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Ayurvedic management in Subretinal haemorrhage (*Raktaj Timira*) – A single case Study

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Abstract:

Subretinal hemorrhage can originate from either the retinal or choroidal circulation. Management options for this condition include intravitreal tissue plasminogen activator (tPA) with pneumatic displacement, pneumatic displacement alone, subretinal tPA injection combined with pneumatic displacement, intravitreal anti-vascular endothelial growth factor (VEGF) injection, and pars plana vitrectomy, among others. In Ayurveda, this condition is classified as Raktaj Timira, which leads to Drishtigataavikara (loss of vision). The treatment primarily focuses on Rakta-pittashamak, Vata-anulomana, and Raktastambhk (blood-stopping). In the current study, a 48-year-old female patient presented to the Shalakyatantra OPD with a complaint of sudden vision loss in her left eye lasting 4-5 days. She underwent treatment that included internal medicine and Nasya therapy alongside Viddhakarma.

Keyword: Subretinal haemorrhage, Raktaj Timira, Nasya, Viddhakarma

Introduction:

Subretinal hemorrhage (SRH) involves the buildup of blood between the photoreceptor layer and the retinal pigment epithelium (RPE), resulting in bleeding beneath the retina in the macular area. SRH can arise from various conditions, including age-related macular degeneration (ARMD), high myopia, retinal microaneurysms, trauma, and choroidal neovascular membranes (CNV).¹

The release of toxins, shear forces on the outer retina, and the diffusion barrier created by subretinal hemorrhage all contribute to damage to the photoreceptors and subsequent vision loss. Different mechanisms play a role in tissue damage and retinal degeneration in SRH:

Diffusion Barrier: Blood clots form diffusion barriers, blocking nutrient transfer from the choroid to photoreceptors (PRs) via the RPE and impeding byproduct transport back to the choroid. This barrier also limits oxygen supply, causing hypoxia, metabolic disruption, and ischemic

degeneration in the PRs and the RPE. Thicker clots are often associated with poorer visual prognosis.¹

Oxidative Damage: The breakdown of erythrocytes releases unprotected hemoglobin, allowing heme to oxidize from ferrous (Fe^{2+}) to ferric (Fe^{3+}) form. Oxidized heme (hemin) can induce lipid peroxidation, causing damage to plasma membranes due to its positive charge, hydrophobic nature, and low molecular weight. Iron buildup, especially in the outer segments, has also been observed in SRH.¹

Mechanical Shearing: Contraction of the fibrin meshwork formed after SRH can exert mechanical stress on the retina, known as fibrotic shearing. Fibrin strands may tear the outer segment sheets of photoreceptors from the retina.¹

Although SRH can develop from multiple conditions, it most commonly presents as a complication of exudative age-related macular degeneration (AMD). In AMD, SRH typically results from choroidal neovascularization (CNV), where abnormal blood vessels grow from the choroid beneath and into the retina.¹

The main symptom of SRH is a sudden, painless loss of vision due to tissue degeneration. Treatment often involves surgical approaches, such as vitrectomy combined with intravitreal recombinant tissue plasminogen activator (rt-PA). Adding anti-vascular endothelial growth factor (VEGF) therapies can further improve visual outcomes.¹

In Ayurveda, the symptoms of retinal hemorrhage are associated with *Raktaja Timira*. *Acharya Vagbhata* describes this condition with symptoms such as *Tamobhut cha pashyati*,² meaning the patient perceives darkness in front of the eyes, indicative of blurred vision.

Case presentation:

A 48-year-old male with complaint of sudden loss of vision in left eye since 4 to 5 days visited to ophthalmology OPD of *Shalakyatantra* Department, there was no history of trauma. No any history of DM, HTN. He consulted another nearby retina specialist and was diagnosed with subretinal haemorrhage in left eye (fibrinous material) after the visual examination. He was advised with Tablet Eyetamin Total for one month.

Visual Acuity

Vision	Distance vision		Near vision	
	Right eye	Left eye	Right eye	Left eye
Unaided	6/6	C.F 1 ft	N36	N36
With pinhole	6/6	NI		

Slit lamp examination

	Right Eye	Left Eye
Lid	Normal	Normal
Conjunctiva	Normal	Normal
Sclera	Normal	Normal
Cornea	Clear	Clear
AC	Maintained	Maintained
Iris	Normal	Normal
Pupil	RRR	RRR
IOP	17.3 mm of Hg with Schiottz tonometer	14.6mm of Hg with Schiottz tonometer

Fundus examination

	Right eye	Left eye
Disc	Normal	Normal
Macula	Normal	haemorrhage
Vessels	Normal	Tortuous
Background	Normal	Normal
Lens	Normal	Normal

Time line of event

Date	Event
6/7/23	Blurred vision
11/7/23	Routine eye checkup, Diagnosed with subretinal haemorrhage.
18/7/23	Patient presented to the OPD with blurred vision in LE (Nasya, <i>Viddhakarma</i> (1st cycle)) Systemic medicine started: <i>kaishor guggul</i> , <i>Arogyavardhinivati</i> , <i>Pravalpancharut</i> , <i>Avipattikar churn</i> , <i>Triphalaghrut- abhantarpan</i> , Cap palsineuron
22/7/23	Vision improves i.e C.F. 1 ft to 6/36p
25/7/23	1 st cycle stopped
3/8/23	2 nd cycle started
10/8/23	2 nd cycle stopped; vision (Pinhole) improves 6/36

Treatment given to the patient

Drug	Ingredient	Dose	Anupan	Duration
1. <i>kaishor guggul</i> (purify blood, remove toxin that may present)	<i>Guggulu</i> , water, <i>triphala</i> powder, <i>guduchi</i> , <i>trikatu</i> powder, <i>vidanga</i> powder, <i>trivrit</i> powder, <i>guduci</i> powder.	2-2-2	Warm water	30 days
2. <i>Pravalpanchamrut Vati</i> (<i>pittashamak</i>)	<i>Praval bhasma</i> , <i>mouktikbhasma</i> , <i>shankhbhasma</i> , <i>shouktikbhasma</i> , <i>kaprdikabhasma</i> , <i>bhavana - arkaksheera</i>	2-2-2	Warm water	30 days

3.Arogyavardhini Vati (Rasayan and raktstambhak)	Shuddha parad, shuddhagandhak, lohabhasma, abhrakabhasma, tamrabhasma, shilajatu, guggulu, chitramool, neemba, katuki, haritaki, bibhitaki and amalaka	2-2-2	Warm water	30days
4.Avipattikar churn (pittashamak and anulomak)	Amla, bibhitaki, haritaki, pippali, marica,sunti, musta, patra, lavanga, elaichi, trivrt, vidanga, sarkara	0-0- 1gm	Warm water	30days
5.Triphala ghrut- abhantarpan	Murcchitaghrutum, Triphala, Trivrit, danti, vacha, kampillaka and cows urine.	2tsp-0- 2tsp	Warm water	30 days
6. Cap palsineuron (Vatashamak)	Mahavatvidhwans Ras, sameerpannag Ras, Ekangveer Ras, sootshekar Ras, khurasaniova, lajjalu	1-0-1	Warm water	30 days
7.Nasya-	Nasya - jivantyadi ghrut	8 drops each nostril		7 days
8. Viddhakarma	Vedhana with 26 no 1\2 inch needle at apanga, lalaat, upanasika			7 days

Follow up

Date	Unaided distant visual Acuity		With Pinhole	
	Rt eye	Lt eye	Rt eye	Lt eye
22/7/23	6/6	6/36p	6/6	6/36p
25/7/23	6/6	6/36p	6/6	6/36p
3/8/23	6/6	6/36p	6/6	6/36
10/8/23	6/6	6/36p	6/6	6/36

Discussion:

Raktajtimira (Subretinal haemorrhage) is classified as a *Drishtigat Roga* and One of its causes is the vitiation of the *Pitta* and *Rakta*.

Nasya Therapy:

Nasya Karma is recommended for *Timira*, as the nasal passage serves as an effective route for drug administration in *Urdhwajatrugata Roga*.³ *Acharyas* advocate strengthening the eyes through *Nasya* in *Timira Chikitsa*. *Nasya* with *Jivantyadi Ghrita* is beneficial due to its *Raktapittashamak* (blood and pitta pacifying), *Ropaka* (healing), and *Rasayana* (rejuvenating) properties, which help alleviate hemorrhagic symptoms. *Jivanti* is one of the finest *Chakshushya* (eye-benefiting) herbs, and most ingredients in *Jivantyadi Ghrita* exhibit *Tridosha*-pacifying actions.⁴

Viddhakarma:

Viddhakarma (Needling Therapy): In *Sharirsthana*, *Sushruta* advises *Siramokshana* (bloodletting) for all *Timira* conditions (*Sushruta Sharirsthana* 8/17)⁵. *Suchi* (needle) is one of the instruments used for *Raktavisravan* (bloodletting) (*Sushruta Sutrasthana* 8/4)⁶. *Sushruta* also describes the use of *Viddhakarma* (needling therapy) in *Sushruta Sharirsthana* (8/17).⁵

Probable mode of action of Viddhakarma-

In *Viddhakarma*, a fine hollow needle is used to pierce specific points outlined by *Acharya Sushruta*, such as *Apanga*, *Lalata*, and *Upanasika*. Eye diseases often involve *Vata Dosha* vitiation, along with other *Doshas* like *Pitta* and *Kapha*, as well as tissues like *Rakta Dhatu* (blood). When the needle is inserted at points like *Apanga*, *Lalata*, and *Upanasika*, patients feel a sense of lightness due to *Vatanulomana* (regulation and alleviation of *Vata*). The *Netra* (eye) is considered the *Ashraya Sthana* (seat) of *Alochaka Pitta*, and *Rakta Dhatu* serves as the base of *Pitta Dosha*, according to *Ashraya-Ashraya Bhava*. Stimulating sensory fibers from peripheral receptors reduces the transmission of pain or discomfort signals from the affected area, which is the primary action mechanism of *Viddhakarma*.

While *Viddhakarma* is widely recognized for pain management, we applied it in *Timira*, as *Acharya Sushruta* mentions its efficacy for *Asravisravan* (bloodletting) in *Timira Vyadhi*.

Systemic medication:

- A. *Kaishorguggula*: help purify the blood and eliminate toxins.
- B. *Arogyavardhinivati*: Functions as a *Rasayana* (rejuvenative) and *Raktstambhak* (blood-stopping).
- C. *Praval Panchamrita*: Acts as a *Pittashamak* (pitta-pacifying) agent.
- D. *Avipattikar Churna*: Serves as a *Pittashamak* and *Anuloman* (bowel-regulating).
- E. *Triphalaghurutpan*: Is *Chakshushya* (eye-strengthening) and *Tridoshashamak* (balancing all three doshas)

F. Cappalsineuron: Work as a *Vattashamak* (Vata- pacifying) agent.

Conclusion:

1. Patient Outcome: The patient experienced relief from the symptoms and signs of the disease.
2. Vision Improvement: There was an improvement in the patient's vision.
3. Treatment Tolerance: The patient tolerated and responded well to both *Nasya* and *Viddhakarma*.
4. Absence of Side Effects: The patient did not experience any side effects during the course of treatment.

This case report concludes that the Ayurvedic management of subretinal hemorrhage, utilizing *Nasya*, *Viddhakarma*, and systemic medication, yields positive results.

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