A STUDY ON
THALASTHAMBAM

Dissertation Submitted To
THE TAMIL NADU DR.M.G.R Medical University
Chennai – 32

For the Partial fulfillment for Awarding the Degree of
DOCTOR OF MEDICINE (SIDDHA)
(Branch – V, NOI NAADAL)

DEPARTMENT OF NOI NAADAL
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HIGHLIGHTS OF THE DISSERTATION TOPIC

Thalasthambam comes under Vatha roga nithanam in Yugi Vaithya Sinthamani 800.

For any type of disease the vali humour is first affected. Followed by alteration in other humour.

In thalasthambam, yugi explains that the altered vali humour is aggravated by the excessive intake of salt and sour (i.e) these tastes acts as a pre-disposing factor for the disease.

The disease is characterized by the presence of heaviness of the foot, pain in the foot, blackening of the foot, spreading upwards from foot, weight loss, Dyspnoea, fatigue, dryness of the body, thirst.

In this disease, the Udal thathukkal Saram, Senneer, Oon, Kozhuppu, Enbu, Moolai are affected as 6 out of 7 udal thathukkal gets deranged the disease is not – curable.

The underlying pathogenesis for the Thalasthambam is the peripheral atererial occlusive disorder resulting in gangrene formation due to pan-arthritis leading to thrombosis as seen in “Thrombo Angitis obliterans”.
REVIEW OF LITERATURE

In Segarasasekaram Vaithyam, the following poem is mentioned.

In Sarabanthirar vaithya maraigal and Thanvanthiri Vaithyam. The thalasthambam is explained with the same poem mentioned by Yugi in Yugi Vaithya Sinthamani.
INTRODUCTION

Siddha System is the science of right living and as such is intended to be incorporated in daily life. It works on all aspects of the person's life. The physical, vital, mental, emotional, physical and spiritual.

Siddha Medicines not only cures the diseases but in addition it aims at bringing the different bodily functions into perfect co-ordination. So, that they work for the good of the whole body.

Siddhars, the founder of Siddha System has given the techniques to purify the body, mind and energy to prepare the ground for higher practices of meditation and for the ultimate experience of cosmic consciousness.

To attain all they need is a healthy body. So, they begin to praise the body.

"நிக்குப்பின் குற்று மார்காண்டனும்
நிக்குப்பின் மார்காண்டனும் பார்த்தினும்
நிக்குப்பின் மார்காண்டனும் பார்த்தின் பார்த்தின்
நிக்குப்பின் மார்காண்டனும்

- சி. விலியம் ஏன்றின் குற்றகால் - 600,
  பார்த்தின் குற்றால் - 545
Siddha System of Medicines were not primarily for the sick but for the healthy also.

Kaayakarpam and Astaanga yogam are needed for a healthy mind and body. It activates and regulates the life force, to attain a higher state of vibratory energy.

Kaayakarpam are rejuvenator of our body, they include

Anti-oxidants.

Astanga yoga includes,

1. Iyamam - Self restraints.
2. Niyamam - Self observances.
3. Aasanam - Various exercising posture.
5. Prathyagaaram - Disassociation of consciousness from the outside environment.
6. Dhaaranaai - Concentration.
7. Dhyaanam - Meditation.
8. Samaathi - Identification with pure consciousness.

In the past itself Siddhars got clear cut idea on many fields like, Medicinal preparations, Astrology, etc., They also followed many techniques which include,
Naadi                  -  To Diagnose the various diseases and to assess
the prognosis of the diseases and fate of the
diseases.

Manikkadai nool   -  used as a diagnostic tool

Neikuri               -  used to observe the prognosis of the patient
and  fate of the diseases.

As we are in the twentyfirst century, a spiritual heritage are being
reclaimed of which Siddha System is very much important.

Now, the Modern world wants everything to be based on scientific
proof. So, it is our duty to explore our siddha system by a Science Which
correctly judges our medicine and Siddhars thoughts.

This dissertation work is  a small dew on the vast research.
SIDDHA PHYSIOLOGY

Man is not merely a mixture of Muscles, bones and Nerves as think by physiologist. But Siddhars thought clearly says that man, the Microcosm is having himself all the things within the universe, the macrocosm.

Each human body is made up of 2 kinds of body.

Paru Udal (Visible body)
Nun Udal (Invisible body)

PARU UDAL

It includes, bones, muscles, Blood vessels, Nerves, and all the functional system of human body like Digestive system, Respiratory system etc, The Paru Udal is known as the “FUNCTIONAL UNIT OF HUMAN BEING”

NUN UDAL

It is the basic for the Paru Udal. It makes the Paru Udal to be active.

The universe is made up of 5 basic elements called Earth, Water, Fire, Air and Space. As we said before the human being is also made up of these basic 5 elements.
Each basic element exists in two forms.

- Paru Nilai (Visible form)
- Nun Nilai (Invisible form)

**PARU NILAI**

Those things which are recognized by our senses are called as Paru Nilai.

**NUN NILAI**

Those things which are not recognized by our senses but they are existing in our body are called as Nun Nilai.

Physiology means that the basic process underlying the functioning of a species.

Basic things for functioning of human beings as explained by Siddhars include,

- 96 Thathuvangal
- 7 Udal katugal
- 6 Suvaigal.

The factors which influence the functioning of human body are,

- Udal Vanmai.
- Udal Thee.
96 Thathuvam

According to siddhar’s view, the 96 basic factors are located in the human body. When the sperm fertilizes the ovum, the human embryo have the 96 basic factors. They also added that the each and every atom in universe has this 96 basic factors.

**Panchabootham- Five basic elements:**

- **Mann (Earth)**  -  Gives shape to the body and release its energy.
- **Neer (Water)**  -  It makes the earth supple and helps in Transmission of energy.
- **Thee (Fire)**  -  It makes the body steady and gives vigour stimulation.
- **Vayu (Air)**  -  Ignite the fire and works as a life carrier and it is the support of all contact and exchange.
- **Aagayam(Ether)**  -  It is the creator of life itself in the body.

**Pori -5 – Five sense organs**

1. **Mei**  -  organ of tactile sensation
2. **Vaai**  -  Organ of taste
3. **Kan**  -  Organ of vision
4. **Mooku**  -  organ of smell
5. **Sevi**  -  organ of hearing
**Pulan-5 – Functions of the five sense organs.**

1. Saptham - Hearing.
2. Sparisam - Touch.
4. Rasam - Taste.
5. Gaantham - Smell.

**Kanmaenthiriyam -5 – Five Motor organs**

1. Vaai - Organ for speech.
2. Kaal - Organ for locomotion.
4. Eruvaai - Organ for defaecation.

**Gnanenthiriyam -5 – Functions of five Motor organs**

1. Vasanam - Speech.
3. Dhanam - Movements of the upper limbs (Flexion, Extension, Supination and pronation).
4. Visarkam - Defecation.
5. Aananatham - Ejection of semen (or) ovum.
Anthakaranam -4 - Four Intellectual

1. Manam - Mind for thinking.
2. Buthi - Power of Discriminating the right from wrong.
3. Sitham - Doing the right thing.

Arivu -1

Intellect (or) wisdom

Naadi -10

1. Idakalai - Arises from right big toe and coils round the suzhumunai and enter the left nostril.
2. Pinkalai - Arises from left big toe and coils round the suzhumunai and enter the right nostril.
3. Suzhumunai - It flow along the vertebral column upto medulla oblongata.
4. Siguvai - Present in uvula and help in swallowing.
5. Purudan - Present in right eye and help in right vision.
6. Gaandhaari - Present in left eye and help in left vision.
7. Aththi - Present in right ear and controls its hearing.
8. Alampudai - Present in left ear and controls its hearing.
10. Gugu - Present in anus.
Vayu -10 – Ten air forces

1. Praanan
2. Abaanan
3. Viyaanan
4. Uthaanan
5. Samaanan
6. Naagan
7. Koorman
8. Girugharan
9. Thaevathaththan
10. Dhananjeyan - (explained under thodam)

Aasayam -5 – Five visceral cavities

1. Amarvaasayam - Stomach.
2. Pagirvaasayam - Liver, small intestine.
5. Sukkilavaasayam - Seminal vesicles (or) ovary.

Kosam -5

1. Annamayakosam - Made up of seven udalthathus.

(The food (or) Material body)
2. Praanamayakosam - Made up of pranan and kanmenthiriyam.
   (The Vital energy body)

3. Manomayakosam - Made up of manam and Gnanenthiriyam.
   (The mental body)

4. Vingananmayakosam - Made up of puthi and Gnanenthiriyam.
   (The psychic (or) vital energy body)

5. Aanandhamayakosam - Made up of pranan and suzhuthi.
   (The bliss body)

Aatharam -6

1. Moolaathaaram - It lies between the Anus and genitalia as kundalini, a vital force.

2. Swaathitaanam - It lies 12 inches above the moolatharam.

3. Manipooragam - It lies 8 inches above the swathitanam.

4. Anaagatham - It lies 10 inches above the Manipooragam.

5. Visuthi - It lies 10 inches above the anaagatham.

6. Aackinai - It lies inbetween the two eyebrows.

Malam -3

1. Aanavam - selfishness of all things around him.

2. Kanmam - It is related to both Aanavam and Maayai it makes good and bad deeds.

3. Maayai - False thinking like others possession is also belonging to be them.
Mandalam -3

1. Gnayirumandalam - It is located in the cardiac region and 4 inches above the stomach.

2. Thingalmandalam - It is located in the head.

3. Agnimandalam - It is situated 2 inches above the moolatharam and spreads up to umbilical region.

Thodam-3

1. Vali

2. Azhal

3. Iyam

VALI

Location:

Abaanan, faeces, Idakalai, pelvic bone, Spermatic cord, skin, nerves, joints, hairs and muscles.

Natural character

In normal condition, vali is responsible for respiration and control of all movements. It governs the 14 reflexes of our body. It also controls udal thathukkal. It gives strength to five sensory organs.

Functions When Exaggerated

Body pain like pricking and twitching in nature.

Tremor
Dryness
Loss of body weight
Boring pain
Joint dislocation
Not responding to external stimuli
Thirst
Goose flesh
unable to move upper and lower limbs
Astringent sense of taste in the mouth
Blackish discolouration of skin, stool, urine and conjuctiva.

Types of Vali

Based on its functions and location it has been classified into 10 types.

They are,

1. Uyirkkaal - Praanan

   It is responsible for respiration and helps in digestion of ingested food material.

2. Keelnokkukkaal - Abaan

   It expels urine and faecal matter It constrict the anal sphincter. It helps in proper distribution of digested food material.
3. Paravukaal – Viyaanan

It is responsible for the movement of various body parts. It perceives tactile sensation. It fills the body with digested food materials and nourishes the body.

4. Melnokkukkaal – Udhanan

Responsible for all kinds of upward motion

5. Nadukkaal – Samaanan

It controls all other vayus. It is responsible for proper digestion, assimilation and carries digested nutrients to each and every organ.

6. Vaanthikkaal - Naagan

It is responsible for learning higher intellectual functions. It causes opening and closing of eye-lids.

7. Vizhikkaal - Koorman

Responsible for vision and yawning. It makes eyes opening and closing.

8. Thummikkaal - Kirugaran

It is situated in the tongue. Induces appetite, sneezing and cough.

9. Kottavikkaal - Devathaththan

It is situated in Anus and genitalia. It makes laziness while awakening from bed. It is responsible for ocular movements and anger.
10. Veengukkaal - Dhananheyan

It is situated in cranium and produces swelling of the body. It leaves three days after the death of a person forming way through the skull bone.

AZHAL

Location

Piraanavayu, bladder, Moolakkini, Heart, umbilical region, abdomen, sweat, saliva, blood, eyes, skin, pingalai and head.

Types of Azhal

1. Aakkanal - Anala pitham

It lies in between stomach and duodenum it is responsible for digestion of food.

2. Vannaeri - Ranjaka pitham

It lies in intestine. It is responsible for colouring of the blood.

3. Aatralangi - Saathaga pitham

It is situated in the heart and it is responsible for fulfilling a function.

4. Nokkazhal - Aalosaka pitham

It lies in eye and is responsible for the perception of vision.

5. Ollolithee - Praasaka pitham

It is situated in the skin and is responsible for the complexion of skin.
IYAM

Location

Samaanan, suzhumunai, Semen, head, fat, bone marrow, blood, Nose, Colon, Joints, Chest and tongue.

Types of Iyam

1. Ali Iyam - Avalambagam

   It is situated in the lungs. It controls the heart and other four forms of Iyam.

2. Neerppi Iyam - Kiledhagam

   Present in the stomach it makes the food wet and helps in digestion.

3. Suvaikaan Iyam - Pothogam

   It is situated in the tongue. It helps in perception of taste.

4. Niraivu Iyam - Tharpagam

   It lies in head and is responsible for the coolingness of the eye.

5. Ondri Iyam - Santhigam

   It is located in the joints and it is responsible for the free movement of the joints.

Edanai -3 Three physical Bindings

1. Porul patru - Material bindings.

2. Puthalvar patru - Relative bindings.

3. Ulaga patru - Worldly bindings.
Gunam-3

1. Sathuvam - Good characters.
2. Raasadham - Manly characters.
3. Thaamasam - Bad characters.

Vinai -2 – Two types of Actions

1. Nalvinai - Good activities.
2. Theevinai - Bad activities.

Raagam-8

1. Kaamam - Desire.
3. Ulopam - Stingy.
5. Madham - Pride.
8. Agankaaram - Ego.

Avathai -5 – Five states of consciousness

1. Nanavu - Wakefulness.
2. Kanavu - Dream.
3. Urakkam - Sleep.
4. Paerurakkam - Stupor.
7 UDAL KATTUGAL

These are responsible for the formation and maintenance of the entire structure of the body. They are formed one by one.

Functions

1. Saaram - Plasma

It strengthens our body both mentally and physically.

2. Senneer - Blood

It imparts colour to the body. It restores strength, Nourishment and intellect of an individual.

3. Oon - Muscle

It moulds the shape of the body according to the physical requirement and helps in bone growth.

4. Koozhuppu - Fat

It lubricates the different organs while doing their function and maintains oily matter of the body.

5. Enbu - Bone

It give support to the body and protects the internal organs and acts as a basic for movements of the body.

6. Moolai - Marrow

It fills the bone cavity and gives softness and strength to the bone.

7. Sukkilam / Suronitham - Sperm/ Ovum

It is responsible for the maintenance of reproduction
SUVAIGAL

Combination of two Boothams results in the formation of one taste.

NATURAL CHARACTERS OF SUVAIGAL

1. Inippu – earth + water

This taste gives happiness to mind and body. It gives tastier feeling to the mouth.

**Functions**

It gives nourishment to the body, It extends life span, It increases hair growth, It corrects vitiated Vali and Valiazhathodams, It increases milk secretion, It removes poison from the body.

2. Pulippu - earth + fire

It stimulates the secretion of saliva. It produce goose flesh. It clears waste materials from the mouth.

**Functions**

It increases appetite and removes tastelessness, It excretes waste gas from the body. Iyam, Blood and azhal aggravates from its place due to pulippu.

3. Uppu - water + fire

It increases salivation, It produce inflammation in cheek and throat.

**Functions**

It removes dryness, constipation, Iyam from our body, It Increases, Sweating, It produce diarrohea.
4. Kaippu - air + ether

It removes waste materials from the mouth. It decreases the perception of other tastes. It is not tastier to mouth.

**Functions**

Though it produces tastelessness, It also removes loss of taste, It removes poison from the body, It kills worms in the body, It normalizes the excess salivation, It cleanses the throat and mothers milk.

5. Kaarppu - air + fire

It causes burning sensation in tip of the mouth and cheek. It increases secretion of eye, nose and tongue. It produces hot sensation in mouth and face.

**Functions**

It removes the skin diseases, It clears throat problems, It increases digestion, It clears waste material from the body, It removes the damage produced by Iyam.

6. Thuvarppu - earth + air

It delays the perception of other tastes.

**Functions**

It removes the Azhal and Iya thodam, It gives heat sensation to the body, It clears the blood, It causes nourishment to skin.
UDAL VANMAI

The udal vanmai is divided into 3 types. These are,

1. Iyarkai Vanmai - Innate Immunity

The Natural immunity one can get by birth itself.

2. Kaala Vanmai

Improvement of stamina and Immunity according to age and seasonal variation.

3. Seyarkai Vanmai - Acquired Immunity

Regulation of healths by taking nutritious food, good activities and through medicines.

UDAL THEE – FOUR BODY FIRES

The internal fire which keeps body and soul in good condition is called as body fire. Which is of 4 types.

They are,

1. Samaakkini - Naturally Situated Samaanavayu
2. Vishamaakkini - Altered Samaanavayu from its Natural place
3. Deekshanaakkini - Samaanavayu in the Place of Azhal
4. Mandhaakkin - Samaanavayu in the Place of Iyam
SIDDHA PATHOLOGY

“WHERE THERE IS LOVE FOR MANKIND THERE IS LOVE FOR THE ART OF HEALING” -Hippocrates.

To heal a patient it is necessary to understand what is the pathology occurring inside him. So, pathology is very much basic and necessary for any type of diseases. This has been well explained by our Siddhars in the poem,

“எக்கட்டைக் கட்டை வெயில்
ஏகைத்துக் பெட்டைக் கட்டை
ஊர் வெளிக்கட்டையை
துவலை வெளி கைத்துக் கையை
பட்டை முகலை இயல்
பாலநீரை குண்டை
உரியில் விளைக்கைத்து
முன்புள்ள உரிய செய்னிகள்”
- சியம் யங்கர் சுந்தர.

Before discussing about pathology. It is important to understand what is health? and what is Diseases?
**HEALTH**

Health is a state of complete physical, mental, spiritual and social well-being and not merely an absence of diseases (or) infirmity.

**DISEASE**

The Disease literally means without ease (uneasiness) the opposite of ease.

Diseases is a condition of the body (or) some part (or) organ of the body in which its function are deranged (or) disrupted.

**DETERMINANTS OF HEALTH**
All these factors contribute a major part on health. In our Siddha System, the basic factor which are responsible for the health of an individual are,

Among these, Suvaigal, uyir thathu, udal thathu are related to one another (i.e.) Derangement in one can alter the function of other.

It can be represented as,
<table>
<thead>
<tr>
<th>Suvaigal</th>
<th>Banchapootham</th>
<th>Uyir thathu</th>
<th>Udal thathu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enippu - Sweet</td>
<td>Earth+water</td>
<td>Iyam</td>
<td>Plasma, oon, fat, lymph, Reproduceive</td>
</tr>
<tr>
<td>Pulippu - Sour</td>
<td>Earth+Fire</td>
<td>Azhal</td>
<td>Blood</td>
</tr>
<tr>
<td>Uppu - Salt</td>
<td>Water+Fire</td>
<td>Vali</td>
<td>Muscular tissue(தலர்)</td>
</tr>
<tr>
<td>Kaippu - Bitter</td>
<td>Air+Ether</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kaarppu - pungent</td>
<td>Air+Fire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thuvarppu - Astringent</td>
<td>Earth + air</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Derangement of → Derangement of → Derangement of udal

Kaippu, Kaarppu and Vali Thathuesp. Muscular
tissue

Derangement of → Derangement of → Derangement of udal

Pulippu, Kaarppu Azhal Thathu especially Blood and uppu
ALTERED SIX TASTES

Increased intake of taste in food makes a way for various diseases.

They are explained as follows.

1. **Enippu**
   
   It produces obesity, Excessive fat, increased mucous secretion, hunger, Indigestion, Diabetes, cervical adenitis, increased Iyam and its diseases.

2. **Pulippu**
   
   It produces fatigue, dull vision, drowsiness, anemia, dropsy, dryness of tongue, Acne, blisters, urticaria etc.,

3. **Uppu**
   
   Greging of hair, hair loss, Aging, herpes, dryness of the tongue, debility etc.,
4. Kaippu and kaarppu

Dryness of tongue, generalized malaise, tremor, back pain, etc.,

5. Thuvarppu

Abdominal discomfort, chest pain, Tiredness, impotence, Vascular constriction, constipation, dryness of tongue etc.,

INCORRECT TRI – HUMORS

Table 1. Vali kuttram

<table>
<thead>
<tr>
<th>Exaggerated Vali kuttram</th>
<th>Decreased Vali kuttram</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Loss of Body weight</td>
<td>➢ Body pain</td>
</tr>
<tr>
<td>➢ Desire for hot foods</td>
<td>➢ Slurred speech</td>
</tr>
<tr>
<td>➢ Shievering</td>
<td>➢ Impaired work</td>
</tr>
<tr>
<td>➢ Flatulence</td>
<td>➢ Poor intelligence</td>
</tr>
<tr>
<td>➢ Constipation</td>
<td>➢ unconsciousness</td>
</tr>
<tr>
<td>➢ Weakness</td>
<td>➢ Increased Iyam</td>
</tr>
<tr>
<td>➢ Sleeplessness</td>
<td>Symptomps are seen.</td>
</tr>
<tr>
<td>➢ Impaired function of</td>
<td></td>
</tr>
<tr>
<td>sensory organs</td>
<td></td>
</tr>
<tr>
<td>➢ Giddiness</td>
<td></td>
</tr>
<tr>
<td>➢ Tiredness</td>
<td></td>
</tr>
</tbody>
</table>
### Table 2. Azhal Kuttram

<table>
<thead>
<tr>
<th>Exaggerated Azhal Kuttram</th>
<th>Decreased Azhal Kuttram</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Yellowish discolouration of eye, face, urine and skin</td>
<td>➢ Heaviness of Stomach</td>
</tr>
<tr>
<td>➢ Increase in appetite and Thirst.</td>
<td>➢ Cold</td>
</tr>
<tr>
<td>➢ Generalized Burning Sensation</td>
<td>➢ loss of normal body colour</td>
</tr>
<tr>
<td>➢ Decreased Sleep</td>
<td>➢ Disturb the normal kapha in body.</td>
</tr>
</tbody>
</table>

### Table 3. Iya Kuttram

<table>
<thead>
<tr>
<th>Exaggerated Iya Kuttram</th>
<th>Decreased Iya Kuttram</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Increased Salivation</td>
<td>➢ Giddiness</td>
</tr>
<tr>
<td>➢ Laziness</td>
<td>➢ Destruction of Joint</td>
</tr>
<tr>
<td>➢ Fullness of Stomach</td>
<td>➢ Decreased iyam in all body fluids.</td>
</tr>
<tr>
<td>➢ Heaviness of body and body becomes chill in nature.</td>
<td>➢ Increased Sweating</td>
</tr>
<tr>
<td>➢ Loss of body weight</td>
<td>➢ Palpitation</td>
</tr>
<tr>
<td>➢ Wheezing, Flatulence, cough and Excessive Sleep.</td>
<td></td>
</tr>
</tbody>
</table>
Table 4. DERANGED UDAL THATHUKAL

<table>
<thead>
<tr>
<th>Udal Thathukal</th>
<th>Increased state</th>
<th>Decreased State</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Saaram</td>
<td>➢ It indicates Exaggerated Symptoms of Iyam like,</td>
<td>➢ Hardness of skin</td>
</tr>
<tr>
<td></td>
<td>➢ Excessive Salivation</td>
<td>➢ Body pain</td>
</tr>
<tr>
<td></td>
<td>➢ Fullness of Stomach</td>
<td>➢ Wasting of Muscles</td>
</tr>
<tr>
<td></td>
<td>➢ Heaviness of body</td>
<td>➢ Weakness of body</td>
</tr>
<tr>
<td></td>
<td>➢ Excessive Sleep etc.,</td>
<td>➢ Sound intolerance</td>
</tr>
<tr>
<td></td>
<td>➢ Hardness of skin</td>
<td></td>
</tr>
<tr>
<td>2. Senneer</td>
<td>➢ Formation of boils in Eyebrow, Neck, Chest, umbilicus, lips, leg, hip, bigtoe,</td>
<td>➢ Desire for sour foods</td>
</tr>
<tr>
<td></td>
<td>➢ Spleenomegaly</td>
<td>➢ Nervous weakness</td>
</tr>
<tr>
<td></td>
<td>➢ Tumour</td>
<td>➢ Dry skin</td>
</tr>
<tr>
<td></td>
<td>➢ Pain</td>
<td>➢ Anaemia</td>
</tr>
<tr>
<td></td>
<td>➢ Loss of appetite</td>
<td></td>
</tr>
<tr>
<td></td>
<td>➢ Blood Dyscariasis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>➢ Leprosy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>➢ Jaundice</td>
<td></td>
</tr>
<tr>
<td></td>
<td>➢ Mental Disorders</td>
<td></td>
</tr>
<tr>
<td></td>
<td>➢ Haemangiomas</td>
<td></td>
</tr>
<tr>
<td></td>
<td>➢ Conunctivitis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>➢ Haematuria</td>
<td></td>
</tr>
<tr>
<td></td>
<td>➢ Hypertension</td>
<td></td>
</tr>
<tr>
<td>3. Oon</td>
<td>Cervical lymphadenitis</td>
<td>Poor functioning of Sensory organs</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td>Tumours in cheeks,</td>
<td>Joint Diseases</td>
</tr>
<tr>
<td></td>
<td>stomach, male genitalia etc,</td>
<td>loss of musculature in cheeks, gluteal, Male genitalia etc.,</td>
</tr>
<tr>
<td></td>
<td>Increased musculature in Neck</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tiredness</td>
<td>Spleenomegaly</td>
</tr>
<tr>
<td></td>
<td>Dyspnoea on mild Work</td>
<td>Wasting of Muscles</td>
</tr>
<tr>
<td></td>
<td>Increased Musculature on genitalia, chest, stomach etc.,</td>
<td></td>
</tr>
<tr>
<td>5. Enpu</td>
<td>Hypercalcemia on bones and teeth, leading to hypertrophy of bone and extra teeth formation</td>
<td>Joint pain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Loss of teeth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Breaking of Nails</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Falling of hairs</td>
</tr>
<tr>
<td>6. Moolai</td>
<td>Obesity</td>
<td>Osteoporosis</td>
</tr>
<tr>
<td></td>
<td>feeling of heaviness in Eyes</td>
<td>Giddiness</td>
</tr>
<tr>
<td></td>
<td>Clubbing of fingers and toes</td>
<td>Delusion</td>
</tr>
<tr>
<td></td>
<td>Oliguria</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oliguria</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Incurable ulcers</td>
<td></td>
</tr>
<tr>
<td>7. Sukkila thahu</td>
<td>Increased Sexual Desire</td>
<td>Pain in genital organs</td>
</tr>
<tr>
<td></td>
<td>Formation of Calculi</td>
<td>Burning sensation in sexual organs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dyspareunia</td>
</tr>
</tbody>
</table>
Table 5. SEASONAL VARIATION

<table>
<thead>
<tr>
<th>Season</th>
<th>Period</th>
<th>Mukkutram</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Vali</td>
</tr>
<tr>
<td>Kaar kalam</td>
<td>அர கலம், புராணம்</td>
<td>✷</td>
</tr>
<tr>
<td>Kuthir Kaalam</td>
<td>குதிர் கலம், கார் கலம்</td>
<td>✷</td>
</tr>
<tr>
<td>Munpani Kaalam</td>
<td>முன்பணி கலம், நாள்</td>
<td></td>
</tr>
<tr>
<td>Pinpani kaalam</td>
<td>பின்பணி கலம், பாம்பரம்</td>
<td>✷</td>
</tr>
<tr>
<td>Elavenil kaalam</td>
<td>எலவனில் கலம், பெலவனில்</td>
<td></td>
</tr>
<tr>
<td>Muthuvenir Kaalam</td>
<td>முதுவேறு கலம், பெலவு</td>
<td>✷</td>
</tr>
</tbody>
</table>

★ Normal State (காண்டித்தம்பலை)
◆ Alteration from Normal State (காண்டித்தலை வளர்க்கும்)
♦ Aggrevation and spread to other humour (பிண்டித்தலை வளர்க்கும்)

ENVIRONMENTAL CHANGES

Kurinchi (குரிச்சி)

Fever that affect blood cells. Ex:- Malaria, Abdominal Mass will develop, Accumulation of Iyam.

Mullai (முல்லை)

Azhal diseases, Vali diseases will develop, Liver disorders may develop.
Marutham (மறுதம்)
Healing of Vali, Azhal and Iyam diseases. It is a good place for living.

NEITHAL (நீதல்)
Vali diseases, Liver Enlargement, Flatulence, Obesity may develop in lean persons.

Paalai (பாலை)
All diseases of Vali, Azhal and Iyam may develop, Not a good place to live.

INFECTION
It has been not elaborately dealt by siddhars. But the following poem speaks about some diseases,

“கீறியானை நாத் உர்சு காப்பாற்றி
சாதியான் விரிகுக்காத் கோழியாக
பாகம்மீ மற்ற நோய்களின் கீற்றியானை
பாகம்மீ மற்ற நோய்களின் கீற்றியானை
கீறியானை பார்க்கப்பட்டது கீறியானை
கீறியானை பார்க்கப்பட்டது கீறியானை
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கீறியானை பார்க்கப்பட்டது கீறியானை
கீறியானை பார்க்கப்பட்டது கீறியானை.

Urticarial rash, Fistula, Anaemia, skin diseases, Sexually transmitted Diseases, Indigestion may occur due to various Infective organisms.
OCCUPATION

In modern World, occupation is also one of the risk factor for various diseases. Occupation affect our body in 2 conditions. It may affect,

1. Uyir thathu
2. Udal thathu

By affecting this it results in diseases of the particular thathu as mentioned before.

CONGENITAL DISEASE

The acquisition of certain disease from parents to offspring leads to formation of congenital disease.

In our siddha system, it has been explained as follows,

“புதிய தண்டனை விளக்கம் விளக்கம் செய்யும்
வைத்து செய்தியக்கட்பர்”

ENNVAGI THERVUGAL

It is otherwise called as piniyari Muraimai diagnosis of the diseases.

Rules and methods

The diagnosis is based upon three main principles such as,

1. Poriyaalarithal
2. Pulanaalarithal
3. Vinaathal
Poriyalarithal and pulanalarithal

<table>
<thead>
<tr>
<th>Sensory organs</th>
<th>functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Nose</td>
<td>Smell</td>
</tr>
<tr>
<td>2. Tongue</td>
<td>Taste</td>
</tr>
<tr>
<td>3. Eyes</td>
<td>Vision</td>
</tr>
<tr>
<td>4. Skin</td>
<td>Touch</td>
</tr>
<tr>
<td>5. Ear</td>
<td>Sound</td>
</tr>
</tbody>
</table>

These two are very much helpful in the diagnosis of the diseases.

Vinaathal - Interrogation

Interrogating with patient or Neighbour (In case, he is not able to speak or for children) while doing this doctor can use his pori and pulan for examining patients pori and pulan.

Ennvagai Thervugal

Theraiyar mentions the envagai thervugal as follows.

"துற்று செருமான் மாலிகம் ஆய்வுடன்
என்றுதான் இன்றிய என்பதால் நிற்பித்து
சமவிசை முனையின்றி இனி வகிளுவேற்று
செய்து முனைப்பற்று கண்கான்."

- இலவனார்

மறுமுறை,

"துருப்பாக்கிய நுட்பத் விளக்கினி
என்பது முனையின்றி வருகிறும் போன்றது."
1. Naa - Tongue
2. Niram - Colour
3. Mozhi - Speech
4. Vizhi - Eye
5. Malam - Motion
6. Moothiram - Urine
7. Naadi - Pulse
8. Sparisam - By touching (palpation)

Neikkuri

Freshly voided urine in the early morning is taken in a bowl having smooth surface. A drop of gingely oil is dropped on the upper surface of urine and watch the mode of spread of gingely oil.

Naadi - pulse

Naadi can be felt at different site. The Important ten sites are mentioned in our siddha literatures.

such as,

Among this ten places கூம், lower end of radial artery is considered to be a best place as it is situated superficial to the radial bone.

Naadi is felt in,
Vali - Tip of Index finger
Azhal - Tip of Middle finger
Iyam - Tip of ring finger

In Normal condition, The ratio of the naadi is

"உயர்ந்த விகிதத்தைச் சேர்த்து
நடுவில் விகர்ப்பற்றிப்
சுருக்கத்தை கொண்டடையும்.

-நூற்றாண்டுகளால்

Table - 6

<table>
<thead>
<tr>
<th>Mukutram</th>
<th>Normal State</th>
<th>Alteration from Normal State</th>
<th>Aggrevation and spread to other humour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vali-V</td>
<td>1 Maathirai</td>
<td>2 Maathirai</td>
<td>V.A, V.I, V-2 Maathirai A- ½ to 1 Maathirai I-1/4 to ½ Maathirai</td>
</tr>
<tr>
<td>Azhal-A</td>
<td>½ Maathirai</td>
<td>1 Maathirai</td>
<td>A.V, A.I, A-1 Maathirai V-1 to 2 Maathirai I- ¼ to ½ Maathirai</td>
</tr>
<tr>
<td>Iyam-I</td>
<td>¼ Maathirai</td>
<td>½ Maathirai</td>
<td>I.V, I.A, I -1/2 Maathirai V-1 to 2 Maathirai A-1/2 to 1 Maathirai</td>
</tr>
</tbody>
</table>
AIM AND OBJECTIVES

The author had selected the disease THALASTHAMBAM for dissertation work because,

The Disease is more common in India and other developing countries.

The patients are disturbed by both functionally and emotionally.

The sufferings, its prevalence and its major complications made the author to choose the disease.

AIM

To study the disease on the basis of Siddha physiology and Siddha Pathology emphasizing more importance to muktram, suvaigal, panja bootha theory, Udal thathukkal and diagnose the patient on the basis of Ennvagai thervugal and confirm the prognosis on the basis of “Neikuri”.

OBJECTIVES

To fulfil the aim the following objectives has been drawn.

1. To collect all literary evidences about vadha diseases in detail

2. To study each and every aspect of the diseases THALASTHAMBAM in the topic of its etiology, signs and symptoms from various literature in siddha aspect.
3. To concentrate the clinical course of the disease THALASTHAMBAM by observing carefully its etiology, pathology, clinical features, Diagnosis and prognosis in patients.

4. To Study in detail about the incidence of the disease with age, Sex, Socio-economic status, habits and prevalence.

5. To confirm the diagnosis in Siddha System with the help of modern parameters.
ELUCIDATION ABOUT THALASTHAMBAM

"தாலாஸ் பாஸ் மார்கட்டுத்தல் பண்ணைகள் கண்டுபிடித்து
சாதனையான பொழுதுகையில் நேரடியாக கண்டுபிடித்து
மாறும் வலைப்பான சூழ்நிலை கண்டுபிடித்து
சாதனையான பொழுதுகையில் நேரடியாக கண்டுபிடித்து
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சாதனையான பொழுதுகையில் நேரடியாக கண்டு
Pathology of the disease is described in this first line of poem. There is thickening of foot, unremitting pain in the foot, there is destruction of surrounding areas in the foot all of these makes the foot a blackish appearance.

Progression of disease is described in this line, the disease is not responding to treatment and the diseases progresses upwards (i.e) from foot to upwards.

This line clearly says the condition of patient due to chronic illness the patient becomes fatigue, dyspnoea, there is excessive thirst and loss of body weight.

This line point out the aggravating factors of this diseases. The increased intake of salt and sour in diet aggravates the altered vali humour and forms the Thalasthambam diseases.
In Thalasthambam, Vali humour is altered. The increased intake of salt and sour in diet aggravates the altered vali humour. As a result of this,

There is

Thickening of the foot,
Pain in the foot,
Gangrene of the foot,
Diseases not responding to treatment it progress above from foot,
Excessive thirst,
Dryness of the body,
Dyspnoea,
Fatigue and
Weight loss are occur.
In the disease THALASTHAMBAM – the author yugi muni explains about the pathology and prognosis of the diseases. He also explains the tastes which acts as a pre-disosing factor for the diseases. He explains these changes in an orderly form.

To explain the pathology of the disease on the basis of Vali - Azhal -Iyam.

The Derangement of Vali shows the following symptoms,

"கந்தையை விலை கந்தையை தார் விலைக்கனவதற்காக
கந்தையை விலை கந்தையை தார் விலைக்கனவதற்காக".

The Dwelling place of vali as explained by yugimuni is,

"தென்குன்று மாகாண்குறக்கிய சில்பம் விளக்கம்
மாகாண்குறக்கிய சில்பம் விளக்கம்."

With the support of above mentioned poem, when vali humour gets altered it has been reflected in their dwelling place.

"வந்தையை விலை நிலக்கு"

- செலேந்

According to the Therayar, for any type of diseases, the vali humour is affected first.
In the disease Thalasthambam, the increased vali humour produces changes in the affected part (i.e) sole of the foot, producing heaviness of the foot, making the foot a blackish appearance.

Increased Vali Humour Produces the following symptoms,

- Blackening of the affected part.
- Weakness.
- Weakness of the sense organs.
- Weight loss.
- Sleep disturbance.

The increased Vali humour can affect the body in two ways.

i) The altered Vali humour disturbs the Azhal and Iya thaathu.

ii) The changes in Uyirthaathu can be reflected in the udalthaathu.

**Altered Iya Humour**

Increased Iya Humour Produces the following symptoms,

- Sluggishness.
- Dyspnoea.
- Weight loss.

The decrease in udal thathu will produce different Symptoms in the body.
### Altered Udal thathukkal

<table>
<thead>
<tr>
<th>Udal thathukkal</th>
<th>Decreased Nature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Saaram</td>
<td>Dryness of the skin, Dyspnoea and Tiredness</td>
</tr>
<tr>
<td>2. Seneer</td>
<td>Desire to take sour food, Dryness of the body</td>
</tr>
<tr>
<td>3. Oon</td>
<td>Weakness of sense organs</td>
</tr>
<tr>
<td>4. Kozhuppu</td>
<td>Weight Loss</td>
</tr>
<tr>
<td>5. Enbu</td>
<td>Falling of hair</td>
</tr>
<tr>
<td>6. Moolai</td>
<td>Making hole in the bone</td>
</tr>
<tr>
<td>7. Sukkilam</td>
<td>No change.</td>
</tr>
</tbody>
</table>

Thus, decrease in saram will produce decrease in other thathus too.

Based upon the affected part and the duration of the disease it will produce different symptoms in the body.

In Thalasthambam, the decrease in udal thathukkal will produce the following symptoms.

"கனிமம் குறுக்கை வேறு வேற்குறைப்பு கலந்து வெள்ளியால் கலந்து கருதும்"

The symptoms produced are,

- Dryness of the body.
- Dyspnoea.
- Increased Thirst.
- Weight loss.
In this disease as there is decrease in 6 Udal thaathukal the disease is not responding to treatment. The disease progresses to upwards. The last line depicts that,

```
"கூடும்பு நேரும்பு பாலும்பு குழுக்கை
கழித்து புரிந்து குடும்பம் கூடியே.
"
```

It clearly says that the increased intake of salt and sour in diet increases vali and Azhal humour respectively and pre-disposes to formation of Thalasthambam.

To prove the fact,

```
"பாலும்பு வெட்டுக்குடும்பு துற்று வாக்கு
செம்பது சுக்கு வெட்டு பிண்மை குறும்
".
```

- கருசீராமேசும்

```
"என்றும் பாலும்பு வெட்டு வெட்டு துறுக்கை
".
```

- அக்கிரமேசு ராது

```
"என்றும் பாலும்பு வெட்டுக்கு துறுக்கை வெட்டு வெட்டு
".
```

- புதுக்கிருஷ்ண கருச்சாரம்

Hence, increased intake of Vali and Azhal again disturbs the Vali itself. This has been clearly mentioned in the poem.
Hence Increased intake of both sour and salt in diet Pre disposes to formation of Thalasthambam.
MODERN ASPECT

The foot which gets affected due to gangrene is cold and motionless. Due to arterial occlusion, the limb distal to the obstruction becomes useless and numb, (i.e) having no sensation.

"குற்றியும் மிகவும் பெரும்பாகமாக
வள்ளக்கை குற்று வாழ்குவது கடிக்க கடிகோ"

In Chronic heavy smoker due to nicotine poison, there is inflammation of arteries, which involve all the three layers of arteries. The injury to endothelial layer of blood vessel initiates haemostatic repair mechanism or Thrombogenesis.

Thrombus Formation

When endothelial injury occur the sub-endothelium gets direct contact with flowing blood, the sub-endothelium consists of Thrombosis favouring factors like collagen, elastin, fibronectin, laminin and glycosaminoglycans, which are thrombogenic and thus plays an important role in initiating haemostasis as well as thrombosis.

Following this the platelet gets aggregate at the site of endothelial injury, Von-willibrend factor is responsible for the aggregation between collagen and platelets.
Due to sudden increase in platelets at the site of endothelial injury there is hypercoagulability of blood vessel, which increases the thrombus size.

When thrombus increase in size it results in arterial occlusion.

Due to arterial occlusion, there is damage to tissue. Alteration in the micro vasculature (Arterioles, Capillaries and venules) is the earliest response to tissue injury.

The alteration include,

- Haemodynamic changes and
- Changes in Vascular permeability

These changes at last leads to local inflammation in the affected site (காசியம்).

The pan-arteritis of vessel walls leads to thrombosis. When the lumen is occluded by a thrombus, pain is produced in the affected part due to,

i. Insufficient blood supply to the affected part.

ii. Due to inadequate blood flow, there is accumulation of excessive ‘P’ substance which is the cause for pain.

iii. Fibrotic involvement of the nerve accounts for a certain amount of pain.

iv. The intensity of pain increases with the rate of tissue damage as a result of Ischaemia.
v. There is accumulation of large amounts of lactic acid in the tissues, formed as a result of anaerobic metabolism.

vi. Due to increased cell damage, there is production of chemicals like Bradykinin and proteolytic enzymes. It can directly attack the nerve endings and excite pain.

vii. Ischaemic neuritis

Pain

Pain is defined as an unpleasant sensation and emotional experience associated with (or) without actual tissue damage.

The pain has 2 components.

i. Fast pain

ii. Slow pain

Fast pain

This type of pain felt when a needle is stuck into skin (or) when the skin is cut with a knife. The fast pain is carried by A-delta fibers.

Slow pain

This pain is associated with tissue destruction due to ischaemia. It can become excruciating and can lead to prolonged, unbearable suffering. The slow pain is carried by C-type of nerve fibers.

In this disease, Thalasthambam, the pain receptors in the skin and arterial walls are all free nerve endings, they act as receptors for both components of pain (i.e) slow pain and fast pain.
Due to the causes mentioned before, the receptors get excited and transmit pain to the first order neuron situated in the posterior root ganglion.

**First order Neuron**

These neurons receive impulse of pain sensation from the pain receptors through their dendrites and their axons reach the spinal cord. After reaching the spinal cord, the fibre synapse with the second order neurons in the posterior grey horn.

**Second order neuron**

The marginal cells and the cells of substantia gelatinosa form the second order neurons. Fibers from these cells ascend in the form of the lateral spinothalamic tract.

Fibers of marginal cells for fast pain form the Neo-Spinothalamic tract - a part of lateral spinothalamic tract.

These nerve fibers terminate in ventral postero-lateral nucleus of thalamus. Some of the fibers terminate in ascending reticular system of brainstem.

The fibers of slow pain which arise from substantia gelatinosa cross the midline and run along with fibers of fast pain as paleo-spinothalamic fibers in lateral spinothalamic tract.

One fifth of these fibers terminate in ventral postero-lateral Nucleus of Thalamus. The remaining fiber terminate in nuclei of
reticulate formation in brain stem or in tectum of midbrain (or) in the
grey matter surrounding aqueduct of sylvius.

**Third order Neuron**

They are the Neurons of thalamic nucleus, reticular formation,
tectum and grey matter around aqueduct of sylvius.

Axons from these neurons reach the sensory area of cerebral
cortex. Some fibers from reticular formation reach hypothalamus.

**Center for pain sensation**

The center is in the posterior central gyrus of parietal cortex.

Fibers reaching hypothalamus are concerned with arousal
mechanism due to pain stimulus.

The slow pain sensation carrier type C-fibres, when synapsing in
the dorsal horns of the spinal cord, they release substance-P, a synaptic
neuro transmitter.

The substance-P is slow to build up at the synapse and slow to be
destroyed. This is the cause for progressive increase in intensity of slow
chronic pain with time and also the persistence of the slow pain.

(Gangrene of the foot:)

Massive death of the tissue is the end phase of severe ischaemia.

On top of it putrefaction sets in and foul smelling gangrene results. The
colour changes due to ischemia takes place as follows, at first, there is pallor,

Later, there may be dusty grey (or) purple discoloration due to pooling of blood in the part.

Finally, the colour changes to a greenish (or) brownish black, due to the disintegration of haemoglobin and formation of iron sulphide (காய்வு காமமு).

Gangrene usually begins in the digits and in arterial obstruction of the lower limbs, usually on the undersurface of the toes. (தலையால் காமமு)

"நான்கின் மாண்காட்கிய ரீதியாக வெளியே நடிகையில் முயற்சித்து தொடங்கும்"

The Patient is unable to flex the affected part. (பால்காமன் உரிமில்வை)

The disease has a tendency to progress inspite of treatment. It progresses from foot to leg. The progression is characterized by advancing gangrene. The pain is of full and diffuse in nature producing pain in the small muscle of foot, muscles of calf and muscles of Thigh and Gluteus maximus.

"காய்வு வசேத்து வேளியாக அடக்கியை கொண்டு பெரும்பாகம் கொண்டு வெளியே கொண்டு காமமு".

In chronic arterial insufficiency, The Muscles, subcutaneous tissue, skin and skin appendages shows the effect of long standing impairment of blood supply.
The skin becomes glossy and dry (parch).

Muscle wasting is noted in calf muscles.

Atrophy of several inches of calf muscles is frequent, though part of it is due to disuse atrophy.

Dyspnoea is as a result of spasm in bronchi.

If the arterial occlusion affects the main arteries of trunk there is poor supply of blood and nutrients to the affected parts but there is continuous venous drainage this will leads to dryness of the affected parts.

“குருவில் விளையாட்டு முடி குந்தாலே
சலைநாயத்தில் விலையைத் தண்டியடையாளை.”

When Excess amount of salt is taken in the diet, the salt is not excreted so easily, As it accumulates in the body, salt indirectly increases the extracellular fluid volume in two ways.

When there is excess salt in the tissues, the osmolality of the body fluids increases, and this in turn stimulates the thirst centre, lateral nucleus of hypothalamus, making the person to drink extra amounts of water to dilute the extracellular salt to a normal concentration. This increases extra cellular fluid volume.

The increase in osmolality in the extracellular fluid also stimulates the hypothalamic posterior pituitary gland secretary mechanism to secrete increased quantities of antidiuretic hormone, ADH. The ADH inturn
causes the kidney to reabsorb increased quantities of water from the renal tubular fluid before it is excreted as urine, thereby diminishing the volume of urine, while increasing the extracellular fluid volume.

The small increases in extra cellular fluid volume can often increases the arterial pressure greatly due to increase in hydrostatic pressure. Thus, the accumulation of even a small amount of extra salt in the body can lead to a considerable elevation of the arterial pressure.

Increased arterial pressure acts as a major risk factor in the development of Thrombosis.

During increased intake of tamarind (rich sour food taken daily) it produces a chemical substance, which acts like Bradykinin and excite the pain.
REVIEW OF LITERATURE

In Sarabenthirar Vaithya Muraigal The Thalasthambam is explained with the same poem mentioned by Yugi in Yugi Vaithya Sinthamani under the vatha roga nithanam. Sarabenthirar also kept the Poem in vatha roga nithanam. Which is mentioned below,

Thus clinical signs and symptoms mentioned by both Yugi and Sarabenthirar are same.
THEORTICAL VIEW OF DISSERTATION TOPIC IN
MODERN ASPECT
ANATOMY

Bones of The Foot

Each foot is made up of

7 tarsal bone
5 metatarsal bone
14 phalanges

Tarsus

The tarsus is made up of seven tarsal bones, arranged in two rows. In the proximal row, the talus above and the calcaneum below. In the distal row, From medical to lateral side these are the medial cuneiform, the intermediate cuneiform, the lateral cuneiform and the cuboid. Another bone, the navicular is interposed between the talus and the three cuneiform bones.

Each tarsal bone is roughly cuboidal in shape, having six surfaces.

Metatarsus

They are made up of 5 metatarsal bones, which are numbered from medial to lateral side.
Phalanges
They are 14 in number. Two for the great toe, and 3 for each of the other toes.

Muscles and fasciae of the foot
The skin and superficial fascia on the dorsum of the foot are thin and loosely adherent.

The underlying deep fascia, a thin layer is continuous above with the superior and inferior extensor retinacula on both sides of the foot, it blends with the plantar aponeurosis, and anteriorly it invests the tendons on the dorsum of the foot.

Plantar muscles of the foot
Muscles of the sole are conventionally described in four layers,

Table - 7

<table>
<thead>
<tr>
<th>Layer</th>
<th>Muscles</th>
</tr>
</thead>
<tbody>
<tr>
<td>First layer</td>
<td>Flexor digitorum brevis</td>
</tr>
<tr>
<td></td>
<td>Abductor digiti minimi</td>
</tr>
<tr>
<td>Second layer</td>
<td>Quadratus plantaris</td>
</tr>
<tr>
<td></td>
<td>Lumbricals</td>
</tr>
<tr>
<td>Third layer</td>
<td>Flexor hallucis brevis</td>
</tr>
<tr>
<td></td>
<td>Adductor hallucis</td>
</tr>
<tr>
<td></td>
<td>flexor digiti minimi</td>
</tr>
<tr>
<td>Fourth layer</td>
<td>Dorsal interossei -4</td>
</tr>
<tr>
<td></td>
<td>Plastar interossei -3.</td>
</tr>
</tbody>
</table>
HISTOLOGY OF BLOOD VESSELS

ARTERIES

All arteries are composed of 3 coats,

1. Tunica intima – Inner coat
2. Tunica media – Intermediate coat
3. Tunica adventitia – external coat

1. TUNICA INTIMA

It consists of endothelial cells. The endothelium is a single layer of simple squamous cell, polygonal, oval in shape, with rounded nuclei.

The endothelial cells rests on basal lamina.

In large arteries, connective tissue forms a sub-endothelial layer, that intervenes between endothelium and internal elastic membrane.

The internal elastic membrane have perforations (or) elongated apertures through which the cytoplasmic processes of endothelial cells achieve contact with the tunica-media.

The Internal elastic membrane forms the chief thickness of the tunica intima.

2. TUNICA MEDIA

It is principally composed of thin, cylindrical smooth muscle cells and elastic tissues.

It accounts for the bulk of the wall of most arteries.
The smooth muscle cells are held together by an abundant amount of glycoprotein, which contains collagen fibres and reticular and elastic fibres.

The thickness of tunica media varies with the size of a vessel.

The external margin of tunica media is made up of elastic tissue called external elastic membrane.

3. TUNICA ADVENTITIA

It consists of areolar connective tissue that contain fibroblasts with in a fine meshwork of elastic fibers and bundles of collagen.

Tunica adventitia is not as thick as tunica media.

It consists of vasa vasorum, which are the arteries and veins that supply the vessel walls. It also contains fine lymphatic vessels and fibers that supply the arteries.

VEINS

They are made up of 3 layers,

**Tunica Adventitia**

Tunica adventitia is several times thicker than the tunica media.

Tunica adventitia constitutes a major part of the vessel wall.

It is made up of loose connective tissue with longitudinal elastic fibres.
**Tunica media**
It is thinner than accompanying arteries

It is composed of smooth muscle cells

**Tunica Intima**

It is made up of endothelial cells.

The nuclei of endothelial cells are more oval and less flattened than those in arteries.

**ARTERY**

**FEMORAL ARTERY**

The femoral artery is the main arterial stem of the lower limb.

**Commencement**

Femoral artery - Commences as the downward continuation of the external iliac artery. It commences at mid-inguinal point.

**Course**

The upper half of the artery passes within the femoral triangle and the lower half of the artery passes within the sub-sartorial canal. It passes through the adductor opening of the adductor magnus muscle.

**Termination**

It terminates by becoming the popliteal artery at adductor opening of the adductor magnus.
THE POPLITEAL ARTERY

This is the artery of the popliteal fossa.

Commencement

It is the continuation of the femoral artery at the adductor opening

Course

It runs downwards and slightly laterally and then vertically downwards within the depth of the popliteal fossa.

Termination

It terminates by dividing into anterior and posterior tibial arteries.

ANTERIOR TIBIAL ARTERIES

This is the artery of the anterior compartment of the leg.

Commencement

It is the smaller terminal branch of popliteal artery. It commences at the lower border of the popliteus muscle, in the back of the leg.

Course

The artery passes forwards between the two heads of tibialis posterior muscles.

It crosses the upper border of the interosseus membrane, and enters the anterior compartment of the leg. It runs downwards and slightly medially and reaches the interval between the two malleoli.
Termination
It terminates by becoming the dorsalis Pedis artery.

THE DORSALIS PEDIS ARTERY

This is the artery of the dorsum of the foot.

Commencement

It is the continuation of anterior tibial artery. It commences midway between the two malleoli.

Course

It passes downwards along the medial aspect of the dorsum of the foot, towards the first dorsal interosseous muscle. It passes between the two heads of the first dorsal interosseous muscle and reaches the sole.

Termination

It terminates by anastamosing with the deep branch of the lateral plantar artery to form the plantar arch. This artery is accompanied by a pair of venae comitantes.

THE POSTERIOR TIBIAL ARTERY

This is the artery of the posterior compartment of the leg.

Commencement

It commences from the Popliteal artery, at the lower border of the popliteus muscle. Posterior tibial artery is the large terminal branch of the popliteal artery.
Course

It passes downwards deep to the origin of soleus muscle and reach the back of the leg. And then it enters the flexor retinaculam of the ankle.

Termination

It terminates by dividing into medial and lateral plantar arteries under cover of the flexor retinaculam.

THE MEDIAL PLANTAR ARTERY

Commencement

As one of the terminal branches of the posterior tibial artery. It commences under the flexor retinaculum of the ankle.

Course

It passes deep to the abductor hallucis and enters the foot. It then passes between the abductor hallucis and flexor digitorum brevis.

Termination

It terminates by joining the first plantar meta tarsal artery along the medical border of the big toe.

THE LATERAL PLANTAR ARTERY

Commencement

It is the larger terminal branch of the postaior tibial artery under flexor retinaculum of the ankle.
Course
It passes deep to adductor hallucis and enter the sole.

It passes between flexor digitorum brevis and flexor digitorum accessories and reaches the base of 5th meta tarsal bone. It lies between flexor digitorum brevis and abductor digiti minimi. It then turns medially to the first inter meta tarsal space.

Termination
It terminates by anastamosing with the dorsalis pedis artery to form the plantar arch.

THE PLANTAR ARCH

Situation
Deeper aspect of the sole.

Extent
From the base of 5th meta tarsal bone to the first inter meta tarsal space.
PHYSIOLOGY

The function of the circulation is to serve the needs of the tissues.

To Transport nutrients to the tissues.

To Transport waste products away from tissues.

To conduct hormones from one part of the body to another.

In general, to maintain an appropriate environment in all the tissue fluids for optimal survival and function of the cells.

Types of Circulation

The circulation is divided into 2 types as mentioned below,

1. Systemic Circulation
2. Pulmonary Circulation

Systemic Circulation

It supplies blood to all tissues of the body except the lungs, it is also called the greater circulation (or) peripheral circulation.

Pulmonary circulation

It supplies blood to the lungs

Functional parts of the Circulation

Arteries

The arteries transport blood under high pressures to the tissues. Hence, the arteries have strong vascular walls and blood flow rapidly in the arteries.
Arterioles

These are the last small branches of the arterial system, and they act as control valves through which blood is released into the capillaries.

Capillaries

The function of the capillaries is to exchange fluid, nutrients, electrolytes, hormones and other substances between the blood and interstitial fluid.

The capillary walls are very thin and permeable to small molecular substance.

Venules

The venules collect blood from capillaries they gradually coalesce into progressively larger veins.

Veins

The vein function as a conduits for transport of blood from the tissues back to the heart.

Blood Flow

Blood flow means the quantity of blood that passes a given point in the circulation in a given period.
**Velocities of blood flow**

<table>
<thead>
<tr>
<th>Blood Vessel</th>
<th>Area (cm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aorta</td>
<td>2.5</td>
</tr>
<tr>
<td>Small arteries</td>
<td>20</td>
</tr>
<tr>
<td>Arterioles</td>
<td>40</td>
</tr>
<tr>
<td>Capillaries</td>
<td>2500</td>
</tr>
<tr>
<td>Venules</td>
<td>250</td>
</tr>
<tr>
<td>Small Veins</td>
<td>80</td>
</tr>
<tr>
<td>Venae cavae</td>
<td>8</td>
</tr>
</tbody>
</table>

**Blood Pressure**

Blood pressure is the force exerted by the blood against any unit area of the vessel wall.

**Effect of Pressure on Blood flow**

The increase in pressure increases the blood flow in two ways.

- It increases the force that tends to push blood through the vessel.
- It distends the vessel and increases the blood flow.
GENERAL CHARACTERISTICS OF LEUKOCYTES

Functions of W.B.C

Neutrophils

It play an important role in the defense mechanism of the body.

Along with monocytes, the neutrophils provide the first line of defense against the invading microorganisms.

They are the free cells in the body and wander freely through the tissue and no part of the body is spared by these leukocytes.

Neutrophils secrete platelet Activating factor, which accelerate the aggregation of platelets during injury to the blood vessel.

Eosinophils

It play an important role in the defense of the body.

They are specifically meant for acting against the parasites.

Eosinophil count increases during parasitic infestation and allergic conditions.

Basophils

It plays an important role in healing processes after inflammation and in acute hypersensitivity reactions.

The number of basophils is increased during healing process.

Monocytes

It play an important role in defense of the body.

Monocytes are motile and phagocytic.
It secretes interleukin-1 (IL-1), Colony stimulating factor (CSF) and platelet activating factor (PAF). They are the precursors of the tissue macrophages.

**Lymphocytes**

It play an important role in immunity.

They are classified into 2 types, namely:

i) **T- Lymphocytes**

ii) **B- Lymphocytes**

i) **T- Lymphocytes**

They are responsible for the development of cellular immunity.

ii) **B- Lymphocytes**

They are responsible for the development of humoral immunity.

**Platelets**

The platelets are inactive and execute their actions only when activated.

They are responsible for the onset of blood clotting.

Actin, the contractile proteins are responsible for clot retraction.

Platelets have adhesive property.

It secretes 5 Hydroxy tryptamine, which cause the constriction of blood vessels.
PATHOLOGY

THROMBO ANGITIS OBLITERANS

Thrombo Angitis obliterans is an obstructive arterial diseases caused by segmental Inflammatory and proliferative lesions of the medium and small arteries and veins of the limbs.

ETIOLOGY

Idiopathic

The cause is not known.

Age

Common between the ages of 25-40 years.

Sex

Formerly considered to be exclusively a disease of male. Recent reports show that there is an increase in the incidence of the disease in female, consistent with the increase in their smoking habits.

Race

T.A.O is known to be present throughout the world and no race or colour is known to be immune.

Heredity

No hereditary basis is established.

Occupation

Has no relation. But it is believed to be more common in farmers from low socioeconomic group.
Climate

Geographic location and climate are questionable factors. However cold has a deleterious effect on patients suffering from T.A.O by causing vasoconstriction superimposed on arterial occlusion.

Tobacco

The great majority suffering from T.A.O are heavy smokers. If the patient with T.A.O continues to smoke, the disease has a tendency to progress inspite of treatment. But if the patient discontinues smoking the disease tends to run a favourable course and exacerbations and new vascular occlusions are rare.

Pre-disposing factors

Hypertension

Diabetes mellitus

Cigarette smoking

Physical exercise – Lack of physical exercise predisposes to atherosclerosis

Role of highly saturated fats and cholesterol

The above have been proven to be key factors for assessing risk of premature Atherosclerosis
Clinical classification of TAO

Allen-Barker-Hynes have classified the disease into 8 groups.

- Arterial occlusion causing intermittent claudication as the only symptom.
- Intermittent claudication with cold digits and mild rest pain.
- Severe ischaemic neuritis.
- Marked colour changes and Raynauds phenomenon.
- Minor gangrene with local infection.
- Gangrene of digits.
- Severe gangrene spreading on to foot or hand.
- Thrombophlebitis as major or only complaint.

Clinical Features

- Intermittent Pain
- Colour Changes
- Skin Temperature
- Absence of Arterial Pulsation
- Nutritional Changes
- Gangrene

Intermittent Pain

This type of pain is otherwise known as intermittent claudication. The term stems from the Latin verb Claudicare, meaning to limp. It was
found to be associated with obliteration of the main artery of leg. Intermittent claudication in man is an indication of obstruction to the free flow of blood to the tissues of the affected limb. Intermittent claudication is a symptom and not a disease.

The site of claudication is a rough measure of the level of vascular occlusion. It is more commonly observed in the calf and small muscles of the foot than in the thigh because in the thigh there is a generous collateral circulation to compensate for the partial occlusion of the main vessel.

**Colour Changes**

Lewis classic monograph (1936) concludes that skin colour is a good index of the adequacy of peripheral blood flow when the normal responses to environmental conditions are known.

The colour of skin attributable to circulation depends on two factors (i) Amount of blood (ii) Colour of blood. The depth of the colour of skin depends upon the amount of blood contained within the capillaries of the skin.

**Skin Temperature**

The skin temperature of resting limb is dependent upon the balance between the amount of heat brought to it by the blood and the amount of heat lost to its surroundings, when the blood flow to a limb is reduced the amount of heat brought to it is reduced. Hence the part becomes cool.
Environmental factors also influence the skin temperature, but when both limbs are examined under identical conditions, the colder one may be justly assumed to have impaired flow.

Absence of Arterial Pulsations

All arteries are felt against a bone. It constitutes an important part of examination. While searching for pulsations, the volume and amplitude of pulsations are recorded and compared with the other limb. The vessels are examined in the following order.

- Femoral artery
- Popliteal artery
- Dorsalis Pedis Artery
- Posterior Tibial artery
- Peroneal artery
- Radial artery
- Ulnar artery
- Brachial artery
- Digital arteries

Abdominal aorta, temporal and carotid arteries may be examined to exclude any generalised involvement of arterial trunk.
Nutritional changes

Atrophy: In chronic arterial insufficiency, muscles, subcutaneous tissue, skin and skin appendages show the effect of long standing impairment of blood supply. These are most noticeable in the distal parts of the limb.

The skin becomes glossy, parchment like and the digital pulp atrophies. Muscle wasting can be detected by measurements. Atrophy of several inches of calf muscles is frequent, though part of it is due to disuse.

Gangrene

Massive death of the tissue is the end phase of severe ischaemia. It often follows ulceration.

Gangrene usually begins in the digits and in arterial obstruction of the lower limbs, usually on the undersurface of the fifth or first toe. But if it is precipitated by trauma it arises at the site of trauma.

Buergers angle of circulating insufficiency

This has been recommended to estimate the state of circulation in a limb.

A normal limb retains its colour even when held at ninety degrees to the horizontal unlike an ischaemic limb that develops pallor after elevation to an angle less than ninety degrees. This angle is called Buergers angle.
In Thrombosis angitis obliterans, the underlying pathology is that due to excessive smoking, there is deposition of Nicotine in blood vessels producing arteritis. The arteritis is followed by thrombosis.

THROMBOSIS

Definition and Effects

Thrombosis is the process of formation of solid mass in circulation from the constituents of flowing blood, the mass itself is called a thrombus.

Human beings possess inbuilt system by which the blood remains in fluid state normally and guards against the hazards of thrombosis and haemorrhage. However, injury to the blood vessel initiates haemostatic repair mechanism or Thrombogenesis. Virchow described three primary events which predispose to thrombus formation.

Virchow’s triad

Endothelial injury, alteration in flow of blood, and hypercoagulability of blood. These events are discussed below.

1. ROLE OF BLOOD VESSEL WALL.

The integrity of blood vessel wall is important for maintaining normal blood flow. An intact endothelium has the following functions.

i. It protects the flowing blood from the thrombogenic influence of subendothelium.
ii. It elaborates a few anti-thrombotic factors (thrombosis inhibitory factors) e.g

a. Heparin-like substance which accelerates the action of antithrombin III and inactivates some other clotting factors.

b. Thrombomodulin which converts thrombin into activator of protein C, an anticoagulant.

c. Inhibitors of platelet aggregation such as ADPase, PGI₂ or prostacyclin.

d. Tissue plasminogen activator which accelerates the fibrinolytic activity.

iii. It can release a few prothrombotic factors which have procoagulant properties (thrombosis favouring factors) e.g

a. Thromboplastin or tissue factor released from endothelial cells.

b. Von willebrand factor that causes adherence of platelets to the subendothelium.

c. Platelet activating factor which is activator and aggregator of platelets.

d. Inhibitor of plasminogen activator that suppresses fibrinolysis.

Vascular injury exposes the subendothelial connective tissue (e.g. collagen, elastin, fibronectin, laminin and glycosaminoglycans) which are
thrombogenic and thus plays important role in initiating haemostasis as well as thrombosis. Endothelial injury is of major significance in the formation of arterial thrombi. Cigarette smoking may cause vascular injury and predispose to the formation of thrombi. These are as under.

2. Role of Platelets

Following endothelial cell injury, platelets come to play a central role in normal haemostasis as well as in thrombosis. The sequence of events is as under.

i. Platelet adhesion

The platelets in circulation recognize the site of endothelial injury and adhere to exposed sub-endothelial collagen (primary aggregation), von willebrand’s factor is required for such adhesion between platelets and collagen. Normal non-activated platelets have open canalicular system with cytoplasmic organelles (granules, mitochondria, endoplasmic reticulum) dispersed throughout the cytoplasm.

During the early adhesion process, there is dilatation of canalicular system with formation of pseudo-pods and the cytoplasmic organelles shift to the centre of the cell.
ii. Platelet release reaction:

The activated platelets then undergo release reaction by which the platelet granules are released to the exterior. Two main types of platelet granules are released.

a. Alpha granules containing fibrinogen, fibronectin, platelet-derived growth factor, platelet factor 4 (an anti-heparin) and cationic proteins.

b. Dense bodies containing ADP (adenosine diphosphate). Ionic calcium, 5-HT (serotonin), histamine and epinephrine.

As a sequel to platelet activation and release reaction, the phospholipids complex-platelet factor 3 gets activated which plays important role in the intrinsic pathway of coagulation.

iii. Platelet aggregation

Following release of ADP, a potent platelet aggregating agent, aggregation of additional platelets takes place (secondary aggregation). This results in formation of temporary haemostatic plug. However, stable haemostatic plug is formed by the action of fibrin, thrombin and thromboxane A2.
3. ROLE OF COAGULATION SYSTEM

Coagulation mechanism is the conversion of the plasma fibrinogen into solid mass of fibrin. The coagulation system is involved in both haemostatic process and thrombus formation. The schematic representation of the cascade of intrinsic (blood) pathway, the extrinsic (tissue) pathway, and the common pathway leading to formation of fibrin polymers.

i. In the intrinsic pathway

Contact with abnormal surface leads to activation of factor XII and the sequential interactions of factors XI, IX, VIII and finally factor X, alongwith calcium ions (factor IV) and platelet factor 3.

ii. In the extrinsic pathway

Tissue damage results in the release of tissue or thromboplastin. Tissue factor on interaction with factor VII activates factor X.

iii. The common pathway

Begins where both intrinsic and extrinsic pathways converge to activate factor X which forms a complex with factors Va and platelet factor 3, in the presence of calcium ions. This complex activates prothrombin (factor II) to thrombin (factor IIa) which, in turn, converts fibrinogen to fibrin. Initial monomeric fibrin is polymerised to form insoluble fibrin by activation of factor XIII.
iv. Regulation of coagulation system

The blood is kept in fluid state normally and coagulation system kept in check by controlling mechanisms.

These are as under,

a) Protease inhibitors

These act on coagulation factors so as to oppose the formation of thrombin e.g. anti-thrombin III, protein C, C₁ inactivator, α₁-antitrypsin, α₂-macroglobulin.

b) Fibrinolytic system

Plasmin, a potent fibrinolytic enzyme is formed by the action of plasminogen activator on plasminogen present in the normal plasma.

Two types of plasminogen activators (PA) are identified:

Tissue-type PA derived from endothelial cells and leucocytes.

Urokinase-like PA present in the plasma.

Plasmin so formed acts on fibrin to destroy the clot and produces fibrin split products (FSP).
4. HYPERCOAGULABILITY OF BLOOD

The effect of hypercoagulability on thrombosis is favoured by advancing age, smoking, use of oral contraceptives and obesity. Hypercoagulability may occur by the following changes in the composition of blood.
i) Increase in coagulation factors e.g. fibrinogen, prothrombin, factor VIIa, VIIIa and Xa.

ii) Increase in platelet count and their adhesiveness.

iii) Decreased levels of coagulation inhibitors e.g. antithrombin III, fibrin split products.

5. ALTERATION OF BLOOD FLOW

Formation of arterial and cardiac thrombi is facilitated by turbulence in the blood flow.

i) Normally, there is axial flow of blood in which the most rapidly moving central stream consists of leucocytes and red cells. The platelets are present in the slow moving laminar stream adjacent to the central stream while the peripheral stream consists of most slow moving cell free plasma close to endothelial layer.

ii) In turbulence and stasis, the normal axial flow of blood is disturbed so that the platelets come into contact with the endothelium.

Besides the inhibitors of coagulation fail to reach the site of thrombus resulting in enlargement of thrombus size. Turbulence may actually injure the endothelium resulting in deposition of platelets and fibrin.
EVALUATION OF THE DISSERTATION TOPIC

MATERIALS AND METHODS

The study on the Noi Naadal aspect (i.e) pathological view of THALASTHAMBAM was carried out in the post graduate Department of Govt. Siddha Medical Collage, Palayamkottai and Mangalam hospital, Palayamkottai. In this study, patients were treated as out-patients.

Selection of cases

The author has selected 10 cases with similar symptoms of THALASTHAMBAM under the supervision of professor, faculties and lecturer of post graduate, Noi - Naadal Department. The cases were selected for the study on Noi - Naadal aspect of THALASTHABAM.

EVALUATION OF CLINICAL PARAMETERS

Clinical Features of Thalasthambam

1. Heaviness of the foot.
2. Pain in the foot
3. Blackening of the foot
4. Spreading upwards from foot
5. Excessive thirst
6. Dryness of the body
7. Dyspnoea
8. Fatigue
9. Weight loss.
**Study on siddha clinical diagnosis**

The following siddha parameters such as Vinaathal, poriyalarithal, Pulanaal arithal were used to study the,

- Mukkutra Nilaigal
- Udul kattugal Nilaigal
- Envagai Thervugal Nilaigal

Envagai Thanugal is the most important of all the diagnostic methods.

The prognosis of the diseases is assessed using “Neikuri”

**The Clinical Investigations**

The author used the following investigatory parameters for further detailed study about this disease.

They include,

Haematological

- Total count of R.B.C.
- Differential count of W.B.C.
- Haemoglobin
- ESR
Bio-Chemical

- Blood Sugar
- Urine analysis and
- Motion test were done.

Others

- Doppler study of lower limb.
OBSERVATION AND RESULTS

1. Results are observed with respect to the following aspects:

   i. Age and Sex reference.

   ii. Socio economic status

   iii. Etiological factors

   iv. Mukkutra nilai

   v. Udal Thathukkal

   vi. Envagai Thervugal

   vii. Viral kadai alavu

   viii. Clinical Features

   ix. Laboratory Findings.

Table 8. Age and Sex reference:

<table>
<thead>
<tr>
<th>Age</th>
<th>Sex</th>
<th>No. of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>10 - 20 yrs</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>20 - 30 yrs</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>30 - 50 yrs</td>
<td>8</td>
<td>-</td>
</tr>
</tbody>
</table>
Table 9. Socio-Economic status:

<table>
<thead>
<tr>
<th>SI. No</th>
<th>Socio-Economic Status</th>
<th>No. of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rich</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Middle class</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Poor</td>
<td>7</td>
</tr>
</tbody>
</table>

Table 10. Etiological factors:

<table>
<thead>
<tr>
<th>SI. No</th>
<th>Etiological factors</th>
<th>No. of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>smoking</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Increased Intake of salt and sour</td>
<td>6</td>
</tr>
</tbody>
</table>
## Table 11. Mukkutra nilai

### Derangement of Vali:

<table>
<thead>
<tr>
<th>S. No</th>
<th>Types of Vali</th>
<th>No of cases affected</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Praanan</td>
<td>6</td>
<td>Dyspnoea</td>
</tr>
<tr>
<td>2.</td>
<td>Abaanan</td>
<td>5</td>
<td>Constipation</td>
</tr>
<tr>
<td>3.</td>
<td>Viyaanan</td>
<td>10</td>
<td>Pain, Restricted Movements</td>
</tr>
<tr>
<td>4.</td>
<td>Uthaanan</td>
<td>7</td>
<td>Thirst</td>
</tr>
<tr>
<td>5.</td>
<td>Samaanan</td>
<td>10</td>
<td>Balancing Fuctions is disturbed</td>
</tr>
<tr>
<td>6.</td>
<td>Naagan</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7.</td>
<td>Koorman</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8.</td>
<td>Kirukaran</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>9.</td>
<td>Devathaththan</td>
<td>9</td>
<td>Tiredness</td>
</tr>
<tr>
<td>10.</td>
<td>Dhananjeyan</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Table 12. Derangement of Azhal:

<table>
<thead>
<tr>
<th>S. No</th>
<th>Types of Azhal</th>
<th>No of cases affected</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Anar pitham</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Ranjagam</td>
<td>7</td>
<td>Anemia</td>
</tr>
<tr>
<td>3</td>
<td>Saadhagam</td>
<td>10</td>
<td>Restricted Movement</td>
</tr>
<tr>
<td>4</td>
<td>Aalosagam</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Praasagam</td>
<td>10</td>
<td>Gangrene</td>
</tr>
</tbody>
</table>

Table 13. Derangement of Iyam:

<table>
<thead>
<tr>
<th>S. No</th>
<th>Types of Iyam</th>
<th>No of cases affected</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Avalampagam</td>
<td>10</td>
<td>Balancing Fuctions is disturbed</td>
</tr>
<tr>
<td>2</td>
<td>Kilethagam</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>Pothagam</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>Tharpagam</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Santhigam</td>
<td>10</td>
<td>Restricted Movement</td>
</tr>
</tbody>
</table>
Table 14. Udal Thaathukkal:

<table>
<thead>
<tr>
<th>S. No</th>
<th>Udal Thaathukkal</th>
<th>No of cases affected</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Saaram</td>
<td>10</td>
<td>Dryness of the skin</td>
</tr>
<tr>
<td>2</td>
<td>Senneer</td>
<td>10</td>
<td>Desire to take sour food</td>
</tr>
<tr>
<td>3</td>
<td>Oon</td>
<td>10</td>
<td>Necrosis of the foot</td>
</tr>
<tr>
<td>4</td>
<td>Kozhuppu</td>
<td>10</td>
<td>Necrosis of the foot</td>
</tr>
<tr>
<td>5</td>
<td>Enbu</td>
<td>9</td>
<td>Reduction of bone size in the foot, Falling of hair.</td>
</tr>
<tr>
<td>6</td>
<td>Moolai</td>
<td>9</td>
<td>Formation of hole in the bone</td>
</tr>
<tr>
<td>7</td>
<td>Sukkilam</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Table 15. The Picture of Envagai Thervugal:

<table>
<thead>
<tr>
<th>Case No</th>
<th>Naa</th>
<th>Niram</th>
<th>Mozhi</th>
<th>Vizhi</th>
<th>Malam</th>
<th>Moothiram</th>
<th>Naadi</th>
<th>Sparisam</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>A</td>
<td>Uratha oli</td>
<td>A</td>
<td>A</td>
<td>Mellana paraval, saladai paraval</td>
<td>Vali</td>
<td>A</td>
</tr>
<tr>
<td>2</td>
<td>N.A</td>
<td>A</td>
<td>Sama oli</td>
<td>N.A</td>
<td>N.A</td>
<td>Mellana paraval, saladai paraval</td>
<td>Azhal</td>
<td>A</td>
</tr>
<tr>
<td>3</td>
<td>N.A</td>
<td>A</td>
<td>Sama oli</td>
<td>N.A</td>
<td>N.A</td>
<td>Mellana paraval</td>
<td>Vali</td>
<td>A</td>
</tr>
<tr>
<td>4</td>
<td>N.A</td>
<td>A</td>
<td>Sama oli</td>
<td>N.A</td>
<td>A</td>
<td>Mellana paraval, saladai paraval</td>
<td>Azhal</td>
<td>A</td>
</tr>
<tr>
<td>5</td>
<td>A</td>
<td>A</td>
<td>Sama oli</td>
<td>A</td>
<td>A</td>
<td>Mellana paraval</td>
<td>Vali</td>
<td>A</td>
</tr>
<tr>
<td>6</td>
<td>N.A</td>
<td>A</td>
<td>Sama oli</td>
<td>N.A</td>
<td>N.A</td>
<td>Mellana paraval</td>
<td>Vali</td>
<td>A</td>
</tr>
<tr>
<td>7</td>
<td>A</td>
<td>A</td>
<td>Uratha oli</td>
<td>N.A</td>
<td>A</td>
<td>Mellana paraval, saladai paraval</td>
<td>Vali</td>
<td>A</td>
</tr>
<tr>
<td>8</td>
<td>N.A</td>
<td>A</td>
<td>Sama oli</td>
<td>A</td>
<td>N.A</td>
<td>Mellana paraval, saladai paraval</td>
<td>Vali</td>
<td>A</td>
</tr>
<tr>
<td>9</td>
<td>N.A</td>
<td>A</td>
<td>Sama oli</td>
<td>A</td>
<td>A</td>
<td>Mellana paraval</td>
<td>Azhal</td>
<td>A</td>
</tr>
<tr>
<td>10</td>
<td>A</td>
<td>A</td>
<td>Uratha oli</td>
<td>A</td>
<td>N.A</td>
<td>Mellana paraval, saladai paraval</td>
<td>Vali</td>
<td>A</td>
</tr>
</tbody>
</table>

A - Affected       N.A - Not Affected
Table 16. Viral Kadai alavu

<table>
<thead>
<tr>
<th>S.No</th>
<th>Viral Kadai alavu</th>
<th>No of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>2.</td>
<td>9 1/2</td>
<td>2</td>
</tr>
</tbody>
</table>

From the Viral kadai alavu, the majority of cases are having 9 as viral kadai alavu, the symptom mentioned under this is difficulty in walking, which is seen in patients of Thalasthambam.

Table 17. Clinical Features.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Clinical Features</th>
<th>No of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Heaviness of the foot</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Pain in the foot</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Blackening of the foot</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Spreading upwards from foot</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>Exessive thirst</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>Dryness of the body</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Dyspnoea</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>Fatigue</td>
<td>9</td>
</tr>
<tr>
<td>9</td>
<td>weight loss</td>
<td>2</td>
</tr>
</tbody>
</table>
## Table 18. Laboratory Findings

<table>
<thead>
<tr>
<th>Case No</th>
<th>Tc cells/cumm</th>
<th>Blood</th>
<th>ESR</th>
<th>Bio Chemical</th>
<th>Urine</th>
<th>Motion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DC Cells</td>
<td></td>
<td></td>
<td></td>
<td>NAD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>P%</td>
<td>L%</td>
<td>E%</td>
<td>1/2 hr mm</td>
<td>1 hr mm</td>
</tr>
<tr>
<td>1</td>
<td>8000</td>
<td>60</td>
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<td>5</td>
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<td>2</td>
<td>9500</td>
<td>68</td>
<td>32</td>
<td>-</td>
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<td>15</td>
</tr>
<tr>
<td>3</td>
<td>10400</td>
<td>58</td>
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<td>2</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>4</td>
<td>9800</td>
<td>54</td>
<td>46</td>
<td>-</td>
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<td>12</td>
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<tr>
<td>5</td>
<td>8900</td>
<td>66</td>
<td>34</td>
<td>-</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>6</td>
<td>10500</td>
<td>58</td>
<td>32</td>
<td>-</td>
<td>20</td>
<td>53</td>
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<tr>
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<td>2</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>8</td>
<td>9500</td>
<td>65</td>
<td>33</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>7800</td>
<td>54</td>
<td>44</td>
<td>2</td>
<td>10</td>
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</tr>
<tr>
<td>10</td>
<td>7100</td>
<td>71</td>
<td>24</td>
<td>5</td>
<td>6</td>
<td>14</td>
</tr>
</tbody>
</table>

NAD – No Abnormal Defects
STATISTICAL ANALYSIS AND INTERPRETATIONS

The study results were analysed by the statistics, mean, advariations of the variable. The analysed results were interpreted statistically by studies ‘t’ test and epidemiological rates and ratio for assessing the risk of the disease.

DISCUSSIONS AND RESULTS

Age

Age is one of the crucial factor of the incidence of the disease. The study subjects were classified according to their age and sex and are tabulated below,

Table – 19

Age and Sex wise classification of study cases

<table>
<thead>
<tr>
<th>Age Group</th>
<th>No. of Male Cases</th>
<th>Study subjects</th>
<th>S.D</th>
<th>Mean age of the population 95% C.I-Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-34</td>
<td>3</td>
<td>37.5 Years</td>
<td>5.9 years</td>
<td>33.3 to 41.7 years</td>
</tr>
<tr>
<td>35-39</td>
<td>3</td>
<td>37.5 Years</td>
<td>5.9 years</td>
<td>33.3 to 41.7 years</td>
</tr>
<tr>
<td>40-44</td>
<td>2</td>
<td>37.5 Years</td>
<td>5.9 years</td>
<td>33.3 to 41.7 years</td>
</tr>
<tr>
<td>45-49</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
From the above table the mean and median ages of the study subjects are $37.5 \pm 5.9$ years the same age in the population will be 33.3 to 41.7 years. The average ages of the incidence of the diseases in the population is estimated through the above samples.

**Etiological Factors**

The etiological factors are identified as smoking and increased intake of salt and sour in the diet. The risk level of the above factors are analysed and interpreted as follows.

**Smoking**

Among the 10 study subjects all are having the habit of smoking.

**Salt and Sour**

The increased intake of salt and sour in diet is one of the crucial factor for the incidence of the disease. The risk is analysed with the management of the disease that is amputation. The results of the risks are furnished below.
**Table – 20**

**Risk of excessive intake of salt and sour with amputation**

<table>
<thead>
<tr>
<th>Intake of salt and sour</th>
<th>Management</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Amputated</td>
<td>Non-Amputated</td>
<td>Total</td>
<td>RR</td>
<td>AR</td>
<td>OR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excess</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>1.3</td>
<td>23%</td>
<td>1.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>1.3</td>
<td>23%</td>
<td>1.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>7</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The above table clearly shows that the excess intake of salt and sour is 1.3 times risk of amputation than the risk of moderate intake of salt and sour (RR=1.3). In the absence of excess intake the risk of amputation is only 23% (AR=23%). The excess intake of salt and sour is 1.5 times greater risk than the moderate intake in respect of amputation. From the above analysis, the excessive smoking and increased intake of salt and sour are leading and crucial causes for amputation and etiology for the disease.
Mukkutra Nilai

The Mukkutra Nilai and components are tabulated below.

**Table – 21**

Percentage distribution of Mukkutra Nilai derangement and its components of affected persons.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Mukkutra Nilai Component</th>
<th>N</th>
<th>Types</th>
<th>Affected Case</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No. of Cases</td>
</tr>
<tr>
<td>1</td>
<td>Vali</td>
<td>10</td>
<td>Praanan</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Abaanan</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Viyaanan</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Uthaanan</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Samaanan</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Devathaththan</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>Azhal</td>
<td>10</td>
<td>Ranjagam</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Saathagam</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Praasagam</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Iyam</td>
<td>10</td>
<td>Avalambagam</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Santhigam</td>
<td>10</td>
</tr>
</tbody>
</table>
From the above table under Vali cent percentage affected cases are Viyaanan and Samaanan. The above component of Vali namely Devathaththan and Uthaanan are affected by 90 and 70 percentages respectively. The remaining Praanan and Abaan an are affected by 60 and 50 percentage respectively.

In respect of Azhal, the Praasagam and Saa thagam the affected cases are cent per cents and the Ranjagam is 70 percentage.

The cent percentage affected cases are observed in both Avalambagam and Santhigam under Iya thodam.

**Udal Thathukkal**

The study subjects are classified at the level of affection in terms of percentages. They are posted in the forth coming table.
Table – 22

The components of Udal Thaathukkal affected are tabulated below as follows,

<table>
<thead>
<tr>
<th>S. No</th>
<th>Udal Thaathukkal</th>
<th>N</th>
<th>Affected cases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>No. of Cases</td>
</tr>
<tr>
<td>1</td>
<td>Saaram</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Senneer</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Oon</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Kozhuppu</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>Enbu</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>Moolai</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>7</td>
<td>Sukkilam</td>
<td>10</td>
<td>-</td>
</tr>
</tbody>
</table>

In the above table, it is observed that except Enbu and Moolai, cent percentage are affected for saram, senneer, oon and kozhupu. The Enbu and moolai are affected by 90% . In the disease Thalasthambam the sukkila thathu is not affected.
Ennvagai Thervugal

The study subjects were examined by Ennvagai thervugal and the percentage of the affected cases are tabulated below.

Table –23

Examination of cases through Ennvagai Thervugal and

Percentage distribution

<table>
<thead>
<tr>
<th>S.No</th>
<th>Examination</th>
<th>N</th>
<th>Type</th>
<th>Affected Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No. of Cases</td>
</tr>
<tr>
<td>1.</td>
<td>Naa</td>
<td>10</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>Niram</td>
<td>10</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>3.</td>
<td>Mozhi</td>
<td>10</td>
<td>Sama Oli</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Uratha oli</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Vizhi</td>
<td>10</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Malam</td>
<td>10</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>Moothiram</td>
<td>10</td>
<td>Melana Paraval ,</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Salladai Kan</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Other</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>Sparisam</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>8</td>
<td>Naadi</td>
<td>10</td>
<td>Vali Iyam</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Azhal Iyam</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Vali Azhal</td>
<td>2</td>
</tr>
</tbody>
</table>
In thalasthambam, all cases were having changes in Niram and Sparisam. In Mozhi 70% cases were having changes, 50% were having changes in malam and Vizhi. In moothiram the changes were noted for 60% cases.

**Viral kadai alavu**

The study cases are estimated based on the Viral Kadai Alavu and the measurement are tabulated below.

**Table – 24**  
*Estimation of Viral Kadai Alavu*

<table>
<thead>
<tr>
<th>S.No</th>
<th>Viral Kadai alavu</th>
<th>N</th>
<th>Affected cases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>No of cases</td>
</tr>
<tr>
<td>1.</td>
<td>9</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>2.</td>
<td>9 1/2</td>
<td>10</td>
<td>2</td>
</tr>
</tbody>
</table>

From the above table, it is observed that 80 percentage of cases were having 9 as viral kadai alavu. 20 percentage of cases were having 9 ½ as viral kadai alavu.
Clinical features:

The clinical indicators for Thalasthambam and management with percentage distribution are furnished in the table.

**Table –25**  
Percentage distribution of Clinical features in Thalasthambam

<table>
<thead>
<tr>
<th>S.No</th>
<th>Clinical Features</th>
<th>N</th>
<th>Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>No.of cases</td>
</tr>
<tr>
<td>1</td>
<td>Heaviness of the foot</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Pain in the Foot</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Blackening of the foot</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Spreading upwards from foot</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>Excessive thirst</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>Dryness of the body</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Dyspnoea</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>Fatigue</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>9</td>
<td>Weight Loss</td>
<td>10</td>
<td>2</td>
</tr>
</tbody>
</table>
DISCUSSION

In Yugi Vaithiya Sinhamani, THALASTHAMBAM is described under Vali diseases. The Name Thalasthambam itself implies, it is a Vali disease principally affecting the foot, as ‘Thalam’ means foot (or) base.

To discuss the factors, which help to analyse and confirm the pathological basis of the disease are the siddha and modern parameters.

The observed results and other entities that have been studied are discussed under the following headings.

1. **Age and Sex distribution**

   The incidence of Thalasthambam is common in men.

   Due to their habit of smoking.

   Age between 25 – 40 years.

2. **Incidence with reference to Family History**

   There is no specific relationship with Family History.

3. **Incidence with reference to Personal Habits**

   Heavy smoking is closely related with the diseases.

   High intake of salt and sour in diet also acts as a cause for it.

4. **Incidence with reference to occupation**

   Men who have habit of smoking to relax the tension in their job.

   Sedentary life style which give them more time to smoke heavily.
5. Incidence with reference to Residential area

There is no direct relationship with the residential area. Irrespective of their residing place, the food habit and heavy smoking will lead to the disease soon.

6. Incidence with reference to Socio-economic condition

The incidence of Thalasthambam is common among poor socio-economic group.

INTERPRETATION OF SIDDHA PARAMETERS

a. Mukkutram

Vali, Azhal, and Iyam constitutes the Mukkkutrangal, and the affected thodams are,

Table -26. Derangement in Vali

<table>
<thead>
<tr>
<th>S. No</th>
<th>Types</th>
<th>Changes</th>
<th>Character</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Piraanan</td>
<td>Affected</td>
<td>Dyspnoea</td>
</tr>
<tr>
<td>2</td>
<td>Abaanan</td>
<td>Affected</td>
<td>Constipation</td>
</tr>
<tr>
<td>3</td>
<td>Viyaanan</td>
<td>Affected</td>
<td>Pain, Restricted movements.</td>
</tr>
<tr>
<td>4</td>
<td>Uthaanan</td>
<td>Affected</td>
<td>Thirst.</td>
</tr>
<tr>
<td>5</td>
<td>Samaanan</td>
<td>Affected</td>
<td>Balancing function is disturbed</td>
</tr>
<tr>
<td>6</td>
<td>Naagan</td>
<td>Not affected</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>Koorman</td>
<td>Not affected</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>Kirukaran</td>
<td>Not affected</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>Devathathan</td>
<td>Affected</td>
<td>Tiredness</td>
</tr>
<tr>
<td>10</td>
<td>Dhananjeyan</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
### Table – 27. Derangement of Azhal

<table>
<thead>
<tr>
<th>S. No</th>
<th>Types</th>
<th>Changes</th>
<th>Character</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Analpitham</td>
<td>Not affected</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Ranjagapitham</td>
<td><strong>Affected</strong></td>
<td>Fatigue</td>
</tr>
<tr>
<td>3</td>
<td>Saathagam</td>
<td><strong>Affected</strong></td>
<td>Restricted movements.</td>
</tr>
<tr>
<td>4</td>
<td>Alosagam</td>
<td>Not affected</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Praasagam</td>
<td><strong>Affected</strong></td>
<td>Ulcers, gangrene present in toe</td>
</tr>
</tbody>
</table>

### Table – 28. Derangement of Iyam

<table>
<thead>
<tr>
<th>S. No</th>
<th>Types</th>
<th>Changes</th>
<th>Character</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Avalambagam</td>
<td><strong>Affected</strong></td>
<td>Balancing other types of kabham gets affected</td>
</tr>
<tr>
<td>2</td>
<td>Kilethagam</td>
<td>Not affected</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>Pothagam</td>
<td><strong>Affected</strong></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Tharpagam</td>
<td>Not affected</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Santhigam</td>
<td><strong>Affected</strong></td>
<td>Restricted movements</td>
</tr>
</tbody>
</table>
Table – 29. Udal Thaathukkal

The observation in Udal Kattugal has been tabulated as follows.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Types</th>
<th>Changes</th>
<th>Character</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Saaram</td>
<td>Affected</td>
<td>Dryness of the skin.</td>
</tr>
<tr>
<td>2</td>
<td>Senneer</td>
<td>Affected</td>
<td>Desire to take sour food</td>
</tr>
<tr>
<td>3</td>
<td>Oon</td>
<td>Affected</td>
<td>Necrosis in the foot</td>
</tr>
<tr>
<td>4</td>
<td>Kozhuppu</td>
<td>Affected</td>
<td>Necrosis in the foot, Weight loss.</td>
</tr>
<tr>
<td>5</td>
<td>Enbu</td>
<td>Affected</td>
<td>Falling of hair, Reduction of bone</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>size in the foot</td>
</tr>
<tr>
<td>6</td>
<td>Moolai</td>
<td>Affected</td>
<td>Formation of hole in the bone.</td>
</tr>
<tr>
<td>7</td>
<td>Sukkilam</td>
<td>Not affected</td>
<td></td>
</tr>
</tbody>
</table>

**Ennvagai Thervugal**

Among the Ennvagai Thervugal, Meikuri, Niram and Naadi were affected and reflects the characteristic picture of Thalasthambam.

**a. Meikuri**

Changes in cellular level of this disease reflects on Meikuri. There is heaviness of the skin, pain in the affected area and gangrene formation in the foot.

**b. Niram**

The skin shows the changes the blackening of the affected area, (gangrene of the foot).
c. Naadi

In this diseases Thalasthambam, The Naadi in affected leg is feeble. When the gangrene is formed the Naadi is disappeared totally.

The Kai Naadi, in Thalasthambam is “Vali Iyam”.

The other parameters of Envagai Thervugal are explained below as follows.

Table-30. Ennvagai Thervugal

<table>
<thead>
<tr>
<th>S. No</th>
<th>Types</th>
<th>Changes</th>
<th>Character</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Meikuri</td>
<td>Affected</td>
<td>Gangrene</td>
</tr>
<tr>
<td>2</td>
<td>Niram</td>
<td>Affected</td>
<td>Blackening of the foot.</td>
</tr>
<tr>
<td>3</td>
<td>Naa</td>
<td>Affected</td>
<td>Palor</td>
</tr>
<tr>
<td>4</td>
<td>Vizhi</td>
<td>Affected</td>
<td>Pale colour in the conjuctiva</td>
</tr>
<tr>
<td>5</td>
<td>Mozhi</td>
<td>Not affected</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>Malam</td>
<td>Affected</td>
<td>Constipation</td>
</tr>
<tr>
<td>7</td>
<td>Kaikuri</td>
<td>Vali Iyam</td>
<td>-</td>
</tr>
</tbody>
</table>
Moothiram

Neerkuri, Neikuri References

Table – 31. Neerkuri

<table>
<thead>
<tr>
<th>S. No</th>
<th>Types</th>
<th>Characters of urine</th>
<th>Patient state</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Niram</td>
<td>Specific change in colour</td>
<td>Normal</td>
</tr>
<tr>
<td>2</td>
<td>Manam</td>
<td>Changes in smell</td>
<td>Normal</td>
</tr>
<tr>
<td>3</td>
<td>Edai</td>
<td>Changes in specific gravity</td>
<td>Normal</td>
</tr>
<tr>
<td>4</td>
<td>Nurai</td>
<td>Abnormal frothy</td>
<td>Nil</td>
</tr>
<tr>
<td>5</td>
<td>Enjal</td>
<td>Deposits</td>
<td>Normal</td>
</tr>
</tbody>
</table>

Table - 32. Neikuri

<table>
<thead>
<tr>
<th>Test</th>
<th>Character of Neikuri</th>
<th>Figure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neikuri</td>
<td>Oil slowly spreads in urine and it forms saladai kan like structure</td>
<td><img src="image.png" alt="Figure" /></td>
</tr>
</tbody>
</table>

Slow spread of oil indicates changes in Vali, saladai kan like structure denotes changes in Iyam. Neikuri indicates that the disease is not curable.
INTERPRETATION OF ALLIED PARAMETERS

After examination of clinical features by Ennvagai Thervugal, the patient was subjected to laboratory investigations, which include haematological, urine and stool examination and specific examination like Doppler study of lower limb.

Haematological examination shows no abnormal findings.

Urine and stool examinations are normal.

Doppler study of lower limb shows panarteritis and thrombosis in leg arteries at various level.
HIGHLIGHTS OF THE DISSERTATION TOPIC

Thalasthambam comes under Vatha roga nithanam in Yugi Vaithya Sinthamani 800.

For any type of disease the vali humour is first affected. Followed by alteration in other humour.

In thalasthambam, yugi explains that the altered vali humour is aggravated by the excessive intake of salt and sour (i.e) these tastes acts as a pre-disposing factor for the disease.

The disease is characterized by the presence of heaviness of the foot, pain in the foot, blackening of the foot, spreading upwards from foot, weight loss, Dyspnoea, fatigue, dryness of the body, and thirst.

In this disease, the Udal thathukkal - Saram, Senneer, Oon, Kozhuppu, Enbu, Moolai are affected as 6 out of 7 udal thathukkal gets deranged the disease is not - curable.

The underlying pathogenesis for the Thalasthambam is the peripheral arterial occlusive disorder resulting in gangrene formation due to pan-arteritis leading to thrombosis as seen in “Thrombo Angitis obliterans”.
CONCLUSION

The study on Thalasthambam was carried out in this dissertation giving importance to the changes in udal Thaathukal, uyir thaathukal etc.,

The changes in the udal Thathukal and uyir thathukal were assessed by siddha parameters like ennvagai Thervugal, Poriyalarithal, Pulanalarithal and Vinathal and prognosis is assessed by Nei-Kuri.

A parallel modern diagnosis was arrived through routine blood tests, urine tests, stool examination and Doppler study of lower limb.

The study on Thalasthambam concludes that, Thalasthambam is an **Peripheral arterial Occlusive diseases leading to gangrene formation like Thrombo Angitis Obliterens (T.A.O)**

The pathogenesis of Thalasthambam involves the vitiation of Vali, Which disturbs the fuction of Azhal and Iyam in various degrees.

The signs of the disease is clearly depicted by the udal thaathukal.

It is essential to know the pathogenesis of the disease for early diagnosis and proper treatment and to prevent complication (amputation) and also to advise the patient to stop smoking and to avoid the excessive intake of salt and sour in diet.
P.G. -NOI NAADAL DEPARTMENT

GOVT. SIDDHA MEDICAL COLLEGE, PALAYAMKOTTAI.

A Study to Diagnose Thalasthambam through Siddha

Diagnostic Methodology

SELECTION PROFORMA


6. Name: _______________  7. Age (Years): [ ]  8. Sex: [M] [F]


11. Address:

..........................................................
..........................................................
..........................................................

12. Complaints and duration:

..........................................................
..........................................................
..........................................................

13. History of present illness:

..........................................................
..........................................................
..........................................................

14. Past history:

..........................................................
..........................................................
..........................................................

15. Family History:

..........................................................
..........................................................
..........................................................

..........................................................
### Habits

<table>
<thead>
<tr>
<th></th>
<th>1.Yes</th>
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<tbody>
<tr>
<td>16. Betelnut chewer</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>17. Tea</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>18. Coffee</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>19. Tobacco chewer</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>20. Smoking</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>21. Alcohol</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>22. Food habits</td>
<td>V</td>
<td>NV</td>
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### GENERAL ETIOLOGY FOR THALASTHAMBAVATHAM

<table>
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<tr>
<th></th>
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<tbody>
<tr>
<td>23. Excessive intake of sour and salt</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>24. Sleeping in day time</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>25. Sleepdisturbance in night time</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>26. Repeated starvation</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>27. Increased obesity</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>28. Increased smoking</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>29. Increased intake of alcohol</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
### GENERAL EXAMINATION

30. Weight (kg) 
31. Temperature (°F) 
32. Pulse rate/minute 
33. Heart rate/minute 
34. Respiratory rate/minute 
35. Blood pressure (mmHg) 

<table>
<thead>
<tr>
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<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>36. Pallor</td>
<td></td>
</tr>
<tr>
<td>37. Jaundice</td>
<td></td>
</tr>
<tr>
<td>38. Cyanosis</td>
<td></td>
</tr>
<tr>
<td>39. Lymphadenopathy</td>
<td></td>
</tr>
<tr>
<td>40. Pedal edema</td>
<td></td>
</tr>
<tr>
<td>41. Clubbing</td>
<td></td>
</tr>
<tr>
<td>42. Jugular venous pulsation</td>
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### VITAL ORGANS EXAMINATION

<table>
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<tr>
<td>43. Heart</td>
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<td>44. Lungs</td>
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</tr>
<tr>
<td>45. Brain</td>
<td></td>
</tr>
<tr>
<td>46. Liver</td>
<td></td>
</tr>
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<td>47. Kidney</td>
<td></td>
</tr>
<tr>
<td>48. Spleen</td>
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<tr>
<td>49. Stomach</td>
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## SIDDHA SYSTEM OF EXAMINATION
### ENNVAGAI THERVUKAL

### NAA
50. Maa Padinthiruthal

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</tr>
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<tbody>
<tr>
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</table>

51. Niram

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<thead>
<tr>
<th></th>
<th>Karuppu</th>
<th>Manjal</th>
<th>Velluppu</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
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</tbody>
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52. Suvai

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<tr>
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<th>Pulippu</th>
<th>Kaippu</th>
<th>Inippu</th>
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53. Vedippu

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54. Vai neer ooral

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<th></th>
<th>Normal</th>
<th>Increased</th>
<th>Reduced</th>
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### 55. NIRAM

55. Niram

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<th>Velluppu</th>
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### 56. MOZHI

56. MOZHI

<table>
<thead>
<tr>
<th></th>
<th>Sama oli</th>
<th>Urattha oli</th>
<th>Thazhntha oli</th>
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### VIZHI

57. Niram

<table>
<thead>
<tr>
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<th>Manjal</th>
</tr>
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58. Kanneer

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59. Erichchal

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60. Peelai seruthal

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</tr>
<tr>
<td>MEI KURI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>---------------</td>
<td>---------------</td>
</tr>
<tr>
<td></td>
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<tr>
<td>62. Viyarvai</td>
<td>1. Normal</td>
<td>2. Increased</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>63. Thodu vali</td>
<td>1. Present</td>
<td>2. Absent</td>
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<table>
<thead>
<tr>
<th>MALAM</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>3. Sivappu</td>
<td>4. Velluppu</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65. Sikkal</td>
<td>1. Present</td>
<td>2. Absent</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>66. Sirutthal</td>
<td>1. Present</td>
<td>2. Absent</td>
<td></td>
</tr>
</tbody>
</table>

|                  |               |               |               |
| 68. Seetham      | 1. Present    | 2. Absent     |
|                  |               |               |               |
| 69. Vemmai       | 1. Present    | 2. Absent     |

<table>
<thead>
<tr>
<th>MOOTHIRAM</th>
<th></th>
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<tbody>
<tr>
<td>NEER KURI</td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>71. Manam</td>
<td>1. Present</td>
<td>2. Absent</td>
<td></td>
</tr>
</tbody>
</table>
### 72. Nurai
- 1. Nil
- 2. Increased
- 3. Reduced

### 73. Edai (Ganam)
- 1. Normal
- 2. Increased
- 3. Reduced

### 74. Enjal (Alavu)
- 1. Normal
- 2. Increased
- 3. Reduced

### 75. NEI KURI
- 1. Aravam
- 2. Mothiram
- 3. Muthu
- 4. Aravil Mothiram
- 5. Aravil Muthu
- 6. Mothirathil Arava
- 7. Mothirathil Muthu
- 8. Muthil Arava
- 9. Muthil Mothiram
- 10. Asathiyam
- 11. Mellena paraval

### NAADI (KAI KURI)

#### I. Naadi Nithanam

##### 76. Kaalam
- 1. Kaarkaalam
- 2. Koothirkaalam
- 3. Munpanikaalam
- 4. Pinpanikaalam
- 5. Ilavenirkaalam
- 6. Muthuvenirkaalam

##### 77. Desam
- 1. Kulir
- 2. Veppam

##### 78. Vayathu
- 1. 1-33yrs
- 2. 3-66yrs
- 3. 67-100yrs

##### 79. Udal Vanmai
- 1. Iyalbu
- 2. Valivu
- 3. Melivu

##### 80. Vanmai
- 1. Vanmai
- 2. Menmai
<p>| | | | | |</p>
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<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>81. Panbu</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Thannadai</td>
<td>2. Puranadai</td>
<td>3. Illaitthal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Pakkanokku</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>82. Naadi nadai</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Vali</td>
<td>2. Azhal</td>
<td>3. Iyam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Vali Azhal</td>
<td>5. Vali Iyam</td>
<td>6. Azhal Vali</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Azhal Iyam</td>
<td>8. Iya vali</td>
<td>9. Iya Azhal</td>
<td></td>
<td></td>
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</tbody>
</table>

|83. MANIKKADAI NOOL (Viral Kadai Alavu) |   |   |   |   |

**IYMPORIGAL / IYMPULANGAL**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>84. Mei</td>
<td></td>
<td></td>
</tr>
<tr>
<td>85. Vaai</td>
<td></td>
<td></td>
</tr>
<tr>
<td>86. Kan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>87. Mookku</td>
<td></td>
<td></td>
</tr>
<tr>
<td>88. Sevi</td>
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<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
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<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>84. Mei</td>
<td></td>
<td></td>
</tr>
<tr>
<td>85. Vaai</td>
<td></td>
<td></td>
</tr>
<tr>
<td>86. Kan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>87. Mookku</td>
<td></td>
<td></td>
</tr>
<tr>
<td>88. Sevi</td>
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<td></td>
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</tbody>
</table>

**KANMENTHIRIYANGAL / KANMAVIDAYANGAL**

<p>| | | |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>89. Kai</td>
<td></td>
<td></td>
</tr>
<tr>
<td>90. Kaal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>91. Vaai</td>
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<td></td>
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</tbody>
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<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>89. Kai</td>
<td></td>
<td></td>
</tr>
<tr>
<td>90. Kaal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>91. Vaai</td>
<td></td>
<td></td>
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<tr>
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<tr>
<td>---</td>
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<td>---</td>
</tr>
<tr>
<td>92. Eruvaai</td>
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<tr>
<td>93. Karuvaai</td>
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<tr>
<td><strong>94. YAAKAI</strong></td>
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</tr>
<tr>
<td><strong>95. GUNAM</strong></td>
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**UYIR THATHUKKAL**

**1. Vali**

<table>
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<tr>
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<tbody>
<tr>
<td>96. Uyirkkaal (Praanan)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>97. Keelnokkukkaal (Abaanan)</td>
<td></td>
<td></td>
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<tr>
<td>98. Paravukaal (Viyaanan)</td>
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<td>99. Melnokkukkaal (Udhaanan)</td>
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<tr>
<td>100. Nadukkaal (Samaanan)</td>
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<tr>
<td>101. VaanthikKaal (Naahan)</td>
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<tr>
<td>102. Vizhikkaal (Koorman)</td>
<td></td>
<td></td>
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<tr>
<td>103. Thummikkaal (Kirukaran)</td>
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<tr>
<td>104. Kottavikkaal (Devathathan)</td>
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</tr>
<tr>
<td>105. Veengukkaal (Dhananjeyan)</td>
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**II. Azhal**

<table>
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<tr>
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<td></td>
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<tr>
<td>107. Ollolithe (Prasaka pitham)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>108. Vannaeri (Ranjaka pitham)</td>
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<td></td>
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</tbody>
</table>
109. Nokkazhal (Aalosaka pitham)  □ □  
110. Aatralangi (Saathaka pitham)  □ □  

### III. Iyam

<table>
<thead>
<tr>
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<tbody>
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<td>111. Aliiyam (Avalambagam)</td>
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<td>□</td>
</tr>
<tr>
<td>112. Neerppiiyam (Kilethagam)</td>
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<td>□</td>
</tr>
<tr>
<td>113. Suvaikaaniyam (Pothagam)</td>
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<td>□</td>
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<td>114. Niraivuiyam (Tharpagam)</td>
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<td>□</td>
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<tr>
<td>115. Ondriiyam (Santhigam)</td>
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### UDAL THATHUKKAL

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<td>□</td>
</tr>
<tr>
<td>117. Senneer</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>118. Oon</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>119. Kozhuppu</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>120. Enbu</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>121. Moolai</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>122. Suronitham/ Sukkilam</td>
<td>□</td>
<td>□</td>
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### MUKKUTRA MIGU GUNAM

<table>
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<tr>
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<tr>
<td>123. Emaciation</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>124. Blackish colouration of the body</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>125. Desire to take hot food</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>126. Tremors</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>
127. Abdominal distension  |  
128. Insomnia  |  
129. Weakness  |  
130. Weakness of sense organs  |  
131. Giddiness  |  
132. Sluggishness  |  
133. Constipation  |  

<table>
<thead>
<tr>
<th>II. Azhal Migu Gunam</th>
<th>1. Present</th>
<th>2. Absent</th>
</tr>
</thead>
<tbody>
<tr>
<td>134. Yellowish discolouration of the skin</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>135. Yellowish discolouration of the eye</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>136. Yellowish discolouration of urine</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>137. Yellowish discolouration of faeces</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>138. Increased appetite</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>139. Burning sensation in the body</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>140. Insomnia</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>III. Iyam Migu Gunam</th>
<th>1. Present</th>
<th>2. Absent</th>
</tr>
</thead>
<tbody>
<tr>
<td>141. Excessive salivation</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>142. Eraippu (dyspnoea)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>143. Heaviness of the body</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>144. Whiteness of the body</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>145. Chillness of the body</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>146. Reduced appetite</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>147. Cough</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
148. Increased sleep
149. Sluggishness

**150. NOI UTRA KAALAM**

1. Kaarkaalam
2. Koothirkaalam
3. Munpanikaalam
4. Pinpanikaalam
5. Ilavenirkaalam
6. Muthuvenirkaalam

**151. NOI UTRA NILAM**

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

**152. Date of Birth**

**153. Time of Birth**

**154. Place of Birth**

**155. NATCHATHIRAM**

1. Aswini
2. Barani
3. Karthikai
4. Rohini
5. Mirugaseeridam
6. Thiruvathirai
7. Punarpoosam
8. Poosam
9. Aayilyam
10. Makam
11. Pooram
12. Utthiram
13. Astham
14. Chithirai
15. Swathi
16. Visakam
17. Anusam
18. Kettilai
19. Moolam
20. Pooradam
21. Utthiradam
22. Thiruvonam
23. Avittam
24. Sadayam
25. Poorattathi
26. Utthirattathi
27. Revathi
00. Not known
156. RAASI

00. Not known □

INVESTIGATION

BLOOD

157. TC (Cells/cumm) : □ □ □ □ □
158. DC (%) : 1. P □ □ □ 2. L □ □ 3. E □ □
             4. B □ □ 5. M □
159. Hb (gms%) : □ □
160. E.S.R. (mm/hr) : 1.1/2hr □ □ 2.1hr □ □
161. Blood Sugar (R) (mgs%) : □ □ □
### URINE

<table>
<thead>
<tr>
<th>Test</th>
<th>0.Nil</th>
<th>Trace</th>
<th>2.+</th>
<th>3.+</th>
<th>4.+++</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albumin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sugar</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Test</th>
<th>1. Yes</th>
<th>2. No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deposits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pus cells</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Epithelial cells</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RBCs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crystals</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### MOTION TEST

<table>
<thead>
<tr>
<th>Test</th>
<th>1. Yes</th>
<th>2. No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ova</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyst</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occult blood</td>
<td></td>
<td></td>
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</tbody>
</table>

### Doppler study:

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........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
### CLINICAL FEATURES OF THALASTHAMBAVATHAM:

<table>
<thead>
<tr>
<th></th>
<th>1. Present</th>
<th>2. Absent</th>
</tr>
</thead>
<tbody>
<tr>
<td>172. Heaviness of the foot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>173. Pain in the foot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>174. Blackening of the foot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>175. Spreading upwards from foot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>176. Excessive thirst</td>
<td></td>
<td></td>
</tr>
<tr>
<td>177. Dryness of the body</td>
<td></td>
<td></td>
</tr>
<tr>
<td>178. Dyspnoea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>179. Fatigue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>180. Weight loss</td>
<td></td>
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</tbody>
</table>
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   Part -2– Dr. M. Shanmugavelu. H.P.I.M

5. Thotra kirama Aaraichiyum Siddha Maruthuva Varalarum –
   Dr.C.S Uthamarayan H.P.I.M.

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