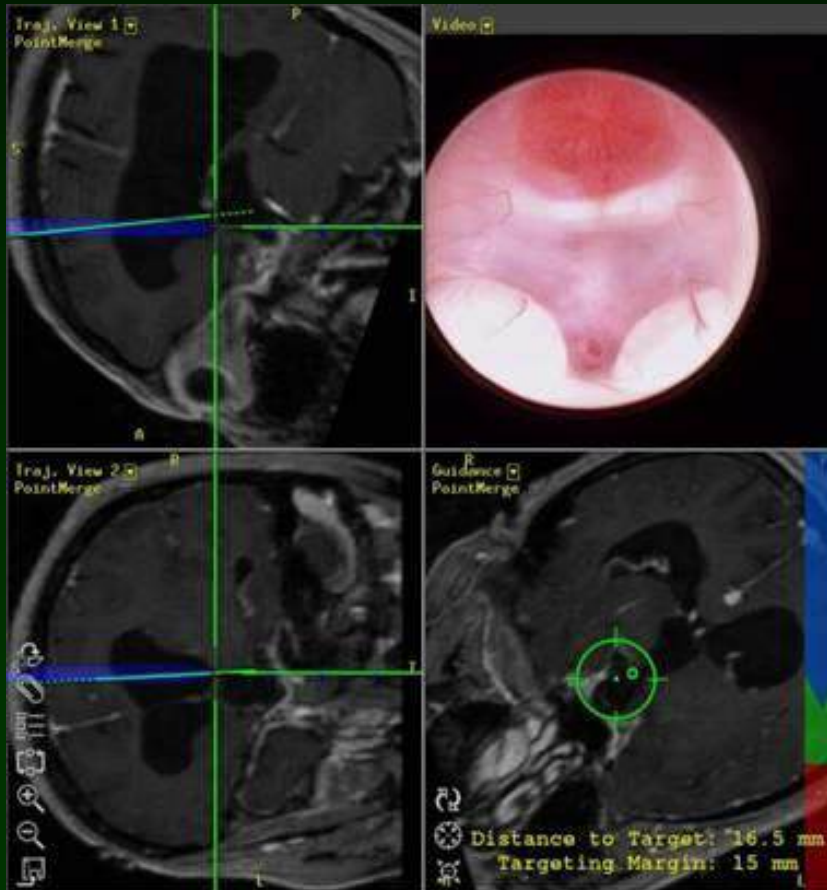
Case 3

- external ventricular drainage
- MRI

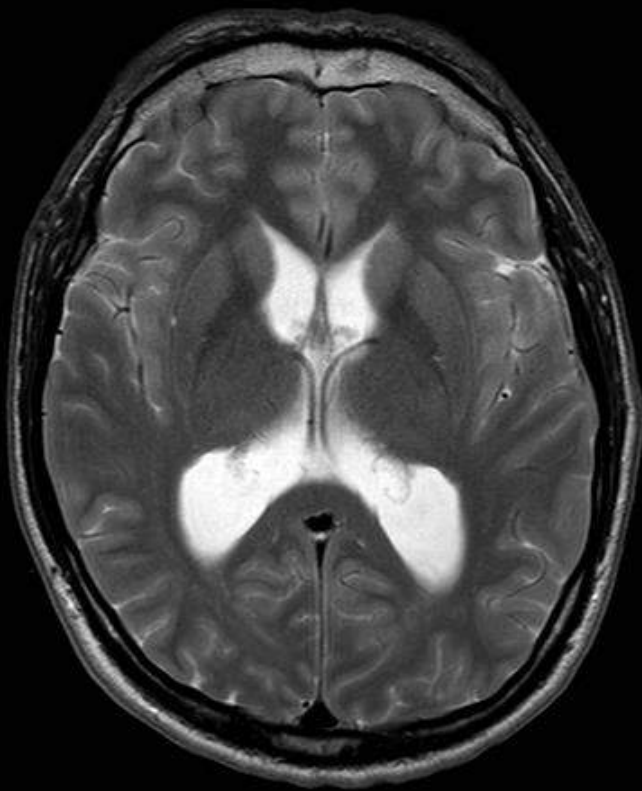


Case 3

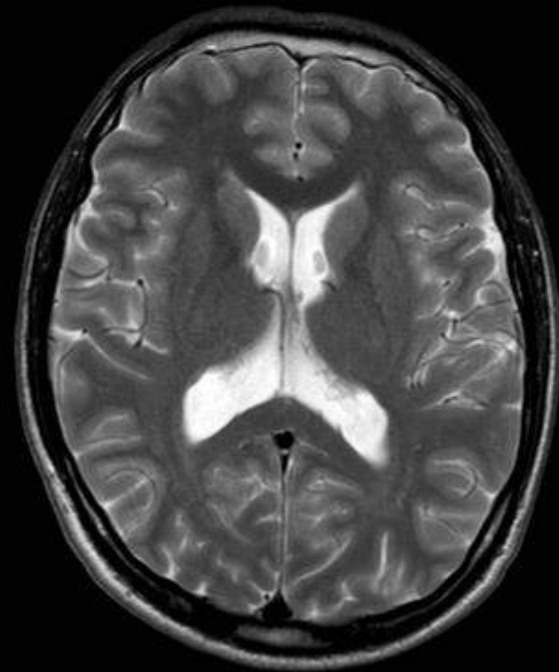
- 3rd ventriculostomy



Case 3

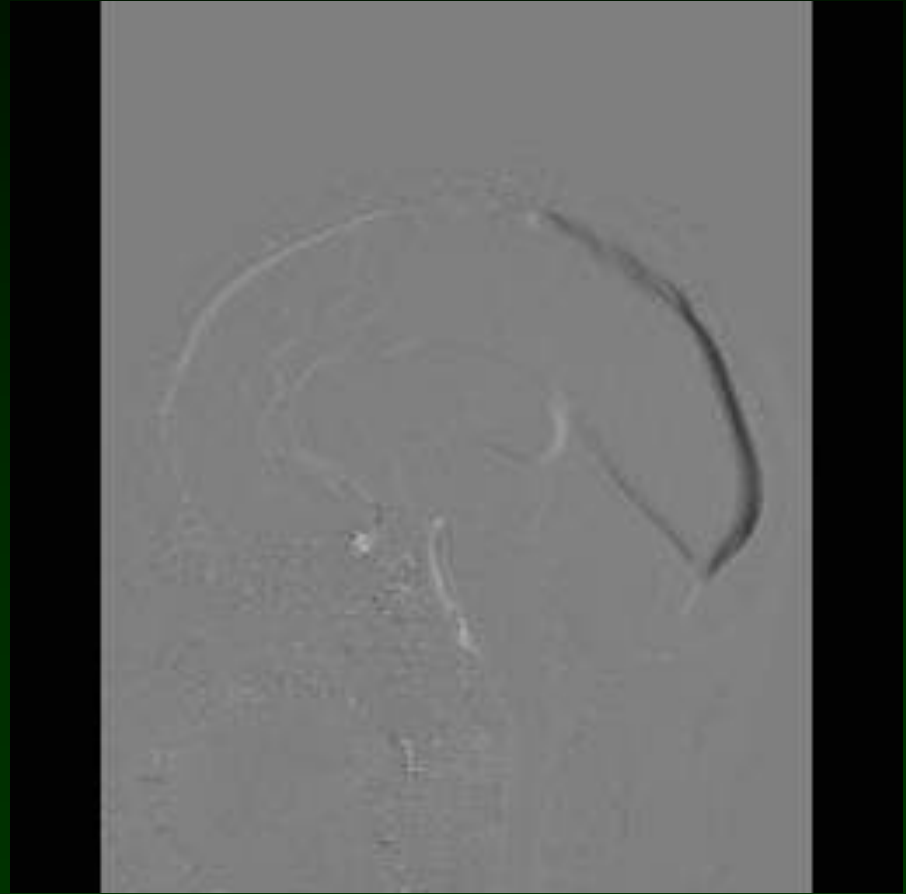


Before OP

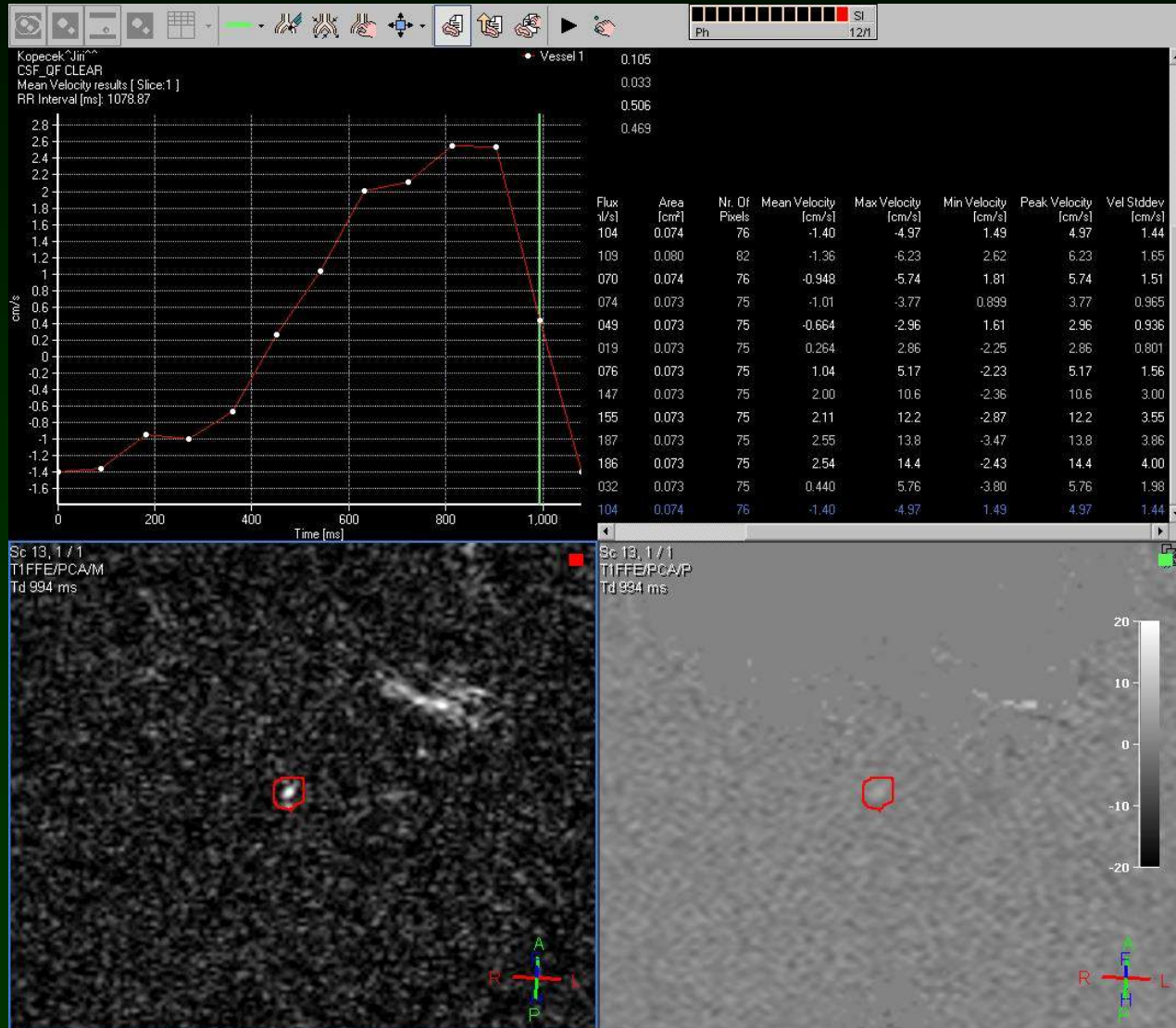


After OP

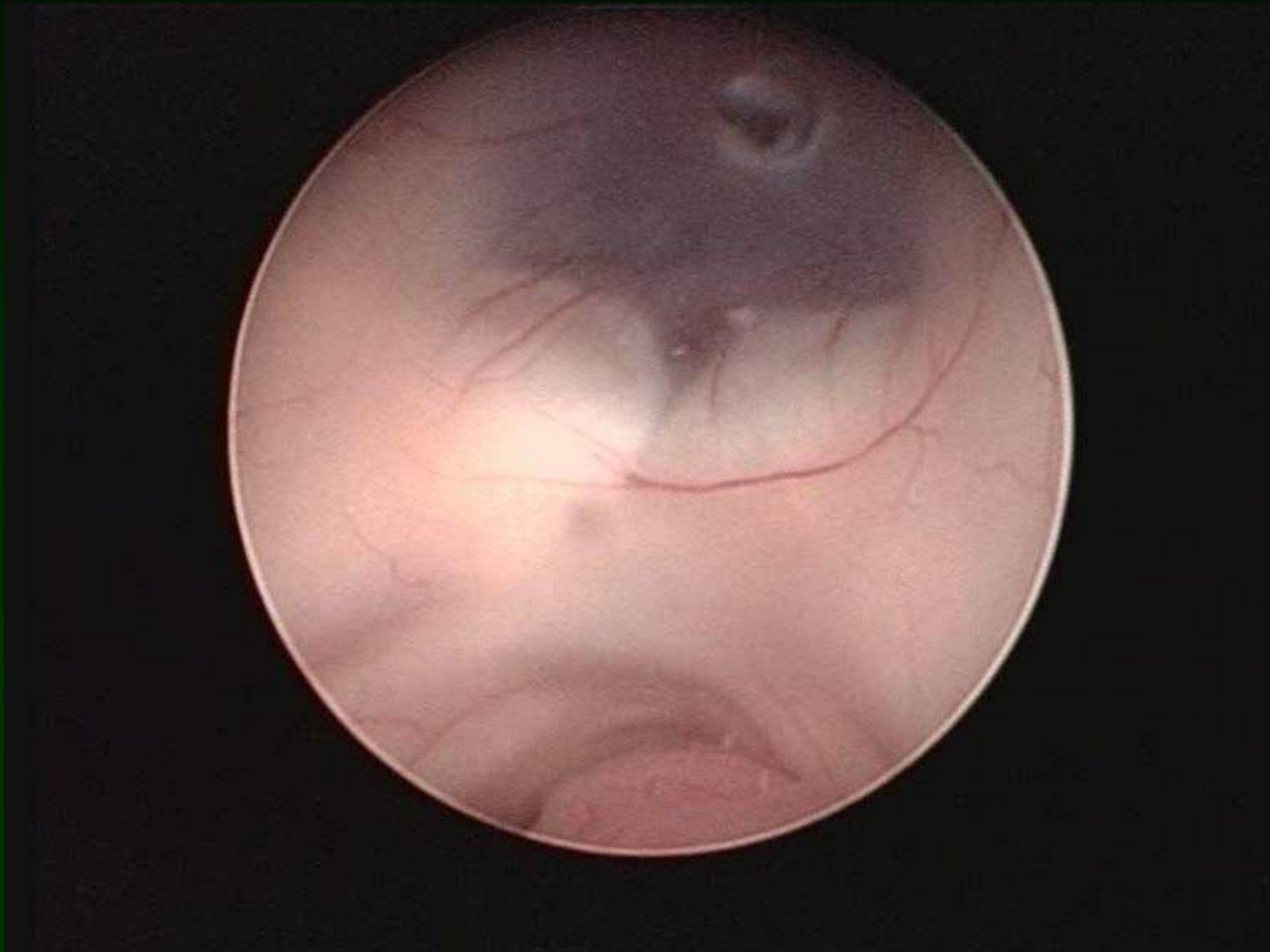
Case 3



Case 3

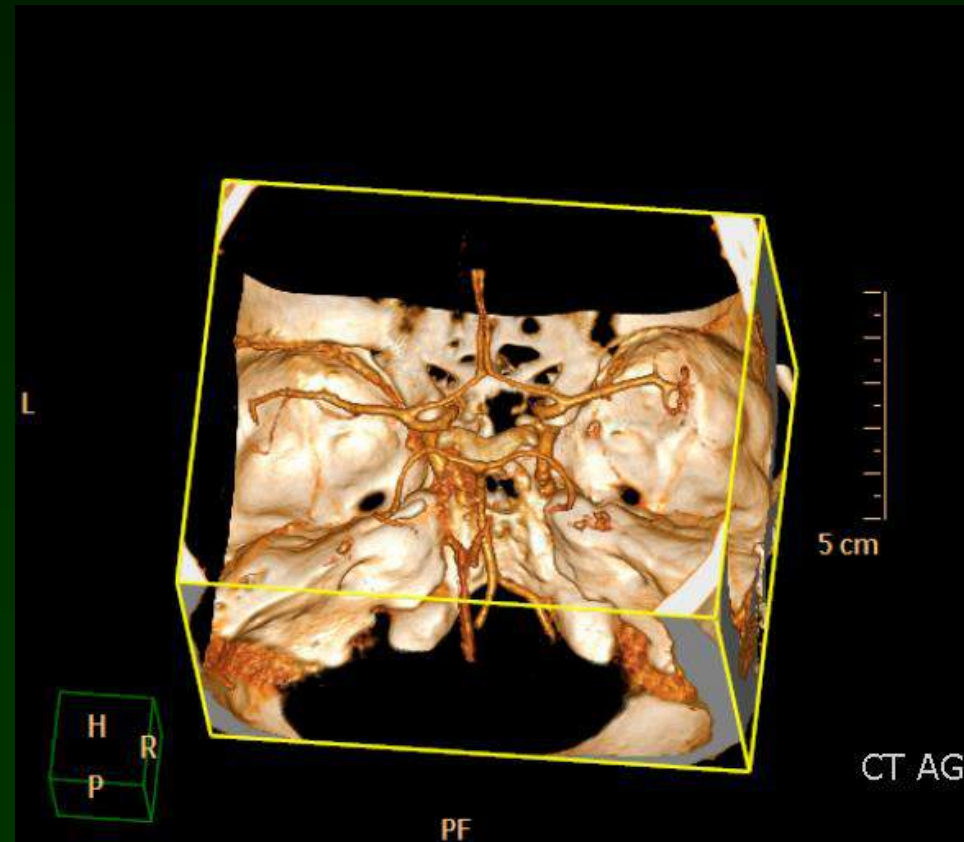
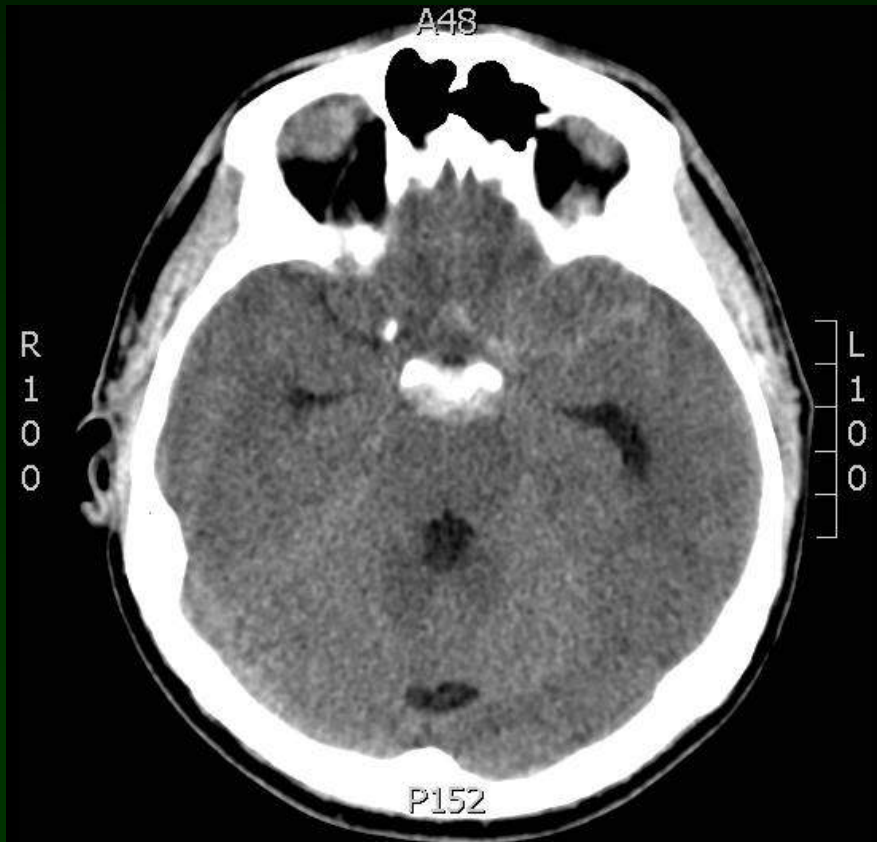


Case 3

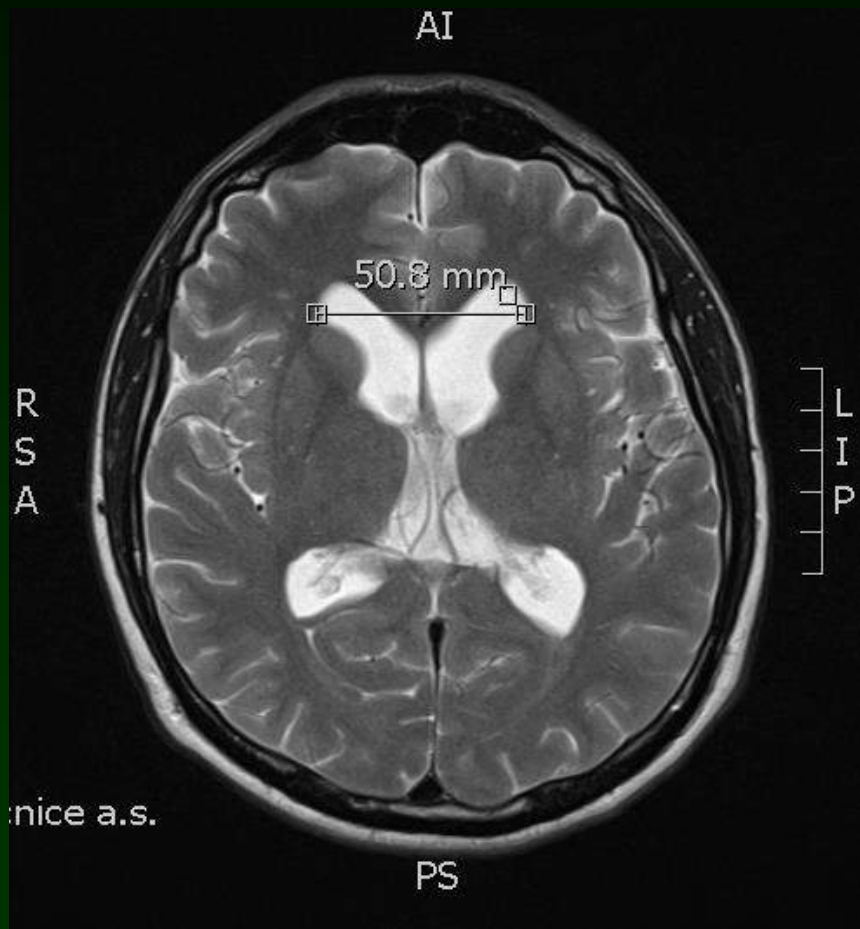


Case 4

- male, 48 years, acute SAH



Case 4



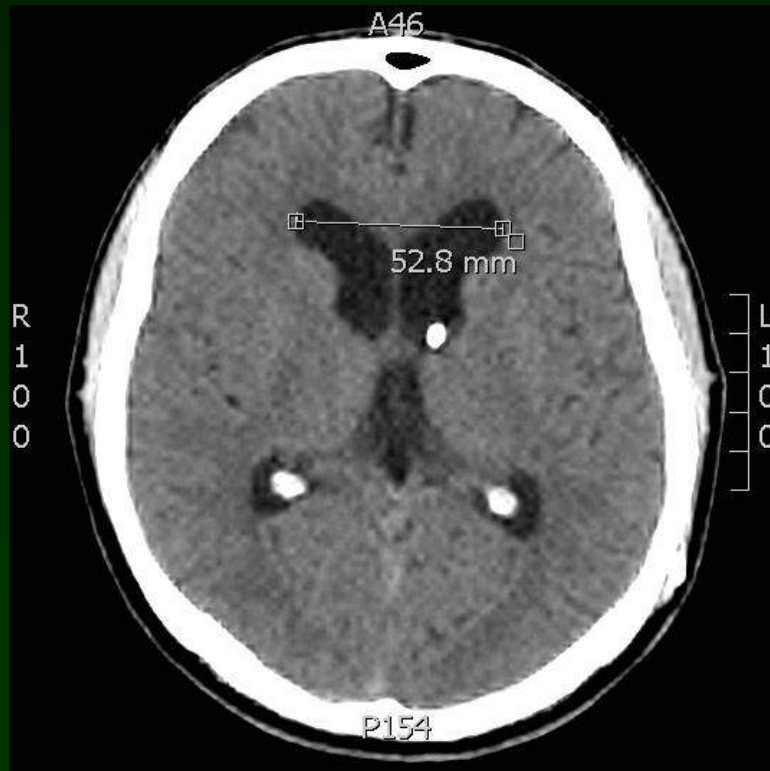
1 month after SAH



5 months after SAH

Case 4

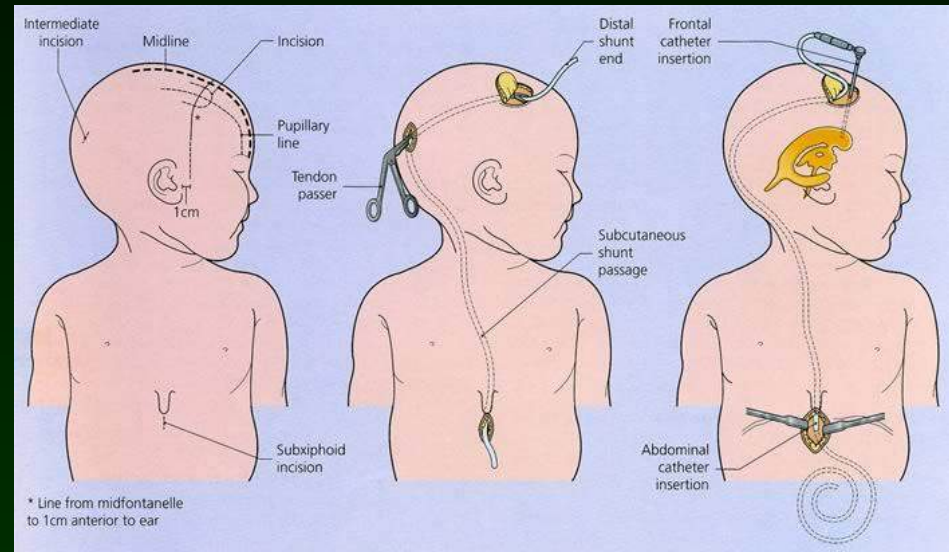
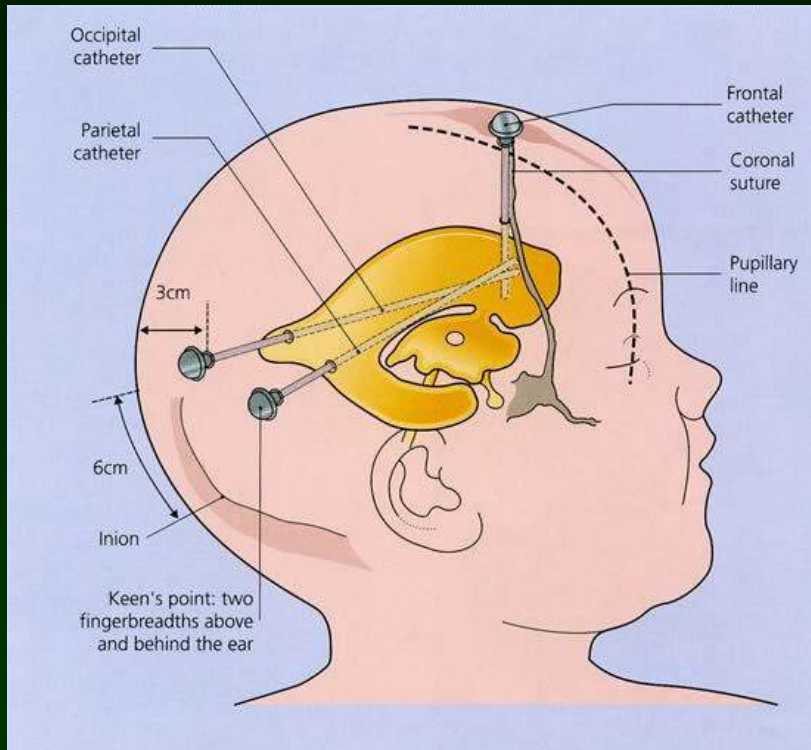
- 5 months after SAH
- headache, memory disorder



4 days after surgery

Case 4

- VP shunt



Case 5

- female, 55 years, SAH, aneurysm BA, coiling
- hydrocephalus
- implantation of a VP shunt
- shunt malfunction – peritoneal catheter
- revision – laparoscopy – multiple adhesions

Case 5



Case 5

- lesser trauma to the abdominal wall and peritoneum
- possibility of performing adhesiolysis and exquisite visualization of the peritoneal cavity, with in situ testing of catheter function
- lower risk of intraabdominal adhesions than laparotomy
- diagnosis of abdominal pain
- revision surgery
- primary placement



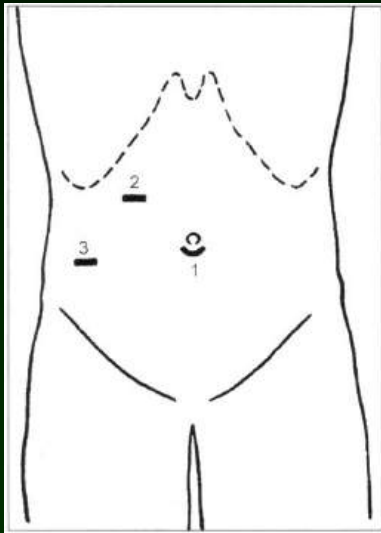
Case 5

- Laparoscopy is safe even without VP catheter clamping and with only routine anesthetic monitoring (Al-Mufarrej et al, 2005).
- Risk of retrograde failure minimal even with intraabdominal pressure as high as 80 mm Hg (Al-Mufarrej et al, 2005).



Case 5

Placement of trocars



X-ray after laparoscopic placement

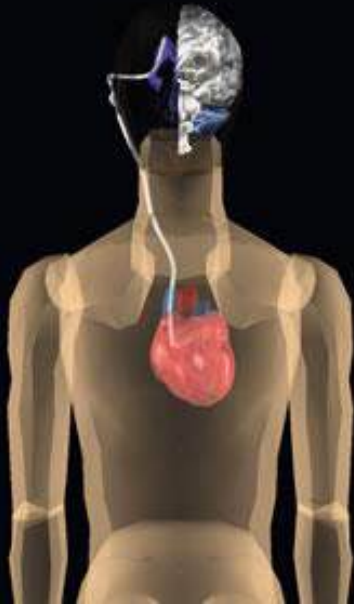


The end of the peritoneal catheter



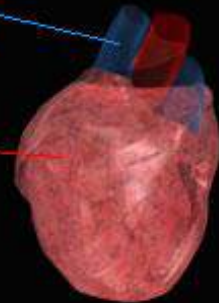
Case 5

- VA shunt



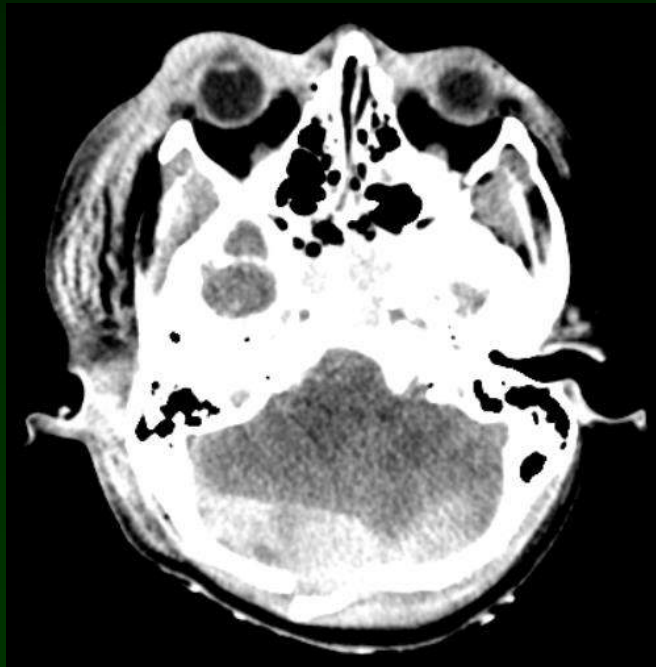
Superior
Vena Cava

Right
Atrium

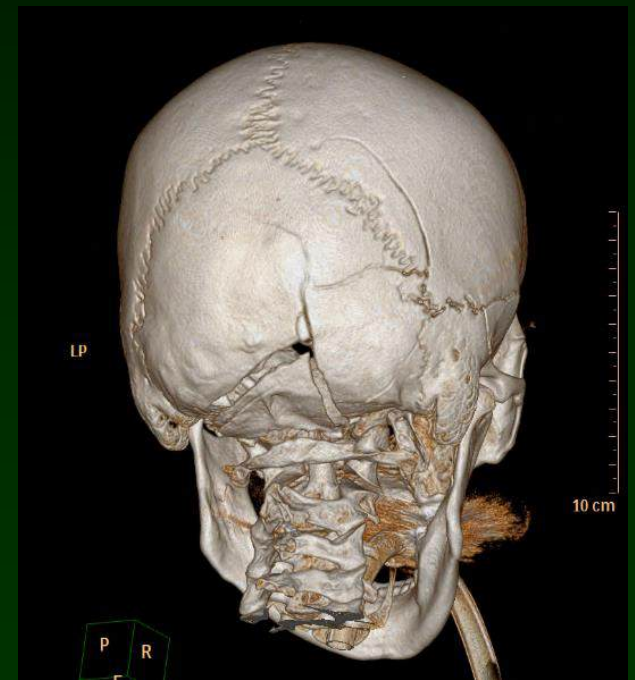


Case 6

- female, 26-year-old
- car accident, TBI, spine injury

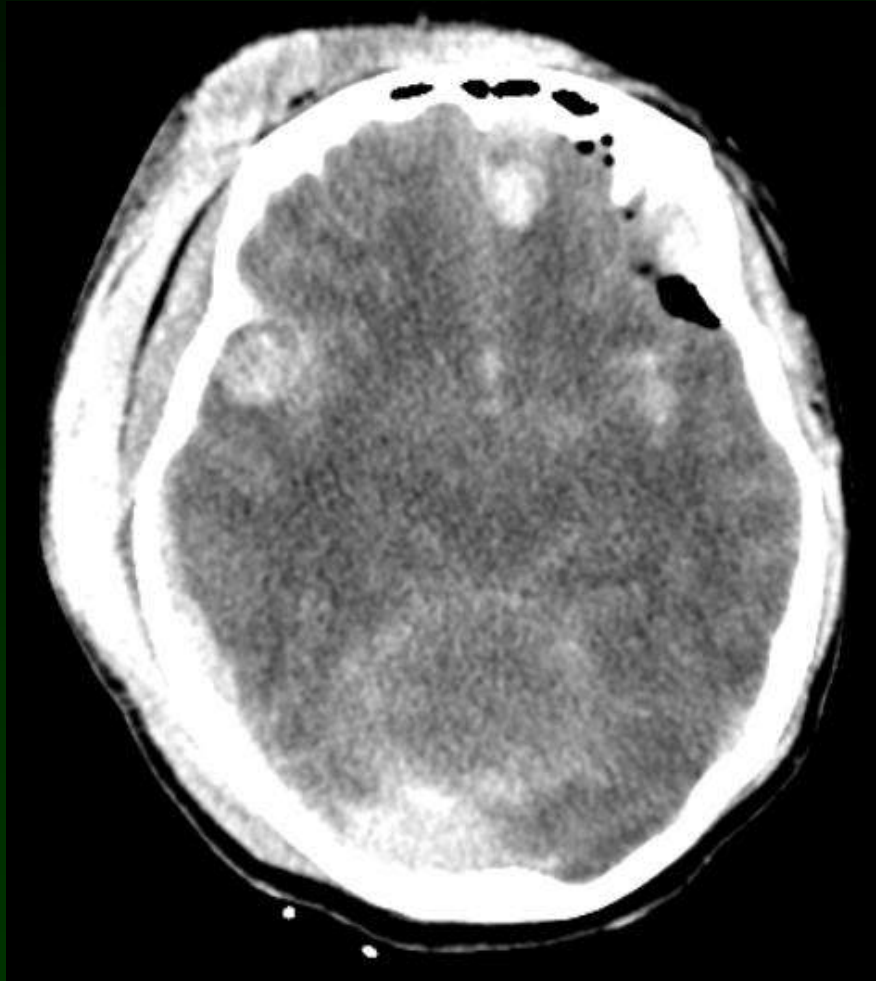


EDH



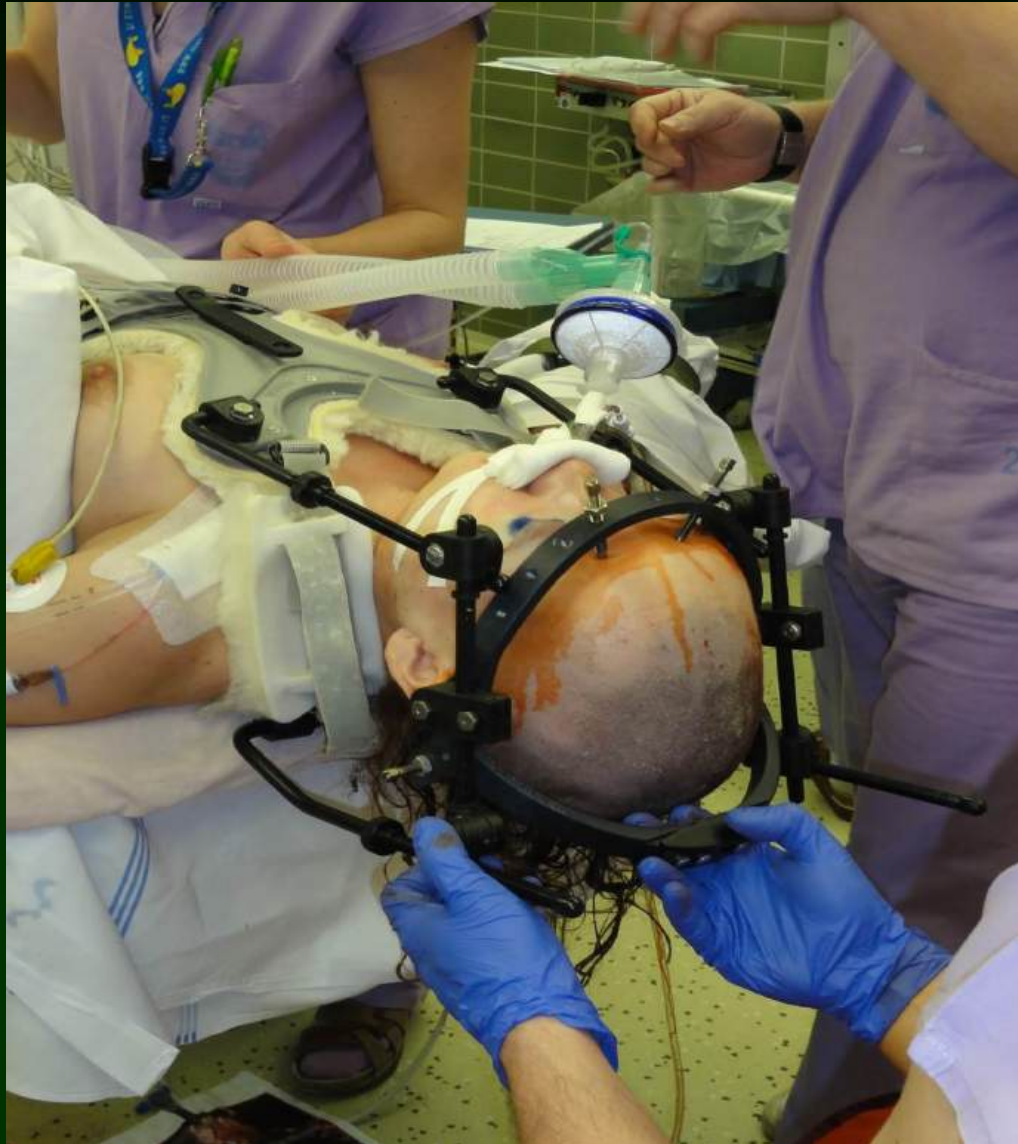
Occipital bone fracture,
subluxatio C0-1, C1-2

Case 6



before operation, halo vest

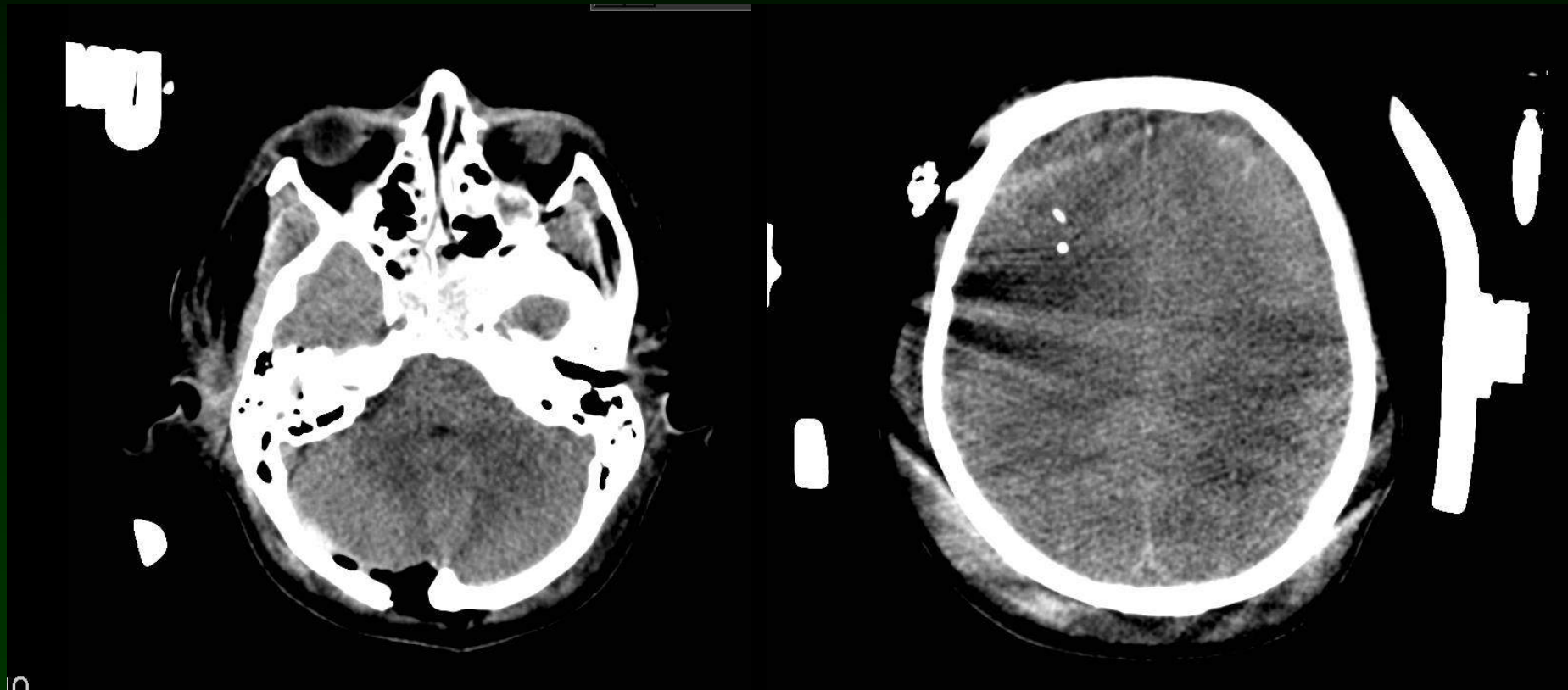
Case 6



Case 6



Case 6



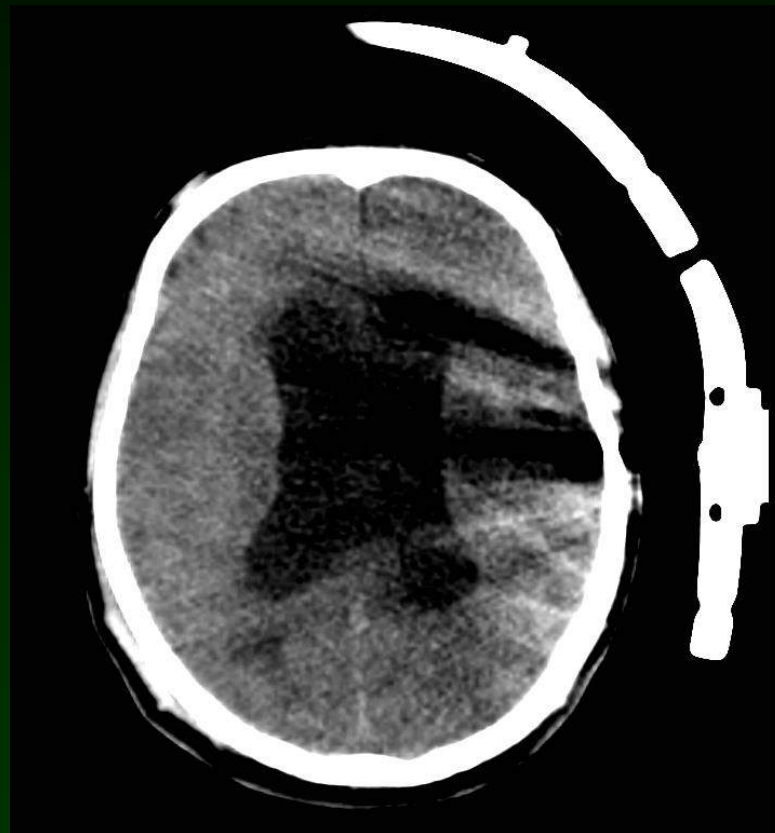
after operation

Case 6



after operation

Case 6



5 weeks later

Case 6



LP shunt

Case 6



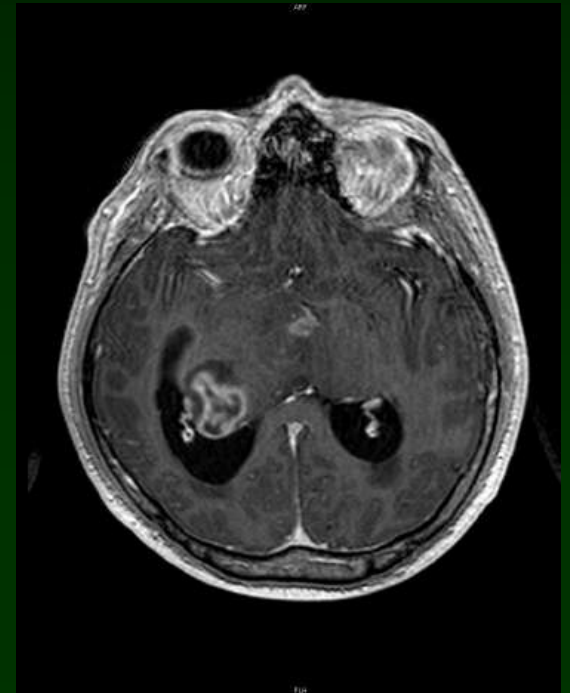
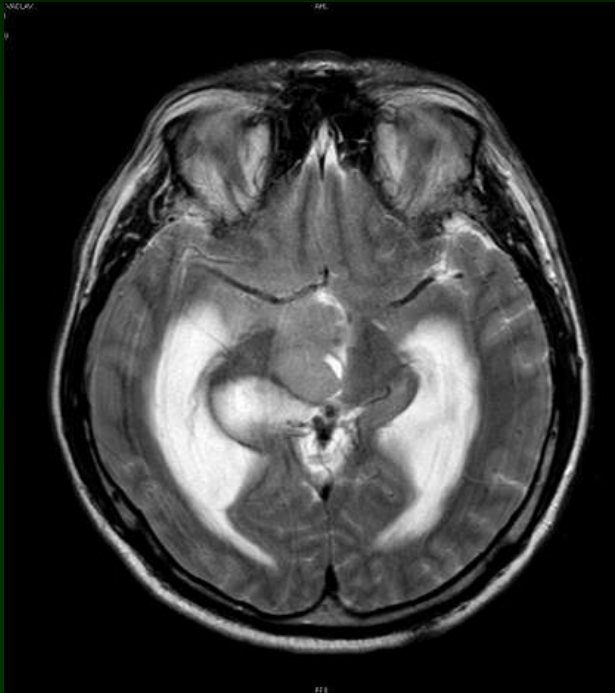
after LP shunt

Case 6



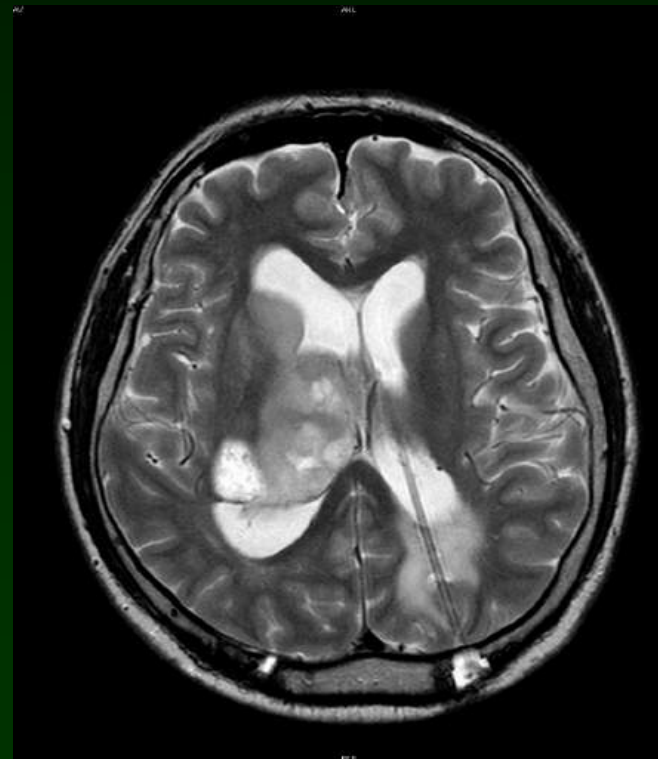
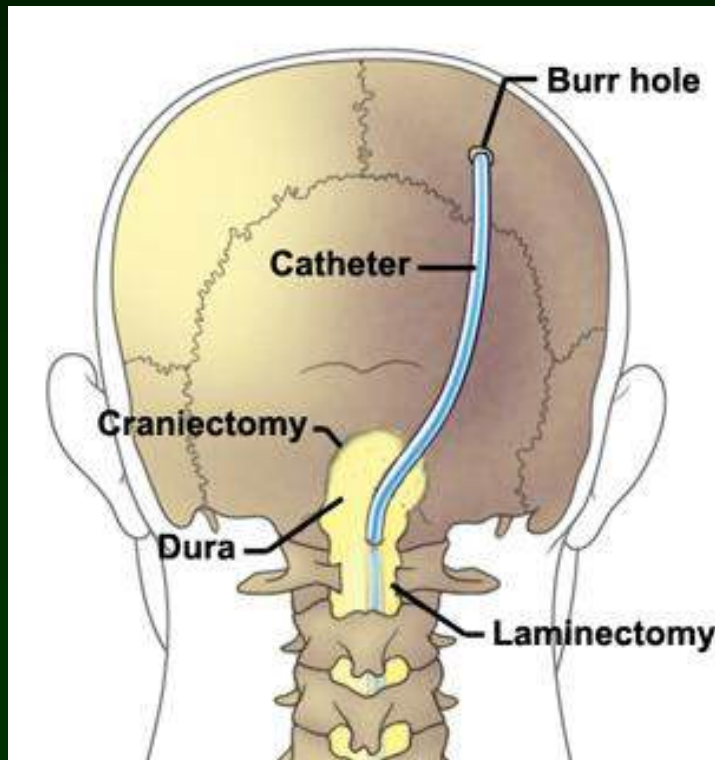
Case 7

- male, 50 years
- hydrocephalus
- tumour – biopsy - GBM



Case 7

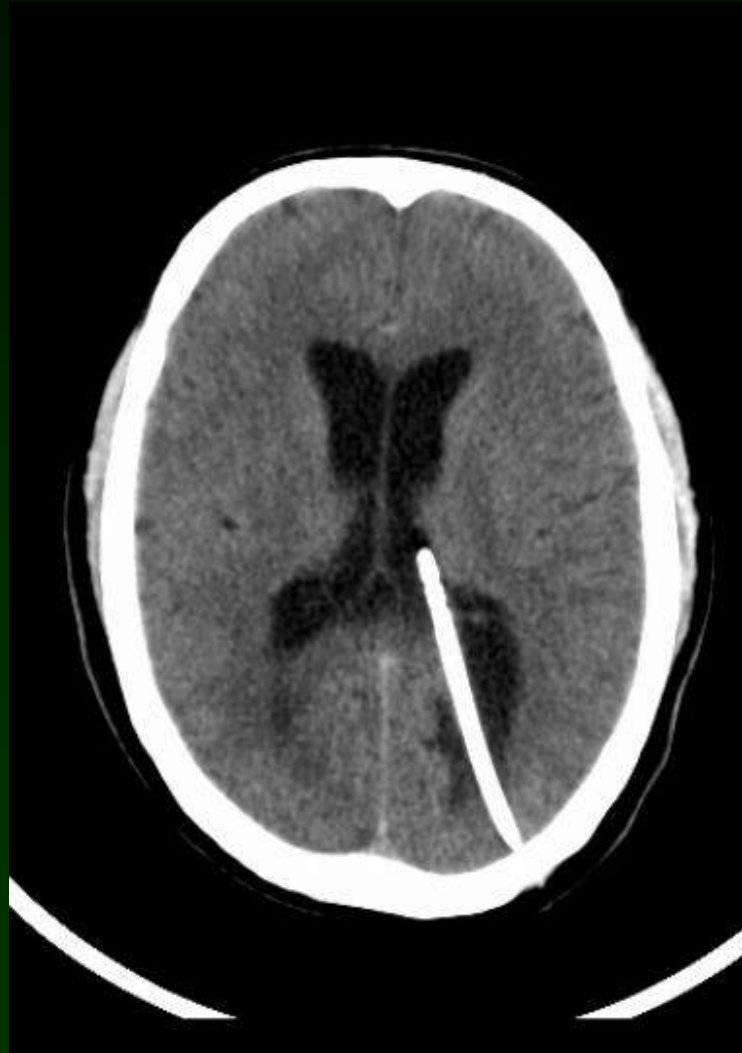
- Torklidsen drainage



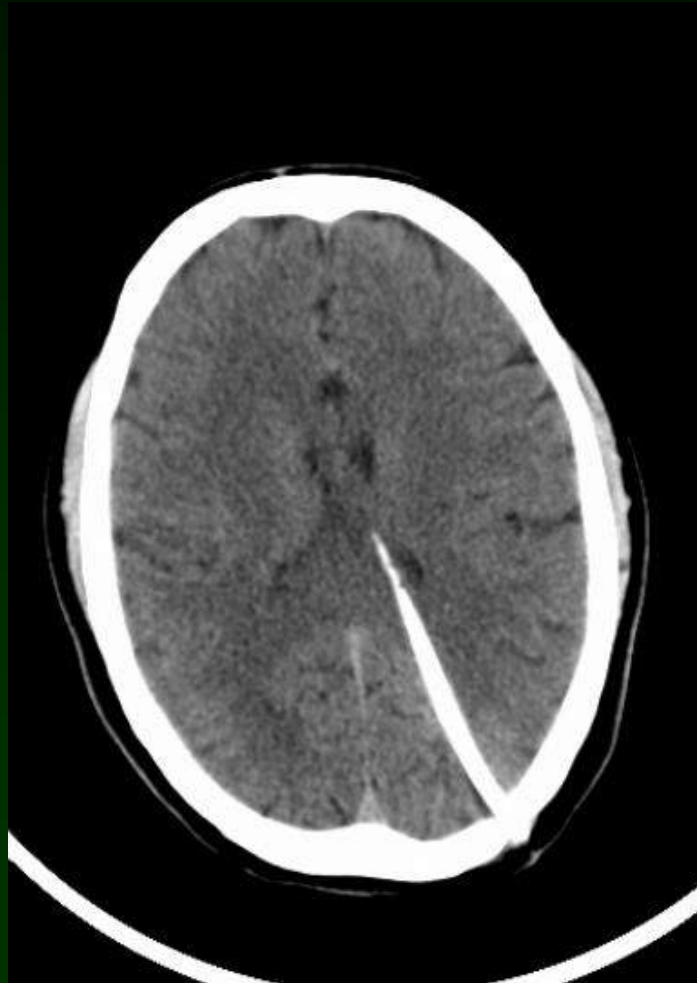
Case 8

- Male 25 years
- shunt surgery – 12 years + 4 additional revisions
- shunt malfunction – signs of intracranial hypertension

Case 8



Case 8

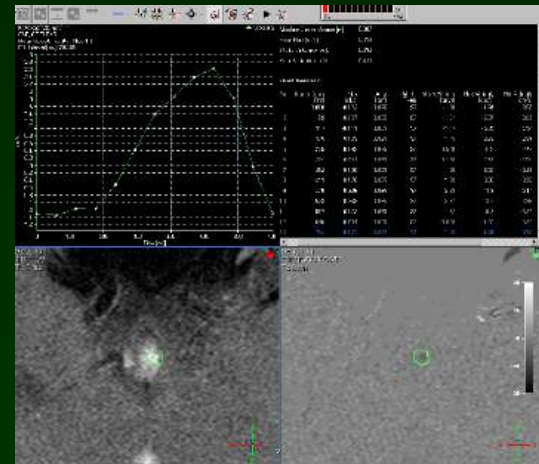
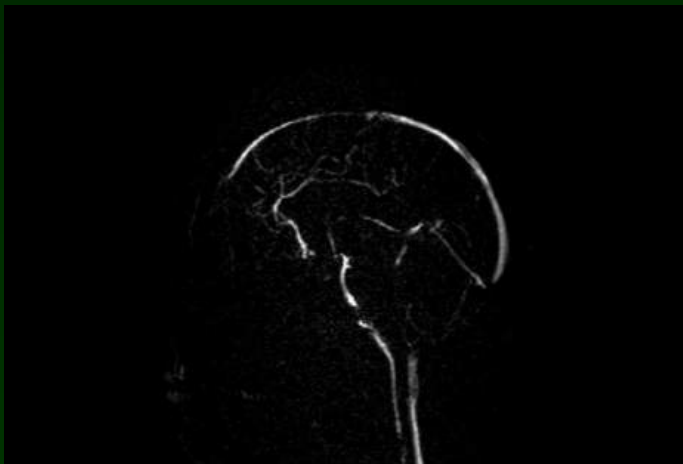
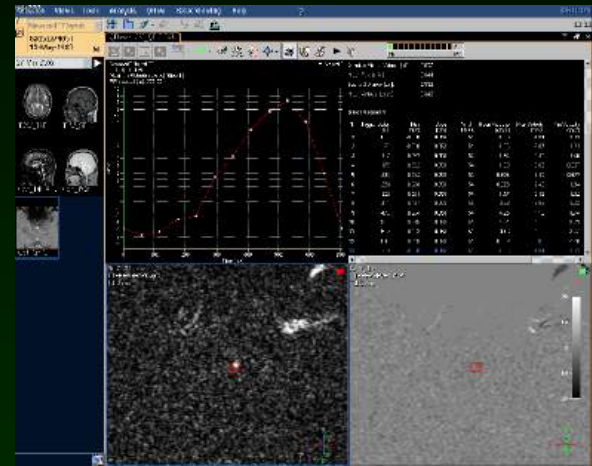
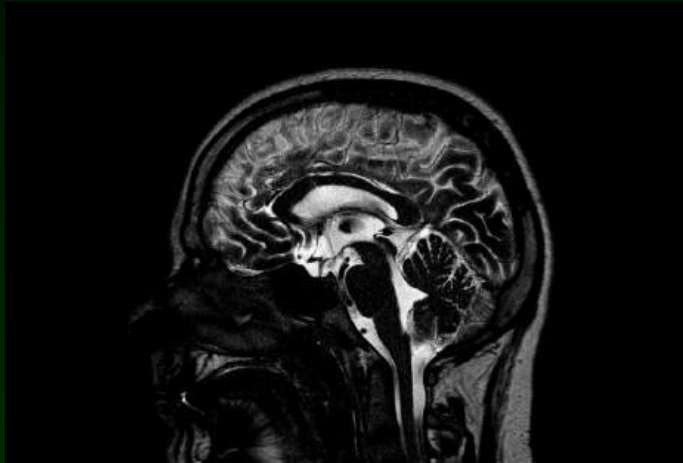


1 year ago

Case 8



Case 8



after operation

Case 9

- **Male - 51 years – headache, nausea, vomiting**
- **decreased consciousness, confusion, stiff neck**
- **CT exam – subarachnoid hemorrhage, acute hydrocephalus, DSA negative**
- **external ventricular drainage**

Case 9



Case 9

- Second DSA - negative
- implantation of a V-P shunt
- sepsis, meningitis, explanation of the V-P shunt, EVD
- Bacteriology negative, virology negative.

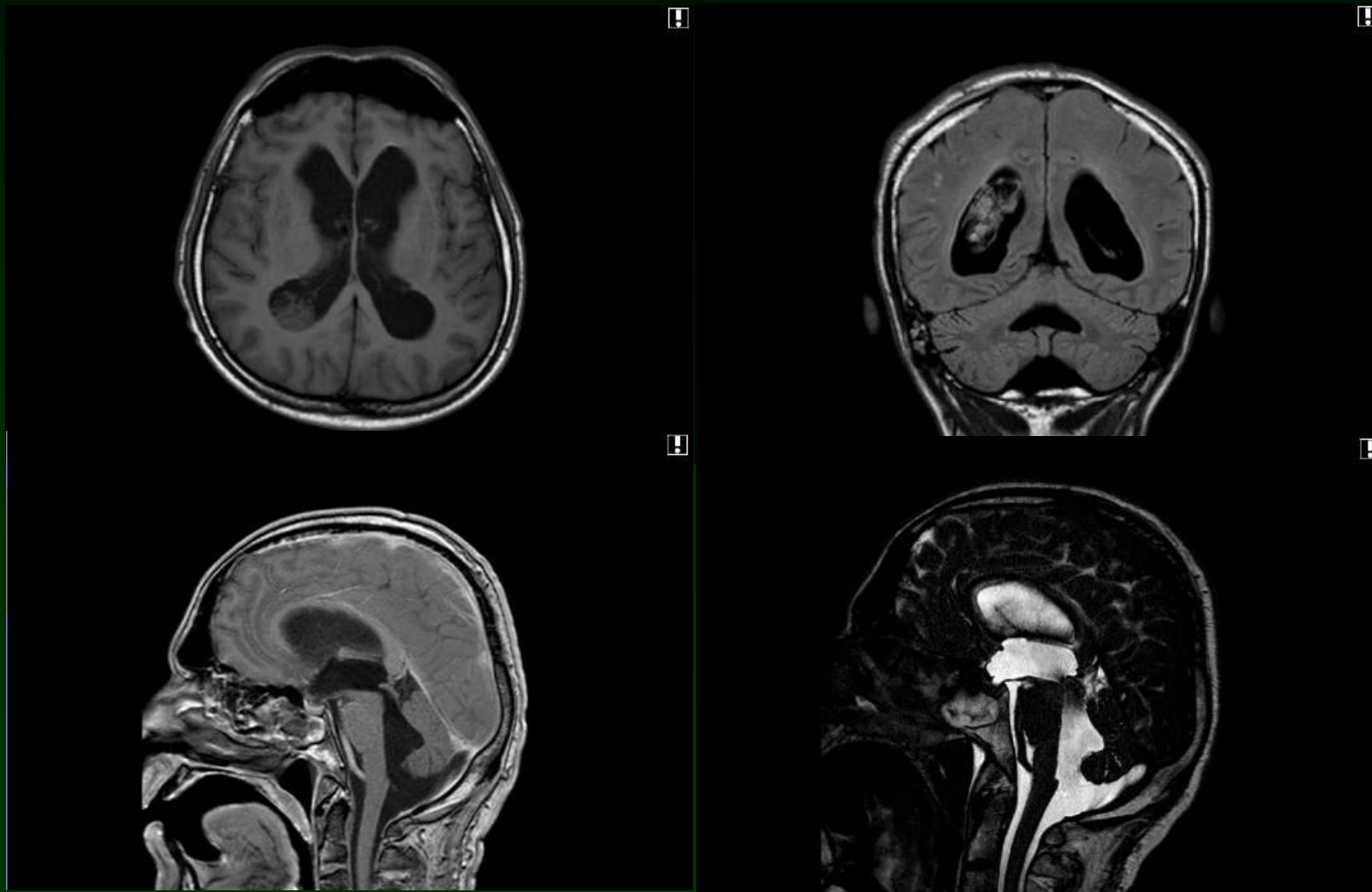


Case 9

- Rebleeding, IVH



Case 9



Case 9

- Another rebleeding



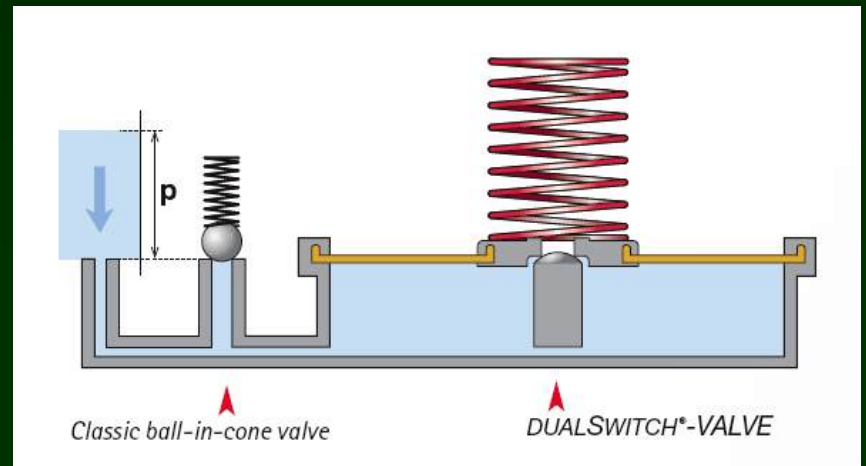
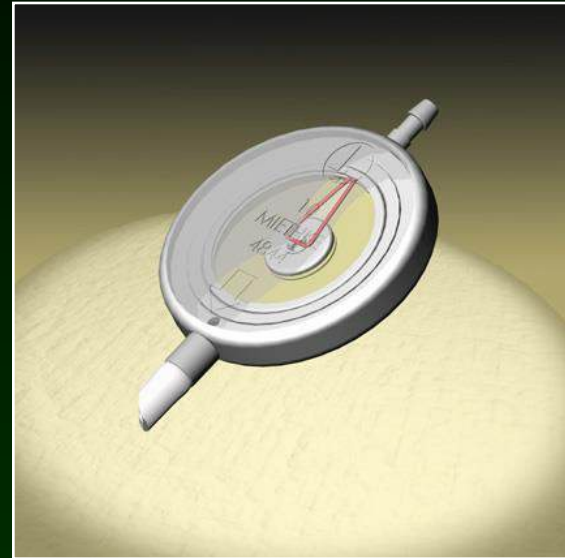
Case 9

- Monostep 10
- returned to work
- businessman
- only slight organic syndrome



Case 9

- Monostep/Dualswitch
- a very large surface area to the CSF (overdrainage)
- mechanism effectively immune against any of the problems associated with proteins or blood



Case 9

