

## End-point nystagmus and EMDR

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### ABSTRACT

Eye movement desensitization and reprocessing (EMDR) is a psychotherapy that helps people to heal from trauma or other disturbing life experiences. In this article, the appearance of nystagmus in the eye during the application of the EMDR method was discussed while treating a 16-year-old adolescent girl who presented with a complaint of not eating meat following a traumatic event. Although, eye movements are used in EMDR, nystagmus can impede the patient's ability to maintain eye movements. After excluding additional pathologies related to the eye, alternative bilateral stimulations can be used in EMDR.

**Keywords:** Adolescent, Childhood trauma, EMDR, Nystagmus

### 1. INTRODUCTION

Eye movement desensitization and reprocessing (EMDR) is an empirically supported, 8-stage psychotherapeutic intervention that was developed based on the adaptive information processing (AIP) model. The primary aim of EMDR is to ameliorate the distress caused by traumatic memories [1]. In EMDR, bilateral stimulation (BLS) is utilized through various methods. Most therapists use finger movements, but some therapists use alternatives to finger movements such as butterfly hug, vibration, and two-directional touches to body parts like legs or shoulders as part of EMDR therapy. As it can be challenging to follow eye movements depending on the age group of children, BLS can be applied through alternative methods mentioned above, while EMDR can be easily applied through eye movements in adolescents. In this report, we aim to share a situation related to the eye movements of a 16-year-old adolescent girl that emerged during the use of EMDR.

### 2. CASE REPORT

A 16-year-old female patient, presented to the Child and Adolescent Psychiatry Clinic with complaints of fatigue, hair loss, and anxiety during exams. She was attending 10th grade at a boarding high school. In her history, it was noted that she

had been following a "vegetarian" diet for the past 7-8 months. She expressed discomfort with eating meat after holding the head of a sacrificed animal at the age of 12 and reduced her meat consumption. Although, she felt the need for a diet containing meat, it was revealed that the memory of the event she experienced 8 months ago, came to her mind frequently, preventing her from eating meat.

In the patient's medical and family history, the older of the two healthy children of a 45-year-old nurse mother and a 50-year-old veterinarian father, it was learned that during the mother's pregnancy, the glucose loading test was elevated, but no medication was used, and she was born healthy through a normal pregnancy by vaginal delivery, weighing 3500 grams. The developmental milestones were reached on time. At the age of 1.5, the child was thought to be not gaining weight because she was breastfed, so efforts to wean her were made by attaching something to the nipples. Walking and speaking milestones were met without any issues, and there were no problems during toilet training.

Until the age of 1, the child was cared by her mother, and from then on, the grandmother provided care until the age of 3.5 when she started daycare school due to the mother's work. She had a history of appendectomy at the age of 8. The child learned

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to read and write in the 1st grade of elementary school, and her academic performance was consistently good. There have been no issues in terms of relationships with friends and teachers.

During the mental status examination, her external appearance was age-appropriate, cooperative, her speech was clear and purposeful, psychomotor activity was slightly increased, and mood was mildly anxious. Her affect was appropriate, consciousness was clear, and her orientation was intact. Thought associations were regular, and the content of her thoughts revolved around exams and meals. She experienced flashbacks, had no perceptual disturbances, and clinically, her intelligence was normal. She also had intrusive, involuntary memories and imaginations related to the traumatic event, as well as feelings of nausea and disgust triggered by the smell or sight of meat. Additionally, she displayed avoidance behaviors, such as avoiding the kitchen, cafeteria, or dining areas to distance herself from these distressing situations. Post-event negative cognitions and emotions were mentioned during the EMDR session below. She was diagnosed with post-traumatic stress disorder according to the The Diagnostic and Statistical Manual of Mental Disorders (DSM) – 5 diagnostic criteria [2].

She expressed that she has been feeling tired and fatigued lately, especially during study periods for exams, which has hindered her ability to focus on her studies and has caused anxiety. She mentioned that she does not consume meals from the cafeteria but eats non-meat-containing foods. There is no significant weight loss, and laboratory investigations ruled out iron deficiency anemia.

It was decided to apply the EMDR therapy to work on the specific incident, as the individual had developed meat aversion due to a traumatic experience, and her current issue revolved around this matter.

During the preparation phase, she was introduced to EMDR therapy and techniques such as bilateral stimulation (BLS) through eye movements and tapping were demonstrated. The application distance, tracking distance, and speed of eye movements were adjusted and demonstrated to the patient. Based on the patient's formulation, a treatment plan was created, and the standard protocol was planned to be implemented [1]. A safe place was planned to be established during the preparation phase. During the safe place exercise, it was observed that the patient's lateral gaze crossed the saccadic midline during slow BLS through eye movements. This occurrence made it difficult for the patient to follow finger movements in almost every slow set. Consequently, the patient was switched to tapping on the leg after discussing the issue. The patient did not have any medical conditions, and the Ear-Nose-Throat (ENT) examination was unremarkable. The patient's current nystagmus was determined not to be related to any peripheral vestibular pathology during the ENT examination. After a consultation by an ophthalmologist, she was diagnosed as having bilateral myopia according to the examination findings. Jerk nystagmus (end-point nystagmus) was observed in both lateral gaze positions. The patient was treated with glasses for myopia.

The preparation phase was completed with breathing exercises, mindful exercises, establishing a safe place, and the use of the container exercise.

During the assessment phase, the target memory was identified, along with the image that was most disturbing to the individual, the negative cognition related to the event ("I am a terrible person"), and the positive cognition ("I am a good person"). The Validity of Cognition (VoC) Scale score was 3. The VoC is a 7-point Likert-type scale where a score of 1 indicates an adaptive cognition that is entirely implausible, while a score of 7 indicates a cognition that is entirely plausible. The emotions experienced included anger, hatred, and sadness. The Subjective Unit of Distress (SUD) scale, which ranges from 0 (no disturbance) to 10 (the highest level of disturbance), was rated as 7. The location of the body sensation was identified as the shoulders. In the desensitization phase, BLS was continued by tapping on the legs. The session was completed with a VoC score of 7 and a SUD score of 0, with the body feeling cleansed at the end of the session. It was learned that the individual ate sausages before the next session.

During the follow-up appointments, reassessment was conducted, and triggers were systematically addressed in accordance with the standard protocol. On the 5th session, it was observed that the patient had consumed baked fish and chicken, was not bothered by meat odors, and did not experience discomfort when utensils came into contact with meat. During the sessions, preventive interventions were discussed with her and her family to prevent retraumatization as the Sacrifice Feast approached. Academic performance and family and peer relationships were functioning well.

### 3. DISCUSSION

Nystagmus is the rhythmic, involuntary, rapid, jerky, and uncontrollable movement of the eyes. These involuntary eye movements are classified as horizontal (side-to-side), vertical (up-and-down), and rotatory (torsional) nystagmus according to their movement axis, and as jerk, pendular, or combined nystagmus according to their amplitude and speed [3]. Manifest nystagmus is continuous, while latent nystagmus occurs when binocular vision is prevented. Pathological nystagmus may be associated with ocular, vestibular, or central nervous system pathologies, while physiological nystagmus such as end-point, optokinetic, and vestibular nystagmus can be observed in healthy individuals [4]. End-point nystagmus is a physiological condition that occurs at extreme lateral gaze positions. Studies have shown that it can occur in varying proportions in the general population, depending on the gaze angle, ranging from 0-71% at up to 30 degrees lateral gaze positions and 0-100% at up to 45 degrees lateral gaze positions [5-8]. The characteristics of end-point nystagmus are that it occurs during slow eye movements and particularly after lateral gazes of 30 degrees or more, it causes a jerk movement towards the midline and then the eye turns towards the direction that the patient is looking at. Since, this condition is physiological, no treatment is required. However, as in the case presented, it caused difficulty during

EMDR's eye movements with BLS. When such a situation is noticed, it would be appropriate to discuss with the patient and switch to other types of BLS. The patient continued with slow and fast BLS using tapping movements.

If eye movements other than fixed tracking are observed during finger movements, consulting a physician for medical evaluation may be important for differential diagnosis. However, not every eye movement that occurs is pathological, and therapy can be continued with a change in the type of BLS used during the application of the treatment plan.

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**Patient consent:** The patient and her guardian gave their written consent for clinical information related to her to be reported in a medical publication.

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