**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 theformation 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
Charak on the lateral side of the anus, a very painful pustule (pūlikā) occurs which suppurses 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 (kṛmi), injury with a pointed object like bone leading to minute erosion, excessive sex, straining at defection, 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 ahara, 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 Vagbhvata quoted its distinctive factor as sitting on a hard surface 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.8Non-specific: It is caused by crypto glandular 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, Ushhtagreeva, Parisravi, Shambukavart, and Unmargi. Out of these Shambukavaarta are those caused by the foreign bodies that are incurable and the rest are curable with difficulty.9

| Types            | Doshas | Features                                      | Discharge          | Appearance              |
|------------------|--------|----------------------------------------------|--------------------|-------------------------|
| Shataponaka      | Vata   | Different types of pain like bursting, tearing, cutting, etc. (toda, tadana, bhedana, chedana, vyadhana, guda avadarana) | Continuous and foamy discharge | Water can or sieve-like |
| Ushtragreeva     | Pitta  | Chosa, pain like kshara or Agni being applied to a wound | Warm and foul-smelling | Camel’s neck             |
| Parisravi        | Kapha  | Kandu, less painful                          | Continuous and slimy | whitish                 |
| Shambukavarta    | Pitta  | Toda, dha, kandu, (pricking and burning pain and itching) Migratory pain around the anal canal | Multicolor          | Tips of great toe, turn of conch |
| Unmargi/aagantuja| Pitta  | Trauma to the rectum or anal canal- trauma due to foreign body impact like a fish bone | Kotha of mamsa and rakta, Infestation with krimi (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 |

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

**Types of Bhagandar mentioned in Charak Samhita:** Acharya Charak has mentioned 5 types of bhagandar. They are Vataj, Pitaj, Kaphaj, Tridoshaj and Kshataj bhagandara.10

**Types of Bhagandar mentioned in Vagbhata Samhita:** Acharya vagbhata has mentioned 8 types of Bhagandar. They are Shataponak or Vataj, Ushhtagreev or Pittaj, Parisravi or Kaphaj, Parikshepi or Vata pittaj, Riju or Vata kaphaj, Arsho bhagandar.
or Kapha pittaj, Shambukavarta or tridosaj and Unmargi or kshataj bhaganadar.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) Baharlikhi 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, Submucous, 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 Bhagandar 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 Bhagandar. 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 powder, 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 tridosaghna, dahanah, dharana, tikshna, ushna, vilayan, lekhana, krimighna, shoshana, pachana, saumyata, shodhana, ropana and, stambhaha.19Kshara 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 ksharana guna.

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   | Elaeodendron glaucum Pers.                  |
| Kutaja     | Holarrhena antidysentrica Linn.             |
| Palash     | Butea monosperma Linn.                      |
| Ashwakarna | Diterocarpus turbinatus GaertnF.            |
| Paaribhadra| Erythrina variegata Linn.                   |
| Bibhitika  | Terminalia bellerica Roxb.                  |
| Aaragwadha | Cassia fistula Linn.                        |
| Tilwaka    | Symlocos racemosus Roxb.                    |
| Arka       | Calotropis procera (Ait) R. Br.             |
| Snuhi      | Euphorbia nertifolia Linn.                  |
| Apamarga   | Acanthites aspera Linn.                     |
| Paatala    | Stereospermum suaveolens DC.                |
| Naktamaala | Pongamia pinnata Pierre.                    |
| Vrasha     | Adhatoda vesica Nees.                       |
| Kadali     | Musa sapientum Linn.                        |
| Chitrawa   | Plumbago zeylanica Linn.                    |
| Putika     | Haloptelia integrifolia Planch.             |
| Asphota    | Hemidesmus indicus R. Br.                   |
| Ashwamaraka| Nerium indicum Mill.                        |
| Saptachhada| Alstonia scholaris R. Br.                   |
| Agnimanthe | Premna integrifolia 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 swaras kshara sutra⁵⁷ | Snuhi swaras, Apamarga kshaara, Haridra powder | 7 coating of Snuhi swaras with Apamarga kshar, 3 coating of Snuhi swaras 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 ksharasutra⁵⁸ | 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 powder | It has analgesic, debridement and healing properties. | Bulk availability, Excellent tolerance, Less pain and anxiety has good binding action on a thread |
| Papaya sutra⁵⁹ | Papaya fruit pulp, Papaya powder, Haridra powder | 11 coating of Papaya fruit pulp Papaya powder, 2 coating of Papaya fruit pulp and Haridya 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 vednashhadhapan | Unit cutting time is less, Heal and relief pain, Easily available |
| Ghritakumari kshara-sutra⁶⁰ | 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 |
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 nill 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 waving off of the anesthetic effect is achieved.
- I/V fluids were given as per the requirement.
- Suitable Ayurvedic medicine, analgesic and antibiotics were administrated 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 ceased the oozing of blood formed during cutting by its sclerosing effect. 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 administrated 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 Bhaganadara.

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