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MEDICAL LEECH THERAPY (ATTAI VIDAL) IN SIDDHA MEDICINE- A REVIEW

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ABSTRACT

Siddha medicine, traditional system of healing that originated in South India and is considered to be one of India's oldest systems of medicine. Siddha is a comprehensive system that places equal emphasis on the body, mind, spirit and restore the innate harmony of individual. In Siddha system diseases were classified in to 4448. In Siddha system of medicine, the diseases were treated in many ways like Mani, Manthiram, Avizhtham, Yogam and Varmam. Avizhtham (Medicine) is one way to treat the diseases in Siddha medicine, which is further divided into 32 internal medicine and 32 external medicines. Attaival (leech therapy) is an external blood letting therapy of application of medicinal leech to remove blood from the affected area and give relieve distension, remove pus & slough and drain the discharge. The aim of the study is to review the Attaival from different Siddha literatures and research articles. Seven books were selected from library of Unit of Siddha Medicine & University of Jaffna. Data were collected and analysed and the leech therapy was described by various Siddhars in their literature, Particularly the Siddhar Agastiyar and Therayar who explained leech therapy elaborately in their text Agasthiyar erandayiram, Agasthiyar ranavaithiyam and Agasthiyar nayanavithi & Therayar Tharu. According to Therayar Tharu, Attai vidal is placed in twenty seventh place. Attai Vidal (Medicinal leech therapy) is also called as Hirudo therapy on the basis of commonly used leech species, Hirudo medicinalis.

Medicinal leeches are used in the treatment of various diseases such as benign tumors, swelling, Kiranthi, haemorrhoids, abscess and boils, contusion, varicose ulcer, varicose vein, deep vein thrombosis, rheumatoid arthritis, skin and musculoskeletal diseases, arthritis, dysmenorrhea, eye diseases, traumatic swelling. Many studies have found that leeches have various bioactive molecules in their secretions. such as Hirudin, hyaluronidase, collagenase, histamine like molecules, anaesthetics, fibrinases, antibacterial, etc. This is concluded that the leech therapy was used in Siddha and other system of medicine for various medical and surgical conditions. The Scientific studies on leech saliva were proven and support the leech application in Siddha system of medicine

Key Words-Siddha, Attaival, Leech therapy, Hirudin.

INTRODUCTION

Siddha system of medicine is one of the Indian traditional systems of medicine formed by saint Siddhars. The origin of this system is Tamilnadu and nowadays it spread worldwide particularly Tamil speaking countries such as Srilanka, Malaysia, Singapore etc. In Siddha system of medicine five elements, Panchaboothangal namely vie. Akayam (Space), Vayu (Air), Thee (Fire), Neer (Water), Man (Earth) were playing an important role. These five elements contribute to form the three Uyirathathukal

(Vatham, Pitham, Kabam), the balance of which is very essential for healthy life. Any changes in these Panchabootham will cause changes in three Uyirthatukkal (three humours) results in diseases. Vatham is formed by Air and Space, Pitham is formed by Fire and the Kabam is formed by Earth and Water. These three Thathus are perceived as Naadi, which is an unique feature of the Siddha system. The existences of these Thathus are in the ratio of 1:1/2:1/4 respectively. If all three Uyir thatukkal are in the above said ratio the body will be healthy.

In Siddha system of medicine, the diseases were treated in many ways like Mani, Manthiram, Avizhtham, Yogam and Varmam. Avizhtham (Medicine) is one way to treat the diseases in Siddha medicine, which is further divided into 32 internal medicine and 32 external medicines. Attaivalal (leech therapy) is a type of external therapy which is used as one form of bloodletting technique to treat various ailments.

In Siddha system of medicine, the leech therapy was described by various Siddhars in their literature, Particularly the Siddhar Agastiyar who explained leech therapy elaborately in his text Agastiyar ranavaithiyam and Agastiyar nayanavithi. In Siddha system of medicine, the leech therapy is one of the external therapies which are used as one of the bloodletting techniques to balance the vitiated humours particularly Pitham humour.

In Ayurveda, the leech therapy is classified as bloodletting and was found in the text of Sushruta samhita (dating 800 BC), Dhanvantari, the Indian god of Medicine holds a leech in one of his 4 hands. In Unani the leeches were used for bloodletting as far back as 3500 years ago in ancient Egypt. Venesection was central to Arabic surgery, which is mentioned in classical Unani literature.

Medicinal leech therapy is also called as Hirudo therapy on the basis of commonly used leech species, *Hirudo medicinalis*. Today medicinal leeches are used in the treatment of various diseases such as cancer, varicose ulcer, varicose vein, deep vein thrombosis, rheumatoid arthritis, skin and musculoskeletal diseases. In 2004, the food and drug association (FDA) approved the leech therapy.

Aim and objective

The aim of the study is to review the Attaivalal from different Siddha literatures and research articles.

METHODOLOGY

Study Design:

It is a Literature review related study.

Place and Duration of the Study:

Libraries at Unit of Siddha Medicine and University of Jaffna from October to December 2020.

Data collection:

Data for the literature review were collected from related Siddha text books, websites and research articles.

RESULTS AND DISCUSSIONS

Description of Leeches

Leech taxonomy

Leeches are hermaphroditic, bloodsucking annelid worms. Medicinal leeches belong to the order Arhynchobdellida, family Hirudinidae. Only 15 of the more than 600 of the known species are classified as medical leeches, such as *Hirudo medicinalis*, *H. verbana* and *H. orientalis*. *H. medicinalis* has 33 to 34 body segments, is brown or black, and has six long reddish stripes on the back. The cylindrical body is slightly flattened and can measure up to 20 cm. Although

they have 5 pairs of eyes they use the olfactory system to find their hosts. Adult animals have two suckers at the end of their body, large posterior sucker and a smaller disc-shaped on the head that contains the mouths with tree jaws. Jaws consist of up to 100 teeth and salivary glands that release more than 100 known substances. It is comparatively large in size and often growing up to 10 or more centimeters in length.

Leech locality and ecology

The leeches are lived in different environment, including aquatic and moist area. Some leeches are live in fresh water, river, ponds, lake and sea. The leeches have high physiological flexibility, which make them able to withstand numerous environmental changes.

According to Siddha system of medicine the medicinal leeches are live in pure water which contain Salli (*Nymphaea stellata*), Neithal (*Nymphaea pubescens*) and Kotti (*Aponogeton monostachyon*) plants. Small size leeches are only used for treatment purpose.

Medicinal leech

There are about 600-650 species were found around the world, out of this only 15-20 are used for treatment purpose. *Hirudo medicinalis* is the commonly used leeches for treatment purpose in western countries. Poisonous leeches are found in muddy water, gutters, or in water which is contaminated by urine.

Type of leeches

The leeches are classified in to non-poisonous and poisonous. The poisonous leeches are lives along within frog and other water animals. They are comparatively bigger in size and darker in colour. After the application they produces severe pain, itching or allergic reaction

In Siddha system of medicine, the leeches are classified into three types (non- poisonous leech, poisonous leech and normal leech). Non-poisonous leeches are further classified into four class (class

I- white with light golden colour, class II- colour like of Senkaluneer, class III- coral like colour and rice sized, class IV- green or lemon colour). Poisonous leeches are Black, blackish-red, and rainbow like multicoloured.

Morphology of leech

The leeches are segmented worm. Fully matured adults can be up to 20cm in length. Its colour is green, brown or greenish brown with darker tone on the dorsal side and lighter on ventral side. It has two suckers, one at each end called anterior and posterior sucker. The anterior sucker is used for feeding.

Maintenance and storage of leech

The leeches are stored in well labelled container having multiple pores on the top for proper aeration. The temperature should be maintained around 5-27°C, the water of the container should be pure and de-chlorinated and should be replaced once in 3 days. The place should be darker and ventilated

Benefits of leech therapy

According to Siddha system of medicine Leech sucks impure blood from our body, so it is used to detoxify the blood and neutralise the vitiated Thrithodam.

Leech therapy procedure

The leech therapy procedure was elaborately described in Siddha classical text Agasthiyar nayanavidhi which deals the collection of leeches, storage of leech, preparation of patient, purification of leech, main procedure and post treat procedure.

Pre-leech application procedure

Purification of leech

The leeches are allowed into turmeric water for 5-10 minutes and then put into normal water.

Preparation of site used for leech application

The site is cleaned by pure water and then allowed to dry.

Preparation of patient

The patients are advised to take purgation previous day of leech therapy. The patients are also advised to take light food prior to procedure.

Main procedure

The leeches are applied in desirable site with gentle handling. The mouth will become round like suction cup when attached, the neck slightly arched. It will start to swell and can't move and then the leeches are covered with wet cloth during sucking period. The leech will swell up to 5 times of their size. After sucking the blood, the leeches fell down spontaneously within 30 to 70 minutes or it can be removed by applying turmeric powder on its mouth. Patient may lose up to 15 cc blood per leech, but wound may continue to ooze blood up to 50-150ml

Post leech application procedure

Purification of leech

After sucking, the leeches are inducted to vomit the blood, for that the turmeric

power is dusted on in its mouth or pressing the leech from caudal to front end, after that the leeches are allowed to swim in turmeric water followed by pure water, and then the leeches are stored in separate labelled container.

Components of medicinal leech saliva (Hiruda medicinalis)

The apparent benefits of leech therapy are that they help relieve venous congestion by removing excessive collective blood physically from congested tissue. From modern concept, as proved by various research studies, the efficacy of leech therapy is not only in the amount of blood that the leech ingested, but it is also by leech saliva which contains more than 100 biological active compounds which cause effect of leech therapy. The salivary glands secretion has analgesic, anti-inflammatory, bacteriostatic activity.

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

Contraindication of leech therapy

The leech therapy is contraindicated in Anaemia, pregnancy, allergic patients, in extreme cold and hot climate, bleeding disorders like haemophilia, children and old age people.

Sites which are not suitable for leech application mentioned in Siddha literature are testis, penis, breast, eyelid & other fleshy parts, pulsate part (Naadi Parkum Idangal).

CONCLUSION

This is concluded that the leech therapy was used in Siddha and other system of medicine for various medical and surgical conditions. The leech saliva contains more biologically active compounds. The Scientific studies on leech saliva were proven and support the leech application in Siddha system of medicine.

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