Comparative Clinical Study of Chedana–Kadali Kshara and Chedana–Agnikarma in Kadara (Corn)

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***Abstract*—Kadara, a Kshudraroga described in Ayurveda and clinically comparable with corn, is characterized by localized hyperkeratosis, pain, hardness and tenderness, particularly over pressure-bearing areas of the foot. The present randomized comparative clinical study evaluated two treatment protocols: Chedana Karma followed by Kadali Kshara Karma (Group A) and Chedana Karma followed by Agnikarma using Panchaloha Shalaka (Group B). Forty patients fulfilling the diagnostic and selection criteria were randomly allocated into two groups of 20 patients each. Clinical outcomes were assessed before and after treatment using pain, lesion size, hardness and tenderness. Within-group analysis showed highly significant improvement in all assessed parameters in both groups ($p < 0.001$). Group A showed 64.44% relief in pain, 61.90% reduction in lesion size, 71.11% reduction in hardness and 75.61% relief in tenderness. Group B showed 34.78%, 31.43%, 55.00% and 50.00% improvement, respectively. Between-group analysis using the Mann–Whitney U test showed statistically significant differences for lesion size ($p = 0.005$) and tenderness ($p = 0.021$), while differences in pain ($p = 0.065$) and hardness ($p = 0.072$) were not statistically significant. The study therefore supports the clinical usefulness of both approaches, with greater reported improvement in several outcomes in Group A.**

***Index Terms*—Kadara, corn, Chedana Karma, Kadali Kshara, Agnikarma, Panchaloha Shalaka, Shalya Tantra**

I. INTRODUCTION

Kadara is described among the Kshudraroga and is clinically characterized by localized thickening and hardening of the skin with pain and tenderness. In modern clinical terminology, the lesion may be correlated with a corn, a localized hyperkeratotic lesion commonly associated with repeated pressure and friction over weight-bearing areas. The thesis describes Chedana Karma, Kshara Karma and Agnikarma as important local therapeutic procedures for Kadara [1], [2].

The present study compares two treatment sequences after Chedana Karma: application of Kadali Kshara in Group A and Agnikarma in Group B. The clinical parameters selected for comparison were pain, size, hardness and tenderness. The study was undertaken in the Department of Shalya Tantra at T.M.A.E. Society's Ayurvedic Medical College and SCS Hospital, Hosapete.

II. OBJECTIVES

- To study Kadara with reference to Ayurvedic and modern literature.
- To evaluate the efficacy of Chedana Karma followed by Kadali Kshara Karma in Kadara.
- To evaluate the efficacy of Chedana Karma followed by Agnikarma in Kadara.
- To compare the observations and therapeutic outcomes of both treatment modalities.

III. MATERIALS AND METHODS

A. Study design and setting

The study was a randomized comparative clinical study conducted in the Department of Shalya Tantra, T.M.A.E. Society's Ayurvedic Medical College, PG

Research Centre and SCS Hospital, Hosapete. A total of 40 patients were selected and randomly allocated into two groups of 20 patients each. The thesis reports that Institutional Ethics Committee clearance was obtained and informed consent was taken from all participants in their regional language.

B. Eligibility criteria

Inclusion criteria included patients diagnosed with Kadara (corn), aged 18–60 years, of either sex, with lesions up to 15 mm in diameter, and willing to participate with informed consent. Exclusion criteria included corn associated with uncontrolled diabetes mellitus, malignant lesions of the foot, peripheral vascular disease, immunocompromised status, and patients unfit for Kshara or Agnikarma.

C. Interventions

Group	Treatment protocol	Sample
A	Chedana Karma followed by Kadali Kshara Karma	20
B	Chedana Karma followed by Agnikarma using Panchaloha Shalaka	20

Patients were assessed before and after treatment using pain, lesion size, hardness and tenderness. The study protocol included follow-up observations after treatment, with the thesis describing follow-up over three months and visits at 15-day intervals.

D. Statistical analysis

Within-group changes were analyzed using the reported paired statistical testing, including Wilcoxon Signed Rank testing in the study summary and paired t-values in the detailed group tables. Between-group comparison was performed using the Mann–Whitney U test. A p-value < 0.05 was considered statistically significant in the reported analysis.

IV. RESULTS

Forty patients were included, with 20 patients in each treatment group. The thesis reports that most participants were in the 31–50-year age group; males constituted 60% and females 40%. Labourers and farmers formed the larger occupational groups, and lesions were commonly located on weight-bearing areas of the foot.

A. Within-group improvement

Parameter	Group A: BT	Group A: AT	% Relief	p-value
Pain	2.25 ± 0.76	0.80 ± 0.70	64.44%	<0.001
Size	2.10 ± 0.72	0.80 ± 0.70	61.90%	<0.001
Hardness	2.25 ± 0.76	0.50 ± 0.61	71.11%	<0.001
Tenderness	2.05 ± 0.76	0.50 ± 0.61	75.61%	<0.001

Table I. Within-group clinical outcomes in Group A (Chedana + Kadali Kshara).

Parameter	Group B: BT	Group B: AT	% Relief	p-value
Pain	2.30 ± 0.80	1.50 ± 0.95	34.78%	<0.001
Size	1.75 ± 0.79	1.20 ± 0.89	31.43%	<0.001
Hardness	2.00 ± 0.79	0.90 ± 0.55	55.00%	<0.001
Tenderness	2.10 ± 0.72	1.05 ± 0.60	50.00%	<0.001

Table II. Within-group clinical outcomes in Group B (Chedana + Agnikarma).

B. Between-group comparison

Parameter	Mean improvement A	Mean improvement B	Mann–Whitney U	p-value	Interpretation
Pain	1.45	0.80	263.0	0.065	NS
Size	1.30	0.55	294.5	0.005	Significant
Hardness	1.60	1.10	262.0	0.072	NS
Tenderness	1.55	1.05	277.5	0.021	Significant

Table III. Between-group comparison of clinical improvement. NS = not statistically significant.

C. Key findings

- Both treatment groups showed highly significant within-group improvement in pain, size, hardness and tenderness ($p < 0.001$).
- The reported percentage relief was greater in Group A for all four assessed parameters.
- Between-group differences were statistically significant for lesion size ($p = 0.005$) and tenderness ($p = 0.021$).
- Between-group differences for pain ($p = 0.065$) and hardness ($p = 0.072$) were not statistically significant.

V. CLINICAL PHOTOGRAPHS

The following photographic plates are reproduced from the supplied thesis annexures. They are converted to grayscale for economical xerox/black-and-white printing while retaining the original clinical sequence and labels.

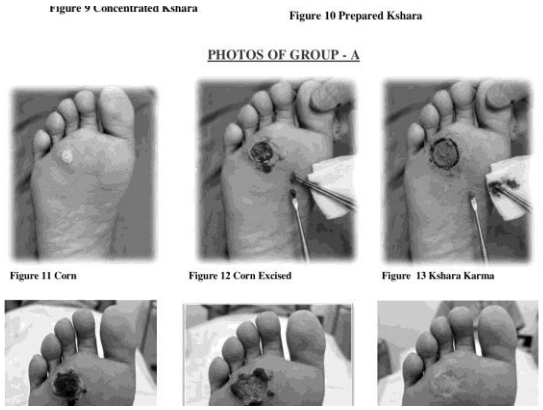

Fig. 1. Group A clinical photographic sequence: corn, excision, Kadali Kshara application and follow-up photographs (Days 7, 14 and 28).

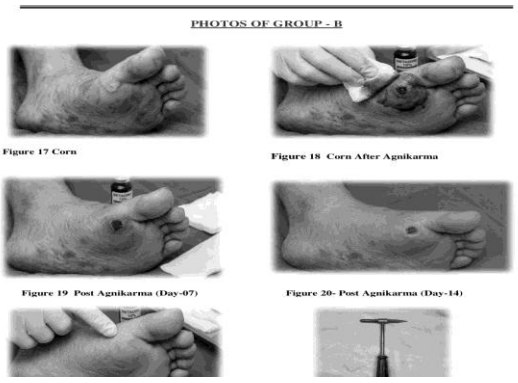

Fig. 2. Group B clinical photographic sequence: corn, post-Agnikarma, follow-up photographs (Days 7, 14 and 28) and Panchaloha Shalaka.

VI. DISCUSSION

Both treatment groups demonstrated statistically significant improvement across the four assessed clinical parameters. The thesis attributes the clinical response in Group A to the combined actions of Chedana and Kadali Kshara, particularly the Lekhana, Ksharana, Shodhana and Ropana properties described for Kshara. Chedana physically removes the hyperkeratotic lesion, while subsequent local treatment was intended to address residual diseased tissue and support healing.

Group B also showed significant improvement. The thesis describes Agnikarma after Chedana as a controlled thermal procedure intended to address residual pathological tissue. The photographic sequence in the supplied thesis documents the clinical appearance before treatment, immediately after the procedure and during follow-up.

The intergroup analysis is important when interpreting the findings. Although the numerical improvement in Group A was greater for all four parameters, only lesion size and tenderness reached statistical significance in the reported Mann–Whitney U analysis. Therefore, the differences in pain and hardness should not be described as statistically significant.

VII. CONCLUSION

Within the limitations of the present 40-patient randomized comparative study, both Chedana Karma followed by Kadali Kshara Karma and Chedana Karma followed by Agnikarma were associated with significant improvement in pain, lesion size, hardness and tenderness. The reported intergroup analysis showed statistically significant differences for lesion size and tenderness, while differences in pain and hardness were not statistically significant. The thesis therefore supports the clinical usefulness of both treatment protocols, with greater reported improvement in several measured outcomes in Group A.

VIII. STUDY LIMITATIONS

The manuscript is a condensed journal article prepared from the supplied dissertation. The available thesis material does not provide all details that some journal reviewers may request, such as a CONSORT flow

diagram, trial registration number, exact allocation sequence generation method, effect-size confidence intervals, or a prespecified statistical analysis plan. These should be added if available before formal journal submission.

IX. ACKNOWLEDGMENT

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