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Management of *Vatakantaka* (Plantar Fasciitis) with *Agnikarma*-A Case Study

Case Report

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Abstract

Acharya Sushruta explained that when a person walk on the irregular or uneven surface, *vata* gets localized and aggravated in *khuda pradesha* (Ankle joint) and produce pain in heal region known as *Vatakantaka*. *It can be compared to* Plantar Fasciitis. Plantar Fasciitis is the one of the painful condition in heel that hampers daily activity. Plantar Fasciitis is caused due to repeated stretch and strain of plantar fascia resulting in injury and inflammation which produces heel pain. Plantar fasciitis is managed with analgesic and anti-inflammatory, intra articular steroid injection and surgically by plantar fascia release as per requirement, but such type of treatment increased hospital stay and high economical expenses. *Sushruta* mentioned *agnikarma* in management of *Vatakantaka* which can be done with less economical expenditure and minimum hospitalization. *Agnikarma* is used in this case study to assess its efficacy in relieving pain. 46 years old female complaints of right heel pain in first few steps in morning and pain relived after walking, and again pain developed after prolonged period of rest. Patient was treated by *Samyak Bindu vat Agnikarma* at ankle region in 4 sittings at the interval of 7 days, which given complete relief from pain.

Key Words: *Vatakantaka, Agnikarma, Khuda,* Plantar Fasciitis, Heel pain, Ankle joint.

Introduction

The great Indian surgeon "*Sushruta*" (800 BC) known as father of Surgery has described, *Vatakantaka* in *Vatavyadhi Nidhana.* While walking when the foot is placed unevenly on the ground, *Vata dosa* gets localized in *khuda* (ankle) and aggravated and produce pain in heel known as *Vatakantaka* (1).

Acharya Vaghbata described that severe aching pain is perceived when the foot is kept in unusual posture or when the local area is fatigued due to excess function, *Vata dosa* get aggravated and localized in the Ankle joint and heel. It is called as *Vatakantaka*(2).

Disease like Calcaneal Knob, Bursitis, Bony Spur, Paget's, Osteomyelitis, and Plantar Fasciitis presents with heel pain. Among these *Vatakantaka* can be correlated with Plantar Fasciitis.

Patients with Plantar fasciitis commonly presents with symptoms like stabbing thorny type of pain in heel that occurs with first steps in the morning which usually decreases after walking for some distance and re-occur after prolonged period of rest. Plantar fasciitis can be diagnosed usually on the basis of history and physical examination alone.

Plantar Fasciitis is more commonly seen in athletes, overweight persons, dancers and people who wear shoes with inadequate support. It can be also seen as degenerative changes by growing age. It is estimated that 1 in 10 people will develop Planter Fasciitis in their lifetime. Incidence occurs between 40 and 60 years of age (3).

It can be managed with treatment like Physiotherapy, Stretching exercises, Shoe inserts, non-steroidal anti-inflammatory drugs, Steroid injections. Surgically it can be managed by plantar fascia release based on requirement (4).

Acharya Sushruta in *agnikarma vidhi adhyaya* mentioned that *agnikarma* can done in condition like, very severe pain in *twak*(skin), *mamsa*(muscle), *sira(*vein*), snayu(*ligament*), asthi(*bone*) sandhi(*joint*)* (5) and other treatment modalities like oleation, poultice, bandaging for management of *Vatakantaka*(6).

Vatakantaka is a *Snayu Asthi Sandhi Ashrit Vyadhi* (Disease of tendon, bone and joint) and painful condition. According to the above reference, *Agnikarma* is used in this case to assess its efficacy in relieving pain in *Vatakantaka*.

Case Report

A 46 years old female, labour, with no co-morbidities, presented with complaints of stabbing pain which is moderate to severe in the right heel, early morning stiffness and restricted movements of right heel since 2 years, visited to *shalya tantra* OPD No:1153796, S V Ayurvedic hospital, Tirupati on 16th February 2022. No history of trauma present. No history of fever and other systemic disease present. Initially she developed pain in right heel in first few steps in the morning soon after waking up from bed, which used to decrease after walking for some distance.

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Then she developed pain after prolonged period of rest and standing for long time. She consulted local allopathic hospital and used medications for 4-6 months but pain decreased when medicine is taken and re-occurs after stopping it.

Examination

- Vitals: BP-130/80mm of Hg, Pulse-80b/min, temp-98.6°F, Spo2-98%. Systemic examination-CVS-S1S2+, RS-no added sounds, B/L air entry+, CNS-NAD, Plantar reflex, knee and ankle jerk of both limbs were normal.
- Local examination: Right heel showed no swelling or redness. Tenderness (Grade 3) was present and Range of Movement (ROM) of right heel was painful.

Windlass test: Patient was made to stand on a stool with the metatarsal heads just off the edge of the stool, with equal weight on both feet. Then first phalange was passively extended and interphalangeal joint to flex, continued to its end of range or until the patient's pain is reproduced (7).

Positive windlass test: Heel pain reproduced when passive dorsiflexion of the toes was done.

Differential diagnosis

Vatakantaka, Asthividradhi (Osteomyelitis), *Sandhivata*(osteoarthritis), Calcaneal spur, Calcaneal fracture, Retro calcaneal bursitis.

X-ray of right foot AP and lateral view – Based on X ray findings osteomyelitis and osteoarthritis of ankle differentiated

Diagnosis

According to history, symptoms and examination, it was diagnosed as *vatakantaka*.

Calcaneal spur, Osteomyelitis, osteoarthritis, Calcaneal fracture, Retro calcaneal bursitis ruled out with X-ray of right foot AP and lateral view.

Treatment given

***Agnikarma*:** At heel area

Duration: 4 sittings at an interval of seven days after each sitting-(1st, 7th, 14th, 21st day)

Follow up- Up to 3 Months

Assessment criteria

1. Pain
2. Walking difficulty
3. Tenderness
4. Windlass test

Grades:

Grades of Visual analogue scale for Pain: (8)

No pain	0
Mild pain - Can be ignored	2
Moderate pain - Interfere with tasks	4
Severe pain - Interferes with concentration	6
Very severe pain - Interferes with basic needs	8
Worst pain possible - Bed rest required	10

Walking difficulty

Pain while walking	1
Can walk without pain	0

Tenderness

No tenderness - says palpation is not painful even when asked about it	0
Mild Tenderness - Says palpation is painful only when asked about it	1
Moderate tenderness - Indicates palpation is painful by wincing during palpation	2
Severe tenderness - On palpation, tries to withdrawal the limb	3

Windlass test: Based on VAS scale (8)

Negative windlass test - No pain- Alert & smiling	0
Positive windlass test	
Mild pain – no humor, serious	2
Moderate pain – Furrowed brows, breath holding, pursed lips	4
Severe pain – wrinkled nose, raised upper lip, rapid breathing	6
Very severe pain –slow blink, open mouth	8
Worst pain - Eyes closed, crying	10

Procedure:

Preoperatively CBC, ESR (Erythrocyte sedimentation rate)-24mm/hr, GRBS-99 mm of Hg, which is normal limit, X ray right foot AP and Lateral done. Procedure was explained and written informed consent was taken from patient. Then heel was cleaned with *Triphala Kashaya* and wiped with dry sterilized gauze. *Panchadhatu shalaka* (rod like instrument made of five metals- Gold, iron, silver, zinc, copper) was used in this procedure. *Shalaka* made into red hot and placed around the ankle and plantar aspect of ankle up to 2-3sec until *bindhuvat samyak dagdha vrana* was made. Proper space was kept between two spots (therapeutically burn spots). To get relief from burning sensation *Kumari(Aloe barbadensis* Mill.*)* pulp was applied over burnt area. Then *Yashtimadhu Churna(Glycyrrhiza glabra* Linn.*)* applied on it and bandage was done (9). The same procedure was done for 4 times at the interval of 7 days-(1st, 7th, 14th, 21st day).

Fig: 1 Procedure of *Agnikarma* 1st sitting

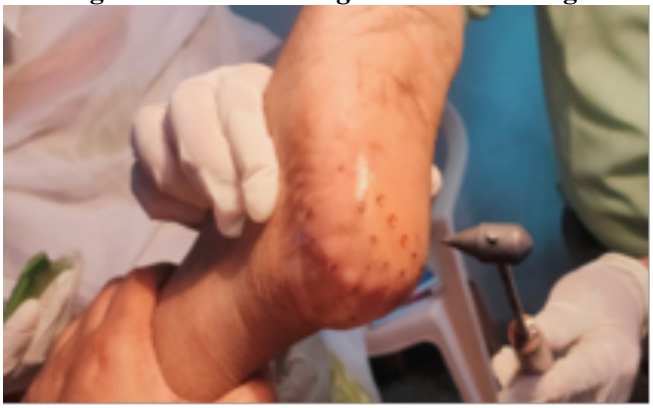
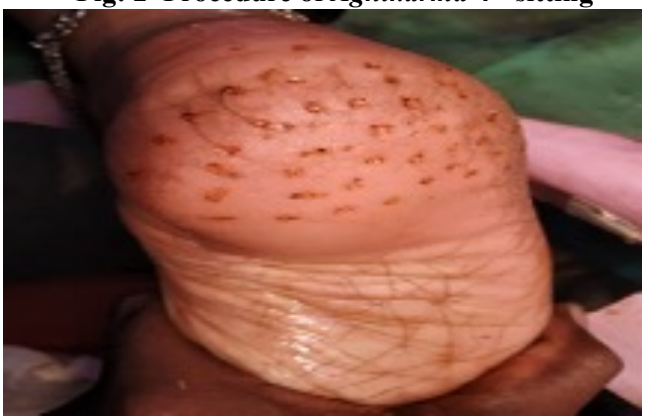


Fig: 2 Procedure of *Agnikarma* 4th sitting



Observations and Results

Based on assessment criteria (pain, walking capacity, tenderness and pain while doing windlass test), patient was assessed before and after the treatment. Before treatment patient has Pain- VAS - 8, Difficulty in walking(Grade 1), Tenderness (grade-3), Windlass test (VAS-8). After second sitting, the patient experienced some pain relief (VAS-4), Difficulty in walking(Grade 1), tenderness (Grade- 2) and windlass test (VAS-4). After the completion of third sitting, the patient got pain relief (VAS-2), Difficulty in walking(Grade 0), and tenderness (Grade-2) and windlass test (VAS-2). After the completion of fourth sitting, pain (VAS-0), Difficulty in walking(Grade 0), tenderness (grade 0), windlass test (VAS 0) and restricted movements were relieved without any adverse effects. No relapse was observed up to 3 months follow up (Table 1).

Table 1: Showing the subjective parameter before and after treatment

s/o	Symptoms	1st sitting (BT)	2nd sitting	3rd sitting	4th sitting (AT)
1	Heel pain	VAS-8	VAS-4	VAS-2	VAS-0
2	Difficulty in walking	Grade 1	Grade 1	Grade-0	Grade 0
3	Tenderness	Grade 3	Grade 2	Grade-2	Grade 0
4	Windlass test	VAS-8	VAS-4	VAS-2	VAS-0
BT= Before Treatment, AT= After Treatment					

Discussion

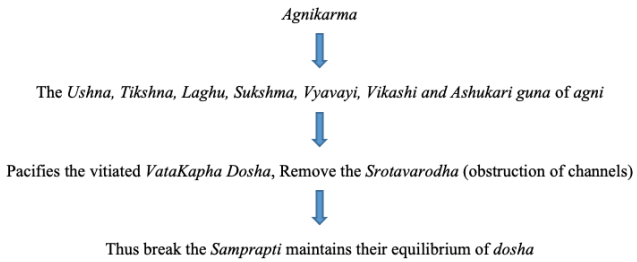
In both the sciences, the commonly seen factor causing the disease is more pressure over the arch of the foot leading to the stretch and strain of fascia which leads to inflammation of plantar fascia. The main symptom is defined as sharp pain on the plantar surface of the heel. Sharp pain in the heel is something like pin pricking.

The word *kantaka* correlates with thorn, and in *Vatakantaka* there is thorny pain in the heel. So, based on above factors it is appropriate to correlate *Vatakantaka* to Plantar fasciitis.

Vatakantaka is predominantly caused by vitiation of *Vata* associated with *Kapha* in heal and cause Pain, Stiffness, and *Shotha*.

Agnikarma is a Para surgical procedure explained by *Sushruta* in *Sutra sthana- agnikarma vidhi adhyaya* , Which he explains *Agni* is better than *Kshara*(alkali) in action, disease which are incurable by the use of medicines, *Shastras*, and *Kshara* will be cured by fire, and disease will not recur again (10).

Flow Chart - 1: Probable Mode of action of *agnikarma* according to *ayurveda*



Probable Mode of action of *agnikarma* according to *modern*

- By inducing heat to ankle joint causes vasodilatation which increases blood circulation, leading to increased blood flow to the ankle and also increase the venous return which flush away the metabolic waste from ankle. It will decrease pressure on nerve ending and there by decrease the pain and also enhances the natural process of repair.
- By inducing heat will improve local metabolism. This will increase the demand of oxygen and nutrients to the tissue which will enhance the natural process of healing
- Mode of action of *agnikarma* can be understood with help of afferent spinothalamic tract. In this lateral spinothalamic tract (ascending neurons) (11) are the pathway for conduction of pain and temperature, pressure by ventral spinothalamic tract. When perception of pressure and temperature factors is increased, pain perception is reduced because only stronger sensation one can felt by brain.

By inducing heat cause irritation of sensory nerve endings, which relives pain by counter irritation.

After treatment Pain, tenderness, Difficulty in walking, pain on doing Windlass test was relived. Thus, significant improvement was observed after treatment. So *Vatakantaka* can be effectively managed with *agnikarma* based on above theory.

Conclusion

Agnikarma showed the significant results in the management of *vatakanataka*. The procedure of "*Agnikarma*" which was simple, economical, and did not require hospitalization and it could be carried out at OPD level itself with good results.

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