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.
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

**Treatment Plan and Protocol**

*Sushrutha* has explained 60 *Upakramas* for the management of *Vrana* of which *Avachoodana* (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* (Haridra, Saindava Lavana, Shwetha Sarshapa, Guggulu, Madhu) *Avachoorana* is selected.
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 assessment of Ulcer

<table>
<thead>
<tr>
<th>Parameters for assessment</th>
<th>Gradation criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>No discontinuity of skin or mucous membrane</td>
</tr>
<tr>
<td></td>
<td>1/4th of previous area of the ulcer</td>
</tr>
<tr>
<td></td>
<td>½ of previous area of the ulcer</td>
</tr>
<tr>
<td></td>
<td>&gt;½ of previous area of the ulcer / initial size</td>
</tr>
<tr>
<td>Pain</td>
<td>No pain</td>
</tr>
<tr>
<td></td>
<td>Pain during movement but relieved on rest</td>
</tr>
<tr>
<td></td>
<td>Pain during movement but not relieved on rest</td>
</tr>
<tr>
<td></td>
<td>Pain persists continuously</td>
</tr>
<tr>
<td>Smell</td>
<td>No smell</td>
</tr>
<tr>
<td></td>
<td>Bad smell</td>
</tr>
<tr>
<td></td>
<td>Tolerable, unpleasant smell</td>
</tr>
<tr>
<td></td>
<td>Foul and intolerable smell</td>
</tr>
<tr>
<td>Floar</td>
<td>Smooth, regular with granulation tissue / no need for dressing</td>
</tr>
<tr>
<td></td>
<td>Rough, regular, mild discharge with less granulation on tissue / needs dressing</td>
</tr>
<tr>
<td></td>
<td>Unhealthy, less granulation on tissue / needs dressing</td>
</tr>
<tr>
<td></td>
<td>Unhealthy no granulation tissue</td>
</tr>
<tr>
<td>Discharge</td>
<td>No discharge</td>
</tr>
<tr>
<td></td>
<td>Scanty, occasional</td>
</tr>
<tr>
<td></td>
<td>Wetting of the</td>
</tr>
<tr>
<td></td>
<td>Profuex, continues</td>
</tr>
</tbody>
</table>

Observations and Results

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

<table>
<thead>
<tr>
<th>Signs and symptoms</th>
<th>B.T Day 0</th>
<th>Day 7</th>
<th>Day 14</th>
<th>Day 21</th>
<th>Day 28</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Pain</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Smell</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Floar</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Discharge</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Edge</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

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.

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

![Before Treatment](image1)

**During Treatment**

![During Treatment](image2)

**After Treatment**

![After Treatment](image3)

**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 *Avachooranana* with *Nishadi Yoga* in the management of diabetic foot ulcers.
REFERENCES


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