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Secondary Brain Tumor Presented with Major Depressive Syndrome Symptoms: A Case Report

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Abstract

Primary and secondary brain tumors can be neurologically silent for a period of time and may present with psychiatric disorders symptoms. Patients can present with depression, mania, psychosis, anxiety, apathy/abulia, cognitive or personality changes, and even anorexia. Several studies were done to classify symptoms of psychiatric disorder according to the site of the brain tumor. Despite the fact that organic brain lesions including brain tumors are frequently seen in patients with psychiatric disorder, it is unlikely to diagnose these brain lesions without the use of brain imaging techniques routinely by the psychiatrists. A thorough neurological evaluation is important to assist the diagnosis, the atypical presentation, previous history of body organ's tumors, poor response to treatment, or waxing and waning of symptoms should lead to suspicions of organic etiology as the cause of psychiatric presentation. We present 42-year lady, a known case of operated left breast carcinoma diagnosed in 2004, presented with 6-weeks history of depressive symptoms to the psychiatric clinic and was diagnosed with Major Depressive Disorder. Four weeks later, she presented to the clinic with worsening of her depressive symptoms with change in personality, numbness in her left side and occasional headache. Neurosurgery consultation obtained and head CT and MRI showed right parieto-occipital lesion. She underwent right temporo-occipital craniotomy and resection of lesion. Her post-operative course was unremarkable.

Keywords

Neurosurgery, Psychiatric, Tumor, Depression, Secondary

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1. Introduction

Primary and secondary brain tumors can be neurologically silent for a period of time and may present with psychiatric disorders symptoms [1]. The association of intracranial tumors and other organic brain lesions with high incidence of psychiatric symptoms has been reported [2, 3]. Patients can present with depression, mania, psychosis, anxiety, apathy/abulia, cognitive or personality changes, and even anorexia [2-9]. These clinical presentations indicate that, psychiatric symptoms can be the only presentation of brain tumors in the absence of physical or neurological signs which makes the diagnosis of brain tumor tremendously challenging [1].

Kocher etc., reported that 1/1000 of hospitalized psychiatric patients eventually diagnosed with brain tumors. This rate estimated to be 20 times higher than the rest of population [8]. In the absence of neurological symptoms, 21% of patients with benign meningioma presented with psychiatric symptoms such as anxiety disorders, personality changes or depression [4].

Several studies were done to classify symptoms of

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psychiatric disorder according to the site of the brain tumor [5]. According to Filley and Kelinschmidt, tumors in the temporo-limbic areas usually cause visual and auditory hallucinations, amnesia, panic attacks and mania whereas the frontal lobe tumors usually result in depression, personality change and abulia [10]. Tumors in right hemisphere may cause affective disorders in comparison to tumors in the left hemisphere that may present with schizophrenia-like psychoses [10-12]. Personality changes including new-onset alterations in sexual behavior, poor impulse control, and sociopathy was seen in case of right orbitofrontal tumor [3]. Signs of raised intracranial pressure particularly common is more frequently seen with tumours involving both hemispheres [13]. Tumors in some areas in the occipital lobe, intraventricular areas, and corpus callosum can grow extensively and transitory produce symptoms without localizing signs [5]. Binder used the term "silence area of the brain" in 3 brain tumor cases presented to a psychiatric clinic with no or minimal neurologic signs or symptoms [3]. Psychiatric manifestations are far less common with infratentorial tumours [13.]

Hollister and Boutros found that among 337 patients included in a prospective study which assess the frequency of undiagnosed disorder in psychiatric patients, only 2 patients had brain tumor and following this finding, the treatment of the 2 cases was taken by neurosurgical team instead of psychiatric team [14]. Bunevicius and colleges reported eight cases with established psychiatric diagnosis initially and antipsychotics treatments then found to have organic brain lesions on imaging. All eight cases underwent neurosurgical interventions and showed improvement of psychiatric symptoms later. [1].

Despite the fact that organic brain lesions including brain tumors are frequently seen in patients with psychiatric disorder, it is unlikely to diagnose these brain lesions without the use of brain imaging techniques routinely by the psychiatrists [1]. In cases were the symptoms respond initially to the antipsychiatry treatment, the diagnosis become more complicated [3]. Failure to make the correct diagnosis has serious implications, as early surgical treatment carries a better prognosis [13]. Current recommendations, are that in all cases with initial psychiatric presentations or those patients who develop suggestive neurological symptoms and signs after the age of 40 years, brain imaging should be performed [5, 7, 13].

Depression is one of the psychiatric disorder that has been diagnosed to many patients who eventually their diagnoses change to brain tumor [1, 15, 16]. As result of this, the aim of this study was to describe a case report of a female patients who presented initially with depressive symptoms and was found to have secondary brain lesion that led to neurosurgical intervention.

2. Case Report

Ms. MS is 42-year lady, a known case of left breast carcinoma diagnosed in 2004. She underwent left breast Modified Radical Mastectomy followed by chemotherapy and radiotherapy with adjuvant hormonal therapy. On February 2017, she presented to psychiatry clinic with 6-weeks history of depressive symptoms including low mode, crying spells, poor sleep, feeling tired and stresses, poor concentration and memory and social isolation. She was diagnosed with Major Depressive Disorder and started on fluoxetine treatment.

Four weeks later, she presented to the clinic with worsening of her depressive symptoms with change in personality, numbness in her left side and occasional headache. Neurosurgery consultation obtained and head CT requested. Neurological examination revealed horizontal nystagmus, decrease sensation to touch and vibration in the left foot, hyper-reflexia in the left knee and ankle. Plain and contrast head CT done (Figure 1) and showed large hypodense lesion in the right parieto-occipital region measuring 6*4*5 cm with perilesional vasogenic edema. Post contrast scan showed ring enhancing wall of the lesion. There was 9 mm midline shift to the contralateral side with compression of the right lateral ventricle and effacement of the suprasellar cistern. Third ventricle was compressed and displaced with mass effect on the adjacent brain parenchyma. MRI (Figure 2) reported as large well defined focal mass lesion in the right parieto-occipital region. The lesion was entirely cystic with fluid that was hypo-intense on T1- weighted images and hyper-intense on T2-weited image. Thin enhancing wall seen after IV contrast.

She underwent right temporo-occipital craniotomy and resection of lesion. Post op CT done (Figure 3) and showed complete excision of the lesion with pneumocephalus. There was no midline shift. Histopathology report as feature suggestive of metastatic carcinoma consistent with primary breast origin. Immunohistochemistry performed and reported as tumor cell are diffusely positive for AEA1/AEA3. Ninety-five of tumor cells show strong positive staining for ER and 30% of tumor cells show weak to moderate positive staining for PR.

Post operatively, she was referred to medical oncology and full body CTs done. She was seen in the neurosurgery clinic after 2 weeks. She was doing fine, no headache, nausea or vomiting. Her weakness improved. Her regular follow up were unremarkable.

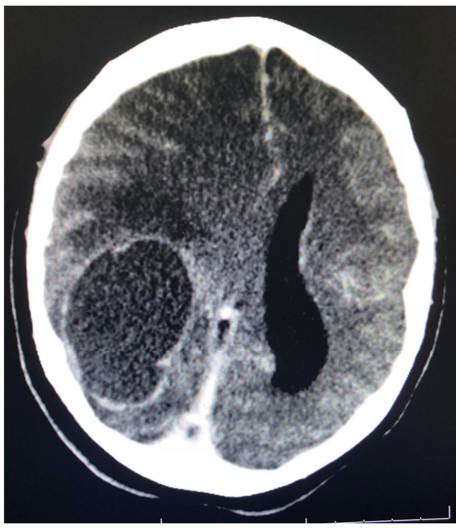

Figure 1. Pre-op CT with contrast showing hypodense lesion in the right parieto-occipital region with ring enhancing wall.

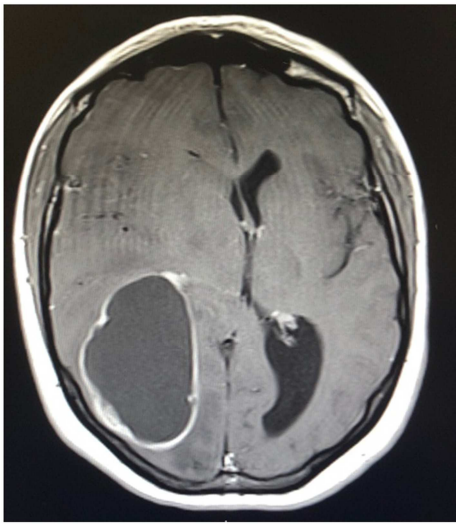

Figure 2. Pre-op MRI T1- weighted images showing thin enhancing wall post contrast surrounding hypo-intense lesion.

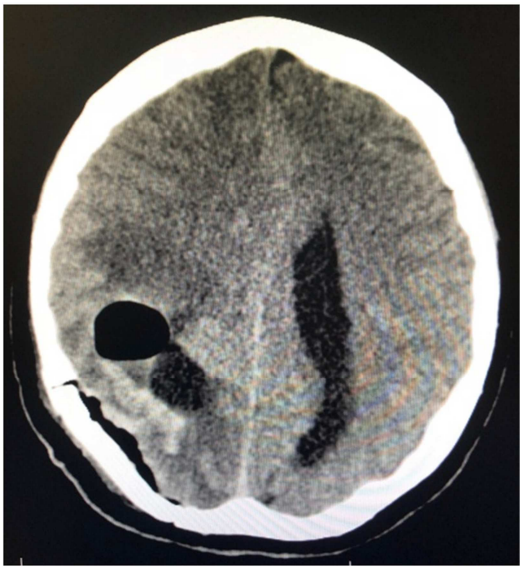

Figure 3. Complete excision of the lesion with post-operative changes.

3. Discussion

Patients with brain tumors might present with a variety of psychiatric symptoms for a sufficient period of time in the absence of neurologic symptoms and signs [1]. Much of the evidence suggesting that cerebral tumours may be misdiagnosed as psychiatric illness accrues from post-mortem studies carried out in mental hospitals [13]. Knowledge of symptoms of appropriate brain areas lesion helps to differ psychiatric and neurological disorders [17]. Psychiatric manifestations have been reported to occur at some time in half of the patients with intracranial tumors [18]. They also reported a greater frequency of mental abnormalities in patients with gliomas (60%) compared with meningiomas (42%) and other space-occupying lesions, and this is undoubtedly due to the greater speed of growth and destructiveness of the more malignant tumours. Psychiatric changes in brain tumours tended to arrange themselves into three groups: (i) General symptoms, vague and rarely of localizing value though sometimes serving as a clue to a correct diagnosis. The more generalized of these are neurasthenic states, mild personality changes, anxiety states, depressive reactions, mental confusion and deteriorating states. (ii) Specific mental reactions, which, when present, in the absence of focal neurological signs, are very suggestive of a lesion in the forward portion of the cerebrum [19]. Approximately a third of the patients experience confusional states or progressive intellectual deterioration. Disorientation with variable clouding of consciousness, indifference to the outside world, euphoria, childishness, and loss of insight are prominent in those with confusional states, while memory disturbance, loss of initiative, bradyphrenia, and bradykinesia are present in those with progressive intellectual deterioration [13]. Depression, hysterical conversion, and paranoid ideas are less frequent [13]. More up-to-date information on the prevalence of intracranial tumours in psychiatric populations can be obtained from some recent studies using brain imaging such as CT or MRI. Larson et al surveyed retrospectively 123 psychiatric patients who had undergone CT to exclude the presence of brain pathology suspected on clinical grounds. Three patients were found to have brain tumours, one of them frontal and three had subdural hematomas. Six patients had neurological abnormalities on examination, while this was not the case for those with normal CT. The high frequency of neurological abnormalities in this series suggests that the prevalence of brain pathology is likely to have been considerably higher than in unselected psychiatric populations [20]. Intracranial tumours appear to be equally rare in patients suffering from strictly diagnosed affective illness and in whom the neurological examination was also normal [21, 22]. Suspicion of pre-existing intracranial cause for psychiatric presentation should be

raised in the presence of gradual non-remitting symptoms such as irritability, memory loss, self-neglect, dysphasia or incontinence in patients without a previous history of psychiatric disease or clear precipitating factors [13].

In this age of advanced technology, a detailed clinical history and a careful physical examination are still the best predictors of brain pathology. For the patient with a suspected brain tumor, CT using enhancement is the investigation of choice, although magnetic resonance imaging (MRI) provides a superior visualization of lesions in the posterior fossa [13].

4. Conclusion

Occasional reports of psychiatric patients who are found to have brain tumours, perhaps more often in the frontal lobes, have appeared in the literature for many years and may continue to do so from time to time [14]. In this article, we reported a case of secondary brain tumor that presented with depressive syndrome. This case shows diagnostic difficulties that psychiatrists encounter diagnosing organic brain disorder. This study demonstrates that psychiatrists should have a high level of alertness in regard to organic brain lesion in psychiatric patients with atypical psychiatric symptoms especially in patients with risk factor for developing organic brain lesions. Evaluation for focal and generalized neurologic symptoms as well as for atypical psychiatric symptoms should be a routine practice setting, and timely diagnostic interventions, such as CT/ MRI, and reference to neurologist or neurosurgeon must be performed.

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Abbreviation

MRI (Magnetic Resonance Imaging), CT (computed tomography), ER (Estrogen Receptor), PR (Progesterone Receptor), AEA (N-arachidonylethanolamine)

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