Neurosyphilis in a middle-aged woman with rapid cognitive decline and psychosis: A case report

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Dear editor,

Neurosyphilis is an infection caused by the Treponema pallidum bacterium, affecting the central nervous system[1]. Considering the mutable manifestations of neurosyphilis, its diagnosis should be suspected in patients presenting psychiatric symptoms, including psychosis[2], mania[3], and decline in cognitive function[4]. Furthermore, early differential diagnosis may facilitate its treatment management and improve its prognosis. Therefore, the possibility of organic etiology, including neurosyphilis, should be considered by clinicians when neuropsychiatric manifestations develop.

We report the case of a 44-year-old female patient, who continuously reported rapid cognitive decline, auditory hallucination, and persecutory delusion for 1 year and was admitted to the psychiatric ward of our hospital. Although a suboptimal therapeutic dose of antipsychotic was administered to the patient the previous year to alleviate her psychotic symptoms, extrapyramidal symptoms (EPS) were observed. While unsteady gait with frequent falls were reported in the following months, brain computed tomography and magnetic resonance imaging did not show any significant findings. Single-photon emission computed tomography revealed mild decreased frontal and parietal perfusion.

Given the patient's Mini-Mental State Examination score of 10/30, the possible organic cause of her rapid cognitive decline was evaluated. Therefore, syphilis testing was also arranged. Following serologic tests on blood serum, rapid plasma reagin (RPR) and treponema pallidum hemagglutination (TPHA), positive results were observed at serum titers of 1/8 and >1/5120, respectively. In contrast, the cerebrospinal fluid (CSF) analysis reported both the protein and glucose levels to be 46 and 69 mg/dl, respectively, and an absence of white blood cells. In addition, the RPR and TPHA were positive at 1/2 and >1/5120 serum titers, respectively. As a result, the neurologist confirmed the neurosyphilis diagnosis. Therefore, a benzathine benzylpenicillin treatment was prescribed to the patient, together with an amisulpride (200~600 mg/day) and valproate (1200 mg/day) therapy to alleviate her psychiatric symptoms. The patient was thus able to maintain relatively stable mental conditions in the nursing home for more than a year and admission to acute psychiatric ward was not required.

This case report may support the consideration of neurosyphilis as a differential diagnosis for patients with psychotic symptoms, especially when combined with rapid cognitive decline, sensitivity to antipsychotics, and neurological symptoms. Indeed, an early diagnosis is fundamental for a successful treatment. Irreversible neuronal loss may occur as progressive of disease[5]. In a previous paper, O'Neil and McCaffrey suggested the selective serologic screening of five groups: subjects with signs of an organic component, a clinical picture of dementia, abnormal neurological signs, atypical illnesses not responding to treatment, and taking risky sexual behaviors[6]. In addition, a combination of valproate and a low to moderate dose of amisulpride was here reported to be effective for the treatment of psychotic symptoms and aggressive behavior in this EPS-vulnerable patient.

To conclude, serologic tests for syphilis should be included in the differential diagnosis of patients with psychotic symptoms, especially when combined with cognitive decline or other neurological symptoms. Importantly, an early intervention can prevent neuronal damage and improve the prognosis of patients.

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