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INTRODUCTION

Man is a wonderful creature blessed by God. Imagination and laughter are milestones on the way that distinguishes man from other animals of mere living, no man was ever proud: but the good life had always been his aim.

To desire among goods the greatest good which is the most desirable, thus to be trusted to the self, to prefer among beautiful things, the grandeur beauty, thus to weigh objective things most truly; to worship that only which reflects infinite value; for this sound mind, one needs sound body. Health is Stated which not only keeps the body sound but also the mind.

Man is hale and healthy when his life moves along with nature, when he violates against it he is pushed into oriental stress, deteriorates his physique and ultimately his sound mind.

Todays modern industrialization imbalance the Ecosystem which paves way for many diseases. To uproot these diseases there should be a system of medicine which goes hand in hand with the nature.

The Indian subcontinent abounds as it were in a variety and diversity of health traditions. We have with us what is perhaps the longest unbroken health tradition which has not only a stream of practitioners but also a textual and theoretical backing in terms of siddha and Ayurvedic system of medicine.

There are three types of Indigenous medicines:

i. Siddha system – origin from south India on the basis of Tamil language.

ii. Ayurvedic system – in North India on the basis of Sanskrit

iii. Unani – It is brought from Arabic countries to India by Mugalayas on the basis of Arab.
In the legend of science the only system with rich Dravidian culture is the noble Siddha system of medicine,. It is holistic and treats the complete individual and not merely the disease. The treatment varies for different individuals based on their constitution (Prakriti) and dietary habits.

It’s proud and pleasure for the author to be in this field and to take up the dissertation on the disease that leads to many patients in despair

The treatment is known as in Siddha System is that to eradicate or to cure (or) to relieve the illness of the body as well as the Athma. Along with the human beings the medicine is also created. The medicinal substances or drugs were collected in the surroundings of the patients. Day by day the medicines are cultivated and collected for purpose of medicine according to the season and availability of drugs. The Indigenous medicine is based on three – dosha theory.

According to Siddha System the word Prakriti means “Nature” or Natural form of the build and constitution of the human body. Prakriti means “Natural Form (or) Original form”. Disease occurs when there is a change in this original form at the physiological or psychological level. Our siddha system considers Sukkilam, Suronitham, Thanvinai, PiravinaI and Moola Prakrithi also. If there is any abnormalities in these factors will affects the universe as well as individual.

The universe around us is the macrocosm (Andam) and the human body is considered as the Microcosm (Pindam). Any change in the macrocosm will have its impact in the Microcosm. i.e Human body. Both are formed by the basic of five elements Pancha Boodhangal i.e: Prithivi (Earth), Appu (Water), Theyu (Fire), Vayu (Air), Aahayam (Ether). These five elements combine to form the three thatus (Vadha, Pitha,Kabha), the balance of which is very essential for the healthy life.
Vadha is formed by **AIR** and **AAHAYAM**

Pitha is formed by **FIRE**

Kabha is formed by **EARTH** and **WATER**

These three thathus are perceived as Naadi, which is the unique feature of siddha system. The existence of these thathus are in the ratio of 1:½:¼ respectively. If all the three thathus are in the above said ration the body will be healthy.

The diagnostic methods in siddha system are Envagai thervugal. They are

The objective of the siddha system is to maintain the balance of the three thathus and there by correcting the disease in the body.

The diseases evolving recently in the modern medicine have already been dealt by our great Siddhar’s. Many millennium backs one such clinical entity is “Saganavadham” which is described by “Yugi Vaidhya Sindhamani – 800”. Most of the clinical features of Saganavadham closely resembled to that of “cervical Spondylosis” in modern medicine. The author wishes to explain the “Saganavadham” with other scientific factor in order to reach siddha basic principles to people.

The factor that cause pain in the neck, 80% of the people who suffer from neck pain those who are engaged in works which make chronic flexion of the cervical vertebrae as in tailors, porters, Agricultural labors, clerks, goldsmiths, dentists, writers etc.

In treating vadha diseases the Siddha system of medicine has its wonderful effects. So the author has tried to formulate a treatmetnt methodology to treat this disease.
The author’s choices of medicines for clinical study are.

i. Agni Chooranam – Agasthiyar Vaithya Rathina Chrukkam
   (Internally)  
   Dose – 1-2 gm twice daily with hot water.

ii. Maasha thylam – 30 ml - Anuboga vaithiya Deva Ragasium
   (Externally)

The medicines were prepared by the author in PG Gunapadam Laboratory, with the guidance of the concerned Lecturers, and were tried in 20 selected IP cases and 20 selected OP cases of “Saganavadham” of varied etiology and the clinical study was undertaken in the Post – Graduate department.

In patient department of Maruthuvam Pothu the follow up study in all cases was done in the post graduate out patient department.

A comprehensive knowledge of siddha and modern concept about etiology, signs and symptoms, pathology, and Bio-chemical analysis will be very helpful to conduct the present Study in a useful manner.
AIM & OBJECTIVES

The aim of the present work is to study the various aspects of the clinical study of saganavadham compared with cervical spondylosis in modern medicine was done 20 selected cases of both sex and treated in the IN patient ward of the post graduate department of pothu maruthuvam at Government Siddha medical college hospital, Palayamkottai. The main objective of the present study is to create an awareness about the siddha science and highlight the efficacy of siddha medicines among the public.

The aim and objectives are as follows:-
1. Siddha system of medicine should reach the entire society of the world.
2. The unique aspect of Siddha principles namely the tridosha theories with respect to body constitution (prakriti) taste and seasonal variation (paruvakaalam) are interpreted with the disease.
3. Make a detailed study of various literatures dealing with definition, aetiology, classification, signs and symptoms, prognosis, diet and treatment for saganavadham.
4. To study the incidence of the disease with respect to age, sex, socio-economic status, habit and family history.
5. To have a clinical trial with specific medicine.
6. To evaluate the biochemical and pharmacological reports on dissertation medicine.
7. To have a detailed clinical investigations.
8. To insist thokkanam, yoga along with medicine to achieve better results.
9. To pave way for research work in future.
10. To have an clinical trial on saganavadham with Agni chooranam internally and Maasha thylam externally.
ABSTRACT

Medicine is not merely a science but art as well. The science of medicine is of fundamental importance to Man’s well being and survival.

The most common problem in day to day life is Saganavadham (Cervical Spondylosis). So the authors have chosen this disease and attempts to search for a perfect remedy for the same.

According to the Tridosha theory mentioned in siddha literatures, this disease occurs due to imbalance of three thathus.

The three thathus are made up of pancha Boothas. These panja boothas also form the basis for suvai. Saganavadham is the disease which occurs due to vitiation of vadha (Vali+Aahayam). To neutralize the vadha kutram the suvai Salt (appu + theyu) is necessary. The trial medicines are “Agni Choornam and Maasha thylam”.

Along with these medicines, yoga and certain exercises were also advised to the patients to get good results.
REVIEW OF LITERATURES
SIDDHA ASPECTS
MUKKUTRA IYAL

Diseases as classified as 4448 types. Among 4448 types the vadha constitutes 84 types.
This mentioned as

According to Yugi Vaidhya Chinthamani, Vadha is of 80 types.

VADHAM

Synonyms – Vayu, Vali, Arasan, Air.

Definition:
Vadha or Vayu is not mere a wind, but also that causes motion energy and sensation of every cell in the body. So vadha is humour which is responsible for construction nature of works in the human body.

Geneis of Vadha
Vadha - Vali + Aakayam

When vali bootham and Aakaya bootham are combined vadha is formed.

Shape
It is invisible. It can be felt by action or movements of the body.
The relation between panchabootham and Uyir thathukkal

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<tr>
<th>Uyir Thathukkal</th>
<th>Panchabootham</th>
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<tr>
<td>Vatham</td>
<td>Aahaayam (Space)</td>
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<tr>
<td></td>
<td>Vayu (Air)</td>
</tr>
<tr>
<td>Pitham</td>
<td>Theyu (Fire)</td>
</tr>
<tr>
<td>Kabam</td>
<td>Appu (Water)</td>
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<tr>
<td></td>
<td>Prithivi (Earth)</td>
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</tbody>
</table>

It would be incorrect to think of the “Thodams” only as the Three dynamic elements manifesting in the body. These active elements are always supported by the two stable elements, for change can only happen upon the foundation of stable. Thus Vayu and Aahaayam combine to become ‘Vatha Thadom’ which controls all aspects of movements as well as space within the body. In spite of this combination, however, “Vatha thodam” sends to primarily display the characteristics of Vayu-wind. The words “dry, light, cold, quick, rough, minute and mobile” describes the characteristics of “Vaadha Thodam”.

Theyu, in conjunction with some of the qualities of vayu and Appu, becomes “Pitha Thodam”. This is the function that governs all the body’s conversion processes as well as its heat and energy producing capacities. ‘Pitha Thodam’ is primarily characterized by the qualities of Theyu, which are “hot, sharp, penetrating, light, acidic, and slightly oily”.

‘Appu’ supported by “Prithivi” becomes “Kaba Thodam” and controls liquefaction, lubrication and cohesion. It is also responsible for giving solidity and structure to the body. ‘Kaba Thodam’ primarily reflects the qualities of the water, but also some traits of the earth elements, consequently, ‘Kabam’ is heavy, slow, cold, steady, solid and oily.
Another interesting feature of the ‘Thodas’ is that each has a taste associated with it.

“Vatham” is mostly Pungent,
“Pitham” is Sour and
“Kabam” is Sweet

**THODAMS AND THEIR FUNCTIONS**

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<tr>
<th>Thodam</th>
<th>Function</th>
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<tr>
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<tr>
<td>Pitha Thodam</td>
<td>Conversion / Transformation</td>
</tr>
<tr>
<td>Kaba Thodam</td>
<td>Cohesion / Liquidity</td>
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</table>

These three humours vatham, pitham and kabam are more or less correlated with Air, Gastric juice and Saliva respectively. They circulate in the body system in different proportions and help in the digestion of food and other general physiological functions of the body. Each of them has different functions. The right proportion of each, in proper combination are responsible for maintaining the good health.

When some of the environmental factors like diet, weather etc., disturb vatham, it looses its control, which may be diminished or exaggerated. So the other two “Thodams” are also disturbed which are in peculiar Equilibrium State. Finally this lead to “Vatha” diseases.

**LOCATIONS:**

Below the navel.

“நான் வாதத்தைக் கையாள்தேன் கையாளல்
நான் வாதத்தைக் கையாளல் கையாளல்.”

Generally “Vatham” lives in,

1. Abaanan
2. Edakalai
3. Kamakodi
4. Undhiyin Keezh moolam
5. Hip region
6. Bones
7. Muscles
8. Nerves
9. Joints
10. Skin
11. Hair follicles and
12. Stools.

Physiologically “Vatham”, which has no alterations, lives in Gastro Intestinal Tract, Bones, Ear, Thigh, Hip and Skin.

**NATURAL PROPERTIES OF VATHAM**

1. Giving briskness
2. Expiration and Inspiration
3. Functioning of the mind, thoughts and body
4. Regulation of the “Fourteen Physiological Reflexes”, (Vegam)
5. Functioning of the “Seven Udal Kattukal” uniformly
6. Protection and strengthening of the Five sensory organs.
   (lymporigal)

**FUNCTIONS OF VATHAM:**

1. Body ache
2. Pricking pain
3. Tearing pain
4. Nerve weakness
5. Shivering
6. Mental distress
7. Dryness
8. Movements
9. Weakness
10. Joints pain
11. Traumatic pain
12. Dislocation of joints
13. Weakness of organs
14. Pilo-erection
15. Paralysis of limbs
16. Polydypsia
17. Severe pain in calf and thigh muscles
18. Bony pricking pain
19. Anuria and constipation
20. Unable to do flexion and extension of the limbs
21. All tastes to be like astringent
22. Excess salivation and
23. Darkness of skin, eyes and urine.

QUALITY OF VATHAM:

Own Qualities

1. Kadinam - rough
2. Varatchi - dry
3. Elesu - light
4. Kulirchi - cold
5. Asaidhal - unstable
6. Anuthuvam - subtle

Opposite Qualities

1. Mirudhu - soft
2. Pasumai - unctuous
3. Paluvu - heavy
4. Akkini - hot
5. Sthiram - stable
RELATION WITH TASTE

The tastes, which increase ‘Vatham’ are Sour and Astringent.

"புष்கிலும் விதைக்காய் பார்க்குறிக்கு தேவதறும்
லோகமும் காட்சியலிதிய பரிணமுறு - கிருட்கமுறிய
களைப்பின் விதைக்காய் விதைக்காய் கையெறு
தோற்று பொக்க் கற்றுமறிகாடுகிறது”

The tastes, which neutralizes Vatham, are Sweet, Sour and Salt.

"சமாக மேல்பிற்பனாம் தேவதறும்
லோகமும் காட்சியலிதிய பரிணமுறு - கிருட்க்கமுறிய
களைப்பின் தேவதறும் கையெறு களைப்பின்
தோற்று பொக்க் கற்றுமறிகாடு”

- கிருத்கமுறிய

RELATION WITH FIVE ELEMENTS:

Vatham - Air + Sky
Pitham - Fire
Kabam - Water + Earth

Vatham has “Air” and “Sky” as it’s elemental constituents. If “Air” and “Sky” or any one of them is decreased (or) increased from the normal level, it will surely lead to pathological state of vatham.

Regarding diet, bitter, pungent and astringent tastes contains “Air” and bitter alone contains “Sky”. So if these are consumed in large amounts results in the vitiation of vatham and eventually vatha disease.

The six tastes and their constituent elements are as follows.

1. Sweet = Earth + Water
2. Sour = Earth + Fire
3. Salt = Water + Fire
4. Bitter = Air + Sky
5. Pungent = Air + Fire
6. Astringent = Earth + Air
THREE PHASES PRAPAKAM (METABOLISM)

<table>
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<th>TASTE</th>
<th>FUNCTION</th>
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<td>Kabam</td>
<td>Sweet</td>
<td>Moistening of Food</td>
</tr>
<tr>
<td>Pulippu</td>
<td>Pitham</td>
<td>Sour</td>
<td>Conversion of Food</td>
</tr>
<tr>
<td>Kaarppu</td>
<td>Vatham</td>
<td>Pungent</td>
<td>Absorption and separation of food</td>
</tr>
</tbody>
</table>

ALTERATIONS OF VATHAM

Vatham is specialized in Aadi, Aavani, Purattasi, and Iyppasi Physiologically.

The three humours are affected either themselves or with Udal Thaadukkal, pathologically.

The type of alterations of Vatham are:

1. Thannilai Valarchi

   Definition: A kutram, which is provoked in its own location is called “Thannilai Valarchi”.

   Limitation: Hatefulness of the things which are causing Thannilai Valarchi and likeness of the things which are getting opposite properties are the limitations of “Thannilai Valarchi.”

   Duration: Vatham gets “Thannilai Valarchi” during Mudhuvenil Kaalam (Aani and Aadi).
2. Vetrunilai Valarchi (வெறுநிலை வாலார்சி)

Definition: A Kutram, which is provoked to other locations is called “Vetrunilai Valarchi.”

Limitation: Signs and symptoms of the affected kutram and the pathological conditions of the Udal Thaadhukkal give the details of the limitations.

Duration: Vatham gets “Vetrunilai Valarchi” during kaar Kaalam (Aavani and Purattaasi).

3. Thannilai Adaidhal (தனிலை ஆயத்தல்)

Definition: A provoked kutram, which is neutralizing in its own property is called Thanilai Adaithal.

Duration: The provoked Vatham neutralizes during koodhir kaalam (Iyppasi and karrthigai).

FACTORS WHICH ALTER VATHAM

1. When hot foods are mixed with vatham, “Vatham” gets Thanniliai Valarchi”.

2. When cold is mixed with Vatham, “Vatham” gets ‘Vetrunilai valarchi’.

3. And when oily foods with hotness are mixed with Vatham. “Vatham” neutralizes in its own property that means healthy conditions.

“ மாபையில் குடும்பிற்கு கையூற்றும் மாபையில் குடும்பிற்கு கையூற்றும் மாபையில் குடும்பிற்கு கையூற்றும் மாபையில் குடும்பிற்கு கையூற்றும் மாபையில் குடும்பிற்கு கையூற்றும் மாபையில் குடும்பிற்கு கையூற்றும் ”

- தொற்று வேந்தோர்கள் குடும்பு
DESCRIPTION OF VATHAM:

The siddha classical texts divide the general principles of Vatham into ten subsidiary forms that differ from one another by their localization in the body (Anatomical) and by their particular functions (Physioloical). They are

1. PRAANAN : (Heart Centre)

It corresponds to the Cadiac plexus and refers to the chest. It maintains the action of the heart, the functioning of the mental faculties of perception and concentrations and also cares for the arteries, veins and nerves. It regulates the respiration and digestion. It is otherwise called as “Uyirkkaal”.

2. ABAANAN (Moolaadharam Centre)

It corresponds to the pelvic plexus and controls the excretion. It is focussed in the lower part of the gut and also occupies the sites in the bladder and genitals. It has a tendency to travel downwards. It moves in the whole Genito Urinary Tract and regulates the defaecation, micturition, menstruation, parturition and ejaculation. It is otherwise termed as “Kezhnokkumkaal”.

3. VIYAANAN: (Fore head Centre)

It corresponds to the naso ciliary plexus at the root of the nose and base of the skull and controls the will. It helps in the circulation of energy throughout the entire nervous system and the movements of various parts of the body. It also transports nutrients and blood throughout the entire body. It is also known as “Paravukaal.”

4. UDHAANAN: (Throat Centre)

This corresponds to the pharyngeal plexus in the throat region and controls speech and breathing. It is also responsible for the physiological reflex actions like vomiting, hiccup, cough, etc., It has the tendency to travel upwards. It is otherwise named as “Melnokkukaal.”
5. SAMAANAN: (Navel Centre)

It corresponds to the solar plexus in the navel region and controls digestion. It selects the useful substances from the swallowed food and supplies them to the whole body. It balances the other ‘Vayuss’ it is also called “Nadukkaal.”

6. NAAGAN:

It is responsible for the intelligence of an individual, winking, singing and pilo erection.

7. KOORMAN:

It is responsible for yawning, closing of mouth (immovable of lower jaw) winking, shedding of tears, vision and opening of the eyes.

8. KIRUGARAN:

It is responsible for salivation and nasal secretion. It helps in digestion and meditation. It produces cough and sneeze.

9. DHEVATHATHAN:

It is responsible for laziness, lassitude, to quarreling arguing, begging and also for much anger. It helps movements of the eyeball in various directions and is present in genital and anal region.

10. THANANJEYAN:

It is present in nose and responsible for swelling of the body and tinnitus. It leaves from the body by blowing up the cranium only on the third day after death.

**BEHAVIOURAL CHARACTERISTICS OF VATHA DHEHI**

1. Performs activity - Very rapidly
2. Motivated enthusiastic and excitable - Very easily
3. Moods - Change quickly
4. Learns - Very quickly and easily
5. Quality of mind - Quick, creative and imaginative but restless
6. Memory - Good, short term
7. Digestion - Inconsistent varies between weak and strong
8. Appetite - Variable
9. Quantity of food eaten - Variable
10. Taste preference - Sweet, Sour, and salty
11. Thirst - Varies
12. Food - Warm, Moist Foods
14. Frequency of bowel movements - Irregularly
15. Consistency of faeces - Hard, Dry, Stools
16. Perspiration - Moderate
17. Sexual desire - Less
18. Amount of sleep - Usually 5-6 hours
19. Quality of sleep - Light, easily interrupted
20. Type of dreams - Fear, Flying, Running, Jumping climbing trees and mountains.
21. Response to challenge - Uncertain, worried and indecisive
22. Speech - Fast, omitting words and digressing
23. Gait - Fast, with a light step.

PHYSICAL CHARACTERISTICS OF VATHA DHEHI

1. Shape of Face - Thin body, and elongated plain looking
2. Complexion - Dark, brownish or Black
3. Involuntary bodily movement - Twitching, jerking and fine tremors
4. Body weight - Light and below normal
5. Build - Lean, thin, tall or short.
6. Texture or Quality of skin - Dry, coarse, rough, cracked or scaling and birthmarks
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Skin</td>
<td>Dry</td>
</tr>
<tr>
<td>8. Body temperature</td>
<td>Low, cold extremities</td>
</tr>
<tr>
<td>9. Stamina</td>
<td>Short</td>
</tr>
<tr>
<td>10. Shape and quality of eyes and lashes</td>
<td>Small bulging and deep set with thin scanty eye lashes.</td>
</tr>
<tr>
<td>11. Characteristics of eyes</td>
<td>Dry, frequent blinking</td>
</tr>
<tr>
<td>12. Teeth</td>
<td>Very small or protruding crooked, easily cracked</td>
</tr>
<tr>
<td>14. Lips</td>
<td>Dark, dry, and cracked</td>
</tr>
<tr>
<td>15. Size and shape of fingers</td>
<td>Very short or very long stubby and thick</td>
</tr>
<tr>
<td>16. Colour and texture of hair</td>
<td>Thin, Coarse, dry and wiry, darker in color or balding.</td>
</tr>
<tr>
<td>17. Body hairs</td>
<td>Scanty</td>
</tr>
<tr>
<td>18. Joints</td>
<td>Loose or rigid Pronounced crack and pop.</td>
</tr>
<tr>
<td>19. Veins</td>
<td>Prominent or branching close to surface</td>
</tr>
<tr>
<td>21. Body odour</td>
<td>Little or no smell or perspiration</td>
</tr>
<tr>
<td>22. Tongue</td>
<td>Dark, brownish, thick, rough and cracked on the sides.</td>
</tr>
</tbody>
</table>
AETIOLOGY OF VATHA DISEASES:

The aetiological factors for all types or vatha diseases including “Saganavatham” have been described generally in “Yoogimunivar vaithya sindhamani perunool-800” and agasthiyar Kanma Kaandam-300”.

In Yoogi munivar Vaidhaya Sindhaamani – 800

2. Abusing from the pious elderly people and priests.

THE FEATURES OF EXAGGERATION OF VATHAM

1. Body weakness and darkness
2. Liking to eat hot foods
3. Shivering
4. Abdominal distension
5. Constipation
6. Diminution of immunity
7. Giddiness
8. Insomnia
9. Laziness

THE FEATURES OF DIMINUTION OF VATHAM

1. Body ache
2. Hoarseness of voice
3. Loss of memory
4. Semi consciousness
5. Difficulty to do any work
6. Paleness and coolness of body
7. Excessive salivation
8. Heaviness of body
9. Anorexia
10. Cough, sleep and abdominal distension
CLASSIFICATION OF VATHA DISEASES:
Various siddha texts gives different classifications of Vatha diseases as follows:

<table>
<thead>
<tr>
<th>SI.No.</th>
<th>Name of the siddha Test</th>
<th>Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Agasthiyar -2000</td>
<td>80</td>
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<tr>
<td>2.</td>
<td>Agasthiyar Gurunaadi – 235</td>
<td>84</td>
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<tr>
<td>3.</td>
<td>Agasthiyar Rathina Surukkam – 500</td>
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<td>4.</td>
<td>Ashtaanga Sangiragam</td>
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<td>Bohar Vaidhiyam – 700</td>
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<td>6.</td>
<td>Jeeva Rakshaamirdham</td>
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<td>7.</td>
<td>Noi Naadal and Noi Mudhal Naadal – part II</td>
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<tr>
<td>8.</td>
<td>Thanvandhiri Vaidhiyam</td>
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<td>9.</td>
<td>Theraiyar Vaagadam</td>
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</tr>
<tr>
<td>10.</td>
<td>Yogi Vaidhya Sindhaamani Perunool – 800</td>
<td>80</td>
</tr>
<tr>
<td>11.</td>
<td>Yogai Vaidhya Sindhaamani Perunool -800</td>
<td>84</td>
</tr>
</tbody>
</table>
CLINICAL FEATURES:

The signs and symptoms of Vatha diseases have been given in many siddha classical text books as follows:

1. In Agasthiyar - 2000

"வாத்துக்குக் குவச்சிமருவு வூர்குருவிமுழு வொழிக்கு
நேகுதுளியும் குமாரமூப்பொற் கோடுருக்கு குறுத்து முறுக்கொள்ளது
குறும்மல்லா வைன்பொற்று கண்டு குண்டுக்கு புகாரம்
பொறூ கருநாகின்கொட் வாகொட் புகொட் பொட்டு குண்டுபொற்று"

1. Giddiness
2. Stabbing pain in the face
3. Redness of eyes
4. Peptic Ulcer
5. Abdominal distension
6. Joint pain in upper and lower limbs
7. Numbness in the limbs
8. Oliguria,
9. Drowsiness and
10. Chillness of body

2. Agasthiyar Naadi:

"அக்குமூத்து நாகோ முதா முதிக்கும்
ஒன்றுக்கு முன் மண்டம் முதிக்கும்
பொறூ வொழிக்கு அதிய புகாரம்
பொறூ கருநாகின் குரும் பொறூ குண்டுபொற்று"

1. Weakness of the limbs
2. Sluggishness,
3. Stiffness and
4. Numbness
3. THERAIYAR VAAGADAM:

“அந்தச் செவ்வைப்பாற்றிக் கடுமியும் மானாவிடுவதோடு
பார்க்கும் கரைகளா மீனவல் போக்கரைத்துவேற்று
துணைமுக மானாவிடு நிற்குமாயும் பெறுவால் கம்பியால்
திறந்து விடும் தட்டுமிடு கொண்டுசெயலாள உண்மை என்று”

- வரலாற்று வரலாறு

1. Loss of appetite,
2. Backache,
3. Fever,
4. Cough
5. Sleeplessness,
6. Shivering and
7. Pain in joints

“தந்தியுடைய கிளைகள் சுற்றுமல்லது துருங்காமல்
திறந்து நாய்களிடமிருந்து வண்டியில் சென்றும்
சுற்றுமல்லது மானாவிடு மீனவல் சுற்றுமல்
திற்புவது நிற்கியும் பெரியவை மானாவிடு”

- பக்கம் 42

1. Pain in the joints
2. Headache,
3. Excessive yawning,
4. Constipation,
5. Burning sensation of the body,
6. Paralysis,
7. Excessive salivation,
8. Chillness and
9. Tremor
MUKKUTRA VERUPAADUGAL (Pathogenesis)

1. By any one or other etiological factors, Vatham is vitiated first.
2. Then it affects the other dhoshams pitham and kabam which are in three dhosa equilibrium.
3. And then the ten Vayus, seven udarkattugal and other structures are also affected according to the severity of the illness.
4. By the affection of ‘piranaan’ wheezing, cough, dyspnoea, nasal congestion and indigestion may occur.
5. By the vitiation of ‘Abaanan’ Constipation, oliguria and menstrual disorders may occur.
6. By the affection of ‘Udhaanan’ heart, chest, mouth and eyes are affected and hiccup, vomiting and heart burn are formed.
7. By the vitiation of ‘Viyaanan’ muscle wasting, loss of sensation, giddiness, coma, body ache, numbness, itching and tingling sensation are formed.
8. By the affection of ‘samaanan’ disturbances of other vayus abdominal distension, anorexia malnutrition and indigestion may occur.
9. When ‘Saaram’ is affected anorexia, laziness, lassitude, weakness and dryness of skin are formed.
10. When ‘Senneer’ is affected nerve weakness, dryness, mental disorders, haematuria, jaundice, anaemia, anorexia, spleenomegaly and skin diseases may occur.
11. When ‘Oon’ is affected muscle wasting, dropsy, body ache, edema and weakness of five sensory organs are formed.
12. When ‘kozhuppu’ is affected body debility, body ache, joints pain, spleenomegaly and tiredness may occur.
13. When ‘Enbu’ is affected arthritis, joint pain, osteophyte formation and other bone disease are formed.
14. When ‘Moolai’ is affected blurring of vision, ulcers, heaviness of the body and bone diseases may occur.

15. When ‘sukkilam’ is affected lustfulness, urinary calculus, bleeding during coitus, orchitis and diseases of genitalia are found.

16. When ‘Pitham” is affected anorexia, anaemia, indigestion, blurring of vision, dryness and darkness of skin, ‘vomiting, giddiness, burning sensation of the body and difficulty to do works are formed.

17. When ‘Kabham’ is affected respiratory disorders, indigestion tastelessness, burning sensation of eyes and joint diseases may occur.

In Vaadha diseases Abaan, Viyaan, Samaan, Naagan, Koorman, and Dhvaathatan are affected generally. Saaram, senneer, Oon, Kozhuppu, Enbu, and Moolai are also affected one by one.

**NAAADINADAI**

In Vaadha diseases, the following stages of naadi are noted generally

1. Exaggeration of Vaadha naadi,
2. Vaadha pitha thondha naadi,
3. Vaadha kaba thondha naadi,
4. Kaba Vaadha thondha naadi and
5. Kaba pitha thondha naadi.
SAGANA VATHAM

DEFINITION:

Saganavatham is one of the vatha disease described in ‘Yugi Vaidhya Sindhamani -800’. It is a condition dealing with the involvement of the neck which is identical to the cervical spine, comprising the symptoms of pain in the nap of the neck, radiating pain in the upper limbs, feeling of heaviness of the body, mental depression, giddiness, burning sensation of the eyes and constipation.

Aetiology:

The common aetiological factors for all types of Vatha diseases including “Saganavatham” have been described generally in Yoogi Vaidhya Sindhamani -800, Agasthiyar kanma kaandam – 300 and Agasthiyar Gunavagadam

1. In Agasthiyar Gunavagadam:

"குறுக்கும் விதம் திருத்துற்றும் மகுதி குழு குறுக்கும் விதம் தாருமலும் மாநிலத்தில் கான்கிழமை இருஞ்சுபுருக்கும் தர்ச மெய்விலியும் இருன்று காண்டு குழு மகுதியும் தவருமலும் மாநிலத்தில் கான்கிழமை இருஞ்சுபுருக்கும் தர்ச மெய்வில் திருத்துற்றும் மகுதி குழு மாநிலத்தில் கான்கிழமை இருஞ்சுபுருக்கும் தர்ச மெய்வில்

"அதவை கருத்திருந்த விளம்பிற்கும் அப்போது கருத்திருந்த பிறகு குறுக்கும் விதம் தாருமலும் மாநிலத்தில் கான்கிழமை இருஞ்சுபுருக்கும் தவருமலும் மாநிலத்தில் கான்கிழமை இருஞ்சுபுருக்கும் தவருமலும் மாநிலத்தில் கான்கிழமை இருஞ்சுபுருக்கும் தவருமலும்

-அகத்தியம் குமாரநியம்
1. Brain diseases  
2. Renal disorders  
3. Sexually transmitted disease  
4. Disease of the vertebral column & spinal cord  
5. Menorrhogia  
6. Take im-proper prepared medicine of mercury and lead will cause Vatha disease.

**In Agasthiyar Kanma kaandam -300**

```
"தரவிய உணர்வு மாற்றாகக் குறிப்பிட்டே தன்னாலேயும், தன் சான்றை தான்கிந்து தொட்டே
அன்றின் தோற்றத்தைத் தொட்டே வெழ்வு
நல்லதன் பாகிப்படுத்து மிகுதியும்
நல்லதன் பெண்ணிக்கோ நிலைச்சுக்கோ செய்ய
அன்றின் முதல் கான்களை தொடுத்திக் குறிப்பிட்டே தொடுத்தே."
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-பகல் 56

1. Cutting the trees  
2. Breaking the legs of living animals  
3. Cutting the branches and leaves of living trees

**In Yoogi Vaidhya Sindhaamani**, the following causes are given as follows:

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"தரவியம் கண்டுபிடித்துள்ளதும் பாதிப்பு
சரக்கல் விவசாயத்துக்கு தருமது மாற்றம்
கொல்லதற்கு பாதிப்பும் புதிக்கும்
நல்லதன் பெண்ணிக்கோ நிலைச்சுக்கோ
பெண்ணிக்கோ நிலைச்சுக்கோ பாதிப்பும்
நல்லதன் என்றிக் கூறும் பாதிப்பும்
சரக்கல் விவசாயத்துக்கு தருமது மாற்றம்
"""```

-பகல் 244
1. Consumption of bitter, astringents, pungent foods excessively.
2. Eating previously cooked food
3. Drinking polluted water
4. Changing sleep rhythm
5. Excessive starvation
6. Lifting heavy objects
7. Excessive lust
8. Walking long distance
9. Living in chill environment
10. Excessive consumption of tubers, fruits, curd etc.

Kanma Vinai is also implicated in the aetiology of vatham.

The aetiological factors are as follows,

"பாண்டிய வாழ்க்கை மூட்டல் துவங்கல்
பாசனை மூட்டல் நேரடை விஷயன்
நானூறு பிறந்தவை வேட்டு வந்து
வாழ்க்கை காணேற்று பாடியிருக்கும்
திகச்செய்து மிகுதியான தொன்றுகள் நிலக்கலாம்
மன்னர் சந்திக்கவேண்டும் என்கின்றேன்
மேலேசியர் சந்தேகக்குத் தரிசம் வந்து பாடியிருக்கும்"

- பால் 285
1. Cutting trees, tree bark, tender leaves
2. Breaking legs of animals
3. Breach of trust
4. Abusing elderly and priest
5. Exploitation of charitable properties
6. Ingratitude with mother, father and gurus
7. Irrespectful attitude with god
8. Refusing food for destitutes and hermits
9. Involvement in murder theft, lustful activities
In Agasthiyar Gunavagadam the following causes are given,

"குறுக்கணாய் வருள்வருடி நில் விளை
அமிதாம்பா பகிர் போன்றுச் சுருக்கம் கடளம்
அலுக்கள் வங்கியா அடைச்சு
அழகுகள் வங்கியா பிள்ளையாறும்
அப்போள் காற்றுச் செயல்கள்
நடிகோள் விற்பன் என்று கிராமச்சுறும்
குறிப்பிடிக்கும் முக்கிய குறைவைச்
- அக்கினியா கால் குறைவை

1. Diseases of the vertebral column and spinal cord
2. Diseases of muscles
3. Menorrhogia
4. Mercury poisoning
5. Lead poisoning

**Alteration of Udal Vanmai:**

Udal vanmai is described as Iyarkai vanmai, cheyarkai vanmai and kaala vanmai.

1. Iyarkai Vanmai is considered with three Gunangal (Sathuva, Raso, Thamo Gunam)
2. Kaala Vanmai is considered with Age and Season. Most of the vatha diseases occurs in old age because the kaala vanmai is diminished in old age.
3. Changes in cheyarkai Vanmai also plays a major role. Wrong postures, sedentary life style and improper foods, disturb cheyarkai vanmai and causes the Sagana vatham.

**Pathology:**

When there is changes in lifestyle, occupation, food and habitates, there is no way for the development of disease. When any one of them is altered it causes derangement of micro elements in the body (panchapoothangal), Improper food habits directly alters the elemental
composition while other acts also cause derangement of these elements indirectly.

When elemental composition is altered naturally, uyir thaathugal of the three humours which are made up of these elements get deranged. This simultaneously leads to derangement of seven udal thathukkal and produces symptoms.

The aetiological factors for Sagana vatham are both diets that produce excessive vayu and other agents cause vitiation of vayu, aahayam. Depending upon the type of agent, those are vitiated to affect the corresponding uyir thaathu. Here vali and aahayam constitute vatham, earth and water correspondsto kabam and fire corresponds to pitham. So vatham, pitham and kabam are deranged. Simultaneously udal thathukkal get deranged. These even give rise to clinical features of Sagana Vatham.

In the uyir thaathu vatham, due to the derangement of, vianan – pain in the cervical and dorsal spine, pain along the upper limbs pain like scorpion sting and heaviness of the body. Due to the derangement of abanan leads to constipation.

Involvement of Uthanan leads to cough with expectoration. Involvement of Samaanan leads to indigestion and imbalance of functions of other vayus. Involvement of Naagan leads to sluggishness and mental depressions and of koorman leads to diminished vision and devathathan affects the normal sleep rhythm.

In Sagana vatham, the saathaga pitham in also affected with vatha. It produces the features like mental depression and difficulty in performing regular duties because of the pain in the neck and upper limbs.

In kabam, Tharpagam and santhikam are affected. The Tharpagam derangement produces burning sensation in eyes and the santhikam
derangement produces pain and stiffness in the neck (cervical joints) rendering the movements difficult.

Simultaneously along with uyir thathus there is derangement of Saaram, Senner, Oon, Kozhuppu and Enbu. The whole events constitute the clinical condition Sagana Vatham.

**Clinical features:**

The signs and symptoms of Sagana vatham described in Yoogi Vaithya Sinthamani and parasasekaram by the following verses.

- Pain in the neck
- Radiating pain to the shoulders and upper limb
- Heaviness of the body
- Mental depression
- Giddiness
- Burning sensation of the eyes
- Constipation
- Pain like scorpion sting
- Tingling sensation and numbness of the upper limbs.
PINIYARIMURAIMA (Diagnosis)

It is very important part of the treatment. It is helpful to select the correct line of treatment and good prognosis. It is based upon the following diagnostic methods.

1) PORIAAL THERTHAL

The physician should examine the patient’s porigal by his porigal.

1. Mei: Feels all types of sensations
2. Vaai: For knowing taste
3. Kan: Meant for vision
4. Mooku: For knowing the smell
5. Sevi: For hearing

2) Pulanaal Arithal:

The physician should examine the patient’s pulangal (Functions of the sensory organs)

1. Ooru  - Perception of sensation
2. Suvai  - Perception of taste
3. Oil    - Perception of vision
4. Nattram - Perception of smell
5. Oosai  - Perception of sound

In case of saganavatham pain in the cervical region that radiates either one (or) both upper limbs and numbness over the both upper limbs, shows that ooru is affected.

3. VINADHAL (Interrogation)

The physician should interrogate about the patient’s name, age, occupation, native, socio- economic status, dietetic habits, prone to any allergens, complaints, history of previous illness, history of past illness and frequency of attacks. If the patient is unable to speak, or is a child physician should interrogate the details with his immediate relatives who are taking care of him.
4. ENNVAGAI THERVUGAL

The prime method adopted to diagnose the disease is by means of “Ennvagai thervugal”. The value of ennvagai thervugal is very important for diagnosing purposes, which is the unique and special method described in siddha system of medicine.

“தாடை மரியா துடு விளை விளை என்று அத்குறிக்காவரும்” - சூலையிலோ சூலையிலோ

“அபெள் குருவா விளை துடு விளை துடு விளை”. Hence the makes the diagnosis.

1. Naadi
2. Sparisam
3. Naa
4. Niram
5. Mozhi
6. Vizhi
7. Malam
8. Moothiram

1. NAADI (PULSE)

The study of Naadi is the important factor in ‘Ennvagai thervugal’ which gives almost the correct diagnosis. Naadi may be studied at ten places in the body, which are Heel, Genital organ, Abdomen, Chest, Ear, Nose, Neck, Hand, Eyebrow and Vertex. But the study of naadi of hand is the best because the radial artery is located superficially. The unique factor which pertaining the soul in the body is known as ‘Naadi’. ‘Naadi must be studied in right hand for men and left hand for women. The three Uyir thaadhukkal are formed by the combination of

Edakalai + Abaan + Vaadham
Pinkalai + Piraanan - Pitham
Suzhumunai + Samaanan – Kabam

The naadi can be felt one inch below the wrist on the radial side by means of palpation and percussion with the tip of the index, middle and ring finger corresponding of Vatham, Pitham and Kabam respectively.
The three humours exist in the ratio of 1:1/2:1/4 normally. Derangement of this ratio leads to various diseases.

"கிருட்மலையால் மாற்றுதல்
காலனித்து கால பச்சையின்
பார்வுராக காலனித்து
பிளிற்று நிலை கால்பந்தே
துறை மாற்றத்து மாற்று
ஆனா செரியூழ்த்து விளக்கு
சிறந்தவு மூலைத் தீர்வு
சிறந்தவு மூலைத் தீர்வு”

In cases of vatha diseases the following stages of Naadi are seen.

Naadi:

1. "நாதியலும் நீலமும் சிவார்த்தியும்
சிவார்த்திலும் மாற்று நிலையின் கிருட்மையாக
சில்லும் கிருட்மை முறாக்கம் கிருட்மை
சிறந்தவு குணமை குணமை
குணமை”

2. "திறந்தவும் மாற்றும் மூன்றாற்றல்
நீராய்மையும் மாற்றினையும் கிருட்மையாக
மாற்று காலநித்து கால கருணையாக
மாற்று சின்னம் தீர்மானக்காண்கற்று தீர்மானக்காண்கற்ற”

Vatha Pitha Naadi

"பஞ்சார்வர்த்த மாற்றும் விதத்து சிறந்து
……………………………………
காலனி விடுதலைக்காரணம் விசாரம்
சிறந்து குணமை
…………………………ஏனென கூறும்
…………………………………………
- கேரளம்
“சிறுத்தயார் நாருகீழில் சிறுகையில் பிளக்கு இருந்து
பயணத்தை விளையாடும் பக்தரே பயணத் பிளக்கு”

- விளையாட்டு காரணம்

Vatha Kaba Naadi

“பார்வற்ற நாருகீழில் பிளக்கு பதன்
பெருந்துறைகள் பெறுவதற்கு மாற்றம்”

- காரணம்

“நாருகீழில் பிளக்குமல்லிகம் விளைவானது”

- விளையாட்டு காரணம்

Pitha Vatha Naadi

“பிளக்கு நாருகீழில் பிளக்குமல்லிகம் வரும்போது
தேர்வு பெருந்துறைகள் வரும் பலக்கை
நாட்டின்”

- விளையாட்டு காரணம்

Pitha kaba Naadi

“பிளக்கு நாருகீழில் வழி காரணமாக

………………………………………..

பிளக்குமல்லிகம் விளைவான பிளக்கு நாட்டின்”

- விளையாட்டு காரணம்

Kaba Vatha Naadi

“சல்லலயார் சிறித்துகள்தையில் வான்கறற
சல்லலயார் மாற்றியபடி சல்லலயார்
சல்லலயார் சல்லலயார் சல்லலயார் சல்லலயார்
சல்லலயார் வான்கறற சல்லலயார் சல்லலயார்”

- காரணம்

“சல்லலயார் சிறித்துகள் வான்கறற சல்லலயார்
சல்லலயார் வான்கறற சல்லலயார் சல்லலயார் சல்லலயார்”

- விளையாட்டு காரணம்

In all sagana vatham patients Vatha, Pitha, Thondha naadi was noted.
Sparism

By sparisam the temperature of the skin, smoothness of roughness, sweat, dryness, hard patches, swelling, abnormal growth, tenderness and nourishment can be felt.

In Saganavatham there was tenderness in the cervical region for all the patients.

Naa : (Tongue)

Examination of the tongue for its colour, coating dryness, deviation, sensory changes, ulcer, conditions of the tooth and gums are noted.

Niram (Colour)

Colour indicating vatha, pitha, kaba and thridhosas. Yellow or pallor or redness of the skin, bluish discolouration of the face, conjunctiva can be noted. There was no specific abnormality in niram.

Mozhi:

Clarity of speech, or any disturbance, loud voice, slurring, crying, talks induced by hallucination, undue argument can be made out.

Mozhi was normal in all sagana vatham cases.

Vizhi:

Any abonormal colour change indicating thridhosa derangements, pallor, excessive lacrimation and accumulation of secretion at the angles of the eye, sub conjunctival bleeding, closure of the eye lids, visual disturbance, any specific disease of the eyes can noted. The study did not find any abnormality here.

Malam:

Nature, quantity, colour, odour, froth and abnormal consistancy are noted.
Moothiram:

The examination of urine is classified into two types. They are Neerkuri and Neikuri.

"அருந்தவியல் அனுப்பதற்கு
அல்லும் அவல்லம் அகராதர அவில்கலும்
அதிகயனும் செவ்வையும் குறாக்கும்
ஆல்லுமே குளிர்கள் கைவிட்டு
நுர்ஸா சுட்டுகள் காண்கும் விளையாடுந்து
சுருள்கிது போக்குமே சுருள்கிது குழந்தான் கணிக்கா" 

Prior to the day of urine examination for Neikuri, the patient is advised to take a balanced diet and the quantity of food must be proportionate to his appetite the patient should have a good sleep.

The first voided urine is collected in a glass container and is subjected to analysis of Neerkuri and Neikuri.

1. Neerkuri

"நிர்ம (காலை) மற்றும் மண்டல வானிலையில்
ளுக்கும் மற்றும் பார்வத்து சுற்றுமிடம்" 

-நிர்மத்தின் விளையாட்டு:

In Neerkuri the Niram (Colour), Manam (Odour), Nurai (froth), Edai (specific gravity) and Enjal (quantity) is noted. Apart from these, the frequency of urination, abnormal constituents such as sugar, protein etc., and sediments are also noted.

2. Neikuri

Neikuri is an important test to assess the predominantly affected humour.

"செண்டிக்குள் செண்டிக்கு விளையாட்டு விளையத்து
சேர்க்கின் விளையாட்டுகளும் சேர்க்கின் விளையாட்டு
சிற்றிக்கிசல் விளையாட்டு விளையாட்டுகளும்
சுருள்கிது போக்குமே சுருள்கிது குழந்தான் கணிக்கா"
Early morning urine of the patient is collected in a glass container and examined within 1.30 hrs. A drop of gingelly oil is dropped and kept in the sunlight in a calm place. The nature of the oil drop in the urine is noted.

In the drop of oil,

1. Lengthens like a snake it indicates vatha disease
2. Spreads like a ring it indicates pitha disease
3. Appears like a pearl it indicates kaba disease

"அதிமலர் நீர்மலர் அல்லது ஊடு வந்து"  
"அதிமலர் நீர்மலர் அல்லது ஊடு வந்து"  
"அதிமலர் புள்ளியாக கீழே வந்து"  

When the drop of oil shows two shapes enclosed within one another it indicates Thondha Neer.

In Siddha system of medicine, besides Ennvagai thervugal, a disease can be diagnosed by means of kanmendhiriyam, gnannendhiriyam Uyir thaathukkal, Udal thaathukkal, thinaigal and paruva kalangal.

1. **Kanmendhiriyam:**
   1. Kai - Works done by the hands
   2. Kaal - For walking
   3. Vaai - For speaking
   4. Eruvai - For defaecation
   5. Karuvai - For reproduction

   Here kai is affected i.e., pain and numbness along both upper limbs presents.
2. Gnaanendhriyam:

The five Gnaanendhriyam are

1. Mei - Feels all types of sensations
2. Vaai - For taste
3. Kan - For vision
4. Mookku - For smell
5. Sevi - For hearing

3. Uyir Thaadhukkal:

1. Vatham:

In saganavatham the following vayus are affected.

a) Viyanan:

Neck pain, restricted movement of neck, radiating pain in the shoulders, and upper limbs, tingling sensation, numbness and giddiness.

b) Abanan:

Constipation

c) Samanan:

Indigestion, imbalance in the functions of other vayu.

d) Udhanan:

cough

e) Naagan:

Sluggishness, mental depression

f) Devathathan:

Sleeplessness
PITHAM:

Pitham is located in Urinary bladder, Heart, Head, Umbilicus, pinkalai, Piraana, Abdomen, Stomach, Sweat, Blood, Eye and skin. It is classified into five types they are

1. Anar pitham : It digests all the ingested particles
2. Ranjaga pitham : It gives colour to the blood
3. Saadhaga pitham : It is used to complete the work properly what he thinks in the mind.
4. Alosaga pitham : It gives vision to the eye
5. piraasaga pitham : It gives color to the skin.

Saadhaga pitham is commonly affected in Sagana vatham.

KABHAM:

Kabham is located in Samaanan, Semen, Fat, Bonemarrow, Nose, Chest, Nerves, Bones, Brain, Large intestine, Stomach and pancreas. It is divided into five types. They are

1. Avalambagam : It controls the other four types of kabham
2. Kiledhagam : It moistens the food
3. Podhagam : It helps to know the taste
4. Tharpagam : It gives cooling effect to the eyes.
5. Sandhigam : It gives lubrication effect to the joints

In Sagana Vatham Tharpagam and Sanddhigam are affected.

Udal Thaathukkal:

There are seven udal thathukkal in human body, they are

1. Saaram - It strengthen the body and mind
2. Senneer - It gives power, knowledge and boldness to the mankind.
3. Oon - It gives structure and shape to the body and responsible for the movements of the body
4. Kozhuppu - Lubricates the joints and facilitates their functions

5. Enbu - Protects all the internal organs and gives structure to the body

6. Moolai - It is present in the bones and gives strength

7. Sukkilam (or) Suronidham - Meant for reproduction

THINAIGAL:

Nilam is classified into five types. They are

1. Kurinji : Mountain and its surroundings. Kabanoigal and liver diseases are common

2. Mullai : Forest and its surroundings, pitha noigal, vatha noigal, liver diseases are common

3. Marutham : Field and its surroundings safest place to maintain good health.

4. Neidhal : Sea and its surrounding, Vatha diseases and liver enlargements are common.

5. Paalai : Desert and its surroundings, Vatha, Pitha and kaba noigal are common.

Study of five lands is very much needed, as some diseases are common in the particular lands.
**PARUVA KAALANGAL**

A year is into six seasons, each consisting of two months.

<table>
<thead>
<tr>
<th>Sl.NO.</th>
<th>Season</th>
<th>Months</th>
<th>Kuttram</th>
</tr>
</thead>
</table>
| 1.     | Kaarkaalam   | Aavani & Purattasi  
August 16 – October 15  | Vatham ↑↑  
Pitham ↑  |
| 2.     | Koodhir kaalam  | Ayppasi and kaarthigai  
October 16 – December 15  | Vatham (-)  
Pitham ↑  |
| 3.     | Munpani kaalam  | Margali and Thai  
December 16 – February 15  | Pitham (-)  |
| 4.     | Pinpani kaalam  | Maasi and panguni  
February 16 – April 15  | Kabam ↑  |
| 5.     | Elavenir kaalam  | Chithirai and Vaigasi  
April 16 – June 15  | Kabam ↑↑  |
| 6.     | Mudhuvenir kaalam  | Aani and Aadi  
June 16 – August 15  | Vatham ↑  
Kabam (-)  |

↑ - Thannilai valarchi      
( - ) - Thannilai adaidhal

↑↑ - Vetrunilai valarchi

According to alteration of kaalam (Thannilai valarchi, Vetrunilai valarchi)

The final diagnosis is confirmed by summarizing all the clinical findings observed by the above methods.
Noi Kanippu Vivaadham (Differential Diagnosis)

Some other types of Vatha diseases resembling the symptoms of sagana vatham are mentioned. Careful and clear history taking and examination will reveal the diagnosis. They are,

1. Kanda Kiraga Vatham
2. Kumba Vatham
3. Paanikamba Vatham
4. Pei Vatham
5. Sirakamba Vatham

1. Kanda Kiraga Vatham

"நகைக்கரா கிராகா வதம் விந்நி நியகந்து மன்னியால் விருதுற்றன் மோபாயம் கூறு தருகிவந்த வியக்கன் மூச்சுக்களை கூறுவது புருள் செய்யாம் முதல்மாதம் குழந்தை வெற்றுத் தரிக்கிறது மத்தியில் விருதுற்றார் வியக்கன் மூச்சுக்களை நகைக்கரா வதம் விந்நி நியகந்து மூச்சுக்களை பற்றி செய்யும் குழந்தை புருள் செய்யும்".

The Clinical features are

1. Pain in the throat, chest and occipital region
2. Anorexia
3. Breathing through mouth
4. Backache
5. Sweating on face and
6. Loss of appetite
2. Kumba Vatham

“உதுபெற்றிருந்து வெளியே விடுத்து மீது
துற்பெருக்கம் மாறும் நூலின் குழுக்கோட்டை
தருமாந்திரம் நூற்றாண்டு நம்புத்தொடர்ந்து
குல்நிலை விளங்கியப் பிள்ளையாளர் காரணம்
துற்பெருக்க குறும்புக் கிளை குறுக்கொண்டு
தங்கும் தற்போது என்று பேசிய பண்ணாய்ந்து
அவசரம் அருகிலுள்ள முற்போல் கூறு
நூறும் வரும் வருமான்கள்”

-பெரிக் குத்தோலிய முருகனே -800.

The clinical features are,
1. Burning pain in shoulder and upper limbs
2. Burning sensation in the cheek and eyes
3. Twitching over the scalp
4. Pain in the lower abdomen
5. Glossitis.

3. Paanikamba Vatham

“எகுக்கல்லறையே எடுத்து ஒரு பிபியத்து
மழைத்து போரிங் கூடு மற்றும்
சுருக்கங்கள் வருமான் குறுக்கு மற்றும்
சுருக்கங்கள் சுருக்கத்தில் கிளை மற்றும்
அவசரத் காரையும் பண்பாடுபோரிங்
சுருக்கங்கள் முருகாகிக் அகமை மற்றும்
நூறும் வரும் வருமான் போரிங்
பஞ்சநாள் குறிமைக்கிய பஞ்சநாள்”

-பெரிக் குத்தோலிய முருகனே -800

The clinical features are
1. Anorexia
2. Tingling sensation and numbness of upper limbs
3. Tremor of upper limbs
4. Sleeplessness and
5. Dryness all over the body
4. Peivatham

"Peivatham is a common disease affecting the neck, limbs, and facial muscles. It is characterized by pain, swelling, and weakness of the limbs, vomiting, dizziness, and swelling all over the body."

The clinical features are
1. Pain and swelling in the neck, upper and lower limb
2. Weakness of hand muscles, difficulty in holding things in the hand
3. Vomiting
4. Giddiness and
5. Swelling all over the body.

5. Sirakamba Vatham

"Sirakamba Vatham is a disease affecting the neck and limbs. It is characterized by stiffness, deafness, yawning, oversleeping, tremor in the head and neck, and difficulty in using lower and upper limbs."

The main clinical features are
1. Stiffness of neck
2. Deafness
3. Yawning
4. Oversleeping
5. Tremor in the head and neck
6. Difficulty in using lower and upper limbs
Noi Neekkam (Treatment)

In Siddha system the main aim of treatment is not only for the removal of physical illness but also for the mental illness. Treatment is considered with prevention and improvement of the general body condition also.

This is said as follows
1. Kaappu - prevention
2. Neekkam - Treatment
3. Niraivu - Restoration

The general aetiological factors for constitutional discomfort are said to be improper diet, mental and physical activities.

While treating the disease, the following principles must be noted.

"சிருப்ப்ரதை சிருப்ப்ரதை தோட்டேந்து குளிக்கும்
மாது மாது நிறையாய்".

"ொருவன் தத்தவம் தீர்மானச் செய்யும்
கூறுக்கு குறிக்கு நிறையாய்"

- குறித்தெளி

So it is essential to know the disease, the aetiological factor, the nature of the patient, the severity of illness, the seasons and the time of the occurrence of the disease.

Line of Treatment

The aim of Noi Neekkam is based on
1. To bring the Three Dhosas in equilibrium
2. Treatment of the disease by internal medicines and external application.
3. Diet and advices
4. Thokkanam
5. Yoga etc
6. Kanma nivarthty
The line of treatment is described as follows.

1. Bring the Three Dhosas in Equilibrium

“மூழுவியும் மூவும் மூழும் அகரா குமராக்கும்
முக்குடித்து காண்கும் மாருகிழ் தடும்
பிரமுகமுற்றுமறா
நர் மீனாகும் இறைவாசுக் கண்டு
நடு மார் வந்தின்பிட்டும் பந்தல்
பிரமுகமுற்று நுன்வே அருகு
சிற்றுறைச்சல் கொபும் கிட்டுரு”

Since siddha system of medicine is based on the mukkutra theory, the treatment is mainly aimed to bring down the three dhosas to its equilibrium state and thereby restoring the physiological condition of various thadus.

Vitiation of vatha is the prime factor for Sagana Vatham”.

Kalichal maruthuvam (Purgation) corrects the vitiated Vatham. The following verses reveals the importance of Kalichal Maruthuvam.

“பொன்றிஷந்தன மாருக கரு்க
பந்தற்று மார்கள் மீன்பிற சமரங்கம்
நடுத்துரு மார்களின் முன்னிலையின் மாருக
அல்லது மாருக அல்லது மார்க்கறியும்”

5 gm. Nilavagai churnam with hot water at bed time (or) 15 ml of Vellai Ennai with hot water was administrated at early morning as a kalichal medicine in the first day of treatment.

III. Diet and advices

Diet and advices are summarized as follows.

1. Pathiyam (Diet Regimen)

During the course of treatment according to the nature of illness and the drug administered, the patient were advised to follow certain special dietary methods called “Pathiyam”. The importance of Pathiyam is clearly mentioned by therayer as follows.
Three types of pathiyam are commonly told. They are kadum pathiyam, Miga kadum pathiyam, Echcha pathiyam and Uppilla pathiyam (salt free dieting) also mentioned in many ancient siddha literatures especially for the mercurial preparations of drugs.

**Vatha Roga pathiyam**

"புதியக் கிளற்று வெருவங்க மருத்துவம் மறக்கும் வருகை." -நாகர்க்குத் திறமிழ்நாடிக்கு

i.e. Tamarind and Astringents increase vatham. So the Sangana vatham patients were advised to avoid tamarind and astringents.

In “**Padhartha Guna Chindhamani**”. The following are advised to avoid.

"தி திருத்துச் சாலையில் கருப்பலகைகள் கோடைக் கருப்பலகைகள் வெள்ளை கருப்பலகைகள் வெள்ளை கருப்பலகைகள் புத்தாண்டிகள் முதலில் புதுமை முதலில் புதுமை முதலில் புதுமை முதலில் புதுமை முதலில் புதுமை முதலில் புதுமை முதலில் புதுமை முதலில் புதுமை முதலில் புதுமை முதலில் புதுமை முதலில் புதுமை முதலில் புதுமை முதலில் புதுமை முதலில் புதுமை முதலில் புதுமை முதலில் புதுமை.

தில்லம்-புறநோய்-குதிகுறிச் சீராய்வு குழுக்கள்.

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<td>பச்சை</td>
<td>அகுத்துரை புறநோய்</td>
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</tbody>
</table>
### Diet

In Pathartha Guna Chinthamani, the following diets are advised to Vatha Patients.

"Vethamunnu pathrathamkku meidu varumangalikum
kallath puganmangal kuthukalum puganmangalum
kallath kudam kudinum kudum nekum
makal meidum mantikum kallath puganmangal kallath kallath nekum kallath.

"Vethamunnu pathrathamkku meidu varumangalikum
kallath puganmangal kuthukalum puganmangalum
kallath kallath kallath meidum mantikum nekum
makal meidum mantikum kallath.

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kallath puganmangal kuthukalum puganmangalum
kallath kallath kallath meidum mantikum nekum
makal meidum mantikum kallath.

"Vethamunnu pathrathamkku meidu varumangalikum
kallath puganmangal kuthukalum puganmangalum
kallath kallath kallath meidum mantikum nekum
makal meidum mantikum kallath meidum kallath kallath nekum.

IV. Yoga Theraphy

Yoga is India’s unique contribution to the world. The word “Yoga” is derived from the Sanskrit word “yuj” which means bind, join, or attach. Yoga therefore is an art which brings an incoherent and scattered mind to
a reflective and coherent state. Pathanjali is known as the father of yoga. He enumerates the means of yoga as “Astanga Yoga” or stages of yoga for the quest of the soul. They are,

Iyama : Universal moral commandments
Niyama : Self purification by discipline
Asanas : Stretching static posture
Pranayama : Rhythmic control of breath
Prathyahara : Withdrawal and emancipation of the mind from the domination of senses and exterior objects.
Dharana : Concentration
Dhyana : Mediation
Samathi : A state of superior consciousness brought about by profound meditation in which the individual aspirant becomes one with the object of his meditation.

Yoga has a message for the human body, mind and also for the human soul.

Therapeutic yoga is basically a system of self treatment. Yogasanas are reliable supportive therapy or sometimes plays main part of the treatment of vatha diseases. The yogasanas are useful not only to revive the body but also strengthen the nervous system, locomotor system, digestive system and regenerate the endocrine system. They bring the human body under the complete control of mind.
The following Asanas are advised to the patients to relieve from the symptoms of sagana vatham.

**1. Bhujankaasana**
- Helps in keeping the dorsal spine elastic and strong.
- Back ache due to over strain can be relieved.
- Helps in considerable reduction of abdominal fat.

**2. Arthakadi Chakkarasana**
- It gives a good lateral movement to the vertebral column and helps in keeping it flexible and healthy.

**3. Maharasana**
- It gives complete relaxation to the muscles and is useful in Hyper tension, Insomnia etc.

**4. Pavanamukthasana**
- To get relief from constipation.

**5. Savasana**
- For sound sleep restoring mental peace.
- These asanas can be done after the neck pain is reduced considerably with drug treatment.

**6. Ustrasana (The Camel pose)**
- Prevents the flabbiness and relieves vertebral pressure,
- Promotes spinal circulation.

**7. Dhanurasana (The Bow curve pose)**
- It makes spine and back muscles flexible, removes nervous weakness.
- It helps in removing constipation and pitta disorders.
- Those suffering from lumbar spondilitis should not practice it.
8. Gomukhasana (Cow Face pose)

★ This helps in making the spine straight.
★ This, Asana is very useful in arthritis and piles (dry).
★ This gives exercise to the lungs automatically.
★ Those suffering from bleeding piles should not practise it.

9. Paschimuttanasana

★ Stretches the back and spine
★ Stretches the shoulders
★ Stretches the hamstrings
★ Beneficial for the kidneys, liver, ovaries and uterus. (It is thus a must for women. It also helps ease menstrual discomfort.)
★ Beneficial for diabetics and improves digestion.

Exercises advised for Sagana vatham:

1). Neck Bending

a). Starting Position

• Sit with both legs straight.
• Place the palms on the floor by the side of the buttocks
• Keep the back, neck and head straight
• Close the eyes
• This is Dandasana

b) Practice

Stage - I (Forward – Backward movement).

• Slowly move the head forward and try to touch the chin to chest.
• Then move the head as far back as comfortable.
• Try to feel the stretch of the muscles in front and back of the neck and the loosening of the spine in the neck.
• Practice 10 times.
• Inhale on the backward movement and exhale on the forward movement.

Stage –II (Bending to Right and Left)
• Close the eyes and face directly forward.
• Slowly bend the head to the right and ear coming to the shoulder turning the head or lifting the shoulder.
• Bring the head back to the normal position
• Then bend in to the left side and try to touch the left ear to the left shoulder in the same fashion. Lift the head to the centre
• This is one round. Practice 10 rounds
• Inhale on the upward movement and exhale on the downward movement.

Stage –III (Turing the head to Right and Left)
• Keep the head upright and eyes closed.
• Gently turn the head to the right so that the chin is in line with the shoulder.
• Slowly turn the head to the left through the centre till the chin is in line with the shoulder. Bring the head to centre.
• This is one round. Practice 10 rounds.
• Inhale while turning to the front. Exhale while turning to sides.

c) Note : (For all the three stages)
• Move the head as far as comfortable. Do not strain
• Keep the shoulders relaxed and unmoved
• Feel the release of tension in the neck muscles and the shoulder muscles.

Contra - Indications
• Should not be performed extreme positions by elderly people
• Cervical spondylosis cases to avoid during acute pain
Benefits

- Theses asanas release tension (accumulated especially after prolonged work at a desk), and also heaviness and stiffness in the head, neck and shoulder region.

Additional points to Note

- Make the movements cautiously and slowly when there is Neck pain.
- Practice them with normal breathing
- Hold the neck in the final positions for a few moments
- If you have pain at any stage, stop in that position for a while. As you bring your complete awareness to the area of pain, start breathing consciously and deeply, then continue the movement.
- It can be practiced even while standing in Tadasana or sitting on a chair, or in Vajrasana.

2. Neck Rotation

a) Starting Position

- Sit in Dandasana

b) Practice

Stage – I (Half Rotation)

- Relax the head bending forward
- Bring the right ear to the right shoulder in a circular way.
- Bring the left ear to the left shoulder in a circular bending the head forward.

Now relax the head forward again in a circular way and finally lift the head to normal position. This is one round.

Repeat 10 rounds clockwise and 10 rounds anti – clockwise with breathing.
Stage -11 (Full Rotation)

- Relax the head forward trying to touch the chin to the chest.
- Slowly rotate the head in as large a circle as possible, keeping the chin tucked in.
- Practice 10 rounds clockwise and 10 rounds anti-clockwise while breathing normally.

3. Note

- In both cases (Half and full Rotations) you may take about one minute or even longer for one cycle. Allow normal breathing without trying to synchronise the breath & neck movements.
- In full rotation, try to make the circle bigger and bigger.
- Keep the eyes closed throughout the practice
- Feel the shifting stretch around the neck and loosening up of the joints and muscles of the neck.
- Practice full rotation very carefully. Start with half rotation and then go for full rotation.
- If there is pain in any position, hold the head in that position. Become aware of the point or area of pain and start breathing consciously and deeply. This will relieve you of pain and then you can continue.
- Can be practiced in cross – legged sitting position, or sitting on a chair.

Contra - indications

- Should be performed carefully by elderly people
- Cervical spondylosis cases to avoid during acute pain
**Benefits**

- These practices release tension (accumulated especially after prolonged work at a desk), and also heaviness and stiffness in the head, neck and shoulder region.

**V) Thokkanam (Massage Therapy)**

Thokkanam is systemic manipulation of the body parts by the physician.

"காலவல்லிக்குரிக்குரிக்கு விளக்க அவங்காறை செலுத்து
மிகு கருத்தினு செழுந்து போக்கு - நோய்வாழனிக
பூழைவுகு பூழைந்து விளக்க குறிக்கு
ப்ப்ல அவங்காறை போக்கு"

- புரலாற்ற நுழைவாரசை

Thokkanam acts directly on vascular system, nervous system, lymphatic system and musculo – skeletal system and brings the affected body to normal condition physically and mentally. It also gives a sense of well being, gives a good sleep and increases vital power and also provides relaxation.

Vatha diseases are relieved specially by thokkanam. The following verse reveals that,

"முதல்வல்லிக்குரிக்குரிக்கு விளக்க அவங்காறை - கூர
கற்று விளக்க குறிக்கு பிசிவலை டிட்டமங்காறை”.

- புரலாற்ற மரம் கைலை

Among the nine types of Thokkanam, only two must be done in the case of Sagana vatham.

1. Pidiththal (Effleurage and petriassage)
2. Izhuththal (Traction)

In pidiththal, Strokes are slided smoothly and by kneeling and in Izhuththal, traction like method is performed.
VI. Kanma Nivarthi : (Expiation)

Kanman means the deeds which are bad, committed by an individual in this and previous births. So be must expiate it to get better relief before the treatment.

Agsthiai in his kanma kaandam-300 prescribed some specific expiatory methods to get rid of the manifestation of the past misdeeds. Those are implanting fruitful trees, establishing garden, laying roads and pathways, digging wells and ponds to public use, constructing temples, donating ornaments to poor children must be done.

"நுணிகப்பன மதிக்காலுள்ள உடற்சுற்றத்தில்
நல்லநல்ல உரையுடன் தன்னாரசை தன்றுதிக்கு
நூற்றுக்கள் கிளையற்றில் தலம் தலம்
தியாயத்தும் இராப்பின் கட்டு குதிரை பக்து
சரணித்து பெரும் புறாவியில்
சரணி நேர்கால மனைவியில் பதக்கம்
குமித்தூள் விளையாடும் கையேறும்
பூச்சித்தர சாரற்றிவிழும் விேது விளையை"          
-அகோண்பீர் கருணை கால்கரண்-300.
MODERN ASPECTS
THE ANATOMY

The Vertebral column:

The Vertebral column which lodges and protects the spinal cord, its meninges and the continuation of the central nervous system lies in the dorsum of the body. It forms a pillar which contains 33 segments and lengths about 70 cm in an average male and 60 cm in a female. It supports the body weight and transmits it to the ground through the lower limbs.

The segments can be divided into cervical, thoracic, lumbar, sacral and coccygeal segments.

The cervical segment has seven vertebral bones, thoracic twelve, lumbar five, sacral five and coccygeal four. All are separate bones except the sacrum and coccyx.

The Curvatures of the Spine:

There are four curvatures in the vertebral column. They are two primary and two secondary curvatures.

The primary curvatures are the thoracic and the sacral. They are convex posteriorly. The secondary curvatures are the cervical and lumbar. They are anteriorly convex. The cervical curvature becomes prominent when the child is able to hold its head up and fit upright. The lumbar curvature appears by 12 -18 months after the child starts walking. A slight lateral curvature is seen in the upper thoracic region. It is curved to the right in right handed persons and vice versa.

The General features of the vertebrae:

The vertebrae can be divided into vertebral body and a dorsal vertebral arch. The vertebral arch has 2 pedicles, 7 processes and 2 laminae. Pedicles are thick bars projecting backward from the body. The
laminae are vertical plate like structures, fuses together to form spinous process. The spinous process projects downwards and is the lever for the muscles. The articular processes are four in number, bearing the articular facets and articulate with the adjacent vertebrae. Transverse processes project laterally from the junction of pedicle and laminae. In thoracic region they articulate with ribs.

**Inter-Vertebral Discs:**

They are fibro cartilagenous discs interposed between the adjacent surface of the vertebral bodies. They are thicker in lumbar region than in thoracic. Their peripheral parts are supplied by the adjacent blood vessels but the central parts are avascular. They receive their nutrients by diffusion from spongy bone of adjacent vertebrae.

The ventral portion of disc is known as **Nucleus pulposus** and the peripheral zone is known as **Annulus Fibrosus**. The central portion is made up of gelatinous mucoid material. On going it is converted into fibro cartilaginous material and its water binding capacity is reduced. The annular fibrosus contains collagen bundle in the periphery and fibro cartilaginous tissue in the inner part.

The thickness of the discs varies daily. In the morning it is thick due to absorption of fluids in lying posture during night it is thin.

**Uses:**

They absorb shock and allow easy movements of the vertebral column.

**The cervical Vertebrae:**

The cervical segment of vertebral column contains 7 vertebrae. The first, second and the seventh are atypical and the third to sixth are typical. They are smaller and delicate than the thoracic and lumbar vertebrae. All the cervical vertebrae have a foramen in the transverse
process known as foramen transversarium. This is identical to the cervical vertebrae.

Typical Cervical Vertebrae:

1. **Body:**
   
   It is small and oval. It’s superior surface is concave transversely with upward projecting lips on each side and its inferior surface is saddle shaped, convex from side to side and concave from before backwards.

2. **Vertebral Foramen:**
   
   It is larger than the body and triangular.

3. **Vertebral Arch:**
   
   i) **Pedicles:**
      
      These are short and directed outwards and backwards from the middle of postero lateral parts of the body and they form the postero medial wall of the foramen transversarium.
   
   ii) **Laminae:**
      
      These are long and narrow, being thinner above than below.
   
   iii) **Articular Facets:**
      
      The superior and inferior articular processes form the articular pillars which project laterally at the junction of the pedicle and the lamina. The superior articular facets are flat and directed backwards and upwards. The inferior articular facets are also flat but directed forwards and downwards.
   
   iv) **The Spine:**
      
      It is short and bifid.

**Foramen Transversarium:**

It transmits the vertebral artery, vertebral veins and sympathetic plexus.
The Atypical Cervical Vertebrae:

1. Atlas:

   It is the first cervical vertebrae which lodges the skull. It has no
   body and spine. It has anterior and posterior arch, right and left lateral
   masses and transverse processes.

   The anterior arch bears an anterior tubercle in the anterior aspect.
   Its posterior aspect bears an oval facet which articulates with dens. The
   posterior surface of the posterior arch has a median posterior tubercle.
   The two lateral masses bear an elongated superior articular facet for
   atlanto-occipital joint and an inferior articular facet for atlanto axial joint.

2. The Axis:

   The Axis has a peg like projection in its upper part of the body
   known as the dens (or) odontoid process. It has circular facet anteriorly
   articulating with atlas. There are two articular facets on either side of the
   dens on the upper surface of the body. The laminae are thick. The spine
   is large and bifid. The transverse process is small and possesses a
   tubercle in its tip.

3. The Seventh Cervical Vertebrae:

   It is also known as the “Vertebral Prominent”. The transverse
   process does not posses anterior tubercle. The foramen transversarium is
   small (or) absent. It transmits accessory vertebral vein only. The spine is
   long.

Palpable parts of Cervical Vertebrae:

1. The spine of C₂ is in the nape of the neck 5 cm. below the external
   occipital protruberance.
2. The spine of C₇ where the collar bone crosses the posterior medium
   line of the neck.
3. The transverse process of C1 through the anterior border of sternocleidomastoid, immediately below the tip of the mastoid process.

**Joints of the Vertebral Column:**

The vertebrae from the 2nd cervical to 1st sacral are articulated to one another by a series of cartilagenous joints between vertebral bodies and a series of synovial joints between the vertebral arches. The vertebral bodies are united by anterior posterior longitudinal ligaments and by centvertebral disc of fibrocartilage.

1. **Atlanto Occipital Joint:**

   It is a synovial condyloid variety.

   **Articular ends:**
   
   Superiorly - Occipital condyles.
   Inferiorly - Superior articular facet of the atlas.
   
   Ligaments, joints capsule, anterior and posterior occipital membranes.

   **Blood supply** - Vertebral artery
   **Nerve supply** - First cervical nerve

   **Ligaments:**
   
   1. Capsular ligament.
   2. The Anterior Atlanto-occipital membrane.
   3. The posterior Atlanto-occipital membrane.

   **Movements:**

   Flexion, extension and slight lateral flexion are possible.

2. **Atlanto Axial Joint:**

   Comprise of
   
   1. A pair of lateral atlanto-axial joints.
Articular ends:

Inferior facets of atlas and the superior facets of axis.

Ligaments:

i) Capsular ligament.
ii) Longitudinal ligament.
iii) Cruciform ligament.

Movement:

Rotatory movements around a vertical axis occur in this joint.

Ligaments between axis and the occipital bone:

1. Membrana tectoria
2. Cruciate ligament
3. Apical ligament of dens
4. Linear ligament

The Unco Vertebral (Luschka’s) Joints:

Luschka’s joints are not true synovial joint, which develop as a result of degenerative changes in the edges of the disc in early adult.

Luschka’s joints are important, because

i) They are the commonest site of osteophyte formation.
ii) The osteophytes may compress the cervical nerves.

Blood supply of Vertebral Column:

The vertebrae and longitudinal muscles attached to them are supplied by segmental arteries. The arteries give multiple small branches to the vertebral bodies. The extensor muscles of the neck are supplied by the occipital, the deep cervical and the transverse cervical arteries.

Venous Drainage:

The Internal vertebral venous plexus lies within the vertebral canal, but outside the spinal dura. It receives tributaries from

i) The vertebrae through the basilo vertebral veins.
ii) The meninges and the spinal cord.
The internal vertebral venous plexus is drained by the intervertebral veins, which pass out through the intervertebral foramen. Here they are joined by the tributaries from the external vertebral and sacral veins. The internal venous plexus communicates with the occipital and basilar veins through the foramen magnum.

**Movements of the Vertebral Column:**

The greater thickness of the discs in the cervical and lumbar regions as compared with the thoracic region is associated with the greater individual range of movements occurring in those regions.

Flexion (or) forward bending, extension (or) backward bending, lateral flexion and rotation are possible in vertebral column.

**Movements of the Head and Neck:**

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<tr>
<td></td>
<td>Longus Coli</td>
<td>Cervical ventral rami C₂ – C₆.</td>
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<tr>
<td>Scalene</td>
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<tr>
<td>Longus Coli</td>
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<td>Levator scapulae</td>
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<td>Cervical ventral rami C3, C4, C5</td>
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<td>Rectus capitis</td>
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<td>Splenius</td>
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<td>Longismus obliques capitis superior and inferior</td>
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<td>C1 Dorsal ramus.</td>
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</table>
SPINAL CORD

The spinal cord is an elongated, cylindrical part of the central nervous system, occupying the superior two thirds of the vertebral canal. It extends from the level of the upper border of the atlas to the lower border of the vertebra L₁ (or) the upper of the vertebra L₂. The lower end is conical and is called as conus medullaris. The apex of the conus is continued down as the filum terminale. Along its length, the cord presents, two thickenings, the cervical and lumbar enlargements which give rise to nerves for the limbs. The spinal cord gives off 31 pairs of spinal nerves.

The meninges of the Spinal Cord:

The spinal cord is covered by three membranes like the brain and is called as meninges. They are

1. Dura Mater:

   The outer most covering is thick opaque, vascular layer and it is continuous with the inner meningeal layer of dura mater of the brain. This is attached anteriorly with the posterior surface of the bodies of C₂ and C₃ and posteriorly with longitudinal ligament. Laterally it is pierced by spinal nerves.

2. Arachnoid Mater:

   It lies between duramater and Piamater and is avascular, transparent membrane. It is continuous with the arachnoid mater of the brain and ends in second sacral level. The sub arachnoid space contains cerebrospinal fluid (CSF).

3. Pia Mater:

   This transparent vascular membrane lies as an innermost layer and is the continuation of piamater of brain. But it is thicker than it.
External Features:

The surface of spinal cord presents an antero median fissure, a postero median sulcus and a pair of antero lateral and postero lateral sulci. The posterior nerve roots are attached to the posterior sulci and anterior nerve roots emerge from antero lateral sulci. Continuous with the cord is a series of paired dorsal and ventral root of spinal nerves. Ventral spinal roots contain efferent somatic and efferent sympathetic nerve fibres at same levels. Efferent sympathetic nerve fibres are emerging from their spinal sources. Each ventral root emerges as a variable number of rootlets, which appear over an elongated vertical elliptical area.

Dorsal spinal roots have an ovoid swelling ganglia one on each root proximal to its junction with a ventral root in an intervertebral foramen. Each fans out into 6-8 rootlets entering the cord in a vertical row in the postero lateral sulcus. These are usually said to contain only afferent axons from unipolar neurons in spinal root ganglia.

The region of spinal cord associated with the emergence of a pair of nerves is a spinal segment, but there is no actual surface indication of segmentation. Recent researches show that ventral spinal nerve roots contain only one neuro mediator. Acetyl choline whereas dorsal root contain atleast seven–Glutamate, Aspartate, substances P, VIP, CCK, somatostatin, Dynorphin, and Angiotensin II.

Internal Structure:

When seen in transverse section, the grey mater of the spinal cord forms a ‘H’ shaped mass. In each half of the cord, the gray mater is divisible into

1. The anterior grey column (or horn) and
2. The Posterior grey column. In some part of the spinal cord, a small lateral grey column is also present.
The anterior horn contains motor cells and the posterior horn contains sensory cells. Central canal is situated in the central part of the cord and contains CSF. The lateral horn of spinal cord gives origin to sympathetic nervous system from the thoracic to lumbar regions.

The white mater of the spinal cord is divided into right and left halves in front by a deep anterior median fissure and behind by the posterior median septum. In each half of the white mater is divided into the posterior, lateral and anterior white column.

**Blood Supply:**

The blood supply to the spinal cord is derived from the anterior and posterior branches of vertebral arteries and they are reinforced to form spinal twigs. The twig at the level of 1\textsuperscript{st} and 11\textsuperscript{th} thoracic is known as “arteries of kiewicks”.

The spinal twigs and radicular arteries are the important vascular supply of the cord.

**Venous drainage:**

There are 6 channels of veins present around the cord. One pair is situated behind each anterior & posterior nerve roots. The rest 2 channels are present in antero median fissure and posteromedian sulcus. They are drained into lateral sacral, lumbar, posterior intercostal veins.

**Spinal Nerves:**

There are 31 pairs of spinal nerves emerge from the cord. The part of the cord to which one pair of spinal nerve is attached is called spinal segment. The spinal cord is made of 8 cervical, 12 Thoracic, 5 lumbar, 5 sacral and 1 coccygeal segments.

**Cervical plexus:**

These are formed by the anterior rami of upper cervical nerves. Each nerve root divides into ascending & descending branch of another nerve and forms the plexus. The important branches, (1) transverse
cutaneous nerve which supplies the skin in front of the neck, (2) Phrenic nerve which is a motor nerve to the diaphragm.

**Brachial Plexus:**

These are formed by anterior rami of the lower four cervical and anterior primary rami of the first thoracic.

The important branches are ulnar nerve from medial cord axillary & radial nerves from posterior cord.

**NERVE AND ROOT SUPPLY OF MUSCLES**

**UPPER LIMB**

**SPINAL ROOT**

**SPINAL ACCESSORY NERVE**

- Trapezius: C₃C₄

**BRACHIAL PLEXUS**

- Rhomboides: C₄C₅
- Serratus anterior: C₅C₆C₇
- Pectoralis Major
  - Clavicular: C₅C₆
  - Sternal: C₆C₇C₈
- Supra Spinatus: C₅C₆
- Infra Spinatus: C₅C₆
- Latissimus Dorsi: C₆C₇C₈
- Teres Major: C₅C₆C₇

**Axillary Nerve**

- Deltoid: C₅C₆

**Musculo Cutaneous Nerves**

- Biceps: C₅C₆
- Brachialis: C₅C₆
Radial Nerve

- Triceps
  - Long Head
  - Lateral Head
  - Medial Head
  - Brachio radialis
  - Extensor Carpi radialis longus

Posterior Interosseous Nerve

- Supinator
- Extensor Carpi Ulnaris
- Externsor digitorum
- Abductor pollicis Longus
- Extensor pollicis Longus
- Extensor pollicis brevis
- Extensor indicis

Median Nerve

- Pronator teres
- Flexor Carpi radialis
- Flexor digitorum superficialis
- Abductor pollicis brevis
- Flexor pollicis brevis
- Opponens pollicis
- Lumbricals I & II

Anterior Interosseous Nerve

- Flexor digitorum profundus I & II
- Flexor pollicis longus
Ulnar Nerve

- Flexor carpi ulnaris: C7C8T1
- Flexor digitorum profounds III & IV: C7C8
- Hypothenar muscle: C8T1
- Abductor pollicis: C8T1
- Flexor pollicis brevis: C8T1
- Palmar interossei: C8T1
- Dorsal interossei: C8T1
- Lumbricals III & IV: C8T1
CERVICAL SPONDYLOSIS

Nomenclature

Cervic(o) - Latin Word, Means neck.
Spondylo - Greek Word, Means Vertebra
Osis - Condition

Is a type of pathological condition in cervical vertebra.

Definition:

Cervical spondylosis is a disorder characterised by increasing degeneration of the intervertebral disc, with subsequent changes in the bones and soft tissues. Spondylosis is usually asymptomatic. Symptoms are usually manifested of encroachment on local neural elements such as cervical nerve roots, spinal cord, vertebral artery (or) sympathetic nerves. The symptoms and signs appear to be related to the cause and time course of compression as well as the structures being compressed.

Chronology:

In 1901, Sir Victer Harsely explained compression of cervical spine due to progressive CSM. Hayashi in 1987 contributed the Spondylotic changes of spine.

Epidemiology:

Cervical Spondylosis is present in 20-25% of Population by the age of 50 Years & increases to 70-85% by the age of 65 Years. (From Radiographic Evidence).
Location:
★ Generally the C5 & C6 roots are most commonly affected by cervical Spondylosis as a result of the increased mobility at the C5-C6 & C6-C7 levels.
★ Acute disc lesions are seen most often at the C7 level followed by C6
★ High level cervical disc involvement are very uncommon
★ T1 Radiculopathy is caused by the result of involvement by Pancoast tumor in the apical pleura.

Aetiology:
Causes of this disorder are explained as follows.

a) Degenerative Causes:
There are primary & Secondary

Primary
- Senility
- Genetic Factors
- Metabolic Factors
- Manual Labour
Secondary
- Osteo arthritis
- Rheumatoid arthritis
- Metastatic carcinoma
- Lymphoma of Spine
- TB Spine

b). Injury
1. Automobile accidents with whiplash injury & atheletic injury
2. Sudden jerks on the arms during falling down.
3. Previous injury with fracture or disc prolapse.
c). Occupational causes

d). Hereditary Factors.

1. Congenital narrowing of the cervical spinal canal (myelopathy is often seen when canal’s sagittal diameter is 12mm or less).
2. Segemental defects – Hemi vertebra, Fused Vertebra.

e) Acquired narrowing of cervical spinal canal due to

★ Osteophytes
★ Ossified posterior longitudinal ligament (OPLL)
★ Facet joint hypertrophy (results foraminal stenosis & compression of root of radicular artery)
★ Hypertrophied ligamentum flavum (Compress the cord during extension).
PATHOGENESIS

In disc degeneration the primary event is a progressive decrease in the degree of hydration. Glycoproteins diminish in size and number their ability to retain water diminishes. This results in loss of disc height, disc fibrosis and annular weakening. Adjacent vertebral bodies approximate each other and uneven abnormal movement in the affected areas probably results in osteophyte formation. These occur at all the joints, namely the disc, zygoapophyseal joints and the neurocentral joints of luschka. Though osteophyte formation may be the body’s attempt to stabilize the joints their growth can result in narrowing of the spinal canal and cord compression.

The predisposing factors which may accelerate of these changes viz.

1. Occupation requiring repetitive motion and chronic flexion of the cervical spine.
2. Previous injury with fracture or disc prolapses.
3. Segmentation defects like hemivertebrae or fused vertebrae.
4. May be a hereditary predisposition to intervertebral disc disease.

PATHOLOGY:

Cervical spondylosis is very common and histological evidence of degenerative changes is present in virtually even present over the age of 70. Osteophytes may form posteriorly with osteoarthritis of the apophyseal joints and also anteriorly in relation to degenerative changes and narrowing of the intervertebral disc with sclerosis of the bony end plates. The osteophytes may cause symptoms by encroaching on the spinal nerve foramina or in the cervical region on the vertebral artery foramen. In the cervical region intermittent pain and discomfort may be followed eventually by stiffness and limitation of movements.
At first injury to be chondrocytes occur and therefore, the maintenance of articular cartilage impairs and if this continues loss or decreased synthesis of proteoglycans occurs. Another theory is with decades of weight bearing. There is remodeling of the articular cartilage with redistribution of load stress chondrocyte integrity mainly depends on normal level of loads. Chondrocyte degeneration or injury occurs as a result of overloading or under loading and loss of proteoglycans has been contributed by alteration of subsynovial weave of collagen fibres.

Chondrocyte injury causes release of degradative enzymes particularly proteoglycanase and cathepsins. At the same time the capacity of synthesis of proteoglycans diminished due to age and chondrocyte injury. Injury causes alteration in collagens and there occurs change from type II to type I. The Type I collagen withstands minimally to stress. All this causes cartilage injury.

**Morphology:**

The early changes appear to be erosion and flaking of cartilaginous surface with advance of the disease clefts appear within the cartilage at right angles to the surface. The clefts may penetrate to sub chondral bone producing cartilage fibrillation. Sometimes fragments of cartilage break off to create joint mice. This cartilage injury results in growth of blood vessels from the subchondral bone into articular cartilage. These occur focal cystic areas within the subchondral bone and they contain fibrous tissues. The further progression of the disease, leads to deep or complete erosion of cartilage layer.

The disappeared and leaves denuded subchondral bone which is dense smooth, glistening to ivory. This is known as Eburnation. The loss of cartilage accounts for the so called thinning of joint space, which is seen radiographically.
Osteophytes developing from margins of articular cartilage may sometime extend to the ligamentous and capsular attachment and is called “bone spurs” of osteoarthritis. When large spurs project from opposing bones come into contact causing pain and limitations to movements. These bony spurs accounts for nodules known as “Heberden’s nodes.”

**Intervertebral disc prolapse**

This is common cause of compression of the nerve roots and more rarely causes compression of the cord. The inter vertebral disc consists of a central module semifluid matrix, the nucleus pulposus, surrounded by a ring of fibrous tissue and fibrocartilage, the annulus fibrosus. The posterior segment of the annulus is thinner and less firmly attached to bone and following unusual stress part of the matrix of the nucleus pulposus may herniae through it. The lesion often termed “Slipped disc” may occur after injury and symptoms depend on the direction taken by the extruded matrix. It usually tracks posterior laterally around the expansion of the posterior longitudinal ligament, appearing at one side and compressing the spinal nerve in the intervertebral foramen. Disc protrusion occurs, principally in C5 – C6 and C6 – C7 discs.

A single mid line posterior disc protrusion may compress the spinal cord, obstructing the anterior spinal artery, and is a rare but important cause of permanent damage to the spinal cord if surgical treatment is delayed.

When there are several protrusions, the resulting compression may impair the circulation and variable effects of ischaemia of the spinal cord may result. There may be cavitation of the cord and loss of nerve cells in the severely affected areas, the condition being known as “Spondylotic myelopathy”. Nerve root compression is common than myelopathy.
Pathogenesis of Myelopathy and Radiculopathy:

The various factors that play a role are:

1. **Congenital narrowing of the Cervical Spinal Canal:**
   
   This can be a major cause of myelopathy – canal narrowing is usually generalised but can occasionally be seen at one or two levels from C2- C7. Myelopathy is often seen when the canal sagittal diameter is 12 mm or less.

2. **Acquired narrowing of the Spinal Canal:**
   
   This can be due to:

   I. **Osteophytes:**

      The osteophytes can also give rise to irritational fibrosis of dural sleeve of the nerve root.

   II. **Ossified posterior longitudinal ligament (OPLL):**

      OPLL is characterized by heterotrophic new bone formation in ligamentous tissue and may be due to the activity of osteoblastic phenotype cells.

   III. **Facet joint Hypertrophy:**

      This lead to foraminal narrowing with resultant compression of the nerve root and the radicular artery.

   IV. **Hypertrophied Ligamentum Flavum:**

      During extension, the cord is compressed by the thickened ligament over the anterior osteophytic ridge and this may occur more frequently, a relatively more immobile are due to spondylotic changes.

   V. **Movement Disorders:**

      Chronic movement disorders like torticollis and athetosis can induce premature spondylotic changes in the cervical spine.
VI. Trauma:

Trauma, such as whiplash injury may cause structural changes that predispose towards premature degenerative disc disease.

3. Dynamic Factors:

The spinal cord moves within the spinal canal and the cord and root becomes taut in flexion and lax in extension with an increase in the posterior countour by almost 5 cm and the anterior contour by upto 2 cm. Dural adhesions to the posterior longitudinal ligament and the root sleeves to the foramina make the cord more susceptible to injuries.

4. Vascular Factors:

Vascular compromise by compression of the anterior spinal and radicular arteries and veins. The anterior sulcal arteries can be compressed and flattened due to degenerative changes with a reduction in blood flow. Though, the anterior radicular arteries exist at every level, the main artery is between C 4 – C 6. As Cervical spondylosis occurs mainly at these levels, compression of the main radicular artery in the foramen may be responsible for the ischaemia of the cord.

The combined effects of the compressive tensile and shear forces produces recurrent sub acute changes of demyelination in the posterior columns and the lateral spino – thalamic tracts. There is a relative sparing of anterior white mater tracts and a varying degree of grey mater degenerative changes.

Common signs and symptoms:

1. Pain in the neck, radiating to the shoulder blades, top of the shoulders, upper arms and hands or back of the head.
2. Crunching sounds with movement of the neck or shoulder muscles.
3. Numbness and tingling sensation in the arms, hands and fingers, some loss of feeling in the hands and impairment of reflexes,
6. Head ache.
7. Dizziness and unsteady gait.
8. With advanced stages, loss of bladder control and leg weakness.

**Neural compression syndrome:**

Most of the patients suffer from either radiculopathy (or) myelopathy. They may be acute, sub acute or chronic.

1. **Cervical Radiculopathy:**

Compression of a nerve root may be due to several causes. In young persons soft disc herniations are more common. The herniation is posterolateral near the nerve root foramen and a free disc fragment can be frequently found. Uncovertebral osteophytes and occasionally osteophytes from the superior articular process along with reduced disc height, may result in foraminal narrowing and radiculopathy.

**SUMMARY OF THE SITE OF SENSORY DISTRUBANCES WITH INDIVIDUAL ROOT**

<table>
<thead>
<tr>
<th>Nerve root</th>
<th>Disc level</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>C\textsubscript{3}</td>
<td>C\textsubscript{2} – C\textsubscript{3}</td>
<td>Pain and numbness in the back of the neck, mastoid process, and pinna of ear.</td>
</tr>
<tr>
<td>C\textsubscript{4}</td>
<td>C\textsubscript{3} – C\textsubscript{4}</td>
<td>Pain and numbness in back of the neck, levator scapulae and anterior chest.</td>
</tr>
<tr>
<td>C\textsubscript{5}</td>
<td>C\textsubscript{4} – C\textsubscript{5}</td>
<td>Pain in the neck, tip of the shoulder, anterior arm, numbness over middle of the body, deltoid muscle.</td>
</tr>
<tr>
<td>C\textsubscript{6}</td>
<td>C\textsubscript{5} – C\textsubscript{6}</td>
<td>Pain in the neck, shoulder, medial border of the scapula, lateral arm, dorsal forearm, numbness in tip of thumb or on dorsum of hand over first dorsal interosseus muscle.</td>
</tr>
</tbody>
</table>
Pain in the neck, shoulder, medial border of scapula, lateral arm, dorsal forearm, sensory change in index and middle finger.

Pain in the neck, medial border of scapula, medial aspects of arm and forearm. Sensory change in the ring and little fingers.

SUMMARY OF THE MOTOR SYMPTOMS AND SIGNS
(INCLUDING REFLEXES)

<table>
<thead>
<tr>
<th>Nerve root</th>
<th>Disc level</th>
<th>Weakness – Reflex change</th>
</tr>
</thead>
<tbody>
<tr>
<td>C₃</td>
<td>C₂ – C₃</td>
<td>Not readily detectable weakness or reflex changes except by EMG.</td>
</tr>
<tr>
<td>C₄</td>
<td>C₃ – C₄</td>
<td>Not readily detectable weakness or reflex changes except by EMG.</td>
</tr>
<tr>
<td>C₅</td>
<td>C₄ – C₅</td>
<td>Weakness of extension of arm and shoulder particularly above 90° wasting of deltoid muscle, no reflex change.</td>
</tr>
<tr>
<td>C₆</td>
<td>C₅ – C₆</td>
<td>Weakness of biceps muscle, Diminished biceps reflex.</td>
</tr>
<tr>
<td>C₇</td>
<td>C₆ – C₇</td>
<td>Weakness of triceps muscle diminished triceps reflex.</td>
</tr>
<tr>
<td>C₈</td>
<td>C₇ – T₁</td>
<td>Weakness of triceps and small muscles of hand. No reflex change.</td>
</tr>
</tbody>
</table>

2. Cervical Myelopathy:

It may be precipitated by a large central disc herniation but is more commonly the result of spondylotic changes superimposed on a congenitally narrowed canal. Dorsomedial herniation of disc and the
development of transverse bony bars or posterior osteophytes may result alone or in combination in pressure on the spinal cord or the anterior spinal artery which supplies the anterior 2/3 of the cord.

**Clinical Features:**

The onset of symptoms is usually insidious and painless, although acute deterioration may occur after trauma, especially hypertension injury. Upper motor neuron signs develop in the limbs with spasticity of the legs usually appearing before the arms are involved. Dermatomal sensory loss is common in the upperlimbs, while pain, temperature, joint sense and position sense may be impaired in the legs. The neurological deficit usually progresses gradually and disturbance of control of micturation is a late feature. Constipation is usually but with severe paraplegia there may be incontinence of faeces.

3. **Radiculo Myelopathy:**

A combination of radicular and cord symptoms is found.

4. **Signs and symptoms of spinal cord compression at different level of cervical segment.**

★ **At the C₃ – C₄ Level:**

Pain in the neck and occipital area, paresthesia and weakness of upperlimbs early. Paralysis of 9th and 10th cranial nerves, spasticity of all four limbs, exaggerated deep tendon reflexes, absence of abdominal and cremastric reflexes, extensor plantor on both sides, sphincters affection, paralysis of lower part of trapezius, supraspinatus, infraspinatus and diaphragm may occur.

★ **At the Level of C₅:**

Quadriplegia, paralysis of deltid, biceps, brachialis, rhomboideus and supinator muscles. Diminished biceps (C₅ – C₆) and supinator (C₅ – C₆) jerks, exaggerated triceps jerk and inversion of the radial reflex may occur.
★ At the Level of $C_5 - T_{12}$:

Signs of lower motor neuron lesion, segmental sensory loss in upper limbs and signs of upper motor neuron lesion in the lower limbs may occur.

★ At the Level of $C_7$:

Paraplegia, paralysis of triceps, extension of wrist and fingers, loss of triceps ($C_6- C_7$) jerks.

★ At the Level of $C_8 - T_1$:

Spastic paralysis of trunk and lower limbs, paralysis of flexors of wrist, fingers and small muscles of hand and exaggeration of lower limbs tendon reflexes.

5. Autonomic Symptoms:

Various autonomic symptoms can be produced by cervical disc diseased. (e.g) Vertigo, flushing, tinnitus and visual blurring. These may be mediated by the sympathetic contribution to the sinuvertebral nerves from the stellate ganglion. This may also result in fall of blood pressure, sweating and increased intestinal motility.

Spondylotic changes at the uncovertebral joints may cause direct linking of the vertebral artery and produce similar changes.

6. Vertebro – Basilar Insufficiency:

Vertebro basilar insufficiency induced by spondylotic compression of the vertebral artery is uncommon though popularly diagnosed.

Often rotation to one or both sides or extension of the neck and less frequently flexion may precipitate a brief attack of diplopia. In these patients movements of the head probably causes pressure on the vertebral arteries with consequent impairment of the blood supply of the hindbrain. Strokes due to persistent vertebro basilar ischemia may also occur.
Investigation:

1. plain X-ray of cervical spine, including A.P., Lateral and oblique views show
   - Disc space narrowing
   - Osteophyte formation
   - Degeneration in facet and uncovertebral joints
   - Foraminal stenosis (seen on oblique films)
   - Central stenosis

2. Mylogram – May show compression of the spinal cord

3. C.T Scan (computerized Tomography)
   - Confirms degenerative changes
   - May demonstrate posterior osteophytes and disc herniation

4. MRI (Magnetic Resonance Imaging)
   - Neural compression
   - Intrinsic cord changes
   - Disc degeneration

5. Examination of CSF:
   - Very high protein

6. Other tests:
   - Nerve conduction studies.

Differential diagnosis:

In most cases of cervical spondylosis either radiculopathy or myelopathy is the presenting features. Clinical features of many diseases may mimic cervical radiculopathy and myelopathy.

Radiculopathy

The symptoms of lesion of the brachial plexus, such as neurofibroma, the thoracics outlet syndrome, and pancoast tumour are superficially similar to those of disc disease.
1. **Pan coast tumor**

Pan coast tumor results from local extension of a tumor growing in the apex of the lung with involvement of the eighth cervical, first and second thoracic nerves, with shoulder pain which radiates in the ulnar distribution of the arm, and often with radiologic destruction of the first and second ribs.

2. **Referred pain**

Cardiac ischaemia causes left sided brachial neuralgia. In those patients, diagnosis depends on the history, examination and abnormal findings in E.C.G.

Sub – diaphragmatic lesions – cause right sided pain.

Gall bladder lesions causes right sided brachial neuralgia. The diagnosis depends upon the history examination and investigations.

**Myelopathy**

New growth of the spinal cord at cervical level may mimic the features of cervical spondylosis. But it can be differentiated by radiological findings, examination of cerebrospinal fluids and myelography.

1. **Tumours of the spinal canal**

i.) **Extra dural (or) epidural tumours**

commenest extra dural tumour is the spinal metastasis. The symptoms are local pain, radiating pain which is exacerbated by coughing, sneezing or straining. Pain and local tenderness often proceed. other symptoms.

ii) **Intradural tumours**

a. **Extra medullary tumours (Meningiomas neur ofibromas)**

Local back pain, sensory loss below the level of the pain, weakness and bladder and bowel dysfunction.
b. Intra medullary tumours

Dissociated sensory loss in the segments of tumour origin and sparing of posterior column sensory function.

Later spinothalamic tracts may be involved. The sacral segments may be spared. Atrophy in the appropriate segments due to anterior horn cells involvement.

2. Epidural abscess

The condition can occur as a complication of operation or lumbar puncture. Spinal osteomyelitis acts as the nidus for abscess formation. Unexplained fever and mild spinal ache, later radicular pain occurs. As the abscess expands it causes cord compression with a transverse and usually complete transaction syndrome.

3. Amyotrophic lateral sclerosis

Upper motor neuron signs in Lower limbs and lower motor neuron signs in upper limbs.

4. Other unusual compressive lesions

Cervical cord compression from destruction of the cervical apophyseal or atlanto axial joint’s rheumatoid arthritis. It may present as a chronic compressive myelopathy similar to cervical spondylosis.

5. Syringomyelia

Dissociated sensory loss wasting of the small muscles of one of other hand, loss of one or more reflexes in the arms and hyporeflexia in the legs and extensor plantar responses are common Charcot joints in the shoulders elbows (or) knee are common in advanced cases.

Syringobulbia

Dissociated sensory loss on the face, palatal palsy, Horner’s syndrome and nystagmus kyphoscoliosis pescavus and spinabifida are often found.
6. Tabes dorsalis

Fleeting and repetitive shooting pains occurring mostly in the legs. Loss of reflexes in the legs, impaired position and vibration sense gives severe ataxic gait. Romberg’s test is positive. Argyll Robertson pupils constitute a typical tabetic facies.

**Diagnosis:**

The clinical diagnosis is arrived from the features of cervical radiculopathy and myelopathy. That diagnosis may be confirmed by the radiography, myelography, tomography and magnetic resonance imaging.

**Complication:**

1. Pseudo arthrosis
2. Graft displacement
3. Neurological injury
4. Spastic gait and
5. Injury to other structures
   - Recurrent laryngeal nerve
   - Superior laryngeal nerve
   - Carotid artery
   - Oesophagus

**Management:**

1. Non – Operative:
   1. Analgesics
   2. Local modalities
   3. Exercise programme and cervical traction.

2. Operative:

   Operative treatment should be considered.
   1. In the presence of intractable pain.
   2. where there is evidence of radiculopathy or myelopathy.
   3. Where osteophytes are producing vertebro basilar insufficiency.
Cervical Radiculopathy:

Conservative treatment with analgesics and a cervical collar results in resolution of symptoms in the great majority of patients. In chronic complicated cases foraminectomy or disc excision to be recommended.

Cervical myelopathy:

Surgical procedures, including laminectomy and anterior excision of disc may arrest progression in disability but do not usually result in neurological improvement and carry a significant risk particularly in the elderly, the judgements as to where surgery should be undertaken may be difficult. Manipulation of the cervical spine is no proven benefit and may precipitate acute neurological deterioration.

Physiotherapy:

In acute exacerbation of disease affecting the cervical spine, rest may be the initial treatment.

Cervical Collar:

Cervical collar are advised to wear temporary collar. (Which is often made from Plastazote) for day time to restrict movement, and a soft collar for support at night. A patient who is given a collar should be advised that the restriction in neck movement will alter other proprioception, for example he will need to take care in the dark or on entering darkened rooms when he may lose his balance. A patient wearing a collar should not drive because judgement of relative distances will be impaired. In the cases of vertebro basilar insufficiency (VBI) cervical collar may be advised to the sufferers according to the severity.

Cervical Traction:

Vertebral traction should be the first choice of pain relief for patients suffering nerve root pain. Intermittent sustained traction is carried out after careful positioning has localized the involved segment in
such cases the treatment at least once a day is essential, prolonged pain relief will take several days to obtain.

Cervical traction provides positive patient response and can relieve the pain associated with certain neck disorders. It applies a stretch to muscles, ligaments and tissue components of the cervical spine. It provides relief by promoting separation of the intervertebral joint space, which contains the disc and may reduce a “bulge” or impingement of structures within the foramen. It is not indicated for use in condition of instability such as with “whiplash” injury. It is most commonly used when the patient is in the supine position (lying on the back with knees bent at a 45° angle) with the neck placed at 20° - 30° of flexion (forward tilt). Using traction in this position helps stretch the posterior neck muscles and facilitate intervertebral separation, which relieves pressure that may be pinching nerves, therefore, promoting muscle relaxation and intervertebral separation.

**Exercise for Cervical Spondylosis:**

To start with, exercises should be done sitting and the feet must rest on the floor or stool. Exercises should be done in front of a mirror, in order to get correct movements.

1. **Static Head & Neck Exercise:** (no movement take place, muscles are strengthened)
   - Place your hand on your forehead, with the hand stop forehead from bending forwards – 3 times increase to 5.
   - Place the hand behind the head, with yours hand stop the head from bending backwards -3 times increases to 5.
   - Place right hand on right cheek and ear, stop the head from bending on right side – 3 times increases to 5.
   - Place the left hand on left cheek and left ear, stop the head from bending on left side – 3 times increase to 5.
★ Place right hand on right lower jaw stop the head from turning to right side -3 times increase 5.
★ Place left hand on left lower jaw, stop the head from turning to the left side 3 times increase to 5.

In order words give resistance with your hands to work the muscles as much as possible. Continue the above static exercises. If these suit, otherwise discontinue the static exercises.

2. Exercise for Shoulder:
★ Arms lift forwards, up and down – 5 times increase to 7-10 times
★ Arms lift sideways, up and down – 5 times, increase to 7 -10 times
★ Arms lift forwards, part and together – 5 times increase to 7 -10 times
★ Fingers on the shoulder with elbows bent:
   - Elbows circling forwards, upwards, backwards & downwards – 5 times increased to 7 – 10 times
   - Elbows circling backwards, upwards, forwards & downwards – 5 times increase 7 -10 times
★ Shoulders bracing – 5 times, increase to 7 – 10 times
★ Right hand meeting left hand at the back (Right hand to be carried above the right shoulder, left hand carried from left side at the back and try to touch the right hand) Repeat the left hand carried above the left shoulder and the right hand turned in, carried from the side of trunk -3 times each side, increase to 5 -7 times.

Instructions:
1. Do not getting look down to read (or do any other work). Bring the reading materials to the eye level.
2. All neck movements can be performed with practice, by using trunk movements.
3. Use a low level pillow supporting the head and neck; pillow line upto the shoulders level. Otherwise not to be encouraged.
4. While lying on sides, head should be in neutral position. Use one pillow and your hand to adjust the head, or in addition, one small pillow to adjust the head. Place one pillow in front to support the right arm if you are lying on the right side, place a pillow to support your left arm.

**Prevention:**

1. Avoid sitting in cramped position.
2. Sleep without pillows
3. Use a soft fabric collar or towel to support the neck.
4. Avoid injury
5. Wear protective headgear for contact sports
6. Use seat belts in vehicles and
7. Keep head rests at proper height.

**Prognosis:**

The assessment of prognosis is attained by studying the pathological condition of the spinal cord and nerve roots. Improvement can be felt with some of the reversible changes with drug treatment. In complicated cases improvement is not possible. The signs and symptoms due to myelopathy are unmanageable. Long history of suffering multiple disc lesions and in severe compression of spinal cord may adversely affect the prognosis.
MATERIALS AND METHODS

The Clinical study on Sagana vadham was carried out in the post graduate department of Pothu Maruthuvam, Govt Siddha Medical College, Palayamkottai. In this study 20 patients were treated as in patients and the other 20 as outpatients. After discharge the patients were also followed as out patients.

Selection of the Patients:

The Patients were selected on the basis of the following clinical findings.

1. Pain, Stiffness and restricted movements in the neck
2. Radiating pain in the upper limbs
3. Tingling sensation and numbness in the upper limbs
4. Feeling of heaviness in the body and weakness of the limbs
5. Giddiness
6. Constipation
7. Mental depression
8. Burning sensation of eyes

The detailed history was taken from the patient about:

1. Occupation
2. Social economic status
3. Psychological condition
4. Diet and other habits
5. Trauma
6. Exposure to cold.

Diagnosis:

The diagnosis was made by following siddha diagnostic methods. Nilam, Kaalam, Poriyalaridhal, Pulanalarithal, Vinaadhal, Mukkutra Nilaigal, Udal Thathukal Nilai and Envagai Thervugal, and the diagnosis
of Sagana Vadham was obtained which correlates with modern term cervical Spondylosis by the X-Ray findings.

**Investigation:**

The following investigations were done in all selected patients in the laboratory of Govt. Siddha Medical College, Palayamkottai.

**Blood:**

- Total WBC Count
- Differential WBC count
- Erythrocyte Sedimentation Rate
- Haemoglobin estimation
- Estimation of Sugar
- Estimation of Urea
- Estimation of Cholesterol.

**Urine:**

- Albumin
- Sugar
- Deposits

**Radiological Investigations:**

- X – Ray cervical spine
- AP – View
- Lateral View
- Oblique View

**Treatment**

Nilavagai Choornam 5gm at bedtime with hot water was given on the first day of treatment.

All the patients were treated with the following medicines

1. Agni Choornam
   
   1-2gm thrice daily with hot water

2. Maasha thylam – 30ml
   
   As external application
All the patients were advised to dietary regimen (or) Pathiyam to avoid tamarind and salt

Pranayamam and simple Yogasana were advised for a supportive therapy.

The Bio - Chemical analysis was done in the department of Bio Chemistry and Pharmacological analysis was done in the pharmacological laboratory of Govt. Siddha Medical College, Palayamkottai.
RESULTS AND OBSERVATION

For the clinical study 20 in patients and 20 out patients were selected and treated in PG-I Pothu Maruthuvam Department, GSMC hospital, Palayamkottai. Results were observed with respect to the following criteria.

1. Sex distribution
2. Age distribution
3. Kalam
4. Thegi
5. Gunam
6. Religion
7. Paruvakalam
8. Thinai
9. Occupational status
10. Socio-economic status
11. Etiological factor
12. Mode of onset
13. Duration of illness
14. Clinical manifestations
15. Deep tendon reflexes
16. Gananendrium
17. Kanmendrium
18. Condition of Mukkutram (Vatha, Pitha, kabha)
19. Udal Thathukkal
20. Envagai Thervugal
21. Associated diseases
22. Gradation of results
23. X-Ray
24. Laboratory findings
1. Sex distribution

Table 1: Illustrates sex distributions and its relative percentage

<table>
<thead>
<tr>
<th>S. No</th>
<th>Sex</th>
<th>In Patients (IP)</th>
<th>Out patients (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No of Cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Male</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>2.</td>
<td>Female</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

Out of 20 in patients, 50% were males and 50% were females.

Out of 20 out patients 30% were males and 70% were females.

2. Age distribution

Table 2: Illustrates the age distributions and its relative percentage

<table>
<thead>
<tr>
<th>S. No</th>
<th>Age group in years</th>
<th>In Patients (IP)</th>
<th>Out patients (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>10 -30</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>31-40</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3.</td>
<td>41-50</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>4.</td>
<td>51-60</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>5.</td>
<td>61-70</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>6</td>
<td>Above 70</td>
<td>4</td>
<td>20</td>
</tr>
</tbody>
</table>
Among the 20 in patients,
10% of cases were observed in the age group of 41 to 50 years.
35% of cases were observed in the age group of 51 to 60 years.
35% cases were observed in the age group of 61 to 70 years
20% of cases were observed in the age group of above 70 years
Among the 20 out patients,
15% of cases were observed in the age group of 31 to 40 years.
25% of cases were observed in the age group of 41 to 50 years
40% of cases were observed in the age group of 51 to 60 years
20% of cases were observed in the age group of 61 to 70 years.

3. Kalam:
In siddha literature age of individual is fixed as 100 and into 3 kalam as,
Vadha kalam   - First 33 years & 4 months
Pitha kalam  - Second 33 years & 4 months
Kabha Kalam - Third 33 years & 4 months

<table>
<thead>
<tr>
<th>S. No</th>
<th>Kalam</th>
<th>In Patients (IP)</th>
<th>Out patients (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Vadha Kalam</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Pitha Kalam</td>
<td>16</td>
<td>80</td>
</tr>
<tr>
<td>3.</td>
<td>Kabha Kalam</td>
<td>4</td>
<td>20</td>
</tr>
</tbody>
</table>

Table 3: Illustrates the kalam
Out of 20 In Patients,

80% of cases were in the pitha kalam

20% of cases were in the kabha kalam

Out of 20 patients,

10% of cases were in the Vadha kalam

90% of cases were in the Pitha kalam

4. Constitution of the Body

Table 4: Illustrates Constitution of the body and its Relative percentage

<table>
<thead>
<tr>
<th>S. No</th>
<th>Constitution of the body</th>
<th>In Patients (IP)</th>
<th></th>
<th>Out patient (OP)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. of cases</td>
<td>Percentage</td>
<td>No. of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Vadha Thegi</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Pitha Tegi</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3.</td>
<td>Kabha Thegi</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4.</td>
<td>Thontha Thegi</td>
<td>20</td>
<td>100</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

In both of IP & OP study, 100% of cases were in the Thontha thegi.
5. Gunam

Table 5: Illustrates Gunam and its relative percentage

<table>
<thead>
<tr>
<th>S. No</th>
<th>Gunam</th>
<th>In Patients (IP)</th>
<th>Out patients (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Sathuvam</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Rajotham</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>3.</td>
<td>Thamogunam</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

In the both IP & OP study, 100% of cases were in Rajotham.

6. Religion Distribution

Table 6: Illustrates Religion Distribution and Its relative Percentage

<table>
<thead>
<tr>
<th>S. No</th>
<th>Gunam</th>
<th>In Patients (IP)</th>
<th>Out patients (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Hindu</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>2.</td>
<td>Christian</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>3.</td>
<td>Muslim</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

In both IP & OP study,

100% of IP cases & 80% of OP cases were observed in Hindu.

20% of OP cases were observed in Muslim.
7. Paruva kalam

Table 7: Illustrates the parauva kalam and its relative percentage:

<table>
<thead>
<tr>
<th>S. No</th>
<th>Paruva Kalam</th>
<th>Months</th>
<th>In Patients (IP)</th>
<th>Out Patients (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>No of Cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Kar kalam</td>
<td>Aavani, Purattasi</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Koothir kalam</td>
<td>Iyppasi, Karthigai</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3.</td>
<td>Munpani Kalam</td>
<td>Markazhi, Thai</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>4.</td>
<td>Pinpani Kalam</td>
<td>Masi, Panguni</td>
<td>11</td>
<td>55</td>
</tr>
<tr>
<td>5.</td>
<td>Elavenil Kalam</td>
<td>Chithirai, Vaikasi</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>6.</td>
<td>Muthuvenil Kalam</td>
<td>Aani, Aadi</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

In both IP & OP study 35% IP cases and 75% of OP cases were observed in Munpani kalam.

In IP study 10% of cases were observed in Elavenil kalam.

In both IP & OP Study 55% IP cases 25% were observed in Pinpani Kaalam.
8. Thinai (The habitat of the patients)

Table 8: Illustrates the Thinai

<table>
<thead>
<tr>
<th>S. No</th>
<th>Thinai</th>
<th>In Patients (IP)</th>
<th>Out patient (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. of cases</td>
<td>Percentage</td>
</tr>
<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>Palai</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

In both IP & OP study 100% of cases were observed in Marutham.

9. Occupation:

Table 9: Illustrates occupation

<table>
<thead>
<tr>
<th>S. No</th>
<th>Occupation</th>
<th>In Patients (IP)</th>
<th>Out patient (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Beedi Workers</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>2.</td>
<td>Agricultural labours</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>3.</td>
<td>House Wives</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4.</td>
<td>Building Workers</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>5.</td>
<td>Tailors</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>6.</td>
<td>Weight lifters</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>
Out of 20 in Patients,
25% were beedi workers
30% were agricultural labours
30% were building workers
10% were tailors
5% were weight lifters

Out of 20 out patients,
10 were house wives
5% were tailors
15% weight lifters
40% were Beeds workers
20% Were Agricultural labours
10% Were building workers

10. Social – Economic status

Table 10: Illustrates the socio-economic status

<table>
<thead>
<tr>
<th>S. No</th>
<th>Socio-economic Status</th>
<th>In Patients (IP)</th>
<th>Out patients (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Rich</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Middle class</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>3.</td>
<td>Poor</td>
<td>14</td>
<td>70</td>
</tr>
</tbody>
</table>

In both IP & OP study 70% of IP cases and 65% of OP cases are belonged to poor social-economic status. 30 of IP cases and 35% of OP cases are belonged to middle class.
11. Aetiological Factors:

Table 11: Illustrates the Aetiological factors

<table>
<thead>
<tr>
<th>S. No</th>
<th>Precipitating factors</th>
<th>In Patients (IP)</th>
<th>Out patient (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Age</td>
<td>18</td>
<td>90</td>
</tr>
<tr>
<td>2.</td>
<td>Occupation</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>3.</td>
<td>Trauma</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4.</td>
<td>Metabolic</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5.</td>
<td>Congenital</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Out of 20 In patients, age was the precipitating factor in 90% of cases and occupation in 10% cases.

Out of 20 out patients, age was the precipitating factor in 60% of cases and occupation in 40% of cases.

12. Mode of Onset:

Table 12: Illustrates the mode of onset

<table>
<thead>
<tr>
<th>S. No</th>
<th>Mode of Onset</th>
<th>In Patients (IP)</th>
<th>Out patient (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Acute</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Chronic</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

Both IP and OP study, in 100% of cases are chronic onset
13. Duration of illness

Table 13: Illustrates Duration of illness

<table>
<thead>
<tr>
<th>S. No</th>
<th>Duration of illness</th>
<th>In Patients (IP)</th>
<th>Out patient (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>10 – 15 days</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>15 – 30 days</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3.</td>
<td>1 – 2 months</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4.</td>
<td>2 – 3 months</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5.</td>
<td>Above 3 months</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

Both IP and OP study, In 100% of cases the duration of illness is more than 3 months.
14. Clinical Manifestations:

Table 14: Illustrates the Clinical Manifestations

<table>
<thead>
<tr>
<th>S. No</th>
<th>Signs and Symptoms</th>
<th>In Patients (IP)</th>
<th>Out patient (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Pain in the neck</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>2.</td>
<td>Stiffness in the neck</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>3.</td>
<td>Radiating pain in the Upper limbs</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>4.</td>
<td>Headache</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5.</td>
<td>Giddiness</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>6.</td>
<td>Tingling sensation</td>
<td>13</td>
<td>65</td>
</tr>
<tr>
<td>7.</td>
<td>Numbness</td>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td>8.</td>
<td>Constipation</td>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td>9.</td>
<td>Feeling of heaviness of the body</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10.</td>
<td>Burning sensation of the eyes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>11.</td>
<td>Weakness of the upper limbs</td>
<td>16</td>
<td>80</td>
</tr>
<tr>
<td>12.</td>
<td>Mental depression</td>
<td>9</td>
<td>45</td>
</tr>
</tbody>
</table>
### Other associated Signs and Symptoms

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Cough</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Loss of appetite</td>
<td>3</td>
<td>15</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>14.</td>
<td>Other Joint pain (Hip, Knee, Ankle)</td>
<td>9</td>
<td>45</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>16.</td>
<td>Fever</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>17.</td>
<td>Chest Pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>Epigastric pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>Epilepsy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Out of 20 In patients:-**

- 100% of cases have pain in the neck, stiffness in the neck, radiating pain in the upper limbs.
- 65% of cases have tingling sensation and weakness of the upper limbs.
- 60% of cases have constipation
- 60% cases have numbness
- 45% of cases have mental depression
- 20% of cases have giddiness
- 45% of cases have other joint pain
- 15% of cases have loss of appetite
- 5% of cases have fever

None of the patients have suffered from cough, chest pain and epigastric pain.
Out of 20 out patients:-

75% of cases have constipation
50% of cases have weakness of the upper limbs
50% of cases have numbness and other joint pain.
55% of cases have tingling sensation
40 % of cases have mental depression
25% of cases have loss of appetite
10% of cases have fever

None of the patients have suffered from cough, chest pain and epigastric pain.

15. Gnanendrium reference:

Table 15. Illustrates the condition of Gnanendrium

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Gnanendrium</th>
<th>In Patients (IP)</th>
<th>Out patient (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Mei</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>2.</td>
<td>Vai</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>3.</td>
<td>Kan</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>4.</td>
<td>Mookku</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5.</td>
<td>Sevi</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
In both IP & OP study:-

Mei was affected in 100% of OP and IP cases.
Vai was affected in 30% of IP cases and 60% of OP cases.
Kan was affected in 35% of IP cases and 25% of OP cases.
Mookku and sevi was found to be normal in all both OP and IP cases.

16. Kanmendrium

Table 16: Illustrates Kanmendrium

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Kanmendrium</th>
<th>In Patients (IP)</th>
<th>Out patients (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Vai</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Kal</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3.</td>
<td>Kai</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Eruvai</td>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Karuvai</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

In both IP and OP study,
Kai was affected in all 100% of cases. Eruvai was affected in 60% of IP cases and in 75% of OP cases.
17. Conditions of Mukkuttram

a. Disturbance in Vadha:

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Disturbance In Vadha</th>
<th>In Patients (IP)</th>
<th>Out patients (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Piranan</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>2.</td>
<td>Abanan</td>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td>3.</td>
<td>Viyanan</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>4.</td>
<td>Udhanan</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>7</td>
<td>35</td>
</tr>
<tr>
<td>8.</td>
<td>Kirukaran</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>9.</td>
<td>Dhevathathan</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>10.</td>
<td>Dhananjeyan</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

In both IP and OP study.

Piranan was affected in 25% of IP cases and in 60% of OP cases.
Abanan was affected in 60% of IP cases and in 75% of OP cases.
Viyanan and samanan was affected 100% in both IP& OP cases
Koorman was affected in 35% of IP cases and 60% of OP cases
Kirukaran was affected in 25% of IP cases and in 10% of cases.
Dhevadhathan was affected in 25% IP cases and in 20% of OP cases.
Udhanan, nagan and dhananjeyan was found to be normal in all cases.
### b. Disturbances in Pitha:

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Disturbances in Pitha</th>
<th>In Patients (IP)</th>
<th>Out patients (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Anar Pitham</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>2.</td>
<td>Ranjagam</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3.</td>
<td>Prasagam</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4.</td>
<td>Alosagam</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>5.</td>
<td>Sathagam</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

In both IP and OP study.

- Anarpitham was affected in 25% of IP cases and in 60% of OP cases.
- Alosagapitham was affected in 35% of IP cases and in 60% of OP cases.
- 100% of IP & OP cases showed derangement of sathaga pitham.
- Ranjaga pitham and prasaga pitham was found to be normal in all cases.
c. Disturbances in Kabha:

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Disturbances in Kabha</th>
<th>In Patients (IP)</th>
<th>Out patients (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Avalambagam</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>2.</td>
<td>Kilethagam</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>3.</td>
<td>Pothagam</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4.</td>
<td>Tharpagam</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>5.</td>
<td>Santhigam</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

In both IP and OP study,

Avalambagam was affected 100% in IP and OP cases, due to derangement of other kabha.

Kilethagam was affected in 25% of IP cases and in 60% OP cases.

Pothagam was found to be normal in all OP & IP cases.

Tharagam was affected in 35% of IP cases and in 20% of OP cases.

Santhigam was affected 100% in all and OP cases.
18. Involvement of Udal Thathukkal

Table 18: Illustrates the Involvement of Udal Thathukkal

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Udal Thathukkal</th>
<th>In Patients (IP)</th>
<th>Out patients (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No of cases</td>
<td>Percentage</td>
<td>No of cases</td>
</tr>
<tr>
<td>1.</td>
<td>Saram</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>20</td>
<td>100</td>
</tr>
<tr>
<td>4.</td>
<td>Kozhuppu</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>5.</td>
<td>Enbu</td>
<td>20</td>
<td>100</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>

In both IP and OP study

Saram, Senneer, Oon, Kozhuppu and Enbu were affected in 100% of cases.

Moolai and Sukkilam/ Suronitham were found to be normal in 100% of cases.
19. Condition of Envagai Thervugal

Table 19 Illustrates the conditions of Envagai Thervugal

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Disturbances in Kabha</th>
<th>In Patients (IP)</th>
<th>Out patients (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Naa</td>
<td>14</td>
<td>70</td>
</tr>
<tr>
<td>2.</td>
<td>Niram</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3.</td>
<td>Mozhi</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4.</td>
<td>Vizhi</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>5.</td>
<td>Malam</td>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td>6.</td>
<td>Moothiram</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7.</td>
<td>Sparisam</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>8.</td>
<td>Naadi</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>(Thontha naadi)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In both IP and OP study

Naa was affected in 70% of IP cases and in 45% of OP cases.

Vizhi was affected in 35% of IP cases and in 60% OP cases.

Malam was affected in 60% of IP cases and in 75% of OP cases.

Sparisam was affected in 100% of all cases.

Niram, Mozhi and Moothiram was found to be normal in 100% of all cases.

Thontha Naadi was found in 100% of all cases.
20. Associated diseases:

Table 20: Illustrates Gradation of Results

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Associated diseases</th>
<th>In Patients (IP)</th>
<th>Out patients (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Hypertension</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Osteo arthritis</td>
<td>9</td>
<td>45</td>
</tr>
<tr>
<td>3.</td>
<td>Anaemia</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5.</td>
<td>Diabetes mellitus</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Out of 20 In patients

45% of cases had osteoarthritis

5% cases had Diabetes mellitus

Out of 10 out patients

50% cases had osteo arthritis

21. Gradation of Results:

Table 21: Illustrates Gradation of Results

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Grade</th>
<th>In Patients (IP)</th>
<th>Out patient (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Good</td>
<td>9</td>
<td>45</td>
</tr>
<tr>
<td>2.</td>
<td>Fair</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>3.</td>
<td>Poor</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>
In both IP and OP study

45% of IP & 40% OP cases showed good response
50% of IP & 50% of OP cases showed fair response
5% of IP & 10% of OP cases showed poor response

22. Radiological studies

X – ray of cervical spine antero posterior, lateral views were taken before treatment in all the cases which has been diagnosed clinically as saganavadham and was referred for the opinion of radiologist.

In every case, the findings reveal a certain stage of cervical spondylosis. The following features was commonly found separately or combined with others.

**Table 22: Illustrates Radiological findings and its relative percentage**

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Radiological findings</th>
<th>In Patients (IP)</th>
<th>Out patients (OP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Narrowing of IVS</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>2.</td>
<td>Osteophytic Changes</td>
<td>11</td>
<td>55</td>
</tr>
<tr>
<td>3.</td>
<td>Fusion of Osteophytes with adjacent vertebrae</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>4.</td>
<td>Loss of lordosis</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>5.</td>
<td>Excessive lordosis</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>
In both IP and OP study

100% of cases showed narrowing of I.V.S.

55% of IP cases and 50% of OP cases are showed osteophytic changes.

5% of IP cases and 10% of OP cases are showed fusion of osteophytes with adjacent vertebrae.

50% of IP cases and 40% of OP cases are showed loss of lordosis.

5% IP cases and 10% of OP cases are showed Excessive lordosis.

**Observation of other clinical laboratory examination:**

At the time of admission and discharge, routine laboratory investigations (i.e.) in blood, total WBC count, differential WBC count, Erythrocyte sedimentation rate and haemoglobin estimation, blood sugar, urea and serum cholesterol were done. Urine examination was also done.
DISCUSSION

Advancement in the modern technology has enabled our present day society to exist in a world where the consent of hardwork even moderate physical work is absolute and infashionable. The physical inactivity, the sedentary life style, food habits, environmental pollution has caused so many diseases. These lead to the weakening of our Locomotor system and eventually causes the Sagana vadham. Sagana vadham was also a clinical condition in those days as mentioned in “Yugivaidhya Sindhamani 800” which become a very common problem now a day

Saganavadham, one among the eighty varieties of vadha noigal resembles in its clinical features with cervical spondylosis in modern medicine. The main clinical features of sagana vadham are pain in the nap of the neck, radiating pain in shoulder and upper limb, mental depression, giddiness, tingling sensation over the upper limbs. This coincide with cervical spondylosis in modern medicine.

Twenty IP cases and 20 OP cases were selected for treatment according to the clinical features mentioned in “Yugi Vaidhaya Sindhamani 800”, siddha method of diagnosis was carried out. With the help of modern investigations the diagnosis was confirmed and treatment with the trial medicines is clearly observed. The observations are discussed here under.

1. Incidence with Sex distribution

Out of 20 In Patients, 50% were males and 50 were females.

Out of 20 out patients, 30% were males and 70% were females.
2. **Incidence with Age distribution**

Among the 20 In patients,

- 10% of cases were observed in the age group of 41 to 50 years.
- 35% of cases were observed in the age group of 51 to 60 years.
- 35% of cases were observed in the age group of 61 to 70 years.
- 20% of cases were observed in the age group of above 70 years.

Among the 20 out patients,

- 15% of cases were observed in the age group of 31 to 40 years.
- 25% of cases were observed in the age group of 41 to 50 years.
- 40% of cases were observed in the age group of 51 to 60 years.
- 20% of cases were observed in the age group of 61 to 70 years.

During the course of entire study most of the cases came during the age group of 51-60 years.

3. **Distribution according to Kalam**

Out of 20 In Patients,

- 80% of cases were in the pitha Kalam
- 20% of cases were in the Kabha kalam

Out of 20 out patients,

- 10 of cases were in the Vadha kalam
- 90% of cases were in the pitha kalam

During the course of entire study, most of the cases belonged to pitha kalam of 34-66 years which is commonly the period of degeneration authentically proved by the medical field.

4. **Incidence with reference to constitution of the body**

In both of IP & OP study, 100% of cases were in the thontha thegi.

5. **Incidence with reference to Gunam**

In both IP & OP study, 100% of cases were in Rajotham.
6. Incidence with reference to Religion

In both IP & OP study,

100% of IP cases & 80% of OP cases were observed in Hindu.
20% of OP cases were observed in Muslim.

Majority of the cases belongs to Hindu in my clinical study.

7. Incidence with reference to Paruvakalam

In both IP & OP study, 35% of IP cases and 75% of OP cases were observed in Munpanikalam.

In IP study, only 10% of cases were observed in Elavenil Kalam.

In both IP & OP study, 55% of IP cases & 25% of OP cases were observed in pinpani kalam

In Munpanikalam most of the patients came to me for treatment.

8. Incidence with reference to Thinai

In both IP & OP study, 100% of cases were observed in marutham.

9. Incidence with reference to Occupation

Out of 20 In patients,

25% were beedi workers
30% were agricultural labours
30% were building workers
10% were tailors

Out of 20 Out patients,

10% were house wives
5% were tailors
15% weight lifters
40% were beedi workers
20% were Agricultural labours
10% were Building workers
Most of the patients occupation forced themselves to maintain the same posture throughout the day. This may be the reason for these patients are predisposed to develop sagana vadham.

10. Incidence with reference of Socio-economic status

In both IP & OP study 70% of IP cases and 65% of OP cases are belonged to poor socio-economic status. 30% of IP cases and 35% of OP cases are belonged to middle class.

In my clinical study most of the patients belonged to poor social economic status.

11. Incidence with reference to Aetiological factors

Out of 20 In patients, age was the precipitating factor in 90% of cases and occupation in 10% cases.

Out of 20 out patients, age was the precipitating factor in 60% of cases and occupation in 40% of cases.

12. Incidence with reference to Mode of onset

Both IP and OP study, In 100% of cases are chronic onset

13. Incidence with reference to Duration of illness

Both IP and OP study, In 100% of cases the duration of illness is more than 3 months.


Out of 20 In patients,

100% of cases have pain in the neck, stiffness in the neck, radiating pain in the upper limbs.

65% of cases have tingling sensation and weakness of the upper limbs.

60% of cases have constipation

60% of cases have numbness

45% of cases have mental depression

20% of case has giddiness
45% of cases have other joint pain
15% of cases have loss of appetite.
5% of cases have fever

None of the patients have suffered from cough, chest pain and epigastric pain.

Out of 20 out patients,
75% of cases have constipation.
50% of cases have weakness of the upper limbs.
50% of cases have numbness and other joint pain.
55% of cases have tingling sensation.
40% of cases have mental depression
25% of cases have loss of appetite
10% of cases have fever.

None of the patients have suffered from cough, chest pain and epigastric pain.

The selected cases in my study had the following main clinical features of pain in the nap of the neck, stiffness in the neck, radiating pain in the upper limbs, tingling sensation, constipation, numbness, mental depression and giddness.

15. Incidence with reference to the Gnanendrium

In both IP & OP study,
Mei was affected in 100% of OP and IP cases.
Vai was affected in 20% of IP cases and 60% of OP cases.
Kan was affected in 35% of IP cases and 25% of Op cases.
Mookku and sevi was found to be normal in all Op and IP cases.
In my clinical study mei was found to be affected in all 100% of cases.
16. Incidence with reference to the Kanmendrium

In both IP and OP study,

Kai was affected in all 100% of cases.
Eruvai was affected in 60% of IP cases and in 75% of OP cases.
Kai which is one of the kanmendrium was affected completely in all cases.

17. Condition of Mukkuttram

17.a. Disturbance in Vadha

In both IP and OP study,

Pranan was affected in 25% of IP cases and in 60% of OP cases which produced indigestion.
Abanan was affected in 60% of IP cases and in 75% of OP cases which produced constipation.
Viyanan and Samanan was affected 100% in both IP & OP cases which produced pain, restricted movement of the neck, pain in the upper limb, numbness of tingling sensation.
Koorman was affected in 35% of IP cases and 60% of OP cases, which produced diminished vision.
Kirukaran was affected in 25% of IP cases and in 10% of OP cases, which produced loss of appetite.
Dhevadhathan was affected in 25% IP cases and in 20% of OP cases, which produced lethargy & disturbed sleep.
Udhanan, nagan and dhananjeyan was found to be normal in all cases.

17.b. Disturbances in Pitham

In both IP and OP study,

Anarpitham was affected in 25% of IP cases and in 60% of OP cases, which produced loss of appetite.
Alosagapitham was affected in 35% of IP cases and 60% of Op cases, which produced impaired vision.
100% of IP & OP cases showed derangement of sathaga pitham which produced difficulties in performing regular duties because of pain in the neck and upper limbs.
Ranjaga pitham and prasaga pitham was found to be normal in all cases.

17. c. Disturbances in Kabha

In both IP and Op study,
Avalambagam was affected 100% in IP and OP cases, due to derangement of other kabha.
Kilethagam was affected in 25% of IP cases and In 60% Op cases which produced loss of appetite.
Pothagam was found to be normal in all OP and IP cases.
Tharpagam was affected in 35% of IP cases and in 20% 0f OP cases, which produced burning sensation of eyes.
Santhigam was affected 100% in all IP and OP cases which produced pain and stiffness in the neck.

18. Incidence with reference to the Udal thathukkal

In both IP and OP study,
Saaram was affected in all cases that produced the symptoms like lethargic and mental depression.
Senneer was affected in cases that produced the Symptoms like loss of appetite.
Oon, Kozhuppu and Enbu were affected in all cases that produced the symptoms like difficult to move the neck, and osteophytic changes in cervical region of the vertebral column.
19. **Incidence with reference to the Envagai thervugal**

Under the study of naadi, all the 40 cases showed Thontha naadi, which Vadha nadi was, predominant (100%).

All of the 100% patients had pain in the nap of the neck, stiffness in the neck, Radiating pain in the neck, Tingling sensation and numbness over the upper limbs showed the affected sparisam in 100%.

Diminished vision showed the affected vizhi in 35% of IP cases and 60% of Op cases.

Malam was affected in 60% of IP cases and 75% of OP cases, which produced constipation.

Niram, mozhi and moothiram was found to be normal in all 40 cases.

20. **Incidence with reference to the associated diseases**

In both IP and Op study.

45% of IP cases and 50% of OP cases had osteoarthritis.

5% of IP cases had diabetes mellitus.

21. **Incidence with reference to Gradation of results**

In both IP and OP study.

45% of IP & 4% of OP cases showed good response.

50% of IP & 50% of OP cases showed fair response

5% of IP & 10% of Op cases showed poor response.

22. **Radiological studies**

In both IP and OP study,

100% of cases showed narrowing of I.V.S.

55% of IP cases and 50% of OP cases showed osteophytic changes.

5% of IP cases and 10% of OP cases showed fusion of osteophytes with adjacent vertebrae.
5% of IP cases and 40% of OP cases showed loss of lordosis.  
5% IP cases and 10% of OP cases showed Excessive lordosis.

**Modern aspects**

Routine clinical laboratory investigation (Blood, Urine) were done on admission to rule out other abnormalities.

As per the report of the radiologist the pathological changes like degenerative osteophytic and osteoporotic changes, lipping, narrowing of inter vertebral foramen, loss of lordosis were analysed to confirm sagana vadham.

X-rays taken after treatment in a few patients who had been clinically relieved did not show any change (or) improvement in the radiologic features like osteophyte etc.,

**Treatment**

As sagana vadham is a vadha disease with degenerative effects and so the treatment is aimed to prove relief from the symptoms. Following medicine were administrated to the patient from the time of admission and continued till the symptoms were relieved.

1. Agni choornam 1-2 gm twice daily with hot water- Internally.

Mild yogic exercises in the morning were advised after some degree of relief from pain with the trial medicine for a few days.

From the pharmacological analysis the trial medicine was found to possess the significant anti inflammatory action. Also clinically the trial medicine was effective in reducing the pain in the nap of the neck, neck stiffness, radiating pain etc,
SUMMARY AND CONCLUSION

Twenty cases with Saganavadham were diagnosed clinically and admitted in In patients ward and treated with the trial medicines. Another 20 cases were treated as out patients. All the inpatients were followed in the out patient department after discharge.

The clinical diagnosis was done on the basis of clinical features described in “Yugi Vaidhya Sindhamani-800”

The trial medicines choosen for the clinical study were.

**Agni Choornam:**

1-2 gm thrice daily with hot water.

**Maasha thylam:**

As external application.

The various siddha aspects of examinations of this disease were carried out.

The clinical features of saganavadham described in various Siddha literatures were correlated with cervical spondylosis.

The trial medicines corrected the deranged uyir thathukkal and udal thathukkal. So the patients were relieved from the symptoms like neck pain, stiffness, radiating pain to the upper limbs. This confirms the efficacy of the trial medicines in curing the disease, normalizing range of movements in the neck and maintaining the normal health conditions also.

The results were found to be good relief from the symptoms within 10 days of treatment in mild cases. In moderate cases good relief was found between 15-20 days of treatment. In long standing cases fair result were found after 20days treatment.

The relief (or) improvement was observed only clinically and there was no change in radiological findings.
As per our siddha material medica the ingredients of the trial medicines were find to have the property of controlling Vadha diseases.

No toxic effects were noticed during the treatment period. All the drugs were put to use only after careful purification process laid down for them individually.

Because of the encouraging results, clinically the study may be undertaken with the same medicine for a prolonged period in a large number of cases and it may throw new lights for the treatment of Vadha diseases especially for Sagana vadham.
ANNEXURE - I
PREPARATION OF TRIAL MEDICINES
INTERNAL MEDICINE

அந்திஞ்சி தொழில் (அந்திஞ்சி தொழில் குறிக்கிறது).

- பாகன் 68

நூற்றாண்டு குற்றகக்

தவுண்டுமை
நீக்குபவது
வெப்ப

சிறுத்தாக்கு

மருத்துவக்குறிப்பிடிப்பு

கௐரகுப்பு

கௐரகூற்று

ங்கைப்பெற்று

- ¼ பால

லகுப்பு

- ¼ பால

கல்லு பெப்பர்

- ½ பால

கார்க்கைக்

- சூன் அல்லது

செய்வது

சிறுத்தாக்கு குற்றகாலக் காலம் பொழுது அதிகம் வலுவது

கார்க்கைக் காலம் மற்றும் பொழுது செய்வது.

இழுவு சூழல்

பாது சூழல் கோட்டு
1. பிளம்பஹோ (Plumbago zeylanica)

<table>
<thead>
<tr>
<th>எடுப்பு மீண்டுச்சால்</th>
<th>தொலைக்காட்சியின் சூழ்பு, தொலைக்காட்சியின் சுனை மூலம், தொலைக்காட்சியின் சுல்பு</th>
<th>பல்லுரு மூடும் விளக்கம்</th>
<th>சிவன்</th>
<th>காத்திருப்பு, முதையிழைத்துப்பு</th>
<th>காத்திருப்பு, முதையிழைத்துப்பு</th>
<th>பிரித்து</th>
<th>காத்திருப்பு</th>
</tr>
</thead>
<tbody>
<tr>
<td>நிறையம்</td>
<td>Anti periodic</td>
<td>திறகுவதிரட்சியால் காத்திருப்பு</td>
<td></td>
<td>Diaphoretic</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. இந்து (Zingiber officinalis)

<table>
<thead>
<tr>
<th>எடுப்பு மீண்டுச்சால்</th>
<th>தொலைக்காட்சியின் சூழ்பு, தொலைக்காட்சியின் சுனை மூலம், தொலைக்காட்சியின் சுல்பு</th>
<th>பல்லுரு மூடும் விளக்கம்</th>
<th>சிவன்</th>
<th>காத்திருப்பு, முதையிழைத்து</th>
<th>காத்திருப்பு, முதையிழைத்து</th>
<th>பிரித்து</th>
<th>காத்திருப்பு</th>
</tr>
</thead>
<tbody>
<tr>
<td>நிறையம்</td>
<td>Stomatonic (நேர்மைநாயம்)</td>
<td>மூடும் விளக்கம்</td>
<td></td>
<td>Stimulant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>பிரித்து</td>
<td>Stomachic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>காத்திருப்பு</td>
<td>Carminative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. பீரிடு (Piper nigrum)

<table>
<thead>
<tr>
<th>எடுப்பு மீண்டுச்சால்</th>
<th>காத்திருப்பு, முதையிழைத்து, காத்திருப்பு, முதையிழைத்து</th>
<th>பல்லுரு மூடும் விளக்கம்</th>
<th>சிவன்</th>
<th>காத்திருப்பு, முதையிழைத்து</th>
<th>காத்திருப்பு, முதையிழைத்து</th>
<th>பிரித்து</th>
<th>காத்திருப்பு</th>
</tr>
</thead>
<tbody>
<tr>
<td>காத்திருப்பு</td>
<td>Acrid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>அக்ளாதையான காத்திருப்பு</td>
<td>Carminative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1. Antivatha (Piper longun)

4. Anti Periodic

5. Carminative

6. Sedative

Piper longun - Anti Periodic

(Piper longun) - 

4. Stimulant

5. Carminative

6. Sedative

Carum Copticum - 

(Piper longun) - 

4. Stimulant

5. Carminative

6. Sedative

Carum Copticum - 

(Piper longun) - 

4. Stimulant

5. Carminative

6. Sedative

Carum Copticum - 

(Piper longun) - 

4. Stimulant

5. Carminative

6. Sedative
7. 7. สาระการ์ที (Scindapsus Officinalis)

<table>
<thead>
<tr>
<th>ภาษาไทย</th>
<th>ภาษาอังกฤษ</th>
</tr>
</thead>
<tbody>
<tr>
<td>บุ้งบั้งไก่สาระ</td>
<td>Stomachic</td>
</tr>
<tr>
<td>บุ้งบั้งไก่สาระ</td>
<td>Antispasmodic</td>
</tr>
<tr>
<td>บุ้งบั้งไก่สาระ</td>
<td>Carminative</td>
</tr>
<tr>
<td>บุ้งบั้งไก่สาระ</td>
<td>Antiseptic</td>
</tr>
<tr>
<td>บุ้งบั้งไก่สาระ</td>
<td>Stimulant</td>
</tr>
<tr>
<td>บุ้งบั้งไก่สาระ</td>
<td>Tonic</td>
</tr>
<tr>
<td>บุ้งบั้งไก่สาระ</td>
<td>Sialogogue</td>
</tr>
</tbody>
</table>

8. 8. สาระการ์ที (Costus Speciosus)

<table>
<thead>
<tr>
<th>ภาษาไทย</th>
<th>ภาษาอังกฤษ</th>
</tr>
</thead>
<tbody>
<tr>
<td>บุ้งบั้งไก่สาระ</td>
<td>Stomachic</td>
</tr>
<tr>
<td>บุ้งบั้งไก่สาระ</td>
<td>Antispasmodic</td>
</tr>
<tr>
<td>บุ้งบั้งไก่สาระ</td>
<td>Carminative</td>
</tr>
<tr>
<td>บุ้งบั้งไก่สาระ</td>
<td>Antiseptic</td>
</tr>
<tr>
<td>บุ้งบั้งไก่สาระ</td>
<td>Stimulant</td>
</tr>
<tr>
<td>บุ้งบั้งไก่สาระ</td>
<td>Tonic</td>
</tr>
<tr>
<td>บุ้งบั้งไก่สาระ</td>
<td>Sialogogue</td>
</tr>
</tbody>
</table>

9. **Ferula asafoetida**

<table>
<thead>
<tr>
<th>Part</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stem</td>
<td>Stimulant</td>
</tr>
<tr>
<td>Root</td>
<td>Carminative</td>
</tr>
<tr>
<td>Seed</td>
<td>Sedative</td>
</tr>
<tr>
<td>Fruit</td>
<td>Expectorant</td>
</tr>
<tr>
<td>Leaf</td>
<td>Laxative</td>
</tr>
<tr>
<td>Root</td>
<td>Anthelmintic</td>
</tr>
<tr>
<td>Root</td>
<td>Diuretic</td>
</tr>
<tr>
<td>Root</td>
<td>Aphrodisiac</td>
</tr>
<tr>
<td>Fruit</td>
<td>Emmenogogue</td>
</tr>
</tbody>
</table>

10. **Acorus Calamus**

<table>
<thead>
<tr>
<th>Part</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stem</td>
<td>Stimulant</td>
</tr>
<tr>
<td>Root</td>
<td>Stomachic</td>
</tr>
<tr>
<td>Seed</td>
<td>Antiperiodic</td>
</tr>
<tr>
<td>Seed</td>
<td>Carminative</td>
</tr>
<tr>
<td>Seed</td>
<td>Nauseant</td>
</tr>
<tr>
<td>Leaf</td>
<td>Stomachic</td>
</tr>
<tr>
<td>Leaf</td>
<td>Antiperiodic</td>
</tr>
<tr>
<td>Leaf</td>
<td>Carminative</td>
</tr>
<tr>
<td>Leaf</td>
<td>Nauseant</td>
</tr>
</tbody>
</table>

132
11. Brassica Juncea

- Emetic
- Dis infectant
- Germicide

12. Saccharum Officinarum

- Antiseptic
- Demulcent

13. Sodii Chloridum, Sodium Chloride

Common Salt, Table Salt
134

14. செய்யல்

Sodii Chloridum Impura
Sodium Chloride Impura

சொலைப்பாடுகள் - சுருக்கம், சிறிய விளைவு, மிகுந்த விளைவு
பிக்ஸ்ங் விளைவு, சுருக்கம் 

சமைக்கும் - டம்புள் 3 போசன் ஆர்மிட்டின் காபி
குருப்பிட்டின் சொந்தக் கந்தகப் 

புள்ளிக்

கார்மினேயின் அதிகரிகை - Carminative
சிபைறின்பாந்தரிக்கை - Diuretic
பிக்ஸ்ங் விளைவு - Stomachic

புள்ளிக் 

அரைந்து மாற்று விளைணைகளை சுருக்கின
மங்கள் தம்புள் பாதுகாப்பு விளையாடும் கார்பான்
டம்புள் போசன் விளையாடும் கார்பான்
மறை முறை விளையாடும் முறை.
EXTERNAL MEDICINE

(கருநாயகி அதைப்புக்கிளைச் சிட்டா குறிப்பிட்டம்)

பக்கம் தொகு - 428

1. (Phaseiow Radiata)

<table>
<thead>
<tr>
<th>பாதுகாப்பு</th>
<th>வகையான பாதுகாப்பு</th>
<th>கலத்து ரைது குறிப்பிட்டம்</th>
<th>கையல் குழு குழுப்பு குழுப்பு</th>
<th>கையல் முழு கையல்</th>
<th>கையல் முழு கையல்</th>
</tr>
</thead>
<tbody>
<tr>
<td>256 நிறை</td>
<td>64 நிறை</td>
<td>4 பால்</td>
<td>64 நிறை</td>
<td>4 பால்</td>
<td>64 நிறை</td>
</tr>
</tbody>
</table>
2. **Pimpinella anisum**

- **Carminative**

3. **Alpinia Officinarum**

- **Expectorant**
  - **Febrifuge**
  - **Stomachic**

4. **Glycyrrhiza glabra**

- **Demulcent**
- **Refrigent**
- **Aphrodisiac**
- **Lactogogue**
- **Tonic**
- **Nutrient**
1. கொடுமை -  திருப்பு
2. குழுக்கொடுமை -  குழு
3. பிரிப்பு -  திருப்பு

மருத்துவத்தில்:

- புருகருநிலைக்கான -  Emollient
- காற்றுருநிலைக்கான -  Demulcent
- மிளைவுருநிலைக்கான -  Mild Expectorant
- தோற்கொண்டுமருத்து -  Laxative

5. பவோனியா (Pavonia Zeylanica)

- பவோனியா கொடுமை -  பவோனியா ஓலை, பவோனியா ஓலை
- பவோனியா பூமிப குழு -  பவோனியா ஓலை
- பவோனியா தொட்டும குழு -  பவோனியா ஓலை
- பவோனியா பிரிப்பு -  பவோனியா ஓலை

மருத்துவத்தில்:

- பவோனியா ஓலைக்கான -  Emollient

6. சங்கை (Zingiber officinalis)

- சங்கை கொடுமை -  சங்கை ஓலை, சங்கை ஓலை, சங்கை ஓலை, சங்கைக்களைக்கு
- சங்கை பூமிப குழு -  சங்கை ஓலை
- சங்கை தொட்டும குழு -  சங்கை ஓலை
- சங்கை பிரிப்பு -  சங்கை

மருத்துவத்தில்:

- சங்கை ஓலைக்கான -  Stimulant
- சங்கை ஓலைக்கான -  Stomachic
- சங்கை ஓலைக்கான -  Carminative
7. **Bhagavathi** (Piper nigrum)

<table>
<thead>
<tr>
<th>Tamil</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>வெளைபுராணத்தல்</td>
<td>Carminative, Anti Periodic</td>
</tr>
<tr>
<td>பானலுப்பு குளிப்பு</td>
<td>Stimulant</td>
</tr>
<tr>
<td>குரோம</td>
<td>Acrid</td>
</tr>
<tr>
<td>குரோமப்</td>
<td>Rubefacient</td>
</tr>
<tr>
<td>குரோமக்</td>
<td>Resolvent</td>
</tr>
<tr>
<td>முதிதைக்</td>
<td>Antivatha</td>
</tr>
</tbody>
</table>

8. **Thirupathi** - (Piper longum)

<table>
<thead>
<tr>
<th>Tamil</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>வெளைபுராணத்தல்</td>
<td>Carminative, Anti Periodic</td>
</tr>
<tr>
<td>பானலுப்பு குளிப்பு</td>
<td>Stimulant</td>
</tr>
<tr>
<td>குரோம</td>
<td>Acrid</td>
</tr>
<tr>
<td>குரோமப்</td>
<td>Rubefacient</td>
</tr>
<tr>
<td>குரோமக்</td>
<td>Resolvent</td>
</tr>
<tr>
<td>முதிதைக்</td>
<td>Antivatha</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tamil</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>வெளைபுராணத்தல்</td>
<td>Carminative</td>
</tr>
<tr>
<td>பானலுப்பு குளிப்பு</td>
<td>Stimulant</td>
</tr>
</tbody>
</table>
9. त्रिबुलस तेरेसिस (Tribulus Terrestris)

<table>
<thead>
<tr>
<th>Part/Name</th>
<th>English Equivalent</th>
<th>Hindi Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>-mouth</td>
<td>Refrigerant</td>
<td>नरगुंडा - तरलकारक</td>
</tr>
<tr>
<td>roots</td>
<td>Diuretic</td>
<td>विनेत्रमुक्ति - नरगुंडा</td>
</tr>
<tr>
<td>flowers</td>
<td>Demulcent</td>
<td>त्रिबुलस तेरेसिस - नरगुंडा</td>
</tr>
<tr>
<td>stem</td>
<td>Tonic</td>
<td>त्रिबुलस तेरेसिस - तरलकारक</td>
</tr>
</tbody>
</table>

10. गिंगेल्ली ऑयल (Gingelly Oil)

<table>
<thead>
<tr>
<th>Part/Name</th>
<th>English Equivalent</th>
<th>Hindi Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>flowers</td>
<td>Demulcent</td>
<td>गिंगेल्ली ऑयल - नरगुंडा</td>
</tr>
<tr>
<td>seeds</td>
<td>Laxative</td>
<td>गिंगेल्ली ऑयल - नरगुंडा</td>
</tr>
<tr>
<td>kernels</td>
<td>Nutrient</td>
<td>गिंगेल्ली ऑयल - तरलकारक</td>
</tr>
<tr>
<td>oil</td>
<td>Emollient</td>
<td>गिंगेल्ली ऑयल - नरगुंडा</td>
</tr>
</tbody>
</table>
ANNEXURE- II
BIO – CHEMICAL ANALYSIS OF AGNI CHOORANAM

PREPARATION OF THE EXTRACT

5gms of chooram was weighed accurately and placed in a 250 ml clean beaker. Then 50 ml distilled water is added and dissolved well. Then it is boiled well for about 10 minutes. It was cooled and filtered in a 100 ml volumetric flask and then it is made up to 100 ml with distilled water. This fluid is taken for analysis.

Qualitative Analysis

<table>
<thead>
<tr>
<th>S.no</th>
<th>Experiment</th>
<th>Observation</th>
<th>Inference</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. Add 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 the presence 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 the presence of chloride.</td>
</tr>
<tr>
<td></td>
<td>The extract is treated with silver nitrate solution.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>TEST FOR CARBONATE</td>
<td>No brisk effervescence is formed.</td>
<td>Absence of carbonate.</td>
</tr>
<tr>
<td></td>
<td>The substance is treated with concentrated HCL.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TEST FOR STARCH</strong></td>
<td>No blue colour is formed</td>
<td>Absence of starch</td>
</tr>
<tr>
<td>---</td>
<td>---------------------</td>
<td>--------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td></td>
<td>The extract is added with weak iodine solution</td>
<td>No blue colour is formed</td>
<td>Absence of ferrous iron.</td>
</tr>
<tr>
<td>5.</td>
<td><strong>TEST FOR IRON</strong></td>
<td>Blood red colour is formed.</td>
<td>Indicates the presence of ferrous Iron in sorace</td>
</tr>
<tr>
<td>FERRIC:</td>
<td>The extract is treated with glacial acid and potassium ferro cyanide.</td>
<td>No yellow precipitate is formed.</td>
<td>Absence of phosphate.</td>
</tr>
<tr>
<td>6.</td>
<td><strong>TEST OF IRON</strong></td>
<td>Blood red colour is formed.</td>
<td>Indicates the presence of ferrous Iron in sorace</td>
</tr>
<tr>
<td>FERROUS:</td>
<td>The extract is treated with concentrated Nitric acid and ammonium thio cyanate.</td>
<td>Blood red colour is formed.</td>
<td>Indicates the presence of ferrous Iron in sorace</td>
</tr>
<tr>
<td>7.</td>
<td><strong>TEST FOR PHOSPHATE</strong></td>
<td>No Yellow precipitate is formed.</td>
<td>Absence of phosphate.</td>
</tr>
<tr>
<td>The extract is treated with ammonium molybdate and concentrated nitric acid.</td>
<td>No Yellow precipitate is formed.</td>
<td>Absence of phosphate.</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td><strong>TEST FOR TANNIC ACID</strong></td>
<td>No blue black precipitate is formed.</td>
<td>Absence of Tannic acid.</td>
</tr>
<tr>
<td>The extract is treated with ferric chloride</td>
<td>No blue black precipitate is formed.</td>
<td>Absence of Tannic acid.</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td><strong>TEST FOR ALBUMIN</strong></td>
<td>No yellow black precipitate is formed.</td>
<td>Absence of albumin.</td>
</tr>
<tr>
<td>The extract is treated with Esbach’s reagent</td>
<td>No yellow black precipitate is formed.</td>
<td>Absence of albumin.</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td><strong>TEST FOR UNSATURATION</strong></td>
<td>It gets decolourised.</td>
<td>Indicate the Presence of unsaturated compound.</td>
</tr>
<tr>
<td>Potassium permanganate solution is added to the extract.</td>
<td>It gets decolourised.</td>
<td>Indicate the Presence of unsaturated compound.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TEST FOR THE REDUCING SUGAR</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---------------------------------</td>
<td>---</td>
<td>---</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>No colour change occurs.</td>
<td>Absence of reducing sugar.</td>
</tr>
<tr>
<td>13.</td>
<td><strong>TEST FOR AMINO ACID:</strong></td>
<td></td>
<td></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>Violet colour is formed.</td>
<td>Indicate the Presence of Amino acid</td>
</tr>
<tr>
<td>14.</td>
<td><strong>TEST FOR MERCUREY:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The extract is treated with ammonia and boil (fill the ammonia aeses off) and then potassium Iodide is (Iv.coln) added</td>
<td>A scarlet Precipitate Is formed</td>
<td>It indicates The presence Of mercury</td>
</tr>
</tbody>
</table>
ANNEXURE – III
PHARMACOLOGICAL ANALYSIS
ACUTE ANTI-INFLAMMATORY STUDIES ON AGANI CHOORNAM

Aim
To study the acute anti-inflammatory effect on Agni Choornam

Preparation of trial medicine
1gm of the Agni Choornam was taken and dissolved in 10ml of hot water. A dose of 1ml was given to each rat. This 1ml contains 100mg of the trial medicine.

Procedure
The anti-inflammatory activity of Agni Choornam was studied in healthy albino rats weighing 100-150gms. Nine rats were collected and divided into three groups each containing three rats.

First group was kept controlled by giving distilled water of 2ml/100gm of body weight. The second group was given Ibuprofen as dose of 20mg/100gm of body weight. The third group received the trial medicine Agni Choornam of 200mg/100gm of body weight.

Before administration of trial medicine, the hindpaw volume of all rats were measured. This was done by dipping the hindpaw upto tibiotalarsal junction, into mercury plethysmography. While dipping the hindpaw, by pulling the Syringe piston, the level of mercury in the center small tube was made to coinside with red marking and reading was noted from the plethysmograph.

Soon after the measurement, the medicines were administered orally. One hour later, a subcutaneous injection of 0.1ml of 1% (W/V) carrageen in water was made into plantar surface of both hind paw of each rat.
Three hours after carrageenin injection, hindpaw volume was measured once again. The difference between the initial and final volume was calculated and compared.

This method is more suitable for studying the anti-inflammatory activity in acute inflammation. The values are given in the table.

**Effect of AGNI CHOORNAM:**

<table>
<thead>
<tr>
<th>Group</th>
<th>Dose/100gm Body weight</th>
<th>Initial Reading In secs</th>
<th>Final Readings</th>
<th>Mean Difference</th>
<th>% of inflammation</th>
<th>% of inhibition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Water</td>
<td>2 ml</td>
<td>0.55</td>
<td>1.4</td>
<td>0.85</td>
<td>100</td>
<td>NIL</td>
</tr>
<tr>
<td>Standard Ibuprofen</td>
<td>20 mg</td>
<td>0.55</td>
<td>0.85</td>
<td>0.3</td>
<td>35.2</td>
<td>64.8</td>
</tr>
<tr>
<td>Agni Choornam</td>
<td>200 mg</td>
<td>0.5</td>
<td>0.7</td>
<td>0.2</td>
<td>23.5</td>
<td>76.5</td>
</tr>
</tbody>
</table>

**Result:**

From the above experiment it was concluded that the Agni Choornam has **significant** acute anti inflammatory action.
CHRONIC ANTI-INFLAMMATORY ACTIVITY ON RATS
BY COTTON – PELLETS GRANULOMA METHOD

Aim

To study the chronic anti-inflammatory activity of the medicine Agni Choornam in the rats by cotton pellets implantation (granuloma) methods.

Preparation of the trial medicine:

1gm of Agni Choornam was taken and dissolved in 10ml of hot water. A dose of 1ml was given to each rat. This 1ml contains 100mg of the trial medicine.

Procedure:

Cotton pellets each weighing 10mg were prepared and sterilised in the autoclave for about one hour under 5 pounds atmospheric pressure. Nine albino rats weighing 150-200gms were selected and divided into 3 groups each containing 3 rats. Each rat was anaesthetised with ether and cotton pellets were implanted subcutaneously in the groin two on each side.

From the day of implantation a group of animals received Agni Choornam in a dose of 200mg/100gm of body weight. The standard group of animals received ibuprofen in a dose of 20mg/100gm of body weight.

On the eighth day the rats were sacrificed and the pellets were removed, dried to concordant weight and weighed. They were put in an incubator at 60-80^0c and then the weight of the granulation tissue was determined separately.
Effect of Agni Choornam:

<table>
<thead>
<tr>
<th>Group</th>
<th>Dose/100gm of body weight</th>
<th>Pellet Weight</th>
<th>Pellet weight of granuloma of medicines</th>
<th>Percentage inflammation</th>
<th>Percentage inhibition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control (Water)</td>
<td>2ml</td>
<td>10mg</td>
<td>250mg</td>
<td>100%</td>
<td>NIL</td>
</tr>
<tr>
<td>Standard (Ibubrufen)</td>
<td>20mg</td>
<td>10mg</td>
<td>56mg</td>
<td>22.4</td>
<td>77.6</td>
</tr>
<tr>
<td>Agni Choornam</td>
<td>200mg</td>
<td>10mg</td>
<td>100mg</td>
<td>40</td>
<td>60</td>
</tr>
</tbody>
</table>

Result:

From the above experiment it was concluded that the Agni Choornam has **significant** chronic anti inflammatory action.
ANALGESIC STUDY ON AGNI CHOORNAM
(In Albino rats by hot water bath method)

Aim
To study the analgesic effect of Agni Choornam

Preparation of the trial medicine
1 gm of Agni Choornam was taken and dissolved in 10 ml of the hot water. A dose of 1 ml was given to each rat.

Procedure
Three groups of healthy albino rats on both sexes were selected. Each group having 3 rats, weighing between 100 to 150 gm. The hot water bath was maintained at the temperature of 55°C.

The tail was dipped into the bath, and the time taken for each rat to remove its tail from the hot water bath was noted. The rat which taken more than 5 sec for removal of its tail from hot water bath was excluded from the experiment.

First group was kept controlled by giving distilled water of 1 ml per 100 mg of body weight.

The second group was given paracetamol 20 mg per 100 mg of body weight.

The third group was given trial medicine.

30 minutes after Medicines administration, the tail of each rat was dipped into hot water bath one by one. The time taken for each rat to remove its tail was noted. The whole experiment was repeated after 30 minutes.

The results of control, standard and trial medicine groups were tabulated and compared.
## Effect of Agni Choornam

<table>
<thead>
<tr>
<th>S.No</th>
<th>Groups</th>
<th>Dose/100gm Body weight</th>
<th>Initial reading</th>
<th>After Medicines Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>After 1/2 hr</td>
</tr>
<tr>
<td>1.</td>
<td>Control (water)</td>
<td>2ml</td>
<td>2 secs</td>
<td>2.5 secs</td>
</tr>
<tr>
<td>2.</td>
<td>Std (Paracetamol)</td>
<td>20mg</td>
<td>2 secs</td>
<td>5.5</td>
</tr>
<tr>
<td>3.</td>
<td>Agni Choornam</td>
<td>200 mg</td>
<td>2secs</td>
<td>3.5 secs</td>
</tr>
</tbody>
</table>

### Inference

It is observed that Agni Choornam has **significant** analgesic action.
ANTIPYRETIC STUDY OF AGNI CHOORNAM

Aim

To study the antipyretic activity of Agni Choornam

Procedure

Nine albino rats were selected and divided equally into 3 groups. All the rats were made hyperthermic by subcutaneous injection of 12% suspension of yeast at a dose of 1ml/100gm of the body weight. 10 hours later one group was given distilled water by gastric tube at a dose of 1ml and kept as control. The second group was received the standard drug paracetamol at a dose of 20mg/ml. The third group was given the test medicine at a dose of 100mg/ml.

The mean rectal temperature for the 3 groups were recorded at 0’ hour, 1 ½ hours, 3 hours and 4 ½ hours after the drug administration. The difference between the mean temperature of the control, standard and test drug groups was measured.

Tabulation of the results were recorded.

Tabulation of results obtained

<table>
<thead>
<tr>
<th>Medicines</th>
<th>Dose/100gm Body weight</th>
<th>Initial temp</th>
<th>After 1½ hour</th>
<th>After 3 hours</th>
<th>After 4 ½ hours</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control (Water)</td>
<td>1ml</td>
<td>36.0</td>
<td>36.0</td>
<td>36.0</td>
<td>37.0</td>
<td>38.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>37.0’</td>
<td>37.0</td>
<td>36.0</td>
<td>39.0</td>
<td></td>
</tr>
<tr>
<td>Standard (Paracetamol)</td>
<td>20 mg</td>
<td>37.0</td>
<td>37.0</td>
<td>36.5</td>
<td>35.0</td>
<td>34.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>38.0</td>
<td>37.0</td>
<td>36.5</td>
<td>34.0</td>
<td></td>
</tr>
<tr>
<td>Agni Choornam</td>
<td>200mg</td>
<td>38.0</td>
<td>37.0</td>
<td>36.5</td>
<td>36.0</td>
<td>35.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>37.0</td>
<td>37.0</td>
<td>36.0</td>
<td>35.0</td>
<td></td>
</tr>
</tbody>
</table>

Inference:

From the above experiment it was concluded that the Agni Choornam has **significant** antipyretic action.
ACUTE ANTI-INFLAMMATORY STUDIES ON MAASHA THYLAM

Aim

To study the acute anti inflammatory effect on Maasha thylam.

Procedure

The anti inflammatory activity of Maasha thylam was studied in healthy albinorats weighing 100-150gms. Nine rats were selected and divided into three groups each containing three rats.

The first group was applied with distilled water 2 ml externally and was kept as control. The second group was applied with ibuprofen gel externally. The third group was applied with the trial medicine externally for once in 15 min for 2 hours.

Before applications of the medicine, the hind paw up to the tibiotarsal junction is dipped in a mercury plethysmography. While dipping the hindpaw by pulling the syringe piston, the level of mercury in the center small tube was made to coincide with red marking and reading was noted from the plethysmograph.

Subcutaneous injection of 0.1ml W/V of carrageenin in water and injected in to plantar surface of both the hindpaw of each rat. Then the trial medicine is painted on the hindpaw once in 15min for 2 hours. Two hours after injection, the hindpaw volume was measured once again. The difference between the initial and final volumes would show the amount of inflammation. Taking the volume in the control group as inflammation or anti inflammatory effect of the medicine was calculated. Tabulations of the results were recorded.
<table>
<thead>
<tr>
<th>Group</th>
<th>Dose/100gm Body weight</th>
<th>Initial Reading In secs</th>
<th>Final Readings</th>
<th>Mean Difference</th>
<th>% of inflammation</th>
<th>% of inhibition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Water Water</td>
<td>2 ml</td>
<td>0.55</td>
<td>1.4</td>
<td>0.85</td>
<td>100</td>
<td>NIL</td>
</tr>
<tr>
<td>Standard Ibuprofen</td>
<td>20 mg</td>
<td>0.55</td>
<td>0.85</td>
<td>0.3</td>
<td>35.2</td>
<td>64.8</td>
</tr>
<tr>
<td>Maasha thylam</td>
<td>External</td>
<td>0.5</td>
<td>0.8</td>
<td>0.3</td>
<td>35.2</td>
<td>64.8</td>
</tr>
</tbody>
</table>

**Result:**

From the above experiment it was concluded that the Maasha thylam has **significant** acute anti inflammatory action.
ANNEXURE-IV

GOVERNMENT SIDDHA MEDICAL COLLEGE AND HOSPITAL

POST GRADUATE RESEARCH CENTRE

PALAYAMKOTTAI

TIRUNELVELI - 627002

Branch I Maruthuvam (Pothu)

CASE SHEET FOR “SAGANA VADHAM”

I.P. No     :    Occupation  :
Bed No      :    Income     :
Ward        :    Nationality :
Name        :    Religion    :
Age         :    Date of admission :
Sex         :    Date of discharge :
Permanent   Diagnosis :
Address     :
Temporary   Address :
Medical officer :

COMPLAINTS AND DURATION:

HISTORY OF PRESENT ILLNESS:

HISTORY OF PAST ILLNESS:

PERSONAL HISTORY:
(Including Habit)

FAMILY HISTORY:
GENERAL EXAMINATION:

Consciousness : 
Stature : 
Nutrition : 
Facies : 
Temperature : 
Pulse Rate : 
Respiratory Rate : 
Heart Rate : 
Blood Pressure : 
Pallor : 
Clubbing : 
Jaundice : 
Lymphadenopathy : 
JVP : 
Engorged Veins : 
Koilonychia : 
Pedal Odema : 
Cynanosis : 
Fasciculations : 
  Congenital anamoly (if any) 
  Premature cataract Yes / No 
  Miscellaneous : 

Clinical Examination – Siddha Aspects 

Nilam : 
Paruvakalam : 
Udal Nilai : 
Gunam : 

153
Pori Pulangal

Mei - Sensation :
Vai - Taste :
Kan - Sight :
Mookku - Smell :
Sevi - Hearing :

Kanmendriyam / Kanma Vidayam

Kai - Dhanam :
Kal - Kamanam :
Vaai - Vasanam :
Eruvai - Visarkam :
Karuvai - Anantham :

Utkaya / Athakayam

Puyam - Fore arm :
Sayam - Arm :
Kaal - Leg :
Paatham - Feet :

Mummalam

Malam :
Moothiram :
Viyarvai :

UL Uruppukalin Nilai

Moolai :
Iruthayam :
Puppusam :
Eraippai :
Kalleeral :
Manneeral :
Kudal :
Siruneeragam : 
Siruneerpai : 
Karuppai : 

Uyir Thathukkal

1. Vatham
   Pranan : 
   Abaanann : 
   Viyaanan : 
   Uthaanan : 
   Naagan : 
   Koorman : 
   Kirukaran : 
   Dhevathathan : 
   Dhananjeyan : 

2. Pitham
   Anar pitham : 
   Ranjaga Pitham : 
   Saathaga Pitham : 
   Alosaga Pitham : 
   Piraasaga Pitham : 

3. Kabham
   Avalambagam : 
   Klethagam : 
   Pothagam : 
   Tharpagam : 
   Santhigam : 


Udal Thathukkal
Saaram :
Senneer :
Oon :
Kozhuppu :
Enbu :
Moolai :
Sukkilam / Suronitham :

Envagai Thervugal
Naadi :
Naa :
Niram :
Mozhi :
Vizhi :
Sparisam :

Malam
Niram :
Edai :
Elagal :
Erugal :

Moothiram
Neerkuri
Niram :
Edai :
Manam :
Nurai :
Enjal :

Neikuri
Modern Aspects

Systemic Examination – Locomotor System

Examination of the spine and its joints

A) Inspection
   1. Skin over the vertebrae :
   2. Attitude and deformity :
   3. Muscular wasting :
   4. Trophic changes :
   5. Swelling :
   6. Fasciculations :
   7. Gait :

B) Palpation
   1. Local Temperature :
   2. Tenderness :
   3. Rigidity and Deformity :
   4. Wasting :
   5. Swelling :
      Position :
      Extend :
      Consistency :
      Fluctuation :
   6. Lymphadenopathy :
   7. Cold abscess :
      In Join :
      In Abdomen :
      In Cervical region :

C) Movements
   1. Painful / Not painful :
2. Restricted / Not Restricted

3. Excess mobility in any direction present / not present

4. Movements of head
   i) Rotation
      (Atlanto axial joint C1-C2)
   ii) Flexation
   iii) Extension
   iv) Lateral bending
      (Dorsal, Cervical region)
   v) Nodding

Examination of peripheral nerves

1. Cutaneous areas of distribution of spinal segments and the peripheral nerves
   Examination of other system
   Central nervous system
   Cranial nerves

Motor System
   Nutrition
   Tone
   Power
   Co-ordination
   Involuntary movement

Sensory System

Reflexes
   Superficial reflexes
   Corneal
   Conjuctival
   Abdominal
Cremasteric : 
Plantar : 
Palatal : 
Pharyngeal : 

Deep tendon reflexes
Jaw jerk : 
Biceps : 
Triceps : 
Supinator : 
Knee jerk : 
Ankle jerk : 
Clonus :
  Petallar :
  Ankle :
Cranium and Spine :

Laboratory Investigations

Blood :
TC : 
DC : 
ESR : 
Hb% : 
Serum Cholestrol : 
Sugar : 
Urea :

Urine
Albumin : 
Sugar : 
Deposists : 

Motion
Ova : 
Cyst :

X – ray
Cervical spine :
**GOVERNMENT SIDDHA MEDICAL COLLEGE & HOSPITAL, PALAYAMKOTTAI**

**DEPARTMENT OF POST GRADUATE - POTHU MARUTHUVAM**

**DISCHARGE CASE SHEET PROFORMA FOR - ‘SAGANAVATHAM’**

<table>
<thead>
<tr>
<th>I.P.No</th>
<th>Occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bed No</td>
<td>Income</td>
</tr>
<tr>
<td>Ward No</td>
<td>Nationality</td>
</tr>
<tr>
<td>Name</td>
<td>Religion</td>
</tr>
<tr>
<td>Age/Sex</td>
<td>Date of Admission</td>
</tr>
<tr>
<td>Address</td>
<td>Date of Discharge</td>
</tr>
<tr>
<td></td>
<td>Diagnosis</td>
</tr>
<tr>
<td></td>
<td>No.of.Days treated</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Important Signs and Symptoms of Sagana Vatham</th>
<th>During Admission</th>
<th>During Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pain in the neck</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Stiffness in the neck</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Pain in the upper limbs</td>
<td></td>
<td></td>
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<tr>
<td>4.</td>
<td>Radiating pain in the chest</td>
<td></td>
<td></td>
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<tr>
<td>5.</td>
<td>Head ache</td>
<td></td>
<td></td>
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<tr>
<td>6.</td>
<td>Giddiness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Tingling sensation</td>
<td></td>
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<tr>
<td>8.</td>
<td>Numbness</td>
<td></td>
<td></td>
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<tr>
<td>9.</td>
<td>Muscular Wasting</td>
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<td></td>
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<tr>
<td>10.</td>
<td>Constipation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Feeling of heaviness of the body</td>
<td></td>
<td></td>
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<tr>
<td>12.</td>
<td>Burning Sensation of the eyes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Weakness of the upper limbs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Mental depression</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

+  =  Symptoms present  
-  =  Symptoms relieved

Signature of Medical Officer
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Graph showing clinical manifestations

1. Pain in the neck
2. Stiffness in the neck
3. Radiating pain in the upper limb
4. Head ache
5. Giddiness
6. Tingling Sensation
7. Numbness
8. Constipation
9. Feeling the heaviness of the body
10. Burning sensation of the eyes
11. Weakness of the upper limbs
12. Mental depression
GRAPH SHOWING VATHA REFERENCE

GRAPH SHOWING PITHA REFERENCE
GRAPH SHOWING ENVAGAI THERVUGAL

GRAPH SHOWING RESULTS