Hamilton Health Sciences
PATIENT EDUCATION

# Hydrocephalus in adults

## (Hi-dro-SEF-ah-lus)

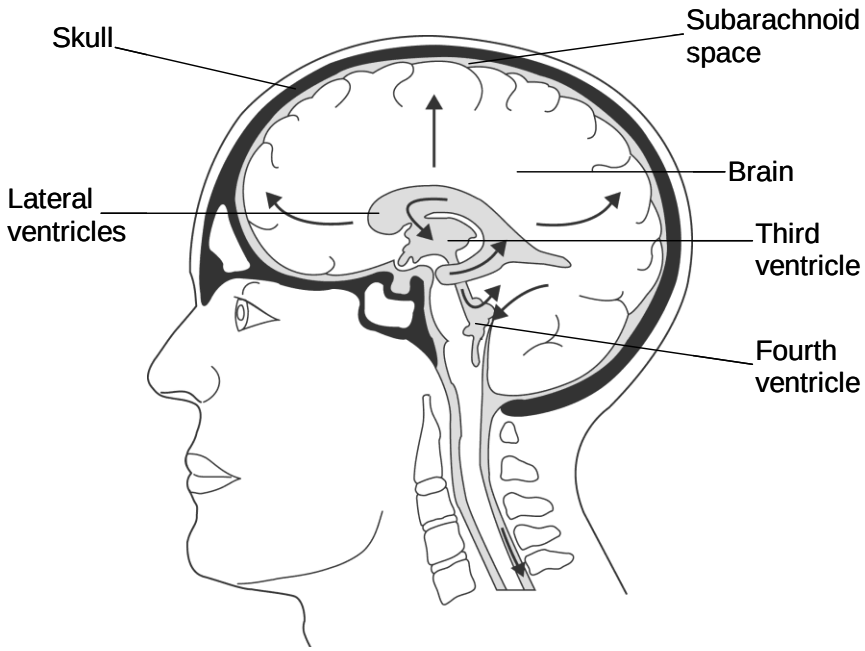
## What is hydrocephalus?

Hydrocephalus is a build-up of Cerebrospinal Fluid, or CSF within the spaces inside the brain, called ventricles.

There are 4 ventricles inside the brain. Tiny passageways connect the ventricles to each other. The lining of the ventricles makes fluid, called cerebrospinal fluid.

The CSF moves through the ventricles and out through the fourth ventricle where it flows over the surfaces of the brain and spinal cord. The fluid is eventually absorbed into the bloodstream. CSF nourishes the brain and spinal cord and acts as a cushion within and around the brain.

If the flow of CSF is blocked or the fluid is not absorbed, it can build up. As the amount of fluid increases, the ventricles get bigger. This puts pressure on the brain and causes the signs of hydrocephalus.




The gray shaded area shows the flow of the CSF.

## What are the signs of hydrocephalus?

In adults, signs of increased pressure inside the head include:

- headache
- drowsiness
- nausea and/or vomiting
- balance problems
- loss of consciousness or passing out
- lack of energy
- poor short term memory
- poor concentration
- feeling agitated

## What causes hydrocephalus?

Often the exact cause of hydrocephalus is not known.

Hydrocephalus may be present at birth (congenital hydrocephalus), or it may develop after birth (acquired hydrocephalus) as a result of:

- a brain injury
- a brain infection
- a brain tumour
- a brain hemorrhage (bleed)
- changes in the brain related to aging

## How is hydrocephalus diagnosed?

The doctor makes the diagnosis of hydrocephalus after examining you and reviewing the results of tests, such as Computerized Tomography (CT) or Magnetic Resonance Imaging (MRI).

# How is hydrocephalus treated?

Some forms of hydrocephalus are temporary and do not need treatment. Most forms of hydrocephalus do need treatment, usually with surgery to put a shunt into the body. A shunt is a thin, flexible tube that directs the flow of CSF from the ventricles to another place in the body where it can be absorbed. All parts of the shunt are under the skin. There are no external parts. The shunt relieves the pressure inside the head and prevents the condition from getting worse. It does not cure hydrocephalus.

The shunt will usually stay in place for life. If you need an MRI test in the future, tell the x-ray doctor that you have a shunt, especially if you have a programmable shunt.

## There are 3 types of shunts:

### Ventriculoperitoneal (V-P) Shunt

It directs the CSF from the ventricles to the abdomen. This is the most common type of shunt.

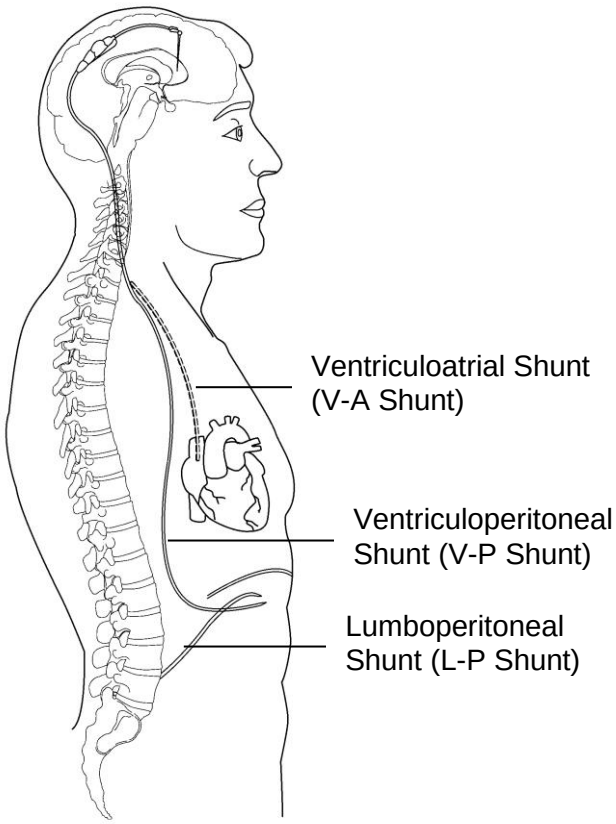
### Ventriculoatrial (V-A) Shunt

It directs the CSF from the ventricles to a chamber in the heart called the atrium.

If a V-P Shunt or V-A Shunt is inserted, a small bubble may be felt underneath the skin behind the ear. This is called the reservoir and does not need special care.

### Lumboperitoneal (L-P) Shunt

It directs the CSF from the spine in the lower back to the abdomen.




This picture shows the different shunts in place.

There is another procedure that directs the flow of CSF called Endoscopic Third Ventriculostomy. No tubing is used. This procedure is only done in selected patients.

## What happens during surgery?

You will be given a general anesthetic so that you will be asleep during surgery and not feel any pain.

The surgery to put in the shunt lasts about 1½ hours.

## What happens after surgery?

When you are ready, you will be moved to the neurosurgical unit. The unit nurses will continue your recovery care.

## What can I eat and drink?

When it is safe for you to drink, you will be given ice chips or sips of clear fluids. When you can tolerate fluids, you will gradually return to your usual diet.

## How do I take care of the incisions?

The incisions are closed with stitches or staples and covered with a small sterile bandage. The bandage can be removed after 3 days. The incision does not need to be covered.

The staples and non-dissolving stitches are removed within 7 to 10 days. Your family doctor or the nurse in the Neuroscience Follow-up Clinic will remove them.

**Do not shower or shampoo until after the staples or stitches are removed unless your doctor tells you differently.**

## When can I go home?

You may be discharged even though you still have some pain and feel somewhat uncomfortable.

Some patients will need rehabilitation after they go home either as an inpatient or outpatient.

You will usually go home when:

- your vital signs are stable
- your pain is under control
- you are eating solid food
- your bladder activity is normal and you can go to the bathroom yourself
- you can walk safely
- you are able to climb stairs, if needed

## What follow-up care will I need?

Before you go home, an appointment will be made for you to visit the surgeon and the Neuroscience Follow-up Clinic if the clinic nurse is removing your staples or you have non-dissolving stitches. If the clinic nurse is not removing your staples or stitches, you will need to make an appointment with your family doctor to have them removed. You may also need CT scans or an MRI to check your progress and see how well the shunt is working.

If you need tests after you go home, they will be booked before you leave the hospital.

## What activities can I do?

You can go back to your normal activities as soon as you feel able. The surgeon will tell you when you can return to work and take part in sports and vigorous activities.

## When should I call the surgeon?

It is important to watch for signs of problems with your shunt. These are usually the same problems that you had before the shunt. Some signs appear similar to the flu. Call your family doctor if you are not sure.

During the first 6 weeks after your surgery, call your surgeon right away if you or your family notices any of these problems:

**Signs that the shunt is blocked**

- headache that gets worse and is not relieved with pain pills
- nausea and/or vomiting
- drowsiness
- blurred vision
- balance problems
- unconsciousness
- abdominal pain
- return of previous neurological symptoms

**Signs of infection**

- fever; a temperature higher than 38.5ºC or 101.3ºF
- shaking and chills
- redness, swelling, bleeding or discharge from the incisions
- incisions are warm or hot to touch
- abdominal pain

**Signs of too much CSF drainage**

- severe headaches that are worse when standing and relieved by lying down
- nausea and/or vomiting
- drowsiness
- problems with vision
- poor mental function

If you cannot reach the surgeon, call 911 or go to the hospital emergency department.

## Questions I have: