Chiari Malformation in a College-Aged Female Soccer Player
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Background: Nineteen year old, NCAA division two, female athlete who was diagnosed with Type I Chiari Malformation (CM). The athlete reported a PMH of a wrist fracture in middle school. Even after proper fracture healing occurred, the athlete reported numbness and tingling in her left arm. Over the course of several years, and following an MRI on her wrist, then brain, then spine, and finally her cervical spine, she was diagnosed with CM, the summer after her freshman year of college. CM is a structural defect in the cerebellum, which can cause a range of symptoms and consists of a downward displacement of the cerebellar tonsils through the foramen magnum into the spinal column. Differential Diagnosis: Nerve trauma post fracture including possible Complex Regional Pain Syndrome. Various neurological testing was completed to rule out nerve damage; All tests came back negative.

Treatment: Following the 5th MRI that focused on the cervical spine and diagnosed her with CM, an MRIs with contrast was performed on the spinal cord and brain to rule out a tethered cord and hydrocephaly. MRIs were negative. Sport participation was not permitted. The athlete underwent a Foramen Magnum Decompression Surgery to allow more space for the herniated cerebellum and brainstem. Today the athlete is still in the recovery phase and is able to perform most ADLs. The athlete hopes to return to running 3-4 months post-surgery. Return to play has not been ruled out. Uniqueness: While CM is not a typical pathology that is seen among athletic trainers, it is important to determine if CM is a disqualifying factor for sport participation, especially for contact or collision sports and if appropriate what the management for symptoms and criteria for return to play include. The signs and symptoms in our patient include numbness; however the patient had a history of severe occipital headaches; both could be useful when diagnosing a patient with CM. Conclusion: CM when not recognized at birth can be misdiagnosed. Athletic participation of patients with CMs must be made on a case-by-case basis, and medical opinions differ. Patients that present with obliteration of the subarachnoid space, or injury to the anterior medulla are not able to participate in contact sports and should have a neurosurgical evaluation. In the absence of these lesions, some athletes may have a ‘functional’ stenosis of the cervical canal, predisposing them to present with recurrent spinal cord injury. Criteria for sport participation for athletes with CMs require the patient to be asymptomatic (with no signs or symptoms) during both daily activities and exercise. However further studies are necessary to be able to understand the management of athletes with asymptomatic CMs. Word Count: 440.