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Diabetic Retinopathy - A Case Study

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ABSTRACT

Diabetes Mellitus is a common disorder in which there is high blood sugar level over a prolonged period and occurs in one of two forms : Type 1 or insulin dependent Diabetes Mellitus (IDDM) and Type 2 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 life style in present era. In Ayurveda, there is no direct reference for Diabetic Retinopathy. But the symptoms explained are correlated with *Timira*. Pujyapada Muni in his work "*Netra Prakashika*" explains *Timira* as the *Upadrava* of *Madhumeha*.

Key words: Diabetes Mellitus, Diabetic retinopathy, Madhumeha, Timira.

INTRODUCTION

Diabetic retinopathy is a vascular disorder affecting the microvasculature of the retina. This condition affects a third of all diabetics patients and its prevalence increases with the duration of diabetes.^[1]

The prevalence of Diabetic Retinopathy is higher in IDDM patients (40%) than in NIDDM patients (20%).^[2]

Recent survey estimated that there are more than 40 million diabetes mellitus patients in India. Presently 5.6 million subjects have diabetic retinopathy and expecting 79.4 million at 2030 posing great impact on public health which has to be effectively managed.

Hemorrhage is one of the most common features in diabetic retinopathy right from the early stage, which may cause gross visual impairment and further lead to

advanced eye diseases like retinal detachment.^[2]

AYURVEDIC REVIEW

1. *Netra Prakashika* has mentioned *Granthi* and *Meha Roga* as the cause of eye disease.^[3]
2. *Netra Upadeha* is a *Purvarupa* of *Prameha*.^[5]

The dominance of *Bahu Drava Sleshma* greatly disturbs *Alochaka Pitta* by increasing its *Dravatwa*. This *Samprapti* results in *Kaphaja Raktapitta* or *Urdhwaga Raktapitta*.(A.H.Ni.3.7)

The changes in blood vessels of retina can be understood by the concept of *Srotodusti* as follows;

- **Ati Pravritti** : neo vascularisation
- **Sanga** : retinal vein or artery occlusion
- **Vimarga Gamana** : exudates in retina
- **Sira Granti** : micro aneurysms

CHIKITSA

The management in diabetic retinopathy is aimed at both preventing further damage and relieving the complaints.

The following line of treatment is advised:

- *Kleda* : *Harana*
- *Rakta Vaha Sroto Dusti* : *Harana*

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- Vata : Anulomana
- Sopha : Harana

External procedures like *Takra Dhara* and *Shirolepa* which is *Srotorodhahara*, is adopted to reduce *Sanga* and *Siragranti* and also to reduce the risk of further *Kaphakopa*.^[3]

Modern Review

Diabetic Retinopathy is the most common diabetic eye disease which is caused by changes in the blood vessels of retina. In this condition, either there will be abnormal new blood vessels on the surface of retina or swelling and leaking of blood vessel.^[6]

Classification

1. Non proliferative diabetic retinopathy
2. Proliferative diabetic retinopathy
3. Diabetic Maculopathy
4. Advanced diabetic eye disease (ADED).^[7]

Aetiopathogenesis

In diabetic retinopathy there will be loss of intramural pericytes, thickening of the basement membrane and progressive closure of the retinal capillaries. The initial loss of pericytes leads to the formation of dilatations of the vessels seen as micro aneurysms and a breakdown of the blood-retinal barrier, allowing leakage of the vascular contents into the surrounding tissue. Edema is present around such areas, as well as hard exudates and small, localized deep hemorrhages known as dot and blot hemorrhages. In addition there is an increased aggregation of platelets, causing capillary non perfusion. Extensive closure of capillaries leads to ischaemia of the retina. The body attempts to re-establish blood supply by opening up shunt vessels, 'intraretinal micro vascular abnormalities' (IRMA) or by elaborating vasoproliferative substances such as vascular endothelial growth factor, that lead to neovascularization at the border between well and poorly perfused retinal areas. This neovascular tissue is more friable, bleeds easily and incites a fibroblastic response.^[8]

Symptoms

Blurred vision, fluctuating vision, sudden loss of vision, floating spots.^[9]

Signs

Micro aneurysm, retinal hemorrhages, hard exudates, cotton wool spots, intraretinal microvascular abnormalities, dot and blot hemorrhages.^[7]

Management

The key to proper management of Diabetic Retinopathy patients includes prophylaxis by controlling blood sugar and periodical screening of retina, prompt referral for early detection, prevention of progression by appropriate use of laser photocoagulation, surgical correction of various anatomical abnormalities, low vision aids and rehabilitation measures in patients with severe visual loss.

Continuous attempts have been made to find systemic drugs which could reduce or arrest occurrence and progression of diabetic retinopathy. Antiplatelet therapy, lipid reduction, laser photocoagulation, panretinal photocoagulation, focal photocoagulation, peripheral retinal cryoblation, vitrectomy are the treatment adopted usually. The judicious use of laser photocoagulation at the appropriate time has vastly changed the prognosis of diabetic retinopathy.^[10]

A CASE REPORT

A 54 yrs male patient, residing in Bengaluru, Karnataka (India) came to the Shalaky Tantra OPD, Government Ayurveda Medical College, Bengaluru, Karnataka, with following complaints;

Chief complaints

Blurriness of both distant and near vision - since 2 years

Associated complaints

No floaters

History of present illness

A moderately built male patient, aged about 54 consulted minto hospital and Diagnosed as moderte

NPDR in both eye and advised Nepafenac 0.1% for 5 month.

Visual activity before treatment

	Distant vision		Near vision	
	Without glass	With glass	Without glass	With glass
OD	6/12	6/6p	N18	N6
OS	6/12	6/6p	N12P	N6

Treatment given

- *Nishamalaki Churna* 1tsf -0-1tsf 30 days
- *Kachuradi Lepam* E/A to eye 7 days
- *Katakaphala* drops -2⁰-0-2⁰ for 7 days
- *T. Chandraprabha Vati* 1-0-1 for 15 days
- *Maha Manjishtadi Kashayam* 10ml -0 -10ml for 15 days
- *Triphala Guggulu* 1-0-1 for 7 days
- *Takra Dhara* with *Vasakadi Kashaya* for 7 days.

Vasakadi Kashaya

Amalaki soaked in *Vasakadi Kashaya Sidda Takra* for overnight and triturated well and used for *Takradhara*.

DISCUSSION

Diabetic retinopathy is one of the most common microvascular complication of diabetes.

Diabetic retinopathy is essentially a microangiopathy affecting arterioles, venules and capillaries. Chronic hyperglycemia causes damage to small blood vessels; alter their permeability and causes break down of retinal vessels.

The ingredients of *Vasakaadi Kashaya* are *Vasa*, *Abhaya*, *Nimbi*, *Amalaki*, *Musta*, *Patola* and *Vibhitaki*. These drugs have *Tikta Kashaya Rasa*, *Laghu Ruksha Guna* and *Sheeta Veerya* by which it does, *Raktavaha Srotodushti Hara*, *Chakshushya*, *Prameha Hara* and *Medhohara*, which helps in *Prameha Janya Timira*.

Action of Takra Dhara

Action of *Takra Dhara* can be understood in 2 ways - pharmacologic action of substances absorbed through skin (therapeutical effect), the procedural effect of *Takra Dhara* induced by the somato - autonomic reflex through thermo sensors or pressure sensors in skin or hair follicles via trigeminal nerve. The process of *Takra Dhara* might accelerate the function of *Tarpaka Kapha*, and may also bring in the specific action as demanded by the disease condition like blockage of channels by *Kapha* which can be taken as microvascular occlusion which is the basic pathological process seen in diabetic retinopathy. Apart from this, it also helps in the proper nourishment of retina, there by preventing further vascular leakage and the *Chakshushya* property of drugs helps in the improvement of vision. Further, *Takradhara* decreases the sympathetic nervous stimulation there by reducing the rate of metabolic activities and glucose release in to the blood and regulates Diabetes and probably reverse the pathology of DR.

CONCLUSION

Diabetic retinopathy can be considered as *Pramehajanya Timira*. Ayurvedic therapies like *Takradhara*, *Bidalaka* and along with internal medicines has shown significant result. Due to *Vyadhi Chirakari Svabhava* and *Kruchra Saadhyatva* it is difficult to completely reverse the underlying pathology in short duration of study period hence gross changes in fundal photograph could not be observed during this study.

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