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Arachnoid Cyst and Psychiatric Disorders: Two Case Reports

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Abstract | **Case Report**

***Introduction*:** Arachnoid cysts are benign lesions often discovered incidentally through brain imaging. Though classically asymptomatic, recent case reports suggest a possible association with psychiatric symptoms, particularly psychosis. This raises important diagnostic and therapeutic challenges. ***Case Reports: Case 1*:** A 27-year-old man with a 4-year history of schizophrenia was admitted for aggressive behavior, soliloquy, and persecutory and religious delusions. His history included substance use, suicide attempts, and a past head trauma. Brain MRI revealed a large right temporal arachnoid cyst with mass effect. Treated with risperidone, he showed partial improvement. No surgical intervention was indicated. ***Case 2*:** A 42-year-old woman with a 10-year history of schizophrenia presented with aggressive behavior and mystic-persecutory delusions. MRI showed a large left Sylvian fissure arachnoid cyst. Treated with aripiprazole, her symptoms improved but did not fully remit. No surgery was performed. ***Discussion*:** Both patients displayed psychotic symptoms without clear features distinguishing functional from organic origins. The possible link between arachnoid cysts and psychiatric symptoms remains debated. Some literature supports symptom remission after surgical removal; others note improvement with pharmacological treatment alone. Factors supporting a causal role include absence of family history, mass effect, and neuropsychological abnormalities. ***Conclusion*:** While the direct contribution of arachnoid cysts to psychiatric symptoms remains uncertain, their presence warrants careful consideration in therapeutic planning, including the potential role of surgery.

Keywords: Arachnoid cyst, Psychosis, Schizophrenia, Case report, Mass effect.

INTRODUCTION

An arachnoid cyst is a usually benign lesion affecting the arachnoid, one of the protective membranes (meninges) of the brain. It is most often discovered incidentally, typically during a CT scan or MRI performed for unrelated reasons.

The etiology of psychotic disorders may be organic or functional. Organic causes can be intracerebral or extracerebral, including toxic, infectious, metabolic, or systemic conditions, and are often reversible. Until recently, the coexistence of arachnoid cysts and psychiatric disorders was rarely explored in the literature. However, recent reports focusing on a possible link between arachnoid cysts and psychotic symptoms have sparked growing interest in this topic and raised questions regarding etiopathogenesis and therapeutic approaches.

The clinical presentation of these abnormalities varies depending on their location and the patient's age. The discovery of an arachnoid cyst in a patient with psychotic symptoms presents significant diagnostic and therapeutic challenges. To discuss this potential association, we report the cases of two patients.

CLINICAL CASES

Case 1:

A 27-year-old single man was admitted to the emergency psychiatry unit at Ar-Razi Hospital in Salé due to behavioral disturbances, including hetero-aggression and soliloquy, with persecutory and mystic-religious delusions, consistent with schizophrenia diagnosed 4 years prior.

His history included psychiatric follow-up since 2020, a prior hospitalization in 2021, problematic use of tobacco, cannabis, and alcohol, two suicide attempts with sharp objects during delusional episodes, and cranial

trauma surgery in 2010. Psychiatric assessment revealed delusional and hallucinatory syndromes. Physical examination was unremarkable.

Routine blood tests and ECG were normal. Cranial MRI revealed a large arachnoid cyst in the right temporal region, exerting significant mass effect on adjacent brain tissue, with no abnormal signal inside the cyst. Despite the cyst's size and symptoms, neurosurgery did not recommend surgical intervention. The patient was started on risperidone 2 mg/day, with gradual improvement in psychotic symptoms, stabilization of psychomotor agitation, and remission of auditory and verbal hallucinations. However, full remission of delusions was not achieved. He was discharged stabilized on 6 mg of risperidone after a one-month hospital stay, with good treatment adherence but no return to his premorbid state.

Case 2:

A 42-year-old single woman was admitted to the same emergency unit at her sister's request. Over the past four years, she had experienced periods of behavioral disturbances, hetero-aggression, and agitation, with persecutory, mystical, and witchcraft-themed delusions, consistent with a 10-year history of schizophrenia. Her psychiatric follow-up dated back approximately eight years. At admission, she presented with both delusional and hallucinatory syndromes. Physical examination was unremarkable.

Biological workup and ECG were normal. Brain MRI showed a large arachnoid cyst in the left Sylvian fissure, along with an enlarged frontal sinus in contact with the anterior portion of the cyst. Despite the symptoms and the cyst's size, surgical intervention was not recommended. The patient was treated with aripiprazole 10 mg/day, with gradual improvement in psychotic symptoms, stabilization of psychomotor behavior, and remission of auditory hallucinations, though complete remission of delusional symptoms was not achieved. She was discharged stabilized on 20 mg/day of aripiprazole after a 1.5-month stay, showing good adherence to treatment but no return to her premorbid state.

Discussion

The first patient's clinical picture was marked by the insidious development of psychotic symptoms of varying intensity. Neither patient exhibited clear features that would allow a distinction between organic or functional psychosis.

Indeed, it remains difficult to determine with certainty whether the psychosis is organically induced or if the arachnoid cyst is merely an incidental finding. Several factors suggest a possible etiological role of arachnoid cysts in psychiatric disorders: symptom remission following surgical removal [7], association of psychiatric symptoms with neurological signs [1, 2], older age, absence of family psychiatric history, signs of temporal lobe compression [2], and neuropsychological or neurophysiological abnormalities [8].

The presence of some of these factors may support the hypothesis that the cyst contributed to the pathogenesis of psychotic symptoms [1-13]. Current clinical practice recommends a dual approach to treating organic psychosis: controlling psychiatric symptoms and addressing the underlying cause [11]. The indication for surgical intervention in arachnoid cysts remains unclear and case-dependent. In the absence of compelling etiological evidence, conservative management is usually preferred.

However, a literature review reveals that some cases experienced full remission of psychotic symptoms following surgical removal of the cyst [1-16]. In other cases [2-12], a conservative approach with antipsychotic therapy alone led to partial improvement. Patients with initial neuropsychological impairments often showed limited improvement during follow-up [3, 4]. In our cases, risperidone and aripiprazole were selected based on their efficacy in treating psychosis associated with general medical conditions, including reports of effectiveness in cases linked to arachnoid cysts [3, 4].

Conclusion

The choice of risperidone and aripiprazole was justified by their documented efficacy in treating psychosis associated with general medical conditions, including arachnoid cysts. It remains difficult to conclusively determine the impact of the cysts on psychiatric symptoms. However, given the anatomical and neuropsychological changes observed, one cannot entirely dismiss the possibility that the lesions contributed to the psychiatric presentation. This raises important questions regarding therapeutic strategies, particularly the indication for surgical intervention.

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