

A Case of Command Auditory Hallucinations in The Context of Substance Use, Mental Illness, And Meningioma

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Abstract:

We present the case of a 41-year-old male with a history of command auditory hallucinations that resolved after resectioning an accidentally found meningioma. The tumor's location in the left frontoparietal area of the brain confirmed previous reports that psychiatric symptoms may first appear with the tumor occupying this area.

Keywords: mental illness, meningioma, psychiatric symptoms, command auditory hallucinations, tumor resection, reduction of symptoms, substance abuse.

Introduction

A meningioma is a benign brain tumor that may be asymptomatic for years [1]. Meningioma symptoms greatly depend on its size and location within the brain. The most frequent symptoms of the tumor are confusion, headaches, and seizures [2]. However, about 35% of meningiomas initially present with only psychiatric symptoms such as personality changes, mood symptoms, and symptoms of psychosis (delusions, auditory (voices and music), and olfactory hallucinations) [3].

Here we present the case of a 41-year-old male with a long history of psychiatric symptoms who was brought to our hospital after a serious suicide attempt under the influence of command auditory hallucinations and in the context of substance abuse and a history of mental illness. He was subsequently found to have a large brain meningioma that was resected during his hospitalization, with a dramatic reduction in his psychiatric symptoms.

Case Presentation

The patient is a 41-year-old male with no known medical history and a past psychiatric history of bipolar disorder, posttraumatic stress disorder, and cocaine use disorder, who presented to the emergency department (ED) after falling from a three-story building in an attempt to kill himself. The patient was admitted to trauma services for multiple fractures (pelvis, left humeral, left radial and ulnar fractures, bilateral mandibular condyle fractures, left 3rd to 7th rib fractures, and C2 fracture with prevertebral hematoma), as well as right frontal scalp hematoma, Grade 1 liver laceration, and a right sacral ala fracture. On admission, the Glasgow Coma Scale (GCS) score was 15, his vital signs were notable for tachycardia 118. The patient was alert and oriented to person, place, and time. He was answering questions appropriately. Initial head CT showed a 6 cm extra-axial, isodense lesion on the left frontoparietal convexity. Neurosurgery was consulted and recommended an MRI to evaluate the brain lesion further. A urine drug screen (UDS) was positive for opiates, which were probably given to him in the ED for pain management.

Psychiatry was consulted regarding a possible suicide attempt or self-harm component on the third day of his hospitalization.

During our first encounter, the patient appeared unkempt, with avoidant eye contact, but was pleasant and cooperative during the interview. His mood was euthymic. He endorsed auditory hallucinations of people mocking him and putting him down, "reminding him of things he has done wrong in the past or mistakes he has made." Prior



to the accident, the patient reported hearing voices telling him to jump off the building; otherwise, he would “always be in hell.” He was also paranoid, saying that he was being watched in the hospital and that the voices “knew everything [he] did”. The patient denied symptoms of depression or suicidal/homicidal ideation/intent/plan at the time of the interview. The speech was slurred, and the affect was constricted. Recent and remote memory, attention and concentration, impulse control, insight, and judgment were all poor.

As we found from his history, his past psychiatric history is notable for being diagnosed with ADHD at an early age, suffering from PTSD symptoms due to sexual and physical abuse as a child, and being treated with antidepressants at this time. There was a long lucid period when he did not experience psychiatric symptoms, or maybe not enough symptoms to seek help. He lived independently, had a job, and had an intimate relationship with his partner. At the age of 36 years old (5 years ago), he first started hearing voices in the context of psychosocial stressors (lost his job, was facing a possible lawsuit secondary to unduly conduct, and COVID-19 pandemic influence on opportunities to find employment). Since this time, the patient has been hearing voices constantly. The patient reported that he started using recreational drugs around the same time to cope with his auditory hallucinations. He has used “just about everything,” except for heroin. Most recently, he started using crack cocaine.

The patient was started on Seroquel.

The psychiatric CL (consultation liaison) team followed him for another two weeks in the hospital. During this period, he underwent several bone repair surgeries, antibiotic treatment for fever and right-sided lung infiltrate. He continued to report auditory hallucinations, and Seroquel has gradually increased up to 150 mg twice a day. After two weeks of treatment, the voices were still there, but quieter, “in the background.”

Around that time, he was found to have a left frontoparietal brain lesion, suspected to be a meningioma or metastasis from a distant lesion. On hospital day 15, the patient underwent a left craniotomy and resection of the tumor. He was started on Keppra 1000 mg BID for postoperative seizure prophylaxis. The pathology report showed a 4x4x2 cm mass with attached dura consistent with a meningioma. The specimen showed a mild increase in cellularity and mild nuclear atypia but no mitotic activity. On POD 1/HOD 16, a repeat MRI showed postoperative edema and hemorrhage at the site of resection. A smaller, 12 mm extra-axial, enhancing lesion at the mid-aspect of the floor of the anterior cranial fossa was noted to likely be a meningioma.

Psychiatry followed up after his surgery and found the patient started improving, and his auditory hallucinations significantly improved. A few days later, he was completely cleared of all his psychiatric symptoms. His eye contact was average, his speech clear, his thought process logical and linear, he had not been reporting auditory hallucinations anymore, and he was able to focus well. The patient appeared to be in an euthymic mood. He denied suicidal or homicidal ideation, intent, or plan. He had fair judgment and insight.

Discussion

This is a complex case for differential diagnosis. To summarize, the patient had two periods in his life with an exacerbation of mental illness. At first, he was diagnosed with early symptoms of attention deficit, hyperactivity, and emotional symptoms in his childhood. His emotional and attention disturbances could be explained by his early traumatic experiences or could be separate mental illnesses. Notably, during his early adulthood, the patient was symptom-free and did not require psychiatric help. He did not appear to have any marked impairment in his functioning in major areas such as work, interpersonal relationships, and self-care. The second time his mental state worsened was in his late thirties when he started experiencing psychotic symptoms in the context of psychosocial stressors and substance abuse. Within the last five years, symptoms have gradually worsened, leading to a suicide attempt while under the influence of auditory hallucinations. It is worth mentioning that throughout his psychotic episode, he preserved full affect, logical thought process, and well-relatedness. These stood out during our interview with the patient with psychotic symptoms. Voices were partially corrected with antipsychotics. However, they fully disappeared after resection of meningioma in the frontoparietal area. This course of psychiatric symptoms was quite unconventional and led us to believe that the incidentally found meningioma could have caused his psychotic symptoms.

A comprehensive review of the literature was conducted regarding reports of meningioma and psychiatric symptoms from 1980 to 2020. Search engines used include PubMed, MEDLINE, Ovid, and PsychINFO.

A meningioma, the most common slow-growing intracranial tumor [4], is most often asymptomatic for a long time, with one of the most common presenting symptoms being seizures in the later stages of growth [5]. It has been documented that purely psychiatric symptoms, including auditory hallucinations [6], have been presented in some patients diagnosed with a meningioma. [7-9] Some research reports that up to 21% of meningioma cases present with psychiatric symptoms in the absence of any neurological signs. [10-12]

There are other reports describing patients with primary psychiatric symptoms resembling schizophrenia, and later in life, they are found to have a frontoparietal meningioma of approximately the same size that our patient had. [3] Also, there was an interesting case when symptoms of mental illness were present early in life and, after a lucid period, became florid again, which led to the meningioma discovery. [13]

In our case, atypical mental status presentation and the age at which psychotic symptoms occurred could potentially point toward another underlying cause of his symptoms. The typical size and location of his tumor, along with the reduction of symptoms after the tumor resection, confirmed that the etiology of his symptoms was related to the growing meningioma. However, depression and anxiety were previously described as symptoms of growing meningioma. His emotional and attention disturbances could be a consequence of his early traumatic experiences. It is noteworthy that his mental illness worsened in his late 30s, which is atypical for psychotic psychiatric disorders. At that time, he began experiencing psychotic symptoms in the context of psychosocial stressors and substance abuse. Symptoms have gradually worsened within the past five years and led to a



suicide attempt under the influence of command auditory hallucinations.

During our interview, the preserved full affect, logical thought process, and well-relatedness stood out for the patient with psychotic symptoms. Voices were partially corrected with antipsychotics but fully disappeared only after resecting meningioma in the frontoparietal area. Another interesting aspect of our case is the history of cocaine use. The patient reported that he had started using substances to self-medicate and treat his mental symptoms. Those symptoms could potentially be caused by meningioma. However, research shows that cocaine users with intense use and underlying psychosis proneness later develop a psychotic state with auditory hallucinations and paranoia. [14] Which raises the question: what role did the tumor's location play in this case? Was it directly causing his symptoms, or did it make him more prone to developing psychotic symptoms exacerbated by the use of cocaine?

In our patient, multiple factors support the notion that his meningioma was responsible for his psychiatric symptoms. These factors include the evidence of psychiatric symptoms in other patients with a meningioma as well as the lack of diagnostic criteria for primary psychiatric disorders such as schizophrenia, bipolar disorder, and substance-induced psychosis based upon the assessment done by our team, and the significant reduction of symptoms after tumor reduction as seen in our patient.

Conclusion

This is a complex case presented to us with a long history of mental illness and a myriad of diagnoses. He experienced different psychiatric symptoms throughout his life, which were exacerbated and subsided by substance abuse. Although our observation of the patient was relatively short compared to the length of time he had symptoms, the location of the tumor and the reported absence of auditory hallucinations post tumor resection indicate that meningioma caused our patient's presentation. It is advised that all patients presenting with the first episode of psychotic symptoms should have an MRI done to rule out organic causes of their symptoms. A longer course of observation of the patient would be recommended to see long-term outcomes of meningioma resection. More research may be indicated to understand if meningioma, at least in part, could be responsible for the development of substance addiction.

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