

## Case Report on Integrative Management of Non- Healing Ulcer in A Diabetic Patient (Madhumegha Pun)

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### KEYWORDS

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leaf decoction  
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Vanga Virana  
Kalimbu

### ABSTRACT

Diabetic foot ulcer (DFU)- Madhumega pun is a wound that affects individuals with uncontrolled diabetes and about 6% of these patients require hospitalization due to ulcer related complications. The underlying hyperglycemia gets intensified by ischaemia the microvascular complication of Diabetes mellitus resulting in nonhealing chronic ulcers and a high prevalence rate of amputation in diabetics. In this article a case study, of DFU managed with the integration of Siddha and allopathic treatments has been explained. Guidelines for diabetic foot ulcer management was followed along with incorporation of Siddha procedures like Thespesia populnea leaf decoction (TPLD) as kazhuvuneer, and Vanga Virana Kalimbu (VVK) and Palagarai parpam as topical application. The ulcer healed upto 80%. Since no previous clinical evaluation has been done this case study has been documented to explore its effectiveness in healing chronic ulcers. The prognosis was assessed at different time points using Leg Ulcer Measurement Tool (LUMT).

### 1. Introduction:

Diabetic foot, is defined as a wound that affects the level distal to ankle by developing deep ulceration often associated with neuropathy, ischemia and/or peripheral arterial disease in patients with uncontrolled diabetes mellitus (DM). The incidence of DFU ranges from 9.1 to 26.1 million of diabetic population annually. It has been estimated that about 15% of diabetic individuals would be affected by Diabetic foot ulcer, of them 15 -20% may require amputation. About 85% of diabetic foot ulcers end in amputation. [1-3] As the present treatment modalities for DFU are costly and the results were unsatisfactory, integrative management ie) adoption of various systems of treatment with standard treatment was preferred.

The clinical features of Diabetes mellitus are paralleled with *Madhumega Noi* or *inippu mana neer/ Neerizhuvu* and the complications are known as *Neerizhivu Noi Avathaigal* [4]. In *Agathiyar Rana Vaithiyam*, *Viranam* (Ulcers) is classified into two types *Theerum Viranam* (Healing ulcers), and *Theeratha Viranam* (Chronic non healing ulcers). *Madhumega viranam* is one of the *Theeratha Viranam* (Chronic non healing ulcers) [5] and is referred to as *Madhumegha Pun* (MP). Many herbo mineral formulations are indicated for treating wounds, but their clinical usage is limited and not yet subjected to scientific evaluation. This case study adheres to CARE guidelines for reporting case study, reveals the effective management of MP with *Thespesia populnea* leaf decoction (TPLD) and wound dressing using VVK, *Palagarai parpam* along with siddha internal medications.

## 2. Case Profile:

A 67-year-old male from Tirupati attended the NCD OPD of Siddha Clinical Research Unit, Tirupati with a chronic ulcer for about three months in the lateral malleolus of right foot. The ulcer had foul smelling discharge and peri-wound swelling. He suffered a similar wound on the dorsum of foot which got healed. Three months back a small wound started near the healed margin of the previous wound, without proper care and treatment it advanced into a deep ulcer with foul odour. From the past history it was known that he was an uncontrolled diabetic. From clinical examination he was known to be suffering from Diabetic Foot Ulcer -*Mathumega Pun*.

He is a nonvegetarian, had sleep disturbances and his bowel habits were normal. He was on antidiabetic medication for the past 13 years (Metformin 500mg bd - 1 tab, Glipizide 5mg - 1tab before food morning). Improper dietary regimen and poor drug compliance was noted from his history and his HbA1C was 9.7 %. He also had numbness in both the sole since 6 months. He was treated with oral antibiotics but the prognosis was unsatisfactory. So, the patient visited OPD of Siddha Clinical Research Unit Tirupati for treatment.

On examination, patient was stable, conscious and oriented. The ulcer was situated near the right lateral malleolus irregular in shape with punched out oedematous edges, measuring 7.3 cms in length, 6 cms in breath and 0.5cms in depth. The floor was pale in colour and healthy granulation tissues were not found. The discharge was copious foul smelling and purulent. The X ray of the foot showed that there were no bone erosions. Dorsalis pedis, and posterior tibial artery pulsations of the right foot were found feeble. The Semmes-Weinstein monofilament (SWM) test was used to assess peripheral neuropathy, which revealed diminished sensation, i.e., Grade 1. The ulcer was diagnosed as Grade II according to the Maggit Wagner classification of Diabetic ulcers.

## 3. Diagnostic Assessment:

The ulcer was measured by placing printed ruler over the wound. Efficacy of treatment was assessed using Clinical features, Diabetic Ulcer Severity Score (DUSS), Wagner Ulcer Classification System (WUCS) and by measuring the wound area. Prognosis was measured by Leg Ulcer Measurement Tool (LUMT) which has both clinician rated domains and patient rated domains. Clinician rated domains contains 14 items such as exudate type, exudate amount, size, depth, undermining, necrotic tissue amount, granulation tissue type, granulation tissue amount, characteristics of edges, characteristics of periulcer skin, leg edema type, leg edema location, and assessment of bioburden. The patient rated domains contains 3 items such as amount of pain, frequency of pain and quality of life. LUMT has a score of range of 0-68, with zero indicating complete healing [6].

## 4. Local Examination

Site – Right lateral malleolus  
Size -7.3 cms in length, 6 cms in breath and 0.5cms in depth  
Number - 1  
Margin - Irregular  
Floor - whitish slough  
Base - Soft tissue  
Discharge - Purulent foul smell  
Tenderness - ++  
Shape - Irregular  
Palpation - Raised local temp

## 5. Therapeutic Intervention:

*Vanga Virana Kalimbu* (VVK) is indicated for the treatment of *Viranagal*. [7] The medicine was procured from the manufacturing unit of Siddha Regional Research Institute, Arumbakkam, Chennai. The ingredients of VVK is listed in the Table No:1 The ulcer was cleaned with TPLD then

palagarai parpam was sprinkled over the wound and then VVK was applied to the wound. A sterile gauze pad was placed on the wound and bandaged with sterile gauze roll.

**Table No. 1: Composition of VVK**

Ingredients	Quantity
Coconut oil	2 lit
Bee wax	800gm
Vanga chenduram	100gm
Rasa Chenduram	50 gm
Rasa karpooram	50 gm
Mirutharsingi	100gm

### Internal Medicines

The patient was given D5 chooranam 2 gm twice daily after food, silasathu parpam tablet 2 twice daily, Rasagandhi Mezhu capsule 2 at noon after food. The patient was advised to follow diet restriction during treatment. He was advised to avoid maize (*Sorghum vulgare*), Pearl millet (*Pennisetum typhoides*), Finger millet (*Paspalum scrobiculatum*), Brinjal (*Solanum melogena*), Horse gram (*Macrotyloma uniflorum*), Fish varieties, frequent intake of sour and hot tastes to avoid prolonged standing,

### 6. Results:

**Table No. 2: Assessment of Ulcer**

Assessment Scale	Before Treatment		After Treatment	
Diabetic Ulcer Severity Score (DUSS)	2		1	
Wagner Ulcer Classification System (WUCS)	Grade II		Grade I	
Leg Ulcer Measurement Tool (LUMT)	Patient domain	Physician Domain	Patient domain	Physician Domain
	47	12	13	4

**Table No. 3: Changes in symptoms before and after treatment**

Symptoms	Before treatment	After 7 days	After 14 days	After 30 days	After 45 days	After 56 days
Pain	4	3	2	2	1	1
Foul smelling	4	3	2	1	0	0
Discharge	4	3	2	1	1	0
Tenderness	4	2	1	1	1	1

(Symptom score Severe-4, Moderate-3, Mild-2, Occasional-1, Absent -0)

### 7. Outcome:

Before starting the treatment, the wound area measured 7.3 cms in length, 6 cms in breadth and 0.5cms in depth, DUSS score 2, and LUMT score 57. The appearance of the ulcer before treatment and after treatment are detailed in figure 1-4. After two weeks of treatment the tenderness was moderate. On regular intake of medicines and proper wound care the foul smelling serous discharge gradually decreased and stopped in 3 weeks. By the end of two month the combination therapy greatly reduced pain, peri wound area and there was no foul smelling discharge, DUSS score -1, LUMT measurement -17 and wound size measured 4.5cms length and 3 cm breadth.



**Day 1**



**Day 15**



**Application of VVK+ Palagarai parpam**



**Day 56**

## 8. Discussion:

Diabetic foot is characterized by a classical triad of neuropathy, ischemia and infection. In uncontrolled diabetics the glucose laden tissue favours infection and ulceration. Socioeconomic change is a major factor for the increase in the diabetes epidemic globally, along with other associated risk factors such as unhealthy eating habits and sedentary lifestyle.[8,9] Among diabetic populations 4-10% suffer with diabetic foot ulcer. The frequency has been found increasing by 5% with advancing age among diabetics. [10-12]

Wound healing in diabetics is impaired due to impaired vascular, neuropathic, immune, and biochemical components and presence of reactive oxygen species. The primary treatment method is topical dressing that could promote reepithelization, possess antimicrobial property, and absorb exudates [13-15]. In Siddha system of medicine, diabetes is termed as *Madhumegam*, diabetic ulcer as *Madhumega pun* (MP) and have been treated with a variety of internal and external medicines that are herbo-mineral combinations. [16]

A man aged 67 yrs diagnosed with *Madhumega pun* attended the NCD op of Siddha Clinical Research Unit Tirupati. The ulcer presented the features of Grade II in Wagner system of classification of diabetic ulcers, diabetic ulcer severity score (DUSS) was 2, the area of wound measured 7.3 cms in length, 6 cms in breadth and 0.5cms in depth with purulent, foul-smelling discharge. He was treated with *Rasagandhi mezhugu*, *Parangipattai mathirai*, *D5 Chooranam* internally, wound irrigation and debridement was done with *Thespesia populnea* leaf decoction. *Palagarai parpam* and *Vanga virana Kalimbu* was applied externally.

Ulcer bed preparation was achieved by tissue debridement, preventing infection and reducing inflammation using *Thespesia* leaf decoction. Glycosides, flavonoids, alkaloids phytosterols, quercetin, rutin, and lupeal were found in the leaves of *T. populnea* has wound healing activity [17,18]

Tannins, Saponins, and flavonoids in *T. populnea* extracts possess antioxidant and anti-inflammatory activity. Tannins has antimicrobial and anti-inflammatory activity, that promotes wound healing [19-20]. Saponins increases the re-epithelialization process in wound healing, inhibits inflammatory reactions and promotes matrix synthesis in wound healing.[21] Quercetin, a phenolic compound present *T. populnea* leaves has anti-inflammatory properties, antibiotic in nature that effectively heals wound with minimum scarring [22-26]and has antifungal activity observed against *C. albicans* [27]. The leaves and bark of *Thespesia populnea* possess analgesic and anti-inflammatory properties and used as anti-inflammatory poultice to treat fracture wounds and for joint pain [28-30]. The leaves and flowers are used in infectious skin problems like scabies, ring worms and also in psoriasis, eczema [31].

Followed by irrigation and debridement *palagari parpam* was sprinkled over the wound to absorb the exudate and over that *Vanga virana kalimbu* was applied The ingredients of *Vanga virana kalimbu* is given in Table:1. It is one of the classical Siddha herbo mineral formulation used topically in the management of chronic ulcers.[7] *Palagarai parpam* is a siddha medicine of marine origin and it has Anti-inflammatory, wound healing and anti-microbial activities [32]

The scores after and before treatment are listed in Table: 2&3. The ulcer healed about 80% in about 56 days and the Leg Ulcer Measurement Tool score improved from 59/68 to 17/68.

## 9. Conclusion:

This case study has proved the efficacy of *Thespesia populnea leaf decoction* and *Vanga Virana Kalimbu* in the management of diabetic foot ulcers which would reduce the infection and reduce the risk of amputations and plastic surgery, increase their quality of life and reducing the treatment cost of diabetic foot ulcer. Also, it has added scientific evidence to wound healing action of *Vanga virana kalimbu* and the analgesic, anti-inflammatory and wound healing properties of *Thespesia populnea* leaves.

### **Patient Perspectives:**

The patient experienced reduction in pain and fast wound healing. He was satisfied with the treatment.

### **Declaration Of Informed Consent:**

The authors certify that written informed consent has been obtained from the patient for the publication of this case report, including images and clinical information. It has been assured that the patient's identity will remain anonymous, with all efforts made to protect personal details from disclosure.

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### **Conflict of Interest:**

The authors declare that they have no financial or personal conflicts of interest related to this research.

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