RESEARCH PAPER

AN INTEGRATIVE AYURVEDIC APPROACH TO POSTOPERATIVE PILONIDAL SINUS WOUND HEALING: A CASE REPORT

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ABSTRACT

Wound healing is a dynamic and complex biological process involving inflammation, granulation tissue formation, collagen deposition, epithelialization, and remodeling. Delayed wound healing remains a significant challenge in surgical practice due to infection, persistent inflammation, inadequate tissue regeneration, and risk of recurrence.

Pilonidal sinus is a chronic inflammatory condition affecting the sacrococcygeal region, commonly seen in young adults with prolonged sitting habits. Surgical excision is the treatment of choice; however, postoperative wound management is crucial for achieving optimal healing and preventing complications. Delayed granulation, persistent discharge, pain, and secondary infection may prolong the recovery period.

In Ayurveda, postoperative wounds can be correlated with Shuddha Vrana, where effective wound management aims at promoting Shodhana (cleansing) and Ropana (healing). Lakuchadi Taila is a classical Ayurvedic formulation indicated for wound care because of its Shodhana, Ropana, anti-inflammatory, and antimicrobial properties. These properties help maintain a healthy wound environment, facilitate granulation tissue formation, and promote epithelialization.

The present case report evaluates the effect of Lakuchadi Taila dressing in the management of a postoperative wound following pilonidal sinus excision. Regular wound dressing was performed after proper wound cleansing, and the progress of wound healing was assessed clinically through changes in wound size, granulation tissue formation, epithelialization, pain, and discharge.

Keywords: Wound Healing, Lakuchadi Taila, Pilonidal Sinus, Shuddha Vrana.

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INTRODUCTION

Wounds remain a major healthcare challenge worldwide due to prolonged healing, risk of infection, recurrence, and associated morbidity.[1] Pilonidal sinus (PNS), although not life-threatening, causes pain, discharge, recurrent infections, and considerable impairment in quality of life. Surgical excision is the standard treatment; however, postoperative wounds healing by secondary intention often require prolonged wound care, frequent dressings, delayed healing, and remain susceptible to infection and recurrence.[2]

In Ayurveda, such postoperative wounds can be correlated with Vrana, a concept comprehensively described under Shalya Tantra. Acharya Sushruta defined Vrana as the loss or discontinuity of body tissue and established systematic principles for its assessment and management.[3] The management of Vrana is based on two fundamental principles—Shodhana (wound cleansing) and Ropana (wound healing)—which closely parallel modern concepts of debridement, infection control, tissue regeneration, and repair.

The management of *Vrana* in ayurveda is based on two fundamental principles:

Shodhana involves removal of slough, infection control, and purification of the wound, whereas *Ropana* promotes tissue regeneration and healing. These principles closely resemble modern wound care concepts such as debridement, infection control, and tissue repair.[4]

For effective wound healing, ayurvedic texts recommend the use of medicated oils. Among these, *Lakuchadi Taila* is a classical medicated oil indicated in *Vrana Chikitsa*.[5] Although various postoperative wound care modalities have been studied, evidence on the use of Lakuchadi Taila following pilonidal sinus excision is not present. Therefore, this case study was

undertaken to evaluate the effect of local application of Lakuchadi Taila on postoperative wound healing after pilonidal sinus excision. The oil base maintains moisture and promotes healthy wound healing. This case study aims to provide clinical evidence supporting the role of ayurvedic wound management in achieving satisfactory wound healing outcomes.

CASE REPORT

A 39-year-old male patient presented with complaints of pain and discharge from the sacrococcygeal region since one month. He had a history of pilonidal sinus for two years associated with prolonged sitting occupation and tobacco chewing for twelve years with no history of diabetes or hypertension. No history of fever or bleeding was present. The patient had taken conservative treatment intermittently but experienced recurrent symptoms. Surgical excision of pilonidal sinus was performed. Postoperatively, *Lakuchadi Taila* was applied locally over the wound after wound cleansing. Assessment was done based on pain, discharge, granulation tissue formation, wound size, tenderness, and healing progress.

CLINICAL EXAMINATION

Timeline	Event
2 years prior	History of pilonidal sinus
Since 23 March 2025	Pain and discharge
22 April 2025	Surgical excision
Post Operative Day 1	Lakuchadi Taila dressing
Day 15	Healthy granulation observed
Day 28	Complete Epithelialization

General Examination:

Weight	65kg	**BP**	130/80 mmHg
Pulse	78/min	**Temperature**	98 F

Personal History:

Appetite	Normal
Bowel	Regular
Micturition	Normal
Sleep	Disturbed due to pain
Addiction	Tobacco chewing
Occupational history	Prolonged sitting work-Bakery

Family History: No any history.

Local Examination

Inspection revealed postoperative wound over sacrococcygeal region following excision of pilonidal sinus. Wound margins were healthy with minimal discharge.

Findings:

Site	sacrococcygeal region
Size	4 × 2.5 × 1.5 cm
Shape	Elliptical
Tenderness	Present
Discharge	Mild
Slough	Absent
Granulation tissue	Healthy
Surrounding skin	Normal

Investigations:

CBC	Hb-14.2, TLC-10500, Platelet Count-2,51,000
Bleeding Time	01 min 20 sec
Clotting Time	05 min
PT/INR	11.5sec/0.90
BSL Random	114mg/dl
Sr. Urea	20 mg/dl
Sr. Creatinine	1.0 mg/dl
HIV, HbsAg	Negative, Non-Reactive
ECG	Within normal limit
Chest Xray	No any significant abnormality noted
Histopathology Report	Consistent with inflamed pilonidal sinus tract

INTERVENTION

Surgical Management

Under spinal anesthesia and aseptic precautions, pilonidal sinus excision was performed.[6] The sinus tract along with unhealthy tissue and embedded hair was excised completely. Hemostasis achieved. Dressing done.

Postoperative Ayurvedic Management

Treatment protocol: After routine wound cleansing with normal saline, a thin, uniform single layer of Lakuchadi Taila was applied over the entire wound bed using sterile gauze under aseptic precautions. The dressing was performed once daily until satisfactory wound healing was achieved. The quantity of Lakuchadi Taila was adjusted according to the wound size to achieve a thin single-layer coverage of the wound bed.

Duration: Treatment was continued upto proper wound healing with regular follow-up daily and wound assessment.

Precautions:

Strict aseptic precautions maintained, Proper dressing technique followed, Daily wound monitoring performed, Patient advised regarding wound hygiene and avoidance of trauma.

Drug Used: Lakuchadi Taila
Ingredients

1. Lakuch (Artocarpus lakoocha)
2. Haridra (Curcuma longa)
3. Tila Taila (Sesamum indicum)
4. Sarjaras (Vateria indica)
5. Guggulu (Commiphora mukul)
6. Saindhav (Sodi chloridium)
7. Gomutra (Bos indicus)

Lakuchadi Taila was prepared in a licensed Ayurvedic pharmacy under the supervision of an experienced Ayurvedic physician according to the classical method described in Bharat Bhaishajya Ratnakar. The formulation was prepared using authenticated raw materials and appropriate quality control measures were followed during its preparation. The formulation was standardized by organoleptic evaluation (colour, odour, appearance, and consistency) and physicochemical parameters, including pH, specific gravity, refractive index, acid value, saponification value, iodine value, and peroxide value, according to the standards prescribed by the Ayurvedic Pharmacopoeia of India (API).

Parameter
Result
Colour- yellow
Odour-Faint
Characteristic
pH-7.08
Specific gravity-0.945 gm/ml
Refractive index-1.4778
Acid value-0.41
Saponification value-173.68
Iodine value-15.76
Moisture Content-16.18%

ASSESSMENT CRITERIA
Subjective parameters[7]:
• Pain: VAS (0-10)
• Discharge (Absent/Present)
• Tenderness (Absent/Present)

Objective parameters:
• Wound Size (Length*Width in cm^2 using a sterile ruler)[8]
• Granulation tissue formation
• Epithelialization[9]

Study Design
This is a single-case observational study evaluating the effect of Lakuchadi Taila local application on postoperative wound healing following pilonidal sinus excision.

Parameters	Grade 0	Grade 1	Grade 2	Grade 3
Pain	No Pain (VAS -0)	Mild (VAS -1-3)	Moderate (4-6)	Severe (VAS-7-10)
Granulation Tissue	Healthy (0-25%)	Moderate (26-50%)	Poor (51-75%)	Slough present (>75%)
Epithelialization	No epithelialization	Marginal Epithelialization	Partial Epithelialization	Complete Epithelialization

Ethical Considerations
Written informed consent was obtained from the patient for treatment and publication of clinical details and photographs. Patient confidentiality was maintained throughout the study.

RESULTS

Post op wound before Taila application

wound after 15 days

Healed wound on 28th day

The wound was photographed at each follow-up after obtaining informed consent from the patient.
Clinical evaluation was carried out based on subjective and objective parameters including pain, tenderness, discharge, granulation tissue formation, wound size, and overall healing progress. Gradual improvement was observed during the treatment period. Significant reduction in pain and discharge was noted along with healthy granulation tissue formation and progressive wound contraction. Effective post op wound healing was seen without complications.

DISCUSSION

Parameters	**Before Treatment (0^{th} day)**	**After Treatment (28^{th} day)**
Pain	Severe	Absent
Discharge	Mild	Absent
Tenderness	Present	Absent
Granulation Tissue	Moderate	Healthy
Wound Size	4 × 2.5 × 1.5 cm	Completely Healed
Epithelialization	No Epithelialization	Complete epithelialization

Pilonidal sinus is a chronic inflammatory condition prone to recurrence and delayed wound healing. Surgical excision removes the sinus tract, but postoperative wound care is essential for successful healing. In Ayurveda, *Shuddha Vrana* management focuses on enhancing tissue regeneration and preventing *dushti*.
Regular dressing with *Lakuchadi Taila* promoted healthy granulation tissue and reduced local inflammation and discharge. The patient's prolonged sitting occupation and tobacco addiction were probable contributing factors for disease chronicity. In addition to local wound management, the patient received standard postoperative oral medications as supportive therapy.
At starting days mild slough was observed, by the 15th day of treatment, healthy granulation tissue formation was observed. The moist environment maintained by *Tila Taila* likely enhanced fibroblast proliferation and collagen deposition, thereby accelerating the proliferative phase of healing. Progressive epithelialization and wound contraction observed by the 28th day indicate successful remodeling and tissue regeneration.
Lakuchadi Taila has shown faster postoperative wound healing effect in this case, characterized by earlier granulation tissue formation, rapid epithelialization, quicker wound contraction, leading to a shorter healing duration compared with standard wound care. These effects may attribute to its *Vrana Ropana*, *Shothahara* properties.
Another important aspect of this case is the absence of adverse reactions during treatment. Unlike prolonged antibiotic use and chemical antiseptics that may produce side effects or resistance, *Lakuchadi Taila* provided safe and effective wound care. The observed clinical improvement in this case suggests that *Lakuchadi Taila* can be beneficial in postoperative wound management after pilonidal sinus excision.

Scientific discussion of the strengths and limitations associated with this case report

Strengths

This case highlights the potential value of an integrated Ayurvedic treatment approach in postoperative wound management. A multimodal strategy comprising Pathya-Apathya, Nidana Parivarjana, surgical intervention, postoperative application of Lakuchadi Taila, and supportive medical care contributed to favorable wound healing outcomes. As clinical evidence on the use of Lakuchadi Taila in Vrana Chikitsa remains limited, this case provides a systematic clinical observation of its wound-healing potential. The sustained improvement observed during follow-up further supports the consistency and effectiveness of the treatment outcomes.

Limitations

As a single case report, the findings cannot be generalised to the broader Wound population due to the lack of sample size and statistical analysis. The study primarily relies on subjective and objective parameters. The results also depended on strict adherence to Pathya Ahara, Nidana Parivarjana which may not be easily replicable in all patients.

CONCLUSION

Lakuchadi Taila reduced pain and discharge, promoted healthy granulation tissue formation, accelerated wound contraction, and supported complete wound healing without complications leading to substantial improvement in wound healing parameters within a duration of 28 days.

This case study shows that *Lakuchadi Taila* act through multiple mechanisms including antimicrobial action, art inflammatory effect, wound cleansing, tissue regeneration, and collagen formation. These effects correlate with both classical Ayurvedic principles and modern wound healing concepts.

An important observation in this case was the absence of complications or adverse effects during treatment, suggesting that *Lakuchadi Taila* is safe for regular local application. Furthermore, the treatment is economical, easily available, and can be effectively utilized in OPD as well as IPD settings.

This study also reinforces the relevance of Ayurvedic wound management principles in present-day clinical practice. Ayurvedic formulations like *Lakuchadi Taila* may serve as valuable alternatives or adjuncts to conventional wound care therapies, especially in postoperative wound management.

However, since this is a single case study, broader clinical trials involving larger sample sizes and comparative analyses are necessary to validate these findings scientifically and establish standardized treatment protocols.

Patient perspective

Following completion of therapy, the patient reported satisfaction with the improvement and noted that he no longer required oral medication, which he had previously used for an extended period. This response indicates a positive perception of the treatment's overall efficacy. The patient's perspective was documented during a follow-up on 30 May 2025.

Informed consent

Written patient consent was taken by the author before this case report was submitted to the journal. The patient was informed that his name and initials would not be published, and reasonable efforts would be made to conceal his identity.

Author Contributions

S.B.: Contributed to the study conceptualization, methodology, validation, formal analysis, investigation, resource management, data curation, visualization, preparation of the original manuscript draft, and manuscript review and revision.

R.K.: Contributed to the study conceptualization, methodology, validation, supervision, and critical review and revision of the manuscript.

Declaration on the Use of Generative AI in Scientific Writing

The authors used AI for data interpretation, language editing, including correction of spelling, grammar. The manuscript was thoroughly reviewed and revised by the authors, who accept full responsibility for its scientific accuracy and final content. No generative AI tools were used for content creation, or manuscript drafting.

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Conflict of Interest

The authors declare that there are no conflicts of interest.

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