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Case Study

ROLE OF AYURVEDA IN THE MANAGEMENT OF CENTRAL RETINAL VEIN OCCLUSION- A CASE REPORT

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ABSTRACT

Retinal Venous Occlusion (RVO) is one among the most common retinal vascular diseases. It is of two types, central retinal venous occlusion and branch retinal venous occlusion. In the management of CRVO various modulators of the hemorrheological factors have been tried such as anticoagulants, thrombolytic and hemodilution but none of them is of proven benefit so far. In Ayurveda this condition is managed as *Urdhwagaraktapitta* (Bleeding through upper orifices) causing *Drishtigatavikara* (visual impairment) and emergency managements mainly include *Rakta-pittasamana Vataanulomana* and *Raktaprasadana.* Illustrating a case of 36-year-old male patient presented with sudden onset of blurry vision of left eye for 4 days. Further investigations confirmed the diagnosis of non-ischemic CRVO with cystoid macular oedema and serous foveal detachment of left eye. This ocular emergency is then managed with *Virechanam* (purgation) in daily dose and internal medicines. After 7 days of treatment patient got marked relief and vision improved from 6/60 to 6/9 for left eye. The assessment was done using Visual Acuity, Fundus examination, and Optical Coherence Tomography (OCT), which showed marked reduction in macular oedema also. This case encapsulating the role of Ayurveda treatments in management and restoration of visual status in serious illness like CRVO.

INTRODUCTION

Retinal venous occlusion is one among the most common retinal vascular diseases. It is predominantly of two types, central retinal venous occlusion and branch retinal venous occlusion. CRVO presents with variable visual loss; the fundus may show retinal hemorrhages (Tomato splash appearance or flame shaped), dilated tortuous retinal veins, cotton-wool spots, macular oedema, and optic disc oedema. Risk factors includes age (older than 65), Hypertension, Hyperlipidemia, Diabetes mellitus, Glaucoma, Oral contraceptive pill and Smoking[1]. Among these systemic hypertension is the strongest independent risk factor especially in the older age group.

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The association between RVO (CRVO in particular) and glaucoma/ocular hypertension has been widely reported in various studies.[2] CRVO is actually of two types, Non-ischemic type and Ischemic type. Non-ischemic CRVO is a comparatively benign disease, causes blurring of vision with permanent central scotoma as the major complication from cystoid macular edema. Ischemic CRVO is a seriously blinding disease, and neovascular glaucoma is its major complication. Thus a central retinal vein occlusion can induce an ischemic and hypoxic state with resulting sequelae of macular edema and neovascularisation.[3]

It is the occurrence of macular edema in retinal vein occlusion that most frequently leads to visual loss. It is likely that the sudden retinal ischemia that occurs in BRVO and more so in CRVO will induce excessive VEGF production and vascular permeability induced by VEGF will contribute to the macular edema. So even if the primary venous obstruction was overcome the macular edema can persist for much longer due to a self-perpetuating cycle of VEGF-induced vascular

permeability leading to macular edema, capillary damage, and retinal ischemia, stimulating further release of VEGF and other inflammatory cytokines leading to chronic macular edema [4].

Hyperhomocysteinemia and anti-phospholipid antibodies are reported to be significantly more common in the patients with CRVO. [5] It is believed that hyperhomocysteinemia leads to endothelial cell damage, reduction in the vessels flexibility, and alters the process of haemostasis. Hyperhomocysteinemia may also cause effects of risk factors like hypertension, smoking, lipid and lipoprotein metabolism, as well as promotion of the development of inflammation [6]. Deficiencies of the naturally occurring anticoagulants such as protein C, S, and anti-thrombin III may also be a contributing factor for RVOs [7].

CRVO can be compared with *Raktavahasroto dushti lakshanas* (vitiation for channels carrying blood) along with involvement of *Kapha dosa* and *Rasadhatu dushti*. Involvements of these factors can be confirmed by signs like hemorrhages, abnormal structure and loss of integrity of blood vessels such as tortuosity, dilation and endothelial damage. While treating all the morbidities of *Srotas* (channels) and *Dhatus* (vital elements) utmost care should be given to *Vata dosa* as it is the prime *Dosa* responsible for the functioning and regulation of all sense organs. So during management of all these conditions proper *Vataanulomana* should be maintained.

CASE REPORT

36-year-old male patient reported in the OPD with compliant of sudden onset of blurry vision for left eye. The problems started 4 days ago without any warning symptoms. During these days' patient noticed darkness in front of objects while looking with left eye, especially for brighter objects such as Mobile screen. These objects appear as covered with black cloth but he can see the light which is dispersing around the light source. On the same day itself he consulted an eye hospital from there he took OCT scan for both eye (done on 17/6/21) which showed CME with SFD, suspected CRVO, and central retinal thickness was 420µm for left eye (Figure 1). Right eye was normal. Then he was directed for anti VEGF injections. But due to poor economic circumstances he refused. On further blood investigations found to have Hyperlipidemia and all other findings were within normal limit. He was a K/C/O DM for the past 4 months, with HbA1c was >10, which is under control now.

Because of these vision problems, he was unable to do his work and drive properly. Then he consulted in OPD and on examination visual acuity was found reduced to 6/60 for left eye and right was 6/6. Near vision without spectacles was N36 in left eye and N6 in right eye. On dilated fundus examination of left eye revealed tortuous and dilated veins, blot hemorrhages and CSME which are suspicious of CRVO. No history of trauma and Physical assessment revealed normal limits. He followed irregular food habits and his mental status was also disturbed at that time due to financial crisis. So he was mentally stressed and passing through a depressed phase of life. He visited the OPD for an alternative emergency management to avoid the IVJ before it is schedule. Ayurvedic treatment was started on 21.06.2021 after taking his consent.

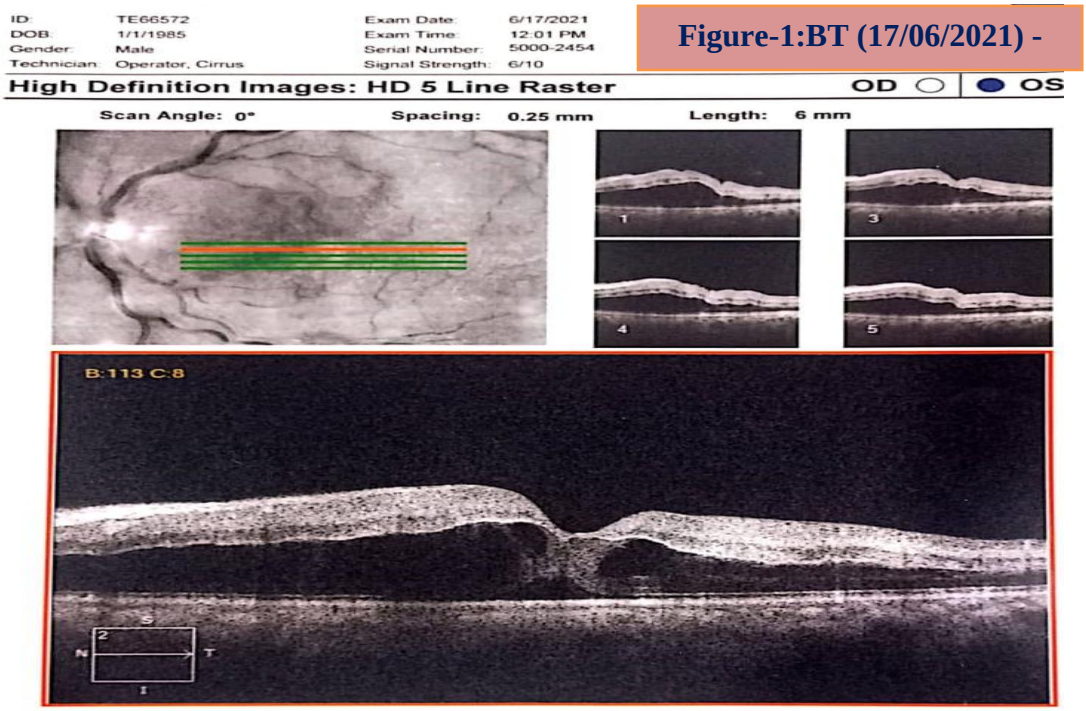

Figure-1:BT (17/06/2021) -

Figure 1: OCT scan –left eye-before treatment

Table 1: Treatment

Medicines	Dosage
Padolaadikasaya churnam	90ml twice daily –Before food
Avipathy churnam	15gm with *Kashaya* at night
Thriphala churnam	5gm with honey at night
Tab. Chandraprabha DS	1-0-1 After food
Tab. Saptamritha loham	1-0-1 After food
Yashtitriphala kashaya sekam	Twice daily

RESULT

There was improvement in both distant and near visual acuity in the first review itself. Medications continued for 7 more days and before second review OCT scan repeated for left eye only (on 01/07/2021); showed marked reduction in Cystoid macular edema and central retinal thickness is 252µm (Figure 2). Fundus examination revealed reduction in superficial flame shaped hemorrhages with reduced macular edema in left eye. By this time Visual acuity restored almost completely and maintained during the follow-up period. Even though his visual status improved markedly mild form of clarity problem persisted in left eye. For this he continued medications for 4 more weeks.

Table-2: Visual Acuity

Date		OD	OS
BT	21/06/21	6/6	6/60
AT(1ST review)	27/06/21	6/6	6/9 with strain
AT(2nd review)	04/07/21	6/6	6/6 (P)

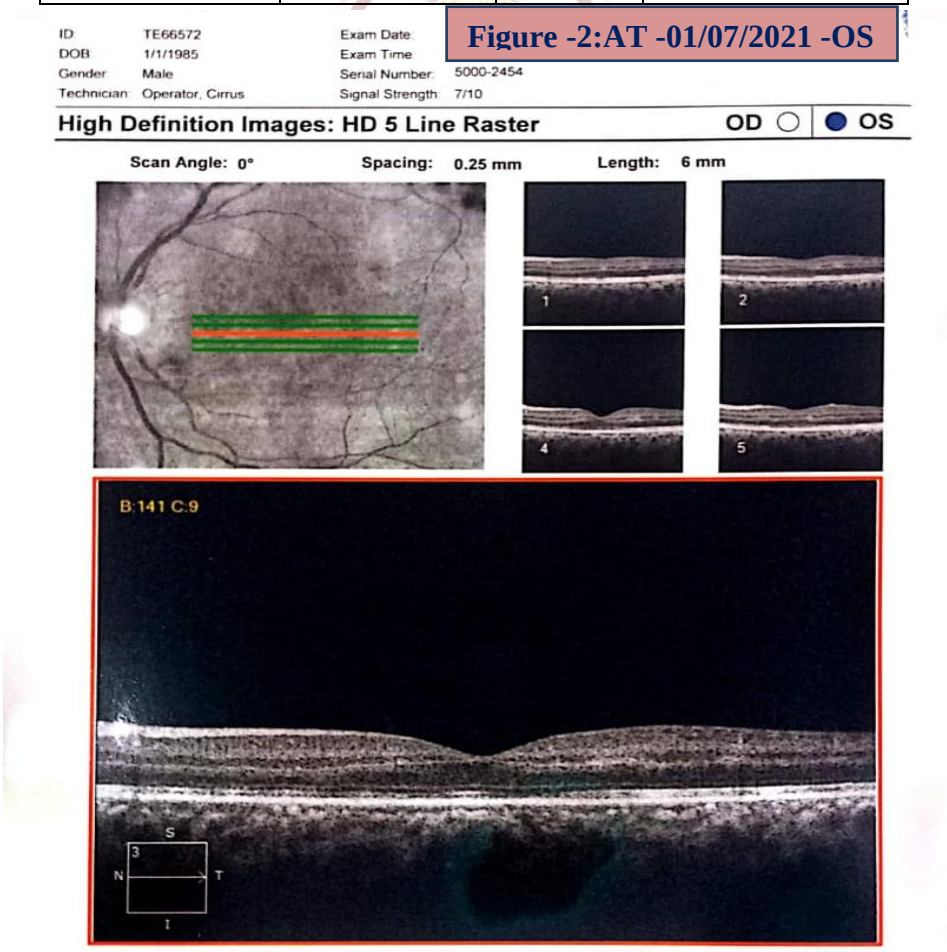

Figure -2:AT -01/07/2021 -OS

Figure -2 OCT scan –LE – After treatment

DISCUSSION

In Ayurveda *Rakta dhatu* is considered as the vital factor for maintaining life. In *Sonithavarnaneeya adhyaya* Susrutha samhita mentioned *Rakta* is the root cause for sustenance of the body that maintains the vitality hence it should be preserved with utmost care. And those having *Visudha rakta* (pure blood) in body the sense organs are cheerful, and having a normal inclination towards the perception of sense objects [8]. There exist a strong interrelation between *Rakta* and *Pitta*, which can be substantiated by analyzing the concept of considering *Pitta* as *Mala* of *Rakta dhatu* and *Asrayaasrayee bhava* (reciprocal relation) reveals Pitta is dependent on *Sweda* and *Rakta*. Because of the reciprocal relationship when *Pitta* vitiates *Rakta* also vitiate and medicines which brings about increase or decrease of one factor automatically brings about the same state to related factor [9]. Generally food and behaviour which are similar in *Dosa* and dissimilar to *Dhatus* in properties cause Morbidity in *Srotas*. Most common diet factors involved in the *Rakta dushti* are *Teekshna* (strong), *Amla* (sour), *Katu* (pungent) *Rasa* and *Dhadhi* (curd), *Madya* (alcohol) *Kshara ahaara* (alkali) and regimens includes sleeping after food intake, excessive food intake, exposure to sunlight and wind, suppression of urges like *Chardi* (vomiting) lack of bloodletting in proper time, *Ajeernam* (indigestion) injury and autumn season. [10] Vitiated *Srotas* will cause *Atipravritti* (excessive activity), *Sanga* (obstruction) or *Grandhi* (enlargements) of respective *Dhatus*. In case of *Rakta dhatu* these will be in the forms of Hemorrhage or bleeding, infarcts or as thrombus, emboli or microaneurysms. Vitiated *Rakta* will manifest different diseases like *Raktapitta, kushta, Vata shonitha* and along with *Rasa dathu* cause *Sopha, Pandu* etc.

Rasa is the essence derived from food. Intake of heavy, cold, excess fatty food items, increased thoughts and mental strain leads to the morbidities of *Rasa dhatu*. *Rakta* is derived from *Rasa dhatu* as a result of *Dhatu parinama* (transformation of *Dhatu*) In *Raktapitta* vitiated *Dosas* will moves in two directions either in upward or downward. While moving upward *Kapha* will be *Anubandha dosa* (associated *Dosa*) and causes bleeding through nose, eyes ears and through all seven openings. *Chintha* (excessive thinking), *Soka* (depression), *Baya* (fear), *Krodha* (anger) are the psychological factors which are readily present in this patient. These factors acted as causative factors for *Rasa-Rakta dushti*, the same is also considered as a cause of visual disturbance like *Dhumara* (blurring of vision) and *Thimira* (subjective blurring of vision) [11].

CRVO can be compared with *Raktavaha sroto dushti* and the treatment modalities used in *Rakta-pitta*, *Vata Rakta, Kusta* and *Sopha* can be adopted depending on the severity of the presentation. So the treatment principle adopted will be *Sroto sodhana* (purification of *Srotases*) *Raktapitta samana* (alleviation of *Raktapitta*) and *Raktaprasadana*. *Acharya Vagbhata* detailed the *Raktapittahara kriya* as *virechana*, *Upavasa* (fasting), *Raktasravana* (elimination of *Rakta*) along with *Pathya* (wholesome practices) such as *Laghu* (light), *Deepaneeya annapana* (carminative foods) and *Agni* (digestive fire) should be protected with care [12]. CRVO can be considered as a form of *Urdhwaga raktapitta* with *Kapha anubandha*, where heamorrhages are coming out from upper part. While incorporating *Pratimargaharana* (treatments through opposite direction of bleeding) as treatment principle again *Virechana* will come as the treatment of choice as it is the best remedy for alleviation of *Pitta* and also not ineffective for *Kapha.* Usage of drugs having *Madhura* (sweet), *Tikta* (bitter) and *Kasaya* (astringent) *Rasa* are also inevitable. Along with these ocular therapeutic *Seka* (pouring of medicines over closed eyelids) a potent form of *Netra kriyakalpa* (ocular therapeutics) and mainly indicated in acute condition of the eye diseases also utilized here. *Drava sweda* is best in relieving the *Pitta samsrusta vyadhi* (*Pitta pradhana* diseases) which is indirectly called as *Seka* [13].

CONCLUSION

It can be considered as a first line management for an acute case of ocular emergency which yield maximum result with restoration of normal environment. This case is a classic example demonstrating the impact of prompt and timely consultation and management for resolving an acute condition of macular edema. In retinal vein occlusion the most frequent cause for visual loss is macular edema and thus in this case the visual acuity is regained to almost normal status after the reduction of edema. Along with *Virechana* use of *Rakta-pitta samana* drugs like *Patolaadi gana* and *Netra prasadana* (nutritive to eyes) drugs like *Thriphala churnam*, *Saptamrita loha* contributed much to the regain the health of blood vessels, absorption of hemorrhages and improvement in visual acuity. Evidently this case illustrated the role of Ayurveda in the first line management of ocular emergencies like CRVO and resolving an acute condition of macular edema with restoration visual status.

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