MINIMALLY INVASIVE
neurosurgery

VP Shunt, Explained

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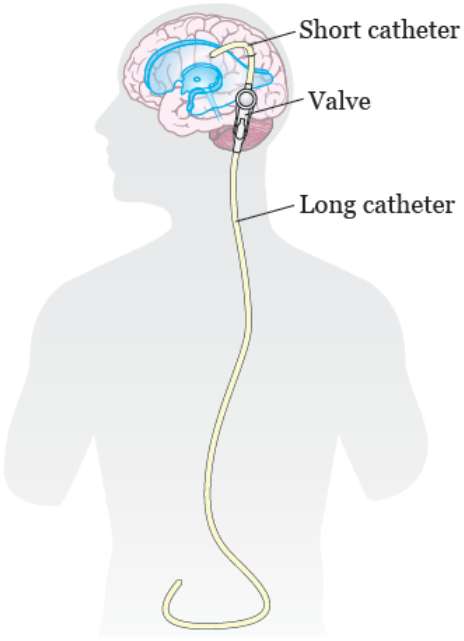
Overview

Ventriculoperitoneal shunting (VP shunting, for short) is a relatively short surgery used to treat excess cerebrospinal fluid (CSF) in the cavities of the brain by draining it to another area in the body—in this case, your abdominal area. This is done by implanting a device on your skull, which includes a pressure-dependent drain and two tubes: one entering the skull, and another that runs all the way down your body into our belly, where extra CSF can be safely drained, reabsorbed, and/or filtered out by the rest of the body.

The Details



Our brains have special open cavities called ventricles—these spaces aren't really open, exactly, since they are filled with something called cerebrospinal fluid (CSF). CSF is a special fluid passed through and around the brain that not only cushions it from injury, but also serves as a nutrient delivery and waste removal system for it. It's so important, in fact, that the ventricles produce this fluid constantly. Unfortunately, sometimes too much fluid will build up in the ventricles—usually, this is due to a blockage in the ventricles, though poor absorption and overproduction can also be the cause.

In any case, a drain is necessary to get rid of the excess fluid—without it, pressure continues to build and symptoms begin to develop and progress. This drain, or "shunt", ensures this doesn't happen by moving the fluid into somewhere else in your body where it *can* be absorbed and filtered properly. This place is (usually) the "peritoneum"—the membrane forming the lining of your abdominal cavity—which is a tissue fully capable of handling a little extra CSF. The picture above provides a good idea of how this looks.

All of this is where the VP Shunt's name comes from:

Shunt = the special drain implanted into your head, and
Ventriculoperitoneal = the areas the drain is placed: the ventricles and peritoneum.

But how does Dr. Baker make this happen? First, he'll shave either behind the ear or on the top/back of your head, making a small incision there afterward. Another similar cut is made on your abdomen. Dr. Baker then drills a small hole into your skull through which he inserts the

first tube of the shunt, guiding it into the ventricles of your brain. Dr. Baker may do this with or without guidance imaging, as provided by a special surgical camera called an endoscope.

From here, a second tube is placed under the skin behind the ear (or the head). Using an endoscope and more small incisions as needed, Dr. Baker sends the tube down the neck and chest, and usually into the belly area. Though, sometimes, Dr. Baker may stop it at the chest area.
This is where the all-important shunt valve comes in—you can find a few examples of this pictured below. Dr. Baker will place this underneath the skin, connecting it with the two tubes and completing the shunt. When extra pressure builds up around the brain, the valve opens, and excess fluid drains through the catheter into the belly or chest area. This helps lower intracranial pressure. A reservoir on the valve allows for priming (pumping) of the valve and for collecting the CSF if needed. To finish the surgery, the incision site(s) are stitched up or glued.