



Case Report

Multimodal Management of Chronic Venous Stasis Ulcer (Dushta Vrana): A Clinical Case Report

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Abstract

Venous stasis ulcers represent a severe manifestation of chronic venous insufficiency (CVI), posing a significant clinical and economic burden due to high recurrence rates and prolonged healing times. In Ayurvedic pathology, this condition closely correlates with Siragranthi (varicosity) progressing into a Dushta Vrana (chronic, non-healing ulcer). This comprehensive case report details the integrative management of a 28-year-old male presenting with a recalcitrant venous stasis ulcer on the left lower extremity. A multimodal protocol was initiated, combining systemic Ayurvedic pharmacotherapy (Mahamanjisthadi Kadha, Arogyavardhini Vati), localized parasurgical intervention (Raktamokshana), topical botanical wound care (Triphala and Neem Prakshalana, Jatyadi Taila), modern antiseptics (Povidone-iodine), and postural hemodynamics (Viparita Karani). Over the treatment course, the regimen achieved complete autolytic debridement, rapid attenuation of stasis dermatitis, and full re-epithelialization of the ulcer bed. This study underscores the clinical efficacy of bridging Ayurvedic surgical and pharmacological principles with modern diagnostic and wound care parameters.

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1. INTRODUCTION

1.1 Modern Pathophysiology of Chronic Venous Insufficiency (CVI)

Chronic venous insufficiency (CVI) is characterized by the failure of the venous system to return blood to the heart adequately, leading to ambulatory venous hypertension. The pathophysiology involves venous valve incompetence, typically in the perforating veins connecting the superficial and deep venous systems. Sustained venous hypertension triggers a cascade of microcirculatory damage.

The "Fibrin Cuff Theory" suggests that elevated pressure widens endothelial pores, allowing fibrinogen to escape into the interstitial space, polymerizing into a fibrin cuff that restricts oxygen diffusion. Simultaneously, the "Leukocyte Trapping Theory" posits that decreased venous flow traps white blood cells in the capillaries; these cells become activated, releasing proteolytic enzymes, reactive oxygen species (ROS), and inflammatory cytokines. This chronic inflammatory state upregulates Matrix Metalloproteinases (MMPs), which degrade the extracellular matrix faster than it can be synthesized, ultimately leading to tissue breakdown and ulceration in the classic "gaiter area" of the lower leg.

1.2 Ayurvedic Perspective: *Siragranthi* and *Dushta Vrana*

In Ayurveda, venous ulceration can be traced back to the concept of *Siragranthi* (varicose veins), mentioned by Acharya Sushruta. Prolonged standing, exertion, or physical trauma provokes *Vata dosha*, which enters the *Sira* (veins), causing vascular constriction and pooling of *Rakta* (blood). This pooled, vitiated blood leads to localized swelling and nodule formation. When this condition is neglected, the localized *Rakta-Pitta* vitiation leads to tissue necrosis, forming a *Vrana* (ulcer). A *Vrana* that resists normal healing mechanisms, exhibits profuse exudate, foul odor, slough, and pain is termed *Dushta Vrana*. Acharya Sushruta outlines a systematic 60-step management (*Shashti Upakrama*) for such wounds, emphasizing *Shodhana* (purification/debridement) followed by *Ropana* (healing/epithelialization).

1.3 Pharmacological Rationale (Dravyaguna Perspective)

The success of integrative wound management relies heavily on the specific pharmacological properties of the selected botanicals:

- ***Rubia cordifolia* (Manjistha):** The primary ingredient in *Mahamanjisthadi Kadha*. It is a potent *Rakta Prasadaka*

(blood purifier) and *Pittashamaka*. Modern studies indicate its strong antioxidant and anti-inflammatory action, which directly counters the ROS generated by trapped leukocytes in CVI.

- ***Azadirachta indica* (Neem) & *Triphala* (*Terminalia chebula*, *Terminalia bellirica*, *Embllica officinalis*):** Used for *Vrana Prakshalana* (wound washing). Neem provides powerful antibacterial and antifungal properties, essential for reducing the wound bioburden. *Triphala*, rich in tannins and gallic acid, exerts a *Kashaya* (astringent) effect that precipitates structural proteins, reduces exudate, and acts as a mild, natural autolytic debriding agent.
- ***Picrorhiza kurroa* (Kutki in *Arogyavardhini Vati*):** Acts as a deep hepatoprotective and *Bhedana* agent. By improving hepatic metabolism, it aids in clearing circulating immune complexes and reducing systemic inflammatory markers, subsequently reducing dependent limb edema.
- ***Jatyadi Taila*:** A classical medicated oil indicated for *Marmashrita* (deep) and *Kledayukta* (exudative) wounds. It contains beeswax (*Madhuchhishta*) and botanical extracts that maintain a moist wound-healing environment, facilitating keratinocyte migration across the wound bed.

2. Case Presentation

2.1 Patient Demographics and Chief Complaint

A 28-year-old male patient presented to the outpatient department with a primary complaint of a painful, non-healing ulcer on the medial aspect of the left lower leg. The patient reported a history of localized swelling and skin discoloration preceding the ulceration. No underlying history of diabetes mellitus or peripheral arterial disease was present.

2.2 Clinical Examination

On local examination, a distinct ulceration was observed on the medial malleolus area (gaiter region).

- **Wound Bed:** Presented with a central, adherent necrotic eschar (slough) with hyperkeratotic edges.
- **Peri-ulcer Skin:** Exhibited pronounced erythema, lipodermatosclerosis (induration), and scaling, which are classic cutaneous manifestations of stasis dermatitis.
- **Edema:** Pitting edema was present around the ankle joint, exacerbated by prolonged dependency.



Figure 1 Here: Combine clinical images of initial presentation showing the eschar and surrounding erythema] (Reference: Day 1 clinical presentation)

2.3 Radiological Investigations

To accurately map the hemodynamic pathology, a bilateral Venous Doppler ultrasound was ordered.

- **Deep Venous System:** The bilateral common femoral, superficial femoral, and popliteal veins exhibited normal caliber and compressibility with no intraluminal thrombosis. Deep Vein Thrombosis (DVT) was definitively ruled out.
- **Left Lower Limb (Pathological Side):** The scan revealed partial saphenofemoral junction (SFJ) incompetency.

Diffuse thickening of the great saphenous vein (GSV) wall was noted, consistent with active phlebitis. Critically, incompetent perforators were identified on the medial aspect at precisely 10cm and 15cm above the ankle joint, mapping directly to the ulceration site.

- **Right Lower Limb:** Showed subtle varicosities and one incompetent medial perforator 15cm above the knee joint.

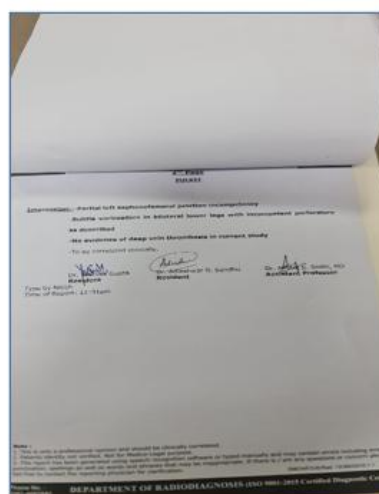
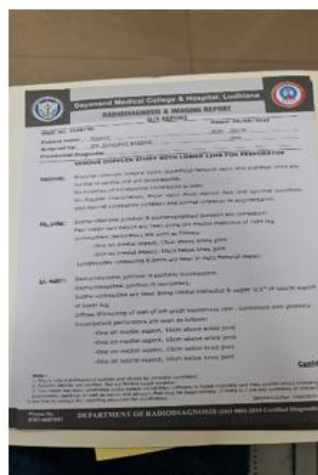


Figure 2 Here: Venous Doppler Ultrasound Report Page 1 & 2] (Reference: Radiodiagnosis & Imaging Report detailing perforator incompetency and absent DVT)

3. Therapeutic Intervention

Based on the diagnosis of *Dushta Vrana* secondary to CVI, an integrated, targeted protocol was deployed.

3.1 Systemic Pharmacotherapy (*Antah Parimarjana*)

1. **Mahamanjithdhi Kadha:** Administered to pacify *Rakta-Pitta* and resolve the active GSV phlebitis identified in the Doppler study.

2. **Arogyavardhini Vati:** Utilized for its *Sroto-Shodhaka* (channel clearing) properties to reduce lower limb edema and improve systemic metabolism.

3.2 Local Wound Care (*Vahi Parimarjana*)

1. **Vrana Prakshalana (Wound Cleansing):** Daily irrigation utilizing an aqueous decoction of *Triphala* and Neem powder. This step provided non-cytotoxic antimicrobial control and astringent action to gently lift the adherent necrotic slough.
2. **Antisepsis & Epithelialization:** A light dusting of Povidone-iodine powder was used to rapidly control active bacterial bioburden. This was immediately followed by a thick topical application of *Jatyadi Taila* to soften the eschar and provide a lipid-rich matrix for epidermal regeneration.

3.3 Parasurgical Intervention (*Shastra Karma*)

1. **Raktamokshana (Bloodletting):** Due to the severe local ambulatory venous hypertension and trapped *Dushta Rakta* (deoxygenated, pooled blood), localized bloodletting was performed around the ulcer margins. This decompressed

the localized venous network, allowing oxygenated arterial blood to perfuse the ischemic tissue.

3.4 Postural Hemodynamics

1. **Viparita Karani (Inverted Lake Pose):** The patient was instructed to practice this yoga asana (legs elevated against a wall) daily. This mechanical inversion utilizes gravity to assist deep venous return, effectively counteracting the incompetent perforator valves (10cm and 15cm above the ankle) during rest.

4. Clinical Progress and Photographic Documentation

4.1 Phase 1: Active Debridement (Day 1)

At the commencement of the integrative treatment, the wound bed was highly recalcitrant. A thick, dark, and hardened necrotic crust (eschar) was firmly adherent to the underlying dermis. The surrounding tissue demonstrated acute inflammatory changes, appearing highly reactive with raw epidermal borders and severe scaling. The application of *Jatyadi Taila* was critical in this phase to initiate autolytic hydration of the crust.



Figure 3 Here: Day 1 close-up of thick eschar and raw epidermal borders] (Reference: Day 1 clinical presentation of wound bed)

4.2 Phase 2: Granulation and Edema Reduction (Day 7)

Following exactly one week of the treatment protocol, a drastic clinical shift occurred. The dense central eschar contracted significantly and began to separate from the healthy granulation tissue beneath. A prominent epidermal desquamation (peeling

of the outer skin layer) was visible surrounding the primary ulcer margin. Clinically, this is a highly positive indicator that the subcutaneous edema and localized venous hypertension were rapidly subsiding. The smaller satellite lesions flattened, and the bright red active erythema faded considerably.



Figure 4 Here: Day 7 showing contracting eschar and desquamation (Reference: Day 7 clinical progress showing reduced inflammation)

4.3 Phase 3: Complete Epithelialization (Post-Treatment)

At the conclusion of the treatment regimen, the primary venous stasis ulcer achieved complete re-epithelialization, structurally transforming into a *Roodha Vrana* (fully healed wound). The necrotic tissue was completely eliminated, replaced by a stable,

flat, and intact epithelial layer spanning the primary bed and all adjacent satellite lesions. The severe eczematous dermatitis, active erythema, and limb swelling resolved entirely. The remaining visual presentation consisted solely of expected, inactive hemosiderin hyperpigmentation—a permanent marker of prior red blood cell extravasation—around the medial ankle.



Figure 5 Here: Post-treatment images showing complete wound closure and residual hemosiderin staining] (Reference: Post-treatment healed state)

5. DISCUSSION

The successful and rapid management of this *Dushta Vrana* illustrates the profound efficacy of synthesizing traditional Ayurvedic modalities with modern diagnostic imaging and wound care principles.

The most significant barrier to healing in CVI is the mechanical reality of venous reflux. The Doppler ultrasound precisely mapped this reflux to two incompetent perforators on the medial left leg. While traditional bandaging is the modern standard, the Ayurvedic intervention of *Raktamokshana* provided an immediate biological decompression of the trapped, leukocyte-heavy venous blood. This action halted the matrix metalloproteinase (MMP) tissue destruction, acting as a catalyst for the subsequent therapies.

The local wound care protocol leveraged the distinct pharmacological actions of *Dravyas*. The *Triphala* and *Neem*

Prakshalana acted as a biological debriding agent. Unlike sharp surgical debridement which can damage fragile new capillaries, this *Kashaya* (astringent) wash selectively loosened the necrotic eschar while managing the bacterial load. Subsequently, *Jatyadi Taila* maintained the delicate moisture balance required for keratinocytes to migrate across the wound surface, effectively closing the ulcer.

Internally, the systemic management of the documented Great Saphenous Vein phlebitis was achieved through *Mahamanjishthadi Kadha*. By addressing the root *Rakta-Pitta* pathology, the systemic inflammatory cascade was dampened, directly reducing the localized edema that prevents wound edges from approximating. Furthermore, empowering the patient with *Viparita Karani* yoga provided continuous, daily

mechanical assistance to venous return, compensating for the physical valve incompetency.

6. CONCLUSION

This case report demonstrates that the integrated management of Venous Stasis Ulcer (*Dushta Vrana*)—utilizing Ayurvedic systemic pharmacotherapy, parasurgical bloodletting, botanical wound irrigation, and postural yoga—is highly effective. The protocol rapidly achieved autolytic debridement, resolved stasis dermatitis, and facilitated complete epithelialization. For patients suffering from chronic venous insufficiency, bridging targeted Ayurvedic *Dravyaguna* and *Shalya Tantra* principles with modern diagnostics offers a safe, reproducible, and economically viable pathway to wound healing and limb preservation.

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