

Treatment of Aphantasia: Can we Reopen the “Mind’s Eye?”

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Abstract

Aphantasia is a condition in which individuals cannot picture things in their mind. This case report documents attempted treatment for aphantasia through vision therapy.

I. Case History

A 31-year-old Caucasian male presented with a chief complaint of aphantasia, which had been present since birth. The patient was unable to voluntarily recall images mentally, including the face of his wife and child, however, he did report visually dreaming at night. He did not think that the condition significantly affected his daily life, but he expressed an interest in wanting to be able to picture his wife and child. Past ocular history was positive for a foreign body of the right eye. Past medical history included hypertension. The patient was taking the following medications: propranolol, loratadine, Lisinopril, montelukast, citalopram and fish oil. All other history was unremarkable.

II. Pertinent Findings

Entering visual acuities were 20/15 OD, and 20/15 OS through his habitual hyperopic prescription. All other health and binocular findings at this exam were unremarkable. However, as the patient was interested in learning more about what he could do for his aphantasia, he was scheduled to return for a Visual Information Processing Assessment (VIPA).

Tests performed at the VIPA included the following: all subtests of the Test of Visual Perceptual Skills (TVPS), Detroit Tests of Learning Aptitude: Letter Sequence Test, Developmental Eye Movement Test, Peabody Picture Vocabulary, Auditory Visual Integration Test, and Visual Aural Digit Span (VADS). Since all of the tests excluding the Peabody Picture Vocabulary have normative values for children only, all tests were scored at the highest available age level. Scores were as follows: Letter Sequences (17 yo level) 84th percentile; Visual Aural Digit Span (12 yo level) aural input Z score +1.09, visual input Z score +0.66, oral expression Z score +0.93, written expression Z score +0.94, intra-integration Z score +0.83, inter-integration Z score +1.09; TVPS (all at 18 yo level) Visual Memory 63rd percentile, Sequential Memory 37th percentile, Form Constancy 84th percentile, Figure Ground 98th percentile, Visual Discrimination 50th percentile, Visual Closure 75th percentile; Developmental Eye Movement Test (13 yo level) Vertical: standard score 92-94, Horizontal: standard score 116, Errors: standard score 104-133, Ratio: standard score >133; Auditory Visual Integration Test (12 yo level) Z score +0.74; Peabody Picture Vocabulary Test standard score 116. It was noted by the examiner that all tests were performed more slowly than she would have expected for an adult. Marks' Vividness of Visual Imagery Questionnaire was also given, with a score of 80. This is the highest score possible, indicating “No image at all (only “knowing” that you are thinking of the object)” for each of the 16 items.

III. Differential Diagnosis

Since the patient came to us with his diagnosis already established, there were limited differentials to consider. Reports have differentiated between a psychogenic cause of aphantasia and congenital cases, however, due to the chief complaint, and the duration of the disease as reported by the patient, the diagnosis of congenital aphantasia was kept. Visual agnosia could be considered as a differential, however, in this condition, a patient is unable to verbalize what he is seeing. Our patient had no difficulties in naming objects, so visual agnosia was ruled out.

IV. Diagnosis and Discussion

Studies have found that 2.1-2.7% of the population have aphantasia, or an inability to voluntarily summon an image to mind on a recall basis¹. This act of voluntary imagery occurs through combination of the fronto-parietal systems and areas of the posterior brain¹. A study by Zeman et al recruited twenty-one individuals who identified themselves as having “lifelong reduction in visual imagery,” and asked them to answer the Vividness of Visual Imagery Questionnaire¹. Nine of the participants tested at substantial voluntary image loss, and twelve had complete loss¹. Even though these patients had lack of voluntary imagery, non-voluntary imagery was still present. Non-voluntary images presented during dreams in seventeen participants, and in flashes for ten patients¹. Our patient also exhibited non-voluntary images while dreaming, which was part of the reason we thought he might be treatable. While there is scarce literature regarding treatment of aphantasia, vision therapy resources describe several treatments for visual memory disorders as seen in children with vision information processing deficits^{2,3}. Given this patient’s diagnosis, we discussed this option with him, and decided to pursue a course of experimental vision therapy in the hopes of improving his visual imagery.

V. Treatment and Management

The patient was compliant in attending a one-hour vision therapy session each week for a total of 18 in-office sessions, and also performed home activities between sessions. Over the course of the sessions, both free-space and computer activities were utilized. Free space procedures included the card game “memory,” parquetry block memory activities, grab-bag descriptions of objects, and recall descriptions of a room or outdoor scene. We also attempted the use of afterimages to encourage visualization, as has been described in aphantasia blogs. Computer activities utilized the VIPS, VT 101, PTSII, Track and Read, and Sanet Vision Integrator softwares, with emphasis on tachistoscopic activities. During each procedure, the patient was encouraged to count or talk with the therapist in order to avoid mentally sub-vocalizing, which had become an automatic habit for him to function in his adult life. After his last vision therapy session, the patient reported that he had been able to visualize more right before he fell asleep, but had not noticed any significant difference in his day-to day life. Furthermore, none of the visual processing testing or the Vivid Imagery Questionnaire showed improvement in his scores.

VI. Conclusion

It is still unclear if aphantasia is a treatable diagnosis, and if so, how long it may take to treat. More research is needed to better assist our patients in this area. However, being aware of this diagnosis as a provider may prove useful in working with patients with visual memory deficits.

Bibliography

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