

Case Report

Frontal Lobe Meningioma Masquerading as Depressive Disorder

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Introduction

Meningiomas are a diverse set of tumors thought to arise from the arachnoid cap cells, which reside in the arachnoid layer covering the surface of the brain [1]. Meningiomas account for approximately 25% of all primary intracranial neoplasms; most of them are benign and their incidence increases with age [2]. These tumors can arise anywhere, most commonly within the skull and at sites of dural reflection (falx cerebri, tentorium cerebelli, venous sinuses) [3]. Meningiomas are extremely slowed growing and often asymptomatic. Small tumors (e.g., <2.0 cm) are usually incidental findings at autopsy without having caused symptoms. Larger tumors can cause symptoms depending on the size and location. The frontal lobes of the brain are notoriously "silent": Benign tumors such as meningiomas that compress the frontal lobes from the outside may not produce any symptoms other than progressive change of personality and intellect until they are large. Patients with such tumors are often referred first to psychiatrists, and the correct diagnosis may emerge only when the tumor has grown large and has begun to displace the brain [4].

Case History

A 60 year old female was brought to psychiatric outpatient department with two months history of headache and altered behavior in form of remaining aloof, not talking much and remaining sad and gloomy most of the time. She had no past or family history of any psychiatric illness. There was no history of any co morbid medical condition or substance abuse. Upon further enquiry, the patient acknowledged having lost interest in all pleasurable activities and feeling easily fatigued by minor activities. In addition she complained of lack of sleep and appetite since past month. On Mental State Examination she was an elderly female, well kempt with decreased psychomotor activity. Rapport was easily established. Her speech was non spontaneous, low in volume and tone with increased reaction time. She verbalized her mood as "low" but attributed it to constant headache that was bothering her. Her affect was depressed. There was no formal thought disorder, delusions or hallucinations. Her cognition was intact except for recall and registration which was impaired. Mini Mental State Examination (MMSE) was done which revealed a score of 26. Her judgment and abstract thinking was intact. Physical examination was normal and no abnormality was detected on neurological examination. Hematological and biochemistry blood test results, thyroid tests, toxicological tests were within normal range and did not reveal any other related medical condition. On the basis of history, examination and test reports she was diagnosed as a case of moderate depressive episode (F32.1 as per ICD-10) and was prescribed tablet escitalopram 10 mg/day. After two weeks of treatment patient reported no improvement in symptoms. She had developed new symptoms of urinary incontinence and her headache got worse. In view of this a brain MRI was suggested which revealed a large intensively homogenous enhancing circumscribed extra axial dural based mass lesion along left frontal convexity with some component in left temporal lobe suggestive of meningioma (Figures 1-3). Patient was referred to neurosurgery department where the mass lesion was resected completely (Simpson Grade I resection). The histopathological examination of the mass tissue revealed meningothelial meningioma (WHO grade I) hence confirming the diagnosis. On regular follow up visits six months post-surgery patient had improved a lot and had only mild depressive symptoms. Escitalopram was slowly tapered off, however psychological interventions such as supportive psychotherapy and cognitive– behavior therapy was continued for some time.

Discussion

This case represents psychiatric manifestations of a frontal lobe tumor presenting initially without accompanying neurologic deficits. Intracranial tumors, notably frontal meningiomas, may present with psychological symptoms resembling depression, anxiety states, hypomania, and schizophrenia. Headache, papilledema and focal neurological signs may develop only when the tumor has reached an advanced stage [4]. A good deal of the neuropsychiatric symptomatology is a consequence of cerebral edema and raised intracranial pressure. Of these, localized cerebral edema in the neighborhood of the tumor is clearly of special importance. Psychiatric sequelae of meningiomas were found to correlate with the extent of peritumoral edema rather than the size of the tumor itself [5]. The pathophysiological mechanism implicated in the appearance of psychiatric symptoms in the context of cerebral edema could be attributed to the disruption of intracerebral



Figure 1: Coronal T1-weighted (Post Gadolinium) image demonstrates a large left frontal convexity extra cerebral tumor with intense homogenous contrast enhancement.

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Figure 2: Coronal T2-weighted image demonstrates mixed intensity large left frontal convexity extra cerebral mass lesion with effacement of left lateral ventricle.



Figure 3: Axial T1-weighted (Post Gadolinium) image demonstrates a large left frontal convexity extra cerebral dural based tumor with intense homogenous contrast enhancement .Note the "dural tail" of the tumor extension.

pathways rather than the single pressure effect per se. In a study of primary brain tumors, the reported prevalence rate of depression was 2.5-15.4% in different treatment groups [6]. Mental changes have been noted as early symptoms in 18% of patients with supratentorial tumors and in 5% with infratentorial tumors [7]. The Glioma Outcome Project addressing the incidence of depression in postsurgical patients with brain tumors indicates that depressive symptoms were reported by 15% of physicians and 93% of patients [8]. Anatomical location of the tumor is an important factor in determining the nature and severity of neuropsychiatric symptoms. According to Lampl et al., tumors of the left frontal lobe appear to be associated with greater cognitive disturbance than tumors of the right. In their study of 50 patients with meningioma, those with tumors in the base of the skull were free of psychiatric symptoms, whereas 44% of the patients with convexity meningiomas presented with psychiatric morbidity consisting of major depression in nine (four with psychotic features), atypical depression in four, and unspecified psychosis in three [5]. Similarly, the literature has suggested a tendency for left-sided tumors to cause dysphoria and depression and for right-sided tumors to cause euphoria and symptom denial and neglect [9]. Hunter et al. have reported cases of excitement and hallucinosis seen in association with a basal frontal lesion, and psychotic syndromes like hypomania and schizophrenia with tumor encroaching on the third ventricle and adjacent structures [10]. The association between slow growing frontal lobe tumors, anosmia and personality change is also one of the most celebrated in behavioral neurology [11]. Psychiatric symptoms may be the only initial manifestations of meningiomas of the brain in a significant number of cases (21%) occurring after the fifth decade of life [12]. Hence, when an elderly person with no past history of psychiatric disorder, develops a progressive psychological change, a frontal lobe tumor should be considered. In conclusion, cases such as ours emphasize the necessity for psychiatrists to remember that psychological symptoms may be a mode of presentation of organic disease of the brain. Symptoms like headache, recent memory loss should warn about organic disease like frontal meningioma and thus brain imaging should be considered.

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