

A STUDY ON
SAGANA VATHAM

Dissertation submitted to

THE TAMILNADU DR. M.G.R MEDICAL UNIVERSITY

Chennai-32

For the partial fulfillment of the requirements to the Degree for

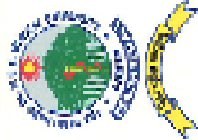
DOCTOR OF MEDICINE (SIDDHA)

(Branch I – Pothu Maruthuvam)



DEPARTMENT OF POTHU MARUTHUVAM
GOVERNMENT SIDDHA MEDICAL COLLEGE
PALAYAMKOTTAI – 627 002.

APRIL – 2013



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CERTIFICATE OF PARTICIPATION

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“Research Methodology & Biostatistics” for AYUSH Post Graduates &

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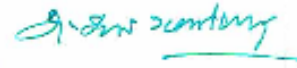

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ACKNOWLEDGEMENT

I am extremely grateful to my Lord almighty that empowered me with his blessings and grace to finish my dissertation work successfully.

My soulful thanks to my Parents who gave me moral support to complete this project successfully.

I take this opportunity to express gratitude and acknowledgement to the **Vice-Chancellor, the Tamilnadu Dr. M.G.R. Medical University**, Chennai, **The Commissioner, Director of Indian Medicine and Homeopathy**, Chennai and joint Director of Indian Medicine and Homeopathy Chennai.

I express my thank to our principal Prof. **Dr.N. Chandra Mohan Dass M.D. (S)**, and Vice principal Prof. **Dr.S. Soundara Rajan M.D. (s)**, Government Siddha Medicine College, Palayamkottai for providing all necessary facilities for my work.

I express my deep sense of gratitude to **Dr.S. Mohan M.D(s)** Professor and head of the Department of PG Pothu Maruthuvam, Government Siddha Medical College, Palayamkottai for his valuable guidance and suggestion in caring out my dissertation.

I express my sincere thanks to **Dr.A. Manoharan M.D. (s)** Reader, PG Pothu Maruthuvam, Government Siddha Medical College, Palayamkottai for his kind and affectionate encouragement to my work.

I am very grateful to **Dr.S. Justus Antony M.D(s)**, Assistant Lecturer, Department of Post Graduate Pothu Maruthuvam, Govt. Siddha Medical College, Palayamkottai for giving encouragement and valuable suggestions for my dissertation work.

I record my deep sense of gratitude to Professor **Dr. V. Neela Kandan M.B.B.S; MD (Internal Medicine)**, Modern Medicine, Government Siddha Medical College, Palayamkottai for his valuable guidance in modern aspects.

I acknowledge my thanks to **Mr. M.Kalaivanan M.Sc; M.Phill;** Lecture, Modern Pharmacology Department, Government Siddha Medical College, Palayamkottai for their help during the entire course of my work.

I also thanks to **Mrs.N. Nagaprema M.Sc; M.Phill;** Lecturer Head of the Department and all the staffs of Department of Biochemistry, for their help in Biochemical analysis for this work.

I wish to thank all the faculties especially librarians and lab technicians, Government Siddha Medical College, Palayamkottai for their whole support.

. My deep sense of gratitude towards my dear friends for their timely help associated with this project.

And my great thanks to **Broad-Band Net Cafe** for their sincere and kind cooperation to complete this work successfully.

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INTRODUCTION

SAGANA VATHAM is a very common joint disorder which occurs in the middle and later decades of life. It is one among the 80 types of vatha diseases described by Yugi which affects the musculoskeletal system of the body. In modern surgery, **SAGANA VATHAM** simulates **Cervical spondylosis** which is a degenerative condition of the cervical spine.

The effects of aging becomes visible in all types of tissues in the body. Vertebral column which facilitates erect posture in human is not an exception. Cervical spondylosis is primarily an age related degenerative disorder of intervertebral disc and bodies of the cervical spine. It commonly occurs at the lowest 3 cervical vertebral joint. But the most common site is at the level of C5-C6.

The condition usually starts after the age of 40 and continues to progress as you age. Around the age of 50, 20-50% of the people and at 75 years of age at least 70% of the people develop Cervical spondylosis. Men tend to develop Cervical spondylosis at an earlier age than women. Male to female ratio is 3:1. In males the prevalence is 100% by 70 years of age, 96% in women older than 70 years. 60 to 70% of women and 85% of men show changes of Cervical spondylosis by the age of 45.

Though Cervical spondylosis is common in geriatric age group, repeated trauma to the cervical spine related to specific occupations like carrying axial loads, typing, computer operations, desk work jobs etc play an important role in producing Cervical spondylosis even at lesser age groups.

With age, osteophytes form on vertebral bodies. It's the body's way of attempting to increase the surface area and stabilize the hypermobile vertebral joint. As a result, the bone spurs can become painful when they put pressure over the spinal nerves and in some cases, the spinal cord. This pressure often produces weakness, numbness and or incontinence of either the bowel or bladder.

Nowadays, joint disorder is one of the main causes of distress after third decade. Though modern medicine provides powerful analgesics and new surgical procedures, because of the side effects of analgesic drugs and complications of surgical procedures, this disease is remaining challenge for research scholars. In Siddha literature, several formulations have been indicated for the treatment of Vatha diseases. One among them is **Vengara Sanjeevi Chendura Mathirai**. It contains various ingredients which pacifies the vitiated vatham. Thus by considering all these factors, the study has been conducted to evaluate the efficacy of **Vengara Sanjeevi Chendura Mathirai** in the treatment of **SAGANA VATHAM**.

AIM OF THE STUDY

To evaluate the clinical efficacy of the trial drug **Vengara Sanjeevi Chendura Mathirai** in the treatment of **Sagana Vatham**(cervical spondylosis) .

Objectives:

- To analyse **Sagana Vatham** in view of its etiology, pathophysiology & symptoms as said in our literature.
- To analyse **Cervical spondylosis** in relation with **Sagana Vatham**.
- To have a literary review about **Sagana Vatham**.
- To utilize both siddha and modern parameters in the diagnostic purpose of the disease.
- To analyse the trial drug biochemically and pharmacologically.
- To find out the side effects of the drug if any.

ABSTRACT

Neck pain is one of the most common clinical symptom that one encounters in day to day life. Its etiology varies widely like professionally adopted inappropriate posture, neck injury, age related degenerative changes etc. **SAGANA VATHAM** is one among the 80 types of vatha diseases, as described by the siddhar Yugi. This disease affects the neck & upper extremities with its signs and symptoms like that of **Cervical Spondylosis**.

Vengara Sanjeevi Chendura Mathirai is a formulation mentioned in Brahmamuni Vaithya Soothiram Part II, which finds an indication for vatha diseases. Therefore it was desired to evaluate the efficacy of **Vengara Sanjeevi Chendura Mathirai** in the treatment of **SAGANA VATHAM**. The trial drug was subjected to biochemical and pharmacological analysis. 20 OP and 20 IP patients of both sexes were selected. They were administered with the trial drug. At the end of the study, majority of the cases showed good response.

SIDDHA ASPECT

All functions of the body is governed by 3 distinct humours known as Vatham, Pitham and Kabam. In a healthy individual, these 3 humors are held in the ratio 1: ½ : ¼ . When the mutual harmony of the 3 humors is disturbed they bring about ill health.

“மிகினும் குறையினும் நோய் செய்யும் நூலோர்
வளிமுதலா எண்ணிய மூன்று”

- திருவள்ளுவர்

Based on this theory, the disorders of various systems are classified as Vatha, Pitha and Kaba diseases. SAGANA VATHAM is one among the 80 types of Vatha diseases described by Yugi in his Yugi Vaithya Chinthamani 800.

AETIOLOGY

The aetiological factors which aggravate vatha diseases are the most common causes of Sagana Vatham. These factors which are explained by various authors are as follows.

a. By Yugi Vaithya Chindhamani - 800”

“என்னவே வாதந்தா னெண்பதாகும்

இகத்திதே மனிதர்களுக் கெய்யுமாறு

பின்னவே பென்தனைய சேரஞ்செய்து

பெரியோர்கள் பிராமணரைத் தூடணித்தும்

வன்னதேவற் சொத்திற் சேரஞ்செய்து

மாதா பிதா குருவை மறந்த பேர்க்கும்

கன்னவே வேதத்தை நிந்தை செய்தால்

காயத்திற் கலந்திடுமே வாதந் தானே”

- யூகி வைத்திய சிந்தாமணி பாடல் - 243

“தானென்ற கசப்போடு துவர்ப்புறைப்பு

சாதகமாய் நெஞ்சுகினுஞ் சமைத்த வன்னம்

ஆனென்ற வானினது புசித்தலாலும்

ஆகாயத் தேறலது குடித்த லாலும்

பானென்ற பகலுறக்க மிரா விழிப்பு

பட்டினியே மிகவறுதல் பாரமெய்தல்

தேனென்ற மொழியாந்மேற் சிந்தையாதல்

சீக்கிரமாய் வாதமது செனிக்குந் தானே”

- யூகி வைத்திய சிந்தாமணி பாடல் - 244

“வாதவர்த்தி தனைகால மேதோ வென்னில்

மருவுகின்ற வானிகர்க் கடகமாகும்

ஆதவைப் பசியோடு காந்தினை தன்னில்

அடருமே மற்றுமாதங்கள் தன்னில்

போதவே சமிக்குகின்ற காலமாகும்”

- யூகி வைத்திய சிந்தாமணி பாடல் - 245

“ஆனான வரன்றனையே மதியாமாந்தர்

அகதி பரதேசியர்கட் கன்ன மீயார்

கோனான குருமொழியை மறந்த பேர்கள்

கொலை களவு பொய் காமங் குறித்த பேர்க்கு

ஊனான சடந்தன்னில் வாதம் வந்து

ஊற்பவிக்கும் வேதத்தின் உண்மைதானே”

- யூகி வைத்திய சிந்தாமணி பாடல் - 253

“பகரவே வாதமது கோபித்தப்போ

பண்பாகப் பொண்போகமது தான் செய்யில்

நகரவே வெகுதூர வழி நடக்கில்

நளிர்ான கற்றுமே பனிமேற்பட்டால்

மிகரவே காய்கள் கனி கிழங்கு தன்னை

மிக வருந்தி மீறியே தயிர்தான் கொண்டால்

முகரவே முதுகெலும்பை முறுக்கி நொந்து

முழங்காலும் கணைக்காலும் கடுப்பு உண்டாகுமே”

- யூகி வைத்திய சிந்தாமணி பாடல் - 285

b. By Agasthiyar Kanma Kaandam - 300

வாத கன்ம வரலாறு

“நூலென்ற வாதம் வந்த வகைதானேது

நுண்மையாய்க் கன்மத்தின் வகையைக் கேளு

காலிலே தோன்றியது கடுப்பதேது

கைகாலில் முடக்கியது வீக்கமேது

கோயிலே படுகின்ற விருட்சமான

குழந்தை மரந்தன்னை வெட்டல் மேல்தோல் சீவல்

நாளிலே சீவசெந்து கால்முறித்தல்

நல்ல கொம்பு தழை முறித்தல் நலித்தல் காணே”

- அகத்தியர் கன்ம காண்டம் - 300 - பாடல் 56

c. By Agasthiyar Gunavagadam

“விவரமடா அசதி கன்னி மூளை நோவு

விரிவான மூளையது யிருதுவாகி

அவனிதனில் திடமாகப் போவதாலும்

அப்பனே மூத்திரக் குண்டிக்காய் வியாதியாலும்

தவ முனிவர் தீர்க்கக்கை மேக ரோகம்
தன்மையுள்ள முத்தண்டுக் கொடி வியாதி
அவயிலாப் பரிசு நரம்பழுத்தங் கண்டால்
அணுகுமடா வாதநோய் ஆகுமபரே..”

To sum up

The following intrinsic and extrinsic factors are attributed to be the causative factors for the manifestations of Vatha disease.

EXTRINSIC FACTORS

- Exposure to dampness and cold.
- Precipitation of the disease in the months from Aani to Karthigai.
(From June to December).
- Sleeping during day time and working throughout night.
- Physical strain due to excessive weight lifting.
- Walking for a long distance, exposing the body to dampness and cold.

INTRINSIC FACTORS

1. Diet

Intake of food items which are excessive in bitter, astringent and pungent taste, intake of previous day cooked food item, drinking rain water, harmful combination like taking excessive curd after eating fruits, vegetables and tubers causes toxic factors which affects bones and muscles.

2. Psycho Social Aspects

Breach of Trust, splitting the chastity of a women, abusing the holymen and ritualists, exploiting the properties of charities, ingratitude towards mother, father and teacher, abusing the holy scripts, disregarding the divinity, refusing the food for destitutes and saints, forgetting the advise of preceptors and wickedness such as murdering, stealing, involving in immoral activities, sexual perversion, removing the bark of living tree, breaking the leg of the animals, cutting the trees, cutting the living branches and removing leaves.

Common Signs and Symptoms:

The signs and symptoms of the disease Sagana Vatham were explained by Yugimuni and Pararasasekaram.

a. By Yugimuni

“கேளுமே கழுத்தின் கீழரைக்கு மேலுங்
கெடியான கரமிரண்டு மிகவே நொந்து
வாளுமே சரீரமெல்லாம் கனத்திருக்கும்
வாலிபர்க்கு மனங்கண்ணு மயக்கமாகும்
ஏளுமே யிரண்டு கண்ணு மெரிச்சலுண்டா
மேற்றமாய் மலந்தானு மிறுகிக் காணுந்
தேளுமே கொட்டினது போற்கடுக்கும்
சகனவா தத்தினிட தீர்க்கந் தானே”

- யுகி சிந்தாமணி - 800

இந்நோய் கழுத்தின் கீழிருந்து அரையின் மேல்வரையும் உள்ள இடமும், கைகால்களும் மிக நோதல், உடல் முற்றுங் கனத்துக் காணல், மயக்கமுண்டாதல், கண்கள் எரிதல், மலக்கட்டு, உடல் முழுமையும் தேள் கொட்டியது போன்று கடுத்து நோதல் ஆகிய குறிகுணங்களை பெறும்.

b. By Pararasasekaram

“கண்டதோர் சகன வாதங் கழுத்தின் கீழரைக்கு மேலும்
மிண்டலங் கரமிரண்டு மிகநொந்து கனத்திருக்கும்
மண்டியே திமிர்த்துக் குத்தும் வலி மிகுத்துளைவுண்டாகும்
வண்டமர் குழலினாளே மதியினாலுன்னு வாயே”

- Pain in the neck.
- Radiating pain in the upper limbs.
- Tingling sensation in the upper limb.

PATHO PHYSIOLOGY

According to Panchapootha principle when elemental composition is altered naturally uyir thathugal or the three humors, which are made up of these elements get deranged. This simultaneously leads to derangement of seven udal thathugal which produce signs & symptoms. This is one concept of pathology, producing Sagana Vatham.

Another theory is that, the etiological factors of Sagana Vatham are both diet that produce excessive vayu and other agents which cause vitiation of vayu, aahayam, earth and fire. Depending upon this the corresponding uyir thathu is affected.

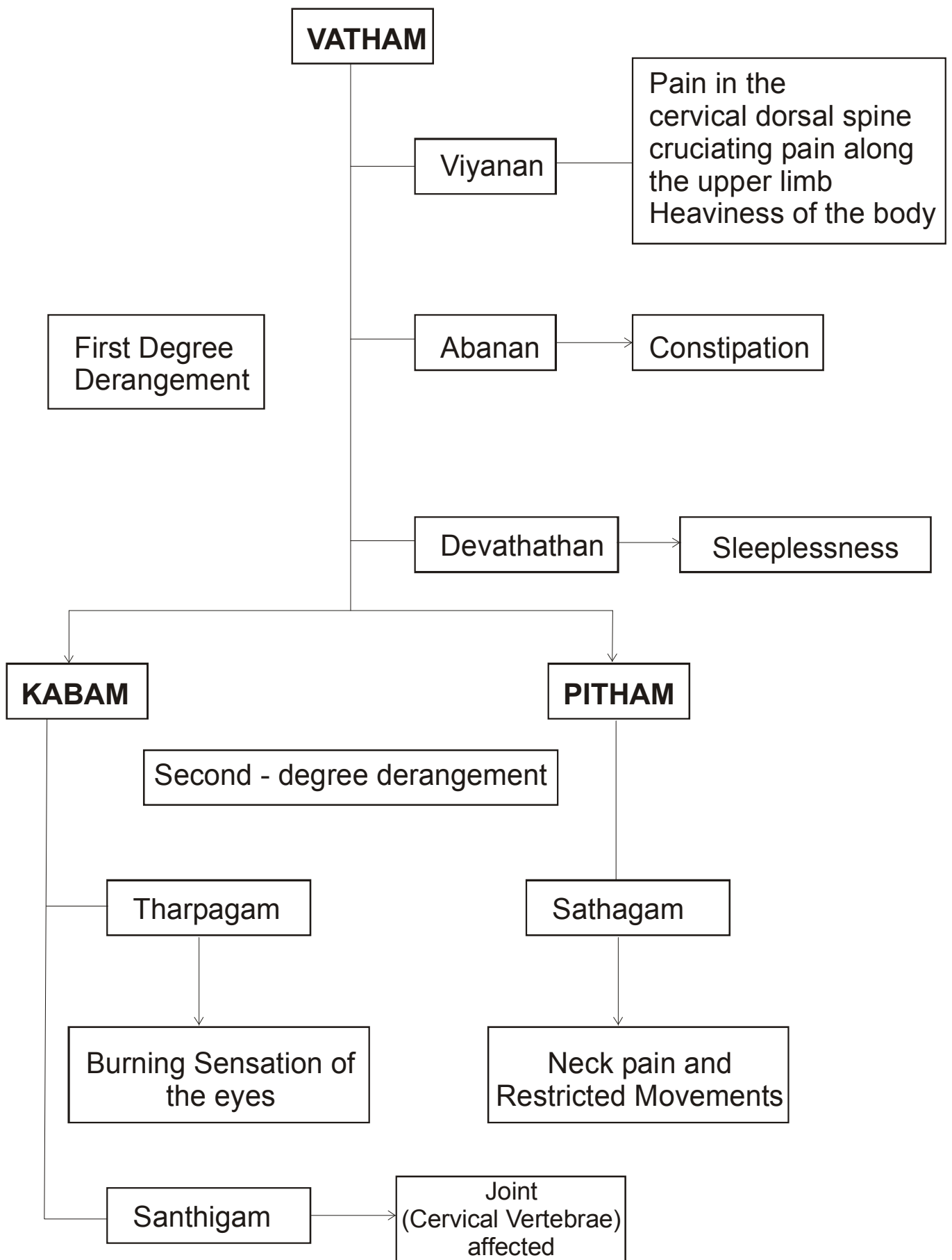
Here,

Aahayam + Air - Vatham

Earth + Water - Kabam

Fire - Pitham

So vatham, pitham and kabam are deranged. Simultaneously udal thathugal get deranged. These events give rise to clinical features of Sagana Vatham.



உயிர் தாதுக்கள்:

வளியின் பிரிவுகள் :

இது ஒன்றாயிருப்பினும் தன் இடம், தொழில், முதலியவற்றால் பத்து வகைப்படும். அவை,

பிராணன் (உயிர்க்கால்)

மூச்சு விடுதலும், வாங்குதலும் செய்யும்.

அபானன் (கீழ்நோக்குகால்)

மலசலத்தைக் கீழ் நோக்கித் தள்ளும்.

வியானன் (பரவுகால்)

உடலிலுள்ள அசையும் பொருள், அசையாப் பொருள் என்னும் இரண்டிலுமிருந்து உறுப்புகளை நீட்டவும் மடக்கவும் செய்யும்.

உதானன் (மேல் நோக்குகால்)

வாந்தியை எழுச் செய்யும்.

சமானன் (நடுக்கால்)

மற்ற வாயுக்களை மிஞ்சு வொட்டாமல் செய்யும்.

நாகன்

எல்லாக் கலைகளையும் கற்கும்படி அறிவை எழுப்பும். கண்களை இமைக்கும்படி செய்யும்.

கூர்மன்

கொட்டாவி விடச் செய்யும். வாயை மூடப்பண்ணும். இமையைக் கொட்டுவிக்கும். கண்களுக்குப் பொருட்களைக் காண்பிக்கும்.

கிருகரன்

நாவிற் கசிவு, நாசிக்கசிவு, மிக்கப் பசி, தும்மல், இருமல், ஆகியவற்றை உண்டாக்கும்.

தேவதத்தன்

சோம்பல், சண்டை கொள்ளல், தர்க்கம் பேசல், மிக்க கோபம் ஆகியவற்றை உண்டாக்கும்.

தனஞ்செயன்

உடம்பு முழுமையும் வீங்கப்பண்ணும். இறந்துவிடின் காற்றெல்லாம் வெளிப்பட்ட பின்னர் மூன்றாவது நாளில் தலை வெடித்தபின் வெளிச் செல்லும்.

சகன வாதத்தில்:

கீழ்க்கண்ட உயிர்த்தாது (வாதம்) பாதிக்கப்பட்டுள்ளது

அபானன்	:	பாதிப்பு (மலசிக்கல் உள்ளது)
வியானன்	:	பாதிப்பு (கழுத்தை அசைப்பதில் சிரமம் வலியானது தோள்பட்டை மற்றும் கையில் பரவுதல் உள்ளது).
சமானன்	:	பாதிப்பு
தேவதத்தன்	:	பாதிப்பு (உடல்சோர்வு உள்ளது)

பித்தத்தின் வகைகள் :

அனற்பித்தம்	:	உண்ட உணவுப் பொருட்களைச் செரிக்கும் படிச் செய்யும்.
இரஞ்சகப்பித்தம்	:	உணவிலிருந்து பிரிந்துண்டான சாற்றுக்குச் செந்நிறத்தைத் தரும்.
சாதகப் பித்தம்	:	விருப்பமான தொழிலைச் செய்து முடிக்கும்.
பிராசகம்	:	தோலுக்கு ஒளியைக் கொடுக்கும்.
ஆலோசகம்	:	கண்களுக்குப் பொருட்களைத் தெரிவிக்கும்

சகன வாதத்தில்:

கீழ்க்கண்ட உயிர்த்தாது (பித்தம்) பாதிக்கப்பட்டுள்ளது

சாதக பித்தம் : பாதிப்பு (கழுத்தை அசைப்பதில் சிரமம் உள்ளது).

கபத்தின் வகைகள் :

அவலம்பகம் : நான்கு வகை ஐயங்களுக்கும் பற்றுக் கோடாயிருக்கும்.

கிலேதகம் : உண்ணப்பட்ட உணவுப் பொருள், நீர் முதலியவைகளை ஈரப்படுத்தி மெத்தென செய்யும்.

போதகம் : உண்ணுகிற சுவைகளை அறிவிக்கும்.

தற்பகம் : கண்களுக்குக் குளிர்ச்சியைத் தரும்.

சந்திகம் : பொருத்துகளில் நின்று இயற்கையாய் எல்லாக் கீல்களையும் ஒன்றோடொன்று பொருந்தி தளரச் செய்யும்.

சகன வாதத்தில்:

கீழ் கண்ட உயிர்த்தாது (கபம்) பாதிக்கப்பட்டுள்ளது.

அவலம்பகம் : பாதிப்பு (சந்திகம் பாதிக்கப்பட்டுள்ளது)

தற்பகம் : பாதிப்பு (கண் எரிச்சல் உள்ளது)

சந்திகம் : பாதிப்பு (கழுத்தை அசைப்பதில் சிரமம் உள்ளது)

DIAGNOSIS:

சித்த மருத்துவ அடிப்படையில் நோய் கணிப்பில் எண்வகைத் தேர்வு

முதன்மையானது. மற்ற தேர்வுகளாவன:

1. பொறியாற்றேர்தல்
2. புலனாலறிதல்
3. வினாவுதல்
4. உயிர் தாதுக்கள்
5. உடல் தாதுக்கள்
6. ஞானேத்திரியம்
6. கன்மேந்திரியம்
7. தினைகள்
8. பருவகாலம்.

1. பொறியாற்றேர்தல்:

1. மூக்கு
2. நா (வாய்)
3. கண்
4. தோல் (மெய்)
5. செவி

2. புலனாலறிதல்

1. நாற்றம் (மணம்)
2. சுவை
3. ஒளி
4. ஊறு
5. ஒசை

சகனவாதத்தில்

வலியானது கழுத்துப் பகுதி மற்றும் கைகளில் பரவுதல் காணப்படுகிறது. இரு கைகளும் மரத்துப்போதல் காணப்படுகிறது. எனவே ஜம்புலன்களில் ஊறு பாதிக்கப்பட்டுள்ளது.

3. வினாவுதல்

மருத்துவர் நோயாளியிடம் வினாவுதல் மூலம் நோயை கணிக்க முடியும் நோயாளியால் பேச முடியாத நேரத்தில் அவன் சுற்றத்தாரிடம் வினாவுதல் மூலம் நோயை கணிக்க முடியும்.

எண்வகைத் தேர்வு

“நாடிப் பரிசம் நாளிறம் மொழிவிழி

மலம் மூத்திரமிவை மருத்துவ ராயுதம்”

- நோய் நாடல் நோய் முதல்நாடல் பகுதி - I

“ மெய்க்குறி நிறந்தொனி விழி நாளிருமலம் கைக்குறி”

- தேரையர்

1. நாடி (Pulse reading)
2. ஸ்பரிசம் (Tactile sensation)
3. நா (Tongue)
4. நிறம் (Colour)
5. மொழி (Speech or voice)
6. விழி (Eye)
7. மலம் (Faeces)
8. மூத்திரம் (Urine)

1. நாடி

உடலில் உயிர் தரித்திருப்பதற்குக் காரணமான சக்தி எதுவோ அதுவே தாது அல்லது நாடி எனப்படும்.

இதே சீவசக்தி வாதம், பித்தம், கபம் என்ற மூன்று பிரிவுகளை அடைந்து, மூன்று குணங்களைப் பெற்று உடலையும், உயிரையும் ஒன்றுபட வளர்த்து காப்பாற்றி வருகிறது.

நாடிகளைக் கணிப்பதற்கு பத்து ஸ்தானங்கள் குறிப்பிடப்பட்டுள்ளது. அவற்றுள் முக்கியமாக ஆரை நாடியே (Radial artery) சிறந்ததெனப் பிரமமுனி கூறியுள்ளார்.

“தாதுமுறை கேள் தனித் தகுதிச் சந்தோடு
ஓதுறுகாமிய முந்தி நெடுமர்பு
காது நெடுமுக்குக் கண்டம் கரம்புருவம்
போதுருமுச்சி புகழ் பத்தும் பார்த்திடே”

- திருமூலர் நாடி நூல்

Naadi:

a) Vatha naadi

“வாதமெனும் நாடியது தோன்றில்
சீதந்தமொடு வயிறு பொருமல் திரட்சிவாயு
சீதமுறுங் கிராணி மகோதரம் நீரமை
திரள்வாயு சூலைவலி கடுப்புத் திரை”

- சதகநாடி

“சொல்லவே வாதமது மீறிற்றானால்
சேர்வடைந்த வாயுவினால் தேகமெங்கும்
மெல்ல கைகால் களசதியுண்டாகும்
மெய்முடங்க நிமிரவொண்ணாத் திமிருண்டாகும்”

- அகத்தியர் நாடி

“காணப்பா வாதமீறில் கால்கைகள் பொருந்தி நோகும்”

- காவிய நாடி

b) Vatha Pitha Naadi :

“பொருளான வாதத்தில் பித்தஞ் சேர்ந்து

.....

கருவான தேகமதிலுளைச்சல் சோம்பல்

கைகரல் தறிப்பு.....

.....ஊன் குறைதல்”

- சதகநாடி

“திருத்தமாம் வாதத்தோடே தீங்கொடு பித்தஞ் சேரிற்

பொருத்துகள் தோறும் நொந்து போதவே பிடிக்கும்”

- நோயின் சாரம்

c)Vatha Kaba Naadi :

“பாங்கான வாதத்தில் சேத்தும நாடி

பரிசித்தால் திமிர்மேவு முளைச்சலாகும்”

- சதகநாடி

“வாதத்தில் சேத்துமமகில் வலியோடு வீக்கமுண்டாம்”

- அகத்தியர் நாடி

d) Pitha Vatha Naadi :

“பித்தத்தில் வாதமாகில் பிடரியுங் காலுங் கையுங்

குத்தது போலையாகுங் குறுகி மெய்பதறும் பின்னே”

- அகத்தியர் நாடி

e) Pitha kaba Naadi :

“பித்தத்தில் சேத்துமமகில் வாய்குளறுமிக்க

.....

பித்தமுமெடுத்துக் கொட்டிப் பிடரியில் நோவதாமே”

- அகத்தியர் நாடி

f) Kaba Vatha Naadi :

“கண்டாயோ சிலேற்பனத்தில் வாதநாடி
கலந்திடுகில் வயிறுபொருமல் கனத்தவீககம்
உண்டாலே ஓங்காரஞ் சத்தி விக்கல்
உறுத்திரட்சை வாய்வுவலி சன்னினதோடம்”

- சதகநாடி

“வாட்டிடுஞ் சேத்துமத்தில் வந்திடும் வாதமரகில்
நாட்டிய கால்கள் போல நரம்பெல்லாம் வலித்து நிற்கும்”

- அகத்தியர் நாடி

2 .ஸ்பரிசம் (தொட்டுப் பார்த்தல்) :

உடல் வெப்பநிலை, சுரசுரப்பு, தோல் உலர்ந்திருத்தல், தேமல், கொப்பளம், கட்டிகள், கழலை, சொறி, சிரங்கு, படை, விரணம், வீக்கம், ஊதல் ஆகியவற்றை தொட்டுப் பார்த்தல் மூலம் அறியலாம்.

3. நா:

- மாப்படிந்திருத்தல், வெளுத்திருந்தல்
- வாய் நீர் வறண்டிருத்தல்
- பிளவு பட்டிருத்தல்
- புண்ணாயிருத்தல்
- சுவை மாறுபாடு

ஆகியவற்றை அறியலாம்.

4. நிறம்

- தோல்
- சளிச்சவ்வு
- மயிர் மற்றும் நகம் முதலியவற்றின் நிறம்

5.மொழி

- ஒலி மாறுபாடு
- பிதற்றல், குளறல்
- குரல் கம்மிய பேச்சு முதலியவற்றை கேட்டறிதல்

6.விழி

- கண் பார்வையின் நிலைமை
- கண் சிவந்திருத்தல், வெளுத்தல்
- கண் எரிச்சல்

முதலியவற்றை ஆராய வேண்டும்.

7.மலம்

- நிறம், நுரை
- இறுகல், இளகல்
- மலக்கட்டு

முதலியவற்றை ஆராய்தல்.

8.மூத்திரம்

- நீர்க்குறி
- நெய்க்குறி

நீர்க்குறி:

“அருந்துமாறி ரதமும் அவிரோதமாய்
அக்கல் அலர்தல் அகாலவூன் தவிர்ந்தழற்
குற்றளவருந்தி உறங்கி வைகறை
ஆடிக் கலசத் தாவியே காதுபெய்
தொரு முகூர்த்தக் கலைக்குட்படு நீரின்
நிறக்குறி நெய்க்குறி நிருமித்தல் கடனே”

- நோய் நாடல் நோய் முதல்நாடல் பகுதி - I

உண்ணுகின்ற அறுசுவைப் பொருள்களும் ஒன்றுக்கொன்று வேற்றுமையடையாமலும், பசிக்குத் தக்கபடி குறைத்தல், அதிகரித்தல், காலந் தவறி உண்ணுதல், முதலிய குற்றங்களுண்டாகா வண்ணம் புசித்து உறங்கி, விடியற்காலத்தில் படிக பாத்திரத்தில் பெய்த நீரை ஆவிபோகாத படி, 3³/₄ நாழிகைக்குள் அதன் நிறக்குறியையும், அதில் எண்ணெய் விட்டுப் பார்த்து காணப்படுகின்ற குறியையும் கவனித்து பிணிகளின் தீரும், தீராக் குறிகளை அறியலாம்.

சிறுநீரின் பொதுக் குணம்:

“வந்த நீர்க்கரிடை மணம் நுரைஞ்சலென்
றைந்தியலுளவவை யறைகுது முறையே”

- நோய் நாடல் நோய் முதல்நாடல் பகுதி - I

இயற்கை நீர் இலக்கணம்:

“மிகத் தடிப்பும் மிகத் தேறலும் இன்றெனில்
சுகத்தைத் தரும் மெய்கபாவ நீர் நன்றே”

- தேரன் நீர்க்குறி நெய்க்குறி

According to Theraiyar, urine should be of low density and with discoloration.

நெய்க்குறி:

“நிறக்குறிக் குரைத்த நிருமண நீரிற்
சிறக்க வெண்ணெய்யோள் சிறுதுளி நடுவிடுத்
தென்றுறத் திறந்தெனலி யேகாதமைத்ததி
னின்ற திவலை போம் நெறி விழியறிவும்
சென்றது புகலுந் செய்தியை யுணரே”

- நோய் நாடல் நோய் முதல்நாடல் பகுதி - I

நீர்நிறக் குறியால் நோயைக் கண்டு பிடித்தற்பொருட்டுச் சொல்லியிருக்கின்ற விதி பொருந்திய சிறுநீரில் ஒரு சிறிய துளி எண்ணெய்யை நடுவில் கையசைவினால் எண்ணெய்துளி சிதறாமல் விட்டு வெய்யிலானது அந்நீரில் படும்படி திறந்து காற்றானது, அதில் வீசி அந்த எண்ணெய்த் துளி ஆடாதபடி வைத்து அச்சிறுநீரில் விடப்பட்டிருக்கின்ற எண்ணெய்த்துளியானது செல்லுகின்ற வழியில் கண்ணறிவையும் உயிரறிவையும் செலுத்தி, அத்துளி தெரிவிக்கும் நோய் விளக்கத்தை நீ தெரிந்து கொள்வாயாக.

“அரவென நீண்டின.:தே வரதம்”

“ஆழி போற்பரவின் அ.:தே பித்தம்”

“முத்தொத்து நிற்கின் மொழுவதென் கபமே”

- நோய் நாடல் நோய் முதல்நாடல் பகுதி - I

PHYSICAL CONSTITUENTS OF BODY

Seven Physical Constituents	Physiological Function	Feature in Sagana vatham
Saaram	Strengthens the body and mind	Affected
Senneer	Preserves brightness, boldness, power and knowledge	Affected
Oon	Gives structure and shape to the body	Affected
Kozhuppu	Responsible for movement lubricates the joints	Affected
Enbu	Responsible to joint movements	Affected
Moolai	Present inside the bone and gives strength to the bones	Not Affected
Sukkilam or Suronitham	-	Not Affected

GNANINTHRIYAM

Gnaninthriyam	Physiological Function	Feature in Sagana vatham
Mei	Feels the sensation of touch	Affected - paresthesia present in upper limb
Naa	Analyses taste	Not Affected
Kan	For Vision	Not Affected
Mooku	For smell	Not Affected
Sevi	For hearing	Not Affected.

Kanmenthiriyam

Kanmenthiriyam	Physiological Function	Feature in Sagana vatham
Kai	For works done by hand	Affected. Radiating pain with tingling sensation
Kal	For walking	Not Affected
Vaai	For Speech	Not Affected
Eruvaai	For defaecation	Affected. Constipation present
Karuvaai	For reproduction	Not Affected

Thinaigal

The Geographical Distribution of the land is classified into 5types

They are,

S. No.	Thinaigal	Land	Diseases
1.	Kurinji	Mountain and its surroundings	Kaba noi, liver diseases are common
2.	Mullai	Forest and its surroundings	Pitha and vatha diseases liver diseases and common
3.	Marutham	Field and its Surroundings	Safest place to maintain good health
4.	Neithal	Sea and its surroundings	Vatha diseases and liver enlargement are common
5.	Palai	Desert and its surroundings	Vatha ,Pitha and Kabha diseases are common

Paruva Kaalangaal:

Siddhars have classified a year into six seasons, each consisting of two months.

Sl.No.	Paruvakaalangaal	Kuttram
1.	Kaarkaalam: Aavani and Purattasi (August 16 - October 15)	Vatham ↑↑ Pitham ↑
2.	Koodhir kaalam: Ayppasi and Kaarthigai (October 16 - December 15)	Vatham (-) Pitham ↑↑
3.	Mun pani kaalam :Margali and Thai (December 16 – February 15)	3 kuttram(-)
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

↑↑ Vetrunilai Valarchi

(-) Thannilai adaithal

According to alteration of kalam (Thannilai Valarchi, vetrunilai Valarchi) the diseases can be diagnosed.

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 :

“வகையான குரலதனைப் பற்றி நொந்து
மர்ப்போடு பிடரிதனில் வலியுண்டாகி
நுகரான சரீரமெல்லாம் நொந்த ழாற்றி
நுணக்கமாய் சுவாசமது புறப்ப டாமல்
முகையான நாவாலே மூச்சு மறறி
முகத்திலே வியர்வாகி விலாநோ வுண்டாம்
புகையான வன்னத்தைப் பருகொட்டாது
புரிய கண்ட கிரகத்தின் பண்பு தானே”.

-யூகி வைத்திய சிந்தாமணி - 800

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
6. Loss of appetite

2. Kumba Vatham :

“நவிலவே தோள்மீதும் கரத்தின் மீது
நலிந்து மெத்த வாகியே நசவுண்டாகும்
கவிலவே கன்னமொடு நயனந்தானும்
கடுத்துமே விறுவிறுப்பு மெரிவும் காணும்
துவிலவே துடிப்பாகும் சிரசு தன்னிற்
சுழற்றியே நாபிக்கீழ் வலியு முண்டாகும்
அவிலவே அடிநாக்கி லழன்று காணு
மலருமே வருகும்ப வாதந்தானே”

- யூகி வைத்திய சிந்தாமணி -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 :

“மளக்கமாய் வாய்வு மாய் மெய்நி றைந்து
வயிறுதனிற் பசியிலா தூணு மற்று
நளக்கமாய் ஞாலத்து நடக்கை யற்று
நடுக்கமர் கையிரண்டுந் திமிரு முண்டாம்
ஊர்க்கமர யுறக்கமில்லா துணர்ச்சி யற்று
உதறியே சரீரம் எங்கு முலர்ந்து காணும்
பளக்கமாய் வாய்விட்டு அலத்த லாகும்
பாணிக் கம்பவாதத்தின் பாங்குதானே”

-யூகி வைத்திய சிந்தாமணி 800

The clinical features are

1. Anorexia
2. Tingling sensation and numbness of upperlimbs
3. Tremor of upper limbs
4. Sleeplessness and
5. Dryness all over the body

4. Peivatham :

"பெற்றியாம் பெருமையாக் காலும் கையும்
பெருவயிறு நெஞ்சோடு விரலு மூக்கும்
ஏற்றியா மெறிகபுத்து மெங்கும் பற்றி
ஏக்கமாய் நொந்துடன் பெங்கும் வீங்கி
ஊற்றியா முணவே திமிர்த் தெடுத்து
உறுதியாய்ப் பிடிக்கவு மொணாம லாகுந்
சத்தியாய் வாய்கசந்து மயக்க மாகுந்
தரித்திட வெண்ணாது பேய் வாதந் தானே".

-யூகி வைத்திய சிந்தாமணி - 800.

The clinical features are

1. Pain and swelling in 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 :

“தம்பமாய் உதிரகண்ட நரம்பிற் புக்கித்
தலையோடு சரீரமெலாந் தாக்கிப் புக்கும்
கம்பமாய் காதிரண்டு மிகுவுங் கேளா
கையோடு காலிரண்டும் வசக் கேடாகும்
நிம்பமாய் நினைவு தான் கலங்கிக் காணும்
நெடு மூச்சுங் கொட்டாவி நித்திரை யாகும்
சிம்பமாய் தலைநடுங்கிக் கனப்பு முண்டாஞ்
சிரக்கம்ப வாத மென்றே செப்பலாமே”.

-யூகி வைத்திய சிந்தாமணி -800.

The main clinical features are

1. Stiffness of neck
2. Deafness
3. Yawning
4. Over sleeping
5. Tremor in the head and neck
6. Difficulty in using lower and upper limbs

LINE OF TREATMENT

According to the Siddha system line of treatment is divided into three. They are,

- Kaappu (Prevention)
- Neekkam (Treatment)
- Niraiivu (Restoration)

Kaappu (Prevention) :

- To prevent Sagana Vatham
- Avoid intake of excess sour, astringent and bitter taste foods.
- Sleep without pillows.
- Avoid holding neck in one position for a long period
- To follow the Noi Anugavidhi described as follows.

நோயினி்றி வாழ வழிமுறைகள்:

- வெந்நீர், நீர் கலந்தமோர், நெய்யினை உருக்கி சாப்பிடவேண்டும்.
- நாள் ஒன்றுக்கு இருமுறை மட்டும் உணவு உண்ண வேண்டும். (பகல் அறுசுவை உணவு, இரவு சிற்றுண்டி)
- முதல் நாள் சமைத்த உணவுகளை உண்ணக்கூடாது.
- பெருந்தாகம் கொண்டாலும் உப்பு நீர் அருந்தக்கூடாது.
- உணவு உண்டபின் சிறிது குறுநடை செல்ல வேண்டும்.
- நன்கு புளித்த தயிர் உண்ண வேண்டும்.
- காலை இளம் வெயிலை தவிர்த்தல் நல்லது
- மலம், சிறுநீர் ஆகியவற்றை அடக்கக் கூடாது
- பகல் உறக்கம் கொள்ளக்கூடாது

கால ஒழுக்கம்:

- மூன்று நாட்களுக்கு ஒருமுறை கண் மை இட்டுக் கொள்ள வேண்டும்
- நான்கு நாட்களுக்கு ஒரு முறை எண்ணெய் குளியல் செய்ய வேண்டும்.
- ஏழு நாட்களுக்கு (வாரம்) ஒருமுறை முகச்சவரம் செய்ய வேண்டும்.
- 45 நாட்களுக்கு ஒரு முறை நசிய மருந்து எடுத்துக் கொள்ள வேண்டும்.

- 4 மாதத்திற்கு ஒரு முறை பேதிக்கு மருந்து எடுத்துக் கொள்ள வேண்டும்.
- ஆறு மாதத்திற்கு ஒரு முறை வாந்தி மருந்து எடுத்துக் கொள்ள வேண்டும்.

NEEKAM (TREATMENT):

Since the siddha system of medicine is based on Mukkutra theory the treatment is mainly aimed in bringing the three dhosas to its equilibrium state.

Internal Medicine:

Vengara Sanjeevi Chendura Mathirai-1, twice daily, after food

Pathiyam (Diet regimen)

Pathiyam which is peculiar to siddha system of medicine, is a medicinal advice which includes life style modification and dietary modification as per diseased condition.

“பத்தியத்தினாலே பலனுண்டாகும் மருந்து

பத்தியங்கள் போனால் பலன் போகும் - பத்தியத்தில்

பத்தியமே வெற்றி தரும் பண்டிதருக் காதலினாற்

பத்தியமே வத்தியென்று பாக்”

- தேரையர் வெண்பா பாடல் 449

Proper dietetic regimen enhances the bio-availability of the drug and are conducive to the maintenance of good health. If dietetic regimen is not followed, certain food may be incompatible and antagonize the drug effect and produce harmful effects to the body.

வாதரோகாரி வஸ்துகள்:

“செங்கழு நீர் கோட்டந்தேன் யிளகு நல்லெண்ணெய்
தங்கு பெருங்காயந் தழுதாழை - யெங்கெங்குங்
கூட்டு சிறு முத்துநெய் தேரதிலுமுந்திவைகள்
வாட்டு மணிலத்தை மதி”

- பதார்த்த குண சிந்தாமணி

i.e. Root of water lily (Pontederia vaginalis), costus root (Costus speciosus), honey collected on branches of trees, black pepper (Piper nigrum), gingelly oil, asofoetida, leaves of Clerodendron phlomoides, castor oil, black gram etc, cure vatha disease.

கடும் பத்தியம் (Strict Pathiyam):

“கடுமையென்றிடு பத்தியம் முவந் வறுத்துண்டல்
அடைவிலா மறுபத்தியத் துவந் வறுத்தருந்தல்
கொடுமை செய் புனிதனைச் சுட்டுக் கூட்டி டலன்றிப்
படியில் கத்தரி சிக்குரப் பிஞ்சினைப் பருகல்”

- சுந்தரானந்தர் ஆயுள்வேதப் பொது வட்சணம்

i.e, a small quantity of fried salt is added to cooked rice which is eaten after adding hot water. Burnt tamarind, unripe brinjal and drumstick are taken in the form of soup along with fried salt.

Yoga Therapy:

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 : Meditation
- Samathi : A state of superior consciousness brought about by profound meditation in which the individual aspirant becomes one with the object of his meditation.

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 Hypertension, Insomnia etc.

4. Pavanamuktasana

- To get relief from constipation.

5. Savasana

- For sound sleep and 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 and removes nervous weakness.
- It helps in removing constipation and pitha 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 to ease the 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 try to touch the right ear to the right shoulder.
- Bring the head back to the normal position

- Then bend 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 (Turning 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 right shoulder.
- Slowly turn the head to the left through the centre till the chin is in line with the left 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.

Benefits:

- These 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.

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.

Thokkanam acts directly on the 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, increases the vital power and also provides relaxation.

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

“மத்தனமகிய தெனக்கணத்தின் செயல் வகுப்பனே-சதந
நித்தமும் வாதம் பணித்த பணிப்பை செகுப்பேனே”

-தேரையர் மகா கரிசல்

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

1. Pidiththal
2. Izhuththal

Kanma Neekam: (Expiation)

Kanma being a cause of vatha disease, its remedial measures have been described below.

“வையடா செவ்வந்தி முளரிதானும்
வாகான கிணறுகளும் சாலை சேலை
செய்யடா தன்னைப் பேர லுருத்தா னொன்று
தெய்வதல மதில் வைத்துச் சாத்தாள் பூசை
செய்யடா சிவபூசை விசேடவோமஞ்
செகந்தனிலே மண்டலந்தான் வேதியிருக்கன்னஞ்
செய்யடா நெய்விளக்கோ ராயிரந்தான்
செயமகச் செய்திடவே நிசமதாமே”

- அகத்தியர் கன்ம காண்டம், பாடல் 78

i.e., To expiate the misdeeds of the kanma, planting of young trees, establishing gardens, laying roads and pathways, digging wells and ponds for public use, constructing temples, donating ornaments to poor children must be done.

Niraivu (Restoration)

The topic “Niraivu” deals about the description to avoid the recurring of the disease.

After the treatment, efforts should be taken to clear the residual effects of the disease, to bring back the body condition of the patient to normal. This is treated as “Niraivu”.

To follow all the preventive methods mentioned in the topic “Kappu” will give good result to the patients.

MODERN ASPECT

THE ANATOMY

The Vertebral column:

The Vertebral column which lodges and protects the spinal cord, its meninges in a canal within it is called as **vertebral canal**. 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 sit 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.

4. 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 possess 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 protuberance.
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 central vertebral 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.
2. Median 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

1. They are the commonest site of osteophyte formation
2. 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

The vertebrae through the basilo vertebral veins.

The meninges and the spinal cord.

The internal vertebral venous plexus is drained by the intervertebral veins, which pass out through the inter vertebral 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:

Movements	Muscles	Nerve Supply
Flexion	Sternocleidomastoid	Accessory ventral rami of cervical spinal nerves C ₂ ,C ₃ ,C ₄ .
	Longus Coli	Cervical ventral rami C ₂ – C ₆ .
	Longus Capitis	Cervical ventral rami C ₁ – C ₃
	Rectus capitis Anterior	C ₁ ventral ramus
Extension	Splenius cervicis and capitis	Dorsal cervical nerve
	Erector spinae	Dorsal rami
	Rectus capitis posterior major and minor	Dorsal rami C ₁
	Obliques capitis Superior	C ₁ – Dorsal ramus
	Trapezius	Accessory

Lateral flexion and rotation	Sternocleido mastoid	Accessory, ventral rami of cervical spinal nerves C ₂ ,C ₃ ,C ₄ .
	Scalene	Cervical ventral rami C ₃ – C ₈
	Longus Coli	Cervical ventral rami C ₃ – C ₈
	Levator scapulae	Cervical ventral rami C ₃ ,C ₄ ,C ₅
	Rectus capitis	C ₁ – ventral ramus
	Splenius	Cervical dorsal ramus
	Longismus obliques capitis superior and inferior	C ₁ Dorsal ramus.

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 1st and 11th 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 that 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 C₆C₇C₈

Medial Head

Brachio radialis C₅C₆

Extensor Carpi radialis longus C₅C₆

Posterior Interosseous Nerve

Supinator C₆C₇

Extensor Carpi Ulnaris C₇C₈

Extensor digitorum C₇C₈

Abductor pollicis Longus	C ₇ C ₈
Extensor pollicis Longus	C ₇ C ₈
Extensor pollicis brevis	C ₇ C ₈
Extensor indicis	C ₇ C ₈

Median Nerve

Pronator teres	C ₆ C ₇
Flexor Carpi radialis	C ₆ C ₇
Flexor digitorum superficialis	C ₇ C ₈ T ₁
Abductor pollicis brevis	C ₈ T ₁
Flexor pollicis brevis	C ₈ T ₁
Opponens pollicis	C ₈ T ₁
Lumbricals I & II	C ₈ T ₁

Anterior Interosseous Nerve

Flexor digitorum profundus I & II	C ₇ C ₈
Flexor pollicis longus	C ₇ C ₈

Ulnar Nerve

Flexor carpi ulnaris	C ₇ C ₈ T ₁
Flexor digitorum profundus III & IV	C ₇ C ₈
Hypothenar muscle	C ₈ T ₁
Abductor pollicis	C ₈ T ₁
Flexor pollicis brevis	C ₈ T ₁
Palmar interossei	C ₈ T ₁
Dorsal interossei	C ₈ T ₁
Lumbricals III & IV	C ₈ T ₁

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 Victor 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 50% of Population by the age of 50 Years & increases to 70 % by the age of 75 Years.

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 & athletic 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. Segmental defects – Hemi vertebra, Fused Vertebra.

e) Acquired narrowing of cervical spinal canal due to

- Osteophytes
- Ossified posterior longitudinal ligament (OPLL)
- Facet joint hypertrophy (results foramina 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 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 prolapsed

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 martix of the nucleus pulposus may hereniae 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 leads 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 area 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 contour 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 matter tracts and a varying degree of grey matter 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
4. Muscle weakness and deterioration.
5. Neck stiffness.
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 DISTURBANCES WITH
INDIVIDUAL ROOT**

Nerve root	Disc level	Symptoms
C ₃	C ₂ – C ₃	Pain and numbness in the back of the neck, mastoid process, and pinna of ear.
C ₄	C ₃ – C ₄	Pain and numbness in back of the neck, levator scapulae and anterior chest.
C ₅	C ₄ – C ₅	Pain in the neck, tip of the shoulder, anterior arm, numbness over middle of the body, deltoid muscle.
C ₆	C ₅ – C ₆	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.
C ₇	C ₆ – C ₇	Pain in the neck, shoulder, medial border of scapula, lateral arm, dorsal forearm, sensory change in index and middle finger.
C ₈	C ₇ – T ₁	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

Nerve root	Disc level	Weakness – Reflex change
C ₃	C ₂ – C ₃	Not readily detectable weakness or reflex changes except by EMG.
C ₄	C ₃ – C ₄	Not readily detectable weakness or reflex changes except by EMG.
C ₅	C ₄ – C ₅	Weakness of extension of arm and shoulder particularly above 90° wasting of deltoid muscle, no reflex change.
C ₆	C ₅ – C ₆	Weakness of biceps muscle, Diminished biceps reflex.
C ₇	C ₆ – C ₇	Weakness of triceps muscle diminished triceps reflex.
C ₈	C ₇ – T ₁	Weakness of triceps and small muscles of hand. No reflex change.

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 present 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 upper limbs early. Paralysis of 9th and 10th cranial nerves, spasticity of all four limbs, exaggerated deep tendon reflexes, absence of abdominal and cremastic 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 deltoid, 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 C₅ – T₁₂:

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 C₇:

Paraplegia, paralysis of triceps, extension of wrist and fingers, loss of triceps (C₆– C₇) jerks.

➤ **At the Level of C₈ – T₁:**

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 AP and Lateral views

show

- Disc space narrowing
- Osteophyte formation
- Degeneration in facet and uncovertebral joints
- Foraminal stenosis
- Central stenosis

2. Myelogram - May show compression of the spinal cord

3. C.T SCAN (computerised tomography)

- Confirms degenerative changes
- May demonstrate posterior osteophytes and disc herniation
- Estimates diameter of canal

4. Magnetic Resonance Imaging (MRI)

- Neural compression
- Intrinsic cord changes
- Disc degeneration

5. Examination of CSF:

- Very high protein

6. Other tests:

- Nerve conduction studies.

Provocative tests:

For , differential diagnosis.

Spurling test (Foraminal compression test):

Extend the neck and then rotate and laterally bend the head to same side, while the examiner applies downward pressure to opposite of the head. If this position with or without pressure produces **radicular symptoms** into upper limb, cervical spondylosis is suggested.

Lhermitten sign:

Flexion of the neck causes an electric shock like feeling in the arms in cervical spondylosis.

Adson's test:

Turn patient's head to the involved side, raise the chin and hold a deep inspiration and the ipsilateral radial pulse is palpated with the arm slightly abducted from the side. If the pulse diminishes – test is positive and suggest **thoracic outlet syndrome**.

Roo's test:

The patient is asked to abduct the shoulder 90° , flex the elbow 90° , and open and close the hands slowly for three minutes.

Presence of hand pallor, ulnar dysesthesia, diminished pulse present thoracic outlet syndrome.

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 thoracic outlet syndrome, and pancoast tumour are superficially similar to those of disc disease.

1. Pan coast tumour

Pan coast tumour results from local extension of a tumour 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.

3. Thoracic Outlet syndrome:

The space at the thoracic outlet or inlet when it is less than adequate, lead to compression of neurovascular bundle, comprise of subclavian artery and vein, axillary artery and vein, and brachial plexus at the thoracic outlet.

Clinical Features - Vascular problems, neurogenic problems, (C8, T1) klumpkes's paralysis.

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

Commonest 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 precede other symptoms.

ii) Intradural tumours

a. Extra medullary tumours (Meningiomas neurofibromas)

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 spino thalamic 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 hyperreflexia 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, nystagmus, kyphoscoliosis, pes cavus and spina bifida 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 has 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 atleast 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.

Instructions:

1. Do not get looking 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 up to 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 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 vatham(Cervical spondylosis)** was carried out in the post graduate department of Pothu Maruthuvam, Govt Siddha Medical College, Palayamkottai. In this study 20 patients were treated as out-patients and the other 20 as in-patients . After discharge the patients were also followed as out patients.

Selection of the Patients:

Inclusion criteria:

1. Age : 20-70 years
2. Sex: Male and Female
3. Patients having the symptoms of
 - Pain, Stiffness and restricted movements in the neck
 - Radiating pain in the upper limbs
 - Tingling sensation and numbness in the upper limbs
 - Giddiness
 - Constipation
 - Burning sensation of eyes

Exclusion criteria:

- Pott's spine
- Trauma of cervical spine
- Inflammatory disorders like rheumatoid arthritis
- Ankylosing spondylitis

- Serious systemic illness
- Pregnancy & lactation
- Neoplasm
- Diabetes mellitus
- Congenital anomalies of spine

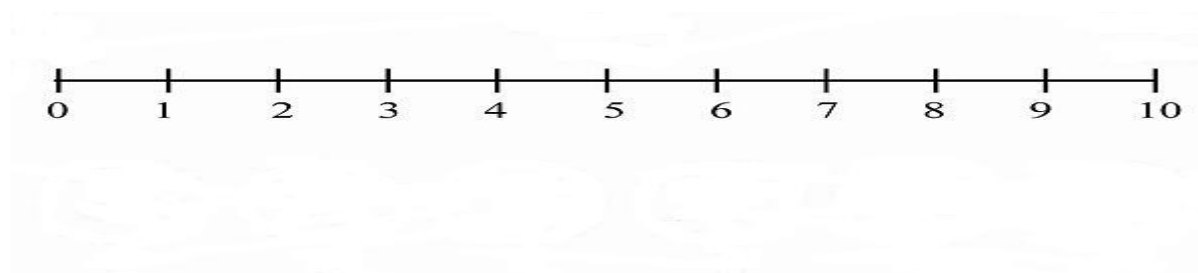
Diagnosis:

The diagnosis was made by the following siddha diagnostic methods, Nilam, Kaalam, Poriyalaridhal, Pulanalarithal, Vinaadhala, Mukkutra Nilaigal, Udala Thathukal Nilai and Envagai Thervugal. Thus the diagnosis of **Sagana Vatham** was obtained and confirmed by X-ray.

Assessment of results:

The results were assessed on the basis of symptomatic improvement and **universal pain assessment scale**. For instance, for the symptom of pain, the one end of the scale was marked with 0 which represented “no pain” and the other end marked with 10 representing “worst possible pain”.

UNIVERSAL PAIN ASSESSMENT SCALE:



- A. 0 : No Pain
- B. 1 -3 : Mild pain
- C. 4-6 : Moderate pain
- D. 7-10 : Severe pain

(Reference: Clinical Manual for Nursing Practice. (National Institute of Health Warren Grant Magnuson Clinical Center)

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
- Blood Sugar
- Blood Urea
- Serum Creatinine

- Serum Bilirubin
- Serum Cholesterol.

Urine:

- Albumin
- Sugar
- Deposits

Radiological Investigations:

X – Ray: Cervical spine

AP – View

Lateral View

Treatment

Vengara Sanjeevi Chendura Mathirai – 1, twice a day, after food

Adjuvant : Milagu choornam, Thippili choornam, Inji saaru

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

RESULT & OBSERVATION

For the clinical study 20 Out-patients and 20 In-patients were selected, treated in PG-I Department of Pothu Maruthuvam Government Siddha Medical college Palayamkottai. Results were observed with respect to the following criteria.

- Sex Distribution
- Age Distribution
- Kaalam
- Thegi
- Gunam
- Religion
- Paruvakaalam
- Thinai
- Occupational Status
- Socio- economical Status
- Etiological Factor
- Mode of Onset
- Duration Of Illness
- Clinical Manifestation
- Gananendrium
- Kanmendriyam

- Conditions Of Mukkutram (Vatham,Pitham,Kabham)
- Udal Kattukal
- Envagai Thervugal
- Neikuri
- Radiological findings
- Assessment of outcome
- Gradation of result

1. Sex Distribution

S.No	Sex	Out Patients (OP)		In Patients (IP)	
		No.of Cases	Percentage	No.of Cases	Percentage
1.	Male	5	25	5	25
2.	Female	15	75	15	75

Among 20 Outpatients 25% were males and 75% are females.

Among 20 Inpatients 25% were males and 75% are females.

The incidence of this disease was more common in females than in males.

2. Age Distribution:

S.No	Age group in years	Out Patients (OP)		In Patients (IP)	
		No.of Cases	Percentage	No.of Cases	Percentage
1.	21-30	1	5	1	5
2.	31-40	4	20	2	10
3.	41-50	5	25	1	5
4.	51-60	4	20	7	35
5.	61-70	6	30	9	45

Among 20 Outpatients

5% were in the age group between 21-30yrs, 20% were in the age group between 31-40yrs, 25% were in the age group between 41-50yrs, 20% were in the age group between 51-60yrs, 30% were in the age group between 61-70yrs.

Among 20 Inpatients

5% were in the age group between 21-30yrs, 10% were in the age group between 31-40 yrs, 5% in the 41-50yrs, 35% were in age group between 51-60yrs, 45% were in the age group between 61-70yrs. During the course of entire study, most of the cases came in the age group between 61-70yrs.

3) Kaalam:

S.No	Kaalam	Out patients		In patients	
		No.of cases	Percentage	No.of cases	Percentage
1.	Vatha Kaalam (First 33 yrs 4 months)	-	-	2	10
2.	Pitha Kaalam (Second 33 yrs and 4 months)	20	100	15	75
3.	Kapha Kaalam (Third 33 yrs and 4 months)	-	-	3	15

Among 20 Outpatients

All the patients belonged to Pitha Kaalam.

Among 20 Inpatients

10% were under Vatha kaalam,75% under Pithakaalam, 15% Kabakaalam.

4) Constitution of the Body (Thegi):

S.No	Constitution of the body	Out patients		In patients	
		No.of cases	Percentage	No.of cases	Percentage
1.	Vatha Thegi	10	50	12	60
2.	Pitha Thegi	5	25	3	15
3.	Kapha Thegi	3	15	2	10
4.	Thontha Thegi	2	10	3	15

Vatha thegi patients are more affected OP-50% , IP-60%.

5) Gunam:

S.No	Gunam	Out patients		In patients	
		No.of cases	Percentage	No.of cases	Percentage
1.	Sathuva gunam	-	-	-	-
2.	Rajao gunam	20	100%	20	100%
3.	Thamo gunam	-	-	-	-

All the patients had Rajogunam

6) Religion Distribution:

S.No	Religion	Out patients		In patients	
		No.of cases	Percentage	No.of cases	Percentage
1.	Hindu	18	90	18	90
2.	Christian	2	10	1	5
3.	Muslim	-	-	1	5

Among 20 Outpatients 90% were Hindus, 5% Christians, 5% were Muslims.

Among 20 Inpatients 90% were Hindus, 10% Christians.

7) Paruva Kaalam:

S.No	Paruva Kaalam	Out patients		In patients	
		No.of cases	Percentage	No.of cases	Percentage
1.	Kaarkaalam	10	50	1	5
2.	Koothirkaalam	2	10	1	5
3.	Munpanikaalam	-	-	-	-
4.	Pinpanikaalam	-	-	-	-
5.	Ilavenilkaalam	-	-	-	-
	Munpanikaalam	8	40	18	90

Among 20 Outpatients

In Kaarkaalam 50% cases were observed, Koothirkaalam 10% were observed and in Muthuvenilkaalam 40% cases were observed.

Among 20 Inpatients

In Kaarkaalam 5% cases were observed, Koothirkaalam 5% were observed and in Muthuvenilkaalam 90% cases were observed.

8)Thinai:

S.No	Thinai	Out patients		In patients	
		No.of cases	Percentage	No.of cases	Percentage
1.	Kurinji	-	-	-	-
2.	Mullai	-	-	-	-
3.	Marutham	18	90	17	85
4.	Neithal	2	10	3	15
5.	Palai	-	-	-	-

Among 20 Outpatients 90% cases were in marutham, 10% cases were neithal.

Among 20 Inpatients 85% cases were in marutham, 15% cases were in neithal.

9) Occupation:

S.No	Occupation:	Out patients		In patients	
		No.of cases	Percentage	No.of cases	Percentage
1.	Agricultural labours	4	20	4	20
2.	Beedi workers	2	10	5	25
3.	Building workers	1	5	2	10
4.	Housewife	6	30	5	25
5.	Tailor	2	10	1	5
6.	Driver	1	5	1	5
7.	Tea Shop workers	2	10	1	5
8.	Weight lifter	1	5	-	-
9.	Clerk	1	5	-	-
10.	Hotel – Cooking Master	-	-	1	5

Among 20 Outpatients.

Agricultural labours 20%, Beediworkers 10%, Building workers 5%, Housewife 30%, Tailors 10%, Drivers 5% ,Teashopworkers 10%, Weight lifters 5%, Clerk 5% were observed.

Among 20 In patients.

Agricultural labours 20%, Beediworkers 25%,Building workers 10%, House wife 25% ,Tailors 5%,Driver 5%,Teashopworkers 5%, Hotel cooking master 5%.

10) Socio-Economic Status:

The incidence of the disease was found to be higher in poor class people.

S.No	Socio Economic status	Out patients		In patients	
		No.of cases	Percentage	No.of cases	Percentage
1.	Rich	2	10	-	-
2.	Middle Class	4	20	8	40
3.	Poor	14	70	12	60

11) Aetiological Factors:

S.No	Aetiological Factors	Out patients		In patients	
		No.of cases	Percentage	No.of cases	Percentage
1.	Age	4	20	5	25
2.	Occupation	15	75	13	65
3.	Trauma	1	5	2	10
4.	Metabolic	-	-	-	-
5.	Congenital	-	-	-	-

Among 20 Outpatients- Due to age 20%, Occupation 75%, Trauma 5% .

Among 20 Inpatients- Due to age 25%, Occupation 65%, Trauma 10%.

12) Mode of onset:

S.No	Mode of onset	Out patients		In patients	
		No.of cases	Percentage	No.of cases	Percentage
1.	Acute	4	20	2	10
2.	Chronic	16	80	18	90

In **Op study** 20% of cases had acute onset, 80% of cases onset was chronic.

In **Ip study** 10% of cases had acute onset, 90% of cases onset was chronic.

13) Duration of Illness:

S.No	Duration of Illness	Out patients		In patients	
		No.of cases	Percentage	No.of cases	Percentage
1.	10-15 days	1	5	1	-
2.	15-30 days	2	10	1	5
3.	1-2 months	3	15	2	5
4.	2-3 months	7	35	4	20
5.	Above 3 months	7	35	12	70

In my study, duration of illness in majority of the cases was above 3 months.

14) Clinical Manifestations:

S.No	Clinical Manifestations	Out patients		In patients	
		No.of cases	Percentage	No.of cases	Percentage
1.	Pain in the neck	20	100	20	100
2.	Restriction of movements in the neck	10	50	12	60
3.	Radiating pain in the upper limb	10	50	9	45
4.	Headache	8	40	5	25
5.	Giddiness	12	60	12	60
6.	Numbness	13	65	10	50
7.	Constipation	6	30	8	40
8.	Burning sensation of eyes	3	15	5	25

Pain in the nape of the neck was present in all cases.

15) Gnanendrium reference:

S.No	Gnanendrium	Out patients		In patients	
		No.of cases	Percentage	No.of cases	Percentage
1.	Mei	20	100	20	100
2.	Vai	-	-	-	-
3.	Kan	-	-	-	-
4.	Mooku	-	-	-	-
5.	Sevi	-	-	-	-

Mei was affected in all cases.

16)Kanmendrium:

S.No	Kanmendrium	Out patients		In patients	
		No.of cases	Percentage	No.of cases	Percentage
1.	Vaai	-	-	-	-
2.	Kaal	-	-	-	-
3.	Kai	10	50	9	45
4.	Eruvai	6	30	8	40
5.	Karuvai	-	-	-	-

In OP cases:

Kai was affected in 50% of the cases . Eruvai was affected in 30% of the cases.

In IP cases:

Kai was affected in 45% of the cases.Eruvai was affected in 40% of the cases.

18) Conditions of Mukkutram:**A) Disturbance in Vatham:**

Sl.No.	Vatham	Out patients		In patients	
		No. of cases	%	No. of cases	%
1	Pranan	-	-	-	-
2	Abanan	6	30	8	40
3	Viyanan	20	100	20	100
4	Udhanan	-	-	-	-
5	Samanan	20	100	20	100
6	Nagan	-	-	-	-
7	Koorman	-	-	-	-
8	Kirukaran	-	-	-	-
9	Devathathan	20	100	20	100
10	Dhananjeyan	-	-	-	-

Among the 40 cases observed Viyaanan, Samaanan and Devathathan were affected in all the 40 cases. Abanan was affected in 30% of the OP cases & 40% of the IP cases .

B) Disturbances in Pitham:

Sl. No.	Pitham	Out patients		In patients	
		No. of cases	%	No. of cases	%
1	Anarpitham	-	-	-	-
2	Ranjagapitham	2	10	2	10
3	Prasakapitham	-	-	-	-
4	Alosagapitham	-	-	-	-
5	Sathagapitham	20	100	20	100

Among the 40 cases Sathagam was affected in all 40 (100%) cases and Ranjagam was affected in 2 (10%) cases.

C) Disturbances in Kabham

Sl. No.	Kabham	Out patients		In patients	
		No. of cases	%	No. of cases	%
1	Avalambagam	20	100	20	100
2	Kilethagam	-	-	-	-
3	Pothagam	-	-	-	-
4	Tharpagam	3	15	5	25
5	Santhigam	20	100	20	100

Santhigam was affected in all cases. In OP study Tharpagam was affected in 15% cases and 25% of cases in IP study.

19) Involvement of udal thathukkal

Sl. No.	Udalkattugal	Out patients		In patients	
		No. of cases	%	No. of cases	%
1	Saaram	20	100	20	100
2	Senneer	2	10	2	10
3	Oon	20	100	20	100
4	Kozhuppu	20	100	20	100
5	Enbu	20	100	20	100
6	Moolai	-	-	-	-
7	Sukkilam/ Suronitham	-	-	-	-

Saaram, Oon, Kozhuppu and Enbu were affected in all cases. Senneer was affected in 10% of the cases.

20) Conditions of Envagai thervugal

Sl.No.	Envagai Thervugal	Out patients		In patients	
		No. of cases	%	No. of cases	%
1	Naa	2	10	2	10
2	Niram	2	10	2	10
3	Mozhi	-	-	-	-
4	Vizhi	2	10	2	10
5	Malam	6	30	8	40
6	Moothiram	-	-	-	-
7	Sparisam	20	100	20	100
8	Naadi				
	Vatha Pitham	7	35	14	70
	Vatha Kabam	6	30	3	15
	Pitha Vaatham	4	20	1	5
	Pitha Kabam	3	15	1	5
	Kaba Vaatham	-	-	-	-
	Kaba pitham	-	-	1	5

In all the cases sparisam was affected

21)Neikkuri:

Sl. No.	Neikkuri	Out patients		In patients	
		No. of cases	%	No. of cases	%
1	Vatha Neer	9	45	10	50
2	Pitha Neer	6	30	8	40
3	Kaba Neer	5	25	2	10

Out of 20 Outpatients

45% had vatha neer , 30% had pitha neer , 25% had kabha neer

Out of 20 Inpatients

50% had vatha neer, 40% had pitha neer, 10% had kabha neer .

22)Radiological findings:X-ray:Cervical spine-AP,Lateral view:

Sl. No.	Radiological findings	Out patients		In patients	
		No. of cases	%	No. of cases	%
1	Degeneration	20	100	20	100
2	Intervertebral space Narrowing	7	35	9	45
3	Osteophyte	20	100	20	100
4	Fusion of Osteophytes	-	-	1	5
5.	Loss of lordosis	4	20	4	20

*IVS – Inter vertebral space

100% of OP and IP cases showed degenerative changes and

osteophytic changes. 20% cases of OP and IP showed loss of lordosis. Narrowing of Intervertebral space was seen in 35% of OP cases and 45% IP cases. Fusion of osteophytes was present in 5% of IP cases.

23) Assessment of Outcome :

Pain Assessment Scale

S. No	Pain scale	Out patients				In patients			
		Before treatment		After treatment		Before treatment		After treatment	
		No of cases	Percentage	No of cases	Percentage	No of cases	Percentage	No of cases	Percentage
1.	No pain(0)	-	-	15	75	-	-	15	75
2.	Mild (1-3)	8	40	3	15	10	50	3	15
3.	Moderate (4-6)	10	50	1	5	7	35	2	10
4.	Severe (7-10)	2	10	1	5	3	15	-	-

In OP cases after treatment pain was relieved in 75% of the cases. 15% of the cases had mild pain, 5% of the cases had moderate pain and 5% of the cases had severe pain.

In IP cases after treatment pain was relieved in 75% of the cases. 15% of the cases had mild pain and 10% of the cases had moderate pain.

Other Clinical features:

S.No	Signs and Symptoms	Before treatment			
		OP	Percentage %	IP	Percentage %
1.	Pain in the Neck	20	100	20	100
2.	Restriction of the neck movements	12	60	14	70
3.	Radiating pain in the upper limbs	8	40	10	50
4.	Headache	6	30	4	20
5.	Giddiness	10	50	8	40
6.	Numbness	6	30	9	45
7.	Constipation	8	40	6	30
8.	Burning sensation of eyes	5	25	3	15

In Op study after treatment neck pain was present in 25% of the cases. Giddiness and neck stiffness were present in 30% of the cases.

Radiating pain to upper limb, numbness and constipation were present in 20% of the cases. Head ache was present in 15% of the cases and burning sensation in the eyes was present in 10% of the cases.

In IP study after treatment neck pain and radiating pain to upper limb were present in 25% of the cases. Neck stiffness and numbness were present in 30% of the cases. Giddiness, burning sensation in the eyes and constipation were present in 15% of the cases. Head ache was present in 10% of the cases.

24) Gradation of result:

RESULTS	NO OF CASES		PERCENTAGE	
	OP	IP	OP	IP
Good response	16	14	80	70
Moderate response	2	4	10	20
No response	2	2	10	10
Total	20	20	100	100

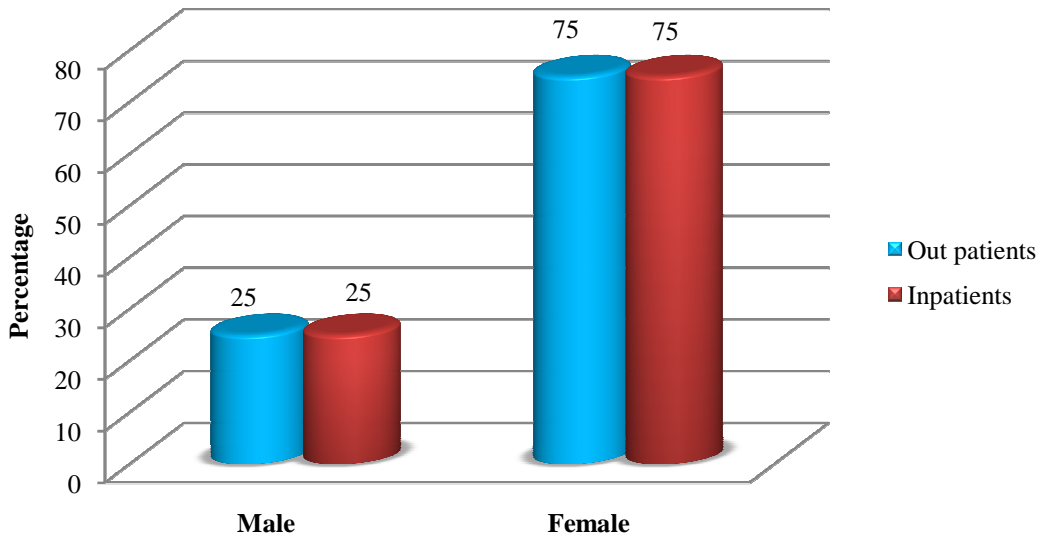
After treatment

Good response was seen in 80% of the OP cases and 70 % of the IP cases.

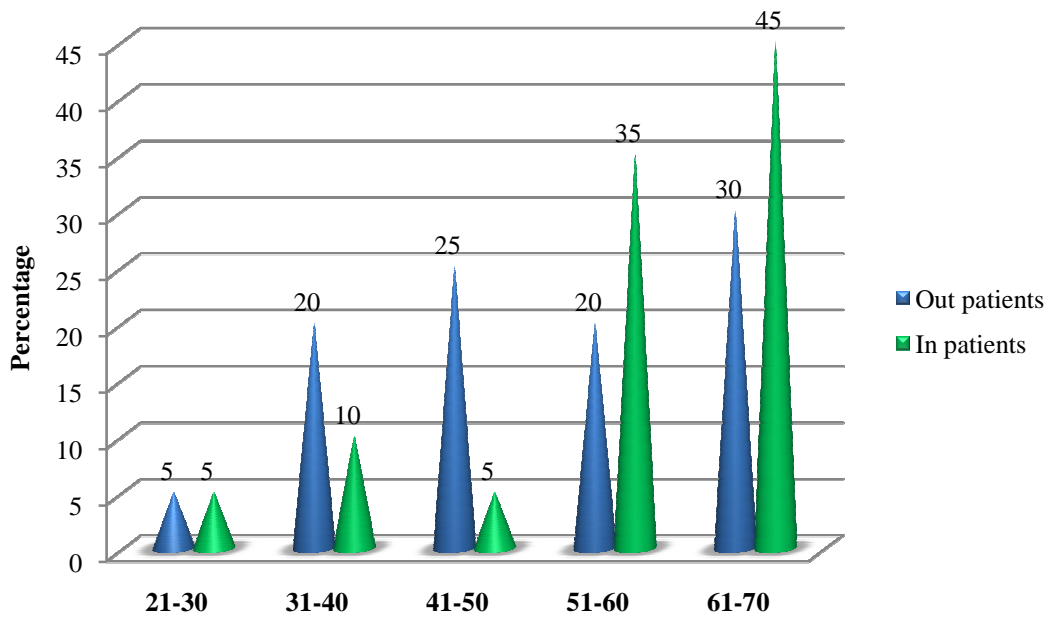
Moderate response was seen in 10% of the OP cases and 20 % of the IP cases.

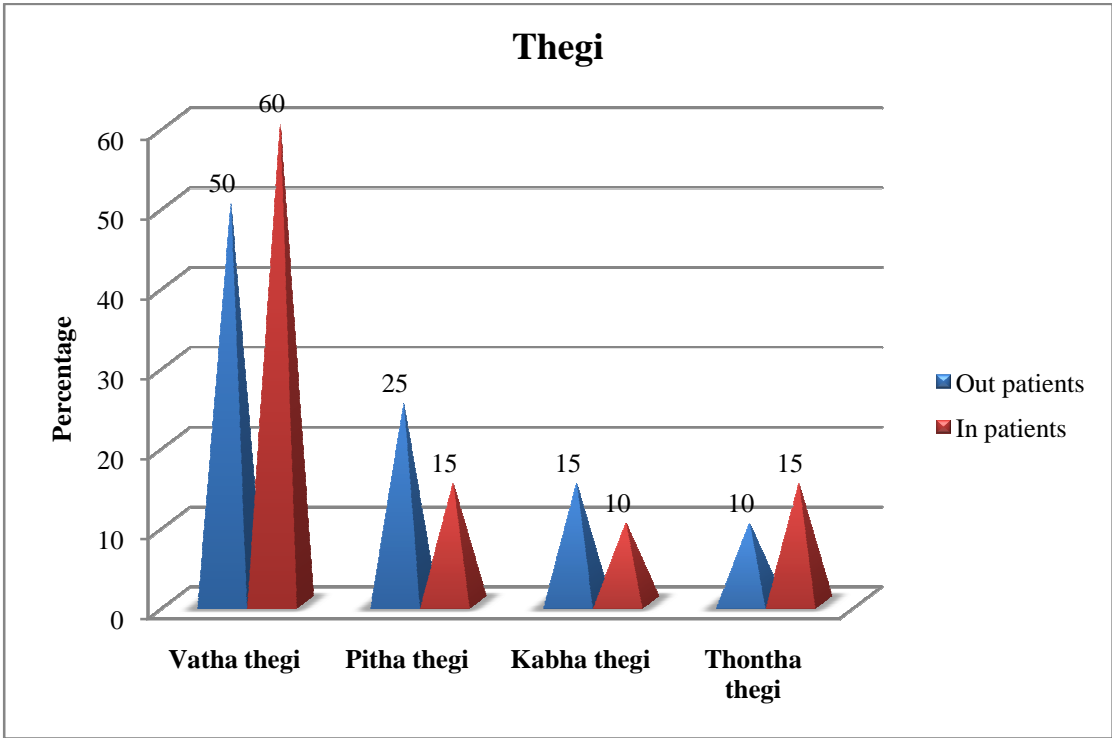
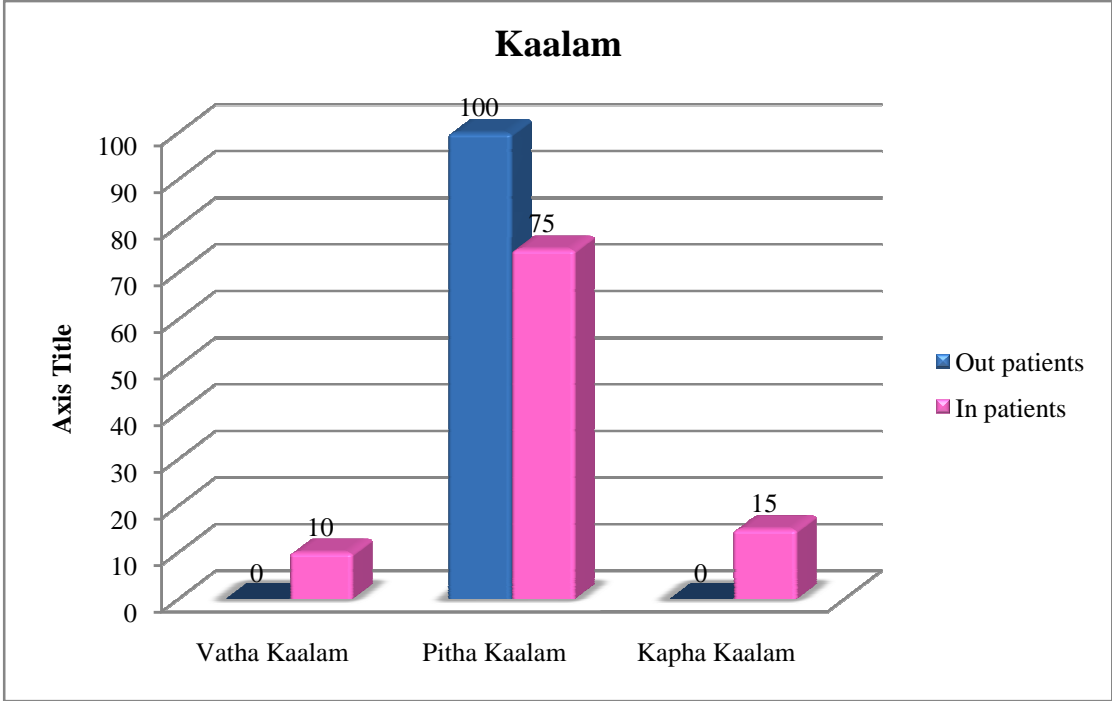
There was no response in 10% of the OP cases and 10% of the IP cases.

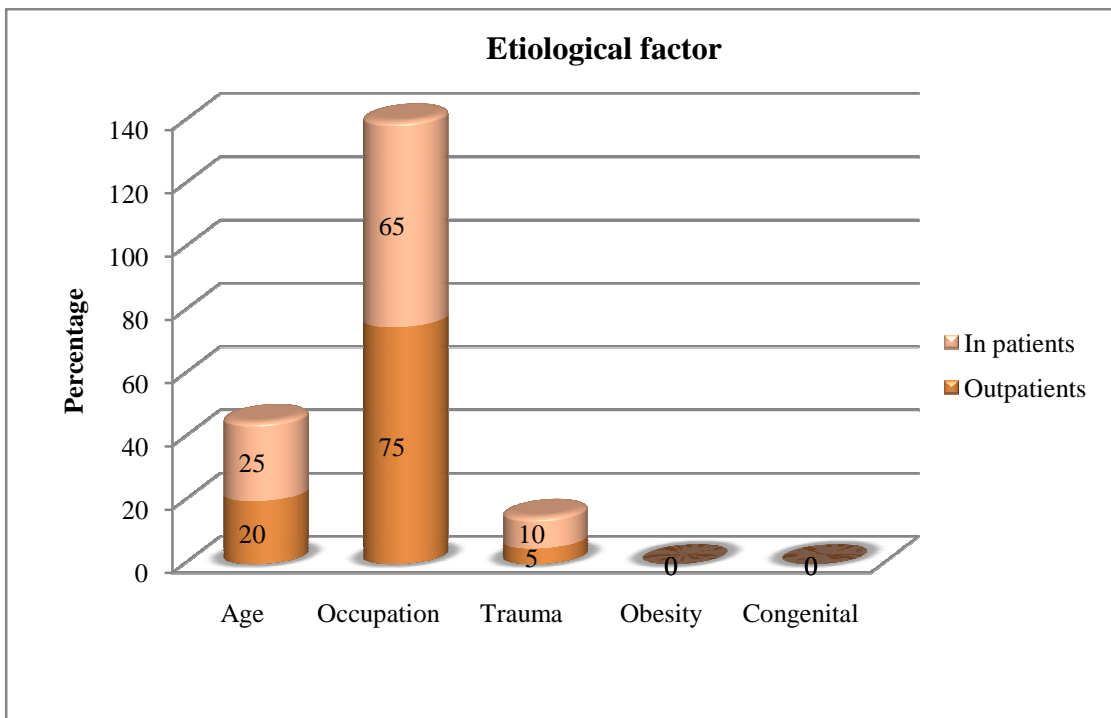
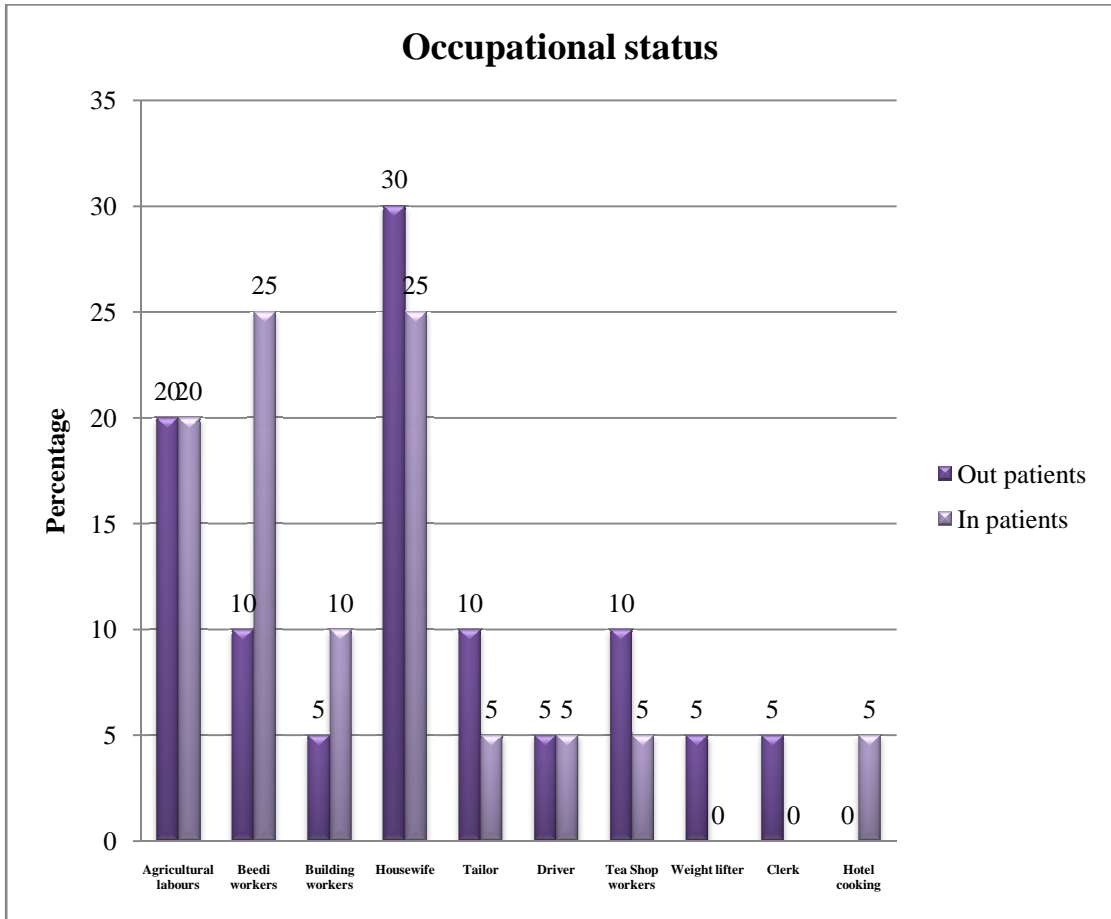
Sex Distribution

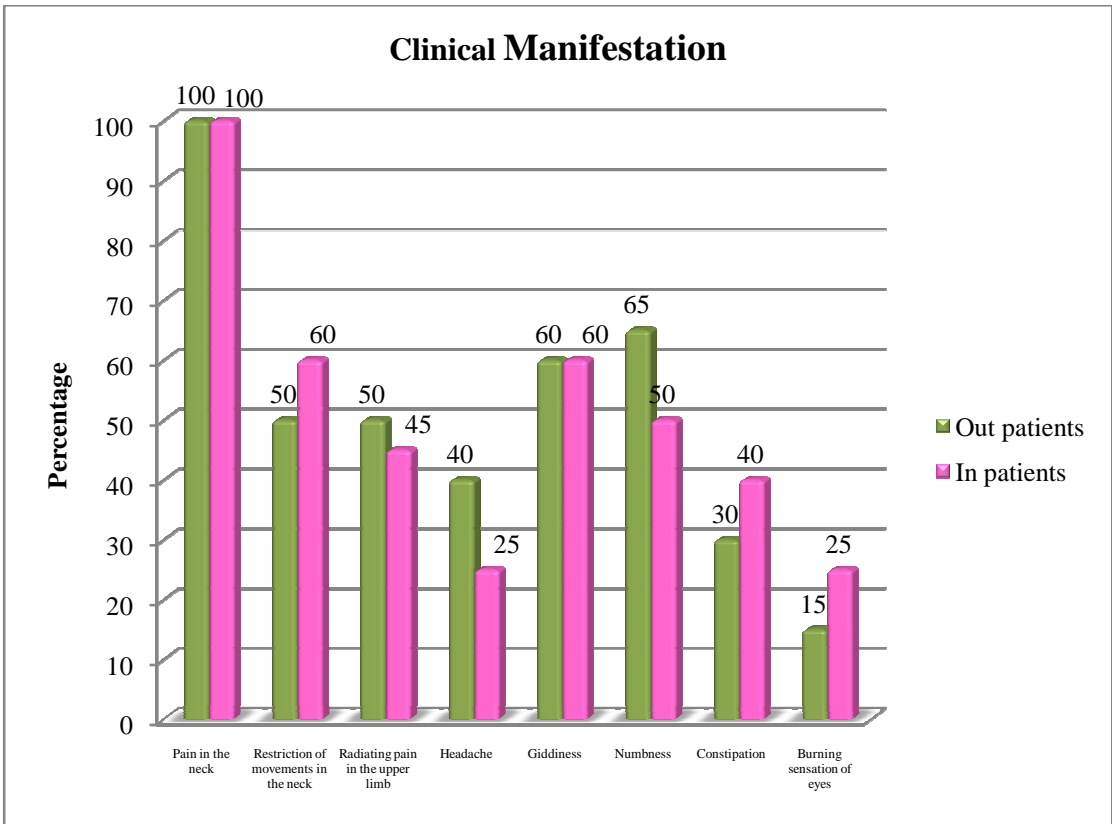
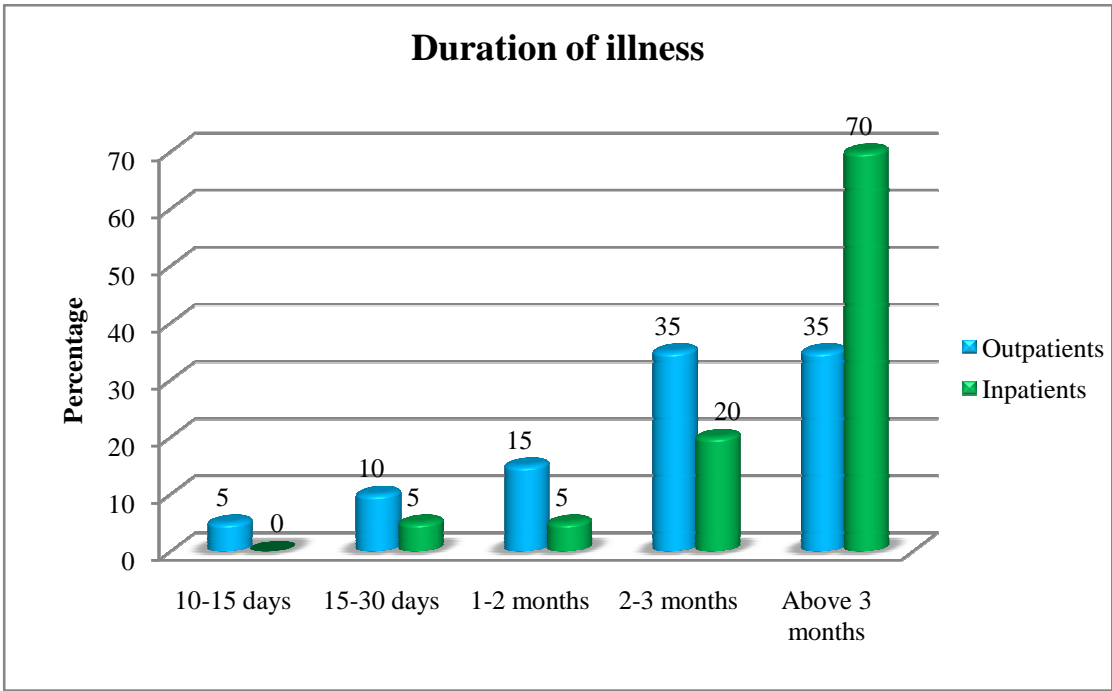


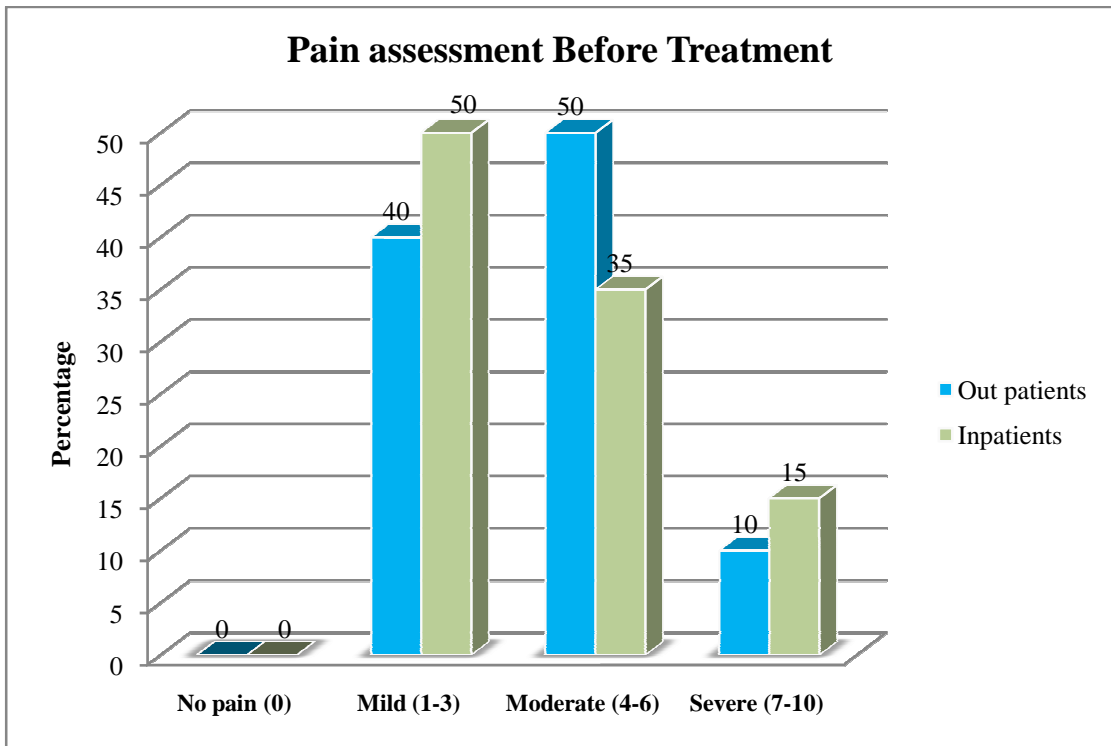
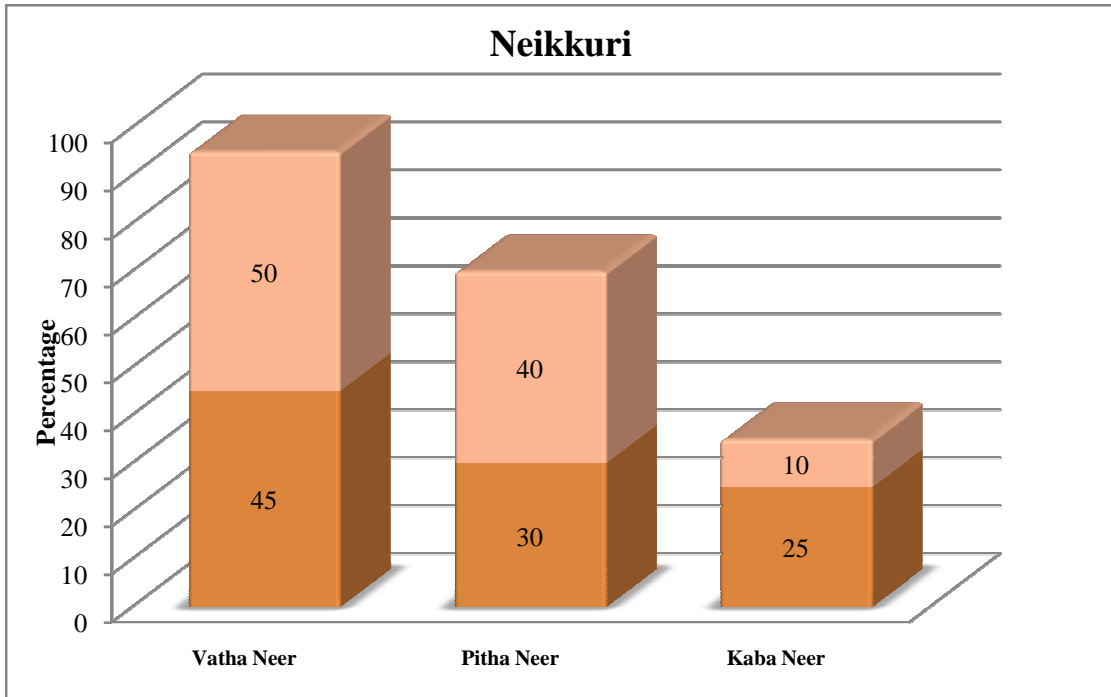
Age Distribution

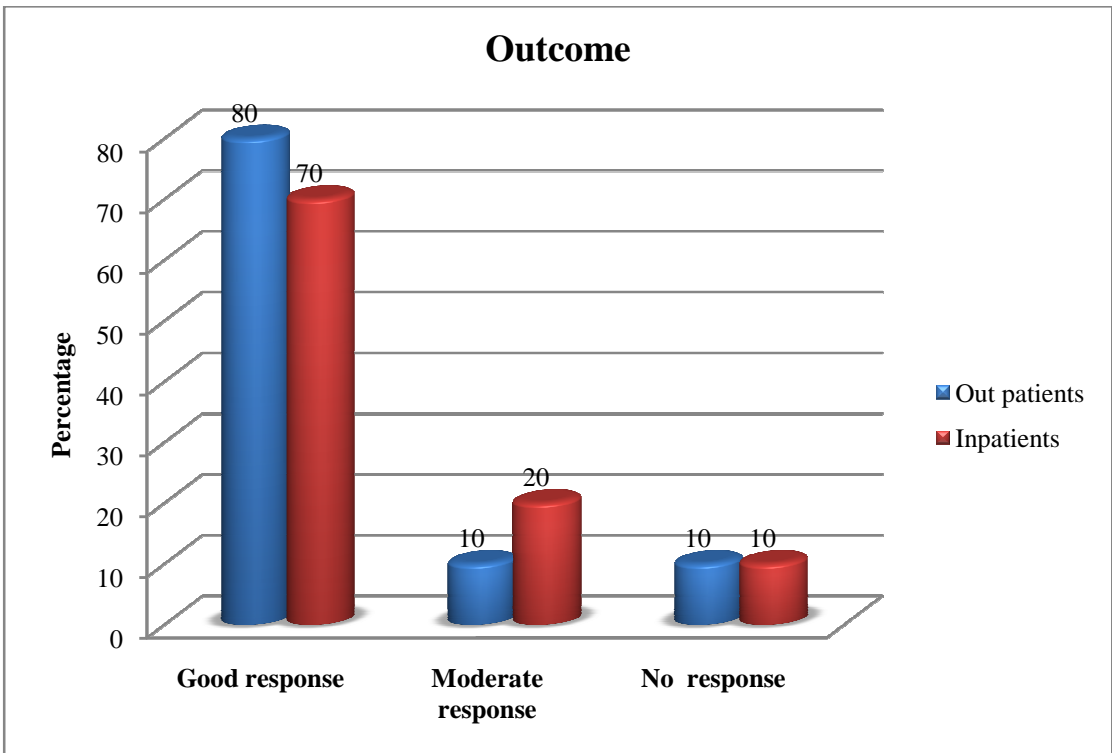
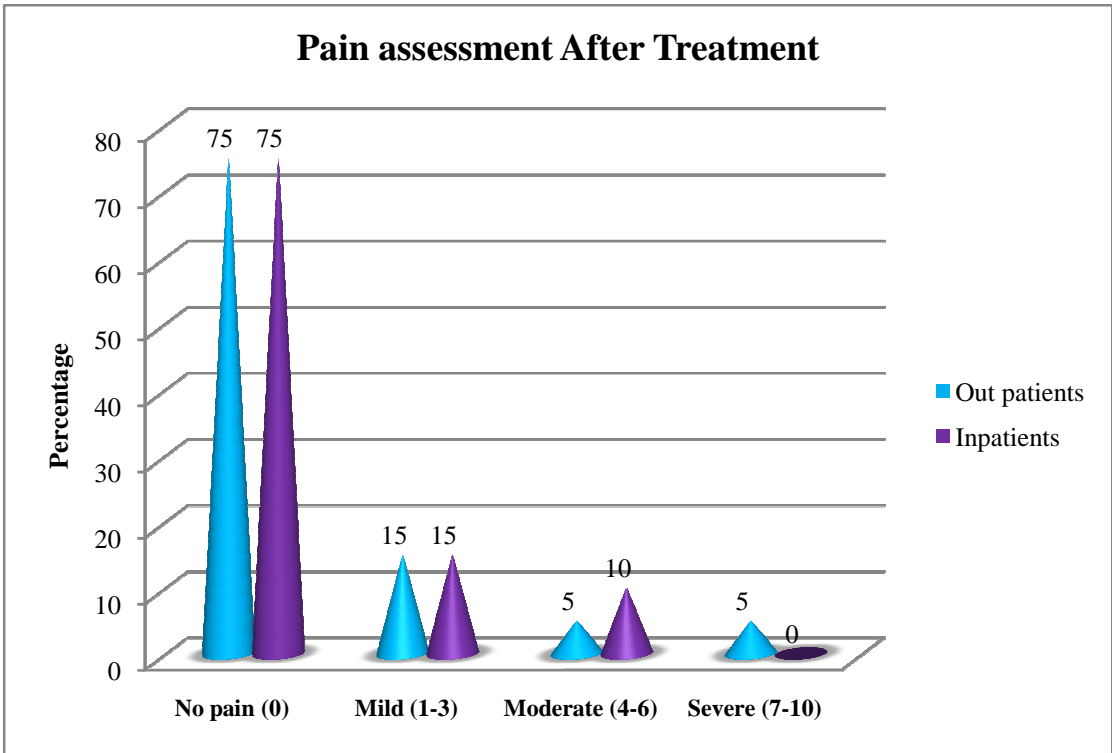












DISCUSSION

Advancement in modern technology has enabled our present day society to exist in a world where the consent of hard work even moderate physical work is obsolete and unfashionable. The physical inactivity, the life style, and food habits, have caused so many diseases. These leads to weakening of our locomotor system and eventually causes **Sagana vatham(Cervical spondylosis)**.

Sagana vatham, one among the 80 types of vatha diseases resembles in its clinical features with Cervical spondylosis in modern medicine. The main clinical features of Sagana Vatham are pain in the nape of the neck, radiating pain in shoulder and upper limb, mental depression, giddiness,constipation and tingling sensation over the upper limbs.

20 OP cases and 20 IP cases were selected for treatment, according to the clinical features mentioned in “Yugi Vaithya Chinthamani”. Siddha method of diagnosis was carried out.With the help of modern investigations, the diagnosis was confirmed and treatment with trial medicines was clearly observed.

1. Incidence with sex distribution:

Among the 40 patients selected , the prevalence of the disease was found to be higher in females-75% (both OP & IP)

2. Age distribution:

The prevalence of the disease was found to be higher in the age group of 61-70 years. (OP-30% & IP-45%)

3. Distribution according to Kaalam:

Majority of the cases belonged to Pitha kaalam which is commonly the period of degeneration(OP-100% & IP-75%)

4. Incidence with reference to constitution of the body:

Vatha thegi patients were more affected(OP-50% & IP -60%).

5. Incidence with reference to Gunam:

All In patients & Out patients had Rajo gunam.

6. Incidence reference to Religion-

Among the 40 patients the incidence was found to be higher in Hindus(OP-90% & IP-90%).

7. Incidence with reference to Paruvakaalam:

Majority of the cases were observed in Muthuvenil kaalam (OP-40% & IP-90%). This coincides with the concepts of Thanilai Valarchi of vatham in Muthuvenil Kaalam.

8. Incidence with Thinai:

Eventhough Siddha literatures mentions that marutham is a disease free zone, most of the cases reported were from Marutham (OP-90% & IP-85%). This may be due to altered life style.

9. Incidence with reference to Occupation:

Occupation of most of the patients forced themselves to maintain the same posture throughout the day. This may be the reason for these patients to develop Sagana Vatham.

10. Incidence with reference to Socio-Economic status:

In my clinical study, most of the patients belonged to poor socio-economic status.

11. Incidence with reference to Aetiological factors:

Occupation was the main precipitating factor in majority of the cases.

12. Incidence with reference to mode of onset:

Most of the patients were observed in chronic state (OP-80% & IP-90%).

13. Incidence with duration of Illness:

In my study, duration of illness in majority of the cases were above 3 months(OP-55% & IP-70%).

14. Incidence with Clinical Manifestations:

Pain in the nape of the neck, neck stiffness, radiating pain in the upper limbs, tingling sensation, constipation, numbness, mental depression, burning sensation in the eyes and giddiness were the signs and symptoms present in variable numbers among the patients under the study.

Pain in the nape of the neck was present in all the cases.

15. Incidence with reference to the Gnanendrium:

Mei was affected in all the cases.

16. Incidence with Reference to the Kanmendrium:

In OP cases:

Kai was affected in 50% of the cases & Eruvai was affected in 30% of the cases.

In IP cases:

Kai was affected in 45% of the cases & Eruvai was affected in 40% of the cases.

19. Conditions of Mukkutram:

a. Disturbance in vatham:

Among the 40 cases observed Viyaanan, Samaanan and Devathathan were affected in all the 40 cases. The derangement of Viyanan produced pain, restricted movement of the neck, pain in the upper limb, numbness and tingling sensation. Derangement of Abanan produced constipation and that of Devathathan produced lethargy.

b. Disturbances in Pitham:

Among the 40 cases Saathagam was affected in all 40 (100%) cases which produced difficulty in performing regular activities because of pain. Ranjagam was affected in 2 (10%) cases.

c. Disturbances in Kabham:

Santhigam was affected in all cases which produced pain & stiffness in the neck. In OP study Tharpagam was affected in 15% cases and 25% of cases in IP study which produced burning sensation in the eyes.

19. Incidence with reference to Udal thathukkal:

Saaram, Oon, Kozhuppu, Enbu were affected in 100% of cases. Senneer affected in 10% cases of OP and IP.

Disturbance of Saaram produced the symptoms like lethargy and mental depression whereas the derangement of Oon, Kozhuppu and Enbu produced the symptoms like difficulty to move the neck and osteophytic changes in the cervical vertebra. Disturbance in Senneer was associated with anaemia .

20. Incidence with reference to Envagai thervugal:

Naa ,Niram and Vizhi was affected in 10% cases in OP and 10% cases of IP. Sparisam was affected in all the cases which was responsible for the pain.

Under the study of naadi, all the 40 cases showed thontha naadi while Vatha Pitha naadi was predominant in majority of the cases.

Malam was affected in 30% of the OP cases and 40 % of the IP cases which produced constipation.

24. Incidence with reference to Neikuri:

In my study most of the patient had vatha neer.

26. Incidence with reference to Radiological studies:

From X-ray- Cervical spine(AP, Lateral view),100% cases of OP and IP showed degenerative changes and osteophytic changes. 20% cases of OP and IP showed loss of lordosis.Narrowing of Intervertebral space was seen in 35% of the OP cases and 45% of the IP cases. Fusion of osteophytes was seen in 5% of the cases of IP.

Diagnosis :

Diagnosis was done on the basis of Siddha methodology. Routine clinical laboratory investigation (Blood ,Urine) were done on admission to rule out their abnormalities. Xrays were taken to confirm Sagana vatham.

Treatment & Result:

Internal medicine:

Vengara Sanjeevi Chendura Mathirai – 1,twice daily,after food

Adjuvant – Milagu choornam, thipili choornam, Inji saaru

The chemical analysis of the drug showed the presence of chloride, starch, ferrous iron, amino acid and unsaturated compound.

Pharmacological report revealed that the drug possess moderate anti -inflammatory, analgesic & anti-pyretic actions.

Results were assessed on the basis of symptomatic improvement and universal pain assessment scale. The result was found to be good in 75% of the cases, moderate in 15% of the cases and no response in 10% of the cases.

No side effects was noted with the trial drug during the treatment period. Though the duration of clinical study is limited in all the cases, the result was highly encouraging. This is only a preliminary approach and a long term study with more facilities must be undertaken to assess the further impact of the drug on this disease and to rule out the chronic toxicity.

SUMMARY & CONCLUSION

Twenty cases with **Sagana Vatham (Cervical spondylosis)** 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 chosen for the clinical study was:

Vengara Sanjeevi Chendura Mathirai – 1, twice daily, after food

Adjuvant – Milagu choornam, Thippili choornam, Inji saaru

Biochemical analysis revealed that the trial drug possess chloride, starch, ferrous iron, amino acid and unsaturated compound.

Pharmacological report revealed that the drug possess moderate anti – inflammatory, analgesic & anti-pyretic actions.

The various siddha aspects of examinations of this disease were carried out. The clinical features of **Sagana Vatham** described in various Siddha literatures were correlated with **Cervical spondylosis**.

From this study, **SAGANA VATHAM (Cervical spondylosis)** seemed to occur in persons susceptible to neck strain because of keeping the neck constantly in one position while working on or from the wide use of two wheelers on bad roads. On the other hand it also occurs in

people of low socio-economic status, who carry heavy weights especially on head.

In this study neck pain, numbness/ tingling sensation with/without weakness of arm, giddiness were the commonly observed symptoms in the patients. Most of the foresaid were due to vitiation of vatham. As per our siddha materia medica the ingredients of the trial drug were found to have the property of controlling vatha diseases.

The results were assessed on the basis of symptomatic improvement using universal pain assessment scale.

The result was found to be

Good in 75% of the cases

Moderate in 15% of the cases

No response 10% of the cases.

The relief (or) improvement was observed only clinically and there was no change in the radiological findings.

No toxic side effects were noticed during the treatment period.

The trial drug **Vengara Sanjeevi Chendura Mathirai** proved to be a potent formulation in the treatment of **SAGANA VATHAM (Cervical spondylosis)**.

ANNEXURE - I

Preparation and properties of the trial drug

Vengara Sanjeevi Chendura Mathirai

தேவையான சரக்குகள்

❖ வெங்காரம்	-	35 கிராம்
❖ குங்கிலியம்	-	35 கிராம்
❖ கருநாபி	-	1 கழஞ்சு
❖ திப்பிலி மூலம்	-	70 கிராம்
❖ பூண்டு தைலம்	-	தேவையான அளவு

செய்முறை:

- ❖ கல்வத்திலிட்டு அரைத்து பாசிப்பயறு அளவு மாத்திரைகளாக உருட்டி வெயிலில் இட்டு உலர்த்திக் கொள்ளவும்.

அனுபானம்

திப்பிலி சூரணம், மிளகு சூரணம், இஞ்சி சாறு

அளவு:

- ❖ 1 மாத்திரை, காலை மாலை ,உணவுக்கு பிறகு

தீரும் நோய்கள்:

- ❖ 18 வித சன்னி, வாதம்

ஆதாரம்:

- ❖ பிரம்மமுனி வைத்திய சூத்திரம் - பாகம் II

பக்க எண் - 88.

1. வெங்காரம் - Sodium Borax

❖ வேறு பெயர்	-	பொரிகாரம், காரம், உருக்கினம்
❖ சுவை	-	இனிப்புடன் கூடிய துவர்ப்புச் சுவை
❖ வீரியம்	-	வெப்பம்

செய்கை

❖ உள்ளாட்சி	-	குளிர்ச்சியுண்டாக்கி, சிறுநீர் பெருக்கி, ருதுவுண்டாக்கி, பிரசவகாரி, கற்கரைச்சி
❖ வெளியாட்சி	-	சமனகாரி, உடல்தேற்றி, அழுகலகற்றி, துவர்ப்பி

குணம்:

- ❖ சொறிபுடையெண் குன்ம நமை சோரியரசம் பறிகிரகணி கல்லுனம் பன்னோய்- நெறியைத் தடங்கணங்க பங்கிருமி சர்ப்பவிடஞ் சந்நி யிடங்கணங்க லக்கிற் போ மெண்.
- ❖ வெங்காரத்தினால் எண்வகைகுன்மம், பங்குவாதம், கபாதிக்கம், சந்நிபாதம் ஆகிய நோய்கள் நீங்கும்.

2. குங்கிலியம் - Shorea robusta

❖ வேறு பெயர்	-	குங்கிலியம், குங்கிலிகம், சருவரசம், குக்குலு, குக்கில்
❖ சுவை	-	கைப்பு
❖ தன்மை	-	வெப்பம்
❖ பிரிவு	-	கார்ப்பு

செய்கை:

- ❖ வெப்பமுண்டாக்கி
- ❖ கோழைகற்றி
- ❖ சிறுநீர் பெருக்கி

குணம்:

- ❖ பெரும்பாடு மேகம் போம் பேரா துடலில் அரும்பிய புண் ணாறு மிவை யல்லால்- குரும்பாம் எலும்புருக்கி புண்சீழும் ஏகும் உலகில் சலம் பருகும் குங்கிலியத்தால்.
- ❖ குங்கிலியத்தால் கட்டி, வாயுக்கட்டிகள், சூலை, நஞ்சு, கீல்கள் பிடிப்பு, நகங்களைப் பற்றிய புண் இவை போம்.

3. கருநாபி - Aconitum napellus

❖ வேறு பெயர்	-	நாபி, நாபம், வசநாபி, விடம், மருதம்
❖ சுவை	-	கைப்பு
❖ தன்மை	-	வெப்பம்
❖ பிரிவு	-	கார்ப்பு

செய்கை:

- ❖ வியர்வை பெருக்கி, துயரடக்கி, முறை வெப்பகற்றி, தாபமகற்றி, வெப்படக்கி, தாது வெப்பகற்றி

குணம்:

- ❖ காய்ச்சல் தலைநோய் கனத்த சன்னி பாதாமரி பூச்சி விடக்கடியுட் புண்குட்டம்- கூச்சிலிடுங் காத்திரத் தேளுங் குடிபோம் காரகைப் பைங்கொடியே! சூத்திர நாவிக்குத் துவண்டு.

- ❖ சூரம், முப்பிணி, தலைநோய், எரிப்புழு, பாம்புகடி, உள்புண், குறைநோய், தேள்நஞ்சு நீங்கும்.

4. திப்பிலி மூலம் - Roots of Piper longum

❖ வேறு பெயர்	-	அம்பினடி, கிரந்திவேர், கிரந்திகம், திப்பிலக்கட்டை, தேசாவாரம், நதிகரந்தை, மோடிவேர்
❖ சுவை	-	இனிப்பு
❖ தன்மை	-	வெப்பம்
❖ பிரிவு	-	கார்ப்பு

செய்கை:

- ❖ பசித்தீத் தூண்டி

குணம்:

- ❖ தாகபித்தஞ் சோகந் தணியாச் சுரமிருமல்
மேகங் குரற்கம்மல் மெய்க்கடுப்பும்- ஏகுங்காண்
திப்பிலி மூலங்கண்டத் திப்பிலிய தாம் நறுக்குத்
திப்பிலி யென் றே யொருக காற் செப்பு.
- ❖ திப்பிலி மூலத்தால் தீக்குற்றம், சோகம், உடல்கடுப்பு, தீரும், உடல்வலி போம்.

5. வெள்ளைப்பூண்டு - Allium sativum

❖ வேறு பெயர்	-	இலசனம், காயம், உள்ளி, பூண்டு
❖ சுவை	-	கார்ப்பு
❖ தன்மை	-	வெப்பம்
❖ பிரிவு	-	கார்ப்பு

செய்கை:

- ❖ அகட்டு வாயுவகற்றி, பசித்தீ தூண்டி, உரமாக்கி, உடற்றேற்றி, வெப்பமுண்டாக்கி.

குணம்:

- ❖ சன்னியோடு வாதந் தலை நோவு தாள்வலி
மன்னிவரு நீர்க்கோவை வன்சீதம் அன்னமே
உள்ளுள்ளி கண்பாய் உளைமுல ரோகமும் போம்
வெள்ளுள்ளி தன்னால் வெருண்டு
- ❖ வெள்ளுள்ளி தைலத்தால் குடைச்சல், உடல் நோதல் முதலிய
வளிநோய்கள் யாவும் போம்.

6. மிளகு - Piper nigrum

❖ வேறு பெயர்	-	கலினை, கறி, காயம், கோளகம், மாசம், மலையாளி
❖ சுவை	-	கைப்பு, கார்ப்பு
❖ தன்மை	-	வெப்பம்
❖ பிரிவு	-	கார்ப்பு

செய்கை:

- ❖ காறலுண்டாக்கி, முறைவெப்பகற்றி, தடிப்புண்டாக்கி, வெப்பமுண்டாக்கி, வாதமடக்கி, நச்சரி

குணம்:

- ❖ தீயாகி யெங்கும் திரியுமதை யாவத்து
மோயாம வெப்படியு முண்டாக்காற் பாயாது
போத்திமிர்வ தங்கிரந்தி புண்ணீரும் மண்ணவர்க்கும்
காந்தி மெய்வ தச்சலுப்பைக் காய்.

- ❖ மிளகினால் வளி, தீ, கபக்குற்றங்கள் அனைத்தும் விலகும், அன்றியும் திமிர்வாதம் கழலை, வளி, சளி இவைகளையும் அகற்றும்.

7. இஞ்சி - *Zingiber officinale*

❖ வேறு பெயர்	-	அல்லம், ஆர்த்தரகம், இலாக்கொட்டை, நறுமறுப்பு பதில்
❖ சுவை	-	கார்ப்பு
❖ தன்மை	-	வெப்பம்
❖ பிரிவு	-	கார்ப்பு

செய்கை:

- ❖ அகட்டு வாயுவகற்றி, பசித்தீதூண்டி, உமிழ்நீர்ப் பெருக்கி, செரிப்புண்டாக்கி

குணம்:

- ❖ இஞ்சிக் கிழங்குக் கிருமல் ஐயம் ஒக்காளம் வஞ்சிக்குந் சன்னிசுரம் வன்பேதி- விஞ்சுகின்ற சூலையறும் வாதம் போந் தூண்டாத தீபனமாம் வேலையறுங் கண்ணாய்- விளம்பு.
- ❖ இஞ்சியினால் இருமல், கோழை, அழல்குற்றம், வளிசூலை, முக்குற்ற நோய்கள் போம் பசியுண்டாகும்.

ANNEXURE II
BIO-CHEMICAL ANALYSIS OF VENGARA
SANJEEVI CHENDURA MATHIRAI

Preparation of the extract:

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

QUALITATIVE ANALYSIS

S.N.O	EXPERIMENT	OBSERVATION	INFERENCE
1.	TEST FOR CALCIUM 2ml of the above prepared extract was taken in a clean test tube. To this 2ml of 4% Ammonium Oxalate solution was added.	No characteristic change	Absence of calcium
2.	TEST FOR SULPHATE 2ml of the extract was added to 5% Barium Chloride solution.	No characteristic change	Absence of sulphate
3.	TEST FOR CHLORIDE The extract was treated with Silver Nitrate solution	A white precipitate was formed	Indicates the presence of chloride

4.	TEST FOR CARBONATE The substance was treated with concentrated Hcl.	No characteristic change	Absence of carbonate
5.	TEST FOR STARCH The extract was added with weak iodine solution	Blue colour was formed	Indicates the presence of starch
6.	TEST FOR FERRIC IRON The extract was acidified with Glacial acetic acid and Potassium ferro cyanide.	No characteristic change	Absence of ferric Iron
7.	TEST FOR FERROUS IRON The extract was treated with concentrated Nitric acid and Ammonium thiocyanate solution	Blood red colour was formed	Indicates the presence of ferrous Iron
8.	TEST FOR PHOSPHATE The extract was treated with Ammonium molybdate and concentrated Nitric acid.	Yellow precipitate was formed	Indicates the presence of phosphate
9.	TEXT FOR ALBUMIN The extract was treated with Esbach's reagent,	No characteristic change	Absence of Albumin
10.	TEST FOR TANNICACID The extract was treated with Ferric Chloride.	No characteristic change	Absence of Tannic acid

11.	TEST FOR UNSATURATION Potassium permanganate solution was added to the extract.	It got decolourised	Indicates the presence of unsaturated compound
12	TEST FOR THE REDUCING SUGAR 5 ml of Benedict's qualitative solution was taken in a test tube and allowed to boil for 2mts and 8-10 drops of the extract was added and again boiled for 2 mts.	No characteristic change	Absence of Reducing sugar.
13.	TEST FOR AMINO ACID One or two drops of the extract was placed on a filter paper and dried well. Then 1% Ninhydrin was sprayed over the same and dried well.	Violet colour was formed	Indicates the presence of amino acid
14.	TEST FOR ZINC The extract was treated with Potassium Ferrocyanide.	No characteristic Change	Absence of Zinc

Inference:

Bio - Chemical Analysis of **Vengara Sanjeevi Chendura Mathirai** showed the presence of Chloride, Starch, Ferrous iron, Unsaturated Compound and Amino acid.

ANNEXURE – III

PHARMACOLOGICAL ANALYSIS

ACUTE-ANTI- INFLAMMATORY STUDY OF

VENGARA SANJEEVI CHENDURA MATHIRAI

Aim:-

To study the acute anti-inflammatory effect of Vengara Sanjeevi Chendura Mathirai.

Preparation of trial medicine:

65mg of the Vengara Sanjeevi chendura Mathirai was taken. It was mixed with ½ gm of thippili choornam, ½ gm of milagu chooranam and dissolved in 10ml of inji saaru. A dose of 1ml was given to each rat.

Procedure

The anti-inflammatory activity of Vengara Sanjeevi Chendura Mathirai 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 .

Before administration of trial medicine, the hindpaw volume of all rats were measured. This was done by dipping the hindpaw upto tibiotarsal 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 coincide 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, the hind paw 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 VENGARA SANJEEVI CHENDURA MATHIRAI :

Name of drug/ Grou	Dose/100gm of body weight	Initial Readin g In	Final Readings	Mean Difference	Percentage of inflammation	Percentage of inhibition
Control Water	2 ml	0.55	1.4	0.85	100	NIL
Standard (Ibuprofen)	20 mg	0.55	0.75	0.20	23.5	76.5
Vengara Sanjeevi Chendura Mathirai	100mg	0.6	0.95	0.35	41.1	58.9

Result:

From the above experiment it was concluded that the Vengara Sanjeevi Chendura Mathirai has moderate acute anti inflammatory action.

ANALGESIC STUDY OF VENGARA SANJEEVI CHENDURA MATHIRAI

(In Albino rats by Hot Water Bath Method)

Aim

To study the analgesic effect of Vengara Sanjeevi Chendura Mathirai

Preparation of the trial medicine

65mg of the Vengara Sanjeevi chendura Mathirai was taken. It was mixed with $\frac{1}{2}$ gm of thippili choornam, $\frac{1}{2}$ gm of milagu chooranam and dissolved in 10ml of inji saaru. A dose of 1ml 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 150gm. 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 5sec for removal of its tail from hot water bath was excluded from the experiment.

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

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

The third group was given the 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 Vengara Sanjeevi Chendura Mathirai:

S.No	Groups	Dose /100gm Body weight	Initial Reading	After Medicines Administration	
				After ½ hr	After 1 hr
1.	Control (water)	2ml	2 secs	2.0 secs.	2.0 secs
2.	Standard (paracetamol)	20mg	2.5 secs	4.5 secs	6.5 secs
3.	Vengara Sanjeevi Chendura Mathirai	100 mg	2.0 secs	4.0 secs	5.5secs

Inference

It is observed that Vengara Sanjeevi Chendura Mathirai has **moderate** analgesic action.

ANTIPIRETIC STUDY OF VENGARA SANJEEVI CHENDURA MATHIRAI

Aim-

To study the antipyretic activity of Vengara Sanjeevi Chendura Mathirai.

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 given 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 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.

Effect of Vengara Sanjeevi Chendura Mathirai:

Medicines	Dose/100gm Body weight	Initial temp	After 1½ Hour	After 3 hours	After 4 ½ hours
Control (Water)	2ml	37.5 37.5	38.0 38.0	38.5 38.5	38.5 38.5
Standard (Paracetamol)	20 mg	37.0 37.0	36.0 36.0	35.0 35.0	34.0 34.0
Vengara Sanjeevi Chendura Mathirai	100mg	37.0 37.0	36.5 36.5	36.0 36.0	35.5 35.0

Inference:

From the above experiment it was concluded that the Vengara Sanjeevi Chendura Mathirai has moderate antipyretic action.

ANNEXURE – IV

**GOVERNMENT SIDDHA MEDICAL COLLEGE AND HOSPITAL
PALAYAMKOTTAI
TIRUNELVELI – 627 002**

Branch I Maruthuvam (Pothu)

CASE SHEET FOR “SAGANA VATHAM”

O.P.No	:	Occupation	:
Name	:	Income	:
Age	:	Treatment starting date	:
Sex	:	End of the Treatment Date:	
Address	:	Diagnosis	:

COMPLAINTS AND DURATION:

HISTORY OF PAST ILLNESS:

GENERAL EXAMINATION:

Consciousness	:
Stature	:
Nutrition	:
Temperature	:
Pulse Rate	:
Respiratory Rate	:
Heart Rate	:
Blood Pressure	:
Pallor	:

Clubbing :
Jaundice :
Lymphadenopathy :
JVP :
Engorged Veins :
Koilonychia :
Pedal Oedema :
Cyanosis :

Uyir Thathukkal

1.Vatham

Pranan :
Abaanan :
Viyanan :
Uthanan :
Samanan :
Naagan :
Koorman :
Kirukaran :
Dhevathanthan :
Dhananjeyan :

II.Pitham

Anal Pitham :
Ranjaga Pitham :
Saathaga Pitham :
Alosaga Pitham :
Pirasaga Pitham :

III.Kabham

- Avalambagam :
- Klethagam :
- Pothagam :
- Tharpagam :
- Santhigam :

Envagai Thervugal

- Naadi :
- Naa :
- Niram :
- Mozhi :
- Vizhi :
- Sparisam :

Malam

- Niram :
- Edai :
- Elagal :
- Erugal :

Moothiram

Neerkuri

- Niram :
- Edai :
- Manam :
- Nurai :
- Enjal :

Neikuri:

Modern Aspect

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 :
6. Lymphadenopathy :
7. Cold abscess :

C) Movements

1. Painful / Not painful :

2. Restricted / Not Restricted :

3. Movements of head

i) Rotation :

(Atlanto axial joint C1-C2)

ii) Flexion :

iii) Extension :

iv) Lateral bending :

v) Nodding :

Examination of peripheral nerves

Motor System

Nutrition :

Tone :

Power :

Co-ordination :

Involuntary movement :

Sensory System :

Reflexes :

Superficial reflexes :

Corneal :

Conjunctival :

Abdominal :

Cremasteric :
Plantar :
Palatal :
Pharyngeal :

Deep tendon reflexes

Jaw jerk :
Biceps :
Triceps :
Supinator :
Knee jerk :
Ankle jerk :
Clonus :

Autonomic nervous system:

Bladder :
Bowel :

Examination of other system

Cardiovascular system :
Central nervous system :
Respiratory system :
Abdomen :

Laboratory Investigations :

Blood :

TC :

DC :

ESR :

Hb% :

Serum creatinine :

Serum bilirubin :

Serum Cholestrol :

Sugar :

Urea :

Urine :

Albumin :

Sugar :

Deposits :

X-ray :

Cervical spine – AP,Lateral view :

**GOVERNMENT SIDDHA MEDICAL COLLEGE & HOSPITAL,
PALAYAMKOTTAI
DEPARTMENT OF POST GRADUATE - POTHU MARUTHUVAM
DISCHARGE CASE SHEET PROFORMA
'SAGANAVATHAM'**

I.P.No : Occupation :
 Bed No : Income :
 Ward No : Nationality :
 Name : Religion :
 Age/Sex : Date of Admission :
 Address : Date of Discharge :
 Diagnosis : No.of. Days treated :

Sl.No	Important Signs and Symptoms of Sagana Vatham	During Admission	During Discharge
1.	Pain in the neck		
2.	Restriction of movements in the neck		
3.	Pain in the upper limbs		
5.	Head ache		
6.	Giddiness		
7.	Tingling sensation		
8.	Numbness		
9.	Muscular Wasting		
10.	Constipation		
11.	Burning sensation of the eyes		

+ = Symptoms present

- = Symptoms relieved

Universal pain assessment scale:

Pain assessment scale	Before treatment	After treatment
No pain(0)		
Mild pain(1-3)		
Moderate pain(4-6)		
Severe pain(7-10)		

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6. Anubhava vaithiya deva ragasiyam
7. Patharthaguna Sindhamani
8. Gunapadam Mooligai – K.S. Murugesu Muthaliyar
9. Dr.R. Thiyagarajan's Yugi Vaithiya Sindhamani Perunool – 800
10. Noi Naadal Noi Mudhal Naadal Part I and II – Dr.M.Shanmugavelu H.P.I.M
- 11.T.V. Sambasivam pillai. Tamil and English Dictonary.
- 12.Pararasasekaram
- 13.Brahmmamuni vaithya soothiram Part -II
- 14.C. Kuppusamy pillai in Pathartha Gund Vilakkam
- 15.Dr.K.N.K Kuppusamy Mudhaliyar. H.P.I.M Siddha Maruthuvam
- 16.Dr.R. Thiyagarajan's Agasthiyar Kanma Kandam – 300
- 17.Sarabendrar Vatha Roga sikitechai
- 18.Sri. Ramadesigan in Astanga Sangiragam

- 19.Rathna Nayakkar & son's Publications, Pathartha Guna Vilakkam
Kannusamy.
- 20.Dr.C. Uthamarayan in Siddha Maruthuvanga Churukkam
- 21.Dr.R. Thiyagarajan's Theraiyar Venba
- 22.The Pharmacopea of siddha Research Medicine by Dr.M. Shanmugavelu.
LIM.HPIM
- 23.Eugene Braunwald, M.D (HON), SCD (HON) in Harrison's Principles of
internal Medicine Christopher, R.W.Edwards, IAN, A.D. Boucher in
Davidson's Principles and practice of Medicine.
- 24.Cash's TEST Book of Orthopaedics and Rheumatology
- 25.J.G. Chusid in correlative neuro anatomy and functional neurology
- 26.Sir, John Walton in Brain's diseases of the Nervous system
- 27.The Book of Cervical Spondylosis – S. Ramani
- 28.Michael Swash in Hutchison's Clinical Methods
- 29.Ranganathan in a TEST Book of Human Anatomy
- 30.Essential Orthopaedics – Maheswari
- 31.TEST book of Medicine – P.C.Das
- 32.Beily and Love-Surgery
- 33.TEST book of orthopaedics and traumatology – R.M. Natrajan
- 34.The Wealth Of India Vol-1,2,3,4,9,10,13,14

35. Dr. K. M. Nadkarni in Materia Medica Vol-1&2

36. Central Council Research For Ayurveda And Siddha Medicine

37. Therapeutic Exercise – Carolyn Kisher and Lynn Allen Colby

38. Yogi Exercises – S. Datta Ray

39. J. Romanes is Cunningham's Manual of Practice Anatomy

Urine Analysis of Out patients

S.No	OP.No	Urine Analysis					
		Before treatment			After treatment		
		Alb	Sug	Dep	Alb	Sug	Dep
1	45400	Nil	Nil	1-2 pus cells	Nil	Nil	NAD
2	45768	Nil	Nil	1-2 epithelial cells	Nil	Nil	NAD
3	47127	Nil	Nil	1-3 epithelial cells	Nil	Nil	NAD
4	47629	Nil	Nil	2-4 pus cells	Nil	Nil	NAD
5	47792	Nil	Nil	NAD	Nil	Nil	NAD
6	49187	Nil	Nil	2-4 epithelial cells	Nil	Nil	NAD
7	49475	Nil	Nil	NAD	Nil	Nil	NAD
8	50086	Nil	Nil	1-2 pus cells	Nil	Nil	NAD
9	50104	Nil	Nil	NAD	Nil	Nil	NAD
10	50115	Nil	Nil	2-4 epithelial cells	Nil	Nil	NAD
11	51044	Nil	Nil	1-2 epithelial cells	Nil	Nil	NAD
12	51846	Nil	Nil	1-2 pus cells	Nil	Nil	NAD
13	52643	Nil	Nil	NAD	Nil	Nil	NAD
14	54062	Nil	Nil	NAD	Nil	Nil	NAD
15	54379	Nil	Nil	1-3 epithelial cells	Nil	Nil	NAD
16	54842	Nil	Nil	1-2 epithelial cells	Nil	Nil	NAD
17	55731	Nil	Nil	2-4 pus cells	Nil	Nil	NAD
18	56457	Nil	Nil	1-3 epithelial cells	Nil	Nil	NAD
19	57068	Nil	Nil	1-3 pus cells	Nil	Nil	NAD
20	3941	Nil	Nil	1-2 epithelial cells	Nil	Nil	NAD

NAD - No Abnormal Deposits

Urine Analysis of Inpatients

S.No	IP No	Urine Analysis					
		Before treatment			After treatment		
		Alb	Sug	Dep	Alb	Sug	Dep
1	1947	Nil	Nil	2-4 epithelial cells	Nil	Nil	NAD
2	1999	Nil	Nil	NAD	Nil	Nil	NAD
3	2182	Nil	Nil	1-2 epithelial cells	Nil	Nil	NAD
4	2225	Nil	Nil	NAD	Nil	Nil	NAD
5	2356	Nil	Nil	1-2 pus cells	Nil	Nil	NAD
6	2430	Nil	Nil	1-2 pus cells	Nil	Nil	NAD
7	2533	Nil	Nil	1-3 epithelial cells	Nil	Nil	NAD
8	2697	Nil	Nil	2-3 epithelial cells	Nil	Nil	NAD
9	2817	Nil	Nil	1-2 epithelial cells	Nil	Nil	NAD
10	2954	Nil	Nil	NAD	Nil	Nil	NAD
11	2955	Nil	Nil	1-2 epithelial cells	Nil	Nil	NAD
12	3034	Nil	Nil	2-4 epithelial cells	Nil	Nil	NAD
13	3035	Nil	Nil	1-3 pus cells	Nil	Nil	NAD
14	3072	Nil	Nil	2-4 pus cells	Nil	Nil	NAD
15	3121	Nil	Nil	1-2 epithelial cells	Nil	Nil	NAD
16	3509	Nil	Nil	NAD	Nil	Nil	NAD
17	3513	Nil	Nil	2-4 pus cells	Nil	Nil	NAD
18	3529	Nil	Nil	1-2 epithelial cells	Nil	Nil	NAD
19	3664	Nil	Nil	3-5 epithelia cells	Nil	Nil	NAD
20	3941	Nil	Nil	NAD	Nil	Nil	NAD

NAD - No Abnormal Deposits

S.No.	OP.No.	X- Ray Findings Cervical Spine	Blood Sugar (mg%)		BLOOD UREA (mg%)		Serum Cholestrol (mg%)		Serum Creatinine		Serum Bilirubin	
			BT	AT	BT	AT	BT	AT	BT	AT	BT	AT
1	45309	Cervical Spondylosis	110	120	18	20	188	192	0.7	0.6	0.7	0.7
2	45389	Cervical Spondylosis	83	90	12	15	134	150	0.7	0.7	0.9	0.7
3	45520	Cervical Spondylosis	106	110	20	22	166	170	0.5	0.4	0.7	0.8
4	47175	Cervical Spondylosis	112	125	18	21	213	208	0.8	0.7	0.6	0.7
5	48103	Cervical Spondylosis	94	110	20	22	184	188	0.8	0.8	0.7	0.6
6	48857	Cervical Spondylosis	92	112	25	23	222	212	0.9	0.8	0.7	0.6
7	48891	Cervical Spondylosis	94	100	22	25	180	186	0.8	0.9	0.6	0.7
8	49158	Cervical Spondylosis	80	96	15	20	160	180	0.9	0.8	0.6	0.6
9	49179	Cervical Spondylosis	88	98	30	25	253	246	0.6	0.6	0.8	0.8
10	49671	Cervical Spondylosis	146	132	18	28	154	180	0.5	0.6	0.7	0.8
11	50160	Cervical Spondylosis	102	110	25	32	190	184	0.8	0.7	0.6	0.7
12	51068	Cervical Spondylosis	125	130	20	28	156	172	0.8	0.7	0.7	0.7
13	51590	Cervical Spondylosis	104	98	28	26	190	192	1.3	0.9	0.8	0.7
14	51665	Cervical Spondylosis	110	120	32	36	184	176	0.6	0.7	0.9	0.8
15	52691	Cervical Spondylosis	140	130	28	32	190	192	0.7	0.7	0.8	0.7
16	55153	Cervical Spondylosis	103	110	18	20	210	202	0.9	0.8	0.7	0.6
17	56417	Cervical Spondylosis	98	116	16	20	168	176	0.6	0.5	0.7	0.6
18	57628	Cervical Spondylosis	92	102	18	20	168	170	0.9	0.8	0.7	0.7
19	66338	Cervical Spondylosis	118	120	25	32	186	180	0.8	0.7	0.7	0.6
20	70034	Cervical Spondylosis	95	110	34	32	208	200	0.8	0.8	0.7	0.6

S.No	IP.No.	X- Ray Findings Cervial spine-AP, Lateral view	Blood Sugar mg%		Blood Urea (mg%)		Serum Cholestrol (mg%)		Serum Creatinine		Serum Bilirubin	
			BT	AT	BT	AT	BT	AT	BT	AT	BT	AT
1	1947	Cervical Spondylosis	134	142	28	32	185	178	0.7	0.7	0.8	0.7
2	1999	Cervical Spondylosis	96	110	18	20	195	192	0.7	0.8	0.6	0.7
3	2182	Cervical Spondylosis	110	120	28	35	212	208	0.7	0.9	0.8	0.7
4	2225	Cervical Spondylosis	88	110	22	30	174	182	0.9	1	0.8	1
5	2356	Cervical Spondylosis	98	122	16	24	168	180	0.7	0.9	0.9	1
6	2430	Cervical Spondylosis	130	128	34	32	158	162	0.6	0.8	0.8	0.8
7	2533	Cervical Spondylosis	128	124	25	30	176	172	0.6	0.8	0.8	0.7
8	2697	Cervical Spondylosis	88	100	32	34	184	190	0.7	0.9	0.6	0.7
9	2817	Cervical Spondylosis	84	80	16	20	174	180	0.7	0.8	0.6	0.7
10	2954	Cervical Spondylosis	130	138	25	28	180	192	0.7	0.8	0.8	0.9
11	2955	Cervical Spondylosis	98	104	22	30	168	172	0.7	0.9	0.8	0.9
12	3034	Cervical Spondylosis	124	120	28	32	196	192	0.7	0.8	0.8	0.9
13	3035	Cervical Spondylosis	138	142	28	30	188	180	0.7	0.7	0.8	0.6
14	3072	Cervical Spondylosis	118	128	31	36	186	184	0.8	1	0.9	0.8
15	3121	Cervical Spondylosis	108	98	28	31	192	194	0.7	0.6	0.8	0.8
16	3509	Cervical Spondylosis	146	138	34	36	182	180	0.7	0.9	0.7	0.8
17	3513	Cervical Spondylosis	138	120	30	35	188	182	0.6	0.7	0.6	0.8
18	3529	Cervical Spondylosis	214	210	32	38	188	184	0.8	0.9	0.9	0.8
19	3664	Cervical Spondylosis	132	128	16	24	182	178	0.9	0.7	0.8	0.9
20	3941	Cervical Spondylosis	112	104	20	28	178	176	0.7	0.6	0.8	0.8

Case Summary of Out Patients

Sl. No	O.P. No	Name	Age/Sex	Occupation	Duration of Illness	Treatment starting date	End of the Treatment date	No Days Treated	Results
1	45309	Pappa	49/F	Agricultural labour	10-15 days	18.6.2012	10.7.2012	22	Good
2	45389	Malathi	39/F	Tailor	2-3 months	18.6.2012	10.7.2012	22	Good
3	45520	Maragadham	52/F	Beedi workers	Above 3 months	18.6.2012	10.7.2012	22	Moderate
4	47175	Samsunisha	42/F	House wife	Above 3 months	23.6.2012	15.7.2012	22	Good
5	48103	Gomathi	42/F	Agricultural labour	1-2 months	27.6.2012	19.7.2012	22	Good
6	48857	Senthamarai	37/F	Agricultural labour	15-30 days	29.6.2012	21.7.2012	22	Good
7	48891	Gandhimathi	37/F	Building worker	Above 3 months	29.6.2012	21.7.2012	22	Good
8	49158	Chellammal	51/F	Weight lifter	1-2 months	30.6.2012	22.7.2012	22	Good
9	49179	Selvi	29/F	Tailor	2-3 months	30.6.2012	22.7.2012	22	No response
10	49671	Manthiramoothi	42/M	Driver	2-3 months	2.7.2012	24.7.2012	22	Good
11	50160	Malliga	65/F	House wife	2-3 months	4.7.2012	26.7.2012	22	Good
12	51068	Porselvi	53/F	House wife	15-30 days	7.7.2012	29.7.2012	22	Good
13	51590	Kaaliammal	65/F	House wife	Above 3 months	9.7.2012	31.7.2012	22	Moderate
14	51665	Metilda	52/F	House wife	Above 3 months	9.7.2012	31.7.2012	22	Good
15	52691	Vasanthi	46/F	Beedi workers	1-2 months	12.7.2012	3.8.2012	22	Good
16	55153	Isakki	37/M	Tea shop worker	Above 3 months	21.7.2012	12.8.2012	22	Good
17	56417	Chellammal	65/F	House wife	Above 3 months	25.7.2012	16.8.2012	22	No response
18	57628	Periasamy	65/M	Agricultural labour	2-3 months	30.7.2012	21.8.2012	22	Good
19	66338	Selvaraj	61/M	Tea shop worker	2-3 months	28.8.2012	19.9.2012	22	Good
20	70034	Selvaraj	62/M	Clerk	2-3 months	26.9.2012	18.10.2012	22	Good

Haematological Analysis of out patients

S.No	O.P.No.	BT				AT				ESR				Hb %	
		TC cells/cub mm	DC %			TC cells/cub mm	DC %			BT		AT		BT mg%	AT mg %
			P	L	E		P	L	E	1/2	1	1/2	1		
1	45309	9100	56	41	3	9700	60	39	1	20	40	10	20	12.4	12.5
2	45389	7100	63	30	7	7500	60	38	2	3	8	3	5	10.5	11
3	45520	9000	54	38	8	9100	56	40	4	10	20	8	10	12	12.4
4	47175	7800	65	31	4	7700	60	38	2	5	11	5	9	10.8	11
5	48103	6500	65	34	1	7000	58	41	1	8	20	6	12	10.4	10.5
6	48857	7700	68	29	3	8200	65	33	2	20	40	15	30	10.5	10.8
7	48891	9000	63	33	4	9100	62	36	2	25	51	12	24	11.2	11.4
8	49158	8900	63	27	10	9100	63	31	6	10	22	6	12	10.5	11
9	49179	8000	62	30	8	8400	60	36	4	3	11	3	7	11.5	11.6
10	49671	8000	60	38	2	9000	64	34	2	6	13	6	10	11.8	11.8
11	50160	9800	56	38	6	10200	60	36	4	12	24	6	12	10.8	10.8
12	51068	8600	68	38	4	8800	56	41	3	15	30	8	16	11.5	11.8
13	51590	9100	63	36	1	9200	66	33	1	12	25	8	16	10.6	10.6
14	51665	11000	56	40	4	10800	54	44	2	9	18	7	12	10.8	11
15	52691	8500	58	36	6	9200	58	38	4	25	50	9	18	11	11.2
16	55153	7800	68	30	2	8800	66	32	2	2	5	2	5	13	13
17	56417	8200	52	42	6	8400	56	40	4	30	50	18	24	8.2	8.8
18	57628	9600	48	48	4	9800	52	46	2	28	40	18	20	8.4	8.6
19	66338	7500	68	29	3	8200	65	33	2	3	6	3	5	13	13
20	70034	7200	53	46	1	8600	58	41	1	3	8	2	5	13	13

Case Summary of In Patients

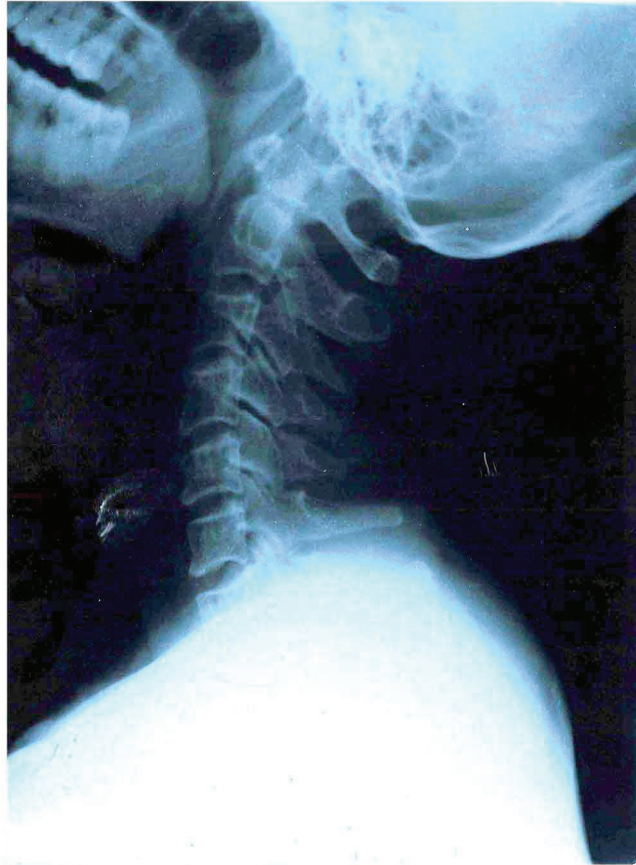
Sl. No	I.P. No	Name	Age/Sex	Occupation	Duration of Illness	Date of admission	Date of discharge	No of days Treated	Results
1	1947	Venkatesaperumal	33/M	Agriculatal labours	10-15days	16.6.2012	8.7.2012	22	Good
2	1999	Sudali	55/F	Beedi workers	2-3months	20.6.2012	13.7.2012	24	Moderate
3	2182	Shanmugammal	67/F	House wife	Above 3 months	7.7.2012	30.7.2012	23	Good
4	2225	Azhagammal	65/F	House wife	Above 3 months	11.7.2012	1.8.2012	22	No response
5	2356	Muthammal	60/F	Agriculatal labours	2-3months	22.7.2012	12.8.2012	25	Good
6	2430	Jamunammal	65/F	House wife	Above 3 months	26.7.2012	17.8.2012	22	Good
7	2533	Parvathi	60/F	Beedi workers	Above 3 months	2.8.2012	26.8.2012	24	Moderate
8	2697	Rajammal	65/F	House wife	Above 3 months	15.8.2012	5.9.2012	22	Good
9	2817	Chellammal	45/F	Beedi workers	1-2months	26.8.2012	17.9.2012	22	Good
10	2954	Maariammal	35/F	Beedi workers	Above 3 months	6.9.2012	27.9.2012	22	Moderate
11	2955	Maadathi	58/F	Building worker	Above 3 months	6.9.2012	27.9.2012	22	Good
12	3034	Selvi	22/F	Tailor	15-30days	12.9.2012	2.10.2012	22	Good
13	3035	Annalakshmi	55/F	Building worker	Above 3 months	12.9.2012	2.10.2012	22	Good
14	3072	Balaguru	65/M	Agriculatal labours	Above 3 months	15.9.2012	8.10.2012	23	No response
15	3121	Maryiammal	68/F	House wife	Above 3 months	20.9.2012	11.10.2012	22	Good
16	3509	Maariammal	65/F	Beedi workers	2-3months	10.10.2012	31.10.2012	22	Good
17	3513	Selvamani	59/F	Agriculatal labours	1-2months	10.10.2012	31.10.2012	22	Moderate
18	3529	Ganapathi	68/M	Driver	Above 3 months	11.10.2012	2.11.2012	22	Good
19	3664	Saaminathan	68/M	Hotel cooking master	Above 3 months	25.10.2012	19.11.2012	25	Good
20	3941	Samuvel	60/M	Tea shop worker	2-3months	20.11.2012	12.12.2012	22	Good

Haematological Analysis of In patients

S.No	I.P.No.	BT				AT				ESR				Hb %	
		TC cells/cub mm	DC %			TC cells/cub mm	DC %			BT		AT		BT mg%	AT mg %
			P	L	E		P	L	E	1/2	1	1/2	1		
1	1947	9800	62	35	3	9600	60	36	4	11	24	6	12	10.8	10.4
2	1999	8600	52	45	3	8800	56	43	1	20	32	12	24	10.2	10.4
3	2182	9400	62	36	2	9100	56	42	2	8	18	6	12	10.4	10
4	2225	10400	54	42	4	10200	60	37	3	22	40	15	28	10.8	10.8
5	2356	8800	60	38	2	8600	59	40	1	14	28	8	16	10	10.2
6	2430	9800	56	40	4	9400	60	38	2	15	36	10	22	11.2	11.2
7	2533	7600	56	41	3	7800	62	36	2	10	18	5	10	10.4	10.2
8	2697	8800	54	40	6	7600	56	40	4	12	24	6	12	10.6	10.4
9	2817	8200	56	41	3	8100	58	39	3	14	22	7	14	10.2	10
10	2954	10400	48	48	4	10200	50	48	2	10	22	6	12	11	10.8
11	2955	11000	54	44	2	10800	58	40	2	24	40	12	36	10.4	10
12	3034	8400	65	33	2	8200	62	36	2	15	28	7	14	9.9	9.2
13	3035	10800	64	34	2	10600	58	40	2	15	30	12	24	10.8	10.6
14	3072	8400	68	30	2	8200	64	34	2	45	90	20	40	6.5	7
15	3121	8200	58	36	6	8000	56	40	4	12	24	6	12	10	10.2
16	3509	8100	60	34	6	8400	58	38	4	20	41	15	28	10.2	10
17	3513	10600	56	38	6	10800	58	38	4	8	16	5	10	10.4	10
18	3529	8500	69	28	5	8200	64	32	4	20	40	15	28	9.8	9.6
19	3664	9800	65	30	5	9600	62	34	4	10	24	6	12	10.5	10.4
20	3941	9800	64	34	2	9600	60	38	2	18	40	9	18	10	10.2

IP.NO : 2817

Name : Chellammal 45/F



IP.NO : 1947

Name : Venkatesaperumal 33/M



வெங்கார சஞ்சீவி செந்தூர மாத்திரை - சேரும் சரக்குகள்



இஞ்சி



திப்பிலி

வெங்கார சஞ்சீவி செந்தூர மாத்திரை



வெங்கார சஞ்சீவி செந்தூர மாத்திரை - சேரும் சரக்குகள்



வெங்காரம்



குங்கிலியம்



திப்பிலி மூலம்



கருநாபி

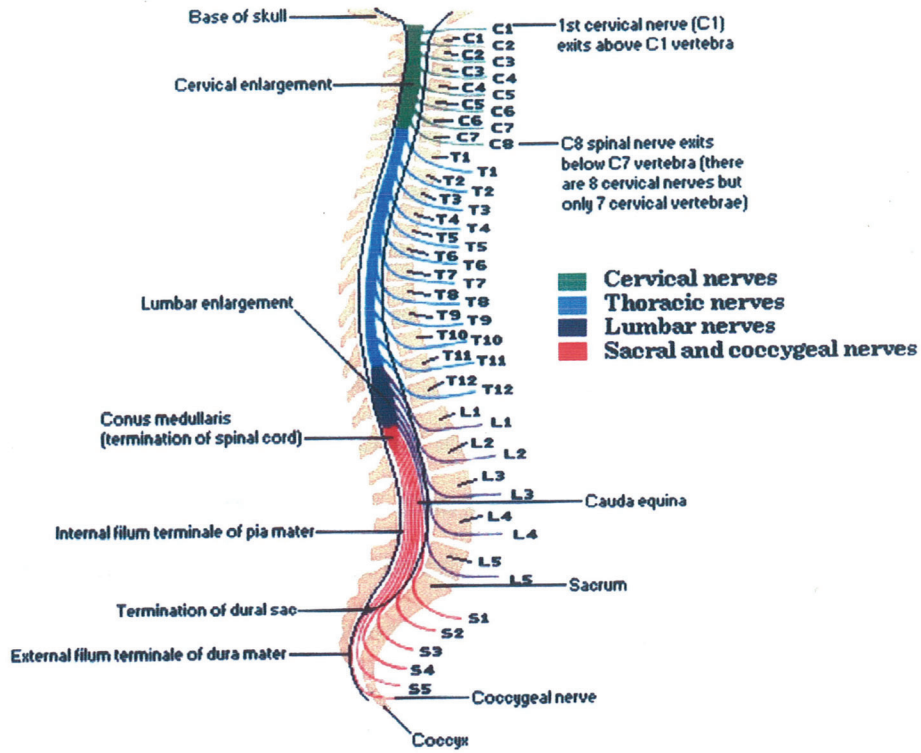


வெள்ளைப்பூண்டு

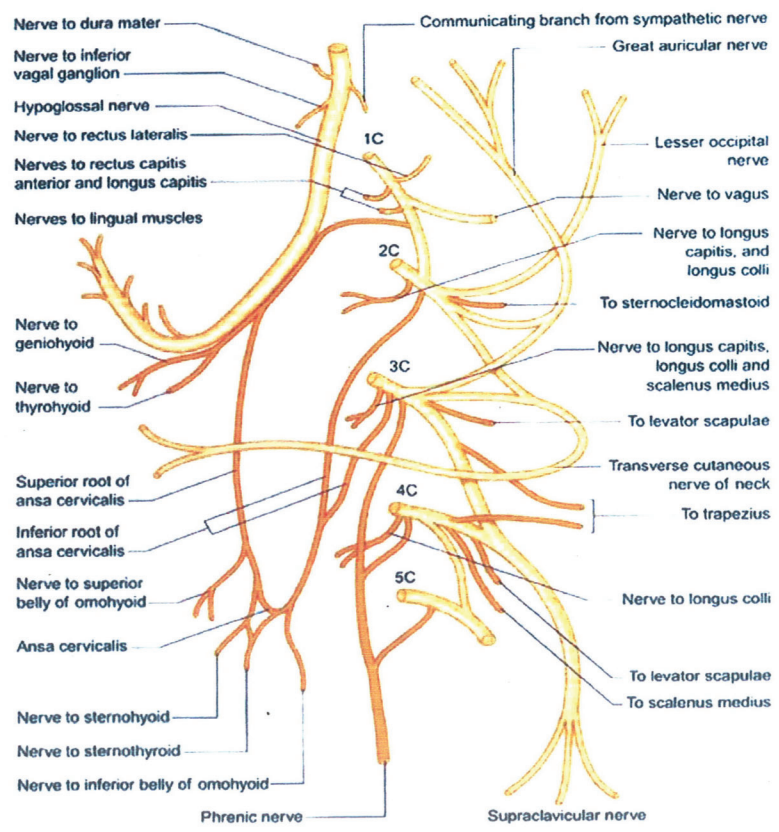


மிளகு

RELATION OF SPINALNERVE ROOTS TO VERTEBRAE



CERVICAL PLEXUS



நெய்க்குறி
வாத நீர்



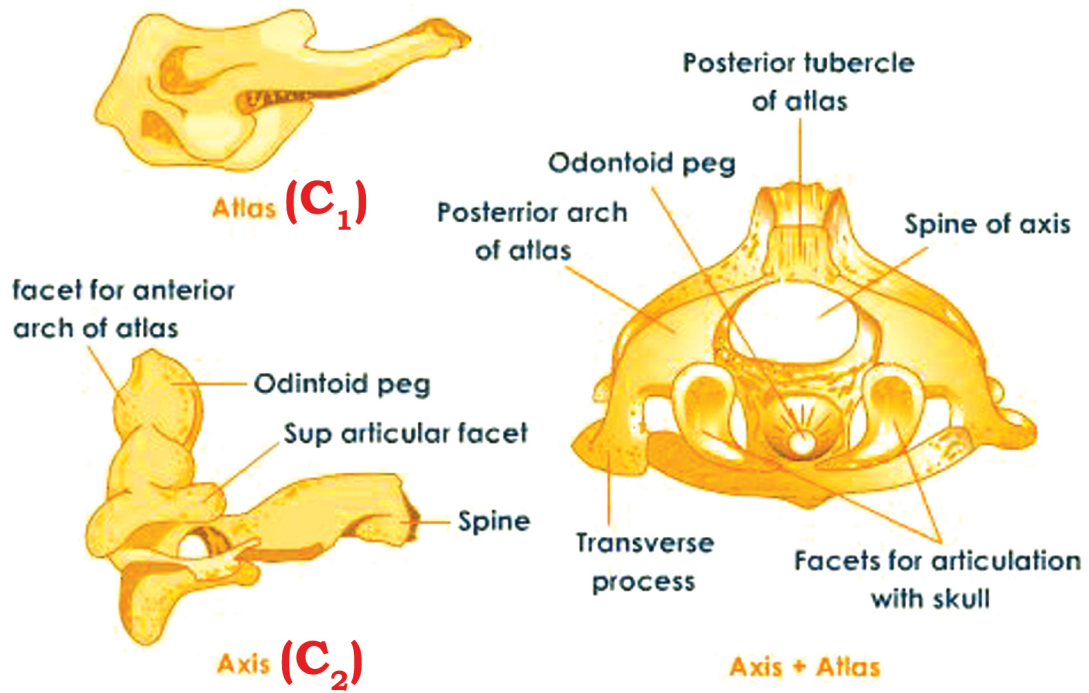
பித்த நீர்



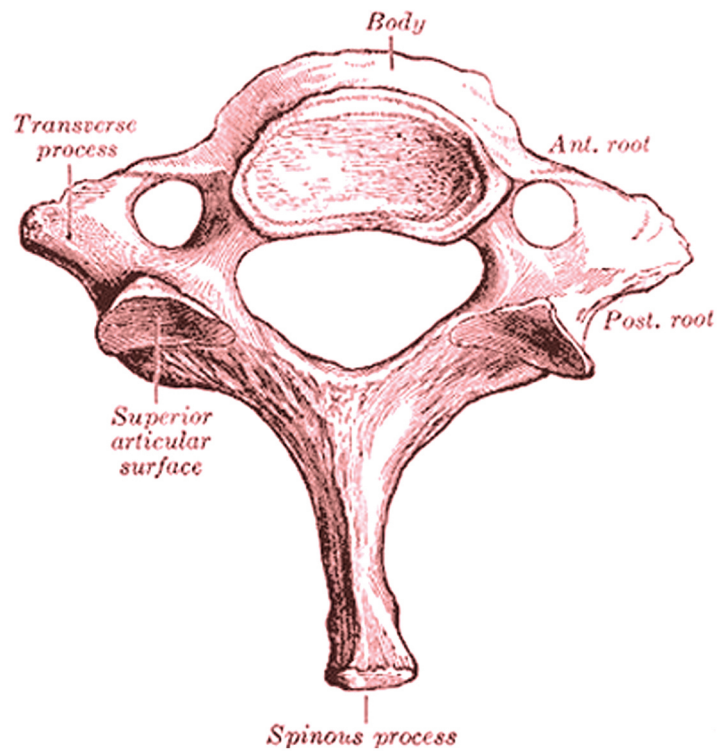
கப நீர்



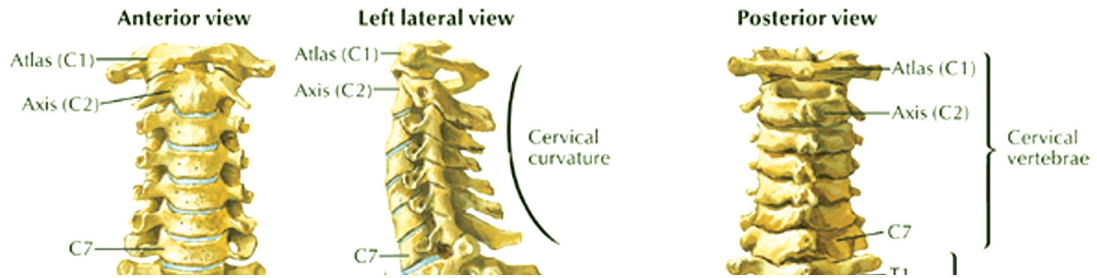
ATYPICAL CERVICAL VERTEBRA



C₇



CERVICAL VERTEBRAS



TYPICAL CERVICAL VERTEBRA

