THERAPEUTIC EFFECT OF *ATTAIVIDAL* (LEECH THERAPY) IN THE MANAGEMENT OF *"PURAMULI THABITHAM"* (LATERAL EPICONDYLITIS) - AN OPEN CLINICAL TRIAL

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DECLARATION BY THE CANDIDATE

I hereby declare that this dissertation entitled **"THERAPEUTIC EFFECT OF *ATTAIVIDAL* (LEECH THERAPY) IN THEMANAGEMENT OF *"PURAMULI THABITHAM*" (LATERAL EPICONDYLITIS) - AN OPEN CLINICAL TRIAL** is a bonafide and genuine research work carried out by me under the guidance of **Prof**.**Dr.N.J.Muthukumar,M.D(S),Ph.D,** Head of the Department, Department of **Varma Maruthuvam**, National Institute of Siddha, Chennai -47, and the dissertation has not formed the basis for the award of any Degree, Diploma, Fellowship or other similar title.

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BONAFIDE CERTIFICATE

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INDEX

INTRODUCTION

Siddha Medicine, a native Medicine of Tamilnadu, is the first system to emphasize health as the perfect state of physical, psychological, social and spiritual component so human being.Siddha System of Medicine, well known for its simplicity and credibility has been evolved by spiritual scientists called Siddhars.The advantage and unique feature is the removal of the root causes of the disease and perfect remedy for body and mind.

The human body is made up of Imboothangal i.e, Akayam, Vayu, Theyu, Appu, and Pirthivi in different combinations. The physiological function in the body is mediated by three uyirthathukkal (humours), which are also made up of these Impoothangal. They are Vatham, Pitham and Kabam. In each and every cell of the body, these three thathukkal co- exist and function harmoniously.

Thiruvalluvar in Thirukkural has mentioned that the derangement of the three humours i.e. Vatham, Pitham and Kabam is the main cause for the onset of diseases in our body. It is,

"மிகினும் குறையினும் நோய்செய்யும் நூலோர்
வளிமுதலா யண்ணிய மூன்று"

-திருக்குறள்[1]

The five elements constitute the three uyirthathukkal and their imbalance causes disease.The three thathukkal are made up of 5 elements. The five elements are Pirthivi, Appu, Theyu, Vayu and Akayam.

வாதம் - வாயு + ஆகாயம்
பித்தம்-தேயு
கபம் - பிருத்வி + அப்பு[2]

Tendon is one of the components of five elements i.e, Prithvi (earth) and this is indicated in Sathaka naadi,

சேரப்பா சடமாச்சு மண்ணின் கூறு
செறிமயிர் தோல் எலும் பிறைச்சி நரம்பைந்தாகும்"

தசை = பிருத்வி + அப்பு

Food habits and life style modifications of an individual and seasonal variation also plays an important role in causing disease by altering the three humours. It is also mentioned in Thirukkural as below,

"மாறுபா டில்லாத உண்டி மறுத்துண்ணி
னூறு பாடில்லை யுயிர்க்கு"

-திருக்குறள்[1]

"Siddha Medicine are classified as Internal Medicines (*Aga marunthugal* 32 types) and External Medicines (*Pura Marunthugal* 32 types)[1]. Apart from this Siddha medicine has a vast repository of external therapies and Special therapies like Varmam etc**.**

In several medical conditions, only the external therapies without any internal medication are sufficient and effective. These external therapy procedures are systematically mentioned in the Siddha literatures. Most of the therapies are aimed at maintaining healthy balance of three *Uyir thadhukkal* (physiological factors) and also seven *Udal kattukal* (tissues) of the body [2]. There are circumstances where administration of oral medicines becomes impossible hence to manage or treat the patient, management through external therapies like *Thokkanam, Pattru, Ottradam and Attaividal* (Leech therapy) or Special therapies like *Varmam* is used.

According to Siddha literature, *Attaividal* (leech therapy) placed in external therapy under the blood letting method. Types of Leech and medicinal application are explained in Siddha literatures [3,4]. *Attaividal* (leech therapy) is the method keeping medicinal leech over the affected area to absorb the impure blood. *Attaividal* (leech therapy) is essentially used for Traumatic swelling, Tumours, Sprain, Skin Diseases, Headache, Bleeding haemorrhoids, Splenomegaly, Amenorrhea induced head ache, Arthritis, some kind of Eye diseases. [5]

In Siddha System of Medicine, the diseases are classified into four thousand four hundred and forty-eight (4448)[6]. The disease ***Puramuli thaabitham*** is one among them. Siddha Medicines are very effective in treating chronic diseases and particularly degenarative diseases. The incidence of ***Puramuli thaabitham*** is considerably increasing now-a-days. A great number of patients are reporting daily in our Ayothidoss Pandithar Hospital for this disease.

Hence I have selected one of the Tendon injury ***"Puramuli thaabitham"***as my dissertation topic. In the stream of Siddha Medicine, we exclusively treat vaatha diseases

by Leech Therapy which is one of the bloodletting techniques. It not only cures the disease but also helps for rejuvenation.

AIM AND OBJECTIVES

AIM:

To evaluate therapeutic effectiveness of **leech therapy** in the management of ***"Puramuli Thabitham"*** **(Lateral epicondylitis).**

OBJECTIVES:

- To evaluate the improvement of clinical signs & symptoms of *Puramuli thabitham* (Lateral epicondylitis) patients before and after treatment of leech therapy.
- To study the Siddha basic principles towards effect of Leech therapy.
- To study the incidence of the disease with respect to age, gender, socio-economic status, habit and family history.
- To ascertain that according to the mukkutram theory, ‘’***Puramuli thaabitham"*** effect varies with respect to body constitution (prakriti), taste (suvai) and seasonal variation (paruvakalam).
- Relevant evidence from various Siddha literatures and other system of Medicine to beattached
- To know the correlation of aetiology, signs and symptoms of ***puramuli thaabitham*** in Siddha aspect with lateral epicondylitis in modern aspect.

REVIEW OF LITERATURE

3.1. SIDDHA ASPECT OF *KEELVAYU*

The *keelvayu* is the general term that includes all kind of joint disorders. In Siddha literature *Puramuli thabitham* is described under *keelvayu*. The elbow joint is affected by the vitiated *Vaatham, Pitham* and *Kabam.* It is a disease which is common in *Pitha kaalam* (middle 1/3 of the lifespan).

A) **TYPES OF *KEELVAYU*** [7]

There are ten types of *KeelVayu* which are mentioned in the textbook *"**Siddha Classic text**"*.They are

1.Vali keel vayu

2.Azal keel vayu

3.Iyya keel vayu

4.Vali azhal keel vayu

5.Vali iyya keel vayu

6.Azhal vali keel vayu

7. Azal Iyya keel vayu

8.Iyya vali keel vayu

9.Iyya azhal keel vayu

10.Mukkutra keel vayu

***A)** AETIOLOGY:*

1.**Environmental factors:** [8]

"வாத வர்த்தன காலமேதோ வென்னில்
மருவுகின்ற ஆனி கற்கட மாதம்
ஆதனைப் பசியோடு கார்த்திகை தன்னில்
ஆடருமே மற்ற மாதங்கள் தன்னில்
போகவே சமிக்கின்ற காலமாகும்"
யூகிவைத்திய சிந்தாமணி

In this Siddha classic literature, ***YUGIMUNI*** said that the *Vaatha* diseases are exaggerate in the month from *Aani* to *Karthigai* (June to December), hence the seasonal factors are involved and facilitate the *Vaatha* diseases.

"பதுமத்தைப் பூக்க வைக்கும் பானுமிகக் காயும்
முதுவேனிற்லிற்புவிநீர் முற்றும் - கதுமென
வற்றும் கபமிகும்வாயுமிகும் வாழ்மாந்தரங்க்
குற்ற நலிக் கேதிதென் றோது"

-சித்தமருத்துவாங்க சுருக்கம் [6]

In *muthuvenil kalam* due to the increased solar radiation leads to increased evaporation of water content from the body. In turn increases the *kabam* and *vatham* thathu from their normal level resulting in the production of *vaatha* diseases.

2. **Diet**: [6]

According to the Siddha classic text ***Pararasasekaram***, *Vatha* disease is caused due to the following reasons:

"தொழில் பெறு கைப்புகார்த்தல் துவர்த்தல் விசுங்கினுங்சோறும்
பழையதாம் வரகு மற்றைப் பைந்தினை யருந்தினாலும்
எழில் பெறப்பகலுறங்கி இரவினிலுறங்காத தாலும்
மழைநிகா குழலினாலே வாதங்கோ பிக்குங் காணே"

-பரராசசேகரம்

- Excessive in take of bitter, astringent, pungent taste food,
- Increased intake of old cooked rice
- In take of *vaatha* food substance like *varagu, thinai*
- Altered sleep pattern also contribute to *vatha* disease.

According to the Siddha classic text ***Sababathi kaiyedu,***

"வளிதரு காய்கிழங்கு வரைவிலா தயிலல் கோழை
புளிதயிர் போன்மிகுக்கு முறையிலா வுண்டி கோடல்
குளிர் தரு வளியிற் றேகங்குனிப்புற வுலவல் பெண்டிர்
களிதரு முயக்கம் பெற்றோர் கடிசெயல் கருவியாமால்"

-சபாபதிகையெடு

- Excessive intake of tubers
- Excessive in take of chill foods like curd.
- Wandering in chill air in evening time
- Getting drenched in rain
- Living in hilly region
- Sexual indulgence.
- Heredity

3. **HABITS** [6]

"தானென்ற கைப்போடுதுவர்ப்புவர்ப்பு
சாதகமாய் மிஞ்சுகிலும் சமைத்த அன்னம்
ஆனென்ற ஆறினது புசித்தலாலும்
ஆகாசத் தேற்றநீர் குடித்தலாலும்
யானென்றபகலுறக்கம் இராவிழிப்புப்
பட்டினியே மிகவுறுதல் பாரமெய்தல்
தேனென்ற மொழியார் மேல் சிந்தையாதல்
சீக்கிரமாய் வாதமது செனிக்குந்தானே"

-யூகிமுனி வைத்திய சிந்தாமணி

These are the factors that disturbs and increase *vaatham* in our body.

- Intake of food rich in bitter, astringent and sour in taste
- Intake of cold and old foods
- Sleeping in daytime.
- Lack of sleep
- Excessive starvation
- Sexual indulgence
- Weightlifting

4.**INVOLVEMENT OF MUKKUTRAM:** [9]

VAATHAM, PITHAM AND KABAM:

- *Viyanan* and *samanan* are affected in ***Vaatham***. Due to pain present in elbow joints.
- In ***Pitham***, *Sathagapitham is affected. Due* to difficulty in performing daily activities.
- *Santhigam* is affected in ***Iyyam***. Due to pain and crepitation present in elbow joints.

C)CHARACTERISTIC FEATURES OF *VAATHAM*:

"வாதமது கதித்த போது வாயுமெழும்புங் கண்டீர்
வாதமே கதித்தபோது வாயுவு வந்திடுஞ் சந்நிதோடம்
வாதமே கதித்தபோது வந்திடும் வியாதி மேலும்
வாதமே கதித்தபோது வல்லுடல் மெலிந்து கொல்லும்"

- அகத்தியர் சிகிச்சாரத்தின தீபம்

When the *Vaatham* is increased causes *sanni* and weight loss leads to death.

"வாத வீறுஅன்னமிறங்காது கடுப்புண்டாம் வண்ணமுண்டாம்.

மோதுகட்கு ரோகம் சுரமுண்டா மிருமலுமா முறங்காதென்றும்

தரியவாதமனலாகு நடுக்கமுண்டாம் பொருள் களயர்ந்த

தீதெனவே நரம்பித்து சந்துகள் தோறுங்கட க்குந் தினமுந்தானே"

-தேரையர்வாகடம்

When the *Vaatha* kuttram aggravates it will produce the following signs and symptoms:

- Loss of appetite
- Excruciating pain
- Fever
- Difficulty in the micturition and defecation
- Loss of sleep
- Shivering of the body
- Nervous weakness
- Joint pain.

SITES OF *VAATHAM:*

"நெளிந்திட்ட வாதமபா நத்தைப் பற்றி
நிறைந்திடையச் சேர்ந்துந்திக் கீழே நின்று
குளிந்திட்ட மூலமதூ டெழுந்து காமக்
கொடியிடையைப் பற்றியெழுங் குணத்தைப் பாரே"

"குணமான வெழும்பைமேற் றொக்கை நாடி
நிணமான பொருத்திடமும் ரோமக் காலும்
நிறைவாகி மாங்கிசமெல்லாம்பரந்து
கால்கட்டி வாதமெங்குங் கலக்குந் தானே"

வைத்தியசதகம்

According to Siddha classic text V***aithiyasathagam***, *Vaatham* dwells in the following places:

- Umbilicus
- Rectum
- Fecal matters
- Abdomen
- Anus

- Bones
- Hip joints
- Skin
- Navel plexus
- Joints
- Hair follicles
- Muscles.

PROPERTIES OF *VAATHAM*:

Vaatham helps the following function in our body

- It is the main vital humour for the function of seven *UDAL KATTUGAL*
- Helps to do all activities
- It stimulates and accelerates five *PULANGAL*

Natural properties of *Vaatham*: [9]

- Functioning of the "Seven *UdalKattukal*" uniformly
- Protection and strengthening of the five sensory organs (*Imporigal*)
- Giving briskness
- Expiration and Inspiration
- Regulationof the "Fourteen Physiological Reflexes" (*Vegam*)
- Functioning of the mind, thoughts and body

D) DIAGNOSIS:

The *Thirukural* quote explains the importance of diagnosis as it is to be made in order of the aetiology, root of cause of the disease thereby treating the disease with appropriate medicine.

"நோய்நாடி நோய்முத னாடி யதுதணிக்கும்
வாய்நாடி வாய்ப்பச் செயல்"

-திருக்குறள்.[1]

DIAGNOSIS IN SIDDHA:

In siddha system of medicine diagnosis of a disease is veryimportant.

***Piniyarimuraigal* (Method of Diagnosis)** is based upon three main principles,

1. *Poriyal Arithal* (Examination of Sensory Organs)
2. *Pulanal Arithal* (Examination of Sensory Functions)
3. *Vinaathal* (Interrogation)

1.PORIYAL ARITHAL (Examination of Sensory Organs):

PORI–SENSE ORGANS

"*Poriyal arithal*" means examining the "*Pori*" of the patient by the "*Pori*" of the physician for proper diagnosis.

Pori is considered as the "Five sense organs" of perception namely,

1. *Mei* (Skin)

2. *Vai* (Tongue)

3. *Kan* (Eye)

4. *Mookku* (Nose)

5. *Sevi* (Ear)

2. PULANAL ARITHAL (Examination of Sensory Functions):

PULAN–SENSE

Pulanal arithal means examining the "*Pulan*" of the patient by the "*Pulan*" of Physician. Pulan are five senses. They are,

1. Smell
2. Taste
3. Vision
4. Sensation of touch
5. Hearing

3.VINAATHAL (Interrogation):

Vinaathal is gathering information regarding the history of disease, its clinical features, major complaints, duration of illness etc., from the patient or his/her close relatives useful when the patient is not in a position to speak or in the case of a child.

***ENVAGAI THERVUGAL* (Eights types of Examination):** [9]

"நாடிப் பரிசம் நா நிறம் மொழி விழி
மலம் மூத்திரமிவை மருத்துவராயுதம்"
-தேரன்

It is a unique method of diagnosis in Siddha system of medicine. They are clearly explained by *Siddhar Theraiyar*;

***1.Naadi* (Pulse):**

"திருத்தமாம் வாதத்தோடே தீங்கோடு பித்தம் சேரிற்
பொருத்துகள் தோறும் நொந்து போதவே பிடிக்கும்"
நோயின்சாரம்

"வாட்டிடும் சேத்துமத்தில் வந்திடும் வாதமாகில்
நாட்டிய கால்கள் போல நரம்பெல்லாம்வலித்து நிற்கும்"
அகத்தியர்நாடி

"சொல்லிய ஐயத்தோடே பித்தமங் கூடிற்றானால்
சல்லியம் போலக்குத்தும் மைந்தனே எலும்பும் தோலும்"
காவியநாடி

- When *Pitham* gets vitiated, it accompanies with *Vaatham* and causes pain in every joints
- When *Kabam* and *Vaatham* are vitiated, pain occurs in the nerves and extremities.
- When *Pitham* vitiated with *Kabam*, it results in stabbing pain in bones and joints.

In *Puramuli thabitham* the following *Naadi* can be seen commonly*: Vaathapitham, Vaathakabam, Pithavaatham, Pithakabam* and *Kabavaatham*

***2.Sparism* (Sensation to touch):**

In *Puramuli thabitham,* mild warmth noticed over the affected joint.

***3. Naa* (Tongue):**

In *Puramuli thabitham* no abnormality is seen in *Naa*.It is useful to diagnose the patient who is anemic.

4. Niram (Colour)

In *Puramuli thabitham,* no abnormality is seen in Niram.The skin complexion is used to diagnose the body constitution of the patient.

***5.Mozhi* (Voice)**:

It constitutes high, low-pitched voice, nasal speech, hoarseness of voice, slurring and incoherent speech etc. In *Puramuli thabitham*, no abnormalities are seen normally.

***6.Vizhi* (Eyes):**

Both motor and sensory disturbance of eye are noticed. Redness of eyes, paleness, excessive lacrimation, swelling, corneal ulcers, sunken eyes maybe noted for.

In *Puramuli thabitham*, no abnormalities are seen normally.

***7.Malam* (Feces):**

- *Vaatha* type : Black coloured stools with constipation.
- *Pitha* type : Loose stools with yellowish red colour
- *Kaba* type : White coloured stools with mucous
- *Thontha* type : Stools passess some of the features of two humours.

***8.Moothiram*: [15]**

Neerkuri and *Neikuri* (Oil on urine sign) are special diagnostic methods regarding urine (*Moothiram*).

***a) NEERKURI* (Physicalexamination of urine): [9]**

Prior to the day of urine examination, the patient is instructed to take a balanced dietand quantities of food must be proportionate to his routine intake. The patient should have no sound sleep. After waking up in the morning, the first urine voided is collected in a clear wide mouthed glassbowel and is subjected to analysis of "*Neerkkuri* and *Neikkuri*" within1½hour.

"வந்த நீர்க்கரி எடை மணம் நுரை எஞ்சலென்
றைந்திய லுளவை யறைகுது முறையே"
சித்த மருத்துவாங்கச்சுருக்கம்

Voided urine has the following characters

1. Niram -Colour
2. Edai -Specific Gravity
3. Manam-Smell
4. Nurai -Frothy nature
5. Enjal -Deposits

Apart from these, the frequency of urination, abnormal constituents such as sugar, protein, presence of blood, pus, also to be found out. In *Puramuli thabitham*, patient pale yellow coloured urine was noticed.

b) NEIKKURI (Oil on urine sign):

The process of dropped gingely oil indication

"நிறக்குறிக் குரைத்த நிருமண நீரிற்
சிறக்க வெண்ணெய்யோர் சிறுதுளி நடுவிடுத்
னின்றதிவலை போம் நெறிவிழியறிவும்
சென்றதுபுகலுஞ் செய்தியை யுணரே"

நோய் நாடல் நோய் முதல்நாடல் திரட்டு – பாகம்[9]

The collected specimen was examined by the following method. The collected urine specimen is kept in a glassbowel and observed under direct sunlight without shaking the vessel. Then add one drop of gingely oil and observe the spreading pattern and concludes as follows,

"அரவென நீண்டீடின் அஃதே வாதம்
ஆழிபோல்பரவின் அஃதே பித்தம்
முத்தொத்து நிற்கின் மொழிவதென் கபமே
அரவில் ஆழியும் ஆழியில் அரவும்
அரவில்முத்தும் ஆழியில்முத்தும்"

-நோய் நாடல் நோய் முதல் நாடல் திரட்டு[9]

- When the oil drops lengthen like a snake it indicates 'Vaatha Neer'
- When the oil drops spread like a ring it indicates 'Pitha Neer'
- When the oil drops remain like a pearl its indicates' Kaba Neer'

***UDALKATTUGAL* (BodyConstituents):** [9]

In *Puramuli thabitham Saaram, Kozhuppu and Enbu uthathukkal* are commonly affected**.**

1.Saaram : Weakness,pain in elbow joints

2.Kozhuppu : Morning stiffness occurs in affected elbowjoints

3.Enbu : Pain occur in affected elbow joints & crepitations

E) MUKKUTRA VERUPAADU (PATHOGENESIS)

Human body is influenced by Mukkutram i.e, *Vaatham, Pitham and Kabam.* They are responsible for normal physiological conditions of the body.

***VAATHAM* (Bio Energy of Movements):**

Vaatham is mainly responsible for proper loco-motor functions. Bones and joints are considered to be the main location of *vaatham*. In *Puramuli thabitham* the *vaatha kutram* is mainly affected followed by *Pitham* and *Kabam.* This produces the following signs and

symptoms, Vitiated *viyanan* leads to pain and difficulty in movements. Vitiated *Abanan* leads to constipation.

- In *Puramuli thabitham, Abanan* is affected and so constipation is produced.
- *Viyanan* is affected it renders difficulty in movements of the elbow joints.
- *Samanan* is also affected because disturbed state of other *Vaayus*.

PITHAM (Bio Energy of Fire):

In *Puramuli thabitham, Sathaga Pitham* affected and produces difficulty in flexion and extension, difficulty in weightlifting.

KABAM (Bio Energy of Water):

Kaba kutram stabilizes and maintains the movements of the joints and gives lubrications to all movements.

In *Puramuli thabitham, Santhigam* is affected and produce difficulty in movements of the elbow joints.

***NOI KANIPPU VIVATHAM* (DIFFERENTIAL DIAGNOSIS): [7]**

Puramuli thabitham is differentiated from the following diseases,

1.VALI KEELVAYU:

It is characterized by excruciating pain and swelling involving knee joints, hip joints, elbow joints, shoulder joints and associated with systemic disturbances like dryness of mouth, pyrexia, headache, palpitation, constipation and sweating. In advanced cases it may affect the heart

2.IYA KEELVAYU:

It is characterized by severe pain in the joints associated with emaciation of the body, Anorexia, Insomnia, Cough, Hiccough, Vomiting, Anaemia and Dropsy. The common sites are spinal cord, hip joints and kneejoints.

3.VALI IYA KEELVAYU:

It is characterized by pain in the joints associated with effusions of joint fluid and Swelling, Restricted joint movements, Pyrexia, Fainting, Insomnia, especially in joint Asymmetrically, Lymph Adenopathy, Generalized Malaise, Atrophy of the affected limb etc. The affected joint looks like “Fox‟s Head”.

G) LINE OF TREATMENT:

In Siddha system the main aim of the treatment is to cure *Udarpini* (due to *Mukkuttram*) and *Manapini (*due to changes in *Mukkunam*). Treatment is not only for

perfect healing but also for the prevention and rejuvenation. It is essential to know the disease, the aetiology, the nature of the patient, severity of the illness, the seasons and the time of occurrence must be observed clearly.

"நோய்நாடி நோய்மு தனாடியது தணிக்கும்
வாய்நாடி வாய்ப்பச் செயல்"

Thiruvalluvar says in "Thirukkural" about physician's duty to study the disease, study the cause, seek subsiding facts and do what is proper and effective.

Line of treatment is as follows:

1. *Neekkam* (Treatment)
2. *Niraivu* (Rejuvenation)
3. *Kaapu* (Prevention)

Rules for healthy living has been quoted in Patharthaguna chinthamani as follows,

"திண்ண மிரண்டுள்ளே சிக்க வடக்காமற
பெண்ணின்பா லொன்றைப் பெருக்காமல் - உண்ணுங்கால்
நீரசுரக்கி மோர்பெருக்கி நெய்யூரக்கி யுண்பவர்தம்
பேருரைக்கிற் போமே பிணி"

-தேரையர்

Treatment

- விரேசனம்
- உள்மருந்து
- வெளிமருந்து
- பத்தியம்

Viresanam (Purgation):

"விரேசனத்தால் வாதந் தாழும்
வமனத்தால் பித்தம் தாழும்
நசிய அஞ்சனத்தால் கபம் தாழும்
துகின்ற மலக்கட்டை யொழிய வைத்தால்
உடலிலுள்ள வாதையெலா மொடுங்கிப் போகும்
அறிந்திடும் வாதம் அடங்கும் மலத்தினில்"

For purgation, Meganathakuligai 2 with hot water was administered at early morning empty stomach before starting the treatment to bring the vitiated Uyirthathukkal to normal.

***1) NEEKKAM* (Treatment in Siddha):[(11)]**

Siddha system of Medicine is based on Mukkutra Theory.Hence the treatment is mainly aimed to bring the vitiation of three humours to equilibrium state and thereby restoring the physiological condition of the seven *Thathus*. The three Humours organise, regularize and integrate the body structure and their functions. They are always kept in a state of balance bythought, word, deed and food. Any imbalance will lead to disease. The imbalanced humours are balanced by administrating purgatives or emetics or application of *anjanam* (applicationon eyes) and followed by the appropriate systemic therapy by giving drugs.

***2) NIRAIVU* (Rejuvenation):**

Physical, psychological, social and economic rehabilitation and reassurance of individuals is known as *Niraivu.*The word literally means the power of securing the body from the effect of age. According to Siddhars science rejuvenation does not necessarily mean restoring the old to youth for it may simply mean the maintenance of youth without reaching the oldage. So rejuvenation is a means for prolonging life& form is a part of immortality.

***3) KAPPU* (PREVENTION):**

The prevention methods for *Puramuli thabitham* are as follows:

- Control the body weight by diet and exercise.
- Modify the nature of work which gives stress to a particular joint.e.g.–Avoid weightlifting.
- Avoid excessive intake of sour, astringent and bitter tasted foods.

H) DIETARY RESTRICTIONS:

In Siddha system of medicine, the importance of dietary habits also emphasized for the diseases management and prevention.

In diseased condition diet restrictions or *pathiyam* are strictly followed to increase the effectiveness of medicine, and to reducing the severity of diseases. This is given in the following verse,

"பத்தியத்தினாலே பலன் உண்டாகும் மருந்து
பத்தியங்கள் போனால்பலன்போகும் - பத்தியத்தில்
பத்தியமே வெற்றிதரும் பண்டிதர்க்கு ஆதலினால்
பத்தியமே உத்தியென்று பார்" - தேரையர் வெண்பா.

இச்சா பத்தியத்தில் நீக்கும் பொருட்கள்:

- கடுகு
- எள்நெய்
- கல்யாண பூசணிக்காய்
- கள்
- கடலை
- தேங்காய்
- மாங்காய்
- பலா
- காயம்
- உள்ளிப்பூண்டு
- கொள்
- புகையிலை
- பெண்கள் சேர்க்கை
- பாகல்
- அகத்தி இவைகளை இச்சாபத்தியத்தில் நீக்கவேண்டும்.

மருத்துவ அறிவுரை:

"புளிதுவர் விஞ்சும் கறியால்பூரிக்கும் வாதம்"

-நோய்நாடல் நோய் முதல் நாடல் திரட்டு

- புளிப்பு, துவர்ப்பு சுவையுள்ள உணவு வகைகளை நீக்கவேண்டும்.
- ஈரமில்லாத்தரையிலும், படுக்கையிலும் படுத்தல் வேண்டும்,
- குளிர்காற்றுபடும்படியான இடத்தில் இருப்பதைத் தவிர்க்கவும்.
- அதிக எடை கொண்ட பொருட்களை தூக்குவதை தவிர்க்க வேண்டும்

MODERN ASPECTS

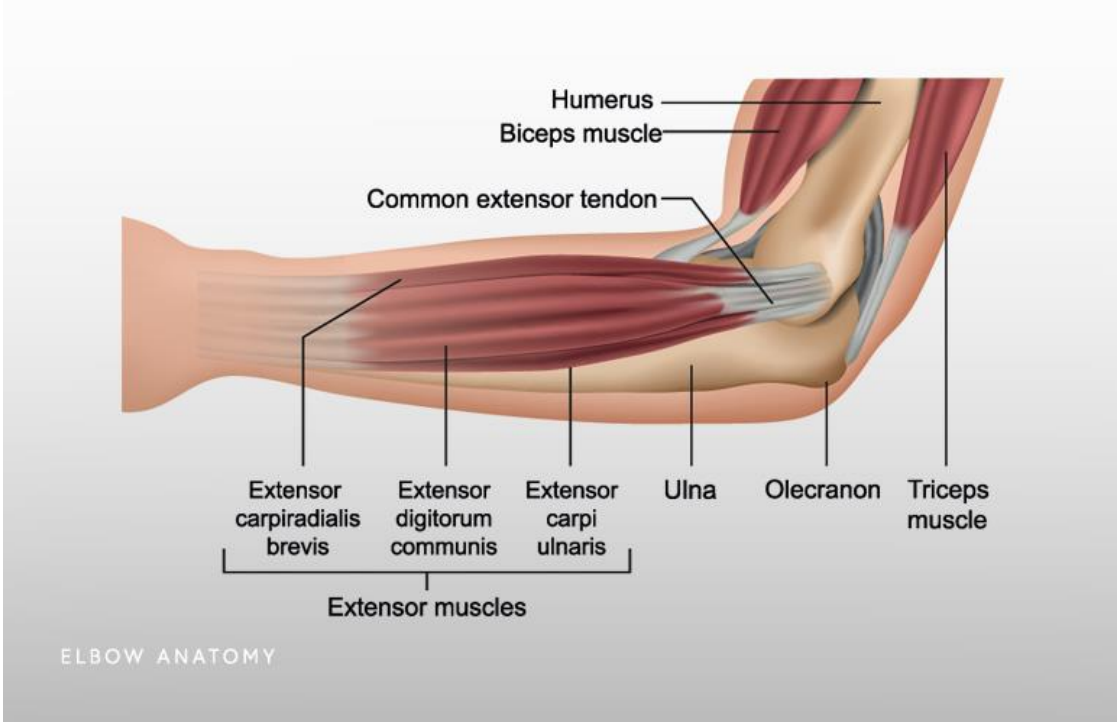
1)ANATOMY OF JOINTS: [12]

Joints can be classified as synovial, fibrous, or combination joints, based on the presence or absence of a synovial membrane and the amount of motion that occurs in the joint. Normal synovial joints allow a significant amount of motion along their extremely smooth articular surface.

The joints are composed of the following:

- Articular cartilage
- Subchondral bone
- Synovial membrane
- Synovial fluid
- Joint capsule.

1.Anatomy



The elbow joint is provided by the bony anatomy and the ligaments, which are actually specialized thickening of the joint capsules [13].

The **radial collateral ligament** is commonly described as originating from the lateral epicondyle and terminating diffusely in the annular ligament [14] , McVay [13] and Wadsworth have described the lateral collateral ligamentous structures as a single

complex.

The **lateral ulnar collateral ligament** arises posterior to the radial collateral ligament and passes superficial to the annular ligament to attach to discrete to bony tubercle to the ulna.

The anterior joint capsule inserts proximally above the coronoid and radial fossae. Distally, the capsule attaches to the anterior margin of the coronoid (medially) as well as to the annular ligament (laterally).

The anterior portion is taut in extension and become lax with flexion. The posterior portion of the capsule is attached proximally just above the olecranon fossa and along the medial and lateral margin of the trochlea. Distally, attachment is along the medial and lateral articulation margin of the sigmoid notch, and laterally along the lateral aspect of the sigmoid notch to form the confluence with the annular ligament [(15)].

1.1Bursae

The literature varies greatly on the number and importance of bursae located about the elbow [13]. Lanz and Wachsmuth [16] describe **seven bursae**, including three associated with the triceps.

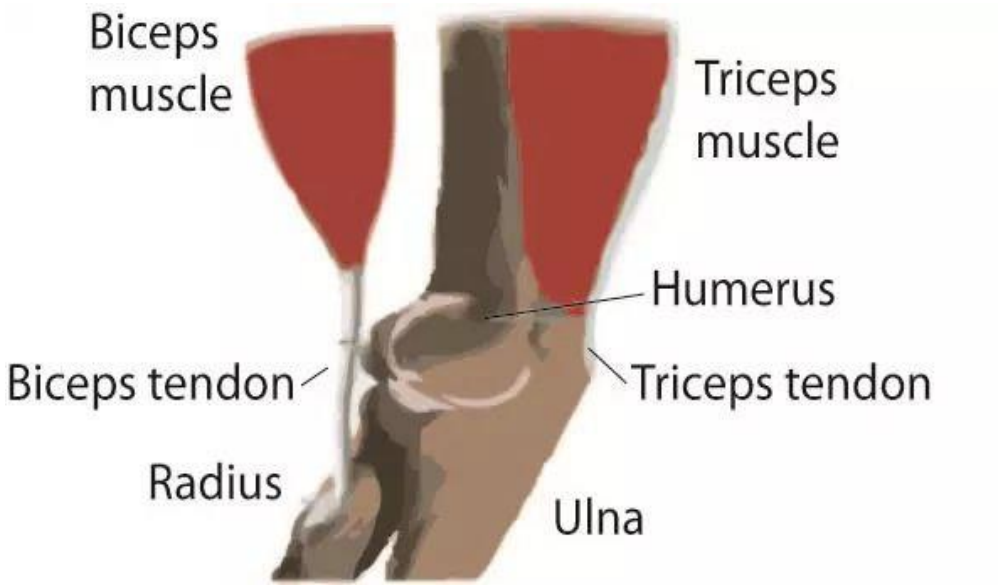
The best known and consistent is the **superficial olecranon bursa** located between the olecranon process and the subcutaneous tissue.

The **radiohumeral, or sub extensor carpi radialis brevis,** bursalies deep to the common extensor tendon, below the brevis and superficial to the radiohumeral joint capsule.

This bursa has been recognized and implicated by several authors[13] in the etiology of lateral epicondylitis. McVay [13] indicated that radioulnar bursitis may occur from the irritation of repeated or violent extension of the wrist with the forearm pronated. Goldie et al[17], however found no involvement of the bursae in elbows examined. His investigation identified the presence of a sub tendinous space near the extensor carpi radialis brevis attachment to the lateral epicondyle that was filled with granulation of the muscle tissue, hypervascularized and edematous in patients with tennis elbow [17].

1.2.Musculo tendinous structure:

The **extensor carpi radialis longus** originates from the supracondylar ridge below the origin of the brachioradialis. This attachment is between the brachialis medially and the extensor carpi radialis brevis inferolaterally [18].



The extensor carpi radialis longus crosses the elbow and carpal joint to insert into the dorsal base of the second metacarpal and is covered by the brachio radialis over most of the forearm. Its function is that of wrist extension, radial deviation, and possibly elbows flexion.

Originating from the lateral inferior aspect of the lateral epicondyle, the **extensor carpi radialis brevis** origin is the most extensor group. The extensor carpi radialis brevis is covered by the extensor carpiradialis longus and its fibers are almost in distinguish able from those of the extensor carpi radialis longus and extensor digitorum communis in most cases. The extensor carpiradialis brevis muscle also has additional attachment to the radial collateral ligament and the intermuscular septa between it and common extensor muscle[19].

The **extensor carpi radialis brevis tendon** inserts to the dorsal surface of the base of the metacarpal bone. Pure wrist extension with some assistance in radial deviation is the main functions of the extensor carpiradialis brevis.

The **extensor digitorum communis** originates from the anterior distal aspect of the lateral epicondyle and accounts for most of the contour of the extensor surface.

Parts of the extensor digitorum communis are also attached to these tendon from which the extensor carpiradialis brevis arises[19]. The extensor digitorum communis insertion contributes to the extensor mechanism for the index, long, ring, and little fingers. In addition to the extension of the wrist and the digits. Wrightetal suggests that the

extensor digitorum communis may assist with elbow flexion when the arm is pronated.

1.3 Epidemiology

The incidence of lateral epicondylitis varies from approximately 1% to 3% in the general population to more than 50% among amateur tennis players [20]. However, tennis players account for only about 5% of all suffers of lateral epicondylitis [21]. Hence, "Tennis elbow" is a misnomer [22].

Lateral epicondylitis is equally common among men and women, Occurs more frequently among whites and in the dominant arm, and increases with age, peaking between the ages of 30 and 50 [23], with a mean age 42 [24].

It seems to occur equally among blue collar and white collar workers and among socio economic classes [23].

The natural course of the condition seems to be favourable, with spontaneous recovery within 1–2years in 80–90% of the patients; however, there is very little scientific data available on the natural history of the disease [25].

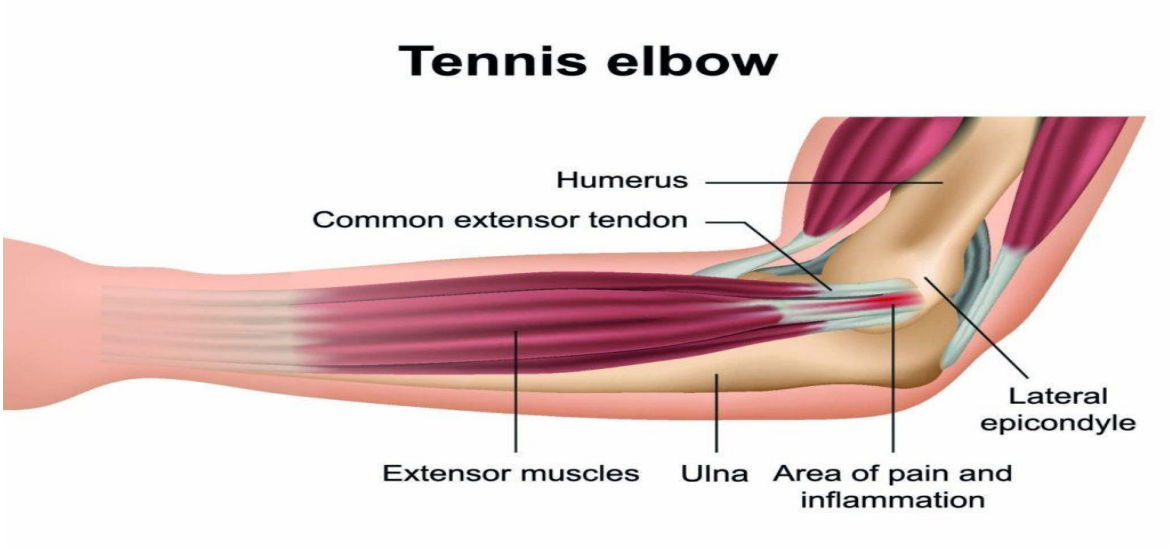
It is often caused by overuse or repetitive strain caused by repeated extension (bending back) of the wrist against resistance. This may be from activities such as tennis, badminton or squash but is also common after periods of excessive wrist use in day-to-day life and it may becaused through

1.4 CONTRIBUTING FACTORS

- Strings that are too tight or raccuets.
- Playing with wet, heavy balls.
- Repetitive activities such as using a screwdriver, painting or typing.
- Weak muscles
- Overuse –playing or working with excessive and repetitive forceful gripping while extending or twisting of the wrist.
- Improper equipment-incorrect grip size, tools that are too heavy or unbalanced.
- Poor playing technique-too much wrist action, jerky strokes, poor ball cantact.

1.5. Pathophysiology:

Pain around the lateral epicondyle is known by a variety of names, and was described as periostitis, ex-tensor carpiradialis brevis (ECRB) tendinosis and epicondylagia.



The most used names are "**tennis elbow"**and "**lateral epicondylitis".** The use of term **periostitis"** and "**epicondylitis"** was questioned overtime, as histological studies failed to show inflammatory cells (macrophages, lymphocytes and neutrophils) in the affected issues.

Microscopically, studies by Nirschl et al., showed mainly fibroblastic tissue and vascular invasion that led him to describe the condition in 1999 as "angiofibro blastic tendinosis" [26].

This is true particularly if Tennis Elbow is considered to be related to tendon pathology. A multifactorial model has been proposed by researchers to contribute to the related development of pain and disability with psychological factors, central sensitization and/or other CNS-mediated factors potentially playing roles in the onset and prognosis of the condition

These finding felt the researchers to conclude that a more appropriate term for the condition is "lateral elbow tendinosis" which defines a degenerative process characterized by anabundance of fibroblasts, vascular hyperplasia and unstructured collagen. The term tendinosis or tendinopathy implies the absence of chemical inflammation [27]. It has been postulated that tendinosis or tendinopathy is acquired by overuse of a hypovascular zone, which leads to subsequent neovascularisation [28].

Kraushaarand Nirschl[29] described tendinosis as a tennis elbow condition characterized by degenerative changes of the common extensor tendon tissue. Tissue studies conducted via immune histochemical analysis have revealed degenerative changes involving fibroblasts, blood vessels and collagen.

Tendinosis is confirmed with the presence of angiofibroblastic hyperplasia, and the absence of cell type involved in inflammation.

STAGES

Kraushaar and Nirschl described four stages of tendinosis that may assist the therapist in determining what type of intervention to provide the patient [29].

- **Stage 1** is described as a peritendinous inflammation. This stage is what most clinicians refer to as tendinitis. Crepitus is usually palpable over the common extensor tendon.
- **Stages2,3 and 4** refer to the presence of angiofibroblastic degeneration.
- **Stage4** being the most severe. Due to fibrosis, stage may lead to tendon rupture and stage4 to calcification

Despite the absence of inflammatory cells, the condition is painful. Recent studies showed sensory fibers containing Substance-P and CGRP (Calcitonine gene-related peptide) like immune reactivity in the origin of the ECRB.The presence of the seneuropeptides, which is limited to a group of small vessels, impilse the possiblility neurogenic inflammation as a cause of the percieved pain.

1.6. Neuro chemical response

Despite the absence of inflammation, patients with tennis elbow complain of pain, particularly with abusive or aggravating activity. Two tissue studies have identified the presence of neuro chemicals with the tendon of the ECRB [30]. Significant levels of Substance-P and Calcitonin gene related peptide were reported within the ECRB tendon in patients with chronic tennis elbow with an average duration of symptoms of 22.7 months[30].

1.7. Signs and symptoms

The onset of pain is usually gradual. The force generated by muscle contraction may not produce pain until healing has begun and there is some adhesion between the tendon and the inflamed periosteum[31].With repeated microtrauma, an inflammatory condition of the periosteum may develop, which can lead to formation of granulation tissue and adhesion.Swelling or eccymosis is rare, except in cases of external trauma.The arm is painless at rest and during passive range of motion.Granulation tissue contains a large number of free nerve ending which may be responsible for increased tenderness on palpation [22].

Tenderness is most not able at the anterior aspect of the lateral epicondyle and the lateral forearm. Palpation of the radial collateral ligament may elicite exquisite tenderness and is usually increased with varus stress to the elbow. Grip strength may be decreased, but the articular and neurological signs are normal.

In severe cases, pain at rest occurs along with varying decreases of motion at the extremes of flexion and extension. In most cases, the lesion will involve the junctional tissue at the common extensors muscle origin of the lateral epicondyle, specifically the extensor carpiradialis brevis [22]

If the extensor carpi radialis brevis is involved, extension of the wrist will be more painful if resistance given at the heads of the metacarpals rather than at the fingertips [32]. Radial extension will more specifically indicate extensor carpiradialis brevis or extensorcarpi radialis longus. Pain with resisted extension of the middle finger is present when the extensor carpiradialis brevis is involved [30].

Tenderness above the epicondyle will indicate that the extensor carpi radialis longus is involved, while anterolateral tenderness would arise from extensor carpi radialis brevis tissue inflammation. Ulnar extension will provoke the extensor carpi ulnaris. Radial and ulnar extensions involve the extensor digitorum communis, but most authors agree that involvement of the extensor digitorum communis and extensor carpi ulnarisis rare [32].

1.8. CLINICAL ASSESSMENT:

- Pain or burning sensation on the outer part of the elbow
- Sometimes pain at night
- Tenderness, stiffness and weakness around the elbow
- Weak grip strength
- Painful movement in open a door or shake hands, lift something, raise your hand or straighten your wrist.

SPECIAL TEST:

The following tests are Confirmative tests for Lateral epicondylitis:

1. **Mill's test**
2. **Cozen's test**
3. **Chair pickup test**

1. Mill's test:

- Patient is seated.
- The clinician palpates the patient's lateral epicondyle with one hand, while pronating the patient's forearm, fully flexing the wrist, the elbow extended.
- A reproduction of pain in the area of the insertion at the lateral epicondyle indicates a positive test.[23]

2. Cozen's test:

- The patient is asked to move the wrist to dorsal flexion and the therapist provides resistance to this movement, in the position described above.
- The test is positive if pain on the lateral epicondyle is elicited. (34)

3. Chair pickup test:

- Bend over until the top of the head rests on the wall (be sure to keep the legs straight).
- Finally, have somebody slide a chair under the chest. Lift the chair off the ground while keeping the head on the wall and try to stand up. (34]

1.9 INVESTIGATION:

- **MRI** is sensitive but not specific a recent study by Jeon and colleagues found that when MRI is combined with clinical assessment, it can help to facilitate management planning for tennis elbow.
- **Ultrasonography** detected tendopathic changes on 90% affected and 50% unaffected tendons. It also detects tendon tears, calcification, and bony irregularity.
- **Negative Ultrasound** can be used to rule out Tennis Elbow
- **MRI, CT, or magnetic resonance arthrography** can be used to detect other pathologies such as loose bodies articular cartilage damage, ligament injury, or elbow synovial fold (plica) syndrome
- Tendon neovascularisation in LE has been detected with **Doppler ultrasound** and correlated with degenerative tissue on biopsy. The absence of both tendon neovascularity and grey-scale changes was shown to rule out Lateral Tennis Elbow

as a diagnosis and should prompt further investigation. Neovascualrity wasn't a back to top associated with pain severity or function.

1.10. DIFFERENTIAL DIAGNOSIS:

- Radial tunnel syndrome.
- Posterior interosseous nerve.
- Cervico brachialgia.
- Rotator cuff injuries and joint abnormalities such as synovitis, intra-articular free bodies, post-traumatic osteoarthrosis and liga-ment injuries.
- Medial epicondyle.
- Arthritis.
- Non specific arm pain.

BLOOD LETTING:

A person gets disease either because of his food habits or actions. His physical constituents are deranged. This is rectified initially by purgative, emetic, diaphrotic or nasal application methods. But in the later stages the impured blood is removed by blood letting. Blood letting is done by

1. Leech application
2. Sucking using hollow horns (drains) and
3. Venesection (incisions of the bloodvessel)

Blood letting is done in Psychiatric illness, diseases of the Head, Ear Eye and Tongue, Colic Pain, Elephantiasis, Swelling in the Neck, Infective Mono-Arthritis, Lumbago, diseases of the blood caused by deranged Vatham, Pitham and dermatological conditions. Blood letting should not be done in respiratory diseases, inclusive of Tuberculosis, Paralysis of the whole body (quadriplegia), Convulsion, Jaundice, and Anaemia.

This should not be done to a person who is frightened, drunkard, dancer, involved in sexual activity, do not posses the manly qualities, children, elders, and persons not afflicted with any disease. But if any person is suffering from a poisonous bite and if there is a danger for his life (i.e acute condition) blood letting may be done.Blood letting should not be done in a cloudy or a windy day for the bleeding will not be proper.

- A Compendium of Siddha Doctrine

அட்டைவிடல் - Leech Therapy

Leech application to locally affected areas, blocks in blood vessels or swelling is known as ***Attai- vidal.*** A treatise compiled by Dhanwantri on the art of healing using leeches; a science on leech-craft. Attaividal is defined as application of leech in part of the body for sucking the blood for the purpose of curing the disease.

"அட்டையின் விதிதனை யறிய யாவருந்
திட்டம் தாகவே செப்ப வுன்னினேன்
மட்டமர் குழலினாள்வரன ளித்திடும்
இட்டவி நாயகன் இணையடிபோற்றியே"

-அகத்தியர் நயன விதி ஐந்நூற்று (35)

இருப்பிடம்:

ஆழமில்லாததும் ஆழமுடையதுமான தெளிந்த நல்ல நீரில் அல்லி, நெய்தல், கொட்டி போன்ற மணமுள்ள செடிகள் இருக்குமிடங்களில் கிடைக்கும். மற்றும் இது, மணலின்கீழ் மறைவாக ஒதுங்கிக்கிடைப்பதும் உண்டு.

இவ்வட்டையைப் பிடித்து முக்கால் பாகம் நீருள்ள வாயகன்ற கண்ணாடிப்புட்டியில் விட்டு அந்நீரில் உணவுக்காகச் செவ்வல்லி. கொட்டி. பசுமஞ்சள் இவற்றின் கிழங்குகளிலொன்றை அரைத்துச்சேர்த்து, இவ்வட்டைபற்றிக் கொண்டு உறங்க இலைகள் இட்டு, புட்டியின் வாயை ஒரு மெல்லிய துணியால் முடி, அடிக்கடி நீரை மாற்றிக் கொண்டு வந்தால் பலதிங்கள் உயிருடன் வாழும்.

"ஆதியோ தியவே தத்தில் அட்டைக்கு மேனி யுந்தான்
ஏதெனில் பல்லு மூன்று மியன்ற அஞ்சடுக்குத் தோலும்
ஓதிய முகமும் பச்சை உதிரமுஞ் சிவப்பாய் பின்னை
தீதலாப் பக்க மிரண்டும் பருத்திடும் நரம்புசேரும்
அரவின்வாய்த் தேரைப்போன்றும் அணி மழுத்தலையே போன்றும்
பருதியின் பைங்கண் போன்றும் பலமணி சிதறி ணற்போல்
விரவியே பல்நெ கிழ்ந்து மெத்ததெனக் கடிக்கும் அட்டை
கருதியே காலன் தன்னைக் கட்டிடுங் காயந் தானே.
வெள்ளை நிறத்தான் வேதியனார் மிகுசெங்கழுநீர் சத்திரியன்
சொல்லும் பவளம் வைசியனாஞ் சூத்திர னெலுமிச் சம்பழமாங்
கல்லைப் போலக் கதித் தெழுந்த கருது புறத்தில் விடுவீரேல்
மெள்ள க்கரைத்திட் டோடுமென விளம்பிச்சொன்னோம் மேதினிக்கே"

-அகத்தியர் நயன விதி ஐந்நூற்று

வகைகள்:

அட்டை மூன்று வகைப்படும். அவை நல்ல அட்டை, தீய அட்டை, சாதாரண அட்டை எனப்படும். இவற்றுள்

1) **நல்ல அட்டை** நான்கு வகைப்படும்.

- முதல்வகுப்பு – வெண்மையும் சிறிது பொன்நிறமும் பொருந்தியிருக்கும்,
- இரண்டாம்வகுப்பு – செங்கழுநீர் நிறமாயிருக்கும்.
- மூன்றாம்வகுப்பு-பவழநிறத்தையும் அரிசியின் உருவத்தையும் பெற்றிருக்கும்,
- நான்காம் வகுப்பு பச்சை அல்லது எலுமிச்சைம் பழநிறமாகும்.

2)தீய அட்டை

கருநிறம், கருஞ்செம்மை நிறம் அல்லது வானவில் போன்ற நிறம் ஆகிய பல நிறங்களைப் பெற்றிருக்கும்.

3) *சாதாரண அட்டை*

பொன்நிறத்தில் கருநிறம் பொருந்தியிருக்கும். ஆயளவேதநூலின் படி இது 12 வகைத்தாயினும் வைத்தியத்திற்கு 6 வகை மாத்திரம் தேர்ந்தெடுக்கப்பட்டது. மற்ற 6ம் விஷதன்மையுடையது. பயன்படும் ஆறு வகைப்படும்.

- *கபிலம்* (tawny leech)
- *பிங்கலை* (one of pale red tinge)
- *சங்குமுகி* (one with a yellow long sharp head)
- *மூஷிகம்*
- *புண்டரீகமுகி* (that which is brown in colour and with mouth like the flower nelumbu)
- *சபரிகம்* (that which resembles the leaf of the lotus flower in colour)

The other species of leeches common in South India are:

1.The English or speckled leech. It has 6 stripes spotted with black and a belly greenish yellow and spotted.

2.The Peculiar Madras leech is a bdellium found in stagnant ponds and ditches. It is larger than the European leech and very voracious. These are used by Vaidynas and Ilekeems in the same way as is done by Europeans.

3.The large Horse leech has depressed body and a dusky coloured back with the belly yellowish green.

4.The Ceylon leech about an inch long with point so sharp as to make its way through small openings is dangerous to pedestrians in certain seasons. It attacks the feet, the legs and the thighs.

In Surgery, it is used experimentally for intravenous and intraperitoneal injections. It has an extract prepared from the head which is employed to prevent the formation of bloodclots.

அட்டையின் உடலமைப்பு:

சாதாரண அட்டை 2 (5 செ.மீ) முதல் 4 அங்குல (10 செ.மீ) நீளமுள்ளதாய் சிறிது கூர்மையான முனைகளுடன் புறத்தோலில் 6 நீளக்கோடுகளுடையதாய் குறுக்குச் சுருக்கங்களையும் பெற்றிருக்கும், அட்டைக்குப் ப மூன்று, தோலடுக்கு ஐந்து, முகம்பச்சை அல்லது சிவப்பு பக்கமிரண்டிலும் பருத்த நரம்பு இருக்கும். ஓர் அட்டை சுமார் 120 துளி இரத்தம் வரை இழுக்கும் வன்மை உடையது. அட்டை உறிஞ்சுவதனால் 12 அங்குலம் வரை உள்ள இரத்தம் வெளிப்படும் என்பதை,

"***அட்டைவிடி லுதிரம் ஆறிரண்டங்குலம் போம்*** " *என்ற தொடரால் அறியலாம்.*

பயன்படும் அட்டையின் எண்ணிக்கை:

- *ஆறு மாதத்திற்குக் கீழ்ப்பட்ட குழந்தை ஒரு அட்டை*
- *ஒரு வருஷத்திற்குக் கீழ்ப்பட்ட குழந்தை – இரண்டு அட்டை*
- *இரண்டு வருஷத்திற்குக் கீழ்ப்பட்ட குழந்தை – மூன்று அட்டை.*
- *மூன்று வருஷத்திற்குக் கீழ்ப்பட்ட குழந்தை-நான்கு அட்டை.*
- *தலைநோவுடன் வரும் சுரங்களுக்கு பிணியாளி வாலிபனாயும் பெலவானாயும் இருப்பானாகில் நெற்றியொன்றில் 4 அல்லது 6 அட்டை (பிடரியின் மேற்பக்கத்தில் கடிக்கவிட்டால் அதிக் குணங் கொடுக்கும்)*
- *சுரத்துடன் மார்பிலும் வயிற்றிலும் கடினமான வலிகளுக்கு 8 அல்லது 10 அட்டை வலியின் மேலண்ட வேண்டும்.*
- *விப்புருத்திகள், பருக்கள், சுளுக்குகள், கடிகள் மற்றும் தோலீன் மேல் வரும் அந்தச் சுரப்புகள் 6அல்லது 8 அட்டை வீட்டு சுடுதண்ணீரால் ஒற்றடமிடவும்*
- *கக்கிருமல் தொடங்கின பொழுது குழந்தையின் வயது ஒன்றுக்கு ஒவ்வொரு அட்டைவீதம் முறையாய்க் கூட்டி ஆறு வயது வரை விடலாம். அப்புறம் எத்தனை வயதாயிருப்பினும் 6 அட்டையே போதுமானது.*
- *கண்ணோய்களுக்கு 4 அல்லது 6 அட்டை கடைக்கண்ணின் அருகேயிருக்கும் பொட்டுகளில் விடவும்.*

- இரண வைத்திய சிந்தாமணி

மருத்துவத்திற்கு ஆகாத அட்டை:

"ஆகா வட்டை யது கேளாய்
அலவன் தவளை நீர்ப்பாம்பு
மேகா சலத்தில் பிறந்தன
வேண்டா சருகிற் பிறந்தனவும்
போகாச் சுனையில் பிறந்தனவும்

பொல்லா வட்டை யிவையென்றே
பாகார் மொழிகொள் பைந்தொடியே
பாரா யட்டை வகுப்பினையே"

நண்டு, தவளை, நீர்ப்பாம்புகளையுடைய நீர் ஓட்டமில்லா நீர்நிலை, ஈருகூறிய நீர் இவைகளிற் பிறந்த அட்டை மருத்துவத்திற்காகாவாம்.

செய்கையும் ஆட்சியும்:

"**முன்னே கேளா யட்டையதன்**
குணத்தைச் சொல்வன் மொய்குழலே
அந்நாளன்னம் பால்பருகும்
அதுபோல் வாங்கும் விஷநீரை
நன்னாள் பார்த்து நோயறிந்து
நயனத் தன்னில் விடுவாயால்
சொன்னோஞ் சொன்னோம் நாற்றிசையுந்
துலங்கச் சொன்னோஞ் சொன்னோமே "

-அகத்தியர் நயன விதி ஐந்நூற்று

அன்னம்நீரைப் பிரித்துப் பாலைப் பருகுவது போல, அட்டையானது விடநீரைப் பருமி இரத்தத்தைச் சுத்தி செய்யும். வீக்கம் நீக்குஞ் செய்கைக்காக கார்இரத்தக் குழலைக் கீறி இரத்தத்தை வெளிப்படுத்தல் போல இதைச் சிறப்பாக இரத்தத்தை வெளிப்படுத்த முதியவர்க்கும், பெண்களுக்கும், சிறுவருக்கும், மென்மை உடலைப்பெற்றோர்க்கும், ஆயுத சிகிச்சைக்குப் பயந்தவர்க்கும், பித்த உடம்பினர்க்கும் சிறப்பாய் உபயோகிக்கலாம்.

சுவை - இனிப்பு

தன்மை -குளிர்ச்சி

பயன்–பித்த நோய்கள் நீங்கும்

அட்டையின் சுத்திமுறை:

ஒரு வாயகன்ற பீங்கான் பாத்திரத்தில் மஞ்சள் கரைத்த நீரிட்டு அட்டையை அதில் விட அதன் உடம்பினின்று கோழையொத்த கழிப்பொருள் வெளியாகும். பின்பே அந்த அட்டையை உபயோகித்தல் வேண்டும். இக்கழிப்பொருள் அதிகமாயிருப்பினும் அது நீரில் சுறுசுறுப்பாய் ஓடாவிடினும் அவ்வட்டை பற்றாது.

நோயாளியைத் தயாரிக்கும் விதம்:

"**சத்தியில் மாந்த ருக்குந்**
தையல் பிள் ளையர் தமக்கும்
ஒத்துநின் றூட்டு வித்து
உறக்கமுந் தவிர்ந்தி டாமல்
மத்தியா னத்து மேலாய்
மண்கொண்டு சுத்தி பண்ணிப்
பற்றிய நோய்கள் தன்னைப்

பார்த்துநீ அட்டைவிட்டே"

நோயினனுக்கு முன்னாள் பேதிக்கு அல்லது வியர்வை பெருகுவதற்கு அல்லது வாந்திக்குக் கொடுத்து மறுநாள் அட்டையைவிட வேண்டும். அட்டை விடும்போது நோயாளிக்குப் பட்டினியோ தூக்கமின்மையோ கூடாது. அது விட வேண்டிய இடத்தை உவர்மண்ணும் மணலும் கொண்டு கழுவிச் செம்மண்ணால் பூசவேண்டும்.

அட்டைவிடுதற்கு ஏற்ற நேரங்கள்:

அட்டைவிட நடுப்பத்து நாழிகை சிறந்ததாயினும், குழந்தைகளுக்குக் காலையில் விடலே நன்று. ஏனெனில் மாலையில் விட்டால், ஒருகால் இரவில் கடிவாயினின்றும் இரத்தம்பெருகின் கவனிக்க இயலாது. அதனால் ஆபத்துநேரும். சிறுவர்களுக்கு இரத்தம் விரைவில் வெளிப்படுமாகையால், கண்காணிப்பாக என்பிருக்குமிடங்களில் விடலே நன்று.

கடிக்கும்படி செய்யும் விதம்:

வாய்குறுகலான நீர்நிறைந்த பாத்திரத்தில் அட்டையை விட்டு அப்பாத்திரத்தின் வாயைக் கடிக்கவிட வேண்டிய இடத்தில் கவிழ்த்து நீர் வெளிப்படாவண்ணம் பிடித்தால் பற்றும், பற்றாவிடின் இடத்தைத் துடைத்து ஒருதுளி பாலைத் தடவி நீரில் நனைத்துப் பிழிந்த பஞ்சால் அட்டையை மெல்லெனப் பிடித்து விடப் பற்றும். இதற்கும் பிடிக்காவிடின் இடத்தைச் சுத்தமான குண்டூசிகொண்டு இரத்தம் சற்றே கசியும் வண்ணம் கீறி, அதன் மீது அட்டையை விட அஃது உடனே பற்றிக்கொள்ளும், அட்டையின் முகம் பெரிதான முனை குதிரைக்குளம்பு போன்ற உருவத்துடன் மிகநுண்ணிய வியர்வைத் துளியுடன் தோன்றினால், நன்றாய்க் கௌவிக் கொண்டதென்று உணர்ந்து, அதன் மீது ஈமொய்த்து இரத்தம் இழுப்பதைத் தடுக்காமலிருக்க ஈரத்துணியிட்டு மறைக்கவும்.

கடித்த அட்டை கீழேவிழ:

அட்டை அரைமணியிலிருந்து நான்குமணி நேரத்திற்குள் இரத்தத்தைக் குடித்துத் தானே கீழே விழுந்து விடும். கீழே விழச் செய்ய வேண்டுமாயின் உப்புநீர் அல்லது காடிநீரைக் கடிவாயில் தெளிக்கவும். அட்டை மூக்கின் தொளை, குதம், குய்யம் இவிவீடங்களில் புகந்துவிடின் அதனை வெளிப்படுத்த மேற்படி சிகிச்சையே பொருந்தும்.

கடிவாயில் இரத்தத்தை நிறுத்தவும் பெருக்கவும்:

அட்டை விழுந்த பின் கடிவாயினின்றும் இரத்தம் அதிகமாக வெளிப்படின், பொரித்த படிகத்தூள், துருசின்தூள், மஞ்சட்தூள், பஞ்சுசுட்டகரி, சீலைக்கரி, சிலந்திக்கூடு, மாசிக்காய்த்தூள் இவைகளுள் ஏதாவதொன்றைக் கடிவாயிலிட இரத்தம் நீற்கும். நிற்காவிடின், கடினாயை விரலால் சிறிது நேரம் அழுத்தினாலும், காடிக்கார முனையால் தொட்டாலும் துண்டுச்சீலை வைத்து அழுத்தமாகக் கட்டினாலும் நின்றுவிடும். இதற்கும் பலன் இல்லையேல், பழுக்கக் காய்ச்சிய ஊசியால் கடிவாயைச் சுட நிற்கும்.

கடிவாயினின்றும் இரத்தம் வெளிப்படும்படி செய்ய, வெந்நீர், தவிடு, நொச்சியிலை. வேப்பிலை இவைகளுள் ஒன்றைக் கொண்டு ஒற்றடமிடவும். அட்டை விடுதல் நன்கு நிறைவேறிற்றென்பதற்கறி குறி. கெட்ட இரத்தம் நீங்கியவுடன் நோயினால் உண்டான சோகமும் வேதனையும் நீங்கும். இதனை.

"துட்டரத்தம் போனக்கால் சோக முடன்கூடிய
திட்டமுடன் வேதனையும் தீருமே - வட்டதன
மானே, உருவினுக்கு மற்றொன்றும் வாராது
தானே தனக்கு நிகர் தான்"

குற்றத்தின் அளவாகக் குருதியில் ஏற்படும் மாறுதல்கள்:

- வளிகேடடைந்திருபின் குருதியில் வெண்ணிறமும்.
- அழல்கெட்டிருப்பின் மங்கலான நீலவண்ணமும்.
- ஐயம்கேட்டையின் இருள்நிறமும் காணப்படும்.

இரத்தத்தை அதிகமாக உறிஞ்சுவதனாலுண்டாகும் கெடுதிகள்:

அட்டைமிஞ்சினாலும், இரக்கம்வெளிப்பட்டாலும் கடிவாயில் தினவு உண்டாய்க் கடுத்து வீங்கும்.

"அஞ்சுவிரல் நீளத்தில் அட்டை விடக்கும்
மிஞ்சவே அட்டைவிட வேண்டாம் - மஞ்சின்
கடிவாய் தினவாய் கடுத்துவலி விங்குந்
துடியாரு நல்லிடையாய் சொல்"

அதனால் நீரில்லாப் பயிர்போல நோயாளிவாட்டமடைந்து உயிர்துறப்பதற்கு வழியுண்டு.

அட்டைக்கடியினால் உண்டான புண்ணுக்குச் சிகிச்சை:

காடி, காரெள், கற்றாழை இம்மூன்றையும் அரைத்து மேல்பூசி வந்தாலும், கற்றாழை மடலைச் சுட்டு இரண்டாய்ப் பிளந்து மஞ்சள்தூளைத் தூவிப் புண்ணின் மீது வைத்துக்கட்டினாலும் நீங்கும்.

ஒருமுறை உபயோகித்த அட்டையை மறுமுறை பாவிக்க:

கடித்து விழுந்த அட்டையைத் தவிட்டில் விட்டுப் புரட்டியோ புரட்டாமலோ, அதன் வாயில் எள்ளின் பொடி அல்லது மஞ்சள் பொடியைத் தூவின் இரத்தத்தைக் கக்கும். அது சரியாக வெளிப்படாவிடின், இருவிரல்களாலும் மெதுவாய்ப் பின்னிலிருந்து முன்அட்டையைப் பிடித்துவிட, இரத்தம் நன்றாய் வெளிப்படும். பிறகு, புற்றுமண் கரைத்த தெளிநீரில் விட்டுவைத்திருந்து. அதன்பின் முற்கூறிய நீரில் பத்திரப்படுத்த வேண்டும். இதனை,

"குடித்துவீ முட்டையை கொண்டுதவிட் டில்விட்டே
பிடித்ததின்வாய் எள்ளதனைப் பெய்து–பிடித்துவிட
விட்டரத்தம் போனால் துலைநீரில் நீந்தவிட்டுக்
கட்டுவது மண்குடவைக் கண்"

பாவித்த அட்டைகளையும் பாவியாத அட்டைகளையும் வெவ்வேறாக வைத்தல் வேண்டும். ஒரு முறை உபயோகித்த அட்டையை ஏழுநாட்கள் சென்ற பின்பே மறுமுறை பாவிக்கலாம். இவ்வாறு அட்டைக்கு ஓய்வளிக்காமல் திரும்பத் திரும்பவிடின், அது நச்சுத் தன்மையை அடையும். அதனால் கடிவாயில் வீக்கம், வேதனை, சுரம், தினவு, புண், கலக்கம் முதலியன உண்டாம். இதனை,

"விட்டவுரு வேறே விடாதவுரு தான் வேறே
கட்டும் குடுவைதனில் " என்றும்
"பட்ட உருவைப் பலகாலும் - வீட்டுவிடு
மத்தா லுருவடைய மான விஷமாகும்" என்றும்
"விட்டவுருத் தானும் விஷவுருவே யானக்கால்
வெட்டுருவாய் விங்குமது வேதனையாத் - திட்டஞ்
சுரமாங் கலக்கமாஞ் சூழ்தினவுங் காணும்
உரமாகும் புண்ணு முதிர்ந்து"

-அகத்தியர் நயன விதி

உபயோகம்:

- அடிபட்ட வீக்கங்கள் கட்டிகள், கிரந்தி, வீக்கங்கள், சுளுக்கு, தோல், என்பு போன்ற உறுப்புகளைப் பற்றிய வீக்கங்கள் ஆகியவைகளுக்கு அவ்வவ்விடங்களில் அட்டையை விட்டு இரத்தத்தை வெளிப்படுத்த அந்நோய்கள் தீரும்.
- மருத்துவத்திற்கடங்காத வாந்தியில் நெஞ்சுக்குழியில் விட நீங்கும்.
- தாங்காத் தலைநோய்க்குப் பொட்டில் விட அது தணியும். தணியாவிடின் பிடரியில் விடவும்.
- சுரத்திலுண்டாம் மார்பு நோய், வயிற்று நோய் ஆகியவற்றிற்கு நோய் இடத்தில் விட வேண்டும்.
- இரத்தமூலத்தில் இரத்தம் தடைப்படுவதனால் உண்டாம் தலைநோய்க்கு, அட்டையைக் குதத்தைச் சுற்றி விட நீங்கும். ஆனால், இது குதத்திற்குள் புகாவண்ணம் காத்துக் கொள்ளவும்.
- சூதகத்தடையினால் உண்டாம் தலைநோய் நீக்கத் தொடைகளின் உட்பக்கம் கடிக்கவிடவும்.
- இரத்த சீதபேதியில் உண்டாம் வயிற்றுக்கடுப்புத் தீர குதத்தைச் சுற்றிவிடவும். கல்லீரல் வீக்கத்திற்கு அவ்விடத்தில் விடப் பலன்தரும்.
- சிறாருக்குண்டாம் கக்குவான் நோய் தீர நடுமுதுகின் மேல் விடவும்.
- நாட்பட்டதும் பலவகைப்பட்டதுமான கீல்வீக்கங்களுக்கு அட்டை வீட்டு நற்குணம் கண்டிருக்கின்றோம்.
- ஆண்தன்மையற்றவர்களுக்கு அட்டையை இலிங்கத்தின் மேற்புறத்தில் விடுவதனால் கெட்ட இரத்தம் நீங்கிச் சுத்த இரத்தத்தினால் ஆண்குறிவலுவடையும்.
- கண்ணில் கனம் தோன்றி வலித்து, நீரொழுகிக் கொண்டு புருவத்தில் வலியுண்டானால் அட்டைவிடின் அதுநன்றாகும். இதனை,

"கண்ணது கனத்து தொத்து
கண்ணில் நீ ரொழுகு மாயின்

விண்னுடன் புருவத் தோடு
மேலும் வலித்த போது
நிண்ணிய அட்டை விட்டு
நிமைபெறு நீளத் தன்னில்
திண்ணிய கிரமத் தாலே
செய்வதோர் கருமம் நன்றாம்"

மேலே குறிப்பிடப்பட்ட குறிகுணங்கள் எல்லக் கண்ணோய்களுக்கும் பொதுவாயினும், சிறப்பாய் நேத்திரச்சூலை, வாதகாசம், கருவிழியில் உண்டாம் படர்விரணம், காசநோயில் சரிவரச் சத்தீர சிகிச்சை செய்யப்படாததினால் உண்டாம் அழற்சி இவைகளுக்கு அட்டைவிட்டுப் பலன்கண்டனர். மற்றும் நிமையில் அட்டையை விடவேண்டுமென்று கூறப்பட்டிருக்கிறது. அதற்கு கடைக்கண்ணிலிருந்து 1/2 அங்குல (1.25 செ. மீ) தூரத்தில் புருவமுனைக்குக் கீழ்விடுவது நலம்.

அட்டைவிடக்கூடாத இடங்கள், திதிகள்:

அட்டைகளைக் கார்இரத்தக் குழல்கள் தோன்றுமிடங்களிலும், நாடி பரிசிக்கப்படும் வீக்கங்களிலும், கண்ணிமைகளிலும், ஆண்குறி, அண்டம், குய்யம், ஸ்தனம் இவைகளின் மீதும் விடலாாது, விடின் வீக்கத்தை உண்டு பண்ணும். -

"சீருள பிரதமை சேரும் பெருவிரல்
நேர்பெறும் உள்ளங் காலது துதியை
திரிதியை முழங்கால் சேர்ந்திடு மென்க
சதுர்த்தி பெருந்துடை தாவிய பஞ்சமி
குய்யத் திடத் தே குடியிருந்திடுமாம்
அய்யனே சஷ்டி அயர்ந்திடும் நாபி
சத்தமி முலையில் தானிருந் திடுமே
ஒத்திடும் அஷ்டமி யோதினோம் கரத்தில்
மெத்திடு நவமி மேவிய கழுத்தில்
அதரந் தசமியி லாகுமவ் விடத் தே
ஏகா தசியிலிருந்திடும் நாவில்
துவா தசியில் துயின்றிடும் நெற்றி
திரியோ தசியில் சேர்ந்திடும் புருவம்
சதுர்த்தி பிடரி தானிருந் திடுமே
உதித்திடும் பூரணம் உச்சியி லுறையும்
செப்பிய வமுதம் நிலைநின் நதனால்
சத்திரம் பண்ணிடில் தானெழும் நோய்கள்
கொப்பளித் திடினும் குத்தப் படினும்
தப்பிலா அரவம் தான்கடித் திடினும்
அட்டை கடிக்கினும் அடிதடி சிலந்தியும்
வயிற்றில் பிணியெனும் மரணம் தாகுமே
காசினிதனி லே கைவிஷ தாரி
திதிகளை யறிந்து செய்திடப் பலிக்கும்
மகிழ்பெறு முனிவர் மகிழ்ந்துரைத் தனரே" **- அகஸ்தியர் இரண வைத்தியம்**

DESCRIPTION OF LEECHES

Leech taxonomy:

Leeches are related to the phylum annelid, class clitellata, it is classified in to 4 sub classes, 3 orders, 10 families, 16 subfamilies, 131genera and 696 species. Leeches are hermaphrodite in nature and are distributed all over the world. In India, about 45 species belonging to 22 genera occur. The common Indian species are Hirudinaria granulosa, H.viridis, H.javanica, H.ventralis and H. manillensis. Hirudo medicinalis (Medicinal leech) is a European species which has been found in ponds and stream of the eastern portion of the United States. It is comparatively large 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. In India, the leech Hirudo ventralis (Indian cattle leech) is used for medicinal purpose. Poisonous leeches are found in muddy water, gutters, or in water which is contaminated by urine. Type of 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. Normal leeches are golden-colour with block.

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.

Leech secretion:

Leeches have various bioactive molecules in their secretions. More than 20 molecules and their mode of actions identified such as, analgesic, anti- inflammatory, platelet inhibitory, anticoagulant, anti-thrombin regulatory function. Leeches have highly developed salivary glands by their saliva contains 100 bio active substances([36]).Many scientific studies have shed light on the effect mechanisms of leeches. More than 100 proteins with different molecular masses are observed in leech secretions, only a few have been identified that have a major active role.

Mechanisms of leech bite:

The effect mechanisms are divided into six types to make them more understandable, but these mechanisms are closely related to each other and should be evaluated as a whole.

Following a leech bite, it must establish a sucking pathway (extracellular matrix degradation); inhibit adhesion, aggregation, and coagulation (inhibition of platelet functions, and anticoagulant effect); increase blood flow; protect itself (antimicrobial activity); and avoid detection (analgesic and anti-inflammatory effects).

Modes of action	**Substance**
Analgesic and anti-inflammatory effect	Anti stasin[37], hirustasin[37] , ghilantens[38] , eglin C[37] , LDTI[39] , complement C1 inhibitor[40] , guamerin and piguamerin[37] , carboxy peptidase inhibitor[38] , bdellins and bdellastasin[38]

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 ^{0}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.

Important point in leech therapy

One session of leech therapy requires about 1-2 hrs and about 1-6 leeches are required depending upon the clinical condition. It leaves Y-shaped bite mark, and it is disappearing within 23 weeks. Symptoms of excessive blood loss are red skin, itching, pain and fever. The leeches should be suck only impure blood, when leeches start to suck pure blood produces the symptom of pricking pain and itching at the site of the bite.

Selection of leeches for leech therapy

Non-poisonous are only used. Too small or too long leeches are not to be preferred, only medium sized leeches are used.

Frequency of leech therapy

It varies according to the severity of diseases; generally, it should be applied once in a week.

Precaution during leech therapy

The patients with bleeding disorders like haemophilia, highly infective patients like HIV patients and hepatitis B patients are not advised for leech therapy. The leeches used for one person are not used for another person to avoid cross infection. The therapy should be done with proper disinfecting condition. Complication of infection were occurring only in 2-36% of patients. There are no reports of leech transmitted diseases in leech application.

Complication of leech therapy

The most important complication is the risk of leech borne infection caused by bacterias aeromonas hydrophilia present in the leech gut, which may cause pneumonia, septicaemia or gastroenteritis. Allergic reaction may occur in leech site. Ulcerative necrosis may occur due to toxins present in leech saliva. Prolonged bleeding and rarely ulcer formation may occur at the site of bite. Excessive bleeding that may require a blood transfusion is another complication in leech therapy.

Disposal ofleech

The used leech should be destroyed with 70% of alcohol and disposed like that of biomedical waste.

Mechanism of action

In Siddha system of medicine, the leech therapy was used as one of the

bloodletting techniques to remove the toxic blood from the body. According to Siddha concept, the leech application works based on normalisation of Uyirthathukal by removing toxic blood from the body and cure the diseases. Leech therapy was used for various diseases especially for Pitham vitiated diseases because the leech has Thatpa Gunam (Cold potency).

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. It also has resolving activity, eliminate the microcirculation disorders, restore the vascular permeability of tissue and origins, reduce the blood pressure, eliminate the hypoxia, increase the immune system activity, detoxifies the organism by antioxidant pathway, and improve the bioenergetics status of organism. This active compound includes anticoagulant Hirudin, Calin, inhibitor of kallikrein, hyaluronidase, histamine like vasodilators, collagenase, analgesic, anti-inflammatory substance, destabilase, hirustasin, tryptase inhibitor, Eglin, acetylcholine, carboxypeptidase A inhibitors, immune-modulator effect, etc.

Hirudin is responsible for anticoagulant of blood, and it is used as anticoagulant in surgical procedure. Calin is also anticoagulant substance, but it is responsible for secondary bleeding for approximately 12 hours in leech bite site. Hyaluronidase is facilitating the penetration and dilution of pharmacologically active substances into tissue, particularly in joint pain and has antibiotic activity. Destabilase is dissolves fibrin and has thrombolytic effect. Hirustasin inhibit strypsin, kallikrein, chymotrypsin and neutropholic cathepsin. G.Bdellins has anti-inflammatory effect and inhibits trypsin,plasmin and acrocin. Chloromycetin is potent antibiotic. Eglin is anti-inflammatory and inhibits the activity of alpha-chymotrypsin, chymase, subtilisin, elastase and cathepsin. Factor X an inhibitor inhibits the activity of coagulation factor X. Aesthetic-like substance reduces pain during biting by a leech. Acetylcholine is vasodilator. Collagenase reduces collagen and carboxypeptidase A inhibitors increases the inflow of blood. Histamine like substances cause dilatation of blood vessels and produce bleeding. Some of the substances were also have antiinflammatory effect. Based on lipotropic activity, it can be used for ischemic heart disease. The biological active compound present in leech saliva act on

target organ through vein during sucking of leech and increase the blood circulation in the organ.

Indication for leech therapy in Siddha system of medicine:

Traumatic Oedema, Tumour, Abscess, Sprain, Uncontrolled vomiting, Headache, Abdominal and Chest diseases, Hepatomegaly, Abdominal cramps caused by Dysentery, Whooping cough, Eye diseases and Joint swelling.

Indication of leech therapy in Ayurveda:

Abscess, Lump, Piles, Skin diseases, Sclerosis, Throat diseases, Eye diseases, Cyst, Tumour, Filariasis, Poisoning, Pemphigus, Headache, Dental disorder, Etc.

Indication for leech therapy in Modern medicine:

In modern medicine, the leech therapy has been used and studied in Cardiovascular diseases, Cancer, Diabetes, Infection, Arthritis, Dental concerns, Haemorrhoids, Hearing Loss, Tinnitus, pain relief, post-plastic surgery, replantation, and other reconstructive surgeries. Hirudo therapy is a safe, easy to use, beneficial and cost-effective treatment to save reattached body parts and flaps in reconstructive plastic surgery.

Indication for leech therapy in Unani medicine

The commonest indication of leech therapy in Unani medicine as mentioned in classic Unani text are Varicose vein, Blepharitis, painful calf muscles, Mania, Septic wounds, Non-Healing ulcer, Lymphadenitis, Inflamed organ, Sinusitis, Pharyngitis, Piles, Fistula in ano, Elephantiasis, at the bite of poisonous animals, Skin disorders, Warts, Chloasma, Eczema, Psoriasis, Osteoarthritis, Hypertension, and Vitiligo, etc.

Other indications

Arthrosis, Peri arthritis, Rheumatoid arthritis, Thrombophlebitis, Thrombosis, Embolism, External ear And Chronic Ear Diseases, Eye diseases; including Cataracts, Glaucoma, Traumatic injury and Inflammation, Dental diseases; like Gingivitis, Paradonitis and Stomatorrhagia, GI tract; Hepatitis, Cholecystitis, Pancreatitis, Stomach ulcer, Respiratory disorders; Asthma, Acute rhino pharyngitis, and Coryza, Gynaecological disorders, male and female Sterility, Endometriosis, and Mastitis.

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).

Scientific papers on leech therapy

- Presently various clinical and experimental studies have been conducted internationally to evaluate the efficacy of leech therapy in various diseases condition. The leech application has proved very valuable in microsurgeries and in various type of arthritis.
- Leech therapy reduces joint dysfunction, pain and stiffness in people with osteoarthritis of knee joint as reported by new study in the annals of internal medicine.
- A study from Kashmir valley has established the safety and efficacy of leech therapy in the management of frostbite.
- Another study from India proved the anti-inflammatory effect of leech therapy in psoriasis patient.
- Similarly, one more study from India has proved the leech therapy gives the significant relief for symptoms of eczema.
- The leech therapy improved incisional skin wound healing in rats.
- Recently, research is being conducted in various aspects to determine the effect of leech therapy in various ailments like Gout, Vitiligo, Varicose vein, Varicose ulcer, Lupus erythematosis, Thrombosed piles, Burgers diseases, Epidermoid cyst, Arthrosis of the first carpo metacarpal Joint and many more.

MATERIALS AND METHOD

PRIMARY OBJECTIVE

To evaluate the improvement of clinical signs & symptoms of *Puramuli thabitham* (Lateral epicondylitis) patients before and after treatment of leech therapy .

SECONDARY OBJECTIVE:

To study the siddha basic principles towards effect of Leech therapy.

STUDY TYPE:

An Open clinical trial

STUDY PLACE :

Ayothidoss Pandithar Hospital,

National Institute of Siddha,

Tambaram Sanatorium, Chennai-47.

STUDY PERIOD :

18 months

SAMPLE SIZE :

30 Patients

INCLUSION CRITERIA:

- Age: 18 – 70 years
- Sex: Both Male and Female
- Clinical features like

  - Pain on the lateral side of the elbow,

  - Tenderness over the extensor oringin the forearm,

  - A positive tennis elbow pain test (mills sign, chair pickup test , cozens test) any one positive test will be included.
- Persistent lateral epicondylitis symptoms minimum 6 weeks maximum 6 months (more than 3 clinical symptoms will be included for the study).
- Patients who are willing to undergo Leech application
- Willing to give specimen of blood for investigation whenever required.
- Willing to attend OPD or admission in IPD for 48days.
- Willing to take photograph before and after treatment.

EXCLUSION CRITERIA:

- History of Tuberculosis
- History of Hepatitis B, AIDS, syphilis.
- History of Heamophilia & Anticoagulant treatment
- Pregnancy & lactation
- History of Uncontrolled Diabetes
- History of Psychiatric disorder
- Surgery of the affected hand during the previous 3 month or joint replacement.

The above criteria will be assessed by Investigations, patients previous medical records and history taking.

WITHDRAWAL CRITERIA:

- Intolerance with the therapy & any serious side effects.
- Poor patient compliance and defaulters.
- Increased severity of symptoms.
- Patient unwilling to continue the treatment.
- Any drastic changes occurring in haematological finding during treatment period.

LEECH APPLICATION - STANDARD OPERATIVE PROCEDURE (SOP):

The leech application is categorised into four steps:

1. Patient preparation
2. Preparation of Leeches for procedure
3. Application of Leech
4. Post leech application procedure.

1.Patient preparation:

On the day after the general examinations like Blood pressure, Pulse rate, Respiratory rate, consent of the patient and explain the procedure to the patient. The patient place supine position on the bed under sterile condition.

The affected part was place in suitable position for leech application and the site will be cleaned with sterile water and dried with dry gauze piece.

2.Preparation of Leeches for procedure:

The moderate sized, dark brown leeches were used for application. The leeches to be used were purified with turmeric water and then with pure water. The site to be bite were cleaned with pure water.

3. Application of Leech:

The leech was allowed to bite at the site of the lesion. If it not bite, pricking were done with sterile needle and allowed the leech to suck. Small gauze piece soaked in water was put on the leech for active sucking.

i. **Type of Leech used for the study:**

   Hirudo ventralis

ii. **Size:**

   2 to 3 inches

iii. **Number of Leeches to be used per sitting:**

   2 to 4 Leeches depending upon the lesion

iv. **Site of Leech Application:**

   The leeches will be applied around the elbow joint near lateral epicondyle.

v. **Number of Leech Application (Sittings):**

   1 to 5 times depending upon the severity of disease.

vi. **Time interval between the two Leech Application:**

   Seven days

vii. **Duration of Leech Application:**

   45 minutes to 1 hour

4. Post Leeching Procedure:

After the leech felled off spontaneously or induced, the turmeric powder was poured on the head portion and allowed to expel the blood. After vomiting, the leech was purified with turmeric water and then with pure water. The used leech was maintained in a separate labeled jar for that particular person during the study period.

The bitten spot was allowed to bleed for 5 minutes. Then dressed and compressed with turmeric powder dusted over aloe vera pulp.

The patients were observed for one hour and were educated about the bleeding condition.The leech in the water preserved jar will be charged once in three days.

SUBJECT SELECTION:

Patients reporting with symptoms of inclusion criteria were subjected to screening test and documented using screening proforma.

TEST AND ASSESSMENT:

- Clinical assessment
- Siddha system of examination
- Laboratory investigation

CLINICAL ASSESSMENT:

- Pain or burning sensation on the outer part of the elbow
- Sometimes pain at night
- Tenderness, stiffness and weakness around the elbow
- Weak grip strength
- Painful movement in open a door or shake hands, lift something, raise your hand, or straighten your wrist.

SPECIAL TEST:

The following tests are Confirmative tests for Laterral epicondylitis:

1. **Mill's test**
2. **Cozen's test**
3. **Chair pickup test**

1. Mill's test:

- Patient is seated.
- The clinician palpates the patient's lateral epicondyle with one hand, while pronating the patient's forearm, fully flexing the wrist, the elbow extended.
- A reproduction of pain in the area of the insertion at the lateral epicondyle indicates a positive test.[42]

2. Cozen's test:

- The patient is asked to move the wrist to dorsal flexion and the therapist provides resistance to this movement, in the position described above.
- The test is positive if pain on the lateral epicondyle is elicited (42)

3. Chair pickup test:

- Bend over until the top of the head rests on the wall (be sure to keep the legs straight).
- Finally, have somebody slide a chair under the chest. Lift the chair off the ground while keeping the head on the wall and try to stand up. (42)

B. SIDDHA SYSTEM OF EXAMINATION:

i. Enn Vagai Thervu

1. *Naadi* (Pulse perception)
2. Sparisam (Palpatory perception)
3. *Naa* (Tongue)
4. *Niram* (Complexion)
5. Mozhi (Voice)
6. Vizhi (Eyes)
7. Malam (Bowel Habits)
8. *Moothiram* (Urine)
   a)Neerkuri
   b)Neikuri

C. LABORATORY INVSTIGATION:

Hematology

Hb (gms%)

Total WBC Count (cells/cumm)

DC

Polymorphs (%)

Lymphocytes (%)

Eosinophils (%)

Monocytes (%)

Basophils (%)

Total RBC count (Cells/Cumm)

ESR (mm/hr)

Bleeding Time

Clotting Time

Blood group & Rh typing

Clinical biochemistry

Blood sugar **(**Fasting & Postprandial)

Serology

HBsAg

VDRL

HIV 1 &2

Anti HCV

DATA COLLECTION:

Required information will be collected from each patient by using the following forms:

FORMS:

FORM - I : Screening Proforma

FORM - II : history taking and clinical assement proforma

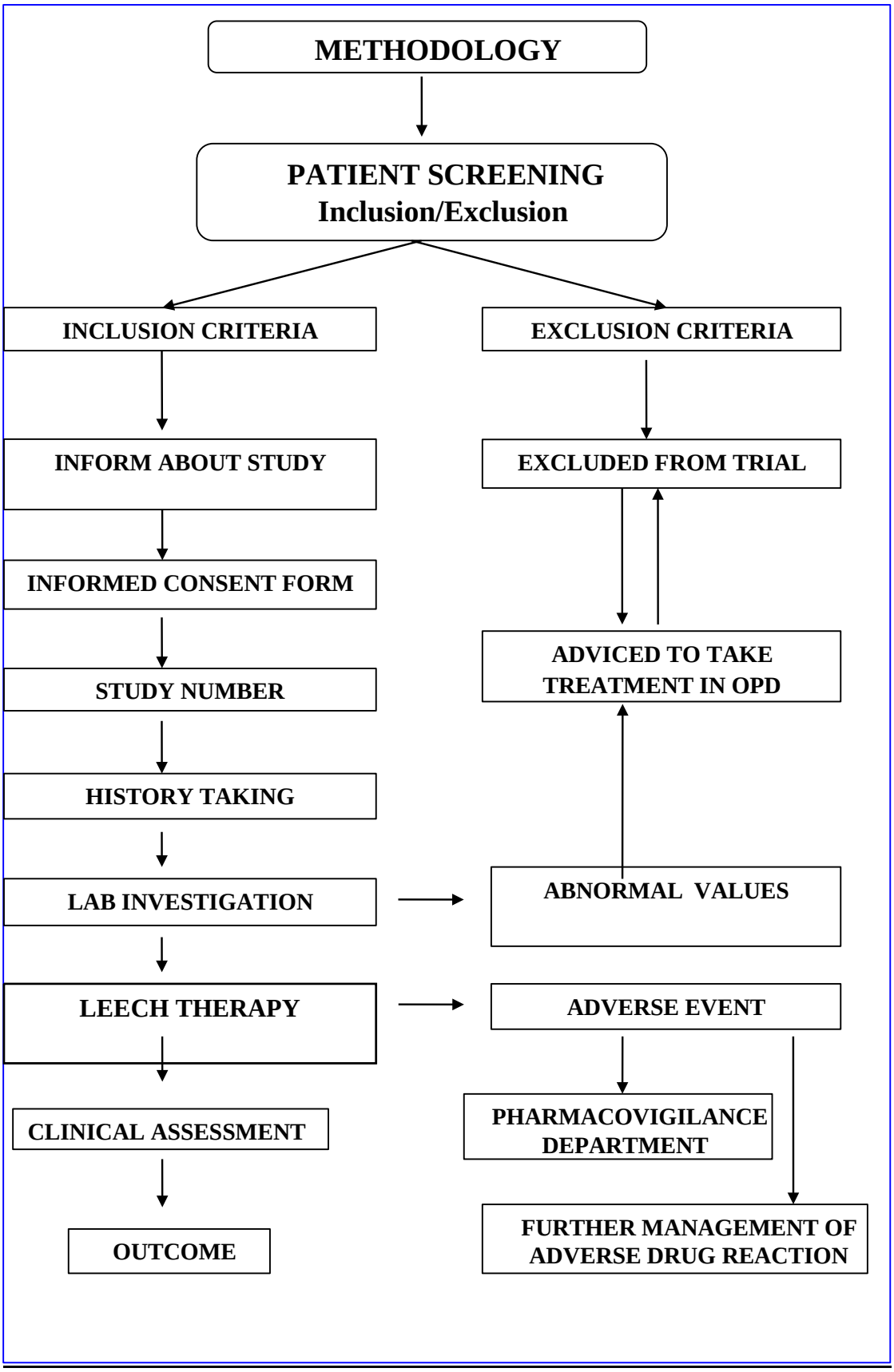
FORM - III : Laboratory investigation Proforma

FORM- IV : Patient information form

FORM - V : Informed consent form

FORM - VI : Pharmaco-vigilance/Withdrawal form

FORM – VII : Dietary Advice form


METHODOLOGY
PATIENT SCREENING
Inclusion/Exclusion
INCLUSION CRITERIA
EXCLUSION CRITERIA
INFORM ABOUT STUDY
EXCLUDED FROM TRIAL
INFORMED CONSENT FORM
ADVICED TO TAKE TREATMENT IN OPD
STUDY NUMBER
HISTORY TAKING
LAB INVESTIGATION
ABNORMAL VALUES
LEECH THERAPY
ADVERSE EVENT
CLINICAL ASSESSMENT
PHARMACOVIGILANCE DEPARTMENT
OUTCOME
FURTHER MANAGEMENT OF ADVERSE DRUG REACTION

STUDY ENROLLMENT:

- Patients reported at the OPD with the clinical symptoms of PURAMULI THABITHAM were examined clinically for enrolling in the study based on the inclusion and exclusion criteria.
- The patients who were enrolled, were informed (Form-V) about the study, Leech application, possible outcomes and the objectives of the study in the language and terms understandable to them and the informed consent were obtained in writing from them in the consent form (FormVI).
- All these patients were given unique registration card in which the patient's registration number of the study, address, phone number and Doctor's phone number etc. were given, to report easily whether any complications arise.
- Complete clinical history, complaints, duration, examination findings and laboratory investigations were recorded in the prescribed Proforma. Screening Form- I were filled up: Form –II and Form –III were used for recording the patient's history, clinical examination of symptoms, signs and laboratory investigations respectively.
- Patients were advised to take the trial drug regularly and appropriate dietary advice was given according to the patient's perfect understanding.

CONDUCT OF THE STUDY:

- Before starting the treatment, purgation was given with Meganathakuligai - 2 pills (1300 mg) at early morning in empty stomach with hot water for balancing the deranged uyirthathu.
- Patients advised to take rest on next day.
- Third day onwards the therapy was started. Patients are requested to visit the hospital for leech therapy once in seven days for 48 days.
- Each and every visit the clinical assessment is done, and prognosis were noted in the prescribed proformas. Entire conduct of the study was done the presence of guides and monitored by the Head of the Department.
- Laboratory investigations were done on the first day and 48thday of leech therapy.
- After the trial period, the patients were advised to visit the OPD for follow-up for further three months to observe any recurrence.

- Defaulters of were not continue the leech therapy and were withdrawn from the study.

DATA ANALYSIS

After enrolling the patient in the study, a separate file was maintained for each and every patient. All the Clinical research Forms were collected and safely stored for data analysis. All clinical data entered in the Profmora were analyzed.

The data entry was monitored in the presence of guides and monitored by the Head of department. All collected data were entered using MS access | excel software in computer. The data were statistically analysed. All forms were scrutinized by the Statistician for logical errors and incompleteness of data to avoid bias. No modification in the results were permitted for unbiased reports. Student 't' test is used to be performed for qualitative and quantitative data. The final trial outcome was generated.

OUTCOME OF TREATMENT:

To assess the pain, tenderness, stiffness, range of movement,grip in the elbow by Patient Rated Tennis Elbow Evaluation Scale[43].

1. PAIN in your affected arm	
Rate the average amount of pain in your arm over the past week by circling the number that best describes your pain on a scale from 0-10. A zero (0) means that you did not have any pain and a ten (10) means that you had the worst pain imaginable.	
RATE YOUR PAIN: No Pain	Worst Imaginable
When you are at rest	0 1 2 3 4 5 6 7 8 9 10
When doing a task with repeated arm movement	0 1 2 3 4 5 6 7 8 9 10
When carrying a plastic bag of groceries	0 1 2 3 4 5 6 7 8 9 10
When your pain was at its least	0 1 2 3 4 5 6 7 8 9 10
When your pain was at its worst	0 1 2 3 4 5 6 7 8 9 10

2. FUNCTIONAL DISABILITY

A. SPECIFIC ACTIVITIES

Rate the amount of difficulty you experienced performing each of the tasks listed below, over the past week, by circling the number that best describes your difficulty on a scale of 0-10. A zero (0) means you did not experience any difficultyand a ten (10) means it was so difficult you were unable to do it at all.

	No Difficulty										Unable To Do
Turn a door knob or key	0	1	2	3	4	5	6	7	8	9	10
Carry a grocery bag or brief case by the handle	0	1	2	3	4	5	6	7	8	9	10
Lift a full coffee cup or glass of milk to your mouth	0	1	2	3	4	5	6	7	8	9	10
Open a jar	0	1	2	3	4	5	6	7	8	9	10
Pull up pants	0	1	2	3	4	5	6	7	8	9	10
Wring out a washcloth or wet towel	0	1	2	3	4	5	6	7	8	9	10

B. USUAL ACTIVITIES

Rate the amount of difficulty you experienced performing your usual activities in each of the areas listed below, over the past week, by circling the number that best describes your difficulty on a scale of 0-10. By “usual activities”, we mean the activities that you performed before you started having a problem with your arm. A zero (0) means you did not experience any difficulty and a ten (10) means it was so difficulty you were unable to do any of your usual activities.

1. Personal activities (dressing, washing)	0	1	2	3	4	5	6	7	8	9	10
2. Household work (cleaning, maintenance)	0	1	2	3	4	5	6	7	8	9	10
3. Work (your job or everyday work)	0	1	2	3	4	5	6	7	8	9	10
4. Recreational or sporting activities	0	1	2	3	4	5	6	7	8	9	10

Scoring Instruction

Minimize non-response by checking forms when patients complete them. Make sure that the patient left an item blank because they could not do it, that they understand that should have recorded this item as a “10”. If patients are unsure because they have rarely performed an activity in the past week, then they should be encouraged to estimate their average difficulty. This will be more accurate than leaving it blank. If they never perform an activity they will not be able to estimate and should leave it blank. If items from a subscale are left blank, then you can substitute theAverage score from that subscale.

Pain Subscale- Add up 5 items.

Specific Activities- Add up 6 items

Usual Activities- Add up 4 items items Function Subscale- (Specific Activities Usual

Total Score Pain Subscale Function Subscale

Best score: 0; Worst score-50

Best Score 0; Worst Score-60

Best Score: 0; Worst Score 401 Activities)/2- Best score: 0; Worst score -50

Best Score: 0 Worst Score 100 (pain and disability contribute equally to score)

Reliability of subscales and total score are sufficiently high that both subscales and total are reportable.

MacDermid 2005

ADVERSE EFFECT/SERIOUS EFFECT MANAGEMENT:

During the trial any patient develops adverse reaction like any skin rashes, itching, excess bleeding or uncontrolled bleeding, the patient will be immediately withdrawn from the trial, and informed to the pharmaco-vigilance committee of NIS and referred to the general OPD of National Institute of Siddha for further management.

ETHICAL ISSUSE:

- Informed consent will be obtained from the patient after explaining the complete details about the trial in their understandable language to the patient. The patient will be informed about the clinical trial, diagnosis, treatment, and follow-up.
- After the consent of the patient (through consent form) only they will be enrolled in the study.
- Treatment will be provided free of cost.
- No other external or internal medicines will be used during the trial. There will be no infringement on the rights of patient for this particular indication.
- To prevent any infection, while collecting blood sample from the patient, only disposable syringes, disposable gloves, with proper sterilization of lab equipments will be used.
- The data collected from the patient will be kept confidential.
- The patients who are excluded as per the exclusion criteria will be referred to General OPD for regular treatment.
- No serious adverse reactions noted.
- To avoid cross infection,the leeches used for one person were not allowed to use for another person .
- After finishing the study,the leeches were discarded.

During the trial any patient develops adverse reaction like any skin rashes, itching, excess bleeding or uncontrolled bleeding, the patient will be immediately withdrawn from the trial, and informed to the pharmaco-vigilance committee of NIS

OBSERVATION AND RESULTS

The observation and results have been tabulated under the following headings.

1. Age Distribution
2. Gender Distribution
3. *Gunam*
4. *Yakkai illakanam*
5. Seasonal Distribution
6. Thinai
7. Socio-Economic Status
8. Dietary Habits
9. Occupational Status
10. Duration of Illness
11. Distribution of *Mukkutram*
12. *Ennvagai Thervugal*
13. *Neikuri and neikuri*
14. Distribution of *Udal Thathukal*
15. Clinical Features
16. Involvement of elbow Joints
17. Precipitating Factors
18. Results according patient rated tennis elbow evaluation Score
19. Statistical analysis
20. Analysis of success rate of *leech therapy.*

1.AGE DISTRIBUTION:

S.NO	AGE (YEARS)	NO OF CASES	PERCENTAGE
1.	20-30	2	6.66%
2.	31-40	7	23.33%
3.	41-50	12	40%
4.	51-60	6	20%
5	61-70	3	9.03%
6	Total	30	100%

Table 1: Age distribution

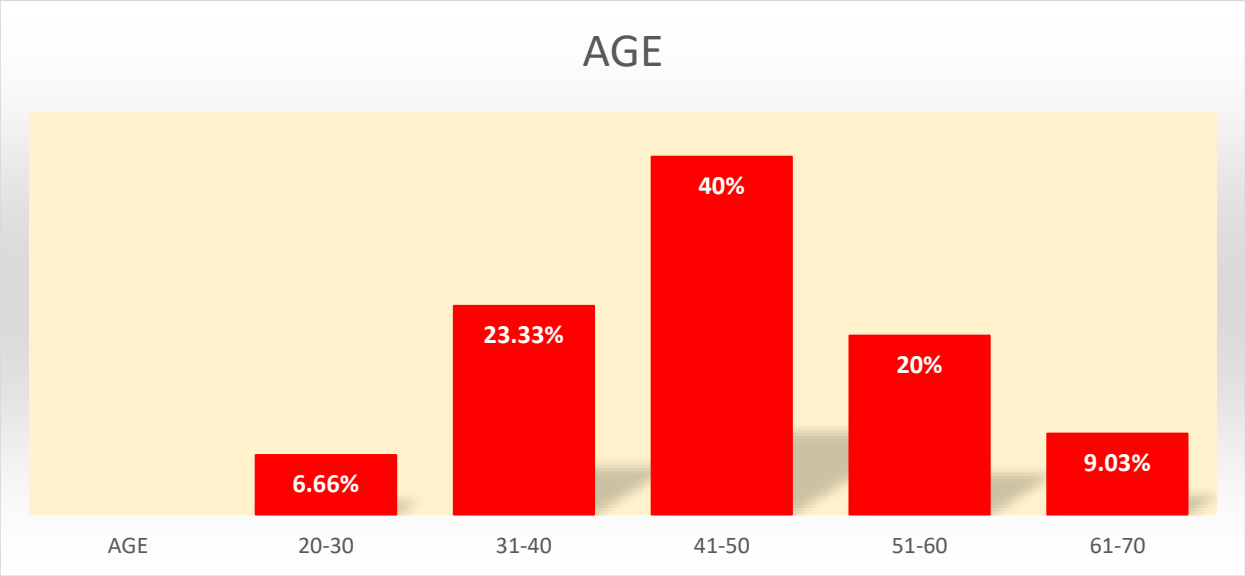


Chart 1: Graphical presentation of Age distribution

Observation:

The patients were selected from age groups between 40-65. Majority of cases were in the Age group of 41-50 years (40%), age group of 31-40 years were 12(23.3%) cases and age group 51-60 were 6 cases (20%), age group 61-70 were 8 cases (9.03%) and age group 20-30 were 19 cases (6.66%) and age group 61-70 were 3 cases (9.03%).

2.GENDER DISTRIBUTION:

S.No	SEX	NO OF CASES	PERCENTAGE
1.	Males	19	63%
2.	Females	11	37%

Table 2: Gender distribution

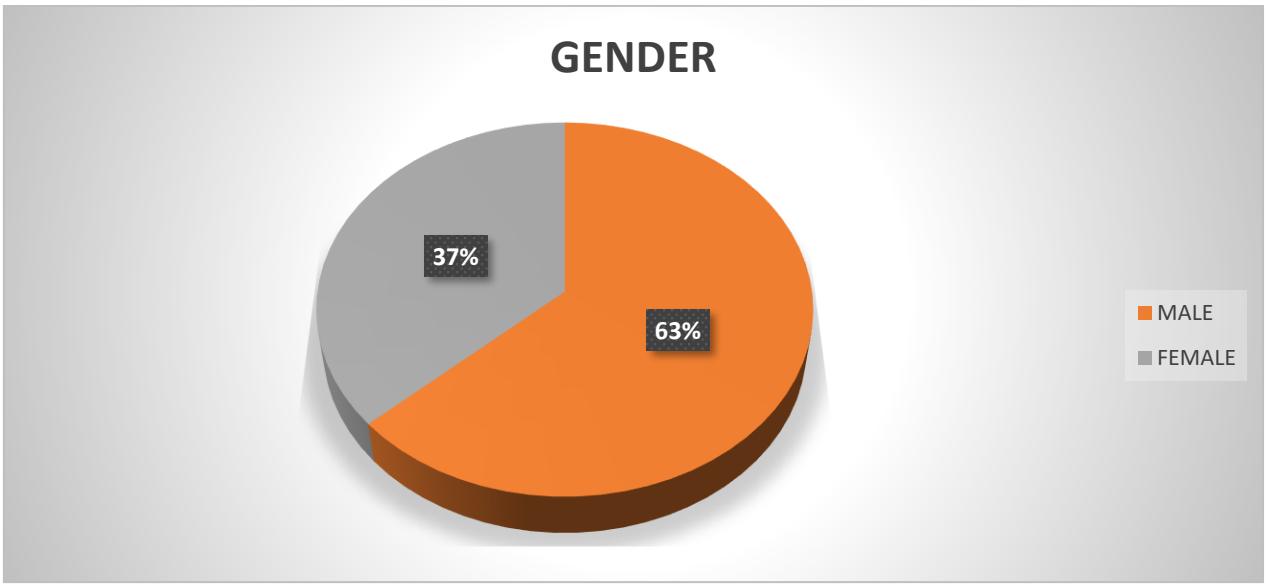


Figure -2

Observation:

Among 30patients, 19 patients (63%) were males, 11 patients (37%) were females.

3.AYUL KAALAM DISTRIBUTION (According toAge)

In Siddha literature human life has been divided into three periods as follows

1 Vaathakaalam

2 Pithakaalam

3 Kabakaalam

The duration of each period is said to be 33 years

Sl No	Kaalam	No. of Cases	Percentage
1	VathaKaalam (1-33 Years)	2	6.66%
2	PithaKaalam (34-66 years)	27	90%
3	KabaKaalam (67-100 years)	1	3.33%

Table 3: Age distribution

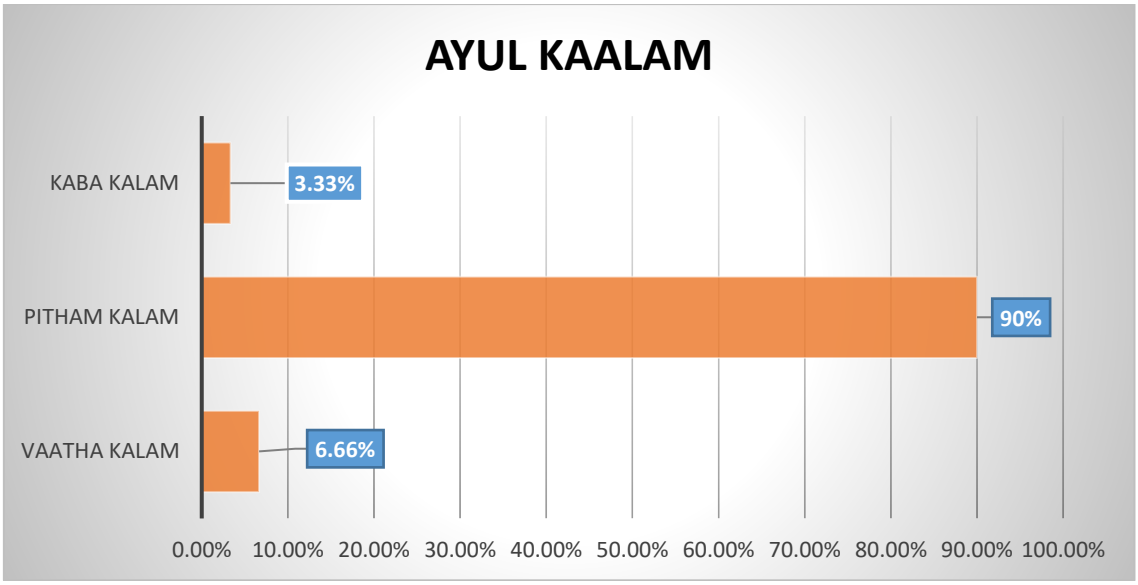


Figure -3

Observation

Out of 30 patients, 27 patients were reported in Pithakaalam, the remaining 2 in Vathakaalam.

4.SOCIO ECONOMIC STATUS

Sl. No	ECONOMIC STATUS	No. of Cases	Percentage
1	Low income	3	10%
2	Middle income	17	57%
3	High income	10	33%

Table 4: Socio economic status

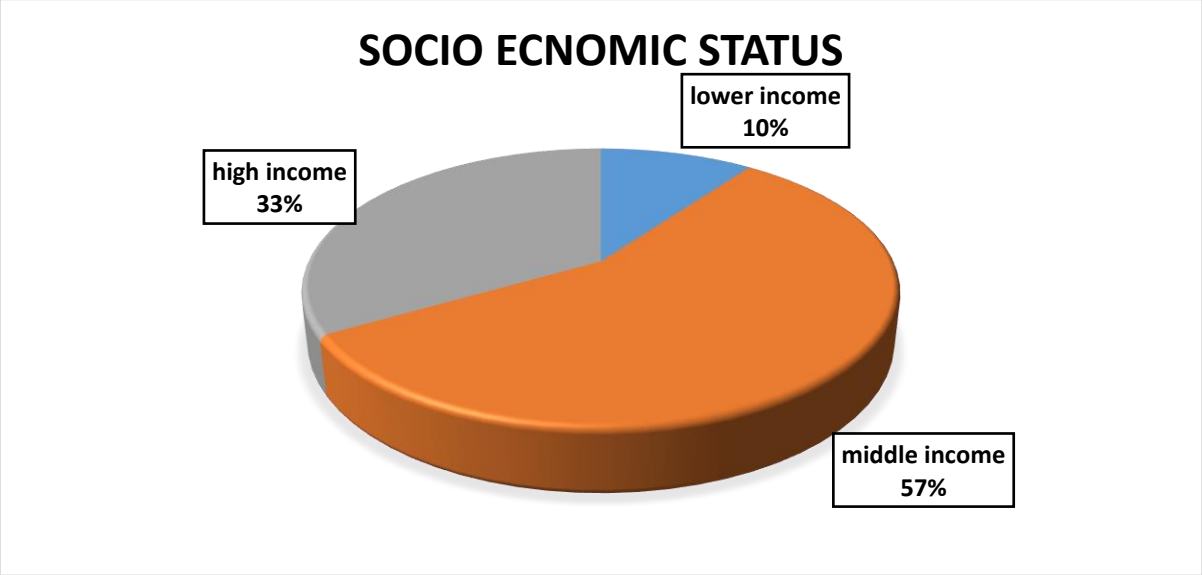


Figure -4

Observation

Out of 30 patients, 57% patients were under Middle income group, 33% patients were under high income group, the remaining 10% patients were under lower income group.

5.OCCUPATIONAL STATUS

Sl. No	Nature of Work	No. of Cases	Percentage
1	Farmer	2	6.66%
2	House wife	4	2.5%
3	House keeping	8	26.6%
4	Teacher	1	2.5 %
5	Software	2	5%
6	Tailor	1	2.5%
7	Kothanar	4	10 %

Table 5: Occupational status

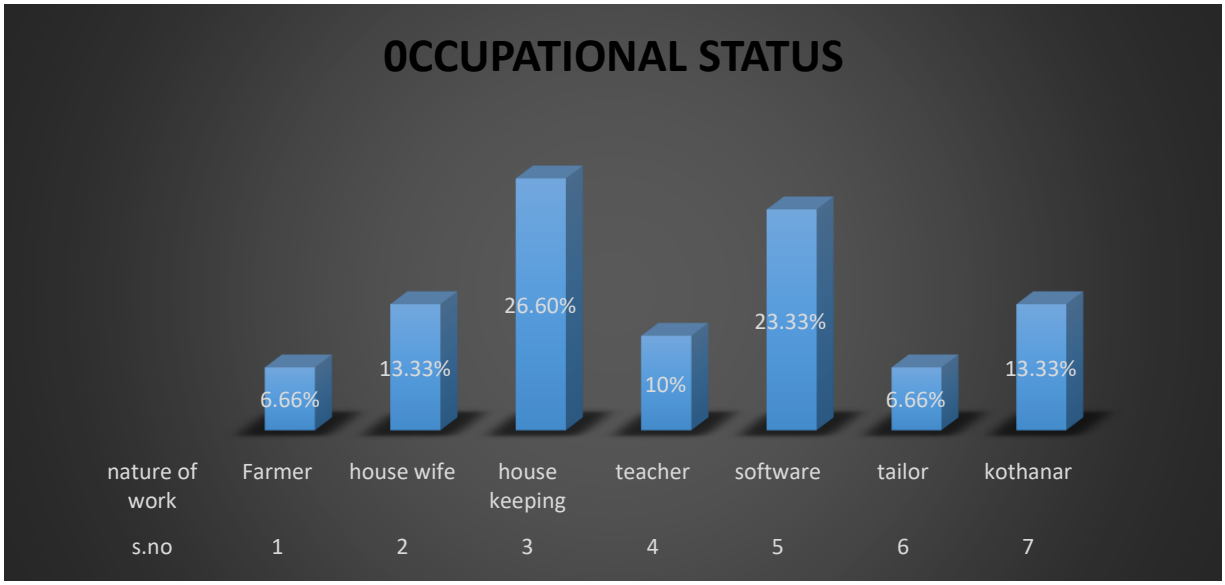


Figure-5

Observation

Among 30 patients 26.6% cases were house keeping, 13.33% were at building work, home maker. 23.33% of them were IT professional, 6.66% were tailor and Agriculture. 10% of them were teacher. According to occupational distribution, the housekeeping was mostly affected.

6.DIETARY HABITS

Sl. No	Dietary Habits	No. of Cases	Percentage
1	Vegetarian	5	17%
2	Non-Vegetarian	25	83%

Table 6: Dietary habits

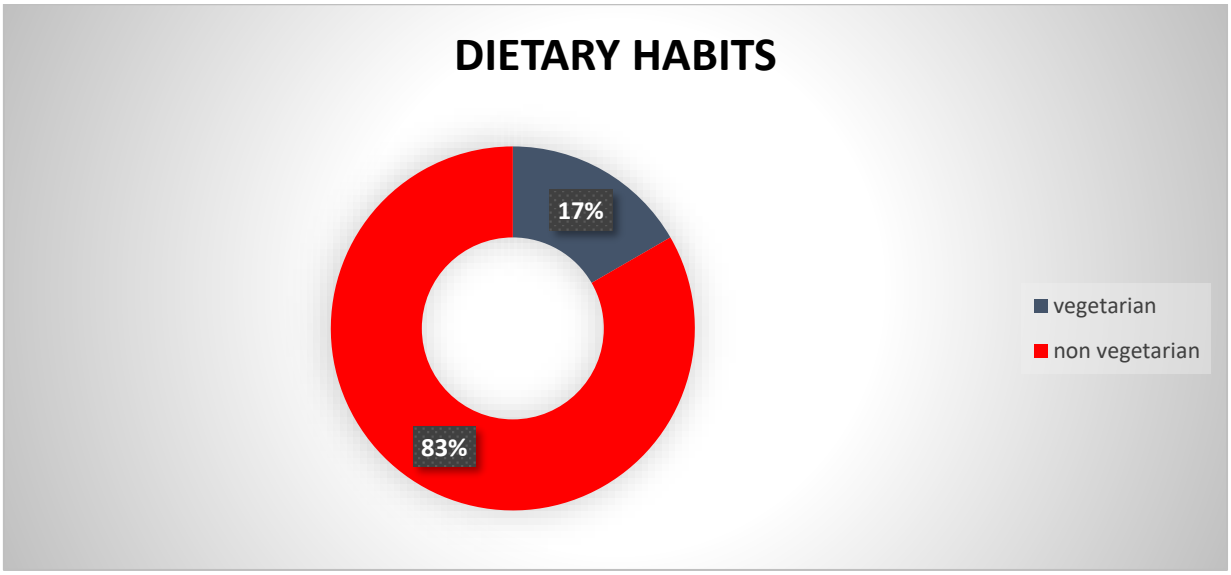


Figure -6

Observation

83% cases are non-vegetarian

*7.YAAKAI ILAKKANAM (*PHYSICAL CONSTITUTION)

SI.No	*YAAKAI ILAKKANM*	NO OF CASES	PERCENTAGE
1	*Vatha udal*	-	-
2	*Pitha udal*	-	-

3	*Kaba udal*	-	-
4	*Thonthaudal*	30	100%

Table 7: Yakkai ilakkanam

Observation:

All the patients (100%) had *Thontha Uda*l.

8.THINAI REFERENCE

Sl. No	Thinai	No. of Cases	Percentage
1	Kurinji (Hill Area)	0	0%
2	Mullai (Forest Area)	0	0%
3	Marutham (Fertile Land)	0	0%
4	Neithal (Coastal Area)	30	100%
5	Palai (Desert Land)	0	0

Table 8: Thinai refernce

Observation:

All the patients (100%) were from the *Neithal* (coastal area).

9.PARUVA KAALAM

Sl No.	Paruva Kaalam	No. of Cases	Percentage
1	Kaarkaalam (Aavani&Purattasi)	10	33.33%
2	KoothirKaalam (Aippasi&Kaarthigai)	5	16.66%
3	MunpaniKaalam (Margazhi& Thai)	15	50%
4	PinpaniKaalam (Maasi&Panguni)	0	0%

5	ElavenilKaalam (Chithirai&Vaikasi)	0	0%
6	MuthuvenilKaalam (Aani&Aadi)	0	0%

Table 9: Paruva kaalam

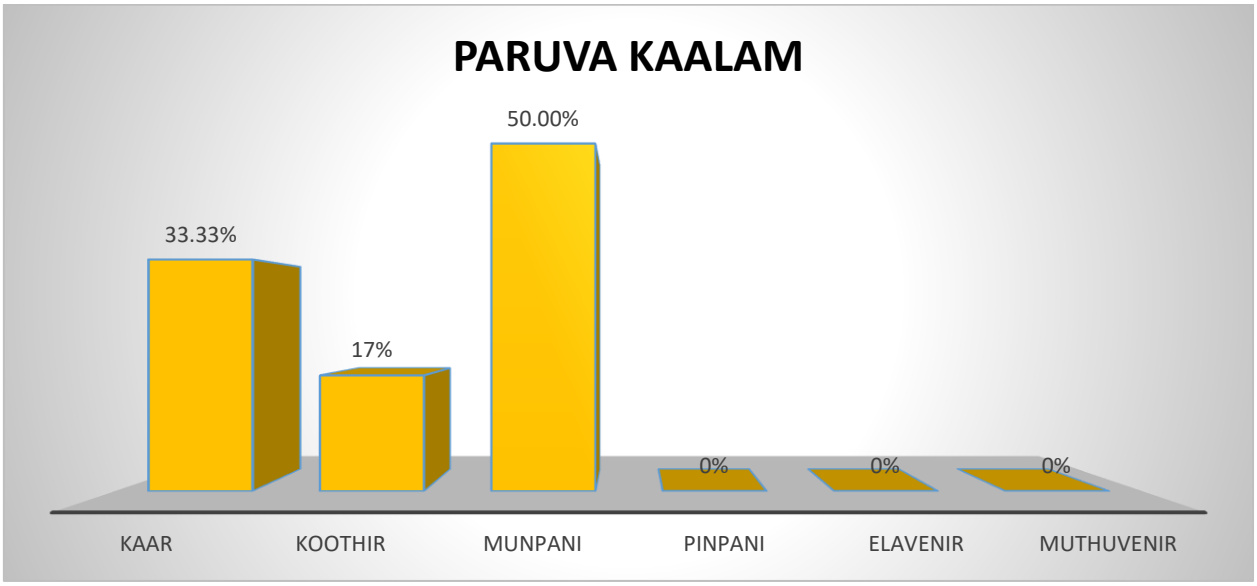


Figure-7

Observation

Among the 30 patients admitted for this study, the highest number of patients (50%) reported in *MunpaniKaalam*, 33.3% reported in *KaarKaalam*.

10.GUNAM (QUALITY AND CHARACTERS)

Sl. No	Gunam	No. of Cases	Percentage
1	SatthuvaGunam	0	0%
2	RasoGunam	30	100%
3	ThamoGunam	0	0%

Table 10: Gunam

Observation

In 30 patients 100% had Rasogunam

11.DURATION OF ILLNESS

S.No	DURATION OF ILLNESS	NUMBER OF CASES	PERCENTAGE
1	1-3months	25	83.3%
2	4-6months	5	16.66%

Table 11: Duration of illness

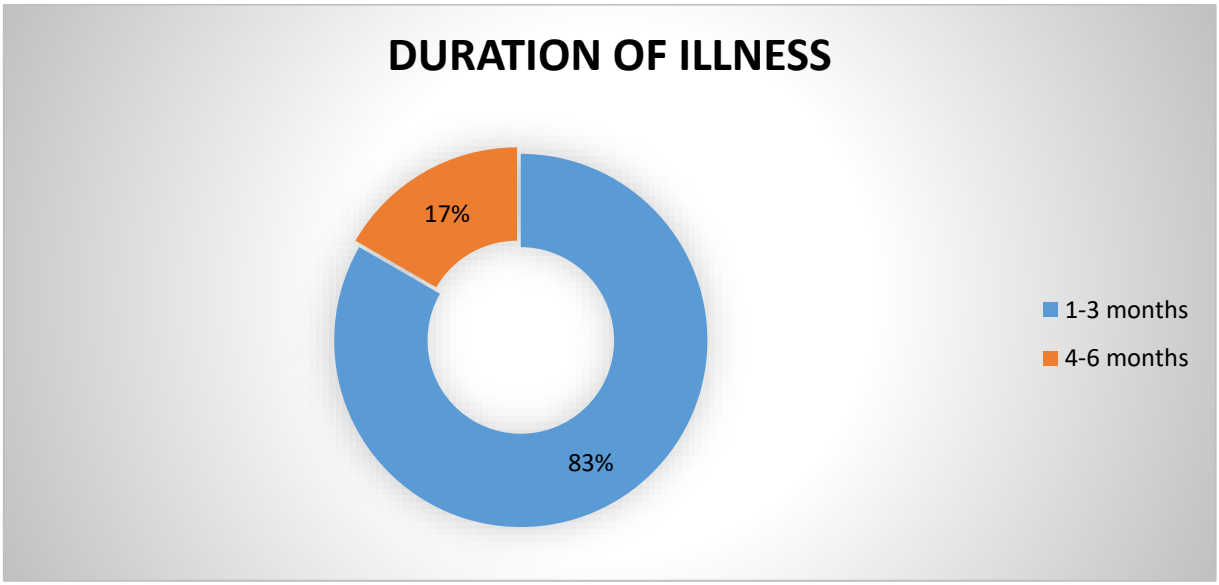


Figure-8

Observation:

Among the 30 patients the maximum number of patients 83% had the duration of illness between 1-3 months,17% of them had 4-6 months.

12.DISTRIBUTION OF *MUKKUTRAM:*

The derangements of *Vatham*, *Pitham* and *Kabam* in *Puramuli thabitham* as follows

A) Vatham

SI. No	Classification of *Vatham*	Before treatment No of cases	Percentage	After treatment No of cases	Percentage
1	*Pranan*	-	-	-	-
2	*Abanan*	10	33%	3	10%
3	*Uthanan*	-	-	-	-
4	*Samanan*	30	100%	10	33%
5	*Viyanan*	30	100%	15	50%
6	*Naagan*	-	-	-	-
7	*Koorman*	-	-	-	-
8	*Kirukran*	-	-	-	-
9	*Devathathan*	-	-	-	-
10	*Dhananjeyan*	-	-	-	-

Table 12: Distribution of Vaatham

Observation:

Out of 30 cases, before treatment *abanan* was affected in 33% cases and after treatment affected in 3% cases.

Out of 30 cases, before treatment *samanan* was affected in 100% cases and after treatment affected in 33% cases.

Out of 30 cases, before treatment *viyanan* was affected in 100% cases and after treatment affected in 50% cases.

B*) PITHAM*

SI. No	Classification of *pitham*	Before Treatment No of cases	Percentage	After Treatment No of cases	Percentage
1	Akkanal (Anarpitham)	-	-	-	-
2	Vanna Eri (Ranjakam)	-	-	-	-
3	Atralangi (Sathakam)	25	83.3%	8	26.6%
4	Nokkanal (Alosakam)	-	-	-	-
5	Ullolli thee (Prasakam)	-	-	-	-

Table 13: Distribution of Pitham

Observation:

Out of 30 cases, before treatment sathagam was affected in 83.3% and after treatment sathagam was affected in 26.6%.

C)KABAM

S.No	Classification of *pitham*	Before Treatment no of cases	Percentage	After treatment no of cases	Percentage
1	*Avalambagam*	-	-	-	-
2	*Kilethagam*	-	-	-	-
3	*Pothagam*	-	-	-	-
4	*Tharpagam*	-	-	-	-
5	*Santhigam*	30	100%	10	33%

Table 14: Distribution of Kabam

Observation:

Out of 30 cases , before treatment Santhigam was affected in 30 cases (100%) before and after treatment in 33%

13.ENVAGAI THERVUGAL:

In Siddha system of Medicine, the eight types of investigative procedure were adopted or clinical approach and diagnosis.

The investigations were done properly and observations were tabulated.

S.No	Envagai Thervugal	Before treatment No of cases	Percentage	After treatment	Percentage
1.	NAADI:				
	Vathapitham	13	43.33%	10	33.33%
	Vathakabam	4	13.33%	7	23.33%
	Pithavatham	1	0.33%	3	10%
	Pithakabam	2	6.66%	8	26.6%
	Kabavatham	6	20%	2	6.66%
	Kabapitham	4	13.3%	0	0%
2.	Sparisam	0	0%	0	0%
3.	Naa	0	0%	0	0%
4.	Niram	0	0%	0	0%
5.	Mozhi	0	0%	0	0%
6.	Vizhi	0	0%	0	0%
7.	Malam	6	10%	6	17%
8.	Moothiram	0	0%	0	0%

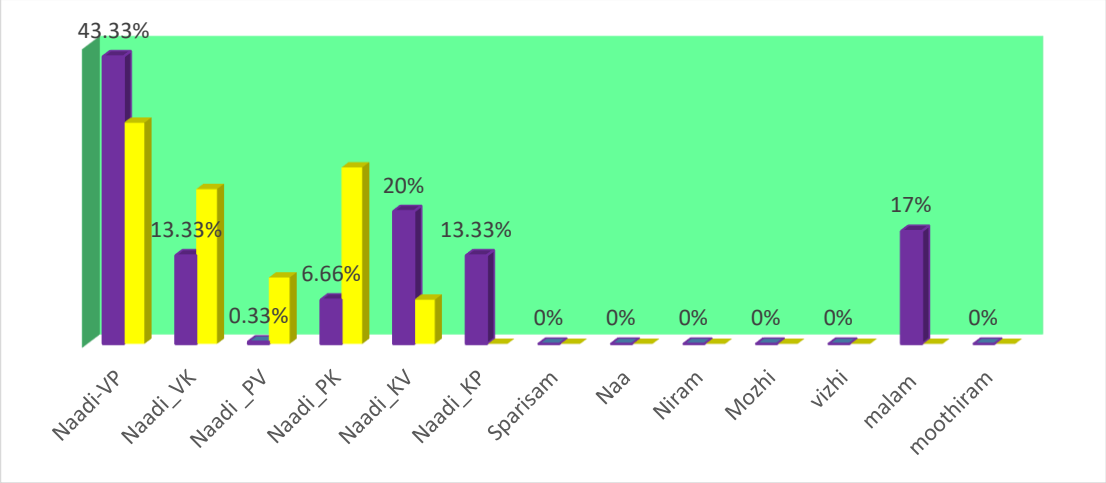


Figure-9

Observation:

Naadi nadai seen in *Puramuli thabitham* patients before treatment were *Vaathapitham 43.33*%, *vathakabham* 13.3%, *Pithavaatham* 0.33%, *Pithakabam* 6.66%, Kaba*pitham1*3.3%, *kabavatham* 20%. The *Naadi nadai* seen in *Puramuli thabitham patients* after treatment were *Vaathapitham* 33.34%, *vathakabham* 23.3%, *Pitha vaatham*10%, Pitha *kabam*26.7 %, *Kaba pitham*1.7%.

14.NEER KURI & NEI KURI:

A) NEER KURI:

S.No	Type		Before Treatment		After Treatment	
			No of cases	Percentage	No of cases	Percentage
1.	Niram	Pale yellow	30	100%	30	100%
2	Edai	Normal	30	100%	30	100%
3	Manam	Normal	30	100%	30	100%
4	Nurai	Nil	30	100%	30	100%
5	Enjal	Nil	30	100%	30	100%

Table 16: Neerkuri

Observation:

In neerkuri,100% of cases urine color was in colour of pale yellow.

B) NEIKKURI:

S.No	Neikkuri	Before Treatment		After Treatment	
		No of cases	Percentage	No of cases	Percentage
1	Vaatham	15	50%	10	33.33%
2	Pitham	5	16.66%	15	50%
3	Kabam	10	3.33%	7	16.66%
4	Total	30	100%	30	100%

Table 17: Neikuri

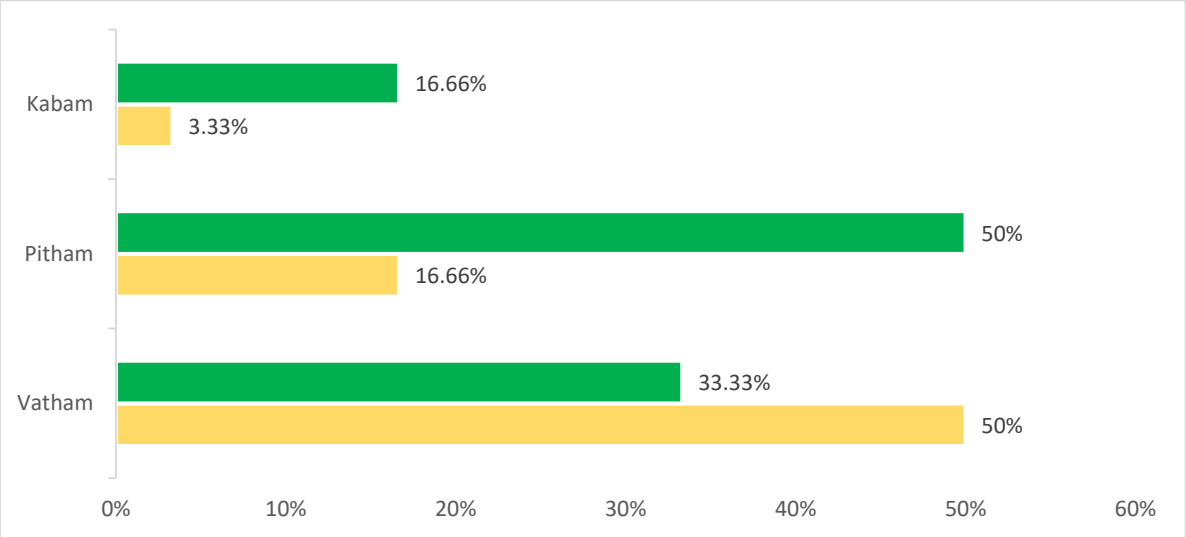


Figure-10

Observation:

Before treatment, in 50% of cases shows *Vaatham* patten, 16.66% of cases found as *pitham* patten and 3.33% cases found as *kabam* pattern. After treatment, in 33.33% of cases *Neikkuri* was found as Vaatham pattern, 50% of cases found as *pitham* pattern and 30% cases found as *kabam* pattern.

15.DISTRIBUTION OF *UDALKATTUKAL*

Sl.No	Udalkattukal	Before treatment		After treatment	
		No of cases	Percentage	No of cases	Percentage
1	*Saaram*	10	33.3	5	16.6
2	*Senneer*	-	-	-	-
3	*Oon*	-	-	-	-
4	*Kozhupu*	15	50	10	33.3
5	*Enbu*	15	50	10	33.3
6	*Moolai*	-	-	-	-
7	*Sukkilam / suronitham*	-	-	-	-

Table 18: Udal kattukal

Observation:

In this study. among the 7 *UdalKattugal*, *Saaram was* affected in all the 10 cases (100%) and after treatment 5 cases(16.6%). *Kozhupu,Enbu* were in all the 15 cases (50%) and after treatment 10 cases(33.3%).

16.CLINICAL FEATURES

Sl.no	Clinical features	Before treatment		After treatment	
		No of cases	Percentage	No of cases	Percentage
1	Pain	30	100%	15	50%
2	Swelling	10	33.33%	2	6.66%
3	Tenderness	30	100%	28	93.33%
4.	Restriction of movement	30	100%	20	66.66%

Table 19: Clinical features

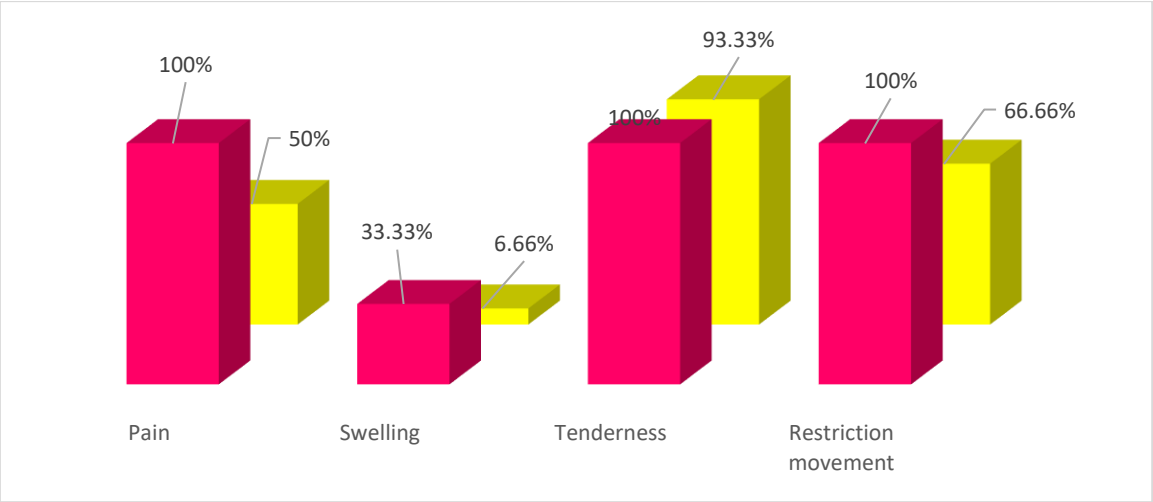


Figure-11

Observation:

In this study, before treatment 100% of cases had Pain, Tenderness and Restricted of movements and 10% of cases had swelling. After leech therapy, in 50% of cases pain was reduced, in 6.66% of cases swelling was reduced, in 93.33% of cases tenderness was reduced, in 66.66% of cases restricted movements of knee joint was reduced.

17.INVOLVEMENT OF ELBOW JOINTS

Involvement of Elbow joints	Number of cases	Percentage
Bilateral	2	6.66%
Unilateral	28	93.33%
Total	30	100%

Table 20: Involvement of elbow joints

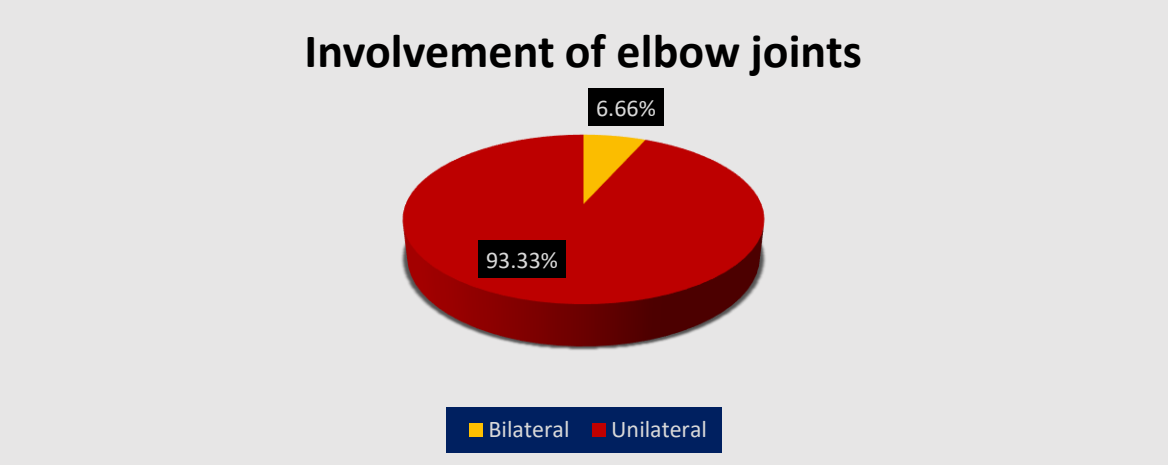


Figure-12

Observation:

Out of 93.33% of cases had **unilateral** lateral epicondylitis and 6.66% of patients had bilateral lateral epicondylitis.

18.PRECIPITATING FACTOR:

Precipitating factor	Number of cases	Percentage
H/o trauma	0	0
Sports activity	5	83.33
Occupation related	25	16.66
Total	30	100

Table 21: Precipitating factors

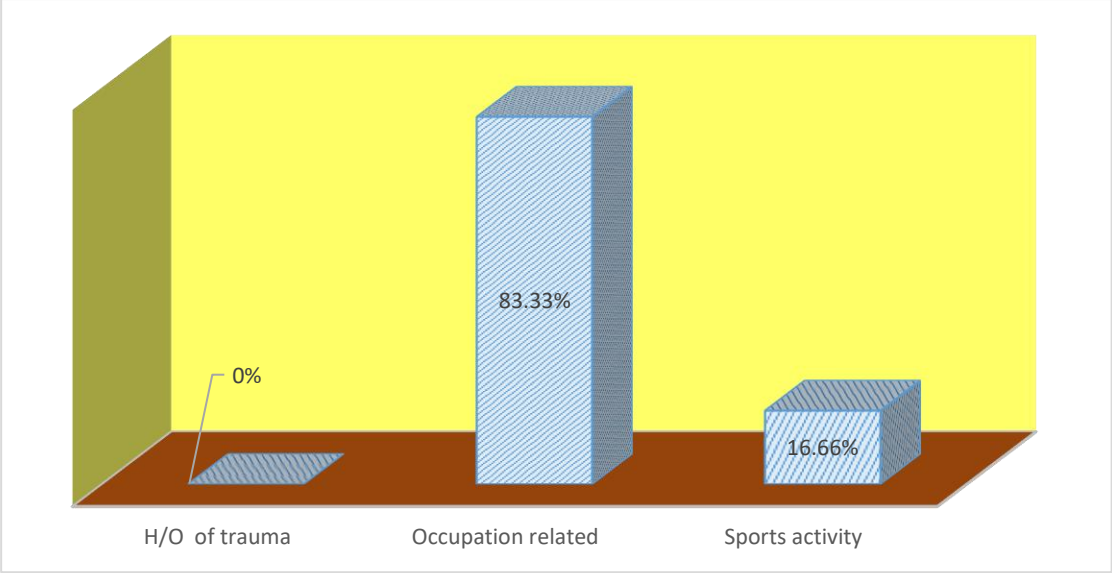


Figure-13

Observation:

Most of the cases 83.3% were occupation related, since Occupation is a most common precipitating factor of lateral epicondylitis.

19.RESULTS ACCORDING TO PRTEE SCALE SCORE

1.CLINICAL IMPROVEMENT –PAIN ASSESSMENT BY PRTEE SCALE

S.No	0pd No	Name	Age	Sex	Before treatment	After treatment
1	0054	Srinivasan	56	M	17	7
2	231125	Venkatesh	38	F	13	6
3	187910	Sivagami	41	F	15	9
4	222820	Arumugam	60	M	10	6
5	214057	Kamalraj	39	F	12	8
6	173792	Sumathi	48	M	20	9
7	185318	Megala	46	F	13	8
8	186181	Balamurugan	42	F	15	11

9	200390	Govidharaj	61	F	11	6
10	133048	lakshmanan	63	F	14	5
11	205752	Manikandan	38	F	10	6
12	204417	Sankari	46	F	15	7
13	60226	Hemalatha	48	F	11	4
14	204248	Selvam	54	M	10	5
15	174470	Vijayakumar	28	F	14	6
16	213167	Farithabanu	41	M	12	6
17	204625	Ramakrishnan	39	F	9	5
18	203048	Ragunathan	58	F	12	5
19	161853	Padmapriya	25	F	13	6
20	162900	Hemalatha	37	M	12	6
21	205602	Subramaniyan	45	M	12	7
22	227587	Sivashankari	41	F	12	6
23	221254	Siddhanam	45	M	10	7
24	220940	Arivalagan	41	M	10	5
25	220445	Deepa	46	F	12	5
26	220048	Ponnaiyan	37	M	12	6
27	218061	Ramalingam	46	M	10	6
28	202221	Munisamy	65	M	10	4
29	214837	Perumal	51	M	11	5
30	207067	Manjula	54	F	12	4

Table 22**: Pain assessment by prtee scale before and after treatment**

2.CLINICAL IMPROVEMENT –FUNCTIONAL ACTIVITY ASSESSMENT BY PRTEE SCALE

S.NO	0PD No	Name	Age	Sex	Before Treatment	AFTERT REATME NT
1	0054	Srinivasan	56	M	16.5	13
2	231125	Venkatesh	38	F	13.5	10
3	187910	Sivagami	41	F	15	10
4	222820	Arumugam	60	M	13	11
5	214057	Kamalraj	39	F	16.5	11.5
6	173792	Sumathi	48	M	20	12
7	185318	Megala	46	F	16	11
8	186181	Balamurugan	42	F	15.5	12
9	200390	Govidharaj	61	F	13.5	9.5
10	133048	Lakshmanan	63	F	15	8
11	205752	Manikandan	38	F	12	12
12	204417	Sankari	46	F	12	12.5
13	60226	Hemalatha	48	F	10.5	6
14	204248	Selvam	54	M	15	10
15	174470	Vijayakumar	28	F	12	12.5
16	213167	Farithabanu	41	M	14.5	12
17	204625	Ramakrishnan	39	F	10	8.5
18	203048	Ragunathan	58	F	8.5	10
19	161853	Padmapriya	25	F	11.5	8
20	162900	Hemalatha	37	M	12	9.5
21	205602	Subramaniyan	45	M	11.5	11
22	227587	Sivashankari	41	F	11.5	9

23	221254	Siddhanam	45	M	12	7
24	220940	Arivalagan	41	M	11.5	5
25	220445	Deepa	46	F	10	10
26	220048	Ponnaiyan	37	M	10.5	10
27	218061	Ramalingam	46	M	11.5	9.5
28	202221	Munisamy	65	M	12.5	9
29	214837	Perumal	51	M	10.5	9
30	207067	Manjula	54	F	11	8

Table 23**: functional activity before and after treatment**

3.CLINICALI MPROVEMENT – PAIN + FUNCITONAL DISABILITY ASSESSMENT BY PRTEE SCALE

S.NO	0PD NO	NAME	AGE	SEX	BEFORETREATMENT	AFTERTREATMENT
1	0054	Srinivasan	56	M	33.5	20
2	231125	Venkatesh	38	F	26.5	16
3	187910	Sivagami	41	F	30	19
4	222820	Arumugam	60	M	23	17
5	214057	Kamalraj	39	F	28.5	19.5
6	173792	Sumathi	48	M	40	21
7	185318	Megala	46	F	29	19
8	186181	Balamurugan	42	F	30.5	23
9	200390	Govidharaj	61	F	24.5	15.5
10	133048	Lakshmanan	63	F	29	13
11	205752	Manikandan	38	F	22	18
12	204417	Sankari	46	F	27	19.5
13	60226	Hemalatha	48	F	21.5	10
14	204248	Selvam	54	M	25	15
15	174470	Vijayakumar	28	F	26	18.5
16	213167	Farithabanu	41	M	26.5	18
17	204625	Ramakrishnan	39	F	19	13.5
18	203048	Ragunathan	58	F	20.5	15
19	161853	Padmapriya	25	F	24.5	14
20	162900	Hemalatha	37	M	24	15.5
21	205602	Subramaniyan	45	M	23.5	18
22	227587	Sivashankari	41	F	23.5	15

23	221254	Siddhanam	45	M	22	14
24	220940	Arivalagan	41	M	21.5	10
25	220445	Deepa	46	F	22	15
26	220048	Ponnaiyan	37	M	22.5	16
27	218061	Ramalingam	46	M	21.5	15.5
28	202221	Munisamy	65	M	22.5	13
29	214837	Perumal	51	M	21.5	14
30	207067	Manjula	54	F	23	12

Table 23**: Pain+functional activity assessment by prtee scale before and after treatmen**

20.STATISTICALANALYSIS

All collected data were entered into MS Excel software using different columns as variables and rows as patients. SPSS software was used toper form statistical analysis. Basic descriptive statistics include frequency distributions and cross tabulations were performed. The quantity variables were expressed as Mean ± Standard Deviation and qualitative data as percentage. A probability value of <0.05 was considered to indicate as statistical significance. **Paired ‘‘t’’ test** was performed for determining the significance between before and after treatment.

ACCORDING TO PRTEE SCALE-BEFORE AND AFTER TREATMENT

Testing the equality of means of different parameters of lateral epicondylitis outcomes core (PRTEE) on before and after treatment:

Null Hypothesis: There is no statistically significant difference on different parameters of lateral epcondylit is out come score (PRTEE) on before and after treatment.

Alternate Hypothesis: There is statistically significant difference on different parameters of lateral epicondylitis outcome score (PRTEE) on before and after treatment.

The Lateral Epicondylitis Outcome Score (PRTEE) is a patient-reported outcomemeasurement instrument, developed to assess the patient’s opinion about their elbow and associated problems. It holds 15 items in three separately scored subscales.

1)PAIN

When you are at rest.

When doing a task with repeated arm movement

When carrying a plastic bag of groceries

When your pain was at its least

2)SPECIFIC ACTIVITY

Turn a doorknob or key.

Carry a grocery bag or briefcase by the handle

Lift a full coffee cup or glass of milk to your mouth

Open a jar

Pull up pants

Wring out a washcloth or wet towel

3)USUAL ACTIVITY

Personal activities (dressing, washing)

Household work (cleaning, maintenance)

Work (your job or everyday work)

Recreational or sporting activities

4)FUNCTIONAL ACTIVITY

Specific activity+ Usual activity/2

5) PRTEE SCORE

Pain scale+Functional activity

Here we are using paired sample t test to compare each subscale score and final PRTEE scale before and after treatment.

1. PAIN ASSESSMENT BY PRTEE SCALE

Result	No of cases	Mean	Std.deviation	t-test	p-value
Before treatment	30	12.300	2.380	17.584	<0.0001***
After treatment	30	6.200	1.584		

Table -23

2.FUNCTIONAL ACTIVITY ASSESSMENT BY PRTEE SCALE

Result	No of cases	Mean	Std.deviation	t-test	p-value
Before treatment	30	15.433	3.256	8.823	<0.0001***
After treatment	30	10.333	1.936		

Table -24

3.PRTEE SCORE

Result	No of cases	Mean	Std.deviation	t-test	p-value
Before treatment	30	25.133	4.412	15.485	<0.0001***
After treatment	30	16.083	3.110		

Table- 25

21.ANALYSIS OF SUCCESS RATE OF LEECH THERAPY:

- Leech therapy often takes effect within a few days, and it achieves a significant & long-lasting improvement of symptoms than conventional therapies.
- Simple cost effective OPD procedure
- Pain tolerance of patients during leech procedure 90%
- Post operative management like scare disappeared in 3 -4 weeks after leech procedure
- Regular follow up in leech therapy 100%
- Itching presents some patient after leech procedure 30%

Sl.no	Op .no	Hb gm%		TC Cells/cu.mm		RBC 10^6 Cells/cu.mm		ESR/hr	
		BT	AT	BT	AT	BT	AT	BT	AT
1	0054	13.4	**11.2**	7100	7000	5.3	4.6	2/10	**1/8**
2	231125	13.2	**12.3**	8000	7700	6.2	6.1	4/10	6/14
3	222820	14.9	**12**	6600	8800	4.8	4	10/22	12/26
4	222820	13.7	**11.9**	9200	8500	4.7	4.2	8/16	10/20
5	214057	11.1	11.2	8200	7700	4.1	4.3	60/120	**36/72**
6	173792	11.4	**9.4**	11400	6800	4.2	3.5	10/22	16/34
7	185318	14.2	**12.9**	5900	5300	4.9	4.5	12/24	14/28
8	200390	15.7	**14.7**	8200	5700	5.1	4.8	4/10	6/14
9	185318	14.1	**12**	7500	10200	5.3	4.4	12/24	**8/16**
10	133048	15	**13.3**	10000	12800	4.8	4.6	28/46	**14/30**
11	204417	11.7	11.1	6800	7600	4.2	4.0	54/108	**38/76**
12	205752	13.3	**12.4**	5500	5300	4.4	3.9	6/14	8/18
13	60226	14.4	**13.2**	8600	6700	2.8	4.0	44/90	**8/16**
14	204248	13.5	**12.7**	10300	9300	4.6	4.3	40/80	**20/40**
15	174470	12.8	13.1	5700	5600	4.4	4.6	18/36	**10/20**
16	213167	9.8	9.2	7700	8800	4.5	4.3	50/100	**34/70**
17	204625	14.7	**13.4**	6900	6400	4.7	4.4	14/30	24/50
18	203048	14.6	**13.9**	9600	10900	4.9	4.5	10/22	**6/12**
19	161853	12.3	**11.3**	6800	7800	4.5	4.3	10/20	16/32
20	162900	10.2	**9.4**	6900	10400	4.1	4.5	20/42	60/122
21	205602	12.4	**11.6**	10600	11500	3.8	3.6	16/32	14/30
22	227587	14.3	14.3	4500	7000	4.5	4.6	10/22	14/30
23	221254	15.2	15.1	8900	8100	4.5	4.5	6/12	2/4
24	220940	12.4	12.4	9200	12300	4.3	4.5	13/32	10/20
25	220445	15	**14**	6100	7200	5	4.9	12/24	2/4
26	220048	10.5	**10**	11300	10500	4.5	4.3	35/50	15/30
27	218061	13.5	**12.7**	4900	4200	4.6	4.3	13/32	10/20
28	202221	14.7	**12**	7900	11200	4.5	4.5	14/30	26/54

29	214837	14.8	**12.5**	76001	7000	4.7	4.6	15/20	10/15
30		13.5	**11**	7500	7300	4.5	4.8	20/40	10/15

Sl.no	Op .No	Polymorphs		Lymphocytes		Monocytes		Eosinophils
		BT	AT	BT	AT	AT	BT	AT
1	0054	72	59	23	33	8	3	-
2	231125	65	69	30	27	-	-	4
3	222820	69	81	27	15	1	-	3
4	222820	74	71	23	25	4	3	-
5	214057	65	63	31	34	-	-	3
6	173792	75	54	20	41	5	-	-
7	185318	61	65	32	30	5	-	-
8	200390	80	66	17	28	6	3	-
9	185318	60	73	38	22	5	2	-
10	133048	58	83	37	15	-	-	2
11	204417	65	71	33	27	-	2	2
12	205752	53	49	43	47	2	-	2
13	60226	81	66	16	30	4	3	-
14	204248	66	58	31	39	1	3	2
15	174470	64	60	33	35	5	3	-
16	213167	68	67	27	30	-	3	3
17	204625	80	60	16	35	5	-	-
18	203048	72	65	23	30	5	-	-
19	161853	71	64	26	32	-	2	4
20	162900	60	60	36	37	1	4	2

21	205602	88	80	87	92	-	-
22	227587	81	66	93	80	-	-
23	221254	88	72	93	103	-	-
24	220940	102	80	123	112	-	-
25	220445	98	94	114	103	-	-
26	220048	115	94	142	124	-	-
27	218061	-	-	-	-	97	145
28	202221	100	86	117	117	-	-
29	214837	70	56	87	99	-	-
30	207067	-	-	-	-	86	102

Sl.no	Op.no	Blood Sugar (F)		Blood Sugar (PP)		Blood Sugar (Random)	
		BT	AT	BT	AT	BT	AT
1	0054	98	90	120	125		
2	231125	88	85	126	128		
3	222820	100	105	132	120		
4	222820	110	112	134	130		
5	214057	-	-	-	-	100	120
6	173792	130	135	126	122		
7	185318	99	102	105	106		
8	200390	-	-	-	-	124	120
9	185318	95	98	126	128		
10	133048	78	85	130	134		
11	204417	-	-	-	-	135	138
12	205752	78	80	125	120		
13	60226	84	86	118	110		
14	204248	90	92	126	123		

15	174470	96	100	138	135		
16	213167	-	-	-	-	120	124
17	204625	108	105	128	134		
18	203048	100	102	140	136		
19	161853	100	98	134	130		
20	162900	-	-	-	-	110	120
21	205602	78	85	128	120		
22	227587	82	88	115	118		
23	221254	84	80	118	120		
24	220940	-	-	-	-	123	125
25	220445	80	85	128	120		
26	220048	90	92	120	124		
27	218061	94	90	118	110		
28	202221	-	-	-	-	122	124
29	214837	90	95	130	128		
30	207067	98	95	148	158		

SI.NO	OP no	HBSAG	Anti HCV	HIV I & II	VDRL
1	0054	N	N	N	NR
2	231125	N	N	N	NR
3	222820	N	N	N	NR
4	222820	N	N	N	NR
5	214057	N	N	N	NR
6	173792	N	N	N	NR
7	185318	N	N	N	NR
8	200390	N	N	N	NR
9	185318	N	N	N	NR
10	133048	N	N	N	NR
11	204417	N	N	N	NR
12	205752	N	N	N	NR

13	60226	N	N	N	NR
14	204248	N	N	N	NR
15	174470	N	N	N	NR
16	213167	N	N	N	NR
17	204625	N	N	N	NR
18	203048	N	N	N	NR
19	161853	N	N	N	NR
20	162900	N	N	N	NR
21	205602	N	N	N	NR
22	227587	N	N	N	NR
23	221254	N	N	N	NR
24	220940	N	N	N	NR
25	220445	N	N	N	NR
26	220048	N	N	N	NR
27	218061	N	N	N	NR
28	202221	N	N	N	NR
29	214837	N	N	N	NR
30	207067	N	N	N	NR

N- Negative
NR- Non reactive

DISCUSSION

The main aim of the treatment was to study the safety and therapeutic efficacy of the *leech therapy* reduce pain, restriction of movements and other clinical symptoms in the disease P*uramuli thaabitham.*

The clinical features of *Puramuli thaabitham can* be correlated with Lateral epicondylitis in modern science. Lateral epicondylitis is a painful condition that occurs when tendons in your elbow are overloaded, usually by repetitive motions of the wrist and arm. There is a pain and tenderness in the around the elbow joints during wrist and forearm movement affect the daily activities of life.

The clinical study was conducted with a defined protocol after the approval of the Institutional Ethical Committee. After screening patients reporting at the OPD of department of Pura Maruthuvam,30 cases were selected for induction to the trial. Before enrollment into the trial the informed consent was obtained from the patients.

In this study 30 patients affected to lateral epicondylitis was enrolled. The patients were treated with *leech therapy* therapy ,45days 4 sittings at 7 days interval.

The treatment was aimed at normalizing the deranged thodams and providing relief from symptoms. Before treatment the patients were advised to take Meganatha kuligai 2 with hot water in early morning for purgation.

OPD patients are requested to treat leech therapy once in 7days. In each visit clinical assessment and prognosis once in 7 days.

After completion of treatment, the patients were advised to visit the Out-Patient ward of Department of Pura Maruthuvam for another 2 months for further follow-up.

Based on various criteria, the data were collected and tabulated. The criteria were history, sex predominance, age distribution, occupation, dietary habits and incidence of the disease with reference to thinai, seasonal variation, clinical manifestations and assessment of the improvement in the prognosis of the disease using PRTEE Scale.

The results observed during the study period were discussed by the author below:

In the present study, patients were in the **age group** of 41- 50 years. Demographic studies revealed that tendon injury changes commence between the 4^{th} and 5^{th} decades of life. This study also shows that the highest incidence of Puramuli thabitham is between61-65 yearsof age.

30 patients of both **gender** were recruited for this study. Among the 30 cases 19(63%) were males and 11 (37%) were females. Generally, the prevalence of lateral

epicondylitis is more likely to develop in males.

In my study while seeing **socio-economic status** of the patients the disease was found to be higher in the middle-income group 57%, moderate in the higher income group 33%, lower in the lower income group15%. Increased incident is present in middle income group because they were field workers. In general, this disease was more common in this middle economic group, hence the study reveals the same.

In Occupational distribution, among 30 patients 26.6% cases were house keeping, 13.33% were at building work, home maker. 23.33% of them were IT professional, 6.66% were tailor, Agriculture. 10% of them were teacher. According to occupational distribution, the housekeeping was mostly affected. In general, this disease was more common in people with repeated movement of elbow joint work, hence the study reveals the same.

In **Diet** Non vegetarian (92%) is very higher than the vegetarian (8%). According to the Siddha literature, non-vegetarian is one of the causative factor of this disease. Hence the study reveals the same.

In **Gunam** ,100% of cases had *Raso* ***Gunam***.

In **YaakaiIlakkanam** ,100% of cases had *Thonda udal.*

Regarding **Thinai,** 100% of the patients were from Neithal (Coastal Area). Vatha diseases are predominant in neithal thinai. As per the Siddha text, *vaatha* diseases are predominant in neithal thinai, which was seen in this study also.

In Duration **of illness** the majority of patients 25(83%) had short duration of illness between 1-3months.

According to the **clinical features,** among 30 patients included in the study, before treatment 100% of cases suffered from Pain, Tenderness and Restricted of movement.

About 93.33% of cases had **unilateral** lateral epicondylitis and 6.66% of patients had bilateral lateral epicondylitis.

In distribution of ***mukkutram***,

Vatham: *Viyanan, Samanan* were affected in all 30 cases before and after the treatment.

Pitham*: Sathagapitham* was affected in all 30 cases before and after treatment.

Kabham*: Santhigam* was affected in all the cases. *Santhiga kabam* lubricates and aids free movements of joints and hence it was affected in all the cases.

In ***udal kattukal****,,Saaram, kozhupu and enbu*were affected in all the 30 cases (100%) beforeandafter treatment sinceit is a degeneratingdisease.

In ***Envagaithervugal***, The ***Naadinadai*** seen in *Puramuli thabitham* patients before treatment were *Vaathapitham 43.33%, vathakabham* 13.3%, *Pithavaatham* 0.33%, *Pithakabam* 6.66%, *Kabapitham1*3.3%, *kabavatham* 20%.The *Naadinadai* seen in *Puramuli thabitham* patients after treatment were *Vaathapitham* 33.34%, *vathakabham* 23.3%, *Pitha vaatham* 10%, *Pithakabam* 26.7 %,*Kabapitham* 1.7%.

In 16.6% of cases, ***malam*** was affected before and after the treatment.

In **Neikkuri**, before treatment, in 50% of cases shows *Vaatham* patten,16.66% of cases found as *pitham* patten and 3.33% cases found as *kabam* pattern. After treatment, in 33.33% of cases *Neikkuri* was found as Vaatham pattern,50% of cases found as *pitham* pattern, and 30% cases found as *kabam* pattern.

Most of the cases 83.3% were **occupation** related, since Occupation isa most common precipitating factor of lateral epicondylitis.

Laboratory investigations of blood were done for all 30 cases. There were significant changes in blood haemoglobin and ESR parameters before and after treatment. In Leech therapy patients, there is a significant decrease in blood haemoglobin after the treatment since it is a bloodletting technique.

STATISTICAL ANALYSIS:

Inference of the treatment assessment response with PRTEE score and its subscales on before treatment and after treatment:

The Lateral Epicondylitis Outcome Score (PRTEE) is a patient-reported outcome measurement instrument, developed to assess the patient's opinion about their elbow and associated problems. It holds 15 items in three sparately scored subscales.

1)PAIN

2)SPECIFIC ACTIVITY

3) USUAL ACTIVITY

4) FUNCTIONAL ACTIVITY

5) PRTEE SCORE

Here we are using paired sample t test to compare each subscale score and final PRTEE scorebefore and after treatment.

1) **PAIN** was shown 12.3±2.38 on before treatment and it was6.20 ± 1.584 after treatment ($p<0.0001$).
2) **FUNCTIONAL DISABLITY** was shown 15.43±3.256 on before treatment and it was 10.33 ± 1.936 after treatment ($p<0.0001$).
3) **PRTEE SCORE** was shown 25.13±4.41on before treatment and it was16.08± 3.110 after treatment ($p<0.0001$).

Since the p-value is lessthan 0.05, reject the null hypothesis and accept the alternate hypothesis.

Here there is statistically significant difference between the before &after treatment.

SIGNIFICANCE OF LEECH THERAPY IN PURAMULI THABITHAM:

Tennis elbow is painful condition that radiates from the outside of elbow to fore arm and wrist joint.It is mostly affected between the age group of 30-50 years.Most of the tennis elbow patients might suggest for survey.

In these conditions affects the day-to-day life activites. Most of the cases treated by Non –streoidal anti-inflammatory drugs or steroid injection,painkillers,local anaesthesia are prescribed to the patients it causing side effects.

In leech therapy without causing any side effects and safest,lest cost effective way to treatment to pain management on lateral epicondylitis.Leech has a highly developed salivary glands by their salivary secretions contains more than 100 bialogical compounds such as

Hirudin, Calin, Destablise, Hyaluronidase, Eglins, Acetycholine, Anesthetic and histamine like substances which acts as Inhibits blood coagulation by binding to thrombin inhibits collagen mediated platelets aggregation,Anti-inflammatory,Vasodilator,Increase the inflow of blood at the bite side.In this study to had shown the effectiveness of Attaividal (Leech application) for the management of lateral epicondylitis.

SUMMARY

The clinical study on *Puramuli thabitham* with reference to its etiology, pathogenesis, investigations, clinical features, diagnosis and treatment were conducted at the Pura Maruthuvam Department, Ayothidoss Pandithar Hospital, National Institute of Siddha, Chennai – 47.

The study was conducted after approved by the Institutional Ethical Committee (IEC) and the trial was registered in Clinical trial registry of India **(CTRI/2021/08/081036038).** Hence the study is safely executed on patients and there were no adversere actions noted during the study period.

30 cases of both the gender (majority of males) with the signs and symptoms of *Puramuli thabitham* were selected in the age group 18-70 for the study and were treated *leech* therapy.

All the details about the study and the procedure were informed to the patients in their vernacular language, dietary regimen and information sheet were given to them and signed consent forms were obtained. Before starting the treatment, the blood samples of the selected patients were subjected to investigation.

Using paired “t” test, PRTEE score were compared. From the test results and means it is clear that there is statistically significant difference between Before and after treatment.

Leech therapy gives immediate relief from pain and relieves restricted movement from Day 1-Sitting I itself. It shows leech therapy can be preferred to *Puramuli thabitham* patients to relieve pain immediately.

CONCLUSION

Puramuli thabitham (lateral epicondylitis) is inflammatory disease, patient need to take medicine longer duration. Attaividal (Leech therapy) is one of the blood letting method which is used to treat the various inflammatory diseases. It is a minimaly invasive external therapy, so it can be adopted to relieve pain, swelling and other symptoms of lateral epicondylitis. Leech therapy is always utilized as an ulitimate measure when disease does not respond to other treatment. Since it is a superior treatment modality, patients can be treated without drug.

The study reveals that there is stastically significant before and after treatment.

Hence the study concludes that Attaividal(Leech therapy) gives hope to patients suffering from Lateral epicondylitis. And it is a simple and cost effective para surgical procedure in the reduction of pain and restriction of movement of *Puramuli thabitham* (lateral epcondylitis).

In the present study there was no adverse effect were reported.

The clinical trial conducted in selected patients was satisfactory and encouraging. Futher clinical research work on may be carried out in large sample size to explore the therapeutic importance of leech therapy in the management of Puramuli thabitham(lateral epcondylitis) .

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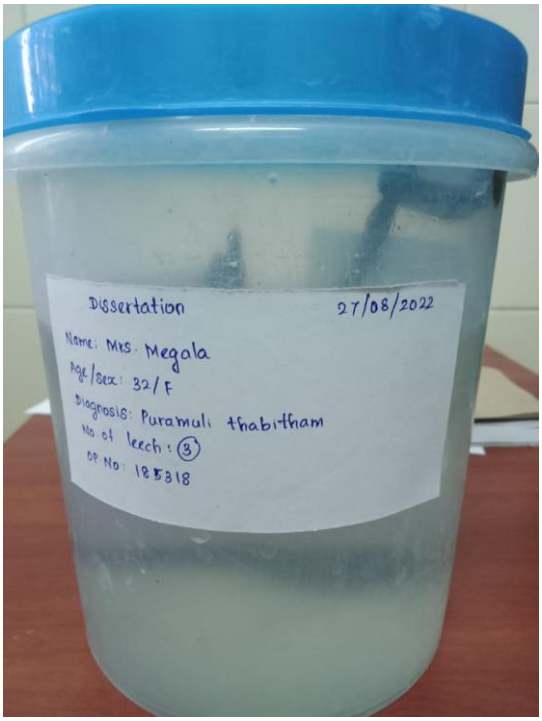
Leech Procedure



Material requirements of leech Procedure

Leech washing with turmeric powder

Weighing of Leech before procedure

Site marked by marker

During leech procedure

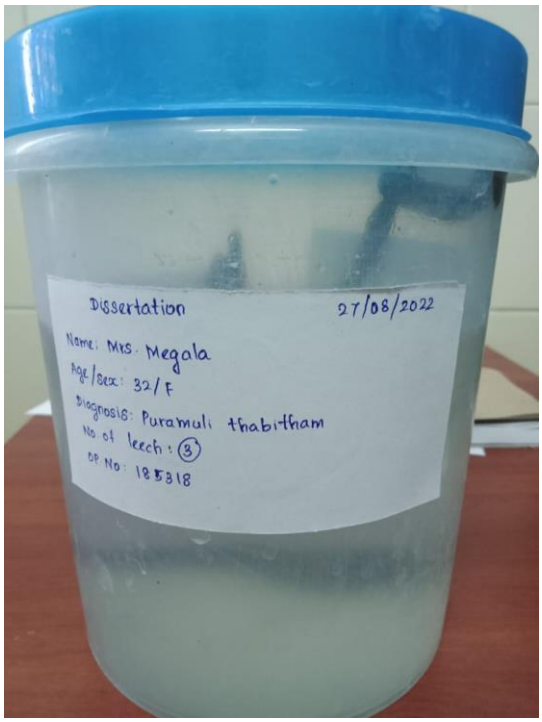
During leech procedure

Leech After procedure

Expulsion of blood after procedure

Leech weighing after procedure

After procedure leech washing turmeric powder



Clinical Trial Details (PDF Generation Date :- Sat, 04 Jun 2022 11:02:23 GMT)

CTRI Number	CTRI/2021/08/036038 [Registered on: 31/08/2021] - **Trial Registered Prospectively**
Last Modified On	17/08/2021
Post Graduate Thesis	Yes
Type of Trial	Interventional
Type of Study	Siddha Surgical/Anesthesia
Study Design	Single Arm Study
Public Title of Study	Therapeutic effectiveness of Attai vidal(leech therapy)in the management of"Puramuli thabitham"(Lateral epicondylitis)
Scientific Title of Study	Therapeutic effectiveness of Attai vidal(leech therapy)in the management of"Puramuli thabitham"(Lateral epicondylitis) An open clinical trial

Secondary IDs if Any

Secondary ID	Identifier
NIL	NIL

Details of Principal Investigator or overall Trial Coordinator (multi-center study)

Details of Principal Investigator	
Name	Dr G Ponmani
Designation	PG scholar
Affiliation	National institute of siddha
Address	Room number 3 Department of Puramaruthuvam National institute of siddha Tambaram sanitorium Kancheepuram TAMIL NADU 600047 India
Phone	9003766205
Fax	
Email	ponmanibsms@gmail.com

Details Contact Person (Scientific Query)

Details Contact Person (Scientific Query)	
Name	Dr NJ Muthukumar
Designation	Professor HoD
Affiliation	National institute of siddha
Address	Room no 3p Department of Puramaruthuvam Ayothidoss pandithar hospital National institute of siddha Tambaram sanatorium Chennai Kancheepuram TAMIL NADU 600047 India
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Email	njmuthu@hotmail.com

Details Contact Person (Public Query)

Details Contact Person (Public Query)	
Name	Dr G Ponmani
Designation	PG scholar
Affiliation	National institute of siddha
Address	Room no 3p Department of Puramaruthuvam Ayothidoss pandithar hospital National institute of siddha Tambaram sanatorium Kancheepuram TAMIL NADU 600047 India

Phone	9003766205
Fax	
Email	ponmanibsms@gmail.com

Source of Monetary or Material Support

Source of Monetary or Material Support
> Room 3p Department of Puramaruthuvam Ayothidoss pandithar hospital National institute of siddha Tambaram

Primary Sponsor

Primary Sponsor Details	
Name	Ayothidoss pandithar hospital National institute of siddha
Address	National institute of siddha Tambaram sanatorium Chennai
Type of Sponsor	Research institution and hospital

Details of Secondary Sponsor

Name	Address
NIL	NIL

Countries of Recruitment

List of Countries
India

Sites of Study

Name of Principal Investigator	Name of Site	Site Address	Phone/Fax/Email
Dr G Ponmani	Ayothidoss pandithar hospital National institute of siddha	Room no 3 Department of Puramaruthuvam National institute of siddha Kancheepuram TAMIL NADU	9003766205 ponmanibsms@gmail.com

Details of Ethics Committee

Name of Committee	Approval Status	Date of Approval	Is Independent Ethics Committee?
Institutional ethical committee	Approved	21/12/2020	No

Regulatory Clearance Status from DCGI

Status	Date
Not Applicable	No Date Specified

Health Condition / Problems Studied

Health Type	Condition
Patients	Medical and Surgical
Patients	Other specified disorders of synovium and tendon

Intervention / Comparator Agent

Type	Name	Details
Intervention	Leech therapy	Leech is used to treat lateral epicondylitis in about 30 patients for 48 days(depending upon the condition with 3 to 4 sittings) For each sittings leech is applied for maximum of one hour or until it fall down
Comparator Agent	Nil	Not applicable

Inclusion Criteria

Inclusion Criteria	
Age From	18.00 Year(s)
Age To	70.00 Year(s)
Gender	Both
Details	Pain in lateral side of elbow Tenderness present around elbow joint If the test for lateral epicondylitis is positive Symptoms persist for 6 week to 6 months

Exclusion Criteria

Exclusion Criteria

Details	History of Tuberculosis,Hepatitis B, AIDS, syphilis, Heamophilia & Anticoagulant treatment Pregnancy & lactation, Uncontrolled Diabetes ,Psychiatric disorder Surgery of the affected hand during the previous 3 month or joint replacement

Method of Generating Random Sequence	Not Applicable
Method of Concealment	Not Applicable
Blinding/Masking	Open Label

Primary Outcome

Outcome	Timepoints
To assess the pain, tenderness, stiffness, range of movement, grip in the elbow by patient rated tennis elbow evaluation scale	48 days

Secondary Outcome

Outcome	Timepoints
Documentation of siddha basic diagnostic principles such as manikadai,envagai thervu	Before and after treatment

Target Sample Size	**Total Sample Size=**30 **Sample Size from India=**30 **Final Enrollment numbers achieved (Total)=**Applicable only for Completed/Terminated trials **Final Enrollment numbers achieved (India)=**Applicable only for Completed/Terminated trials
Phase of Trial	Phase 2
Date of First Enrollment (India)	06/09/2021
Date of First Enrollment (Global)	No Date Specified
Estimated Duration of Trial	**Years=**1 **Months=**1 **Days=**0
Recruitment Status of Trial (Global)	Not Applicable
Recruitment Status of Trial (India)	Not Yet Recruiting
Publication Details	Nil
Brief Summary	Lateral epicondylitis are common forms of tendinitis that frequently respond poorly to the usual conservative treatment attempts. Leech therapy is used for various medical conditions.Hence I decided to carry out on open clinical trial on therapeutic effect of Attai vidal (leech therapy)in the management of Puramuli thabitham (Lateral epicondylitis)

The Tamil Nadu Dr.M.G.R. Medical University

69, Anna Salai, Guindy, Chennai - 600 032.

This certificate is awarded to Dr. G. PONMANI

for participating as Resource Person / Delegate in the 33rd Workshop on

" How To Do a Good Dissertation & Publish? (Research Methodology and Biostatistics)"

For AYUSH Post - Graduates & Researchers organized by the Department of Siddha,

The Tamil Nadu Dr.M.G.R. Medical University from 24.02.2020 to 28.02.2020.

Dr.N.KABILAN
PROFESSOR & HEAD, DEPT.OF SIDDHA

Dr. M.B.ASWATH NARAYANAN
REGISTRAR

Prof. Dr.SUDHA SESHAYYAN
VICE CHANCELLOR

NATIONAL INSTITUTE OF SIDDHA
राष्ट्रीय सिद्ध संसथान
Ministry of AYUSH - आयुष मंत्रालय
GOVERNMENT OF INDIA-भारत सरकार
TAMBARAM SANATORIUM, CHENNAI -600 047 -ताम्बरम सनटोरियम चेन्नई -600 047
फ़ोन\Tele : 044-22411611 फैक्स\Fax : 22381314
ईमेल: nischennaisiddha@yahoo.co.in वेब :www.nischennai.org

F. No: NIS/4-76/IEC/2020 Date: 28th June 2021

CERTIFICATE

Address of Ethics Committee: National Institute of Siddha, Tambaram Sanatorium, Chennai-600047, Tamil Nadu, India	
Principal Investigator: Dr. G. Ponmani, II Year Department of Pura Maruthuvam - Dissertation	
Protocol title: THERAPEUTIC EFFECTIVENESS OF *ATTAI VIDAL* (LEECH THERAPY) IN THE MANAGEMENT OF "*PURAMULI*" *THABITHAM* (LATERAL EPICONDYLITIS) AN OPEN CLINICAL TRIAL.	
Documents filed	1) Protocol 2) Data Collection forms 3) Patient Information Sheet 4) Consent form 5)SAE(Pharmacovigilance)
Clinical Trial Protocol (others- Specify)	**Yes**
Informed consent documents	**Yes**
Any other documents	**-**
Date of IEC approval & its number	**21-12-2020;NIS/IEC/2020/D-12**

We approve the clinical study to be conducted in its presented form.

The Institutional Ethics Committee expects to be informed about the progress of the study, Review periodically, any SAE occurring in the course of the study, any changes in the protocol and submission of final report.

J. Lakshmi Kanthan
28/6/2021
Member Secretary

MEMBER SECRETARY
INSTITUTIONAL ETHICS COMMITTEE
NATIONAL INSTITUTE OF SIDDHA
CHENNAI -600 047

28/6/2021
Chairman

CHAIRMAN / ~~VICE-CHAIRMAN~~
INSTITUTIONAL ETHICS COMMITTEE
NATIONAL INSTITUTE OF SIDDHA
CHENNAI - 600 047.

NATIONAL INSTITUTE OF SIDDHA
AYOTHIDOSS PANDITHAR HOSPITAL, CHENNAI – 600 047

DEPARTMENT OF PURA MARUTHUVAM

THERAPEUTIC EFFICACY OF *ATTAIVIDAL* (LEECH THERAPY) IN THE MANAGEMENT OF *PURAMULI THABITHAM* (LATERAL EPICONDYLITIS)

Principal Investigator: Dr. G.Ponmani

FORM I - SCREENING & SELECTION PROFORMA

1. SERIAL NO: **2. OP /IP NO:**
3. NAME: **4. AGE/GENDER:**
5. OCCUPATION: **6. CONTACT NO:**

INCLUSION CRITERIA

- Whether age is 18 to 70 years YES\NO
- Sex M\F\TRANSGENDER
- Pain in lateral epicondyle YES\NO
- Tenderness in lateral epicondyle YES\NO
- Stiffness present in lateral epicondyle YES\NO
- Restricted movement YES\NO
- A positive tennis elbow pain test (mill's sign, chair pickup test, cozen's test) YES\NO
- Inability to put weight on the joint without pain YES\NO
- Patient willing to undergo laboratory investigations YES\NO
- Patients willing to sign the informed consent stating that he/she will conscientiously stick to the treatment during 48 days but can opt out of the trial of his/her own conscious discretion. YES\NO
- Patient willing to take photograph before and after leech therapy. YES\NO

EXCLUSION CRITERIA

- Recent history of trauma, fracture, surgery of affected hand YES\NO
- Presence of local infection or skin disease on the proposed site of leech YES\NO

- H/O Uncontrolled Diabetes mellitus YES\NO
- H/O Uncontrolled Hypertension YES\NO
- H/O Psychiatric disease YES\NO
- H/O Tuberculosis YES\NO
- H/O Hepatitis B, AIDS, Syphilis YES\NO
- Pregnancy and lactation YES\NO
- Patient with associated conditions involving the upper limb such as injury to the elbow joint, carpal tunnel syndrome, radial epicondylitis, radial tunnel syndrome and effusion about the anconeal triangle indicating on intraarticular disease. YES\NO

ADMITTED TO TRAIL

YES		NO	
If Yes, OPD		IPD	

Serial NO:

Date:

Station:

Signature of the Investigator:

Signature of the Lecturer:

NATIONAL INSTITUTE OF SIDDHA

AYOTHIDOSS PANDITHAR HOSPITAL, CHENNAI – 600 047

DEPARTMENT OF PURA MARUTHUVAM

THERAPEUTIC EFFICACY OF ATTAIVIDAL (LEECH THERAPY) IN THE MANAGEMENT OF PURAMULI THABITHAM (LATERAL EPICONDYLITIS)

Principal Investigator: Dr. G.Ponmani **CTRI REG NO:**

FORM II – CASE RECORD FORM

STUDY NO: **OP/ IP NO:**

NAME: **AGE/GENDER:**

ADDRESS: **CONTACT NO:**

RELIGION: H / M / C / O

OCCUPATION: **INCOME:**

MARRITAL STATUS: **MARRIED** ☐ **UNMARRIED** ☐

DATE OF INITIAL ASSESSMENT:

COMPLAINTS & DURATION:

PERSONAL HISTORY:

PERSONAL HABITS	YES	NO	IF YES SPECIFY DURATION	AMOUNT/Qty
Smoking				
Tobacco Chewing				
Alcohol				
Narcotic Drug Addiction				

HISTORY OF PREVIOUS ILLNESS AND TREATMENT TAKEN:

FAMILY HISTORY:

Whether this problem runs in family? 1. Yes ☐ 2. No ☐

If yes, mention the relationship of affected person(s)

1._____ 2._____

DIETARY HABIT: 1.Vegetarian ☐ 2.Non-vegetarian ☐

MENSTURAL HISTORY AND OBSTETRIC HISTORY:

FORM II B

GENERAL EXAMINATION

		BEFORE		AFTER	
1. Body weight [Kg]	:				
2. Height [cms]	:				
3. Body Temperature [^{0}F]	:				
4. Blood Pressure (mm/Hg)	:				
5. Pulse Rate /min	:				
6. Heart Rate / min	:				
7. Respiratory Rate /min	:				
		Yes	**No**	**Yes**	**No**
8 . Pallor	:	☐	☐	☐	☐
9. Jaundice	:	☐	☐	☐	☐
10. Clubbing	:	☐	☐	☐	☐
11. Cyanosis	:	☐	☐	☐	☐
12. Pedal Oedema	:	☐	☐	☐	☐
13. Lymphadenopathy	:	☐	☐	☐	☐
14. Jugular venous pulsation	:	☐	☐	☐	☐

VITAL ORGANS EXAMINATION:	**Normal**	**Abnormal**	**Normal**	**Abnormal**
1. Heart	☐	☐	☐	☐
2. Lungs	☐	☐	☐	☐
3. Brain	☐	☐	☐	☐
4. Liver	☐	☐	☐	☐
5. Kidney	☐	☐	☐	☐
6. Spleen	☐	☐	☐	☐
7. Stomach	☐	☐	☐	☐

SYSTEMIC EXAMINATION:	**Normal**	**Abnormal**	**Normal**	**Abnormal**
1. Cardio-vascular system	☐	☐	☐	☐
2. Respiratory system	☐	☐	☐	☐
3. Gastro intestinal system	☐	☐	☐	☐

4. Central nervous system ☐ ☐ ☐ ☐
5. Uro-genital system ☐ ☐ ☐ ☐
6. Endocrine system ☐ ☐ ☐ ☐

SIDDHA SYSTEM OF EXAMINATION

1. THEGI (TYPE OF BODY CONSTITUTION):

1. Vaatha udal ☐ 3. Kaba udal ☐
2. Pitha udal ☐ 4.Thontha udal ☐

2. NILAM (LAND WHERE THE PATIENT LIVED MOST):

1. Kurinji ☐ 3. Paalai ☐
2. Mullai ☐ 4. Neithal ☐
5. Marutham ☐

3. KAALAM:

1. Kaar kaalam ☐ 4. Pinpani kaalam ☐
2. Koothir kaalam ☐ 5. Ilavenil kaalam ☐
3. Munpani kaalam ☐ 6. Muthuvenil kaalam ☐

4. GUNAM:

1. Sathuvam ☐ 2. Rasogunam ☐
3. Thamogunam ☐

5. PORIPULANGAL (SENSORY ORGANS):

	Before treatment	**After treatment**
Mei (Skin)	Normal / Affected	Normal / Affected
Vai (Tongue)	Normal / Affected	Normal / Affected
Kann (Eye)	Normal / Affected	Normal / Affected
Mooku (Nose)	Normal / Affected	Normal / Affected
Sevi (Ear)	Normal / Affected	Normal / Affected

6. **KANMENDRIYAM (MOTOR ORGANS) :**

	Before treatment	**After treatment**
Kai(Upper limb)	Normal /Affected	Normal /Affected
Kaal (Lower limb)	Normal /Affected	Normal /Affected
Vai (Oral cavity)		

	Normal /Affected	Normal /Affected
Eruvai (Anal reg.)	Normal /Affected	Normal /Affected
Karuvai (Uro-genital region)	Normal /Affected	Normal /Affected

7.KOSANGAL (SHEATH):

	Before treatment	**After treatment**
Annamaya kosam	Normal /Affected	Normal /Affected
Pranamaya kosam	Normal /Affected	Normal /Affected
Manomaya kosam	Normal /Affected	Normal /Affected
Vignanamaya kosam	Normal /Affected	Normal /Affected
Ananthamaya kosam	Normal /Affected	Normal /Affected

8. SEVEN UDAL THAATHUKKAL (SEVEN SOMATIC COMPONENTS)

	Before treatment	**After treatment**
Saaram	Normal /Affected	Normal /Affected
Senneer	Normal /Affected	Normal /Affected
Oon	Normal /Affected	Normal /Affected
Kozhuppu	Normal /Affected	Normal /Affected
Enbu	Normal /Affected	Normal /Affected
Moolai	Normal /Affected	Normal /Affected
Sukkilam / Suronitham	Normal /Affected	Normal /Affected

9. UYIR THATHUKKAL (THREE HUMOURS):

A. VALI

	1st Day	**8th Day**	**15th day**	**22nd day**	**29th day**	**36th day**	**43rd day**	**48th day**
Praanan								
Abaanan								
Viyaanan								
Udhaanan								
Samaanan								
Naagan								

Koorman								
Kirukaran								
Devathathan								
Dhananjeyan								

B) AZHAL

	1st day	**8th Day**	**15th Day**	**22nd day**	**29th day**	**36th day**	**43rd day**	**48th day**
Anarpitham								
Prasakam								
Ranjagapitham								
Aalosakam								
Saathakam								

C. IYAM:

	1st day	**8th day**	**15th day**	**22nd day**	**29th Day**	**36th Day**	**43rd day**	**48th day**
Avalambagam								
Kilethagam								
Pothagam								
Tharpagam								
Santhigam								

10. ENVAGAI THERVU: [EIGHT TYPES OF EXAMINATION]

I. NAADI: [PULSE PERCEPTION]

1st day	**8th day**	**15th day**	**22nd day**	**29th day**	**36th day**	**43rd day**	**48th day**

II. SPARISAM:

1st day	**8th Day**	**15th Day**	**22nd day**	**29th day**	**36th day**	**43rd day**	**48th day**

III. NAA:[TONGUE]:

1st day	8th Day	15th Day	22nd Day	29th Day	36th Day	43rd Day	45th Day

VI.NIRAM: [COMPLEXION]

1. Vaatham ☐ 2. Pitham ☐ 3.Kabam ☐

V.MOZHI: [VOICE]

1. High Pitched ☐ 2. Low Pitched ☐ 3. Medium Pitched ☐

VI.VIZHI: [EYES]

1st day	8th Day	15th Day	22th Day	29th Day	36th Day	43rd Day	48th Day

VII. MALAM: [BOWEL HABITS / STOOLS]

	Before treatment	After treatment
Niram		
Irugal		
Ilagal		
Others		

VIII. MOOTHIRAM [URINE EXAMINATION]

Neerkkuri	Before treatment	After treatment
Niram		
Manam		
Edai		
Nurai		
Enjal		

NEIKURI	Before treatment	After treatment
Aravu (Serpentine fashion)		
Aazhi (Annular/Ringed fashion)		
Muthu (Pearl beaded fashion)		
Kalappu (Mixed fashion)		
Other fashion		

CLINICAL EXAMINATION:

LOCOMOTOR SYSTEM:

CLINICAL SYMPTOMS:

Affected heel:	Right		Left		Both		
Pain in heel:	Mild		Moderate		Severe		
Stiffness in heel:	Mild		Moderate		Severe		
Onset:	Sudden		Gradual				

CLINICAL EXAMINATION

I.INSPECTION:

	1th day	8th day	15th day	22nd day	29th day	36th day	43rd day	48th day
Swelling								
Stiffness								
Gait								

II.PALPATION:

	1th day	8th day	15th day	22th day	29th day	36th day	43rd day	48th day
Tenderness								
Local heat								

III. MOVEMENTS

	1th day	8th day	15th day	22nd day	29th day	36th day	43rd day	48th day

Flexion								
Extension								

IV. JOINT MESUREMENT:

A. HEALTH ASSESSMENT QUESTIONNAIRE:

	1th day	8th day	15th day	22nd day	29th day	36th day	43rd day	48th day
A.Pain Onset: Sudden/Gradual								
B. Early morning Stiffness (Present/absent)								
C. Nature of pain (Mild/ Moderate/ Severe)								
D. Aggravating factor- Movement								
E. Relieving factor - Rest(Yes/No)								
F. Tenderness (Present/absent)								
G.Restriction of movement (Fully/Partial/No)								

Date:

Station:

Signature of the Investigator:

Signature of the Lecturer:

NATIONAL INSTITUTE OF SIDDHA

AYOTHIDOSS PANDITHAR HOSPITAL, CHENNAI – 600 047

DEPARTMENT OF PURA MARUTHUVAM

THERAPEUTIC EFFICACY OF ATTAIVIDAL (LEECH THERAPY) IN THE MANAGEMENT OF PURAMULI THABITHAM (LATERAL EPICONDYLITIS)

FORM -III - LABORATORY INVESTIGATIONS

Principal Investigator: Dr. G. Ponmani

1. SERIAL NO: **2. OP /IP NO:**
3. NAME: **4. AGE/GENDER:**

BLOOD INVESTIGATIONS		NORMAL VALUES	BEFORE TREATMENT	AFTER TREATMENT
Hb(gm/dl)		M:13-18 W:11-16		
T.RBC(millions cells /Cu.mm)		M:4.5-6.5 W:3.5-5.5		
ESR (mm)	½ hr.	M:0-10 W:0-20		
	1 hr.			
T.WBC (Cells /Cu.mm)		4000-11000		
Differential Count (%)	Polymorphs	40-75		
	Lymphocytes	20-35		
	Monocytes	2-10		
	Eosinophils	1-6		
	Basophils	0-1		
Bleeding Time		1-3 minutes		
Clotting Time		3-8 minutes		

BLOOD INVESTIGATIONS		NORMAL VALUES	BEFORE TREATMENT	AFTER TREATMENT
Blood glucose (mg/dl)	Fasting	70-110		
	PP	80-140		

OTHER TESTS

BLOOD INVESTIGATIONS	BEFORE TREATMENT	AFTER TREATMENT
Anti HCV		
VDRL		
HBsAg		
HIV I and II		

Date:

Station:

Signature of the Investigator:

Signature of the Lecturer:

NATIONAL INSTITUTE OF SIDDHA
AYOTHIDOSS PANDITHAR HOSPITAL, CHENNAI – 600 047

DEPARTMENT OF PURA MARUTHUVAM

THERAPEUTIC EFFICACY OF ATTAIVIDAL (LEECH THERAPY) IN THE MANAGEMENT OF PURAMULI THABITHAM (LATERAL EPICONDYLITIS)

FORM IV– INFORMATION SHEET

Name of Principal Investigator :Dr.G.Ponmani

Name of the institute **:** National Institute of Siddha,
Tambaram Sanatorium,
Chennai-47

INFORMATION SHEET FOR PATIENTS PARTICIPATING IN THE OPEN CLINICAL TRIAL:

I, Dr.G.Ponmani Studying as M.D(Siddha) at National Institute of Siddha, Tambaram Sanatorium is doing a trial on the study of PURAMULI THABITHAM (LATERAL EPICONDYLITIS). In this regard, I am in a need to ask you few questions. I will maintain confidentiality of your comments and data obtained. There will be no risk of disclosing your identity and no physical, psychological or professional risk is involved by taking part in this study. Taking part in this study is voluntary. No compensation will be paid to you for taking part in this study.

If you agree to be a participant in this study, you will be included in the study primarily by signing the consent form and then you will be given the Leech therapy (External therapy) 1- 5 times with 7 days interval, if you wish to stay in the In Patient ward Treatment will be provided to you assuring that you will not be definitely hurt in any course of treatment. Leech therapy may cause hypopigmentation or scar tissue formation. It will not cause any side effects.

The information I am collecting in this study will remain between you and the principal investigator (myself). If you wish to find out more about this study before taking part, you can ask me all the questions you want or contact Dr.G.Ponmani Contact number 9003766205, PG Scholar cum principal investigator of this study, attached to National Institute of Siddha, Chennai-47. You can also contact the Member-secretary of Ethics committee, National Institute Siddha, Chennai 600047, for rights and participation in the study

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தகவல் படிவம்

புறமூலி தாபிதம் நோய்க்கான சித்த மருந்துகளின் அட்டைவிடல் (வெளி மருந்து) பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்விற்கான தகவல் படிவம்

நிறுவனத்தின் பெயர்
தேசிய சித்த மருத்துவ நிறுவனம்
தாம்பரம் சானட்டோரியம் சென்னை-47

தேசிய சித்த மருத்துவ நிறுவனத்தில் பட்ட மேற்படிப்பு பயின்று வரும் நான் (மருத்துவர் க.பொன்மணி) புறமூலி தாபிதம் என்னும் நோய்க்கான மருத்துவ ஆராய்ச்சியில் ஈடுபட்டுள்ளேன்.

இது முழங்கையின் புறபக்கம் வலி, வீக்கம் முதலிய குறிகுணங்களைக் கொண்ட நோய்.இது பரவக்கூடிய நோய் அல்ல. இந்த ஆராய்ச்சி சம்பந்தமாக சில கேள்விகளைக் கேட்கவும், தேவையான ஆய்வக பரிசோதனைக்கு தங்களை உட்படுத்தவும் உள்ளேன். இந்த ஆராய்ச்சிக்கு தங்கள் விருப்பத்தின் பேரில் உட்படும் பட்சத்தில் வெளி மருத்துவமாக -7 நாட்கள் இடைவெளியில் 5 முறை மருத்துவமனைக்கு வரவேண்டும். அட்டைவிடல் மருத்துவம் செய்யும் போது சிறிய வகையான தழும்பு ஏற்பட வாய்ப்புள்ளது. இந்த மருத்துவத்தினால் எந்த வித பக்கவிளைவும் ஏற்படாது. மேலும், நோய் தொடர்பான மருத்துவ அறிவுரைகள், உணவுக்கட்டுப்பாடு வரைமுறைகள் பற்றியும் விளக்கமளிக்கப்படும். இது சம்பந்தமான தங்களது அனைத்து விவரங்களும் ரகசியமாக வைக்கப்படும் என உறுதி அளிக்கிறேன். இதில் பயணப்படி முதலிய எந்த உதவி தொகையும் வழங்கப்பட மாட்டாது. இந்த ஆராய்ச்சியின் போது உடலுக்கு வேறு பாதிப்பு ஏற்படும் பட்சத்தில் தேசிய சித்த மருத்துவமனையில் தக்க மாற்று சிகிச்சை அளிக்கப்படும். இந்த ஆராய்ச்சியில் தங்களை உட்படுத்திய பிறகு உங்களுக்கு விருப்பமில்லையெனில் எப்போது வேண்டுமானாலும் விலகி கொள்ள முழு உரிமை உள்ளது.

இந்த ஆராய்ச்சி சம்பந்தமாக மற்ற விபரங்களுக்கும் நோயின் தன்மை பற்றியும் முதன்மை ஆராய்ச்சியாளரான மரு. க.பொன்மணி (பட்ட மேற் படிப்பாளர் புறமருத்துவ பிரிவு) அணுகவும். கைப்பேசி எண் 9003766205. மேலும் இந்த ஆராய்ச்சிக்கு IEC சான்று பெறப்பட்டுள்ளது.

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DEPARTMENT OF PURA MARUTHUVAM

THERAPEUTIC EFFICACY OF *ATTAIVIDAL* (LEECH THERAPY) IN THE MANAGEMENT OF *PURAMULI THABITHAM* (LATERAL EPICONDYLITIS)

Name of Principal Investigator: Dr.G.Ponmani

FORM-V– CONSENT FORM

CERTIFICATE BY INVESTIGATOR

I certify that I have disclosed all the details about the study in the terms readily understood by the patient

Signature _____

Name _____

Date _____

CONSENT BY THE PATIENT

I have been informed to my satisfaction, by the attending physician, the purpose of the clinical trial, and follow-up to monitor and safeguard my body functions.

I am aware of my right to opt me out of the trail at any time during the course of the trail without having to give the reasons for doing so.

I, exercising my free power of choice, hereby give my consent to include me as a subject in the **Therapeutic efficacy of *Attaividal* (leech therapy) in the management of *Puramuli thabitham* (lateral epicondylitis).**

Date: Signature _____
Name _____

Station: Signature of witness _____
Name _____

FORM-V ஒப்புதல் படிவம்

ஆய்வாளரால் சான்றளிக்கப்பட்டது

நான் புறமூலி தாபிதம் என்னும் நோயின் ஆய்வைக் குறித்த அனைத்து விபரங்களையும் நோயாளிக்குப் புரியும் வகையில் எடுத்துரைத்தேன் என உறுதியளிக்கிறேன். தேதி: கையொப்பம்:

இடம்:

பெயர்:

நோயாளியின் ஒப்புதல்

என்னிடம் இந்த மருத்துவ ஆய்வின் காரணத்தையும், அட்டை விடும் முறை பற்றியும், தொடர்ந்து எனது உடல் இயக்கத்தைக் கண்காணிக்கவும், அதனைப் பாதுகாக்கவும் பயன்படும் மருத்துவ ஆய்வுக்கூட பரிசோதனைகள் பற்றி திருப்தி அளிக்கும் வகையில் ஆய்வு மருத்துவரால் விளக்கிக் கூறப்பட்டது. நான் இந்த மருத்துவ ஆய்வின் போது, எப்பொழுது வேண்டுமானாலும் இந்த ஆய்விலிருந்து என்னை விடுவித்து கொள்ளும் உரிமையைத் தெரிந்திருக்கின்றேன். இந்த மருத்துவ ஆய்விற்கு தேவைபடும் பட்சத்தில் என்னை புகைபடம் எடுக்கவும் அதனை ஆராய்ச்சி சம்மந்தபட்ட விஷயங்களுக்குப் பயன்படுத்தவும் இதன் மூலம் ஒப்புக்கொள்கிறேன். நான் என்னுடைய சுதந்திரமாகத் தேர்வு செய்யும் உரிமையைக் கொண்டு புறமூலி தாபிதம் நோய்கான அட்டை விடுதல் பரிகரிப்பத் திறனைக் கண்டறியும் மருத்துவ ஆய்விற்கு என்னை உட்படுத்த ஒப்புதல் அளிக்கிறேன்.

கல்வியறிவற்ற நோயினருக்கு.

நோயாளிக்கு ஒப்புதல் படிவம் முழுவதும் தெளிவான முறையில் ஆய்வு மருத்துவரால் வாசித்துக் காண்பிக்கப்பட்டது நோயாளிக்கு ஆய்வு குறித்த தன் சந்தேகங்களைக் கேட்க வாய்ப்பளிக்கப்பட்டது நோயாளி சுதந்திரமாக ஒப்புதல் அளித்ததை நான் உறுதி செய்கிறேன்.

தேதி:

இடம்:

கையொப்பம்:

பெயர்:

சாட்சிக்காரர் கையொப்பம்:

பெயர்: உறவுமுறை:

துறைத்தலைவர் கையொப்பம்

விரிவுரையாளர் கையொப்பம்:

NATIONAL INSTITUTE OF SIDDHA
AYOTHIDOSS PANDITHAR HOSPITAL, CHENNAI – 600 047

DEPARTMENT OF PURA MARUTHUVAM

THERAPEUTIC EFFICACY OF ATTAIVIDAL (LEECH THERAPY) IN THE MANAGEMENT OF PURAMULI THABITHAM (LATERAL EPICONDYLITIS)

Name of Principal Investigator: Dr.G.Ponmani

FORM VI - WITHDRAWAL FORM

1. SERIAL NO OF THE CASE:

2. OP / IP NO:

3. NAME:

4. AGE:

5. GENDER:

6. DATE OF TRIAL COMMENCEMENT:

7. DATE OF WITHDRAWAL FROM TRIAL:

8. REASONS FOR WITHDRAWAL:

Long absence at reporting:	Yes/ No
Irregular treatment:	Yes/ No
Shift of locality:	Yes/No
Increase in severity of symptoms:	Yes/No
Development of severe adverse drug reactions:	Yes/No
Development of adverse event:	Yes/No

(If YES, give the details of adverse reaction in Form VII -B – Adverse Reaction Form / Pharmaco Vigilance Form)

Date:

Station:

Signature of the Investigator:

Signature of the Lecturer: **Signature of the HOD**

NATIONAL INSTITUTE OF SIDDHA
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DEPARTMENT OF PURA MARUTHUVAM

THERAPEUTIC EFFICACY OF ATTAIVIDAL (LEECH THERAPY) IN THE MANAGEMENT OF PURAMULI THABITHAM (LATERAL EPICONDYLITIS)

Name of Principal Investigator: Dr.G.Ponamni

FORM VII - A – ADVERSE REACTION FORM / PHARMACO VIGILANCE FORM

SERIAL NO:

OP/IP NO:

NAME: **AGE:** **GENDER:**

DATE OF TRIAL COMMENCEMENT:

DATE OF THE ADVERSE REACTION OCCUR:

DESCRIPTION OF ADVERSE REACTION:

Date:

Station:

Signature of the Investigator:

Signature of the Lecturer: **Signature of the HOD**

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DEPARTMENT OF PURA MARUTHUVAM

THERAPEUTIC EFFICACY OF ATTAIVIDAL (LEECH THERAPY) IN THE MANAGEMENT OF PURAMULI THABITHAM (LATERAL EPICONDYLITIS)

Principal Investigator: Dr.G.Ponmani

FORM - VII DIETARY ADVICE FORM

சேர்க்க கூடிய உணவுகள்	தவிர்க்க வேண்டியவைகள்
காய்கள் (Vegetables): கத்தரிப்பிஞ்சு (Unripe brinjal) முருங்கைப்பிஞ்சு (Unripe drumstick) அவரைப்பிஞ்சு (Unripe Dolichos bean) **கீரைகள்(Greens):** பொன்னாங்கண்ணி (Sessile plant [*Alternanthera sessilis*]) மூக்கிரட்டை (Hog weed [*Boerhaavia diffusa*]) தூதுவேளை (Climbing brinjal [*Solanum trilobatum*]) முருங்கைக்கீரை (Leaves of Drumstick [*Moringa oleifera*]) கறிவேப்பிலை (Curry leaf [*Murraya koenigii*]) முடக்கறுத்தான் (Winter cherry [*Cardiospermum halicacabum*]) அறுகீரை (*Amaranthus tristis*) கரிசாலை (trailing eclipta [Eclipta prostrate]) **பழங்கள்(Fruits):** மாதுளை (Pomegranate) ஆப்பிள் (Apple) பப்பாளி (Papaya) ஆரஞ்சு (Orange) பேரீச்சை (Dates) அத்தி (Fig) நாவல் (Jambul [*Syzygium cumini*]) **அசைவம் (Non-vegetarian diet):** வெள்ளாட்டுக்கறி (Meat) காடை (Quail), சிறு இறால்மீன் (Prawn)	சுரை (Bottle gourd) பூசணி (Pumpkin) வெள்ளரிக்காய் (Cucumber) புடலை (Snake gourd) பீர்க்கு (Ridged gourd) உளுந்து (Black gram) மொச்சை (Indian butter Bean) காராமணி (Cow gram) கொள்ளு (Horse gram) கடுகு (Mustard) எண்ணெய் (Gingelly oil) புளிப்பு (Sour) உப்பு (Salt) வாயுப் பொருட்கள் (Vatha diet) உருளைக் கிழங்கு (Potato) வாழைக் காய் (Plantain) புகையிலை (Tobacco) மது அருந்துதல் (Alcohol) பெண்போகம் (இச்சா பத்தியம்) [Sexual intercourse]

மருத்துவ அறிவுரை:

ஈரமில்லாத் தரையிலும், படுக்கையிலும் படுத்தல் வேண்டும்,
குளிர் காற்று படும்படியான இடத்தில் இருப்பதைத் தவிர்க்கவும்.
உடல் அதிக எடை இருப்பின் எடையைக் குறைக்க வேண்டும்.
அதிக தூரம் நடத்தல், அதிக நேரம் நிற்றல் தவிர்க்கவும்.