

Agnikarma as a Minimally Invasive Procedure in Vatakantaka (Calcaneal Spur) Management: A Single Case Study

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Abstract: Vatakantaka (calcaneal spur) is a common musculoskeletal condition characterized by severe heel pain and functional disability, classified under Vata Vyadhi in Ayurveda. It results from aggravation and localization of Vata dosha in the Khuduka Pradesh (heel region) or Gulpha Sandhi, often due to improper foot placement, excessive walking, or movement on uneven surfaces, producing a characteristic thorn-like pain. From a modern perspective, repeated mechanical stress on the calcaneus leads to calcium deposition and the formation of a bony spur, causing pain during standing and walking. Individuals with prolonged standing habits are particularly susceptible.

In Ayurvedic literature, Sushruta has described management of Vatakantaka through Agnikarma (therapeutic cauterization). Agnikarma, a significant parasurgical procedure, involves the application of controlled heat using instruments like Panchadhatu Shalaka, possessing Ushna, Teekshna, and Sukshma properties that help pacify vitiated Vata, reduce inflammation, and relieve musculoskeletal pain and spasm. It is regarded as Sadyafaldayi Chikitsa, providing immediate and effective relief.

A case of a 55-year-old female patient with calcaneal spur treated solely with five sittings of Agnikarma demonstrated significant clinical improvement, with partial pain relief after the first sitting and complete resolution after the fifth, without the use of oral medication. The therapy works by counteracting Vata and Kapha dosha and restoring functional balance. As emphasized by Sushruta, Agnikarma offers superior and long-lasting results, reducing the likelihood of recurrence, and thus serves as an effective treatment modality for Vatakantaka.

Keywords: Agnikarma, Calcaneal Spur, Panchadhatu Shalaka, Vatakantaka, Sadyafaldayi Chikitsa.

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I. INTRODUCTION

The calcaneus or calcaneum, commonly known as the heel bone, is the largest tarsal bone of the foot and forms the prominence of the heel. Its long axis is directed forward, upward, and laterally, and structurally it is roughly cuboidal in shape with six surfaces. The calcaneum forms a major part of the skeletal framework of the foot and provides posterior support to the longitudinal and transverse arches of the foot. It also serves as an important site for the attachment of various ligaments, muscles, and tendons such as the plantar fascia and tendoachilles, which are essential for maintaining posture, balance, and locomotion during daily activities like standing, walking, and running. Due to its weight-bearing function and continuous mechanical stress, the heel is highly

susceptible to painful conditions. Painful heel is a common and troublesome clinical condition, among which calcaneal spur is one of the most frequent causes.¹ The prevalence of heel pain has been reported to affect a significant portion of the population, including a large percentage of individuals in India.²

Calcaneal spur is defined as a bony outgrowth arising from the calcaneal tuberosity, usually on the plantar aspect of the calcaneus. It develops gradually due to chronic mechanical stress, repeated strain, and microtrauma to the plantar fascia at its attachment to the calcaneus. Continuous traction and inflammation at this site lead to calcium deposition and ossification, resulting in the formation of a bony projection known as a calcaneal spur. Clinically,

patients typically present with sharp, stabbing pain in the heel, especially during the first steps in the morning or after prolonged periods of rest, a symptom often referred to as “first step pain.” The pain may decrease slightly with movement but tends to worsen after prolonged standing, excessive walking, running, or lifting heavy weights. Patients often experience tenderness over the heel region, stiffness, and difficulty in weight-bearing on the affected foot, which significantly affects mobility and quality of life.³

The condition usually develops gradually without any definite history of trauma, although several predisposing factors contribute to its development. These include prolonged standing, obesity, sudden increase in physical activity, improper footwear, walking barefoot on hard or uneven surfaces, aging, and occupational stress involving long hours of standing or walking. Modern diagnostic methods include clinical examination, palpation of the heel, and radiological investigations such as X-ray, which typically shows a hook-shaped or spur-like projection arising from the calcaneal tuberosity. Conventional management includes rest, non-steroidal anti-inflammatory drugs (NSAIDs), analgesics, physiotherapy, orthotic heel pads, stretching exercises, corticosteroid injections, and in chronic resistant cases, surgical removal of the spur. However, these treatment modalities often provide only symptomatic relief, may have side effects, and recurrence is commonly observed.⁴

In Ayurveda, calcaneal spur can be correlated with **Vatakantaka**, which is described under Vata Vyadhi. The term Vatakantaka is composed of two words: “Vata” and “Kantaka,” where Kantaka means thorn, indicating a condition in which the patient experiences pain in the heel similar to pricking of a thorn. According to Ayurvedic texts, this condition occurs when aggravated Vata Dosha localizes in the Khuduka Pradesh (heel region) or Gulpha Sandhi due to excessive walking (Atichankramana), walking on uneven surfaces (Vishama Bhoomi Gamana), excessive pressure on the foot, improper foot placement, or overexertion. This leads to symptoms such as heel pain, stiffness (Stambha), difficulty in walking, and discomfort during weight-bearing activities.⁵

Ayurveda describes various treatment modalities for such conditions, including Aushadha (medication), Shashtra Karma (surgical procedures), Kshara Karma (alkaline cauterization), and Agnikarma (therapeutic cauterization). Among these, Agnikarma has been given special importance by Acharya Sushruta. He has stated that diseases treated with Agnikarma are less likely to recur compared to those treated with other modalities. Agnikarma is particularly indicated in diseases involving Asthi (bone), Sandhi (joints), Snayu (ligaments/tendons), and chronic painful musculoskeletal conditions where Vata Dosha predominance is observed.⁶

Agnikarma is a parasurgical procedure in which controlled therapeutic heat is applied to a specific site using various instruments known as Shalaka. Agnikarma can be performed by different methods such as Bindu (dot method), Vilekha (linear method), Pratisarana (rubbing method), and Valaya (circular method).⁷ Different materials are used for Agnikarma such as Pipali, Aja Shakrut, Madhu, Taila,

Panchadhatu Shalaka, Suvarna Shalaka, Loha Shalaka, and Panchadhatu Shalaka. The Ushna (hot), Tikshna (sharp), and Sukshma (penetrating) properties of Agnikarma help in pacifying aggravated Vata and Kapha Dosha, reducing pain, inflammation, stiffness, and improving local blood circulation and tissue metabolism.⁸

Considering the chronic and recurrent nature of calcaneal spur and the limitations of conventional treatments, Agnikarma provides a safe, cost-effective, and minimally invasive treatment option with quick pain relief and low recurrence rate. Therefore, in the present case, Agnikarma by Bindu method using Panchadhatu Shalaka was selected for the management of calcaneal spur without the use of oral medication. The present study aims to evaluate the effectiveness of Agnikarma in the management of calcaneal spur (Vatakantaka) and to assess its role as a safe and effective parasurgical procedure for relieving heel pain and improving functional ability.

➤ *Objective:*

To evaluate the therapeutic effect of Agnikarma in the management of calcaneal spur (Vatakantaka).

II. CASE REPORT

A 55-year-old female patient reported to the Department of Shalyatantra at Government Ayurvedic College, Kadamkuan, Patna, with a chief complaint of severe pain (Shoola) in the right heel persisting for the last 10 months. The pain was notably aggravated during physical activities such as walking, jogging, and running, and was especially intense during the initial steps taken in the early morning after waking, indicating typical start-up pain. The patient also experienced associated symptoms of stiffness and restricted range of movement in the affected heel, which gradually interfered with her daily activities.

Over time, the severity of pain increased and became more pronounced after prolonged standing or following periods of rest, suggesting a progressive nature of the condition. The discomfort was further exacerbated by walking barefoot, indicating increased sensitivity of the heel region. Despite undergoing treatment with analgesic medications for approximately 6–7 months at a private healthcare facility, the patient did not achieve satisfactory or lasting relief.

There was no significant past or present medical history of systemic illnesses such as diabetes mellitus, hypertension, or any other chronic disorders. The patient’s overall health status was otherwise stable, with no history suggestive of trauma or other underlying pathological conditions contributing to the heel pain.

➤ *Examination:*

The patient’s vital parameters were within normal limits at the time of examination. Systemic evaluation did not reveal any abnormal findings. Neurological examination showed normal plantar reflex, ankle jerk, and knee jerk in both lower limbs, indicating no neurological deficit.

Radiological assessment was carried out at a private hospital, where an X-ray of the right heel in anteroposterior (A-P) and lateral views revealed a bony outgrowth at the inferior aspect of the calcaneus, confirming the diagnosis of calcaneal spur.

On local examination of the right heel, marked tenderness (Grade III) was elicited at the plantar aspect of the heel, particularly at the site of the calcaneal tuberosity. There were no signs of swelling, redness, or local inflammation observed.

➤ *Diagnosis:*

On the basis of the above findings and X-ray examination it was diagnosed as *Vatakantaka*.

➤ *External Treatment:*

- Agnikarma: Therapeutic cauterization was performed at the point of maximum tenderness in the right heel region.
- Duration: A total of five sittings were conducted at an interval of 7 days between each session.
- Follow-up: The patient was reviewed after 4 weeks to evaluate the relief in symptoms and overall improvement.

III. PROCEDURE

➤ *Pre-Procedure:*

- The patient was explained about the Agnikarma procedure and informed consent was obtained.
- The patient was made to lie in a comfortable position exposing the affected heel region.
- The point of maximum tenderness on the right heel was identified by palpation and marked.
- The selected site was cleaned with cotton soaked in spirit followed by normal saline to maintain aseptic conditions.
- The Panchadhatu Shalaka was heated until it became red hot.
- The procedure adopted was Bindu Dagdha (dot cauterization), and the red hot Panchadhatu Shalaka was applied at the marked point of maximum tenderness.
- Multiple Bindu Dagdha were performed over the tender area maintaining proper spacing between each point.
- After completion of the procedure, the treated area was cleaned and appropriate post-procedure care was given.
- The patient was advised to avoid exposure to water and excessive pressure on the treated heel for a specified period.

➤ *Main Procedure:*

- The patient was advised to avoid contact with the treated area with water for 24 hours.
- Local application of Jatyadi Ghrita was recommended daily to facilitate proper healing of the cauterized points.
- The patient was instructed to avoid walking barefoot and prolonged standing to prevent further stress on the heel.

IV. PROCEDURE OF AGNIKARMA

Prior to the procedure, Agnikarma was explained in detail to the patient, including its benefits and possible outcomes, and written informed consent was obtained. The patient was then positioned in a supine posture to allow proper exposure and accessibility of the affected heel. The local area was thoroughly cleaned with distilled water and dried using sterile cotton gauze to maintain aseptic conditions.

The site of maximum tenderness was carefully identified through palpation and marked with a skin marker over the right heel. Agnikarma was then performed using a heated Panchadhatu Shalaka, a specialized metallic instrument traditionally used for cauterization. The procedure was carried out in the form of *Samyak Twak Dagdha* (optimal superficial therapeutic burn), ensuring controlled and precise application. Heat was applied in a *Binduakruti* (dot-like pattern) exactly over the marked tender point to achieve localized therapeutic effect.

Throughout the procedure, utmost care was taken to ensure that the burn remained superficial and therapeutic, avoiding excessive tissue damage or complications. After completion, the treated area was covered with sterile cotton dressing to protect the site, facilitate healing, and prevent infection. The procedure aims to relieve pain, reduce inflammation, and correct the localized Vata imbalance, thereby improving functional mobility of the affected heel.

➤ *Post Procedure*

- Immediately after completion of Agnikarma, Aloe vera was applied over the treated area to reduce burning sensation and soothe the skin.
- The vitals of the patient were checked before and after the procedure.
- The patient was advised to keep the treated area clean and dry.
- The patient was instructed to avoid excessive walking, standing for long periods, and pressure over the affected heel.
- The patient was advised for follow-up for the next sitting of Agnikarma.





Fig 1 Post Procedure

V. RESULTS AND DISCUSSION

Assessment of the patient was carried out before and after treatment based on parameters such as pain intensity, tenderness over the heel region, and walking capacity. Pain gradation is depicted in Table 1, while Table 2 illustrates the grading of signs and symptoms before and after Agnikarma therapy. After the first sitting of Agnikarma, the patient experienced partial relief in heel pain. With subsequent sittings, there was a progressive reduction in symptoms, and complete relief from heel pain was observed after the fifth sitting. Similarly, tenderness and difficulty in walking showed gradual improvement, with significant reduction noted by the end of the treatment.

Table 1 Pain Gradation

Grade	Grade No
No Pain	0
Mild Pain	1-3
Moderate Pain	4-7
Severe Pain	8-10

Table 2 Sign and Symptoms Gradation Before and After Agnikarma

Sr. No.	Sign & Symptoms	Before Agnikarma	1st sitting	2nd sitting	3rd sitting	4th sitting	5th sitting
1	Heel Pain	10	8	6	4	2	1
2	Tenderness over heel	6	4	3	3	1	0
3	Difficulty in walking	7	6	6	5	3	2

Calcaneal spur is defined as a bony outgrowth arising from the calcaneal tuberosity, which develops due to continuous mechanical strain on the foot. Repeated stress leads to calcium deposition at the plantar aspect of the heel, resulting in a spur-like projection.⁹ In modern medicine, management includes conservative approaches such as exercises, anti-inflammatory medications, and corticosteroid injections. In cases where these measures fail, surgical intervention may be considered.¹⁰

According to Ayurveda, Vatakanthaka occurs due to vitiation of Vata Dosha along with the association of Kapha Dosha, leading to symptoms such as Shoola (pain), Stambha (stiffness), and Shotha (inflammation) in the heel region. Acharya Charaka has emphasized the importance of Agni (thermal therapy) as an effective modality for alleviating pain and breaking the pathogenesis of such conditions.¹¹

➤ Probable Mode of Action of Agnikarma

Agnikarma acts through multiple mechanisms, both from Ayurvedic and modern perspectives:

- In Agnikarma, therapeutic heat is applied locally using a heated Shalaka, which transfers heat to the Twak Dhatu and produces Samyak Dagdha Vrana. The properties of Agni such as Ushna (hot), Tikshna (sharp), Laghu (light), Sukshma (subtle), Vyavayi, Vikasi, and Ashukari help in removing Srotorodha (obstruction in channels), pacifying aggravated Vata and Kapha Dosha, and thereby

interrupting the disease process, ultimately reducing pain and inflammation.¹²

- The Ushna Guna of Agni counteracts the Sheeta Guna of Vata, leading to alleviation of pain. It also reduces Kapha involvement, thereby decreasing inflammation and facilitating Ama Pachana (metabolic correction).¹³
- The application of heat enhances local blood circulation in the heel region, improving tissue nutrition and promoting the removal of metabolic waste products and inflammatory mediators, which contributes to pain relief and reduction of inflammation.¹⁴
- From a modern physiological perspective, therapeutic heat stimulates the lateral spinothalamic tract and activates descending inhibitory pain pathways. This results in the release of endogenous opioid peptides, which block pain transmission. Additionally, increased local temperature reduces nerve excitability and muscle spasm, thereby decreasing stiffness and improving functional mobility.¹⁵

VI. CONCLUSION

Agnikarma plays a significant role in the management of Vatakanthaka by effectively pacifying the aggravated Vata Dosha and eliminating Srotorodha (obstruction in bodily channels), thereby reducing pain and inflammation. The therapeutic heat applied during the procedure helps in breaking the pathogenesis of the disease and promotes better local circulation and tissue metabolism.

Agnikarma is a localized, simple, and cost-effective parasurgical procedure that does not require hospitalization and can be conveniently performed at the outpatient (OPD) level. It is minimally invasive, safe, and provides rapid symptomatic relief without the need for prolonged medication.

Based on the findings of the present study, it can be concluded that Vatakantaka (calcaneal spur) can be effectively managed with Agnikarma using Panchadhatu Shalaka. The therapy demonstrates the property of *Sadyafaldayi Chikitsa*, offering immediate and sustained relief from pain and associated symptoms, along with a reduced likelihood of recurrence. Therefore, Agnikarma can be considered a reliable and efficient treatment modality in the management of calcaneal spur.

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