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Management of Diabetic Foot Ulcer by *Nishadi Yoga Avachoornana* - A Case Study

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ABSTRACT

Diabetes is considered as 'ice burg' of diseases as only 1/3rd of its manifestations can be made out clinically, though the exact cause is not known following are the theories put forth to explain diabetes mellitus - Genetic factor, Life style disorder, Autoimmune cause. Slight injury to glucose laden tissue will cause infection which is precipitated by an ulcer and it tends to a state of non - healing. Main stay of treatment includes antibiotics, debridement, local wound care. Inspite of these treatments there is less reduction in the statistics of diabetic foot complications and amputations. In *Sushrutha Samhitha* we get the most scientific approach for the management of *Vrana*, where *Sushrutha* has mentioned 60 *Upakrama's* (modalities of treatment) of which *Avachoornana* (dusting) is one modality, seen to be effective in the management of diabetic non healing ulcers (*Madhu Mehaja Dusta Vrana*).

Key words: *Diabetic foot ulcer, Madhu Mehaja Dusta Vrana, Avachoornana.*

INTRODUCTION

In an article published in (Diabetes Care, 1998) thought to be the clinical bible for diabetes, it has been predicted that India would house the largest number of patients with diabetes approaching around 20 million.[1] The prediction is not been false but, proven to be under estimate. According to findings of ICMR sponsored INDIAB study, published in Diabetologia 2011. India is faced with galloping diabetes epidemic which is progressing at a greater speed. There are now an estimated 62 million patients with diabetes and this number is projected to explore beyond 85 million by the year 2030.[2]

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In various studies it has been observed that a substantial proportion amongst the diabetic patient will have diabetic related complications like diabetic retinopathy, diabetic neuropathy, and diabetic microvasculopathies. In due course of time, leading to diabetic ulcer, diabetic foot, gangrene etc. Most common complication among all these are diabetic ulcer.[3]

Ayurvedic perspective of diabetic ulcer

Diabetic ulcers can be compared with *Madumehaja Dusta Vrana* as described by *Sushrutha*. In *Madhumehi* the vessels of lower limb became weakened and is unable to expel the *Doshas* (*Meda* and *Raktha* along with other *Dushyas*) leading to *Prameha Pidakas* which eventually burst open precipitating an ulcer.[4]

Etiology of Foot Ulceration[5]

Diabetic foot ulceration is usually multifactorial, majority of them are due to the critical tried of peripheral sensory neuropathy, trauma and deformity, recognised risk factors for diabetic foot ulceration and lower extremity amputation are as follows.

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1. Absence of protective sensation due to peripheral neuropathy.
2. Arterial insufficiency.
3. Foot deformity and callus formation in focal areas of high pressure.
4. Autonomic neuropathy causing decreased sweating and dry – fissured skin.
5. Limited joint mobility.
6. Poor glucose control leading to impaired wound healing.
7. Poor footwear that causes skin breakdown or inadequate protection from high pressure and shear forces.

Case Report

A female patient aged about 67 yrs, presented with the history of non-healing ulcer of the right lower limb great toe with pus discharge and blackish discoloration of the surrounding area associated with swelling of right lower limb below the ankles since 2 months, who is a known case of DM since 22yrs and was on OHA initially for few years and presently was on insulin Inj. human mixtard (20 - 0 - 12 units), who consulted many allopathic hospitals where she was suggested for amputation of the great toe, visited SJIIM Hospital Bengaluru (OPD -6) for further better management of the wound.

Clinical Examination

General Examination

- Pallor - Present (Hb-9.5gm%)
- Icterus - Absent
- Cyanosis - Absent
- Kylonychia - Absent
- Lymphadenopathy - Absent
- Oedema - pitting edema + (Rt lower limb)

Systemic Examination

- CVS - S1S2 heard, no any added sounds
- RS - normal vesicular breath sounds
- P/A - soft, BS+; No organomegaly.

Local Examination

Inspection

- Site - base of great toe of right lower limb, extended to whole of the toe.
- Size - 3.5*2cms.
- Shape - nearly oval.
- Edge - irregular, rough.
- Floar - unhealty tissues seen.
- Discharge - copious-sero purulent
- Surrounding area - blackish discoloration with gangrenous changes (loss of hair, atrophic nails, glossy skin).
- Margin - irregular.
- Smell - tolerable, unpleasant.

Palpation

- Tenderness - deep tenderness +
- Sensation - diminished pin prick sensation
  - Hot and cold sensations present
- Temperature - no raise in temperature
- Lymphnodes - no any enlargement
- Edema - pitting edema +
- Peripheral pulse - Dorsalis pedies (feeble)
  - Anterior tibial (feeble)
  - Posterior tibial (good)

Treatment Plan and Protocol

Sushrutha has explained 60 *Upakramas*[6] for the management of *Vrana* of which *Avachoornana* (dusting) is one *Upakrama* with following indications *Medhodusta*, *Agambeerara* (not deep seated), *Durgandha* (foul smell) for which use of *Shodhana Varthi's* are indicated.[7]

In the present case *Nishadi Yoga*[8] (*Haridra, Saindava Lavana, Shwetha Sarshapa, Guggulu, Madhu*) *Avachoornana* is selected.

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Method of preparation

Shuddha Guggulu is taken and the fine powder of above mentioned drugs are added and mixed properly, with help of honey it is rolled in *Varthi* form and kept for drying under shade, during *Avachoornana Karma* it is pounded and fine powder (*Shlakshna Choorna*) is used for the procedure.

Gradation criteria for assesments of Ulcer

Parameters for assesments	Gradation criteria			
	0	1	2	3
Size	No discontinuity of skin or mucous membrane	1/4th of previous area of the ulcer	½ of previous area of the ulcer	>½ of previous area of the ulcer / initial size.
Pain	No pain	pain during movement but relieved on rest	pain during movement but not relieved on rest	Pain persists continuously
Smell	No smell	Bad smell	Tolerable, unpleasant smell	Foul and intolerable smell
Floar	Smooth, regular with granulation tissue /no need for dressing	Rough, regular, mild discharge with less granulation tissue /needs dressing	Unhealthy, less granulation tissue /needs regular dressing	Unhealthy no granulation tissue
Discharge	No discharge	Scanty, occasional discharge	Wetting of the dressing.	Profue, continues discharge
Edge	Adhere	Smooth, even and regular	Rough , irregular	Angry look

Observations and Results

Table 1: Observation of prognosis of ulcer as per assessment criteria

Signs and symptoms	B.T	A.T			
	Day 0	Day 7	Day 14	Day 21	Day 28
Size	3	3	2	1	0
Pain	2	2	1	0	0
Smell	2	2	1	1	0
Floar	3	2	2	1	0
Discharge	3	2	2	1	0
Edge	3	2	2	1	0

Probable mode of action (Ayurveda perspective)

Haridra **-** having *Laghu, Ruksha Guna* and *Ushna Veerya*. Hence acts as *Kapha Shaamaka*, It is *Varnya, Twachya, Shothahara, Vranahara.*[9]

Saindava **-** it acts as *Shodana* and *Lekhana*.

Siddartha **-** *Tikshna, Ruksha, Snigda Guna* and *Ushna Veerya* acts as *Kapha Vatashamaka, Krimihara.*[10]

Guggulu **-** having *Sara, Sukshma, Snigda, Vishada, Tikshana Guna* and *Ushna Veerya*. It acts as *Tridosha Shaamaka.*[11]

Honey **-** having the properties of *Varnya, Lekhana, Shodhana, Ropana, Sandhaana.*[12]

Hence based on *Doshagnatha* and *Kaarmukatha* of the *Dravyas; Lekhana, Shodhana, Ropana, Sandhaana* of *Vrana* can be achieved.

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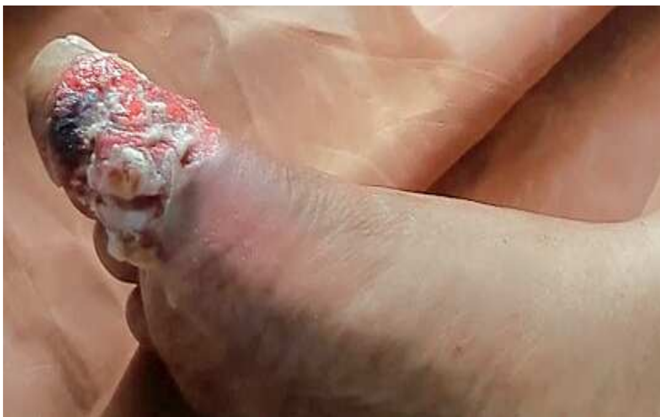
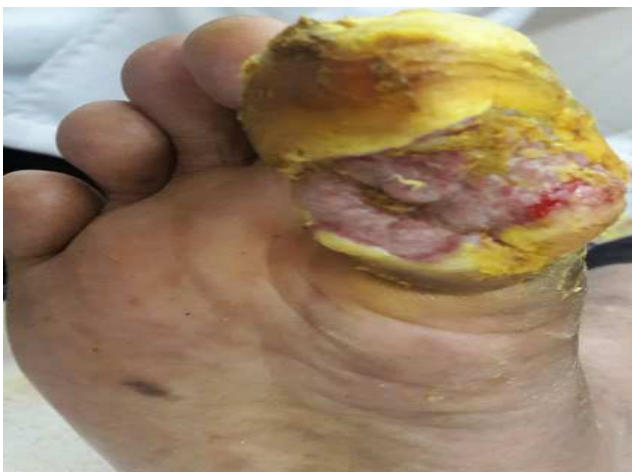
Discussion

Diabetic foot due to its complications is the most common cause of non traumatic amputations in lower extremity. Risk of amputations is more than 15-46 times higher in diabetics than in non diabetics.[13] Complications of foot in diabetic patients are very difficult to treat and more expensive, hence simple procedure explained by *Sushrutha* is found very effective.

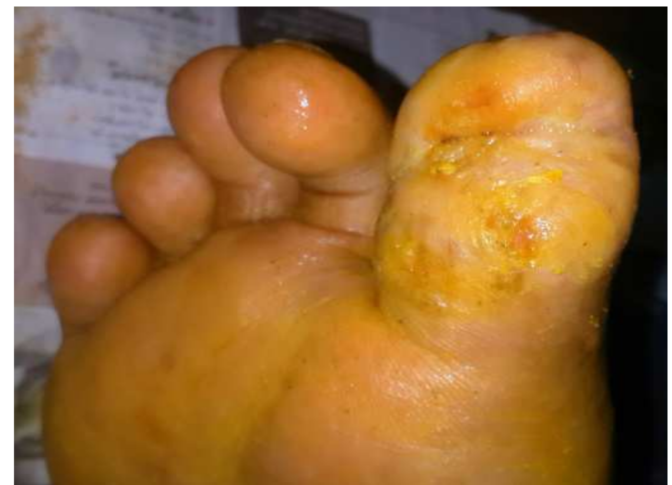
Before Treatment (Day 0)

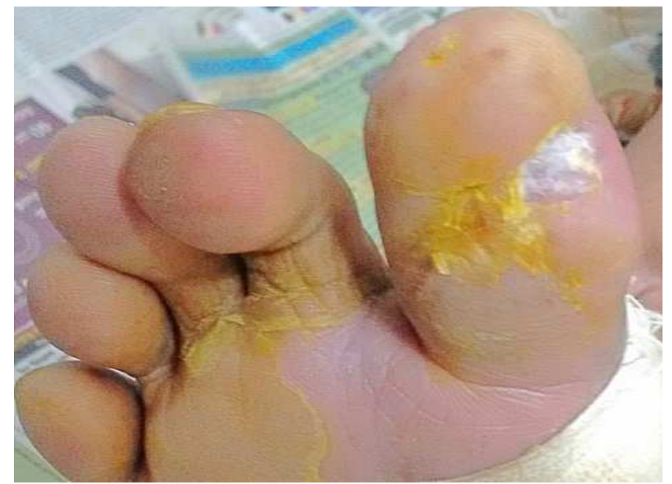


During Treatment



After Treatment





Conclusion

Nishadi Yoga was found effective in the management of gangrenous diabetic foot ulcer, it should be used in more number of patients to establish the effectiveness of the *Avachoornanana* with *Nishadi Yoga* in the management of diabetic foot ulcers.

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