

Subcutaneous intralesional *Ksharodaka* injection: A novel treatment for the management of Warts: A case series

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ABSTRACT

Warts are generally managed using cryosurgery, keratolytic ointments, curettage and electrodesiccation. Warts, *vis-a-vis Charmakila*, in Ayurvedic classical texts are classified into different types depending on the dominance of *dosha*. Ayurveda prescribes oral medications, topical use of *Kshara* (alkaline ash of herbs), *Agni* (thermal cautery) and *Shastrakarma* (surgery) for removal of *Charmakila*. Use of topical *Kshara* in the form of powder, aqueous solution i.e. *Ksharodaka* and *Ksharasutra* (thread smeared with *Kshara*) for warts has been reported. However, these methods necessitate multiple sittings and take a longer duration for removal of the warts. Herewith, we report a case series of different types of warts treated with intralesional infiltration of *Apamarga Ksharodaka* (AK), i.e. aqueous solution of *Apamarga* (*Achyranthes aspera*) *Kshara*. We observed that all these warts took a minimum of 2–6 days to shed off, leaving minor scars. There were no adverse reactions reported in any of these cases.

Key words: *Charmakila*, intralesional injection, *Kshara*, *Ksharodaka*, wart

INTRODUCTION

Warts, also known as *verrucae*, is a common dermatological condition caused by the human papillomavirus (HPV). Warts occur frequently on the hands, feet, face, legs and external genital area. They are classified as common, flat, plantar, anogenital, cervical, laryngeal and other mucous membrane forms. Description of *Charmakila* in the Ayurvedic classical texts is much alike to warts. *Charmakila* are the hard, rough, nail-like projections over the skin caused due to vitiation of

Vyanavayu and *Kapha*. They show different characteristics according to the dominance of *dosha*. *Vata*-dominant *Charmakila* will be rough and with pain; *Pitta*-dominant *Charmakila* will be blackish in color; while *Kapha*-dominant *Charmakila* will be of skin color, oily and like a nodule.^[1]

The management of warts in biomedicine aims at destruction through various methods like topical keratolytics, electrofulguration, liquid nitrogen cryotherapy and laser vaporization, along with other options like intralesional chemotherapeutic agents and oral immune modulators or antivirals.^[2] But, none of these wide-spectrum therapeutic approaches have yielded consistent effect neither in the destruction of the warts or their recurrence.

Ayurveda recommends a holistic approach for treating the warts, such as oral medications, external application of *Kshara*, *Agnikarma* or surgical excision.^[3] *Kshara* are alkaline substances obtained from the ash of medicinal herbs. The dried pieces of medicinal plant are put in an earthen pot and burnt to ash. After cooling the ash, water is added in a ratio of 1:6, i.e. one part ash and six parts water, and mixed well. This is then strained through a piece of cloth for two or three times till a clear liquid is obtained. This liquid is then put in an iron or earthen vessel and heated over a moderate fire till the water evaporates, leaving a solid salty white substance that is known as *Kshara*.^[4]

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Received: 12-Jul-2014
Revised: 15-Aug-2014
Accepted: 20-Aug-2014

Access this article online

Quick Response Code:



Website:
www.jaim.in

DOI:
10.4103/0975-9476.146558

Kshara in the form of powder, paste or aqueous solution (known as *Ksharajala/Ksharodaka*) is used for local application extensively by Ayurvedic physicians in the management of warts.^[5] *Ksharasutra* (thread smeared with *kshara*) is tied around the warts for removal. However, these methods require multiple sittings with a longer duration for shedding off of the wart with limitations to use in smaller warts. Herein, we present a preliminary report of management of different types of warts in four patients using intralesional injection of *Ksharodaka*.

CASE REPORTS

Preparation of *Ksharodaka* and the procedure of intralesional *AK* injection-

2.5 g of *Apamarga Kshara* (*Kshara* of *Achyranthes aspera* prepared as per the classical method explained above) was thoroughly mixed in 10 mL of distilled water and kept for 15 min. The supernatant solution, i.e. *Apamarga Ksharodaka (AK)*, was used for the procedure.

With prior written consent this therapy was administered. First, the patients were given a comfortable position. Aseptic precautions were taken. *AK* was drawn into a disposable syringe having a number 24 gauge needle [Figure 1] and slowly injected underneath the warts keeping the syringe parallel to the skin surface with the bevel facing upward [Figure 2]. The patients were observed for 30 min in the hospital and were asked for daily follow-up to assess the changes at the site of injection. No oral medication for the warts was prescribed before and after the procedure.

Case 1

A 73-year-old male with a known case of diabetes mellitus and hypertension (well controlled with allopathic medicines) was having multiple warts of varying sizes on his face, neck, axilla and groin regions. The warts on the face and neck were

of varying size and shape, painless and soft in consistency. His blood sugar was well controlled and other blood parameters were normal. (fasting blood sugar level [BSL] 89 mg/dL and postprandial BSL 152 mg/dL, hemoglobin 15.6 mg%, ESR [05 mm] and urine routine examination was normal). *AK* was injected at the base of a flat wart on the right cheek and three filliform warts on the right side of the neck with a disposable syringe using a 24 number hypodermic needle in the dose of 0.1 cc each. On the next day, mild inflammation was seen at the base of the warts. The hardness and darkness in color of the wart got increased every day but the patient was not having any complaints. On the seventh day, the warts shed off [Figure 3].

After 2 weeks, *AK* was injected at the base of two other filliform warts (of length 0.3 cm and 0.1 cm each) on the medial aspect of the right thigh region at a dose of 0.2 cc each, following which the warts became hard and dark in color but the patient had no specific complaints. On the third day, both the warts shed off leaving a small wound. The wound healed with minimal scar in a week.

Case 2

A 54-year-old, apparently healthy female presented with multiple painless warts on the right side of the neck region (as filliform warts), left shoulder and in the right axillary region. She was subjected for an intralesional *AK* injection at a dose of 0.4cc. This patient complained of burning at the site of the injection during the procedure. On the next day, all the warts turned harder, darker and subsequently shed off, leaving a small wound [Figure 4].

Case 3

A 30-year-old female presented with a flat, skin-colored wart of approximately 0.5 cm diameter in size on the scalp just behind the left ear at the hairline on the mastoid region. 0.2 cc of *AK* was injected at the base of the wart using a disposable syringe with a 24 number needle. She complained of pain and burning at the site of the injection



Figure 1: Ksharodaka and its administration



Figure 2: Ksharodaka and its administration



Figure 3: Warts on the neck, cheek and thigh



Figure 4: Wart on the shoulder joint before, during and after treatment



Figure 5: Wart on the scalp before, during and after treatment

during and after the procedure for 1h. The wart shed off on the fourth day with a slight wound that healed leaving a minimal scar at the site within 7 days [Figure 5].

Case 4

A 60-year-old female presented with a dry, rough, brown-colored wart on the face above the right eye, near the medial end of the eyebrow as a filiform wart measuring approximately 0.1 cm. 0.2 cc of AK was infiltrated at the base of the wart using a disposable syringe with a 26 number needle. Here, the base of the wart was small; hence, a 26 number needle was used. She complained of pain at the site of the injection during the procedure. Mild

inflammation was seen at the base of the wart on the next day with no obvious pain and burning sensation. On Day 5, the wart shed off [Figure 6].

DISCUSSION

Pratisaraniya Kshara, i.e. topical *Kshara*, is recommended for *Charmakila* and it has been successfully practiced among Ayurveda physicians. Postgraduate research studies on topical *Kshara* for warts have reported good results.^[6] *Kshara* in the form of *Ksharasutra* has also been attempted by scholars for the treatment of warts. *Ksharodaka* along

with almond oil was used in the management of bleeding piles as a submucosal injection.^[7] Also, *Ksharodaka* as an injection in different concentrations in the management of internal hemorrhoids has proved to be effective over placebo.^[8]

Kshara possess caustic properties resulting in excision of unwanted tissues.^[9]It works like a sclerosant agent locally and creates sterile inflammation at the base of the wart. Subsequently, the process of sclerosis takes place and the wart falls off. *Kshara* has dual properties of cutting and healing locally. *Apamarga* has been a drug of choice for preparation of *Kshara*, and it has been used in the management of hemorrhoids, warts, etc. Animal studies of *AK* injection have reported it to be safe at different dose levels, to as high as 2000 mg/kg. The duration of follow-up was until the 14th day of the study and the authors concluded that the formulations were safe.^[10]

In the present case series, the higher dose proved to be correlated with duration required for complete disappearance of wart. The lower dose of *AK* injection took more number of days [Table 1 and Graph 1]. However, the *Prakriti* (bodily constitution) of the subject seems to have some role in these cases. The patient of *Kapha*-dominant *Prakriti* didnot experience pain probably due to the lesser quantity of *AK* injection and his dominant *Prakriti*, whereas others noticed burning and pain due to the higher dose and their *Pitta*-dominant *Prakriti*.



Figure 6: Wart on the face, above the eye before and after treatment

This preliminary study of management of warts using the *AK* injection is the first report of wart management using “*Ksharodaka* in the form of intra-lesional injection” as per the literature. This method of using *Ksharodaka* has advantages over the other modalities of *Kshara* application. It requires minimum dose and has precise local action. In addition, it is time conserving and the number of sittings are limited. Moreover, its cost-effectiveness makes it a lucrative option. This method can be effectively used in small, flat warts where topical *Kshara* powder and *Ksharodaka* are not effective and also in small filliform warts where *Ksharasutra* cannot be tied.

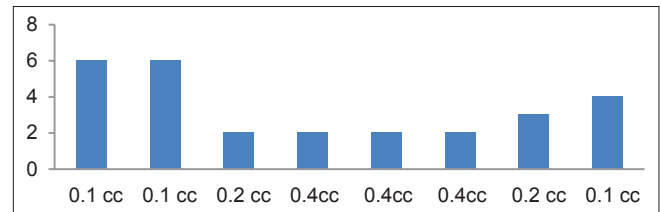
The future direction

- Study in a larger population with a longer follow-up duration
- To determinethe sustainability of the results and develop“ready-to-use (prefilled medicated syringes)”*Ksharodaka* injections of different concentrations.

We also suggest a subcutaneous *Ksharodaka*“test dose” to assess the spread (induration) for determining the treatment dose because the dose of *Ksharodaka* for a particular wart and patient will depend on the size of the warts and the *Prakriti*.

ACKNOWLEDGMENT

The authors are thankful to DG, CCRAS and DD (Tech), CCRAS for their support. The authors also express thanks to Dr. Mohan S. Gundeti, MD, Associate Professor Surgery, Pediatrics and



Graph 1: Depicting dose v/s time required for shedding off the wart

Table 1: Details of treatment

Case no.	<i>Prakriti</i> (bodily constitution)	Site/shape/size/number of warts	Dose of <i>AK</i> injection in cc	No. of sittings	Days required for shedding off the wart
1	<i>Kapha Vata</i>	Face (right cheek)/flat/0.5 cm/1	0.1	1	6
		Neck (right side)/filliform/1mm/3	0.1	1	6
		Groin (right thigh)/round/1cm/2	0.2	1	2
2	<i>Pitta Vata</i>	Neck (right side)/flat/0.5 mm/2	0.4	1	2
		Right axilla/filliform/1mm/1	0.4	1	2
		Left shoulder/round/1cm/1	0.4	1	2
3	<i>Pitta Kapha</i>	Left ear on mastoid region/flat/0.5cm/1	0.2	1	3
4	<i>Pitta Vata</i>	Face- on the medial end of the eyebrow above the right eye/filliform wart/1mm/1	0.1	1	4

Obstetrics/Gynecology, Director, Pediatric Urology, University of Chicago for careful reading and suggestions in the manuscript.

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How to cite this article: Gundeti MS, Reddy RG, Muralidhar JV. Subcutaneous intralesional *Ksharodaka* injection: A novel treatment for the management of Warts: A case series. *J Ayurveda Integr Med* 2014;5:236-40.

Source of Support: Nil, **Conflict of Interest:** None declared.