

Case Study

Management of Central Retinal Vein Occlusion through Ayurveda: A Case Study

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ABSTRACT

Central retinal vein occlusion (CRVO) is a retinal vascular disease. It present with sudden, unilateral blurred vision to a moderate-severe degree. Ischaemic CRVO constitutes about 20-25 percent of all cases of CRVO while the majority (75-80%) of eyes with CRVO are of the non ischaemic type. The present study deals with the patient of non-ischaemic type. The management of CRVO using various drugs, is still uncertain. Various modulators of the hemorrheological factors have been tried such as anticoagulants, thrombolytics and hemodilution but none of them is of proven benefit so far. In *Ayurveda*, CRVO is caused due to *Raktavaha Sroto Dushti*. Hence treatment was based on *Raktapitta Shamana*. The patient of 42 years old came with complaints of sudden right eye vision loss and centrocecal visual field defect. He was treated with *Vasaguduchyadi Kashaya*, *Shunthi Churna*, *Haritaki Churna* with *Kriyakalpa* procedures like *Tarpana* and *Nasya*. At the end of treatment right eye visual acuity was improved. Fundus examination revealed resolving of retinal haemorrhages. Observations showed that *Ayurvedic* approach is helpful in managing CRVO.

KEYWORDS: *Ayurveda*, Non-ischaemic, *Kriyakalpa*, *Nasya*, *Tarpana*, Visual acuity.

INTRODUCTION

Central retinal vein occlusion (CRVO) is a common retinal vascular disorder. Clinically, CRVO presents with variable visual loss; the fundus may show retinal hemorrhages, dilated tortuous retinal veins, cotton-wool spots, macular oedema, and optic disc oedema. In view of the devastating complications associated with the severe form of CRVO, a number of classifications were described in the literature. All of these classifications take into account the area of retinal capillary non-perfusion and the development of neovascular complications. Broadly, CRVO can be divided into 2 clinical types, ischemic and non-ischemic. Non-ischemic CRVO is the milder form of the disease. It

may present with good vision, few retinal haemorrhages and cotton-wool spots, no relative afferent pupillary defect, and good perfusion to the retina. Non-ischemic CRVO may resolve fully with good visual outcome or may progress to the ischemic type. Ischemic CRVO is the severe form of the disease. CRVO may present initially as the ischemic type, or it may progress from non-ischemic. Usually, ischemic CRVO presents with severe visual loss, extensive retinal haemorrhages and cotton-wool spots, presence of relative afferent pupillary defect, poor perfusion to retina, and presence of severe electroretinographic changes. In addition, patients may end up with neovascular glaucoma and a painful blind eye. Central retinal vein occlusion

(CRVO) and branch retinal vein occlusion constitute the second most common retinal vascular disorder. The non-ischemic type is more common than the ischemic type. In a recent publication, the Beaver Dam Eye Study Group reported the 15-year cumulative incidence of CRVO to be 0.5%. Non-ischemic CRVO may resolve completely without any complications in about 10% of cases. In about 50% of patients, vision may be 20/200 or worse. One third of patients may progress to the ischemic type, commonly in the first 6-12 months after presentation. [1]

Arteriosclerotic changes in the central retinal artery transform the artery into a rigid structure and impinge upon the pliable central retinal vein, causing hemodynamic disturbances, endothelial damage, and thrombus formation. This mechanism explains the fact that there may be an associated arterial disease with central retinal vein occlusion (CRVO). However, this association has not been proven consistently, and various authors disagree on this fact.

Thrombotic occlusion of the central retinal vein can occur as a result of various pathologic insults, including compression of the vein (mechanical pressure due to structural changes in lamina cribrosa, e.g., glaucomatous cupping, inflammatory swelling in optic nerve, orbital disorders); hemodynamic disturbances (associated with hyperdynamic or sluggish circulation); vessel wall changes (e.g., vasculitis); and changes in the blood (e.g., deficiency of thrombolytic factors, increase in clotting factors). [2]

In order to understand the *Samprapti* of Central Retinal Vein Occlusion in *Ayurveda*, general *Samprapti* of eye disease must be considered. *Nidana* of endogenic eye diseases are mainly *Achakshushya* factors which vitiates *Pitta*. [3] The vitiated *Pitta* in turn vitiates the *Pittavaha srotas*. Due to interconnection of *Pitta* and *Rakta*, which shares common *Ashrya Ashrayee bhava*, the *Raktavaha srotas* also gets vitiated due to *Pitta* vitiation. As the *Nidana*

factors are *Achakshushya*, the vitiated *Pitta* and *Rakta* have an affinity towards penetrating the eyes. Hence the vitiated *Dosha* move towards the eyes through *Jatruordhwa Srotas* and finally gets confined to the eyes, there is a stage when the *Sirasrotas* are deeply involved which is known as *Sira Abhisyanda*. [4] The whole pathology of Central Retinal Vein Occlusion which starts with *Srotodusti* of *Raktavaha Srotas* manifested in the form of *Sanga* as haemorrhages (Tomato splash appearance or flame shaped). In this context of *Sira Abhisyanda* in eye diseases the *Ashrya Sthana* is *Rasavaha Srotas*, affected *Dhatu* is *Rakta* and vitiated *Dosha* is *Pitta*.

CASE REPORT

A 42 year old, male reported to the OPD on 24/11/2018 complaining of sudden painless diminution of distant and near vision of right eye with centro caecal field defect since 25 days. Ocular coherence tomography (OCT) of both eyes (done on 1/11/2018): showed central retinal vein occlusion with cilioretinal artery occlusion along with cystoid macular oedema of right eye. Left eye was normal. He has no medical history of hypertension, cardiovascular disease, diabetes. He has no habit of smoking. He was advised to do all medical tests which were within normal limits except homocysteine level serum which was 18.02umol/L. It is an independent risk factor for cardiovascular disease. Patient was treated with topical steroids followed by intra ocular Avastin injection once. He visited to the OPD enquiring *Ayurvedic* solutions for his condition. *Ayurvedic* treatment was started on 26.11.2018 after taking his consent.

Clinical findings: Patient was afebrile. Pulse was 78/ minute. Respiratory Rate was 18/minute and Blood Pressure was 110/80 mmHg. No abnormality was noticed in the functioning of respiratory, circulatory or digestive systems.

Visual examination: Distant visual acuity by Snellen chart in right eye was CF

one metre and left eye was 6/9. Best corrected visual acuity in right eye was 6/12 and left eye was 6/6. Pin hole correction in right eye was 6/18 and left eye was 6/9. Near vision without spectacles was N60 in right eye and N6 in left eye.

Ocular examination: Eyelids, conjunctiva, sclera, cornea and anterior chamber were normal in both eyes. Pupils were of normal size and of normal reaction. Both lens were clear. Intra Ocular Pressure [IOP] by Schiotz Tonometry was 17.3mmHg in right eye and 18.9mmHg in left eye. Direct Ophthalmoscopy revealed attenuated and tortuous, superficial flame shaped hemorrhages and macular oedema in right eye. Left eye was within normal limits.

Dashavidha Pareeksha (~Tenfold Examination): Prakriti of the patient was Vatapitta. Pitta pradhana tridosha vikriti such as Urdhwaga raktapitta (intra-retinal haemorrhages) was observed during the analysis. Satwa (~psyche), Sara (~excellence of tissues), Samhanana (~compactness of organs), Ahara shakti (~power of food intake and digestive functions), Vyayama shakti (~power of performing exercises), Satmya (~suitability)

and Pramana (~measurements of body organs) of the patient were of Madhyama (~moderate) level.

Ashtavidha Pareeksha (~Eightfold Examination): Nadi (~pulse), Mutra (~urine) and Shabda (~voice) were Sadharana (~normal). Bowels were regular, Jihwa (~tongue) was Anupalepa (~non-coated), Sparsha (~touch) was Anushna sheeta (~normal temperature), Akriti (body built) was Madhyama (~moderate) and Drik (vision) was Heena (~diminished vision).

Sroto Pareeksha (~Examination of body channels): Raktavaha srotas (~blood circulating channels) is involved in this manifestation and the pathology is Vimarga gamana (~flowing abnormal or in opposite directions) that possibly manifested as haemorrhages in retina.

Diagnostic assessment: Fundus examination was done which confirm the diagnosis of CRVO with cilioretinal artery occlusion and macular oedema which was earlier confirmed by OCT (Optical coherence tomography). Hematological findings were within normal limits except homocysteine level serum which was 18.02umol/L.

Table 1: Therapeutic interventions adopted

Purpose	Drug	Dose	Anupana	Duration
Deepana-Pachana	Shunthi Churna	2gm	Lukewarm water	Two times before food for 7 days
Koshtha shodhana	Haritaki Churna	2gm	Lukewarm water	At bed time for 7 days
Pratimarsha Nasya	Anu Taila	2 drops in each nostril		In the morning for 7 days in the beginning
Shamana Yoga	Vasaguduchyadi Kashaya	10ml	Lukewarm water	In morning and evening before food for 3 months
Nasya	Ksheerbala Taila	8 drops in each nostril		In the morning two sitting with gap of 7 days for 7 days for one month
Tarpana	Patoladi Ghiita	40ml		In the morning for 2 months three sittings with gap of 7 days for 7 days.

Therapeutic intervention: The interventions adopted in the present case are placed at Table-1. It was decided to continue the same intervention for 2 month more with same treatment plan. Two follow-ups were done with an interval of 15 days.

RESULT



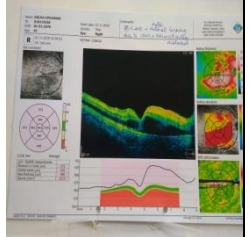

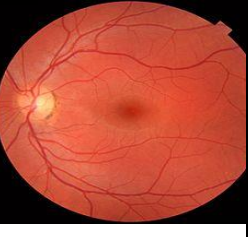
There was improvement in both distant and near visual acuity(Table-2) but no improvement was seen in centrocecal field defect Fundus examination revealed

reduction in superficial flame shaped haemorrhages with reduced macular oedema in right eye(Fig 4 and 5). Visual acuity was maintained during the follow-up period.

Table 2: Improvement in vision

	RIGHT EYE		LEFT EYE	
	BT	AT	BT	AT
DV	CF 2m	6/18	6/9	6/6
BCVA	6/12	6/9	6/6	6/6
pH	6/60	6/9	6/9	6/6
NVA	N60	N6	N6	N6

DV- Distant Vision; BCVA- Best Corrected Visual Acuity; PH- Pin Hole Correction; NV- Near Vision

				
Fig 1: Fundus photo right eye before treatment. Superficial flame shaped haemorrhage with cilioretinal artery occlusion and macular oedema	Fig 2: Fundus photo left eye before treatment. Normal picture without any changes.	Fig 3: OCT report of right eye before treatment. Retinal haemorrhage with macular oedema was noticed.	Fig 4: Fundus photo right eye after treatment. Flamed shaped haemorrhages resolved and macular oedema reduced.	Fig 5: Fundus photo left eye after treatment. Normal picture without any changes.

DISCUSSION

According to the contemporary science, no known effective medical treatment is available for the treatment of Central Retinal Vein Occlusion. Main aim of the treatment is to identify and treat any systemic medical problems to reduce the further complications. As the main cause of Central Retinal Vein Occlusion is unknown various treatment modalities like cortico steroid therapy, Anti Vasculo endothelial growth factor injections, Fibrinolytic agents, lasers are advocated, but these treatment are not having satisfactory result.^[5] Ayurvedic approach towards CRVO with *Pitta-rakta Shamana* drugs was quite promising and helpful in restoring the vision of patient. The *Vasaguduchyadi Kashaya* has medicines of *Tikta* and *Kashaya Rasa* hence has *Pittaprashaman* properties. It is indicated for treating *Panduroga*, *Raktapitta* and *Kamala*,^[6] so it can be used in haemorrhage. Due to intake of *Achakshushya Dravya* there is accumulation of *Ama* which is responsible for *Srotoavrodha* which leads to *Vyana Vayu Vaishamaya* and responsible for *Vimarggamana* causing retinal haemorrhage. *Shunthi* has *Madhura Vipaka* and *Ushna Virya* properties which are helpful in removing *Ama*. Also the features of CRVO are similar to *Urdhwga Raktapitta* condition and *Koshtha Sodhana* was used for *Pratilomahara Chikitsa*.^[7] Acharya Charaka and Vagbhata describe NASA as *Sirasodwaram*, which is the easiest and adjoining opening for administration of

medicines to the cranial cavity. *Nasya Karma* provides strength to the *Indriya* and also do *Srotoshodhana*. *Nasya* was done with *Ksheerabala Taila* due to its *Vata Shamaka*^[8] property and help to correct the *Vayana Vayu Vaishamya*. *Patoladi Ghrita* has *Tikta* and *Kashaya Rasa* with *Pittarakta Shamana* properties which correct the pathology of *Raktavaha Sroto Dushti* and also has *Shophahara* property which reduced the macular oedema.

The improvement in the near vision may be due to reduction in macular oedema. No adverse events were noticed during the course of treatment and follow-up period too. The patient has stopped the allopathic medicines before the treatment. He was entirely on Ayurvedic treatment.

CONCLUSION

To restore back the vision is the most challenging task in Central Retinal Vein Occlusion. The present case study showed marked improvement in visual acuity with reduction in retinal haemorrhage and macular oedema. It proves that Ayurvedic management in retinal disorders is quite encouraging and it is an area of research in future.

ACKNOWLEDGEMENTS

Financial and other support from IPGT & RA, Jamnagar, Gujarat is acknowledge

Conflicts of Interest: None declared

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How to cite this article: Gupta SP, Vaghela DB. et al Management of central retinal vein occlusion through *Ayurveda*: A Case Study. Int J Health Sci Res. 2019; 9(5):448-452.
