



Effectiveness of Attai Vidal (leech therapy) on Naala Vibatha Karappan (stasis eczema)

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ABSTRACT

Siddha Medicine is unique system of medicine in the Indian subcontinent and some other Asian countries of the globe. Based on Siddha medicine, diseases are classified in to 4448. Ailments could be treated by Internal medicine and also by External therapies. Treatment methods have been classified as 32 types of Internal medicine and 32 types of External therapies. *Attai vidal* (Leech application) is one of the external therapy, which comes under the classification of bloodletting. According to Siddha Medicine leech therapy is used for various diseases like skin diseases, Haemorrhoids, alopecia, varicose ulcer, wounds and etc. *Hiruda medicinalis* species of medicinal leech is used for this study. Effectiveness of medicinal leech therapy for relieving the *Naala vibatha karappan* (stasis eczema) is both mechanical and biological while leech application removes some of toxins accumulated in local parts of the body. Recent researches on leech saliva revealed that, presence of nearly 100 biologically active compounds such as hirudin, hyaluronidase and etc. Its saliva contains the properties of anticoagulant, analgesic, increasing blood flow and etc. Stasis eczema otherwise called gravitational dermatitis is causing when a problem with circulation in the veins, generally in the lower legs. 10 OPD patients were included in the study under the clinical symptoms of stasis eczema. The outcome of the study is evaluated by the EASI Score. It shows significance improvements between before and after treatment.

Keywords: Siddha Medicine, External Therapies, *Attai vidal*, Leach application, *Naala vibatha karappan* and Stasis eczema

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INTRODUCTION

Siddha Medicine is one of the most ancient unique medical sciences in the Indian subcontinent and some other parts of the Asian countries like Sri Lanka, Malaysia, Singapore and etc. Siddha medicine classifies the diseases on human being are 4448^[1]. These Ailments could be treated by Internal medicine and also by External therapies which were categorised as 32 types of Internal medicine and 32 types of External therapies. This system of medicine is a vast repository of external therapies particularly, administration of drugs through other than the oral route. The thirty two types of external therapies were include ophthalmic application, nasal application, aural application, physical manipulation therapies, heat therapy, bone settings, bloodletting and etc.^[2]. According to Siddha literature, *Attai Vidal* (Leech application therapy) is employed in twenty seventh place of external therapy under the bloodletting method^[3]. *Attai Vidal* is the method applying the medicinal leech over the affected area to absorb the blood.

Bloodletting by venesection is done in conditions where there is accumulation of blood in local area of the body. According to Siddha theory it is understood that blood is renewed, when ailments rise is due to derangement of blood impurity. The food we consume nourishes the seven physical

constituents called *Saptha Dhathukkal* (seven *Udal Kaddukal*). Unhealthy food leads to affect each of the seven body constituents starting from the *Saaram* (lymph) gets deranged. Blood accumulation and collection of pus and dirt blood conditions, the deranged blood is removed by *Kombu urinchal* (sucking out by using a bamboo tube or using horns of animals) or by *Keeral* (venesection) and *Attai Vidal* (Leech application). The therapy *Attai Vidal* is essentially used for traumatic swelling, tumours, sprain, skin diseases, alopecia, bleeding haemorrhoids, splenomegaly, amenorrhea induce head ache, arthritis, some kind of eye diseases and etc.^[4].

According to text of *Yugi vaithya sinthamani* the *Naala vibatha karappan* is described the symptoms resembles of stasis eczema in the Modern medical science^[5]. Stasis eczema is also called as gravitational eczema or venous eczema. It is a chronic endogenous dermatitis due to failure of immediate return of deoxygenated blood to the heart leading to skin changes.

ATTAI VIDAL IN SIDDHA LITTERATURE

The leech is classified into three types, which are Good leech, Bad leech and Ordinary leech. Good leech further classified into four groups^[2].

| GOOD LEECH | BAD LEECH | ORDINARY LEECH |
|---|---|---|
| 1 st group – White and Golden Colour 2 nd group – Red water Lilly Colour 3 rd group – Colour of Coral and shape of rice 4 th group – Green or lemon Colour | Different Colours, Black, Red and Rain bow. | Golden black Length – 5 to 10 cms. Sharp ends. Face appears in green colour. Outer skin will have six lines and there will be construction across the body. |

Properties and uses of leech

Medicinal leeches have the capacity of sucking blood up to 120 millilitres at time of one biting. The leech suck poisonous substances, accumulated blood and dirt from the area of bitten. It should not apply more than 04 – 06 leeches at a time of leech are placed on the body. Morning and day time is

the ideal time for leech therapy. Locations like prominent blood vessels, carotid arteries, jugular veins, and places where pulse could be felt should be avoided the leech applications. The leeches available in motionless water and which contains crabs, frogs and water snakes will not use for medicinal purposes^[4].

Components of medicinal leech saliva (*Hiruda medicinalis*)^{[6], [7] [8]}

| | |
|---------------|---|
| Hirudin | Inhibits blood coagulation by binding to thrombin |
| Calin | Inhibits blood coagulation by blocking the binding of von will brand factor to collagen, inhibits collagen mediated platelets aggregation |
| Destabilase | Monomerizing activity, Dissolve fibrin, Thrombolytic effects |
| Hirustatin | Inhibits Kallikrein, trypsin, chymotrypsin, neutrophilic cathepsin G |
| Hyaluronidase | Increase interstitial viscosity, Antibiotic Tryptase inhibitor Inhibits proteolytic enzymes of host mast cells |

| | |
|---------------------------|---|
| Eglins | Anti-inflammatory, Inhibits the activity of alpha - chymotrypsin, chymase, subatilisins, elastase, cathepsin G |
| Factor Xa 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 Vaso dilators Anaesthetic substances Anaesthetic |
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STASIS ECZEMA

It is otherwise known as gravitational eczema or venous eczema. It is a chronic endogenous dermatitis due to failure of immediate return of deoxygenated blood to the heart leading to skin changes. Incompetence of the deep perforating veins increase the hydrostatic pressure in the dermal capillaries. The extravascular blood contents get deposited along the capillary walls which further prevent diffusion of oxygen and other nutrients. Thus the skin becomes malnourished to develop oedema and dermatitis. Peri-capillary fibrin deposition leads to the clinical changes. Most patients are prone to this condition at middle aged or elderly women^[9, 10, 11, 12].

Clinical features

Dilated and torturing veins gradually lead to oedema of the affected leg is the earliest sign. It affects generally in the dorsum of foot, ankle, and lower third of the leg. Following by papules, papulo-vesicles, oozing, crusting develop at lower third of the leg and ankle. Redness, discoloured skin, scaling, dryness, itching, varicose, leg ache are also gradually develops. The swelling of the legs, especially around the ankle that subside while sleeping, but it returns in the day.

In severe cases of stasis dermatitis is shows; oozing, open areas (cracking or larger ulcer), infection, shiny skin, scars and cellulitis. Result of recurrent stasis dermatitis is more permanent changes in the skin of the affected area including, Lipodermatosclerosis (scar like changes in the fat and other soft tissues), Atrophied Blanche (white scars surrounded by tiny capillaries) and Lichenification (thickened skin due to chronic scratching or rubbing).

This dermatitis is often complicated by secondary infection and allergic dermatitis or contact dermatitis following the application of various medications including herbal products. Ulceration

develops due to infection or ensuing scratching or rubbing in the itch areas^[9,10,11,12].

AIM AND OBJECTIVES

Evaluate the efficacy of the leech application on *Naala vibatha karappan* (Stasis eczema).

Study design

This study was carried out as an open clinical trial with the 10 patients who were attended the Out Patients Department (OPD) of Ayothidass Pandithar Hospital, National Institute of Siddha, Tambaram Sanatorium, Chennai, Tamil Nadu, India.

MATERIALS AND METHODS

An open clinical trial was conducted with the 10 patients based on the clinical symptoms of Stasis eczema. The patients were selected from Out Patient Department (OPD) of *Aruvai* and *Thol Maruthuvam* division of National Institute of Siddha. The patients were selected by as per the inclusion and exclusion criteria.

The inclusion criteria included based upon their clinical signs and age group of the patients between 20 to 60 years old. The exclusion criteria included, patients having any secondary infections, Bleeding disorders, Heart diseases, Tuberculosis, Leprosy, HIV, Hepatitis and generalized Eczema. A specific case sheet was prepared and administrated with the patients involved in the study and examined in detail as per case sheet. Complete haematological investigations, Blood sugar, HIV I & II, HBS Ag, Monteux test and Urine examinations were carried out before and after treatment. The patients were included for study after taking written consent for ethical clearance.

DURATION

Minimum Four sittings of leeches carried out by 7 days interval. Number of leeches decided upon their basis of lesion two to four.

Contra-indication of leech therapy

- Blood clotting disorder.
- Severe anaemia.
- Allergic reaction to active substances of the leech such as hirudin, calin, eglina and etc.
- Human with weak constitution.
- Pregnancy.

Precaution of during leech application

- Bleeding and clotting time of the patient should be normal.
- Gentle handling of the leech.
- Cover the leech with wet cotton.

PRE OPERATIVE PROCEDURE

Medicinal leeches were stored in separated bottles. On the day after the general examinations of the patient placed proper position according to the site of lesions. Required number of leeches was kept into the turmeric water and to make them active. The keeping the leeches at least 45 minutes in fresh water for purify them.

PROCEDURE

Lesion was cleaned by sterile water and swipe with sterile cotton. The activated leeches were applied over the site of lesions. Leech become elevated like

a horse shoe or raised in an arched position and blood sucking motility movements in its body that they are indicates leech sucking the blood vigorously or strength fully. While sucking leeches were covered with wet cotton pad and regularly sprinkled with cold water. The leeches usually detach from the site after sucking the vitiated blood (approximately 60 to 75 minutes) or have to be removed by sprinkling turmeric powder over it when the patient complains pain or itching.

POST OPERATIVE PROCEDURE

After detachment of leech, the bite sites were cleaned and dressed with aloe pulp. The pulp of the aloe was dipped with turmeric powder. The leeches were allowed to vomit the sucked blood by using turmeric powder. If the leeches were not expelled the blood, gently squeeze the leech to expel the sucked blood. Then put into turmeric water for 05 to 10 minutes. After this procedure they were kept into normal water for 05 minutes and noticed the activities of the leeches and did not found any abnormalities they stored in separated bottle containing pure water. Patients' details were recorded over the bottle and after 7 days interval the leeches used for the particular patient. For every patient separate leech were assigned to avoid cross infection.



LEECH APPLICATION ON STASIS ECZEMA

RESULTS

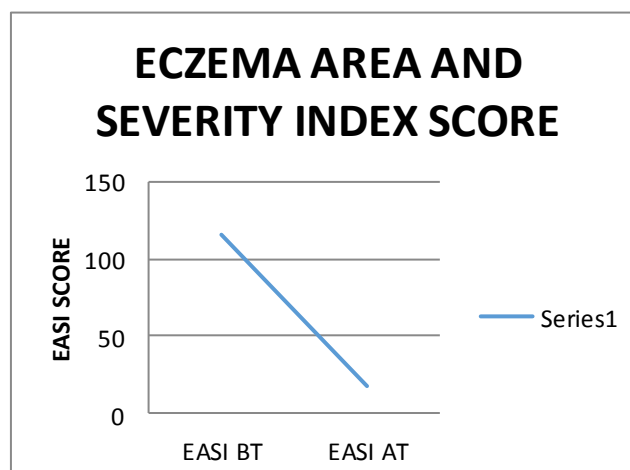
The assessment results were made by standard international scoring method of EASI Scale (Eczema Area and Severity Index score)^[13, 14]. The study was conducted by ten number of OPD patients. The average age of patients was 44.1 years old. 70% of patients were male remaining 30% of patients were female. 70% of patient has the

chronicity of the clinical symptoms on 01 to 05 years. 100% of patients had the clinical symptoms of Redness, Thickening, Scratching, Oozing, and Swelling. 90% of patients had Lichenification. The patients show over all leech application results reference with standard score of EASI scale was 100%. Based on the data analysis the result was indicated the significance of the study.

Table: Paired t test

| SCORE | OBS | MEAN | STD. DEV | Paired t test | P value |
|---------|-----|------|----------|---------------|-------------|
| EASI BT | 10 | 11.6 | 3.471791 | 10.8077 | P > t 0.005 |
| EASI AT | 10 | 1.8 | 1.240072 | | |

Chart: Eczema area and severity index score before and after the treatment of leech application on *Naala vibatha karappan* (Stasis eczema)



DISCUSSION AND CONCLUSION

According to the Siddha literature *Yugi vaithya sinthamani* described about *Naala vibatha karappan*, the symptoms of stasis eczema may be resembles to *Naala vibatha karappan*. Many Siddha texts explained the *Attai vidal* and benefits of it in the skin and other disease condition. It is a kind of bloodletting therapy which has more or less global acceptance is the leech therapy and it could be an immense help for the betterment of human life.

Leech application corrects venous hypertension, reduces vascular congestion due to presence of Carboxypeptidase A inhibitors, Histamine like substances & Acetylcholine, thus it venous valve dysfunction and extra vascular fluid perfusion. This prevents leakage of proteins and isolation of extra cellular matrix molecule and growth factors, thus helps to heal the wound.

Leech application has peripheral vasodilator effects due to presence of vasodilator constituent in the saliva which improves blood circulation and corrects "ischemia" around the skin lesions.

Leech application has Anti - inflammatory action on nerves due to presence of substance like Bdelins & Eglins in the saliva which prevents leukocyte accumulation in the surrounding vessels.

On the basis of the above study we can conclude that leech therapy is beneficial in reduction of Redness, Scratching, Itching, and Lichenification in the patients of Stasis eczema. With the help of leech therapy we can improve the quality of life of the eczema patients. We can avoid the hazards of prolong use of analgesic, anti-inflammatory drugs by using leech therapy.

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