A STUDY ON
“AKKARAM”

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INTRODUCTION

The origin of siddha medicine is attributed to Lord Shiva and Propogated through Sage Agasthiar and other Siddhars. Thousands of years before the advent of Ayurveda are any other medicine.

The siddha system of medicine was developed purely by the contribution of siddhars on there own life of thinking and achievements in the field of their research. It is founded on the basic principles of nature and its elements after careful and thorough study of the human system.

Siddha system of medicine considers man as microcosam and the universe in which the lives to be macrocosam.

“அதிநர்காதிகுறுநாய் பிள்ளாம்
பிள்ளாம் காதிகுறுநாய் அதிநர்
அதிநர் பிள்ளாம் காதிகுறு
அதிநர் காதிகுறு பிள்ளாம் பிள்ளாம்”

- Chattamuni Gnanam

Also chattamuni has said any change in the cosmos reflects in the human body.

Siddha system of medicine too has its own doctrine / theory of fundamental principles based on hypothetical logic of natures law. This consist of
- Anda pinda thathuvam
- Panchabootha thathuvam
- Tridosha thathuvam
- Udal Thathuvam

Every thing is created by the basic five elements of nature. The Microcosam and Macrocosam are identical one self is all and all is one self. This is the law of nature all nature is nothing but the various combination of planets stars, galaxies and panchaboothas. Man is subject to tridosha viz vatha, pitha, selapanam. During Autumn air (Vayu) may be prominent in human body, in the winter season pitham (heat) will arise in the body and in the summer season water (phlegm) in the body. Hence during these season diseases is appropriate to the climatic conditions may occur in the human body.

Nature plays an important role in the process of human life. Creation, Restoration and Destruction are the fate of all objects on the earth. Air, Fire, Water are said to be more powerful and form the root cause for the creation restoration and destruction of all objects.

These three elements are well represented in the human body in a refined form called as bodily humours namely Vatha, Pitha and Kabha respectively. If these three doshas are deranged, they produce some pathological changes in human body which are named as disease.
Nature is the health, Nature is the disease and Nature is the medicine. The basic causes for babies ailments are owing to parents behaviour and their illhealth, the development of baby in the uterus based on the mothers diet, feelings and actions.

Thiruvalluvar also mentioned this fact in his Thirukkural.

"நிலையூடு சுருக்கும் வளையும் வெள்ளம் நாட்கள்
வரிபோய் லோக்கண்டின் வரும்”

- Thirukkural

The siddha system adopts the following principles for the diagnosis [Noi–Kanippu] treatment [Noi-neekam], Prevention and secondary complication of disease.

- Tridhosha theory
- Five elemental principles
- Six basic tastes
- Udal Kattugal
- Ennvagai thaervugal
- Kaya kalpam
- Yogi principles

Infectious and nutritional deficiency is the twin problem among the health problem of children affecting their growth and development. 

*Akkaram (அக்கரம்)* [Ariboflavinosis] is one among the commonest in the global arena. I have select the disease “Akkaram” (அக்கரம்) for the present study. It is causes inherited from parents are transmitted from
patients. I had selected for the study parents who are in the age group of 3 – 7 years because they have relatively low immunity among children.

The effective chemotherapy of Akkaram (அக்கரம்) from siddha system of medicine the author has undergone this dissertation work with a treatment of Athemathura nei. The medicine has been told to be effective action, safe and low cost for pediatric usage. The author humbly contributes the work to the glory of siddha system of medicine.
AIM AND OBJECTIVES

The disease Akkaram (அக்கரம்) in siddha system due to excess heat production in moolam and affect the all organs of the body. The most of signs and symptoms of the diseases may be correlate with Ariboflavinosis. Its the most common nutritional deficiency in children. The researcher has selected this disease Akkaram (அக்கரம்) and treated the effectively with the help of Athemathura nei.

The objectives of the present study are as follows:

- To collect authentic literature and review the siddha literature about the diseases.
- To study the clinical features of the disease called Akkaram (அக்கரம்), on the basis of udal thathu, Paruva kaalam, food, taste, age, sex, economic status ennvagai thervu, neerkuri and neikuri of the patients.
- To analyse the altered tridhosha (or) mukkutram and changes in the physiology as per Siddha procedures.
- To describe the unique diagnostic procedure mentioned in Siddha literature for the disease Akkaram (அக்கரம்).
- To have a detailed study of the clinical efficacy of the drug Athemathuranei administered and the pharmacological and biochemical analysis of the drug identified in the changes in the patients.

The work is carried by having a clinical trial of Athemathura nei as internal drug for the disease Akkaram (அக்கரம்).

I had identified 20 In-pateint between the age group of 3 – 7 years and serveral outpatients in the same age group in government siddha medical college hospital at palayamkottai for the study. 3 – 7 age group is selected because they have relatively low imunity among children.
REVIEW OF LITERATURE

PEDIATRICS IN SIDDHA SYSTEM

It is undeniable that if a country is to make rapid economic and other developments, it can be brought only by decades of services provided through the medical, nutritional and general care of small children, who become the active members of society later knowing this well, pediatrics for the past few decades has got the prime importance all over the world both in the medical and social work.

In modern medicine pediatrics emerged as a medical specialty only over a century ago in response to growing appreciation that the health problems of children are different from those of adults and that the child's reaction to them varies with age. [Nelson’s Textbook of pediatrics Behrman and Vaughan]

But siddha system deals pediatrics known in Tamil as “Balavagadam” separately and in detail but only a very little amount of literature is available for us.

A child's life is divided in to many “Paruvangal” namely [Kaappu Paruvam], Sengeerai paruvam, Thalaattu, Sappani, Muththa, Varugai, Ambuli, Chittril, Siruparai, Sirutherviduthal paruvam] which coincide with the growth period classification and milestones mentioned in modern pediatrics.

Regarding the etiology of a disease Dr. Uthamarayan have told that
Which means a child health is decided even the time of conception. They have told that the physical and mental condition and diet of the mother even during pregnancy and lactation directly affects the child and thus be causative factors of diseases or weakness of the child. They have mentioned the other external factors of disease.

It has been mentioned that the conditions of the father also affects the child

They have vast classifications of disease not ignoring even minute symptoms of the child. They had known that disease attacks the child from his fetal life and classified them under “Karuvil thondrum noigal “ [Disease that arise during fetal life] If we go through the literature they have offered a variety of solutions for each and every problem the child faces in day to day life.

Development of immunity and prevention disease start from the fetal life itself. The drugs pregnant women had to take every month have been dealt with. Her diet, psychological conditions good for the fetus environment activities everything has been described.
In brief Balavagadam had got more importance than any other branches of medicine in Siddha system. On the basis of udal thathu Paruva kaalam, food, taste, age, sex, economic status ennvagai thaervu, neerkuri and neikuri.

Siddha system of medicine is one of the ancient forms of medicine. It is believed to be the system of medicine propagated by God. According to this system. Our body is made up of five elements or panchaboothams namely *Earth, Air, Water, Fire* and *Space*. These five elements combine to form the three humours.

The three humours are,

- Vatham  
  [*Air + Space*]
- Pitham  
  [*Earth + Five*]
- Kapham  
  [*Earth + Water*]

According to siddha system of medicine any derangement of these three humours will result in disease.

The disease *Akkaram* (*அக்கரம்*) is a common disease affecting children. It occurs due to the derangement of three humours. So before describing about *Akkaram* (*அக்கரம்*). It is important to know about all Uyirthathukkal.

“மருத்துவம் படிகத்து பிடிகும் இசைவிகளின் காரத்து செய்ய
செய்யாது நிற்க கொன்று விடுத்திற்கு கொடுப்பாது
பொல்கள் செய்யவும் பொல்கள் விடுத்திற்குப் பொல்கள் விடுத்தால் பொல்கள் விடுத்துத் தான் விடுத்தாலே
கர்த்தர்கன் கிழியாலாற்றுந்து கொல்லக்கு கொல்லியாலே”

- Theraiyar Maruthuva bharatham
VADHAM (வத்தம்)

Synonyms: (சொற்றியாய்)

Vayu, Vali, Air

Definition:

Vadham is a humour which is responsible for construction nature of works in the human body.

Genesis of Vadham:

Vadham = Vali + Akayam

When vali bootham and Akaya bootham are combined vadham is formed.

Shape:

It is invisible. It can be felt by action or movement of the body.

Location:

It is present in each and every cells of the human body. But it is predominant in the following parts. Abanan, Hip bone, Faeces, Skin, Idakalai, Nervous system, lower abdomen, joints, genital organs, muscles and hair roots.

Function of vadha humour:

- Maruthuva thani bharatham
Under normal physiological condition vadha gives

- Encouragement to mind
- To control breathing
- Gives signals to mind
- Expels 14 vegas (i.e.) seven udal kattugal waste of the body
- Gives energy to the physical body
- Gives coordination to seven udal kattugal

**Signs of Increased vadha:**

Constipation, Abdominal disturbances, Fatigue, Depression of five porigal, Giddiness, Incoherent speech, Rigor, Insomnia, Fond of eating hot food stuffs, Emacination with blackish discolouration

**Signs of Decreased vadha:**

Vague pain all over the body, Low pitched voice, Difficulty to do any work, Reduction of intelligence, Syncope, Symptoms of hyperkapha

**Classification of Vadham:**

It can be classified into ten types. This has been said in Yoogi muni 800 as follows.

"ō¨ÈÂ¡ö Å¢Ã¡½§É¡¼À¡Éý Ţ¡Éý ³¡Éý À¢Ã¡½ý
ä+í,Áí Ô¾¡É|É¡î °Â¡É ²ì,ý
¾¢È¨ÅÂ¡í ë+Á|É¡î ,çõ, Å¥È¡ý
§¾Ã¾¾ |É¡î Ê¾¡í °Â◊Â¡íö."  

- Yoogi Vaidhya Chindamani

- Pranan (Å¢Ã¡½ý)
Abanan («À¡Éý)

Viyanan (ÃçÀ¡Éý)

Udhanan (⁻χìÉý)

Samanan (°À¡Éý)

Nagan (εì·, ų)

Koorman (Ü+Ăý)

Kirukaran (¢, ţŐ,Ăý)

Devadhatan (§¾Å¾ò¾ý)

Danajeyan (¼Éi|°Âý)

Pranan:

It is responsible for maintaining respiratory function. In the case Akkaram it is not affected.

Abanan:

It is responsible for expelling faeces urine, semen, menstrual blood and foetus. In this case of Akkaram (.atomă) it is not affected.

Viyanan:

It is situated in the skin and spread all over the parts of body. It is responsible for locomotor activity. It carries nutrients to all over the body.

In Akkaram (atomă) it is not affected

Udhanan:

It is situated in the udharakini. It is responsible for digestion and absorption of foods. It also responsible for all upward viceral movements
such as vomiting, nausea erection and hiccough. In Akkaram (அக்கரம்) it is affected.

**Samanan:**

It is situated in the abdomen and spreads to the legs. It controls the domination of other vayus. It is responsible for balancing six tastes and water. In Akkaram (அக்கரம்) it is affected.

**Nagan:**

It is responsible for higher intellectual function. It is responsible for opening and closure of eyes. In Akkaram (அக்கரம்) it is not affected.

**Koorman:**

It is situated in the mind. It is responsible for opening and closing of eye lids, yawing and closing of mouth. In Akkaram (அக்கரம்) it is not affected.

**Kirukaran:**

It is situated in the longue and oropharynx. It is responsible for salivation, nasal secretion, sneezing and cough. In Akkaram (அக்கரம்) it is affected.

**Devadhatan:**

It is responsible for tiredness, lazziness, sorrow sleep, argument, angerness. In Akkaram (அக்கரம்) it is affected.

**Dhananjeyan:**

It is situated in the nose. Physiologically, it is inactive and maintains the intra cerebral pressure
PITHAM (पिथम)

Synonyms - Azhal

Definition - Pitha is a life force / protective force.

Pitha represents gastric Juice, bile, energy, heat inflammation anger and irritation etc.,

Genesis of pitham - Pitham = Thee

Shape - invisible

LOCATION

Bladder, Sacral plexus, heart, head, endocrine glands, umbilical region circulatory & Respiratory system, stomach, Abdominal visceral, liver, gall bladder, sweat gland, haemopoietic system, plasma & cellular fluids & eyes.

Function of pitha humour

“பி஥மின் கிளை கண்டு பார்த்தீர்கள் பண்டைய ஒழுங்கம்
கனின் ஓரை வசதியாக விளக்க நிர்ணயம் - ஒருமை
மாணிக்கு புறநையில் பண்டைய ஒழுங்கம் காணிக்கு
அறிக்கார் பார்த்தீர்கள் என்பது

- Maruthuva Thani Bharatham

Normal Physiological condition pitha gives

- Helps in digestion
- Regulates vision
- Stimulation of appetite and thirst
- Perception of tastes
Perception of light
Thinking knowledge
Immunity
Maintenance of haemostasis

Role of pitham in organ system

Thermo regulation:

- It regulates heat and temperature & maintain normal B.M.R.
- It causes discoloration of skin and mucous membrane in diseased condition eg. yellow in jaundice, blue in cyanosis, shock, hypoxia, pale in anaemia
- It favours absorption and assimilation of food stuff by regulating the secretion of stomach bile and succus entericus and pancreas.
- It regulates the function of reticulo endothelial system
- Neurological – Sweating, Vagal syncope, tremors
- Psychological – irritability non co-operation, delirium

Signs of Increased pitha

- Yellowish discolouration of skin, mucous membrane and sclera
- Excessive appetite, Excessive thirst, Feeling of warmthless all over the body, Burning sensation, Insomnia, Emaciation, Sensation of bitter taste, Sourness.

Signs of Decreased pitha

- Indigestion, Coldness, Pallor, Hypopigmentation, Belching, Stunted growth
Classification of pitham

It can be classified into five types

“அுருவக்கழம் வம்பத்தையின் பராமரிக்கு பின்னர் விளையாட்டு முறை வழியாக பராமரிக்கு விளையாட்டு முறை வழியாகப் பின்னர் வம்பத்தையின் பராமரிக்கு விளையாட்டு முறை வழியாகப் பின்னர் வம்பத்தையின் பராமரிக்கு விளையாட்டு முறை

- Mruthuva Thani Bahratham

- Anarpitham (Gastric juice)
  
  This gives appetite and helps digestion

- Ranjaga pitham (Heamoglobin)

  It gives colour to the blood

- Prasaga pitham (Bile)

  It gives complexion (cluster) to the skin.

- Aalosaga pitham (Aqueous humour)

  It is responsible for clarity of vision

- Sathaga pitham (Life Energy)

  It controls the whole body

KAPHAM
**Synonyms (அழுத்து பொழுப்பான்):**

Iyam

**Definition:**

It is a destructive force. It represents feeling of cold, heaviness, running nose, passing of mucoid discharge and also the saliva.

**Location:**

Samanan, Semen, head, tongue, fat, bone narrow, bones, chest, nerves, brain, large intestine, eye and stomach and pancreas.

**Function of Kapha humour:**

"&$%$& $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $÷ $divv

**Under normal condition physiological condition kapha maintains:**

- Stability of the joints
- Lubrication of the joints
- Structural maintenance of the joints
- Tolerance of hunger, thirst, sorrow, heat, depression and anxiety etc.,

All these qualities are present in saliva, so saliva is Kapha.
Signs of increased Kapha:

Loss of appetite, Excessive salivation, Diminished activity, Heaviness, Excessive musculature, Cough, Dyspnoea, Excessive Sleep.

Signs of decreased Kapha:

Giddiness, Dryness of joints, Prominant of bones, Dry cough, Excessive sweating, Lightness, Palptation.

Classification of Kapha:

"¬³Ä À¡ö|À¡ö «ÀÄö À¾À¡í,¢ \\
§Ä¾, À¡í°¢”Àô §À¾Ò½÷ô §À¡¾¸Á¡õ \\
¾üÀ¸ À¡ï ºó¾¢¸Ç¢ø ¿íÌï º¢§Ä¼¸Á¡ \\
ÀùÀÁ¢Ä¡î §ºòÐÁ ¨ÁóÐ"

- Maruthuva thani Bharatham

1. Avalambagam (அவலம்பகம்)
2. Kileathagam (கிலைதாகம்)
3. Pothagam (போதகம்)
4. Tharpagam (தார்பகம்)
5. Santhigam (சாந்திகம்)
Avalambagam (Serum)

It is present in the lungs. It controls the heart. In Akkaram it is not affected.

Kileathagam (Saliva)

It is present in the stomach and makes the food and liquid moisture and helps in digestion. In Akkaram it is affected.

Pothagam (Lymph)

It is responsible for taste. In Akkaram it is affected.

Tharpagam (Cerebrospinal Fluid)

It gives cooling to the eyes. In Akkaram it is not affected.

Santhigam (Synovial Fluids)

Lubrication of joints and response for free movements,. In Akkaram it is not affected.

Relationship between Taste and Pitham

These tastes are Increase the pitham

“துற்கனை தச்சு தேசியின் பிரித்து திலங்கு”

- புக்கடைத்த தண்ணீர் திலங்கப்போரிக

கங்கபு (Pungent) - தேசிய + தில

மாத்தியம் (Acidity) - தேசிய + தில

சாம்பும் (Salty) - தேசிய + தில
The tastes suppress the pitham

<table>
<thead>
<tr>
<th>Taste</th>
<th>Tamil</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sour</td>
<td>கறுதோப்பு - மண்ட மிள்கி</td>
<td>Mundy + milk</td>
</tr>
<tr>
<td>Sweet</td>
<td>மூட்டோப்பு - மண்ட வெட்டியார்</td>
<td>Mundy + sugar</td>
</tr>
<tr>
<td>Bitter</td>
<td>கறுதோப்பு - மண்ட விலைண்டிக்</td>
<td>Mundy + bilgic</td>
</tr>
</tbody>
</table>
AKKARAM (அக்கரம்)

தில்லாம் (Definition)

It is one of the disease found in oral cavity of children.

அக்கரம் என்னும் அமைப்பு வைத்திய காரணத்துக்குரியது வரும் காலத்திலுள்ள குழந்தை வைத்திய வுருத்து.
Ulceraion in the tongue

Excess salivation

Pale & coated tongue.

Head ache

Does not tolerate in Pepper pungent

Redness of the tongue

In Balaroga Nithanam

"பெருந்தாய்வில் குறித்து பல்தாதும் பரப்பினை
பருந்தாகத் தின்பதியில் செய்யக்கூறுகள்
தின்பதியில் கருபரசு ரோகங்களும் குற்றங்கள்
தீர்வு படுத்தியது கூடத்து பரப்பினை"

(பர - 196)
- Distended abdomen
- Ulceration in oral cavity
- Cough
- Pain in abdomen
- Fever
- Burning sensation in the body
- Dryness of the month
- Vomiting
- Dycectery
1. *Nagamunivar Thalai noi* enumerates 1008 diseases which occur in head which include mouth disease. [Disease of the tongue and lips]

"பாகநூர் சக்கரிகம் காணும் கருவதிலிங்கா பகுதியில் பல்வேறு பொருள்களில் பல்வேறு பொருள்களை கையாளும் செய்திகள் காரணி நீங்கல் நீங்கல் செய்தியை சாதியில் பல்வேறு பாதுகாப்பு நேரீட்டுகளை பராமரிக்கிறது"
Neeru uthadu
Menumenuppu uthadu
Kuruthi uthadu
Kutta uthadu
Vedipu uthadu
Adepatta uthadu

III. 4448 மியாரிக்கு வெண்மை - Dr. ச. அம்மநாயகன் B.I.M
முன்பு நிறை - 156

IV ஒட்டையும் வாரம்
முன்பு நிறை - 70
நூற்றாண்டு நிறை - 49

அக்கரம் பக்கக்கராண் (TYPES OF AKKARAM)

"அக்கரம் பக்கக்கராண்

நூற்றாண்டு பரசிய மூனையும்
அக்கரம் பரசிய மூனை கோலளவும்
அக்கரம் பக்கக்கராண் கோலளவும்

நூற்றாண்டு பாரம்பரியமாக்கம்"
- Burning sensation with priking pain in the tongue
- White coating of the tongue
- Foul smell
- Vomiting
- Headache
GI infection - Acute

- Moderate ulceration in the tongue
- Redness with white coated tongue
- Dryness of the month
- Headache
- Fever

Ischemic Colitis

- Ulceration of the tongue
- Claudication pain
- Fever
- Dysentry
- Vomiting with burning sensation in the mouth

**Thickening of the tongue**

**Redness and ulceration of the tongue**

**Headache**

**Hepatic pain**

**Affected liver produce redness of the tongue**

**Dysentry**

**Body tiredness**

**Nausea**

**Excess thirst**

**Pain in one side of the thoracic cage**

**Scarlet Fever**

**Affected liver produce redness of the tongue**

**Dysentry**

**Body tiredness**

**Nausea**

**Excess thirst**

**Pain in one side of the thoracic cage**
**Typhoid Fever or Amoebi Hepatitis**

- Intestine and liver both are affected
- Burning sensation in the throat
- Feeling of weightness of the body
- High fever
- Diarrhoea

**Diptheria**

- Dysphagia
- Feel bitter taste
- Fever
- Frequent vomiting
- Yellowish teeth
- Rhinitis

II. In Pararasasekaram – Balaroga nithanam

**Karutha Akkaram** - करुठा अक्करम्

**Sivnadha Akkaram** - सीवन्दा अक्करम्

**Vellai Akkaram** - वेललै अक्करम्
III. In Aathmarakchamirtham

"... வர்த்தகர் வார்ணு நன்றாணா காத்தோல்லூர் நாமின் குறிப்பிட்டு
மண்டத்தில் புரிந்து நன்றால் நூற்று புரிந்து
இருந்ததை அடையாதே நன்றால் ஓர்க்கியே புரிந்து
அந்ததை எதிர்ப்பூட்டவும் பலவற்றில் புரிந்து பயன்படுத்தவேதான்".

These Types are same as Balavagadam

IV. In Roganirayasaram

1. வேதுமக பரம (Vatha mugha bhagam)

குப்பிரா மருந்திலாக பரமில்

- ரூம்பிற ராசப்பரசி (Redness)
- டீன்பூச்சி (Swelling tips)
- ரூம்பிற சுருந்து பெருந்து (Fissure & coated tongue)
- பூந்த சுருந்து அழுத்து

2. பித்த மகம் (Pitha Mugabhagam)

பித்திலியில் மாருந்தில் பெருமையூ புரட்டு வால்முகம், பிட்டம் (pain)

3. ஷ்லாஸ்மா மகம் [Slashma mugabhagam]

கப்பிலியில்

- மார்க்கில் ரூம்பா (Pain)
- சுருந்து (Irritation)
- மாபிலியிலி பெருந்து (Sweetness)
4. తీరించిన పుఞ్చాయ (Trithoshamugabhagam)

ముక్కుత్రామ ఆకాశం పుష్పాల పుష్పాయాలు పెరుగుతోంది ఎందుకంటం నీని కానంతున్నట్లు.

5. ఆటంతో కామ (Uruthuva sutham)

అమితం వారు మూసినాదియాలు పరివారు పరివర్తన మాత్రమే కంటేది కంటేది (Foul smell) కలించడం.

6. కండరపుత్మ (Kandarputham)

ప్రమాదం కనడ కండాపుతమలు కానంతున్నట్లు సిద్ధాంతం. అనేకం నాటికి కంటేది (లై) ప్రమాదం పట్టాడ ప్రమాదం (లై) పరివర్తన మాత్రమే సమాధానం.

7. పూర్తియాసియము (Poorthiyasiyam)
   - పిట్టింగు కంటేది
   - ప్రమాదం కంటేది

8. రాత్తామబాహమ (Rattha muga bhagam)

పిట్టింగు ప్రమాదం అధికారికంగా భాగం, పిట్టింగు ప్రమాద సిద్ధాంత పిట్టింగు పిట్టింగు.

చిత్రం - ఆటంతో కామ.

Vitiation of Mukkutram

According to siddha system of medicine, a disease is caused because of the disequilibrium in one (or) more among the Tridoshas namely Vatham, Pitham, Kapham that exist in human as Uyir thathukkal. The vitiation of vatham is due to irregular inadequate food habits and physical activities results indigestion, pain in abdomen, excesses salivation, vitiation of pitham results indigestion loss of routine activity, vitiation of kapham results tastelessness and indigestion.
In Akkaram (அக்கரம்) pitham is first got vitiated from its normal condition due to excess heat, spicy foods etc., Pitham and Kapham also gets vitiated and the symptoms are produced like Redness of the tongue, fissure in the tongue and lips, ulceration headache, prinking pain fever etc.

**பின்வரும் பதைலை (Diagnosis)**

It is the method of diagnosing a disease Siddha system has a very unique methods of diagnosis, which solely depends upon the clinical skills of the physician. There are three methods. They are

- வைரியாரிசத் (Inspection)
- புலானாரிசத் (Palpation and percussion)
- விநாதை (Interrogation)

1. **Poriyarithal** is understanding by the five organs of perception namely- nose, tongue, eyes, skin and ears.

2. **Pulanalarithal** is understanding by the objects of sense namely smell, taste, light, touch and sound

3. **Vinadhal** is a method of enquiring the details of the patients problem from his / her own words or from attendants.

The prime method to diagnosis the disease is by means of “Enn vagai Thaervugal” என்வாகை தார்வகால்

“எனவாகை தார்வகால் தார்வகால் வாயிலை விளை”

“எனாகை தார்வகால தார்வகால் விளையான கால்”
In Agathiyar Vaidhya Vallathi – 600

"இந்திரகரரங்கம் அளிகின்ற பரக்கம் குரரமா
தீர்க்கக்கய்க்கும் பலனுள்ளிட ஐதிதியா
பாலூகழிழ் பருசம் இது பாய்த்துப்பாறாத
பாலூகழிழ் மார்க்ககுறுப்பார் பசறம்பாறார்
மூலத்திற்குச் சிகிச்சைட்டு குரியின் பாறா
மின்னாய் சரியானிடம் இறிக்குறுப்பார் பாறா
மூலத்திற்குச் சிகிச்சைட்டு மார்க்ககுறுப்பாறார்
சார்க்க நிலை கணிக்குவது மார்க்ககுறு ஐதிதியாப்பாறார்"

Enn Vagai Thaervugal (சார்க்ககுறு சுந்தரகம்)

It is a method which helps the physician to come to correct diagnosis

They are:

- சை (Tongue)
- சல்லை (Colour)
- கைகை (Speech)
- கைகை (Eye)
- கண்கை (Sense of touch)
- சை (Pulse)
- கைகை (Stools)
- கைகை (Urine)
1. Naa (Tongue)

By seeming the colour of the tongue coated or not and ulcers, the diagnosis made. The damaged humour can be found. In Akkaram (அக்கரம்) the tongue is coated and tissures and there in tastelessness

2. Niram (Colour)

The colour indicates if the disease is due to the vatha, pitha or kapha. In Akkaram (அக்கரம்) the skin is normal in colour

3. Mozhi (Speech)

The volume, clarity and any disturbance in speech is useful to diagnose. In Akkaram (அக்கரம்) there is normal to speech.

4. Vizhi (Eye)

Here the colour changes lacrimation visual disturbances are to be noted. In Akkaram (அக்கரம்) there is no specific change of vision.

5. Sparisam (Sensation)

By the temperature of the skin, smoothness, dryness, any swelling, tenderness can be felt for diagnosing. In Akkaram (அக்கரம்) there is fever some times.

6. Naadi (Pulse)

This is an unique diagnostic method in siddha system of medicine. It is responsible for the exisstance of life. In Akkaram (அக்கரம்) pithakapha.
It is felt one inch below the wrist on the radial side by means of palpating with the tip of index finger, middle finger and ring finder which denotes vatham, pitham and kapham.

Vatham, Pitham, Kapham are in the ratio of 1:½:¼ If the ratio changes disease occur also many criteria are to be put in mind while using naadi as a diagnostic tool. In male it should be felt in the right hand and in female it should be felt in the left hand. This is because of the position of the Nabi Koormam it is upward in female and downward in male.

7. Malam (Stools)

The colour, odour, consistency, tightness of the stools and taken as criteria.

In Akkaram (அக்கரம்) constipation may be noted.
8. Moothiram (urine)

The diagnostic methods of urine is using two types namely

- Neerkuri
- Neikuri

Neerkuri

Here the Niram, Manam, Edai, Nurai and Enchal noted:

- Niram: Colour of urine
- Manam: Smell
- Edai: Specific gravity
- Nurai: Frothy in nature of urine
- Enchal: Amount of urine per day

In Akkaram (அக்கரம்) all of these are normal

Neikuri

According to Therayar, the urine to be tested should be collected in the following way:

"அக்கரமானது நிறமும் அரிதையும் கணப்பு
என்க உண்டதும் அலரும் முன்னத்துவம்
சுற்று முழுக்கு என்ங்கி கொண்டு
அுளும் காற்று காதியின் காசியின்
சேர்து முழுக்கு சதுக்கம் காழ்வின்
பின்னுள் வெப்பமுறு விளையாட்டும் காட்டு"
Methods

To see Neikuri before collecting the urine, the doctor advise to the patient to take a balanced diet and have a good sleep. After waking up from the bed in the morning, the first urine is collected in a clean glass container and examined within one hour. A drop of gingely oil is to be dropped in the urine and seen in direct sunlight.

When the drop of oil spreads like a snake it indicates vathaneer.

It spreads like a ring, it denotes pithaneer.

If the oil drop remains like a pearl it is kaba neer

If the dropped oil shows a combination of two shapes it indicates Thonthaneer. In Akkaram the urine is pithaneer.

(DIFFERENTIAL DIAGNOSIS)
Akkaram (அக்கரம்) should be differentiated from the following diseases which resemble Akkaram (அக்கரம்).

1. «î° À¡ó¾õ™
   - Fever with rigor.
   - Dysentry
   - Fissure and ulcer in lips and mouth.
   - Emaciation

   In Akkaram (அக்கரம்) all symptoms are not present. Except fissure and ulcer in lips and mouth.

2. °Ð Á¡ó¾ ¸½õ™
   - Generalised Edema
   - Ulcer in the tongue
   - Fever
   - Anorexia
   - Fatigue
   - Tachypnea

   In Akkaram (அக்கரம்) all symptoms are not present. Except ulcer in the tongue and fever.

3. ¿£÷ ¸½õ™
   - Intermittent fever
   - Excessive thirst
   - Sweating
   - Shunkeneye
- Fissure and dryness of the mouth.
- Watery stools
- Shining of the face and leg.

In **Akkaram** all symptoms are not present. Except Fissure and dryness of the mouth.

4. ëž° ä®³

- Ulceration in throat, tongue and oral cavity
- Cough
- Flatulence
- Does not feed breast milk.
- Tachypnea

In **Akkaram** all symptoms are not present. Except ulceration in throat, tongue and oral cavity.

**Final diagnosis**

**Akkaram** is confirmed by comparing the identities and differences of the signs and symptoms and results obtained by Envagai thervugal, Naadi and Mukkutram.

**Prognosis**

According to Balavagadam, Suli **Akkaram**, Neethi, Soothi, Veemi, Kundi, Kabali, Kumari and Ul **Akkaram** are curable varieties of **Akkaram** by proper treatment.

**Treatment**
According to siddha system, the line of treatment is divided into three types

They are

- , (prevention)
- (Management)
- (Restoration)

**Kappu (Prevention)**

"§¿¡ö ¿¡Ê §¿¡ö Ó¾ø ¿¡Ê «Ð¾½¢ìÌõ Å¡ö¿¡Ê Å¡öôÀî ¦ºÂø"

Sage Thiruvalluvar also says some preventive measures.

1. ÁõÌ ¾É ßã¿iÉ;Å¿¿ Ñi É,î
   ÒÝd˚Á ÅãºÉ ßã¿iÉò;ò.

2. Á¡ÚÀ¡ÊøÄ¡¾ ¯ñÊ ÁÕòÐñ½¢ý Æú À¡Êø¨Ä ¯Â¢÷ìÌ
   ,ßÝÁÁÉÁÉÁÉ É, Ñ¿;¿¿

3. Á¡ÚÀ¡ÊøÄ¡¾ ÑÉ ÂõÀø³ø 
   ßù Á¡Êø¨Á ß²;¿¿

Prevention of disease is the basic principles of any medical system. Siddhars have told us a rational and scientific way for prevention of illness. Protection of child afrom disease starts from conception and goes in as the child grows up in intra uterine life and also after birth Siddhars have dealt elaborately with the specific diet of pregnant women their daily habits and medicines to be taken in every month. They have also laid down the environmental conditions in which they should stay.

Prevention is also classified into primary and also secondary
### Primary prevention

It is defined as action taken prior to the onset of disease which removes the possibility that diseases will never occur.

Naal Ozhukkam, Kaala Ozhukkam and Noi anuka vethi have been described in Siddha text as primary prevention.

### Secondary prevention

It is defined as action which halts the progress of a disease at its initial stage and prevents complications. The specific interventions are early diagnosis and adequate treatment.

### Noi Neekam (Management)

The aim of Noi Neekam is based on

1. Bringing the mukkutram to equilibrium
2. Treatment of the disease with medicines
3. Diet restriction

Siddha system medicine is based on the mukkutra theory and hence the treatment os mainly aimed to bring down the tridhosas to their equilibrium state and there by restoring the physiological condition of various thathus.
Treatment of disease under study

After the tridhosas were brought down to their equilibrium state.
The signs and symptoms of disease should be treated properly.

For this study *Athemathura nei* has been selected for the treatment.
It was given internally about 4gm two times daily after meals for each patients. Depending upon age and severity of the disease.

<table>
<thead>
<tr>
<th>Age</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 – 5 years</td>
<td>2mg to times daily</td>
</tr>
<tr>
<td>5 – 7 years</td>
<td>4mg to times daily</td>
</tr>
</tbody>
</table>

Other Medicines of Akkaram

1. Akkra sanjeevikuligai – 1 tds with honey
2. Akkara kuligai – 1 tds with honey
3. Amuthathi kuligai – 1 bd with breast milk
4. Thuthu valai nei – 4ml bd

Dietary Restriction (பாதகள்)

During the course of treatment all the patients were given uniform hospital diet. The patients were also advised to follow certain precautions in diet and physical activity. They were advised to get rid off spicy food, roughaged diet, semi-cooked and unhygienic diet.
**Niraivu (Restoration)**

After the treatment efforts should be taken to clear the residual effects of the disease to bring back the normal body condition of the patient. Patient should also be advised to adhere to the preventive methods like

- To avoid spice foods
- To avoid fried food substance
- To avoid pungent food substance
- To use only boiled water
- To have timely diet

All the above restrictions were adhered to by the patients under study during the course of treatment.

MODERN ASPECT
The term pediatrics is derived from the Greek word. Pediatric is concerned with the health of infants, children and adolescent their growth and development and their opportunity to achieve full potential as adults. It has come to mean the science child care in the present day and includes planned preventive and curative care of children.

Hippocrates of Greece (460 – 370 BC) the father of modern medicine had devoted a great part of his treatise to children and made many significant observation on diseases found in children. The world first pediatrician kashyapa an jeevaka were indians who lived in sixth century BC and whose pioneering works on child care and children’s diseases are as relevant today as many of the modern concepts of child health.

In early histories of topical countries, many practices in child care which were different from those of the west became traditional. Some of these practices are beneficial in condition existing today such as prolonged breast feeding and demand feeding infants while many, which still continue. Now the traditional habits started replacing old one. Coffee and tea used first by the adults are given to childrens in the wearning period especially when milk is not available unfamiliar infants foods like condensed milk, often too dilute leads to malnutrition.

Population dynamics
Estimated population of in India as per 2001 – 2010 census was 100 crores which of the child population was forming 40% of the total. In the child population 17% are under the age of 5 yrs.

**Pre school period (1-5 yrs)**

The size of family, and the incidence of calorie malnutrition, vitamin deficiencies, common infection and morbidity rate are found higher after the second child. Family income, housing condition, environmental sanitations, education and availability of medicare for children are also important factors.

Low family income is directly related to low birth weight, high frequency of protein calorie malnutrition and vitamin deficiencies.

Riboflavin, a vitamin essential to embryonic growth, is transported across the fetoplacental membranes by riboflavin carrier protein.

Scientists suspect that riboflavin deficiency affects psychomotor functions and impairs collagen maturity and wound healing.

A greater number of infants, if exclusively breast fed without vitamin supplementation, may not meet their daily need for riboflavin. I have may be correlate the disease *Ariboflavinosis* in modern aspects.

**Anatomy of the oral cavity (Mouth)**

The cavity of the mouth (oral or buccal cavity) is placed at the commencement of the digestive tube. It is nearly oral shaped cavity consist of two parts. An outer smaller portion the vestibule and an inner layer part the mouth cavity proper vestibule.
The Vestibule (Vestibulum oris) is a slit like space, bounded externally by the lips and cheeks internally by the gums and teeth. It communicates with the surface of the body by the rima of the mouth. Superiorly and inferiorly it is limited by the reflexion of the mucous membrane from the lips and cheeks to the gums covering the upper and lower alveolar arches respectively. It receives the secretion from the parted salivary gland.

**Mouth cavity proper**

It is bounded laterally and ventrally by the alveolar arches with their contained teeth dorsally it communicates with the pharynx by a constricted aperture termed the isthumus faucium. It is roofed in by the hard and soft palates. While the greater part of the floor is formed by the tongue, the remainder by the reflection of the mucous membrane from the sides and under surface of the tongue to the gum lining the inner aspect of the mandible. It receives the secretion from the submandibular and sublingual salivary gland.

**Lips**

The lips (labia oris), the two fleshy folds that surround the rima or orifice of the mouth, are covered externally by integument and internally by mucous membrane between which are found the orbicularis oris muscle, the labial vessels, some nerves, areolar tissue, fat and numerous small labial glands. The inner surface of the lips is connected in the mid line to the corresponding gum by a median fold of mucous membrane, the
frenulum. The labial glands are situated between the mucous membrane and the orbicularis around the orifice of the mouth.

**Cheeks**

The cheeks (buccae) form the sides of the face and are continuous anteriorly with the lips. They are compared externally of in tegument and internally of mucous membrane between the two are a muscular stratum a large quantity of fat [corpus adiposum buccae]. coreolar tissue, vessels nerves and buccal glands. The buccal glands are placed between the mucous membrane and buccinator muscle.

**Structure of the cheeks**

The mucous membrane lining the cheeks is reflected above and below upon the gums and is continuous behind with the lining membrane of the soft plate. The muscle of the cheek in the buccinator but other muscles enter into its formation viz. The zygomaticus, risorius and the platysma muscles.

**Gums**

The gums (gingivae) are composed of dense fibrous tissue that is closely connected to the periosteum of the alveolar processes and surrounds the necks o the teeth . They are covered by a smooth vascular mucous membrane.

**Palate**
Palate forms the roof of the mouth. It consists of two portions. The hard palate anteriorly and soft palate posteriorly

**Hard palate [Palatum durum]**

The hard palate form the roof of the mouth and separates the oral and nasal cavity. It is bounded anteriorly and the sides by the alveolar arches and gums. Posteriorly it is continuous with soft palate

**Soft Palate**

The soft palate (Palatum molle) is suspended from the posterior border of the hard palate. It consist of a fold of mucous membrane that encloses muscular fibers an aponeurosis, vessels nerves, lymphoid tissue and mucous glands. When elevated as in swallowing and in sucking. It completely separates the nasal cavity and naropharynx from the posterior part of the oral cavity and oral portion of the pharynx. Anterior surface in concave and continuous with the roof of the mouth posterior surface is convex and continuous with mucous membrane the covers the floor of the nasal cavities.

**The tongue**

The tongue (lingua) is the principal organ of the sense of taste and an important organ of speech it assist in the mastication and deglutition of food. It is situated in the floor of the mouth with in the curve of the body of the mandible.
Borders and surfaces

Root
The posterior part of the tongue is connected with the hyoid bone by hypo glossus and genioglossus muscles and hyoglossal membrane

Apex
It is somewhat attenuated anterior and which rest against the lingual surface of the lower incisor teeth.

Inferior surface
It is connected with mandible by the mucous membrane which is reflected over the floor of the mouth to the lingual surface of the gum

Dorsum
It is convex and marked by a median sulcus

Papillae
The papillae of the tongue are projection of the corium, thickly distributed over the anterior 2/3 of its dorsum.

The varieties of papillae are

- Vallate papillae – Circumvillate papillae – dorsum of the tongue
- Fungi form papillae – Sides and apex of the tongue.
- Filiform papillae – conical papillae – anterior 2/3 of the dorsum
- Papillae simplices – similar to those of skin and cover the entire mucous membrane of the tongue.
Muscles

<table>
<thead>
<tr>
<th>Extrinsic Muscles</th>
<th>Intrinsic muscle</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Genio glossus</td>
<td>1. Superior longitudinal</td>
</tr>
<tr>
<td>2. Hyo glossus</td>
<td>2. Inferior longitudinal</td>
</tr>
<tr>
<td>3. Chondro glossus</td>
<td>3. Transverse</td>
</tr>
<tr>
<td>4. Stylo glossus</td>
<td>4. Vertical</td>
</tr>
<tr>
<td>5. Palato glossus</td>
<td></td>
</tr>
</tbody>
</table>

Taste Buds

It is end organs of the gustatory sense are scattered over the mucous membrane of the mouth and tongue.

Vessels and nerves

Artery

1. Lingual branches of External carotid artery.
2. Facial and ascending pharyngeal arteries.

Vein

Internal Jugular vein.

Nerves

1. Lingual branch of mandibular nerve
2. Chorda tympanic branch of facial nerve
3. Lingual branch of Glossopharyngeal nerve.
4. Superior Laryngeal nerve
Lympatic vessels from the mouth

Hard Palate – submandibular nodes

Soft Palate – Retro pharyngeal and sub parotid nodes

Floor of the mouth – Interior nodes of the superior deep cervical group.

Lympatic vessels from tongue

1. Apical – Supra hyoid node, jugulo omohyoid node

2. Lateral or marginal – Sub mandibular node, superior deep cervical node

3. Basal – Superior deep cervical node

4. Median or central – superior and inferior deep cervical lymph node.

Physiology of the Mouth:

The functions of mouth are the ingestion of food materials, chewing and mixing the food with saliva, appreciation of the taste of food and transfer of food to esophagus by swallowing, digestive juice present in the mouth is saliva. It is secreted by the salivary glands.

The disease *Akkaram* (அக்கரம்) occurs in oral cavity hence the different parts of oral cavity are above explain.
The word vitamins refers to organic compound required in minute amounts of catalyze cellular metabolism essential for growth or maintenance of the organism.

**Riboflavin (B$_2$)**

![Riboflavin molecule](image)

- **Systematic name**: Riboflavin
- **Chemical formula**: C$_{17}$H$_{20}$N$_4$O$_6$
- **Molecular mass**: 376.369 g/mol
- **Melting point**: 290 °C (dec.)
- **CAS number**: [83-88-5]

Riboflavin, also known as vitamin B$_2$, is an easily absorbed micronutrient. It is sparingly soluble in water sensitive to light and alkali and stable to heat, oxidation and acid. It is the central component of the cofactors FAD and FMN, and is therefore required by all flavoproteins. As such, vitamin B$_2$ is required for a wide variety of cellular processes. Like the other B vitamins, it plays a key role in energy metabolism, and is required for the metabolism of fats, carbohydrates, and proteins.
Source of Vitamin $B_2$

- Milk
- Cheese
- Meat
- Egg
- Fish
- Liver
- Kidney
- Leafy green Vegetables
- legumes (mature soybeans)
- Yogurt
- Yeast
- Almond
- Asparagus
- Okra
- Chard

are good sources of vitamin $B_2$, but exposure to light destroys riboflavin. Riboflavin is not toxic when taken orally, as its low solubility keeps it from being absorbed in dangerous amounts from the gut. Although toxic doses can be administered by injection, any excess at nutritionally relevant doses is excreted in the urine, imparting a bright yellow color when in large quantities. Riboflavin is continuously excreted in the urine of healthy individuals, making deficiency relatively common when dietary intake is insufficient. However, Riboflavin deficiency is always accompanied by deficiency of other vitamins.

In processed foods it is very likely to have been produced synthetically using genetically modified Bacillus subtilis, altered to both increase the bacteria's production of riboflavin and to introduce an antibiotic (ampicillin) resistance marker.
Riboflavin is yellow or orange-yellow in color and in addition to being used as a food coloring it is also used to fortify some foods. It can be found in baby foods, breakfast cereals and pastas, sauces, processed cheese, fruit drinks and vitamin-enriched milk products, and is widely used in vitamin supplements.

**Physiology**

It is a constituent of flavo protein enzymes important in hydrogen transfer reactions, amino acids, fatty acids and carbohydrate metabolism and cellular respiration. It is also a constituent of retrieval pigment for light adaptation.

**Bio – Chemical reaction**

It is in the form of coenzymes and takes part in various oxidation reduction reaction.

**Daily requirements**

- Children - 1 – 1 to 1 – 3 mg / day
- Pregnant or nursing women - 1-6 mg / day
ARIBOFLAVINOSIS

It is the medical condition caused by deficiency of riboflavin. It is most often seen in association with protein and energy malnutrition and other members of the vitamin B-complex group. It was originally known as pellagra sin pellagra, as it exhibits certain similarities to the niacin deficiency pellagra.

Etiology

- Malnutrition (Primary due to not getting enough of the vitamin from the diet)
- Malabsorption (Secondary affects the absorption in the intestine).

Clinical Manifestation

Signs and Symptoms

- Sore throat with redness.
- Swelling of the mouth and throat mucosa
- Glossitis [magenta tongue with atrophy]
- Cheilosis [scaling and fissures at the corners of the mouth]
- Nasolabial dysbasia
- Circum corneal vascularization
- Keratitis
- Altered temperature and pain sensation
- Watering of eyes
- Photophobia
- Blurring of vision
- Normochromic Normocytic anemia
- If the pregnant mother is riboflavin deficient growth and development retarded.

**Differential Diagnosis**

- Herpes simplex
- HIV (Hairy Lukoplakia)
- Oral Candidiasis
- Apthous ulcer
- Cancer of the oral cavity

**Complication**

- Diarrhea
- Peripheral neuropathy
- Seborrheic dermatitis

**Diagnosis**

- Urinary riboflavin excretion < 30 µg in 24 hrs.
- A positive diagnostic test for measuring levels of riboflavin in serum is ascertained by measuring erythrocyte levels of glutathione reductase.
Clinical uses

Riboflavin has been used in several clinical and therapeutic situations. For over 30 years, riboflavin supplements have been used as part of the phototherapy treatment of neonatal jaundice. The light used to irradiate the infants breaks down not only the toxin causing the jaundice, but the naturally occurring riboflavin within the infant's blood as well.

More recently there has been growing evidence that supplemental riboflavin may be a useful additive along with beta-blockers in the treatment of migraine headaches.

Development is underway to use riboflavin to improve the safety of transfused blood by reducing pathogens found in collected blood. Riboflavin attaches itself to the nucleic acids (DNA and RNA) in cells, and when light is applied, the nucleic acids are broken, effectively killing those cells. The technology has been shown to be effective for inactivating pathogens in all three major blood components: (platelets, red blood cells, and plasma). It has been shown to inactivate a broad spectrum of pathogens, including known and emerging viruses, bacteria, and parasites.

Treatment

3 – 10 mg riboflavin PO daily.
MATERIALS AND METHODS

The dissertation work on Akkaram (அக்கரம்) was carried out during 2006 – 2007 post graduate department of Kuzhanthai maruthauvam Govt. Siddha Medical college palayamkottai

Selection of Patients

The children affected by Akkaram (அக்கரம்) for clinical study were selected in 20 cases of bots sexes at the age group of 3 – 7 years (paruvangal namely (அ், அட்டா, ஆட்டா, ஆட்டா, ஆட்டா, ஆட்டா, ஆட்டா, ஆட்டா, ஆட்டா, ஆட்டா) for admission inpatients ward according to the signs and symptoms mentioned in Balavagadam.

Parameters of Case Selection

- Redness of the tongue
- Fissures in lips and angle of the mouth
- Excess salivation
- Headache
- Pricking pain
- White coated tongue
- Fever

In this study certain criteria were followed based on clinical symptoms nutritional status, seasonal variation, economic status and family history. The confirmation of clinical diagnosis was using on both siddha and modern parameters.
Investigation Methods

The diagnosis of Akkaram more or less got correlated with the disease called Ariboflavinosis in modern medicine. Under siddha aspect diagnosis was made under the following criteria.

- Mukkutra nilai
- Ennvagai thaervu
- Udal Kattukgal
- Kaalam
- Nilam
- Neerkuri
- Neikuri

Under modern methods routine laboratory Investigations which were mentioned below were depended upon.

a) Haemotological Investigation

- Total WBC count
- Differential WBC count
- Packed Cell Volume
- Haemoglobin percentage

b) Urine Analysis

- Albumin
- Sugar
- Deposits
SELECTION OF DRUG

Athemathuranei – 4 gm two times daily after meals depending upon the age and severity of the disease.

The Pharmacological and Biochemical study of drug was conducted at the Department of Pharmacology and Department of Biochemistry, Govt. Siddha medical college, Palayamkottai respectively.

All the patients admitted for the study were given uniformly regular diet provided by the hospital. During discharge all the patients advised to attend the outpatients ward of the department of Kuzhandai Maruthuvam Branch, Govt. Siddha Medical College Hospital, Palayamkottai for further follow up.
RESULTS AND OBSERVATION

Results were observed with respect to the following criteria

1. Sex distribution
2. Age distribution
3. Religion distribution
4. Socio Economic status
5. Food habits
6. Mukkutra kaalam
7. Paruva kaalam
8. Thinai
9. Mukkutra theory
10. Udal Kattugal
11. Ennvagai Thaervugal
12. Neikuri
13. Udal vanmai
14. Duration of disease
15. Aetiological factors
16. Clinical features
17. Investigation
18. Results
BRIEF PROFILE OF THE PATIENTS UNDER STUDY

1. Sex Distribution

<table>
<thead>
<tr>
<th>S.No</th>
<th>Sex</th>
<th>No.of Cases (out of 20)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Male</td>
<td>19</td>
<td>95</td>
</tr>
<tr>
<td>2.</td>
<td>Female</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Out of the 20 patients, majority (95%) of the cases were male and 5% of cases are female.

2. Age Distribution

<table>
<thead>
<tr>
<th>S.No</th>
<th>Age (In years)</th>
<th>No. of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>3-5</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Åœ¬, ÅœÀœ, Åœ¬Åœ , °Åœ¬Åœ, °Åœ¬Åœ¬Åœ, °Åœ¬Åœ¬Åœ¬Åœ,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>5-7</td>
<td>13</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>§Åœ¬Åœ – female, °Åœ¬Åœ – Male.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Among the 20 cases, majority (65%) of the cases were in the age group 5-7 years and 35% of the cases were in the age group 3-5 years (35%).
3. Religion distribution

<table>
<thead>
<tr>
<th>S.No</th>
<th>Religion</th>
<th>No.of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Hindu</td>
<td>14</td>
<td>70%</td>
</tr>
<tr>
<td>2.</td>
<td>Christian</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>3.</td>
<td>Muslim</td>
<td>3</td>
<td>15%</td>
</tr>
</tbody>
</table>

Among the 20 cases, 70% of the cases were Hindu, and 15% of cases were Christian and Muslim.

4. Socio – Economic Status

<table>
<thead>
<tr>
<th>S.No</th>
<th>Socio - Economic status</th>
<th>No.of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Poor</td>
<td>15</td>
<td>75%</td>
</tr>
<tr>
<td>2.</td>
<td>Middle class</td>
<td>5</td>
<td>25%</td>
</tr>
</tbody>
</table>

In the study 75% of the cases were from poor economic status and 25% of the cases were from middle class.

5. Food Habits

<table>
<thead>
<tr>
<th>S.No</th>
<th>Food habits</th>
<th>No.of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Vegetarian</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>2.</td>
<td>Non –Vegetarian</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3.</td>
<td>Mixed</td>
<td>16</td>
<td>80%</td>
</tr>
</tbody>
</table>

Among the 20 cases, food habits of the respondents show that majority (80%) used to take both vegetarian and non-vegetarian in their daily diet. 20% of cases were vegetarian only.
6. Mukkutra Kaalam

<table>
<thead>
<tr>
<th>S.No</th>
<th>Mukkutra kaalam</th>
<th>No.of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Vatham</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>2.</td>
<td>Pitham</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3.</td>
<td>Kapham</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

According to siddha system 1/3 of 100 years of human life are referred to as vatha kaalam – referred to age from birth to 33 yrs 4 months.

Pitha kaalam – referred to age from 33 yrs 4 months to 66 yrs 8 months.

Kapha kaalam – referred to age from 66 yrs 8 months to 100 yrs.

All of the cases were under Vatha Kaalam and none under Pitham and Kapham.

7. Paruva kaalam

<table>
<thead>
<tr>
<th>S.No</th>
<th>Paruvakaalam</th>
<th>Mukkutra Valarchi</th>
<th>No. of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Karkaalam</td>
<td>Vatham – Vetrunilai valarchi -</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Aug – oct</td>
<td>Avani – puratasi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Koothirkaalam</td>
<td>Vatham – Thannilai adaithal (-)</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>oct – dec</td>
<td>lyppasi – karthikai</td>
<td>Pitham - Vetrunilai valarchi</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Disease</td>
<td>Season</td>
<td>Month</td>
<td>Kapham</td>
</tr>
<tr>
<td>---</td>
<td>---------</td>
<td>--------</td>
<td>-------</td>
<td>--------</td>
</tr>
<tr>
<td>3.</td>
<td>Munpani</td>
<td>Dec – Feb</td>
<td>Markazhi – Thai</td>
<td>Pitham - Thannilai adaithal (-)</td>
</tr>
<tr>
<td>4.</td>
<td>Pin pani</td>
<td>Feb – Apr</td>
<td>Masi – Panguni</td>
<td>Kapham - Thannilai valarchi↑</td>
</tr>
<tr>
<td>5.</td>
<td>Elavenil</td>
<td>Apr – June</td>
<td>Chitirai, Vaigasi</td>
<td>Kapham - Thannilai adaithal ( )</td>
</tr>
<tr>
<td>6.</td>
<td>Muthuvenil</td>
<td>June – Aug</td>
<td>Aani, Aadi</td>
<td>Vatham - Thannilai valarchi↑ Kapham - Thannilai adaithal ( )</td>
</tr>
</tbody>
</table>

↑↑ - Vetrunilai Valarchi
↑ - Thannilai Valarchi
(-) - Thannilai

Of the 20 cases, 60% were seen to develop the disease during Munpani kaalam 15% were seen to develop during Elavenil, 10% of case in Muthuveni and 5% of the cases were seen to develop the disease in muthuvenil kaalam.
9. Thinai

<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>Kurinji</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Mullai</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3.</td>
<td>Marutham</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>4.</td>
<td>Neithal</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5.</td>
<td>Paalai</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Kurinji – Hills and its surroundings
Mullai – Forests and its surroundings
Marutham – Fields and its surroundings
Neithal – Sea and its surroundings
Paalai – Desert and its surroundings

All of the cases under study are found hailing from Marutha nilam, none under other types.

10. Mukkutra Theory

A) Derangement in the types of vatham

<table>
<thead>
<tr>
<th>S.No</th>
<th>Types of vatham</th>
<th>No. of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pranan</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Abanan</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3.</td>
<td>Viyanan</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4.</td>
<td>Uthanam</td>
<td>15</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-------</td>
<td>-----</td>
<td>---</td>
</tr>
<tr>
<td>5.</td>
<td>Samanan</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>6.</td>
<td>Nagan</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7.</td>
<td>Koorman</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8.</td>
<td>Kirukaran</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>9.</td>
<td>Devathathan</td>
<td>15</td>
<td>75</td>
</tr>
<tr>
<td>10.</td>
<td>Dananjeyan</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Piran - Maintaining Respiratory Function
Abanan - Expelling faeces, urine, semen, menstrual bleeding
Viyanan - Locomotor activity
Uthan - Digestion & absorption
Samanan - Balancing 6 taste & water
Nangan - Eye opening & closing
Koorman - opening & closing of eye lids & yawning & closing of mouth
Kirukan - Saliva secretion, Nasal secretion, Sneezing & Cough
Devathathan - Tiredness, Laziness, Sorrow, Sleep, Argument
Dananjeyan - Intracerebral pressure

All of the 20 cases were affected in samanan, and Kirukaran and, 75% were affected in Udhanan and Devathathan.
### B. Derangement in types of pitham

<table>
<thead>
<tr>
<th>S.No</th>
<th>Types of pitham</th>
<th>No.of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Analam</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>2.</td>
<td>Ranjagam</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3.</td>
<td>Saathagam</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>4.</td>
<td>Pirasagam</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5.</td>
<td>Aalosagam</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

- Analam - Digestion
- Ranjagam - Colour to blood
- Prasagam - Gives complexion to the skin
- Alosagam - Clarity of vision
- Saathagam - Controls whole body

All the 20 cases (100%) were affected in Analam pitham and Saathagam pitham and none under other types.

### C. Derangement in types of Kapham

<table>
<thead>
<tr>
<th>S.No</th>
<th>Types of Kapham</th>
<th>No.of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Avalambagam</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Kelaethagam</td>
<td>15</td>
<td>75</td>
</tr>
<tr>
<td>3.</td>
<td>Pothagam</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>4.</td>
<td>Tharpagam</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5.</td>
<td>Santhigam</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

- Avalambagam - Control the Heart & Lung function
- Kelaethagam - Helps digestion
Pothagam - For taste
Karpagam - Cooling of eyes
Santhigam - Response for joint movements

Among the twenty cases pothagam were affected in 100% & 75% cases were affected Kelaethagam.

11. Udal kattugal

<table>
<thead>
<tr>
<th>S.No</th>
<th>Udal kattugal</th>
<th>No.of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Saaram</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>2.</td>
<td>Senneer</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>3.</td>
<td>Oon</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4.</td>
<td>Kozhuppu</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5.</td>
<td>Enbu</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6.</td>
<td>Moolai</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7.</td>
<td>Sukkilam / Suronitham</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Saram - Fortifies the body and mind
Senneer - Knowledge, Strength, Healthy complexion
Oon - Movement of the body
Kozhuppu - Lubrication of the joints
Enbu - Protecting vital organs
Moolai - Strengthen and maintain normal condition
Sukkilam - Responsible for reproductive function

All of the twenty cases were affected by saaram, and senneer none under other types.
12. Ennvagai Thaervugal

<table>
<thead>
<tr>
<th>S.No</th>
<th>Enn Vagai Thaervugal</th>
<th>No.of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Naa</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>Niram</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>Mozhi</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>Vizhi</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Sparism</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>Malam</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>Moothiram</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>Naadi</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Naa - Fissure, wasting
Niram - Colour of the tongue
Mozhi - Type of speech
Vizhi - Colouring of eyes
Malam - Colour and consistency
Moothiram - Frothy, Sedimentation and colour
Sparisam - Soft or Rough, hot, cold
Naadi - Type of pulse, Rate, Rhythm

All the 20 cases are affected Naa, Niram & Naadi none under others.
13. Neikuri

<table>
<thead>
<tr>
<th>S.No</th>
<th>Character of urine</th>
<th>Neikuri Reference</th>
<th>No.of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Spreads like snake</td>
<td>Vathaneer</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Spread like ring</td>
<td>Pithaneer</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>3.</td>
<td>Spreads like pearl</td>
<td>Kabaneer</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4.</td>
<td>Spreads like snake in ring</td>
<td>Thontha neer</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

In Neikuri 100% of the cases fell in the category called pithaneer

14. Udal Vanmai

Mostly Kaala vanmai was affected Eyarkai vanmai was also affected.

The affected Mukkutram and udal vanmai had come to normal condition after treatment, Kaala vanmai was improved by seyarkai vanmai, that is by medicines and diet.

15. Duration of Treatment

<table>
<thead>
<tr>
<th>S.No</th>
<th>Duration of Treatment</th>
<th>No. of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>5 – 10 days</td>
<td>16</td>
<td>80%</td>
</tr>
<tr>
<td>2.</td>
<td>10 – 15 days</td>
<td>4</td>
<td>20%</td>
</tr>
</tbody>
</table>
Among the 20 cases, majority (80%) of cases had duration of treatment ranging from 5 – 10 days 20% of the cases had duration of treatment 10 – 15 days

16. Aetiological factors

<table>
<thead>
<tr>
<th>S.No</th>
<th>Aetiological factors</th>
<th>No. of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Mal Nutrition</td>
<td>16</td>
<td>80</td>
</tr>
<tr>
<td>2.</td>
<td>Mal absorption</td>
<td>4</td>
<td>20</td>
</tr>
</tbody>
</table>

Mal Nutrition - Missing from diet components of Carbohydrate Fat, Protein, Minerals and Vitamins

Mal Absorption - Diarrhoea, Abdominal distension and failure to thrive

Among the twenty cases 80% of the case were developed disease due to malnutrition and 20% of the cases were due to mal absorption.

17. Clinical Features

A) Symptoms

<table>
<thead>
<tr>
<th>S. No</th>
<th>Symptoms</th>
<th>No.of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Sore Throat</td>
<td>15</td>
<td>75</td>
</tr>
<tr>
<td>2.</td>
<td>Fissure in lips and tongue</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>3.</td>
<td>Excess salivation</td>
<td>15</td>
<td>75</td>
</tr>
</tbody>
</table>
Among the twenty cases, All (100%) had fissure in lips and tongue, 75% of the cases reported excess salivation, fever, difficulty in swallowing sore throat, 60% of the cases had Malaise, and 50% of the cases complained of of having Headache.

17. Clinical Features

B) Signs

<table>
<thead>
<tr>
<th>S. No</th>
<th>Signs</th>
<th>No.of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Redness of the tongue</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>2.</td>
<td>White coated tongue</td>
<td>15</td>
<td>75</td>
</tr>
<tr>
<td>3.</td>
<td>Angular stomatitis</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>4.</td>
<td>Keratosis</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5.</td>
<td>Nasolabial dysbasia</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6.</td>
<td>Blurring of vision</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

All the 20 cases, (100%) had redness of the tongue, angular stomatitis and 75% of the cases had white coated tongue.
18. Investigation

<table>
<thead>
<tr>
<th>S.No</th>
<th>Cells</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>WBC</td>
<td>Normal</td>
</tr>
<tr>
<td>2.</td>
<td>RBC (Reticulocyte)</td>
<td>Decreased (less than normal)</td>
</tr>
<tr>
<td>3.</td>
<td>Hemoglobin</td>
<td>Normocytic, Normochronic Anemia</td>
</tr>
</tbody>
</table>

All the 20 cases (100%) of the cases had decreased reticulocyte count.

20. Results (Progress of the disease)

<table>
<thead>
<tr>
<th>S. No</th>
<th>Results</th>
<th>No. of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Good</td>
<td>14</td>
<td>70</td>
</tr>
<tr>
<td>2.</td>
<td>Moderate</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>3.</td>
<td>Poor</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Good - Complete subsiding of all signs & symptoms of the disease.
Moderate - Relieved from most of the signs & symptoms of the disease.
Poor - Persistence of all signs & symptoms of the disease.
The management of the treatment:

The internal drug *Athemathura nei* amounting 4gm two times daily was given to each patients after meal as per the weight and age of the child and severity of the diseases. All the cases were treated for an average of 5 – 10 days clinically. It is proved that the drug was free from adverse effect on the patients. Relief from signs and symptoms of the disease were observed from the second day of starting and the treatment. There was no complications of any symptoms during the course of the treatment in any cases. All the patients were advised to take bed rest and drink boiled water during the course of treatment.
DISCUSSION

*Akkaram (அக்கரம்)* is one of the nutritional deficiency disease in pediatric population affecting children. If it is not properly treated, it is leads to serious complications like anemia, peripheral neuritis, seborrheic dermalitis, diarrhea. It is a main problem of pediatric community.

The researcher has selected *Akkaram (அக்கரம்)* as research topic. For this purpose the researcher has selected patients affected by *Akkaram (அக்கரம்)* they were admitted in the post graduate Kuzhanthai maruthuvam. In patients ward Government siddha medical college Palayamkottai. A case sheet (based on siddha and modern aspect) was prepared and maintained individually for each patient.

For diagnostic purposes the parameters used in siddha system were [Poriyal arithal, pulanalairthal, Vinaathal, Uyir thathukkal, Udal kattugal, Enn vagai thaervu, Neerkuri, Neikuri etc] Regarding modern parameters, laboratory investigations were used for diagnostic purpose.

**Sex distribution**

Out of the 20 cases, 19 cases were male and 1 was female

**Age distribution**

Among the 20 cases, 65% of the cases belong to the age group of 5-7 yrs and 35% were in the age group of 3-5 yrs.
Socio economic status

The study of 20 cases, majority (75%) of the cases, of the cases belongs to the poor family for whom dwelling places are congested they have reported inadequate intake of healthy diet.

Paruvakaalam

Of the 20 cases, 60% were seen to develop the disease during Munpani kaalam 15% were seen to develop the disease Elavenil, 10% of cases were seen to develop the disease in Muthuveni and 5% of the cases were seen to develop that disease in muthuvenil kaalam.

Thinai

All the 20 cases belong to Marutha nilam. Eventhough as per siddha literature Marutha nilam is said to be free from disease, here the patients developed the diseases due to alteration in their food habits.

Uyir thathukkal

Uyirthathukkal include 3 vital humours namely Vatham, Pitham and Kapham. The derangement in any of the above three causes disease. Derangedment was noticed in the cases and they are discussed below.

Vatham

Samanan, Kirukaran were affected in 100% of the cases. Udhanan and Devathathan are also affected in 75% of the cases Samanan is affected and hence there was there is loss of appetite. When kirukaran is affected there is fissure in tongue. When Udhanan is affected there is loss of digestion and devathathan is affected there is tiredness. All the above symptoms were present in the cases studied.
Pitham

Anala pitham and sathaga pitham were affected in all of the cases. The affected Anala pitham produces loss of appetite. The affected sathagapitham led to restriction in routine work.

Kapham

Pothagam was also affected in all the cases and kelaethagam was affected in 75% of the cases. The affected pothagam produces tasteless. The affected kelaethagam produce loss of appetite. The cases reported both tasteless and also loss of appetite.

Udal Kattugal

Saram and Senneer were affected in all the cases which shows general debility. This was found present in all the cases.

Ennvagai thaervugal

Naa was affected in 100% of the cases as taste was affected and the tongue had fissures and coated. Niram was affected in all the cases, tongues had redness and fissure. Naadi was also found in all the cases as they had pitha Kapham

Neikuri

All the 20 cases showed pithaneer. This proves that the disease was due to derangement of pitham

Aetiological factors

Among the 20 cases, 80% of the cases were developed the disease due to malnutrition and remaining 20% of the cases due to mal absorption.

Onset of disease

The disease manifested gradually in all of the cases.
Clinical manifestations

In all the 20 cases (100% of the cases had fissure was found in the lips and tongue and 75% of the cases had sore throat and excess salivation, fever, and also difficulty in swallowing.

Investigation

Besides siddha based investigation the researcher had tried to compare the cases with Ariboflavinosis Routine examination of blood and urine was done during the admission and also before discharge.

Analysis of the management

All the cases were treated with Athemathura nei internally. The result of treatment was assessed clinically on the basis of reduction of symptoms such as fissure in lips and tongue, sore throat, fever, headache, difficult in swallowing. The patients were treated for 5 – 10 days. At the end of the treatment.

The results are categorised as good, moderate and also poor.

In 70% of the cases the improvement was good.

In 30% of the cases it was moderate.

None were came under the category poor.

At the end of the treatment there was a normal reticulocyte count in all cases.

From the description of individual drug in siddha text, it is well known that the Athemathura nei has demulcent, cooling the tonic action on patients.
Athemathuram is one of the ingredients of the drug for fissure in lips and tongue and sore throat, Athemathuranei has the Enippu taste and seethaveeriyam in it will reduce excess pitham to bring normal.

Manipungam pazham is the other ingredient used in the preparation of the medicine. It has the taste of kaippu, Thuvarppu and veppaveeriyam, it cures soarthroat and tissue in lips and tongue.

Cow’s milk contains more vitamins and minerals like protein, fact, lactose, ca, phospharous, iron. It act as a cooling agent and also tonic. It cures the fissure in lips tongue and produce more strength.

Cow’s ghee has demulant action. It will cure ulcers and give more energy.

From it is obvious that all the ingredients of Athematura nei have all the qualities which are proved to be effective in curing Akkaram.

The pharmacological studies revealed that Athemathura nei possessed good demulcent, cooling and tonic actions.

Bio-chemical analysis of drug revealed Athimathura nei had calcium, sulphate, starch, albumin, unstructured compounds reducing sugar and Amino-acids are present.

Thus clinically there was satisfactory improvement in all the cases and no toxic effects or side effect were noted.
All the patients were advised at the end of the treatment to take qualitative and quantitative diets.

The cases were advised to avoid oily substance and spicy foods and fried food substance. They were advised to take more green leafy vegetables and vegetables, egg, milk, cheese, fish. They were advised to drink only boiled water.
SUMMARY

Health means a state of total physical mental & social well being and not merely the absence of disease and infirmity.

Child survival strategies have to combat problems of malnutrition, poor maternal health, Female illiteracy and deficiency of food supplements.

Children’s are future citizen over they form 2.3 billion world wide. They represent boundless potential for future as per the WHO. Akkaram (அக்கரம்) is one of the disease affecting the children.

For the purpose of study children affected by Akkaram (அக்கரம்) patients in both sexes were selected in the age group of 3-7 years.

The study revealed that of the 60% of the cases seemed to develop the disease during Munpani Kaalam and 15% of the cases seemed to develop the disease during Elavenil kaalam. 10% of the cases seemed to develop the disease Pinpani and Muthuvenil and 5% of the cases were in Koothir kaalam. 75% cases belonged to poor socio economic status.

Regarding the aetiology, 80% of cases were developed disease due to mal nutrition and remaining due to mal absorption.

In the study of 20 cases majority had gradual onset of the disease. Majority of the cases had fissure in lips and tongue, Excess salivation, fever, headache, difficult in swallowing, loss of appetite and redness of the tongue.
Regarding the Uyir thathukkal samanan, Kirukaran were affected in 100% of the cases, Udhanan and Devathathan were affected in 75% of the cases. In all the cases Analapitham and Sathaga pitham were affected. 100% of the cases pothagam was affected and keleathagam was affected in 75% of the cases.

In Udal Kattugal saaram and senneer was affected. Ennvagi thaervugal, Naa, Niram, Naadi are affected in 100% of the cases naadi has found in pitha kapham.

Neikuri indicated pithaneer in all cases. All the cases show normal TC, DC, Hb. But peripheral smear shows normo cytic and normo chromic anemia (decreased Reticulocyte).

Regarding the treatment, all the cases were treated with *Athemathura nei* internally for an average of 5-7days

The observation made during the study showed that the trial medicine was clinically effective and control the disease.

The potency of the drug was studied by pharmacological and Biochemical analysis. It showed that the drug has good demulcent, cooling and Tonic action.

Majority of the paitents showed a good response and not showed developed any adverse effect during the course of treatment.
CONCLUSION

In this study, result was found to be good in 70% of the cases.

No adverse effect were noticed during the treatment, further follow up of these patients showed good recovery and fine improvement.

The preparation of the medicine is very simple as well as effective and economical and the drug expiry is six months. So the drug can be used in children the disease of Akkaram (அக்கரம்).

The trial medicine has been good demulcent, cooling, and Tonic action.

Avoiding the malnutrition and malabsorption factors causing the disease and prompt management prevents the children from the disease as well as form it’s complications.

So it is concluded that for the disease Akkaram (அக்கரம்), the treatment with Athemathura nei is good, in the view of its efficacy and also safety.
ANNEXURE - 1

PREPARATION OF THE TRIAL DRUG

The trial drug preparation involves the following steps:

1. Dissolving the drug in water
2. Filtering the solution
3. Filtering the solution again
4. Adding the solution to the final preparation

The final preparation is then stored in a clean bottle at room temperature.

- Bottle Size: 274 ml
கூறுகள். பிரதமர் மன்னரும் புதுச்சேரி காரைப்பகவை விளக்கக்கு சிற்றுற்று வரையாக்கிய விளக்கர் விளக்கம். பிரதமர் உடை கருதும் கரும்பும் பான் பாதுகாப்பு பகுதிகளை அறிவு வைத்தவர் சிறுக் கல்லன்று வைத்து வேளையும் பூட்டிய முறையாக பாத்திரம் விளக்கத்திற்கு மறுக் விளக்கம் விளக்கர் விளக்கம்.

| அடங்கி | ஆணையும்: 4 கி.மீ. பேருந்துப் பாதுகாப்பு வாலை மாறு விளக்கம்  |
| குறிப்பு பாதுகாப்பு: அகலமுப்பு விளக்கம்  |
| புல்வெள் வேலை சார்ந்து: 6 பாதுகாப்பு விளக்கம்  |
| மறைவு: 3 மணி நேரம் 7 கிலோமீட்டர்  |
| அடங்கியும்: பாதுகாப்பு வாயிச் சார்ந்து - 269 |
Botanical Name : Glycyrrhizae glabra, Linn
Family : Papilionaceae

Chemical constituents

Glycyrrhizin, Aspargin, Sugar, Starch, acid resin, gum, mucilage, phosphoric, sulphuric mailc acid, calcium, magnesium salts.

Action

Cooling, Demulcent, Tonic.
Botanical Name : Sapindus Trifoliatus Linn
Family : Sapindaceae
Chemical constituents : 11.5% saponin, besides glucospectin
Action : Tonic, Demulcent, expectorant.

"பொருள் கிமுகம் புருஷன்றுன்று பொருளல்லாதே
தோலோடு பொருளுக்கு தம்புதோற்று கருணைத்து
சங்கமுடன் பொருள் தினகத்துவங்களுக்கு நாகாண்டம்
நுவனப் பொருளெடுக்கு வருங்கு தருவாது"
Action

क्षमीलिपाड़ (Cow milk) – Demultant, nutrient, cardiactonic excitive of memory

Action : Cooling, Emolient, Stomachic, Nutrient, Improves memory.
**Action:** (Breast milk) Astringent, Refrigerent, Demulcent, Nutritive, Strengthening

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**பாலுப்பாசத் சின்னம்பாடகம் முருக்கைகள் தகவள்**

<table>
<thead>
<tr>
<th>பாலம்</th>
<th>சின்னம் குறிப்பிட்டல்</th>
<th>காம்ப்யம்</th>
<th>பட்டம்பாடு in gm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>புருஷம்</td>
<td>1.5 – 2.0 की</td>
<td>3.5 की</td>
</tr>
<tr>
<td>2.</td>
<td>உயிர்நீர்கள்</td>
<td>6.5 கி</td>
<td>4.75 கி</td>
</tr>
<tr>
<td>3.</td>
<td>தாவரையையாகும்</td>
<td>3.5 - 5.0 கி</td>
<td>3.5 கி</td>
</tr>
<tr>
<td>4.</td>
<td>காளமிைதியம்</td>
<td>33 பி.கி</td>
<td>125 பி.கி</td>
</tr>
<tr>
<td>5.</td>
<td>பச்சுப்புரும்</td>
<td>15 பி.கி</td>
<td>96 பி.கி</td>
</tr>
<tr>
<td>6.</td>
<td>துருப்பு</td>
<td>0.15 பி.கி</td>
<td>0.10 பி.கி</td>
</tr>
<tr>
<td>7.</td>
<td>செப்பூன் (A)</td>
<td>48 மி.கி</td>
<td>47 மி.கி</td>
</tr>
<tr>
<td>8.</td>
<td>செப்பூன் (B₁)</td>
<td>0.02 பி.கி</td>
<td>0.04 பி.கி</td>
</tr>
<tr>
<td>9.</td>
<td>செப்பூன் (B₂)</td>
<td>0.04 பி.கி</td>
<td>0.18 பி.கி</td>
</tr>
<tr>
<td>10.</td>
<td>செப்பூன் இடைவியம்</td>
<td>0.07 பி.கி</td>
<td>0.08 பி.கி</td>
</tr>
<tr>
<td>11.</td>
<td>செப்பூன் இடைவியம்</td>
<td>1.3 மி.கி</td>
<td>5.6 மி.கி</td>
</tr>
<tr>
<td>12.</td>
<td>செப்பூன் (B₁₂)</td>
<td>0.03 மி.கி</td>
<td>0.5 மி.கி</td>
</tr>
<tr>
<td>13.</td>
<td>செப்பூன் (C)</td>
<td>4 மி.கி</td>
<td>2 மி.கி</td>
</tr>
<tr>
<td>14.</td>
<td>செப்பூன் (துருப்பு)</td>
<td>71 பி.கி.சும்</td>
<td>69 பி.கி.சும்</td>
</tr>
</tbody>
</table>
ANNEXURE – II

PHARMACOLOGICAL ANALYSIS

Anti Ulcer Activity of the Athemathuranei

Aim:
To study the anti ulcer activity of the Athiemathuranei by Pyloric ligation method.

Instruments:
Syringe, Needles, scissors, forceps, cork board 10 ml pipette, 500 ml volumetric flask, suturing thread, medicine.

Preparation of the test medicine:
1 gm of the test medicine was dissolved in 10 ml of water. 1 ml contains 100 mgs.

Procedure:
Six adult female albino rat weighing 100 gms each were taken. It was fasted for about 48 hours. Then the abdomen was opened under the ether anesthesia and the pylorus of the stomach was ligated. At time of ligation 2 rats were given 2 ml of the prepared test medicine solution directly into the stomach, another 2 rates were given distilled water at the same dose in the same manner. The incision was closed and the rats were allowed to recover. Then they were sacrificed 18 hours after the pylorus ligation and the stomach contents were collected. The stomach was opened by cutting along the greater curvature and mounted on a moist
cork board. The ulcers were examined and graded as follows. The free acid, and total acid level of gastric juice were also analysed by using 0.01n Sodium hydroxide with Topfer’s reagent as indicator.

The results of the above experiments are shown in the table. Effects of Athiemathuranei on gastric acid secretion are as follows.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Control (water)</td>
<td>1 ml</td>
<td>80%</td>
<td>7.00 ml</td>
<td>87</td>
<td>205</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Standard (Ranitidine)</td>
<td>20mg/1ml</td>
<td>10%</td>
<td>8.00 ml</td>
<td>10</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Medicine (Athiemathurnei)</td>
<td>1ml</td>
<td>20%</td>
<td>10 ml</td>
<td>20</td>
<td>32</td>
<td>Significant</td>
</tr>
</tbody>
</table>

**Ulcer grades:**

0 Grade – Normal.

I Grade – Scattered haemorrhagic spots.

II Grade – Deeper haemorrhagic spots.

III Grade – Hemorrhagic spots and ulcers.

IV Grade – Restoration spots and ulcers.

**Inference:**

From the above tabulation the degree of ulceration as shown in the photographs. We came to know that the medicine Athiemathuranei protects the gastric mucosa by neutralizing the excessive gastric acid and the test medicine has got a significant anti ulcer activity.
ANNEXURE - III

GOVT. SIDDHA MEDICAL COLLEGE, PALAYAMKOTTAI

BIO-CHEMICAL ANALYSIS OF ATHEMATHURA NEI

Preparation of the extract for analysis:

5 gram of choornam was weighed accurately and placed in a 250 ml clean beaker. Then 50 ml distilled water was added and dissolved well. Then it was boiled well for about 10 minutes. It was then cooled and filtered in a 100 ml volumetric flask and then it was made up to 100ml by adding distilled water. This fluid was taken for analysis. Analysis shows the following results of the drug.

Qualitative Analysis

<table>
<thead>
<tr>
<th>S.NO</th>
<th>EXPERIMENT</th>
<th>OBSERVATION</th>
<th>INERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>TEST FOR CALCIUM</td>
<td>A white precipitate is formed</td>
<td>Indicates the presence of calcium</td>
</tr>
<tr>
<td></td>
<td>2ml of the above prepared extract is taken in a clean test tube. 2 ml of 4% Ammonium oxalate solution is added to it.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>TEST FOR SULPHATE:</td>
<td>A white precipitate is formed</td>
<td>Indicates trace amount of sulphate</td>
</tr>
<tr>
<td></td>
<td>2ml of the extract is added to 5% barium chloride solution.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>TEST FOR CHLORIDE</td>
<td>a white precipitate is formed</td>
<td>Indicates trace amount of calcium is present</td>
</tr>
<tr>
<td></td>
<td>The extract is treated with silver nitrate solution.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TEST FOR CARBONATE</td>
<td>No brisk effervesce is formed</td>
<td>Absence of carbonate</td>
</tr>
<tr>
<td>---</td>
<td>-------------------</td>
<td>-------------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td></td>
<td>The substance is treated with concentrated Hydro Cholric Acid.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>TEST FOR STARCH</td>
<td>Blue colour is formed</td>
<td>Indicates the presence of starch</td>
</tr>
<tr>
<td></td>
<td>The extract is added with weak iodine solution.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>TEST FOR IRON</td>
<td>No Blue colour is formed</td>
<td>Absence of ferric iron</td>
</tr>
<tr>
<td></td>
<td>The extract is treated with concentrated Glacial acetic acid and potassium ferro cyanide.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>TEST OF FERROUS IRON:</td>
<td>No Blood red colour is formed</td>
<td>Absence of ferrous iron</td>
</tr>
<tr>
<td></td>
<td>The extract is treated with concentrated Nitric acid and ammonium thio cyanate.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>TEST FOR PHOSPHATE</td>
<td>No Yellow precipitate is formed</td>
<td>Absence of Phosphate</td>
</tr>
<tr>
<td></td>
<td>The extract is treated with ammonium Molybdate and concentrated nitric acid.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>TEST FOR ALBUMIN</td>
<td>Yellow precipitate is formed</td>
<td>Indicates the presence of Albumin</td>
</tr>
<tr>
<td></td>
<td>The extract is treated with ferric chloride.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>TEST FOR TANNIC ACID</td>
<td>No blue black precipitate is formed</td>
<td>Absence of Tannic acid</td>
</tr>
<tr>
<td></td>
<td>The extract is treated with Esbatch’s reagent</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TEST FOR UNSATURATION</td>
<td>It get decolourised</td>
<td>Indicates the presence of unsaturated compound</td>
</tr>
<tr>
<td>---</td>
<td>----------------------</td>
<td>---------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>11.</td>
<td>Potassium permanganate solution is added to the extract.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>TEST FOR THE REDUCING SUGAR</td>
<td>Colour change occurs</td>
<td>Indicates the presence of Reducing sugar</td>
</tr>
<tr>
<td></td>
<td>5ml of Benedict’s qualitative solution is taken in a test tube and allowed to boil for 2 mts and added 8-10 drops of the extract and again boil it for 2 mts.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>TEST FOR AMINO ACID:</td>
<td>Violet colour is formed</td>
<td>Indicates the presence of Amino acid</td>
</tr>
<tr>
<td></td>
<td>One or two drops of the extract is placed on a filter paper and dried it well. After drying, 1% Ninhydrin is sprayed over the same and dried it well.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ANNEXURE – IV

PROFORMA OF CASE SHEET

Govt. Siddha Medical College & Hospital
Post Graduate Research Centre,
Palayamkottai.

Branch - IV Kuzhanthai Maruthuvam

Case sheet proforma for **AKKARAM [ARIBOFLAVINOSIS]**

I.P.No: 
Bed No: 
Name: 
Age: 
Sex: 
Permanent Address: 
Informant: 

Nationality: 
Religion: 
Occupation: 
Income: 
Date of admission: 
Date of Discharge: 
Diagnosis: 
Results: 
Medical Officer

Complaints and Duration:

History of Present illness:

History of Past illness:

Antenatal History:

Birth and Neonatal history:
Developmental History:

Dietetic History:

Family History:

Social History:

Immunization history:

**GENERAL EXAMINATION**

1. Consciousness
2. General appearance
3. Decubitus
4. Stature
5. Nourishment
6. Skin changes
7. Facies
8. Pallor
9. Jaundice
10. Clubbing
11. Cyanosis
12. Koilonychia
13. Lymphadenopathy
14. Abdominal distention
15. Jugular venous pulsation
16. Engorged Veins

17. Pedal oedema

18. Generalised oedema

19. Temperature

20. Pulse

   Rate ________________/ min

   Rhythm

   Volume

   Character

   Peripheral pulses

21. Respiration

   a. Rate ________________/ min

   b. Rhythm

   c. Character

22. Heart Rate ________________/ min

23. Blood Pressure

<table>
<thead>
<tr>
<th></th>
<th>Right</th>
<th>Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Limb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Limb</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

24. Congenital abnormalities (if any)

25. Miscellaneous
Siddha Aspects

1. Nilam:
   Kurinji
   Mullai
   Marutham
   Neithal
   Palai

2. Paruva kaalam:
   Kaar (Avani – Puratassi)
   Koothir (Iyppasi – Karthigai)
   Munpani (Margazhi – Thai)
   Pinpani (Masi – Panguni)
   Elavenil (Chithirai – Vaigasi)
   Mudhuvenil (Aani – Aadi)

3. Udal Nilai:
   Vatham
   Pitham
   Kapham
   Kalappu

4. Gunam
   Sathuvam
   Rasatham
   Thamasam
5. Mummalam
   Malam
   Moothiram
   Viyarvai

6. Poripulangal
   Mei – Sensation
   Vaai – Taste
   Kann – Sight
   Mooku – Smell
   Sevi – Hearing

7. Kanmenthriyam / Kanmavidayam
   Kai – Dhanam
   Kaal – Kamanam
   Vaai – Vasanam
   Eruvaoi – Visarkam
   Karuvaai – Anantham

8. Pira Uruppukalin Nilai:
   Iruthayam
   Puppusam
   Eraippai
   Kalleeral
   Manneeral
   Siruneeragam
9. Uyir Thathukkal

(a) Vatham:

Pranan
Abanan
Viyanan
Uthanan
Samanan
Nagan
Koorman
Kirukaram
Devathathan
Dhananjeyan

b) PITHAM:

Analam :
Ranjagam :
Sathagam :
Aalosagam :
Prasagam :

c) KAPHAM:

Avalambagam:
Kelaethagam:
Pothagam :
Tharpagam :
Santhigam :

10) UADAL THATHUKKAL:

Saram :
Senneer :
Oon :
Kozhuppu :
Enbu :
Moolai :

Sukkilam / Suronitham:

11) ENVAGAI THERVUGAL:

Naa :
Niram :
Mozhi :
Vizhi :
Sparism :
Malam :

Niram :
Manam :
Edai :
Nurai :
Enchal :

Moothiram :
Niram:
Manam:
Edai:
Nurai:
Enchal:

Naadi:
MODERN ASPECTS

Systemic Examination

Examination of Respiratory System

Examination of Upper Respiratory tract

General Examination

Sore throat

Fever

Dysphagia

Cough

Head ache

Local Examination:

Mouth:

Tongue

Surface

Inflammation

Redness

Follicles

Ulceration

Mucous coating

Pharynx

Inflammation

Redness

Ulceration
Gums

Gingivitis

Others

Past history of Akkaram

Personal habits

In adequate intake of nutritional diet

Personal hygiene

Living condition

Examination of Cardiovascular system

Examination of Central Nervous System

Examination of Gastrointestinal System

Laboratory Investigation

<table>
<thead>
<tr>
<th>Blood</th>
<th>Urine</th>
<th>Motion</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC</td>
<td>Albumin</td>
<td>Ova</td>
</tr>
<tr>
<td>DC</td>
<td>Sugar</td>
<td>Cyst</td>
</tr>
<tr>
<td>ESR – ½ hr -</td>
<td>Deposits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 1 hr</td>
<td></td>
</tr>
<tr>
<td>Hb</td>
<td>- %</td>
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</table>

Daily progress

<table>
<thead>
<tr>
<th>Date</th>
<th>Symptoms</th>
<th>Drug</th>
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<tbody>
<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
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</table>
**Govt. Siddha Medical College & Hospital**  
**Post Graduate Research Centre,**  
**Palayamkottai.**  
**Branch - IV Kuzhathai Maruthuvam**  
**Admission – Discharge Sheet for ‘Akkaram’**

<table>
<thead>
<tr>
<th>S.No</th>
<th>Clinical Pictures (Signs and Symptoms)</th>
<th>During Admission</th>
<th>During Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Place :

Date :

Signature of the Medical Officer:
BIBLIOGRAPHY

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2. Siddha system of pediatrics – Dr. S. Chitambara thanupillai
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   - Dr. M. Shanmugavelu
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8. Roga nirmayasaram – T.R. Magadeva Pandithar
9. Maruthuva Thani Bharatham
10. Gunapadam Mooligai vaguppu – Dr. Murugesu Mudaliar
11. Gunapadam Thathu jeeva vaguppu – Dr. R. Thiagarajan
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   Major B.D Basu, M.R. CS; IMS

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20. David son’s principles and practice of medicine – Sir stanley davidson.
## In Patient Case Sheet Report

### Signs and Symptoms

<table>
<thead>
<tr>
<th>S.No</th>
<th>I.P.No</th>
<th>Name</th>
<th>Age</th>
<th>Sex</th>
<th>Before Treatment</th>
<th>After Treatment</th>
<th>Date of Admission</th>
<th>Date of Discharge</th>
<th>No. of days treated</th>
<th>Drug given</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>677</td>
<td>Geetha</td>
<td>6</td>
<td>FC</td>
<td>Ulceration in side the oral cavity, fissure in the lips</td>
<td>Ulceration in side the oral cavity, fissure in the lips. All symptoms are well relieved</td>
<td>25.3.06</td>
<td>4.4.06</td>
<td>10</td>
<td>Athemat huranei</td>
<td>Well Relieved</td>
</tr>
<tr>
<td>2</td>
<td>1440</td>
<td>Sathesh</td>
<td>3</td>
<td>MC</td>
<td>Redness of the tongue, ulceration both angle of the mouth, excess salivation</td>
<td>Redness of the tongue, ulceration both angle of the mouth, excess salivation. All symptoms are well relieved</td>
<td>22.6.06</td>
<td>26.6.06</td>
<td>5</td>
<td>Do</td>
<td>Well Relieved</td>
</tr>
<tr>
<td>3</td>
<td>1442</td>
<td>Papeetha</td>
<td>3 ½</td>
<td>FC</td>
<td>Redness of the tongue, fissure in the lips and tongue, ulceration of the both angle of the mouth.</td>
<td>Redness of the tongue, fissure in the lips and tongue, ulceration of the both angle of the mouth. All symptoms are well relieved</td>
<td>22.6.06</td>
<td>29.6.06</td>
<td>7</td>
<td>Do</td>
<td>Well Relieved</td>
</tr>
<tr>
<td>4</td>
<td>2430</td>
<td>Balamurugan</td>
<td>7</td>
<td>MC</td>
<td>Sore throat, redness of the tongue, malaise, ulceration both angle of the mouth</td>
<td>Sore throat, redness of the tongue, malaise, ulceration both angle of the mouth. All symptoms are well relieved</td>
<td>11.11.06</td>
<td>25.11.06</td>
<td>15</td>
<td>Do</td>
<td>Well Relieved</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>2603</td>
<td>Meganathan</td>
<td>5</td>
<td>MC</td>
<td>fissure in tongue ulceration in oral cavity, redness of the tongue, excess salivation.</td>
<td>fissure in tongue ulceration in oral cavity, redness of the tongue, excess salivation. All symptoms are well relieved.</td>
<td>20.11.06</td>
<td>24.11.06</td>
<td>5</td>
<td>Do</td>
<td>Well Relieved</td>
</tr>
<tr>
<td>6</td>
<td>2601</td>
<td>Sivakumar</td>
<td>7</td>
<td>MC</td>
<td>fissure in lips and tongue, sore throat, excess salivation, fever. All symptoms are well relieved.</td>
<td>Fissure in tongue, excess salivation in lips and tongue, excess salivation, fever. All symptoms are well relieved.</td>
<td>20.11.06</td>
<td>24.11.06</td>
<td>5</td>
<td>Do</td>
<td>Well Relieved</td>
</tr>
<tr>
<td>7</td>
<td>2602</td>
<td>Pattan</td>
<td>5</td>
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<td>Fissure in tongue, excess salivation, redness of the tongue, ulceration of both angle of the mouth.</td>
<td>Fissure in tongue, excess salivation, ulceration of both angle of the mouth. Symptoms are reduced.</td>
<td>20.11.06</td>
<td>24.11.06</td>
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<td>20.11.06</td>
<td>24.11.06</td>
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<td>20.11.06</td>
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<td>Type</td>
<td>Symptoms</td>
<td>Date</td>
<td>Signs</td>
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<td>Raja</td>
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<td>25.01.07</td>
<td>29.01.07</td>
<td>Do</td>
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<td>Fissure in the tongue, redness of the tongue, ulceration both angle of the mouth, headache. All symptoms are well relieved.</td>
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<td>25.01.08</td>
<td>29.01.08</td>
<td>Do</td>
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<td>29.01.09</td>
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<td>Fissure in the tongue, ulceration both angle on the mouth. All symptoms are well relieved.</td>
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<td>Fissure in lips and tongue, white coated tongue, fever, ulceration both angle of the mouth</td>
<td>30.01.07</td>
<td>03.02.07</td>
<td>Do</td>
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<td>Fissure in lips and tongue, white coated tongue, fever, ulceration both angle of the mouth. All symptoms are well relieved.</td>
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<td>Kavirayan</td>
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<td>30.01.08</td>
<td>03.02.08</td>
<td>Do</td>
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<td>Fissure in tongue ulceration in oral cavity, redness of the tongue, excess salivation. All symptoms are well relieved.</td>
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<td>Well Relieved</td>
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<td>MC</td>
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<td>White coated tongue, fever, ulceration both angle of the mouth are the symptoms are reduced.</td>
<td>30.01.09 03.02.09 5 Do Reduced</td>
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<td>05.04.07 20.04.07 15 Do Reduced</td>
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<td>20.04.07 24.04.07 5 Do Reduced</td>
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<td>Sore throat, redness of the tongue, malaise, ulceration both angle of the mouth. All symptoms are well relieved.</td>
<td>25.04.07 30.04.07 6 Do Well Relieved</td>
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<td>fissure in the tongue, redness of the tongue, headache are the symptoms are reduced.</td>
<td>07.05.07 11.05.07 7 Do Reduced</td>
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ANATOMY OF THE ORAL CAVITY

LATERAL VIEW OF ORAL CAVITY
1. மசோதமைக்கை படுமா
2. பசுக்கூழ் பான்
3. அரியைண்டைமா
4. பசுக்கூழ் தீமா

அகிலமையம்
PATHOLOGY OF ORAL CAVITY

COATED TONGUE

REDNESS OF THE TONGUE
PATHOLOGY OF ORAL CAVITY

FISSURE IN THE TONGUE

GINGIVITIS
DRUG