

## Ayurvedic Management of Non-Proliferative Diabetic Retinopathy with Clinically Significant Macular Edema: A Case Report

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### Abstract

**Background:** Non-Proliferative Diabetic Retinopathy (NPDR) with diabetic macular edema (DME), particularly *clinically significant macular edema* (CSME), is a leading cause of vision loss in long-standing diabetes mellitus. Modern treatments primarily target vascular leakage but do not address the underlying pathophysiology. In *Ayurveda*, this condition is correlated with *Madhumehajanya Timira*.

**Case Presentation:** A 62-year-old female with a 20-year history of Type 2 Diabetes Mellitus presented with gradual painless diminution of vision in the left eye (best-corrected visual acuity 6/60). She had previously received intravitreal Triamcinolone Acetonide injection but sought *Ayurvedic* management due to persistent visual decline. Treatment included *Chakshushya Basti* (with *Shatpushpa Kalka* and *Yashtimadhu Kwatha*), *Netra Tarpana* and *Nasya* with *Durvadi Ghrita*, along with oral medications (*Avipattikar Churna*, *Chandraprabha Vati*, *Triphala Guggulu*, *Patoladi Ghrita*, *Vasaguduchyadi Kashaya*, *Sutshekhhar Vati*) over one month. Strict *Pathya* was advised.

**Results:** After 22 days, best-corrected visual acuity in the left eye improved from 6/60 to 6/9. Optical Coherence Tomography (OCT) showed reduction in central macular thickness from 430  $\mu\text{m}$  to 280  $\mu\text{m}$ , with resolution of intraretinal fluid and restoration of foveal contour. Signs of moderate NPDR stabilized.

**Conclusion:** *Ayurvedic* interventions demonstrated promising results in reducing macular edema, improving retinal microcirculation, and enhancing vision in NPDR with CSME. Further large-scale studies are recommended.

**Keywords:** NPDR, Diabetic Macular Edema, CSME, *Madhumehajanya Timira*, *Durvadi Ghrita*, *Nasya*, *Tarpana*, *Chakshushya Basti*

### Introduction

Diabetic retinopathy (DR) is a major microvascular complication of diabetes mellitus (DM) and a leading cause of preventable blindness. Non-proliferative diabetic retinopathy (NPDR) with diabetic macular edema (DME), especially *clinically significant macular edema* (CSME), significantly contributes to vision loss. Conventional management includes laser photocoagulation and intravitreal anti-VEGF or corticosteroid injections, which primarily address leakage but do not correct the root metabolic and microvascular pathology. These treatments are expensive and often require repeated administration<sup>(1-3)</sup>.

In *Ayurveda*, NPDR with DME/CSME is correlated with *Madhumehajanya Timira*, arising from long-standing *Prameha* leading to *Kleda* accumulation, *Raktavaha Srotodushti*, *Pitta* and *Kapha* vitiation, and *Dhatukshaya*.

Classical interventions such as *Chakshushya Basti*, *Nasya*, *Tarpana*, and systemic *Rasayana*, *Pittahara*, and *Raktaprasadana* therapies aim to restore ocular microcirculation, reduce inflammation, and rejuvenate retinal tissue, offering a holistic, affordable alternative<sup>(4-5)</sup>.

### Case Report

A 62-year-old female presented to the outpatient department on 02/04/2024 with chief complaints of gradual, painless diminution of distant and near vision in both eyes for the past 1–2 years, more pronounced in the left eye. She had a known history of Type 2 Diabetes Mellitus for 20 years, managed with oral hypoglycemic agents. In March 2022, she was diagnosed with bilateral NPDR with maculopathy and received one intravitreal Triamcinolone Acetonide injection in the left eye on 12/05/2022, with only partial and temporary benefit<sup>(6-7)</sup>.

## Case Report

### Clinical Findings

- Pulse: 83/min
- Blood Pressure: 130/90 mmHg
- Systemic investigations: Hb 12.3 g/dL, Platelets 2.28 lakh/mm<sup>3</sup>, Fasting Blood Sugar 157.8 mg/dL, Postprandial Blood Sugar 194.09 mg/dL, HbA1c 7.5%

### Ocular Examination

- Best Corrected Visual Acuity (BCVA):
  - Right eye (OD): 6/12 N8 (distance), 6/9 (pinhole)
  - Left eye (OS): 6/60 N36 (distance), 6/18 (pinhole)
- Anterior segment: Within normal limits OU

- Intraocular Pressure: OD 17.3 mmHg, OS 20.6 mmHg
- Lens: Pseudophakic OU
- Fundus (Direct Ophthalmoscopy):
  - OD: Normal disc, macula, vessels; tessellated background
  - OS: Pale disc (0.3 CDR), CSME, tessellated vessels, moderate NPDR background OCT (04/04/2024) confirmed CSME in the left eye with central macular thickness  $\approx$  430  $\mu$ m, cystoid spaces, and intraretinal fluid. [Fig. 1 – Left eye OCT before treatment – insert image here]

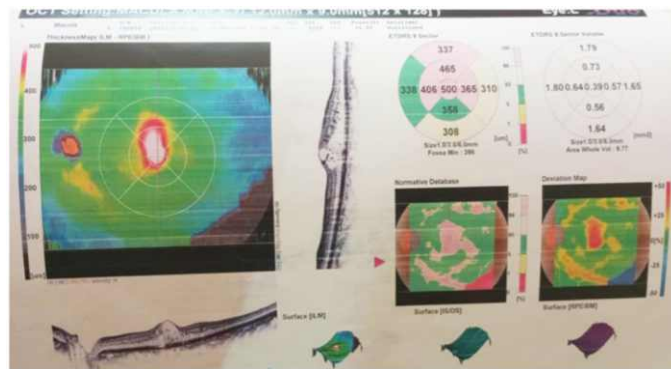


Fig 1 Left eye OCT (Before treatment)

### Therapeutic Intervention

The patient received holistic *Ayurvedic* management for approximately one month, including localized *Panchakarma* procedures and oral medications. Strict dietary and lifestyle *Pathya* was advised (avoid spicy, sour, oily, fermented,

refrigerated foods; day sleep; exposure to bright light; late nights). Recommended diet included rice, green gram, rock salt, and vegetables such as carrot, beetroot, and spinach<sup>(8-10)</sup>.

Table 1: External Procedures with Possible Effects

Treatment	Medicine Used	Duration	Possible Effects
Chakshushya Basti	Shatpushpa Kalka + Yashtimadhu Kwatha (Niruha); Dhanwantar Taila (Anuvasana)	Yog Basti 8 days (alternate Niruha & Anuvasana); last 2 Anuvasana)	Vatanulomaka, Shothahara
Shirovirechana Nasya	Durvadi Ghrita	14 days	Medhya, Netrabala
Netra Tarpana Chakshushya	Durvadi Ghrita	14 days	Drishtiprasadana,

Table 2: Oral Medications with Dose, Duration, and Possible Effects

Oral Medicine	Dose	Duration	Possible Effects
Avipattikar Churna	5 g with warm water before food	5 days	Agnideepaka, Pittashamaka
Chandraprabha Vati	250 mg, 2 BD after food	1 month	Rasayana, Mutral
Triphala Guggulu	250 mg, 2 BD after food	1 month	Shothahara, Lekhana
Patoladi Ghrita	2 tsp at night	1 month	Pittahara, Chakshushya
Vasaguduchyadi Kashaya	5 mL, BD after food	1 month	Raktashodhaka, Pramehahara
Sutshekhhar Vati	20 mg, 2–3 times/day before food	1 month	Amlapittashamaka, Deepana

### Timeline of Events

Table 3: Timeline of Events

Date	Findings	Intervention	Outcome
02/04/2024	Blurred vision OS; BCVA 6/60; Moderate NPDR + CSME	–	–
04/04/2024	OCT: CMT 430 µm, cystoid spaces, intraretinal fluid	–	–
05/04/2024	<i>Ayurvedic</i> assessment	Yog <i>Basti</i> (8 days)	–
14/04/2024	–	<i>Nasya</i> & <i>Tarpana</i> with <i>Durvadi Ghruta</i> (7 days) + internal medicines	Vision improved
27/04/2024	OS BCVA 6/24 (pinhole 6/12)	Continued internal medicines	Vision improved
02/05/2024	OS BCVA 6/12 (pinhole 6/9); OCT: CMT 280 µm, resolution of fluid, restored fovea	Medicines stopped	Significant improvement

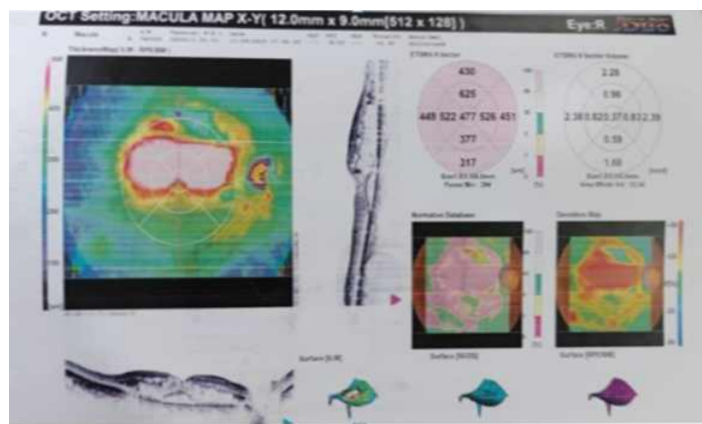


Figure 2. Left eye OCT ( After Treatment)

### Discussion

**Samprapti (Pathophysiology)** In *Ayurveda*, *Madhumehajanya Timira* results from chronic *Prameha*, leading to *Kleda* accumulation, *Raktavaha Srotodushti*, *Pitta prakopa*, and *Kapha*-induced *Srotorodha*. Fundus findings of CSME and moderate NPDR correlate with *Raktadushti*, *Pitta prakopa*, and channel obstruction (*Avarana*) along with *Dhatukshaya* (particularly *Rasa* and *Rakta Dhatus*). Visual deterioration occurs due to impaired nourishment of the *Drishtimandala*<sup>(11)</sup>.

**Samprapti Vighatana (Breaking the Pathogenesis)** The treatment protocol aimed at *Samprapti Vighatana* through *Dosha* pacification, *Kleda shoshana*, *Raktaprasadana*, and tissue rejuvenation. *Durvadi Ghruta* in *Tarpana* and *Nasya* reduced inflammation and acted as *Rasayana*. *Chakshushya Basti* supported capillary integrity and retinal oxygenation. Oral formulations provided systemic detoxification, *Pitta-Kapha shamana*, and *Raktashodhana*.

**Strengths and Limitations** Strengths include integrative use of classical *Ayurvedic* therapies in a chronic microvascular condition after incomplete response to allopathic treatment. Limitations include short follow-up and lack of serial OCT

imaging beyond the initial post-treatment scan. Larger, long-term studies are required<sup>(12-13)</sup>.

**Patient Perspective** “I experienced blurring of vision and consulted an ophthalmologist... After 14 days of *Ayurvedic* treatment, my vision improved considerably... The ophthalmologist was astonished to find that the swelling in my eye had reduced and vision was restored more than before.”

### Conclusion :

This case highlights the potential of timely *Ayurvedic* intervention in managing NPDR with CSME, leading to significant anatomical and functional improvement. Regular follow-up and OCT monitoring are essential. A multidisciplinary approach combining *Ayurveda* and modern ophthalmology may optimize outcomes for patients with diabetic retinopathy.

**Informed Consent** Written informed consent was obtained from the patient for publication of this case report and accompanying images.

**Authors' Contributions** Both authors contributed equally to patient management, documentation, and manuscript preparation.

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**Conflict of Interest:** Nil

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