

## ROLE OF KSHAR VARTI IN FISTULA IN ANO PATIENT

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### ABSTRACT:

Application of *varti* in the management of fistula in ano is well known and Sushruta has mentioned different types of *Varti* in the management of *Nadivrana* and *Bhagandara Chikitsa* for the *sodhana* and *ropana* of tracts *Kshara* is also one variety of cauterization by using phytochemical substance. It can be used as an individual or an adjuvant to surgical measure. The caustic applied by means of *Kshara varti* along with plain thread are capable of performing chemical fistulectomy, without creating a wide gap, which is subsequently completely filled by granulation tissue, thus preventing the formation of pus pockets or leaving behind a patent tract.

In this a comparative study is done between the *guggulu kshar sutra* and *kshar varti* along with plain thread to evaluate the efficiency of *kshar varti* in fistula in ano. Burning pain and irritation during the primary application and successive changes of plain thread with *kshar varti* is quite less comparatively to by using *guggulu kshar sutra*.

**Keywords:** *Kshar varti, Bhagandara*

**INTRODUCTION:** A fistula is an abnormal communication between any two epithelial-lined surfaces. It is a latin word for a *reed, pipe or flute*. An ‘anal’ fistula is a tract which communicates with the anal canal or rectum by means of an internal opening and usually is in continuity with one or more external openings in the perianal, perineal or ischiorectal fossa.

From the earliest times of medical records, reference is made to fistula in ano. The disease is mentioned in “*The code of Hamurabi*”, which is the oldest set of legal and medical rules in existence and was drawn up by the king of Babylon, who lived from 1948 BC until 1905 BC. Fistula in ano however has been explained in detail for the first time by *Sushruta* (1500-1000 BC). Acharya Sushruta, the father of surgery has included this disease as one among the *Ashtamahagada*.<sup>i</sup> He described surgical and other minimally invasive techniques for the management of *Bhagandara*

(fistula in ano).*Hippocrates* (460- 356 BC), taking clue, realized that fistula in ano followed anorectal suppuration and the treatment required fistulectomy. This he achieved by the use of a linen aplinose ligature (seton) which was tightened daily until fistulectomy was achieved. If this method was not successful, he recommended that fistula should be “cut down as far as it passes”.*Celsus* in Rome (53 BC-AD 7), *Galen* (AD 131-AD 200), *Ambroise Pare* (1510-1590), *Percival Pott* (1714-1788) have all recommended the use of ligatures or surgery for laying open fistulous tract.

As can be seen from the above historical review, Fistulostomy/Fistulectomy is an ancient surgical procedure and the concept of laying open the tract with the sacrifice of a part/ or complete sphincter muscles within the tract has been practiced for at least 2000 years.<sup>ii</sup> In difficult cases or

when surgery failed, they have fallen back on various other modes of treatment.

*Kshara* is a caustic chemical, alkaline in nature obtained from the ashes of medicinal plants. Acharya Sushruta has described in detail regarding *Kshara*.<sup>iii</sup> Though numerous techniques of surgery have been laid down, it is of great importance to note that all these procedures are associated with a dishonorable repute of causing recurrence of the disease and most importantly causing faecal incontinence. The treatments sometimes results in complications far severe than the disease itself.

It was Dr. P S Shankaran, Head, Dept. of *Shalya Shalakyas*, IMS, BHU, who taking clue from the reference of Chakradatta, Rasatarangini, decided to give the *kshara sutra* therapy a new life. He first designed the *Snuhi Kshara sutra*, tried out this experimentally in animals and then on a small group of patients and found remarkable results. Later on Dr. P J Deshapande, Dr. S N Pathak, Dr. K R Sharma and others, adopted this in large number of patients and established the treatment as an affective, ambulatory and safer alternative treatment for patients with fistula in ano.<sup>iv</sup> They also established *kshara sutra* as a new drug delivery technique for the conditions like anal fistula.<sup>v</sup> Acharya Chakradatta has given the idea about the preparation of *ksharsutra*.<sup>vi</sup>

Owing to the reduced rates of recurrence and no near of ensuing faecal incontinence, larger number of patients have started preferring this treatment. Even surgeons of contemporary medicine have accepted this treatment as a scientific and better alternate to surgical procedures and have started referring cases to this department.

There are many type of *kshara sutra* like *Yavakshara sutra*, *Snuhi swarasa kshara sutra*, *Ghrita kumari kshara sutra* and many more new *kshara sutra* were tried out in the department like, *Udumbara kshara sutra*, *Tankana*, *Aragvadhadi sutra* and *Guggulu sutra*.

But by applying this *kshar sutra* causing severe pain, burning sensation though the cutting rate is good so overcoming these disadvantages was of utmost importance to make the treatment widely popular and acceptable. In spite of the enviable rates of cutting, the severe pain and burning sensation caused during the treatment with held many patients from accepting this treatment whole heartedly.

Though each of the thread had good cutting rates and other preparational advantages, they too had certain important inherent disadvantages. The pain during *kshar sutra* application is due to the caustic effect of *kshar*, but presence of *kshar* is also essential as it causes debridement of unhealthy granulation tissue in the fistulous tract.

If fistulous tract is laid open by plain surgical thread the amount of pain will be minimum and application of *Kshar varti* in fistulous tract will facilitate drainage as well as removal of unhealthy granulation tissue. Application of *varti* in the management of fistula in ano is well known and various types of *varti* have been advised by *Sushruta* in management of *Nadi Vrana*.<sup>vii</sup>

Then the combination of both the procedures i.e. tying of plain thread in fistulous tract along with application of *Kshar varti* will cause minimum pain as well as removal of unhealthy granulation tissue by *Kshar* applied in the form of *Kshar varti*.

Thus, in this present study the efficacy of *Kshar varti* in the management of fistula in ano and effect on sinus tract is evaluated.

The *varti* therapy for management of fistula in ano has been described by many classics.

Sushruta has mentioned Varti in the chapter of *Bhagander chikitsa*. That *varti* is prepared by mixing the powders of *Aragvadha*, *Haridra*, *Kala* (Aguru) with *Madhu* and *Ghritha*. It is used for *shodhana* and *ropana* of tracts. The present study is aimed to prepare the *Kshar varti* instead of *Kshara sutra* in the management of *Bhagandara*. Before going to the clinical study it is very essential to know the knowledge of the ingredients. The ingredients of *Kshar varti* are-*Haridra*, *Apamarga kshar* and *Guggulu*.

#### Material and method

The present clinical study was planned for *Kshar varti* and its clinical trial was done in Ano-rectal Clinic S.S. Hospital. I.M.S., B.H.U., Varanasi. The study was conducted on 40 patients of fistula in ano and the patients were divided into 2 groups of 20 each.

**Group A:** 20 cases: Treated with the *Guggulu Kshar Sutra*

**Group B:** 20 cases: Treated with *Kshar Varti* along with plain thread.

#### SELECTION OF CASES

The cases were selected from the patients attending to Ano-rectal Clinic of S.S. Hospital, B.H.U.

Patients diagnosed to have low anal fistula were randomly selected irrespective of age, sex, chronicity, *prakriti*, socio-economic status etc. Patients with uncontrolled diabetes mellitus, tuberculosis; biopsy of the tract suggestive of malignancy, fistula secondary to other

systemic disease like osteomyelitis etc was excluded.

#### APPLICATION OF KSHAR VARTI WITH PLAIN THREAD

In patients of group B, plain thread was used instead of *Kshar sutra* to replace the old one. And after applying the plain thread a *Kshar varti* was used to keep into the fistulous tract. *Kshar varti* was applied by pushing it gradually into the tract through the external opening.

Patients was advised not to have sitz bath on the day the thread was changed, but asked to continue it from the next day till the day of subsequent change of thread.

Once the tract was completely excised or cut through, the patient was instructed to visit Ano-rectal clinic once every month for 3 months to recheck the status of the excised area or wound. Then onwards patient was advised to visit once in 3 months twice or thrice, for assessing the untoward effects of treatment like faecal incontinence etc. (if present). For each follow-up visit, the patient is examined for any recurrence of disease or any associated lesion of the ano-rectum.

#### Observation and result

The efficacy of *Ksharvarti* and standard *Guggulu Kshara Sutra* have been studied in 40 cases, attended in Ano-rectal clinic of *Shalya Tantra* Department, S.S. Hospital, I.M.S., B.H.U., Divided into two group, treated (A) and control (B) and 20 patients were kept in each group. In control group standard *Guggulu Kshara Sutra* was applied while in treated group *Ksharavarti* with plain thread was applied, after an established diagnosis of *Bhagandara* (Fistula-in-ano).

All 40 patients of Fistula-in-ano have been analyzed for age, sex, habitat, socio-economic status, *doshic prakriti*, type of

*bhagandara*, type of fistula, chronicity of disease, position of external openings, length of the fistulous tract, clinical findings, unit cutting time etc. were observed and noted.

In every case length of the thread was measured after changing the thread at interval of week days. After few weeks of therapy, this *Kshara Sutra* comes out with

$$\text{U.C.T} = \frac{\text{Total number of days taken for cut through}}{\text{Initial length of tract in cms}}$$

The average U.C.T. of treated group (Plain thread with standard *Guggulu Ksharvarti*) was calculated and compared with control group (*Guggulu Kshara Sutra*). The analysis of average U.C.T. was noted in relation age group, chronicity, length of tract, type of *bhagandara*, type of fistula and different O' clock positions in each group.

the knot intact. This stage in know as Cut through. The total number of days required for cut through from initial threading was noted.

The Unit Cutting Time means the time taken by *Kshara Sutra* to cut one cm of fistulous tract in days. This was calculated by using the formula.

The process of healing was started with the cutting of the tract during the course of treatment. However, the small area was still remained to heal completely at the end of total cut through which took 1-2 weeks in both groups in complete closure of the wound.

### 1. The analysis of patients in relation to age groups

| Age groups   | Group A |     | Group B |     | Total |      |
|--------------|---------|-----|---------|-----|-------|------|
|              | No      | %   | No      | %   | No    | %    |
| Upto 25years | 2       | 10  | 1       | 5   | 3     | 7.5  |
| 26 -40       | 13      | 65  | 9       | 45  | 21    | 52.5 |
| 41-55        | 3       | 15  | 9       | 45  | 12    | 28   |
| >55          | 2       | 10  | 1       | 5   | 4     | 10   |
| Total        | 20      | 100 | 20      | 100 | 40    | 100  |

### 2. Sex Incidence

| Sex    | Group A |     | Group B |     | Total |     |
|--------|---------|-----|---------|-----|-------|-----|
|        | No      | %   | No      | %   | No    | %   |
| Male   | 17      | 85  | 19      | 95  | 36    | 90  |
| Female | 3       | 15  | 1       | 5   | 4     | 10  |
| Total  | 20      | 100 | 20      | 100 | 40    | 100 |

Out of 40 cases, there were 36 male patients and 4 female patients .The ratio of male and female are 9:1.

### 3. Habitat

| Habitat | No. of cases | Percentage |
|---------|--------------|------------|
| Rural   | 24           | 60         |
| Urban   | 16           | 40         |
| Total   | 40           | 100        |

Cases were analyzed in view of their habitat. Out of 40 cases of fistula, 24 were reported from urban area while 16 patients were reported belonging to rural area.

#### 4. Socio Economic Status

| Socio economic status | No. of cases | Percentage |
|-----------------------|--------------|------------|
| Rich                  | 5            | 12.5       |
| Middle                | 21           | 53.5       |
| Poor                  | 14           | 35         |
| Total                 | 40           | 100        |

#### 5. Nature of Work

Incidence of cases according to Nature of work

| Nature of work | No. of cases | Percentage |
|----------------|--------------|------------|
| Sedentary      | 23           | 57.5       |
| Moderate       | 11           | 27.5       |
| Strenuous      | 6            | 15         |
| Total          | 40           | 100        |

#### 6. Nature of Diet

| Nature of diet | No. of cases | Percentage |
|----------------|--------------|------------|
| Vegetarian     | 15           | 37.5       |
| Non-vegetarian | 25           | 62.5       |
| Total          | 40           | 100        |

#### 7. Nature of Bowel habit

| Nature of Bowel Habit | No. of cases | Percentage |
|-----------------------|--------------|------------|
| Mucous                | 7            | 17.5       |
| Constipated           | 18           | 45         |
| Normal                | 15           | 37.5       |
| Total                 | 40           | 100        |

#### 8. Occupational status

| Occupational status | No. of cases | Percentage |
|---------------------|--------------|------------|
| Business            | 15           | 37.5       |
| Service             | 12           | 30         |
| Labor               | 1            | 2.5        |
| Housewife           | 3            | 7.5        |
| Farmer              | 5            | 12.5       |
| Student             | 4            | 10         |
| Total               | 40           | 100        |

#### 9. Incidence of Prakriti

| Prakriti types | Group A |     | Group B |     | Total |      |
|----------------|---------|-----|---------|-----|-------|------|
|                | No.     | %   | No.     | %   | No.   | %    |
| Vataja         | 10      | 50  | 9       | 45  | 19    | 47.5 |
| Pittaja        | 7       | 35  | 5       | 25  | 12    | 30   |
| Kaphaja        | 3       | 15  | 6       | 30  | 9     | 22.5 |
| Total          | 20      | 100 | 20      | 100 | 40    | 100  |

## 10. Types of Bhagandra

Types of *bhagandara* was considered on the basis of description of Sushruta, and all the patients were taken of *parisravi* type.

## 11. Types of Fistula in Ano

All the patients were selected of low anal type of fistula.

## 12. Chronicity of Disease

| Duration of illness (in months) | Group A |     | Group B |     | Total |     |
|---------------------------------|---------|-----|---------|-----|-------|-----|
|                                 | No      | %   | No      | %   | No    | %   |
| <5 month                        | 6       | 30  | 8       | 40  | 14    | 35  |
| 6-10 month                      | 11      | 55  | 9       | 45  | 20    | 50  |
| 11-15 month                     | 2       | 10  | 1       | 5   | 3     | 7.5 |
| 15-20 month                     | 0       | 0   | 1       | 5   | 1     | 2.5 |
| >20 month                       | 1       | 5   | 1       | 5   | 2     | 5   |
| Total                           | 20      | 100 | 20      | 100 | 40    | 100 |

## 13. Incidence of Associated lesions:

Out of 40 cases 6 patients (15%) were reported having associated lesions in Ano-rectal region. The maximum 4 patients suffered with fissure and Sentinel tag. This was followed by 2 (5%) cases of piles. No cases was observed in Prolapse and Malignancy.

| Associated lesions     | Number of patient |         | Total | Percentage |
|------------------------|-------------------|---------|-------|------------|
|                        | Group A           | Group B |       |            |
| Piles                  | 1                 | 1       | 2     | 5          |
| Fissure & Sentinel Tag | 1                 | 3       | 4     | 10         |
| Total                  | 2                 | 4       | 6     | 15         |

## 14. Previous Surgery

| Types of cases | Group A |     | Group B |     | Total |      |
|----------------|---------|-----|---------|-----|-------|------|
|                | No.     | %   | No.     | %   | No.   | %    |
| Operated       | 2       | 10  | 3       | 15  | 5     | 12.5 |
| Non-operated   | 18      | 90  | 17      | 85  | 35    | 87.5 |
| Total          | 20      | 100 | 20      | 100 | 40    | 100  |

In the terms of external fistulous openings all the 40 patients were having single external opening.

## 15. Clockwise Position of external fistulous openings

| O'clock position | No. of external opening | Percentage |
|------------------|-------------------------|------------|
| I                | 5                       | 12.5       |
| Ii               | 1                       | 2.5        |
| Iii              | 1                       | 2.5        |
| Iv               | 2                       | 5          |
| V                | 4                       | 10         |
| Vi               | 5                       | 12.5       |
| Vii              | 14                      | 35         |
| viii             | 2                       | 5          |
| Ix               | 0                       | 0          |

|       |    |     |
|-------|----|-----|
| X     | 2  | 5   |
| Xi    | 3  | 7.5 |
| Xii   | 1  | 2.5 |
| Total | 40 | 100 |

Clockwise position of the external opening was studied to find out the commonest O'clock position of the tract. Analysis shows that commonest position of external opening of fistula in ano at 7'O clock position.

### 16. Quadrant wise Distribution of External opening

| Quadrant    | No. of external opening | Percentage |
|-------------|-------------------------|------------|
| Right Upper | 6                       | 15         |
| Right lower | 16                      | 40         |
| Left Upper  | 7                       | 17.5       |
| Left Lower  | 11                      | 27.5       |
| Total       | 40                      | 100        |

### 17. Length of the Fistulous Opening

Analysis was made to find out of tracts in relation to their total length. The range of the length of tract was divided in four groups. The maximum patients were having initial length less than 3 cm.

| Initial Length (in cms) | Group A |     | Group B |     | Total |      |
|-------------------------|---------|-----|---------|-----|-------|------|
|                         | No.     | %   | No.     | %   | No.   | %    |
| Less than 3.0           | 5       | 25  | 12      | 60  | 17    | 42.5 |
| 3.1- 4.0                | 9       | 45  | 5       | 25  | 13    | 32.5 |
| 4.1- 5.0                | 5       | 25  | 3       | 15  | 8     | 20   |
| More than 5             | 1       | 5   | 1       | 5   | 2     | 5    |
| Total                   | 20      | 100 | 20      | 100 | 40    | 100  |

#### Other Clinical Observations

(A) **Pain:** It was observed that the degree of Pain felt by the patients at the time of threading and subsequent change of Plain thread along with *Ksharavarti* was very less in comparison to standard *Apamarga Kshara Sutra*. This seems to be less-irritant than standard thread.

(B) **Discharge:** In all cases of treated group the amount of pus discharge was greatly increased in comparison to standard *Apamarga Kshara Sutra* in initial 3 days of threading.

(C) **Inflammation:** No cases was reported with inflammation during the course of therapy.

(D) **Pyrexia:** Some patients were developed mild degree of fever which was subsided spontaneously within a short period

(E) **Bed rest:** No patients was needed bed rest or hospitalization after the application of Plain thread with *Kshara varti*

(F) **Recurrence:** No case was reported with recurrence in 3 month of follow up.

### 18. Unit Cutting time in relation to Age groups

The minimum average unit cutting time was 6.5 days/cm in group A under age group of upto 25 years Maximum average U.C.T. was 7.70 days/cm in same group A of age group of more than 55 years.

| Age groups | Average unit cutting in Days/cm |
|------------|---------------------------------|
|------------|---------------------------------|

|               | Group A | Group B |
|---------------|---------|---------|
| Upto 25 years | 6.5     | 7.44    |
| 26 -40        | 7.68    | 7.7     |
| 41-55         | 7.12    | 7.5     |
| >55           | 7.70    | 7.6     |
| Total         | 7.30    | 7.54    |

### 19. Unit Cutting time in relation to sex

The maximum U.C.T noted in females 7.80 days/cm in group B and Minimum U.C.T. 7.20 days/cm in male of group A.

| Sex     | Average unit cutting in Days/cm |         |
|---------|---------------------------------|---------|
|         | Group A                         | Group B |
| Males   | 7.20                            | 7.28    |
| Females | 7.40                            | 7.80    |
| Total   | 7.30                            | 7.54    |

### 20. Unit cutting time in relation to Chronicity of disease

Analysis has been done U.C.T. in relation to Chronicity of disease. Minimum average U.C.T in was 6.55 in group A of more than 11 month of duration. Maximum U.C.T. was 7.70 in group A of 6 to 10 month of duration.

| Chronicity (in month) | Average unit cutting in Days/cm |         |
|-----------------------|---------------------------------|---------|
|                       | Group A                         | Group B |
| <5                    | 7.65                            | 7.66    |
| 6 -10                 | 7.70                            | 7.494   |
| >11                   | 6.55                            | 7.500   |
| Total                 | 7.30                            | 7.54    |

### 21. Unit cutting time in relation to Prakriti

Unit cutting time was calculated for different types of *Prakriti*. It shows *Pittaja Prakriti* patients were having minimum U.C.T. i.e. 6.54 days/cm in group A while maximum U.C.T. was 8.10 days/cm in same group A of *Kaphaja Prakriti*.

| Prakriti of patient | Average unit cutting in days/cm |         |
|---------------------|---------------------------------|---------|
|                     | Group A                         | Group B |
| Vataja              | 7.26                            | 7.5     |
| Pittaja             | 6.54                            | 7.71    |
| Kaphaja             | 8.10                            | 7.4     |
| Total               | 7.30                            | 7.54    |

### 22. Average U.C.T. in Different O'clock Position

Average U.C.T. was also estimated according to clockwise position of tract. The analysis shows that the minimum average U.C.T. was 6.4 days/cm at 10 O'clock position of group A and maximum U.C.T. was 8.2 days/cm at 1 O'clock

| O'clock position | Average U.C.T. in days/m |         |
|------------------|--------------------------|---------|
|                  | Group A                  | Group B |
| i                | 8.2                      | 7.8     |



|       |      |      |
|-------|------|------|
| ii    | 0    | 7.24 |
| iii   | 7.35 | 0    |
| iv    | 6.8  | 7.52 |
| v     | 7.3  | 7.6  |
| vi    | 7.12 | 7.42 |
| vii   | 7.2  | 7.8  |
| viii  | 7.23 | 7.4  |
| ix    | 0    | 0    |
| x     | 6.4  | 7.8  |
| xi    | 7.8  | 8.2  |
| xii   | 7.6  | 0    |
| Total | 7.30 | 7.54 |

### 23. Unit cutting time in relation to Initial length of tracts

An attempt was made to find out average U.C.T., according to initial length of tract in both groups. The minimum U.C.T in group B and group A were 7.25 and 6.35 days/cm, at 3.1 – 4.0 cm and less than 3.0 cm of tract length. While it was maximum 8.30 in group B of more than 5cm of length .

| Length of tract | Average unit cutting in Days/cm |         |
|-----------------|---------------------------------|---------|
|                 | Group A                         | Group B |
| Less than 3.0   | 6.35                            | 7.60    |
| 3.1 - 4 .0      | 7.03                            | 7.25    |
| 4.1 - 5 .0      | 7.52                            | 7.66    |
| More than 5     | 8.30                            | 7.5     |
| Total           | 7.30                            | 7.54    |

### 24. Total average unit cutting time

Finally total average U.C.T. of both group A and B were evaluated. The analysis shows that the average U.C.T. was 7.30 days/cm and 7.54 days/cm in group A and group B respectively.

| Groups  | Average unit cutting in Days/cm |
|---------|---------------------------------|
| Group A | 7.30                            |
| Group B | 7.54                            |

## DISCUSSION

Every Physician or surgeon always has zeal of providing the best treatment to his patients with minimum pain and discomfort. *Ksharsutra* is a kind of *Kshara*-therapy, which is applied with the help of thread.<sup>viii</sup> *Guggulu Kshara sutra* though a successful treatment, had certain disadvantages like

1. The *Kshara sutra* caused moderate to severe pain and burning sensation to the patients.

2. The stiff *Kshara sutra* broke into pieces during application and thus this resulted in mechanical trauma during the change of thread.
3. The early clumping of the *Guggulu* led to loss of vital raw materials
4. The thread was highly hygroscopic in nature
5. There was early loss of components from over the thread (when wet)

The popularity that was long due to the treatment was being withheld owing to the

pain and burning sensation it caused to the patients. Hence a lot of innovations were made and numerous new *Kshara sutra* like *Udumbara kshara sutra*, *Tankana kshara sutra*, *Yavakshara sutra*, *Snuhi swarasa kshara sutra*, *Ghrita kumari kshara sutra*, *Aragvadhadi sutra* etc., were tried. The latest in the line of threads to be tried out is the *Guggulu* based *Kshara sutra*. *Guggulu* acts as local analgesic and anti inflammatory.<sup>ix</sup> Pain is due to vata, Charak has mentioned *guggulu* as best vata hara.<sup>x</sup>

In this present a comparative study is done between the *guggulu kshar sutra* and *kshar varti* to evaluate the efficiency of *kshar varti* in fistula in ano patients.

This was clearly proved in the study, wherein it was observed that the average unit cutting time(UCT)was smaller in low anal fistulae treated by *Guggulu* based *kshara sutra*(7.30 days/cm) compared to those treated by *ksharvarti* with plain thread(7.54 days/cm). In the group treated by *Guggulu kshara sutra*, the cutting and healing, curettage of unhealthy tissue etc., took place quite smoothly (owing the widening of the external opening). The greatest drawback of this thread was the degree of pain and burning sensation it caused during the change of the thread. Most of patients experienced severe to moderate degree of pain and burning sensation during the treatment. In spite of the greatest care, patient many a times had vasovagal attack and lost consciousness. This drawback made many a patients to fear the treatment. While in the patients treated by *Ksharvarti* along with plain thread the cutting and healing took place quite effectively. The greatest advantage was from the point of view of pain and burning sensation. The pain and burning

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caused was significantly lower in comparison to those treated by *Guggulu Kshara sutra*. It was also observed that whatever small quantity of pain and burning that was produced reduced within 10 minutes.

Thus it can be summarized that *Guggulu Ksharvarti* effectively cures out the fibrosed wall and unhealthy granulation tissue and reduces inflammation.

## Advantages of Kshar varti

- Better acceptable
- Drugs required for preparation of varti can be collected and preserved easily.
- Burning pain and irritation during the primary application and successive changes of plain thread with *kshar varti* is quite less
- It is economical as well as minimizes the problems of preparation and application of *kshar sutra*.

**CONCLUSION:** The aim of the present study was to evaluate the role of *Kshar varti* in the management of fistula in ano patients. The Average Unit Cutting time in both the group was almost similar, but the greatest advantage was from the point of view of pain and burning sensation. The pain and burning sensation was minimized in the patients who were treated with the *Kshar varti* along with plain thread in comparison to those treated by *Guggulu kshara sutra*.

## FURTHER RESEARCH WORK

1. Works can be carried out to study the *Kshar varti* dissolution in the fistulous tract.
2. Further works can be done to standardize the *Kshar varti*.
3. Clinical trials of the *Kshar varti* on other chronic ulcers.

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