

## A SINGLE CASE STUDY ON DIABETIC FOOT ULCER WITH AYURVEDIC MANAGEMENT

Sanket Kewaldas Bansod<sup>1\*</sup> and Aparna Abhay Raut<sup>2</sup>

PG Scholar<sup>1\*</sup>, HOD and Professor<sup>2</sup>,

Department of Shalyatantra, Saptashrungi Ayurvedic College, Nashik.

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**\*Corresponding Author**

**Dr. Sanket Kewaldas  
Bansod**

PG Scholar Department of  
Shalyatantra, Saptashrungi  
Ayurvedic College, Nashik.

### ABSTRACT

Ayurveda is a science of life which deals with the use of herbs and herbal preparation for the treatment of various disease. Diabetic foot ulcer is the most typical complication of diabetes mellitus with a poor prognosis as a result of uncontrolled blood sugar level. There are many treatment modalities available in modern science like debridement, skin grafting, amputation, etc. In Ayurveda this ulcer is considered as dushtavrana and many treatment measures available like oral medication, raktamokshan, dressing, etc. which is helpful to protect the body parts from loss. Present case study deals with a 42 year female patient having a diabetic foot ulcer on the planter aspect of left lower limb foot and adjoining redundant webspace. We treated the patient by dressing using Goghrit+ Madhu+ Haridra. Parallerly oral anti –diabetic drugs are continued by the patient to control blood sugar levels and herbo-mineral drugs that have anti-microbial property. It was observed

that after a period of 85 days the wound size markedly reduced with normal skin colouration at the healed area.

**KEYWORDS:** Diabetic foot ulcer, Dushtavrana, Dressing with Goghrit +Madhu+ Haridra.

### INTRODUCTION

Diabetes foot ulcer is a complication of diabetes mellitus and may lead to restricted movement, amputation and even death in severe cases.<sup>[1]</sup> People with diabetes develop symmetrical predominantly distal and sensory polyneuropathy.<sup>[2]</sup> The loss of nerves which control autonomic function leads to changes in the skin and its appendages.<sup>[2]</sup> Three factors play a role to produce a diabetic ulcer are diabetic neuropathy, diabetes atherosclerosis and

increase glucose level which is vulnerable for infection and thus ulcer formed.<sup>[3]</sup> The common site for diabetic ulcer are planter aspect of foot, leg, upper limb, back, scrotum and perineum.<sup>[4]</sup> In the management of diabetic foot ulcer requires diabetes should be in controlled, antibiotics, debridment, skin grafting and amputation of limb.

Ayurveda is a science of life which deals with the use of herbs and herbal preparation for the treatment of various disease. Ayurvedic literature has given detailed explanation regarding the wound management from its manifestation to complete healing. In Ayurveda acharya sushruta consider diabetic ulcer as a dushtavrana and explain the shashti upakrama (60 measures) for the management of wound.<sup>[5]</sup>

Both the science describe the management in depth but there are certain limitation on either side. In the present case the patient was managed with Ayurveda conveniently.

## CASE REPORT

This is a case of 42 year old female diabetic patient came to SSAM and H for management.

### Chief complaint

Infected wound present over the planter aspect of left lower limb foot since 15 days

Discharge from wound since 15 days

Foul smelling since 15 days

Blackish discolouration since 7 days

### History of present illness

A 42 year old female patient was known case of diabetes mellitus since 7 year which was not under control inspite of taking oral antidiabetic medication. 15 days ago she was completely fine but then noticed a spontaneous small opening without any known external injury over planter aspect of left lower limb foot with mild discharge which gradually increased leading to wide open wound. According to patient the discharge was foul smelling and continuous. Wound was painless and spreading in nature. History of intermittent fever, nausea, vomiting, cough, difficulty in breathing and sleeplessness was present. Patient took treatment from a local physician with minimal relief. Since the wound showed no signs of improvement she was referred to a vascular surgeon where she was advised to undergo above ankle amputation. Patient was unwilling to undergo amputation and hence she sought an alternative

approach and came to SSAM and H for further management.

### Past history

She was a known case of type 2 diabetes mellitus and hypertension and on oral hypoglycemic drug and anti-hypertensive drug respectively since 7 year.

### Family history

Sister of the patient is known case of diabetes mellitus type 2 and on regular medication (Tab.Telma 40mg OD).

### Personal history

Name –XYZ	Age-42 year	Sex- Female
Marital status- Married	Occupation- Medical Representative	
Addiction – No	Bowel –Regular	Appetite -Good

### General examination

Blood pressure-130/80 mmhgPulse- 90/min.  
Peripheral oxygen saturation (SpO<sub>2</sub>)- 97% on room atmosphere  
Respiratory rate – 22/min.  
Pallor/icterus-No  
Weight -58kg  
Height -5.5ft.

### Systemic examination

Respiratory system- Air entry bilateral equal (AE=BE) Cardiovascular system – S1 S2 normal, No murmur  
Central nervous system – Patient is conscious and well oriented to time, place and person  
Abdominal examination- Soft and non- tender.

### Local examination

**Location:** Planter aspect of left foot below the great toe and 2<sup>nd</sup> 3<sup>rd</sup> and 4<sup>th</sup> toe and redundant webspaces.

### Number<sup>[2]</sup>

**Size-** (1) Below great toe- length 3.1cm, width 2.2 cm  
(2) Below the 2<sup>nd</sup> 3<sup>rd</sup> and 4<sup>th</sup> toe- length 3.8cm, width 2cm

**Edge:** Sloped and well defined

**Margin:** Poorly defined at the distal ends. Thick and fibrosed proximally.

**Floor:** Sloughed, tendons exposed

**Discharge:** Purulent

**Smell:** Foul smell

**Surrounding area:** Oedematous with rise in local temperature

**Bleed on touch:** Absent

**Peripheral pulsation:** Dorsalis pedis, Posterior tibial and Popliteal artery pulsation well appreciated.

### Investigation

HB%	10.7 gm %
WBC	13500/mm <sup>3</sup>
Platelet count	5.07lacs/mm <sup>3</sup>
BSL Fasting	229 mg/dl
Post prandial	342 mg/dl
Serum creatinine	0.75 mg/dl
HIV (1 and 2)	Non-reactive
HBsAg	Non-reactive
Bleeding time	1 min.5sec.
Clotting time	5 min. 15 sec.
Serum uric acid	5.0 mg/dl

**X –Ray** left Lower limb Foot with ankle - No any abnormality seen

No sign of osteomyelitis

**Colour doppler** of Left Lower Limb: Arterial doppler revealed moderate atherosclerotic changes with no obvious obstruction.

### Treatment

- 1) For the above clinical presentation for the correction of dose of antidiabetic medicine we referred the patient to physician and corrected dose of antidiabetic medicine (Tab.Gemer 2 BD) for diabetes were continued.
- 2) Intravenous antibiotics inj. Ceftriaxone (1000mg), inj. Metronidazole (500), inj. Amikacin (500mg) were administered for 5 days. Systemic symptoms such as fever, nausea, vomiting also subsided. Post procedure there was a considerable reduction in total count.
- 3) After the superficial wound debridment under local anaesthesia to keep the wound site

free from excessive discharge and soaking which would otherwise hamper the healing, daily dressing with Goghrita +Madhu+Haridra was done for 9 days. Then alternate day dressing for upto 1 month and then weekly follow up.

- 4) During this course drug Tab.Triphala guggul 250 mg BD, and Tab.Gandhak rasayan 500mg OD were used along with oral antidiabetic (Tab.Gemer 2) drugs.

## OBSERVATION AND RESULT

After continuous dressing slough present in wound decreases day by day. Healthy granulation tissue formation observed after a period of 18 days. The wound started to contract by filling with tissue from the base of the wound day by day and dressing the wound till the completion of healing. It was observed that after a period of 70 days the wound size markedly reduced with normal skin colouration at healed area. On the 85<sup>th</sup> day the wound was healed with minimum scar tissue formation. It has been noticed that the patient's related symptoms have also significantly decreased.

## DISCUSSION

- 1) Diabetes foot ulcer is the most typical complication of diabetes mellitus with poor prognosis as a result of uncontrolled blood sugar level. People with diabetes develop symmetrical predominantly distal and sensory polyneuropathy.<sup>[2]</sup> As the incidence of diabetes mellitus is increasing globally increase in complication is also unquestionable. Overall 15% of individuals with diabetes mellitus will have foot ulcer during their lifetime.<sup>[6]</sup>
- 2) In Ayurvedic science the comprehensive management of all wound were exclusively described by acharya sushruta under shashti upakrama. He has explained wound from its different aspect right from its definition, causes, types and their management in detail. While describing the types of vrana, mentioned the term dushta vrana which is having similar clinical features of chronic non-healing wound according to modern science. In the vrana management along with upakrama lot of medication in different formulations for wound healing were explained.<sup>[7]</sup>
- 3) Ghrita covers a wound in a thin coating, which promotes the wound's early epithelialization. Also, it protects the wound from microbial invasion. It reduces the size of wounds and scars by acting as an antioxidant, anti-inflammatory, anti-infective and blood purifier.

- 4) Due to the lekhan property of Madhu, it is a vrana shodhak and heals wound. Due to its antibacterial and antioxidant properties, it promotes epithelialization. They also relieve pain and reduce inflammation by removing tikshna guna of pitta. It also reduces the size of the wound by wound contracture. Keeps the edge soft by lowering rukshata of vayu and lowers the risk of secondary infection.
- 5) In Dhanvantari-Nighantuh, Haridra has a vrana shodhak property.<sup>[8]</sup> The katu and tikta rasa and ruksha ushna properties of haridra play important role in wound healing. The ama, a cause of vrana is digested by haridra's katu – tikta rasa and ushna virya properties. Through its vranapachak effect, the medication reduces pain and swelling. The medication laghu ruksha guna has a kapha pacifying effect and is an excellent absorber of liquid, including pus, which lessens wound drainage.
- 6) Gandhak rasayan is a useful ayurvedic blood purifier, antibiotics and anti-inflammatory drug. According to the classics, it has an effect on both skin and blood. It eliminates toxicity from blood and prevents infection, which accelerates the wound healing.
- 7) Triphala guggulu significantly reduces the wound pain and also promotes wound healing by lowering paka, kled, and shoth. It has immunomodulatory, anti-inflammatory and antioxidant properties that heal and lessen pain.



Day 1



Day 2





Day 7



Day 12



Day 18



Day 31



Day 50



Day 70

**Day 85**

## CONCLUSION

Diabetic foot ulcer is the most common complication of diabetes mellitus. The present case diagnosed as a diabetic foot ulcer and post-operative wound management with Goghrita+ Madhu+ Haridra dressing showed significant improvement in wound healing.

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