



ISSN 2456-3110

Vol 7 · Issue 9

October 2022

Journal of
**Ayurveda and Integrated
Medical Sciences**

www.jaims.in

JAIMS

An International Journal for Researches in Ayurveda and Allied Sciences



Maharshi Charaka
Ayurveda

Indexed

A Case Series of 1st and 2nd Degree Burn Patients managed with *Manjistadi Vikeshika* - An Ayurvedic Contact Layer Dressing

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ABSTRACT

Burn wounds having coagulative necrosis, is the most devastating and painful condition causing major physical, mental, emotional and social trauma. According to the depth of the necrosis, burns are classified into degrees or grades. The use of ointments, oils, and other topical treatments is a messy operation that does not serve the objective of contact layer dressing. Additionally, there is no uniformity for the amount of drug used in each dressing, resulting in drug wastage. In *Bhaishajya Ratnavali*, *Manjishtadi Taila* is mentioned for the management of burns, which possesses *Raktapitta Shamaka*, *Daha Prashamana* & *Vrana Ropaka* properties. Considering the above qualities, this *Yoga* is taken in the form of *Vikeshika* for the study. *Manjistadi Vikeshika* seems to have the qualities of an ideal contact layer dressing, desired healing within 21 days of time period. Also, it showed negligible post burn complications and achieved early pigmentation i.e., *Savarneekarana*.

Key words: Ayurveda; Burns; contact layer dressing; *Vikeshika*; Healing.

INTRODUCTION

Burns result from thermal, electrical, chemical injuries or due to exposure to radiation.^[1] It carries potential complications such as cosmetic disfigurement, permanent physical damage and mental trauma.^[2]

According to W.H.O - an estimated 180,000 deaths every year are caused by burns - the vast majority occur in low and middle-income countries and is

common in all ages and gender. For developing countries like India, it is one of the major health problems. In India, over 1 million people are moderately or severely burnt every year.^[3]

Burns are classified into grades or degrees according to the depth of necrosis:

First degree burns - There is simply hyperaemia of the skin with slight oedema of the epidermis. There is only microscopic destruction of the superficial layers of the epidermis, which are desquamated within a few days.^[1]

Second degree burns - The entire thickness of the epidermis is destroyed. Blebs or vesicles are formed between the separating epidermis and dermis. Vesiculation is the hall mark of the second-degree burn.^[1]

In contemporary sciences, paraffin gauze is extensively utilized as a dressing material in burn wounds. It allows for easy and painless dressing changes, maintains

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Submission Date: 16/08/2022

Accepted Date: 24/09/2022

Access this article online

Quick Response Code



Website: www.jaims.in

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Ayurveda Organization, Vijayapur,
Karnataka (Regd) under the license
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adequate moisture, promotes exude drainage, and is cost effective, but it does not aid in the prevention of post-burn complications. Apart from these features, it does not hold any medicinal property to promote wound healing.^[4]

The use of ointments, oils, and other topical treatments is a messy operation that does not serve the objective of contact layer dressing. Additionally, there is no uniformity for the amount of drug used in each dressing, resulting in drug waste.

Drugs like Silver sulfadiazine tend to form pseudoeschar and delay the wound healing process.^[5] Therefore, the need of the hour is to develop eco-friendly, easy accessible, cost-effective way to treat 1st and 2nd degree burns and avoid post burn complications.

In *Ayurveda*, *Acharya Sushruta* has mentioned in detail about types and *Lakshanas* of *Agni Dagdha Vrana*. In *Bhaishajya Ratnavali*, *Acharya Govind Das* has mentioned *Manjishtadi Taila* for the management of

burns. The *Taila* includes *Manjistha*, *Rakta Chandana*, *Murva*, *Tila Taila* etc., which possesses the properties of *Raktapitta Shamaka*, *Dahaprashamana* and *Vrana Ropaka*. Considering the above qualities, this *Yoga* is taken in the form of *Vikeshika* for the study.^[6]

Even though there are references for *Vikeshika*, *Pata/Varti* means “lint” that is, a fine fabric mesh or a gauze used in dressing wound^[7], In *Ayurvedic* classical texts, unlike modern system of medicine, there aren't much research works being published regarding application and standardization of *Vikeshika*.

The current study is taken up in an attempt to develop a cost effective, easily applicable dressing material which would facilitate all the requirements for an ideal contact layer dressing in the management of *Agni Dagdha Vrana*.

AIM AND OBJECTIVE

To evaluate the effect of *Manjishtadi Vikeshika* in *Agni Dagdha Vrana* with special reference to 1st and 2nd Degree Burns.

MATERIALS AND METHODS

Drug Review	<i>Manjishta</i> ^[9]	<i>Rakta Chandana</i> ^[10]	<i>Murva</i> ^[11]	<i>Tila Taila</i> ^[12]	<i>Madhuchista</i> ^[13]
Botanical name	<i>Rubia cordifolia</i> Linn.	<i>Pterocarpus Santalinus</i> Linn.	<i>Marsdenia tenacissima</i> Wight & Arn	<i>Sesamum indicum</i> linn.	<i>Cera Alba</i>
Family	<i>Rubiaceae</i>	<i>Fabaceae</i> .	<i>Asclepiadaceae</i>	<i>Pedaliaceae</i>	
English	Indian madder	Red Sandalwood	White nishoth	Sesame, Gingelly oil seeds	Bee wax
Synonyms	<i>Jingi</i> , <i>Vastra Ranjini</i> , <i>Mandukaparni</i> , <i>Yojanavalli</i> , <i>Lohitaka</i>	<i>Tila Parna</i> , <i>Raktasara</i> , <i>Asukla Chandana</i> , <i>Raktavrksa</i>	<i>Tikta Valli</i> , <i>Pilu Parni</i> , <i>Madhurasa</i> , <i>Madhusrava</i> .		<i>Mathana</i> , <i>Madhukosha</i> , <i>Siktaka</i> , <i>Madhulita</i> , <i>Madhishita</i>
Part used	Root	Heartwood	Root	Seeds, Oil	Wax
Rasa	<i>Madhura</i> , <i>Tikta</i>	<i>Madhura</i> , <i>Tikta</i>	<i>Tikta</i> , <i>Kashaya</i>	<i>Madura</i> , <i>Tikta</i> , <i>Kashaya</i>	<i>Madhura</i>
Guna	<i>Guru</i> , <i>Ruksha</i>	<i>Guru</i> , <i>Ruksha</i>	<i>Guru</i> , <i>Ruksha</i>	<i>Guru</i> , <i>Snigdha</i>	<i>Snigdha</i> , <i>Mrudu</i>

Virya	<i>Ushna</i>	<i>Sheeta</i>	<i>Ushna</i>	<i>Ushna</i>	
Vipaka	<i>Katu</i>	<i>Katu</i>	<i>Katu</i>	<i>Madhura</i>	
Karma	<i>Kapha Pittahara, Varnya, Vishagna</i>	<i>Kapha Pittahara, Caksusya, Vrsya</i>	<i>Kapha Vata Hara, Jwara Hara</i>	<i>Vatahara, Twachya, Balya, Keshya</i>	<i>Vrana Ropaka, Visarpa, Bhagnasandhanakrit</i>
Indication	<i>Jwara, Mutrakrcchra, Kushta, Sotha, Raktatisara, Visarpa, Prameha,</i>	<i>Daha Prashamana, Rakta Pitta, Kustagna, Vishagna</i>	<i>Daha Prashamana, Kustagna, Vishama Jwara, Prameha</i>	<i>Tvak Prasadana, Krimigna, Yogavahi, Tvakdoshahrut, Atidagdha.</i>	<i>Bhagna, Kushta, Visarpa, Raktapitta, Agnidagdha,</i>

Intervention

Preparation of Manjistadi Vikeshika

1. Under Aseptic measures, *Manjishtadi Taila* was prepared as per the classical reference of *Taila Kalpana*.^[16]
2. *Madhuchishta* was added to the *Taila* in 1:10 proportion.
3. 5ml/100cm² of this *Sikata Taila* was impregnated over the gauze of 10cm X 10cm and covered in wax paper and packed in silver zipper pouch.
4. After that Ethylene oxide Sterilization was done.
5. The prepared *Vikeshika* was stored in a cool place.
6. A sample of the batch was sent for microbial study to ensure sterility before application. (fig.1)



Equal quantity of Manjishta, Murva, Rakta Chandana -course powder



16 parts of *Jala* added to course powder



Boiled in *Mandagni* and reduced



Filtering *Kashaya*



1 part of *Kalka Dravya* (50ml)



Filtered *Manjishta Taila*



Kalka Dravya added to 4 parts of *Tila Taila*



Tests for perfection - *Shabda Heena Agni Nikshipte*



Adding *Kashya* to *Taila*



Obtained 150 ml oil



Taila Paka



Manjishtadi Taila stored



Vikeshika 10X10cm impregnated in *Manjishtadi Sikata Taila*



Vikeshika packed in wax paper



Fig.2A (01/09/21)



Fig.2B (07/09/21)

Application

1. Wound was cleaned with normal saline.
2. *Manjishtadi Vikeshika* was applied and dressed with sterile pads and roller bandage accordingly. Each dressing was changed once in 48hrs.

CASE STUDY

Case 1 : A 56 year-old female patient presented with a history of accidental boiling hot oil spillage during cooking over the right hand and sustained 1% superficial second degree burn over dorsum of the right hand and wrist (Fig.2A). Patient had no other associated complaints or surgical history. The blister was debrided and the wound was dressed with *Manjistadi Vikeshika* once in 48hrs (Fig.2B).

Case 2: A 36 year-old male patient presented with the burn wound over the right upper thigh region due to electrocution since 2 days causing 2% second-degree deep burn (Fig.3A). Patient had a history of OCD. The wound was cleaned with normal saline and dressed with *Manjistadi Vikeshika* once in 24 hrs (Fig.3B).



Fig.3A (20/05/21)



Fig.3B (30/05/21)

Case 3: A 51 year-old female patient with no significant medical history, approached with history of hot spillage of tea during cooking causing 1% superficial second degree burn over the anterior aspect of the right knee (Fig. 4A). The wound was cleaned with normal saline and was dressed with *Manjistadi Vikeshika* once in 48 hrs (Fig.4B).



Fig.4A (10/11/21)



Fig.4B (17/11/21)

Case 4: A 61 year-old male patient sustained a scald burn due to accidental spillage of oil and he suffered 2% deep second-degree burn over the lateral aspect of the right leg just above ankle joint (Fig.5A). The wound was cleaned with normal saline, and was dressed with *Manjistadi Vikeshika* once in 48hrs (Fig.5B).



Fig.5A (01/02/22)



Fig.5B (10/02/22)

RESULTS

In case 1, re-epithelialization of the wound was seen with normal pigmentation in 7 days (Fig.2A). Patient had reduction in pain and burning sensation from severe to no symptoms gradually in 6 days and had no discomfort during dressing change.

In case 2, re-epithelialization of the wound was seen in 10 days, without any complication like infection and the wound was healed almost to half of its size in a time period of 1month. The pain and burning sensation reduced from severe to no symptoms in 10 days (Fig.3A)

In case 3, re-epithelialization of the wound was seen with normal pigmentation in 7days (Fig.4A). patient had reduction in pain and burning sensation from severe to no symptoms gradually in 6 days and had no discomfort during dressing change.

In case 4, re-epithelialization of the wound was seen in 10 days, without any complication like infection. The pain and burning sensation reduced from severe to no symptoms in 10 days

Subjective Parameter - VAS Scale^[14]

Absent	0
Mild pain	1-3
Moderate pain (++)	4-7
Severe pain (+++)	8-10

No burning sensation	0
Mild burning sensation	1-3
Moderate burning sensation	4 - 7
Severe burning sensation	8 - 10

Parameter	Objective Parameter Assessment ^[15]	BT	AT
Size	1 = Length x width <4 sq cm 2 = Length x width 4--<16 sq cm 3 = Length x width 16.1--<36 sqcm 4 = Length x width 36.1--<80 sqcm 5 = Length x width >80 sq cm	Case 1 - 22cm X 5cm Case 2 - 12cm X 16cm Case 3 - 7cm X 5cm Case 4 - 5.5cm X 4.5cm	5cm X 0.8cm 2.7cm X 8cm 1.5cm X 0.6cm 1cm X 0.9cm
Depth	1 = Non-blanchable erythema on intact skin 2 = Partial thickness skin loss involving epidermis & or dermis	2	1
Edges	1 = Indistinct, diffuse, none clearly visible 2 = Distinct, outline clearly visible, attached, even with wound base	2	1
Exudate type	1 = None 2 = Bloody 3 = thin, watery, pale red/pink 4 = Serous: thin, watery, clear 5 = Purulent: thin or thick, opaque, tan/yellow, with or without odour	5	1
Exudate amount	1 = None, dry wound 2 = Scant, wound moist but no observable exudate 3 = Small 4 = Moderate	2	1

Skin surrounding the wound	1 = Pink or normal for ethnic group 2 = Bright red & or blanches to touch 3 = White or grey pallor or hypopigmented 4 = Dark red or purple & or non-blanchable	2	1
Peripheral tissue edema	1 = No swelling or edema 2 = Non-pitting edema extends <4 cm around wound 3 = Non-pitting edema extends >4 cm around wound	2	1
Epithelialization	1 = 100% wound covered, surface intact 2 = 75% to <100% wound covered & or epithelial tissue extends >0.5cm into wound bed 3 = 50% to <75% wound covered & or epithelial tissue extends to <0.5cm into wound bed 4 = 25% to < 50% wound covered 5 = < 25% wound covered	3	1

DISCUSSION

Acharya Sushruta in *Vranalepana Bandhavidhi Adhyayaopakrama* has explained, the qualities of *Vikeshika* as, it should not be *Ati Snigdha*, *Ati Rooksha*, *Vishama*. If it is *Ati Snigdha*, it will cause more *Kledha*. If it is *Ati Rooksha*, it leads to *Vrana Chedha*. And if it is *Durnyasa* (not properly applied), it will damage the margins of the *Vrana*, delaying wound healing.^[8] These quality standards mentioned by *Acharya Sushruta* are similar to contact layer dressing.

Vikeshika serves the purpose by sustained release of drug thereby resulting faster healing and its sterility has lowered the risk of contamination.

Manjistadi Taila possesses the properties of *Raktapitta Shamaka, Daha Prashamaka & Vrana Ropaka*.

Acharya Sushruta has prescribed specific time durations for change of dressing depending on amount of *Srava* and seasonal variations, to regulate moisture in the wound and to give adequate resting period for it to heal and was accordingly being done.

Even though *Acharyas* have contraindicated *bandana vidhi* in *Dagdha Vrana, shithila Bandha* was done in order to avoid wound contamination.

Post burn complications were negligible with *Manjistadi Vikeshika* and early pigmentation i.e., *Savarneekarna* was also achieved in 2 weeks of time.

CONCLUSION

Manjishtadi Vikeshika, is a cost effective, easily applicable dressing material which would facilitate all the requirements for an ideal contact layer dressing, and which possess desired healing in the management of *Dagdha Vrana*. *Manjistadi Vikeshika* dressing caused no irritation during the application in situ. There was negligible discomfort on every dressing change thus reducing the agony during dressing in burn patients. The whole process of wound care seemed easy and effective.

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How to cite this article: Sumukhi R, Padma, KM Sweta. A Case Series of 1st and 2nd Degree Burn Patients managed with Manjistadi Vikeshika - An Ayurvedic Contact Layer Dressing. J Ayurveda Integr Med Sci 2022;9:186-195.

Source of Support: Nil, **Conflict of Interest:** None declared.
