Case Report

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Ayurvedic Management of *Dushta Vrana* (Non Healing Wound) in a Diabetic Foot: A Case Report

Surgery Section

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ABSTRACT

Vrana is the break or destruction, or discontinuity, of body tissue or part of the body. *Acharya Sushruta* has provided a detailed description of managing *Dushta Vrana* in *Shasti Upkramas* in his *Shushrut Samhita*. Here, we present a case of a 66-year-old male who visited the OPD with a chief complaint of a wound between his big toe and the second toe of his right foot, associated with a foul smell and severe pain. This case was treated with *prakshalan* (cleansing) of the wound using *Panchvalkal Kwath* (decoction), followed by the application of *Nirgundi Tail* and oral intake of *Kishoreguggulu*, *Agrogyavardhanivati*, and *Mhamanjisthaikwath*. These medications have *vranashodhana*, *vranaropana*, and *raktashodhak* properties. They were applied topically on a non-healing ulcer/*dushta vrana* once daily for one month, along with *pathya-apathya* (prescribed diet and regimen). The patient experienced relief, and the wound healed completely with minimal scarring. Additionally, this classical herbal formulation was well accepted by the patient and caused no side effects during the entire study period.

Keywords: Decoction, *Nirgunditail*, Non-healing ulcer

CASE REPORT

A 66-year-old male, vendor by occupation, belonging to the below-poverty-line socioeconomic group and residing in unhygienic conditions in a jhuggi settlement, presented to the outpatient department with a known history of type 2 diabetes mellitus. He reported a non-healing ulcer of Wagner's Grade 2 located between the hallux and second toe of the right foot, associated with difficulty in ambulation for the past eight months.

The patient had been apparently healthy until five years prior, when he was diagnosed with type 2 diabetes mellitus. Since diagnosis, he had been prescribed oral hypoglycaemic therapy (tablet Glimp M1 once daily). However, medication adherence was inconsistent over the past year. Eight months earlier, he sustained trauma to the right foot while hawking goods, as he was wearing torn footwear. The wound was initially neglected and managed with self-dressing, but failed to heal. Over time, the ulcer deepened, became painful, and developed thick purulent discharge. Despite consulting multiple physicians, he experienced no significant improvement and subsequently sought care at our institution.

There was no history of hypertension, thyroid dysfunction, or other systemic illnesses. Family history was non-contributory. The patient reported intermittent use of oral antidiabetic medication over the past five years, with discrepancies noted between his recollection and previous prescriptions.

Dietary intake was mixed, with preserved appetite. Bowel habits were regular, and micturition occurred 5-6 times during the day and 1-2 times nocturnally. Thirst was within normal limits. Sleep was occasionally disturbed due to wound-related pain, with an average duration of 5-6 hours per day. He admitted to occasional alcohol consumption.

On general examination, the patient's condition was fair. Pulse rate was 88 beats per minute and regular; blood pressure was 136/86 mmHg. Local inspection revealed a single triangular ulcer located between the hallux and second toe of the right foot, measuring approximately 4×3×2.5 cm. The ulcer margins were irregular, with indurated edges and a tissue base. Mild purulent discharge with foul odour was present. Surrounding skin demonstrated maceration. Tenderness was mild on palpation. Peripheral pulses were palpable, regular, and of full volume [Table/Fig-1]. Fasting blood glucose was 210 mg/dL, and postprandial blood glucose was 350 mg/dL. No pallor or icterus was observed. Initial laboratory evaluation revealed haemoglobin of 12.8 g/dL and HbA1c of 6.7%, indicating suboptimal glycaemic control. Fasting and postprandial blood glucose levels were markedly elevated at 210 mg/dL and 350 mg/dL, respectively. Total leukocyte count was 10,000 cells/mm^3, and erythrocyte sedimentation rate was raised at 30 mm/hr, suggestive of ongoing inflammatory activity. Renal function tests were within normal limits. Wound swab culture demonstrated growth of *Staphylococcus aureus*. Radiographic examination of the right foot showed no evidence of bony involvement [Table/Fig-2].

[Table/Fig-1]: Pre-treatment clinical photograph demonstrating a Wagner's Grade 2 diabetic foot ulcer located between the hallux and second toe of the right foot, measuring approximately 4×3×2.5 cm.

Management was aimed at Vrana Ropana (wound healing) and *Shodhana* (cleansing) through *Sthānīka* (local) and *Abhyantara Śamana Chikitsa* (internal therapy) [Table/Fig-3,4].

Investigations	Before	After 1 month of treatment
Hb (gm/dL)	12.8	13.7
HbA1c	6.7%	5.8%
BSL (F) (gm/dL) BSL (PP) (gm/dL)	210 350	100 210
TLC (cells/mm3)	10000	8000
ESR (mm/hr)	30	20
RFT	WNL	WNL
Wound swab c/s	*Staphylococcus aureus*	No growth seen (pus culture and sensitivity report)
X-ray right foot	No evidence of bony involvement	No evidence of bony involvement

[Table/Fig-2]: Comparative laboratory and radiological investigations before initiation of treatment and after one month of therapy in a patient with Wagner's Grade 2 diabetic foot ulcer.
Hb: Haemoglobin; HbA1c: Glycosylated haemoglobin; BSL: Blood sugar level; F: Fasting; PP: Post-prandial; TLC: Total leukocyte count; ESR: Erythrocyte sedimentation rate; RFT: Renal function test

Category	Procedure/ Medicine	Dose/Quantity & Mode of Administration	Timing	Duration
External Therapy (Ayurveda)	*Vranaprakṣālana* (wound irrigation with *Panchavalkal kwath*)	250 mL daily, continuous wash after sterile gauze cleaning	Daily	1 month
	Vrana Āchādana (wound dressing with *Nirgundi Taila*)	Sufficient amount applied with sterile gauze, secured with bandage	Daily	1 month
Internal Therapy (Ayurveda)	*Kishore Guggulu*	500 mg (crushed, with lukewarm water)	After meals, BD	1 month
	Arogya Vardhani Vati	500 mg with lukewarm water	After meals, BD	1 month
	Mahāmanjiṣṭhādi Kwath	40 mL	After meals, BD	1 month
Internal Therapy (Modern Medicine)	Dicloxacillin	250 mg	After meals, BD	5 days
	Tab Glimp M1	1 tablet	OD	1 month

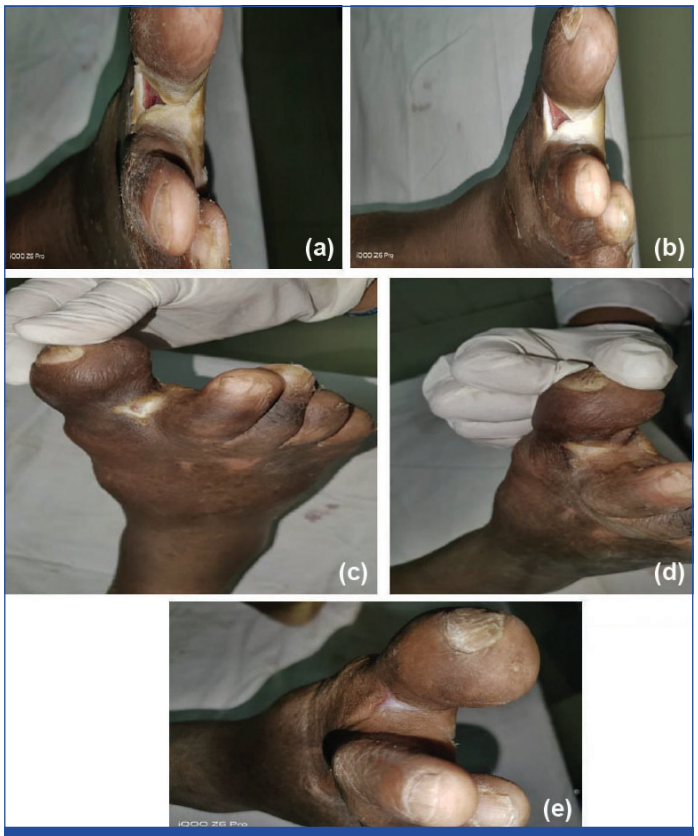
[Table/Fig-3]: Comprehensive treatment protocol administered for 1 month.

[Table/Fig-4]: Topical application of *Nirgundi Taila* (Nirgundita) as part of Sthānika Chikitsa for diabetic foot ulcer management.

Post-treatment, pain intensity decreased from 8 to 0 on the Visual Analogue Scale (VAS). Signs of infection and tissue degeneration resolved, and the ulcer healed with minimal scarring. At follow-up, itching and malodour were absent, indicating microbial clearance and restoration of tissue integrity [Table/Fig-5]. Over 40 days, integrative management with *Vranaprakṣālana* (Panchavalkal kwath irrigation), *Vrana Achadana (Nirgundi Taila* dressing), and internal medications (Ayurvedic and modern) produced progressive improvement, characterised by infection resolution, healthy granulation, wound contraction, epithelialisation, and complete healing with scar formation [Table/Fig-6a-e]. Pain steadily declined

Symptoms	Before treatment	After 1 month of treatment
Pain (VAS)	8	0
Discharge	Present	Absent
Slough	Present	Absent
Granulation tissue	Absent	Present
Itching	Moderate	Absent
Smell	Foul	Absent
Size (measuring scale)	4x3x2.5 cm	Healed with a little scar mark
Tenderness	Mild	Absent

[Table/Fig-5]: Symptomatic comparison before and after one month of integrative treatment for Wagner's Grade 2 diabetic foot ulcer.



[Table/Fig-6a-e]: Sequential follow-up of a diabetic foot ulcer managed with *Vranaprakṣālana* (*Pañcavalkala Kwath* irrigation), *Vrana Āchādana* (*Nirgundi Taila* dressing), and internal medications (Ayurvedic and modern).

from moderate-to severe at baseline to absent by day 28, with no complications observed throughout the treatment period.

DISCUSSION

The global prevalence rate of diabetic foot ulcer is 6.3%. In comparison to females, males are commonly affected [1].

Diabetic wounds are characterised by excessive inflammation, decreased angiogenesis, disrupted keratinocyte migration, and decreased fibroblast proliferation [2]. The combined effect of local application and internal intake of *Ayurvedic medicine* reduces inflammation and glycaemic index and hence, helps in wound healing [3]. Integrating *Ayurveda* with standard care can provide a safe, cost-effective, and holistic alternative in managing diabetic foot ulcers [3,4].

Panchvalkal Kwath [5], prepared from the barks of *Ficusbenghalensis*, *F. religiosa*, *F. glomerata*, *F. lacor*, and *Thespesiapopulnea*, possesses both *vranashodhak* and *vranaropak* qualities. *Panchvalkal Kwath* acts through *raktapittaghna, kaphashamakguna*. Its properties of *kashaya* (astringent), *tikta* (bitter), *uparasa*, and *ruksha* (dry) aid in eliminating slough and provide the right environment to resume the regeneration of injured tissue cells. These *gunas* are useful for normalising vitiated *kapha*. The decoction has demonstrated significant antibacterial activity against *Staphylococcus aureus*,

S. No.	Author and year of publication	Case presentation	Treatment	Outcome
1.	Bopparathi S and Narasimha Raju KV 2023 [10]	A 48-year-old female patient presented with swelling and a gangrenous deep circular ulcer over the greater toe of the left foot	Treatment includes a combination therapy including medicinal leech therapy, cleansing the wound with *Triphala* decoction with *jatyadi tail* dressing.	Complete healing of the wound and there were no signs of recurrence
2.	Chawla NK et al., 2024 [11]	A 72-year-old female patient with cellulitis and a diabetic ulcer over the left foot	Treatment includes oral medication *Vasant Kusumakar Ras*, *panchatikta ghritaguggul*, *Raktapachak* capsule, along with decoction of *haridra* & *triphala*.	Oral ayurvedic medicines control diabetes mellitus internally and local application reduces the size of the wound
3.	Babar PM and Pandey MH 2023 [12]	A 68-year-old male patient with a diabetic wound on the right foot	Treatment includes daily dressing with *Panchwalkalkwath*, *madhu* and *ghrita* for 15 days	After 15 days of treatment, the skin discoloration had reduced, epithelialisation was evident, and the wound showed signs of faster healing.
4.	Ganatra RJ and Dudhamal T 2023 [13]	A 66-year-old male patient with non-healing ulcer(*dushtavrana*) over lateral aspect of right foot	Treatment includes *Parisheka* with *Triphala Kwatha* for 5 minutes, followed by local wound dressing with *Apamarga Kshara Taila*. Oral *Ayurvedic* medication such as *Punarnavashtaka Kwatha* 20 mL twice a day empty stomach, *Haritaki Churna* 5 gm at bedtime with lukewarm water, and *Sanjivani Vati* (125 gm) 1 tablet four times a day after a meal	Exudate was completely ceased. The wound has been covered with healthy granulation tissue. Wound size was also reduced.
5.	Current study	A 66-year-old male patient with a non-healing wound with special reference to a diabetic foot ulcer between the 2nd toe and the great toe of the right foot	Treatment includes *vranaprakshalan* with *Panchwalakalkwath* and dressing with *nirgundi tail* gauze along with internal medicines such as *kaishoreguggulu*, *Arogyavardhini vati*, and *Mahamanjishthadi kwath*.	After 1-month, significant reduction in microbial load, faster granulation, and improved epithelialisation were seen and complete wound healing was seen.

[Table/Fig-7]: A comparative overview of outcomes from past literature and the current study [10-13].

Escherichia coli, and *Pseudomonas aeruginosa*, thereby preventing infection and supporting wound cleansing [6]. Its anti-inflammatory effect reduces local erythema, oedema, and pain by down-regulating inflammatory mediators, which aids in the early progression of healing. In addition, flavonoids and polyphenols act as antioxidants, reducing oxidative stress, enhancing fibroblast proliferation, and promoting collagen synthesis, thus improving tissue repair and epithelialisation [7]. Regular washing with *Panchavalkal Kwath* also provides effective *Vrana Shodhana* (debridement), by removing slough, pus, and malodour, thereby creating a favourable wound bed for granulation tissue formation and rapid closure [6].

Nirgundi is a combination of *Ushnaveerya*, *Tikta*, *Katu*, and is *Kashaya gunapradhana*.

It has anulomana qualities, *shophahara*, and *kapha-vatashamaka*. *Nirgundi* is *Vatakaphahara* and *UshnaVeerya*, *Shothahara*, and has *Shoolahara karma*. Analgesic property has also been demonstrated. It contains flavonoids, which have potent anti-inflammatory properties [8].

The formulation's *Raktashodhaka* (blood-purifying) and *Pitta-Kaphashamak* actions help correct internal derangements contributing to chronic, non-healing wounds. These properties enable *Kaishoreguggul* to promote *Vrana Shodhana* (cleansing), reduce chronic inflammation, support granulation, and hasten overall wound healing [9].

Past literature findings have demonstrated the effectiveness of *Ayurvedic* interventions in managing *Dushta Vrana* and diabetic foot ulcers, with approaches ranging from medicinal leech therapy and herbal decoctions to local dressings and systemic formulations [10-13]. The present case aligns with these findings, showing progressive healing through integrative management with *Pañcavalkala Kwath* irrigation, *Nirgundi Taila* dressing, and internal medications [Table/Fig-7] [10-13].

CONCLUSION(S)

The integrative *Ayurvedic* regimen- comprising *Kaishoreguggulu*, *Arogyavardhani Vati*, *Mahamanjisthadi Kwath*, *Nirgundi Tail*, and *Panchavalkal Kwath*- proved effective in accelerating wound granulation and epithelialisation while reducing discomfort, irritation, and discharge. Beyond local healing, it corrected underlying raktadushti and enhanced systemic immunity. The treatment was well tolerated, produced no adverse effects, and demonstrated safety, comprehensiveness, and cost-effectiveness. These encouraging outcomes highlight its potential as a viable wound care approach, warranting validation through larger, controlled studies.

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