

Hydrocephalus

Hydrocephalus is a disorder caused by a mismatch between the production and absorption of cerebral spinal fluid (CSF), resulting in excess CSF in and/or around the brain. Hydrocephalus can be present at birth, as in aqueductal stenosis. It can also be caused by an obstruction to the flow of CSF, for example by a tumor, by an infection such as meningitis, or by trauma.

PROCEDURES FOR TREATING HYDROCEPHALUS

The most common treatment for hydrocephalus involves placing a shunt in the fluid-filled cavity in the brain. A valve and distal catheter are attached to the shunt to drain the fluid to the peritoneum, pleura, or the atrium of the heart.

The treatment of hydrocephalus continues to advance. For many patients, endoscopic third ventriculostomies can eliminate the need for VP shunts. Another important advance is “quick scan MRI” to avoid the radiation dangers of CT imaging. Hydrocephalus patients, who were previously imaged by repeat CT scans, are now almost exclusively imaged for ventricle size in our program by a single two-minute quick-scan sequence. The scan requires no sedation for young children, because its rapid image acquisition tolerates movement.



Quick Scan MRI: A two-minute quick scan MRI can be performed without sedation or exposure to radiation, with help from a parent if needed (parent's fingers visible in image).

PROCEDURE RISKS

Infection. At Children's Hospital, our shunt infection rate has decreased to a remarkable 0.45%, thanks to the use of best-practice protocols, as well as topical, intrathecal, and standard IV antibiotics.

Shunt failure. Our revision rates have lowered through the use of programmable shunts that reduce overdrainage.

CASE STUDY: Amber, age 9

Overview: Amber had a shunt placed when she was born with congenital hydrocephalus from aqueductal stenosis.

Treatment: As Amber grew older she became a candidate for surgery to create a new opening in the brain to bypass the blockage. When her original shunt malfunctioned, she underwent an endoscopic third ventriculostomy.

Outcome: Amber's shunt was removed. Her hydrocephalus is now managed without a medical device.

Testimonial: Amber says, "No more shunt in me!"

