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A Comprehensive Case Report of Relapsing-Remitting Multiple Sclerosis (RRMS) in a 40-Year-Old Female Patient

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ABSTRACT

Neuroinflammation, demyelination, and axonal degeneration are hallmarks of multiple sclerosis (MS), a persistent inflammatory disease of the CNS. A thorough description of a 40-year-old female patient suffering from RRMS is provided in this case report. Clinical manifestations, diagnostic evaluations, management strategies, and disease progression are explored. The report aims to provide insight into the complexity of MS management and the challenges in tailoring treatment to individual patient needs.

Keywords: *Multiple sclerosis, progressive relapsing disease, CD4+ inflammatory cells, cognitive impairment, lumbar puncture, McDonald criteria, Cerebrospinal fluid, Gadolinium-enhanced MRI*

1. INTRODUCTION

About 2.8 million individuals throughout the globe are living with multiple sclerosis; the disease is three times more common in women than in males.[1]. Many factors, including both hereditary predisposition and environmental triggers, contribute to multiple sclerosis (MS) development. [2]. It manifests in different forms, including relapsing-remitting, secondary progressive, and primary progressive MS. This case highlights the diagnosis and management of RRMS, the most common form of MS. [3]

CASE PRESENTATION

40year old female came to General Medicine OPD with complaints of Intermittent episodes of blurred vision in the right eye, numbness and tingling in the left arm and leg, lasting several weeks and fatigue. Patient was apparently asymptomatic 3 weeks back following which he developed blurring of vision in the right eye which was intermittent, numbness and tingling in the left arm and leg which was insidious in onset and gradually progressive and fatigue which was unresponsive to rest. Patient had no other specific complaints. Patient has no known co-morbidities. Patient had no significant family history. Patient was alert, co-operative and afebrile throughout examination. There were no signs of malnutrition, dehydration. There was no pallor, icterus, cyanosis, clubbing or lymphadenopathy. On systemic examination- There was decreased visual acuity in the right eye with a positive relative afferent pupillary defect (suggestive of optic neuritis),mild weakness (4/5 strength) in the left lower limb, decreased sensation to pinprick and vibration in the left arm and leg and normal reflexes and coordination. No abnormalities were found in lungs, heart or abdomen during systemic examination.

Neurology opinion was obtained- advised to do MRI Brain with MRA/MRV, ANA profile, CSF analysis and to start the patient on IV supportive neuroprotectives.The corpus callosum, periventricular white matter, and magnetic resonance imaging (MRI) T2-weighted scans indicated hyperintense lesions., and cervical spinal cord (Dawson's fingers pattern) and Gadolinium-enhanced MRI showed active lesions, indicating recent inflammation.

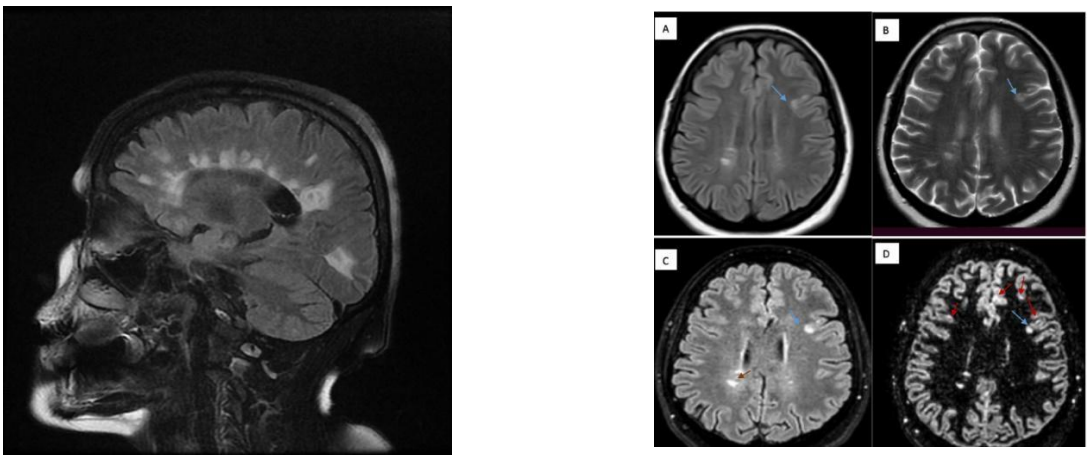

Figure 1: Gadolinium-enhanced MRI Brain showing classical "Dawson's fingers pattern"

Blood reports showed normal complete blood count and metabolic panel. ANA profile was negative for rheumatological conditions. Visual evoked potentials showed delayed latencies, consistent with optic nerve demyelination. Lumbar puncture was done and Cerebrospinal fluid (CSF) analysis revealed oligoclonal bands, a hallmark of MS. Neurology review was obtained- Opined that based on the reports and McDonald Criteria, patient was diagnosed with Relapsing-Remitting Multiple Sclerosis (RRMS). and advised to give IV steroid therapyfor 5 days and oral disease modifying therapy and symptomatic management for neuropathic pain and fatigue Patient was also advised regular exercise, balanced diet and physical therapy. Patient was advised to be in regular follow-up with neurology for further evaluation if necessary. At 3 months follow-up, patient had improved vision in the right eye and resolution of numbness in the left arm and leg and reported occasional fatigue but was otherwise stable. At 1 year follow up, MRI showed no new lesions, indicating effective disease control and patient adhered well to DMT and lifestyle modifications.

2. DISCUSSION

Swelling, breakdown of the myelin sheath, increase in the number of astrocytes and shrinkage of neurons are well-known features of Multiple sclerosis, a chronic inflammation disease of the CNS.[4] Vision loss, tingling or numbness, focal weakness, cognitive impairment, and problems with bladder and bowel function are among the many neurological symptoms that may be seen with this illness. Pathologically, symptoms differ according to the site of the lesion; nonetheless, they all stem from the breakdown of the myelin sheaths surrounding neurons caused by perivascular lymphocytic infiltration and macrophages. The four primary types of multiple sclerosis are described here, and the illness manifests itself in a variety of ways. RR, PP, SP, and PR are the four main types of progressive relapsing disease.[5] The relapsing-remitting course of multiple sclerosis is usually brought up when doctors talk about the disease since it affects so many people. A full or partial recovery may occur weeks or months after a relapse in relapsing-remitting multiple sclerosis, and in some cases, therapy is not necessary.[6] Unfortunately, if frequent relapses do not lead to a full recovery, the lingering symptoms may build up and eventually cause incapacity.[7] Although researchers have yet to pinpoint a single cause of multiple sclerosis, they have identified immunological factors, environmental variables, and genetic correlations as the three main players in the disease's development. Most research points to an autoimmune assault on the central nervous system (CNS) as the probable cause of multiple sclerosis (MS)[8]. Among other things, CD4+ proinflammatory T cells are involved in the posited "outside-in" process.[9] Latitudinal gradients, which are environmental variables, have been the subject of substantial research across a number of nations. Patients are more likely to acquire multiple sclerosis if they have a family history of the disease. In the case of coming to a diagnosis, the sick's history, physical examination, MRI, evoked potentials, CSF or blood tests, and other examinations are taken into account if other causes for the symptoms have been excluded [10]. Actual demonstration of one or more lesions or one lesion that provides pathohistochemical proof of prior relapse qualifies diagnosis of Multiple Sclerosis, which has clinical evidence of one or more relapses. Some of the best known therapies for treatment of illness modification includes natalizumab, mitoxantrone, fingolimod, dimethyl fumarate, and interferon-beta preparations [11]. Most important to initiate therapy early after diagnosis in case of multiple sclerosis. There is also long-term goals that are focused on avoiding secondary progressive multiple sclerosis while short term goals are mainly related to limiting MRI lesion activity.[12] Problems that could arise after treatment include checking for medication toxicity and making sure patients follow treatment plans.

3. CONCLUSION

This case illustrates the clinical complexity and variability of MS. To get the best possible results, it is crucial to identify symptoms early on, conduct a comprehensive diagnostic examination, and use a holistic approach to care. Ongoing research into personalized treatments offers hope for improved management of MS in the future.

REFERENCES

[1] Compston A, Coles A. Multiple sclerosis. Lancet. 2008;372(9648):1502–1517.

[2] Lublin FD, Reingold SC, Cohen JA, et al. Defining the clinical course of multiple sclerosis: the 2013 revisions. Neurology. 2014 Jul 15;83(3):278-86.

[3] Loma I, Heyman R. Multiple sclerosis: pathogenesis and treatment. Curr Neuropharmacol. 2011;9(3):409–416.

[4] Gelfand JM. Multiple sclerosis: diagnosis, differential diagnosis, and clinical presentation. Handb Clin Neurol. 2014;122:269–290.

[5] Polman CH, Reingold SC, Edan G, et al. Diagnostic criteria for multiple sclerosis: 2005 revisions to the "McDonald Criteria". Ann Neurol. 2005 Dec;58(6):840-6.

[6] Wattjes MP, Ciccarelli O, Reich DS, et al. 2021 MAGNIMS-CMSC-NAIMS consensus recommendations on the use of MRI in patients with multiple sclerosis. Lancet Neurol. 2021 Aug;20(8):653-670.

[7] Sadovnick AD. Genetic epidemiology of multiple sclerosis: a survey. Ann Neurol. 1994;36(suppl 2):S194-203.

[8] Oksenberg JR, Baranzini SE, Sawcer S, Hauser SL. The genetics of multiple sclerosis: SNPs to pathways to pathogenesis. Nat Rev Genet. 2008;9(7):516–526.

[9] Noyes K, Weinstock-Guttman B. Impact of diagnosis and early treatment on the course of multiple sclerosis. Am J Manag Care. 2013 Nov;19(17 Suppl):s321-31.

[10] Langer-Gould A, Brara SM, Beaber BE, Koebnick C. Childhood obesity and risk of pediatric multiple sclerosis and clinically isolated syndrome. Neurology. 2013;80(6):548–552.

[11] Røsjø E, Myhr KM, Løken-Amsrud KI, et al. Increasing serum levels of vitamin A, D, and E are associated with alterations of different inflammation markers in patients with multiple sclerosis. J Neuroimmunol. 2014;271(1-2):60–65.

[12] Zhang K, Lincoln JA, Jiang X, Bernstam EV, Shams S. Predicting multiple sclerosis disease severity with multimodal deep neural networks. arXiv preprint arXiv:2304.04062. 2023.