

# Management of Dagdha Vrana with Kadali Patradana- A Cosmatoclinical Approach



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## Abstract

Agni Dagdha (burns) is a most devastating & distressing injuries a person suffers. No any injury sustained by man is frightful with complications, as the burn wound .Extensive raw area due to burns poses challenge in management. Extensive raw area due to burns poses challenge in management. Early coverage of raw area is important to prevent infection, excessive fluid and caloric loss. Even though it is advisable that wound care should have minimal interference, it does need protection from drying because drying of the exposed tissue kills the surface cells and reduces vascular blood flow. Moist wound environment facilitates healing, which can be achieved by semi permeable dressing, which prevents drying and has sufficient vapour permeability to avoid the macerating effect of wound exudates; Skin is known to be the best dressing but due to paucity of donor graft, various semi permeable dressings like amniotic membrane, egg yolk membrane, potato peels, collagen sheet, cultured epidermal auto graft, porcine skin and homograft have been tried.

**Keywords:** Agni Dagdha, Adaxial, Abiaxial, Shashti Upakrama, Vapour Exchange, Immunosuppressive Therapy, Framycetin

## Introduction

Burn (Dagdha vrana) is one of most devastating and distressing injuries a mankind can suffer. Most often the burn are accidental which occurs all of a sudden when patient is not prepared for it .The pain and suffering during acute stage can kill and cause considerable suffering. So, burns often need prolong hospitalization and treatment.

In India, incidence of burns (Agni Dagdha) is 100,000 per year and mortality due to burns is a problem of considerable magnitude, with an estimated number 22,306 death/year. 10% of all accidental death and 7% of all suicides in India are caused by fire (burns). All over world, out of all accidental deaths 2.10% male and 3.40% females die due to Agni Dagdha (burns).

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The father of surgery Maharishi Susruta explained in sashasti upakrama about the concept of Patra Dana. Banana plant is a giant perennial belonging to genus Musa. Its leaves are thick, big, green, smooth, glossy and flat. These have two epidermises upper or adaxial and lower or abaxial. It is made up of single / multiple layers of flattened cells. Epidermis has stomas, which allow gas and vapour exchange. The dorsal side of leaves has thin wax coat, made up of ester of long chain fatty acids and monohydric acids. The presence of large air spaces in parenchyma

helps to hold air and moisture. After autoclaving the leaves turn greenish brown but continue to maintain all morphological features like cellularity, air spaces and waxy coat.

#### **Aim of the Study**

To assess different treatment modalities in view of burn wound dressing and its relative efficacy.

#### **Review of Literature**

Twacha is a protective layer over body that protects from heat, cold, & external infections. Charaka & Sushruta described Twak Shariram in detail. Acharya Sushruta defined Twacha as upadhatu of Mamsa dhatu. Twacha in one Gnyanendriya, out of Pancha Gnyanendriya. Gnyanendriya means a sense organ. It carries the sensation of touch, both pleasant and unpleasant sensation, are felt through the skin. It covers the external part as well as internal part of body, thus covers whole body. It also covers other part of sense i.e. nose, tongue, eyes, ears.

The skin is described as Matruja avayava, means developed from maternal element. The skin is panchabhoutika i.e. made up from the combination of panchmahabhuta but out of them vayu mahabhuta is the predominant one, that itself is explanatory i.e. sense organ of touch.

According to Charaka, the development of skin occurs simultaneously with the other parts of body in the Trutiya masa i.e. 3<sup>rd</sup> month of intra uterine life. He nicely explained that skin develops like the layers of cream on the milk. As the heating of milk results in the formation of layers of cream on the surface of boiling milk & accordingly twacha is the earliest cellular differentiation of the product of fusion of shukra and Shonita during the formation of other dhatus in the Garbha.

#### **Materials and Method**

This was a prospective randomized comparative trial conducted at shree sidharudha charitable hospital & associate private hospital at Bidar Karnataka. Patients above the age of 18 years, with Superficial or deep burns in the range of 10% to 40% of total body surface area, admitted in the indoor wards were approached to participate in this study. They were briefed about the trial and supplied patient information sheet. From those which agreed to participate, informed written consent was taken. Patients with electric, radiation or chemical burn; facial or perineal (Since dressings do not remain in place in these) burns were excluded. The other exclusion criteria were – infected deep burns with exposed tendons neurovascular tissue /bones; presence of concurrent disease known to affect the wound healing process like diabetes, tuberculosis, leprosy, HIV associated head injury, thoracic abdominal trauma and patients with immuno suppressive therapy, Dagdha vrana with laxanas like Atidagdha lakshnas, Mansavilambana & Snayudagdha, Siradi Nasa & Sandhyasthi dagdha, Murcha, Vrana gambhirya, Toxaemia, Coma, Tivra vedna etc.

Hundred patients who met the inclusion – exclusion criteria were entered in the trial. They were randomly allocated to two treatment groups A or B Both the groups were comparable in baseline data,

and given same oral therapeutic dose of vitamin B complex, C and ferrous sulphate, from hospital supply Oral / parenteral antibiotics were given depending on isolate culture and sensitivity report.

Fresh, mature, dark green banana leaves were directly procured from the local plantation. These were thoroughly washed under tap water and mopped dry. Care was taken not to rub the leaves with friction, so to preserve the waxy coat. The centre vein of leaves was removed and leaves were cut in various sizes as per utilization needs. These were wrapped in cotton mesh dressing gauze and then sterilized in autoclave at 2500 Fahrenheit, at pressure of 15 pounds, for 15 minutes. These were then stored in refrigerator at 8<sup>o</sup> C and used within 72 hours of preparation. In both the groups the burn wounds were thoroughly cleaned with saline to remove the dead skin, carbonated particles, pieces of clothes and foreign bodies

In group A patients, wound cleaned with Normal saline and then uniform layers of Yastimadhu Ghrita will applied then wound is covered by autoclaved and stored Kadali patra (banana leaf) pieces were applied to the (Dagdha vrana) burn wounds. Before using the banana leaves were inspected with magnifying lens, under natural light / source, to ensure that they did not have any fungal growth. The Kadali patra pieces were positioned on the burn wounds edge to edge without leaving any space between, in such a way that the adaxial surface faced the wound. These were then covered with sterile absorbent cotton pads and immobilized with sterile bandages. In group B patients, framycetin impregnated gauze was applied; It was covered with same quality, thickness of medicated gauze, pads and bandages, like group A patients.

In both the groups the dressings were changed on every fourth day in patients with deep burns and every eighth day in patients with superficial burns. However immediate change of dressing was given if it was soaked, emitted foul smell or the patient developed hyperpyrexia. During the change of the dressing, associated Daha, Rakta strav, while removing the Kadlipatra dressing presence of vrana srava and Gandha, healing epithelization in superficial burns and presence of healthy granulation tissue was noted. All the data has been expressed as mean and was analyzed using chi – square test and  $p < 0.05$  was considered significant.

#### **Results**

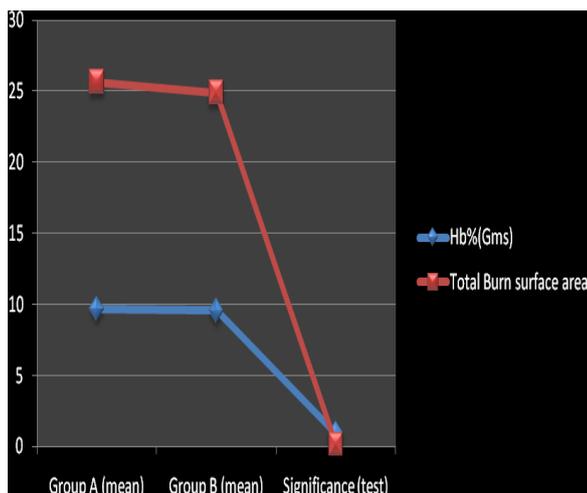
The base line data of both the groups were comparable in age, gender, type, degree and severity of burn. The age of the patients ranged between 18 to 41 years, with mean of 22.3 years in group A and 22.78 in group B. Females outnumbered males in both groups. Accidental burns were the commonest (98%) in both groups.

Table I shows the baseline mean  
**Table I: Comparative Base Line Date of the Burn Patients in the Two Treatment Groups**

	Group A (mean)	Group B (mean)	Significance (test)
Hb%(grms)	9.68	9.57	0.942
Total Burn Surface Area	25.64	24.90	0.157

Group A = Banana leaf dressing; Group B= Framycetin dressing

**Graph No. 1**



**Table II: Comparative efficacy of Banana leaf dressing with Framycetin**

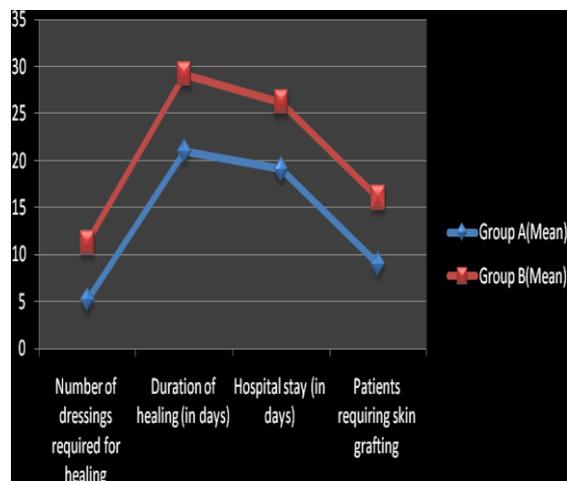
Parameters for Comparison	Group A (Mean)	Group B (Mean)
Number of dressings required for healing	5.19 ***	11.28
Duration of healing (in days)	21.00 **	29.2
Hospital stay (in days)	19.10*	26.2
Patients requiring skin grafting	9.00	16.0

Group A = Banana leaf dressing

Group B = Framycetin dressing

\*P < 0.05; \*\*P < 0.01; \*\*\*P < 0.001

**Graph No. 2**



**Comparison of Haemoglobin and Burn Surface Area of the Two Groups**

Table 2 shows the comparative efficacy of the two treatments in Dagdha vrana patients. The duration required for wound healing ranged between 8 to 45 days in group A and 15 to 63 days in group B. with mean of 21 and 29.2 days respectively This difference was statistically significant (p<0.01). For healing of the burn wounds the total number of Kadali Patradana required in group A ranged from 1 to 12 (mean 5.19) while in group B the total number of Framycetin dressings needed were in the range of 3 to 23 (mean 11.28). The difference between the two groups was highly significant (p<0.001). The duration of hospital stay was reduced in group A (19.1days) as compared to group B (26.2). The difference was significant (p<0.05).Patients in whom the natural healing was delayed. Skin grafting was done. From group A nine patients required skin grafts as compared to 16 from group B. This difference was statistically significant (p<0.05).

In case of Kadali Patradana the removal of dressing was less painful for the patients who felt lesser discomfort during the change. With Kadali Patradana the patients felt more comfortable after the dressing and Yastimadhu ghrita has its own Vrana Ropak properties, soothing effects. The waxy surface of the Kadali Patra did not stick to the wound and there was no bleeding during removal of as compared to Framycetin dressing.

**Discussion**

The study was conducted to estimate the comparative efficacy of Kadali Patradana with Framycetin gauze dressing in (Dagdha vrana) burn wounds. Kadali Patradana was found to be more efficacious as it significantly reduced the duration of wound healing, hospital stay, need for skin grafting and number of dressings. Kadali patra dressings were better accepted by the burns and caused less discomfort during the change of dressings.

Kadali patra forms a uniform surface under which epithelial growth occurs. Easy removal of Kadali patra (banana leaf) during the change of Patras keeps the new and delicate epithelium intact. Non-adherence of leaf due to waxy coat of leaf avoids repeated erosion of the raw surface as experienced with gauze dressing during dressing change. The dressing change with banana leaf was easy, non-painful, not accompanied by bleeding and comfortable for the patients. It reduced the associated anxiety and fear of pain during the change of dressing. The Kadali patra dressing maintains the moisture of the wound, which is necessary for wound healing. Presence of large air space in parenchyma of banana leaf helps to hold air and its moisture prevents the drying of the wound.

**Conclusion**

This study shows that Kadali Patradana can be widely & effectively used in burn wound management. It has comparable results with collagen sheets as well as various topical medicaments used in Burns dressing. Kadali patra are easily available in abundant supply round the year and are economical. It is easy to prepare the dressing since it does not

require any special skill or instruments to store. Kadali Patradana is a good option available with properties close to an ideal burn dressing with Cosmatoclinical approach.

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