



Case Study

ROLE OF AYURVEDA IN THE MANAGEMENT OF BRANCH RETINAL VEIN OCCLUSION

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ABSTRACT

Branch retinal vein occlusion (BRVO) is a common retinal vascular disorder that can lead to visual impairment and is frequently complicated by cystoid macular oedema (CME). Systemic inflammation, stress, and post-COVID vascular dysregulation have been recognized as potential contributing factors. This case report describes a 36-year-old male patient who presented with a history of sudden painless onset of blurred vision in the Left eye, accompanied by metamorphosia. Ocular examination revealed reduced visual acuity in the left eye with inferotemporal retinal haemorrhages. Optical Coherence Tomography showed significant macular oedema with a central macular thickness (CMT) of 482 µm, consistent with BRVO-associated CME. Systemic evaluation and laboratory investigations were within normal limits. The clinical condition paralleled *Saraktha sannipatha kacham*. Here, the patient was managed with Ayurvedic interventions, including internal medications such as *Dasamoola Kashayam*, *Vaiswanara choornam*, *Chandraprabha Tablet*, *Gokshura Choornam*, *Trivrit Choornam*, and ocular procedures like *Yashti Lodhra Sekam* and *Mukkadipurampada*. Over a 10-month follow-up, visual acuity improved to 6/9, with resolution of macular oedema and normalization of foveal contour (CMT 248 µm). This case suggests a potential role of Ayurveda in the management of BRVO with associated macular oedema, particularly in post-COVID vascular pathology.

INTRODUCTION

Retinal vein thrombosis is closely linked with advancing age and is influenced by both local ocular and systemic vascular factors. It represents the second most prevalent retinal vascular disorder after diabetic retinopathy. In branch retinal vein occlusion (BRVO), sclerosis and thickening of a retinal arteriole at an arteriovenous crossing point exert mechanical compression on the adjacent venule, a process further intensified by the presence of a shared adventitial sheath. This anatomical configuration initiates a cascade of pathological events, including endothelial injury, altered haemodynamics with turbulent blood flow, and subsequent thrombus formation. Atherosclerotic changes in the artery can compromise venous outflow, predisposing to venous occlusion.

Although systemic haematological pro-thrombotic states contribute in a limited subset of cases, they are generally considered to exacerbate an existing anatomical and vascular vulnerability^[1]. COVID-19 infection has been implicated as a potential contributory factor in the development of vascular occlusive disorders, owing to its association with a heightened thromboembolic tendency^[2]. Following venous obstruction, increased venous and capillary hydrostatic pressure leads to stagnation of circulation and retinal hypoxia. This hypoxic environment results in endothelial damage, increased vascular permeability with leakage of blood components, and the release of vasoactive mediators such as vascular endothelial growth factor (VEGF), which play a central role in the development of retinal oedema and subsequent visual impairment^[1].

The management of BRVO includes addressing associated systemic and ocular risk factors, along with careful observation and periodic monitoring. Therapeutic strategies are mainly directed towards the treatment of macular oedema and prevention or control of retinal neovascularisation. Conventional

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medical management comprises intravitreal pharmacotherapy which are effective in reducing cystoid macular oedema and inhibiting neovascular changes. Intravitreal corticosteroids have also been employed for macular oedema associated with venous occlusive disease. Laser-based are utilized in selected cases to manage retinal ischemia and neovascular complications. Surgical procedures such as pars plana vitrectomy are reserved for advanced or refractory conditions, including non-resolving vitreous haemorrhage, tractional retinal detachment, epiretinal membrane formation, and neovascular glaucoma secondary to retinal vein occlusion^[3].

From an Ayurvedic standpoint, Branch Retinal Vein Occlusion (BRVO) with macular oedema, characterized by a gradual and painless diminution of vision, can be correlated with *Drishtigata Roga*, particularly *Timira* and *Kacha*. The condition exhibits involvement of *Tridosha*, where in *Vata* contributes to vascular obstruction, *Pitta* along with *Rakta*, is responsible for hemorrhagic changes, and *Kapha* leads to fluid accumulation, manifesting as macular oedema^[4].

Case History

A 36-year-old moderately built male presented to the outpatient department on 27 December 2022 with complaints of sudden onset, painless blurring of vision associated with metamorphopsia in the left eye, persisting for two months. There was no documented history of systemic illness; however, the patient reported significant occupational and psychological stress during the same period, along with irregular sleep patterns, suggestive of unrecognized stress-related hypertension. The patient had a history of COVID-19 infection coinciding with the onset of visual symptoms. The patient was a known case of compound myopic astigmatism and had been using corrective spectacles since the age of 18 years. Prior to presenting to our hospital, he had received a single intravitreal anti-vascular endothelial growth factor (anti-VEGF) injection at another centre; this intervention did not result in sustained improvement in visual acuity. Due to progressive symptoms, he subsequently attended our OPD seeking alternative therapeutic options.

Diagnostic Assessment

Pt evaluation at the time of OPD visit
Bowel habits, appetite and micturition were normal. Sleep was disturbed. The patient had a history of occupational and psychological stress. He had no known comorbidities such as hypertension, diabetes mellitus, or dyslipidemia. Family history- Nil

Visual Acuity Assessment

UCVA	6/24(OD)	6/60(OS)	27/12/2022
BCVA	6/9(OD)	6/60(OS)	
Anterior Segment Examination	WNL-B/E		
Posterior Segment Examination (Dilated Fundus Examination)	Fundal glow Media Optic disc Cup-Disc Ratio Macula Foveal Reflex Vessels General background	OD Present Clear Round 0.3 WNL Present WNL WNL	OS Present Clear Round 0.3 Cystoid macular oedema, haemorrhages. Absent Dilated and tortuous veins, sclerotic arteries. Flame-shaped, dot, and blot haemorrhages in the inferotemporal area.
OCT finding	Profuse cystoid macular oedema (CME) with central macular thickness (CMT) of 482µm and distortion of foveal architecture (OS).		
Diagnosis	BRVO With ME (OS)		

Therapeutic Intervention

Internal medicines

S.No	Drug	Dose
1	Dasamoola Kashayam	90 ml twice daily before food
2	Vaiswanara choornam	5g Choorna twice daily with lukewarm water before food
3	Chandraprabha Tablet	1 tablet twice daily after food
4	Gokshura choornam	5g Choorna twice daily with lukewarm water after food
5	Thrivrit choornam	5g Choorna once daily with lukewarm water after food

External therapy

S.No	Medicine	Duration
1	Yashti + Lodhra kashayam Sekam	Twice daily
2	Mukkadi Puarpada-Vidalakam	Twice daily

RESULT

The patient was under internal and external medications. His vision was improved to UCVA 6/12 and N8 and BCVA- 6/9 and N6 (OS) after 10 months of Ayurvedic treatment. The patient showed resolution of macular oedema, with restoration of normal foveal contour with CMT-248µm. Fundus examination was done, which shows satisfactory results.

Assessment of objective parameters

	Before treatment (27/12/2022) (At the time of first visit)	After treatment (16/10/2023) (After 10 months of treatment)	Follow-up (after 11 months) 18/09/2024
Visual Acuity	UCVA-6/24, N10(OD) 6/60, N12 (OS) BCVA-6/9, N6(OD) 6/60, N12(OS)	UCVA-6/18, N8(OD) 6/12, N8(OS) BCVA-6/6(P), N6(OD) 6/9, N6(OS)	UCVA-6/18, N6(OD) -6/12, N8(OS) BCVA-6/6, N6(OD) 6/6(P), N6(OS)
OCT-Macula (OS)	Fig (1)	Fig (2)	Fig (3)
Fundus Photo (OS)	Fig (4)	Fig (5)	Fig (6)

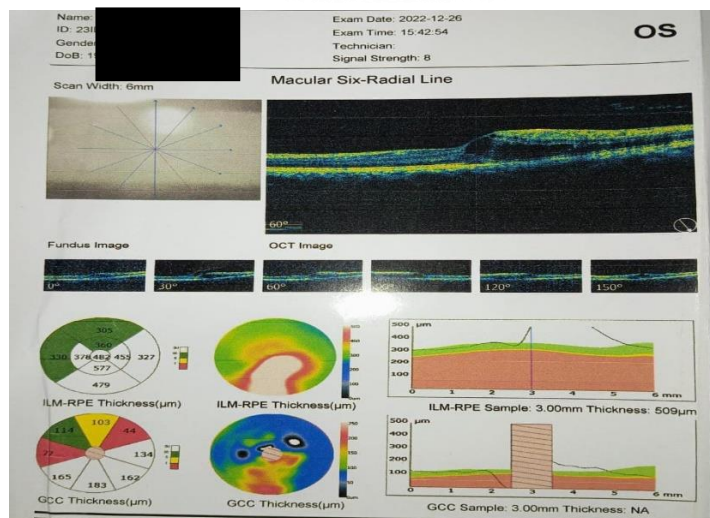


Fig 1

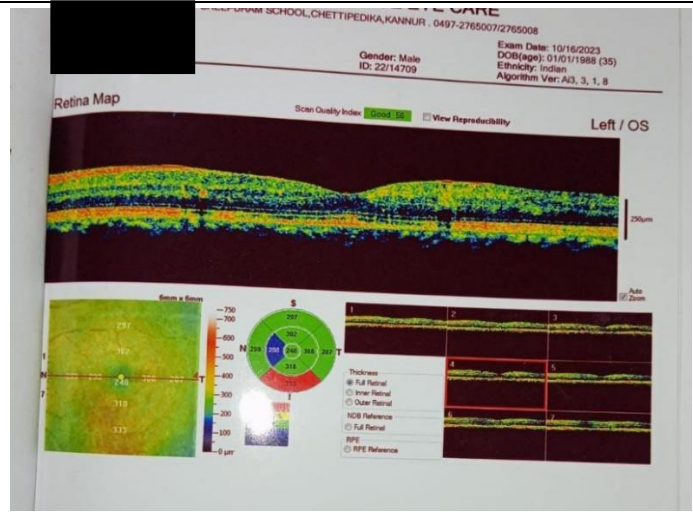


Fig 2

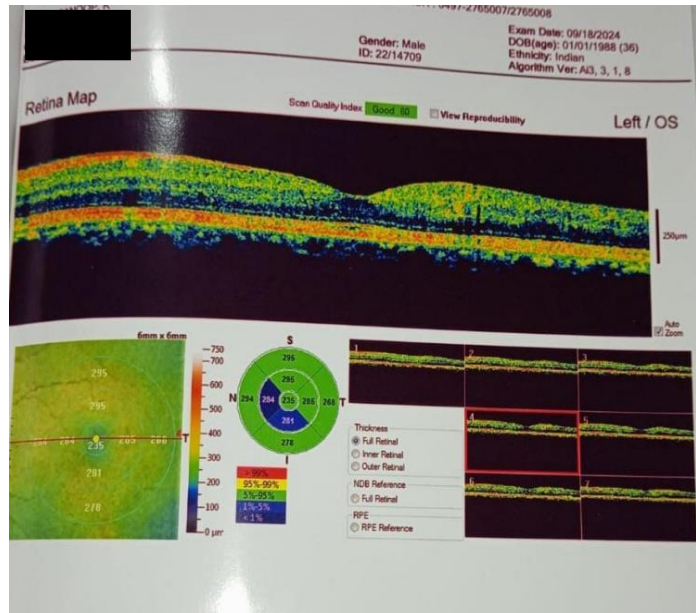


Fig 3



Fig 4

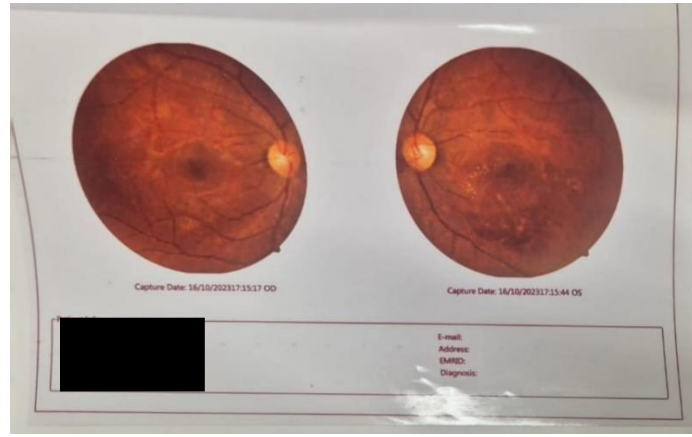


Fig 5



Fig 6

DISCUSSION

Due to *Rathrijagarana*, physical and mental stress, there occurs *Vatakopa*, resulting in *Rasavahasrotodushti* leading to impaired function of *Rakthadhatu*. Also occurs *Rakthavaha srothosanga* results in vascular occlusion, due to impaired function of *Pitta dosha*; no proper transportation of metabolites will occur, resulting in stagnation of metabolites, which leads to loss of pericytes, endothelial injury and breakage of vessels, finally resulting in haemorrhages, including flame-shaped and dot and blot haemorrhage. Here, the leaked fluid get accumulates in the retinal tissue can be correlated with *Kapha dushti*. Additionally, cotton-wool spots may be explained by *Sanga*, wherein obstruction leads to inadequate tissue perfusion and hypoxia, ultimately resulting in localized infarction of retinal nerve fibre layers.

Role of Internal Medications

Daśamūla Kaṣayam, as elaborated in the *Caraka Saṁhita (Sūtrasthana)*, is classified under *Śothahara Mahakaṣaya* and is traditionally indicated for conditions associated with inflammation and *Tridoṣa* imbalance. Owing to its *Śothahara* and *Tridoṣa-śamaka* properties, it is considered beneficial in alleviating inflammatory oedema and improving microcirculatory dynamics through the mitigation of *Srotorodha*. In the context of venous retinal vascular occlusion, this therapeutic action may contribute to the resolution of macular oedema. Furthermore, the

constituent drugs of *Daśamūla* are known to contain bioactive phytochemicals such as alkaloids, tannins, and flavonoids, which collectively impart anti-inflammatory and vasoprotective effects, supporting its clinical utility in vascular inflammatory conditions^[5].

Vaiśvanara Cūrṇa derives its name from *Vaiśvanara*, denoting *Agni*, and is traditionally indicated for enhancing digestive and metabolic functions. The formulation comprises drugs that predominantly exhibit *Agni-varadhaka* action along with mild *Anulomana* properties. In the early phase of management, it facilitates *Doṣa pacana* and *Agni Dīpana*, thereby preventing the formation of *Ama*. By restoring proper metabolic activity, it helps in correcting systemic dysregulation, which is particularly relevant in chronic vascular conditions where impaired digestion and metabolism contribute to *Srotorodha* and circulatory stagnation^[6].

Chandraprabha Vaṭi is a classical polyherbal-mineral formulation comprising multiple ingredients, with *Śilajatu* and *Guggulu* as its principal components. It predominantly exhibits *Katu* and *Tikta Rasa*, *Laghu* and *Rūkṣa Guṇa*, *Uṣṇa Vīrya*, and *Katu Vipaka*, thereby exerting *Tridoṣa-śamaka* action with a marked influence on *Vata* and *Kapha*. Owing to its *Rasayana* and *Balya* attributes, *Chandraprabha Vaṭi* supports systemic vitality and metabolic balance while also

functioning as a bio-enhancer that facilitates the therapeutic efficacy of co-administered drugs. Its *Laghu* and *Rūkṣa* qualities aid in the alleviation of excessive *Bahudrava shleshma* and contribute to the correction of Kapha vitiation, making it relevant in conditions characterized by metabolic derangement and obstructive pathology^[7].

Gokṣura Cūrṇa possesses *Madhura Rasa*, *Guru* and *Snigdha Guṇa*, *Śīta Vīrya*, and *Madhura Vipaka*, conferring *Bṛṃhaṇa* and *Rasayana* properties. It is traditionally indicated as *Vata-Kaphahara*, *Mūtrala*, and *Śothahara*, thereby supporting its role in conditions involving inflammation, fluid retention, and vascular dysfunction.

Contemporary phytopharmacological studies have demonstrated that *Tribulus terrestris* exhibits anti-spasmodic, anti-inflammatory, and diuretic activities, which contribute to its antihypertensive potential. Additionally, its lipid-lowering effect, evidenced by reductions in serum and hepatic cholesterol levels, further supports its utility in systemic metabolic and vascular disorders^[8].

Trivṛt Cūrṇa, when administered as a *Nitya Virechana* therapy, offers a reliable method to correct *Doṣa* imbalances and modulate the underlying pathophysiological processes of disease. This intervention promotes systemic cleansing by facilitating the elimination of excess *Kapha*, *Pitta*, *Vata*, and associated *Mala* along with retained fluids, thereby supporting homeostasis and restoring normal physiological function^[9].

The *Yoga Yaṣṭi Lodhra Kaṣayam* is a classical formulation characterized by *Madhura Rasa*, *Laghu* and *Snigdha Guṇa*, *Śīta Vīrya*, and *Madhura Vipaka*, with a primary action of *Vata-Pitta hara* and mild *Kapha-samanatvam* attributable to *Lodhra*. This formulation exhibits specific therapeutic qualities such as *Chakṣuṣya*, *Netraroga-hara*, and *Balya*, supporting ocular health and visual function. The combined action of *Yaṣṭimadhu* and *Lodhra* in both internal administration and *Śeka* therapy is indicated in conditions such as *Netra Śoṭha* and *Abhiṣyanda*. *Yaṣṭimadhu* contributes *Chakṣuṣya*, *Pitta-hara*, and *Rakta-prasadana* effects, while *Lodhra* provides *Stambhana* and *Śothahara* properties, which are particularly beneficial in reducing capillary leakage and alleviating retinal oedema^[10].

Mukkadi Bidalaka is classically employed in the management of inflammatory eye disorders characterized by pain, redness, swelling, and abnormal ocular discharge. The formulation primarily contains ingredients with hemostatic properties that help in pacifying aggravated *Pitta* and *Rakta*. Owing to these pharmacological actions, it has been applied in cases of branch retinal vein occlusion to support the resolution of retinal haemorrhages and macular oedema. The bioactive constituents are believed to penetrate

transdermally, entering the systemic circulation, where they may contribute to the correction of retinal vascular pathology and promote the clearance of excess subretinal fluid at the macula^[11].

CONCLUSION

This case report highlights the potential role of Ayurveda in the management of branch retinal vein occlusion (BRVO) complicated by cystoid macular oedema, particularly in the context of post-COVID vascular dysregulation. The patient, a 36-year-old male with sudden, painless visual diminution and metamorphopsia, demonstrated inferotemporal retinal haemorrhages and significant macular oedema on optical coherence tomography. Over a 10-month period of comprehensive Ayurvedic management-including internal medications such as *Daśamūla Kaṣayam*, *Vaiśvanara Cūrṇa*, *Chandraprabha Vaṭi*, *Gokṣura Cūrṇa*, and *Trivṛt Cūrṇa*, alongside ocular procedures like *Yaṣṭi Lodhra Śekam* and *Mukkadi Purampada*- the patient exhibited gradual improvement in visual acuity (BCVA 6/9) and complete resolution of macular oedema with restoration of normal foveal contour (CMT 248 μm).

The therapeutic outcomes can be attributed to the combined anti-inflammatory, *Vata-Pitta* pacifying, microcirculation-enhancing, and *Rasayana* properties of the prescribed formulations, along with cleansing and localised ocular interventions that support vascular integrity and reduce subretinal fluid accumulation. From an Ayurvedic perspective, the management addressed *Tridoṣa* imbalance, *Rakta-Pitta* vitiation, and *Kapha*-associated fluid stagnation, correlating well with the observed clinical features of BRVO and macular oedema.

This case demonstrates that integrative Ayurvedic interventions may offer a safe and effective approach for improving visual outcomes and resolving macular oedema in BRVO patients, especially when conventional therapy alone is insufficient or partially effective.

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