

Hydrocephalus

- CSF is produced by the choroid plexus / mostly in the lateral ventricle & 4th ventricle.
- CSF exits the fourth foramen >> enters the subarachnoid space, circulates to gain access to the arachnoid granulations >> it is absorbed into the superior sagittal sinus ... Some CSF enters the spinal theca.
- The CSF is about 150 mls -> 25 mls in the ventricles ... 125 mls in the subarachnoid space.
- CSF is produced at the rate of almost 500 mls. per day The CSF pressure ranges between **150 -180** mms.

➔ Causes :

1. **Over production** —> choroid plexus papilloma.
2. **Obstruction** —> Congenital (**stenosis at aqueduct of Sylvius**) or Non-congenital (Masses, AVMs)
3. **Diminished absorption** —> Fibrinous deposits at the arachnoid granulations , due to meningitis Or SAH

➔ Types :

1. **Communicating** —> The four chambers are dilated and communicate with each other
—> The problem at arachnoid granulation, ventricles & its exits are free from
2. **Non-communicating** —> obstruction within the ventricular system or at its exits into the subarachnoid space Dilatation occurs only proximal to the site of obstruction.

▶ **To differentiate on CT / MRI** >> look at 4th ventricles...dilated in communicating

➔ Clinical presentation :

1. **In children before suture closure** —> Enlargement of the head > 35 -37 cm, Frontal bossing , Wide, tense bulging fontanel, Shiny stretched scalp, Dilated scalp veins, sunset appearance
2. **In adults and in children after suture closure**
 - ➔ Signs and symptoms of increased ICP (headache, vomiting and visual manifestations)
 - ➔ Signs and symptoms of ventricular enlargement (memory problems, difficulty walking and urinary disturbance).

➔ Management :

Removable? Remove it 😊

Not removable? Diversion procedure (shunt)

- **Pressure-operated valve** —> Valve , Proximal catheter / in lateral .V , Distal catheter —> ventriculo- peritoneal/jugular/pleural.
- **Endoscopic Third ventriculostomy**

Complications of shunting

- **Infection** —> meningitis, ventriculitis & difficult in Tx
- **Malfunctioning**
- **Intestinal Obstruction**
- **Over drainage**
- **Need to lengthen the shunt**
- **Ascites, hydrocele, herni**

For children
CT or MRI -> is the mainstay of diagnosis. ... will reveal hydrocephalus itself or the cause