

## Shunts

Some patients with brain tumors develop increased pressure inside of the head. This may be due to the amount of tumor growth within the skull, swelling of the tissues surrounding the tumor, and/or a blockage of the normal flow of cerebrospinal fluid (CSF) which causes hydrocephalus (fluid build up inside the head).

CSF is the fluid that surrounds the brain's spinal cord. If the fluid flow is blocked, pressure builds up in the skull. This increased pressure may damage structures of the brain, as well as cause symptoms such as headaches, vomiting, and changes in level of consciousness.

In some cases medication will relieve increased intracranial pressure. In others, a surgical procedure must be done in order to bypass the blockage of fluid. The surgical procedure, which is done under general anesthesia, is to implant a shunt.

A shunt is a narrow piece of tubing which is placed in a ventricle in the brain, then threaded under the skin usually to the abdomen where the fluid is drained from the head and absorbed by the body. The shunt includes a valve, which allows the CSF to flow in only one direction. There are many different types of shunts. The neurosurgeon will decide which one will help the patient most.

Shunts may be placed temporarily to correct increased intracranial pressure until the brain tumor is removed. In cases where it isn't possible to remove the tumor or correct the hydrocephalus, the shunt may remain permanently.

Even after a successful surgery shunts are often left in place. As with any mechanical device, complications may occur.

Some warning signs of shunt malfunction may include any or all of the following:

- Fever
- Redness, swelling, or pain at any incision site or along the length of the tube
- Nausea, vomiting, abdominal pain
- Headache, double vision, clumsiness
- Irritability, or excessive sleepiness
- Loss of appetite
- Sudden unexplained personality change, mental impairment
- Listlessness
- High-pitched whine, grasping ear area on shunt side by infants

Please notify your physician whenever you are concerned about the shunt malfunctioning.

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