IJAYUSH
International Journal of AYUSH
AYURVEDA • YOGA • UNANI • SIDDHA • HOMEOPATHY
https://internationaljournal.org.in/journal/index.php/ijayush/
ISSN: 2349-7025
OPEN ACCESS
PEER REVIEWED
MONTHLY

Original Research Article	Volume 15 Issue 11	November 2026

COMPARATIVE CLINICAL EVALUATION OF *PANCHNIMBA CHURNA*, *JALAUKAVACHARANA* AND THEIR COMBINATION IN *DADRU KUSHTHA* (CLINICALLY DIAGNOSED TINEA CORPORIS): A RANDOMIZED CLINICAL STUDY

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DOI: https://doi.org/10.5281/10.5281/zenodo.24503022

Abstract

Background: Dadru Kushtha is an Ayurvedic clinical entity characterized by pruritic, erythematous, often annular lesions and is commonly correlated clinically with tinea corporis. This study compared Panchnimba Churna, Jalaukavacharana and their combination in patients diagnosed with Dadru Kushtha.

Methods: This prospective, randomized, open-label, three-arm interventional study was conducted in the Department of Kayachikitsa, Shri Dhanwantri Ayurvedic Medical College & Research Centre, Mathura, Uttar Pradesh, India. Sixty eligible patients aged 18–50 years with disease chronicity below six months were allocated to three groups (20 each): oral Panchnimba Churna 6 g twice daily for 28 days (Group I); weekly Jalaukavacharana for four sessions (Group II); or both interventions (Group III). Clinical assessments were scheduled at baseline and weekly through Day 28. Symptoms and signs were graded on 0–3 scales; lesion number and size were also assessed.

Results: The study grouped in three groups with 20 participants in each group. Within-group reductions were reported for all assessed parameters (paired comparisons, $p<0.001$). All three treatment groups demonstrated statistically highly significant improvement ($p<0.001$) from baseline in all subjective and objective parameters. However, across the reported baseline and post-treatment means, combined therapy group had the lowest post-treatment scores for itching, erythema, burning, scaling, papules, raised lesions, lesion count and lesion size. Kandu (itching) score changed from 2.74±0.54 to 0.19±0.40 in Group III, compared with 2.70±0.57 to 0.85±0.67 in Group I and 2.76±0.55 to 0.76±0.63 in Group II. The overall improvement of 90.50% with combined treatment group III was significantly higher than Group II (73.71%) and Group I (62.86%)

Conclusion: The reported clinical scores suggest greater short-term symptomatic and lesion-score improvement with combined Panchnimba Churna and Jalaukavacharana than with either intervention alone.

Keywords: Dadru Kushtha; tinea corporis; Panchnimba Churna; Jalaukavacharana; clinical study

Introduction

In Ayurveda, Dadru is described among the Kshudra Kushtha and is characterized by features including Kandu (itching), Raga (erythema), Pidaka (papules) and Mandala or Utsanna Mandala (raised circular lesions) [1–3]. Its clinical presentation is often compared with tinea corporis, although the two concepts should not be regarded as diagnostically identical without appropriate mycological assessment.

Dermatophytosis is a superficial fungal infection of keratinized tissues and may present as annular erythematous plaques with peripheral scale, central clearing and pruritus. Recurrent and persistent dermatophytosis has become an important clinical concern in India, with reports describing widespread disease and emerging antifungal-resistance concerns [4–8]. Clinical diagnosis alone, however, does not establish fungal species or mycological clearance; laboratory confirmation is important when evaluating treatment response.

Panchnimba Churna is contains equal proportions of five parts of Nimba (Azadirachta indica)—leaves, root, flowers, fruits and stem bark—based on Bhaiṣajya Ratnāvali [9]. Experimental and review literature describes antimicrobial and other pharmacological activities of neem, but such evidence does not by itself establish clinical antifungal efficacy of this specific oral formulation [10–12]. Jalaukavacharana is a form of leech application described in classical Ayurvedic literature [2]. Modern literature on medicinal leeches principally discusses anticoagulant and microcirculatory effects in selected clinical contexts; evidence for treating dermatophytosis is not established by those mechanisms [13,14].

The present study compared Panchnimba Churna alone, Jalaukavacharana alone and their combination in patients clinically diagnosed with Dadru Kushtha, with the aim of evaluating short-term changes in clinical symptoms and signs.

Materials and Methods

Study design and setting

The study was described as a prospective, randomized, open-label, comparative interventional trial with three parallel groups. It was conducted in the Outpatient and Inpatient Departments of Kayachikitsa, Shri Dhanwantri Ayurvedic Medical College & Research Centre, Mathura, Uttar Pradesh. The intervention period was 28 days, with assessments planned at baseline and Days 7, 14, 21 and 28.

Ethics and trial registration

The study was approved by the Institutional Ethics Committee of Shri Dhanwantri Ayurvedic Medical College & Research Centre (IEC letter no. SDAMCRC/IEC-2023/11/2026; dated 12 February 2026) and registration in the Clinical Trials Registry–India (CTRI/2026/04/108375). Written informed consent was reportedly obtained.

Participants

Sixty patients aged 18–50 years with clinical features of Dadru Kushtha and disease chronicity below six months were enrolled. The stated diagnostic features included Kandu, Raga, Pidaka and elevated annular lesions, together with clinical features suggestive of tinea corporis such as annular erythematous lesions, peripheral scaling, central clearing and pruritus. Exclusion criteria included pregnancy or breastfeeding, gastrointestinal upset, other skin disease or major systemic illness, diabetes, hypertension, HIV or other immunocompromised states, and malignancy.

Randomization and interventions

Eligible participants were reportedly allocated using a computer-generated randomization sequence into three groups of 20 participants.

Group I received Panchnimba Churna 6 g orally twice daily with plain water for 28 days. Group II received Jalaukavacharana once weekly for four sessions. Group III received both interventions at the same doses of Panchnimba Churna and frequencies of leech therapy. Panchnimba Churna was prepared from equal quantities of shade-dried Nimba leaves, root, flowers, fruits and stem bark; each component was separately powdered, passed through an 80-mesh sieve and mixed in equal ratio. The raw drugs were botanical authenticated by the Department of Dravyaguna.

Leech therapy was applied after local skin preparation, with application for up to approximately 30 minutes and subsequent wound care. It also states that the same leech was reused for the same participant at a later session **(*Figure 1)***.

Outcomes and statistical analysis

The symptoms like Kandu (itching) and Daha (burning) were used as the subjective parameters, and Raga (erythema), Pidaka (papules), Utsanna Mandala (raised lesions) and scaling as clinical signs. These were graded from 0 (absent) to 3 (severe). Lesion number and lesion size were also recorded. The stated assessment schedule was baseline and weekly through Day 28.

The descriptive statistics, paired t-tests for within-group comparisons, Tukey post-hoc testing for between-group comparisons, with $p<0.05$ considered statistically significant. Because several clinical outcomes were ordinal 0–3 scores, the suitability of parametric tests were checked. The clinical responses were categorized as complete remission along with Marked-Moderate-Mild and NO improvement with percentage improvement of 100%, 76-99%, 51-75%, 26-50% and ≤25% respectively.

Results

Participant characteristics

The results chapter reports 60 participants, with 20 in each treatment group. Overall, 36 participants (60%) were male and 24 (40%) female. The largest age category was 18–30 years (26/60; 43.3%), followed by 31–40 years (21/60; 35.0%) and 41–50 years (13/60; 21.7%). The trunk was the most frequently recorded lesion site (23/60; 38.3%), and 31 participants (51.7%) had 2–5 lesions. Moderate itching was recorded in 31 participants (51.7%) at baseline.

Clinical outcomes

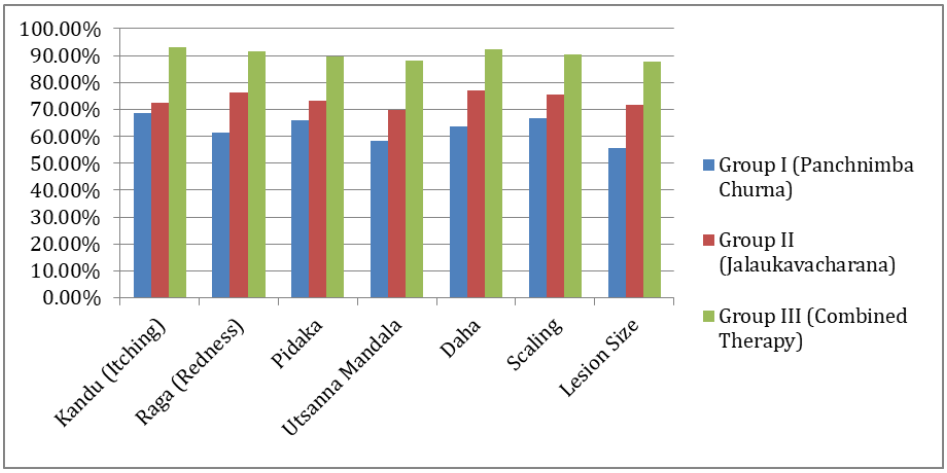
All three treatment groups demonstrated statistically highly significant improvement ($p<0.001$) from baseline in all subjective and objective parameters (***Table 01***). However, the combined therapy group (*Panchnimba Churna* with *Jalaukavacharana*) achieved the greatest reduction in *Kandu*, *Raga*, *Pidaka*, *Utsanna Mandala*, *Daha*, Scaling, and Lesion Size, with an overall improvement of 90.50%, significantly higher than Group II (73.71%) and Group I (62.86%) (***Graph 01***). Intergroup comparison using one-way ANOVA followed by Tukey's post-hoc test confirmed that the combined therapy was significantly superior ($p<0.001$), indicating an additive therapeutic effect of oral *Shamana* therapy with local *Raktamokshana*. In addition, complete remission was reported as 75%, 25% and 15% in group III, II and I respectively. The results states that no serious adverse drug reactions occurred during the study.

Table 01: Showing the group-wise baseline and post-treatment mean scores of clinical outcome:

Outcome	Group I: before → after	Group II: before → after	Group III: before → after	Reported within-group p
Kandu (itching)	2.70±0.57 → 0.85±0.67	2.76±0.55 → 0.76±0.63	2.74±0.54 → 0.19±0.40	<0.001
Raga (erythema)	2.65±0.59 → 0.98±0.61	2.70±0.56 → 0.82±0.52	2.72±0.54 → 0.18±0.39	<0.001

Outcome	Group I: before → after	Group II: before → after	Group III: before → after	Reported within-group p
Daha (burning)	2.20±0.52 → 0.90±0.55	2.18±0.51 → 0.65±0.49	2.24±0.44 → 0.12±0.33	<0.001
Scaling	2.60±0.50 → 1.05±0.60	2.58±0.51 → 0.75±0.44	2.64±0.49 → 0.15±0.37	<0.001
Pidaka (papules)	2.10±0.64 → 0.82±0.51	2.16±0.60 → 0.58±0.50	2.14±0.58 → 0.08±0.28	<0.001
Utsanna Mandala	2.62±0.58 → 0.96±0.55	2.68±0.56 → 0.68±0.47	2.66±0.55 → 0.12±0.33	<0.001
Number of lesions	5.80±1.10 → 3.12±0.92	5.86±1.02 → 2.18±0.74	5.82±1.05 → 0.82±0.61	<0.001
Lesion size	5.20±1.18 → 3.05±0.84	5.15±1.10 → 2.05±0.66	5.18±1.12 → 0.76±0.49	<0.001

Across the eight outcome tables, Group III had the lowest reported post-treatment mean score for each parameter. Group II generally had lower post-treatment scores than Group I. The results showed an overall intergroup ANOVA p<0.001 and pairwise mean differences of 10.85 (Group I vs II; p=0.012), 16.79 (Group II vs III; p<0.001) and 27.64 (Group I vs III; p<0.001). The result reported statistically significant within-group reductions in all listed clinical parameters (p<0.001).



Graph 1: Showing group wise improvement in clinical sign and symptoms of *Dadru*

Discussion

Kushtha is one of the most extensively described disease entities in Ayurveda. Acharya Charaka has described eighteen varieties of Kushtha, comprising seven Maha Kushtha and eleven Kshudra Kushtha, based on the severity of Dosha involvement, affected tissues, prognosis, and clinical manifestations [1]. Modern dermatology recognizes superficial fungal infections as inflammatory disorders of keratinized tissues caused by dermatophytes. Dermatophytes invade the stratum corneum, induce local inflammatory responses, and produce itching, erythema, scaling, and annular lesions, which correspond closely to the classical features described under Kushtha [4-5].

In this three-arm study, all groups were reported to show reductions in clinical symptom and sign scores over 28 days, with the lowest post-treatment scores generally observed in the combined-treatment group. The direction of the reported findings suggests that the combination of oral Panchnimba Churna and Jalaukavacharana may be associated with greater short-term clinical improvement than either intervention alone.

Trunk, groin, lower limbs and upper limbs are body regions remain warm and moist because of sweating and friction, thereby providing favourable conditions for fungal multiplication. In the present study, the trunk was the commonest site affected. Continuous sweating and friction create ideal conditions for dermatophyte proliferation.

The use of Nimba in the formulation is consistent with its longstanding place in Ayurvedic materia medica and with experimental literature describing a range of biological activities [9–12]. Jalaukavacharana has a classical basis in Ayurvedic descriptions of Raktamokshana [2]. Medicinal leech literature describes anticoagulant and other bioactive salivary constituents, with clinical use in selected reconstructive and congestion-related settings [13,14].

The therapeutic interventions employed in the present study appear to address several important mechanisms involved in dermatophytosis. Panchnimba Churna contains phytoconstituents such as nimbidin, nimbolide, azadirachtin, gedunin, quercetin, and flavonoids, which have demonstrated antidermatophytic, anti-inflammatory, antioxidant, and immunomodulatory activities in experimental studies [11-12]. These actions may contribute to reduction of fungal burden, suppression of inflammatory cytokines, alleviation of pruritus, and acceleration of tissue repair.

Similarly, Jalaukavacharana may influence the local inflammatory environment by removing congested blood, improving microcirculation, and delivering salivary bioactive molecules such as hirudin, calin, bdellins, eglins, and hyaluronidase, which possess anticoagulant, anti-inflammatory, analgesic, and tissue-healing properties [13-14]. Improvement in local perfusion and reduction of inflammatory mediators may facilitate faster resolution of erythema, oedema, and pruritus.

This finding suggests that the combined intervention simultaneously addresses the etiological agent (dermatophytes), the inflammatory response, impaired tissue repair, and local circulatory changes, thereby producing a broader therapeutic effect than either intervention alone. The superior therapeutic response observed in Group III may be explained by the synergistic effect of systemic Shamana (Panchnimba Churna) and local Raktamokshana (Jalaukavacharana) **(*Figure 2 & 3*)**. Panchnimba Churna acts by pacifying Kapha and Pitta, purifying Rakta, eliminating Kleda, and exerting Krimighna and Kushthaghna actions, whereas Jalaukavacharana removes vitiated Rakta, reduces inflammation, improves local circulation, and promotes tissue healing.

From an Ayurvedic perspective, Dadru Kushtha is a Kapha-Pitta predominant Kushtha with prominent Rakta Dushti. Panchnimba Churna addresses the systemic derangement through Shamana, Kushthaghna, Krimighna, and Raktashodhaka actions, whereas Jalaukavacharana directly eliminates vitiated Rakta through Raktamokshana, thereby reducing local inflammation and promoting tissue repair. Their complementary mechanisms provide a rational explanation for the superior therapeutic outcome observed in the combination group.

Conclusion

The reported clinical data indicate improvement in Dadru-related symptoms and signs in all three treatment groups over 28 days, with the combined Panchnimba Churna–Jalaukavacharana group showing the lowest post-treatment mean scores across the reported parameters. The superior efficacy of the combined treatment can be attributed to the synergistic effects of systemic Shamana through Panchnimba Churna and local Raktamokshana through Jalaukavacharana. The clinical study concludes that Panchnimba Churna administered in conjunction with Jalaukavacharana is an effective, safe, and well-tolerated therapeutic approach in the management of Dadru Kushtha (*Tinea corporis*).

Figure 1: Showing application of leech therapy





Figure 2: Showing effect of leech therapy before and after changes





Figure 3: Before and after effect of combined therapy (*Panchnimba churna* and *Jalaukavacharana*)



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