

Case Report



Minimal Invasive Surgical Treatment of Recurrent Pilonidal Sinus – A Case Report

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ABSTRACT:

Background: Pilonidal sinus or jeep disease is considered an acquired one, which involves the formation of a sinus tract and pus is draining to it. The etiology is thought to be related to trapping of hair. *Nadi vrana*, which is explained in Ayurveda, is a blind tract in which pus is formed. It is mentioned in *Samhithas* that, if *vrnasopha* is not treated in *pakva avastha* (suppurative stage) by neglecting it, it will traverse to the deeper tissues, forming a tract. By understanding the *nidanans* (etiological factors) and *lakshanas* (clinical features) it can be correlated as *shalyaja Nadivrana*. *Ksharasutra* is one of the unique contributions in Ayurveda, by which it cures through its *chedana*, *bhedana*, and *lekhana* properties. **Clinical Findings:** A 24-year-old male presented with chief complaints of pain and swelling in the supranatal cleft and lower back region and after examination, was diagnosed with a recurrent pilonidal abscess. He had a history of similar complaints and underwent incision and drainage twice within an interval of 2 months. **Intervention:** Topical *Lepana* was performed, followed by surgical incision, sinus tract probing, and *Ksharasutra* ligation of the sinus tract. Postoperatively, the patient was managed with Ayurvedic internal medications, sitz bath, and medicated dressings. **Outcome:** Healing was achieved with reduced wound size, healthy granulation tissue, and epithelialization, obliteration of 8 cm sinus tract and without any recurrence in a duration of 45 days of treatment and 2 months of follow-ups. During follow-ups, the patient was comfortable and healthy. **Conclusion:** Minimally invasive *ksharasutra* ligation along with supportive therapy, dietary and lifestyle measures and standard wound care, effectively managed recurrent pilonidal sinus, achieved complete healing in 45 days with no recurrence. This case represents a safe, cost-effective alternative to conventional surgery. The procedure not only minimizes the recurrence rate but also helps the patient to recover quickly with less discomfort.

KEYWORDS: Case report, *Ksharasutra* ligation, *Nadivrana*, Pilonidal sinus.

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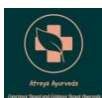
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1. INTRODUCTION

Pilonidal sinus (PNS), also referred to as jeep disease, is considered an acquired disease that results from the suction of hairs from surrounding soft tissue and skin. Literally, it means a nest of hairs. This was notable at the time of World War II, when approximately 80000 soldiers got affected and lost their time during their active duty. [1] Primarily located in the natal clefts and the trapping of hairs in the midline pits, triggers an inflammatory response which causes the development of PNS. [2] The condition is still a troublesome disease, as its recurrence rate is higher after surgery. [3] Incidence of pilonidal sinus is 26 per 100,000 population with a higher rate in men than women. [4] Clinical presentations can vary and may include cysts, abscesses, and draining tracts. Incision and drainage, excision and grafting, and Z-plasty are the surgical management options, but studies have reported a higher recurrence rate with these procedures compared to *Ksharasutra*. When a pilonidal cyst becomes infected, it forms a pilonidal abscess that drains through a pilonidal sinus. The cavity includes a varied amount of hair, usually fragmented, and lacks sebaceous glands or normal hair follicles. According to Acharya Susrutha, it is mentioned as *Nadivrana*, which can be considered as pilonidal sinus based on the *lakshanas*. As per *Susrutha Nidanastana* 10th chapter, if one ignores a suppurred inflammation, the pus will go deep inside, which can be defined as Gati: it flows like a drain, opening as *nadi* (sinus). [5] The 5 types of *Nadivrana* is explained by Acharya Sushruta and 8 types by Acharya Dalhana. As this is due to *shalya* (foreign bodies) like hair, PNS can be considered as *shalya nimitta nadi*. [6] *Ksharasutra* is a unique contribution to Ayurveda. It is considered the most important one among *sastra* and *anu sastra* and has *chedana*, *bhedana*, and *lekhana* properties, which help in cutting, curetting, draining, and healing the sinus tract. [7] Unusual rapid recurrence after two prior surgical procedures and its successful management with the minimally invasive

ksharasutra technique mark the uniqueness of this case. The intervention resulted in complete healing with minimal hospital stay, reduced postoperative fibrosis, and no recurrence during followup shows its potential as a cost-effective alternative in recurrent cases. makes this case significant in evaluating the effectiveness of Ayurvedic principles.

2. CASE REPORT

Patient information: A male patient, aged 24 years, complaining of swelling and pain in the natal cleft for 1 week, presented to the Shalyatantra OPD, KLE Ayurveda Hospital, Belagavi. He was apparently normal before 2 months and suddenly felt intermittent dull aching pain over the natal cleft. After some days, the pain increased. He used to feel discomfort while sitting. The patient was thoroughly examined. The local findings revealed a foul-smelling sinus tract extending from the supranatal cleft region to the subcutaneous tissues beneath, associated with slough and purulent discharge. Systemic examination was also done. Previously, he underwent surgical intervention, including incision and drainage, two times. There was no known history of DM, HTN and other major ailments. The patient presented a history of surgical excision of a pilonidal sinus. Incision and drainage were done for two times.

Clinical Findings:

On general examination, patient was well oriented with stable vitals, Pulse – 78/min, BP – 110/80 mmHg, RR – 18/min and Temperature – 98.8°F. No pallor, icterus, cyanosis, or pedal edema was noted. Systemic examination revealed no abnormality. On local examination: Inspection: An indurated reddish color swelling at the lower back. A small external opening was observed on the intergluteal cleft, approximately 4 cm from the anal verge. Palpation: Ill-defined inflammatory swelling of 5*3cm with severe tenderness around the area. On digital rectal examination, there was no internal opening that connected to the anal canal. USG: 8*3 cm abscess in the

natal cleft, which is in the subcutaneous plane with surrounding inflammatory tissues

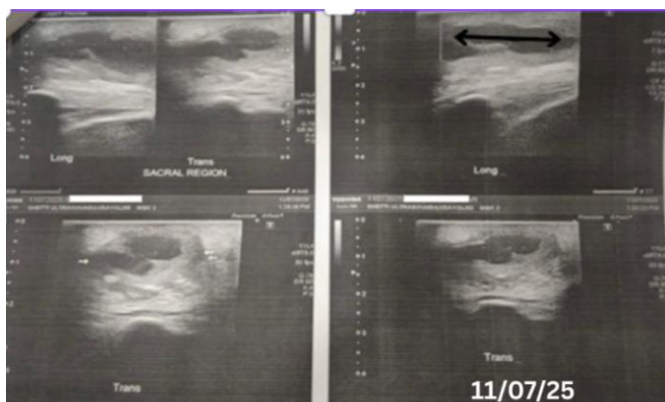


Figure 1: USG Image(sacral region) showing abscess in the natal cleft region

Table No: 1 Timeline of the clinical course

Date	Timeline
12/7/25	Visited <i>Shalyatantra</i> OPD, Diagnosed as Pilonidal sinus, Admitted, <i>lepana</i> with <i>Dasanga lepa</i> . Pre-operative investigation carried out
15/7/25	Probing and <i>Ksharasutra</i> ligation
16/7/25	Post-operative day 1: Seropurulent discharge – present, wound cleaned and dressed
17/7/25 to 21/7/25	Cleaned with Betadine and Local dressing - slight pain
22/7/25	Post-operative day 7- Adherent slough- present over the wound cavity, discharge present. Thread changed
29/7/25	Post-operative day 14, mild discharge Thread changed
5/8/25	Post-operative day 21. Healthy granulation tissue, no slough, no discharge
12/8/25	Healthy granulation tissue
29/8/25	Complete wound healing

Final Diagnosis based on Local examination and USG report:
Nadi vrana (pilonidal sinus with abscess presentation)

Table no 2: Differential Diagnosis

Differential Diagnosis	Basis for Exclusion
Perianal abscess	Swelling was located in the midline anal cleft

Fistula in ano	No internal opening or communication with anal canal
Epidermoid cyst	Lesion showed sinus tract, absence of punctum
Hidradenitis suppurativa	The lesion was solitary and localized to the natal cleft, with the absence of recurrent multiple openings.

Laboratory Investigations: Hemoglobin: 14.2 gm/dl, Total W.B.C.: 13500/cu.mm, ESR: 30mm/1st hour, Serum creatinine : .9mg/dl, RBS: 71mg/dl, HIV, HBsAg, VDRL: Negative

Therapeutic intervention: Patient underwent combined surgical and Ayurvedic therapies. Treatment protocol followed standard *ksharasutra* guidelines, with fixed weekly thread changes and continuation of therapy until complete cut through of the tract and full epithelialization, which served as a predefined endpoint for treatment completion. Timeline of the clinical course and therapeutic intervention is given in [Tables 3](#) and [4](#). Conservative treatment: 3 days *dasanga lepa* as *pralepa* QID (SDM Pharmacy, batch no: DGN047) , *Guggulutiktaka Kashaya* 15ml with 45 ml warm water before food BD, Cap GRAB - 1 TID After food, *Triphala churna* sitz bath.

Surgical Treatment - Preoperative: Informed consent was taken from the patient. Operative Procedure: Under aseptic precautions, the patient was taken to OT in the prone position. Under local anaesthesia, *bhedana*(incision) was done. Around 20 ml of pus was drained, followed by scraping(*lekhana*), *eshana*(probing) by using a metallic probe, which is passed from the incisional wound to the external opening. The tract was identified, followed by *Ksharasutra* ligation. Then, probing was done from the external opening to assess the depth and direction of the tract by using a sinus probe. After that, it was threaded with *apamarga Ksharasutra* and the ligation was done. Proper hemostasis was achieved. The wound was cleaned and a dressing done. The patient was

stable during the whole procedure, and the patient was shifted to the ward with stable vitals. Post-Operative: All vital

parameters were normal. Antibiotics and analgesics were given for 3 days



Figure 2: With Abscess



Figure 3: After probing and Ksharasutra ligation



Figure 4: Postoperative day 14



Figure 5: Healed wound

Table No: 3 Therapeutic interventions

Date	Intervention	Drug given and dose	Anupana	Course	Remarks
15/7/2025 (Day 1)	Postoperative care	<ul style="list-style-type: none"> • Tab. Lyser D 1 tablet Sos (COMED CHEMICALS, Batch no: DADA) • Cap Pan D(ALKEM, CNE02AAA) • GRAB capsule 1 tab tid oral (Green Remedies, batch no: GRB094) • Guggulu tiktaka Kashaya 15ml bd BF (before food) with 45 ml warm water (Kerala Ayurveda, batch no: KP98CN) • GRAB capsule 1-tab tid oral 	Warm water (with Kashaya)	3 days	Analgesic Promote healing
16/7/2025- 21/7/2025	Continued with analgesics and internal medicines.	Local dressing with <i>Jatyadi taila</i> (Baidyanath Pharmacy batch no. B48)	-		Analgesic Promote healing
22/7/2025 (Day 7)	Oral medicines continued.	<ul style="list-style-type: none"> • GRAB capsule 1 tab tid oral • Guggulu tiktaka Kashaya 15ml bd BF with 45 ml warm water • Triphala churna sitz bath (KLE pharmacy, batch no: IKLE) 	Warm water	3 weeks	Anti-inflammatory and antimicrobial action
29/7/2025 (Day 14)	continued oral medicines	-		-	-
5/8/2025 (Day 21)	continued oral medicines	-			Sustained debridement
12/8/2025 (Day 28) to	Progressive wound	<ul style="list-style-type: none"> • GRAB capsule 1 tab TID oral • Guggulu tiktaka Kashaya 15ml bd BF with 45 ml warm water 		Continued for 1 week	

19/8/2025 (Day 35)	healing				
29/8/2025 (Day 45)	Complete wound healing				No recurrence

3. FOLLOW UP AND OUTCOME: Objective wound assessment was performed at each follow-up visit using predefined clinical parameters including measurement of wound dimensions (8*3 cm wound on probing and 3*1.5 cm after 14 days of healing as shown in [figure 3](#)), presence and type of discharge (mild discharge for post-operative 14 days and later no discharge), percentage of slough (grade 4 initially & reduced to 0 at the stage of complete wound healing), status of granulation tissue (grade 3 initially and no granulation tissue present at wound healing), peripheral tissue induration (grade 2 changed to 0) and progression of epithelialization (grade 5 reduced to 0). Complete healing was defined as full epithelialization of the tract with the absence of local tenderness and discharge. Follow-up was continued for 4 weeks in every 7 days, with changing the *ksharasutra* thread and wound dressing with *Jatyadi taila*. Complete wound healing was achieved on 45th day as evidenced by physical examination, healing of the wound and absence of pus discharge. ([Figure 5](#)) Also, the patient was advised to avoid wind, cold, smoke and dust. Avoiding *Snigdha*, *guru ahara*, and intake of warm water was also advised at the time of discharge. Follow-ups were taken for the very next two

months, and the patient is living a healthy life. Detailed follow-up is given in [table no. 4](#)

Adherence and tolerability

A structured follow-up chart was provided to the patient to document pain scores and treatment adherence at each visit. Adherence was assessed on regular attendance on weekly *ksharasutra* thread changes, continuation of prescribed medications, and maintenance of local wound care. Medication adherence was clinician-assessed during each visit through pill count and review of the patient’s-maintained treatment diary. Patient reported the follow-up visits with Empty bottles and strips of medications. Drug compliance form was given to the patient and noted during follow up. No interruption in the therapy was recorded. Tolerability was assessed based on regular attendance at follow-up periods which was regularly entered in the hospital computerized system, continued intake of medicines and adherence to advised measures. No local or systemic adverse effects were observed during the treatment and follow-up. There were no episodes of secondary infections, excessive bleeding, or delayed wound healing, and no adverse reaction to the prescribed medications was reported.

Table no: 4: Follow-ups and outcome

Follow-up	Local wound assessment	Symptom assessment	Treatment compliance	Adverse effects
15/7/2025 (Day 1)	<i>Ksharasutra</i> application, controlled drainage, and wound status.	Difficulty in sitting/ walking, slight pain	Patient cooperated for the procedure	None
22/7/2025 (Day 7)	Granulation tissue present, wound healing	Pain reduced	Regular follow-up and dressing	None
29/7/2025 (Day 14)	Wound size reduced. Granulation tissue healthy. Tract length reduced to 3cm.	No pain during sitting	Good compliance with <i>ksharasutra</i> change	None

5/8/2025 (Day 21)	Significant wound healing	No symptoms	Continued compliance with hygiene and medication	None
12/8/2025 (Day 28)	Almost complete healing	No symptoms	Fully compliant Follow-up advised after 2 weeks	None
29/8/2025 (Day 45)	Complete wound healing	No symptoms	Follow-up advised after one month	None
29/9/25	No recurrence noted, scar formation	No symptoms	Follow-up visit attended	None
29/10/25 (final review)	No recurrence	Asymptomatic	Good compliance	None

4. DISCUSSION

This case was presented with abscess formation. (Figure 2) Excision, scraping and probing were done followed by *ksharasutra* ligation. After probing, the tract was clearly identified and *ksharasutra* ligation was done (Figure 3). Significant granulation tissue formation was observed by postoperative day 14 (Figure 4), and complete wound healing was achieved by day 45 (Figure 5). Incidence of PNS is increasing day by day because of today's sedentary and fast life. Occupations related to continued sitting is more prone to this. Chronic, untreated pilonidal sinus can damage the sacrococcygeal bone, leading to osteomyelitis of the sacrum. A minimal-invasive *Ksharasutra* procedure helps in this by reducing the recurrence rate. *Kshara* application is a unique contribution in ancient science, and it has different aspects like *ksharakarma*, *kshara sutra*, and *kshara varti*. It has *chedana*, *bhedana*, *lekhana*, and *tridoshagna* properties and is recommended for hemorrhoids, fistula in ano, and sinus tracts, as it is minimally invasive and can be performed effectively. In this patient, a *ksharasutra* was done after incision and probing. Several case reports have reported the efficacy of *ksharasutra* in *nadivrana*, with no recurrence and postoperative complications. [8] Acharya Susrutha has emphasized the treatment with *Ksharasutra* in *Nadivrana chikitsa*, which is analogous to pilonidal sinus. As surgery can't be done in *Vidahyama (Pachyamana)* stage, *Dasanga lepa*

explained in *Visarpa chikitsa* was applied, which effectively facilitates the *paka* of inflammation. *Theekshna*, *ushna*, and *rooksha* properties of *apamarga kshara* help to debride the sinus tract and the drug is known for its anti-inflammatory and anti-microbial properties. Other ingredients like *snuhi* and *haridra* will promote healing. Sits bath- vasodilation, blood circulation, and promotes healing, debris. Adjunctive ayurvedic therapies contributed to the recovery of the patient. *Phalasruthi* of *Guggulutiktaka Kashaya* specifically mentions its efficacy in *Nadivrana* and it works through its antimicrobial and anti-inflammatory action by balancing *kapha* and *pitta doshas* (Table no 3). The GRAB capsule has the content of *triphal guggulu* and *gandhaka rasayana*, which promotes healing and act as detoxifiers. Deshpande et.al reported enhanced postoperative wound healing with *jatyadi taila* and *gandhaka rasayana*. [9] *Jatyadi taila* is a powerful antiseptic medicine that helps to clean the wound by removing the debris and reducing the microbial load. *Tuttha* and other ingredients in *jatyadi taila* thereby promotes wound healing. Previous reports have suggested a favourable outcome of *ksharasutra* in pilonidal sinus, including faster wound healing and reduced recurrence compared to conventional surgery. (Dwivedi et.al). [10] The present case demonstrated complete wound healing within 45 days. The case involves a recurrent pilonidal sinus after two surgical interventions, making it clinically important. Detailed

diagnostic evaluation and step by step therapeutic protocol mentioned in *Ayurveda Samhitas*, and the follow-up outcomes were systematically evaluated. Limitations: Findings are based on a single case, limiting generalizability. The follow-up period was relatively short to assess long-term recurrence. Overall message: This case suggests that *ksharasutra* ligation is a safe and minimally invasive treatment for recurrent pilonidal sinus.

5. CONCLUSION

The present case demonstrates the successful management of recurrent pilonidal sinus (*Shalyaja Nadivrana*) using minimally invasive Ayurvedic surgical intervention. The patient had two recurrences after surgery. Here, Incision, probing, and *ksharasutra* ligation followed by *shamana* therapy with internal medications, dietary and lifestyle advice, and local wound care resulted in complete healing of an 8 cm sinus tract in 45 days. The patient was followed for 2 months post healing, with no recurrence or adverse effects. Key message: *Ksharasutra* ligation serves as a minimally invasive, cost-effective alternative to conventional surgical techniques for recurrent pilonidal sinus. Following the standard principles of wound care, Local hair removal and sitz bath play a significant role in lowering the recurrence rate.

Declaration of Patient Consent – The authors confirm that they have acquired a patient consent form, in which the patient or caregiver has granted permission for the publication of the case, including accompanying images and other clinical details, in the journal. The patient or caregiver acknowledges that their name and initials will not be disclosed, and sincere attempts will be undertaken to safeguard their identity. However, complete anonymity cannot be assured.

Patient perspective - Initially I was quite afraid for the procedure, because I already had recurrence before, after surgery. I was worried about the possibility of another recurrence and post-operative pain. During the treatment, I experienced some discomfort especially in the initial days and during thread changing. As the days passed, pain was manageable, got reduced and easier to

sit comfortably. I was happy to notice that wound was healing steadily without complications. I felt more reassured and can do my daily activities. I was totally happy with the treatment and the procedure.

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