

EFFICACY OF AYURVEDIC DRUGS IN THE MANAGEMENT OF CHRONIC NONHEALING VENOUS ULCER -A CASE STUDY

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ABSTRACT

Venous ulcer is the most common type of leg ulcer described since the times of Hippocrates. *Sushruta* in his 1st compendium elaborately described about the *Vrana* and its management. In Ayurveda this disease clinically simulate with *Dustavrana*. A case of 51 year old married male, with complain of a non-healing ulcer of size 23sq.cm, swelling, severe bursting type of pain in the leg and around the ulcer, bleeding, and stasis dermatitis in the lower limb since 60 days, was attended at my OPD in CARICD. The disease was diagnosed as venous ulcer (*Dusta vrana*). This case study was done in the Central Ayurveda Research Institute for cardiovascular disease Delhi. Investigations like CBC, ESR, and fasting and post prandial blood glucose, LFT was done to rule out any co-morbidities. The patient had already done colour venous Doppler which suggested venous

insufficiency. The ulcer was irrigated with *Panchbalkal Kashaya* and dressing was done with *Jatyadi Tail* followed by oral intake of *Kaisoreguggulu* and *Amalaki churna*, in the prescribed dose. The venous incompetency was assessed by CAEP classification and healing was assessed by the Bates Jensen wound assessment tool. The dressing was done every alternate day and the ulcer healing was assessed periodically on 7th, 21st and 42nd day. On the 42nd day it was found that the wound was healed and the Jensen wound Assessment score had reduced from 34 to 14. This regimen was found to be effective in faster epithelialization, and reducing exudates in chronic venous ulcer (*Dustha vrana*).

KEYWORD: *Wound, Healing, Re epithelialisation, Irrigation, Dustha vrana, CEAP.*

INTRODUCTION

Venous ulcers are the most conventional type of leg ulcers which have been described since the times of Hippocrates. It is caused by damage to the veins. The veins are responsible for bringing blood from different components of the body to the heart through one-way valves. These valves obviate blood from flowing away from the heart. As a result of improper blood flow, accumulation of blood in the lower limb takes place. This causes damage to the vein and leakage of fluid and blood cells, causing oedema, or swelling. This is thought to obviate adequate blood flow to the tissue in the leg. As a result, this tissue will die, and ulcers will form. Venous ulceration is a complex and serious disease that affects 1-2% of the elderly population (>60 years), and its incidence is perpetually incrementing.^[1]

There are three variants of chronic leg ulcers-venous, arterial, and mixed.^[2] Sushruta in his compendium described vividly about wound healing its types etc. as *Vranitopasahniya adhya*. Sushruta has also described so many compound medicines for oral administration and oil for topical application to enhance the wound healing rate.^[3] The venous ulcer clinically simulate with *Dustha vrana*^[4] in Ayurveda. These lesions have a consequential negative impact on patient's quality of life, because their management is very arduous and are frequently painful and malodourous.^[5] Many types of dressings are currently utilized for the treatment of venous ulcer. Compression bandage is fundamental to complete cure, because it ascertains a physiologic venous return, mitigates oedema, and avails the pumping effects of muscles. But the resolution process is long and wearisome. Thus, the quest for finding more incipient and better alternatives is a perpetual endeavour in medical research. Topical applications of Ayurvedic medicated oil and oral administration of compound Ayurveda medicine for accelerated wound healing have been practiced historically. The result of some Ayurvedic drugs along with dressing and local irrigation with ayurvedic decoction has been stated in this case report.

CASE REPORT

A 51 year old married male with complain of a non-healing ulcer, swelling, sever bursting type of moderate pain in the leg and around the ulcer, bleeding, and stasis dermatitis in the lower limb since 60 days, the ulcer is not healing in spite of taking modern conventional treatment was attended in my outpatient Department at Central Ayurveda Institute for Cardiovascular disease, Punjabi Bag, New Delhi. On examination it was found that the ulcer

is located Anterior to medial malleolus, 23sq.cm in size, shallow, and rounded in shape with granulating base, and reactive fibrosis, the exudate is yellowish red in colour and malodour. Signs of infections like cellulitis and increased local skin temperature was found. His vitals like pulse rate, blood pressure, respiration rate and temperature were normal. Besides, systemic examination was done and no significant comorbidities like obesity, diabetes, and malnutrition were found except varicose vein. On CEAP classification it was in C5 category. He was from a medium socioeconomic back ground. The patient was a smoker and occasionally takes alcohol in moderation. There was no significant history of illness and family history except the patient's father was a smoker and use to take 'bidi' and his father was also suffering from varicose vein. After taking these details of the present history of the illness, past history and family history, the patient was selected. Laboratory investigations like blood Sugar fasting and post prandial was done to rule out diabetes, TLC, DC, ESR was done to rule out any blood disorder, LFT was done to rule out any nutritional deficiency at base line and after 42 days of the study. The patient has already done colour duplex ultra sound which shows venous insufficiency. On the basis of his history and laboratory investigation and colour venous Doppler it was diagnosed as venous ulcer (*Dustha vrana*). The Bates Jensen wound assessment tool was used periodically to assess the result.

Procedure and Drug Intervention

Under aseptic condition the wound was irrigated with *Panchbalkal kasaya*. The wound site was treated with sufficient quantity of sterile *Jatyadi Taila*. Then the sites was normally dressed with non-adherent primary dressings in every 3rd day but the wound assessment was done in 7th day, 21 day, and in 42nd day. Concomitant systemic medication like *Kaisore guggulu* 500 mg twice daily after food and *Amalaki churna* 3gm twice daily with plain water was given orally for 42 days. The patient was advised to keep his leg elevated at night by keeping 2 pillows under the calf of the leg. He was also advised to do some exercises like cycling in air for 30 minutes twice in a day to minimize oedema and increase the venous return. In Follow up wound evaluation were done on baseline, 7th, 14th and 42nd day. The total duration of the study was 42 days.

PROCUREMENT OF DRUGS

All the drugs were procure from IMPCL which is supplied to our Hospital.

Table No 1: Medications.

SI No	Name of the Drugs	Dose and duration	Anupana
1	<i>Kaisore Guggulu</i>	500 mg twice in a day for 42 days	Normal water After food
2	<i>Amalaki Churna</i>	3gm twice in a day for 42 days	With normal water
3	<i>Jatyadi Tail</i>	Quantity sufficient	For local; application.
4	<i>Panchballkala Kasaya</i>	Quantity sufficient	For wound irrigation

ASSESSMENT**Assessment tool**

In this case study Bates Jensen wound assessment tool^[6] was used for evaluation, on the basis of 13 criteria. Score of each category was taken and used for analysis (Grading was 1 to 5).

WOUND ASSESSMENT CRITERIA**(Bates-Jensen wound assessment tool)****A. Size**

1. Length x width <4sq cm
2. Length x width 4<16 sq cm
3. Length x width 16.1 <36 sq. cm
4. Length x width 36.1--<80 sq. cm
5. Length x width >80 sq. cm

B. Depth

1. Non-blanchable erythema on intact skin
2. Partial thickness skin loss involving epidermis &/or dermis
3. Full thickness skin loss involving damage or necrosis of subcutaneous tissue; may extend down to but not through underlying fascia; &/or mixed partial & full thickness &/or tissue layers obscured by granulation tissue
4. Obscured by necrosis.
5. Full thickness skin loss with extensive destruction, tissue necrosis or damage to muscle, bone or supporting structures

C. Edges

1. Indistinct, diffuse, none clearly visible
2. Distinct, outline clearly visible, attached, even with wound base
3. Well-defined, not attached to wound base

4. Well-defined, not attached to base, rolled under, thickened
5. Well-defined, fibrotic, scarred or hyperkeratotic

D. Undermining

1. None present
2. Undermining < 2 cm in any area
3. Undermining 2-4 cm involving < 50% wound margins
4. Undermining 2-4 cm involving > 50% wound margins
5. Undermining > 4 cm or Tunnelling in any area

A. Necrotic Tissue Type

1. None visible
2. White/grey non-viable tissue &/or non-adherent yellow slough
3. Loosely adherent yellow slough
4. Adherent, soft, black eschar
5. Firmly adherent, hard, black eschar

B. Necrotic Tissue Amount

1. None visible
2. < 25% of wound bed covered
3. 25% to 50% of wound covered
4. > 50% and < 75% of wound covered
5. 75% to 100% of wound covered

C. Exudate Type

1. None
2. Bloody
3. Serosanguinous: thin, watery, pale red/pink.
4. Serous: thin, watery, and clear
5. Purulent: thin or thick, opaque, tan/yellow, with or without odour

D. Exudate Amount

1. None, dry wound
2. Scant, wound moist but no observable exudate
3. Small

4. Moderate
5. Large

E. Skin Colour Surrounding Wound

1. Pink or normal for ethnic group
2. Bright red &/or blanches to touch
3. White or grey pallor or hypo pigmented
4. Dark red or purple &/or non-blanchable
5. Black or hyper pigmented

F. Tissue Edema

1. No swelling or edema
2. Non-pitting edema extends 4 cm around wound
3. Non-pitting edema extends >4 cm around wound
4. Pitting edema extends < 4 cm around wound
5. Crepitus and/or pitting edema extends >4 cm around wound

G. Peripheral Tissue Induration

1. None present
2. Induration, < 2 cm around wound
3. Induration 2-4 cm extending < 50% around wound
4. Induration 2-4 cm extending > 50% around wound
5. Induration > 4 cm in any area around wound

H. Granulation Tissue

1. Skin intact or partial thickness wound
2. Bright, beefy red; 75% to 100% of wound filled &/or tissue overgrowth
3. Bright, beefy red; < 75% & > 25% of wound filled
4. Pink, &/or dull, dusky red &/or fills < 25% of wound
5. No granulation tissue present

I. Epithelialization

1. 100% wound covered, surface intact
2. 75% to < 100% wound covered &/ or epithelial tissues extends to >0.5cm into wound bed.

3. 50% to < 75% wound covered &/ or epithelial tissues extends to <0.5cm into wound bed.
4. 25% to <50% wound covered.
5. <25% wound covered

Table No: 2 Result.

Sl. No	Wound character	Score at base line	Score at 7 days	Score at 21 days	Score at 42 days
1	Size	3	3	2	1
2	Depth	3	3	2	2
3	Edge	2	2	2	1
4	Undermining	1	1	1	1
5	Necrotic Tissue Type	2	2	1	1
6	Necrotic Tissue Amount	2	2	1	1
7	Exudate type	4	3	1	1
8	Exudate Amount	3	3	2	1
9	Skin Colour surrounding wound	1	1	1	1
10	Peripheral tissue oedema	2	2	1	1
11	Peripheral Tissue Induration	2	2	1	1
12	Granulation Tissue	4	4	2	1
13	Epithelization	5	3	2	1
14	Total Score	34	31	19	14

Table no 3: Periodic Follow Up Photograph.

DISCUSSION

The basic principle of venous ulcer healing is to minimize the damage to the tissues, provide nutrients, oxygen to the healing tissues and optimization of environment for rapid healing.^[7,8]

In case of venous ulcer reactive oxygen species are one the important factors that hinders the process of wound healing.^[9] Free radical scavengers are protective against their reactive oxygen species. Topical application of free radical scavenging compound reduces the oxidants burden and promote rapid wound healing.^[10] The wound or ulcer size decreases when healing starts. In this case after application of *Jatyadi Tail*, the wound size decreased

from score 3 to 1 (Table no.2) on 42nd day. This shows accelerated healing. Edge of the wound or ulcer is an important feature; it gives a hint towards the aetiology. Application of *Jatyadi Tail* along with *Amalaki churna* and *Kaisore Guggulu* orally improved the ulcer edges on 42nd day. Exudate type and exudate amount depends upon the nature of ulcer. In this case on 42nd day exudate type and exudate amount are decreased as shown in Table No.2. *Kaisore guggulu* is an ayurvedic compound drug composed of purified *Guggulu* (*Commiphora mukul*). It has anti allergic, antibacterial and blood purifying properties^[11] and may reduce the inflammatory response to venous hypertension. Chief ingredients of *Kaisore guggulu* is guduchi, triphala, and trikatu. Guduchi, *Triphala* has immunomodulatory^[12], and *Tridosha samak* property and hence it reduces the oxidants burden and promote rapid ulcer healing. *Triphala* contains *Amalaki*. *Amlaki* (*Emblca officinalis*) powder contains large amounts of Vit C. Vit C assist in formation of collagen^[13] and also poses immune modulator activity helps to heal the wound or ulcer. *Guggulu* has anti-inflammatory effects which can decrease the tissue oedema of the peripheral skin around the ulcer. This may be due to active Phyto constituents, astringents and tannins.^[14] The drugs in *Panchbalkal Kashaya* are *Kashya Rasa*, *Sheeta Veerya*, *Katu Vipaka* and *kapha pittashamak*. The malodour and discharge in wound are due to vitiated *Kapha*, and *Pitta dosha*. *Panchbalkal Kashaya* is *sheet veerya* and *Rukshya* in nature and hence pacify the vitiated *Pitta dosha* and due to its *Rukshya guna* vitiated *Kapha dosha* pacified and hence truncates the malodour and discharges in wound. Besides it also contains anti-microbial substances. The Tannin founds in *Panchbalkal Kashaya* acts as anti-inflammatory by inhibiting enzymes such as 5-lipoxygenase & hyaluronidase. Tannins have been reported to have antibacterial activity^[15] and facilitate autolytic debridement of necrotic tissue. *Jatyadi Tail* contains *Lodhra*, *Neem*, *Haridra*, *Daruharidra*, and *Abhaya*. These drugs are having antimicrobial activity. The ingredients like *Manjistha*, *Sariva*, and *Karanja* are *vrnashodhaka* (wound cleansing) properties. *Katuka* improves re-epithelialization, neo-vascularization and migration of endothelial cells, dermal fibroblasts into the wound or ulcer bed.^[16] It also facilitates rehydration in ulcers. *Jati* is having *vrnanaropaka* action. *Tuttha* induces vascular endothelial growth factor in the ulcer. Hence in Ayurveda *Jatyadi taila* is used as *Shothahara*, *Vedanasthapaka* and *Vrana Ropaka*.^[17] Patient was advised more walking, elevation of leg during night time, and doing exercise like cycling in air to increase venous return and hence helps in accelerating the ulcer healing.

CONCLUSIONS

Irrigation of *Panchabalkal Kashaya* followed by local application of *Jatyadi Taila* and oral administration of *Kaisore guggulu* and *Amalaki churna* was found to be effective in faster epithelialization, and reducing exudates in chronic venous ulcer. No allergic reaction or adverse drug reactions are found in the study. By taking impetus from the study multi centric trial in a large group of subjects can be initiated to strengthen the claim.

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REFERENCES

1. C.J. Evans, F.G.R. Fowkes, C.V. Ruckley, A.J. Lee, Prevalence of varicose veins and chronic venous insufficiency in men and women in the general population: Edinburgh Vein Study, *J. Epidemiology. Community Health*, 1999; 53: 149-153.
2. C.J. Moffatt, P.J. Franks, D.C. Doherty, R. Martin, R. Blewett, F. Ross, Prevalence of leg ulceration in a London population *QJM*, 2004; 97: 431-437.
3. Shastri, Ambikadutta, *Sushruta Samhita Chikitsa Sthana*, Chaukahmbha Sanskrit Sansthan Varanasi publication, 2007; I: 52.
4. Sushruta, *SushrutaSamhita, Sushrutavimarshini commentary*, edited Sharma, Anantaram, Chaukhumbha Surabharati Publication, Varanasi, 2008; 1: 5: 189,191.
5. R. Chiesa, E.M. Marone, C. Limoni, M. Volonté, E. Schaefer, O. Petrini, Chronic venous insufficiency in Italy: the 24-cities cohort study, *Eur. J. Vasc. Endovasc. Surg.*, 2005; 30: 422-429'
6. Bates-Jensen B, Sussman C. Tools to measure wound healing. In Sussman C, Bates-Jensen B, editors. *Wound Care, a Collaborative Practice Manual for Health Professionals*, 4 ed. Baltimore (US): Lippincott Williams and Wilkins, 2012; 131-72.
7. Bennett NT, Schultz GS. Growth factors and wound healing: biochemical properties of growth factors and their receptors. *The American Journal of Surgery*, Jun 1, 1993; 165(6): 728-37.
8. Joseph E Grey, Stuart Enoch, research fellow, and Keith G Harding ABC of wound healing *BMJ.*, Feb 4, 2006; 332(7536): 285–288. doi: 10.1136/bmj.332.7536.285.

9. Aliyev E, Sakallıoğlu U, Eren Z, Açıkgöz G. The effect of polylactide membranes on the levels of reactive oxygen species in periodontal flaps during wound healing. *Biomaterials*, Aug 1, 2004; 25(19): 4633-7.
10. Thiem B, Goślińska O. Antimicrobial activity of *Rubus chamaemorus* leaves. *Fitoterapia*, Jan 1, 2004; 75(1): 93-5.
11. Nariyal, Vikas, Sherma, Omraj, Dhiman, KS. A combined efficacy of *Kaishore guggulu* and *Punarnavadi guggulu* in the management of vatarakta (Gout): A case series. *Int. J. Adv. Res.*, 5(6): 1793-1794.
12. Dikshit V, Damre AS, Kulkarni KR, Gokhale A, Saraf MN, Preliminary screening of immunocin for immunomodulatory activity. *Indian Journal of Pharmaceutical Science*, 2000; 62: 257.
13. Ter Riet G, Kessels A G, & Knipschild P G. Randomized clinical trial of ascorbic acid in the treatment of pressure ulcers. *J Clin Epidemiol*, 1995; 48(12): 1453-1460.
14. Ya C., Gaffney SH., Lilley TH., Haslam ELN RW., Karchesy JJ., Chemistry and significance of condensed tannins, Plenum: New York, 1988; 553.
15. Kavitha Sharma, Preeti Sharma, Swapnil Saini, Akhilesh K. Shrivastava. Study of *Panchbalkal kashaya* in Vaginal discharge W.S.R to Antimicrobial Properties. *International Journal of Ayurveda and Pharma Research*, 2018; 6(4): 52-57.
16. Samantaray, Sanghamitra, Bishwal, Radhakrishna, Singhai, Swapnil, Clinical efficacy of Jatyadi taila in Parikartika (fissure-in-ano *wjpmr*, 2017; 3(8): 250-254.
17. Shastri, Ambikadutta, Sushruta Samhita Chikitsa Sthana: Vol.I, Chaukahmbha Sanskrit Sansthan Varanasi publication, 2007; 52.