**Brain The Escape Artist:**

**Chiari Malformation**

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Have you ever felt like your brain was trying to escape? Well in the aspect of Chiari Malformation, your brain is an escape artist. Chiari Malformation is where your cerebellum creates a tonsil that goes into the hole in the skull where your brain steam lives. Chiari Malformation does not like playing alone either; you can have other disorders along with Chiari. Even if you get decompression surgery, you still have to live with the disorder and it’s symptoms along with it. The symptoms of Chiari are debilitating. Once you know someone that has it or you have it, everything in life changes. My project covers the objective of the relation of the interaction of muscles and the skeletal system. The skeletal system and the muscle interact by the muscles that are attached to the bone. So, with that, once the muscle moves your bones moves. So, with Chiari Malformation, the skull is smaller or misshaped. Unlike an average skull, the brain does not have as much room to grow. Now with the muscles that are attached to the skull had to adapt to skull that is misshaped. When you move your head and neck, the muscles and the bones help with the process of movement.

Chiari Malformation is a disorder that the skull is underdeveloped. That in turn makes the posterior fossa become less so it cannot contain the cerebellum. When the cerebellum cannot be contained it creates a tonsil that goes into the spot with your brainstem called the foramen magnum. “Arnold-Chiari, or simply Chiari malformation, is the name given to a group of deformities of the posterior fossa and hindbrain (cerebellum, pons, and medulla oblongata). Issues range from cerebellar tonsillar herniation through the foramen magnum to the absence of the cerebellum with or without other associated intracranial or extracranial defects such as hydrocephalus, syrinx, encephalocele, or spinal dysraphism.”. (Hidalgo, Tork, & Varacallo). For people living with this disorder, their symptoms can range from a simple headache to not being able to walk. The symptoms can be in any part of the body and can affect the person day or night. The person may be fine in the morning but come the afternoon be miserable.

“Chiari I malformation is the most common type and occurs in approximately 0.5 to 3.5% of the general population with a slight female predominance (1.3:1). Chiari II occurs in 0.44/1000 births without gender predominance but can have a decreased incidence with folate replacement therapy by the mother in utero. The remaining Chiari malformations are much rarer. Chiari III is the most common of these other variants, consisting of 1-4.5% of all Chiari malformations.” (Hidalgo, Tork, & Varacallo). Chiari Malformation is rare enough that it is not being taught in medical school. The only people who know about it are the few neurosurgeons that specialize in that area. The surgery for decompressing the tonsil is still experimental and they do not know if the symptoms will get better, stay the same, or get worse. “Adult cases of Chiari I malformation were not described until 1938, when McConnell and Parker reported five cases, all with hydrocephalus and neurological symptoms, in whom surgical exploration was performed; an autopsy procedure was performed in three. They used the term “tonsils” to describe the prolapsed cerebellar tissue. The same year, Aring reported a 20-year-old man with an adult Chiari malformation but no hydrocephalus. This was the first reported case of adult Chiari malformation in a patient in whom hydrocephalus was not also present. The condition was diagnosed by cerebellar exploration, and the patient died 18 hours later. The cerebellar tonsils reached down to the axis.” (Bejjani, 2001).

In the comic strip, the cerebellum is the bad guy who is putting pressure on the brain steam and blocking the Cerebral Spinal Fluid (CSF) flow. So, he taunts them and the person saying that they will never be rid of him. Then the surgeon comes in and he talks to the cerebellum saying thinking again and he does the decompression surgery to get rid of him. Then the person says that she is free from the evil cerebellum. The doctor has won. The evil cerebellum is dead. So, with the decompression surgery, they make a cut down the middle of your neck about 3 to 4 inches long. The muscles are pushed away from the skull. Then the surgeon will preform a suboccipital craniectomy and sometimes a laminectomy. That will expose the dura, which is a covering for the brain and spinal cord. Now, the surgeon is going to open up the dura so that they can see the tonsil. Then the surgeon will reduce the tonsil and take a patch, either synthetic or tissue from the person, and attach it where the dura was. Last, the neck muscles and skin are sutured together.

So, people with this disorder tend to stick together because not everyone knows what they go through. They have to be strong for themselves and for their families. This disorder is lifelong, and they know and hate it. They cannot do as much as they use to do. They have to watch what they do and how they do it. For example, even people who are decompressed cannot go on rollercoaster because of the whiplash like motions. Chiari Malformation is no joke to anyone. Chiari is one that can kill with its symptoms alone. Imagine having to struggle just to get out of bed. Chiari is a silent disorder and does not like to play alone. So, you could have other disorders as well as it. You might not look like you have a disorder on the outside but on the inside feeling like you are dying. You never know what anybody is going through just to look like they are okay on the outside.

**References**

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