ejpmr, 2021,8(8), 432-436.

SJIF Impact Factor 6.222

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Case Study

ISSN 2394-3211

EJPMR

AYURVEDIC MANAGEMENT OF BRANCH RETINAL VEIN OCCLUSION – A CASE STUDY

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Article Received on 31/05/2021 **Article Revised on 21/06/2021** **Article Accepted on 11/07/2021**

ABSTRACT

Retinal vein occlusion (RVO) is the second most common retinal vascular disorder after diabetic retinopathy. Branch Retinal Venous Occlusion is a venous occlusion at any branch of the central retinal vein. BRVO has many known ophthalmic and systemic risk factors including age, hypertension, hyperlipidemia, ocular hypertension, and glaucoma. BRVO presents as sudden onset of painless unilateral visual field defect, metamorphopsia. Its complications are Retinal hemorrhage and chronic Cystoid macular edema (CME) leading to poor visual acuity. The pathogenesis of BRVO includes a combination of mechanical compression, degenerative changes in vessel walls or hypercoagulable factors. The arteriosclerotic changes occurs specifically arteriovenous crossing which result in venule occlusion through endothelial cell damage and thrombosis. Arteriosclerosis results in arteriolar insufficiency leading to BRVO. This can lead to retinal non perfusion area and even macular edema or vitreous haemorrhage, seriously hampering vision. A male patient of 53 years came to OPD with field vision defects and sudden painless blurred vision in right eye since 2 months. He was a known case of hypertension since 20 years. Vision in right eye was 6/60 partial and near vision N-18 with and without spectacles. Associated with double vision, abnormal colour vision and distorted vision. Patient uses laptop daily for 10 to 12 hours daily. Disturbed sleep at night about 4 to 5 hours daily. Clinical diagnosis of Branch Retinal Venous Occlusion was conformed with OCT and Fundus Angiography. On examination fundus shows Retinal haemorrhage and chronic Cystoid Macular Edema (CME). Patient was treated with topical steroids followed by intra ocular injection in modern hospital before visiting our hospital. He was admitted and treated in S.D.M Institute of Ayurveda and Hospital, Bangalore with *Kriya Kalpa* Treatments and internal medicines for 20 days. Hypertension, stress, disturbed sleep and exposure to laptop were found to be *Nidanas* of BRVO in this patient. 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 *Siro Abhisyanda* in eye diseases the *Ashraya Sthana* is *Rasavaha Srotas*, affected *Dhatu* is *Rakta* and vitiated Dosha is Pitta. Based on Lakshanas this condition was diagnosised as *Pitha Kapha Pradhana Tridoshaja Tritiya Palatagatha Timira* and was treated. Treatment was planed after Virechana Karma, followed by *Kriyakalpas* like *Seka* with *Yashtimadhu Ksheera Paka, Bidalaka* with *Triphala, Vasa Patra Kalka, Thalapodichil Lodra, Chandhana, Yastimadhu, Laksha, Amalaki churna* and *Kashaya Dhara* with *Mustha Amalaki Kashayam* was done for 9 days. The internal medicines like *Kaishora Guggulu, Vasaguluchyadi Kashaya, Punarnava Kashaya* and lifestyle changes were advised for 1 month. The fundus photographs and OCT were taken before and after treatment. The patient was assessed clinically for visual symptoms. Visual acuity has been improved to 6/12 and N-8 after 1 month. Metamorphopsia (Distortion of images) was significantly reduced which was recorded by Amsler grid. Color vision was recorded by Ischiara colour chart. The results proved to be significant on the basis of clinical assessment and OCT. According to the contemporary science, no known effective medical treatment is available for the treatment of Branch Retinal Vein Occlusion. Main aim of the treatment is to identify and treat any systemic medical problems to reduce the further complications. 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.

KEYWORDS: BRVO, CME, Retinal haemorrhage.

INTRODUCTION

Branch Retinal Venous Occlusion is a venous occlusion at any branch of the central retinal vein. Retinal vein occlusions are more common than the artery occlusions. Retinal vein occlusion (RVO) is the second most common retinal vascular disorder after diabetic

retinopathy. These typically affect elderly patients in sixth or seventh decade of life.

Retinal Vein Occlusions are mainly classified into Central retinal vein occlusion (CRVO) and Branch retinal vein occlusion (BRVO). It may be non-ischaemic CRVO (venous stasis retinopathy) or ischaemic CRVO (haemorrhagic retinopathy). Centeral Retinal Vein Occlusion Non-ischaemic CRVO Non-ischaemic CRVO (venous stasis retinopathy) is the most common clinical variety (75%). It is characterised by mild to moderate visual loss and no RAPD.[1]

Branch retinal vein occlusion (BRVO) is more common than the central retinal vein occlusion. It may occur as hemispheric occlusion due to occlusion in the main branch at the disc. Quadrantic occlusion occurs due to occlusion at the level of AV crossing, and small branch occlusion either as macular branch occlusion or peripheral branch occlusion. Features of BRVO are retinal oedema and haemorrhages are limited to the area drained by the affected vein. Vision is affected only when the macular area is involved. Secondary glaucoma occurs rarely in these cases. Chronic macular oedema and neovascularization may occur as complications of BRVO in about one third cases.

Prevalence: In 2015, the global prevalence of any RVO, BRVO and CRVO in people aged 30-89 years was 0.77%, 0.64% and 0.13%, translating to a total of 28.06 million, 23.38 million and 4.67 million affected individuals respectively. For any RVO, the pooled five-year cumulative incidence was 0.86% and the pooled ten-year cumulative incidence was 1.63%. Except for advanced age, another five risk factors for any RVO were confirmed, which were hypertension, heart attack history, stroke history, higher level of total cholesterol and higher level of creatinine.[2]

Etiology: Pressure on the vein by an atherosclerotic retinal artery where the two share a common adventitia (e.g. just behind the lamina cribrosa and at arteriovenous crossings), secondarily induces thrombosis in the lumen of vein. Hypertension and diabetes mellitus are common predisposing factors. Hyperviscosity of blood found in polycythemia, hyperlipidemia, macroglobulinemia, leukemia, multiple myeloma, cryoglobulinemia can be a causative factor. Periphlebitis retinae which can be central or peripheral associated with sarcoidosis, syphillis, SLE and raised intraocular pressure can be a cause. Central retinal vein occlusion is more common in patients with primary open-angle glaucoma. Local causes are orbital cellulitis, orbital tumors, facial erysipelas and cavernous sinus thrombosis.

Ocular examination should include visual acuity, at presentation and at every follow up, is a useful guide for the interventions required. IOP should be recorded and associated POAG should be ruled out. Undilated slit-lamp examination is to detect neovascularization of iris (NVI). Gonioscopy is done to rule out neovascularization of angle (NVA). Fundus examination is done with direct and indirect ophthalmoscopy and with 90D slit-lamp examination. Ocular investigations should include Goldmann perimetry and ERG evaluation is very important in differentiating between ischaemic and non-ischaemic CRVO. Fundus fluorescein angiography (FFA) should be carried out to assess state of retinal perfusion after resolution of retinal haemorrhage. Usually areas of capillary non-perfusion (CNP) of more than 10 disc area are seen in ischaemic CRVO. Optical coherence tomography (OCT) is particularly useful for evaluation of macular oedema, subretinal fluid accumulation and development of epiretinal membrane (ERM).[3]

Systemic examination and investigations which need to be looked for are Hypertension, diabetes mellitus, heart diseases, dyslipidaemia, hypercoagulative conditions, and homocysteinosis, especially in young patients. Treatment of systemic and ocular associations such as hypertension, diabetes, hyperlipidaemias, hyperhomocysteinaemia, POAG, and other conditions is important in all cases. Smoking should be avoided.

Treatment: Medical therapy, presently in vogue is Intravitreal anti-VEGFs, e.g., 1.25 mg , Bevacizumab (Avastin), or 0.3 mg Ranibizumab (Lucentis) are useful for the associated CME and neovascularization. Intravitreal triamcinolone (1 mg/0.1 ml) may be given for the associated CME. Repeated injections of anti-VEGFs, and triamcinolone may be required. Laser therapy: Grid laser is recommended in persistent CME in BRVO. Panretinal photocoagulation should be performed without delay in CRVO when neovascularization develops anywhere, i.e., in angle (NVA), iris (NVE), retina (NVE & NVD). PRP involves application of 1500–3000 burns (0.5–1.0 second), spaced one burn width apart using frequency doubling YAG laser or argon green laser. Scatter laser photocoagulation is recommended for neovascularization else where (NVE) in patients with BRVOs. Surgical therapy may be required in the form of Pars plana vitrectomy for treating the complications associated with venous occlusions as persistent vitreous haemorrhage, tractional retinal detachment, Epiretinal Membrane (ERM), and intractable NeoVascular Glaucoma (NVG).[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 *Siro Abhisyanda* in eye diseases the *Ashraya Sthana* is *Rasavaha Srotas*, affected *Dhatu* is *Rakta* and vitiated Dosha is Pitta. Based on Lakshanas this condition BRVO was diagnosised as *Pitha Kapha Pradhana Tridoshaja Tritiya Palatagatha Timira* and was treated. There is marked Srothorodham in Drishtipatalam. Changes in the Drishti Patalam is seen as the obstruction of the retinal veins leading to stagnation

of blood in the vein. This leads to odema, haemorrhages and perfusion leading to exudates. Due to ischemia, neovascularisation takes place.

Role of *Doshas* is *Tridoshaja Vyadhi*. *Kapha Dosha* is *Snigdha, Sthira, Guru gunas* of *Kapha* are increased and confined to the *Srothas.* As a result the fluid inside the vessel becomes stagnant. *Sara, Drava gunas* of *Pitha* is decreased resulting in obstructions or occlusions. Vitiated *Pitta Dosha* leads to haemorrhages inside the retina. *Vata Dosha* helps in circulation of fluid inside the vessels mainly by *Vyana Vayu*. Due to vitiation of the *Srotas* by *Kapha* and *Pitha,* the function of *Vyanavayu* is deranged.[5]

AIMS AND OBJECTIVES

To Explore the Ayurvedic treatment modalities for Branch Retinal Vein Occlusion, To Evaluate the Nidanas for BRVO, To Evaluate the Pathophysiology of BRVO.

MATERIALS AND METHODS

A male patient of 53 years came to OPD SDMIAH, Bangalore, with complaints of field vision defects and sudden painless blurred vision in right eye since 10 days. He was a known case of hypertension since 20 years which is uncontrolled. Vision in right eye was 6/60 partial and near vision N-18 with and without spectacles. Associated with double vision, abnormal colour vision and distorted vision. On examination fundus shows retinal haemorrhage and chronic Cystoid Macular Edema (CME). Clinical diagnosis of Branch Retinal Venous Occlusion was conformed with OCT and Fundus Angiography. Patient was treated with topical steroids followed by intra ocular injection in modern hospital before visiting our hospital.

Vyakthika Vrithantha: Patient uses laptop daily for 10 to 12 hours daily without any break. Disturbed sleep at night about 4 to 5 hours daily. Food habit was regular intake of hot and spicy *Katu Rasa, Ushna Guru* and *Abhishyadhi Ahara*. *Naadi* of the patient was *Pitta Kaphaja*.

Pathogenesis: *Nidanas* seen in this patient *was Hetusevan (Katu, Ushna* Guru, Abhishyadhi *Aahar*) hypertension, stress, disturbed sleep and exposure to laptop for longer duration. This leads to *Pitta Prakopa*. *Purvarupa* was inability to identify the colors and distorted vision. *Rupa* was retinal haemorrhage, diminished vision. *Dosha* and *Dushya* are *Pitta* and *Rakta. Vyaktha Sthana* was Right Eye. *Chikitsa* was planned for this patient was *Pitta Raktha Shamaka Chikitsa.* He was admitted and treated in S.D.M Institute of Ayurveda and Hospital, Bangalore with *Kriya Kalpa* Treatments and internal medicines for 20 days.

Samprapti **-**Patient was having *Guru, Abhishyandhi, Achakshushya Aahara* and *Vihara,* as a result there was *Kapha Prakopa, Rasa, Rakta* and *Majja Dushti* . This leads to *Kaphaj Dhamani Pratichaya* resulting into *Sanga* and *Vimargagamana*[6] in adjacent Siras and leading to *Pitha Kapha Pradhana Tridoshaja Tritiya Palatagatha Timira*.

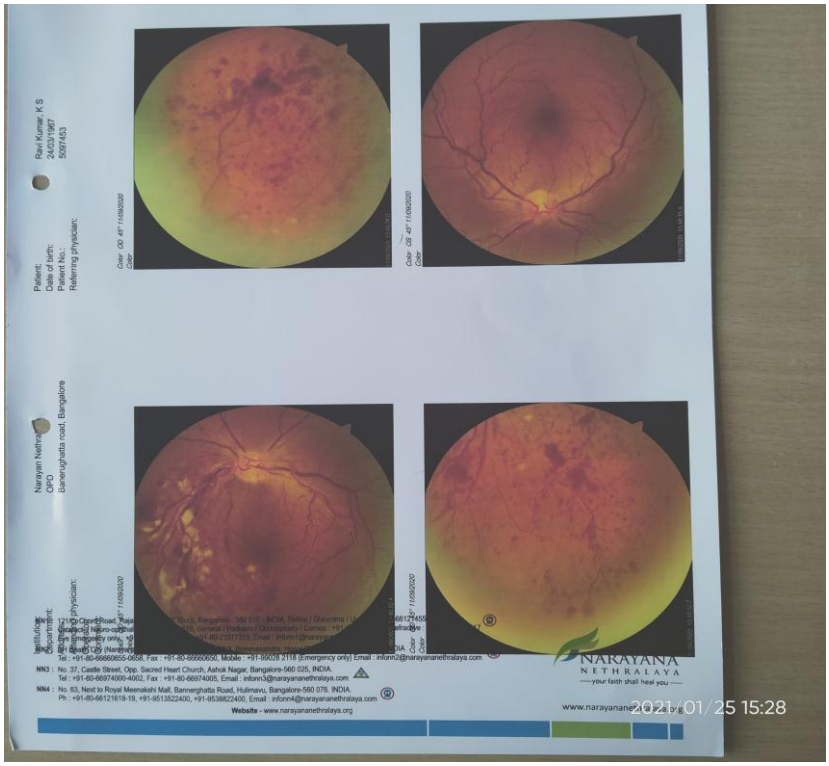
Treatment Details

Treatment was planed after Virechana Karma, followed by *Kriyakalpas* like *Seka* with *Yashtimadhu Ksheera Paka, Bidalaka* with *Triphala, Vasa Patra Kalka, Thalapodichil Lodra, Chandhana, Yastimadhu, Laksha, Amalaki churna* and *Kashaya Dhara* with *Mustha Amalaki Kashayam* was done for 9 days. The internal medicines like *Kaishora Guggulu, Vasaguluchyadi Kashaya, Punarnava Kashaya* and lifestyle changes were advised for 1 month. Medicines were given to the patient for 1 months and follow up was taken every 15 days for 1 month.

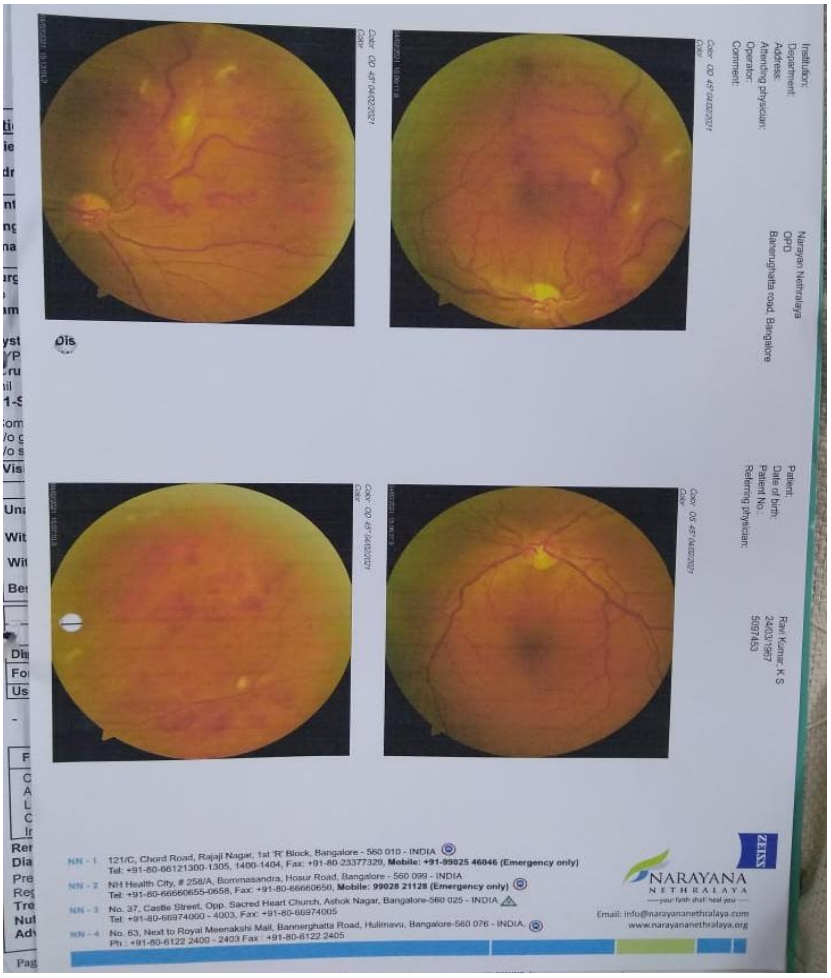
OBSERVATIONS AND RESULT

Visual Acuity: The vision showed marked improvement for distant and near objects. The patient was assessed clinically for visual symptoms. Visual acuity has been improved to 6/12 and N-8 after 1 month. Metamorphopsia (Distortion of images) was significantly reduced (recorded by Amsler grid). Color vision was recorded by Ischiara chart & color light source which improved totally. Retinal hemorrhage resolved completely as seen in fundoscopy. Macular edema was evaluated by OCT which was done before and after treatment. The fundus photographs and OCT were taken before and after treatment.

Before treatment



After treatment



DISCUSSION

Branch retinal venous occlusion is second most common vascular disorder found in retina. It usually forms due to venous obstruction at arteriovenous crossing. The arteriolar thickening plays a major role in obstructing the venous return from retina. This can lead to retinal non perfusion area and even macular edema or vitreous haemorrhage, seriously hampering vision. It causes a major visual impairment when macula is involved. Consequent retinal haemorrhage and CME together can lead to complete or partial blindness. The patient was having a sedentary lifestyle with *Katu, Ushna, Guru, Abhishyandhi Aahar*, uncontrolled hypertension, stress, disturbed sleep and exposure to electronic gadgets for a long time vitiated *Pitha Dosha* causing *Atipravruthi* of vitiated *Raktha Dosha*. The patient developed accumulation of *Kapha Dosha* in *Siras* and thus causing obstruction to the normal flow causing blockages in vein. Symptoms seen can be correlated with of *Tridoshaja Tritiya Palatagatha Timira.*

Classical *Virechana* was done with *Snehapana with Sapthamiritha Gritam* followed by *Virechana* with *Trivrith Lehyam 80gms with Draksha Kashayam.*

Kriyakalpas procedures like *Seka* with *Yashtimadhu Ksheera Paka were done which is best Pitha Shamaka. Bidalaka* with *Triphala churna mixed with Vasa Patra Kalka is applied*. *Thalapodichil with paste of Lodra, Chandhana, Yastimadhu, Laksha and Amalaki churna is done in the head which are all Pitha Shamaka drugs*. *Kashaya Dhara* with *Mustha Amalaki Kashayam to head* was done for 9 days. He was advised to avoid Abhishandhi and Guru Aahara and increase Laghu Aahara like Peya, Mudga Yusha, Stali Pishta, Tikta Rasa Pradhan Ahara. Patient was advised to take intermittent ocular rest 20-20-20 rule eye excercise, correction and modification in his sleeping habits and moderate walking.

The internal medicines like *Kaishora Guggulu 1 tab TID, Vasaguluchyadi Kashaya* 15 ml TID, *Punarnava Kashaya* 15 ml TID, and lifestyle changes were advised for 1 month. *Vasaguluchyadi Kashayam* is a drug which contains *Tikta, Kashaya Rasa*. *Tikta Rasa* reduces and absorbs *Kledatwa, Medhas Kaphahara and Raktaprasadaka*. As it is made of *Vayu* and *Akasha Mahabhuta* it helps to reduce *Prithvi* and *Jala*. It reduces *Kapha Dosha* and makes the clear pathway for *Vatha* and *Rakta*. Kaishora Guggulu is having properties like *Kaphaghna, Vataghna* and *Raktaprasaadana*. Hence it is used in diseases where *Kaphapradhana Sanga* is present. Sharangdhara has mentioned that when used with Vasadi Kashaya, Kaishore Guggulu is useful in *Netrarogas*.[7] *Bidalaka* is a *Kriya Kalpa* procedure in which medicines are applied in the form of paste around eyeball. It helps to reduce Abhisyanda (inflammation). Most of the eye diseases, *Abhishyanda* is the *Nimitha Karana*. Hence *Bidalaka* is used in this patient to reduce inflammation. *Punarnava* is having *Shodhaghna* property. Due to *Laghu* Guna, it reduces blockage to *Vata* by the help of *Kapha*. It brings *Vata Dosha* back into *Koshtha* from the external *Siras.*

CONCLUSION

BRVO is a major vision threatening disease and understood in Ayurveda as *Srothorodham* in *Dhrishtipatalam*. Treatment is aimed at *Srothosudhi* which will drain the *Malas* of *Srothas* and improve circulation. BRVO has been diagnosised as *Tridoshaja Tritiya Palatagatha Timira*. The treatment given in this patient helped in improving the symptoms of BRVO and lifestyle modifications helped him to prevent recurrence. *Kriyakalpa* procedures like *Seka, Bidalaka, Thalapodichil* and internal medicines helps in reducing the symptoms in this case. The patient had symptomatic relief with significant improvement in visual acuity & color vision and metamorphosia was observed. However, the pharmacodynamics and pharmacological action of internal medicines on the macular area and retinal blood vessels and effect of *Kriyakalpa* procedures needs further study.

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