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DESLOUGHING AND WOUND HEALING ACTION OF APAMARGA KSHARA TAILA IN THE MANAGEMENT OF DUSHTAVRANA: A PILOT CLINICAL STUDY

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ABSTRACT

Background: *Dushtavrana* (chronic non-healing wounds) are characterized by slough, discharge, foul odour, and delayed healing. Effective management requires proper *Shodhana* (desloughing) followed by *Ropana* (healing). *Apamarga Kshara Taila*, described in *Ayurvedic* texts, possesses *Lekhana* (scraping), *Shodhana* (cleansing), *Krimighna* (antimicrobial), and *Ropana* (healing) properties, making it a potential agent for comprehensive wound management. **Aim:** To evaluate the desloughing and wound healing activity of *Apamarga Kshara Taila* in the management of *Dushtavrana*. **Materials and Methods:** A single-arm pilot clinical study was conducted on 10 patients diagnosed with *Dushtavrana*. Wounds were cleaned with normal saline and dressed with *Apamarga Kshara Taila* once daily under aseptic precautions till the slough get disappear and formation of healthy new granulation tissue. Assessment was done on Day 1, 7, 14, and 21 based on pain (VAS), discharge, odour, wound surface area, and granulation tissue formation. Statistical analysis was carried out using paired t-test and Wilcoxon signed-rank test. **Results:** Significant improvement was observed in all parameters. Pain was reduced by 86.36%, discharge by 83.33%, and odour was completely eliminated (100%). Wound surface area was reduced by 74.35%, and granulation tissue formation was improved by 100%, indicating effective desloughing and accelerated

wound healing activity of *Apamarga Kshar Taila*. **Conclusion:** *Apamarga Kshara Taila* demonstrated significant desloughing as well as wound healing activity in *Dushtavrana* and can be considered a safe and effective modality for both *Shodhana* and *Ropana Karma*.

KEYWORDS: *Dushtavrana*, *Apamarga Kshara Taila*, *Shodhana Karma*, Wound Healing, Desloughing.

INTRODUCTION

A wound is defined as a disruption in the normal anatomical structure and function of the skin and underlying tissues, caused by trauma, infection, or pathological processes.[1] Chronic wounds pose a significant challenge in clinical practice due to delayed healing, persistent infection, and recurrence.[2] ffective wound management requires timely removal of necrotic tissue, control of infection, and promotion of healthy tissue regeneration.[3] In *Ayurveda*, wounds are described under the term *Vrana*nd.[4]chronic non-healing wounds are termed *Dushtavrana.*[5] These are characterized by features such as slough (*Puyasrava*), foul odour (*Durgandha*), pain (*Vedana*), and unhealthy granulation tissue. *Acharya Sushruta* has emphasized the importance of *Shodhana Karma* (cleansing and debridement) as the primary step in the management of *Dushtavrana*, followed by *Ropana Karma* (healing) for complete wound repair[6] The presence of slough and necrotic tissue hampers healing and serves as a medium for microbial growth.[7] aking effective desloughing a crucial aspect of treatment. *Apamarga* (*Achyranthes aspera*), a well-known medicinal plant in *Ayurveda*s,[8] processed into *Kshara* and used in various therapeutic procedures. *Apamarga Kshara Taila* possesses *Kshara* properties which exhibit *Lekhana* (scraping) action, facilitating the removal of slough and necrotic tissue from the wound.[9] It also exhibits *Shodhana* (cleansing) and *Krimighna* (antimicrobial) properties, helping in reducing infection and preparing a healthy wound bed. Additionally, the Taila base provides unctuousness, maintains a moist environment, and promotes tissue regeneration, thereby aiding in *Ropana* (wound healing). In modern wound care, various chemical and mechanical agents are used for debridement; however, they may have limitations such as irritation, cost, and delayed healing. Hence, there is a growing need to explore safe, economical, and effective alternatives from traditional medicine.

Considering these aspects, the present pilot study was undertaken to evaluate the desloughing and wound healing activity of *Apamarga Kshara Taila* in the management of *Dushtavrana*, thereby assessing its role in both *Shodhana* and *Ropana Karma*.

AIM AND OBJECTIVES

1) To evaluate the desloughing and wound healing activity of *Apamarga Kshara Taila* in the management of *Dushtavrana*.
2) To assess the desloughing activity of *Apamarga Kshara Taila* by evaluating reduction in slough and discharge.
3) To evaluate the effect of *Apamarga Kshara Taila* on pain and foul odour associated with *Dushtavrana*.
4) To assess the wound healing activity of *Apamarga Kshara Taila* by evaluating reduction in wound surface area and improvement in granulation tissue formation.
5) To study the role of *Apamarga Kshara Taila* in *Shodhana* and *Ropana Karma.* in *Dushtavrana*

MATERIALS AND METHODS

Study Design

This was an open-label, single-arm pilot clinical study conducted to evaluate the desloughing and wound healing activity of *Apamarga Kshara Taila* in the management of *Dushtavrana*.

Source of Data

The patients were randomly selected from the Outpatient Department (OPD) and Inpatient Department (IPD) of the *Shalyatantra* department of Pakwasa Samnvay Rugnalaya, Hanuman Nagar, Nagpur. Sample Size A total of 10 patients diagnosed with *Dushtavrana* were included in the study. Inclusion Criteria Patients aged between 18 to 70 years Patients presenting with clinical features of *Dushtavrana* (chronic non-healing wounds) Presence of slough, discharge, and unhealthy granulation tissue Patients willing to participate in the study.

Exclusion Criteria

Malignant wounds

Diabetic ulcers with uncontrolled blood sugar Tubercular ulcers and leprotic ulcers Immuno compromised patients (HIV, HBsAg positive) Patients with severe systemic illness.

INVESTIGATIONS

Complete Blood Count (CBC) Blood Sugar Level (BSL) HIV, HBsAg Bleeding Time (BT), Clotting Time (CT) Other investigations as required Assessment Criteria Subjective Parameter.

1. Pain (Vedana) – Assessed using Visual Analogue Scale (VAS)

Score Grade

0 No pain

1 Mild

2 Moderate

3 Severe

OBJECTIVE PARAMETERS

1. Wound Surface Area (Vrana Akruti)

Measured using length × width × 0.785 mm 2 (Kundin's formula) 2. Discharge (Strava)

Grade Description

0 No discharge

1 Mild

2 Moderate

3 Severe.

3. Odour (Gandha)

Grade Description

0 No odour

1 Mild

2 Moderate

3 Foul

4. Granulation Tissue (Varna)

Grade Description

0 Healthy

1 Mild unhealthy

2 Moderate unhealthy

3 Poor granulation Drug and Intervention

Drug Name: Apamarga Kshara Taila

Dose: 2–3 ml (as per requirement to cover wound surface) Duration of Study

Total duration: 21 days

Follow-up: D

ay 1, Day 7, Day 14, and Day 21

Drug review of Apamarga Kshar Taila10.

INGREDIENTS

Apamarga Kshar, Murchhit Tila Taila

Method of Preparation of oil

1) For the preparation of Apamarga kshartaila four parts of tila taila will be taken in a steel container with wide mouth.
2) Then it is heated till the fumes started emerging of the oil.
3) The tail is warmed and then one part of kalka dravya paste and 16 th part of drav dravya (liquid) is added and continuously stirred.
4) Cooking of the tail is done in medium flame. When the entire watery portion get evaporated (sneh-siddhi lakshana), the oil is strained. It is then collected in glass container.

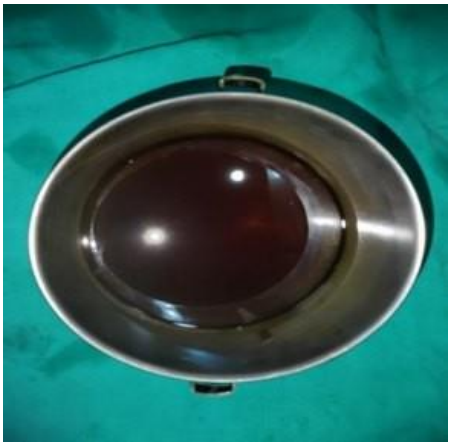
Application of taila on wound started after its standardization.

Mode of Application: Wound was cleaned with Triphala kwath dhavan under all aseptic precautions Sterile gauze soaked in Apamarga Kshara Taila was applied over the wound Dressing was done once daily

Figure 1: Tila taila.

Figure 2: Apamarga Kshar.

Figure 3: Boiling of Kwath.



Figur4 e.Apamarga Kshar Taila.

OBSERVATION

With Statistical Analysis: In this study, 10 patients were evaluated for desloughing and wound healing activity of Apamarga Kshara Taila in the management of Dushtavrana. Data obtained from the study were analysed using appropriate statistical methods: Paired t-test was applied for continuous variables such as pain and wound surface area Wilcoxon signed-rank test was used for ordinal parameters such as discharge, odour, and granulation tissue Results were expressed as Mean, Standard Deviation (SD), and percentage improvement Level of significance was considered at $p < 0.05$.

Day 1 Application of Apamarga Kshar Oil Day 7 Day 14

RESULTS

Total 10 patients of Dushtavrana were included Majority patients belonged to middle age group Common site of wound: lower limbMost wounds showed presence of slough, discharge, and foul odour at baseline. Effect of Therapy on Different Parameters.

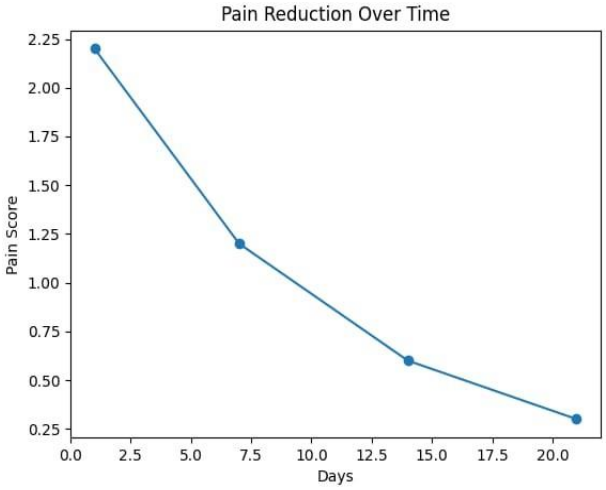
1. Pain (Vedana)

Mean score reduced from 2.2 (Day 1) to 0.3 (Day 21)

Total improvement: 86.36%

Gradual and consistent pain relief observed

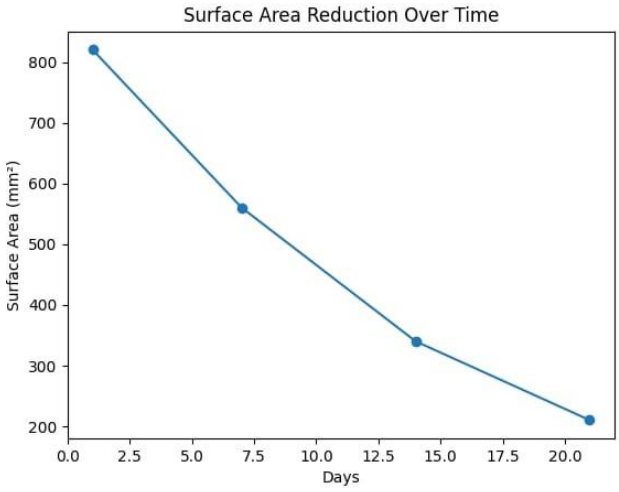
Sr no	Day	Mean	SD	%Effect
1	Day 1	2.2	0.92	0.0
2	Day 7	1.2	0.84	45.45
3	Day 14	0.6	0.70	72.72
4	Day 21	0.3	0.48	86.36



2. Wound Surface Area (Vrana Akruti) Reduced from 820.5 mm² to 210.4 mm²

Total reduction: 74.35%Indicates significant wound contraction and heal.

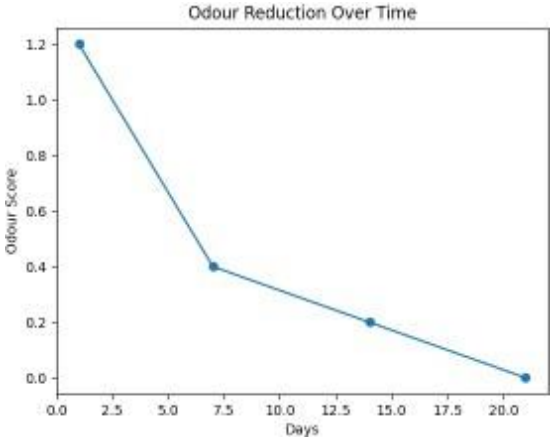
Sr no	Day	Mean	SD	%Effect
1	Day 1	820.50	600.20	0.0
2	Day 7	560.30	520.10	31.71
3	Day 14	340.20	410.50	58.53
4	Day 21	210.40	300.80	74.35



3. Odour (Gandha) Reduced from 1.2 to 0.0 Total improvement: 100% Complete elimination of

foul smell.

Sr no	Day	Mean	SD	%Effect
1	Day 1	1.2	0.70	0.0
2	Day 7	0.4	0.50	66.66
3	Day 14	0.2	0.40	83.33
4	Day 21	0.0	0.0	100

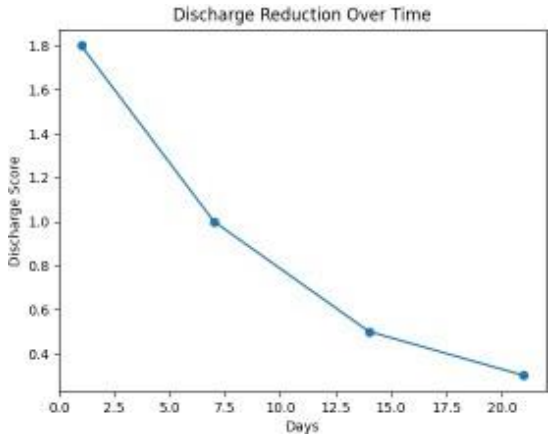


4. Discharge (Strava) Reduced from 1.8 to 0.3

Total improvement: 83.33%

Shows effective cleansing (Shodhana effect).

Sr no	Day	Mean	SD	%Effect
1	Day 1	1.8	0.90	0.0
2	Day 7	1.0	0.82	44.44
3	Day 14	0.5	0.60	72.22
4	Day 21	0.3	0.48	83.33

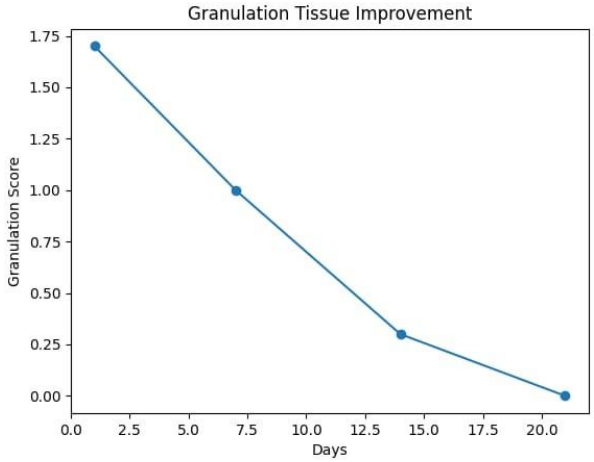


5. Granulation Tissue (Varna) Reduced from 1.7 to 0.0

Total improvement: 100%

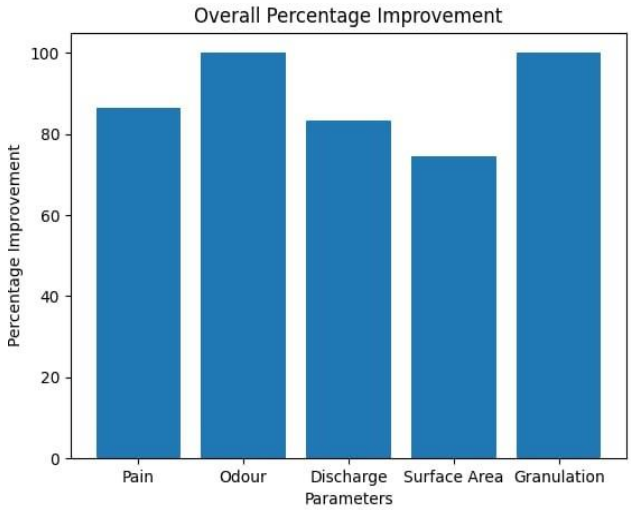
Indicates healthy granulation and epithelialization

Sr no	Day	Mean	SD	%Effect
1	Day 1	1.7	0.82	0.0
2	Day 7	1.0	0.65	41.17
3	Day 14	0.3	0.48	82.35
4	Day 21	0.0	0.0	100



Overall Effect Significant improvement observed in all parameters Early desloughing seen within first 7–14 days Progressive wound healing observed by Day 21

Sr.No.	Parameter	Mean (Day1)	Mean (Day21)	Standard Deviation	%Effect
1	Pain	2.2	0.3	0.92	86.36
2	Odour	1.2	0.0	0.70	100
3	Discharge	1.8	0.3	0.69	83.33
4	Surface Area	820.5	210.4	580.50	74.35
5	Granulation Tissue	1.7	0.0	0.75	100



Interpretation Throughout the 21-day treatment period, progressive improvement was observed in all five clinical parameters. Pain score reduced from 2.2 on Day 1 to 0.3 on Day 21, showing an overall improvement of 86.36%. Odour was completely eliminated by Day 21, indicating effective wound cleansing and infection control. Discharge reduced significantly from 1.8 to 0.3, reflecting strong Shodhana (desloughing) activity of Apamarga Kshara Taila. Wound surface area showed a marked reduction from 820.5 mm^2 to 210.4 mm^2, indicating significant wound contraction and healing. Granulation tissue improved progressively and reached complete healthy granulation by Day 21. Overall, the study demonstrated significant desloughing as well as wound healing activity of Apamarga Kshara Taila in the management of Dushtavrana. Statistical Significance All results were found to be statistically significant ($p < 0.05$) Indicates that the effect of therapy was not due to chance.

DISCUSSION

Dushtavrana (chronic non-healing wounds) is a challenging condition characterized by the presence of slough, discharge, foul odour, pain, and delayed healing. According to Ayurveda, proper management requires Shodhana (cleansing) followed by Ropana (healing). In the present study, Apamarga Kshara Taila was evaluated for its desloughing and wound healing activity in 10 patients of Dushtavrana. Throughout the 21-day treatment period, progressive improvement was observed in all five clinical parameters. Pain score reduced from 2.2 on Day 1 to 0.3 on Day 21, showing an overall improvement of 86.36%. Odour was completely eliminated by Day 21, indicating effective wound cleansing and infection control.

Discharge reduced significantly from 1.8 to 0.3, reflecting strong Shodhana (desloughing) activity of Apamarga Kshara Taila. Wound surface area showed a marked reduction from 820.5 mm^2 to 210.4 mm^2, indicating significant wound contraction and healing. Granulation tissue improved progressively and reached complete healthy granulation by Day 21. Overall, the study demonstrated significant desloughing as well as wound healing activity of Apamarga Kshara Taila in the management of Dushtavrana. Desloughing and wound healing activity in 10 patients of Dushtavrana. The results of the study demonstrated significant improvement in all clinical parameters, indicating the effectiveness of the intervention.

Desloughing (Shodhana) Effect The significant reduction in slough, discharge (83.33%), and odour (100%) suggests strong Shodhana Karma. The Kshara property of Apamarga facilitates chemical debridement, helping in removal of necrotic tissue. The Lekhana property aids in scraping out unhealthy tissue, thereby preparing a clean wound bed. The reduction in

discharge indicates control of infection and inflammation11.

Pain Reduction

Pain was reduced by 86.36%, which may be attributed to the anti-inflammatory properties of Apamarga. Reduction in local inflammation and infection leads to decreased stimulation of pain receptors, thereby providing symptomatic relief. 12 Wound Healing (Ropana) Effect.

Significant reduction in wound surface area (74.35%) and improvement in granulation tissue (100%) indicate strong Ropana Karma. The Taila base provides a moist environment, which is essential for epithelialization and tissue regeneration. It also enhances local blood circulation and promotes faster healing.13 Probable Mode of Action (Modern View) contains bioactive compounds such as alkaloids, flavonoids, tannins, and saponins which contribute to:Apamarga contains bioactive compounds such as alkaloids 14, flavonoids 15, tannins, and saponins which contribute to

Antimicrobial action → prevents infection Anti-inflammatory effect → reduces swelling and pain Antioxidant activity 16 → reduces oxidative stress Enhanced collagen synthesis → promotes tissue repair Angiogenesis → improves blood supply to wound Overall Interpretation The study findings indicate that Apamarga Kshara Taila acts through a dual mechanism: Desloughing (Shodhana) → removal of necrotic tissue Healing (Ropana) → promotion of healthy tissue formation. This dual action makes it highly suitable for the management of Dushtavrana. Thus, Apamarga Kshara Taila effectively converts Dushtavrana into Shuddhavrana, facilitating faster and uneventful wound healing.

CONCLUSION

The present pilot clinical study demonstrated that Apamarga Kshara Taila possesses significant desloughing and wound healing activity in the management of Dushtavrana. The therapy showed effective reduction in slough, discharge, foul odour, pain, and wound surface area, along with promotion of healthy granulation tissue formation. The Kshara property of Apamarga facilitated effective Shodhana (desloughing and cleansing) of the wound, while the Taila base promoted Ropana (healing)by supporting tissue regeneration and epithelialization. Significant clinical improvement was observed in all assessment parameters over the 21-day study period.

The study findings suggest that Apamarga Kshara Taila is a safe, effective, economical, and

easily applicable therapeutic modality for the management of Dushtavrana. Thus, it can be considered beneficial in achieving both Shodhana and Ropana Karma in chronic wound management.

LIMITATIONS

* Small sample size (10 patients)
* Absence of control group
* Short duration of study

FUTURE SCOPE

* Studies on larger sample size
* Randomized controlled comparative trials
* Histopathological and microbiological evaluation
* Long-term follow-up studies for recurrence and scar assessment

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