REVIEW ARTICLE

Management of Bhagandar (Fistula in ano) by Ksharasutra – A Review

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ABSTRACT:

Bhagandara is a single or multiple opening around *guda Pradesh* associated with different types of discharge along with pain. Acharya sushruta has described *bhagandara* on its consequences under *astamahagada*. The disorder has reached a height due to an unhealthy lifestyle. It can be correlated with fistula in ano. Fistula in ano is an abnormal hollow tract or cavity lined with granulation tissue. It is a nasty condition for the patient and often creates issue which leads to unease. It affects their daily lifestyle. For the treatment number of the surgical method are available. In *Ayurveda*, Acharya Sushruta has described various types of treatment like *Chedana karma*, *Ksharasutra therapy*. In modern science fistulectomy, fistulotomy, seton, and so on. But due to reoccurrence, damage of the anal ring, incontinence, and complication, *Ksharasutra* stands as a major para surgical procedure to cure *bhaganadara*. *Ksharasutra* is a unique medicated thread that helps in cutting as well as drainage of the fistulous tract. It works as cutting and healing of fistulous tract simultaneously. Hence the possibility of damage to the anorectal sphincter muscle is less and chances of incontinence are null. It is safe minimal, cheap, and easy to use. It works effectively on various stages.

Keyword: *Bhagandara*, Fistula in ano, *Ksharasutra*, *pidika*

INTRODUCTION:

A study showed that the prevalence of the rate of fistula in ano is 8.6 cases per 100000 population.¹ As the world has been shifting towards modernization and adopt unhealthy habits like delay in waking up, continuous use of junk food, suppression of urges provides favorable conditions for the

formation of *bhagandara*. The disease *bhagandara* is one of the most common anorectal disorders. It proceeds with the formation of *pidika* known as *bhagandara pidika*.² In lack of proper treatment it results in *bhaganadara*. It is a painful disease having symptoms like *Kandu*, *Sotha*, Pus discharge from the anal and perineal region.³ As per Acharya

Access the article online

Quick Response Code

www.thehealerjournal.org

DOI: 10.51649/healer.73

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Submitted: 19.06.2021

Received: 20.06.2021

Revised: 21.06.2021

Accepted: 23.06.2021

Charak on the lateral side of the anus, a very painful pustule (*pidika*) occurs which suppurates and opens up; it is known as *Bhagandara* (fistula-in-ano).

Pathogenesis mentioned in Charak Samhita: Acharya Charak has described it accordingly to the causative factor in a practical way like infection (*krimi*), injury with a pointed object like bone leading to minute erosion, excessive sex, straining at defecation, and friction due to sitting on the hard seat of a horse or moving object vitiate dosha, which causes boil in perineum area rupture after purulence and *bhagandar* is manifested.⁴

Pathogenesis mentioned in Sushruta Samhita: Acharya Sushruta has described it accordingly to *mithya aahara*, *vihara*. He quoted that the indulgence of *mithya aahara*, *vihara* vitiates *vata* and aggravated *vata* localized in the anal canal. Further, it vitiates blood and *mamsa* leading to the formation of *pitika*. In untreated cases, the *pitika* suppurate and burst to form *bhagandar*.⁵

Pathogenesis mentioned in Astangahridaya Samhita: Acharya Vagbhata quoted its distinctive factor as sitting on a hard surface for a long time, riding on an elephant or horse for a long time, squatting posture, maturing of sinful

act of previous life.⁶

Pathogenesis mentioned in Vagbhata Samhita: He mentioned that above factors vitiate blood and muscle tissue in the rectum which leads to formation of ulcer. In untreated condition it turns discharging opening either to interior and exterior around perineum region known as *bhagandar*.⁷

Pathogenesis of fistula in modern text: The Etiology of fistula is divided into a specific and non-specific one.⁸ **Non-specific:** It is caused by cryptoglandular infection, a sequel of anorectal abscess. **Specific:** Some diseases like tuberculosis, anal fissure, ulcerative colitis, exposure to radiation, leukemia, foreign body intrusion, pelvis inflammation, trauma, Crohn's disease, infectious dermatitis, and other obstetrical or gynecological operation.

Types of *bhagandar* mentioned in Sushruta Samhita (Table 1)

Acharya Sushruta has been classified into 5 types i.e. *Shataponak*, *Ushtagreeva*, *Parisravi*, *Shambukavarta*, and *Unmargi*. Out of these *Shambukavarta* are those caused by the foreign bodies that are incurable and the rest are curable with difficulty.⁹

Table 1. Types of *Bhagandara* along with features, discharge, and appearance.¹⁰

Types	Doshas	Features	Discharge	Appearance
<i>Shataponaka</i> (Multiple opening-water can or sieve-like)	<i>Vata</i>	Different types of pain like bursting, tearing, cutting, etc. (<i>toda</i> , <i>tadana</i> , <i>bhedana</i> , <i>chedana</i> , <i>vyadhana</i> , <i>guda avadarana</i>)	Continuous copious, foamy discharge	Water can or sieve-like
<i>Ushtagreeva</i> (Long extended track with supravulvar extension like a camel's neck)	<i>Pitta</i>	<i>Chosa</i> , pain like <i>kshara</i> or <i>Agni</i> being applied to a wound	Warm and foul-smelling	Camel's neck
<i>Parisravi</i> (Fistula with the copious discharge with cavity)	<i>Kapha</i>	<i>Kandu</i> , less painful	Continuous and slimy	whitish
<i>Shambukavarta</i> (Curve screw-type like the ridge of snail or shell)	<i>Vata</i> along with <i>pitta</i> , <i>kapha</i>	<i>Toda</i> , <i>daha</i> , <i>kandu</i> , (pricking and burning pain and itching) Migratory pain around the anal canal	Multicolor	Tips of great toe, turn of conch
<i>Unmargi/aagantuja</i> (Non-cryptoglandular without any specific course of the track)	Trauma to the rectum or anal canal- trauma due to foreign body impact like a fish bone	<i>Kotha</i> of <i>mamsa</i> and <i>rakta</i> , Infestation with <i>krimi</i> . (gross destruction/ gangrene of tissue in the perianal area with the flow of faeces and presence of worms)	Pus, faeces, flatus, urine, semen, etc.	No specific course of the track with gross destruction of perianal area or the rectum

Types of *Bhagandar* mentioned in Charak Samhita: Acharya Charak has mentioned 5 types of *bhagandar*. They are *Vataj*, *Pitaj*, *Kaphaj*, *Tridoshaj* and *Kshataj bhagandara*.¹¹

Types of *Bhagandar* mentioned in Vagbhata Samhita: Acharya Vagbhata has mentioned 8 types of *Bhagandar*. They are *Shatponak* or *Vataj*, *Ushtagreev* or *Pitaj*, *Parisravi* or *Kaphaj*, *Parikshepi* or *Vata pittaj*, *Riju* or *Vata kaphaj*, *Arsho bhagandar*

or *Kapha pittaj*, *Shambukavarta* or *tridosaj* and *Unmargi* or *kshataj bhagandar*.¹²

Depending upon the presence of internal/external opening of the track of Bhagandara: It is of 2 varieties,

a) Antarmukha or arvachina: The track opens inside the anal canal or rectum with no external opening. It is also called *antarmukhi bhaganadara*. These are blind external tracks with an internal opening but no external opening.

b) Bahirmukhi or prachina: The track has got an external opening in the perianal skin but the internal opening is blocked or absent. These tracks have only an external opening and no internal opening. invariably this type of fistula has an internal opening and usually, it is situated at the level of the pectinate line in the anal crypt.

Modern classification of fistula in ano:

Bhagandar can be correlated with fistula in ano. A fistula in ano is an abnormal hollow tract or cavity that is lined with granulation tissue. Milligan and Morgan classified according to their relationship to sphincters and in particular to the anorectal ring as,

A) Low fistula: Submucous, Subcutaneous, Transsphincter.
B) High fistula

Goligher(1975) has modified it as:- Subcutaneous, Submucus, Low anal, High anal, Anorectal.

Parks et al (1976) classified with the relationship of fistulous tracts to external sphincters as:- Inter sphincter, Trans sphincter, Supra sphincter, and extra sphincter.¹³

Kshara Sutra

The treatment modalities of *Bhaganadar* are numbers in both *Ayurveda* and modern science but due to reoccurrence, damage of anal ring, incontinence, and complication *Kshara sutra* stand as a major para surgical procedure to cure *Bhaganadar*. *Kshara sutra* is made up of 2 words: *Kshara* which means melt away or to perish and *sutra* means thread. Thus *Kshara sutra* means alkaline medicated thread which destroys or cleans devitalized tissue.¹⁴ The pioneer of *ayurvedicsurgery* Acharya Sushruta first mentioned *Ksharasutra* in the treatment of *Nadi Varna*,¹⁵ But didn't emphasize about its preparation. After that Chakrapani Duttawas the first person to mention the method of preparation with its indication in fistula in Ano and haemorrhoid.¹⁶ He described it as smearing a thread repeatedly in latex of *snuhi* and *haridra* powder¹⁷, but because of inadequate description

and complexity, it lost its popularity. Later *Rasatarangini* introduced a better method of preparation. The credit of standardization and development for practical use goes to Prof. P.J Deshpande, Dr. S.R. Gupta in the present era.¹⁸ It is a para surgical method used for the treatment of gradual excision of overgrown soft tissue. *Kshara Sutra* is a simple and safe minimum invasive para technique for the treatment of all types of fistula in ano including complex and recurrent fistula. It possesses the quality like *tridoshaghna*, *dahana*, *dharana*, *tikshna*, *ushna*, *vilayan*, *lekhana*, *krimighna*, *shoshana*, *pachana*, *saumyata*, *shodhana*, *ropana* and *stambhana*.¹⁹ *Kshara sutra* is prepared by 11 coatings of *snuhi* *ksheera*, 7 coatings of *apamarga* *ksheera* along with *snuhi* *ksheera*, 3 coatings of *haridra* with *snuhi* *ksheera*.

The Reason behind a definite sequence of coating

The purpose of definite sequence are as follows:

First 11 coating of latex: By the application of *kshara* upper few coatings are neutralized, but the innermost layer remains protected and proteolytic action is preserved which helps in debridement of tissue.

7 coating of latex and kshara: Latex own binding properties that helps in binding of tiny *kshara* particles which helps in maintaining an appropriate concentration of *kshara*. It cauterize the tissue of the ligated masses by its *ksharaguna*.

3 coating of latex and haridra: It helps in the preservation of *kshara*, prevents from direct exposure, bacterial infection, and help in prolongation of *kshara sutra*.²⁰

Standardization of Kshara sutra: the standardization of *ksharasutra* based on different physical as well as chemical parameters to ensure quality control with cost-effectiveness at clinical level.

PH=10.1

Length :30+

Diameter :1.9mm

Min. breaking load :5.83 kg

Weight of coating :0.83 gm

Thickness of thread after coating :2.10+0.11mm²¹

Acharya Sushruta has mentioned different plants that can be used to prepare *ksharasutra*. Some of them are listed below;²²

Table 2. Different plants mentioned in samhita

Name	Botanical name
Mushkaka	<i>Elaeodendron glaucum</i> Pers.
Kutaja	<i>Holarrhena antidysentrica</i> Linn.
Palash	<i>Butea monosperma</i> Linn.
Ashwakarna	<i>Dipterocarpus turbinatus</i> GaertnF.
Paaribhadrak	<i>Erythrina variegata</i> Linn.
Bibhitika	<i>Terminalia bellerica</i> Roxb.
Aaragwadha	<i>Cassia fistula</i> Linn.
Tilwaka	<i>Symplocos racemosa</i> Roxb
Arka	<i>Calotropis procera</i> (Ait) R. Br.
Snuhi	<i>Euphorbia neriifolia</i> Linn.
Apamarga	<i>Acaranthes aspera</i> Linn.
Paatala	<i>Stereospermum suaveolens</i> DC.
Naktamaala	<i>Pongamia pinnata</i> Pierre.
Vrusha	<i>Adhatoda vesica</i> Nees.
Kadali	<i>Musa sapientum</i> Linn.
Chitraka	<i>Plumbago zeylanica</i> Linn.
Putika	<i>Haloptelia integrifolia</i> Planch.
Asphota	<i>Hemidesmus indica</i> R. Br.
Ashwamaraka	<i>Nerium indicum</i> Mill.
saptachhada	<i>Alstonia scholaris</i> R. Br
Agnimantha	<i>Premna integrifolia</i> Linn.

Among all these plants used in preparation of kshara sutra, some of them are listed below with method of preparation, mode of action, advantages along with ingredients.

Table 3. Different type of Ksharasutra along with ingredients, method of preparation, action, and advantage

Kshara sutra	Ingredients	Method of preparation	Action	Advantage
Snuhi swarasa kshara sutra ²³	Snuhi swarasa Apamarga kshaara Haridra powder	7 coating of snuhi swarasa with apamarga kshar 3 coating of snuhi swarasa with haridra powder	It offers both sodhana and ropana properties along with rasa katu and ushna vriya thus improves the process of healing	smooth-cutting, less irritant, doesn't produce much pain, relief the burning
Guggulu ksharasutra ²⁴	Guggulu solution Apamarga kshara Haridra powder	11 coating of Guggulu solution 7 coating of Guggulu solution with Apamarga kshara 3 coating of Guggulu solution with haridra	It has analgesic, debridement and healing properties.	Bulk availability, Excellent tolerance, Less pain and anxiety has good binding action on a thread
Papaya sutra ²⁵	Papaya fruit pulp Papaya powder Haridra powder	11 coating of Papaya fruit pulp Papaya powder 2 coating of Papaya fruit pulp and haridra powder	It contains strong proteolytic enzymes which lead to debridement of necrosed tissue early after application. it possesses properties of vrana shodhan, vrana ropan, and vednasthapana	Unit cutting time is less, Heal and relief pain, Easily available
Ghritakumari kshara-sutra ²⁶	Ghritakumari pulp Apamarga kshara Haridra powder	11 coating of Ghritakumari pulp 7 coating of Ghritakumari pulp with apamarga kshara	It possesses local anesthetic property. It has sothahara and vranaropan property	Good wound healing, Easy availability, and preservation

Palash ksharasutra ²⁷	Snuhi ksheera Palash kshar Haridra powder	11 coating of Snuhi ksheera 7 coating of Snuhi ksheera with Palash kshar 3 coating of snuhi ksheera with haridra	Its possess antibacterial property along with katu rasa, ushna vriya which help in healing.	Reduce burning sensation
Udumbar ksheera sutra ²⁸	udumbarksheera	11 coating of udumbarksheera	Its properties like Shothahara (anti-inflammatory), Vedana Sthapana (analgesic) and Vrana Ropana (wound healing)	Unit cutting time is less in comparison to standard thread, doesn't produce much pain, Easy and require less time, Smooth cutting, and Good wound healing
Yava kshara sutra ²⁹	Snuhiksheera Yavakshara Haridra powder	11 coating of Snuhiksheera 7 coating of Snuhiksheera with yavakshara 3 coating of Snuhiksheera With haridra powder	Its scarpping (lekhana), sothahara and, shityatamak action leads to less pain along with rapid cutting	Pain and agony were reduced, and thread was tolerated very well
Aragwadhadi ksharasutra ³⁰	Aragwadhadi fruit pulp ghrut, madhu, haridrachurna, agaru	7 coating of Aragwadhadi fruit pulp, ghrut, madhu 3 coating of Aragwadhadi fruit pulp ghrut, madhu, haridrachurna 3 coating of Aragwadhadi fruit pulp ghrut, madhu, and agaru	It also has hepato-protective, anti-tumor, anti-inflammatory, anti-fertility, antibiotic, antifungal, hypoglycemic etc., activities.	Reduced burning pain
Kadali ksharasutra ³¹	Snuhi ksheera, kadalikshara, haridra powder	11 coating of Snuhi ksheera 7 coating of Snuhi ksheera with kadalikshara, 3 coating of Snuhi ksheera with haridra powder	Its sheeta vriya and daha prasanam property prevent from irritation, pain.	Good wound healing
Gomutra ksharasutra ³²	Snuhi ksheera Gomutrakshar Haridra powder	11 coating of Snuhi ksheera 7 coating of Snuhi ksheera with Gomutrakshar 3 coating of Snuhi ksheera With haridra	Its Immunostimulant, Bioenhancer, Anticonvulsant, Anticancerous, Wound healing, Antioxidant and Antimicrobial properties.	Less pain Easily, and available

For the procedure of *Kshara sutra* therapy, there are 3 procedure that has been described in *samhita*.

Pre-operative procedure:

Written informed consent was taken by the patient or their relatives before surgery.

The patient was kept nil by mouth 6 hours prior to the procedure.

Lignocaine 2% sensitivity test was done(0.1ml intradermal).

Injection tetanus toxoid 0.5ml intramuscular was given to each patient

Preparation of operation theatre and sterilization of instruments was done.

Operative procedure: The patient has kept in a lithotomy position and the anal area is wiped. Firstly, methyl blue dye is passed in the tract. Probing is done to know the extent and direction of the fistulous tract. Depending upon the site of the fistula index finger of either hand is inserted into the anal canal simultaneously. *Ksharasutra* is passed into the fistulous tract till the tip is touched in the index finger. Then the tip is brought out of the anus by bending it and threaded through the probe. Now the probe is brought out of the anus. The *ksharasutra* is tied outside the anal verge over a small piece of gauze and applied with an additional knot. The whole area is wiped up with sterile cotton. A new piece of *ksharasutra* was replaced and tied on every

6th day.

Post-operative procedure:

- The Patient was kept nil orally till complete wearing off of the anesthetic effect is achieved.
- I/V fluids were given as per the requirement.
- Suitable Ayurvedic medicine, analgesic and antibiotics were administered if required

Material and Method:

This review article is based on different classical texts, books, journals, internet sources, research papers, experiences, and observations. The main aim of review is to emphasis on *ksharasutra* for the treatment of *bhagandar*.

Result:

After reviewing many textbooks and experience, the treatment of fistula in ano is effective with *ksharasutra*. It nullifies the reoccurrence of the fistula. In the assiduous world, it is hard to manage time for surgery, long time hospitalization and bed rest, thus in this meantime, *ksharasutra* acts as time-consuming as the patient is allowed to do their daily work without difficulty. *Ksharasutra* therapy can proceed with very minimal infrastructure at a minimum price.

Discussion:

Bhaganadara is described as a blatant disease. In most of the treatment modalities like fistulectomy, fistulotomy, seton, there are chances of discomfort, reoccurrence, incontinence, a large wound, and delay in healing. To overcome all the drawbacks, *ksharasutra* stands as an effective para surgical treatment for *bhaganadara*. It is cheap and easily available. As *ksharasutra* is usually made up of *dravya* having *sodhana*, *ropan*, *vedanasthapana karma*, which helps in active healing of wound with minimum scars. *Kshara sutra* works by the mechanical pressure created by ligation causing strangulation of blood vessel and tissue which leads to necrosis of the body of swelling. *Kshara* invades into the cell of lesion causing destruction by its *kshara guna* (corrosive property). Snuhi latex is proteolytic in nature which dissolves the tissue at its base. Turmeric powder provides the effect of bactericidal action with healing properties. It has the ability to perform incision with excision slowly by its controlled chemical cauterization.

The protein coagulation property of *kshara* ceases the oozing of blood formed during cutting by its sclerosing effect.³³ Hence the chances of bleeding are null. The anti-infective virtue of *kshara* reduces the chance of infection. In case of *bhagandar*, *kshara sutra* act as seton to allow proper drainage of pus and grafting of unhealthy tissue by providing clear skin with minimal scar without complication. It works as healing and cutting of fistulous tract simultaneously. Hence the possibility of anorectal sphincter damage is less and chances of incontinence are practically naught. Along with that, it is safe for use in maximum cases without having trouble in proceeding with therapy. The level of action of time duration of healing wound varies from person to person extending from 4 to 8 weeks. It is safe with minimal cost. It doesn't create obstacles for the patient to do their daily work even after being administered in the fistulous tract. Thus it is a boon to the sufferer of this notorious disease *bhaganadara* particularly to the group of people who may not be able to access high-tech hospital. Thus, in the time, *kshara sutra* stands as an effective therapy in recurrent *bhaganadara* with its healing quality in minimum time.

Strength and limitation

CONCLUSION:

Ksharasutra is considered superior to all surgical and para surgical measures as they perform work of incision, puncture, and balance derangement of *tridosha*. It is mandatory to use binding material and different combinations of *kshara* to achieve potent combination. *Kshara sutra* possess *varnasodhana*, *varnaropana*, *krimighna* property which work as healing and cutting of fistulous tract simultaneously. The reoccurrence rate, damage of anal ring, incontinence is practically null with *kshara sutra* in *Bhagandar*.

ACKNOWLEDGEMENTS: Not Applicable

CONFLICT OF INTEREST: Author declares that there is no conflict of interest.

SOURCE OF SUPPORT: None

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How to cite this article:

Sonali D, Shah B, Shah RK, Management of Bhagandar (Fistula in ano) by Ksharasutra – A Review, The Healer Journal, 2021;2(2):85-92.