

Wound Healing Effect of Lajjalu (*Mimosa pudica* Linn.) Kashaya Pichu in Anal Fissure: A Randomized Controlled Trial

Sarojani M. Kuchanur*, S.V. Emmi**

Abstract

Fissure in ano is a troubling and painful condition that affects a great majority of the population world over. On the basis of symptoms, the disease fissure-in-ano can be compared to the disease Parikartika according to Ayurveda. Wound healing is one of the treatment modalities in the treatment of chronic fissures. Lajjalu (*Mimosa pudica* Linn.) is known to possess Vrunaghna, Sandhaniya and Raktasthambhana properties, & indicated mainly in Raktapitta, Daaha, Vruna, Shotha, etc [1]. Which are essential in the management of anal fissure. Considering these different aspects in mind, the study was planned to see the effect of Lajjalu Kashaya in the management of fissure-in-ano. The patients of 16-60 years of age attending the OPD and IPD of the hospital with the complaints and Fissure in ano were included in the study after taking their consent. They were randomly assigned into two groups i.e. Group 1 (Lajjalu kashaya pichu) and Group 2 (Panchavalkala kashaya pichu) consisting of 20 patients arm. The Kashaya Pichu application was done for the period of 7 days and the patients were assessed before and after treatment. In our study, we found that Lajjalu Kashaya Pichu is effective in the management of Parikartika by reducing pain, bleeding, burning sensation and itching. It is effective especially in relieving Pain and Burning sensation significantly than Panchavalkala Kashaya Pichu.

Keywords: Fissure in Ano; Parikartika; Lajjalu; Mimosa Pudica Linn.

Introduction

Fissure in ano is a troubling and painful condition that affects a great majority of the population world over. It is equally one of the most common reasons of bleeding per anus. The pain of anal ulcer is intolerable and always disproportionate to the severity of the physical lesion. It may be so severe that patients may avoid defecation for days together until it becomes inevitable [1]. On the basis of symptoms, the disease fissure-in-ano can be compared to the disease Parikartika according to Ayurveda. Acharya Sushruta has described "Parikartika" as a kartanavatvedana in guda, as a complication of Virechana karma and Bastikarma and also sequel of Atisara, Jwara, Garbhini vyapad. It occurs as a superficial split in

the anoderm that may heal by itself or may progress to a chronic fissure. Despite the initial success with pharmacological agents in the treatment of patients with chronic anal fissures, a growing concern is developing about their use. Increasing incidence of adverse effects and decreasing long-term efficacy have been the major drawbacks.

Wound healing is one of the treatment modalities in the treatment of chronic fissures. Lajjalu (*Mimosa pudica* Linn.) is known to possess Vrunaghna, Sandhaniya and Raktasthambhana properties, & indicated mainly in Raktapitta, Daaha, Vruna, Shotha, etc [2]. Which are essential in the management of anal fissure. Previous experimental study has showed wound healing activity of Lajjalu. Considering these different aspects in mind, the study was planned to see the effect of Lajjalu Kashaya in the management of fissure-in-ano

Author's Affiliation: *Final Year PG Scholar **Pror., Dept of Shalya Tantra, KLEU Shri BMK Ayurved Mahavidyalaya, Belagavi.

Reprint's Request: Sarojani M. Kuchanur, Final Year PG Scholar, Dept of Shalya Tantra, KLEU Shri BMK Ayurved Mahavidyalaya, Belgaum, Karnataka 590003.
E-mail: sarojanish@gmail.com

Aims and Objectives

To evaluate the wound healing effect of Lajjalu kashaya in comparison with Panchavalkala Kashaya in fissure in ano.

Materials and Methods

Source of Data

The patients suffering from the Fissure in ano were selected from the OPD and IPD department of Shalyatantra of KLEU's Shri B.M.K. Ayurveda Hospital and Research Centre, Belagavi for this study irrespective of their sex, caste and socio-economic status. The patients were examined in detail as per proforma prepared for this study. Patients were further subjected to the following criteria of inclusion, exclusion.

Diagnostic Criteria

The diagnosis is mainly based on clinical presentation of the subjects according to signs & symptoms of Parikartika.

1. Pain in Anal region during and after defecation
2. Blood streak along with defecation
3. Burning sensation in anal region
4. Presence of sphincter spasm and with a longitudinal ulcer in the anal region

Criteria for Selection of Patients

Inclusion Criteria

- a. Diagnosed cases of Fissure in Ano

Table 1: Study design groups

Group	Treatment	Duration
Control	Panchavalkala kashaya	7days
Trial	Lajjalu kashaya	7days

Duration of Treatment

Lajjalu kashaya pichu application was done once daily and assessment was done on 1st day of the application, on 8th day of application.

Drugs

Lajjalu panchanga bharada was procured from GMP certified KLEU's Ayurveda Pharmacy, Khasbhag, Belagavi. Panchavalkala drugs were procured from local vendors in Belagavi and Bharada was prepared at GMP certified KLEU's Ayurveda Pharmacy, Khasbhag, Belagavi. The drugs were authenticated at Central Research Facility of K.L.E'S Shri. B. M. K. Ayurveda Mahavidyalaya, Belagavi.

Preparation of Kashaya

To obtain the active components of drugs in

- b. Participants willing to undergo the study
- c. Either sex between 16-60years of age.

Exclusion Criteria

- a. Patients with any other associated disease e.g. Internal piles, Fistula in ano, Perineal abscess.
- b. Diagnosed cases of Systemic diseases like Tuberculosis, HIV, Irritable bowel disease, Diabetes Mellitus, Hypertension.

Research Design

Sample Size

Diagnosed 40 patients of Fissure in ano were registered with the help of research proforma prepared for the study. They were randomly assigned into two groups i.e. Group 1 (Lajjalu kashaya pichu) and Group 2 (Panchavalkala kashaya pichu) consisting of 20 patients each.

Type of Randomization

Computerized block randomization

Study Design

Randomized Controlled Trial

aqueous media by boiling, 1 part of the drug was soaked with 16 parts of water for 20 minutes. The mixture was then boiled under Mild fire (Mandagni) until the quantity reduces to 1/8th under the sterile conditions.

Application of Pichu

Patient was asked to lie in a Lithotomy position over lithotomy table. Painting was done with Povidone iodine solution around anal verge followed by draping with surgical hole towel. Tween 60 gel was used as a lubricant for per rectal examination. Visualization and graduation of the fissure was assessed by introducing Sterile Falcons centrifuge tube. Application of pichu over the wound - Kashaya was prepared as per kwatha Kaplana vidhi. Gauze (4×4 cms) was dipped into kashaya and then it was applied over the fissure in ano. The pichu was left in situ for 3 hrs which provides

a sealing effect. Proper bandaging was done. Meanwhile the vitals of the patient were monitored.

7 days of application. The results were evaluated by subjective parameters, mainly based on clinical observations by grading and objective parameters before and after treatment.

Assessment Criteria

The symptoms were assessed at baseline and after

Pain with Visual Analog Scale (VAS)

Table 2: showing grading of Rakta Srava (bleeding)

Gradings	Details
0	No bleeding
1	Blood streak with defecation
2	Drop wise bleeding during and after defecation 0-10 drops.
3	Drop wise bleeding during and after defecation 10-20drops
4	Bleeding more than 20 drops in each defecation

Table 3: Showing grading of Gudadaha (burning pain)

Gradings	Details
1	Absent
2	Mild
3	Moderate
4	Severe and Constant

Objective Parameters

Size of Ulcer

The length of ulcer was assessed with the help of Falcon graduated centrifuge tubes (15 ml). The Falcon tube graduated from outside for measuring the length of the ulcer.



Fig. 1: Showing the graduated falcon’s centrifuge tube for measuring the length of the ulcer

Table 4: Showing grading of Kandu (Itching)

Grading	Details
1	Absent
2	Mild
3	Moderate
4	Severe and constant

Table 5: Showing the effect of therapies

S. No.	Parameter	Group	Diff in Mean±Stdev	t value	Significance
1	Pain	Group A	6.47 ± 1.46	19.32	<0.05
		Group B	4.22±1.31	13.62	<0.05
2	Bleeding	Betn A & B		3.14	0.003*
		Group A	2+0.84	10.38	<0.05
3	Burning sensation	Group B	1.39±0.89	6.61	<0.05
		Betn A & B		1.65	0.1
4	Itching	Group A	2.53±0.60	18.20	<0.05
		Group B	1.55±0.95	6.9	<0.05
5	Length of ulcer	Betn A & B		3.1	0.003*
		Group A	1+0.77	5.69	<0.05
		Group B	0.72±0.80	3.81	<0.05
		Betn A & B		0.64	0.52
		Group A	1.47±0.85	7.55	<0.05
		Group B	1.66±1.1	6.39	<0.05

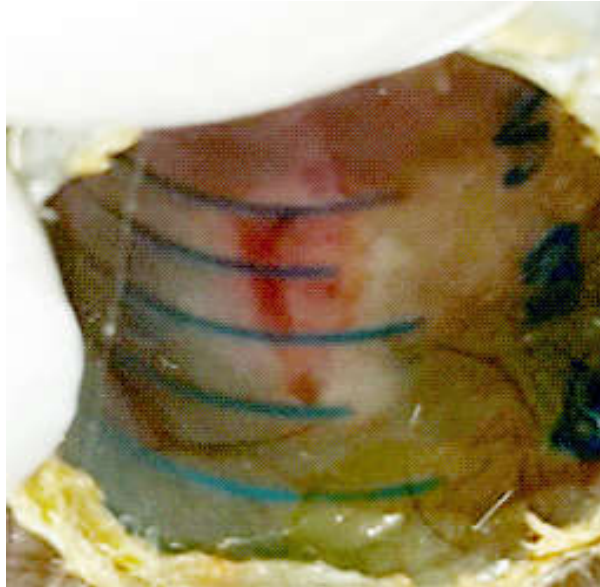


Fig. 2: Showing before treatment

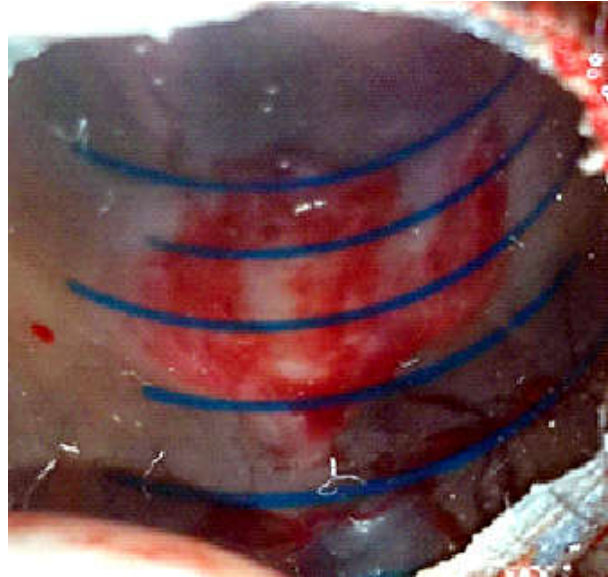


Fig. 4: Showing before treatment

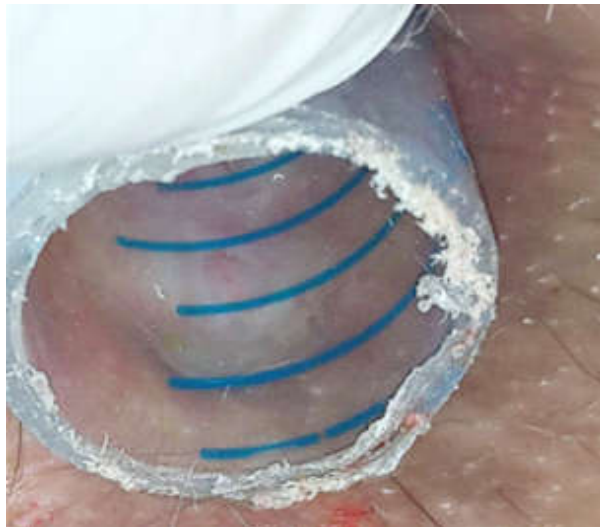


Fig. 3: Showing before treatment



Fig. 5: Showing before treatment

Observations and Results

The maximum number of subjects in our study were between the age group of 25-35 (40%) and 35-45 years (40%), followed by 15-25 years (10%) and 45-55 years (7.5%). There was almost an equal distribution of Female (52.5%) and Male (47.5%) in our study.

Discussion

Effect of Therapy on Pain

Pain was assessed by VAS. There was a significant reduction of Pain in both the groups ($p < 0.05$). But

when compared between both the groups, there was significant reduction ($p = 0.003$) in Lajjalu group (trial group) compared to Panchavalkala group (Control group). Lajjalu has been reported to alleviate pain in previous case reports[3] and is also used as an antispasmodic, muscle relaxant, and anti-inflammatory. The flavonoids in the *Mimosa pudica* Lin. is very effective for pain management by inhibiting the prostaglandin synthesis. A 1:1 ethanol-water extract is very effective for pain management and is currently patent pending for pain relief. The leaf paste is applied on forehead to get relief from headache and migraine [4]. Thus it can be said that the Lajjalu Kashaya Pichu in our study has helped to reduce pain significantly more than Panchavalkala Kashaya pichu.

Effect of Therapy on Bleeding

Bleeding was graded based on Global impression scale. There was a significant reduction of Bleeding in both the groups ($p < 0.05$). But when compared between both the groups, there was no significant difference between Lajjalu group (Trial group) and Panchavalkala group (Control group). The content of *Mimosa pudica* has a capacity of arresting bleeding and it fastens the process of healing of wounds. The arrest of bleeding in the trial group may be due to the presence of tannins and phenols in *Mimosa Pudica* as well as Panchavalkala. The content of total phenols was found to be 17% total aqueous extract [5].

Effect of Therapy on Burning Sensation

Burning sensation was graded based on Global impression scale. There was a significant reduction of Burning sensation in both the groups ($p < 0.05$). But when compared between both the groups, there was significant reduction of burning sensation ($p = 0.003$) in Lajjalu group (trial group) compared to Panchavalkala group (Control group). Reduction of burning sensation may be attributed to the Sheeta veeryata and pitta Shamakata properties of Lajjalu. Lajjalu has analgesic, antispasmodic and antibacterial properties as it contains alkaloids, which might have helped in reducing burning sensation [6].

Effect of Therapy on Itching

Itching was graded based on Global impression scale. There was a significant reduction of Itching in both the groups ($p < 0.05$). But when compared

between both the groups, there was no significant difference between Lajjalu group (trial group) and Panchavalkala group (Control group). The Kashaya pichu was applied over the wounds in the present study might have reduced mucous secretion. The antimicrobial and antifungal properties of these drugs inhibit the fungal growth and thus might have reduced the itching. From Ayurveda mode of view, the reduction of itching may be attributed to kaphashamakata property of Lajjalu.

Effect of Therapy on Length of the Ulcer

Length of ulcer was graded based on Global impression scale. There was a significant reduction in length of ulcer in both the groups ($p < 0.05$). But when compared between both the groups, there was no significant difference between Lajjalu group (trial group) and Panchavalkala group (Control group).

Tannins, phenols, amino acid derivatives and flavonoids could be synergistically responsible for acceleration of wound healing activity. In previous studies, *Mimosa pudica* shoot methanolic extract and *Mimosa pudica* root methanolic extract have showed very good wound healing activity [7]. The methanolic extract exhibited good wound healing activity probably due to presence of phenols constituents [8,9,10]. The formulation of extracts applied locally augments the healing process by strengthening and promoting wound contraction.

The properties of Lajjalu which might have helped in relieving the symptoms of Parikartka have been summarized as.

Table 6: Properties of lajjalu helping in reducing the symptoms of parikartika

S. No	Properties of Lajjalu	Relieving the symptoms of Parikartika
1	Tikta, Kashaya rasa	Pain
2	Sheeta Veerya	Burning sensation
3	Raktasthambaka	Bleeding
4	Kaphashamaka	Itching
5	Vrunaghna	Wound healing

Probable Mode of Action of Lajjalu Kashaya Pichu

The observation of the current study confirms the traditional uses of Lajjalu in wound healing. There are three important stages wound healing; 1) Collagen formation, 2) Contraction of wound, 3) Regeneration of epithelial process. There is a strong relationship among the inflammatory process, fibroblast formation and collagen synthesis. Management of wound would be targeting any of these above processes.

Mimosa Pudica has been effective in inflammatory

conditions which reflected its efficacy in inhibiting the increase in the number of fibroblasts and synthesis of collagen. It also possesses a strong biological activity which has the ability to maintain or enhance the levels of collagen. When provided to human fibroblasts, *Mimosa pudica* Lin can increase the collagen levels in these cells by as much as 100% or more [11]. Shofiul Azam et al. Anti-Inflammatory and Anti-Oxidant Study of Ethanolic Extract of *Mimosa pudica*, Journal of Young Pharmacists, Vol 7, Issue 3, Jul-Sep, 2015.

Conclusion

In our study, we found that Lajjalu Kashaya Pichu is effective in the management of Parikartika. It is effective especially in relieving Pain and Burning sensation significantly than Panchavalkala Kashaya Pichu.

References

1. Pravid J. Gupta, Treatment of fissure in ano-revisited, African Health Sciences. 2004; 4(1): 58-62.
2. Hafsa Ahmad, Sakshi Sehgal, Anurag Mishra, and Rajiv Gupta, *Mimosa pudica* L. (Laajvanti): An overview, Pharmacogn Rev. 2012 Jul-Dec; 6(12): 115-124.
3. T. M. Shivanandaiah and T. M. Indudhar, Lajjalu treatment of uterine prolapse, J Ayurveda Integr Med. 2010 Apr-Jun; 1(2): 125-128.
4. Behera SK, Panda A, Behera SK, Misra MK. Medicinal Plants Used By the Kandhas of Kandhamal District of Orissa. Indian J Traditi Knowl. 2006; 5: 519-28
5. Dnyaneshwar D. Kokane et al. Evaluation of wound healing activity of root of *Mimosa pudica*, Journal of Ethnopharmacology. 2009 July 15; 124(2): 311-315.
6. Yadav RNS. Et al Agarwala M. Phytochemical analysis of some medicinal plants. J Phyto. 2011; 3(12): 10-14.
7. Kannan S, .Aravinth VJS, Sam JKE, Saminathan J, Suthakaran R, Kumar R, MandParimala DB. Wound healing activity of *Mimosa pudica*Linn formulation. IJPR. 2009; 1(4): 1554-58.
8. Volkov AG, Adesina T, Markin VS, Jovanov E. Kinetics and mechanism of *Dionaea muscipula*Ellis trap closing. Plant Physiology. 2008; 146: 694-702.
9. Volkov AG. Electrochemistry of photosynthesis in: Electrochemical Dictionary, Eds. Bard AJ, Inzelt G, Scholz F. Springer, Berlin. 2008; pp. 198- 199.
10. Volkov AG. Plant Electrophysiology, in: Electrochemical Dictionary, Eds. Bard A J, Inzelt G, Scholz F. Springer, Berlin. 2008; pp.503- 504.
11. Shofiul Azam et al. Anti-Inflammatory and Anti-Oxidant Study of Ethanolic Extract of *Mimosa pudica*, Journal of Young Pharmacists. 2015 Jul-Sep; 7(3).

Special Note!

Please note that our all Customers, Advertisers, Authors, Editorial Board Members and Editor-in-chief are advised to pay any type of charges against Article Processing, Editorial Board Membership Fees, Postage & Handling Charges of author copy, Purchase of Subscription, Single issue Purchase and Advertisement in any Journal directly to Red Flower Publication Pvt. Ltd.

Nobody is authorized to collect the payment on behalf of Red Flower Publication Pvt. Ltd. and company is not responsible of respective services ordered for.