



Ijapc 2018

Volume 8 Issue 2

www.ijapc.com

10/3/2018

Greentree Group



Clinical Implications of *Kshar* and *Kshar Karma* in Various Surgical Conditions

Danish Javed^{1*} and Neelam Sajwan²

¹Ch. Brahm Prakash Ayurved Charak Sansthan, New Delhi, India

²Shalya tantra, UAU, Main campus Harawala, Dehradun, UK, India

ABSTRACT

Kshar is a special *ayurvedic* herbal preparation for external as well as internal medicinal purposes. It is highly useful drug in terms of surgical interventions. *Kshar sutra* is a well known application in number of ano-rectal conditions. Researches have explored its significance in chronic problems like fistula-in-ano etc. *Kshar* is corrosive in nature despite its *saumya guna*. It debrides unhealthy tissues in a very gentle manner. **Methodology:** In *Vrihadtrayi* as well as in *laghutrayi*, *kshar* has been exclusively depicted. Search was made in different texts of *ayurveda*. **Major issues and challenges:** *Kshar karma* is the external application of *kshar*, which should be done under the supervision of experts. Otherwise, it may cause various complications. *Kshar* has different potencies on which the desired action takes place. When *kshar* is applied locally in diseased condition, it may harm the healthy tissues also. So, proper care must be taken while it is used.

Conclusion: *Kshar* has gained its popular role in ano-rectal diseases. However, in *ayurveda*, its scope is not limited to a particular field. *Kshar karma* has been described in so many conditions, which are still considered as incurable or recurrent in present time.

KEYWORDS

Kshar Karma, Pratisarniya Kshar, Chronic Surgical Conditions



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Received 30/01/18 Accepted 20/02/18 Published 10/03/18



INTRODUCTION

Kshar are alkaline substances obtained from the water soluble ash of the drugs of plant origin¹. The *kshar* belongs to *agnibhuta* since the properties of *kshar* are burning and destructive, that simply means the material is caustic. *Kshar* is the most important one among sharp instruments and accessory instruments, because it does functions like excision, dividing and scraping, mitigates all the three doshas and suitable for being used by special methods². The substance is called *kshar*, because it causes *ksharan* (destruction) to the *aashaya* and expels the doshas through the inferior route³. It is called *kshar*, since it destroys (the vitiated tissues and make them fall off) or since it torments the tissues⁴. According to *Dalhanachrya*, *kshar* causes destruction of the putrefying and devitalized tissues of the body and vitiated *doshas* and make the skin or tissues of the body to shed off⁵. *Acharya Charak* has mentioned the term “*Kshar_tantara_vid*” to the experts performing *kshar karma* exclusively. This clearly indicates *Kshar karma* was a very specialized technique and was highly popular at that time⁶. *Kshar* administered unwisely will be like the effect of poison,

1. *Kutaj*
2. *Palasha*

fire, sharp weapon, thunderbolt and death; the same used properly by an intelligent physician, cures even dreadful diseases quickly⁷.

AIM AND OBJECTIVES

- To discuss different aspects of *kshar*.
- To emphasis the role of *kshar karma* in different surgical conditions.
- To rationalize the vision of *Acharya Sushruta*.

MATERIAL AND METHODS

All the references were collected from the various ancient ayurvedic literatures, research journals and websites related to the topic.

Types of *kshar*⁸:

1. *Paniya* (For internal use)
2. *Pratisaraniya* (For external application)

Pratisaraniya kshar is again divided into three types:

- a) *Mridu* (Mild potency)
- b) *Madhya* (Medium potency)
- c) *Tikshna* (Powerful)

Medicinal plants useful for *kshar preparation*⁹(शा०म०खण्ड ११/१०२-१०४)

13. *Vrikshaka*

14. *Kadli*



3. *Ashwakarna*
4. *Paribhadra*
5. *Vibhitaki*
6. *Aragwadh*
7. *Bilwa*
8. *Arka*
9. *Snuhi*
10. *Apamarg*
11. *Patla*
12. *Naktmala*
15. *Chitrak*
16. *Putika*
17. *Indravriksha*
18. *Asphota*
19. *Ashwamaar*
20. *Saptachhada*
21. *Agnimantha*
22. *Gunja*
23. *Koshatki*

Kshar preparation¹⁰:

On an auspicious day during *sharad ritu* (autumn season) a middle aged and big sized *kala musakaka* tree (or any of the plant described above, their root, stem, branches, leaves and fruits may be taken) is selected, some quantity of *sudha sharkara* (lime stone) are also put into this heap and set on fire with the help of reeds of dried *tila* plant. Next one drone (10.24 kg) of ash is put into six *drona* (61.44kg) of water or cow's urine, stirred well, filtered through cloth twenty one times, put into a large cauldron and boiled constantly; when the liquid becomes clear, red in colour, sharp and slimy, it is filtered through a thick cloth into another vessel and boiled again.

After that the ash of *katasarkara*, ash of limestone, oyster shell and conch shell are made red hot and put into the vessel

containing the solution of ash and boiling is continued, stirring all through till the mass becomes neither very solid nor very liquid; afterwards it is taken out of the fire, poured into an vessel having lid and preserved carefully.

This is the method of preparing madhyam kshar. This *kshar* itself if prepared without *prativapa* (adding paste of other drugs) is called as *samvyuhim* or *mridu kshar*.

Danti, dravanti, chitraka, langali, putika, hingu, vacha, ativisha, talapatri, praval, bida and *kanakasiri* all or as many as available, each equal in quantity of one *sukti* (20 grams) are made into fine powder and added; this is *prativapa*. When kshar is prepared with *prativapa* it is called *pakwa* or *tikshana kshar*.

Different views of Kshar preparation¹¹:



To avoid any reaction to the metal, use of earthen pot in indicated in *Sharangdhara samhita*.

Table 1 Views of different authors

	Water ratio	Soakage time	Staining
Sharangdhar	4:1	1 Night	--no--
Ras tarangini	4:1	1yaam (3hrs)	By 3 time
Yadav ji	6:1	1 Night	21 times

Identification:

An aqueous solution yields the reaction characteristic of Sodium and Potassium.

Physiochemical Properties

Loss on drying at 110*c - Not more than 4%

Acid insoluble ash - Not more than 1%

pH (10% aqueous solu.) - 10-11

Table 2 Properties of *Kshar* as per *Vrihadtrayi*

S.N.	Charak Samhita (11)	Sushruta Samhita (8)	Astang Hridaya (10)
1.	<i>Tikshna</i>	<i>Naati tikshana</i>	<i>Naati tikshana</i>
2.	<i>Ushna</i>	<i>Not so mridu</i>	<i>Not so mridu</i>
3.	<i>Laghu</i>	<i>Shukla</i>	<i>Sita (white)</i>
4.	<i>Ruksha</i>	<i>Shakshana</i>	<i>Pichchhila</i>
5.	<i>Kledi</i>	<i>Pichchhila</i>	<i>Shlakshana</i>
6.	<i>Pakta</i>	<i>Avishyandi</i>	<i>Avishyandi</i>
7.	<i>Vidarana</i>	<i>Shiva</i>	<i>Sukh nirvapy</i>
8.	<i>Dahkaraka</i>	<i>Shighrakari</i>	<i>Shighra gami</i>
9.	<i>Dipana</i>		<i>Shikhari</i>
10.	<i>Chhedana</i>		<i>Naati ruk</i>
11.	<i>Agni sadrish</i>		

Rasarnava has mentioned that *mala nashaka* is the vishesh guna of *kshar*

- | | | |
|---------------------|---------------------|---------------------------|
| 1. <i>Katu</i> | 8. <i>Saumya</i> | 15. <i>Punsatvanashak</i> |
| 2. <i>Tikshna</i> | 9. <i>Ushna</i> | 16. <i>Ropan</i> |
| 3. <i>Pachan</i> | 10. <i>Dahan</i> | 17. <i>Medhar</i> |
| 4. <i>Daran</i> | 11. <i>Lekhan</i> | 18. <i>Vishahar</i> |
| 5. <i>Shodhan</i> | 12. <i>Aamhar</i> | 19. <i>Kustthar</i> |
| 6. <i>Vilaya</i> | 13. <i>Krimihar</i> | 20. <i>Kaphahar</i> |
| 7. <i>Stambhana</i> | 14. <i>Chedan</i> | 21. <i>Tridoshgana</i> |

Properties of *Kshar*¹⁴: Because of the combination of many plants during its

Assay

Sodium - Not less than 4%

Potassium - Not less than 29%

Iron - Not less than 1.2%

Storage: Store in a cool place in tightly closed containers, protected from light and moisture.

*Kshar matra*¹²:

द्विगुञ्जतः समारभ्य रक्तिकाष्टकसंमिताम् ।

क्षारस्तु विनियुञ्जीत साधारणतया भिषक् ॥

(रस तरङ्गिणी १४/६४)

Dose: 2 -8 Gunja (250 mg-1,000 mg)

Guna of *Kshar* (Properties)

manufacture, it mitigates *tridoshas*, being white in colour it is cool; though being cool,



its actions such as burning, ripening, bursting etc. are not hindered; because of predominance of *aagneya* drugs (drugs of fiery nature), it is pungent, hot, penetrates deep, causes ripening, liquification, purification, healing, absorbing (fluids), withholding and scarifying, destroys worms, undigested materials and kapha; cures leprosy and other skin diseases, poison and fat accumulation; if used in excess it even destroys masculinity.

Clinical uses of Kshar

1. *Kshar Sutra*
2. *Kshar karma*
3. *Ksharodak*
4. *Ksharpichu*

Practical training of kshar karma¹⁵:

Training of kshar karma must be given on soft pieces of flesh.

Indications of pratisaraniya kshar¹⁶:

Applying caustic alkali externally is indicated in leprosy, Dadrumandala, leucoderma, anal fistula, malignant tumors, hemorrhoids, septic ulcers, sinus ulcers, skin warts, pin heads, pigmented patches on the body and on the face, moles on the skin, external abscess, worms, diseases produced by poisons, the seven diseases of the mouth such as *upjivhika*, *adhijivha*, *upkuhsa*, and *danta vaidarbha*, three kinds of *rohini* and

in those diseases where use of accessory instruments only has been indicated.

Contra-Indications:

Cauterization by alkali should not be done for persons such as debilitated, children, old age, fearful, suffering from swelling all over the body, enlargement of the abdomen, bleeding disorders, pregnant lady, woman during menstruation, advanced stage of fever, diabetes, injury to the chest (lungs), emaciation injury, thirst, fainting and other complications, the impotent, prolapse of uterus and testes, in vital spots, throat, umbilicus, nail bed, penis, places with less muscle mass and eyes; excepting diseases of the eyelids¹⁷.

Even those diseases which are curable with the use of alkali, in patients who have swelling all over the body, pain in the bones, poor appetite, pain in the heart and joints, alkali, will not succeed¹⁸.

Indication of kshar in various diseases:

Ulcers, which are Hypertrophied, Hard, Itching, chronic in nature, difficult to treat should be cleaned with the help of *kshar karma*¹⁹. All *kshar* cure abdominal tumors, piles, duodenal diseases, urinary gravel and calculi, are digestives, causes bleeding diseases and laxatives²⁰.

Dusht Vrana:



In case of septic wounds, purification both upwards and downwards, foods which causes thinning of the body and bloodletting should be done first; the wounds should be washed with decoction of drugs of either *rajavrikshadi gana* or *sursadi gana*; oil medicated with the same drugs is good for cleaning the wound; kshar or oil prepared with alkali may be used for the purpose²¹.

The surgeon who knows the strength of the disease and *doshas*, *matra*, *kaal*, *agni bala*, can use *kshar* at the places where surgery or *agnikarma* is indicated²².

Krimighna:

In the context of *Shashthi Upkramas*, *Sushruta* has given indication of *ksharodaka* in the steps of *krimighna_kriya*; bark of *saptarna*, *karanja*, *arka*, *nimba*, and *rajadan* macerated in cow's urine or solution of alkali is said beneficial for washing the wound. Fomentation of wound with *ksharodaka* should be done gently²³.

Arsha:

Four types of treatments are there for hemorrhoids:

1. Medicine
2. *Kshar*
3. *Agni*
4. *Shastra*

The haemorrhoidal masses which are soft, broad, deep rooted, and bulged up are treated with *kshar karma*²⁴.

Arsh Dagdh Lakshan

२५ यदा मृदु समस्पर्शं पक्वजाम्बवसन्निभं ।

ईषत्स्फुटितं ताम्राग्रं सम्यग्दग्धस्य लक्षणम्

॥१५४॥ (गद निग्रह अर्शोधिकारः)

१. मृदु समस्पर्शं
२. पक्वजाम्बवसन्निभं
३. ईषत्स्फुटितं ताम्राग्रं

Mitigation of the disease (subsiding of symptoms like pain, swelling, bleeding etc.), feeling of lightness (of the diseased part), and stoppage of exudations are the symptoms of *samyak dagdha*. Pricking pain, itching, loss of movement and increase of the disease (aggravation of the symptoms) are the symptoms of *heena dagdha* (improper alkali cauterisation), in case of excessive cauterisation by alkali there will be burning sensation, ulceration, exudation, twisting pain in the body parts, exhaustion, severe thirst, fainting and even death²⁶.

Bhagandar:

In *Ushtra-griv bhagandar*, after probing, excision should be followed by *kshar patan*, in order to remove the decomposed foul smelling muscles. Being pitta predominant



bhagandar, instead of *agnikarma*, *kshar karma* in indicated here²⁷.

In case of *parisravi bhagandara*, the exuding tracts are excised and burning of the tract is done either by *kshar* or red hot rod. If the fistulous tract is still having exudations and pain, it should be probed again and incise it either *khajura patra*, *chandrada*, *Chandra-chakra*, *suchimukha* or *avangmukha* and burn the tract by fire or *kshar* again²⁸.

Nadi Vrana:

The textual reference of *ksharsutra* is found in *nadi vrana chikitsa*. The most popular treatment modality for fistula is *kshar sutra*. *Kshar* is coated on linen thread in a systematic manner, makes the beauty of wonderful drug delivery system. In persons who are emaciated, weak and frightful and if the ulcer is present in vital organs, it should be cut open by using *kshar sutra*. After considering the strength of the alkali, another thread soaked with alkali may be inserted after removing the previous medicated thread. The same procedure should be adopted for anal fistula and malignant tumors²⁹.

Usefulness in abdominal surgery:

In case of omentum comes out from the abdomen, sprinkle the *kashar bhasma* and *krishn mritika* powder over the *medovarti*,

and excise it with honey coated red hot *shastra* after ligation. For excision the *shastra* is heated red hot, as heat itself is a sterilizing agent, so helps in minimizing microorganisms load in the wound³⁰.

Granthii Rog:

Granthi or tumors arising from non vital part of body may be excised followed by *agnikarma*; or after *lekhan karma*, *kshar pratisaran* may be practiced³¹.

Kaphaj Arbuda:

Local application of paste of *Gomutra* with *Kshar* is useful in cases of *kaphaj arbuda*³².

Arbuda:

Narrow base tumor should be tied with belt of tin, copper or lead from base and local application of *kshar*, *agni* or some surgical intervention may be done. The physician should apply caustic alkali, thermal cautery and sharp instruments many times without any hesitation and not harming the strength of the patient³³.

Galganda:

Paste of various drugs mixed with *Palash ksharodak* is locally applied in cases of *Kaphaj Galgand*³⁴.

Kshudra roga

- In unripe *ajgallika kshudra rog*, a specific *kshar* paste of *shukti*, *shrughni* and *yava kshar* is indicated³⁵.



- In *Darunak rog* of scalp, washing of hairs with *kodo ksharodak* is recommended³⁶.
- In *jatumani, tilkalak, mashak* etc., slow application of *kshar* or *agni* is done after excision³⁷.
- In *valmik rog*, it should be excised and cleared by using caustic alkali or fire in the similar manner as in *arbuda*. *Pratisaran of kshar* should be done for the cleaning purpose of tissues³⁸.

Kushtha:

This is the reference of *Charak samhita*. Here, *Acharya charak* is advocating the local application of *kshar* in *kushtha rog* after bloodletting in nonsurgical condition or sensory loss condition³⁹.

Sheetala:

तत्रवधूलनम् कुर्याद् वनगोमय भस्मना ।

(यो०र० शीतला चि० ४)

Dusting of vanyopal bhasma on blisters of shitla is recommended in yog ratnakar to prevent any secondary infection⁴⁰.

Danta Roga:

- This is a beautiful description of Root Canal Treatment (RCT) by *Acharya Sushruta*. Root of teeth should be cleaned by instrument. After that *kshar* should be applied. Entire procedure should be *sheetal* (cold)⁴¹.

- This is the description of dental sinus or *dant nadi chikitsa*. Dental extraction followed by local application of *kshar* is done to prevent sepsis⁴².
- *Upjihva* or Ranula is treated by proper scrapping followed by *kshar* application⁴³.

CONCLUSION

Kshar karma has wide scope for clinical purpose and research in *ayurveda*. More and more practice and training is required in this field. Commercial *Kshar* preparation should be promoted, so that the availability of drug for ready to use. Its preparation is cheap and easy. So, employment may be generated and will definitely help nation.



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