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Clinical Outcome of Ayurvedic Management in Diabetic Retinopathy: A Case Report

Suchetha Jayaram, [1]* Veena Shekar [2]

[1] PG Scholar, [2] Professor, Department of Shalakyatantra, Sri Kalabyraveshwara Swamy Ayurvedic Medical College Hospital and Research Centre, Bangalore, Karnataka, India

ABSTRACT:

Diabetic Retinopathy (DR) is a major cause of vision impairment and blindness in working adults, often linked to prolonged hyperglycaemia. It's a chronic progressive disease of the retinal microvasculature. Ayurvedic management offers a potential treatment option, targeting the root cause of the disease. A 67-year-old female patient having history of T2 DM since 10 years. She suffered with bilateral PDR and Diabetic Macular oedema in the right eye was treated with Ayurvedic management, including *Amapachana, Nithya virechana, Nasya*, topical ocular procedures which included *Seka*, *Bidalaka, Tarpana, Putapaka* and *Anjana*. All above procedures were done for 3 sittings and follow up every 3 months for 2 years The treatment improved visual acuity in the right eye from hand movement to 3/60 and left eye from 6/24 to 6/12(P), showcasing the potential of Ayurvedic approaches in managing DR. The holistic approach aims to promote healing, offering hope for patients with this debilitating condition.

KEY WORDS: *Anjana,* Diabetic Retinopathy, *Nasya, Putapaka, Tarpana, Tritiya patalagat timira*

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***Corresponding Author:**
Dr. Suchetha Jayaram
PG Scholar, Department of Shalakyatantra, Sri Kalabyraveshwara Swamy Ayurvedic Medical College Hospital and Research Centre, Bangalore, Karnataka, India
Email: suchetha.jayaram@gmail.com

INTRODUCTION:

Diabetic retinopathy (DR) is primarily a microvascular complication of diabetes in which persistent hyperglycaemia causes progressive damage to retinal capillaries, making it one of the major causes of visual impairment among the working-age population. Globally, nearly one-fourth(22.27%) of individuals with diabetes develop DR, while a smaller but significant proportion (6.17%) progress to vision-threatening DR (VTDR) and (4.07%) diabetic macular oedema (DME). [1]The occurrence of DME varies widely, being higher in individuals with Type 1 diabetes (4.2% - 14.3%) compared to those with Type 2 diabetes (1.4% - 5.57%).[2] Projections indicate a substantial rise in the global burden of DR (126.6 million in 2011 to 191.0 million by 2030) and VTDR (37.3 million to 56.3 million). [3]

Diabetic retinopathy is classified into non-proliferative and proliferative stages. NPDR, the early stage, is characterised by microaneurysms, haemorrhages, and hard exudates, often detected before visual symptoms. Typical fundus features of DR include microaneurysms, hard exudates, diabetic macular oedema (DME). In advanced stages of PDR, there will be neovascularization. DME is the most common cause of vision loss and results from blood–retinal barrier breakdown due to chronic hyperglycaemia. Although anti-VEGF injections are the standard treatment, their long-term, repeated use and high cost limit feasibility, prompting interest in Ayurveda as a holistic, cost-effective alternative.

In Ayurveda, Acharya Charaka describes *hrinnetrajihvashravanopadeha* as a *poorva roopa* of *prameha*, indicating early involvement of sense organs.[5] *Netra Prakashika* states that *prameha* can lead to *netra rogas*.[6] Sushruta Samhita mentions *Tuvarakadi Anjana* [7] in *Madhumeha* chikitsa for *timira* and related eye disorders, suggesting *netraroga* as an *upadrava* of *madhumeha*.[8] The present case was diagnosed as *tritiya patalagata timira* and managed with *shira–kaya shodhana, nasya, virechana*, sthanika *chikitsa, anjana*, and *pathya–apathya*. The present case report describes a case of PDR with diabetic macular oedema successfully managed using the Ayurvedic treatment protocol.

CASE REPORT:

A 67-year-old female patient approached to the *Shalakya Tantra* OPD of SKAMCH & RC on 20th June 2024 with a history of gradually progressive diminution of vision in both eyes, more severe in the right eye, from past nine years. A teacher by profession, at the age of 52, she first noticed difficulty in reading and correcting answer sheets, and she was prescribed near-vision spectacles. In 2016, she was diagnosed with Type II diabetes mellitus (T2DM) following symptoms of vaginal itching and frequent urination and was started on oral hypoglycemics. In 2018, she noticed worsening blurred vision in the right eye. Fundus examination and OCT (Optical Coherence Tomography) revealed mild NPDR (Non Proliferative Diabetic Retinopathy) with diabetic macular oedema in both eyes, with an

HbA1c of 11, for which insulin therapy was advised and topical eye drops, details of which are unknown.

As there was no improvement, she underwent multiple anti-VEGF injections—seven in the right eye between 2018 and 2020 and one injection to the left eye in 2020—without significant visual benefit. Meanwhile, in 2020, she was diagnosed with hypertension, and she is on medication for the same. In 2021, she underwent right eye phacoemulsification with intraocular lens implantation, followed by Ozurdex implantation. The same implant was repeated after four months. Additionally, in March and April 2021, pan-retinal photocoagulation (PRP) was performed twice in the right eye and once in the left eye. Despite these interventions, her visual symptoms persisted, prompting her to seek Ayurvedic management at SKAMCH & RC.

On presentation, her visual acuity was HM+ (Hand movement) in the right eye and 6/24 (P) in the left eye. There was no improvement in visual acuity with the pinhole. The confrontation test was found to be normal in both eyes. Anterior segment examination revealed clear conjunctiva and cornea in both eyes, both pupils were found to be round and regular, but the right eye pupillary reaction to light was sluggish, while the left eye pupil was reactive. In the right eye, there was an IOL, and the left eye Crystaline lens showed Grade II Nuclear sclerosis. Fundus examination of the right eye revealed hard exudates in the macular region with no foveal reflex, with laser spots all around the periphery. The left macula showed a dull foveal reflex with hard exudates and laser spots all around the periphery. Optical Coherence Tomography done in 2021 showed PDR with DME in the right eye and PDR in the left eye. Intraocular pressure was 16mmHg and 13 mmHg in the right and left eye, respectively.

The therapeutic approach focused on enhancing the vision and halting the progression of vision deterioration in both eyes through systemic administration of medicines and local therapeutic measures, along with adopting dietary and lifestyle modifications.

Table 1: Therapeutic Intervention:

Date	Sitting	Treatment	Dose	Duration
21/06 – 25/06/24	1st	1) *Seka - Prapoundarika + Daruharidra + Rakta chandana + Lodhara*	Once a day	5 Days
7/06 – 11/06/25	2nd			
24/11 – 30/11/25	3rd			

21/06 – 27/06/24	1	2) *Nithya virechana – Avipattikara churna*	2 Tea spoon at bedtime with warm water	7 days
26/06 – 02/07/24	1st	3) *Nasya – Bringarajadi taila*	10 drops to each nostrils	7 days
07/06 – 12/06/25	2nd			
26/06 – 29/06/24	1st	4) *Tarpana with Mahatriphaladi grita* F/B *Pushpa bandhana*	Bandhana for 2 hours	4 Days
07/06 – 10/06/25	2nd			
24/11 – 28/11/25	3rd			
30/07 – 02/07/24	1st	5) *Putapaka – Ropana,* F/B *Pushpa bandhana*	Bandhana for 2 hours	3 days
11/06 – 13/06/25	2nd			
29/11– 1/12/25	3rd			
Internal medications		1) *Mahavasadi Kwatha* 30ml Morning once in empty stomach. 2) *Tab Nishamalaki* 2 tab morning empty stomach with warm water. 3) *Triphala churna* 1tsp morning and night with warm water after food. 4) *Mahamanjistadi Kashaya* 2tsp bid with warm water before food. 5) Darvyadi Anjana Once morning to both eyes for 1st 6 months 6) *Dristprada varti Anjana* Once morning to both eyes.		

Table 2: Result:

Distant Vision Without Aid	Before Treatment 20/06/2024	After 12 days of treatment 03/07/2024	At 1st Follow Up 07/06/2025	After 7 days of treatment	At 2nd Follow Up 24/11/2025	After 9 days of treatment

BE	6/24(P)	6/24	6/24	6/24	6/12(P)	6/12(P)
RE	HM	4/60(P)	3/60(P)	3/60	3/60	3/60
LE	6/24(P)	6/24	6/24	6/24	6/24	6/12(P)

The patient received the first sitting of treatment for 12 days with internal medicines, resulting in improvement of visual acuity from HM to 4/60 in the right eye, while the left eye remained at 6/24 (P). Vision was maintained at the first and second follow-ups. At the third follow-up, vision was 3/60 (P) in the right eye and 6/24 in the left eye. She then underwent a second sitting of *nasya, tarpana,* and *putapaka* for seven days, with stable vision. At the fourth follow-up, third sitting of the same procedures was given for nine days, after treatment vision improved to 3/60 in the right eye and in the left eye vision improved from 6/24 to 6/12 (P).

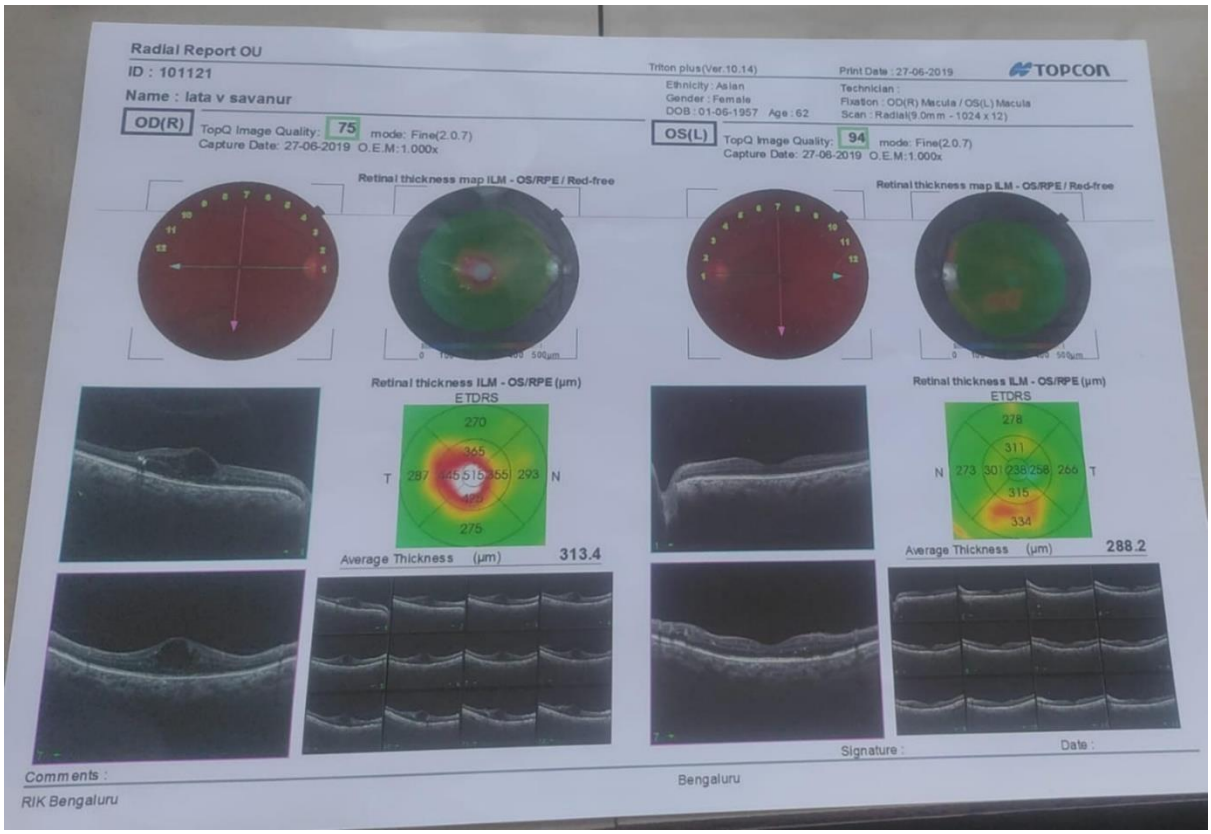

Figure 1 : OCT (Optical Coherence Tomography) before treatment

DISCUSSION:

Diabetic retinopathy is a major complication of Diabetes mellitus, in which prolonged high blood sugar damages the blood vessels of the retina, potentially resulting in severe vision loss or blindness. This rapidly escalating burden underscores the urgent need for effective, affordable, and sustainable alternative therapeutic approaches to

preserve vision and improve the quality of life of individuals with diabetes.

Ayurveda adopts a comprehensive and holistic approach distinct from conventional treatment modalities by addressing both systemic and local pathology. Etiological factors elicited in this case are excessive intake of *madhura rasa, guru, abhishyandi ahara*, *shoka*, and *klesha* which leads to *agnimandya* and subsequent *aama* formation, resulting in *kapha-pradhana tridosha prakopa*. This leads to *bahudrava, shleshma* and *abaddha medas*, followed by vitiation of *meda, mamsa, shareera kleda, rakta, majja*, and *shukra*. These derangements culminate in *sthana samshraya* in *basti*, manifesting as *prameha*. As *prameha* progresses, it leads to *netra upadeha* followed by *sira* and *dhamani shaithilya*, resulting in *kha-vaigunya* in *sira* and *dhamani* of *netra*. Further aggravated doshas along with *rakta,* move upwards through *urdhwagami siras* and reach *roopavaha sira*. They take the *abhyantara marga* and reach the *prathama patala*. Due to *neerujatwa(*painlessness), further indulgence in *nidana* and neglecting the symptoms (*upekshana*), *dohas* become more aggravated and stabilised, which then starts spreading to the deeper *patala*. This obstructs the *siras* carrying *aushadha rasa veerya* , leading to reduced nourishment to *patalas* and diminution of vision. Due to *sira-dhamani syandata* (increased permeability) doshas take *Vimarga gamana* which can be correlated with haemorrhages and also oedema of the retinal tissue. This leads to a lack of nourishment of *dhatus* of *patala*. Which in turn leads to neovascularisation of the retina, which can be considered as *atipravritti*. This results in further diminution of vision and ultimately manifests all the features of *tritiya patala timira*, which clinically correlates with advanced stages of proliferative diabetic retinopathy and diabetic macular oedema.

In this context, Ayurvedic management aims to correct microangiopathy, strengthen capillary integrity, and restore the altered blood–retinal barrier, thereby reducing retinal oedema. This was adopted by therapeutic measures such as targeted internal medications along with *shodhana* procedures such as *Koshta Shodhana*, *Shamana* procedures such as *Nasya*, and *Sthanika upakrama,* which helps to control retinal haemorrhage, revitalise retinal tissues, and reduce the risk of recurrence.

Seka is implemented with *prapoundarika, lodhra, daruharidra*, and *raktachandana*, which possess *Sheeta Veerya*, and properties like *rakta stambhana*, *rakta prasadana*, *pittahara*, and *ropana*. *Bidalaka* is done with *lodhra*, *yastimadhu*, and *raktachandana*, which have *sheeta veerya* and *rakta prasadana* properties. The *veerya* of these drugs are easily absorbed through the eyelid, allowing rapid action on local tissues. *Nithya virechana* was given with *Avipattikara churna* which is *ruksha, pitta-kapha hara, rakta dusti hara.* [9] The mainline of treatment for *urdhwaga raktapitta* is *virechana*, so for *pratimarga harana nithya virechana* was adopted.

Acharya Caraka has mentioned **'***Nasahi shiraso dwaram'*.The drugs administered through nose reaches *shringataka marma,* and from there it spreads through the *siras* of *nasa*, *akshi, karna, mukha* and complete *shiras* and expels the accumulated localized doshas.Here, *Bringarajadi taila nasya* was adopted as it is said to restore the loss of vision.[10]

In this case *tarpana* was done with *Mahatriphaladi grita,* which possesses *tridosha shamaka*, *chakshushya* properties. As mentioned by *Acharya Vagbhata* this *gritha* is *parama dristi vikarajith*(cures all types of *dristi roga*).[11] *Mahatriphaladi ghrita* exhibits both hydrophilic and lipophilic characteristics, making it amphipathic in nature. The viscous nature of *ghrita* prolongs its retention over ocular tissues, thereby increasing tissue contact time and enhancing local drug availability. As *rakta dosha* involvement was evident in this condition, a *ropana putapaka* was administered.

Darvyadi Anjana mentioned in *Yogaratnakara*, is mainly indicated in *pittaja timira.* [12]As in this case, there was the involvement of *rakta* and *pitta*, this *Anjana* was given for the first six months. *Dristiprada varti Anjana* [13] is a blend of *sheeta virya dravyas* makes it a potent *prasadhana* and *ropana* agent for the eyes. It pacifies vitiated *tridoshas*, activates *dhatwagni*, clears *sanga*, and nourishes *drishti patala* tissues by its *chakshushya*, *deepana*, *pachana*, and *rasayana* properties. [14]And there by reducing the retinal hypoxia.

The *amalaka* and *haridra* are the only 2 ingredients of *Nishaamalaki* tablet, which is having anti-inflammatory, antioxidant and lipid reducing property. Gallic acid from *amalaka* improves insulin sensitivity, and curcumin from *haridra* indicates increased glucose uptake and utilisation of skeletal muscle cells & adipocytes and inhibits gluconeogenesis. [15]*Mahavasadi Kwatha* consists of ingredients that are *rakta prasadana, pitta-kapha hara*, it alleviates *timira* and *sarva netra roga*.[16]The ingredients of *Mahamanjistadi Kashaya* possess *tikta, kashaya rasa, aama pachana*, *kapha-pitta shamaka*, *rakta prasadana, medohara*, *srotoshodhana* along with *netra rogahara* properties.[17] *Triphala churna* is a combination having *rasayana, chakshushya, kapha-pittahara* and *kledahara* property.*Pathya ahara* included *amalaki* , *shigru* , *patola, karavella* , *vartaka* , *matsyakshi, raktashali, mudga, yava,* and *punarnava* were advised.

The potency of drugs administered through internal medication, local treatments and *nasya*, works on microcapillaries by promoting endothelial repair and strengthening retinal vessels, thereby arrests bleeding, nourishes the retinal tissues and further arrests neovascularisation. Thus helps to break the pathogenesis of diabetic retinopathy.

Improvement of visual acuity of the patient from HM to 4/60 in the right eye, after 1st sitting of treatment, indicates a reduction of macular oedema and further improvement of VA from 3/60 in the right eye and 6/12 in the left eye indicates improvement of retinal functions.

CONCLUSION:

This case report highlights the effective Ayurvedic management of proliferative diabetic retinopathy using classical treatment principles. The severely affected right eye showed notable improvement with therapies such as *Nithya virechana, tarpana*, and *nasya*, along with internal medicines having *chakshusya, pitta-rakta shamaka* properties. Early diagnosis, correction of causative factors, and appropriate Ayurvedic treatment combined with dietary and lifestyle modifications helped stabilise the disease and improve vision.

Limitations of the study:

As this study was confined to a single case, a larger sample size is required to confirm the significant results of the treatment given.

Declaration of patients' consent:

Informed consent was taken from the patient for the publication of the case and for the furnishing of the clinical details.

Conflict of interest: The author declares that there is no conflict of interest.

Guarantor*:* The corresponding author is the guarantor of this article and its contents.

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