

ORGANIC PERSONALITY DISORDER SECONDARY TO NEUROCYSTICERCOSIS: A CASE REPORT

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ABSTRACT

Neurocysticercosis is the most common type of neuroparasitic infection. In this condition, the central nervous system (CNS) is infested with larvae from the tapeworm *Taenia solium*. Reported neuropsychiatric manifestations associated with neurocysticercosis include depression, cognitive dysfunction, dementia, and visual hallucinations. Organic personality disorder is a behavioral and personality change that may be a residual or concomitant disorder resulting from brain injury, dysfunction, or disease. There is no literature linking neurocysticercosis and personality disorders. In this article, we report a novel case of a 58-year-old man presenting with personality disorder after a neurocysticercosis episode. Upon evaluation, the patient displayed impulsivity, poor inhibitory control, expressed thoughts of killing his wife, and showed no remorse. He has a history of alcoholism and neurocysticercosis with 19 cysts on imaging studies at the age of 10. The patient's personality prior to the neurocysticercosis episode was characterized as hyperthymic. Diagnostic hypotheses of bipolar affective disorder type 2, corticobasal dementia, and organic personality disorder secondary to neurocysticercosis are raised. The literature presents poorly understood mechanisms behind the development of mental disorders due to neurocysticercosis. Cases of mental disorders associated with neurocysticercosis and its high prevalence in the psychiatric population are well-documented. We conclude that this report is novel and highly significant in encouraging further studies on mental disorders associated with neurocysticercosis, promoting clinical investigation of this condition in psychiatric patients, and encouraging investigation in patients with personality disorders.

Keywords: Neurocysticercosis, Personality disorders, Neurocognitive disorders, Delirium, Neglected diseases.

INTRODUCTION

Neurocysticercosis is the most common type of neuroparasitic infection. Currently, it affects more than 50 million individuals worldwide. In this condition, the central nervous system (CNS) is infested with larvae from the tapeworm *Taenia solium*. It is transmitted via the fecal-oral route and is associated with poor hygiene conditions. The diagnosis is based on neuroimaging and serology. Reported neuropsychiatric manifestations associated with neurocysticercosis include depression, cognitive

dysfunction, dementia, and visual hallucinations. Depending on the location of the cysts in the CNS, focal neurological or psychiatric symptoms may manifest.¹ A Brazilian study showed that up to 75% of severe mental disorders are associated with neurocysticercosis, and more than 15% of patients with neurocysticercosis develop psychotic disorders. According to the DSM-V TR, organic personality disorder is a behavioral and personality change that may be a residual or concomitant disorder resulting from brain injury, dysfunction, or disease.² There is no literature linking neurocysticercosis and personality disorders. In this article, we report a case of a 58-year-old man presenting with a personality disorder after an episode of neurocysticercosis.

CASE REPORT

The patient is a 58-year-old, male, black, married, public servant from the interior of Goiás. He started psychiatric follow-up in 2024 at a psychiatric service in Goiânia-GO. At that time, the patient reported a 15-year history of Othello syndrome, exhibiting pathological jealousy toward his wife. Seven years ago, he began showing a low frustration threshold, with crying and agitation when contradicted. He also presented depressive symptoms at that time, and was prescribed Fluoxetine 20 mg and Sodium Valproate 500 mg. He has continued to use these medications until the consultation. One year ago, he began experiencing atypical postural/kinetic tremor in his left upper limb and jaw. During the consultation, the patient exhibited impulsivity, poor inhibitory control, talked about killing his wife, and showed no remorse. On mental examination, the patient was logorrheic, with a prolix speech, dysphoric mood, some irritability, and a lack of insight. No abnormalities were found on physical examination. He has a history of alcoholism and neurocysticercosis, with 19 cysts detected on imaging at the age of 10. Prior to the neurocysticercosis episode, his personality was characterized as hyperthymic. He has a family history of siblings with bipolar affective disorder. The diagnostic hypotheses raised include bipolar affective disorder type 2, corticobasal dementia, and organic personality disorder secondary to neurocysticercosis. Given the clinical presentation, the following interventions were made: fluoxetine was discontinued, Sodium Valproate was increased to 1 g/day, and Olanzapine 5 mg/day was introduced.

DISCUSSION

There is limited data in the literature on the mechanisms by which this disease causes mental disorders. The presence of parasites can cause structural changes in the CNS, with significant involvement of immune mechanisms, leading to edema, reactive gliosis, and arachnoiditis, which in turn may influence proliferative endarteritis with lumen occlusion and hydrocephalus. As a result of all this, it can lead to intracranial hypertension and brain edema. These mechanisms depend on the parasitic load and the location of the parasites in strategic areas of cognitive and affective levels.³

In an observational study that evaluated individuals with neurocysticercosis using the Mini-Mental State Examination, 38.75% of these patients showed cognitive deficits.⁴

There are case reports in the literature associating neurocysticercosis with frontotemporal dementia, bipolar affective disorder, and suicidal ideation.⁵⁻⁸

A Brazilian observational study found that in patients with neurocysticercosis, 65.8% had psychiatric disorders, 87.5% had cognitive decline, 52.6% had depression, and 14.2% had psychosis.⁹ In a case-

control study in Venezuela, the prevalence of neurocysticercosis was observed in 18.35% of patients admitted to a psychiatric hospital and in 1.57% of the controls.¹⁰

Given this, it is noted that there are poorly understood mechanisms by which mental disorders are produced as a result of neurocysticercosis. Mental disorders associated with this condition and its high prevalence in the psychiatric population are well documented in the literature. It is questioned whether the presence of a mental disorder increases the risk of poor hygiene conditions and, consequently, of neurocysticercosis.

No other case reports were found in the literature associating organic personality disorder and neurocysticercosis.

CONCLUSION

We conclude that this report is unprecedented and of great importance in encouraging further studies on mental disorders associated with neurocysticercosis, promoting clinical investigation of this condition in psychiatric patients, and encouraging the investigation of this condition in patients with personality disorders.

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