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Response Of Diabetic Wound to Pachai Ennai in Siddha System --A Single Case Study Report

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ABSTRACT

People with diabetes mellitus can develop many different complications. Diabetic wounds are the most dreaded complication of diabetes mellitus due to peripheral neuropathy and peripheral arterial insufficiency. Diabetic foot disease is associated with major morbidity, mortality, and also a reduction in a person's quality of life. In Siddha literature, a diabetic foot ulcer (DFU) is referred to as a Madumega pun (a diabetic wound). A 55-year old female, post-menopausal woman, house wife was admitted to the Inpatient department of Sairam Siddha medical college & research center and hospital with complaints of an ulcer present in the big toe (plantar surface) of her right foot with pain. Pain, mild to moderate oozing, and mild swelling in the peri-wound area have changed gait for the past year, related to a known case of diabetes for 5 years. While examining the wound, which is unhealthy, no significant granulations seem to be covered with necrotic tissues that show a predominantly black color, which measures about 1.5*2.5*1cm in size. The severity of the ulcer was measured by the diabetic ulcer severity score (DUSS), classification of the ulcer by the 'Wagner Ulcer Classification system, and prognosis by the 'Leg Ulcer Measurement Tool. To draw special attention to DFU and to focus on siddha medication internally and externally with Madumega Chooranam-Anti diabetic siddha drug and Pachai Ennai (matthan thylam-wound healing external oil) respectively, The use of siddha medicine has the potential to heal nearly 90% of diabetic wounds (diabetic foot ulcers) and result in lower blood sugar levels.They may perhaps have a huge impact on the healing process, falling infection rates, amputations, plastic surgeries, and humanising the overall quality of life, reducing the monetary burden of treating DFU.

INTRODUCTION

Nowadays, diabetes melitus is a common disease worldwide. Global diabetes prevalence in 2019 is estimated to be 9.3% (463 million people), rising to 10.2% (578 million) by 2030 and 10.9% (700 million) by 2045. The prevalence is higher in urban (10.8%) than in rural (7.2%) areas, and in high-income (10.4%) than in low-income countries (4.0%). About 422 million people worldwide have diabetes, the majority living in low-and middle-income countries, and 1.6 million deaths are directly attributed to diabetes each year. Both the number of cases and the prevalence of diabetes have been steadily increasing over the past few decades.

People with diabetes mellitus can develop many different problems, sometimes leading to severe complications like diabetic neuropathy, nephropathy, and retinopathy. Diabetic wounds are the most dreaded complication of diabetes mellitus due to peripheral neuropathy and peripheral arterial insufficiency. Diabetic neuropathy is nerve damage in diabetic patients, resulting in diabetic foot.It may lead to a secondary complication in the form of DIABETIC FOOT ULCER, which is an open wound commonly located on the bottom of the foot. In Siddha literature, diabetic foot ulcer (DFU) is referred to

as Madhu mega pun (Diabetic Ulcer) or "Diabetic Ulcer" in Siddha literature. DFU is defined as a foot affected by an ulcer associated with neuropathy.

Diabetic foot disease is associated with major morbidity, mortality, and also a reduction in a person's quality of life. Around 15% of people with diabetes will develop foot ulceration during their lifetime, and 5–24% of them will eventually lead to limb amputation within a period of 6–18 months after the first assessment. MaththanTaylam (pachai ennai), a herbo-mineral classical Siddha formulation [1], is used as a remedy for healing suppurative wounds and is very useful in healing diabetic ulcers. PACHAI ENNAI is one of the best siddha medicines to cure a diabetic wound and prevent major complications like amputation.

This case study report outlines the response of siddha medicine to the successful management and healing of a diabetic wound. Here, we report the case of Madhu mega Pun, or (chronic non-healing diabetic foot ulcer) on the plantar surface of the right big toe, which was treated with internal and external Siddha medicine. The case patient was treated internally by Madhu mega chooranam (an Anti-Diabetic Siddha drug) and externally by Patchai ennai-Maththan Thailam (Wound Healing Siddha external oil).**Declaration of Patient consent**

The authors certify that they have obtained all appropriate written informed consent from the patients for the publication of this case report and accompanying images

CASE HISTORY

Name	: XXXXXX
Age	:55 Years
Sex	: Female
Marital Status	:Married
Menstrual History	: Attained Menopause
Complaints	: An Ulcer on the plantar aspect of big toe measuring about 1.5x2.5x1 cm size since 1 year.DM since 5 years.
O/E	:Mild pain and swelling,Mild to moderate oozing, No significant granulationsseem to be covered with black colour, Necroticfibers predominantly
Place	:Sri Sai Ram Siddha Medical College Hospital, Tambaram

CASE REPORT:

A 55-year-old female housewife from the uptown area of Chennai, Tamil Nadu, was admitted to the in-patient department of Sri Sai Ram Siddha Medical College Hospital, west Tambaram, for 1 year with complaints of altered gait, mild pain and swelling in the peri-wound area, no significant granulations, and appearing to be covered with black colour necrotic granulations.

The patient was admitted to the IPD female ward, and the wound was cleaned and dressed with Maththan Thaylam after completing the appropriate examinations. The wound was analyzed in the following three ways:

1. The severity of the ulcer was measured by the DUSS (Diabetic Ulcer Severity Score) 14 In the DUSS assessment, the patient had pedal polices, probing to bone, and a toe ulcer numbered in singles. He scored about 1 out of 4.
2. Classification of Ulcer was measured by the 'Wagner Ulcer Classification System (WUCS) 15, In the WUCS assessment, the patient has Grade 2 (ulcer extends to ligaments, tendons, deep fascia without abscess).
3. Characteristics of Ulcer and patient satisfaction were measured by the 'Leg Ulcer Measurement Tool (LUMT) 16. Clinician Rated Domains it has 14 assessment questions rated by the clinician. Score about 20/56 and Patient Rated Domain (PRD) it has 3 assessment questions rated by the patients. Score about 4/12.

On the second day, blood and urine samples were collected for investigations, and the daily wound was cleaned with Thiripala wash and dressed with Maththan Thaylam. According to the Siddha structure, purgative is the early process to counter balance the Mukkutram (Three humours in Siddha). The patient was advised to take the oral route of Vellai Ennai – 15 ml for the mild purgative on the early morning of the third day. Following that, motion gut rest was advised for five times the loose stools. For oral administration on the fourth day, 2 g twice a day is recommended for Mathu mega Chooranam. Siddha medicines were ordered for 8 weeks. (Table 1).

Every day, the ulcer was cleaned and dressed. The oozing was stopped completely, and the pain and swelling in the peri-wound area were reduced.The depth of the ulcer was reduced, and granulation tissues developed around the edges. Swelling and pain in the peri-wound area disappeared; gait returned to normal in the 4th week. The depth of the wound was closed. Necrotic tissues completely disappeared and granulation tissues covered the wound area in the 6th week of treatment (Figure 4). In the eighth week, blood and urine were collected for the investigation. There was a reduction in raised ESR and a raised level of haemoglobin (Table 2). In biochemical markers, blood sugar levels come to a normal limit (Table 3).

On the day of discharge (Figure 5), the ulcer was analysed by the measuring tools of DUSS, WUCS, and LUMT. DUSS scores nil, WUCS scores zero, and LUMT scores four out of fifty-six. The whole restoration of the wound and corresponding ongoing treatment was prescribed on the day of discharge. This exposed good results. The same medicines were continued for 2 months in the follow-up period. During the follow-up period, no recurrence was observed. No adverse drug reactions were observed during treatment and the follow-up period.

TREATMENT

- Mathumegachooranam – 2 gm. bd with Water
- Thiripala chooranam – External wash
- PACHAI ENNAI – Dressing the wound

- Treatment Period – 2 months

Table 1: Siddha Treatment & Observation

Day 1	Patient was admitted in IPD Female ward. Wound was cleaned with Thiripala wash and dressed with Maththan Thailam regularly
Day 2	Blood and Urine sample were collected for investigation
Day 3	Vellai Ennai 15 ml was given at the morning as a single dose for purgation therapy to regulate the Mukkutram (Three humors)
Day 4	Mathumega Chooranam -2gm twice daily with watergiven orally.
Week 1	Mild oozing in the wound was completely stopped.
Week 2	Pain and Swelling in the Peri-wound area was reduced
Week 3	Swelling and painin the peri-wound area were disappeared
Week 4	Depth of the wound was reduced, granulation tissues developed in the edges of the ulcer
Week 6	Blood and Urine samples were collected for the Investigations Necrotic tissues were completely disappeared,
Week 7	granulation tissues were covered the wound area
Week8	Wound was completely closed by the epithelial cells
Follow up	No recurrence was observed

Table 2.Comparative HematologicalParameters of the patient

Hematological Parameters	At the time of Admission	Before Discharge
Total count (cells/cumm)	8000	8200
Neutrophil %	65	70
Lymphocyte %	30	28
Eosinophil %	6	3
Basophil %	0	0
Monocyte %	0	0
ESR (mm/hr.)	40	20
Haemoglobin(gm%)	8.6	10.2

ESR*Erythrocyte Sedimentation Rate

Table 3.Comparative Bio Chemical Parametersof the patient

Biochemical Parameters	At the time of Admission	Before Discharge
FBS (mg/dl)	180	90
PPBS (mg/dl	318	176
HbA1c (%)	7.3	5.8
Urine Examination		
Albumin	-	-
Sugar	+ + + +	Nil
Deposit	Pus cells – occasionally Epithelial cell – occasionally Casts & crystals- Nil	Pus cells – Nil Epithelial cell – occasionally Casts & crystals- Nil

*FBS: Fasting blood sugar, PPBS: Postprandial blood sugar, HbA1c: glycated Hemoglobin

Fig.1Day I

Fig.2 Week II

Fig. 3Week IV

Fig:4 Week VI

Fig.5 Week VIII

Diabetic wound is healed 95% at the end of treatment

DISCUSSION

In this intervention, Pachai Ennai is the commonly used Siddha topical medicine for wound healing; quoted as Maththan Thaylam in the Siddha literature, for external medication of chronic and non-curable ulcers.

The ingredients of Maththanthailam are coconut oil, copper sulphate, Datura metel, and Acalypha indica. A histopathological study found increased fibroblast proliferation and neovascularization in Coconut Oil-treated wounds compared to controls19. Datura metel extract was used in the wound and has significant antibacterial activity against Staphylococcus aureus and Pseudomonas aeruginosa 20.And copper is an essential mineral that plays an important role in angiogenesis, skin generation and representation, and extracellular skin protein maintenance 21. Acalypha indica plant extract has adequate wound curing properties 22.

So, this case study confirms the response of the diabetic wound healing process of Maththan Thailam-Pachai Ennai. It has satisfactory improvement in the non-healing chronic diabetic foot ulcers based on the assessment tools of LUMT, DUSS, and WUCS, which compared the before and after treatment. The blood sugar level fasting was 90 mg/dl and postprandial was 176 mg/dl, extremely low compared to the initial levels. The patient's QOL was acceptably improved. 95 % of the wound was healed with normal gait, absence of pain, and the patient's QOL was acceptably improved.

CONCLUSION

Intervention by Siddha medicine can potentially cure or decrease the size of the foot ulcers associated with diabetes. As a result, PACHAI ENNAI is the best siddha medicine for treating diabetic wounds and preventing major complications such as amputation. They could have a significant impact on reducing infection rates, amputations, and plastic surgeries, as well as improving overall quality of life and lowering the economic burden of treating DFU.The greatest outcome from this case study is the control of diabetic complications and short-term improvement from DFU at a low cost. in comparison to other medical systems

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