A PREPARATION AND STANDARDIZATION OF DIFFERENT KSHARASUTRAS

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ABSTRACT
A medicated thread prepared by using plant-based ingredients is Ksharasutra. The active ingredients are coated repeatedly on Barbour thread no 2-0 so that a required amount of drug gets adhered on the thread to achieve therapeutic value. Acharya Charaka mentioned Ksharasutra in the chapter of Sotha Chikitsa. Acharya Susruta mentioned its reference in Nadivrama Chikitsa. Acharya Vaaghata had clearly mentioned along with Shastrokarma, 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 SSAMC Bidar. 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 Vrand1 but did not emphasized upon its preparation. After that Chakrapani Dutta2 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.

AIMS 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 Ksharasutra3): This thread was developed in 1984 by Prof. P.J. Deshpande and M.K. Jalan. In this thread latex of Ficus glomerata was used.
Method: 11 coatings of Udumbara 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\textsuperscript{[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\textsuperscript{[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\textsuperscript{[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\textsuperscript{[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.

- 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 churma 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
- Palasha kshara 10.5
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/Arkaksheera fulfills all the required criteria and found to be very effective for the treatment of Fistula in Ano

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