

# Hydrocephalus factsheet

Hydrocephalus is a condition brought about by disturbances of cerebrospinal fluid [CSF] within the brain and spinal canal. The brain and spinal cord float in this clear, colourless fluid – that is the CSF.

CSF is produced deep inside the brain in cavities called ventricles. The CSF flows through a series of channels out from the centre of the brain onto the surface where it is then reabsorbed through structures called arachnoid villi.

The CSF is produced at a constant rate and therefore anything that disturbs its flow and/or reabsorption will produce a build-up of this fluid. The build-up of the fluid lead, most commonly, to enlargement of the ventricles of the brain thereby producing hydrocephalus [“literally water on the brain”].

There is a large range of conditions that can cause hydrocephalus including congenital and acquired.

Of the acquired conditions these can include a brain haemorrhage, brain tumours and head injuries.

Sometimes neurosurgery operations themselves on the brain can lead to a secondary hydrocephalus.

As with the range of causes of hydrocephalus there are a range of treatment options.

Hydrocephalus can be temporary, for example it may occur after an intracranial operation.

In this situation the CSF can be drained either through a lumbar puncture or a temporary tube passed from the ventricle to a sterile collection bag by the bed [an external ventricular drain].

If more permanent CSF drainage is required then the options include a ventriculoperitoneal [VP] shunt and endoscopic third ventriculostomy [ETV].

A VP shunt is an internalised set of tubing controlled by a valve that drains the fluid from the ventricles of the brain to the peritoneal cavity of the abdomen.

An ETV is effectively an internal drainage system that does not require any tubing and effectively is designed to by-pass the obstruction. The decision making as to whether hydrocephalus should be treated with temporary or permanent techniques and the nature of those techniques will be the responsibility of the consultant neurosurgeon.

There are two other conditions characterised by disturbance of flow of cerebrospinal fluid, namely idiopathic intracranial hypertension and normal pressure hydrocephalus.

Idiopathic intracranial hypertension is again characterised by a disturbance of absorption of CSF in the context of normal production.

In this case the symptoms are those of raised intracranial pressure including headache and potential visual problems.

For reasons that are not well understood the ventricles do not enlarge and therefore the scan appearances often look normal.

The treatment of this rare condition is challenging and is managed by a combination of neurologists and neurosurgeons specialising in the condition.

Normal pressure hydrocephalus is again a rare variant of CSF disturbance that is characterised by a set of very unusual clinical features and can be treated by a VP shunt.

Again it is emphasised that this is a very rare condition.