



## Research Article

**EFFECT OF LEECH APPLICATION IN THROMBOSED HAEMORRHOID****Vishal Khanna<sup>1\*</sup>, Abineet Raina<sup>2</sup>, Ankush Bhardwaj<sup>3</sup>, Anjali Sharma<sup>4</sup>, Asheesh Khajuria<sup>5</sup>**<sup>1</sup>Associate Professor, Department of Rachna Sharir, Government Ayurvedic Medical College, Jammu, J&K.<sup>2</sup>Assistant Professor, Department of Shalya Tantra, Sri Satya Sai Murlidhar Ayurveda College & Hospital (SSSMAC), Moga, Punjab, India.<sup>3</sup>Assistant Professor, Department of Shalakyia Tantra, Jammu Institute of Ayurveda and Research, Jammu, J&K, India.<sup>4</sup>Medical officer, Department of Indian System of Medicines, Government of Jammu & Kashmir, India.<sup>5</sup>Medical officer, National Rural Health Mission, State Health Society, Health and Family Welfare Department, Government of J&K, India.**KEYWORDS:** Leech therapy, *Jalaukavacharana*, thrombosed hemorrhoid, Thrombolytic property.**ABSTRACT**

*Arsha* or hemorrhoids included under the category of *Mahagadas* as it significantly disturbs the normal proceedings or activities of the body like an enemy. It is a *Gudagata mamsa vikara* occurred in three *Vallies* of ano-rectal region. Basically it is of two types viz. internal and external hemorrhoids. A thrombosed hemorrhoid is a variety of external haemorrhoid in which there is a painful swelling in the anal tissues caused by a clot in one or more of the small veins in the anal skin. Thrombosed hemorrhoid is an emergency condition and occurs due to high venous pressure associated with severe anal pain. It becomes worse after strangulation of the pile mass. Urgent surgical intervention is required in all the cases. Venous return of strangulated pile mass become very low and severe edema takes place along with serious painful condition. The swollen tissues often have a characteristic bluish color, because of the underlying clot. Leech application is known to be effective in thrombosed hemorrhoid as it relieves venous pooling of blood in that area by dissolving the clotted blood. A study was carried out to evaluate its efficacy in which 30 patients were selected for the trial with the symptoms of thrombosed haemorrhoid and were subjected to *Jalaukavcharan vidhi*. The total effect of the therapy has provided considerably significant relief on the sign and symptoms. Leech application was found safe and effective in the management of thrombosed haemorrhoid by virtue of its antimicrobial, mucolytic and thrombolytic actions.

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**INTRODUCTION**

According to Ayurvedic texts, *Arsha* (hemorrhoids) may be defined as *Maanski* (External hemorrhoids) that obstructs anal opening causing severe pain during defecation like an enemy. Acharya Sushruta, father of surgery has considered *Arsha* (haemorrhoids) in *Ashtamahagada*. The incidence of haemorrhoids is common among all economical classes of population. Though the disease is within the limits of management, it has its own complications like hemorrhage, strangulation, thrombosis etc. Thrombosed piles possibly occur

due to high venous pressure causing severe pain that leads to a tendency of avoiding defecation, leading to hardening of stools causing constipation, which further exacerbates bleeding.<sup>[1,2]</sup> Hence its management in initial stages is required. Acharya Sushruta mentioned *Jalauka-vacharan (Rakta-mokshana)* as treatment of choice in this painful condition.<sup>[3-5]</sup> This application provides local analgesic, thrombolytic and anti-inflammatory action along with significant symptomatic improvement to the patient.

## Types of Leeches

In Ayurvedic texts, leeches are classified into poisonous and nonpoisonous types, depending on their toxicity. The application of poisonous leeches can cause swelling and itching in the bitten area, as well as fainting, fever, burning sensations, vomiting, intoxication, and myalgia.<sup>[6]</sup> The use of non-poisonous leeches causes no complications during bloodletting. *Hirudinaria medicinalis* is commonly used for bloodletting. These leeches are dark in color and marked with 6 longitudinal stripes. Their bodies are 2 to 3 inches long, convex and wrinkled transversely<sup>[7]</sup> tapering at each end. These leeches are classified into 12 types, with each type bearing Sanskrit name.<sup>[8-11]</sup>

### Non-poisonous Leech (*Nirvisha Jalauka*), *Hirudo medicinalis*

1. **Kapila Jalauka** Dark brown colored with slightly reddish color in the flanks; back is oily with slightly green color.
2. **Pingalla Jalauka** Reddish brown with round body and moves quickly.
3. **Sankumukhi Jalauka** Brown color, drinks the blood quickly, mouth is long and pointed.
4. **Mushika Jalauka** Brown color, resembles the shape of mice, unpleasant odor.
5. **Pundarika Mukhi Jalauka** Greenish color with broad mouth.
6. **Savarka Jalauka** Reddish pink color with a longer body than others and is oily in nature; it is used to treat cattle.

### Poisonous Leech (*Savisha Jalauka*), *Hirudo detrimental*

1. **Krishna Jalauka:** Black in color, large headed
2. **Karbura Jalauka:** Grey in color, resembles a fish, abdomen segmented and bulging.
3. **Algarda Jalauka:** Hairy with large flanks
4. **Indrayudha Jalauka:** Stripes on the back
5. **Samudraka Jalauka:** Blackish yellow, flowery patterns on the body.
6. **Gocandana Jalauka:** Lower part of the body divided into 2 and with small mouth.

### Rearing of Leeches

Leeches are best collected during the autumn or rainy season. They should be kept in fresh water, in a big jar, and fed on algae and powdered dried meat of aquatic animals. Placing straw and aquatic plants in these jars helps create an appropriate environment. The water should be changed, and the food residue cleaned, every 3 days. Transferring the leeches to another jar, once a week, also appears beneficial.<sup>[12]</sup>

### Indications for Leech Therapy <sup>[13,14]</sup>

- Hemorrhoids
- Abscesses and boils
- Skin disorders-such as dermatitis, psoriasis, alopecia
- Ulcers
- Gout
- Diseases of the throat
- Diseases of the eye
- Cysts

### AIMS AND OBJECTIVES

To study the effect of *Jalaukavacharan* in the management of thrombosed piles.

### MATERIALS AND METHODS

The patients were selected from the outpatient department (OPD) and inpatient department (IPD) of Shalya Tantra, Jammu Institute of Ayurveda and Research, Jammu, J&K, India. Total 30 patients of either sex with signs and symptoms of thrombosed piles were included in the study.

### Inclusion Criteria

- Patient diagnosed with all clinical symptoms of thrombosed piles.
- Patient between age group of 20 to 60 years.

### Exclusion Criteria

- Patients having externo-internal thrombosed piles secondary to tuberculosis, crohn's disease, Ulcerative colitis, CA of rectum and anal canal were excluded from study.
- Patients suffering from diabetes mellitus, Leprosy.
- Patients with infectious diseases like HIV and HbsAg.
- Hemorrhoids associated with perianal abscess, 4<sup>th</sup> degree hemorrhoids, 4<sup>th</sup> degree rectal prolapse etc.
- Pregnant women are excluded in this study.

### Blood Investigations

Routine investigations like CBC, ESR, Bleeding time, Clotting time, Blood Sugar Random, HIV, HbsAg, VDRL and Urine for physical-chemical-microscopic examination were included in the study

### Leech Application

Non poisonous *Jalauka* (*Hirudina medicinalis*) were selected. They were bathed in turmeric water for detoxification as well as to increase its appetite. The small prick was made over the inflammatory swelling and leech is allowed to suck the blood. When it started to suck, its body was covered with wet bandage. The process was

continued till spontaneous detach of leech. Once the leech is detached, the bite area was sprinkled with turmeric powder and covered with gauze and lose bandage was applied. On the other hand the leeches were subjected to immediate emesis by applying the salt at their mouth. Once it starts to vomit, then it was squeezed from the tail end to the mouth, so that the sucked blood was expelled out. Later the leeches were washed in fresh water and preserved in separate labelled bottles which contain fresh

water. Patient is then advised to go for sitz bath twice daily and prescribed to take *Haritaki choorna* 10 gms with hot water at bed time.

#### **Pathya Apathya**

After *Raktamokshana*, patient should be given *Laghu* and *Deepniya ahara*. *Acharya vagbhata* advised *Snigdha* and *Shonitavardhaka ahara*. Patient should avoid *Vyayama*, *Maithuna*, *Raag*, *Diwaswapa*, *Kshar Amla*, *Lavana*, *Katu ahara sevan*.

**Table 1: Components of Hirudo medicinalis Saliva**

<b>Hirudin</b>	Inhibits blood coagulation by binding to thrombin
<b>Calin</b>	Inhibits blood coagulation by blocking the binding of von will brand factor to collagen, inhibits collagen mediated platelets aggregation
<b>Destabilase</b>	Monomerizing activity, Dissolve fibrin, Thrombolytic effects
<b>Hirustatin</b>	Inhibits Kallikrein, trypsin, chymotrypsin, neutrophilic cathepsin
<b>Hyaluronidase</b>	Increase interstitial viscosity, Antibiotic
<b>Tryptase inhibitor</b>	Inhibits proteolytic enzymes of host mast cells
<b>Eglins</b>	Anti inflammatory, Inhibits the activity of alpha-chymotrypsin, chymase, subtilisin, elastase, cathepsin
<b>Factor Xa inhibitor</b>	Inhibits the activity of coagulation factor X a by forming equimolar complexes
<b>Complement inhibitors</b>	May possibly replace natural complement inhibitors if they are deficient
<b>Carboxypeptidase A</b>	Increase the inflow of blood at the bite side
<b>Histamine like substances</b>	Vasodilator, Increase the inflow of blood at the bite side
<b>Acetylcholine</b>	Vasodilators

#### **CRITERIA OF ASSESSMENT**

##### **1. Pain**

- 0 – Absent
- 1 – During defecation only
- 2 – Present after defecation up to 1 hour
- 3 – Continuous pain for more than 1 hour after defecation

##### **2. Swelling**

- 0 – No swelling
- 1 – 1 to 5 mm swelling
- 2 – 6 to 10 mm swelling
- 3 – 11 to 15 mm swelling

##### **3. Tenderness**

- 0 – No tenderness
- 1 – Little response to sudden pressure
- 2 – Wincing face on superficial slight touch
- 3 – Resist to touch and rigidity

**4. Discoloration**

- 0 – No discoloration
- 1 – Red
- 2 – Reddish blue
- 3 – Bluish purple

**OBSERVATIONS AND RESULTS****Table 2: Age in years**

Age in years	No. of patients	Percentage
21-30	18	60.00%
31-40	6	20.00%
41-50	4	13.33%
51-60	2	06.66%

**Table 3: Gender**

Gender	No. of patients	Percentage
Male	19	63.33%
Female	11	36.66%

**Table 4: Occupation**

Occupation	No. of patients	Percentage
Sedentary	11	36.66%
Physical work	17	56.66%
Student	2	06.66%

**Table 5: Treatment efficacy**

Variable	Mean		SD	SE	t- value	p - value	Remark
	BT	AT					
Pain	3.05	0.45	0.73	0.16	15.82	<0.001	HS
Swelling	2.85	1.30	1.05	0.23	5.51	<0.001	HS
Tenderness	3.15	0.25	0.94	0.21	13.74	<0.001	HS
Discoloration	0.65	0.30	0.47	0.10	3.28	<0.001	HS

**DISCUSSION**

Age wise distribution of patients shows that most of them were from the age group of 21–40 years and sex wise distribution shows male percentage was 63.33% and female percentage was 36.66%. Most of the patients were doing physical work (56.66%) and some of them were also having sedentary lifestyle (36.66%). Follow up was done for 3 weeks in which Pain was relieved within 7 days of leech application in thirteen patients, whereas in 15 days of leech application swelling, discoloration and tenderness were reduced in maximum number of patients. The leech application was found highly significant in all the parameters. In thrombosed external hemorrhoid, there is engorgement of a hemorrhoidal vessel with acute swelling which may allow blood to pool which subsequently clot and leads to a bluish-purple discoloration often accompanied by severe pain.

Leech application is one type of *Raktamokshana* (bloodletting) in *Ayurveda*. Hirudin present in the saliva of leech helps in oppressing the process of blood clotting and active substances containing in saliva glands of medicinal leeches can restore blood circulation in the nidus of inflammation, removes ischemia of organs, and provide capillary tissue exchange and, due to it, can carry out the transport of chemical drugs into the nidus of inflammation, improve immune protection, and regeneration of tissues. Probably, due to the action of hirudin and hyaluronidase, it promotes reduction of swelling, dissolution of the organized blood-clots, and cosmetic effect. Using of leeches promotes the increasing of local immunity as well. The leech application is effective in reducing the pain; this supports the analgesic action of leech component. In thrombosed piles, the leech application has

thrombolytic action. The pus and mucous discharge also get subsided due to leech application; this effect is due to antimicrobial and mucolytic properties of leech.

#### CONCLUSION

According to above observations, we can conclude that bloodletting by *Jalauka (Hirudina medicinalis)* gives comprehensive relief in thrombosed haemorrhoids. It possesses various pharmacological properties like antimicrobial, mucolytic and thrombolytic.

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