



Management of Diabetic Foot Ulcer Through Siddha System of Medicine—A Case Series

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KEYWORDS

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ABSTRACT:

Introduction:A diabetic foot ulcer is an open sore or wound that affects roughly 15% of individuals with diabetes, with about 6% of these cases necessitating hospitalization due to complications associated with the ulcer. The harmful effects of hyperglycemia on the host's immune response are intensified by ischemia and the spread of multidrug-resistant bacteria, which can lead to infections in the diabetic limb.

Objective: To evaluate and describe the effectiveness of Siddha internal and external medicine in the management of Diabetic foot ulcer.

Methods :Timely and effective treatment of the ulcer is essential. Hence timely and effective management of the ulcer is mandatory. In the present case series, four cases of DFU were managed with Siddha treatments. The cases were managed according to the standard diabetic foot ulcer management. Siddha principles procedures like vamanam, internal medicine ,external medicine etc. The duration of treatment was around 50-70days

Results: The combination therapy of both internal and external Siddha medicines significantly reduced pain, pus discharge following which the ulcer healed completely. There were no adverse reactions observed during treatment.

Conclusion: Siddha medicine is beneficial in the management of diabetic foot ulcers

Introduction

Diabetes mellitus is the leading etiology of non-traumatic lower extremity amputations, primarily resulting from chronic, non-healing ulcers. Diabetic foot, a significant and devastating complication, is defined as a foot affected by ulceration, neuropathy, and/or peripheral arterial disease in diabetic patients. Diabetic foot ulcer prevalence was 4-10% among diabetic populations. Increased frequency with advancing age of 5% of diabetic patients have a history of foot ulceration. Lifetime risk of developing diabetic foot ulcers was 15%. [1,2,3] Diabetic foot is one of the most feared complications since it carries propensity to reach the proportions of a diabetic foot attack, which is described as a point beyond which it is irreversible, the point of overwhelming necrosis. Diabetic foot is

characterized by a classical triad of neuropathy, ischemia and infection; glucose laden tissue is quite vulnerable for infection and thus ulcer is formed [4] commonly, antibiotics and anti-inflammatory drugs were the preferred treatments for the wound healing. If the ulcer was severe along with deep or gangrene, they referred the case for amputation. [5,6] The rapid socioeconomic change in conjunction with urbanization and industrialization are the major factors for the global increase in the diabetes epidemic, with other associated risk factors such as unhealthy eating habits and a sedentary lifestyle also play an important role which is also becoming rampant in Indian society. The current prevalence of peripheral artery disease (PAD) is 3.2% in diabetics and it is usually associated with



an increase in age and duration of uncontrolled diabetes.[7]

The Siddha system is the oldest medicinal method practiced in the southern parts of India comprising of 32 internal and external therapies. Diabetes and diabetic ulcers have been treated for a long time with a variety of medicinal plants and herbo-mineral Siddha medications. In the Siddha medical system, diabetic ulcers are correlated with Madumega pun. The sixteen varieties of wounds that make up the Siddha basic theory are divided into three main divisions: Vali Viranam, AzhalViranam, and IyaViranam. Wounds falling under the Vali and Azhal categories are treated with oil-based (Thailam) medications, whereas wounds falling under the Iya category are treated with either oil-based (Thailam) or powder-based (Chooranam/Parpam) treatments. [8,9]

Case 1

A 62-year-old male patient came presented with complaints of wound in the right central fore foot ,great toe and index toe along with intense pain and foul-smelling pus discharge since 15 days. He can't able to walk .Patient was apparently normal before 15 days. Initially developed small hyper pigmented painful lesion in right forefoot then gradually developed painful swelling in the upper plantar aspect of right foot along with generalized weakness. After few days the swelling in right foot spontaneously opened with pus discharge causing a painful ulcer in the plantar aspect of right foot which extended up to the dorsal aspect of great toe and index toe. Patient experienced continuous pricking type of pain. Pain gets aggravated while walking and during night time.

Case 2

25 year-old female, known case of diabetes mellitus for 5 years. Patient was apparently normal before 10 days. Past history suggested that she developed small hyperpigmented lesion over the middle forefoot due to trauma while walking barefoot then gradually developed painful swelling in the upper plantar aspect of right foot and 2nd toe. After few days the swelling in right foot spontaneously opened with pus discharge causing a painful ulcer in the plantar aspect of right foot. Patient experiences continuous pricking type of

pain. Pain gets aggravated while walking and during night time.

Case 3

56-year-old male, known case of diabetes mellitus for 14 years came with complaints of blackish discoloration middle plantar aspect of the foot. The ulcer has been accompanied by mild pain, a foul odour, pus discharge. Blackish discoloration surrounding the ulcer with punched out edges and necrosed tissue on the floor. Initially, the patient received conservative treatment by a local physician with antibiotics and dressing, but the condition of the patient started deteriorating as she did not respond well to oral medications and she came to our hospital.

Case 4

45-year-old female, known case of diabetes mellitus for 10 years, came with complaints of painful hyperpigmented lesion in dorsum of the foot in the forefoot below the little finger. The wound presented with foul odour, pus discharge, mild blackish discoloration surrounding it. The patient had pricking pain in and around the ulcer area. Pain gets aggravated while walking and during night time.

Case 5

51-year-old male, known case of diabetes mellitus for 12 years, came with complaints of small hyper pigmented lesion in dorsum of the foot in the forefoot. After 5 days the ulcer started to spread all over the dorsum aspect foot. The wound presented with foul odour, pus discharge,. The patient had pain in and around the ulcer area and difficulty in walking.

Diagnostic assessment

The clinical examination was based on the size, shape, margin, floor and depth of the ulcer. All DFU patients were diagnosed using the Wagner classification, which included case 1 (Grade II), case 2 (Grade II), case 3 (Grade III), case 4 (Grade II). After analyzing the signs and symptoms according to *Siddha* principles, the patients were diagnosed as *Madhumega viranam* (Diabetic ulcer and treatment was planned accordingly [10] .



Siddha management:

The wound was washed with Triphala Choornam decoction and dressed with Rana Thailam after complete the appropriate examinations. Wound was analyzed in the following three ways. Severity of the ulcer was measured by Wagner classification. According to the Siddha system, purgative is the initial

procedure to neutralize the Mukkutram (Three humors in Siddha). All the patient was prescribed oral administration of Raja peathi ennai 1ml with ginger juice for the Purgation on early morning. After the seven to ten times of loose stools, bowel rest was advised. The duration of Internal medicine were given according to the patient condition and improvement.

Case 1



Day 1



Day 25



Day 48

Case 2



Day 1



Day 22



Day 48

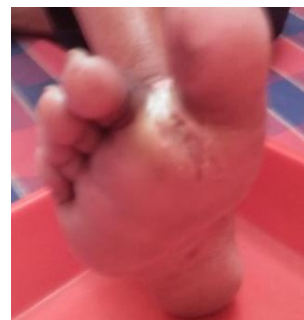
Case 3



Day 1



Day 48



Day 70



Case 4



Day 20



Day 48



Case 5



Day 1



Day 48

Table :1 Siddha intervention

Medicine	Dosage	Adjuvant	Time of Administration
Raja peathiennai	1ml	Ginger juice	Early morning empty stomach
Abraga chenduram	130mg	Avaraikudineer	After food twice a day
Perumarunthu + Sirukurunjan chooranam	4g	Hot Water	After food twice a day
Thiripala chooranam	Needed quantity	-	External -Decoction of medicine is used to clean the wound
Ranathylam	Needed quantity	-	Apply on affected area

Table :2

Subject	Wagner classification before Treatment	Wagner classification after Treatment	Percentage of Improvement	Duration of the treatment
Case 1	Grade II	No ulcer seen	100%	48 days
Case 2	Grade II	No ulcer seen	100%	48days



Case 3	Grade III	No ulcer seen	100%	70days
Case 4	Grade IV	No ulcer seen	100%	48days
Case 5	Grade IV	No ulcer seen	100%	48days

Results and Discussion:

5 subjects included 3 male patients and 2 female patients with the between age of 25-65 years. The individual case data were collected and examined. The patients with Wagner classification II and without signs of septicemia were well managed on pure Siddha treatment both internally and externally, which has given good results. The ulcer in Case 3 with Wagner classification III, healed in 70 days, whereas the other cases took approximately 50 days. The percentage of improvement ranges from 90% to 100% which is shown on table 2.

Diabetic Foot Ulcers (DFUs) are a chronic and distressing complication for individuals with diabetes, severely impacting daily activities and overall well-being. Controlling blood sugar levels, avoiding infections, and preventing damage to peripheral nerve tissue are all important aspects of managing diabetic foot ulcer. Internal medicine along with Rana Thylam was applied around the wound which induces the granulation tissue formation on the wound bed that can be appreciated macroscopically within 10 days and the entire closure of the exposed bone tissue occurs within 45 days. Rana thylam was the preferred medicine for tissue regeneration. Triphala Chooranam decoction wash was instructed to the patient every day for cleansing the debris for its antioxidant and antimicrobial activity. The astringent activity of the Thiripala chooranam causes protein precipitation on the surface layer leading to sealing of the wound layer. Traditional medicine has long recognized the therapeutic potential of medicinal plants in addressing a range of health issues. Thiripala Chooranam, a polyherbal Siddha formulation, exemplifies this approach, demonstrating efficacy in the treatment of Gastric ulcers, Skin diseases, Constipation, Hemorrhoids, Wound healing[11]

In the Siddha system of medicine, gymnema is referred to as "Sirukurunjan," with both the dried leaves and

dried roots employed for therapeutic purposes.[12] The leaves of this plant are particularly utilized for their properties as a digestive aid, antiviral, diuretic, antiallergic, hypoglycemic, and hypolipidemic agent.[13,14,15]

In this endeavor, Abraga chenduram were incurred for internal medications meant for diabetes.[14] Abraga chenduram is proved to have a dose dependent alpha-glucosidase inhibitory activity.[15]. After treatment, the diabetic foot ulcer completely healed, demonstrating positive outcomes. The patient continued taking similar medications for a month during the follow-up period, with no signs of recurrence. Importantly, no adverse reactions to the medications were observed during or after the treatment period.

Conclusion:

Siddha medicine is beneficial in the management of diabetic foot ulcers because it not only focus on the ulcer but also the hyperglycemia in the blood. Effectively, this would help to reduce the infection and cut down on the instances of amputations and plastic surgery, therefore increasing the quality of life for patients and reducing the costs associated with the treatment of diabetic foot ulcer.

PATIENT PERSPECTIVES:

The patients self-reported that they were satisfied with the treatment as they experienced reduction in pain and fast wound healing. Their quality of life was improved.

INFORMED CONSENT:

The authors certify that they have obtained all appropriate written informed consent from the patients. The patients given consent for images and other clinical information to be reported in the journal. The patients assured that their name and personal information will not be published and efforts will be made to conceal their identity.



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CONFLICT OF INTEREST:

None

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