

# Effect of JALAUKA VACHARANA in the management of Dushtavrana with special reference to Non-Healing Ulcer

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**Abstract**— The presence of Dushta Vrana worsens the condition of the patient with different complications and may become fatal. Although Vrana is oldest known ailment, its high prevalence worldwide is still a matter of concern. In India, most of the population still resides in poor hygienic and malnourished conditions, so the incidence of infection is maximum and delayed wound healing is more common. Application of Jalaukavacharana for local application and DarviGuduchyadiGhanVatorially for maximum period of six months.

It can be concluded that Jalaukavacharanapossesses high efficacy in both Vrana Shodhanaand Ropana, without producing any adverse effects and hence can be used as an alternative approach for management of Dushta Vrana.

**Keywords:** Jalaukavacharana , Dushta Vrana.

## I. INTRODUCTION

AcharyaCharaka defines DushtaVrana in Dvivraniyadyaya<sup>4</sup> as whitish, deep seated, thick margin, yellowish, bluish, cyanosed, foul smelling, red, and with tiny openings. AcharyaSushruta defines classically in vranasravavigyaniya<sup>6</sup> chapter as pus discharging, painful, foul smelling, itching, and with chronicity. Moreover, wound which refuses to heal or heals very slowly in spite of best efforts by Chikitsa Chatuspadai.eBhishak, Dravya, Upsathataand Rogican be considered as Dushta Vrana. Acharyamadhavkara defines DushtaVrana as-

पुतिपूयातिदुष्टास्रकस्रावोत्संगी चिरस्थितिः

दुष्टोन्नणोऽतिगंधादि शुद्धलिङ्गविपर्ययः॥

(Ma. Ni.42 /7)

Means Vrana which have discharge of pus, pus mixed blood, deep seated with hollow cavity, chronicity, foul smell and opposite to Lakshana of Shuddha Vrana are included in DushtaVrana.

In Dalhan Tika<sup>7</sup> it is mentioned that-

प्रतीकारेचिकित्सते, प्रयतेतप्रयत्नेकुर्वीत॥

This means the wounds which need extra therapeutic effort or more conscious approach for their management are considered as Dushta-Vrana.

As seen in modern surgical practice, Wounds are managed by debridement, antiseptic solution and administration of antibiotics in superimposed infection, analgesics and anti-inflammatory drugs, and wound dressing with foam, hydrogels, hydrocolloids, silver, iodine etc. Skin grafting is also indicated when wound is deep and large in size

AcharyaSushruta has elaborately explained sixty types of procedures [ShashtiUpakrama<sup>8</sup>] and also mention 13 measures for VranaShodhana and Ropana. He also mentions Raktamokshana in acute inflammatory conditions, indurated, cyanosed, painful, swellings, and strictly advised Jalaukavacharana in contaminated wound<sup>9</sup>. Jalaukavacharana (leech therapy) is one of the examples of the use of invertebrates in human diseases in the form of bloodletting and has now emerged as widely useful therapy in large number of diseases and is attracting the eyes of researchers all over the world After all methods and drugs indicated for Vrana management there is need of such ailment which pursue the Shodhana and Ropana property.

Jalaukavacharanahas its own benefits viz.-

1. Jalauka( Leech) is anti-phlogistic, i.e. used for relief of local inflammation in tissue<sup>12</sup>.
2. Jalauka has Capability of improving microcirculation<sup>13</sup>.
3. Jalaukasucks blood by self- regulatory mechanism i.e. they get detached from the wound on its own after sucking properly.
4. Jalaukais currently usedduring post-operative care of re-implanted fingers, skin graft and venous congestion<sup>14</sup>.
5. Jalauka exerts Local effect in the wound due to several active substances, emitted into it during sucking.

Thus, Jalaukavacharanawas selected for the management of Dushta Vrana along with Adjuvant measure (Darviguduchyadighanvatorially) to open a new avenue for management of DushtaVrana.

## II. MATERIALS AND METHODS

### A. SELECTION OF PATIENTS:

- Patients with signs and symptoms of Dushta Vrana, attending the O.P.D. and I.P.D. of Department of Shalya Tantra, Rishikul campus, UttrakhandAyurved University, Haridwar, (U.K.) India, were registered irrespective of their sex, religion, occupation, education etc. Total 30 patients were selected for the study.

#### 1) INCLUSION CRITERIA:

Patients fit for Raktamokshana., Both male and female Patients, Patients of age group between 10-70 year and Patients with signs and symptoms of Dushta Vrana.

#### 2) EXCLUSION CRITERIA:

Wound with other disorders e.g. H.I.V, hepatitis etc, Malignant ulcers, Tubercular ulcers, Syphilitic ulcers, Leprosy, Martorels hypertensive ulcers and Patient having history of bleeding disorders.

### B. DIAGNOSIS PHASE:-

All patients of Dushta Vrana were diagnosed on the basis of clinical presentation and findings. The diagnosis of Dushta Vrana was done on both Modern and Ayurvedic parameters. For this purpose a special research proforma was prepared as per the Modern and Ayurvedic view.

### C. EXAMINATION OF PATIENT

#### 1) A-Laboratory investigations

1. Blood routine investigations - Hb%, TLC DLC ESR blood sugar, blood urea, serum creatinine, SGOT, SGPT, LFT, blood group, HIV, HbsAg., URINE for culture and sensitivity, Pus culture and sensitivity, Biopsy if needed, FNAC of regional lymph nodes

#### B-Radiological

X-ray chest of the affected part if needed, Doppler or duplex scan, D.S.A. and Venography.

### III. METHODOLOGY OF JALAUKAVACHARANA:

#### A. Purva Karma:

a.) Preparation of the leeches: - Jalaukas were first prepared for Raktamokshana by keeping in Haridra Jala, prepared by adding a few pinches of Haridra Churna in a kidney tray half filled with fresh water.

b.) Preparation of patient: - The ulcerated site was cleaned with normal saline to remove the discharge. After that wound were cleaned by dry gauge.

#### B. Pradhana Karma

The leeches were caught with the gauze or cotton pad after wearing the rubber gloves. Prepared active leeches were then kept over the wound. At non ulcerated site skin was punctured with sterilized needle and when blood oozes the

leeches were kept on it. When a leech attached itself to the site, wet cotton pad was placed over it.

#### C. Paschata Karma:

a.) Leech Care: Haridrā Churna was then sprinkled over the leech's anterior sucker (mouth) for inducing vomiting. After expelling all the blood from its gut, the leech became active again and was stored in fresh water.

b.) Patient Management: - Shatadhauta Ghrita was applied over the bite lesions. A few minutes later, cotton gauze pieces were kept over the bleeding sites with firm pressure to absorb the secondary bleeding.

This process was continued ones a week with duration of the treatment up to six months.

#### DURATION OF THE TREATMENT:

All the cases were treated till the Ulcer heals completely. Maximum duration of study was taken SIX MONTHS.

#### FOLLOW UP PERIOD

Follow up was done once weekly for one month then monthly once for two months after the completion of treatment.

#### 3) ASSESSMENT CRITERIA:

The clinical trial was assessed for its efficacy on the basis of following subjective and objective criteria.

##### I. SUBJECTIVE CRITERIA:

Arterial pulsation and Lymphadenopathy

##### II. OBJECTIVE CRITERIA:

Shape, Number, Granulation, Tenderness, Smell, Pain, Discharge, Itching and Size.

##### OBSERVATION

- In this series of 30 patients, the youngest patient was of 28 years and eldest patient was of 70 years. Maximum patients i.e. 70% patients were found in the age group of 31-50 years and 23.33% patients were in the age group 51-70 years and 6.66% patients were in the age group of 10-30 years.

- In analysis 7 female patient (23.33%) were found during study and rest 23 (i.e. 76.33%) were male. Maximum cases i.e. 28 patients (93.33%) were found of Hindu religion, 3 patients (6.67%) of Muslim religion.

- In analysis 2 patient (6.67%) were found unmarried during study and rest 28 (i.e. 93.33%) married persons. out of the 30 cases, 76.67% patients were reported from rural area, while 23.33% patients were belonging to the urban area.

- In analysis majority of the patients belonged to middle class i.e. 60% whereas 40% patients were from poor class of the society and none were reported from high socio-economic status.

- Incidence of occupational status revealed that 46.67% patients were labours, 20% were housewives, 20% were service man and 13.33% were not doing anything. It was observed that the 23.33% patients were consuming vegetarian diet whereas, 76.67% patients were on mixed diet.

- Maximum 50% patients were not addicted whereas 43.33% were addicted to Tobacco either by smoking or chewing. 6.67% patients were addicted to Alcohol. Maximum patients 73.34% have good appetite. Maximum 73.34%

patients were having sound sleep whereas 26.66% patient's sleep was disturbed.

- Maximum 73.34 % patients were having Mridukostha whereas in 16.67% patient's Kosthawas Madhyama.

- This study revealed that 36.66% patients belonged to Vata-PittajaPrakriti, 13.34% patients were of Pitta-KaphajaPrakriti and 50% patients belonged to Vata-kaphajaPrakriti.

- This study reveals that maximum 53.34% patients comes with irregular shape, 33.33% patients with oval shape and 13.33% patients comes with circular shape

- This study reveals that 66.67% patients have single ulcer, 23.33% patients have 2-3 and 10% patients have multiple ulcer.

- This study reveals that 73.34% patient comes with purulent discharge, 13.33% comes with bloody discharge and same with seroanguinous discharge.

- This study reveals that maximum patients (60%) have mild tenderness, 26.67% patients have no tenderness and 13.33% patients have severe tenderness.

- This study reveals that 76.67% patients have nil granulation, 13.33% patients have pale granulation and 10% have unhealthy granulation.

- This study reveals that 53.34% patients have upto 1cm<sup>2</sup> size, 23.33% patients have 1-5 cm<sup>2</sup> size and 23.33% have 5-10cm<sup>2</sup> size. This study reveals that maximum patients have no itching, 23.33% patients have mild itching, 10% have moderate itching and 6.67% have severe itching.

- This study reveals that maximum patients have mild pain, 23.34% patients have severe pain, 3.33% patients have moderate pain and 10% patients have no pain.

- This study reveals that maximum patients have mild smell, 23.34% patients have severe smell and 3.33% patients have moderate smell. This study reveals that arterial pulsation was normal in 53.34% patients. it was feeble in 23.33% patients and absent in 23.33% patients.

- This study reveals that lymphadenopathy was absent in maximum (93.33%) patients and present in 6.67% patients.

- This study reveals that maximum patients (80%) come after more than 2 months, 13.33% patients come after 1-2 month and 6.67% patients come before one month.

- This study reveals that maximum patients (93.33%) have Nija Vrana and 6.67% patients have Agantuja Vrana.

- This study reveals that Maximum patients (46.67%) have poor hygiene and then (40%) have average hygiene.

D. Effect of Therapy

TABLE NO. 1 EFFECT ON PAIN

No. of days	Mean		Mean diff	% relief	SD	SE	t-value	p - value	Significance
	BT	AT							
1 month	1.4	1.16	0.23	16.66	0.43	0.07	2.97	<0.01	HS
2 month	1.4	0.70	0.73	52.38	0.63	0.11	6.27	<0.001	HS
3 month	1.4	0.36	1.03	73.80	0.55	0.10	10.1	<0.001	HS
4 month	1.4	0.16	1.20	85.71	0.71	0.13	9.20	<0.001	HS
5 month	1.4	0.13	1.26	90.57	0.78	0.14	8.83	<0.001	HS
6 month	1.4	0.06	1.30	92.85	0.83	0.15	8.51	<0.001	HS

The initial mean score of Pain observed was 1.4, which came down to 1.16 after 1 month, .70 after 2 month, 0.36 after 3 month and 0.06 after complete treatment with 92.85% relief.

TABLE NO. 2 EFFECTS ON TENDERNESS

No. of days	Mean		Mean diff	% relief	SD	SE	t-value	p - value	Significance
	BT	AT							
1 month	1	0.76	0.16	16.66	0.37	0.06	2.40	<0.01	S
2 month	1	0.50	0.36	36.66	0.66	0.12	3.0	<0.001	HS
3 month	1	0.30	0.56	56.66	0.67	0.12	4.57	<0.001	HS
4 month	1	0.10	0.73	73.33	0.82	0.15	4.85	<0.001	HS
5 month	1	0.06	0.93	93.33	0.86	0.15	5.8	<0.001	HS
6 month	1	0	1	100	0.92	0.16	6.02	<0.001	HS

Mean score of tenderness before treatment the was 1 which came down to 0.76 after 1 month, 0.50 after 2 month, 0.30 after 3 month, 0.10 after 4 month and 0 after completion of treatment by giving 100% relief.

The result shows that treatment was statistically highly significant at p < 0.001.

TABLE NO. 3 EFFECTS ON ITCHING

Follow up	Mean		Mean diff	% relief	SD	SE	t-value	p - value	Significance
	BT	AT							
1 month	0.56	0.36	0.2	35.29	0.40	0.07	2.69	<0.01	S
2 month	0.56	0.06	0.5	88.23	0.68	0.12	4.01	<0.001	HS
3 month	0.56	0.06	0.5	88.23	0.68	0.12	4.01	<0.001	HS
4 month	0.56	0.033	0.53	94.11	0.73	0.13	4	<0.001	HS
5 month	0.56	0	0.56	100	0.81	0.14	3.79	<0.001	HS
6 month	0.56	0	0.56	100	0.81	0.14	3.79	<0.001	HS

Mean score of Itching before treatment was 0.56 which came down to 0.36 after 1 month, 0.06 after 2 month, 0.06 after 3 month, 0.03 after 4 months and 0 after completion of treatment by giving 100% relief.

The result shows that treatment was statistically highly significant at p < 0.001.

TABLE NO. 4 EFFECTS ON DISCHARGE

No. of days	Mean		Mean diff	% relief	SD	SE	t-value	p - value	Significance
	BT	AT							
1 month	1.73	1.33	0.33	19.23	0.47	0.08	3.8	<0.001	HS
2 month	1.73	0.76	0.76	50	0.57	0.10	8.30	<0.001	HS
3 month	1.73	0.26	1.36	78.84	0.80	0.14	9.25	<0.001	HS
4 month	1.73	0.20	1.46	84.61	0.77	0.14	10.35	<0.001	HS
5 month	1.73	0.10	1.66	96.15	0.84	0.15	10.81	<0.001	HS
6 month	1.73	0.06	1.66	96.15	0.80	0.14	11.37	<0.001	HS

The mean score of Discharge was 1.73 before treatment reduced to 1.33 in 1 month, 0.76 in 2 month, 0.26 in 3 month and 0.20 in 4 months and 0.06 after completion of treatment with 96.15% relief in symptom.

This result shows statistically highly significant at p < 0.001.

TABLE NO. 5 EFFECTS ON SIZE

No. of days	Mean		Mean diff	% relief	SD	SE	t-value	p - value	Significance
	BT	AT							
1 month	1.73	1.63	0.06	3.92	0.25	0.04	1.43	<0.10	S
2 month	1.73	1.33	0.33	19.60	0.60	0.11	3.01	<0.001	HS
3 month	1.73	1.06	0.56	33.33	0.62	0.11	4.95	<0.001	HS
4 month	1.73	0.60	0.90	52.94	0.66	0.12	7.44	<0.001	HS
5 month	1.73	0.33	1.16	68.62	0.64	0.11	9.86	<0.001	HS
6 month	1.73	0.26	1.43	86.68	0.67	0.12	11.56	<0.001	HS

The mean score of Size was 1.73 before treatment reduced to 1.63 in 1 month, 1.33 in 2 month, 1.06 in 3 month and 0.60 in 4 month and 0.26 after completion of treatment with 86.68% relief in symptom.

TABLE NO. 6 EFFECTS ON SMELL

No. of days	Mean		Mean	% relief	S.D	S.E	t-value	P- value	Significance
	BT	AT							
1 month	1.56	1.23	0.33	21.27	0.54	0.09	3.33	<0.001	HS
2 month	1.56	0.70	0.9	57.44	0.80	0.14	6.13	<0.001	HS
3 month	1.56	0.36	1.16	74.46	0.79	0.14	8.07	<0.001	HS
4 month	1.56	0.20	1.33	85.10	0.75	0.13	9.63	<0.001	HS
5 month	1.56	0.06	1.46	93.61	0.86	0.15	9.33	<0.001	HS
6 month	1.56	0.06	1.5	95.74	0.82	0.14	10.01	<0.001	HS

Mean score of Smell before treatment was 1.56 which came down to 1.23 after 1 month, 0.70 after 2 month, 0.36 after 3 month, 0.20 after 4 month and 0.06 after completion of treatment by giving 95.74% relief. The result showed that treatment was statistically highly significant at  $p < 0.001$ .

#### E. Overall effect of Therapy:

Total 30 patients were treated in this present study out of which 86.68% were Cured Completely Whereas 13.32% were markedly healed. None of the patients remained unchanged/uncured in treatment group.

In none case any sign and symptom of the recurrence was noticed during follow up.

Jalaukavacharanapossesses high efficacy in both Vrana Shodhan and Ropana, without producing any adverse effects. It is cost effective and easy to apply. Hence, it can be used as an alternative approach for management of Dushta Vrana.

### DISCUSSION

In search of an effective Ayurvedic measure, Jalaukavacharana was done and it came out with remarkable results in healing of Dushta Vrana.

An Ulcer can be co-related with Nija Vrana, and Agantuja Vrana can be established as Wound on the basis of mode of onset and characteristic features.

Probable Mode of Action of Jalaukavacharana in Dushta Vrana:-

Susruta also indicated Raktamokshana in acute inflammatory swellings for prevention from Vedana and Paka. He strictly mentioned Jalaukavacharna in Savishashopa( infected swellings)But Jalaukavacharanahas its own benefits viz.-Jalauka( Leech) is anti-phlogistic, i.e. used for relief of local inflammation in tissue and has capability of improving microcirculation.Jalaukasucks blood by self- regulatory mechanism i.e. they get detached from the wound on its own after sucking adequately.jalauka is currently used during post-operative care of re-implanted fingers, skin graft and venous congestion.Jalauka exerts local effect in the wound due to several active substances, emitted into it during sucking.Jalaukavacharanais painless procedure, less time consuming, and does not require hospitalization.

That is why Jalaukavacharana was taken for this study.According to AcharyaSusruta,Jalaukavacharanais the preferred method of bloodletting in Bala, Nari,Durbala, Bhiru and Sukumara.Jalauka is also said to be the best "Anushastra" (used in place of shastra in those who fears from surgery) by AcharyaVagbhata.

As in Dusta Vrana, vitiated Doṣa/Dhatu/Mala gets accumulated in Vrana, causing blockages and leads to progression of disease.

Jalaukavacharana being a bio-purificatory method removes deep seated toxins by letting out blood, clearing Srotasa and pacifying vitiated Doṣha.

#### Probable action of chemicals on wound<sup>9</sup>

Hirudin act as anti-coagulant, prevents inflammation but performs slow cleansing of wound. Due to its thrombolytic property, it is useful in thrombosis of artery and veins..

Hyaluronidase makes the pathway for diffusion of all the active substance inoculated by the leech. It degrades the hyaluronic acid. Destabilase liquefies soluble fibrin by lysing the gamma glutamyl-lysine bond of fibrin in the presence of calcium. Eglin is a small protein which shows strong inhibitory action against chymotrypsin. Calin suppress collagen induced platelet aggregation.Bdellins is inhibitor of trypsin and chymotrypsin. Decorsin is potent inhibitor of platelet aggregation.Hirustasin and piguamerine shows protease inhibitor activity. Guamerine is human leucocyte elastase inhibitor. Gelin is a potent thrombin inhibitor.

Platelet activating factor antagonist (PAFA) is more effective antithrombotic than heparin. Collagenase enzyme splits collagen chain and collagen which involves the platelet aggregation.

Prostaglandins has effect on adenylcyclase of platelet membrane thereby generates the anti aggregant substance. It can also be assumed as the leech sucks stagnantblood, Shodhana of the morbidDoṣha via sucked blood occurs, which in turn results in the Srotoshuddhi and trapped Vata gets relieved which was responsible for pain.

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