

Case of Migraine Psychosis with Traumatic Brain Injury

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To the Editor

Psychiatric disorders, including psychosis, have long been associated with Traumatic Brain Injury (TBI). Similarly, TBI has been associated with chronic headache, seizures, cognitive dysfunction, and sleep disturbance. Previous reports have suggested that the prevalence of subsequent impairments can be greater than 20% of those with TBI [1,2].

Although the prevalence of many psychiatric and neurologic disorders after head injury has been studied, there remains relatively little research on psychosis due to TBI. Psychosis due to TBI, also referred to as PD TBI in the literature is characterized by the presence of hallucinations and/or delusions in the aftermath of traumatic brain injury. The diagnosis is difficult to make because it requires the clinician to make a determination of whether the psychosis resulted from the brain injury or whether it is a manifestation of another illness. This can be particularly challenging because there can exist a significant lag between the time of head injury and onset of psychotic symptoms. To further complicate the picture, some patients have additional neurological conditions, either primary or secondary to the TBI that may confound the presence of psychotic symptoms. Migraine and other headaches, for example, have commonly been associated with TBI.

In this case report, the author presents the case of a male veteran who experienced head trauma followed by onset of headache and then psychotic symptoms. The patient, a 30-year-old Caucasian male, sustained a traumatic brain injury at age 20. He sustained head injury after falling approximately 15 feet from an aircraft during his military service. He had no memory of sustaining his head injury. He had been told by witnesses to the injury that he sustained a brief loss of consciousness and that he was aroused by use of smelling salts. Medical records support this narrative.

The patient had no psychiatric or chronic neurologic conditions prior to sustaining his head injury. He had no known family history of psychiatric illness or migraine. Following the fall, he soon developed regular intermittent headaches and sensory deficits, including loss of smell and taste, and blurred vision at times. The headaches were bi-temporal with steady pain lasting several hours to a day in duration. At times, he experienced aura with visual changes preceding headache onset.

Over time, the patient developed some mood stability with easy upset. Years after his injury, he developed psychosis, characterized by auditory and visual hallucinations. The hallucinations were intermittent, but were closely tied and more pronounced in conjunction with his headaches. He described experiencing intense hallucinations with headache onset. The auditory hallucinations mostly consisted of commentary from two distinct voices. Regarding

visual phenomena, he reported seeing colors, everyday objects in miniature, and also figures of normal-sized persons.

Medical records revealed an unremarkable physical examination. He was a well-developed man with no superficial evidence of head trauma. Mental status examination revealed intact long and short-term memory and recall. He had an average fund of knowledge for his age and experiences. He responded appropriately to abstract reasoning questions. Laboratory tests consistently revealed normal electrolytes, thyroid function, and liver tests. For several years, his urinalysis was normal with no drugs of abuse. At one point, he used methamphetamine and consumed alcohol. His symptoms worsened and he required brief hospitalization during that period.

The patient responded well to quetiapine 200 mg/day, propranolol 80 mg in the morning and 160 mg at night, and sumatriptan 100 mg as needed. This combination minimized both headaches and psychotic symptoms.

Although difficult to make the diagnosis of PD TBI in a case such as this, with psychotic symptoms occurring years after the patient's head injury and their association with his headaches, the literature supports this diagnostic picture. The literature reveals that persons with PD TBI are most commonly male; relatively young at the time that they sustain head injury, suffer a severe head injury with loss of consciousness, have a latency of years between head injury and onset of psychosis, and auditory hallucinations are most commonly associated [3]. The patient here also had a paucity of negative symptoms commonly associated with a primary psychotic disorder.

This author identified one case report of PD TBI with symptoms of psychosis occurring exclusively in the setting of headache. Webb et al. [4] reported a similar case of a young man who sustained head trauma, which was followed years later by onset of auditory hallucinations exclusively in the setting of headache. Similarly, there exists previously reported cases of migraine psychosis [5]. Given that this patient had no pre-existing mental health history, no family history of mental illness or migraine, no history of epilepsy and no alcohol or drug abuse prior to establishment of symptoms, the pattern suggests PD TBI. The case report also suggests a link between psychosis and migraine.

Although the case report from Webb et al. [4] described only the presence of auditory hallucinations, the patient here exhibited both auditory and visual hallucinations. The visual phenomena described by the patient presented here included some patterns that are consistent with migraine aura, such as micropsia, but also formed visual hallucinations. For this patient, the hallucinations were most pronounced with onset of headache and generally lasted several days, waning after the headache dissipated. The case is presented to highlight the interaction between head injury, psychiatric and neurologic conditions in one patient. For this particular patient,

management of both headache and psychotic symptoms served to substantially reduce symptoms.

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