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Case Report

Case report of instantaneous resolution of juvenile macular degeneration blindness after proximal intercessory prayer

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ABSTRACT

An 18-year-old female lost the majority of her central vision over the course of three months in 1959. Medical records from 1960 indicate visual acuities (VA) of less than 20/400 for both eyes corresponding to legal blindness. On fundus examination of the eye there were dense yellowish-white areas of atrophy in each fovea and the individual was diagnosed with juvenile macular degeneration (JMD). In 1971, another examination recorded her uncorrected VA as finger counting on the right and hand motion on the left. She was diagnosed with macular degeneration (MD) and declared legally blind. In 1972, having been blind for over 12 years, the individual reportedly regained her vision instantaneously after receiving proximal-intercessory-prayer (PIP). Subsequent medical records document repeated substantial improvement; including uncorrected VA of 20/100 in each eye in 1974 and corrected VAs of 20/30 to 20/40 were recorded from 2001 to 2017. To date, her eyesight has remained intact for forty-seven years.

Introduction

The present case of sudden, lasting recovery from juvenile macular degeneration is unique in the literature. Juvenile macular degeneration (JMD) involves an inherited form of central vision loss due to deterioration in the macula of the retina. It is possible to have individuals with JMD that retain useful vision into adulthood, while for others the disease may progress more rapidly.[1] Two of the most common forms of JMD include Stargardt's disease and Best's disease (also known as vitelliform retinal dystrophy). Both of these are genetic disorders and have different inheritance patterns, while Stargardt's disease is inherited in an autosomal recessive or dominant pattern,[2,3] Best's disease has an autosomal dominant pattern.[2,4] These conditions involve the abnormal accumulation of lipofuscin in the retinal pigment epithelium (RPE) with ultimate damage to the RPE and often the adjacent retinal photoreceptors. The age of the onset of Stargardt's disease varies widely, with typical presentation between 10 and 20 years of age while Best disease usually presents in childhood.[5] There is typically a progressive loss of central visual acuity (VA) that occurs throughout life approaching 20/200 or worse (20/200 corrected vision is defined as legal blindness[6]) in the final stages.[7–9] The visual prognosis in Best's Disease is typically better than for patients with Stargardt's, with most patients retaining reading vision into the fifth decade of life or beyond.[10] Diagnostic tests for these disorders include fundus examination and imaging, electroretinography, and fluorescein angiography of the retina and sometimes genetic testing.[11] In addition to Stargardt's and Best's disease, there are some uncommon conditions that can mimic vitelliform maculopathies (i.e., Doyne honeycomb dystrophy, Sorsby macular dystrophy).[5] After the patient's visual decline, their vision eventually stabilizes and remains at that level for the remainder of their life – unless other ocular pathology further threatens their vision. There is no clinical treatment for either condition and there are no known reported cases of spontaneous recovery of vision in these patients, although, gene therapy and stem cells have been researched as possible treatment options.[12,13] Special optical devices (i.e., implantable miniature telescopes) can help some patients with low vision,[14] but there are no medical or surgical treatments to correct or modify the macular pathology of JMD.

This case report[15] examines proximal intercessory prayer (PIP) associated with a remarkable recovery of vision in a JMD patient. PIP refers to direct-contact prayer, frequently involving touch, by one or more persons on behalf of another.[16] PIP, as described by Brown and colleagues[16] refers to prayer that typically lasts for less than 15 min, and involves touch, often with the intercessor's eyes open to observe results. The intercessor typically uses "soft tones" to pray. He/she may use different types of prayer, for example, to "petition God to heal, invite the Holy Spirit's anointing, and/or command the healing and departure of any evil spirits in Jesus' name".[16] The observed effects of

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prayer vary widely, from no apparent effect to remarkable improvement in conditions that are not medically expected to improve, such as the resolution of gastroparesis.[17] Prayer is one of the most common complementary and alternative medicine (CAM) therapies.[18,p.2]

Presenting concerns

The individual reported in this research consented to participate in compliance with a protocol that was approved by the Institutional Review Board for the Global Medical Research Institute. Medical records and notes were transcribed for legibility and are available in the supplementary material (Figs. S1–S8) and the main events of the medical history of the patient are described in the timeline (Fig. 1). This is a case study of a young woman, who reports losing her central vision, over the course of three months, at the age of 18 years in 1959. She first experienced sudden vision loss in her left eye and two months later had sudden vision loss in her right eye (both instances occurring over a two to three-day period). Peripheral vision was also affected. There was no infection, trauma, or exposure to illness reported to be associated with the vision loss. At the onset, she began to experience frequent headaches, fatigue, and chills, which continued over the course of the following year. An initial medical examination revealed poor visual acuities 7/200 in each eye (Fig. S1). General physical examination showed mild diffuse enlargement of the thyroid however testing for thyrotoxicosis was normal (Fig. S2).

Timeline

Clinical findings

The white patient of Dutch ancestry lost her vision when she was 18 years-old. There was no distinct family history resembling her case. A distant paternal aunt was also blind due to unknown causes, other than that she was diabetic. The patient recalls having an active lifestyle notwithstanding her blindness and hypothyroidism. She was actively involved in a church ministry and her husband was a pastor. She never did genetic testing for the diagnosis of her condition. She reports that in her Christian household there were family devotionals held at each meal, with Bible reading and prayer. She had a miscarriage in 1965. She had an identical twin sister who had no problem of vision loss, but her twin sister was diagnosed with a heart defect and received treatment until she gradually outgrew the problem.

Diagnostic focus and assessment

This case pre-dates the availability of much of the ophthalmic testing now used for diagnosis. In the nineteen sixties, an ophthalmoscope and/or slit-lamp were available to examine the retina. Medical records from an ophthalmic examination in 1960 indicate uncorrected vision was 7/200 in each eye roughly corresponding to finger counting (FC) vision only and thus legal blindness (Fig. S1). The fundus exam showed normal optic nerves, but there was a dense yellowish-white area of atrophy in each fovea associated with a central scotoma in both eyes, and the individual was diagnosed with JMD (Fig. S1). A neurological examination and E.E.G. (electroencephalogram) were performed showing normal and satisfactory results (data not shown).

In January 29, 1971, a school for blind people recorded her uncorrected vision as FC on the right and hand motion (HM) on the left (Fig. S3). The right could be slightly improved with correction to 20/400. She had exotropia (eyes deviated laterally) which is often the case with an adult who has lost vision (Fig. S3). She was diagnosed with MD and declared legally blind (Fig. S3). In response, her family enrolled her into a training center for three months so that she could learn to use a cane for mobility and to read braille.

Therapeutic focus and assessment

After completing a mobility training in May of 1972, the individual returned home and in August of 1972, one evening prior to going to bed, regained her vision instantaneously after receiving PIP from her husband. This experience occurred after approximately 13 years of blindness. The PIP was presented in a Christian tradition, extended to God as both asked for her eyesight to be restored that night.

When the couple went to bed later than normal (after midnight), her husband performed a hurried spiritual devotional practice (reading two Bible verses) and got on his knees to pray. She describes that they both began to cry as he began to pray, with a hand on her shoulder while she laid on the bed, and with great feeling and boldness he prayed: “Oh, God! You can restore [. . .] eyesight tonight, Lord. I know You can do it! And I pray You will do it tonight.” At the close of the prayer, his wife opened her eyes and saw her husband kneeling in front of her, which was her first clear visual perception after almost 13 years of blindness.

The couple were not cessationists (i.e., believing that spiritual gifts such as glossolalia, healing, and prophecy are not for the present age), but they had never heard of anyone receiving a miraculous healing in the present day. The patient reported, “The only healings we knew about were in the Bible”. She indicated that her husband had never before prayed for someone who subsequently experienced a remarkable recovery. Their only prior experience with prayer for healing seems to be when the patient and her husband had briefly visited the meeting of a well-known healing evangelist, but they left before the time in the meeting when the healing practices began. The patient and her husband were involved with a Baptist church at the time that did not practice the laying on of hands while praying for the sick. They also did not practice glossolalia, nor fasting, which are more commonly associate with Pentecostal or Charismatic sects that believe miraculous healings happen in the present age as opposed to

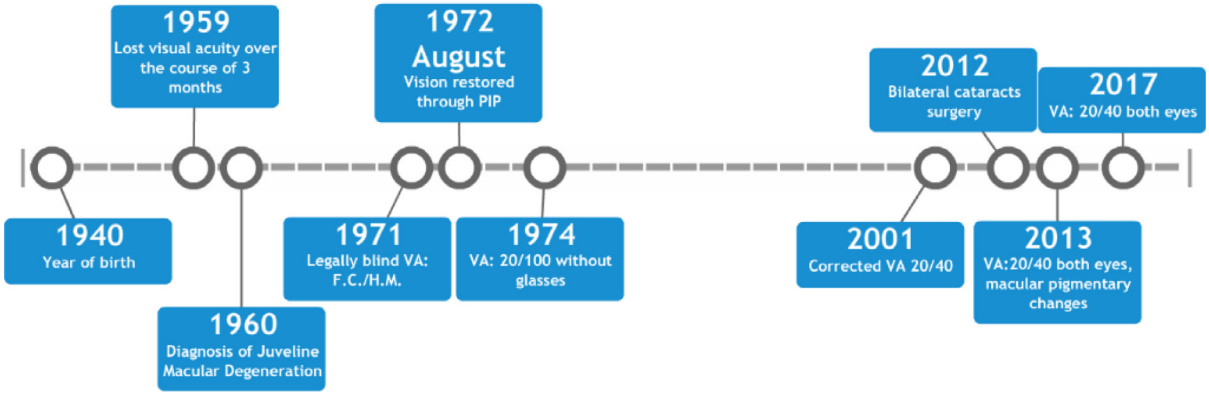

Fig. 1. Timeline of the main events in the medical history of the patient.

only in the ancient world. Regardless, their church community took note of the healing and interpreted it as a gift from God.

Follow-up and outcomes

The first written documentation of her visual acuity after this incident was on a prescription pad note showing an improvement in the VA. In 1974 her visual acuity was 20/100 in each eye without correction (a dramatic increase of more than 400% in visual acuity) on 6/14/1974 previous recorded visual acuities were of FC OD (finger counting in the right eye) and HM OS (hand movement in the left eye) on 1/29/1971, then HM in both eyes on 1/18/1972. (Fig. S4). There was no report of corrected VA in 1974. In 2001, the patient had a formal eye examination in order to get new glasses. At that time, her corrected visual acuities were 20/40 in each eye (Fig. S5). Her peripheral vision was recorded as normal and on slit-lamp and fundus exam, she was noted to have early cataract changes and a normal appearing macula except for some loss of retinal pigment epithelium in each eye. She was reported to have typical problems of early cataracts and dry eyes in the final assessment.

In 2013, eye exam records present a history that the patient had undergone cataract surgery in 2012 in both eyes (Figs. S6). Her VA again was 20/40 in each eye, with pinhole (PH) VA of 20/30 OD and 20/40 OS (Fig. S7). Her examination was only remarkable for intraocular lenses (placed after cataract surgery) and for some "mild" drusen in both maculae - suggestive of mild senile macular degeneration-something more commonly seen in the elderly (she was at that time 72 years old). This is not the same description as the more extensive macular changes noted on her initial ophthalmic evaluation in 1960. A follow-up examination performed at the same clinic for a mild conjunctivitis shows VA of 20/40 in each eye (Figs. S7). Fundus photographs were obtained in March of 2017 and are shown in Fig. 2. A small area of foveal (central macula) RPE pigmentary defect is noted in both eyes. These small residual macular changes are consistent with visual acuities of 20/30 to 20/40, which were recorded in 2013 (Fig. S8). While a VA of 20/20 is considered to be normal vision, a VA of 20/32 or 20/40 is considered to be mild visual impairment (near normal vision).[19] To date, her eyesight has remained intact for forty-seven years with only common age-related eye problems since the healing.

Discussion

The patient in the current report had a severe case of JMD that involved rapid vision loss and blindness. From her history of early onset of vision loss and reported examinations showing the degree of vision loss (Figs. S1-S3), the findings support that this most likely represents a case of severe Stargardt's disease over Best's disease or most macular dystrophies, and specifically the autosomal recessive type of Stargardt's disease given the apparent lack of family history of the disease. She lived with this condition for about 13 years. In the later years, it progressed to a point where she had to depend on a cane and learn braille. Before her prayer experience, she was legally blind, but her vision was restored immediately and permanently after receiving PIP. The patient states "in a moment, after years of darkness I could see perfectly!"

A differential diagnosis of blindness associated with conversion disorder (i.e., psychosomatic condition) might be considered. However, this is unlikely, as there was objective evidence for organic macular disease at the diagnosis, which is inconsistent with a purely psychogenic etiology. The examining physician in 1960 writes, "In each eye there is a dense yellowish white area of atrophy involving each fovea". A "conversion disorder" could not explain the yellowish white area of atrophy involving each fovea, nor could it explain resolution of the macular atrophy in the images obtained since the recovery of vision (Fig. 2).

Research on the standard definition for nonorganic vision loss and typical profile for conversion disorder should be considered. For example, inclusion criteria used to recognize functional vision loss as nonorganic include: (1) normal structural ocular examination results or abnormalities unrelated to the VA or visual field (VF) loss and (2) clinical evidence that visual function is better than that claimed, or a non-physiologic response to testing in at least one modality.[20] Given the evidence of foveal atrophy, this case could not be diagnosed as other than organic. Findings in clinical practice and research on nonorganic vision loss have found malingering to be more common than true conversion disorder, especially in adults.[21] However, again, the central scotoma precludes the current case from such a diagnosis. Further, the prolonged period of blindness does not suggest either type of nonorganic visual loss.

The patient had an identical twin sister who was discordant for the phenotype of her condition. While identical twins have often concordant phenotype for age-related macular degeneration (AMD) some twins are discordant.[22] This discordance is associated with epigenetic factors, such as DNA methylation, that may also play a potentially crucial role in the gene expression and pathogenesis of AMD.[23] Genetic concordance studies for JMD were not found.

In the current case, the individual's much improved visual acuity and macular exam showing small residual RPE pigmentary changes are documented in various ways over the following years. This dramatic reversal in her vision occurred after she received PIP from her husband. Considering the fact that significant vision improvement is not under direct voluntary control and this case did not involve trial

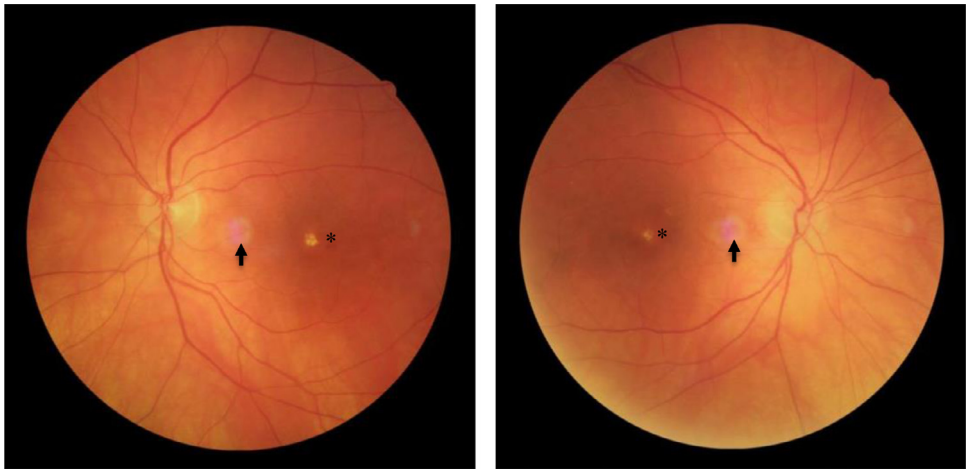

Fig. 2. Fundus photos taken on March 2, 2017 for both eyes (left and right respectively). Arrow is a light colored ring seen between the disc and fovea and represents an optical artifact. * retinal pigment epithelium - pigmentary defect.

participation it seemed unlikely that a placebo or Hawthorne effect could account for the improvement.[16]

Placebo effects have been defined as, "the physical change that occurs as a result of what we believe a pill or procedure will do".[24,p.323] Further, it has been suggested that "when a person responds well to a placebo, the healer is actually faith, not pharmacology".[24,p.323] Physical conditions (e.g., heart failure[25]; severe nausea in pregnancy[26]) have been reported as responsive to placebos, however findings are limited. Positive outcomes of placebo effects associated with improvement of Stargardt's disease have not been found in the literature. While a placebo effect cannot be ruled out in the current case, if there was a placebo effect, it is not clear how the visual acuity could be improved via placebo.

Traditional medical and nutritional interventions have helped to slow the progression of vision loss in some forms of MD, however there are limited findings on treatments that can reverse the effects.[27] Recent advancements in gene therapy have produced SAR422459, a lentiviral vector gene therapy carrying the ABCA4 gene, to treat Stargardt's disease. While the treatment is in developmental stages, no significant changes in best-corrected visual acuity have been reported.[28] Positive results have been found in stem cell treatments, where human embryonic stem cell-derived were used to treat AMD and Stargardt's disease and improved VA (median of 10 letters for Stargardt's disease, equivalent to improving VA from 20/200 to 20/125) and also the better quality of life.[13] But such treatments were not available to the patient at the time of her recovery of vision.

In recent years, prayer has offered promising results, despite some controversy. Prayer practices for healing generally fall into the categories of PIP or, alternatively, distant intercessory prayer (DIP). Meta-analyses of DIP studies show more robust evidence of no effects than of positive effects,[29] while the smaller literature on PIP is more promising. Regarding DIP, findings from Benson et al.[30] suggest that distant intercessory prayer (DIP) by particular types of intercessors might not be efficacious for patients in a coronary care unit. However, the study design may lack construct validity as the intercessors, who prayed for the patients, were not recruited based upon their belief/faith in healing.[18,p.88] Other comparable studies that tested remote prayers of intercessors who either professed being a "born again" Christian (with a commitment to daily devotional prayer and active fellowship with their local church)[31] or a faith in healing[32] reported benefits. These discrepancies present the question: are prayers by certain types of intercessors, in certain branches of Christianity (or other religions), with particular content, or emotional contexts more effective than others? This question remains to be answered with appropriately controlled studies.

Regarding PIP, Matthews et al.[33] found positive effects for patients with rheumatoid arthritis in response to proximal prayer, however no benefits from DIP. More recent research has revealed comparable benefits of prayer for central vision loss[16] and inflammatory eye disease.[34] On a study on Retinitis Pigmentosa and CAM, approximately 21% of 91 participants reported spirituality and religion (e.g., involving prayer/worship, having belief in God) had an effect on their vision.[35] Brown et al. investigated effects of PIP on vision and hearing. An audiometer and vision charts were used to evaluate 24 Mozambican subjects reporting impaired hearing and/or vision who subsequently received PIP interventions. Significant improvements were measured in both auditory and visual function where the magnitude of effects exceeded those previously reported in suggestion and hypnosis studies. Neither all prayers nor their contexts are the same, as seen in the multiple reported cases of vision restoration in Mozambique[16] versus the relative infrequency of reports in the developed world, and the discrepancies across studies of prayer and healing practices. It may be that some prayer circumstances are unlikely to result in effects, but in other contexts, they are more likely to be effective.[18,p.96,97]

An interesting observation of the aforementioned studies is that groups partnering with ministries/intercessors based upon research that showed positive results[33] have been able to replicate comparable findings.[36–38] There appears to be a trend such that for studies that observe prayer where healing is already occurring, the results reflect similar outcomes.[36–38] In contrast, studies that test prayer for the purpose of evaluating the concept tend to yield negative results.[30,39]

The mechanisms by which the prayer experience may have played a role in the recovery of vision are difficult to isolate. Researchers have proposed a relationship between meditation/prayer and the autonomic nervous system (ANS)[17,40] and there is evidence to support links between the ANS and improvements of visual impairment.[27] Others have reported that tears are related to an autonomic parasympathetic response.[41] This is noteworthy because CAM therapies involving interventions that modulate the ANS have been found effective to improve vision for individuals with various forms of vision loss, including Stargardt's disease.[27] Consistent with this hypothesis, studies of other in-person practices with curative intent such as Reiki have also suggested ANS stimulation effects,[42–44] although we are not aware of other cases of blindness healing by CAM therapies other than PIP. In the current case, it appears as the tears were not the cause of healing, but rather they may have been a by-product of the ANS being stimulated through the PIP intervention.

In summary, the patient was blind for thirteen years because of a condition that appeared to be a severe form of Stargardt's disease. Following a PIP event, her vision was spontaneously restored and remains intact to date, 47 years later. Symptoms were resolved in the context of PIP with a notable aspect: theological acceptance of healing prayer with specific belief recognized through authority of Jesus (beliefs held by the intercessor, consistent with other studies[17,32]). The PIP may have been associated with a response in the ANS of the patient. However, research on the potential for PIP to affect the ANS and/or reverse vision loss associated with JMD is limited. Findings from this report and others like it[17] warrant investment in future research to ascertain whether and how PIP experiences may play a role in apparent spontaneous resolution of lifelong conditions having otherwise no prognosis of recovery.

Patient perspective

"What people need to understand is 'I was blind', totally blind and attended the School for the Blind. I read Braille and walked with a white cane. Never had I seen my husband or daughters [sic] face. I was blind when my husband prayed for me- then just like that- in a moment, after years of darkness I could see perfectly! It was miraculous! My daughter's picture was on the dresser. I could see what my little girl and husband looked like, I could see the floor, the steps. Within seconds, my life had drastically changed. I could see, I could see!"

Consent

A copy of the written consent for the publication of this case report and accompanying medical records are available for review of the Editor-in-Chief of this journal.

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Supplementary materials

Supplementary material associated with this article can be found in the online version at doi:10.1016/j.explore.2020.02.011.

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