

SYMPTOMATIC CHIARI MALFORMATION TYPE I IN A RECREATIONAL TRIATHLETE: A CASE STUDY.

JOHN NASH AWARD FOR BEST MULTI-DISCIPLINARY ABSTRACT

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HISTORY: A 39-year-old, right hand dominant, Caucasian female nurse and recreational triathlete was involved in an MVA in which she was rear-ended. The patient presented grade II-III concussion symptoms. The patient also developed chronic occipital headaches, bilateral upper and lower extremity paresthesia, coordination difficulties, and a feeling of her ears “being clogged”.

PHYSICAL EXAMINATION: The patient presented with cervical spasms, stuttering, emotionality, retrograde amnesia, cognitive deficits, focus difficulties. UE and LE DTRs were 2+ bilaterally. Pathologic reflexes were not present initially. The patient previously underwent MR scans of the brain, cervical spine, thoracic spine and lumbar spine which were interpreted as normal except for a small L5-S1 protrusion. Due to the cognitive and focus deficits, a repeat brain MR scan was performed which was normal. Bilateral upper and lower extremity EMG was normal. A referral to a neurosurgeon (RSB) revealed a Chiari malformation type I consisting of cerebellar tonsils protruding 6mm below the foramen magnum. Surgical decompression was recommended. The patient waited five months, hoping the symptoms would resolve. At the five month time line, the patient developed 2-beat clonus, Hoffman’s reflex, 3+ bilateral patellar reflexes and wasting of the intrinsic muscles of the hand. Diamox, a medication which reduces intracranial pressure provided the patient with significant relief of her occipital headache. An MR CSF flow velocity study revealed obliteration of the CSF flow at the foramen magnum when the patient’s cervical spine was placed into extension and improved, but still compromised flow in cervical flexion.

DIAGNOSIS: Chiari malformation type I; Grade II-III concussion, AAN Guideline

TREATMENT: The patient received an intra-operative diagnostic ultrasound (DUS) which also revealed obliteration of the CSF in cervical extension and markedly reduced flow in a neutral position. The patient underwent decompression of the cerebellar tonsils, excision of an anomalous fibrous band compressing the dura, and resection of the posterior arch of C1. Repeat DUS revealed normal CSF flow at the foramen magnum in neutral, flexion and extension cervical positions.

RESULTS: Four days post-op, the patient stated “It feels like someone turned the lights on”. All UE and LE symptoms ceased immediately after surgery. The patient required post-operative treatment including soft tissue mobilization, manipulation of the thoracic and lumbar spine and sacroiliac joints, gait and balance training, strengthening and is

preparing to begin triathlon training again. The concussion symptoms resolved within 3 months of the MVA.

CONCLUSION: This pathology can be missed by radiologists as well as chiropractors. Patients who present with various neurologic symptoms and occipital headaches that follow trauma, particularly in female patients, and these symptoms cannot be attributed to disc pathology, instability, foraminal or central stenosis, or identified with electrodiagnostic studies should have a diagnosis of a Chiari malformation type I ruled out.

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