



## Management of *dushtavrana* according to its cause - A study series

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**ABSTRACT:** The most common underlying problem causing chronic leg ulcers is the disease of the veins of the leg. Precipitating factors are venous stasis and tissue anoxia. Sustained venous pressure results in extravasation of cells, activation of capillary endothelium resulting in release of free radicals. Studies have shown unrestrained matrix metalloproteinase activity in venous ulcer fluid has significant anti-angiogenic effects and disrupt the microcirculation in the perivascular regions thereby inhibiting wound healing. In *ayurveda*, chronic wounds are considered as *dushtavrana*. There are no specific causes mentioned but are said to occur due to *pravardha dosha*. Here, in order to plan an effective protocol, *dushtavrana* was considered as due to *siraajagranthi*, so as to deal with the root cause of the *vrana* formation. The protocol of *srotasshodhana- vrana srotassodhana and ropana-rasaayana* used here in five cases of *dushtavrana* probably helped to improve the circulation- reduce stasis and thereby improve healing.

**Keywords:** *dushtavrana, siraajagranthi, srotassodhana, vrana sodhana- ropana*, chronic venous ulcer, venous stasis.

### Introduction

Chronic venous disorders are an important cause of disease and disability worldwide<sup>[1]</sup>. They are characterised by associated skin trophic changes such as pigmented dermatitis lipodermatosclerosis leg ulcers and pitting oedema, along with symptoms of venous dysfunction such as aching pain, congestion, skin irritation and muscle cramps<sup>[2]</sup>.

Literature lacks a correct estimation of prevalence and incidences of venous ulcers in India. In a study carried out in North Indian population, the authors estimated that prevalence of varicose veins as around 46.7% in females and 27.8% in males, while skin trophic changes were observed in 18.9% females and 5.2% males respectively<sup>[3]</sup>.

Current treatment strategies for venous ulcers involve use of compression therapy in combination

with advanced wound dressings. Additionally, debridement, topical application of antimicrobial agents and periodic rebandaging have also shown to accelerate wound closure, although once healed, 70% of patients suffer an ulcer relapse<sup>[4]</sup>.

Ayurvedic principle of treatment involves identifying the various entities of *sampraapti* or disease manifestation process and attempt at its disruption or *sampraapti vighattanam*<sup>[5]</sup>.

In order to plan an effective protocol of management, *dushtavrana* was considered here as due to *siraajagranthi*, so as to deal with the root cause of ulcer formation.

Here, 5 cases of venous ulcers were dealt with a common protocol aiming at initial *srotassodhana* followed by *vrana sodhana* and *ropana* and finally by *rasaayana*..

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## Literature review

Generally varicose veins are considered to be *siraaajgranthi* in *ayurveda*, caused by *vaatakopa* affecting *siraa* filled with *rakta* causing *siraasankoca* (constriction or constrictions over the *siraa*), *vakrikarana* (tortuosity) leading to *unnata vrta granthi* (raised and dilated segments of *siraa*) similar to a varicose vein<sup>[6]</sup>.

Looking into the *shatkriyaa kaala* in the fifth *kriyaa kaala* ie., *vyakti*, symptoms of diseases like *sopha*, *arbuda*, *granthi*, *vidradhi*, *visarpa* as well as *jwara*, *atisaara* and so on manifest clearly<sup>[7]</sup>. As it further proceeds into sixth *kriyaa kaala* ie. *bheda*, *upadravas* are seen either breaking open to a wound or chronicity<sup>[8]</sup>. Acaarya Dalhana explains that *avadeernatwam* or *vranabhaavam aapannam* is a *visesha lakshana* of *sophadi roga* (*sopha*, *granthi*, *vidradhi*, *visarpa*)<sup>[9]</sup>. This is said to occur due to improper management in *sancayaadi* course of *shatkriyaa kaala*<sup>[9],[10]</sup>.

Generally, *dushtavrana* treatment includes *oordhwa- adha sodhana*, *langhana*, and *raktamokshana*<sup>[11]</sup>. By considering *sirajaajgranthi* as root cause of the formation of *dushtavrana* this general protocol may not be sufficient, as mere treating the *upadrava* without dealing with the cause can lead to recurrences.

Thus, here the treatment was planned under 3 stages- initial *srotasodhanam* to remove *srotorodham* and clear channels of *vyaana vaata* circulation. Next *vrana sodhana* and *ropana* and finally *rasaayana* to prevent a recurrence.

## Aims and objectives

To plan a protocol for the management of *dushtavrana* due to *siraaajgranthi*.

## Methodology

5 cases of *dushtavrana* due to *siraaajgranthi* were treated by using a common protocol consisting of *srotasodhanam* followed by *vrana sodhana* and *ropanam* and finally *rasaayana*.

When CEAP classification<sup>[12]</sup> was applied to the 5 cases:

	Case 1	Case 2	Case 3	Case 4	Case 5
Clinical manifestation	C <sub>6</sub>	C <sub>6</sub>	C <sub>6</sub>	C <sub>6</sub>	C <sub>6</sub>
Etiological factors	E <sub>P</sub>	E <sub>P</sub>	E <sub>P</sub>	E <sub>S</sub>	E <sub>P</sub>
Anatomical distribution	A <sub>s</sub>	A <sub>s</sub>	A <sub>s</sub>	A <sub>s</sub>	A <sub>s</sub>
Pathophysiological conditions	P <sub>R</sub>	P <sub>R</sub>	P <sub>R</sub>	P <sub>O</sub>	P <sub>R</sub>

CEAP classification was used to understand the diagnosis but to assess the before treatment and after treatment conditions better, a few criteria were selected:

1. Wound size
2. Pus discharge / oozing

3. Presence of unhealthy granulation tissue
4. Itching
5. Oedema over lower limb
6. Tenderness
7. Discolouration of surrounding skin

Medicines given under the 3 stages were:

Table 2 Protocol followed		
	Internally	Externally
Stage 1: <i>SROTASSHODHANA</i>	<p><b>i. Brihat manjishtadi kwatham</b> 15ml diluted with 45 ml boiled and cooled water twice daily before food.</p> <p><b>ii. Guggulu pancha pala choornam</b> 5g with kashayam twice daily before food.</p> <p><b>iii. Rasa sindhuram</b> 125 mg with 10 drops of <b>Gandharvahasthadi erandam</b> and a pinch of <b>saindhava</b> twice daily after food.</p>	<p><b>i. Local dhaara</b> with <b>Ksheeri vrksha kwatha</b> daily once and <b>veshtana</b> to keep dry</p> <p><b>ii. Jalookaavacaarana</b> on alternate days</p>
Stage 2: <i>VRANA SODHANA AND ROPANA</i>	<p><b>i. Thiktakam kwatham</b> 15 ml with 45 ml boiled and cooled water twice daily before food.</p> <p><b>ii. Guggulu pancha pala choornam</b> 5gms with honey Twice daily Before food</p> <p><b>iii. Rasa sinduram</b> 125 mg with <b>honey</b> OD HS</p>	<p><b>i. Veshtana</b> with <b>Jathyadi Ghritham</b> over wound</p> <p><b>ii. Dusting Sodhita Tankana</b> over swollen limb apart from wound</p> <p><b>iii. Jalookaavacarana</b> once in 4 days</p>
Stage 3: <i>RASAAAYANA</i>	<p><b>i. Mahatikthakam ghritham</b> 10 g BD BF</p>	<p><b>i. Lepam</b> with <b>Shathadhoutha ghritham + yashada bhasmam</b></p>

Period varied for each patient as the wound size and characteristics varied, the maximum time taken being 4 months.

## Cases

### Case 1

42 years old businessman came to OPD on 4/2/18 with complaints of wound over the right lower leg for 6 months. Took modern medicine treatment and got relief temporarily. He needs to travel constantly which leads to swelling over the (R) Lower limb. Now for the past 2 weeks, wound formed which increased in size due to lack of proper care. No h/o trauma or associated illness. He was subjected to the treatment protocol and duration of treatment was 52 days. He was advised on proper wound care and use of crepe bandage during long travel to help reduce oedema formation during traveling. Detailed wound examination mentioned in table no. 3.

### Case 2

48 years old woman (a tailor by profession) came to OPD on 17/12/17 with wound over medial side of ankle joint (R) and over dorsum of foot for 2 months. No h/o recent trauma or any associated

major health issues. No prominent tortuous veins seen over (R) lower limb but skin hardening with discolouration over ankle joint along with telangiectasia over the lower calf region and over foot. Scars of previous occurrences also seen. Wound developed 2 years ago and took modern medicine as well as homeopathic treatment but recurrences occurred due to lack of proper rest. 2 months ago following itching over the foot, she developed small wound over the dorsum of foot but due to work overload she did not go for treatment. Now pain and swelling developed along with a wound over medial side of the joint with oozing and itching. She was advised rest for initial period of treatment till oozing stopped and wound healing started. Duration of treatment was 41 days. She was advised proper rest and wound care to prevent another attack. She was advised to keep legs elevated frequently to prevent accumulation of swelling again. Detailed wound examination mentioned in table.

### Case 3

56 years old manual worker came to OPD on 26/11/17 with a chronic wound over the medial side of the (R) ankle for last 3 years and development

of pain since 1 week back. He uses bicycle and reported trauma over the area during a fall from the bicycle. He has h/o varicose veins for around 7 years. Though bleeding was arrested, he later developed a wound over the site which gets worse at times. He took modern medicine consultation and got temporary relief. Now for one week, he has developed pain and difficulty of movement of ankle joint. He was advised treatment and duration of treatment was 84 days. He was advised to keep legs elevated after returning from work. Detailed wound examination mentioned in table below.

**Case 4**

48 years old male who works as a waiter at a hotel came to OPD on 15/10/17 with wound over medial side of (L) ankle since 1 month. He has h/o muscle cramps often at night since many years before with telangiectasia over the ankle joint for 10 years. 2 years ago he developed swelling and pain over calf which did not subside on rest with legs kept elevated. He consulted a physician who diagnosed it as DVT and was given treatment accordingly. He continued the same treatment for around a year and stopped by himself. By his long

hours of standing, varicosities worsened. He developed wound after a fall 1 month ago. Wound healing was found delayed and on testing, RBS was found to be 152mg/dl which he has brought to normalcy through diet modifications. He was advised treatment and duration of treatment was 80 days. He was advised to use crepe bandage when standing for long periods of time. Detailed wound examination mentioned in table below.

**Case 5**

58 years old housewife came to OPD on 21/1/18 with c/o wound over medial aspect of (L) ankle joint for 6 years. She had h/o varicosities for the last 15 years. Following an episode of itching, the wound burst open and it healed after treatment. It however would come frequently and each time modern medicine treatment sought. Now since past few weeks the wound reoccurred and has become bigger and painful. No associated comorbidities reported. She underwent the treatment for a duration of 117 days (approx. 3 and ½ months). She was advised use of crepe bandage as well as to keep legs elevated frequently to prevent formation of swelling. Detailed wound examination mentioned in table below.

Table 3 Before treatment assessment					
	Case 1	Case 2	Case 3	Case 4	Case 5
Wound site	Medial malleolus (R)	Medial malleolus (R) & 1cm from it	Medial malleolus (R)	Medial malleolus (L)	Medial malleolus (L)
Wound number	1	2	1	1	1
Wound size	4cm×4cm ×0.25cm	Medial malleolar- 4cm×2cm×0.25cm Dorsum- 2cm× 3cm×0.25cm	3cm×3cm ×0.5cm	1cm×2cm ×0.25cm	6cm×5.2cm ×0.5cm
Pus discharge / oozing	Absent	+ in both	Absent	+	+
Presence of unhealthy granulation tissue	+	+	+	+	+ hypergranulation tissue over edge of wound
Itching	+	+	Absent	Absent	+
Oedema over lower limb	+	+	Mild	+	+
Tenderness	+ skin around wound	+ in and around both wounds	+ around wound	+ around wound and ankle joint	+ around wound
Discoloration of surrounding skin	+	+	+ with thickness and dryness of skin	+ with skin thickening	+ skin thickness +

Table 4 After treatment assessment					
	Case 1	Case 2	Case 3	Case 4	Case 5
Healed Wound site	Medial malleolus (R)	Medial malleolus (R) & 1cm from it	Medial malleolus (R)	Medial malleolus (L)	Medial malleolus (L)
Wound number	1	2	1	1	1
Healed Wound / scar size	4cm×3cm×0cm	Medial malleolar- 3cm×1cm×0cm Dorsum- 0.75cm×1cm×0cm	2cm×1.5cm×0cm	0.5cm×0.5cm×0cm	4.8cm×3.2cm×0.25cm
Pus discharge / oozing	Absent	Absent	Absent	Absent	Absent
Presence of unhealthy granulation tissue	Nil	Nil	Nil	Nil	Nil, slightly raised healing granulation tissue over edges of scar
Itching	Absent	Absent	Absent	Absent	Absent
Oedema over lower limb	Absent	Absent	Mild	Reduced	+ reduced
Tenderness	Absent	Absent	Absent	Absent	+ over heels
Discoloration of surrounding skin	Reduced discolouration	+	+ with thickness and dryness of skin but reduced	+ thickness reduced	+ skin thickness +

Fig 1



Case 1a- before treatment      Case 1b- after treatment

Fig 2



Case 2a- before treatment      Case 2b- after treatment

Fig 3



Case 3a- before treatment      Case 3b- after treatment

Fig 4



Case 4a- before treatment      Case 4b- after treatment



Fig 5



Case 5a – before treatment

Case 5b- after treatment

## Discussion

Venous ulcers are also called gravitational ulcers. Precipitating factors are venous stasis and tissue anoxia. Sustained venous pressure results in extravasation of cells, activation of capillary endothelium resulting in release of free radicals<sup>[13]</sup>. Studies have shown unrestrained matrix metalloproteinase activity in venous ulcer fluid have significant antiangiogenic effects and disrupt the microcirculation in the perivascular regions thereby inhibiting wound healing<sup>[14]</sup>. Similar high concentration of thrombin has a negative impact. Fibrin bound thrombin not only decreases proliferation of tissues but also induces normal human epidermal keratinocytes apoptosis when present in high concentration<sup>[15]</sup>.

During course of this treatment, main focus was to remove the *srotorodham* and improve the circulation which is a critical entity for wound healing- *vrana sodhana* and *ropana*.

### Stage 1 - *Srotassodhana*

#### Internally

Brihat Manjishtadi Kwatham<sup>[16]</sup> for its *tridosha-hara* property added with Guggulupanchapala Chooranam<sup>[17]</sup> instead of *prakshepa* of *kanaa* and *guggulu*, provides additional properties of *lekhana*, clearing of channels and anti-inflammatory action.

**Rasa Sindooram**<sup>[18]</sup> which acts as vasodilator also augments action of other medicines; here given with Gandharvahasthadi Erandam<sup>[19], [20]</sup> and Saindhavam<sup>[21]</sup> to provide *vaatahara- vaata anulomana* action with *sookshma* property.

Externally:

Daily local *dhaara* with Ksheerivriksha Kashayam<sup>[22]</sup> to remove unhealthy tissues and reduce *pitta* and *paakam*, improving inflammation and inducing healing.

Jalookaavacaarana was done every alternate days. Indicated in *avagaadha* and *grathita* conditions<sup>[23]</sup>, *Grathita* is explained as *grantheebhootam*<sup>[24]</sup> by Hemadri and Arunadatta clarifies further as conditions of *granthi-arbudam*<sup>[25]</sup>. Thus, it can be taken as an ideal treatment in conditions associated with *siraajagranthi*, which is the main cause for formation of *dushtavrana*.

### Stage 2 - *Vrana sodhana and ropana*

#### Internally

Thikthakam Kwatham<sup>[26]</sup> mentioned in *dushta naadi vrana*, *bhagandara* and other *pitta* conditions, indicated for channel clearing as well as healing of wounds.

Guggulupanchapala Chooranam<sup>[17]</sup> was given with honey for potentiating action of honey<sup>[27]</sup> and also is *lekhana*, *shodhana* and *ropana* of *vrana*.

Externally

Application of *Sodhita Tankana*<sup>[28]</sup> over swollen limb to reduce oedema aiding reduction of pressure to venous circulation and thereby ease circulation and promote arterial blood supply as well as faster healing. This, along with Jathyadi Ghritham<sup>[29]</sup> over wound helps in *vrana sodhana* and *ropana* with action of *tuttha* helping removal of unhealthy tissues.

*Jalookaavacaarana* was advised once in 4 days. Its details were mentioned previously. Studies done elaborately on hirudin in leech saliva show

several mechanisms of action. First hirudin temporarily increases blood flow by helping discharge of venous pooling, providing more time for angiogenesis to occur. Second, hirudin promotes absorption of blood and exudate by alleviating arterial wall spasm, dilating blood vessels and accordingly circulation.

Thirdly, hirudin has high affinity for thrombin and can form a 1:1 complex with it through irreversible covalent bonds. The anticoagulant, antithrombotic and antiplatelet aggregation effects of hirudin help in vascular endothelial growth factor (VEGF) to promote micro vessel growth<sup>[30]</sup>. Finally, hirudin plays an anti-inflammatory role, reducing free radicals and inflammatory factors in damaged tissues contributing to VEGF expression and angiogenesis<sup>[31]</sup>.

### Stage 3- *Rasaayanam*

#### Internally

Mahatikthakam Ghritam<sup>[32]</sup> especially mentioned for its *rasaayana* property along with *vranā sodhana* and *ropāna* properties, thereby prevent recurrence of another *vranā*.

#### Externally

Shatadhouta Ghritam<sup>[33]</sup> with Yashada Bhasmam<sup>[34]</sup> together provides adequate moisture to the skin and thus prevent dry lesions which could precipitate another episode.

### Conclusion

Individualising the *nidaana* for formation of *dushtavranā* has better results than a mere *sodhana-ropāna* approach especially in varicose related ulcers. Further, instead of specifying drugs for such a condition, the *rogi* and *roga avastha* can be imbibed into this protocol of initial *srotasodhana- vranā sodhana-ropāna* and finally *rasaayana* so as to achieve a complete reduction in the symptoms. This being a small sample study, further studies need to be done in larger samples.

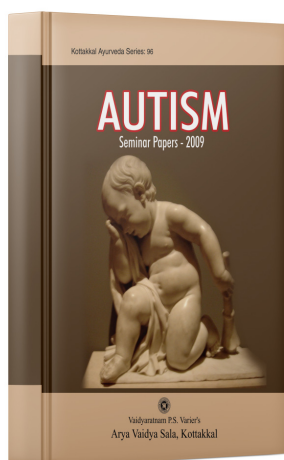
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