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Case Report Open Access

A Case of Clozapine-Resistant Schizophrenia Associated With a Large Arachnoid Cyst in the Left Sylvian Fissure

Chang Hyun Jang[1], **Joonho Choi**[2,3] **and Seon-Cheol Park**[4,5*]

[1]*Department of Psychiatry, Hanyang University Seoul Hospital, Seoul, South Korea*

[2]*Department of Psychiatry, Hanyang University College of Medicine, Seoul, South Korea*

[3]*Department of Psychiatry, Hanyang University Guri Hospital, Guri, South Korea*

[4]*Department of Psychiatry, Yong-In Mental Hospital, Yongin, South Korea*

[5]*Institute of Mental Health, Hanyang University, Seoul, South Korea*

***Corresponding author:** Seon-Cheol Park, Department of Psychiatry, Yong-In Mental Hospital, 940 Jungbu-daero, Giheung-gu, Yongin 446-769, Korea,Tel: 82312880203; Fax: +82-31-288-0184, E-mail: cogito-ergo-sum@hanmail.net

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Abstract

Previous studies have reported the comorbidity of arachnoid cysts with psychosis; the symptoms include cognitive impairments, delusional thoughts, and hallucinations. However, the incidence of arachnoid cysts with the sudden onset of severe schizophrenia is rare. This paper describes the case of a 39-year-old Korean man with schizophrenia, who presented with a large arachnoid cyst in the left Sylvian fissure and clozapine-resistant psychosis.

Keywords: Arachnoid cyst; Schizophrenia; Clozapine-resistant; Psychosis

Introduction

Arachnoid cysts are benign, thin-walled cavities filled with cerebrospinal fluid that arise along the craniospinal axis. Such cysts are quite rare, accounting for only 1% of all lesions occurring in the intracranial space. The neurological symptoms associated with arachnoid cysts include headache, ataxia, ophthalmic disturbances, dizziness, seizures, and other physical abnormalities; these vary according to the function of the structures adjacent to the cyst [1, 2]. There are rare cases of comorbidity of arachnoid cysts with psychiatric disease, which manifest as cognitive impairment, delusional ideation, hallucinations, pseudologia fantastica, and catatonia. Although the nature of the relationship between arachnoid cysts and psychosis is not well understood, the location of the lesion influences the specific pattern of the illness [3-10].

To the best of our knowledge, comorbid cases of schizophrenia and arachnoid cysts are rare. Here, we present a case of clozapine-resistant schizophrenia associated with a large arachnoid cyst in the left Sylvian fissure. Notably, 8-week treatment regimens with high-dose risperidone or clozapine did not effectively attenuate the psychotic symptoms. The patient and his family provided informed consent for publication.

Case Presentation

A 39-year-old Korean man with schizophrenia was frequently treated at the emergency room of a university-affiliated hospital for a plethora of abnormal behaviors, including aimless wandering, fights with strangers, talking to him or in the air, and maintaining an unkempt appearance with extremely poor hygiene. Examination of his mental status revealed disorganized speech, persecutory delusions, commenting hallucinations, and aggression.

A review of his psychiatric history revealed that a diagnosis of schizophrenia was made 3 years prior. For the present episode, a Korean psychiatrist made the diagnosis of schizophrenia according to the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders [11] and confirmed it with the Structural Clinical Interview for DSM-IV Axis I Disorders [12]. Psychotic symptoms, including delusions of demonic possession and both auditory and visual hallucinations, manifested suddenly with no evidence of prodromal symptoms. However, psychiatric comorbidities, like organic mental disorders, substance-abuse related disorders, and/or others, were not diagnosed. No family history of psychiatric illness was reported. During a previous psychiatric hospitalization, he was treated with quetiapine at a dose of 1,800 mg/day for 4 weeks. He had never been administered any first-generation antipsychotic and a review of his medical history did not reveal any physical or neurological diseases.

During his most recent admission, he was alert and mentally aware. As measured by a Korean clinical psychologist, his intelligence quotient (IQ) on Korean Wechsler Adult Intelligence Scale [13] was 78, which comprised of a performance IQ of 84 and a verbal IQ of 70. He displayed no neurological signs or symptoms other than stooped posture. Findings of laboratory tests were normal. Brain magnetic resonance imaging revealed a 5.1×4.9×3.9 cm^3-sized arachnoid cyst located in the left Sylvian fissure (Figure 1). However, electroencephalography findings were normal. Because there were no signs of focal neurological deficits or increased intracranial pressure, conservative management without neurosurgical operation was recommended.

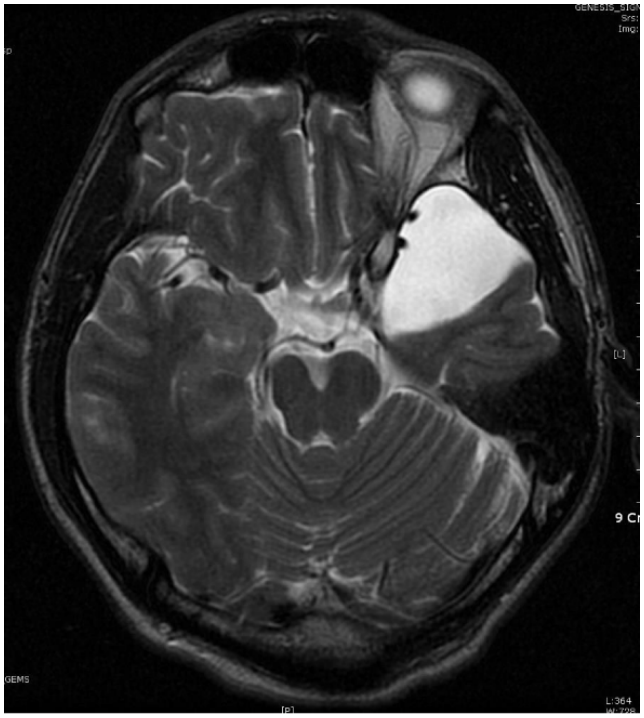

Figure 1: T2-weighted image showing a 5.1 × 4.9 × 3.9 cm3-sized arachnoid cyst located in the left Sylvian fissure.

His psychopathology was assessed with a Korean version of the Positive and Negative Syndrome Scale (PANSS) [14] by a Korean psychiatrist. His initial PANSS total score was 91. During the initial 8 weeks of treatment, he was administered risperidone at a dose of 6 to 18 mg/day, and his PANSS total score decreased, with a particular improvement in aggressive tendencies. However, his disorganized speech, formal thought disorders, and auditory hallucinations persisted. Therefore, he was shifted on to clozapine at a dose of 25 to 800 mg/day for an additional 8 weeks. Although the benzodiazepine, benztropine, and other psychotropic medications were slightly altered in accord with antipsychotic titration schedules or independently, their effects on his psychosis were clinically minimal. His PANSS total score decreased further, and in terms of each of the items, his psychosis and conceptual disorganization persisted. He did not show remission during the clinical course (Figure 2). The clinical trajectory observed was consistent with a diagnosis of resistant schizophrenia according to Andreason et al.'s remission criteria [15]. Moreover, this condition could also have been related to clozapine-resistant schizophrenia [16]. Because his clinical trajectory was observed in a psychiatric hospital setting, the possibility that external factors influenced his psychopathology and clinical course could be excluded. The patient was discharged after a 4-month period of hospitalization with clozapine-resistant psychosis and conceptual disorganization. Despite the 4-month period of hospitalization, his psychosocial function increased from 40 to 55 on the Social and Occupational Functioning Assessment Scale [17]. Because the duration of hospitalization was determined by attenuation of his psychosis-related impulsivity and aggressive behavior, there were not any ethical problems.

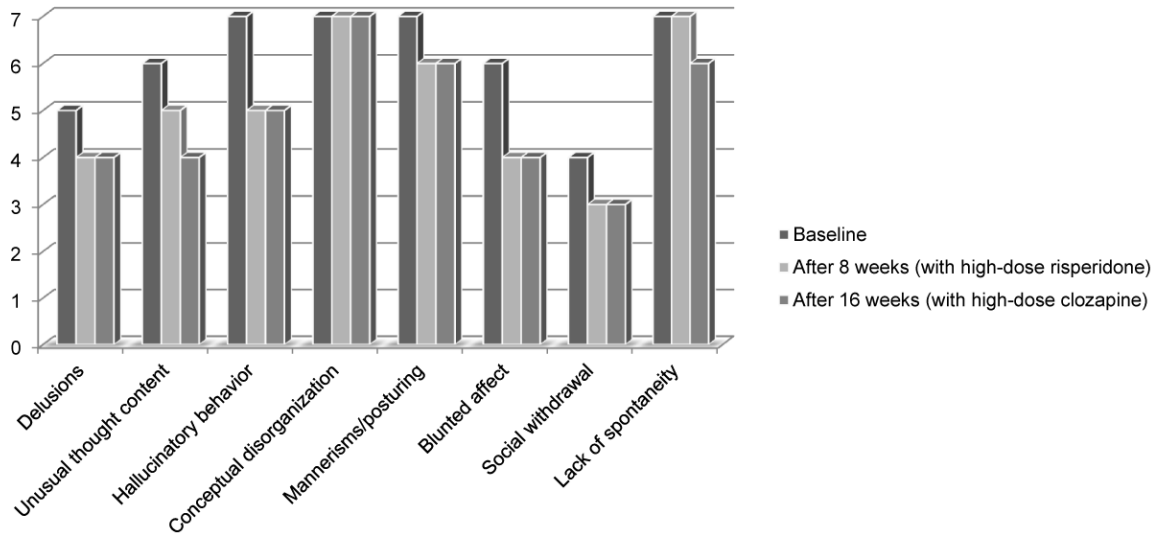

Figure 2: Changes in the symptom levels before and after alternating treatment with high-dose risperidone and clozapine.

Discussion

Previous cases of arachnoid cysts in the left temporal lobe comorbid with psychotic disorders typically presented with cognitive deficits, aggression, and atypical psychotic symptoms. This suggests that reduced cerebral lateralization may have given rise to the symptomatology in our patient [3-6]. This case further suggested that reduced brain lateralization might also contribute to the refractoriness of schizophrenia to clozapine and other antipsychotic medications.

We were compelled to speculate that the arachnoid cyst in the left temporal lobe was associated with schizophrenia in this case for the following reasons: (i) persistent psychosis is associated with impairment of the left temporal lobe [18]; (ii) the soft neurological

sign of stooped posture accompanied the psychotic symptoms; and (iii) the arachnoid cyst was large enough to compress the left temporal lobe and adjacent structures. It was thus unlikely that this lesion was a coincidental finding, unrelated to the psychosis. Furthermore, the patient was largely unresponsive to high-dose clozapine as well as risperidone, in contrast to previous cases that showed favorable outcomes with conventional doses of antipsychotics. We hypothesized that the patient's psychopathological symptoms did not respond to clozapine medication due to the relatively large size of the cerebral lesion. Our speculation is consistent with the assumptions proposed by previous case reports [1-10]. Recently, Baquero and colleagues presented the case of an arachnoid cyst-related psychotic disorder is remitted in terms of the psychotic symptoms [19]. However, due to uncertainty about its clinical effectiveness, neurosurgical treatment was not performed to improve the refractoriness of schizophrenia.

In conclusion, this case report suggested that abnormal cerebral lateralization resulting in a failure of left hemispheric dominance was responsible for the poor outcome in clozapine-resistant schizophrenia. In particular, this case indicated that there is a relationship between left temporal lobe impairment and schizophrenia. Further neuroimaging studies would provide greater insight into the underlying neurobiological basis of clozapine-resistant schizophrenia.

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