A STUDY ON
ANDA VADHAM

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INTRODUCTION

“Health is Wealth”

Health is merely a personal responsibility as well as a major public concern. It involves the joint efforts of the whole social fabric viz., the individual, the community and the state to protect and promote health.

According to World Health Organization, Health is a state of complete physical, mental, spiritual and social well being and not merely an absence of disease or infirmity.

To attain this wealthy health, Siddha system of medicine plays an important role.

Siddha system of medicine is merely a sanctity system which deals with the different aspects of life. The word “Siddh” means an object to be attained perfection or heavenly bliss. In fact Siddha system of medicine seems to be the bye-product of siddhars quest, for attaining their spiritual fulfillment.

It is a mixture of science, art and philosophy. It is a holistic science that lays emphasis on preserving and promoting the health of the individuals.

Siddhars has super-natural powers who have defined the basic laws and principles governing life on earth. Siddha science considers nature and man as the same one.
It defines, what exists in universe is the samething exist in man. The five basic elements of the universe namely earth, water, fire, air and ether corresponds to the five senses of the human body and they form the fundamentals of all the corporeal things in the universe and man.

Man has three vital forces of cosmic elements named as Uyirthaathu viz.,Vali, Azhal and Iyam which are activated by five basic elements called Pancha Boothams. In a healthy individual these exist in a normal ratio. Any alterations in this, results in disease.

The sanga poet Tholkaapiyar pointed out disease as sufferings and depressions.

Saint Thirumoolar mentioned the importance of human body as,
Thus devoid of illness is much important to attain the eternal glory and for that the vehicle is the body. To protect such a valuable body from illness, a detailed study about the cause of disease is necessary.

Siddhars classified the diseases and they confined them within 4448 types.

Unless one arrives at the exact diagnosis with a clear understanding of its etiology, pathogenesis and pathology, all attempts to treat the disease will come to a dead end. Hence a sound knowledge about Noi Naadal is very essential to formulate correct therapeutic measures for various ailments.

It is clear that Noi Naadal has an exclusively unique place in the siddha system of medicine. The author would be successfully completing her post graduation in Noi Naadal Dept. and has selected Anda Vadham as her dissertation subject.
SIDDHA PHYSIOLOGY

Physiology is the most fascinating and ancient branch of science. The goal of physiology is to explain the physical and chemical factors that are responsible for the origin, development and progression of life.

Human physiology mainly concerned with the specific characteristics and mechanisms of the human body that make it a living being. The human being is actually an automaton, and the fact that we are sensing, feeling and knowledgeable beings is part of this automatic sequence of life; these special attributes allow us to exist under widely varying conditions that otherwise would make life impossible.

According to Siddha system of medicine the human body is governed by,

1. 96 Specific thathuvams
2. 7 Udal thaathukkal (Physical Constituents)
3. 14 Vegangal (Reflexes)
4. 6 Suvaigal (Taste)
5. 3 Udal vanmai (Immunity)
6. 3 Udal thee (Body fire)
7. 3 Body Constitutions (Cardinal humours)
In Vedantha Thathuva Kattalai, the 96 thathuvams were described as,

“அறிவிவு முரக்கிழவாசனம்
மாதுவிட்டு சாந்திமுதல் புருநாடன்............”

Panchaboothams (Five basic elements)

Mann (Earth), Neer (Water), Theyu (Fire), Vayu (Air) and Aagayam (Ether).

Gnanenthiriyam– 5 (Five sense organs)

Sevi (Ear), Mei (Skin), Kann (Eye), Vaai (Tongue) and Mookku (Nose).

Gnanavidayam -5 (Functions of the five sense organs)

Saptham (Hearing), Sparisam (Touch), Roopam (Vision), Rasam (Taste) and Gantham (Smell).

Kanmenthiriyam -5 (Five motor organs)

Vaai (Mouth), Kaal (Lower Limb), Kai (Upper Limb), Eruvaai (Anal Orifice) and Karuvaai (Reproductive Orifice).

Kanmavidayam- 5 (Functions of the five motor organs)

Vasanam (Speaking), Kamanam (Walking), Dhaanam (All manucures), Visarkam (Defaecation) and Aanantham (Reproductive function).
Anthakaranam - 4 (Intellectual functions)

Manam (The mind or the thinking factor), Puththi (Knowledge, the power of discrimination), Siddham (Achievement factor) and Agankaram (The deciding factor).

Arivu - 1 (Analysing factor)

Naadi - 10 (Nerves)

Idakalai, Pinkalai, Suzhumunai, Siguvai, Purudan, Gaandhari, Aththi, Alambudai, Siguvai, Sangini and Gugu.

Vayu – 10

Uyirkkaal (Praanan), Keelnokkukkaal (Abaanan), Paravukkaal (Viyaanan), Melnokkukkaal (Udhaanan), Nadukkaal (Samaanan), Vaanthikkaal (Naagan), Vizhikkaal (Koorman), Thummikkaal (Kirukaran), Kottavikkaal (Devathathan) and Veengukkaal (Dhananjeyan).

Aasayam – 5

Amarvaasayam (Stomach), Pagirvaasayam (Liver and Small Intestine), Salavaasayam (Kidney and Urinary Bladder), Malavaasayam (Large Intestine and Rectum) and Sukilavaasayam (Testes or Ovary).

Kosam – 5 (Five major system)

Annamayakosam (Digestive system), Praanamayakosam (Respiratory system), Manomaya kosam (Cardiovascular system), Vingnanamaya kosam (Nervous system) and Anandhamaya kosam (Reproductive system).
Aaatharam - 6 (Six vital centres)

Moolaathaaram (Perineal region), Swaathitaanam (Umbilical region),
Manipooragam (Epigastric region), Anaagatham (Cardiac region), Visuthi
(Neck region) and Aakinai (Glabellar region).

Malam - 3 (Principles of moral evil)

Aanavam, Kanmam and Maayai.

Mandalam – 3

Gnayiru Mandalam, Thingal Mandalam and Agni Mandalam.

Thodam – 3 (Humours)

Vali, Azhal and Iyam.

Eedanai – 3 (Physical bindings)

Porul patru, Puthalvar patru and Ulaga patru.

Gunam – 3 (Characters)

Sathuva gunam, Raso gunam and Thamo gunam.

Vinai – 2 (Deeds)

Nalvinai (Good deed) and Theevinai (Bad deed).

Raagam – 8 (Passions)

Kaamam (Desire), Krotham (Hatred), Ulopam (Stingy), Moham
(Lust), Madham (Pride), Maarchariyam (Internal conflict), Idumbai
(Mockery) and Agankaram (Ego).

Avathai – 5 (Status of the soul)

Nanavu (Wakefulness), Kanavu (Dream), Urakkam (Sleep),
Paerurakkam (Stupor) and Uyirpadakkam (Stage of samaathi).
UDAL THAATHUKKAL – 7 (PHYSICAL CONSTITUENTS)

Udal thaathukkal represents the 7 physical constituents of the body. It is responsible for the nourishment and development of the body. The intake of diet plays an important role in the formation of these physical constituents. Human’s immune mechanism is mainly based on these constituents.

1. Saaram (Chyle) - Responsible for growth and development of the body. It enriches the blood.

2. Senneer (Blood) - Responsible for intellectual nourishment, strength and helps in determining the colour and sound of the body.

3. Oon (Muscle) - It gives proper shape to the body structures in accordance to their activity and nourishes the bone.

4. Kozhuppu (Fat) - Maintains the lubrication of all tissues and helps in their proper function.

5. Enbu (Bone) - Give posture to the body. Supports and protects the internal organs and it is basic for all movements of the body.
6. Moolai (Bone marrow) - It occupies the bony spaces and nourishes them. It also imparts strength to them.

7. Sukkilam or Suronitham - Responsible for reproductive (Sperm or Ovum) function in both male and female.

UYIRTHAATHUKKAL- 3 (CARDINAL HUMOURS)

The 3 Cardinal humours are formed by the combination of

- Idakalai + Abaan - Vali
- Pinkalai + Praanan - Azhal
- Suzhumunai + Samaanan - Iyam

The predominant function of these humours in human body are,

- மன்னரும் மெல்லும் (Creation)
- பிற்கீழ் மன்னும் எரும் (Protection)
- கைற்பரும் வரும் (Destruction)

Vali, Azhal and Iyam govern all the biological, psychological, physio-pathological function of the body. They act as basic constituents and protective barrier for the body in its normal physiological condition.
Table-1
Physiological Functions of Humours

<table>
<thead>
<tr>
<th>Vali (Air + Space)</th>
<th>Azhal (Fire + Water)</th>
<th>Iyam (Water + Earth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movement,</td>
<td>Body heat, Temperature,</td>
<td>Stability, Energy,</td>
</tr>
<tr>
<td>Breathing, Natural urges,</td>
<td>Digestion, Perception,</td>
<td>Lubrication,</td>
</tr>
<tr>
<td>Transformation of tissues, Motor functions,</td>
<td>Hunger, Thirst,</td>
<td>Forgiveness,</td>
</tr>
<tr>
<td>Sensory functions,</td>
<td>Intelligence, Anger.</td>
<td>Attachment,</td>
</tr>
<tr>
<td>Secretions, Excretions,</td>
<td></td>
<td>Accumulation,</td>
</tr>
<tr>
<td>Fear, Anxiety.</td>
<td></td>
<td>Holding,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Possessiveness.</td>
</tr>
</tbody>
</table>

VEGANGLAL – 14 (REFLEXES)

The vegangal represents the natural reflex, excretory, protective and preventive mechanisms. It involves psycho neuromuscular function of the body. The 14 vegangal are:

Abaanan, Thummal, Siruneer, Malam, Kottavi, Pasi, Neervetkai, Erumal, Ellaippu, Thookam, Vaanthi, Kanneer, Sukkilam and Swaasam.

SUVAIGAL – 6 (TASTE)

Suvaigal has related to Panchaboothams and Uyirthaathu. The stamina and built of the body is mainly based on one’s intake of balanced diet. The 6 taste plays an important role in it.
<table>
<thead>
<tr>
<th>Suvai</th>
<th>Bootham</th>
<th>Increased Uyirthaathu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inippu (Sweet)</td>
<td>Water + Earth</td>
<td>Iyam</td>
</tr>
<tr>
<td>Pulippu (Sour)</td>
<td>Fire + Water</td>
<td>Azhal, Iyam</td>
</tr>
<tr>
<td>Uppu (Salt)</td>
<td>Fire + Earth</td>
<td>Azhal, Iyam</td>
</tr>
<tr>
<td>Kaippu (Bitter)</td>
<td>Ether + Air</td>
<td>Vali</td>
</tr>
<tr>
<td>Kaarppu (Pungent)</td>
<td>Air + Fire</td>
<td>Vali, Azhal</td>
</tr>
<tr>
<td>Thuvarppu (Astringent)</td>
<td>Air + Earth</td>
<td>Vali, Iyam</td>
</tr>
</tbody>
</table>

Any increased or decreased intake of these tastes alter the basic ratio of Uyirthaathukkal and shows changes in Udalthaathukkal.

**UDAL VANMAI- 3 (TYPES OF IMMUNITY)**

It is of three types namely Iyarkai vanmai, Seyarkai vanmai and Kaala vanmai.

**UDAL THEE- 3 (BODY FIRES)**

It is of four types namely Samaagni, Vishamaagni, Deekshnaagni and Mandhaagni.
For the exact diagnosis and to treat the ailment properly, a sound knowledge about Noi Naadal is essential.

Noi (Pathos) - Disease

Naadal (Logos) - Study

Pathology is thus scientific study of structure and function of the body in disease. It deals with causes, effects, mechanisms and nature of disease.

**DISEASE**

Thus disease is loss of ease to the body.

**ETIOLOGY**

The human body is governed by three cardinal humours namely Vali, Azhal and Iyam. The relative proportion of these humours are responsible for a person’s physical, mental qualities and dispositions. Any alterations in
these basic factors results in disease. It can be altered due to various factors such as,

1. Dietary Changes
2. Modified life style
3. Immunological status of the individual
4. Environmental changes
5. Seasonal variations
6. Suppression of reflexes
7. Variations in the 7 physical constituents of the body.
8. Kanma Vinnai (congenital causes)

**DIETARY CHANGES**

Dietary nutrients should be balanced according to the age, sex, immunological status, seasonal variations and environmental changes.

“தியாயிக் கற்கல்லை கடிதும் ஈனையுறுத்து
குருதி குறுத்தாள் குருத்தும்”

- குறுத்தும்

Nutritional imbalance is more often a problem, accounting for increased frequency of so many ailments.

The nutrients in diet mainly based upon six taste (Suvaigal) namely Sour, Astringent, Salt, Bitter, Pungent and Sweet. Excessive intake of these taste results in derangement of Thridoshams.
Table-3

Excessive intake of taste and Exaggeration of humours

<table>
<thead>
<tr>
<th>Excessive intake of taste</th>
<th>Exaggeration of humours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sour, Astringent</td>
<td>Vali</td>
</tr>
<tr>
<td>Salt, Bitter</td>
<td>Azhal</td>
</tr>
<tr>
<td>Pungent, Sweet</td>
<td>Iyam</td>
</tr>
</tbody>
</table>

Besides, excessive intake of nutrients, skipping of diets also results in disease.

MODIFIED LIFE STYLE

Siddhars had taught so many life style manners to lead a healthy life. They given under the topic Pini Anuga Vithi (Preventive laws to avert the disease) as,
Avoiding of constipation, retention of urine and excessive sexual desire will prevent disease and also one should taking boiled water, increased intake of skimmed milk, intake of melted ghee also prevent so many diseases.

Any modifications in this life style manners will cause disease.

UDAL VANMAI (Immunological Status of the Individual)

The immunological status also plays an important role in determining the disease. It is classified into three types.

1. **Iyarkai Vanmai**
   
   This is based on Sathuva, Raso and Thamo gunams and it is the strength which naturally presents in the body.

2. **Seyarkai Vanmai**
   
   This strength depends upon by protecting the mukkunam based body by taking proper diet, habits and medicine.

3. **Kaala Vanmai**
   
   This strength is gained by seasonal variations as well as the age of a person.

ENVIRONMENTAL CHANGES

“அனைத்துறையும் காரணம் என்னம்
என்னும் காரணம் என்னம்”

- கல்லுரை காணவு
Any interference in the external environment depicts in man’s internal environment. It alters the basic ratio of three humours and also affects the human’s defense mechanism and suppresses the immunity resulting in so many ailments.

The ancient people classified the land into 5 types and the people dwelling in these lands have more prevalence to certain diseases.

- Kurinji - Kaba diseases
- Mullai - Pitha diseases
- Marutham - Suits for aboding
- Neithal - Vatha diseases
- Paalai - All kind of diseases.

SEASONAL VARIATIONS

Ancient thamizh people classified the annum into six seasons each one consisting of two months. Naturally, during these seasons the three humours namely Vali, Azhal and Iyam shows some seasonal variations in their own character. The alterations in this, results in various diseases of human beings.
### Table-4
Seasonal variations and alterations in humours

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Season</th>
<th>Month</th>
<th>Alterations in 3 humours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Kaar Kaalam</td>
<td>Aavani – Purattasi</td>
<td>Vali ↑↑ Azhal</td>
</tr>
<tr>
<td>2.</td>
<td>Koothir Kaalam</td>
<td>Iyppasi – Kaarthigai</td>
<td>Vali — Azhal ↑↑</td>
</tr>
<tr>
<td>3.</td>
<td>Munpani Kaalam</td>
<td>Maargazhi – Thai</td>
<td>Azhal —</td>
</tr>
<tr>
<td>4.</td>
<td>Pinpani Kaalam</td>
<td>Maasi-Panguni</td>
<td>Iyam ↑</td>
</tr>
<tr>
<td>5.</td>
<td>Ilavenir Kaalam</td>
<td>Chiththirai- Vaigaasi</td>
<td>Iyam ↑↑</td>
</tr>
<tr>
<td>6.</td>
<td>Mudhuvenir Kaalam</td>
<td>Aani – Aadi</td>
<td>Vali ↑ Iyam —</td>
</tr>
</tbody>
</table>

- ↑↑ - Exaggerated
- ↑ - Brisk
- — - Stable

**SUPPRESSION OF REFLEXES**

There are 14 natural reflexes involved in the normal physiological function of human beings. Suppression of these reflexes results in diseases.
**Table-5**

**Suppression of Reflexes and Diseases**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Reflexes</th>
<th>Diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Vatham (Flatus)</td>
<td>Epigastric pain, chest pain, kudal vatham, body ache, constipation, dysuria and indigestion.</td>
</tr>
<tr>
<td>2.</td>
<td>Thummal (Sneezing)</td>
<td>Headache, neuritic pain in the sense organs, facial pain and low backache.</td>
</tr>
<tr>
<td>3.</td>
<td>Siruneer (Urine)</td>
<td>Retention of urine, urethral ulcer, joint pain, pricking pain in the penis and flatulence.</td>
</tr>
<tr>
<td>4.</td>
<td>Malam (Faeces)</td>
<td>Knee joint pain, headache, general weakness, flatulence and pre-dispose to many diseases.</td>
</tr>
<tr>
<td>5.</td>
<td>Kottavi (Yawning)</td>
<td>Indigestion, leucorrhoea, abdominal and urinary disorders. If affects all organs and supervenes the pain.</td>
</tr>
<tr>
<td>6.</td>
<td>Neervetkai (Thirst)</td>
<td>If affects all organs and supervenes the pain.</td>
</tr>
<tr>
<td>7.</td>
<td>Pasi (Hunger)</td>
<td>Exhaustion of all organs, emaciation, syncope, apathetic face and joint pain.</td>
</tr>
<tr>
<td>8.</td>
<td>Erumal (Cough)</td>
<td>Increased cough, foul breath and cardiac disease.</td>
</tr>
<tr>
<td>9.</td>
<td>Illaippu (Exhaustion)</td>
<td>Syncope, urinary disorders and rigor.</td>
</tr>
<tr>
<td>10.</td>
<td>Nithirai (Sleep)</td>
<td>Headache, pain in the eyes, deafness and slurred speech.</td>
</tr>
<tr>
<td>11.</td>
<td>Vaanthi (Vomiting)</td>
<td>Itching and symptoms of increased pitham.</td>
</tr>
<tr>
<td>12.</td>
<td>Kanneer (Tears)</td>
<td>Sinusitis, headache, eye diseases and chest pain.</td>
</tr>
<tr>
<td>13.</td>
<td>Sukkilam (Semen)</td>
<td>Joint pain, dysuria, fever and chest pain.</td>
</tr>
<tr>
<td>14.</td>
<td>Swaasam (Breathing)</td>
<td>Cough, abdominal discomfort and anorexia.</td>
</tr>
</tbody>
</table>
THE ALTERED CHARACTERS OF THREE HUMOURS

The inequilibrium state of three humours namely Vali, Azhal and Iyam is the main reason for the occurrence of disease.

Table-7

Altered characters of three Humours

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Humour</th>
<th>Exaggerated character</th>
<th>Diminution character</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Vali</td>
<td>Emaciation, Blackish colouration of the body, Desire to take hot food, Tremors, Constipation, Abdominal distension, Insomnia, Weakness, Weakness of sense organs, Giddiness, Sluggishness.</td>
<td>Stiffness, Diminution of voice, Impaired intellectual function, Semi consciousness, Difficulty in doing any kind of work, Paleness and coolness of the body, Excessive salivation, Heaviness of the body, Excessive sleep, Abdominal distension.</td>
</tr>
<tr>
<td>2.</td>
<td>Azhal</td>
<td>Yellowish discolouration of skin, eye, urine and faeces, polyphagia, polydypsia, burning sensation all over the body, insomnia.</td>
<td>Decreased appetite, cold, pallor, symptoms associated with defective growth of Iyam.</td>
</tr>
<tr>
<td>3.</td>
<td>Iyam</td>
<td>Excessive salivation, reduced appetite, cough, dyspnoea, heaviness of the body, whiteness of the body, chillness of the body, increased sleep, sluggishness.</td>
<td>Giddiness, swelling of the joints and prominence of bone. Iyam dissolved in lungs, Excessive sweating, palpitation.</td>
</tr>
</tbody>
</table>
VARIATIONS IN THE SEVEN UDAL THAATHUKKAL

When the normal ratio of the three humours are affected, it immediately shows changes in the natural physiological function of Udal thaathukkal.

**Table-6**

**Variations in the seven udal thaathukkal**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Udal Thaathukkal</th>
<th>Increased features</th>
<th>Decreased features</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Saaram (Chyle)</td>
<td>Features related with decrease in Iyam and loss of appetite.</td>
<td>Dryness of skin, loss of weight, tiredness and the functions of sense organs are diminished.</td>
</tr>
<tr>
<td>2.</td>
<td>Senneer (Blood)</td>
<td>Boils and tumours in different parts of the body, splenomegaly, pain, hypertension, redness of the eyes, leprosy and jaundice.</td>
<td>Desire for cold things, dryness, discolouration and paleness of the skin.</td>
</tr>
<tr>
<td>3.</td>
<td>Oon (Muscle)</td>
<td>Tumours or extra growth around the neck, face, abdomen, thigh and genitalia.</td>
<td>Lethargy of 5 sensory organs, pain in the joints, loss of subcutaneous fat.</td>
</tr>
<tr>
<td>4.</td>
<td>Kozhuppu (Fat)</td>
<td>Identical to increased features of Oon, tiredness, dyspnoea on exertion.</td>
<td>Splenomegaly, loin pain, emaciation.</td>
</tr>
<tr>
<td>5.</td>
<td>Enbu (Bone)</td>
<td>Excessive ossification and dentition.</td>
<td>Weak bone, pain in the joints, splitting of hair and nails.</td>
</tr>
<tr>
<td>6.</td>
<td>Moolai (Bone marrow)</td>
<td>Heaviness of the body and eyes, swelling of smaller joints of hand and feet, oliguria, non- healing ulcers.</td>
<td>Osteoporosis and blurred vision.</td>
</tr>
<tr>
<td>7.</td>
<td>Sukkilam/ Suronitham (Sperm or Ovum)</td>
<td>Excessive sexual desire, urinary calculi.</td>
<td>Pain in the genitalia and sterility.</td>
</tr>
</tbody>
</table>
KANMA VINNAI (CONGENITAL CAUSES)

The formation of embryo plays a key role in determining the health of an individual.

“விளையாட்டு விளையாட்டு விளையாட்டு விளையாட்டு விளையாட்டு விளையாட்டு”

- காச்சக்கரசம்

According to Siddha concept, the three Kanma Vinnai namely Aanavam, Maayai and Kanmam are determined during the time of formation of embryo and also, if there is any derangements of Vali, Azhal and Iyam humour among the parents during sexual intercourse it also affects the formation of embryo and results in congenital diseases.

பிரியாரி முறையம் (DIAGNOSTIC METHODS)

The diagnostic tool adopted to evaluate a disease in Siddha system of medicine is termed as Piniyari Muraimai. It is based on the following principles.

1. Poriyaal Arithal
2. Pulanaal Arithal
3. Vinaathal

Poriyal Arithal means diagnosing through the five organs of perception namely Skin, Tongue, Eyes, Nose and Ears.
Pulanal Arithal means diagnosing through the five objects of senses namely Skin sensation, Taste, Vision, Smell and Auditory sensation.

Vinaathal is a method of interrogating the complaints of the patient from his own words or from his Thoothuvan (attendants).

The methods including all the above falls under,

**ENNAGAI THERVUGAL**

Theraiyar mentioned the 8 types of diagnostic tools as,

```
"நிலக்குக்க அர்ந்தும் பக்களிடுக்க குரையா
தெவ்வும் பொருள் கிளையாகப்
பூத்தும் நன்றாள் இக்குற்றும் பக்க
பண்மைங்கும் பக்கத்துடன் பக்கம் நரசம் பக்கம்
மங்காளாம் வீக்கியாக்கு மாழியும் பக்கம்
செய்ய காண்டெய்ய குறுக்கத்துப் பக்கம்
செய்ய முன்னேட்டுப் பக்கம் கண்டெய்யப் பக்கம்
சக்கூடு விமர்சன பக்கத்து நின்றுமின் சடிக்கான குறைக்கால்"
```
1. Naa (Tongue)

By the examination of tongue the following features are noted. Colour, Size, Shape, Coating, Anomalies, Surface, Movements, Local lesions, Ulcers, Fissures, Vesicles, Dryness, Moisture, Deviation of tongue, Pigmentation, Small tongue – Microglossia, Large tongue – Macroglossia.

2. Niram (Colour)

Pallor, Yellowish, cyanosis, hyperpigmentation, hypopigmentation, contusions could be noted.

3. Mozhi (Speech)

The volume, clarity and any disturbance in speech are to be noticed.
4. **Vizhi (Eye)**

Here the colour change, lacrimation, visual disturbances are to be noted. The nature of eye brow and eye lids are also to be noted.

5. **Sparisam (Sensation)**

Temperature of the Skin, Smoothness, Dryness, Scaling, Swelling, Tenderness, Sweating, Any abnormal growths, Internal organ enlargements, Thickening of nerves, Varicosity of veins, Cutaneous changes, Subcutaneous nodules should be find out.

6. **Malam (Stool)**

The colour, odour, froth, quantity, consistency of the stool and presence of any abnormal constituents such as blood, parasites etc., are taken as diagnostic criteria.

7. **Moothiram (Urine)**

The diagnostic method by examining urine is of two types.

1. Neer kuri and

2. Nei kuri

1. **Neerkuri**

Here the Niram(Colour), Manam(Smell), Nurai(Frothy Nature), Edai(Specific gravity) and Enjal(Quantity) of the voided urine is noted.
2. Neikuri

According to Theraiyar,

"ஏர்கத்தன் நீரும் ஆனிலணிக்கும்
அஞ்ச அணந்தன் ஆகலான் தூய்கைனும்
குருவாதல் ஆகி வந்து
அக்காலர் கருப்பு அலி குமும்
நிகழ்த்துவதுக்கு காட்நோட்டம் நிகுத்த
நீரிங்கு நிறமைத் தீர்க்கவே கழிப்போம்"

To see Neikuri, before collecting the urine, the patient is asked to take a balanced diet and have a good sleep. After waking up from the bed in the early morning, the first voided urine is collected in a clean glass container and examined within one hour. A drop of gingely oil is to be dropped in the urine and seen under direct sunlight. By this method, the character of three humours is accessed.

The character of Vatha neer

"அரியவர் தீர்மையாந் தேய் காட்டும்"

When the drop of oil spreads like a serpent it indicates derangement of Vali.

The character of Pitha neer

"அதும் தென் பருத்தியும் அில் நீக்கும்"

If it spreads like a ring it denotes derangement of Azhal.
The character of **Kaba neer**

"நொற்றுவெரும் பிரித்து பாத்துக்களத்து குப்பை”

If the oil remains like a pearl it denotes the derangement of Iyam.

The character of **Thontha neer**

"அரேவுவெரும் அழுத்தியம் அரேவு
அரேவு வெரும் அழுத்தியம் வெரும்
தொகுதியில் என்று தொருந்திய குப்பை”

If the dropped oil shows a combination of two shapes it indicates **Thontha thodam.**

8. **Naadi (Pulse)**

It is a unique diagnostic method in Siddha system of medicine.

It is responsible for the existence of life. The three humours namely Vali, Azhal, and Iyam are in the ratio of 1: ½: ¼.

"முள்ளையில் மாற்றுமதிகள் நூற்றாண்டினும்
நூற்றையில் விந்துமதிகளின் தமிழ்
அறிக்கையில் குருவான்களின் குறிப்பிட்டு
சிங்கீட் குண்டாக்கி காணலாம் கூட்டுத்
- (முன்னாளரால்)

Any alterations, in these basic ratio results in disease.
AIM AND OBJECTIVES

Nowadays due to altered dietary habits and modified life style people suffered by many diseases. It is the mere responsibility of a physician to cure the disease and to create a healthy society.

The primitive aim of the author to study about Anda vadham is, to diagnose the disease through Siddha parameters with the help of modern parameters and to create awareness among the people to prevent the disease.

Anda Vadham is one of the important disease of the abdominal organs in which the patients are disturbed both functionally and emotionally. To evaluate the disease is important because if it is not diagnosed and treated properly it may leads to various complications.

The study mainly made out, to rule out the pathogenesis of this disease on the basis of etiology, genetic factors, nutritional status, dietary habits, life style and socio-economic status.

To achieve the aim in a successful manner the specific objectives have been utilized.

1. To know about the disease in detail it is necessary to collect the evidences found in Siddha literature regarding Anda Vadham.

2. To evaluate the Siddha basic physiology is needful.

3. To review the altered mukkutram and to establish the disease scientifically, Siddha parameters have been used such as Ennvagai
Thervugal, Manikkadai Nool and correlating the disease with Nilam, Kaalam and Sothidam is helpful.

4. For better diagnosis, thorough manual examination of the patient is needed.

5. To support the study of Anda Vadham modern parameters have been utilized.

6. The study is concluded by defining the aggravating factors which leads to complications and finally the study dealt with the preventive measures.
ELUCIDATION ABOUT ANDA VADHAM

According to the literature Thanvanthiri Vaithiyam, Anda Vadham has been described under Uthara Roga Nithanam as,

"நோயில் தோற்றத்தில் லக்ஷ்ணங்கள் தேவையாகின் விளக்கம் பார்க்கும்
மனைடு பைக்கு வந்திக் என்று வருகின்ற வெற்றியிற்கும்
மனைடுப்பிட்டு தர்க்கநிலை படக்கும் மனைடு தரைமாக
மனைடு மனைடு கரு மனைடு படக்கும் மனைடு தரைமாக"

- கத்தருங்கரென காம்கிரிப் கிருஷ்ணன் பார்க்கு

Meaning of the words in this poem

அலையம் : Scrotum

்பாரம் : Energy or power that prevails all over the body and keeping the tissues in good condition.

நிகழ்ச்சியில் : At that place

தனி சாத் : Accumulation of Vayu in the intestines

தற்கொன்றை : Atleast one side (unilateral)

மஞ்சுவிட்டு என்றால் : Occurs in the scrotum

மனைடுபெ : Accumulation

மனைடு : Physical pain

மனைடில் : Swelling

மனைடில் : Other side of the scrotum (bilateral)
Description

"நாகசாசன்கள் தலைநெறியில் கொடுக்கிய விளக்கமுறை நேரடை வந்தது"

Increased Vayu accumulation in the intestines and descend of the intestines into the scrotum. Initially it occurs on one side of the scrotum.

"பண்டுகள் பல்லுறுத்தி விளக்கமுறை நேரடை வந்தது"

Pain and swelling of the scrotum. Later the same signs and symptoms occur on the other side of the scrotum also.

"பண்டுகள் பல்லுறுத்தி விளக்கமுறை நேரடை வந்தது பல்லுற்று விளக்கமுறை நேரடை வந்தது"

This line indicates that the hernial contents reduce back into the abdominal cavity. All these represents the clinical features of the disease Anda Vadham.

The Thanvanthri’s lines are summarized as follows,

Increased Vayu accumulates in the intestines and the increased intra-abdominal pressure descend the intestine into the scrotum. Initially it occurs unilaterally. There is pain and swelling in the scrotal region. Later the same features occurs on the other side of the scrotum. The descended intestine then reduce back into the abdominal cavity.

These are the clinical features of the disease Anda Vadham.
DETAILED PATHOLOGICAL VIEW
OF THE DISSERTATION TOPIC

SIDDHA ASPECT

In this dew drop of research work on the topic Anda Vadham the author try to explain the pathological view through Siddha aspect which helps in the diagnosis of the disease.

The disease Anda Vadham is mentioned in Thanvanthiri Vaidhiyam under Uthara Roga Nithanam (Abdominal Diseases).

Uthara Rogam (Abdominal Diseases) are caused by the following factors:

- Excessive intake of diet
- Reduced intake of diet
- Constipation
- Excessive sexual desire
- Anger
- Straining on micturition
- Doing heavy works after full meals
- Lying in chill floor
- Sleeping in improper position.

All these factors pave a way increased Vayu accumulation in the abdomen and results in abdominal diseases.

“இன்னுமிடம் பல்வேறு மகளை விளக்கும்
நங்கு குரும் முழும்தாக்கி கத்தி

…… ……… ……….. ……… …………
…… ……… ……….. ……… …………

- சென்றுக்கு காப்பிட

According to Siddha Medicine theory, the cardinal humour Vali is considered as the chief Administrator and Azhal and Iyam as sub-ordinators.

The derangement of Vali affects the natural characters of the other two humours Azhal and Iyam respectively.

**ALTERED UYIRTHAATHUKKAL IN ANDA VADHAM**

“சர்க்கரையும் கல்லறிகளும் காற்றுறுத்தும் விளக்கம் உருவாக்கி”

In Anda Vadham, the cardinal humour Vali is predominantly affected. Due to deranged Vali increased vayu accumulates in the intestines, since the dwelling place of Vali is in the intestines and below the naval region it tends to accumulate there.

“சமூக முழும் முழும்து வாக்கிட”
The reason for increased vayu is,

“முழுநார்ப்பு வாய்ச்சு வார்த்தை”

Mantham represents indigestion of the food. It occurs as follows,

During derangement of Vali, the digestive fire Samaana Vayu is affected and it combines with increased Iyam and results in improper digestion (mantham). The Mantham state is the character of increased Iyam and decreased Azhal humours. Thus the deranged Vali affects the other two humours respectively.

Since the Samaana Vayu (Nadukkaal) is deranged in Anda Vadham, it can not able to maintain the equilibrium state of other vayus like Praanan, Udhaanan and Kirukaran which plays an important role in digestion. In turn, the Abaana Vayu (Keelnokkuk Kaal) is also deranged and hence it’s basic physiological function, expulsion of vayus is affected. All these, results in increased Vayu accumulation in the intestines.

Thus due to enormous amount of Vayu accumulation in the intestines, the viscus become very weak and it descends from its original position into the scrotum.

“அற்கிளை வைத்து மன்னில் மேற்பரப்பை விக்காமல்”

The increased Vayu produces localized pain and swelling of the scrotum which is the deranged character of Vali.

“பட்சு சிற்றோன்று வார்த்தை”

It represents, the descended intestine reduced into the abdominal cavity. Besides it also indicates the uncomplicated stage of the disease.
ALTERED UDAL THAATHUKKAL IN ANDA VADHAM

In Anda Vadham the Udal thaathukkal shows their decreased character.

Saaram (Chyle)

“மருவற்று வெறும் நிகழ்க”

Generally Vali gives encouragement to mind and gives co-ordination to seven Udal thaathukkal. In Anda Vadham, Vali is deranged and it depicts in Saaram and results in weakness of the abdominal muscles.

Senneer (Blood and its fluids)

The blood and its fluids affords strength to the tissues and organs. In Anda Vadham the senneer attains its decreased character and results in abdominal muscle weakness.

Oon (Muscle)

The Vali humour helps in keeping the tissues in good condition. When it is deranged, it depicts in Oon which is responsible for the proper shape of the organs in accordance to their activity. Thus in Anda Vadham, the normal anatomical position of the intestines is not maintained and it is descended in to the scrotum.

Kozhuppu (Fat)

In Anda Vadham, the derangement of Vali decreases the Kozhuppu thaathu and results in weakening of the abdominal musculature.

Thus the Udal thaathukkal decreased in their basic character and shows changes in Anda Vadham.
DETAILED PATHOLOGICAL VIEW OF THE

DISSERTATION TOPIC

MODERN ASPECT

In modern aspect the pathological view of Anda Vadham is described as follows,

"கூகைக்கால் சுற்றுக்கோள் அடுக்கியுள்ள விகாரங்கள்"

This line indicates increased Vayu accumulation in the intestines and the descend of the intestines into the scrotum.

The pathology of descend of the intestines is due to,

Generally, the abdominal wall and the internal viscera are covered by an extensive serous membrane, the peritoneum.

The anterior abdominal wall is musculo-fibrous. It is firm and elastic. The firmness provides protection to the abdominal viscera and the elasticity allows expansion of the hollow viscera.

The posterior abdominal wall is osseo-musculo fascial and is rigid. It provides support and nutrition to the abdomen organs by the attachment of various peritoneal folds.

The main action of the muscles of the anterior abdominal wall is, it retains the viscera in position. This is achieved by the tone of the muscles.
MUSCLE TONE

The muscle fibers always maintain a state of slight contraction with certain degree of vigor and tension. This property of muscle is called **tone or tonus**.

The smooth muscles themselves control the tone. They are supplied by both sympathetic and parasympathetic nerves, which antagonize each other and control the activities of smooth muscles. However, the tone of the muscle is independent of the nerve fibers. Sometimes, the tonic contraction occurs due to the action of some hormones.

**Stress – Relaxation of Smooth Muscle**

One of the important characteristic of smooth muscle, especially the visceral unitary type of smooth muscle of many hollow organs, is its ability to return to nearly its original force of contraction, seconds or minutes after it has been elongated or shortened.

A sudden increased volume due to any cause in the abdominal cavity stretch the smooth muscle in the abdominal wall which causes and immediate large increase in pressure in the abdominal cavity. However, during the next 15 seconds to a minute or so, despite continued stretch of the abdominal wall, the pressure returns almost exactly back to the original level. Then, when the volume is increased by another step, the same effect occurs again.
Conversely, when the volume is suddenly decreased, the pressure falls very low at first but then rises back in another few seconds or minutes to or near to the original level. These phenomena are called stress-relaxation and reverse stress-relaxation.

Their importance is that, except for short periods of time, they allow a hollow organ to maintain about the same amount of pressure inside its lumen. In long-term, large changes in volume will occur.

**The descend of the intestines is mainly due to**

When there is any factor which increases the intra-abdominal pressure for a prolonged period, the abdominal musculature is highly stretched and it weakens the muscles and its aponeuroses and the tonicity of the muscle is weakened. So the position of the viscera are not retained in position.

Besides, the increased intra-abdominal pressure also compresses the internal viscera (the intestines) and all these reasons are responsible for the descend of the intestines from its original anatomical position.

**The role of inguinal canal in descend of the intestine**

Under normal conditions, the inguinal canal plays a defense role. Since the canal is oblique in direction, when the intra-abdominal pressure is increased the posterior wall of the canal is pushed forwards and comes in contact with the anterior wall. Thus the canal is obliterated like a flap-valve.

Opposite the deep ring, the anterior wall of the canal is strengthened by the fleshy fibres of the internal oblique muscle and opposite the
superficial ring the posterior wall is strengthened by the conjoint tendon and reflected part of the inguinal ligament.

The arched fibres of the internal oblique and the transversus act as demi-sphincters in increased intra-abdominal pressure and obliterate the canal.

Especially in males, the cremaster muscle contracts during increased intra-abdominal pressure and pulls the testes towards the superficial ring, so the outlet of the canal is closed like a plug.

But certain conditions which causes raised intra-abdominal pressure this shutter mechanism is failed and it paves way for a weak abnormal opening.

So the already descended intestines pass through this abnormal opening.

The line also indicates that the intestines descends into the scrotum. This is because the scrotum is the downward prolongation of the anterior abdominal wall. The skin of the scrotum is thin and transparent and elastic. So it easily allows distensions. For this reason the intestines distended into the scrotum and lodges in it.

The descend of the hernial sac into the scrotum indicates the features of Complete Inguinal Hernia. The line also mentions the signs and symptoms which initially occur on one side.
It indicates pain and swelling of the scrotum. Later the above said signs and symptoms occur on the other side also.

In this disease, the reason for pain is overdistension of the scrotum. Extreme overfilling of a hollow organ results in pain, presumably because of overstretch of the tissues themselves. Besides, due to dragging of mesentery also produces pain.

**PHYSIOLOGY OF PAIN**

Pain is an unpleasant sensation and emotional experience associated with or without tissue damage. In general, the viscera have sensory receptors for no other modalities of sensation besides pain. Any stimulus that excites pain nerve endings in diffuse areas of the viscera causes visceral pain.

**VISCERAL PAIN**

Pain from viscera is unpleasant. It is poorly localized.

**CAUSES FOR VISCERAL PAIN**

1. Ischaemia
2. Chemical stimuli
3. Spasm of hollow organs and
4. Overdistension of hollow organs
PATHWAY OF PAIN SENSATION FROM VISCERA

The pain sensation from the scrotum is transmitted by Sympathetic nerves.

PATHWAY OF PAIN SENSATION

Receptors (Free nerve Endings)

First order Neurons

Second order Neurons

Third order Neurons

Sensory area of Cerebral cortex Hypothalamus

In this mechanism pain is felt in the scrotal region.

CAUSE FOR SWELLING

Swelling is an abnormal enlargement or increase in volume, associated with accumulation in the tissue of a protein-containing exudate.

In complete inguinal hernia due to laxity of the scrotal skin and its dependent position the scrotal swelling is common because when the herniated sac accumulates in the cutaneous bag (scrotum), it is distended and thus the swelling occurs.
This line indicates the reducible character. It meant that the contents (intestines) can be returned back into the abdominal cavity, but the sac remains in its position. It indicates the uncomplicated stage of the disease.

The clinical features of Anda Vadam,

1. Descend of the intestines into the scrotum-Both unilateral and bilateral sides.
2. Pain and swelling of the scrotum
3. Reducibility of the intestines into the abdominal character.

All these features clearly depicts the clinical features of Complete Inguinal Hernia.
REVIEW OF LITERATURE

The same topic Anda Vadham is mentioned in various literatures. In the literature *Pararas Sekaram, Anda Vadham* is mentioned under – Vadharoga Nithaanam as,

“அழுந்தும் மடள மேல்வெளியான மதுரைக் குதுறி
கொண்டு மேல் மறுக்கும் கண்டெடும் பள்ளத்து
சிறுத்தும் பிற்கு காதலின் ஒருசெழு விளையாட்டுகளை
தற்கான குச்சிக் கர் வெளியின் மேல் மாறுவும்”.

The clinical features are,

- Vayu accumulates in the intestines
- Abdominal distension
- Constipation
- Retention of urine
- Descend of the intestines into the scrotum
- Pain in the scrotum

In the literature *Theraiyar Kaapiyam*, the same features of Anda Vadham is mentioned under *Vidhai Noi (Scrotal Diseases)* under the heading *Kudal Andam*. Here, it is mentioned that the increased Vayu is the cause for Anda Vadham and the increased Vayu is due to the following factors:

1. The diet which increases the Vali humour
2. Lifting heavy weights
3. Strenous exercises
4. Horse riding
5. Chilled water bath

In Yugimuni Vaidhiya Kaviyam – 1000

This Poem also depicts the same clinical features of Anda Vadham.

All these literature evidences mentioned that the increased Vayu is the reason for Anda Vadham and produce the pathological changes in the abdomen and the scrotum.

To support my study, in Pararasasekaram the derangement of Vali characters is mentioned as,
1. Increased Vayu
2. Cough
3. Sanni Vadham
4. Dysentry
5. Ascites and
6. Abdominal diseases.

Hence Saint Thanvanthiri mentioned the disease Anda Vadham under Uthara Roga Nithanam (Abdominal Diseases) which results due to exaggeration of the Vali humour.

The altered diet habits and modified life style manners are mainly responsible for the derangement of humours in this disease.
THEORETICAL VIEW OF THE
DISSERTATION TOPIC

MODERN ASPECT

ANATOMY

ABDOMEN AND ITS WALLS

The abdomen is a part of the trunk below the diaphragm. It contains a cavity which is subdivided by the plane of the pelvic inlet into an upper part, the abdomen proper, and a lower part known as the pelvic cavity.

The abdominal wall and the contained viscera are covered by an extensive serous membrane, the peritoneum. Histologically, it is composed of an outer layer of fibrous tissue which gives strength to the membrane and an inner layer of mesothelial cells which secrete a serous fluid which lubricates the surface, thus allowing free movements of viscera.

The peritoneum is in the form of a closed sac which is invaginated by a number of viscera. As a result the peritoneum is divided into,

(1) An outer or parietal layer

(2) An inner or visceral layer, and folds of peritoneum by which the viscera are suspended.

PARIETAL PERITONEUM

1. It lines the inner surface of the abdominal and pelvic walls and the lower surface of the diaphragm. It is loosely attached to the walls by extraperitoneal connective tissue and can, therefore, be easily stripped.
2. Embryologically, it is derived from the somatopleural layer of the lateral plate mesoderm.

3. Its blood supply and nerve supply are the same as those of the overlying body wall. Because of the somatic innervation, parietal peritoneum is pain sensitive.

**VISCERAL PERITONEUM**

1. It lines the outer surfaces of the viscera, to which it is firmly adherent and cannot be stripped. In fact it forms a part and parcel of the viscera.

2. Embryologically, it is derived from the splanchnopleural layer of the lateral plate mesoderm.

3. Its blood supply and nerve supply are the same as those of the underlying viscera. Because of the autonomic innervation visceral peritoneum is pain insensitive.

**FOLDS OF PERITONEUM**

1. Many organs within the abdomen are suspended by folds of peritoneum. Such organs are mobile. The degree and direction of mobility are governed by the size and direction of the peritoneal fold. Other organs are fixed and immobile. They rest directly on the posterior abdominal wall, and may be covered by peritoneum on one side. Such organs are said to be retroperitoneal. Some organs are suspended by peritoneal folds in early embryonic life, but later become retroperitoneal.
2. Apart from allowing mobility, the peritoneal folds provide pathways for passage of vessels, nerves and lymphatics.

3. Peritoneal folds are given various names.
   
   i. Large peritoneal folds attached to the stomach are called omenta.

   ii. In many situations double layered folds of peritoneum connect organs to the abdominal wall or to each other. Such folds are called ligaments. These may be named after the structures they connect. Other folds are named according to their shape triangular.

PERITONEAL CAVITY

The viscera which invaginate the peritoneal cavity completely fill it so that the cavity is reduced to a potential space separating adjacent layers of peritoneum.

FUNCTIONS OF PERITONEUM

1. Movements of viscera

   The chief function of the peritoneum is to provide a slippery surface for free movements of abdominal viscera.

   The efficiency of the intestines is greatly increased as a result of the wide range of mobility that is possible because the intestines are suspended by large folds of peritoneum.

2. Protection of viscera

3. Absorption and dialysis

4. Healing power and adhesions

5. Storage of fat
THE GREATER OMENTUM

This is a large fold of peritoneum which hangs down from the greater curvature of the stomach like an apron and covers the loops of intestines to a varying extent.

LESSER OMENTUM

This is a fold of peritoneum which extends from the lesser curvature of the stomach and the first 2cm. of the duodenum to the liver.

THE MESENTERY

The mesentery of the small intestine (or mesentery proper) is a broad, fan-shaped fold of peritoneum which suspends the coils of jejunum and ileum from the posterior abdominal wall.

TRANSVERSE MESOCOLON

This is a broad fold of peritoneum which suspends the transverse colon from the upper part of the posterior abdominal wall.

SIGMOID MESOCOLON

This is a triangular fold of peritoneum which suspends the sigmoid colon from the pelvic wall.

BOUNDARIES OF ABDOMEN

It consists of Roof, Floor, Anterior and Posterior Walls.

Roof

It is formed by the undersurface of the diaphragm. It moves up and down with respiration and alters the intra-thoracic and intra-abdominal pressure.
Floor

The floor of the pelvic cavity is formed by the pelvic diaphragm in the posterior part and by the urogenital diaphragm in the anterior part. It supports the pelvic viscera and regulates the acts of defaecation, micturition and in female parturition.

Anterior wall

It is musculo-fibrous and is formed by three flat muscles and their aponeuroses. On each side of linea alba the anterior wall is strengthened by the recuts abdominis and pyramidalis within the rectus sheath. Anterior wall is firm and elastic. The firmness provides protection to the abdominal viscera and the elasticity allows expansion of the hollow viscera.

Posterior wall

It is osseo-musculo fascial and is rigid. Retro-peritoneal organs, principal vessels and nerves lie in the posterior wall; posterior wall provides support and nutrition to the abdomen organs by the attachment of various peritoneal folds.

ANTERIOR ABDOMINAL WALL

The anterior abdominal wall is limited above by the xiphi - sternum, right and left costal margins, below by the anterior part of the iliac crest, fold of the groin, pubic tubercle, pubic crest and symphysis pubis and on each side separated from the posterior abdominal wall by the downward prolongation of the mid-axillary line.
The anterior wall is firm but elastic and consists of 8 layers from before backwards.

1. Skin
2. Superficial fascia
3. External oblique muscle and its aponeurosis
4. Internal oblique muscle and its aponeurosis
5. Transversus abdominis muscle and its aponeurosis
6. Fascia transversalis
7. Extra-peritoneal tissue and
8. Parietal peritoneum.

Opposite the linea alba, the layers are reduced to six in number. Embryologically, the 7th layer of the extra-peritoneal tissue is important because all abdominal viscera virtually lie in this layer; this fact is proved by the coverings received by the testis during its descent.

**DESCRIPTION OF DIFFERENT LAYERS**

**SKIN**

It is thinner and more sensitive than the skin of the posterior abdominal wall. The skin presents a number of cleavage lines (Langer’s lines). The skin presents two parts, an outer epidermis which is non-vascular and an inner dermis or corium which is highly vascular and presents rich nerve supply.
The skin of the anterior abdominal wall consists of longitudinal groove overlying the linea alba, and a curved groove on each side with the convexity directed laterally which corresponds with the lateral border of the rectus abdominis muscle. A surface depression, the umbilicus, affects the median groove; It is composed of cicatritial tissue and represents remnant of the foetal end of the umbilical cord.

SUPERFICIAL FASCIA

Above a line joining the two anterior superior iliac spines it consists of a single layer. Below that line it splits into superficial fatty layer (Camper’s fascia) and deep membranous layer (Scarpa’s fascia).

SUPERFICIAL INGUINAL SPACE

It is a potential space in the anterior abdominal wall between the fascia of Scarpa and the aponeurosis of external oblique.

EXTERNAL OBLIQUE MUSCLE

(OBLIQUUS EXTERNUS ABDOMINIS)

Origin

It arises by eight fleshy slips from the outer surfaces and lower borders of the lower eight ribs.

Insertion

The most posterior fibres pass almost vertically downwards and are inserted by fleshy fibres to the anterior half of the outer lip of the ventral
segment of the iliac crest. Its posterior margin is free and forms the anterior boundary of the lumbar triangle.

The remaining fibres pass downwards, forwards and medially, and end in a broad aponeurosis.

**INGUINAL LIGAMENT (POUPART’S LIGAMENT)**

It is the thickened lower border of the aponeurosis of the external oblique which is folded backwards presenting a grooved upper surface. It measures about 12 cm. to 14cm. in length in the adult.

**INTERNAL OBLIQUE MUSCLE**

**(OBLIQUUS INTERNUS ABDOMINIS)**

**Origin**

1. From the lateral two-thirds of the upper surface of the inguinal ligament.
2. Anterior 2/3 of intermediate lip of the iliac crest.
3. Posterior layer of thoraco lumbar fascia.

**Insertion**

1. By forming conjoint tendon it is inserted into pubic crest and pectineal line.
2. Forms rectus sheath and insert into the linea alba.
3. Lower 3 or 4 ribs.

**Rectus abdominis**

It is a long strap muscle, wider above than below.
Actions of the rectus muscles

- They provide protection to the abdominal viscera from external injury;
- Compress the abdominal cavity and maintain intra-abdominal pressure and
- Produce flexion of the vertebral column.

Pyramidalis

**Origin** – From the symphysis pubis and the pubic crest.

**Insertion** – By its apex it is inserted into the linea alba, midway between the umbilicus and symphysis pubis.

**Nerve supply** – From the subcostal nerve.

**Action** – It is a tensor of the linea alba.

Fibres of the deep layer of external oblique aponeurosis pass downwards and medially as continuation of ipsilateral muscle. On approaching the linea alba, the fibres decussate and separate into superficial and deep sets.

**FASCIA TRANSVERSALIS**

It is an areolar membrane which lines the inner surface of the transversus muscle and forms an endo-abdominal fascia.

It extends behind the inguinal ligament as the anterior wall of femoral sheath.
ACTIONS OF THE MUSCLES OF THE ANTERIOR ABDOMINAL WALL

❖ **Retention**- The muscles retain the viscera in position. This is maintained by the tone of the muscles.

❖ **Protection** - They protect the viscera from external injury. This is done mainly by two recti.

❖ **Compression** – They increase intra-abdominal pressure and compress the viscera in the act of vomiting, micturition or defaecation. During compression, the diaphragm is pushed upwards helping expiration.

❖ **Actions on vertebral column**

  (a) When muscles of both sides act, lumbar vertebrae are flexed.

  (b) In unilateral action of the muscles, the trunk is bent laterally producing lateral flexion.

  (c) When the external oblique of one side contracts simultaneously with the internal oblique of the other side, rotation of the trunk takes place.
INGUINAL CANAL

It is musculo-aponeurotic tunnel, about 4 cm. in length, and extends from the deep inguinal ring to the superficial inguinal ring. The canal is directed downwards, forwards and medially, above and parallel with the medial half of the inguinal ligament.

Peculiarities

1. In female the canal is narrow; hence chance of inguinal hernia is less.

2. In the newborn the canal is directed almost straight forwards, because muscles of the anterior abdominal wall are not properly differentiated.

Contents

1. Spermatic cord in males, or round ligament of uterus in females (entire content).

2. Ilio- Inguinal nerve (partial content). The nerve enters the canal by piercing the internal oblique muscle about 2.5 cm. below and medial to the anterior superior iliac spine. It is situated superficial to the spermatic cord, and leaves the canal through superficial ring. Ilio- Inguinal is a mixed nerve conveying fibres from the ventral ramus of L₁, but after piercing the internal oblique it conveys sensory fibres only.
CONSTITUENTS OF THE SPERMATIC CORD

1. The ductus deferens.
2. The testicular and cremasteric arteries, and the artery of the ductus deferens.
3. The pampiniform plexus of veins.
4. Lymph vessels from the testis.
5. The genital branch of the genitofemoral nerve, and the plexus of sympathetic nerves around the artery to the ductus deferens.

COVERINGS OF THE SPERMATIC CORD

From within outwards these are as follows

1. The internal spermatic fascia, derived from the fascia transversalis, it covers the cord in its whole extent.
2. The cremasteric fascia is made up of the muscle loops constructing the cremaster muscle, and the intervening areolar tissue. It is derived from the internal oblique and transversus abdominis muscles, and therefore covers the cord below the level of these muscles.
3. The external spermatic fascia is derived from the external oblique aponeurosis. It covers the cord below the superficial inguinal ring.
BOUNDARIES OF THE CANAL

The canal presents anterior and posterior walls, roof and floor, inlet and outlet.

Anterior wall

It is entirely formed by the skin, superficial fascia and the aponeurosis of the external oblique. The wall is partially formed in lateral one-third by the fleshy fibres of the internal oblique.

Posterior wall

It is entirely formed by the fascia transversalis which separates the canal from the extra-peritoneal tissue and peritoneum. It is partially formed -

(a) In the medial half, by the conjoint tendon in front of the fascia transversalis.

(b) In the medial one-fourth, by the reflected part of the inguinal ligament in front of the conjoint tendon.

Roof

The roof is formed by the arched fibres of the internal oblique and transversus abdominis muscles.

Floor

(a) It is formed by the grooved upper surface of the inguinal ligament, the posterior margin of which fuses with the fascia transversalis.

(b) Medially, the floor is formed by the upper surface of the lacunar ligament.
Inlet

Inlet is formed by the deep inguinal ring which is an oval gap in the fascia transversalis about 1.25 cm. above the mid-inguinal point. From the margin of the deep ring a tubular prolongation of internal spermatic fascia extends over the spermatic cord and testes. In fact the deep ring is not an opening, but is the neck of the internal spermatic fascia. Contents of the spermatic cord or round ligament enter the canal through the deep ring.

RELATIONS OF DEEP RING

Above

Arched fibres of the transversus abdominis muscle.

Infront and laterally

Internal oblique muscle.

Medially

Inferior epigastric artery.

Outlet

The outlet is formed by the superficial inguinal ring which is an oblique triangular gap in the aponeurosis of external oblique, above and lateral to the pubic crest. From the margin of the ring the external spermatic fascia balloons over the spermatic cord.

STRUCTURES PASSING THROUGH THE SUPERFICIAL RING

(a) Ilio-inguinal nerve.

(b) Spermatic cord or round ligament.

Measurements of the ring

Apex to base - 2.5 cm; At the base - 1.25 cm
BOUNDARIES OF SUPERFICIAL RING

Base - formed by the pubic crest.

Apex - Directed above and laterally, formed by the convergence of the two crura and kept in position by the inter-crural fibres of the external oblique.

Medially - By the superior crus which is attached to the symphysis pubis.

Laterally - By the inferior crus which is fixed to the pubic tubercle.

DEFENSIVE MECHANISM OF INGUINAL CANAL

(SHUTTER MECHANISM)

1. The inguinal canal is oblique in direction so that the deep and superficial rings are situated at different places. In increased intra-abdominal pressure the posterior wall of the canal is pushed forwards and comes in contact with the anterior wall obliterating the canal like a flap-valve.

2. The construction of the canal is such that, opposite the deep ring the anterior wall of the canal is strengthened by the fleshy fibres of the internal oblique muscle, and opposite the superficial ring the posterior wall is strengthened by the conjoint tendon and reflected part of the inguinal ligament.
3. The arched fibres of the internal oblique and the transversus act as demi-sphincters in increased intra-abdominal pressure and obliterate the canal by bringing the roof in contact with the floor of the canal.

4. Cremasteric plug - In increased intra-abdominal pressure the cremaster muscle in male contracts and pulls the testes towards the superficial ring. Thus the outlet of the canal is closed like a plug (Ball - Valve action).

5. When abdominal muscles contract, the deep inguinal ring moves upwards and laterally. Thereby the canal is elongated and the lumen becomes more narrow.

6. Contraction of the external oblique results in approximation of the two crura of the superficial inguinal ring (Slit valve mechanism). The integrity of the superficial inguinal ring is greatly increased by the intercrural fibres.

7. Hormones play a role in maintaining the tone of the inguinal musculature.

**DEVELOPMENT OF THE INGUINAL CANAL**

The inguinal canal is developed from the differentiation of the muscles of the anterior abdominal wall around as inguinal fold of peritoneum which contains the gubernaculum of testes or ovary during the descent of the respective sex gland. The canal is formed before the descent of the testes.
THE MALE GENITAL SYSTEM

Male genital system includes the testes, vas deferens, seminal vesicles and ejaculatory ducts. Male external genitalia comprise the scrotum and the penis.

THE SCROTUM

The Scrotum is the downward prolongation of the anterior abdominal wall. It lodges the following structures

1. Testis
2. Epididymis and
3. Spermatic cord

It protects the testes from external violence and maintains a temperature which is lower than that of the abdomen. The scrotum is bilateral in development and is formed by the fusion of two genital swellings. The fusion is represented by a median raphe which is continuous with a similar raphe on the ventral surface of the penis and on the perineum. Left half of the scrotum is slightly lower than the right half for accommodation of the elongated left spermatic cord.

Scrotum has many layers

1. Skin
2. Dartos muscle
3. External spermatic fascia
4. Cremasteric muscle and fascia
5. Internal spermatic fascia
6. Tunica vaginalis testis.
SKIN

The skin is thin and transparent and elastic. So it allows distensions.

DARTOS MUSCLE

This is the continuation of the superficial fascia of the anterior abdominal wall.

THE EXTERNAL SPERMATIC FASCIA

It is derived from the aponeurosis of the external oblique abdominis.

Cremasteric muscle and fascia

It is derived from the internal oblique abdominis. The cremaster muscle is supplied by the genital branch of the genito femoral nerve.

The internal spermatic fascia

It is derived from the transverse abdominis muscle.

The tunicavaginalis testis

It is situated deep to the internal spermatic fascia. It is derived from the processus vaginalis. Before birth, it communicates with the peritoneal cavity. Just before birth, it separates and its communication with the peritoneal cavity is closed.

It covers the anterior, lateral, medial and a part of posterior surfaces of the testis. It has two layers namely visceral and parietal layers. Embryologically it is invaginated by the testis from behind.
BLOOD SUPPLY

Arterial Supply

1. Superficial external pudendal artery
2. Deep external pudendal artery
3. Posterior scrotal artery from the internal pudendal artery
4. Cremasteric artery from inferior epigastric artery.

Venous Drainage

1. Great saphenous vein
2. Internal iliac vein.

Lymphatic Drainage

Superficial inguinal lymph nodes.

NERVE SUPPLY

Anterior 1/3

1. Ilio inguinal nerve (L1)
2. Genital branch of the genito femoral nerve (L1)

Posterior 2/3

1. Posterior scrotal nerve, S4
2. Posterior cutaneous nerves of the thigh S3, S4
3. Dartos muscle is supplied by sympathetic nerves.
PATHOLOGY

HERNIA

A hernia is the protrusion of a viscus or part of a viscus through an abnormal opening.

The most common location for hernia is the abdomen. The abdominal wall - a sheet of tough muscle and tendon that runs down from the ribs to the legs at the groins - acts as 'nature's corset'. Its function, amongst other things, is to hold in the abdominal contents, principally the intestines. If a weakness should open up in that wall, and it does not really matter how or why it happened, the 'CORSET EFFECT' is lost and what pushes against it from the inside (the intestines) simply pushes through the 'window'. The ensuing bulge, which is often quite visible against the skin, is the hernia. These 'windows of weakness' commonly occur where there are natural weaknesses in our abdominal wall - such as where the 'plumbing' goes through it. Examples of these are the canals inguinal and femoral which allow passage of vessels down to the scrotum and the legs, respectively.

Types of Abdominal Hernia

1. Inguinal hernia
2. Femoral hernia
3. Umbilical hernia
4. Incisional hernia

The most frequent of this is, Inguinal hernia which occurs in 73% cases.
INGUINAL HERNIA

Inguinal hernias occur when soft tissue usually part of the intestine protrudes through a weak point or tear in the lower abdominal wall. The resulting bulge of this common condition can be painful especially during cough, bend over or lift a heavy object.

AETIOLOGY

In many people, the abdominal wall weakness that leads to an inguinal hernia occurs at birth when the abdominal lining peritoneum doesn't close properly. Other inguinal hernias develop later in life when muscles weaken or deteriorate due to factors such as ageing, strenuous physical activity or coughing that accompanies smoking.

Some inguinal hernias have no apparent cause. But many occur as a result of increased pressure within the abdomen, a pre-existing weak spot in the abdominal wall or a combination of the two.

More Common in men

Men are more likely to have an inherent weakness along the inguinal canal than women because of the way males develop in the womb. In the male fetus, the testicles form within the abdomen and then move down the inguinal canal into the scrotum. Shortly after birth, the inguinal canal closes almost completely, leaving just enough room for the spermatic cord to pass through, but not large enough to allow the testicles to move back into the abdomen.
Sometimes, however, the canal doesn't close properly, leaving a weakened area.

Weaknesses can also occur in the abdominal wall later in life, especially after an injury or certain operations in the abdominal cavity.

Whether a pre-existing weakness present or not, extra pressure in the abdomen can cause a hernia. This pressure may result from,

1. Straining during bowel movements or urination
2. Lifting heavy weights
3. Ascites
4. Pregnancy
5. Obesity
6. Even chronic coughing or sneezing can cause abdominal muscles to tear. Ex: Asthma, COPD, Whooping cough.

**SIGNS AND SYMPTOMS**

A bulge created by the protruding intestine. Other inguinal hernia symptoms include:

- Pain or discomfort in the groin, especially when bending over, coughing or lifting.
- A heavy or dragging sensation in the groin.
- Occasionally, in men, pain and swelling in the scrotum around the testicles when the protruding intestine descends into the scrotum.
CLASSIFICATION

I. ANATOMICAL TYPES: - Three types of classification can be made under this heading.

a. According to the extent of the hernia it can be either

   (a) A Bubonocele – when the hernia does not come out of the superficial inguinal ring;

   (b) An Incomplete Hernia – when it comes out through the superficial inguinal ring but fails to reach the bottom of the scrotum, and

   (c) Complete Hernia – when it reaches the bottom of the scrotum.

b. According to its site of exit it can be either

   (a) An Oblique (Indirect) Hernia – when the hernia comes out through the deep inguinal ring i.e. lateral to the inferior epigastric artery and

   (b) A Direct Hernia – when it comes out through the Hesselbach’s triangle which is bounded medially by the lateral border of the rectus abdominis. Laterally by the inferior epigastric artery and below by the inguinal ligament that means the neck of the sac lies medial to the inferior epigastric artery.

c. According to the contents of the hernia, a hernia may be either

   (a) An Enterocoele – when it contains the Intestine (Enteron),

   (b) An Epiplocele or Omentocele – when it contains omentum (epiplooon); or

   (c) A Cystocele when it contains the urinary bladder.
OBLIQUE (INDIRECT) HERNIA

It comprises more than 80% cases of inguinal hernia. It occurs earlier than a direct hernia. It is often complete i.e. it reaches the bottom of the scrotum. The hernia descends obliquely downwards and inwards and it reduces obliquely in the opposite direction. This type of hernia does not reduce by itself. If the internal ring is occluded the hernia cannot come out even if the patient coughs. Two forms of indirect inguinal hernia are found in practice;

1. Congenital and

2. Acquired

CONGENITAL HERNIA

Normally the funicular process of peritoneum becomes obliterated after the testis has reached the scrotum. The scrotal part of the process remains patent and acquires the name ‘tunica vaginalis’. In case of congenital hernia the whole process remains patent. With increase in the abdominal pressure abdominal contents come out through the patent peritoneal process. Thus a congenital hernia reaches the bottom of the scrotum very quickly. It may so happen that the funicular process remains patent up to the top of the testis. So the hernia stops at the top of the testis and is known as a congenital funicular hernia. It must be remembered that congenital hernia though so named, is usually seen in adults.
ACQUIRED HERNIA

As the name suggests it does not protrude into a pre-formed sac. Clinically it can be differentiated from a congenital hernia by the fact that it does not become complete at once. Acquired hernia progresses gradually.

CLINICAL FEATURES OF INDIRECT HERNIA

Occur at any age, males are commonly affected. The patient complains of pain in the groin or pain referred to the testicle when he is performing heavy work or taking strenuous exercise.

In the early stages, when the sac is limited to the inguinal canal, the diagnosis can present some difficulty. At first the swelling appears intermittently, but with time, the hernia comes down as soon as the patient assumes the erect posture. In large hernias, there is a sensation of dragging weight due to pulling of the mesentery.

DIRECT INGUINAL HERNIA

Between 10 and 15 % of inguinal herniae are direct. Over half of the herniae are bilateral.

A direct inguinal hernia is always acquired. The sac passes through a weakness of defect of the transversalis fascia in the posterior wall of the inguinal canal. In some cases, the defect is small and closely related to the insertion of the conjoint tendon; occasionally congenitally deficient, while in others there is a generalized bulge through Hesselbach’s triangle. Often the patient is a man with poor abdominal musculature, as shown by the presence
of Malgaigne’s bulgings. Women practically never develop a direct inguinal hernia. Predisposing factors are a chronic cough, straining and heavy work. Damage to the ilioinguinal nerve (Ex: By previous appendicectomy) is another known cause.

Direct herniae rarely attain a large size and descend into the scrotum. In contradistinction to an oblique inguinal hernia, a direct inguinal hernia lies behind the spermatic cord. The sac is often smaller than the hernial mass would indicate, the protruding mass mainly consisting of extra – peritoneal fat. A finger inserted into the superficial inguinal ring passes directly backwards into the abdomen. As the neck of the sac is wide, direct inguinal hernias rarely strangulate.

On coughing, the impulse is felt on the pulp of the finger whereas in an oblique hernia the impulse is felt on the finger tip, viz. oblique direct.

The inferior epigastric artery lies lateral to the aperture, but because of its small size and the nature of its coverings, it cannot be felt, those who pretend to feel it surrender themselves to a flattering delusion.

At operation the distinguishing features of a direct inguinal hernia are, that the sac lies medially to the inferior epigastric artery, and the spermatic cord is not attached to the wall of the sac. The sac is often smaller that the hernial mass would indicate the protruding mass mainly consisting of extraperitoneal fat. As the neck of the sac is wide, direct inguinal herniae rarely strangulate.
II. CLINICAL TYPES

Clinically hernia may be of five types

1. Reducible hernia

Normally an uncomplicated hernia is reducible. That means its contents can be returned into the abdominal cavity but the sac remains in its position.

2. Irreducible hernia

In this hernia the contents cannot be returned to the abdomen.

3. Obstructed or Incarcerated hernia

(Irreducibility + Intestinal obstruction)

An obstructed hernia means the hernia is associated with intestinal obstruction due to occlusion of the lumen of the bowel.

4. Strangulated hernia

(Irreducibility + Obstruction + Arrest of blood supply to the contents)

A hernia is said to be strangulated when the contents are so constricted as to be interfered with their blood supply.

5. Inflamed hernia

This is a very rare condition and mimics in many respects a strangulated hernia. This hernia may occur when its content such as an appendix, a salpinx or a Meckel’s diverticulum becomes inflamed.
PATHOLOGICAL ANATOMY OF HERNIA

As a rule a hernia consists of 3 parts – the sac, the contents of the sac and the coverings of the sac.

The sac consists of a diverticulum of peritoneum which is divided into a mouth, neck, body and fundus. Usually the neck is well-defined, but in certain direct inguinal hernia and in many incisional herniae there is no actual neck. The body of the sac varies greatly in size and is not necessarily occupied. In cases occurring in infancy and childhood the sac is more delicate than the parietal peritoneum with which it is continuous. In old-standing cases, especially after years of pressure by a truss, the wall of the sac is comparatively thick and even of cartilaginous consistency.

RISK FACTORS OF HERNIA

- **Family history** - The risk of inguinal hernia increases if the person have a close relative, such as a parent or sibling, with the condition.

- **Certain medical conditions** - Having cystic fibrosis, a life-threatening disorder that causes severe lung damage and often a chronic cough, will develop an inguinal hernia.

- **Chronic cough** - A chronic cough, such as occurs from smoking, increases the risk of inguinal hernia.

- **Chronic constipation** - This leads to straining during bowel movements - a common cause of inguinal hernias.
- **Excess weight** - Being moderately to severely overweight can put extra pressure on the abdomen.

- **Pregnancy** - This can both weaken the abdominal muscles and cause increased pressure inside the abdomen.

- **Certain occupations** - Having a job that requires standing for long periods or doing heavy physical labor increases the risk of developing an inguinal hernia.

- **Premature birth** - Infants who are born sooner than normal are more likely to have inguinal hernias.

- **History of hernias** - If the person had one inguinal hernia, it is much more likely that they will eventually develop another - usually on the opposite side.

**COMPLICATIONS**

Not necessarily dangerous in themselves, inguinal hernias can lead to life-threatening complications.

Most inguinal hernias enlarge over time if they are not repaired surgically. Large hernias can put pressure on surrounding tissues - in men they may extend into the scrotum, causing pain and swelling.

But the most serious complication of an inguinal hernia occurs when a loop of intestine becomes trapped in the weak point in the abdominal wall.
This may obstruct the bowel, leading to severe pain, nausea, vomiting and the inability to have a bowel movement or pass gas.

It can also diminish blood flow to the trapped portion of the intestine - a condition called **strangulation**, that may lead to the death of the affected bowel tissues. A strangulated hernia is life-threatening and requires immediate surgery.

**PREVENTIVE MEASURES**

The aggravated Vali humour is mainly responsible for Anda Vadham. Hence, we have to balance the humour through proper diet habits and proper life style manners. It also occurs congenitally. We can't prevent the congenital defect that may lead to an inguinal hernia, but the following steps can help to reduce strain on the abdominal muscles and tissues:

- Maintain a healthy weight.
- Avoid constipation.
- Emphasize high-fiber foods.
- Avoid vegetables like tubers which produces increased vayu.
- Lift heavy objects carefully or avoid heavy lifting altogether.
- Avoid smoking.
- Since the disease aggrevates during Kaar kaalam and Mudhuvenir kaalam the patients are advised to take high sweet and salt containing foods to balance the humour.
- Yogic exercises assure a normal individual of his physical well-being. They also both curative and recuperative in action. Asanams like Karudasanam, Patchimotthasanam, Chakkarasanam and Salabasanam will strengthen the abdominal muscles.

- Practising Pranayama will maintain the humours in normal equilibrium.
EVALUATION OF THE DISSERTATION TOPIC

MATERIALS AND METHODS

The clinical study on Anda vadham was carried out at the post graduate department of Noi Naadal in Government Siddha Medical College, Palayamkottai.

CASE SELECTION AND SUPERVISION

The author has selected 20 cases with similar symptoms of Anda vadham as mentioned in Thanvanthiri Vaidhyam volume II under the supervision of faculties and Head of the Department of post graduate Noi Naadal Department.

The detailed history of past and present illness, personal and family history were observed.

Out of the 20 cases, 13 cases were selected to evaluate the typical picture by using Siddha parameters with the help of allied parameters.

EVALUATION OF CLINICAL PARAMETERS

The clinical symptoms such as,

- Descend of the intestine into the scrotum – Both unilateral and bilateral sides.
- Pain and swelling of the Scrotum.
- Reducibility of the intestines into the abdominal cavity.

were taken as criteria for selection of patients.
HISTORY TAKING

History of illness with regard to

1. Diet habits
2. Occupation
3. Personal habits
4. Socio-economic status
5. Family history
6. Detailed history of past illness such as,
   - Chronic cough
   - Chronic Obstructive Pulmonary Diseases
   - Obesity
   - Appendicectomy
   - Chronic constipation
   - Straining on micturition

were interrogated from the patient in detail.

CLINICAL DIAGNOSIS THROUGH SIDDHA PARAMETERS

Patients are investigated on the basis of the following siddha diagnostic tools, Poriyaal therthal, Pulanaal arithal, Vinaalthal, Ennvagai thervugal, Mukkutra nilaigal and Udal thaathukkal which are adopted to assess the Humoral Pathology.
**CLINICAL PARAMETERS**

For further detailed study of the disease modern investigatory parameters were used.

**Blood**

- Total count (TC)
- Differential count (DC)
- Haemoglobin (Hb)
- Erythrocyte Sedimentation Rate (ESR)

**Bio-Chemical**

- Blood sugar
- Blood Urea
- Serum Cholesterol

**Urine**

- Albumin
- Sugar
- Deposits
- Crystals
- Cast

**Motion**

- Ova
- Cyst
- Occult Blood

**Other Investigations**

- X-ray Chest PA view
- USG Abdomen and Pelvis
- Doppler study
OBSERVATION AND RESULTS

Results were observed with respect to the following aspects

i. Age reference.

ii. Occupation and Diet Habits

iii. Etiological factors

iv. Paruva Kaalangal

v. Mukkutra Nilaigal

vi. Udal Thaathukkal

vii. Ennvagai Thervugal

viii. Manikkadai Nool

ix. Clinical Features

x. Laboratory Findings.
STATISTICAL ANALYSIS AND INFERENCES

The study subjects were analysed with the help of the statistical tools namely percentage, mean and standard deviations. The inferences, which were arrived by utilizing the test of significance viz, ‘t’ test, Relative risk and Odds ratio.

AGE REFERENCE

The study subjects were analysed and interpreted based on their age, which is an independent variable revealing the burden of the disease. In the literature, some evidences are sourced that the incidence of diseases may be attributed to congenital. The congenital occurrence of the diseases may be exploited during the adulthood due to weight lifting and other hardworks. The incidence of the diseases in the late adulthood (40 to 59 years) and old age (above 60 years) may be evidenced by the causes related to the hard work. The above hypothetical etiology of the disease is proved in the below mentioned table.
The normal incidence of the disease may be in the age bracket of – 0.9 to 79.9 years. The lower limit of the age bracket is – 0.9 years. It is the intra-uterine period of the foetus. From this inference, the etiology of the disease may be attributed to congenital. The incidence of the disease during the adulthood is mainly due to congenital cause but come into exposure only by any predisposing factors. The incidence of the disease after the mean age of 39.5 ± 20.2 may be attributed to other factors like hard work, life style, diet habits and old age.
**OCCUPATION AND DIET HABIT**

The occupation and habit of the study subjects were analysed and tabulated. The results are as follows:

**Table -9**

**Skipping of diet and the nature of work of the study subjects**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Skipping of Diet</th>
<th>Occupation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Hard work</td>
<td>Light work</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No. of cases</td>
<td>%</td>
</tr>
<tr>
<td>1.</td>
<td>Present</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>2.</td>
<td>Absent</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>3.</td>
<td>Total</td>
<td>8</td>
<td>5</td>
</tr>
</tbody>
</table>

(Relative Risk $\text{RR}_{\text{mod}}=10$) and (Attributable Risk $\text{AR} = 90\%$)

The probability of skipping of diet is more common among the hard workers than the light workers because of their nature of work. Among hard workers 62.5% of the persons are having the habit of skipping of diet. The relative risk of the habit than the light workers is 10 times greater ($\text{RR}_{\text{mod}}=10$). In the study subjects, the skipping of diet habit is attributed to 90% (Attributable Risk (AR) =90%) Hard work with skipping of food is 90% risk of the incidence of the disease.
Heavy weight Lifting

Heavy weight lifting is one of the etiology of Anda Vadham. The following epidemiological analysis will clearly shows the etiology of Anda Vadham.

Table – 10

Risk of heavy weight lifting below the age group of 40 years

<table>
<thead>
<tr>
<th>Heavy Weight Lifting</th>
<th>Age</th>
<th>Total</th>
<th>Relative Risk</th>
<th>Odd’s Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;40 years</td>
<td>&gt;40 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>4</td>
<td>3</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>2</td>
<td>6</td>
<td>0.857</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>5</td>
<td>13</td>
<td>0.667</td>
</tr>
</tbody>
</table>

The relative risk of Heavy weight lifting with the study subjects age less than 40 years is 0.857. That means no risk of Heavy weight lifting is attributed to the incidence of Anda Vadham among the 40 years less than 40 years of population. Similarly the risk of lifting of heavy weight as an odd among less than 40 years population is only 0.667. The risk is not statistically significant.
Table –11

Risk of heavy weight lifting above 40 years of study subjects

<table>
<thead>
<tr>
<th>Heavy Weight Lifting</th>
<th>Age 40 and above years</th>
<th>&lt;40 years</th>
<th>Total</th>
<th>Relative risk</th>
<th>Odd’s Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>3</td>
<td>4</td>
<td>7</td>
<td></td>
<td>1.3</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>8</td>
<td>13</td>
<td>1.3</td>
<td>1.5</td>
</tr>
</tbody>
</table>

The relative risk of heavy weight lifting above 40 years population is 1.3 times greater than the population below 40 years. The odds ie. heavy weight lifting risk is 1.5 times greater than below 40 years population. From the above two analysis it can be safely interpreted that the heavy weight lifting is an etiology of Anda Vadham among the old age people.

But the heavy weight lifting among less than 40 years is not an etiology of the incidence of Anda Vadham. After natively it can be interpreted, the etiology of Anda Vadham is congenital.

PARUVA KAALANGAL

The incidence of the disease in Kaar Kaalam is 7 subjects. The incidence in Ilavenil Kaalam is nil. During Koothir Kaalam and Pinpani Kaalam, the incidence recorded is 1 case in each. Similarly during Munpani Kaalam and Mudhuvenil Kaalam the incidence is 2 cases in each. The maximum occurrence 53.8% in Kaar Kaalam. The incidence of the disease during the Kaar Kaalam in population may be 24.8% to 82.8% and 95% of confidence interval.
### MUKKUTRA NILAIGAL

**Table – 12**

Anda vadham study subjects analysed according to Mukkutra Nilaigal

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Deranged humour</th>
<th>Types</th>
<th>No.of cases Affected</th>
<th>Ratio</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Increased</td>
<td>Praanan</td>
<td>2</td>
<td>15.4</td>
<td>Chronic dry cough, Indigestion.</td>
</tr>
<tr>
<td></td>
<td>Vali n = 13</td>
<td></td>
<td>10</td>
<td>76.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Abaanann</td>
<td>11</td>
<td>84.6</td>
<td></td>
<td>Constipation.</td>
</tr>
<tr>
<td></td>
<td>Udhaanan</td>
<td>2</td>
<td>15.4</td>
<td>76.9</td>
<td>Chronic dry cough, Indigestion.</td>
</tr>
<tr>
<td></td>
<td>Viyaanan</td>
<td>13</td>
<td>100</td>
<td></td>
<td>Pain and swelling in the inguino - scrotal region.</td>
</tr>
<tr>
<td></td>
<td>Samaanan</td>
<td>10</td>
<td>76.9</td>
<td></td>
<td>Indigestion.</td>
</tr>
<tr>
<td></td>
<td>Koorman</td>
<td>3</td>
<td>23.1</td>
<td></td>
<td>Dimness of vision.</td>
</tr>
<tr>
<td></td>
<td>Kirukaran</td>
<td>10</td>
<td>76.9</td>
<td></td>
<td>Indigestion.</td>
</tr>
<tr>
<td></td>
<td>Devathathan</td>
<td>8</td>
<td>61.5</td>
<td></td>
<td>Tiredness and anger.</td>
</tr>
<tr>
<td>2.</td>
<td>Decreased</td>
<td>Anilam</td>
<td>10</td>
<td>76.9</td>
<td>Indigestion, reduced appetite.</td>
</tr>
<tr>
<td></td>
<td>Azhal n = 13</td>
<td></td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ranjagam</td>
<td>8</td>
<td>61.5</td>
<td></td>
<td>Tiredness.</td>
</tr>
<tr>
<td></td>
<td>Praasagam</td>
<td>6</td>
<td>46.2</td>
<td></td>
<td>Skin complexion is dull.</td>
</tr>
<tr>
<td></td>
<td>Aalosagam</td>
<td>3</td>
<td>23.1</td>
<td></td>
<td>Cataract.</td>
</tr>
<tr>
<td>3.</td>
<td>Increased</td>
<td>Avalambagam</td>
<td>2</td>
<td>15.4</td>
<td>Chronic dry cough.</td>
</tr>
<tr>
<td></td>
<td>Iyam n = 13</td>
<td></td>
<td>10</td>
<td>76.9</td>
<td>Indigestion, reduced appetite.</td>
</tr>
<tr>
<td></td>
<td>Kilethagam</td>
<td>10</td>
<td>76.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pothagam</td>
<td>6</td>
<td>46.2</td>
<td></td>
<td>Sensation of pulippu (sour) taste in the tongue.</td>
</tr>
</tbody>
</table>
### Anda vadham study subjects analysed according to Udal Kattukkal

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Udal Kattukkal</th>
<th>Changes</th>
<th>Affected No. of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Saaram</td>
<td>Weakness of the abdominal muscles.</td>
<td>13</td>
<td>100</td>
</tr>
<tr>
<td>2.</td>
<td>Senneer</td>
<td>Tiredness.</td>
<td>13</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Affinity to sour taste.</td>
<td>6</td>
<td>46.2</td>
</tr>
<tr>
<td>3.</td>
<td>Oon</td>
<td>The tonicity of the abdominal muscles is decreased, which results in descend of the intestines from its original position.</td>
<td>13</td>
<td>100</td>
</tr>
<tr>
<td>4.</td>
<td>Kozhuppu</td>
<td>The tonicity of the abdominal muscles is decreased.</td>
<td>13</td>
<td>100</td>
</tr>
<tr>
<td>5.</td>
<td>Enbu</td>
<td>Hair falling.</td>
<td>3</td>
<td>23.1</td>
</tr>
<tr>
<td>6.</td>
<td>Moolai</td>
<td>Tiredness.</td>
<td>13</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dimness of vision.</td>
<td>3</td>
<td>23.1</td>
</tr>
<tr>
<td>7.</td>
<td>Sukkilam</td>
<td>Scrotal Pain.</td>
<td>12</td>
<td>92.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Impotency.</td>
<td>1</td>
<td>7.7</td>
</tr>
</tbody>
</table>
## Table-14

The Picture of Ennvagai Thervugal

<table>
<thead>
<tr>
<th>S.No.</th>
<th>OP / IP No.</th>
<th>Age/Sex</th>
<th>Naa</th>
<th>Niram</th>
<th>Mozhi</th>
<th>Vizhi</th>
<th>Sparisam</th>
<th>Malam</th>
<th>Moothiram</th>
<th>Neerkuri</th>
<th>Neikuri</th>
<th>Naadi</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>14140</td>
<td>60/M</td>
<td>N</td>
<td>A</td>
<td>N</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>MA</td>
<td>IV</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>13</td>
<td>48/M</td>
<td>A</td>
<td>A</td>
<td>N</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>MA</td>
<td>IV</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>30597</td>
<td>80/M</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>MA</td>
<td>IV</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>60628</td>
<td>30/M</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>N</td>
<td>MA</td>
<td>IV</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>67123</td>
<td>43/M</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>A</td>
<td>N</td>
<td>A</td>
<td>AM</td>
<td>VA</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>74793</td>
<td>27/M</td>
<td>A</td>
<td>A</td>
<td>N</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>MA</td>
<td>IV</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>3553</td>
<td>24/M</td>
<td>A</td>
<td>A</td>
<td>N</td>
<td>N</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>MA</td>
<td>IV</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>3480</td>
<td>27/M</td>
<td>N</td>
<td>A</td>
<td>N</td>
<td>N</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>AM</td>
<td>VA</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>5</td>
<td>22/M</td>
<td>A</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>MA</td>
<td>IV</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>11</td>
<td>29/M</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>MA</td>
<td>IV</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>18323</td>
<td>72/M</td>
<td>A</td>
<td>N</td>
<td>N</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>MA</td>
<td>IV</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>32292</td>
<td>25/M</td>
<td>A</td>
<td>A</td>
<td>N</td>
<td>N</td>
<td>A</td>
<td>N</td>
<td>A</td>
<td>MA</td>
<td>IV</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>32268</td>
<td>24/M</td>
<td>A</td>
<td>N</td>
<td>N</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>AM</td>
<td>VA</td>
<td></td>
</tr>
</tbody>
</table>

N – Normal  A – Affected  Neikuri : MA – Muthil Aravam  AM – Aravil Mothiram  
Naadi : IV – Iya Vali  VA – Vali Azhal

87
The Anda Vadham persons were identified for the incidence of the disease through Ennvagai Thervugal and the percentage of them is posted in this table.

**Table – 15**

<table>
<thead>
<tr>
<th>S. No</th>
<th>Ennvagai Thervugal</th>
<th>Changes</th>
<th>Affected No. of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Naa</td>
<td>Maa padinthiruthal Affinity to Sour Taste</td>
<td>3 6</td>
<td>23 46.2</td>
</tr>
<tr>
<td>2</td>
<td>Niram</td>
<td>Normal.</td>
<td>13</td>
<td>100</td>
</tr>
<tr>
<td>3.</td>
<td>Vizhi</td>
<td>Redness and burning sensation of the eyes. Cataract</td>
<td>7 3</td>
<td>53.8 23.1</td>
</tr>
<tr>
<td>4.</td>
<td>Mozhi</td>
<td>Sama oli Urattha oli</td>
<td>12 1</td>
<td>92.3 7.7</td>
</tr>
<tr>
<td>5</td>
<td>Sparisam</td>
<td>Migu veppam, increased sweating. Swelling of the scrotum.</td>
<td>5 13</td>
<td>38.5 100</td>
</tr>
<tr>
<td>6</td>
<td>Malam</td>
<td>Constipation</td>
<td>11</td>
<td>84.6</td>
</tr>
<tr>
<td>7</td>
<td>Moothiram</td>
<td>Neerkuri Neikuri</td>
<td>Yellow, Reduced quantity Deposits MuthilAravam Aravil Mothiram</td>
<td>11 3 10 3</td>
</tr>
<tr>
<td>8</td>
<td>Naadi</td>
<td>Iya Vali Vali Azhal</td>
<td></td>
<td>10 3</td>
</tr>
</tbody>
</table>
The percentage distribution of the above table clearly illustrates the Ennvagai Thervugal and its compound. Among them, the most affected indications are Vizhi – (53.8%), Sparisam – (100%) Sama oli- (92.3%), Malam - (84.6%), Neikuri -Muthil Aravam(76.9%) and Naadi - Iya Vali (76.9%). Above 50% of the affected cases shows variations in the Ennvagai Thervugal. They may be treated as indicators of Anda Vadham.

MANIKKADAI NOOL

Table – 16

The Manikkadai Nool inferences are tabulated as follows

<table>
<thead>
<tr>
<th>S.No</th>
<th>Viralkadai Alavu</th>
<th>Affected no. of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6¼</td>
<td>7</td>
<td>53.8</td>
</tr>
<tr>
<td>2</td>
<td>7¼</td>
<td>4</td>
<td>30.8</td>
</tr>
<tr>
<td>3</td>
<td>7½</td>
<td>2</td>
<td>15.4</td>
</tr>
</tbody>
</table>
CLINICAL FEATURES

The clinical features of the study subjects are enumerated in the below mentioned table.

Table – 17
Clinical features

<table>
<thead>
<tr>
<th>S. No</th>
<th>Clinical Features</th>
<th>No. of cases</th>
<th>Affected No. of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Descend of the intestines into scrotum.</td>
<td>13</td>
<td>10</td>
<td>76.9</td>
</tr>
<tr>
<td></td>
<td>Unilateral</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bilateral</td>
<td></td>
<td>3</td>
<td>23</td>
</tr>
<tr>
<td>2</td>
<td>Pain in the scrotum</td>
<td>13</td>
<td>12</td>
<td>92.3</td>
</tr>
<tr>
<td>3</td>
<td>Swelling of the scrotum</td>
<td>13</td>
<td>13</td>
<td>100</td>
</tr>
<tr>
<td>4</td>
<td>Reducibility</td>
<td>13</td>
<td>13</td>
<td>100</td>
</tr>
</tbody>
</table>

The percentage distribution of clinical features indicates, descend of the intestine into the scrotum is 100%, swelling of the scrotum and reducibility is 100% and pain in the scrotum is 92.3%.
DISCUSSION

INTERPRETATION OF CLINICAL PARAMETERS

The research work on “Anda Vadham” mentioned in Thanvanthiri vaidhiyam under Uthara Roga Nithanam is thoroughly studied by observing 13 outpatients from Noi Naadal branch and Inpatients of other private hospitals, Tirunelveli. The patients were interrogated thoroughly and their history, ailments, characters of signs and symptoms are noted in detail in the materials and methods observation.

The inference obtained from the observation is explained as follows,

Age and sex distribution

Males are commonly affected and the incidence is high in the age group between 20 to 80 years. It is observed, that Anda vadham occurring in the adulthood is mainly due to congenital cause which come into exposure by any pre-disposing factors. In old age, it is observed that the disease occurs mainly due to ageing, improper diet habits and modified life style.

Family History

On observation, there is no related family history.
Occupation

Most of the patients belonging to labour group and doing hard work like heavy weight lifting were highly affected.

Socio-Economic Status

It is observed that the occurrence of Anda vadham is common among all classes of people. Especially in poor people, their diet habit and heavy work is the pre-disposing cause. In rich people, sedentary lifestyle which leads to obesity is the main reason for the occurrence of disease.

Diet Habits

On observation, people those who skipped their diets and taking heavy diets were commonly affected.

Personal Habits

On observation, the persons who were chain smokers are commonly affected by chronic cough, which is one of the pre-disposing cause of Anda Vadham.

Previous History

People having history of chronic constipation, chronic cough and undergone any abdominal surgeries like appendicectomy were affected.

Seasonal variations

On observation, the incidence of the disease during Kaar kaalam is 95% of confidence interval and during Mudhuvenil kaalam also patients had their first occurrence. This reveals that Vali humour generally aggravates during this period.
INTERPRETATION OF SIDDHA PARAMETERS

MUKKUTRA NILAIGAL

In Anda vadham the changes observed in the 3 cardinal humours were,

VALI

The **aggravated Vali humour** in Anda Vadham shows following changes:

Praanan

Praanan shows changes like **chronic dry cough** and **indigestion**. It results in **increased intra abdominal pressure**.

Abaanan

Abaanan shows changes like **constipation** which results in straining on defaecation which is one of the pre-disposing cause for Anda Vadham.

Viyaanan

Viyaanan shows changes like **pain** and **swelling** in the scrotal region.

Udhaanan

Udhaanan shows changes like **chronic dry cough** and **indigestion**.

Samaanan

Samaanan shows changes like **indigestion**.

Koorman

**Dimness of vision** were observed.
Kirukaran
Kirukaran shows changes like **chronic dry cough, coated tongue** and **indigestion**.

Devathathan
**Tiredness** and **Anger** were observed.

IYAM
*Iyam* shows its **increased character** in Anda Vadham. The changes observed were:

Avalambagam
**Chronic dry cough** were observed which is one of the pre-disposing cause for Anda Vadham.

Kilethagam
**Indigestion** and **reduced appetite** were observed. It is one of the cause for Vayu accumulation in the intestines in Anda Vadham.

Pothagam
**Sensation of pulippu (sour) taste** in the tongue is seen. This reveals the affected Vali humour.

AZHAL
In Anda Vadham the **Azhal humour** shows its **decreased character** and shows following changes:

Anilam
**Indigestion** and **reduced appetite** were observed.

Ranjagam
**Tiredness** observed.

Aalosagam
**Cataract** changes in the eyes were observed.
UDAL KATTUKKAL NILAIGAL

The derangement of humours in Anda Vadham shows physiological variations in the body. They are tabulated as follows.

Table-19
Changes in Udal kattukkal

<table>
<thead>
<tr>
<th>S.No</th>
<th>Decreased Udal Kattukkal</th>
<th>Changes Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Saaram</strong></td>
<td>Weakness of the abdominal muscles.</td>
</tr>
<tr>
<td>2.</td>
<td><strong>Senneer</strong></td>
<td>Tiredness, Affinity to sour taste.</td>
</tr>
<tr>
<td>3.</td>
<td><strong>Oon</strong></td>
<td>The tonicity of abdominal muscles is decreased, which results in descend of the intestines from its original position.</td>
</tr>
<tr>
<td>4.</td>
<td><strong>Kozhuppu</strong></td>
<td>The tonicity of abdominal muscles is decreased.</td>
</tr>
<tr>
<td>5.</td>
<td><strong>Enbu</strong></td>
<td>Hair falling.</td>
</tr>
<tr>
<td>6.</td>
<td><strong>Moolai</strong></td>
<td>Tiredness, Dullness of vision.</td>
</tr>
<tr>
<td>7.</td>
<td><strong>Sukkilam</strong></td>
<td>Scrotal Pain and Impotency.</td>
</tr>
</tbody>
</table>

The changes observed in Udal thaathukkal shows their decreased character in Anda Vadham and confirms the diagnosis.
### INTERPRETATION OF ENNVAGAI THERVUGAL

#### Table-20 Ennvagai Thervugal

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Ennvagai Thervugal</th>
<th>Changes Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Naa</td>
<td>Coated tongue, affinity to sour taste.</td>
</tr>
<tr>
<td>2.</td>
<td>Niram</td>
<td>No changes.</td>
</tr>
<tr>
<td>3.</td>
<td>Vizhi</td>
<td>Redness, Burning sensation and Cataract.</td>
</tr>
<tr>
<td>4.</td>
<td>Mozhi</td>
<td>Sama Oli</td>
</tr>
<tr>
<td>5.</td>
<td>Sparisam</td>
<td>Migu Veppam, Increased sweating and swelling of scrotum.</td>
</tr>
<tr>
<td>6.</td>
<td>Malam</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Colour</td>
<td>Dark</td>
</tr>
<tr>
<td></td>
<td>Consistency</td>
<td>Hard</td>
</tr>
<tr>
<td></td>
<td>Quantity</td>
<td>Decreased</td>
</tr>
<tr>
<td></td>
<td>Frequency</td>
<td>Two days once.</td>
</tr>
<tr>
<td>7.</td>
<td>Moothiram</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Neerkuri</td>
<td>Reduced</td>
</tr>
<tr>
<td></td>
<td>Quantity</td>
<td>Dark Yellow</td>
</tr>
<tr>
<td></td>
<td>Colour</td>
<td>Acidic</td>
</tr>
<tr>
<td></td>
<td>Odour</td>
<td>Present</td>
</tr>
<tr>
<td></td>
<td>Frothy Nature</td>
<td>Present</td>
</tr>
<tr>
<td></td>
<td>Deposits</td>
<td>1-2 pus cells, 1-2 epithelial cells</td>
</tr>
<tr>
<td></td>
<td>Neikuri</td>
<td>Initially it forms a pearl shape and spreads like a serpent.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Initially spreads like a serpent and then forms a ring shape.</td>
</tr>
<tr>
<td>8.</td>
<td>Naadi</td>
<td>Iya Vali</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vali Azhal</td>
</tr>
</tbody>
</table>
All the changes observed in Ennvagai Thervugal depicts the derangement of Vali humour associated with derangement of Azhal and Iyam humors in Anda Vadham and confirms the diagnosis.

**MANIKKADAİ NOOL**

On observation, the Viralkadai alavu (measurements) reveals,

6¾- Anda Vadham.

7 ¼ - Increased vayu in the body and

7 ½ - Burning sensation in the body.
INTERPRETATION OF ALLIED PARAMETERS

Manual Examination

Swelling present in the inguino-scrotal region

Skin is normal

Cough impulse test is positive.

Bio Chemical Assay

In some cases of Anda Vadham, in routine examination the serum Cholesterol level shows changes between the range of 220 – 280 mgs/dl.

In such patients obesity is one of the pre-disposing cause for Anda Vadham.

Doppler study

In some cases the Doppler study of Scrotum gives impression as,

Inguinoscrotal swelling due to Hernia.
HIGHLIGHTS OF THE DISSERTATION TOPIC

Anda Vadham comes under Uthara Roga Nithanam in Thanvanthiri Vaidhiyam is characterized by descend of the intestines into the scrotum, pain and swelling of the scrotum and reducibility of the herniated contents into the abdominal cavity.

According to Siddha literatures, Andam means scrotum and Vadham means a humour which helps in maintaining the normal physiological function of the body.

From the research work the author observed that, the important and major etiological factor of Anda Vadham is increased Vayu (Vali) which weakens the abdominal muscles and decreases its tonicity and paves the way for descend of the intestines into the scrotum and manifest the clinical symptoms.

It is observed that improper diet habit and modified life style manners is mainly responsible for the disease Anda Vadham. In some cases it occurs congenitally also.

Anda Vadham can be precisely diagnosed earlier with the help of sound knowledge about knowing the pathogenesis of the disease. The clinical features of Anda Vadham depicts through Ennvagai Thervugal confirms the diagnosis. The allied parameters also plays an important role in the diagnosis.
CONCLUSION

The clinical study of Anda Vadham is mainly based on Siddha diagnostic methods with the help of allied parameters.

The lines that were depicted in the Anda Vadham under Uthara Roga Nithanam in the textbook Thanvanthiri Vaidhyam elaborates the clinical features of Herniation of the Intestines into the scrotum.

Descend of the intestines into the scrotum, pain and swelling of the scrotum and reducibility of the hernial contents into the abdominal cavity. These are the signs and symptoms of Anda Vadham and it represents the clinical features of Complete Inguinal Hernia.

The signs and symptoms of Anda vadham were studied in all selected cases. The aetiological factors for Anda Vadham is mainly due to increased Vayu accumulation in the intestines due to altered dietary habits, modified life style, congenital factors and environmental changes. This is stressed in modern aspects Abdominal Hernia is mainly caused by weakening of the abdominal musculature due to conditions which raised intra-abdominal pressure, old age and congenital defect.

The picture exhibited in the Siddha parameters were the exaggeration of humour Vali which depicts through Ennvagai Thervugal and helps in the diagnosis.
Though the features reveal the uncomplicated stage of the disease, the patient must be aware of it. Early diagnosis, proper palliative treatment and proper diet habits and life style manners are very helpful in avoiding the complicated stage of this disease.
A study to Diagnose “Anda Vadham” through Siddha Diagnostic Methodology

SELECTION PROFORMA


11. Address:

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

12. Complaints and duration:

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

13. History of present illness:

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

14. Past history:

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

15. Family History:

.........................................................................................................................
.........................................................................................................................
<table>
<thead>
<tr>
<th>Habits</th>
<th>1.Yes</th>
<th>2.No</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. Smoking</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 chewing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Alcohol</td>
<td>V</td>
<td>M</td>
</tr>
<tr>
<td>21. Food habits</td>
<td>V</td>
<td>NV</td>
</tr>
<tr>
<td>22. Kind of occupation:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Sedantary work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Heavy work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Light work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. Heavy intake of diet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. Skipping of diets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. Constipation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. Anger</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. Straining on micturition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28. Doing heavy work after full meals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29. Lying in chill floor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30. Sleeping in improper position</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31. Congenital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32. Old age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33. Lifting heavy weights</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34. Chronic cough</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>35. C/o.Asthma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36. C/o.Chronic Obstructive Pulmonary Diseases</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37. C/o.Whooping cough</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38. Obesity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>39. Appendicectomy</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**GENERAL EXAMINATION**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>40. Weight(kg)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41. Temperature(°F)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42. Pulse rate/minute</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>43. Heart rate/minute</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44. Respiratory rate/minute</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45. Blood pressure(mmHg)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46. Pallor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47. Jaundice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48. Cyanosis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>49. Lymphadenopathy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50. Pedal edema</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>51. Clubbing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52. Jugular venous pulsation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### VITAL ORGANS EXAMINATION

<table>
<thead>
<tr>
<th></th>
<th>1.Normal</th>
<th>2.Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>53. Heart</td>
<td></td>
<td></td>
</tr>
<tr>
<td>54. Lungs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>55. Brain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>56. Liver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>57. Kidney</td>
<td></td>
<td></td>
</tr>
<tr>
<td>58. Spleen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>59. Stomach</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SIDDHA SYSTEM OF EXAMINATION

#### ENNVAGAI THERVUKAL

#### NAA

60. Maa Padinthiruthal

- 1. Present
- 2. Absent

61. Niram

- 1. Karuppu
- 2. Manjal
- 3. Velluppu

62. Suvai

- 1. Pulippu
- 2. Kaippu
- 3. Inippu

63. Vedippu

- 1. Present
- 2. Absent

64. Vai neer ooral

- 1. Normal
- 2. Increased
- 3. Reduced

#### 65. NIRAM

- 1. Karuppu
- 2. Manjal
- 3. Velluppu
### 66. MOZHI

1. Sama oli
2. Uратtha oli
3. Thazhntha oli

### VIZHI

67. Niram

1. Karuppu
2. Manjal
3. Sivappu
4. Velluppu

68. Kanneer

1. Present
2. Absent

69. Erichchal

1. Present
2. Absent

70. Peelai seruthal

1. Present
2. Absent

### MEI KURI

71. Veppam

1. Mitham
2. Migu
3. Thatpam

72. Viyarvai

1. Normal
2. Increased
3. Reduced

73. Thodu vali

1. Present
2. Absent

### MALAM

74. Niram

1. Karuppu
2. Manjal
3. Sivappu
4. Velluppu

75. Sikkal

1. Present
2. Absent
76. Sirutthal
   1. Present  
   2. Absent  

77. Kalichchal
   1. Present  
   2. Absent  

78. Seetham
   1. Present  
   2. Absent  

79. Vemmai
   1. Present  
   2. Absent  

MOOTHIRAM

NEER KURI

80. Niram
   1. Venmai  
   2. Manjal  
   3. Crystal clear  

81. Manam
   1. Present  
   2. Absent  

82. Nurai
   1. Nil  
   2. Increased  
   3. Reduced  

83. Edai (Ganam)
   1. Normal  
   2. Increased  
   3. Reduced  

84. Enjal (Alavu)
   1. Normal  
   2. Increased  
   3. Reduced  

85. NEI KURI

   1. Aravam  
   2. Mothiram  
   3. Muthu  
   4. Aravil Mothiram  
   5. Aravil Muthu  
   6. Mothirathil Aravam
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Mothirathil Muthu</td>
<td>8. Muthil Aravam</td>
<td></td>
</tr>
<tr>
<td>9. Muthil Mothiram</td>
<td>10. Asathiyam</td>
<td></td>
</tr>
<tr>
<td>11. Mellena paraval</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NAADI (KAI KURI)**

**Naadi Nithanam**

86. Kaalam

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Kaarkaalam</td>
<td>2. Koothirkaalam</td>
<td></td>
</tr>
<tr>
<td>3. Munpanikaalam</td>
<td>4. Pinpanikaalam</td>
<td></td>
</tr>
<tr>
<td>5. Ilavenirkaalam</td>
<td>6. Muthuvenirkaalam</td>
<td></td>
</tr>
</tbody>
</table>

87. Desam

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Kulir</td>
<td>2. Veppam</td>
<td></td>
</tr>
</tbody>
</table>

88. Vayathu

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 1-33yrs</td>
<td>2. 34-66yrs</td>
<td>3. 67-100yrs</td>
</tr>
</tbody>
</table>

89. Udal Vanmai

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Iyalbu</td>
<td>2. Valivu</td>
<td>3. Melivu</td>
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</table>

90. Naadi Vanmai

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1. Vanmai</td>
<td>2. Menmai</td>
<td></td>
</tr>
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</table>

91. Panbu

<p>| | | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1. Thannadai</td>
<td>2. Puranadai</td>
<td>3. Illaitthal</td>
</tr>
<tr>
<td>13. Pakkanokku</td>
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</table>
92. Naadi nadai

<table>
<thead>
<tr>
<th></th>
<th>1Vali</th>
<th>2. Azhal</th>
<th>3. Iyam</th>
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</thead>
<tbody>
<tr>
<td>4</td>
<td>Vali Azhal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Azhal Iyam</td>
<td></td>
<td></td>
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</tbody>
</table>

93. MANIKKADAI NOOL (Viral Kadai Alavu)

IYMPORIGAL / IYMPULANGAL

<table>
<thead>
<tr>
<th></th>
<th>1.Normal</th>
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</tr>
</thead>
<tbody>
<tr>
<td>94</td>
<td>Mei</td>
<td></td>
</tr>
<tr>
<td>95</td>
<td>Vaai</td>
<td></td>
</tr>
<tr>
<td>96</td>
<td>Kan</td>
<td></td>
</tr>
<tr>
<td>97</td>
<td>Mookku</td>
<td></td>
</tr>
<tr>
<td>98</td>
<td>Sevi</td>
<td></td>
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</tbody>
</table>

KANMENTHIRIYANGAL / KANMAVIDAYANGAL

<table>
<thead>
<tr>
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</thead>
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<tr>
<td>99</td>
<td>Kai</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>Kaal</td>
<td></td>
</tr>
<tr>
<td>101</td>
<td>Vaai</td>
<td></td>
</tr>
<tr>
<td>102</td>
<td>Eruvaai</td>
<td></td>
</tr>
<tr>
<td>103</td>
<td>Karuvaai</td>
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104. YAAKAI

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Vali Azhal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Azhal Iyam</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>5.Vali Iyam</th>
<th>6.Azhal Vali</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Iya Vali</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Iya Azhal</td>
<td></td>
</tr>
</tbody>
</table>
### 105. GUNAM

1. Sathuva Gunam  
2. Raso Gunam  
3. Thamo Gunam

### UYIR THAATHUKKAL

#### I. Vali

<table>
<thead>
<tr>
<th></th>
<th>1. Normal</th>
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<tbody>
<tr>
<td>106.</td>
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<td>107.</td>
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<td>108.</td>
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<tr>
<td>109.</td>
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<td></td>
</tr>
<tr>
<td>110.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>111.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>112.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>113.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>114.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>115.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### II. Azhal

<table>
<thead>
<tr>
<th></th>
<th>1. Normal</th>
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</thead>
<tbody>
<tr>
<td>116.</td>
<td></td>
<td></td>
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<tr>
<td>117.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>118.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>119.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>120.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### III. Iyam

<table>
<thead>
<tr>
<th></th>
<th>1. Normal</th>
<th>2. Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>121. Aliiyam (Avalambagam)</td>
<td>☐️</td>
<td>☐️</td>
</tr>
<tr>
<td>122. Neerpiyam (Kilethagam)</td>
<td>☐️</td>
<td>☐️</td>
</tr>
<tr>
<td>123. Suvaikaaniyam (Pothagam)</td>
<td>☐️</td>
<td>☐️</td>
</tr>
<tr>
<td>124. Niraivuiyam (Tharpagam)</td>
<td>☐️</td>
<td>☐️</td>
</tr>
<tr>
<td>125. Ondriiyam (Santhigam)</td>
<td>☐️</td>
<td>☐️</td>
</tr>
</tbody>
</table>

### UDAL THAATHUKKAL

<table>
<thead>
<tr>
<th></th>
<th>1. Normal</th>
<th>2. Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>126. Saaram</td>
<td>☐️</td>
<td>☐️</td>
</tr>
<tr>
<td>127. Senneer</td>
<td>☐️</td>
<td>☐️</td>
</tr>
<tr>
<td>128. Oon</td>
<td>☐️</td>
<td>☐️</td>
</tr>
<tr>
<td>129. Kozhuppu</td>
<td>☐️</td>
<td>☐️</td>
</tr>
<tr>
<td>130. Enbu</td>
<td>☐️</td>
<td>☐️</td>
</tr>
<tr>
<td>131. Moolai</td>
<td>☐️</td>
<td>☐️</td>
</tr>
<tr>
<td>132. Sukkilam</td>
<td>☐️</td>
<td>☐️</td>
</tr>
</tbody>
</table>

### MUKKUTRA MIGU GUNAM

#### I. Vali Migu Gunam

<table>
<thead>
<tr>
<th></th>
<th>1. Present</th>
<th>2. Absent</th>
</tr>
</thead>
<tbody>
<tr>
<td>133. Emaciation</td>
<td>☐️</td>
<td>☐️</td>
</tr>
<tr>
<td>134. Blackish colouration of the body</td>
<td>☐️</td>
<td>☐️</td>
</tr>
<tr>
<td>135. Desire to take hot food</td>
<td>☐️</td>
<td>☐️</td>
</tr>
</tbody>
</table>
136. Tremors

137. Abdominal distension

138. Constipation

139. Insomnia

140. Weakness

141. Weakness of sense organs

142. Giddiness

143. Sluggishness

**II. Azhal Migu Gunam**

<table>
<thead>
<tr>
<th>Present</th>
<th>Absent</th>
</tr>
</thead>
<tbody>
<tr>
<td>144. Yellowish discolouration of the skin</td>
<td>□</td>
</tr>
<tr>
<td>145. Yellowish discolouration of the eye</td>
<td>□</td>
</tr>
<tr>
<td>146. Yellowish discolouration of urine</td>
<td>□</td>
</tr>
<tr>
<td>147. Yellowish discolouration of faeces</td>
<td>□</td>
</tr>
<tr>
<td>148. Increased appetite</td>
<td>□</td>
</tr>
<tr>
<td>149. Burning sensation in the body</td>
<td>□</td>
</tr>
<tr>
<td>150. Insomnia</td>
<td>□</td>
</tr>
</tbody>
</table>

**III. Iyam Migu Gunam**

<table>
<thead>
<tr>
<th>Present</th>
<th>Absent</th>
</tr>
</thead>
<tbody>
<tr>
<td>151. Excessive salivation</td>
<td>□</td>
</tr>
<tr>
<td>152. Eraippu (dyspnoea)</td>
<td>□</td>
</tr>
</tbody>
</table>
153. Heaviness of the body
154. Whiteness of the body
155. Chillness of the body
156. Reduced appetite
157. Cough
158. Increased sleep
159. Sluggishness

160. NOI UTRA KAALAM

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

161. NOI UTRA NILAM

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

162. Date of Birth

163. Time of Birth

164. Place of Birth

165. NATCHATHIRAM

1. Aswini  
2. Barani
3. Karthikai
4. Rohini
5. Mirugaseeridam
6. Thiruvathirai
7. Punarpoosam
8. Poosam
9. Aayilyam
10. Makam
11. Pooram
12. Uthiram
00.Not known  □

166.RAASI
00.Not known  □

Examination:

1. Yes    2. No    If yes,
167. Swelling  □  □    Right  □  □  Size  __________
                □  □    Left  □  □  Shape  __________
1. Normal    2. Affected

168. Skin over the swelling  □  □  __________
1. Positive    2. Negative

169. Cough impulse test  □  □  __________
1. Normal    2. Affected

170. Position of the penis  □  □  __________

115
INVESTIGATION

BLOOD

171. TC (Cells/cu.mm) : 
173. Hb (gms%) : 
174. E.S.R. (mm/hr) : 1.1/2hr 2.1hr
175. Blood Sugar (R) (mgs%) : 
176. Blood Urea (mg/dl) :
177. Serum Creatinine (mg/dl) :
178. Lipid profile (mg/dl)
   1.Total Cholesterol  
   2.HDL Cholesterol  
   3.Triglycerides  
   4. LDL Cholesterol 
   5.VLDL Cholesterol
   6.TC/ HDL Cholesterol ratio 
   7.LDL/ HDL Ratio

URINE

179. Albumin : 0.Nil 1.Trace 2.+ 3.++ 4.+++ 
180. Sugar : 0.Nil 1.Trace 2.+ 3.++ 4.+++
Deposits

<table>
<thead>
<tr>
<th></th>
<th>1. Yes</th>
<th>2. No</th>
</tr>
</thead>
<tbody>
<tr>
<td>181. Pus cells</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>182. Epithelial cells</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>183. RBCs</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>184. Crystal and cast</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>185. Urine culture</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

**MOTION TEST**

<table>
<thead>
<tr>
<th></th>
<th>1. Yes</th>
<th>2. No</th>
</tr>
</thead>
<tbody>
<tr>
<td>186. Ova</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>187. Cyst</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>188. Occult blood</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

**189. ULTRA SONOGRAPHY (Abdomen and Pelvis)**

|…………………………………………………………………………………………………………………………………………………|

**190. X – ray Chest : (PA view)**

(If necessary)

|…………………………………………………………………………………………………………………………………………………|

**CLINICAL SYMPTOMS OF ANDA VADHAM:**

<table>
<thead>
<tr>
<th></th>
<th>1. Yes</th>
<th>2. NO</th>
<th>If yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>191. Descend of the intestine into the scrotum</td>
<td>[ ]</td>
<td>[ ]</td>
<td>Unilateral</td>
</tr>
</tbody>
</table>

|…………………………………………………………………………………………………………………………………………………|

|…………………………………………………………………………………………………………………………………………………|

|…………………………………………………………………………………………………………………………………………………|

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|…………………………………………………………………………………………………………………………………………………|

|…………………………………………………………………………………………………………………………………………………|

192. Pain in the scrotum | [ ] | [ ] |

193. Swelling of the scrotum | [ ] | [ ] |

194. Reducibility | [ ] | [ ] |
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8. Theraiyar Kaapiyam
9. Athmaratchamirtham-Vaidhiya Saarasangiraham
10. Anubavavaidhiya Dheva Ragasiyam
11. Uyir kaakum Siddha Maruthuvam
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14. Siddha Maruthuvanga Surukkam
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INGUINAL HERNIA

Figure : 1

Inguinal hernia occurs when a portion of the small intestine enters the inguinal canal.

Figure : 2

Inguinal Hernia

Figure : 3

Complete Inguinal Hernia
Figure 5 ANATOMY OF A HERNIA
DOPPLER STUDY OF SCROTUM

RT. Testicle measures 3.6 x 1.0cms.
LT. Testicle measures 3.1 x 1.5cms.

Both testicles have a normal homogenous echogenicity and normal vascularity.

Inguinoscrotal swelling in left side of the scrotum.- due to hernia. No hydrocele.

No focal lesion is seen in both testicles.

Intra-testicular arteries show normal flow and spectral pattern.

The epididymis is normal.

The veins of pampiniform plexus are normal on both sides. No reflux is seen on valsalva.

IMPRESSION:

Both testicle & epididymis appears normal. Inguinoscrotal swelling in left side of the scrotum- due to hernia.

DR.K.MANOHRAN, MD, DMRD.,
CONSULTANT RADIOLOGIST.