RESEARCH PAPER

Clinical and Therapeutic Evaluation of *Jalaukavacharana* in Varicose Veins: An Applied Ayurvedic Case Report

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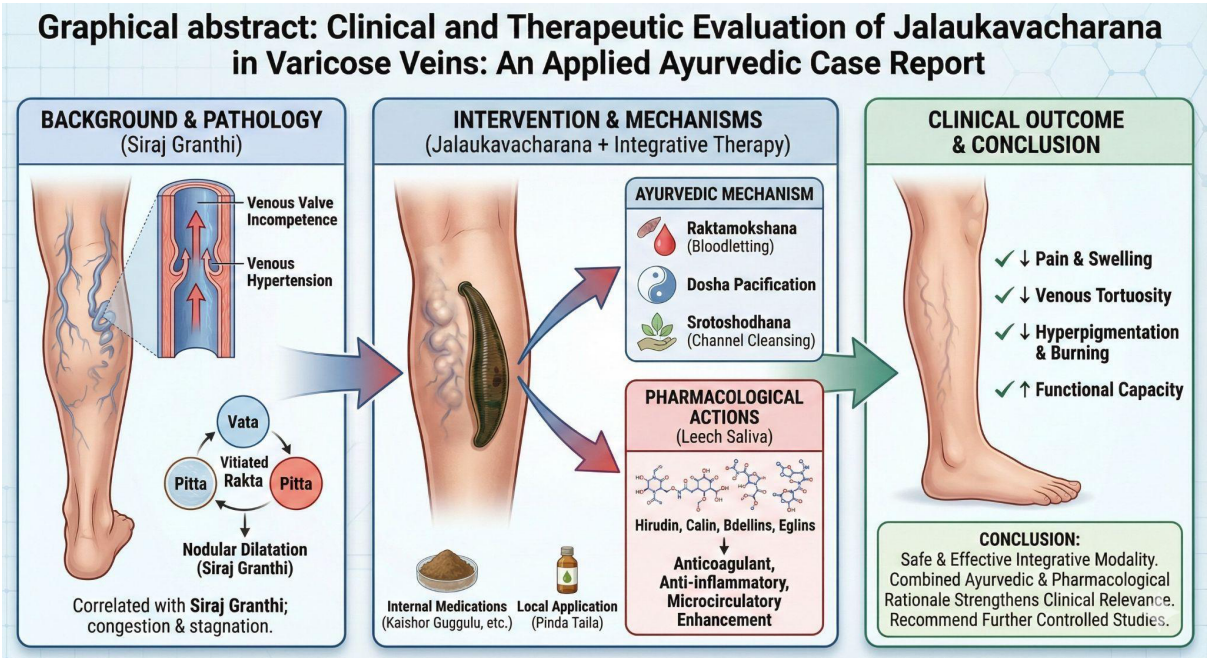

Abstract

Background:

Varicose veins are dilated and tortuous superficial veins resulting from venous valve incompetence and venous hypertension. In Ayurveda, this condition is correlated with *Siraj Granthi*, described as nodular dilatation of vascular channels caused by vitiated *Vata* along with disturbed *Rakta* and *Pitta*. Classical texts recommend *Raktamokshana*, particularly *Jalaukavacharana* (leech therapy), for disorders involving congestion and stagnation. Modern research supports its use through the documented pharmacological actions of leech saliva, such as anticoagulant, anti-inflammatory, and microcirculatory enhancement effects mediated by molecules like hirudin, calin, bdellins, and eglins.

Objective:

To present the clinical outcome of Ayurvedic management of varicose veins by correlating *Siraj Granthi* with modern venous pathology and assessing the therapeutic pharmacological role of *Jalaukavacharana* along with internal medications.

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Case Summary:
A 55-year-old female with varicosity of the left lower limb presented with pain, swelling, burning sensation, itching, and visibly dilated veins. Clinical tests confirmed superficial varicose veins, corresponding to *Siraj Granthi*. The patient underwent four weekly sessions of *Jalaukavacharana* supported by internal medications (*Kaishor Guggulu*, *Manjishtadi Kashaya*, *Punarnavadi Mandoor*) and local application of *Pinda Taila*. Progressive improvement was observed, including reduction in pain, swelling, venous tortuosity, hyperpigmentation, and burning sensation, along with enhanced functional capacity. These clinical outcomes reflect both Ayurvedic mechanisms *Raktamokshana*, dosha pacification, *Srotoshodhana* and pharmacological actions of leech saliva that improve circulation and reduce inflammation.
Conclusion:
This case demonstrates that *Jalaukavacharana*, when integrated with appropriate Ayurvedic internal therapies, can be a safe and effective modality for managing varicose veins (*Siraj Granthi*). The combined Ayurvedic and pharmacological rationale strengthens its clinical relevance. Further controlled studies are recommended to establish standardized treatment protocols.

Keywords- *Siraj Granthi*, Varicose veins, *Jalaukavacharana*, Leech Therapy, Integrative treatment, *Raktamokshan*
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1. Introduction

Varicose veins are among the most prevalent chronic venous disorders worldwide, affecting approximately 20–25% of adult women and 10–15% of adult men. [1] They frequently develop in individuals exposed to risk factors such as prolonged standing, advancing age, obesity, pregnancy, and hereditary predisposition. Clinically, varicose veins present with pain, heaviness, swelling, and visible venous dilation that significantly impair daily functioning and overall quality of life. Although several conventional treatment options exist—including compression therapy, sclerotherapy, and surgical interventions their long-term effectiveness remains limited. Many patients experience discomfort with compression stockings, concerns regarding procedural invasiveness, high treatment costs, or recurrence of symptoms. These challenges underscore the demand for safe, conservative, and physiologically supportive therapeutic alternatives, particularly for early-stage varicosities and for individuals seeking minimally invasive care.

Pathophysiologically, varicose veins arise primarily due to venous valve incompetence, which permits retrograde blood flow and leads to ambulatory venous hypertension. This persistent rise in venous pressure contributes to progressive dilation, elongation, and tortuosity of superficial veins, fostering venous stasis and increased capillary hydrostatic pressure. Over time, these hemodynamic disturbances lead to structural remodelling of the venous wall, characterized by elastin fragmentation, altered collagen composition, and changes in smooth muscle cell phenotype.[2] Such degenerative changes weaken venous tone and impair valve function, eventually resulting in complications such as edema, hyperpigmentation, dermatitis, and venous ulceration.[3]

In Ayurveda, varicose veins closely correspond to *Siraj Granthi*, described as nodular dilatation of the vascular channels resulting from vitiated *Vata*, accompanied by disturbed *Rakta* and *Pitta*.[4] Excessive standing, overexertion, or muscular strain leads to *Sampeedana* (compression), *Sankocha* (narrowing), and *Vishoshana* (dryness) of the *Siras*, producing tortuous, dilated, non-pulsatile swellings. *Acharya Vagbhata* further attributes discoloration, burning, and itching to *Pitta* and *Rakta* vitiation, while mild swelling reflects *Kapha* involvement.[5] These descriptions closely parallel modern concepts of venous dilation, congestion, inflammation, and pigmentation.

Sushruta recommends *Raktamokshana*, particularly *Jalaukavacharana* (leech therapy), for *Siragata Vata* and *Rakta dushti*, including *Siraj Granthi*.[6] Medicinal leeches secrete bioactive compounds such as hirudin, calin, saratin, apyrase, and anti-inflammatory enzymes that promote anticoagulation, enhance microcirculation, and reduce local inflammation.[7,8] These physiological actions lower venous pressure, alleviate stasis, and relieve symptoms like pain, edema, and heaviness.

This case is unique in its integration of classical Ayurvedic principles with modern vascular pathology to evaluate the therapeutic efficacy of *Jalaukavacharana* in a 55-year-old female with superficial varicosity of the lower limb.

2. Patient Information

A 55-year-old housewife with no identifiable personal or genetic risk factors for venous disease presented to the Regional Ayurveda Research Institute, Nagpur, with a ten-month history of discomfort and visible venous changes in her left lower limb. Her routine involved prolonged standing due to household responsibilities, contributing to symptom progression. She reported dull aching pain from the calf to the upper leg, mild ankle swelling, burning sensation, and intermittent itching, all aggravated by prolonged standing and partially relieved by limb elevation. She had no history of diabetes, hypothyroidism, hypertension, thrombosis, trauma, or previous venous treatments. Ayurvedic assessment using *Ashtavidha* and *Dashavidha Pariksha* indicated a *Pitta–Kapha Prakriti* with involvement of the *Raktavaha Srotas*, *Mamsa-Medo sara*, and moderate *Samhanana*, *Pramana*, *Satmya*, *Satva*, and *Ahara Shakti*, with reduced *Vyayama Shakti*. Based on the presentation of pain, dilated tortuous veins, mild edema,

and burning, the condition was diagnosed as *Siraj Granthi*, and *Jalaukavacharana* with supportive internal medications was planned.

Table 1: *Ashtavidha Pariksha*

Sr. No.	***Ashtavidha Pariksha* Parameter**	**Findings**
1	*Nadi (Pulse)*	82/min
2	*Mala (Stool)*	*Bandha (tendency toward constipation)*
3	*Mutra (Urine)*	*Samyak (normal)*
4	*Jivha (Tongue)*	*Sama (clean)*
5	*Shabda (Speech)*	*Spashta (clear)*
6	*Sparsha (Touch/Temperature)*	*Samsheetoshna (mildly warm)*
7	*Drik (Vision/Eyes)*	*Prakrit (normal)*
8	*Akriti (Body build)*	*Madhyam (moderate build)*

Table 2: *Dashavidha Pariksha*

Sr. No.	***Dashavidha* Pariksha Parameter**	**Findings**
1	*Prakriti*	*Pitta-Kaphaja*
2	*Vikriti*	Involvement of *Raktavaha Srotasa*
3	*Sara*	*Mamsa-Medo Sara*
4	*Samhanana*	*Madhyam*
5	*Pramana*	*Madhyam*
6	*Satmya*	*Madhyam*
7	*Satva*	*Madhyam*
8	*Aahara Shakti*	*Madhyam*
9	*Vyayama Shakti*	*Avara*
10	*Vaya*	*Madhyamavastha*

4. Clinical Findings

On physical examination, the patient appeared stable and in no acute distress. Inspection of the left lower limb revealed prominent, dilated, and tortuous superficial veins along the posterolateral aspect of the calf, accompanied by mild ankle edema and early hyperpigmentation, suggestive of chronic venous congestion. The overlying skin showed no ulceration, eczema, or breakdown. Palpation revealed mildly increased local temperature with soft, compressible venous swellings, without pitting edema or induration. Peripheral pulses, including dorsalis pedis, posterior tibial, and popliteal, were normal in volume and character, indicating no arterial compromise. Collectively, these findings were consistent with superficial venous involvement and early chronic venous insufficiency of the left lower limb.

5. Timeline

The patient first noticed mild aching and visible superficial veins in her left lower limb approximately ten months prior to presentation. Over the following months, her symptoms gradually progressed to include intermittent burning, itching, and mild ankle swelling, particularly during the evening or after prolonged standing associated with household work. Despite increasing discomfort, she did not seek medical attention and did not use any compression therapy, medications, or home remedies. Around the sixth month, the pain and heaviness intensified, prompting her to reduce her daily activities slightly, although no formal intervention was undertaken. By the tenth month, when swelling and pigmentation began to appear more prominently and the symptoms started interfering with routine tasks, she presented to the Regional Ayurveda Research Institute, Nagpur, for evaluation.

6. Diagnostic Assessment

Diagnostic evaluation followed OSCE guidelines for varicose vein assessment and included percussion, auscultation, and special clinical tests (Table no 3). The tap test was positive, indicating a transmitted thrill along the incompetent vein, while auscultation revealed no abnormal vascular sounds. Special tests demonstrated a

positive Trendelenburg test, localizing valvular incompetence below the saphenofemoral junction; a positive Perthes test after five minutes of walking, suggestive of superficial venous overload; a positive Moses' sign; and a negative Homan's sign, helping to exclude acute deep vein thrombosis. The cough impulse test did not reveal any abnormal findings. According to the CEAP classification (Table no 4), the patient was categorized as Class C2–C3, reflecting visible varicose veins with mild edema and early pigmentary skin changes. Preliminary laboratory investigations, including Random Blood Sugar, Bleeding Time, and Clotting Time, were within normal limits, confirming suitability for Para surgical intervention. Diagnostic challenges included the patient's delayed presentation due to limited awareness and financial considerations. Based on the cumulative clinical and diagnostic findings, a diagnosis of superficial varicose veins of the left lower limb was established, corresponding to *Siraj Granthi* in Ayurveda, involving vitiation of *Vata* with *Rakta* and *Pitta Dushti.*

Table no. 3: Clinical Examination According to OSCE Guidelines

Step	Procedure	Key Findings
1	Inspection	Dilated tortuous veins, hyperpigmentation, no ulcers/eczema
2	Palpation	Mild local warmth, compressible veins, no pitting edema, pulses normal
3	Percussion	Positive tap test
4	Auscultation	No bruit
5	Special Tests	Positive Trendelenburg, positive Perthes, positive Moses', negative Homan's, normal cough impulse

Table no.4 : CEAP Classification of the Patient

Class	Description	Patient Status
C2	Varicose veins	Present
C3	Edema	Mild
C4	Pigmentation	Early
C5–C6	Ulcers	Absent

7. Therapeutic Intervention

7.1 Treatment Approach

The therapeutic plan combined *Jalaukavacharana* (leech therapy) with internal Ayurvedic medications based on principles of *Raktamokshana* for managing *Rakta Dushti* and venous stagnation. The patient exhibited dilated tortuous veins, pain, burning sensation, mild edema, and early discoloration—features aligning with *Sushruta's* criteria for using *Nirvisha Jalauka*. Baseline RBS, BT, and CT values were normal, and informed consent was obtained before initiating therapy.

7.2 Procedure: *Jalaukavacharana*

Three non-poisonous medicinal leeches were applied weekly for four sessions to the most prominent varicosities. Leeches remained attached for about 45 minutes and detached naturally or with *Haridra Churna*. Bite sites were dressed with sterile gauze, and the patient was advised to avoid prolonged standing for 24 hours. The procedure was well tolerated without complications.

7.3 Internal Medications and Local Therapy

Internal medications were administered throughout the four weeks and continued for one additional month: *Kaishor Guggulu* (250 mg BD), *Manjishtadi Kashaya* (20 ml BD), and *Punarnavadi Mandoor* (250 mg BD). *Pinda Taila* was applied locally twice daily to reduce burning and improve skin texture. (Table no. 5) The patient maintained good adherence, and no protocol changes were required.

Table 5. Key Ingredients of the Ayurvedic Formulations Used

Name of formulations	Ingredients
Kaishor guggul[09]	*Triphala* (Classical Ayurveda Formulation), *Guggulu* (*Commifora mukul*), *Guduchi* (*Tinospora cordifolia*), *Vidang* (*Embelia ribes*), *Danti* (*Baliospermum montanum*), *Trivrutta* (*Operculina turpenthum*)
Manjishtadi kashayam[10]	*Manjishta* (*Rubia cordifolia), Triphala* (Classical Ayurveda Formulation), *Guduchi* (*Tinospora cordifolia*), *Bhunimba* (*Andrographis paniculata*), *Nimba* (*Azadirachta indica*), *Haridra* (*Curcuma longa*)

Punarnavadi mandoor[11]	*Punarnava* (*Boerhaavia diffusa*), *Triphala* (Classical Ayurveda Formulation), *Mandoor Bhasma* (Classical Ayurveda Formulation), *Trikatu* (Classical Ayurveda Formulation), *Trivrit* (*Operculina turpenthum*), *Vidang* (*Embelia ribes*), *Kushta* (*Sausurrea lappa)*, *Haridra* (*Curcuma longa)*, *Daruharidra* (*Berberis aristata*), *Kutaj* (*Holarrheana antidysentrica*),*musta* (*Cyperus rotundus*),*katuki* (*Picrorrhiza kurroe*), *Chavya* (*Piper cheba*),*Danti* (*Baliospermum montanum*).
Pinda taila[12]	*Madhucchista* (Bee Wax), *Manjishtha* (*Rubia cordifolia*), *Sarjarasa* (*Vateria indica*), *Sariva* (*Hemidesmus indicus*), Tila Taila (*Sesamum indicum).*

8. Follow-up and Outcomes

Clinical progress was monitored weekly through clinician-assessed parameters and the patient's subjective reporting of symptoms. Steady improvement was observed throughout the four sessions of *Jalaukavacharana*. Pain and burning sensation showed notable reduction by the third week, while ankle swelling had nearly resolved by the second week. The tortuosity and prominence of superficial veins gradually diminished, and early skin discoloration began to fade by the end of the fourth week, indicating improved venous drainage and reduced congestion. (Table no 6) Follow-up assessments revealed no adverse laboratory changes, and imaging was not required as clinical improvement was evident. The patient adhered well to the therapy schedule, reported no difficulty following lifestyle and dietary instructions, and tolerated all interventions without complications. Mild transient burning during leech attachment resolved spontaneously and required no intervention. No adverse or unanticipated events occurred during the treatment period. Overall, both subjective and objective parameters demonstrated consistent weekly improvement, confirming that the combined effects of *Jalaukavacharana* and internal Ayurvedic medications led to significant symptomatic and functional recovery.

Table No.6: Clinical Changes Over Four Sessions

Parameter	**Week 0**	**Week 2**	**Week 4**
Pain	Severe	Moderate	Minimal
Swelling	Moderate	Mild	Absent
Burning	Moderate	Mild	Absent
Pigmentation	Present	Reduced	Significantly reduced
Vein Tortuosity	Severe	Moderate	Reduced

Figure 1: Therapeutic Progression of *Jalaukavacharana* in Varicose Veins

Before *Jalaukavacharana*	*Jalaukavacharana* Treatment	After *Jalaukavacharana*
Visible dilated veins, pigmentation, edema.		Reduced tortuosity, decreased pigmentation, improved skin condition.

9. Discussion

The present case highlights the potential of *Jalaukavacharana* as an effective and minimally invasive intervention for symptomatic varicose veins when applied within an Ayurvedic therapeutic framework. The patient demonstrated steady and progressive improvement across multiple parameters, including pain, swelling, burning sensation, venous tortuosity, and early skin discoloration. (Figure 1) These outcomes can be explained by the combined mechanistic actions of the Para surgical procedure and the supporting internal medications. A growing body of evidence supports the therapeutic rationale of *Jalaukavacharana* through the pharmacodynamic properties of bioactive molecules in leech saliva. Hirudin, calin, and factor Xa inhibitors produce potent anticoagulant and antithrombotic effects, reducing blood viscosity and enabling smoother microvascular flow.[13] Protease inhibitors such as bdellins and eglins exert anti-inflammatory actions by suppressing trypsin, plasmin, and elastase, thereby reducing perivascular edema and inflammatory infiltration.[14] Hyaluronidase enhances tissue permeability and microcirculation by facilitating the movement of stagnant blood and improving local perfusion.[15] Collectively, these mechanisms reduce venous congestion, lower intraluminal pressure, and counteract tissue hypoxia, which contributes significantly to the progression of varicose veins (Refer Figure 2). The patient's clinical response closely aligns with these physiological actions, reinforcing the evidence-based value of *Jalaukavacharana* in venous disorders.

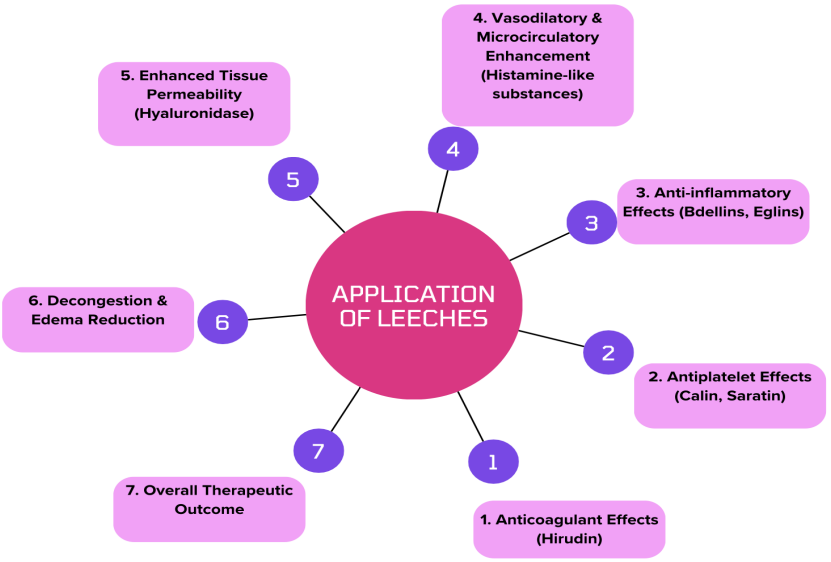

Figure 2: Mechanism of Action of *Jalaukavacharana*

Upon initial examination, the patient reported pain and swelling, which were understood in Ayurvedic terms as manifestations of *Pittaja Vata-Rakta*. This indicated the need for both anti-inflammatory and blood-purifying interventions. *Kaishor Guggulu*[16], known for its strong anti-inflammatory properties, contributed to alleviating pain and supporting systemic detoxification. *Punarnavadi Mandoor*[17] was therefore selected for its proven efficacy in reducing edema and correcting *Rakta* vitiation. *Manjistha Kashaya*[18], a well-established formulation for venous disorders, further aided treatment by reducing inflammation, improving circulation, and purifying *Rakta*. *Manjistha* also promotes healing of damaged vessels and helps reduce pigmentation associated with varicose veins. Its cooling and *Tridosha*-balancing properties make it particularly beneficial in conditions aggravated by strain and chronic standing. Additionally, *Manjistha* is a key component of *Pinda Taila*[19], described by *Charaka*, for managing gout, joint pain, and advanced venous disorders. Together, these formulations complemented *Jalaukavacharana* by addressing both local and systemic pathology. The patient's improvements are consistent with earlier studies reporting enhanced microcirculation and reduced inflammatory mediators following leech therapy. However, literature on

integrative Ayurvedic protocols for varicose veins remains limited, making this case a valuable contribution. Importantly, the patient tolerated the treatment well without adverse events, underscoring the safety of *Jalaukavacharana* when performed using sterile, medicinal leeches.

Despite encouraging outcomes, limitations include the single-case design, financial constraints influencing diagnostic choices, and relatively short follow-up. Further controlled studies are needed to validate efficacy and establish standardized treatment protocols. Nevertheless, this case demonstrates the potential of Ayurvedic parasurgical approaches to restore local hemodynamics and relieve symptoms in varicose veins.

10. Conclusion

This case demonstrates that *Jalaukavacharana*, combined with supportive Ayurvedic medication, is an effective and safe approach for managing *Siraj Granthi* (varicose veins). The therapy provided marked relief in pain, swelling, burning sensation, and visible venous tortuosity within a short treatment duration. While the results are encouraging, larger clinical studies with objective vascular assessments and longer follow-up are needed to validate these findings and establish standardized treatment protocols.

11. Patient Consent Statement

Written informed consent was obtained from the patient for participation in this case study and for the publication of clinical details and images. The patient was assured that her identity would remain confidential and that all information would be used solely for academic and research purposes.

12. Conflict of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

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Author Approval & Authorship Statement We, the authors, confirm that:

1. The manuscript has been read and approved by all authors.
2. All authors meet the authorship criteria.
3. The manuscript represents honest and original work.
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