



DR VANESSA SAMMONS
NEUROSURGEON



Guide to
CHIARI MALFORMATION

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KEY FACTS

- Chiari malformations are anatomical variations where part of the brain (the cerebellum) descends through the opening in the bottom of the skull and into the spinal canal
- Chiari malformations may occur spontaneously or may be an inherited trait
- Symptoms include headache, balance problems, vision problems, tinnitus, and difficulty swallowing
- Surgery is often required to alleviate symptoms
- Depending upon the extent of the malformation, patients return to their regular activities in four to six weeks after surgery, although full recovery may take months

WHAT IS CHIARI MALFORMATION?

Chiari malformation is a treatable brain condition. It occurs due to a structural problem such as a misshapen or smaller than average portion of the skull which forces a part of the brain (the cerebellum) to grow downward into the spinal canal. Trapped there, it causes compression on the brain at the base of the skull. The compression interferes with the flow of cerebrospinal fluid which circulates nutrients, removes toxins, and acts as a cushion for both the brain and spinal cord.

WHAT ARE THE SYMPTOMS OF CHIARI MALFORMATION?

Symptoms related to Chiari malformation are varied and range from mild to severe. Although the malformation is usually present at birth, symptoms may not manifest themselves until late childhood or even adulthood. Common symptoms include:

- Headache
- Chronic fatigue
- Sleep disorder
- Balance problems
- Tinnitus
- Trouble swallowing
- Vision distortion

WHAT CAUSES CHIARI MALFORMATION?

A Chiari malformation may be due to a variety of causes. The malformation is often present at birth.

Rarely, a Chiari malformation can develop in later life. These malformations are believed to be the result of changes in the skull and/or spinal cord due to tumours or hematomas.

WHEN SHOULD I CONSULT A DOCTOR?

Contact your doctor whenever you experience pain or changes in how your body is functioning. Early diagnosis leads to early treatment which, in turn, can help ensure a good resolution of any medical problem. In the case of a Chiari malformation, delayed diagnosis can lead to complications including hydrocephalus or syringomyelia.

HOW IS CHIARI MALFORMATION DIAGNOSED?

Chiari malformations can present themselves on prenatal ultrasounds. In older patients, a physical exam, medical history, and a series of sensory and balance tests may be used. Other diagnostics may be recommended to create a more detailed image of the brain and spinal column:

- Computer tomography (CT)
- Cine MRI (illuminates the flow of cerebrospinal fluid)
- MRI

These tests are primarily non-invasive and easily tolerated by patients. The information they yield helps Dr Sammons develop a targeted treatment plan to relieve symptoms of Chiari malformation.

WHAT ARE THE TREATMENTS FOR CHIARI MALFORMATION?

When Chiari Malformation causes symptoms that are mild, your doctor may suggest monitoring the condition with regular MRIs. If the symptoms are severe, one of several surgical procedures may be appropriate. Posterior fossa decompression is the most common surgical approach. It involves removing a part of the back of the skull to relieve pressure on the brain and give it more room.

Other elements to the surgery may include:

- Duraplasty
- Electrocautery
- Laminectomy

WHAT HAPPENS DURING CHIARI MALFORMATION SURGERY?

Surgery to correct Chiari malformation is performed to relieve pressure on the spinal column and create more space for the brainstem and cerebellum. It also works to normalise the flow of cerebrospinal fluid to and from the brain, relieving related symptoms. The surgery is performed using general anaesthesia to ensure patient comfort. An incision is made in the back of the head and a small portion of skull is removed to allow the neurosurgeon to assess the compression. The surgeon usually opens the dura, a tissue covering that protects the brain and spinal cord.

WHAT CAN I EXPECT AFTER CHIARI DECOMPRESSION SURGERY?

You will be taken to an observation room and your initial recovery from surgery will be monitored. You will awake feeling drowsy and possibly numb or uncomfortable at the incision site. You will be moved to your hospital room where you will remain for two to five days, depending on the nature of your procedure and your specific recovery.

Your staples or sutures will be removed in 7 to 10 days. After you return home, you can expect to return to your normal activities in four or so weeks.

WHAT SHOULD I DO AFTER CHIARI MALFORMATION SURGERY?

Home care is an important part of recovery. You will be given pain medication and a list of guidelines regarding the care of your wound. Some of the instructions you receive will include:

- Do not lift heavy objects (including children)
- Avoid house and backyard work until after your first follow-up visit
- Minimise activities that increase blood flow pressure to the head

Surgical recovery varies from patient to patient. Symptoms directly related to surgery should resolve quickly, while full recovery of nerve, motor, and hearing function may take six months or longer. During that time, contact Dr Sammons if:

- Fluids leak from the incision
- Your temperature spikes
- Your incision becomes red, swollen, or more sore

SHOULD I FOLLOW UP WITH DR SAMMONS AFTER SURGERY?

Yes. Before you leave the hospital, a staff member will schedule your first follow-up 4-6 weeks after surgery. A follow-up MRI after six months to a year will also be scheduled.

Should any concerns arise prior to your follow-up, do not hesitate to contact Dr Sammons for guidance.

DOES CHIARI MALFORMATION COME BACK AFTER SURGERY?

The prognosis for recovery depends upon the severity and type of Chiari malformation, however, results are promising. According to the research paper *Long Term Outcome of Surgical Treatment of Chiari Malformation*,

- Surgical treatment resulted in a long-term success rate of 84.2%
- Headache improved in 86.9% of patients
- Gait impairment improved in 83.3%
- Neck pain improved in 65.2%.
- 5.2% were unchanged after surgery
- 10.5% showed recurrence of their symptoms

Please call our rooms if you have any additional concerns or questions.



Hello!

I'm a Neurosurgeon at North Shore Private Hospital, Gosford Private Hospital, Brisbane Waters Private Hospital and the Sydney Adventist Hospital. I treat all neurosurgical conditions, but with a particular interest in Peripheral Nerve Surgery. I pride myself on providing personalised and thoughtful patient care and utilising my skills to achieve the best outcome possible.

I believe that a great neurosurgeon will ensure you feel listened to, will ensure that you understand what your surgery involves, and should also work together with your GP to achieve the best outcome for you.

Dr Vanessa

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