Posterior Fossa Decompression

Posterior fossa decompression helps treat Chiari malformation. It's the most common treatment for this condition. A Chiari malformation is a problem in the structure of the skull and lower part of the brain. It often occurs when the skull doesn't form correctly or is too small. As a result, the lower part of the brain—usually the cerebellum—is forced down into the foramen magnum. This is the hole at the base of the skull. It's where the spinal cord enters the skull to connect to the brain.

During this procedure, a surgeon removes bone from the bottom of the skull, called the posterior fossa. This part of the skull is where the cerebellum normally sits. The cerebellum is the part of the brain that controls balance. In some cases, the surgeon may also remove bone at the very top of the spine. This is called a laminectomy. A laminectomy makes the spinal canal larger for the spinal cord.

Why this procedure is done

This procedure is done to stop the symptoms of a Chiari malformation. It's often the only way to stop symptoms from getting worse. It makes more room in the skull and spinal canal for the cerebellum. It eases pressure around the brain and spinal cord.

This surgery may also be done to improve the flow of cerebrospinal fluid (CSF) between the brain and the spinal cord. This fluid protects the brain. It also carries nutrients to the brain and takes waste out of it. Sometimes, a Chiari malformation blocks the flow of CSF. This blockage can lead to a buildup of fluid and pressure in the brain. This condition is called hydrocephalus.

How the procedure is done

Your healthcare provider will tell you how to get ready for posterior fossa decompression. This will likely include not eating or drinking for some time before the surgery. You or your loved one may also need to stop taking certain medicines. Make sure the provider knows about all the medicines and supplements you or your loved one is taking. Also, tell the provider about any allergies or other health problems.

This surgery is done in a hospital. During it:

- You or your loved one will lie face down on a table. Medicine will be given through an IV to help with pain and cause sleep. This is called anesthesia.
- Once you or your loved one is asleep, the surgeon will make a small cut on the back of the skull.
- The surgeon will remove a bit of bone from the occipital region of the skull. In some cases, the surgeon may also need to remove bone from the back of the upper spine (laminectomy).
- Sometimes the surgeon may also cut into the dura to help improve the flow of CSF. The dura is the top layer of the membrane surrounding the brain and spinal cord in the foramen magnum. The surgeon will put a patch of tissue over the area to help widen the space. This graft may be artificial. Or it may be tissue taken from somewhere else in the body.
- For serious cases of Chiari malformation, the surgeon may remove the bottom part of the cerebellum. These are called the cerebellar tonsils. Doing so does not cause any problems.
- The surgeon may put a shunt, or tube, in the brain. This tube prevents a buildup of CSF in the brain after surgery. The tube runs under the skin from the brain to the belly or chest. There, the body absorbs the extra fluid.
- The surgeon closes all incisions.

What happens after the procedure

You or your loved one will be taken to a recovery room. You or your loved one will likely need to spend some time in the hospital to get better. Once home, follow all directions from your healthcare provider. The provider may advise limiting activities for some time. Keep all follow-up visits with the healthcare provider.

Risks of the procedure

Like any surgery, posterior fossa decompression has risks. Talk with the healthcare provider about them. They may include:

- Allergic reaction to the anesthesia
- A buildup or leaking of CSF through the wound
- Syrinx. This is a buildup of CSF in a cavity or space along the spine.
- Infection
- Injury to the spinal cord
- Blood clots