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Ksharasutra and *Ksharakarma* in the Management of Common Anorectal Diseases: A Review

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ABSTRACT:

Ksharasutra is a special medicated thread made up of coatings of alkaline *ayurvedic* drugs on linen thread. *Ksharakarma* is a procedure in which the *kshara* is applied over the diseased area for certain time and then it is wiped out. Both the procedures are the boon to ayurvedic surgery. Hemorrhoids, Fistula in ano, Perianal sinus, Pilonidal sinus are the very common anorectal diseases in the present era. *Ksharasutra* and *Ksharakarma* are the two vital procedure for the treatment of anorectal diseases which is simple yet efficacious, affordable, ambulatory, with much less recurrence rate and with almost no post-operative complications.

Key words: *Ksharasutra*, *Ksharakarma*, *Kshara*

INTRODUCTION

Prevention of disease in a healthy individual and management of a disease in a diseased person is the aim of Ayurveda. There are eight branches of Ayurveda. Among them *shalya tantra* (Ayurveda surgery) is the branch which describes in detail about the anorectal diseases like *arsha* (piles), *bhagandara* (fistula-in-ano), sinuses like *nadi vrana* (pilonidal sinus) in its holy text, the *Sushruta samhita*. The other prestigious treaties of Ayurveda like *Charaka samhita*, *Ashtanga hridaya*, *Ashtanga sangraha*, *Chakradatta*, *Bhaishjyarnavalali* also describe about these diseases. Although there are numerous treatment procedures for the management of anorectal disorders in

allopathic science they are with severe post-operative complications, with high recurrence rate, which requires special expertise and which is costly. *Ksharasutra* and *Ksharakarma* are the two major procedures in the management of anorectal diseases which is safe, simple, ambulatory, cost effective, with much less recurrence rate and post-operative complications.

MATERIALS AND METHODS

The conceptual data were collected from authentic books and research articles on Ayurveda and Contemporary Science.



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Ksharasutra

Ksharasutra is made up of Linen thread no. 20, latex of *Snuhi* (*Euphorbia nerifolia* Linn.),

Apamarga Kshara (Alkaline powder of *Achyranthes aspera* Linn.) and *Haridra Churna* (powder of *Curcuma longa* Linn.). The linen thread no. 20 is autoclaved and then it is placed on hanger. 11 coatings are done with latex of *Snuhi* at first; then 7 coatings of latex of *Snuhi* and *Apamarga Kshara* are done. At last 3 coatings of latex of *Snuhi* and *Haridra* powder are done. After every coatings the hangers are placed in the *Ksharasutra* cabinet for drying and sterilization purposes. A total 21 coating should be done. The *Apamarga Ksharasutra* is then cut into pieces of 10 inch and each piece of *Ksharasutra* is packed in air tight container.¹ In *Brihat trayee Ksharasutra* is described in *Sushruta Samhita*, *Charaka samhita* and later in *Chakradatta*. In 1964, the research on *Ksharasutra* preparation was conducted by Dr. Shankaran and Dr. Pathak under the guidance of Prof. Deshpande at Department of Shalya-Shalakya, PGIIM, BHU, Varanasi. *Ksharasutra* was prepared with surgical linen thread 20 coated with latex of *Snuhi* (*Euphorbia nerifolia*), *kshara* made of the whole plant of *Apamarga* (*Achyranthes aspera* Linn. *Amaranthaceae*) and *Haridra* (*Curcuma longa*) powder.²

The mechanism of action of *ksharasutra* is performed by its *chhedan* (excision), *bhedana* (incision), *lekhana* (scrapping), *tridoshaghna* and *vranashodhana* (wound purification) and *vranaropana* (wound healing) properties.³

Ksharakarma

Ksharakarma is a vital procedure in *Ayurvedic* surgery which is initiated in 500 BC and the details of which is explained in *Sushruta samhita* (the holy treatise of ayurvedic surgery). The treatment procedure which is done by the help of *kshara* (alkaline medicinal drugs) is called *ksharakarma*. There are 25 plant species described in *Sushruta samhita* for the preparation of *kshara*. They are *Kutaja* (*Holarrhena antidysenterica* Linn.), *Palasha* (*Butea monosperma* Kuntze), *Ashwakarna* (*Dipterocarpus turbinatus* Gaertn. f.), *Paribhadra* (*Erythrina variegata* Linn.), *Bibhitaka* (*Terminalia bellirica* Roxb.), *Aragvadha* (*Cassia fistula* Linn.), *Tilvaka* (*Symplocos racemosa* Roxb.), *Arka* (*Calotropis procera* R. Br.), *Snuhi* (*Euphorbia nerifolia* Linn.), *Apamarga* (*Achyranthes aspera* Linn.), *Patala* (*Stereospermum suaveolens* DC.), *Naktamaala* (*Pongamia pinnata* Pierre), *Vrisha* (*Adhatoda vasica* Nees), *Kadali* (*Musa paradisiaca* L.), *Chitraka*

(*Plumbago zeylanica* Linn.), *Pootika/Chirabilba* (*Holoptelia integrifolia* Planch), *Devadaru* (*Cedrus deodara* Roxb.), *Aasphota* (*Hemidesmus indicus* R. Br.), *Karavira* (*Nerium indicum* Mill.), *Saptaparna* (*Alstonia scholaris* R. Br.), *Agnimantha* (*Premna mucronata* Roxb.) and four varieties of *Koshataki* (*Luffa acutangula* Linn.).⁴ *Kshara* cures a disease by its *chhedana*, *bhedana*, *lekhana*, *tridoshaghna*, *shodhana*, *ropana*, *shoshana*, *stambhana*, *kriminashana*, *aamapachana*, *vishanashana* properties.⁵ There are two major types of *kshara*. They are *Paniya kshara* (for internal use) and *Pratisaraniya kshara* (for external use). *Kshara* can also be classified as *mridu*, *madhyam* and *tikshna* based on its potency. *Pratisarniya kshara* is especially indicated for the management of *arsha* and *bhagandara*.

Hemorrhoids

The dilated veins in the anal canal in the subepithelial region formed by the branches of superior, middle and inferior rectal veins is called hemorrhoids.⁶ It is very common disease in South Asia and at least one member of a family is affected by this. It is of two major types: Internal hemorrhoids and External hemorrhoids. Internal hemorrhoid is lined by mucous membrane while external hemorrhoid is lined by anoderm. The primary causes of hemorrhoids includes hereditary factor, anatomical erect posture, straining during defecation, lack of fibre diet, etc. The secondary causes of hemorrhoids are carcinoma of rectum, chronic constipation, difficulty in micturition, portal hypertension and pregnancy. Painless bleeding during defaecation and protrusion of mass are the two major clinical features of hemorrhoids. The internal hemorrhoids is graded from 1 to 4 based on the extent of mass protrusion.⁷ Bleeding with no prolapse, Bleeding with prolapse with spontaneous reduction, Bleeding with prolapse requiring digital reduction and Prolapse with no reduction are the features of first degree, second degree, third degree and fourth degree hemorrhoids respectively. The treatment depends upon the degree of the hemorrhoids. The first degree requires only the dietary modification. Rubber band ligation and injection therapy are the treatment of choice for the second degree while hemorrhoidectomy is preferred for the third and fourth degree of hemorrhoids.⁸ The complications of the treatments include thrombosis, strangulation, gangrene, pain for injection therapy and rubber band ligation while pain, retention of urine, hemorrhage, anal stricture, anal fissure and incontinence are the complications of hemorrhoidectomy.⁹

Considering the above complications the need for the

alternative treatments like *ksharakarma*, *agnikarma* and *ksharasutra* is advocated. The *ksharakarma* is indicated both for the *arsha* which is bleeding and non-bleeding and where there is predominance of *rakta* and *pitta dosha* while the *agnikarma* is indicated for non-bleeding pile mass with *dosha* predominancy of *kapha-vata*.¹⁰

Ksharasutra and Ksharakarma in Arsha (Hemorrhoids)

The flesh like growth in anal canal which causes obstruction to the passage of stool and which causes the trouble like that of an enemy is called *arsha*.¹¹ It can be correlated with hemorrhoids and rectal polyp. Hemorrhoids can be defined as symptomatic enlargement and distal displacement of the normal anal cushions.¹² *Vataja*, *Pittaja*, *Kaphaja*, *Raktaja*, *Sannipataja* and *Sahaja* are the types of *arsha*.¹³ *Ksharasutra* should not be applied in all types of *arsha*. *Ksharasutra* for *arsha* is not explained by *Acharya* Sushruta, the father of ancient surgery. It is explained by *Acharya* Vagbhatta in *chikitsa sthana* of *Ashtangasangraha*. The *arsha* which is thin at its root and is broad at its ends like that of an umbrella is indicated for *ksharasutra* ligation.¹⁴

It can be concluded that *ksharasutra* ligation is a standard surgical treatment modality in the 2nd, 3rd and 4th degrees of *arsha* (hemorrhoids) with thin root and broad base which is cost-effective, with less post-operative complaints, takes less time, can be performed under local anesthesia, affordable treatment for all classes of people in the society.¹⁵

Ksharakarma is gold standard treatment of *arsha* in Ayurveda. It is indicated for both bleeding and non-bleeding piles.¹⁰

Pratisaraneeya teekshna kshara causes coagulation of hemorrhoid plexus (cauterization of pile mass), necrosis of tissue followed by fibrosis of plexus, adhesion of mucosal, submucosal coat helps in prevention of further dilatation of veins and prevents prolapse of regional mucosa of anus. This makes permanent radical obliteration of hemorrhoids.¹⁶

Apamarga Kshara application has a better potential to treat internal piles of up to 2nd degree hemorrhoid than infrared coagulation. The procedure is cost and time effective and without adverse effects.¹⁷

Fistula-in-ano

Fistula-in-ano is an inflammatory tract lined by unhealthy granulation tissue which has internal opening in the anal canal and external opening in the perianal skin.¹⁸ This is also a common anorectal disease which may be simple or complex. It is classified as high or low level fistula based on whether the track passes above or below the anorectal

ring. As per Parks classification, the most commonly used system, there are four types of fistula-in-ano: Intersphincteric, Transsphincteric, Suprasphincteric and Extrasphincteric. It usually arises from an anorectal abscess which bursts spontaneously or was opened inadequately.¹⁹ While the majority of fistulas are thought to be cryptoglandular in origin, trauma, Crohn's disease, malignancy, radiation, or unusual infections (TB, actinomycosis and Chlamydia) may also produce fistula-in-ano. A complex, recurrent, or nonhealing fistula should raise the suspicion of one of the above diagnoses.²⁰ The patients present with persistent discharge from the internal and/or external openings, an indurated tract is often palpable. Goodsall's rule is used to determine the internal opening.

General principles of management of anal fistula²¹

1. The key to the success of treatment is obliteration of the internal opening.
2. Good local sepsis control
3. The part of the fistula tract that is outside the sphincter should be opened and drained
4. If <30% of sphincter muscle is involved, it can be safely cut without fear of major incontinence.
4. If >30% of the sphincter muscle is involved, then it would be safer to use a seton.
6. Biopsy of the fistula tract should be taken to rule out malignancy.

The modalities of surgical treatment in contemporary science include fistulotomy (lay open of fistula tract) with or without seton insertion and fistulectomy (excision of the tract). Other newer modalities like fibrin glue, fistula plug, Ligation of inter sphincteric tract, video assisted anal fistula treatment have come but they require advanced expertise and the efficacy of these modalities is yet to be established. These modalities have an increased risk of postoperative incontinence, prolonged healing time and increased rate of recurrence. In order to overcome these complications an alternate method of treatment is necessitated. *Ksharasutra* ligation and *Ksharakarma* are the most effective and established therapy for the management of anal fistula which has no risk of incontinence, short healing time and very few chance of recurrence.

Ksharasutra and Ksharakarma in Bhagandara (Fistula-in-ano)

The *pidaka* which is painful, situated within 2 *angula* (finger) from anal verge and when it gets burst it is called *bhagandara*.²² Anal fistula and perianal fistula are the

variants of *bhagandara*. The application of *ksharasutra* in *bhagandara* is first explained in *Charaka samhita* in *shwayathu chikitsa* in *chikitsasthana*. According to him after *virechana*, *eshana*, *patana*, *margavishodhana* and *taila daha* the *bhagandara* should be subjected to gradual *chhedana karma* with *ksharasutra* application. After complete *chhedana* of the tract it should be treated in the line of *vrana* (wound) *chikitsa*.²³ Acharya Sushruta has mentioned the use of *ksharakarma* after *chhedana* in *ushtragriva* and *parisravi bhagandara*. Acharya Vagbhatta has mentioned the use of *ksharasutra* in *parikshepi bhagandara* too.²⁴

Study has shown significant effect of *Ksharasutra* application in *Bhagandara/fistula-in ano* with complete healing of fistulous tract without any complications.^[1]

Chedana (fistulectomy) followed by *Ksharakarma* is effective treatment option for the management of simple and low anal fistula-in ano.²⁵

Ksharasutra in Nadivrana

The *shopha* (inflammatory swelling) even if it is *pakwa* (suppurated) and not treated in time and with the improper diet and habit the *shopha* in long run acquires the form of *nadi* (channels) through which pus flows within the body is called *nadivrana*.²⁶ Perianal sinus, Branchial sinus, and Pilonidal sinus are few examples of *nadivrana*. Acharya Sushruta has explained for the first time the use of *ksharasutra* for the management of *nadivrana* as minimal invasive treatment especially for lean, debilitated, coward and female patient.²⁷ In this method the inflammatory tract gets slowly and gradually cut and healed by the medicated thread. The articles on the management of pilonidal sinus advocates that *ksharasutra* ligation is a simple, minimal invasive technique, more effective, with less discomfort and less chance of recurrence.^{28,29,30}

Study has shown that total excision of pilonidal sinus followed by local application of *kshara* group was better due to less pain as compared to *Ksharasutra* application. In both groups no recurrence was noted till two years follow up period.³¹

CONCLUSION

Treatment of anorectal disorder like hemorrhoids, fistula in ano, perianal sinus and pilonidal sinus ranges from dietary and lifestyle modification to radical surgery, depending on degree and severity of symptoms. Although surgery is an effective treatment of hemorrhoids, it is reserved for advanced disease and it can be associated with significant

complications. Similarly, though there are several treatment options for fistula in ano and pilonidal/perianal sinus, they are having more recurrence and post-operative complications. Meanwhile, the minimal invasive surgery involving *ksharakarma* and *ksharasutra* have been proved to be an effective treatment for anorectal disorders like hemorrhoids, fistula in ano, perianal sinus and pilonidal sinus. It can also be stated that for grade 1-2 hemorrhoids *ksharakarma* is the preferred treatment option while for grade 3-4 hemorrhoids with thin root and broad base *ksharasutra* ligation is the better option. And, for simple fistula *chhedana* (excision) followed by *ksharakarma* is the preferred treatment while for complex fistula *ksharasutra* ligation is the safe and effective procedure.

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