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# To evaluate the role of *Lakshadi Avachornana* in the management of *Dushta Vrana* with special reference to Diabetic Ulcer : A Case Study

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## ABSTRACT

The global prevalence of diabetics is estimated to increase from 4.0% in 1995 to 5.5% by the year 2025. The chances of secondary infection are more in diabetics as the immunity of the patients is compromised and needs prolonged hospitalization, psychological and social problem for the patients and family. In *Madhumehi* the vessels of lower limb become weak and is unable to expel the *Doshas* (along with other *Dushyas*) leading to *Prameha Pidakas* more in lower extremities, which eventually burst open precipitating an ulcer. *Avachornana* is one among the *Shashti Upakrama*, explained by *Acharya Sushruta* for management of *Vrana*. Numerous studies are done in the management of *Dushta Vrana* with the internal medication and external therapies. Here a preliminary attempt to study the effect of *Avachornana* with *Lakshadi Choorna* in the management of the same was taken for the study.

**Key words:** *Dushta Vrana*, *Avachornana*, Diabetic Ulcer, *Lakshadi Choorna*.

## INTRODUCTION

The global prevalence of diabetics is estimated to increase from 4.0% in 1995 to 5.5% by the year 2025.<sup>[1]</sup> India is facing with galloping diabetes epidemic which is progressing at a greater speed.<sup>[2]</sup> Diabetes Mellitus is a disease in which the body's ability to produce or respond to the hormone insulin is impaired, resulting in abnormal metabolism of carbohydrate and elevated levels of glucose in the blood. Slight injury to glucose laden tissue may cause chronic infection and ulcer formation. Ulceration in diabetes may be precipitated

by ischaemia due to diabetic atherosclerosis. More prone to infection of glucose laden tissue may cause ulceration. Diabetic polyneuropathy or peripheral neuritis may also cause ulcer formation.<sup>[3]</sup> An ulcer is a break in the continuity of the covering epithelium-skin or mucous membrane. It may either follow molecular death of the surface epithelium or its traumatic removal.<sup>[4]</sup>

*Prameha* is a *Tridoshaja Vyadhi* which affects the *Kleda Dhatus* of the body. On *Kaalantara*, *Prameha* converts to *Madhumeha Vyadhi*, a type of *Vataja Prameha* which is *Asadya*.<sup>[5]</sup> The 10 types of *Prameha Pidakas* which are *Sarvadosha Samuthana* occur as the *Upadrava* of *Prameha*.<sup>[6]</sup>

If *Pramehi* is left untreated *Doshas* get aggravated and by vitiating *Mamsa* and *Shonitha* causes *Shophya*, which should be managed with *Shodhana* and *Siramoksha*. *Shophya* further advances severely and produce *Ruja* and *Daha*.<sup>[7]</sup> With respect to the above-mentioned facts *Ayurvedic* line of treatment (*Shodhana* and *Ropana*) will play an important role.<sup>[2]</sup>

*Avachornana* is one among the *Shashti Upakrama*, explained by *Acharya Sushruta* for management of

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Vrana. On Avachornana Upakrama, adequate research has not been done, but it has efficacy in treatment of Vrana accompanied with symptoms like Sama Sthiramamsa, Twak Sthana Vrana.<sup>[8]</sup> Acharya Sushruta has mentioned Lakshadi Gana in Dravya Sangrahaneya Adhyaya which is having predominantly Tikta Kashaya Rasa, Laghu Rooksha Guna, Ushna Veerya, Katu Vipaka, Kaphapittahara, Arthi Nashanam and indicated in Dushta Vrana, Kushta and Krimi.

## MATERIALS AND METHODS

### Properties of Lakshadi Choorna

Drugs	Botanical name & Family	English name	Kannada name	Hindi name	Parts used
Laksha <sup>[9]</sup>	<i>Laccifer lacca</i>	Lac	Aragu	Laakh	Resin
Aragwadha <sup>[10]</sup>	<i>Cassia Fistula</i> Linn. Caesalpinioideae	Purging Cassia	Phalus	Amaltas	Root bark
Kutaja <sup>[11]</sup>	<i>Holarrhena Antidycentrica</i> (Roth) A.DC. Apocyanaceae	Conessi Tree	Korachi	Kuda	Stem bark
Aswamara <sup>[12]</sup>	<i>Nerium indicum</i> Mill. Apocyanaceae	Indian Oleander	Kanagalu	Kaner	Root bark
Katphala <sup>[13]</sup>	<i>Myrica Nagi</i> Buch. Myricaceae	Box Myrtle	Kirishivani	Katphala	Stem bark
Haridra <sup>[14]</sup>	<i>Curcuma longa</i> Linn. Zingiberaceae	Turmeric	Arishina	Haldi	Rhizome
Daruharidra <sup>[15]</sup>	<i>Berberis aristata</i> DC. Berberidaceae	Indian berbery	Bagisutra	Daru haldi	Stem
Nimba <sup>[16]</sup>	<i>Azadirachta indica</i> A.Juss. Meliaceae	Neem tree	Bevu	Nim	Stem bark
Saptaparna <sup>[17]</sup>	<i>Alstonia scholaris</i> R.Br. Apocyanaceae	Indian devil tree	Maddale	Satouna	Stem bark

Hence this current study is an attempt to validate role of Lakshadi Avachornana in the management of Dushta Vrana with special reference to diabetic ulcers.

### AIM AND OBJECTIVE

To evaluate the role of Lakshadi Avachornana in the management of Dushta Vrana with special reference to Diabetic Ulcer

Jati <sup>[18]</sup>	<i>Jasminum grandiflorum</i> Linn. Oleaceae	Common jasmine	Mallige	Chameli	Root Leaf
Trayamana <sup>[19]</sup>	<i>Gentiana kurroa</i> Royle. Gentianaceae	Indian gentian	Karadihanni	Kadu	Root

Drugs	Rasa	Guna	Virya	Vipaka	Karma	Indication
Laksha <sup>[9]</sup>	Kashaya	Laghu	Sheeta	Madhura	Kaphapitta Doshaharam	Vrana Jwara Urakshatham
Aragwadha <sup>[10]</sup>	Madhura	Mrdu Guru Snigdha	Sheeta	Madhura	Kaphapittahara Sramsana	Kustha Prameha Sula Jwara
Kutaja <sup>[11]</sup>	Tikta Kashaya	Laghu Ruksha	Sheeta	Katu	Kaphapittahara Grahi Dipana	Raktarsas Kustha Krimi Visarpa Vatarakta Jwara
Aswamara <sup>[12]</sup>	Katu Tikta	Laghu Ruksha	Ushna	Katu	Kaphavatahara Kusthaghna Vranahara Caksusya	Dushta Vrana Upadamsa Kustha Krimi Kandu
Katphala <sup>[13]</sup>	Kashaya Tikta Katu	Laghu Tiksna	Ushna	Katu	Kaphavatahara Sandhaniya Vedanasthapana	Jwara Raktapitta, Arsas Mukharoga
Haridra <sup>[14]</sup>	Tikta Katu	Ruksa Laghu	Ushna	Katu	Kaphavatahara Lekhana Vishaghna Varnya	Prameha Kusta Krimi Kandu

						Vrana
Daruharidra <sup>[15]</sup>	Tikta Kashaya	Laghu Ruksha	Ushna	Katu	Kaphapittahara Chedana	Prameha Kustha Sveta Pradara Vrana Visarpa
Nimba <sup>[16]</sup>	Tikta Kashaya	Laghu Ruksa	Sheeta	Katu	Kaphapittahara Dipana Grahi Krmighna Netrya	Jwara Kustha Krimi Prameha Vrana Visa Roga Kandu
Saptaparna <sup>[17]</sup>	Tikta Kashaya	Laghu Snigdha	Ushna	Katu	Tridosahara Dipana Hrdya	Krimi Kustha Vrana Amavata Sula
Jatj <sup>[18]</sup>	Tikta Kashaya	Laghu Snigdha Mrdu	Ushna	Katu	Tridosahara Vrana Ropana Vrana Sodhana	Vrana Netraroga Siroroga Karnapuya Mukhapaka
Trayamana <sup>[19]</sup>	Tikta Kashaya	Laghu Ruksa	Ushna	Katu	Pittakaphahara Visaghna Recaka	Jwara Hrdroga Gulma Bhrama Sula Visa roga

### Case Study

It is a case study of a 42-year male patient who presented with the chief complains of ulcer over big toe of right leg since 2 months (K/C/O DM for last 8

years and under medication). He was being treated with oral medications and dressings. Study was done after obtaining an informed consent from the patient. He was treated with the *Lakshadi Choorna* for dressing

daily and *Triphala Guggulu* 2 BD before food, *Amritadi Vati* 2 BD after food as internal medication.

**Intervention**

*Lakshadi Choorna* was prepared with all aseptic measures, as per the classical reference of *Choorna Kalpana*. After proper cleaning the drugs, it made into small pieces by chopping. Using pulveriser it was made into fine powder with mesh size of 80 to 120 range. Packing done under aseptic precaution and sterilization done under UV for 20 minutes.

**Figure 1: The method of Lakshadi Choorna preparation.**



Raw drugs for *Lakshadi Avachoorana*



Final product

With all aseptic measures ulcer was cleaned with normal saline and *Avachoorana* was done uniformly over ulcer site. Dressing was done with sterile gauze and pad. *Avachoorana* was done with the *Lakshadi Choorna* once daily and observations were done on 7<sup>th</sup>, 14<sup>th</sup>, 21<sup>st</sup> and 40<sup>th</sup> day of the treatment.

**Figure 2: The method of Lakshadi Avachoorana**





0<sup>th</sup> Day



14<sup>th</sup> Day



Avachooranam



21<sup>st</sup> Day



7<sup>th</sup> Day



40<sup>th</sup> Day



Follow-up

Table 2: Subjective symptoms assessed on 0<sup>th</sup>, 7<sup>th</sup>, 14<sup>th</sup>, 21<sup>st</sup>, 40<sup>th</sup> day.

Pain Assessment	0 No Pain	1-3 Mild pain	4-6 Moderate pain	7-10 Severe pain
0 <sup>th</sup> day		+		
7 <sup>th</sup> day		+		
14 <sup>th</sup> day	+			
21 <sup>st</sup> day	+			
40 <sup>th</sup> day	+			
Burning Sensation	Grade 0 No burning	Grade 1 Mild burning	Grade 2 Moderate burning	Grade 3 Severe burning
0 <sup>th</sup> day			+	
7 <sup>th</sup> day		+		
14 <sup>th</sup> day		+		
21 <sup>st</sup> day	+			
40 <sup>th</sup> day	+			

Table 3: Objective symptoms assessed on 0<sup>th</sup>, 7<sup>th</sup>, 14<sup>th</sup>, 21<sup>st</sup>, 40<sup>th</sup> day.

Item	Assessment	0 <sup>th</sup> day Score	7 <sup>th</sup> day Score	14 <sup>th</sup> day Score	21 <sup>st</sup> day Score	40 <sup>th</sup> day Score
1. Size	1 = Length x width <4 sq. cm 2 = Length x width 4--<16 sq. cm 3 = Length x width 16.1--<36 sq. cm 4 = Length x width 36.1--<80 sq. cm 5 = Length x width >80 sq. cm	3	3	3	3	2
2. Depth	1 = non-blanchable erythema on intact skin 2 = Partial thickness skin loss involving epidermis &/or dermis 3 = Full thickness skin loss involving damage or necrosis of subcutaneous tissue; may extend down to but not through underlying fascia; &/or mixed partial & full thickness &/or tissue layers obscured by granulation tissue 4 = Obscured by necrosis 5 = Full thickness skin loss with	3	3	3	3	3

	extensive destruction, tissue necrosis or damage to muscle, bone or supporting structures					
3. Edges	1 = Indistinct, diffuse, none clearly visible 2 = Distinct, outline clearly visible, attached, even with wound base 3 = Well-defined, not attached to wound base 4 = Well-defined, not attached to base, rolled under, thickened 5 = Well-defined, fibrotic, scarred or hyperkeratotic	2	2	2	1	1
4. Undermining	1 = None present 2 = Undermining < 2 cm in any area 3 = Undermining 2-4 cm involving < 50% wound margins 4 = Undermining 2-4 cm involving > 50% wound margins 5 = Undermining > 4 cm or Tunnelling in any area	1	1	1	1	1

5. Necrotic Tissue Type	1 = None visible 2 = White/grey non-viable tissue &/or non-adherent yellow slough 3 = Loosely adherent yellow slough 4 = Adherent, soft, black eschar 5 = Firmly adherent, hard, black eschar	3	3	2	2	1
6. Necrotic Tissue Amount	1 = None visible 2 = < 25% of wound bed covered 3 = 25% to 50% of wound covered 4 = > 50% and < 75% of wound covered 5 = 75% to 100% of wound covered	2	2	2	2	1
7. Exudate Type	1 = None 2 = Bloody 3 = Serosanguineous: thin, watery, pale red/pink 4 = Serous: thin, watery, clear 5 = Purulent: thin or thick, opaque, tan/yellow, with or without odour	3	3	1	1	1
8. Exudate Amount	1 = None, dry wound 2 = Scant, wound moist but no observable exudate 3 = Small 4 = Moderate	4	3	2	2	2

	5 = Large					
9.Skin Colour Surrounding 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 5 = Black or hyperpigmented	1	1	1	1	1
10.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 4 = Pitting edema extends < 4 cm around wound 5 = Crepitus and/or pitting edema extends >4 cm around wound	2	2	1	1	1
11.Peripheral Tissue Induration	1 = None present 2 = Induration, < 2 cm around wound 3 = Induration 2-4 cm extending < 50% around wound 4 = Induration 2-4 cm extending > 50% around wound 5 = Induration > 4 cm in any area around wound	2	1	1	1	1

12.Granulation Tissue	1 = Skin intact or partial thickness wound 2 = Bright, beefy red; 75% to 100% of wound filled &/or tissue overgrowth 3 = Bright, beefy red; < 75% & > 25% of wound filled 4 = Pink, &/or dull, dusky red &/or fills < 25% of wound 5 = No granulation tissue present	3	2	2	2	2
13.Epithelialization	1 = 100% wound covered, surface intact 2 = 75% to <100% wound covered &/or epithelial tissue extends to > 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% wounds covered	5	5	5	4	3
Total Score		34	31	26	24	20

## RESULTS

Reduction of Symptoms of ulcer was achieved within 14-21 days of *Lakshadi Avachoorana* and later complete healing was achieved without any other complications.

**DISCUSSION**

*Lakshadi Gana* with the properties of *Tikta Kashaya Rasa*, *Laghu Rooksha Guna*, *Ushna Veerya*, *Katu Vipaka*, *Kaphapittahara* and *Arthi Nashanam* is indicated in *Dushta Vrana*, *Kushta* and *Krimi*. *Acharya Susruta* has included this *Gana* in *Dravya Sangrahaneya Adyaya* and indicated in *Dushta Vrana*. In the present situation, due to hampered foot habits and physical exertion, life style disorders are more along with its complications. *Lakshadi Avachornana* helps in reducing the symptoms of *Dushta Vrana*, thereby helps in getting desired result. *Tikta Kashaya Rasa* helps in promoting healing of wound and it has *Pittahara* property, thereby helps in reducing the burning sensation.

Due to its *Usha Veerya*, it helps in *Vatashamana*, thereby reducing the pain. This *Gana* also possess, *Krimighna*, *Kushtagna* property, hence its *Vranasodhana* and *Ropana* nature in *Dushta Vrana* is highlighted.

Further clinical study is needed to evaluate the effectiveness in larger sample.

**CONCLUSION**

Significant relief on symptoms of *Dushta Vrana* including *Poothi Pooya*, *Srava*, *Athigandha* etc was being observed in the course of treatment. There was better healing and sustained symptomatic relief in this patient with the *Lakshadi Avachornana*. Due to its easy and convenient mode of application it makes the procedure significant.

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