

Ventriculoperitoneal (VP) shunt

Hydrocephalus

Cerebrospinal fluid

Cerebrospinal fluid (CSF) is a clear, watery fluid that the body is always making in the spaces of the brain called the ventricles.

- CSF flows out of the ventricles and circulates around the brain and spinal cord.
- The blood vessels of the brain reabsorb CSF into the bloodstream.

Functions of CSF

- CSF acts as a cushion to protect the brain and spinal cord from injury.
- CSF delivers nutrients to the brain.
- CSF removes waste products from the brain tissues.

Hydrocephalus

If CSF cannot flow normally, fluid builds up inside the ventricles. This causes the ventricles to enlarge and increases the pressure inside the brain. We call this hydrocephalus. There are 2 types of hydrocephalus.

Obstructive hydrocephalus

Something is blocking the usual flow of CSF.

Absorptive hydrocephalus

The brain cannot re-absorb the CSF that it is making.

Without treatment, the ventricles will get too large. This puts pressure on the delicate brain tissue. Pressure can damage brain tissue and cause serious health problems, including death.

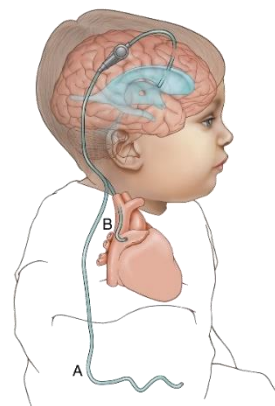
Ventriculoperitoneal shunt

Ventriculo: Ventricles in the brain.

Peritoneal: Lining of the abdominal cavity.

VP shunt placement

The VP shunt is a medical device. It uses a tube to relieve pressure on the brain caused by the buildup of CSF. We place the tip of the catheter inside the brain ventricle. The tubing then goes under the skin, down the neck, and into the peritoneal cavity.



Your child will only have **Tubing A**. This tube moves CSF down into the peritoneal space in the abdomen.

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Top end of VP shunt tube in ventricle

Goal of surgery

To keep the CSF volume balanced in the ventricles. The amount of CSF flowing out of the ventricles will be equal to the amount of CSF made in the ventricles.

VP shunt surgery

We carefully guide the top or “proximal” end of the shunt tip into the ventricle and connect the tubing to a pressure valve.

- The pressure valve controls the flow of CSF. It acts like an on-off switch. It opens to release CSF when the pressure builds up and then closes.
- Excess CSF drains through the bottom or “distal” end of the shunt tubing. It moves into the peritoneal cavity and the body absorbs it.

VP shunt device

We place the shunt tubing under the skin. It goes behind the ear, down the neck, and into the peritoneum.

- You may be able to see the outline of the tubing in the neck on a thin child.
- The pressure valve is behind the left or right ear. It is usually easy to feel.
- Your surgeon coils extra tubing in the peritoneal cavity. As your child grows, the tubing uncoils to keep the shunt tubing in a good position.

Post-operative care after a VP shunt

We closely monitor your child.

Incision and dressing

There will be a small incision on your child’s head and abdomen. We may cover this incision with a gauze dressing. It is important to keep this dressing clean and dry.

Pain medicine

Your child may have some discomfort for the first few days after surgery. The neurosurgery team will order pain medicine as needed.

Activity

Your child can return to normal activity when the team tells you it is okay. This is usually at your 1-month follow-up appointment.



Do not let child exercise, play sports, or rough play until your team approves.

Shower or bath

Your child may shower or wash over incision sites 48 hours after surgery.

- You may wash your child’s hair with soap and water 48 hours after surgery.
- Do not let incisions get under water until your doctor approves.

Follow-up appointments

We will schedule all follow-up appointments before you go home.

Shunt malfunction



A shunt is like any other medical device. Problems and complications with a VP shunt can occur. The most common problem is a shunt malfunction. Warning signs of a shunt malfunction can appear quickly. Call your provider or nurse if you see the following:

Infants:

- Full, tense fontanel or head enlargement
- Bulging scalp veins
- Swelling or redness along shunt tract
- Unusual vomiting, fussiness or sleepiness
- Less interest in eating
- Downward looking of the eyes

Older children:

- Headaches, vomiting, fussiness, tiredness
- Swelling or redness along the shunt tract
- Loss of previous abilities
- Constant downward looking of the eyes

Shunt infection

The VP shunt is a foreign body. Any implanted foreign body is at risk for infection. Call your provider or nurse if you see the following:

- Redness around the area of the incision
- Yellow discharge from the incision
- Temperature higher than 102° F (degrees Fahrenheit) or 38.8° C (degrees Celsius)

- Fever lasting longer than 48 to 72 hours after surgery

Neurosciences

For locations and contacts visit:

<https://www.cookchildrens.org/services/neurosciences/>

or



These instructions are only general guidelines. Your healthcare provider may give you special instructions. If you have questions or concerns, please call your healthcare provider.