

## The Coexistence of Arachnoid Cyst with First Episode Psychosis: Four Cases

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### Abstract

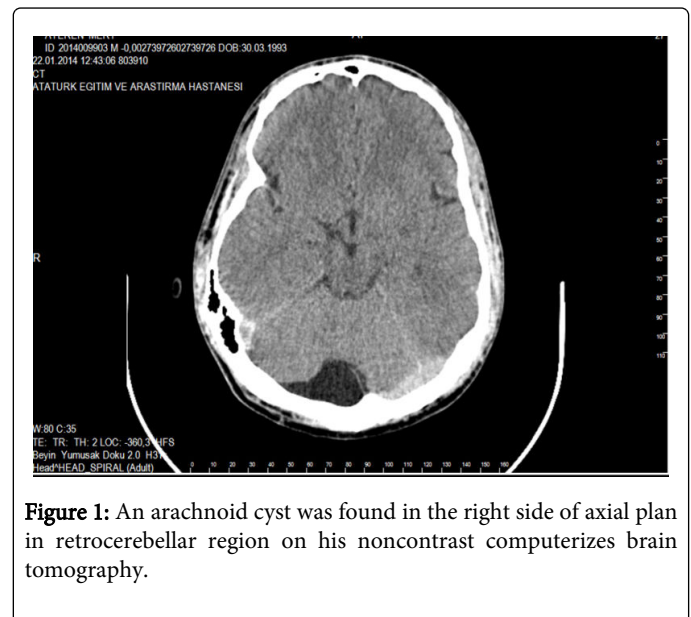
We present four patients with first episode psychosis who were also negative to other clinical evaluations including thyroid functioning. Their psychotic symptoms were suspected to be induced by the arachnoid cyst and it was controlled by moderate dose antipsychotic administration. The diagnoses of these cases were atypical affective disorder, schizophrenia (paranoid type), delusional disorder (jealous type), atypical psychosis. All of the cases manifested a variety of delusions of persecution, mystic, megalomaniac, jealousy. Neurosurgical examinations only revealed that patients needed to follow-up.

**Keywords:** Psychosis; Arachnoid cyst

### Introduction

Arachnoid cysts are of the organic causes of the first episode of psychosis [1]. Arachnoid cysts are rare, benign space-occupying lesions formed by an arachnoid membrane containing cerebrospinal fluid. In most cases they are diagnosed by accident. Mental disorders rarely accompany with arachnoid cysts, most cases are asymptomatic and are accidentally diagnosed via neuroimaging techniques [2]. Since the etiology between arachnoid cysts and first episode of psychosis is not clear, it is hard to tell the underlying causes behind these cases. The growing number of cases described in literature, the psychotic symptoms in these cases cannot be directly linked to coincidence. Thus, a more in-depth study on these cases (the coexistence of arachnoid cysts and psychosis) is required to enlighten both the etiology and the therapeutic approach involved. The coexistence of arachnoid cysts with first episode psychosis had not been closely covered in the literature [2-6]. A possible link between arachnoid cysts and psychotic symptoms has been given an increased interest and raised questions about the pathogenesis and the therapeutic approach.

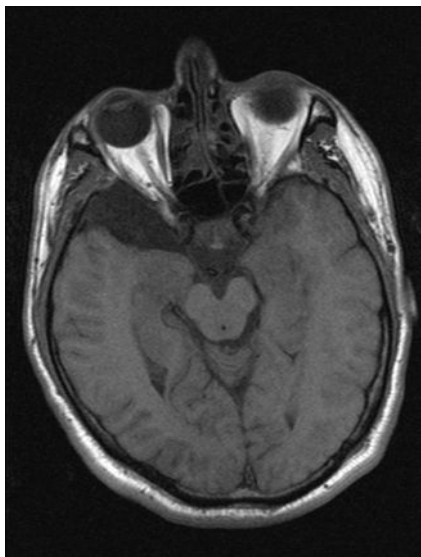
Case 1 is a 21-old male patient, single who was admitted to the emergency department due to intention to die in the way of Jihad, plan to go to Syria to struggle against the enemies of Islam and aggressiveness towards his family member who tried to prevent him from going to Syria again. He had stayed in Syria for 4 months and come back to Turkey to gather some goods for the poor Syrians. He let his beard grow for 6 months. He engaged in fulfilling religious duties including reading Quran, praying Allah and being a perfect person. He used cannabinoids for 6 months in the last 2 years. He injured a man and a financial penalty was given. There was no psychiatric disorder in his family history. In psychiatric examination, affect was elevated. There were mystic delusions. The diagnosis of the patient was atypical affective disorder. Physical and neurological examinations were normal. An arachnoid cyst was found in the right side of axial plan in retro cerebellar region about 4.2x2.1 cm in size on his computed brain tomography (Figure 1). Aripiprazole 30 mg/day PO, Zuclopentixol decaonate 200 mg/10 days IM were administered.



**Figure 1:** An arachnoid cyst was found in the right side of axial plan in retrocerebellar region on his noncontrast computerized brain tomography.

Case 2 is a 36 year-old single male. He has completed military service in Van, a city in the east part of Turkey, where he faced terrorist attacks, fought against them and witnessed some of his friends' deaths. He had never had a regular job for four years. He had a case in family court due to domestic violence. Due to his hostility against his family and delusional thoughts he was internalized against his will. The symptoms began when he returned from military service approximately two years ago. He did not have any mentally ill relative. In psychiatric examination, he was defensive. His psychomotor activity was increased. His affect was resentful, his mood was irritable. He didn't reveal the content of his ideas. According to the history acquired from his family he had delusions of persecution for doubting that his mother had hidden his own salary. He was diagnosed as schizophrenia. There was no pathologic sign in neurologic examination. EEG revealed no pathology. In MRI of his central nervous system, there was an arachnoid cyst in anterior pole of right temporal lobe about 2.5x4.5 cm in size and the rest was natural (Figure

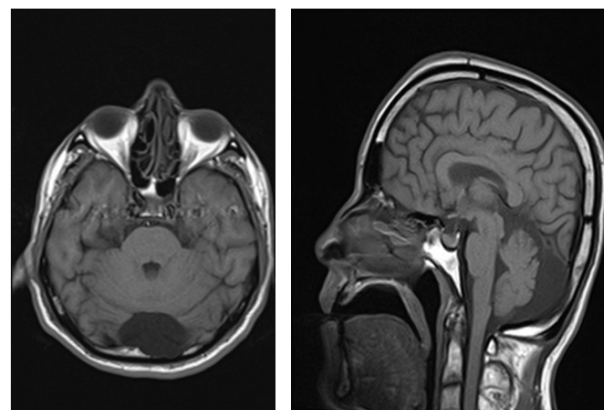
2). The MRI results were consulted with neurosurgery department, no emergent damage was detected, and only regular neurosurgery follow-up examinations were recommended. We administered Paliperidone Palmitate 150 mg IM (once a week) and Quetiapine 300 mg P.O. bid. One week later he again had Paliperidone Palmitate 150 mg IM.



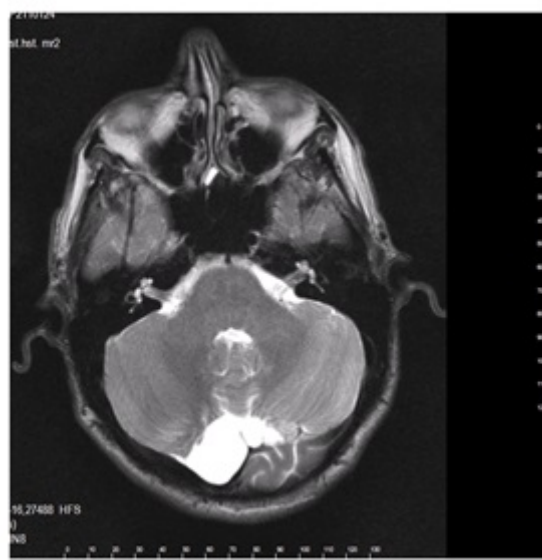
**Figure 2:** Axial view of the arachnoid cyst was seen at the temporal lobe.

Case 3 is a 52 year old-married male, who had three divorces before. Because he insulted his teacher, he was expelled from elementary school. He had an irregular work life. He was hospitalized against his will due to delusions of jealousy towards his wife and rejection of treatment. His delusions were so intense that even he wouldn't sleep at nights in order to keep an eye on her. He did not have any mentally ill relative in psychiatric examination, he was defensive. His psychomotor activity was increased. His mood was irritable. He had type 2 Diabetes Mellitus, Benign Prostate Hyperplasia (BPH), Hypertension and Hyperlipidemia for which he used to take appropriate medicines. He had a urinary catheterization due to BPH, which aggravated his delusions of jealousy because he believed that his wife was going to betray him for his insufficiency in their sexual lives. There was no abnormal sign in neurologic examination. EEG revealed normal. His diagnosis was delusional disorder. In magnetic resonance imaging of his central nervous system, there was an arachnoid cyst in the posterior of the midline of the posterior cranial fossa about 3x4.5 cm in size (Figure 3). The MRI results were consulted with neurosurgery department, and no emergent pathologic change was detected, then just routine neurosurgery follow-up examinations were recommended. We administered Amisulpride 400 mg/day P.O., Quetiapine 200 mg/day P.O. tid and Biperiden 1 mg/day P.O. We gradually increased daily Amisulpride dose to 800 mg/day.

Case 4 is a 25 -year-old male patient with mystical and persecutory delusions for two years and his psychotic symptoms were moderately controlled by Risperidone 8 mg/day Biperiden 2 mg/day, Quetiapine 100 mg/day. During hospitalization were increased the doses of treatment regimen. His diagnosis was atypical psychosis. An arachnoid cyst was found in the posterior fossa of right side of cerebellar vermis about 3x4 cm size on his magnetic resonance image (Figure 4).



**Figure 3:** Axial view and sagittal view of the arachnoid cyst was seen in the posterior fossa.



**Figure 4:** An arachnoid cyst was found in the posterior fossa of right side of cerebellar vermis.

## Discussion

The etiology between arachnoid cysts and first episode of psychosis is not clear. In a study about the role of MRI and CT of the brain in the first episode of psychosis, conducted by Khandanpour et al., 62.5% of patients had incidental brain lesions, including arachnoid cysts in MRI [7].

All of our patients were males who had a wide range of psychotic manifestations. The first case was atypical affective disorder with megalomaniac and mystic delusions. Case 2 was schizophrenia, paranoid type with systematic delusions of persecution, autism (spending most of his time at home), progressive decrease in functionality (irregular work life within 2 years). For case 3, the

patients' core delusion was about his wife and his loss of functionality, which lasted for 2 months especially after his delusions, has begun. Our diagnosis was delusional disorder, jealous type. In case 4, the patient was with mystical and persecutory delusions for two years. Since arachnoid cysts did not have any mass effect as consulted with neurosurgeons, we did not consider the diagnosis of psychosis on an organic basis. In fact, in these cases, the arachnoid cysts were accidentally diagnosed lesions to the development of these clinical disorders.

The limitations of our report are we discuss few cases and there is a need for follow up a larger number of cases in multiple centers.

## Conclusion

It is difficult to ascertain whether the arachnoid cysts have influence on the patient's psychiatric symptoms or not. However, given the anatomical and neuropsychological changes, we cannot exclude the possibility that the lesion played a significant role in the psychiatric onset.

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