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Case Report

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Cortical Dysplasia and Migraine: Is There Any Coincidental Association?

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ABSTRACT

Cerebral cortical malformations accompany epilepsy and refractory epilepsy, in particular. However, these malformations may also go together with other neurological, psychiatric and developmental disorders. The presentation of a case who has migraine aims to stress that if there is any coincidental association between cortical dysplasia and migraine, or migraine could be casued by cortical dysplasia. A 14-year-old male patient presented with weekly migrainous headaches that had been continuing for two years. Physical/neurological examination, level of intelligence, school performance, laboratory analyses and routine EEG were all normal. Headache period and sleep-deprived EEGs revealed anterior asymmetric slowing of background; no epileptiform activity. Cerebral magnetic resonance imaging of the case showed dysplastic area in the right frontal, digitation in inter-hemispheric sulcus anterior (cortical dysplasia). It was found that the case had been receiving β blocker treatment for 15 months, to which he responded (mild migraine attack bimonthly). Neuro-diagnostic examination of migraine patients for possible structural lesions might ensure making sense of conditions that can arise later, as well as treating surgically the lesions identified in cases resistant to medical treatment. *©2005, Fırat Üniversitesi, Tıp Fakültesi*

Key words: *Cortical dysplasia, migraine, magnetic resonance imaging*

ÖZET

Kortikal Displazi ve Migren; rastlantısal bir birliktelik olabilir mi?

Serebral kortikal malformasyonlar epilepsi, özellikle de dirençli epilepsi ile birliktelik gösterirler. Ayrıca bu bozukluklar diğer nörolojik, psikiyatrik ve gelişimsel bozukluklarla da birliktelik gösterebilir. Burada sunulan ve kortikal displazi ile migren birlikteliğini gösteren olgu, nöronal migrasyon bozukluklarının neden olabileceği başka klinik durumların da olabileceğini göstermekdir. On dört yaşında erkek hasta, iki yıldır devam eden, haftada bir kez olan migren özelliğinde baş ağrısı ile başvurdu. Fizik / nörolojik muayenesi / zeka düzeyi ile / rutin / baş ağrılı dönem ve uyku-yoksunluklu EEG'si normaldi. Olgunun beyin manyetik rezonans incelemesinde sağ frontal bölgede displazik alan, interhemisferik sulkus anteriorunda digitasyon (kortikal displazi) ile uyumlu görünüm vardı. Beş aydır β bloker tedavisi alan hastanın bu tedaviden yanıt aldığı (2 ayda bir hafif migren atağı)) belirlendi. Migrenli hastaların, olası yapısal lezyonlar yönünden daha detaylı nöro-diyagnostik yaklaşımlarla araştırılması, bu hastaların sonradan çıkabilecek olası klinikopatolojik durumların doğru değerlendirilmesine; ayrıca medikal tedaviye dirençli durumlarda belirlenen lezyon cerrahi tedavisine de olanak sağlayabilir. *©2005, Fırat Üniversitesi, Tıp Fakültesi*

Anahtar kelimeler: *Kortikal displazi, migren, manyetik rezonans görüntüleme*

Cortical dysplasia (CD) is the leading disease in the group of diseases called neuronal migration disorders among developmental brain disorders (1). Although abnormalities of cortical structure generally accompany aberrant (departing from normal course) cerebral development and seizures and chronic epileptic conditions, all cortical malformations may not be associated with epilepsy (2,3,4). Conditions that rarely coexist with cortical dysplasia are schizophrenia and affective disorders, dyslexia, autism, motor and intellectual retardation and developmental language disorder (5,6).

The presentation of this case aims to stress that if there is any coincidental association between CD and migraine, or migraine could be casued by CD.

CASE REPORT

A 14-year-old male patient presented at our polyclinic complaining from headache continuing for 2 years. The case was having headaches that occurred approximately twice a week, focused on the back of the neck, continued for 2-3 hours, increased with bad odor, bright light and hunger, was accompanied with nausea and vomiting and was not relieved with pain killers. The case did not have a similar familial history; his level of intelligence (IQ: 110) and school performance were normal. Physical/neurological examination, level of intelligence, school performance, laboratory analyses and routine EEG were all normal. Headache period and sleep-deprived EEGs revealed anterior asymmetric slowing of background; no epileptiform activity. Cerebral magnetic resonance imaging (MRI) of the case showed dysplastic area in the right frontal, digitation in inter-hemispheric sulcus anterior (cortical dysplasia) and an appearance consistent with non-balloon cell of cortical dysplasia (Figure 1-A/B). The patient was diagnosed as migraine in accordance with International Headache Society (IHS) criteria (7).

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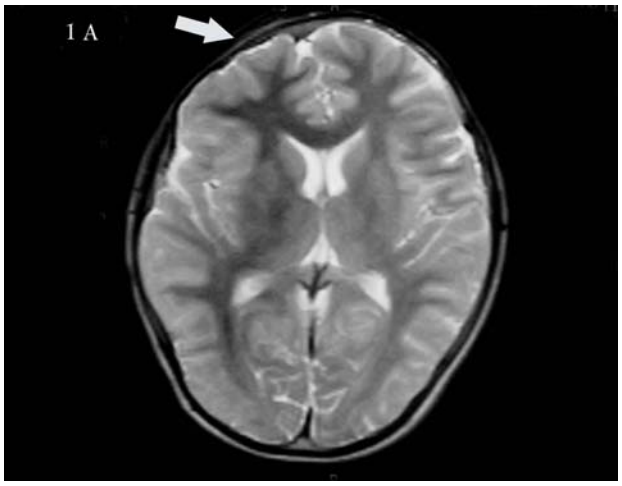

Figure 1a. Digitation appearance in frontal lobe inter-hemispheric sulcus and cortical disorganization (dysplasia) are noted in T1 weighted and T2 weighted

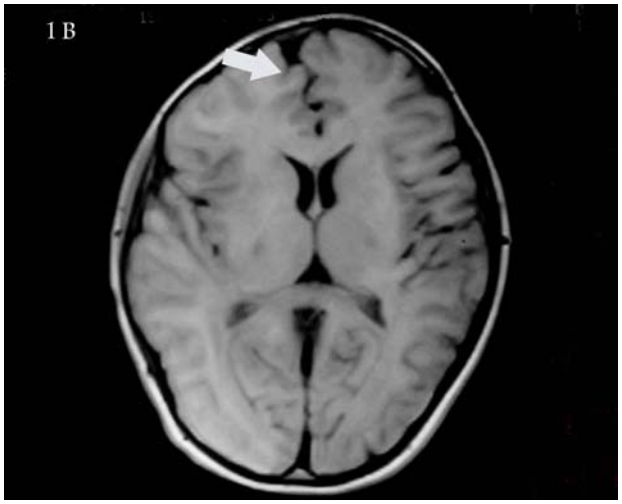

Figure 1b. Digitation appearance in frontal lobe inter-hemispheric sulcus and cortical disorganization (dysplasia) are noted in T1 weighted axial images.

Behavioral modification and headache diary for migraine was recommended. The patient was prescribed flunarizine (sibelium) for 3 months and analgesic for acute migraine attacks, but he did not respond. Then long-term treatment with a beta-blocker agent (propranalol: 0.5 mg/kg/day, po, four doses) was started. It was determined that this mode of treatment provided a marked relief (once in two months) in migraine attacks of the case, who was followed for 15 months.

DISCUSSION

Cerebral cortical malformations accompany epilepsy and refractory epilepsy, in particular. However, there are increasingly more publications asserting that these malformations may also go together with other neurological, psychiatric and developmental disorders (5,6). Epilepsy, headache and migraine may be associated. It is reported that simple/complex or autonomic epileptic seizures may have headache components, that headaches can accompany epileptic phenomena in aura or postictal period and that all these signs can be observed in migraine as well (8). However, our patient's having normal EEG during long-lasting headache attack and sleep deprived periods enabled us to discard the possibility of an epileptic seizure. It is reported that MRI abnormalities can be seen in migraine patients, but these are mostly white matter changes and that surgical treatment may work in migraine patients who are resistant to medical treatment (9). Our investigations showed that there was no report showing co-existence of cortical dysplasia and migraine. It is stated that increased glutamate activity due to epileptic seizures play a role in cortical dysplasia and that the same neurotransmitter is active in cerebral structures associated with migraine (2,4,10,11). In these circumstances, it could be speculated that glutamate, which is responsible for epileptic seizures in cortical dysplasia , can be held responsible for migraine headaches in our patient. Therefore, migraine attacks may be accompanied with epileptic seizures in the future. It is useful to follow the patient in this respect.

Examination of migraine patients for possible structural lesions with neuro-diagnostic approaches might ensure making sense of clinicopathologic conditions that can arise later, as well as surgically treating the lesions identified in cases resistant to medical treatment.

KAYNAKLAR

1. Gleeson JG. Neuronal migration disorders. Ment Retard Dev Disabil Res Rev 2001; 7: 167-171
2. Hirabayashi S, Binnie CD, Janota I, Polkey CE.Surgical treatment of epilepsy due to cortical dysplasia: clinical and EEG findings. J Neurol Neurosurg Psychiatry 1993 ; 56: 765-770
3. Kerfoot C, Vinters HV, Mathern GW.Cerebral cortical dysplasia: giant neurons show potential for increased excitation and axonal plasticity. Dev Neurosci 1999; 21: 260-270
4. Palmini A, Gambardella A, Andermann F, Dubeau F, da Costa JC, Olivier A, et al.Operative strategies for patients with cortical dysplastic lesions and intractable epilepsy. Epilepsia 1994; 35 : 57-71
5. Liang JS, Lee WT, Young C, Peng SS, Shen YZ.Agyria-pachygyria: clinical, neuroimaging, and neurophysiologic correlations. Pediatr Neurol 2002 ; 27: 171-176
6. Palomo T, Kostrzewa RM, Archer T, Beninger RJ. Neurodevelopmental liabilities in schizophrenia and affective disorders. Neurotox Res 2002; 4: 397-408
7. Headache Classification Committee of the International Headache Society.Classification and diagnostic criteria for headache disorders, cranial neuralgias and facial pain. Cephalalgia 1988; 8: 1-96
8. Bigal ME, Lipton RB, Cohen J, Silberstein SD. Epilepsy and migraine. Epilepsy Behav 2003; 4: 13-24
9. Marcus DA.Central nervous system abnormalities in migraine. Expert Opin Pharmacother 2003; 4: 1709-1715
10. 10.Hagemann G, Kluska MM, Redecker C, Luhmann HJ, Witte OW.Distribution of glutamate receptor subunits in experimentally induced cortical malformations. Neuroscience 2003; 117: 991-1002
11. Ramadan NM.The link between glutamate and migraine. CNS Spectr 2003; 8: 446-449

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