

A REVIEW ON CONCEPT OF KSHARA IN AYURVEDA

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ABSTRACT

Ayurveda is a science which has given various concepts to the world, which are very effective, useful to mankind. *Kshara* (caustic alkali) is one such concepts which is non- invasive, having potentials of curing many diseases effectively. Information regarding *Kshara* are in concise form and scattered in classics. Hence in this paper an attempt is made to review the concept of *Kshara* from various classical texts and compile them.

KEYWORDS: *Kshara*, caustic alkali.

INTRODUCTION

Ayurveda has many concepts which are thought provoking and when we study them in detail we also and practical utility is praised even after centuries. Mention of *Kshara* is found only in post-vedic literature. *Acharya Charaka* has mentioned eighteen parts of herbal drugs which can be used in medicinal purpose and *kshara* is one among them. *Kshara Karma* comes under the scope of *Shalya Tantra*. While *Acharya Charaka* has considered it as one of the three fold treatment i.e. *Shashtra Pranidhana*. In *Harita Samhita kshara karma* is included in the eight important types of treatment.

Acharya Sushruta being father of Surgery has dealt in detail about *Kshara*. When we go through *Sushruta Samhita*, there is a separate chapter on *Kshara*. It has wide range of indications and *Acharya* has praised it as 'sastraanusastrabhyam *kshara pradhanatamaha*'^[1] i.e among *shastra* and *anusatra kshara* is superior because of its incising, excising and scraping actions, its ability to pacify *Tridoshas*. Ayurvedic Doctors are using these *kshara* in different forms in different conditions and are getting good results with this. *Kshara* is described as one among the *Anusastras* or *Upayantras*.^[2] Especially while describing different *chikitsaprakaras*. *Acharya Sushruta* says, when the *kshara* administered by an ignorant physician can harm the body like *Agni*, *Shashtra*, *Vajra* or even leads to death itself, administered by an intelligent and well skilled physician it can effectively subside troublesome disease in which it is indicated. Hence here an attempt is made to review the classical references of *kshara*, its types indication, preparation explained in different classics and modified preparation in current day.

Definition of *Kshara*

Shabdakalpadruma explains that it is derived from the root *char*, which means to move. In *Amarakosa*, *kshara* has been used in the sense of "*kacha*"; it may also mean '*chapala*' rasa. The "*kacha*" is derived from the root meaning to fasten or to shine. In *Amrakosa*, *kshara* also means "*ash*". *Acharya Sushruta* has defined "*tatraksharanatkshananadva kshara*".^[3] The drug which has the characteristics of *kshanan* or *ksharan* literally means that which destroys fleshy mass either healthy or unhealthy.^[4] *Acharya Charaka* says *kshara* is one which scrapes the abnormal tissue from its location and destroys it after dissolving it, because of its corrosive nature. Classification of *kshara* can be done in various ways like:

Types of *Kshara*^[5,6,7]***Kshara* can be divided under various types as follows**

According to their mode of administration:

- Pratisaraneeya* (Used Externally)
- Paniya* (Used Internally)

***Acharya Vagbhatta* opinions the same for them by naming as**

- BahyaParimarjaniya*
- AntahParimarjaniya*

The *pratisaraneeya Kshara* has been further subclassified into trifolds**According to its potential and method of preparation**

- Mrudu (Samvyuhim)*
- Madhya*
- Tikshna (Pakya)*

The *Paniya Kshara* also is further sub classified as under, According to *Kshara Varga*

- Kshara Dvaya*
- Kshara Traya*

- C. Kshara Panchaka
D. Kshara Ashataka

According to Origin

- A. *Vanaspatijanya*
B. *Pranijanya*
C. *Khanijanya*

According to Season of Preparation

- A. Uttama : Prepared in Greeshma (Summer)
B. Madhyama : Prepared in Sharada (Winter)
C. Adhama : Prepared in Varsha (Rains)

Pratisaraneeyakshara

This term consists of two words in it, '*Pratisarana*' and *Kshara*. The term *kshara* is already been defined. *Pratisarana* is *Aupakrama*, *Garshana*. It is also used to denote, healing or dressing the edges of a wound or an instrument used for anointing a wound. The term *Pratisarana* consists of two words in it. '*prati*' meaning every or opposite, '*Sarana*' meaning to spread, to stretch. In this context *Pratisarana* is used to mean local application.

Preparation of Pratisaraneeya Kshara^[8]

Acharya *Susruta* has dedicated the whole of 11th Chapter of *Sutra Stana* to describe *Kshara*. After reviewing classical texts, *Acharya Susruta's* technique is found to be ideal in *Pratisaraneeyakshara* Preparation. The physician who prepares the *Kshara* should have a clean bath early in the morning of autumn season and has to observe fast on the same day. It must be an auspicious day. He should go up the hills and look for such plants which are middle aged and free from ravages or insects. The *Panchangas* of plants should be collected, dried up and made into small pieces. Then these are burnt with limestone. While burning the dispersed parts of the plants are kept with the help of *Tilnala*. When the ash cools down it should be separated from the residue of

lime stone and *Bhasmasharkara*. The collected ash should be mixed well with six times of water or cow's urine, then filtered twenty one times in a big vessel through a piece of cloth. The residual portion is thrown away and the filtrate (*Ksharodhaka*) should be kept on *Mandagni* and continuously stirred well until it reduces to 1/3rd. This is *Mrudukshara*. From this eight *palas* has to be taken and mixed with *Shankanabhi*, *Shukti* And *Kata Sharkara*, each in eight *palas*, to make *Prativapa*. In the meantime, heating should continue and *Prativapa* should be mixed. Care should be taken that it is not too liquid or too dried up. The solution thus obtained is known as *Madhyamakshara*.

Madhyamakshara should be heated up again by adding some medicinal plants such as *Danti*, *Chitraka*. With this thick solution is obtained which is known as *Tikshnakshara*. If *Tikshnakshara* losses its potency then it should be mixed with new *Khsara* and heated again to maintain sufficient concentration.

Properties of kshara^[9]

Rasa : *Katu*
Veerya : *Ushna*
Varna : *Shukla*
Guna: *Sowmya, thiksna, agneya.*
Doshagna : *Tridoshagna*
Karma : *Dahana, pachana, darana, vilayana, shodana, ropana, shoshana.* Prepared *kshara*, being a composite of many drugs, alleviates three *doshas*. Being white in colour it is plain. In spite of placidity its actions like cauterising, digesting and splitting is carried out as it is made of drugs having the property of pungent hot, sharp, digestive and suppurative. When used externally it has cleansing, heating, absorbant, and scraping. When used internally it destroys worms, *amadasha*, *kapha*, skin diseases, poison and obesity. Further, if used in excess it can result in impotency.

Table No1: Plants which are mixed to Mridu Kshara to make it Madhyama Kshar.^[8]

#	Sanskrit Name	Source
1	BhasmaSarkara	Secreted drops form plant edges during burning became solid form
2	Kata or SudhaSarkara	Unburnt, semi burnt pieces of limestone (CaO)
3	Sukti	Animal product
4	SankhaNabhi	Animal product (CaCo3)

Table No2: Medicinal plants which are mixed to make Madhyama to Tikshna Kshara.^[10]

#	Sanskrit Name	Latin Name	Family
1	Danti	Baliospermum montanum	Euphorbiaceae
2	Dravanti	Crotan tiglium	Euphorbiaceae
3	Chitraka	Plumbago zeylanica	Plumbazinaceae
4	Langali	Gloriosa superba	Liliaceae
5	Hingu	Ferrulanarthax foetida	Apiaceae
6	Vaca	Achorus calamus	Araceae
7	Sukti	Mytilus margariferens	Pearl (Oyster)
8	Pravala	Corallium rubrum	Animal product (CaCo3)
9	BidaLavana	Navasada	Mineral Product (NH ₄ Cl)
10	SauvarchalaLavana	Rock Salt	Mineral Product (NaCl)

Table No3: Medicinal plants useful for the preparation of Mridukashara.^[8]

#	Sanskrit	Latin name	Family
1	Apamarga	Achyranthes aspera	Amaranthaceae
2	Kutaja	Hollarrhena anti dysenterica	Apocynaceae
3	Paribhadra	Erythrina indica	Fabiaceae
4	AsvaKarna	Dipterocarpus turbinatus	Dipterocarpaceae
5	Vibhitaki	Terminalia bellirica	Combrataceae
6	Aragwada	Cassia fistuta	Cesalpinaceae
7	Tilvaka	Seasameum indica	Pedalianaceae
8	Arka	Calatropis gigantca	Asclepidaceae
9	Snuhi	Euphoria nerifolia	Euphorbaceae
10	Palasha	Butea monospermo	Leguminaceae
11	Naktamala	Pongamia pinnata	Leguminaceae
12	Vasa	Adathoda vasa	Acanthaceae

Table No 4: The physical characters of well-prepared TeekshnaKshara.^[11,12]

Sl no	Lakshanas	Acharya Sushruta	Acharya Vagbhata
1	Na atiteekshna (not too strong)	+	+
2	Na Atimrudu (Not Too Mild)	+	+
3	Na Atishukala (Not Too White)	+	+
4	Shlakshna (Thin)	+	+
5	Pitchila (Slimy)	+	+
6	Abhishyandi (Unspreading)	+	+
7	Sheeghrakarita (Quick Acting)	+	+
8	Shiva	+	-
9	Shikhari	-	+
10	Sukhanirvavya	-	+
11	Alparakthata	-	+

Table No: 5 The physical properties of improperly prepared kshara, kshara.^[13,14]

Sl no	Lakshanas	Acharya Sushruta	Acharya Vagbhata
1	Atimruduta (too mild)	+	+
2	Atiushnata (too hot)	+	+
3	Atishweta (too white)	+	+
4	Atiteekshnata (too sharp)	+	+
5	Atipitchila (too slimy)	+	+
6	Ativisarpita (too spreading)	+	+
7	Atisandrata (too thick)	+	+
8	Apakwata (uncooked)	+	+
9	Heenadravyata (with less potency)	+	+
10	Atitanu (very thin)	-	+

Tests For Perfectness

If the kshara burns the wound in 100-maatra kala, then it is said to be good kshara. Chakradatta says if the kshara burns the eranda naala in 100 matra kala, then it is good

kshara. In these 2 procedures, specific tests for assessing mrudu, madhyama and tikshnata of kshara is not mentioned. Haranachandra clarifies the doubts.

Table no 6: Showing test for perfectness.

Eranda Nala Stem Immersed In Kshara		
If burnt on counting 100 numbers	If burnt before counting 100 numbers	Does not show any burn in spite of counting 100 numbers
Tikshna	Atitikshna	mrudu

Indications of Kshara^[15]

Pratisaraneeyakshara is indicated in good number of diseases by ancient Acharyas. Acharya Sushruta indicated it in sixteen conditions, out of which Arshas is also one. Arshas is one among the nine described by

Acharya Vagbhata. It is also one among the four diseases described by Acharya Charaka. Kushtha, Arashas, Mashaka, Kitibha, Dushta Vrana, Krumi Dadru, Nadi Varna, Visha

Mandal, Charmakila, Bahya Vridrodhi, Kilasha, Tilakalak, Sapta Mukharoga, Bhagandra Naychcha, Arbuda, Vyanga

Contra indications^[16]

Before the application of kshara it is necessary to observe the fitness of the patient contra indications of kshara can be classified into following groups-

According to diseases: *Jwara, Hrudroga, Shiroroga, Panduroga, Arochaka, Sarvangashopha, Raktajagulma, Udararoga* are contraindicated in general.

According to physical status: *Durbala Balaka Bheeru Grabhinee Vrudha Rutumatee.*

According to site: *Dhamanee Snayu Gala Pradesh Sandhee Savani Alpa Mamsa Pradesh, Marma, Vrushna, Nakhantara, Tarunasthi, Medhra Anaya Akshi Roga Sira Nabhi Pradesh.*

According to season: *Shita Kala Ushna Kala Varsha Kala Durdina*

The above contraindications are applicable both for *paneeya* and *Pratisaraneeyakshara*. Out of these few anatomical sites and some diseases may be fit for indications of *Pratisaraneeyakshara*.

Excessive use of *kshara* leads to *pumsatvaupagatha*. *Acharya Charaka* said *kshara* helps in digestion but excessive use cause impairment of vision. *Acharya Vagbhata* described that due to *katurasa*, *kshara* is injurious to *hridaya, kesha, chakshu, ojus and shukra*. Further *Acharya Sushruta* observes that *kshara* may be ineffective, if used in *ksharasadyavyadhi* if it is complicated by oedema, pain in the bones, aversion for food, pain in precordial region and joints. However, external application of *kshara* is indicated in children, weak persons and decrepit.

Method of application of kshara

Purvakarma – *snehana, svedana* to the part where *kshara* is to be applied, for vilayana of vitiated doshas and to tolerate post-operative pain.

Selection of type of kshara – the surgeon should be specific in the selection of *kshara* before applying *kshara*.

Instruments – such as *shalaka, shastra, amla varga dravya, picchu, plota* etc. should be kept ready.

Position – as per the disease and convenience of the surgeon.

Acharya sushruta advocated use of *amlavarga dravyas* such as *kanji*, or any *amla rasa*.^[49] Since lemon juice is available throughout the year so it utilised to neutralized the *kshara*. When lemon juice is applied acid and alkali react and yield water and salts thus neutralizing the *kshara*. Also lemon juice stops further action of *kshara*.

Pradhana karma

Clean the site, then do the *lekhana* karma with *parijata patra* or *gojivha patra*. Then *kshara* is applied, wait *laaghavata* for 100-matra kala and then cleanse with lemon juice.

Paschat karma

The *Kshara Dagdha Vrana* has to be treated according to the doshic predominance. There will be pain due to vata aggravation and burning sensation due to pitta aggravation. To subside these two doshas *Acharya* have mentioned use of *Yasthimadhu And Gritha* in combination.

Samyak Dagdha Lakshana

Patient will have *vikara shamana*, and *manaprasadana*.

Hina dagdha lakshana

Patient will have *toda, kandu, jadata* and the disease will aggravate.

Atidagdha

Patient will have *daha, paka, ragata, srava, angamarda, pipasa, murcha*, and even death may occur.

Treatment of Kshara dagda vrina

Kshara dagda vrina has to be treated according to doshic predominance and the disease present. *Yasthimadhu kalka* and *gritha* is to be applied over the wound.^[51]

PANIYA KSHARA

Paniya Kshara consists of two words in it, 'Paniya' and 'Kshara'. The term *Kshara* is already defined. Administration of *Kshara* by oral root in the form of *Ksharodaka. Churna, Gutika* or *Avaleha* is termed as *Paniya Kshara*.

In *Paniya Kshara*, *Kshara* of particular drug or the combination of drugs are administered internally with suitable *Anupanas* for a particular disease. According to *Acharya Vagbhata*, *Kshara* can be given internally in *Athikrichra Rogas. Acharya Sushruta and Acharya Vagbhata* mentions different *Paniya Kshara yogas* in the *Chikitsa sthana* while explaining the treatment of different diseases. So one of the diseases among them are *Raktapitta, Kasa, Kshaya, Kasa, Svasa, Chardi, Kaphaja Hridroga, Ashmari, Arshas Atsara, Grahani, Mutraghata, Gubna, Udara and Svitra*. According to *Sushruta* the method of preparation of *Paniya Kshara* is similar to the *Pratisaraneeya Kshara*. In *Gulma Prakarana* of *Sushruta Sarnhita*, a particular *Yoga* of *Paniya Kshara* is mentioned.

According to the opinion of *Acharya Dalhana*, the ash should be dissolved in 6 times of water and the solution is made to one third and is filtered through a clean cloth. The resulting solution is used as *Paniya Kshara*.

Indications of Paniya Kshara

Paniya Kshara described by *Acharya Sushruta* is indicated in *Garavisha, Gulma, Udara, Ajeerna, Arochaka, Anaha, Sharkra, Ashmari, Vidradhi, Krimivisha and Arsha*

Kshara is also one among different treatment modalities advised for management of *Shula*. In *Rasa Tarangini*, it is said that *Paniya Kshara* can be used in *Pleehaja*

vyadhi 's.

ContraIndications of Paniya Kshara

The use of *Paniya Kshara* is contraindicated in patients having diseases like *Pita prakruti*, *Raktapitta*, *Jwara*, patients who are *Bala*, *Vridhdha*, *Durbala* and patients suffering from *Bhrama*, *Mada*, *Murcha* and *Timira*.

Excessive use of *Kshara* leads to *Pumsatva Upagatha*. *Acharya Charaka* said *Kshara* helps in digestion but excessive use causes impairment of vision. *Acharya Vagbhata* described that due to *Katurasa*, *Kshara* is injurious to *Hridaya*, *Kesha*, *Chakshu*, *Ojas* and *Shukra*. *Kshara*, may be ineffective, if it is complicated by oedema, pain in the bones, aversion for food, pain in pericardiac region and joints.

Dose of Paniya Kshara

The General dose of *Paniya Kshara* given in classics for the person under normal conditions ranges from 2 to 8 Gunja (250 mg to 1gm). The appropriate dose can be advised according to the Yukthi of the Vaidya. According to *Chakrapani* and *Dalhana*, the dose of *Paniya Kshara* is explained as;

- *Uttama Matra* (Best quantity) = 1 Pala (48 ml)
- *Madhyama Matra* (Better quality) = 3 Karsha (36ml)
- *Adhama Matra* or *Heena Matra* (Bad quality) = ½ Pala (24ml)

DISCUSSION

Kshara is useful in managing diseases very effectively with less invasive manner, but the complicated preparation have made it difficult to adopt in day to day practice. Hence Dr Ravishankar Parvajve has formulated an easy with current day measurements to prepare *pratisaraneeya kshara*, called Parvajve technique of *kshara* preparation. It follows like this: fresh *Apamarga* (whole plant) to be collected during the month of December and January. After drying *Apamarga* obtained to be made into heap and burnt. After burning, of ash is obtained. This ash is measured in volumetric jar and to which 6 parts of water to be added and stirred well, allowed to settle overnight. Then it should be filtered through double folded cloth for 21 times, residue is thrown out. Amber coloured filtrate will be obtained. This is subjected to *Mandagni*. If the boiling is continued till the liquid evaporates and salt which remain in the bottom is *Paneeyakshara*. If *Teekshana PratisaraneeyaKshara* is needed then, When the content is reduced to half, about $\frac{1}{3}^{\text{rd}}$ of *Kshara jala* to be taken out of the vessel. $\frac{1}{10}^{\text{th}}$ Of ash that much quantity of *Shukti* to be heated to red hot and then mixed with $\frac{1}{3}^{\text{rd}}$ *Kshara jala* to dissolve it completely. Thus dissolved *Shukti* is added to boiling *Kshara jala* (*avapa* stage) and continued to boil. Meanwhile $\frac{1}{10}^{\text{th}}$ of *Shukti*, *Citrakamoolakalka* is added to the boiling *Kshara jala* (*prativapa* stage) and allowed to boil for few more minutes, when the content attained consistency as described by *Acharya Sushruta* (not too liquid nor too solid), it should be removed from fire allowed to cool down and transferred to glass container with lid and stored for use. pH value of the *Kshara*

obtained will be around 13.5 (pH value of a strong alkali is 7 to 14) Same procedure can be followed for the preparation of *different pratisaraneeyakshara* from different plants mentioned by *Acharya Sushruta*.

Once prepared *Kshara* can be preserved long in glass bottles till the *ksharajala* exists, its potency remains and it can well used in different conditions as per the indications of *Acharya*. In day to day practice *pratisaraneeya kshara* can be used in warts, haemorrhoids, wounds, polyps in minor ot and can prevent from reoccurring of the diseases.

Paneeya kshara can be obtained by evaporating the liquid and *Paneeyakshara* are used in disease like Renal Calculi, cholelithiasis, Tumours. Research works should be carried moreon this aspect.

Chemical composition of Kshara

Prof A R Vasudev Murthy, describes the chemical composition of *kshara* in his *Indian Tradition of Chemistry and Chemical Technology*, as follows.

The wood ashes contain potassium and sodium carbonates (K_2CO_3 and Na_2CO_3). limestone and sea shells contain calcium carbonate (CaCO_3). On heating strongly carbonate decomposes into calcium oxide (CaO), quick lime and carbon di oxide (CO_2), which escapes into the air. Calcium oxide reacts with water vigorously and gives calcium hydroxide (CaOH) which is lime water indeed. Calcium hydroxide reacts with potassium/sodium carbonate and gives rise to calcium carbonate which comes down as precipitate. Potassium hydroxide (KOH) remains in solution which may be concentrated by boiling to different extents. These essential chemical reaction can be expressed in terms of the following equations.

1. $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2 \uparrow$
2. $\text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca}(\text{OH})_2$
3. $\text{K}_2\text{CO}_3 + \text{Ca}(\text{OH})_2 \rightarrow 2\text{KOH} + \text{CaCO}_3 \downarrow$

CONCLUSION

We get concise Scattered information of *Kshara* in our classics. Many *Kshara* preparations are indicated in many diseases, because of no clear descriptions and difficulty in preparation it is minimally used. The advantages of *Kshara Karma* are numerous like minimum hospitalisation, less pain, minimum bleeding, no stricture formation (if correctly applied), no recurrence, cost effective and easy management with local anesthetic agents which enables treating many diseases and even managing pile masses in one sitting. Internal usage of *Paneeyakshara* are also showing results in many diseases but it is not widely practiced. So these concepts of *Ayurveda* should be widely spread, popularized and implemented in the management of such troublesome diseases which is the anticipation of sufferers.

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