



## CLINICAL STUDY TO EVALUATE THE EFFICACY OF MOCHRAS COATED KSHARSUTRA IN THE MANAGEMENT OF FISTULA-IN-ANO

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### ABSTRACT

fistula-in-ano is one of the grave and notorious disease due to its recurrence nature. Ksharasutra is para-surgical procedure effectively used in the management of Anal fistula. In this study snuhi latex was replaced by Mochras resin, thus new Mochras coated ksharasutra was made to cure anal fistula. **Aim:** To evaluate the efficacy of Mochras coated ksharasutra in the management of fistula-in-ano and to promote healing process & prevent reoccurrence of disease. **Material & Method:** The research study was performed with 30 patients of fistula-in-ano which were randomly divided in two equal group A & B of each 15 patient. Group A patient were treated with Standard/Apamarga ksharasutra and group B with Mochras coated ksharasutra. Patient were assessed on both subjective parameters i.e., pain, itching, burning sensation and objective parameter i.e., tenderness, pus discharge, unit cutting time (UCT) with "Healing status". Ksharasutra was changed weekly by railroad technique up to complete cut. **Result & Conclusion:** Mochras coated ksharasutra was found more effective in relieving all symptoms and showed statistically significant result in pain, itching, burning sensation & discharge while tenderness showed nonsignificant result. The mean UCT of group A was 7.56 days/cm while group B was 8.57 days/cm. Mochras ksharasutra has provided better Healing status i.e., wound healing due to vama ropanam & sandhanam property of mochras.

**KEYWORDS :** Bhagandara, fistula-in-ano, Mochras resin, Mochras coated Ksharasutra.

### INTRODUCTION

Fistula-in-ano is a track lined by unhealthy granulation tissue which connects deeply in the anal canal or rectum and superficially on the skin around anus. Ksharasutra is para-surgical procedure which is found to be effective in the management of fistula-in-ano. Ksharasutra is basically a medicated thread having the coating of alkali material called Kshara. Kshara is prepared by using the ash of plant. Ksharasutra is routinely prepared with Snuhi Ksheera (latex), Apamarga Kshara and Haridra powder. In conventional method collection of Snuhi latex is time consuming and laborious.

Thus, we prepared new, advanced, remodeled ksharasutra i.e., **Mochras coated ksharasutra** for ligation. Here Snuhi ksheer was replaced by Mochras resin. **Mochras** i.e., gum resin of *Salmalia Malabarica* is easily available drug, can be kept for longer period & very safe to use. Mochras which is astringent<sup>1</sup> in nature checks abnormal secretions, discharge, microbial growth<sup>2</sup>, bleeding and pain<sup>3</sup>. It pacifies kapha, pitta & Rakta, relieves bleeding disorder and burning sensation<sup>4</sup>. It promotes wound healing<sup>5</sup>, good for binding purpose and used to reduce the symptoms & side effect of pain, itching, burning sensation, tenderness, discharge etc., While snuhi sheer availability is difficult, can't be kept for longer period, dry fast, unsafe and has many side effects.

### AIMS & OBJECTIVES

1. To evaluate the efficacy of Mochras coated ksharasutra in the management of fistula-in-ano (*Bhagandara*).
2. To compare the efficacy of Mochras coated ksharasutra with Standard/Apamarga ksharasutra in the management of fistula in ano (*Bhagandara*).
3. To reduce the side effect of pain, itching, burning sensation, tenderness, discharge etc.
4. To compare the Unit Cutting Time of both Ksharasutra.
5. To promote healing process and prevent recurrence of disease.
6. To make treatment economical, easily available and use of sterile ksharasutra.

### Clinical Study:

#### MATERIAL & METHOD:

**Study Design:** Randomized Control Trial, Single Blind Trial.

#### Ethical Clearance:

This study was approved by Institutional Ethical Committee (IEC) of DSRRAU, Jodhpur with letter No. DSRRAU/UCA/IEC/17-18/45; dated 08/03/2017, before starting the clinical trial on patients of Fistula-in-ano.

#### Subjects:

The study was performed with 30 patients of **Fistula-in-ano** which were divided in two equal group of each 15 patients.

#### Selection Of Patient:

All the patients were randomly selected from the I.P.D. and O.P.D. of Ano Rectal Unit, Dept of *Shalya Tantra*, D.S.R.R.A.U., Jodhpur and registered for the present study.

#### The Drugs:

- Two types of Ksharasutra are as following...
1. Standard/Snuhi Apamarga Ksharasutra
  2. Mochras coated Ksharasutra

#### Material Required For Ksharasutra Preparation –

##### 1. Standard KsharaSutra (SnuhiApamargaKsharasutra)

1. Barbour's linen thread No.20
2. SnuhiKsheer
3. ApamargaKshar
4. Haridra Powder

##### 2. Mochras Coated Ksharsutra (mochras Apamarga Ksharasutra)

1. Barbour's linen thread No.20.
2. Mochras Resin
3. Distil water
4. ApamargaKshar
5. Haridra Powder

#### Preparation Of Ksharasutra:

##### Mochras Coated Kshar Sutra (Mochras Apamarga

**Ksharsutra)**

Method of Preparation: The method is same as preparation of *Snuhi Apamarga Ksharsutra*, except instead of *Snuhiksheera*, *Mochras* solution was used.

- To get semi liquid form of *Mochras* gum resin (collected from market), 1 part of *mochras* powder(5gm) was added in 2 parts of distill water (10 ml) & stir well so that it becomes pure & of desired consistency.

- Surgical Barbour's thread No.20 was tied through length on hanger.
- The *Mochras* solution was smeared on thread and hanger was dried under fan.
- The process repeated for 11 days, on 12<sup>th</sup> day again, the thread was smeared with *Mochras* solution & then coated with fine powder *Apamarga kshar* and then dried.
- The same procedure was repeated 7 days. On 19<sup>th</sup> day the thread was smeared with *Mochras* solution and fine powder of *Haridrachurna* coated over it and dried.
- The procedure was repeated for 3 days and dried.
- Prepared both *Ksharsutra* were kept in *Ksharsutra* cabinet for 12 hr. for 2 days under U.V. light radiation for sterilization.
- Then *Ksharsutra* was kept in air tight poly bags under proper hygiene using fumigate room, sterile gloves, mask and cap.

The ***Mochras Coated Ksharsutra*** contains the following ingredients –

*Mochras*- 11 coating

*Mochras*&*ApamargaKshara*- 7 coatings

*Mochras*&*Haridra*- 3 coating

**Criteria for selection of the patients:**

**Exclusion criteria:**

Patients suffering from fistula in ano associated with following disease/criteria were excluded from study: Diabetes mellitus, Ulcerative colitis, Crohn's disease, Tuberculosis, CA of rectum, AIDS, Hepatitis B, Children.

**Inclusion Criteria:**

1. All the diagnosed patients of fistula in ano between the age group of 20-70 yrs. other than those in exclusion criteria.
2. Patients were selected randomly, irrespective to sex, economic status, educational status & marital status etc.

**Duration Of Study:**

The duration of the study was 8 weeks with 8 weeks of follow up.

**Assessment Criteria: Assessment Criteria Through Modern Parameters:**

- **Subjective criteria:** Pain, Itching, Burning sensation
- **Objective criteria:** Tenderness, Pus discharge, U.C.T.(Unit cutting time)

**Grading of Assessment criteria:**

**Subjective Criteria:**

It is based on feeling of patients. So, researcher has to depend on his patient for assessment. It is known as simple verbal scale. In this particular research work, subjective criteria are as follows:

**Pain:**

Pain is measured by Visual Analogue Scale. An imaginary line of 10cm will be marked to indicate intensity of pain to assess the pain in patients.

No pain - 0, Mild pain - 1-3, Moderate pain - 4-7, Severe pain - 8-10

Grade	Explanations
0	: No complain of pain
1	: Negligible or tolerable pain, no need of medication

2	: Localized tolerable pain relief by hot sitz bath
3	: Tolerable pain, not relief by hot sitz bath, relieved by oral analgesic.
4	: Continuous and intolerable pain with sleep disturbance

**Itching**

Grade	Explanations
0	: No complain of itching
1	: Negligible itching, with 10-12 hours gap
2	: Occasional itching, with 4-6 hours gap
3	: Frequent itching, with 2-3 hours gap
4	: Frequent & intolerable & continuous itching sensation

**Burning**

Grade	Explanations
0	: No complain of burning sensation
1	: Negligible burning sensation
2	: Occasional tolerable burning sensation, relieved by oleation.
3	: Constant tolerable burning sensation, slightly relieved by local oleation
4	: Intolerable burning sensation makes the patient uncomfortable and makes the patient to rush for medical help.

**Objective Criteria:**

The patients were assessed on the basis of relief of symptom and Investigation.

**Tenderness –**

Tenderness is mainly graded in two types Deep & superficial, and it detected by noticing the facial expression of the patient during examination.

**Grade**

Grade	
0	: No tenderness detected
1	: Slight /very pain detected on excessive pressure
2	: Superficial pain detected on moderate pressure
3	: Deep pain elicited on mild pressure
4	: Very severe deep tenderness (pain on touch) detected.

**Pus Discharge**

Grade	
0	: No discharge
1	: Very scanty pus discharge was present while probing.
2	: Scanty pus discharge was present without probing.
3	: Profuse pus discharge came out while probing & squeezing the cavity
4	: The cavity was filled with pus and continuous flowing of pus was elicited without squeezing the cavity

**U.C.T. (Unit cutting time) –**

The initial length, as well as the length of *ksharasutra* at each successive sitting has been measured and recorded. The gradual shortening of thread at the following sitting evidently corresponds to the cutting of tissue, which provides on idea of the progress of a particular case. This has been termed as unit cutting time (U.C.T.). Unit cutting time may be calculated as follows.

$$U.C.T. = \frac{\text{Total number of days (from the 1<sup>st</sup> day to cut through the thread)}}{\text{Initial length of ksharasutra (in cm)}}$$

**Healing Status Of Wound**

"Healing status" was divided in the following categories.

- 1) Complete healing 6 / 6
- 2) Moderate healing 4-5 / 6
- 3) Mild healing 2-3 / 6.
- 4) No healing 0-1 / 6

**Statistical Analysis:**

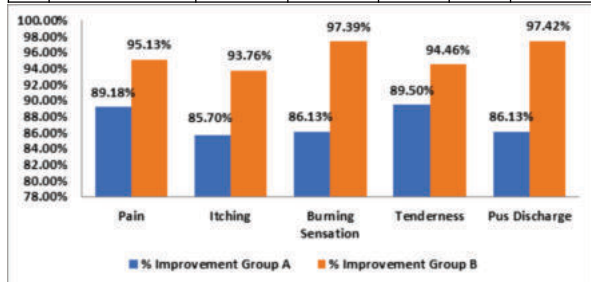
All in information which are based on various parameters was gathered and statistical calculation were carried out in terms of mean score Before treatment (BT), After treatment (AT), mean (x), standard deviation (S.D.) standard error (S.E.), Paired test (t value), Mann-Whitney Test (U test) and finally results were incorporated in term of probability (p) no.

- p≤0.01 Significant(S)
- p≤0.001 Extremely Significant (E.S)

**OBSERVATION & RESULT**

**Table: I & Figure: 1 Showing Intergroup Comparison of Group A(Standard ksharsutra) & Group B (Mochras ksharsutra)**

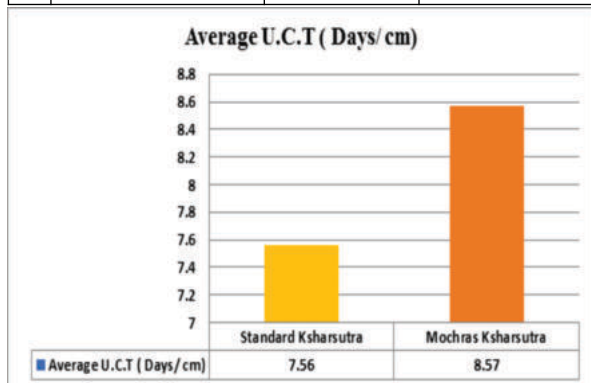
S. No.	Assessment Criteria	% Improvement		U Value	P Value	Result
		Group A	Group B			
1.	Pain	89.1%	95.1%	77.00	0.04	Significant
2.	Itching	85.6%	93.7%	76.500	0.04	Significant
3.	Burning Sensation	86.1%	97.3%	77.00	0.03	Significant
4.	Tenderness	89.4%	94.4%	110.50	0.93	Not Significant
5.	Pus Discharge	86.1%	97.4%	76.00	0.04	Significant



**Figure: 1**

**Table: II & Figure: 2 Showing Result Of Objective Parameter I.e Average U.C.T Of Both Groups:**

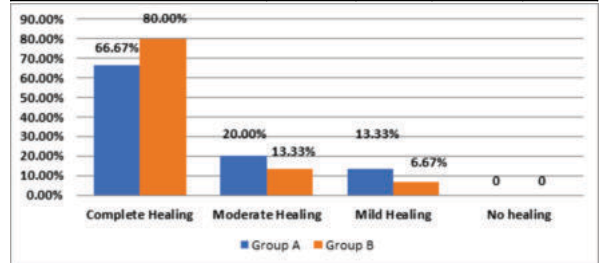
S. No	Groups	No. of Patients	Average U.C.T (Days/ cm)
1	Group A Standard Ksharsutra	15	7.5
2	Group B Mochras Ksharsutra	15	8.5



**Figure: 2**

**Table: III & Figure: 3 Showing Healing status of patients according to Ayurvedic parameters:**

Healing Status	Number of Patients			
	Group -A		Group - B	
Complete Healing	10	66.6%	12	80.0%
Moderate Healing	3	20.0%	2	13.3%
Mild Healing	2	13.3%	1	6.6%
No healing	0		0	



**Figure: 3**

**DISCUSSION ON OBSERVATION AND RESULTS:**

**Discussion On Unit Cutting Time (U.C.T)**

**• Average Unit Cutting Time:**

The average UCT in group A was 7.56days/cm (approx. 7.50 days/cm), in group B it was 8.57days/cm (approx. 8.50 days/cm). The better UCT of group A is due to the properties of *Snuhi ksheer*. Due to *Laghu Tikshan Guna & Ushna virya* properties of *Snuhi* it enters in the tissue easily and due to *chhedan, bhedan, lekhan guna* of *Kshar*, it helps in cutting of the fistulous track, thus provides a better UCT in comparison to Group B.

**Comparison Of Results Between Group A and Group B**

The patients were assessed per week for continuous 8 weeks. Comparison was done on per week status in two groups and the final results are as follows according to the assessment criteria of disease.

**• Pain**

In Group-A, the percentage of relief in pain are 89.177 % in 8<sup>th</sup> week while in Group-B 95.133 %. This shows that *Mochras Ksharsutra* has a better pain relieving capacity.

Pain is due to *vata*, thus most probable cause behind the significant result of *Mochras Kshar-Sutra* in relief of pain is due to *snigdha, picchila guna*(sticky or lubricant) of *Mochras*, it forms protective film in track and avoid friction. *Mochras* has also anti-inflammatory action (Archana et al IJAPC 2016). *Charak* has mentioned *Mochras* in *Vedanasthapana Mahakashya* i.e., Sedative/ Analgesic/ sensostatic group of herbs. Thus, it relives pain. (Ch.su.4/47)

**• Itching**

In Group-A, the percentage of relief in Itching, after application of Standard (*Snuhi Apamarga*) Kshar-Sutra is found as 85.698 % in 8<sup>th</sup> week while in Group-B shows 93.764 %.

This reveals that percentage of relief in Itching was higher in Group B. The predictable cause may be the '*Kapha Pittashamak*' property of *Mochras*. (Mentioned in *Bhava Prakash Nighantu, Vatadi varg-29/56-57 Vol-1, Page No.538*). Again according to Ayurveda, itching (*Kandu*) is a property of *kapha* and *Pitta* (Ch.su.20/15,) so any drug which will contain the *kapha* & *pitta* hara property will definitely play a key role to dwindle the symptom. *Mochras* pacifies the *Kapha* due to *Kashyaras* and pacifies *Pitta* due to its *Sheetviry* property., Thus reducing *Kandu* (Itching).

**• Burning Sensation**

In Group-A, the relief from burning sensation was noticed in a percentage of 86.125 % in 8<sup>th</sup> week while in Group-B 97.394 % .The cause behind it is, due to the effect of *ushna virya* of *snuhi*

*Ksheer*, it causes irritation and burning sensation in the fistulous wound, whereas by the effect of *snigdha*, *picchila*, *him guna* and *sheet viry* & *Dahanut* (relives burning sensation) property of *Mochras*, is able to dissolve the burning sensation in group-B (Mentioned in *Bhava Prakash Nighantu, Vatadi varg-29/56-57* Vol-1, Page No.538). Burning sensation is caused due to Inflammation may be by the release of Histamine. Anti-inflammatory effect of *Mochras* and *Apamarga* (According to Kantha D. Arunachalam et al) may be suppressing release of Histamine, thus relieving Burning sensation. (Archana et al IJAPC 2016).

#### • Tenderness

In Group-A the relief from tenderness was noticed in a percentage of 89.498 % in 8<sup>th</sup> week while in Group-B 94.458 %. The better result of *Mochras Kshar-Sutra* is due to the fact that tenderness is due to *kapha*; *Mochras* has *kapha shamak* effect due to *laghu guna* & *kashay rasa* (*Dravyaguna-vijnana*, Prof. PV.sharma, chapter 5, page 492) and *Kaphanut (shamak)* property (Mentioned in *Bhava Prakash Nighantu, Vatadi varg-29/56-57* Vol-1, Page No.538). Thus reducing tenderness.

Anti-inflammatory & Anti-oxidant properties of Gallic acid & Tannic acid present in *Mochras* (Archana et al IJAPC 2016, Rameshwar v et al SAJP 2014) reduces tenderness.

#### • Discharge

In Group-A the relief from discharge was noticed in a percentage of 86.1 % in 8<sup>th</sup> week while in Group-B 97.4 %. *Acharyacharak* mentioned *Mochras* in *Shonit Asthapana Mahakashya* i.e., group of herbs that checks bleeding. Thus, it cures Hemorrhagic disorder and acts as haemostatics. *Mochras* checks bleeding discharge from fistulous track. (Ch.su.4/46) Also in *Pureesha Sangarhniya Mahakashya* i.e. group of herbs that acts on *pureeshavahasrotas* (ano-rectal region) to checks abnormal secretions, discharge, microbial growth Etc. (Ch.su.4/31).

*Mochras* mentioned in *Kashayaskanda* i.e., Astringent group of herbs. It reduces pus discharge, checks bleeding & microbial growth etc. (Ch.vi.8/144)

According to *Acharya Bhavprakash Mochras* is *pittaAsra nut* i.e., Pacifies *Pitta* & *Rakta*, *Him* (coolant), *Grahi* (absorbant), *kashaya* (astringent) in nature. Thus relieves secretions, Bleeding disorder and reduces the pus discharge. (*Vatadi varg-29/56-57*)

Pus is due to *kapha*, *Mochras* is *kaphanut (shamak)*, thus reduces pus discharge.

The reason for which pus discharge increased in the initial stage of treatment is due to the *chhedan*, *bhedan* and *lekhan* properties of *kshar*, which breaks down the pus pockets of micro abscesses, remained in the diseased track. Accordingly increase in the amount of pus discharge. As it turns to heal up, the discharges get diminished (S.S.38/7).

Another condition for continuous pus discharge is that in most of times, pus discharge is caused by microbial infection in the fistulous track. *Mochras* has antibacterial as well as antimicrobial properties (Antil v. IJPI 2013) thus pus discharge is reduced.

#### Comparison Of Healing Status According To Ayurvedic Parameter.

**Group A** – The data shows that complete healing was observed in 66.6% patients. Moderate and mild healing was found in 20.0% & 13.3% respectively.

**Group B** – Again 80.0% patients achieved complete healing in this group while Moderate and mild healing was observed in

13.3% & 06.6% patients respectively.

It shows that Group B was more healing status than Group A. This is due to more healing property of *Mochras*. *Acharyacharak* and *Vagbhat* mentioned *mochras* in *Sandhaniya Mahakashya* i.e. groups of herbs are healers of wound. (Ch.su.4/5, As.s.su.15/10). *Acharya Susruta* mentioned *Mochras* in *Priyangvadigana* i.e. group of herbs are union promoters & beneficial for healing of wounds. (Su.su.38/45). Hence helped in enhancing the healing effect of fistulous track.

The better result of Group-B is due to the specific property of *Mochras* is *vrana Ropana* and *Sandhankarm* which causes *Ropana* of the matured fistulous *vrana*. By the *ropana-sandhan* quality it sloughs away the debridement of necrosed tissue from the fistulous track, thus it helps in formation of healthy granulation tissue. (Su.Su.38/45).

Anti-oxidant & Anti-inflammatory properties of Gallic acid & Tannic acid present in *Mochras* (Archana et al IJAPC 2016, Rameshwar v et al SAJP 2014) also enhances healing process. It was found after cutting and healing of fistulous track, patients of Group-B showed uniform healing, uniform pigmentation giving skin a smooth appearance without any hypertrophy or any bad scar.

#### Overall Effect Of The Therapy:

In measuring the effect of overall therapy, it was seen that:

- Group A has provided a better result in U.C.T 7.5 days/cm in comparison to Group B 8.5 days/cm.
- Group B provided a better relief in pain (95.1%), Burning sensation (93.7%), itching (97.394%), Tenderness (94.4%) & discharge (97.4%) in comparison to Group A.
- Group B has provided a better result in intergroup comparison, it has seen that pain, itching, burning sensation and discharge showed significant result while tenderness showed non-significant result but on the bases of percentage pain, itching, burning sensation, tenderness & discharge showed significant results. (Table no. 6.41).
- Group B has provided a better result in Healing status i.e., complete healing with 80.0% in comparison to Group A 66.6%.
- It is seen that application of *Mochras Kshar-Sutra* provides better result in pain, itching, burning sensation, tenderness & discharge than Standard/Snuhi *Apamarga Kshar-Sutra*. By studying the overall effect, it can be concluded that trial group-B *Kshar-Sutra* showed markedly good results.

#### Probable Mode Of Action Of Mochras Kshar-sutra:

Till today, the detection of mode of action of a *Ayurvedic* drug or remedy on scientific basis has remained a difficult job for the researchers. In *Ayurveda* the action of a drug is best understood by the properties of its basic physiochemical factors- *Raspanchak* i.e., *Rasa*, *Guna*, *Virya*, *Vipak* and *Prabhava*. Here, too an effort is made to explain the probable mode of action of *Mochras Kshar-Sutra* on the basis of above-mentioned factors.

Fistula is nothing but a continuous track made up of unhealthy granulation tissue which manifests some alarming symptoms i.e. pain, itching, burning sensation, tenderness and most certainly pus discharge continuously flowing from the track.

- *Mochras* in combination with *Apamarga* & *Haridra* hold of *Laghu Guna* by which it enter easily into the cell membrane and scrubbed out the necrosed tissue from the track with the help of *Ropana* and *Sandhan* property of *Mochras*.
- *Chhedan*, *Lekhan* & *Bhedan* properties of *Apamarga*

- Kshara, Teekshna Guna of *Apamarga* and by the *Ushna virya* of *Apamarga* and *Haridra*. Automatically the pus discharge reduced as a result of breaking of pus pockets of micro abscesses.
- Again, if the pus discharge was continuing due to secondary infection, the *krimighna*, Anti-bacterial, Anti-inflammatory property of *Apamarga* & *Haridra* raise a battle against it.
  - *Mochras* is *ShonitAsthapana*, *PureeshaSangarhniya*, *Kashaya*, *kapha pittaAsra nut* drug thus checks abnormal secretions. bleeding disorder, discharge, microbial growth etc.
  - In most of the time pain causes due to accumulation of pus in cavity. If pus discharge diminishes, naturally pain disappears. Again, it has discussed Anti-inflammatory & Anti-oxidant properties of Gallic acid & Tannic acid present in *Mochras* (Archana et al IJAPC 2016, Rameshwar v et al SAJP 2014) reduces pain as well as pus discharge. The *Snigdha*, *Pichhil guna* and *Vedanasthapana* (Sedative/Analgesic/sensostatic group of herbs) property of *Mochras*, *Vam Shodhan*, *Shothhar*, *shulaghn* properties of *Apamarga* (*Dravyaguna-vijnana*, Prof. P.V.sharma, chapter 5, page 492) and *UshnaVirya* of *Apamarg* and *Haridra* synergistically reduce the *Vata*, resulting reduction in pain.
  - The itching (*Kandu*) is diminished by the *Kapha Piita shamak* property of *Mochras* due to *Kashya ras* & *sheet virya*. *Apamarga* & *Haridra* both have *kandughna* property due to *Katu tikt rasa* & *ushna virya*. Itching is due to release of histamine, *Mochras*, *Apamarga* and *Haridra* are anti-inflammatory, suppress the release of histamine thus relieving in itching.
  - Burning sensation is caused due to *ushna*, *tikshnaguna* of *snuhiksheer* but here *Mochras* is used in place of *SnuhiKsheer*, thus reducing burning sensation due to *snigdha*, *picchila*, *himguna*, *sheetviry* & *Dahanut* property of *Mochras*.
  - May be, anti-inflammatory effect of *Mochras*, *Apamarga* and *Haridra* also helps in suppressing release of histamine, thus relieving in burning sensation.
  - The *Sothaghna* and anti-inflammatory property of *Apamarga* and *Haridra* reduces the swelling. The *Raktasodhak* property of *Haridra* also help in it, thus reducing tenderness. Due to *Kaphahar* effect of *Mochras*, *Apamarga* and *Haridra*, *laghu guna* & *kashay rasa* of *Mochras*, tenderness is reduced.
  - The *Kashaya Rasa*, *VranaRopana* and *Sandhan* property of *Mochras* & *katu, tikt rasa*, *Vrana Shodhan* quality of *Apamarga* and *Haridra*, *Tavakdoshahar* *Apamarga* and *Vraniya*, *Rakt Prasad* property of *Haridra* help in heal up the fistulous track.
  - Anti-oxidant property of *Mochras* also enhances healing process.

## CONCLUSION:

In this study efficacy of *Mochras coated Ksharsutra* (*MochrasApamarg ksharsutra*) was compared with Standard *ksharasutra* (*Snuhi Apamarga Ksharsutra*). Hence the conclusion are as follows:

- On observing the overall effect of therapy *Mochras Kshar-Sutra* was found to be more effective in relieving symptoms like pain, itching, Burning sensation, tenderness and pus discharge.
- *Mochras Kshar-Sutra* has provided a better result in intergroup comparison, pain, itching, burning sensation and discharge showed significant result while tenderness showed non-significant result.
- Though U.C.T of *Mochras Kshar-Sutra* is slightly higher than Standard/ *Snuhi Apamarga Kshar-Sutra*, but in assessment parameter *Mochras Kshar-Sutra* has been shown significant result in the form of percentage.
- *Mochras Kshar-Sutra* has provided a better result in

Healing status.

- *Mochras Kshar-Sutra* provides better wound healing due to *Varna Ropanam* & *sandhanam* property of *Mochras*. Due to alkaline pH of *Kshara* pathogens does not multiply and invade the cavity.
- *Haridra* is used for preparation of *ksharasutra* provides faster wound closure or healing effect.
- Post ligation complications like hypertrophied scar etc., are not seen.
- Easily available and cost effective.
- *Mochras Kshar-Sutra* should be used in combating this disease with further more research work.
- No recurrence of case was found in eight weeks of short follow-up study.

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