

**A COMPARATIVE CLINICAL STUDY TO EVALUATE THE EFFECT OF
MADHUCHISHTADYA GHRITA AND SILVER NITRATE OINTMENT IN
THE MANAGEMENT OF PRAMADA DAGDHA WITH SPECIAL
REFERENCE TO BURN WOUND**

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ABSTRACT

Dagdha Vrana (Burn wound) is a type of injury to skin or other tissues, caused by heat, cold, electricity, chemical, friction or radiation. It is very frequent and most commonly seen in the society especially in household. In *Ayurveda* Para surgical procedure like *Agnikarma* practice doing by *Ayurvedic* practitioner. According to *Vagbhata*, during *Agnikarma* there is accidental burn injury occurs known as *Pramada Dagdha* or *Itara Dagdha*. According to the nature cause of the burn it is of two types *Snigdha* and *Ruksha*. According to *Acharya Sushruta*, due to the contact of fire immediately the blood becomes more vitiated & at the same time *Pitta* also gets vitiated due to its similarity in *Veerya* & also in its characters. Due to this patient suffering from severe pain, burning sensation, fever, thirst and blisters formation on the body. *Acharya Yogaratnakara* also narrated *Madhuchishtadya Ghrita* as an effective treatment in the management of *Dagdha Vrana*. Here 40 Subjects diagnosed with *Pramada Dagdha* (Accidental Burn Wound) fulfilling the inclusion criteria were selected incidentally for study. For Group A, each subject of Burn Wound *Madhuchishtadya Ghrita* for *Lepa Karma* locally with *Triphala Guggulu Vati* and *Gandhaka Rasayana Vati* as *Samana Aushadhi* internally and for Group B, Silver nitrate ointment for local application with tablet diclofenac and tab amoxicillin for internally.

KEYWORDS: *Pramada Dagdha*, Burn Injury, *Madhuchishtadya Ghrita*, Silver Nitrate

INTRODUCTION

A Burn is a wound in which there is a coagulative necrosis of the tissue¹. It is caused excessive exposure to thermal, chemical, electrical or radioactive agents. It is classified into three stages depending on percentage of burn like, mild, moderate and major or severe. Depending on thickness classified into four stages they are first

degree, second degree, third degree and fourth degree².

In first degree burn epidermis looks red and painful and no blisters. In second degree burn the affected area became mottled, red and painful with blisters. In third degree burn affected area became charred, parchment, painless and insensitive with

thrombosis with superficial blood vessels. In fourth degree burns, there will be involvement of underlying tissues like muscles and bones³. Assessment of burn can be measure with Wallace's rule of nine, Lund and Browder chart⁴.

In pathophysiology, first local changes take place, in which thermal injury causes coagulative necrosis of epidermis and underlying tissue, with depth of injury dependent of temperature to which skin is exposed, the specific heat of causative agent, duration of exposure⁵.

In burns, Initial management should be adopted as stop the burning process; patient cloth should be removing; cooling of part by running water for 20 minutes; clean the part to remove dust, mud etc. In definitive treatment maintain airway, breathing and circulation; sedation and analgesic; assessment of percentage, degree and type of burn and accordingly fluid management; chemoprophylaxis: tetanus toxoid, antibiotics and local antiseptics; Ryle's tube insertion initially for aspiration and later for feeding⁶.

Sushruta Samhita is the main pillar of Ayurvedic surgery in which surgical and Para surgical procedures described in details. In *Ayurveda*, *Sushruta* explained four types of *Dagdha Vrana* under *Agnikarma Vidhi Adhyaya*⁷. The *Agni* does *Dahana Karma* depending on the *Snigdhatwa* and *Rukshthwa* of *Dravya*. *Sneha Dagdha Vrana* cause more pain than with *Ruksha Dagdha Vrana*⁸. *Dagdha Vrana* caused other than *Agnikarma* are mentioned as *Itara Dagdha* which is named as *Pramada Dagdha* by *Vagbhata*⁹. *Acharya Sushruta* explained four types of *Agni*

Dagdha these are *Plusta Dagdha*, *Dur Dagdha*, *Samyak Dagdha* and *Ati Dagdha*¹⁰. *Acharya Vagbhata* explained *Tuchha Dagdha* at the place of *Plusta Dagdha* according to *Sushruta*¹¹.

Acharya Sushruta explained sign and symptoms of each type of *Dagdha Vrana Prakara*. In *Plusta Dagdha* there will be *Vivarna* / discoloration of skin, *Plushyate Atimatram* / extreme burning sensation. In *Dur Dagdha*, *Lakshana* like *Sphota*, *Tivra Chosha*, *Daha*, *Raga*, *Paka*, *Vedana* and *Chirashanti*. In *Samyak Dadha Lakshana* like *Anavagadam* / which is superficial, *Talaphala varna* / assume the colour of a ripened fruit of *Tala*, *Susamsthitam* / not too much raised or elevated from the skin surface and *Purvauta Lakshana* / develops the preceding symptoms. In *Ati Dadha*, *Lakshanas* like muscular and connective tissue hangs down; veins, nerves, and bones destroyed, accompanied with fever, burning, thirst, fainting etc. complaints that which leads to permanent disfiguration of the body and retarding the healing of the incidental ulcer by leaving a discoloured scar even after healing¹².

So *Madhuchishtadya Ghrita* as narrated by *Acharya Yogaratnakar*, which is mentioned as an effective treatment in the management of *Dagdha Vrana* is selected for the present study¹³. *Madhuchishtadya Ghrita* has very effective properties like *Shothahara* (oedema), *Vrana Ropana* (healing properties), *Varnya* (pigmentation) etc. and also has *Dahashamaka* (cooling effect). For *Shamana* purpose we need the drugs which are *Go-Ghrita* having qualities like *Laghu*, *Rooksha*, *Snigdha*, *Sheeta Veerya* and

ultimately Kapha Pitta Shamaka, Kapha Vata Shamaka & Tridosahara.

Hence the present study aims at treating Pramada Dagdha with local application of Madhuchishtadya Ghrita.

OBJECTIVES

1.To evaluate and compare the efficacy of Madhuchishtadya Ghrita and Silver Nitrate ointment in the management of Pramada Dagdha with the special reference to Burn wounds.

2.To analyse the probable mode of action of Madhuchishtadya Ghrita and Silver Nitrate ointment in the management of Pramada Dagdha with the special reference to Burn Wounds

MATERIALS AND METHODS

Study Design: Open labelled Comparative clinical trial.

Study Duration: Total duration of the study was 21 days.

Study Population: Minimum of 40 subjects fulfilling the inclusion and exclusion criteria were randomly categorised into 2 groups as Group A and Group B having 20 subjects each.

PLAN OF WORK

The entire study was designed to be conducted in three phases

1. Phase one

- ✓ Detailed literature review done extensively using tertiary, secondary and primary resources.
- ✓ Procure the necessary documentation: Designing of data entry form, informed consent document, Patient information sheet.
- ✓ Ethical committee approval: Ethical clearance was obtained from the

Institutional Ethical Committee of Ayurveda Mahavidyalaya.

2. Phase Second

- ✓ The sample size was collected which comes under the inclusion and exclusion criteria at the time of enrolment.
- ✓ Data was collected using data entry form, after explaining patient information sheet and signing informed consent document.

3. Phase three

- ✓ Reports were analysed using various statistical tools.
- ✓ Reporting of Results and presentation.

Study Criteria

Inclusion criteria:

→Patients with the clinical features of PramadaDagdha, first and second-degree superficial burn wounds, blisters with partial thickness of skin wounds were included.

→Patients of age group 10 to 60 years were included irrespective of gender.

→Patients having up to 10% burn as per rule of nine were included.

→Upper limbs, lower limbs, trunk part and back burn wound were included.

Exclusion criteria:

→Patient having more than 10% burn wound were excluded.

→Third degree and fourth degree burn wounds were excluded.

→Patients below 10 years and above 60 years old were excluded.

→Patient having systemic diseases like diabetic Mellitus, HIV, HbsAg Lepromatous and TB infection and Anaemia were excluded.

→Burn over Sandhi Sthana and Marma Sthana were excluded.

→Face and genital burn wounds were excluded.

INTERVENTION

Table No: 1 Showing Intervention of Group A

Group A	External Application	Madhuchishtadya Ghrita	Local application	Till wound heel
	Internal Medication	Triphala Guggulu Vati	500mg BD	15 days
		Gandhaka Rasayana Vati	500mg BD	15 days

Table No: 2 Showing Intervention of Group B

Group B	External Application	Silver nitrate ointment	Local application	Till wound heel
	Internal Medication	Tab. Diclofenac	50mg BD	5 days
		Tab. Amoxicillin	500mg BD	5 days

Subjective Criteria:	Objective Criteria:
<ul style="list-style-type: none"> Daha(burning Pain) 	<ul style="list-style-type: none"> TwakaVivarna (discoloration) Sphota (blisters) VranaSrava (Discharge) VranaShotha (inflammation)

RESULTS

Table no.3 Showing the distribution of subjects according to Nidana:

Nidana	Group A		Group B		Total	
	No.	Percentage	No.	Percentage	No.	Percentage
Dry heat	06	30%	10	50%	16	40%
Liquid heat	13	65%	09	45%	22	55%
Chemical heat	01	5%	01	5%	02	5%
Electrical heat	00	00%	00	00%	00	00%

Total out of 40 subjects, 16 subjects had burn with dry heat (40%), 22 subjects had burn with Liquid heat (55%), 02 subjects had burn with chemical heat (5%).

Table no. 4 Showing the distribution of subjects according to site of Dagdha:

Site of Dagdha	Group A		Group B		Total	
	No.	Percentage	No.	Percentage	No.	Percentage
Neck	02	10%	01	05%	03	7.5%
Thorax	00	00%	00	00%	00	00%
Abdomen	00	00%	01	05%	01	2.5%
Lower back	00	00%	00	00%	00	00%

Upper back	00	00%	00	00%	00	00%
Arm	01	05%	01	05%	02	5%
Forearm	02	10%	04	20%	06	15%
Palm	06	30%	03	15%	09	22.5%
Thigh	05	25%	01	05%	06	15%
Leg	04	20%	07	35%	11	27.5%
Foot	00	00%	02	10%	02	5%

Total out of 40 subjects, 03 subjects had burn over neck (7.5%), 01 subject had burn over abdomen (2.5%), 02 subject had burn over arm (5%), 06 subjects had burn over forearm

(15%), 09 subjects had burn over Palm (22.5%), 06 subjects had burn over thigh (15%), 11 subject had burn over leg (27.5%) and 02 subject had burn over foot (5%).

Table no.5 Showing the distribution of subjects according to Degree:

Degree	Group A		Group B		Total	
	No.	Percentage	No.	Percentage	No.	Percentage
First degree superficial	07	35%	03	15%	10	25%
Second degree	06	30%	08	40%	14	35%
Deep Second degree	07	35%	09	45%	16	40%

Total out of 40 subjects, 10 subjects had first degree burn (25.0%), 14 subject had superficial second-degree burn (35.0%) and

16 subjects had deep second-degree burn (40%).

Table no. 6 Showing the distribution of subjects according to Subjective and Objective Criteria:

SUBJECTIVE CRITERIA						
Degree	Group A		Group B		Total	
	No.	Percentage	No.	Percentage	No.	Percentage
Daha	20	100%	20	100%	40	100%
OBJECTIVE CRITERIA						
TwakaVivarna	20	100%	20	100%	40	100%
Sphota	14	70%	18	90%	32	80%
VranaSrava	15	75%	15	75%	30	75%
VranaShotha	20	100%	20	100%	40	100%

Table No. 7 showing Effect of Therapy on Subjective parameters in Group A

Parameter	Mean		Mean diff	% Improvement	S.D.	S.E.	“t”	P Value	Remarks
	B.T	A.T							
SUBJECTIVE CRITERIA									

Daha	2.8	0.05	2.75	98.33 %	0.44	0.09	27.68	<0.0001	H.S.S
OBJECTIVE CRITERIA									
TwakaVivarna	1	0.1	0.9	90 %	0.30	0.06	13.08	<0.0001	H.S.S
Sphota	1	0.0	1	100%	0.79	0.17	5.62	<0.0001	H.S.S
VranaSrava	0.75	0	0.75	100 %	0.44	0.09	7.55	<0.0001	H.S.S
VranaShotha	1.4	0	1.4	100 %	0.59	0.13	10.5	<0.0001	H.S.S

Table No. 8 showing Effect of Therapy on Subjective parameters in Group B

Parameter	Mean		Mean diff	% Improve ment	S.D.	S.E.	“t”	P Value	Remarks
	B.T	A.T							
SUBJECTIVE CRITERIA									
Daha	2.40	0.35	2.05	87.50 %	0.60	0.13	15.15	<0.0001	H.S.S
OBJECTIVE CRITERIA									
TwakaVivarna	1.00	0.65	0.35	35.00 %	0.48	0.10	3.19	=0.0047	S.S
Sphota	1.42	0.0	1.42	100 %	0.70	0.15	9.01	<0.0001	H.S.S
VranaSrava	0.95	0.10	0.85	90.00 %	0.67	0.15	5.66	<0.0001	H.S.S
VranaShotha	1.20	0.25	0.95	82.50 %	0.39	0.08	10.78	<0.0001	H.S.S

DISCUSSION

As *Dagdha Vrana* take place after exposure of extensive *Agni* to the skin so it comes under a *Agantuja Vyadhi*. Immediately after exposure *Rakta Dushti* take place and meanwhile *Pitta* also get vitiated because *Rakta* and *pitta* have *Ushana veerya*.

The line of treatment of *Dagdha Vrana* has been explained according to stages of *DagdhaVrana*. So, in *Plusta Dagdha Agni Pratapan Chikitsa* should be adopted; in *Dur Dagdha*, *Samyak Dagdha* and *Ati Dagdha Dagdha Chikitsa* will be *Sheeta Ushana Upachara*, *Pittaja Vidradhisam Chikisa* and *Sheeta*, *Pittaja Visarpasam Chikitsa* respectively.

In the present Study for Group A *Madhuchishtadya Ghrita*, *Triphala Guggulu Vati* and *Gandhaka Rasayana* is taken for

Clinical study. *Maduchishtadya Ghrita* mainly contains drugs like *Madhuchishta*, *Samadhuka*, *Lodhra*, *Sarjarasa*, *Murva*, *Chandana*, *Manjistha*, *Ghrita*; *Triphala Guggulu* mainly contains drugs like *Haritaki*, *Vibhitaki*, *Amalaki*, *Maricha* and *Guggulu*. *Gandhaka Rasayana Vati* mainly content of *Gandhaka*. It is processed with *Go-Dugdha*, *Triphala Kashaya*, *Chaturjata Kashaya*, *Guduchi Swarasa*, *Bhrngraaja Swarara* and *Ardraka Swarasa*.

Madhuchishta has *Mridu*, *Snigdha Guna* and properties like *Vrana Ropana*, *Vrana Shodhakara*, *Rakta dosha hara*, *Kushtaghna* etc. due to these properties its help in healing of burn wound.

Samadhuka, *Sarjarasa* and *Sharpihas Guru*, *Snigdha*, *Sheeta Guna* and properties like *Vedana Sthapana*, *Kandughna*, *Daha*

Prashamana and *Vrana Prashadana* due to these properties its help in alleviating pain itching sensation, burning sensation and help in healing of the wound.

Manjistha, *Rakta Chandana*, *Moorva* has *Guru*, *Ruksha Guna* and properties like *Varnya*, *Raktapittahara*, *Dahaprashamana* due to its properties its help to giving the normal color to the skin and along with this alleviating *Sphota* and *Shrava* / discharge.

Lodhra has *Laghu*, *Rukshaguna* and properties like *Shothahara* due to these properties its act as anti-inflammatory action.

Triphala having detoxifying and rejuvenating actions along with the anti-inflammatory and anti-infective action of *Guggulu* was found a have a marked effect in treatment of wound. *Triphala* also heals the tissue along with increasing the digestive power of the patient. *Triphala* is well known for its wound-healing quality. *Guggulu* is one of the best-known anti-inflammatory herbs of Ayurveda.

Gandhaka Rasayana being a Sulphur drug used as ayurvedic antibiotic (antibacterial, antimicrobial, antiviral) to contract the secondary infection in burn wounds

In the present study for Group B: Silver Nitrate ointment; tab. Diclofenac and tab. Amoxicillin is taken for clinical study. Silver Nitrate is an inorganic chemical with antiseptic activity in treating burn on the skin. Silver Nitrate also helps create a scan to help stop bleeding from a minor skin wound. Applying silver nitrate may be painful. The area where it has applied will turn black. This is creating stain or scar on the skin.

Tab. Diclofenac is known as nonsteroidal anti-inflammatory drug (NSAID). Diclofenac is used to relieve pain, swelling (inflammation). It works by stopping the body's production of substance (like cytokines) that cause pain, inflammation. It may cause upset of stomach, nausea, heartburn, diarrhoea, constipation, headache, drowsiness and dizziness.

Tab. Amoxicillin is known as a penicillin-type antibiotic. It is used to treat a wide variety of bacterial infections. It may cause of abdominal cramps or tenderness; haematuria; black, tarry stool etc.

Madhuchishtadya Ghrita group having better result than the Silver Nitrate ointment group because in *Madhuchishtadya Ghrita* having *Sheeta Veerya* drugs as *Samadhuka*, *Sarjarasa*, *Rakta Chandana* which helps to alleviating the vitiated *Vata* and *Pitta* and burning sensation and even having *Ushna Veerya* drugs as *Lodhra*, *Moorva* and *Manjistha* which increases blood circulation to the wound and help in healing of the wound.

CONCLUSION

→ Burn wound can be correlated with the *DagdhaVrana*. It is a disorder of *Rasavaha* and *Raktavaha Srotas* with the involvement of mainly *Pitta-VataPradhana*; *Rasa*, *Rakta*, *Mamsa*, *Meda*, *AsthiDhatu*; *Rasa* and *Rakta* as *dushya*.

→ Burn wound is not a simple disease it can be labelled as a Bacterial infection, bloodstream infection (sepsis) fluid loss, hypovolemia, hypothermia etc.

→ Negligence of Risk factor of burn wound like thermal sources, including fire, hot liquid, steam and contact with hot surface are the most common causes of burn.

→Many allopathic drugs like silver nitrate, cerium nitrate, mafenide acetate are available in market but they have side effect like sensitive to skin, scar formation, burning sensation, electrolyte imbalance, hyperchloremia were reported.

→Therefore, attention is now paid to search remedy in Ayurveda and other system of medicines.

→Samprapti of Dagdha Vrana differs from each cause of DagdhaVrana.

→Prakopana viparyayo hi dhatunam prashamkaranamiti, as Dagdha Vrana is caused by the excessive Agni/fire etc.to subside these Sheeta and especially Vedanasthapaka, Shothahara, Daha Prashamana, Varnya, Lekhana, and Rookshana Dravyas are selected for the study.

→Madhuchishtadya Ghrita is not only having action on Daha and Dagdha Vrana but also on TvakaVivarnya caused by the DagdhaVrana.

→Madhuchishtadya Ghrita is a wonderful and easy preparation with good result for Dagdha Vrana compare to other external application available.

→Triphala Guggulu showing action on pain and inflammation in Dagdha Vrana.

→Gandhaka Rasayana shows good results in Dagdha Vrana and it promotes the wound healing.

→Though both groups provided statistically significant results in subjects of Dagdha Vrana, but the overall percentage of improvement provided by Madhuchishtadya Ghrita(Group A) is 98.33%, while silver nitrate ointment (Group B) showed 82.99 % of improvement.

→From above result, we can conclude that comparatively Madhuchishtadya group showed more effectiveness on subjective and objective parameters like Daha, Twaka Vivarna, Sphota, Vrana Srava, Vrana Shotha. In group B showed improvement on Sphotaand Vrana Shotha; and remarkable reduction on Daha, Twaka Vivarna and Vrana Srava.

→In this study out of 40 subjects of Dagdha Vrana, after treatment 17 subject in group A and 6 subjects in group B had complete relief; 3 subjects in group A and 9 subjects in group B had marked relief and 2 subjects in group A and 5 subjects in group B had moderate response to the treatment.

→So, in the present study Madhuchishtadya Grhita has better result than the silver nitrate ointment.

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