

## Commentary

With the rapid and widespread availability of neuroimaging, brain tumors are being more commonly diagnosed nowadays. The estimated annual incidence for primary and metastatic brain tumors is 9/100,000 and 8.3/100,000, respectively.<sup>[1]</sup> Psychiatric problems can often be noted in patients with brain tumors, ranging from 10% to 40%.<sup>[1-4]</sup> However, a study by Keschner *et al.* reported that 78% of 530 patients with brain tumors had psychiatric symptoms.<sup>[5]</sup> These wide differences may be due to different study designs or questionnaires used. The psychiatric symptoms noted may be diverse, such as depression, anxiety, mood disorders, schizophrenia, psychosis, personality changes, abulia, and delusions and hallucinations.<sup>[1,4,6-8]</sup>

Although commonly present concomitantly with neurologic features, psychiatric symptoms may be the only manifestation of brain tumors (so-called neurologically silent tumors).<sup>[1,6]</sup> The most common brain neoplasms with neuropsychiatric symptoms include gliomas, meningiomas, and metastasis and rarely pituitary adenomas, epidermoids, craniopharyngiomas, and germ cell tumors.<sup>[1,2,9-11]</sup> With regard to the association between tumor location and psychiatric symptoms, although few studies have reported higher incidence of depression and memory disturbances in left hemispheric tumors, many other studies have refuted this association.<sup>[12-14]</sup> However, the association between specific areas in the brain and psychiatric manifestations can be seen, such as psychotic symptoms and pituitary tumors, anorexia, and hypothalamic tumors.<sup>[1,15]</sup>

In an autopsy study, Furgal-Borzych *et al.* observed a higher incidence of pituitary adenomas in suicidal victims (44.7%) as compared to 18.7% in nonsuicidal group.<sup>[16]</sup> Gupta and Kumar retrospectively analyzed 79 patients with brain tumors to examine the presence of psychiatric comorbidity in benign brain tumors. They included only those patients with psychiatric symptoms of several weeks to several months duration antedating a diagnosis of a brain tumor. Meningiomas constituted more than 90% of cases (72/79) and 15 (21%) meningioma cases (8 males and 7 females) presented with psychiatric symptoms in the absence of neurological symptoms. It was noted that affective disorders were the most common presentation. They concluded that psychiatric symptoms might be the only initial manifestations of meningiomas and such patients must be investigated by brain imaging studies even without neurological signs/symptoms.<sup>[2]</sup>

It has also been observed that symptoms such as depression and anxiety are often underdiagnosed in brain tumor patients leading to reduced access to psychiatric medications.<sup>[3,12]</sup> In an analysis of 598 high-grade glioma patients, Litofsky *et al.* found a very high rate (93%) of depressive symptoms reported by patients but only 15% of them were recognized by physicians. They concluded that physician recognition of depression is low and is associated with undertreatment of such depressed patients.<sup>[12]</sup>

Quality of life also appears to be affected in brain tumor patients with psychiatric symptoms.<sup>[4,12,14,17,18]</sup> Charkavliuk *et al.* analyzed 271 patients with brain tumors to evaluate the prevalence of psychiatric symptoms and psychotropic treatment and their relation to quality of life. They noted symptoms of psychiatric disorders in 8.1% of cases. Depression was the most common, followed by schizophrenia spectrum disorders, and only 4% of them were on medications. They concluded that psychiatric symptoms such as depression and anxiety may significantly hamper the quality of life.<sup>[4]</sup> Further, it has also been observed that the longevity might also be decreased in brain tumor patients with depression.<sup>[12,18]</sup>

In such brain tumor patients with psychiatric problems, symptoms may be misleading, often complicating clinical picture. Furthermore, in some instances, neurological syndromes may be confused with psychiatric conditions.<sup>[19]</sup> Hence, it is recommended that in any patient above 40 years, a change in neurobehavioral statuses such as new-onset psychosis, mood or memory symptoms, occurrence of new or atypical symptoms, personality changes, and anorexia without body dysmorphic symptoms should have a neuroimaging workup. Similar recommendations also apply to patients with psychiatric presentations accompanied by specific neurologic changes or with poor response to psychotropic medications.<sup>[1,6,7,20]</sup>

To conclude, I feel that psychiatrists and neurophysicians/neurosurgeons should work in liaison to avoid underdiagnosis and undertreatment of psychiatric disorders in brain tumor patients and to improve the quality of life and outcome of such patients.

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<b>Quick Response Code:</b> 	<b>Website:</b> <a href="http://www.ruralneuropractice.com">www.ruralneuropractice.com</a>
	<b>DOI:</b> 10.4103/jnlp.jnlp_132_17

**How to cite this article:** Prasad GL. Psychiatric disorders and brain tumors. *J Neurosci Rural Pract* 2017;8:446-7.

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