CASE REPORT / OLGU SUNUMU

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Diagnosis of Rolandic Epilepsy in a Patient Presenting with Attention Deficit Hyperactivity Disorder

Dikkat Eksikliği Hiperaktivite Bozukluğu ile Başvuran Bir Hastada Rolandik Epilepsi Tanısı

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ABSTRACT

Attention deficit hyperactivity disorder (ADHD) is the most common neurodevelopmental disorder, and epilepsy comorbidity is common. Rolandic epilepsy (RE) is a common type of epilepsy and is similar to ADHD in terms of age of onset. In this article, we present a case of a child presenting to the child and adolescent psychiatry clinic with ADHD symptoms who was diagnosed with RE on neurological examination. A seven-year-old boy with a family history of epilepsy presented with signs of distraction, hyperactivity, and wandering around the classroom while the teacher was lecturing. The patient who was referred to a pediatric neurologist due to a family history was diagnosed with RE, and treatment was started. ADHD treatment was terminated because of worsening electroencephalogram findings. We wanted to emphasize that the diagnosis of RE should not be overlooked when considering ADHD cases that often arise in our clinic with similar complaints.

Keywords: ADHD, rolandic epilepsy, child, adolescent, treatment

ÖZ

Dikkat eksikliği hiperaktivite bozukluğu (DEHB) en sık görülen nörogelişimsel bozukluk olup epilepsi komorbiditesi yaygındır. Rolandik epilepsi (RE) ise yaygın görülen bir epilepsi türü olup DEHB ile başlangıç yaşı açısından benzerlik göstermektedir. Bu yazıda DEHB belirtileri ile çocuk ve ergen psikiyatri polikliniğine başvuran ve nörolojik muayenesinde RE tanısı alan bir olgu sunulmaktadır. Yedi yaşında ailesinde epilepsi hastalığı bulunan erkek olgu dikkat dağınıklığı, hiperaktivite, öğretmen ders anlatırken sınıfta dolaşma belirtileri gösteriyordu. Aile öyküsü olması nedeniyle çocuk nöroloğuna yönlendirilen olguya çocuk nöroloğu tarafından RE tanısı konuldu ve tedavisi başlandı. DEHB tedavisi elektroensefalogram bulgularını kötüleştirdiği için sonlandırıldı. Kliniğimize benzer şikayetlerle sık başvuran DEHB olgularını düşündüğümüzde RE tanısının atlanmaması gerektiğini vurgulamak istedik.

Anahtar Kelimeler: DEHB, rolandik epilepsi, çocuk, ergen, tedavi

Introduction

Attention deficit hyperactivity disorder (ADHD) is the most common developmental disorder. In a meta-analysis, its prevalence was reported as 7.2 %.[1] In the Diagnostic and Statistical Manual of Mental Disorders, 5th edition, the definitions of symptoms include inattention (9 symptoms) and hyperactivity/impulsivity (9 symptoms).[2] The symptoms must be present in at least two settings and must affect functioning.[3] Children with ADHD often display impaired peer relations, academic underachievement, and emotional dysregulation.[4]

Rolandic epilepsy (RE) or benign epilepsy with centrotemporal spikes is the most common form of idiopathic focal epilepsy in childhood and usually begins between 7 and 10 years of age.[5] Motor focal seizures and particular electroencephalography (EEG) abnormalities in the absence of neurological deficits are the most prominent features.[6] RE classically occurs in cognitively and neurologically healthy children[7] and is typically associated with a good prognosis because seizures are alleviated during adolescence.[8] Among children with RE, 30.0% to 50.0% of patients also have ADHD.[9,10] Here we report a case of RE in a patient applying to an outpatient child and adolescent psychiatry clinic with ADHD symptoms and was diagnosed with RE in his neurological examination.

Case Report

A seven-year-old boy was brought to our clinic by her mother because of "distractibility and hyperactivity and walking around the classroom while the teacher was lecturing". When the medical records of our hospital were examined, it was seen that 3 years ago, when the patient was 3 years and 7 months old, he applied to our clinic with complaints of "hyperactivity, clumsiness, and impulsivity", and no treatment was started. In the psychiatric

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evaluation, it was learned that he was only one child, lived with his parents, was a first-year student, had no history of disease, had epilepsy in his mother, had no academic difficulties, and his developmental stage was compatible with his age. In this interview, a teacher information form was given, and routine blood tests and electrocardiogram results were requested. He was referred to a pediatric neurologist because of a family history of epilepsy. Low ferritin levels were detected in routine blood tests. In the teacher information form, it was observed that he was extroverted, solution-oriented, able to share, work collaboratively although being hasty/messy/hyperactive. He was reported to get along well with his friends but despite having perceptive skills superior to peers could not perform well due to his haste and messiness, lost his belongings, and distracted his friends during the lesson. The Kiddie Schedule for School Age Children - Present and Lifetime Version was applied and current diagnoses of ADHD and oppositional defiant disorder (ODD) and lifetime diagnoses of ADHD, and enuresis nocturna were detected. We also applied the Conners Parent Rating scale which identified symptoms of ADHD and ODD. Although ADHD was considered with these findings, it was learned that he was diagnosed with RE as a result of the EEG examination (during the EEG recording period, sharp wave activity in the left and occasionally right hemisphere centrotemporal region and 6 times generalized spikes, multiple spikes, sharp slow wave activity were detected) performed by a pediatric neurologist, and sodium valproate was started. First, it was explained to the family that seizure control should be provided, and ADHD treatment should be considered later. In the last interview, we learned that he continued antiepileptic treatment; he applied to a child and adolescent psychiatrist in an external center, and atomoxetine was started for ADHD treatment; however, he terminated the treatment in its third week because his follow-up EEG findings worsened with the treatment. Finally, the patient still does not receive ADHD treatment, uses sodium valproate 400 mg/day (started 100 mg/ day) as an antiepileptic, and continues his pediatric neurology follow-ups.

Discussion

This report is important not to miss the differential diagnosis of epilepsy in patients with ADHD symptoms. Epilepsy at a particular developmental stage can impair cognitive maturation in children and increase the risk of attention disorders.[11] Furthermore, epilepsy is substantial in the differential diagnosis of ADHD because it may inhibit learning ability and harm social and psychological functioning.[12-14] Since the ADHD inattentive subtype is the most common type of comorbid ADHD in epileptic populations, it should be considered in children and adolescents who present with attention problems.[15-18]

RE accounts for about 15.0% of all children diagnosed with epilepsy.[19] RE is the most common idiopathic focal epilepsy[5] and shows widespread comorbidity with ADHD.[9] The comorbidity of ADHD and RE is more common than the ADHD-other epileptic syndrome association (8.0-77.0%).[15] ADHD and RE both begin in childhood, are more common in males, and show deficits in executive functions and impulsivity.[20] A study showing symptom overlap in executive function and attention deficit in patients with RE and ADHD[21] underlines the importance of evaluation in the differential diagnosis. Children and adolescents with RE show impaired attentional skills.[22,23] ADHD comorbidity may worsen the condition. ADHD patients with RE have been shown to have worse executive function and attention performance than those with RE without ADHD.[24]

Common neurofunctional pathophysiology and abnormal brain development has been demonstrated in ADHD and RE.[18,25,26] A neuroimaging study found that the parietal and occipital cortex was thinner in patients with RE with ADHD than in healthy controls and those with RE without ADHD. Because of these findings, selective visual attention may be poor in patients with RE and ADHD.[27] Although RE is considered a benign form of childhood epilepsy, official neuropsychological evaluations have shown a higher prevalence of cognitive impairment in these children.[23] Children with RE have worse performance than controls in tasks that include selective attention and inhibition.[28] It has been shown that there are impairments in executive function, such as working memory, organization, planning, inhibition, and verbal fluency, in patients with RE.[29]

In our case, worsening symptoms after ADHD treatment were reported. In a study comparing EEG findings, centrotemporal spikes were found more often in patients with RE receiving ADHD treatment than in those receiving treatment without RE, which supports our case.[21] Conversely, some antiepileptic drugs have been reported to worsen language and cognition, raising questions about the risks and benefits of treatment.[30] The causes of ADHD and RE comorbidity remain unclear.[21] Regarding epilepsy, the synaptic abnormality in excitatory glutamatergic transmission in animal models of ADHD[31] and the higher striatal glutamate concentration in children with ADHD[32] may also explain the vulnerability of children with ADHD to epilepsy.

Conclusion

ADHD and RE show comorbidity and symptom overlap. In addition, ADHD treatment may worsen EEG findings in patients with RE. So, the diagnosis of RE should not be ignored in patients with ADHD, and it should be carefully evaluated, especially in those with a family history of epilepsy.

Ethics

Informed Consent: Written and verbal consent was obtained from the case and family.

Authorship Contributions

Concept: S.A., Design: S.A., Literature Search: S.A.A., Writing: S.A.A.

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