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Leech Therapy - A unique treatment in Ayurveda

Dr. Prasadshakti G. Gannur

Associate Professor, Dept. of Shalya Tantra, BLDEA's AVS Ayurveda Mahavidyalaya Vijayapur, Karnataka, INDIA.

ABSTRACT

As mentioned in Ayurveda, *Rakta* itself is life for human being. If it get vitiated (impure) by means of unhealthy food habits and seasonal change is going to induce many disease. There is a unique worm - Leech which is used therapeutically to treat certain diseases induced by impure blood. Medicinal leeches are used for therapeutic purpose; these will suck only impure blood and relieve the symptoms. While sucking leeches leave saliva into the blood stream, which contain many medicinal properties. Out of which Hirudin is the main content which is having very effective anti-coagulant and analgesic property, because of this analgesic property, the process of sucking is painless. Leeches are mainly used in skin diseases as acne, *Kusta*, *Visarpa*, recurrent abscess along with these certain diseases which involve impairment of the blood circulation such as varicose veins deep vein thrombosis non healing ulcers and necrosis are also get benefited by leech therapy which improve the blood circulation by stimulating blood capillaries. Hence in this paper the uses of leech therapy are mentioned for the society to get benefited.

Key words: Leech, Hirudin, Jalouka, Analgesic Property, Anti-Coagulant Property.

INTRODUCTION

Raktam Jeeva Iti Shitithi |As *Raktha* itself is life for human being, it should be protected by all means said 5000 yrs back in Ayurveda.^[1] Not only quantity but also qualitative maintenance of *Raktha* is very important for healthy life. As *Raktha* (blood) may get vitiated or become impure by means of unhealthy food habits and by the influence of seasons.

Impure blood is going to induce many diseases like skin diseases, abscess etc., the impure blood should be expelled out by means of *Raktamokshana* method or blood letting procedure. Out of several methods of blood letting leech therapy is considered to be very

important.^[2] In this leech therapy leeches are made to suck the blood on affected area and while sucking it releases saliva into the blood stream. The saliva contains many medicinal ingredients which not only cure many deadly diseases and also act as preventive measure in many diseases. Thus an attempt is made to highlight the benefits of leech therapy for the society to get benefited.

AIMS AND OBJECTIVES

1. To highlight the benefits of leech therapy.
2. To highlight the importance of *Raktamokshana* (blood letting)

WHAT IS LEECH?

Leeches are an earth worm like small segmented animals.^[3]

There are 700 species of leeches identified so far, among them some are poisonous and others are non-poisonous. *Hirudo medicinalis* is commonly used for sucking the blood therapeutically. They live in water and in cold climate.

Seer Sushruta, well known as the father of surgery explained the utility of leeches in medical field for the

Address for correspondence:

Dr. Prasadshakti G. Gannur

Associate Professor, Dept. of Shalya Tantra, BLDEA's AVS Ayurveda Mahavidyalaya Vijayapur, Karnataka, INDIA.

E-mail: pgannur@gmail.com

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first time. As it lives in water it is named as *Jalouka*.^[2] It is considered as *Anushastra* (Para-surgical instrument).^[4] Other than India olden days leech therapy was in practice at Greece, Europe, Germany, North America etc. countries.^[5]

SOME INTERESTING STUFF ABOUT LEECHES^[6]

It has got 6 to 8 pairs of eyes. It has got more than 100 tiny teeth, It has got 32 brain as it is having 32 internal segmentation It has got 18 sensory papilla. Medicinal leech saliva consists of about 60 proteins. Large leeches can draw upto ten times of their body weight in a single sitting. Its digestion is very slow, so that two times feeding per year is sufficient for its survival. Saliva of leech consist of an anticoagulant protein Hirudin which prevents the blood clotting while sucking. Due to the hirudin, bite area will bleed for more than a normal wound after the leech is detached. Morphine like substances are found in neural tissue of leeches gives analgesic effect. Leeches are hermaphrodites, meaning each has both female and male reproductive organs (ovaries and testes, respectively).

CONTENTS OF LEECH SALIVA^[7]

Salivary secretion of leech contains many medicinal ingredients.

1. Hirudin - Anti-coagulant
2. Bdelin - Protiolytic inhibitor
3. Eglin - Chemotrypsin inhibitor
4. Hementin - Anti-coagulant
5. Collagenase - Platelet anti-aggregant
6. Hyaluronidase - mucolytic
7. Apyrase - Platelet anti-aggregant
8. Anesthetic
9. Vasodilator

WHAT IS LEECH THERAPY?^[8]

Leech therapy is the therapeutic procedure of blood letting in which leeches are made to suck the impure blood of affected area from the body.

PROCEDURE

1. Cleaning the place with sterile water and drying
2. Application of leech
3. Covering the leech with wet gauge
4. Detaching the leech after sucking
5. Dressing of wound
6. Vomiting of leech
7. Storage of leech

WHERE WE CAN USE LEECH THERAPY?^[9]

- According to Ayurveda leech has been indicated in *Pitta* (bilious) and *Rakta* (blood) involved conditions.
- It is effectively used in many local diseases.
- In hematoma (swelling with collection of blood) it helps to relieve the pain as well as swelling.
- Used in different infective and non-healing ulcers.
- Effectively used in painful joint like in Gouty arthritis, Osteo arthritis etc.
- In ischemic (reduced blood supply) and gangrenous conditions.
- Pimples especially where the *Pitta* is dominant.
- Used in different venous pathology like varicose vein, venous ulcer, phlebitis etc.

Musculo-skeletal disorders like carpel tunnel syndrome, sciatica, cervical spondylosis, as an instant pain reliever and to cure the condition.

- Recurrent abscess in the eye lids.
- Thrombosed hemorrhoids.
- Alopecia in scalp region.
- Skin diseases like eczema, psoriasis, scabies, dermatitis etc.
- Effectively used in local poisonous effects due to bite of some poisonous insects or snakes etc.
- These are the only few conditions and according to their clinical experience and observation.

Ayurvedic physicians are adopting this therapy in many other conditions also.

MODERN MEDICAL SCIENCE AND LEECH THERAPY^[10]

- In the 1980's plastic surgeons recognized anticoagulant and blood letting properties of Leech and started to use for relieving venous congestion after grafts and transplants
- Leeches are currently used during post-operative care of re-implanted fingers, skin grafts and breast reconstructions.
- In preventing post-surgical blood clotting, helpful in re-attachment of severed extremities like fingers, toes and ears.
- Recombinant hirudin is used in place of heparin in those who cannot tolerate or allergic to heparin.

HOW DOSE LEECH WORKS?^[11]

Anticoagulating effects of Leeches

- The leech's saliva contains enzymes and compounds that act as an anticoagulation agent. The most prominent of these anticoagulation agents is hirudin, which binds itself to thrombins, thus, effectively inhibiting coagulation of the blood.
- Another compound that prevents coagulation is calin. This, on the other hand, works as an anticoagulant by prohibiting the von Willebrand factor to bind itself to collagen, and it is also an effective inhibitor of platelet aggregation caused by collagen.
- The saliva of the leeches also contains Factor Xa inhibitor which also blocks the action of the coagulation factor Xa.

Clot dissolving effects of Leeches

- The action of destabilase is to break up any fibrins that have formed. It also has a thrombolytic effect, which can also dissolve clots of blood that have formed.

Bacteriostatic and anesthetic effects of Leeches

- The saliva of leeches also contains anesthetic substances which deaden pain on the site and

also bacteria inhibiting substances which inhibit the growth of bacteria.

ANTI-INFLAMMATORY EFFECTS OF LEECHES

- Bdelins is a compound in the leech's saliva that acts as an anti-inflammatory agent by inhibiting trypsin as well as plasmin. It also inhibits the action of the acrosin. Another anti-inflammatory agent is the eglins.
- Vasodilating effects of leeches. There are three compounds in the leeches' saliva that act as a vasodilator agent, and they are the histamine like substances, the acetylcholine, and the carboxypeptidase A inhibitors. All these act to widen the vessels, thus, causing inflow of blood to the site.
- Patients who suffer from pain and inflammation will feel relief from the anti-inflammatory and anesthetic effects of the leech's saliva.
- In the long run, leech therapy also helps to normalize the blood pressure of hypertensive individuals as well as lessen their risk of suffering from stroke and heart attacks.
- Blood circulation is also improved with leech therapy and it helps with the healing process of wounds, as well as wounds and lesions caused by diabetes.
- There is also a noticeable boost in the immune system's function due to bacteriostatic agents.

IS THERE ANY CONTRA-INDICATION?^[12]

It is not preferred in clotting disorders like hemophilia, severe anemia, leukemia etc., it is also contra indicated in patients of HIV and AIDS, patients on immune suppressive drugs.

WHETHER LEECH BITE CAUSES PAIN?

Patient experiences very minimum discomfort; can be compared with an ant bite or mosquito bite.

IN ONE SITTING HOW MUCH BLOOD IT SUCKS AND HOW LONG IT SUCKS?

One adult leech will suck about 20 to 25ml of blood. But anti-coagulant effect of its saliva causes the continuity of bleeding even after falling off. This amount may be some times about 10 times that of

leech suck. The duration of leech suck may vary from 10 minutes to 30 minutes. It may prolong even upto 1 or 2 hours.

WHETHER LEECH THERAPY GOT ANY COMPLICATIONS?^[13]

There is no any life-threatening complications as such. Some patients may complain allergic or anaphylactic reactions at and surrounding area of bite. There may be slight itching, red rashes and oozing may present. There may be chances of edema in loose tissue areas like eyelid, lip etc. There may be prolonged post bite bleeding. These can be managed conservatively.

CONCLUSION

Quantitative and qualitative maintenance of *Rakta* (blood) is essential for healthy life to lead. Leech therapy helps to expel the impure blood from the body. It not only cures many diseases but it also has preventive role. Even in modern medicine its role in reconstructive surgery, plastic surgery, non healing ulcer, varicose veins, DVT etc. is well established. Even in healthy individuals. It has preventive role.

Pictures of Leech Therapy



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