



Review Article

A CRITICAL STUDY OF KSHARASUTRA PREPARATION STANDARDIZATION AND NEW DEVELOPMENTS

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ABSTRACT

Ksharasutra is a medicated thread prepared by using plant based ingredients. The active ingredients are coated repeatedly on Barbour thread no 20 so that a required amount of drug gets adhered on the thread to achieve therapeutic value. *Charaka* mentioned *Ksharasutra* in the chapter of *Sotha Chikitsa*. *Susruta* mentioned its reference in *Nadivrana Chikitsa*. *Vagvat* had clearly mentioned along with *Shastrakarma*, *Agnikarma* and *Ksharakarma*. *Chakradutta* in *Arshodikar* clearly mentioned the idea of preparation of *Ksharasutra* with *Snuhi Ksheera* and *Haridra Churna*. As the name *Ksharasutra* itself suggest *Kshara* should also be one of the ingredients which was missing in the description of *Chakradutta*. Therefore, *Kshara* was added subsequently in the preparation of *Ksharasutra* at the department of *Shalya Tantra* BHU. Among the various types of *Kshara*, *Apamarga Kshara* was selected because of its better clinical efficacy, wider availability of raw material and higher yield of *Kshara* from the plant. *Ksharasutra* is a well established procedure in the management of *Fistula in Ano* with a high success rate. Although the standard *Apamarga Ksharasutra* is used successfully in the management of *Fistula in Ano*. Along with the advantages the standard *Apamarga Ksharasutra* creates many problems during preparation and application of thread. To overcome these problems various types of *Ksharasutra* research, preparation along with their standardization have been carried out. The research is based on searching for the drugs having better actions and acceptability than that of *Snuhi Ksheera* and *Apamarga Kshara*.

KEYWORDS: *Ksharasutra*, *Sushruta Samhita*, *Fistula in Ano*.

INTRODUCTION

Ksharasutra is emerging as an effective tool to replace the regular surgical procedure in the management of *Fistula in Ano*. It is a simple medicated thread and the procedure of application is non operative, parasurgical and ambulatory therapeutic technique. The pioneer of Ayurvedic surgery *Acharya Susruta* first mentioned *Ksharasutra* in the treatment of *Nadi Vrana*⁽¹⁾ but did not emphasized upon its preparation. After that *Chakrapani Dutta*⁽²⁾ was the first person to mention the method of preparation with its indication in *Fistula in Ano* and *Haemorrhoid*. After *Chakrapani Dutta* almost all the later author described the same method of preparation of *ksharasutra*. With the passage of time the old conventional method of preparing *Ksharasutra* has been replaced by modern technique and technology with the active participation and advices of various leading personality such as Prof. P.J Deshpande, Dr. P.S Shankaran and Prof.K.R Sharma etc.

AIM AND OBJECTIVES

To find out the efficacy of various *Ksharas* and binding agents for the formation of *Ksharasutra* and its availability and practical application. It must fulfill the following criteria

1. Effective in pain management
2. Reduces the duration of healing of fistula tract
3. Healing of the fistula tract should be healthy.

MATERIALS AND METHODS

Different types of *Ksharasutra* are developed on the basis of above method principles.

1. Udumbara Ksharasutra⁽³⁾: This thread was developed in 1984 by Proff. P.J. Deshpande and M.K. Jalan. In this thread latex of *Ficus glomerata* was used.

Method: 11 coatings of *Udumbura Kshira* were made on thread. In every time, fresh latex was taken. And pH of thread is 8.5.

Advantages

- Preparation is easy and requires less time
- Less irritant

- Smooth cutting
- Good wound healing
- Good tolerance by the patients.

Disadvantages

- Unique cutting time is less in comparison to standard thread
- Sticking ability of latex on thread is less.
- Knotting after application was difficult.

2. Papaya Sutra⁽⁴⁾: *Papaya* is good *Vrana Sodhak* and *Vrana Ropak* drug.

Ingredients

- *Papaya* fruit pulp
- Papain powder
- *Haridra* powder

Methods and Preparation

- *Papaya* fruit pulp and papain powder -11 coatings.
- *Papaya* fruit pulp and *Haridra* powder -2 coatings.

Advantages:

Papain contains strong proteolytic enzymes which lead to debridement of necrosis tissue very early after application.

Disadvantages: U.C.T is very less.

3. Tankana Ksharasutra⁽⁵⁾: In this thread *Tankana* was used in place of *Apamarga Kshara*.

Method:

- *Snuhi Ksheera* -11 coatings.
- *Snuhi Ksheera* and *Tankana* powder -7 coatings.
- *Snuhi ksheera* and *Haridra* powder -3 coatings.

Advantages:

- Less pain and burning.
- U.C.T. was same as of standard thread.
- It dissolves very slowly so remain in tract for longer time.

4. Guggulu based Ksharasutra⁽⁶⁾: In this thread in place of *Snuhi Ksheera*, *Guggulu* solutions is used.

Method: Same as standard thread.

Advantages:

- Easy preparation due to bulk availability of *Guggulu*.
- Excellent tolerance by the patient.
- Pain and anxiety are very less during and after application due to its non bleeding and analgesic action of *Guggulu*.
- Good wound healing and cosmetically acceptable scar.

Disadvantages

- Due to soapy nature of the thread, it loosens after application.

5. Ghritakumari Ksharasutra⁽⁷⁾: In this thread pulp of *Ghritakumari* was used in place of *Snuhi* latex.

Method: same as that of standard thread.

Advantages

- Easy availability and preservation
- Good wound healing.
- Good tolerance by the patients.

Disadvantages

- Sticking was not uniform.
- The thread was beaded so pain noticed during application.

6. Palash Ksharasutra: In this thread in place of *Apamarga Kshara* *Palash Kshara* is used.

Method: same as that of standard thread.

Advantages

- *Palash* is inherited with the property of *Gudarogit*, *Krimihara* and *Vranahara*.
- Wound healing after cut through is faster.
- Mark reduction of symptoms like pain, burning sensation, irritation, inflammation, local reaction.

Standardization of Ksharasutra:

In standard *Ksharasutra Snuhi Ksheera*, *Apamarga Kshara* and *Haridra churna* are used. Standardization of *Ksharasutra* requires standardization of its raw materials on the basis of analysis of various physical as well as chemical parameters to ensure the quality control with cost effectiveness at clinical level and also requires standardization in preparation process and quality standards in packaging, storage, labeling and developing scientific parameters for maintaining its uniform coating, pH, microbial check etc. Various characteristics of an ideal *Ksharasutra* based upon following features. This analysis was done at Chandigarh and Lucknow laboratories.

- pH: 10.1
- Length: 30±1 cm
- Diameter: 1.9mm
- Min. breaking load: 5.83 kg
- Weight of coating: 0.83 gm
- Thickness of thread after coating: 2.10±0.11mm

pH of individual ingredients

- *Snuhi Ksheera*: 5.6
- *Haridra*: 6.2
- *Apamarga Kshara*: 10.2

CONCLUSION

From this study it can be concluded that through there are various *Ksharas* are mentioned for preparation of *Ksharasutra* but the *Ksharasutra* prepared from *Palash/Apamarga Kshara* with binding agent *Snuhi Ksheera/Guggulu* fulfills all the required criteria and found to be very effective for the treatment of Fistula in Ano.

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Conflict of interest: None Declared

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