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A SINGLE ARM STUDY OF EFFICACY OF MRUTTIKA SHALAKA AGNIKARMA IN THE PAIN MANAGEMENT OF VATAKANTAKA WITH SPECIAL REFERENCE TO CALCANEAL SPUR

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ABSTRACT

Vatakantaka is a Vata-dominant disorder affecting the Gulpha Sandhi region, characterized by severe heel pain and inflammation. In contemporary medicine, it can be correlated with calcaneal spur, a common cause of chronic heel pain leading to functional disability. Agnikarma is described in Ayurvedic classics, especially by Acharya Sushruta, as an effective parasurgical procedure for Vata-Kapha predominant disorders involving Asthi, Sandhi, and Snayu.

Aim

To study the efficacy of Mruttika Shalaka Agnikarma in the management of Vatakantaka with special reference to calcaneal spur.

Materials and Methods

An open-label, single-group clinical study was conducted on 30 patients diagnosed with Vatakantaka/calcaneal spur based on clinical features and X-ray findings. Agnikarma was performed using heated Mruttika Shalaka at the maximum point of tenderness once weekly for four sittings. Pain was assessed using the Visual Analogue Scale (VAS) before and after treatment. Statistical analysis was carried out using the Wilcoxon Signed Rank Test.

Results

The mean VAS score reduced from 8.13 ± 0.94 before treatment to 5.07 ± 1.39 on 28th day of treatment, showing an overall improvement of 38.81%. The reduction in pain was found to be statistically highly significant ($p < 0.001$). Clinically, most patients showed a shift from severe pain to mild and moderate pain categories after treatment.

Conclusion

Mruttika Shalaka Agnikarma showed statistically and clinically significant improvement in pain management of Vatakantaka (calcaneal spur). The therapeutic effect may be attributed to the Vata-shamaka and Shoolahara properties of Agnikarma. The procedure was found to be safe, effective, and economical. Further randomized controlled trials with larger sample sizes are recommended to validate these findings.

KEYWORDS: *Vatakantaka, Calcaneal Spur, Agnikarma, Mruttika Shalaka, Heel Pain, Vata Vyadhi.*

INTRODUCTION

Vatakantaka is one of the *Vata Vyadhi* which occurs in *Gulpha sandhi* region. It is characterized by *shool* (pain) and *shoth* (Inflammation) in khudak (Heel). In modern science most common form of heel pain is mainly due to Calcaneal Spur. *Vatakantaka* can be corelated with calcaneal spur. Calcaneal spurs are highly prevalent in Middle age people and causes lot of pain of excruciating type and disability. Calcaneal spur is a condition in which Osteophytes (bone spur) are formed on calcaneus bone and is characterized by pain during walking, swelling and tenderness over heel[1].Patient experience severe pain with the first step in the morning or following inactivity during the day, which becomes worse on walking barefoot or upstairs. On examination, maximum tenderness is elicited on palpation over the inferior of heel corresponding to the site of attachment of the plantar fascia. The contemporary treatment consists of Non-steroidal Anti-inflammatory drugs, bed rest, Cup pads, injection of hydrocortisone acetate. Surgical procedure of removal of any calcaneal spur. However, in medical practices prognosis with both conservative and surgical treatment is not satisfactory.

Incidences of plantar calcaneal spur and posterior calcaneal spur were detected as 32.2% (male: 31%, female: 34%) and 13.1% (male: 11%, female: 16%)[2].

According to *Ayurveda padashool* is *nantmaj vyadhi* of *vata dosha*[3]. Acharya Sushruta has mentioned in vatavyadhi chikitsa adhyaya about pain management via raktmokshan and agnikarma in different condition of vatavyadhi. *Agni karma* is the prime treatment indicated for *vata* prakop in *Asthi, Sandhi*, *Snayu* (Disease of tendon, bone and joint) and Raktmokshana for *vata* prakop in Twak, mansa asruka[4]. Here *agnikarma* was done using *mruttika shalaka.* We conducted this therapy on 30 patients of diagnosed calcanel spur with mruttika shalaka agnikarma at maximum point of tenderness Once a week for 4 weeks.

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AIM AND OBJECTIVES

To study the efficacy of mruttika shalaka agnikamra in the management of vatakantaka w.s.r. to calcaneal spur.

MATERIAL AND METHODS

The study conducted in our institute on 30 patients with diagnosis of the *vatakntaka* or calcaneal spur. The patients were diagnosed with sign and symptom and X ray. *Agnikarma* was done upto 4 sitting once every week, *mruttikashalaka* was heated by keeping it on gas and hot *shalaka* was applied at the maximum point of tenderness on the affected heel. After the *agnikarma* heel was cleaned by gauze piece.

Plan of study - Source of data – patients attending opd and ipd of APM's Ayurveda Mahavidyalaya, sion.
Open randomized study
Sample size 30
Duration 28 days
Follow up after 1 week.
Diagnosis of the cases is done by clinical evaluation and investigation such as x ray.

Inclusion Criteria

- Age- 16-60 years
- Gender – both gender
- All classical symptom of *vatakantaka*
- X ray showing calcaneal spur anterior or posterior.

Exclusion Criteria

- Localised fracture
- Neurological disorder- diabetic neuropathy,
- Pt contraindicated for *agnikarma* given in Sushrut Samhita.

Investigation – x ray single or both ankle joint AP, lateral.
Data- 30 patient of diagnosed with *vatakantaka* were selected randomly in our institute.

Assessment Criteria

Assessments were done as per Universal pain assessment tool -VAS.



- **Procedure**

The procedure of *Agnikarma* can be divided into three parts:-

- *Poorva karma*
- *Pradhana karma*
- *Paschat karma*
- *Poorvakarma (*Pre operative procedure)
  1. Diagnosed and illegible cases of *vatakantaka* were selected for *Agnikarma* therapy.
  2. The patients were prepared for the procedure after proper counselling and explanation of the events of treatment.
  3. Proper consent in standard format is being taken from the patient or attendant.
  4. The most tender point of the affected part was found out by palpating.
  5. The area was cleaned with gauze.
- *Pradhan karma:* operative procedure
  1. Patients were made to sit with one heel resting above the other knee in a comfortable position before starting the procedure.
  2. The *mruttika shalaka* was heated on gas stove till it become red hot, after it applied to the most tender spot of the affected part. Agnikarma in the form of samyak twak dagdha (therapeutic superficial skin burn) was done by hot Mruttika Shalaka which is made from a fine potter's soil by making in Binduakruti dahan vishesh (single dot) at the most tender point.
  3. The same procedure repeated at multiple points if needed.
- *Paschat karma:* Post operative procedure

  After producing Samyak dagdha lakshans, go ghruta was applied at the heated part.



Figure 1 Mruttika Shalaka

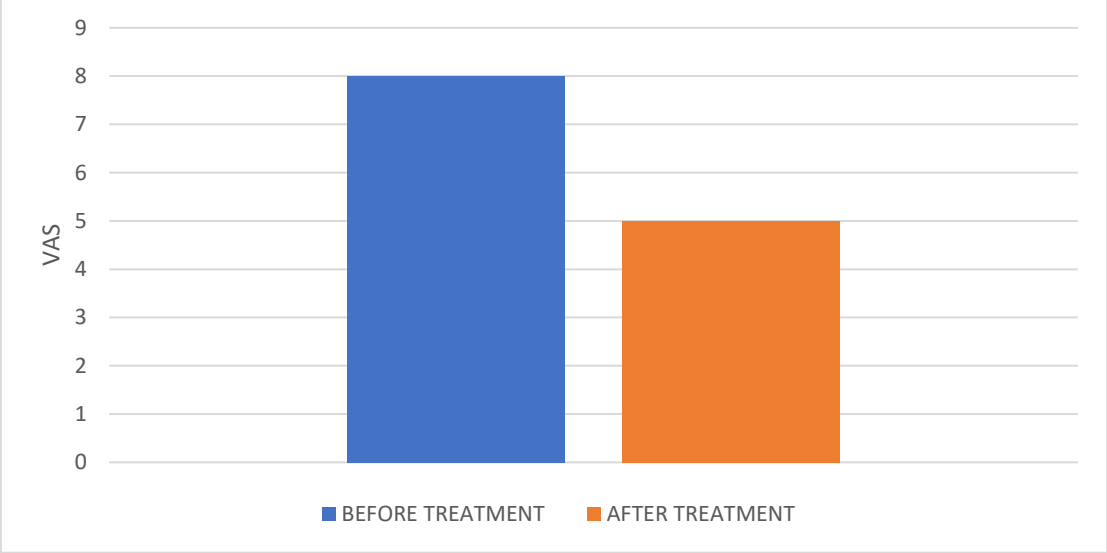


Figure 2 Agnikarma

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- **OBSERVATION AND RESULT**
  - Effect on Vas before and after treatment

Parameter	Before Treatment (Mean ± SD)	After Treatment (Mean ± SD)	% Improvement	Test Applied	p-value
VAS Pain Score	8.13 ± 0.94	5.07 ± 1.39	38.81%	Wilcoxon Signed Rank Test	< 0.001 (Highly Significant)



Interpretation –

-Statistical analysis was carried out using the Wilcoxon Signed Rank Test as the data was ordinal in nature.

A total of 30 patients were assessed for pain using the VAS scale before and after treatment. The mean VAS score before treatment was 8.13 ± 0.94, which reduced to 5.07 ± 1.39 after treatment.

The reduction was found to be statistically highly significant ($p < 0.001$), indicating the effectiveness of the intervention.

Degree of Improvement	No. of Patients	Percentage (%)
Marked improvement	11	36.7
Moderate improvement	14	46.6
Mild improvement	5	16.7
No improvement	0	0

After treatment (28th day), most patients (66.7%) shifted to mild to moderate pain category.

DISCUSSION

In the present single-group clinical study, 30 patients suffering from calcaneal spur were assessed for pain intensity using the Visual Analogue Scale (VAS). Before treatment, the majority of patients exhibited **severe pain**, as reflected by a higher mean VAS score (8.13 ± 0.94). This indicates chronicity of the condition and significant impairment in daily activities.

After completion of treatment, a notable reduction in pain intensity was observed. The mean VAS score reduced to **5.07 ± 1.39**, showing a **38.81% improvement**. The Wilcoxon Signed Rank Test revealed this change to be **statistically highly significant ($p < 0.001$)**. The graphical analysis further demonstrated a clear shift of patients from severe pain category to mild and moderate pain categories, suggesting meaningful clinical relief.

Vatakantaka is mainly caused due to vitiation of Vata with the association of *Kapha Dosha*. Vitiated Vata Dosha is responsible for *shoola* (pain), Stambha(stiffness) and *Kaphanubandha* (association of Kapha) is responsible for *Shotha* (inflammation) in the heel.

Agnikarma is an important *Anushstra karma* (para surgical procedure) elaborately describe in *Sushruta Samhita*. *Acharya Sushruta* mentioned that *Agnikarma* treatment has been described to be superior to the caustic alkali (*Kshar Karma*)[5], as the disease treated by it do not relapse and more over those incurables by *Bheshaja* (medicine), *shastra* (Operations) and Caustics (Kshar) yield to it. *Agnikarma* is the prime treatment indicated for *vataprakop* in *Asthi, Sandhi, Snayu*.

The *ushna-tikshna guna* of *Agni* exerts an antagonist effect on *kapha* and *vata dosha*. Thus, it is specially indicated in the *lakshan* and vyadi caused governed by vat a dosha and *kapha dosha* by using these patients were treated with *agnikarma* by *mruttika shalaka* and its effect were assessed by relief in sign and symptom and VAS. *Mruttika shalaka agnikarma* has shown better result in the management of calcaneal spur.

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Probale mode of action of Agnikarma-

The *ushna-tikshna* guna of Agni exerts an antagonist effect on *kapha* and *vata dosha*. Thus, it is specially indicated in the *lakshna* and *vyahi* caused governed by *vata dosha* and *kapha dosha*. The *Ushna, Tikshna, Laghu Sukshma, Vyavayi, Vikashi* and *Ashukari* properties of *Agni* help to remove the *srotavarodha* (obstruction of channels), pacifies the vitiated *Vata- kapha dosha* and maintains their equilibrium thus break the *Samprapti* (pathology). All the *marga avarodha samprapti* which is produced by excessive *sheetatva* are cured by *Agnikarma*. The principle behind this is "*Viparit-gun-chikitsa*. Acharya Charaka described that Agni is the best treatment for shool (pain). It reduces *Kapha anubandha* there by relieving the *Shotha* (inflammation)[6].

Therapeutic heat stimulates the lateral spinothalamic tract, leading to stimulation of descending pain inhibitory fibres, causing release of endogenous opioid peptide, which blocks the transmission of pain. In this procedure, the temperature at the applied site is increased which reduces nerve reflexes resulting in relaxation of muscle thereby causing a reduction of stiffness[7].

CONCLUSION

The present single-group clinical study revealed a statistically highly significant reduction in pain among patients suffering from calcaneal spur. Pain intensity assessed by the Visual Analogue Scale (VAS) showed a marked decrease after treatment, with an overall improvement of 38.81%. The Wilcoxon Signed Rank Test confirmed the significance of the observed change ($p < 0.001$).

Clinically, patients exhibited a clear shift from severe pain to mild and moderate pain categories, indicating effective symptomatic relief. The observed results may be attributed to the *Vata-shamaka* and *Shoolahara* properties of the intervention, which help in alleviating pain and improving functional status. The study findings suggest that the intervention is safe and effective in the management of calcaneal spur. Further randomized controlled studies with larger sample sizes are recommended to substantiate these findings.

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