

Role of “*Meshshringyadi Yog*” in the management of Diabetic wound

Case Report

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Abstract

Diabetes mellitus type II is a metabolic disorder and has become confront for the medical professionals to deal with comprehensively and it becomes thoughtful problem of modern society due to severe long-term health complications associated with it. Though there are abundant hypoglycemic agents available in the market, due to their adverse effects, herbal medicines are becoming more popular with better results and probable null adverse effects on body. *Ayurvedic* remedies for Diabetes Mellitus are the oldest among all the available therapies. Through various literary reviews *Meshshringi* (*Gymnema sylvestre*, Robert Brown) *Amalaki* (*Emblca officinalis*, Gaerthand) *Vijaysar* (*Pterocarpus marsupium*, Roxburgh) have shown marked effect in Diabetes mellitus and their properties also shows anti-inflammatory, antioxidant effects also. This article highlights a case of diabetic wound treated with *Meshshringyadi-yog* with effective results.

Key Words: *Meshshringi*, *Amalaki*, *Vijaysar*, Diabetic wound, *Meshshringyadi-yog*, Diabetes mellitus.

Introduction

Diabetes mellitus is a prime widening provocation in India with an estimated 10% diabetic population(1). The rising prevalence rate of diabetes and other non-communicable diseases is driven by a combination and permutation of factors such as rapid escalation with metro-culture, deskbound life style, diet with insufficient nutritional values, unhealthy diet habits, over exposure to alcohol-tobacco consumption and increasing life expectancy which is crippling the working potential of the nation(1) (3).

Diabetes and its complications are a major cause of morbidity & mortality in India. There is need to develop a robust methodology to perform therapeutically and diagnostically rigorous and more cost effective treatment protocol to eradicate the illness from its roots and make inroads to the mental- psychic of the people about disease(1). According to *Ayurveda* various medicinal herbs stating their Antidiabetic action(2), *Meshshringi*(4), *Amalaki* (6) and *Vijaysar* (5) (7) are some of the drugs which contains various bioactive compounds that works and showed their antidiabetic, antioxidant, anti-inflammatory properties (actions) which has been studied and proven through various research papers. Thought behind selecting these three drugs combinely as *Meshshringyadi yog*, was to evaluate collective effect of these drugs on diabetic wound. In *Sushruta Samhita* 60 measures have been mentioned for the exclusive treatment of *Vrana* (wound), which includes local use of different drugs and other

treatment modalities. (2) Keeping this vision, we treated a case of chronic non healing diabetic wound using *Meshshringyadi -yog* using it orally as well as locally.

Case Report

A 52 years male patient came to OPD NO-3 of Dr. D. Y. Patil College of *Ayurved*, Pune.

C/O Post amputation huge non healing ulcer at right knee joint (stump-amputated area) for the last 3 months.

H/O Wet Gangrene started at ball of greater toe and was amputated below knee for the same at some other medical center, 6 months ago.

K/C/O Type II D.M.(On Metformin 500mg twice daily) for the past 5 years with no other major systemic disease. Lower extremity: Wound size- approximately 10 cm diameter, Pale Yellow in color, slough discharge is present, moderate foul-smelling and smooth slopping margins – smooth and slopping, slough present over more than 50% surface of wound and the surrounding skin is normal.

Investigations :

Complete Blood Count, Urine(Routine), Blood Sugar Levels (Fasting & Post Prandial), Pus Culture.

All the investigations were within normal values.

Presence of *Staphylococcus aureus* infection was reported in the culture swab of the wound.

Diagnosis: (According to Modern)(8)

Diabetic Wound

Diagnostic Features-

- 1) Patient k/c/o Diabetes Mellitus with h/o Wet Gangrene
- 2) H/o of Above knee Amputation
- 3) Signs of nonhealing wound like-
 - 1) Copious discharge
 - 2) Foul Smell to the collection
 - 3) Thick slough over wound bed

Diagnosis: (According to *Ayurveda*) (5)

Madhumehaj Dusta Vrana

Diagnostic Features-

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- 1) *Putipuyamansa* (pus discharge)
- 2) *Durgandha* (foul smell)
- 3) *Vranakruti-Ativivrita* (Broadbase)

- Duration – For 3 months
- Externally – Freshly prepared *kwath*(*Meshshringyadi yog kwath*) for *vrana- dhavan* daily ,along with *awachurnan* of *vrana* (Dressing of wound) with *Meshshringyadi churna*.
- Duration – 35 Days
- Follow up – on 7th, 14th, 21th, 28th, 35th day

Doshic predominance and the therapeutic relevance:

Diabetic wound i.e Madhumehaj Dusta Vrana show active involvement of *Tridosha's*(2). Local signs and symptoms such as pain, discharge, discoloration, bad odour, have been noted. The *Tikta rasa* (bitter taste) of the *Meshshringi*(4) and *Katu vipaka* of *Vijaysaar* pacified the vitiated *doshas*, rendered relief in pain, reduces discharge which was proven helpful in wound healing process(5). Another property of *Amalaki* is antioxidant activity due to the presence of some Flavanoids and Ascorbic acid which promotes wound healing property in natural way(6). The Glucosides present in *Vijaysaar* shows Antihyperglycemic action which acted as drifter and helped to loosen free radicals as well as stimulates further generation of free radicals(7).

Continue oral Hypoglycemic Medicine - Tab. Metformin 500 mg BD. The peculiar presentation of *Dushta Vrana* like *Vranakruti- Ativivrita* (broad base), *Bhairava* (ugly look), *Putipuyamansa* (pus discharge), *Vrana-Strava-Durgandha* (foul smell), *Vrana-Vedana* (pain), *Dirghakalanubandhi* (chronic) were noted in the wound with covered impacted abundant slough and with foul smell which was the main agony for the patient. The wound was cleaned daily with the *Mesashringyadi yog kwatha* (*bharadchurna kwath* i.e freshly prepared decoction) and *Avachurnan*(sprinkling) with *Meshshringyadi churna* (fine powder) locally in adequate quantity over gauze with cotton pad and proper bandaging in adequate quantity.

Method i.e Treatment plan

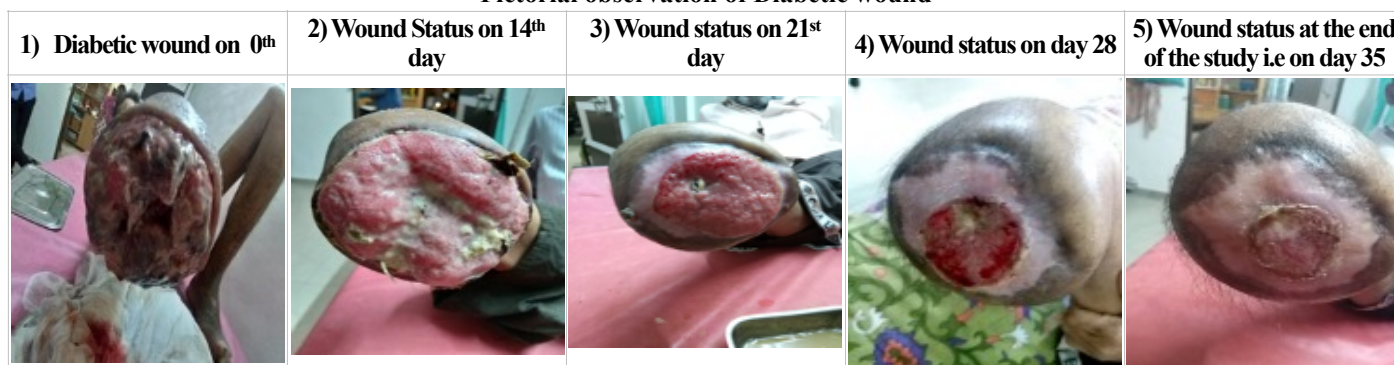
- Medicine - *Meshshringyadi -Yog*
- Dose- Oral 3gm bid Daily
- *Kala* – Morning, Evening (after food)

Expected outcome of the treatment plan

Meshshringyadi- yog may be helpful in enhancing the wound healing properties in Diabetic - wound with their Antidiabetic, Antioxidant and Anti-inflammatory action(4) (5)(6)(7).

Observations

Pictorial observation of Diabetic wound



We observed that tough slough which was deeply impacted at wound base started dislodging from the base and shows reduction in local pus collection at the end of first week i.e from 7th day and healing started with the formation of healthy granulation tissue. Signs and symptoms such as pain, discharge, bad odour shows reducing day by day at the end of second week i.e on 14th day. The wound bed showed signs of growing healthy epithelization with colour change at wound bed with growing epithelium at the end of third week i.e on 21th day. Healing process was noted gradually by tissue filling at the wound base with gradual wound contraction.

The *vranaadhavana* with *Meshshringyadi yog kwath* with local application of *churna* along with oral medication was continued, and from 28st day. It was observed that the size of the wound was contracted remarkably with healthy normal skin complex and the wound site was healed almost 85% with minimal scab formation on day 35.

Assessment of the wound was done on day 0,7,14,28,35 by applying - T.I.M.E assessment criteria according to Modern and *Ayurveda*.

A) T.I.M.E-Assessment (According to Modern Science)

- T –Tissue (viable/ non viable)
- I-Infection – To assess the signs of infection like presence of discharge, pain, smell, inflammation
- M-Moisture imbalance-that is exudate level (Dry/wet)
- E-Epidermal Margins-(Advancing/Non-advancing)

T.I.M.E assessment done according to Modern on Day 0,7,14,21,28, 35

Assessment criteria	Before Treatment i.e 0 day	7 th day	14 th day	21 st	28 th	35 th
T- Tissue(viable/ non viable)	Viable	Viable	Viable	Viable	Viable	Viable
I-Signs of Infection	Present	Present	Present	Reducing	Reduced	Reduced
M- Moisture imbalance- exudate level (dry/wet)	Wet	wet	Moderate wet	Mild wet	Dry	Dry
E- Epidermal margin(Advancing/ non-advancing)	Non-advancing	Advancing	Advancing	Advancing	Advancing	Healed

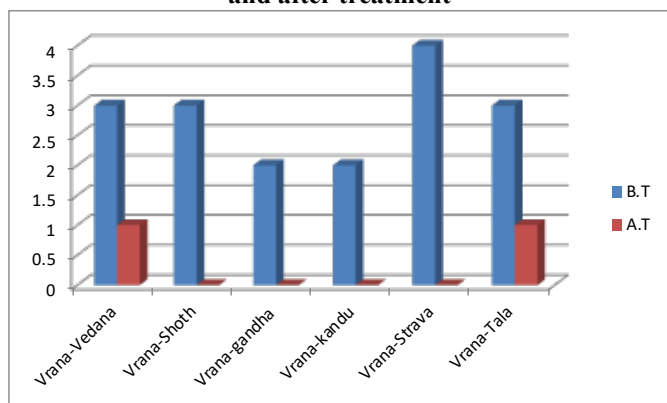
T.I.M.E- Assessment according to Ayurveda

Vrana- Vedana, Vrana-Shoth, Vrana-daha, Vranagandha, Vranavarna, Vrana-Strava,, Vrana-Tala.

T.I.M.E assessment done according to *Ayurveda* on Day 0,7 ,14, 21, 28, 35

Assessment criteria	Before Treatment i.e 0 day	Day 7	Day 14	Day 21	Day 28	Day 35
<i>Vrana-vedana</i> (Pain)	Moderate	Moderate	Mild	Mild	Reduced	Absent
<i>Vranashoth</i> (Inflammation)	Inflammation	Moderate	Mild	Mild	Reduced	Absent
<i>Vrana-daha</i> (<i>Sthanic</i>) (Local-temperature)	Normal	Normal	Not raised	Not raised	Normal	Normal
<i>Vrana-Gandha</i> (Odour)	Foul smell	Moderate foul smell	Mild foul smell	Foul smell reduced	Foul smell reduced	Absent
<i>Vrana-varna</i> (Colour)	Blakish- yellow	Whitish- yellow	Reddish- pink	Reddish- Pink	Pink	Pinkish with normal pigmentation partially.
<i>Vrana-strava</i> (Discharge)	Thick-Purulent, More quantity Gauge socked completely in 24hrs. after dressing i.e 100%	Purulent, Moderate quantity (75%) of gauge socked in 24 hrs	Purulent, Moderate quantity (50%)gauge is wet	Seropurulent minimal quantity (25%) of gauge is wet	No Discharge Gause-dry	Discharge Absent Gauge-dry
<i>Vrana-kandu</i> (Itching)	Localized & frequently	Localized & frequently	Reduced	Reduced	Minimal	Mild
<i>Vrana-tala</i> (Floor of the wound)	Thick and impacted, Slough over 50% of surface covered	Thick but in dislodging stage slough over 30-40% surface covered	Slough collection reduced Growth of Healthy granulation tissues starts from wound margins.	Healthy granulation tissues growth seen markedly from wound margins with wound contraction.	Healthy granulation tissues growth with wound contraction from margins	Healthy granulation tissues with minimal scar

Graph No-1 Graphical assessment of symptoms before and after treatment



(B.T-Before Treatment 0th day, A.T-After Treatment 35th day) X axis – Assessment criteria; Y axis- Grading of the Subjective/Objective criteria

Actual outcome

35 days treatment with *Meshshringyadi yog* gives mild relief (25- 50%) at 1st follow up and moderate relief (50-75%) at the end of 2nd follow up. It shows remarkable results in healthy granulation after third week i.e from 21 day and shows effective and satisfactory wound healing at the end of fourth week i.e at 28th day.

Result & Discussion

Diabetic wounds are difficult to heal(2). Considering all the signs and symptoms of Diabetic wound similar to that

of *Dushta vrana*, where *Dushta* is one in which there is localization of all three *Dosha*. *Vrana* which had a foul smell with unhealthy wound bed and profuse pus discharge, usually are at tough task and takes a many days to heal(8) (9). Most important is that these Diabetic wounds are usually long standing ulcers where removing debris i.e dead tissues and enabling drug to reach healthy tissue is of prime objective. Due to angiogenesis and neurological problem it is observed that the healing process becomes slow down in chronic wounds(3).

In *Ayurveda Vranas* are treated effectively with *Shasthiupakramas*. According to *Acharya Sushruta*, among the sixty measures of wound management i.e among the *Shasthiupakrama*, *vrana dhavan* with medicated decoction(i.e with the freshly prepared *Meshshringyadi-kwath*) and *awachurnan*(sprinkling of medicated powder) is indicated in cases of chronic - wounds, which are reluctant to heal due to excessive slough formation(2). The *kwath* performs the functions of *Shodhana* (cleansing) and *Awachurnan* helps in *Ropana* (healing) in cases of chronic wounds. Extracts of *the Meshshringi, Amalaki* and *Vijaysar* exhibits a broad spectrum antimicrobial activity, which is an important requirement of wound healing by controlling and reducing the microbial load. In this case, the slough reduced remarkably on 7th day without surgical debridement because *Meshshrigi* and *Vijaysar* contains *kashaya rasa* (astringent taste), which exhibit *Lekhana* (scraping) action and this helped in removing slough simultaneously progressing the wound bed for healing process. As *Amalaki* have the ability to disinfect and destroy the micro-organisms with its antioxidant action wound became clean with healthy

granulation and because of its *Amla* rasa which is rich in Vit.C (Ascorbic acid) eventually leads towards healthy healing(6).

Due to active involvement of *Tridosha*, local signs and symptoms such as pain, discharge, discoloration, bad odor, have been noted. The *Tikta rasa* (bitter taste) of the *Meshshringi*(4) and *katu vipaka* of *Vijaysaar*(5)(7) pacified the vitiated *doshas*, rendered relief in pain, reduces discharge which was proven helpful in wound healing process. Another property of *Amalaki*(6) is antioxidant activity due to the presence of some flavanoids and Ascorbic acid which promotes wound healing property in natural way. The glucosides present in *Vijaysaar* shows antihyperglycemic action which acted as drifter and helped to loosen free radicals as well as stimulates further generation of free radicals(7)

After the *vranadhavan* of diabetic wound with *Meshshringyadi kwath* daily, the wound shows clean wound bed and free from slough and foul smell in first 7 to 10 to days. There shows gross increase in granulation tissue showing good healing effect from third week. The wound started contracting markedly after third week that i.e from 21 days, and shows remarkable wound healing at the end of fourth week. There were no any adverse complains and symptoms noted during the treatment and healing occurred unvariedly. The study was concluded on day 35. Patient was kept under observation with oral *Meshshringyadi yog* for further 3 months only and clinically wound changes have been observed for 6 months and found no significant recurrence signs at the wound site. Hence the diabetic wound management with *Meshshringyadi yog* is found to easy to implement on patient with minimum treatment cost as compare to other treatment modalities.

The clinical feature of Diabetic wound improve at the end of 4th week and wound size also decrease remarkably from 10cm to 1.5 cm.

Probable mode of action of *Meshshringyadi yog churna* when given by oral route –

Amalaki (6) and *Vijaysaar* (5)(7) having flavonoids which acts as antioxidants, *Meshshringi* (4) having gymnemic acid so they act as hypoglycemic agent. It is supposed to be the systemic effect of *Meshshringyadi yog* also which helps to improve the general metabolic status of the patient and maintain the blood glucose by increasing

serum insulin levels systemically which eventually promotes wound healing.

Conclusion

On the basis of this single case study, it can be concluded that, *Meshshringyadi yog* with its Hypoglycemic, Antioxidant, Antimicrobial and Anti-inflammatory properties by oral and local therapy is very effective in the *Vrana Shodhana* and *Vrana Ropana* in the management of Type II Diabetic wound. There is a wide scope for further detail study on more patients clinically with appropriate data analysis.

References

1. Debrah Asiimwe, Godfrey O. Mauti and Ritah Kiconco Prevalance and Risk factors associated with Type 2D.M- journal of Diabetes Research- volume, 2020, article ID5152146, viewed at Google scholar
2. Vasant .C. Patil and Dr. Rajeshwari N.M. *Sushrut Samhita*, Dalhan commentary – sutrasthan volume 1, Chapter-22,23, *Chikitsa-sthana* – chapter 1,2.
3. Russell RCG, Norman S. Williams & Christopher J.K. Bulstrode, Baileys & Love's Short Practice of Surgery-23rd Edition, Lesson -7 page 87-96
4. Mohsina Syedy & Krishnendre Singh Nama, *Gymnema Sylvestra*: A miracle fruit for Diabetes cure, IJPAB2014, ISSN:2320-7051, PG.NO-318-325
5. Janagal Bhageshwary, Purvia rajendra Prasad. Hypoglycemic effect of *Pterocarpus Marsepium* (*Vijaysar*) and *Coccinia Indica* (*Bimbi*) W.S.R to *Madhumeha* (Diabetes Mellitis), IJAAR- ISSN:2347-6362.
6. Aneesa Ansari, Md. Shahed Zaman Shahariar, Md. Mehedi Hassan, Shukla Rani DAS, Begum Rokeya, Anwarul Haque.D, Md. Enamul Haque, Nirupam Biswas, Tama Sarkar. *Embllica officinalis* improves glycemic status and oxidative stress in STZ induced type 2 diabetic model rats-APJTM-7(2014)21-25, Jan-2014.
7. Janagal Bhageshwary, Purvia rajendra Prasad. Hypoglycemic effect of (*Vijaysar Pterocarpus Marsepium*) and *Coccinia Indica* (*Bimbi*) W.S.R to *Madhumeha* (Diabetes Mellitis), IJAAR- ISSN:2347-6362
8. Bramhanand Tripathi, *Ashtanghridayam-Uttartantra*- volume 1&2, Chapter 25 page no 1070-1073
9. Acharya Sidhinandan Mishra. *Charak-Samhita*, Chikitsasthana-vol.2, Chapter-652-657.
