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Clinical study of *Snuhi Ksharasutra* and its role in management of *Bhagandara* (Fistula in Ano)

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ABSTRACT

Kshar Sootra treatment heals the fistulous tract with maintaining integrity of sphincters of anal canal. In Ayurveda *Chhedana Karma*, *Kshara Karma*, *Ksharasootra* therapy and *Agnikarma* are described for the management of *Bhagandara*. Out of these; *Ksharasootra* became more popular and proven therapy as a radical cure of *Bhagandara* with negligible rate of recurrence and complication in comparison to the contemporary methods like fistulectomy and fistulotomy. In this clinical study total 20 patients of *Bhagandara* were registered from OPD and IPD of Shalya Tantra department, Major S.D. Singh P.G. Ayurvedic Medical College, Farrukhabad, and randomly divided in two groups. In this comparative clinical study all the subjective parameters like pain, itching and objective parameter like swelling, discharge and unit cutting time showed statistically significant results in all groups. It was found that *Snuhi Ksharasutrawas* more effective than *Apamarg Kshar Sutra*.

Key words: *Bhagandara*, *fistula in ano*, *Apamarg Kshar Sutra*, *Snuhi Kshar Sutra*.

INTRODUCTION

Bhagandara is a common disease occurring in ano-rectal region. Acharya Sushruta, father of surgery has included *Bhagandara* under eight *Mahagadas*. So, it is very difficult to treat.^[1] The word *Bhagandara* is the combination of two terms "*Bhaga*" and "*Darana*" which are derived from the roots "*Bhag*" and "*Dri*" respectively.^[2] All the body parts around the *Guda*

(ano-rectal region) including *Yoni* (vagina) in case of female and the *Basti* (urinary bladder) is termed as *Bhag* and the word *Darana* means painful tear.^[3] *Bhagandara* is not only a disease of *Guda*, but in fact any disease that forms tracts in peri-anal and perineal region can be considered as *Bhagandara*. *Bhagandara*, if neglected and not treated properly, flatus, urine, faeces and semen (in male) may start coming from its openings.^[4] According to *Charaka Bhagandara* is *Pidaka*, which is caused by improper *Ahara & Vihara*. Apart from this he has mentioned *Krimiroga* as a cause. Foreign body impaction in *Guda Pradesh*, straining during defaecation, excessive intercourse, prolong sitting and excessive horse riding are also causative factors of *Bhagandara*.^[5] According to *Sushruta* The people who are found of eating non-vegetarian foods, get the impaction of partly digested or undigested or bony parts in the *Bhaga Pradesh* which in turn causes local injury and sepsis and results in *Mansa Kotha* (decay) of that part in which *Krimi*

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develop and eat away the tissue which split or tear the *Bhaga* to form a *Chirakalina* (chronic), *Unmargi Bhagandara* of *Kshataja* (traumatic) aetiology.^[6] According to *Sushruta*, a deep routed *Pidaka* is seen around *Guda* within two *Angula* circumference producing pain and fever^[6]. According to *Vagbhata* in *Apakvaastha* the *Shopha* is called *Pidaka* and after bursting, it is called *Bhagandara*. He also described 6 types of *Bhagandara* *Pidaka*- *Vaataja*, *Pittaja*, *Kaphaja*, *Vaatakaphaja*, *Vaatapittaja*, and *Tridosaja*.^[7] The *Purvarupa* of *Bhagandara* includes pain in *Kati-Kapala* region, swelling itching, burning sensation in *Guda*. These symptoms become more aggravated during riding and defaecation.^[8] According to *Acharya Sushruta*, the *Sannipaataja* and *Agantuja* varieties are *Asadhya* and the remaining are *Krichchhsadhya*. *Bhagandara* localized in *Pravahani* *Valee* and *Sevani* should be refused to treat.^[9] Main treatment of *Bhagandara* is *Chhedana* karma (excision of entire tract) after probing it.^[10] *Ksharasutra* is one of the chief modalities described for the treatment of *Bhagandara* in *Ayurvedic* classics. *Ksharasutra* therapy is simple, safe and ambulatory in nature which requires minimal setup with maximum output; therefore, it is being globally accepted. *Chakrapani* ^[11] was the first scholar who mentioned the method of preparation of *Ksharasutra* with a clear-cut indication of its use in *Bhagandara* and *Arsha*. In his book '*Chakradutta*' he explains the method that by smearing a *sutra* (thread) repeatedly in the latex of *Snuhi* and *Haridra* powder makes the *Kshara-Sutra*. Later authors like *Bhavamishra*, *Bhaisjuyarutnavali* etc, also mention the same method. But because of brevity of preparation and inadequate explanation of procedure of application, it lost its popularity among *Ayurvedic* surgeons. There is no any direct reference regarding application of *Ksharasutra* in *Bhagandara* *Chikitsa* *Adhyaya* of *Sushruta*. But *Sushruta* while explaining the *Nadivrana* *Chikitsa*, mentioned the use of *Ksharasutra* and explained its detail procedure and further mentioned that the procedure of *Nadivrana* *Chikitsa* with *Ksharasutra* can be even adopted in cases of fistula in ano. It means that though *Ksharasutra* is stated in *Nadivrana* *Chikitsa*, but it is widely used in the treatment of fistula in ano.

Sushruta mentioned an intelligent surgeon should excise a sinus, occurring in any of the *Marmas*, or in weak, timid or emaciated persons with *Ksharasutra* and not with knife.^[12] The rationale behind including the classical *Snuhi Ksharasutra* was to reduce the unnecessary labour work to prepare *Kshara*, which require to make *Ksharasutra*. It shows same result as other *Ksharasutra*. This concept based on *Chakradatta* on *Ksharasutra* on preparation. According to *Chakradatta* it was prepared by only using *Snuhi* and *Haridra* churn devoid of *Kshara*.

AIMS AND OBJECTIVES

1. To compare the effect of *Snuhi* and *Apamarg Ksharasutra* in the management of *Bhagandara*."
2. To review the *Ksharasutra Karma* in detail.

MATERIALS AND METHODS

Total 20 patients from OPD and IPD of Shalya Tantra department, Major S.D. Singh P.G. Ayurvedic Medical College, Farrukhabad was selected. Also, patients from other institutions and hospitals were included. All the patients randomly divided in two groups.

Group A: (10 Patients): The patients of this group were treated with *Snuhi Ksharasutra*.

Group B: (10 Patients): The patients of this group were treated with *Apamarga Ksharasutra*.

Inclusion Criteria

1. Irrespective of sex, religion, occupation, economic status and education status.
2. Patients within the age of 20-60yrs.
3. Patients with low anal fistula (*Bhagandara*).
4. Patients who were co-operative and ready give written consent.
5. Patients who were ready to give written informed consent.

Exclusion Criteria

1. Patient suffering from systemic diseases was excluded.

2. Patient with high rectal fistula was being excluded.
3. Patient suffering Ca. of rectum, HbsAg and HIV was also excluded.
4. Patients suffering from ulcerative colitis, Crohn's disease were being excluded from the study.

Diagnostic Criteria

Diagnosis was done on the basis of chief complaints of patient, past history, history of associated disease, inspection, palpation, digital examination, Proctoscopy and required investigations as per specially designed proforma.

Preparation of Kshar Sutra

Ksharasutra is prepared in a well-equipped *Ksharasutra* Lab. The detailed method of preparation of *Snuhi/Udumar/Apamarg Ksharasutra* is described.

Drugs required for *Ksharasutra* preparation

- *Snuhi Ksheer*
- *Snuhi Kshar*
- Fine *Haridra Churna*

Method of collection of *Snuhi Ksheer*

Snuhi Ksheer used for the preparation of *Ksharasutra* was collected every day, only one or two hours before use.

Other requirements

- *Ksharasutra* cabinet-fitted with timer, blower and U.V. Light
- Barbour Surgical Linen Thread no. 20
- Sterile Bowls
- Sterile Gloves
- Sterile Swabs
- Sterile gauze pieces
- Hangers
- *Kharal* (for proper mixing of *Snuhi Ksheer*, *Snuhi/Apamarg Kshar* & *Haridra Churna*)
- Sealing materials

Table 1: Number and pattern of coatings

<i>Snuhi /Apamarg Ksharasutra</i> Coatings	Coatings
<i>Snuhi Ksheer</i>	11
<i>Snuhi Ksheer+ Snuhi Kshar</i>	7
<i>Snuhi Ksheer + Haridra Churna</i>	3
Total coatings	21

Processing of *Ksharasutra*

The surgical linen thread was autoclaved and mounted on the hangers.



A piece of folded gauze was taken, dipped in *Snuhi Ksheer* and the thread was smeared. The threads are placed in the *Ksharasutra* cabinet for drying.



The second smearing was given on next day only when the previous coating was dried. Such 11 times coating is given in this manner, temperature inside the chamber maintained.



After coating of the thread done by *Snuhi Kshar* with *Snuhi Ksheer* was done. The thread was coated in this way 7 times, only when the previous coating got completely dried.



The last 3 coatings were given with *Snuhi Ksheer* and *Haridra Churna*. While applying every coating, care should be taken that the drug spreads evenly on all the sides of the thread and does not become thick at one spot to make beaded like appearance.



After finishing the coating on the threads total 21 times, the *Sutras* were dried well in the cabinet and were cut into assorted size and then packed in Borosilicate glass tube.



These prepared sealed *Ksharasutra* were kept in *Ksharasutra* cabinet-fitted with timer, blower and UV Light.

Procedure of Ksharakarma.^[13]

To understand in an easy way, this can be divided into 3 stages.

- A. *Purva Karma* (Pre-operative measures)
- B. *Pradhana Karma* (Operative Procedure)
- C. *Pashchat Karma* (Post-operative measures)

(A) Purva Karma (Pre-operative measures)

Preparation of the patient: First of all, written informed consent was taken. Before *Shastra Karma*, the patient was prepared with *Snehana*, *Svedana* (*Avagahana*), *Langhana* and *Anulomana* (*Mridu Virechana*).

(B) Pradhana Karma (Operative procedure)

Position of the patient: Patient was made to lie down on a table and position as described for the operation of *Arsha* (piles). This position is similar to lithotomy position.

Instruments

1. *Bhagandara Yantra* is almost similar to *Arsho Yantra* which is of two types i.e., *Ekachhidram* and *Dvichhidram*. In males, the *Yantra* should be of four *Angula* in length and five *Angula* in circumference. But in case of females, the *Yantra* should be as much as the length of the palm of the patient and six *Angula* in circumference. This *Bhagandarayantra* and anal opening are lubricated by *Ghrita* and then *Yantra* is to be introduced into *Guda* after instructing the patient to strain down.
2. *Eshani*: Required for both procedures – *Ksharasutra* and *Chhedana*
3. *Chhedana* (General Ayurvedic Surgical Procedure for any type of *Bhagandara*): The patient was kept in a position similar to lithotomy position. The anus and the *Bhagandara Yantra* are lubricated with *Ghrita*. Then with the use of *Eshani*, the *Bhagandara* tract is examined to decide whether the *Bhagandara* is *Paracheena* (blind internal) or *Arvacheena* (blind external). In case of *Paracheena Bhagandara*, the *Eshani*

Yantra (probe) is introduced into the external opening and whole tract is excised without leaving its *Aashaya*. If it is *Arvacheena Bhagandara*, *Bhagandara Yantra* is introduced into the *Guda* and patient should be asked to strain down. During straining, the *Eshani* (probe) is introduced through the internal opening. Then the whole tract is excised followed by cauterization with the help of *Kshar* or *Agni*. The modern fistulectomy is same to this procedure of *Chhedana*, mentioned by *Acharya Sushruta*.

OBSERVATION AND RESULTS

Total 20 patients were randomly selected and divided into two groups, in present study. The efficacy of the therapy was at adjudging on varied parameters and the results were derived after execution of statistical methodology. In symptoms like pain 87.5% and 50% of relief was observed in group A and B respectively. Relief in itching was 70% in group-A, while in group B it was 75%. The result showed that treatment was statistically significant at $p < 0.01$. In swelling 83.33%, 80.90% of relief was observed in group A and B respectively. In symptoms like discharge 84.61% and 77.78% relief was observed in group A and B respectively. The result shows statistically highly significant value $p < 0.001$ in Group –A, the result for effect on Unit cutting time showed that treatment was statistically highly significant at $p < 0.001$ in a both groups.

Table 2: Effect on Subjective & Objective Criteria in Group A

Subjective and Objective Criteria	Mean		X	%	SD	SE	T	P
	BT	AT						
Pain	1.33	0.167	1.16	87.5	0.40	0.167	7	<0.001
Itching	1.66	0.5	1.16	70	0.40	0.167	7	<0.001

Swelling	2.1 4	0.3 5 71	1.7 8	83.3 3	0.4 2	0.1 1 38	15.6 9	<0.00 1
Discharge	1.1 8	0.1 8 18	1	84.6 1	0.4 4	0.1 3 48	7.41 6	<0.00 1
Unit cutting time	1.3 7	0.2 5	1.1 2	81.8 1	0.3 5	0.1 2	9	<0.00 1

Table 3: Effect on Subjective & Objective Criteria in Group B

Subjective and Objective Criteria	Mean		X	%	SD	SE	T	P
	BT	AT						
Pain	2	1	1	50	0.6 3	0.2 5 82	3.87 3	<0.0 2
Itching	1.7 1	0.4 2 86	1.28 57	75	0.9 5	0.3 5 95	4.5	<0.0 1
Swelling	1.9 0	0.3 6 36	1.54 55	80.9 5	0.5 2	0.1 5 75	3.31 6	<0.0 1
Discharge	1.1 2	0.2 5	0.87	77.7 7	0.3 5	0.1 2	7	<0.0 01
Unit cutting time	1.3 7	0.5	0.87	63.6 3	0.3 5	0.1 2	7	<0.0 01

Effect on Unit cutting time - (UCT)

1. The mean U.C.T. of overall patients in group b was 8.97 days/cm and in group a it was 9 days/cm. while in group c it was 10.1 days/cm.
2. U.C.T. (Unit cutting time) was less (4.66 days/cm.) in sub cutaneous fistulae. In this category, Mean U.C.T. was found 8.44 days/cm.
3. In relation to types of *Bhagandara* U.C.T. was less (4.26 days/cm.) in *Shatponaka Bhagandara*. Mean U.C.T. was found 6.27 days/cm in this category.

4. U.C.T. decreases as length of fistulous tract increases; U.C.T. was 7.22 days/cm. in tract having initial length within 5 cm. whereas it was 4.26 days/cm in tract of more than 10 cm. In this category, Mean U.C.T. was found 9.30 days/cm (according to length of fistulous tract) and 8.99 days/cm (according to chronicity).

DISCUSSION

Bhagandara is one of the most common ano rectal diseases in field of surgery. It is very difficult to manage due to its multifold variation of presentation, high recurrence rate and sometimes serious post-operative complications like faecal incontinence, recurrent sepsis etc. *Ksharasutra* treatment heals the fistulous tract with maintaining integrity of sphincters of anal canal. Description of *Bhagandara Pidika* clearly shows that the Acharyas had an exact idea regarding the occurrence of perianal abscess and also knew that it could lead to the *Bhagandara* (Fistula in ano). They also told that not all the abscesses in this region could lead to the formation of *Bhagandara* eg. Furunculosis. *Sushruta* has mentioned *Kshara Karma*, but not *Ksharasutra* in the chapter of *Bhagandara Chikitsa*. The *Ksharasutra* application is mentioned in the *Visarpa-Naadi- Stanaroga Chikitsaadhyaya*. The description of *Parachin* and *Arvachin* are nothing but the blind external and blind internal types of fistula-in-ano respectively.^[14] *Apamarga Ksharasutra* proven device to treat fistula-in-ano and has been standardized by Ayurvedic Pharmacopeia of India.^[15] The effect of *Ksharasutra* has the combined effect of ingredients and found effective in cutting and healing of the fistulous tract. *Ksharasutra* cuts unhealthy portion of the tract and provides simultaneous healing due to above properties. Hence, it advances tract outwards day by day and the length of the tract cut by the *Ksharasutra* which was measured as the Unit Cutting time (UCT). *Snuhi Ksharasutra* keeps the tract clean, providing the *Suddha Vrana Avastha* and only a *Suddha Vrana* can heal properly. Due to *Vrana Ropana Karma* of the *Ksharasutra*, the healing process runs simultaneously. As a whole, it can be said that the *Ksharasutra* acts by gradual chemical excision of

the *Bhagandara* (fistula in-ano) with simultaneous healing of tract as observed in this study.

Mode of action of *Snuhi Ksharasutra*

In this clinical trial *Snuhi Ksharasutra* was used in patients. The ingredients are *Snuhi Ksheer*, *Haridra* Powder. *Snuhi* having *Katu* and *Tikata Ras* and has properties of, *Vran Shophhar*(anti inflammatory), *Chhedana*, (excision) *Bhedana* (incision), *Lekhana* (scrapping) and *Tridoshaghna* (alleviating all Dosh).^[16] *Haridra* powder has the properties like *Rakta Shodhana* (blood purifying), *Twaka Doshahara*, *Shothahara* (anti-inflammatory), *Vatahara* (allivate *Vata*), *Vishaghna* (antimicrobial) and it is useful in *Vrana Ropana* (wound healing). Due to all above properties, prepared *Ksharasutra* from above two ingredients have the properties like *Chhedana*, *Bhedana*, *Lekhana*, *Krimighna*, *Vrana Shodhaka* and *Vrana Ropaka*. Healing from the base of the fistulous tract runs parallel to the cutting of tract. Ultimately, one day the *Ksharasutra* comes out by cutting through the entire fistulous tract with simultaneous healing from its base. At last, a small linear scar remains at the site of fistula. The *Chhedana Karma* of the *Ksharasutra* is facilitated by *Vrana Shodhana*, *Vrana Ropana*, *Sophahara*, *Krimighna* and *Vishaghna Karma*. It reduces inflammation by *Shophahara Karma*. Due to *Krimighna* and *Vishaghna* properties, it destroys the micro-organisms in the tract and thus controls the infection at local site. In cases of fistula-in-ano infection is one of the factors which do not allow to heal fistula with the *Vrana Shodhana* property.

CONCLUSION

Ksharasutra therapy is simple, safe and ambulatory in nature which requires minimal setup with maximum output; therefore, it is being globally accepted. Statistically both groups have shown good results as there was no much difference seen in efficacy of different treatment modalities. But *Snuhi Ksharasutra* is more effective than *Apamarga Ksharasutra* in all the subjective parameters like pain, itching and objective parameter like swelling, discharge, and unit cutting time showed statistically significant results. It

has shown better UCT and it can be useful in recurrence / fibrosed fistula-in-ano. There was no any adverse effect of any of the drugs observed during the course of study.

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