

## Management of recurrent anterior Perineal Sinus by *Ksharsutra*- A case report

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### ABSTRACT

**Introduction:** *Ksharasutra* therapy is long known for effectively treating Sinus infections (*Nadi Vrana*). It has been mentioned in various Ayurvedic classical texts like *Sushruta Samhita*, *Chakradatta* etc. *Ksharsutra* as a standard treatment method has been extended to various types of sinus or fistulas with encouraging results. This case has been taken up to evaluate the role of *Ksharsutra* as a minimal invasive method in management of recurrent anterior perineal sinus with multiple external openings without causing any damage to surrounding tissues and organs, which is unique because it has a low incidence rate and its treatment with *Ksharsutra* is based on ancient Ayurvedic texts.

**Clinical Findings-** A 28 yr old male with history of sinus in perineum which has already been operated twice with an active pus discharge, discomfort and itching which had already been treated by fistulectomy and *Ksharasutra* previously for same disease which were unsuccessful was taken for this study. The patient had no other comorbidities.

### Diagnosis/Methodology/Therapeutic

**Intervention-** The case had already been diagnosed for perineal sinus by MRI sonogram and previous surgery for the same had been undertaken. Under all aseptic precautions, local anesthesia with Lignocaine 2% was given in perineum. Copper malleable probes were introduced through two different external openings, one adjacent to the midline raphe and another over the midline raphe in the perineum below the scrotum. The front end of the first probe ended blindly around 3 cm below the scrotum where the probe was pulled through an artificially made opening using an electric cautery. Another probe was passed through 2nd opening over the midline raphe below the scrotum which also ended blindly near the anal margin. The front end of this probe was also pulled out by making another artificial opening at around 0.5 cm away from anal verge. Two different *Ksharasutras* were placed in both partially fibrosed tracks with the help of these probes. Both *Ksharsutra* were knotted and changed weekly once.

**Results/ Outcome-** Cut through for smaller track was achieved in 4 weeks and longer sinus track took 8 weeks to cut through. Complete wound healing was achieved in 10 weeks. No recurrence was observed during 6 months and 1 year follow ups.

**Conclusion/Takeaway-** *Ksharsutra* as a minimally invasive procedure is very effective and convenient method for recurrent perineal fistulas and sinuses which gives tremendous and lasting results without interfering day to day work schedule of the patient.

**Keywords-** *Ksharasutra, Perineal Sinus, Nadivrana, Sinus, Case report***Introduction:**

Perineal sinus tracts are often persistent, painful, and resistant to conservative management, significantly affecting the patient's quality of life. While some cases respond to antibiotics and local wound care, chronic and recurrent lesions typically necessitate surgical excision.<sup>[1]</sup> It often presents as a non-healing wound, recurrent discharge, or persistent pain in the perineal area and may significantly affect the patient's quality of life.

Perineal sinuses most commonly develop after **abdominoperineal resection (APR)**, a surgical procedure frequently employed in the treatment of low rectal cancer. Despite advances in surgical technique and wound management, perineal wound complications remain a significant postoperative challenge. Up to 30% of patients undergoing APR may develop delayed perineal healing, with a subset progressing to chronic sinus formation.

The pathogenesis of a perineal sinus is multifactorial. Contributing factors include **poor tissue perfusion, local infection, radiation therapy, diabetes, obesity, and malnutrition**, all of which impair wound healing. The presence of residual cavities, foreign material, or ongoing infection can perpetuate the sinus tract and hinder closure.

Management of perineal sinuses is often complex and may involve a combination of conservative measures such as wound care and antibiotics, as well as surgical interventions. Surgical options may include **sinusectomy, marsupialization**, or reconstruction using **muscle flaps** (e.g., gracilis or vertical rectus abdominis myocutaneous flap) to promote healing and fill the dead space.<sup>[2]</sup>

Due to the morbidity associated with chronic perineal sinuses, ongoing research is focused on identifying **predictive factors, preventive strategies, and innovative treatment modalities** to reduce incidence and improve patient outcomes.

**According to Ayurveda**, it is known as *Nadi Vrana*<sup>[3]</sup>. 'Nadi' refers to a tract, and 'Vrana' refers to an ulcer. Hence a tract ulcer is referred to as a 'Nadi Vrana'. *Nadivrana (Shalya Nimittyaj)*, which is produced by *Shalya* (i.e a foreign body). *Shalyaja Nadivrana* is a track that has gone undiscovered due to the presence of pus, unhealthy granulation tissue, and hairs, among other things.

*Acharya Sushruta* described a less invasive approach for the treatment of *Nadivrana* (Pilonidal sinus). *Sushruta* has stated that hair might be a root cause of sinus growth and has also provided numerous treatment approaches.<sup>[4]</sup>

**Ksharasutra-** It is a unique method of excision that uses mechanical pressure and chemical action instead of a knife. *Sushruta* suggest using *Ksharasutra* in *Nadi Vrana* for patients who are emaciated, timid, and positioned in the *Marma Sthanas* (vital points)<sup>[5]</sup>. Probing is done through the opening, and the tract is probed to its blind end, where an opening is formed and *Ksharasutra* is inserted.

*Chakradatta* has also advocated usage of *Ksharasutra* along with other methods of treatment which have been listed for different types of *Nadi Vrana*.<sup>[6]</sup>

## PATIENT INFORMATION

A 28 yr old male with history of recurrent Perineal Sinus visited OPD section of Shalya Tantra department. The patient had no comorbidities and no significant family history apart from mother being hypertensive. The patient had already been operated by fistulectomy for same disease in 2014 which did not prove beneficial in managing the disease. After that patient had a *Ksharasutra* inserted into the track but discontinued the treatment due to personal reasons. Patient has symptoms of active puss discharge, discomfort and itching in perineum. Patient had already done an MRI Fistulogram which showed only one sinus track in the perineum. Patient had concerns about the

*Ksharasutra* therapy as he had already undergone this type of a procedure which was addressed by counseling.

### CLINICAL FINDINGS

Patient was examined thoroughly and two external openings with active puss discharge were noticed in the perineum. The patient was advised to undergo a retrograde urethrogram to rule out any connection with the urethra. Other routine investigations were done to prepare for *Ksharasutra* insertion into the track. Routine surgical investigations were done to rule out any communicable infectious disorder along with other parameters like hemogram, bleeding and clotting time.

### Timeline

Surgical Procedure	Year	Result
<i>Ksharasutra</i>	2023	Successful
Follow Up	2024	No recurrence
Follow Up	2024	No recurrence

Table 1- Timeline of Surgical Interventions for Perineal Sinus

### DIAGNOSTIC ASSESSMENT

1. MRI showed a sinus track in the perineum with external opening at 12 O'clock
2. Retrograde Urethrogram showed no connection with urethra
3. Routine Investigations showed results within normal limits (Hb- 13.8 g%, BT- 3 min 4 sec, CT- 6 min 23 sec, BSR- 114 mg/dl, TLC-  $6.3 \times 10^3/uL$ )
4. HIV, HBSAg, HCV- Negative
5. Chest Xray and ECG – Normal

### THERAPEUTIC INTERVENTION

A surgical plan to insert the *Ksharasutra* in the tracks was designed keeping all investigation results and previous failures under consideration. A test dose of Lignocaine 2% was given Sub-cutaneous which was uneventful.

Under all aseptic precautions, local anesthesia with Lignocaine 2% was infiltrated to perineum. Copper malleable probes were introduced through two different external

openings, one adjacent to midline raphe and another over the midline raphe in the perineum below the scrotum. The front end of the first probe ended blindly around 3 cm below the scrotum where the probe was pulled through artificially made opening using an electric cautery. Another probe was passed through 2nd opening over the midline raphe below the scrotum which also ended blindly near the anal margin. The front end of this probe was also pulled out by making another artificial opening at around 0.5 cm away from anal verge. Two different *Ksharasutra* were placed in both partially fibrosed tracks with the help of these probes. Both *Ksharsutra* were knotted and changed weekly once (*Ksharasutra* used was a 21 *bhawana* standard thread coated with *Apamarga*, *Snuhi* and *Haridra*).



Picture 1- Probing during procedure



Picture 2- *Ksharsutra* insertion

There was no change in plan during therapeutic intervention as the progress was strictly monitored for outcomes which were in line with the design of intervention.

## FOLLOW-UP AND OUTCOME

	Short Track	Long Track
VAS Score	4/10	
Time Taken to Cut Through	4 weeks	8 weeks
Time Taken for Complete Healing	10 weeks	

Table-2- Timeline of events during treatment

All symptoms of discomfort, itching and discharge subsided at the end of the treatment which was highly satisfying for the patient. Patient tolerated the treatment very well with his VAS score never more than 4 at any particular time of assessment.

Follow up was done weekly for thread change and two follow ups were taken one after 6 months and another after 1 year of completion of treatment.

Patient tolerated the treatment very well and followed up for thread change weekly as advised till the cut through was achieved. Patient also followed up after 6 months and 1 year.

There was no adverse effect of the treatment and no adverse episodes during the course of the treatment.

### ASSESSMENT

**VAS Score-** Though there was no significant pain during the course of the treatment but patient complained of discomfort during 3<sup>rd</sup>-4<sup>th</sup> week of thread change.

**Cut through** for smaller tack was achieved in 4 weeks (4 thread changes) and longer sinus track took 8 weeks (8 thread changes) to cut through.

**Complete wound healing** was achieved in 10 weeks. No recurrence was observed during 6 months and 1 year follow ups.

Assessment Criteria	Week 1	Week 4	Week 8	Week 10	Follow Up (6 Moths)	Follow Up (1 year)
VAS Score	2	4	2	0	0	0
Itching	Mild	Moderate	Nil	Nil	Nil	Nil
Discharge	Moderate	Significant	Mild	Nil	Nil	Nil
Discomfort	Mild	Moderate	Mild	Nil	Nil	Nil
Cut Through/Healing		Achieved for Smaller Track	Achieved for Longer Track	Healing Complete		

Table No 3- Assessment of Important events



### Picture 3- Complete Healing

Patient assessment was noted in terms of symptoms i.e Puss discharge, itching, discomfort which he described at the beginning of the treatment. The symptoms gradually subsided during the course of the treatment he was highly satisfied by the results.

### DISCUSSION

As *Ksharasutra* is already regarded as one of the best ways to treat sinus infections and

this was also a case of sinus infection which prompted to immediate decision making regarding surgical plan. The only difficulty and challenge were recurrence and post operative tolerance of the treatment as patient had a history of discontinuation of *Ksharasutra* treatment. Patient was properly counselled before this approach and during follow ups, it was made sure that highest level of comfort and composure was given to the patient.

Causes of recurrence after Fistulectomy was probably because sinus infections are difficult to treat if the surgeon misses the original sources of infection by mistake or by wrong findings in diagnostics conducted prior to the surgery. When this case was taken up, the MRI showed a single opening and track which did not coincide with the clinical and intraoperative findings and therefore two separate tracks were identified and *Ksharasutra* was inserted separately in both of them.

*Ksharasutra* primarily ensures disinfection of the sinus track and source of infection if any along with a cut through which is slow but steady in nature. *Ksharasutra* used here was made up of cotton thread coated over by *Haridra*, *Snuhi* and *Apamarga* (Standard 21 layer). The *Kshara* which disperses layer by layer when inserted in a liquid medium disinfects the track (bactericidal action), changes the pH of the track (bacteriostatic action), cuts through the track and also has healing properties. It induces healing by healthy granulation followed by fibrosis of the sinus track sealing it completely which ensures no recurrence.

*Ksharasutra* has been a primary choice of treatment for sinus infections in Ayurveda which has been documented in ancient Ayurvedic texts like *Sushruta Samhita*, *Chakara Dutta*, *Ashtang Hridaya/Sangraha*. *Charaka Samhita* also advocates use of Para surgical procedures for sinus

infections in its *Chikitsa Sthana*.<sup>[7]</sup> Many other modalities of treatment have also been mentioned for sinus infections like *varti*, *pattan*, *bhedana* and even some conservative methods have also been discussed in various *Samhitas*. *Ashtang Sangraha* mentions *bhedana* with *lepa* as the treatment of sinus<sup>[8]</sup> which has also been mentioned in treatment of *Vataj Nadivrana* in *Susrutha* and *Chakradutta* have given proper procedure for making of *Ksharasutra* along with its usage in individuals who cannot tolerate surgical interventions. Though efficacy of *Ksharasutra* as primary choice of treatment has been established by many research scholars over the time, but low prevalence rate and high recurrence rate for perineal sinus accounts for this type of documentation. The technique comes with basic benefits of common *Ksharasutra* with minimal invasion of surrounding tissue and less to no complications.

**Conclusion-** It can be concluded that this minimal invasive procedure of *Ksharasutra* is highly effective in recurrent perineal sinus infections with no effect on quality of life and daily routine work of the patient. To establish *Ksharasutra* as primary line of treatment for sinus infections more research on a larger batch has to be done to study all pros and cons of this type of treatment. Moreover, more advancements and sophistications in *Ksharasutra* modality is need of the hour keeping in view the tolerance and acceptability factor from the patients perspective.

#### PATIENT PERSPECTIVE




Patient was highly satisfied with the outcome of the treatment. At the beginning of the treatment the patient was not very eager for *Ksharasutra* insertion because of his history of treatment with *Ksharasutra* for the same disease which was not completed due to unknown reasons. After proper counseling and assurance, the patient gave

approval for *Ksharsutra* intervention and was highly satisfied with the results. In follow period patient responded all the queries and examination protocols with lot of patience and maturity.

### INFORMED CONSENT

Proper consents for surgery and publishing of this case report were taken.

### CREDIT AUTHOR STATEMENT

Author	Contribution	Signature
Author 1	Writing- Original draft preparation, Methodology, Conceptualization, Writing - Review & Editing, Investigation, Visualization, Data Curation	
Author 2	Validation, Supervision, Project administration,	
Author 3	Formal analysis, Investigation, Data Curation, Resources	

### Acknowledgement

1. Highest gratitude to the management of TMAE AMC, Karnataka for moral support and providing platform for all the research work done
2. Heartfelt acknowledgment to all teachers and HOD of Shalya Tantra Department of TMAES, AMC, Karnataka
3. Sincere gratitude to all family and friends for their immense support and care during the course of the study.

### Funding Source

Nil

### Use of Artificial Intelligence(AI)

Chat GPT from Open AI has been used in Introduction part of this article

### Conflict of Interest

Nil

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Conflict of Interest: *Non*

Source of funding: *Nil*

*Cite this Article:*

*Management of recurrent anterior Perineal Sinus by Ksharsutra- A case report*

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*Ayurline: International Journal of Research In Indian Medicine: 2026;10(3)*