

## EFFECT OF AGNIMANTHA KSHARA SUTRA IN THE MANAGEMENT OF BHAGANDARA (FISTULA IN ANO)

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### ABSTRACT

**Back ground:** *Bhagandara* (Fistula in ano) is a common ano-rectal condition prevalent worldwide, and its prevalence is second highest after *Arshas* (Haemorrhoids). *Kshara Sutra* being a chief modality in management of *Bhagandara* in Ayurvedic science, exploration of new plants for the preparation of *Kshara* as a better substitute of *Apamarga Kshara* is the need of the hour. **Objectives:** **1.** Evaluation of the effect of *Agnimantha Kshara Sutra* in the management *Bhagandara*. **2.** To compare the effect of *Agnimantha Kshara Sutra* and *Apamarga Kshara Sutra* in the management of *Bhagandara*. **Materials and methods:** It is a comparative study in which 40 Patients of *Bhagandara* were randomly divided into two groups, each consisting of 20 Patients first (Group A) as control group was treated with *Apamarga Kshara Sutra* and second (Group B) as research group was treated with *Agnimantha Kshara Sutra*, the results obtained are given in the present study. **Results:** On the basis of assessment criteria and overall results of treatment, the patients of *Agnimantha Kshara Sutra* (Group B) showed better wound healing time in comparison to *Apamarga Kshara Sutra* (Group A). **Interpretation and Conclusion:** So *Agnimantha Kshara Sutra* can be considered as a better alternative in place of *Apamarga Kshara Sutra* because it has better wound healing property after cut through.

**Keywords:** *Agnimantha*; *Bhagandara*; Fistula in ano; *Premna integrifolia* Linn.

### INTRODUCTION

The word fistula is derived from a Latin word 'reed' which means pipe or flute. It implies a chronic granulating track connecting two epithelial-lined surfaces. These surfaces may be cutaneous or mucosal. The anal fistula is a single track with an external opening in the skin of perianal region and an internal opening in the modified skin or mucosa of anal canal or rectum. Prevalence of Fistula-in-ano is considered second to Haemorrhoids among all Anorectal abnormalities.

Fistula-in-ano is one of the most common ailments pertaining to ano-rectal

region. This disease causes discomfort and pain to patient, which creates problems in routine work. As the wound is located in anal region which is more prone for infection, thus takes long time to heal and the condition remains troublesome, operative procedures often leads to complications like recurrences and incontinence. To alleviate such problems in the management of this disease, it was thought to find out some technique to treat these cases without operative complications.

In Ayurvedic classics, this disease has been described with the name of *Bha-*

gandara, which has more similar signs and symptoms with anal fistula. The importance of this disease was first realized by *Sushruta* (800-1000 B.C.), The Father of Indian Surgery, who described it elaborately in his treatise. But already *Charaka* (1000 B.C.) has mentioned that *Ashwa Pristagamana* (Horse riding) is one of the causative factors for *Bhagandara* and advocated

*Kshara Sutra* for its management.

Similarly in modern surgery the use of ligation and some irritant chemicals like urithane and silver nitrate has been advised but most of the modern surgeons depend on operative treatment for this disease where they follow the radical excision of the track along with the removal of major portion of surrounding tissue. Their patients require hospitalization for a long period and suffer to a great extent by physical and economical loss. Eminent surgeons of their time like Louis A. Buie (1931) has reported 67.9% recurrence, Raymond

J. Jackman (1944) reported 43% recurrence, J. E. Dumphy (1955) reported 85% recurrence and W. Rochke (1969) has reported 20% recurrence. These statistical data reveal a fact that the treatment of anal fistula is still far from the success and needs a vital reconsideration.

The *Kshara Sutra* therapy is practiced since long time with great success and without recurrences. The Standard *Kshara Sutra* (*Apamarga Kshara Sutra*) is prepared by repeated coatings of *Snuhi Ksheera*, *Apamarga Kshara* and *Haridra*. But some problems are faced during the collection and also in the course of *Kshara Sutra* therapy. They are as follows

1. *Apamarga Kshara Sutra* produces mild burning and pain during successive changes.

2. Rarely local irritant skin reactions occur during course of therapy.

3. Treatment is sometimes very difficult in sensitive patients like children, females & elders.

To overcome these disadvantages was of utmost importance to make the treatment widely popular and acceptable. In spite of the good rates of cutting, severe pain and burning sensation caused during the treatment withheld many patients from accepting this treatment.

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 idea to prepare many *Kshara Sutas* which were tried out in the department of Shalya Tantra Shri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan, Karnataka like *Madhu Kshara Sutra*, *Apamarga Kshara Sutra*, *Aragvadha Kshara Sutra*, *Palasha Kshara Sutra*, *Kadali Kshara Sutra*, *Arka Kshara Sutra* etc. Though each of the thread had good cutting rates with other advantages they also had some disadvantages.

**Need of the study:** Considering the above problems, we are in need to find out such a drug which is easily available and equally effective. The *Acharya Sushruta* in *Sutrasthana Ksharapakavidi Adhyaya* has mentioned 21 drugs can be used for the preparation of *Kshara* among which *Agnimantha* is selected in the preparation of *Kshara Sutra* as *Agnimantha* is inherited with properties of

*Rasa: Tikta, Katu, Kashaya, Madhura*

*Guna: Ruksha, Laghu*

*Virya: Ushna*

*Vipaka: Katu*

*Karma: Kapha-Vatahara, Shotahara, Deepana.*

The idea behind the present work is to find out the effectiveness of *Agnimantha Kshara Sutra* in the management of *Bhagandara* and find out such a treatment, which is economical, easily available, as well as minimize the problems of *Kshara Sutra* therapy.

**Materials and methods:** The following equipments and instruments are usually required during application of *Agnimantha Kshara Sutra*.

- 1) Lithotomy table
- 2) Spot light
- 3) Dressing trolley
- 4) Instruments box which contains
  1. *Vakra Eshani* (Curved probe with eye-let) 3 assorted size
  2. *Vakra Eshani-Ara Shastra Mukhakriti* (Curved probe with notch) 3 assorted size
  3. *Eshani* (malleable straight probe) 3"
  4. *Eshani* (non-malleable straight probe) 3"
  5. *Sutra-Niyojini Shalaka* (Thread carrier) 2"
  6. *Darvikriti Shalaka* (Scooped *Kshara* applicator) 2"
  7. Artery forceps (straight and curved) 3 pairs
  8. Scissors (Straight and curved) 1 Pairs
  9. Allis forceps 2 pairs
  10. Pile holding forceps 2 pairs
  11. Proctoscope of various sizes 2 pairs
  12. *Agnimantha Kshara Sutra* sealed tubes 2 pairs
  13. *Apamarga Kshara Sutra* sealed tubes 2 pairs
  14. *Nadi Sweda Yantra*
  15. *Ushnodaka Awagaha Yantra*

**Preparation of *Agnimantha Kshara Sutra*:** The technique of preparation of *Agnimantha Kshara Sutra* is the same as *Apamarga Kshara Sutra* standardized by the Department of Shalya Shalakyia, IMS, BHU, Varanasi. The *Agnimantha Kshara*

*Sutra* was prepared by repeated 21 coatings in which 11 coatings of *Snuhi Ksheera*, 7 coating of *Agnimantha Kshara* and 3 coatings of *Haridra Choorna*.

For this purpose a surgical linen thread No. 20 was spread throughout the lengthwise in the *Kshara Sutra* hangers. Each thread on the hanger was smeared with *Snuhi Ksheera* soaked in gauze piece. Then these wet threaded hangers were placed in *Kshara Sutra* cabinet for drying. Again the same process was repeated daily, till eleven such coatings with *Snuhi* (*Nerifolia euphorbia*) *Ksheera* alone are accomplished. The twelfth coating was done by first smearing the thread with *Snuhi Ksheera* and in wet condition the thread was passed through the *Agnimantha Kshara Bhasma*. Then it was placed into the cabinet for drying. This process was repeated daily till seven coatings of *Snuhi Ksheera* and *Agnimatha Kshara* was achieved. Finally three coatings were given with *Snuhi Ksheera* and *Haridra Choorna* in the same way. Thus the twenty one coatings over the thread were done to prepare *Agnimantha Kshara Sutra* for use in this study.

**Method of application of *Agnimantha Kshara Sutra*:** The application of *Agnimantha Kshara Sutra* is same technique of *Kshara Sutra*

application. First the patient is kept in proper lithotomy position and perianal region is cleaned with antiseptic lotions and draped. The patient is instructed to relax his thigh and anal sphincters. Further relaxation of the sphincters is accomplished by providing hot fomentation to the part with the help of *Nadi Sweda Yantra*.

Thus, when the patient was reassured and gloved finger was gently intro-

duced into the rectum. Then a suitable selected probe was passed through the external opening of fistula. The tip of the probe was forwarded along the path of least resistance and was guided by the finger in rectum to reach into the lumen of anal canal through the internal opening and its tip was finally directed to come out of anal orifice. Then a suitable length of plain thread Sutra was taken and threaded into the eye of probe. Thereafter the probe was pulled out through the anal orifice, to leave the thread behind in the fistulous track. The two ends of the Plain thread were then tied together with a moderate tightness outside the anal canal. This procedure is called primary threading and on second day postoperative day the *Agnimantha Kshara Sutra* application is done. In cases of high anal and ano-rectal fistula, the primary threading was done under General Anaesthesia/Spinal Anaesthesia to get complete relaxation of sphincters.

**Change of Agnimantha Kshara Sutra:**

All patients were instructed to take hot sitz bath before changing the thread. The *Agnimantha Kshara Sutra* was changed at weekly interval. The thread is tied to the previously applied *Agnimantha Kshara Sutra* in position towards outer end of the knot. Then an artery forceps is applied inner end to the same knot. Then the old thread is cut between the artery forceps and the knot pulling of the artery forceps along with the thread ultimately replaces the old thread by *Agnimantha Kshara Sutra*. Then the two ends are ligated and

bandaging is done. This procedure is done by Railroad technique. The same procedure is followed for successive changes of *Agnimantha Kshara Sutra* at weekly interval. At each sitting of changing of *Agnimantha Kshara Sutra*, the length of the previous *Agnimantha Kshara Sutra* is measured and recorded in the form of a graph on a proforma. This gives an idea of the amount of remaining tissue to be cut through and time taken to cut through each centimeter.

**Source of data:** A clinical study was planned on *Agnimantha Kshara Sutra* in Dept. of P. G. Studies of *Shalya Tantra*, SDM College of Ayurveda and Hospital Hassan, Karnataka, India.

**Inclusion criteria:** The cases were selected randomly from patients attending in Ano-rectal Clinic OPD no.6 Department of *Shalya Tantra* in SDM College and Hospital Hassan, in between age 12 to 60 years, both sexes, operative recurrences, different duration of signs and symptoms as documented in classics.

**Exclusion criteria:**

- (1) Post-operative incontinence of stool
- (2) Secondary fistula due to Crohn's disease, Tuberculosis, Carcinoma of Rectum, Ulcerative colitis.

Assessment criteria:

- 1. U.C.T.
- 2. Pain
- 3. Graulation Tissue
- 4. Srava
- 5. Size of the wound

**Gradings:**

**1. U.C.T:** Total No. of days taken for cut through = ..... Days/cm

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Initial length of track in cms

**2) Pain:**

- Grade 0 - No pain
- Grade 1 - Mild
- Grade 2 - Moderate
- Grade 3 - Severe

**3) Granulation Tissue:**

- Grade 0 - Healthy
- Grade 1 - Moderate
- Grade 2 - Hypergranulation
- Grade 3 - Granulation absent

#### 4) Srava:

Grade 0 - No discharge  
Grade 1 - If Vrana wets ½ x ½ cm gauze piece (Mild)  
Grade 2 - If Vrana wets 1 x 1cm gauze piece (Moderate)  
Grade 3 - If Vrana wets more than 1cm (Severe)

#### 5) Size of the wound:

Grade 0 - Healed  
Grade 1 - (0.5-1cm) wound within 0.5-1cm  
Grade 2 - Wound within 1-2 cm  
Grade 3 - Wound within 2-3cm  
Analytical study



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ANALYSIS REPORT FOR 509/14110505-08

#### Part A: Particulars of sample submitted

Test requested by: Dr. Patanu Saibabu, SDMCA Hassan  
Requested on: 05-11-2014  
Investigation to be performed: Standardisation.  
Sample coded as: 14110505-08  
Sample details: Agnimantha kshara sutra, Agnimantha kshara bhasma, Snuhi kshara, Haridra  
Packing details: Packed in plastic packet.

#### Part B: Methodology

##### Determination of pH

Preparation of buffer solutions: Standard buffer solution: Dissolved one tablet of pH 4, 7 and 9.2 in 100 ml of distilled water.

Determination of pH: Taken 1 g of sample (Liquids filtered).10 ml of distilled water was added, stirred well and filtered. The filtrate was used for the experiment. Instrument was switched on. 30 minutes time was given for warming pH meter. The pH 4 solution was first introduced and the pH adjusted by using the knob to 4.02 for room temperature 30°C. The pH 7 solution was introduced and the pH meter adjusted to 7 by using the knob. Introduced the pH 9.2 solution and checked the pH reading without adjusting the knob. Then the sample solution was introduced and reading was noted. Repeated the test four times and the average reading were taken as result.

#### Part C: Results

Table 1. pH of the samples

Sample name	pH
Agnimantha kshara sutra	7.5
Agnimantha kshara bhasma	7.5
Snuhi kshara	6.0
Haridra	5.5

#### Part D: Remarks

The pH of the given sample was determined and given in the above table.

##### Testing Personnel

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Results:

Table 1: Showing the effect on Pain in Both Groups

Hypothesis Test Summary			
Null Hypothesis	Test	Sig.	Decision
1 The distribution of PAIN_1ST_WEEK is the same across categories of GROUP.	Independent-Samples Mann-Whitney U Test	.486	Retain the null hypothesis.
2 The distribution of PAIN_2ND_WEEK is the same across categories of GROUP.	Independent-Samples Mann-Whitney U Test	.157	Retain the null hypothesis.
3 The distribution of PAIN_3RD_WEEK is the same across categories of GROUP.	Independent-Samples Mann-Whitney U Test	.172	Retain the null hypothesis.
4 The distribution of PAIN_4TH_WEEK is the same across categories of GROUP.	Independent-Samples Mann-Whitney U Test	.539	Retain the null hypothesis.
5 The distribution of PAIN_5TH_WEEK is the same across categories of GROUP.	Independent-Samples Mann-Whitney U Test	.877	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Table 2: Showing the effect on discharge in Both Groups

Hypothesis Test Summary			
Null Hypothesis	Test	Sig.	Decision
1 The distribution of DISCHARGE_ON_1ST is the same across categories of GROUP.	Independent-Samples Mann-Whitney U Test	.226	Retain the null hypothesis.
2 The distribution of DISCHARGE_ON_2ND is the same across categories of GROUP.	Independent-Samples Mann-Whitney U Test	.324	Retain the null hypothesis.
3 The distribution of DISCHARGE_ON_3RD is the same across categories of GROUP.	Independent-Samples Mann-Whitney U Test	.524	Retain the null hypothesis.
4 The distribution of DISCHARGE_ON_4TH is the same across categories of GROUP.	Independent-Samples Mann-Whitney U Test	.372	Retain the null hypothesis.
5 The distribution of DISCHARGE_ON_5TH is the same across categories of GROUP.	Independent-Samples Mann-Whitney U Test	.513	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Table 3: Showing the effect on size in Both Groups

Hypothesis Test Summary			
Null Hypothesis	Test	Sig.	Decision
1 The distribution of SIZE_1ST_WEEK is the same across categories of GROUP.	Independent-Samples Mann-Whitney U Test	.432	Retain the null hypothesis.
2 The distribution of SIZE_2ND_WEEK is the same across categories of GROUP.	Independent-Samples Mann-Whitney U Test	.533	Retain the null hypothesis.
3 The distribution of SIZE_3RD_WEEK is the same across categories of GROUP.	Independent-Samples Mann-Whitney U Test	.883	Retain the null hypothesis.
4 The distribution of SIZE_4TH_WEEK is the same across categories of GROUP.	Independent-Samples Mann-Whitney U Test	1.000	Retain the null hypothesis.
5 The distribution of SIZE_5TH_WEEK is the same across categories of GROUP.	Independent-Samples Mann-Whitney U Test	.845	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Table 4: Showing the effect on granulation in Both Groups

Hypothesis Test Summary			
Null Hypothesis	Test	Sig.	Decision
1 The distribution of GRANULATION_1ST is the same across categories of GROUP.	Independent-Samples Mann-Whitney U Test	.565	Retain the null hypothesis.
2 The distribution of GRANULATION_2ND is the same across categories of GROUP.	Independent-Samples Mann-Whitney U Test	.025	Reject the null hypothesis.
3 The distribution of GRANULATION_3RD is the same across categories of GROUP.	Independent-Samples Mann-Whitney U Test	.234	Retain the null hypothesis.
4 The distribution of GRANULATION_4TH is the same across categories of GROUP.	Independent-Samples Mann-Whitney U Test	.243	Retain the null hypothesis.
5 The distribution of GRANULATION_5TH is the same across categories of GROUP.	Independent-Samples Mann-Whitney U Test	.179	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

	Group of Patient	N	Mean	Std. Deviation	Std. Error
UCT	Apamarga Kshara Sutra	20	11.79	6.371	1.425
	Agnimantha Kshara Sutra	20	12.54	4.134	0.924

Table 5: Showing the effect on UCT in Both Groups

U.C.T. was 12.54 days/cm in treated group and in control group as 11.79 days/cm.

Observation:

The study analysis revealed that the incidence of Bhagandara is commonly seen in age group of 20-59 years 34 cases (82%)

with peak incidence in the age group of 20-39 years

- ❖ 20 cases (50%) 60-79 years 4 cases (10%) and 12 to 19 years 2 cases (5%).
- ❖ In relation to Gender incidence shows that maximum patients were males 35 cases (87.5%) and minimum were females 5 cases (12.5%) with ratio of 3:1.
- ❖ In relation to religion 38 cases (95%) were Hindus and 2 cases (5%) were Muslims.
- ❖ In relation to socio economic status 31cases (77.5%) belongs to low class, and 9 cases (22.5%) belonged to middle class.
- ❖ In relation to nature of work 29 cases (72.5%) were of moderate work, 08cases (20%) were of strenuous work, 3 patients (7.5%) were of sedentary.
- ❖ In relation to bowel habits 22 cases (55%) of patients had reported irregular bowel habits with constipation.
- ❖ In relation to nature of diet 30 cases (75%) patients were from mixed diet group.
- ❖ In relation to occupation 20 cases (50%) were from Table work group, labour group 16 cases (40%) and house wife group 4 cases (10%).

## DISCUSSION

Clinical findings like pain, local inflammatory changes, discharge were observed during primary and successive application of medicated thread in control and treated groups. The severity of pain and local inflammatory conditions like edema, induration, hypergranulation tissue, healing time after cut through were analyzed and was less in treated group as compared to control group.

*Agnimantha* is having properties like *Krimighna*, *Vishaghna*, *Shotahara*, *Bhedana*, *Vranashodana*, *Vranahara*, *Puyameha* known healer of wounds/ulcers

and also plays a role in the initial debridement of non-healing ulcers, effective promoter in enhancing tissue repair and wound healing. *Premna integrifolia* Linn contains important chemical constituents that confer upon it as a medicinal agent. It was revealed that the leaf extract contains tannins, flavonoids, steroids, alkaloids, and glycosides which have potential role in its analgesic and antimicrobial activity<sup>4</sup>. It signifies that *Agnimantha* is a best tissue healing promoter which helps in wound healing

The unit cutting time was analyzed on various parameters like age, sex, Prakriti, type of *Bhagandara*. There are several factors, which modifies the Unit Cutting Time as follows:

- 1) U.C.T. is less in submucosal, subcutaneous and low anal fistulas.
- 2) U.C.T. is high in cases of previous operated fistula, high anal fistula, fistula with abscess.
- 3) Presence of infection and inflammation delays the U.C.T.

pH of drugs *Apamarga Kshara Sutra* and *Agnimantha Kshara Sutra* were compared *Apamarga Kshara Sutra* is alkaline and its pH is 9.72 whereas, *Agnimantha-Kshara Sutra* is alkaline with pH of 7.5

Patient treated with *Apamarga Kshara Sutra*, complained more burning sensation and pain in comparison with those of *Agnimantha Kshara Sutra* therapy may be *Agnimantha Kshara Sutra* being less alkaline in nature compare to *Apamarga*.

Even though *Agnimantha* being less in pH value comparing to *Apamarga* U.C.T. was found almost equal to 11.79 days/cm in control group compared to 12.54 days/cm in treated group.

By application of *Agnimantha Kshara Sutra* it does cutting layer by layer

and there is continuous drainage of fistulous track which helps in healing. The medicaments which are used to prepare the thread will dissolve the fistulous tissue of the track (Debridement by the *Ksharana* process) and *Agnimantha* stimulate the healthy granulation tissue for healing.

*Agnimantha Kshara Sutra*-in-situ encourages healing by new granulation tissue formation from the base. It not only cuts tissue, but also does continuous drainage of wound, which enables to lay the track open. Important factor is it maintains continuous aseptic condition of the tract. *Agnimantha* having Guna like *Bhedana*, *Deepana*, *Krimighna*, *Vishagna*, *Vranahara*, *Shothahara*, *Puyameha* so it cuts unhealthy fistulous tract, drainage of tract and also work as bactericidal, bacteriostatic agent.

## CONCLUSION

- ❖ There was a marked reduction of symptoms of irritation, inflammation, and local reactions in treated group as compared to control group.
- ❖ Economically minimized the problems of preparation.
- ❖ Wound healing after cut through was faster in treated group as compared to in control group.
- ❖ Post Application complications were found less in research group (*Agnimantha Kshara Sutra*) as compare to Standard group (*Apamarga Kshara Sutra*)
- ❖ Unit cutting time of both groups is highly significant shown.
- ❖ Better alternative in place of *Apamarga Kshara Sutra* because it has more acceptability and better wound healing property after cut through.

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