PEDIATRIC ONCALL
CHILD HEALTH CARE

CASE REPORTS

ALICE IN WONDERLAND SYNDROME - WHEN THE MIND DECEIVES US

Inês Barreira do Couto[1], Joana Monteiro[1], Joana Monteiro[1], Matilde Pinto[2], Jorge Rodrigues[1], Rui André[3].

[1]Department of Pediatrics, Unidadade Local de Saúde Viseu Dão-Lafões, Viseu, Portugal,
[2]Department of Pediatrics, Centro Materno Infantil do Norte, Centro Hospitalar Universitário de Santo António,
[3]Department of Neurology, Unidadade Local de Saúde Viseu Dão-Lafões, Viseu, Portugal.

ABSTRACT

Introduction: Alice in Wonderland Syndrome (AIWS) is a rare neurological condition that affects multisensory perception, characterized by transient disturbances in visual and somatosensory domains. Symptoms are typically paroxysmal and self-limiting but can recur. Several underlying conditions can be associated with this syndrome, including infectious and neuropsychiatric disorders. Diagnosis is clinical, after excluding other potential etiologies.

Case report: We report the case of a 9-year-old boy with a 4-year history of recurrent episodes of visual distortions accompanied by holocranial headache. Physical examination was unremarkable, and complementary investigation revealed no abnormalities. Given the absence of another underlying condition, a diagnosis of AIWS associated with migraine with aura was established and reassurance was given.

Discussion/Conclusion: Recognition of this syndrome is essential for timely diagnosis, avoidance of unnecessary investigations, and appropriate management. Treatment should address the underlying condition, although in most cases, reassuring the benign nature of the symptoms is sufficient for relief.

ARTICLE HISTORY

Received 15 Feb, 2026

Accepted 20 Apr, 2026

KEYWORDS

Migraine, Micropsia, Macropsia, Alice in Wonderland Syndrome, Pediatrics.

Introduction

Alice in Wonderland syndrome (AIWS), first described by John Todd in 1955, is a rare perceptual disorder characterized by abnormal integration of visual and somatosensory stimuli, leading to distortions in self-perception, spatial awareness and somesthetic sensations. Although it can occur at any age, AIWS is more common in childhood and adolescence.[1,2]

Visual and somesthetic distortions of an individual's body image or surrounding objects and people are the hallmark features of AIWS.[1,3,4]

Bizarre visual illusions are the most commonly reported manifestation in the literature.[4,5] They may include distortions of size – where objects or people are perceived to be smaller (micropsia) or larger (macropsia); of distance – where they appear to be farther (teleopsia) or nearer (pelopsia); or distortions of shape and colour.[1] A myriad of other symptoms, including depersonalization, derealization, chronotaraxis, aschematia or somatopsychic duality may also occur.[3,5] Unlike hallucinations, these phenomena represent distortions of sensory perception, and affected individuals, especially children, are often frightened or confused and describe them with exquisite detail.[4,5]

Symptoms are typically brief, lasting from minutes to days, and usually resolve spontaneously or after treatment of the underlying cause, but can recur over time.[3]

No ICD-10 or DSM-5 diagnostic criteria have been established for AIWS and, therefore, diagnosis is clinical.[4] In suspected cases, particularly when there is diagnostic uncertainty, supplementary investigation, including blood tests, neuroimaging or electroencephalography (EEG), is advised to exclude other potential causes. [4,5]

This syndrome is associated with a broad spectrum of underlying etiologies. In children, infectious diseases, particularly Epstein–Barr virus, are the most common cause, followed by migraine.[6,7] Intoxications and neuropsychiatric conditions, namely, epilepsy, anxiety, schizophrenia or delirium have, as well, been described.[2,3,7]

For AIWS associated with migraine with aura, diagnostic criteria are still not consensual, though proposed features include typical paroxysmal visual and body schema illusions with personal or family history of migraine, and normal complementary investigation.[7] Importantly, AIWS episodes often occur close to migraine attacks but they can precede, accompany, or even replace the typical migraine symptoms.[8] Physical and mental stress may exacerbate migraine headaches and AIWS symptoms, highlighting the overlap between physical and psychological pathomechanisms.9 Migraine preventive treatments usually decrease or even resolve AIWS episodes.[10]

Although episodes can be unsettling, AIWS is generally considered a transient and benign condition, with an excellent long-term prognosis.[3] Treatment should address the underlying condition, although in many

Address for Correspondance: Inês Barreira do Couto, Travessa da Mata Mansa n. 12 Rio de Loba, 3505-519 Viseu.
Email: inesbocouto@gmail.com

cases, simply providing reassurance about the benign nature of the symptoms is sufficient for relief.[9]

CASE REPORT

We report the case of a 9-year-old boy who presented to the Emergency Department (ED) with paroxysmal episodes of visual distortions consistently followed by holocranial headache. Symptoms had been recurring for over four years, with increased frequency over the past week.

He described paroxysmal visual distortions, in which surrounding people and objects varied in size, at times appearing smaller (micropsia) and farther (teleopsia), and at other times larger (macropsia). Episodes resolved spontaneously within 15 minutes and were consistently followed by an intense, pulsatile, holocranial headache lasting about one hour. He reported increasing anxiety and distress related to the unpredictability of these episodes.

Consciousness impairment, focal weakness, abnormal limb movements or other concomitant symptoms were denied. Past medical history was unremarkable, with normal neurodevelopment. There was no history of drug use, central nervous system infection, fever or trauma. Family history was notable only for migraine. Physical examination, including complete neurological and ophthalmological assessment with funduscopic examination was unremarkable. Laboratory investigation, including complete blood test panel, Cytomegalovirus and Epstein-Barr virus serologies, and urine toxicology screening were all within normal limits. Neuroimaging by computed tomography scan revealed no abnormal findings. The patient was discharged from the ED with arrangements for an outpatient EEG to exclude an underlying epileptic condition. Lifestyle modifications, relaxation techniques and migraine management strategies were recommended, and he was instructed to maintain a headache diary.

A routine awake and sleep EEG was subsequently performed, with recurrence of visual symptoms during the recording, yielded no abnormal electroencephalographic findings. Given the lack of significant findings, a diagnosis of AIWS associated with migraine with aura was established. Anticipatory guidance regarding the association with migraine was provided, and both the patient and the family were reassured about the benign and transient nature of the symptoms.

Follow-up appointment within three months to monitor symptom recurrence and discuss migraine prophylaxis showed that no further episodes occurred. One year after the initial presentation, the patient remained symptom-free, with complete spontaneous resolution of both perceptual disturbances and migraine episodes.

DISCUSSION/CONCLUSION

AIWS remains a poorly known and frequently misdiagnosed condition, largely due to the absence of standardized diagnostic criteria. The nonspecific and transient nature of its symptoms often poses diagnostic challenges, particularly when perceptual illusions precede or occur independently of typical migraine headaches. Therefore, maintaining a high index of suspicion is essential for a timely and accurate diagnosis.

In this case, the coexistence of characteristic perceptual distortions with normal neurological and ophthalmological examinations, unremarkable complementary investigation, and a family history of migraine supported the diagnosis of AIWS associated with migraine with aura. Recognition of this association is crucial to avoid unnecessary investigations and ensure appropriate management.

Although AIWS episodes can be frightening, they are typically transient and self-limiting, recurring during migraine attacks. Given the influence of physical and psychological stressors on migraine pathophysiology, anxiety reduction may help decrease the frequency and intensity of episodes. For children presenting with migraine and perceptual disturbances, early recognition of AIWS is crucial not only for clinical orientation but also for family reassurance. In many cases, providing clear explanations about the benign nature of the symptoms is sufficient to alleviate stress and improve outcomes. Patient and family education, together with lifestyle modification and adequate analgesia during migraine episodes, remains the cornerstone of care.

This case highlights the importance of considering AIWS in the differential diagnosis of children presenting with visual or somesthetic illusions. Early recognition allows accurate diagnosis, prevents misinterpretation of symptoms as epileptic or psychogenic phenomena, and improves clinical guidance and family reassurance. Increased clinician awareness of this entity is essential to improve identification of this unusual but distinctive syndrome.

Compliance with Ethical Standards
Funding: None
Conflict of Interest: None

References:

1. Mastria G, Mancini V, Viganò A, Di Piero V. Alice in wonderland syndrome: a clinical and pathophysiological review. BioMed Research International. 2016;2016(1):8243145.
2. Lanska JR, Lanska DJ. Alice in wonderland syndrome: somesthetic vs visual perceptual disturbance. Neurology. 2013;80(13):1262–4.
3. Blom JD. Alice in wonderland syndrome. Neurol Clin Pract. 2016;6(3):259–70.
4. Shah A, Magaña SM, E. Youssef P. Do You see what I See? A case of Alice in wonderland syndrome with EEG correlate. Child Neurology Open. 2020;7:2329048X20932714.
5. Blom JD, Nanuashvili N, Waters F. Time distortions: a systematic review of cases characteristic of Alice in wonderland syndrome. Front Psychiatry. 2021;12.
6. Fitzek MP, Mecklenburg J, Overeem LH, Lange KS, Siebert A, Triller P, et al. Alice in wonderland syndrome (AIWS): prevalence and characteristics in adults with migraine. J Neurol. 2024 Aug;271(8):5146–55.
7. Frattale I, Papetti L, Ursitti F, Sforza G, Monte G, Voci A, et al. Visual disturbances spectrum in pediatric migraine. J Clin Med. 2023;12(8):2780
8. Farooq O, Fine EJ. Alice in wonderland syndrome: a historical and medical review. Pediatr Neurol. 2017;77:5–11.
9. Matsuura K, Ishikura R, Oguri M, Saito Y. Atypical symptoms in migraine-related Alice in wonderland syndrome: expansion of the phenotype and reflection on the pathomechanism. Yonago Acta Med. 2019;62(1):163–5.
10. Mastria G, Mancini V, Di Cesare M, Puma M, Alessiani M, Petolicchio B, et al. Prevalence and characteristics of Alice in wonderland syndrome in adult migraineurs: perspectives from a tertiary referral headache unit. Cephalalgia. 2021;41(5):515–24.