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## AYURVEDIC MANAGEMENT OF DIABETIC RETINOPATHY: A REVIEW ARTICLE

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### Abstract

Diabetic Retinopathy (DR) is one of the most common microvascular complications of Diabetes Mellitus and is a leading cause of preventable blindness worldwide. The chronic hyperglycemic state causes progressive retinal vascular damage, resulting in retinal ischemia, hemorrhages, exudates, neovascularization, and visual impairment. Although Diabetic Retinopathy is not directly described in the classical Ayurvedic texts, its clinical manifestations can be correlated with *Madhumeha*, *Prameha Upadrava*, *Timira*, *Kacha*, and *Drishtigata Rogas*. Ayurveda emphasizes the preservation of vision through the maintenance of equilibrium among *Dosha*, *Dhatu*, and *Mala*. Management includes *Nidana Parivarjana*, *Shodhana*, *Shamana Chikitsa*, *Rasayana Prayoga*, dietary regulation, and ocular therapeutic procedures. This review aims to explore the Ayurvedic understanding and management of Diabetic Retinopathy through classical references and contemporary perspectives.

**Keywords:** *Diabetic Retinopathy, Madhumeha, Timira, Netra Roga, Rasayana, Ayurveda*

### Introduction

Diabetes Mellitus is a chronic metabolic disorder characterized by persistent hyperglycemia resulting from defects in insulin secretion, insulin action, or both. Diabetic Retinopathy is one of its most severe complications and remains a major cause of visual disability globally. The prevalence of Diabetic Retinopathy increases with the duration of diabetes and poor glycemic control.

In Ayurveda, Diabetes Mellitus is described under *Prameha*, particularly *Madhumeha*. The chronicity of *Madhumeha* results in depletion of *Dhatu*s, impairment of *Rakta Vaha Srotas*, and involvement of ocular tissues leading to visual disturbances. Classical texts mention that uncontrolled *Prameha* can affect various organs, including the eyes, producing symptoms analogous to diabetic retinal changes.<sup>1</sup>

The eye (*Netra*) is considered one of the most important sensory organs. *Acharya Sushruta* emphasized the importance of preserving vision and elaborately described ocular diseases and their management.<sup>2</sup>

### Diabetic Retinopathy: Modern Perspective

Diabetic Retinopathy is a microangiopathy affecting retinal capillaries due to chronic hyperglycemia. Pathological changes include:

- Basement membrane thickening
- Pericyte loss
- Capillary occlusion
- Microaneurysm formation
- Retinal hemorrhages
- Hard exudates
- Macular edema
- Neovascularization

### Classification

#### 1. Non-Proliferative Diabetic Retinopathy (NPDR)

- Mild NPDR
- Moderate NPDR
- Severe NPDR

#### 2. Proliferative Diabetic Retinopathy (PDR)

- Neovascularization
- Vitreous hemorrhage
- Retinal detachment

Symptoms include blurred vision, floaters, impaired color vision, and progressive visual loss

### Ayurvedic Correlation

Diabetic Retinopathy can be correlated with:

- *Madhumeha*
- *Prameha Upadrava*
- *Timira*
- *Kacha*
- *Drishtigata Roga*
- *Raktaja Netra Vikara*

According to *Acharya Charaka*, prolonged *Prameha* causes depletion of body tissues and complications involving various organs.<sup>3</sup>

The pathogenesis involves:

- Aggravation of *Kapha*
- Association of *Pitta*
- Vitiating of *Vata*
- *Rakta Dushti*
- *Dhatu Kshaya*
- Obstruction of *Srotas*

These factors contribute to degeneration and impaired nourishment of ocular tissues.

Nidana (Etiological Factors)

The causative factors responsible for *Prameha* and subsequent ocular complications include:

- Excessive intake of sweet foods
- Sedentary lifestyle
- Day sleep (*Divaswapna*)
- Excessive intake of dairy products
- Obesity
- Lack of exercise
- Psychological stress
- Genetic predisposition

*Charaka* described excessive indulgence in sweet, sour, and unctuous food as important causative factors of *Prameha*.<sup>4</sup>

Samprapti (Pathogenesis)

The development of Diabetic Retinopathy according to Ayurvedic principles can be explained as follows:

1. Improper diet and lifestyle lead to *Kapha Dosha Prakopa*.
2. *Meda*, *Mamsa*, and *Kleda* increase.
3. *Srotorodha* develops.
4. Chronic disease results in *Vata Prakopa*.
5. *Rakta* and ocular tissues become affected.
6. *Alochaka Pitta* undergoes dysfunction.
7. Visual impairment manifests as *Timira* and other retinal disorders.

The chronic nature of *Madhumeha* leads to *Dhatu Kshaya* and degeneration of retinal tissues.

## Clinical Features

### Modern Features

- Blurred vision
- Floaters
- Scotoma
- Visual distortion
- Night blindness
- Sudden loss of vision

### Ayurvedic Features

- *Avyakta Darshana*
- *Dhooma Darshana*
- *Mandal Darshana*
- *Timira*
- *Kacha*
- Progressive loss of visual acuity

## Principles of Ayurvedic Management

The management of Diabetic Retinopathy focuses on:

1. Control of *Madhumeha*
2. Prevention of retinal degeneration
3. Improvement of microcirculation
4. Reduction of oxidative stress
5. Preservation of vision
6. Rejuvenation of ocular tissues

The treatment can be categorized into:

- *Nidana Parivarjana*
- *Shodhana*
- *Shamana*
- *Rasayana*
- *Netra Kriyakalpa*

## Nidana Parivarjana

Avoidance of causative factors is the first principle of treatment.

Patients should avoid:

- Excessive sweets
- Refined carbohydrates
- Sedentary habits
- Smoking
- Alcohol
- Excessive day sleep

Recommended lifestyle modifications include:

- Regular exercise
- Weight management
- Stress reduction
- Adequate sleep

Shodhana Chikitsa

Vamana

*Vamana Karma* helps eliminate aggravated *Kapha Dosha* and improves metabolic functions.

Virechana

*Virechana* is beneficial in removing vitiated *Pitta* and purifying *Rakta*.

Basti

*Basti Karma* is indicated in chronic diabetic conditions involving *Vata Dosha* predominance.

Raktamokshana

In selected ocular disorders associated with *Rakta Dushti*, *Raktamokshana* may be useful.

Shamana Chikitsa

Several Ayurvedic formulations are beneficial in controlling diabetes and protecting ocular tissues.

1. Triphala

*Triphala* possesses:

- Antioxidant activity
- Anti-inflammatory action
- Retinal protective effect

2. Amalaki

*Amalaki* acts as a potent *Rasayana* and antioxidant.

3. Guduchi

*Guduchi* improves immunity and glucose metabolism.

4. Haridra

*Haridra* exhibits anti-inflammatory and anti-diabetic activities.

## 5. Yashtimadhu

*Yashtimadhu* nourishes ocular tissues and possesses antioxidant effects.

### Common Formulations

- *Nisha Amalaki Churna*
- *Triphala Ghrita*
- *Mahatriphala Ghrita*
- *Chandraprabha Vati*
- *Vasant Kusumakar Rasa*
- *Guduchi Satva*

### Rasayana Therapy

*Rasayana Chikitsa* plays a vital role in preventing retinal degeneration.

Important *Rasayana* drugs include:

- *Amalaki*
- *Guduchi*
- *Haritaki*
- *Pippali*
- *Shatavari*
- *Ashwagandha*

Benefits include:

- Reduction in oxidative stress
- Improvement in tissue nutrition
- Delay in disease progression
- Enhanced visual function

### Netra Kriyakalpa

#### Tarpana

*Tarpana* nourishes ocular tissues and improves visual acuity.

#### Putapaka

*Putapaka* provides deeper nourishment to the eye structures.

#### Aschyotana

Useful in relieving ocular irritation and dryness.

#### Anjana

Improves ocular hygiene and vision.

#### Seka

Beneficial in inflammatory ocular conditions.

## Role of Ghrita Preparations

Ayurveda considers *Ghrita* the best medium for ocular nourishment.

### Triphala Ghrita

Benefits include:

- Enhancement of vision
- Reduction of oxidative damage
- Retinal nourishment

### Mahatriphala Ghrita

Widely used in chronic ocular diseases and visual impairment.

## Diet and Lifestyle

Dietary regulation forms the cornerstone of management.

### Recommended Foods

- Green leafy vegetables
- Whole grains
- Bitter vegetables
- Barley (*Yava*)
- Green gram (*Mudga*)
- *Amalaki*

### Foods to Avoid

- Sugar-rich foods
- Refined flour products
- Fried foods
- Excessive dairy products
- Carbonated beverages

## Yoga and Pranayama

The following practices may be beneficial:

- *Anuloma Viloma*
- *Bhramari*
- *Nadi Shodhana*
- Meditation

These improve circulation and reduce stress.

## Discussion

Diabetic Retinopathy is a multifactorial disease involving microvascular damage, oxidative stress, inflammation, and tissue degeneration. Ayurveda views this condition as a complication of chronic *Madhumeha* involving *Vata*, *Pitta*, *Kapha*, and *Rakta Dushti*. The Ayurvedic approach is holistic and focuses not only on symptom control but also on correction of underlying metabolic disturbances.

*Shodhana* procedures help eliminate vitiated *Doshas*, while *Shamana* therapies provide metabolic control and tissue protection. *Rasayana* therapy plays an important role in preventing progression by improving tissue regeneration and reducing oxidative damage. Ocular procedures such as *Tarpana* and *Putapaka* further support retinal health.

Modern studies have demonstrated antioxidant, anti-inflammatory, and anti-diabetic properties of drugs such as *Triphala*, *Guduchi*, *Haridra*, and *Amalaki*, supporting their role in managing diabetic complications.

Thus, integration of Ayurvedic therapies with proper diabetic control may help delay progression of retinal damage and improve quality of life.

## Conclusion

Diabetic Retinopathy is a major cause of preventable blindness among diabetic patients. Although not directly described in classical Ayurvedic literature, its clinical manifestations can be correlated with *Madhumeha*, *Timira*, and *Drishtigata Rogas*. Ayurvedic management emphasizes *Nidana Parivarjana*, *Shodhana*, *Shamana*, *Rasayana*, and *Netra Kriyakalpa* procedures. A comprehensive approach aimed at controlling diabetes, correcting *Dosha* imbalance, improving ocular nourishment, and preventing degeneration may contribute significantly to the management of Diabetic Retinopathy. Further clinical studies are required to establish standardized treatment protocols and validate traditional therapies scientifically.

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