Section A-Research paper
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AYURVEDIC MANAGEMENT ALONG WITH STHANIKA DHOOPANA (LOCAL FUMIGATION) IN THE INFECTED VENOUS ULCER: CASE REPORT

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ABSTRACT

Infected wounds are manifested as a complication of trauma or due to various pathological conditions and are difficult to manage because of their non-healing nature. In Ayurveda, infected wounds can be compared with *Dushta vrana*. Besides other modalities of treatment; *dhoopana karma* has been emphasized in the management of such manifestations. Here is the case report of a patient with such complaints. A male patient of 59 years of age visited OPD of *Shalya tantra* with complaints of severe pain, swelling with non-healing ulceration over the dorsum of left foot with history of prolonged standing for the past 25 years. Local examination revealed an ulcer covered with some necrotic tissue with progressive inflammatory changes. Based upon the history and clinical findings; the case was diagnosed as *Sirajanya Dushta vrana*, as it was resulted from venous stasis. *Sthanika dhoopana* was done using *gana dhoopa* by following classical guidelines of Ayurveda. Simultaneously, cleaning of wound with *Panchavalkala Kashaya* and dressing with *Jatyadi Taila* were done for 20 consecutive days. Changes in size, shape, floor, and margin of the ulcer were recorded at regular interval. Pain and discharge were completely subsided after 15 consecutive days of *dhoopana*. Significant healing in wound observed after 20 days without any adverse effects. Once proved, these *sthanika karma* will definitely help wide acceptance of Ayurveda as a scientific health care system particularly in those regions of world where still it is strongly believed that Ayurveda is just a traditional method of health care with no or minimal understanding on scientific parameters.

Key words: Ayurveda, *sirajanya dushta vrana*, *sthanika dhoopana*, venous stasis, non-healing ulcers, case report

INTRODUCTION

A venous ulcer is the common and recurrent form of leg ulcers encountered in general practice. A venous leg ulcer is the wound occur due to chronic venous insufficiency. It is due

to improper function of venous valves of the leg[1]. Around 70 to 90% of chronic leg ulcer is of venous origin. If this ulcer left untreated or not properly treated, they can lead to cellulitis, gangrene and even amputation of the affected limb. It occurs due to raised intravenous pressure secondary to deep vein thrombosis (DVT), obesity, injury, chronic constipation, and long-standing occupation. Chronic and prolonged cases of varicose vein yield valve incompetency resulting in venous hypertension allowing blood protein fibrinogen leakage causing fibrin to build up around vessels preventing oxygen and nutrients from reaching the cells. This fibrin plug causes ischemia resulting in delayed healing of wounds. Continuous venous hypertension damages capillaries of skin and subcutaneous tissues, resulting in capillary proliferation and inflammation and progress in venous ulceration[2]. In conventional systems, supportive care such as wound dressing, elastic bandages, and compression stocking are advised. Self-care includes leg elevation and physical exercises are being used apart from medications like antibiotics, dietary supplements, and non-steroidal anti-inflammatory drugs. Surgical treatment includes skin grafting, sclerotherapy, laser ablation, correction of the venous plexus through reconstructive surgery is practiced which have their limitations[3]. Conventional treatment though is effective but requires surgical intervention and are not always affordable. In Ayurveda, this condition is clinically correlated with *'Sira janya dushta Vrana'. Dushta Vrana* is a non-healing/delayed healing type of infected wound resulted from varied etiology. Exclusive description of wound and its management can be observed in the texts of Ayurveda. Herein the details of a chronic venous leg ulcer case have been presented, which successively intervened with *sthanika chikitsha* and some internal medications. Considerable healing of wounds with reduction in varicosity and hyperpigmentation observed after 20 days of treatment.

CASE REPORT/ PATIENT INFORMATION

A 59-year-old male presented with complaints of non-healing ulcers at the medial and lateral malleolus of the left leg for 25 years. He was habituated to standing for long hours in his job, i.e., about 10 to 12 hours for the past 30 years. At first, the patient developed varicose veins on right leg from below of the knee, followed by hyperpigmentation, mild brawny edema of the left foot and a small sore at the medial malleolus of the left leg, which eventually burst and with course of time developed into a massive non healing ulcer. The ulcer was gradual in onset and progressive in nature. The patient had consulted a physician and was prescribed with antibiotics, topical antiseptic cream and self-care of the wound, without any significant benefit. There was no history of direct trauma. There was pain around the ulcer with scanty, seropurulent, foul smelling discharge from the ulcer. The patient also has itching without any muscle cramp either during activities or at night. There was no history of constipation, chronic cough, weight loss, pain abdomen, and fever present. His bladder and bowel habits were regular and had a normal appetite. His medical history did not reveal any other illness like diabetes, hypertension and thyroid disease. Informed consent was obtained from the patient for documentation and publication of his case history.

Clinical findings:

General Examination - General condition and appearance found good, ambulatory, weight: 90 kg; height: 180 cm; the skin of lower left leg is hyperpigmented and thickened. No pallor, icterus, cyanosis, clubbing, lymphadenopathy, and koilonychias were seen. Neck veins were not engorged; mild edema observed around the leg ulcer. The vitals of the patient were stable

with pulse rate: 75/min., regular; blood pressure: 110/80 mmHg; respiration rate: 18/min., regular; afebrile. His *Prakriti* was *Pitta-kapha* predominant.

Physical Examination - In standing position long, tortuous, slightly dilated veins were seen extending from above the medial malleolus and were more prominent at the level of the left calf region. Localized swelling also observed on the anteromedial aspect of the left leg along the course of the long saphenous vein. The skin of the lower left leg was hyperpigmented and thickened. There was no impulse on coughing at the saphenous opening. On examination, a reddish large ulcer and many small oval ulcers with sloping edges were found. The large ulcer measured 15×15 cm approx. with an irregular margin and seropurulent discharge, without any scab on the floor of the ulcers. The surrounding area was hyperpigmented with scaling, and mild cellulitis was noticed. The right leg was intact. On palpation, there was mild tenderness without any defined induration, ulcers were not fixed to the underlying structure, no calf tenderness, no neurological deficit noticed on left leg. Mild increase in local temperature around the ulcer felt. Varicosity of the vein was confirmed by Trendelenburg's test and was found positive. No lymph node found palpable. In systemic examinations none of abnormality was found.

On the basis of symptoms such as *attivivrittavraṇa* (spreading nature), *utsanna* (elevated margin), *raktavarṇa* (reddish), *srava* (secretion), *daha* (burning sensation), and *shopha* (swelling) present in the patient, he was diagnosed as *dushṭa vrana*[4] with *vatapradhanatridoshajavraṇa*.

Investigations - Required hematological, biochemical and microbiological investigations were performed to diagnose the case (Table1) and also to assess the efficacy and safety of treatment before and after management.

1) Comparative hematological and a biochemical parameter of the patient

Before Treatment (on 13/09/2022)	**After treatment** (on 04/10/2022)
ABO grouping: B • Rh typing: Positive • Hemoglobin: 11.6 g/dl • TLC: 6290/mm3 • DLC Neutrophil: 61% Lymphocyte: 23% Monocyte: 8% Eosinophil: 5% Basophil: 0% ESR:100 mm/1st hour Fasting blood sugar: 77 mg/dL Sr. urea: 13.2 mg/dL Sr. creatinine: 0.93 mg/dL HIV: Non-reactive HBSAg: Non-reactive Wound swab culture: Positive Organism in culture: E. coli	• Hemoglobin: 11.9 g/dL • TLC: 7470/mm3 • DLC Neutrophil: 64% Lymphocyte: 22% Monocyte: 7% Eosinophil: 4% Basophil: 0% ESR: 48 mm/1st hour Wound swab culture: Negative Organism in culture: No growth

Diagnostic Assessment of the Case

From the detailed history, ancillary investigations, the case was differentiated from other causes of leg ulcers such as a diabetic, neuropathic, arterial and tubercular ulcer.

Case Conception and Therapeutic Intervention

The presenting case of venous leg ulcers can be correlated with '*Sira janya dushta vrana*' mentioned in Ayurveda. *Sushruta* emphasized wound description along with management in *sashti upakrama* chapter. *Sushruta* had also mentioned that the wound of lower extremities discharges from below in upper direction (antigravity) are difficult to cure.[5] Venous leg ulcers also called the stasis ulcer to occur due to venous insufficiency. It is a pathological derangement, and thus the ulcer remained unhealed if the venous drainage remains sluggish. The only way to restore the functional efficiency of the limbs is strengthening the muscle around, through which the veins pierced up. But prior to that proper cleansing therapy should be carried out to initiate the healing process for which classical *Vrana Chikitsha* can be executed, bearing the basics of *dosha* pacification in mind. Considering the involvement of *Dosha, Dushya, Sthana* and organ/tissue involvement in the case, comprehensive Ayurvedic modalities include few Ayurvedic formulations for internal use, *Vrana parisheka* (pouring of decoction on the wound) and *sthanika dhoopana* were selected. Lifestyle modification and self-care also advised to the patient during the treatment and follow-up phase. Initially the patient was prescribed with *triphala guggul, arogyavardhini vati, hingwastaka churna, gandhakadya rasayoga* for internal use along with cleansing of the wound with the *panchavalkala Kashaya* and gentle rubbing of *jatyadi Tailam* on engorged veins and over ulcer during bandaging to promote healing of the wound at outpatient department (OPD) level. The patient was advised to report every day for half an hour of *dhoopana* sitting for 20 days. For *dhoopana karma*, the formulation used was *gana dhoop*[6] taken from *Kashyap Samhita* whose contents were: *ghrita, akshata, jatipuspa, madhu, siddharthaka* and *vaccha*.

Details of visits including the follow-up on every 5th day

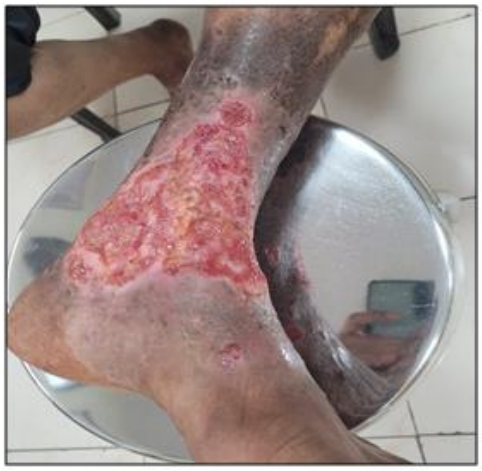
Date and day of the visit	Summaries from initial and follow up visits and description of lesion/ulcer
14.09.22 (1st day)	Pain (++), discharge (++) localized oedema (+) varicosity of vein (++), localized tenderness around the wound (+) itching (+) Hyperpigmentation (+++), size- 15×15 cm
19.09.22 (5th day)	Pain (+), discharge (+), localized oedema (+) varicosity of vein (++), tenderness and itching (+), decreased in wound size, hyperpigmentation (+++), size- 14.2 ×13.5 cm
24.09.22 (10th day)	Pain-reduced, discharge from the wound– very mild, no swelling, varicosity-reduced, no localized tenderness, Itching- occasional, hyperpigmentation (++), decreased in wound size than previous, appearance of granulation

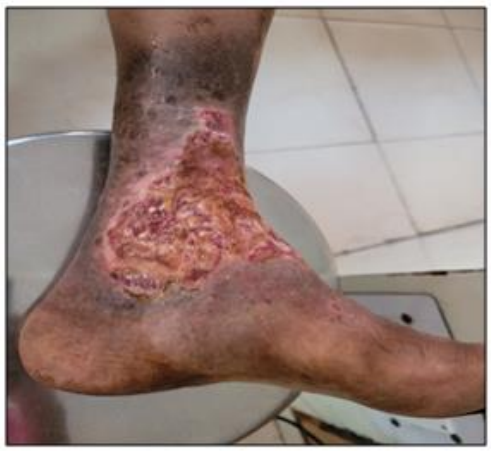
	tissue, size- 13.4×12 cm
29.09.22 (15th day)	Pain-occasional, discharge from the wound– absent, no swelling, varicosity-reduced, no localized tenderness, no itching, hyperpigmentation (+), much decreased in wound size and scab present, size- 10.2×9 cm
04.10.22 (20th day)	No pain, discharge absent, no itching and edema, much improvement in pigmentation and scar present, varicosity-much reduced, size- 7×5.5 cm

(+: Grading/intensity of symptoms and signs)

Follow-up Assessment and Outcomes of Interventions

Picture of the ulcer and affected leg were taken at the time of commencement of the treatment and successively on every visit. The successive photographs were taken after each *dhoopana* procedure when matched with the base line status was able to demonstrate the changes in the ulcer. This shows a substantial improvement in the ulcer following the therapy to the before treatment starts. No adverse effect pertaining to the prescribed drug and *sthanika chikitsha* was also reported. Ulcers almost healed with small area of ulceration remaining on lateral distal end of leg which got fully cured after follow up. *Vrana dhoopana* was stopped after 20 consecutive days as the condition then was quite of self-healing state where the patient was not dependent upon the pain killer tablets which he earlier was used to and we also advised patient to visit after 10 days for the assessment. For follow up, he was advised to continue washing the area with *panchavalkala Kashaya* and gentle application of *jatyadi* oil twice a day with same internal medications





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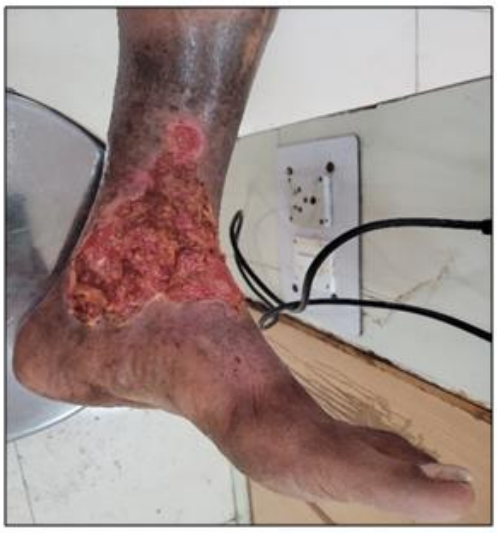
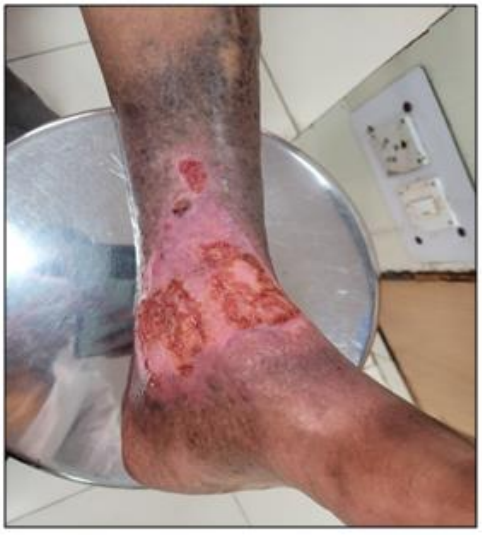
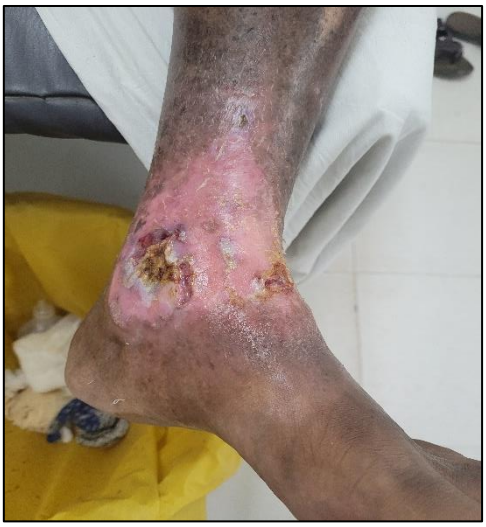
1st DAY **5th DAY**



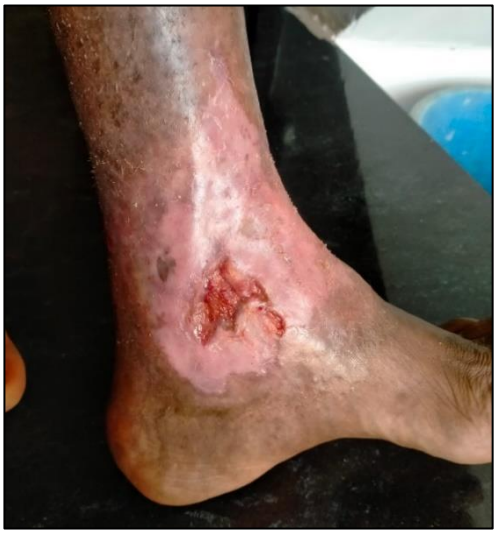
10th DAY



15th DAY



20th DAY



After 10 days of follow up

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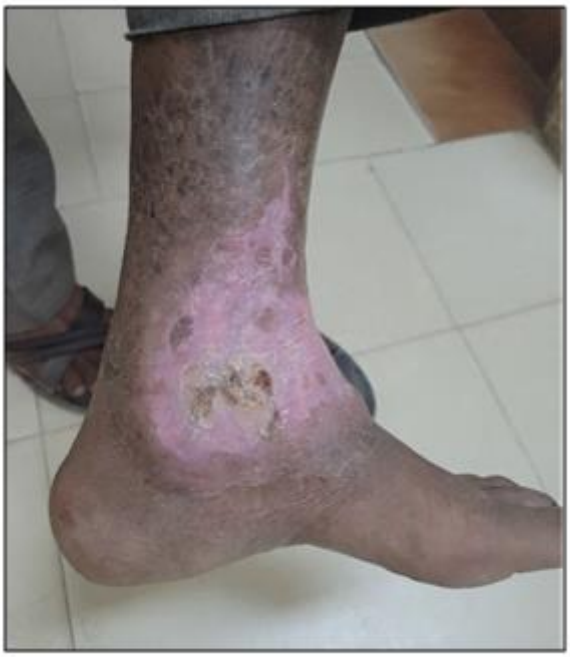

After 20 days of follow up

DISCUSSION

Varicose ulcer and its complications are a common recurring problem. Our primary goal was to reduce venous congestion, enhancing tissue perfusion and to disturb the specific environment of bacteria in which they grow thus would promote tissue healing. However, some ulcers become refractory to treatment causing significant disability and need amputation of limbs. Ayurvedic medicines and external therapies have shown its potentiality in many chronic and challenging disorders. There are numerous treatment modalities in Ayurveda to treat wound ailments. One among them is *vrana dhoopana.* This case was challenging to us as the patient had already consulted a lot of physicians and surgeons earlier but didn't get much relief. On consulting us, we started prescribing him with some classical internal medications and dressing then gradually we introduced him the benefits of *dhoopana karma* and with his proper consent we started our procedure every single day for half an hour. The patient felt relief within 10 days where he won't have to depend on painkillers which he earlier used to took every night. With his improvement in healing, we further extended our procedure to another 10 days and got good results. If we focus on the mode of action of such *dhoopana karma*, the drugs are mainly of *vayu, akash & agni* dominancy due to which by creating porosity and softness in bacterial cell wall, breaking down rigidity in their cellular structure, *Rukshana karma* of *vayu* dry up intracellular fluid of bacteria thus disturbing its metabolism resulting in bacterial death and *agni mahabhoota* changes temperature requirements for various enzymatic and chemical reactions within the bacterial cell. The *laghu*, *ruksha* and *Kashaya guna* of *dhoopana* drugs have *lekhana*, *kledasoshana* and *sthambana* properties respectively which probably disturbs the mechanism of metabolism of bacterial cell or may disturb the specific environment of bacteria in which they grow thus promotes wound healing.

CONCLUSION

Venous ulcer, a common cause of leg ulcer, known for its recurrence. The conventional treatment options available are not satisfactory and very expensive. The venous ulceration can be effectively managed and can be prevented through Ayurveda without any adverse effect. This observation endorses a step toward the validating practice of Ayurvedic intervention in the venous ulcer. It is high time to further explore this work so that utility of *dhoopana karma* can be established as an effective antimicrobial treatment modality. As *dhoopana karma* is used only externally, it is safer as compared to internally taken medications. *Dhoopana* is also cost-effective treatment as compared to currently available antimicrobial treatments. Once proved, it will definitely help wide acceptance of Ayurveda as a scientific health care system particularly in those regions of world where still it is strongly believed that Ayurveda is just a traditional method of health care with no or minimal understanding on scientific parameters. Moreover, study with adequate sample size is required to generate evidence.

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