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## **Research Article**

# TO STUDY THE EFFICACY OF AGNIKARMA IN VATAKANTAKA W.S.R.TO PLANTER FASCIITIS Anantkumar V Shekokar<sup>1</sup>, Kanchan M Borkar<sup>2</sup>, Rajani Patle<sup>3\*</sup>

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**KEYWORDS:** *Vatakantaka*, Planter fasciitis, *Agnikarma*, *Gulfa Sandhi*, Ankle joint.

## **ABSTRACT**

Heel pain symptom is commonly found in 80% of population in the society. *Vatakantaka* is the painful condition in which the person can't walk properly, that hampers his daily activity. Almost all signs and symptoms of *Vatakantaka* resembles with the condition of chronic plantar fasciitis described by the modern texts.

Chronic plantar fasciitis is mostly required analgesic and anti-inflammatory and surgical correction to stabilize the patient as well as to cure the condition, but in developing countries such type of treatment modalities were avoided because of Complications of NSAID, pain, fear and other psychological factors, longer hospitalization and also economical expenses. So there is scope for non surgical treatment modalities with less economical expenditure as well as minimum hospitalization. *Agnikarma* has *Shulahara*, *Shothahara* and *Vatahara* properties, less painful with minimum expenditure. Hence it can be proved as a most affordable and convenient parasurgical treatment modalities in the developing countries which can provide relevant treatment modalities in medical sciences. In the present study in dependable variables are *Agnikarma* and Inj. Therapy while dependable variables are *Vedana*, *Stambha*, *Sparashasahatva*, *Kriyahani* and demographic variables are age, sex, religion, habitat, *Prakruti*, diet etc.

The present study designed as a prospective randomized control single blind clinical trial with hypothesis that, *Agnikarna* acts as *Shulahara*, *Shothahara* and Parasurgical properties in management of *Vatakantak*. In the present study, 60 patients of *Vatakantak* will be selected & randomly categorized in to 2 groups, each of comprising 30 Patients. and following hypothesis should be considered. *Agnikarma* acts as a *Shulahara*, *Shothahara* and Parasurgical properties in management of *Vatakantak*. Result of present study shows significant result in *Vatakantak* to cure as well as prevent recurrences of the condition.

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# INTRODUCTION

Pain is an unfavourable sensation that brings an individual to the physician due to a halt from his routine works. Heel pain symptom is commonly found in the society which experiences severe pain, tenderness and restricted movements at some time during their life, fortunately in some of these pain subsides within short period. But unfortunately as many as, these pains recur and may get converted in diseases like *Vatakantak* (plantar fasciitis)<sup>1</sup>.

The condition is more painful when mobile joints such as *Gulfa Sandhi* (Ankle joint) of the body are involved due to Vatakantaka<sup>2</sup>. The disease *Vatakantaka* is more prone to be affected to *Gulfa Sandhi* because it is most frequently involved joint in daily routine work, weight bearing joint of the body, and more prone to develop in overweight patients.

The recent advances and researches in Ayurved have not only promoted its utility but also established its

importance in the medical field. In today's modernized world, life style and dietary habits of peoples are totally changed like shift duties, stressful life, eating of unhealthy, non-nutritional foods, use of various types of insecticide in agriculture drastically changed as compare to previous generation, leads to problem like obesity<sup>3</sup>. Due to modernisation, people prefer more facilities like cycling, kicking for bike riding, use of high heel, uncomfort or rough footwear, long standing work and walking on irregular surface. All over these factor promoting the *Dosha* to be vitiated, and makes people more prone to disease. *Tridosha* in the body owing to causes gets vitiated and manifest in places all over the body<sup>4</sup>.

Though *Vatakantka* is not life threaten condition but it is very painful condition and leading to inability for someone to walk properly and hence, it affects the day to day activities. while describing

Vatakantaka, Sushruta and Vaghabhata had quoted that it is one of the Vatavyadhi in which during walking and running foot is landed improperly (scoliosis / Dehasyavakrata) because Visham Vata located in the Gulf (ankle) vitiates and it produces pain in Gulf region. If Vayu situated in Gulf region produces pain in feet while placed unevenly it is known as Vatakantaka<sup>5</sup>.

Ayurveda, Sushurutacharya explained Vatakantaka under the heading of Vatavyadhi. As in Vatakantaka there is mainly Dushti of Vata in ankle region due to constant standing and walking on uneven surface resulting in to heel pain. Sushruta also mentioned that the disease Vatakantaka is Snavu Asthi Sandhi Ashrit and such diseases treatment should be treated with Vataghna Chikitsa<sup>6</sup>, Raktaavasechanam, Eranda Tailm, medicinal compounds Oleation, Poultice, Agnikarma, Bandaging, and Massage up to considerable relief from pain7. As per WHO slogan, "Health to all", but modern science not solving the plantar fasciitis satisfactory solution and hence allied medical science fulfilling the supportive therapy to achieve the aims of WHO towards the common people, so that we are following the *Acharya* Sushruta, who is the pioneer of surgery, give more emphasis of para-surgical management of Vatakantaka (Plantar fasciitis) like Agnikarma.8

In medical science Agni Karma means application of Agni directly or indirectly with the help of different materials to relieve the patient from disease. According to Dhalhana, Commentator of Sushruta, Agnikarma is classified as Agni Krita-Karma or the Karma or action carried out by Agni. Acharya Sushruta has described Agnikarma as more effective than any other types of treatment because of no recurrence of diseases. It is useful in diseases which are incurable by drugs, surgery, and Kshara Chikitsa9. Agnikarma can be performed in intense pain caused by Vata situated in skin, muscles, blood vessel, ligament, joint and bone, wound with hard raised granulation, in cysts, piles, tumors, inguinal hernia. disease of joints, cutting of blood vessels, sinus and in excessive haemorrhage. The approach of Agnikarma has been mentioned in the context of diseases like Arsha, Bhagandara, Sira, Snayu, Ashti, Sandhigata Vata Vikaras. 10

Although *Agnikarma* practice has been very less practicable since many years but the last ten years have seen a remarkable rise in the efficiency of *Agnikarma* practice. This has been possible due to a combination of valuable researches and conferences carried out all over the globe. And that's the reason most of the Ayurvedic *Shalya-Tantra* practitioners use *Agnikarma* as a healing mechanism (to cure) for most of the human diseases<sup>11</sup>.

And keeping all above factors in relation to pathogenesis of *Vatakanatak* and properties of *Agnikarma* in mind we designed the study entitled "To Study the Efficacy of *Agnikarma* in *Vatakantaka* w.s.r.to planter fasciitis".

# **MATERIALS & METHODS**

#### **Study Design**

Prospective randomized control single blind clinical trial.

The whole study was divided into two categories.

- **a. Conceptual study:** In this section the detail description of *Agni-karma*, *Vatakantaka* given from Ayurvedic & Modern point of views. Detailed review of selected drug was incorporated.
- **b. Clinical Study** The study was carried out at OPD/ IPD of Shalya Tantra dept. The patient attending OPD/ IPD was selected of their age, sex, history of previous disease etc. Fulfilling the criteria of selection & eligibility for study.

## Plan of Study

Prior to the commencement of the therapy in the selected patients, general information of both groups of the patients and disease were made as below.

A complete history of the disease along with complaints was recorded as per the specially designed proforma for *Vatakantaka* disease with written consent of patients.

#### **Examination of Patient**

Each and every patient was thoroughly examined according to history given by patients. Local as well as systemic examination carried out in the department. All the necessary laboratory investigations related to disease was also performed.

#### Research Proforma

After registration of the patient for research study specially prepared research proforma was filled up with respect to history, physical and clinical examination and investigation.

# Selection of patients

The study was carried out in outdoor patients (OPD) and ward (IPD) patients of *Shalya Tantra* department. The patient was selected according to age, sex, occupation, history of previous disease etc. Fulfilling the criteria of selection and eligibility for present study and patient were examined in the detail as per special proforma which included both ancient and modern methods of examination.

# Inclusion criteria

- 1. The patients of age group 16-70 years.
- 2. Patients of either sex were selected.
- 3. Patients having sign & symptoms of *Vatakanataka* w.s.r. to chronic plantar fasciitis.
- 4. Patients willing to undergo whether for *Agnikarma* or injection therapy.
- 5. Patient belonging to all socioeconomic group.

## **Exclusive criteria**

- 1. Anaemic patient Hb<10 gm %
- 2. Malnourish patient (As per age, height & weight proportion)
- 3. Bleeding disorders (Increased B.T & C.T)
- 4. Patient in septicaemia
- 5. Patient below 16 yrs. and above 70yrs. Of age.
- 6. The patients suffering from systemic disease such as Calcaneal spur, Osteomyelitis, Calcaneal tumor, Bursitis, Below Ankle Fracture, AIDS, Tuberculosis, Diabetes mellitus, Hepatitis-B, Malignancy, Varicose

ulcer, Deep vein thrombosis, Arterial ulcer, Neurogenic ulcer, Leprosy, Pregnancy, Acute & Chronic renal failure, Jaundice & cirrhosis of liver.

## Laboratory investigation

- 1. Hemoglobin percentage
- 2. Total WBC count.
- 3. Differential count.
- 4. Erythrocyte Sedimentation Rate
- 5. Platelet count
- 6. B.T & C.T
- 7. Blood sugar level.
- 8. Tridot test.
- 9. Hepatitis -B (HbsAg)
- 10. 10. Urine sugar.
- 11. 11. Urine albumin.
- 12. 12. Urine microscopic examination.
- 13. 13. Plain X-Ray AP& Lateral at Ankle region.
- 14. 14. M.R.I (If necessary)

#### Place of Work

OPD and IPD of S.V.N.H.T.Ayurved college, Department of *Shalvatantra* at Rahuri (Maharastra).

#### **Informed Consent**

The subject undergoing this study was informed about the nature and purpose of study and written consent of every patient in both group was taken before starting treatment.

## **Materials for Methodology**

# Material required for experimental group study (Group A):

- 1 Panchadhatu Agnikarma Shalaka
- 2 *Plota* (Gauze)
- 3 Pichu (Cotton)
- 4 Gas stove
- 5 Triphalakashaya
- 6 Swab holding forceps
- 7 Kumari Swaras
- 8 Yashtimadhu Churna
- 9 Jatyadighruta

## Material required for control group study(Group B)

- 1. Povidine Iodine 0.5%w/v available Povidine (Betadine), Jep Pharmaceuticals, Sirmour (H.P) Above solutions was used which provided by hospital supply, where the research study was conducted.
- 2. Surgical Spirit
- 3. Sterile Pad
- 4. Sponge holding forceps
- 5. Inj. Triamcinolone 40mg (Tricort 40 Cadila Pharma)
- 6. Disposable syringe.

# Method of Study

The clinical trial on 60 patients was conducted and observed. In both groups, patients was diagnosed on

the basis of signs and symptoms described in the ancient and modern literature of *Vatakantaka* (plantar fasciitis)

## Group A Experimental group

30 patients was selected and treated with *Agni-karma* therapy with *Panchadhatu Shalaka*.

## **Group B Control group**

30 patients were selected and treated as control group with injection therapy.

Inj. Tricort 40mg (cadilapharma)

#### **Duration of Treatment**

Duration of treatment --- up to 21 days.

#### **Method of Treatment Schedule**

Under all aseptic precaution procedure was performed for both groups.

# **Group A (Experimental) Application of** *Agnikarma* **procedure**

## 1) Purva Karma

- After taking informed written consent, clinical examination with all the vitals was checked.
- Patient was advised to take *Guru, Snighdha, Laghu, Sheeta & Pichhila* diet before procedure.
- The patient was taken in *Agnikarma* room on operation table at supine position.

## 2) Pradhana Karma

USHDH

- The affected part was cleaned with *Triphala Kashaya*.
- It was then wiped with dry sterilized cotton gauze, and draped with sterile sheet.
- Then *Panchadhatu Shalaka* was heated on gas stove up to red hot.
- 15-20 Samyak Dagdha Vrana was made by Red hot Panch Dhatu Shalaka with Bindu Dhahan Vishesh which penetrate upto Mansa Dhatu.
- Proper space between two Samyaka Dagdha was near about 0.5cm.

## 1) Paschata Karma:-

- After making *Samyaka Dagdha Vrana*, *Kumari swaras* was applied on that to get relief from burning sensation.
- Then dusting of *Yastimadhu Churna* was done on that place..
- Above procedure was repeated 3 times at an interval of 7 days.
- Patient was advised to apply *Jatyadi Ghrita* twice a day up to normal appearance of skin.

## Group B (Control) Application of injection therapy

- After taking informed written consent, clinical examination with all the vitals was checked.
- The patient was taken in Minor Surgical room on operation table at supine position.
- The affected area was washed with povidine followed by application of spirit.
- It was then draped with sterile sheet.
- Injection Triamcinolone 40mg (Tricort) loaded in 2cc syringe.

- With the help of 22 G needle in 90° angle pricked deeply into planter fascia and drug was infused.
- After that needle was removed and injection site was pressed with spirit cotton swab up to 2 min.
- During the procedure all aseptic precautions was observed.
- The above procedure was carried out only for one time.

# Follow- Up Study

Each patients was followed up after every 7<sup>th</sup> day for a period of 1 month. Initially all the sign and symptoms were noted thoroughly. In each visit, patient was thoroughly examined for pulse rate, blood pressure, systemic examination and local examination of the disease. Changes in sign and symptoms in each follow up were observed and noted neatly in the case paper.

# **Dietary Advice**

The patients were asked to follow the advice regarding *Pathya* and *Apathya*.

Table 1: Effect of Therapy on Cardinal Symptoms of Vatakantaka in Group A

Cardinal Symptoms	N	Mean B.T.	Mean A.T.	S.D.	S.E.	't' cal.	p value	Result	% Of Relief
Vedana (Pain)	30	2.45	1.23	0.46	0.26	14.86	P<0.001	H.S	81.17%
Stambha (Stiffness)	30	1.67	0.66	0.37	0.17	12.28	P<0.001	H.S.	76.96%
Sparshasahatva (Tenderness)	20	1.98	1.24	0.53	0.36	10.91	P<0.001	H.S	64.76%
Kriyahani (Restricted Movement)	12	1.67	0.93	0.67	0.47	8.57	P<0.001	H.S	58.79%

Table shows that, the mean score in the symptom as *Vedana* (Pain) in *Vatakantaka* among 30 patients, before treatment was 2.45, which has been reduced to 1.23 after the treatment. The percentage of relief observed is 81.17%, and the result is statistically highly significant (H.S) P < 0.001.

The initial mean score in the symptom as *Stambha* (Stiffness) in *Vatakantaka* among 30 patients, was recorded as 1.67, and reduced to 0.66 after treatment. The percentage of relief observed is 76.96%, and the result is statistically highly significant (H.S) P <0.001.

The initial mean score in the symptom as *Sparshashahatva* (**Tenderness**) in *Vatakantaka* among 30 patients, was observed as 1.98, which is reduced to 1.24 after the treatment. There is 64.76% relief in the symptom and the result is statistically highly significant (H.S) P < 0.001.

The initial mean score in the symptom as *Kriyahani* (Restricted Movement) in *Vatakantaka* among 30 patients, was recorded as 1.67, which is reduced to 0.93 after the treatment. The percentage of relief observed is 58.79 %, the result being statistically highly significant (H.S) P<0.001.

Table 2: Effect of Therapy on Cardinal Symptoms of Vatakantaka in Group B

Cardinal Symptoms	N	Mean B.T.	Mean A.T.	S.D.	S.E.	't' cal.	p value	Result	% Of Relief
Vedana (Pain)	30	2.98	0.78	0.62	0.085	13.58	P<0.001	H.S	67.82%
Stambha (Stiffness)	30	2.43	0.66	0.49	0.113	10.65	P<0.001	H.S.	62.34%
Sparshasahatva (Tenderness)	30	1.98	0.83	0.59	0.134	07.10	P<0.001	H.S	54.13%
Kriyahani (Restricted Movement)	30	2.10	0.69	0.73	0.128	06.33	P<0.001	H.S	59.16%

Table shows that, the mean score in the symptom, as Vedana (Pain) in Vatakantaka among 30 patients, before treatment was 2.98, which has been reduced to 0.78 after the treatment. The percentage of relief observed is 67.82 %, and the result is statistically highly significant (H.S) P < 0.001.

The initial mean score, in the symptom, as *Stambha* (Stiffness) in *Vatakantaka* among 30 patients, was recorded as 2.43, and reduced to 0.66 after treatment. The percentage of relief observed is 62.34%, and the result is statistically highly significant (H.S) P <0.001.

The initial mean score, in the symptom as *Sparshasahatva* (Tenderness) in *Vatakantaka* among 30 patients, was observed as 1.98, which is reduced to 0.83 after the treatment. There is 54.13 % relief in the

symptom and the result is statistically highly significant (H.S) P < 0.001.

The initial mean score, in the symptom as, *Kriyahani* (Restricted Movement) in *Vatakantaka* among 30 patients, was observed as 2.10, which is reduced to 0.69 after the treatment. The percentage of relief observed is 59.16 %, the result being statistically highly significant (H.S) P < 0.001.

## Discussion on the result of Group A

The symptom of *Vedana* (Pain) in *Vatakantaka* of 30 patients, The percentage of relief observed is 81.17%, and the result is statistically highly significant (H.S) P < 0.001. The *Agnikarma* is more effective in pain, so we can say that from this result "यत्रयत्रशुलं, तत्रतत्रदहेत" i.e. *Agnikarma* is done at every site where, there is a pain (local).

The *Stambha* (Stiffness) in *Vatakantaka* among 30 patients, The percentage of relief observed is 76.96%, and the result is statistically highly significant (H.S) P <0.001. After *Agnikarma*, Vasodilatation increases due to *Sanchari Guna* of *Agni* on affected site resulting in decrease stiffness.

The *Sparashasahatva* (Tenderness) in *Vatakantaka* among 30 patients, There is 64.76% relief in the symptom and the result is statistically highly significant (H.S) P <0.001. Tenderness causes due to production of *Aama* by *Prakupita Kapha* which is digested by *Ushna Guna* of *Agni* and gets relief.

The *Kriyahani* (Restricted Movement) in *Vatakantaka* among 30 patients, The percentage of relief observed is 58.79 %, the result being statistically highly significant (H.S) P<0.001. After relieving above symptoms movement was improved.

# Discussion on result of Group B

The symptom *Vedana* (Pain) in *Vatakantaka* among 30 patients, The percentage of relief observed is 67.82 %, and the result is statistically highly significant (H.S) P < 0.001.

The *Stambha* (Early Morning Stiffness) in *Vatakantaka* among 30 patients, The percentage of relief observed is 62.34%, and the result is statistically highly significant (H.S) P < 0.001.

The *Sparshasahatva* (Tenderness) in *Vatakantaka* among 30 patients, There is 54.13 % relief in the symptom and the result is statistically highly significant (H.S) P < 0.001.

The *Kriyahani* (Restricted Movement) in *Vatakantaka* among 30 patients, The percentage of relief observed is 59.16 %, the result being statistically highly significant (H.S) P <0.001.

# Discussion on result of Clinical Test Walking Test

The percentage of relief for group A was observed is 83.78 %, and for group B is 63.21 %. The average walking time after treatment reduced significantly in both group, But it is more in group A due to deeper penetration of *Agni* with the help of *Shalaka*.

# **Standing Test**

The percentage of relief for group A was observed is 73.34 %, and for group B is 57.43 %. The average standing time after treatment reduced significantly in both group, But it is more in group A due to anti-inflammatory properties of *Agni* with *Ushna*, *Tikshna*, *Sushma*, *Vyavayi* and *Vikashi Guna*.

# 4)Discussion on overall effect of the therapy Overall effect of Therapy in Group A

The result was obtained among 30 patients, 18 patients (60%) are cured, 08 patients (26.66%) are Markedly Improved and 04 patients (13.33%) are improved. Due to *Guru*, *Usna*, *Suksma Guna* of *Agnikarma*, there is *Pachana* of *Ama* (digestive) resulting in removal of *Strotavarodha* and gets relief from pain and *Stambha*. *Usna Guna* improve Blood supply resulting in decreased

inflammation, *Aashukari Guna* remove *Avarana* of *Dosha* and increases *Kriya* (movement) of joints.

## Overall effect of Therapy in Group B

The result was obtained 30 patients, 9 patients (30%) are cured, 12 patient (40%) Markedly Improved and 9 patients (30%) are improved. Due to analgesic and anti-inflammatory action of Inj. Triamcinolone, there is relief from pain and inflammation ultimately relief from symptoms. But during follow up, it can observed that, there is more relapsing of symptoms and result in to complication like osteoporosis in female, hair loss, occurrence of skin disease in some cases.

#### Discussion on Agnikarma wound

In present clinical study we observed that, Samyak Dagdha Vrana become blackish grey in colour after Agnikarma procedure. There is mild inflammation up to 3-4 days, it reduced and normal up to 7th day. Superficial multiple wounds produced by Agnikarma, progressively occurs healing at 8-15 days. Patient visited for follow up for 1 month after completion of treatment. The scars of wound disappeared in due course of time (3-4 weeks) and there was no untoward effect noted. Patient was advised not to walk on rough surface and prolong standing for further 6month.

#### CONCLUSION

- It can strongly be stated that this therapeutic procedure not only sub-side the symptoms but cures the disease.
- Recurrence of disease after Agnikarma is negligible if Vyadhi involvement is Sthanik. (Apunarbhava).
- *Agnikarma* is OPD procedure, required minimum equipment and non-infectious procedure, so that it can be used for pain management in *Vatakantaka*.
- *Agnikarama* procedure is more cost effective hence affordable in developing countries.
- The steroid (Triamcinolone) treatment is effective for only short duration but *Agnikarma* therapy is more effective than that of the injection therapy of steroids in *Vatakantaka* to stabilized the patient for longer duration.

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# **GROUP-A PHOTOGRAPH**

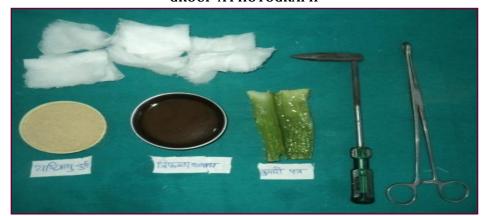


Figure 7.1: Instruments for Agnikarma



Figure 7.2: Heating of *Panchadhatu* Shalaka



Figure 7.3: Red Hot Panchadhatu Shalaka



Figure 7.4(a): Painting with Triphala Kashaya



Figure 7.4(b): Painting with Triphala Kashaya



Figure 7.5: Procedure of Agnikarma



Figure 7.6: Creating Samyaka Dagdha Vrana



Figure 7.7: Kumari Swarasa Application

Figure 7.8: Yastimadhu Churna Application

# OBSERVATION OF SAMYAKA DAGDHA VRANA



Figure 7.9: Just after Agnikarma

Figure 7.10: 1st Day after Agnikarma



Figure 7.11: 2<sup>nd</sup> Day after *Agnikarma* 



Figure 7.12: 3<sup>rd</sup> Day after *Agnikarma* 



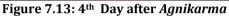




Figure 7.14: 5<sup>th</sup>Day after *Agnikarma* 



Figure 7.15: 6th Day after Agnikarma

Figure 7.16: 7th Day after Agnikarma



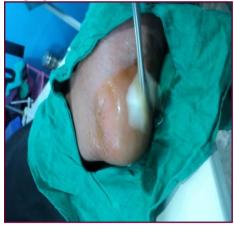
Figure 7.17:14th Day after Agnikarma

Figure 7.18: 21st Day after Agnikarma

# Group -B Photograph



7.19.Instruments for Inj. Therapy



7.20. Paining with Betadine



7.21. Paining with Spirit



7.22. Loading Inj. Tricort 40mg



7.23. Procedure of Inj.Tricort



7.24. Withdrawing Needle



7.25. Post Procedure Assessment