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ABSTRACT :
Miller Fisher Syndrome (MFS) is a rare variant of Guillain-Barré syndrome (GBS) which is an idiopathic neuromuscular paralysis. It is considered as autoimmune disease because there are antibodies which attack the nerve cell fibers resulting in paralysis of muscles. This disease exhibits a classic clinical triad of ataxia,areflexia, and ophthalmoplegiawhereas it could have more neurological symptoms.Basically it is diagnosed clinically but have a serological test for its confirmation i.e. anti-GQ1b antibody levels.Here, we report a stereotypical case of MFS with all of its cardinal symptoms with addition of some other symptoms like diplopia, ptosis of an eye and unilateral facial nerve palsy. This patient presented with all of these signs and symptoms preceded by an upper respiratory tract illness. The suspected diagnosis was aided with itsserological marker anti-GQ1b antibody levels and nerve conduction studies(NCS)/electromyographic(EMG)studies and the patient was successfully treated with multiple sessions of plasmapheresis and reduction in severity of the disease was noticed.

KEYWORDS:
Miller Fisher Syndrome(MFS), Guillain-Barré syndrome(GBS),anti-GQ1b ganglioside antibodies(anti-GQ1b antibody), Upper respiratory tract illness(URTI),nerve conduction studies(NCS).

INTRODUCTION:

In 1932, James Collier was the first person to acknowledge this disease but later on it was named after Charles Miller Fisher(Canadian neurologist) who reported 3 cases in 1956[1]. This rare variant of GBS, is only noticed in about 1-5% of all cases of GBS in Western regions of world[2]. MFS symptoms usually begins within 1-2 weeks after a respiratory infection similarly to GBS with rapid evolution of its cardinal triadi.e.ataxia, are flexia, and ophthalmoplegia. The pivotal dissimilarity between MFS and other common variants of GBS is that the cranial nerves are affected first resulting in weakness of muscles within or surrounding the eye with poor balance &clumsy swaying walk. While, paralysis in other forms of GBS typically initiate in the legs[2-3]. Here, we discuss a case of young woman with likely MFS mingling with some my as the niagraves' presentation symptoms.

CASE REPORT:

A 38 years old female, married and working as a teacher presented to us with complains of double vision, drooping of left eyelid & difficulty in walking for the last 2 weeks.

These symptomswere progressive in nature & were accelerating each day. All this started after an upper respiratory tract illness which was almost 10-12 days prior to the onset of these presenting complains. The symptoms were vague at the beginning but with time they were becoming more prominent in nature andparesthesias in both upper limbs alongwith an opthalmoplegia had developed in the next few days. She had no significant past medical and surgical history. She did not complain of any bowel or urinary incontinence. Her personal history was normal with good appetite and did not have any smoking or alcohol intake history. In her family none was diagnosed and treated for any neurological diseases. She denied of taking any allopathic and herbal medicine except for herURTI (fluoroquinolones) in the recent past.

On physical examination her vitals were in normal range and she was oriented in time place and person. Her facial examination revealed that there was ptosis in left eye, could not look up and was unable to show teeth especially, left side of face. Later on in the next 1-2 day, she also had

deviation of angle of mouth (left sided).Eye examination revealed paralysis of various ocular movements in both eyes and hadonly upward and medial gazes (suggestive of 3, 4, 6 nerve palsy). The pupils were round & small. Pupillary reflex was normal in right eye but was sluggish in left eye with a mildly dilated pupil. On oral examination sense of taste and bulk of tongue was good but she was having mild difficulty in swallowing various edibles. Furthermore, palatal palsy and nasal twang to voice was also observed.There was mild sensory loss in both hands, arms and all motor reflexes were absent in upper limbs. The reflexes were normal in lower limbs but heel shin test was mildly impaired. The plantar reflex was noted flexor in both feet & showed no other focal sensory/motor deficits.The gait was ataxic & waddling in nature.

Her lab investigations revealed leucocytosis(67.2%neutrophils)& thrombocytosis in complete blood picture. The whole metabolic panel were innormal range(RFTs,LFTS,RBS).Moreover, electrocardiogram was normal and urinalysis showed no abnormalities.MRIbrainwas advised and results cameabsolutely unequivocal with mild cerebral atrophy and mild bilateral maxillary &ethmiodal sinusitisexculding completely the Multiple sclerosis. To exclude other neuromuscular diseases, such as muscular dystrophy, Myasthenia Gravis, nerve problems in the spine such as herniated disc & peripheral nerve problems in arms & legs electromyography (EMG)/NCS was done and it showed abnormal studies. In the present clinical scenario the EMG studies declared presence of small sensory amplitude in upper limb nerves (bilateral). To confirm this suspected diagnosis anti-GQ1b antibody levels were sent and came backnegative. It will be present in most of the affected individuals but more than 10% patients will have seronegative results.[7-8,10]

Then a central venous catheter was inserted infemoral vein of the patient. A total of 5 sessions of plasmapheresis were done on alternate days and her symptoms started improving after the second session. Physiotherapist was also involved and worked with patient on daily basis. She was discharged from hospital on 11thday of admission when she showed major positive development in her symptoms. The opthalmoplegia& gait was much improved as now she can move without support but still had a clumsy gait. She was asked for Outpatient follow-up after 2 weeks of discharge.

DISCUSSION:

Miller Fisher Syndrome(MFS) is a rare disease accounting more in male population than women by a ratio of approximately 2:1[3]. It is documented in wide range of ages but more commonly found in between 13 & 78 years[2].

MFS usually presents with its cardinal triad of signs/symptoms(opthalmoplegia, ataxia, areflexia). The less frequent complains associated with MFS are urinary disturbances, facial and pupillary palsies,dysesthesias of limbsand mild motor weaknesses[2]. URTI is the most common preceded event in majority of the cases of GBS and MFS (56-76%). Moreover, the frequently involvedpathogens for this ailment are Campylobacter jejuni and Haemophilus influenzae[8-9].

Mostly, opthalmoplegia is the first presenting symptom in a patient and it can be easily differentiated from other chronic diseases like myasthenia gravis andmyotonic dystrophybecause of its early onset of symptoms. The body weakness in MFS shows a descending pattern when compared to GBS (ascending paralysis) and along with eye problems(opthalmoplegia,diplopia) which is also very uncommon in it[2,5]. Areflexia, can be present in several other conditions like metabolic abnormalities(hypomagnesemia, use of medication like antidepressants), diabetes, vitamin b12 deficiency and lower motor neuron diseases. In our patient there was no history of any chronic disease, trauma or any use of drugs and all lab investigations were within normal limits except of mild leucocytosis and thrombocytosis.

Heavy metal work up was not needed firstly, as patient is a teacher so exposure to any heavy metals is very less likely(also gave no history)& secondly opthalmoplegia is not present in metal poisonings only peripheral neuropathies occurs mostly in it.

Multiple sclerosis was the first thing to be ruled out as MRI brain was absolutely normal (following the McDonald's criteria) thus omitting the need of lumbar puncture for oligoclonal bands in CSF.

A diagnosis of MFS can be made with proper history, clinical examination, focusing on the triad of symptoms, with normal metabolic panel and inconclusive or normal studies of CT/MRI. EMG should be done to differentiate it from myasthenia gravis. The anti-GQ1b ganglioside antibodies level is the most sensitive serological test and it can be raised in 90% of the patients having MFS and completely negative in normal population[3]. This antibody level is not specific for MFS but it could be present in “anti-GQ1b antibody syndrome” known for both central and peripheral nervous system deficits.

Treatment for MFS is same as it is for GBS i.e. IVIG or plasmapheresis. Our patient had 5 sessions of plasmapheresis on alternate days after which her symptoms were resolved to almost 50% of the presenting ones(opthalmoplegia& gait much improved).

Ataxia or wobbly gait and opthalmoplegia mostly resolve within 1-3 months of time period but complete recovery is forecasted within 6 months[2]. Complications are rare but it could result in respiratory failure or cardiac arrhythmias or cardio pulmonary arrest[6].

CONCLUSION:

Although, it is very uncommon disease but it carries a significant place in the list of differential diagnosis of ataxia &opthalmoplegia. This disease should be kept in mind of a clinician because the vague presentation of it makes difficult to diagnose or can be confused with other diseases.Thus, theprognosis of MFS is very good irrespective of severity of symptoms and patients return to their normal life by 6th month of the onset of disease[2].

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