Effectiveness of topical application of siddha medicine for chronic non-healing lower extremity ulcer

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ABSTRACT

A chronic ulcer is that, which does not heal within three months. Diabetic, arterial and venous ulcers are the common cause for non-healing lower extremity ulcers. The prevalence of chronic leg ulcers is 0.6-3% in people over 60 years and 5% in those over 80 years. Here, we report a case series of 6 patients with chronic non-healing ulcers. All the 6 patients received topical application of Siddha medicine. 'Leg Ulcer Measurement Tool (LUMT)' scoring system was used to assess the severity, prognosis and for follow-up treatment. After the 6 weeks of treatment, 33% (n=2) have ulcer size more than 5cm, 16% (n=1) have exudate in their ulcers, none of them have necrotic tissues, leg edema and peri-ulcer affected skin in their ulcers. It was found that the patients treated with Siddha medicine have satisfactory improvement in the non-healing lower extremity ulcers.

Key words: *Chronic wound, Leg ulcer, Muthuchippi parpam, Maththan thailam, Siddha external therapy*

Chronic non-healing lower extremity ulcer also known as chronic leg ulcer (CLU) is a chronic wound of the leg that shows no tendency to heal even after 3 months of appropriate treatment (1). The incidence of such ulceration is rising because of the aging population and increased risk factors for atherosclerotic occlusion such as smoking, obesity, and diabetes (2). Inappropriate treatment for the acute traumatic wounds is also the most common cause of the chronic wound. These chronic wounds result from chronic venous insufficiency which may be complicated by concomitant arterial macro or micro-angiopathy (3). The symptoms of CLU are increasing pain, friable granulation tissue, foul odor, and wound breakdown instead of healing. This results in social distress and considerable healthcare and personnel costs (4).

According to the Wound Healing Society, commonly older adults suffer from chronic wounds, including predominantly venous stasis ulcers, pressure ulcers (bedsores), and diabetic (neuropathic) foot ulcers. In India, the prevalence of chronic wound is 4.5 per 1000 population and the incidence of acute wounds is more than double at 10.5 per 1000 population. Chronic leg ulcers affect 0.6–3% of those aged over 60 years, increasing to over 5% of those aged over 80 years (5). CLU is a common cause of morbidity, and its prevalence in the community ranges from 1.9% to 13.1% (6). During the lifetime, almost 10% of the population will develop a chronic wound, with a wound-related mortality rate of 2.5% (7). Here, we report a case series of six patients of chronic non-healing lower extremity ulcers, which were treated with topical application of Siddha medicine.

CASE SERIES

Six subjects with chronic lower extremity ulcers of various etiologies (arterial, venous, diabetes) came to the outpatient department of a Siddha institute at Chennai. They were treated with the following three Group of medicine, which was tropically applied over the ulcers: *Maththan Thailam, Palagarai Parpam* and *Muthuchippi Parpam*. The dressing with Siddha tropical applications were applied to Venous leg ulcers (n = 03) Diabetic foot ulcer (n=01) and arterial leg ulcers (n = 02) and the ulcer patients were monitored for 6 weeks. Ulcers were completely analyzed by the wound measurement tool called "Leg Ulcer Measurement Tool" (LUMT). LUMT have two domains, one is Clinician-Rated Domain (CRD), which has 14 assessment questions rated by the clinician and the other one is Patient-Rated Domain (PRD), which has 3 assessment questions rated by the patients. Written informed consent was obtained from the patients for the publication of this case series and accompanying images.

Case 1: A 52-years-old male working as a driver from the suburban area of Chennai, having a deep ulcer in the left leg just distal from the knee joint, pain around the ulcer, watery discharge and difficult to stand for a long time. The characteristic of ulcer was a punched-out look, round in shape, with well-defined and deep for the period of 7 months. He had a history of diabetes and

hypertension for the past 7 years along with proper medication and a history of smoking and alcohol for 30 years. The patient was clinically diagnosed as Arterial Ulcer was observed by the Leg Ulcer Measurement Tool (LUMT) scale and scored 18/68 before treatment. Ulcer was cleaned and dressed in Siddha medicines *"Maththan thailam and Palagarai Parpam"* externally on alternate days for 6 weeks. After 6 weeks, the LUMT score was 12/68 and the quality of life (QoL) of the patient was improved (fig-1: Case-1).

Case 2: A 49-years-old male working as a farmer in the village near Chennai having the ulcer in the distal part of the right fourth toe for 4 months. He was diagnosed as arterial ischemic ulcer by the following chief complaints of severe pain in the toe, watery discharge, peri-wound edema and blackish discoloration. The patient had a history of diabetes for the past 10 years with regular medication and a chronic smoker from the last past 25 years. He was observed by the LUMT scale and scored 21/68 at the time of before treatment. The ulcer was cleaned and dressed in Siddha medicine medicines *"Maththan thailam and Palagarai Parpam"* externally on alternate days for 6 weeks in the outpatient department. After 6 weeks, the LUMT score was 06/68 and the QOL of the patients was improved (fig-1: Case-2).

Case 3: A 55-year-old male having venous ulcer located in the left leg for the period of three and half months. There was no history of diabetes and hypertension. He was observed by the LUMT scale and scored 28/68 at the time of before treatment. The ulcer was cleaned and dressed in Siddha medicine medicines *"Maththan thailam"* externally on alternate days for 6 weeks. After 6 weeks, the LUMT score was 14/68 and the QOL of the patients was improved (fig-1: Case 3).

Case 4: A 58-years-old female having varicose ulcer located in the right ankle joint around the medial malleolus for a period of 5 months. She had a chief complains of pain, oozing, swelling in the peri-wound area, difficult to walk and stand. She had a history of diabetes for 4 years and hypertension for the past 3 years with irregular medication. She had torturous veins on her both legs in the past 2 years and she diagnosed as *Naala vibatha pun* (Varicose ulcer) in Siddha. She was observed by the LUMT scale and scored 17/68 at the time of before treatment. The ulcer was cleaned and dressed in medicines *"Maththan thailam"* externally on alternate days for 6 weeks in the outpatient department. After 6 weeks, the LUMT score was 12/68 and the QOL of the patients was improved ((fig-1: Case-4).

Case 5: A 48-year-old male having venous ulcer located in the left ankle joint for a period of 12 months. He had a history of diabetes for the past 3 years along with proper medication. He was observed by the LUMT scale and scored 21/68 at the time of before treatment. The ulcer was cleaned and dressed in medicines *"Maththan thailam and Muthuchippi Parpam"* externally on alternate days for 6 weeks. After 6 weeks, the LUMT score was 05/68 and the QOL of the patients was improved (fig-1: Case-5).

Case 6: A 60-year-old male having diabetic foot ulcer located in the left foot the period of 16 months. He had a history of diabetes for the past 12 years with insulin therapy and hypertension for the past 10 years along with proper medication. Also, he has Chronic Kidney Disease (CKD) for the past 5 years with medication. He

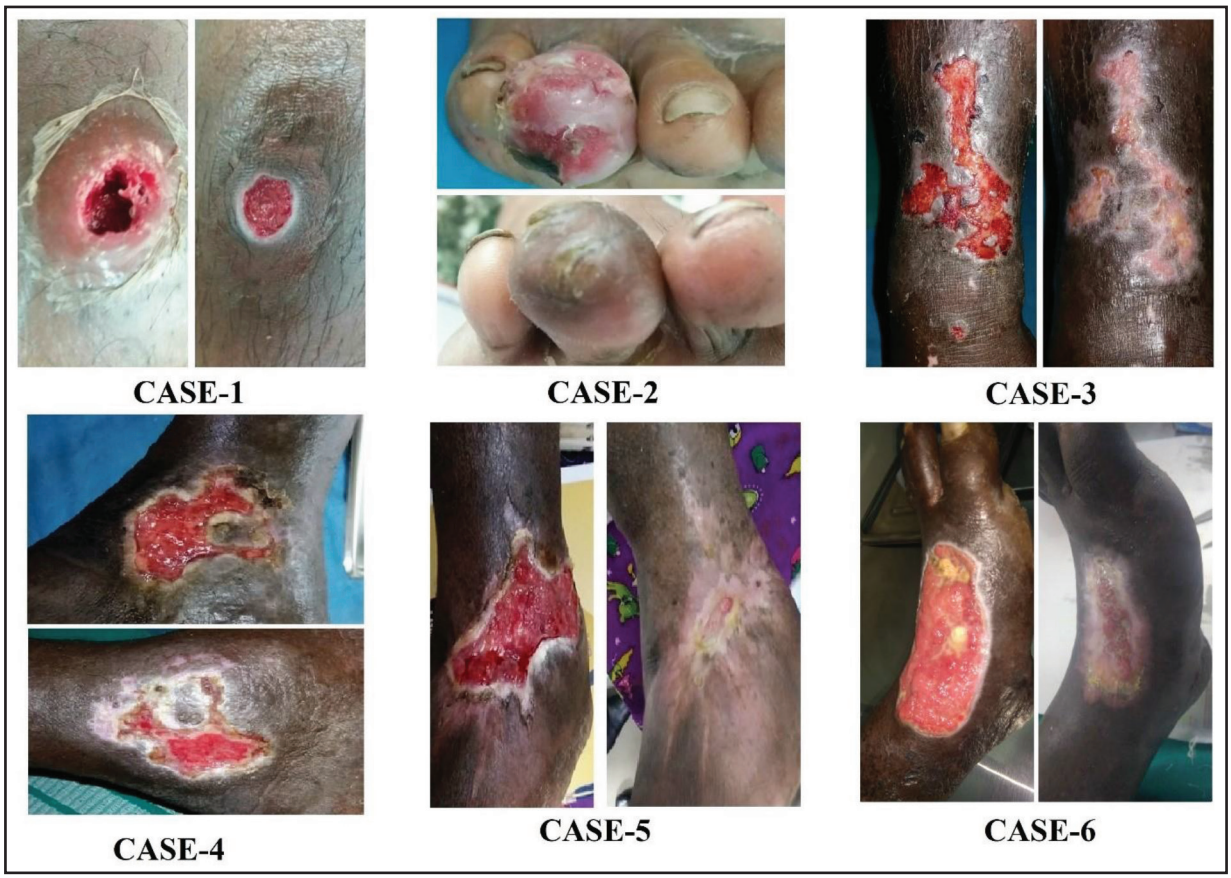

Figure 1: Cases before and after application of Siddha medicine

Table-1: Paired Samples Test

Medicine	Treatment	Paired Differences					T	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
MTP	Before_Treatment - After_Treatment	10.50000	6.36396	4.50000	-46.67792	67.67792	2.333	1	0.258
M	Before_Treatment - After_Treatment	9.50000	6.36396	4.50000	-47.67792	66.67792	2.111	1	0.282
MTM	Before_Treatment - After_Treatment	18.00000	2.82843	2.00000	-7.41241	43.41241	9.000	1	0.070

MTP: Maththan thailam along with Palagarai Parpam; Maththan thailam (M); Muthuchippi parpam (MTM)

was observed by the LUMT scale and scored 25/68 at the time of before treatment. The ulcer was cleaned and dressed in medicines *"Maththan thailam and Muthuchippi Parpam"* externally on alternate days for 6 weeks. After 6 weeks, the LUMT score was 05/68 and the QOL of the patients was improved (fig-1: Case-6).

The statistical methods used in the data analysis depend on the type of outcome. The comparison of differences between two samples of before and after treatment of LUMT scores was used for the paired t-test (for matched samples).

After the 6 weeks of treatment, in all the six cases, the QOL was improved. The size of the ulcer, exudate, necrotic tissues, callus in the peri-ulcer skin was also reduced (Fig-1). According to the LUMT score, before treatment 66.6% (n=4) of patients have ulcer size more than 5cm, 83% (n=5) have exudate in their ulcers, 33% (n=2) have necrotic tissues in their ulcers, 66% (n=4) have peri-ulcer area affected by dermatitis or erythema or callus, 16% (n=1) have edema in the leg. These were calculated by the CRD. Among 6 patients, 50% (n=3) of them said that they have constant pain due to the ulcer and the rest 50% (n=3) said that the pain was position dependent. After the 6 weeks of treatment, only 33% (n=2) have ulcer size more than 5cm, 16% (n=1) have exudate in their ulcers, none of them have necrotic tissues, leg edema and peri-ulcer affected skin in their ulcers. 16% (n=1) of patients said that they have constant pain due to the ulcer and 16% (n=1) of them said that the pain presents only in position dependent. The medicines (Maththan Thailam and Muthuchippi parpam) have the satisfactory improvement in the non-healing lower extremity ulcers based on the comparison of the p-values calculated by paired samples t-Test of the three-treatment category (Table 1).

DISCUSSION

Wounds are classified into two major divisions in the Siddha System of medicine, that is Thushtta viranam (Healing Ulcers) and Athushtta viranam(Non-healing Ulcers). The chronic non-healing ulcers are called *'Natpatta Athushta Viranam'* (8). According to the Siddha fundamental theory, wounds are classified into 16 types, these types are comprised in the 3 major divisions that are: *Vali Viranam, Azhal Viranam and Iya Viranam*. *Vali* and *Azhal* category of the wound are treated with oil based (*Thailam*) medicines and *Iya* category of wounds are treated with oil (*Thailam*) or powder-based (*Chooranam/Parpam*) medicines. Ulcers are also treated by various external therapies like *Kattu (Bandage), Poochu (Liquide application), Podi (Powder), Kalimbu (Ointment), kaaram (Chemical cautery), seelai (Medicated gauze),* which is mentioned in the Siddha system (9).

In this study, 6 patients were observed during the Siddha treatment. Among these, two patients who come under the *Iya Viranam,* received *Maththan thailam* (10) along with *Palagarai Parpam* (11) (MTP). Two of them, who are all under the *Iya Viranam* received *Maththan thailam* along with *Muthuchippi parpam* (11) (MTM) externally and the remaining two, who are under the *Azhal Viranam* received only *Maththan thailam* (MT) medicine externally.

In this intervention, *Maththan thailam* is the commonly used Siddha tropical medicine for wound healing, *Palagarai Parpam* and *Muthuchippi parpam* are quoted for internal medications in the Siddha literature (9). Calcium-containing Siddha medicines were used externally to treat the ulcers as calcium is released from dressing into the circulation and it influences cell migration and remodeling in skin wounds (12). Additionally, calcium ion might have a significant role in the granulation tissue development (13). *Palagarai* (Cypraea moneta Linn) contain 91.35% of calcium substance (14) and *Muthuchippi* (Pearl oyster shell) *Parpam* is also a rich source of calcium carbonate (15). Aqueous extract of *Muthuchippi parpam* possessess significant anti-microbial activity (16).

The medicines (Maththan Thailam and Muthuchippi parpam) have satisfactory improvement in the healing of chronic lower extremity ulcers based on the comparison of the p-values calculated by paired samples t-Test of the three-treatment category.

CONCLUSION

According to Hippocrates, "Healing is a matter of time, but it is sometimes also a matter of opportunity". The time and

opportunity are ascertained by the medicines. After 6 weeks of treatment, MTP treated patients were found to have satisfactory healing against chronic non-healing lower extremity ulcers, compared with the other two groups of medicine. The quality of life was satisfactory for all the patients involved in the study.

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