

Evaluation of encircling anal canal by Kshara sutra therapy in rectal prolapse (*Gudabhramsa*)

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Abstract

Background and Aim: The anorectal diseases have been known from thousands of years. In Ayurveda, *Acharya Sushruta* has described *Gudabhramsa* (rectal prolapse) under the heading of *Kshudra roga*. *Kshara sutra* (medicated thread) has been proved to be a big revolution in the treatment of Anorectal diseases. Encircling of anal canal by *Kshara sutra* therapy is *Kshara sutra* therapy used in a rectal prolapse. **Materials and Methods:** A total of 33 patients of both genders of prolapse rectum have been selected randomly after taking written consent and treated with three different types of *Kshara sutra* followed in the “Anorectal clinic” of S. S. Hospital, Institute of Medical Sciences, Banaras Hindu University. **Results:** *Udumber Kshara sutra* (81.8%) was significantly equally effective in terms of pain reduction as compared to *Guggulu Kshara sutra* (81.8%), but *Snuhi Kshara sutra* (63.6%) was less effective. *Udumber Kshara sutra* (81.8%) is more effective in terms of discharge reduction as compared to *Snuhi Kshara sutra* (72.7%) and *Guggulu Kshara sutra* (72.7%) which was equally significant. *Udumber Kshara sutra* (90.9%) was significantly more effective in terms of tenderness reduction as compared to *Guggulu Kshara sutra* and *Snuhi Kshara sutra*. **Discussion and Conclusion:** Pain and tenderness were comparatively lower in group treated with *Udumber Kshara sutra* as compared to *Guggulu Kshara sutra* and *Snuhi Kshara sutra*. *Udumber Kshara sutra* is equally effective in terms of reduction in discharge observed during the treatment as *Guggulu Kshara sutra* and least by *Snuhi Kshara sutra*. *Udumber Kshara sutra* is equally effective as *Guggulu Kshara sutra* in terms of wound healing.

Key words: Encircling of anal canal by *Kshara Sutra* therapy, *Gudabhramsa*, prolapse rectum

INTRODUCTION

Acharya Sushruta has described *Gudabhramsa* under the heading of *Kshudra roga*,^[1] *Acharya Charaka* has described *Gudabhramsa* in the chapter of *Vamana virechana vyapat* as a complication of *Samshodhana Chikitsa* by the name of *Vibhramsha*^[2] and *Acharya Vagbhatta* described *Gudabhramsa* in the context of *Atisara Chikitsa*.^[3] Exact etiology has been explained for the 1st time by *Acharya Sushruta*. According to him, *Gudabhramsa* is a disease in which patient becomes weak and lusterless and due to excessive straining during defecation or having diarrhea, internal part of *Guda* comes out. Its clinical features (such as *Atisara*, weak and wasted body of person, and deficiency of ischioanal fat) are very similar to rectal prolapse.

As it is well known from the view of modern and ayurvedic literature that the conservative treatment is hardly appropriate to manage such type of patient; therefore, parasurgical, conservative, and surgical treatment are left as treatment of choice. Surgical treatment has also various lacunae such as recurrence, general condition of patient not permitting anesthesia and surgical procedure, old age, and not willing for surgical treatment, thereby *Kshara karma* (*Kshara Sutra*) has been advocated in such type of patients.

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In Thiersch operation, we use non-absorbable thread which usually causes wound infection, fistula formation, and thus not always accepted by various patients a foreign body retained inside forever can cause pain, discharge, etc. Therefore, a modification has been done in Thiersch operation, in place of Seton, *Kshara sutra* is applied. The process is termed as encircling of anal canal by *Kshara sutra* (EACKS) as *Kshara sutra* is applied at the level of anal canal. The purpose of this work was comparatively evaluated three different types of *Kshara sutra* in prolapse rectum. Previous work done on modified Thiersch operation with *Kshara sutra* showed encouraging result as compared to Thiersch operation. Hence, the present study is planned to compare the overall efficacy and compliance of various type of *Kshara sutra* in terms of post-operative pain and discharge.

Gudabhramsa (Prolapse Rectum)

Ebers Papyrus first described it around 1500 BC. Rectal prolapse occurs when a mucosal or full-thickness layer of rectal tissue protrudes through the anal orifice.^[4] Rectal prolapse involves descent of full or partial thickness of rectal wall associated with pelvic floor dysfunction.

Incidence of Prolapse Rectum

- Rectal prolapse usually affects the elderly people. This situation is also seen in infants and children between 1 and 3 years of age, with the peak incidence in the 1st year of life a time. Overall incidences of rectal prolapse are 4.2/1000 population, but in older than 65 years, incidence is 10/1000 population.^[5]
- During this time period, rectal mucosa is loosely attached to the underlying muscularis and flattening of sacrum, which predisposes to prolapse. It is also the time of learning to develop continence.^[6,7]
- During childhood, rectal prolapse occurs with equal frequency in boys and girls but in older age, male:female ratio is 1:6.^[8,9]
- As many as 50% of prolapse cases are caused by chronic straining with defecation and constipation.
- Other predisposing conditions include the following: Pregnancy, previous surgery, diarrhea, benign prostatic hypertrophy, pertussis (whooping cough), amebiasis, and stool withholding disorder.

Etiology and Pathophysiology

Two competing theories of rectal prolapse evolved in the 20th century. Alexis Moschowitz proposed that rectal prolapse is caused by a sliding herniation of the pouch of Douglas through the pelvic floor fascia into the anterior aspect of the rectum; however, Broden and Snellman were able to show convincingly that procidentia is basically a full-thickness rectal intussusception starting nearly three inches

above the dentate line and extending beyond the anal verge. Both the above explanations have taken into consideration that rectal prolapse occurs due to weakness of pelvic floor.

In Ayurveda, *Acharya Sushruta* has mentioned in the context of *Vatavyadhi Nidan* that *Apanavayu* which remain present in the *Pakvashaya* is responsible for normal function of *Vasti* and *Guda*. This *Apanavayu* on being vitiated gives rise to various anorectal diseases.^[10] Exact etiology has been explained for the 1st time by *Acharya Sushruta*. According to *Acharya Sushruta*, *Gudabhramsa* is a disease in which patient is weak and lusterless and due to excessive diarrhea or straining during defecation, internal part of *Guda* comes out.

Signs and Symptoms of Prolapse Rectum

- Degrees of fecal incontinence (50–80% of patients) which may simply present as a mucous discharge.
- Constipation (20–50% of patients) also described as tenesmus and obstructed defecation.
- Feeling of bearing down.
- Rectal bleeding.
- Diarrhea and erratic bowel habits.

EACKS Therapy

Various surgical procedures are suggested for rectal prolapse, from perineal approaches like simple Thiersch's operation to major abdominal operations such as rectopexy and rectosigmoidectomy. These need abdominal approach, well-equipped operation theater, trained surgeons, etc. There is no consensus regarding the most effective surgical procedure for rectal prolapse.

However, none of them gives 100% satisfactory results; *Kshara Sutra* is a revolutionary step and was adopted at many surgical centers. In Thiersch operation, we use non-absorbable thread which usually causes wound infection, fistula formation, and thus not always accepted by various patients a foreign body retained inside forever can cause pain, discharge, etc.; therefore, a modification has been done in Thiersch operation. In place of Seton, *Kshara sutra* is applied. The process is given a term called as EACKS as *Kshara sutra* is applied at the level of anal canal. In this study, three different types of *Kshara Sutras* of *Snuhi*, *Guggulu*, and *Udumber Latex* are used for prolapse rectum.

Kshara Sutra Therapy in Ayurveda

Complete and detail descriptions are not available in *Sushruta Samhita*. In general, in management of anorectal disorders, *Acharya Sushruta* (800 BC) described four-folded line of approach as *Bhaisaja chikitsa*, *Kshara karma*, *Agni karma*, and *Shashtra karma*. Among all these therapies, *Kshara karma* has become very useful and recently modified method of

treatment for selected anorectal diseases.^[11] The present form of *Kshara sutra* therapy was initiated by Dr. P. S. Shankaran and subsequently established scientifically by Prof. P. J. Deshpande through several researches and development in the Department of Shalya Tantra at Banaras Hindu University. The process of development was supported in the past few decades by eminent scholars such as Prof. K. R. Sharma, Prof. G. C. Prasad, Prof. S. N. Pathak, and others from same department.^[12] Now, *Kshara sutra* therapy has been accepted globally and has emerged as a gold standard treatment for anorectal diseases.^[13] The Indian Council of Medical Research has validated this unique and effective approach.^[14]

MATERIALS AND METHODS

Method of Study

Kshara sutra is in clinical practice in the Department of Shalya for so many years. In the present study, *Snuhi Kshara sutra*, *Guggulu Kshara sutra*, and *Udumber Kshara sutra* have been prepared. These *Kshara sutras* are evaluated clinically. Thus, a clinical study is planned on the patients of *Gudabhramsā* (rectal prolapse) attending the Shalya Outpatients Department (OPD), S. S. Hospital, Institute of Medical Sciences (IMS), Banaras Hindu University (BHU), Varanasi. The total number of patients was 33 and 11 patients were in each group.

Place of Study

This study was conducted in the OPD and IPD. of Shalya Department, S. S. Hospital, IMS, BHU, Varanasi.

Selection of the Patient

A total of 33 patients of both genders of prolapse rectum have been selected randomly after taking written consent and treated with the three types of *Kshara sutras* followed in the "Anorectal clinic" of S. S. Hospital, IMS, BHU.

Ethical Clearance

The study was approved by the Ethical Committee of IMS, BHU vide letter no. Dean/2011-2012/EC/296, dated 01 November 2011.

Inclusion Criteria

Patients diagnosed to have prolapsed rectum and those unwilling for surgery are randomly included in the study irrespective of age, sex, chronicity, *Prakriti*, and type of particular disease.

Exclusion Criteria

Anemic (hemoglobin [Hb] <9 gram %) and malnourished patient, bleeding disorder, uncontrolled diabetes mellitus, tubercular patient, pregnancy, malignancy suggested by biopsy, HIV-positive patient, and hepatitis B surface antigen (HBsAg)-positive patient were excluded from the study.

Grouping and Design

Group	Group A	Group B	Group C
Contents	<i>Snuhi Kshara sutra</i>	<i>Guggulu Kshara sutra</i>	<i>Udumber latex Kshara sutra</i>
	Barbour thread number 20	Barbour thread number 20	Barbour thread number 20
	<i>Snuhi kshira</i>	<i>Guggulu extract</i>	<i>Udumber latex extract</i>
	<i>Apamarga Kshara</i>	<i>Apamarga Kshara</i>	
	<i>Haridra powder</i>	<i>Haridra powder</i>	

Method of Treatment Resumes

It includes:

- Preparation of three types of *Kshara sutra*
- Examination of the patient
- Application of three types of *Kshara sutra* in patients.

Investigations

- Blood: Hb%, total lymphocyte counts, differential leukocytes count, erythrocyte sedimentation rate, fasting blood sugar, postprandial blood sugar, computed tomography, BT, blood urea, and s. creatinine
- Urine: Routine and microscopy
- Stool: Ova and cyst; occult blood
- HIV and HBsAg
- Chest X-ray, electrocardiogram: As and when required.

Procedure of EACKS Therapy

- EACKS procedure has been performed under local infiltration of 10 ml of 1% xylocaine.
- A stab incision is given at 12 o'clock position. *Kshara sutra* is inserted from that opening and taken out from other side, i.e., 6 o'clock.
- Similarly, the procedure is repeated for opposite side. Then an index finger is inserted in the anal canal and thread is assessed and tightened.
- A knot is tied at the 6 o'clock position. Then, local dressing has been done with betadine solution and T bandage was tied with rubber tube in anal canal.
- This procedure is considered as modified Thiersch technique and termed as EACKS.
- Whole procedures of EACKS Therapy showed in Figures 1-5.

Post-Kshara Sutra Regime

The patient is advised to have sitz bath twice a day. Ambulation of the patients is made as a routine to encourage all the patients to remain as active as possible and to lead a normal life. The patients are advised to take easily digestible diet along with adjuvant therapies if required.

Method of Assessment Criteria

During the trial and follow-up study, the patients of prolapsed rectum were assessed on the basis of subjective and objective parameters such as pain, discharge, tenderness, and sphincter tone. The total information of subjective or objective assessment preoperatively or postoperatively has been done in a systemic and scientific manner on regular information. The treatment effect has assessed on the basis of the relief of signs and symptoms of the major symptoms of the disease.

Subjective criteria	Objective criteria
Prolapsed rectum	Time taken to the formation of ring in prolapsed rectum (in days)
Pain	Complete healing time
Tenderness	Pain relief day
Discharge per anum	Serial photography
Sphincteric tone	Analysis of anal continence

OBSERVATION AND RESULTS

After the fourth follow-up, 63.6% of patients of Group A had no pain with mean \pm standard deviation (SD) 0.36 ± 0.505 in $P = 0.003$, whereas 81.8% of patients in Group B with mean \pm SD 0.20 ± 0.422 and $P = 0.002$ and 81.8% of patients of Group C with mean \pm SD 0.18 ± 0.405 and $P = 0.007$ had no pain and it was statistically significant in all the groups [Table 1].

After the fourth follow-up, 72.7% of patients of Group A had no discharge with mean \pm SD 0.27 ± 0.467 and $P = 0.006$, whereas 72.7% of patients in Group B with mean \pm SD 0.27 ± 0.467 and $P = 0.006$ and 81.8% of patients of Group C with mean \pm SD 0.20 ± 0.422 and $P = 0.007$ had no discharge and it was statistically significant in all the groups [Table 1].

After the fourth follow-up, 63.6% of patients of Group A had no bleeding with mean \pm SD 0.36 ± 0.505 and $P = 0.046$, whereas 81.8% of patients in Group B with mean \pm SD 0.18 ± 0.405 and $P = 0.004$ and 90.9% of patients of Group C with mean \pm SD 0.09 ± 0.302 and $P = 0.004$ had no tenderness and it was statistically significant in all the three groups [Table 1].

DISCUSSION

Rectal prolapse is defined as the herniation of rectum outside through anal orifice anus. It is subdivided into partial and complete prolapse. The term procedentia refers to the complete variety. It is most common at 3–5 years of

Table 1: Distribution of severity of post-operative pain, discharge, and tenderness in patients of prolapse rectum

Symptoms	Between the group comparison Wilcoxon signed-ranks test							
	Group		Mean	Std. deviation	% relief	Z	P value	Significant
Pain	Group A	F0	2.27	0.647	63.6	2.994	0.003	HS
		F4	0.36	0.505				
	Group B	F0	1.70	0.949	72.7	3.066	0.002	HS
		F4	0.20	0.422				
	Group C	F0	2.09	0.539	81.8	2.714	0.007	HS
		F4	0.18	0.405				
Discharge	Group A	F0	1.73	0.905	72.7	2.724	0.006	HS
		F4	0.27	0.467				
	Group B	F0	1.55	0.820	90.9	2.724	0.006	HS
		F4	0.20	0.422				
	Group C	F0	1.70	0.949	90.9	2.714	0.007	HS
		F4	0.20	0.422				
Tenderness	Group A	F0	1.55	1.036	63.6	2.565	0.010	S
		F4	0.36	0.505				
	Group B	F0	1.55	0.820	81.8	2.913	0.004	HS
		F4	0.18	0.405				
	Group C	F0	2.50	0.527	90.9	2.842	0.004	HS
		F4	0.09	0.302				



Figure 1: Prolapse rectum

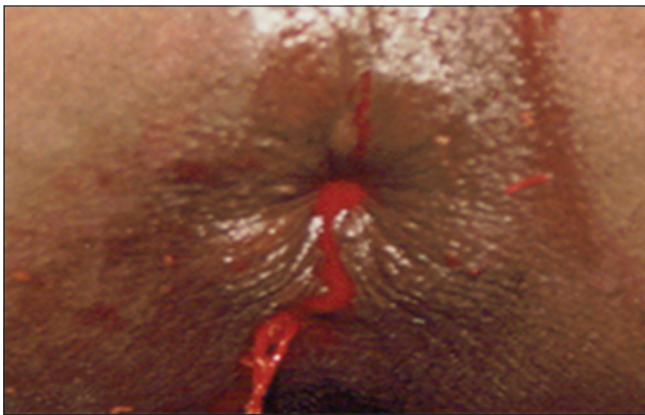


Figure 2: Prolapse rectum ligation



Figure 3: Cutting thread after 15 days

age. Rectal bleeding and mucoid discharge are frequent symptoms. Incontinence is frequently associated with this condition. The main clinical feature of rectal prolapse is a protruding of mass following defecation. Rectal bleeding may be noted following bowel activity. Rectal prolapse frequently is accompanied by a mucoid discharge.^[15]

The aim of the treatment should be in addition to correction of the prolapse, the functional disturbances also should be corrected. Among factors to consider in the selection of a treatment option are the age and health of the patient,



Figure 4: After cutting of thread



Figure 5: After 21 days

functional results, and the benefits versus the advantages and disadvantages of the surgical technique.

Ayurveda creates some opportunities to manage rectal prolapse. Rectal prolapse can be correlated with the clinical features of *Gudabhramsa*. Management of *Gudabhramsa* is described in *Ayurvedic* literature as different modality. In Thiersch operation, we use Seton or non-absorbable thread which usually causes wound infection, fistula formation, and thus not always accepted by various patients as foreign body retained inside forever can cause pain, discharge, etc.; therefore, a modification has been done in Thiersch operation. In place of Seton, *Kshara sutra* is applied. The process is given a term called as EACKS as *Kshara sutra* is applied at the level of anal canal, after reduction of the prolapse, which is then made taut to prevent further prolapse [Figure 6].

Summary

In this study, three different types of *Kshara sutras* (*Snuhi*, *Guggulu*, and *Udumber latex Kshara sutra*, respectively) were used to assess their efficacy in a total of 33 patients of *Gudabhramsa* divided equally in three groups. Here, in this

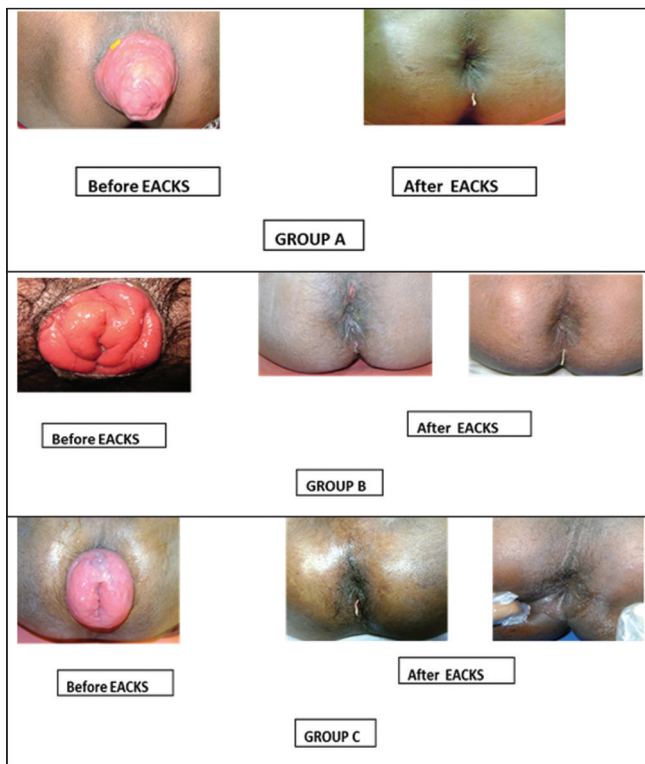


Figure 6: Response of treatment by photograph

study, a modified technique with *Kshara sutra* is used which is termed as “Encirclement of Anal Canal by *Kshara sutra*” (EACKS). The data obtained were statistically analyzed and interpreted. Summary of these results is as follow:

- With regard to age, maximum patients are of the extreme age.
- Female predominance was found to be higher in this study it might be due to laxity of perineum muscles with advancing age.
- Maximum patients suffer from constipation. As constipation is one of the two main functional disorders associated with rectal prolapse.
- Pain and tenderness were comparatively lower in group treated with *Udumber Kshara sutra* as compared to *Guggulu Kshara sutra* and *Snuhi Kshara sutra*.
- *Udumber Kshara sutra* is equally effective in terms of reduction in discharge observed during the treatment as *Guggulu Kshara sutra* and least by *Snuhi Kshara sutra*.
- *Udumber Kshara sutra* is equally effective as *Guggulu Kshara sutra* in terms of wound healing.
- With regard to sphincteric tone, patients of Group C show better sphincteric tone as compared to other groups.
- With regard to fibrosed ring formation, least time taken for its formation is by Group C.

CONCLUSION

This EACKS involves minimal degree of surgical trauma and can be performed on OPD basis also. It should be tried in the rural areas where minimal surgical facilities are available.

It is very cost effective. Hence, in nutshell, it can be said that *Udumber Kshara sutra* is recommended as a better parasurgical option because it is technically simple to prepare and hospital stay is short, rapid healing, and fewer side effects. In this study, there were no major side effects myonecrosis, incarceration, and strangulation, but after application of these three *Kshara sutras*, no such case was reported.

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