DIAGNOSIS OF CHIARI MALFORMATION IN A 16-YEAR OLD MALE HIGH SCHOOL BASEBALL PLAYER: A CASE STUDY

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**Background Information:** A 16-year-old male high school baseball player complained of a severe headache radiating from the occiput through the frontal lobe. Headaches occurred after any type of exertion, sneezing or coughing. The duration of the headaches would last approximately ten to twelve minutes depending on the activity. No prior medical conditions or sport related injuries were reported. Patient stated that he was in a minor car accident six months prior to the start of the headaches. The car was hit from behind. The incidence resulted in a stiff neck for over a week. Physical and neurological exams were normal. Memory, balance, reflexes, sensation and motor skills were within normal limits. The chief complaint of the athlete were continues hand tremors.

**Differential Diagnosis:** migraines, concussion, brain tumor, dehydration, cervicogenic headaches.

**Treatment:** Magnetic Resonance Imaging (MRI) of the brain and cervical spine showed part of the cerebellum located below the Foramen Magnum blocking the flow of posterior cerebrospinal fluid (CSF). A diagnosis of Chiari Malformation was presented and a referral to a pediatric neurosurgeon was advised. Surgery was recommended to create more space for the cerebellum, re-establish the flow of CSF and halt the progression of damage to the central nervous system. The surgery involved making an incision at the inferior aspect of the occipital bone, removing a small portion of the skull and a laminectomy of C1 and C2 to create more space and restore the flow of posterior spinal fluid. Post-op brain computed axial tomography scans showed normal post-op images. The patient returned to school two weeks after surgery. Patient returned to sports at 12 weeks.

**Uniqueness:** The cerebellar tonsils measured 30mm below the plane of the foramen magnum creating a narrowing the flow of CSF. A complete reduction in CSF flow was observed in the posterior cranial fossa. In the past, chiari malformation was estimated to occur in about one in every 1,000 births. However, due to the use of diagnostic imaging chiari malformation has become far more common, especially in females and people of Celtic descent.

**Conclusion:** Chiari Malformation is an anatomical condition in which a portion of the brain is compressed into the top of the spinal canal; or alternatively the upper portion of the spinal cord is squeezed into a spinal canal that is too narrow. After the surgery the patient may continue a normal lifestyle. However, the patient is not allowed to participate in contract sports. As athletic trainers, we must know when to refer an athlete. Realizing key signs and symptoms in an individual’s medical history for potentially debilitating and life threatening conditions. This case helps stress the importance in utilizing an evidence based approach to establish differential diagnosis when treating medial pathologies. **Word Count:** 481