



Review Article

A REVIEW ON *KADARA* AND ITS MULTI MODAL TREATMENT APPROACH WITH SPECIFIC REFERENCE TO *AGNIKARMA*

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ABSTRACT

Mankind suffers from a lot of conditions which, on the outlook seem very trivial in comparison to the actual suffering arising out of the condition. *Kadara* is one such condition, which comes under the umbrella of *Kshudra rogas*. It is a condition with a simple pathology but causing intense suffering to the patient. *Kadara* can be correlated to Helomas or foot corns. Foot corns have a simple etiopathology but most often, difficult to attain a complete cure. Various treatment modalities available presently for the management of corn include the use of salicylic acid paints, cryosurgery, surgical removal of corn, etc. Recurrence is a common issue in almost all the said modalities. *Agnikarma* is the classical line of treatment mentioned for *Kadara*. The present article is a review of the available research works in Ayurveda, taken up in the management of *Kadara*. Majority of the works available have taken *Agnikarma* (thermal cauterisation) using various *Upakaranas* (materials) for treatment, with few other works having other modalities like *Lepana* (paste application), *Chedana* (excision) & *Kshara karma* (application of alkali).

INTRODUCTION

Ayurveda, the science of life, is unique in the aspect that it offers multiple treatment methods for any condition, based out of the physician's *Yukti*. *Shalya Tantra*, one of the 8 branches of Ayurveda, advocates fourfold treatment plan for any disease, namely, *Bheshaja* (medicine), *Shastra* (surgical), *Kshara* (alkali) and *Agni* (cautery)^[1]. Though mentioned in *Arsha Chikitsa*, the concept is applicable for treatment of any disease. The physician, may choose the treatment modality from any of these four, according to the condition. *Kadara* is considered as a *Kolamathra granthi* (size of *Kola*) on the foot arising out of a thorn prick or stone prick^[2]. Foot corns which may be likened to *Kadara*, occur as small circumscribed swelling, commonly on the dorsum of the foot^[3] and on inter-digital web spaces and sometimes also on the palms.

It may cause intense pain on walking more often leading to change in the gait of the patient, further leading to acquired foot deformities. Conversely, foot corns are also seen as a complication of congenital or acquired foot deformities. Among the four treatment modalities mentioned earlier, *Agnikarma* is the method advocated by *Sushruta* for the management of *Kadara*^[4]. It is also the most commonly used procedure for the management of *Kadara* in the present Ayurvedic practice. In *Kadara*, apart from *Agnikarma*, in practice, procedures like *Chedana karma*, *Kshara karma*, application of *Lepanas* are all being done. Also, present day management methods of using corn caps, which is the commonest practice, in addition to salicylic acid paints, cryotherapy and surgical management is also in wide spread use. Most of all these treatments, Ayurveda and otherwise, help to alleviate the pain and tenderness, but many a times, a complete cure for the condition hits a stonewall. The treatment of *Kadara* should thus be aimed at the prevention of recurrence of the condition and not just the alleviation of symptoms. In this aspect *Agnikarma* may be considered a technique par excellence in *Kadara*.

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Review on Kadara and Heloma (Corn)

Kadara finds its first mention in *Sushruta Samhita Nidanasthana*. It is mentioned as a *Kolasthi sadrusha granthi* (size of seed of *Badara*). It is considered to arise out of injury due to thorn prick or stone^[5]. Similar *Nidana* is mentioned in *Ashtanga Hridaya*^[6], *Madhava Nidana*^[7], *Bhavaprakasha*^[8], *Gada Nigraha*^[9]. The said *Nidana* causes *Vata* and *Kapha dushti*^[10]. The aggravated *Doshas* in turn vitiate *Medas* & *Rakta* resulting in the formation of the *Granthi*^[11].

Kadara is mentioned as being *Keela sadrusha* (cone shaped) presenting with *Ruk* (pain) and *Srava* (discharge). It may have *Nimna* (depressed) or *Unnata* (raised) *Madhya* (central part)^[12]. *Acharya Bhoja* mentions that *Kadara* may occur in *Hastha* (palms) also^[13].

All the authors are in unison with *Acharya Sushruta* in the treatment approach of *Kadara* which advises *Sneha dahana* after *Chedana karma*^[14]. There is specific mention that *Taila* is the *Sneha dravya* to be used for *Dahana* by *Chakradatta* and *Gadanigraha*^[15].

With respect to foot corns, footwear contributes to interdigital corns when there is a congenital or acquired predisposing factor. These predisposing factors cause apposition of particular bony prominence between adjacent toes.^[16]

Corns and calluses both occur as a normal physiological response, on the skin, to chronic excessive pressure or friction on the skin, as a direct result of hyperkeratosis. It may start off as a mild callus which can turn into painful corn with repeated pressure. Calluses form as a means of protection against shearing or compressive forces. There are numerous causes of callus formation, including mechanical abnormalities, ill-fitting footwear, prominent metatarsal heads, cavus foot type, hammer toe deformities, long lesser metatarsals, dropped transverse metatarsal arches, hyper-trophic plantar metatarsal head condyles, malunion of a metatarsal fracture, and accessory sesamoids. In both cases, the skin is unable to shed, and the intact skin continues to thicken and can become very painful if left untreated.^[17]

Documented Treatment Modalities

Though the various texts advocate *Sneha dahana* for the management of *Kadara*, we see the usage of various other treatment modalities in Ayurveda practice. *Agnikarma* using *Panchaloha shalaka* is the most commonly seen practice. Other practices seen are the usage of *Lepas*, *Kshara* and *Shastra karma*.

Lepanas

Few references are available on the usage of *Lepanas* or external application for the management of *Kadara*.

Tuthyadi Lepana

A study was conducted by the application of *Tuthyadi lepana* [*Tutha* (copper), *Haridra* (turmeric), *Madayanthika* (Henna) & *Karpooora* (Camphor)]. The study was done by the *Lepa* application followed by *Bandhana*, left overnight for a period of 7 days. It was found effective to reduce pain. No information on the follow up or recurrence was available.^[18]

Srilankan Traditional Herbal Formulation

Another research work mentions the usage of paste made of commonly found food substances like heartwood of pineapple, tender Papaya fruit, aseofoetida and turmeric boiled in coconut milk for 30 minutes. The paste was applied over the scraped lesion continuously for 2 weeks. The study was found to have betterment in the level of pain, hardness and intensity^[19].

Kshara karma

Kshara karma is another procedure in practice in *Kadara* management. *Kshara* is considered *Prdhanathama* among *Shastra* and *Anushastra* due its property of *Chedana*, *Bhedana* and *Lekhana*. It is also *Tridoshagna*^[20]. The nature of *Ksharana* depends on the *Dravya* from which *Kshara* is prepared. *Apamarga kshara* is the most commonly used *Kshara*. Initially *chedana* of *Kadara* is done followed by the application of *Kshara* for 100 *Matrakala*.

A study using *Arka kshara* application for the management of *Kadara* in comparison to *Agnikarma* using *Loha shalaka* showed that there was significant result in reducing pain and discomfort. The Result was statistically insignificant as *Agnikarma* showed better results.^[21]

Shastra karma

Surgical excision of corn tissue is another commonly followed procedure for the management of foot corn. Recurrence is occasionally seen in clinical practice in excised cases. In a study done on surgical excision of corn in comparison with surgical excision followed by *Agnikarma*, it showed that *Agnikarma* after *Shastra karma* has shown significantly beneficial results in comparison with *Shastra Karma* alone in *Kadara* in sustainable manner.^[22]

Agnikarma

Agnikarma is an age old practice used for the management of various conditions. It is considered superior to other practice due to its ability to manage diseases unmanageable by *Bheshaja*, *Shastra* and *Kshara*. Also, diseases managed by *Agnikarma* do not usually reoccur^[23]. Depending on the site, various *Dahanopakaranas* are mentioned. *Dravyas* like *Pippali*, *Ajashakrth*, etc., *Shalakas* made of different materials, *Sneha*, *Guda*, etc^[24].

Table 1: Dahanopakaranas its usage site

S.No	Dahanopakaranas	Site of usage
1	Pippali, Ajasakrida, Godanta, Shara, Shalaka	Twak dahana
2	Jambhavsta Shalakra and other metal	Mamsa dahana
3	Madhu, Jaggery and Sneha	Sira, Snayu, Sandhi & Asthi dahana

Shalaka is used commonly for *Agnikarma* in *Kadara*. *Kadara* is initially excised and red hot *Panchaloha shalaka* is placed over the excised area until *Samyak dagdha lakshana* is observed. The area is then smeared with *Madhu & Sarpi*^[25]. In some cases *Agnikarma* is done even without the initial *Chedana karma*.^[26]

Agnikarma by Panchaloha Shalaka

A study was conducted with a slight variation in the procedure of *Agnikarma*. In the mentioned study, initially *Tila thailam* was applied over the affected area and aver that, *Agnikarma* was done using a *Panchaloha shalaka*. The study was done for 3 sittings at an interval of 5 days. The study showed better result in comparison with *Agnikarma* using *Panchaloha shalaka* alone. It was found to be cost effective as compared to surgical excision. The patient got relief from the swelling and the pain.^[27]

Agnikarma with pippali

Pippali is mentioned as a *Dahanopakrama*. A study mentions the use of *Pippali* to make burns in hyperkeratosis lesions. The observation of the study was the *Pippali* could be used to make superficial burns. The area of burn, in 7 days after the procedure, the area of lesion turned soft with reddish discoloration which may be attributed to the penetration of the volatile oil and active principles of *Pippali* into the area of lesion. The lesion along with the *Kadara* tissue dried and peeled off in 15 days.^[28]

Supportive and Conservative Management

Foot Orthoses can be used as a supportive management method in cases of Foot Corn, especially corns occurring due to any anatomical foot deformity. Foot Orthoses are customized specific implants inside the shoes. They modify the magnitude and timing of the pressure of the forces on the foot during weight bearing activities^[29]. This to a great extent may help prevent recurrence of corn. Orthoses play a major role in the conservative management of most of the foot discomforts. Foot inserts help distribute the weight throughout the foot, minimizing pressure areas, thereby reducing the incidence and recurrence of Corn.

DISCUSSION

Many factors need to be considered while posting a patient with *Kadara* for treatment. Factors like duration of treatment, cost involved, patient

tolerance will need to be considered. All the procedures like *Lepana*, *Kshara* and *Agnikarma* were found to relieve the pain and swelling. The duration of procedure varied in each of the management methods. While the surgical procedure and some procedures of *Agnikarma* and *Ksharakarma* was completed in a single sitting, procedures like *Lepana* need to be done for a prolonged time, the duration of the procedure being 14 days. *Lepana* or *Ksharakarma* can be used to manage the condition in patients who are *Bheeru* or *Abala* or in children, who may not tolerate surgical excision and *Agnikarma*. *Agnikarma*, *Kshara karma* & *Lepana* need *Chedana karma* prior to its application to increase the efficacy of the procedure. All the research works mention the alleviation of pain, swelling. Recurrence is an issue which needs to be addressed as well. The maximum follow up period of 45 days mentioned in the research work may not be sufficient enough to assess the criteria of recurrence. A larger study in terms of no of participants and duration of study may be necessary to derive at a statistical conclusion.

CONCLUSION

Ayurveda has a multi modal approach to many clinical conditions. *Kadara*, though considered a *Kshudra roga*, can go upto the extent of affecting the day to day activities of man. So a fail proof management methodology is required for its management. From all the available literature, it could be understood that all the treatment modalities of *Kadara* may not have a complete cure for the condition, as recurrence may be there. Of among all the treatment modalities, *Agnikarma* with *Thailam* can be considered the most appropriate, though more research may be needed to understand its total efficacy in terms of recurrence.

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