



TRADITIONAL WISDOM, MODERN SUCCESS: TREATING PILONIDAL SINUS WITH UDUMBER KSHEER SUTRA IN AYURVEDA

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ABSTRACT:

Pilonidal sinus, which refers to "nest of hairs," is also known as "Jeep-bottom" since it was particularly typical among Jeep drivers. A pilonidal cyst typically consists of hair, dirt, and other debris. It causes pain and is prone to infection. When infected, it may discharge pus and blood, accompanied by unpleasant odor. Pilonidal sinus disease predominantly affects men and is frequently seen in young adults. The recurrence rate following surgery is relatively high. Pilonidal sinus and Shalyaja Nadi Vrana as mentioned in the Sushruta Samhita are identical. The *Kshara Sutra* for Nadi Vrana is a minimally invasive para-surgical method, this therapy helps the patient return to work sooner and with less discomfort while also reducing problems and recurrence. Within seven weeks, the tract was removed entirely, and the patient fully recovered. The word "Naadi Vrana" refers to the sinus. The primary goals of the classical text are its categorization and administration, including different local and systemic approaches sinus, in a blind route that enters the tissues around it from

an epithelial surface and is surrounded by granulation tissue. Pilonidal disease is thought to affect about 26 out of every 100,000 persons. About 0.7 percent of people have pilonidal disease.

KEY WORDS: Naadi Vrana, Pilonidal Sinus, Jeepbottom, Udumber Ksheer Sutra, Standard Kshar Sutra.

INTRODUCTION:

The Sushruta Samhita is divine literature that describes Shalya Santra, or ancient surgery. The Sushruta Samhita is the Samhita that best describes practically all procedures. In many illnesses, he has discussed Shastra and Anushastra Karma. One of them that receives treatment from Anushastra karma is Naadi vrana. Naadi Vrana comes in eight totally different types, including Vaatik, Paitik, Kaphaj, Pit-Pitaj, Vaat-Pitaj, Pit-Kaphaj, Sannipatik, and Aagantuja.¹The word "Naadi Vrana" refers to the sinus. The primary goals of the classical text are its categorization and administration, including different local and systemic approaches.² A sinus is a blind conduit lined with granulation tissue, extending from an epithelial surface into the surrounding tissues. The term "sinus" is derived from Latin, meaning "hole" or "bay."³According to Mayo's theory, which was first documented in 1883, the fundamental reason is insufficient separation of the mesoderm and ectoderm layers during development. In 1880, Hodges coined the name "pilonidal sinus," stating that hair caused the formation of the sinus.⁴ Acquired theory is the current term for Hodges theory. Sinuses form as a result of hair causing a foreign body response in the tissue around it. Pilonidal cysts can form anywhere on the body, but the sacrococcygeal and upper gluteal clefts are where they are most frequently found.⁵ Chronic pinonidal disease causes varying degrees of inflammation and scarring; the highlighted chamber is connected to the skin below through the sinus and frequently empties under pressure.

Before puberty or after the age of 40, this acquired condition is infrequent and mostly affects hirsute males. Between 3:1 and 4:1 is the male to female ratio that is affected. Even though the pilonidal sinuses only responsible for 15% of anal suppuration, they have a significant negative impact on health and productivity in otherwise healthy people.⁶ The sinus tract has a smooth look thanks to the squamous epithelium that lines it. The sinus tract ends in a subcutaneous chamber that is lined with granulation tissue and hair nests. In essence, the sinus tract apertures are deep cavity extensions. As a result, an abscess may form lateral to the midline or in the middle.⁷A patient has chronic pilonidal disease if he or she has had at least one treatment to drain a pilonidal abscess but still has a pilonidal sinus tract. If there is continuous drainage but no acute abscess, it is referred to as a pilonidal sinus. Synonyms include "Jeep Disease" or "Jeep Rider's Disease," "Pilonidal Abscess," "Pilonidal Dimple," "Pilonidal Disease," "Pilonidal Cyst," and "Pilonidal Sinus."

In the context of contemporary medical sciences, Naadi Vrana is comparable to Pilonidal Sinus. Pilus, which means hairs, and Nidal, which means nest, are the roots of the word pilonidal. Due to its prevalence among Jeep drivers, it is also known as the "Jeep bottom".⁸ A tiny tube-like structure called the pilonidal sinus may develop from an infection site and extend to the skin's surface (PNS). The cyst's contents discharge into the pilonidal sinus. Although the patient might not experience any discomfort after the cyst has been emptied, pilonidal cysts are often bothersome.⁹ In pilonidal cysts, dirt, debris, and hair are frequently seen. It is commonly infectious and can be quite painful. If it gets infected, it could flow blood and pus and smell bad. Pilonidal sinus (PNS) primarily affects men and is also prevalent among young individuals. Additionally, it is more common in people who spend extended periods sitting, such as cab drivers.¹⁰ Pilonidal illness affects roughly 26 out of every 100,000 people. Pilonidal disease has an incidence rate of about 0.7%.¹¹ Pilonidal illness primarily affects males, with a ratio of roughly 3:1 to 1. It mostly affects Caucasian people, usually in their late teens to early twenties, and declines beyond age 25, with uncommon cases occurring until age 45.¹² The condition was once believed to be congenital, stemming from a lack of fusion in the dorsal midline and the entrapment of hair follicles in the sacrococcygeal region. However, more recent evidence strongly suggests an acquired etiology.

There are several findings that support an acquired origin. Work may be a contributing element. The pilonidal disease has been seen in the fingers of people who work with animals, including barbers, dog groomers, cow milkers, and sheep shearers. Bascom asserts that keratin-infected hair follicles in the gluteal cleft foster local infection and abscess formation. Additionally, he suggests that local suction forces facilitate the entry of hair into the infected pit, where it becomes lodged in the abscess cavity. Complications of the condition include recurrent sinus formation, which is primarily caused by insufficient excision of the sinus or hair growth in the scar tissue. This recurrence is often due to improper surgical technique or inadequate post-operative care, with hair regrowth into the healing area being a common factor. Although rare, there is a possibility of malignant regrowth occurring in the lesion. In addition, meningitis may also occur in rare cases. The most frequent surgical therapy used today to treat a pilonidal sinus is the excision of the sinus using either an open or closed technique. closed techniques including the Karydakis Procedure, the Bascom Technique, and the "Z" Plasty. Even if a sinus is completely removed surgically, there is always a potential of recurrence and other issues, such as slow wound healing.¹³

Treatment with the Pilonidal Sinus *Kshara Sutra* is risk-free, ambulatory, and safe. Additionally, a multi-centric study revealed that the technique is quite successful and free of repeated patterns. The recuperation period is significantly longer than with standard surgery, the study also found. Additionally, it has been discovered that the Pilonidal Sinus therapy has less discomfort than the *Kshara Sutra* therapy. As a result, efforts are still being made to solve some of *Kshara Sutra*'s drawbacks. India is a huge country with a diverse flora, thus it's important to look for other plant sources that can produce superior outcomes. Previous research has demonstrated that the *Kshara Sutra*, which has a positive impact on the Pilonidal Sinus, may be made using the latex of specific plants. To minimize discomfort, a comparative study will be conducted to evaluate the effects of the Standard *Kshara Sutra* versus the *Ksheer Sutra* prepared with Udumber latex.

When the *Vrana* enters chronic phases as a result of poor management or carelessness, the condition is referred to be *Nadi Vrana*. *Nadi Vrana* is a tubular conduit of pus or channels that develops into the deeper tissues as a result of improper incision and draining of a matured abscess and concurrent patient indulgence in inappropriate diets. According to *Nidana Sthana*, a physician in the *Sushruta Samhita*, when a patient has a *Pakva soph*a or a *Vrana* full of pus and the patient continues to eat unhealthily and engage in harmful activities, the pus seeps deep within the body and kills the tissues. *Gati* is the name given to it because of how much it moves within, and *Nadi* is the name given to it because it spreads through a tube (sinus).

In Ayurveda, treating certain conditions often involves a comprehensive approach. This includes *Chhedana* (incision), where an incision is made to drain accumulated fluids or pus. Following this, *Shalya Nirharan* (removal of foreign bodies) focuses on extracting any hairs, pus, or other debris from the wound to prevent complications. The process continues with *Margashodhana* (tract cleansing), which ensures that the tract or sinus is thoroughly cleaned to eliminate impurities and infection. Finally, *Ropana* (wound care) is implemented to promote healing and prevent infection, often utilizing herbal treatments and bandaging techniques.

Materials and Methods

A 29-year-old hirsute male patient attended the outpatient department of *Shalya tantra* of our institute. He had trouble sitting down and was unable to do it without cursing. According to the patient, he was asymptomatic before 10-12 days back. On enquire he had history of a serous discharge from the mid gluteal cleft. Occasionally experiences throbbing pain, itching, and discomfort in the low back and natal cleft regions. Before 10–12 days, the patient had a history of an abscess between gluteal cleft. He had recovery from the acute ailment after taking antibiotics and anti-inflammatory medications from an allopathic doctor for seven days. He gradually created a little hole close to his gluteal cleft. The patient had no prior history of painful defecation, rectal blood, mucus, or any other anus discharge. There is no history of Diabetes mellitus, Hypertension, Tuberculosis, etc. Patient had a healthy appetite, regular bowel movements, decent sleep, and no addictions. Respiratory rate, blood pressure, and pulse all fell within normal ranges.

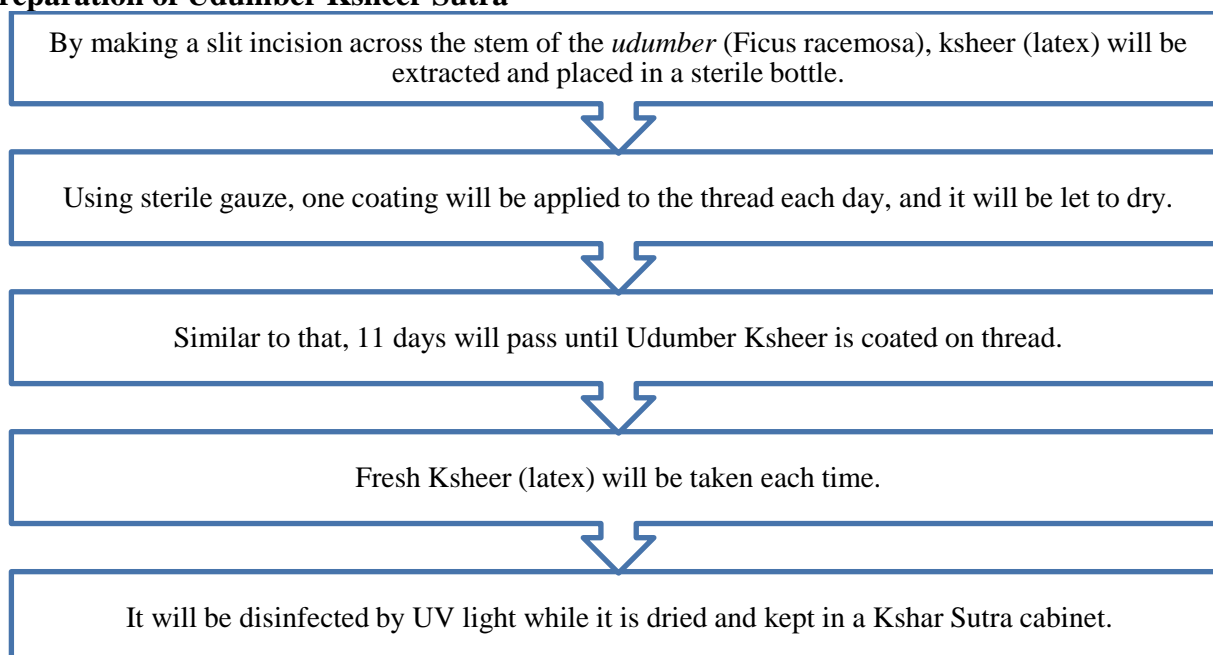
There was no relevant family history for the patient. General Examination: The patient's vital signs are as follows: pulse rate is 86 beats per minute and regular; blood pressure is recorded at 130/90 mmHg; respiratory rate is 20 breaths per minute; and body temperature is 98.8°F. The patient has a height of 5'7" (170 cm) and weighs 70 kg. In prone posture, a local examination was performed. The results showed that the patient was hairy and had a mid-gluteal cleft opening with a fair amount of hair around. At the sinus orifice, a cord-like indurated structure was detected during palpation. While palpating the local site, there was a slight degree of discomfort and a watery discharge. There was neither another hole or lump present in the gluteal cleft or close by. From the aperture, probing was used to locate the tract's branching and extension. During probing in the mid gluteal cleft, a tract of about 7 cm was discovered. Diagnosis- Pilonidal sinus was determined to be the diagnosis after a comprehensive investigation.

Investigations: -

Test	Result
Hemoglobin (Hb)	13.8 gm/dl
White Blood Cell Count (WBC)	7800/mm ³
Liver Function Test (LFT)	Normal
Kidney Function Test (KFT)	Normal
Erythrocyte Sedimentation Rate (ESR)	35 mm/1st hour
Bleeding Time (B.T.)	2 min 15 sec
Clotting Time (C.T.)	3 min 55 sec
HIV	Nonreactive
HBsAg	Nonreactive
Blood Type	O positive
X-ray PA Image	Normal
Electrocardiogram (ECG)	Normal

Planned procedure: - The patient was given a thorough explanation of the condition and how it should be managed by *Udumber Ksheer Sutra* treatment under local anaesthesia as a day operation was scheduled.

Preparation of Udumber Ksheer Sutra



Procedure: - Essential steps of *Ksheer Sutra* application: After performing the necessary aseptic measures, the patient was held in the prone position while the *Ksheer Sutra* was applied. Under local anaesthesia, the *Ksheer Sutra* surgery was carried out. The tract was examined using a probe after the bendable probe had been carefully inserted. The probe was inserted into the tract until the tip could be felt by the finger, at which point it was removed through an artificial aperture at the opposite end of the Pilonidal sinus. The *Ksheer Sutra* was then inserted inside the probe's eye. The whole sinus system was threaded by *Ksheer Sutra* while the probe was delicately removed. A tuft of hair was observed emerging from the pilonidal sinus tract during this treatment, coupled with an unpleasant sero-purulent discharge. The *Ksheer Sutra*'s two termini were then tied together outside. After that, the operated region was cleaned with ordinary saline and covered with a cotton pad. The surgery went off without any problems.

The patient's vital signs were within normal ranges. **Post-operative Management:** - Following surgery, the patient was instructed to begin moving around. The patient was told to warm fomentation twice day, to maintain the surgical site clean and dry, and to change the *Ksheer Sutra* on a weekly basis by measuring and recording its length and method. The thread was replaced on a weekly basis because it functions as a perfect delivery system for drugs in the minute channel and, in addition, maintains the tract patent for seven days, allowing the infectious material to drain out, which is crucial for Pilonidal sinus recovery. Preparation of local parts was guaranteed each week.

Assesment of the patient was done by objectively by Cutting Rate per weak and Subjectively by Pain (table 1), Discharge (table 2), Tenderness (table 3), Induration (table 4)

1. Objective Parameters: Cutting rate per week

Unit cutting rate per week: ⁻¹⁴

Initial length of the track – Length of the track at the end study

X 7

Total duration of study

2. Subjective Parameters- Pain, Discharge, Tenderness, Induration ¹⁵

Table 1: Grading of Pain on Visual Analogue Scale

Grade	Explanation
0	No pain
1	Mild pain (1-3 on Visual Analogue Scale)
2	Moderate pain (4-7 on Visual Analogue Scale)
3	Severe pain (8-10 on Visual Analogue Scale)

Table 2: Grading of Discharge

Grade	Explanation
0	No discharge
1	Mild - discharge wets one pad of gauze
2	Moderate - discharge wets two pads of gauze
3	Profuse - discharge wets more than two pads of gauze

Table 3: Grading of Tenderness

Grade	Explanation
0	No tenderness
1	Mild tenderness on firm pressure
2	Moderate tenderness on gentle pressure
3	Severe tenderness - patient avoids touching

Table 4: Grading of Induration

Grade	Explanation
0	No inflammatory reaction
1	Mild inflammatory reaction with tissue edema and cellular response
2	Moderate reaction with involvement of reticular layer of dermis
3	Severe reaction with involvement of subcutaneous tissue

TABLE - 5: Patient Treatment Timeline

Date	Procedure	Medications
28/04/2022	Admission in Male Surgical Ward	Triphala Guggulu 250 mg BD Triphala Churna 5 gm HS with lukewarm water
29/04/2022	All routine investigations done. All are within normal range.	Triphala Guggulu 250 mg BD Triphala Churna 5 gm HS with lukewarm water
30/04/2022	Under all aseptic precautions, <i>Ksheer Sutra</i> procedure performed.	Performed under local anesthesia.
01/05/2022 (POD-1)	Dressing done.	Triphala Guggulu 250 mg BD Triphala Churna 5 gm HS with lukewarm water Sitz bath with lukewarm water BD.
08/05/2022 (POD-7)	<i>Ksheer Sutra</i> changed	-
16/05/2022 (POD-14)	<i>Ksheer Sutra</i> changed	-
24/05/2022 (POD-21)	<i>Ksheer Sutra</i> changed	-
02/06/2022 (POD-28)	<i>Ksheer Sutra</i> changed	-
15/06/2022 (POD-45)	<i>Ksheer Sutra</i> changed	-

Results and Discussion: -

TABLE - 6: Symptom Progression Over Time

Symptoms	Before Treatment	Day 1st	Day 7th	Day 14th	Day 21st	Day 28th	Day 45th
Pain	3	3	2	2	2	1	0
Discharge	3	2	2	2	1	0	0
Length of Tract	7 cm	7 cm	6 cm	4 cm	2 cm	1 cm	Cut through
Induration	3	3	2	1	0	0	0
Tenderness	3	3	2	2	2	1	0

Unit Cutting Time (UCT)= 45/7= 7days/cm

The patient has faithfully adhered to the directions. The discomfort was noticeably reduced after the 14th day; however, the pus discharge was somewhat increased. There was a copious serous discharge during the first two weeks, but it gradually subsided when the tract was sliced by the *Udumber Ksheer Sutra*. After the 49th day, there was no pus leakage. The tract was cut through on the 45th day and had a starting length of 7 cm. there after "cutting through." At the 45th day, all symptoms were completely alleviated seen in Figure no-1.

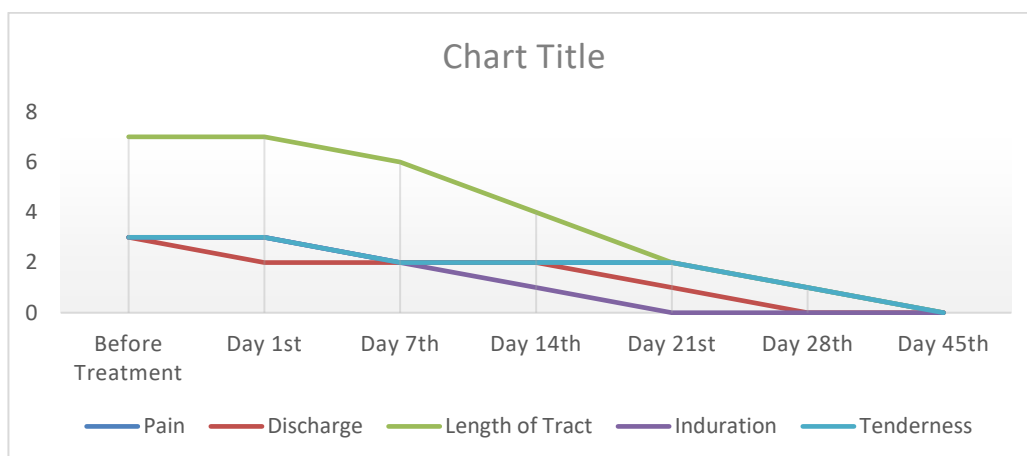


Figure 1: Graphical representation of assessment of pain, discharge, length of tract, induration and tenderness on various timeline.

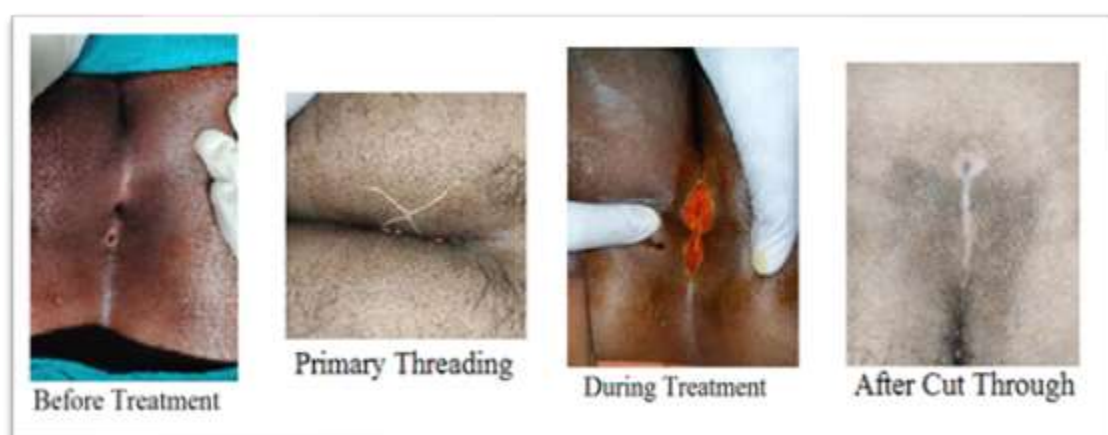


Figure 2: Image of patient during the treatment.

Kesha (hair) is one of the Shalya, according to Acharya Sushruta, and is the primary cause of Pilonidal sinus illness. In this instance, the patient has a deep natal cleft, is fat, and rides his bike on a frequent basis. Overweight increases the likelihood of hair rubbing against hair in the gluteal area. Excessive perspiration in this area and improper washing of the anal region after urination might be contributing factors to this problem. *Pakwasvatha* may not have had proper pus drainage, and taking medications to treat the problem worsened his illness. The treatment of the Pilonidal sinus can be done in a variety of ways. *Kshara Sutra* has more potential nowadays to cure Pilonidal Sinus. The *Kshara Sutra's* *Kshanana* and *Ksharana* qualities progressively severed the pilonidal sinus tract from the inside and started mending at the same time. This is because *Udumbara* demonstrates Pitta, Kapha, and *Asrajita* characteristics, meaning it drains Pitta and Kapha from the wound. Cleaning and wound healing are referred to as *vrana shodhan ropan*. *Udumbara Ksheer* was used in this condition to enhance wound healing and cutting action due to its scavenging activity, rapid wound healing properties, analgesic effects, and anti-microbial, anti-bacterial, anti-fungal, anti-inflammatory, and anti-diabetic properties. Additionally, it is widely accessible and abundant all year round.

CONCLUSION: -

Modern surgical therapy for Pilonidal sinus is frequently ineffective. After surgery, recurrences are typical in the majority of patients. The *Kshara Sutra* is a minimally invasive, cost-effective technique that promotes good recovery and has a very low recurrence rate. Pilonidal sinus management using the *Udumber Ksheer Sutra* has been proven to be quite beneficial and may be utilised as a curative therapy in situations of Pilonidal sinus.

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ETHICAL STATEMENT: -

The patient's written informed permission was obtained.

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