Management of Central Serous Chorioretinopathy Using Ayurvedic Outpatient Therapies: A Case Report

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ABSTRACT

Introduction: Central serous chorioretinopathy (CSCR) is classified based on etiology into idiopathic and secondary varieties. Management options include observation in the initial stages, and LASER and anti-vascular endothelial growth factors (anti-VEGF) injection in advanced cases. The symptom of blurred vision may be correlated with Timira, a Drishitgata Roga (disease of vision) according to Ayurveda.

Case Presentation: A 48-year-old male presented with the blurring of vision, floaters, and curved vision. Management was on an outpatient basis over 3 years, during which oral medicines, ophthalmic drops, and external application of paste were administered.

Results: Improvement was noted in visual acuity. Optical coherence tomography (OCT) macula showed gradual absorption of sub-retinal fluid.

Conclusion: The main aim of management was to restore vision as much as possible while giving the patient a better quality of life. This study illustrates that cases of CSCR can be successfully managed using Ayurveda, and these treatments can be considered as an alternative option.

Key Words: Case report, Holistic approach, Out-patient medicines, Timira

INTRODUCTION

CSCR results from the accumulation of serous fluid in the sub-retinal space due to improper functioning of the retinal pigment epithelium. The condition is clinically more obvious in males (9.9/100,000) than females (1.7/100,000), with the male-to-female ratios ranging from 2.7:1 to 7:1.¹ The average age of occurrence is between 20-50 years.² Visual acuity (VA) is reduced to LogMAR 0.176-0.301 but may be corrected up to LogMAR 0 with a weak plus (+) lens.³ Optical coherence tomography (OCT) shows an optically empty neuro-sensory elevation. Early management is stressed based on clinical evidence that resolution of the neuro-epithelial detachments within 4 months of the onset of symptoms reduces the risk of retinal atrophy.⁴ Observation is usually the first line of management as 80% of cases spontaneously resolve within 3-6 months with VA of 6/9 or better. Long-standing cases require pan-retinal LASER photoacoagulation and/or anti-VEGF injection.

METHODS

The efficacy of an Ayurvedic outpatient treatment protocol to manage CSCR was assessed in this report. It was prepared according to the Case Report (CARE) guidelines⁵ to ensure transparency and effectiveness in reporting. Institutional ethical clearance was not required for this study; however, written informed consent was obtained from the patient before detailing his case.

CASE PRESENTATION

A 48-year-old non-diabetic and non-hypertensive male presented with gradual deterioration of vision along with floaters and curved vision in the right eye (OD (oculus dexter) since January 2015. Vision gradually started deteriorating OD after January 2015, and soon after, he started experiencing floaters and curved vision. He was diagnosed with CSCR
by an ophthalmologist and was prescribed allopathic treatment for 6 months, which provided no relief. At a further consultation, he was advised pan-retinal LASER photocoagulation, which he declined. He consulted Sreedhareeyam Hospital in July 2015 and has been under Ayurvedic outpatient treatment.

History of past illness is notable for hypothyroidism and hyperlipidemia. His immediate family members do not present with similar ophthalmic complaints. Bowel and micturition were normal, and sleep was sound. Appetite was decreased. He is not addicted to tobacco, alcohol, or caffeinated beverages. General physical examination and vital signs were within normal limits.

Unaided distant visual acuity (DVA) was LogMAR 0.602 in the right eye (OD) and LogMAR 0 in the left eye (OS (oculus sinister)). Pinhole examination showed no improvement in VA. As the patient did not wear spectacles, aided DVA was not recorded. Near visual acuity (NVA) was N6 in both eyes (OU (oculus uterque)). Intra-ocular pressure was 21mmHg OU. Confrontation visual fields and extra-ocular motility OU were intact. Anterior segment examination OU showed normal findings. The pupillary examination demonstrated normal responses to both direct and consensual reflexes OU.

Posterior segment examination at the initial consultation revealed a pinkish-coloured optic disc with a cup-to-disc ratio of 0.3 OU, healthy blood vessels with normal calibre emerging from the optic disc OU, and normal retinal periphery OU. Examination of the macula OD showed a dull foveal reflex OU due to accumulation of sub-retinal fluid.

Laboratory investigations showed a creatinine count of 1.67mg/dL, cholesterol count of 562mg/dL, and triglyceride count of 493mg/dL. Thyroid-stimulating hormone analysis was normal. He had a total of 20 consultations, with 5 in 2015; 7 in 2016; 4 in 2017; 3 in 2018; and 1 in 2019. Oral medicines such as Kvatha (decocion), Vati (tablet), and capsules were administered with warm water as a post-prandial drink. Local ophthalmic formulations included eye drops and Anjana (collyrium drops). External therapy comprised of Lepa (application of paste) with Kalka (wet bolus) over the forehead.

A diagnosis of CSCR was made based on both the history and clinical examinations.

The patient was managed on an outpatient (OP) basis. He was advised pan-retinal LASER photocoagulation, which he declined. He was advised to strictly avoid oily and deep-fried items, intake of curd, foods prepared from refined flour, sweet items, and excessively spicy foods. He was also advised to avoid emotional outbursts and stress, and direct exposure to sunlight, smoke, and wind.

The medicines were manufactured at Sreedhareeyam Farmherbs India, Pvt. Ltd., the hospital’s GMP-certified drug manufacturing unit.

RESULTS

DVA initially reduced to LogMAR 0.778 at the 3rd consultation but improved to LogMAR 0.602 at the 4th consultation. From the 10th visit, VA fluctuated between LogMAR 0.301 and LogMAR 0.176. OCT macula OD on March 10th, 2016, showed a dome-shaped elevation at the macular region and a hypo-reflective area within the dome, suggestive of macular oedema (Figure 1A). OCT macula has taken on December 8th, 2016 (Figure 1B) and February 9th, 2017 (Figure 1C) showed gradual absorption of sub-retinal fluid.

DVA improved to LogMAR 0.176 at the last consultation. Posterior segment examination at the last consultation showed a re-established foveal reflex. OCT macula on June 14th, 2018 showed complete absorption of subretinal fluid and re-establishment of the foveal contour (Figure 1D). Readings for laboratory investigations also returned to near-normal values.

A timeline of events for this case is presented in Table 2.

Table 1: Oral, Ophthalmic, and External Medications

| Si. No. | Medicine            | Dosage with Post-Prandial Drink         | Duration |
|---------|---------------------|----------------------------------------|----------|
| 1       | Eye Plus*           | 1 drop-in both eyes twice daily         | 5 months |
| 2       | Pathya Shadanga Tablet | 1 tab twice a day after food with warm water | 1 month |
| 3       | Candraprabha Vati    | 1 tab twice a day after food with warm water | 18 months|
| 4       | Guducyadi Kvatha    | 15mL twice a day before food with warm water | 8 months|
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| Si. No. | Medicine               | Dosage with Post-Prandial Drink | Duration   |
|---------|------------------------|---------------------------------|------------|
| 5       | Stressex Cap*          | 1 capsule twice a day before food with warm water | 15 months  |
| 6       | Candanadi Anjana       | 1 drop-in both eyes twice a day  | 2 months   |
| 7       | Vinayakanjana*         | 1 drop-in both eyes twice daily  | 3 months   |
| 8       | Mukulanjana*           | 1 drop-in both eyes twice daily  | 5 months   |
| 9       | Guggulu Pancapala Tab  | 1 tablet twice a day after food with warm water | 1 month   |
| 10      | Netramrntam*           | 1 drop-in both eyes twice daily  | 6 months   |
| 11      | Darsana*               | 1 drop-in both eyes twice daily  | 6 months   |
| 12      | Sudarsanam Tab         | 1 tablet twice a day before food with warm water | 3 months   |
| 13      | Sunetra Regular*       | 1 drop-in both eyes twice daily  | 3 months   |
| 14      | Lepa (herbal paste)    | Apply over the forehead         | 4 months   |

*Patented medicines of Sreedhareeyam Ayurvedic Eye Hospital and Research Center

**Table 2: Timeline of drug therapy**

| Dates            | Events                                                                 | Intervention                                                                                       |
|------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| January 2015     | Experiences deterioration in vision along with floaters and seeing objects as curved.  | Diagnosis of CSCR; the patient is put under allopathic management but gets no results.           |
| June 2015        | Advised pan-retinal LASER photocoagulation, which he declines          |                                                                                                   |
| Consultations at Sreedhareeyam Ayurvedic Eye Hospital and Research Center |                                                                          | Medicines Administered                                                                            |
| July 16th, 2015  | Visual Acuity OD (LogMAR) 0.602                                         | Eye Plus*                                                                                         |
|                  |                                                                        | Lepa with Karutta Gutika and Rasnadi Curna                                                      |
| August 24th, 2015| OCT Macula OD 0.778                                                     | Pathya Shadangam Tablet                                                                          |
|                  |                                                                        | Candraprabha Vati                                                                               |
|                  |                                                                        | Lepa with Karutta Gutika and Rasnadi Curna                                                      |
| October 1st, 2015| 0.602                                                                  | Candraprabha Vati                                                                               |
|                  |                                                                        | Guducyadi Kvatha                                                                                |
|                  |                                                                        | Stressex Cap*                                                                                   |
|                  |                                                                        | Candanadi Anjana                                                                                |
|                  |                                                                        | Vinayakanjana*                                                                                  |
|                  |                                                                        | Lepa with Karutta Gutika and Rasnadi Curna                                                      |
| November 5th, 2015| 0.602                                                                  | Candraprabha Vati                                                                               |
|                  |                                                                        | Guducyadi Kvatha                                                                                |
|                  |                                                                        | Stressex Cap                                                                                    |
|                  |                                                                        | Vinayakanjana*                                                                                  |
|                  |                                                                        | Mukulanjana*                                                                                    |
|                  |                                                                        | Lepa with Karutta Gutika and Rasnadi Curna                                                      |
| December 10th, 2015| 0.602                                                                  | Candraprabha Vati                                                                               |
|                  |                                                                        | Guducyadi Kvatha                                                                                |
|                  |                                                                        | Stressex Cap                                                                                    |
|                  |                                                                        | Vinayakanjana*                                                                                  |
|                  |                                                                        | Mukulanjana*                                                                                    |
|                  |                                                                        | Guggulu Pancapala Tab                                                                            |
| January 4th, 2016| 0.602                                                                  | Candraprabha Vati                                                                               |
|                  |                                                                        | Guducyadi Kvatha                                                                                |
|                  |                                                                        | Stressex Cap                                                                                    |
|                  |                                                                        | Vincent Curna                                                                                    |
### Table 2: (Continued)

| Dates                | Events | Dates    | Events |
|----------------------|--------|----------|--------|
| March 10th, 2016     | 0.477  | March 18th, 2016 | 0.301 |
|                      | Dome-shaped elevation with hypo-reflective area within the dome | Stressex Cap | Stressex Cap |
| May 12th, 2016       | 0.477  | October 20th, 2016 | 0.176 |
|                      | Candraprabha Vati Guducyadi Kvatha Stressex Cap | Darsana* | Darsana* |
|                      | -      | December 8th, 2016 | 0.176 |
|                      | Candraprabha Vati Guducyadi Kvatha Mukulanjana* Netramrtam* | - | - |
| July 7th, 2016       | 0.477  | February 9th, 2017 | 0.301 |
|                      | -      | April 20th, 2017 | 0.301 |
| August 18th, 2016    | 0.301  | August 3rd, 2017 | 0.176 |
|                      | -      | November 16th, 2017 | 0.301 |
|                      | Candraprabha Vati | - | - |
|                      | -      | March 15th, 2018 | 0.176 |
|                      | Stressex Cap | Candraprabha Vati Stressex Cap | Candanadi Anjana Netramrtam* Sunetra Regular* |
|                      | -      | June 14th, 2018 | 0.301 |
|                      | Stressex Cap Sunetra Regular* | Complete absorption of subretinal fluid | Candraprabha Vati Stressex Cap Netramrtam* Sunetra Regular* |
|                      | -      | October 25th, 2018 | 0.301 |
|                      | Eye Plus* Candraprabha Vati Stressex Cap Sunetra Regular* | - | - |
|                      | -      | February 16th, 2019 | 0.176 |
|                      | Eye Plus* Stressex Cap Candanadi Anjana | - | - |

*Patented medicines of Sreedhareeyam Ayurvedic Eye Hospital and Research Center
DISCUSSION

Acarya Vaghbata explains that the factors enlisted under the pathological increase of Doshas in the first chapter of Ash-tanga Hrdaya Nidana Sthana (section on diagnosis in the Ashtanga Hrdaya), particularly those that are non-conducive to the eye, are the causes for eye diseases. In this patient, these may have included intake of Katu (bitter), and Svadu (sweet) Rasa (taste), foods that are Guru (heavy) and Abhishyaadi (secretive), and emotional outbursts of fear, grief, and anger. Another factor that may have played a role is the patient’s Prakriti or body constitution. as it was made up of Vata and Kapha, he was more prone to getting afflicted by those two Doshas. These may have invaded the Koshta (alimentary tract) and resulted in Mandagni or impaired digestion.

Hypothyroidism and hyperlipidemia may have resulted from this Mandagni. The presence of Ama or toxic, undigested waste products caused the increased Vata and Kapha to cause pathological activity in the Annavaha Srotas (channels of digestion) and Rasavaha Srotas (channels of lymph)by diminishing Pitta Dosha. The patient’s decreased appetite and increased cholesterol may be a result of the affliction of the Annavaha Srotas, as the diminished Pitta caused impaired digestion and metabolism. Intake of Guru and Snigdha Ahara (heavy and unctuous food) and over-worry indicate the involvement of Rasavaha Srotas.

This affliction of the Srotas resulted in the increased Vata and Kapha to traverse the Urdhva Sira (vessels of the upper extremities) and lodge in the Drishti Mandala (area of vision). The patient’s temperament of slight anxiety may have increased Vata in the Drishti Mandala, resulting in a crack in the retina and the separation of layers by sub-retinal fluid. Increased Kapha may be equated with this sub-retinal fluid. Accumulation of Kapha and decrease of Pitta inhibited proper vision in this patient.

Diminished vision, floaters, and curved vision seen in this patient may be compared with the Lakshanas (clinical features) of Vataja Timira as per Ayurveda Acharyas. Timira is a condition in which the increased Doshas invade the 2nd Patala (layer) of the eye according to Vaghbata and the 3rd Patala according to Susruta. The floaters may be compared to the feature ‘Jalani Kesan Masakan’ (perception of insects, hairs, and mosquitoes), and the curved vision may be comparable to ‘Ivyaviddhamiva Pasyati’ ( inability to see objects straight) according to Vaghbata.

A single case study in which CSCR was managed with Tarpana (retention of ghee in the eye) showed improvement in symptoms such as double vision and haziness. Another case study showed improvement in both vision and posterior segment examination.

The medicines administered to this patient performed the following actions: 1) increasing Jatharagni (digestive fire), 2) purifying the Srotas, 3) absorption of Sotha (edema), and 4) giving clarity to vision. The increase of Jatharagni was facilitated by Dipana (appetizing) and Pacana (digestive) actions. Once the Jatharagni was stimulated, Sroto Sudhini (purifying Srotas) could be done, thus opening the channels and enabling adequate nutrition to reach the eye and the site of the lesion. Alleviation of Sotha was done by drugs that absorbed the sub-retinal fluid from the macula. Maintenance of digestion and clear channels were simultaneously maintained. In the end, the medicines for Drishti Prasadana (clarification of vision) and Ropana (healing) were administered to promote vision and maintain the integrity of the retina.

The initial 7 consultations for this patient were aimed at treating CSCR and improving vision. OCT macula at the 7th consultation showed a subretinal fluid collection at the macula. From there, the vision gradually improved and subsequent OCT investigations showed gradual absorption of the sub-retinal fluid. In this way, not only was the condition treated but prevented from relapse.

Pathyashadanga Kvatha (administered in tablet form) is indicated in Patalagata Netra Roga (disorders of vision). Can-draprabha Vati is Balya (energizing), Vrshya (aphrodisiac), and Rasayana (rejuvenating), and is indicated in Netra Roga (ophthalmic diseases), Mandagni (impaired digestion), and diseases of Vata, Pitta, and Kapha. Guducyadi Kvatha relieves Kapha and Pitta and stimulates Agni (gastric fire). Guggulu Pancapala Curna (administered in tablet form) is indicated in Gulma (abdominal enlargement – in this case,
for enhancing Agni. Sudarsana Curna (administered as a tablet) is Tridoshahara (alleviates the three Doshas).

Haritaki (Terminalia Chebula Retz.), Vibhitaki (Terminalia Bellerica Linn.), and Amalaki (Emblica Officinalis Gaertn.) are three of the common drugs present in most of the oral formulations. Taken together, they constitute Triphala, the ideal drugs for eye conditions. The effects of Triphala on eye disease are brought about by Dipana (appetizing), Pacana (digestion of undigested products), and Anulomana (moving products downward). These make the Ahara Rasa (nutrient fraction of food) easily bio-available and transformable, thus nourishing all types of Pitta, especially Alocaka Pitta, which is responsible for vision. Studies have validated several other potential uses of Triphala such as free radical scavenging, antioxidant, appetite stimulation, and anti-stress. Polyphenols derived from Triphala are transformed into bioactive metabolites that have the potential to prevent oxidative damage. It was also shown using animal models that Triphala could protect against different types of stress including cold-induced stress and stress-induced behaviours. A human trial in patients with gastrointestinal disorders showed that Triphala reduced constipation, mucus, and flatulence.

Guduci (Tinospora cordifolia Miern.), another common drug among the oral medicines, was shown to have anti-stress activity, which was proven by animal studies in mice using various extracts of the plant. A study conducted on Swiss albino mice reported that the anti-toxic activity of T. cordifolia by substantial elevation of hormones and enzyme activities were brought about by alkaloids of the plant. Various extracts have also shown antioxidant potential by scavenging free radicals.

Guggulu (Commiphora Mukul Hook.) was shown to significantly reduce serum cholesterol and prevent cholesterol-induced atherosclerosis in rabbits in a two-year study. Various other animal models were used to validate the hypolipidemic activity of Guggulu. Z-guggulsterone was demonstrative of thyroid stimulatory action of Guggulu, and the administration of isolated Z-guggulsterone in rats led to the significant increase in thyroid function parameters, especially enzymes that aid in thyroid hormone synthesis. Guggulu also enhanced the production of thyroxin and tri-iodothyronine, two hormones that by increasing carbohydrate metabolism and protein synthesis bring about lowered rates of lipid activity.

The ingredients of Stresses Capsule are aimed at enhancing memory, relieving stress, and calming the mind. The anti-stress activity of Withania Somnifera Linn. has been demonstrated in several animal models. Clitoria Ternatea Linn. possesses antioxidant, antimicrobial, and central nervous effects.

The ingredients of Chandanadi Anjana are coolant and rough by nature; they absorb through the ocular tissues to reach the retina. They then enhance absorption of subretinal fluid and bring about repair of the Srotas. Vinayakanjana possesses Ropana (healing) and Brmhana (nourishing) properties. By these two, the Srotas is cleared of its pathologic material and vision is improved by nourishment. Mukulanjana, with its mineral ingredients, penetrates deeper tissues and clear up residual pathology in the retina. These enable the vision to be enhanced by their sharp and cooling effects.

Eye Plus eye drops provide a cooling effect for the eye, reduces the accumulation of fluid, prevents entry of bacteria, and promotes healing by reforming the retina. The ingredients of Netramrtram possess Sukshma Karma, which enables them to enter the minute Srotas of within the macula and absorb the fluid, thus restoring and promoting healthy vision. Dansana eye drops are indicated in all Drshtigata Rogas. Snetra Regular relieves strenuous activity of the eyes by relaxing and cooling it.

Candraprabha Vati, Duducyadi Kvatha, Stresses, Vinayakanjana, and Chandanadi Anjana were prescribed multiple times over the course of the management. In the initial stages, they aided in normalizing physiological activity of the body and reaching the retina to help absorb the subretinal fluid. After the initial correction of the pathology, these medicines were continued so as to maintain the homeostasis of the body and prevent further pathology in the retina. Herbal paste was not continued after the 4th consultation as the amount of fluid and stress had reduced to a state where it could be managed using other medicines. Medicines that were administered for only one month may have hastened healing to an extent that they were not required further.

Although this case was managed on an out-patient basis, the inclusion of some in-patient management such as Pancakarma (especially Virecana (therapeutic purgation) and Nasya (nasal medication)) and Kriyakalpa (local ocular therapeutics) would have hastened the recovery much more. Virecana, the indicated Pancakarma procedure in Drshtigata Rogas, would have brought about a faster improvement in vision by expelling toxins downward. Also, as it is a Sodhana Karma (purificatory therapy), it could correct the axis of thyroid dysfunction by enabling more of the hormones to be produced. Nasya would have expelled more Kapha from the head, thus relieving heaviness of the head and tension. Kriyakalpas employed would have been Anjana (collyrium) and Tarpana (retention of ghee in the eyes). Anjana by its judicious combination of herbs and minerals would be able to penetrate deeper tissues by subconjunctival injection. These can hasten the absorption of fluid and restoration of vision by bypassing the barriers of the eye. Tarpana could provide nourishment to the eye, thus enhancing vision.

Administration of Ayurvedic medicines may be considered as an alternative to observation, the accepted first line of management in CSCR, in that the medicines can expedite
CONCLUSION

The main challenge faced was maintaining vision while resolving the ocular pathology and returning of homeostasis. Repeated consultations brought about positive results in the patient. At the end of the consultations, the vision was almost normal, edema had completely resolved in the retina, and the hypothyroidism and hyperlipidemia were controlled. The results of this study may be validated using large-scale sample trials.

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Abbreviations:
CSCR: central serous chorioretinopathy
OCT: optical coherence tomography
DVA: distant visual acuity
NVA: near visual acuity
LogMAR: logarithm of the minimal angle of resolution
OD: oculus dexter
OS: oculus sinister
OU: oculus uterque

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