

"AYURVEDIC TREATMENT OF DIABETIC RETINOPATHY-A SINGLE CASE STUDY"

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ABSTRACT:

Diabetic Retinopathy refers to a complication of diabetes that affects the eyes. That is nothing but damage to blood vessels in the tissue of retina. With increase in the life expectancy of diabetics, the incidence of Diabetic Retinopathy has increased.⁽¹⁾ Diabetic Retinopathy is leading cause of blindness. There are many treatment modalities mentioned in modern medicine but it have certain limitation. In *Ayurveda*, Diabetic Retinopathy can be compared with *Madhumehajanya Timir*. All the three *doshas* along with *Rakta dosha* and *sapta dhatu* with four internal *Drishti patalas* of eyes are affected in *Madhumehajanya Timir* in different stages of disease. In this current case of *Madhumehajanya Timir*, *Ayurvedic* treatment was done. In present case study a female patient of 58 years old visited the OPD of *Shalakyatantra* with complaining of defective distant and near vision since 6 months. Based upon the history and clinical features, Patient is K/C/O diabetes mellitus (type 2) since 8 years and is on regular medication. Patient is treated with *Vasant Kusumakar Rasa* 10D for 1 month, Tab BGR-34 2BD for 6 month, Tab *Saptamrit Lauh* 500 mg 1BD for 1 month and *Triphala Ghrita* 10 ml HS for 3 months duration. At the end of 6 months patient got significant relief.

Key words: Diabetic Retinopathy, Madhumehajanya Timira, Vasant Kusumakar Rasa, Tab BGR-34, Tab Saptamrit Lauh, Triphala Ghrita

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INTRODUCTION

Diabetic Retinopathy the leading cause of visual disability in diabetics, is an important complication of diabetes mellitus (DM). Diabetic retinopathy is a chronic progressive, potentially sight -threatening disease of the retinal microvasculature associated with prolonged hyperglycemia. Diabetic Retinopathy is a microangiopathy involving the retinal precapillary arterioles, the capillary bed and the postcapillary venules. The pathogenesis of diabetic retinopathy includes both microvascular occlusion and leakage.⁽²⁾ Essentially ,it is a microangiopathy affecting retinal precapillary arterioles, capillaries and vesnules. Characteristics changes in capillaries include; damage to endothelial cells, there is loss of intramural pericytes which are normally present in the basement layers, basement membrane is thickened and fragmented. Microangiopathy results in microvascular occlusion, microaneurysm, capillary leakage and haemorrhages. This leads to retinal ischemia (retinal hypoxia) and retinal oedema. Retinal hypoxia in turn causes formation of hard exudates, arteriovenous shunt formation and neovascularisation.⁽³⁾

DR has been classified as-

- I. Non-proliferative diabetic retinopathy (NPDR)
 - Mild NPDR / Background NPDR
 - Moderate NPDR
 - Severe NPDR
 - Very Severe NPDR]
- II. Proliferative diabetic retinopathy (PDR)
- III. Diabetic Maculopathy
- IV. Advance diabetic eye disease (ADED)

Ophthalmoscopic features of NPDR include microaneurysms, retinal hemorrhages both deep (dot and blot hemorrhages) and superficial (flame shaped), retinal oedema, hard exudates, cotton wool spots, venous abnormalities (beading, looping and dilatation), IRMA. Occurrence of neovascularization over the changes of very severe NPDR is a hallmark of PDR. Diabetic maculopathy is associated with clinically significant macular oedema.

Pujyapada Muni in his work, “*Netra Prakashika*” explains *Timir* as the *Upadrava* of *Madhumeha*.⁽⁴⁾ According to symptoms and complications of Diabetic Retinopathy it can be considered as *Prameha / Madhumehajanya Timir*. *Avarana* and *Dhatu Kshaya* too have important role in development of DR due to prolonged and uncontrolled hyperglycemia. *Agnimandya* related *Ama* formation has a role in pathology of DR which is quite similar to oxidative theory of DR explained in modern pathology.⁽⁵⁾ DR possesses all the four features of *Strotovaigunya* i.e. *Atipravritti*, *Sanga Siragranthi* and *Vimargagamana*.⁽⁶⁾ *Sanga* is manifested by the retinal vessels occlusion leading to hypoxic related ischaemia. *Siragranthi* is nothing other than development of microaneurysms. *Vimargagamana* is the retinal haemorrhages and *Atipravritti* can be correlated with neovascularization. *Urdhwagata Raktapitta*, *OjasKshay*, *Raktavritta Vata*, *Pranavritta Vyana* are other cause indevelopment of DR. All the *Tridoshas* and *Dhatu*s are affected in successive stages and possess all the four features of *Strotovaigunya*. So as per etiopathological mechanism the first and foremost care should be given to prevent *Madhumeha*. Treatments like metabolic control of DM, intravitreal anti-VEGF therapy and intravitreal steroid laser photocoagulation surgical treatment i.e. Pars Plana Vitrectomy(PPV) given in modern science.

Tab BGR-34 (Blood Glucose Regulator) is an Ayurvedic derived product that is sold in India as an over-the-counter pill for the management of diabetes. Tab BGR-34 was co-developed by two national government owned laboratories. National Botanical Research Institute

Sr No	Contents
1	<i>Daruharidra</i> (Stem)
2	<i>Vijaysar</i> (Heart wood),
3	<i>Gudmar</i> (Leaf)
4	<i>Manjeeshtha</i> (Root),
5	<i>Methika</i> (Seed)
6	<i>Giloy</i> (Stem).

(NBRI) and Central Institute for Medicinal and Aromatic Plants (CIAMP) under the patronage of the Council of Scientific and Industrial Research (CSIR). It was developed in 2015 and launched commercially in 2016. CSIR has claimed BGR-34 to be the first Indian

Ayurvedic anti-diabetic drug and the laboratories were awarded the CSIR Technology Award in 2016 in the Life Sciences category. According to *Rasendra Sar Sangraha*,

Saptamrit Lauh is called as *Timirhar Lauh*. Primary indication of *Saptamrit Lauh* is vision

loss, which is broad term. It includes several eye disorders one of them is DR.⁽⁷⁾ *Vasant Kusumakar*

Rasa ayurvedic herbomineral formulation marketed worldwide for diabetes and associated symptoms.⁽⁸⁾ *Triphala Ghrit* has strong therapeutic

action on eye disorders. Following ingredients along with the part used in formulation of tablets and Ghrita.

Sr . No.	Contents
1	<i>Triphala</i>
2	<i>Trikatu</i>
3	<i>Draksha</i>
4	<i>Yashtimadhu</i>
5	<i>Kutakrohini</i>
6	<i>Padmakashta</i>
7	<i>Ela</i>
8	<i>Vidang</i>
9	<i>Nagkeshar</i>
10	<i>Neelkamal</i>
11	<i>Sariva</i>
12	<i>Shwetachandan</i>
13	<i>Haridra</i>
14	<i>Daruharidra</i>
15	<i>Ghrita</i>
16	<i>Milk</i>
17	<i>Triphala Kwath</i>

	Vasant Kusumakar Ras
Sr No.	Contents
1	<i>Swarna Bhasma</i>
2	<i>Rajat Bhasma</i>
3	<i>Vanga bhasma</i>
4	<i>Kantaloha bhasma</i>
5	<i>Parad bhasma</i>
6	<i>Abhrak bhasma</i>
7	<i>Praval and pishti</i>
8	<i>Rasasindhur</i>

<i>SaptamritaLauh</i>	
Sr. No.	Contents
1	<i>AamlaChurna</i>
2	<i>BehadaChurna</i>
3	<i>Haritakichurna</i>
4	<i>YashtimadhuChurna</i>
5	<i>Lohabhasma</i>
6	<i>Ghrita</i>
7	<i>Madhu (honey)</i>

The present article deals with single case study regarding the Ayurvedic approach to the Mild /Background NPDR as *Madhumehajanya Timir*.

AIMS AND OBJECTIVE

To evaluate the effect of *Vasant Kusumakar Rasa*, Tab BGR-34 along with Tab *Saptamrit Lauh* and *Triphala Ghrita* in Background NPDR.

MATERIAL AND METHODS

Case Report:

Patient Name –XYZ Age/Sex- 58 years/Female OPD No.-5357

Place- Nagpur

Occupation-Housewife

Date of registration-11/02/2022

Chief complaints – Blurring of vision since 6 months

H/O Present illness-

Patient had history of high blood glucose level before 2 years. After taking anti diabetic treatment for 3 months her blood glucose level is under control. But she experienced gradually blurring of vision. Since 6 months she complaints of increase in intensity of blurring of vision so she came to OPD of Shalakyatantra department of Shri Ayurved Mahavidyalaya, Nagpur.

Past History-

K/C/O-Diabetes mellitus since 8 years

On medication-Tab Vildader 50 mg OD (morning) Tab Glimp-M2 OD (afternoon)

K/C/O-Hypertension since 5 years

On medication-Tab Telvilite-AM 40mg OD(morning)

Family History-

No relevant history found

On ocular examination-

Sr.No	Examination	Findings
1.	Visual acuity (Aided)	RE-6/9 LE-6/9 (P)
2.	Eyelid	Normal
3.	Conjunctiva	No congestion
4.	Cornea	Clear
5.	Anterior chamber	Normal depth

6.	Iris	Colour pattern normal
7.	Pupil	NSRTL
8.	Lens	In situ
9.	Fundus examination	RE- Disc - normal Macula- Soft Exudates Microaneurysm Dot Haemorrhages LE- Disc- normal Macula-Soft exudates BE-Signs of Background NPDR

Treatment Protocol

1. Tab BGR-34 twice a day for 6 month duration.
Two tablet twice a day should be taken 30 minutes before meal.
2. *Vasant Kusumakar Rasa* once a day for 1 month duration.
3. Tab *Saptamrit Lauh* 500 mg twice a day for 3 months after meal
4. *Triphala Ghrita* 10 ml once a day at bed time
Patient is given following medication and follow up is taken after 6 months.

MODE OF ACTION

Tab BGR-34 is natural formulation that is scientifically proven and optimized. Contains essential phytoconstituents and derivatives. Helps to maintain carbohydrate homeostasis. Ensure proper carbohydrate metabolism by effectively influencing the various enzymatic processes such as inhibiting the DPP- 4 enzyme. Offers potent antioxidant activity and protects body tissues from free radical damage Its key ingredients *Gudmar* (*Gymnema Sylvester*) reduces the absorption of carbohydrates and prevents long term complications. Suppress the feeling of hunger. Supplements bioactive micronutrients. *Giloy* (*Tinospora cordifolia*) boosts body defence system. *Vijaysar* (*Pterocarpus marsupium*) strengthens body cells and improve carbohydrate metabolism. *Daruharidra* (*Berberis aristata*) acts as a DPP-4 inhibitor & also nourishes and tone vital organs. *Methi* (fenugreek) manages carbohydrate absorption and uptake. *Manjeestha* (*Rubia cordifolia*) helps to restore anti-oxidants enzymes. *Vasant Kusumakar Rasa* is extensively used for treating high sugar levels because it has *Deepan* (appetizer) and *Pachan* (digestion) properties which reduce *Ama* and improve metabolism that helps to control blood glucose levels.⁽⁹⁾ Its *Rasayana* property is also helpful in managing general weakness and controlling blood glucose levels. It is a potent anti-diabetic drug which possibly acts due to combined effect of each ingredients of drug.⁽¹⁰⁾ It pacifies *Tridosha* i.e. *vata*, *pitta* and *kapha*. Oxidative stress and vascular endothelial growth factor level decreased by treatment with *Vasant Kusumakar Rasa*. It prevent DR by its ability to act on multiple biochemical pathways implicated in pathogenesis of DR. It is a combination of *Swarna Bhasma*, *Rajat Bhasma*, *Vanga Bhasma*, *Naga Bhasma*, *Lauha*

Bhasma, Abhraka Bhasma, Pravala Pishti, Mukta Pishti, RasaSindur, Vasa, Haldi, Ikshu, Kadali, Kamal, Chameli, Shatavari and Chandan. Swarna Bhasma ⁽¹¹⁾ and *Rajat Bhasma* act as an antioxidant and free radical scavenger hence it reduces the complication of Diabetes mellitus. *Vanga Bhasma* ⁽¹²⁾ is useful in reducing the symptoms of diabetes mellitus like fatigue and general weakness. *Naga Bhasma* includes *Ushna Virya* (hot in action), *Tikta Rasa* (bitter taste) and cures *Vataja Kaphaja Prameha*. *Abhraka Bhasma* and *Pravala Pishti* has *Deepan* and *Pachan* property and hence help in improving metabolism which ultimately control blood sugar level. *Vasant Kusumakar ras* possess *Pramehgna* Anti diabetic, *Ojo vardhak* and *Rasayan* (improves immunity, rejuvenator) properties and thus can have a protective role in diabetics. *Triphala ghrita* is made by mixing various herbs which provide multiple benefits. *Triphala Ghrita* has been used as an oral medication *Snehapan* of *ghrita* has the quality of trespassing into minutes channels of the body and enters into deeper layers of *Dhatus* and it even at the cellular layer, so it gives strength to the overall tissues of the eyeball. Due to presence of Vit A and Vit E, it possess antioxidants properties. The core ingredient used in this is *Triphala*. It works by balancing the aggravated *Vata* and *Pitta* which are leading cause of disease. *Triphala ghrita* is known to have *Rasayana* (rejuvenating) properties which can help improve immunity and promote eye sight. Due to its *chakshushya* property Strengthen eyesight when used regularly. *Saptamrit Lauha* is an ayurvedic medicine containing herbs and minerals. It is a *Lauh kalpa*, used for treating ophthalmic diseases. All the constituents of *Saptamrit Lauha* not only cure various *netraroga* but also act as *Rasayana*. All the constituents i.e. *Triphala & Yastimadhu* have the *Tridoshghna* properties. All the four constituents are having *Chakshushya* property. Iron is also having the property to maintain the power of eye. *Lauh* is called as “*Rasayanavaram*” means the best *Rasayana* according to *Rasa Ratna Samucchaya*, as it cures all diseases. ⁽¹³⁾ *Rasayana* effect of *Lauha Bhasma* reduces the degree of oxidative stress signaling pathways and by that preventing insulin resistance and B-cells dysfunction and ultimately controlling blood sugar level and its *Medohara* (hypolipidemic) effect decreases the high lipid level.

OBSERVATION AND RESULT

Observation	Before treatment	After Treatment
Visual Acuity (Aided)	RE-6/9 Le-6/9 (P)	RE-6/9 Le-6/9 (P)
Fundus Examination	RE-Disc -Normal Macula-Soft exudates Micro aneurysm Dot haemorrhages LE-Disc-Normal Macula -Soft exudates BE- Signs of Background NPDR	BE-Disc Normal Macula-Normal General Fundus - Occasionally soft exudates

After 6 months of treatment patient reported gradual improvement in presenting complaints.

DISCUSSION

Diabetic Retinopathy the leading cause of visual disability in diabetics. So, an attempt has been made to study the complete aspect of disease and to find the best possible way for the

betterment of mankind. In modern, drugs are not acceptable due their certain limitations, drug dependency and drug withdrawal syndrome. So Ayurvedic approach is needed, Treatment is all about correcting and preventing the etiopathological mechanism (*Samprapti Vighatana*). So as per etiopathological mechanisms described above, the first foremost care should be given to prevent *madhumeha*. The treatment of Diabetic Retinopathy revolves around treating the causes of *madhumeha*, prevention of *dhatu kshay*, prevention of *agnimandya*, prevention of *Ojo kshay*, treatment of *avarana*. *Vasant Kusumakar Rasa* has *Deepan* and *Pachan* properties which reduce *Agnimandya* at tissue level i.e. *Dhatwagnimandya* and improve metabolism that helps to control blood glucose levels. *Madhumehajanya Timir* mainly caused due to vitiation of *Tridosha* and *Vasant Kusumakar Rasa* has property of *tridoshaghnta*. Tab BGR-34 contains such herbs that are rich source of antioxidants preventing oxidative damage to vital organs. Tab BGR-34 restores carbohydrate metabolism by inhibiting various enzymes like inhibiting DPP-4 enzymes. It is an encouraging risk free drug regimen that effectively maintains normal carbohydrate metabolism while lowering the risk of long term complication. Hence, it acts as Neuroprotective, Rejuvenator, Anti-oxidant and Anti-diabetic drug. *Saptamrit Lauh* is *Lauh kalpa* which improves blood supply and thus the nutrition to the eye structures and tissues. And hence help to arrest the process of retinal hemorrhage absorption and prevent its recurrence. Which shows its importance in the treatment Diabetic Retinopathy. *Triphala Ghrita rasayana* for the eyes and *Chakshyushya* in nature, which helps in preservation of tissue and promotes the regeneration of tissue and prevents further degenerative changes of the retinal tissue. Hence useful in treatment of diabetic retinopathy.

CONCLUSION

Objective of the treatment of this case was restoration of structural and functional integrity in diabetic retinopathy. Ayurveda treatment principles help to arrest the progression of the disease and in this patient improvement were noticed. The present study shows the protective effect of an Ayurvedic herbo-mineral formulation, *Vasant Kusumakar Rasa*, tab BGR-34 along with *Saptamrita lauh* and *Triphala Ghrita* in Diabetic Retinopathy. In above case study, significant result was obtained in symptoms and signs after treatment. There is no adverse effect of drug. However, *Vasant Kusumakar Rasa* cannot be used for longer duration due to metallic formulation. Hence, *Vasant Kusumakar Rasa* and Tab BGR-34 along with Tab *Saptamrita Lauh* and *Triphala Ghrita* internally helps in management of Background NPDR.

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REFERENCES

1. A K Khurana, Comprehensive Ophthalmology, chapter12, Diseases of Retina, Jaypee Health Science Publisher, New Delhi, 6th edition 2015, page no. 277
2. Samar K Basak, Essentials of Ophthalmology, chapter 18, Diseases of Retina, Jaypee Health Science Publisher, New Delhi, 7th edition 2019, page no.353
3. Renu Jogi ,Basic Ophthamology ,Chapter 13,The Retina ,Jaypee Brothers Medical Publishers, New Delhi , 4th edition 2009, page no. 317
4. Pujyapada Mahamuni, Netraprakashika, chaturtha patala, first edition, Kendriya Ayurved and Siddha Anusandhana Parishad, New Delhi,1999,12.
5. Acharya Agnivesha; CharakaSamhita; redacted by Charaka and Dridabala with Ayurveda Dipika Commentary by Chakrapani Dutta; edited by Vaidya Yadavji Trikamji Acharya; 4thEdition; published by Chaukhambha Surabarathi Prakashana Varanasi, 2001:page no.231.
6. Uday Shankar, Shalakyatantra, 1stedition, Varanasi: Chaukhamba Sanskrit samsthana : 2012, page no. 634
7. Nidhi Garg and Akhil Jain ; Ayurvedic Drug used in Eye disorder-A review international journal of recent Scientific research ; 2017 jan;vol.8 issue,1,pp.15225-15232
8. Sridharan K.Mohan R.,Ramratnam S., Panneerselvam D.The Cochrane Library;2011.Ayurvedic treatments for diabetes mellitus [Google Scholar]
9. Patel MP, Archana, Lalchand, Netam N, Parhate S.Vasant kusumakar Rasa-“A Best Antidiabetic Drug in Modern Era”:A review. International Ayurvedic Medical Journal; 2018 Oct; 6(10):2305-2311.
10. Sashtri Brahmashankar, Commentary Vidyotini by Pt.Laxmipati Sashtri on Yogratnakar,Uttarardha,Prameha Chikitsa Adhyay, Chapter12, Verse1-4. Varanasi: Chaukhamba Prakashan, Edition10th;page no.94
11. Antioxidant effect of Gold nanoparticles restrains hyperglycemic conditions in Diabetic mice. Manikant bharat Selvaraj, Kailash Kalimuthu, Suresh babu.
12. Screening o of Antidiabetic effect of Vanga Bhasma in alloxan induced Hyperglycemic Rats. Praveen Mehta, chandhanisoni, Gwalior M.P.
13. A. P. Pande, S. B. Deshpande ,R A Gokarna Rasayana Lauha kalpas Ras Ratna Samucchay. Retriened from:(PEF) researchgate.net.

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