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The Alice in Wonderland Syndrome: A Case of Aura Accompanying Cluster Headache

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Background: Cluster headache (CH) is a primary headache which has highly specific and sensitive criteria, and notpresence of an aura. It has been recently reported that CH may not presence with aura more than ever and this condition will be identified by headache specialists as a new form of CH.

Case Report: As there is no report to our knowledge on Alice in Wonderland syndrome (AIWS) manifested as CH aura in the literature, we present a case of a 35-year-old man having AIWS as CH aura.

Conclusion: Clinically, AIWS is not uncommon and is likely to be underestimated as a diagnostic entity. Valproate may be preferred for treatment in CH patients with AIWS aura.

Keywords: Aura, cluster headache, Alice in Wonderland syndrome, valproate

Migraine aura is characterized clinically, by focal visual/sensory/speech disturbance(s) preceding or accompanying a headache attack, developing gradually over 5 to 20 minutes, not lasting more than an hour (1,2). However, auras are not exclusively migraine-dependent. Auras have been described to occur in association with cluster headache (CH), hemicrania continua, even with chronic paroxysmal hemicrania (3). We describe a 35-year-old man with Alice in Wonderland syndrome (AIWS) manifested as aura of CH. Although the name AIWS was first used by Todd in 1955, it was specifically described by Lippman in 1952 within a report on patients whose distorted body image was associated with migraine attacks (4). The neurological syndrome, itself, borrows the name from the famous book Alice's Adventures in Wonderland, published in 1865 under the name of Lewis Carroll, which in fact is a the pseudonym of Charles Lutwidge Dodgson. In the opening scene of the book, Alice jumps down a rabbit hole and afterward has several fantastic experiences (5).

CASE PRESENTATION

A thirty-five year-old male patient with a four-year history of episodic CH has been examined in the outpatient clinic. Pain attacks repeated 3–5 times a day, lasting 0.5–1 hours for 3–4 weeks, with no pain noted for 1 year afterwards. Pain was defined to be localized on the left orbital and peri-orbital region. The headache was defined by the patient to have a severe and throbbing nature, co-existing with ipsilateral conjunctival hiperemia and nasal congestion. During the attacks, the patient indicated receiving subcutaneous sumatriptan (Imigran Subject, Glaxo Smith Kline İlaçları San.ve Tic.A.Ş., İstanbul, Turkey) and used methylprednisolone (Prednol, Mustafa Nevzat İlaç Sanayii A.Ş., İstanbul, Turkey) as prophylactic treatment. The pain attacks commencing in this era were different compared to others, manifested as a perception of enlargement of the left side of the head, a length increase in left-side extremities, a slowing-down of overall movements, surrounding objects appearing to be far away/smaller, color changes of the self and surrounding objects such as hair or dress, lasting 2–5 minutes just before headache onset. At that instant, the patient perceives himself as a giant with a great amount of fear. The patient has been re-oriented to the psychiatry clinic with AIWS findings interpreted to be psychiatric, from the emergency service he applied to after his post-aural headache. He had no family history of migraine or any other neurological disorders.

The patient did not have any history of drug abuse, depression, or psychiatric illness. Systemic blood pressure was

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normal. General, systemic, and ophthalmologic examination during episodes of headache and the inter-morbid period were normal. Investigations including blood counts, serum electrolytes, and biochemistry were all within normal limits. A normal magnetic resonance imaging (MRI) (Symphony; Siemens, Erlangen, Germany) of the brain ruled out any structural pathology and electroencephalography (EEG) (Neurofax EEG-9200K, Nihon Kohden corp., Tokyo, Japan) was normal. None of the events was associated with evidence of a seizure. Initially, the patient started taking methylprednisolone 80 mg once daily. He displayed remission of the headache but persistence of the visual phenomenon. No changes were observed in the number and duration of auras after methylprednisolone treatment. Valproate (VPT) (Depakin, Sanofi Aventis İlaç A.Ş., İstanbul, Turkey) treatment was then added to the methylprednisolone. VPT (500 mg) was started once daily and was gradually increased to 1000 mg regarding the clinical response. The patient was followed for three months with a daily dosage of 1000 mg of VPT and showed clinical improvement. Since adding the VPT treatment, so far he has not had any episode of headache or visual symptoms. Also, the patient signed an informed consent form indicating that he approved publication of the data.

DISCUSSION

Cluster headache (CH), a well-defined type of primary headache (International Classification of Headache Disorders, 2nd Ed.), has highly specific and sensitive criteria; however, not including the presence of an aura (1,2). CH is characterized by severe unilaterally temporal or peri-orbital pain and lasts 15 to 180 minutes, being accompanied by autonomic symptoms in the nose, eyes, and face. In most cases, headaches recur in the same time interval each day during the cluster period, and can last from weeks to months. CH has a circadian periodicity, as attacks can be clustered in bouts occurring during specific months of the year. CH has recently been shown in the literature to coexist with an aura, as suggested by more cluster patients diagnosed by headache specialists to have new forms of this well-defined primary headache syndrome (6). Despite aura not being frequent in CH, up to 14% of patients report aura symptoms with transient sensory or motor disturbances preceding the facial pain. In chronic CH, auras have been reported in 20% of patients (7).

A precise explanation for aura in cluster patients is not known yet, but the presence of aura may implicate recruitment of brain areas in addition to the hypothalamus, which has been suggested as a possible generator of cluster periods (2,6). Cortical spreading depression may be a possible mechanism of aura in cases of brain involvement, which may modulate the hypothalamus directly or via an effect on orexin A and also lead to nitric oxide production (2,6).

AIWS is characterized by transient episodes of visual hallucinations and perceptual distortions, where objects or body parts are perceived as being altered in various ways (metamorphopsia), together with enlargement (macropsia) or reduction (micropsia) in their perceived size (8). In addition to migraine, AIWS has also been associated with epilepsy, Epstein Barr infection, other central nervous system infections, intoxication due to hallucinogenic drugs, hyperpyrexia, hypnagogic states, and schizophrenia (9). Migraine patients with AIWS have also shown abnormal perfusion in the medial temporal, hippocampus, temporo-occipital or temporo-parieto-occipital regions (9).

To our knowledge, there is no report about AIWS as aura of cluster headache in the literature. In the presence of aura or other migraineous symptoms, diagnostic confusion with migraine could occur, which could lead to a diagnostic delay of CH and is a significant problem. AIWS is not an uncommon clinical picture and should not be underestimated as a diagnostic entity.

Patients with AIWS can potentially be misdiagnosed, as in our case, with a psychiatric diagnosis in emergency or neurology clinics, causing delays in treatment. Accordingly, patients having manifestations of the syndrome should be dealt with carefully, provided that the nature/properties of the headache are questionable. The auras, being very short in duration, prevent the use of more advanced techniques such as EEG and MRI. Management of cluster headache includes preventing trigger factors, acute attack treatment (100% nasal oxygen inhalation, subcutaneous and intranasal sumatriptan, intranasal lidocaine (10), etc.), short and long term prophylactic treatment (methylprednisolone, verapamil, topiramate, VPT, gabapentin, etc.) and surgery. VPT treatment was found to be efficient in our case, in agreement with the literature. Hence, VPT may be preferred for treatment in CH patients with AIWS aura. Obviously, this result does not indicate that there will not be another cluster period.

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