



Research Article

ROLE OF *KARANJADI GHRITA* FOR THE MANAGEMENT OF *BHAGANDARA* (FISTULA-IN-ANO)

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ABSTRACT

In Ayurveda, fistula-in-ano is known as *Bhagandara* which considered in *Asta Mahagada*. This disease has been considered in *Asta Mahagada* in Ayurvedic classics due to its complications and more recurrence rate. Nowadays this disease is increasing due to more prone to sedentary life style. Using of *Kshara Sutra* therapy in case of *Bhagandara* is for a long time. *Kshara Sutra* therapy is big revolution in the case of this disease, but it has still challenges for finding satisfactory cure. It has some complications like severe post-procedural pain, burning sensation, inflammation, discharge, itching and enhances the *Pitta Dosha*. To overcome these complications of *Kshara Sutra*, a clinical study was conducted that using of *Karanjadi Ghrita* by their local application after the therapy of *Kshara Sutra*. Mainly, the contents of *Karanjadi Ghrita* have cleaning and healing properties. Maximum ingredients of this medicine were having *Tikta* and *Kashaya* in *Rasa*. *Tikta* and *Kashaya rasa* promote the ulcer healing by his *Shodhana* and *Ropana* properties. Some of the drugs of *Karanjadi Ghrita* have analgesic properties, reduce inflammation qualities and reduces burning sensation properties. *Karanjadi Ghrita* has stopped bacterial growth and their toxicity by the reduce infection and reduce toxicity properties of ingredients. It proves that *Karanjadi Ghrita* reduces the *Pitta Dosha* and overcome the complications. It was found that *Karanjadi Ghrita* with *Kshara Sutra* was more efficient and can be considered a better method.

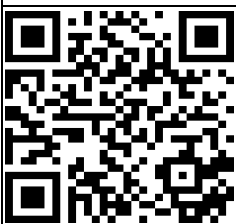
INTRODUCTION

Sushruta, the father of surgery has narrated 8 *Mahagadas*; *Bhagandara* is one among the *Mahagadas*.^[1] Fistula-in-ano is the most common disease of the ano-rectum, which is characterized by single or multiple sinuses with purulent discharge in perianal area. It is a communicating track between two epithelial surfaces, commonly between a hollow viscus and the skin (external fistula) or between two hollow viscera (internal fistula). The track is lined with granulation tissue which is subsequently epithelialized.^[2]

It becomes a very notorious disease because of its anatomical situation, recurrences and difficult to cure. The most common cause of fistula-in-ano is anal gland sepsis. The fistulous track is nothing but a passage of fibrous tissue, the walls of which are unable to collapse. The fibrous tissue does not permit the fresh and healthy granulation tissue to cover the space. In Ayurveda, similar conditions have been described by various texts and have been termed *Bhagandara*. According to *Charaka* the extremely painful boil near the anus when suppurates and bursts results in *Bhagandara*.^[3] *Sushruta*, similarly mentions *Bhagandara* as the suppurating stage of a boil in the perianal region. The word *Bhagandara* literally means splitting or *Daran* around *Guda*, *Yoni* and *Basti*. Thus it conveys that fistula-in-ano is a very painful, dischargeable and uncomfortable condition which presents a challenging situation from the view point of surgeons and a constant source of anxiety and agitation for the sufferer. In this study, the selected drugs as *Karanjadi Ghrita* is the first choice because it

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decreases post ligation *Kshara Sutra* complication, i.e., pain, burning sensation, discharge and itching by uses locally. As well as the standard *Kshara Sutra* applied which helps to the cutting in the tract of fistula-in-ano.

REVIEW

Objective of the Study

1. To enhance the healing process after the cutting of fibrous tract and relieve the patients from discomforts like burning sensation, pain and inflammation that remains for 2-3 hours after each thread change.
2. To develop more simplified and ideal therapy with addition to more healing effect and less discomfort to the patient along with other therapies.
3. To study indigenous medicines; this is described by the *Sushruta* in the management of *Paittic Vidradhi* as healing agent.

Ayurvedic Review

In Ayurveda, the word *Bhagandara* is formed by the combination of two words *Bhaga* and *Darana*. The word *Bhaga* means perineum, but it includes *Basti* (bladder), *Guda* (rectum) region and *Darana* means breaking or tearing of tissues.^[4]

According to *Sushruta*, *Bhagandara* has a deep rooted *Pidika* (boil) around the *Guda* within two angular circumferences, processes with fever and pain.^[5]

There are four characteristic features of *Bhagandara*:

1. Formation of a boil that is called *Pidika* and when it bursts, it is called as *Bhagandara*.
2. The boil should be within two finger circumference of anal orifice.
3. Deeply rooted with single or multiple openings.
4. Associated with pain, discharge and fever.

It is also defined as when the *Pidika* (abscess) bursts open and the discharge of puss takes place, it is termed as *Bhagandara*.

According to modern text, fistula-in-ano is an abnormal communication between the anal canal and the perianal skin which usually results from an ano-rectal abscesses which burst spontaneously or are opened inadequately. Hence, *Bhagandara* is much similar to the fistula-in-ano.

Classification of *Bhagandara*

According to *Sushruta*, there are five types of *Bhagandara*:

1. ***Shataponaka***: Originating from *Vata*
2. ***Ushtragreeva***: Originating from *Pitta*
3. ***Parisravi***: Originating from *Kapha*
4. ***Shambukavarta***: Originating from *Tridosha*
5. ***Unmargi***: Caused by trauma.^[6]

Drug Review

In the management of *Bhagandara* different medicines are mentioned in different text books of Ayurveda as various types of *Taila*, *Lepa* and *Churna*.

In this present study work "*Karanjadi Ghrita*" was used for the treatment of *Paittic Vidradhi* as healing agent which was mentioned in *Sushruta Samhita Vidradhi Chikitsa Adhyaya*.^[7]

It has been noticed that the post application of *Kshara Sutra* in fistula-in-ano, the patients are suffering from complications like pain, burning sensation, discharge, inflammation and itching. This proves that the "*Karanjadi Ghrita*" is the best for the treatment. The contents are:

1. *Karanja* leaves
2. *Chameli* leaves
3. *Patola* leaves
4. *Neema* leaves
5. *Haridra*
6. *Daru haridra*
7. *Madhuyasti*
8. *Kutaki*
9. *Priangu*
10. *Kushamool*
11. *Jalvetasa*
12. *Manjistha*
13. *Chandana*
14. *Ushira*
15. *Kamal*
16. *Sariva*
17. *Krishna Sariva*
18. *Nishoth*
19. *Moma*
20. Cow's *Ghrita*^[8]

The contents of standard *Kshara Sutra* are:

1. *Snuhi Ksheera* (*Euphorbia nerifolia*)
2. *Apamarga Kshara* (*Achyranthus aspera*)
3. *Haridra Churna* (*Curcuma longa*)

Clinical Study

A clinical study was conducted, comparing the roles of standard *Kshara Sutra* and *Karanjadi Ghrita* by their local application in the fistulous tract for the management of *Fistula-in-ano*.

Selection of Patients

The selected patients were examined thoroughly as per the case sheet especially designed for study. In the middle term, those who reached with a primary complaint of discharging wound (sinus), discomfort, pain the perianal region were selected for this study.

Grouping of Patients

For the clinical trail, 20 patients were divided into 2 groups with each group consisting of 10 patients.

Group A: Only standard *Kshara Sutra* was ligated.
 Group B: *Karanjadi Ghrita* was locally applied in the fistulous tract and standard *Kshara Sutra* was ligated.

Inclusion Criteria

The cases were selected from patients attending to Anorectal Clinic of Department of *Shalya* in Govt. Ayurvedic College and Hospital, Patna at random of age 20 years or above, sexes, operative recurrences, various duration, signs and symptoms as documented in Ayurvedic classics.

Exclusion Criteria

1. High anal fistula
2. Post-Operative incontinence of stool
3. Secondary fistula due to ulcerative colitis, tuberculosis, Crohn’s disease, carcinoma of rectum.

Grading

Pain/Burning sensation as clinical findings

1.	Absent	-		0
2.	Mild	+	25%	1
3.	Moderate	++	50%	2
4.	Severe	+++	75%	3
5.	Unbearable	++++	100%	4

Discharge

- Grade 0 – No discharge
- Grade 1 – If *Vrana* wets 0.5 m x 0.5cm gauge piece (mild)
- Grade 2 – If *Vrana* wets 1cm x 1cm gauge piece (moderate)
- Grade 3 – If *Vrana* wets more than 1cm (severe)
- Grade 4 – Continuous and copious discharge

Itching

Grade	Explanation
0	No itching at any time
1	Negligible itching, with 10-12 hours of gaps.
2	Occasional sensation of itching with 4-6 hours of gaps.
3	Frequent sensation of itching with 2-3 hours of gaps.
4	Frequent sensation of itching with 15-30 minutes of gaps.

OBSERVATION AND RESULTS

Table 1: Showing Average Unit Cutting Time (UCT) and Their Deviation from Mean in Group A

Patient No.	Initial length of track (cm)	Total days for cutting	UCT	Deviation from mean	d ²	UCT cm/day
1	5	37	7.4	-0.64	0.41	0.2
2	4	32	8.0	-0.04	0.001	0.25
3	10	81	8.1	-0.06	0.003	0.1
4	7	59	8.43	0.39	0.15	0.14
5	8	68	8.5	0.46	0.21	0.13
6	12	106	8.83	0.79	0.62	0.08
7	4.1	31	7.56	-0.48	0.23	0.24
8	8.5	68	8.00	-0.04	0.001	0.12
9	4.6	36	7.83	-0.21	0.044	0.22
10	9.6	75	7.81	-0.23	0.052	0.10
Average UCT = 8.04					∑ d ² = 1.721	

The above table shows that the average unit cutting time (UCT) was 8.04 day/cm where SD = 0.44.

Table 2: Showing Average Unit Cutting time (UCT) and their mean deviation for patients of Group B

Patient No.	Initial Length of track (cm)	Total days for cutting	UCT	Deviation from Mean	d ²	UCT cm/day
1	7.4	58	7.84	-0.1	0.01	0.14
2	5.0	39	7.8	-0.14	0.019	0.2
3	4.3	32	7.44	-0.5	0.25	0.23
4	5.8	44	7.59	-0.35	0.123	0.17
5	8.2	66	8.05	0.11	0.012	0.12
6	6.2	49	7.20	-0.74	0.547	0.15
7	5.9	47	7.97	0.03	0.0009	0.17
8	4.8	39	8.13	0.19	0.036	0.20
9	9.2	80	8.69	0.75	0.562	0.11
10	3.0	24	8.0	0.06	0.0036	0.33
Average UCT = 7.94					Σd ² = 1.563	

The above table shows that the average unit cutting time (UCT) was 7.94 day/cm where SD = 0.41. Comparing the two groups, average unit cutting time shows very negligible difference.

Table 3: Total average UCT in days/cm for Group A and B

S. No.	Group of Patients	Number of Patients	UCT (days/cm)
1	Group A	10	8.04
2	Group B	10	7.94

Summary

Table 4: Relief in intensity/severity grade of sign and symptoms in six weeks among patients of group A

S.No.	Pain (Weekly)							Burning Sensation (Weekly)						
	Gr.	1	2	3	4	5	6	Gr.	1	2	3	4	5	6
	B.T	A.T	A.T	A.T	A.T	A.T	A.T	B.T	A.T	A.T	A.T	A.T	A.T	A.T
1	3	3	2	2	1	0	0	2	2	2	2	1	1	1
2	3	2	2	2	1	1	1	2	2	1	1	1	0	0
3	4	3	3	2	2	2	1	4	3	3	3	2	2	1
4	2	2	2	1	1	1	1	3	3	2	2	2	2	2
5	4	4	3	2	2	1	1	3	2	2	2	2	2	2
6	4	3	2	3	2	2	2	2	2	1	1	1	1	1
7	3	3	3	2	2	1	1	4	4	3	3	2	2	1
8	3	2	2	1	1	0	0	4	3	3	2	2	2	1
9	2	2	2	1	1	0	0	3	3	3	3	2	2	1
10	3	3	2	3	2	2	2	3	2	2	2	1	1	0
Total	31	27	23	19	15	10	9	30	26	22	21	16	15	10

Table 5: Relief in intensity/severity grade of sign and symptoms in six weeks among patients of group A

S.No.	Discharge (Weekly)							Itching (Weekly)						
	Gr.	1	2	3	4	5	6	Gr.	1	2	3	4	5	6
	B.T	A.T	A.T	A.T	A.T	A.T	A.T	B.T	A.T	A.T	A.T	A.T	A.T	A.T
1	2	3	3	2	2	1	1	3	3	2	2	2	1	1
2	2	3	3	2	2	1	0	3	3	3	2	1	1	1
3	2	3	3	2	2	1	1	3	3	3	1	1	1	0
4	2	3	3	2	2	1	0	3	3	3	1	1	1	0
5	2	3	3	2	2	1	0	3	3	2	2	1	1	2
6	3	4	3	2	1	1	0	2	2	2	1	1	1	0
7	2	2	3	2	1	0	0	3	3	3	2	1	1	1
8	2	3	3	2	1	1	0	2	2	2	1	1	1	0
9	2	3	3	2	2	1	1	3	3	2	1	1	0	0
10	3	4	3	2	1	0	0	3	3	3	2	1	1	1
Total	22	31	30	20	16	8	3	28	28	25	15	11	19	6

Table 6: Relief in intensity/severity grade of sign and symptoms in six weeks among patients of group B

S.No.	Pain (Weekly)							Burning Sensation (Weekly)						
	Gr.	1	2	3	4	5	6	Gr.	1	2	3	4	5	6
	B.T	A.T	A.T	A.T	A.T	A.T	A.T	B.T	A.T	A.T	A.T	A.T	A.T	A.T
1	3	3	2	2	2	1	1	4	2	2	1	1	0	0
2	3	2	2	2	1	1	0	3	2	2	2	1	1	0
3	4	3	2	2	2	2	1	3	3	2	2	2	1	1
4	2	2	2	1	0	0	0	4	2	1	0	0	0	0
5	4	3	2	2	2	1	0	2	2	1	2	0	0	0
6	3	2	2	1	1	1	0	2	3	3	2	2	1	1
7	3	2	2	1	1	1	0	3	1	2	1	1	1	0
8	3	2	2	2	2	2	1	3	1	2	0	1	0	0
9	3	2	1	1	0	0	0	4	1	2	0	0	0	0
10	4	3	2	2	2	2	1	2	3	2	2	1	1	0
Total	32	24	19	16	13	11		30	20	19	12	9	5	2

Table 7: Relief in intensity / severity grade of sign and symptoms in six weeks among patients of group B

S.No.	Discharge (Weekly)							Itching (Weekly)						
	Gr.	1	2	3	4	5	6	Gr.	1	2	3	4	5	6
	B.T	A.T	A.T	A.T	A.T	A.T	A.T	B.T	A.T	A.T	A.T	A.T	A.T	A.T
1	2	3	3	2	2	1	0	3	3	3	2	2	1	0
2	2	3	3	2	1	1	0	3	3	3	2	1	0	0
3	3	4	4	2	2	0	0	3	3	3	2	2	0	0
4	2	3	3	2	1	0	0	3	3	3	2	1	1	1
5	2	3	3	2	1	1	0	2	2	2	1	1	0	0
6	2	4	4	2	2	0	0	2	2	2	1	0	0	0
7	2	3	4	3	2	1	1	2	2	2	1	1	1	1

8	2	3	3	2	2	0	0	3	3	3	2	1	0	0
9	2	3	3	2	1	0	0	4	4	3	2	1	1	1
10	2	3	3	2	1	1	0	2	2	2	1	0	0	0
Total	21	32	33	21	15	5	1	27	27	26	16	10	4	3

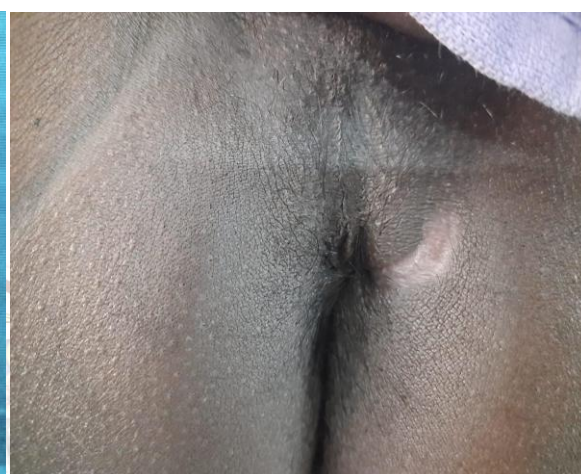
Summary

Summarized Result

Sign & Symptoms	Group A					Group B				
	%	SD	SE	T	P	%	SD	SE	T	P
Pain	80.64	0.84	0.26	9.30	<0.001	93.33	0.42	0.13	21	<0.001
Burning Sensation	53.33	0.96	0.30	5.23	<0.001	96.55	0.63	0.2	14	<0.001
Discharge	86.36	0.73	0.23	8.14	<0.001	95.23	0.47	0.14	13.41	<0.001
Itching	78.87	0.63	0.2	11	<0.001	88.88	0.69	0.22	10.85	<0.001



Before Treatment



After Treatment

Table Declaration

The above table shows the two groups of percentage of relief in signs and symptoms. The values of T and P depend on the weekly assessment. The results of both groups were statistically highly significant ($p < 0.001$).

DISCUSSION

All the operative techniques of fistula-in-ano in modern surgery can be grouped under two broad categories, namely:

1. **Fistulotomy**
2. **Fistulectomy**

Fistulotomy is the method in which simple incision of the track is made leaving a wide open wound. The wound is curetted and allowed to heal spontaneously by granulation. Thus, a fistulotomy is likely to leave a part of the fibrous fistulous track, which occasionally keeps the passage patent resulting into recurrences.

Fistulectomy is the radical procedure involving excision of the complete track including unhealthy and healthy portion of the surrounding tissue. Obviously, this provides better results than that of fistulotomy. The disadvantage of this procedure may be the extensive wound it makes, which very often starts healing from the margins leaving a pocket in the process. This pocket gradually forms a new tract and thus the recurrence occurs.

Advantages of Kshara Sutra over Surgical Treatment

No.	Kshara Sutra	Surgical Treatment
1	OPD Procedure	IPD Procedure
2	Minor OT Procedure	Major OT Procedure
3	Anesthesia is rare	Anesthesia is a must

4	Minimal trauma & no tissue loss	Maximum trauma & loss of tissue
5	Cutting and healing of fistulous tract is simultaneous	Healing takes place long after cutting has been done
6	Less chances of bleeding	More chances of bleeding
7	Minimal postoperative pain	Maximum postoperative pain
8	No chance of fecal incontinence	More chances of fecal incontinence
9	Less chances of infection	More chances of infection
10	No postoperative complications	Long list of postoperative operations
11	5-10% recurrence rate	40-50% recurrence rate
12	Minimal scar tissues	More scar tissues.
13	Very narrow and fine scars	Very wide and ugly scars
14	No hospitalization	Prolong hospitalization
15	Ambulatory life	Non-Ambulatory life
16	Minimal cost	More cost

Discussion on Drug Review

For the present study, we have selected the drug against the *Tri-dosha*. Here *Kshara Karma* of fistulous tracts has aggravated *Pitta Dosha* leading to *Karanjadi Ghrita* being taken against the *Kshara Karma* in *Bhagandara*. *Kshara Karma* mainly enhances *Pitta Dosha* and causes continuous pain and burning sensation.

Discussion on Assessment Criteria

The weekly assessment was done on the following parameters:

1. Pain
2. Burning sensation
3. Discharge
4. Itching
5. UCT

Discussion on Pain

The fistula in ano is the chief complain when there is a collection of puss. The proper drainage of tract may help in relieving pain. Another major factor may be the presence of *Karanja*, *Jati*, *Patol*, *Manjistha*, *Daruharidra* who have the properties of *Chedana* and *Lekhana* which helps in opening the tract. The other ingredients like *Nishoth*, *Kutki* and *Moma* also perform *Chedana* and *Shodhan Karma*; due to this the fibrosed material tract remains open leading to no collection of puss in the tract leading to relief in the pain experienced.

Discussion on Burning Sensation

The percentage relief of burning sensation in group B was higher due to the application of *Karanjadi Ghrita* which involves *Nimba*, *Mulethi*, *Priangu*, *Chandana*, *Ushir*, *Kustha*, *Jalvetasa*, *Kamal*, *Sariva*, *Krishnasariva*, *Kutaki*, *Moma* and *Ghrita* having *Sheeta Veerya*. This enhances the action of *Pittahara* and

Dahaprashamana Karma of the local application on the wound. Hence, the above ingredients subsidize the side effect of the *Kshara Karma*, i.e., burning sensation and redness due to *Sheeta Veerya*.

Discussion on Puss Discharge

Both groups increase the puss discharge in the first two weeks because of *Apamarga Kshara*. It has the properties of *Chedana*, *Bhedana*, *Shodhana* and *Lekhana*. This well helps in operating the tract. Due to this, the fibrous material dissolve tract remains open; therefore, the first two weeks enhance the pus discharge. When the tract is open, there is no question of collection of puss in the tract. Moreover, when there is a thread present in the tract, the tract will always remain open.

Due to *Shodhana*, *Vranaprasadana*, *Putihara*, *Jantughna* and *Ropana* properties of the ingredients of *Karanjadi Ghrita* and *Apamarga Kshara*, this leads to decrease in discharge in group B when compared to group A. This will trim down the severity of infection and serves as supporters in decreasing puss discharge.

Discussion on Itching

On the basis of percentage relief of itching, it is evident that the *Karanjadi Ghrita* and *Apamarga Kshara Sutra* are more efficient in relieving itching than standard *Kshara Sutra*. This may be due to the anti-allergic, anti-bacterial and *Tridoshahara* properties of *Karanjadi Ghrita*.

Discussion on Average Unit Cutting Time (UCT)

In both groups A and B, where standard *Kshara Sutra* was used, the difference in UCT was negligible. There was highly significant reduction in pain, burning sensation, discharge and itching when compared to group A also proved by the statistical values.

CONCLUSION

This research work conducted as a clinical study can be concluded in the following words:

1. Standard *Kshara Sutra* and *Karanjadi Ghrita* are having a huge impact on the management of *Bhagandara*.
2. There was a marked reduction in pain, burning sensation, discharge, itching and local reactions in treated group B as compared to control group A.
3. The standard *Kshara Sutra* application is a unique procedure in the management of *Bhagandara* as compared to other methods.
4. Post application complications were less found in experimental medicine along with *Kshara Sutra*.
5. Average UCT difference was negligible between the 2 groups.
6. Would healing after the cut through was faster in treated Group B as compared to Control group A.
7. No faecal incontinence was caused.
8. At the end of this clinical trial, it was found that *Karanjadi Ghrita* with standard *Kshara Sutra* was

more efficient and can be considered a better method.

REFERENCES

1. Ambikadutta Shastri, *Susruta samhita Vol-1st Ayurveda Tatva Sandipika Hindi translation*, Chaukhambha Sanskrit Sansthan, Varanasi; Edition; Reprint, 2016, Sutra Sthan 33/4-5 p. 96.
2. *A manual on Clinical Surgery*; Published by Dr. S. Das, Calcutta, Edition-2004; p. 55.
3. Kashinath Pandey and Gorakhnath Chaturvedi, *Charak Samhita Vol-2nd Vidyotini, Hindi translation*, Chaukhamba Bharti Academy, Varanasi; Edition: Reprint, 2013. Chikitsa Sthan 12/96 p.377.
4. Ambikadutta Shastri, *Susruta samhita Vol-1st Ayurveda Tatva Sandipika Hindi translation*, Chaukhambha Sanskrit Sansthan, Varanasi; Edition; Reprint, 2016, Nidan Sthan 4/4 p. 317.
5. *Ibid*; Nidan Sthan 4/12 p. 318.
6. *Ibid*; Nidan Sthan 4/3 p. 316.
7. *Ibid*; Chikitsa Sthan 16/21 p. 96.
8. *Ibid*; Chikitsa Sthan 16/16-18 p. 96.

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