Journal of Postgraduate Institute of Indigenous Medicine (JPGIIM) Vol. 1, No.1, December 2025, ISSN: 3051-522X (Online)

Effectiveness of Siddha Medicine and Wound Dressing with *Maththan ennai thiri* (Medicated oil gauze wick) in the Management of *Madhumegha Viranam* (Diabetic foot ulcer) - A Case Study

Thiruvancheeswaran Soruban*[1], Indhu PM[2],Jayaveeran T[2], Sivakkumar S[3]

[1]Postgraduate Institute of Indigenous Medicine, University of Colombo, Sri Lanka
[2 3]National Institute of Siddha, Chennai, India

ABSTRACT

Chronic wounds, especially diabetic foot ulcers, represent a major health concern, characterized by deep tissue lesions in the lower limbs often associated with neurological and vascular complications. In the text *Agathiyar Rana Vaithiyam*, *Viranam* (Ulcers) is classified into two types *Theerum Viranam* (healing ulcers), and *Theeratha Viranam* (chronic non healing ulcers). *Madhumega viranam* (diabetic foot ulcer) owing to its chronicity may be correlated with *Theeratha Viranam* (chronic non healing ulcers). This case study aimed to assess the effectiveness of a Siddha treatment approach, combining topical *Maththan Ennai Thiri* (medicated oil gauze wick) and various internal medicines, for managing a chronic diabetic foot ulcer. A 42-year-old male driver, suffering from a two months history of a non-healing diabetic foot ulcer and a recent diabetes diagnosis, was treated at the National Institute of Siddha. His ulcer, measuring 2cm x 1cm with a 4cm sinus, presented with pus, pain, and swelling. The treatment involved daily wound cleansing with normal saline, application of *Maththan Ennai Thiri*, and concurrent administration of internal Siddha medicines: *Madhumega Chooranam*, *Keezhanelli Chooranam*, *Seenthil Sarkarai*, *Biramanantha Bairavam*, and *Parangi Pathangam*. Wound healing was monitored weekly through measurements and photographs. After one month of consistent treatment, the patient exhibited significant ulcer healing, evidenced by a marked reduction in both the size and depth of the wound. This positive outcome suggests that the integrated use of topical *Maththan Ennai Thiri* and the prescribed internal Siddha medicines was effective in promoting the healing of this chronic diabetic foot ulcer, aligning with Siddha principles for treating such conditions. In conclusion, this case study indicates that this Siddha treatment protocol is effective for *Madhumega Viranam* (diabetic foot ulcer), and these encouraging results highlight the need for further comprehensive clinical studies to validate its efficacy.

Keywords: Diabetic foot ulcer, *Madhumegha Viranam*, *Maththan Ennai Thiri*, Medicated oil gauze wick, Siddha medicine

Recommended Citation: Thiruvancheeswaran, S., Indhu, P. M. J., & Sivakkumar, S. (2025). Effectiveness of Siddha medicine and wound dressing with *Maththan ennai thiri (medicated oil gauze wick)* in the management of *Madhumegha Viranam (diabetic foot ulcer):* A case study. *Journal of Postgraduate Institute of Indigenous Medicine*, *1*(1), 182–194. Postgraduate Institute of Indigenous Medicine.

Corresponding Author: sorruthiru@gmail.com
Orchid ID: 0000-0001-6122-4241

Introduction

Chronic non-healing wounds are that have failed to progress through a timely sequence of repair. There is a physiologic impairment that slows or prevents wound healing. A range of 4 weeks to 3 months has been used to define chronic wounds in the literature (Lazarus et al., 1994; Werdin *et al.,* 2009). Chronic wounds are frequently called ulcers and can be defined as wounds with a full thickness in-depth and a slow healing tendency. Often disguised as a comorbidity condition, chronic non-healing wounds represent a silent epidemic that affects a large fraction of the world population (C. K *et al.,* 2009). It is estimated that 1 to 2 % of the population will experience a chronic wound throughout their life time in developed countries (Gottrup, 2004). Approximately 2% of all hospitalized patients worldwide have a chronic wound, and elder patients are at the highest risk because aging impairs the healing process. (Powers *et al.,* 2016). The Wound Healing Society classifies chronic wounds into 4 major categories: pressure ulcers, diabetic foot ulcers, venous ulcers, and arterial insufficiency ulcers (Wound Healing Society,2006). Approximately 33 million people worldwide are affected by diabetic foot ulcers (Zhang P *et.al,* 2017). Diabetic foot ulcer is a severe chronic complication of diabetes characterized by lesions in the deep tissues of the lower limbs, often associated with both neurological disorders (neuropathy) and peripheral vascular disease (Apelqvist J, 2012).

A chronic non-healing ulcer has been explained in Siddha Literature under the *Viranam* or *Ranam. T.V. Sambasivam Pillai* dictionary (Sambasivam Pillai, 1994). *Siddhar Aruvai Maruthuvam* (Uthamaraayan, 2013), *Agathiyar Rana Vaithiyam* (Mohan, 2014), *Sarabendhirar Vaidhya Muraigal Virana Karappan Roga Sigitchai* (Venkatrajan, 2007), *Anubava Vaithya Deva Ragasiyam* (Radhakrishnan, 2014) and *Agathiyar Rana nool* (Agasthiyar rana nool, 1975). are the Siddha Literatures books has been explained the *Viranam*.

The following factors are contributing to non-healing ulcers. They are Oozing from the muscle fiber (*Snayu*), damage to the blood vessel (*Sirai*), deep ulcer spreading into deeper tissues, accumulation of micro-organisms, fracture of bones, unwanted secretions (*Salyam*) stagnating without getting excreted, poisonous bite ulcers, improper treatment for ulcers, improper bandaging techniques, hair strands sticking onto the ulcers, anxiety, excessive intake of toddy, sleeping during day time and lack of sleep at night and excessive intercourse (Thirunarayanan & Sudha, 2010).

Signs for healing of ulcers are the margins of the ulcers appearing like the color of a pigeon, no oozing on the center part of the ulcers, minute papular erections appearing on the ulcers, and shrinking of the ulcers will start to occur.

In the text *Agathiyar Rana Vaithiyam*, *Viranam* (Ulcers) is classified into two types *Theerum Viranam* (Healing ulcers), and *Theeratha Viranam* (Chronic non healing ulcers). *Madhumega viranam* (Diabetic foot ulcer) owing to its chronicity may be correlated with *Theeratha Viranam* (Chronic non healing ulcers) (Mohan, 2014). According to the *Sarabendhirar Vaidhya Muraigal Virana Karappan Roga Sigitchai* had been classified into *Sutha viranam* (Simple ulcers) and *Thusta viranam* (chronic non-healing ulcers) as another category (Venkatrajan, 2007). The characteristics of *Dushta viranam* or *Aaraatha Viranam are* opening of the ulcers will close or stretch excessively, more fragile or hardened, the base of the ulcers will be elevated or depressed, and very cold or warm to touch always, Ulcer will be excessively red, white, or black in color and foul odor secretions in larger quantity (Venkatrajan, 2007).

Objective

The objective of this study is to assess wound healing effectiveness of internal Siddha medicine administration and wound dressings with *Maththan Ennai Thiri* (Medicated oil gauze wick) in the management of *Madhumega viranam* (Diabetic Foot Ulcers).

Case details

Forty-two years old male from Kanchipuram District, Tamil Nadu, working as a driver was admitted to the In-patient ward at the National Institute of Siddha with complaints of a non-healing round shape ulcer presented between the right big toe and 2nd toe, size of the ulcer was 2cm x 1cm. This ulcer also formed a 4cm length of sinus on the plantar region and opened at the medial side of the big toe on the plantar of the foot with pus discharge, pain, and foot swelling for the past 2 months. He had a history of Diabetic mellitus (FBS 261mg/dl and PPBS 308 mg/dl) for one month and he followed the allopathy medicine.

Treatment Protocol

The patient was treated according to the Siddha line of treatment. On the first day, the patient had undergone oil bath with *Arakku thylam* (Thiyagarajah, 2004). On the second day early morning time, he had taken *Agathiyar kuzhambu* (Kuppusaamy & Uththamarajan, 2009) along with ginger juice on an empty stomach for purgation. On the third day ulcer was cleaned with normal saline

after that *Maththan ennai* (Thiyagarajah,2004) applied *Thiri* (Medicated oil gauze wick) (Figure 1B) inserted in full length of sinus (4cm) and dressed until the healing of the ulcer was along with internal medicine (Table 1). The routine blood investigation was done periodically. The outcome was assessed by reduction in clinical symptoms, routine blood investigation, and by using PWAT Scale (Photographic Wound Assessment Tool).

Figure 1: *Maththan* ennai and Medicated oil gauze wick

Table 1: List of internal medicine on the management of *Madhumega Viranam* (Diabetic Foot Ulcers)

Name of Medicine	Dose of medicine	Adjuvant	Duration
Madhumega Chooranam	2g/Twice a day/Before Food	Hot water	4 weeks
Keezhanelli Chooranam mathiri	2Tab/Twice a day/After Food	Hot water	4 weeks
Seenthil Sarkarai	2g / Twice a day /After Food	Hot water	4 weeks
Biramanantha Bairavam	2Tab/Twice a day/After Food	Hot water	3 weeks
Parangi pathangam	200mg/Twice a day/After Food	Palm jaggery	4 weeks

Results

The outcomes of this case were systematically assessed through clinical observations, wound measurements, photographic documentation, and laboratory investigations. Progressive reduction in wound size and depth, resolution of inflammatory signs, and improved metabolic parameters were recorded throughout the treatment period. The following section presents

detailed clinical, radiological, and laboratory findings supporting the effectiveness of the Siddha treatment protocol.

Figure 2 A: Right foot X-ray, AP view, and B: Right foot X-ray, Lateral view.

The X-ray images of the Right foot both AP (Figure 2 A) and Lateral view (Figure 2 B) not showed any abnormalities, which clearly indicates that there was no pathology in the bone due to the ulcer.

Table 2: Assessment during and after treatment

Signs and Symptoms	1st day	8th day	15thday	22ndday	29thday
Size (cm x cm)	2 × 1	1.5 × 0.8	0.9 × 0.5	0.5 × 0.3	0.2 × 0.1
Shape	Round	Round	Round	Round	-
Depth (cm)	4	3.3	2.0	1.2	0.2
Inflammation	++++	+++	++	+	Nil
Induration	++++	+++	++	+	Nil
Surrounding skin colour	Erythema	Erythema	Normal	Normal	Normal
Exudate type	Purulent	Purulent	Serous	Serous	Nil
Exudate amount	Moderate	Moderate	Mild	Mild	Nil
Bleeding	Yes	Yes	Nil	Nil	Nil
Edges (well-defined)	Yes	Yes	Yes	Yes	Nil
Peripheral oedema	++++	+++	++	+	Nil

The size and depth of the ulcer were gradually reduced from 2×1 cm & 4 cm to 0.2×0.1 & 0.2cm after one month of treatment. Inflammation and induration initially present were fully reduced. The surrounding skin of the ulcer was initially erythematous which became normal after treatment. There were peripheral oedema, bleeding, and purulent exudative fluid discharge before

treatment, which were completely stopped after treatment. The shape of the ulcer remains round throughout the treatment, but its size was reduced. The edges were well-defined (M. Bhat,2013) (table 2). Symptomatically the gait of the patient was altered due to the ulcer in the foot, which gradually reversed to normal after treatment. Mild tenderness was present. But there was no hyperpigmentation or lymphadenopathy (table 2).

Table 3: Signs and symptoms before and after treatment

Signs and Symptoms	Before treatment	After treatment
Pain	Present	Reduced
Oedema	Present	Reduced
Discharge	Present	Reduced
Erythema	Present	Reduced
Pus	Present	Reduced
Hyperpigmentation	Nil	Nil
Lymph node Enlargement	Nil	Nil
Tenderness	Present	Reduced
Gait	Altered	Normal

Prior to treatment, the patient exhibited pain, oedema, discharge, erythema, pus formation, tenderness, and altered gait, while hyperpigmentation and lymph node enlargement were absent. The reduction in these symptoms was assessed using standard clinical parameters. Pain was evaluated subjectively with a Visual Analogue Scale (VAS), showing a gradual decrease in intensity. Oedema was monitored by visual inspection and palpation, revealing a progressive reduction in swelling and skin tension. The quantity and character of wound discharge were observed during each dressing change, with purulent exudate gradually becoming serous and eventually absent. Erythema was evaluated by noting the skin colour around the ulcer margins, which normalized over time. Tenderness was assessed through gentle palpation, and the patient reported decreasing discomfort as the treatment progressed. Gait was observed clinically and returned to normal once pain and oedema subsided. These findings collectively indicate that the Siddha treatment protocol effectively controlled infection, reduced inflammation, and restored local tissue health, leading to overall functional improvement (Table 3)

Table 4: The score of the photographic wound assessment Tool (PWAT) before and after treatment

Parameters	**Assessment before treatment**	**Assessment after treatment**
Size	2 (2×1cm)	0(0.2×0.1cm)
Depth	3 (4cm)	0 (0.2cm)
Necrotic tissue type	3	0
The total amount of necrotic tissue	2	0
Granulation tissue type	3	1
The total amount of granulation tissue	4	1
Edges	2	0
Periulcer skin viability	3	0
Total Score	**22**	**2**

The photographic Wound Assessment Tool (PWAT) score was reduced from 22 to 2 after treatment (Table 4). The highest score and reduction were seen in the total amount of granulation tissue (Thompson et al., 2013, Houghton, 2000).

Table 5: The blood investigation value before and after treatment

Blood Investigations	**Normal Values**	**Before Treatment**	**After Treatment**
Fasting blood sugar	70-110	26I	115.2
Post-prandial blood sugar	80-140	308	201
HbA_1C	5.5%	11.1%	8%
Hb (gm/dl)	13-16	15.8	15.2
T.RBC(million cells /Cu.mm)	4.5-6.5	5.0	4.9
ESR (mm)	½ hr. (0 -7)	36	6
	1hr. (0-15)	74	19
T.WBC (Cells /Cu.mm)	4000-11000	16,300	11,120

Blood investigations before and after treatment revealed that there was a reduction in blood glucose levels (table 5), which was probably due to the Antidiabetic effect of internal medicines. (Kasirajan *et al.,* 2020, Sangeetha *et al.,*

2013, Babu *et al.,* 2012) and the anti-inflammatory effect (VananThillai 2021) of *birammanantha bairavam* tablet, anti-inflammatory (Shu *et al.,* 2006) and anti-diabetic (Raju *et al.,* 2012) property of *parangi pathangam*.

Figure 3: Images of ulcer on treatment duration (No 1: Primary ulcer and No 2: secondary ulcer)

Discussion

The present case study highlights the effectiveness of a comprehensive Siddha treatment protocol in the management of *Madhumega Viranam* (diabetic foot ulcer). The combined approach of topical *Maththan Ennai Thiri* and internal Siddha medicines produced progressive wound contraction, resolution of inflammation, and improvement in systemic metabolic parameters.

Clinically, the ulcer demonstrated a steady reduction in size (from 2×1 cm to 0.2×0.1 cm) and depth (from 4 cm to 0.2 cm) over four weeks. Surrounding erythema resolved, exudate and bleeding ceased, and tenderness was minimized, leading to normalization of gait. These findings are supported by the marked decrease in the PWAT score (from 22 to 2), indicating significant improvement in wound healing.

Blood investigations further corroborated these results, showing reduced fasting and post-prandial blood sugar levels, decreased HbA1C, and normalization of inflammatory markers (ESR and WBC counts). This suggests that internal medicines not only supported local wound healing but also contributed to systemic glycemic control.

The observed outcomes align with prior studies on *Maththan Ennai*, which have been shown to enhance collagen synthesis, wound contraction, and tensile strength in both experimental models and clinical settings (Sakthiganapathi et al., 2023; Karunanithi et al., 2019). The formulation's antimicrobial (Elangovan et al., 2013; CP et al., 2020), anti-inflammatory, and rejuvenating properties (Selvaraju et al., 2022) likely played a critical role in infection control and tissue regeneration.

Improvement in glycemic parameters may be attributed to the hypoglycemic effects of *Birammanantha Bairavam* and *Parangi Pathangam* (Kasirajan et al., 2020; Raju et al., 2012), suggesting a dual benefit of this protocol: local wound healing and systemic metabolic regulation.

Overall, this integrated Siddha approach appears to offer a synergistic solution for managing diabetic foot ulcers by simultaneously targeting local pathology and systemic risk factors. Future clinical trials with larger sample sizes are needed to confirm these promising findings and establish standardized treatment protocols.

Conclusion

This case study demonstrates the compelling efficacy of a Siddha treatment protocol, combining topical *Maththan Ennai Thiri* with internal Siddha medicines, in managing a chronic *Madhumega Viranam* (diabetic foot ulcer). Radiological assessment confirmed no bone pathology, allowing targeted soft tissue healing. The treatment resulted in a significant and rapid reduction of the

ulcer's size (from 2x1 cm to 0.2x0.1 cm) and depth (from 4 cm to 0.2 cm) within one month. Clinically, all inflammatory signs (pain, edema, discharge, erythema, pus, tenderness) were significantly reduced or resolved, and the patient's gait normalized. Objective assessment via the PWAT score dropped from 22 to 2, with notable improvement in granulation tissue.*Maththan Ennai Thiri* demonstrated dual action: it promoted local wound healing through antibacterial and anti-inflammatory effects, while internal medicines helped lower blood glucose, essential for diabetes management. This integrated Siddha approach shows promise for both diabetic foot ulcer healing and systemic diabetes control. However, further scientific clinical studies are needed to validate its effectiveness.

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