

## Clinical Effect of *Kshara Karma* in the Management of *Nadivrana* with Special Reference to Pilonidal Sinus (PNS) and Review of Literature

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### Abstract

Sushruta mentioned the application of *Kshara* and *Ksharasutra* in the management of *Nadivrana*. *Nadivrana* is nothing but a tract due to not being treated the *Vranashopha* as per Ayurveda. The *nadivrana* can be correlated with the sinus tract at any part of the body tissue. Pilonidal is one kind of sinus and that can be correlated with *Nadivrana*. *Nadivrana* is said to be *Kricchrasadhya* (difficult to treat) and in present era the pilonidal sinus is also complicated one and difficult to treat due to its recurrence nature. In this clinical study total 17 cases of pilonidal sinus were randomly divided into two groups. 10 patients in group-A, total excision of sinus and then applied the *Apamarga Kshara plota* (*Kshara* swab) locally, in group-B rest 7 cases were treated with partial erudition of tract and applied the *Ksharasutra*. In both the group post operative wounds healed and cured the patients. Total excision followed by local application 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. Hence the study is concluded that excision and *Kshara karma* in pilonidal sinus is one of the potential treatment options to avoid recurrence.

**Keywords:** *Nadivrana*; *Kshara*; *Ksharasutra*; Pilonidal Sinus.

### Introduction

Pilonidal sinus is the synonymous to jeep disease. It is a common mal formation which has no connection with the rectum or the anal canal. But in rare instances, a sinus in the ano-coccygeal area is congenital. It occurs over the sacrococcygeal region. The origin of occurrence is associated with the neurenteric canal and it is viewed that the development is related to blockage of a congenital coccygeal sinus which is a vestige of this canal. This is substantiated by evidence that the pilonidal sinus results from penetration of local skin by growing hairs. The ingrowths of such hairs set the stage for cyst formation and repeated infection. This lesion may often be present from birth, but usually manifest in the late adolescent or early adult. Pilonidal is defined to pertaining a "nest of hairs", that pilo comes from

the ward pilus which means hairs and nidal comes from nidus that means, nest [1]. In this regard the meaningful ward is called as nest of hairs. In fact pilonidal sinus presents to the sinus which is having the nest of hairs. It is also called as the Jeep driver's disease. Because it is observed that the bumpy driving merely aggravates a congenital condition for the disease. In Ayurveda on the basis of sign and symptoms this disease can be correlated with *Nadivrana* [2]. The management of *Nadivrana* mentioned in classic is -*Ksharakarma*, *Ksharasutra* and even *agnikarm* [3].

#### *Formation of Pilonidal sinus and Incidence*

When the buttocks move during sitting, the hairs are broken off by friction and got collected in the cleft. After defecation, when toilet paper is used to clean the part, the hair, which is entangled in fecal matter, is also swept into the cleft.

These types of loose hairs may penetrate in the soft and moistened skin of the inter gluteal furrow or they may invade the open mouth of sudoriferous gland, causing dermatitis and inflammation. Due to intermittent negative pressure, other loose hairs around that area can also be sucked into that pit. It usually presents in males during the age of thirty

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years. It is rarely found in individuals, of over the age of forty, in children and adolescents. The male female ratio is 6:1 [4].

#### *Etiology of Pilonidal Sinus*

There are various theories to explain the etiology of pilonidal sinus, but the theory, which is mostly accepted, suggests that- the problem is acquired by penetration of hairs and subsequent entry of infection. Areas other than ano-coccygeal region where pilonidal sinus may be found are more often seen in the Jeep drivers, inter digital cleft of men's hair dresser, inter digital web of foot of the worker of hair mattress factory, in axilla, in umbilicus, in face also it may be occurred.

#### *Pathology of Pilonidal Sinus*

Hair shafts are found either lying loose in the sinus / embedded in granulation tissue or deep in mature scar tissue. Generally the foreign body giant cells with dead hairs are evidentially observed. Histopathologically the sinus is lined with the stratified squamous epithelium.

#### *Clinical features of Pilonidal sinus*

- It usually becomes evident on getting infected.
- Typically it starts at an opening about two cm posterior to the anus, which extends
- Sub-cutaneously in a head ward direction for about 2-5 cm, leading to a cavity
- Presence of chronic sinus about the level of the first piece of coccyx Figures 1-2.
- Tuft of hair is projecting from its mouth
- Bloodstained foul discharge comes out from the sinus.
- Secondary openings may be present in the surrounding areas of the main sinus.
- Due to recurrent infection, pain and tenderness are also present.

#### *Local Examination*

In inspection primary sinus may be one or more but as many as six openings. All the openings occur in the middle line between the level of the sacro-coccygeal joint and the tip of the coccyx (Figures 3-4). On probing sinus passes upwards and forwards towards the sacrum. It does not reach the bone but ends blindly near the bone.

#### *Complications*

The complications of pilonidal sinus arise if not treated in time; these are formation of abscess, recurrent inflammation and recurrence of sinus formation which hampers the quality of life in young individuals.

#### *Treatment*

In conservative the principles of treatment is adequate rest, warm water sitz bath, local dressing and administration of broad spectrum antibiotics if infection persist. If above measures fails then surgical intervention with excision of Pilonidal sinus is required. It may be carried out by means of wide excision that is Z pasty, laying open, and Marsupialization asa per condition.

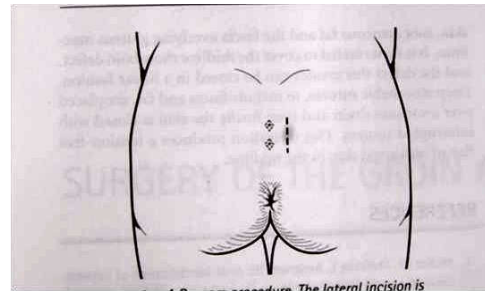


Fig. 1: Site of pilonidal sinus

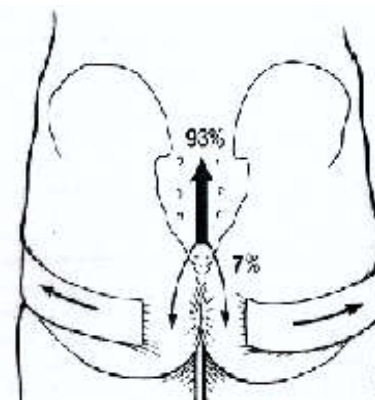


Fig. 2: Incidences as per site

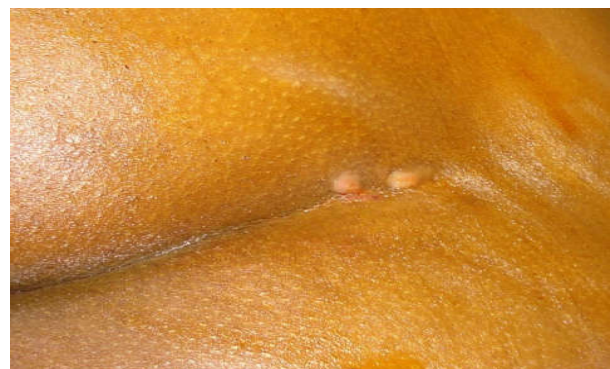


Fig. 3: New case of pilonidal sinus



Fig. 4: Recurrent pilonidal sinus (Before treatment)

### Material and Methods

The patients of pilonidal sinus were selected from OPD of GAMH, Puri (2002-2006), OPD of IPGT & RA Ayurveda Research Hospital, Jamnagar (2007-2010) NRHM-AYUSH, Government Ayurveda. Hospitals & Dispensary, Center for Care of Ano Rectum Research by Indian System of Medicines and Allied (CCARRISMA) in Global health care hospital, Bhubaneswar, Odisha (2011-2015). The selection criterion of patient was, patient having signs and symptoms of pilonidal sinus with evidence of sinus with sinograph. The selected patients were randomly divided into two groups.

In group A (n=10) total excision of sinus tract followed by local application of *Apamarga Kshara plota* (swab). In group-B (n=07) partial excision / erudition of tract and then application (threading) *Apamarga Ksharasutra*. The procedure has been conducted as per the need of anesthesia that is spinal anesthesia was used in 10 cases while local anesthesia was used in 07 patients.

*Arogya Rasayan* is a herbo-mineral composition; tablet of 250 mg three times a day, 8 hourly was used as Adjuvant Ayurveda medicine in 15 patients of both groups post operatively for a period of six weeks. But in 2 complicated cases were given for another 3 weeks. This compound medicine act with anti-inflammatory, healing, and above all rejuvenate actions as the drugs contain the same properties known from their classical descriptions. This is *anubhuta yoga* (experienced medicine) and having the following ingredients and SOPs [5].

#### Ingredients of *Arogya Rasayan*:

1. Abhra bhasma-(Calcined mica/Mica Ash/Oxidized mica) 01part

2. Bang bhasma(Tin calcinations) -01 part
3. Lauha bhasma(Iron calcinations)- 01 part
4. Gandhaka bhasma (Sulphur calcinations)- 01 part
5. Shilayatu (Asphaltum mineral)- 01 part
6. Neem-Azadirachta Indica-leaves powder-02 parts
7. Aswagandha (Withania Somnifera)-Roots powder- 02 parts
8. Bhumikusmanda (Pueraria tuberosa DC)- Roots powder- 02 parts
9. Amalaki (Emblca officinalis Gaertn)- fruits powder- 02 parts
10. Haridra (Curcuma longa)- Rhizome powder-02 parts
11. Mushali,( Asparagus adscendens Roxb) - Roots powder- 02 parts
12. Purified guggulu,(Commiphora Mukul)- Guggulu- 02 parts
13. Guduchi (Tinospora cordifolia)- Stem powder- 02 parts
14. Sunth (Zingiber officinale)(dry ginger)- Rhizome powder- 02 parts
15. lahasuna-(Allium sativum)-Rhizome paste- 02 parts

#### Preparation

Fine powder of all these raw drugs was made except *Allium sativum*. All above mineral drugs having Sataputi bhasms (100 times PUTA paka or oxidized) were mixed with grinded paste of *Allium Sativum*. Then all drugs were well mixed and made Mardan(Triturating) with fresh juice of required quantity of raw Amalki and Haridra. Finally tablet of 250 mg was prepared under classical directions [6]. This herbo-mineral medicine has been formulated by experience over practice of administration for healing and filling of wound by tissue regeneration even in chronic non specific wounds and also used as aphrodisiac and rejuvenation

#### Methodology of Excision of sinus and KST Application

##### Pre-Operative Measures

The skin of the surroundings of the lesion should be shaved in case of the hairy patient. All sorts of other pre operative measures like NBM (Nil by mouth), SWE (Soap water enema), written consent, part preparation were adopted.

### Operative Procedures

#### Group-A: *Kshara Plot Application (KPA)*

It is a modified procedure of eventration (Maurice technique) [Bailey and love] which has been adopted under PCA therapy [7]. Potential Cauterization Agents therapy (PCA) is denoted the complete *Kshara karma* i.e. one of the most important Para surgical procedure. It contains number of agents or devices or Para surgical products like *Kshara*- granules, lotions, ointments, oils, wicks, threads, *plotas* which are being used as per need of the surgeon according to the graveness of the condition of the disease.

Jack knife position, lateral position and prone position was given as per comfort of patient. Painting with antiseptic lotion and draping was done. A probe director is inserted into the cavity of the sinus and it is laid open completely along with its length. All diverticulitis were dissected and then all nests of hairs and debris were removed completely. Under this procedure all the cavities of sinuses were explored and cleaned. Bleeding points were clamped by the artery forceps. It is most important that the *Kshara plota* (Caustic swab) is applied immediately after removing the artery forceps one by one. If some points bleed, then, concentrated *Kshara* lotion or cautery was used as per requirement. After half an hour caustic swab is removed followed by the pressure dressing with packing of gauze dipped in *Kshara* ointment (Caustic ointment).

#### Group-B: *KST (Ksharasutra Threading)*

Due painting and draping was done with required materials. The route/routes of sinus with the cavity were traced by probing. Then partial erudition superficially up to uninvaded of fibrous tissue was done in order to making way/ways for well debridation /discharge of the debris, from the sloughed and fibrosis part, following to clean up of all the hairs of nest and debris in complete form on possible ways from the cavity of pilonidal sinus. There after the *Apamarga ksharasutra* threading was tied just touching the two ends through the tract without any pressure in single and multiple sinus tracts in one sitting. Dressing was undertaken and light superficial bandage was applied. Out of 07 cases only 02 cases had multiple sinuses with tracts where as rest cases were having the single tract.

#### Post Operative Measures

Next day all the packing were removed in case of Group- A cases and dressings of the following days were continued with *Jatikalp Ghrita* Ointment (JKGO).

[8]. But in Group-B, the *Ksharasutra* was changed with application of new one after 5 days. This process was repeated till the complete whole tract had been cut through spontaneously without any pressure effect. During this period daily dressing was continued with observation of hyper granulation which was not allowed to grow. The growth of abnormal tissue deranges the healing process and it was taken care up during daily dressing. The JKG Ointment was applied on normal granulated wound. Guide lines for healing was strictly followed. The *Rasayana* medicine-AR-13 tab. (Rejuvenate dugs) was administrated in both the groups for the better healing and immune development.

#### Observations

Among 17 cases of pilonidal sinus 15 patients were male and only 2 patients were female. It is clearly mentioned that the etiology is excessive hair at buttock and incidence are supposed to be more in male [9]. It was noted that the patients enrolled in this study were in between the age of 15-35 years and it is obvious, the disease affects in younger age group, individuals due to hormonal changes[10]. The chronicity of disease was 1-3 years in 10 patients, 3-5 years in 4 patients and more than 5 years in 3 patients which showed that due to hampered quality of life, due to soiling of garments and continuous discharge; patients consult on later stage, so disease became chronic in nature. In this study non operated or new cases were 11 while once operated and recurred cases were 6 which showed the recurrence nature of disease even after surgery[11].

In surgery the total debris of pathological invaded tissues are not possible to be removed and remaining remnants thereby produce the recurrence. The patients noted with single sinus opening were 9, while multiple sinus openings were observed in 8 patients. Due to chronicity there developed multiple openings to drain the collected pus or debris as response of the body tissue. It was observed that all the patients were having good digestion, bowel clearance and so to say improved metabolic effect with psychologically healthy appearance which perhaps promotes their healing; it might be due to rejuvenate drugs.

In this article one case was operated by lay open and application of *Kshara* in the form of *Kshara plota* (Figure 5). The dressing with *Kshara* plot was continued and there was complete debridement of fibrotic tissue with mild slough within seven days (Figure 6). Dressing continue and wound became clean and wound contraction was noted remarkable (Figure 7). The post operative wound was healed completely within 4 weeks (Figure 8).



Fig. 5: Pilonidal Sinus (After operation)



Fig. 6: 7<sup>th</sup> post operative day



Fig. 7: 14<sup>th</sup> post operative day



Fig. 8: 30<sup>th</sup> post operative day

## Results and Discussion

The duration of treatment in 15 complete cured cases were noted from, 10 patients in group -A had taken 2 weeks -14 days and 05 patients in group-B had taken 4 weeks- 28 days while in 2 complicated, deep and long sinus cases in group -B taken 9 weeks to complete cure. During the treatment period patient were ambulatory and advised to do their routine works. The average hospital stay was 3-4 days to observe after operation. All patients were called for dressing daily till complete healing of the tract and cavity, but in KST cases, the Ksharasutra was changed in 5<sup>th</sup> day of every week with the dressing. In both the groups the application of Kshara resulted to drain the debris of the sinus and nearby the pus pockets and destroyed all the sloughed and fibrosis tissues making a clean wound by which the regeneration of tissues grew with the body immune effects and filling up of the cavity was noted .

*Kshara* destroys all the debris, foreign body, giant cells, hemostats the bleed points, and promotes healing [12]. It ensures for nil or negligible recurrence. Close inspection of the wound was continued to avoid the bridging of any healing and fibrosis development. It is observed that within second week wound is filled with healthy granulation tissue and complete epithelialization developed within fourth week. The wound was healed with normal healthy tissue from all surroundings and filling from bottom level of the wound. No hyper granulation of tissue was allowed to remain during dressing and the Kshara ointment has also effect to spoil it. After complete healing the skin surface attained its skin contraction in normal course of time.

During this period body required the help of antioxidant and immunomodulator drugs which in fact was provided by the rejuvenate medicine. The tablet, Arogya Rasayan was used postoperatively in all cases became helpful for healing and filling up by regenerating tissue in post operative wound, because this tablet is strengthened and powered to be effected by its components to act promptly. *Neem* leaves have antifungal and antibacterial properties; it exhibits anti-inflammatory activity and induces reactive oxygen species (ROS) and the pro-inflammatory cytokines TNF- $\alpha$  [13,14]. That's why it is an excellent skin care ingredient which relieves dry skin and soothes itchiness, redness and irritation, improving the general skin health and immunity, combating bacterial infections such as acne, boils and ulcers. Its antimicrobial properties help to heal wounds without causing any infections or septic conditions. All other ingredients which are used in this compound

medicine are having all most all equal pharmacological actions like- anti-inflammatory, antacid, digestive stimulant, hepato-protective, powerful cellular regenerator, hematogenic, immunomodulator, nutritious tonic, nervine stimulant, general body tonic, energy booster, aphrodisiac. Owing to its multi-actions it is useful and therapeutically used in gastric complaints, skin diseases, splenomegaly, obesity, diabetes, vomiting, herpes, abdominal colic, chronic respiratory disorders, liver disorders, piles, fistula, chronic diseases, emaciation, muscle wasting, dizziness, and delusion. Therefore this *Arogya Rasayana* having its incredible values of ingredients has therapeutic effect for curing the disease.

### Conclusion

Under PCA therapy, integration type of treatment has been proved better result and in maximum follow up cases it has been observed that the reoccurrence rate is quite negligible. As it was a pilot clinical study further more number of cases is suggested for complete research to establish this therapy for the treatment of pilonidal sinus.

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