Violent repetitive neck tics in Tourette’s Syndrome leading to spinal cord compromise

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Abstract:
Tourette’s syndrome is a neuropsychiatric movement disorder often first noted in early childhood and dissipating with age. The condition results in a combination of verbal and motor tics which often require treatment to reduce the pain, distraction and social consequences of the repetitive movements. I present a case of a 46 y/o treatment refractory patient whom has suffered vertebral artery dissection resulting in stroke and two distinctly separate spinal cord injuries as a result of his cervicogenic tics.

Case report:
A 46 y/o man with Tourettes Syndrome and a history of vertebral artery dissection secondary to his severe neck tics in 2014 presented for evaluation of abrupt onset left upper limb weakness. He was diagnosed in early childhood and has always suffered severe violent neck tics. The neck tics have a torsional component towards the right with a rapid extension motion at the tic terminus. He also has a repetitive torsion neck tic with the appearances of rapidly shaking his head from left to right. He has tried and failed a number of medication trials in both the typical and atypical antipsychotic classes. He has tried and failed clonidine and benzodiazepines. Following his vertebral artery dissection with associated brainstem stroke in 2014 he was placed on tetrabenazine without any significant reduction in his motor tic frequency or severity (figure 1).

Figure 1. MRI brain diffusion weighted sequence demonstrating the patient’s lateral medullary infarct as a result of vertebral artery dissection.
The new complaint of weakness involving the C6-T1 musculature throughout the left upper limb was associated with a torsional movement of the neck secondary to Tourette’s tic. He has failed to recover any strength in this distribution to date. Second episode occurred 8 months later and had similar symptomatic effect to the right upper limb. At the time of presentation he was two weeks following the right sided symptoms. Neurologic examination revealed paresis within the deltoid, biceps and pronator with plegia in the triceps, wrist extensors, wrist flexors and all intrinsic hand muscles bilaterally. Sensory examination was remarkable for subjective migratory paresthesia without sensory loss to any modality. Lower limbs revealed symmetrically brisk reflexes and mild weakness. MRI cervical spine obtained at that time demonstrating T2 hyperintensity within the cord from C5-6 with anterior listhesis of C4 on C5. Multilevel disc degenerative changes and facet hypertrophy noted with varying degrees of moderate to severe neuroforaminal compromise throughout from C3-T1 (figure 2). He was ultimately intervened up with multilevel ACDF to stabilize the vertebra in the area of the spinal cord compromise at C4-6.

Figure 2. MRI cervical spine demonstrating the patient’s listhesis and associated spinal cord compromise resulting in myelopathy
Discussion:
This case demonstrates how severe cerviogenic tics can lead to not only vertebral artery compromise but also severe structural cervical spine disease leading to spinal cord damage. There are multiple case reports of cervical myelopathy from compressive and non-compressive etiology but none of which were seen in patients whom also suffered vertebral artery dissection as well. Neurologists and neurosurgeons must be cognizant of the effects of Tourette’s Syndrome related violent head and neck tics may result in both vascular and spinal cord pathology.

References: