

# Secondary Psychotic Mania Following Traumatic Brain Injury: A Case Report

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## ÖZ:

Travmatik beyin hasarı sonrası gelişen ikincil psikotik mani: Vaka sunumu

İkincil mani ya da hipomani, çeşitli durumlar ile ilişkili bulunmuştur. Travmatik beyin hasarı sonrası gelişebilen psikiyatrik eş tanıları arasında yaygın olarak duygusal, davranışsal ve bilişsel bozukluklar vardır. İki uçlu bozukluk, travmatik beyin hasarı sonrası gelişen mizaç bozuklukları veya anksiyete bozuklukları kadar sık olmasa da, yine de travmatik beyin hasarının potansiyel psikiyatrik bir komplikasyonudur. Bu yazımızdaki olguda, bir hastada travmatik beyin hasarı sonrası değişen psikiyatrik durum bildirilmiştir. Travmatik beyin hasarı sonrası değişen psikiyatrik durumunun olası nedenlerine, ek hastalıklarla birlikteliğine ve tanısız zorluklara dikkat çekilmek istenmiştir.

**Ahtar kelimeler:** iki uçlu bozukluk, travmatik beyin hasarı, ikincil mani, kafa travması

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## ABSTRACT:

Secondary psychotic mania following traumatic brain injury: a case report

Secondary manic or hypomanic states are associated with several conditions. Common post - traumatic brain injury psychiatric comorbidities include affective, behavioral and cognitive disorders. While bipolar disorder is not as common as other mood disorders or anxiety disorders after traumatic brain injury, it is nevertheless a potential psychiatric complication of traumatic brain injury. In this article we present a case that has been reported psychiatric conditions changing after a traumatic brain injury. We recommend taking attention to those possible causes of changed psychiatric conditions after traumatic brain injury, and the association between comorbid diseases and the diagnostic difficulties.

**Keywords:** bipolar disorder, traumatic brain injury, secondary mania, head trauma

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## INTRODUCTION

Secondary manic or hypomanic states are associated with several conditions, including uremia, thyroid disease, vitamin B12 deficiency, electrical trauma, hyperbaric diving and open-heart surgery. Mania is also associated with brain tumors, central nervous system infections, stroke and traumatic brain injury. Traumatic brain injury is a major public health problem for all over the world. Traumatic brain injury is one of the most common causes of disability in young adults. Common post-traumatic brain injury psychiatric comorbidities include affective, behavioral and cognitive disorders. The prevalence of psychiatric diagnoses in these patients is much higher than in the general population, and up to 44% of patients suffer from more than one psychiatric disorder (1-3). While bipolar disorder

is not as common as other mood disorders or anxiety disorders after traumatic brain injury, it is nevertheless a potential psychiatric complication of traumatic brain injury. A history of traumatic brain injury appears to increase by 1.5 times the chances of developing bipolar disorder. Mania secondary to traumatic brain injury has been reported in patients varying ratios (4). There are very few reports about the prevalence of manic syndromes following traumatic brain injury. Differences in the frequency of mania may tentatively be explained by the different pathophysiological mechanisms involved in stroke and traumatic brain injury and by the higher frequency of anterior temporal lesions observed in the patients with a closed-head injury. Given the nature and location of lesions following traumatic brain injury, one might ask why manic syndromes are not even more

frequent. Previous studies have suggested that posttraumatic epilepsy, subcortical atrophy (as evidenced by increased ventricle-brain ratio), and genetic vulnerability (as evidenced by the presence of a positive family history of mood disorder) are major risk factors for the development of secondary mania (4). Furthermore, bipolar disorder can pose considerable diagnostic challenges in a patient with a history of severe traumatic brain injury. We present a case of mania which is secondary to traumatic brain injury and manifesting itself with some other neuro-psychiatric symptoms.

## CASE

A 47-year-old married woman who was referred to our neurology clinic for evaluation of mood and behavioral changes that developed after 10 year duration multiple sclerosis (MS) diagnosis and treatment. Her MS was under controlled and she used glatiramer 20 mg/week regularly. In our psychiatry clinic, she had been treated for about four years for major depression. She had used different types of antidepressants such as SSRIs and SNRIs adequate time and dose and had no remission. Also, she had been hospitalized a few times for suicidal thoughts. In her family history, psychiatric disorders had been identified as depression in her mother, sister, brother and daughter. Before the accident, her electroencephalography (EEG) was normal and in the MRI scan of the brain demyelinating changes was found in both centrum semiovale periventricular in the deep white matter compatible with MS. She had no hypomanic or manic episode until her accident and no manic shift was described. Before the accident, she had diabetes mellitus and hypertension that were under controlled for 5 years. Her body mass index (BMI) was 35. She had no history of alcohol or illicit drug abuse. In 2013, she sustained a traumatic brain injury in a flowerpot falling accident. With the head computerized tomography scan evaluation and clinical observation, she was decided not to require emergency neurosurgical intervention, only because of soft tissue injury her head skin was sutured, she was then discharged home. Less than 2 days after the accident, her mobility and talking increased, she became irritable, distractible, needing less sleep and meal. She reported visual and auditory hallucinations. She has interfered in our neurosurgery clinic when she came for control. After a psychiatric evaluation in our clinic, she was

diagnosed with psychotic mania. Her antidepressant treatment was stopped because of the risk of a manic shift. Due to the rapid onset of effect and relatively low risk of EPS, olanzapine 20 mg/day was added, close clinical follow-up (three day intervals) was enrolled in. On this dose, her mood gradually returned to baseline, she rapidly improved and over the following 7 days there was complete resolution of her psychotic symptoms. Symptoms' resolutions were observed by clinically. However, due to her weight (her BMI was 35 kg/m<sup>2</sup>) and diabetes mellitus, olanzapine was discontinued, replaced with aripiprazole 15 mg/day gradually in 3 weeks. Aripiprazole was preferred due to side effect profile and patient's request. She had not experienced any problems during the drug change. She continued regular neurological, neurosurgical and psychiatric follow-up.

## DISCUSSION

We present this case that attracts attention from several aspects.

Firstly, psychiatric disorders after traumatic brain injury are frequent. Besides there are post-traumatic brain injury psychiatric comorbidities there are also diagnosed changing patients too. Researches in this area are important for the patients' care and they may provide hints for the comprehension of primary psychiatric disorders (5). In the case presented, we see the diagnose changing after traumatic brain injury on an existing diagnosis of psychiatric disorders.

Secondly, bipolar disorder is a chronic mood disorder which is characterized by a remitting and relapsing course. A key challenge in bipolar disorder is the accurate diagnosis of the illness. It is hard to distinguish bipolar disorder because the majority of the patients initially present during an episode of depression (7). Bipolar patients spend up to one third of their lives in depression and have greater impact on the quality of life (8). The treatment of bipolar disorder is controversial with a great unmet need (7). Bipolarity of depression should be considered in patients who entered no remission and should be examined carefully. In our case, there was a long period of depression. Although using antidepressant treatment adequate time and dose and she had no remission period.

Lastly, neuropsychiatric symptoms are common in multiple sclerosis. Bipolar disorder is one of the most

common psychiatric disorders that coexist with multiple sclerosis. Bipolar disorder with MS incidence is two times higher than the general population (9). The comorbidity of bipolar disorder and MS is well-proven (10). But its etiology is not known and investigated accurately (8). A few cases have been already reported (11-14). Manic episodes may be the first presenting symptom of MS as comorbid pathology or as an adverse effect of pharmacotherapies used in MS (15-18). It is certain that the incidence of bipolar disorder increases in MS patients and there may be a possible organic reason which causes bipolar disorder in MS patients (19). Our case had a diagnose of MS and treatment for 10

years. Her MRI scan of the brain had changes compatible with MS. Also, she had a family history for psychiatric disorders.

As a result, three aspects have been presented related to the psychiatric symptoms, traumatic brain injury and MS in this patient. Therefore, we recommend that patients with traumatic brain injury who have a change in mood and behavior undergo a thorough psychiatric evaluation for specific diagnoses; that they receive individualized treatment plans; and that they remain in active follow-up in order to refine treatment and monitor for the emergence of new disorders.

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