



## Case Report

# Management of Central Retinal Vein Occlusion through Ayurveda: A Case Study

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## Abstract

**Background:** Central Retinal Vein Occlusion (CRVO) is a vision-threatening condition caused by retinal venous obstruction, leading to macular edema and hemorrhages. The patient exhibited a sudden onset of blurred vision in one eye, ranging from moderate to severe intensity. Ischaemic central retinal vein occlusion (CRVO) accounts for approximately 20-25 percent of all CRVO occurrences, while the majority, around 75-80%, are classified as non-ischaemic. This study focuses on a patient with the non-ischaemic variant. The treatment approach for CRVO with various medications remains uncertain. In this case report, we discuss a 55-year-old male who experienced CRVO, presenting with sudden painless loss of distance vision in his right eye, and he was treated with Ayurvedic remedies and therapeutic methods. Conventional treatments like anti-VEGF injections and laser photocoagulation often show variable efficacy. In Ayurveda, CRVO is correlated with *Urdhwaga Raktapitta* and managed through *Shodhana* (detoxification) and *Kriyakalpa* therapies. **Methods:** A 55-year-old male with CRVO and macular edema in the right eye underwent Ayurvedic treatment for eight months, including *Virechana* (purgation), *Nasya* (nasal therapy), and *Bidalaka* (topical applications) along with oral medications. Clinical parameters were assessed through visual acuity, fundus examination, and OCT. **Results:** Significant improvement was noted in visual acuity (from 6/60p to 6/9p), reduction in flame-shaped hemorrhages, and decreased macular edema, confirmed by OCT. **Conclusion:** This case highlights the potential of Ayurvedic management in CRVO, suggesting further research for its integration into ophthalmic care.

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**Keywords:** *Bidalaka*, CRVO, *Kriyakalpa*, *Nasya*, *Urdhwagata Raktapitta*, *Virechana*

## Introduction

Central Retinal Vein Occlusion (CRVO)(1) is a serious and vision-threatening condition that occurs when the central retinal vein, which is responsible for draining blood from the retina, becomes obstructed. CRVO is considered a critical ophthalmic condition that demands immediate medical attention to prevent permanent damage to the retina and loss of vision. It is often associated with underlying systemic health conditions such as hypertension, diabetes, and atherosclerosis, which can contribute to the development of retinal vein occlusion. This connection emphasizes the importance of early detection and timely intervention to manage CRVO, preserve vision, and prevent further complications from arising.

In clinical settings, CRVO is commonly recognized as a retinal vascular disorder that manifests in varying degrees of visual impairment. Fundus examination typically reveals several hallmark signs, including retinal hemorrhages, dilated and tortuous retinal veins, cotton-wool spots, macular edema, and optic disc edema. These clinical findings are indicative of retinal dysfunction caused by the obstructed blood flow, which leads to the characteristic hemorrhages, often appearing in a flame-shaped or splattered pattern.

The pathophysiology of CRVO begins with a disturbance in the blood flow through the retinal blood vessels. This imbalance results in blood pooling and increased venous pressure, leading to the hemorrhages and fluid leakage that are characteristic of the condition. These retinal changes contribute to the visual disturbances experienced by patients. Here's a breakdown of its pathophysiology : Venous Obstruction -Venous Stasis - Increased Capillary Pressure and Permeability - Ischemia and Neovascularization - Retinal Damage and Vision Loss.

The promising effectiveness of Ayurvedic interventions observed in the present case suggests that CRVO may be managed or even treated through Ayurvedic approaches. If we see ayurvedic perspective the probable *samprapti* in this case would be due to

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*pittaja jwara*, there is increase in *ushna* and *Tikshna guna* of *pitta dosha*. As *pitta* and *rakta* share common *Aashrayashrayi bhava*(2), it will lead to increase *dravata*(fluidity) of *rakta dhatu*. The elevated *ushnata* disturbs the normal flow, cause upward movement of blood which manifested as *Urdhwaga raktapitta*. In Ayurveda, the signs and symptoms of CRVO align with *Urdhwaga Raktapitta* and can be managed using the classical treatment methods for *Raktapitta*.(3) Specific Ayurvedic therapies, including internal medications and therapeutic procedures such as *Nasya*(4) (nasal administration of medicated oils) and *Bidalaka* (5)(local application of herbal pastes), have shown beneficial effects in managing the condition. This case highlights the potential of Ayurvedic medicine as a viable treatment option, offering an alternative or complementary approach to conventional medical therapies for CRVO.

## Patient Information

This case involved a 55-year-old male patient who presented with a sudden onset of blurred and foggy vision over the past 15 days. Patient has recent history of fever from last few days. Upon initial examination, the unaided visual acuity was found to be 6/60p in the right eye and 6/18 in the left eye. A comprehensive slit-lamp examination and fundus examination confirmed the diagnosis of Central Retinal Vein Occlusion (CRVO), a condition characterized by retinal vascular obstruction leading to visual impairment.

Prior to receiving Ayurvedic treatment, the patient had undergone several conventional medical interventions, including the use of anticoagulants, thrombolytic therapy, and hemodilution. However, these treatments failed to provide significant improvement, with the patient's visual acuity in the right eye improving only to 6/24P.

In response to the persistent symptoms, the patient was then treated with Ayurvedic approaches. The treatment plan commenced with *Virechana*(6) (a therapeutic purgation procedure), which is a part of Panchakarma therapy aimed at detoxifying the body and balancing the doshas. Following the *Virechana* procedure, the patient was prescribed a regimen of oral Ayurvedic medications designed to address the underlying *doshic* imbalances, specifically focusing on *Pitta* and *Rakta*, which are believed to play a role in CRVO. Additionally, the patient underwent *Kriyakalpa*(7) procedures, which are specialized Ayurvedic therapeutic treatments targeted at specific eye conditions.

The treatment course lasted for 8 months. By the end of this period, the patient showed significant improvement in visual acuity, with noticeable gains in both functional vision and retinal health. Optical Coherence Tomography(OCT) findings also revealed marked improvements, showing better alignment and reduced edema within the retinal layers. These results suggest the effectiveness of Ayurvedic therapies in managing CRVO and improving retinal function in this patient.

## Past History

The patient had a history of fever for the past few days before

seeking Ayurvedic treatment. He was a known case of Central Retinal Vein Occlusion (CRVO) with macular edema affecting the right eye, along with a history of hypertension. Prior to Ayurvedic intervention, the patient was managed by a Vitreo-retinal Surgeon with topical corticosteroids and was administered two intraocular injections of Avastin (Bevacizumab), an anti-VEGF agent, for the retinal condition.

## Ashtavidha Pariksha

Upon examination, the *Nadi* (pulse) was found to be 88 beats per minute, slightly elevated and suggestive of *Pitta* dominance. *Mala* (bowel movements) was regular and *samyak* (normal), while *Mutra* (urine output) was 5–6 times per day, within the normal range. The *Jivha* (tongue) appeared *sama* (coated), indicating the presence of *ama* (toxins). *Shabda* (speech) was *samyaka* (clear and coherent), and *Sparsha* (skin touch/temperature) was *anushna-sheeta* (neither hot nor cold), reflecting a balanced thermal state. *Druk* (vision) was *vikruti* (abnormal), correlating with the diagnosed CRVO. The *Akruti* (body build) was *madhyam* (moderate), suggesting average physical strength and constitution.

## Dashavidha Pariksha

The patient's *Prakriti* (constitution) was assessed as *Pitta-Kapha* predominant. *Vikriti* (current imbalanced state) indicated *Pitta-Rakta* Dushti manifesting as CRVO. *Sara* (tissue essence) was found to be *Madhyama*, showing moderate tissue strength. *Samhanana* (body compactness) was also *Madhyama*, and *Pramana* (body measurements) were within normal limits. *Satmya* (suitability to food and environment) was *Madhyama*, and *Satva* (mental strength) was *Avara* (low to moderate), possibly due to vision impairment. *Aaharashakti* (digestive capacity) and *Vyayamashakti* (exercise capacity) were both *Madhyama*, indicating average capacity for digestion and physical activity. *Vaya* (age) placed the patient in *Madhyama Vaya* (middle age group), consistent with his chronological age of 55 years.

## Local Examination

- **Anterior Segment:** The anterior segment of both eyes were found to be normal, with no signs of abnormalities or pathological changes observed during the examination.
- **Direct Ophthalmoscopy:** Upon closer examination using direct ophthalmoscopy, the right eye displayed retinal vessels that were attenuated (narrowed) and tortuous (twisted or curved). Additionally, there were superficial flame-shaped hemorrhages along with macular edema. These findings are characteristic of retinal vascular changes and suggest the presence of a retinal condition, such as Central Retinal Vein Occlusion (CRVO), affecting the right eye. The observed hemorrhages and macular swelling further indicate underlying vascular and fluid accumulation issues in the retina.

Goal for the treatment of patient was to reduce the flame shaped hemorrhage and macular edema and to assess the visual outcomes in terms of visual acuity.

Table 1: Treatment Given

Sr. no.	Procedure/ Intervention	Yoga	Duration	Posology	Rationale/ Outcome
1	Deepana-Pachana	Aampachak vati (triphala, trikatu,yavani, sh.hingu etc.)	Day 1 to Day 5	250 mg tab with lukewarm water twice daily before food.	Acts as a natural digestive stimulant by improving <i>Agni</i> (digestive fire) and eliminating <i>Aam</i> (toxins)

2	<i>Snehapana</i>	<i>Yashtimadhu ghrita</i>	Day 6-30 ml Day 7- 60ml Day 8-90ml Day 9-120ml Day 10-150ml	Yashtimadhu ghrita was given empty stomach at 7.00 am for 5 days.	Softens and loosens <i>doshas</i> , facilitates their movement to <i>Koshtha</i> (gut)
3	<i>Sarvang Snehana-Swedana</i>	<i>Dashmool tail</i>	Day 11 to Day 12	-	Prepares body for <i>Virechana</i> , mobilizes
4	Virechan Karma	<i>Trivrutta Leha</i>	Day 13	70 gms of trivrutta leha was administered at 10 am followed by 200ml of <i>Aaragwadhadi</i>	Expels vitiated <i>Pitta</i> and <i>Rakta</i> , improves ocular clarity, reduces congestion
5	<i>Bidalaka</i>	<i>Raktachandan, Vasa , Nimb, Patol, Yashti</i>	Day 14 to Day 21	10 gm of paste with milk in the morning for 7 days	By <i>Raktastambhaka</i> (hemostatic) effect, drains and pacifies aggravated
6	Pratimarsha Nasya	<i>Vasa Ghrita</i>	2 weeks to 30 weeks	Vasa ghrita was instilled 2 drops in each nostril every morning upto 30 weeks.	Provides continuous <i>Rakta-Pitta shamaka</i> effect, nourishes ocular tissues, maintains

Table 2: Shaman Yoga

Sr. no.	Yoga	Duration	Posology	Outcome
1	Chandrakala Ras ( <i>Mukta Bhasma, Musta, Dadima, Shatavari, Chandana, Ushira, Sariva, Draksha etc.</i> )	2 weeks to 14 weeks	250 mg tab twice a day after food with Water	Acts as a blood stabilizer, reduces excessive flow and leakage of blood from
2	Mauktik-Kamdudha Ras( <i>Mauktik, praval , Musta, guduchi, gairik etc.</i> )	2 weeks to 14 weeks	250 mg tab twice a day before food with Water	Improves strength and stability of Rasa & Rakta dhatus
3	Avipattikar Churna ( <i>Triphala, trikatu, musta, vidang etc.</i> )	2 weeks to 32 weeks	3 gm with lukewarm water at bedtime	By its <i>mrudu virechana</i> action, prevents upward movement of vitiated

Table 3 : Follow-up and outcome : Improvement in vision

	Right eye			Left eye		
	20/02/2023 (Without Spects)	29/05/2023 (Without Spects)	21/10/2023 (Without Spects)	20/02/2023 (Without Spects)	29/05/2023 (Without Spects)	21/10/2023 (Without Spects)
DV	6/60p	6/36p	6/24p	6/18	6/18	6/18
BCVA	6/24p	6/12p	6/9p	6/18	6/18	6/9p
PH	6/12p	6/12p	6/9p	6/12p	6/12p	6/9p
NV	N8	N6	N6	N8	N6	N6

**DV**- Distant Vision, **BCVA**- Best Corrected Visual Acuity, **PH**- Pin Hole Correction, **NV**- Near Vision, **P**-Partial

The above Shaman yoga treatment continued to patient over a period of 8 months and repeated OCT after completion of treatment.

## Observations and Results

- The patient experienced a significant improvement in distant visual acuity. Upon conducting a fundus examination, it was observed that the superficial flame-shaped hemorrhages had notably decreased, and there was a marked reduction in macular edema in the right eye, indicating a positive response to treatment.

- The visual acuity was not only improved but also maintained consistently throughout the follow-up period, showing the sustained effectiveness of the treatment over time.
- In terms of Optical Coherence Tomography (OCT) findings, there was a considerable reduction in the gap between the neurosensory retina and the retinal pigment epithelium.
- This improvement suggests a restoration of the retinal layers and a reduction in the underlying pathology associated with retinal dysfunction.

Table 4: Clinical Findings

Signs and Symptoms	Before Treatment (20/02/2023)		After Treatment (21/10/2023)	
	Rt Eye	Lt Eye	Rt Eye	Lt Eye
Visual Acuity	6/60p	6/18	6/24p	6/18
Visual Acuity with Glass	6/24p	6/9p	6/9p	6/9p



IOP (mm of Hg)	14.6mmHg	16.8mmHg	14.6mmHg	16.8mmHg
Fundus Examination	Flame Shaped Hemorrhages (Tomato splash appearance), Macular Oedema	Normal	Reduced symptoms like Flame Shaped Hemorrhages (Tomato splash appearance), Macular Oedema	Normal
OCT Findings	Gap between Neurosensory retina and Retinal pigment epithelium	Normal	Gap between Neurosensory retina and Retinal pigment epithelium had been significantly reduced	Normal

Figure 1: Before treatment

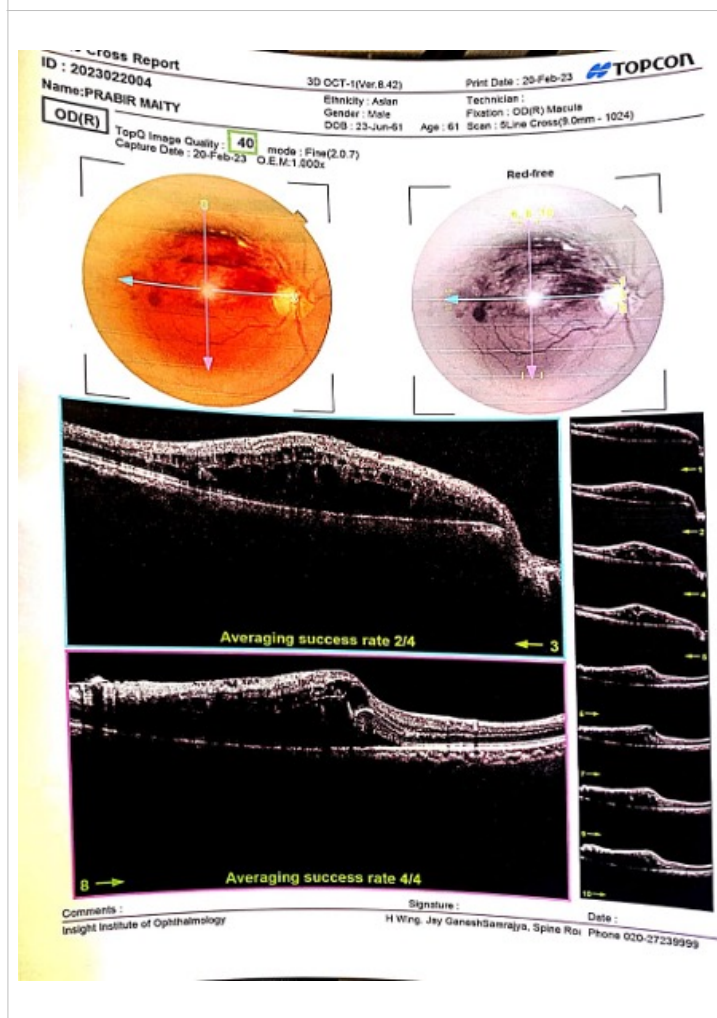
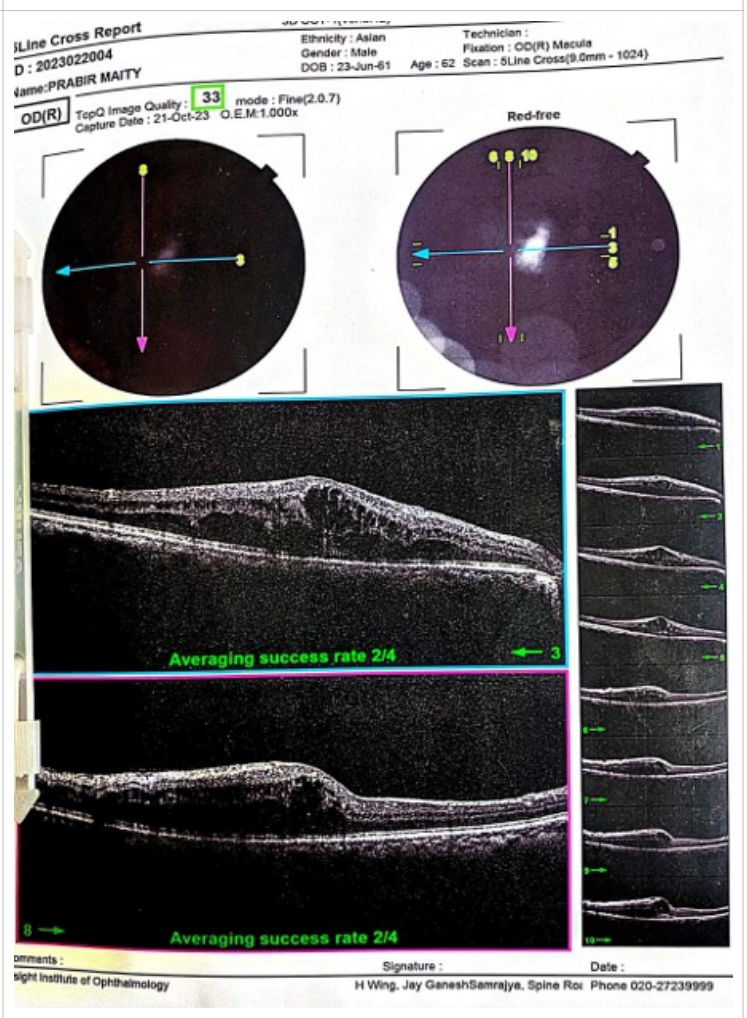


Figure 2: After treatment



## Discussion

Contemporary medical science currently lacks an effective treatment for Central Retinal Vein Occlusion (CRVO). The main approach in managing this condition focuses on identifying and addressing any underlying systemic issues that could contribute to complications, with the goal of preventing further damage. However, there is no universally successful treatment for fully resolving CRVO at this time. As the exact cause of CRVO remains unknown, several treatment modalities, such as Intra-vitreous Anti-Vascular Endothelial Growth Factor (anti-VEGF)(8) injections and Pan-retinal LASER Photocoagulation, are commonly recommended. Despite their widespread use, these treatments

often fail to produce satisfactory or consistent results. In Ayurvedic terms, the pathological impairment in the body's *strotas* (channels or pathways) was identified as obstruction (*Sanga*) and diversion of flow (*Vimargamana*)(9). These conditions align with Ayurvedic principles, suggesting that the blockage and altered circulation in the retinal vein are key contributing factors to the development of CRVO.

Additionally, the involvement of *Rakta Dhatu* (blood tissue) in the condition was evident through clinical signs such as intra-retinal hemorrhages and tortuosity of blood vessels. These symptoms are classic indicators of CRVO and further emphasize the link between the condition and disturbances within the blood system, which is considered a critical factor in Ayurvedic medicine. The

Ayurvedic treatment protocol, which included *Snehapana* (intake of medicated oils) followed by *Virechana* (therapeutic purgation) with *Trivrutta leha* (a specific Ayurvedic formulation), effectively helped to remove excess *Pitta dosha* (one of the three fundamental bodily humors). This approach is particularly important because *Pitta* and *Rakta* share an interdependent relationship, known as *Aashrayashrayi bhava*. By normalizing the excess *Pitta* dosha, the treatment indirectly helps to balance and normalize the vitiated *Rakta* dosha, contributing to the overall improvement in the patient's retinal health and vision.

As described by Charakacharya and Vagbhatacharya, the phrase "*Vasa Raktapitteshu Agreya*"(10) emphasizes the importance of *Vasa* (medicated oil) in treating conditions related to blood (*Rakta*) and *Pitta* dosha, highlighting its effectiveness in addressing these imbalances. Furthermore, *Nasya* therapy is regarded as the most effective treatment for disorders affecting the upper body, particularly those related to the head and sensory organs (*Urdhwajatrugat vyadhis*). Based on this principle, *Vasa Ghrita* (medicated ghee) is used as a *Pratimarsha Nasya*, a technique involving the administration of a small amount of medicated oil into the nasal passages to help balance and purify the upper body.

Key herbs like as nimba (neem), patola, yashti (licorice), guduchi, and vasa (malabar nut) are used in the composition of *Raktachandanadi Bidalaka*. Because of their *Tikta* (bitter) and *Kashaya* (astringent) flavors, these herbs are well-known for helping to balance out *Pitta* and *Rakta* dosha imbalances. Their combined qualities aid in resolving the pathology of *Raktavaha Strotodushiti*(11), which is a major factor in diseases like CRVO and is caused by disruption or blockage in the blood-carrying channels. Additionally, these herbs have *Shophahara* (anti-inflammatory) properties that are crucial for lowering macular edema, a frequent side effect of retinal diseases. By addressing both the underlying blood-related imbalances and inflammation, this formulation supports the overall healing and restoration of retinal health.

*Shaman* yoga uses *Chandrakala ras*(12), which mostly consists of *Mukta Bhasma*, *Musta*, *Dadima*, *Shatavari*, *Chandana*, *Ushira*, *Sariva*, *Draksha*, and so on. These medications primarily have *vata-pitta prashaman* qualities. They reduce fluid and blood leakage in retinal tissue because of their *Raktaprasadak*(blood purifying), *Raktastambhak*(hemostasis) activity. It aids in lessening blood vessel tortuosity. *Guduchi Satva*, *Praval*, and *Mukta* are the main constituents of *mauktik-kamdudha*. They lessen retinal hemorrhages and the ischemia that results from them by lowering the *pitta's Ushna* and *Tikshna* guna. "*Urdhwag raktapitte virechanam*"(13) is explicitly referenced in *Raktapitta Chikitsa Adhyaya*. In order to prevent disease recurrence, *Avipattikar Churna*(14) is utilized as *Nitya Virechan*(daily purgation) Dravya.

## Conclusion

The Ayurvedic treatment plan contributed significantly to the improvement of the patient's Distance Visual Acuity (DVA) and retinal imaging. Both fundus and Optical Coherence Tomography (OCT) results showed marked improvement by the time of discharge and during subsequent follow-ups. These positive outcomes were largely attributed to the prompt and well-timed management of the condition. The encouraging results from this case provide a valuable foundation for future research. Conducting larger-scale clinical trials would be beneficial to further substantiate these findings and confirm the effectiveness of

Ayurvedic treatments in managing retinal disorders. This case highlights the promising potential of Ayurvedic management for retinal conditions, opening up new possibilities for integrating traditional medicine with modern ophthalmologic care. It suggests that Ayurvedic approaches could be an important area for further scientific exploration and clinical study.

This case study demonstrates the potential role of Ayurvedic management in Central Retinal Vein Occlusion (CRVO). The clinical features correlated well with the Ayurvedic concept of *Urdhwaga Raktapitta*, and the treatment protocol was designed accordingly. The interventions resulted in a reduction of flame-shaped hemorrhages and macular edema, along with a progressive improvement in visual acuity, thereby fulfilling the stated objectives. The management was well tolerated without adverse effects, supporting the safety and feasibility of Ayurvedic interventions in ocular vascular conditions. Although this is a single case, the positive outcome highlights the need for further systematic studies to validate these findings and develop standardised Ayurvedic protocols for CRVO and related retinal disorders.

However, to validate these findings, there is a need for : Large-scale controlled clinical trials to establish efficacy and reproducibility. Standardization of treatment protocols for CRVO under Ayurvedic principles.

## Informed Written Consent

The patient provided informed written consent for the publication of this case report. The consent document is available and can be reviewed for verification by the editor of the journal.

## Author Contribution

Each author has made an equal contribution to the overall care of the patient, including treatment, documentation, and the preparation and development of the manuscript for publication.

## Conflict of Interest

All authors declare, to the best of their knowledge, that this study was conducted without any circumstances that could lead to a potential conflict of interest. No financial or personal interests have influenced the research or its outcomes.

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