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CASE STUDY

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Neuropsychiatric manifestations in multiple sclerosis: clinical case report and review of literature

Abstract

Background: Multiple sclerosis (MS) is a neurological disability affecting young and middle-aged adults. Neuropsychiatric manifestations in the background of multiple sclerosis had been reported as a sporadic occurrence. **Case description:** Here, we report the case of a 57-year-old man who developed neuropsychiatric manifestations during the course of MS. **Discussion:** In our case, the presence of MS might be a possible reason for the neuropsychiatric manifestations. However, not many case reports have previously acknowledged wherein a patient developed neuropsychiatric symptoms secondary to multiple sclerosis. **Conclusion**: Hence, this case stresses the need for future studies assessing the relationship between multiple sclerosis and psychosis.

Keywords: Psychosis. Paresis. Demyelination.

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INTRODUCTION

Multiple sclerosis (MS) is a chronic inflammatory disease of the central nervous system (CNS) characterised by progressive demyelination, ideally in the white matter tracts of the cerebral hemispheres, optic nerves, brainstem, cerebellum, and spinal cord.[1,2] Incidence is two to three times more common in women over men with an average age of onset approximating to 30 years.[3]

Most of the patients (85%) with MS have a relapsing-remitting (RR) course, where two-thirds go on to develop a secondary progressive (SP) form, while one-third continuing with an RR course that does not result in severe disability. The enduring 15% of patients have a primary progressive (PP) course with gradual worsening of symptoms over a period of time.[4]

Classically, MS presents with motor and sensory symptoms like limb weakness, visual disturbance, ataxia, bladder and bowel dysfunction, and sensory deficits. Neuropsychiatric symptoms comprising mood, cognitive, and behavioural abnormalities transpire commonly in MS.[5-7] Depression and dysphoria were the most frequent, occurring in ~80% of cases; while anxiety, agitation, along with irritability were found in reduced fraction (33%); and euphoria, disinhibition, in addition to psychotic symptoms were found in a significantly smaller number of patients (<13%).[8]

Here, we describe a case of neuropsychiatric manifestations found in association with MS.

CASE SUMMARY

A 57- year- old man, admitted in the ward of psychiatry department presented with two weeks' history of agitation, visual hallucinations along with delusion of persecution, hallucinatory behaviour, claiming that his wife did black magic besides doubting her which led to verbal abuse and an attempt to break cupboard once. The patient had no past history or family history of any mental illness, no history of alcohol and other substance abuse. His past medical history includes hypertension, type 2 diabetes mellitus, and MS from past 17 years owing to which he was bedridden for last two and half years.

He was on natalizumab monthly injection for MS. His general and systemic examinations were clinically normal. Neurological examination revealed bilateral lower limb hemiparesis. Relevant investigations revealed vitamin B12 deficiency (<83 pg/ml) and increased white blood cell count in urine (20-25 cells). He was diagnosed with urinary tract infection (UTI) in addition to vitamin B12 deficiency for which he was treated with injections thiamine/vitamin B12 and ceftriaxone (1 g 12 hourly). Magnetic resonance imaging (MRI) of the brain in axial section with fluid-attenuated inversion recovery (FLAIR) sequence was done without diffusion restriction. There were small scattered foci of high signals in supratentorial and periventricular white matter on T2 and FLAIR sequence. Hyperintensity was observed in the periventricular white matter and few perpendicular orientations of the ventricles (Dawson's finger), suggestive of features with MS (Figure 1).

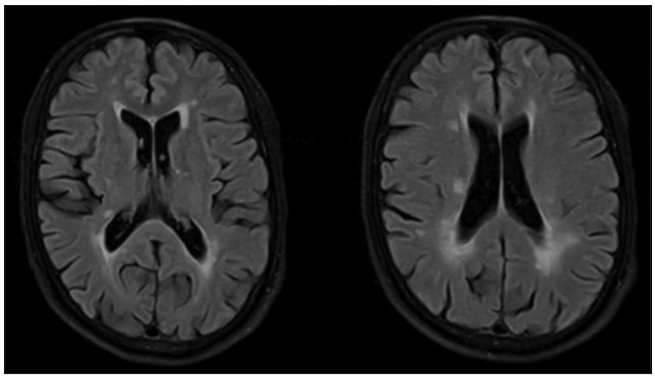

Figure 1: Dawson's finger seen in callosal septal interface.

The patient was diagnosed as psychosis secondary to MS and was started on tablet risperidone up to 3 mg and tablet lonazepam 0.5 mg. After a week patient was discharged with tablet amlodipine 5 mg, tablet risperidone 3 mg, tablet folic acid 5 mg, tablet nitrofurantion 100 mg and was maintained well during follow-up.

DISCUSSION

Structural or chemical dysfunction in one area of the brain can lead to malfunctioning in interconnected areas, escorting to numerous neuropsychiatric symptoms. A recent systematic review confirms psychiatry comorbidity, particularly depression and anxiety, is common in MS.[9] In spite of sporadic occurrence, a prevalence rate of psychotic features in the context of MS (two to three per cent) was found two to three times higher than the general population (0.5 to one per cent).[10,11]

Cognitive impairment in MS is common, affecting 30-70% of patients at some point during the course of the disease.[12] A progressive course of MS, older age, the presence of depression, and less time in education remained predictors of a more severe cognitive profile in MS patients.[13]

The precise aetiology of neuropsychiatric manifestations in MS is not acknowledged. However, the following three hypotheses has emerged: (1) psychosis and MS are not separate comorbid disorders but are assumed to share a mutual pathophysiological process;[10] (2) psychotic symptoms arise as a result of regional demyelination;[14,15] and (3) psychotic symptoms are triggered or exacerbated by medications used to treat MS, like corticosteroids and beta interferon.[16-20] In the above-reported case, psychotic symptoms might have transpired as a result of regional demyelination; however, vitamin B12 deficiency also might have contributed to the appearance of neuropsychiatric manifestations.

To the best of our knowledge, this case study is probably one of the few to report an association of psychosis with MS from India. In our case, diagnosis of MS precedes psychosis by four or more years. This is in accordance with a recent case series by Giberthorpe *et al*.[21] which discovered that apart from MS preceding psychosis, some patients with preexisting psychotic disorders might go on to develop MS several years later or patients might present with symptoms of MS and psychosis at around the same time or MS might initially present as psychosis.[22] Literature supports use of low dose antipsychotics to relieve behavioural and psychotic symptoms.[23] Our patient's symptomatic recovery primarily can be attributed to the use of psychotropic medications along with physiotherapy and other supportive pharmacological medications.

Previous literature establishes that patients with a psychiatric disorder and MS tend to have a more severe course of their MS than those without psychiatric morbidity.[14,24] Such neuropsychiatric disorders are associated with decreased adherence to MS treatment and subordinate outcomes in terms of social and occupational functioning besides quality of life.[25-27]

Conclusion

Cases like this one should appraise both physician and neurologist that MS can also be associated with neuropsychiatric manifestations like psychosis and cognitive decline. Hence, there raises the need for a multidisciplinary approach for the management of MS with neuropsychiatric manifestations.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his/her consent for his/her images and other clinical information to be reported in the journal. The patient understands that his/her name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

REFERENCES

1. Feldman EL, Cornblath DR, Porter J, Dworkin R, Scherer S; Attendees of the NIH Peripheral Neuropathy Conference. National Institute of Neurological Disorders and Stroke (NINDS): advances in understanding and treating neuropathy, 24-25 October 2006; Bethesda, Maryland. J Peripher Nerv Syst. 2008;13:1-6.
2. Clarke C. Neurology. Oxford: Wiley-Blackwell; 2009.
3. World Health Organization & Multiple Sclerosis International Federation. Atlas: multiple sclerosis resources in the world 2008 [Internet]. World Health Organization; 2008 [cited 2019 Jan 13]. Available from: https://apps.who.int/iris/handle/10665/43968
4. Sibley WA. Diagnosis and course of multiple sclerosis. In: Rao SM, editor. Neurobehavioral aspects of multiple sclerosis. New York: Oxford; 1990:5-14.
5. Feinstein A. The neuropsychiatry of multiple sclerosis. Can J Psychiatry. 2004;49:157-63.
6. Ghaffar O, Feinstein A. The neuropsychiatry of multiple sclerosis: a review of recent developments. Curr Opin Psychiatry. 2007;20:278-85.
7. Paparrigopoulos T, Ferentinos P, Kouzoupis A, Koutsis G, Papadimitriou GN. The neuropsychiatry of multiple sclerosis: focus on disorders of mood, affect and behaviour. Int Rev Psychiatry. 2010;22:14-21.
8. Diaz-Olavarrieta C, Cummings JL, Velazquez J, Garcia de la Cadena C. Neuropsychiatric manifestations of multiple sclerosis. J Neuropsychiatry Clin Neurosci. 1999;11:51-7.
9. Marrie RA, Reingold S, Cohen J, Stuve O, Trojano M, Sorensen PS, *et al*. The incidence and prevalence of psychiatric disorders in multiple sclerosis: a systematic review. Mult Scler. 2015;21:305-17.
10. Kosmidis MH, Giannakou M, Messinis L, Papathanasopoulos P. Psychotic features associated with multiple sclerosis. Int Rev

Psychiatry. 2010;22:55-66.
11. Lo Fermo S, Barone R, Patti F, Laisa P, Cavallaro TL, Nicoletti A, *et al*. Outcome of psychiatric symptoms presenting at onset of multiple sclerosis: a retrospective study. Mult Scler. 2010;16:742-8.
12. Rao SM, Leo GJ, Bernardin L, Unverzagt F. Cognitive dysfunction in multiple sclerosis. I. Frequency, patterns, and prediction. Neurology. 1991;41:685-91.
13. Borghi M, Cavallo M, Carletto S, Ostacoli L, Zuffranieri M, Picci RL, *et al*. Presence and significant determinants of cognitive impairment in a large sample of patients with multiple sclerosis. PLoS One. 2013;8:e69820.
14. Feinstein A, du Boulay G, Ron MA. Psychotic illness in multiple sclerosis. A clinical and magnetic resonance imaging study. Br J Psychiatry. 1992;161:680-5.
15. Reiss JP, Sam D, Sareen J. Psychosis in multiple sclerosis associated with left temporal lobe lesions on serial MRI scans. J Clin Neurosci. 2006;13:282-4.
16. Lewis DA, Smith RE. Steroid-induced psychiatric syndromes. A report of 14 cases and a review of the literature. J Affect Disord. 1983;5:319-32.
17. Sirois F. Steroid psychosis: a review. Gen Hosp Psychiatry. 2003;25:27-33.
18. Sechi GP, Piras MR, Demurtas A, Tanca S, Rosati G. Dexamethasone-induced schizoaffective-like state in multiple sclerosis: prophylaxis and treatment with carbamazepine. Clin Neuropharmacol. 1987;10:453-7.
19. Goeb JL, Even C, Nicolas G, Gohier B, Dubas F, Garré JB. Psychiatric side effects of interferon-beta in multiple sclerosis. Eur Psychiatry. 2006;21:186-93.
20. West S, Kenedi C. Strategies to prevent the neuropsychiatric side-effects of corticosteroids: a case report and review of the literature. Curr Opin Organ Transplant. 2014;19:201-8.
21. Gilberthorpe TG, O'Connell KE, Carolan A, Silber E, Brex PA, Sibtain NA, *et al*. The spectrum of psychosis in multiple sclerosis: a clinical case series. Neuropsychiatr Dis Treat. 2017;13:303-18.
22. Enderami A, Fouladi R, Hosseini SH. First-episode psychosis as the initial presentation of multiple sclerosis: a case report. Int Med Case Rep J. 2018;11:73-6.
23. Haussleiter IS, Brüne M, Juckel G. Psychopathology in multiple sclerosis: diagnosis, prevalence and treatment. Ther Adv Neurol Disord. 2009;2:13-29.
24. Chwastiak L, Ehde DM, Gibbons LE, Sullivan M, Bowen JD, Kraft GH. Depressive symptoms and severity of illness in multiple sclerosis: epidemiologic study of a large community sample. Am J Psychiatry. 2002;159:1862-8.
25. Mohr DC, Goodkin DE, Likosky W, Gatto N, Baumann KA, Rudick RA. Treatment of depression improves adherence to interferon beta-1b therapy for multiple sclerosis. Arch Neurol. 1997;54:531-3.
26. Tsivgoulis G, Triantafyllou N, Papageorgiou C, Evangelopoulos ME, Kararizou E, Sfagos C, *et al*. Associations of the Expanded Disability Status Scale with anxiety and depression in multiple sclerosis outpatients. Acta Neurol Scand. 2007;115:67-72.
27. Amato MP, Ponziani G, Rossi F, Liedl CL, Stefanile C, Rossi L. Quality of life in multiple sclerosis: the impact of depression, fatigue and disability. Mult Scler. 2001;7:340-4.

Kumari M, Singh H, Keerthi GDU, Mudigubba MK. Neuropsychiatric manifestations in multiple sclerosis: clinical case report and review of literature. Open J Psychiatry Allied Sci. 2020;11:127-9. doi: 10.5958/2394-2061.2020.00018.X . Epub 2020 Apr 12.

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