



Research Article

CLINICAL EVALUATION OF AGNIKARMA IN THE MANAGEMENT OF KADARA W.S.R TO CORNSachin. N. Patil^{1*}, N.H.Kulkarni²¹Professor & H.O.D., ²Professor, Post Graduate Department of Shalya Tantra, Shri. J.G.C.H.S. Ayurvedic Medical college & Hospital, Ghataprabha, Karnataka, India.**KEYWORDS:** *Kadara*, Corn, *Agni Karma*, *Pancha Loha Shalaka*, Surgical Excision.**ABSTRACT**

Kadara is a *Kshudra Roga*. It does not cause any threat to life but can trouble person a lot. Initially *Kadara* is a painless condition but with its progress it can become painful. On the basis of clinical presentation the disease *Kadara* can be compared with Corn in modern medicine. Corn is a localized hyperkeratosis of skin in cone shape with inwardly pointed apex and outwardly placed base it is palpable as a nodule due to horny induration with a hard center. Histologically it is composed of keratin masses with intact basal layers. Even though, there are varieties of modalities aiming at cure of *Kadara* viz., Ointments, Corn Caps, Surgical Excision etc, but none of them are complete and devoid of recurrences. When the condition of *Kadara* is Surgically Excised, recurrences have been reported as it is having recurrence tendency. Hence, to overcome the recurrence '*Agni Karma*' can be the ideal procedure. With this ideology, in the present study an effort has been made to assess the efficacy of '*Agni Karma*' after *Shastra Karma* in the management of *Kadara* vis-à-vis Corn.

Comparative efficacy of the therapies in Group A and Group B showed statistically highly Significant ($p < 0.001$) results in the parameters of assessment of pain and tenderness with 't' value of 3.99 and 5.32 respectively. Comparative efficacy of the therapies in Group A and Group B showed statistically Significant ($p < 0.001$) results in the parameters of assessment of itching and recurrence with 't' value of 3.46 and 2.62 respectively. Comparative efficacy of the therapies in Group A and Group B showed statistically non Significant ($p < 0.001$) results in the parameters of assessment of Size of Corn and Infection with 't' value of 1.58 and 1.01 respectively.

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The disease *Kadara* is as old as mankind, *Kadara* might have been consider as an abnormality, which in incidental and normal to routine life. This disease is the commonest problem seen in sole of foot or in soles and palms of hands and fingers. As *Kadara* is described as *Kshudra Roga*,¹ it does not cost anyone's life but troubles patient with discomfort, disturbance and distress. *Kadara* is characterized by hard painful growth on palms and soles which usually arise due to thorn prick, stone or other kind of injuries and sometimes due to unknown reasons. *Kadara* has been correlated to the disease Corn as described in the modern medical sciences.

India is an agriculture based country where just 20% of the total population lives in urban areas where as rest of the 80% is still living in villages². As it is a developing country where most of the population rely on manual labor either for agriculture or construction and such other means of lively hood. Due to poor protective measures, ignorance, negligence and poor economic status their chances of developing foot and palm lesion are quite high, among all most common

lesion which is seen in the feet and palm is corn which is "localized hyper keratosis of skin with hard centre caused by undue pressure seen on the palm and feet³."

Even though, there are varieties of modalities aiming at cure of *Kadara* viz., Ointments, Corn Caps, Surgical Excision⁴ etc, but none of them are complete and devoid of recurrences. Apart from recurrence post operative pain and operated site infection are also common. So with this ideology to prevent recurrence for the remnant tissues after surgical excision and other complications in the present study surgical excision followed by *Agni Karma*¹ with *Pancha Loha Salaka* was done. The pilot study in this condition has revealed that *Agni Karma* after *Shastra Karma* has got encouraging results. This study is an attempt to evaluate the role of *Agni Karma* after *Shastra Karma* in the management of *Kadara* w.s.r to Corn".

In the present study the *Agni Karma* procedure was critically analyzed to standardize the guidelines for this procedure. The efficacy of *Agni Karma*¹ is compared

with modern conventional method of Corn Excision³ to produce a simple, safe and effective remedy for *Kadara*.

AIMS AND OBJECTS

1. To review and analyze available literature of *Kadara* (Corn) in both Ayurvedic and Modern texts in details.
2. To evaluate the efficacy of *Shashtra Karma* in the management of *Kadara*.
3. To assess the role of *Agni Karma* after *Shashtra Karma* in preventing recurrence of *Kadara*.
4. To compare the role of both the modalities in the management of *Kadara*.
5. To introduce the best, safe & effective modality of treatment in the management of *Kadara*.

CLINICAL STUDY

Patients were selected from OPD and IPD of Shri. J.G.C.H.S. Ayurvedic hospital, Ghataprabha, Karnataka.

CRITERIA OF SELECTION

INCLUSIVE CRITERIA

- Age between 20 to 60 years.
- Patients of either sex were included.
- Patients suffering from corn of both sole and palm were included.

EXCLUSIVE CRITERIA

- Patients suffering from any severe systemic diseases like uncontrolled Diabetes Mellitus etc were excluded
- Patients suffering from HIV 1&2 and HbsAg were excluded from the study.

INTERVENTION

40 screened patients' of *Kadara* were randomly classified into two groups.

1) Group A - Surgical Excision was done on 20 screened patients of *Kadara*.

2) Group B - Surgical Excision followed by *Agni karma* was done on 20 screened patients of *Kadara*.

Group A- Surgical Excision of *Kadara* was done under local Anesthesia with all aseptic precautions (20 patients).

Group B- Surgical Excision of *Kadara* was done followed by *Agni Karma* with *Panchaloha Shalaka* over the surgical wound under local Anesthesia with all aseptic precautions until the *Samyak Dagdha Lakshanas* were observed (20 patients).

REQUIRED MATERIALS

Allie's tissue holding forceps, B.P. Handle, B.P. Knife No. 11, Cotton Pads, Cotton Swabs Roller Bandage, Savlon, Povidone iodine, Syringe 5 ml, Xylocaine 2% with Adrenaline, *Pancha Loha Shalaka*, *Shatadhauta Ghritam*.

PROCEDURE FOR SURGICAL EXCISION⁴

The selected patients were taken to minor O.T, furnished with required material. Xylocaine test dose was given. Cornified part is cleaned with savlon first and then painted with Povidone iodine then part is draped. With the help sterilized Scalpel elliptical incision was taken, Corn is held with the help of Allie's tissue holding forceps and excised. Later, the wound is covered with

cotton pad and tied with roller bandage. Regular dressing was done.

PROCEDURE FOR AGNI KARMA AFTER SURGICAL EXCISION

The selected patients were taken to minor O.T, furnished with required material. Xylocaine test dose was given. Cornified part is cleaned with savlon first and then painted with Povidone iodine then part is draped. With the help sterilized Scalpel elliptical incision was taken, Corn is held with the help of Allie's tissue holding forceps and excised later the *Pancha Loha Shalaka* is heated up till it becomes red hot and *Agni Karma* is done over the Surgical wound till *Samyaka Dagdha Lakshana* are observed. Once *Samyak Dagdha Lakshana* are observed over the *Dagdha Vrana Shatadhauta Ghritam* was applied. Later, the wound is covered with cotton pad and tied with roller bandage. Regular dressing was done.

PROGRESS AND FOLLOW UP

The progress of all the patients were noted for a period of 15 days at the interval of 5 days. The patients of both groups will be followed up every 15 days for 3 Months. Following Subjective and Objective parameters were considered for the study.

ASSESSMENT CRITERIA

SUBJECTIVE PARAMETERS

- a) Pain
- b) Itching
- c) Number

OBJECTIVE PARAMETERS

- a) Site
- b) Size
- c) Tenderness
- d) Recurrence
- e) Infection

GRADING

PAIN

Pain was recorded before and after treatment based on McGill Pain Index Score.

- 0 - No pain
- 1 - Mild pain
- 2 - Discomforting pain
- 3 - Distressing pain
- 4 - Horrible pain
- 5 - Excruciating pain

ITCHING

- 0 - No Itching
- 1 - Mild Itching
- 2 - Moderate Itching
- 3 - Severe Itching

SIZE

- 0 - No Corn.
- 1 - Radius measures from the center up to the periphery of hard mass were less than 0.5 cm.
- 2 - Radius measures from the center up to the periphery of hard mass were in between 0.6-1cm.
- 3 - Radius measures from the center up to the periphery of hard mass were in between 1.1cm-1.5cm.

4 - Radius measures from the center up to the periphery of hard mass were 1.6 cm or more.

TENDERNESS

- 0 -No tenderness
- 1 - Mild tenderness
- 2 - Moderate tenderness
- 3 - Severe tenderness

INFECTION

- 0 - No Infection
- 1 - Mild Infection
- 2 - Moderate Infection
- 3 - Severe Infection

RECURRENCE

The patients were followed for a period of 3 months. After 3 months the Site was again examined for recurrence. The findings were recorded as recurrence Present or absent.

- 0 – Absent.
- 1 – Present.

ASSESSMENT CRITERIA

Criteria of assessment were based on improvement in subjective and objective parameters. The results were categorized as:

- Complete relief -- 100%
- Marked relief -- Above 75% improvement
- Moderate relief -- 50 to 74% improvement
- Mild relief -- 25 to 49% improvement
- No relief -- Below 24% improvement.

OBSERVATIONS

Age

The age wise distribution in 40 subjects of *Kadara* shows that 18 (45%) Subjects were in age group 20-30yrs. As people of this age Group are engaged in more physical work so there are chances of injury to foot and palm by thorn or stone etc are quite high. Hence incidence is more common in this age group.

Sex

The sex wise distribution shows that male subjects were more in number i.e. 24 (60%) than females which were 16 (40%). Incidence of *Kadara* was found more common in males probably due to the reason that

men's are more engaged in strenuous physical works and their chances of being injured is also high.

Religion

Religion wise incidence of the disease states that, the prevalence was more seen in Hindu religion i.e. 38 (95%) subjects and 02 (5%) subjects were Muslim. But, it can't be concluded on this basis, that the Hindus are more affected by this disorder. The people of all religion are susceptible to this disease.

Occupation

Occupation wise housewife were more in number i.e. 9 (22.5%). The reason could be as the wear ill fitted shoes and do lots of work including kitchen garden work and field work also.

Socio-economic status

The maximum number of subjects was from Lower middle class i.e., 19 (47.5%), the possible reason could be as they are engaged in more physical work like field work and labor work without using proper protecting gears which cause injury causing development of corn.

Dietary habits

15 (37.5%) subjects were vegetarians while 25 (62.5%) subjects were consuming mixed diet. Diet has no influence in this disease.

Habitat wise

26 (65%) subjects were from rural area, and 14 (35%) subjects were from urban area. Subjects of rural area have shown more incidences in the present study, it could be due to the reason that people from rural India are more engaged in field work and their chances of getting frictional injury along with other kind injuries are high which a cause for development of corn is.

Deha bala

Maximum numbers of patients in this study, 15 (50%) patients having *Pravara Deha Bala*, followed by 13 (43.33%) patients were having *Madhyama Deha Bala*, and 02 (6.67%) patients having *Avara Deha Bala*. These findings are concluded in the present study.

Chronicity

In this study, 17 (45%) of the patents were suffering from come for less than 6 month duration, similar number of patient i.e. 17 (45%) were suffering from Corn since 6 months to 1 year, only 3 (10%) people were suffering from Corn for more the 1 year.

RESULTS

Table 1: Overall Results Of Group "A" (Excision of *Kadara*)

Symptom	Mean score			%	SD (±)	S.E (±)	T Value	P Value	Result
	Bt	At	BT-AT						
Pain	1.85	0.8	+1.05	56.75	0.686	0.153	6.82	<0.0001	S
Itching Sensation	1.2	0.65	0.55	45.83	0.510	0.114	4.82	<0.0001	S
Size	1.45	0.45	1	68.71	0.794	0.177	5.63	<0.0001	S
Tenderness	1.8	0.75	1.05	58.33	0.686	0.153	6.84	<0.0001	S
Infection	0.25	0.75	0.45	150%	0.76	0.17	2.65	<0.05	S
Recurrence	1	0.45	0.55	55	0.510	0.114	4.82	<0.0001	S

Table 2: Overall Results of Group “B” (Agni Karma after Excision of *Kadara*)

Symptom	Mean score			%	SD (±)	S.E (±)	T Value	P Value	Result
	Bt	At	BT-AT						
Pain	2.25	0.2	2.05	91.11	0.887	0.198	10.33	<0.0001	HS
Itching Sensation	1.15	0.1	1.05	91.3	0.394	0.088	11.91	<0.0001	HS
Size	1.45	0.1	1.35	93.1	0.587	0.131	10.28	<0.0001	HS
Tenderness	1.9	0.3	1.6	84.21	0.598	0.133	11.96	<0.0001	HS
Infection	0.25	0.00	0.25	100%	0.44	0.09	2.51	<0.05	S
Recurrence	1	0.1	0.9	90	0.307	0.068	13.07	<0.0001	HS

The mean of Pain in Group A was 1.05, S.D. was 0.686 and S.E. was 0.153 and in Group B, the mean was 2.05, S.D. was 0.887 and S.E. was 0.198. The comparative efficacy of Group A with Group B showed statistically highly significant (p<0.001) result with ‘t’ value of 3.99.

The mean of Itching in Group A was 0.55, S.D. was 0.510 and S.E. was 0.114 and in Group B, the mean was 1.05, S.D. was 0.394 and S.E. was 0.088. The comparative efficacy of Group A with Group B showed statistically significant (p<0.001) result with ‘t’ value of 3.46.

The mean of Size of Corn in Group A was 1, S.D. was 0.794 and S.E. was 0.177 and in Group B, the mean was 1.35, S.D. was 0.587 and S.E. was 0.131. The comparative efficacy of Group A with Group B showed statistically non significant (p<0.001) result with ‘t’ value of 1.58.

The mean of Tenderness in Group A was 1.6, S.D. was 0.598 and S.E. was 0.133 and in Group B, the mean was 0.45, S.D. was 0.760 and S.E. was 0.170. The comparative efficacy of Group A with Group B showed statistically highly significant (p<0.001) result with ‘t’ value of 5.32.

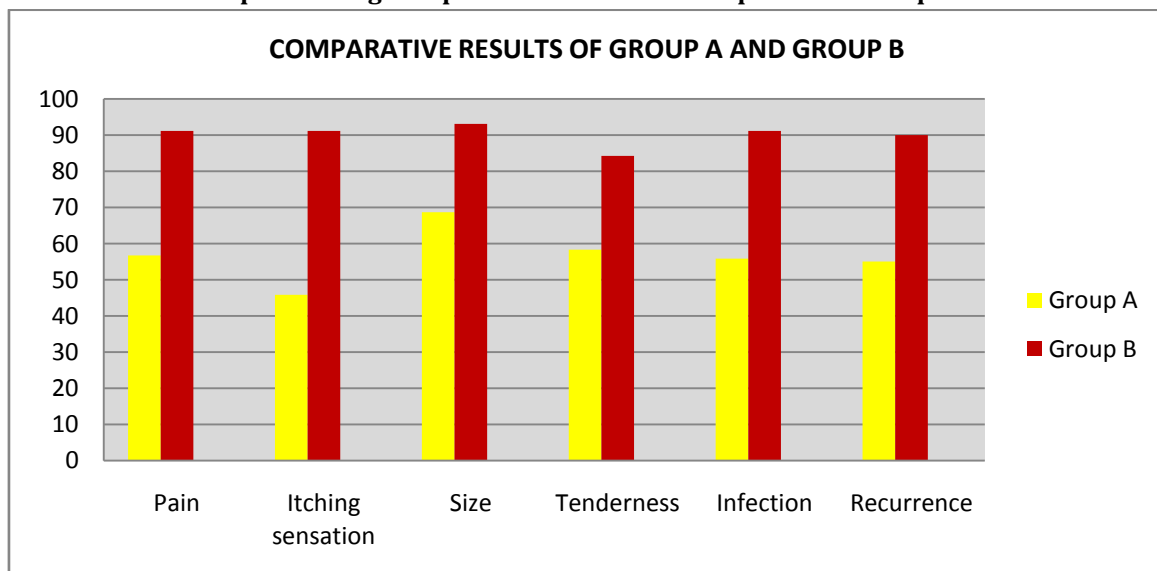
The mean of Infection in Group A was 0.45, S.D. was 0.760 and S.E. was 0.170 and in Group B, the mean was 0.25, S.D. was 0.440 and S.E. was 0.090. The comparative efficacy of Group A with Group B showed statistically non significant (p<0.001) result with ‘t’ value of 1.01.

The mean of Recurrence in Group A was 0.55, S.D. was 0.510 and S.E. was 0.114 and in Group B, the mean was 0.90, S.D. was 0.307 and S.E. was 0.068. The comparative efficacy of Group A with Group B showed statistically significant (p<0.001) result with ‘t’ value of 2.62.

Table 3: Comparative Results of Group “A” and Group “B”

Characteristics	Group A			Group B		
	Mean score		Percentage of Improvement	Mean score		Percentage of Improvement
	BT	AT		BT	AT	
Pain	1.85	0.8	56.75%	2.25	0.2	91.11%
Itching sensation	1.2	0.65	45.83%	1.15	0.1	91.3%
Size	1.45	0.45	68.7%	1.45	0.1	93.1%
Tenderness	1.8	0.75	58.33%	1.9	0.3	84.21%
Infection	0.25	0.75	-150%%	0.25	0.00	100%
Recurrence	1	0.45	55%	1	0.1	90%

Graph Showing Comparative Results of Group “A” and Group “B”



CONCLUSION

1. The disease *Kadara* was first explained by *Acharya Sushruta* in *Kshudra Roga* and later almost similar explanations were given by other *Acharyas*.
2. On the basis of clinical presentation the disease can be compared with Corn in the Modern Medical Science.
3. Etiological factors which are responsible for the disease *Kadara* can be categorized under two broad headings i.e. injury or trauma and friction or sustained pressure.
4. Males were more prone to Corn as compare to Females Specially in the 3rd decade.
5. Lower and Lower middle class people who were labor or indulge in manual hard work are more prone.
6. *Agni Karma* is a simple and supreme treatment for many diseases because when the disease is treated with *Agni Karma* chances of Infection and Recurrence reduces down markedly.
7. Comparative efficacy of the therapies in Group A and Group B showed statistically highly Significant ($p<0.001$) results in the parameters of assessment of pain and tenderness with 't' value of 3.99 and 5.32 respectively.
8. Comparative efficacy of the therapies in Group A and Group B showed statistically Significant ($p<0.001$) results in the parameters of assessment of itching and recurrence with 't' value of 3.46 and 2.62 respectively.
9. Comparative efficacy of the therapies in Group A and Group B showed statistically non Significant ($p<0.001$) results in the parameters of assessment of Size of Corn and Infection with 't' value of 1.58 and 1.01 respectively.
10. Use of *Agni* on the Surgical Excised wound cures the disease from the core level and nullifies the chances of recurrence.

11. Lastly it can be concluded, *Agni Karma* after *Shastrakarma* has shown significantly beneficial results in comparison with *Shashtra Karma* alone in *Kadara* in sustainable manner.

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Cite this article as:

Sachin. N. Patil, N.H.Kulkarni. Clinical Evaluation of Agnikarma in the Management of Kadara w.s.r to Corn. AYUSHDHARA, 2015;2(6):440-444.

Source of support: Nil, Conflict of interest: None Declared