Clinical Study of Lajjalu Taila on Episiotomy Wound Gapping

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***Abstract*— Episiotomy wound gapping is a common puerperal complication causing pain, delayed healing, infection, and maternal morbidity. In Ayurveda, such a condition can be correlated with Sutika Yoni Vrana. Lajjalu (Mimosa pudica Linn.) possesses Kashaya-Tikta Rasa, Sheeta Virya, and proven Vrana Shodhana and Vrana Ropana properties. This prospective single-arm clinical study was conducted on 35 postnatal women at Ashokrao Mane Ayurvedic Medical College, Hospital and Research Centre, Kolhapur, to evaluate the efficacy of Lajjalu Taila local application in episiotomy wound gapping. Patients were treated with sterile local application of Lajjalu Taila twice daily for 10 days along with standard postnatal hygiene. Assessment was done using the REEDA scale (Redness, Edema, Ecchymosis, Discharge, Approximation). Mean REEDA score reduced from 11.42 to 1.86, indicating 83.7% improvement. Pain score reduced from 7.2 to 1.1 on the Visual Analogue Scale. Complete wound closure occurred in 28 patients (80%) by day 10 and in all patients by day 15. Paired t-test showed highly significant results ($p < 0.001$). No adverse reactions were observed. Lajjalu Taila is safe and effective for promoting rapid healing of episiotomy wound gapping.[1,2]**

I. INTRODUCTION

Episiotomy is a surgically planned incision made in the perineum and posterior vaginal wall during the second stage of labour to enlarge the vaginal outlet and prevent uncontrolled perineal tears.[3] Although commonly performed in primigravida and instrumental deliveries, complications such as pain, infection, edema and wound dehiscence may occur.[4] Wound gapping causes significant discomfort, inability to sit, difficulty in breastfeeding and impaired maternal well-being.

Ayurveda considers postpartum women as Sutika and emphasizes intensive care to prevent local and systemic disorders.[5] Perineal wound can be correlated with Yoni Vrana, for which classical texts advocate Kashaya, Stambhana, Shodhana and Ropana drugs.[6] Lajjalu (Mimosa pudica Linn.), known as the "touch-me-not" plant, is described in Bhavaprakasha and Raja Nighantu as useful in Vrana, Yoniroga, Raktapitta and Pradara.[7] Modern studies confirm antimicrobial, anti-inflammatory, collagen-enhancing and wound-healing properties.[8]

Lajjalu Taila, prepared by Siddha Taila method using authenticated Lajjalu Panchanga, was selected for this clinical study to assess its effect on episiotomy wound gapping in postpartum women treated at Ashokrao Mane Ayurvedic Medical College, Kolhapur.

II. AIMS AND OBJECTIVES

Primary Objective:

To evaluate the clinical efficacy of Lajjalu Taila local application on episiotomy wound gapping.

Secondary Objectives:

1. To assess reduction in pain, edema, redness and discharge.
2. To evaluate approximation of wound edges.
3. To study safety and tolerability.
4. To analyze statistical significance of clinical outcomes.

III. REVIEW OF LITERATURE

Lajjalu (Mimosa pudica Linn.) belongs to family Fabaceae. Sanskrit synonyms include Lajjalu, Namaskari and Samanga.[7] The drug has Kashaya and Tikta Rasa, Laghu-Ruksha Guna, Sheeta Virya and Katu Vipaka. It pacifies Pitta and Kapha and acts as Raktastambhaka, Shothahara and Vranaropaka.

Phytoconstituents include tannins, mimosine, flavonoids, alkaloids, beta-sitosterol, linoleic acid and

phenolic compounds.[8] Tannins exert astringent action, reduce exudation and enhance wound contraction. Flavonoids reduce oxidative stress, while alkaloids and phenolics provide antimicrobial activity.

In an animal study by Kokane et al., 2% extract of Mimosa pudica significantly increased wound contraction and tensile strength ($p < 0.001$).8 Contemporary formulations such as herbal gel and ointments containing Mimosa pudica have demonstrated favorable pH, spreadability and non-irritancy.[9]

Ayurvedic management of episiotomy wounds includes Panchavalkala Prakshalana, Jatyadi Taila, Murivenna and Guggulu Dhoopana.[10,11] These studies support the role of local herbal therapies in reducing pain and accelerating tissue repair.

IV. MATERIALS AND METHODS

Study Design: Open-label, prospective, single-arm interventional clinical study.

Study Centre: Department of Prasuti Tantra and Stree Roga, Ashokrao Mane Ayurvedic Medical College, Hospital and Research Centre, Vathar Tarf Vadgaon, Kolhapur, Maharashtra.

Study Duration: 18 months.

Sample Size: 35 patients.

Inclusion Criteria:

- Women aged 18–35 years.
- Normal vaginal delivery with mediolateral episiotomy.
- Partial wound gapping within 2–7 postpartum days.
- REEDA score ≥ 6.

Exclusion Criteria:

- Third- or fourth-degree perineal tears.
- Uncontrolled diabetes mellitus.
- Severe anemia (Hb < 7 g/dL).
- Immunocompromised states.
- Known hypersensitivity to sesame oil.

Intervention:

Lajjalu Taila sterile local application over episiotomy wound twice daily after cleansing with lukewarm sterile water for 10 days.

Assessment Days:

Day 0, Day 3, Day 5, Day 7, Day 10 and Day 15 (follow-up).

Outcome Measures:

1. REEDA scale.
2. Visual Analogue Scale for pain.
3. Time to complete wound closure.
4. Presence of discharge and infection.

Statistical Methods:

Mean, standard deviation, percentage relief and paired t-test.

V. DRUG DETAILS AND AUTHENTICATION

Drug Name: Lajjalu Taila.

Ingredients:

1. Lajjalu Panchanga (Mimosa pudica Linn.) coarse paste.
2. Tila Taila (Sesamum indicum oil).
3. Jala (decoction medium).

Classical Method:

Prepared according to Sneha Kalpana principles described in Sharangadhara Samhita Madhyama Khanda.[12] Ratio used: Kalka 1 part, Taila 4 parts, Drava 16 parts.

Batch Details:

Batch No.: LT/AMAMC/2025/01

Date of Preparation: 15 July 2025

Shelf Life: 24 months

Storage: Amber glass container under aseptic conditions.

Authentication:

Raw Lajjalu was collected from organically grown fields in Kolhapur district and authenticated by the Department of Dravyaguna, Ashokrao Mane Ayurvedic Medical College. Botanical identity confirmed as Mimosa pudica Linn. (Family Fabaceae). Herbarium voucher specimen number: AMAMC/DG/MP-2025/17. Organoleptic, microscopic and powder characteristics matched Ayurvedic Pharmacopoeia standards.

Quality Control:

- Foreign matter < 1%.

- Loss on drying within pharmacopoeial limits.
- Microbial load within permissible range.
- No fungal contamination.
- Acid value, saponification value and peroxide value of oil were acceptable.

Organoleptic Properties:
Dark greenish-brown oil with characteristic odor and slightly astringent taste.

VI. MODE OF ACTION

Ayurvedic Mode of Action:
Kashaya Rasa causes Stambhana and Sandhana of wound margins. Tikta Rasa promotes Shodhana and reduces Pitta-Kapha. Sheeta Virya alleviates Daha and Shotha. Tila Taila acts as Sukshma, Vyavayi and Vatahara, enabling deeper tissue penetration and lubrication.[13]

Modern Mode of Action:
1. Tannins precipitate proteins and form a protective layer.
2. Flavonoids scavenge free radicals and reduce inflammation.
3. Mimosine modulates fibroblast proliferation.
4. Antimicrobial compounds inhibit bacterial colonization.
5. Increased hydroxyproline content enhances collagen synthesis.[8]

Together these actions reduce edema, control infection, improve angiogenesis and accelerate epithelialization.

VII. OBSERVATIONS AND RESULTS

Age Distribution:
18–22 years: 9 patients (25.7%)
23–27 years: 16 patients (45.7%)
28–32 years: 8 patients (22.9%)
33–35 years: 2 patients (5.7%)

Parity:
Primipara: 27 (77.1%)
Multipara: 8 (22.9%)

Body Mass Index:
Normal: 14 (40%)
Overweight: 16 (45.7%)
Obese: 5 (14.3%)

Mean Clinical Scores:
REEDA Score:
Day 0: 11.42 ± 1.26
Day 3: 8.14 ± 1.22
Day 5: 5.91 ± 1.30
Day 7: 3.68 ± 1.18
Day 10: 1.86 ± 0.94
Day 15: 0.31 ± 0.53

Pain VAS:
Day 0: 7.20 ± 1.01
Day 10: 1.10 ± 0.76

Percentage Relief:
Pain: 84.7%
Redness: 82.4%
Edema: 85.2%
Discharge: 90.1%
Approximation: 88.3%
Overall, REEDA improvement: 83.7%

Wound Closure:
Complete closure by Day 7: 10 patients (28.6%)
Complete closure by Day 10: 28 patients (80%)
Complete closure by Day 15: 35 patients (100%)

Infection:
Mild superficial infection at baseline: 6 patients (17.1%)
Persistent infection after Day 10: 0 patients

Adverse Events:
No local irritation, allergy or burning sensation.

VIII. STATISTICAL ANALYSIS

Paired t-test comparing Day 0 and Day 10 values:
REEDA Score:
Mean Difference = 9.56
SD = 1.48
t = 38.17
$p < 0.001$ (Highly Significant)

Pain VAS:
Mean Difference = 6.10
SD = 1.02

$t = 35.41$
$p < 0.001$ (Highly Significant)
The null hypothesis was rejected. Lajjalu Taila produced statistically highly significant improvement in all clinical parameters.

IX. DISCUSSION

Episiotomy wound gapping is a distressing postpartum condition with substantial physical and emotional consequences. Rapid restoration of tissue integrity is essential to reduce pain, prevent infection and improve maternal functioning. In the present study, Lajjalu Taila demonstrated marked clinical benefit in all 35 patients.

The dominant symptom at baseline was severe pain with inability to sit comfortably. Due to the Sheeta Virya and anti-inflammatory phytochemicals of Lajjalu, significant pain reduction was evident by Day 3 and became profound by Day 10. The high tannin content provided an astringent effect that reduced serous discharge and tightened wound margins.

The reduction in REEDA score from 11.42 to 1.86 corresponds to 83.7% improvement. This outcome compares favorably with published reports using Murivenna and other Ayurvedic local therapies.[10,11] Complete wound closure in 80% of participants by Day 10 indicates clinically meaningful acceleration of healing.

The use of Tila Taila as the lipid base likely enhanced percutaneous absorption while maintaining a moist wound environment. Sesame oil itself possesses antioxidant and antimicrobial properties.[14] The absence of adverse reactions supports excellent tolerability.

These findings validate the classical Ayurvedic description of Lajjalu as a potent Vranaropaka and Yoni-Rogahara drug. From a biomedical perspective, enhanced collagen synthesis, improved tensile strength and antimicrobial action are plausible mechanisms.[15]

X. CONCLUSION

Lajjalu Taila is a safe, economical and effective local treatment for episiotomy wound gapping. In this clinical study on 35 patients at Ashokrao Mane Ayurvedic Medical College, Kolhapur, statistically highly significant improvement was observed in REEDA score, pain and wound approximation. The formulation promotes rapid healing, prevents infection and improves postpartum comfort. It can be recommended as a valuable Ayurvedic intervention in routine Sutika Paricharya.

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