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### A Clinical Study on the Effect of *Agnikarma* in *Kadara*

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#### ABSTRACT

*Kadara* has been enumerated and described in the classical literature under the heading of *Kshudra Rogas*. However meager this disease may seem to be, it has a major impact on the physical fitness and mental tranquility of the patient<sup>1-4</sup>.

*Kadara* as described by the *Samhitas* can be closely related to lesions of the skin caused by hyperkeratosis. This disease can be correlated to conditions which involve hyperkeratosis of the skin over certain areas prone to mechanical stresses. *Ayurvedic* classics have advocated the use of various procedures to treat the *Kshudra Rogas*. *Agnikarma* has been mentioned for the proper management of *Kadara*<sup>5-7</sup>. The management *Kadara* is aimed at removal of the hyperkeratosed lesion by *Agnikarma* along with or without *Shashtra karma*.

Fifteen patients having signs and symptoms of *Kadara* were selected and *Agnikarma* with *Panchloha Shalaka* was done. Assessment of the lesion was done before treatment, after treatment and 7 days after treatment. During the course of the study it was observed that while *Agnikarma* with *Panchaloha Shalaka* in patients presenting with *Kadara* showed immediate results by physically burning and destroying the hyperkeratosis lesion. Due to its property of achieving and maintaining high temperature; *Panchaloha Shalaka* was as useful in treating large and deep *Kadara* lesions, as much as, it was in management of smaller lesions.

#### KEYWORDS

*Agnikarma, Panchloha Shalaka, Kadara, Hyperkeratosis lesions, Corns, Callosities*



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## INTRODUCTION

*Kadara* as described by the *Samhitas* can be closely related to lesions of the skin caused by hyperkeratosis. This disease can be correlated to conditions which involve hyperkeratosis of the skin over certain areas prone to mechanical stresses. ‘Corns and callosities’ as described by the modern medical science are two most frequently observed conditions which present with hyperkeratosis of the skin as their main clinical feature. These are localized hyperkeratosis lesions of the foot or hand (which are often painful), with a hard central core formed by undue pressure over a specific point of repeated impact or stress<sup>8,9</sup>. In India over 50% of the population is mainly engaged in labour intensive occupations e.g. farming, construction work, wood works, etc. Chances of trauma are high in those people owing to poor protective measures practiced by them; either due to ignorance, negligence or poor economic status. Even in the affluent population, wearing of improper footwear and negligence of foot care leads to various lesions in the feet which present as a source of constant botheration for the affected individuals.

*Ayurvedic* classics have advocated the use of various procedures to treat the *Kshudra*

*Rogas*. *Agnikarma* has been mentioned for the proper management of *Kadara*<sup>5-7</sup>. The management *Kadara* is aimed at removal of the hyperkeratosis lesion by *Agnikarma* along with or without *Shastra karma*. *Agnikarma* can be done using different types of instruments depending upon the nature of disease and the site of lesion. Some of the instruments include *Pippali*, *Aja Shakrita*, *Godanta*, *Shara*, *Shalaka*, *Jambvoustha*, *Ghrita*, *Majja*, etc<sup>10</sup>. Acharya Sushruta described *Agnikarma* as a para-surgical procedure and mentioned it superior amongst all para-surgical procedures<sup>11</sup>. *Agnikarmavidhi adhyaya* has been mentioned in *Sutra sthana*<sup>12</sup>. *Agnikarma* has also been elaborated upon under the context of *Agropaharaniya*<sup>13</sup>, as *Upayantra*<sup>14</sup>, *Anushastra*<sup>15</sup>, for *kanthagata shalya nirharana*<sup>16</sup>, one of 60 *Upakarma* of *Vrana*<sup>17</sup>, for treatment of *vatavyadhis*<sup>18</sup>, *ashmari*<sup>19</sup>, *bhagandara*<sup>20</sup>, *pleehodara*<sup>21</sup>, etc. Many references are available in *Sushruta Samhita* regarding *Agnikarma*. *Agni* has been considered superior amongst the *anushastras* for possessing *ashukriya* and *apunarbhava* qualities. It has been attributed the quality of curing the diseases which cannot be cured by other therapeutic measures like *Shastra*, *Kshara*, *Bheshja*<sup>11</sup>.



The modern medical science advocates the management of corns and callosities by destruction of the abnormal tissue by chemicals like salicylic acid or by total excision under local anaesthesia<sup>22-24</sup>. Both these procedures do not yield good results and are not devoid of recurrences. Apart from recurrence; bleeding, pain and post excision infections are frequently observed. Keeping in view the various drawbacks faced while following modern methods of treatment of *Kadara*, this clinical trial was aimed at evaluating the effect of *Agnikarma* in *Kadara* by using *Panchloha Shalaka*.

## MATERIALS AND METHODS

Ethical Committee approval number is KVG 12/028.

### **Source of Data:**

#### **(A) Subjects:**

Patients who were found to be suffering from *Kadara*/ hyperkeratosis lesions of the skin were screened. Then 15 patients fulfilling the inclusion criteria of the study were taken irrespective of sex, religion, marital status, socio-economic status and occupation. Detailed history taking and physical examination was carried out for these patients. Relevant data along with elaborate assessment of the lesion, pain and

tenderness were taken note of in the case proforma specially designed for the study.

### **Inclusion criteria:**

1. Patients of age 16-60yrs.
2. Patients irrespective of sex, religion and occupation.
3. Patients having hyperkeratosis lesions/ *Kadara*.

### **Exclusion criteria:**

1. Patients contra-indicated for *Agnikarma*.
2. Patients having any serious systemic disease.
3. Pregnant women, children and people aged below 16 years and above 60 years.
4. Infected Corns

### **(B) Literary:**

Literary aspect of study was collected from Classical *Ayurvedic* text books, Modern text books and was updated with recent medical journals and websites.

### **Research design:**

It was a randomized, prospective, single blind, clinical trial. Fifteen patients suffering from hyperkeratosis lesions were selected according to the conditions mentioned under inclusion and exclusion criteria; and *Agnikarma* procedure was carried out for them.



## Hypothesis:

**H<sub>0</sub>** : Agnikarma with *Panchloha Shalaka* is not effective in treating *Kadara*

**H<sub>1</sub>** : Agnikarma with *Panchloha Shalaka* is effective in treating *Kadara*

## ASSESSMENT CRITERIA

The subjective and objective parameters prior to the procedure and post-procedure were analyzed, recorded and compared for assessment of the results. Following this, the outcome was analyzed statistically (Table 1).

**Table 1** Mc. Gill's Questionnaire Rating Scale for Pain

PAIN	GRADE
None	0
Mild	1
Discomforting	2
Distressing	3
Horrible	4
Excruciating	5

### Subjective criteria:

- Pain

### Objective criteria

- Tenderness

Assessment was made on the basis of improvement in signs and symptoms for which suitable scores were assigned (Table 2).

**Table 2** Dr. Frank Painter's grading for soft tissue tenderness

TENDERNESS	GRADE
No Tenderness	0
Tenderness to palpation with grimace	1
Tenderness with grimace or flinch on palpation	2
Tenderness with withdrawal (Jump Sign)	3
Jump Sign with non-noxious stimuli	4

## Therapeutic Intervention:

*Agnikarma* (Fig 1 and 2) with *Panchloha Shalaka*-Treatment was done in a single sitting.

### Follow up:

Assessment of the lesion was done before treatment, after treatment and 7 days after treatment.

### Duration:

The total duration of study was 8 days. Results were statistically analyzed and assessed after treatment and on 7<sup>th</sup> day after treatment.

## Procedure:

### Poorva Karma:

Initially, all the materials required for the procedure were collected and written consent of the patient was taken after duly explaining the details of the treatment procedure. Patient was made to assume a comfortable position over the minor OT table; as per the site of lesion. Then the site of lesion was cleaned properly with distilled water.

### Pradhana Karma:

The surrounding area was mopped, dried and draped in a sterile towel. *Panchaloha Shalaka* was then heated. The nursing assistant was told to hold the leg or arm as per need of the individual case. Then the heated *Panchaloha Shalaka* was directly



placed over the lesion. In case of need, the *shalaka* was reheated and re-applied to the lesion until whole of the *Kadara* tissue was burnt. This was done until the base of the *Kadara* tissue was reached. The *dahana* procedure was stopped when *samyaka dagdha lakshanas* were observed and the patient complained of pain. This was done assuming that the *dahana* procedure was affecting the healthy tissue.

#### *Paschat Karma:*

Following this, a mixture of *Ghrita* and *Madhu* was applied over the site of *Agnikarma*. The patient was directed to rest in supine position for half an hour and was sent home in case of O.P. or to the ward in case of I.P. and was also directed to keep the area clean and dry.

The observations were recorded before the treatment, after the treatment and on the 7<sup>th</sup> day after treatment regarding the changes in the symptoms with the above procedures in the case proforma specially designed for the study.

**Table 3** Effect of the treatment on Pain

SYMPTOM	Mean score			%	S.D (±)	S.E (±)	t - value	P- value
	BT	BT-AT						
PAIN	3.20	AT	1.60	50	0.6324	0.1632	8.5234	<0.001
		FU	0.20	93.75	0.4140	0.1032	15.3705	<0.001

As shown in Table 3, an assessment of Pain in patients of *Kadara* showed reduction in the mean score from 3.2 to 1.6 after the treatment and further to 0.2 after follow up



**Figure 1** Materials required for Agnikarma



**Figure 2** Agnikarma with Panchloha Shalaka

## RESULTS

### Pain

The data collected in regard with pain when compared before treatment, after treatment and for follow up yielded the following results:

with an improvement of 50% and 93.75%, respectively. It was found to be statistically highly significant ( $P < 0.001$ ).

### Tenderness



The data collected in regard with tenderness when compared before treatment, after

treatment and for follow up yielded the following results:

**Table 4** Effect of the treatment on Tenderness

SYMPTOM	Mean score			%	S.D (±)	S.E (±)	t - value	P- value
	BT	AT	BT-AT					
TENDERNESS	2.467	1.40	1.067	43.25	0.7367	0.1902	6.9593	<0.001
		FU	0.00	2.467	100	0.0	0.0	14.9284

As shown in Table 4, an assessment of Tenderness in patients of *Kadara* showed reduction in the mean score from 2.467 to 1.4 after the treatment and further to 0 after follow up with an improvement of 43.25% and 100%, respectively. It was found to be statistically highly significant ( $P < 0.001$ ).

There is no mention of *Panchaloha Shalaka* in the classics; it was been developed over time by considering various experimental results until the above mentioned constitution was arrived upon.

When heated properly, this *shalaka* attains an average temperature ranging from 250°C - 255°C. As soon as it is removed from fire it immediately dissipates 18°C - 20°C heat; followed by heat dissipation at the rate of 6°C - 8°C per minute<sup>26</sup>.

The *Panchaloha Shalaka* retains heat for a longer period and is easy to handle facilitating controlled *Agnikarma*. Also, it is an effective tool for carrying out moderate degree of tissue destruction as compared to other *dahanaupkarnas*.

During the course of the study it was observed that while *Agnikarma* with *Panchaloha Shalaka* in patients presenting with *Kadara* showed immediate results by physically burning and destroying the hyperkeratosis lesion. Due to its property of achieving and maintaining high temperature; *Panchaloha Shalaka* was as useful in treating large and deep *Kadara* lesions, as

## DISCUSSION

*Ayurveda* being a medical science is formulated on the scientific parameters available. This study was aimed at re-establishing old facts while contemplating newer ideas and comparing their relative efficacy in *Kadara*.

### PANCHALOKHA SHALAKA<sup>25</sup>

It is also known as *Panchadhatu Shalaka*. As the name suggests, it is composed of the five metals in the following ratio:

<i>Tamra</i> (Copper – Cu)	- 40%
<i>Loha</i> (Iron – Fe)	- 30%
<i>Rajata</i> (Silver – Ag)	- 10%
<i>Vanga</i> (Tin – Sn)	- 10%
<i>Yashada</i> (Zinc – Zn)	- 10%





much as, it was in management of smaller lesions.

## CONCLUSION

The study concludes that *Agnikarma* with *Panchloha Shalaka* can be used as an effective procedure for the treatment of Kadara/ Hyperkeratosis lesions. During the course of the study it was observed that while *Agnikarma* with *Panchaloha Shalaka* in patients presenting with *Kadara* showed immediate results by physically burning and destroying the hyperkeratosis lesion. Due to its property of achieving and maintaining high temperature; *Panchaloha Shalaka* was as useful in treating large and deep *Kadara* lesions, as much as, it was in management of smaller lesions.





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