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Comparative Clinical Evaluation of *Kolakulatthadi Churna Upanaha* and *Eranda Taila Pana* in Plantar Fasciitis (*Vatakantaka*)

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Abstract

*Pada (*foot) being one of the *Karmendriya,* most of the activities of day today life depends on this any problems of foot adversely affect the routine of an individual. Plantar fasciitis is the most common cause of heel pain.There is very less references available regarding *Padagata vyadhi* in *Samhitas* but amongest *Vatavyadhi , Vatakantaka* is one condition which affects the foot of a person. *Vatakantaka* is a *Vata Pradhana Vyadhi* particularly caused by walking on uneven surfaces or by *Atishrama*, which produces pain in *Khuduka Pradesha* (*Paarshni* or *Padajanghasandhi*). Except *Charaka Acharya*, all *Bhruhatrayee's* and *Laghutrayee's* accepted *Vatakantaka* as *Vata Nanatmaja Vyadhi*. Patients suffering with *Vatakantaka* experience severe pricking (*Kantakavath)* pain in *Padatalapradesha.*

With this pathology and clinical presentation *Vatakantaka* can be effectively paralled with plantar fasciitis. Pathology reveals chronic inflammation of plantar fascia and degeneration of fibrous tissue with or without fibroblast proliferation.

Thus, with the intention of identifying and creating an alternative, safer, effective and long-lasting therapy, the study titled **"A Comparative clinical study to evaluate the efficacy of *Kolakulatthadi Churna Upanaha* and *Eranda Taila Pana* in *Vatakantaka* (Plantar fasciitis)"** was carried out on 40 patients. They were divided randomly into two groups of 20 patients each. The treatments were successfully completed by 18 patients in Group A (*Kolkulatthadi Churna Upanaha*) and 19 patients in Group B (*Eranda Taila Pana)*.

Keywords: *Vatakantaka*; *Kolakulatthadi Churna*; *Eranda Taila*; *Upanah*a

Introduction

The human foot is a unique structure, formed by numerous bones and joints and fastened by the three layers of ligaments [1]. Human foot bones are arranged to form three strong arches: two length ways and one across the foot. Ligaments bind the foot bones together along with the tendons of foot muscles. This helps to hold our foot bones together along with the tendons of foot muscles. The plantar fascia is a thick band of fibrous connective tissue spanning

the arch from the posterior tuberosity of the calcaneus to the bases of the proximal phalanges [2]. Plantar fasciitis is the most common cause of chronic heel pain in adults, affecting both young active patients and older sedentary individuals [3]. There is very less references available regarding *Padagata vyadhi* in *Samhitas* but amongst *Vatavyadhi, Vatakantaka* is one condition which affects the foot of a person [4]. *Vatakantaka* is a *Vata Pradhana Vyadhi* particularly caused by walking on uneven surfaces or by *Atishrama*, which produces pain in *Khuduka Pradesha* (*Paarshni* or *Padajanghasandhi*) [5]. Except *Charaka Acharya*, all *Bhruhatrayee's* and *Laghutrayee's* accepted *Vatakantaka* as *Vata Nanatmaja Vyadhi*. Patients suffering with *Vatakantaka* experience severe pricking (*Kantakavath)* pain in *Padatalapradesha.*

As the pain is seen more during morning and after a period of inactivity in patients, it indicates the *Samsarga* of *Kapha* or presence of *Ama* with the *Vata.* Here production of the *Ama* is expected from the *Avarana* of *Koshtagni* by aggravated *Vata* as explained by *Charaka* in *Nidana Sthana* [6].

With this pathology and clinical presentation *Vatakantaka* can be effectively paralleled with plantar fasciitis. Pathology reveals chronic inflammation of plantar fascia and degeneration of fibrous tissue with or without fibroblast proliferation.

Aims and Objectives

1. To evaluate the efficacy of *Kolakulatthadi Churna Upanaha* in *Vatakantaka* (plantar fasciitis).
2. To evaluate the efficacy of *Eranda Taila Pana* in *Vatakantaka (*plantar fasciitis).
3. To compare the efficacy of *Kolakulatthadi Churna Upanaha* and *Eranda Taila Pana* in *Vatakantaka* (plantar fasciitis).

The study was conducted under a strict protocol to prevent bias and to reduce the sources of error in the story.

Selection of Cases

Sources of Data: Patients with classical features of Vatakantaka were selected from the OPD of Panchkarma, Rishikul Ayurved college, Haridwar.

Number of patients; A total of 40 patients were planned to include in the clinical trial.

Inclusion Criteria

- Patient having sign and symptoms of *Vatakantaka.*
- Patient fit for *Upanaha Karma* and *Eranda Taila Pana*.
- Willing to sign and consent for study participation.
- Age group between 30-60 yrs.

Exclusion Criteria

- Known case of fracture and dislocation of ankle joint, foot, RA, GOUT, nerve entrapment syndromes.
- Subjects with referred pain due to sciatica & other neurological disorders.
- Corticosteroid injections to heel, preceeding 3 month [7].

Grouping of patients

Patients registered for the study were randomly allotted into 2 groups namely Group A and Group B With 20 patients in each group.

- Group A-*Upanaha* with *Kolakulatthadi Churna* This procedure was done for 7 days with 7 days interval for 2 sittings this procedure was given orally at night with milk 15ml dose for 7 days with 7 days interval for 2 sittings.
- Group B- *Eranda Taila Pana*

Clinical: By examining the data derived from the findings of clinical investigation.

Assessment tools: Subjective parameters include the clinical grading and standard scoring method.

- **Research design**

Study design: Randomized controlled parallel open arm clinical trial.

Randomization and blinding: The patients were randomly selected by computerized randomization method. It is an open type of study.

Subjective parameters: It was done on the basis of improvement in following signs and symptoms of *Vatakantaka* (Plantar Fasciitis):

- *PADA RUK (*HEEL PAIN)
- *SPARSH-AHISHNUTHA (*LOCAL TENDERNESS)
- *STAMBHA (* LOCAL STIFFNESS)

Objective parameters: It was done on the basis of changes in WINDLASS TEST before, during and at the end of trial.

Windlass Test

It is a special test for plantar fasciitis, a :'Windlass" meaning is the tightening of a rope or cable. Passively dorsiflexing the toes of a patient with heel pain. Reproduction of pain at the insertion of the plantar fascia is suggestive of plantar fasciitis.

Subjective parameters	Sample size	Mean		Mean Difference	% Change	W	SD	P	Result
		BT	AT	(BT-AT)					
Pada Ruka	19	2.1	0.7	1.42	67.50%	-171	0.6	<0.001	H.S..
***Sparsh ahisnut*ha**	19	1.6	0.3	1.36	83.80%	-171	0.6	<0.001	H.S.
***Stambh*a**	19	1.7	0.3	1.42	84.30%	-190	0.5	<0.001	H.S.
OBJECTIVE PARAMETERS									
Heel Test	5	1.2	0	1.2	84.40%	6	0.4	<0.004	S

Table 1: Effect of *Upanaha* on objective and subjective parameters (Wilcoxon signed rank test).

Subjective parameters	Sample size	Mean		Mean Difference	% Change	W	SD	P	Result
		BT	AT	(BT- AT)					
Pada Ruka	17	2	1.4	0.58	29.40%	-55	0.5	0.002	S
Sparsh ahisnutha	16	1.6	0.9	0.68	42.30%	-66	0.5	<0.001	S
Stambha	17	1.7	1.1	0.58	34.40%	-21	0.9	0.031	S
Objective Parameter									
Heel Test	2	1.5	0.5	0.5	66.60%		0	<0.001	S

Table 2: Effect of E*randa Taila Pana* (group b) on subjective parameters and objective parameters (wilcoxon signed rank test).

Subjective parameters	Group	N	Mean	% Change	Mann Whitney U	P	Result
		19	**1.42**	67.50%			
			0.58	29.40%			
	Total	**36**					
		19	1.36				
	Group B	16	0.68	42.30%			
	Total	**35**					
Stambha	Group A	19	1.42	84.30%	224	0	**H.S**
	Group B	17	0.58	34.40%			
	Total	**36**					
OBJECTIVE PARAMETER							
Heel Test	Group A	5	1.2	84.40%	**6**	**0**	**H.S.**
	Group B	2	0.5	66.60%			
	Total	**7**					

Table 3: Cumulative Table of Inter Group Comparison of Subjective Parameters and Objective Parameter (Mann Whitney U test).

The overall assessment of management was decided on the basis of improvement in Subjective parameters. The percentage improvement of these symptoms was calculated for assessment.

Overall response	Group A		Group B	
	Frequency	Percentage	Frequency	Percentage
Complete remission (100% relief)	4	21.05%	0	0%
Marked Improvement (>75% to < 100 %)	7	36.84%	0	0%
Moderate Improvement (>50% - 75%)	6	31.60%	1	5.90%
Mild Improvement (>25%- 50%)	2	10.52%	10	58.82%
No improvement (Up to 25%)	0	0%	6	35.29%
TOTAL	19		17	

Table 3: Assessment of Overall Response to Treatment.

Overall response to *Upanaha* in **Group-A** showed marked improvement in (36.84%) of patients, moderate improvement in 31.6% of patients respectively, whereas complete relief and mild improvement in 21.05% of patients, and 10.52% . On the other hand, *Eranda Taila Pana* in **Group-B** showed mild improvement in 58.82% of patients, moderate improvement in 5.9% of patients and no improvement in 35.29% of patients. Complete remission and marked improvement was not seen in group B.

Post- Treatment Effect on Follow-Up

Follow-up was done after one month of completion of the treatment in both groups. Both in Group A & B, signs and symptoms were improved, which means that all the patients of *Vatakantaka* (Plantar Fasciitis) showed statistically highly significant improvement in all the parameters. Better results were found in Group-A in comparison to Group B in most of the symptoms. There was no adverse effect observed during or after the treatment in both the groups.

Discussion

Vatakantaka reveals that it is a *Saamajavata Vyadhi* because peak of pain is observed in the early morning. *Rukshaushna Upanaha* with *Kolakulatthadi Churna* is preferred here because its ingredients are V*edana Sthapana, Shothahara, Vatakaphahara & Amahara* [8]. So, this proved very effective in relieving local pain & swelling. As per the observations *Krura Koshta* needs *Anulomana* of *Apana Vata* and oral administration of *Eranda Taila* is considered to be the line of treatment of *Vatakantaka* [9]. As this *Vatavyadhi* is associated with *Aam*.

Discussion on Post Treatment Observation (Results) Effect on Subjective Parameters

***Pada Ruka* (Heel pain):** Group-A provided 67.5% relief and Group-B provided 29.4.% relief in *Pada Ruka*. Group -A had statistically highly significant (p <0.001) and Group - B had statistically significant (p= 0.002). In this symptom, *Vata* was the main causative factor of the pain. *Upanaha* and *Taila Pana* both therapies with *Kolakulatthadi Churna* and *Eranda Taila* help in reducing pain. Presence of flavonoids, alkaloids, and terpenoids are the chemical properties of *Kolakulatthadi Churna* drugs [10]. They display various pharmacological activities includes such as anti-inflammatory, analgesic, antioxidant, anti-allergy and anticancer [11] as well as *Vedana sthapana*, *Shothahara, Vatakaphahara* & *Amahara* properties. As per observations *Krura Koshta* needs *Anulomna* of *Apana Vata* and oral administration of *Eranda Taila* is considered to be the line of treatment of *Vatakantaka*. So, *Kolakulatthadi Churna Upanaha* and *Eranda Taila* was highly effective.

***Sparsh ahisnutha* (Tenderness):** Group-A showed 83.8% improvement and Group-B showed 42.3% improvement in *Sparsh ahisnutha.* Group-A had statistically highly significant (p <0.001) effect and Group -B had statistically significant effect (p<0.001).

***Stambha* (Stiffness):** Group-A provided 84.3% improvement and Group-B provided 34.4% improvement with statistically highly significant (p <0.001) in group-A and significant result in Group-B(p=0.031).

Heel Test

Group-A provided 84.4% relief in Heel test and Group-B provided 66.6% improvement and both groups had

statistically significant p value ($p<0.004$) and ($p<0.001$) respectively.

Discussion on Mode of Action of *Upanaha* with *Kolakulatthadi Churna*

Upanaha with *Kolakulatthadi Churna* is a *Ruksha Ushna* type of *Sagni Swedan* [12]. *Upanaha* is mainly subjected for *Vata Dosha* [13]. *Vata* is the principal *Dosha*, by regulating it we can balance the other associated *Dosha* in *Vatakantaka*. *Upanaha* is mainly indicated in *Vata vyadhi* having predominant in *Shoola, Sankoch, Stabdhata. Swedan Dravya* is predominantly *Agni* and *Vayu Mahabhut Pradhan*. Due to its *Ushna, Snigdha , Dravya, Guru* etc. *Guna* its pacifies *Vata. Snehan* and *Swedan* both have the capability of soft and elastic even the dry stick [14]. Then will be effective in living being also. The entire *Swedana Karma* causes liquefication of vitiated *Dosha* and directs them towards *Mahastrotas. Swedan* is highly effective in stiffness, heaviness, coldness. It balances *Dhatwagni* localised to *Gulpha Pradesh* ,increases mobility of *Gulpha Sandhi pradesh* by balancing *Vata* and *Kapha Dosha* and helps in the *Samprapti Vighatana* of *Vatakantaka*. Properties of *Swedana* is *Gatra Vinamata*, i.e. facilitates the elasticity of the body. Hence, local *Upanaha Swedan* helps in attaining proper elasticity of the fascia of foot hence decrease the inflammation and pain of heel [13].

The action of *Upanaha* is based on two factors. One of its *Karma*, i.e. *Swedankarma*, *Vestanakarma* and another is based on the drug used. The symptoms of *Vatakantaka* include Pain, stiffness and tenderness which are mainly due to *Vata Dosha* and *Kapha Dosha*. *Ushna Teekshna, Guru, Snigdha Guna* of *Upanaha Karma* pacifies *Tridosha* specially *Vata* and *Kapha* therefore reduces the symptoms of plantar fasciitis [10]. Benefits of *Swedan* are *Stambha* (stiffness), *Vedanasthapan* (pain), and *Sparsh ahisnutha* (tenderness), Gauravagnata (reduces heaviness due to swelling/stiffness, increases elasticity), *Sheetagnata* (reduces localised coldness), *Sweda Karak* (induces sweating thus facilitates healing), *Gatra vinaman* (increases range of movement), *Srota Shudhi* (reduces local inflammatory process) [12].

Discussion on Mode of Action Eranda Taila Pana

Eranda Taila (castor oil) is a wonderful drug which can also rejuvenate the body and can be administered in many ways. *Pancha*ngul (leaves arrangement like 5 fingers), Vatari (enemy of vitiated *Vata)* and Chitrabeeja (seed with design) are synonyms, *Eranda* is also called as *Vatari* as it controls the *Vata* by its *Madhur Rasa , Madhur Vipaka* and *Ushna Virya Eranda* increases the *Pitta* hence it is not recommended in Pitta dominant conditions. Indigestion is the root cause of many diseases. *Ama*, the endogenous toxin is the main culprit in the pathogenesis of many diseases. Use of Ricinous oil can prevent these condition. Castor oil mainly consists of Ricinoleic acid [14].

Conclusion

Follow-up was done after one month of completion of the treatment in both groups. Both in Group A & B, signs and symptoms were moderately improved, which means that all the patients of *Vatakantaka* (plantar fasciitis) showed statistically highly significant improvement in all the parameters. Better results were found in Group-A in comparison to Group B in most of the symptoms. There was no adverse effect observed during or after the treatment in both the groups.

"On Inter group comparison of A & B, statistically significant ($p<0.05$) result was found in *Pada ruk, Sparsh ahisnutha, Stambha,* which leads to rejection of Null hypothesis (H0) and acceptance of Alternate hypothesis (H1)."

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