Research Article International Ayurvedic Medical Journal ISSN:2320 5091

DIABETIC RETINOPATHY AND ITS MANAGEMENT IN AYURVEDA- A SPECIAL CASE REPORT

Mamata Dastapure[1], Veena Shekar[2], Mamatha KV[3], Sujathamma K[4]
[1]M.S (Ay) final year, [2]Lecturer, [3]Reader, [4]Professor and HOD,
Department of PG Studies in *Shalakya Tantra*, SKAMCH & RC, Bangalore, Karnataka, India

ABSTRACT

Diabetes Mellitus is a common metabolic disorder in which there is high blood sugar level over a prolonged period and occurs in one of two forms: Type1 or Insulin Dependent Diabetes Mellitus (IDDM) and Type2 or Non-Insulin Dependent Diabetes Mellitus (NIDDM). Diabetic retinopathy is most common and serious complication of Diabetes and changes in the retina are observed by 10 years of Diabetes history or even earlier due to modified lifestyle in present era. This disease results in generalized macro and micro vascular complications linked to glycaemic control and affect theses resulting in poor vision or even blindness. Despite of better understanding of its pathogenesis, satisfactory treatment is yet to be established. Ayurveda is well recognized for its role in preventing the disease, but as such no description is available in text which clarifies the progression of *Prameha* to loss of vision. So *Ayurvedic* treatment purely lies on the basis to pacify the pathological changes which occurs in eye as a result of diabetes according to modern parameters. This case presentation reviews the Pathophysiology of diabetic retinopathy with a view to understand therapeutic target and discusses the possible role of Ayurveda in its management.

Keywords: Diabetic Retinopathy, Diabetic Mellitus, Exudates, Hemorrhages

INTRODUCTION

PRESENTATION: A moderately built male patient aged 40 years came to *ShalakyaTantra* OPD of SKAMCH & RC with chief complaint of blurred vision. The Patient's medical history was significant for Diabetes mellitus for 11 years without any visual complaints till 6 months.

COMPLAINT HISTORY: About 6 months back the patient suddenly developed dragging sensation in the right eye in his work place and thus he relaxed for about 10 minutes. Later experienced blurred vision in both the eyes and through the right eye, the objects appeared to be completely red from lateral side. On gazing straight he was not able to perceive light and was unable for any sort of identifications. His sugar level was not under control during this presentation and his HbA1c was found to be 12.8%. During this phase his blood pressure was said to be raised.

TREATMENT HISTORY: On consulting an ophthalmologist it was told that retina is damaged in right eye which was diagnosed as Proliferative Diabetic Retinopathy and cannot be corrected. In left eye haemorrhages were observed in retina for which LASER was done to stop the bleeding. Patient underwent LASER surgery pan retinal photocoagulation (PRP) in 3 sittings for Left eye but vision remained same after one and a half month. Due to this when the patient consulted an-

other ophthalmologist he was diagnosed cataract in left eye and lens extraction (Phacoemulsification) was done. Even after the surgery for cataract vision improvement was not appreciated.

Apart from this he was also diagnosed as Hypertensive, for which he was advised medications. For Diabetes the patient was taking oral hypoglycaemic agents (OHA) and from past 2 years he was on Insulin.

His familial history revealed mother was known case of Diabetes mellitus.

INVESTIGATIONS: B-scan was advised prior to the treatment. The impression in the **Right eye** showed the total posterior vitreous detachment (PVD) with attachment to disc and nasal Tractional retinal detachment (TRD) with Haemorrhages and Exudates.

EXAMINATION

Visual Acuity For Distant Vision

BE – CF (1/2 Metre distance)

RE – On gazing, bright light perception

LE – CF (1/2Metre distance)

Test For Color Vision: Ishihara Color Plates

Patient could identify the color of book which is black in color and couldn't identify the colored patterns and numbers in the plates.

TABLE NO. 1: CONFRONTATION TEST

OCULAR EXAMINATION	RIGHT EYE	LEFT EYE	NORMAL VALUES IN DEGREES
Above	Not appreciable	Not appreciable	50 degree
Below	Not appreciable	Not appreciable	70 degree
Medial (Nasal side)	Till 10degree HM+ve	Till degree HM+ve	60 degree
Lateral (temporal side)	Till 20degree HM+ve	Till 20degree HM+ve	90 degree

TABLE NO. 2 : EXTERNAL OCULAR EXAMINATION

STRUCTURE	RIGHT EYE	LEFT EYE
Conjunctiva	No abnormalities	No abnormalities
Cornea	Sensitivity-Diminished	Sensitivity-Normal
Lens	Opaque, in centre	Pseudophakia, IOL in situ
Pupil	Normal	Normal

FUNDOSCOPIC EXAMINATION:

TABLE NO. 3: DIRECT OPTHALMOSCOPY

	RIGHT EYE	LEFT EYE
MEDIA	Not clear	Clear
FUNDUS	Not clear	Tractional bands, venous looping and beading neovascularisation at disc (NVD)
VESSELS	Not clear	Haemorrhages + ++
MACULA	Not appreciated	Not appreciated
OPTIC DISC	Not appreciated	NVD

TABLE NO. 4: INDIRECT OPTHALMOSCOPY

RIGHT EYE	LEFT EYE

Neovascularisation at disc, Pale fundus, Tractional retinal bands seen	Tractional bands, Neo vascularisation at disc,Retinal haemorrhages, Tortous vessels, diffused LASER scars seen

TABLE NO. 5: SLITLAMPBIOMICROSCOPY

RIGHT EYE	LEFT EYE
2ND Grade Nuclear SCLEROSIS	IOL Present

INVESTIGATIONS:

- B-Scan
- Blood Test

TREATMENT COURSE AT THE HOSPITAL: The patient was admitted in the hospital for a period of 40 days with an interval of 10 days in between, the following treatment was employed:

- *Amapachana* with *Trikatuchurna*[1]
- *Snehapana* with *Guggulutiktaka ghrita*[2]
- *Sarvangaabhyanga* with *Dhanvantaram Taila*[3] followed by *bashpa sweda*
- *Virechana* with *Avipattikarachurna*[4]

After *Samsarjana Krama, Madhuthailika Kala basti*[5] was administered:

- *Anuvasana Basti* with- *Murchita Taila* and *Maha Triphala Ghrita*
- *Niruha Basti* with- *Saindhava, Madhu, Murchita Taila, Maha Triphala Ghrita, Eranda moola kwatha, Yashtimadhu kwatha* and *Mishreya churna.*

After *Basti Karma* the following *Kriya Kalpas* and *Sthanika upakramas* were performed:

- *Netra bandha* with *Kadalikandha*
- *Padabhyanga* with *Ksheerabala taila*[6]
- Netra *seka* with *kwatha* of *Triphala, Yastimadhu, Lodra* and *Musta*
- Bidalaka with *Triphalachoorna* and *Rasanjana*
- *Shirodhara (Takradhara)* with *vasaguduchyadikwatha*
- *Tarpana* with *Mahatriphala ghrita*[7]
- *Prasadana Putapaka* of *Ajamamsa, Yastimadhu, Triphala, Dadima, Kharjura, Draksha, Kamala Pushpa.*

Internally Patient was advised with:

- *Vasa Guluchyadi Kwatha*
- *Amruttotaram Kwatha*
- Tab. *Arogya Vardini*[8]
- Tab. *Saptamrutam Louha*[9]

During the course of the Treatment Blood Sugars were monitored regularly which varied between 64mg/dl to 123mg/dl. Patient was advised to take insulin only when GRBS>200mg/dl but was asked to continue his OHA (Oral Hypoglycemic Agent).

PROSPECTUS AT THE TIME OF DISCHARGE:

- Was able to identify whether the person is wearing spectacles or not whereas he was not able to do before.
- Was differentiating the borders on the floor.
- Could walk confidently without any support.
- Could identify the primary colours like red and maroon confidently.
- Blood sugar was under control throughout the course and HbA1c was 6.6% at the time of discharge.

FOLLOW-UP: During the subsequent follow-ups clarity of vision had improved in the right eye and blood sugar was well under control without Insulin.

DISCUSSION

There is a common etiological factor for *Timira* and *Prameha*. *Nidana Sevana* like *amla rasa, sukta-aranala, maasha, vegadharana, swapnaviparyaya*[10] are *achakshushya* factors in *Prameha* which

leads to *Timira samprapti*[11].

ने जि वा वणोपदेह by Astanga Sangrahakara and Charakacharya in *Pramehasamprapti* and *Prameha purvaroopa* respectively, which clearly indicates involvement of vital organs like *Netra*. Diabetic Retinopathy is silent disorder as the patient will not realize the condition until he experiences blurred vision. *Timira* is important disease one among the *drishtigata rogas,* which means darkness / increased dampness (*kleda*) in the eye. *Prameha* is a *kapha* dominant disease and the major *sampraptighataka* is *kleda* which contributes to *upadrava rogas*. *Timira* explained based on different *dosha* predominance can be compared to DR and can be termed as *Madhumehajanya Timira* and in this patient as it was a advanced stage *Chaturtha patalagata Timira* treatment was employed.

- *Tejo guna* dominated by *Pitta dosha* in *netra* will always have fear from *kapha dosha*. The combination of *kleda* and *kapha* in *Prameha*, through *pratilomagati* of *vyana vayu* and *rasavahinis* reaches *netra* and stimulate the process of *srotorodha* in *sukshma raktavahi srotases* which can be correlated to microvascular occlusion due to loss of pericytes and thickening of basement membrane causes occlusion (Capillaropathy). Deformation of erythrocytes and rouleaux formation, increased plateletsstickiness and aggregation of platelets (Haematological changes) causes endothelial cell damage[12].
- Subsequently due to *srotorodha* their causes *atipravritti* of *utkleshitadoshas* which can be neovascularisations caused by vasoformative substances (growth factors) elaborated by hypoxic retinal tissue in an attempt to revascularise hypoxic retina.
- Further causing *siragranthi* can be justified to formation of aneurysms where there will be localised saccular outpouchings due to physical weakening of the retinal vessels.
- The *utkleshana* of *doshas* in *srotas* due to *srotorodha* deranges the vasculature and permeability of retinal vessels causing *srotoabhisyanda* and giving rise to hard exudates.
- Due to increased *kapha* and *kleda* in *Prameha* it incresaes *sara guna* and *drava guna* of *pitta* and *rakta* in *srotas* and also the *abhisyandi srotas* causes leakage of the blood vessels causing dot and blot haemorrhages, which simulates *raktapitta samprapti*.
- The *srotorodha* in *siras* resulting in *agnimandya* at the level of *dhatwagni* and *bhutagni* causes lack of circulation of *pitta* and *rakta* in those areas where there will best *shanika pandu lakshana* which represents as cotton wool spots of the ischaemic area of the retinal nerve fibre layer.

The treatment planned in this patient possessed properties like *madhumehahara* properties, *shothagna* properties, s*honitasthapana, ropana, kaphanisaraka, raktaprasadana, srotodushtinirharana, chakshushya*and *balya* properties.

The drugs used for the *bahya* and *abhyantara chikitsa* had content of tannins which are astringent in nature help to reduce the exudates and haemorrhages, Flavonoids a remarkable group of phytonutrients have good effect on permeability of vascular capillaries and inhibiting hard exudates and are also antioxidants. They help to improve circulation in the retina by reducing microvascular and capillary blockages. The alkaloids contains oxygen and

sulphur which are bitter in taste helps to oxygenate vessels there by reducing localised ischaemia and endothelial cell damage. Saponins are immune stimulants, kills protozoans and mollusces and are antioxidants causes hypoglycaemia. The antioxidant property of most of the drugs scavenges free radicals and releases prostacyclin from the endothelium which releases the blockages and inhibits platelet aggregation. *Triphala* used in all the combinations are rich in Vitamin C has superoxide dismutase which prevents oxidation of lipids.

CONCLUSION

Restoration of structural and functional integrity in disease of *drushtipatala* caused due to *Prameha*, was the objective of treatment in this case. Ayurveda treatment principles canhelp to arrest the progression of the disease and in this patient in subsequent follow-ups improvement were noticed though he presented with advanced stage. Tractional bands and venous looping had reduced and fundus of the right eye were appreciative with presence of tractional banda and blot haemmorhages on retina which is mainly due to receding large vitreous haemorrhages which made fundus visible which was not visualized before treatment.

The treatment modalities employed was efficacious in controlling *raktasrava* and-s*hotha, promoting* resorption, improving visual perception, clearing *sthanika pandu lakshana* and *Madhumehahara* properties of the drugs helped to hold insulin and reduce the dosage of OHA (Oral Hypoglycemic Agent).

All patients are not benefited by laser. It creates blind spots in the peripheral vision and renders the part damaged and useless. Hence, laser treatment may accidentally damage the normal retinal tissue resulting in blurring of vision. All these can be combated with the efforts of *Ayurvedic* treatment modalities.

As a prophylactic treatment a proper screening of patients by *chakshu visharada's* at regular interval with proper intervention of *kriyakalpa*, life style modification, *pathyapathya* along with oral medicines at appropriate time will definitely retard the progression of the disease and maintains the retinal function.

REFERENCES

1. Sharangadhra Samhita, Dipika Hindi commentary by Dr. Brahmananda Tripati, Chaukhamba surbharati prakashan Varanasi, edition 2004, Madhyama Khanda, choornakalpa, 6th chaptert, Verse -12, pg- 174, pp- 488.
2. Vagbhata, Ashtanga Hridaya – by Acharya Kaviraja Atrideva Gupta, Chawkhamba Prakashan Varanasi, edition- 2009, Chikitsa stana, Pp-839.
3. The Ayurvedic Formulary of India, Part-I, Second Revised English edition, Section -6, Taila, Pp-488.
4. The Ayurvedic Formulary of India, Part-I, Second Revised English edition, Section -6, Choorna, Pp-488.
5. Vagbhata, Ashtanga Hridaya – by Acharya Kaviraja Atrideva Gupta, Chawkhamba Prakashan Varanasi, edition- 2009, Kalpa stana, 4th chapter, Verse-27-28, Pp-839.
6. The Ayurvedic Formulary of India, Part-I, Second Revised English edition, Section -6, Tail, Pp-488
7. The Ayurvedic Formulary of India, Part-I, Second Revised English edition, Section -6, Tail, Pp-488
8. Rasaratna Samuchchayah, by Prof. Siddhi Nandana Mishra, Chaukhambha Orientalia Varanasi, edition-2011, Pp-697
9. Bhaishajya Ratnavali by Prof. Siddhi Nandana Mishra, Netraroga, Chau-

khambha Surabharathi Varanasi, edition-2011, Pp-1196

10. Sushruta, Sushruta Samhita – by Acharya Kaviraja Ambikadutta Shastri, Chaukamba Sanskrit Sansthan Varanasi, edition-2011, Uttara tantra, 17th chapter, Verse-26-27, Pp-702, Pg-14, Part-2.
11. Sushruta, Sushruta Samhita – by Acharya Kaviraja Ambikadutta Shastri, Chaukamba Sanskrit Sansthan Varanasi, edition-2011, Uttara tantra, 17th chapter, Verse-20, Pp-702, Pg-13, Part-2.
12. A Clinical Ophthalmology by Jack J Kanki, BUHERWORTH HEINEMANN ELSEVIE 2007, 6th edition, 16th chapter, pp-945, pg-566.

CORRESPONDING AUTHOR

Dr. Mamata Dastapure

Email: mamatad10@gmail.com