



REVIEW ARTICLE ON DIABETIC RETINOPATHY & ITS AYURVEDIC MANAGEMENT.

Monika Mishra¹, Jyoti Gupta²

¹M.S(Ay) second year, ²Associate professor, M.S(Ayu)

Department of P.G studies in Shalaky Tantra, Patanjali bhartiya ayurvedigyan evum anusandhan sansthan, Haridwar, India.

Corresponding Author: mmonika851@gmail.com

<https://doi.org/10.46607/iamj1810112022>

(Published Online: November 2022)

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Article Received: 16/09/2022 - Peer Reviewed: 16/10/2022 - Accepted for Publication: 28/10/2022



ABSTRACT

Diabetic retinopathy also known as diabetic eye disease is one of the major vascular diseases of the retina. In this condition, the vasculature of the retina and the retina itself gets damaged due to prolonged Hyperglycemia. *Acharya Charaka* has described *Ashtamahagada* in which he has included *Prameha*, which itself is great evidence to understand the destructive and harmful effects of *Prameha* in the human body. It is one of the leading causes of blindness in various countries.

This article provides a brief synoptic overview of the disease (both modern and *Ayurveda* aspects), evidence of comparison of *Timir* (*Drishtipatalgataroga*) with DIABETIC RETINOPATHY, *Ayurvedic* pathogenesis of the disease, & its *Ayurvedic* treatment aspects.

Keywords: *Madhumehaja timir*, Diabetic Retinopathy

INTRODUCTION

Diabetic retinopathy is one of the leading causes of blindness across the world. Diabetes is a metabolic

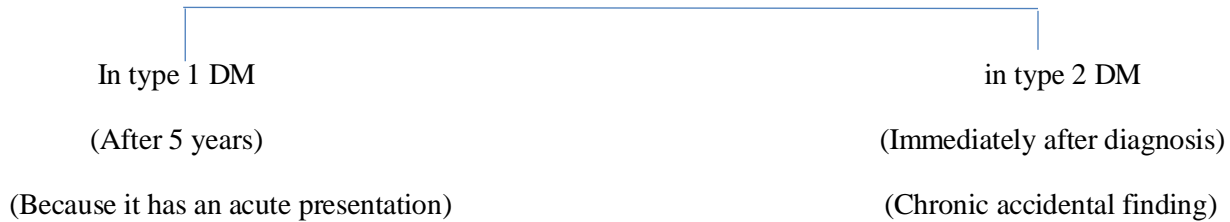
cum vascular abnormality of the body that affects multiple organs and tissues of the body like eyes, cardio-

vascular system, kidneys, blood vessels, etc. Also, diabetic retinopathy is known as one of the major complications of prolonged diabetes.

The prevalence of diabetic retinopathy, proliferative diabetic retinopathy, and diabetic macular edema, among individuals with diabetes, is 34.6%, 7.0%, 6.8%, and 10.2% [1] respectively.

Though the topic of *Madhumehaja timir* has always been a controversial topic in *Ayurveda* since there is no direct explanation of the disease in any *Samhita*. But like threading the pearls, various evidence and references are collected from various *Samhitas* and are interpreted to get a vast and enhanced knowledge of

Screening of DIABETIC RETINOPATHY



PATHOGENESIS

The pathogenesis of *Pramehaja timir* can be understood by understanding the pathogenesis of *Prameha* first. Since the disease advances after a prolonged period of Hyperglycemia which leads to nephropathy, which finally leads to decreased osmolarity. This imbalance in osmolarity causes salt and water imbalance and thus there is the retention of fluid in extracellular spaces of cells (as can be seen in macular edema also). *Madhumeha* can be characterized as a disease that basically has *Vata* predominance and *Kapha Anubandha*. *Vata* vitiation is due to *Avarana* or *Dhatu kshaya*.

So *Madhumeha* can be 1. *Avarana janya* 2. *Dhatu kshayajanya*

As described by *Acharya Charaka* in *Ch.Chi.28/202-227*, the concept of *Pranaavritta vyanavayu & Pittaavritta vyanavayu*, [2] *lakshanas* of both state that in these conditions there is *Sarvindriyanam sunyatvam*. So, in *Madhumeha*, *Avarana* can lead to an eye disorder. Since the eye is also considered an *Indriya* and *Avarana* leads to its *Sunyatvam* hence this can be correlated to *Avaranajanya Madhumehaja timir*. Due to *Avrittavata*, the blood flow of the concerned area in

this very major disease entity of *Ayurveda*, which will be discussed in the pathogenesis of the disease.

The risk factors of Diabetic Retinopathy include-

- Duration of diabetes (from puberty) is directly proportional to it
- Increased HbA1C
- Hypertension and Hyperlipidemia
- Pregnancy
- Diabetic nephropathy

the eye gets hampered which leads to hypoxia and then Vascular Growth Endothelial Factors (VEGF) release that causes neovascularization and finally leads to Diabetic Retinopathy

Dusya of *Prameha roga* are *Rasa, Rakta, Mamsa, Meda, Majja, Shukra, Lasika Oja* and *Vasa*. According to *Kedari Kulya Nyaay*, the *kshaya* of *Rasa Rhatu* leads to the *kshaya* of various other *Dhatu*s. In the eye the *kshaya* of *Rakta* causes *sirasathilya*, *Mamsadhathu* causes *Dhamnisathilya*, *Medakshaya* causes *sandhisathilya* (junction between arteries and vessels), *Majjakshaya* causes bone marrow depletion hence all these factors finally lead to the loss of pericytes (i.e the contractile covering of blood vessels), which leads to micro aneurysm and hemorrhages that causes hypoxia & release of Vascular Endothelial Growth Factors(VEGF)in turn causes neovascularization and finally Diabetic Retinopathy.

The concept of *Agnimandya* in *Ayurveda* is correlated with the metabolic process of the body. As there is *Dhatukshaya*, so the concerned *Dhatvaagni* gets hampered, & its disturbance leads to *AMA* production. This leads to disturbance in endocrine functions of the body

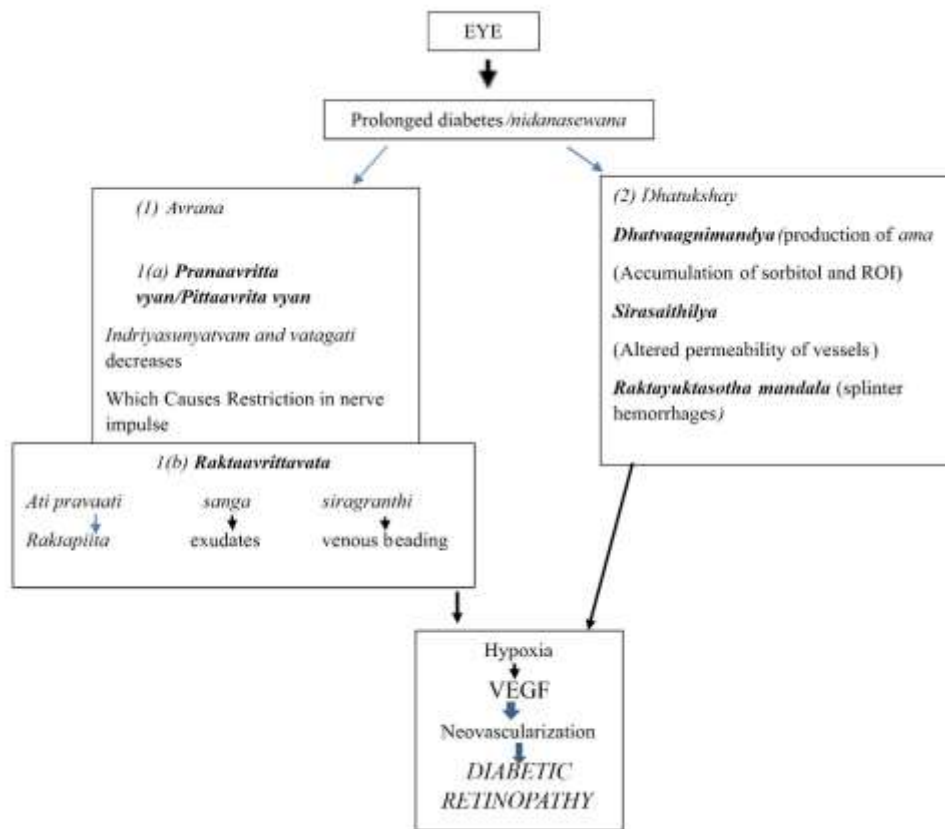
which in turn leads to intra-cellular sorbitol accumulation (as seen in cataracts as well) then there is ROI (reactive oxygen intermediate) activation, PKC (protein kinase C) activation. All these activities lead to osmotic and oxidative stress in the eye which affects the microvasculature of the eye and leads to microangiopathy (major and earliest histopathological change of Diabetic retinopathy which causes hypoxia, VEGF release, neovascularization, and finally Diabetic retinopathy).

In other words, the complete pathogenesis of Diabetic retinopathy (*Madhumehaj timir*) can be summarized under *Srotovaigunya* processes i.e.

Siragranthi can be correlated to micro aneurysms

Vimargagamana can be correlated to retinal hemorrhage.

Atipravaati can be called neovascularization



Management Of Diabetic Retinopathy in Ayurveda.

As we have discussed in the pathogenesis that *Pramehaja timir* is caused due to *Dhatukshaya* and *Avarana* which causes *Siragranthi*, *Atipravvati*, and *Vimargagamana*. So, the basic line of treatment goes to manage these symptoms as described in various *Ayurveda classics*.

1 Controlling the Hyperglycemia (Prameha)

Acharya Sushruta in Su. Chi 11 has described various medications and therapies which can be given to control hyperglycemia [3]. In *Su. Chi 11/7 Acharya* described the complete line of treatment of *Madhumeha*. *Acharya Sushruta* advises *Snehana* first followed by *Teekshna Virechana*. After that *Acharya Sushruta* advises *Asthapana vasti* of *Sursadigana kasaya* mixed with *Sonth*, *Devdaru* *Nagarmotha*, *Madhu*, and

Saindhava lavana. The eye is the site of *Alochaka pitta* & *Virechana* is the first line of treatment for all *Pittaja roga* and *Urdhawaga raktapitta* (as there are haemorrhages in Diabetic Retinopathy)

ORAL MEDICATIONS

In *Su.chi 11/9* Acharya Sushruta advises *khadir and supari kasayapaan in kshaudramehi*.

In addition, Acharya Sushruta advises various oral medications in chap 12 and 13 as

Loharishta, Dhanvatntra Ghrita, Salsaradileh

Shilajitu Swarna Makshik and Rajatmakshika.

Bhaisjya Ratnavali

Chikitsa Sthana 64 describes ORAL MEDICATIONS^[4] as

Vasakadi kwath described as “*Raktasrava and Kaphahantichaksusyam*”

Pathyadi kwath as *Drikprasadna*

Chaksusyavarga i.e *Triphalaghrita, Madhu, Yava, Shatavari Mudga, and Padabhaynga* is told to be beneficial for vision.

Mahatriphalaghrita has been told to be all *Timir-nashaka*.

2 Chikitsa at Cellular Levels

As we saw, there is various pathogenesis happening on the cellular level of disease, hence it becomes necessary to do the *Shodhana* and *Agnichikitsa* of the body. *Shodhana, Virechana, and Asthapanavasti* can be given according to *Rogibala*. For *Agnichikitsa Dipana Pachana* drugs such as *Trikatu churna, Chitrakadi vati, and Ajmodadi churna* can be given.

Avarana plays a major role in the pathogenesis of the disease so treating it becomes an absolute necessity. As described by Acharya Charaka in *Chikitsasthana 28, Rasayan Chikitsa* plays a very important role in *Avarana Chikitsa*. Also, the *Rasayan* are told to be *Indriyabalamparam*. In Diabetic Retinopathy, the eye is under hypoxial stress so we can advise *Rasayan yoga* as anti-oxidative agents like *Chavanprash, Shilajeetu Rasayan, Amlakarasayana, Ashwagandharasayan, and Guduchirasayana*.

VASTI-

The most important or the treatment of choice initially in Diabetic retinopathy can be *Vasti*. As *Madhumeda* is described under 2 headings i.e *Avaranajanya and*

Dhatukshayajanya and both causes *Vata* vitiation, *Vasti* is told to be the best treatment for *Vata* in *Ayurvedic classics*. Acharya Charak in *Siddhi Sthana 3* describes *Sthiradi Niruhavasti* which is *Chaksusya* in nature^[5]. In Ch. Si 3/43 Acharya Charaka describes the use of *Mansa Rasa in Vasti* which is advised in curing blindness

In *Ch.Si.12 Mustyadi Yapanavasti* has been told by Acharya that is *Pramehanashaka, Raktavikaranshaka* and *Rasayana gun sampata*. This can be a very useful *Vasti* in Diabetic retinopathy as it can control various etiologies taking place in Diabetic retinopathy.

Madhutailikvasti is *Pramehanashak* in nature, hence can be prescribed in the initial stages of the disease and also in the latter stage as a control measure of diabetes Acharya Sushruta in *Chikitsasthana 38* describes *Kushadi Asthapanavasti* which is *Raktapittanashak*. This *Vasti* can be very helpful in controlling the various hemorrhages that take place in Diabetic retinopathy.

Further few more *Vastis* as *Rasnadiashtapanavasti Prameha and Raktapittanshaka*.

Mustadiashtapanavasti which is *Netrahitakri Chaksusya* has been told by Acharya in *Su.Chi.38/106-111* can be very beneficial in the treatment and control of Diabetic retinopathy.

Various Kriyakalp in Diabetic Retinopathy.

Various *Kriyakalps* can be done to treat Diabetic retinopathy. In *Kriyakalp, Ausadhdharana* is done on the eye so the drug availability in intraocular tissues increases due to the longer duration of drug contact.

Tarpana with various *Raktapittanashak and Timir-nashak ghrita* can be done. Some examples of such drugs are,

<i>Durva ghrita,</i>	<i>Shatavar ghrita,</i>
<i>Panchpanchmool ghrita</i>	<i>Vasaghrita,</i>
<i>Mahatriphala ghrita.</i>	

Similarly, *Putpaka* with *Tikta Aushad Dravyas* should be done as it is *Ropak* in nature and will heal the *Raktapitta* i.e hemorrhages. *Vasa* is one the best *Tiktadraya* as told in *Ayurveda classics*.

Above mentioned *Ghrita* can also be used as *Aschyotana*. Though the contact timing of *Aschyotana* is less as compared to *Tarpana* and *Putpaka* but still it has its

own benefits also it can be given as a follow-up drug that the patient can easily use at home for a longer time.

In *Charak Chikitsa Trimarmiyaaadhyay*, *Rasakriyas* made from *Amalaki*, *Daruharidra*, *Madhu*, *Goghrita* have been told, which is *Rakta pitta shamaka*, *Netra-roga*, *Timir*, and *Patalgataroga nashaka*.

CONCLUSION

Diabetic retinopathy is becoming one of the major eye disorders of the modern world. *Avarana* and *Dhatukshaya* play a major role in pathogenesis and cause various symptoms of Diabetic retinopathy. As there is no promising management available. Various therapies and medications described in *Ayurveda* can be useful in managing Diabetic retinopathy.

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Source of Support: Nil

Conflict of Interest: None Declared

How to cite this URL: Monika Mishra et al: Diabetic Retinopathy. International Ayurvedic Medical Journal {online} 2022 {cited November 2022} Available from: http://www.iamj.in/posts/images/upload/3110_3114.pdf