



Research Article

NEOTERIC TECHNIQUE TOWARDS THE MANAGEMENT OF BHAGANDARA W.S.R. TO BLIND EXTERNAL FISTULA: ARKA KSHARA SUTRA VARTI

Aarushi Prasher^{1*}, H.S.Bali²

¹P.G. Final year scholar, ²Professor & HOD, Department of Shalya Tantra, Jammu Institute of Ayurveda & Reasearch, Nardini (Raipur), Jammu.

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ABSTRACT

Background: Anal fistula is a chronic inflammatory tubular structure which is supposed to communicate with the ano-rectal canal at one end and the surface of perianal skin on the other. A classical fistula has two openings, one internal and one external. The internal opening is the primary opening and denotes the source of infection from which the fistula initially developed. During the course of its development the primary opening may sometimes close and the purulent discharge flows out through the external opening only, which is termed as 'Blind external fistula'. The description of *Bhagandara* described in *Ayurveda* can be correlated to anal fistula. **Aim:** The present work aims at analyzing *Arka Kshara Sutra Varti* (alkaline wick) employed on non-specific inter-sphincteric Grade II Fistula-in-ano where there was no internal opening (Blind-external fistula). **Materials and Methods:** 15 patients of Blind external Fistula were selected for *Arka Kshara Sutra Varti* insertion. *Arka Ksharasutra Varti* prepared by cutting a small piece of *Arka Ksharasutra* and immersed in *Jatyadi oil* was inserted inside the track. The *Varti* was changed on alternate day upto six weeks. Assessment was done on objective (Unit Healing time- UHT) and subjective parameters. **Observations:** Statistically highly significant results were obtained on subjective parameters like Pain, Discharge, Itching and Burning sensation. Average Unit Healing time (U.H.T.) was 7.16 days/cm. The track became clean and healed by six weeks completely without any recurrence in the subsequent follow-up of six months. 66.67% of patients had a completely healed tract. **Conclusion:** *Arka Ksharasutra Varti* is laced with anti-bacterial, anti-fungal, bactericidal and anti-inflammatory properties which minimizes the use of antibiotics and also demolished the recurrence of symptoms. *Kshara Sutra* wick insertion is an effective method with negligible loss of sphincter muscle tone. The introduction of *Kshara Sutra Varti* in the Fistulous tract, where internal opening was not formed, is capable of dissolving the tough fibrous tissue and ultimately draining it out, thus creating a healthy base for healing.

INTRODUCTION

Fistula-in-ano is a condition which has been recognized as a difficult surgical disease in all the ancient and modern medical sciences. It is the recurrent nature of this disease which makes it more and more difficult for treatment. *Acharya Sushruta* has considered *Bhagandara* as one amongst the *Ashta Mahagadas* [1]

i.e. eight grave diseases. *Bhagandara* is one of the commonest diseases which occur in the ano-rectal region. This is one condition for which maximum types of surgical, para-surgical and medical applications have been described. *Ayurveda* is well known for the treatment of *Bhagandara* with *Kshara Sutra* application (chemical fistulectomy) with almost negligible rate of recurrence.

The true prevalence of Fistula-in-ano is still unknown. A study showed the prevalence of Fistula-in-ano is 8.6 cases per 100,000 persons. [2]

Anal fistula is a chronic inflammatory tubular structure which is supposed to communicate with the ano-rectal canal at one end and the surface of perianal

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skin on the other. A classical fistula has two openings, one internal and one external. The internal opening is the primary opening and denotes the source of infection from which the fistula initially developed. During the course of its development the primary opening may sometimes close and the purulent discharge flows out through the external opening only, which is termed as 'Blind external fistula'.

The word "Bhagandara" literally means 'Darana' around *Guda*, *Yoni* and *Basti*. The development of *Bhagandara* is preceded with formation of a *Pidika* that is known as *Bhagandara Pidika*,^[3] in *Guda Pradesha*, which is deep-rooted and located within two *Angulas* circumference of anal orifice, associated with fever and pain. If proper treatment of *Bhagandara Pidika* is not done, it bursts and then called as *Bhagandara*. It is characterized by single or multiple openings around *Guda Pradesha* (perianal area) with various types of discharge associated with severe pain.

The very first description of *Kshar Sutra* and its role in *Bhagandara* is illustrated in *Charka Samhita* in the chapter of *Shotha Chikitsa*.^[4] *Acharya Sushruta* has described *Kshara Sutra* application in *Nadi Vrana* (sinus), where *Bhagandara* has been enumerated as one of the indications of this therapy.^[5] It was *Chakrapani Dutta* who in late eleventh century emphasized in his book *Chakradatta*, the method of preparation with a clear-cut indication of its use in *Bhagandara* (fistula-in-ano) and *Arsha* (hemorrhoids).^[6] But because of brevity of preparation and inadequate explanation of procedure of application, it lost its popularity among *Ayurvedic* surgeons. Later on effort of Dr. P.J. Deshpande, brought back the usefulness of *Kshar Sutra* for treatment of *Nadi Vrana* and *Bhagandara*.^[7]

Fistula-in-ano is a chronic granulating track connecting two epithelial lined surfaces^[8] i.e. anal canal and over skin surface. As the wound is located in anal region, it is more prone to infection and persistent pus discharge, which further irritates the patient. According to the position of internal opening the fistula is classified into high anal (internal opening above or at the ano-rectal ring) and low anal fistula (internal opening of fistula lies below the ano-rectal ring). The modern surgical management includes Fistulotomy, Fistulectomy, Seton placing,^[9] Ligation of Intersphincteric Fistula Tract (LIFT),^[10-11] Fibrin Glues, Advancement Flaps,^[12] and Expanded adipose derived Stem Cells (ASCs)^[13] etc.

The *Kshara Sutra* treatment for fistula-in-ano is now an accepted technique and has also found a place in the textbooks of colorectal surgery. But it is quite difficult to solely depend on *Apamarga* only, because of

its limited availability globally. *Acharya Sushruta* has mentioned several plants in *Ksharapaka Vidhi Adhyaya* of *Sushruta Samhita Sutrasthana* which can be employed for *Kshara* preparation. Moreover India is a vast country, with varied flora and there is also a need for search of alternate plants which may give better results. *Arka* possesses *Katu*, *Tikta Rasa*; *Laghu*, *Ruksha*, *Teekshana Guna*; *Ushna Virya*; *Katu Vipaka*; *Vedanasthapana*, *Shothara*, *Kandughana*, *Krimighana*, *Vatahara*, *Lekhana* and *Ropana* properties.^[14] The present study is aimed at highlighting the usage of *Kshara Sutra Varti* in low level fistula-in-ano other than the classical way.

AIMS & OBJECTIVES

1. To evaluate the efficacy of *Arka Kshara Sutra Varti* in Blind external Fistula-in-ano.

MATERIALS AND METHODS

A total of 15 patients of *Bhagandara* (fistula-in-ano) having signs and symptoms like, pain in ano, pus discharge, itching, burning sensation were selected from the OPD/IPD of Department of Shalya Tantra, Jammu Institute of Ayurveda and Research, Jammu and Shri Sain Charitable Multispeciality Hospital, Pamposh Colony, Janipur, Jammu irrespective of gender, occupation and religion. All the patients selected for the study were fully informed and explained about the treatment plan and written informed consent was taken from all before starting the trial.

Criteria for selection of Patients

Diagnostic criteria

The patients were diagnosed on the basis of signs and symptoms like pain, itching, discharge, burning sensation and swelling at anal region.

Examination

On local examination the number and sites of external openings of fistula that drains pus and character of discharge was observed. During P/R examination the tone of the anal sphincter whether normal or exaggerated or reduced was noted. Then the finger was gently rotated to palpate the ano-rectal ring, the dentate line, the inter-sphincteric groove and the prostate (in men) and the internal opening (which is not felt in cases of blind external fistula). Exploration of the external opening of the fistulous tract was done cautiously by using a probe, with index finger of other hand in the rectum. The amount of intervening tissue between the tip of the probe and the pulp of the index finger was estimated to gain an idea of length of wick insertion. Proctoscopy examination was also done to exclude other ano rectal pathologies such as hemorrhoids, polyp, and any other growth.

Exclusion criteria: Positive cases of Human Immunodeficiency Virus (HIV), venereal disease research laboratory (VDRL), Hepatitis-B and Covid were excluded. In this trial, uncontrolled cases of diabetes mellitus, uncontrolled hypertension and patients of tuberculosis were also excluded. Patients with any malignancies, Chronic or Acute Ulcerative colitis, Chronic Amoebiasis, Regional Ileitis, Osteomyelitis of Pelvis or Femur were also excluded from the study.

Inclusion criteria: All diagnosed cases of low anal fistula-in-ano other than exclusion criteria.

Laboratory Investigations

Routine hemogram such as Hb%, total leucocyte count, differential leucocyte count, bleeding time, clotting time and erythrocyte sedimentation rate were done. Biochemical investigations such as fasting blood sugar, postprandial blood sugar, kidney function test (blood urea and serum creatinine) and liver function test (total serum bilirubin, serum glutamic oxaloacetic transaminase and serum glutamic pyruvic transaminase) were performed on all registered patients. Human immunodeficiency virus (HIV), Venereal Disease Research Laboratory (VDRL) and hepatitis-B (HBsAg), urine analysis for albumin, sugar and microscopic examination was also performed. Stool examination for routine and microscopy was also done. Fistulogram was also done.

Procedure for Arka Ksharasutra preparation

Ksharasutra prepared by Arka Kshara (*Calotropis procera* L.), Snuhi Ksheera (latex of *Euphorbia nerifolia* L.) and Haridra Churna (powder of *Curcuma longa* L.) is same as the standard method described in Ayurvedic Pharmacopeia of India. [15]

Treatment plan

All the 15 patients were treated with Arka Ksharasutra Varti in fistulous tract and oral use of Navkarshik Guggulu, 500mg bd.

Follow-up: 6 months

Operative procedure:

Pre-operative:

Written informed consent was taken from every patient. Laboratory tests and physical examination of all patients were done for anesthesia as well as surgery point of view. Injection Tetanus Toxoid, 0.5 ml Intramuscular (IM), was given before surgery. Intradermal injection of Xylocaine 2% sensitivity test was done before surgery. The patient was kept nil orally at least 6 hours before surgery. Preparation of part i.e. shaving of perineal area, was done. Soap water enema at 10 pm at the day before surgery and proctoclysis enema at 7 am on the day of operation was given.

Operative:

The patient was kept in lithotomy position and the perianal skin was washed with antiseptic solution-Povidone iodine. The drape sheets were placed over operative area. The operative site was anesthetized with the infiltration of Inj. Xylocaine 2% with epinephrine. After achieving appropriate anesthesia, copper malleable probe was inserted from the external opening of the blind fistulous tract and along with the probe opening was incised with surgical blade no.11 to make it wide for drainage of infection. The fistulous tract was partially open with the scalpel along with the probe and a shallow wound was created. The track was cleaned with hydrogen peroxide solution, Povidone-iodine and normal saline. Then Arka Ksharasutra Varti prepared by cutting a small piece (approximately 3cm length) of Arka Ksharasutra and immersed in Jatyadi oil was inserted inside the track. The Varti was changed on alternate day upto six weeks. The track became clean and healed by six weeks completely without any recurrence in the subsequent follow-up of six months.

Assesment criteria

• **Subjective criteria:**

- i. Pain
- ii. Discharge
- iii. Itching
- iv. Burning sensation

• **Objective criteria:**

- i. U.H.T. (Unit Healing Time):
Through 5 Parameters mentioned by Acharya Sushruta for properly healed wound-
 1. Agranthim (no eruptions/swelling)
 2. Arujam (no pain)
 3. Ashunam (no swelling)
 4. Samtalam (even surface)
 5. Twaka Savarnam (Colour same of skin)

According to the presence of above mentioned five parameters, the "Healing Status" was divided into following categories:

- Complete healing- 5/5
- Moderate healing-3-4/5
- Mild healing 1-2/5
- No healing- 0/5

Grading of Assessment criteria

Subjective Parameters

1. Pain

Grade	Explanation
0	No pain
1	Negligible pain, no need of medication,

	relieved by sitz bath
2	Tolerable pain, not relieved by sitz bath, relieved by oral analgesics
3	Continuous and intolerable pain with sleep disturbance

2. Discharge

Grade	Explanation
0	No discharge
1	Mild (if wound wets 1×1 cm gauze piece)
2	Moderate (if wound wets 2×2 cm gauze piece)
3	Severe (if wound wets more than 2cm gauze piece)
4	Excruciating (continuous and profuse discharge)

3. Itching

Grade	Explanation
0	No itching
1	Mild and occasional itching, with 10-12 hours gap
2	Moderate and frequent itching, with 4-6 hours gap
3	Severe and continuous intense itching, hampering day to day activities

Results

Subjective Parameters

Parameters	Mean	Standard Deviation	Standard error	t-value	p-value	Statistical result
Pain	1.86	.516	.133	14.000	<0.001	HS
Discharge	1.73	.704	.182	9.539	<0.001	HS
Itching	1.47	.640	.165	8.876	<0.001	HS
Burning sensation	1.74	.594	.153	11.309	<0.001	HS

Objective Parameter

U.H.T. (Unit Healing Time)

S.no. of Patients	U.H.T. (Unit Healing Time)
1	6.66
2	6.00
3	7.10
4	7.40
5	8.75
6	7.00
7	7.33
8	6.00

4. Burning Sensation

Grade	Explanation
0	No complain of burning sensation
1	Occasional tolerable burning sensation, relieved by oleation
2	Constant tolerable burning sensation, slightly relieved by local oleation
3	Intolerable burning sensation making the patient uncomfortable all day long

Objective Parameter

U.H.T. (Unit Healing Time)

The healing of the fistulous tract has been termed as Unit Healing Time (UHT). It can be calculated as follows:

U.H.T. = Total number of days (from the 1st day to complete healing of the tract/ Initial length of fistula tract (in cm).

Observation

The maximum patients belonged to 31-40 years (38.71%), male (63.29%), Hindu religion (92.77%) had *Krura Koshttha* (54.88%). Most of the patients were from Labour class (43.16%). Out of 15 cases 83.33% were married. Maximum patients were vegetarian (80%) and maximum patients i.e. 66.66% were addicted to alcohol and smoking. Maximum number of patients i.e. 46.66% were found to have *Vatakaphaja Prakriti*.

9	6.50
10	8.88
11	7.20
12	8.75
13	6.25
14	6.40
15	7.30
Avg. U.H.T.	7.16

Healing status according to Ayurvedic parameters

Healing Status	No. of Patients	Percentage
Complete healing	10	66.67%
Moderate healing	03	20%
Mild healing	02	13.33%
No healing	0	-



1.Arka Ksharasutra preparation



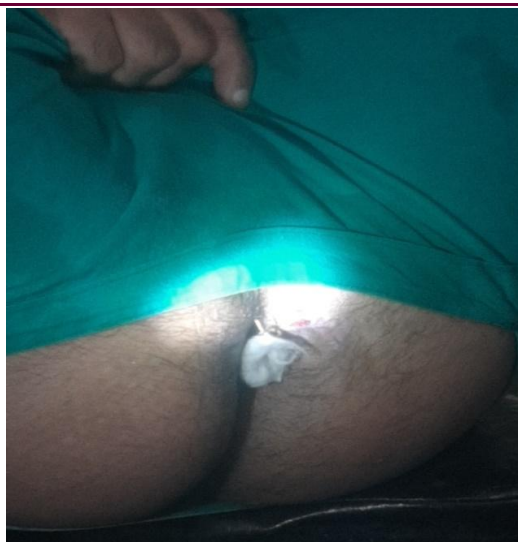
2.Before treatment



3.Probing



4.After Probing



4.Wick insertion



5.After treatment

DISCUSSION

Effect on Pain

The most probable cause of significant result of *Arka Kshara Sutra Varti* in relieving pain is due to *Vedanasthapana* (pain alleviating) property of *Arka*. Moreover *Arka* also possess *Vatahara* (alleviates *Vata Dosh*, the chief causative factor of pain) and *Shothahara* (anti-inflammatory) properties, which lead to less inflammation at the site and less pain.

Effect on Discharge

Arka possesses *Shodhana* (cleansing) and *Krimighana* (anti-microbial) properties. By the *Shodhana* (cleansing) property it sloughs away the necrosed tissue from the fistulous tract, thus it helps in formation of healthy granulation tissue. *Krimighana* (anti-microbial) property helps in reducing infection and thus reduces the pus discharge.

Effect on Itching

Arka possesses *Kandughana* (anti-itching) property which reduces itching. Moreover due to its *Ropaka* (healing) property, after proper drainage a clean fistula tract doesnot cause itching sensation.

Effect on burning sensation

Burning sensation is caused by inflammation due to infection. *Arka* is possessing *Shothara* (anti-inflammatory) and *Krimighana* (anti-microbial) properties, which resolves both inflammation as well as infection.

Overall effect of therapy

Highly significant results were obtained in terms of Pain, Discharge, Itching and Burning Sensation with p-value <0.001 in all the four parameters. Average U.H.T. is also 7.16 days/cm which is also remarkable.

CONCLUSION

Ksharasutra is an effective therapy in the management of all uncomplicated cases of fistula-in-ano with minimal surgical intervention and almost no complications and no recurrence. Although classical method is effective, but *Ksharasutra Varti* is a simple, effective, minimum time consuming and much economical technique for low anal fistula. *Arka Ksharasutra Varti* is laced with anti-bacterial, anti-fungal, bactericidal and anti-inflammatory properties which minimizes the use of antibiotics and also demolished the recurrence of symptoms. *Kshara Sutra* wick insertion is an effective method with negligible loss of sphincter muscle tone. The introduction of *Kshara Sutra Varti* in the Fistulous tract, where internal opening was not formed, is capable of dissolving the tough fibrous tissue and ultimately draining it out, thus creating a healthy base for healing. Its gradual and sustained chemical action not only removes the debris from the site of fistula but also encourages fresh healthy granulation tissue thereby inducing a long awaited healing pattern in the depth of tissues. However, comparative clinical studies on larger samples may be required to analyze the efficacy of this newer technique.

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***Address for correspondence**

Dr. Aarushi Prasher,
P.G. Final year Scholar,
Department of Shalya Tantra,
Jammu Institute of Ayurveda &
Research, Nardini (Raipur), Jammu.
Email:
aarushimoudgil04@gmail.com
Contact no: 7889766691

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