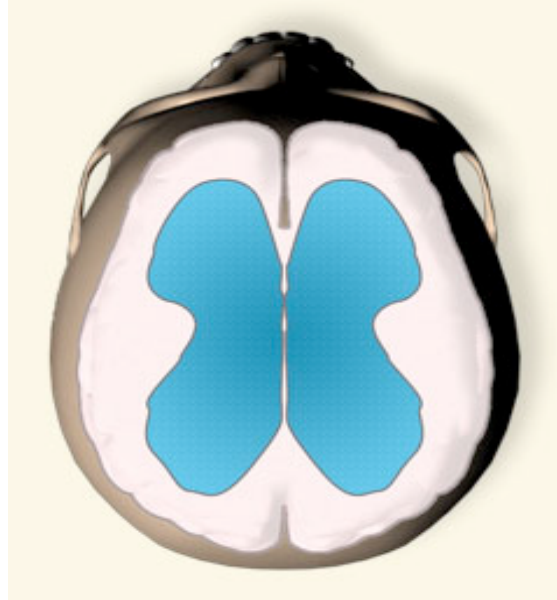


HYDROCEPHALUS, SHUNTS, AND ENDOSCOPY

Hydrocephalus is an abnormal accumulation of cerebrospinal fluid (CSF) within cavities called ventricles inside the brain. CSF is produced in the ventricles, circulates through the ventricular system and is absorbed into the bloodstream. CSF is in constant circulation and has many important functions. It surrounds the brain and spinal cord and acts as a protective cushion, it contains nutrients and proteins necessary for the nourishment and normal function and carries waste products away from surrounding tissues. Hydrocephalus occurs when there is an imbalance between the amount of CSF that is produced and the rate at which it is absorbed. As the CSF builds up, it causes the ventricles to enlarge and the pressure inside the head to increase.



Hydrocephalus that is congenital (present at birth) is thought to be caused by a complex interaction of environmental and perhaps genetic factors. Aqueductal stenosis and spina bifida are two examples. Acquired hydrocephalus may result from intraventricular hemorrhage, meningitis, head trauma, tumors and cysts. Hydrocephalus is believed to occur in about 1 or 2 out of 1,000 births. Adults can have hydrocephalus too.

How Is Hydrocephalus Diagnosed and what are the presenting symptoms?

Hydrocephalus is most commonly diagnosed by ultrasound, CT, or MRI scan. It may also be diagnosed before birth by prenatal ultrasound or fetal MRI scan.

CAUSES OF HYDROCEPHALUS

Prematurity (post hemorrhagic hydrocephalus)

Myelomeningocele (Spina Bifida)

Congenital hydrocephalus secondary to:

- Dandy Walker malformation

- Arachnoid cysts

- Aqueductal stenosis

- Encephalocele

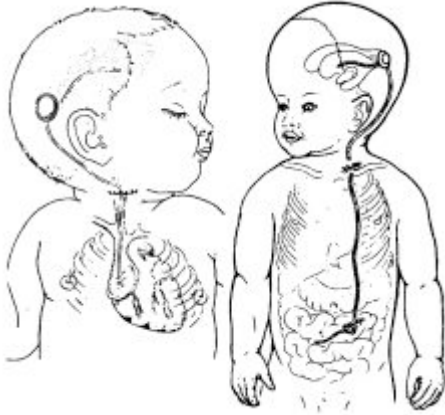
Brain tumor-related hydrocephalus

Traumatic brain injury

Intracerebral hemorrhage (secondary to AVM)

Congenital or inherited craniofacial syndromes (Crouzon, Pfeiffer), Achondroplasia

Meningitis, Infection



How Is Hydrocephalus Treated?

Our neurosurgeons are experts in treating hydrocephalus through innovative techniques. One treatment is insertion of a shunt into the child's brain to help drain the fluid to another part of the body to be absorbed. A common type of shunt is the ventriculoperitoneal (VP) shunt which drains spinal from the brain ventricles to the abdomen (see above picture). **We often use antibiotic coated shunts to reduce infections.** Endoscopic third ventriculostomy (ETV) is an alternative treatment method for hydrocephalus. This procedure is performed with an endoscope (small camera) which is inserted into the third ventricle and a small hole is created allowing drainage of the CSF fluid from the blocked area.

What are the signs and symptoms of shunt malfunction?

The symptoms of shunt malfunction resemble the symptoms of hydrocephalus itself. Timely evaluation is important and this involves a visit to the clinic or emergency department for possible scans (MRI or CT) and xrays of the shunt. Abdominal xrays or ultrasound may be performed. A shunt tap or insertion of a sterile needle into the shunt can also help diagnose a shunt problem. Mechanical failures can occur (breaks, kinking, dislodgement), the shunt tube can obstruct, and infections can occur. Excessive drainage can also rarely occur, causing worsening of symptoms with upright position.

SYMPTOMS AND SIGNS OF SHUNT MALFUNCTION:

Headache, vomiting and nausea, irritability, bulging fontanel (infants), increasing head circumference, papilledema (swelling of the optic nerve) or blurred vision, poor balance and coordination, developmental regression, lethargy, drowsiness, fever, abdominal pain, redness or swelling around the shunt to name some signs and symptoms.

Please call us immediately if you suspect your child has a shunt malfunction or infection at 321 841 3050.