

Management of diabetic wound using a Siddha Ayurveda treatment approach including *Manjal karasealai* (corrosive gauze) - A case study

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Abstract

Chronic diabetic wounds are encountered as a major health problem and produced the complications of trauma. It causes long-term agony to the patients and as recurrences and post-operative complications. Consequently 'Karam (Kshara)' - Traditional wound healing takes good hope in diabetic wound healing. This study was formulated to perceive wound healing sequels of "*Manjal karasealai*" (yellow corrosive gauze) on diabetic wound management. A diabetic female patient aged 65 years with having a chronic wound on the right foot was selected for this study. This lesion started six months ago and surgical wound management was done. Subsequently, the patient experienced mild symptomatic relief but it relapses repeatedly. The patient resorted to Siddha Ayurveda treatment. At first, the wound was cleaned with *Tripala* decoction and the fistula was identified. 'Kshara' technique was applied to treat this fistula as "*Manjal karasealai*" and inserted into the fistula by using the probe. Internal medication was given to maintain random blood sugar level below 200mg/dl. *Manjal Karasealai* was inserted in every other day. Size of the wound was measured for healing along with photographic images. In the end, the wound showed features of complete healing. This case study disclosed an effective wound debridement action of *Manjal karasealai* on a chronic diabetic wound.

Keywords: Diabetic wound, *Manjal karasealai* (corrosive gauze), wound tunneling

Introduction

Diabetic ulcers most commonly occur on the plantar surface of the foot underneath the pressure point. An epidemiologically most common cause of diabetic patients getting hospitalized with diabetic foot ulcers. As many as 15% of people with diabetes have foot ulceration and its related complications¹ and 3% have a lower limb amputation². Non-healing diabetic wounds has become a major challenge in managing due to the distant concern of it possesses. Increased Sugar in diabetes may cause slight injury to the glucose-laden tissue infection and ulcer formation. Increased sugar favors the propensity of bacteria to multiply and cause severe spreading infections. Diabetic micro-angiopathic ulceration may be precipitated by ischemia due to diabetic atherosclerosis, as a result of which blood supply to the tissues is grossly compromised. In diabetic neuropathy, the peripheral nerves are affected as diminished or no sensations, so the result the patient experiences no pain and sustains injuries. For the confirmation of diagnosis certain other conditions causing delayed healing are considered like atherosclerosis, chronic venous insufficiency, vasculitic neuro-pathies, metabolic neuropathies, autonomic neuropathy, and radiculopathy. All diabetic patients need a thorough foot examination around nail beds and between webs of fingers to check for any swelling, rash, cut or any underlying fungal infection is mandatory. A persistent treatment modality is essential for the evolvment in the management.

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Diabetic wound management is a significant and growing health burden on the community³. Delayed wound healing and wound infection place a substantial financial burden on health care systems, as a result of increased dependency and increased admissions and hospital stays. Chronic wounds also have a very large social and quality of life impact on individuals and curers⁴. After the injury, healing is a natural phenomenon and continues in a sequential manner until the formation of a healthy scar. Usually, the defense mechanisms of the body take complete care in order to keep the scar clean. But at times, when the infection is massive, surface area of the wound is very large and slough or necrotic tissue is too much, this auto cleansing mechanism becomes inadequate⁵. The objective of this study was to perceive wound healing sequels of “*Manjal karasealai*” (yellow corrosive gauze - herbo mineral Siddha formula) on diabetic wound management and internal medicine is enhancing the wound healing process.

Ingredients of *Manjal karam* (Reference Akathiyar rana nool -1975)

- *Curcuma longa* Powder
 - Yellow oxide of Arsenic (synthetic)
 - Yellow Arsenic Trisulphide
 - Galena Sulphide (Lead ore)
 - Limestone
 - Sulphate of zinc
 - Resin of *Shorea robusta*
- each of the same amount

All ingredients total weight amount of white cloth mixed and grinding as powder forms and mixed sterile water or Glycerin and mixed semisolid liquid form (Figure 01).

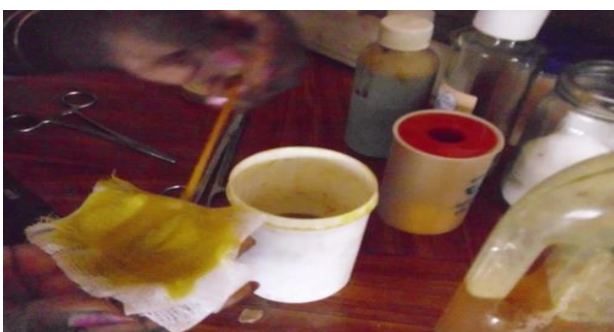


Fig: 01: Gauze preparation of yellow corrosive oil
Anpuchelvy et.al. Management of diabetic wound

Case Report

A female patient aged 65 years presented with complaints of ulceration right side of the foot, blackish discoloration, and oozing of serous fluid with a foul smell for the last three months. The lesion started six months before with bluish discoloration on the dorsum of the foot then it gets reddish with a blister, then the pus oozes from the wound and it gradually spread over the foot skin with itching, serious watery foul smell secretion. The patient obtained surgical management at an allopathic hospital. Thereafter patient got mild symptomatic relief but it relapses repeatedly. Consequently, the patient seeks Siddha Ayurveda treatment and her health problem was diagnosed as a chronic diabetic wound.

On physical examination

The general condition of the patient was good; her pulse was 82/ min, regular; BP was 120 / 70 mm Hg, respiratory rate was 20 /min regular, with a history of diabetes mellitus with a Random Blood Sugar level of 123mg/dl.

Wound management

At first, the wound was cleaned with *Tripala* decoction (herbal antiseptic lotion) to prevent the growth of harmful microorganisms and a fistula was identified. A special traditional wound healing ‘*Kshara*’ technique was employed to treat this wound fistula and Medicated thread known as “*Manjal karasealai*” (corrosive gauze) was used (Figures 02 and 03). *Manjal karasealai* is prepared by repeatedly soaking sterilized gauze in a solution of *Manjal karam* (medicated alkaline mixture) “*Manjal karam*” also applied over the adjoining wound and bandaging is done.

Post-wound management

The wound was cleaned and *Manjal karasealai* was changed every other day. Random blood sugar levels were also monitored and maintained below 150mg/dl.

Details of oral drugs

Initially, oral medication was given for 7 days to the patient for *Pachana*. *Panchatheppakni churnam* 3g with hot water morning and evening. *Kaishoor Guggulu* 2 tablets (500 mg each tablet) tds, 1 h after

food, *Arogyavardhani vati* 2 tablet (250mg each tablet) tds, *Thripala churnam* 4 g bd with hot water.



Fig. 02: Probing into the wound fistula



Fig. 03: Application of *Manjal karasealai* through the Fistula of the wound

In the second week

Continued with initial medication with wound healing *Churnam* 3g bd with hot water. *Sutharsana*, tab 2 bd, with hot water, *Seenthil kudineer* 60 ml bd 1 hour before food, and *Kadukai chunam* 3g with hot water at bedtime. All these medications were continued for two months. The patient was advised to continue the allopathic treatment (diabetic) and dietary advice to maintain a random blood sugar level below 150 mg/dl.

After the 10th day of treatment, foul smelling and profuse discharge was completely stopped and the wound showed more necrotic features than expected. So, the procedure was repeated on every visit. Clinical features and size of the wound were

measured during different stages of healing along with photographic images. At the end of the treatment wound showed features of complete healing (Figures 04 and 04).



Fig. 04: At the end of the treatment



Fig. 05: At the end of the treatment

Result and Discussion

The diabetic wound is one of the types of chronic wound with complications and is difficult to treat. Agasthiyar described treatment modalities to treat different types of wounds and mentioned “*Karam*” is *Thrithosam* (three functional elements of the body) hence a single drug, which acts all the three doshas. The great Siddha surgeon “Akasthiyar” narrated *Kara* techniques and the use of *kara* for the different types of wounds⁶. Several corrosive gauzes are named based on their colour. Thus, it is named as green, yellow, black and blue corrosive plasters in Siddha medicine. Similarly, corrosive liquids are named by their colour to clean ulcers. All of them

are indicated for external use in chronic ulcers. So far there is no research report regarding their use in actual practice⁷. The application of corrosive drugs (*Karam*) to heal chronic ulcers is one, of the 32 forms of external drugs in Siddha medicine. Agathiyar Rana Vaithiyam and Agathiyar Rana Nool are some of the ancient texts of wound treatments in Siddha medicine, giving details of the preparation of corrosive gauzes⁸.

Traditional wound management

To achieve effective wound management, it is necessary to practice *Manjal kara* therapy, having knowledge and experience of such preparation and the specific procedures. The surgical intervention like fistula wound management, fistulectomy and so on proved idle due to high recurrence and post-operative complications. Under these circumstances, *Manjal karam* therapy offers a good way of hope in wound management. It is gradual but sustained chemical action that removed the debris from the site of the fistula and thus it helps in the formation of healthy granulation tissue inducing a long healing pattern in the depth of the tissue. *Manjal karam* also dissolves through fibrous tissue and ultimately drains exudates and creating a healthy base for healing. Further, it enhances the contraction of the fistula and sinuses of the wound.

According to Sushruta the irresponsible person who mistakes a suppurated inflammation for an unripe one ignores a suppurated one, or when a patient allows a lot of pus to accumulate in an ulcer, then that pus having entered into his aforesaid tissues (i.e. skin, subcutaneous tissue, muscle), penetrates inside⁶. According to Acharya Sushruta, a surgeon should excise a sinus by means of a sutra (thread) impregnated with caustic (alkali) material (*Kshar-sutra*) occurring in the emaciated, the weak and the timid, and those (sinuses) which occur at the vulnerable areas⁷. *Kshara* is a caustic material obtained after processing from the ashes of various medicinal plants. The *Kshara* is superior to sharp instruments because of their capability to perform excision, incision and scraping and their power to alleviate all the three dosas⁸. These caustic materials are called as *Kshara* due to its capability of melting

and destroying the lesion⁹. So, *Kshara* are not only cause the destruction (lysis) of unhealthy tissue but also helps in their debridement. Hence this is an ideal procedure to be adopted for the management of sinus track as it not only destroys the fibrous wall of the track but also helps in its curettage. There is simultaneous cutting and healing of the tract and no pocket of pus is allowed to stay back¹⁰. Thus it provides an environment for healthy granulation tissue to develop providing a venue for *Nadivrana* (sinuses) to heal completely. *Karam* dissolves the tough fibrous tissue and chemically corrects all the infections¹². This therapy allows the fistulous tract to collapse and heal. *Karam* keeps the whole track open and facilitates the drainage of all the infections from the wound area thus it reduces the formation of pus and prevents the further spread of fistula within the wound. *Karam* has antibacterial properties therefore it does not allow the bacteria to multiply¹³. Wound healing is a normal physiological event that outsets immediately after injury till the formation of a healthy scar. "*Manjal karam*" regenerative properties are also useful for healing wounds and promoting the growth of healthy cells¹⁴. *Curcuma longa* has been studied for many years due to its bio-functional properties, especially antioxidant, radical scavenger, antimicrobial and anti-inflammatory activities, which play a crucial role in the wound healing process. Moreover, curcumin stimulated the production of the growth factors involved in the wound healing process, and so curcumin also accelerated the management of wound restoration. *Thiripala* decoction (herbal antiseptic lotion), *Termilnalia chebula*. *Phyllanthus emblica*. *Terminallia bellirica*. Prepared by adding an equal part of medicinal herbal powder and boiled with water to get decoction. *Tripala* removes the slough from the suppurated wound along with the foul smell. It also helps in the reduction of swelling and pain¹⁵.

Conclusion

This case study showed effective wound debridement action of *Manjal karasealai* on the chronic diabetic wound. Therefore, a lot of scope for further research in this field to standardize the preparation and application of *Manjal karasealai* on the diabetic wound for the betterment of patients and their wellbeing

Reference

1. Reiber G., (1998), The burden of diabetic foot ulcers, 176(2) supp 1:5-10
2. Boulton A.J.M., (2004), Diabetologia, The diabetic foot: from art to science. 47: 1343-1353.
3. Arana V., Paz Y., González A., Méndez V., Méndez J.D., (2004), Healing of diabetic foot ulcers in arginine- treated patients. Biomed Pharmacotherapy 58: 588-597.
4. Williams J.Z., Barbul A., (2003), Nutrition and wound healing. *Surg Clin North Am.* 83: 571-596.
5. Clark R.A., (1991), Cutaneous Wound Repairs. In Goldsmith LA, editor. Physiology, Biochemistry and Molecular biology of skin. New York: Oxford University press. p576.
6. Nool A.R., 2nd Edition, (1935), Chennai.
7. Thas J.J., (2002), *Pachai Kara Cheelai* in treatment of chronic ulcers. 2nd National conference on Siddha Medicine for All Ages, Tirunelvely.
8. Thas J.J., (2002), *Manjal Kara Cheelai* in treatment of chronic ulcers. 2nd National conference on Siddha Medicine for All Ages. Tirunelvely.
9. Shastri K.A., (2007), Sushruta Samhita of Maharishi Sushruta edited with Ayurveda Tattva Sandipika, Nidana Sthan, Visarpnadi-Stanaroganidana, Chapter 10/9, Chaukhamba Sanskrit Sansthan, Varanasi, Reprint. p.268.
10. Rajesh G., (2014), comparative study of the effect of modified *kshar sutra* with standard *Ksharsutra* in the treatment of fistula-in-ano. *International Ayurvedic Medical Journal.* 2(5) 649-658.
11. Shastri K.A., (2007), Sushruta Samhita of Maharishi Sushruta edited with Ayurveda Tattva Sandipika, Nidana Sthan, Visarpnadi-Stanaroganidana, Chapter 11/3, Chaukhamba Sanskrit Sansthan, Varanasi, Reprint. p.34.
12. Shastri K.A., (2007), Sushruta Samhita of Maharishi Sushruta edited with Ayurveda Tattva Sandipika, Nidana Sthan, Visarpnadi Stanaroganidana, Chapter 11/4, Chaukhamba Sanskrit Sansthan, Varanasi, 2007. p.34.
13. Gupta S.K., Vishal K., Geetanjali G., Ankush B., (2001), A comparative study to evaluate the efficacy of standard fistulectomy procedure and *kshar-sutra* ligation in the management of fistula in ano. *Int. J. Res. Ayurveda Pharm.* 201;5(4):470-473.
14. Uththamanarayanan, (1991), *Sithar Aruvai Maruthuvam*. Chennai. p 37.
15. Dutta S.S.R., editor. Vol. 892. (2004), Chaukhamba Sanskrit Sansthan, Varanasi; Govinda D., Bhaisajvaratnavali with Vidothini teeka by Shri Ambika Dutta.