



## CURATIVE APPROACH TO PAIN MANAGEMENT BY LEECH THERAPY IN VARIOUS TYPES OF ARTHRITIS-COMPARATIVE STUDY

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### ABSTRACT

Joint pain is the worst of sufferings of humans and man's efforts to conquer the pain are older than his efforts to prevent death. In Ayurveda, joint diseases are discussed under *certain Vatavyadhis, Amadoshajanya, Dushitarak-tajanya* and *Asthisandhigata Rogas* and have a common characteristic of pain among them. From various studies, it is found that Arthritis is by far the most common form of debilitating joint illness and is a major cause of pain and disability in the young and elderly. Leech therapy proves to be having curative actions in offering pain relief to the patients of various forms of arthritis from the debilitating type of joint pain. A comparative study was planned at Datta Meghe Ayurvedic Medical College, Hospital and Research Centre, Nagpur to observe the efficacy of leech therapy in various forms of arthritis. For this project, 3 groups were formed. Every group had 20 patients each with Rheumatoid arthritis (*Aamvata*), Osteo Arthritis (*Sandhivata*) and Gouty Arthritis (*Vatarakta*). The patients were subjected to leech therapy on every alternate day for 5 sittings on the most painful joint preferably the knee joint and the ankle joint. The study concluded that, of the three types of arthritis in the present study, the best analgesic results were found in Gouty Arthritis than osteo and rheumatoid arthritis ie 79.66 and rendered best results in other signs of joint inflammation in Gouty arthritis followed by Osteo Arthritis and Rheumatoid arthritis respectively.

**Keywords:** Leech Therapy, Gouty Arthritis, Osteo Arthritis, Rheumatoid Arthritis

## INTRODUCTION

"Sense of pleasure we may well Spare out of life perhaps & not repine, but the pain is perfect misery, the worst of evils and excessive, overturns All patience. "(JOHN MILTON: Paradise Lost)

Joint pain is the worst of sufferings of humans and man's efforts to conquer the pain are older than his efforts to prevent death.

In *Ayurveda*, joint diseases are discussed under certain *vata vyadhis*, *amadoshajanya*, *dushitaraktajanya* and *asthisandhigata rogas* and have a common characteristic of pain among them.

From various studies, it is found that Arthritis is by far the most common form of debilitating joint illness and is a major cause of pain and disability in the young and elderly.

The prevalence of osteoarthritis is 26%<sup>1</sup>, Rheumatoid Arthritis is 1% and 4% in Gouty arthritis worldwide. Pain prevalence in Arthritis in women is 29.2% and men are 22.7%<sup>2</sup>. Among adults (45 to 64 years), it is 24.9%<sup>3</sup>. Pain is the major cause of disability in all forms of arthritis.

Arthritis in various forms is a common public health problem worldwide causing the loss of productivity due to the disability it causes in the young and elderly population.<sup>4</sup>

The available treatment options in allopathy have disastrous side effects like gastric irritation, peptic ulcers, drowsiness, uneasiness, headaches, renal failure and hepatic failure<sup>5</sup>. The population needs cost-effective, feasible, less invasive and rapidly acting, better treatment options for management without many side effects and which is readily available. *Ayurveda* offers drug less healing therapy in the form of *Jaloukavacharan* that means bloodletting with the help of leeches, which has got curative actions owing to the anti-inflammatory and analgesic effects as well as a holistic healing approach with its instantaneous actions of relief from swelling and redness causing pain relief. Hence *Jaloukavacharan* which is also known as leech therapy proves to be having curative actions in offering pain relief to the patients of various forms of arthritis from the debilitating type of

joint pain and the agony related to pain as well as relief in other signs of joint inflammation<sup>6</sup>.

### Review of literature-

Importance of *Raktamokshana* (Bloodletting)-

1) According to *Acharya Sushruta*, *Raktamokshana* (bloodletting) cures skin diseases, *Granthi* (cysts), *Shopha* (inflammation), *Raktapradoshaja vikara* (bleeding disorders).

2) In the treatment of *Visarpa*, it is said that *Raktamokshana* (bloodletting) alone is equivalent to all the other procedures.

2) The procedure of *Raktamokshana* is the second most important procedure in the management of *Vranashopha* which is the inflammatory condition of soft tissue

3) The procedures like *Snehana* (massage), *Swedana* (fomentation), *Shamana* (oral medicine), *lepana* (Application of *lepa*) do not yield quick results as *Raktamokshana* does.

4) *Acharya Vagbhata* has mentioned that bloodletting is useful to reduce redness and pain of skin conditions and the ninth treatment protocol in *shashthiupakramas* (sixty modalities of treatment) of *Vrana* (wound).

5) In this way, bloodletting is found to secure supreme importance in *Ayurveda* science<sup>7</sup>.

*Jalouka* is the most efficacious tool used for *raktamokshana* since antiquity.

*Jalouka-*

*Acharya Sushruta* in *sutrasthana* has thoughtfully stated that "The clinician who knows all about the leeches, their habitat, their methods of collection, varieties, storage and method of application" is successful in treatment.

The word *Jalouka* is a compound word with two components *Jala* + *Ayu*, i.e., the animals having water as the life.

In *Ayurvedic* literature, *Jalouka* has been classified into two main groups:

- Savisha* (Venomous)
- Nirvisha* (Non-venomous)

It is the non-venomous leech that is used for therapeutic purposes.

The scientific details of *Jalouka* can be stated as below.

**Classification-**

**Medicinal leech**

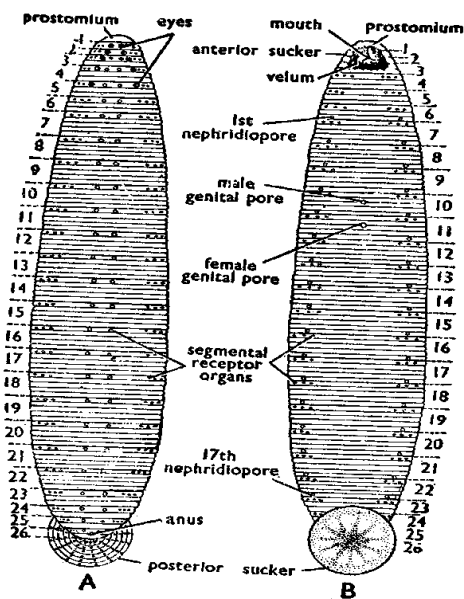
Indian Cattle Leech

- Phylum
- Class
- Order
- Family
- Species
- General

**Hirudo medicinalis**

- Hirudo granulosa
- Annelida
- Hirudinea
- H. Limnodbella
- Hirudinae
- H. medicinalis
- Hirudinaria

External Features of Leech <sup>8-</sup>



**Methodology-** Considering the clinically potent actions of leech salivary gland secretions and the indications of anti-inflammatory actions about *Jalouka-vacharan* from Sushruta Samhita, a Comparative study was planned at Datta Meghe Ayurvedic Medical College, Hospital and Research Centre, Nagpur to observe the efficacy of leech therapy in various forms of arthritis. For this project, 3 groups were formed. Every group had 20 patients each with Rheumatoid arthritis (*Aamvata*), Osteo Arthritis (*Sandhivata*) and gouty Arthritis (*Vatarakta*). The patients were subjected to leech therapy on every alternate day for 5 sittings on the most painful joint preferably the knee joint and the ankle joint. Observations were taken

before and after leech therapy sittings like pain relief (visual analogue scale), swelling (in centimeters), Tenderness (frank painters scale), redness (present/absent), Rise in local temperature (present/absent), restricted moment (goniometer) and walking effect (distance in meters). Patients were subjected to certain lab investigations like CBC (complete blood count), Bleeding time (BT), Clotting Time (CT), CRP (C reactive proteins) and ESR (erythrocyte sedimentation rate) in all the patients before leech therapy. Statistical analysis was done<sup>9</sup>. The results were subjected again to rigorous discussions.

**Modus Operandi of Leech Therapy-** These are the procedures followed to perform leech therapy. For this purpose, certain materials were required.

They were Leeches and Leech Lab and other procurement as per the SOP's of *Jaloukavacharan* and well equipped IPD and OPD with emergency management facilities.

Patient selection is exclusively done after clinical assessment and necessary lab investigations.

Written informed consent was taken as mandatory.

The patient has explained the benefits of leech therapy over other treatment protocols<sup>10</sup>.

***Jaloukavacharan Vidhi-***

According to *Acharya Sushruta*, *Jaloukavacharan* should be done with the standard operating procedures which are described in the form of *Trividha Karma* (1) *Purvakarma* (2) *Pradhana Karma* (3) *Paschatakarma*

***Purvakarma*** – includes the following major (criterion)-

- The collection and maintenance of *Jalouka* (leech).
- To assess the patients curable with *Jalouka*.
- *Shodhana* (cleaning) of *Jalouka* before *Raktamokshna*.
- *Aatur Sidhi* (Preparation of the patient)

***Pradhanakarma-*** a] Main procedure of application of leeches

2] Observation of the patient

***Paschatakarma-*** aftercare of the patient and Leech<sup>11</sup>

**Pictorial Evidence of Leech therapy on Joints-**

**A) Leeches on Knee Joint in RA patients**



**B) Leeches on Knee joints in Osteo-Arthritis patients**



**C) Leech Therapy in Gout**



**Observations and Results-**

The observations and results are displayed in tabular form.

**Table 1:** Displaying Comparative Statistical Analysis study of subjective parameters

Subjective Parameter	Mean % relief in RA	Mean % relief in OA	Mean % relief in GOUT
Pain	69.66	59.66	79.66
Swelling	55	45	75
Redness	61.66	51.66	61.66
Tenderness	63.66	46.66	56.66
Local temperature	36.33	50	60.66
Restricted movement	51.33	51.33	61.33
Walking effect	42.64	42.64	52.64



Table 1 displays the comparative effect of leech therapy on various subjective parameters. Mean percentage relief in pain was found best in gouty arthritis i.e., 79.66% as compared to 69.66 in Rheumatoid arthritis and 59.66 in Osteoarthritis. Mean percentage relief in swelling was best relieved as 75 in gouty arthritis as compared to 55 and 45 in rheumatoid and osteoarthritis respectively. Mean percentage relief in redness was found best in both Rheumatoid arthritis and gouty arthritis as 61.66 as compared to osteoarthritis with 51.66 after leech therapy. Mean percentage relief in raised local temperature was found best in gouty arthritis, followed by osteoarthritis patients with 50 percent relief and rheumatoid arthritis patients with 36.33 percent relief. Mean percentage relief in restricted movement of joint was found to be best in gouty arthritis followed equally by the other two groups at 51.33. The walking effect was found improved best in the gouty arthritis group at 52.64 percent followed by both other groups at 42.64 percent relief after leech therapy.

#### How does leech therapy work -?

Potent Actions of SGS of Leech

- Anti-inflammatory and analgesic effect - Hyaluronidase, bdellins and eglins
- Blood Thinning effect- Hirudin and hirustasin, trypsin inhibitors
- fibrolytic Activity- fibrinases and Collagenases
- Anti-thrombotic effect-Anticoagulant complex
- Analgesic and anti-inflammatory activity- This is associated with the blockage of amidolytic and kininogenase activities of plasma kallikrein, resulting in prevention of pain relief during leech sessions.
- Positive haemopoetic effect.
- Normalization and improvement of capillary circulation.
- Expressed anti inflammation effect, anti-stressful and adaptogenic effects
- The lipo-tropal effect: The enzymes of salivary glands of medicinal leeches have the ability to influence blood lipids.
- Immuno-stimulation and immuno-modulating effects.

- Improvement of an endo-cellular exchange.
- Early wound healing effect.
- Reduces the blood viscosity.
- Inhibition of platelet functions- On taking a bite, bloodsucking starts and von Willebrand factor (vWF) strongly binds to glycoprotein (GP) on platelets, which works like a bridge. With this binding, up regulatory mechanisms occur, platelets bind to each other to make a plug and stop any bleeding.

Other possible actions: - Many in vitro studies have indicated the anticancer effects of leech saliva extracts. Since coagulation is related to metastasis and tumor progression, blocking the cascade can have an anti-tumor effect. In addition, other anticoagulant derivatives are claimed to have similar effects, as well as reducing cell growth and tumor<sup>12</sup>.

## DISCUSSION

Owing to the multifold actions of the salivary gland secretions of the leech, such as anti-inflammatory and analgesic effect, blood-thinning properties, fibrolytic effect, anti-tumour activity, Neo-angiogenesis effect, lipotropic effect, immuno-stimulation and immuno-modulating effect and many other potential effects. Leech therapy is found to be potentially effective in reducing the signs of joint inflammation with best results in pain relief after 5 sittings in gouty arthritis followed by swelling, restricted movement, walking effect, tenderness and redness. This was followed by best results in pain and other parameters in osteoarthritis followed by results in the rheumatoid arthritis group<sup>13</sup>.

## CONCLUSION

Hence Leech Therapy is one of the most efficacious therapies in *Ayurveda* and interdisciplinary sciences in the management of arthritic joint disorders. Of the three types of arthritis in the present study, the best analgesic results were found in Gouty Arthritis than osteo and rheumatoid arthritis ie 79.66. Furthermore, leech therapy is less invasive, cost-effective, feasible, and easily available therapy in *Ayurveda* clinics and hospitals to be offered to patients in need of pain re-

lief as a locally given and systemically acting therapy in *Ayurveda* and interdisciplinary sciences.

And, the take-home message is, leech therapy has emerged as an innovative treatment modality and the potent para-surgical tool in arthritis patients which is a drug-less healing art. It is now a proven therapy in reducing pain and other signs of inflammation in joints and can give gold standard results in combination with certain other *shaman* or *shodhan* treatment modalities.

## REFERENCES

1. The prevalence of knee osteoarthritis in the elderly. the Framingham osteoarthritis study David T. Felson MD, MPH, Allan Naimark MD, Jennifer Anderson PhD, Lewis Kazis ScD, William Castelli MD, Robert F. Meenan MD, <https://doi.org/10.1002/art.1780300811>
2. The prevalence of rheumatoid arthritis in the United Kingdom: new estimates for a new century D. Symmons, G. Turner, R. Webb, P. Astin, E. Barrett, M. Lunt, D. Scott, A. Silman *Rheumatology*, Volume 41, Issue 7, July 2002, Pages 79
3. Prevalence of Gout and Hyperuricemia in the US General Population the National Health and Nutrition Examination Survey 2007–2008 Yanyan Zhu,1 Bhavik J. Pandya,2 and Hyon K. Choi *ARTHRITIS & RHEUMATISM* Vol. 63, No. 10, October 2011, pp 3136–3141 DOI 10.1002/art.30520 © 2011, American College of Rheumatology
4. <https://www.mayoclinic.org/diseases-conditions/arthritis/symptoms-causes/syc-20350772>
5. <https://www.nhs.uk/conditions/nsaids>
6. Sheetal G. Asutkar, Analgesic, anti-inflammatory and blood-thinning effect of Leech Therapy in patients of Rheumatoid Arthritis -An exemplary pilot Study. <https://doi.org/10.52482/ayurline.v4i01.414>, January 21, 2020
7. Vranshophya(Inflammation) and various treatment modalities in Ayurveda, Lambert publication, Amit Paliwal, vasudha Paliwal, Sheetal Asutkar ISBN no-978-3659835285, pg no 55 [https://www.amazon.com/dp/3659835285/ref=cm\\_sw\\_r\\_wa\\_awdb\\_imm\\_F7N9J5K2G9BHAWFMT50Z](https://www.amazon.com/dp/3659835285/ref=cm_sw_r_wa_awdb_imm_F7N9J5K2G9BHAWFMT50Z)
8. Vranshophya(Inflammation) and various treatment modalities in Ayurveda, Lambert publication, Amit Paliwal, vasudha Paliwal, Sheetal Asutkar ISBN no-978-3659835285, pg no 70 [https://www.amazon.com/dp/3659835285/ref=cm\\_sw\\_r\\_wa\\_awdb\\_imm\\_F7N9J5K2G9BHAWFMT50Z](https://www.amazon.com/dp/3659835285/ref=cm_sw_r_wa_awdb_imm_F7N9J5K2G9BHAWFMT50Z)
9. Dissertation for the Doctoral degree in shalyatantra, Datta meghe Institute of Medical Sciences, deemed to be university, Wardha in 2019
10. Vranshophya(Inflammation) and various treatment modalities in Ayurveda, Lambert publication, Amit Paliwal, vasudha Paliwal, Sheetal Asutkar ISBN no-978-3659835285, pg no 55 [https://www.amazon.com/dp/3659835285/ref=cm\\_sw\\_r\\_wa\\_awdb\\_imm\\_F7N9J5K2G9BHAWFMT50Z](https://www.amazon.com/dp/3659835285/ref=cm_sw_r_wa_awdb_imm_F7N9J5K2G9BHAWFMT50Z)
11. Vol. 11 No. 4 (2020): October - December 2020 /Balika Jotiram Bhatbhage, Sheetal Asutkar; Evaluation of Healing effect of Jalaukavacharana on Dushta Vrana (CNHU) w.s.r to Wound Bed Preparation based on T.I.M.E Principle, <https://doi.org/10.47552/ijam.v11i4.1619>
12. Sheetal Asutkar, Kiran Khandare; The Observational Study of Reduction in Inflammatory Markers and Simultaneous Reduction in Joint Inflammation in Patients of Rheumatoid Arthritis Treated by Leech Therapy; Vol. 15 No. 1 (2021): Indian Journal of Forensic Medicine & Toxicology
13. Sheetal Asutkar, Subhashchandra Varshney, The Cumulative anti-inflammatory effect of bloodletting by Leech (Jalaukavacharana) in patients of Arthritis (Aamvata) w. s. r. inflammatory markers- a Research Realm; <https://doi.org/10.52482/ayurline.v2i5th.147>, August 7, 2018

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