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# To evaluate the effect of *Arka Pratisaraneeya Kshara* in the management of *Kadara* w.s.r. to Corn

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## ABSTRACT

*Kadara* is a *Kshudraroga* which is characterized by hard thickened type swelling, largely confined to the *Pada* but also seen in *Hastha*. The disease *Kadara* is not a life threatening condition, but makes the life of the sufferer miserable. Aetiological factors include injury due to the thorn prick, stone, cut, friction, pressure or wearing ill-fitting and tight shoes. The disease *Kadara* described in Ayurveda and Corn in western medical textbooks have absolute similarity in their manifestation. The management of corn is done by application of salicylic acid, corn caps, and invasive procedures like cryotherapy, laser, chemical cauterization, electric cauterization and surgical excision. But the results by these procedures are not satisfactory and there are more chance of recurrence. *Kshara* is indicated in management of *Kadara*. *Kshara Karma* is unique procedure used since ancient time which best among *Shastra* and *Anushastra* due to its comprehensive multi-faceted effects. Hence the present study was undertaken for evaluation of efficacy of *Arkapratisaraneeya Kshara* obtained was compared with the results of *Agnikarma* using *Panchalohashalaka* which is a standard and established study.

**Key words:** Corns, *Kadara*, *Arkakshara*, *Agnikarma*.

## INTRODUCTION

Skin is the largest organ of the body.<sup>[10]</sup> It forms the protective layer over the body. Apart from other function it protects internal parts of the body from injury. As skin is the outer most layer it is exposed to environmental hazards like trauma, friction, heat, cold, radiation, skin can well protect itself from these factors normally. But due to genetic causes, strength of environmental factors persuades bodily factors and may result in development of certain skin lesions. The

protective function of skin is called as upon more effectively region of feet and palm as these parts are more prone for trauma.

A corn is localized hyperkeratosis with a hard and deep central core which reaches to the deeper layer of dermis which occurs at the site of pressure ex; on the soles and palm. There is usually a horny induration of the cuticle. The corn is cone shaped fibrosis with inverted pointed apex and outwardly placed base. It is palpable as a nodule due to horny induration with hard center. Negligence of foot chiefly affecting feet and toes, leads to various foot lesions.<sup>[9]</sup>

*Kadara*<sup>[1]</sup> has been enumerated and described in the classical literature under the heading *Kshudra Roga*.<sup>[2]</sup> It is a condition formed by vitiation of *Vata* and *Kapha Dosh* which in turn vitiates *Rakta* and *Medadhatu*. Clinical<sup>[3]</sup> manifestations includes *Saruk* (pain) *Sravi* (discharge) occasional, shape like that of *Kolaphala* (jujube fruit), *Sakila* (cone), *Katina* (hard/thickened) and *Nimnormadhy* (it is centrally depressed and raised peripherally). If condition left untreated undergoes *Paka*, leading to *Srava*.<sup>[6]</sup>

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If Kadara is neglected without proper treatment may lead to pain in back hip, knee pain (caused by a change in one's gait due to severe discomfort).

The management of corn consists of destruction of abnormal tissue by application of salicylic acid, invasive procedures like cryotherapy, laser, electric and chemical cauterization and complete excision by surgery.<sup>[8]</sup> These procedures are relatively expensive and have bothersome post wound care.

Shalya Tantra has been hailed as the important branch of Ayurveda, due to the availability and special therapeutic measures i.e., *Bheshaja* (medicine), *Shastra Karma* (surgical procedure) and *Anushastra Karma* (Parasurgical procedure). Further *Shastra Karma* is of eight types and *Anushastra Karma* includes *Kshara Karma*, *Agnikarma* and *Raktamokshana*.

Among the *Shastra* and *Anushastra*, *Kshara Karma* is said to be *Shresta*. More emphasis on *Kshara Karma* is given in *Sushruta Samhita*. There are two types of *Kshara* preparation, one is *Paneeyakshara* for internal use and other one is *Pratisaraneeya Kshara* for external use. The *Pratisaraneeya Kshara* is further divided into three types i.e., *Mridu* (mild in action), *Madhyama* (moderate action), *Teekshna* (strong in action). *Kadara* is referred to be effectively treated with *Kshara Karma* as *Teekshna Ksharalepa* performs actions like *Chedana*, *Bedhana*, *Lekhana*. *Teekshna Kshara* pacifies the *Vata* and *Kapha Doshas* and dissolves *Meda Dhatu* which is needed for the *Samprapti Vighatana* of *Kadara*. *Arka* plant is worshipped, as it is auspicious and sharp like sun. *Acharya Charaka* explains *Arka* under *Bhedaniya Gana*. *Arka* has *Katu*, *Tikta Rasa*, *Laghu*, *Ruksha* and *Tikshnaguna* and *Ushna Veerya*. Which is *Kaphavata Shamaka* and used in *Shotha*, *Vrana*, *Granthi Shotha*, *Rakta Vikara*, *Kushta*, *Charmaroga*. It has *Vedhana Sthapana*, *Shothahara*, *Vrana Shodhana*, *Krimigna*, *Kushthgna* and *Rakta Shodhaka* properties. Pharmacological properties of *Arka* in the form of *kshara* are anti-inflammatory, antimicrobial, anticoagulant, highlyfibrinolytic and produces sub lethal injury i.e. destroys abnormal hyperkeratic

deposition.<sup>[7]</sup> The two varieties of *Arka* i.e. *Calotropis procera* and *Calotropis gigantea* are used as substitute to one another and are said to have similar effects. In this work an attempt was made to find out the Efficacy of *Arka Pratisaraneeya Kshara* in the management of *Kadara* (corn) which is cost effective, simple and OPD based procedure. The results obtained from the study were compared to the results of *Agnikarma* with *Panchaloha Shalaka* done over *Kadara* which is a standard taken from previous dissertation work.

### AIMS AND OBJECTIVE

- To study the literature of *Kadara* and Corn in detail.
- To clinically evaluate the local effect of *Arka Kshara Pratisarana* in the management of *Kadara*.
- To compare the efficacy of both treatment modalities.

### MATERIALS AND METHODS

Minimum of 40 patients suffering from Corn were randomly selected from OPD and IPD of SJIM Hospital of GAMC, Bangalore.

#### Source of Drug

Drugs were prepared in Rasashasta and Bhaishjya Kalpana Department GAMC Bangalore. Drugs i.e. *Ksharas* of Group 1 *Arka Kshara* were prepared under the guidance of experts.

#### Inclusion criteria

- Patients of either sex aged between 18-60 yrs.
- Solitary / Multiple corns present over sole/palm.

#### Exclusion criteria

- Patients with systemic disease and immune compromised status.
- Uncontrolled Diabetes.
- Patients with systemic disease like Tuberculosis, Vascular anomalies, Malignant conditions.
- During pregnancy and lactation

- Infected corn.
- Patients with other foot conditions like Plantar fasciitis, Osteoarthritis of feet, Gout, Rheumatoid Arthritis, Hallux valgus, Swollen feet, Fractures, Plantar warts.
- Patients contraindicated for *Kshara Karma* and *Agnikarma*.

### Sampling method

All the 40 patients were selected will be randomly allotted into two groups consists of 20 patients each on the basis of simple randomised sampling method Viz. Group A and Group B.

### Sample size

Total 40 patients were subjected for clinical trial in two groups.

Group A: The patients were treated with *Pratisaraneeya Arka Kshara*.

Group B: The patients were treated with *Agnikarma*.

### Approach to clinical study

The enrolled patients were selected according to the selection criteria after thorough examination and considering the necessary lab. investigations. A special case sheet proforma was prepared accordingly.

### Materials required

The following materials in sufficient quantity were made use for doing the *Pratisaraneeya Kshara Karma* and *Agnikarma* with *Panchaloha Shalaka* for patients of both the Groups.

1. *Kshara* (*Arka Kshara* in Group A)
2. *Agnikarma Panchaloha Shalaka* in (Group B)
3. Surgical blade no. 22
4. Antiseptic lotion
5. Sterile cotton
6. *Sukumara Ghrita*
7. Sterile gauze and dressing materials
8. *Nimbu Swarasa*

9. Gas stove for heating the *Shalaka*

### STUDY DESIGN

#### Group A

##### *Purvakarma*

- All the patients were explained about the procedure and informed written consent was obtained.
- Initially the area of corn was cleaned and is sterilized using the betadine and spirit solution.
- *Lekhana* (Scraping) of outer layer of the corn is done using the scalpel.

##### *Pradhana Karma*

- *Pratisarana Karma* is done over the scraped area using *Arkakshara* to the size of *Kamala Patra* and left for 100 *Matrakala*, then the *Kshara* is washed using the *Nimbu Swarasa*.

##### *Paschat Karma*

- Dressing was done with sterile pad.
- *Arka Pratisarana Kshara* is done on alternate days till the softness of the skin was observed.

#### Group B

##### *Purvakarma*

- Patients of this group were subjected to *Agnikarma*
- All the patients were explained about the procedure and informed written consent was obtained.
- Initially the area of corn was cleaned and is sterilized using the betadine and spirit solution.
- *Lekhana* (Scraping) of outer layer of the corn is done using the scalpel.

##### *Pradhana Karma*

- *Agnikarma* was done over the corn using *Panchaloha Shalaka* till *Samyak Dagdha Lakshanas* were observed and *Kumari Swarasa* was applied over the wound.

##### *Pashchat Karma*

- *Madhu* and *Sarpi* was applied over the *Samyak Dagdha Vrana* and sterile bandaging was done.

- *Agnikarma* was done once in a week till the softness of skin was observed.

**Duration of study**

The duration of the study was eleven days.

**Instructions to the patients**

All the patients were advised to wear soft, well-fitting shoes and to maintain proper hygiene throughout the study period

**Observation period**

Regular observations was done with respect to parameters before treatment and on third, fifth, seventh, ninth and eleventh day. A final observation was made on fifteenth day.

**Follow-up period**

Follow up period was 1 month after the completion of the treatment. The patient were advised to review twice in a month. No recurrence was reported in the follow-up period.

**Parameters**

**Subjective Parameters**

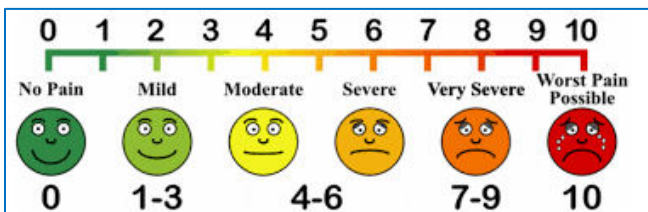
- Pain

**Objective Parameters**

- Tenderness
- Size
- Consistency
- Photos taken before and after treatment.

**Assessment Scale**

Pain assessed on visual analogue scale



Grade 0 - Nill - Absence of pain or no pain

Grade 1 - Mild - Pain that can be easily ignored

Grade 2 - Moderate - Pain that cannot be ignored, interference with normal function

Grade 3 - Severe - Pain was present most of the times demanding constant attention

Grade 4 - Unbearable - Total incapacitating pain

**Tenderness**

Grade 0 - Absent

Grade 1 - Present

**Size of Swelling (in radius)**

Grade 0 - No lesion

Grade 1 - 0.25 to 0.5cm

Grade 2 - 0.6 to 1cm

Grade 3 - 1.1 to 1.5cm

Grade 4 - >1.6cm

**Consistency**

Grade 0 - Soft

Grade 1 - Hard

**OBSERVATION AND RESULTS**

**Assessment Criteria**

The patients were assessed on subjective and objective parameters after treatment

**Assessment of total effect of therapy**

**Table 1: Overall effect of Arkakshara (Group-A)**

Effect of treatment in Group - A		
Class	Grading	No of patients
1-25%	No Improvement	0
26-50%	Mild Improvement	0
51-75%	Moderate Improvement	0
76-100%	Marked Improvement	20

Table 2: Overall effect of Group-B

Effect of treatment in Group - B		
Class	Grading	No of patients
1-25%	No Improvement	0
26-50%	Mild Improvement	0
51-75%	Moderate Improvement	0
76-100%	Marked Improvement	20

## DISCUSSION

**Response to Pain:** Both the groups showed significant result in pain. Group A showed markedly Significant reduction in pain in 1<sup>st</sup> sitting by 0.00%, in second sitting by 22.09%, in 3<sup>rd</sup> sitting by 41.86%, 4<sup>th</sup> sitting by 65.12% and in 5<sup>th</sup> sitting and after treatment by 84.88% and 97.67 % respectively. Group B showed significant reduction in pain With 0.00% in 1<sup>st</sup> sitting, 18.42% in 2<sup>nd</sup> sitting, 39.47% in 4<sup>th</sup> sitting, 84.21% in 5<sup>th</sup> sitting and 98.68 % after treatment. So Group B has comparatively good out come in pain management.

**Response to Tenderness:** Both Group A and B showed clinically significant and complete reduction in tenderness in 3<sup>rd</sup> sitting by 50% and 29.41%, 4<sup>th</sup> sitting by 100% and 82.35%, 5<sup>th</sup> sitting by 100% and 100% respectively.

**Size of Kadara:** Group A shows highly marked reduction in size of Kadara with 19.23% in 2<sup>nd</sup> sitting, 42.31% in 3<sup>rd</sup> sitting, 65.38% in 4<sup>th</sup> sitting, 86.54% in 5<sup>th</sup> sitting and 98.08% in 5<sup>th</sup> sitting and after treatment. group B shows marked reduction in size of Kadara with 2.22% in 2<sup>nd</sup> sitting, 17.78% in 3<sup>rd</sup> sitting, 46.67% in 4<sup>th</sup> sitting, 96.56% in 5<sup>th</sup> sitting and after treatment. so group A as comparatively results in reducing size of Kadara.

**Response to consistency:** Group A showed significant reduction in consistency with 5.26% in 3<sup>rd</sup> sitting, 94.74% in 4<sup>th</sup> sitting, 100% in 5<sup>th</sup> sitting and after treatment respectively. Group B showed clinically significant reduction in consistency by 10% in 3<sup>rd</sup>

sitting, 75% in 4<sup>th</sup> sitting, 90% in 5<sup>th</sup> sitting and 95% after treatment. The hardness present before the treatment was significantly reduced and the lesion softened. Hence Group A showed good out come in reducing consistency than Group B.

### Discussion on overall response:

After 11 days of treatment, over all response of the drug on signs and symptoms were collectively presented here in a nutshell. Arkakshara showed excellent response in 100% moderate response in 0%, mild response in 0% and poor response in 0% of patients. Over all response based on the subjective and objective parameters is statistically significant in both groups. But Group A shows highly significant result by 98.74% and Group B shows 97.00%. So Group A shows better results than Group B.

### Probable mode of action of Arkaprisaraneeya Kshara

Kadara is formed due to vitiated Vata and Kapha Doshas getting lodged in Meda and Rakta Dhatu leading to formation of cone shaped, Katina Granthi. Therefore management of Kadara needs Shastra Karma like Chedana, Bhedana, Lekhana and Dahana. Kshara Karma have the property of Ksharana means cutting abnormal tissue and Ksanana means dissolves Kapha Dosh, Meda Dhatu. Arka is said to be Vatakapha Shamaka, possess the properties Vedhana Sthapana, Shothahara, Bhedana, Kushtgna, Rakta Shodhaka, Krimihara. This cures the disease as well as prevent re-occurrence. The chemical constituents of Arka is said to be anticoagulant, analgesic, antitumour, antinociceptive, antimicrobial which supports the current study for excellent response.

Kshara is having Tridoshagna property, where Teekshna Kshara is said to be Vatakapha Shamaka, Chedana, Bhedana, Lekhana, Ksharana and Kshanana property. Kshara helps in Bhedana, Lekhana, Ksharana of Kaphadosha and Medadhatu which reduces size of Kadara.

Arkakshara is said to be Vatakapha Shamaka, possess the properties of Vedhana Sthapana, Shothahara, Bhedana, Chedana, Lekhana, Krimihara. This cures the

disease as well as prevent re-occurrence. The chemical constituents of *Arka* are said to be having anticoagulant, analgesic, antitumour, antinociceptive, antimicrobial properties which supports the current study for excellent response.

*Agnikarma* pacifies *Vatakapadosha* which is also *Nidana* of *Kadara*, which increases local *Dhatwagni* cures the disease.

## CONCLUSION

In the present study it was observed that *Kadara* was common in the age group of 18-29 years, Females were more affected than males and more in middle class. Corn is a disease which gives rise to symptoms like pain, tenderness, cone shape hard swelling, highly compressed keratotic epithelial cell. The apex of the cone points inwards base at outwards. *Arka Kshara* showed comparatively high significant result in all subjective and objective criteria, when compared to *Agnikarma*. During the follow-up period no recurrence of corn was observed. The preparation of *Arkakshara* is easy for application, free from side effects and therapeutic efficacy is good. So, it can be adopted as a remedy for treatment of *Kadara*.

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