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Case Study

AYURVEDIC APPROACH IN THE MANAGEMENT OF HYPERTENSIVE RETINOPATHY- A CASE BASED PERSPECTIVE

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ABSTRACT

Hypertensive Retinopathy (HR) is a retinal vascular disorder that arise due to the sustained elevated systemic arterial blood pressure. It is characterized by a progressive sequence of vascular changes including arteriolar narrowing, arteriovenous impingement, hemorrhages, cotton wool spots and hard exudates. Preventive measures for hypertensive retinopathy (HR) can be effectively supported through Ayurveda. **Aim:** This study aims to investigate the significant impact of Ayurvedic treatment modalities on Hypertensive retinopathy (HR) via proper diagnostic approaches and effective preventive strategies. **Methodology:** Ayurvedic clinical case report demonstrate suggestive benefits in the management of Hypertensive Retinopathy (HR). A 50 years old hypertensive female presented with decreased vision in right eye since two weeks. The unaided distant visual acuity (DVA) was 6/24, 6/18 in both eyes respectively. **Observation and Results:** After strict BP control, and ocular preventive and *Rasayana* regimens, visual acuity got improved to 6/6(P), 6/6 in right and left eye along with the resolving of haemorrhage, leakage and neovascularisation. **Conclusion:** Ayurvedic therapies show promise in enhancing vascular health, reducing inflammation, and managing oxidative stress, all of which are critical in preventing or slowing the progression of hypertensive retinopathy.

INTRODUCTION

Hypertension is a disease that affects more than 1 billion of individuals throughout the world and is one among the leading causes of death.[1] In patients with hypertensive crisis, a secondary cause of hypertension must be suspected, and among them, Reno vascular disease is one of the most frequent causes, accounting from 0.2 to 32% of cases.[2] Systemic hypertension is a prevalent chronic health condition in India, often under-reported especially in its early stages. It is a well-established risk factor that can lead to damage in target organs. Since the retina is a sensory neural tissue, it is mostly susceptible to the effects of high blood pressure, resulting in various adverse outcomes like Central Retinal Artery or vein occlusions. Among these conditions, hypertensive retinopathy is considered as the most prevalent cause.[3]

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Hypertensive retinopathy (HR; ICD code- H35.031) is the observable consequence of raised blood pressure on the retinal microvasculature, resulting vascular damage. There are three stages of hypertensive retinopathy, initially a vasoconstrictive phase which is characterized by generalized retinal arteriolar narrowing, then a sclerotic phase in which focal arteriolar attenuation and wall opacification and finally the exudative phase which sees the retinal micro aneurysms, haemorrhages, hard exudates and cotton-wool spots appear[4]. As per the Ayurvedic point of view, the *Khavaigunya* manifested results in *Srotodustilakshanas* like *Atipravrti*, *Sanga* ending up in haemorrhage and leakage. So, in this case along with appropriate life style modifications, *Srotosodhana* and *Tridoshahara Chikitsa* should be adopted. Early detection and appropriate management are essential to prevent permanent visual impairment and to address the underlying systemic risks.

Patient information

A 50-year-old woman presented to the Out Patient Department, reporting sudden onset of decreased vision in right eye over the previous two weeks. She did not report any eye trauma and her past

ocular history was unremarkable. The patient had a 15-years history of HTN and was on conventional medications (tablet of Telmisartan (40.0mg)-HS + Clinidipine (5.0 mg)-OD) since then. The patient had a normal appetite and regular bowel movements and proper micturition. Sleep quality was normal. No allergies have been reported to date. Her immediate family members did not have any ophthalmic problems. She was not addicted on caffeine, alcohol, or tobacco. The patient was obese with 108kg weight, 150cm height and with BMI of 48kg/m^2 and had a blood pressure of 150/90 mmHg, and a pulse rate of 74 beats per minute. Rest blood parameters seemed to be normal. Ayurvedic assessment like *Astavidha Pareeksha* (eight-fold Ayurveda examination) revealed that the patients *Nadi* (pulse) was *Vata-Kapha* predominance*, Mutra (*urine) was normal to four to five times per day*, Jihva (*tongue) was *Sama, Shabda* (voice) was *Spashta (*clear*), Mala* (stool) and *Sparsha* (touch) was *Prakruta* (normal)*. Drik* (eyes) was *Aspashta* (unclear*)* and *Akriti* (body built*)* was *Madhyama* (moderate)*. Dasavidapareeksha* (tenfold Ayurveda examination) showed that the patients *Prakriti* (constitution) was of *Kapha-Vata.* The *Vaya* (age), *Satva* (psyche), *Sara* (tissue excellence)*, Samhanana* (body compactness)*, Pramana* (anthropometry)*, Satmya* (adaptability)*, Aharashakti* (digestive and nutritional capacity)*, Vyayama Shakti* (capacity for physical activity) were of *Madhyama* (optimal) in status*.*

Clinical findings

The unaided distant visual acuity (DVA) was 6/24, 6/18 in both eyes respectively. Pinhole examination showed 6/18, 6/12 in both eyes as per Snellen's chart. The aided distant visual acuity was 6/18, 6/6(P) in right and left eye with spectacle corrected of +2.00 Dioptre Spherical bilaterally. Unaided near visual acuity (NVA) was N8 in both eyes, while aided NVA was N6 in both eyes. The intraocular pressure was 14.3mmHg in the right and 17.3mmHg in the left eye. Pupils are equal, round and reactive to light and accommodation.

Diagnostic assessment

As the patient is having history of hypertension since 15 years, mandatory tests including fundus examination and Optical Coherence Tomography (OCT) was properly assessed. Fundus examination showed normal optic disc in terms of size shape colour and cup disc ratio (CDR). Dot and blot haemorrhage along with cotton wool spots and hard exudates was seen in the superior temporal quadrant of RE. Vessels seemed to be mild tortuous in nature with AV crossing (bonnet sign). Neovascularisation elsewhere (NVE) was present in superior temporal quadrant. In LE, a dot haemorrhage with hard exudate was seen in the inferior quadrant along with mild tortuosity of vessels. Therefore, based on Keith and Wagner's classification, the patient was diagnosed with grade 3 HR (RE). OCT examination revealed thinning in the central subfield region, measuring 224µm in the right eye and 213 µm in the left eye. Slit-lamp bio-microscopy examination showed immature senile cataracts in both eyes.

Time line

The patient approached our OPD for Ayurveda management on April 25, 2025 and continued treatment up to May 27, 2025. The total duration of treatment was 33 days.

Table 1: Detailed timeline

Date	Event	Visual acuity	Fundus examination	OCT
April 25, 2025	Diminished vision RE since 2 weeks. Systemic examination revealed blood pressure of 150/90mmHg	Unaided DVA-Snellen's chart shows 6/24, 6/18 in both eyes respectively. Pinhole-improved to 6/18, 6/12 in both eyes. Aided DVA-was 6/18, 6/6(P) in right and left eye. Unaided NVA-N8 in B/E. Aided (NVA) N6 in B/E	RE: Dot and blot Haemorrhage, NVE, Cotton wool spots and Hard exudates observed in the superior temporal quadrant of the fundus with impingement of veins at the AV crossing-Bonnet sign and tortuous vessels. LE-A dot haemorrhage and a hard exudate at the inferior temporal quadrant along with mild tortous vessels.	OCT (7/4/2025)-central macular Thickness-224µm (RE), 213µm (LE). Corresponding fundal pathological changes seen in OCT.
May 27, 2025	Vision improved in both eyes	Unaided DVA-Snellen's chart shows 6/18, 6/9 in both eyes respectively. Pinhole-improved to 6/9, 6/6 in both eyes. Aided DVA-was 6/6(P), 6/6 in	RE: Dot and blot haemorrhage, NVE, cotton wool spots and hard exudates reduced. As observed in the superior temporal quadrant of the	OCT (21/5/2025)-central macular thickness-232 µm (RE), 229 µm (LE)

		right and left eye. Unaided NVA-N8 in B/E. Aided (NVA) N6 in B/E.	fundus. LE-A dot haemorrhage at the inferior temporal quadrant resolved.	

Therapeutic intervention

The treatment is aimed for normalizing the retinal pathology by strengthening the retinal vasculature and to maintain the proper retinal circulation which could definitely address the hypoxia and leakage ending up in hypertensive retinopathy. The treatment was proceeded with internal medications, local procedures like *Sirolepa*, *Bidalaka*, *Takradhara* was also administered to the patient. Patient was advised to take anti-hypertensive medication properly.

Table 2: Internal medications

Internal Medicine	Dose	*Anupana*	Frequency	Time of administration
Manjishtadi Kwath	20ml	-	Twice	Before food
Avipattikara Churna	5g	LWW	Once	Night–after food
Chandraprabha Vati	1 tab	Water	Twice	After food
Rasayana Churna	5g	Water	Once	Morning- empty stomach

Table 3: Treatment Procedure

Dates	Drugs	Procedure	Duration	Frequency/ Interval	Time of procedure
25/4/2025 to 27/5/2025	*Lodhra Churna Triphala Churna, Yashti Churna.*	*Bidalaka*	20-30min	Twice	Morning and evening.
	Lodhra, Churna, Yashti Churna, Manjishta Churna	*Netra Seka*	15 min	Twice	Morning and evening.
1/5/2025 To 7/5/2025	*Amalaki Musta Churna*	*Takradhara*	30 min	Once	Morning
14/5/2025 to 24/5/2025	*Amalaki Musta Churna*	*Takradhara*	30 min	Once	Morning

Figures

Fig 1: Right eye with Grade 3 Hypertensive retinopathy (25/4/2025)

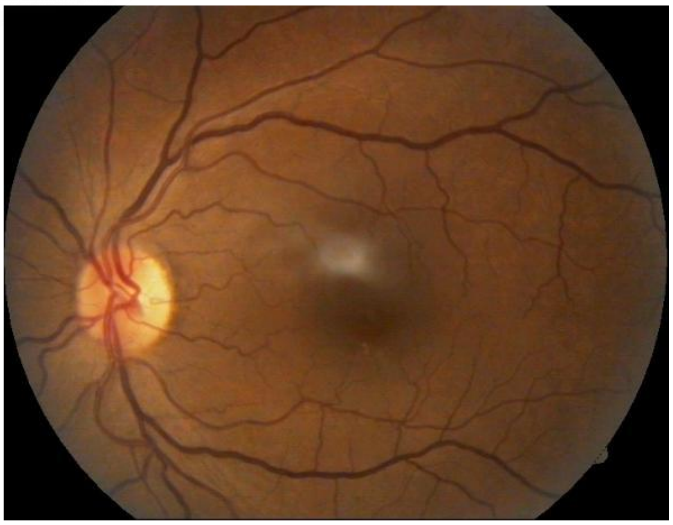

Fig 2- Left eye Grade 1 Hypertensive retinopathy (25/4/2025)

Fig 3: RE with resolving hypertensive Retinopathy (27/5/2025)

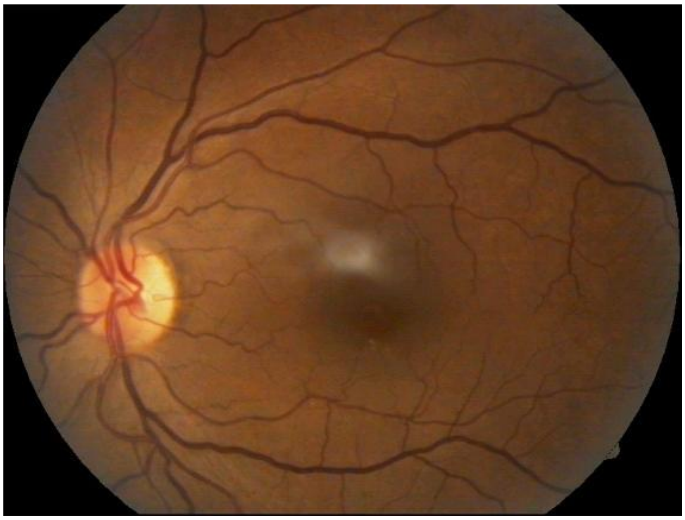

Fig 4: LE fundus Hypertensive Retinopathy (27/5/2025)

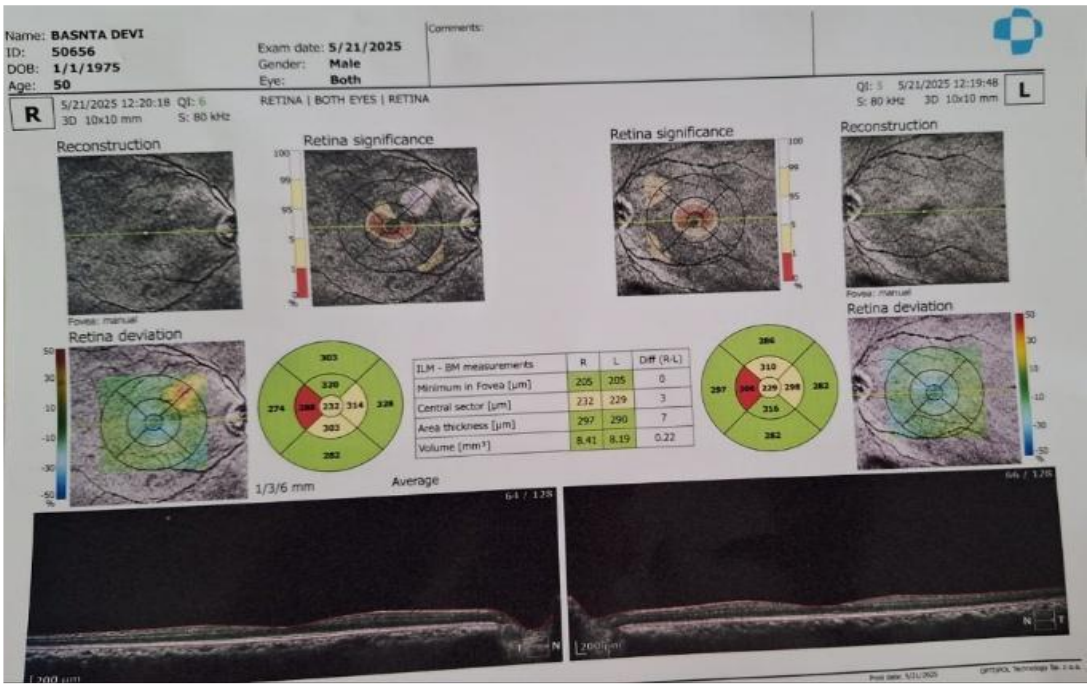

Fig 5: OCT On (27/5/2025)

Follow up and outcome: The treatment was initiated from April 25, 2025 to May 27, 2025. On 27th may 2025, the blood pressure normalized to 130/80mmHg. Resolution of dot and blot haemorrhage and NVE in the superior quadrant of the right eye fundus was observed with persistence of AV crossing changes. Cotton wool spots and hard exudates also got reduced. LE-A dot haemorrhage at the inferior temporal quadrant resolved. Vision improved in both eyes. OCT (21/5/2025) examination showed in the central subfield region as 232µm in the right eye and 229 µm in the left eye. Follow up was taken on 22nd June 2025, the blood pressure was normalized to 130/80mmHg, Visual acuity and the fundus remained stable.

DISCUSSION

Treatment was proceeded with consideration of patient's *Vaya, Prakruti, Kostha,* and *Vyadhi Dosha*. The treatment is proceeded with *Avipattikara Churna* for *Kostasodanartha* and *Vatanulomanartha*. This could help in the removal of accumulated *Kleda*, possibly will help in the reduction of leakage. Hypertensive consequence of elevated blood pressure on the retinal microvasculature, reflecting vascular damage. This results in endothelial dysfunction, impairing vascular auto regulation and oxidative stress. As the fundus examination in the present case revealed haemorrhages, neovascularisation, hard exudates, and notable vessel nicking with tortuosity, the treatment was initiated with *Pitta-Raktahara* measures, followed by *Rasayana* therapy to preserve tissue vitality and support long-term structural health. *Manjistadi Kwatha*[5] was administered internally to pacify vitiated

Rakta and *Pitta*, while *Avipattikara Churna* was given for *Kostha Shodhana* and *Vata Anulomana*. In hypertensive retinopathy, impaired venous outflow leads to retinal haemorrhage, fluid accumulation, and increased vascular tortuosity, ultimately compromising retinal perfusion. This creates a localized *Khavaigunya* that necessitates effective *Srotoshodhana*. *Chandraprabha Vati,*[6] with its potent channel-clearing, *Medohara*, and *Shophahara* properties, was therefore utilized to eliminate accumulated *Vikruta Kleda* and restore patency of microchannels. Its *Rasayana* action further supports correction of vascular and anatomical pathology at the affected site. *Bidalaka* with *Lodhra,*[7] *Triphala*, and *Yashti Churna*[8], was employed to address locally aggravated *Pitta*, *Rakta*, and *Kapha*. *Netra Seka* using *Lodhra*, *Yashti*, and *Manjishta Churna,*[9] aided in pacifying *Pitta-Rakta* vitiation, while *Takradara*[10], with *Siddha Takra* processed with *Musta* and *Amalaki* facilitated *Pitta Shamana* and *Rakta Prasadana*, contributing to reduction of oedema and haemorrhage. In view of the chronic and degenerative course of BRVO, *Rasayana Churna,*[11] was further incorporated as a long-term rejuvenative measure to strengthen vascular integrity, stabilize disease progression, and prevent ongoing pathogenesis.

CONCLUSION

As per this case report, Ayurvedic interventions seems to have significant role in managing hypertensive retinopathy. The improvement in vision and resolved haemorrhage suggests that prevention as well as progression of the disease can be arrested to an extent through Ayurveda management.

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