Primary brain and other central nervous system (CNS) tumors are the most common solid tumors that occur during childhood, with an annual US rate of approximately 3.0 cases per 100,000 persons aged 19 years or younger.

Treatment of posterior fossa tumors has been associated with improved survival rates, but this increased survival has come with a price. Morbidity is high among survivors, both from consequences of the primary lesion and from the effects of the multimodal treatment on the developing brain. Surgery, radiation, and chemotherapeutic agents may produce both immediate and delayed injury to the CNS and lead to profound clinical consequences in survivors, especially progressive intellectual functioning decline (associated with craniospinal irradiation) in addition to academic and behavioral changes. However, children treated with surgery and chemotherapy may not exhibit the same significant neuropsychiatric compromise.

The degree of direct CNS injury from radiotherapy appears to plateau 3 to 5 years from treatment.

CASE PRESENTATION

A 17-year-old blind male was brought by police to the hospital, where his family expressed concerns that the patient behaved aggressively toward them. The patient expressed suicidal and homicidal ideations and admitted hiding a knife in his bedroom.

The patient did not express any paranoid delusions or hallucinations. He has a history of medulloblastoma in full remission for the past 5 years. He has been legally blind for the past 10 years due to tumor resection. He also has a history of impulse control disorder not otherwise specified, and has expressed bouts of violence that have been worsening in the past 2 years. The patient’s violence is expressed as impulsive, usually provoked by noise or stress. He tends to attack other people by kicking and punching.

There is no family history of mental illness, and the patient has no history of drug abuse. He was diagnosed with impulse control disorder not otherwise specified 2 years ago. He suffered from medulloblastoma 10 years ago with metastasis to optic chiasma. The patient received surgical treatment in addition to radiation therapy.

His neurological and mental exams were not remarkable, but he expressed poor judgment and limited insight. His mood was depressed and affect constricted. His urine toxicology screen was negative. A computed tomography (CT) scan...
was done that revealed a ventricular shunt with its tip in the left frontal horn and scattered calcifications in the posterior fossa. No masses were observed.

The patient was admitted to hospital and treated with divalproex sodium (Depakote) 750 mg daily, citalopram hydrobromide (Celexa) 10 mg daily, and quetiapine fumarate (Seroquel) 50 mg daily. The patient improved on medication. He had sleep difficulty that was addressed with melatonin. The patient was discharged home in his mother’s care with adjustment of psychosocial stressors to prevent any aggressive or assaultive behavior in the future.

**DISCUSSION**

The concepts of impulsivity and aggression play important roles not only in clinical psychiatry but also in everyday life. Impulsivity is defined as disordered behavior occurring with little or no premeditation or psychological capacity for delay, characterized by the failure to resist an impulse drive, or temptation that is harmful to oneself or others. Aggression is any form of behavior that directs harm or injury toward another person; the perpetrator must believe that the behavior will harm the target and that the target is motivated to avoid the behavior.

A vast body of literature exists associating neurological lesions with symptoms of aggression. Many studies have found that human aggression and suicide were associated with lower levels of cerebrospinal fluid 5-hydroxyindoleacetic acid (5-HIAA), a serotonin metabolite. Behavioral disorders have been identified in many children who received radiotherapy for brain tumors. These were noted more frequently in patients treated for medulloblastoma. Those patients were noted to be immature, depressed, antisocial, aggressive, and fearful. Brain injuries in general have been associated with behavioral and cognitive changes, and these changes include aggressive behavior with delayed onset, within a period ranging from 1 to 15 years.

**REFERENCES**