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ELECTROCONVULSIVE THERAPY IN SCHIZOPHRENIA WITH COINCIDENTAL CHOROIDAL FISSURE CYST: A CASE REPORT

ŞİZOFRENİ VE RASTLANTISAL KOROİD FİSSÜR KISTI BİRLİKTELİĞİNDE ELEKTROKONVULSİF TEDAVİ: OLGU SUNUMU

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Abstract

Choroidal fissure cyst (CFC), an intracranial space-occupying mass, is often incidentally identified and generally regarded not to present with overt clinical signs. The concurrence of space-occupying lesions with psychotic disorders have been reported in numerous cases; however, to the best of our knowledge, co-occurrent CFC and schizophrenia have not been published before in the literature. Electroconvulsive therapy (ECT) has been frequently considered relatively contraindicated in patients with space-occupying lesions in the brain; nevertheless, in the last few years, increased numbers of studies encourage clinicians to treat drug-resistant psychiatric patients with ECT. Here we present 21-year-old male patient, who has been diagnosed with antipsychotic-resistant schizophrenia with a coincidental CFC who have been clinically improved by bilateral and modified nine sessions of ECT. It is recommended to be deliberate if ECT will be applied to the patients with intracranial mass on the treatment phase. ECT may cause some side effects by increasing intracranial pressure on the patients, including rupture of cystic lesions. However, recent publications stated that ECT could be used safely in cysts, which do not cause edema or intracranial pressure increase. Our patient has not been presented any intracranial pressure signs nor neurological deficits. This report supports the safety and efficacy of ECT in the treatment of psychiatric disorders accompanied by intracranial structural lesions; nevertheless, all the risks ought to be taken into account cautiously when ECT becomes an issue for the psychiatric patients with intracranial mass and the opinion of neurosurgeons should be taken with calculating the benefit-loss ratio.

Keywords: choroidal fissure cysts, electroconvulsive therapy, schizophrenia, space-occupying lesions

Özet

Koroid fissür kisti (KFK) çoğunlukla rastlantısal saptanan ve belirgin klinik belirtilerle seyretmediği kabul edilen bir kafa içi yer kaplayan lezyondur. Yer kaplayıcı lezyonlar ile psikotik bozuklukların birlikteliği birçok çalışmada bildirilmiş olsa da KFK ve şizofreni birlikteliğinin literatürde gösterilmemiş olduğu dikkat çekmektedir. Elektrokonvulsif tedavi (EKT) kafa içi yer kaplayıcı lezyonu olan hastalarda sıklıkla rölatif kontraendike olarak kabul edilse de son yıllardaki çalışmalar bu lezyonların olduğu ve tedaviye dirençli psikiyatrik hastalarda EKT kullanımını cesaretlendirmektedir. Yazımızda 21 yaşında, tedaviye dirençli şizofreni tanısı almış, rastlantısal olarak KFK saptanan ve 9 seans bilateral ve modifiye EKT uygulanması sonucu klinik iyileşme izlenen bir hasta sunulmuştur. Kafa içi yer kaplayıcı lezyonların varlığında EKT uygulanırken temkinli yaklaşılması önerilmektedir. EKT kafa içi basıncı arttırarak bu lezyonların rüptüre olmasına neden olabilir. Ancak son yayınlar belirgin ödem veya kafa içi basınç artışı bulgusu olmayan vakalarda EKT'nin güvenle kullanılabileceğini desteklemektedir. Vakamızda herhangi bir kafa içi basınç artışı bulgusu veya nörolojik defisit bulunmamaktaydı ve bu nedenle EKT tercih edildi. Bu olgu sunumu, kafa içi yapısal lezyonu olan psikiyatrik hastalarda EKT'nin etkin ve güvenilir bir biçimde kullanılabileceğine dair kanıt sunmayı amaçlamıştır. Ancak bu durumda tüm risklerin varlığı göz önünde bulundurularak nöroşirurjiyenlerin görüşleri alınmalı ve kar-zarar hesabı yapılarak son karar verilmelidir.

Anahtar Kelimeler: *elektrokonvulsif tedavi, koroid fissur kisti, şizofreni, yer kaplayıcı lezyonlar*

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1. Introduction

In order to formal diagnosis can not be possible, the association between structural brain lesions and mental disorders should not be overlooked. Due to the development of neuroimaging techniques, anatomical lesions of the brain emerge more with the concurrence of mental disorders. Space occupying lesions of the brain are likely to lead neuropsychiatric conditions such as personality changes, intellectual alterations, cognitive and affective impairment. Post-mortem studies showed that prevalence of the cranial space occupying lesions is 3.5-5% among chronic psychiatric patients. Patients with intracranial mass, present with mental state changes as beginning symptoms in rate of 15-20% (Manes & Robinson, 2000). These symptoms include disruption of high cortical functions such as attention, memory, emotions, personality, thinking, judgement and perception. Despite growing body of studies on neuropsychiatric imaging, a precise relationship between psychotic disorders and neuroanatomical abnormalities has not been established yet. A study of cranial tomography scans of the 55 schizophrenia patients which was conducted by Nasrallah et al., showed that dilatation of the third ventricle and cerebellar atrophy may be related with psychotic disorders (Nasrallah, Jacoby, Chapman, & McCalley-Whitters, 1985). Diminished diencephalon and basal ganglia volume and cortical atrophy were also pointed by researchers in psychotic patients and MRI-based studies similarly has been supported these findings (Turner & Schiavetto, 2004). A rare subgroup of cranial space-occupying lesions is the cysts of the central nervous system, which are categorized in a variety of ways. However, the most important differential diagnosis is whether the lesion is neoplastic or nonneoplastic (Kjos et al., 1985). Cerebrospinal fluid (CSF) containing cysts at the level of the choroidal fissure are rare embryological entities seldom described in the literature because of their benign nature (de Jong, Thewissen, van Loon, & Van Calenbergh, 2011). The tela choroidea invaginates through the choroidal fissure to reach the lateral ventricles along this fissure; abnormal development may lead to the formation of a cyst. Cysts of the choroidal fissure are often incidentally identified. Symptoms from such cysts appear to be exceedingly rare. It has been generally accepted that choroidal fissure cysts do not normally present with clinical signs (Sherman, Camponovo, & Citrin, 1990), Morioka et al. published two cases with choroidal fissure cyst in the temporal horn associated with complex partial seizure (Morioka, Nishio, Suzuki, Fukui, & Nishiyama, 1994). In a sectional study executed by Lubman et al., analyzing incidental radiological findings of 340 people consisted by psychotic patients and control group, only one choroidal fissure cyst has been encountered and it was in the control group (Lubman et al., 2002). It is worth to mention that any case report of a psychotic disorder with coincidental choroidal fissure cyst has not been published before in the literature. Electroconvulsive therapy (ECT) has been frequently considered relatively contraindicated in patients with space-occupying lesions in the brain, however in last few years, increased numbers of case reports encourage clinicians to treat drug-resistant psychiatric patients with ECT, especially in presence of arachnoid cysts and brain tumors (Desseilles, Thiry, Monville, Ansseau, & Makhinson, 2009; Grover, Aneja, Singh, & Singla, 2013; Hanretta, Akra, & Malek-Ahmadi, 2007). In our case, we present a antipsychotic resistant schizophrenia patient with a coincidental choroidal fissure cyst who successfully treated with ECT.

2. Case

The patient, 21-year-old man, was single, primary school graduated and unemployed. He admitted to our outpatient clinic with social withdrawal, significant loss of interest to all activities, paranoid and somatic delusions, auditory hallucinations, sleeplessness and aggression directed to his parents. His complaints had been presented for five months; he had been under regular medication with aripiprazole 20 mg/day and quetiapine 100 mg/day for 4 months. Nevertheless, his psychotic symptoms had not been declined; moreover, his aggressive behaviour had increased progressively under treatment. He had no previous psychiatric complaint at younger ages. As he is adopted at the age of three, his familial psychiatric history was not available. He had no story of drugs or alcohol abuse and no further physical complaints. In his psychiatric examination, he appeared older and his self-care was prominently decreased. His affect was anxious and mood was irritable. Speech output and speed was decreased. As he was forced to talk, his thought involvement was revealed as his sceptisist ideas about his parents and their neighbors. His auditory hallucinations were related to his paranoid delusions, likely, his hostility were externalized as a result of the hallucinations. Cooperation and orientation were intact; he had problems in focusing and concentration. His psychomotor activity was normal. Calculation abilities and abstract thinking were normal, however he had no reasoning and insight, his reality testing was deteriorated. Due to his homicidal behaviors, we hospitalized the patient as required and started to intramuscular haloperidol (20mg/day) and biperiden (10 mg/day) injection treatment. No abnormality was detected in his routine biochemistry, hemogram, sedimentation rate and thyroid function tests. His physical examination was normal. Patient was diagnosed as a psychotic disorder. His Positive and Negative Syndrome Scale (PANSS) and Clinical Global Impression (CGI) scores were 110 and 7 respectively. Because of his short-term complaints and young age, cranial magnetic resonance imaging (MRI) scan and electroencephalogram were carried out. A choroidal fissure cyst in size of 12*8 mm was detected in MRI, in right lateral ventricle, by the temporal horn (Image 1 and 2). Any other lesions was not reported in the scan. In electroencephalogram; bioelectrical disruption was reported in right bicentroparietal zone which may be compatible with the localization of the cyst. Unlikely, the patient had no previous epileptic seizure history. Neurology consultation did not suggest any medical intervention; neurological examination has not revealed any intracranial pressure signs. Cranial nerves were intact, deep tendon reflexes were normoactive, muscle power was 5/5 in all extremities. There was no papilledema. Despite antipsychotic injections for 18 days, his irritability, paranoid delusions and aggressive behavior had not been decreased. As his homicidal behaviour and

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delusions were resistant to antipsychotic injections, electroconvulsive therapy was decided to be performed. Informed consent was obtained from his parents. His pseudo cholinesterase was in normal range. No internal illness sign has been detected in consultation. Bilateral, modified ECT 3 times a week were initiated. After 3rd session, his paranoid delusions began to improve, aggression decreased. ECT procedure was stopped after 7th session. After the treatment, his PANSS and CGI score declined to 45 and 2 respectively. Homicidal thoughts, paranoid delusions and behaviour were significantly decreased. Auditory hallucinations were diminished. He discharged with risperidone 8 mg/day per oral and was suggested to admit outpatient clinic one week later.

Image 1: Choroidal fissure cyst in the right LV in T2 Flair axial MRI scan

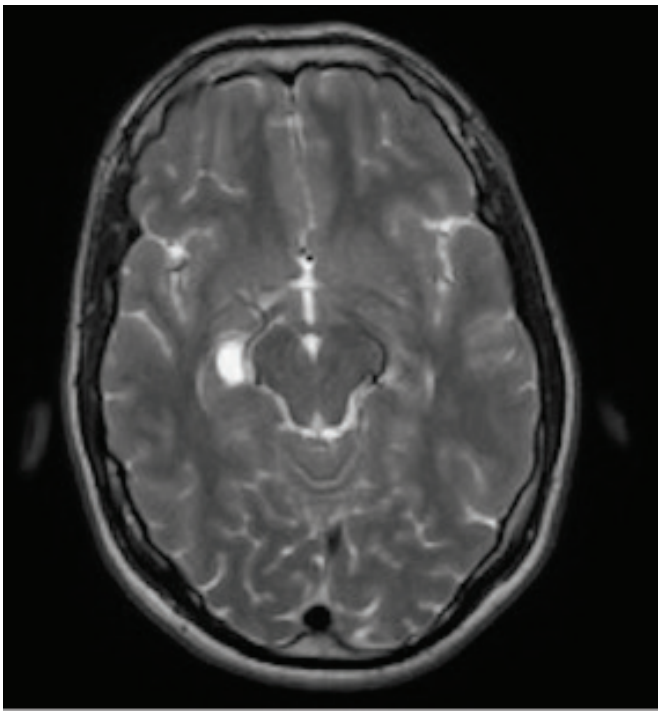
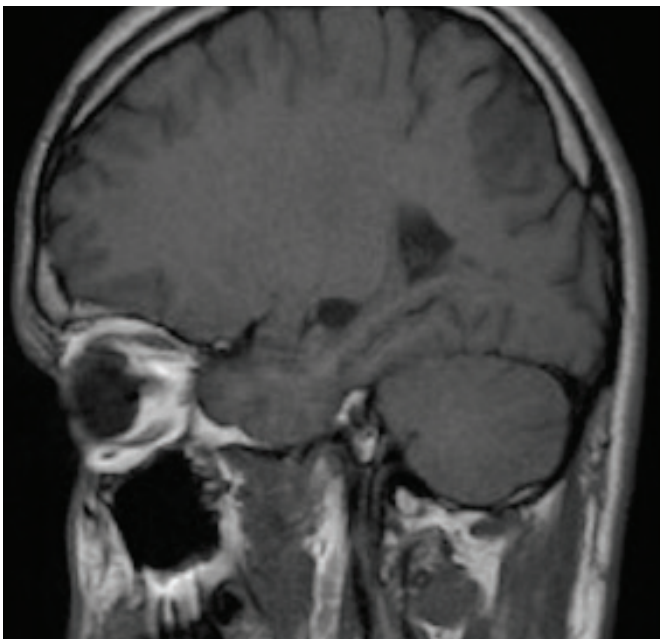


Image 2: Choroidal fissure cyst in T1 sagittal view



3. Discussion

There are many studies showing the relation between structural anomalies of the brain with psychotic symptoms. One of the most frequently encountered cases associated with mental disorders in literature are arachnoid cyst cases. However, choroid fissure cyst is the case, which is seen in our research together with its psychotic table, and the case that is treated with ECT has not been encountered in our literature search. The choroid fissure is the CSF (cerebrospinal fluid pressure) space between the fimbria of the hippocampus and diencephalon. Normally a shallow fissure curves posterosuperiorly from the anterior temporal lobe to the atrium of the lateral ventricle. The tela choroidea is a double layer of the pia mater that invaginates through the choroid fissure to reach the lateral ventricles. Developmental errors may occur at the time of formation of primitive choroid plexus anywhere along the choroid fissure, thus forming a cyst (Sherman et al., 1990). The cysts may be of the neuroepithelial or arachnoid type, but pathological confirmation of a CSF-containing cyst at this specific location has never been published. Because cysts located strictly at the level of the choroidal fissure are usually small and asymptomatic, they are very rarely treated surgically. Therefore, follow-up with regular imaging will be suggested. It is unknown, however, what the exact frequency of these surveillance scans should be and when follow-up can be stopped (de Jong et al., 2011). Choroidal fissure cysts are intracranial cysts occurring at the level of choroidal fissure. Differentiation between neuroepithelial and arachnoid CSF-containing cysts at the level of the choroidal fissure can only be made by histopathological examination (Guermazi, Miaux, Majoulet, Lafitte, & Chiras, 1998). The differential diagnosis can be made with computed tomographic (CT) and MR imaging, the latter being far superior (de Jong et al., 2011). In addition to all of this, if ECT will be applied to the patients with Intracranial mass on the treatment phase, it is recommended to be careful (Weiner, 2001). For example, ECT may cause some side effects by increasing intracranial pressure on the patients with arachnoid cyst. In addition, having some cysts connection with BOS may lead such cysts to enlarge due to the increase on intracranial pressure during ECT (Escalona, Coffey, & Maus-Feldman, 1991). After rupture of cyst, subdural effusion may become symptomatic with subdural hemorrhage or intracystic hemorrhage (Parsch, Krauß, Hofmann, Meixensberger, & Roosen, 1997). However, previous publications stating that ECT can be used safely in cysts which don't cause edema, or intracranial pressure increase or non-pressure meningioma especially and other cysts (Weiner, 2001). ECT has been successfully applied to 8 patients with intracranial arachnoid cyst in literature, three of them were tracked with major depression diagnosis, while the others were tracked with major depression with psychotic characteristic, bipolar disorder, schizoaffective disorder, psychosis and catatonia (Desseilles et al., 2009; Escalona et al., 1991; Perry, Lindell, & Rasmussen, 2007). ECT has been applied after it is shown that the cyst is not growing by comparing with the previously captured brain imaging in three of these cases. In a different study, arachnoid cyst was encountered in the routine BBT of a patient

captured before ECT who has major depression and does not have any previous brain image. ECT application was decided since the patient has suicidal thoughts and did not give enough response to drug therapy. No complications were developed in patient after seven ECT sessions (Bulbul et al., 2013). In our study, seven sessions electroconvulsive treatment (ECT) has applied because of patient's aggression and paranoid delusions, which do not show any decline despite high-dose injections of antipsychotic treatment after hospitalization of the patient, and a significant improvement was monitored in psychotic symptoms and behavior problems of the patient. The case is important as the first case reported in our country with these characteristics. This case shows that ECT application can be a safe and effective treatment option if it does not form any intracranial pressure, pressure, edema or neurological symptoms, the cyst has no connection with ventricles and CSF. Nevertheless, in the treatment of psychiatric disorders accompanied by intracranial structural lesions, the ECT option should be approached cautiously and the opinion of neurosurgeons should be taken by calculating the benefit-loss ratio.

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