

Ayurveda Approach in the Management of *Madhumeha Janya Vrana* (Diabetic Foot Ulcers): Case Series

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ABSTRACT:

Due to increased chances of infections, diabetic Ulcer became a challenge to surgeons. Approximately 15% of patients with diabetes are suffering from neuropathic foot ulcers. Diabetes ulcer can be correlated with *Madhumeha Pidaka* described in *Susruta Samhita*. *Shashti Upakrama* are the procedures explained by *Acharya Susruta* for the management of *Vrana* (ulcers) which can be used for wound bed preparation. This paper discusses the management of diabetic foot ulcer patients who have been taking allopathic medicine for long time and have been suffering from chronic non healing ulcers in lower limbs managed by using combined Ayurveda treatment modalities including *Shastra Karma* (application of sharp instruments) and *Kshara Karma* (Application of caustic alkali). Considering outcome of the treatment line, it can be concluded that diabetic wound can be managed by using suitable procedures mentioned in *Shashti Upakrama*.

KEYWORDS: Diabetic Ulcer, *Kshara Karma*, *Shastiupakrama*, *Shastra Karma*, Wound bed preparation.

Received: 02.06.2022 Revised: 19.06.2022 Accepted: 23.06.2022 Published: 03.07.2022

Quick Response code



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INTRODUCTION:

Diabetes is a global disease. Prevalence of the disease has increased rapidly in the last century. Among various complications associate with diabetes, diabetic foot ulcers are one of the commonest. Non-healing diabetes wound is a challenge to the surgeon because diabetic wounds are critical, difficult to heal and often prone to infection. Glucose laden tissue, vascular insufficiency, peripheral and autonomic neuropathy may lead to impaired wound

healing and end result will be amputation of the affected limb. ^[1]

It was estimated 366,000,000 adults with diabetes and number will increase up to 552,000,000 by 2030 among world population. ^[2] 20% of adults in Sri Lankan are either diabetes or prediabetes.^[3] Approximately 15% of patients with diabetes are suffering from Chronic nonhealing neuropathic foot ulcers and overall global mortality rate is roughly 5.2%. ^[4-5] Ramachandran in 2012 in his study revealed that Asian diabetes patients

are more prone to get neuropathy and foot problems. [6]

Diabetes ulcer can be correlated with *Madhumeha Pidaka* according to the description of *Susruta Samhita*. *Susruta* described the pathogenesis of *Madhumeha Pidaka* as in patients who are suffering from urinary diseases, *Madhumeha Pidaka* occurs due to three vitiated *Dosha* spreading in to *Vasa* and *Medas*. [7]

Shashti Upakrama (60 procedures) explained by *Acharya Susruta* in the management of *Vrana*, which shows unique therapeutic approach for management of wounds. [8] *Shashti Upakrama* have been given a good result in the management of diabetes wound. These procedures can be used according to the stage of the wound. Wound bed preparation which leads to wound healing is the ultimate outcome of 60 procedures. Aim of this article is to discuss the efficacy of Ayurveda management for diabetes ulcer in evidence-based manner.

CASE REPORT:

Case 1

49 years old male patient came to Thenna Ayurveda hospital-Central Province, Sri Lanka with the complaints of swelling, foul smell and non-healing wound over left foot at great toe since 3 months. On General examination no any abnormalities were found. On local examination, 3.5 cm × 3 cm; 1.5cm deep, round shaped ulcer was noted at the medial and dorsal sides of the left great toe (Figure 1)(Table 1).

Medical history: He has been diagnosed as moderate sensory neuropathy patient in 2017. The patient was under the allopathy treatment for diabetes mellitus and hypertension from 12 years.

On the day he came for the Ayurveda treatment, fasting blood sugar was

144mg/dl. X-Ray of left foot was taken to exclude osteomyelitis due to wound (Figure 2). Other investigation reports are mentioned in table 2.

Management: Treatment plan is given in Table 3.

Observations

Day 1-14

Swelling of the foot is reduced after 14 days. Blood investigations after 14 days is given in table 4.

Day 15- 28

On 15th day patient was admitted to hospital and debridement of unhealthy tissues and *Chedana Karma* of margins of the ulcer was performed. (Figure 3).

Day 29 to 42 (Figure 4)

Wound healed after one and half months. (Figure 5)

Case 2

76 years old female patient presented with the complain of chronic non healing wounds on left leg for 2 months (Figure 6).

Medical History: She is under allopathic treatment for diabetes Mellites from 14 years and on Insulin treatment for 10 years (morning 26 units and evening 24 units)

On examination, 1.4 cm × 1 cm and 1.1 cm × 1 cm round shaped ulcer was observed over anterior tibial border of left leg. (Table 5) other systemic examination were normal. No related family history and no any allergic history were found.

Investigations before the initiation of the treatment was given in Table 6

Management: Wound during *Kshara* application is showed in (Figure 7). Treatment plan is given in table 7

Observations: Wound was completely healed after 14 days (Figure 8). Investigations after treatment is given in Table 8.

Allopathic medicines for diabetes mellitus and hypertension were continued as an adjuvant treatment for Ayurveda medicines in both cases.

Table 1: Local examination of the patient-Case 1

Examination	Clinical Features
Inspection	Size of the Ulcer: 3.5 cm × 3 cm; 1.5cm deep Shape: Round shaped ulcer Color: Black color Site: At the medial and dorsal sides of the left great toe Description of the floor: Not uniform in depth, black color gangrenous tissues were present.
Palpation	Sensory loss over the wound area
Other features	No Foul smell and mild pus discharge were present

Table 2: Investigation reports before treatment-Case 1

HbA1c	6.9 %
FBS	144mg/dl
Blood Urea	39.8mg/dl
Serum Creatinine	1.8 mg/dl
Urine examination revealed proteins, pus and epithelial cells.	
Investigations: X-Ray left foot- No osteomyelitis were seen	

Table 3: Treatment plan – Case 1

Time period	Management
Day 1-14	Internal treatment: <i>Punarnawashtaka Kashaya</i> 60ml twice daily <i>Chandraprabha Vati</i> 2tab Twice daily <i>Avipaththikara</i> powder 1tsp twice daily
Day 15- 28	Shalya Karma: Debridement of unhealthy tissues and <i>Chedana Karma</i> of margins of the ulcer. Internal treatment: <i>Triphala Kashaya</i> 60ml twice daily External treatment: Daily dressing with <i>Seetodaka</i> oil (Sri Lankan Traditional oil for wound healing) <i>Vrana Avagaha</i> with <i>Pancha Valkala Kashaya</i> morning and evening.
Day 29 to 42	Shalya Karma: <i>Teekshna Apamarga Kshara</i> application Internal treatment: <i>Triphala</i> powder 1tsp BD External treatment: <i>Vrana Avagaha</i> with <i>Pancha Valkala Kashaya</i> morning and evening.

Table 4: Blood investigations after 14 days-Case 1

FBS	96
Serum Creatinine	1.5 mg/dl

Table 5: Local examination -Case 2

Examination	Clinical Features
Inspection	Size of the Ulcer: .4 cm × 1 cm and 1.1 cm × 1 cm round shaped ulcers Shape: Round shaped ulcers Color: Black color areas with red color areas Site: At the over anterior tibial border of left leg.
Palpation	Pitting Edema was present around the wound area
Other features	No any abnormal smell and discharge

Table 6: Investigation reports before treatment-case 2

HbA1C	10.5
Blood Urea	22.8mg/dl
Serum Creatinine	1.1mg/dl
FBS	170mg/dl
UFR Pus cells 12-15, albumin +	

Table 7: Treatment Plan-Case 2

Time period	Management
Day 1-14	Shalya Karma: Debridement (<i>Lekhana Karma</i>) was done with <i>Shastra</i> (instrument) and <i>Mrudhu Apamarga Kshara</i> was applied on the wound Internal treatment: <i>Triphala Kashaya</i> 60ml twice daily External treatment: Daily dressing with <i>Panchawalkala Kashaya</i> and <i>Seethodaka</i> oil

Table 8: Investigation reports after treatment-Case 2

HbA1C	9.9 %
FBS	83mg/dl

Clinical images of Case-1:**Figure 1: Before treatment****Figure 2: X-Ray Before treatment****Figure 3: After excision of wound margins****Figure 4: During Kshara Application****Figure 5: After treatment**

Clinical images of Case-2:



Figure 6: Before treatment (day 1)

Figure 7: After *Kshara Karma*

Figure 8: After treatment

DISCUSSION:

The *Vrana* (ulcer) which is putrefied, having pus discharge and vitiated blood, tunneled, pain and which takes long time to heal been termed as *Dushta Vrana* (Infected/non-healing wound).

Internal medication was used because Ayurveda has a holistic approach to treat patients. For the patient described in case 1, *Punarnavashtaka Kashaya* has been given considering his serum creatinine level and associated *Kapha Dosha* with the disease. [9] *Punarnavashtaka* has *Vasti Shodhaka* properties and its effect on *Kapha*, *Medas* (relevant to pathogenesis of *Madhumeha* (*Diabetes Mellites*)) which help to control diabetes mellites as well. *Avipattikara Churna* has *Deepana*, *Pachana* properties as well as *Mutra Shodhaka* properties. [10] One of the indications of *Chandraprabha Vati* is in wound. [11] Due to *Shilajit* included as its

ingredient, it is useful to control diabetes as well. Wanjari and colleagues proved this concept in his study. [12]

Triphala Kashaya has *Anulomana*, *Kledahara* properties and it's good to control diabetes and diseases of the skin. [13] Considering these facts both patients were given *Triphala Kashaya*.

Chedana Karma was performed for the ulcer of case 1 due to the features of unhealthy tissues and wound margin. According to *Acharya Susrutha*, *Vrana Vartma* should be excised. Also, *Chedana Karma* is one of the procedures described under *Shashti Upakrama* which can be used to prepare wound bed to enhance wound healing. [14] Hence excision of unhealthy tissues was performed.

Kshara has *Chedana*, *Lekhana* properties hence used for the debridement of the wound. Specially it has *Shoshana* property

which is useful to dry up the *Kleda* of diabetes wound. Also, *Kshara* has *Vrana Ropana* (healing) effect. *Kapha* and *Medas* reducing properties also useful to manage diabetes wound. [1]

Seetodaka oil promote *Vrana Ropana* hence used for wound healing after preparation of wound bed using *Chedana*, and *Kshara Karma*.

CONCLUSION:

Ayurveda management is beneficial for wound bed preparation and to promote the wound healing in diabetic ulcer with combination of internal Ayurveda drug administration to control the *Madhumeha* (Diabetes).

LIMITATION OF STUDY:

Case 1 patient didn't follow the treatment after healing the wound hence couldn't do the follow up

PATIENTS CONSENT:

The written informed consents have been obtained from the patients for the treatments and publication.

ACKNOWLEDGEMENT:

The authors express sincere thanks to Dr Priyanka Jayawardane, Medical officer, Thenna Ayurveda Hospital, Sri Lanka for referring the patients.

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CONFLICT OF INTEREST: Author declares that there is no conflict of interest.

GUARANTOR: Corresponding author is guarantor of this article and its contents.

SOURCE OF SUPPORT: None

HOW TO CITE THIS ARTICLE:

Wicramanayake W.A.A.P. Peshala K.K.V.S. Ayurveda Approach in the Management of Madhumeha Janya Vrana (Diabetic Foot Ulcers): Case Series. 2022; 6(2):244-251.