

To Study the Effect of *Ksharavarti* in the management of Pilonidal Sinus – A Case Study

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ABSTRACT

Pilonidal Sinus also known as "Jeep drivers' bottom," is an acquired disease driven by the embedding of loose hair within hair follicles and unhealthy diseased granulation tissue usually located in the natal cleft. In *Ayurveda*, *Nadi Vrana* is a chronic tubular sinus tract; "*Nadi*" means "a reed," and "*Vrana*" denotes "an ulcer." *Sushruta* has described that if *Vrana-Shopha* is not timely drained in *Pakkawavastha* or if it is neglected at a particular stage, then it invades into deeper tissues, resulting in the formation of *Nadi Vrana*. *Acharya Sushruta* has mentioned eight types of sinuses as *Nadi Vrana*. Among these, Pilonidal sinus can be considered under *Shalyaj Nadi Vrana* i.e sinus due to foreign body. He had explained *Shashtra Chikitsa* with the intervention of *Kshara Varti* as one of the treatment for *Nadi Vrana* (sinuses). This study aims to evaluate the efficacy of *Kshara Varti* in the management of Pilonidal sinus, which is a minimally invasive Ayurvedic parasurgical procedure for managing Pilonidal sinus, acting as a safe alternative to surgery. A 20-year-old male patient with complaints of painful swelling over natal cleft and pus discharge through it, diagnosed as pilonidal sinus was treated with *Ksharavarti* insertion into the sinus for 14 days, which was cured and No recurrence or No any complaint were found in the patient during follow up.

Keywords: Pilonidal Sinus, *Shalyaja Nadi Vrana*, *Kshara Varti*, Parasurgical Procedure.

Introduction

Pilonidal sinus is a chronic inflammatory condition of the sacrococcygeal region, predominantly affecting young adults, especially males¹. It is characterized by the formation of a sinus tract containing hair, debris, and unhealthy granulation tissue, typically situated in the natal cleft. The condition is widely regarded as an acquired disorder resulting from the penetration of loose hair into the skin, which triggers a foreign body reaction, recurrent infection, and persistent discharge. Clinically, it presents with pain, swelling, erythema, and purulent discharge, often leading to significant discomfort and interference with daily activities. Despite the availability of various surgical treatment modalities, recurrence and postoperative complications continue to pose a challenge.

In *Ayurveda*, a comparable clinical entity is described as *Nadi Vrana*, defined as a chronic sinus tract with continuous pus discharge. *Sushruta Samhita* explains that improper or delayed management of *Vrana Shopha* (inflammatory swelling), particularly during its suppurative stage (*Pakka Avastha*), may result in deeper tissue involvement and subsequent formation of *Nadi Vrana*². Among the eight types described, pilonidal sinus closely correlates with *Shalyaja Nadi Vrana*, wherein a foreign body acts as the primary etiological factor.

Management of *Nadi Vrana* in *Ayurveda* encompasses both *Shodhana* (purificatory) and *Ropana* (healing) therapies³. *Kshara Varti*, a parasurgical modality described by *Sushruta*, involves the insertion of a medicated alkaline wick into the sinus tract. It promotes debridement, facilitates drainage, and induces chemical cauterization of unhealthy tissue, thereby enhancing healing and minimizing recurrence. Owing to its minimally invasive nature, cost-effectiveness, and lower complication rates, *Kshara Varti* represents a promising alternative to conventional surgical approaches in the management of pilonidal sinus⁴.

AIM

To study the effect of *Kshara Varti* in the management of Pilonidal Sinus W.S.R *Nadi Vrana*

OBJECTIVES

To evaluate the efficacy of *Kshara Varti* in Pilonidal Sinus (*Nadi Vrana*)

To review the literature regarding Pilonidal Sinus and *Nadi Vrana* through the Ayurvedic and Modern classical texts with recent research articles.

MATERIALS AND METHODS

After doing local examination and probing the diagnosis was made of Pilonidal Sinus (*Nadi Vrana*) then after making sure that the patient is suitable for *Kshara Varti* insertion in the sinus track, *Kshara Varti* was inserted in the track once a day for 14 days. Informed written consent was obtained prior to intervention. Sinus site and its periphery cleaned with Normal Saline. *Kshara Varti* inserted into the sinus cavity. Dry gauze kept and dressing done.

Ayurvedic perspective on sinus and *Kshara Varti*: *Acharya Sushruta* discussed sinus under the title of nadivarna in Ayurvedic science, along with their symptoms and treatment. *Acharya Sushruta* states that if an irresponsible person ignores a suppurated inflammation, confuses it or an unripe one, or lets a lot of pus build up in an ulcer, the pus will penetrate inside the patient's previously mentioned tissues (skin, subcutaneous tissue, muscle).⁵ It is referred to as "gait" (track) due to its abundant flow, and it is opened as "Nadi" (sinus) since it runs like a drain. That is brought on by the combined action of the three *Doshas* (*Vata, Pitta, and Kapha*), as well as by each of them acting alone or by two of them working together. The other are due to *Shalya* (foreign bodies) such as hair, straw, wood pieces, stones, dust particles, bone pieces etc.⁶ So these are eight types of *Nadi* (sinus) are told, among these Pilonidal sinus can be considered to *Shalyaj Nadi* (foreign body sinus). *Acharya Sushruta* advises the use of *Kshara* (alkaline preparation) in the form of *Varti*⁷ (medicated wick) for *Nadivrana* to achieve *Lekhana* (scraping of unhealthy tissue), *Shodhana* (cleansing of sinus tract) and *Ropana* (healing promotion). *Kshara Varti* is inserted into the sinus tract which causes chemical cauterization (*Kshara Karma*) which leads to Slough removal, Debridement of tract walls, Gradual healing from base.

Properties of *Kshara*:⁸

<i>Rasa</i>	<i>Katu</i>
<i>Veerya</i>	<i>Ushna</i>
<i>Varna</i>	<i>Shukla</i>
<i>Guna</i>	<i>Saumya, Tikshana, Agneya</i>
<i>Doshaguna</i>	<i>Tridoshaguna</i>
<i>Karma</i>	<i>Dahana, Pachana, Darana, Vilayana, Shodhana, Ropana, Lekhana</i>

CASE REPORT

A 20-year-old male patient visited in *Shalyatantra* department of our hospital presented with complaints of painful swelling over natal cleft and pus discharge through it since 1 month. On local examination, a sinus track opening was seen at natal cleft with surrounding induration and mild active pus discharge through the opening. After taking informed consent, well lubricated with 2% lignocaine jelly, probe was inserted into the track for assessment of its length which was 1.5cm. The patient was chosen for *Kshara Varti* insertion in the Sinus track.

Dasha Vidha Pariksha:

- *Dushya Dosha* – *Kapha–Vata Dushti*
- *Dushya Dhātu*– *Rakta, Mamsa, and Meda Dhātu*.
- *Desha*: *Deha Desha: Sthula Sharira* (fat body built)

Bhumi Desha: Usually *Anupa Desha* (moist, humid conditions favoring *Kapha* predominance)

- *Kala:* Chronic condition; often aggravated in *Varsha Ritu* (rainy season) due to increased *Kapha* and *Vata*.
- *Vyadhyavastha - Chirakari Avastha* (chronic stage) with recurrent infection and persistent discharge.
- *Prakruti:* *Vatakapha*
- *Vaya:* *Madhyama Vaya* (young adult age group)
- *Satwa:* *Madhyama*
- *Satmya:* *Avyayama Satmya* (adapted to sedentary lifestyle, a risk factor)
- *Aharavastha:* *Aharashakti – Avaram* (reduced intake capacity)
- *Jaranashakti – Avaram* (poor digestion/metabolism)



Fig- Local examination of Sinus track present at natal cleft.



Fig-2 Material used for *Kshara Varti* insertion.

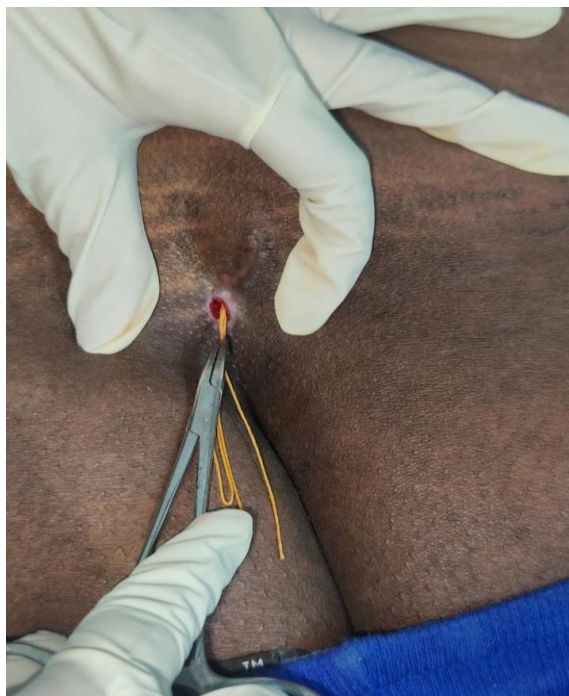


Fig-3 *Kshara Varti* insetion with the help of curved artery forceps.



Fig-4 *Kshara Varti* inserted in the sinus track.



Fig-5 Dressing done.



Fig-6 Kshara Varti was changed everyday. *Shodhana* and *Ropana* of track was done.



Fig-7 Sinus track was completely healed.

OBSERVATION:

A 20-year-old male patient presented with a sinus tract in the natal cleft associated with pain and purulent discharge for one month. On examination, a single external opening with induration and mild discharge was observed. The length of the sinus tract was approximately 1.5 cm on probing.

During the course of treatment with *Kshara Varti* for 14 days, the following observations were noted:

- Gradual reduction in pain intensity from moderate to mild within the first week, and complete relief by the end of treatment.
- Decrease in purulent discharge was observed from day 3 onwards, with complete cessation by day 10–12.
- Reduction in induration and local inflammation was noted progressively.
- Healthy granulation tissue formation was observed from the base of the sinus tract.
- No evidence of secondary infection or adverse reaction during the treatment period.
- The sinus tract showed gradual contraction and healing without surgical excision.

Assessment Criteria (Before and After Treatment)

Parameter	Before Treatment	After Treatment
Pain	Moderate	Absent
Discharge	Moderate purulent	Absent
Inflammation	Present	Absent
Induration	Present	Absent
Length of tract	1.5 cm	Healed/closed

RESULT:

The treatment with *Kshara Varti* showed significant clinical improvement in all presenting symptoms of Pilonidal Sinus (*Nadi Vrana*).

- **Pain relief:** Complete reduction (100%) by the end of 14 days.
- **Discharge:** Completely subsided, indicating effective drainage and cleansing of the tract.
- **Inflammation and induration:** Markedly reduced due to the *Shodhana* and *Lekhana* properties of *Kshara*.
- **Healing of sinus tract:** Achieved through gradual debridement and promotion of healthy granulation tissue, leading to closure of the tract.

The overall effect of *Kshara Varti* demonstrated:

- Effective *Shodhana* (cleansing of infected tract)
- Efficient *Lekhana* (removal of unhealthy tissue)
- Enhanced *Ropana* (wound healing)

No recurrence or complications were observed during the short follow-up period.

DISCUSSION:

Pilonidal sinus is a chronic inflammatory condition characterized by a sinus tract containing hair, debris, and granulation tissue, commonly affecting the sacrococcygeal region. The etiopathogenesis is primarily attributed to the penetration of loose hair into the skin, leading to a foreign body reaction, secondary infection, and persistent discharge. In the present case, the clinical features such as pain, purulent discharge, and a sinus opening in the natal cleft closely resemble the description of *Shalyaja Nadi Vrana* in *Ayurveda*.

According to *Acharya Sushruta*, *Nadi Vrana* develops due to improper management of *Vrana Shopha*, particularly in the suppurative stage (*Pakka Avastha*), resulting in the formation of a tract with continuous discharge. The presence of hair acting as a foreign body (*Shalya*) in pilonidal sinus justifies its correlation with *Shalyaja Nadi Vrana*. The involvement of *Kapha* and *Vata Dosha* in this case is evident, where *Kapha* contributes to pus formation and chronicity, while *Vata* is responsible for pain and the formation of sinus tracts.

The principle of management of *Nadi Vrana* includes *Shodhana* (cleansing) and *Ropana* (healing). In this study, *Kshara Varti* was selected as a parasurgical intervention due to its multi-dimensional therapeutic action. The observed clinical outcomes can be explained through both Ayurvedic and modern perspectives.

Kshara possesses *Katu Rasa*, *Ushna Veerya*, *Tikshna* and *Lekhana Guna*, which are instrumental in breaking down unhealthy tissue, liquefying slough, and facilitating drainage. Its *Dahana* and *Pachana* properties help in chemical cauterization of the sinus tract, thereby destroying unhealthy granulation tissue and microbial load. This action is comparable to chemical debridement in modern surgical practice.

The gradual reduction in discharge observed during the treatment can be attributed to the *Shodhana Karma* of *Kshara*, which cleanses the tract and eliminates infection. The *Lekhana* (scraping) property helps in the removal of fibrotic tissue and debris, including embedded hair, which is the primary etiological factor in pilonidal sinus. This prevents further foreign body reaction and recurrence.

The reduction in pain and inflammation may be explained by the alleviation of *Vata* and *Kapha Dosha*. As the infected material is drained and the tract is cleaned, the local pressure decreases, resulting in relief from pain. Additionally, the *Ushna Veerya* of *Kshara* improves local circulation, aiding in faster resolution of inflammation.

Healthy granulation tissue formation and closure of the sinus tract observed in this case indicate effective *Ropana Karma*. *Kshara* promotes healing from the base of the tract, ensuring that no dead space remains, which is a crucial

factor in preventing recurrence. This mechanism is similar to healing by secondary intention, where gradual tissue regeneration leads to complete closure.

Unlike conventional surgical procedures such as excision or flap techniques, which are associated with complications like infection, delayed healing, and recurrence, *Kshara Varti* offers a minimally invasive alternative. It avoids extensive tissue damage, requires minimal infrastructure, and is cost-effective, making it especially suitable in resource-limited settings.

Furthermore, the absence of complications and recurrence in this case highlights the safety and efficacy of the procedure. The daily insertion of *Kshara Varti* ensures continuous action on the sinus tract, maintaining cleanliness and promoting progressive healing.

CONCLUSION:

The present study demonstrates that *Kshara Varti* is an effective, safe, and minimally invasive parasurgical modality in the management of Pilonidal Sinus (*Shalyaja Nadi Vrana*). The treatment showed significant improvement in clinical parameters such as pain, discharge, inflammation, and induration, along with complete healing of the sinus tract.

The therapeutic efficacy of *Kshara Varti* can be attributed to its combined actions of *Shodhana* (cleansing), *Lekhana* (debridement), and *Ropana* (healing), which facilitate removal of unhealthy tissue, eradication of infection, and promotion of healthy granulation from the base of the tract. This approach minimizes the chances of recurrence by ensuring proper healing without residual dead space.

Compared to conventional surgical methods, *Kshara Varti* offers advantages such as reduced tissue trauma, minimal complications, cost-effectiveness, and ease of application, making it a valuable alternative, especially in resource-limited settings.

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