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Case Report
Ksharsutra Technique
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Management of Recurrent Complex Grade V High Anal Fistula by dual Ksharsutra Technique: A Case Report

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Ksharasutra therapy is long known for effectively treating Fistula-in Ano (Baghandara). This study aims to evaluate the efficacy of dual Ksharasutra insertion technique into recurrent complex Grade V high anal fistula (Baghandara). A patient diagnosed with complex (Grade V) Trans-sphincteric fistula (8.6 cm linear length) with supralevator extension previously operated twice, was advised to undergo Ksharasutra therapy. A dual Ksharsutra technique was used. One Ksharsutra was passed into the original track with external opening at 5 o'clock and possible internal opening above the dentate line and another Ksharsutra was passed through the same track with an artificial internal opening was made below the dentate line in the same plane. The study demonstrates the efficacy of dual Ksharsutra technique to mitigate the fistulous track with quick effective drainage and reducing the cut through time without damaging the internal sphincter musculature. Ksharsutra placed above the dentate line was removed later and the cut-through was achieved by 2nd one.

Results: Efficacy was assessed from insertion to complete wound healing. A significant decrease in odour of the puss decreased in 3 weeks. Puss discharge reduced in 16 weeks following which one Ksharsutra was removed. Cut through was achieved in 24 weeks. Complete wound healing was achieved in 26 weeks with no incontinence. Follow showed no signs of recurrence.

Conclusion: Dual Ksharasutra technique offers the advantage of faster tract cutting without sphincter injuries or risk of incontinence, more efficient disinfection, quicker wound healing and low risk of recurrence in high anal complex fistula-in-ano (Baghandara).

Keywords: Ksharasutra, Complex Fistula-in-ano, Dual Ksharasutra, Baghandara, Grade V Fistula-in-ano

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Introduction

Fistula-in-Ano is an inflammatory track which has an external opening (secondary opening) in the perianal skin and an internal opening (primary opening) in the anal canal or rectum. This track is lined by unhealthy granulation tissue and fibrous tissue.**[1]** Fistula-In-Ano one of the most challenging diseases which is difficult to treat owing to its high recurrence rate and high failure rate with conventional surgical or non-surgical methods. *Ksharsutra* which has been mentioned to treat Sinus infections (*Nadi Vrana/Bhgandara*) in early Ayurvedic literature like *Sushrutha Samhita***[2]** and *Chakradutta***[3]** and re-established by 19th century Ayurvedic Surgeons like Dr P J Deshpandey and Dr Kulwant Singh has found a mention in Bailey and Love Surgical manual as well.**[4]**

It is predominantly a male disease which can be idiopathic or secondary to perianal abscess formation, Irritable bowel disease (Croh's Disease and Ulcerative Colitis), actinomycosis, lymphogranuloma venereum, foreign body and tuberculosis or colloid carcinoma of rectum. Though it doesn't hamper the day to day work of an individual but definitely decrease the quality of life. The most common presentation of Fistula-In-Ano is a chronic discharging external opening in the perianal area. However, Fistula-in- ano can have external openings on Scrotum, perineum, mid gluteal area or midline natal cleft etc. It can have multiple external openings but usually has a single internal opening.

The pathogenesis of Fistula-in-Ano starts with anal gland infection/ cryptoglandular infections which are exocrine in nature deeply seated with a duct that opens through columns of Morgagni situated on dentate line. Due to the tone of the internal sphincter, the duct cannot aptly discharge the contents of the gland. Stasis and secondary infection leads to abscess formation from the anal gland in the intersphincteric region. From here the internal opening traverses through the internal sphincter to open up into the anal canal and abscess usually tracks down and opens in the perianal skin externally thus forming fistula-in-ano.**[5]** Fistula-in-ano is broadly divided as low anal and high anal fistula-in-ano. Another classification is based on difficulty to treat fistula wherein it has been classified into simple type and complex type.

Most accepted and practical classification is Parks Classification which categorizes fistula-in-ano on the bases of location with respect to the other anatomical structures around it thus classifying it into Inter-sphinteric (Type-1), Trans-sphinteric (Type-2), Suprasphenteric (Type-3), Extra-sphinteric types (Type-4).**[6]**

Treatment principles include Fistulotomy, Fistulectomy, LIFT, Setons, Fibrin glue, Advancement flaps which have variable results in different kinds of fistula-in-ano.

According to Ayurveda, it is known as *Bhagandara. Bhagandara* has been classified into various types by *Acharyas Sushrutha* and *Vagbhatta*. The classification in Ayurvedic literature stands true and relevant even today. It has been classified into *Sataponakaha, Ushtagrivah, Parisravi, Samvukavartah* and *Unmargi* types.**[7]**

Acharya Sushruta described a various types of treatments in *Bhagandara* which are both medical and surgical in nature. As fistula is a type of sinus infection, *Ksharsutra* as treatment option for fistula is advocated under treatment protocols of *Nadi Vrana* in *Chikitsa Sthana* of Susrutha Samhita. Acharya Chakrpanii Dutta in 11th century described *Ksharsutra* as treatment for *Bhagandara* and Arsha. **[8]** Over the time *Ksharsutra* has become more standardized and hence a primarily sought treatment for Fistula-in-ano.

Ksharasutra

It is a unique method of excision that uses mechanical pressure and chemical action instead of a knife. Probing is done via the opening and the tract is probed to its internal opening, proximal end of probe is brought out from internal opening and *Ksharasutra* is passed with help of eye in the distal end of the probe. Probe is pulled out of anal canal from proximal end which results in insertion of *Ksharsutra* inside the track. Two ends of *Ksharsutra* are knotted outside the canal.

Case Report

Patient was a 43 year well-built male belonging to South Indian state of Karnataka with complex (Grade V) Trans-sphincteric fistula (8.6 cm linear length) with supralevator extension previously operated by LIFT and Curettage. The study was conducted July 2023 to December 2023.

In the present case Fistula-in-ano formed secondary to perianal abscess which was drained by I&D (Incision and Drainage) technique. After the formation of fistula-in-ano the patient was taken for surgical management by LIFT (Ligation of intersphincteric fistula tract) and curettage on 02/08/2022 which did not yield desired results and perianal discharge started again after 1 month of the surgery. Patient visited our hospital OPD for *Ksharsutra* treatment of this problem which had become a mental agony to the patient. After thorough examination patient was explained the procedure and desired outcome of the procedure. Patient also has a history of Leucoderma for which no medical intervention was sorted. Previous history of usage of *Bakuchiadi Tail* was given by the patient. Patient has no history of Hypertension, Diabetes or thyroid dysfunction. No other systemic disorders were noted. No Significant family history

Clinical findings

Puss Discharge from external opening of the Fistula-in-ano at 6-7 O'clock position, Foul smell of the discharge, Afebrile, No pain or tenderness, Fibrous scars from previous surgical interventions.

Timeline

Date	Medical/Surgical History	Treatment Done	Result
22-01-2022	Perianal Abscess	I&D for perianal Abscess	Recurrence
17-07-2022	Complex Perianal Fistula	LIFT with Curettage	Recurrence
09-07-2023	Grade V Complex Fistula	Dual Ksharsutra	Cured

Diagnostic Assessment

HBSAg - Negative
HIV - Negative
HCV - Negative
CBC -
Total RBC - 5.3 mil./cmm
Hemoglobin - 13.2 gms%
Total WBC - 10100/cmm
Neutrophils - 82%
Lymphocytes - 18%
Eosinophil - 0%
Monocytes - 0%
Basophils - 0%
Platelets Count - 4.10/cmm
BSR - 122 mg/dl
BT - 2 min 00 sec
CT - 4 min 00 sec
CXR - Normal Study
ECG All leads - Normal Study

MRI Fistulogram

Linear T2/STIR Hyperintense track measuring appox 8.6 cm in length is seen in trans-sphinteric plane in perianal region on left side having external opening at 6 O'clock position (approx. 5cm away from anal verge). Cranially the track is crossing external sphincter at 5-6 O'clock position and abutting internal sphincter approx. 3.7 cm above anal verge (possible internal opening). Small blind ending accessory track is seen arising from the main track in intersphincteric plane and extending cranially above the levator plane into peri-rectal fat abutting left obturator internus muscle and ending blindly at same level

Therapeutic Intervention

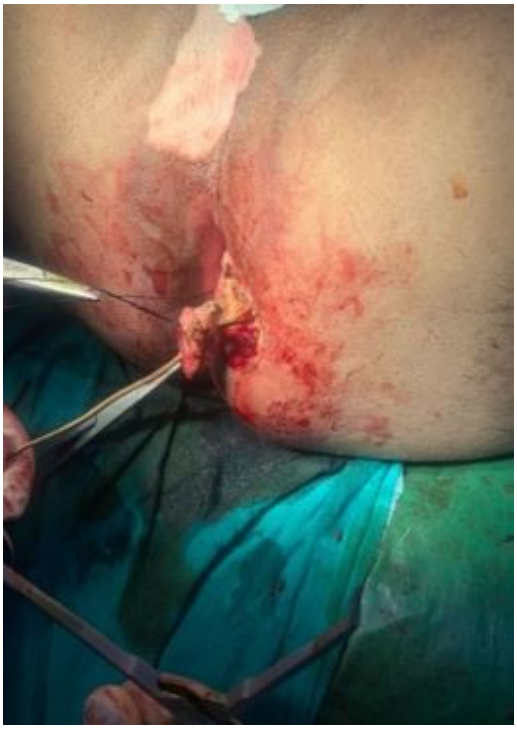
The surgical plan was explained to the patient in his native language. A working proforma was designed which included signs, symptoms, predisposing risk factors, investigations, diagnosis, type of operative technique, operative time, complications (early and late) and outcome.

This study was conducted in Department of Shalya Tantra, TMAES Ayurvedic Medical College, Hospete, Karnataka with proper ethical clearance and informed consent. The study was conducted May 2023 to October 2023. In the present case Fistula-in-ano formed secondary to perianal abscess which was drained by I&D technique. After the formation of fistula-in-ano the patient was taken for surgical management by LIFT (Ligation of intersphincteric fistula tract) and curettage on 02/08/2022 which did not yield desired results and perianal discharge started again after 2 months of the surgery. Patient visited our hospital OPD for *Ksharsutra* treatment of this problem which had become a mental agony to the patient. After thorough examination patient was explained the procedure and desired outcome of the procedure. After taking proper consent and preoperative workup the patient was taken for surgery under spinal anesthesia. The surgical plan was explained to the patient in his native language. A working proforma was designed which included signs, symptoms, predisposing risk factors, investigations, diagnosis, type of operative technique, operative time, complications (early and late) and outcome.

Operative Procedures

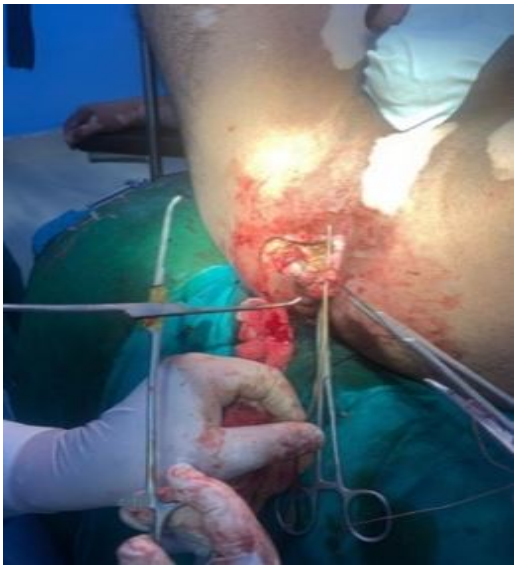
The patient was sent for routine pre surgical investigations and pre-anesthetic checkup.

A surgical plan which was devised preoperatively for this case using dual *Ksharsutra* technique in which two *Ksharsutra* are passed through the same track was executed uneventfully. After spinal anesthesia, the patient was positioned in lithotomy and part was draped after thorough painting of perianal and pelvic area. Maximum finger dilation was done using lignocaine jelly. Methylene blue dye was passed through external opening to confirm any internal openings. Dye passed through and showed stains above the dentate line around 3.7 cm from anal verge at 6 O'clock position visualized by a slit proctoscope. A copper malleable probe with eye on proximal side and handle on distal end was used for probing and a better grip. The track was negotiated and probe came out of internal opening. A circular incision was made on the external opening and partial fistulectomy (3cm) was done along with excision of superficial skin layers along the track. One *Ksharsutra* was passed into this original track and probe was pulled out. Ends of Ksharsutra were knotted externally. Probe was inserted again into the same track and an artificial opening was created below the dentate line in the same plane. Another *Ksharsutra* was passed through this created track. Ends of this *Ksharsutra* were also knotted externally. Both *Ksharasutra* (21 *Bhawana*) were made with *Apamarga, Snuhi, and Haridra*. Procedure was uneventful and patient was discharged after 2 days and follow up was advised.



Picture: 1

Picture: 2



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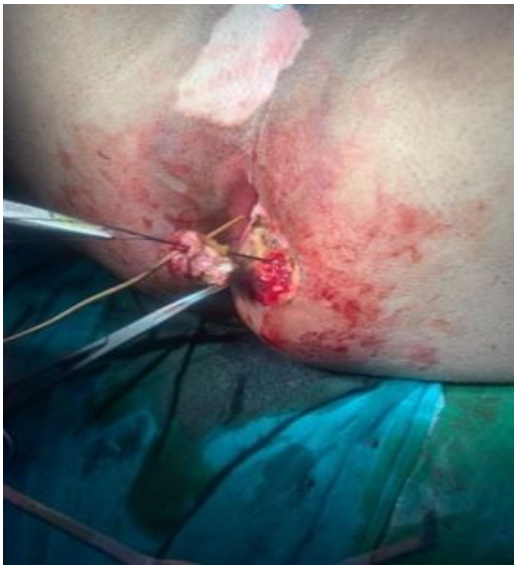
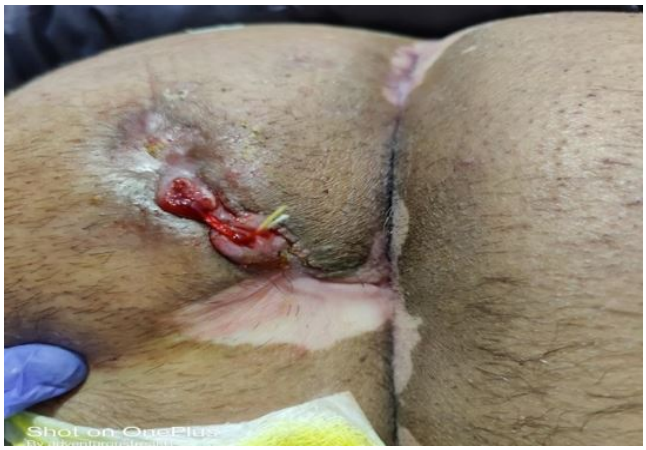


Picture: 4

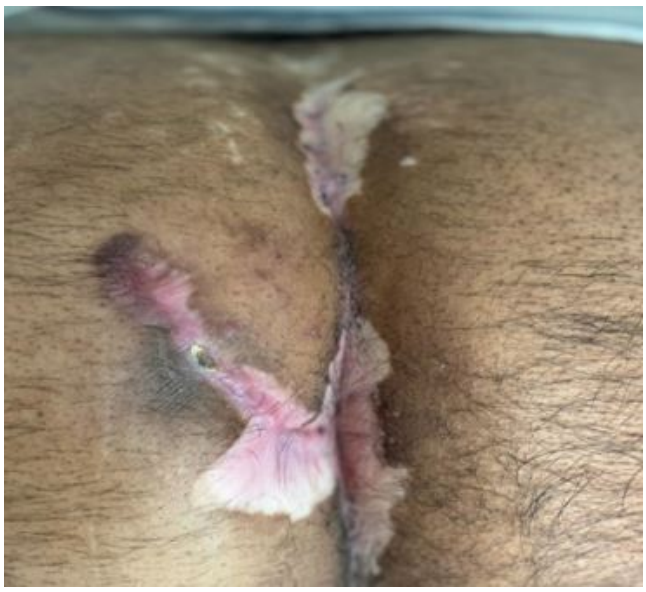
Picture Set 1: Intra-Operative Pictures (Lithotomy Position)



Picture: 5

Picture: 6

Picture Set 2: During Thread Change (Knee-Elbow Position)



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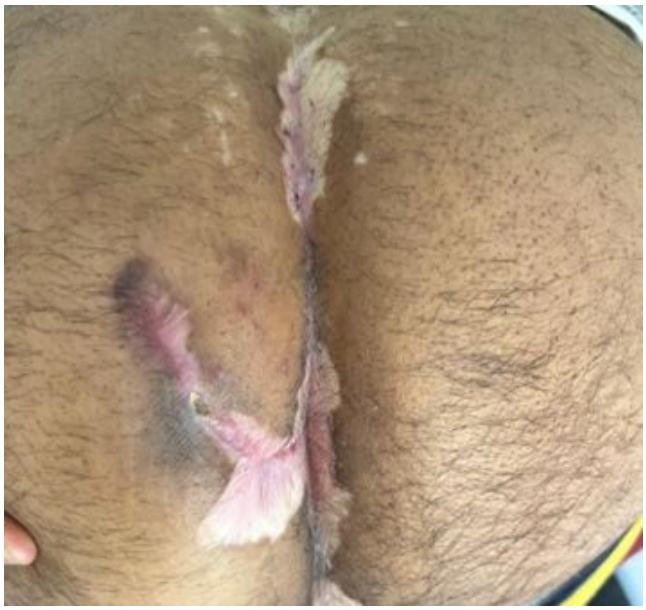

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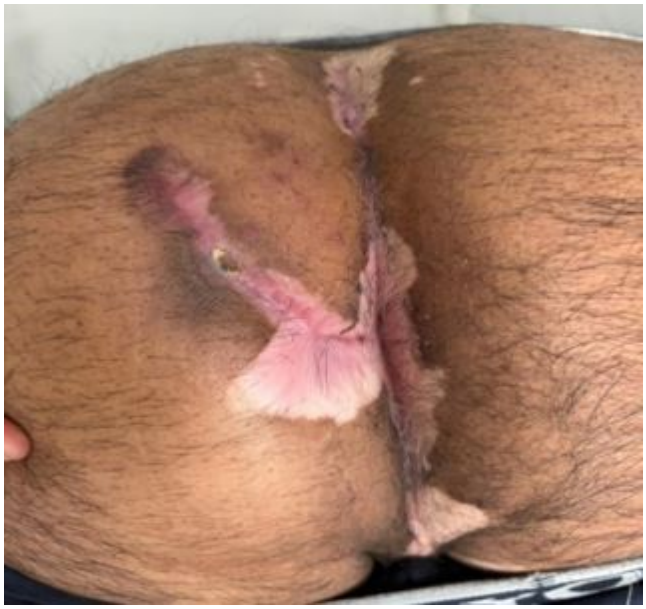

Picture: 9

Picture Set 3: Cut-through and Healing (Knee-Elbow Position)

Picture Set 1: *Intraoperative Pictures*

Picture Set 2:*Ksharasutra in Place (20 weeks)*

Picture Set 3:*After Cut Through (24 weeks)*

Table 1: Follow Up and Outcomes

Parameters	Time taken with Dual Ksharasutra Technique
Odour elimination	3 weeks
Time Taken to Cut Through	24 weeks
Time Taken for Complete Healing	26 weeks

Table 2: Severity of Fecal Incontinence - Jorge-Wexner Scoring System, 1993[9]

Incontinence episode	Frequency				
	Never	Rarely	Sometimes	Usually	Always
Solid	0				
Liquid				3	
Gas			2		
Wear a Pad	0				
Lifestyle alteration	0				
Total Score	5				

Post-Operative Management

Dual *Ksharsutra* technique mitigates the fistulous track with quicker and effective drainage of puss and reduces the cut through time of the track without damaging the internal sphincter musculature.

Both *Ksharasutra* were changed weekly using the rail-road technique on an outpatient basis and the *Ksharsutra* which was placed above the dentate line was used for drainage purpose only and was removed after 16 weeks.

The cut through was achieved by Ksharsutra which was place below the dentate line. Efficacy shall be assessed from insertion to complete wound healing. A 6 monthly follow up shall be taken for 3 years.

Discussion

In the current case few milestones were important to note which are discussed as under.

Odour Removal

A significant difference was observed in the odour of the puss discharge from the wound made through fistulectomy. At the beginning there was a foul smell in the puss discharge which over a period of 3 weeks changed to no odour at all.

Time taken to cut through

As there were 2 *Ksharsutra* place inside the track, one of which was removed after 16 weeks and cut through was achieved by another thread which was changed regularly every week. Total time taken for cut through was 24 weeks.

Time Taken for Complete Healing

Complete healing was achieved in 26 weeks.

Incontinence Monitoring

Jorge-Wexner Scoring System, 1993 was used to monitor any sort of incontinence during and after the treatment and the highest score achieved was 5 which was due to flatus and puss discharge from internal opening.

No marked incontinence was observed during the treatment and on follow-up after 6 months.

The results are inarguably encouraging strong enough to invite more research with respect to treatment of complex fistula in ano with cutting Setons more specifically with *Ksharsutra*.

Patient Perspective

Patient identity and privacy has always been taken care of during the study and while drafting this article. This study has been conducted with informed consent of the patient and ethical committee clearance. No identifying photographs or MRI reports have been shared on any platform including this one. (I am highly satisfied with the treatment and care I received by the team of doctor at TMAE AMC, Hosapete, Karnataka. I used to think that I shall never get rid of this disease but the doctors here changed the perspective all together. Thanks to them and Thanks to Ayurveda.)

Informed Consent

Informed consent has been taken from the patient

Conclusion

Ksharasutra has been a primary choice of treatment in Fistula-in-Ano in Ayurveda. Though efficacy of *Ksharasutra* as primary choice of treatment has been established by many research scholars over the time, new modified techniques like dual Ksharsutra insertion have some additional benefits. The technique comes with basic benefits of common single loop *Ksharasutra* with no complications but has additional features like quick cut through, robust disinfection and quicker healing. It can also be used in high anal fistulas with supralevator extensions. The aim of the dual *Ksharsutra* is disinfection by primary thread and cut through by secondary thread has been achieved in this case. Hence it can be hypothised that this minimal modification in *Ksharasutra* technique can provide essentially better results and reducing the time of treatment.

This study aims at modifying and producing innovative methods of usage of *Ksharsutra* for better results. More studies of this kind with a broader group of patients should be taken for future studies in this regard to establish standard methods of treatment by *Ksharsutra* and other *Ayurvedic* interventions.

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