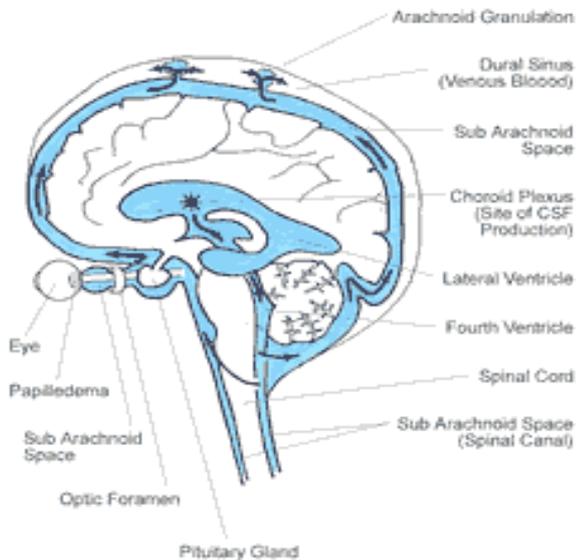




## Hydrocephalus

Hydrocephalus is an abnormal accumulation of cerebrospinal fluid (fluid bathing the brain and spinal cord) within the fluid filled cavities called ventricles located deep within the brain. Normally CSF flows unimpeded along the pathways of the ventricular system to be reabsorbed into the superficial large veins on the superior surface of the brain. There is a state of equilibrium with production equalling absorption.



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### CAUSE

Blockage along the ventricular pathways or failure of absorption of CSF is the cause of hydrocephalus. This can be due to congenital blockages (stenoses), tumours or scarring. Bleeding within the ventricular system and subarachnoid space, brain infection like meningitis and trauma may lead to failure of reabsorption.

### TYPES

- Communicating Hydrocephalus – there is a failure of reabsorption of CSF in this type of hydrocephalus resulting in global enlargement of the ventricles.
- Non-communicating Hydrocephalus – there is a physical blockage of CSF flow within the intracranial ventricles in this type of hydrocephalus resulting in enlargement of the ventricles proximal to the blockage and normal sized ventricles distally.
- Normal Pressure Hydrocephalus – this describes a specific syndrome of hydrocephalus in the older population which has a classical triad of symptoms, being:
  - Apraxia (difficulty walking).
  - Incontinence (urine > bowel).
  - Confusion.

### SIGNS AND SYMPTOMS

Hydrocephalus is more common in children.

Symptoms include:

- Drowsiness.
- Agitation.
- Poor feeding.
- Often there is a disproportionate enlargement of head circumference.

In adults symptoms of hydrocephalus may include:

- Headache.
- Nausea/vomiting.
- Difficulty with walking/balance.
- Vision may also be affected.
- Occasionally hydrocephalus may lead to critical elevation of intracranial pressure with resultant coma and respiratory arrest if not treated promptly.

### INVESTIGATIONS

#### Blood tests

There are no specific blood tests to diagnose hydrocephalus. Routine FBE, electrolytes and clotting profiles will be performed prior to surgery for hydrocephalus.

#### Lumbar puncture

In cases of communicating hydrocephalus this may be performed to measure the pressure and also relieve symptoms as a short-term treatment. It will also show if there is a raised protein, tumour or infection that is contributing to the hydrocephalus.

#### Radiological tests

- CT head – this will demonstrate the presence of hydrocephalus and may give an idea as to the cause with obvious mass lesions
- MRI head – this is the gold standard, giving high quality definition into the possible causes of hydrocephalus. It can also show reactive swelling around the ventricles, giving a measure of the chronicity of hydrocephalus.



CT of hydrocephalus