Case Report

Psychogenic Non-Epileptic Seizure in a Child Following Electrophysiology Examination of the Eyes

Seyed Mohammad Masoud Shushtarian *[1], PhD; Khadijeh Haji Naghitehrani [2], MD; Ahmad Shojaei [3], MD; Ardeshir Papei [3], MD

1. Department of Biophysics and Biochemistry, Faculty of Advance Science and Technology, Tehran Medical Sciences, Islamic Azad University, Tehran, Iran.
2. Department of Neurology, Faculty of Medicine, Tehran Medical Sciences, Islamic Azad University, Tehran, Iran.
3. Basir Eye Health Research Center, Iran University of Medical Sciences, Tehran, Iran.

***Corresponding Author:** Seyed Mohammad Masoud Shushtarian
E-mail: mshushtarian@yahoo.com

Abstract

An eleven-year-old boy suffering from retinitis pigmentosa, deafness, and aphasia was referred to Basir Eye Clinic, Tehran, Iran, for visual evoked potential and electroretinography recordings. He left the laboratory on foot, but after fifteen minutes, he suffered a seizure. The condition was managed, and the diagnosis of a psychogenic non-epileptic seizure was reached.

Keywords: Psychogenic; Seizure; Visual Evoked Potential; Electroretinography.

Article Notes: Received: Nov. 20, 2022; Received in revised form: Dec. 10, 2022; Accepted: Jan. 24, 2023; Available Online: Apr. 02, 2023.

How to cite this article: Shushtarian SMM, Haji Naghitehrani Kh, Shojaei A, Papei A. Psychogenic Non-Epileptic Seizure in a Child Following Electrophysiology Examination of the Eyes. Journal of Ophthalmic and Optometric Sciences . 2023;7(2): 44-6.

Introduction

The visual system includes the eyes and the brain. Light enters the eye and hits the retina, triggering light receptors to send electrical signals through the optic nerve, which travel to the back of the brain.

To screen the retina and optic nerve, electroretinography (ERG) and visual evoked potentials (VEP) are used. These two techniques are useful for diagnosing pathological changes. Fatemian et al., [1] worked on patients suffering from Bardet-Biedl syndrome (BBS). They found that in these patients, the retina is degenerated, which can be proven by the ERG testing [1]. They reported that among these patients the ERG b-wave amplitude is reduced, and on the other hand, the latency of the same peak is increased, indicating pathological changes in the retinas of BBS patients. Shushtarian et al., [2] conducted a study on the usefulness of VEP in diagnosis of patients suffering from dyslexia. They concluded that this disease influences the visual pathway, which can be evaluated using VEP testing [2].

It has been observed that while recording VEP and ERG, certain unexpected events may occur, which should be considered and managed by the operators. For example a case has been reported regarding a female patient suspected of multiple sclerosis who was referred for VEP testing [3]. She was thirty-one-years-old and had only light perception ability in the right eye due to optic neuritis, while the vision in her left eye was normal. Recording the VEP test for the left eye was successful and the authors used flash VEP to record the VEP for the right eye due to visual decay in that eye [3]. During the recording, the patient complained of a severe headache [3]. The patient's history showed she was suffering from migraines, and the headache during VEP recording was triggered by the flash stimulation. The authors suggested that patients should be informed about the possibility of headaches during VEP recording [3]. Dizziness and vomiting have also been reported in a patient undergoing pattern reversal checkerboard VEP [4].

Here we report a child with sudden seizure occurring fifteen minutes after VEP and ERG recording.

Case Report

An eleven-year-old boy was referred to Basir Eye Clinic, Tehran, Iran, for VEP and ERG tests. The patient suffered from retinitis pigmentosa and deafness, implying probable diagnosis of Usher syndrome. He could not talk properly, and had aphasia. The optometrist could not determine the patient's visual acuity accurately due to severe visual impairment. VEP using flash stimulation was performed on the patient due to the lack of visual acuity. The VEP was quite abnormal, with a severe delay in the VEP P100 latency. For ERG recording, tropicamide 1% was used to dilate the pupil. The ERG b-wave amplitude was quite reduced in both eyes.

The patient was asked to leave the room and wait to receive the report. After fifteen minutes, while outside the room, the patient suffered a seizure. The medical personnel managed the condition and the patient recovered and was transferred to the emergency ward of a nearby pediatric hospital. They also asked the patient's parents about any previous history of seizures, and the answer was negative. After thoroughly examining the patient's history and inquiring about the situation in the clinic, we diagnosed a psychogenic non-epileptic seizure (PNES), probably caused by the stress and anxiety of the patient due electrophysiology and VEP testing.

Discussion

An eleven-year-old boy with multiple illnesses

was referred for VEP and ERG tests. He had poor vision. Fifteen minutes after finishing the test while waiting for the results he suddenly experienced a seizure. The patient did not have a history of previous seizures. Considering the patient's overall condition and lack of a history of previous seizures, he was diagnosed with PNES caused by anxiety, based on electrophysiology and VEP testing.

Reilly et al., [5] presented a review article on PNES in children. They believed that PNES is due to paroxysmal events. PNES are usually understood as the manifestation of conversion disorder that reflects underlying psychological distress. Psychogenic events following electrophysiological examination of vision have been previously reported. For example an eleven-year-old male child with a complaint of severe unexplained visual loss underwent VEP testing [6]. During the examination, he unexpectedly developed coughing followed by heavy vomiting, despite not showing any prior signs of nausea [6]. The medical team examined the patient for possible reasons for vomiting during the VEP examination, and the final diagnosis was psychogenic vomiting, which was triggered by psychological factors rather than any underlying physical illness [6].

Conclusion

Psychogenic events like PNES, as in the present case, may occur during a number of medical procedures, including electrophysiological examinations of vision. The concerned operator must be alert to unexpected incidents and manage these conditions effectively.

Authors ORCIDs

Seyed Mohammad Masoud Shushtarian: https://orcid.org/0000-0002-6387-9046

References

1. Fatemian N, Shushtarian SMM, Shojaei A, Pour Mazar R. Retinal Screening of Patients Suffering from Bardet – Biedl Syndrome Using Electroretinography. Journal of Ophthalmic and Optometric Sciences. 2022;6(1):21-7.

2. Jazayeri SY, Shushtarian SMM, Vafaei A. Visual Evoked Potential Findings in Patients with Dyslexia. Journal of Ophthalmic and Optometric Sciences. 2023;7(1): 1-4.

3. Shushtarian SM, Adhami-Moghadam F, Naser M, Shojaei A. Severe Headache Initiated by Flash Stimulation During Visual Evoked Potential Recording in a Patient with Monocular Optic Neuritis and History of Migraine Headache. Journal of Ophthalmic and Optometric Sciences. 2017;1(4):36-9.

4. Shushtarian SMM. Dizziness and Nausea Feeling During Pattern Reversal Checkerboard Visual Evoked Potential Recording in A Multiple Sclerosis Patient. Journal of Ophthalmic and Optometric Sciences. 2021;5(3):44-7.

5. Reilly C, Menlove L, Fenton V, Das KB. Psychogenic nonepileptic seizures in children: a review. Epilepsia. 2013;54(10):1715-24.

6. Méndez-Ruiz JM, Martínez-Taboas A, Valdez-Pimentel YM, Torres-Narváez M, Colón-Laboy M, Jiménez-Colón GG, et al. Clinical Profile of Patients with Psychogenic Non-epileptic Seizures in Puerto Rico. P R Health Sci J. 2017;36(4):212-7.

Footnotes and Financial Disclosures

Conflict of interest:

The authors have no conflict of interest with the subject matter of the present manuscript.