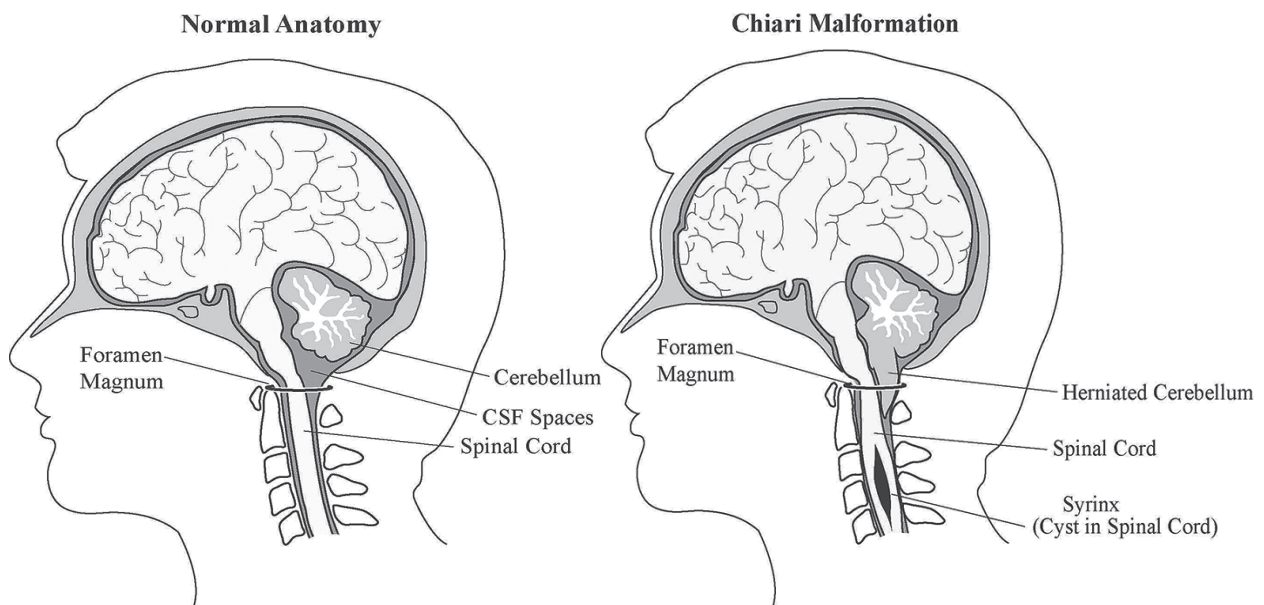


## Chiari Malformation

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A Chiari Malformation (kee-AR-ee / mal-for MAY-shun) is a rare condition that can occur at birth or develop as your brain and skull grow. This condition happens when a bony space inside the back of your skull is smaller than normal. The lack of space can cause a part of your brain to be pushed down into your spinal canal (herniated cerebellum). This can cause pressure and block the flow of cerebral spinal fluid.



Here is information about the different parts of your brain:

- The **cerebellum** is the area of your brain that controls your balance, coordination and body movements. The cerebellum is located in the back of your brain in a space near the bottom of your skull. In a normal brain, the cerebellum is above an opening in the skull called the foramen magnum.
- The **foramen magnum** is an opening at the bottom of your skull where the spinal cord connects with your brain.

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This handout is for informational purposes only. Talk with your doctor or health care team if you have any questions about your care.

- **Cerebral spinal fluid (CSF)** is a clear fluid that flows in and around your brain and spinal cord. CSF helps protect and cushion your brain from injury.

## What are the symptoms caused by this condition?

When you have a Chiari Malformation, you may have the following symptoms:

- Headaches
- Headaches that can get worse with coughing or sneezing
- Neck pain
- Dizziness
- Numbness, tingling or decreased feeling in your arms or legs
- Vision problems
- Problems with swallowing
- Ringing or buzzing in your ears (Tinnitus)
- Confusion
- Problems with your balance

## How will my doctor know if I have this condition?

You may not have any symptoms of a Chiari Malformation, but it may be found during other medical testing. If you have symptoms, your doctor may order the following tests:

- **Physical exam** - you will be asked questions about your health and symptoms. A neurological exam will be done to check for problems in your brain, spinal cord and cranial nerves. This exam may include checking your:
  - ▶ Memory (changes in your thinking or behavior)
  - ▶ Reflexes
  - ▶ Balance and coordination
  - ▶ Motor and sensory skills
  - ▶ Vision

- **Head CT Scan (Computed Tomography)** - an x-ray machine that takes a series of pictures of your brain and skull.
- **MRI (Magnetic Resonance Imaging)** - a special magnetic scanner that shows three dimensional (3-D) pictures of your brain, spinal cord and CSF.
- **MRI with CSF Flow Study** - a special type of MRI that looks at the way the CSF is moving around your brain and spinal cord. This test helps your doctor see if a Chiari Malformation is causing a block in the movement of CSF. The results of this test will tell your doctor if surgery is needed.

## How is this condition treated?

If you have a Chiari Malformation your doctor will monitor you closely. If your symptoms become worse, surgery may be needed.

Surgery may be needed if:

- Your symptoms impact your daily activities and quality of life
- A neurological exam shows any changes
- Your MRI shows pressure in your brain or spinal cord
- A MRI with CSF Flow Study shows blockage
- You have a **Syringomyelia (Syrinx)**
  - ▶ A Syrxinx is a fluid filled sac within your spinal cord. If this fluid filled sac grows, it can cause damage to your spinal cord.

Your doctor will give you more information about the treatment and surgery for Chiari Malformation and answer your questions.