INTRODUCTION

Kshara is medicament obtained from ash of one or more plants\(^1\). The process of preparation of Kshara involves the extraction of ‘alkalies’ from ash of dried plants, hence it can term as ‘Biosalt’. According to Sushruta acharya\(^2\) there are two types of Kshara: 1) Pratisaraneeya (External application), 2) Paaneeya (internal medication). The study is based on the following points:

1. Preparation procedures
2. Qualities of Kshara
3. Functions of Kshara
4. Indications of Kshara
5. Dose of Kshara
6. Adverse effects of Kshara
7. Compilation of Kshara from Charaka Samhita Chikitsa Sthana

Pratisaraneeya Kshara/Pakya/Prativaapa:

When one or more plants, from which the Kshara is to be obtained either dried or fresh are cut into the small pieces. Those are allowed to burn in environment along with Calcium compounds (Sudha sharkara) and tila naala, till we get white ash. Then the calcium compounds i.e. Sudha sharkara, Bhasma sharkara (crystallized part of plant juice) and Tila (Sesame) naala separated from the other burnt residue of plants. This white ash has two components. One is water soluble and another is water insoluble. These two parts are separated by adding specific quantity of water in it. In Sushruta Samhita the quantity of water is 6 times to that of white ash. In place of water urine of animals like cow, goat can be used\(^3\).
In *Ashtang Hrudaya*, ½ part water and ½ part urine of animals is mentioned. The iron vessel is used for the preparation of *Kshara*.

Steps of preparation of *Kshara*:
1. The white ash of plant is then allowed to dissolve in liquid.
2. This solvent is then filtered 21 times and the remnants are separated.
3. The previously separated *Sudha sharkara*, *Bhasmasharkara* (crystalised part of plant juice), *Shankha nabhi* and *Kshira shukti* (quantity: 8 pala) is heated up to it become red and hot and dipped into *Ksharodaka* (*Kshara* solution) many times.
4. Then mixture is allowed to evaporate at low temperature (below 60°C).
5. When all liquid is evaporated and only *Kshara* remains at the base of vessel.
6. Then it is separated.

This procedure is of preparing ‘Madhyama pratisaraneeya *Kshara*’. To prepare ‘mrudu *Kshara*’ ‘Sudhasharkaradi’ contents are not added into the *Kshara* solution and to prepare ‘Tikshna *Kshara*’, add *danti*, *dravanti* etc *tikshana dravyas* in addition to *Sudhasharkaradi* contents in it.

The procedure of preparation of *Paneeyaa Kshara* (savuhim) is similar to *Pratisaraneeya Kshara* up to *Ksharodaka*. This *Ksharodaka* is then boiled till 1/3rd of it remains. This is called *Paneeyaa Kshara*. In *Gulmapratishedha adhyaya* from *Sushruta Samhita*, another method of preparation of *Paneeyaa Kshara* is mentioned, it is of *avaleha* type.

Qualities of *Kshara*:
1. *Na ati tikshna*: not excessively sharp
2. *Na ati mrudu*: not excessively soft
3. *Na ati shukla*: not excessively *saumya* or *ushna* i.e. it should be used in *Pitta* *vikara* also
4. *Shlakshna*: better to touch
5. *Pichhila*: slimy
6. *Avishyandi*: immovable
7. *Shiva or sama*: not so tough or soft
8. *Shighra*: having rapid action

In addition to these, 2 extra qualities are mentioned in *Ashtanga hrudaya*:
9. *Shikhari*: do not move when placed in pile
10. *Sukhanirvapya*: (kanjikadinam sheeti kriyate)

The *Kshara*, which contains all the above qualities, can be used in treatment of patients otherwise rejected.

According to *Charaka Samhita* the qualities of *Kshara* are:
1. *Tikshna*: sharp penetrating action
2. *Ushna*: hot and ability to produce perspiration
3. *Laghu*: light

Functions and Importance of *Kshara*:
1. *Chhedana*: cutting of *apaki*, *kathin* (hard), *sthir* (immobile), *snayukotha* (gangrenous part) etc conditions in *vrana* (wounds)
2. *Bhedana*: put opening by local application in cases of carbuncles, sinuses
4. *Tridoshghnatva*: as during preparation of *Kshara* many plants are used in combination. It results into combination of *vinshati guna* in it. Hence results in *tridoghnatva*
5. *Vishesha kriya avcharana*: it can be used in *pitta dosh pradhan* conditions also though it is *ushna* and *tikshna*; but in *pitta* condition *mrudu Kshara* is used
6. *Dahana*: cauterization of bleeders
7. *Pachana*: in case of *Pratisaraneeya Kshara*; *vranashotha pachana* and in case of
paneeyaa Kshara: aama pachan in conditions like agnimandya, ajirna
8. Vilayana: as it is prepared by ushna ashadhi, it is ushna, tikshna, hence it can melt kapha vata vibandha in many diseases
9. Darana: bursting, it helps in bursting of wounds in which large pus pockets having number of opening, especially in those where we cannot perform surgical interventions like wounds in children, female, weak and panic patients and wounds over sensitive and vital portions
10. Vrana Shodhana and ropana (healing of wounds): in dushta vrana (infected wounds), where the flies get attracted and lay a lot of eggs. It results in maggots’ formation. These maggots engrave wound surface which results into painful inflammation and delayed wound healing. It can be managed with by irrigation of wounds by Ksharodaka. It cleans the wound as well as improves healing process
11. Vrana kled Shoshana in kanduyukta vrana: decrease itching in dushta vrana
12. Stambhana of excessively bleeding wounds: chemical cauterization of bleeding capillaries

In Charaka samhita functions of Kshara are Kledana then vishoshana: it has ability to generate exudates and cleans up by drying, Pachana, Dahana, Bhedana.

The general properties of Kshara or Biosalt can be stated as 1) Alkaline nature, 2) Antacid action, 3) Diuretic nature, 4) Depurative (purifying/ purgative), 5) Attenuating behavior.

Kshara is employed in such complicated cases where surgery is inapplicable. It is claimed that in many cases the purpose of surgical treatment may be served by oral administration of Kshara. All the reasons mentioned above, Kshara is best among the Shastra and Anushastra.

According to Sushruta Samhita and Ashtanga Hridaya; the diseases in which Kshara is used as treatment are as follows:

Paneeyaa Kshara: Gara visha, dushti visha (chronic poisoning), gulma, udara, agnimandya, ajirna (~indigestion), aruchi (~disguassia), anaha (~fullness of abdomen), sharkara and ashmari, abhyantara vidradhi.

Pratisaaraneeyaa Kshara: kushtha (~skin diseases), kitibha (~psoriasis), kilasa (~vitiligo), mandala kushtha, bhagandara (~fistula-in-ano), dushta vrana (~infected wounds), nadivrana (~sinus), bahya vidradhi, dushta vrana (infected wounds), arbuda (~tumor), charmakeela (~wart), tilaka laka (~mole), nyachha, vyanga (~pigmentation of skin), mashaka (~nevus), sapta mukh roga i.e. upajivha, adhijivha, upakusha (~gingivitis), danta vaidarbha, vataja, pit taja, kaphaja rohini.

Paneeya and Pratisaareneeya: krumi (worms), visha, arsha (~hemorrhoids). Contra indications of Kshara:
1. Weak patients or physically debilitated patients, Children, Old patients, Patient who afraid for medical procedures, Whole body oedema, Ascetic patients, Raktpitta, Pitta prakruti, Timira (eye disease), Pregnancy, During Menstruation, High grade fever, Diabetic patients, Ruksha, Kshatksheena, Thirst, Moorchha (unconscious), Impotent, Apavrutta yoni, Udvrutta yoni, Phalayoni
2. When the sites of diseases are Marma, Sira, Snayu, Sandhi (joints), Tarunasthi (cartilaginous bones), Sevani, Dhamani, Gala (Throat), Naabhi (Umbilicus), Nakhaanta, Shepha (penis), Srotas, thin musculature, Eyes except eyelid diseases.
3. The conditions like whole body oedema, bone pain, dysguassia, heart pain, joint pain. 
Dose of Paneeya Kshara\textsuperscript{24}: 
Uttama matra: 1 pala \sim 40 ml 
Madhyama matra: 3 karsha \sim 30 ml 
Heena matra: ½ pala \sim 20 ml 
But dose should be calculated by Vaidyas according to Dashavidha Pariksha. 

Pratisaaraneeya Kshara: as per requirement. 

Process of application of Pratisaaraneeya Kshara: The area, where Kshara is to be applied, is roughened or small cuts are taken. The Kshara is applied with the help of stick (shalaka) and kept for 100 matra (~ 100 seconds). The area like nasa (nose) or eyelid, the time of Kshara application is about 50 matra (~50 seconds), then washed with amla varga dravya and ghee, honey is applied for healing. The samyakyoga, ayoga, atiyoga are explained in Sushruta Samhita\textsuperscript{25}. 

When there is over dose of Kshara or when it is used for prolong period the following harmful effects may be caused\textsuperscript{26}: 
1. Loss of vision 
2. Impotency 
3. Loss of hairs 
4. Graying of hairs 
5. Cutting sensation at the site of heart (hridayapakartan) 
6. Kshara is compared with agni\textsuperscript{27} i.e. fire hence it has to be used with care 

It is general consideration that “Kshara Chikitsa” is part of Ayurvedic surgical procedures; though it is mentioned in many diseases in medicinal treatment internally as well as externally. 

OBSERVATIONS 

1. Palasha Kshara - 9 times 
2. Yava Kshara – 70 times 
3. Sajji Kshara - 14 times 

4. And other Kshara are found in particular condition. 

There are 133 references of Kshara were found in Charaka Samhita Chikitsasthana. It establishes the importance of Kshara in Kayachikitsa also. 

DISCUSSION 

The conditions in which we cannot perform surgeries due to fear of surgeries or inaccessibility of that part, we can use Kshara chikitsa. Due to Shighra, tikshna qualities, Kshara can cut the tumours, with the Ushna, Shighra and Tikshna qualities it can puncture the sinuses, carbuncles. The diseases which are difficult to treat can be cured by Kshara therapy.\textsuperscript{28} In few types of skin diseases where the Lekhana chikitsa is necessary Kshara can be used. In case of kapha dosha anubandhi Raktapitta (bleeding disorder) Kshara can be used as it contain Vishesh ariya avcharana quality. Severe indigestion which is difficult to treat with other medicines can be easily cured with Kshara chikitsa. The healing of wounds having discharge is very difficult but few qualities of Kshara like Vrana Shodhana and ropana, Vrankledshoshana in kanduyukta vrana, Stambhana of excessively bleeding wounds, Kledana then vishoshana can do healing of wound very fast. 

The study of Kshara reveals that the Kshara therapy not only minimizes complication but also reduces recurrence of diseases. It also enables patient to resume work with less discomfort by reducing healing time. Kledashoshana activity of Kshara can reduce the chances of post surgical infections. This therapy is also cost effective. The role of Kshara in medicine can reduce chances of surgery in future. In many diseases like Unmada and Apasmara there are medicines which include Gomootra in
formulations which are Kshareeya in nature. These references from medicine can help to establish the importance of Kshara.

CONCLUSION

The review of Charaka Chikitsa Sthana for use of Kshara in medicine suggests that the Kshara chikitsa is one of the potent tools of treatment of diseases. Many times this therapy is used only to treat Haemorrhoids and Fistula externally. But this study reveals that this therapy is used to treat many diseases internally as well as externally. In the diseases like Unmada and Apsmara, Gomootra is used for treatment which is also Kshareeya in nature. To establish the importance of Kshara in medicinal treatment the detail review of Charaka Chikitsa Sthana has been taken. 133 references, 105 Kshara kalpa in 19 Adhyaya of Charaka Chikitsa sthana suggest that the cautious use of Kshara can treat many conditions which are unable to treat with the other kind of therapy.

The Kshara is such a rare combination that we can find many properties in a single formulation. We can modify the properties of Kshara by making change in the drugs used for its preparation. For example when we want to use the Kshara in Kaphanubandhi Raktapitta, we have to reduce the Tikshnatva (sharp penetrating action) of Kshara hence we can make the Kshara from the drugs like Kamalnaala (Nelumbo nucifera).

Kshara has rapid action and it is safer when used in proper dose and according to Dashavidha Pariksha of patient.

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