



Science

A CLINICAL STUDY TO EVALUATE THE EFFICACY OF SELECTED TREATMENT MODALITY IN THE MANAGEMENT OF VATA KANTAKA

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DOI: <https://doi.org/10.29121/granthaalayah.v5.i1.2017.1890>



Abstract

Walking in irregular or uneven ground, Structural deformity of foot, Excessive strain on heels etc lead to vitiation of Vata dosha. Aggravated Vata is lodged in ankle joint, especially in dependent parts like heel and hence the pain is caused due to reduced strength of muscles and joints. 'Kantaka' refers to thorn. The pricking pain felt due to vitiated Vata is termed as Vata kantaka. This condition is usually seen in the case with calcaneus spur. Symptoms are Pain in heel and surrounding region. Pain is more evident soon after waking up in the morning and if the patient stands up, After a long rest and Increase in heel pain on standing for long time, running and walking. According to previous researches Planter heel pain is the most prevalent complaint to presenting foot and ankle specialists and may be seen in upwards of 11 % to 15% of adults. So it is the need of hour to focus effective practices which yields good results. In the present study thirty patients were selected and treated with Pinda Thaila Abyanga, Rasnadi sweda followed by application of Hinguadi lepa mentioned in Traditional medicine in Sri Lanka, daily for one month. The assessment was carried out on the basis of relief found in the cardinal signs and symptoms of the disease adopting scoring, depending upon their severity. Significant reduction in pain was seen at the end of the study with P value of < 0.05. Also there was reduction in other symptoms such as cracks, pruritus, burning sensation and laxity of skin over the foot .There were no adverse effects reported during the study. Therefore it can be concluded that the selected treatment modality is beneficial in managing Vata kantaka.

Keywords: Vata Kantaka; Calcaneus Spur; Hinguadi Lepa; Abyanga.

Cite This Article: Pramodani MPN, and Wickramarachchi WJ. (2017). "A CLINICAL STUDY TO EVALUATE THE EFFICACY OF SELECTED TREATMENT MODALITY IN THE MANAGEMENT OF VATA KANTAKA." *International Journal of Research - Granthaalayah*, 5(1), 282-290. <https://doi.org/10.29121/granthaalayah.v5.i1.2017.1890>.

1. Introduction

Calcaneus forms the bone of the foot. Due to abnormal pressures, foot muscles and ligaments are stretched beyond their normal limits that lead to chronic plantar heel pain, among which calcaneal spur tops the list. In Ayurveda, it can be correlated to “*Vātakantaka*” (pricking sensation in the foot)-a painful condition of heel caused by its improper placement on the ground.

Plantar heel pain is a commonly encountered orthopedic problem that can cause significant discomfort and a limp because of the difficulty in bearing weight. The pain due to calcaneal spur forms about 25% in chronic plantar heel pain, however its pathophysiology is poorly understood. Calcaneus or calcaneum is the largest bone of the foot. Calcaneal spur is an abnormal growth of bone in the form of a hook either underneath the foot (inferior aspect of calcaneus) in relation to the attachment of the plantar fascia or behind the heel (posterior aspect of the calcaneum) at the insertion of the Achilles tendon. It is estimated that 1 in 10 people will develop heel pain in their lifetime. Incidence occurs between 40 and 60 years of age.^[1,2] *Vātadoṣa* situated in the heels, when vitiated and produces pain when the heel is regularly placed on uneven surfaces.^[3] Obese people, flatfooted people, and people who often wear high-heeled shoes are most susceptible to heel spurs.^[4] An inferior calcaneal spur is located on the inferior aspect of the calcaneus and is typically a response to plantar fasciitis over a period, but may also be associated with ankylosing spondylitis (typically in children). The association between calcaneal spurs and heel pain has led to the development of several interventions directly targeted at the spur, including surgical excision, extracorporeal shockwave therapy and radiation therapy.^[5] Possible complications of surgery include nerve pain, recurrent heel pain, permanent numbness of the area, infection and scarring. In addition with plantar fascia release, there is risk of instability, foot cramps, stress fracture, and tendinitis. In Ayurveda, it can cure successfully and can avoid injections, surgery and other proceeding complications. So the present study was conducted by using with *Pinda Thaila Abyanga*, *Rasnadi sweda* followed by application of *Hinguadi lepa* mentioned in Traditional medicine in Sri Lanka.

Aims and Objectives

To assess the effectiveness of *Pinda Thaila Abyanga*, *Rasnadi sweda* followed by application of *Hinguadi lepa* in the management of *Vatakantaka*.

2. Materials and Methods

Inclusion Criteria

Thirty patients attending for clinics in Gampaha Wickramarachchi Ayurveda Hospital, Yakkala, Sri Lanka, fulfilling the criteria of the disease were selected randomly irrespective of their age, gender, religion etc.

Exclusion Criteria

Patients suffering from any systemic and dreadful diseases.

Before the treatment, the procedure was explained to the patients and got their consent.

Patients were examined and recorded their history in the Performa which prepared including all the necessary aspects of Ayurveda and modern medical science.

The patients were treated with *Pinda Thaila Abyanga*, *Rasnadi sweda* followed by application of *Hinguadi lepa* daily for one month and one month follow up period.

Subjective Criteria

Signs and associated symptoms were assessed by using grading system given such as severe: 3, moderate: 2, mild: 1 and cured: 0.

- 1) Pain
- 2) Burning sensation
- 3) Numbness
- 4) Swelling
- 5) Pruritus
- 6) Hardness of the skin

Total Treatment Assessment

- Complete Remission : 100% relief
- Marked Improvement : More than 75% improvement
- Moderate Improvement : 50% to 75% improvement
- Mild Improvement : 25% to 49% improvement
- Unchanged : Less than 25% reduction

Follow Up

Patients were followed for one month after the treatment.

3. Results and Discussions

Table 1: Distribution of patients by Gender

Gender	No of Patients	Percentage
Male	09	30.00%
Female	21	70.00%

Among the Thirty patients, 09 patients (30.00%) were male and 21 patients (70.00 %) were female. Previous researches has proven that women are more prone to get Calcaneus spur than men.^[6]There are a number of reasons women are more likely to suffer heel spurs than men are, including:

High heels: Women who regularly wear high heels exert more pressure on their heels, and high-heeled footwear also stretches the ligament along the bottom of the foot. When recovering from a heel spur, it's important to wear only shoes that have proper arch support, a cushioned heel, and flexibility in the front of the shoe that allows toe movement.

Weight: Increased weight can put extra pressure on the bottoms of the feet. Both men and women can carry excess weight, of course, but women generally have a greater ability to withstand pain—so they are more likely to ignore heel problems until the problems become severe and more difficult to treat.

Flat feet: Women who work all day on their feet might not be wearing high heels, but they might not have healthy feet, either. Heel spurs can be caused by over-pronation of the foot, which stretches the plantar fascia until the foot is almost flat.

Table 2: Distribution of patients by Age

Age (years)	No of Patients	Percentage
20-30	04	13.33%
31-40	15	50.00%
41-50	11	36.66%

When selecting representative sample, the patient’s age was not considered. Maximum number of patients represents the 31-40 Age group. *Vatakantaka* is more common in middle age through old age.

By analyzing ordinal type scale of measurements, below table would be explained median and mode values to have brief understanding about relevant central tendency measurements.

Table 3: Descriptive statistics for Independent variables

	Median	Mode	Minimum	Maximum
Pain- Pre	2.50	3	1	3
Pain- Post	.00	0	0	3
Burning sensation- Pre	1.00	0	0	3
Burning sensation- Post	.00	0	0	3
Numbness- Pre	1.00	1	0	3
Numbness- Post	.00	0	0	3
Swelling- Pre	.00	0	0	3
Swelling- Post	.00	0	0	1
Pruritus- Pre	.00	0	0	3
Pruritus- Post	.00	0	0	2
Skin hardness- Pre	1.50	3	0	3
Skin hardness- Post	.00	0	0	3
Cracking- Pre	1.00	0	0	3
Cracking- Post	.00	0	0	2

Swelling, Pruritus had non-reactive response .Cracking and burning sensation had mild level suffered behavior by concerning respective median values. Most observed symptom for *Vatakantaka* were severe pain and comparative high value for skin hardness by observing central tendency measurements.

Table 4: Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pain- Pre	.311	30	.000	.758	30	.000
Pain- Post	.339	30	.000	.744	30	.000
Burning sensation- Pre	.185	30	.010	.839	30	.000
Burning sensation- Post	.390	30	.000	.647	30	.000
Numbness- Pre	.220	30	.001	.860	30	.001
Numbness- Post	.359	30	.000	.720	30	.000
Swelling- Pre	.317	30	.000	.754	30	.000
Swelling- Post	.528	30	.000	.347	30	.000
Pruritus- Pre	.392	30	.000	.643	30	.000
Pruritus- Post	.508	30	.000	.416	30	.000
Skin hardness- Pre	.213	30	.001	.826	30	.000
Skin hardness- Post	.444	30	.000	.513	30	.000
Cracking- Pre	.241	30	.000	.824	30	.000
Cracking- Post	.494	30	.000	.471	30	.000

a. Lilliefors Significance Correction

H0: respective variable satisfy normality conditions/ requirements

Ha: Given variable is not satisfy normality conditions

By saying above hypotheses, all seven types of pre staged symptoms were significant at ninety five percent confidence limit which indicated that, all pre- staged variables were not satisfy mathematical based normality requirements. So, Wilcoxon signed rank test was used to measure the effective of the treatment as below.

According to Wilcoxon signed- ranks method;

H0: Two related variables have equal median values vs. Ha: Two related variables have different median values

Table 5: Wilcoxon signed- ranks test

		N	Mean Rank	Sum of Ranks
Pain- Post - Pain- Pre	Negative Ranks	26 ^a	13.50	351.00
	Positive Ranks	0 ^b	.00	.00
	Ties	4 ^c		
	Total	30		
Burning sensation- Post - Burning sensation- Pre	Negative Ranks	17 ^d	9.00	153.00
	Positive Ranks	0 ^e	.00	.00
	Ties	13 ^f		
	Total	30		
Numbness- Post - Numbness- Pre	Negative Ranks	13 ^g	7.73	100.50
	Positive Ranks	1 ^h	4.50	4.50
	Ties	16 ⁱ		
	Total	30		
Swelling- Post - Swelling- Pre	Negative Ranks	12 ^j	6.50	78.00
	Positive Ranks	0 ^k	.00	.00
	Ties	18 ^l		
	Total	30		
Pruritus- Post - Pruritus- Pre	Negative Ranks	9 ^m	5.72	51.50
	Positive Ranks	1 ⁿ	3.50	3.50
	Ties	20 ^o		
	Total	30		
Skin hardness- Post - Skin hardness- Pre	Negative Ranks	19 ^p	10.00	190.00
	Positive Ranks	0 ^q	.00	.00
	Ties	11 ^r		
	Total	30		
Cracking- Post - Cracking- Pre	Negative Ranks	17 ^s	9.00	153.00
	Positive Ranks	0 ^t	.00	.00
	Ties	13 ^u		
	Total	30		

As better representative evidence was expected high sample proportion for negative ranks value rather than positive rank number of observation and ties observation. By considering the higher mean rank values and higher sum of rank values major frequencies diagnosis resolvment symptoms could be obserable for pain, skin hardness, cracking and burning sensation respectively.

Table 6: Wilcoxon signed- ranks test statistics

	Pain- Post - Pain- Pre	Burning sensation- Post - Burning sensation- Pre	Numbness- Post - Numbness- Pre	Swelling- Post - Swelling- Pre	Pruritus- Post - Pruritus- Pre	Skin hardness- Post - Skin hardness- Pre	Cracking- Post - Cracking- Pre
Z	-4.526 ^a	-3.716 ^a	-3.086 ^a	-3.213 ^a	-2.511 ^a	-3.875 ^a	-3.695 ^a
Asymp. Sig. (2-tailed)	.000	.000	.002	.001	.012	.000	.000

a. Based on positive ranks. b. Wilcoxon Signed RankTest

Above table was exhibited that all seven factors were significant at five percent error level which described that all symptoms had different median values for pre stage and post stage categories respective. It persuades that selected treatment able to reduce all the symptoms of Vatakantaka.

Pain variable had impact reduction from 50% for severe stage to 56.7% as 100% cured. When analyzing the below percentage values it can be observed that after the treatment majority of patients are move to reduction stage of disease.

Table 7: Valid percentages table

Symptom	None	Mild	Moderate	Severe
Pain- Pre	*	20	30	50
Pain- Post	56.7	20	16.7	6.7
Burning sensation- Pre	30	23.3	20	26.7
Burning sensation- Post	66.7	20	6.7	6.7
Numbness- Pre	26.7	33.3	20	20
Numbness- Post	60	23.3	13.3	3.3
Swelling- Pre	53.3	33.3	10	3.3
Swelling- Post	90	10	*	*
Pruritus- Pre	66.7	16.7	6.7	10
Pruritus- Post	86.7	10	3.3	*
Skin hardness- Pre	26.7	23.3	16.7	33.3
Skin hardness- Post	76.7	20	3.3	*
Cracking- Pre	40	23.3	20	16.7
Cracking- Post	83.3	13.3	3.3	*

*- zero values

Table 8: Total Treatment Assessment

Total Treatment Assessment	No. of patients	Percentage
Complete Remission	04	13%
Marked Improvement	08	27%
Moderate Improvement	14	47%
Mild Improvement	04	13%
Unchanged	0	0%

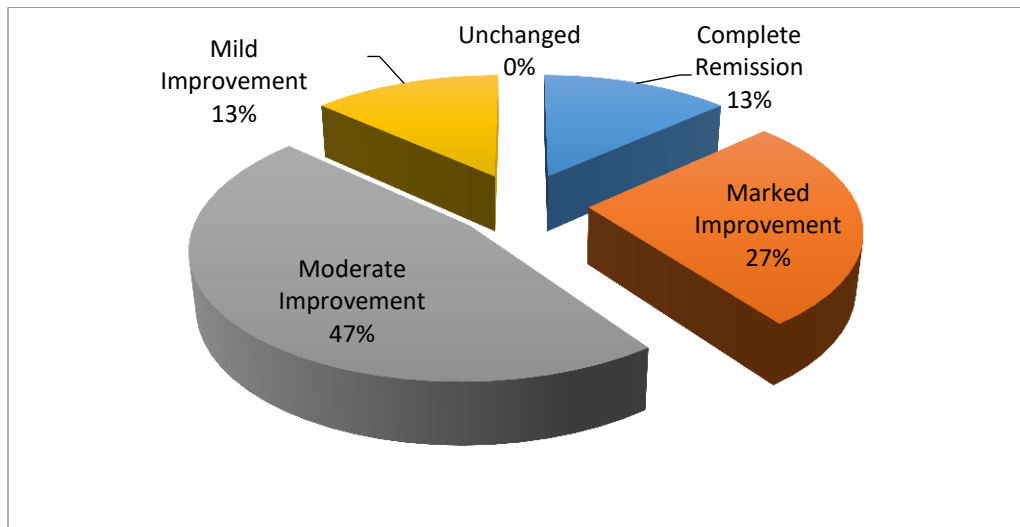


Figure 1: Total Treatment Assessment

Figure 1 illustrated that there was percentage value (40%) obtained by combining complete remission, marked improvement portions. It means 40% of patients got more than 75% reduction of the disease after the treatment period.

4. Discussion

According to Ayurveda this condition may be due to *Kapha dosha* vitiation along with *Vata dosha*. As a result *Kapha dushti*/vitiation bone formation in that area malfunctions and lead to inflammation etc. excess calcium deposition and spur formation occurs. This vitiated *kapha* block or alter the normal path of the *Vata srotas* /channels. *Vata* has the main *dosha* in three of them and has the main functions like movement, neurological and motor activities. The vitiated *Vata* also causes pain. The selected treatment modality is auctioning on correcting this underlying pathophysiology. *Sneha* and *Sweda* acts to liquefy and illuminated the obstructed *doshas* and clear the channels. Furthur *Hinguadi lepa* having *Shoolahara*, *Shotagna*, *Lekaniya*, *Vishagna*, *Vatasamana*, *Rakthashodana*, *Vrunaropana* properties may success in correcting the affecting tissues of *Vatakantaka* .It would be the probable mode of action.

5. Conclusions & Recommendations

It can be concluded that the treatment modality, applying *Pinda Thaila Abyanga*, *Rasnadi sweda* followed by application of *Hinguadi lepa* is successful in the management of *Vatakantaka*.

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