PATIENT & CAREGIVER EDUCATION

Hydrocephalus: Information for Children, Teens, and Young Adults

This information explains hydrocephalus (HY-droh-SEH-fuh-lus), including what it is and how it's treated. In this resource, the words "you" and "your" mean either you or your child.

What is hydrocephalus?

Hydrocephalus is when extra cerebrospinal fluid (CSF) builds up in the ventricles (hollow spaces) in your brain. This makes your ventricles bigger and puts pressure on your brain (see Figure 1).

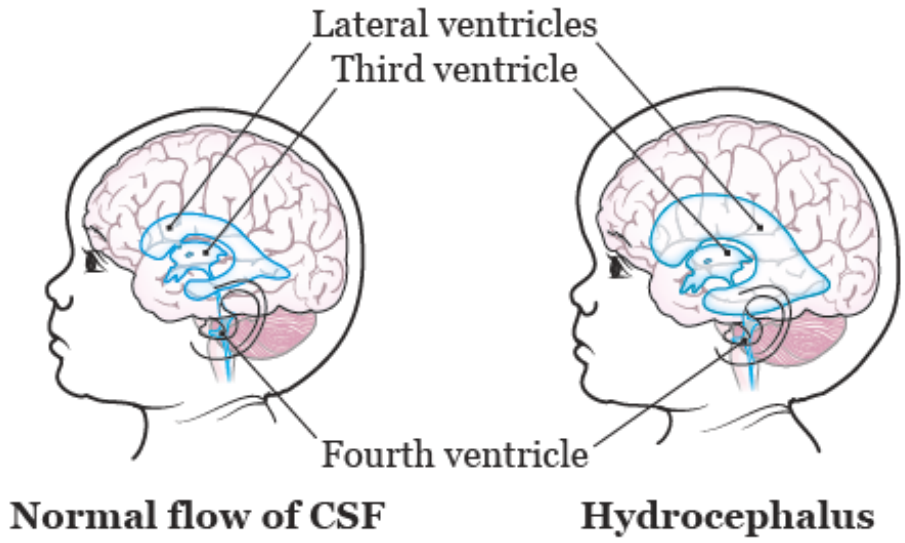


Figure 1. Brain with and without hydrocephalus

CSF is a liquid that is made in the ventricles in your brain. CSF protects your brain and spinal cord by acting like a cushion. It also brings nutrients throughout your brain and carries waste away. You're making new CSF all the time.

CSF flows from your ventricles, around your brain and spinal cord, and into your

bloodstream. Hydrocephalus can happen if the flow of CSF is blocked. It also happens if not enough CSF is absorbed into your bloodstream.

What causes hydrocephalus?

Some people are born with hydrocephalus. You can also get hydrocephalus if you have:

- Bleeding in your brain.
- Meningitis (MEH-nin-JY-tis), which is swelling in the thin layers of tissue covering your brain and spinal cord.
- A head injury.
- A tumor in your brain.
- Cysts in your brain. Cysts are small sacs of tissue, often filled with fluid or pus.

What are the symptoms of hydrocephalus?

Symptoms are different depending on your age and the stage of disease. The most common symptoms of hydrocephalus include:

- Increased head size and bulging soft spot in baby's head.
- A headache that does not get better after resting or taking medicine.
- Vomiting (throwing up) with little or no nausea (feeling like you're going to throw up).
- Fatigue (feeling unusually tired or weak).
- Irritability (becoming easily frustrated or annoyed).
- Personality changes (not acting like your normal self).
- Problems with thinking and memory, such as confusion.
- Trouble with balance or walking.
- Trouble waking up or staying awake.
- Trouble holding in your urine (pee).

- Seizures (uncontrollable shaking).
- High pitched cry in babies.
- Trouble eating.
- Problems seeing, such as:
  - Blurred vision
  - Double vision
  - Vision loss
  - Eyes that turn downward (also called sunsetting)

How is hydrocephalus diagnosed?

A physical exam is done to look for signs and symptoms of hydrocephalus. Next, your doctor will use imaging tests to take a closer look at your brain and confirm hydrocephalus. Examples of imaging tests are a computed tomography (CT) scan and magnetic resonance imaging (MRI) scan.

How is hydrocephalus treated?

Hydrocephalus is often treated by draining the extra CSF from the brain. This helps prevent pressure from getting too high in the brain.

In most cases, a ventriculoperitoneal (ven-TRIK-yoo-loh-PAYR-ih-toh-NEE-ul) shunt is used to drain the extra CSF. A VP shunt is a device that's placed in your body during a surgery. The shunt takes the CSF out of your brain and moves it into your abdomen (belly), where it's absorbed by your body. This lowers the pressure and swelling in your brain. To learn more, read *About Your Ventriculoperitoneal (VP) Shunt Surgery at MSK Kids* (www.mskcc.org/pe/vp-shunt-surgery-peds).

Instead of a VP shunt, you may have a different surgery to treat your hydrocephalus. It's called an endoscopic third ventriculostomy (ven-TRI-cu-LUS-to-my), or ETV. During an ETV, a tiny hole is made in the third ventricle of your brain. This lets the extra CSF drain into another area of your brain where it can be absorbed. To learn more, read *About Your Endoscopic Third*

Ventriculostomy (ETV) Surgery at MSK Kids (www.mskcc.org/pe/etv-surgery-peds).

As the VP shunt or ETV drains extra CSF, it lowers the pressure in your brain. This may relieve your symptoms. Some symptoms will go away right after your surgery. Others will go away more slowly, sometimes over a few weeks.

When should I call my healthcare provider?

Call your healthcare provider right away if you have any symptoms of hydrocephalus.

If you have questions or concerns, contact your healthcare provider. A member of your care team will answer Monday through Friday from 9 a.m. to 5 p.m. Outside those hours, you can leave a message or talk with another MSK provider. There is always a doctor or nurse on call. If you're not sure how to reach your healthcare provider, call 212-639-2000.

For more resources, visit www.mskcc.org/pe to search our virtual library.

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