



ROLE OF SITE-SPECIFIC SIRAVYADHA AROUND THE FOOT AND ANKLE IN PLANTAR FASCIITIS: A NARRATIVE REVIEW ON SITE-SPECIFIC VENESECTION INTEGRATING MARMA, HEMODYNAMIC RATIONALE AND CLINICAL EVIDENCE

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ABSTRACT Despite conventional treatments, plantar fasciitis presents a significant challenge, with 5–10% of cases proving refractory and necessitating alternative approaches. This narrative review explores siravyadha, a traditional raktamokshana technique, for the management of Vatakantaka, focusing on site selection around the Kshipra and Gulpha marmas. Sushruta recommends venesection 2 angula above the Kshipra marma for heel and plantar pathologies, while 4 angula above the Gulpha is suggested for proximal disorders. Anatomically, the Kshipra-proximal site influences peroneal nerve referral and dorsal-plantar myofascial connections, whereas the Gulpha-proximal site alleviates the Achilles–fascia continuum and tibial nerve irritation. The quality of the evidence remains low because of small sample sizes, limitations in blinding, heterogeneous protocols, and the absence of site comparisons. Pragmatic multicenter randomized controlled trials with MRI endpoints are recommended to enhance the clinical translation of this promising para-surgical intervention.

KEYWORDS : Siravyadha, Plantar Fasciitis, Vatakantaka, Marma

INTRODUCTION

Ayurveda describes Vatakantaka as a Vata-dominant disorder affecting the heel and foot. This condition arises from repetitive strain, such as prolonged standing, walking, or running on hard or uneven surfaces, and improper foot placement. It is characterized by pain, stiffness, and swelling around the ankle joint (Gulpha sandhi) and the plantar aspect of the foot (Snayu–Asthi–Sandhi āshraya),[1] which closely aligns with the typical presentation of plantar fasciitis.

Correlation with Plantar Fasciitis

Clinically, both Vatakantaka and plantar fasciitis are characterized by acute "thorn-like" heel pain, which is most pronounced during the initial steps taken in the morning or following periods of rest. This pain tends to alleviate with mild physical activity but aggravates with prolonged standing or walking.[2] From a pathophysiological perspective, contemporary understanding of plantar fasciitis attributes it to repetitive microtrauma and degenerative alterations of the plantar fascia at its calcaneal origin.[3] In contrast, Ayurveda describes Vatakantaka as a condition resulting from vitiated Vata, often accompanied by Kapha association, affecting the ligaments, joints, and bone in the heel region.[4]

Burden of Disease

Plantar fasciitis constitutes a significant proportion of heel pain consultations in both primary care and sports medicine settings. The prevalence rates ranging from 2% to 17% among adult populations, with even higher rates observed in high-risk occupations that require prolonged standing.[5] This condition consequently leads to a diminished quality of life and increased utilization of healthcare resources.

Limitations of Conventional Care

Conventional treatment, which includes activity modification, nonsteroidal anti-inflammatory drugs (NSAIDs), stretching exercises, orthoses, night splints, and local corticosteroid injections, offers effective short-term relief. Yet, 5%–10% of patients continue to experience symptoms beyond one year, with a minority requiring surgical intervention. Prolonged use of NSAIDs is associated with gastrointestinal, renal, and cardiovascular risks. Repeated corticosteroid injections may result in complications, such as plantar fascia rupture and fat pad atrophy. These concerns highlight the need for safer, more durable, and function oriented treatment alternatives.[6], [7]

Classical Ayurvedic Concepts

In classical surgical literature, Siravyadha is identified as a primary form of bloodletting therapy (Raktamokshana), in which a specific vein is punctured to release vitiated blood, thereby alleviating pain,

stiffness, and congestion, particularly in the extremities. Among the various bloodletting techniques, Sushruta describes siravyadha as half of all therapy (ardhachikitsa), and subsequent reviews highlight its significant role in addressing musculoskeletal and vascular disorders of the lower limb, such as Sciatica, Gout, Varicose veins, and localized joint or foot pain.[8] Clinically, reports indicate that Siravyadha facilitates a rapid reduction in pain, stiffness, tingling, and heaviness in lower limb conditions, supporting its application as a primary raktamokshana modality when Vata Rakta involvement and intravascular or perivascular stasis are present.[9]

Sushruta explicitly identified venesection of the vein located two angula above the Kshipra marma in the foot as a specific intervention for a group of conditions in relation to Vatakantaka. This suggests that a precise siravyadha site can be used to address heel and plantar disorders. Clinical protocols and trials concerning Vatakantaka or plantar fasciitis have incorporated this classical guidance by performing siravyadha approximately 2 angula (approximately 4 cm) proximal to Kshipra in the affected foot. These studies have documented statistically significant improvements in pain, tenderness, and functional assessments, such as the Windlass test, thereby operationalizing Sushruta's recommendation for this condition.

Vatakantaka is primarily characterized in the classics as Vataja Nanatmaja Vyadhi and Vataja Asthinagata Vatavyadhi, with comprehensive descriptions found in the Sushruta Samhita and Ashtanga Hridaya. The predominant causative factor includes prolonged activities such as walking, standing, running, or jumping on hard, uneven, or rough surfaces (khara bhūmi gati, atichara a, adhā sthāna), excessive physical exertion (atipī ana, atishrama), and trauma or pricking sensations to the heel (k āra vedana).[11] Subsequent texts, such as the Bhava Prakasha and Madhava Nidana commentaries, similarly emphasized occupational strain and improper footwear or ground contact. [12]

Pathogenesis; [13]

From the Ayurvedic perspective the pathogenesis of plantar fasciitis is attributed to overexertion (Athivyayama) and trauma (Abhighatha), which lead to Vata Dushti and result in localized inflammation within the fascia. During the acute phase of inflammation, Rakta and Pitta are involved; however, the condition ultimately progresses to a Vata-Kaphaja state, characterized by pricking (Abhighatha) and splitting (Bheda) pain in the heel. This pathology is primarily a localized disorder in which the ligaments and tendons (Snayu) tissues derived from Medas serve as the principal Adhishtana, indicating a transition from an inflammatory process to a chronic, Vata-dominant degenerative state.

Clinical Features:

The core symptoms were severe, needle-like- or thorn-prickling- pain

at the heel (kāntaka vedana, tīksna bheda rūpa rujā), stiffness, and inability to walk comfortably (gati kāthinya, bhramara, khala), swelling, and tenderness around the heel and ankle.

Severity Descriptors: Pain aggravated by pressure/weight-bearing and partially relieved by rest; chronicity leads to limping gait and foot deformity in neglected cases.

Mapping to Modern Plantar Fasciitis Risk Factors

Ayurvedic causative factors	Modern Plantar Fasciitis Risk Factor
Walking/standing on hard/uneven surfaces (khara bhūmi gati)	Abnormal foot mechanics (flat feet, high arches, abnormal gait/pronation), running on hard surfaces
Prolonged exertion (atishrama, adhah sthāna)	Occupational overuse (prolonged standing, repetitive impact activities), age 40–60 years
Trauma/pricking (ksāra vedana, atipīdana)	Acute injury, obesity (increased BMI >25), tight Achilles/calf, prior tendinopathy/fracture

Concept of Siravyadha:

Siravyadha, an important parasurgical technique in Ayurveda, is traditionally recommended for a broad spectrum of disorders associated with vitiated rakta and localized congestion. [14]

Contraindications

Absolute contraindications include low strength or debility, pregnancy, children or elderly patients, excessive dryness, active bleeding, and patients who have not undergone snehana or swedana preparation. Relative contraindications include immediate postprandial use, fainting tendency, and pure Vata disorders without Rakta involvement.

General Procedure [15]

Pūrva Karma: patient assessment (pulse, tongue, strength), snehana–swedana at the site, and selection of the correct sira based on disease location (for instance, two angula proximal to marma).

Pradhāna Karma: Puncture with suchi/shalaka (needle/rod) at a 45° angle to a depth of 1/4 sira width and evacuate 40–160 ml rakta (based on bala/prakrti) over 15–30 min until śuddha rakta (clear red, no froth).

Paśchat Karma: Wound compression, sneha lepa, bandhana; observe for 24 h and advise paśchat karma (warm fluids, light diet).

Rationale for using in Lower Limb:[16]

Raktamokshana through siravyadha effectively alleviates piercing pain and stiffness by removing stagnant and vitiated rakta–dosa from the sira, thereby decongesting the srotas, enhancing the supply of fresh rakta, and pacifying Vata through local snigdha–mridu effects. This method is particularly appropriate for addressing lower limb Vata–Rakta disorders, such as gridhrasi, sandhigata vata, and vatakantaka, where neurovascular stasis contributes to the symptoms.

Topography of Siravyadha Sites Relevant to Plantar Fasciitis

Site 1: Two Angula above Kshipra Marma [17]

Classical Description and Textual References:

Acharya Sushruta specifically recommends siravyadha of the sira located two angula (approximately 4 cm) proximal to the Kshipra marma for addressing a range of foot disorders, including Vatakantaka, Vipadika, Padadaha, Padaharsha, Khuda, Chippa, and related conditions. Subsequent texts, such as the Ashtanga Hridaya, along with their commentaries, corroborate this precise site for the treatment of localized plantar and heel pathologies.

Marma Type and Structures:[18]

The Kshipra is identified as a Sānyu Pradhāna Marma, primarily involving ligaments, tendons, or nerves. It is located in the first interdigital cleft of the foot between the great toe and the second toe. This anatomical region includes the dorsalis pedis artery and vein, extensor hallucis longus tendon, superficial and deep peroneal nerves, and dorsal foot fascia.

Relation to Plantar Fascia/Calcaneal Region:[19]

Venesection is likely to modulate myofascial chains that connect dorsal extensors to plantar intrinsics via deep fascia. This procedure may influence the medial calcaneal nerve branches, which innervate the heel fat pad and spur area, and potentially reduce upstream tension on the plantar fascia origin through mechanisms of vascular decompression and neurogenic analgesia.

Site 2: Four Angula Above Gulpha (Ankle)

Classical Description and Textual References:[20]

Sushruta and Vagbhata identify the location of siravyadha as four angula above the Gulpha sandhi (mid-calf region, approximately 8 cm proximal to the ankle malleolus) for the treatment of Krostukasira (calf pain syndrome), Gridhrasi, and Vataja lower limb disorders. Chakradatta further extended this application to include sciatica and related stambha–shūla. Although not explicitly mentioned for Vatakantaka, its application in cases involving associated ankle or calf involvement can be inferred from the literature.

Marma Type and Structures:[21]

The Gulpha is identified as a Sandhi Pradhāna Marma, signifying its joint-dominant characteristics at the ankle joint. This anatomical region includes the great and short saphenous veins (antarkandara sira), the posterior tibial artery and vein, branches of the tibial nerve, the Achilles tendon, the ligaments of the ankle joint, and the proximal extensions of the plantar fascia.

Relation to Plantar Fascia/Calcaneal Region:[22]

This proximal intervention targets the posterior myofascial line, specifically the Achilles–plantar fascia continuum, thereby alleviating venous stasis and irritation of the tibial nerve, which are known to refer pain to the calcaneal spur and fat pad. Additionally, this approach may mitigate gastrocnemius tightness, which is a contributing factor to the overload of the windlass mechanism at the plantar origin.

Site	Key Anatomical Targets	Probable Plantar Fascia Effect
2A above Kshipra	Dorsalis pedis vessels, EHL tendon, peroneal nerves, dorsal fascia	Distal neurovascular modulation, fascial tension release
4A above Gulpha	Saphenous veins, tibial nerve, Achilles, ankle ligaments	Proximal chain decompression, Achilles–fascia overload reduction

Clinical Evidence of Siravyadha in Vatakantaka/Plantar Fasciitis

Published evidence on siravyadha for Vatakantaka/plantar fasciitis is limited to small randomized controlled trials/comparative trials and case reports/series, with consistent reporting of classical sites and rapid symptom relief.

RCTs and Comparative Trials

Trial	Design & Groups	Site & Dosage	Key Outcomes
Agnikarma vs Siravedha (n=40, 2023)	RCT; Group A: Agnikarma (n=20); Group B: Siravedha (n=20), single sitting	2 angula (4 cm) above Kshipra marma, unspecified volume	Both highly effective (p<0.0001); Siravedha: VAS ↓91%, tenderness ↓89%, Windlass test ↓88%; Agnikarma slightly superior overall (90.5% relief)
Agnikarma + oral vs Siravedha + oral (n=65, recent)	RCT; Group A: 4x Agnikarma + Rasna Saptaka Kwatha (n=32); Group B: 2x Siravedha + same (n=33), 15-day interval	Classical site (not detailed); 2 sittings	Agnikarma superior for pain/swelling/tenderness; Siravedha provided significant relief (exact % not specified)

Case Reports and Series

- Single Case (49F, Plantar Fasciitis, 2023):** Three sittings of siravyadha (9-day gap) at sira 2 angula above Kshipra marma; significant pain relief from the first sitting, complete resolution of pain/tenderness; 3-month follow-up, symptom-free.
- Single Case (Plantar Fasciitis, 2024):** Four weekly sittings of siravedha (site unspecified, classical implied); significant improvement; no 6-month recurrence; attributed to T-lymphocyte modulation.
- Other Series/Cases (Various, 2018–2023):** classical/modified siravyadha (mostly Kshipra site, 1–4 sittings), rapid VAS/tenderness reduction (80–95%), improved function, no major adverse events, and often combined with oral snehana.

Although the evidence quality was limited (small samples and short follow-up), siravyadha was supported as safe and effective, warranting larger trials.

Mechanistic Insights:[23]

Siravyadha has therapeutic effects through local decompression of congested sirā, thereby reducing intravascular pressure and stasis. It also involves nociceptive modulation, achieved through afferent stimulation and reduced peripheral resistance. Additionally, neurovascular effects are observed vis specific marma points, as the stimulation of vital energy points aids in balancing prā a and alleviating pain and stiffness. Furthermore, hemodynamic changes occur, leading to improved microcirculation and oxygen delivery following Raktamokshana. Systemic and local Vata-rakta-pitta modulation is achieved by expelling stagnant vitiated rakta and by modifying pathogenesis pacifying Vata through srotoshodhana in case of avarana, and by normalizing the rakta dhatu.

Site Correlation with Heel/Plantar Innervation and Myofascial Chains

Site	Segmental Innervation/ Dermatomes	Myofascial Chain Relation	Site-Specific Influence on Plantar Fascia Pain/Tension
2A above Kshipra	L4-S1 via superficial/deep peroneal nerves (heel pad sensation); S1 dorsal root contribution to plantar intrinsics	Superficial back line (dorsal foot → plantar fascia via intrinsics); lateral line	Better for distal pain generators: Targets forefoot-heel nerve referral and intrinsic muscle tension; reduces windlass overload via dorsal fascial release; ideal for localized calcaneal spur pain.
4A above Gulpha	L5-S2 via tibial nerve/posterior tibial (medial calcaneal branch to heel fat pad/spur); S1-S2 dermatome	Deep back line (Achilles-plantar fascia continuum); posterior chain	Better for proximal overload: Addresses Achilles tightness and gastroc-soleus contribution to fascia strain; decompresses tibial nerve entrapment referring to heel; suits ankle stiffness + plantar pain

The site proximal to Kshipra may be particularly efficacious in cases of pure plantar fasciitis, which is characterized by focal heel pain, due to its direct myofascial connections. In contrast, the site proximal to Gulpha is more suitable for chronic cases involving dysfunction of the Different Doshā involved. The evidence base for siravyadha in the treatment of Vatakantaka/plantar fasciitis primarily consists of small-scale randomized controlled trials (RCTs) with sample sizes ranging from 20 to 65 participants per arm, as well as comparative trials and case reports/series. However, it lacks systematic reviews or large multicenter studies on this topic.

Critical Appraisal and Gaps

Overall quality assessment identified several design limitations: the studies were primarily single-center, open-label trials lacking allocation concealment and intention-to-treat analysis. Moreover, the short-term follow-up period (1–6 months) was inadequate for capturing recurrence rates. The small sample sizes resulted in underpowered studies, increasing the risk of Type II error and limiting the generalizability of the findings. The absence of blinding in paravascular interventions (siravyadha vs. Agnikarma) presents challenges, potentially introducing performance and detection biases. Reporting is frequently inadequate, with the venesection site vaguely described as "classical" without precise angular measurement or depth; volume extraction, procedural photographs, and outcome tools were inconsistently applied. Furthermore, heterogeneous co-interventions, such as oral medicines, and physiotherapy, confound the isolated effects of siravyādha.

Overall, the quality of the evidence was assessed as low to moderate, which is suitable for hypothesis generation but insufficient for the development of clinical guidelines.

CONCLUSION

Siravyadha is a highly effective and minimally invasive Ayurvedic intervention for Vatakantaka (plantar fasciitis), offering rapid and significant symptom relief, evidenced by an 80–91% reduction in the visual analog scale (VAS) score through precise venesection at classical sites near Kshipra or Gulpha marmas.

This approach addresses a critical unmet need in refractory cases, in which conventional therapies are inadequate.

Its significance lies in integrating Marma precision with contemporary myofascial neurovascular pathophysiology, providing management of Vata and Rakta stasis without the risks associated with surgical interventions. Consequently, it merits consideration for inclusion in integrative foot pain management protocols. Larger pragmatic randomized controlled trials (RCTs) comparing sites with imaging endpoints are necessary to solidify its evidence base and clinical utility as a frontline, per-surgical option.

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