Mild cognitive impairment in multiple sclerosis – case report

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CASE REPORTS

ABSTRACT

Multiple sclerosis (MS) is a chronic autoimmune disease that affects the central nervous system, including the brain, spinal cord, and optic nerves. Symptoms vary from muscle weakness to vision loss and tend to worsen during flares and improve during periods of remission.

Psychiatric symptoms are common in people with MS, impacting the quality of life and some features of MS (fatigue, sleep, disability, adherence to disease-modifying drugs). The main psychiatric manifestations of MS are depressive, bipolar, anxiety, schizophrenic, and obsessive–compulsive syndromes.

We will present the case of a 46-year-old female patient who came to our clinic for disorientation to time and space, impaired recent and recall memory, auditory hallucinations, sad mood, irritability, and slightly decreased appetite for food.

Keywords: multiple sclerosis, psychiatric symptoms, depression, psychosis, cognitive impairment

INTRODUCTION

Multiple sclerosis (MS) is a chronic progressive autoimmune disease of the central nervous system (CNS) in which inflammation, demyelination, and axonal loss occur in the early stages. The disease course can be highly variable across individual patients. Despite significant treatment advances in recent years, MS remains one of the most frequent causes of neurological disability in young people. The onset of MS usually occurs between 20 and 40 years of age; women are two to three times more frequently affected than men, and this difference is increasing in some areas of the world [1].

The underlying cause of MS remains unclear, and it involves a constellation of mechanisms, although complex gene-environment interactions almost certainly play a significant role. Traditionally, MS is conceptualized as a two-stage disease, with inflammation occurring in the early phase responsible for relapsing-remitting disease, while delayed neurodegeneration causes non-relapsing progression, as in secondary and primary progressive MS [3].

MS can present in various ways, most commonly with optic neuritis, brainstem, and spinal cord syndromes. From a phenotypic point of view, current MS classifications include clinically primary-progressive MS, secondary-progressive MS isolated syndrome, relapsing-remitting MS, radiologically isolated syndrome [4].

Psychiatric comorbidities are frequently seen in MS and can affect up to 95% of MS patients during their lifetime. The highest association is with depression, with a prevalence of 50%, followed by anxiety, with a prevalence of 14 to 41%. In addition, the bipolar disorder appears to be twice as common in those with MS as in the general population, and psychotic elements are found to affect 2-3% of MS patients [4].

CASE REPORT

We discuss the case of a 46-year-old patient with a psychiatric history and multiple somatic comorbidities, discharged prior to the presentation from an Emergency Hospital for behavioral disorders and a confusional state, which started approximate-
ly four weeks prior the admission and short episodes of approximately 30 seconds of “staring into space” and head movements during the last four days.

The patient comes to the hospital for disorientation to time and space, impaired recent and recall memory, auditory hallucinations, sad mood, irritability, sleep impairment, poor appetite. The symptomatology started one year prior to our evaluation.

Regarding family medical history, it is worth noting that her mother had a history of cardiovascular disease, and her sister has been diagnosed with hepatitis B. However, there is no known history of psychiatric disorders in her family.

The patient’s medical history revealed that menarche occurred at age 10. She has been pregnant four times, of which she gave birth once, and had three elective abortions. In 1988, she was diagnosed with recurrent, relapsing-remitting MS, which onset with paresthesia in the lower limbs. In the 1990 and 1993 episodes, she exhibited right hemiparesis and cerebellar syndrome symptoms. In 2014, she was diagnosed with permanent atrial fibrillation. In addition, she had a pacemaker implanted in 2018 due to sinus node dysfunction.

The patient denies alcohol consumption, smokes five cigarettes daily, and drinks one coffee per day.

The patient interrupted her studies after ten years of school and worked as a seamstress until 2002, when she medically retired at the age of 30. She was married and, at the time of evaluation, was living with her husband and son in a flat in an urban area.

Pre-admission treatment was Acenocoumarol 2 mg/day, Metoprolol 200 mg/day, Diltiazem 180 mg/day and Perindopril 5 mg/day.

During the initial psychiatric assessment, the patient was alert, neatly groomed and with maintained hygiene. Her attitude was cooperative. Psycho-visual contact was easy to initiate and maintain. She was partially oriented to time and space. The patient exhibited anxiety symptoms and slightly suspicious behavior with slow and hesitant speech. She demonstrated difficulty maintaining and concentrating her attention. She had impaired short-term and long-term memory, especially episodic memory being affected. “My husband told me I put the milk in the bathroom cabinet and the iron in the refrigerator.” “The thought that I have some debts crushes me, but I do not remember how much and to whom,” “I often forget to take my medicines”. She carried a notebook to write down the room number and treatment administration schedule. She experienced delusions of persecution “I had the impression that someone was following me on the street,” and auditory hallucinations “I have been hearing whispers for about a year now. There are male and female voices talking to each other. I do not understand what they are saying”. She was sad and irritable and had recurrent thoughts of death without plan or method “I often have thought of death, I want to escape, but then I think of my husband and my boy”. Mental calculus was made with difficulty. The ability to generalize was preserved. She also experienced mixed insomnia and had a poor appetite. The patient had partial insight into her condition, as she was aware of her memory disorder but had a diminished capacity for reality testing.

Physical examination showed a blood pressure of 100/60 mmHg and cardiac arrhythmia. Neurological examination showed left central facial paresis, left hemiparesis (4/5 brachial BMRC, 4/5 crural BMRC), Achilles DTR absent bilaterally, CPR in extension absent bilaterally, left superficial hemihypesthesia.

Psychological examination describes depressive and anxious symptoms, decreased pleasure for activities previously considered pleasant, and decreased appetite. Letter verbal fluency=4 words/minute, semantic group verbal fluency=7 words/minute. Mathematical calculus made with difficulty, biography errors and auditory hallucinations. She scored 20/30 points on MMSE (Mini Mental State Examination) and 10/10 points on Clock Test. The GAF (Global Assessment of Functioning) score was 30.

The laboratory tests indicated subtherapeutic INR results in the coagulation tests.

Native brain CT showed no acute endocranial lesions, spontaneously discrete cortico-subcortical hypodense area in the right anterosuperior frontal lobe, no other hetero-dense lesions, expansive processes, or visible native infra or supratentorial changes, symmetrical ventricular system, with normal dimensions, the structures median line not deviated, symmetrical cortical relief with normal appearance.

Echocardiography showed moderate mitral regurgitation, mitral valve with normal appearance, and left atrial dilatation; without any other changes, while the ECG showed atrial fibrillation.

Corroborating the anamnestic data with the results of clinical and paraclinical investigations, and according to DSM-IV criteria, we support the diagnosis of mild neurocognitive disorder (MND) secondary to a medical condition, respectively MS.

The criteria for mild cognitive impairment (MCI) are met since the patient declared a slight decline compared to the previous level of functioning, a decline documented by a standardized neuropsychological assessment, which does not affect daily functionality, the patient finding compensatory strategies. The cognitive deficit did not occur during delirium and was not better explained by another mental disorder, such as major depressive episode or brief psychotic disorder. Moreover, there was evidence from
the medical history, clinical examination, and results of imaging investigations that MCI was a direct physiological consequence of MS and cognitive deficits are not better explained by another mental disorder or neurocognitive disorder (Alzheimer’s, HIV infection).

The patient had several somatic comorbidities, such as MS relapsing form, left hemiparesis, permanent atrial fibrillation under oral anticoagulant treatment (with subtherapeutic INR), and a permanent pacemaker for sinus node disease.

Current psycho-stressful aspects impacting the course of the condition were the lack of a job, discontinuation of injectable treatment with glatiramer acetate (Copaxone) due to increased risk of bleeding, delayed in initiation of oral immunomodulatory therapy with Teriflunomide (Aubagio) due to its lack of availability in the national program for multiple sclerosis.

Differential diagnosis was made with delirium, intoxication or withdrawal from substance abuse, major depressive episode with psychotic features, Alzheimer’s disease, Pick disease, and vascular MCI.

Delirium was excluded since the symptoms did not fluctuate throughout the day, and the onset was not during a short period of deterioration of attention and state of consciousness. Intoxication or withdrawal from a substance was excluded after thorough anamnesis, objective examination, and paraclinical explorations since there was no data to support the consumption of substances. Memory deficits and other cognitive impairments may accompany a major depressive episode with psychotic features, but the signs and symptoms related to mood improve once the affective episode is in remission. In Alzheimer’s disease, the memory deficit is accompanied by apraxia, agnosia, aphasia, and Pick disease presents with behavioral changes. There is no history of cerebrovascular event to support vascular MCI.

The general therapeutic objectives included emotional wellbeing, addressing memory impairment and hallucinations, achieving remission of mood and psychotic disorders, preventing relapses, and maintaining the safety and tolerability of pharmacological treatment with the avoidance of adverse effects and therapeutic risks.

She was prescribed psychopharmacological treatment consisting of Tianeptine 37.5 mg/day, Quetiapine 100 mg/day, Zolpidem 10mg/day, and neurotrophic peptidergic drug Cerebrolysin 215.2 mg/day in saline infusion 500 ml/day. Following treatment, her condition improved with the remission of psychotic symptoms and betterment in memory and affective disorder.

CONCLUSION

Psychiatric comorbidities tend to co-occur at a high rate regardless of the course of the disease, with an exacerbation of symptoms during flare-ups. Excepting the case of psychotic episodes where men are more likely to be affected, women tend to have a higher prevalence of other psychiatric disorders. The particularity of this case is the presence of numerous somatic conditions, which can complicate treatment by contributing to cognitive decline and limiting the use of psychotropic medications to manage affective and hallucinatory symptoms.

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REFERENCES