

Definitions

cerebellar tonsils - portion of the cerebellum located at the bottom, so named because of their shape

cerebellum - part of the brain located at the bottom of the skull, near the opening to the spinal area; important for muscle control, movement, and balance

cerebrospinal fluid (CSF) - clear liquid which surrounds, and protects, the brain and spinal cord

Chiari malformation - condition where the cerebellar tonsils are displaced out of the skull area into the spinal area, causing compression of brain tissue and disruption of CSF flow

magnetic resonance imaging (MRI) - diagnostic test which uses a large magnet to create images of internal body parts

posterior fossa - depression on the inside of the back of the skull, near the base, where the cerebellum is normally situated

Chiari In Military Personnel

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Arnold-Chiari Malformation Type 1 In Military Conscripts: Symptoms And Effects On Service Fitness

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Introduction: This report details four cases of Chiari malformation in young men performing military service. Chiari often is diagnosed in young adults and the physical demands of military training and service can trigger or aggravate symptoms to the point where Chiari is diagnosed.

Patient 1: Male with a history of apnea, trouble swallowing and migraines. During military service began to experience double vision and dizziness when working with his hands above shoulder level. Fell a couple of times from dizziness. Exam revealed abnormal reflexes, very tense neck muscles. Initial MRI was interpreted as normal, but follow-up MRI with a stronger machine showed an 11mm Chiari. Initial MRI was reviewed again and Chiari was evident on the first scan. Surgery was recommended and the young man was exempted from military service.

Patient 2: Male with a history of pulsating headaches. During military service limb stiffness, exertion headaches and neck stiffness developed. Examination revealed decreased sensation on left-side of body, neck muscle tension, and other problems. Head MRI was interpreted as normal, but a cervical MRI revealed a 13mm Chiari. Initial MRI was reviewed and found to show Chiari as well. Surgery was recommended, but the patient chose to finish his military service - with modified duty - before undergoing surgery.

Patient 3: Male with a history of headaches. During basic training developed neck and shoulder pain and stiffness. Chiropractic manipulation was tried, after which he experienced nausea, dizziness, and visual disturbances. He was taken to the hospital and an MRI revealed a 5mm Chiari. Surgery was recommended and his military service was suspended for two years to await the outcome.

Patient 4: Male with a history of pressure and numbness in the face and migraines with vomiting. During basic training he developed a fever and confusion and was sent to the hospital. Neurological exam was normal, but a CT revealed sinus problems. When treatments did not work an MRI was performed and revealed hydrocephalus and a 9mm Chiari. In addition spinal fluid had filled his sinus cavity. Surgery was recommended and his military service was suspended for two years.

Author's Discussion: Since this publication appeared in a military medicine journal, the author focuses on the importance of identifying Chiari in military personnel and modifying service accordingly. He also points out, appropriately, that the physical nature of military service can bring symptoms to light.

Editor's Discussion: I thought this was an interesting case report for a couple of reasons. First, it is interesting to note that all 4 patients had some level of symptoms years before diagnosis, but they weren't severe enough that Chiari was ever suspected. Then, when they entered a stressful physical environment, and reached young adulthood, the symptoms became severe enough for Chiari to be diagnosed. Second, it's worth noting that these patients exhibited neck stiffness and soreness as a main symptom. I think in general, this symptom does not get enough attention in relation to Chiari. Personally, years before I was diagnosed, a physical therapist I was seeing for neck pain and stiffness told me he thought there was something wrong with the nerves in that area. Unfortunately, my primary physician at the time dismissed it and an opportunity for diagnosis was missed. Finally, these cases highlight how it is easy to miss Chiari on an MRI, especially if ruling out Chiari is not the express purpose of the scan. In these cases, when the initial MRI was reviewed at a later time, the Chiari was evident, but was missed the first time around.

--Rick Labuda

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