



PATIENT & CAREGIVER EDUCATION

About Your Programmable VP Shunt for Pediatric Patients

This information will help you learn about your programmable ventriculoperitoneal (VP) shunt. For the rest of this resource, our use of the words “you” and “your” refers to you or your child.

About Cerebrospinal Fluid (CSF)

A VP shunt is used to drain extra cerebrospinal fluid (CSF) from your brain. CSF is the fluid that surrounds your brain and spinal cord. It’s made in the ventricles (hollow spaces) inside your brain.

CSF protects your brain and spinal cord by acting like a cushion. However, when you have too much of it, it puts pressure on your brain and skull. This extra fluid also makes your ventricles grow bigger (see Figure 1). This is called hydrocephalus (hy-dro-ceph-a-lus).

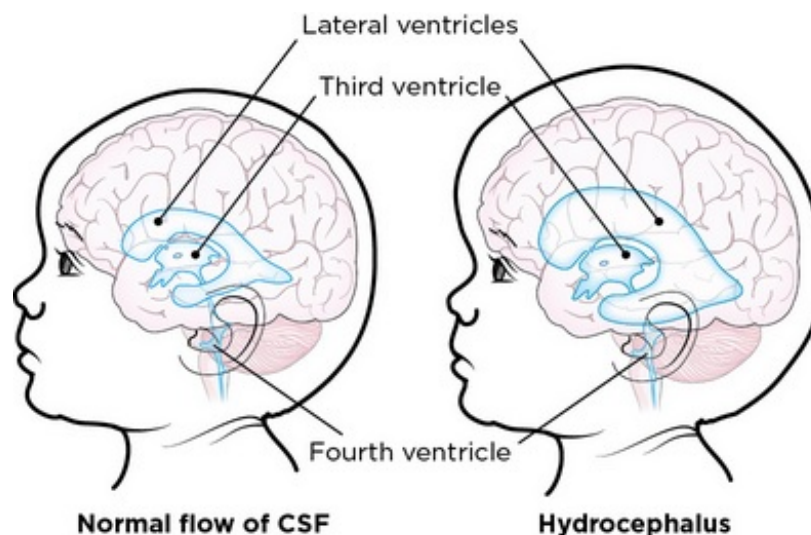


Figure 1. Brain without and with hydrocephalus

To drain the extra CSF from your brain, a VP shunt can be inserted into your head. The shunt takes the fluid out of your brain and moves it into your

abdomen (belly), where it's absorbed by your body. This decreases the pressure and swelling in your brain.

About Your Programmable VP Shunt

A VP shunt has 3 parts (see Figure 2):

- A one-way valve and reservoir that controls the flow of fluid.
- A short catheter (thin, flexible tube) that drains the fluid away from your brain. It's attached to the valve and can be placed in the front, back, or side of your head.
- A long catheter that moves the fluid into your abdomen. It's attached to the valve and tunneled under your skin, behind your ear, down your neck, and into your abdomen.

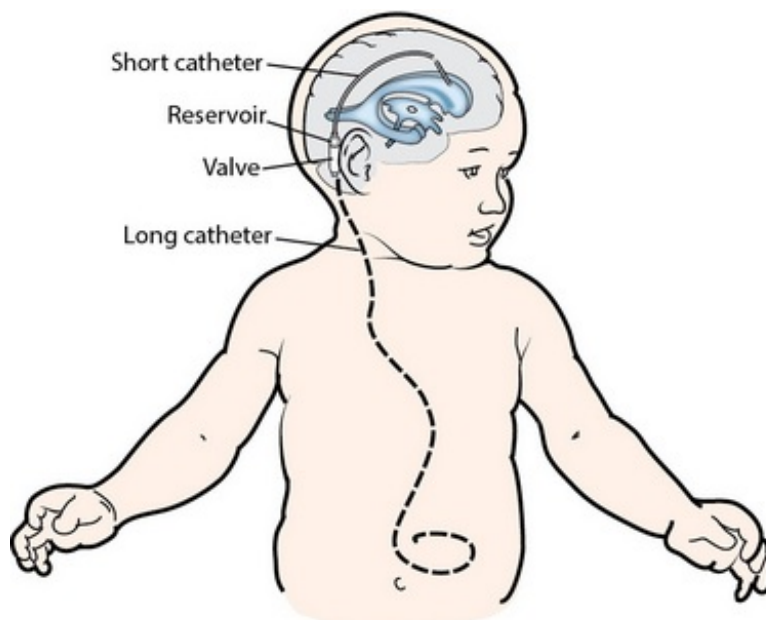


Figure 2. VP shunt

Your programmable VP shunt will be placed during surgery. Your nurse will give you more information about the surgery.

As the VP shunt drains extra CSF and decreases the pressure in your brain, it may relieve your symptoms. Some symptoms will disappear immediately after the VP shunt is inserted. Others will go away more slowly, sometimes over a few weeks.

Your programmable VP shunt can also be used to give some medications into your ventricles.

About your programmable VP shunt settings

“Programmable” means that your doctor can adjust how much fluid is drained by your VP shunt, even after it has been placed. The amount is changed by adjusting the shunt's pressure setting.

In general, a higher shunt setting means that less fluid is being drained. A lower setting means that more fluid is being drained. The settings are different for each manufacturer.

Write down the type of programmable VP shunt that you have and the pressure setting below. Keep this information with you at all times.

- Type of programmable VP shunt: _____
- Pressure setting: _____

Your nurse will also give you a wallet card that states you have hydrocephalus and a programmable VP shunt. Carry it with you at all times.

Precautions While You Have a Programmable VP Shunt

Magnets

The pressure setting of some programmable VP shunts may accidentally change if you come too close to a magnet. This depends on the model of the shunt.

Ask your neurosurgeon if you need to take precautions when you're near magnets. Be sure to follow the manufacturer's guidelines for magnetic field precautions specific for your type of shunt.

Here are some general rules for many shunts:

- Keep all products with magnets at least 2 inches away from the valve implant site.
- Don't use magnetic therapy pads and pillows.
- Don't use the iPad 2 if you have a Medtronic Strata® programmable VP shunt.
- Don't use audio headsets without checking the shunt manufacturer's guidelines.

Magnetic resonance imaging (MRI) and other scans

If you're having a MRI scan, tell your MRI technologist that you have a programmable VP shunt **before you have the scan**. Your technologist will need to know the shunt's model and setting. You can show them the wallet card that your nurse gave you.

Depending on the model of your programmable VP shunt, the magnet in the MRI scanner may change your shunt's pressure setting. **After your MRI, the pressure setting will need to be checked, reprogrammed, or both by your neurosurgeon or nurse practitioner (NP)**. You may need to have x-rays to help see if the pressure setting has changed.

Before you have your MRI, make arrangements with your neurosurgeon or NP to have your shunt reprogrammed after your MRI. Your shunt should be reprogrammed within 4 hours after your MRI.

Some types of programmable VP shunts aren't affected by MRI. Ask your neurosurgeon or NP if your shunt will need to be reprogrammed after an MRI.

You don't need to take any precautions if you're having a computed tomography (CT) scan or x-ray.

MedicAlert® jewelry

You should always wear a MedicAlert bracelet or necklace stating that you have hydrocephalus and a programmable VP shunt. If you're ever seriously ill or hurt and need medical help, it will inform emergency services workers about your programmable VP shunt.

You can buy a MedicAlert bracelet or necklace at most drug stores. For more information, visit the MedicAlert website at www.medicalert.org

Before having a MRI:

- Tell the MRI technologist that you have a programmable VP shunt.
- Make arrangements to have your shunt reprogrammed after your MRI.
- Do not have the MRI if no one is available to reprogram your shunt afterwards.

Abdominal surgery

If you ever need to have abdominal surgery, tell the doctor doing the surgery and your neurosurgeon so that precautions can be taken.

Tell your neurosurgeon if you have peritonitis or diverticulitis requiring emergency surgery or antibiotic treatment.

Physical activities

Don't participate in any contact (collision) sports such as football, boxing, and wrestling. You can participate in all noncontact sports such as swimming and running.

Remember to wear a helmet to decrease the risk of head injury, if needed. Ask your neurosurgeon for specific guidelines on wearing a helmet.

Call Your Doctor or Nurse Practitioner If:

- You have warning signs that your programmable shunt isn't working properly. These signs include:
 - Vomiting with little or no nausea
 - A constant, unrelieved headache
 - Vision problems, such as blurry, double vision, or loss of vision
 - Irritability
 - Fatigue
 - Personality changes (not acting like your normal self)
 - Loss of coordination or balance
 - Swelling, redness, or both, along the shunt path
 - A bulging soft spot on an infant's head
 - Difficulty waking up or staying awake
 - Decrease in school performance
- You have warning signs of a VP shunt infection. These signs include:
 - A temperature of 100.4° F (38° C) or higher

- Redness, swelling, or both, of the skin that runs along the shunt path
- Pain around the shunt or around the shunt tubing from the head to the abdomen

These warning signs can appear quickly. If any of these signs or symptoms develop, call your doctor or NP immediately.

If you cannot wake your child, call 911 or go to the nearest emergency room immediately.

If you have any questions, contact a member of your healthcare team directly. If you're a patient at MSK and you need to reach a provider after 5:00 PM, during the weekend, or on a holiday, call 212-639-2000.

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

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