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# Role of *Vajraka Taila* in the management of *Vrana*

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## ABSTRACT

In today's busy and fast life more people are living with conditions that increase their susceptibility to traumatic wounds, due to one or the other cause; thereby taking a heavy toll of life. As per Ayurveda, these type of wounds, which are caused by extrinsic factors are known as *Sadyovrana*. The major aspect of the management of the traumatic wounds is prevention of the infection, speedy healing, reducing pain, discharge and less discoloration after healing. In Ayurveda, various formulations for debridement are mentioned such as *Kwaatha*, *Kalka*, *Churna*, *Rasakriya*, *Varti*, *Taila* and *Ghritha* depending on the *Avastha* of *Vrana*. In the present study use of *Vajraka Taila* for external application, has been chosen. Total 30 patients fulfilling the inclusion criteria were selected and the treatment was given for 15 days. The study showed that *Vajraka Taila* is very effective in *Vrana*.

**Key words:** *Sadyovrana*, *Traumatic wound*, *Vajraka Taila*.

## INTRODUCTION

*Vrana* is grouped under two heads on the basis of its *Nidana*, 'Nija' and 'Aagantuja'. The first group includes all the *Vrana* caused due to the vitiated condition of the blood or the several deranged conditions of the *Vata*, *Pitta* and *Kapha* or their concerted action (*Sannipata*), while the second group embraces those caused by external factors followed by vitiation of either of the *Doshas*.

*Sadyovrana*, is the ultimate explosion of the underlying pathological structure, caused by injuries due to *Badha*, *Bandha*, *Prapatana*, *Damshtra*, *Nakha*, *Agni*, *Shastra*, *Mantra*, *Agada*, *Pralepa*, *Bhaishaj*. It has been classified into 6 types *Chinnam*, *Bhinnam*,

*Viddham*, *Kshatam*, *Picchitam* and *Ghrishtam*,<sup>[1]</sup> and it can be correlated to traumatic wounds.

The most frequent cause of infection seen in surgical practice are wounds and even a small neglected wound can be the 'Sting of Death'. Thus wound and their management are fundamental to the practice of Surgery. Traumatic wounds occur at a rate of about 1.6 million cases every year.<sup>[2]</sup> Depending upon the mechanism of injury they can vary from abrasions and contusions to lacerations and avulsions or degloving injuries.<sup>[3]</sup>

In *Sadyovrana* primary symptoms are seen to be pain, swelling and fresh bleeding. So principle treatment needs to be done with a drug having *Shodhana*, *Ropana*, *Vednasthapaka*, *Shothara* and *Krimihara* properties.

The present research work has been planned to be undergone by the use of *Vajraka Taila* mentioned in *Bhaishajya Ratnavali*<sup>[4]</sup> as it contains all the drugs mentioned by *Acharya Sushruta* in the *Sadyovraniya Chikitsa Aadhyaya* including few others with aforesaid properties. It alone acts as an antimicrobial, analgesic and a healing promoting agent in traumatic wounds. The results are overwhelming and are hypothetically proved.

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**OBJECTIVES**

To evaluate the efficacy of the *Vajraka Taila* in *Sadyovrana* and to substantiate the *Shodhana*, *Ropana*, *Shothahara*, *Vedna Sthapana* and *Krimighana* properties of the trial drug.

**MATERIAL AND METHODS****Source and Method of collection of data**

Patients suffering from *Sadyo Vrana* were selected randomly in the age group of 10 to 60 years from OPD and IPD of *Shalya Tantra* Department of Jammu Institute of Ayurveda & Research and Surgery Dept. of Govt. Hospital R.S.Pura, Jammu and were subjected to an open clinical trial.

**Inclusion Criteria**

- Patients aging 10 to 60 years.
- Patients of either sex.
- Patients of *Sadyo Vrana* like incised, excised, penetrating, crushed, lacerated, abrasion, cyst and hematoma.
- Patients with wounds duration less than seven days.

**Exclusion Criteria**

- Patients suffering from degenerative diseases.
- Patients suffering from lesions like tuberculosis, diabetes, syphilis, leprosy, burn and fistula in ano.
- Patients having pre gangrenous or gangrenous changes.
- Patients suffering from osteomyelitis, HIV.

**Assessment Criteria**

The assessment criteria was listed according to details of clinical features found in the Ayurvedic texts and contemporary Medical books. The criteria was grouped as Subjective and Objective. All the features were recorded before treatment, on 7<sup>th</sup>, 15<sup>th</sup> day of treatment in the proforma.

**Subjective and Objective Parameters**

- Pain
- Size
- Tenderness

- Color
- Granulation Tissue
- Inflammation

**SCORING PATTERN****Pain**

- 0 - No pain.
- 1 - Mild (localized feeling of pain during movement but tolerable).
- 2 - Moderate (localized feeling of pain not disturbing sleep).
- 3 - Severe (continuous localized feeling of pain which disturbs sleep).

**Size**

Dimensions were measured using a disposable centimeter ruler by recording L and W as the longest dimensions, and the depth was measured with the help of a sterile probe.

**Tenderness**

- 0 - No tenderness.
- 1 - Mild (tenderness after squeezing).
- 2 - Moderate (tenderness after touching with pressure).
- 3 - Severe (tenderness just touching with soft object).

**Color**

- 0 - Equivalent to skin color
- 1 - Pink.
- 2 - Reddish.
- 3 - Yellow.

**Granulation tissue**

- 0 - Healthy granulation tissue.
- 1 - Pale granulation tissue.
- 2 - Less granulation tissue.
- 3 - No evidence of granulation tissue.

**Inflammation**

- 0 - No inflammation.
- 1 - Mild inflammation.
- 2 - Moderate inflammation.
- 3 - Severe inflammation.

**PLAN OF STUDY**

1. **Proforma:** A detailed proforma was prepared regarding the disease and the patients as a whole.
2. **Investigations:**
  - Hb%, TLC, DLC, ESR, RBS.
  - Urine routine.
  - HIV test.
3. **Drug Schedule:** *Vajraka Taila* was applied to *Vrana* externally morning/evening.
4. **Duration of treatment :** 15 days

**STATISTICAL ANALYSIS**

For assessing the improvement of symptomatic relief and to analyze statistically, the observations were recorded before and after the treatment. The Mean percentage, S.D., S.E. and t-values were calculated from the observations recorded. The total result including the overall effect of therapy is mentioned in the following tables.

**OBSERVATION AND RESULTS**

Age incidence in this study showed a maximum number of patients in the age group of 21-30 years, i.e 26.66%. 23.33% in the age group of 11 - <21 years, 20% in the age group of 41 - 50 years and 16.66% were in the age group of 51 - 60 years. Minimum numbers of patients were seen in the age group 31 - 40, i.e. 13.33 %. The percentage of Males was seen to be more in this study (60%) compared to the percentage of Females (40%). Among the patients selected for the study 80% were Hindus, 16.67% were Sikhs, and 3.33% were Muslims. A higher incidence 30% was seen in the Students, Housewives had 23.33% share, 20% were from the Govt. Sector,

13.33% were farmers, labours 6.67% and the rest 3.33% each from the Ex-servicemen and Businessman category. In the present study, out of 30 patients, 13 were Higher secondary (43.33%), 08 were Middle (26.67%), 06 were Primary (20%) and 03 patients (10%) were Graduate. Among 30 patients, 53.33% were married, 43.33% were unmarried and 3.33% were widows. The study showed a higher incidence (60%) of the condition in the middle class. About 26.66% of patients were from lower middle, 10% from poor and only 3.33% from upper middle class. In the trial, 13 patients (43.33%) had wound since 3 - 4 days, 8 since 1 - 2days (26.66 %), 7 since 0 - <1 days (23.33%) and 2 patients since 5 - 6 days (6.66%).

Out of 30 patients, 08 suffered from *Ghrishta* (26.66 %) 07 from *Bhinna*, (23.33%), 06 from *Chinna* (20%), 05 from *Kshata* (16.66%), 03 from *Picchita* (10%) and 01 from *Viddha Vrana* (3.33%) respectively.

**Table 1: Assessment of Subjective and Objective Criteria**

S N	Symptom	Mean		Mean Diff	Mean %	SD	SE	't'	'p'
		BT	AT						
1.	Pain	2.6	0.1	2.5	96.15	0.50	0.09	27.17	p<.001
2.	Tenderness	2.3	0.1	2.2	95.65	0.99	0.18	12.09	p<.001
3.	Color	2.26	0.1	2.16	95.57	0.53	0.09	22.5	p<.001
4.	G.Tissue	0.33	0	0.33	100	0.47	0.08	4.12	p<.001
5.	Inflammation	2.43	0.13	2.3	94.65	0.74	0.13	16.91	p<.001
n=30									

**Efficacy of treatment on Pain**

Before treatment mean (pain) was 2.6, which reduced to 0.1 after treatment. Gradual reduction in the pain was observed during the follow up. Hence there is statistically significant change (p< 0.001) in pain with the treatment.

**Efficacy of treatment on Tenderness**

Before treatment mean (Tenderness) was 2.3 and after treatment it reduced to 0.1. Hence there is statistically significant change ( $p < 0.001$ ) in tenderness with the treatment.

**Efficacy of treatment on Color**

Before treatment mean (color) was 2.26 and after treatment it reduced to 0.1. Hence there is statistically significant change ( $p < 0.001$ ) in color with the treatment.

**Efficacy of treatment on Granulation tissue**

Before treatment mean (Granulation tissue) was 0.33 and after treatment it reduced to 0. Hence there is statistically significant change ( $p < 0.001$ ) in Granulation tissue with the treatment.

**Efficacy of Treatment on Inflammation**

Before treatment mean (Inflammation) was 2.43 and after treatment it reduced to 0.13. Hence there is statistically significant change ( $p < 0.001$ ) in Inflammation with the treatment.

**Table 2: Assessment of length of the wound**

Mean length	1 <sup>st</sup> day (BT)	7 <sup>th</sup> day (AT)	15 <sup>th</sup> day (AT)
n=30	3.15	1.55	0.4

Before treatment mean Length was 3.15 and after treatment it reduced to 0.4.

**Table 3: Efficacy of treatment on length of the wound**

Dimension	Mean		Mean Diff.	Mean %	SD	SE	't'	'p'
	BT	AT						
Length	3.15	0.4	2.75	87.30	1.68	0.30	8.99	$p < .001$
n=30								

So, there is statistically significant change in the Length of Wound ( $p < 0.001$ ) with the treatment.

**Table 4: Assessment of width of the wound**

Mean Width	1 <sup>st</sup> day (BT)	7 <sup>th</sup> day (AT)	15 <sup>th</sup> day (AT)
n=30	1.93	1.03	0.25

Before treatment mean Width was 1.93 and after treatment it reduced to 0.25

**Table 5: Efficacy of treatment on width of wound**

Dimension	Mean		Mean Diff.	Mean %	SD	SE	't'	'p'
	BT	AT						
Width	1.93	0.25	1.68	87.04	0.92	0.15	10.55	$p < .001$
n=30								

So, there is statistically significant change in the Width of the Wound ( $p < 0.001$ ) with the treatment.

**Table 6: Assessment of depth of wound**

Mean Depth	1 <sup>st</sup> day (BT)	7 <sup>th</sup> day (AT)	15 <sup>th</sup> day (AT)
n=30	1.29	0.62	0.25

Before treatment mean Depth was 1.29 & after treatment it reduced to 0.25.

**Table 7: Efficacy of treatment on depth of the wound**

Dimension	Mean		Mean Diff.	Mean %	SD	SE	't'	'p'
	BT	AT						
Depth	1.29	0.25	1.04	80.62	0.65	0.11	9.45	$P < .001$
n=30								

There is statistically significant change in the Depth of the Wound ( $p < 0.001$ ) with the treatment.

**Table 8: Overall response by the treatment.**

SN	Symptom	Mean %
1.	Pain	96.15
2.	Tenderness	95.65
3.	Color	95.57
4.	G.Tissue	100
5.	Inflammation	94.65

At the end of study it was visualized that all the 30 patients have shown improvement which was found to be 96.40%.

**Table 9: Overall reduction in Wound size.**

SN	Wound	Mean %
1.	Length	87.30
2.	Width	87.04
3.	Depth	80.62

The change in the size of wound occurred during the course of treatment is summarized as follows. When compared with size of wound before treatment, the size was reduced after the treatment in terms of length 87.30%, width 87.04% and depth 80.62%.

## DISCUSSION

The present set of patients have revealed highly significant results on all clinical features of wound, because the drug under trial promoted the natural healing process and checked the disease *Vrana*.

**Effect on pain:** Before treatment, 18 patients complained of severe and 12 of moderate pain. After treatment only 3 patients had mild pain. The pain was decreased by 96.15%, which is statically highly significant, ( $t=27.17$ ). This goal would have been achieved because of the action of Neridorin, Karabin present in *Kaner* and also due to the *Vednasthapan* properties of *Tila*, *Karanja*, *Arka*, *Shirisha*, *Jati*, *Aparajita*, *Daruharidra*, *Haridra*, *Shweta Sharshapa*, *Bibhitaki* and *Shunthi*.

**Effect on tenderness:** Before treatment, 17 patients had severe and 8 had moderate tenderness. After treatment only 3 patients were left with mild tenderness. The tenderness was reduced by 95.65%, which is statically highly significant ( $t=12.09$ ).

**Effect on color:** Before treatment 22 patients had reddish and 8 had yellow coloured wound. After treatment only 3 patients had pinkish wounds, rest had wounds equivalent to skin colour. The color was reduced by 95.57 %, which is statically highly

significant ( $t=22.5$ ). This result may be due to the presence of *Varnya* properties in *Haridra*, *Daruharidra*, *Vayavidanga* and *Shirisha*.

**Effect on granulation tissue:** Before treatment 10 patients had wounds with pale and 2 with healthy granulation tissue, rest of the 18 patients had wound within 3 days duration so the granulation tissue formation had not started in them. After treatment all the patients had wound with healthy granulation tissue. This may be because of the presence of the constituent Curcumin and Embelin present in *Haridra* and *Vayu Vidanga* respectively, which increases Granulation tissue formation.<sup>[5]</sup> The result was 100%.

**Effect on inflammation:** Before treatment 18 patients had severe, 7 had moderate and 5 had mild inflammation. After treatment only 4 patients were left with mild inflammation. The inflammation was reduced by 94.65% which was statistically highly significant ( $t=16.81$ ). The most possible reason behind this observation can be evaluated to be the presence of Lupeol (*Saptaparna*), Stigmasterol,  $\beta$  Sitosterol (*Karanja Beeja*), Neridorin, Karabin (*Kaner*), Plumbagin (*Chitrak*), Nutmeg, Mase (*Jati Patra*) and Curcumin (*Haridra*) in the respective drugs.<sup>[6]</sup>

**Effect on size:** Before treatment mean of Length was 3.15 which reduced to 0.4. The improvement was upto 87.30%, ( $t=8.99$ ), and the mean of Width was 1.93 which reduced to 0.25. The improvement was upto 87.04%, ( $t=10.5$ ) and the mean of Depth was 1.29 which was reduced to 0.25. The improvement was upto 80.62%, ( $t=9.45$ ). All the above results are statistically highly significant. The above role is supposed to be played by Curcumin present in *Haridra*.<sup>[7]</sup> Moreover, patients had small wound size, healthy granulation tissue and less infection, so they healed easily with scar formation, which was nearly equivalent to skin colour.

## Discussion on Drug Review

The action of the drug *Vajraka Taila* can be evaluated as follows;

The contents of the above drug are *Tila Taila*, *Saptaparna Twak*, *Karanja Mool Twak*, *Kanermool*



*Twak, Chitrak Moola Twak, Snuhi Moola, Arka Moola, Shirish Moola, Karanja Beeja, Chakramarda Beeja, Jatipatra, Aparajita, Daruharidra, Haridra, Vayavidanga, Shweta Sarshapa, Haritaki, Bhibhitaki, Amalaki, Shunthi, Pippali and Maricha.*<sup>[8]</sup>

Most of the ingredients of this *Taila* are having *Tikta, Katu, Kashaya Rasas* and *Ruksha, Laghu Gunas* in them by virtue of which almost all of them possess *Shodhana, Ropana* and *Vedana Sthapana* properties.

#### Evaluation of the efficacy of drugs on the basis of *Rasa*

- *Kashaaya Rasa*: It does *Shoshana* there by might be helpful in *Vrana Ropana*.<sup>[9]</sup>
- *Tikta Rasa*: It does *Twak Maamsa Sthireekarana*. It might help in increasing tensile strength of wound.<sup>[10]</sup>
- *Katu Rasa*: It has *Vrana Shodhana* and *Avasaadhana* properties.<sup>[11]</sup>

#### Evaluation of the efficacy of drugs on the basis of *Karma*

- *Vednasthapana - Tila, Karanja,*<sup>[12]</sup> *Arka, Shirisha, Jati,*<sup>[13]</sup> *Aparajita, Daruharidra, Haridra, Shweta Sharshapa,*<sup>[14]</sup> *Bibhitaki* and *Shunthi* exhibit this property thereby reducing Pain.
- *Shothhara - Karanja, Kaner, Chitraka, Snuhi,*<sup>[15]</sup> *Arka, Shirisha, Aparajita,*<sup>[16]</sup> *Daruharidra, Haridra, Vayavidanga, Bhibhitaki* and *Shunthi*<sup>[17]</sup> bears this property, hence help in reducing Inflammation.
- *Krimighna - Maricha,*<sup>[18]</sup> *Pippali,*<sup>[19]</sup> *Bibhitaki, Vayavidanga, Haridra, Chakramarda,*<sup>[20]</sup> *Arka,*<sup>[21]</sup> *Chitraka, Karvira,*<sup>[22]</sup> *Karanja* possess this property, so they may help in harnessing any sort of microbial growth and help to sweep out the infections from the wound.
- *Varnya - Shirisha,*<sup>[23]</sup> *Daruharidra, Haridra* and *Vayavidanga* by virtue of this property may lead to enhancement of the local appearance of the wound.
- *Sthambana - Shirisha, Daruharidra, Amla*<sup>[24]</sup> and *Bibhitaki* exhibit this property, so may aid in

arresting blood loss due to injury by vasoconstriction.

- *Raktashodhaka - Shirisha, Daruharidra,*<sup>[25]</sup> *Haridra, Vayavidanga* and *Pippali* due to this property may assist in purifying blood, there by combating any sort of future infection.
- *Dhatuwardhaka - Bibhitaki* may help in *Dhatuwardhan*, thereby improving the general health of the patient.<sup>[26]</sup>
- *Rasayana - Haritaki* is *Rasayana* in nature, thereby may exert rejuvenative action.<sup>[27]</sup>
- *Tila Taila* has been used as a base in the preparation of *Vajraka Taila*. It has *Ushna, Teekshna, Madhura, Vaataghna, Vyavaayi, Vikaasi, Sookshma* properties. When it is treated with above drugs it takes their properties. So it might help the drugs in reaching the minute spaces quickly by means of its *Sookshma, Vyavaayi, Vikaasi Gunas* and helps in reducing *Vedana* because of *Vaataghna* property.

Hence, *Vajraka Taila* has the basic qualities of controlling the cardinal symptoms of the *Vrana*, this proves the efficacy of the drug in *Vrana Ropana*.<sup>[28]</sup>

#### Overall result of therapy

It has been evaluated that 96.40% of patients have shown improvement.

#### Overall reduction in wound size

Compared to the size of wound, before treatment, size was reduced in terms of Length 87.30%, Width 87.04% and Depth 80.62% after treatment.

#### CONCLUSION

On the basis of the clinical observations, it can be concluded that the trial drug *Vajraka Taila* possess Analgesic, Antinflammatory, Antibacterial and *Varnya* properties. There is no unwanted effect found during the course of treatment. It is found better in the management of wounds due to its effectiveness. The present research work was aimed to find out effective therapy for *Vrana* with the help of Ayurvedic and modern procedures. Though, the results are very

good but further study on large no. of patients with long duration is expected to arrive on a definite conclusion.

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