

Ayurvedic management of multiple varicose ulcers due to incompetent perforator veins in lower limb-A case report

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Abstract

This case report is the description of multiple varicose ulcers of a 31 years old male, working as police constable. The ulcers were painful with serous discharge. In Doppler study of venous system of lower limbs, incompetent perforators were noted and condition was diagnosed as varicose ulcers. As no relief was obtained from external application of medicines as suggested by conventional treatment, patient came to the Out Patient Department (OPD) of Regional Ayurveda Research Institute, Thiruvananthapuram, Kerala. In Ayurveda, varicose ulcers can be considered as *Siragranthijanya vran*. Internal medications used have *raktashodhak*, *krimighn*, *soolahar*, *vranashodhak* and *vranaropan* properties. Leech therapy was also done. The case is unique in the sense that ulcers were in multiple sites and healed completely after 3 weeks with cost effective and non surgical measures. The presented combination of leech therapy and Ayurvedic medications was found to be a good alternative therapy in the management of nonhealing varicose ulcers.

Key Words: Venous ulcers, Vrana, Jalukavacharana, Leech therapy, Case report

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Introduction

The open lesions which occur between the knee and ankle joint in the presence of venous disease are called Venous leg ulcers (VLUs). They account for about 60-80% of the leg ulcers and are the commonest cause for it.¹

There are multiple theories regarding the pathogenesis of VLUs. Persistently increased intravenous pressure which damages the walls of veins and causes stretching, loss of elasticity, hyper lipodermato-sclerosis finally end up in ulcer formation. Venous hypertension, fibrin cuff theory, inflammatory trap theory, dysregulation of various cytokines and some thrombophilic conditions are implicated as the various theories behind the pathophysiology of the condition¹.

Diagnosis is confirmed by techniques like ankle-brachial pressure index (ABPI), screening test using nylon

monofilament, Duplex Doppler ultrasound, Photoplethysmography, Pulse oximetry, Toe brachial pressure index (TBPI), measuring Transcutaneous oxygen. In this case, diagnosis was confirmed by Duplex Doppler ultrasound scanning of the lower limb venous System¹.

If patient do not respond to conservative measures like compression stockings and elevation of foot, then surgical measures like laser ablation of varicose veins, terminal interruption of reflux source technique (TIRS) by sclerotherapy, skin grafting or surgical correction of superficial venous reflux are done in conventional medicine.² Infection and pain are the most common complications of VLUs. Rarely, skin cancer may develop in wounds that fail to improve over long periods of time, if left untreated.³ Thus, irrespective of all advances in health sciences, varicose ulcer management remains to

be a difficult task for the surgeons.

In Ayurvedic perspective, varicose ulcers can be considered as *Siragranthijanya vran*.⁴ As per Acharya Susrutha, in persons who are weak and those who indulge more in physical exercises, *vata* gets aggravated, conquers the network of veins, squeezes and dries them up and gives rise to an elevated, quickly developing and round swelling of veins termed as *Siragranthi*.⁵ If the disease is not managed properly, it may result in complications like wounds and weakness.⁶ As far as ulcers or wounds are concerned, Sushruta has given much importance for *raktamokshan*.⁷ Blood letting using leeches are most unique and cheapest method, even in infected wounds and abscesses.⁸ It lets out the impure blood, thus advocated in management of wounds caused due to vitiated *rakta*.⁹

This case report is the description of almost complete healing of multiple varicose ulcers case, developed on the medial and lateral aspects of both ankles of a patient with Ayurvedic modalities. The case is unique in the sense that ulcers were in multiple sites and healed completely after 3 weeks with cost effective and non surgical measures. Basic principles of management adopted were *raktasodhana*, *vrana sodhana*, *vranaropana*, *soolahar*, *krimighna* and *Sothahar*.

Patient Information: A 31 years aged Indian male, working as police constable presented to the OPD of RARI (Regional Ayurveda Research Institute), Thiruvananthapuram on 11.12.2020

Primary concerns and symptoms

Patient complained of multiple small ulcers on both sides of both ankles since previous 1.5 months. The ulcers were very painful with serous discharge. The patient had difficulty in walking also. Itching was absent.

History of presenting complaints: The condition started as a small blister on the lateral part of left ankle 1.5 months before. Blisters ulcerated gradually and the number of ulcers increased rapidly within a few days.

Past intervention with outcomes: The patient consulted Modern Western Medicine of the nearby hospital during the starting of the ulceration itself 1.5 months before. The physician suggested Doppler study of venous system of both lower limbs. The study revealed incompetent perforators at certain sites of both lower limbs. The physician suggested some external medications to apply on the ulcer and advised the elevation of limb and rest. But the condition didn't subside. Moreover, extent of spread of ulcers increased and ulceration appeared in other side of the left ankle and both sides of the right ankle. As the patient didn't get any relief, consulted RARI OPD for Ayurvedic management.

Clinical Findings

Personal history

The patient had no addictions or significant comorbidities. Regarding family history, both parents of the patient were having significant varicose veins of lower limb. No significant abnormalities were elicited while taking psychosocial history. As a part of profession, being a police constable, the patient had to stand continuously for long hours.

General examination

General condition and appearance was that patient was found good, ambulatory. No pallor, lymphadenopathy was seen, Temperature: 97.8^o Fahrenheit, Pulse Rate: 72/minute, regular, Weight: 79 kilogram, Height: 174 centimetre, Blood Pressure: 124/82 millimetre of Mercury, *Prakriti* was *Vata Pitta* predominant.

Physical examination: Small multiple ulcers of varying sizes with an irregular margin and foul-smelling serous discharge were found on the of the medial and lateral aspects of ankle area of both lower limbs. The surrounding skin was hyperpigmented. Scab was present on the floor of the ulcers. On palpation, mild tenderness was there without any defined induration, the base of the ulcer was muscle and bone, ulcers were not fixed to the underlying structure, no calf tenderness or neurological deficit

noticed. Mild rise in local temperature around the ulcer was felt. Also, the dorsalis pedis arterial pulsation was felt. Varicosity of the vein was not visible. No epithelisation and granulation tissue formation were seen. No lymph node was found palpable. In systemic examinations, no abnormality was found.

Timeline of the case: summarized in Table 1

Diagnostic assessment (28.11.2020)

In Doppler study of venous system of right lower limb, incompetent perforators were noted as Grade 3 reflux in SFJ and RFA. In Doppler study of venous system of left lower limb, incompetent perforators were noted as Grade 1 reflux in SFJ and RFA. Diagnosis was made as Non healing Varicose ulcers. There were no diagnostic challenges. Regarding Haematologic investigations, Blood Routine Examination, Fasting Blood Sugar, Post Prandial Blood Sugar investigations were done. Haemoglobin was 14 milligram (mg)%, Fasting Blood Sugar: 92mg% and Post Prandial Blood Sugar: 112 mg%, thus Anaemia and Diabetes mellitus was ruled out.

Prognosis: Not that bad, as the ulcers were not very deep. But the multiplicity of the ulcers made the condition a bit complex.

Details of local examination of the ulcers in Day 0 and Day 21 are described in Table 2,3 and Fig 1,2.

Details of local examination of the ulcers on Day 46 (25.01.2021) -Fig 3:

Ulcers in all the 4 sites healed completely except restoration of surrounding skin color to normal.

Therapeutic Intervention

Pharmacologic Intervention: Detailed Pharmacological intervention is described in Table 4.

Medicines prescribed from 12.12.2020 to 26.12.2020 were replaced with *Sahacharadi taila* (101) and *Sahacharadi kwatha* from 27.12.2020 to 1.1.2021 because

in the beginning of the management, medicines selected were aimed to treat ulcer and *Sahacharadi taila* (101) and *Sahacharadi kwatha* was prescribed to treat varicose veins.

Parasurgical Intervention

Raktamoksha was done using leech, 2 weeks after the first visit of the patient only once on 26.12.2020. The patient got convinced about leech therapy and agreed for it after 2 weeks of first consultation. So that period was opted.

Procedure

After the assessment of the wound size, shape, exudate etc, ulcer was washed with *Triphala* decoction. There after one Leech each was applied around the lesion on both ankles. After 30 min approximately, leeches left the site by their own after sucking blood. The wound was then cleaned and dressed by myself with *Jatyadi kera*, manufactured by *Oushadhi* Pharmaceuticals, Kerala. Afterwards, the patient did cleaning and dressing the wound at home with the help of relatives as directed by us.

Standard Operating Procedure of dressing the ulcer: The patient was directed to do washing of the ulcers at all 4 sites with *Triphala* decoction. Then, ulcers were dried with clean cotton. Gauze piece anointed with *Jatyadi kera* was applied on the ulcers and bandage was done on daily basis from the starting till ending of the treatment for 3 weeks.

Preventive Intervention: During treatment period, the patient was advised to take rest. Outfits which may cause rubbing on the affected area were asked to avoid. To improve the circulation of the ulcerated area, he was asked to keep limbs on elevated position as far as possible.

Results

Follow up and outcomes

Follow up was done on Day 21 and Day 46. On Day 21,

itself evident changes were visible. All the 4 ulcers healed completely on Day 46. The patient has also reported complete healing of ulcers. Only exact restoration of skin overlying previous ulcerous condition to normal colour was remaining.

Intervention adherence and tolerability were good as informed by the patient.

Adverse effects/unanticipated events: nil

Discussion

Varicose ulcers and its complications are a common recur-ring problem. Reducing the venous congestion, enhancing tissue perfusion and promoting tissue healing are the principal goals in its management.¹⁰ Conservative management con-sists of compression stockings and elevation of foot. In Ayurveda, varicose veins are considered as *Sira granthi* as per *Sushruta*. So varicose ulcers can be considered as *Siragranthijanya vran*.

This case report is the description of almost complete cure of multiple varicose ulcers case developed on the medial and lateral aspects of both ankles since 1.5 months, of a 31 years old married Indian male, working as police constable who came to the OPD of RARI, Thiruvananthapuram, using Ayurvedic modalities. During the starting of the condition itself, he consulted an Allopathic physician who suggested Doppler ultrasound scanning of the lower limb venous System. The study revealed incompetent perforators at certain sites of both lower limbs. The physician gave some external medications to apply on the ulcer. But the condition didn't subside and approached for Ayurvedic management.

Being a police constable, the nature of the job forced him to stand for long hours continuously. Moreover, hereditary factor also might have contributed for the development of the condition as both parents were also suffering from varicose veins.

Treatment started with purgation using *Nimbamrita eranda*. Purgation is a treatment modality in Ayurveda

for cleansing our body. *Nimbamrita eranda* is a formulation used for purgation or laxative effect usually, especially in the vitiation of blood. In this case, the drugs possessing *pittahar*, *Raktashodhak*, *soolahar*, *krimighn*, *Vranaropan*, *Vranashodhak*, *Sothahar* and those improving the blood circulation were selected.¹¹

Brihat manjishtadi kwatha is a decoction having *Raktashodhak* and *sophahar* properties.¹² *Kaishora guggulu* is used to support healthy joints, muscle, and connective tissues. It is *Pittahar*, *krimighn*, *Rakta shodhak* and *ojovardhak* in nature.¹³ *Khadirarista* was administered as *Khadira* has *Kledashoshak* property due to its *Khara Guna*.¹⁴ *Nimbasava* contains ingredients like *Azadirachta indica*, *Adhatoda vasica*, *Tinospora cordifolia* and *Curcuma longa* that are *krimighn* and *sophahar*.¹⁵ *Triphala* is proved to have anti-inflammatory, analgesic, antibacterial, antimutagenic, wound healing and adaptogenic properties. It also enhances circulation and promotes production of red blood cells and haemoglobin.¹⁶

Murivenna is medicated oil used in Ayurvedic System of Medicine for managing contusions, fresh wounds and even fractures.¹⁷ *Panchanimba paneeya* is proved to be *raktasodhak* and it restores the normal skin colour.¹⁸ Due to shedding of epidermal skin barrier was lost and the body was prone for infection. So *Jatyadi kera* was applied. *Jatyadi kera* is a medicated oil popularly used in the treatment of various topical wounds.¹⁹ It is also useful in *Marmashrita Vran*, *Kledi Vran*. It exhibits better wound healing activi-ties by a significant increase in protein, hydroxyproline and hexosamine content in the granulation tissue in animal models.²⁰

Sahacharadi kwatha and *Sahacharadi Thailam* are formulations which are very useful for *Siragranthi*. *Sahachara* (*Barleria prionitis* L.) is rich in tannins, saponins, glycosides, phenolic acids, phytos-terols, and terpene. It exhibits antibacterial, antifungal, antiviral, anti-inflammatory, antioxidant.²¹

Probable mechanism of action of leech therapy

Bloodletting therapy using leeches correct venous hypertension, reduces vascular congestion due to presence of Carboxypeptidase A inhibitors, Histamine like substances and Acetylcholine. Thus, venous valve dysfunction and extra vascular fluid perfusion are prevented. Wound healing is supported by this mechanism as this prevents leakage of proteins and isolation of extra cellular matrix molecule and growth factors. Blood circulation is improved, ischemia around the wound is corrected and wound healing is promoted by the vasodilator constituent in the saliva of leeches.²² Due to the presence of substance like Bdellins and Eglins in the saliva which averts leukocyte accumulation in the surrounding vessels and inhibits release of inflammatory factors, leech applications have anti-inflammatory effect.²³

Strengths and limitations of case report

The major strengths of this case reporting are it is novel in the sense, complete healing of multiple ulcers in 4 different sites of lower limb (lateral and medial aspects of both ankles) was obtained. As no adverse effects were reported, safety of the internal medicines and leech therapy can be assumed. The modalities adopted in the case may be applied to similar cases also. Intervention adherence and tolerability of the patient also helped for the effective management of the condition. The major limitation of the case report is the lack of ability to generalize the result as the study was done in a single case.

Conclusion and its rationale: The presented combination of leech therapy and Ayurvedic medications is found to be a good alternative therapy in the management of nonhealing varicose ulcers. The possibilities of this cheap highly effective technique of leech therapy needs to be utilized widely by Ayurvedic physicians across the globe. Long-term prospective studies are required to substantiate the data.

Patient perspective: Patient was very much satisfied as

his ulcers got healed completely. Before treatment, the condition had affected his daily routine and profession very much and was on leave for treatment

Informed Consent: Patient provided informed consent for the publication of this case report.

Conflict of interest: Nil

Ethics: The study was conducted adhering to all ethical principles in clinical study.

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Conflict of Interest : None

Table- 1: Timeline of the case

| Dates | Relevant medical history and interventions |
|------------|--|
| 2.11.2020 | A small blister appeared on the lateral part of left ankle. |
| 9.11.2020 | Blisters ulcerated gradually and the number of ulcers increased rapidly within a few days. The patient consulted an Allopathic physician. Doppler study of venous system of both lower limbs was suggested by him and it revealed incompetent perforators in both lower limbs. He gave some medicines for topical application. |
| 11.12.2020 | The condition didn't subside. Moreover, extent of spread of ulcers increased and ulceration appeared in other side of the left ankle and both sides of the right ankle. He came to RARI OPD for Ayurvedic management. Some internal medications were prescribed. |
| 26.12.2020 | <i>Raktamokshana-Jalukavacharana</i> were done for 30 minutes approximately. Some internal medications were changed. |
| 1.1.2021 | The patient reported complete relief from all symptoms. Skin of the healed area was hypopigmented. |

Table- 2: Details of local examination of the ulcers on Day 0 (11.12.2020)- Fig 1

| Features | Site of ulcer | | | |
|----------------------------------|---|--|---|---|
| | Medial aspect-left ankle | Lateral aspect-left ankle | Medial aspect-Right ankle | Lateral aspect-Right ankle |
| Site | Over the medial aspect of the lower 1/3rd of the left tibia | Over the posterior-lateral aspect of the dorsum of left foot | Multiple tiny ulcers spreading over the medial aspect of the lower 1/3rd of the right tibia | Over the posterior-lateral aspect of the dorsum of right foot |
| Size | 6cm x 2.5cm x 0.5cm | 4cm x 2cm x 0.3cm | 4cm x 1cm x 0.2cm | 5.5cm x 1.5cm x 0.2cm |
| Shape | nearly oval | nearly oval | Multiple tiny ulcers of varying shapes | irregular |
| Edge | Irregular, rough | Irregular, somewhat rough | Irregular, not that smooth | Irregular, rough |
| Floor | Unhealthy tissue and scab seen | Unhealthy tissue and scab seen | Unhealthy tissue and scab seen | Unhealthy tissue and scab seen |
| Discharge | Serous, copious | Serous, sparse | Serous, sparse | Serous, sparse |
| Pigmentation in Surrounding area | blackish discoloration | Light blackish discoloration | Light blackish discoloration | Light blackish discoloration |
| Margin | Irregular | Irregular | Irregular | Irregular |
| Smell | Unpleasant | tolerable | tolerable | Unpleasant |
| Pain | Severe | Severe | Moderate | Moderate |
| Local swelling | Mild | absent | Mild | Mild |
| Local tenderness | Mild | Mild | absent | Mild |

Table- 3: Details of local examination of the ulcers on Day 21 (01.01.2021)- Fig 2

| Features | Site of ulcer | | | |
|----------------------------------|---|--|---|---|
| | Medial aspect- left ankle | Lateral aspect- left ankle | Medial aspect- Right ankle | Lateral aspect- Right ankle |
| Site | Over the medial aspect of the lower 1/3rd of the left tibia | Over the posterior-lateral aspect of the left foot | Almost healed except restoration of overlying skin, that ulcer cannot be identified | Over the posterior-lateral aspect of the dorsum of right foot |
| Size | 2cm x .5cm x 0.2cm | 1cm x 0.5cm x 0.2cm | - | 0.5cm x 0.2cm x 0.1cm |
| Shape | irregular | nearly oval | - | nearly oval |
| Edge | smooth | somewhat smooth | - | smooth |
| Floor | Pinkish colour and healthy tissue started appearing | Only a little unhealthy tissue was left | - | No Unhealthy tissue and scab seen |
| Discharge | absent | absent | absent | absent |
| Pigmentation in Surrounding area | Progressing to normal color | Light blackish discoloration | Progressing to normal color | Light blackish discoloration |
| Margin | Irregular | smooth | - | smooth |
| Smell | Normal | Normal | Normal | Normal |
| Pain | Mild | Mild | absent | absent |
| Local swelling | absent | absent | absent | absent |
| Local tenderness | Mild | Mild | absent | absent |

Table- 4: Pharmacologic intervention

| Duration | Medicine/Procedure | Dose | Frequency |
|-----------------------|---|---------------------------|-----------------------------|
| 12.12.2020 | <i>Nimbamrita Eranda-for Virechana</i> | 25millilitre (ml) | Early morning-Empty stomach |
| 13.12.2020-17.12.2020 | <i>Brihat manjishtadi kwatha</i> | 60 ml before food | Twice a day |
| | <i>Tab. Kaisora guggulu</i> | 500 mg with kwatha | Twice a day |
| | <i>Khadivarishtam + Nimbasaava</i> | 20ml after food | Twice a day |
| | <i>Triphala</i> decoction for washing affected area | Quantity sufficient (q.s) | Once a day |
| | <i>Murivenna</i> , external application after washing and drying the area | q.s | Once a day |
| 18.12.2020-25.12.2020 | <i>Brihat manjishtadi kwatha</i> | 60 ml before food | Twice a day |
| | <i>Tab. Kaisora guggulu</i> | 500 mg with <i>kwatha</i> | Twice a day |
| | <i>Panchanimba paneeya</i> | q.s | As needed |
| | <i>Triphala kwatha</i> for washing affected area | q.s | Once a day |
| | <i>Jatyadi kera</i> | q.s | Once a day |
| 27.12.2020-1.1.2021 | <i>Sahacharadi kwatha</i> | 60 ml before food | Twice a day |
| | <i>Sahacharadi taila</i> (101 A ^o) | 10 drops with kwatha | Twice a day |

Figure 1. Ulcers on the medial and lateral aspects of both ankles on Day 0

