INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES
[ISSN: 0975-4725; CODEN(USA): IJPS00]
Journal Homepage: https://www.ijpsjournal.com

Case Study

Ayurvedic Management of Non-Healing Diabetic Foot Ulcer W.S.R. To Dushtavrana: A Case Study

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ARTICLE INFO

Published: 12 Aug 2026
Keywords:
Dushtavrana, Diabetic Foot Ulcer, Shamanoushadhis, Vrana Shodhana, Kshara Karma
DOI:
10.5281/zenodo.21900837

ABSTRACT

Dushtavrana is a most challenging case faced by the medical practitioners in their day-to-day practice. It has many complications and might end up in amputation. Acharya Sushruta has explained in detail about Dushtavrana in Ayurveda and has said Shashtirupakrama in its management. Dushtavrana can be correlated to Non-Healing Diabetic foot ulcers. Diabetic foot ulceration is a devasting complication of diabetes that is associated with infection, amputation and death. Diabetic foot ulcer is defined as a set of symptoms secondary to current or previous diabetes, including skin chapping, ulceration, infection or destruction of foot tissue [1]. Even after the wound healing there is a high chance of recurrence and amputation. Thus, this shows the need of improvement in treatment methods of Diabetic Foot ulcers. This is a case report of male patient aged 73 years, came to OPD presenting with the complaints of non-healing ulcer with pain, pus discharge and foul smell in the plantar aspect of left foot since 3 years. Patient was administered with Vrana shodhana, Vrana prakshalana with Go Arka and Panchavalkala Kashaya, kshara karma, Jathyadi taila dressing externallay and internally

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Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Laghu Malini Vasanta Rasa, Gandhaka Rasayana, Paripatadi Kashaya, Mahamanjishtadi Khada and abhayarishta was given. Thus, by the above said treatment, the case of dushtavrana was successfully treated. Thus, this study aims to study the effect of Vrana shodhana, Vrana prakshalana and kshara karma along with shamanoushadhis in dushtavrana.

INTRODUCTION

Acharya Sushruta has explained the concept of *Vrana* [2] in detail and has dedicated many chapters which explains the types and different treatment methods of *Vrana*. According to him, *Vrana* is defined as "*vrana gaatra vichurnane, vrana iti vranaha"* [3] which means the condition where in the tissue undergoes destruction.

Vranaropana is the natural process of wound healing but if the *vrana* is infected and takes long time to heal or if it doesn't heal, it leads to *Dushtavrana*. It is of six types. *Dushtavrana* is characterized by the symptoms like *Ativedana* (painful), *Atigandha* (foul smelling), *Puyasraava* (pus discharging), *Deergha kaalunubandha* (chronic), *Daaha* (burning sensation), *Paaka* (suppuration), *Raaga* (reddish discoloration), *Kandu* (itching), *Shopa* (swelling) etc [4]. All these symptoms can be observed in Non-Healing Diabetic foot ulcers.

Acharya Sushruta has said *Shashtirupakrama* [5] in the management of *Vrana* which not only promote healing but also prevent the recurrence of *vrana*, showcasing the timeless relevance of his surgical principles.

Approximately, 18.6 million people with diabetes develop a foot ulcer each year worldwide. Approximately, up to 34% of the people with type 1 or 2 diabetes develop a foot ulcer during their lifetime. About 20% of the people with a diabetic foot ulcer will undergo a lower extremity amputation, either minor or major. Infection and progressive gangrene are the primary causes of lower extremity amputation, with approximately 50% of diabetic foot ulcers becoming infected. Approximately, up to 20% of the people with a diabetic foot ulcer require hospitalization and between 15% to 20% of hospitalized patients undergo a lower extremity amputation [6].

Diabetic foot ulcer is defined as a break of the epidermis and at least a part of dermis in a person with diabetes. More superficial or closed lesions that do not penetrate to dermis (e.g., callous, blisters or erythema) are characterized as preulcerative but are at the high risk of progression to ulcer. Repetitive minor trauma causes ulcer formation in most cases, typically as a result of elevated pressure at plantar weight bearing sites, friction and shearing due to poorly fitting shoes or gait abnormalities, or an unrecognized injury sustained on an insensate foot. Structural deformities, such as Charcot neuroarthropathy, confer additional risk to DFU. Following a minor traumatic event, complex and multifactorial pathways ultimately lead to ulceration [7].

In modern science, Surgical debridement, reduction of weight bearing pressure on the affected area, treating lower extremity ischemia and foot infection and early referral for multidisciplinary care are the first- line therapies for diabetic foot ulcers [8].

Dushtavrana can be treated successfully with the Ayurvedic treatment modalities.

CASE STUDY

In the present case, a 73-year-old male patient came to OPD presented with the complaints of non-healing ulcer with pain, pus discharge and foul smell in the plantar aspect of left foot since 3 years.

HISTORY OF PRESENT ILLNESS

Patient was apparently normal before 3 years. Gradually he developed a painful swelling in the plantar aspect of the left foot after he accidentally fell and got hurt. Later patient noticed foul

smelling pus discharge from the wound. He consulted a local hospital and wound dressing was done and was also given with some oral medications. He was relieved from the symptoms temporarily. But later he again developed with pain and foul-smelling pus discharge from the wound. So, for the further management of the condition, he visited our OPD.

PAST HISTORY

K/c/o Hypertension, Diabetes since 30 years and on regular medication.
K/c/o DVT

PERSONAL HISTORY

- Diet- Mixed
- Appetite- Good
- Sleep- Sound
- Micturition- 3-4 times per day and 0-1 time at night
- Bowel- Regular

On Examination

- Bp-170/100mmhg
- Pulse -88/min
- SpO2 -98%
- RR-22/min
- Height- 155cm
- Weight- 74kgs
- Temperature- 98o F
- Pallor-absent
- Icterus- absent

Systemic examination

- RS-NVBS
- CVS- S1S2 HEARD
- CNS – Conscious and oriented
- GIT- soft and non-tender

PERSONAL HISTORY

Ashtasthana/Ashtavidha pareeksha

- Nadi: Vata Kapha
- Mutra: Prakruta
- Mala: Sama
- Jiwha: Lipta
- Shabda: Prakruta
- Sparsha: Ushna
- Drik: Prakruta
- Akriti: Madhyama

Dashavidha pareeksha

- Prakuti – Vata kaphaja
- Vikriti- Dosha- Kapha pittaja
- Dushya- Mamsa
- Sara- Avara
- Samhanana- Madhyama
- Pramana- Madhyana
- Satmya- Madhyama
- Satva-Madhyama
- Vaya- Vridha
- Vyayama shakti- Avara
- Ahaara shakti- Abhyaharana Shakti: Madhyama
- Jarana shakti*: Madhyama*

VRANA PAREEKSHA

- Vrana Varna – Rakta aruna varna
- Vrana Gandha – Puti gandha
- Vrana Vedana – Toda, daaha
- Vrana Akriti - Vikrita
- Vrana Srava – *Tanu srava*

LOCAL EXAMINATION OF WOUND
ON INSPECTION

- Site- Plantar aspect of Left foot distal to toe
- Swelling- Absent
- Pus- Present
- Slough- Present
- Size- 3 x 1 cms
- Number- 1
- Shape- Irregular

- Edge- Odematous
- Surrounding Area- Normal
- Tenderness- Present
- Warmth around the wound- Absent
- Relation with the deeper structure- Absent

ON PALPATION

TABLE 1: SHOWING EXAMINATION OF VASCULARITY

ARTERY	RIGHT LOWER LIMB	LEFT LOWER LIMB
Dorsalis pedis artery	Normal	Normal
Anterior tibial artery	Normal	Normal
Posterior tibial artery	Normal	Normal
Popliteal artery	Normal	Normal
Femoral artery	Normal	Normal

MATERIALS AND METHODS

Table 2: Showing *ABHYANTARA CHIKITSA*.

SL. NO.	MEDICINE	*SEVANA KAALA*	DOSAGE	*ANUPANA*	FREQUENCY
1.	*Laghu Malini Vasanta Rasa*	After Food	2 Tablets	*Sukhoshna Jala*	Morning and Night
2.	*Gandhaka Rasayana*	After Food	2 Tablets	*Sukhoshna Jala*	Morning and Night
3.	*Paripatadi Kashaya*	Before Food	2 tsp	*Sukhoshna Jala*	Morning and Night

BAHYA CHIKITSA.

- *Vrana shodhana* – wound callous debridement was done.
- *Vrana prakshalana* was done with *Go Arka* and *Panchavalkala Kashaya*.
- Then *Apamarga kshara* was applied followed by *Nimbu swarasa prakshalana.*
- Dressing was done with *Jathyadi taila*. Once in 2 days, dressing was changed.
- After 1 week, Platelet Rich Fibrin application was done over the *Shuddha vrana.*
- Dressing was done once a week for 4 weeks, with offloading and application of *Jatyadi taila*.

PATHYA -APATHYA

- Patient was advised to take *shali, godhuma, mudga, saindhava lavana, grita* and told to maintain foot hygiene.
- Avoid *katu, ushna, teekshna ahara, masha, dadhi, mamsa* and was advised to avoid standing for long hours, walking bare foot, *divaswapna* and *ratri jagarana.*

AFTER TREATMENT

Table 3 Showing follow-up and outcome

VISIT	MEDICINE	OUTCOME	CONTINUATION OR DISCONTINUATION OF MEDICINE
01/01/2025- First Visit	• *Laghu Malini Vasanta Rasa* • *Gandhaka Rasayana* • *Paripatadi Kashaya*	-	Continue all medicines for 15 days.
15/01/2025	• *Laghu Malini Vasanta Rasa* • *Gandhaka Rasayana* • *Paripatadi Kashaya* • *Mahamanjishtadi Khada*	Pain, swelling and pus discharge was significantly reduced.	Continue all the above medicines. Added *Mahamanjishtadi Khada*
10/02/2025	• *Laghu Malini Vasanta Rasa* • *Gandhaka Rasayana* • *Abhayarishta*	Patient had constipation. Features of healthy scar like *jihvathalabha* (red coloured wound floor) was achieved.	*Paripatadi Kashaya* and *Mahamanjishtadi Khada* was discontinued. *Abhayarishta* was added and was continued for 1 week. Rest of the medicines were continued for 1 month. External application was continued till the wound was healed.

COMPOSITIONS OF PRESCRIBED FORMULATION MEDICINES

Table 4: Showing ingredients of *Laghumalini Vasanta rasa*

INGREDIENTS	QUANTITY
Rasaka Bhasma	2 parts
Maricha	1 part
Navaneeta	50% of the ingredients
Nimbu swarasa	Quantity Sufficient

Table 5: Showing ingredients of Gandhaka Rasayana

INGREDIENTS	QUANTITY
Gandhaka	1 part
Godugdha	Quantity Sufficient
Ela	Quantity Sufficient
Twak	Quantity Sufficient
Patra	Quantity Sufficient
Nagakeshara	Quantity Sufficient
Guduchi	Quantity Sufficient
Haritaki	Quantity Sufficient
Vibhitaki	Quantity Sufficient

Amalaki	Quantity Sufficient
Shunti	Quantity Sufficient
Bringaraja	Quantity Sufficient
Ardraka	Quantity Sufficient
Sita	Quantity Sufficient

Table 6: Showing ingredients of *Paripatadi Kashaya*

INGREDIENTS	QUANTITY
Paripatha	260mg
Nimba	50mg
Parpata	100mg
Patala	50mg
Patola	100mg
Sweta Chandana	50mg
Rakta Chandana	50mg
Vasa	100mg
Dhanvayasa	50mg
Amalaki	50mg
Hribera	50mg
Katuka	50mg
Musta	100mg
Aragwadha	100mg
Guduchi	50mg
Yasti	100mg
Kiratatikta	100mg
Shatapatrika	50mg
Ushira	25mg
Haridra	25mg
Draksha	50mg
Dhataki	100mg
Guda	4470mg

Table 7: Showing ingredients of *Mahamanjishtadi Khada*

INGREDIENTS	QUANTITY
Manjishta	1 Part
Musta	1 Part
Kutaja	1 Part
Guduchi	1 Part
Kushta	1 Part
Nagara	1 Part
Bharangi	1 Part
Kshudra	1 Part
Vacha	1 Part
Nimba	1 Part
Haridra	1 Part
Daruharidra	1 Part
Haritaki	1 Part
Vibhitaki	1 Part

Amalaki	1 Part
Patola	1 Part
Katuki	1 Part
Murva	1 Part
Vidanga	1 Part
Asana	1 Part
Chitraka	1 Part
Shatavari	1 Part
Trayamana	1 Part
Krishna	1 Part
Indrayava	1 Part
Vasa	1 Part
Bringaraja	1 Part
Mahadaru	1 Part
Patha	1 Part
Khadira	1 Part
Chandana	1 Part
Trivrit	1 Part
Varuna	1 Part
Kiratatikta	1 Part
Bakuchi	1 Part
Krtamalaka	1 Part
Shakotaka	1 Part
Mahanimba	1 Part
Karanja	1 Part
Ativisha	1 Part
Jala	8 parts
Indravaruni	1 Part
Ananta	1 Part
Sariva	1 Part
Parpata	1 Part

Table 8: Showing ingredients of Abhayarishta

INGREDIENTS	QUANTITY
Abhaya	4.8kg
Mridwika	2.4kg
Vidanga	480g
Madhuka Kusuma	480g
Jala	49.152lt
Guda	4.8kg
Gokshura	96g
Trivrit	96g
Dhanyaka	96g
Dhataki	96g
Indravaruni	96g
Chavya	96g
Mishreya	96g
Shunti	96g
Dhanti	96g
Mocharasa	96g

Table 9: Showing ingredients of *Panchavalkala Kashaya*

INGREDIENTS	QUANTITY
Ashwatha	1 part
Udumbara	1 part
Plaksha	1 part
Vata	1 part
Parisha	1 part
Jala	5x16 parts

Table 10: Showing ingredients of Jatyadi taila

INGREDIENTS		QUANTITY
Jati		
Nimba		
Patola		
Naktamala		
Siktaka		
Madhuka		
Kushta		
Haridra		
Daruharidra		1 part
Katukarohini		
Manjishta		
Padmaka		
Lodhra		
Abhaya		
Neelotpala		
Tuttha		
Sariva		
Tila taila		4 parts
Jala		16 parts

RESULT

Wound was completely healed with the step wise management of the case. In the first visit, patient was having non-healing ulcer with pain, foul smelling pus discharge in the plantar aspect of left foot. After the treatment, Pain, swelling and pus discharge was significantly reduced, along with that there was almost complete absence of necrotic tissue, exudate and slough by 17th day. By 31st day of the regular treatment, features of *Shuddha vrana* like *jihvathalabha* (red coloured wound floor) was achieved. Wound healing was started and wound size was reduced. Wound was almost healed within 5 months.

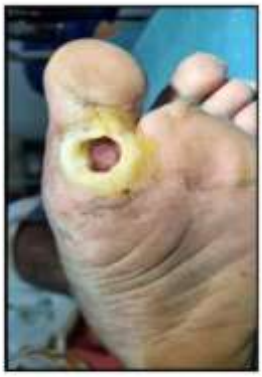

Fig 1- 17th January

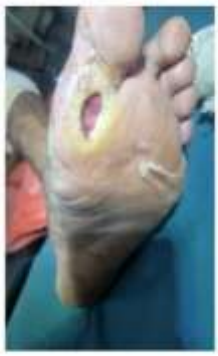

Fig 2 - 31st January

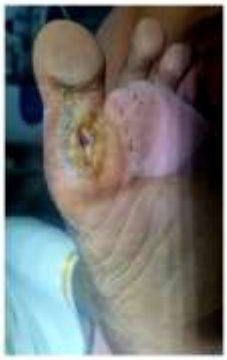

Fig 3 - 17th April

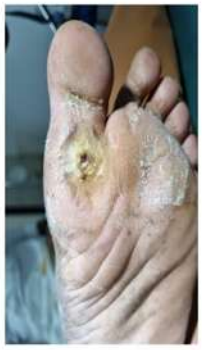

Fig 4 - 31st May

DISCUSSION

In this modern period, because of *mithya ahara* and *vihara*, most of the people are prone to develop with *prameha*. In case of chronic uncontrolled diabetes, it may end up in the complication like non healing diabetic ulcer which is difficult to cure and might end up in amputation in highly infected condition. So, it is very important to treat this condition with the combination of *shamanoushadhis* and *bahyaparimarjana chikithsa*.

The main aim of this study was to evaluate the efficacy of *bahya chikithsa* like *Vrana shodhana, Vrana prakshalana* with *Go Arka* and *Panchavalkala Kashaya, kshara karma, Jathyadi taila* dressing and *shamanoushadhis* like *Laghu Malini Vasanta Rasa, Gandhaka Rasayana, Paripatadi Kashaya, Mahamanjishtadi Khada* and *abhayarishta* in *Dushtavrana*.

MODE OF ACTION OF *LAGHUMALINI VASANTA RASA*[9]

RASAKA- It possesses *Kashaya* and *katu rasa, sheeta guna*. It is *kaphapitta rogahara*. It is indicated in *prameha*. It has "*shleshma kala sankochaka*" property which prevents the excessive secretions from the wound and heal them.

MARICHA- It has *katu rasa, ushna veerya, laghu* and *Tikshna guna, katu vipaka*. It is *kaphavatahara, Deepana, pramathi*.

NAVANEETA- It has *Madhura rasa* and *vipaka, sheeta guna* and *veerya*. It is *agnideepaka, vatapittahara,*.

NIMBU- It has *amla* and *katu rasa, laghu* and *theekshna guna, ushna virya, amla vipaka*. It has

vatakaphahara, Deepana, pachana properties. It also has anti-inflammatory property.

Laghumalini vasanta rasa has *tikta katu rasa, snigdha guna, sheetha virya* and *Madhura vipaka*. *Rasaka* mainly acts on *rasa* and *raktha dhatvagni* and in turn improves the immunity. *Maricha* has *pramathi guna* through which it travels to *Sukshma srotas*, relieves the *srotorodha* and does *preenana* of the *srotas*. If there is *srotorodha* due to *rukshata* of *srotas*, *Navaneeta* does the *snehana* of *ruksha srotas* and relieves *srotorodha*. It also reduces the *rukshata* of *rasaka* and *maricha*.

MODE OF ACTION OF *GANDHAKA RASAYANA*[10]

GANDHAKA – Shuddha Gandhaka has *rasayana* properties. It possesses *Madhura rasa, katu vipaka* and *ushna virya*. It is *agnideepaka, pachaka* and *vishagna*. It acts as *kaphahara* and *kledagna* as it has *ushna virya* and *katu vipaka.*

GODUGDHA- It is having *Madhura rasa, sheeta virya, Madhura vipaka, mridu, snigdha, bahala, slakshna, picchila,guru, manda, Prasanna guna*. It is also *vatapittahara, ojovardhaka, jeevaniya* and *rasayana*.

TWAK- It has *katu, tikta, Madhura rasa, laghu, ruksha, Tikshna guna, ushna virya, katu vipaka*. It has *vatapittahara, balya, varnya, kandughna* and *krimighna*.

ELA- It has *katu, Madhura rasa, laghu ruksha guna, sheeta virya, katu vipaka*. It acts as *kaphavatahara, dipana*.

PATRA- It has *Madhura katu rasa, ushna virya, Tikshna laghu picchila guna,* and *katu vipaka*. It is *kaphavatahara*. It is indicated in *prameha*.

NAGAKESHARA- It has *Kashaya tikta rasa, laghu ruksha Tikshna guna, ushna virya* and *katu vipaka*. It *is kaphapittahara, pramathi, pachaka, vishahara, shothahara, kandugna* and *kushtagna*.

GUDUCHI- It has *tikta Kashaya rasa, guru snigdha guna, ushna virya* and *Madhura vipaka*. It is *tridoshahara, rasayana, dipaniya, kandugna* and does *dahaprashamana*. It has its action on *prameha, kushta, krimi* etc.

HARITHAKI- It has *Kashaya pradhana lavana varjitha pancharasa, laghu ruksha guna, ushna virya, Madhura vipaka.* It is *tridoshahara, anulomaka, rasayana, lekhana, shothahara*. It has its action on *prameha, kushta, vrana, krimi* etc.

VIBHITAKI- It is having *Kashaya rasa, laghu ruksha guna, ushna virya, Madhura vipaka.* It is *kaphapittahara*.

AMALAKI- It is *amla pradhana lavana varjitha pancharasa, sheeta virya, Madhura vipaka.* It is *tridoshahara, rasayana* and has action on *prameha, kushta, shula* etc.

BRINGARAJA- It has *katu tikta rasa, laghu ruksha guna, ushna virya, katu vipaka*. It is *kaphavatahara, rasayana, krimigna, kushtagna and shothagna*.

ARDRAKA- It has *Katu rasa, guru, ruksha, tikshna guna, ushna virya, Madhura vipaka*. It has *vatakaphahara, dipana, bhedana, shulaprashamana, vranahara, kushtagna* and *shophahara* properties.

SITA- It is *Madhura rasa, ruchya, vatapittahara, dahagna, kushtahara, vranahara*.

Gandhaka rasayana is *pittapradhana tridoshahara* and *rakthaprasadaka*. *Gandhaka shodhana* is done with *godugdha* and *gritha* which reduces the *ushnata* of *gandhaka*. And *gritha* removes the toxicity of *gandhaka* by its *vishgna* property. *Sita* neutralizes the *ruksha guna* of the formulation. *Sugandha dravyas* like *chaturjataka* has ability to reach *Sukshma srotas* and clears *srothorodha*. Here most of the drugs have *laghu ruksha guna* and *ushna virya* which acts as *kledashoshaka* and *dhatwagnipradeepaka*.

MODE OF ACTION OF *PARIPATADI KASHAYA*[11]

Most of the drugs in this *Kashaya* are *Katu, tikta* and *Kashaya rasa pradhana, laghu ruksha guna, sheeta virya* and *katu vipaka*.

Drugs like *patola, kiratatikta, katuka, Chandana, yasti, ushira* has *dahaprashamana* property. *Aragwadha, yashti, Chandana, katuka, kiratatikta, haridra, musta, nimba, patola, guduchi* and *amalaka* has *kandugna, krimigna* and *kushtagna properties*. Drugs like *nimba, yasti, kiratatikta, haridra* are *vranaropaka*.

Chandana, ushira, yashti, patola are *varnya* and help in restoring the skin tone and texture. *Patala, kiratatikta, yasti* has *shothahara* property. *Mushta, haridra* and *katuka* has *lekhana karma* which scraps out the dead tissue present in the wound. *Haridra, vasa, nimba, katuka, Chandana, gududchi, aragwadha, amalaki* are indicated in *prameha*.

Most of the drugs in this formulation has *dipana*, *pachana, kaphapittahara* and *rakthashodhaka* properties and helps in healing of the wound.

Extract of *Shunti*, Gingerol activates vascularization, myofibroblasts and fibrin deposition in such a manner to synthesize new tissues and help in the scar formation. It is having anti-inflammatory action and promotes new tissue formation via vascularization process during the wound healing[12].

MODE OF ACTION OF *MAHAMANJISHTADI KADHA*[13]

Manjishta which is the main ingredient of this formulation has *Madhura tikta rasa, guru ruksha guna, ushna virya* and *katu vipaka*. It has *varnya, kapha pittashamaka, pramehahara, raktashodhaka, vishagna* properties.

Manjishta, kutaja, kantakari, nimba, daruharidra, asana, Khadira, sariva, parpata etc has *rakthashodhaka* property. *Chandana, manjishta, haridra* etc has *varnya* property which helps to improve the skin tone and texture. *Sariva* and *asana* are *dahashamaka. Aragwadha, ativisha, bakuchi, karanja, mahanimba, trivrit, Khadira, devadaru, vidanga* and *nimbatwak* acts as *krimigna* and *kushtagna*.

Most of the drugs in this *Kashaya* are *tikta rasa pradhana, laghu ruksha guna, ushna virya* and *katu vipaka*. And has *varnya, kaphapittashamaka, shothagna, kushtagna, vranaropaka, rakthashodhaka, dahaprashamana, kandugna, vedanashamaka, krimighna* properties.

MODE OF ACTION OF *ABHAYARISHTA*[14]

Abhaya which is the main ingredient of *abhayarishta* has *Kashaya pradhana lavana varjitha pancharasa, laghu ruksha guna, ushna virya, Madhura vipaka*. It is *tridoshahara, anulomaka, rasayana, lekhana, shothahara*. Due to its *rechaka* and *anulomaka* properties it increases the peristaltic movement and helps in easy evacuation of the stool.

Drugs like *Abhaya, indravaruni, trivrit, danti, draksha* are having the property of *rechana. Shunti, trivrit* and *danti* are *bhedaka*. *Deepana* and *pachana* property of the drugs helps in increasing the *jatharagni* by *amapachana*. Most of the drugs in this formulation have *vatahara, Deepana, pachana* and *vibandhahara* properties which helps in the evacuation of *mala*.

MODE OF ACTION OF *GOMUTRA ARKA*

Gomutra has *kandugna, kushtagna* and *krimigna* properties[15]. *Kashaya rasa* and *Kaphahara* property of *gomutra* helps to reduce *kandu* and *srava*. *Kashaya rasa* is *vranaropana* and *lekhana*. *Vatahara* and *ushna guna* reduces pain. *Tikta* and *Kashaya rasa* helps in alleviating foul smell from the wound. *Tikshna guna* helps to penetrate deeper. *Tikshna, Sukshma, vyavayi guna* of *arka* aids in quick action. *Gomutra arka* has *kshara guna, lekhana* and *chedana* property which helps in scrapping the slough and nectrotic tissue and promotes wound healing.

MODE OF ACTION OF *KSHARA*[16]

Acharya Sushrutha has mentioned the application of *kshara* in *dushta vrana* which helps in wound debridement. *Ushna guna* of *kshara* might have action upon the pain and *katu tikshna* guna helps in *vranashodhana*. *Shoshana guna* of *kshara* helps in reducing the swelling, *lekhana guna* removes the slough and necrotic tissue. *Sthambhana guna* checks *vrana srava. Kshara* has *vrana shodhana* and *ropana karma* also which collectively helps in wound healing.

MODE OF ACTION OF *JATYADI TAILA*[17]

Majority of ingredients of *jatyadi taila* has *tikta Kashaya rasa* and *laghu ruksha guna. Tikta Kashaya rasa* is *pitta kaphahara* and does *vranashodhana* and *ropana*.

Major ingredient of *jatyadi taila* is *jati* which has *tikta Kashaya rasa, laghu snigdha mridu guna, ushna virya* and *katu vipaka*. It has *vishagna, kushtagna, rakthadoshashamaka, vranaropana, vranashodhana, shothagna karma*.

Drugs like *jati, nimba, haridra* has antibacterial, anti-inflammatory, anti-microbial properties. *Tuttha* which is one of the ingredients, has *lekhana karma* which helps in removing the slough from the wound. Drugs like *haridra, lodhra, manjishta, patola* etc has *varnya karma*. Most of the drugs are having *rakthashodhaka, vranaropana, varnya, krimigna, kandugna* properties which collectively help in the healing of the wound.

MODE OF ACTION OF *PANCHAVALKALA KASHAYA*[18]

Ingredients of *Panchavalkala Kashaya* mostly has *Kashaya rasa, guru ruksha guna, sheeta virya, katu vipaka*. They are *kaphapittahara, pramehahara, kushtagna, varnya, sthambaka* and does *vranashodhana* and *ropana*.

Panchavalkala Kashaya has *Kashaya rasa* which has *sthambana* and *kledopashamana* properties which helps reduce *vrana srava. Ruksha guna* and *katu vipaka* helps to reduce *vrana srava* and *vrana shotha*. *Kaphapittahara* property helps to reduce *kandu* and *daha*. *Guru guna* of *panchavalaka Kashaya* might have an action on pain. These properties along with *vranashodhana* and *ropana* properties collectively help in wound healing.

CONCLUSION

Acharya Sushruta has dedicated a separate chapter for the treatment of *dushtavrana* in *chikithsa sthana* which shows the importance of *dushtavrana chikithsa* in ancient period. He has said *Shashtirupakrama* in the management of *Vrana* which not only promote healing but also prevent the recurrence of *vrana.* Among *Shashtirupakrama,* appropriate treatment has to be selected according the condition of the *vrana*.

Here in this case, *Vrana shodhana, Vrana prakshalana* with *Go Arka* and *Panchavalkala Kashaya, kshara karma* along with the *shamanoushadhis* helped in wound debridement which washed away the exudate, necrotic tissue and slough from the ulcer. And helped to reduce pain and swelling.

This study shows that the step wise management with *bahyaparimarjana chikithsa* and *shamanoushadis* was highly effective in treating the non-healing diabetic foot ulcer. As it is a single case study, further more cases of *dushtavrana* are need to be studied to know the effect of this treatment protocol for the scientific recognition.

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HOW TO CITE: Dr. Chaithra P. B, Dr. Rachana C, Dr. Parikshitha, Dr. Ashwin Shetty, Dr. Shristy Shetty, Dr. Samarth Ballyaya, Ayurvedic Management of Non-Healing Diabetic Foot Ulcer W.S.R. To Dushtavrana: A Case Study, Int. J. of Pharm. Sci., 2026, Vol 4, Issue 8, 1960-1973, https://doi.org/10.5281/zenodo.21900837