

## Hydrocephalus

### What is hydrocephalus?

The brain and spinal cord are surrounded by cerebral spinal fluid (CSF). Small chambers in the brain called ventricles make the fluid. The fluid flows around the brain and the spinal cord. There are membranes that cover the brain and spinal cord that absorb the fluid.

CSF acts as a cushion for the brain. With hydrocephalus, the CSF builds up in the ventricles. This causes the ventricles to expand and push on the brain.

### What causes it?

The major causes of hydrocephalus include:

- The flow of CSF is blocked and does not flow properly.
- A problem with how CSF flows. When this happens, the membranes that cover the brain do not absorb enough CSF.
- The brain size is small. This may be due to the brain not growing properly. When part of the brain does not grow, the fluid will fill up the space.
- Very rarely, it may be inherited.

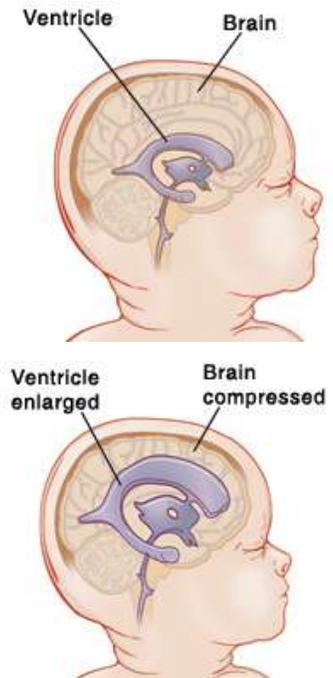
The exact cause is not always known.

### Prenatal diagnosis

If hydrocephalus is suspected, other tests will be ordered. Tests may include:

- **Ultrasound.** Hydrocephalus may be diagnosed on a routine ultrasound. The ventricles in the head will be larger than normal.
- **Amniocentesis.** With hydrocephalus there is a chance of chromosomal issues. An amniocentesis may be ordered to look for these problems.
- **Fetal magnetic resonance imaging study (MRI).** A fetal MRI produces better images of soft tissue than ultrasound. Bone or dense tissue does not interfere with the image. There is no radiation in a fetal MRI, so it is safe for you and your baby. With fetal MRI the best images are obtained when the fetus stays still. If the baby is active, it can be hard to get good images.

The key to a good outcome is early detection.



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## How does hydrocephalus affect my baby?

The effects of hydrocephalus depend on the amount of pressure put on the brain.

If simple (mild) hydrocephalus is found and treated early, your baby will develop normally. Simple or mild means there are not associated anomalies.

However, most children with hydrocephalus have some form of motor disability. Children with hydrocephalus should be closely monitored for learning disabilities.

A few children with hydrocephalus will have seizures.

## Type of delivery

Your baby's head growth and ventricle size will be watched closely during the rest of your pregnancy. Your baby's head size and well being will determine if a vaginal delivery is possible. Your doctor will let you know if a caesarian section is needed.

## How is hydrocephalus treated?

Treatment will be needed if the ventricles keep expanding and the head grows too fast.

The most common treatment is a shunt. A shunt is a thin tube. One end of this tube is placed in the ventricle, and the other end goes under the skin. It drains into the abdominal cavity where the body can reabsorb the CSF. Your baby will be evaluated after birth for the need for a shunt. If a shunt is needed, your baby will need surgery. As your baby grows, the shunt will need to be replaced about every 2 to 4 years.

If we think your baby's ventricles are large because of severe brain damage, we can discuss other treatment options, such as palliative care.

## What is my baby's long-term outlook?

The effects of hydrocephalus vary. It also depends on the cause, the treatment required, and your baby's response to treatment. The keys to a good outcome are early detection and treatment, along with preventing infections.

Your baby will have ongoing follow-up appointments. The doctor will talk with you about changes and how they might affect your baby.

**ALERT:** Call your child's doctor, nurse, or clinic if you have any concerns or if your child has special health care needs not covered by this information.

**This teaching sheet is meant to help you care for your child. It does not take the place of medical care. Talk with your healthcare provider for diagnosis, treatment, and follow-up.**