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Case Report

Psychiatry/Mental Health Section

Organic Manic Episode: A Case Report on an Uncommon Presentation of Neurocysticercosis

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ABSTRACT

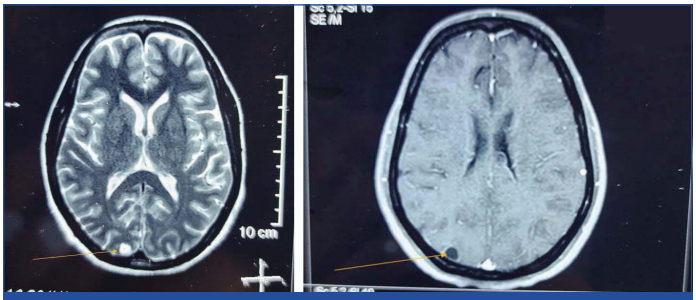
Neurocysticercosis is the most commonly encountered helminthic infection of central nervous system caused by the larval stage of *Taenia solium*. The most common psychiatric manifestations seen in neurocysticercosis are depression, anxiety and psychosis. However, mania as a neuropsychiatric presentation is uncommon. The index case is a 34-year-old married female who presented to a tertiary medical centre with symptoms of fever, headache and dizziness for a period of two months. She was subjected to detailed evaluation by the Neurology Department of the institution. Magnetic Resonance Imaging (MRI) images showed cystic lesions in the right occipital lobe and in the intraventricular areas, demonstrating vesicular stage of cysticerci. She was treated with albendazole, antiepileptics and a short course of steroids and was discharged following resolution of symptoms after two weeks. Within days following discharge, patient started exhibiting behavioural changes suggestive of mania and was brought to the Psychiatry Outpatient Department and managed as a case of organic manic episode with mood stabilisers and antipsychotics. Patient improved symptomatically within two weeks and is presently being monitored on an outpatient basis. The present case shows a rare presentation of neurocysticercosis and the significance of early recognition and treatment of the psychiatric manifestations.

Keywords: Behavioural changes, Cystic lesions, Helminth, Mood disorder, Neuropsychiatry, Psychiatry

CASE REPORT

A 34-year-old married female, homemaker, who was apparently healthy, presented to the outpatient psychiatry department of a tertiary medical centre with a sudden onset of behavioural changes in the form of increased energy, excessive talk, inflated self-esteem, spending spree and reduced need for sleep. These changes were noticed for the past 20 days. Two months prior to the consultation patient had developed high grade fever, recurrent attacks of dizziness and severe headache for 10 days and had presented to the Neurology Outpatient Department of the same institution. Patient was investigated thoroughly. Raised total leucocyte count was detected (12.3×10^9/L), indicating infection. Other blood investigations including red cell count, packed cell volume, erythrocyte sedimentation rate, urea, sugar and liver function test, thyroid profile and electrocardiogram were within normal limits. Imaging studies by the Neurology Department revealed cystic lesions located in the right parieto occipital lobe (8×9×8 mm), parenchymal and intraventicular (right frontal horn)- vesicular stage [Table/Fig-1,2]. Diagnosis of neurocysticercosis was confirmed based on clinical and radiographic findings.

Patient was treated with albendazole 400 mg twice daily for three weeks, levetiracetam 500 mg once a day (at night) and two weeks course of tab dexamethasone 4 mg once a day (in morning).



[Table/Fig-1]: T2 weighted axial section at the basal ganglial level shows a hyperintense foci of size in right parieto-occipital region.
[Table/Fig-2]: T1 weighted axial section post contrast image shows a intra axial rim enhancing hypointense foci of size 8×9×8 mm in the right parieto-occipital region. (Images from left to right)

Patient was discharged from neurology ward after a period of two weeks following resolution of fever, dizziness and headache. Steroid therapy was tapered and stopped prior to discharge. Albendazole 400 mg twice daily was given for one week. She was advised to continue tab levetiracetam 500 mg once daily (at night) and to report for regular follow-up.

Within days of discharge, the patient started exhibiting behavioural changes. Patient was noticed to be overactive and talking excessively. She cooked food in excess and distributed it to her neighbours. She appeared cheerful throughout and indulged in extravagant purchases. She borrowed large sums of money without her family's knowledge. Patient remained awake throughout the night and was busy with her household chores very early in the morning. She would however leave most of the chores half done. She was irritable towards her children and neglected her household responsibilities. Her behavioural changes soon resulted in severe functional impairment. Hence, the patient was brought to Psychiatry Outpatient Department for treatment.

Past medical history included seizure disorder for which she was on regular medication for a duration of 19 years. She had stopped medication for the past eight years as advised by the doctor and she has remained free of seizures till date. There was no past or family history of psychiatric illness. History revealed a well adjusted premorbid personality. Mental status examination revealed an alert and co-operative patient. She was easily distractable to environmental cues. Rapport was good. Quantum, tone, tempo of speech was increased. Mood was cheerful. Examination of thought revealed inflated self-esteem. Higher mental functions were assessed using strub and black mental status examination and the patient was assessed to have impaired social judgement and grade 1 insight [1]. Blood investigations including complete blood count, liver function test, renal function test, serum electrolytes, fasting and postprandial blood glucose, glycated haemoglobin (HbA1c), lipid profile, thyroid function test and Electrocardiogram (ECG) showed no abnormality. As per International Classification of Disorders, 10th edition a diagnosis of F06.30 organic manic disorder was made [2]. Patient was treated with tab sodium valproate 500 mg once daily (at night), tab risperidone 2 mg once daily

(2 tablets at night), tab levetiracetam 500 mg once daily (at night), tab lorazepam 2 mg once daily (at night), tab trihexyphenidyl 2 mg once daily (in morning). Patient showed improvement and was discharged within 2 weeks as the patient's psycho motor activity became normal and the mood became euthymic with normal biological functioning. At the time of discharge she had grade 3 insight assessed using strub and black mental status examination [1]. The patient is on regular follow-up and is functioning well. Cognitive behavioural therapy is planned for a later date on an outpatient basis.

DISCUSSION

Neurocysticercosis is the most commonly encountered helminthic infection of central nervous system [3]. It is caused by the larval stage of the tapeworm, *Taenia solium*. It is a severe form of parasitic infection and affects more than 50 million individuals worldwide. Humans acquire the infection by ingesting under cooked pork containing cysticerci. Neurocysticercosis has a pleomorphic clinical presentation [4,5]. The most common initial clinical presentation is epilepsy and occurs in about 50-80% of patients. Headache is the next common presentation occurring in 40% of patients. Headache simulates migraine like or those associated with raised intracranial tension. Other clinical manifestations include visual changes, confusion, ataxia and neuropsychiatric symptoms [6,7].

Neurocysticercosis presenting with psychiatric manifestation often results in a diagnostic dilemma. Previous studies have revealed that the most common psychiatric manifestations are depression, anxiety and psychosis [8-10]. Mania is an unusual presentation of neurocysticercosis [11]. The present case report describes an unusual case of mania in a patient presenting with multiple neurocysticercosis.

Neurocysticercosis is a widely prevalent parasitic infection and its prevalence in rural areas of developing countries reaches 4% [8]. Although, many cases remain asymptomatic, they may present with epilepsy, headache, haemiplegia, psychiatric symptoms, ophthalmological and endocrinological symptomatology [12].

Psychiatric abnormality especially depressive symptoms are common in patients with neurocysticercosis. Forlenza OV et al., study on 38 outpatients with neurocysticercosis revealed depression (52.6%) as the most common psychiatric diagnosis [8]. An Indian study by Srivastava S et al., on 50 patients with neurocysticetcosis showed that 68% of patients exhibited major psychiatric disorders [9]. Major depression and mixed anxiety depression were the two most common diagnoses.

Reviewing various studies, the common psychiatric disorders encountered were depression, psychosis and anxiety [7-11]. Manic presentations are rare. There is a dearth in the research pertaining to organic mood disorders particularly following neurocysticercosis. Literature review is presented in [Table/Fig-3] [11,13-15].

Author and year of study	Findings from studies	Management
Batra S et al., 2021 [15]	A 23-year-old married female, Known case of neurocysticercosis and seizure disorder, presenting with depression followed by mania	Depression-desvenlafaxine 100 mg Mania followed by seizure -dexamethasone 8 mg, phenytoin 200 mg, antihelminthic, Risperidone-6 mg, Carbamazepine 600 mg
MonederoCañas G et al., 1997 [13]	Manic syndrome secondary to neurocysticercosis	Risperidone
Gournellis R et al., 2019 [11]	Neurocysticercosis followed by manic and depressive episodes	Long-acting injectable olanzapine 210 mg twice a month in monotherapy
Mishra BN and Swain SP, 2004 [14]	A 20-year-old unmarried female with neurocysticercosis presenting with manic episode associated with seizure	Mania-Haloperidol, Carbamazepine

[Table/Fig-3]: Literature review describing the manic presentations in neurocysticercosis [11,13-15].

CONCLUSION(S)

The index case is an explicit case of mania resulting due to neurocysticercosis. The case highlights the need for appropriate psychiatric referral and timely treatment of psychiatric disorders encountered in neurocysticercosis. The possibility of a general medical condition should always be considered on evaluating patients with psychiatric symptoms.

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