Case Report

www.ijrap.net

(ISSN Online: 2229–3566, ISSN Print: 2277–4343)

EFFECT OF PLAIN BARBOUR'S SURGICAL THREAD NO. 20 IN THE MANAGEMENT OF CHRONIC FISSURE-IN-ANO: A CASE REPORT

Arundhathi P [1]*, Aneesh S [2]

[1] PG Scholar, Department of Shalyatantra, Government Ayurveda College, Thiruvananthapuram, Kerala, India

[2] Professor and Head, Department of Shalyatantra (Ayurvedic Surgery), Government Ayurveda College, Thrippunithura, Kerala, India

Received on: 24/9/26 Accepted on: 22/10/26

***Corresponding author**
E-mail: arundhathip547@gmail.com

DOI: 10.7897/2277-4343.175165

ABSTRACT

Background: Chronic fissure-in-ano is a common, disabling ano-rectal condition caused primarily by internal anal sphincter (IAS) hypertonia and posterior-midline ischaemia. Conventional Ksharasutra (medicated alkaline thread) is a safer parasurgical alternative, but the caustic Kshara (alkali) coating [Snuhi (*Euphorbia nivulia* Buch.-Ham.) latex and Haridra (turmeric, *Curcuma longa* L.) powder] frequently causes marked post-operative burning and mucosal irritation. We investigated plain, uncoated Barbour's surgical thread No. 20 as a purely mechanical, chemical-coating-free alternative for graduated sphincterotomy. Case presentation: A 23-year-old female presented with post-defecatory pain of 6 years' duration, associated with burning sensation, mild constipation and bright red bleeding per rectum. Local examination revealed a posterior-midline linear tear with a sentinel skin tag at the 6 o'clock position, and she was diagnosed with chronic fissure-in-ano. Intervention and outcome: Plain Barbour's surgical thread No. 20, soaked in 10% betadine solution, was inserted through an incision made in the intersphincteric plane under local anaesthesia by the railroad technique and changed every 7th day until complete cut-through. This was supported by twice-daily Avagaha Sweda (hot sitz bath) and oral Brihat Triphala Churna (compound Triphala powder). The participant showed progressive, sustained improvement across all assessed parameters; pain, burning sensation, discharge/bleeding and sphincteric spasm were reduced to Grade 0 by Day 56, with complete cut-through by approximately Day 42 and ulcer healing by Day 56–63. The computed Unit Cutting Time (UCT) was 9.23 cm/day. Conclusion: This case supports the hypothesis that the purely mechanical cutting action of plain, uncoated Barbour's surgical thread No. 20 can achieve effective, graduated sphincterotomy and complete fissure healing.

Keywords: Chronic fissure-in-ano, Barbour's surgical thread, Plain thread sphincterotomy, Unit cutting time, Ksharasutra

INTRODUCTION

Chronic fissure-in-ano is a painful, non-healing ulcer of the lower anal canal that affects young, working-age adults.[1] Its persistence despite conservative measures is attributed largely to internal anal sphincter (IAS) hypertonia, which produces posterior-midline ischaemia and prevents fissure closure.[2-4] Lateral internal sphincterotomy (LIS), the contemporary surgical gold standard,[5,6] achieves cure in over 90% of patients but carries a well-documented risk of flatus/faecal incontinence of approximately 10%, a complication with significant long-term functional consequences, particularly in young patients.[5,7,8]

Ksharasutra (medicated alkaline thread) is effective and minimally invasive,[9] but its caustic alkaline coating (Snuhi latex and Haridra powder) is frequently associated with significant post-operative burning and mucosal irritation.[10-12] This raised the clinical question of whether the mechanical cutting action of a plain, uncoated surgical thread alone, without any chemical coating, could achieve comparable sphincterotomy and fissure healing while improving patient tolerability. Plain Barbour's surgical thread No. 20 was selected for its high tensile strength, consistent diameter, abrasion resistance, biocompatibility and sterilisability, making it mechanically suitable for sustained, controlled tissue cutting without pharmacological augmentation.[13]

This report presents the detailed clinical course of one participant treated with plain Barbour's surgical thread No. 20 as part of an ongoing pilot clinical study at the Department of Shalyatantra (Ayurvedic surgery), Government Ayurveda College, Thiruvananthapuram, illustrating the technique, serial assessment findings and outcome in an individual case.

CASE PRESENTATION

Patient Information

A 23-year-old female student presented with pain after defecation for 6 years' duration, associated with burning sensation, mild constipation and bright red bleeding per rectum, which was gradual in onset.

Personal and Past History

Constipation: Mild
Allergies/drug history/injuries-operations: Nil
Past illness: Nil
Family history: Not contributory
Appetite: Good, but irregular intake of food noticed, with occasional skipping of breakfast
Sleep: Sound
Bowel habits: Once a day, hard stools
Micturition: Within normal limits
Habits (alcohol/smoking/tobacco chewing): Nil
Menstrual history: Regular
Treatment history: Nil

General and Systemic Examination
Built: Moderate
Pulse: 78/min
Temperature: Afebrile
Blood pressure: 130/80 mmHg
Cardiovascular, respiratory and central nervous systems: No abnormality detected

Local Examination of Anal Canal
Inspection: Linear tear at the posterior midline, with a sentinel skin tag at the 6 o'clock position
Surrounding skin: Blackish in appearance
Discharge/bleeding: Bleeding noted from the posterior midline
Previous operative scar: Nil
Palpation: Tenderness Grade II over the fissure site
Per rectal examination: Indurated fissure margins on the posterior midline at the anal verge

Investigations
The laboratory investigations of the participant are given in Table 1.

Table 1: Laboratory investigations of the participant

Investigation	Result	Investigation	Result
FBS	99 mg%	S. Bilirubin (T/D/I)	0.9 / 0.3 / 0.6 mg%
PPBS	126 mg%	S. Albumin / Globulin	4.0 / 2.9 g%
TC / DC	P-66, L-32	S. Creatinine	0.9 mg%
ESR	22 mm/hr	S. Uric acid	5.5 mg%
Cholesterol	172 mg%	Blood urea	14 mg%
HDL / LDL	42 / 121 mg%	Hb	12.4 g%
BT / CT	2 min / 5 min	HIV / HBsAg / HCV	Negative
VDRL	Negative	Urine routine	Normal (NAD)

FBS: fasting blood sugar; PPBS: post-prandial blood sugar; TC/DC: total count/differential count (P: polymorphs, L: lymphocytes); ESR: erythrocyte sedimentation rate; HDL/LDL: high/low-density lipoprotein; BT/CT: bleeding time/clotting time; T/D/I: total/direct/indirect; Hb: haemoglobin; HIV: human immunodeficiency virus; HBsAg: hepatitis B surface antigen; HCV: hepatitis C virus; VDRL: Venereal Disease Research Laboratory test; NAD: no abnormality detected.

Diagnosis
Chronic fissure-in-ano (posterior midline), with sentinel skin tag and indurated margins, fulfilling the diagnostic and inclusion criteria of the parent pilot clinical study (chronicity > 8 weeks; age 18–60 years).

METHODOLOGY

Ethical Statement and Informed Consent
The participant was treated as part of a pilot clinical study conducted at the Department of Shalyatantra, Government Ayurveda College, Thiruvananthapuram, which was carried out in accordance with the ICMR National Ethical Guidelines for Biomedical and Health Research Involving Human Participants.[14] [Institutional Ethics Committee approval number and date, and CTRI registration number, if any, to be inserted.] Written informed consent was obtained from the participant for participation in the study and for publication of this case report.

Intervention: Plain Barbour's Surgical Thread No. 20
Barbour's surgical linen thread No. 20 of suitable length was procured from a genuine source, and its authenticity was ensured.[13] Prior to application, the thread was soaked in 10% betadine solution, rinsed in sterile water and stored in a clean container. No chemical (Kshara) coating was applied at any stage.

After history-taking, examination and investigations, the procedure was explained to the participant and informed consent was obtained. Pre-operative preparation included local cleaning and shaving, intramuscular injection of 0.5 ml tetanus toxoid, and a subcutaneous test dose of 2% lignocaine hydrochloride to exclude an allergic reaction. With the participant in the lithotomy position, painting and draping were carried out and local anaesthesia was achieved with 2% lignocaine hydrochloride. A horizontal incision was made 1 mm below the anal opening in the intersphincteric groove at the 6 o'clock position, exposing the internal anal sphincter. A malleable copper probe was passed through the incision, guided 2–3 cm into the anal canal and through the mucosal lining; the betadine-soaked thread was threaded through the eye of the probe, drawn into position along the track, and its two ends were tied.

The thread was changed on the lateral side of the old knot every 7th day by the railroad technique. The length of thread cut off at each change was measured and recorded to compute the cutting rate. This was repeated at successive visits until the fissure track had cut through completely. Post-operative care comprised betadine swab cleaning and plain gauze dressing daily; Avagaha Sweda (hot sitz bath)[15] with Triphala Kashayam (decoction of Triphala) for 15 minutes twice daily (except on thread-change days); and Brihat Triphala Churna (compound Triphala powder) 1 teaspoon at bedtime.[16] Triphala comprises the fruits of *Terminalia chebula* Retz., *Terminalia bellirica* (Gaertn.) Roxb. and *Phyllanthus emblica* L. Conventional analgesics were used only if pain was unbearable on thread-change days.

Assessment Parameters and Grading
Subjective parameters (pain, burning sensation and pruritus) and objective parameters (Unit Cutting Time, ulcer length/healing, discharge and sphincteric spasm) were assessed at baseline (Day 0) and on every 7th day until complete healing, using the grading scales given in Table 2, adapted from the parent study protocol.[17]

Table 2: Grading scales used for the assessment parameters

Parameter	Grade 0	Grade 1	Grade 2	Grade 3 / 4
Pain	No pain	Negligible/tolerable, no medication	Tolerable, relieved by sitz bath	Intolerable, needs analgesics / sleep disturbance
Burning sensation	None	Negligible, few minutes/day	Tolerable, relieved by hot sitz bath	Constant/unbearable, not relieved
Discharge/bleeding	Dry gauze at 24 h	Spot of blood/discharge	Partially wet gauze	Completely wet gauze
Pruritus	Absent	Mild	Moderate	Severe
Sphincteric spasm	Absent	Mild	Moderate	Severe

Unit Cutting Time (UCT) = Total number of days for complete cut-through ÷ initial length of thread (cm); a lower UCT indicates faster cutting per unit length of thread.[17]

OBSERVATIONS

All parameters were graded and recorded on Day 0 (baseline) and on Days 7, 14, 21, 28, 35, 42, 49, 56 and 63 until complete healing (Table 3).

Grades of Symptoms and Signs

Table 3: Weekly grades of pain, burning sensation, discharge/bleeding, sphincteric spasm and pruritus (Day 0 to Day 63)

Parameter (grade)	Day 0	Day 7	Day 14	Day 21	Day 28	Day 35	Day 42	Day 49	Day 56	Day 63
Pain	3	3	3	2	1	2	1	1	0	0
Burning sensation	2	2	1	2	2	2	1	1	0	0
Discharge/bleeding	2	2	1	1	1	1	1	1	0	0
Sphincteric spasm	1	1	1	1	1	1	1	0	0	—
Pruritus	1	2	2	1	1	1	1	0	0	2

The Day-63 pruritus grade of 2 (against 0 on Days 49 and 56) may reflect a transient local reaction during the terminal healing/epithelisation phase.

Thread Length and Unit Cutting Time (UCT)

The length of Barbour's thread cut off at each weekly change was recorded as: 5.2 cm (Day 7) → 4.6 cm (Day 14) → 8.8 cm (Day 21) → 3 cm (Day 28) → 2/1.6 cm (Day 35) → complete cut-through by approximately Day 42. The computed Unit Cutting Time was 9.23 cm/day, and complete ulcer healing was achieved by approximately Day 56–63.

DISCUSSION

In this participant, the purely mechanical, uncoated Barbour's surgical thread No. 20 was associated with a consistent pattern of improvement. Post-operative pain, burning sensation, discharge/bleeding and sphincteric spasm declined from baseline to Grade 0 within 8 weeks, with minor fluctuations at some visits (Table 3), in parallel with steady cutting of the intersphincteric track and complete healing of the fissure. This trajectory is consistent with a graduated, self-limiting, pressure-mediated division of the internal anal sphincter, mechanistically similar to lateral internal sphincterotomy.[6,18,19]

The pathophysiological basis of this response is well recognised. In chronic fissure, raised resting anal pressure due to IAS hypertonia is accompanied by reduced anodermal blood flow at the posterior midline, and the resulting ischaemia prevents the ulcer from healing.[2,3] Reduction of sphincter tone restores perfusion and allows healing to proceed.[1,5] In the present case, the gradual passage of the thread through the internal sphincter fibres would be expected to lower resting tone progressively, in keeping with the eventual resolution of sphincteric spasm, pain and bleeding. Symptoms of fissure have been shown to correlate with anal pressures before and after surgery;[4] however, anal manometry was not reported in this case, and the proposed mechanism therefore remains inferential.

Lateral internal sphincterotomy remains the standard surgical treatment, with high healing rates, but a single-stage division of the sphincter carries a recognised risk of incontinence to flatus and stool.[5,7,8] A thread that cuts slowly, with fibrosis and healing proceeding behind the advancing track, divides the muscle in a controlled, stepwise manner. This is the principle of gradual cutting with simultaneous healing on which the use of Ksharasutra in ano-rectal disorders is based.[9,11] No incontinence was observed in this participant, which is encouraging, although a single case cannot establish a lower incontinence rate.

Notably, burning sensation in this case remained at a comparatively low grade (peaking at Grade 2) throughout the course. The absence of an alkaline (Snuhi/Haridra) coating may have reduced chemical mucosal irritation without compromising the mechanical cutting and healing action of the thread.[10-12] Burning sensation, however, did not fall steadily: it rose again to Grade 2 at Day 21 to Day 35 before resolving. This could be due to the local response after thread changes, and the burning reported by the participant at baseline was also present before any thread was applied, so a part of it is attributable to the fissure itself.

The participant also received twice-daily Avagaha Sweda, Triphala decoction and Brihat Triphala Churna. Warm sitz bath is widely used to relieve anal pain and spasm, although the supporting evidence is limited,[15] and Triphala is traditionally used as a mild laxative.[16] Softening of stools reduces repeated trauma to the fissure, and these measures, together with daily antiseptic dressing, probably contributed to symptomatic relief and healing. Their effect cannot be separated from that of the thread in a single uncontrolled case.

The weekly length of thread cut off varied from 3 cm to 8.8 cm. Such variation may reflect differences in tissue thickness, knot tightness at each change, and local factors such as oedema; standardising tightening in future series would help clarify this. The UCT of 9.23 cm/day provides a reference value for comparison with Ksharasutra and other thread-based techniques.

The single transient rise in pruritus at Day 63, against an otherwise resolving trend, is not unusual during the terminal healing/epithelisation phase of the wound and did not affect the overall favourable outcome.

This report has limitations. It describes a single participant without a comparator; the assessments used graded scales that are partly subjective; and adjuvant measures were given together with the thread. Objective measures such as anal manometry and validated continence scoring were not reported, and long-term follow-up is needed to confirm freedom from recurrence and preservation of continence. Its strengths are its simple, outpatient-based, low-cost technique; the absence of any chemical coating; and serial weekly recording of symptoms and thread length. Randomised controlled trials comparing plain thread, Ksharasutra and lateral internal sphincterotomy, with objective outcome measures, are required before the technique can be recommended in routine practice.

CONCLUSION

This case illustrates that plain, uncoated Barbour's surgical thread No. 20 can effectively achieve a gradual sphincterotomy and complete healing of a chronic posterior-midline fissure-in-ano, with progressive resolution of pain, burning sensation, discharge, and sphincteric spasm, without recurrence, incontinence, or major complications. Thus, the plain thread technique appears to be a safe, feasible, low-cost, outpatient-based, sphincter-sparing alternative to conventional Ksharasutra and lateral internal sphincterotomy, meriting further evaluation in a larger, well-powered randomised controlled trial.

Declaration of patient consent

The patient has consented to the reporting of the case, along with images and other clinical information, in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

REFERENCES

1. Lund JN, Scholefield JH. Aetiology and treatment of anal fissure. Br J Surg. 1996;83(10):1335-44.
2. Schouten WR, Briel JW, Auwerda JJ. Relationship between anal pressure and anodermal blood flow: the vascular pathogenesis of anal fissures. Dis Colon Rectum. 1994;37(7):664-9.
3. Klosterhalfen B, Vogel P, Rixen H, Mittermayer C. Topography of the inferior rectal artery: a possible cause of chronic, primary anal fissure. Dis Colon Rectum. 1989;32(1):43-52.
4. Melange M, Colin JF, Van Wymersch T, Vanheuverzwijn R. Anal fissure: correlation between symptoms and manometry before and after surgery. Int J Colorectal Dis. 1992;7(2):108-11.
5. Nelson RL, Chattopadhyay A, Brooks W, Platt I, Paavana T, Earl S. Operative procedures for fissure in ano. Cochrane Database Syst Rev. 2011;(11):CD002199.
6. Notaras MJ. The treatment of anal fissure by lateral subcutaneous internal sphincterotomy: a technique and results. Br J Surg. 1971;58(2):96-100.
7. Khubchandani IT, Reed JF. Sequelae of internal sphincterotomy for chronic fissure in ano. Br J Surg. 1989;76(5):431-4.
8. Hananel N, Gordon PH. Lateral internal sphincterotomy for fissure-in-ano: revisited. Dis Colon Rectum. 1997;40(5):597-602.
9. Shukla NK, Narang R, Nair NG, Radhakrishna S, Satyavati GV. Multicentric randomized controlled clinical trial of Kshaarasootra (Ayurvedic medicated thread) in the management of fistula-in-ano. Indian J Med Res. 1991;94:177-85.
10. Chakradatta. Chakradatta with Vaidyaprabha Hindi commentary by Indradev Tripathi. 2nd ed. Varanasi: Krishnadas Academy; 2002. p. 412-6. [Please verify edition and chapter name]
11. Banothe GD, Dudhamal TS. Management of chronic fissure in ano by Ksharasutra (medicated thread): a clinical prospective study. Int J Res Ayurveda Pharm. 2020;11(4):45-9. doi:10.7897/2277-4343.110487
12. Banothe GD. Management of chronic fissure-in-ano by Ksharsutra [PhD thesis]. Jamnagar: Gujarat Ayurved University, Institute of Post Graduate Teaching and Research in Ayurveda; [year]. Guide: Dudhamal TS.
13. Anonymous. Ksharasutra (medicated thread). In: The Ayurvedic Pharmacopoeia of India. 1st ed. Part II, Vol. II. New Delhi: Department of AYUSH, Government of India; 2001. p. 209-13.
14. Indian Council of Medical Research. National Ethical Guidelines for Biomedical and Health Research Involving Human Participants. New Delhi: ICMR; 2017.
15. Tejirian T, Abbas MA. Sitz bath: where is the evidence? Scientific basis of a common practice. Dis Colon Rectum. 2005;48(12):2336-40.
16. Peterson CT, Denniston K, Chopra D. Therapeutic uses of Triphala in Ayurvedic medicine. J Altern Complement Med. 2017;23(8):607-14.
17. Sarkar S, Sudhikumar KB, Jayasree PV, Biswas TK. A clinical study on chronic anal fissure by ligating Ksharasutra (medicated thread) w.s.r. to sphincterotomy. J Ayurveda Integr Med Sci. 2018;3(6). doi:10.21760/jaims.v3i06.532
18. Memon AS, Siddiqui FG, Hamad A. Fissurectomy with posterior midline sphincterotomy for management of chronic anal fissure. J Coll Physicians Surg Pak. 2010;20(4):229-31.
19. Bennett RC, Goligher JC. Results of internal sphincterotomy for anal fissure. BMJ. 1962;2(5300):1500-3.

Cite this article as:

Arundhathi P and Aneesh S. Effect of plain Barbour's surgical thread No. 20 in the management of chronic Fissure-in-ano: A Case Report. Int. J. Res. Ayurveda Pharm. 2026;17(5):13-16
doi: http://dx.doi.org/10.7897/2277-4343.175165

Source of support: Nil, Conflict of interest: None declared

Disclaimer: IJRAP is solely owned by Moksha Publishing House, a non-profit publishing house dedicated to publishing quality research. We have made every effort to verify the accuracy of the content published in our journal. IJRAP cannot accept any responsibility or liability for the site content and articles published. The views expressed in articles by our contributing authors are not necessarily those of the IJRAP editor or editorial board members.