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TWO CASES OF SCHIZOPHRENIA; THE RELATIONSHIP BETWEEN CAVUM SEPTUM PELLUCIDUM AND CLINICAL COURSE

İKİ ŞİZOFRENİ VAKASI; KLİNİK GİDİŞ İLE CAVUM SEPTUM PELLUCIDUM İLİŞKİSİ

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Abstract

Septum pellucidum, which forms the medial wall of the lateral ventricles, consists of two laminates. Cavum septum pellucidum (CSP) is defined when there is a space between these laminae. In some MRI studies have shown a higher rate of large CSP in patients with schizophrenia than in normal subjects. Looking at the literature on psychiatric disorders, CSP has been shown to be most associated with schizophrenia. Large CSP supports the neurodevelopmental model, which is one of the etiological explanations of schizophrenia. In our study, two patients with a diagnosis of CSP are mentioned. One of our patients is a first episode of schizophrenia, and the other one chronic schizophrenia patient with a history of multi-drug resistance. The first episode of schizophrenia is consistent with the information available in the literature in terms of the severity of symptoms, weak-response to treatment, and insufficiency of neuropsychological tests. The apparent deficit of the chronic schizophrenia patient suggests that CSP has a neurodevelopmental model in the etiology of schizophrenia, as well as the duration of the disease and non-compliance with treatment. There is no study in the literature comparing the response to treatment with large CSP in schizophrenia. It is thought that investigation of response to treatment in future studies is important for demonstrating the effects of neurodevelopmental model on the treatment of psychiatric disorders.

Keywords: cavum septum pellucidum; schizophrenia; neurodevelopmental model

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Özet

Lateral ventriküllerin medial duvarını oluşturan septum pellucidum iki laminadan oluşmaktadır. Bu laminalar arasında boşluk oluştuğunda Cavum septum pellucidum (CSP) olarak tanımlanmaktadır. Bazı MR çalışmalarında, şizofreni tanılı hastalarda normal kişilerden daha yüksek oranda geniş CSP saptanmıştır. Psikiyatrik bozukluklarla ilgili literatüre bakıldığında CSP'un en çok şizofreni ile bağlantılı olduğu gösterilmiştir. Geniş CSP şizofreninin etiyolojik açıklamalarından biri olan nörogelişimsel modeli desteklemektedir. Çalışmamızda CSP tanısı olan iki olgudan bahsedilmektedir. Hastalarımızdan biri ilk episod şizofreni olup, diğeri geçmişte çok ilaca direnç öyküsü olan bir kronik şizofreni hastasıdır. İlk episod şizofreni olgumuzun belirtilerin şiddeti, tedaviye yanıtı ve nöropsikolojik testlerdeki yetersizlik açısından literatürde mevcut olan bilgilerle uyumaktadır. Kronik şizofreni olgumuzun yıkımının belirgin olması hastalık süresi ve tedavi uyumsuzluğunun yanında CSP'nin şizofreninin etiyolojisindeki nörogelişimsel modeli düşündürmektedir. Şizofrenide geniş CSP ile literatürde tedaviye yanıtın karşılaştırıldığı bir araştırmaya rastlanmamıştır. İlerideki araştırmalarda tedaviye yanıtın araştırılması nörogelişimsel modelin psikiyatrik bozuklukların tedavisindeki etkilerinin gösterilebilmesi için önemli olduğu düşünülmektedir.

Anahtar Kelimeler: *cavum septum pellucidum; şizofreni; nörogelişimsel model*

1. Introduction

The septum pellucidum, a component of the limbic system, is a thin plate of two laminae that forms the medial walls of the lateral ventricles. The SP closes within one month of birth in 15% of subjects and within 6 months in 85% of subjects (Shaw & Alvord, 1969). When these laminae fail to fuse, they form a cavity known as cavum septum pellucidum (CSP) (Sarwar, 1989). CSP, a space between the two leaflets of the septi pellucidi, is thought to be a neurodevelopmental anomaly, and its presence may be consistent with neurodevelopmental theories of schizophrenia. This structure is closely linked developmentally to the limbic system, which has been implicated in the etiology of the disorder (Flashman et al., 2007). Magnetic resonance imaging (MRI) studies have reported a variety of brain abnormalities in association with schizophrenia. Patients with schizophrenia have been found to have significant abnormalities in midline brain regions such as the corpus callosum, septum pellucidum and cerebellar vermis (Srivastava et al., 2015). A meta-analysis studying CSP in schizophrenia spectrum disorders (SSD) revealed that normal variations in small-sized CSPs were not related to SSD, whereas a large CSP tended to be a risk factor. These include a higher incidence of cavum septum pellucidum (CSP), which is consistent with a neurodevelopmental model for this disorder (Trzesniak et al., 2011). The presence of CSP in patients with schizophrenia has been noted significantly more frequent than healthy controls in female patients, male patients, chronic patients, first episode patients, as well as childhood onset schizophrenia. However, several other studies including recent ones have not found a significant difference in frequency of CSP between patients with schizophrenia and healthy controls (Khanra, 2016).

Case 1: First episode schizophrenia

37-year-old male patient, university graduate, unmarried, not working. According to the complaints of the patient himself, his neighbors changed his thoughts and prevented him from getting married. According to the patient's relative, he had suspiciousness, autism and lack of communication.

On the mental status examination of the patient, our findings include; decreased self-care, decreased quantity

of speech and poverty of thought. Affective expression was restricted. In the thought process, loosening of associations, referential and persecutory delusions, thought withdrawal and thought broadcasting were revealed. The patient had psychomotor retardation and avolition. There was serious impairment in the social and occupational functioning of the patient. There was no insight into his disease. Psychiatric evaluation revealed diagnosis of schizophrenia. Cranial MR imaging of the patient has shown CSP. On the neuropsychological assessment, a mild frontal-type memory deficit was detected. The clozapine 250 mg/day dose significantly reduced the psychotic symptoms, after which he gained insight into his disease.

Case 2: Chronic Schizophrenia

56 years old male patient, primary school graduate, married, retired. According to the relative of the patient his complaints include talking to himself, nervousness, aggression and skepticism. He has 13 years of disease history and had multiple hospitalizations. A patient with poor drug compliance was admitted to our clinic due to treatment rejection and homicide risk.

On the mental status examination of the patient, our findings include; decreased self-care, increased the quantity of speech, disorganized speech. Restricted affect was observed. In the thought process, loosening of associations was found. In the content of thought, persecutory delusions were detected. The patient had disorganized behavior. There was no insight into his disease. Psychiatric evaluation revealed diagnosis of schizophrenia. Cranial MR imaging of the patient revealed CSP. Haloperidol Decanoate 200 mg / month was started due to treatment response from haloperidol. The patient's psychotic symptoms have improved. He gained insight into his disease.

2. Discussion

CSP as being present if it is identified on at least one MRI slice (about 1 mm to 1.5 mm thick), and considering a CSP abnormally large if it is greater than or equal to 6 mm in size. Patients with an abnormally large CSP demonstrated poorer performance on measures of verbal

learning and memory than patients with smaller CSP. Among patients, CSP length was significantly correlated with negative symptoms, verbal learning, and sentence comprehension (Flashman et al., 2007). In both of our cases, CSP was detected and the dimensions of CSP were not reported by our hospital radiology. Late response to treatment in Case 1, switching to clozapine treatment, the presence of negative symptoms, and the impairment detected in neuropsychological tests may be associated with this condition. The chronic course of schizophrenia in Case 2 appears as a correlate with studies indicating that degree of CSP association between in male chronic schizophrenic patients (Kwon et al., 1998). On the other hand a recent longitudinal study reported that CSP length increased at a higher rate in FEP patients, which may explain the higher prevalence of CSP in chronic cases (Trzesniak et al., 2012), whereas increased CSP length in patients may be caused by the effects of antipsychotics or the duration of illness (Ho et al., 2011; Liu et al., 2017). This may help us to explain the occurrence of CSP both in the first episode episode and in the chronic schizophrenic patient.

3. Conclusion

The severity of symptoms of our first episode schizophrenia patients, the lack of response to treatment, and the poor performance of neuropsychological tests are consistent with the information available in the literature. The significant destruction of our chronic schizophrenic cases suggests the neurodevelopmental model of CSP in the etiology of schizophrenia as well as disease duration and treatment non-compliance. There was no study comparing the response to treatment in schizophrenic patients with large CSP in the literature. The research of the response to treatment in future studies is thought to be important for showing the effects of the neurodevelopmental model on the treatment of psychiatric disorders.

References

- Flashman, L.A., Roth, R.M., Pixley, H.S., Cleavinger, H.B., McAllister, T.W., Vidaver, R., et al. (2007) Cavum septum pellucidum in schizophrenia: clinical and neuropsychological correlates. *Psychiatry Res.* Feb 28;154(2):147-55.
- Ho, B.C., Andreasen, N.C., Ziebell, S., Pierson, R., Magnotta, V. (2011) Long-term antipsychotic treatment and brain volumes: a longitudinal study of first-episode schizophrenia. *Arch Gen Psychiatry.* ; 68: 128-137. pmid:21300943
- Khanra, S., Srivastava, N. K., Chail, V., & Khess, C. R. J. (2016). Prevalence and Characteristics of Cavum Septum Pellucidum in Schizophrenia: A 16 Slice Computed Tomography Study. *Indian Journal of Psychological Medicine*, 38(5), 455-459. <http://doi.org/10.4103/0253-7176.191381>
- Kwon, J.S., Shenton, M.E., Hirayasu, Y., Salisbury, D.F., Fischer, I.A., Dickey, C.C., et al. (1998) MRI Study of Cavum Septi Pellucidi in Schizophrenia, Affective Disorder, and Schizotypal Personality Disorder. *The American journal of psychiatry.*;155(4):509-515.
- Liu, H., Li, L., Shen, L., Wang, X., Hou, Y., Zhao, Z., et al. (2017) Cavum septum pellucidum and first-episode psychosis: A meta-analysis. *van Amelsvoort T, ed. PLoS ONE.* ;12(5):e0177715.
- Trzesniak, C., Oliveira, I.R., Kempton, M.J., Galvão-de Almeida, A., Chagas, M.H., Ferrari, M.C., et al. (2011) Are cavum septum pellucidum abnormalities more common in schizophrenia spectrum disorders? A systematic review and meta-analysis. *Schizophr Res.* Jan;125(1):1-12. doi: 10.1016/j.schres.2010.09.016.
- Trzesniak, C., Schaufelberger, M.S., Duran, F.L., Santos, L.C., Rosa,

P.G., McGuire, P.K., et al. (2012) Longitudinal follow-up of cavum septum pellucidum and adhesio interthalamica alterations in first-episode psychosis: a population-based MRI study. *Psychol Med.*;42: 2523-2534. pmid:22717008

Sarwar, M., (1989) The septum pellucidum: normal and abnormal. *Am. J. Neuroradiol.* 10 (5), 989-1005.

Shaw, C.M., Alvord, E.C Jr. (1969) Cava septi pellucidi et vergae: their normal and pathological states. *Brain.*;92: 213-223. pmid:5774029

Srivastava, N.K, Khanra, S., Chail, V., Khess, C.R. (2015), Clinical correlates of enlarged cavum septum pellucidum in schizophrenia: A revisit through computed tomography. *Asian J. Psychiatry*