

## Psychosis associated with Left Temporal Meningioma: A clinical enigma

Hemendra Singh<sup>1,\*</sup>, Mamta S. Chhabria<sup>2</sup>, Murali Thyloth<sup>3</sup>

<sup>1</sup>Assistant Professor, <sup>2</sup>Intern, <sup>3</sup>Professor & HOD, Dept. of Psychiatry, MS Ramaiah Medical College, Bangalore

**\*Corresponding Author:**

Email: hemendradoc2010@gmail.com

### Abstract

**Introduction:** Meningioma is a brain tumor, which is commonly seen during fifth decade. One fourth of these tumors manifests as clinical symptoms based on their location. However, presence of psychiatric symptoms as an initial manifestation of underlying tumor is not a common presentation.

**Case Description:** Here, we report a case of 55 years old man developed psychosis as a clinical symptom of underlying left temporal meningioma.

**Discussion:** In our case, presence of left temporal meningioma is a possible reason for psychotic breakdown. However, not many case reports have been previously documented wherein a patient developed psychosis with left temporal meningioma.

**Conclusion:** Hence, this case stresses need for early detection of organic brain lesions in the presence of any psychiatric symptoms.

**Keywords:** Psychosis, Meningioma, Organic brain lesion

### Introduction

Brain tumors are known to impersonate several psychiatric conditions including psychosis, depression, and schizophrenia amongst others. Meningiomas are benign neoplasms of the central nervous system that are notorious for causing psychiatric symptoms in the early stages of their natural progression. Benign cerebral tumors such as these may not cause any symptoms other than psychiatric manifestations, in up to 21% of patients, until they are quite large.<sup>(1)</sup>

Analyses of correlation between peritumoral edema and coexistence of psychiatric symptoms have indicated that the underlying pathophysiological mechanism is likely related to disruptions in intracerebral pathways rather than with a mass effect of meningioma on intracranial pressure.<sup>(2)</sup> As such, headache, papilledema, and focal neurological signs due to increased intracranial tension usually arise only when the meningioma has reached an advanced stage. Often, the correct diagnosis is established only after intracranial hypertension has caused irreversible and life threatening cerebral damage

Here, we present the case of a 55-year old man with late-onset psychosis who, on neuroimaging, was found to have a meningioma in the left middle cranial fossa.

Cases like this one should apprise both psychiatrists and physicians that organic brain lesions often manifest clinically as pure psychiatric disturbances.

### Case Summary

A 55 year old male patient was brought to the Psychiatry department with a 6 month history of fear of his daughter being kidnapped, hearing voices of four people talking about and planning to elope his daughter and plotting against him. The patient had no past

history or family history of any mental illness, no medical co- morbidities, no history of alcohol and other substance abuse. Few months later started seeing images of those people in isolation. He would ask the family members to keep the door closed as those people may come at his home.

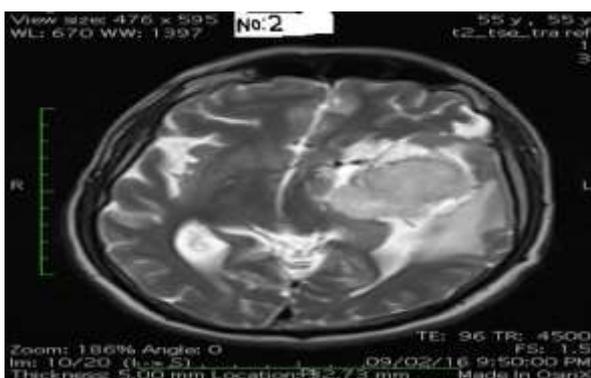
He had earlier been treated with aripiprazole 20 mg per day for a month at another hospital. Over two months all symptoms gradually reduced, but symptoms recurred within three months and were accompanied by left sided hemicranial headache. He had no other signs and symptoms of central nervous system involvement. His physical and systemic examinations including that of the Central Nervous System were clinically normal. Mental status examination revealed third person auditory and visual hallucinations with delusion of persecution and reference.

In order to further evaluate him, several investigations were including computed tomography (CT) scan brain ordered. His blood investigations including Thyroid function test, Vitamin B 12, HIV and VDRL were negative. CT scan brain revealed a left middle cranial fossa floor tumor in left temporal and left parasellar region with extension to the sphenoid wing. A magnetic resonant imaging (MRI) brain was done to confirm the finding and revealed left middle cranial fossa mass arising from the greater wing of the sphenoid approximately 50 x 60 x 54 mm in size. Perilesional white matter edema was noted in the left temporal and parietal lobes due to mass effect. A mass effect noted, effacing the adjacent cortical sulci and ipsilateral lateral ventricular with midline shift of 8mm to the right. (MRI image 1, 2) Patient underwent a left pterional craniotomy and tumor excision after thorough neurosurgical evaluation, with no postoperative complications. The excised specimen was sent for

neuropathological evaluation which revealed an atypical meningioma- WHO grade II.

Thirty-days after the surgery, a second MRI was done. The second MRI showed residual meningioma of 4.4 x 3.8 x3.0 cm in left temporal region with small CSF (cerebrospinal fluid) collection in left anterior temporal region measuring 3.5x2.8cm. (see MRI image 3, 4). Patient was treated with phenytoin 300 mg, risperidone upto 4 mg, aripiprazole 30 mg per day, clonazepam 0.5 mg and multivitamins and is being followed up regularly in both Psychiatry and Neurosurgery. He is symptomatically better with risperidone 2mg, aripiprazole 30 mg after 12 months of follow up.

**Preop MRI Images 1 and 2: T2 images show left middle cranial fossa mass with perilesional edema and mass effect**



**Post op MRI: Image 3, 4: T1 and T2 images show residual meningioma of 4.4 x 3.8 x3.0 cm in left temporal region with small CSF collection**



## Discussion

Dysfunction or damage in form of structural or chemical in one area of brain can lead to dysfunction in interconnected areas, which can give rise to various neuropsychiatric symptoms. Literature suggests that temporo - limbic dysfunction can give rise to psychotic symptoms. Involvement of medial temporal lobe structures in psychosis such as left hippocampal complex, parahippocampal gyrus, amygdale and superior temporal gyrus especially left had been reported in previous studies.<sup>(3,4,5,6)</sup> In our case presence of left temporal meningioma is a possible reason for psychotic breakdown.

Often times, especially with the 'silent' frontal lobe meningiomas, it is seen that the first doctor to be consulted is the psychiatrist. To the best of our knowledge, our case is probably the first ever reported case to present with a meningioma in the left middle cranial fossa floor extending into the left sphenoid wing. This is unlike a recent review article which suggests that frontal tumors were mainly implicated in the onset of psychotic symptoms.<sup>(7)</sup> This finding may suggest that it is not the tumor location that predicts psychosis, rather the effect of the tumor in unrelated sites via pathophysiological processes such as peritumoral edema. In fact a recent study found no correlation between tumor volume and psychosis, but a

definite co- relation with peritumoral edema volume.<sup>(2)</sup> We would like to advise a high degree of clinical suspicion to rule out organic brain lesions when dealing with late onset psychosis. A recent case report has warned that Symptoms like headache, recent memory loss and relative lack of insight into the condition may portend a brain tumour such as meningioma.<sup>(8)</sup> Our patient's symptomatic recovery primarily attributed to easing of mass effect due to tumor and peritumoral edema along with psychotropic medications.

### Conclusions

This case draws the attention of psychiatrists and physicians to the various presentations of life threatening brain tumors including atypical late onset psychoses. We would therefore like to advocate the early and liberal use of neuroimaging to pick up these tumors in their early stages when clinically silent but still treatable rather than when fatal mass effect sets in.

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