



Case Study

SUBCUTANEOUS INTRALESIONAL INJECTION OF *KSHARODHAKA* IN THE MANAGEMENT OF WARTS - A CASE STUDY

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ABSTRACT

Warts are benign epithelial hyperplasia manifesting mostly due to infection with human papilloma virus (HPV). The condition may affect the patient with or without pain, itching etc. Wart can become a stressful cosmetic problem. The references of *Charmakeela* in *Kshudraroga adhikara* in the *Ayurvedic* classics have a very close clinical proximity with warts. *Kshara* is one among the treatment choice for *Charmakeela* and used in *Pratisaraneeya kshara* form. Subcutaneous intralesional injection is one among the upgraded modalities of *Pratisaraneeya ksharakarma*. *Kshara* used as *Ksharodhaka* for this procedure. A 24 years old female patient with a common wart over the thumb visited the *Salyatantra* OPD, Govt. Ayurveda College Hospital Tripunithura in June 2019. The lesion was painless and without itching and was developed within a period of one month. The patient was undertaken for subcutaneous intralesional injection of *Aragwadha ksharodhaka* following proper lab investigations. The patient did not develop any adverse reactions or pain during the procedure. It was observed that, the wart shed off within a period of 7 days. There was no visible ulceration over the site of wart and healing happened leaving a minimum scar. Also there was visible healthy skin formation.

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INTRODUCTION

Warts being a very common skin manifestation results from hyperkeratinised lesion over the skin. It causes cosmetic distress and pressure in affected subjects since antiquity. This is considered as a benign growth affecting the basal layer of the skin epidermis^[1]. The most common cause is infection with human papilloma virus (HPV). A pre-existing micro-trauma of the skin or epidermal barrier at any part of the body can give the virus entry^[2].

The conventional system of medicine gives majority of the treatment based on destruction of keratinocytes irrespective of HPV involvement. Cryotherapy, keratolytic ointments, lasers, curettage and electro desiccation are used for this^[3]. *Ayurvedic* classics give references of *Charmakeela* which can be correlated with warts. *Charmakeela* appears as *Keelavat mamsangura* (nail like projections of fleshy origin) in the skin due to vitiation of *Vyanavayu* and *Kapha*^[4]. This is detailed as an *Adhimaamasa vikara* (disease due to excess

muscle tissue) along with description of *Arshas* (haemorrhoids) and enumerated as one among the *Kshudraroga* (diseases of minor category)^[5]. *Ayurveda* gives management of *Charmakeela* with oral medications, topical use of *Kshara* (ash of herbs with caustic property) *Agni* (thermal cautery) and *Shastra karma* (surgery)^[6]. *Kshara* is of two types; *Paneeeya* (internal administration) and *Pratisaraneeya* (external application)^[7]. This is considered as the best treatment among all surgical and parasurgical procedures^[8]. As a disease affecting the skin, the drug *Aragwadha* (*Cassia fistula* Linn.) with proven clinical effects in skin diseases used for *Ksharakarma* in the case. The drug is one among the twenty four drugs of *Ksharagana* (group of drugs used for *Kshara* preparation) detailed by Acharya Susrutha.

WHO point out that 70-80% of world population depends on nonconventional medicine or herbal preparations for treatment purposes. It shows the necessity of advancement and validation

of Ayurvedic treatment modality. [9] Introduction of nasal sprays and herbal injectables in Ayurvedic medicine are examples for this. The subcutaneous intralesional injection is one of the modified *Pratisaraneeya kshara karma* (external application of herbal ash with caustic property). The caustic properties of *Kshara* may work as a sclerosant agent locally with tissue necrosis resulting in falling off of the unwanted tissues in the wart. This may give healthy epithelialisation without an open wound and minimum scar.

Considering the clinical presentations of *Charmakeela*, *Aragwadha teekshana kshara* (caustic alkali of strong potency prepared from the drug cassia fistula Linn.) was used for the case study here. The patient was treated with subcutaneous

intralesional injection of *Aragwadha teekshana kshara* in *Ksharodhaka* (*Kshara* liquid) form.

Case report

A 24 years old female patient presented with single painless common warts on the left thumb above the metacarpo-phalangeal crease visited the Salyatantra OPD, Govt. Ayurveda College Hospital Tripunithura in June 2019. She was a college student and had discomfort and cosmetic distress with the wart. According to the patient the lesion noted as a point of abnormal hardness before one month. Later she noted an increase in its size with a dark brown colour without itching. There was no relevant family history. The patient also had no history of any associated comorbidities and was advised to undergo lab investigations, this was found within normal limits.

Table 1: Clinical features of wart lesion observed on 11.06.2019

Wart characteristic	Observation
Site of wart	Left thumb above the MCP crease
Number	1
Basal diameter	0.3mm *0.2mm
Colour	Dark brown
Level	Elevated from skin level.
Aspect	Rough and lobed
Border	sharp
Border erythema	Absent

Table 2: Results of laboratory investigation done on 12.06.2019

Investigation		Value
Blood Sugar	FBS	98 mg%
	PPBS	110 mg%
Lipid Profile	Total cholesterol	180 mg%
	S. Triglycerides	80 mg%
Serum creatinine		0.7 mg%
Haematology		
Haemoglobin		13 gm%
Total WBC count		8200 cells/cumm.
Differential count		
a. Polymorphs		52%
b. Eosinophils		08%
c. Lymphocytes		35%
ESR		10 mm/hr.
Platelet count		3.0 lakhs/cells /cu.mm
AEC		480 cells/cu.mm
Bleeding time		2 min. 15 sec.
Clotting time		4 min. 30 sec.

Preparation of *Aragwadhateekshna kshara* ^[10]

Medicine prepared as per classical reference of *Susrutha samhitha*. The dried pieces of *Aragwadha* (*Cassia fistula* Linn.) bark 10 kg burnt to ash along with 100 gm *Sudhasarkara* (drug with calcium content) after cooling, the ash of *Aragwadha* and *Sudhasarkara* is collected separately. Water is added in a ratio of 1:6 into the *Kshara* of *Aragwadha*. i.e., 1 part *Aragwadhakshara* with 6 part water and is mixed well. The supernatant solution is then strained through a piece of clean cotton cloth for 21 times till a clear liquid is obtained. This liquid is taken in an iron vessel and heated over a moderate fire. When this liquid become clear, red in colour, sharp and slimy, add 100 mg of *Bhasma* (ash) of *Sudhasarkara* into it, later the powder of *Langali* (*Gloriosa superba*), *Chitraka* (*Plumbago zeylanica*), *Vaca* (*Acorus calamus*) are added and is cooked again till it reaches a stage of powder. This substance known as *Aragwadha teekshna kshara* (potent alkali preparation of *Cassia fistula* Linn). It is stored in air tight sterile container.

Subcutaneous intralesional injection procedure (Done on 12.06.2019)

Written consent was obtained from the patient prior to the procedure. The patient is made

to a comfortable posture. All aseptic precautions were taken. The stored 500 mg of *Aragwadha teekshna kshara* was taken and mixed with 2ml distilled water and *Ksharodhaka* (liquid form of *Kshara*) made. 1ml. of this *Ksharodhaka* drawn in to a 2 ml. disposable syringe with a number 24 gauge needle. A test dose of 0.1 ml *Ksharodhaka* taken near the lesion one hour before procedure. As the patient observed safe for further procedure, Injection was given slowly underneath the warts at multiple sites around the lesion by pointing the needle bevel upwards.

Figure 1: *Aragwadhateekshnakshara***Figure 2: Preparation of *Ksharodhaka* for injection****Follow up advises**

The patient was advised to avoid water contact for 3 hours immediately after injection procedure and follow vegetarian diet for next one week without curd and cold food items. She was also advised to avoid spice, salt and sour in excess.

Observations and Result

During the subcutaneous intralesional injection of *Aragwadhaksharodhaka* (on 12.06.2019), the patient complained of mild pain and burning at the site for a short period of less than 2 minutes. The local wart site was observed for change in the basal diameter, nature of shedding of hyperkeratinised tissues and scar on alternative

days after the injection procedure. Pain, burning sensation, itching and hardness at the wart site was observed as subjective features of the patient. On the next day (13.06.2019), the wart turned soft, darker and a negligible pain was noted by the patient. On gradual observation, the wart found to shed the hyperkeratinised tissues off. By 18.06.2019, there was complete shedding of the raised tissue (within a period of 7 days) leaving no evidence of wound. Basal diameter, which was taken as the area covered by the hyper granulated and hyperkeratinised tissues, observed to reduce to a state of absent by the end of 12 days after

injection. The scar observed to appear from 4th day (16.06.2019) onwards following injection. This was with minimum fibrous tissue and the local site was without any hardness. The wart site presented with normal skin by the end of 28.06.2019 that is, a total of seventeen days after the injection procedure.

There was no pain, itching, burning sensation or other skin manifestations during any of these periods. The wart site also gained completely normal touch sensation and almost healthy skin around.

Figure 3: Wart during injection procedure



Table 3: Observations of wart done during treatment

Observational features	Days of observations with findings					
	12.06.2019	14.06.2019	16.06.2019	18.06.2019	23.06.2019	28.06.2019
Basal diameter	No change (0.3*0.2cm)	No change (0.3*0.2cm)	Mild reduction (0.25*0.1 cm)	Considerable Reduction (0.2*0.1 cm)	Base is almost absent	-
Shedding of hyper keratinised tissue	Absent	Absent	Started shedding from periphery.	All outer tissues shed off.	Complete shed off of hyper keratinised tissues with centre thickening	No visible hyper kratinisation or thickness.
Scar	-	-	Poor scar with hard and thickened base	Moderate visible scar with thickened peripheral skin	Good and acceptable scar with almost normal skin	Scar replaced with normal skin

Table 4: Observations on subjective features

Assessment features	Days of assessment with observations					
	12.06.2019	14.06.2019	16.06.2019	18.06.2019	23.06.2019	28.06.2019
Pain	Mild (during injection)	Mild	Absent	Absent	Absent	Absent
Burning sensation	Mild (during injection)	Absent	Absent	Absent	Absent	Absent
itching	Absent	Absent	Absent	Absent	Absent	Absent
Hardness	Present	Present	Present at border	Absent	Absent	Absent

Discussion

Pratisaraneeya kshara being the drug of choice in different *Adhimamsa vikaras* and can cure diseases of *Kaphaja*, *Medaja* and *Mamsaja* origin with its potent action, thus it has a very significant action on the resolution of *Charmakeela*. Compared with topical drug application, in *Pratisaraneeya kshara karama* when *Kshara* use as subcutaneous intralesional injection, the drug penetration can be maximum. The resistance provided by the stratum basalis layer of skin prevent the reach of drugs to deeper tissues in topical drug application. This is almost absent in injection method. The drug directly cross the basalis layer and reach the subcutaneous where the base of wart is seated. Subcutaneous injection is also found as one among the safe, reliable and less invasive route of medicine administration beneath the epidermis where blood flow is very much limited results in slow absorption of drug¹⁰.

The *Theekshna kshara* used in the present case facilitates the action through its strong potency. Immediate diffusion of the drug takes place to provide the concerned effect. *Kshara* is found to have *Ksharana* (cutting and scraping of unwanted tissue) and *Kshanana* (debridement of necrosed tissue) properties respectively.^[11] This can also promotes the action of shedding of the lesion. *Kshara* also have *Chedyā* (excising), *Bhedyā* (cutting) and *Darana* (bursting) properties, these may help to remove the unwanted tissues from body surfaces and support debridement action. The *Ushana* (producing heat) and *Theekshna* (penetrating deep) *Gunās* (qualities) of *Kshara* may Works on *Pachana* (ripening) of *Keelavat maamsangura* (nail like fleshy sprouts) and may dissolves it by *Vilayana* (liquefaction) property. *Theekshna Kshara* (alkali of strong potency) may dissolves the bonding of *Vata* and *Kapha* through the process of *Vilayana*. It can be correlate with the lysis of hyperkeratinised lesion- the process of protein lysis.^[11]

Aragwadha theekshna kshara consists of five drugs, taking its *Rasadi* properties into consideration it is again found to support caustic nature of *Kshara* & excision of warts.^[12]

Rasa: *Citraka*, *Langali* and *Vaca-katu* (pungent) & *Aragwadha-Madhura* (sweet)

Guna: *Laghu* (light) and *Theekshna* (penetrating)

Veerya: *Ushna* (hot potency)

Vipaka: *Katu* (pungent)

Minimum scar formation is one of the other observed feature in this procedure. The *Soumya kshara guna* (cooling quality) can be the factor which aids in healthy epithelialisation and normal skin formation. As a whole, the case study shows primacy over existing conventional management of warts through the observations made.

CONCLUSION

There exist a number of treatment modalities for curing *Charmakeela*. Most of the classical methods need multiple sitting and is time consuming. The present case study shows a complete halt to these issues. The subcutaneous intralesional injection procedure is observed as a treatment with minimum time conception and maximum cost effectiveness. Ulceration followed by primary management of wart is the other common complication arising in wart treatment. It give rise the need of following wound treatment in most of the cases. But in *Kshara karma* as subcutaneous intralesional injection, no visible stages of transformation in the wound healing phase over the external skin surface is noted. The stage of mild inflammation to the stage of granulation tissue formation and re-epithelialisation was found to taking place under the hyper granulated tissues. Also there is minimum scaring of the wart site with healthy epithelialisation and formation of normal skin observed by the end of seventeen days. Pain, itching and other complications were also nil. This

points that significant effect of subcutaneous intralesional injection of *Aragwadhaksharodhaka*.

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