**Focal Dystonia Secondary to Trauma in an Adolescent Female Athlete**


**Background:** A 17-year old female high school athlete began experiencing right upper extremity tremors after voluntarily abducting the arm overhead during a field hockey practice. Her previous history included a cervical whiplash injury approximately one year prior and a right acromioclavicular sprain approximately eight months prior. Upon assessment, continued tremors of the trapezius, deltoids, biceps brachii, triceps brachii and forearm muscles were observed. The tremors were associated with generalized pain and a feeling of heaviness in the extremity, as well as nonspecific paresthesia in the forearm and hand. The patient was able to voluntarily move her shoulder, elbow and wrist through a full range of motion however this was done with some difficulty as the tremors continued. No other symptoms were noted and there was nothing else remarkable at that time. The symptoms continued for approximately one hour, at which time the athlete was referred to the emergency department for further evaluation. **Differential Diagnosis:** Spinal cord or brachial plexus neuropathy, focal seizure, carpal tunnel syndrome, complex regional pain syndrome, dyskinesia, Sydenham's chorea and ulegyria. **Treatment:** Upon arrival at the emergency department, the tremors subsided and eventually stopped without intervention. Nothing remarkable was noted upon assessment other than general arm soreness. The patient was diagnosed with a focal seizure and was administered analgesic medication and discharged. The patient continued to experience transient episodes of right upper extremity tremor with right hand paresthesia over the next few days making it difficult for her to hold a field hockey stick during practice and to hold a pencil during class. Therapeutic interventions such as cryotherapy, heat, stretching and massage provided inconsistent results, with symptoms improving on some occasions and worsening on others. The patient was then referred to an orthopedic physician for further assessment. Magnetic resonance imaging revealed a borderline type I Chiari malformation that was not considered pathological. Plain film radiographs, electroencephalography, electromyography and nerve conduction velocity tests were negative. The patient was diagnosed with cervical radiculopathy and was prescribed gabapentin, tizanidine, tramadol and tylenol for muscle relaxation and analgesia. However, she continued to experience transient episodes of tremor, pain and paresthesia from the shoulder to the hand and she was now able voluntarily provoke the symptoms by simply elevating her arm overhead. Once provoked, the symptoms would last approximately 30 minutes followed by a dead arm feeling lasting one to two days. The patient was then referred to a neurologist who diagnosed her with dystonia secondary to trauma following assessment and consultation. The patient began receiving botulinum toxin injections into the affected muscles which has provided symptomatic relief. **Uniqueness:** Dystonia is a unique neurological disorder resulting in sometimes painful abnormal postures, athetosis or tremor that can be initiated by voluntary movements. It results from an abnormality in or damage to the basal ganglia or other movement control regions such as the cerebellum. Secondary or acquired dystonia is the rarest form and refers to dystonia brought on by some identified cause, such as trauma. Our patient was diagnosed with secondary dystonia although she never experienced head trauma. Her neurologist believes that her dystonia was secondary to the cervical and shoulder injuries suffered previously. This is unique in that the trauma did not directly involve the brain and it occurred over six months prior to symptom onset. **Conclusions:** There is no cure for dystonia. While not completely resolved, our patient continues to receive botulinum toxin injections which have provided minor symptomatic relief as she is now attempting to play collegiate softball. **Relevant Evidence:** There are no clinical tests for dystonia. Diagnosis is made by ruling out all other potential causes. **Word Count:** 596.