Brain Tumor Presenting Mania Symptoms: A Case Report

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Received: 21 Jan. 2025; Accepted: 04 Jun. 2025

Abstract- Brain tumors manifest with neurological symptoms as a result of mass effects. Occasionally, brain tumors may manifest with an initial psychiatric presentation in the absence of neurological deficits or symptoms. We present a case of a 54-year-old woman who showed increased energy, elevated mood, delusions, and headache. Symptoms of psychosis and mania began about two months ago and have worsened over the past month. Neurological examinations are normal. MRI of the brain confirmed the tumor on the left frontal lobe. A craniotomy and tumor resection were performed and the final diagnosis was meningioma (meningotheliomatous, WHO grade I). However, manic symptoms have been documented to occur more frequently in right frontal tumors. Early neuroimaging and a high index of suspicion are crucial to avoid misdiagnosis and ensure timely treatment of brain tumors with psychiatric symptoms.

Acta Med Iran 2025;61(July-August):264-266.
https://doi.org/10.18502/acta.v63i4.20174

Keywords: Meningioma; Neurosurgery; Glioma; Brain tumor; Psychiatric symptom

Introduction

Brain tumors are relatively prevalent, with an annual incidence of 7-9 per 100,000 for primary brain tumors and 8.3-14.3 per 100,000 for metastatic brain tumors (1). These tumors are classified based on their anatomical location or histopathological features. Primary brain tumors originate within the brain tissue, while metastatic tumors spread from other sites. Metastatic brain tumors often present with more pronounced neuropsychiatric symptoms (2). Gliomas are the most common primary brain tumors (3). Non-glial tumors include meningiomas, craniopharyngiomas, pituitary adenomas, schwannomas, pineal gland tumors, and germ cell tumors (3).

A wide spectrum of psychiatric symptoms may be associated with brain tumors, including depression, anxiety, panic attacks, cognitive impairment, changes in motivation or personality, hallucinations, mania, and psychotic symptoms that can mimic schizophrenia (4). Although rare, psychosis due to brain tumors is often misdiagnosed, particularly in the absence of overt neurological signs. One study found that psychiatric symptoms were present in 78% of brain tumor cases, but were the initial presentation in only 18 of 530 patients (5). Psychosis secondary to brain tumors is more common and challenging to diagnose in older adults, with symptom severity influenced by tumor location, progression, and duration. Although correlations between specific tumor locations and psychiatric manifestations exist, predicting symptoms based on location remains difficult (6).

Here, we present the case of a 54-year-old woman with a long history of mood disorder and depression without significant neurological findings, whose recent psychiatric symptoms led to the diagnosis of a meningioma.

Case Report

A 54-year-old woman was admitted to a psychiatric hospital with severe, progressive mood and behavioral changes over the preceding eight weeks. On admission, she exhibited increased energy, elevated mood,

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delusions, blurred vision, and a headache localized to the left side of her forehead. Neurological examination was unremarkable, and there was no history of seizures. Mental status evaluation revealed manic and psychotic features.

Her medical history was notable for major depressive disorder (MDD), hypertension, and a prior cerebrovascular accident (CVA). The patient's social history was significant: She lost her mother as a child, was adopted, married at age 15, and divorced at 20, with two daughters from her first marriage. She had no contact with her daughters for 22 years and made three suicide attempts during prolonged periods of untreated depression. She remarried 10 years ago, had four miscarriages, and currently lives alone, with her husband visiting daily.

During psychiatric assessment, she appeared well-groomed but often laughed inappropriately and answered questions after long pauses. She was uncooperative with the MMSE and had a history of poor medication adherence, having discontinued antidepressants for some time. Psychotic and manic symptoms—including increased appetite, overindulgence, aggression, abnormal behaviors, and episodes of undressing in public—had begun two months prior and worsened recently. Auditory hallucinations were reported, including a child's voice telling her "Keep your hands off me." At times, she was inattentive and non-communicative.

Repeated neurological assessments remained normal, with no evidence of imbalance or rigidity. Laboratory tests showed elevated fasting blood glucose (162 mg/dL; ref: 108-121 mg/dL) and anemia (hemoglobin 10 mg/dL; ref: 12-16 mg/dL).

A cranial CT scan revealed a midline shift, confirmed by MRI to be due to a left frontal lobe mass (Figure 1). Following consultations with internal medicine and cardiology, she was transferred to neurosurgery, where craniotomy and resection of a left frontal meningioma (meningotheliomatous type, WHO grade I) were performed.

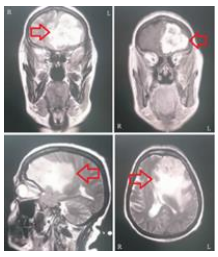

Figure 1. Magnetic resonance imaging (MRI) images of the patient's brain from multiple views, demonstrating a left frontal lobe mass (meningioma)

Postoperatively, the patient's psychiatric symptoms resolved, and management of newly diagnosed diabetes mellitus was initiated. She was discharged in good general condition, returned to outpatient psychiatric follow-up, and is currently treated with sertraline.

Discussion

This case highlights the complex relationship between brain tumors and psychiatric symptoms, particularly when psychiatric features precede overt neurological deficits. Our patient presented with prominent manic and psychotic symptoms, eventually leading to the diagnosis of a left frontal meningioma. This reinforces the critical need for clinicians to consider organic etiologies, including brain tumors, in patients with unusual or treatment-resistant psychiatric symptoms.

A growing body of literature indicates that psychiatric symptoms, although often nonspecific, may serve as the initial or sole manifestation of intracranial neoplasms in a subset of patients (7-12). Reported psychiatric presentations include mood alterations, psychosis, personality changes, and cognitive impairment, and these can closely mimic primary psychiatric disorders. Notably, our case involved mania as a dominant feature, an uncommon presentation for left frontal lobe lesions (13), where depressive symptoms and akinesia are typically more prevalent (14). In contrast, manic symptoms are more frequently associated with right frontal involvement or right hemisphere tumors. Nonetheless, exceptions exist, and as demonstrated here, atypical presentations pose a diagnostic challenge.

Psychotic symptoms and behavioral disturbances have been reported with tumors located in various brain regions, including the frontal and temporal lobes, cerebral cortex, pituitary, and hypothalamus (15). Frontal lobe tumors, in particular, are associated with a broad spectrum of neuropsychiatric disturbances, including disinhibition, aggression, altered appetite, and abnormal laughter. Our patient's presentation with excessive appetite and inappropriate laughter is consistent with these observations.

Past psychiatric history and medical comorbidities can further complicate diagnostic clarity. In this case, a longstanding history of major depressive disorder and poor medication adherence may have delayed suspicions of an underlying organic process. Furthermore, newly diagnosed diabetes and long-standing hypertension may have played a contributory or confounding role,

although their direct relationship to symptom onset remains uncertain.

This case emphasizes the importance of maintaining a high level of suspicion of organic brain disease in patients with new, atypical or rapidly progressive psychiatric symptoms, particularly when these cannot be fully explained by existing psychiatric diagnoses and when neurological findings are subtle or absent. Misattribution of neuropsychiatric symptoms to a primary psychiatric disorder can delay diagnostic imaging and thus postpone potentially life-saving interventions.

Early neuroimaging should be considered in psychiatric patients with atypical features, late-onset symptoms, or poor response to standard treatments. Timely identification of tumors can significantly improve outcomes and quality of life (11,16). By integrating clinical vigilance with appropriate diagnostic strategies, clinicians can help prevent detrimental delays in the management of patients with underlying brain tumors presenting as psychiatric disorders.

Acknowledgments

The authors wish to thank the patient in this research. Moreover, they thank Mazandaran University of Medical Sciences.

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