



# JALAUKAVACHARANA – LEECH THERAPY A COMPLIMENTARY TREATMENT IN KELOID – A CASE REPORT

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## Abstract:

Raktamokshana is one of the para surgical procedures in the surgical stream of Ayurveda. Jalaukavacharan is one of the procedures of Ashastrakruta Raktmokshana. It is the ancient bio surgical procedure done by applying medicinal leech. Jalaukavacharana or Leech therapy is a method of Blood Letting where impure blood is being removed from the body using medicinal leech. The medicinal leech (Jalauka) is known as “Hirudo Medicinalis” and is mostly used all over world. Keloid is a condition of proliferation of fibroblast, collagen fibrils and immature blood vessel. Change in the cellular signal that control growth and proliferation leads to keloid formation. It expands claw-like processes over normal skin, which are smooth, pink and raised patch, often tender to touch and always itchy. A 40 years female patient with complains of swelling over the chest associated with itching, pain since 3 years. Diagnosed as keloid. Any measures for its management has limitations, based on signs and symptoms Jalaukavacharana was planned, which showed the promising result on signs and symptoms.

**Key words:** *Raktamokshana, Jalaukavacharana, Leech therapy, Hirudo Medicinalis, Keloid*

## Introduction:

According to Acharya Sushruta father of Surgery, Rakta mokshana is one of the para surgical procedures in the surgical stream of Ayurveda. Jalaukavacharan is one of the types of Ashastrakruta Raktmokshana. It is the ancient bio surgical procedure done by applying medicinal leech. It is method of Blood Letting where impure blood is being removed from the body using medicinal leech.<sup>1</sup> Ancient history suggests that lord Dhanwatari evolved in this world after Samudra manthan with Jalauka along with a pitcher filled with nectar in its hand. This shows the importance of Jalauka in Indian system of medicine. Leech therapy is widely used in plastic and reconstructive microsurgery as the protective tool against venous congestion.<sup>2</sup> Now a day's Jalauka has been recognized worldwide for medical use and recommended specially to enhance or to re-establish the blood circulation after plastic surgery. About 650 leech species are identified but only 15 are used in medicine. The medicinal leech (Jalauka) is known as

“Hirudo Medicinalis” and is mostly used in all over world.<sup>3</sup> Keloid was described by Egyptian surgeons around 1700 BC. Boron Gean-Louis Alibert identified the keloid as an entity in 1806. Change in the cellular signal that control growth and proliferation leads to keloid formation.<sup>4,5,6,7</sup> Keloid is a condition of proliferation of fibroblast, collagen fibrils and immature blood vessel. Usually grows beyond the borders of original wound usually develops after acne, boils, body piercing, burns, laceration and surgical wound. It expands claw-like processes over normal skin, which are smooth, pink and raised patch as well as unsightly, often tender to touch and always itching tendency. They are more commonly seen in central chest, back, shoulders, ear lobules and arm. Exact cause of it is unknown till now but it is more common in dark skinned people especially African races, Negro population, as well as increase incidence in tuberculosis patients. Keloid affects both sexes equally. The incidence in young females is more than young males and is more common in and shows genetic trait transmitted by mother or father with the children having 50 % possibility of developing a Keloid scar.<sup>8</sup>

### **Indication of Jalaukavacharana in Ayurveda: <sup>9</sup>**

Jalaukavacharana is indicated in diseases caused by vitiated Rakta and Pittadosha. Granthi (Nodular Swelling) is one among the specific indications of Jalaukavacharana which are mentioned in Ayurvedic text. Vrana granthi is one among the nine granthis explained by Vagbhatacharya, based on pathology, sign and symptoms it can be correlated with abnormal scar formation i.e. Keloids.<sup>10</sup>

### **Case Report:**

#### **Patient details:**

A 40 years female approached with complaints of

- 1) Swelling over the chest region since 3 years.
- 2) Itching and irritation at the site of swelling since 3 year.
- 3) Pain on touch since 6 months.

No H/O any major surgery.

No H/O Hypertension / Diabetes mellitus / Asthma / Tuberculosis.

#### **History of present illness:**

Patient was free from above said complaints 3 years before, then gradually she noticed small pimple with pricking pain at chest region, as it was not much bothering patient did not approach doctor, later when patient started wearing short mangalasutra because of continues friction to the skin, swelling was aggravated along with pain and itching sensation. She started with pain on touch at the site of swelling. The symptoms distracted her mind in work place. For these above said complaints she approached our hospital.

**Physical examination:**

BP: 120/80 mm hg

Pulse: 74 bpm

Respiratory rate: 18bpm

Temperature: 98 F

**Astathana Pareeksha:**

Nadi - Vata Pittaja

Mala - Twice per day

Mutra - 5-6 times per day

Jihwa - Aliptata

Shabda - Prakruta

Sparsha - Prakruta

Dhrik - Prakruta

Akruti - Madhyama

**Local Examination:**

Inspection –

- Site : Swelling over Mnibrium sterni
- Shape: ova, horizontally
- Size(L×B×W): 12mm×3mm×2mm
- Color: Pink color.
- Discharge: Absent.

Palpation –

- Tenderness : Present +++
- Consistency: Firm



**Investigations:**

RVD – negative

HbSAg – negative

Hb –12.5gm%

CT –2.5mins

BT – 3mins

RBS -96mg/dl

Urine routine - Normal

**Treatment protocol:**

Planned for Jalaukavacharana, weekly once, for 4 sittings. The procedure of jalaukavacharana was done as mentioned by Acharaya Sushruta in Sushruta Samhita following trividha karma protocol.

**Method of application of Jalauka(Leech):**

The jalauka application is carried out in the following three steps.

**1. Poorva karma (pre-operative)** - Activation of Jalauka done by putting it in Haridra water. Patient made to lie on supine position, exposed the affected site and part preparation was done.

**2. Pradhan karma (operative)** – The site is cleaned with wet gauze and Leech is applied at the site of swelling, Once Leeches start sucking the blood, elevates its neck assuming the shape of a horse shoe it is covered with wet gauze & cold water is poured on it from above time to time, so as to make Leech comfortable during sucking. If a leech refuses to bite by its own, in such condition gharshana (rubbing) may be required so as to facilitate the sucking procedure in which the affected site skin is rubbed with guaze,so the blood comes out.

**3. Pashchat karma (post-operative)** – After the leech stops sucking, the bite site cleaned and bandaging of wound done using Yastimadhu churna.

**Observations and Result:**

Jalaukavacharan was done for four times in this case. In the 1<sup>st</sup> sitting one leech was applied on keloid, it was noticed that in one sitting approx 8 ml bloodletting was done by each leech. Swelling and tenderness mildly reduced. Assessment was done on 7th day. On local examination, swelling and tenderness was reduced remarkably. We continued the leech application on 7th day as second sitting. It was noticed that in 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> sittings approx 10 ml, 10ml and 8ml bloodletting was done by each leech. After treatment on 30<sup>th</sup> day patient was free from pain, tenderness and itching were reduced completely and the thickness of the swelling was also reduced.

| On examination Features | BT               | 7 <sup>th</sup> Day | 14 <sup>th</sup> Day | 21 <sup>st</sup> Day | AT                |
|-------------------------|------------------|---------------------|----------------------|----------------------|-------------------|
| Shape:                  | Oval, Horizontal | Oval, Horizontal    | Oval, Horizontal     | Almost flattened     | flattened         |
| Size: (l×b×w)           | 12x3x2 mm        | 12x3x2 mm           | 11x2.5x1.5 mm        | 10x2x1 mm            | 7x1x1 mm          |
| Color:                  | Pink color       | Pink color          | Pink color           | Light pink           | Almost skin color |
| Discharge:              | Absent           | Absent              | Absent               | Absent               | Absent            |
| Tenderness :            | Present +++      | Present ++          | Present +            | Reduced              | Absent            |
| Consistency:            | Firm ++          | Firm++              | Firm+                | Soft                 | Soft              |

**Images of case study:**



Fig 1 (Before Treatment)



Fig 2 (During Treatment)



Fig 3 (After treatment)

**Discussion:**

An estimated 10% of population experience keloid and occurrence has equal gender distribution. The internal genetic factors and external environmental factors influence keloids show a strong tendency to reoccur when they are surgically excised (45% - 100%).<sup>12</sup> It is without reoccurrence. It is an area of scope for finding new intervention. So jalaukavacharana was planned in this particular case. The saliva of *Hirudo medicinalis* contains more than 100 bioactive substances, including coagulation inhibitors, platelet aggregation inhibitors, vasodilators, anaesthetizing, antimicrobial and anti-inflammatory agents. One of the most important ingredients is hirudin, which is the principal anticoagulant responsible for enhanced bleeding and prevention of coagulation. Hirudin also works with vasodilator compounds to increase blood flow to an area. The saliva of the medicinal leech also contains proteinase inhibitors, such as bdellins, eglin, inhibitors of  $\alpha$ -chymotrypsin, subtilisin, and the granulocytic neutral proteases-elastase and cathepsin G, responsible for the anti-inflammatory

effect which reduced the inflammation and tenderness in this case. Medicinal leeches also secrete hirustasin, which selectively inhibits tissue kallikreins that are largely responsible for the maintenance of a normal level of blood pressure. Hirustasin can also play a role in the intrinsic coagulation process. Leeches may also secrete a vasodilative, histamine-like substance, which increases the inflow of blood after a leech bite and reduces local swelling. Hyaluronidase, which is known as the “spreading factor,” can degrade tissue hyaluronic acid, thus facilitating the infiltration and diffusion of the remaining ingredients of leech saliva into the congested tissue. Tissue permeability, restored with the help of hyaluronidase, promotes the elimination of tissue- and circulatory-hypoxia as well as local swelling.<sup>13</sup> A collagenase, which reduces scar tissue density and adhesions.<sup>13</sup> which will help in reduction in thickness and size of keloid. All of these constituents, along with many other enzymes with similar effects, work together to enhance the therapeutic potential of Jalaukavacharana (Leech therapy).

### Conclusion:

On the basis of the above case study we can conclude that jaloukavacharana does growth retardation of swelling. It is beneficial in reduction of pain, tenderness and itching. It can be considered as best complimentary line of management for thickness and size reduction of keloid. We can improve the quality of life of the keloid patients and reduce the risk of reoccurrence. We can also avoid the complications caused by prolonged usage of steroids. It is simple, easy and effective Day care Para surgical procedure. Cost effective, less time consuming and a localized way of bloodletting to prevent reoccurrence in surgical conditions.

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