Case Report

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Involvement of Acute Optic Neuritis in Early Prediction of Multiple Sclerosis

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Abstract

Multiple Sclerosis (MS) is a chronic, individualized, and often unpredictable disease that attacks an individual's central nervous system. Although the origin of MS is unknown, researchers to date point to a potential variety of causes, making prevention and even treatment difficult. The uncertainty of potential causes is further complicated by variation in reported symptoms as well as the potential for signs to disappear and even reappear. Furthermore, no singular test allows for the diagnosis of MS, leading to the need for multiple procedures over a period of time to rule out all other diagnoses prior to an individual being provided an MS diagnosis. Variations in physical, cognitive, and psychological symptoms, including the potential presence of numbness or tingling, memory loss, depression, and even sexual dysfunction, require family counselors to become knowledgeable of the medical aspects of MS, including possible symptoms and the necessary steps at which an individual should receive appropriate testing. A case illustration is presented with the goal to demonstrate ocular involvement (acute optic neuritis) which can be an early detector of multiple sclerosis in young individuals.

Keywords: Optic Neuritis; Multiple Sclerosis.

Case Report

A 48- year old Caucasian male presented with a 7 days history blurring of vision in his left eye, mainly in the superior part of her visual field, associated with pain on movement of the left eye for the past 1½ week. Moreover he complained of slightly reduced side vision and occasional flashing and flickering lights with eye movements especially in the evening. He denied any concurrent viral illness, myalgia or gastrourinary symptoms.

He was previously healthy man with no past medical history of note and was not on any regular medications. Social history was also unremarkable, patient being a non-smoker who only had the occasional glass of wine. Patient is genetically disposed to multiple sclerosis from his maternal side. The ocular examination revealed 63% red desaturation in the left superior field (mild dyschromatopsia) and mild light desaturation in in the left eye. Patient investigated with MRI brain and spine and cerebrospinal fluid (CSF) analysis. MRI brain showed positive signs of multiple sclerosis (Refer Figure 1) and CSF analysis revealed high CSF/P-Immunoglobulin G ratio 6.0 (Ref. value 1.3-4.5), CSF-Immunoglobulin G (log-ratio) 0.93 (Ref. value 0.80-0.91) and mildly elevated protein level 0.57 g/l (Normal range 0.2-0.4 g/l). The paraclinic investigations and involvement of optic neuropathy completely co-relates to the diagnosis of Multiple sclerosis.

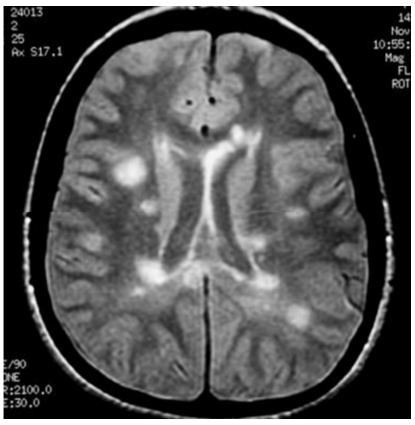

Fig. 1: Diffuse white substances in MRI positive for Multiple sclerosis

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Discussion

Multiple sclerosis (MS) is a chronic autoimmune disease that attacks the nerves in your brain, spinal cord, and optic nerve and causes inflammation and the loss of a protective covering on nerves, known as myelin [1]. The connection between MS and optic neuritis is the inflammation and loss of the myelin covering of your optic nerve and retina [2]. Optic nerve is responsible for transmitting images from eyes to your brain and damage of this nerve results in optic neuritis which lead to vision loss and other troubling symptoms [2,3]. It may be present as first sign of MS in about 15-20 percent of people who have MS [3]. As per recent study from Mayo Clinic, the lifetime risk of developing MS after an episode of optic neuritis is about 50 percent. Broadly speaking typical optic neuritis presents as an inflammatory demyelinating disorder of the optic nerve, which can be associated with multiple sclerosis whereas atypical forms of optic neuritis can occur, either in association with other inflammatory disorders [4,5]. The differential diagnosis includes bacterial infections, including Lyme disease, cat scratch fever, sarcoidosis, lupus, syphilis or may be viruses like mumps, herpes and measles and certain medications like quinines and certain antibiotics [5]. The diagnosis of Multiple sclerosis associated optic neuritis (typical form) is achievable by optical coherence tomography, MRI of cerebrum and neuroaxis, VEP (visual evoked potentials) and CSF examination. Clinical trials are underway to identify potential neuroprotective or remyelinating treatments for acutely symptomatic inflammatory demyelinating CNS lesions. The treatment involves intravenous steroid medications are used to reduce inflammation in the optic nerve [6]. This might speed vision recovery and reduce the risk of developing multiple sclerosis or slow its development. In case steroid therapy fails and severe vision loss persists,plasma exchange therapy might help some people recover their vision even though no studies or trials shown direct effect of plasma exchange in clinical improvement of optic neuritis [7,8].

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