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Comparative study of standard ksharsutra (alone) application and partial fistulectomy along with standard *Ksharasutra* application in patients with fistula-in-ano.

Rajendra H Amilkanthwar, Bharat Sheshrao Tompe

1. Associate Professor-Shalya Tantra Department , Govt. Ayurved College, Nanded, Maharashtra, India
2. Associate Professor & Head ShalyaTantra Department, Vasantdada Patil Ayurvedic Medical College & Institution of Yoga, South Shivajinagar, Sangli.

***Corresponding author:** bharattompe@gmail.com

Abstract:

One of the difficult to treat *Aushtaumahagada Vyadhis*, according to Acharya Sushruta, is *Bhagandara* (fistula in ano). The most common ano rectal abnormality worldwide is the fistula, which is ranked second only to haemorrhoids. 12.3 instances per 100,000 men and 5.6 cases per 100,000 women are the prevalence rates for this condition. There are 1.8 more men than women. Medical professionals are still struggling to treat the condition. *Chedana* Karma (surgical removal) has been mentioned by Acharya Sushruta as a treatment option for *Bhagandara*. The use of the *Ksharasutra* in the Nadi Vrana (Sinus) *Chikista* has also been mentioned. The current clinical investigation assesses the effectiveness of both the usual *Ksharasutra* treatment and partial fistulectomy. In the current clinical research, the effectiveness of standard *Ksharasutra* application and partial fistulectomy is assessed. The study comprised a total of 60 patients, who were split into the control and trial groups, each of which contained 30 patients. Patients in the control group received conventional *Ksharasutra* treatment, but those in the experimental group underwent partial fistulectomy in addition to standard *Ksharasutra* application. The following assessment criteria were used to evaluate the results: pain, discharge, track length, and unit cutting time. In the study group, there was a noticeable improvement in clinical characteristics.

Keywords: *Fistula, Bhagandara, Fistula in ano, Partial Fistulectomy, Fistulectomy, Ksharsutra, Bhagandara chikitsa.*

INTRODUCTION:

Fistula is a Marma asrita Vyadhi that mostly affects the Guda and Basti; symptoms include formation of excess tract, painful openings near the anal region, discharge and a burning feeling,

pus formation, and a bad odour close to the anal sections. This illness was regarded by Ayurveda as one of the Ashta Mahagada (Madhyama Rogamarga ailment by Krichrasadhya Vyadhi). Ayurveda, a traditional medical science, as well as modern medicine have both outlined several therapeutic techniques, including surgical and non-surgical approaches, for the management of fistula. The purpose of the present article was to summarise some significant ayurvedic and contemporary methods used to treat fistulas in order to examine literary contributions in this field.

There are changes or irregularities in diet, diet timings, and sedentary lifestyle in the current fast-food era. All of these factors disrupt the digestive system, which leads to a variety of diseases, of which ano-rectal disorders are a significant subset. Fistula-in-ano, Fissure-in-ano, and haemorrhoids are among the most prevalent ano-rectal ailments. Both ancient and contemporary medical professionals have regarded certain illnesses as being difficult to treat[1].

The most common anal fistulas are low fistulas (low inter- and low trans-sphincteric), which are easily repaired with the laying-open approach. Since the traditional laying-open procedure would result in the division of the majority of the sphincter muscles, which causes incontinence, high fistula-in-ano (high trans-sphincteric, supra-sphincteric, or extra-sphincteric) are difficult to cure.

Surgery for fistulas ultimately aims to remove them with little to no disruption of the anal sphincter mechanism. Various surgical procedures, such as Park's fistulotomy, seton insertion, fistulotomy with primary sphincter repair, etc., have been documented in the literature. There is no one proven method of treating fistula, as seen by the sheer number of methods discussed. As a result, a different approach that combines surgical and Para surgical procedures was developed.

In this study two methodologies were adapted to measure the outcomes of pain, discharge and wound healing process. The current clinical investigation assesses the effectiveness of both standard *Ksharasutra* treatment and partial fistulectomy. Patients in the control group received standard *Ksharasutra* treatment; however, in the experimental group, the combined effects of partial fistulectomy and standard *Ksharasutra* application were assessed.

Objectives:

- To analyse the impact of a partial fistulectomy combined with the traditional *Ksharasutra* on a fistula in ano.
- To minimise the duration of receiving *Ksharasutra* therapy for fistula in ano.

MATERIALS AND METHODOLOGY:

Patients were selected from OPD and IPD of the Shalyatantra Department at Vasantdada Patil Ayurvedic Medical College & Institution of Yoga's, Sangli. Irrespective of their age, religion, race, occupation, or other characteristics, a total of 60 patients with fistula in ano meeting the selection criteria and ethical guidelines were chosen at random. Each patient gave their informed consent. There were two groups of patients, each with 30 patients.

Control Group – Treated with Standard *Ksharasutra*

Trial Group – Treated with Partial Fistulectomy along with Standard *Ksharasutra*

In order to perform partial fistulectomy and initial *Ksharasutra* insertion, spinal anaesthesia was administered in each case.

All patients received the proper analgesics and antibiotics for three days following surgery.

Inclusion criteria:

- Patients diagnosed with low and high anal fistula.
- Single track Fistula having track length up to 10 cm.

Exclusion Criteria:

- High rectal Fistula in ano.
- Fistula in ano having track length more than 10 cm.
- Secondary fistula due to Crohn's disease, Tuberculosis, Carcinoma of Rectum and anal canal and Ulcerative colitis[2].
- Patient with uncontrolled comorbidities like Hypertension, Diabetes mellitus, severe anaemia and immune compromised patients.
- Patient with rectal prolapse and anal polyps.

Procedure:

	Grade Explanation
0	No sign of any discharge
1	Occasional appearance of discharge and patient use single cotton pad in 24 hrs.
2	Frequent appearance of discharge and patient use 2-3 cotton pads in 24 hrs.
3	Increased frequency of discharge and patient use more than 3 cotton pads in 24 hrs

The anal region was cleaned by antiseptic lotion and all the hairs were removed. Mild laxative like *triphala choorna* 3 gms were given one day prior to surgery to all patients in both groups. All aseptic precautions were taken before all procedures. Patient was given lithotomy position and mild analgesic was given before the application of standard *Ksharasutra*. *Nadi sweda* was given to relax the sphincter. This helps in smooth application of *Kshara* sutra. To create a bloodless field, diluted adrenaline solution was injected around the track and the inter-sphincteric plane. The internal opening of the anal orifice was discovered by gently inserting the lubricated index finger of the same side into it and placing the tip over it. The full course of the fistulous tract was investigated after the malleable probe had been inserted through the exterior aperture.

The index finger in the rectum was used to try and steer the probe towards the main orifice by negotiating the probe tip with the fingertip. It was our goal to avoid writing a fake passage at any costs. The probe is driven lower by the finger in the rectum once it has been inserted into the ano-rectal canal, and at the same time, its handle is pulled upward to cause the probe's tip to protrude outside the anal opening.

Assessment Parameters:

A. Pain

The VAS scale was used to evaluate pain. This is the generally recognised standard for measuring pain. Initial pain score was assumed to be 10 in all patients when

Kshara sutra was first inserted during the measurement of pain criteria. On the seventh day, the patient was asked to rate their level of pain using a numeric scale during the Kshara sutra alteration procedure. Comparing the pain score before and after therapy, statistical analysis was performed.

B. Discharge

By examining the soakage on the cotton pad placed on the track's exterior entrance, the discharge from fistulous tracks was identified, and grades were assigned in accordance with the results. The amount of discharge was measured using cotton pads that were 8" x 10" (20.3 cm x 25.4 cm) in size.

C. Unit cutting time (U.C.T.)

U.C.T. = Total no. of days required to cut through the track

Initial length- final length of track

The average number of days needed to cut through one cm of fistulous track is given by U.C.T. Days/cm is the unit of unit cutting time (U.C.T.). the cutting here Time not only depicts the speed of the track's cutting it also addresses the state of healing. Typical U.C.T. is a comparative metric used to evaluate the effectiveness of the *Ksharasutra*, the study's primary source.

Therapy duration: The overall length of the therapy was eight weeks. what stage of the patients' follow-up for *Ksharasutra* modification and clinical evaluation parameters were recorded every seventh day.

Statistical Analysis:

The for pain and discharge data was analysed in percentage format, to understand the exact improvement and for UCT Independent T test was used to compare results between control and treatment group

RESULTS:

For both groups 30 patients each with ano-rectal fistula were selected. All the patients completed the clinical study. Majority of the patients were male patients in both groups (68%). Average age of the patients in each group was 44.8 (age group= 35- 45 years).

Parameter	Groups	Week 1 score	Week 8 score	Difference	% of Improvement
Pain	Control	280	204	76	27.14
	Treatment	277	121	156	56.32
Discharge	Control	83	52	31	37.35
	Treatment	81	37	44	54.32

Pain was assessed on VAS scale. In control group 27.14% improvement in pain was observed, while in Treatment group 56.32% improvement in pain was seen. In control group 37.35% improvement in discharge was observed, while in treatment group 54.32% improvement in discharge was seen.

Independent T Test:

The independent samples t-test is used to evaluate the means of two unrelated

groups of samples. This suggests that various people are assigning ratings to each group. The goal of this test is to see if the samples differ from one another.

Group	UCT CONTROL GROUP	UCT TREATMENT GROUP
Mean	44.43	33.33
SD	6.55	7.09
SEM	1.2	1.29
N	30	30

P = 0.0001 t value = 6.3008 df = 58

There was highly significant difference between the control group and treatment group in unit cutting time. The calculated t- value was higher than t- critical value (2.00) at 95% confidence level.

DISCUSSION:

Clinical studies have proven the most fruitful avenue for developing diagnostic and treatment procedures. It is at the centre of the research. The current clinical trial attempted to investigate and present the efficacy of Partial Fistulectomy in conjunction with Standard *Ksharasutra* treatment in Fistula in ano. *Ksharasutra* has long been employed in the management of *Bhagandara*. Given the length and pain connected with *Ksharasutra* Chikitsa, global acceptance has proven challenging. Chhedana Karma has also been recommended by Acharya Sushruta to handle *Bhagandara*.

Ancient Indian literature mention the use of "chemical" Seton (*Ksharasutra*) for the treatment of fistula-in-ano[4] These setons are manufactured from plant extracts that have been soaked in layers onto a cotton thread with latex. The *Kshara* (caustics)[5] used on the thread are anti-inflammatory, anti-slough, and have chemical curing characteristics[6] Because the *Ksharasutra* remains in direct contact with the tract, it physically and chemically curettes it out and sloughs off the epithelial lining, allowing the fistulous tract to collapse and heal. This process has also been modified in several ways[7,8].

The gradual but persistent chemical action of *Kshara sutra* eliminates detritus from the site of the fistula and aids in the creation of healthy granulation tissue, causing a lengthy healing pattern. *Kshara* sutra also destroys stiff fibrous tissue and eventually drains, leaving a healthy foundation for recovery.

Thus, in the current study, both *Chhedana Karma* (Partial Fistulectomy) and *KsharaKarma* were utilised in tandem to reduce discomfort and treatment time. Clinical characteristics improved significantly in individuals who underwent Partial *Fistuectomy* combined with Standard *Ksharasutra* insertion.

CONCLUSION:

Fistulotomy, Fistulectomy, and other surgical interventions were ineffective due to high recurrence and post-operative morbidity. Under these conditions, kshara sutra ligation therapy provides a ray of hope.

Based on the findings, the study reveals that partial fistulectomy, in conjunction with *Ksharasutra* insertion in a fistula in *ano*, plays a major role in lowering discomfort, discharge, and, most importantly, treatment length, since unit

cutting time was shown to be better in the trial group.

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