**INTRODUCTION**

Physiological forces that maintain adhesion between the retinal pigment epithelium (RPE) and the inner layer of the Bruch’s membrane are disrupted in the different types of PED. Long-standing cases have the predilection to develop choroidal neovascularization (CNV), the recognition of which is a major concern secondary to its increased risk for vision loss. Serous PED, though having a sometime association with exudative age-related macular degeneration, has a favourable prognosis. Blurred vision seen in this variety of PED may be associated with induced hyperopia in some cases. Patients over 60 years tend to have a poor prognosis, although variation in the speed of deterioration is demonstrable. No treatment has been proven effective for serous PED, neither have recommendations been established. Although injection of anti-vascular endothelial growth factors (anti-VEGF) may stabilize vision, it carries a 10% risk of RPE tear. Cystoid macular oedema and macular scarring occur independently of PED. In light of the above, management in the realms of complementary and alternative medicine (CAM), including Ayurveda, may be sought.

**METHODOLOGY**

The efficacy of an Ayurvedic protocol to manage serous PED with cystoid macular oedema and macular scar in a 70-year-old male is described in this case report. The report adheres to the Case Report (CARE) guidelines to ensure transparency and efficacy in reporting. Institutional Ethics Committee clearance was not required for the study; however, written informed consent was obtained from the patient before documenting his case.

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CASE REPORT

The patient presented with the blurring of vision in his right eye (OD – oculus dexter) for 8 years and diminished vision in his left eye (OS – oculus sinister) since 1993. In 1993, he contracted malaria, for which he was prescribed Lariam mefloquine. Blurring of vision OS commenced soon after this, but as it neither increased nor decreased, the patient did not seek ophthalmic consultation. In 2007, he experienced the blurring of vision with floaters OD and deterioration of vision OS. He was diagnosed with pigment epithelial detachment and macular scarring and was prescribed anti-VEGF injection. He underwent 3 rounds of injection but got no relief. His history is notable for cardiac problems and gouty arthritis, for which he is under medication. His immediate family members do not present with similar complaints. Personal history readings were normal. Review of systems and vital signs were normal.

He was taking Simvastatin (1 tablet at bedtime), Ramipril (1 tablet in the morning), Aspirin (1 tablet in the morning), and Ibuprofen (1 tablet when as and when needed) when he was admitted for his first two courses of treatment. Ibuprofen was halted before admission for the third course, and all medicines except Ramipril were halted before the fourth course of treatment. Ramipril was continued throughout the remainder of the treatments. The patient had started Benz bromazepam (1 tablet at night) before admission for his fifth course. Brilique (1 tablet at night), Atorvastatin (1 tablet at night), and Metoprolol (1 tablet at night) were being consumed when the patient came for his sixth course of treatment and was continued through the seventh and eighth courses. (Table 1)

Unaided distant visual acuity (DUVA) was LogMAR 0.778 OD and LogMAR 1.778 OS, aided DUVA was LogMAR 0.477 OD and LogMAR 1.778 OS, and near visual acuity (NVA) was N18in both eyes OU (oculus uterque). Anterior segment examination showed normal findings OU. Direct and consensual pupillary reflexes were normal OU. Posterior segment examination by ophthalmoscopy demonstrated a sharply-delineated elevation and a “honeycomb” formation at the macula OD, and a dense macular scar, elevation at the macula, and a few small haemorrhages OS.

Laboratory investigations conducted at the first course of treatment were haemoglobin percentage, erythrocyte sedimentation rate, and lipid profile analysis, which included total cholesterol, triglycerides, high-density lipoproteins, low-density lipoproteins, and very-low-density lipoproteins. (Table 2)

| Table 2 |
|---|
| **Ashta Sthana Pariksha** demonstrated normal Nadi (pulse), Mutra (urine), Mala (excreta), and Sabda (sound), Anupalita Jihva (non-coated tongue), Anunshana Sita Sparsha (lukewarm touch), abnormal vision, and normal Akriti (stature). Dasavidha Pariksha demonstrated a Prakriti (somatic constitution) of Kapha and Vata, normal Sara (the essence of tissues), Samhanana (compactness), and Pramana (measurement), medium Satwa (psyche) and Satmya (habituation), low Ahara Sakti (digestion) and Vyayama Sakti (exercise capacity), and Jirna Vaya (advanced age). |

A diagnosis of serious pigment epithelial detachment, cystoid macular oedema, and the macular scar was made based on the findings. Comparison to Timira (blurring of vision), a Drishtigata Roga (disease of vision) as per Ayurveda was made due to the patient’s symptom of blurring of vision matching with the feature of inability to see distant objects as described in Timira.¹

Vulnerability Assessments administered before all treatments grouped the patient in the geriatric cohort. Fall Risk Assessment determined that the patient has a visual deficit and no disorientation, self-care deficit, problems with mobility, history of a fall, or impaired judgment. Psychological assessment determined that the patient was calm and could carry out his day-to-day activities without assistance.

The patient underwent 8 courses of Ayurvedic in-patient therapy. Two rounds were done in 2013, and one round every year from 2014-2019. His tailored Ayurvedic protocol included herbal medicines (Table 3) and external therapies for both the eyes (Kriyakalpa) and the head (Table 4). He was also advised to continue his allopathic oral medicines at the appropriate times. Panchakarma (bio-purification), generally a requisite in the management of Drishtigata Roga, was not attempted for this patient because of his advanced age.

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

OUTCOME MEASURES AND RESULTS

The assessment was done by unaided and aided DUVA, posterior segment examination, and optical coherence tomography (OCT) scanning. Initial posterior segment examination was done by ophthalmoscopy. In-house fundus photography and OCT scanning were done at admission before the fifth and sixth courses of treatment; at both admission and discharge of the seventh course; and at discharge after the eighth course of treatment.

Unaided and aided DUVA and NVA was maintained from the end of the first course till discharge after the third course of treatment. Unaided DUVA improved to LogMAR 0.602 OD and LogMAR 1.477 OS and aided DUVA improved to LogMAR 0.301 OD and LogMAR 1.477 OS at admission for the fourth course of treatment and was maintained till discharge after the seventh course. Unaided and aided DUVA OD improved to LogMAR 0.477 and LogMAR 0.176 with the maintenance of the other values at admission for the eighth...
course. The same readings were reported at discharge after the eighth course of treatment.

Laboratory investigations were conducted at all courses of treatment, except the third course. The results of these are described in Table 4.

Posterior segment examination at discharge after the first course of treatment demonstrated gradual reduction and eventual resolution of the “honeycomb” lesion at the macula OD. Complete resolution of the lesion with the persistence of the raised pigmentary elevation OU and macular scar OS was demonstrable at the end of the second course of treatment.

An OCT macular scan brought by the patient at admission for his 4th course of treatment showed a dome-shaped elevation at the macula with multiple cystoid lesions with areas of hypo-reflectivity within them OU (Figures 1a and 1b).

Fundus photography started at the 4th course of treatment, demonstrated a gradual reduction in the pigmentary epithelial elevation OU, although macular scarring OS persisted. (Figures 2a, 3a, 3b, 4a, and 4b).

OCT macular scanning demonstrated gradual reduction and ultimate resolution of the cystoid lesions and macular oedema. (Figures 2b, 3c, 3d, 4c, and 4d).

A timeline of events for this case is provided in Table 5.

**DISCUSSION**

The patient’s ocular symptoms started shortly after a course of Lariam mefloquine, a medication used for chemo prophylaxis against malaria. Maculopathy and optic neuropathy have been described in single cases as side effects of mefloquine. A drug safety study demonstrated pseudo-vitiliform macular dystrophy, central serous retinopathy, macular scarring, and bilateral maculopathy in 9 patients out of 23 cases of retinal disease. This patient’s blurred vision could be due to macular scarring as a result of lariam mefloquine.

‘Timira’ is a dreadful condition that warrants immediate management to prevent it from progressing to ‘Kacca’ (diminished vision) and ‘Linganasa’ (blindness). It encompasses a wide range of symptoms from indistinct vision (‘AyyaktaRupa’) to ‘Andha’ (total blindness). The pathology of ‘Timira’ and all Drishitgata Rogas (diseases of vision) revolves around the Patalas or layers of the eye. ‘Susruda’ describes ‘Timira’ when the Doshas settle in the third Patala, while ‘Vagbhata’ describes it when the second Patala is afflicted.

The scarring of the macula was due to excess Kapha lodging in the retina. Cystoid macular oedema was the result of Vata being aggravated at the macula resulting in a crack in the tissue. The accumulation of sub-retinal fluid at the macula was due to excess Kapha seeping through the crack. Detachment of the pigmented epithelium was due to aggravation of Vata, resulting in the tissue’s detachment.

Oral medicines were prescribed with special care to not cause any untoward reactions with the patient’s concomitant allopathic medication. The medicines were instrumental in normalizing metabolism, maintaining homeostasis among the three Doshas, and augmenting the effects of the allopathic medication. Medicines with Guduci (Tinosporacordifolia Miers.) were additionally aimed at gouty arthritis, as Guduci is the ideal medicine for gout as per Ayurveda. Another medicine specifically indicated for gouty arthritis was the Kokilakshakam Tablet, described by Ashtanga Hrdaya in the management of Vatarakta, the Ayurvedic correlation of gout. Other medicines were aimed at reducing the oedema, normalizing retinal metabolism, and improving vision. The discharge medicines augmented the effects of the inpatient prescriptions.

Kriyakalpas such as Anjana, Tarpana, and Putapaka are indicated after complete Suddhikara (purification) of both the Kaya (body) and Siras (head). However, the dominance of Kapha in this patient warranted the initial application of Anjana from the course of treatment onward. This is echoed in the management of KaphajAtishyandaby Acarya Susruta, in which Kriyakalpas such as Anjana and Putapaka may be initially administered. Netra Dhara and Bidalaka facilitated more rapid expulsion of toxins from the eyes by acting on the eyelids. The use of Tarpana at certain intervals of treatments was to prevent the untoward increase of Vata, the prime Dosha in Vridhavastha. As Timira is a Nanatmaja Vikara (unique disease) of Vata, its management with Tarpana is warranted. The head treatments augmented the effects of the Kriyakalpa and enabled absorption of the essential elements through the scalp to reach the target tissues of the retina. Sirodhara was done with oil at the first course of treatment and with decoction at the sixth and seventh courses. This was due to stabilizing the Doshas in the head.

The majority of the ingredients have the property of Rasayana or rejuvenation. It is a ‘Karma’ that reinvigorates the Rasadi Dhatu (seven tissue elements) and nourishes them to health. Acarya Caraka explains that advanced age and conditions due to it warrant some form of Rasayana. This property is affected by not only plants such as Guduci (Tinosporacordifolia Miers.), Guggulu (Commiphoramukul Linn.), Pippali (Piper longum Linn.) and Triphala (Terminalia chebula Retz., Terminalia bellericain Linn., and Emblica officinalis Gaertn.), but also by mineral ingredients such as bitumen, iron, copper, and sulfur.

**CONCLUSION**

Two challenges in this case were to maintain vision and improve retinal findings. A concerted effort made by the oral
medicines and external treatments resulted in improvements in both vision and retinal findings. Despite these, the retinal scar still persisted. However, the patient felt comfortable with the results of his treatment and was pleased to report for further courses. Multiple rounds of treatment garnered positive results; it reflects the multiple times that treatment needs to be administered in Drishtigata Rogas as per Vagbhata. The results of this report may be analyzed by large-scale sample trials.

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ABBREVIATIONS

PED: pigmentary epithelial detachment
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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Figure 1a: OCT macula OD at the 4th course of treatment.

Figure 1b: OCT macula OS at the 4th course of treatment.

Figure 2a: Fundus photo OD at the 5th course of treatment.

Figure 2b: OCT macula OD at the 5th course of treatment.
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Figure 3a: Fundus photo OD at admission before the 8th course of treatment.

Figure 3b: Fundus photo OS at admission before the 8th course of treatment.

Figure 3c: OCT macula OD at admission before the 8th course of treatment.

Figure 3d: OCT macula OS at admission before the 8th course of treatment.

Figure 4a: Fundus photo OD at discharge after the 8th course of treatment.

Figure 4b: Fundus photo OS at discharge after the 8th course of treatment.
Table 1: Concomitant Allopathic Medication

| Medicine              | Dosage and Time          | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  |
|-----------------------|--------------------------|----|----|----|----|----|----|----|----|
| Simvastatin           | 1 tablet at bedtime      | +  | +  | -  | -  | -  | -  | -  | -  |
| Ramipril              | 1 tablet in the morning  | +  | +  | +  | +  | +  | +  | +  | +  |
| Aspirin               | 1 tablet in the morning  | +  | +  | +  | -  | -  | -  | -  | -  |
| Ibuprofen             | 1 tablet as and when needed | +  | +  | -  | -  | -  | -  | -  | -  |
| Benzobromazone        | 1 tablet at night        | -  | -  | -  | -  | +  | +  | +  | +  |
| Brilique              | 1 tablet at night        | -  | -  | -  | -  | -  | +  | +  | +  |
| Atorvastatin          | 1 tablet at night        | -  | -  | -  | -  | -  | +  | +  | +  |
| Metoprolol            | 1 tablet at night        | -  | -  | -  | -  | -  | +  | +  | +  |

Table 2: Laboratory Investigations

| Parameter                              | 10/02/2013 | 05/09/2013 | 07/02/2015 | 02/10/2016 | 04/08/2017 | 05/10/2018 | 02/08/2019 |
|----------------------------------------|------------|------------|------------|------------|------------|------------|------------|
| Hemoglobin %                           | 15.7%      | 10.6%      | 14.6%      | 14.1%      | 14%        | -          | -          |
| Erythrocyte Sedimentation Rate         | 45mm/hr    | 30mm/hr    | 15mm/hr    | 15mm/hr    | 15mm/hr    | 14mm/hr    | 14mm/hr    |
| Fasting Blood Glucose                  | -          | 119mg/dL   | 103mg/dL   | 105mg/dL   | 90mg/dL    | -          | -          |
| Random Blood Glucose                   | -          | -          | -          | -          | 107mg/dL   | 94mg/dL    | -          |
| Total Cholesterol                      | 130mg/dL   | 155mg/dL   | 150mg/dL   | 174mg/dL   | 124mg/dL   | -          | -          |
| Triglycerides                          | 113mg/dL   | -          | 134mg/dL   | 156mg/dL   | 148mg/dL   | -          | -          |
| High-Density Lipo-proteins             | 40mg/dL    | -          | 55mg/dL    | 48mg/dL    | -          | -          | -          |
| Low-Density Lipo-proteins              | 68mg/dL    | -          | 77mg/dL    | 95mg/dL    | -          | -          | -          |
| Very Low-Density Lipo-proteins         | 22mg/dL    | -          | 20mg/dL    | 31mg/dL    | -          | -          | -          |
### Table 3: Oral Inpatient and Discharge Medicines

| Medicine                        | Dosage | Adjuvant               | Time of Administration | Course | Prescription  | Duration |
|---------------------------------|--------|------------------------|------------------------|--------|---------------|----------|
| Samirapan-cakam Kvatha*         | 60mL   | Lukewarm water         | Twice a day before food| 1      | Inpatient     | 15 days  |
|                                 |        |                        |                        | 2      | Discharge     | 2 months |
|                                 |        |                        |                        | 3      | Inpatient     | 2 days   |
|                                 |        |                        |                        | 5      | Inpatient     | 22 days  |
|                                 |        |                        |                        | 6      | Discharge     | 2 months |
|                                 |        |                        |                        | 8      | Inpatient     | 17 days  |
| Siva Gutika                     | 1 tablet| Samirapan-cakam Kvatha*| Twice a day before food| 1      | Inpatient     | 15 days  |
|                                 |        |                        |                        | 5      | Discharge     | 2 months |
| Gorocanandi Gutika              | 1 tablet| Lukewarm water         | Twice a day after food | 1      | Inpatient     | 15 days  |
|                                 |        |                        |                        | 3      | Discharge     | 16 days  |
| Svarasa prepared from Tulasi, Haridra, and Sunthi | 20mL | -                      | Morning                | 1      | Inpatient     | 15 days  |
| Bilvadi Gutika                  | 1 tablet| Lukewarm water         | Twice a day after food | 2      | Inpatient     | 10 days  |
|                                 |        |                        |                        | 5      | Discharge     | 2 months |
| Maha Manjishtadi Kvatha         | 30mL   | Lukewarm water         | Twice a day before food| 2      | Inpatient     | 14 days  |
|                                 |        |                        |                        | 8      | Inpatient     | 17 days  |
| Punarnavadi Kvatha              | 30mL   | Samirapan-cakam Kvatha*| Twice a day before food| 3      | Inpatient     | 16 days  |
|                                 |        |                        |                        | 8      | Inpatient     | 17 days  |
|                                 |        | Maha Manjishtadi Kvatha | Twice a day before food| 2      | Inpatient     | 14 days  |
| Kaisora Guggulu                 | 1 tablet| Manjishtadi Kvatha     | Twice a day before food| 4      | Inpatient     | 18 days  |
|                                 |        |                        |                        | 5      | Inpatient     | 22 days  |
|                                 |        |                        |                        | 5      | Discharge     | 2 months |
| Amruttarama Kvatha              | 30mL   | Punarnavadi Kvatha     | Twice a day before food| 3      | Inpatient     | 16 days  |
|                                 | 2 tablets|                        |                        | 4      | Inpatient     | 18 days  |
| Vasa Sree*                      | 1 tablet| Lukewarm water         | Twice a day after food | 3      | Inpatient     | 16 days  |
|                                 |        |                        |                        | 7      | Inpatient     | 18 days  |
| Kumari Svarasa                  | 20mL   | -                      | Morning                | 3      | Inpatient     | 16 days  |
| Kamadudha Rasa                  | 1 tablet| Lukewarm water         | Twice a day after food | 3      | Inpatient     | 16 days  |
|                                 |        |                        |                        | 3      | Discharge     | 2 months |
| Guduci Sattva                   | 1/2 tablespoon| Lukewarm water    | Twice a day after food | 3      | Inpatient     | 16 days  |
|                                 |        |                        |                        | 7      | Inpatient     | 21 days  |
### Table 3: (Continued)

| Medicine                        | Dosage | Adjuvant               | Time of Administration       | Course | Prescription | Duration |
|---------------------------------|--------|------------------------|-------------------------------|--------|--------------|----------|
| Manjishtadi Kvatha              | 60mL   | Lukewarm water         | Twice a day before food       | 4      | Inpatient    | 18 days  |
|                                 |        |                        |                               | 5      | Inpatient    | 22 days  |
|                                 |        | Samirapan-cakam Kvatha*|                               | 5      | Discharge    | 2 months |
|                                 |        |                        |                               | 6      | Inpatient    | 18 days  |
|                                 |        | Pathya Shadanga Kvatha |                               | 7      | Discharge    | 2 months |
| Saptamrta Lauha                 | 1 tablet| Lukewarm water         |                               | 5      | Discharge    | 22 days  |
|                                 |        | Samirapan-cakam Kvatha*|                               | 6      | Discharge    | 2 months |
|                                 |        | Pathya Shadanga Kvatha |                               | 7      | Inpatient    | 21 days  |
| Guducyadi Kvatha                | 60mL   | Lukewarm water         | Twice a day before food       | 2      | Discharge    | 2 months |
| Shadharana Gutika               | 1 tablet| Guducyadi Kvatha       |                               | 6      | Inpatient    | 18 days  |
| Vara Churna                     | 5g     | Lukewarm water         | Twice a day after food        | 6      | Inpatient    | 18 days  |
| Vasa Svarasa                    | 20mL   | -                      | Twice a day before food       | 7      | Inpatient    | 21 days  |
| Pathyashadanga Kvatha           | 60mL   | Lukewarm water         | Twice a day before food       | 7      | Inpatient    | 21 days  |
| Kokilak-shakamTablet            | 1 tablet| Lukewarm water         | Twice a day after food        | 7      | Inpatient    | 8 days   |
| Hinguvacadi Gutika              | 1 tablet| Lukewarm water         | Twice a day after food        | 7      | Discharge    | 2 months |
| Akshabijadi Capsule*            | 1 capsule| Lukewarm water        | Twice a day after food        | 1      | Discharge    | 2 months |
| Catropa Capsule*                | 1 capsule| Lukewarm water       | Twice a day after food        | 2      | Discharge    | 2 months |
| Candraprabha Vati               | 1 tablet| Lukewarm water         | Twice a day after food        | 3      | Discharge    | 2 months |
| Dhanadarasnadi Kvatha*          | 60mL   | Lukewarm water         | Twice a day after food        | 4      | Discharge    | 2 months |
| Livo Sree*                      | 1 tab; et| Lukewarm water        | Twice a day after food        | 4      | Discharge    | 2 months |
| Saptamrta Kvatha*               | 60mL   | Lukewarm water         | Twice a day before food       | 5      | Discharge    | 2 months |
| ArogyaVardhini Vati             | 1 tablet| Lukewarm water         | Twice a day after food        | 5      | Discharge    | 2 months |

*Proprietary medicines of Sreedhareeyam Farmherbs India Pvt. Ltd.
Table 4: External Inpatient and Discharge Therapies

| Treatment and Procedure      | Medicine      | Course    | Prescription | Duration |
|------------------------------|---------------|-----------|--------------|----------|
|                              |               | 1         | Inpatient    | 11 days  |
|                              |               | 1         | Discharge    | 2 months |
|                              |               | 2         | Inpatient    | 10 days  |
| Anjana                       | Candanadi Anjana* | 2           | Discharge    | 2 months |
|                              |               | 3         | Discharge    | 15 days  |
|                              |               | 4         | Discharge    | 2 months |
|                              |               | 5         | Inpatient    | 10 days  |
|                              | Mukulanjana*  | 7         | Inpatient    | 15 days  |
|                              |               | 1         | Inpatient    | 5 days   |
|                              |               | 2         | Inpatient    | 3 days   |
|                              | Vinayakanjana*| 3         | Inpatient    | 6 days   |
|                              |               | 4         | Discharge    | 2 months |
|                              |               | 6         | Inpatient    | 5 days   |
|                              |               | 1         | Inpatient    | 11 days  |
|                              |               | 1         | Discharge    | 2 months |
|                              |               | 2         | Inpatient    | 11 days  |
|                              |               | 3         | Inpatient    | 16 days  |
|                              | Netramrtam*   | 3         | Discharge    | 2 months |
|                              |               | 4         | Inpatient    | 11 days  |
|                              |               | 6         | Inpatient    | 9 days   |
|                              |               | 7         | Inpatient    | 22 days  |
|                              |               | 7         | Discharge    | 2 months |
|                              | Sunetra Senior*| 6         | Inpatient    | 9 days   |
|                              | Eye Plus*     | 7         | Discharge    | 2 months |
|                              |               | 8         | Inpatient    | 13 days  |
|                              | Honey         | 8         | Discharge    | 2 months |
|                              | Jatavedha Ghrt*| 1          | Inpatient    | 5 days   |
|                              | Sahadevi Svarasa| 5        | Inpatient    | 7 days   |
|                              | Kasyapa Ghrt  | 8         | Inpatient    | 12 days  |
|                              | Lohdradi Kvatha| 5         | Inpatient    | 6 days   |
|                              |               | 1         | Inpatient    | 11 days  |
|                              | Mrdvikadi Kvatha| 4        | Inpatient    | 15 days  |
|                              | Kasyapam Kvatha*| 5        | Inpatient    | 8 days   |
|                              |                | 2         | Inpatient    | 2 days   |
| Netra Dhara                  | Lodhradi Kvatha| 3        | Inpatient    | 14 days  |
|                              |                | 8         | Inpatient    | 10 days  |
|                              |                | 2         | Inpatient    | 7 days   |
|                              |                | 1         | Inpatient    | 11 days  |
|                              | Mrkkadi Purampada| 4        | Inpatient    | 15 days  |
|                              | Karutta Gutika | 5         | Inpatient    | 2 days   |
|                              | Honey         | 2         | Inpatient    | 2 days   |
|                              | Triphala Ghrt  | 4         | Inpatient    | 7 days   |
|                              | Jatavedha Ghrt*| 6         | Inpatient    | 5 days   |

Anjana

The semisolid medicine was applied onto the edge of a Salaka (application rod). This was applied on the lower bulbar conjunctiva from the inner canthus to the outer canthus and vice versa.

Ascyotana

Two drops of the medicine were instilled into the subconjunctival sac at the inner canthus.

Netra Dhara

The lukewarm liquid was poured in a thin, continuous stream over the eyes. The patient was asked to blink during the procedure.

Bidalaka

A paste prepared from the medicines was applied over the eyelids while obviating the eyelashes.

Tarpana

Two circular fences prepared from gram flour were constructed around the orbits. The lukewarm lipid medicine was filled into the cavities and the patient was asked to slowly blink.
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Table 4: (Continued)

| Treatment and Procedure | Medicine                                                                 | Course | Prescription | Duration |
|-------------------------|--------------------------------------------------------------------------|--------|--------------|----------|
| **Bandhana**            | The flowers were placed with their stems facing upward on the closed eyes. A cloth band was tied on the eyes for a period of time. | 2      | Inpatient    | 3 days   |
|                         | Jasmine flowers                                                          | 3      | Inpatient    | 6 days   |
|                         | Vasa, Laksha, Amalaki, and Yashimadhu in NirgundiVasakadi Svarasa        | 1      | Inpatient    | 7 days   |
|                         | Laksha, Musta, Vasa, and Usirain Vasa Kavtha                            | 2      | Inpatient    | 10 days  |
|                         | Vasa Kavtha                                                              | 3      | Inpatient    | 14 days  |
|                         | Vasa, Laksha, Musta, and Haritaki in Vasa Triphaladi Kavtha             | 7      | Inpatient    | 7 days   |
| **Talapoticchil**       | A paste prepared from the ingredients was applied on a plantain leaf and placed over the head and tied down.                   | 1      | Inpatient    | 5 days   |
|                         | Vasa, Laksha, Musta, Amalaki, and Yashti in Vasa Kavtha                  | 6      | Inpatient    | 7 days   |
|                         | Triphala Guducyadi Kavtha                                               | 7      | Inpatient    | 4 days   |
|                         | Vasa, Laksha, Musta, and Yashti in Vasa Triphaladi Kavtha               | 3      | Inpatient    | 14 days  |
|                         | Kaccuradi Curna in Nimbamrtadi Eranda                                    | 4      | Inpatient    | 3 days   |
|                         | Kaccuradi Curna and Karutta Gutika in Nimbamrtadi Eranda                 | 5      | Inpatient    | 2 days   |
|                         | Vasa, Laksha, Yashhti, Karutta Gutika                                    | 7      | Inpatient    | 3 days   |
|                         | Vidari, Laksha, Kaccuradi Curna                                          | 8      | Inpatient    | 1 day    |
| **Picu**                | The oil was placed in a piece of gauze and placed over the bregma.       | 2      | Inpatient    | 3 days   |
|                         | Sasanka Taila*                                                           | 1      | Inpatient    | 5 days   |
|                         | Vasa Guducyadi Kavtha in Nimbamrtadi Eranda                              | 6      | Inpatient    | 7 days   |
|                         | Triphala Guducyadi Kavtha                                               | 7      | Inpatient    | 4 days   |
|                         | Vasa, Laksha, Musta, and Yashti in Vasa Triphaladi Kavtha               | 3      | Inpatient    | 14 days  |
|                         | Kaccuradi Curna in Nimbamrtadi Eranda                                    | 4      | Inpatient    | 3 days   |
|                         | Kaccuradi Curna and Karutta Gutika in Nimbamrtadi Eranda                 | 5      | Inpatient    | 2 days   |
|                         | Vasa, Laksha, Yashhti, Karutta Gutika                                    | 7      | Inpatient    | 3 days   |
|                         | Vidari, Laksha, Kaccuradi Curna                                          | 8      | Inpatient    | 1 day    |
| **Thalam**              | A paste prepared from the ingredients was applied to the bregma.         | 1      | Inpatient    | 5 days   |
|                         | Vasa, Laksha, Musta, and Yashti in Vasa Triphaladi Kavtha               | 6      | Inpatient    | 2 days   |
|                         | Kaccuradi Curna and Karutta Gutika in Nimbamrtadi Eranda                 | 6      | Inpatient    | 5 days   |
| **Siroveshtana**        | A semisolid paste was smeared over a Cora cloth and applied to the head (area with the paste facing inwards). One end of the cloth was anchored above the right ear. The cloth was wrapped over the forehead above the eyebrows and towards the left ear. From the left ear, the cloth was wrapped around the back of the head and brought upwards around the head while the vertex is avoided. The other end of the cloth was applied to the top of the head. Any leftover paste was applied to the uncovered portion of the head. | 2      | Inpatient    | 9 days   |
### Table 5: Time Line of Events

| Date               | Events                                                                 |
|--------------------|------------------------------------------------------------------------|
| 1993 - 2007        | Patient experiences blurring of vision OS after undergoing a course of Lariam mefloquine for treating malaria |
|                    | Vision neither deteriorates nor improves; the patient ignores it to take care of other duties |
| 2007-2013          | The blurring of vision OD with floaters occurs |
|                    | Vision OU gradually deteriorates.                                      |
|                    | Diagnosis of pigmentary epithelial detachment with cystoid macular oedema and macular scar |
|                    | Undergoes injection of Lucentis anti-VEGF 3 times; does not provide relief. |

| Consultations and Treatments at Sreedhareeyam Hospital |
|--------------------------------------------------------|
| **Duration**  | **Events**            | **Admission**             | **Oral Medicines** | **External Therapies** |
|               |                       |                          |                   |                         |
| 09/02/2013 - 24/02/2013 | Initial Consultation | Ocular Examination: DVA (unaided): LogMAR 0.778 OD, LogMAR 1.778 OS | Samirapanacakam Kvatha* Siva Gutika Gorocanadi Gutika Tulasi, Sunti, Haridra Svarasa | Netra Dhara Ascyotana Anjana Talapoticchil Picu |
|                |                       | DVA (aided): LogMAR 0.477 OD, LogMAR 1.778 OS |                      |                         |
|                |                       | NVA: Na8 OU                |                      |                         |
|                |                       | Posterior Segment: sharply-delineated elevation and a “honey-comb” lesion at the macula OD; dense macular scar, elevation at the macula, hemorrhages OS |                      |                         |
|                |                       | Laboratory Investigations (10/02/2013) |                      |                         |
|                |                       | Hemoglobin: 15.7%         |                      |                         |
|                |                       | ESR: 45mm/hr               |                      |                         |
|                |                       | Cholesterol: 150mg/dL      |                      |                         |
|                |                       | Triglycerides: 113mg/dL    |                      |                         |
|                |                       | HDL: 40mg/dL               |                      |                         |
|                |                       | LDL: 68mg/dL               |                      |                         |
|                |                       | VLDL: 22mg/dL              |                      |                         |
| 04/09/2013 - 21/09/2013 | - | Ocular Examination: DVA (unaided): LogMAR 0.778 OD, LogMAR 1.778 OS | Samirapanacakam Kvatha* Bihadi Gutika Maha Munjishadi Kwatha Punarnavadi Kwatha Kaisora Guggulu | Netra Dhara Ascyotana Anjana Talapoticchil Picu |
|                |                       | DVA (aided): LogMAR 0.477 OD, LogMAR 1.778 OS |                      |                         |
|                |                       | NVA: Na8 OU                |                      |                         |
|                |                       | Posterior Segment: maintenance of macular scar and elevation OS; resolution of the “honey-comb” lesion OS |                      |                         |
|                |                       | Laboratory Investigations (05/09/2013) |                      |                         |
|                |                       | Hemoglobin: 10.6%          |                      |                         |
|                |                       | ESR: 30mm/hr               |                      |                         |
|                |                       | Cholesterol: 155mg/dL       |                      |                         |
|                |                       | FBS: 119mg/dL              |                      |                         |
| 07/09/2014 - 28/09/2014 | - | Ocular Examination: DVA (unaided): LogMAR 0.778 OD, LogMAR 1.778 OS | Gorocanadi Gutika Amrtottaram Kwatha Punarnavadi Kwatha Vasa Sree* Kamadudha Rasa Guduci Sattva | Netra Dhara Ascyotana Anjana Bandhana Thala Talapoticchil |
|                |                       | DVA (aided): LogMAR 0.477 OD, LogMAR 1.778 OS |                      |                         |
|                |                       | NVA: Na8 OU                |                      |                         |
|                |                       | Posterior segment: elevation at the macula and macular scar OS, OCT: cyst-like lesions with areas of hypo-reflectivity at the macula OU |                      |                         |

**Medical Investigations**

| Date   | Events                      | Medicines                                |
|--------|-----------------------------|------------------------------------------|
| 09/02/2013 | -                          | Samirapanacakam Kwatha* Siva Gutika Gorocanadi Gutika         |
|         |                             | Gorocanadi Gutika Amrtottaram Kwatha Punarnavadi Kwatha Vasa Sree* Kamadudha Rasa Guduci Sattva |
| 04/09/2013 | -                          | CatropaCapsule* Candanadi Anjana         |
| 07/09/2014 | -                          | Samirapanacakam Kwatha Gorocanadi Gutika Vasa Sree Guduci Sattva Candraprabha Vati Candanadi Anjana Netramrutam |
### Table 5: (Continued)

| Date               | Events                                              | Ocular Examination                                                                 | Posterior segment                                                                 |
|--------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 05/02/2015 - 23/02/2015 | Reduced vision and visual clarity in dim light     | DVA (unaided): LogMAR 0.602 OD, LogMAR 1.477 OS                                      | Kaisora Guggulu Amrottaram Kvatha Manjishtadi Kvatha Netra Dhara Ascyotana Anjana Thala |
|                    |                                                     | DVA (aided): LogMAR 0.301 OD, LogMAR 1.477 OS                                       |                                                                                   |
|                    |                                                     | NVA: N18 OU                                                                          |                                                                                   |
|                    |                                                     | Posterior segment: macular scar OS and reduced pigmentary epithelial detachment OU |                                                                                   |
|                    |                                                     | OCT: dome-shaped elevation at the macula with multiple cystoid lesions OU           |                                                                                   |
|                    |                                                     | Laboratory Investigations (07/02/2015)                                                |                                                                                   |
|                    |                                                     | Haemoglobin: 14.1%                                                                   |                                                                                   |
|                    |                                                     | ESR: 15mm/hr                                                                          |                                                                                   |
|                    |                                                     | FBS: 105mg/dL                                                                         |                                                                                   |
|                    |                                                     | Cholesterol: 174mg/dL                                                                 |                                                                                   |
|                    |                                                     | Triglycerides: 156mg/dL                                                                |                                                                                   |
|                    |                                                     | HDL: 55mg/dL                                                                          |                                                                                   |
|                    |                                                     | LDL: 77mg/dL                                                                          |                                                                                   |
|                    |                                                     | VLDL: 20mg/dL                                                                         |                                                                                   |
| 01/10/2016 - 24/10/2016 | Dimness of vision                                | DVA (unaided): LogMAR 0.602 OD, LogMAR 1.477 OS                                      | Kaisora Guggulu Amrottaram Kvatha Manjishtadi Kvatha Netra Dhara Ascyotana Anjana Thala |
|                    |                                                     | DVA (aided): LogMAR 0.301 OD, LogMAR 1.477 OS                                       |                                                                                   |
|                    |                                                     | NVA: N18 OU                                                                          |                                                                                   |
|                    |                                                     | Posterior segment: Pigmentary epithelial detachment OU, macular scar OS             |                                                                                   |
|                    |                                                     | OCT: cyst-like lesions at the macula with hypo-reflectivity within the lesions OS  |                                                                                   |
|                    |                                                     | Laboratory Investigations (02/10/2016)                                                |                                                                                   |
|                    |                                                     | Haemoglobin: 14.6%                                                                   |                                                                                   |
|                    |                                                     | ESR: 15mm/hr                                                                          |                                                                                   |
|                    |                                                     | FBS: 103mg/dL                                                                         |                                                                                   |
|                    |                                                     | Cholesterol: 15mg/dL                                                                  |                                                                                   |
|                    |                                                     | Triglycerides: 134mg/dL                                                                |                                                                                   |
|                    |                                                     | HDL: 48mg/dL                                                                          |                                                                                   |
|                    |                                                     | LDL: 95mg/dL                                                                          |                                                                                   |
|                    |                                                     | VLDL: 31mg/dL                                                                         |                                                                                   |
| 03/08/2017 - 20/08/2017 | -                                                  | Ocular Examination                                                                    | Samirapancakam Kvatha Kaisora Guggulu Manjishtadi Kvatha Saptamrta Lauha ArogyaVardhini Vati Eye Plus* |
|                    |                                                     | DVA (unaided): LogMAR 0.602 OD, LogMAR 1.477 OS                                      |                                                                                   |
|                    |                                                     | DVA (aided): LogMAR 0.301 OD, LogMAR 1.477 OS                                       |                                                                                   |
|                    |                                                     | NVA: N18 OU                                                                          |                                                                                   |
|                    |                                                     | Posterior segment: Pigmentary epithelial detachment OU, macular scar OS             |                                                                                   |
|                    |                                                     | Laboratory Investigations (04/08/2017)                                                |                                                                                   |
|                    |                                                     | Haemoglobin: 14%                                                                     |                                                                                   |
|                    |                                                     | ESR: 15mm/hr                                                                          |                                                                                   |
|                    |                                                     | FBS: 90mg/dL                                                                          |                                                                                   |
|                    |                                                     | Cholesterol: 124mg/dL                                                                  |                                                                                   |
|                    |                                                     | FBS: 148mg/dL                                                                         |                                                                                   |
| Date                | Events                                                                 | Ocular Examination                                                                 |
|---------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 05/10/2018 - 27/10/2018 | Reduction in clarity while reading                                      | DVA (unaided): LogMAR 0.602 OD, LogMAR 1.477 OS                                    |
|                     |                                                                        | DVA (aided): LogMAR 0.301 OD, LogMAR 1.477 OS                                     |
|                     |                                                                        | NVA: N18 OU                                                                         |
|                     |                                                                        | Posterior Segment: Pigmentary epithelial detachment OU, macular scar OS             |
|                     |                                                                        | Laboratory Investigations (05/10/2018)                                              |
|                     |                                                                        | ESR: 14mm/hr                                                                        |
|                     |                                                                        | RBS: 107mg/dL                                                                       |
| 02/08/2019 - 18/08/2019 | Gradual reduction in vision OD                                          | DVA (unaided): LogMAR 0.477 OD, LogMAR 1.778 OS                                    |
|                     |                                                                        | DVA (aided): LogMAR 0.477 OD, LogMAR 1.778 OS                                     |
|                     |                                                                        | NVA: N18 OU                                                                         |
|                     |                                                                        | Posterior Segment: Pigmentary epithelial detachment OU, macular scar OS             |
|                     |                                                                        | OCT: cyst-like lesions at the macula OS                                             |
|                     |                                                                        | Laboratory Investigations (02/08/2019)                                              |
|                     |                                                                        | ESR: 14mm/hr                                                                        |
|                     |                                                                        | RBS: 109mg/dL                                                                       |

**Ocular Examination**

- **DVA (unaided):** LogMAR 0.602 OD, LogMAR 1.477 OS
- **DVA (aided):** LogMAR 0.301 OD, LogMAR 1.477 OS
- **NVA:** N18 OU
- **Posterior Segment:** Pigmentary epithelial detachment OU, macular scar OS
- **Laboratory Investigations (05/10/2018):**
  - ESR: 14mm/hr
  - RBS: 107mg/dL

**Ocular Examination**

- **DVA (unaided):** LogMAR 0.477 OD, LogMAR 1.778 OS
- **DVA (aided):** LogMAR 0.477 OD, LogMAR 1.778 OS
- **NVA:** N18 OU
- **Posterior Segment:** Pigmentary epithelial detachment OU, macular scar OS
- **Laboratory Investigations (02/08/2019):**
  - ESR: 14mm/hr
  - RBS: 109mg/dL

**Table 5: (Continued)**

| Date                | Events                                                                 | Ocular Examination                                                                 |
|---------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 05/10/2018 - 27/10/2018 | Reduction in clarity while reading                                      | DVA (unaided): LogMAR 0.602 OD, LogMAR 1.477 OS                                    |
|                     |                                                                        | DVA (aided): LogMAR 0.301 OD, LogMAR 1.477 OS                                     |
|                     |                                                                        | NVA: N18 OU                                                                         |
|                     |                                                                        | Posterior Segment: Pigmentary epithelial detachment OU, macular scar OS             |
|                     |                                                                        | Laboratory Investigations (05/10/2018)                                              |
|                     |                                                                        | ESR: 14mm/hr                                                                        |
|                     |                                                                        | RBS: 107mg/dL                                                                       |
| 02/08/2019 - 18/08/2019 | Gradual reduction in vision OD                                          | DVA (unaided): LogMAR 0.477 OD, LogMAR 1.778 OS                                    |
|                     |                                                                        | DVA (aided): LogMAR 0.477 OD, LogMAR 1.778 OS                                     |
|                     |                                                                        | NVA: N18 OU                                                                         |
|                     |                                                                        | Posterior Segment: Pigmentary epithelial detachment OU, macular scar OS             |
|                     |                                                                        | OCT: cyst-like lesions at the macula OS                                             |
|                     |                                                                        | Laboratory Investigations (02/08/2019)                                              |
|                     |                                                                        | ESR: 14mm/hr                                                                        |
|                     |                                                                        | RBS: 109mg/dL                                                                       |