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Ayurvedic management of Wagner's grade-III diabetic foot ulcer: A case study.

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ABSTRACT:

Diabetic foot ulcer (DFU) is one of the commonest chronic complications with a poor prognosis and can lead to amputation if timely intervention is not done. A classical triad of neuropathy, ischemia and infection characterizes the diabetic foot. Diabetic foot ulcers are common and estimated to affect 15% of all diabetics. Mainstay of treatment includes antibiotics, debridement, local wound care, and footwear improvisation. In spite of all advances in health sciences, statistics reveals that about 3% patients yet have to undergo lower limb amputation.

Ayurveda has considered such ulcer as *Dushta Vrana* and many modalities like oral medication, blood-letting, wound debridement etc. have been advocated for their management. A 75 years old male patient with a history of uncontrolled diabetes mellitus more than 15 years, presented with a non-healing foot ulcer (Wagner's Grade-III DFU) since two months. He was successfully managed within 14wks with Ayurvedic internal and external medications at OPD level.

The treatment resulted in complete wound healing and prevented the likely amputation too.

KEYWORDS:

Diabetic foot ulcer, Osteomyelitis, Amputation, *Dushta Vrana*

INTRODUCTION:

India is destined to become global capital of diabetes in 2025. It is estimated that diabetes is prevalent in 7.3% of Indian adult population as per ICMR survey report in 15 states of India. Further the most appalling news is that 47.3% of diabetics were not aware that they were suffering from diabetes and such people are highly vulnerable to complications of diabetes such as diabetic retinopathy, renal failure, coronary heart disease, stroke and diabetic foot. There are 10% pre-diabetics in India and it is highly likely that the prevalence of diabetes will be doubled in next decade^[1, 2]. Diabetic foot remains an important complication of diabetes. It is estimated that 6% diabetics suffer from diabetic foot at any given time^[3]. Diabetic foot comprises of

infection, ulcer and loss of tissues [4]. Risk factors for foot ulcer include male sex, diabetes >10 years (poor glycemic control), peripheral neuropathy, peripheral vascular disease and, smoking [5]. Diabetic wounds become 'stuck' in the inflammatory and proliferative stages of healing which delays closure. Debridement is often required more than once as the healing process can stop or slow down allowing further devitalized tissue to develop. The signs of diabetic wound are delayed healing, increased exudates, bright red/pinkish discoloration of granulation tissue, friable and exuberant tissue, new areas of slough, undermining pain, foul odour and wound breakdown [6]. Diabetic wound fluid has been found to contain high levels of proteases which have an adverse effect on wound healing by slowing down or blocking cell proliferation in particular keratinocytes, fibroblasts and endothelial cells [7]. Treatment with recombinant growth factors is expensive with risk of infection transmission with chances of 30% recurrence [8]. So there is a need for a comprehensive approach to tackle the stigma of ulcer leading to amputation by cost effective and time bound management with least recurrence rate with an enhanced immune system. *Vrana* may be considered as an *upadrava* of *Prameha*. *Pramehajanya vranas* mostly fall into the category of *Dushta vrana* [9]. Ayurveda has detailed scientific protocol for ulcer management (*Vranopachara*) after examination of the patient for routing the pathology. The present case study is of a diabetic ulcer managed through Ayurvedic principles of *Vrana Chikitsa*.

AIM & OBJECTIVES:

To evaluate efficacy of Ayurvedic management in Wagner's Grade-III Diabetic Foot Ulcer.

CASE-HISTORY:

A 75 years old, uncontrolled diabetic male patient with non-healing foot ulcer (Wagner's Grade-III DFU) since two month was referred by the surgeon. He also had complaints of burning sensation and occasional numbness in both feet and pain in the left foot.

History of Presenting Illness:

In July-2017, patient suffered with *paronychia* of left great toe, but he ignored. After 4 to 5 days there was ulcer formation and gangrenous changes also begun. He had to undergo amputation of left great toe. Unfortunately the amputation stump also got infected and ulcer occurred. In spite of antibiotics and debridement, the infection had gone up to the bone giving rise to osteomyelitis of 1st metatarsal. As the conventional wound care over two months failed, re-amputation was advised. But patient was reluctant to undergo amputation again. In view of worsening condition of the stump wound and past experience of many such cases treated successfully by me, the surgeon referred this case to me for further management. The patient was a known diabetic for 15 years. He was on oral hypoglycemic agents – Tab Gluconorm and Tab Volibo.

Family History:

mother had diabetes.

Personal History: Pulse - 74/min, BP- 140/90, Weight- 65 Kg, Height- 168 cm.

Lab Report:

Hb – 10.1 gm%
 WBC – 8700
 ESR – 40
 FBS – 126 mg/dl
 PPBS – 176 mg/dl
 HbA1c – 8
 S. Creatinine – 1.1
 X-ray left foot – Osteomyelitis of
 1st metatarsal bone.

Systemic examination:

CVS – S1 S2 normal
 CNS – normal
 RS – normal

Local Examinations:**Diabetic Foot Examination:**

1. Inspection: Oedema (++) on the left lower limb with darkened skin colour.
2. Palpation: Local temperature ↑.

Dorsalis pedis and posterior tibial pulse - present

Ulcer Examination:

1. Site – Dorsal aspect of left great toe
2. Size & shape - 4 cm x 3.5 cm x 1 cm deep, circular
3. Number – One
4. Edge & margin – Inflamed
5. Floor – Pale reddish
6. Discharge – Purulent and foul smelling
7. Tenderness - ++
8. Touch on bleed – Absent
9. According to Wagner's Ulcer classifications system – Grade III

METHODOLOGY / TREATMENT GIVEN:

Along with oral hypoglycemic drugs following treatment was given to the patient on OPD basis for *Vrana-ropan*.

SN	Type of Treatment	Medicines	Dosage
1.	Systemic treatment	1. <i>Kaishor Guggul</i> 2. <i>Guggul Tikta-ghrut</i> 3. <i>Chandra-prabha Vati</i> 4. <i>Mahamanjithadi Kwath</i>	1 gm bd 10 ml bd 250 mg bd 40 ml tds
2.	Local treatment	1. <i>Vranaparisheka – Panchavalkal Kwath</i> 2. <i>Vranadhoopan– Vacha choorna</i> 3. <i>Vranapichudharan- Jatyadi taila</i>	100 ml bd 5 gm bd 10 ml bd

The above treatment was given for a period of 15 wks. Patient was treated on OPD basis and follow-up was done at the interval of 1 wk. simultaneously, he was seen by the Surgeon as well. After complete wound healing, x-ray left foot was repeated.

OBSERVATIONS:

Initially blackening of the skin was visible on foot as well as on the lower leg denoting ischemia. After 8 wks of treatment the blackness disappeared completely and normal skin colour was regained. The characteristics of *Dustha*

Vrana like *Ativirita* (blood base), *Bhairava* (ugly look), *Putipuyamansa* (pus discharge), *Durgandha* (foul smell), *Vedana* (pain), *Dirghakalanubandhi* (chronic) were noted in the wound. It was noted that the deep seated slough which was hard to remove, started to dissolve from the base and wound became clean and healthy. The healing was started with the formation of healthy granulation tissue. The margin of wound became bluish showing growing epithelium. The wound started to contract by filling of tissue from the base of wound day by day. By the end of 14th wks., wound was completely healed with minimum scar tissue formation. The severe pain at the site also disappeared gradually. The X-ray was repeated after 4 wks of complete wound healing and reported to be normal.

RESULT:

Wound healing in this patient achieved within 14 wks. Also the osteomyelitis change in the 1st metatarsal of left foot was completely resolved. Pain-full movement converted to painless movement. The dosage of oral hypoglycemic also got significantly reduced.

Thus Wagner's Grade-III Diabetic Foot Ulcer was successfully managed by the Ayurvedic treatment and planned amputation was avoided.

Patient was monitored for one year after complete healing of DFU and no recurrence of DFU was reported.

DISCUSSION:

According to Sushruta Samhita, diabetic foot can be correlated with

“*Madhumehaja Vrana*”. During its description, Sushruta stated that the management of these *Vranas* is difficult i.e. *Kashta Sadhya*. According to Sushruta, *Meda* and *Rakta* along with other *Dosha* and *Dushya* lead to the formation of *Prameha Pidka* which in later converted to non-healing wound and also further specified that wounds over lower limb are difficult to heal^[10].

All oral medicines used in this case-study are classical Ayurvedic formulation and have *Strotovishodhan*, *Shothhara*, *Kledahara*, *Raktaprasadana* and *Pramehaghna* properties. Also the external treatment comprising of *Parisheka*^[11, 12], *Dhoopan* and *Pichudharan*, mainly helps in *Vranashodhana*, *Pootiharan*, *Vedanasthapan* and *Ropana*. Thus the combination of external and internal management was adequate in helping the wound to heal well.

CONCLUSION:

The case-study established that such a complicated case of Wagner's Grade-III Diabetic Foot Ulcer was successfully treated by Ayurvedic line of treatment and amputation was avoided.

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TABLE & IMAGES:





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