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INTRODUCTION

The Siddha system of medicine is believed to have originated from Lord Shiva, the supreme God of Tamils and he is considered to be the chief of Siddhar. Lord Shiva taught this science to Shakthi, the Goddess and then to Nandhi, from them to common people by Siddhars. The person who attains the super natural power or perfection are called as “Siddhars”. They are super human beings mastering the wind wave, tide, gravity and other forces of nature.

Siddhars have fully investigated and explained the causes and the course of all diseases and their management. They have revealed the significance of mental health. They imparted their knowledge for the upliftment of the human life style.

Man

Man is the only being in the creation with all kinds of latent powers reaching up to the level of God. His only defect is that he doesn’t care to know that such powers are hidden in him and he has to make them patient by his perseverance.

Perfection in man’s nature is barred by maya and prevents from taking its proper course. Once this bar is removed nature rushes with all its potentialities and power.

An individual should maintain his health for the harmonious life.
In Siddha system of medicine the human body’s mechanism starts the knowledge of cosmogenesis. The nature and human beings are interrelated.

Man is said to be the microcosm and the universe is macrocosm. What exist in the universe, exist in man. The universe and its constituents including man are made up of five basic elements pancha boothams. They are Prithivi (land), Appu (water), Theyu (fire), Vayu (air) and Aakayam (space).

Alteration in ratio of panchabootham in human body leads to vitiation of three humours. Siddha system of medicine is mainly based on the humoral
theory. The three humours namely Vali, Azhal and Iyam. Any decrease (or) increase in ratio of the three humours causes disease in human body.

These three humours literally mean wind, bile and phlegm respectively Vatha, Pitha, Kabam are in different proportions 1: ½: ¼.

“வாத்துனைவின் வர்த்தகம் பிளின் கோபினை எடுத்துச் செல்லும்
நூர்ப்பை பிளின் நன்றி அலுவல் வாத்து
ஆணைகள் கூட காலன்மாற்றவைகள் காண்கதே
பிளின் கோபினை ருத்தாற்கு பின் தகச்சுமிக்கலேவை.”
- தூத்தண்டை தேநு.

The sensory and motor functions of the body is based upon 96 Thathuvams (principles) and importance of diagnosis is stated in “Theraiyar Maruthuva Bharatham”.

In Theraiyar Maruthuva Bharatham it is said that a physician must have a clear knowledge about the causative factors, normal physiological conditions, pathological changes, nature of its presentation and prognosis of the disease before treating the patient.
Disease is,

Any altered emotion which interferes with the normal gay attitudes prevailing in the soul binded body, causing an impact on the physical body itself is referred to as disease. It is of two types

- Physical disorders
- Psychological disorders like stress

Among the many physical disorders, the author has chosen the most prevalent, disturbing and distressful disorder “Vadha kundala kirecharam”. An attempt to elaborate the finest detail of this disease through the Siddha parameters has been accomplished.
SIDDHA PHYSIOLOGY

Human body is made up of two kinds of bodies.

(i) Sthula Sariram (visible body)

(ii) Sukkuma Sariram (invisible body)

Sthula Sariram includes,

Bones, muscles, blood vessels, nerves and all functional systems of human body. It is known as functional units of body.

Sukkuma Sariram,

This is the basic for Sthula Sariram. It makes the Sthula Sariram to be active.

The Universe is made up of five basic elements called

Earth (Prithivi) - பிரதிவி
Water (Appu) - வெப்ப
Fire (Theyu) - தீர்த்த
Air (Vayu) - வாயு
Space (Aagayam) - ஆகாயம்

The human body is also made up of these five basic elements.
The basic elements exist in two forms.

(i) Sthula form (இடம்பெயர்) – Recognised by our sense.

(ii) Sukkuma form (சுக்குமை) – Not recognized by our sense.

Physiology → Basic process underlying the functioning of the species.

A basic thing for functioning of human beings explained by siddhars includes

- 96 Thathuvangal
- 7 Udal thathukkal
- 6 Suvaigal

The factors which influence in functioning of human body are,

- Udal Vanmai
- Udal thee

Siddhar’s explained physiology on the basis of 96 thathuvangal (or) structural units. This explains the physical and chemical factors that are responsible for the origin, development and progression of life. They are as
## 96 Thathuvangal

<table>
<thead>
<tr>
<th>External Thathuvas</th>
<th>Internal Thathuvas</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Sthula sariram)</td>
<td>(Sukkuma sariram)</td>
</tr>
<tr>
<td>(i) Ganaenthriyam (5)</td>
<td>(i) Anthakaranam -4</td>
</tr>
<tr>
<td>• Ear</td>
<td>(ii) Arivu -1</td>
</tr>
<tr>
<td>• Nose</td>
<td>(iii) Naadi -10</td>
</tr>
<tr>
<td>• Body</td>
<td>(iv) Vayu -10</td>
</tr>
<tr>
<td>• Eye</td>
<td>(v) Aasayam -5</td>
</tr>
<tr>
<td>• Tongue</td>
<td>(vi) Kosam -5</td>
</tr>
<tr>
<td>(ii) Pori -5</td>
<td>(vii) Aatharam -6</td>
</tr>
<tr>
<td>(Functions of five sense organs)</td>
<td>(viii) Mandalam -3</td>
</tr>
<tr>
<td>• Hearing</td>
<td>(ix) Thodam -3</td>
</tr>
<tr>
<td>• Touch</td>
<td>(x) Malam -3</td>
</tr>
<tr>
<td>• Vision</td>
<td>(xi) Edanai -3</td>
</tr>
<tr>
<td>• Smell</td>
<td>(xii) Gunam -3</td>
</tr>
<tr>
<td>• Taste</td>
<td>(xiii) Vinai -2</td>
</tr>
<tr>
<td>(iii) Kanmenthriyam -5</td>
<td>(xiv) Raagam -8</td>
</tr>
<tr>
<td>(Functional organs)</td>
<td>(xv) Avathai -5</td>
</tr>
<tr>
<td>• Mouth</td>
<td></td>
</tr>
<tr>
<td>• Leg</td>
<td></td>
</tr>
<tr>
<td>• Arm</td>
<td></td>
</tr>
<tr>
<td>• Anus</td>
<td></td>
</tr>
<tr>
<td>• Genital organ</td>
<td></td>
</tr>
<tr>
<td>(iv) Kanmavidayam – 5 (Functions of Kanmenthriyam)</td>
<td></td>
</tr>
<tr>
<td>• Speech</td>
<td></td>
</tr>
<tr>
<td>• Movements through legs</td>
<td></td>
</tr>
<tr>
<td>• Flexion and extension of arm</td>
<td></td>
</tr>
<tr>
<td>• Defaecation</td>
<td></td>
</tr>
<tr>
<td>• Evacuations of semen and ovum, contributes coitus</td>
<td></td>
</tr>
</tbody>
</table>
Seven Constituent Elements (7 Udal thathukkal)

1. Saaram – It enriches the functions of body and mind.
2. Senneeer (Blood) – It makes the basic functions of body perfect.
3. Oon (Muscle) – It gives structure to our body and gives supports to joints.
4. Kozhuppu (Fat) – Gives lubrication to our body organs to move.
5. Enbu (Bone) – It gives skeletal structure to body and protection
6. Moolai (Bone marrow) – It gives stability to bone.
7. Sukkilam / Suronitham – It helps to produce the new generation.

Aruusuvaigal – We get from foods.

It has linked to Uyirthathu, Panchabootham and body functions.

- Sweet - Mann + Neer
- Sour - Mann + Thee
- Salt - Neer + Thee
- Bitter - Vayu + Aagayam
- Pungent - Vayu + Thee
- Astringent - Mann + Vayu
Uyir thathukkal

Vali - Vayu + Aagayam
Azhal - Thee
Iyam - Neer + Mann

Any alteration takes place in suvaigal, affects the uyirthathu and body functions.

Arusuvai (alterations)

↓

Uyirthathukkal (alterations)

↓

Diseases (Noi)

14 Reflexes – Vegams

These are

- Flatus
- Urine
- Yawning
- Thirst
- Relaxation
- Vomit
- Semen
- Sneezing
- Faeces
- Hunger
- Cough
- Sleep
- Tear
- Breath

If we control (or) repress any one of the above 14 reflexes, it will produce the disease.
Udal vanmai – Three types

1. Iyarkaivanmai - Innate immunity
2. Seyarkaivanmai - Acquired immunity
3. Kalavanmai - Seasonal immunity

Udal Thee - Four body fires

The normal digestive fire is called as Sadarakini and it is a combination of Samana vayu, anilapitham and kiletha kapham.

Anila pitham is predominant while samana vayu takes the saaram to various parts of the body and maintains the functions of udhana and abana vayu, and kiletha kapham moisture the food in the digestive process.

1. Samaakini

When the sadarakini is normal with the proper balance of the three constituents of it, it is called as samaakini. The balanced diet of an individual is properly digested in time.

2. Mandhakini

An increased kiletham with the deficiency of anilapitham causes this condition, in which food is poorly digested and the process of digestion takes a longer time.
3. **Deekshanakkini**

   An increased anilapitham with the deficiency of kiletham leads to this condition, causing excessive digestive fire burning a larger quantum of food in a lesser time.

4. **Vishamakini**

   The Samana vayu is mostly affected thereby causing irregular prolonged digestion and may make the food, poisonous.
SIDDHA PATHOLOGY

Siddha pathology is called as “Kugarana Nilai”. If there is any change in physiological principles it may lead to pathological condition called as “Noi” (disease).

Pathology

This is the medical science and speciality practice, that deals with all aspects of the disease. The study of the cause and development of the disease as well as the structural and functional changes in the body that results from the disease is called as pathology.

Siddha Pathology

The derangement in the Arusuvaigal, Panchabootham, Mukkuttram and seven Udalkattugal etc form the basic pathology in the Siddha science. There are six suvaigal, each suvai is a combination of two boothas. So suvai has influence over Uyir thathukkal and associated with seven Udal thathukkal.

Thus the suvaigal, panchabootham, mukkuttram and udal kattugal are interlinked with one another. The right proportion of these factors in the body remains in physiological conditions and the proportion gets deranged in pathological conditions.
Disease

The disease literally means without ease, (uneasiness) the opposite of ease. It is a condition of the body (or) some part (or) organ of the body in which its function are deranged (or) disrupted.

“புகையாறன் பதிலிபி புரிந்து என்னும் குறிப்பிட்டு வரும்
துண்டு சுருக்கம் உயர் ஒரு கொழும் பிள்ளையான
விளையாட்டு குறிப்பிட்டு விளையாட்டு கூடுதல் மாரு
பாது காதல்களை போற்ற விளையாட்டுகள்
இல்லை மதிப்பிட்டு குறிப்பிட்டு வருமா குற்றியை”

- கோவிலுக்கும் பொறி

The following synonyms are used to mention the noi in siddha system.

- Pini
- Varutham
- Achcham
- Thunbam
- Urogam
- Sugaveenam
- Viyaathi
- Asoukkiyam
Classification of diseases

Siddhars have identified 4448 diseases. They have classified the diseases mainly on the basis of three humours and its thontha states.

The diseases are diagnosed by the classical method called “Envagai Thervugal” and other “Specific parameters” which are explained in Siddha literatures.

Aetiological factors

1. According to Theran Karisal

“இரஞ்சுற்பெருந்தோற்ற இரஞ்சுற்பெருந்தோற்ற கொறைமிக
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இரஞ்சுrif the classical method called “Envagai Thervugal” and other “Specific parameters” which are explained in Siddha literatures.
1. Kanmavinai
2. Dietary factors
3. Emotion and excitement
4. Starvation and fasting
5. Improper water intake
6. Directly seeing the sun with naked eye
7. Sexual contact with diseased lady etc

In siddha system of medicine the etiological factors are generally explained in three categories

1. Agakkaranam – Intrinsic factors
2. Purakkaranam – Extrinsic factors
3. Kanmam – Genetic factors
I. Intrinsic Factors

It is mainly concerned with

1. Diet
2. Derangement of mukkuttram
3. Alteration of seven Udal kattukal
4. Drugs
5. Suppression of Vegangal

II. Extrinsic Factors

It is mainly concerned with

1) Environmental changes
2) Seasonal changes
3) Nilam
4) Occupation
5) Ozhukkam
6) Omission of preventive aspects

Adverse intrinsic or extrinsic factors can cause disease which is quoted as follows

“தொன்றிலை பொதுவிலை காரணத்தால் பாத்தை
ஒன்றும் பின்னான் பெருக்கமாக காது”

-கசிபுஞ்சா பிரஜி
III. Kanmam - Genetic factor

Kanmavinai is mentioned as an important cause for disease.

Alteration in Uyir Thathukkal

The three humours in equilibrium, maintains the health and when there is imbalance may produce disease. In the imbalanced state (increase or decrease) the humours produce symptoms which are tabulated below

TABLE - 1

<table>
<thead>
<tr>
<th>Humour</th>
<th>Increase</th>
<th>Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vali</td>
<td>Abdominal distention, constipation, weakness, insomnia, tremors, breathlessness, blackish discolouration.</td>
<td>Body pain, feeble voice syncope, poor brain function.</td>
</tr>
<tr>
<td>Azhal</td>
<td>Yellowish discolouration of the eyes, skin, urine and stools, polyphagia, polydypsia, burning sensation all over the body, sleeplessness.</td>
<td>Cold, pallor, poor appetite, symptoms associated with growth of kabham.</td>
</tr>
<tr>
<td>Iyam</td>
<td>Loss of appetite, excessive salivation, heaviness, dyspnoea, excessive sleeping, white complexion, diminished activity.</td>
<td>Prominence of bone edges, dry cough, lightness, profuse sweating, palpitation, giddiness, dryness of joints.</td>
</tr>
</tbody>
</table>
Due to the relationship between Arusuvai, Mukkuttram and Panchabootham, we have to supplement the diet with opposite taste in managing the disease.

**Alteration in Udal Thathukkal**

Once the functional elements vatham, pitham, kabam get upset, repercussions are felt immediately over the somatic components due to the derangement of udal kattugal. The derangement (increase or decrease) of these seven components produce some symptoms.
<table>
<thead>
<tr>
<th>S.no</th>
<th>Components</th>
<th>Increased features</th>
<th>Decreased features</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Saaram</td>
<td>Loss of appetite, Profuse salivation, Depression etc.</td>
<td>Loss of weight, dryness of the skin and diminished activity of the sense organs.</td>
</tr>
<tr>
<td>2.</td>
<td>Senneer</td>
<td>Increased blood pressure, Reddish eye and skin, Jaundice, Haematuria, Boils and tumours in different parts of the body, Spleenomegaly etc.</td>
<td>Dryness, Discolouration and paleness of the skin and desire for cold things.</td>
</tr>
<tr>
<td>3.</td>
<td>Oon</td>
<td>Tumours or extra growth around the neck, face, abdomen, thigh and genitalia.</td>
<td>Lethargy of five sense organs, Pain in the joints, Loss of subcutaneous fat.</td>
</tr>
<tr>
<td>4.</td>
<td>Kozhuppu</td>
<td>Identical to increasing features of oon, tiredness and dyspnoea on exertion.</td>
<td>Loin pain, emaciation and spleenomegaly.</td>
</tr>
<tr>
<td>5.</td>
<td>Enbu</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</td>
<td>Non-healing ulcers, Swelling of smaller joints of hand and feet, Oliguria, Sense of heaviness of the body and eyes.</td>
<td>Osteoporosis, Blurring of vision.</td>
</tr>
<tr>
<td>7.</td>
<td>Sukkilam / Suronitham</td>
<td>Increased sexual activity, Urinary calculi.</td>
<td>Pain in the genitalia, inability to reproduce.</td>
</tr>
</tbody>
</table>
Alteration In Reflexes (14 Vegangal)

There are 14 natural reflexes involved in the physiology of normal human beings and if willfully suppressed, the following are resulted.

“பற்றியவர்களுடனே பெரித்து ஆராக்கிய நிலையில்
சிறிய பெரும் காற்றுகளுடன் வீட்டு சிருந்தும்பு
நுண்ணுருக்காலம் விளைவுப் பகுதிகள் வாய்ப்பாடுகளில்
நுண்ணுருக்கு பிள்ளையார்கள் காப்பு சூட்டப்படுகின்றது.”

- சிறிய வர்களுடன் காற்று

1. Vatham (Flatus)

This urge should not be suppressed. If it is suppressed it leads to chest pain, epigastric pain, abdominal pain, body ache, constipation, dysuria and indigestion predominates.

2. Thummal (Sneezing)

If suppressed it leads to headache, facial pain, low back pain and neuritic pain in the sense organs.

3. Siruneer (Urine)

If suppressed it leads to urinary retention, urethral ulcer, joint pain, pain in the penis, gas formation in abdomen.
4. Malam (Faeces)

If suppressed it leads to pain in the knee joints, headache, general weakness, flatulence and other diseases may also originate.

5. Kottavi (Yawning)

If suppressed it leads to indigestion, leucorrhoea, abdominal disorders and urinary disorders.

6. Pasi (Hunger)

If suppressed it leads to the tiredness of all organs, emaciation, syncope, apathetic face and joint pain.

7. Neer vetkai (Thirst)

If suppressed it leads to the affection of all organs and pain may supervene.

8. Kaasam (Cough)

If it is suppressed severe cough, bad breath and heart diseases will be resulted.
9. Ilaippu (Exhaustiveness)

If suppressed it will lead to fainting, urinary disorders and rigor.

10. Nithirai (Sleep)

All organs will get rest only during sleep. So it should not be avoided. If disturbed it will lead to headache, pain in the eyes, deafness and slurred speech.

11. Vaanthi (Vomiting)

If suppressed it leads to itching and symptoms of increased pitham.

12. Kanneer (Tears)

If it is suppressed it will lead to sinusitis, headache, eye diseases and chest pain.

13. Sukkilam (Semen)

If it is suppressed there will be joint pain, difficulty in urination, fever and chest pain.

14. Swaasam (Breathing)

If it is suppressed there will be cough, abdominal discomfort and anorexia.
ENVAGAI THERVUGAL

This is a unique method of the Siddha system for diagnosing the disease.

“தமது அம்மியக் காற்று தம்மிலிருந்து

வாத புறக்குறிக்கை மேற்குறிப்புப்படும்”

“மாண்கமுத் திருங்கிளரின் நீர் தாவில் வாத் காண்கும்”

- இதுவாக

“குறுக்கல்லற்ற அறமுக்குப் பாகம் கைண்டை

குறுக்கல்லற்றப் பாகம் கைண்டைப்

பாகியில் காணல் என பிரித்தத் தோனை

பாகியில் இணைக்கும் வெளியில் பாதை

வழிவல சிறுத்தில் குறிப்பிட்டம் பாதை

சிறுகிய மலர்தலை பாதை சுற்றாக்கை பாதை

சாத்தூது அழிக்கும் பாதை எளிதாகக் காணலாம்.”

- என்றுப் போன்று 600

According to Siddha aspect, there are eight parameters which are used to diagnose the diseases.
• Naa (Tongue)
• Niram (Colour)
• Mozhi (Speech)
• Vizhi (Eye)
• Sparisam (Sense of touch)
• Malam (Stool)
• Moothiram (Urine)
• Naadi (Pulse)

On accessing the variations in the above said tools, the physician can find out the derangements of three humours and come to a proper diagnosis.

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 etc.,
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 eyebrow and eyelids 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.

- Neerkkuri and
- Neikkuri

Neerkkuri

Here the Niram (colour), Manam (smell), Nurai (frothy nature), Edai (specific gravity) and Enjal (quantity) of the voided urine are noted.

Neikkuri

“அந்தாம் பிடியும் அவிதத்திற்கு
நான் அன்று அவளானவும் திகழ்கிறாள்
நான் செய்ய வலம் காட்டுகற்றின்
நான் கூறினே காட்டும் நாட்டியே
நான் கூறினே நூற்றுக்கு நின்றினே
நான் கூறினே நூற்றுக்கு நின்றினே கூறு”

- வேலையாளா
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 to be collected in a clean glass container and examined within one hour. A drop of gingelly oil is to be dropped on the surface of urine and seen under direct sunlight. By this method, the character of three humours is accessed.

- Vaatha Neer spreads like a serpent.
- Pitha Neer spreads like a ring.
- Kabha Neer remains like a pearl.
- Combination of the above shapes indicates Thonda 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 $1: \frac{1}{2}: \frac{1}{4}$.

> “அழைச்சியன் மருத்நரோகங்களை வயந்திகளுடன்
> காலமில்லற்சபையில் அர்த்தியடியை காட்டிக்கொள்ள கற்றுநிற்பாயில்
> பிப்பாய் தாத்துநிற்பைச் சாதுமையைப்புத்தைய.”

- சாமேநாமல்

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

The author had selected the disease “Vadha Kundala Kirecharam” for dissertation work because,

This disease is more common in female than male, but it can affect both sex and all age groups.

The patients are disturbed both functionally and psychologically. Its generalized occurrence and agony undergone by the patients has made the author choose the disease.

AIM

To study the disease on the basis of Siddha physiology, Siddha pathology emphasizing more importance to Mukkuttram, Suvaigal, Panchabootha theory, Aayul thoda nirnayam, Udal thadhukkal and diagnose the patient on the basis of Envagai thervugal and confirm the prognosis of the disease through “Neikuri”.
OBJECTIVES

The objectives marked out to aspire the above said words.

- To collect all literary evidences about kirechara disease in detail.

- To study each and every aspect of the disease “Vadha kundala kirecharam” in the topic of its synonyms of definition, aetiology, classification, signs and symptoms, humoral pathogenesis, fate of the disease from various literature in Siddha aspect.

- To concentrate the clinical course of the disease “Vadha Kundala Kirecharam” by observing carefully its aetiology, pathogenesis (Mukkuttra Verupadu) clinical features, diagnosis and prognosis in patients.

- To study in detail about the incidence of the disease with age, sex, occupation, thinai, socio-economic status, habits and prevalence.

- To confirm the diagnosis in Siddha system with the help of modern parameters.
ELUCIDATION ABOUT VADHA KUNDALA KIRECHARAM

According to the Literature Dhanvanthri Vaithiyam – Part-II “Vatha Kundala Kirecharam” has been described as under.

The meaning of the words in this poem.

* “நாலன்பத்தியர் பாலாக்கின் கடவுள் மகாமகனும் குடும்பநின்று மீள்வது குருதுகளும் பேசுவதில்லையால் குஞ்சிகுந்த கோலமானும் குலப்பர்சை போக்கும் கூடியார் மலர்த்தை குறிப்பிட்டுதல் மாற்றல்லை வாழ்வில்.”

- ஆங்கிலத்திய மொழிபொருள்: II

- தமிழகத்திய மொழிபொருள்: II

The meaning of the words in this poem.
<table>
<thead>
<tr>
<th>தமிழ்</th>
<th>&quot;தின்பருவம்&quot;</th>
<th>Comfortable</th>
</tr>
</thead>
<tbody>
<tr>
<td>குறுகிய மருந்து</td>
<td>&quot;சிறுந்தி, அருகி, பந்து&quot;</td>
<td>Urine</td>
</tr>
<tr>
<td>மூலம்</td>
<td>&quot;சிறுந்தி, காசியம், புச்சுவாக&quot;</td>
<td>Discontinue</td>
</tr>
<tr>
<td>தனிப்பாட்டு</td>
<td>&quot;துற்றி, குழுவாய், புச்சுவாக&quot;</td>
<td>Dribbling</td>
</tr>
<tr>
<td>பார்வை</td>
<td>&quot;அழுத்தம்&quot;</td>
<td>pain</td>
</tr>
<tr>
<td>குறுகிய மருந்து</td>
<td>&quot;அரிச்சு, விற்பனைத் தொடர், பலி&quot;</td>
<td>burning sensation</td>
</tr>
<tr>
<td>தொடர்வலை</td>
<td>&quot;அரிச்சு, பலி, பலி&quot;</td>
<td>pain</td>
</tr>
<tr>
<td>நீர்ப்பலை</td>
<td>&quot;உன்னையுன்னை&quot;</td>
<td>boring pain</td>
</tr>
<tr>
<td>குறுகிய மருந்து</td>
<td>&quot;அரிச்சு, உருப்பாய், பலி&quot;</td>
<td>burning sensation</td>
</tr>
<tr>
<td>பார்வை</td>
<td>&quot;உயிரில்&quot;</td>
<td>Inflammation</td>
</tr>
<tr>
<td>பிள்ளைகள்</td>
<td>&quot;தூக்கை, தட்டணம், வெட்டணல்&quot;</td>
<td>Grief</td>
</tr>
<tr>
<td>குறுகிய மருந்து</td>
<td>&quot;உன்னையுன்னை, பலி&quot;</td>
<td>Physical pain</td>
</tr>
<tr>
<td>பார்வை</td>
<td>&quot;அரிச்சு&quot;</td>
<td>Pain</td>
</tr>
<tr>
<td>குறுகிய மருந்து</td>
<td>&quot;அரிச்சு, உருப்பாய், பலி&quot;</td>
<td>Anus</td>
</tr>
<tr>
<td>முப்பாண்டையில்</td>
<td>&quot;முன்னையுடைய&quot;</td>
<td>Abdominal distension</td>
</tr>
<tr>
<td>பார்வை</td>
<td>&quot;நீர்ப்பலை&quot;</td>
<td>Abundance</td>
</tr>
<tr>
<td>பார்வை</td>
<td>&quot;நீர்ப்பலை&quot;</td>
<td>Pain</td>
</tr>
<tr>
<td>பார்வை</td>
<td>&quot;நீர்ப்பலை&quot;</td>
<td>Excess</td>
</tr>
</tbody>
</table>

To increase.
- Discomfort during micturition
- Dribbling of Urine.

- Painful burning micturition
- Scalding pain during urination

- pain in the perineal area and supra pubic region
- Abdominal distension due to retention of urine
Thus, Dhanvantri’s lines can be summarised as follows

- Severe pain due to obstruction of urethral passage.
- Discomfort during micturition
- Dribbling of Urine
- Burning micturition
- Scalding pain during micturition
- Pain in the supra pubic region and perineal area.
Diseases of urinary system is well explained in many Siddha Literatures.

In Theran karisal,

"தொருள் விதையாக அல்லாம்
தொருள் விதையாக வேளாம்
தொரையல் சுற்றுக்கேற்றினும்
தொரையல் சுற்றுக்கேற்றினும்
தொருள் புலிய செய்யலும்
தொரையல் விதையாகவேற்றினும்"  
- சூரு கரிமல

In this poem Theran explains the classification of urinary diseases as,

- Neer Arugal Noi
- Neer Perugal Noi

Among these, the “Kirechara disease” is under the classification of Neer Arugal Noi.

Regarding Moothira kirecharam, etiology, clinical features and classification has been described in various texts.
Synonyms

- Neer churuku,
- Neer arukal
- Neer Kaduppu.
- Neer kattu

Definition

According to Anubava Vaidhiya Deva Ragasiyam.

"கிரெச்சரம் நரம்பு லாதிக்கும்போது பெருந்து பெருமானை குறிப்பிட்டு விளகிக்கப்படுகின்றது.

- அந்தவை சாதாரண சூழலில்.

Kirecharam is referred as dribbling of urine accompanied with pain.

According to Pararasa sekaram…

"தி விளங்கும் நரியினமல்லியால்
செற்று விளங்கும் பாராசைந்த
என்று விளங்கும் பராசைந்தமை
மிகுதியுடைய குறிப்பிட்டு
பூக்கும் மலர்பின் புலித்தல்லாம்
பிண்ணமும் மாலையும்
பிண்ணமும் மாலையும்
கொரோகை மாலையும் கிரெச்சரம்
செற்று விளங்கும் கிரெச்சரம்"

- பராசைந்த
The disease is characterized by

- Voiding small amount of urine
- Dribbling of urine
- Yellowish discoloration of urine
- Haematuria
- Dysuria
- Burning micturition
- Lower abdominal pain and discomfort.

According to Theraiyar Karisal

Obstruction of the urethral passage, causing retention of urine or discharge by other unusual ways, urine dribbling out after micturition. There is also frequently sudden stoppage of the stream of urine owing to the contraction of urethra.
According to Theraiyar vagadam

“The disease is characterized by

- Dribbling of urine
- Burning micturition
- Dysuria
- Unable to walk even for a short distance.

Noi varum vazhi: (Etiology)

“The disease was caused by heat, wind, or poison.

- Heat
- Wind
- Poison

- Heat
- Wind
- Poison

- Heat
- Wind
- Poison

- Heat
- Wind
- Poison”

- Dharanikottai Vadakkirevathu
- Increased intake of hot and spicy food
- Indigested food
- Excessive indulgence in sexual activity
- Alcoholism
- Excessive intake of high calorie food.

According to yugi “Vaithiya Chinthamani”

“தினக்கொடுக்கும் வேறுபாடு பலாக்கி
நூறுக்கால் கானில் புரிகண்டு
தினக்கொடுக்கும் வேறுபாடு பற்றிக் கூற்றுக்கு
சேமகற்று சால வேறுபாடு பற்றிக்கு
தினக்கொடுக்கும் வேறுபாடு பற்றிக்கு
சேமகற்று சால வேறுபாடு பற்றிக்கு
தினக்கொடுக்கும் வேறுபாடு பற்றிக்கு
சேமகற்று சால வேறுபாடு பற்றிக்கு

- Cheating damsels
- Eating food while child is in hunger
- Not providing water to thirsty people
Taking excessive carbohydrates

Taking excessive food at irregular times

Having sex at daytime

Taking milk in the daytime

Sleeping in the day time and late nights

Excessive chewing of tobacco like products

Working in a hot place.

According to Mega Noi, Soothaga Noi and Arivaiyar Sinthamani

“According to Mega Noi, Soothaga Noi and Arivaiyar Sinthamani:

Taking excessive carbohydrates

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Taking excessive carbohydrates

Taking excessive food at irregular times

Having sex at daytime

Taking milk in the daytime

Sleeping in the day time and late nights

Excessive chewing of tobacco like products

Working in a hot place.”
• Intake of carbohydrate rich diet
• Untimely food habits
• Noontime sexual indulgence
• Daytime sleeping
• Intake of excess toddy
• Exposure to high temperature
• Intake of hot and spicy food
• Exposure to fore noon sunlight
• Abnormal sexual activity
• Extramarital sex affair.

According to **Saraha Samhitha**

• Excessive job stress
• Taking very efficacious medicines
• Intake of toddy
• Fast running
• Taking excess non – vegetarian diet
• Taking undigested food.

According to **Jeeva Rakshamirtham**

• Taking food in untime
• Daytime sleeping
• Excessive indulgence in sexual activity
• Daytime sexual activity
• Exposure to sunlight
• Exposure to high temperature
• Taking narcotics.
According to Siddha Vaithiya Gurugulam

»ççru«

nehŒ tU« tê

»ççrukhfdJ Ù®®JthušfěY¥s rîÝ RUjkltAdhY«, Ù®®jhiuæš J®khr ts®çÁ c®IhtjhYk V‰gL»wJ. Àunkf nehŒ c®Ihdt®fSînf _Àu »ççru nehŒ mÅfkhf V‰gL»wJ.

Types

In Dhanvanthiri vaidhiyam Moothira kirecharam is classified into 10 types.

“அதிசெது வகைகள் மத்குரல் வகிமகத்து
காண்டுக்கு பிற்குறிகள் கூறுக்குயிக்கின்ற கூறு
அதிசெது வகையான வகையளவு வகித்து
எதிர்த்து வகைக்குள் வகித்து வகித்து
சூட்டிப் வரியவாகின் சமாரங்கம் பவற்றுக்கும்”

- கல்லந்தான் பங்களிப்பு
1. Vaadha kirecharam
2. Pitha kirecharam
3. Kaba kirecharam
4. Sanni vaadha kirecharam
5. Moothira kiranadi kirecharam
6. Sukila kirecharam
7. Moothira kaadha kirecharam
8. Sakkara kirecharam

9. **Vadha kundala kirecharam**

10. Vadha vathi kirecharam

In Siddha system various types of Moothira kirecharam are described in various text books.

**I. According to Yugi vaithiya Chindhamani 800**

“தீர்த்தை சிறிக்கும் விஷயத்துக்கு காலத்துக்கு

விமூர்த்து தனித்து கிருத்தம்

எனில் எது இந்தக் காலத்துக்கு

நூற்றாண்டு பிட்ச்து இந்தக் காலத்துக்கு

முப்பத்து கிருத்தம் இந்தக் காலத்துக்கு

முடன் பெரும்புறந்து இந்தக் காலத்துக்கு

துறுமிலிங்கு சிறிக்கும் விஷயத்துக்கு


- புத்திய சிறிக்கும் விஷயத்துக்கு 800

1. Vaadha kirecharam
2. Pitha kirecharam
3. Kaba kirecharam

**II. According to Para Rasa Sekaram**
III. According to Mega noi, Soothaga noi and Arivaiyar Sindhamani

"ஏனையியம் கிரித்தாம் காள் காலையிலும்

லங்குபரப்பில் பார் கிரித்தாம் காள் தலை

லோபியும் பிற்று கிரித்தாம் வர்ப்ப கிரித்தாம்

மியாள செழியில் கிரித்தாம் காள்

பெருமாள் சிட்டா ராஜ்கிரித்தாமணவா

பொன்னா பக்து பாவியார்கள் வாழ்க்கையாக

வாடையில்லாம் காணாமல் பொன்னடாம அழுமிங்காக.

1. Vaadha kirecharam
2. Pitha kirecharam
3. Kaba kirecharam

IV. According to Anuboga Vaithiya Deva Ragasiyam
1. Vadha moothira kirecharam
2. Pitha moothira kirecharam
3. Kaba moothira kirecharam
4. Thiri thoda moothira kirecharam.

V. According to **Jeeva Rakshamirdham**
   1. Vaadha kirechara rogam
   2. Pitha kirechara rogam
   3. Kaba kirechara rogam
   4. Thiri thoda kirechara rogam.

VI. According to **Sikitcha Rathna Theebam**
   1. Vaadha kirechara rogam
   2. Pitha kirechara rogam
   3. Kaba kirechara rogam
   4. Thiri thoda kirechara rogam.

VII. In **Roga Nirnaya Saram**
   1. Vaadha kirechara noi
   2. Pitha kirechara noi
   3. Kaba kirechara noi
   4. Mukkutra kirechara noi.

VIII. According to **Saraga Samhitha**
<table>
<thead>
<tr>
<th></th>
<th>Tamil</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>வெட்டு வேறு வீதியில் முழுமையாக விளைவு செய்யும் கருத்துத் தீடு வருடன்</td>
<td>Due to Vadham</td>
</tr>
<tr>
<td>2</td>
<td>பிளது வேறு வீதியில் முழுமையாக விளைவு செய்யும் கருத்துத் தீடு வருடன்</td>
<td>Due to Pitham</td>
</tr>
<tr>
<td>3</td>
<td>கபச் வேறு வீதியில் முழுமையாக விளையாட்டு வருடன்</td>
<td>Due to Kabam</td>
</tr>
<tr>
<td>4</td>
<td>கனவார வேறு வீதியில் முழுமையாக விளையாட்டு வருடன்</td>
<td>Due to Mukkutram</td>
</tr>
<tr>
<td>5</td>
<td>கேல் அனுபவிகள் முழுமையாக விளையாட்டு வருடன்</td>
<td>Due to Calculi</td>
</tr>
<tr>
<td>6</td>
<td>மேள்கள் இயல் முழுமையாக விளையாட்டு வருடன்</td>
<td>Due to deposition of salt material</td>
</tr>
<tr>
<td>7</td>
<td>வில்லைக் குழா கடுமையாக விளையாட்டு வருடன்</td>
<td>Due to deposition of clotted semen</td>
</tr>
<tr>
<td>8</td>
<td>மேல்கள் மறு வீதியில் விளையாட்டு வருடன்</td>
<td>Due to deposition of clotted blood.</td>
</tr>
</tbody>
</table>

**IX. According to Madhava Nidhanam**

1. Vadha Moothira Kirecharam  
2. Pitha Moothira Kirecharam  
3. Kaba Moothira Kirecharam  
4. Sannipatha Moothira Kirecharam  
5. Koothaja Moothira Kirecharam  
6. Pureeshaja Moothira Kirecharam  
7. Acharisha Moothira Kirecharam  
8. Sukkaraja Moothira Kirecharam
DISEASES WITH SIMILAR SYMPTOMS OF VADHA KUNDALA

KIRECHARAM

According to Roga Nirnaya Saaram

motæ%%;% š nehÎ

_πÂuthj FCîlè

fhuë« - thÎ

According to Siddha Vaidhya Gurukulam

F¿Fz§fÝ

mo¡fo Kîfš, Úçw§fhkš Jœajš, _πÂu¥ig fdojš, Ú®ajhiuæš RUjf«. Ú® ĀçÎ«
nghJ JëgJëahf btë¥gîš. c£NL Kjëa Fz§fÝ c©lhF«.

According to Dhanvantri Vaidhyam part I

_πÂuhtuz thj«

fhπÂu§ fLiF Kâfdoj Ú®j fLajiliFŠ

N=Âu ÙuhH=Â% RUjbfd éjdK©lhŠ

rhπÂu« tænwôJŠ ršry äŠrj fhQ

_πÂuh tuzthj ãJbtd bkhêayhnk.

ΩµÛâ: tæW fdkh» Ú®jFHæ K®9oL«.

ÁWÚ® éLifæš RWjbfW Fajš tè V®gL«.
According to Siddha aspect, Azhal is said to be the protective agent of all activities of our body.

According to Thirumoolar,

“பிரிக்கினி சிற்றம் சூரையுரியாலிலே”

It means place of the Azhal in the body is urine.

According to Yugi Muni,

“வாழ்களைந்த பிற்றலிற் செய்விலே காட்டு

சுவாமி காலைத்தியன் கிழாலம்”

It means place of the Azhal in the body is below the neck.

Azhal is formed by the bootham Theyu (Fire). The function of Azhal is to govern all the body’s conversion processes as well as its heat and energy producing capacities.
Azhal circulates in the body system in different types and help in the digestion and absorption of food and other general physiological functions of the body. Each type of Azhal has different functions. They are responsible for maintaining good health. When some of the environmental factors like diet and immoral activities disturb the Azhal, it loses its control which may be diminished or exaggerated. This may lead to Azhal noigal.

Irregular food habits and behavioural changes will affect the balance between the three humours which in turn create a change in the seven udal thathus, resulting in the sprouting up of diseases in the body. The three humours maintain the upkeep of the body through their combined functioning. When they get deranged, they bring about diseases.

“அரித என்னவுசாள்ள விலித பாதுகாப்புகளும்
அரித மத பாதுகாப்பு உற்பத்தியும்
அரித வந்ததுப் பாதுகாப்புகளும்
அரிதந்து கல்லிய விலித பாதுகாப்பு.”

- குறுநாதர் மதுமுனிவு
Irregular food habits

- Intake of spicy food
- Undigested food
- Intake of high caloric food

Irregular Behaviours

- Excessive indulgence in sexual activity
- Excessive intake of alcohol

Azhal Increased

Vali Increased

Kirechara Noi

Pathogenesis of Vadha Kundala Kirecharam

“நிலையுற்ற தூடு வாக்காலம்”

When infection occurs in the urinary bladder Vadham is the first humour to get affected. If the infection is not treated properly with medicines, Azhal humour will get increased and lead to inflammation in the bladder wall.

This increased Azhal humour will also increase the already deranged Vali humour along with it, which leads to thickening of the bladder wall.
But Iyam is not proportionately increased with Vali and Azhal. This results in imbalance between the three humours which results in the disease Vadha Kundala Kirecharam.

**PATHOGENESIS**

Azhal $\uparrow$

**Inflammation**

Yellowish urination

Burning micturition

Vali $\uparrow$

**Bladder wall thickening**

Dribbling of Urine

Painful Urination

Iyam $\downarrow$

**Yellowish urination**

**Pain in the lower abdomen**

**VADHA KUNDALA KIRECHARAM**
Fate of the disease

If not properly treated in time with medicines, the infection and inflammation of the urinary bladder will spread and results in ascending infection of urinary tract, which involves the ureters and kidneys.

In this stage Iyam will get increased and the infection of the kidneys may result in pus formation and end up with acute renal failure.

Repeated infections of the urinary bladder and consequent healing with fibrosis of the bladder wall may result in carcinoma of the bladder wall.

Changes in Uyirthathukkal

TABLE -3 ALTERED CHARACTERS OF VALI

<table>
<thead>
<tr>
<th>Increased Vali</th>
<th>Changes Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Praanan</td>
<td>Increased appetite, Dyspnoea on exertion</td>
</tr>
<tr>
<td>Abaanan</td>
<td>Dribbling of urine, Disturbance in urine flow, Retention of urine</td>
</tr>
<tr>
<td>Viyaanan</td>
<td>Painful burning micturition, pain in the perineal region and supra pubic region.</td>
</tr>
<tr>
<td>Samaanan</td>
<td>Abdominal distension, Increased appetite</td>
</tr>
<tr>
<td>Naagan</td>
<td>Poor Concentration</td>
</tr>
<tr>
<td>Koorman</td>
<td>Diminished vision due to cataract</td>
</tr>
<tr>
<td>Kirukanaran</td>
<td>Increased appetite, Increased salivation</td>
</tr>
<tr>
<td>Devathathan</td>
<td>Tiredness, Weakness, Disturbance of sleep due to frequent urination.</td>
</tr>
</tbody>
</table>
### TABLE – 4 ALTERED CHARACTERS OF AZHAL

<table>
<thead>
<tr>
<th>Increased Azhal</th>
<th>Changes Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anilam</td>
<td>Increased appetite</td>
</tr>
<tr>
<td>Ranjagam</td>
<td>Pallor, tiredness</td>
</tr>
<tr>
<td>Sathagam</td>
<td>Difficulty in emptying the bladder unable to control the urine.</td>
</tr>
<tr>
<td>Aalosagam</td>
<td>Disturbance in vision due to cataract</td>
</tr>
<tr>
<td>Praasagam</td>
<td>Wrinkles of skin, Dryness of skin.</td>
</tr>
</tbody>
</table>

### TABLE – 5 ALTERED CHARACTERS OF IYAM

<table>
<thead>
<tr>
<th>Decreased Iyam</th>
<th>Changes Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avalambagam</td>
<td>Dyspnoea on exertion</td>
</tr>
<tr>
<td>Kiletham</td>
<td>Increased appetite</td>
</tr>
<tr>
<td>Tharpagam</td>
<td>Burning sensation in the eyes</td>
</tr>
<tr>
<td>Santhigam</td>
<td>Pain in the joints</td>
</tr>
</tbody>
</table>
# TABLE -6 ALTERED CHARACTERS OF UDALTHATHUKKAL

<table>
<thead>
<tr>
<th>Udalthathukkal</th>
<th>Changes Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Saaram</strong></td>
<td>Generalised weakness, Dyspnoea on exertion</td>
</tr>
<tr>
<td><strong>Senneer</strong></td>
<td>Anaemia, Fatigability</td>
</tr>
<tr>
<td><strong>Oon</strong></td>
<td>Lethargy of five sense organs, pain in the joints</td>
</tr>
<tr>
<td><strong>Kozhuppu</strong></td>
<td>Difficulty in emptying the bladder unable to control the urine</td>
</tr>
<tr>
<td><strong>Enbu</strong></td>
<td>Pain in the joints, Hairfall</td>
</tr>
<tr>
<td><strong>Moolai</strong></td>
<td>Pain in the joints, tiredness, dullness of vision</td>
</tr>
<tr>
<td><strong>Sukkilam / Sronitham</strong></td>
<td>Increased sexual desire, menstrual disturbance</td>
</tr>
</tbody>
</table>
### TABLE - 7

**INTERPRETATION OF ENVAGAI THERUVUGAL**

<table>
<thead>
<tr>
<th>Ennvagai Thervugal</th>
<th>Changes observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naa</td>
<td>Increased salivation</td>
</tr>
<tr>
<td>Niram</td>
<td>Pallor of the skin and Conjuctiva</td>
</tr>
<tr>
<td>Mozhi</td>
<td>Sama oli</td>
</tr>
<tr>
<td>Vizhi</td>
<td>Disturbance in vision and Pallor in conjuctiva</td>
</tr>
<tr>
<td>Sparisam</td>
<td>Tenderness in the supra pubic region</td>
</tr>
<tr>
<td>Malam</td>
<td>Niram – Yellowish brown Thanmai- Normal Alavu – Normal Kalappu - Nil</td>
</tr>
<tr>
<td>Moothiram Neerkkuri Thanmai</td>
<td>Dribbling of urine Burning micturition Scalding pain in the urethra during urination</td>
</tr>
<tr>
<td>Iyalbu</td>
<td>Niram – Yellow Manam – Aromatic Nurai – Present Enjal – Present Edai – Normal</td>
</tr>
<tr>
<td>Neikkuri</td>
<td>Aravil Aazhi Aazhil Aravam</td>
</tr>
<tr>
<td>Naadi</td>
<td>Vatha pitham Pitha vatham</td>
</tr>
</tbody>
</table>
• Discomfort during urination

• Dribbling of urine

Bladder stretch receptor activated

↓

Parasympathetic pelvic nerve stimulation

↓

Detrusor muscle initiate contraction

↓

Appropriate place → voiding

↓

Inappropriate place → Urethral sphincter constriction → No voiding

↓

Overriding of voluntary control

Urge Stress Reflex Intrinsic Paradoxic

Sphincter deficiency

Overactive Weak urethral S2-S4 damage detrusor sphincter

Discomfort in micturition
Dribbling of urine occurs due to trigone wall stimulation.

“mJbehªJ fL¹bjcªJ éjdkhf mGªÂ¡ fhÁª”

- Painful burning micturition
- Scalding pain during urination

This results from irritation of the bladder trigone. Inflammation causes difficulty in starting urination and burning sensation on urination. Irritation of the trigone causes bladder contraction, leading to frequent and painful urination.

Painful micturition most frequently results from an infection in the lower urinary tract.

Impaired renal concentration ability is the main reason for frequent urination in upper UTIs.

“கற்றுடன் போரிய முன் போட்டி வந்து கண்டு”

- Pain in the perineal area and supra pubic region
- Abdominal distension due to retention of urine

Conditions that block (or) make the urethra difficulty for the urine to leave the bladder, or weaken its muscular tone will result in accumulation of the urine. Once the bladder is full, the urine simply overflows (unless the urine is
completely blocked) and small amounts leak out without the persons being able to contain or hold it.

Crysteinyl leukotrienes (cysLTs) are potent proinflammatory mediators released by mast cells upon activation. cysLTs have a wide range of biological effects, including ability to evoke smooth muscle contraction.

Stem cell factor and cytokines are responsible for the migration of mast cells to the detrusor. Human detrusor smooth muscle cells cultured under inflammatory conditions express and secrete several cytokines and growth factors, including IL–8, IL–6. Human detrusor smooth muscle cells secretory function is likely to influence mast cell number and migration to the detrusor in cystitis.
THEORETICAL VIEW OF THE DISSERTATION TOPIC

ANATOMY OF URINARY BLADDER

The urinary bladder is a hollow muscular organ, which acts as a temporary reservoir of urine brought to it by the ureters. The stored urine is passed out through the urethra, when the bladder is distended enough to feel the desire to micturate.

Position

The position of the urinary bladder varies with age. At birth the bladder is an abdominal organ, the internal urethral meatus being at the level of the upper border of symphysis pubis. The bladder starts descending at the age of 6 years and becomes a pelvic organ shortly after puberty when the internal urethral meatus is just above the plane of the inferior margin of the symphysis pubis. In adult, the empty bladder is entirely in the pelvic cavity but a distended bladder rises in the abdominal cavity. The position of the empty bladder in the adult is described as lying on the front part of pelvic floor, below the peritoneum and behind the pubic symphysis.

Shape and capacity

The shape of the urinary bladder is described as tetrahedral when empty Globular (or) ovoid when distended.
Capacity varying from 120 to 320 ml.

The mean capacity of the bladder in adult male is – 220 ml

Maximum capacity – 500ml

When tension builds up in the bladder wall and pain is experienced, the pain is referred to T$_{11}$ to L$_{2}$ and S$_{2}$ to S$_{4}$.

**Surfaces, Borders and Angles**

- 4 triangular surfaces
- 4 borders
- 4 angles

**Borders are,**

- Anterior border
- Right lateral border
- Left lateral border
- posterior border

The base (or) the fundus (or) the posterior surface is an inverted triangle with its narrow end pointed inferiorly and its broad end superiorly.

The apex (or) anterior angle is the meeting point of superior and inferolateral surfaces. It gives attachments to the median umbilical ligament.

The neck (or) inferior angle is the lowest and most fixed part of the bladder, and
is the meeting point of inferolateral surfaces and the narrow end of the posterior surface.

Urethra begins at the neck of the bladder. The right and left lateral angles are located at the meeting points of inferolateral, posterior and superior surfaces.

**Relations**

**Apex**

The apex is connected to the umbilicus by the median umbilical ligament which represents the obliterated embryonic urachus.

**Base**

**In female**

It is related to cervix and to the vagina.

**In male**

The upper part of the base is separated from the rectum by the retrovesical pouch and the contained coils of intestine.

The lower part is separated from rectum by the seminal vesicle, terminations of the vas deferens.

The triangular area between the two deferent ducts is separated from the rectum by the retrovesical fascia of Denonvilliers.
The neck is the lowest and most fixed part of the bladder. It lies 3-4 cm behind the lower part of the pubic symphysis, a little above the plane of the pelvic outlet. It is pierced by the internal urethral orifice.

**In males**

It rests on the base of the prostate with which its walls are continuous.

**In females**

It is related to the pelvic fascia which surrounds the upper part of urethra.

**In infants**

The bladder lies at higher level. The internal urethral orifice lies at the level of the superior border of the pubic symphysis. It gradually descends to reach the adult position after puberty.

**Superior surface**

**In males**

It is completely covered by peritoneum and it is in contact with the sigmoid colon and coils of the terminal ileum.

**In females**

Peritoneum covers the greater part of the superior surface, except for the small area near the posterior border, which is related to the supra vaginal part of
the uterine cervix. The peritoneum from the superior surface is reflected to the isthmus of the uterus to form the vesicouterine pouch.

**Inferolateral surface**

These are devoid of peritoneum and are separated from each another anteriorly by the anterior border and from the superior surface by the lateral borders.

**In male**

Each surface is related to the pubis, the puboprostatic ligaments, the retropubic fat, the levator ani and obturator internus.

**In female**

The relations are same as male except, that the puboprostatic ligaments are replaced by the pubovesical ligaments.

As the bladder fills, the inferolateral surfaces form the anterior surface of the distended bladder which is covered by peritoneum only in its upper part. The lower part comes into direct contact with the anterior abdominal wall there being no intervening peritoneum. This part can be approached surgically without entering the peritoneal cavity.
Ligaments of the bladder

True Ligaments

These are condensations of pelvic fascia around the neck and base of the bladder. They are continuous with the fascia on the superior surface of the levator ani.

1. The lateral true ligament of the bladder extends from the side of the bladder to the tendinous arch of the pelvic fascia.

2. The lateral puboprostatic ligament is directed medially and backwards. It extends from the anterior end of the tendinous arch of the pelvic fascia to the upper part of the prostatic sheath.

3. The medial puboprostatic ligament is directed downwards and backwards. It extends from the back of the pubic bone (near the pubic symphysis) to the prostatic sheath. The ligaments of the two sides form the floor of the retropubic space.

In females, bands similar to the puboprostatic ligament are known as the pubovesical ligaments. They end around the neck of the bladder.

4. The median umbilical ligament is the remnant of the urachus.

5. The posterior ligament of the bladder is directed backwards and upwards along the vesical plexus of veins. It extends on each side from the base of the bladder to the wall of the pelvis.
False Ligaments

These are peritoneal folds, which do not form any support to the bladder. They include: (1) The median umbilical fold; (2) The medial umbilical fold; (3) The lateral false ligament, formed by the peritoneum of the paravesical fossa; and (4) The posterior false ligament formed by the peritoneum of the sacrogenital folds.

Interior of the bladder

It can be examined by cystoscopy, at operation or at autopsy.

In an empty bladder, the greater part of the mucosa shows irregular folds due to its loose attachment to the muscular coat.

In a small triangular area over the lower part of the base of the bladder, the mucosa is smooth due to its firm attachment to the muscular coat. This area is known as the trigone of the bladder. The apex of the trigone is directed downwards and forwards. The internal urethral orifice, opening into the urethra is located here. The ureters open at the posterolateral angles of the trigone. Their openings are 2.5cm apart in the empty bladder, and 5 cm apart in a distended bladder. A slight elevation on the trigone immediately posterior to the urethral orifice produced by the median lobe of the prostate, is called the uvula vesicae. The base of the trigone is formed by the interureteric ridge or bar of
Mercier produced by the continuation of the inner longitudinal muscle coats of the two ureters. The ridge extends beyond the ureteric openings as the ureteric folds over the interstitial part of the ureters.

**Blood supply**

**Artery main supply**

Superior vesical artery

Inferior vesical artery

**Additional supply**

Obturator artery

Inferior gluteal artery

In females Uterine and vaginal arteries.

**Veins**

Vesical venous plexus.

Veins from this plexus drain into the internal iliac veins.

**Lymphatic drainage**

Most of the lymphatics terminates in the external iliac nodes.

Few pass to the internal iliac nodes (or) to the lateral aortic nodes.
Nerve Supply

Bladder is supplied by the vesical plexus of nerves. Vesicle plexus contains both sympathetic and para sympathetic components.

1. Sympathetic divisions T_{11} – L_{2}.
   Inhibitory to the detrusor muscle.
   Motor to the sphincter vesicae.

2. Parasympathetic divisions S_{2}, S_{3}, S_{4}.
   Inhibitory to the sphincter vesicae
   Motor to the detrusor muscle.

3. Pudental Nerve (S_{2}, S_{3}, S_{4})

4. Sensory Nerves
   Pain sensation caused by distension of the bladder wall are carried mainly by parasympathetic nerves and partly by sympathetic.

Embryology

Epithelium of the urinary bladder develops from the cranial part of the vesico urethral canal.

Epithelium of the trigone of the bladder is derived from the absorbed mesonephric ducts.
The muscular and serous walls of the organ are derived from splanchnopleuric mesoderm.

**Histology**

The wall of urinary bladder consists of

- an outer serous layer
- a thick coat of smooth muscle
- a mucous membrane.

Mucous membrane is lined by transitional epithelium. The epithelium rests on a layer of loose fibrous tissue. There is no muscular mucosa.

In the empty bladder the mucous membrane is thrown into numerous folds. These folds disappear when the bladder is distended.

Mucous glands may be present in the mucosa specially near the internal urethral orifice

The muscle layer is thick. Internally and externally the fibres are longitudinal. In between them there is a thicker layer of circular fibres. Contraction of this muscle cost is responsible for emptying of the bladder.
PHYSIOLOGY OF THE URINARY BLADDER

Excretion is the process by which the unwanted substances and metabolic wastes are eliminated from the body.

Various systems in the body are involved in performing the excretory functions viz

• Digestive system excretes food residues in the form of faeces
• Lungs remove carbon dioxide and water vapour
• Skin excretes water, salts and some wastes. It also removes heat from the body.
• Liver excretes many substances like bile pigments, heavy metals, drugs, toxins, bacteria etc., through bile.

Although various organs are involved in removal of wastes from the body, their excretory capacity is limited.

The renal system or urinary system is the one having maximum capacity of excretory function and so it plays the major role in homeostasis.
Renal system includes

- a pair of kidneys
- ureters
- urinary bladder
- urethra.

Kidneys produce the urine

Ureters transport the urine to urinary bladder

Urinary bladder stores the urine until is voided

Urine is voided from bladder through urethra

Micturition is a process by which urine is voided from the urinary bladder. It is a reflex process in grown up children and adults and can be controlled voluntarily. The functional anatomy and nerve supply of urinary bladder are essential for the process of micturition.

FUNCTIONAL ANATOMY OF URINARY BLADDER

Urinary bladder consists of the body, neck and internal urethral sphincter. The smooth muscle forming the body of bladder is called detrusor muscle. It is formed by three ill-defined layers of muscle fibres viz., the inner longitudinal
layer, middle circular layer and outer longitudinal layer. At the posterior surface of the bladder wall, there is a triangular area called trigone. At the upper angles of this trigone, two ureters enter the bladder.

The lower part of the bladder is narrow and forms the neck. The distal end of the bladder is guarded by internal urethral sphincter. This sphincter is made up of detrusor muscle. It opens towards urethra. At the distal end of urethra, there is external urethral sphincter. It is made up of skeletal muscle fibres. Therefore, it is responsible for voluntary control of micturition.

TABLE - 8

Functions of nerves supplying urinary bladder and sphincters

<table>
<thead>
<tr>
<th>Nerve</th>
<th>On detrusor muscle</th>
<th>On internal sphincter</th>
<th>On external sphincter</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sympathetic nerve</td>
<td>Relaxation</td>
<td>Constriction</td>
<td>Not supplied</td>
<td>Filling of urinary bladder</td>
</tr>
<tr>
<td>Parasympathetic nerve</td>
<td>Contraction</td>
<td>Relaxation</td>
<td>Not supplied</td>
<td>Emptying of urinary bladder</td>
</tr>
<tr>
<td>Somatic nerve</td>
<td>Not supplied</td>
<td>Not supplied</td>
<td>Constriction</td>
<td>Voluntary control of micturition</td>
</tr>
</tbody>
</table>
FILLING OF URINARY BLADDER

Process of Filling

Urine is continuously formed in the nephrons and it is transported drop by drop through the ureters into the urinary bladder. When urine collects in the pelvis of ureter, the contraction sets up in pelvis. The contraction is transmitted through rest of the ureter in the form of peristaltic wave upto trigone of the urinary bladder. Peristaltic wave usually travels at a velocity of 3cm/second. It develops at a frequency of 1 to 5 per minute. The peristaltic wave moves the urine into the bladder.
After leaving the kidney, the direction of the ureter is initially downward and outward. Then, it turns horizontally before entering the bladder. At the entrance of ureters into urinary bladder, a valvular arrangement is present. When peristaltic wave pushes the urine towards bladder, this valve opens towards the bladder. The position of ureter and the valvular arrangement at the end of ureter prevent the back flow of urine from bladder into the ureter when the detrusor muscle contracts. Thus, urine is collected in bladder drop by drop.

A reasonable volume of urine can be stored in urinary bladder without any discomfort and without much increase in pressure inside the bladder (intravesical pressure). It is due to the adaptation of detrusor muscle. The relationship between the volume of urine and pressure in urinary bladder is studied by cystometry.

**CYSTOMETROGRAM**

**Definition**

Cystometry is the technique used to demonstrate the relationship between the intravesical pressure and the volume of urine in the bladder. Cystometrogram is the graphical registration (recording) of pressure changes in urinary bladder in relation to rise in the volume of urine collected in it.
**Method of Recording Cystometrogram**

A double lumen catheter is introduced into the urinary bladder. One of the lumens is used to infuse fluid into the bladder and the other one is used to record the pressure changes by connecting it to a suitable recording instrument.

First, the bladder is emptied completely. Then, a small and known quantity of fluid is introduced into the bladder at regular intervals. The intravesical pressure developed by the fluid is recorded continuously. A graph is obtained by plotting all the values of volume and the pressure. This graph is the cystometrogram.

**Description of Cystometrogram**

Cystometrogram shows three segments

**Segment I**

Initially, when the urinary bladder is empty, the intravesical pressure is 0. When about 100 ml of fluid is collected, the pressure rises sharply to about 10 cm H$_2$O.

**Segment II**

This segment shows the plateau, i.e. the intravesical pressure remains more or less at 10 cm H$_2$O (level of segment I) without any change even after
introducing 300 to 400 ml of fluid. It is because of adaptation of urinary bladder by relaxation. It is in accordance with law of Laplace.

**Law of Laplace**: According to this law, the pressure in a spherical organ is inversely proportional to its radius, the tone remaining constant. That is, if radius is more, the pressure is less and if radius is less the pressure is more, provided the tone remains constant.

\[
P = \frac{T}{R}
\]

Where, \( P \) = Pressure, \( T \) = Tension and \( R \) = Radius.

Urinary bladder obeys Laplace law. In the bladder, the tension increase as the urine is filled. At the same time, the radius also increases due to relaxation of detrusor muscle. Because of this, the pressure rise is almost zero.

When about 10 ml of urine is collected, the pressure rises to about 10 cm H\(_2\)O and now, the desire for micturition occurs. The desire for urination is associated with a vague feeling in the perineum. An additional volume of about 200 to 300 ml of urine can be stored in bladder without much increase in pressure. However, when total volume rises beyond 400 ml, the pressure rises sharply and the urge for micturition starts. And, beyond 600-700 ml of urine, voluntary control starts failing.
Segment III

As the pressure increases with collection of 300 to 400 ml of fluid, the contraction of detrusor muscle becomes intense, increasing the consciousness and the urge for micturition. Still, voluntary control is possible. The voluntary control is possible upto volume of 600 - 700 ml at which the pressure rises to about 35 to 40 cm H$_2$O.

When the intravesical pressure rises above 40 cm water, the contraction of detrusor muscle becomes still more intense. And voluntary control of micturition is not possible. Now, pain sensation develops.

Higher Centers for Micturition

Spinal centers for micturition are present in sacral and lumbar segments. But these spinal centers are regulated by higher centers. The higher centers, which control micturition, are of two types, inhibitory centers and facilitatory centers.

Inhibitory centers

- Midbrain
- Cerebral cortex

Facilitating centers

- Pons
- Posterior hypothalamus
MICTURITION REFLEX

Filling of Urinary bladder

Stimulation of stretch receptors

Afferent impulses pass via pelvic nerve

Sacral segments of spinal cord

Efferent impulses via pelvic nerve

Contraction of detrusor muscle and Relaxation of internal sphincter

Flow of urine into urethra and Stimulation of stretch receptors

Afferent impulses via pelvic nerve

Inhibition of pudental nerve

Relaxation of external sphincter

Voiding of urine
PATHOLOGY

CYSTITIS

Definition

Inflammation of the urinary bladder mucosa due to different causes.

Etiology

Organisms are

- Escherichia coli
- Proteus
- Klebsiella
- Enterobacter
- Candida albicans – Much less often cryptococcal agents causes cystitis
- Schistosomiasis is rare
- Virus – adenovirus
- Chlamydia and Mycoplasma.

Predisposing factors

- Bladder calculi
- Urinary obstruction
- Diabetes Mellitus
• Instrumentation

• Patients receiving cytotoxic antitumour drugs such as cyclophosphamide – develop – hemorrhagic cystitis

• Radiation of the bladder region gives rise to radiation cystitis

• Women may develop Cystitis as a result of their shorter urethra

• The patient who are immune suppressed (or) – those receiving long term antibiotics.

**Morphology**

Most cases of cystitis take the form of nonspecific acute or chronic inflammation of the bladder.

**Hemorrhagic cystitis**

• The component of the cystitis is hemorrhagic

• Adenovirus infection may also cause.

**Suppurative cystitis**

Accumulation of large amounts of suppurative exudate.
Ulcerative cystitis

There is ulceration of large area of the mucosa

CHRONIC CYSTITIS

Persistence of the infection leads to chronic cystitis

Manifestations

Extreme hypering up of the epithelium with the formation of

- Red
- friable
- granular
- sometimes ulcerated

on the surface.

Chronicity of infection

Fibrous thickening in the muscularis propria and consequent thickening and inelasticity of the bladder wall.
Clinical triad of Cystitis

- Frequency in acute cases may necessitate urination every 15 to 20 minutes.
- Lower abdominal pain - localized over the bladder region or in the supra pubic region
- Dysuria - pain or burning sensation on urination

Systemic symptoms of Inflammation

1. Elevation of temperature
2. Chills
3. General malaise.

Pathology

The epithelium of the urinary bladder is lined by glycoprotein and glycosaminoglycans which provide the impermeable barrier. A defect in the GAG layer allows the leakage and absorption of urinary solutes to occur, the major solute being potassium. Ongoing exposure of the bladder wall to potassium causes an inflammatory response. This in turn releases the neuropeptide substance P$_1$, causing the release of mast cell mediators, histamines, leukotrienes, leads to tissue and cell damage and sensory nerve depolarization and fibrosis.
Urinary irritants

Epithelium of the urinary bladder (impermeable)

Permeable (mainly potassium)

Inflammation

Cell and tissue damage

Pain and Frequency in micturition

Special forms of cystitis

1. Bacterial cystitis
2. Schistosomal cystitis
3. Fungal cystitis
4. Viral cystitis
5. Interstitial cystitis
6. Follicular cystitis
7. Emphysematous cystitis
8. Gangrenous cystitis
9. Malakoplakia
**TYPES OF CYSTITIS**

**BACTERIAL CYSTITIS**

*Cause:* Bacterial urinary tract infection.

**Organism:** Gram negative especially 
- *Escherichia coli*
- *Klebsiella pneumoniae*
- *Streptococcus fecalis*
- *Proteus vulgaris*
- *Pseudomonas aeruginosa*
- *Chlamydia, Teachomatis*
- *Mycoplasma hominis*
- *Ureaplasma urealyticum*

Bladder infections appear with two events

- Colonization of the urine by organism.
- Impairment of host defence mechanism.

UTI is rare in young children without urinary tract malformation

The incidence is increased in the sexually active female known as “Honeymoon – cystitis”
In males – BPH – causes urinary retention

**Predisposing Factors**

- Short urethra in female
- Diverticula
- Foreign bodies – Stones
  
  Catheters
- Agents causing mechanical destruction of the bladder mucosa.

**Diagnosis based on**

- Clinical symptoms
- Urine analysis
- Biopsies should be avoided

**Complications**

Cystitis → Acute Inflammatory Response

↓

Frequently with epithelial erosion & Ulcerations

↓

Associated with Pyuria, Haematuria, Bacteruria.

**SCHISTOSOMAL CYSTITIS**

**Cause**- Schistosoma hematotrium is endemic in eastern Africa.
**Mode of transmission**

The intermediate host is a snail from which the cercariea escape.

↓

Swim to human host

↓

Penetrate skin

↓

Through the Lymphatics

↓

Move to the liver

↓

Maturation occurs

↓

Worms mate in the Mesentric plexus

↓

Move to the bladder

↓

Deposits its ova

**Histopathology**

Varies upon the stage.

Generally granulomatous response seen with

- Calcified eggs
- A variable degree of fibrosis
- Squamous or glandular Metaplasia
Complication

Greatly risk of bladder cancer

Especially squamous or glandular metaplasia

Adeno carcinoma

Neoplasia

Hydroureter

Hydronephrosis

Pyelonephritis

FUNGAL CYSTITIS

Organism

Majority of fungal infection caused by Candida species

Patient at risk

- Immuno suppressed - AIDS
  - transplant recipients
- Patient with diabetes mellitus
- Patients under going antibiotic therapy
- Patients with indwelling catheters
- Premature infants
Histopathology

- Inflammatory exudate with budding and non budding yeast cells
- Pseudohyphae

VIRAL CYSTITIS

Causative organisms

- Both RNA and DNA viruses
- Cytomegalovirus in immuno suppressed
- Polyoma virus

Symptoms

No specific symptoms.

INTERSTITIAL CYSTITIS

Cause : Unknown
Pathogenesis : Unknown
Female : Dominant

Cystoscopy

One group of patients shows pale areas with radiating vessels, ruptures forming Hunner’s Ulcer which can be seen when the bladder is distended to at least 70 cm of H₂O pressure.
In second group of patients, there are no ulcers, only petechial, strawberries like haemorrhages called glomerulations.

**EOSINOPHILLIC CYSTITIS**

- Rare type
- Described in 1960
- Symptoms – similar to those of Interstitial Cystitis
- Most prominent is hematuria
- Age – middle Age
- Fistulas
- Diverticula

**Histopathology**

Urethral holes appear as, hole surrounded by slight inflammation, or occasionally by foreign body giant cells.

The cyst contains gas produced by E.coli or Aerobacter aerogenes (or) Clostridium perfringens.

**FOLLICULAR CYSTITIS**

- small, multiple nodular lesions can be seen cystoscopically in autopsy bladder.
**Histopathology**

Diagnosis confirmed by presence in the lamina propria of the lymphoid follicles with germinal centres. Slight elevation of urothelium.

**Cystoscopy**

Mucosa is swollen, reddish sometimes tumour.

**Histopathology**

- Transmural inflammation with a strong preponderance of eosinophils
- Inflammation and oedema are more intense in the lamina propria
- Focal muscle necrosis with variable degree of fibrosis
- Predisposing allergic conditions

**Urine culture.**

Sterile

Morphologic features are more important to differentiate from other form of cystitis.

**EMPHYSEMATOUS CYSTITIS**

- It is also a rare condition
- Occurs usually in elder patients with diabetes mellitus or are debilitated
- It may affect patients with bladder outlet obstruction
- Asymptomatic
- No organism associated with the follicle.
GANGRENOUS CYSTITIS

Organism

- Not specific

- Affects the debilitated or elderly patients suffering from systemic infections or from compromised cardiovascular function.

- The urothelium over the entire bladder is often necrotic and fibrinopurulent debris mixed with red blood cells forms a membrane on the urothelial surface.

- Inflammation and necrosis usually extend deeply and involve the detrusor muscle.

- It is lethal in 60% of patients.

MALAKOPLAKIA

Cause unknown

- Chronic inflammation that occurs as yellow plaques varying from a millimeter to 2.5 cm in size

- Although it has been reported in several extra urinary tract sites

- Immuno suppressed patients are more affected

- A key factor in Malakoplakia is an acquired defect in Monocyte bactericidal activity.
Clinical symptoms

- Infection (or) inflammation
- Frequency
- Urgency
- Dysuria
- Hematuria
- Female predominance
- Occurrence - 5th to 7th decades.

Cause

Indwelling catheter and therefore are located in the posterior wall or at the dome of the bladder.

Predisposing factors

Not distinct

The reactive nature of these lesion is shown by the fact that removal of the catheter results in disappearance of the lesion in almost all patients regardless of persisting urinary tract infection.

Histopathology

Variable amount of oedema of the lamina propria

Urothelium may be slightly hyperplastic often showing microabcesses
• Extravasation of red blood cells is not uncommon and occurs in association with dilatation of the vasculature and variable infiltrates of chronic inflammatory mononuclear cells.

1. **Early (or) predisposing phase:** Stromal oedema with lymphocytes and plasma cells and increasing numbers of histocytes.

2. **Classic phase:** Abundant large Von Hansemann histocytes. Intracellular and extracellular pathognomonic. Michaelis Gutmann bodies containing calcium phosphate.

3. **Final phase:** Few histocytes and rare Michaelis Gutmann bodies and being dominated by fibrosis.

**POLYPOID, BULLOUS AND PAPILLARY CYSTITIS**

Reactive lesions of bladder mucosa may display morphologic features of polypoid, bullous or papillary cystitis. The lesion referred to as “Catheter Cystitis” disappears after removal of catheter.

**HEMORRHAGIC CYSTITIS**

Generally associated with administration of the cytotoxic alkylating agent cyclophosphamide and other related phosphamides.

10% of patients receiving the drug tough it seen more frequently in children.
Also been associated with viruses such as adenovirus and BK virus especially in immuno suppressed patients.

Symptoms

- Similar as other cystitis
- Hematuria may persist for months and is sometimes extensive.

Histopathology

Variable degrees of mucosal denudation or ulceration along with pronounced oedema of the lamina propria and associated hemorrhage.

Complication

- Muscle necrosis
- Interstitial fibrosis
- Formation of pseudo membranes.

DIAGNOSIS

Urine Analysis

It reveals white blood cells (WBCs) or red blood cells (RBCs).
Urine Culture

The urine culture will confirm which bacteria are causing the cystitis.

A midstream urine specimen is collected by clean - catch method. For a clean catch, the patient washes the genital area before collecting the urine in a sterile container.

Ultra Sonogram

It is more useful to detect the bladder wall and residual urine.

Cystoscopy

It helps to rule out the bladder cancer. An examination in which a scope, a flexible tube and viewing device is inserted through the urethra to examine the bladder and urinary tract for structural abnormalities (or) obstructions such as tumour (or) stone.

Intra Venous Urogram (IVU)

A series of x-rays of the kidneys, ureter and urinary bladder with the injection of radio opaque dye into the vein then excreted into the urine to detect the abnormalities, kidney stone or any obstructions.
Retrograde Urethrography

A radio opaque dye is directly injected into the urethra, is useful for detecting stricture, out pouching or an abnormal connection of the urethra in both men and women.

Prevention

- Keeping the genital area clean.
- To wipe from front to back may reduce the chance of introducing bacteria from the rectal area to the urethra.
- Increasing intake of fluids may allow frequent urination to flush out the bacteria from the bladder.
- Urination immediately after sexual intercourse may help eliminate any bacteria.
- Refraining from urination for long period of time may allow bacteria to multiply. So frequent urination may reduce the risk of cystitis, in those who are prone to urinary tract infection.
- Take shower bath rather than tub bath, can help to prevent the infections.
- Avoid using deodorant sprays (or) feminine products in the genital area, these can irritate the urethra and bladder.
COMPLICATIONS

Cystitis rarely leads to complications. If the treatment is incorrect (or) non-existent, the bacteria can reach the kidney and cause Nephritis (or) Cystopyelonephritis.

Possible Complications

- Urethritis
- Recurrent urinary tract infection
- Acute kidney failure
- Kidney infection
EVALUATION OF THE DISSERTATION TOPIC

MATERIALS AND METHODS

The study in Noi Naadal aspect i.e., pathological view of Vadha Kundala Kirecharam was carried out at the outpatient department of P.G. Noi Naadal, Government Siddha Medical College Hospital, Palayamkottai.

CASE SELECTION AND SUPERVISION

The author has selected 20 cases with similar symptoms of Vadha Kundala Kirecharam as mentioned in Dhanvantthiri Vaithiyam volume II under the supervision of faculties and Head of the department of PG Noi Naadal department.

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

EVALUATION OF CLINICAL PARAMETERS

The clinical symptoms as mentioned in the poem,

- Discomfort during micturition
- Dribbling of urine
- Burning micturition
• Scalding pain in the urethra during micturition
• Pain in the perineal region
• Lower abdominal pain.

**Associated features**

• Fever
• Haematuria

**HISTORY TAKING**

• Family history
• Personal history
• Prevalence of age groups
• Diet habits
• Habitual works

- were noted

All the clinical signs and symptoms of “Vadha Kundala Kirecharam” and its diagnosis are done by assessing the following criteria.

**CLINICAL DIAGNOSIS THROUGH SIDDHA PARAMETERS**

• Poriyaal therdhal
• Pulanaal therdhal
• Vinaadhal
MODERN PARAMETERS

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

Physical examination

Tenderness in the supra pubic region.

Lab studies

Blood

- Total WBC count (TC)
- Differential count (DC)
- Haemoglobin (HB)
- Erythrocyte Sedimentation Rate (ESR)
Biochemical analysis

- Blood sugar
- Blood urea
- Serum cholesterol

Urine

- Albumin
- Sugar
- Deposits
- Specific gravity
- Culture and sensitivity test

Motion

- Ova
- Cyst
- Occult blood

Confirmatory Investigation

- Ultra sonogram
- Urine Culture and sensitivity test
OBSERVATION AND RESULTS

TABLE - 9 AGE

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Age</th>
<th>No of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>&lt;33 years</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>2.</td>
<td>33 – 66 years</td>
<td>14</td>
<td>70</td>
</tr>
<tr>
<td>3.</td>
<td>&gt;66 years</td>
<td>4</td>
<td>20</td>
</tr>
</tbody>
</table>

Out of 20 cases, 70% of cases belonged to middle age group.

TABLE - 10 SEX

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Sex</th>
<th>No of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Male</td>
<td>14</td>
<td>70</td>
</tr>
<tr>
<td>2.</td>
<td>Female</td>
<td>6</td>
<td>30</td>
</tr>
</tbody>
</table>

Among 20 cases, 70% were males and 30% were females.

TABLE - 11 OCCUPATION

<table>
<thead>
<tr>
<th>S.No</th>
<th>Type of occupation</th>
<th>No of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Manual Labour</td>
<td>17</td>
<td>85</td>
</tr>
<tr>
<td>2.</td>
<td>House wife</td>
<td>3</td>
<td>15</td>
</tr>
</tbody>
</table>

The incidence of the disease was found to be higher in labouring groups (85%).
TABLE - 12 SOCIOECONOMIC STATUS

<table>
<thead>
<tr>
<th>S. No</th>
<th>Socioeconomic status</th>
<th>No of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Middle class</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>2.</td>
<td>Below poverty line</td>
<td>15</td>
<td>75</td>
</tr>
</tbody>
</table>

Out of 20 cases, 75% were below poverty line and 25% of cases belonged to middle class.

TABLE - 13 PERSONAL HABITS

<table>
<thead>
<tr>
<th>S.No</th>
<th>Habits</th>
<th>No of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Tea / Coffee (&gt; 4times / day)</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>2.</td>
<td>Alcohol</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>3.</td>
<td>Smoking</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>4.</td>
<td>Yoga</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

Out of 20 cases, 35% of the cases were addicted to tea / coffee and 25% of cases were smokers.
90% of cases were taking non vegetarian diet.

TABLE – 15  SEASONAL VARIATION (PARUVA KAALAM)

<table>
<thead>
<tr>
<th>S.No</th>
<th>Paruvakaalam</th>
<th>No of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Kaar kaalam</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>2.</td>
<td>Koothir kaalam</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>3.</td>
<td>Munpani kaalam</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>4.</td>
<td>Mudhuvainenir kaalam</td>
<td>5</td>
<td>25</td>
</tr>
</tbody>
</table>

TABLE - 16  THINAI (GEOLOGICAL DISTRIBUTION)

<table>
<thead>
<tr>
<th>S.No</th>
<th>Thinai</th>
<th>No of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Marutham</td>
<td>18</td>
<td>90</td>
</tr>
<tr>
<td>2.</td>
<td>Neidhal</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

90% of cases reported from Marutha nilam.
TABLE –17 KAALAM (LIFE SPAN)

<table>
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<tr>
<th>S.No</th>
<th>Kaalam</th>
<th>No of cases</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Kabha kaalam (&lt;33y 4m)</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>2.</td>
<td>Pitha kaalam (33y 5m - 66y 8m)</td>
<td>14</td>
<td>70</td>
</tr>
<tr>
<td>3.</td>
<td>Vatha kaalam (&gt;66y 8m)</td>
<td>4</td>
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</table>

70 % of cases were under Pitha kaalam of their life span.

TABLE –18 SYMPTOMS

<table>
<thead>
<tr>
<th>S.No</th>
<th>Clinical Features</th>
<th>No of Cases affected</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Discomfort during urination</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>Dribbling of urine</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>Burning micturition</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>4</td>
<td>Scalding pain during urination</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>5</td>
<td>Pain in the perineal region</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>6</td>
<td>Lower abdominal pain</td>
<td>20</td>
<td>100</td>
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</table>

The Clinical features of Vadha kundala kirecharam were positive in 100% of cases.
Out of 20 cases, Abaanan, Viyaanan, Samaanan, Devadhatthan were affected in 100% of cases. Naagan and Koorman were affected in 40% of cases. Praanan was affected in 75% of cases. Kirukaran was affected in 60% of cases.

<table>
<thead>
<tr>
<th>S.No</th>
<th>Increased Vali</th>
<th>No of cases affected</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Praanan</td>
<td>12</td>
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<td>2.</td>
<td>Abaanan</td>
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<tr>
<td>3.</td>
<td>Viyaanan</td>
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<td>4.</td>
<td>Uthaanan</td>
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<td>-</td>
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<td>5.</td>
<td>Samaanan</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>6.</td>
<td>Naagan</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7.</td>
<td>Koorman</td>
<td>8</td>
<td>40</td>
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<tr>
<td>8.</td>
<td>Kirukaran</td>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td>9.</td>
<td>Devadhatthan</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>10.</td>
<td>Thananjeyan</td>
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</table>
Ranjagam and Saathagam were affected in 100% of cases. Anilam in 60% of cases and Aalosagam and Prasagam in 40% of cases.

TABLE – 20 ALTERED CHARACTERS OF AZHAL

<table>
<thead>
<tr>
<th>S.No</th>
<th>Increased Azhal</th>
<th>No of cases affected</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Anilam</td>
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<td>2.</td>
<td>Ranjagam</td>
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<tr>
<td>3.</td>
<td>Saathagam</td>
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<td>4.</td>
<td>Aalosagam</td>
<td>8</td>
<td>40</td>
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<tr>
<td>5.</td>
<td>Praasagam</td>
<td>8</td>
<td>40</td>
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</table>

Out of 20, Tharpagam was affected in 100% of cases. Kiletham was affected in 60% of cases and Sandhigam was affected in 80% and Avalambagam in 40% of cases respectively.

TABLE – 21 ALTERED CHARACTERS OF IYAM

<table>
<thead>
<tr>
<th>S.No</th>
<th>Decreased Iyam</th>
<th>No of cases affected</th>
<th>Percentage</th>
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</thead>
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<tr>
<td>1.</td>
<td>Avalambagam</td>
<td>8</td>
<td>40</td>
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<td>2.</td>
<td>Kiletham</td>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td>3.</td>
<td>Tharpagam</td>
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<td>100</td>
</tr>
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<td>4.</td>
<td>Santhigam</td>
<td>16</td>
<td>80</td>
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</table>
TABLE – 22 UDAL THAADHUKKAL

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<th>S.No</th>
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<th>No of cases affected</th>
<th>Percentage</th>
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</thead>
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<tr>
<td>1.</td>
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<td>20</td>
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<td>2.</td>
<td>Senneer</td>
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<td>100</td>
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<td>Oon</td>
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<td>Kozhuppu</td>
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</tr>
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<td>Enbu</td>
<td>16</td>
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<tr>
<td>7.</td>
<td>Sukkilam / Sronitham</td>
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Out of 20 cases, Saaram, Senneer, Oon, Kozhuppu were affected in 100% of cases. Enbu and Moolai were affected in 80% of cases, Sukkilam/Sronitham was affected in 35% of cases.

TABLE – 23 MANIKKADAI NOOL

<table>
<thead>
<tr>
<th>S.No</th>
<th>Viral kadai alavu</th>
<th>No of cases affected</th>
<th>Percentage</th>
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<tr>
<td>1</td>
<td>9 1/4</td>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td>8</td>
<td>40</td>
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Out of 20 cases in 60% of cases the Manikkadai alavu was 9 1/4 Virarkkadai.
### TABLE - 24 Ennvagai Thervugal

<table>
<thead>
<tr>
<th>S.No</th>
<th>Ennvagai Thervu</th>
<th>No of cases affected</th>
<th>Percentage</th>
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<td>Niram</td>
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<td>Mozhi</td>
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<td>4</td>
<td>Vizhi</td>
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<td>Malam</td>
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<td>Moothiram</td>
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<tr>
<td>8</td>
<td>Naadi</td>
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Out of 20 cases, Sparism, Moothiram, Naadi were affected in 100% of cases.

### TABLE – 25 Neikuri

<table>
<thead>
<tr>
<th>S.No</th>
<th>Spreading of Oil</th>
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<th>Percentage</th>
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<td>Aazhil Aravam</td>
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<td>85</td>
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Out of 20 cases, 17 cases showed features of Pitha Vatha neer.
### TABLE - 26

**INTERPRETATION OF UYIRTHAADHUHKKAL**

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<thead>
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<th>S. No</th>
<th>Op No</th>
<th>AG E</th>
<th>SEX</th>
<th>VALI</th>
<th>AZHAL</th>
<th>IYAM</th>
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<tr>
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<td>Ud</td>
<td>Vi</td>
<td>Sn</td>
<td>Na</td>
<td>Ko</td>
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</table>

Pr - Praanan  Na - Naagan  Pa - Pasakam  Av - Avalambagam  A - Affected
Ab - Abaanan  Ko - Koorman  Ra - Ranjagam  Ki - Kiletham  NA - Not affected
Ud - Udaanan  Kr - Kirukaran  St - Saadhagam  Po - Pothagam
Vi - Viyaanan  De - Devadhathan  Aa - Aalosagam  Th - Tharpagam
Sn - Samaanan  Tj - Thananjeyan  Ps - Prasagam  Sd - Sandhigam
TABLE - 27

INTERPRETATION OF UDALTHAADHUJKAL

<table>
<thead>
<tr>
<th>S. No</th>
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A - Affected   NA - Not affected
### TABLE - 28

**INTERPRETATION OF ENNVAGAI THERVUGAL**

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<th>VIZHI</th>
<th>SPARISM</th>
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<td>19</td>
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<td>2-3</td>
<td>1-2</td>
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<td>Nil</td>
<td>3-4</td>
<td>1-2</td>
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</tr>
</tbody>
</table>
DISCUSSION

The author has chosen the topic "Vadha Kundala Kirecharam" mentioned in Dhanvanthri Vaithiyam Volume - II under Moothira Kirechara Roga Nitharam for the dissertation work.

INTERPRETATION OF CLINICAL PARAMETERS

Age

Middle aged people (70%) were affected more commonly.

Sex

Males were affected more commonly (70%). This might be due to their work which increases the azhal kutram.

Occupation

80% of patients were belonging to labour group and their job which increases the Azhal kutram.

Socio-economic status

75% of cases were belonged to the below poverty line.

Diet Habits

Non-vegetarians (90%) were affected more commonly.

Seasonal variations

The disease is aggravated during kaarkalam and koothirkaalam due to derangement of Azhal humour.
Thinai

90% of the cases were reported from Marutha Nilam, and 10% of cases are belonged to Neidhal Nilam.

Kaalam (Life Span)

Out of 20 cases, 70% cases were found to be within pithakaalam.

INTERPRETATION OF CLINICAL FEATURES

Symptoms of Vadha Kundala Kirecharam

The symptoms of vadha kundala kirecharam were found to be present in 100% of cases.

INTERPRETATION OF SIDDHA PARAMETERS

Changes in Uyirthathukkal

ALTERED CHARACTERS OF VALI

Out of 20 cases, Abaanan, viyaanan, samaanan and devathathan were affected in 100% of cases.

ALTERED CHARACTERS OF AZHAL

Out of 20 cases, Ranjagam and sathagam were affected in 100% of cases.
ALTERED CHARACTERS OF IYAM

Out of 20 cases, Tharpagam was affected in 100% of cases.

ALTERED CHARACTERS OF UDAL THATUKKAL

Out of 20 cases, Saaram, Senneer, Oon, kozhuppu were affected in 100% of cases.

INTERPRETATION OF ENVAGAI THERVUGAL

Out of 20 cases, Sparisam, moothiram, naadi were affected in 100% of cases.

INTERPRETATION OF MODERN PARAMETERS

Manual Examination

Tenderness in the supra pubic region.

Laboratory Investigations

Urine Culture

Growth of Escheria coli and proteus vulgaris organism present.

Ultra sonogram

In all cases the ultra sonogram impression gave the result of Bladder wall thickening.
HIGHLIGHTS OF THE DISSERTATION TOPIC

"Vadha Kundala Kirecharam" comes under Moothira Kirechara Roga Nithanam in Dhanvanthiri Vaithiyam - Volume II which is characterized by discomfort during urination, dribbling of urine, burning micturition, scalding pain during voiding urine, pain in the perineal region, lower abdominal pain.

- In this disease vadha kundala kirecharam changes in Azhal humour plays a vital role, which is first affect then vali humour is affected.
- Improper diet habits and irregular behavioural changes are responsible for the disease vadha kundala kirecharam. These leads to aggravation of Azhal and Vali humour.
- The modern parameters also play an important role in the diagnosis
- The clinical features of Vadha kundala kirecharam can be correlated with cystitis in modern aspect.

Now days this disease is confirmed by several scientific investigations like urine culture and ultrasonogram. In ancient days there are no any scientific investigations. But our Siddhars are confirmed this disease by only nature methods like Neikuri, Neerkuri and Envagai thervugal which is the highlights of Siddhars.
NOI KANIPPU VIVADHAM - DIFFERENTIAL DIAGNOSIS

- Pain in the urethra during voiding urine
- Burning micturition
- Haematuria
- Semen excreted along with urine
- Foul smelling urine.

Although the features of burning micturition, pain in the urethra during voiding urine are present, the symptoms of dribbling of urine, pain in the perineal area, lower abdominal pain are absent, which are present in vadha kundala kirecharam.
**Mahatmya**

“Nahasā Allahā kāṁśā prabhā khāṇā bājā dūrā
dhākhā vālā kāṁśā prabhā kāśvānārā
dhākhā bālākhā kāṁśākā mahābhāsā dhānā
dhākhā aṭānākā kāṁśākā prabhā dhānā
ghaghā (mārgālā) gānānā kāṁśā prabhā prabhā.”

- Mahatmya mahābhāṣā.

- Pain in the urethra during urination
- Unpleasant odour urine
- Burning sensation.

Although the features of burning micturition, pain and agony are present, the symptoms of dribbling of urine, supra pubic pain are absent, which are present in Vadha Kundala Kirecharam.
- Bleeding occur before urination
- Anuria
- Burning micturition
- Pain resembles like renal calculi
- Generalised Oedema.

Although the features of burning micturition is present, the symptoms of dribbling of urine, pain in the perineal area, lower abdominal pain are absent, which are present in vadha kundala kirecharam.

<table>
<thead>
<tr>
<th>Vivathathukuria Noigal</th>
<th>Common Symptoms</th>
<th>Absent Symptoms</th>
</tr>
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<tbody>
<tr>
<td>Sanni Vadha Kirecharam</td>
<td>Burning micturition</td>
<td>Dribbling of urine</td>
</tr>
<tr>
<td></td>
<td>Pain in the urethra during urination</td>
<td>Lower abdominal pain</td>
</tr>
<tr>
<td>Vadha Kirecharam</td>
<td>Burning micturition</td>
<td>Dribbling of urine</td>
</tr>
<tr>
<td></td>
<td>Pain in the urethra during urination</td>
<td>Pain in the perineal region</td>
</tr>
<tr>
<td>Moothiram Kiranthi</td>
<td>Burning micturition</td>
<td>Lower abdominal pain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dribbling of urine</td>
</tr>
</tbody>
</table>

**CONCLUSION**
Identification of disease and its pathogenesis are pre requisite for medical practice. A detailed history taking clinical examinations as per siddha guidelines are necessary to arrive at precise diagnosis.

The study on Vadha Kundala Kirecharam was carried out in the dissertation, giving importance to the characteristics of the disease like,

- Discomfort during urination
- Dribbling of urine
- Burning micturition
- Scalding pain in the urethra during urination
- Pain in the perineal region
- Lower abdominal pain

Diagnosis can be carried out by detailed history taking, classical clinical examination of siddha system neikuri, manikadai nool and changes in seven physical constituents and three humours.

The dissertation vadha kundala kirecharam can be diagnosis through signs, symptoms and parameters like,

- **Naadi** - Pitha vadham / Vatha pitham
- **Neerkuri** - Yellowish cloudy urine
- **Neikuri** - Aravil Aazhi / Aazhil Aravam
Manikadainool - 9¼ virarkadai alavu will show the fate of the disease and can confirm this disease by allied parameters.

Ultrasonogram

Urine culture and sensitivity test.

This study on vadha kundala kirecharam may be correlated with cystitis which had given relevance to modern clinical entity.
P.G. NOI NAADAL DEPARTMENT
GOVT. SIDDHA MEDICAL COLLEGE, PALAYAMKOTTAI
A STUDY TO DIAGNOSE “VADHA KUNDALA KIRECHARAM’
THROUGH SIDDHA DIAGNOSTIC METHODOLOGY

PROFORMA

1. O.P.No : ………………… 6. Name : ………………………………………
2. I.P. No : ………………… 7. Age (years) : ………………………………………
5. Date : ………………… 10. Income : Rs. …………………………./month
11. Address : ………………………………………………………………………

………………………………………………………………….……

Signature of Department faculty

12. Complaints and duration:
…………………………………………………………………………………
…………………………………………………………………………………
…………………………………………………………………………………

13. History of present illness:
…………………………………………………………………………………
…………………………………………………………………………………
…………………………………………………………………………………

14. Past history:
…………………………………………………………………………………
…………………………………………………………………………………
…………………………………………………………………………………

15. Family history:
…………………………………………………………………………………
…………………………………………………………………………………
…………………………………………………………………………………

16. Personal history:
…………………………………………………………………………………
…………………………………………………………………………………
### HABITS

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<tr>
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<tr>
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<tr>
<td>18. Tobacco</td>
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<td></td>
</tr>
<tr>
<td>19. Tea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Coffee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. Smoking</td>
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<td>22. Alcohol</td>
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<tr>
<td>23. Yoga</td>
<td></td>
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</tr>
<tr>
<td>24. Food habits</td>
<td>V</td>
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</table>

### GENERAL ETIOLOGY FOR VADHA KUNDALA KIRECHARAM

<table>
<thead>
<tr>
<th></th>
<th>1. No</th>
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<tbody>
<tr>
<td>25. Increased intake of spicy foods</td>
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<td></td>
</tr>
<tr>
<td>26. Indigested food</td>
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<td></td>
</tr>
<tr>
<td>27. Heavy intake of food</td>
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<td></td>
</tr>
<tr>
<td>28. Excessive indulgence in sexual activity</td>
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<td></td>
</tr>
<tr>
<td>29. Alcoholism</td>
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### CLINICAL SYMPTOMS OF VADHA KUNDALA KIRECHARAM

<table>
<thead>
<tr>
<th></th>
<th>1. Absent</th>
<th>2. Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>30. Discomfort during micturition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31. Dribbling of urine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32. Burning micturition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33. Scalding pain in the urethra</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34. Pain in the perineal region</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35. Lower abdominal pain</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ASSOCIATED SYMPTOMS

36. Fever
37. Haematuria

GENERAL EXAMINATION

38. Weight : ____________ kgs
39. Temperature : ____________ °F
40. Pulse rate : ____________ /minute
41. Heart rate : ____________ /minute
42. Respiratory rate : ____________ /minute
43. Blood pressure : ____________ / ____________ mmHg

1. Absent 2. Present

44. Pallor : ____________
45. Jaundice : ____________
46. Cyanosis : ____________
47. Lymphadenopathy : ____________
48. Pedal edema : ____________
49. Clubbing : ____________
56. Jugular venous pulsation : ____________

VITAL ORGANS EXAMINATION

1. Normal 2. Affected

50. Stomach ____________
51. Liver ____________
52. Spleen ____________
53. Lungs ____________
<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>1. Normal</th>
<th>2. Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>54</td>
<td>Heart</td>
<td></td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>Kidney</td>
<td></td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>Brain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>Mei/Ooru</td>
<td></td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>Vaai/Suvai</td>
<td></td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>Kann/Oli</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>Mookku/Naatram</td>
<td></td>
<td></td>
</tr>
<tr>
<td>61</td>
<td>Sevi/Osai</td>
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<td></td>
</tr>
<tr>
<td>62</td>
<td>Kai/Thaanam</td>
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</tr>
<tr>
<td>63</td>
<td>Kaal/Kamanam</td>
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</tr>
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<td>64</td>
<td>Vaai/Vasanam</td>
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</tr>
<tr>
<td>65</td>
<td>Eruvaai/Visarkkam</td>
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</tr>
<tr>
<td>66</td>
<td>Karuvaaai/Aanantham</td>
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</table>

**SIDDHA SYSTEM OF EXAMINATION**

**IYMPORIGAL / IYMPULANGAL**

1. Normal  
2. Affected

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>1. Normal</th>
<th>2. Affected</th>
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<tbody>
<tr>
<td>57</td>
<td>Mei/Ooru</td>
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<td></td>
</tr>
<tr>
<td>58</td>
<td>Vaai/Suvai</td>
<td></td>
<td></td>
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<tr>
<td>59</td>
<td>Kann/Oli</td>
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<td></td>
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<td>60</td>
<td>Mookku/Naatram</td>
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</tr>
<tr>
<td>61</td>
<td>Sevi/Osai</td>
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</table>

**KANMENTHIRIYANGAL / KANMAVIDAYANGAL**

1. Normal  
2. Affected

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>1. Normal</th>
<th>2. Affected</th>
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<tbody>
<tr>
<td>62</td>
<td>Kai/Thaanam</td>
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<tr>
<td>63</td>
<td>Kaal/Kamanam</td>
<td></td>
<td></td>
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<tr>
<td>64</td>
<td>Vaai/Vasanam</td>
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</tr>
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<td>65</td>
<td>Eruvaai/Visarkkam</td>
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<td>66</td>
<td>Karuvaaai/Aanantham</td>
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**YAAKKAI**

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<thead>
<tr>
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<th>1. Normal</th>
<th>2. Azhal</th>
<th>3. Iyam</th>
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<tbody>
<tr>
<td>1</td>
<td>Vali</td>
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<tr>
<td>4</td>
<td>Valiazhal</td>
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<table>
<thead>
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<th>2. Iyavali</th>
<th>3. Iyaaazhal</th>
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<tr>
<td>8</td>
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**GUNAM**

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<th>Description</th>
<th>1. Sathuvam</th>
<th>2. Rasatham</th>
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<tbody>
<tr>
<td>68</td>
<td>Gunam</td>
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<tr>
<td>KOSAM</td>
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<td></td>
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<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>69. Annamaya Kosam</td>
<td>☐</td>
<td>☐</td>
<td></td>
<td></td>
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<tr>
<td>70. Praanamaya Kosam</td>
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<tr>
<td>71. Manomaya Kosam</td>
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<td>☐</td>
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<tr>
<td>72. Vingnanamaya Kosam</td>
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<tr>
<td>73. Aanandamaya Kosam</td>
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<th>UDAL THATHUKKAL</th>
<th>1. Normal</th>
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</thead>
<tbody>
<tr>
<td>74. Saaram</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>75. Senneer</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>76. Oon</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>77. Kozhuppu</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>78. Enbu</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>79. Moolai</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>80. Sukkilam</td>
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<table>
<thead>
<tr>
<th>UYIR THATHUKKAL I. VALI</th>
<th>1. Normal</th>
<th>2. Affected</th>
</tr>
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<tbody>
<tr>
<td>81. Uyirkkaal (Praanan)</td>
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<td>☐</td>
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<tr>
<td>82. Keelnokkukkaal (Abaanan)</td>
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<td>83. Nadukkaal (Samaanan)</td>
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<td>84. Melnokkukkaal (Udhaanan)</td>
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<tr>
<td>85. Paravukaal (Viyaanan)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>86. Vaanthikkaal (Naahan)</td>
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</tr>
<tr>
<td>87. Vizhikkaal (Koorman)</td>
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<td>88. Thummikkaal (Kirukaran)</td>
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<td>89. Kottavikkaal (Devathathan)</td>
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<td>90. Veengukkaal (Dhananjeyan)</td>
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<tr>
<td><strong>II. AZHAL</strong></td>
<td>1. Normal  2. Affected</td>
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</tr>
<tr>
<td>91. Aakkanal (Anala pitham)</td>
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<td>92. Vannayeri (Ranjaka pitham)</td>
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<td>93. Olloliththee (Prasaka pitham)</td>
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<td>94. Nokkuazhal (Aalosaka pitham)</td>
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<td>95. Aatralangi (Saathaka pitham)</td>
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<td><strong>III. IYAM</strong></td>
<td>1. Normal  2. Affected</td>
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<tr>
<td>96. Ali Iyam (Avalambagam)</td>
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<tr>
<td>97. Neerppi Iyam (Kilethagam)</td>
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<td>98. Suvaikaan Iyam (Pothagam)</td>
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<td>99. Niraivu Iyam (Tharpagam)</td>
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<td>100. Ondri Iyam (Santhigam)</td>
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<tr>
<td><strong>MUKKUTRA MIGU GUNAM</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>I. VALI MIGU GUNAM</strong></td>
<td>1. Absent  2. Present</td>
<td></td>
</tr>
<tr>
<td>101. Emaciation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>102. Blackish discolouration of the body</td>
<td></td>
<td></td>
</tr>
<tr>
<td>103. Desire to take hot food</td>
<td></td>
<td></td>
</tr>
<tr>
<td>104. Shivering of the body</td>
<td></td>
<td></td>
</tr>
<tr>
<td>105. Abdominal distension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>106. Insomnia</td>
<td></td>
<td></td>
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<tr>
<td>107. Constipation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
108. Weakness
109. Weakness of sense organs
110. Giddiness
111. Sluggishness

### II. AZHAL MIGU GUNAM

<table>
<thead>
<tr>
<th>1. Absent</th>
<th>2. Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>112. Yellowish discolouration of the skin</td>
<td>☐</td>
</tr>
<tr>
<td>113. Yellowish discolouration of the eye</td>
<td>☐</td>
</tr>
<tr>
<td>114. Yellowish discolouration of urine</td>
<td>☐</td>
</tr>
<tr>
<td>115. Yellowish discolouration of faeces</td>
<td>☐</td>
</tr>
<tr>
<td>116. Increased appetite</td>
<td>☐</td>
</tr>
<tr>
<td>117. Burning sensation of the body</td>
<td>☐</td>
</tr>
<tr>
<td>118. Insomnia</td>
<td>☐</td>
</tr>
</tbody>
</table>

### III. IYAM MIGU GUNAM

<table>
<thead>
<tr>
<th>1. Absent</th>
<th>2. Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>119. Excessive salivation</td>
<td>☐</td>
</tr>
<tr>
<td>120. Eraippu (dyspnoea)</td>
<td>☐</td>
</tr>
<tr>
<td>121. Heaviness of the body</td>
<td>☐</td>
</tr>
<tr>
<td>122. Whiteness of the body</td>
<td>☐</td>
</tr>
<tr>
<td>123. Chillness of the body</td>
<td>☐</td>
</tr>
<tr>
<td>124. Reduced appetite</td>
<td>☐</td>
</tr>
<tr>
<td>125. Cough</td>
<td>☐</td>
</tr>
<tr>
<td>126. Increased sleep</td>
<td>☐</td>
</tr>
<tr>
<td>127. Sluggishness</td>
<td>☐</td>
</tr>
</tbody>
</table>

### 128. STATE OF MUKKUTRAM

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
129. NOI UTRA KAALAM

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

130. NOI UTRA NILAM

4. Neithal □ 5. Paalai □

ENNVAGAI THERUVUKAL

NAA

131. Maa Padinthiruthhal 1. Absent □ 2. Present □

3. Veluppu □ 4. Others □


134. Vedippu 1. Absent □ 2. Present □


137. MOZ HI 1. Sama oli □ 2. Uraththa oli □ 3. Thaazhntha oli □

VIZHI


139. Kanneer 1. Normal □ 2. Abnormal □

140. Erichchal 1. Absent □ 2. Present □

141. Peelai seruthal 1. Absent □ 2. Present □
MEIKKURI
143. Viyarvai  1. Normal  2. Increased  3. Reduced
144. Thodu vali  1. Absent  2. Present

MALAM
146. Thanmai  1. Ilagal  2. Irugal  3. Thin  4. Bulky
147. Alavu  1. Normal  2. Increased  3. Decreased
149. Seetham  1. Absent  2. Present
150. Vemmai  1. Absent  2. Present

MOOTHIRAM (Siruneer)
Neerkkuri
152. Manam  1. Absent  2. Present
153. Nurai  1. Normal  2. Increased  3. Reduced
154. Edai(Ganam)  1. Normal  2. Increased  3. Reduced
155. Enjal(Alavu)  1. Normal  2. Increased  3. Reduced
156. Thadavai  1. Day  2. Night
157. Neikkuri
1. Aravam  2. Mothiram
3. Muthu  4. Aravil Mothiram
5. Aravil Muthu  6. Mothirathil Aravam
7. Mothirathil Muthu  8. Muthil Aravam
9. Muthil Mothiram  10. Asathiyam
11. Mellena paraval

Diagram
NAADI (KAIKKURI)

Naadi Nithanam

158. Kaalam

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

159. Desam

1. Kulir  2. Veppam

160. Vayathu

1. 1-33yrs  2. 34-66yrs  3. 67-100yrs

161. Udal Vanmai

1. Iyyalbu  2. Valivu  3. Melivu

162. Naadiyin Vanmai

1. Vanmai  2. Menmai

163. Naadiyin Panbu

1. Thannadai  2. Puranadai  3. Illaiththal
13. Pakkanokku

164. Naadi nadai

10. Sanni

165. MANIKKADAI NOOL  (Viral Kadai Alavu)

166. Date of Birth

167. Time of Birth

168. Place of Birth

169. Pirandha Thinai
170. NATCHATHIRAM


29. Paadham  1. I  2. II  3. III  4. IV

171. RAASI


INVESTIGATIONS

BLOOD

172. TC :      Cells / cumm


174. Hb :      gms %

175. E.S.R. :      (mm / hr)

176. Blood Sugar F / PP / R :      mgs %
<table>
<thead>
<tr>
<th>Test</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood Urea</td>
<td>177 mgs %</td>
</tr>
<tr>
<td>Serum Cholesterol</td>
<td>178 mgs %</td>
</tr>
</tbody>
</table>

**URINE**

<table>
<thead>
<tr>
<th>Test</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albumin</td>
<td>1. Trace</td>
</tr>
<tr>
<td>Sugar</td>
<td>1. Trace</td>
</tr>
</tbody>
</table>

**DEPOSITS**

<table>
<thead>
<tr>
<th>Test</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pus cells</td>
<td></td>
</tr>
<tr>
<td>Epithelial cells</td>
<td></td>
</tr>
<tr>
<td>RBCs</td>
<td></td>
</tr>
<tr>
<td>Crystals</td>
<td></td>
</tr>
<tr>
<td>Casts</td>
<td></td>
</tr>
</tbody>
</table>

**SPECIFIC GRAVITY**

185

**URINE CULTURE AND SENSITIVITY**

**MOTION TEST**

<table>
<thead>
<tr>
<th>Test</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ova</td>
<td></td>
</tr>
<tr>
<td>Cyst</td>
<td></td>
</tr>
<tr>
<td>Occult blood</td>
<td></td>
</tr>
</tbody>
</table>

**ULTRASONOGRAM**