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# A comparative study of *Apamarga Kshara Lepa* and *Jaloukavacharana* in the management of *Dushta Vrana*

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## ABSTRACT

Wound healing is a challenge faced in the medical field since the time of Vedas. Though surgical debridement, chorion graft, etc. which are practiced in modern era gives effectiveness in treating non-healing ulcers, these procedures have certain limitations such as, limited centres and high cost of treatment. The present study is to compare the effect of *Apamarga Kshara Lepa* and *Jaloukavacharana* in the management of *Dushta Vrana*. The main aim of study is intended to evaluate the efficacy in healing the ulcer. The subjects reported at Outpatient department of *Shalyatantra* were allocated into two groups of 20 subjects each. The Group A patients received *Apamarga Kshara Lepa* as treatment and the Group B patients received *Jaloukavacharana* as treatment. The subjects were assessed by analysing their biochemical parameters, subjective and objective parameters. Marked improvements were noted in both groups.

**Key words:** *Apamarga Kshara Lepa*, *Jaloukavacharana*, *Dushta Vrana*, *Kshara Karma*, *Non-Healing Ulcer*

## INTRODUCTION

Ulcers are often associated with a great deal of suffering and pain to the patient and their successful management is a great challenge to the surgeons. *Acharya Susrutha* has explained various types of *Vrana* and explains *Dustavrana* as those with great accumulation of *Doshas*.<sup>[1]</sup> The frequency of injuries is more common than any other disease. There are certain conditions where the normal wound converted in to non-healing wound which needs immense care. Classics of *Ayurveda* has emphasized at various places

to take care of wounds which occurs either as a result of vitiated *Doshas* or of traumatic in origin. *Ayurveda* also give their prime attention in wound management.

In *Dushta Vrana* there will be delay or no healing of ulcer and if it's not treated effectively it may lead to long standing inflammation, pain, suppuration, gangrene and even may progress up to malignancy. *Sushrutaacharya* elaborated *Shasti-Upakrama*<sup>[2]</sup> especially to manage different stages of *Vrana*. These include medical therapy, *Panchakarma* therapies, surgical therapies and Parasurgical therapies.

Among the Para surgical measures, *Kshara Karma* is having supreme place due to its tremendous properties in curing diseases. *Acharya Sushruta* specifically mentioned that the *Mamsa* which are *Utsanna*, *Katina*, *Kandu*, *Chirothidham* and ulcers which are of *Dusadhya* should be cleaned by *Kshara Karma*.<sup>[3]</sup> *Acharya Sushruta* has also mentioned *Jaloukavacharana Vidhi*<sup>[4]</sup> is one of the most important treatment methodology mentioned in *Shalya Tantra* under *Vrana Chikitsa* and also mainly in *Sthaanika Doshas*. In *Dushta Vrana* which is *Katina*, *Vivarna*, *Vedanuvidda*, *Vishayukta* the *Dushta Rakta* should

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be drained using leeches.<sup>[5]</sup> In the present study, *Apamarga Kshara Lepana* and *Jaloukavacharana* are tried to evaluate the comparative action in the management of *Dushta Vrana*.

## METHODOLOGY

All the Ayurvedic texts, contemporary Ayurvedic literatures, internet sources about the disease, drugs, and procedure is reviewed and documented for the intended study. Drugs are prepared in Alvas Pharmacy, Mijar and leeches were collected from the leech lenders and certified by experts.

The study was planned as a randomized comparative clinical trial with 40 subjects with complaints of *Dushtavrana* reported at the OPD of Alva's Ayurveda Medical College, Moodbidri. Group A of 20 subjects were administered with *Jaloukavacharana* and Group of 20 subjects were administered with *Kshara Karma*.

Diagnostic Criteria was made based on classical signs and symptoms of *Dushta Vrana* like those that are slightly exposed, very hard or soft, elevated or depressed, very cold or warm, having colours of black, yellow, and white, filled with pus, blood, muscles, vein etc. Foul smelling, pain, burning sensation, redness, itching, swelling, eruptions, and such other complication persisting for a long time are considered for this study. Subjects fulfilling at least one of the diagnostic criteria of *Dushtavrana*, age group between 16-70 years irrespective of gender, occupation, socio-economic and marital status and participant who signed written informed consent were included. Those with bleeding disorders, on anti-coagulant drugs, *Rakthamokshaanarhas*, *Kshara Karma Anarhas* and diabetic ulcer subjects were excluded.

Assessment criteria includes subjective parameters like pain, itching, burning sensation, Objective parameters includes size of ulcer, discharge, tenderness, floor of the ulcer, surrounding area of ulcer.

### Group A:

*Apamarga Kshara Lepa* was administered and the following materials were required like *Apamarga Kshara*, *NimbuSwarasa*, *Madhu*, *Moorchita Grita*, *Kshara Karma Shalaka*, Sterile Cotton Swab, Pad and

Gauze. The *Poorva Karma* done by taking consent of the subject then made the subject to lie down later the *Vrana Sthana* and surrounding area were cleaned with distilled water. The *Pradhana Karma* is confirmation of *Dosha* predominance in *Vrana* then later in *Vatapradhana* sight *Lekhana Karma*<sup>[6]</sup> was done with sterile gauze. In *Pitta Pradhana Vrana*, *Gharshana* is done with sterile cotton and in case of *Kapha Pradhana Vrana*; *Prachaana* was done with sterile needle. The *Teekshna Apamarga Kshara* was applied with a *Shalaka* over the *Vrana*, waited for 100 *Maathrakaala*. Then *Kshara* was wiped with cotton and *Vrana* was washed with *Nimbuswarasa*. Observation was made for the *Krishna Varnata* of *Varna*.<sup>[7]</sup> If the *Krishna Varnatha* of *Vrana* did not appear properly the procedure was repeated. The *Paschat Karma* was carried out by applying a paste of *Madhu* with *Moorchita Grita* on the area of *Kshara Karma* after that the dressing is done with bandage.<sup>[8]</sup> The duration of treatment was for 28 days in which *Kshara Lepa* was done on 1st day and the assessment was carried out on 7th, 14th, 21st and 28th day. Follow up was done on the 45 days and 60 days after treatment.

### Group B:

*Jaloukavacharana* was administered and the following materials were required like *Jalauka*, *Saindhava Lavana Choorna*, *Haridra*, *Sarshapa Choorna*, *Thandula Choorna*, Sterile Cotton Swab, Needle, Pad and Gauze. The *Poorva Karma* done by taking the consent of the subject and later the subject was made to lie down. The leeches have been anointed with the paste of *Sarshapa Choorna* and *Haridra Choorna* mixed with water and is placed in a water pot for a while for refreshment of the leech for making it active.<sup>[9]</sup> The *Pradhana Karma* started by putting *Jaloukas* at the site of *Dushta Vrana* after cleaning the area with distilled water. If the *Jalouka* doesn't bite the site then a sterile needle prick was made on the area. When the *Jalauka* starts sucking the blood it was covered with a wet piece of cotton.<sup>[10]</sup> *Paschat Karma* includes by applying *Haridra Churna* over the bitten area, after that the dressing was done for proper haemostasis.<sup>[11]</sup> The duration of treatment was 28 days with 4 sitting for leech therapy, once in seven days. *Jaloukavacharana* was done on 1st, 7th,

14th and 21st day. Assessment was done on 7th, 14th, 21st and 28th day. Follow up was done on the 45 days and 60 days after treatment.

Figure 1: Materials used for *Jaloukavacharana*



Figure 2: Materials used for *Apamarga Ksharalepa*



Figure 3: *Purvakarma* done before doing *Apamarga Kshara Lepa*



Figure 4: *Apamarga Kshara* applied



Figure 5: *Dushta Vrana* was washed with *Nimbu Swarasa*



Figure 6: After doing *Apamarga Kshara Lepa*



Figure 7: *Jaloukavacharana* done on *Varicose Ulcer*



RESULT AND DISCUSSION

Table 1: Assessment of pain

Group A				Group B			
Assessment day	M.D	S.D	P	Assessment day	M.D	S.D	P
7 <sup>th</sup> day	0.900	0.447	S	7 <sup>th</sup> day	0.900	0.447	S
14 <sup>th</sup> day	1.400	0.598	S	14 <sup>th</sup> day	1.250	0.444	S
21 <sup>st</sup> day	1.900	0.553	S	21 <sup>st</sup> day	1.600	0.503	S
28 <sup>th</sup> day	2.300	0.470	S	28 <sup>th</sup> day	2.150	0.587	S

Table 2: Assessment of burning sensation

Group A				Group B			
Assessment day	M.D	S.D	P	Assessment day	M.D	S.D	P
7 <sup>th</sup> day	1.100	0.553	S	7 <sup>th</sup> day	1.100	0.447	S
14 <sup>th</sup> day	1.350	0.489	S	14 <sup>th</sup> day	1.450	0.510	S
21 <sup>st</sup> day	1.800	0.616	S	21 <sup>st</sup> day	1.800	0.523	S
28 <sup>th</sup> day	2.450	0.605	S	28 <sup>th</sup> day	2.400	0.503	S

Table 3: Assessment of Itching

Group A				Group B			
Assessment day	M.D	S.D	P	Assessment day	M.D	S.D	P
7 <sup>th</sup> day	1.600	0.489	S	7 <sup>th</sup> day	0.900	0.553	S
14 <sup>th</sup> day	1.450	0.470	S	14 <sup>th</sup> day	1.350	0.489	S
21 <sup>st</sup> day	0.900	0.587	S	21 <sup>st</sup> day	1.800	0.523	S
28 <sup>th</sup> day	0.300	0.605	S	28 <sup>th</sup> day	2.100	0.553	S

Table 4: Assessment of discharge

Group A				Group B			
Assessment day	M.D	S.D	P	Assessment day	M.D	S.D	P
7 <sup>th</sup> day	0.950	0.394	S	7 <sup>th</sup> day	0.800	0.696	S
14 <sup>th</sup> day	1.300	0.470	S	14 <sup>th</sup> day	1.050	0.605	S
21 <sup>st</sup> day	1.700	0.470	S	21 <sup>st</sup> day	1.650	0.587	S
28 <sup>th</sup> day	2.450	0.686	S	28 <sup>th</sup> day	2.000	0.725	S

The subjective parameters like pain, burning sensation, discharge, itching has statistically significant improvement noted in both Group A and Group B.

Discussion on Pain

Group A: The mean score reduced from 3.150 to 1.000 after treatment. This may be probably due to the *Daarana, Krimighna, Tridoshaghna* properties of *Kshara*.

Group B: The mean score reduced from 3.100 to 0.800 after treatment. This may be probably because *Rakthamokshana* by *Jalaukavacharana* remove the vitiated blood that removes the locally increased *Doshas*, by that it reduced *Vrana Vedana*. The leech saliva has an anesthetic agent that will also help in reducing the pain.

Discussion on Burning sensation

Group A: The mean score reduced from 3.050 to 0.650 after treatment. The removal of slough by *Tridoshaghna, Vilayana* properties of *Kshara* improves the circulation to the ulcer area and reduces the burning sensation.

Group B: The mean score reduced from 2.950 to 0.500 after treatment. This may be probably due to the *Sheeta, Snigdha* and *Slakshana Guna* and *Pittahara* property of *Jalauka* that will reduce the burning sensation.

**Discussion on Discharge**

Group A: The mean score reduced from 3.050 to 0.650 after treatment. The removal of slough by *Tridoshaghna*, *Vilayana* properties of *Kshara* improves the circulation to the ulcer area and reduces the burning sensation.

Group B: The mean score reduced from 2.950 to 0.500 after treatment. This may be probably due to the *Sheeta*, *Snigdha* and *Slakshana Guna* and *Pittahara* property of *Jalauka* that will reduce the burning sensation.

**Discussion on Itching**

Group A: The mean score reduced from 2.600 to 0.850 after treatment. This may be probably due to the *Daarana*, *Kandughna*, *Lekhana* and *Shodhana* property of *Kshara* breaks up the concealed pus pockets present in the base or surrounding area of the ulcer, *Kshara* kills the infective organisms by *Krimighna* property and there be reduces the itching.

Group B: The mean score reduced from 2.900 to 0.300 after treatment. This may be probably due to the *Rakthamokshana* by *Jalaukavacharana* remove the vitiated blood which removes the locally increased *Doshas*, by that it reduced *Vrana Kandu* and leech produce an antihistaminic protease and bacteria-inhibiting substances which will also help in reducing itching.

**Probable mode of action of Apamarga Pratisaraneeya Kshara**

Drug *Apamarga* having *Katu Tikta Rasa*, *Ushna Veerya*, *Katu Vipaka* and *Laghu*, *Teekshna Gunas*, which helps in maturation of *Vrana Shotha*, reduces inflammation, cleanses the *Dushta Vrana* and promotes the healing of *Vrana*. *Kapha Vata Hara* property of *Apamarga* may help to remove *Kapha Vataja* features of *Dushta Vrana* like *Athi Shaitiyata*, *Vata* predominant features like *Athisamvritha*, *Athikatina*, *Avasanna*, *Athyartha Vedana*, *Krishna Varna*, *Kapha* predominant feature like *Kandu* etc. For *Apamarga Pratisaraneeya Kshara* preparation, along with *Apamarga* ash, Lime, *Prakshepaka Dravyas* like *Vacha*, *Chitraka* was added to increase its *Theekshna Guna*. Lime (CaCO<sub>3</sub>) comes

under *Sudha Varga*. The properties mentioned in Ayurvedic texts are *Shweta*, *Kshariya*, *Deepana*, and *Pachana*. Drug *Apamarga*, Lime, *Prakshepaka Dravyas* like *Vacha*, and *Chitraka* were having similar qualities like that of *Kshara*, which helps to improve the potency of *Kshara*. For *Vacha* the properties mentioned in Ayurvedic texts are *Chedana*, *Deepana*, *Pachana*, *Krimighna*, *Shoolaprashamana*, *Vatakaphahara* and for *Chitraka* the properties mentioned are *Sothahara*, *Shoolahara*, *Deepana*, *Pachana*, *Kaphavatahara* that will enhance the potency of *Apamarga Pratisaraneeya Kshara*. Application of *Apamarga Kshara* removes devitalized tissues present over the wound provides chemical debridement and thus vascularity of wound surface is enhanced. Removal of unhealthy granulation tissue promotes the process of wound healing.

**Probable mode of action of Jalaukavacharana**

In wounds that are non-healing as a result of circulatory problems lead to the tissue's inability to heal the leeches improve microcirculation and stimulating the immune system that in turn helps to clean and heal the wound. *Rakthamokshana* by *Jalaukavacharana* removes the *Rakta* vitiated by *Pitta* which removes the *Stanika Doshas*. The *Jalauka* is having *Sheeta*, *Snigdha* and *Shlakshna Guna* and has *Pittahara* property. The leech's saliva contains enzymes and compounds that act as an anticoagulation agent. The most prominent of these anticoagulation agents is hirudin, which binds itself to thrombins, thus, effectively inhibiting coagulation of the blood. Another compound that prevents coagulation is calin. This, on the other hand, works as an anticoagulant by prohibiting the von Willebrand factor to bind itself to collagen, and it is also an effective inhibitor of platelet aggregation caused by collagen. The saliva of the leeches also contains Factor Xa inhibitor which also blocks the action of the coagulation factor Xa. The action of destabilase is to break up any fibrins that have formed. It also has a thrombolytic effect, which can also dissolve clots of blood that have formed. Bdelellins is a compound in the leech's saliva that acts as an anti-inflammatory agent by inhibiting trypsin as well as plasmin. It also inhibits the action of the acrosin. Another anti-inflammatory agent is the eglins. There

are three compounds in the leeches' saliva that act as a vasodilator agent, and they are the histamine-like substances, the acetylcholine, and the carboxypeptidase A inhibitors. All these acts to widen the vessels, thus, causing inflow of blood to the site. The saliva of leeches also contains anaesthetic substances which deaden pain on the site and also bacteria-inhibiting substances which inhibit the growth of bacteria. By all these properties of *Jaloukavacharana* reduces infection and facilitate wound healing.

## CONCLUSION

Management of *Dushta Vrana* by using *Jaloukavacharana* is more effective since markedly improvement (> 75%) and scar tissue formation was seen in 33 % of cases in comparison with *Apamarga Kshara Lepa* where 13% cases got markedly improved relief. *Apamarga Kshara Lepa* shows better result in healing abscess and *Jaloukavacharana* was found to be more effective in healing varicose ulcer. *Jaloukavacharana* and *Apamarga Kshara Lepa* is a simple cost effective OPD procedure which have miraculous effect on *Dushta Vrana*. No adverse effects were observed during the treatment in both groups. Statistically both groups are showing comparatively similar effects on *Dushta Vrana*, at the same time *Jaloukavacharana* showed much better effect on discharge and itching.

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