

A case report on multiple sclerosis

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SUMMARY

The purpose of this case report is to illustrate the clinical manifestations of Multiple Sclerosis at the earliest stage and to show how it worsens. Multiple Sclerosis is an autoimmune disorder that affects the Central Nervous System. The prevalence of MS is increasing worldwide. This study demonstrates the early signs of MS in a 23-year-old woman, the diagnosis of RRMS, and the course of treatment.

Keywords: Multiple Sclerosis; Central Nervous System; Fingolimod

LIST OF ABBREVIATIONS : CNS: Central nervous system; OD: Once daily; MS: Multiple sclerosis; RRMS: Relapsing remitting multiple sclerosis

INTRODUCTION

Multiple sclerosis (MS), is an autoimmune-mediated disorder that affects the central nervous system and often leads to severe physical or cognitive impairments as well as neurological problems in young adults. Inflammation of the white and grey matter tissues in the CNS due to focal immune cell infiltration and their cytokines are the main cause of MS [1]. Low serum levels of vitamin D, smoking, childhood obesity, and infection with the Epstein-Barr virus are likely to play a role in the progression of the disease [2]. The course of this disease is highly varied and unpredictable. Usually, the disease is characterized by episodes of reversible neurological deficits, which is then followed by progressive neurological deterioration over time [3]. Multiple sclerosis can be broadly classified into relapsing-remitting MS (RRMS) and progressive MS. RRMS is characterized by young adulthood onset episodes of acute exacerbations followed by complete or partial recovery. Progressive multiple sclerosis (PMS) is a clinical form of MS characterized by gradual accrual of disability independent of relapses over time. Fingolimod is an oral treatment for multiple sclerosis (MS) that works to reduce disease exacerbations, delay the progression of disability, and prevent the development of new brain lesions. It works by modulating sphingosine-1 phosphate receptors. It prevents immune cells from exiting from the lymphoid tissue and reaching the inflammatory tissue. It is proven to improve the relapse rate compared to both placebo and one of the standard MS medications.

CASE PRESENTATION

A 23 years old female patient brought to the hospital ophthalmology department with the complaints of blurring of vision- right eye, for 5 days. Ophthalmology department referred the patient to neurology after examination **Tab. 1**. Her General physical examination, CNS examinations and Motor system examinations were normal. Her MRI orbit showed features suggestive of MS (BILATERAL CORONA RADIATA AND PERIVENTRICULAR FLAIR HYPERINTENSITY WITH RIGHT OPTIC NEURITIS). MRI Spine took showed ventral and dorsal cord hypersensitivity at C3 level suggestive of demyelination, C4-5 & C5-6 discs mild bulge, cord and nerve roots are not compressed. A lumbar puncture and CSF study were done, CSF routine was normal except for mild lymphocytic pleocytosis. She was given a pulse therapy of IV Steroids (Inj. Methylprednisolone 1g). 2 weeks later, planned to start Tablet Fingolimod after Varicella Zoster Vaccination. Patient later developed leg pain and numbness

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Tab. 1. Ophthalmology examination details.

	Right Eye	Left Eye
Visual Activity(UA)	-	-
Visual Activity (A)	6.6P	6.6
Anterior Segment Examination	RAPD+ Cornea clear Ac quiet Lens clear	Cornea clear Ac quiet Lens clear
IOP	14	13
Fundus Examination(Dilated)	CDR 0.3 Macula? Edema	CDR 0.3 Macula Wnl
Specific Examination: Colour Vision	Defective	Normal

of right lumbar region. She was managed with T. Pregabalin 75mg OD and other vitamin supplements. After 2 months patient again admitted under Neurology department with the complaints of numbness over right side of abdomen. MRI whole spine screening showed multifocal dorsal cord hyperintensity in D2/D3 disc level, D7 vertebral level, D8 vertebral level and D10/11 disc level-interval increase in cord abnormalities and L4/5 and L5/S1 disc show decreased height and desiccation, L4/5 disc : diffuse disc bulge with annular tear causing anterior thecal sac indentation with moderate bilateral (L>R) subarticular and foraminal zone narrowing, L5/S1 disc : mild diffuse disc bulge causing anterior thecal sac indentation, Cervical cord showed focal hyperintensity at level of tip of dens. She was planned to start T. Fingolimod on next visit. After 2 months the first dose of Fingolimod given with 6-hour monitoring. During the first few hours she developed Tachycardia and Tachypnoea which comes to normal level within minutes. After 6 hours, her ECG was taken, it was WNL and hence discharged with T. Fingolimod 0.5 mg OD. She was symptomatically better after the tablet administration.

DISCUSSION

Multiple Sclerosis is an autoimmune inflammatory disorder characterised by demyelination of axons of the Central Nervous System. The exact cause is unknown, but likely is due to a combination of environmental, immunologic, and genetic influences [1]. The number of people living with Multiple Sclerosis grows each year. The prevalence of Multiple Sclerosis around the world is about 2 and a half million people in 2022. Women are twice likely to develop MS than men. Although a person who has an immediate family member who is diagnosed with MS has an increased risk of developing the disease in the

future [2]. The clinical manifestations vary from person to person. The main signs and symptoms include, unilateral optic neuritis, diplopia, trigeminal neuralgia, facial sensory loss or motor disturbances, cerebellar ataxia, nystagmus, urinary urge incontinence, constipation, or erectile dysfunction. Multiple Sclerosis can be mainly classified into 4 types:

- Relapsing-Remitting Multiple Sclerosis
- Secondary Progressive Multiple Sclerosis
- Secondary Progressive Multiple Sclerosis
- Primary Progressive Multiple Sclerosis [3].

Fingolimod along with corticosteroids are the drug of choice for MS. Fingolimod modulates sphingosine-1 phosphate receptors and has unique immunoregulatory properties. It provides symptomatic relief in individuals with RRMS. It requires 6-hour monitoring on the first administration. It can cause bradycardia after the first dose; hence strict monitoring is required. 0.5 mg can be taken as first dose, followed by 0.25 mg daily dose.

CONCLUSION

This case study features a 23-year-old woman who presented to our hospital complaining of impaired vision. After thorough examinations and the exclusion of all other disorders, she is given the RRMS diagnosis. To choose a course of treatment, it is crucial to get a better grasp of the clinical manifestations of the patient. The treatment options include medication, physiotherapy, and exercise. Drugs simply work to relieve symptoms. Due to the high prevalence rate, it is now crucial to understand the condition.

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