



Therapeutic Properties of Raktamokshna by Jalauka: A review

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Abstract

Ayurvedic *shodhan* treatment is considered very important when the vitiation of the *doshas* is in excess. It has been advised to treat the *ati-pravridha doshas* by *shodhan*. *Shodhan* treatment is five fold bio-purificatory techniques. *Raktamokshna* (Blood letting) has been considered as prime treatment for the management of diseases caused by vitiated *rakta*. *Raktamokshna* can be done by two methods, *i. shastra*, the sharp instruments, and *ii. anushatra*. *Jalauka*, the medicinal leech, has been recognised as an *anushastra* by *Sushrut*, and has been considered best treatment modality for treatment of *Pittaj* disorders of *Rakta*. Leech therapy has been recommended for the treatment of various diseases in Ayurvedic texts. This manuscript outlines the applicability of Leech therapy as explained in Ayurvedic texts and as recorded in various studies. Leech therapy has proved its efficacy in diseases ranging from pimples to inhibition of lung tumor colonization.

Introduction

Ayurveda and Ayurvedic system of medicine work on the principle of *tridosha*¹. Vitiation and imbalance of the *doshas* has been considered as one of the most important factors for the causation of the disease². Existence of three *doshas* has been accepted by almost all the scholars of Ayurveda, whereas *Rakta*, the fourth *dosha* has also been recognised by *Sushrut*³. Leech application has been recognised and used for medicinal purposes since ages to treat the *pittaj* diseases of *rakta*⁴. It has been advised to use *Jalauka* in patients with *alpa satwa* and delicate nature⁵.

Jalauka Application

Sushrut has mentioned existence of two types of *Jalauka*;

- i. Savish Jalauka*⁶ (poisonous leech, unfit for medicinal purpose)
- ii. Nirvish jalauka*⁷ (non-poisonous leech, fit for medicinal purpose)

He has further mentioned 6 types of each of them as follows.

i. Savish Jalauka:

Krishna
Karbura
Algarda
Indraayudha
Gochandana
Saamudrika

ii. Nirvish jalauka:

Kapila
Pingla
Shankhmukhi
Mooshika
Pundarikmukhi
Saavarika

It has been advised to use only the *nirvish jalauka* for medical use⁸. Also the use of *Jalauka* which is obese in the central part, ugly looking, hesitant in sucking blood and with less blood sucking capacity has been prohibited⁹.

Jalauka should be reared in fresh water stored in an earthen pot. The pot should be partially filled with sand. Dry meat, fresh grass, roots and tubers of aquatic plants, and coral should be added to the pot as a part of diet of *Jalauka*. The contents of the pot should be changed frequently for the better health of *Jalauka*¹⁰.

Before application of *Jalauka* to the patient, paste of *Sarshap* (*Brassica campestris*) and *Haridra* (*Curcuma longa*) should be applied on the body of *Jalauka*¹¹. It is also recommended to make a small incision over the site of its application to facilitate its application¹². After the *Jalauka* starts sucking blood from the affected site, it should be covered with a wet cotton cloth or cotton gauge piece¹³. Appearance of wave like movements over the body of *Jalauka* indicates that it is sucking blood¹⁴. *Jalauka* should be allowed to suck blood till it continues to suck the *dooshit* (vitiated) blood. Appearance of symptoms like mild pricking sensation and itching at the site of bite indicates that *Jalauka* is now sucking the pure blood. When these symptoms appear, then *Jalauka* should be removed from the body by putting some salt over the mouth of *Jalauka*¹⁵. After removal of *Jalauka*, if blood continues to flow from the site of bite then the blood should be examined to ascertain if the flowing blood is pure or vitiated. If the flowing blood is vitiated then it should be allowed to flow till the pure blood flow starts¹⁶. When pure blood flow starts then it should be checked with application of *shatdhaut ghrita* and *sheetal lepa*¹⁷. It has also been advised to induce *Vaman* (vomiting) to the *Jalauka* by squeezing the *Jalauka* from tail to head end after removal from the body of the patient so that the *Jalauka* remains healthy¹⁸.

Medicinal Uses of Jalauka Application

Ayurveda proposes to use *Jalauka* for treatment of various diseases like *Gulma*, *Arsha*, *Vidradhi*, *Kushtha*, *Vatarakta*, *Galaammaya* (diseases of throat), *Netrarug* (diseases of eye), *Visha* (insect/snake bites) and *Visarpa*¹⁹. Removal of vitiated blood from the affected site helps alleviate erythema and pain²⁰.

1. *Yuvanpidaka*: Leech application provides very good relief in patients with *Yuvanpidaka* (pimples). The effect is probably due to removal of vitiated pathogenic material accumulated in the tissues, it is also probably due to release of certain enzymes by the leech in to the superficial layers of the skin, normalization and enhancement of the capillary and the collateral circulation in the tissues, anti-inflammatory and the anti biotic effects²¹.
2. *Dushta Vrana* (Infected wounds): Apaturkar *et al.* concluded that application of Leech helps in wound healing by improving the blood supply to tissues around the wound. It was also observed that leech application along with external application of decoction of *Panchvalkala* is more efficient in converting the *Dushta Vrana* into the *Shuddha Vrana*²².
3. *Vicharchika*: Manoj L. Sonaje *et.al* reported highly significant improvement in the cardinal symptoms of *Vicharchika*, and the improvement was better in comparison to the use of *Shringa* for *Raktamokshna*²³.
4. *Arsha* (Piles): Leech application has been found to be very effective in the management of thrombosed piles. The effect is probably due to analgesic and thrombolytic activities. Use of leech in such cases also produced decrease in pus and other discharges, which may be due to antimicrobial and mucolytic properties in the saliva of leech²⁴.
5. Deep Vein Thrombosis: Kaur Rimpaljeet *et al* reported that the Leech application was very effective in reducing the pain, swelling and tenderness in patients with deep vein thrombosis²⁵.
6. Gouty Arthritis: Leech therapy was found to be highly effective in the patients with Gouty Arthritis. Improvement was reported in all major symptoms of the disease like Pain, Swelling, Stiffness, Restricted movements and the Deformity²⁶.
7. *Shwittra* (Vitiligo): Weekly Leech application on the vitiligo patch for six months produced complete repigmentation in sixty percent cases, and in thirty five percent cases the lesions became stationary²⁷.
8. Osteo-Arthritis: A clinical trial on patients with advanced osteoarthritis of the knee joint concluded that Leech therapy effectively reduced the need for analgesic intake. It was also noted that a double treatment regimen at a 4-week interval exhibited a longer term relieving and a better physical activity than a single treatment course²⁸.
9. Anti-bacterial properties: Secretion obtained from salivary gland from the tropical leech *H. manillensis* has been found to have a wide spectrum antibacterial activity against both Gram-positive (*S. aureus*) and Gram-negative (*Sal. typhi* and *E. coli*) bacterial strains²⁹. Two antimicrobial peptides (AMPs), thromacin

and theromyzin, were isolated from the body fluid of the leech *T. tessulatum*. It was found that both had an antibacterial activity against the Gram-positive bacterial strains, *Micrococcus luteus*³⁰.

10. Inhibition of Lung Tumor Colonization: I. V. administration of Salivary gland extract from *Haementeria ghilianii* completely suppresses colonization of the mediastinal lymph nodes produced by I.V. inoculation of T241 sarcoma cells. At the same time it reduces the number and size of the lung tumor colonies produced by the tumor. On administration of Salivary gland extract, there was seen total suppression of neoplastic involvement of mediastinum which suggested that the extract is capable of inhibiting invasion of lung lymphatics after sarcoma cells have escaped from the blood circulation³¹. Later, an antimetastatic and anticoagulant protein named ghilanten was purified from the salivary gland secretion of the proboscis leech, *H. ghilianii*³² which reportedly could suppress metastasis of melanoma, breast cancer, lung cancer, and prostate cancer³³.

11. Repair of near total amputation of fingers: Near total amputation of fingers was successfully treated with alone leech application without first performing a microvascular surgery. It was strongly recommended to resort to leech therapy in cases in which microsurgery is impossible to increase the limb salvage chance³⁴.

12. Dentistry: It was reported that bloodletting by Leeches was considerably successful in the management of severe postoperative macroglossia cases when the common treatment method was not satisfactory³⁵.

Conclusion

Bloodletting by *Jalauka*, the Medicinal Leech, provides comprehensive relief in *Pittaj* Disorders. Various manifestations of the *Pittaj* diseases are curable by use of *Jalauka*. Its use is not limited only to the prevention of diseases; various diseases can also be treated by the use of *Jalauka* for *raktamokshna* as described by ancient Ayurvedic scholars and various clinical studies. The available literature on the applicability of *Jalauka* reveals that it has potential to cure the diseases ranging from the simplest Acne to prevent the growth and spread of the malignant tumors. It is very useful in cases where acceptance of grafts of skin is doubtful. Its use helps improve the blood supply to the tissues and in the removal of vitiated pathogenic material accumulated in the tissues. It possesses various pharmacological properties like antimicrobial, analgesic, mucolytic and thrombolytic. Owing to the above mentioned properties and the effects seen in various studies, its use for the treatment of clinical conditions where it has been found to be useful should be encouraged, and at the same time further research should also be encouraged to establish its uses and any possible complications associated with its use.

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