



EFFECT OF DIFFERENT *KSHARASUTRAS* IN THE MANAGEMENT OF *BHAGANDARA W.S.R* TO FISTULA IN ANO

Naikar Ashok¹,

Nikhila²,

Halli Vanita³

¹Associate Professor Dept of shalya tantra , N.K.J.Ayurvedic Medical College & P.G Center Bidar Ph no.- 9972893477

²P.G Scholar Dept of Shalya tantra, N.K.J Ayurvedic Medical College & P.G Center Bidar

³P.G Scholar Dept of Shalya tantra, N.K.J Ayurvedic Medical College & P.G Center Bidar

ABSTRACT

Ksharasutra refers to corrosive or caustic thread. *Kshara* is considered superior to all surgical and para-surgical measures, because they perform the work of incision, puncture and scarification to relive derangements of the *tridosha* and uniformly affect the diseased part to which they are applied. *Kshara* possess the following qualities - *Tridoshaghna, saumyata, dahana, pachana, darana, ushna, tikshna, vilayana, shodhana, ropana, sthambhana, lekhana, krimighna*. Currently the *ksharasutra* is prepared with *Apamarga* is used successfully in the management of fistula in ano, One of the essential components of this thread is *snuhi* latex. This latex creates many problems during preparation of the thread. It coagulates if not used early. Collection becomes more difficult in summer, so preparation is possible only in limited seasons. In few cases, the intensity is so severe that the patients discontinue the therapy. To overcome these problems, several researches have been carried out. The researches are based on searching for drugs having better actions and acceptability than that of *snuhi* latex and *apamarga kshara*. These drugs should be having binding property on thread, easy availability, less irritant, having *vranashodhaka* and *vrana ropaka* properties, having anti-septic and anti-inflammatory activities , and additional beneficial action. Although this *ksharasutra* has been a landmark success , but naturally it has certain clinical problems like pain , burning sensation associated with it . This problems can be attributed to different *doshas* .

Keywords *kshara, kshara sutra, kshareeya dravyas, Bhagandara, Fistula in ano.*

INTRODUCTION

Bhagandara can be correlated with Fistula in ano, *bhagandara* means which cause splitting or discontinuity in the region of *bhaga,basti* region. In modern it is an abnormal communication between anal canal and rectum with perianal skin is called as fistula in ano .in this application of *kshara sutra* has become more popular due to its easy approach and low rate of recurrence.

Etymological derivation of the word

Kshara : As per *shabdakalpadruma*, the word *Kshara* is derived from the root *Kshara* means to melt away or to perish.

Kshara sutra means thread made up of

caustic material which destroys or cleans the devitalized tissue and to disintegrate the skin or other tissue¹ .

Origin of *kshara sutra* : Pionere of Ayurvedic surgery *Acharya Sushruta* first mentioned *Ksharasutra* in the treatment of *Nadi Vrana* (sinus) , *Bhagandara* (fistula in ano) , *arbuda* ²(Benign tumore) etc. but does not emphasis upon its preparation . *Chakrapani Dutta* was the first person to mention the method of preparation with its indication in *Bhagandara*(fistula in ano) and *arsha*³(hemorrhoid). He describe method of preparation as smearing a thread repeatedly in latex of *snuhi* (*Euphorbia nerifolia*) and *Haridra* (turmeric) powder⁴ .

After *Chakrapani Dutta* almost all the later author described same method of preparation of *kshara sutra*. But because of complexity of preparation and inadequate method procedure of application, it lost its popularity among *Ayurvedic* surgeons. *Rasatarnangini* which was published later to *Chakradutta* a better *kshara sutra* preparation was introduced. The credit of standardization and development of particular use mainly goes to P.J Deshpande, ⁵Dr S.R. Gupta in the present era.

Properties of Kshara : *kshara* is considered superior to all surgical and Para surgical measures⁶, because they perform the work of incision, puncture, and scarification to relieve derangements of the *Tridosha*⁷ and uniformly affect the diseased part to which they are applied. As per *Sushruta*, *Kshara* possess the following qualities, *Tridoshaghna* – because of different types of drugs it can pacify all the humours, *Sumyata* – owing to their white color, *Dahana* – owing to its burning nature, *Pachana* – because of its digestive capability, *Darana* – Since many drugs many drugs of *agneya* nature enters into their composition, *Katuka* – because of its pungent taste, *Ushna* – because of its heat producing nature, *Tikshana* – because of its liquefaction property, *Ropana* – improves granulation (healing), *Shoshana* – absorption,

Stambhana – arresting or stopping nature, *Lekhana* – scraping property, *Krimighna* – because of its anti-microbial actions, sterility⁸ – if used in excess, It normalizes *Aama*, *Kpha*, *visha*, *medo dhatu* and also cures *kushta* when given in proper dose. In addition to that *Acharya Charaka* attributed two more properties – *Laghu* & *Bhedana*⁹. *Vagbhatta* said that *kshara* acts by extracting all the toxins from the site and cures the disease totally¹⁰.

Kshara preparation as per Sushruta samhita¹¹: In the process of *kshara* preparation; The following precautions are inevitable –

- Kaala- Sharad kala* (inbetween Oct-Nov)
- Place-near by hilly area

After performing devotional preparation (*mangalacharana*) with healthy *mushkaka* plant along with its root in made into small parts and subjected for boiling till it is converted into total ash. After the separation of burnt lime-stones, the ash is collected in a utensil and care is taken that moisture is not contaminated with the ash. This is the *praathamika kshara* (basic *kshara*).

Kshara sutra preparation : Present technique of manufacturing of *kshara sutra* is basically an outcome of repeated experimentation based on clinical experiences.



1. KSHARA



2.KSHARASUTRA CABIN

Material used : Thread, *Kshara* (Alkali/Caustic agent), *Ksheera* (Latex), *Haridra*(Turmeric)

Preparation of *kshara*: Ash is prepared by burning the whole plant along with *tila nala*. The ash is mixed with 4 times water or *Gomutra* and filtered thoroughly. Boil the filtrate , evaporate the water and dry powder is obtained. Powder should be stored in air tight container .

Equipment Needed

- 1) *Kshara Sutra* cabinet with ultraviolet light .
- 2) Autoclaved Petridish (for storage of raw material during application)
- 3) Glass tube (for packing of the prepared *kshara sutra*)

Reason behind the definite sequence of 21 coating : After 21 coating , linen no.20 assumes the size of 14-15 gauge which is an appropriate size to be introduced into lumen of an average fistula .It is also an auspicious number according to Hindu mythology . The purpose of definite sequence of 21 coating is as follows:

First 11 coating of latex: Upper few coating are likely to be neutralized by the application of *Kshara*, but innermost coating will still remain protected & will preserve their proteolytic action which helps in the debridement of the tissue .

7 coating of latex & *Kshara* : Latex only acts as binding material for tiny *Kshara* particles which helps in maintaining the adequate concentration of *Kshara* for an effective caustic action.

3 coating of latex & *Haridra* : It helps in prevention of direct exposure of *Kshara* to atmosphere & prolongation of preservation of *ksharasutra* .The sequence & number of coating was finalized after sufficient discussion , experimentation & a long experience of trial and error , thus it should

be ensured that *Ksharasutra* to be made in definite sequential manner.

Overall mode of action of *Ksharasutra* :

To establish the probable mode of action of *Kshara sutra* , various clinical trials & studies have been carried out in India as well as other countries e.g. Sri Lanka , Japan etc. From the outcome of these various analytical studies ,it can be postulated that in *Kshara sutra* , linen thread supports the strength of ligation and weight of 21 coating , while latex acts as binding material for preserving all the properties of *Kshara* . *Kshara sutra* works by pressure effect made by ligation which creates mechanical strangulation of blood vessels and tissue which causes the pressure necrosis of the body of any swelling . *Kshara* invades into the cells of lesion till engorged tissue destruction occurs by its *Ksharana guna*(corrosive properties) . *Snuhi* latex is being proteolytic in nature , dissolves the tissue at its base. The action of turmeric powder provides the effect of bactericidal action with healing properties . All these three drugs do not contradict each other but rather supports their action by equal and desirable effect. *Kshara sutra* has ability to perform incision with excision slowly by virtue of its controlled chemical cauterization . During cutting effect , there may be oozing of blood which is ceased by sclerosing effect of *kshara* by its protein coagulation property . Hence , there was no chance of bleeding during cutting of the mass . The chances of infection are least due to sustained action of anti-infective virtue of *Kshara*.

- 1) It helps in cutting , curetting , draining and healing of the Fistulous track.
- 2) It destroys and removes unhealthy tissue and promotes healing of the Fistulous tract due to caustic.
- 3) It controls infection by the microbicidal action.

4) Separation of debris and cleaning the wounds.

5) Facilitate in drainage of pus in fistulous tract and help in healing

Table .1 Kḱhareeya dravya and their Doshaghnatva

<i>Doshaghnata</i>	Name of the plant
<i>Vataghna</i>	<i>Kadali</i>
<i>Pittaghna</i>	<i>Aragvadha , Krutavedhana , Kutaja</i>
<i>Kaphaghna</i>	<i>Palash , Karanja , Vasa , Tilvaka , Agnimant , Apamarga , Snuhi , Putika , Ashwakarna , Nimba , Bibitaki , Karavira , Arka , Saptachhada , Chitraka , Mushkaka</i>
<i>Tridoshaghna</i>	<i>Patala , Sariva , Gunja</i>

Different types of Kḱhara sutra

1 . Papaya sutra ; Papaya is a good cleansing and healing drug.

Ingredients – papaya fruit pulp , papain powder(obtained by drying unripe fruit juice- active principle), *Haridra* powder.

Method: 11 coatings by papaya fruit pulp and papain powder and 2 coating of papaya fruit pulp and *Hridra* powder ,thus making a total of 13 coating .

Advantages : papain contains strong proteolytic enzymes which lead to debridement of necrosed tissue very early after application . It facilitates early wound healing . It can be easily prepared in short time . Patient tolerance was also very good after application

Disadvantages : UCT Time is very less.

2. Yavakshara coated sutra : Yavakshara is well known for its scraping property. According to research , it comprises fibrolytic ,hygroscopic ,and anti-inflammatory actions.

Advantages : Pain and agony were reduced very much during & after application . UCT was less in comparison to the standard thread . Also the thread was tolerated very well.

3. Udumbara Kḱharasutra : In this thread , latex of *Ficus glomerulata* was used . It is a *sheeta veerya* drug and is used in *dushta vrana* .

Advantaged

1 . Preparation is easy and requires less time .

2 . less irritant ,so does not produce much pain .

3 . Smooth cutting .

4. Good wound healing .

5 . Good tolerance by the patients .

Disadvantages

1 . UCT was less in comparison to standard thread.

2 . Sticking ability of latex on thread was less .

3. Knotting after application was difficult.

4. Guggulu based kḱhara sutra : In this thread, *Guggulu* solution was used in place of *snuhi* latex . *Guggulu* has analgesic , debridement and healing properties . It is also having good binding action on thread and its anti-inflammatory activities have been proved by researches . It is easily available and solution is prepared very easily in alcohol or water.

Advantages

1 . Easy preparation due to bulk availability of *Guggulu*.

2 . Threads can be prepared for commercial use in a large quantity.

3 . Excellent tolerance by the patient .

4 . Pain and anxiety are very less during and after application due to its non-bleeding nature and analgesic action.

5 . Pain , discharge , indurations are reduced in early sittings in comparison to other threads .

6 . Good wound healing and cosmetically acceptable scar.

Disadvantages

Due to its nature, it loosens after application. Subsequent coatings remove first coating to a lesser extent, if alcoholic solution is used. So water solution may be used. Although it has been noted that in skill hands this problem is rarely noted. Nowadays, *Guggulu*-based *kshara* sutra have been used successfully at various centers all over the country.

5 .*Ghridakumari* (Aloe vera) *ksharasutra*¹⁷: In this thread *ghritakumari* pulp was used in place of *snuhi* latex. Researchers suggest that it possess local anesthetic property (used in burns). It is not caustic as *snuhi*. Its pulp possesses binding action.

Advantage

- 1 . Easy availability and preservation.
- 2 . Good wound healing.
- 3 . Good tolerance and no allergic reactions etc.

Disadvantages

Sticking was not uniform. The thread was beaded so pain was noticed during application.

6 . *Tankan kshara sutra* : *Tankan* has been known for its *katu* rasa, *Rooksha*, *teekshan*, *ushna guna* and *Lekhana*, *Rechana*, *Vranaropaka* properties.

Advantages:

- 1 . It does cutting layer by layer and there is continuous drainage of fistulous track which helps in healing.
- 2 . The medicaments which are used to prepare the thread will dissolve the fistulous tissue of the track and *Tankan* stimulates the healthy granulation tissue for healing.
- 3 . Important factor is it maintains continuous aseptic condition of the track.

Disadvantages :

- 1 . UTC was less in comparison with the standard *ksharasutra*.

7 . *Nimba kshara sutra* : Various researches on *Nimba* plant have proved that it has antibacterial, antiviral,

antifungal and anti-inflammatory properties.

Advantages :

- 1 . Easy availability and preservation.
- 2 . Good wound healing.
- 3 . It sloughs away the debridement of necrosed tissue from the fistulous track, thus helps in formation of healthy granulation tissue.

Disadvantages : UTC is very lesser than standard *ksharasutra*.

8 . *Arka ksharasutra* : *Arka ksheera* is having anti-oxidant, analgesic, anti-inflammatory and anti-microbial and cytotoxic

Advantages

- 1 . It destroys and removes unhealthy tissue and promotes healing of the tract due to caustic action.
- 2 . Separation of debris and cleaning the wound facilitate in drainage of pus in tract and help in healing.

Disadvantages: UTC was less in comparison with the standard *ksharasutra*.

9 . *Apamarga ksharasutra*: *Apamarga* is one of the most powerful *Ayurvedic* herbs used to prepare a special medicine called *Kshara*. *Apamarga kshara* is potash-rich alkaline ashes of *Apamarga* plant and is used to treat fistula and as oral medicine for obesity, tumors etc.

Advantages :

- 1 . Economically minimized the problems of preparation.
- 2 . Easy Availability and collection.
- 3 . The time taken for fistulous track to heal is 7 weeks with a recurrence 0.0 percent.

Disadvantages : Since it has a *kshara* as ingredient, this might affect the quality and quantity of sperm on long term use.

10 . *Kadali ksharasutra* :

Advantages ;

1 . Economical, minimized the problems of preparation and application of *kshara sutra* therapy .

2 . Good tolerance and no allergic reactions .

Disadvantages :

1 . There was marked reduction of symptoms like pain , inflammation , burning sensation .

2 . UCT was less with the comparison of standard *kshara sutra* .

11 . Madhu ksharasutra¹⁸ : As the collection and preservation of *Snuhi ksheera* is difficult and time taking process , *Madhu* is easily available , preservable

and equally effective. So *Madhu* was selected instead of *Snuhi ksheera* in preparation of *kshara sutra* , as *Madhu* is inherited with the properties of *Vranaropana* and *Lekhana* .

Advantages :

1 . Availability and preservatory problems have been trespassed by the present method .

2 . It minimizes the problems of preparation and application of *Kshara Sutra* therapy .

Expiry date of *kshara sutra* : 6 months from date of manufacture .

Table.1 RESEARCH WORK CARRIED OUT ON FOLLOWING KSHARA SUTRAS

SI. No	Name of the <i>Kshara Sutra</i>	PH value	U.C.T	Reference
1	<i>Arka K.S</i>	11.23	8.07 Days/cm	International Journal of Advanced Research [IJAR] ISSN 2320-5407,165-168 Published- July2017 Dr Narendra Singh Thakur
2	<i>Palasha K.S</i>	7	7.64 Days/cm	International Journal of Applied Ayurveda Research ISSN 2347-6362 Issue 2 nd May-JUNE 2017 Kumar Alok
3	<i>Tilanal K.S</i>	-	9.76 Days/cm	AYU Jan-march 2012 Vol.33 Issue 1 Supreet Joyl Lobo C. Bhuyan
4	<i>Papaya-Tankana K.S</i>	<i>Papaya-6.8 Tankana-7.4</i>	7.3 Days/cm	International Journal of Technical Research & Applications Vol.4 Issue (Jan-Feb 2016) Ashwini Kumar Jaiswal
5	<i>Snuhi K.S</i>	5.6	7.42	AYU Jan-mar 2012 33(1) :85-91 Supreet Joyal Lobo , T.S. Dudhamal
6	<i>Papaya K.S</i>	6.8	4.17 Days/cm	Ancient Science of Life Vol. 18(2) Oct 1998 pag.145-151 S.Dattatray Rao
7	<i>Tankana K.S</i>	7.4	7.3 Days/cm	Journal of Ayurveda &

				Integrated Medical Science [ISSN 2456-3110] 3(6) : 50-55 2019 Ashish Pates , B.S. Savadi
8	Guggulu based Chitraka K.S	Chitraka-11.4 Guggulu-10	11.47 Days/cm	Ancient Science of Life 32(5) 34 Jan 2013 Pushpa Gond , Ashok Kumar
9	Nimba K.S	10.51	6.65 Days/cm	Arawatti Siddaram et al IJRAP 3(2) Mar-Apr 2012 Rajeshwari .N , Pragya. S
10	Aragvadha K.S	9.27	6.32 Days/cm	Ancient Science of Life Vol.No.29(3&4) Jan-Apr 2000 Pag.110-112 P.Hemanth Kumar & M.Sahu
11	Kadali K.S	-	0.24 Days/cm	Journal of Ayurveda & Integrated Medical Science ISSN 2456-3110 Pag 288-290 Sep-2017 Dr Shilpa patil , Dr Ashok Naikar

Advantages of Kshara sutra therapy :

- Simple and safe Parasurgical procedure .
- Cost effective and ambulatory .
- Minimal recurrence rate .
- Systemic disease are also undergoing this procedure .
- No surgical complications like Incontinence , Stenosis , Stricture .

DISCUSSION: Fistula in ano is one of the most common ano-rectal disease in which the chronic granulating track runs from the anal canal or rectum to the perianal skin or perineum and is associated with considerable discomfort and morbidity . Ayurveda recognizes from the primitive time that certain clinical condition will requires surgical intervention for complete or better cure , . But the unique contribution of Sushruta and Ayurveda in the field of surgery is the concept of *Anushastra* or parasurgical substance and procedures . Sushruta enumerated 14 such *Anushastras* , which

include bamboo blade , crystal , Agni karma(Cautery) , *jalukavcharna* and *kshara pranidhana*. Such type of measures are used depending on both patient and disease conditions, specifically indicated in pediatric population, people who are afraid of surgical procedures . Among these *kshara* is considered as one of the most important measures of

Overcoming the causation of pain and burning sensation was a very important necessity because of which surgeons of Ayurveda came out with newer ideas . Thus it gave to many *kshara sutras* were tried out. Though each of the thread had good cutting rates and other preparation of advantages they also had some disadvantages. Keeping in view the same idea different *kshara sutras* was studied to know the better results with less complications.

CONCLUSION

The need for a successful treatment of Fistula in –ano has bothering the surgeons

ever since this disease was recognized in the medical field . The standard *Kshara sutra* mentioned highlights the possibility of treating this disease , as proved in present trends . Management of Fistula in –ano has become a problem to the modern surgeons and proctologists, even today due to many unavoidable drawbacks and more complications and high rate of recurrences they affectionate towards the ayurvedic procedure.

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Corresponding Author: Dr. Ashok Naikar, Associate Professor Dept of shalya tantra , N.K.J.Ayurvedic Medical College & P.G Center Bidar
Email:drnaikar@rediffmail.com

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