

# “Role of Jalaukavacharana (Medicinal Leech Therapy) in Nonhealing Ulcer- Single Case Study”

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## ABSTRACT

Chronic non-healing ulcers are those that do not heal within three months or often remain in the inflammatory stage for too long and may never heal or may take years. Some wounds heal easily by body's self-healing mechanism and some poses challenge to normal wound healing and does not heal in time and becomes a matter of concern for the physicians. Leech therapy proved to be a better treatment option by benefits of its salivary constituents in wound healing. It is an ancient way of treating such complicated disorders mentioned in different texts. A patient came at Panchakarma OPD with ulcer on anterior aspect of right ankle joint above the heel which was not healing since 3 months even on daily antiseptic dressings. Patient gave h/o Dog bite before 2 months and had taken all the vaccination of Rabies on due course of period. The dog bite wound was lacerated and very deep and within 2 -3 months period the wound remaining unhealed and patient complaining about the tightening of the skin and cellulitis changes and discoloration of skin were observed, patient developed ulcer at anterior aspect of Rt. Ankle above heel. Leech was applied at wound site once weekly along with antiseptic dressing daily. Skin colour discoloration was fading away and debridement was taking place within 1 week of jalaukavacharanam. The ulcer started showing signs of healing within two sittings and completely healed by 2 months. This study was carried out in our Hospital

**Keywords:** Leech therapy, Chronic, Non-healing, Wound, Ulcer.

## INTRODUCTION

In Ayurveda, chronic wounds known as Dustavrana are defined as wounds that either do not heal in a timely and orderly fashion or do not show any discernible healing process within the anticipated time frame, which is normally 4-6 weeks. Chronic wounds are frequently characterized by ongoing inflammation, tissue deterioration, and an inability to restore normal skin integrity, in contrast to acute wounds, which heal in a predictable manner.<sup>[1]</sup> The word "Dustavrana" in Ayurveda is a combination of the words "Dusta" (vitiated or unclean) and "Vrana" (wound or ulcer). It represents a wound that has grown challenging to treat as a result of internal or external circumstances interfering with the body's natural healing process. Numerous Chronic non healing ulcers are those that does not heal within three months or often remain in the inflammatory stage for too long and may never heal or may take years<sup>[1]</sup> Also defined as spontaneous or traumatic lesions, typically in lower extremities that are unresponsive to initial therapy or that persist despite appropriate care and do not proceed towards healing in a defined time period with an underlying etiology of systemic origin.<sup>[2]</sup> Wounds that do not heal within three months are considered chronic. <sup>[3]</sup> There are many types of non- healing ulcers that may include venous, arterial, tropic/pressure sores, diabetic, traumatic ulcers.

The normal wound healing process is dynamic and complex having four phases: inflammation, proliferation, remodeling and scar formation. However, if the normal healing process is hampered, an ulcer can become chronic in nature due to lack of growth factors and cytokines which delays the healing process. The incidence of chronic non healing ulcers increases in the population having risk factors like atherosclerotic occlusion, smoking, obesity and diabetes.<sup>[2]</sup> Chronic non healing ulcer is a major health problem and is estimated to affect app. 2-6 million People in USA<sup>[4,5]</sup>, while its prevalence in the world ranges from 1.9 to 13.1%. <sup>[6]</sup> Medicinal leech therapy also called as Hirudotherapy is one of the traditional method to treat various kind of diseases in ancient times. Hirudo medicinalis is widely used species among all the species of leeches<sup>[7]</sup>. What causes leeches to act therapeutically? Here answer to this question is their saliva.

Leeches secrete more than 20 bioactive substances in their saliva such as hirudin, antistasin, bdellins, eglins, carboxypeptidase inhibitors etc. they have anti-inflammatory, analgesic and anesthetic effects, and also vasodilator, anticoagulant, platelet inhibitory affects as well as thrombin regulatory functions, extra cellular matrix degradative and antimicrobial effects.<sup>[7]</sup> Acharya sushruta has also mentioned about Jalauka in Jalaukavacharniya adhyaya in Sutrasthan. He gave detailed description about types of leeches their specific characters, their habitat, conditions required for leeches after use, about their feed and container. The whole procedure of leech therapy has been described by Sushruta which is

used even in present times<sup>[8]</sup> The first application of leeches was observed in ancient Egypt. Leech therapy is a valuable traditional technique which by means of various potentially bioactive substances acts therapeutically in various diseases having inexplicable beneficial effects in skin disorders and in this study leech therapy found out to be intervention of choice for the patients of non-healing ulcer.

#### **Aim & objectives –**

The main aim of this article is to clinically assess the Jalaukavacharana therapy (Medicinal Leech Therapy) in non-healing ulcer.

### **MATERIAL & METHODS**

A patient aged 48 years male adult came in our hospital OPD with complaint of pain and wound present over anterior aspect of right ankle above heel since three months. The wound was painful and mild discharge was present and was not improving even on daily antiseptic dressing. On further enquiry, patient gave history of the dog bite. Wound was lacerated and very deep and within 2 -3 months period the wound remaining unhealed and patient complaining about the tightening of the skin and cellulite changes and discoloration of skin were observed, patient developed ulcer at anterior aspect of Rt. Ankle above heel. The ulcer was not showing any signs of healing in the last 3 months. On examination, the ulcer present above the right heel anteriorly was approximately 3.5cm×3cm×5mm in size and was circular in shape having punched out edges with thick margins. The floor was covered with offensive slough, unhealthy granulation tissue and the base was slightly indurated. The surrounding area around the wound was indurated. Surrounding skin was having blackish discoloration and seropurulent discharge was present inside wound. The ulcer was painful. General built of the patient was medium.

#### **Etiopathogenesis and probable mode of action:**

The jaws of the leech pierce the skin so that these potent biologically active substances can penetrate into the deeper tissues. The saliva of leeches contains various pharmacologically active substances such as hirudin, hyaluronidase, histamine like vasodilators, proteinase inhibitors and collagenase, inhibitors of kallikrein and superoxide production & poorly characterized anesthetics and analgesic compounds. Hyaluronidase (spreading factor), an enzyme in leech saliva, further facilitates the penetration and diffusion of these pharmacologically active substances into the tissues. Tissue permeability, restored with the help of hyaluronidase, promotes the elimination of tissue and circulatory-hypoxia as well as local swelling. The persistent bleeding largely potentiates tissue decongestion and also relieves capillary network which decrease venous congestion. positive changes of local hemodynamic and improvement of hemorheology will increase oxygen supply, improve the tissue metabolism, and eliminate the tissue ischemia.

#### **Ashtavidha Parikshan:**

- Nadi- 76/min
- Mala-Samyak
- Mutra-4-6 times/day, pale yellow colour
- Jihva- Niraama
- Shabda- Spashta
- Sparsh/Skin- Snigdha
- Druk- Drushtimandya
- Akriti- Madhyam

#### **General Examination:**

- Body weight (in kg): 56 kg
- Blood pressure: 130/90 mm hg
- Body temperature: 98 degree Faren height
- Respiratory rate: 22/min
- Hb%: 13.2 mg/dl
- Prakriti: Vata-pittaj
- Agni: Prakrut
- Koshtha: Krura koshthi
- Rutu: Grishma
- Nidra: Khandit
- Kshudha: Prakrut

#### **Investigations:**

- CBC
- ESR
- BT AND CT

#### **Jaloukavacharana Vidhi:**

It is studied under three headings.

1. Poorva Karma.
2. Pradhana Karma.
3. Paschat Karma.

#### **Poorva Karma (preoperative procedure):**

This includes following's;

1. Preparation of patient.
2. Preparation of Jalouka.
3. Collection of other required material.

##### **1. Preparation of patient :**

Indicated person for the Jaloukavacharana should be made to sit or sleep in supine position then rub with mud or cow dung over the affected area especially non ulcerated area where Jaloukavacharana is proposed. If Jaloukavacharana is planned at the site of wound one should not rub because it increases the pain, Where Jalouka gets attracted by Gandha and Kledata of the Vrana.

##### **2.Preparation of Jalouka:**

Jalouka body is smeared with a paste of Haridan and Starship. Then Jalouka is kept in clean water for period of one Maharshi (48 min). By this procedure leeches become activated and will get rid of exhaustion.

##### **3.Collection of required material:**

Jalouka, Patra, water, haridra, lavana, Shashtra, pichu, plotra, patta, madhu, ghrita, paya, kashaya, alepanakalka and Shire and Anurakta Parikarmi are required to be collected.

#### **Pradhana Karma:**

The patient is made to sit or lie on the bed. The area of the body where Raktamokshana is planned that is to be dried and allowed to bite by Jalouka. Jalouka will bite on the skin and suck the blood by itself. If Jalouka does not suck or bite the skin a drop of milk or blood is shed on the surface or a small prick is made, in spite of all these if the Jalouka does not suck then another Jalouka is to be taken for Raktamokshana. Its face appears like the hoof of a horse and it raises its neck by this we can understand that it has started sucking blood.

As soon as Jalouka starts sucking, wet white gauze should be covered on it, leaving its facial region. After taking sufficient amount of blood Jalouka leave the host by its own. If the Jalouka doesn't leave and patient getting itching and pain at the site of Jaloukavacharana we can assess that it is sucking pure blood and if it doesn't stop sucking, then it should be detached by sprinkling Saindhava Lavana Choorna at its mouth region.

#### **Identification of Jaloukagrahana :**

When Jalouka starts sucking the blood it attains shape of Ashvakhuravadanana i.e. its mouth end becomes the hoof of horse by raising its neck region.

#### **Identification of Shuddharakta Pana by Jalouka:**

At the site of Jalouka bite if the person gets pain and itching sensation then it should be understood that it is sucking pure blood then it should be removed.

#### **Simily for Dushtarakta Pana by Jalouka:**

Jalouka first sucks only Dushta Rakta from the site where Dushta and Shuddha Rakta are in combined form, like that of Hansa Pakshi who drinks only pure milk when it is in mixed form with water.

#### **Paschat karma (postoperative procedure):**

- 1.Paschat Karma for Jalouka
- 2.Paschat Karma for patient

### **1.Paschat karma for Jalouka:**

As soon as the Jalouka detaches from the host or patient body by it self or by force, a paste of Tandula Kandana is to be applied over its body and a mixture of Taila and Saindhava Lavana is smeared on its mouth. Then with the help of thumb and index finger of left hand tail end of the Jalouka should be caught then body of Jalouka is squeezed with the fingers of right hand towards its face in a reverse direction. This maneuver induces Jalouka to vomit the sucked blood. This is continued until the signs of proper Vamana are achieved.

### **2.Paschat Karma for patient:**

Cleaning the wound by gauze piece and cotton and dressing of the wound to be done by using Jatyadi tail and bandaging to be done.

The whole procedure to be repeated once weekly for 2 weeks, once in 15 days for next 1 ½ month.

### **Results & observation:**

#### **Follow up of the patient:**

##### **Day 1:**

Discoloration of the cellulitic changes of skin reduced within 1 setting of Jaloukavacharanam.



##### **Day 8:**

Debridement of the wound taking place after 1<sup>st</sup> setting of jalouka within a week.



**Day 14:**

Changes observed after 2<sup>nd</sup> week of jalaukavacharana within 2<sup>nd</sup> week



### RESULT AND DISCUSSION

Leech therapy is one of the most promising therapies in the management of non-healing ulcers.<sup>[9]</sup> The case which we have taken was a case of dog bite wound which was non-healing due to lacerated deep wound. Generally, this kind of ulcer starts with callosity under which suppuration takes place, the pus comes out and the central hole forms the ulcer which gradually burrows deep down through the muscles, tendons and to the bones<sup>[10]</sup> and so with our case, the ulcer formed at dependent part that is heel of the right foot. The factors which made this ulcer non-healing was chronicity which ultimately causes venous insufficiency and poor blood supply to the part as good blood flow is important for the ulcer to heal. Here the leech therapy gave us phenomenal results in healing of such ulcer, as the various constituents in saliva of the leech were helpful in healing by increasing blood flow to the area by vasodilatation and reduced platelet aggregation thereby reducing the thrombogenic effects and have immuno-stimulant as well as immuno-modulatory effects. In the meantime, Hyaluronidase acts to clear the path for the active and healing substances to penetrate. These substances allow continued bleeding for up to 24 hours after leech has been detached and clearing the morbid matters out through the ulcer<sup>[11]</sup>. The ulcer started showing signs of healing within two sittings and blood supply to the ulcer was also improved. Healthy granulation tissue starts to appear. Size of the ulcer reduced gradually and completely healed in 1.5 months by use of leech therapy along with antiseptic dressings daily.

The therapy is believed to:

1. Make circulation better.
2. Diminish inflammation in specific areas.
3. Clean the blood.
4. Reduce edema and soreness.

### CONCLUSION

The conclusion of the study is that Leech therapy is very effective in non-healing ulcers as the ulcer of the patient was not improving in spite of antiseptic dressing daily with various ointments and with the use of leech therapy ulcer started improving. There was enormous improvement in the ulcer and have fast recovery rate. It took total duration of 4 months to completely heal the wound. So, the leech therapy is proved to be a choice of intervention in non-healing ulcers.

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