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CASE REPORT

PRE AND POST CRANIOTOMY PSYCHOSIS AND SEIZURE DISORDER IN A NIGERIAN MEDICAL DOCTOR TREATED FOR MENINGIOMA. A CASE REPORT.

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ABSTRACT

This report highlights psychosis and seizures presenting at two distinct periods of time in the course of Meningioma, in a 43 year old Nigerian medical doctor and buttresses the fact that the risk for post operative seizures and other symptoms include a history of pre-operative seizures and the site of the tumor. The subject had a radiological Brain CT –Scan and Cranial MRI diagnosis of Temporo-parietal mass of Meningioma and based on clinical presentation of right sided weakness, 3 year history of deterioration of vision and brief awareness with altered behavior in the pre surgical period. He had a Simpson 11 Excision craniotomy, at the University College Hospital, Ibadan, Nigeria, in November 2015 but represented at the Mental Health Department, Federal Medical Center, Yenagoa, in January, 2016, in the post surgical period, with histories of abnormal behaviour, altered awareness of the environments with automatisms, visual hallucinations and depressive features. He had been managed with Risperidone and Carbamazepine with good response and without reoccurrence of pre-surgical features. Post operatively, his visual acuity has been restored and he has since resumed his duties as a medical practitioner, in the state medical service; suggesting an effective control with good outcome using medications.

Keywords: Seizure, Complex Partial Seizure, Craniotomy, Automatisms, Meningioma

INTRODUCTION

It has been reported that seizures are one of the most common presentations in patients with brain tumors. Unprovoked seizure with onset in an adult is always suggestive of an intracranial tumor, until proven otherwise (Ropper, 2009). Seizures may also accompany other vague, non-localizing symptoms such as apathy, irritability, altered mental status and dizziness (Ropper, 2009). It can also occur with other signs of increased intracranial pressure, such as diplopia, nausea, headache and decreased visual acuity (Elysia and Panayiotis 2011).

Previous research findings show that several seizure types have been reported and mainly reflect the location of the lesion. Related to this, is the fact that, complex partial seizures with repetitive psychomotor movements, impairment of conscious alertness or déjà-vu phenomena are also associated with the temporal lobe. Delusions and psychotic behaviour have also been reported with frontal lobe tumors (Sato *et al.* 1993). In a case series by Fukamachi, risk factors for post-operative seizures included pre-operative seizures, sites of the lesion, and sub therapeutic anti-convulsants (Fukamachi, 1985).



Seizures may present at two distinct periods of time in the course of Brain Tumor. They can present as one of the initial symptoms or later in the course of the disease during chemotherapy or after surgical intervention (Kargiotis, Markoula *et al.*, 2011).

This report aims to highlight the fact that psychiatric symptoms like depression, psychosis and seizure, can occur in the pre and post surgical phases of a brain tumor and this can improve with good treatment in order to reduce the morbidity of the patients.

Case Presentation.

43 year old right handed medical practitioner who had a radiological Brain CT –Scan and Cranial MRI diagnosis of Temporo-parietal mass of Meningioma and based on clinical/neurological presentation of right sided weakness, long standing headache of generalized nature, 3 year history of deterioration of vision, and brief loss of awareness with altered behavior in the pre-surgical period. He also had right homonymous hemianopia. He consequently had a Simpson 11 Excision craniotomy, at the University College Hospital, Ibadan, Nigeria, in November 2015. His immediate post operative course was smooth.

However, he represented at the general outpatient department, Federal Medical Center, Yenagoa, in January, 2016, about 2 months into the post surgical period, with histories abnormal behavior and was subsequently referred to the Mental Health/ Psychiatry department of Federal Medical Center, Yenagoa.

On full psychiatric evaluation, there was history of persistent headache, confusion, aggressive behavior, difficulty in initiating and maintaining sleep, seeing of strange objects in clear consciousness (visual hallucinations), and intermittent loss of awareness of the environment with automatisms (abnormal involuntary movements and activities which patients are not aware of), and depressive features of weepy spells, low mood, feelings of hopelessness, low libido, mood swings with elation of mood sometimes alternating with the depressed mood.

This was the patient’s first psychiatric presentation and there is no family history of mental illness. Marital history revealed that patient was married with 2 children (1 male and one female). There was no history of psychoactive substance use. Pre-morbid Personality, he was said to be introverted, kept few friends and was actively religious.

Mental state examination revealed a sad mood and depressed affect with hesitancy in speech. There was no formal thought disorder but content of thought was essentially that of suicidal ideations, without any obvious delusions. Perceptual abnormalities of visual hallucinations were noted. Under cognition, he was oriented in time, place and person and attention, concentration and memory were not impaired but had slightly impaired judgment.

He had been managed with atypical antipsychotic medication (Risperidone) and anticonvulsant Carbamazepine (Tegretol CR), with good response and without reoccurrence of pre-surgical features.

Post operatively, his visual acuity has been restored and he has since resumed his duties as a medical practitioner in the State medical service.

Diagnosis

Complex Partial Seizure with Automatisms and Organic Mood disorder was made.

Plan

Patient was managed using the Bio-psycho-social model. Drug treatment was done using atypical antipsychotic medication (Risperidone) because of the abnormal behavior. Anticonvulsant (Carbamazepine CR) was used because of the altered awareness and automatisms. Psycho-education, Supportive psychotherapy, and Cognitive Behavioral Therapy (with emphasis in coping skills and assertiveness training) sessions were held. Family session was also conducted with patient’s family with the view educating them on the psycho-dynamic formulation of the illness and in order to reduce care giver burden on the patient’s spouse who was on the verge of depression. Social treatment involves environmental manipulation



or Milieu therapy which involved writing to the HMB to transfer him to another health facility since his present boss was uncooperative, and which was honored. Importance of drug compliance was also emphasized because of risk of reoccurrence of symptoms.

Progress:

Patient's symptoms resolved fully and he has resumed his duties as a medical practitioner at the State's medical service.

DISCUSSION

This case illustrates a challenging case in a medical practitioner, impaired with lateralizing signs, psychosis and seizure pre and post operatively, following a diagnosis of Meningioma. The fact that the psychosis continued post operatively, and after the craniotomy, agrees with an earlier finding in Malaysia (Hadi *et al.*, 2013).

Visual impairment noted in the patient reported, is consistent with the earlier known fact that visual disturbances are quite common (Ricardo *et al.*, 2009). Brain tumour patients usually manifest with features of raised intracranial pressure, focal neurological deficits and seizures. Patients presenting with psychosis associated with atypical manifestations which are related to age, resistance to treatment or focal neurological deficits and papillo-oedema should warrant a full workup to exclude structural intra-cranial mass lesions (Ouma, 2004)..

The implication of this to employers therefore, is that if any employee presenting with unexplained marked deterioration in working performance or any change in behaviour, should be referred for specialist evaluation, to rule out organic pathology (Caroll and Neal, 1997).

We emphasize the need for neuroimaging studies in a patient with atypical changes in mental status, even without neurological signs or symptoms (Moise and Madhusoodanan, 2006).

Access to more sophisticated secondary and tertiary hospitals with experienced clinicians and facilities such as CAT and MRI scans are not a luxury enjoyed by the majority of these patients in our clime. Therefore such patients may have to be referred out for expert management. This may cause some diagnostic puzzle and delay as was the case in this patient.

It is also noteworthy that there may be resolution of all his psychotic symptoms following the operation (Ouma, 2004). However there may be persistence of psychotic features as was the case in this patient. Persistence of psychosis can occur as a result of recurrence of Tumor (Pawar, 2016). It can also arise from treatment of the tumor (Flores and Gumina, 2012, Hadi, 2013). Complex partial seizures and delusions noted in this medical practitioner with marked impairment in occupational functioning pre and post operatively agree with the report in a previous study on the pattern of seizures and psychosis in the course of a brain tumor (Ouma, 2004). Psychosis in this patient could possibly arise due to residual tumor even after surgical removal, high dose steroid that had been given post-operatively, or as a complication of the surgery. Neuropsychiatric complications due to steroids include psychosis, mania, depression, suicidality, irritability, anxiety, and impaired cognition (Flores and Gumina, 2012].

It has been reported that the risk of developing immediate postoperative seizures in patients undergoing supratentorial brain tumor surgery without anti-epileptic drug (AED) prophylaxis is 15-20%. Patients who present with pre-operative seizures and patients with supratentorial meningioma or supratentorial low grade gliomas are at significantly higher risk (Gokhale *et al.*, 2013). In a study of 165 patients with different tumor locations including, Meningioma, found out that preoperatively, 88/165 (53.3%) patients had presented with seizure, while 7.3% developed clinical seizures in the immediate post-operative period (Gokhale *et al.*, 2013). It had been reported in an earlier study in Enugu Nigeria, that seizures of short duration, Intracranial Tumour located in the posterior fossa and gliomas, are associated with poor postoperative seizure outcome and high patient mortality (Mezue *et al.*, 2006).

Recent studies involving Levetiracetam, however appears to offer a glimmer of hope for an effective and safe drug for seizure prevention in patients undergoing brain tumor resection and who are at significantly higher risk of developing post-operative seizures (Gokhale *et al.*, 2013). This is worthy of note in this clime for all medical practitioners. For patients with brain tumors who present with seizure, anticonvulsants have been shown to limit functional and emotional morbidity (Mezue *et al.*, 2006).



Finally, the concept of psychosis surgery is helpful to understand the possible structural aetiology of mental illness (Ouma, 2004, Elysia and Panayiotis, 2011). Disruption of the interconnections between the frontal and temporal lobes, the anterior insula, the mediodorsal thalamic nucleus and the corpus callosum may result in a hypothesized disconnection syndrome and manifest as psychosis (Ouma, 2004). This pathophysiology is a plus for the biological basis in the etiology of mental illnesses.

Conclusions

The findings in this report, further buttresses the relationship between structural brain abnormalities and mental illness. It also serves as a reminder to neurosurgeons, psychiatrists, neurologists and Radiologists, to look out for potential structural abnormalities even when confronted with patients with psychotic manifestations. We conclude that although, seizures and other psychiatric presentations which are common presentations in patients with brain tumors, the morbidity caused can be controlled using the bio-psychosocial model of treatment, in order to restore patient's functioning.

Consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Abbreviations

AAU: Ambrose Alli University.
CT SCAN: Computed Tomography Scan.
MRI: Magnetic Resonance Imaging.
CR: Controlled Release.
HMB: Hospitals Management Board.
FMC: Federal Medical Center.

FWACP: Fellow of the West African college of physicians.

WACP: West African College of Physicians.

FMCP: Fellow of the National Post Graduate Medical College.
MBBS: Bachelor of Medicine, Bachelor of Surgery.

Competing Interests

The authors declare that there are no competing interests.

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AUTHORS CONTRIBUTIONS

This work was carried out in collaboration between all authors. Author UN designed the study and wrote the protocol. Author MO, did the case presentation. Authors AN and EN contributed to the neurological aspects of this case. Authors UN, AN, and EN, UI, managed the literature searches and all authors produced the initial draft, read and approved the final manuscript.

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