RESEARCH PAPER

Ayurvedic Therapeutic Intervention in Post-Treated Neovascular Age-Related Macular Degeneration: Case Report

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Abstract

Background: Age-related macular degeneration (ARMD) is a progressive, degenerative retinal disorder and a leading cause of irreversible central vision loss in older adults. It presents in two principal forms dry (atrophic/non-exudative) and wet (neovascular/exudative). Wet ARMD is characterised by choroidal neovascularisation causing rapid visual deterioration, whereas dry ARMD is associated with drusen deposition, retinal pigment epithelial degeneration, and gradual central vision loss. Classical Ayurvedic texts do not describe ARMD directly; based on its clinical presentation, the condition is most closely correlated with *Vataja Timira*. Contemporary management is largely limited to monitoring and nutritional supplementation, with few options for reversing established retinal degeneration.

Case Presentation: A 69-year-old woman presented with a 15-year history of progressively diminished distance and near vision. She had a known history of hypertension and had previously undergone ophthalmic interventions including intravitreal anti-VEGF injections (ranibizumab and bevacizumab) and photodynamic therapy for neovascular activity in the left eye. Fundus examination showed perimacular drusen and chorioretinal degeneration in both eyes, and optical coherence tomography (OCT) demonstrated fluctuating macular thickness consistent with earlier neovascular activity followed by degenerative, atrophic change.

Intervention: The patient received a combined Ayurvedic protocol comprising Panchakarma procedures (including Yoga Basti with Panchatikta Kshira Kwatha, Chakshushya Yapana Basti, Nasya, and Jalaukavacharana), Rasayana therapy, local ocular treatments (Netra Aschyotana and Netra Bidalaka), and internal medications, directed at *Vata–Pitta shamana*, *Srotoshodhana*, and *Chakshushya Rasayana*.

Outcome: Over the follow-up period, visual acuity remained stable (right eye 6/36, left eye 6/60), and serial central macular OCT thickness, though fluctuant, showed an overall stabilising trend in both eyes without further acute neovascular episodes.

Conclusion: This case suggests that individualised Ayurvedic management may help stabilise visual function and slow further degenerative change in patients with Dry ARMD following prior neovascular disease, and supports the value of further systematic study.

Keywords: *Age-related macular degeneration; Ayurveda; Vataja Timira; Rasayana; Panchakarma; Case report*

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1. Introduction

Age-related macular degeneration (ARMD) is one of the leading causes of irreversible visual impairment and blindness worldwide and has been estimated to account for approximately 8–9% of global blindness, making it the third most common cause of vision loss globally, particularly among older adults (Jonas,

2014). The global burden of the disease is projected to rise substantially with an ageing population, from an estimated 196 million affected individuals in 2020 to approximately 288 million by 2040 (Jonas, 2014). *India-specific prevalence range (~1–2% in southern India to ~4–5% in northern India).* ARMD is broadly classified into dry (non-exudative) and wet (exudative) forms. The dry form is more common and is characterised by drusen accumulation, retinal pigment epithelial change, and progressive atrophy, whereas the wet form involves choroidal neovascularisation and typically produces more rapid visual deterioration (Flores et al., 2021). Established risk factors for ARMD include advancing age, cigarette smoking, and genetic susceptibility (Velilla et al., 2013), and hypertension and other cardiovascular risk factors, present in the patient described here, have also been reported to be associated with the disease (M. G. et al., 2020). In wet ARMD, intravitreal anti-VEGF agents such as ranibizumab and bevacizumab have shown comparable efficacy in stabilising or improving visual acuity (CATT Research Group, 2011). Current management remains largely symptomatic and preventive, particularly for wet disease, while effective treatment options for dry ARMD remain limited; nutritional antioxidant supplementation of the type used in the Age-Related Eye Disease Study 2 (AREDS2) formulation has been shown to slow progression from intermediate to advanced disease, without reversing established degeneration (AREDS2 Research Group, 2013; Buschini et al., 2015; Schultz et al., 2021).

In Ayurveda, visual impairment arising from degenerative changes in the ocular structures is described under *Timira*, *Kacha*, and *Drishtigata Roga*. These conditions are understood to arise from vitiation of *Vata* and *Pitta Dosha* affecting the visual apparatus (*Drishti Mandala*). According to the *Sushruta Samhita*, progressive visual disturbance begins as *Timira* and, if untreated, may culminate in blindness. The *Ashtanga Hridaya* similarly describes involvement of the deeper ocular structures in *Drishtigata Roga*, leading to progressive impairment of vision (Vagbhata, *Ashtanga Hridaya*, Uttara Sthana 12/11, as translated in Paradkar, 2014).

The clinical features of Dry ARMD find correlation with several classical descriptions of *Vataja Timira*, including distorted or blurred vision, metamorphopsia, difficulty with fine visual tasks, and a variegated or confused appearance of the surrounding world with difficulty recognising faces due to loss of central vision, described in relation to *Sannipataja Timira*, consistent with the classical description "अव्यक्तं पश्यति रूपं व्यक्तं चापि न पश्यति।" (perceiving forms indistinctly, without clarity of vision) (Vagbhata, *Ashtanga Hridaya*, Uttara Sthana, Chapter 12, Verse 11, as translated in Paradkar, 2014). Depending on the *Dosha* predominantly involved, classical treatment options include *Snehana, Raktamokshana, Nasya, Anjana, Basti, Tarpana, Lepa*, and *Seka*.

2. Case Presentation

2.1 Study Design and Setting

This is a single, retrospective case report. The patient was managed through the outpatient and inpatient departments of D. Y. Patil Ayurvedic Hospital, Nerul, Navi Mumbai, India.

2.2 Patient Information

A 69-year-old woman (Case ID: AY-ARMD-01) presented with gradually progressive diminution of both distance and near vision of 15 years' duration. She had a known diagnosis of ARMD and had undergone multiple ophthalmic interventions for previous neovascular (wet ARMD) activity, predominantly affecting the left eye, including intravitreal anti-VEGF therapy and photodynamic therapy. Despite this treatment, she continued to experience progressive visual impairment.

Past medical history was notable for hypertension of five years' duration, managed on regular medication; there was no history of ocular trauma. Her past ophthalmic history included photodynamic therapy with verteporfin for metamorphopsia in the left eye (2009), intravitreal ranibizumab injection (2014), intravitreal bevacizumab injection (2014), and intravitreal therapy in the right eye (2020). Personal and family history were non-contributory.

2.3 Clinical Findings

Slit-lamp examination and fundus findings at presentation are summarised in Tables 1 and 2.

Table 1. Slit-lamp examination and vision at presentation

Clinical Finding	Right Eye (OD)	Left Eye (OS)
Lids	Normal	Normal
Conjunctiva	Normal	Normal
Cornea	Clear	Clear
Anterior chamber	Mildly shallow	Mildly shallow
Iris	Normal	Normal
Pupil	Round, regular, reactive	Round, regular, reactive
Lens	Nuclear sclerosis grade 2 with opacity	Nuclear sclerosis grade 2 with opacity
Distance vision	6/60, PH 6/36	6/60, PH 6/60

Clinical Finding	Right Eye (OD)	Left Eye (OS)
Near vision	N18	N18

Table 2. Fundus examination findings

Finding	Right Eye	Left Eye
Optic disc	Normal	Early peripapillary atrophy
Cup:disc ratio	0.4	0.6
Macula	Perimacular drusen	Perimacular drusen
Foveal reflex	Absent	Absent
Blood vessels	Normal	Normal
Peripheral retina	Chorioretinal degeneration	Chorioretinal degeneration

Colour fundus photography (Fig. 1) and the Amsler grid (Fig. 2), used for patient self-monitoring of metamorphopsia and central scotoma, are shown below.

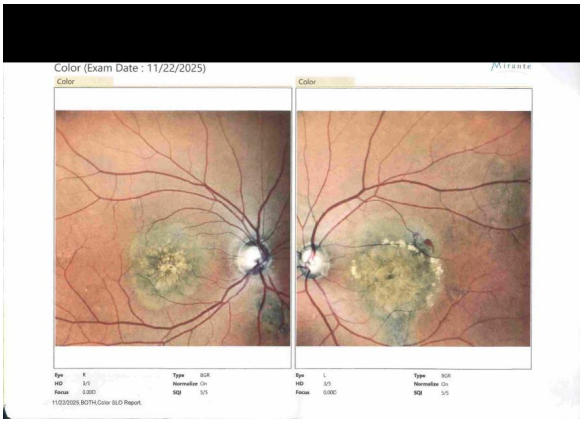


Fig. 1. Colour fundus photograph (patient-identifying header redacted).

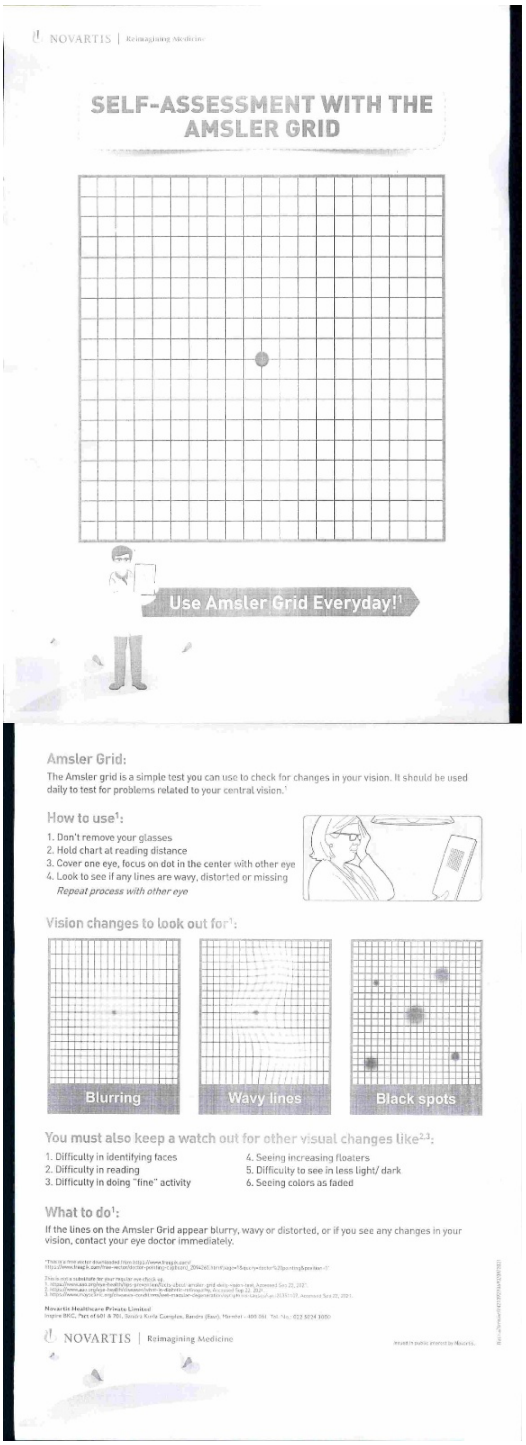


Fig. 2. Amsler grid self-assessment chart used for monitoring metamorphopsia and central scotoma.

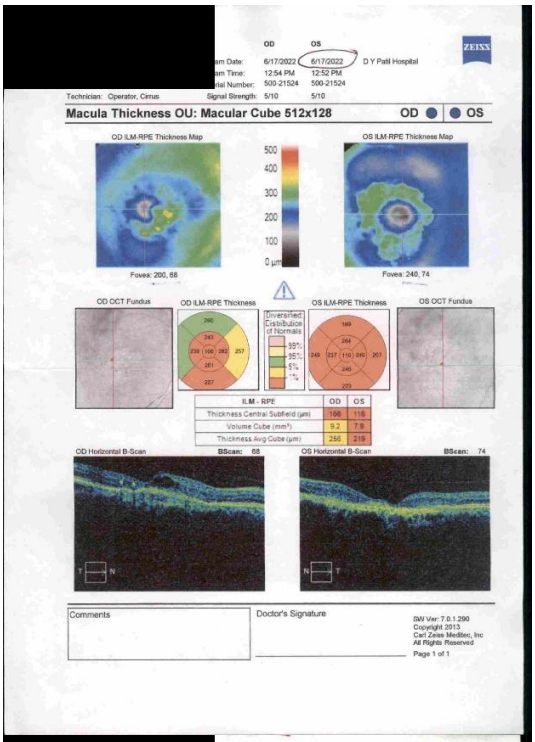
2.4 Diagnostic Assessment

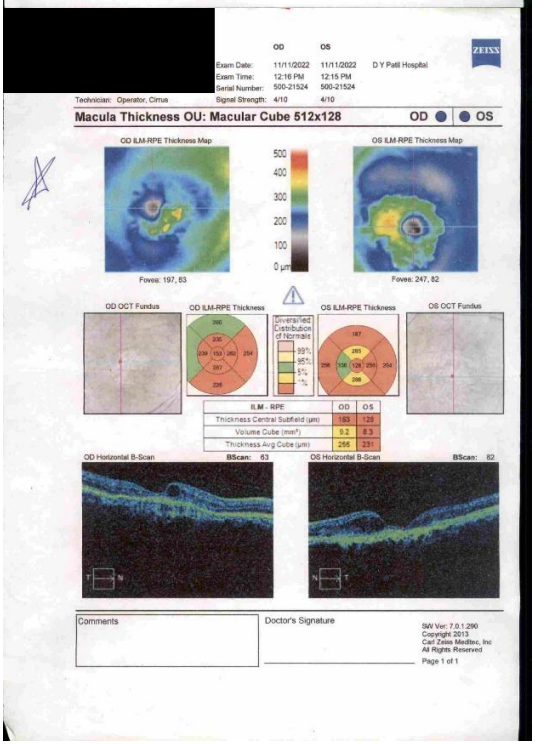
Macular thickness was monitored serially using optical coherence tomography (OCT) between January 2022 and July 2026 (Table 3).

Table 3. Serial OCT central subfield thickness (µm)

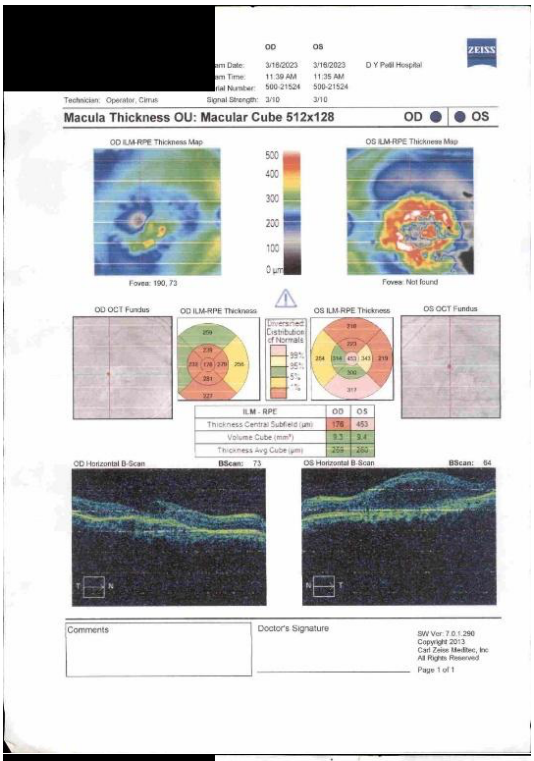
Date	Right Eye (OD)	Left Eye (OS)
Jan 2022	253	284
Jun 2022	166	116
Nov 2022	153	128
Mar 2023	176	453
Aug 2023	163	419
Jan 2024	183	115
May 2024	174	189
Jan 2025	169	270
Nov 2025	130	392
Jul 2026	231	251

Serial OCT scans of the macula are presented in Fig. 3.

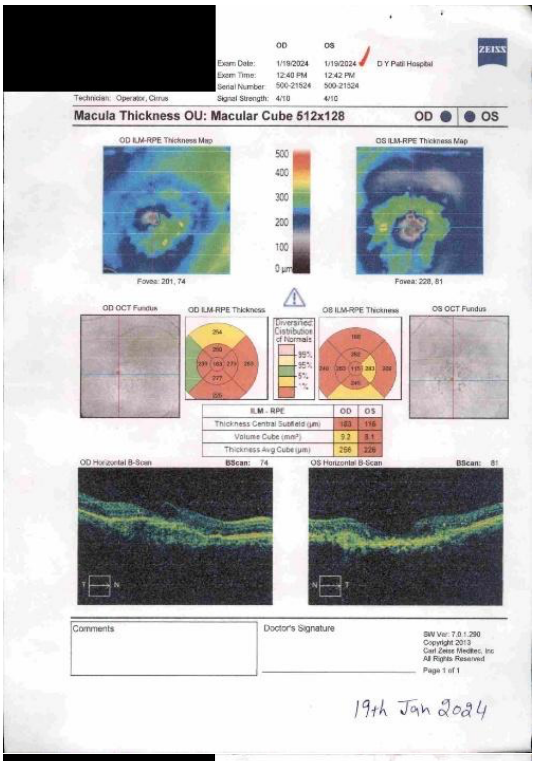




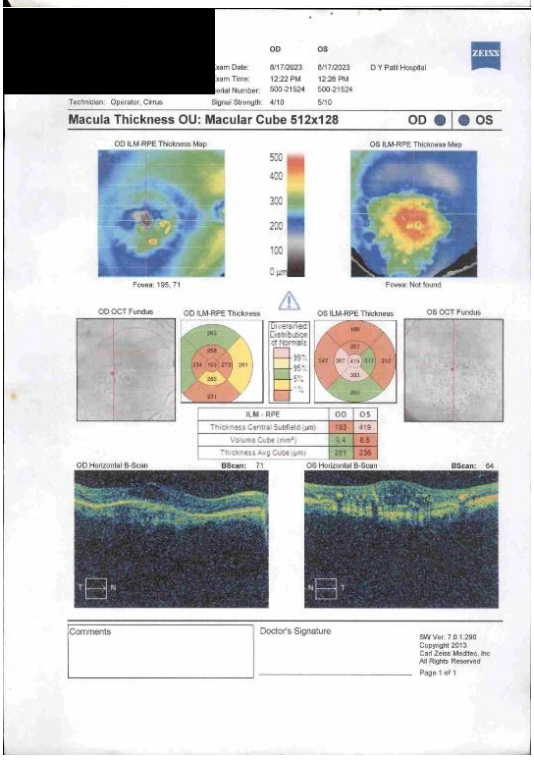
OCT – Jun 2022 **OCT – Nov 2022**



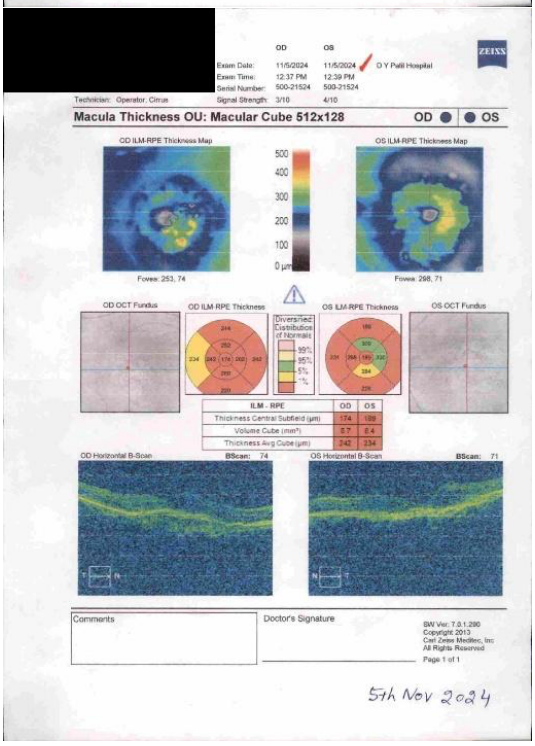
OCT – Mar 2023



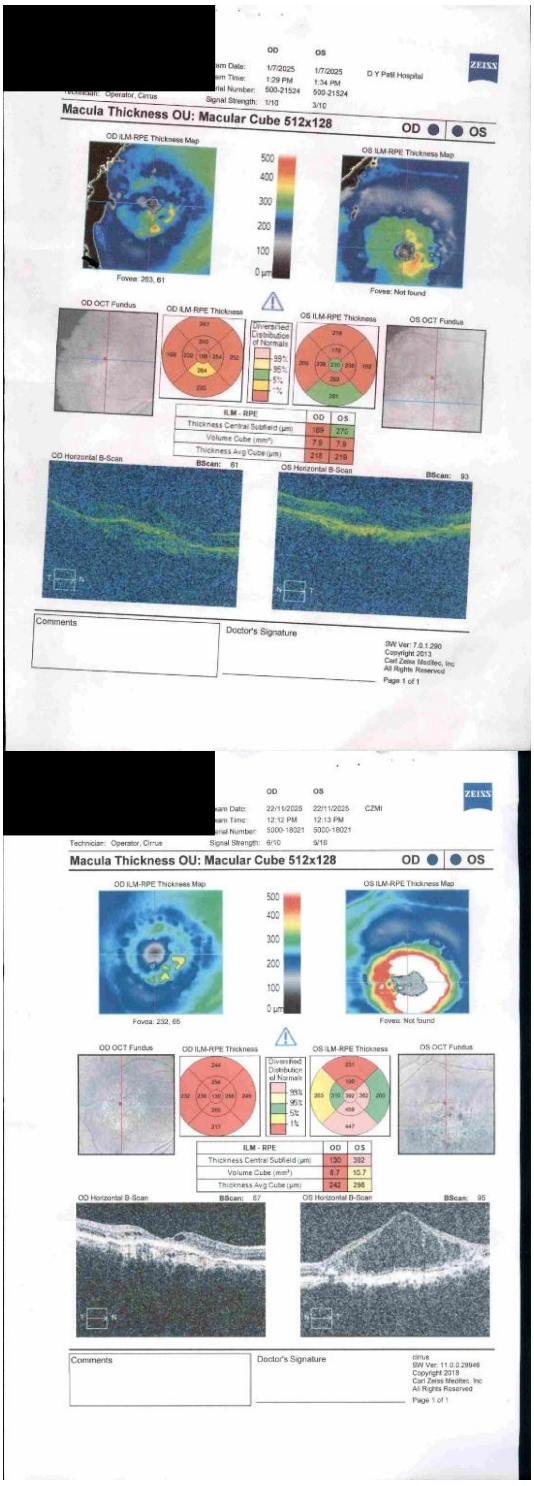
OCT – Jan 2024



OCT – Aug 2023



OCT – Nov 2024



OCT – Jan 2025

OCT – Nov 2025

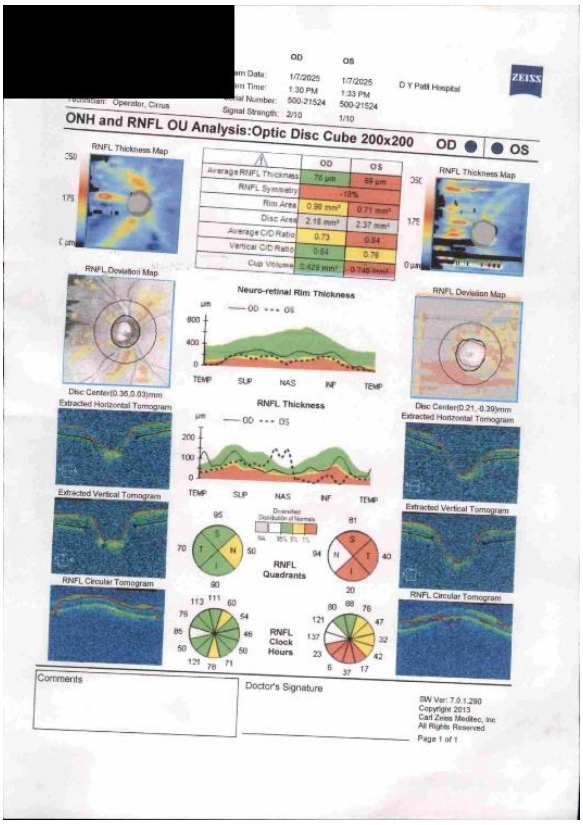
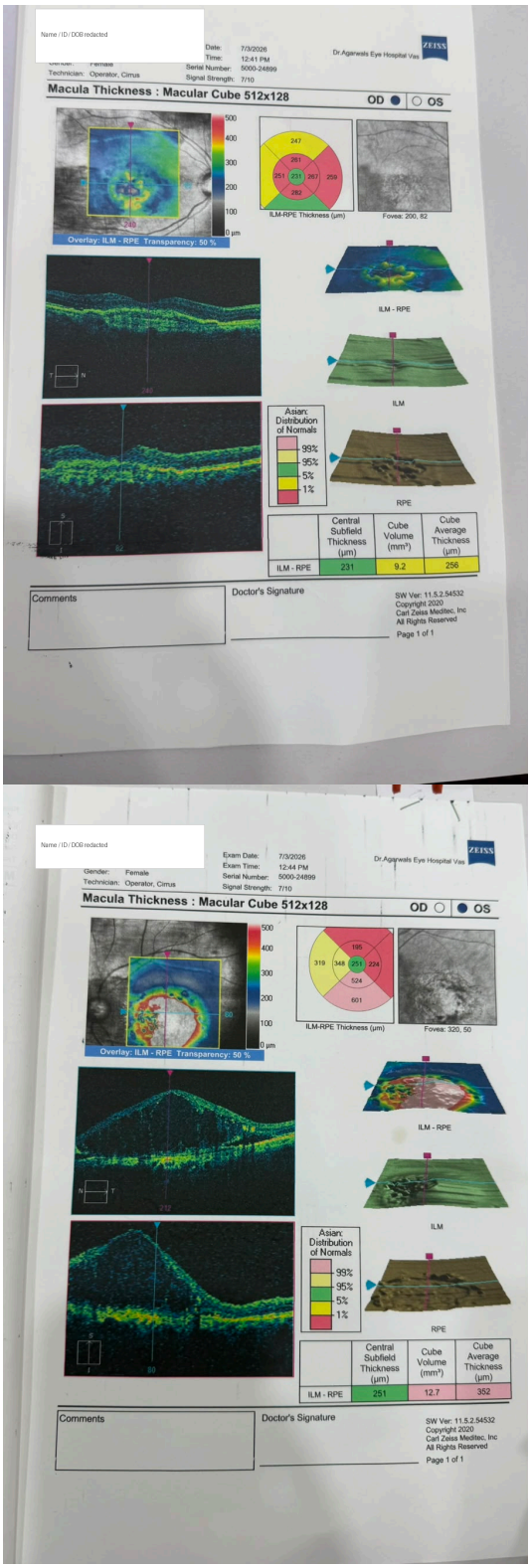


Fig. 3 (continued). Serial macular OCT, January 2022 baseline scan.



OCT – Jul 2026, right eye (OD) **OCT – Jul 2026, left eye (OS)**

Fig. 3. Serial macular OCT (2022–2026). Name, ID, and DOB have been redacted from the July 2026 printouts.

Interpretation: Serial OCT of the macula demonstrated fluctuating inner limiting membrane–retinal pigment epithelium (ILM–RPE) thickness over time, particularly in the left eye, consistent with earlier neovascular activity accompanied by intermittent macular oedema. Subsequent reduction and irregularity of macular thickness reflected chronic degenerative and atrophic retinal change associated with advanced ARMD and chorioretinal degeneration. At the most recent follow-up (July 2026), the right eye showed a relatively regular foveal contour with a central subfield thickness of 231 µm, cube volume 9.2 mm³, and cube average thickness 256 µm, findings broadly comparable to earlier visits and consistent with a stable atrophic/degenerative picture without new exudative activity. In contrast, the left eye scan showed a large, dome-shaped elevation of the neurosensory retina/RPE complex spanning most of the macular cube, with a grossly asymmetric ETDRS thickness map (values ranging from 195 µm to 601 µm across sectors) and marked displacement of the presumed foveal location (320, 50) relative to the right eye (200, 82) and to earlier scans. This appearance is most consistent with a longstanding fibrovascular pigment epithelial detachment/disciform scar at the site of prior choroidal neovascularisation, rather than active exudation, given the absence of the intraretinal/subretinal fluid pattern seen during earlier neovascular episodes; however, the markedly distorted anatomy limits the reliability of the automated central subfield thickness value in this eye, and clinical correlation with fundus examination was used to guide interpretation rather than the OCT metric in isolation.

2.5 Therapeutic Intervention

An overview of the treatment timeline is presented in Table 4.

Table 4. Treatment timeline

Date	Treatment
Feb 2022	Yoga Basti + Snehana + Swedana + Nasya + Jalaukavacharana
Jul 2023	Chakshushya Yapana Basti + Nasya + Netra Bidalaka
Jan 2025	Nasya with bringraj taila + Eranda Taila Paana+ internal medications
Jan 2025	Arogyavardhini Vati + Punarnavashtak Kwath + Nasya
May–Aug 2025	Saptamruta Loha + Yashtimadhu Ghrita + Honey
Nov 2025	Maintenance therapy continued

Panchakarma Procedures

- Yoga Basti with Panchatikta Kshira Kwatha
- Chakshushya Yapana Basti

- Nasya with Anu Taila, pancheindriya vardhan taila, bringraj taila
- Jalaukavacharana (leech therapy)
- Netra Bidalaka with lodhra churna
- Netra Aschyotana with Yashtimadhu Ghrita

Internal Medications

The following internal medications were administered over the course of treatment

- Arogyavardhini Vati
- Punarnavashtak Kwath
- Saptamruta Loha
- Triphala Ghrita
- Yashtimadhu Ghrita
- Eranda Taila (Snehapana)
- Black raisins, as dietary support

Local Therapies

- Nasya (Anu Taila, Panchendriya Vardhan Taila, Bhringaraj Taila)
- Netra Aschyotana with Yashtimadhu Ghrita

2.6 Follow-up and Outcome

Table 5. Visual acuity, before and after treatment

Parameter	Initial	Final
Right eye vision	6/36	6/36 (maintained, with improved pinhole)
Left eye vision	6/60	6/60 (maintained)
Near vision	N18/N36	N18
Course	Progressive	Stabilised

Central 24-2 threshold visual field testing performed during follow-up is shown in Fig. 4.

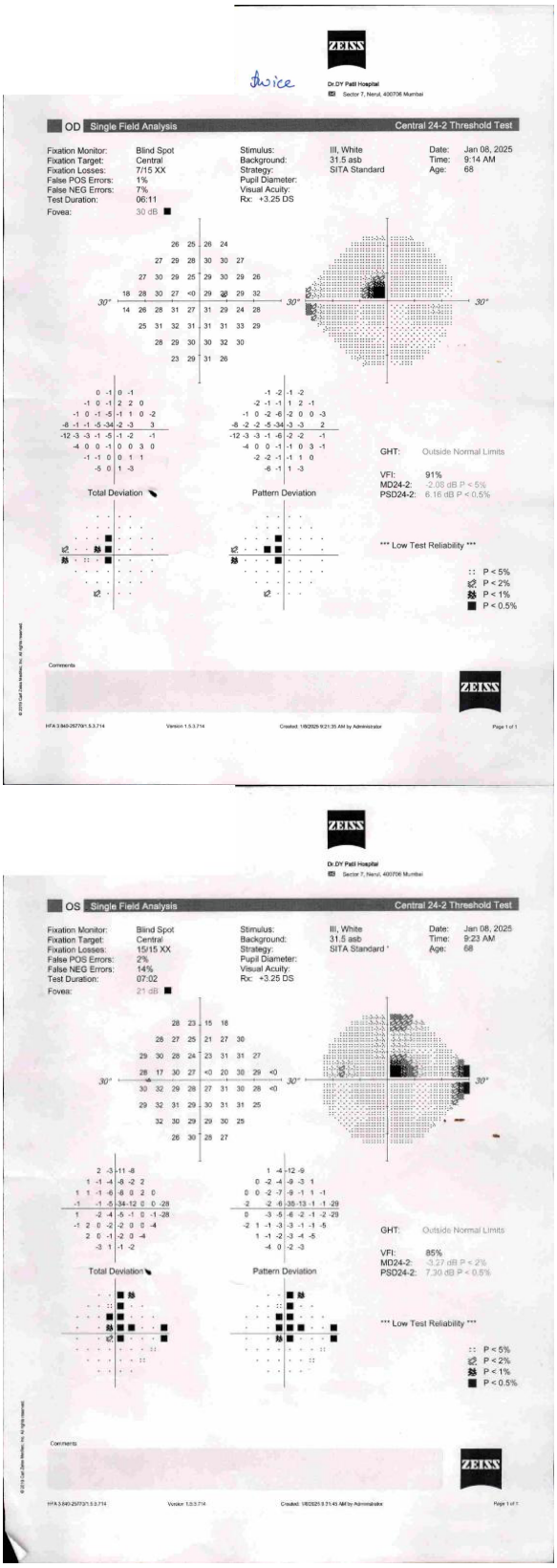


Fig. 4. Central 24-2 threshold visual field — right eye (OD, left) and left eye (OS, right). Patient-identifying details redacted.

Visual acuity remained stable through follow-up (Table 5), and serial central subfield OCT thickness (Table 3) showed an overall declining and stabilising trend in both eyes, without evidence of further acute neovascular activity during the follow-up period, despite fluctuation consistent with the underlying chronic degenerative process. At the most recent OCT follow-up in July 2026, the right eye remained stable, while the left eye continued to show the large fibrovascular/disciform macular elevation attributable to prior neovascular disease; no new signs of active exudation were noted on this occasion.

3. Discussion

Age-related macular degeneration is a chronic, progressive degenerative disorder of the macula that leads to gradual loss of central vision and is a major cause of irreversible visual impairment in older adults. In conventional medicine, management remains largely symptomatic and preventive, particularly for wet ARMD, while effective treatment options for dry ARMD are still limited (Buschini et al., 2015; Schultz et al., 2021).

From an Ayurvedic perspective, Dry ARMD may be correlated with *Timira*, *Kacha* and, in advanced stages, *Linganasha*, reflecting progressive degeneration of *Drishti* (P. et al., 2018; Sharma & Soni, 2024). The disease predominantly involves *Vata Dosha*, as degeneration, dryness and tissue depletion are classical features of *Vata* vitiation; *Kapha Dosha* is thought to contribute to obstruction and drusen formation, while *Pitta* and *Rakta* involvement become more evident with progressive retinal degeneration and vascular change.

The *Samprapti* (pathogenesis) of the disease is understood to begin with *Nidana Sevana* — including *Achakshushya Ahara* (visually unwholesome diet/lifestyle), advancing age (*Vaya*), stress, hypertension, and other causative factors — leading to *Tridosha Prakopa* with predominance of *Vata* and *Pitta*. Impaired digestive fire (*Agnimandya*) results in the formation of *Ama*, as reflected in the classical dictum "मन्दाग्नितो'मसंभवः" (*Ama* is formed due to impaired digestive fire). The resulting *Ama* produces *Srotorodha*, particularly affecting *Rasavaha* and *Raktavaha Srotas*, impairing nourishment to the ocular tissues. The vitiated *Doshas* travel through the *Siras* and localise in the *Drishti Pradesh* (macular region), producing *Dhatu Kshaya* of *Rasa, Rakta* and *Majja Dhatu*. This progressive degeneration manifests clinically as blurred vision, metamorphopsia, central scotoma, and diminished visual acuity; structural changes such as drusen formation and retinal pigment epithelial degeneration may be understood within this framework. Table 6 summarises the *Samprapti Ghataka* (pathogenetic components) considered in this case.

Table 6. Samprapti Ghataka (pathogenetic components) of Dry ARMD

Component	Involvement
Dosha	Vata–Kapha predominant (later Pitta and Rakta involvement)
Dushya	Rasa, Rakta, Majja (retinal tissue correlation)
Srotas	Rasavaha, Raktavaha, Majjavaha
Srotodushti	Sanga (obstruction), Vimargagamana
Agni	Mandagni (leading to Ama formation)
Ama	Present (due to impaired metabolism)
Udbhava Sthana	Amashaya
Adhisthana	Drishti (macular region of retina)
Vyaktasthana	Netra (posterior segment)
Rogamarga	Madhyama Rogamarga
Swabhava	Chirakari (chronic), progressive
Sadhyasadhyata	Yapya (manageable, not completely curable)

The overall disease progression in this framework can be represented as:

Nidana Sevana → Tridosha Prakopa → Agnimandya → Ama Utpatti → Srotorodha → Urdhwagami Dosha → Sthanasamshraya in Drishti → Dhatu Kshaya → Drishti Vaikrita → Timira → Kacha → Linganasha

The treatment approach adopted in this case aimed to correct the underlying *Dosha* imbalance, eliminate *Ama*, clear *Srotorodha*, pacify *Vata*, and nourish the ocular tissues through *Rasayana* therapy.

Panchakarma procedures, including Yoga Basti with Panchatikta Kshira Kwatha and Chakshushya Yapana Basti, were administered. *Basti* plays a central role in the management of *Vata*-predominant degenerative disorders, as *Vata* is the principal *Dosha* responsible for degeneration and tissue depletion; the *Tikta* and *Rasayana* properties of the *Basti* preparations are intended to support *Dhatu* nourishment and slow degenerative progression.

Nasya with Anu Taila and Panchendriya Vardhan Taila was used, considering the disease as an *Urdhwajatrugata Vikara* (a disorder localised above the clavicle); *Nasya* is intended to deliver therapeutic effects to structures above the clavicle and to support sensory organ function. Local therapies such as Netra

Aschyotana with Yashtimadhu Ghrita and Netra Bidalaka were used to provide ocular soothing, nourishment, and reduction of ocular strain.

Jalaukavacharana (leech therapy) was performed to improve local circulation and reduce vitiated *Rakta* and *Pitta* involvement (Sindhi et al., 2025); this may contribute to improved microcirculation and reduced inflammatory activity associated with retinal degeneration, consistent with reports of its therapeutic use in ophthalmic conditions (Sreenath & Gopikrishna, 2021).

Internal medications, including Arogyavardhini Vati, Punarnavashtak Kwath, Saptamruta Loha, Triphala Ghrita, Yashtimadhu Ghrita, and Eranda Taila, were administered. Arogyavardhini Vati is used to support *Agni* and reduce *Ama* formation; Punarnavashtak Kwath is used to support reduction of oedema and improve microcirculation. Saptamruta Loha and Triphala Ghrita possess *Chakshushya* and *Rasayana* properties, supporting ocular nourishment and antioxidant activity — consistent with reported antioxidant and immunomodulatory effects of classical *Rasayana* herbs and formulations (Govindarajan et al., 2005) — while Yashtimadhu Ghrita provides a soothing and rejuvenating effect on ocular tissue. Dietary support with black raisins was intended to provide further antioxidant and nourishing benefit.

The Ayurvedic management in this case was directed primarily at:

- *Agni Deepana* and Ama Pachana
- *Vata–Pitta Shamaka Chikitsa*
- *Srotoshodhana*
- *Rasayana* and Chakshushya therapy
- *Nourishment of ocular tissues and prevention of further degeneration*

Overall, this combined approach of *Shodhana, Shamana*, and *Rasayana* therapies is consistent with previously reported multidimensional Ayurvedic approaches to ARMD (R & S, 2019) and may help slow disease progression, support functional vision, and improve quality of life in patients with Dry ARMD.

4. Conclusion

This case indicates that a comprehensive Ayurvedic protocol — combining Panchakarma, Rasayana, and local ocular therapies — was associated with stabilisation of visual acuity and macular thickness in a patient with chronic, previously treated ARMD, without further acute neovascular episodes during follow-up. These findings are drawn from a single case, cannot establish causality, and cannot be generalised; the possibility of natural disease quiescence cannot be excluded. Larger, controlled studies are needed to evaluate the safety and efficacy of Ayurvedic interventions in ARMD, used in conjunction with, rather than in place of, standard ophthalmic monitoring and care.

5. Patient Consent

Written informed consent was obtained from the patient for publication of this case report and the accompanying clinical. All patient-identifying details — including name, hospital and diagnostic identification numbers, and date of birth — have been removed from the manuscript text and redacted from all figures.

6. Conflict of Interest

The authors declare no conflict of interest.

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