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MILLER FISCHER SYNDROME

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INTRODUCTION

Miller Fischer syndrome is a rare variant of Guillain-Barre syndrome which consists of areflexia, ataxia and ophthalmoplegia [1]. This syndrome is considered to be a benign variety of acute inflammatory demyelinating polyneuropathy (Guillain – Barre Syndrome) [2]. But there are some cases which do not have this typical presentation but may have features of peripheral neuropathy (including paresthesia of distal limbs, oropharyngeal weakness or bifacial weakness). Here we present a case of a young boy belonging to an area of southern Punjab, which was not very typical of Miller Fischer Syndrome but later on the progression of disease and lab reports confirmed our diagnosis made at the time of presentation. Intravenous immunoglobulins were given to him to which he responded well.

CASE REPORT

A 16 years old boy was brought from Multan city to our hospital with complaints of headache, dizziness, diplopia, and dysphagia for last one day. One week prior to these complaints, he had mild upper respiratory tract infection. This episode of illness gradually started with mild headache and dizziness which were followed by diplopia, drooling of saliva from mouth and difficulty in speech with nasal twang. There was no history of intake of canned food, snake bite, convulsions, focal deficits or loss of consciousness. He was normotensive, non diabetic and was not suffering from any chronic illness. He was living with his parents and was a non smoker and also denied any drug addiction.

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On examination, he was an averagely built, young adult, fully conscious and oriented. His vital signs were normal with no bradycardia, orthostatic hypo tension or some other specific sign. His higher mental functions were intact. Pupils were normal in size and equally reactive to light. His speech was dysarthric with nasal twang. Cranial nerve examination revealed IIIrd, IVth and VIth nerve paralysis causing ophthalmoplegia and bilateral ptosis. There was bilateral facial weakness due to bilateral facial nerve palsy. There was IXth, Xth, and XIIth nerve palsies resulting in dysphagia, dysarthria and absence of gag reflex. There were no intention tremors, incoordination, dysdiadochokinesia or ataxia showing absence of cerebellar involvement. Grade of power was 5/5 in all four limbs. All superficial and deep reflexes were normal. Examination of throat, cardiovascular system, gastrointestinal tract and respiratory system didn't reveal any abnormality. Examination of his Cerebrospinal fluid was done at the time of admission which was clear with normal pressure, protein (22 mg/dl), glucose and cell count. His computerized axial topographic scan was urgently performed which showed normal intensity and came out to be normal. He was admitted to the intensive care unit to monitor his respiratory status. Stool and serum cultures were sent for botulinum toxin which resulted in negative. During next a few days, patient remained stable and was managed by supportive care. Repeat CSF examination was performed after five days which showed elevated level of proteins i.e., 474 mg/dl which was a real catch point and helped us in clinching the diagnosis. On the basis of clinical presentation of the patient and elevated protein levels in CSF, a provisional diagnosis of Miller Fischer Syndrome was made.

The patient was placed on intravenous immunoglobulins 400 mg/kg/day for 05 days. He started improving gradually. His problems of dysphagia and ophthalmoplegia improved to an extent and he started taking orally. He was investigated further for any other immunological disorder. His magnetic resonance imaging of head and Tensilon test (to rule out myasthenia gravis) were performed which gave a negative result. For nerve conduction studies (NCS) and electromyography (EMG), we referred him to Armed Forces Institute of Rehabilitation Medicine Rawalpindi. NCS showed the following (i) increased latency, reduced velocity in sampled median and ulnar nerves (ii) increased latency, small amplitude and reduced velocity in sampled tibial and peroneal nerves (iii) small sensory potential in sural and ulnar nerves. EMG depicted neuropathic findings in sampled muscles. Then he was discharged but was regularly reviewed in outdoor. Pulmonary function tests were performed after two months which were normal and the patient was also absolutely free from his problem of ophthalmoplegia, dysphagia and dysarthria.

DISCUSSION

There are several variants of Guillain-Barre syndrome that don't have the characteristic of generalized weakness, one of them is Miller Fischer syndrome. It consists of areflexia, ophthalmoplegia and ataxia [3]. The male / female ratio is 2:1 with a mean age of 43.6 years at the onset of disease. A viral infection usually precedes neuronal symptoms [3,4] with an average symptom free interval of 10 days. Patients tend to complain of dizziness. Less than half develop pupillary sphincter paralysis and more than half have bilateral but often asymmetrical ptosis. Almost half of the cases don't have typical presentation but have additional features of peripheral neuropathy like oropharyngeal weakness and bifacial weakness. In about 10% of cases there is initially mild proximal weakness but later on some of them may progress to generalized GBS. Sometimes clinical presentation of patients misleads to wrong diagnosis of botulism, diphtheria or myasthenia gravis. Botulism usually has a history of intake of canned food and occurs as a descending paralysis. EMG can be useful for differential and usually shows reduced CMAP amplitude, and normal nerve conductions. Stool or serum will be positive for botulinum toxin. Neuropathy occurring as a result of diphtheria can involve cranial nerves producing diplopia, slurred speech and dysphagia. A tenacious grey membrane over tonsils and culture of clostridium diphtheriae are helpful to make this diagnosis. Myasthenia gravis rarely causes complete ophthalmoplegia and Tensilon test is also useful for its confirmation. Brainstem pathology especially ischemia may be present with multiple cranial nerve involvement. However one should expect some alteration in consciousness and imaging studies are also helpful. The symmetrical nature of ophthalmoplegia and the associated cerebellar ataxia point to centrally placed lesion. Several supranuclear, nuclear and internuclear ophthalmologic signs are identified like partial sparing of levator palpebrae muscle, normal down gaze in the presence of severe ophthalmoplegia and upper lid retraction on attempted up gaze [5] . But in our case normal reports of CT scan and MRI and absence of cerebellar involvement are suggestive of peripheral origin of Miller Fischer Syndrome. But still it has not been confirmed whether the etiology of Miller Fischer Syndrome has its roots in central or peripheral areas. Diagnosis of Miller Fischer syndrome is based on clinical findings, an elevated CSF protein and by EMG/NCS. Elevated titre of antibodies to the gangliosides GQ1b is also significant [6]. The serum IgG antibody against GQ1b is very closely associated with post infectious ophthalmoplegia in Miller Fischer Syndrome because this antibody may lead to the failure of acetylcholine release from motor nerve terminals. Treatment is with either

plasmapheresis or intravenous immunoglobulins. IVIG may neutralize circulating antibodies through anti-idiotypic antibodies, downregulate proinflammatory cytokines, may block the complement cascade and promote remyelination. Albumin used in plasmapheresis may remove auto antibodies and immune complexes from serum. Prognosis is good and most patients recover completely with no residual effects.

It is imperative that MFS should be included in the differentials of patients presenting with these symptoms. And it should not be ruled out on basis of normal CSF and MRI or inconclusive NCS/EMG. IVIG which was used in this patient helped us in getting complete remission with no residual effects. IVIG is easily available and its administration does not require any specialized institution like plasma pheresis. Therefore, it should primarily be considered in such type of patients.

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