

**A STUDY ON**  
**NARITHALAIVADHAM**

*Dissertation Submitted To*

**THE TAMIL NADU DR.M.G.R Medical University**

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**DOCTOR OF MEDICINE (SIDDHA)**

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**Palayamkottai – 627 002**

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## INTRODUCTION

The word 'Siddha' comes from the word 'siddhi' which means 'an object to be attained' or 'perfection' or heavenly bliss'. Siddhi generally refers to Astama siddhi (அஷ்டமாசித்தி) i.e., the eight great supernatural powers which are enumerated as Anima (அணிமா) etc.. Those who attained or achieved the above said powers are known as siddhars.

The siddhars were further the greatest scientists in ancient times. They were men of highly cultured intellectual and spiritual faculties combined with supernatural powers. Their works in tamil are supposed to be more valuable than many that have been written in Sanskrit. They contain a large number of valuable formulae and exhibit further minute enumerations of morbid symptoms.

As per siddha text, man is said to be the microcosm and the world the macrocosm; because what exists in the world exists in man; so man must be looked upon as an integral part of nature and not as anything separate from the latter. Further, the forces in the microcosm or man are identical with the forces of macrocosm or the world the natural forces acting in and through the various organs of the human body are intimately related is the similar or corresponding force acting in and through the organisms of the world.

“அண்டத்தி லுள்ளதே பிண்டம்  
பிண்டத்தி லுள்ளதே அண்டம்  
அண்டமும் பிண்டமு மென்றே  
அறிந்து தான் பர்க்கும்போது”.

- சட்டமுனி ஞானம்

In the organisms of man, these forces may act in an abnormal manner and cause diseases thereby.

Humoural pathology explains that man is mixture of the three cardinal humours viz Vali, Azhal, Iyam and that the relative proportion of these humours are responsible for a person's physical and mental qualities and dispositions.

Disease, According to modern science is only a departure from a state of health and more frequently a kind of disturbance of the healthiness of the body to which any particular case of sickness is assigned. According to Siddhar's philosophy, diseases in man do not originate himself, but influences which act upon him. As already stated, man is compared to the world, so any change in the elementary condition of external world has its corresponding change in the human organism. There is the feeling of oneness between the external and the internal world of man; and its is upon this oneness that the doctrine of humoural pathology i.e. the theory of Tridoshas (முப்பிணி) is based. This may occur through different causes viz.

1. Derangement of the three humours
2. Astral influences
3. Poisonous substances
4. Psychological causes
5. Spritiual causes
6. Diseases originating from the soul

In Yugi vaithya chindamani, Yugi described 80 types of vadha diseases “Narithalaivadham” is one of the entity of the vadha diseases.

## SIDDHA PHYSIOLOGY

Man is not merely made up of muscle, bones and nerves as we think. According to siddhar's thought,

Man (Microcosm) is having himself all the things within the universe (Macrocosm) like muscle, bones and nerves; both mind and soul are the part of the body.

Human body as made up of 2 kinds of bodies.

- i. Sthula Sariram (visible body)
- ii. Sukkuma Sariram (invisible body)

### **Sthula Sariram includes,**

Bones, Muscles, Blood vessels, Nerves and all functional system of human body. It is known as functional units of body.

### **Sukkuma Sariram,**

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

The universe is made up of five basic elements called.

Earth (Prthivi)	-	மண்
Water (Appu)	-	நீர்
Fire (theyu)	-	தீ
Air (vayu)	-	காற்று
Space (Aagayam)	-	விண்

As we said before the human body is also made up of these five basic elements.

The basic elements exists in two forms

- i. Sthula form (பருநிசை) - Recognized by our sense
- ii. Sukkuma form (நுண்நிசை ) - Not recognized by our senses

**Physiology  $\Rightarrow$  Basic process underlying the functioning of the species.**

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

❖ 96 Thathuvangal

❖ 7 Udalkattukal

❖ 6 Suvaigal

The factors which influence in functioning of human body are

❖ Udal vanmai

❖ Udal thee

Siddhars explained physiology on the basies of 96 thathuvangal (or) structural units. This explains the physical and chemical factors that are responsible for the origin, development and progression of life. They are as,

## Pancha poothas

Earth - மண்

Water - நீர்

Fire - தீ

Air - காற்று

Space – விண்

These five elements contribute our whole body structure and function.

Human Body [Built by Panchapoothas]  
[96 Thathuvagal]

**External Thathuvas**  
**[Sthula Sariram]**

(i) Gnanaenthiryam[5]  
[Five Sense Organs]

- Ear
- Nose
- Body
- Eye
- Tongue

(ii) Pori 5  
[Functions of five  
Sense organs]

- Hearing
- Touch
- Vision
- Smell
- Taste

(iii) Kanmaenthiriyam-5  
[Functional Organs]

- Mouth
- Leg
- Arm
- Anus
- Genital

(iv) Kanmavidayam  
[Functions of  
Kanma enthriyam]

- Speech
- Movements throw legs
- Flexion and extension of arm
- Daefication
- Evacuations of semen and ovum  
and contributes coitus

**Internal Thathuvas**  
**[Sukkuma Sariram]**

- i) Anthakaranam – 4
- ii) Arivu – 1
- iii) Naadi – 10
- iv) Vayu – 10
- v) Aasayam – 5
- vi) Kosam – 5
- vii) Aatharam – 6
- viii) Mandalam – 3
- ix) Thodam - 3
- x) Malam - 3
- xi) Edanai – 3
- xii) Gunam – 3
- xiii) Vinai – 2
- xiv) Raagam – 8
- xv) Avathai -5



## 7 Udalkattukal

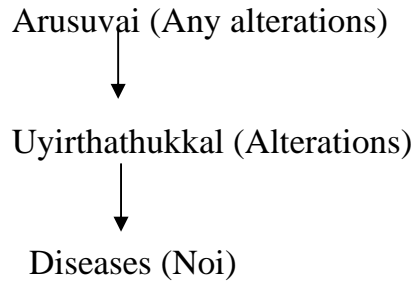
1. Saaram - It enriches the functions of body and mind  
(Energy through food stuffs)
2. Senneer (Blood) - It makes the basic functions of body perfectly
3. Oon (muscles) - It gives structure to our body and gives supports to joints
4. Kozhuppu (Fat) - Gives lubrication to our body organs to move.
5. Enbu (Bone) - It gives skeletal structure to body and protection
6. Moolai(Bone marrow)- It gives stability to bone
7. Venneer (Sexual fuli) - It helps to produce the new generation

## Arusuvaigal - We get from foods

It has linked to uyirthathu, panchapootham, and body functions

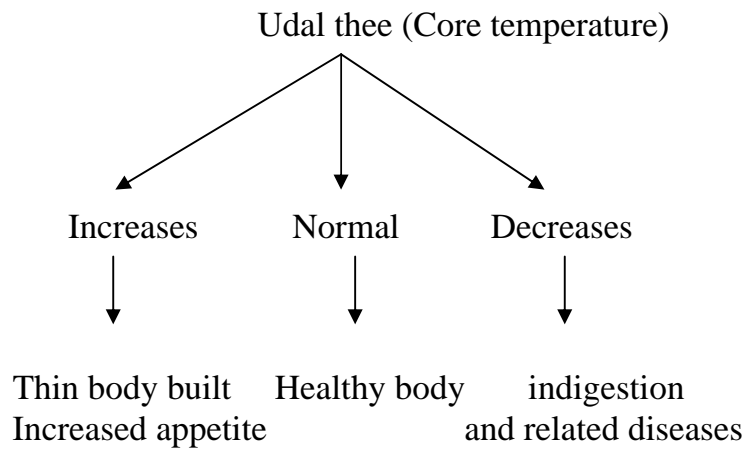
இனிப்பு (Sweet)	- Mann + Neer	Vali - Vayu +Mann
புளிப்பு(Sour)	- Mann +thee	Azhal - Thee
உப்பு(Salt)	- Neer + thee	Iyam - Neer
கைப்பு (Bitter)	- Vayu + Aagayam	
கார்ப்பு(Pungent)	- Vayu + thee	
சூவர்ப்பு(Astringent)-	Mann + Vayu	

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



### **Udalthee**

It is our body's core temperature or BMR (Basal metabolic rate)



### **Udal vanmai (Innate immunity)**

It is genetically transmitted from parents and also get throw our environment.

When any alteration takes place in immunity diseases occur.

In Narithalaivadhham physiological functions of body (sthula, sukkuma) is altered.

## SIDDHA PATHOLOGY

“மதித்திடற்கருமை வாய்ந்த  
மண்பரிகார மெல்லாந்  
துதித்திட வுணர்ந்தானேனுந்  
துகளறப் பிணியின்றன்மை  
பதித்திட வுணரானாகிற்  
பயனுறா னாகலானே  
விதித்திடு பிணித்திறத்தை  
விளம்புது முதற்கண்மன்னே”

- சிக்கிச்சா ரத்ன தீபம்

This poem indicates the importance of diagnosing pathology of the diseases.

The Greek word pathology means.

Pathos (or) Noi - “Disease”

Logos (or) Naadal - “To know the cause”

According to siddhar’s thought Noi (disease) is caused by alteration takes place in Uyirathathu by factors,

”மகினும் குறையினும் நோய் செய்யும் ஞாலோகர்  
வளிமுதலா யெண்ணிய மூன்று”.

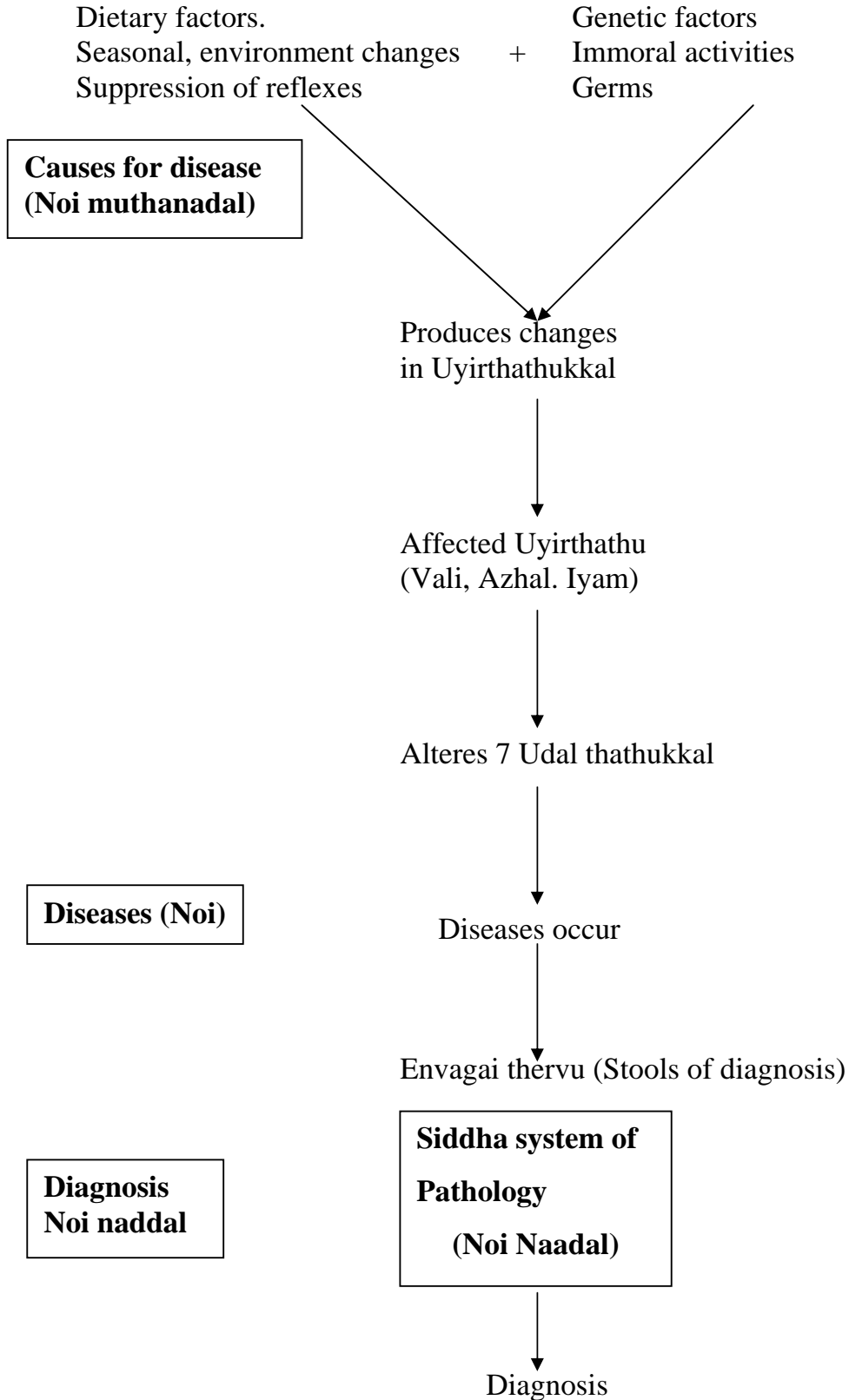
-திருவள்ளுவர்

**An alteration in Uyirthathu is caused by**

- i) Dietary factors
- ii) Seasonal and environmental changes
- iii) Genetic factors
- iv) Immoral activities
- v) Suppression of reflexes
- vi) Microorganism

Above these factors will cause the disease (changes in Uyirthathu.)

These changes reflected in 7 Udalkattukkl and display the symptoms of disease.



“ நோய்நாடி நோய் முதனாடியது தணிக்கும்  
வாய்நாடி வாய்ப்பச் செயல்”

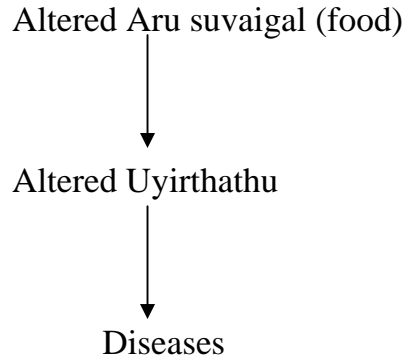
- குறள்

First, we have to rule out the causes for diseases and pathogenesis

## Causes for diseases

### (i) Dietary Factors

We take the food in the form of Aru suvaigal.



### (ii) Seasonal variations (Paruvakaalam)

#### 1. kaarkaalam (கார்காலம்) - ஆவணி, புரட்டாசி

All three Uyirthathus are affected

Vali - Aggravated

Azhal - Accumulated

Iyam - Slightly change

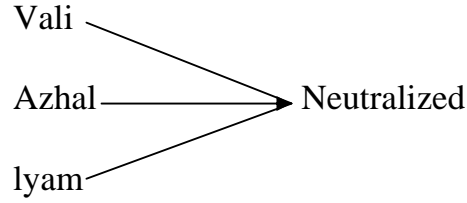
## 2. Koothair kaalam ( கூதிர்காலம்) - ஐப்பசி, கார்த்திகை

Vali - Normal

Azhal - Aggravated

Iyam - Normal

## 3. Munpanikaalam ( முன்பனி காலம்) - மார்கழி, தை



## 4. Pinpanikaalam ( பின்பனிகாலம்) - மாசி, பங்குனி

Iyam - Accumulated

## 5. Elavenieerkaalam ( இளவேனிற் காலம்) - சித்திரை, வைகாசி

Iyam - Aggravated

## 6. Muthuvenerkaalam ( முதுவெனிற் காலம்) - ஆனி, ஆடி

Iyam - Normal

Vali - Accumulated

## Environmental Changes

There are 5 types of places in siddhar's aspect

kurunchi (குறிஞ்சி) - Iyam accumulated, Liver,

Abdominal mass will develop

Mullai (முல்லை) - Vali, Azhal diseases may develop

Marutham ( மருதம்) - Place for human beings

- Neithal (நெய்தல்) - Vali diseases, liver enlarged, Flatulence  
may develop
- Paalai (பாளை) - Not suitable for human living all  
diseases may develop

**(iii) Geneitic factors**

“ பேறுயிளமையின்பம் பிணி மூப்பு சரக்காடு  
ஆறுங் கருவிலமைப்பு”

According this poem genetic factor are determine the human's life  
and diseases.

In siddha aspects these diseases are called Kanma noikal (கன்ம  
நோய்கள்)

In siddha system many disease are said to be precipitated by  
kanmam which the deeds committed by an individual in his previous and  
the present births. The genetic dispositions of certain disease are probably  
the result of Kanmam. Vatha disease according “Agasthiar kanma  
kaandan 300” verse- 56 may also be precipitate by kanmam.



"நூலென் வாதம் வந்த வகை தானேது  
 துண்மையாய்க் கன்மத்தின் வகையைக் கேளு  
 காலிலே தோன்றியது கடுப்பதே  
 கை காலில் முடக்கியது வீக்கமது  
 கோலிலே படுகின்ற விருட்சமனை  
 குழந்தை மரந்தனை வெட்டமேல் தோல் சீவல்  
 நாலிலே சீவசெந்து கால் முறித்தல்  
 நல்ல கெடும்பு தழை மறித்தல் நலித்தல் காணே"

- அகத்தியர் கன்ம காண்டம் 300, பாடல் 56

Cutting or denuding of green young living trees, breaking the legs of living beings, etc lead to vadha disease. These deeds are determined to the fellow beings and such psychosocial aspect of an individual implies psychogenesis of Vadha disease.

#### (iv) Immoral activities

In siddha aspect it is the don'ts and does of humans.

Eyamam (இயமம்) - Self restricts don'ts

Niyamam (நியமம்) - Do's

When who skip the dos and don'ts they will suffer by diseases.

#### (v) Suppression of reflexes

In Siddha aspect they are 14 reflexes. Suppression of these reflexes causes diseases.

These reflexes are mentioned below,

1. Abana vayu (அபானவாயு ) - Flatus
2. Thummal (தும்மல்) - Sneezing
3. Siruneer (சிறுநீர்) - Urine
4. Malam (மலம்) - Stools
5. Kottaavi (கொட்டாவி) - Owing
6. Pasi (பசி) - Hunger
7. Thagam ( தாகம்) - Thirst
8. Erumal (இருமல்) - Cough
9. Elaippu (இளைப்பு) - Rest
10. Thookkam (தூக்கம்) - Sleep
11. Vaanthi (வாந்தி) - Vomiting
12. Kanneer (கண்ணீர்) - Tears
13. Sukkilam (சுக்கிலம்) - Semen
14. Uyirppu (உயிர்ப்பு) - Breathing

## (vi) Micro organism

Some diseases are caused by micro organisms (Kirumi) According to siddhar's thought

“கிருமியால் வந்ததோடம் பெருகவுண்டு  
கேட்கிலதன் பிரிவதனைக் கிரமமாக  
பொருமிவரும் வாயுவெல்லாக் கிருமியாலே  
புழுக்கடிப்போல் கரணுமது கிருமியாலே  
செருமிவரும் புவத்திரங்கள் கிருமியாலே  
தேகமதில் சோகை குட்டங் கிருமியாலே  
துருமிவருஞ் சுரோணிதங் கிருமியாலே  
சூட்சமுடன் கிரிகைபால் தொழில் செய்வீரே.”

- குருநாடி நூல்

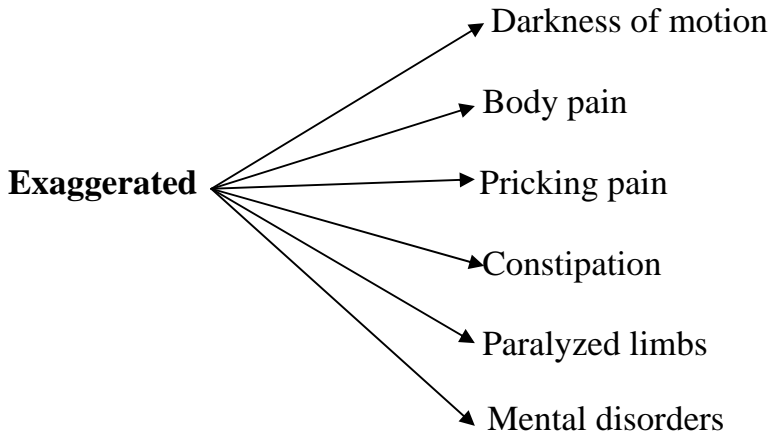
Above this poem explains

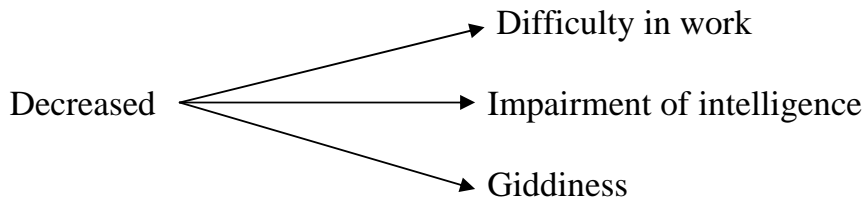
Anaemia, skin diseases, venereal diseases, urticarial rashes and fistula they are caused by micro organism (Kirumi)

## Disease(Altration in Uyir,Udalthathu)

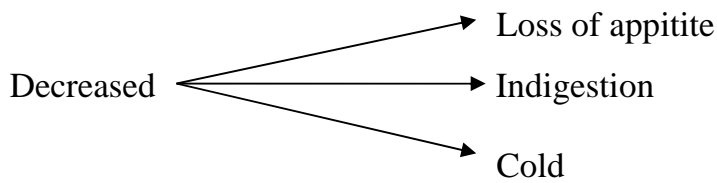
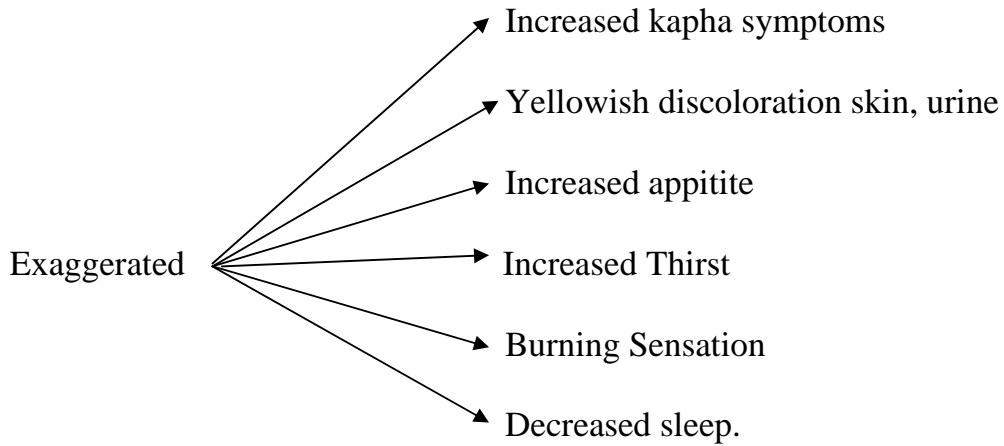
Altertations in Uyirthathu

## Vali Thodam

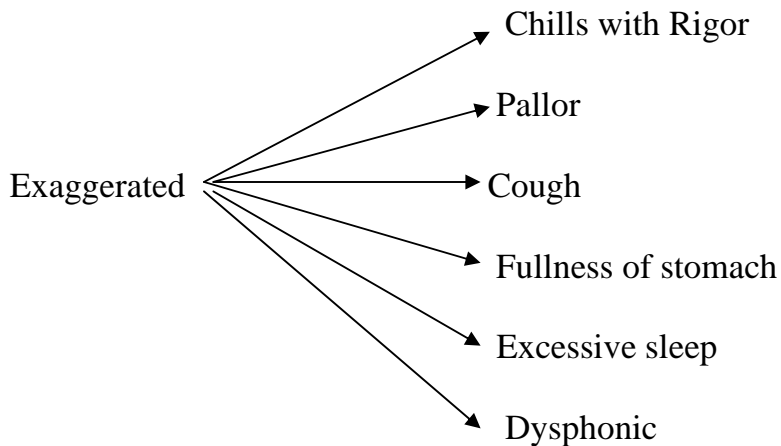


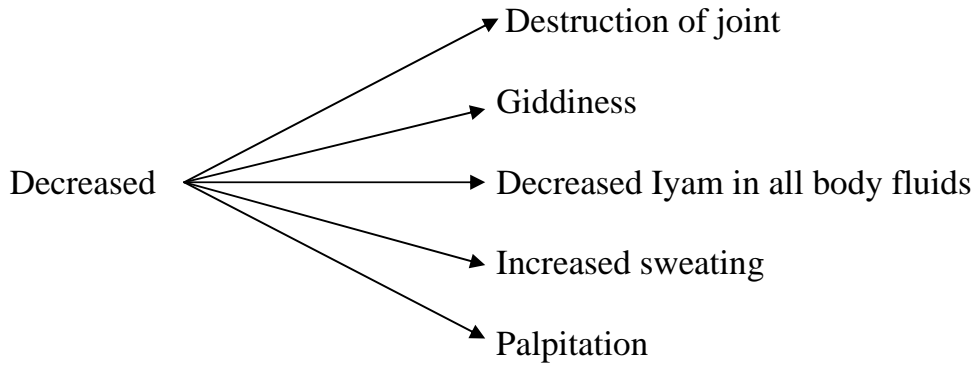


**Azhal thodam**



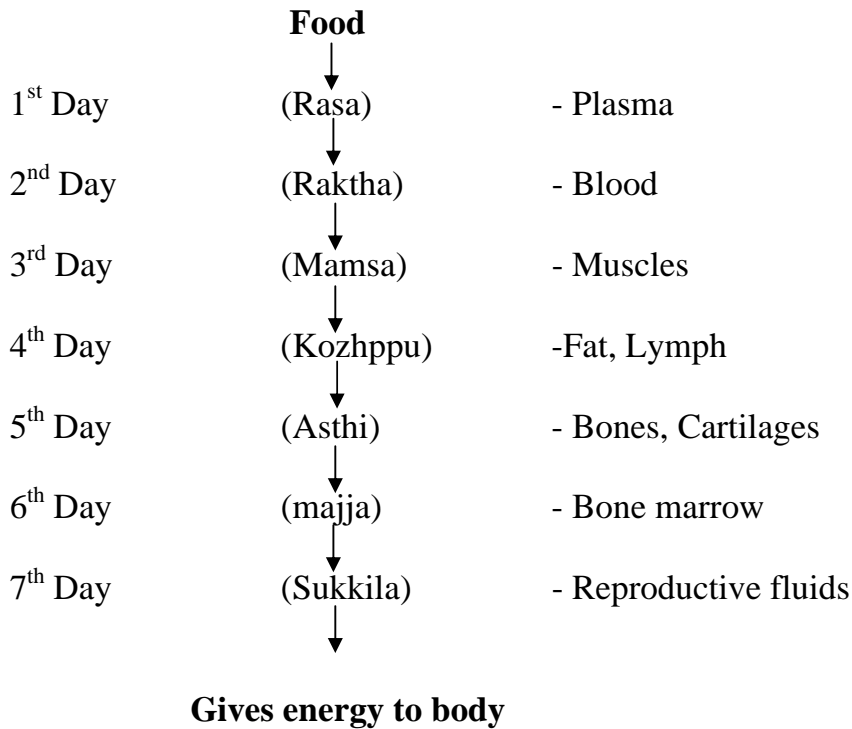
**Iyathodam**





### 7 Udalthathukkal

When food enters the body, it enriches Udalthathukkal one by one.



If any causes affect this process, diseases will occur.

## **1.Saaram (Rasa)**

It is the essence of digested food, circulating all over the body and gives energy to body.

### **Increased State**

- \* Excessive Salivation
- \* Sound intolerance
- \* Excessive sleep etc..

### **Decreased state**

- \* Wasting of muscles
- \* Weakness etc..

## **2. Senneer (Raktha)**

It is produced from rasa. It is responsible for substance of life and provides colour and complexion to the skin.

### **Increased state**

- \* Haemangiomas
- \* Spleenomegaly
- \* Leprosy
- \* Jaundice
- \* Nervous weakens
- \* Mental disorders
- \* Blood dyscariasis
- \* Hyper pigmentation

### **Decreased state**

- \* Anaemia
- \* Dry skin
- \* Nervous weakness
- \* Desire to intake of sour food

### **3. Oon` (Mamsa)**

Muscular tissues are produced from Rakata

### **Increased state**

- \* Tumors
- \* Carcinoma
- \* Goiter
- \* Cyst

### **Decreased state**

- \* Wasting
- \* Dryness
- \* Crackling sound in movement of joints etc.

### **4. kozhppu (medas)**

### **Increased state**

- \* Associated with mamsa diseases
- \* Obesity
- \* Hyper cholesteremia

### **Decreased state**

- \* Wasting of muscles
- \* Decreased stability of joints
- \* Lethargy

## **5. Enbu (Asthi)**

### **Increased state**

- \* Hyper calcinosis
- \* Extra tooth formation
- \* Hypertrophy of bone tissues

### **Decreased state**

- \* Osteoporosis
- \* Rickets

## **6. Moolai (majja)**

### **Increased state**

- \* Bone and joint disorder
- \* Ulcers
- \* Heaviness of eye and body

### **Decreased state**

- \* Demyelination
- \* Delusion
- \* Giddiness



## 7. Sukklathathu

### Increased state

- \* Calculi formation (Urethra)
- \* Sexual perversion

### Decreased state

- \* Impotency
- \* Infertility
- \* Weakness

## Diagnosis

According to siddha aspect they are 8 stools of diagnosis.

நாடி	-	Pulse
பரிசம்	-	Touch or palpation
நாக்கு	-	Examination of tongue
நிறம்	-	Examination of complexion
மொழி	-	Examination of speech
விழி	-	Examination of eye
மூத்திரம்	-	Examination of Urine
மலம்	-	Examination of stool

“மெய்குறி நிறத் தொனி விழி நுவிருமலம் கைக்குறி....”

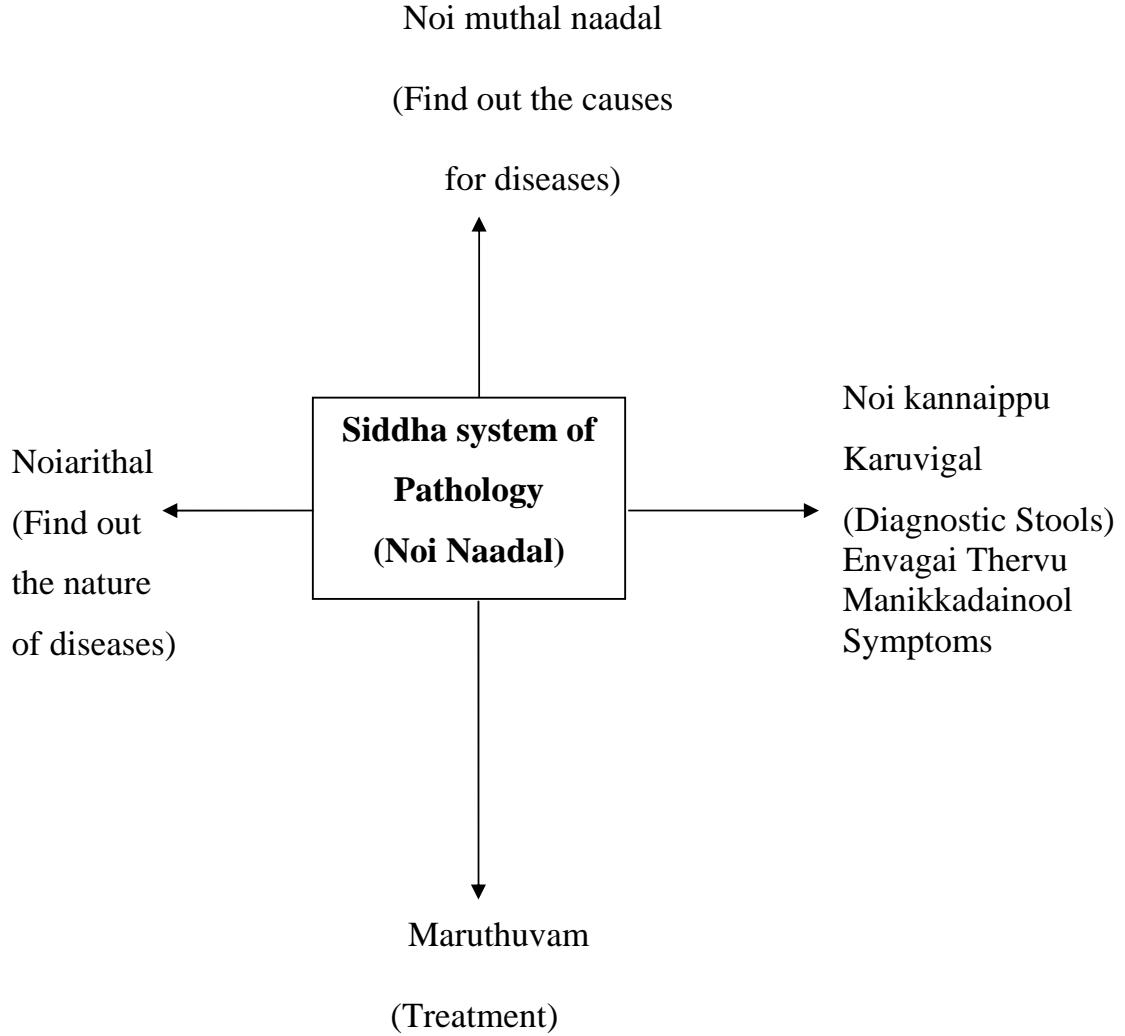
- தேரையர்

## Other Diagnostic stools in siddha

நீர்குறி - Examination of urine it includes quantitative,  
Qualitative analysis

நெய்குறி - Examination of urine by dropping gingelly oil

In our siddha system of pathology includes.



## AIM AND OBJECTIVES

“தேகமிருந்தால்லே சித்தேல்லாமடலாம்

தேகமிருந்தாக்காற் சேரலாம்பூரணம்

தேகமிருந்தாக்காற் செயலெல்லாம்பார்க்கலாம்

தேகமிருந்தாக்கால் சேரலாமுந்தியே”

- திருமூலர் வைத்தியம்  
(கருக்கடை -600)

The main aim of this study is to evaluate the pathology of the disease “Narithalaivadhham” with the help of Siddha and modern parameters.

Nowadays, there is so many treatments are done in other systems, but no satisfactory remedy in this disease Narithalaivadhham. We have to find out the exert treatment by knowing correct pathology of Narithalaivadhham.

### **Objectives of this study**

1. Varied clinical presentation of the disease
2. Pathology of the disease
3. Changes in the mukkutram
4. Find out the relation to sex, climate, Habit occupations and genetic relation

5. To pave way for further studies and researchers in this field
6. To bring forth the high lights of Siddha system of diagnosis,  
Envagithervu
7. To propagate the views of siddhars in terms of Scientific proof to  
needy world.

## ELUCIDATION ABOUT NARITHALAIVADHAM

According to the Literature Yugi Vaithya Chinthamani has been described “Narithalaivadhham” under vadha roga nithnam.

### நரித்தலை வாதம்

“மூர்க்கமர முயன்றுமுழங் கால்தான் வீங்கி

முதிர்ந்திரத்த முந்திரண்டு முயற்சி யாகி

நீக்கமாய் நின்றிடவொ ணாமற் றானும்

நிமிர்ந்திடுகில் சந்துந்தான் முடக்கொ ணாமல்

தீர்க்கமாய் துண்டித்து மிகச்சிக் கென்று

செழுமைநரித் தலைபேரல மிகவே வீங்கி

நார்க்கமாய் நாடியுமே படப டக்கு

நரித்தலையின் வாதமென்றே நவில லாமே.”

- யுகி வைதிய சிந்தாமணி

### The meaning of the words in this poem,

நரித்தலை	-Knee cap	- முழங்கால் மூட்டு
மூர்க்கமாய்	- Force	- வேகம் (முறைத்தவறி)
முழங்கால்	- knee cap	- முழங்கால் மூட்டு
வீங்கி	-Swelling	- வீக்கம்
முதிர்ந்து	- Firm in nature	- முற்றிய
ரத்தம் திரண்டு	- Accumulation of blood	- குருதி திரளல்
நின்றிட வொணாமற்	-Not able to stand	- நிற்கமுடியாமல்
சந்து	- Joint	- மூட்டு

முடக் கொணாமல்	- Difficulty to fold	- மடக்க முடியாமல்
துண்டித்து	- Hacking	- சிதைந்து
மிகச்சிக்கென்று	- Narrowing of Joint cavity	- சிறியதாகத்
நரித்தலைபோல	- Like jackal's head	- நரியின்தலை
மிகவே வீங்கி	- Massive Swelling	- பெரிய வீக்கம்
நாடியுடேபடபடக்கும்	- Rapid pulsation	- நாடி துரிதமாக துடித்தல்

### **மூர்க்கமா முயன்று முழங்கால் தான் வீங்கி**

வேகமாக (முறை தவறி) முயற்சிப்பதால் முழங்காலில் வீக்கம் ஏற்பட்டு

(Swelling in the knee cap)

### **முதிர்ந்து ரத்த முந்திரண்டு முயற்சியாகி**

குருதியானது முழங்கால் மூட்டினால் திரண்டுவிடுதல் (Firm Swelling due to Accumulation blood in the knee joint cavity)

### **நீக்கமாய் நின்றிடவொ ணாமற் றானும்**

எழுந்து நிற்க முடியாமல் (Difficulty in standing upright Position)

### **நிமிர்ந்திடுகில் சந்துதான் முடக்கொணாமல்**

முட்டுகளை மடக்க முடியாதிருத்தல் (Difficulty to fold the Joint)

### **தீர்க்கமாய் துண்டித்து மிகச்சிக் கென்று**

முழங்கால் மூட்டினது சவ்வானது சிதைந்து இடைவெளி குறைதல் (Damaging of articular cartilage, narrowing of joint cavity)

### **செழுமைநரித் தலைபோல மிகவே வீங்கி**

நரியின் தலைபோன்ற வடிவில் மிக பெரிய வீக்கம் உண்டாதல் (Massive Swelling like jackal's head)

**நார்க்கமாய் நாடியுமே படபடக்கும்**

நாடியானது படபடத்து காணல் (Rapid pulsation)

**நரித்தலையின் வாதமென்றே நவில லாமே**

இத்தகைய குறிகுணங்களைக் கொண்ட வாதநோயே நரித்தலைவாதம் ஆகும்.

**The poem's lines are summarized as follows,**

The stanza clearly depicted from the sudden onset of swelling in the knee joint. Swelling is due to accumulation of blood in the knee joint cavity. The nature of swelling is firm massive, painful and tender damaging of articular cartilage, narrowing of joint cavity. Because of swelling patient is not able to stand in upright position, difficulty in folding and rapid pulsation.

- ❖ Accumulation of Blood in the knee joint
- ❖ Damaging the articular cartilage
- ❖ Narrowing of joint cavity
- ❖ Massive Swelling like Jackal's head
- ❖ Not able to stand in upright position and difficulty in folding
- ❖ Rapid pulsation

## DETAILED PATHOLOGICAL VIEW OF DISSERTATION TOPIC

### Siddha Aspect

சித்த மருத்துவத்தின் படி உடலில் பிணி ஏற்படுவதற்கு ஆதி காரணம் வளி – அழல் - ஐயம் என்னும் மூன்று உயிர்த்தாதுக்களில் ஏற்படும் மாற்றமே (மிசுதல்,குறைதல்)ஆகும். இந்த தாதுக்கள் மூன்றும் ஏழு உடற்கட்டுகள், முக்குணங்கள், பருவகாலங்கள் வசிக்கும் இடங்கள் இவற்றைப் பொருத்து, நோயின் தன்மையை வெளிபடுத்துகின்றன. உடலின் அனைத்து விதமான உறுப்புகளின் இயக்கம் வளியை சார்ந்தே அமைகின்றன. ஆகவே தான் எல்லா உறுப்புகளையும் மொத்தமாகவோ, தனித்தனியாகவோ, இரண்டு அல்லது அதற்கு மேற்பட்ட உறுப்புகளை சார்ந்தோ நோய்கள் தோன்றுகின்றன.

வளிநோய் ஏற்படும் போது பின்நிலையில் ஐய, அழல் தாதுக்களின் செயலையும் பாதித்து கேடடையச் செய்யும்.

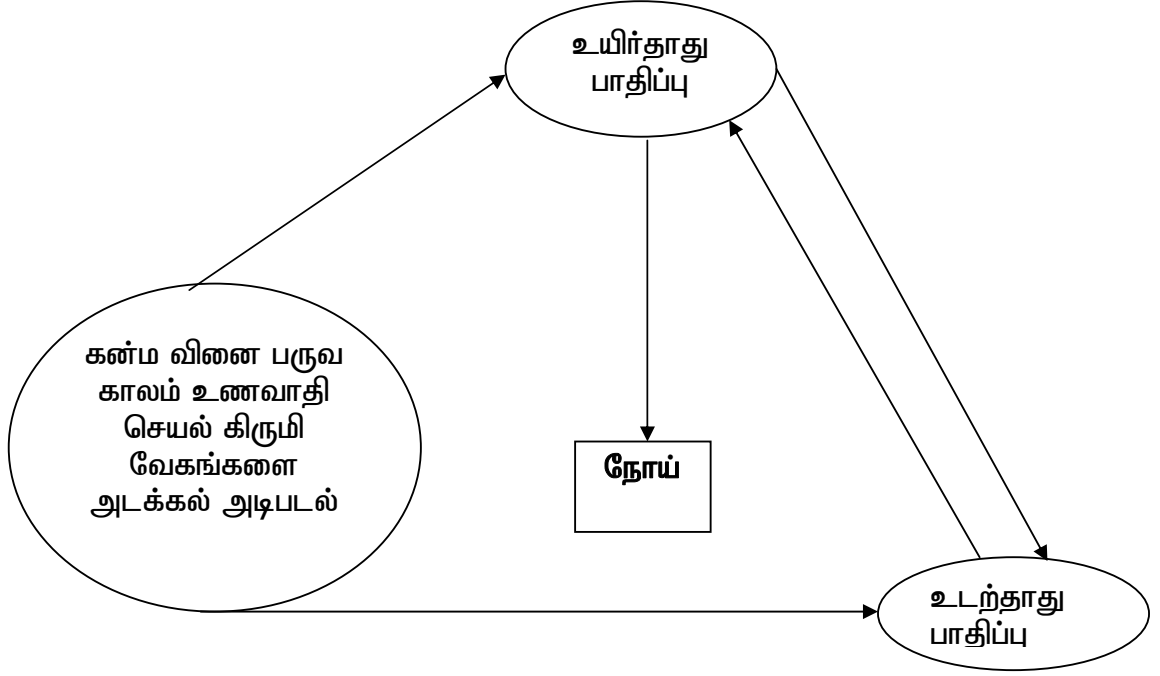
### உயிர் தாதுக்களின் இயல்பு

உயிர்த்தாதுக்கள் மூன்றுமே ஒன்று தன்னிலை வளர்ச்சியடையும் போது மற்ற இரண்டின் செயல்பாட்டையும் கேடடையச் செய்யும் இயல்புடையது. அதாவது எவ்வகை காரணத்தால் உயிர்த்தாது பாதிக்கப்பட்டாலும் சரி அதன் பிரதிபளிப்பை உடற்தாதுக்களில் காணலாம்.

“உடம்பந் அழியிற் உயிரந் அழிவந்  
திடம்பட மெய்ஞானம் சேரவும் மடட்டந்  
உடம்பை வளர்க்கும் உபாயம் அறிந்தே  
உடம்பை வளர்த்தேன் உயிர்வளர்த்தேனே”.

- திருமூலர்





**வாதத்தின் தன்மை:**

“வாதங்கடுமை வறட்சியுடன் நொய்மை சீதஞ்சலனம் சிதறணுவு  
ஏதமுடனிக் குணத்தோடுற்றேயியக

‘ கந்தருமனவிறற்க்க பரிகாரந்தா”

- தேரையர் வெண்பா

வளியின் குணங்களான கடுமை, வறட்சி, நொய்மை, சீதம், சலனம்  
அணுதுவம் இவை அதிகரிக்கும் விதத்தை யறிந்து தக்க பரிகாரகரம்  
தரவேண்டும்.

## வளி வாழும் இடம்

“நெளிந்திட்ட வாதம் பானத்தைப் பற்றி

நிறைந்திடையைச் சேர்த்துந்தில் கீழே நின்று

குளிந்திட்ட மூலமதூ பெழுந்து காமக்

கொடியிடையைப் பற்றியெழுங் குணத்தைப்பாரே

குணமான வெலும்பைமேற் றொக்கை நாடி

நிணமான பொருத்திடமும் ரோமக் காலும்

நிறைவாகி மங்கிசமெல் லாம்பரந்து,

கால்காட்டி வாதமெங்குக் கலக்குந் தானே”

- தமிழ் வைத்திய சதகம்

## நரித்தலை வாதம் (நரித்தலை - முழங்கால் மூட்டு)

இங்கு நரித்தலை என்றால் முழங்கால் மூட்டு என்னும் பொருள்படுதலால் இது முழங்கால் மூட்டைப் பற்றிய வாதநோய் என தெளிவடைகின்றது.

வாததோடமானது இரத்த தாதுவின் இயக்கத்தை பாதித்து அதனை மூட்டினுள் திரளச் செய்கிறது. இங்கு பாதிப்பானது இரத்த தாதுவின் இயக்கம் என்பதால், இந்நோயை முன்னிலை படுத்தியது வாததோடமே ஆகும். இதையே ஆசிரியர்.

“மூர்க்கமர முயன்று முழங் கால்தான் வீங்கி

முதிர்ந்து ரத்த முந்திரண்டு முயற்சியாகி”

அதாவது வேகமாக முயற்சிப்பதால் வாததோடமானது முழங்கால் மூட்டினுள் ரத்தத்தை திரளச்செய்து வீக்கத்தை உண்டாக்கின்றது.

❖ Blood accumulate in to joint cavity

❖ Swelling of knee Joint.

“நீக்கமாய் நின்றிடவொ ணாமற் றானும்

நிமிர்ந்திடுகில் சந்துந்தான் முடக்கொ ணாமல”

வாததோடமானது குருதியை திரளச் செய்வதால் என்பு தாதுவை பாதித்து, அதன் செயல்பாடுகளை முடக்கி, மூட்டுகளை நிற்க முடியாமலும் மடக்க முடியாமலும் செய்கிறது.

“தீக்கமாய் துண்டித்து மிகச்சிக் சென்று

செழுமைநரித் தலைபொல மிகவே வீங்கி”

மூட்டினுள் திரண்ட குருதியானது என்புதாதுவை சிதைந்து விடுகின்றது. எனவே வீக்கமானது நரியின் தலையைப்போல மிகப் பெரிதாக காணப்படுகின்றது.

❖ Damaging of articular cartilage

❖ Narrowing of joint cavity.

❖ Massive swelling

“நார்க்கமாய் நாடியுமே படபடக்கு

நரித்தலையின் வாதமென்ற நவிலலாமே”

❖ Rapid pulsation due to hemorrhage”.

இங்கு கேடடைவது வளி எனினும் அதை தொடர்ந்து அழல் (குருதி திரளல்), ஐயம் (மிக பெரிய வீக்கம்) போன்றவையும் பாதித்து நாடிநடையானது துரிதமாக காணப்படும் இத்தகைய நோய்க்கு நரித்தலைவாதம்” என்று கூறியுள்ளார்.

In this Disease Narthaliavatham following alterations are takes place.

## **II. Alterations in Mukkutra Nilaikkal**

### **Vali**

1. Pranana – Rapid pulsation
2. Abana – Constipation
3. Udana – Palloriness
4. Viyana – Difficulty in movements
5. Samana – Its balancing function is affected
6. Devathathan – Irritability

### **Azhal**

1. Ranjaga pitham - Palloriness of tongue and conjunctiva.
2. Sathaga pitham - Difficulty in doing routine works.
3. Prasagapitham - Colour changes in the skin at the site of swelling.

### **Iyam**

1. Avalampagam - Its balancing function disturbed.
2. Santhigam - Difficulty in movements of joints.

### **Inference**

- Vali - Pranana, Abana, Udana, Viyana, Samana, devathathan are affected.
- Azhal - Ranjaga pitham, Sathaga pitham, Prasaga pitham are affected.
- Iyam - Avalambagam and Santhigam are affected.

### **III.Alterations in Udal thathukkal**

1. Saaram - Pain and discomfort.

2. Senner - Stagnation of blood in the site of swelling

3. Oon

Initial stage - Some inflammatory changes (Swelling)

Later stage - Disuse atrophy

4. Kozhuppu - Restricted joint movements

5. Enbu

Difficulty to move, standing upright position, inflammatory changes and intra articular adhesions in the knee joint.

6. Moolai - Osteoporotic changes in later stage.

### **Inference**

All 6 Udal Thathukkal are affected except Sukkilam/ Sronitham.

## MODERN ASPECT

“மூர்க்கமர முயன்றுமுழுங் களத்தான் வீங்கி  
முதிர்ந்திரத்த முந்திரண்டு முயற்சி யாகி”.

Swelling of Knee joint is due to accumulation of blood in to Knee joint cavity.

### **Swelling with accumulation of blood:**

Generally the blood flows inside the closed circuits of the blood vessels which are arteries, arterioles, capillaries, vein and venules. Physiologically, blood is in constant motion inside the circuits. The escape of blood from the blood vessel is called haemorrhage and these extravasations of blood in to the tissues. When the blood accumulates in one of the body cavities it is referred to as

Thoracic cavity	-	Haemothorax.
Pericardial cavity	-	Haemopericardium.
Peritoneal cavity	-	Haemoperitoneum.
Joint cavity	-	Haemarthrosis.

### **Bleeding in to knee joint cavity is caused by**

1. Ligament injuries.
2. Fracture of patella.
3. Fractures of tibial condyles.
4. Trauma.

5. Deficiency of VIII factor and other clotting factors.

- Fall injury
- Direct injury
- Sports injury

6. Any defect in coagulative mechanism.

7. Increased fragility of vessels.

8. Platelet deficiency or dysfunction.

Ligament injuries and fractures of patella and tibial condyles are caused by sports injury and traumatic cause. Some times pathological cause.

Increased fragility of vessels and platelet deficiency do not cause serious bleeding problem. Most often they induce small haemorrhages, petechiae and purpura.

### **Derangement in coagulation**

The deficiency of one of known clotting factors results in bleeding disorder. More often bleeding manifest as the development of large haematomas followed by injuries.

The activated factor IX, acting in concert with activated factor VIII and with platelet, phospholipids and platelet factor III from traumatized platelets, activates factor X.

In person with deficient factor VIII and IX the process of

1. Vaso constriction.
2. Platelets plug formation.

It occurs, but they lack in the process of conversion of fibrinogen to fibrin, resulting in bleeding which in turn leads to the formation of haematoma.

Extravasations of blood in to the joint cavity with resultant swelling known as haemarthrosis.

- The immediate vascular response is of “Transient vasoconstriction” of arterioles.
- Next follows “persistent progressive vasodilatation” which involve mainly the arterioles and to the extent venules and capillaries. Vasodilatation results in increased blood volume.
- Progressive vasodilatation, in turn, elevates the local hydrostatic pressure resulting in transudation of fluid into the extra cellular space thus forming the swelling

“நீக்கமாய் நின்றிடவொ ணாமற் றானும்

நிமிர்ந்திடுகில் சந்துதான் முடக்கொ ணாமல்”.

Due to the swelling, patient is not able to stand in upright position and flex the knee.

“தீக்கமாய் துண்டித்து மிகச்சிக் கென்று

செழுமைநரித் தலைபேரல மிகவே வீங்கி”.



Damaging of articular cartilage further increases the swelling (like jackal's head)

Repeated haemorrhages into joints produce synovial hyperplasia, haemosiderin deposition and fibrous scarring increased intra articular pressure, limitation of movements causes articular cartilage damage.

**“தீர்க்கமாய் துண்டித்து”**

Intera-articular adhesions will result in reduction of the knee joint cavity.

**“மிகச்சிக் கென்று”**

Chronic inflammatory process occurs due to blood in cavity. Inflammation and swelling of the joint, accumulation of morbid fluid which are followed by over growth of articular cartilage and synovial membrane with destruction of those parts of the cartilages subjected to intra articular pressure and progressive deformity by assuring the shape of jackal's head

**“நரித் தலைபோல மிகவே வீங்கி”**

There by rendering the patient unable to walk or move about

**“நின்றிடவொணாமற் றரதும்”**

The knee becomes usually large and makes him difficulty to fold or stretch his leg

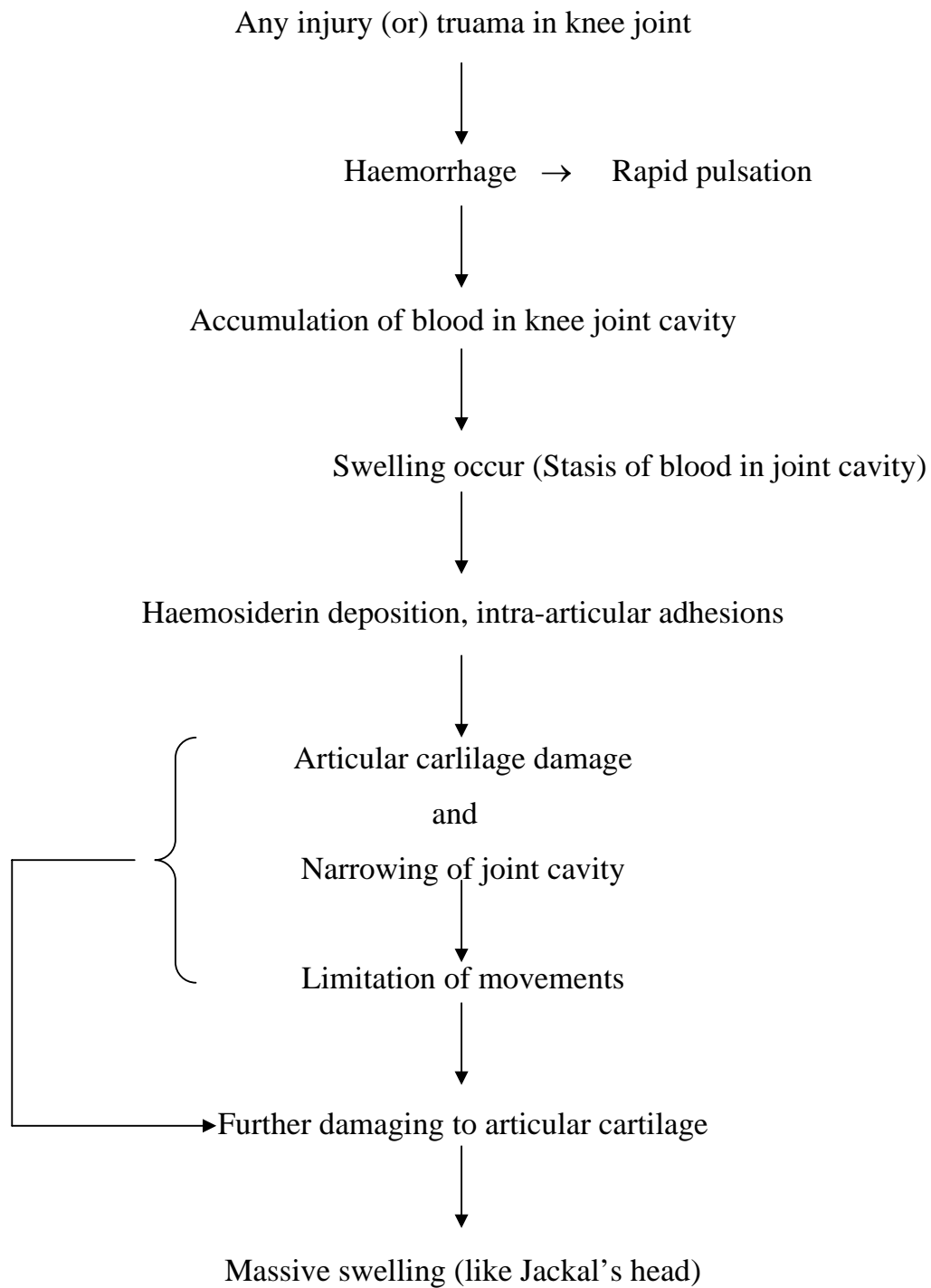
**“நிமிர்ந்திடுகில் சந்துதரன் முடக்கொ ணாமல்”**

(This is caused by excited vali uniting with the vitiated blood produces the inflammation of knee joint.)

“நுர்க்கமரய் நுடியுமே படபடக்கும்”

If any haemorrhage in body causes rapid pulsation. It is due to increased cardiac activity to compensate the circulatory blood loss. So the heart rate and pulse rate is increased in haemorrhagic conditions.

## Schematic representation of Narithalivadhama



## REVIEW OF LITERATURE

Narithalaivadhham is also explained in Yugimuni Vaithya Kaviyam and Paravasasekaram.

### In Yugimuni Vaithya Kaviyam

“நரித்தலைவாதஞ் செய்யுங் குணமதை நவிலக்கேளாய்  
வருத்தமர முழங்கரலொன்றே வலுவுடனுளைப் புத்தோன்றும்  
நரித்தலைபோல வீங்கும் நடக்கிலும் வலிக்குங்காலும்  
வரித்திடு முனிவர்தாமும் விளம்பிய குணமிதாமே”.

The author explains Narithalaivadhham is characterized by

- Pain and discomfort in knee joint.
- Massive swelling (like jackal's head)
- Pain during walk

### In Pararasa Sekaram,

“என்றதோர் முழங்கரல் வீங்கியிரத் முந்திரண்டு  
நின்றிடவொணாமற் சற்றே நின்றிடின நொந்து முடக்கொணரம்  
துன்றியே சிக்கி நின்றி சென்னரித் தலைபோல் வீங்கில்  
நன்றி சேர் மதுரச் சொல்லாய் நரித்தலை வாதங்குதானே”

The author explains Narithalaivadhham is characterized by

- Swelling in knee joint
- Accumulation of blood in knee joint cavity.
- Patient not able to stand and flex the knee.
- Swelling is tender and reddish like jackal's head.

Above two authors explained Narithalaivadham is disease of knee joint.

But, Pararasekaram specify, the swelling is due to accumulation of blood .Same clinical features are explained by Yugi in Yugi Vaithya Cinthamani and Yugi Vaithya Kaviyam. According literatures we concluded Narithalaivadham is inflamatroj joint disease affecting knee joint due to accumulation of blood in knee joint cavity.

## **ANATOMY OF THE KNEE JOINT**

- The Knee is the largest and most complex joint of the body. The complexity is the result of fusion of three joints in one. It is formed by fusion of the lateral femorotibial, medial femorotibial and femoropatellar joints.

### **Type**

- It is compound synovial joint incorporating two condylar joints between the condyles of the femur and tibia and one saddle joint between the femur and the patella.

### **Articular Surfaces**

- The articular surfaces are the large curved condyles of femur, flattened condyles of tibia and facets of patella.
- Lateral femoral condyle accommodates the large lateral facet of the patella and prevents subluxation and dislocation.
- The medial femoral condyles are longer in dimension in anteroposterior direction which allows greater rolling in this condyle.
- Medial tibial plateau is an oval disc concave in both sagittal and femoral planes. This accommodates larger and medial femoral condyle.

- Lateral tibial plateau is circular in shape. This facilitates rotation of the femoral condyle during movement.
- Patellar facets are medial and lateral facet which articulates with femur.

### **Bursae**

- Bursae are a little fluid sac that helps muscle and tendons to slide freely as they knee moves. There are about 13 bursae in the knee joint in the front and in the sides.

### **Anterior**

- Subcutaneous pre patellar bursa
- Subcutaneous infra patellar bursa
- Deep infra patellar bursa
- Supra patellar bursa

### **Lateral**

- Deep to lateral head of gastronemius
- Between fibular collateral ligament and biceps femoris.
- Between fibular collateral ligament and popliteal tendon.
- Between popliteal tendon and lateral condyle of tibia.

### **Medial**

- Deep to Medial head of gastronemius
- Ansarine bursa
- Deep to tibial collateral ligament

- Deep to semimembranosus
- Between Semimembranosus and Semi tendinosus.

### **Ligaments**

- Ligaments are the connective tissue structures that connect or bind one bone to another either at or near a joint.
- The roles of the various ligaments of the knee have their importance to knee joint stability.
  - ❖ Fibrous capsule
  - ❖ Ligamentum Patellae.
    - This is the central portion of the common tendon of insertion of the Quadriceps femoris, the remaining portions of the tendon form the medial and lateral patellar retinacula.
    - The ligamentum patella is about 3 inches long and one inch broad.
    - It is attached above to the margins and rough posterior surface of the apex of the patella and below to the smooth, upper part of the tibial tuberosity.
  - ❖ Anterior cruciate ligament
  - ❖ Posterior cruciate ligament
  - ❖ Medial (or) tibial collateral ligament
  - ❖ Lateral (or) fibular collateral ligament



- ❖ Medial Meniscus
- ❖ Lateral Meniscus
- ❖ Oblique popliteal ligament
- ❖ Arcuate popliteal ligament
- ❖ Transverse ligament.

### **Blood supply**

- Five genicular branches of the popliteal artery.
- The descending genicular branch of the femoral artery.
- The descending branch of the lateral circumflex femoral artery
- Two recurrent branches of the anterior tibial artery.
- The circumflex fibular branch of posterior tibial artery.

### **Nerve Supply**

- Femoral nerve, through its branches to the Vasti especially the Vastus Medialis.
- Sciatic Nerve through the genicular branches of the tibial and common peroneal Nerve.
- Obturator Nerve, through its posterior division

## Movements of the knee joint

Active movements at the knee are flexion, extension, medial rotation and Lateral rotation.

**Table 1 : Muscles Producing Movements at the knee joint**

<b>Movement</b>	<b>Principle Muscles</b>	<b>Accessory Muscles</b>
Flexion	i) Biceps Femoris ii) Semitendinosus iii) Semimembranosus	i) Gracilis ii) Sartorius iii) Popliteus iv) Gastrocnemius
Extension	Quadriceps Femoris	Tensor Fasciae Latae
Medial rotation of flexed leg	i) Popliteus ii) Semi membranous iii) Semitendinosus	i) Sartorius ii) Gracilis
Lateral rotation of Flexed leg	Biceps femoris	

## QUADRICEPS FEMORIS

- Quadriceps is the combination of Rectus femoris, Vastus medialis, Vastus lateralis, and Vastus intermedius. Quadriceps found in the anterior part of the thigh and the function is knee extension.

**Tabel 2 : QUADRICEPS FEMORIS**

<b>Muscle</b>	<b>Origin</b>	<b>Insertion</b>
Rectus Femoris	<p>a. Straight head: from the upper half of the anterior inferior iliac spine</p> <p>b. Reflected head: from the groove above the margin of the acetabulum and the capsule of the hip joint</p>	Base of patella
Vastus Lateralis	<p>a. Upper part of intertrochanteric line.</p> <p>b. Anterior and inferior borders of greater trochanter</p> <p>c. Lateral lip of gluteal tuberosity</p> <p>d. Upper ½ of lateral lip of linea aspera</p>	<p>a. Later part of the base of patella.</p> <p>b. Upper 1/3 of the lateral border of patella expansion to the capsule of knee joint, tibia and iliotibial tract.</p>
Vastus Medialis	<p>a. Lower part of intertrochanteric line,</p> <p>b. Spiral line</p> <p>c. Medial lip of linea aspera</p> <p>d. Upper ¼ of medial supracondylar line</p>	Medial 1/3 of the base and upper 2/3 of the medial border of the patella.
Vastus intermedius	a. Upper ¾ of the anterior and lateral surfaces of the shaft of femur.	Base of patella.

**Nerve Supply**

- Femoral Nerve (L<sub>2,3,4</sub>)

**Action**

- Quadriceps is a strong extensor of the leg. This action is very important in standing, walking and running.
- In addition the Rectus femoris flexes the hip joint along with iliopsoas and helps to maintain the erect attitude.
- The Vastus medialis prevents lateral displacement of the patella

# BIOMECHANICS OF KNEE JOINT

## 1. Stabilization

- Capsule and ligaments are the static stabilizers of knee joint, muscles are the dynamic stabilizers. Structures located in the medial and lateral sides of the knee joint provide medial and lateral stability.
- Static and dynamic stabilizers, medial and lateral compartment structures provide anteroposterior stability of the knee.
- Extensor retinacular provide anteromedial and anterolateral support.
- Popliteus is posterior lateral stabilizers.
- Anterior cruciate ligament and Hamstring work in a complementary manner to resist the forces that displace tibia anteriorly or shear the femur posteriorly.

## Static Stabilizers

- Medial collateral ligament
- Lateral collateral ligament
- Anterior cruciate ligament
- Posterior cruciate ligament
- Oblique popliteal ligament
- Arcuate popliteal ligament
- Transverse ligament

## **Dynamic Stabilizers**

- Quadriceps femoris
- Extensor Retinaculum
- Pesanserinus (Semitendinosus, Sartorius, Gracilis Muscles)

## **2. Q Angle**

The Q angle is the angle is formed between a line connecting to the axis to mid point of the patella and a line connecting the tibial tubercle and the mid point of patella.

An angle of  $10^{\circ}$ -  $15^{\circ}$  measured with knee either in full extension or slight flexion is considered to be normal.

## **3. Locking and Unlocking of Knee Joint**

Locking is a mechanism that allows the knee to remain in the position of full extension. Locking occur as a result of medial rotation of femur during last stage of extension. Locking aided by the oblique pull of the ligament during the last stage of extension. Locking is produced by the quadriceps femoris muscles.

In initial flexion the knee must unlock. A flexion force will automatically result in lateral rotation of the femur. Unlocking is brought about by the action of the popliteus muscle.

# PHYSIOLOGY OF BLOOD

- Blood is a connective tissue in fluid form. It is considered as a fluid of life. Because it carries oxygen from lungs to all parts of the body and the carbon dioxide from all parts of the body to the lungs.
- Blood is red in colour. Arterial blood is scarlet red because it contains more oxygen and venous blood is purple red.
- The volume of blood in a normal adult is about 5 litres
- pH in normal conditions is 7.4
- Blood is five times more viscous than water. It is mainly due to red blood cells and plasma

## Composition of Blood

Blood contains the blood cells which are called formed elements and the liquid portion known as plasma.

## Blood Cells

Three types of cells are present in the blood

- Red blood cells or Erythrocytes
- White blood cells or Leukocytes
- Platelets or Thrombocytes

## **Haemoglobin**

- Haemoglobin (Hb) is the red pigment of blood present in RBC.
- Haemoglobin consists of 2 parts like 96% is a simple protein called globin and 4% is iron containing pigment called heme.
- Average haemoglobin (Hb) content in blood is 14-16 gm% in adult males 15 gm% , In adult females 14.5 gm%
- The function of haemoglobin is to carry the respiratory gases, oxygen and carbon dioxide.

## **Plasma**

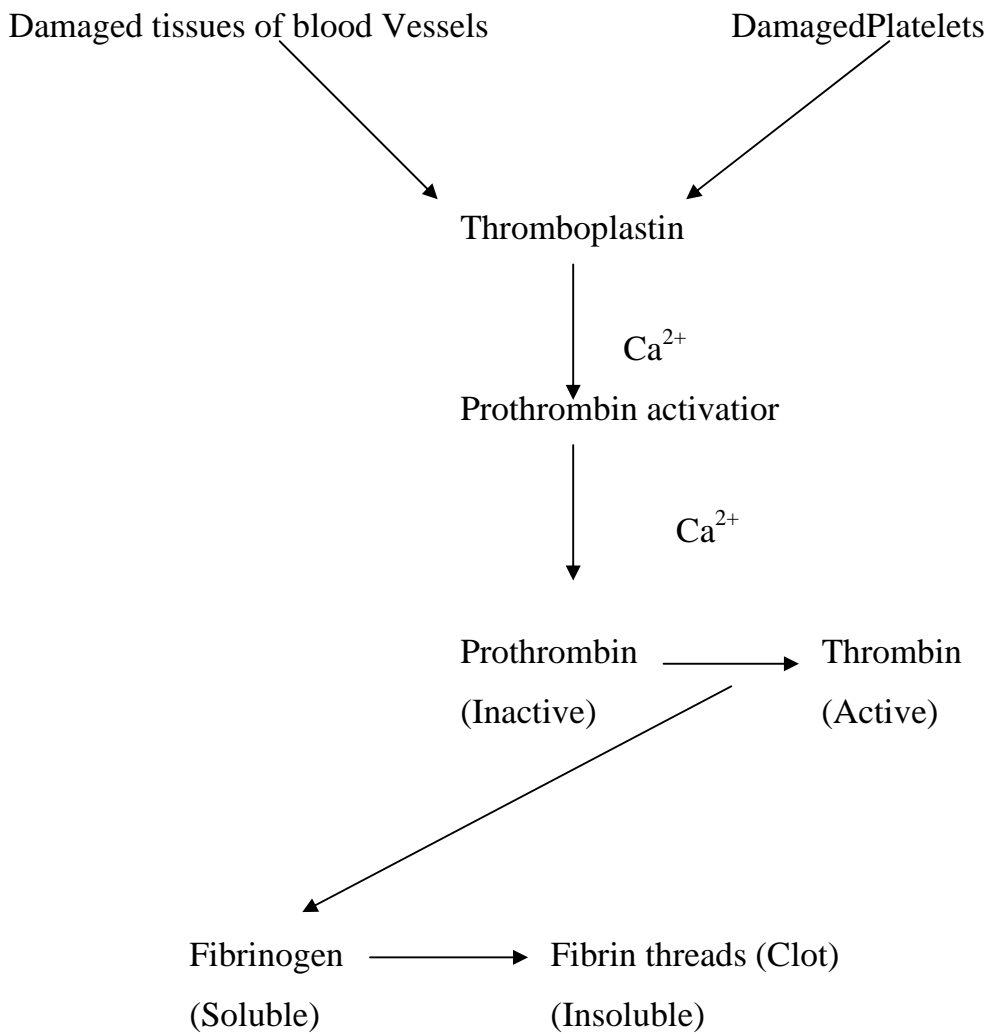
- Plasma is a straw coloured clear liquid. It contains 91 to 92% of water and 8 to 9% of solids. The solids are the organic and the inorganic substances.
- The organic substances are proteins, carbohydrates, fat, amino acids, non protein nitrogenous substances, internal secretions, enzymes and antibodies.
- The inorganic substances are sodium, calcium, potassium, magnesium, chloride, iodide, iron, phosphates and copper.



## COAGULATION OF BLOOD

- When blood is shed out or collected in a container, it loses its fluidity and becomes a jelly like mass after few minutes. This process is called coagulation or clotting of blood.
- The clot is a mesh of thin fibrils entangling the blood cells. These fibrils consist of fibrin. The fibrin is formed from fibrinogen.

### Mechanism of Coagulation Basic



## **Actors involved in blood clotting**

Coagulation of blood occurs through a series of reactions due to the activation of a group of substances. Those substances necessary for clotting are called clotting factors. Thirteen clotting factors are identified.

### **Blood clotting factors**

Factor I	-	Fibrinogen
Factor II	-	Prothrombin
Factor III	-	Thromboplastin
Factor IV	-	Calcium
Factor V	-	Quick's Labile Factor (Proaccelerin (or) Accelerator globulin)
Factor VI	-	Presence has not been proved
Factor VII	-	Stable factor
<b>Factor VIII</b>	-	<b>Anti haemophilic factor</b> <b>(Antihemophilic globulin) AHF</b>
Factor IX	-	Christmas factor (of) Plasma Thromboplastin Component (PTC)
Factor X	-	Stuart – Prower factor
Factor XI	-	Plasma thromboplastin antecedent (PTA)
Factor XII	-	Hegman factor (contact factor)
Factor XIII	-	Fibrin Stabilizing factor (Fibrinase)

## **CLOTTING MECHANISM**

- Clotting of blood occurs in three stages
  - Formation of prothrombin activator
  - Conversion of prothrombin to thrombin
  - Conversion of fibrinogen to fibrin
- During the process of blood clotting, the clotting factors, which are in inactive forms, are converted into active forms and their enzymatic actions produce the successive reactions one after another in a cascading manner.
- Thus the various reactions involved in blood clotting are explained by enzyme cascade theory.

### **Stage 1: Formation of Prothrombin Activator**

Prothrombin activator is formed in two ways.

#### a) Extrinsic pathway

- In this, the formation of prothrombin activator is initiated by the tissue thromboplastin.

#### b) Intrinsic pathway

- In this, the formation of prothrombin activator is initiated by platelets which are within the blood itself.

### **Extrinsic pathway for the formation of prothrombin Activator**

- It occurs in the following sequence
  - Tissue thromboplastin (factor III) initiates this pathway. After injury, the damaged tissues release tissue thromboplastin. The thromboplastin contains proteins, phospholipids and glycoprotein which act as proteolytic enzymes.
  - The glycoprotein and phospholipids components of thromboplastin convert factor X into activated factor Xa, in the presence of factor VII.
  - The activated factor X reacts with factor V and phospholipids component of tissue thromboplastin to form prothrombin activator. This reaction requires the presence of calcium ions.
  - Factor V is activated by thrombin, which is formed from prothrombin. This factor V now accelerates formation of prothrombin activator and the other processes of blood clot. This effect of thrombin is called positive feed back effect of thrombin.

### **Intrinsic Pathway for the formation of prothrombin Activator**

- Following is the sequence of events in intrinsic pathway.
  - During the injury, the blood vessel is ruptured. The endothelium is damaged and collagen beneath the endothelium is exposed.

- When factor XII (Hegman factor) comes in contact with collagen, it is converted into activated factor XII.
- The activated factor XII converts factor XI into activated factor XI in the presence of kinogen and prekallikrein.
- The activated factor XI activates factor IX in the presence of factor IV (Calcium)
- The activated factor IX activates factor X in the presence of factor VIII and calcium.
- When the platelet comes in contact with collagen of damaged blood vessel, it releases phospholipids.
- Now the activated factor X (as in the case of extrinsic pathway) reacts with platelet phospholipids and factor V to form prothrombin activator. This needs presence of calcium ions.
- Factor V is also activated by positive feedback effect of thrombin.

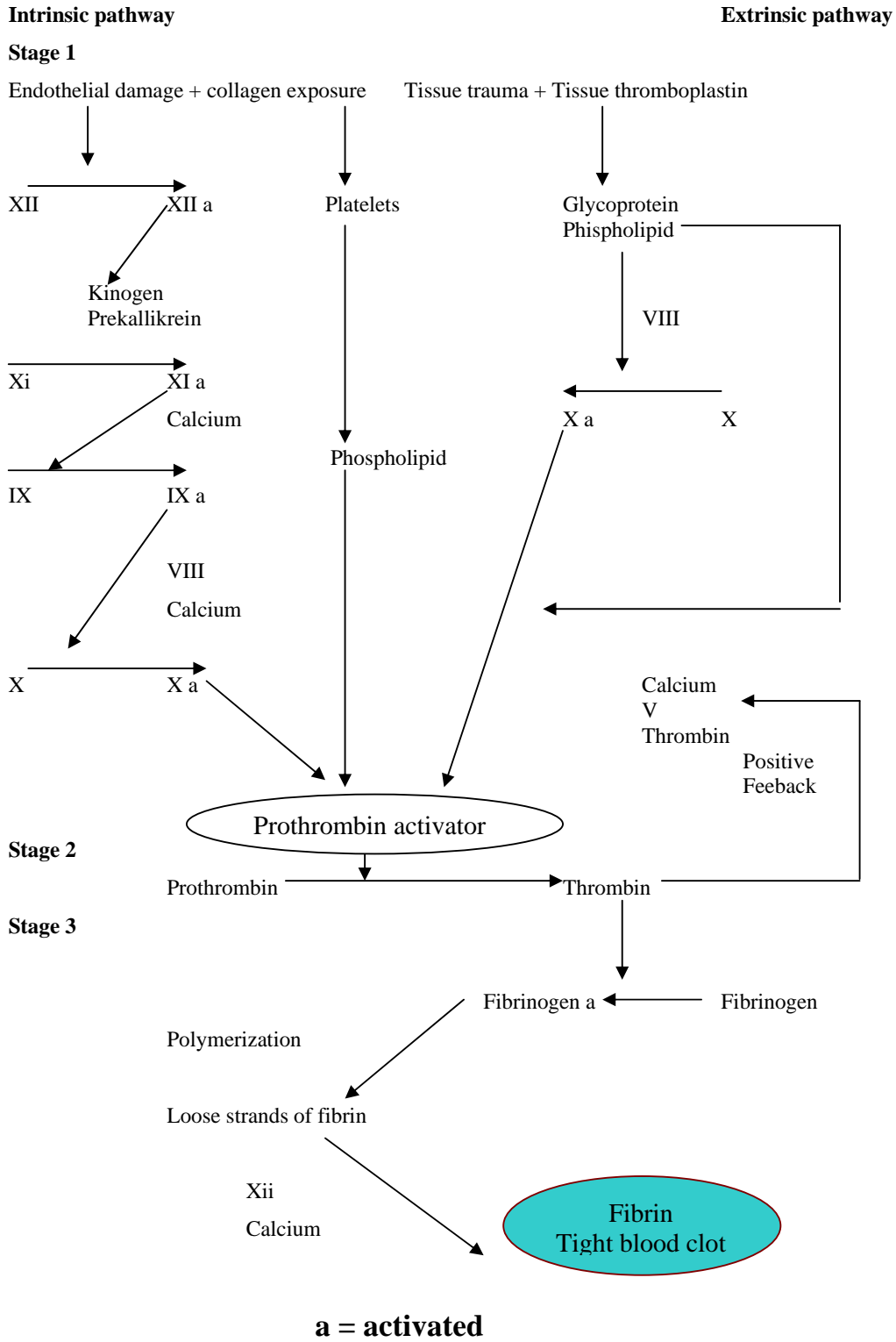
### **Stage 2: Conversion of Prothrombin into thrombin**

- Prothrombin activator converts prothrombin into thrombin in the presence of calcium. Thrombin itself can accelerate this reaction by positive feed back mechanism. That is, the initial thrombin activates factor V. This in turn accelerates the formation of both extrinsic and intrinsic prothrombin activator.

### **Stage 3: Conversion of fibrinogen into fibrin**

- During this, the soluble fibrinogen is converted into insoluble fibrin by thrombin. Initially, the fibrinogen is converted into activated fibrinogen due to loss of 2 pairs of polypeptides from each fibrinogen molecule.
- The activated fibrinogen is called fibrin monomer. This polymerizes with other monomer molecules to form fibrin.
- The first formed fibrin contains loosely arranged strands. This is modified later into a dense tight aggregate by fibrin stabilizing factor (XIII) and this reaction requires the presence of calcium ions.

## Stage of Coagulation of Blood



## **Blood Clot**

- The fibrin threads run in all directions. The red blood cells, white blood cells and the platelets get entrapped within the meshwork of fibrin. The entire mass of fibrin meshwork and the blood cells entrapped within this is called blood clot. The external blood clot is also called scab. This blood clot adheres to the opening of damaged blood vessel and prevents blood loss.
- Red blood cells and white blood cells are not necessary for clotting process. However, when clot is formed, these cells are trapped in it. The trapped red blood cells are responsible for the red colour of the clot.

## **Bleeding Time**

- This is the time interval from oozing of blood after a cut or injury till arrest of bleeding
- The normal duration of bleeding time is 3 to 6 minutes. It is prolonged in purpura.

## **Clotting Time**

- The time interval from oozing of blood after a cut or injury till the formation of clot is called clotting time.
- The normal duration of the clotting time is 3 to 8 minutes and it is prolonged in Haemophilia.



### **Prothrombin time**

- Blood is collected and oxalated so that, the calcium is precipitated and prothrombin is not converted into thrombin. Thus, the blood clotting is prevented.
- Then a large quantity of tissue thromboplastin with calcium is added to this blood. Calcium nullifies the effect of oxalate.
- And, the tissue thromboplastin activates prothrombin and blood clotting occurs. During this procedure the time taken by blood to clot after adding tissue thromboplastin is called prothrombin time. Prothrombin time indicates the total quantity of prothrombin present in the blood.
- The normal duration of prothrombin time is about 12 seconds. The prothrombin time is prolonged in deficiency of prothrombin and other factors like factors I, V, VII, and X, However, it is normal in haemophilia.

## **HAEMOPHILIA**

### **Definition**

Haemophilia is a genetic bleeding disorder. Persons suffering from it have prolonged bleeding, mostly in their joints. It is due to absence of certain clotting factors in the blood. Prolonged bleeding may be after injury or can happen on its own.

### **Incidence**

The incidence of haemophilia as per WHO findings is 1 person in a population of 10,000. Approximately 1,00,000 persons suffering from haemophilia in India. May be just 50% of them survive today.

### **Sex**

Male – Commonly affected

Female – Carriers

### **Causes of Haemophilia**

Haemophilia occurs due to lack of formation of prothrombin activator. That is why the coagulation time is prolonged. Bleeding time and prothrombin time are normal.

### **Types of Haemophilia**

The formation of prothrombin activator is affected due to the deficiency of VIII or IX factor depending upon the deficiency of the factor involvement, haemophilia is classified into two types.

### **Haemophilia A**

- It is also called the classic haemophilia, due to the deficiency of factor VII. 85% of people with haemophilia are affected by haemophilia A.

### **Haemophilia B**

- It is also called Christmas disease, due to deficiency of factor IX. 15% of people with haemophilia are affected by haemophilia B.

### **Von Willebrand Disease**

- Von willebrand disease is characterized by excessive bleeding even with a mild injury.
- It is due to inherited deficiency of Von willebrand factor.
- Von willebrand factor is a protein secreted by endothelium of damaged blood vessels and platelets. This protein is responsible for adherence of platelets to endothelium of blood vessels during hemostasis after an injury. It is also responsible for the survival and maintenance of factor VIII in plasma.
- The deficiency of Von Willebrand factor leads to reduction in platelet adhesion and secondary deficiency of factor VIII. This results in excessive bleeding which resembles the bleeding that occurs during platelet dysfunction or haemophilia.
- The gene for factors VIII and IX both are located on the X-Chromosome.

**Table 3 Hemophilia**

<p>If there is no Family history, The chance is 1 in 5000 male birth. About a 1/3 of all affected people with hemophilia belong to this category, which is due to new mutations.</p>	<p>If the mother is a carrier, 50% of her sons will be affected by the disease and 50% of her daughters will be carriers.</p>	<p>If the father has hemophilia, then all daughters will be carriers and all sons will be normal.</p>
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**A woman is an indefinite carrier if**

- Her father has haemophilia
- She has one son with haemophilia and first degree relatives (brother, uncle or other male relatives) are affected.
- She has two or more sons with haemophilia.

**A woman is a possible carrier if**

- She has one or more maternal relatives with haemophilia
- She has one son with haemophilia and no other affected relatives.

**Chronic Musculo – Skeletal Manifestations**

- Chronic haemophilia arthropathy
  - Chronic synovitis
  - Deforming arthropathy
- Contractures
- Fractures

**Clinical Manifestations of Haemophilia**

The clinical manifestations of haemophilia depend upon the factor levels.

- Mild – factor VIII or IX level is 5-30 %
- Moderate – factor VIII or IX level is 2-5%
- Severe – factor VIII or IX level is <1%

**Table 4 : Sites of bleeding**

<b>Sl. No</b>	<b>Minor</b>	<b>Major</b>
1.	Joints	Central nervous system
2.	Muscle/soft tissue	Gastro intestinal
3.	Mouth/ Gums	Neck/Throat
4.	Epitasis	Severe trauma

**Major** – causes serious problem

**Minor** - managable

**Table 5: Prevalence of bleeding in haemophilia**

<b>SI. No.</b>	<b>Type of Haemorrhage</b>	<b>Prevalence (%)</b>
1.	Haemarthrosis	70-80
2.	Muscle	10-20
3.	Other major bleeds	5-10
4.	CNS bleeds	< 5

**Table 6: Prevalence of bleeding in to joints**

<b>SI. No.</b>	<b>Site</b>	<b>Prevalence (%)</b>
1.	Knee	45
2.	Elbow	30
3.	Ankle	15
4.	Shoulder	3
5.	Wrist	3
6.	Hip	2
7.	Others	2

# **PATHOLOGY**

## **Haemarthrosis knee**

Haemarthrosis means collection of blood in the joint cavity due to any injury or trauma in case of haemophilia and caused by ligament injury in normal person.

Haemarthrosis is the most common, most physically, economically and psychologically debilitating manifestation occurs in 90% of severe haemophilias.

### **Causes**

Primary cause : Deficiency of VIII factor

Secondary cause : Traumatic injury

I.e. Fall injury, Direct injury, Sports injury

Haemarthrotic knee becomes, swollen warm, and markedly tender. Discoloration may be noted, indicating bleeding. There may be a related fever with leukocytosis, if the bleeding is mild, the joint may return to normal within a few days with no sequelae or residual. In severe haemarthrosis the knee may remain inflamed for weeks or months.

Repeated haemarthrosis leads to hemosiderosis (a deposit of hemosiderin, granules consisting of ill-defined complexes of ferrichydroxides, polysaccharides, and proteins) of the synovium, gradual

degeneration of the capsule and other periarticular soft tissues repetitive and persistent haemarthrosis thins the cartilage.

### **Haemarthrosis caused by trauma**

The following conditions included under this heading

1. Fractures of the tibial condyle
2. Fracture of patella
3. Ligament injuries of knee joints

Collateral ligaments

- a. Medial collateral ligament
- b. Lateral collateral ligament

Cruciate ligaments

- a. Anterior cruciate ligament (ACL)
- b. Posterior cruciate ligament (PCL)

4. Injuries to semilunar cartilage
  - a. Medial semilunar cartilage
  - b. Lateral Semilunar cartilage
5. Loose body in the knee

### **Ligament injuries of the knee**

The collateral and cruciate ligaments are commonly injured in athletes, football and kabadi players.



## **Medial ligament injuries**

The medial collateral ligament is more commonly injured than the lateral.

A sudden valgus or abduction strain at the knee associated with external rotation of tibia causes stretching of the medial ligament producing

- a. Sprain of the ligament
- b. Partial rupture of ligament
- c. Complete rupture of ligament.

In case of sprain, there is pain in the medial aspect of the knee and tenderness over the upper and lower attachment of the ligament. In haemarthrosis the swelling occurs within an hour or two of the injury.

In case of partial rupture, the ligament is partially torn resulting in haemarthrosis.

Complete rupture of the medial ligament is caused by a very severe valgus strain to the knee. Marked swelling occurs due to haemarthrosis

## **Lateral collateral ligament**

This is much less common than the injury to the medial ligament. The same types of injuries, sprain, partial rupture and complete rupture of the ligament occur due to a hit on the inner aspect of the weight bearing of knee joint, which forces the knee into a sudden adduction strain, causes haemarthrosis.

## **Cruciate ligament injuries**

The cruciate ligaments play an important role in maintaining the stability of the knee joint. They may be injured alone or in combination with collateral ligament. The anterior cruciate ligament is more commonly injured. The common mechanism of injury is a forced full flexion of the knee joint with the tibia in internal rotation. It occurs injuries in gymnastic exercises, basket ball and foot ball. Clinically, the patient having acute pain, swelling and haemarthrosis of the knee joint.

## **Injuries of the semilunar cartilages.**

Injuries to the meniscus are common in young adults and are often sustained by the foot ball and kabadi players.

Violent abduction and external rotation, on flexed weight bearing knee causes a tear in the medial meniscus. The lateral meniscus is damaged by the opposite violence i.e. internal rotation and abduction violence of the tibia or semi flexed weight bearing knee joint.

## **Clinical features**

Acute pain

Knee gets locked in flexion

Swelling due to haemarthrosis

## **Fractures**

Fractures of tibial condyles and patella also causes haemarthrosis

### **Acute Haemarthrosis**

After minor injury, or even spontaneously bleeding is thought to arise from numerous vessels of stratum synoviale. This produces a polymorphonuclear leucocytosis as well as a lymphocytic and histiocytic cellular invasion leading to a synovitis with hyperplasia. Large amounts of the pigment haemosiderin accumulate throughout the synovial tissues. As the swelling rapidly increases, pain becomes a prominent feature with a stiffness of the joint usually in a flexed position as well as inhibition of muscle function.

### **Chronic haemophilic arthropathy**

Haemophilic patients are now living longer with frequent bleeding and the total number is increasing so that chronic arthropathy remains a problem. Combined pathological and experimental investigations demonstrated that repeated haemorrhages into joints produce synovial hyperplasia, haemosiderin depositions and fibrous scarring.

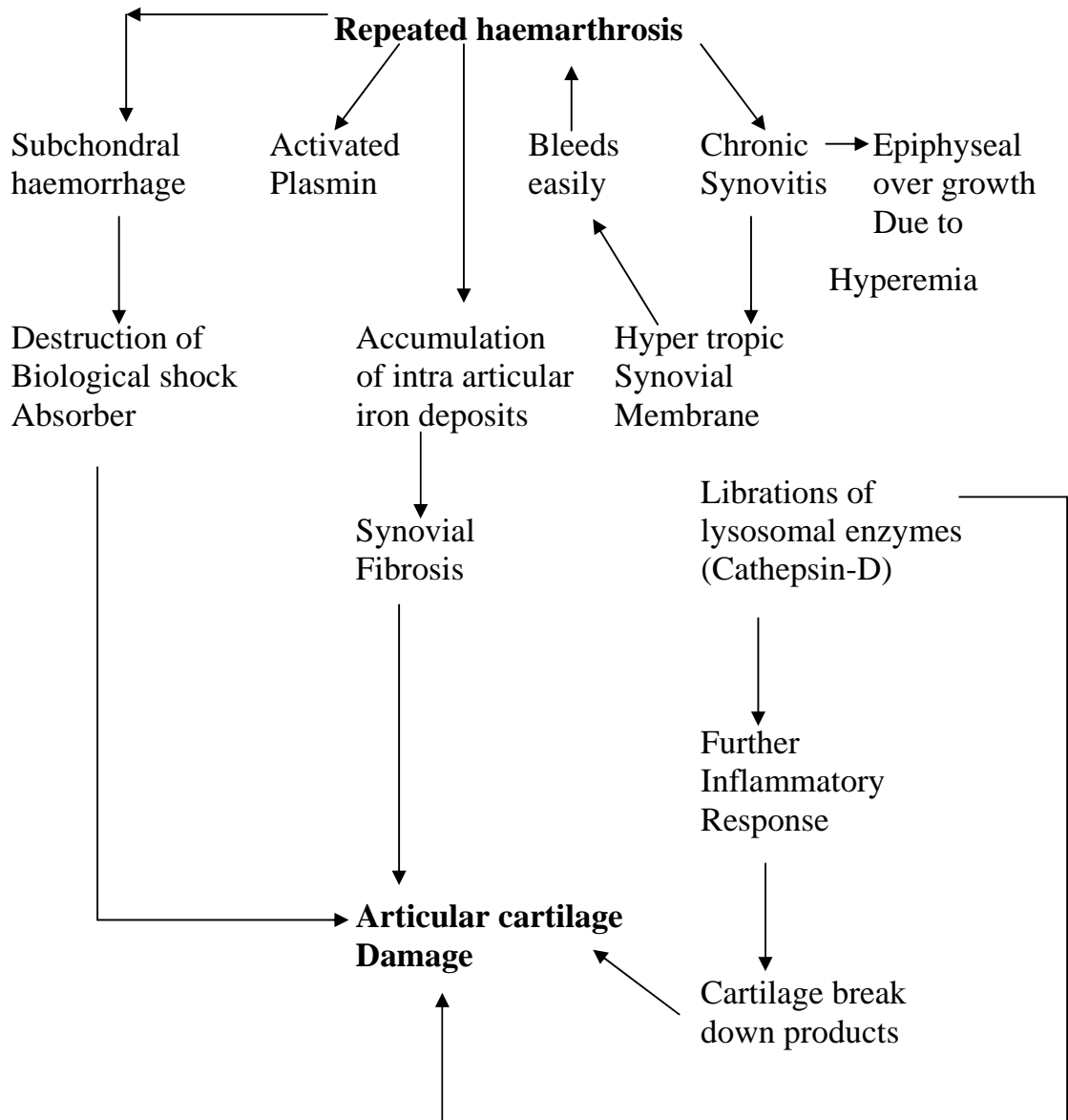
Azarin (1985) have produced experimentally an on going haemarthrosis into the knee of dogs by creating a popliteal arteriovenous aneurysm bleeding into the joint. They studied not only the effect of blood on the tissues, but an increased intra articular pressure of (120-140mmHg). This is also very important in pathogenesis intra articular adhesions will result in reduction of the joint cavity and limitation of movements. The restrictions of movement will reduce the circulation of

nutrients in articular cartilage and leads to progressive articular cartilage breakdown. The bony changes are attributed partly to disuse osteoarthritis following cartilage breakdown. It appears that the initiation of cartilage breakdown is due to the combined effect of immobilization with poor nutrition and the release of enzymes from both the blood within the joint and inflamed synovial membrane. This causes breakdown of the glycosaminoglycans of the matrix. Haemophilic synovium in culture produces more prostaglandin E at much higher levels than normal but less than found in rheumatoid synovitis, with significant loss of chondroitin sulphates from human cartilage.

The late radiographic appearance of the involved joints result from the effects of haemarthrosis, locate immobilization osteoporosis and mechanical changes in alignment the most common features seen in knee joint are,

- Epiphyseal over growth
- Patellar squaring
- Widening of inter condylar notch
- Diminished joint cartilage space
- Subchondral bone collapse
- Cyst formation
- Marginal osteopytic formation
- Deposition of haemosiderine in synovial membrane.

## Schematic representation of Haemarthrosis



## **Clinical features**

1. Loss of movement is the most frequent finding
2. Fixed flexion contracture
3. Valgus and external rotation deformities
4. Wasting of quadriceps muscle.

## **Differential diagnosis**

### **1. Acute suppurative arthritis**

Acute suppurative arthritis closely resembles haemarthrosis. The history is usually conclusive, but aspiration will resolve any doubt.

### **2. Rheumatic fever**

Typically the pain flits from joint to joint, but the onset of one joint may be misleadingly inflamed. However, there are no signs of bleeding.

### **3. Gout and pseudo Gout**

In adults acute crystal induced synovitis may closely resemble haemarthrosis. On aspiration the joint fluid is often turbid, with high white cell counts however microscopic examination by polarized light will show the characteristic crystals.

## **Diagnosis**

Diagnosis is clinically obvious but X-Ray, ultra sonogram /CT scan may be occasionally needed to confirm the presence of a bleed.

## **I. Detailed history with particular emphasis on**

- Age
- Onset of bleeding
- Whether bleeding spontaneous or trauma related
- Other affected members in the family
- History of trauma.

## **II. Complete physical Examination**

Complete physical examination with particular care to record range of motion, deformities and muscle strength at knee.

### **Clinical features**

- Swelling
- Pain
- Warmth
- Redness
- Stiffness
- Limitation of movements i.e.... extensor lag
- Rapid Pulsation

# **EVALUATION OF DISSERTATION TOPIC**

## **Materials and methods**

The clinical study on Narithalaivadham was carried out at the Post Graduate Department of Noi Naadal branch in Govt Siddha Medical College, palayamkottai. Case selection and supervision

The following 20 cases selection and supervision was done in Peace Health Center, Tirunelveli and Tirunelveli Medical College. According to the finding of Ennvagithervu on Narithalivadham (Haemarthrosis) as mentioned by Yugi vaithiya chinthamani.

The patients are carefully examined systematically under the supervision of the professor and other staffs of post graduate Noi Naadal department.

The detailed history of the present and past illness and family history were observed. Typical picture of 20 cases was evaluated under siddha and modern parameters.

## **Evaluation of clinical parameters**

- ❖ The detailed history and clinical features of the patients were taken carefully
- ❖ The clinical history
- ❖ Detail history of present and past illness
- ❖ Personal and family history



### **Clinical features for Narithalaivadham are**

- ❖ Swelling in the knee joint
- ❖ Accumulation of blood in the knee joint cavity
- ❖ Difficulty in standing
- ❖ Difficulty to flex the knee
- ❖ Rapid pulsation
- ❖ Pain and tenderness

### **Study of siddha clinical diagnosed modes of investigations are**

1. Poriyal arithal
2. Pulanal arithal
3. Vinathal
4. Mukkutra nilaigal
5. Udal kattukal
6. Envagai thervugal (Including Neerkuri, Neikuri)
7. Manikkadai nool

### **The clinical investigations**

For further detailed study about the disease the following laboratory investigation was done in all cases.

1. Haematology
2. Bleeding time
3. Clotting time
4. Prothrombin time

5. Partial prothrombin time
6. Factor assay
7. Total count-WBC, RBC
8. Differential count
9. Haemoglobin
10. Erythrocyte Sedimentation Rate

**Bio chemical**

Blood Urea

Blood Sugar

**Urine**

Albumin

Sugar

Deposits

**Motion**

Ova

Cyst

**Other test**

X-Ray

Ultra sonogram

CT scan – if necessary

## OBSERVATION AND RESULTS

Results are observed with respect to the following aspects

1. Age and Sex reference.
2. Family history.
3. Traumatological history
4. Mukkutanilai
5. Udal Thathukkal
6. Envagai Thervugal
7. Clinical Features.
8. Laboratory Findings.

### 1. Age and Sex reference.

**Table 7: Age and Sex reference**

Age	Sex		No of cases
	Male	Female	
Up to 10 years	4	-	4
10 – 20 years	7	-	7
20 – 50 years	9	-	9

### 2. Family History

**Table 8: Family History**

Family history	No of cases
Positive family history	11
Negative family history	9

### 3. Traumatic history

**Table 9: Traumatic history**

<b>Traumatic History</b>	<b>No of cases</b>
Positive	16
Negative	4

### MukkuTRANILAI

#### A. Derangement of Vali

**Table 10: Derangement of Vali**

<b>S. No</b>	<b>Types of Vadham</b>	<b>No of cases affected</b>	<b>Changes</b>
1	Pranan	13	Rapid pulsation
2	Abanan	3	Constipation
3	Viyanan	20	Difficulty in movements of affected area
4	Uthanan	20	Colour changes
5	Samanan	20	Its balancing function is disturbed.
6	Nagan	-	-
7	Koorman	2	Diminished vision
8	Kirukaran	-	-
9	Devathathan	5	Irritability
10	Dananjeyan	-	-

## B. Derangement of Azhal

**Table 11: Derangement of Azhal**

<b>S. No</b>	<b>Types of Azhal</b>	<b>No of cases affected</b>	<b>Changes</b>
1	Anar pitham	-	-
2	Ranjaga pitham	16	Paleness in conjunctiva and tongue.
3	Sadhaga pitham	20	Difficulty in doing routine works.
4	Aalosaga pitham	-	-
5	Prasaga pitham	20	Colour changes in the skin at the site of injury.

## C. Derangement in Iyam

**Table 12: Derangement in Iyam**

<b>S. No</b>	<b>Types of Iyam</b>	<b>No of cases affected</b>	<b>Changes</b>
1	Avalampagam	20	It's balancing function disturbed.
2	Kilethagam	-	-
3	Bothagam	-	-
4	Tharpagam	-	-
5	Santhigam	20	Difficulty in movements of joints.

### 3. Udal Thathukkal

**Table 13: Udal Thathukkal**

<b>S. No</b>	<b>Udal Thathukkal</b>	<b>No of cases</b>	<b>Changes</b>
1	Saaram	20	Pain, discomfort
2	Senneer	20	Stagnation of blood in the site of injury.
3	Oon	20	Swelling
4	Kozhuppu	20	Restricted it movement
5	Enbu	20	Inflammatory changes
6	Moolai	3	# ( fracture)
7	Sukilam / Sronitham	-	-

### 4. Manikadai Nool (Viral kadai Alavu)

**Table 14: Manikadai Nool**

<b>Viral kadai Alavu</b>	<b>No of cases</b>
10	2
10 ¼	10
10 ½	8

## 5. The Picture of Envagai Thervugal

**Table 16: Envagai Thervugal**

Cases No	Naadi	Sparisam	Naa	Niram	Mozhi	Vizhi	Molam	Moothiram
1	VK,RP	A	A	A	NA	A	N	N
2	VK,RP	A	A	A	NA	A	N	N
3	VP,RP	A	A	A	NA	A	N	N
4	VP	A	A	A	NA	A	N	N
5	VP	A	A	A	NA	A	N	N
6	VK,RP	A	A	A	NA	A	A	N
7	VK	A	A	A	NA	A	N	N
8	VK	A	A	A	NA	A	N	N
9	VP,RP	A	A	A	NA	A	N	N
10	VK,RP	A	A	A	NA	A	N	N
11	VP,RP	A	A	A	NA	A	N	N
12	VK	A	A	A	NA	A	N	N
13	VP,RP	A	A	A	NA	A	A	N
14	VK,RP	A	A	A	NA	A	N	N
15	VP,RP	A	A	A	NA	A	N	N
16	VP,RP	A	A	A	NA	A	A	N
17	VK,RP	A	N	A	NA	N	N	N
18	VP,RP	A	N	A	NA	N	N	N
19	PV	A	N	A	NA	N	N	N
20	VK	A	N	A	NA	N	N	N

N - Normal

NA - Not Affected

A - Affected

VP - Vadha Pitham

PV - Pitha Vadham

KV - Kabha Vadham

RP - Raid Pulsation

## Clinical features

**Table 17: Clinical features**

<b>S No.</b>	<b>Clinical Features</b>	<b>No of cases</b>
1.	Knee joint swelling,Pain	20
2.	Accumulation of blood in knee joint cavity	20
3.	Pain, tenderness	20
4.	Difficulty in movements (standing, walking)	15
5.	Rapid pulsation	13



## Factor assay-Report

**Table 18: Factor assay-Report**

<b>Case No</b>	<b>Age</b>	<b>Factor-Report</b>
1	09	VIII- factor activity decrease (35%)
2	09	VIII- factor activity decrease (30%)
3	15	VIII- factor activity decrease (40%)
4	12	VIII- factor activity decrease (18%)
5	11	VIII- factor activity decrease (20%)
6	10	VIII- factor activity decrease (25%)
7	17	VIII- factor activity decrease (20%)
8	46	VIII- factor activity decrease (22%)
9	09	VIII- factor activity decrease (30%)
10	23	VIII- factor activity decrease (20%)
11	16	VIII- factor activity decrease (25%)
12	30	VIII- factor activity decrease (20%)
13	32	VIII- factor activity decrease (10%)
14	18	VIII- factor activity decrease (16%)
15	24	VIII- factor activity decrease (19%)
16	58	No deficient of clotting factor (100%)
17	30	No deficient of clotting factor (100%)
18	14	No deficient of clotting factor (110%)
19	50	No deficient of clotting factor (100%)
20	56	No deficient of clotting factor (110%)

**Normal Value: Factor activity = (70-120%)**

**Table 19: Laboratory Investigation**

<b>Case No</b>	<b>BT</b>	<b>CT</b>	<b>PT</b>	<b>PTT</b>	<b>PT count</b>
1	2 min 30sec	12 min	12.5 sec	32 sec	1.2 lakes
2	2 min 30sec	14 min	12 sec	30 sec	1.6
3	3 min 30sec	11 min	15 sec	34 sec	1.4
4	2 min 30sec	8 min	14 sec	28 sec	1.2
5	2 min	14 min 30sec	12 sec	37 sec	1.5
6	2 min 60sec	13 min	15 sec	28 sec	1.8
7	6 min	14 min 30sec	12.3 sec	27 sec	1.8
8	3 min	14 min	11.4 sec	34 sec	1.8
9	5 min	13 min	12 sec	40 sec	1.6
10	5 min	13 min	11.3 sec	35 sec	1.5 lakes
11	2 min 30 sec	12 min	12 sec	32 sec	3.7
12	3 min	12 min	13 sec	30 sec	1.2
13	2 min	14 min	15 sec	32 sec	1.6
14	2 min	12 min	12 sec	34 sec	2.1
15	3 min	12 min	14 sec	28 sec	1.8
16	2 min	4 min	12.5 sec	12 sec	1.8
17	3 min	4 min	13 sec	15 sec	1.4
18	2 min	4 min	12 sec	3413 sec	1.2
19	2 min	4 min	14 sec	14 sec	1.6
20	2 min	4 min 30sec	15 sec	12 sec	1.4

**Normal Values**

Bleeding time	-	2 - 4 min
Clotting time	-	3 - 6 min
Prothrombin time	-	0 - 27 sec
Partial thromboplastin time	-	0 - 25 sec
Platelet count	-	2 lakes

**Table 20: Lab report**

Case No	Blood				ERS		Hb	Bio Chemical		Urine			Motion	
	Tc cells cumm	DC Cells			1/2 hr mm	1 hr mm		Sugar msg%	Urea msg%	Alb	Sug	Dep	Ova	Cyst
		P%	L%	E%										
1	10000	60	39	1	6	7	9	120	25	-	-	-	-	-
2	9000	67	29	4	6	10	11	120	25	-	-	-	-	-
3	18000	47	50	3	20	42	10	120	25	-	-	-	-	-
4	18600	74	21	5	14	30	8.4	110	23	-	-	-	-	-
5	11000	79	23	2	20	50	10	120	25	-	-	-	-	-
6	11000	50	49	2	14	16	8	110	24	-	-	-	-	-
7	12000	49	48	4	18	20	9	110	27	-	-	-	-	-
8	10000	49	48	3	16	18	9	120	-	-	-	-	-	-
9	10000	50	48	2	14	16	9.6	120	25	-	-	-	-	-
10	12000	50	48	2	16	18	9	120	28	-	-	-	-	-
11	11000	49	48	3	14	16	9.3	128	23	-	-	-	-	-
12	11000	50	48	2	16	12	9	120	24	-	-	-	-	-
13	10000	49	48	3	12	14	10	120	25	-	-	-	-	-
14	10800	49	48	3	16	20	10	120	24	-	-	-	-	-
15	13000	49	48	4	16	18	9	130	25	-	-	-	-	-
16	10000	50	49	1	14	16	13	130	26	-	-	-	-	-
17	10000	50	48	2	4	5	12	120	24	-	-	-	-	-
18	1000	40	50	5	18	25	8.5	135	25	-	-	-	-	-
19	11000	52	44	3	10	15	13	120	25	-	-	-	-	-
20	10000	42	47	4	12	13	13	130	26	-	-	-	-	-

**Normal Value:**

Total count of WBC -4000 -11,000  
 P % - 40- 65%  
 L% - 30-50%  
 E% - 2-6%

**Hb-**

Men -13-17 gms%  
 Women - 12.0- 15.5 gms%  
**Blood Sugar** – 80- 140mg/dL  
**Urea-** 10-40mg/dL

**ESR**

½ hour - 5-15 mm  
 1 hour -5 – 15mm

## **STATISTICAL ANALYSIS OF NARITHALAIVADHAM**

The Narithalaivatham study subjects were analyzed with statistics namely mean, SD; and percentages. The inferences are made by the statistical test of student 't' test and the results are analysed by Relative Risk (RR), Attributable Risk (AR) and odds Ratio (OR).

### **Discussion and result**

#### **Age and etiology**

The study subjects of Narithalaivatham are classified mainly in to two categories namely

1. Hemophilia with Trauma
2. Trauma

The two groups were classified based on their age and analysed with following table.

**Table 21: Age and etiology**

<b>Age group</b>	<b>Haemophilia with trauma</b>	<b>Trauma</b>	<b>Total</b>
0-9	3	-	3
10-19	7	1	8
20-29	2	-	2
30-39	2	1	3
40-49	1	-	1
50-59	Nil	3	3
Total	15	5	20
Mean	18.7	41.6	24.5
S.P	10.6	19.0	16.2
't'	3.415		
Significant	P<0.01		

The mean age of haemophilia with trauma cases are  $18.7 \pm 10.6$  and trauma cases are  $41.6 \pm 19$  the difference of mean age is statistically significant ( $t = 3.415$  and  $p < 0.01$ ) That means, the incidence of Narithalaivadham among the haemophilia with trauma cases are quite increased than the trauma cases.

## Family history

The family history ratio of haemophilia was analyzed and interpreted as follows.

**Table 22: Family history**

<b>Family history of haemophilia</b>	<b>Heamophilia</b>	<b>Trauma</b>	<b>Total</b>	<b>R.R</b>	<b>A.R</b>	<b>O.R</b>
Positive	11	0	11	2.1	52.4%	31.6
Negative	4	5	9			
Total	15	5	20			

The Relative Risk of family history in heamophilia cases are without family history is 2.1 times greater then the without family history. Attributable risk (AR) of the positive family history is 52.4%. Among the haemophilia cases the Odd Ratio of family history is 31.6 times greater than the Negative family history.

## History of Trauma

The history of trauma risk ratio is analysed and interpreted in the following table.

**Table 23: Traumatic history**

<b>Traumatic History</b>	<b>Haemophilia</b>	<b>Trauma</b>	<b>Total</b>	<b>RR</b>	<b>A.R</b>	<b>O.R</b>
Present	15	1	16	8.7	88.5%	93.0
Absent	0	4	4			
Total	15	5	20			

From the above table it may increase the risk of trauma presentation among the Haemophilia cases is 8.7 times greater than traumatic Narithalivadhama cases. The presence of traumatic history is an odd among the Haemophilic Narithalaivadhama cases is 93 times greater than the traumatic Narithalivadhama.

## Mukutra Nilai

The Narithalaivadham. Subjects were diagnosed through the mukkutranilai and its components are tabulated

**Table 24: Presentage distributes of mukkutranilai**

S.No	Component	Number	Types	Alerted cases	
				No	%
1.	Vali	20	Viyanan	20	100%
			Samanan	20	100%
			Pranan	13	65%
			Abanan	3	15%
			Udanan	3	15%
			Koorman	2	10%
			Devathathan	5	25%
	Azhal	20	Ranjagapitham	16	80%
			Sadhaga pitham	20	100%
			Prasaga pitham	20	100%
3	Iyam	20	Avalambagam	20	100%
			Santhigam	20	100%

The above table shows that the viyanan, samanan, sadhaga pitham, prasaga pitham, Avalam bayam and santhigam and ant percent absorbed in the study subjecte. Koorman is absorbed only 10% of cases. Ranjaga pitham is absorbed in 80% of the study subjects.Pranan is absorbed in 65% of subjects.Abanan and Udanan are absorbed in 15% of subjects.Devathathan is absorbed in 25% of cases.



## Udalthathukkal

The study subjects were analysed based on the observation of udal the thathukkal and results are presented in the table.

**Table 25: Observation of udal thathukkal**

S.No	Udal thathukkal	N	Affected cases	
			No	%
1.	Saaram	20	20	100
2.	Senneer	20	20	100
3.	Oon	20	20	100
4.	Kozhuppu	20	20	100
5.	Enbu	20	20	100
6	Moolai	20	3	15

From the above table the Udalthathukkal namely Saaram, Senneer, Oon, Kozhuppu and Enbu are observed in cent present of the study subjects. Only 15% of the cases and exposed to moolai.

## Mani kudai Nool

The cases were measured based on the viral kadaialavu and they were analyzed and presented in the table.

**Table26: Mani kudai Nool**

Viral kadai alavu	10	10 ¼	10 ½	Total	Mean	S.P	Normal range
No of cas	2	10	8	20	10.325	10.25	9.9 To 10.7

From the above analysis it may be listed that the mean viralkadaialavu of the Narithalai vadham cases in the population. 10.248 to 10.402. That means the meaned median will be 10.25 of viral kadai alavu.

### **Envagai thervugal**

The rule of eight is siddha medicine selecting and diagnosing the diseased persons are tabulated and the results are analysed in the below mentioned table.

**Table 27: Envagai thervugal**

S.No	Envagai thervuga	N	Type	Cases affected	
				N	%
1	Naadi	20	Vali Iyam	10	50
			Azhal Vali	1	5
			Vali Azhal	9	45
			Rapid pulsation	13	65
2	Sparisam	20	-	20	100
3	Naa	20	-	16	86
4	Niram	20	-	20	100
5	Mozhi	20	-	0	0
6	Vizhi	20	-	16	80
7	Malam	20	-	3	15
8	Moothiram	20	-	0	0

## Clinical Features

**Table 28: Clinical Features**

S.No	Clinical features	Cases	
		No	%
1	Knee joint swelling,pain	20	100
2.	Accumulates of blood in knee joint cavity	20	100
3.	Pain, tenderness	20	100
4.	Difficulty in movements	15	75
5.	Rapid pulsation	13	65

Cent percent of subjects is having swelling, pain and blood accumulation.75% o of subjects having difficulty in movements. 65% of subjects having Rapid pulsation.

## Laboratory Investigations

The lab investigations are compared to Narithalaivadham cases of Haemophilia and Trauma cases.

**Table 29: Lab investigations results.**

S.No	Name are Investigations	Haemophilia						't'	Significance
		N	Mean	S.p	N	Mean	So		
1	Clotting time	15	12.47	1.63	5	4.1	9.22	11.235	P< 0.00
2	Partial thromboplastin time (PPT)	15	32.1	3.69	5	13.2	1.3	11.023	P< 0.00
3.	D.Cout (P %)	15	54.73	10.29	5	46.8	10.29	1.629	P> 0.05
4.	E.SR. 1 hour (mm)	15	20.47	11.68	5	14.8	7.16	1.012	P> 0.05
5.	Hb /gm	15	9.353	.752	5	11.9	1.949	4.350	P< 0.00

The above table evaluate the data reports interpret of the study subject's physiological measures.

The clotting time of Haemophilia with trauma cases are recorded the mean clotting time of Haemophilia trauma cases is longest than the trauma cases. The deferens statistically signifiant (pl 0.00001) the other measures like PPT and Hb are statistically highly significant (pl 0.001). there is no significant measure is are observed in Dc count (P%) and E.S.R/ 1 hr (P>.0.05).

## **DISCUSSION**

Saint Yugi has classified diseases into two types they are,

- Functional disorder
- Organic invasions.

The functional units of our body are the three vital forces, which are Vali, Azhal and Iyam. Any disturbance in the vital Humour will affect the function of the organ. In chronic condition, it may lead to pathological changes in the affected organ.

Vali is the initiator of all activities of our body. It is important in the connecting network of the body from sense organ to brain and tissue to tissue and even cell to cell.

The clinical studies on all selected cases were undergone investigation by both Siddha as well as modern allied parameters.

### **INTERPRETATION OF CLINICAL HISTORY**

#### **1. Family history**

Most of the cases explained a positive family history of the disease.

#### **2. Age group**

No specific age group is mentioned in this disease.

### **3. Sex**

Mostly male is affected because of this disease is also related with X-linked recessive disorder.

### **3. Occupation**

Players are majority affected due to sports injury.

### **4. Clinical features**

All the patients depicted the clinical features mentioned in the poem “Narithalaivadhham” in the text book of “Yugi Vaithya Chinthamani”.

### **5. History of previous illness**

11 out of 20 Narithalaivadhham patients had past history of same symptoms.

## **INTERPRETATION OF SIDDHA PARAMETERS**

### **3. Interpretation of Envagai thervugal**

#### **1. Naadi**

In naadi diagnosis of the all patients, the observed naadi is ValiIyam, Vali Azhal, and Azhal Vali.

#### **2. Sparisam**

Swelling tenderness and warmth is present in knee joint.

#### **3. Naa**

Many patients having palorness of tongue in examination

#### 4. Niram

On observations the body colour of all the patients are normal. But the affected area (knee joint) is swollen and reddish black is colour.

#### 5. Mozhi

All patients were having normal speech. No alteration in mozhi.

#### 6. Vizhi

Most of the patients having paleness of conjunctiva in examination

#### 7. Moothiram

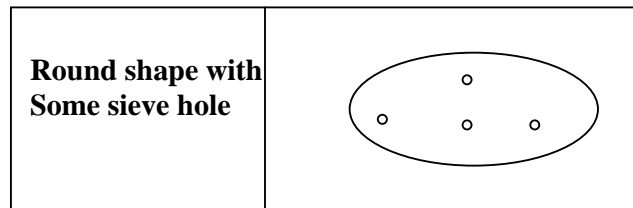
Niram - Normal straw colour in all patients.

Manam - No abnormal odor.

Enjal - No deposition.

#### Neikuri

Most of the patients Neikuri exhibited as the oil spreads medium speed and look like round shape with some sieve hole [சல்லடைக் கண்]. In some patients the oil spreads with low speed and look like round shape only.



## **II. Interpretation of Mukkutra Nilakkal**

### **Vali**

#### **1. Pranan**

Most of the patients are having rapid pulsations.

#### **2. Abanan**

Some of the patients are having constipation.

#### **3. Udanan**

Most of the patients are having colour changes

#### **4. Viyanan**

All the patients were having difficulty in movements (Flexion and extension) due to swelling.

#### **5. Samanan**

Its balancing function is affected.

#### **6. Koorman**

Some of the patients were having visual disturbances.

#### **7. Devathathan**

Some of the patients are irritable



## **Azhal**

### **1. Ranjaga pitham**

Some of the patients were affected. They are having paleness of tongue and conjunctiva.

### **2. Sathaga pitham**

All the patients were having difficulty in doing routine works.

### **3. Prasagapitham**

All the patients were having colour changes (Reddish) in the skin at the site of swelling (Knee joint)

## **Iyam**

### **1. Avalampagam**

All the patients were affected, it's balancing function disturbed.

### **2. Santhigam**

All the patients were having difficulty in movements of joints.

## **Inference**

- |       |   |   |
|-------|---|---|
| Vali  | - | Pranan, Abanan, Udanan, Koorman, Viyanan, Samanan and Devathathan are affected. |
| Azhal | - | Ranjaga pitham, Sathaga pitham, Prasaga pitham are affected.                    |
| Iyam  | - | Avalambagam and Santhigam are affected.   |

### **III. Interpretation in Udal thathukkal**

#### **1. Saaram**

All patients were having pain and discomfort.

#### **2. Senner**

All patients were having stagnation of blood in the site of swelling

(Knee Joint)

#### **3. Oon**

All patients were having

Initial stage - Some inflammatory changes (Swelling)

Later stage - Disused atrophy

#### **4. Kozhuppu**

All patients were having restricted joint movements

#### **5. Enbu**

All patients were having difficulty to move, standing upright position, inflammatory changes and intra articular adhesions in the knee joint.

#### **6. Moolai**

Some of the patients were having osteoporotic changes in later stage.

#### **Inference**

All 6 Udal Thathukkal are affected except Sukkila/ Sronitham.

### **Interpretation of allied parameters**

Suspected cases were subjected to screening test of Haematology.

Total Count WBC	-	Normal.
Total Count RBC	-	Normal.
Differential Count for WBC	-	Normal, some times lymphocytes Monocytes were increased.
Hb	-	Most of patients become anemic due to chronic haemorrhage.
Bleeding time	-	Only 2 patients were affected.
Clotting time	-	15 patients out of 20 cases are affected.
Prothrombin time	-	Normal
Partial thromboplastin time	-	15 out of 20 patients were affected.

### **Inference**

Most of the patients have prolonged thromboplastin time, clotting time and anemia.

### **Factor assay**

Factor VIII decreased in 15 cases out of 20.

### **Inference**

Most of the patients were having decreased activity of factor VIII

### **X - Ray**

5 out of 20 patients having ligament injury, patella fracture and tibial condyle fracture.

## **HIGH LIGHTS OF THE DISSERTATION TOPIC**

The disease is characterized by the swelling in the knee joint is due to prolonged accumulation of blood in the knee joint cavity.

Patients were having complaints of not able to stand in upright position and difficulty in movements of joint. It is due to damaging of articular cartilage and narrowing of joint cavity. Articular cartilage damage is caused by inflammatory response of blood, in knee joint cavity.

Further inflammatory process causes massive swelling like (Jackal's head like) and deformity.

Few of them, shows the symptom like Rapid pulsation.

All of these correlate with "Narithalaivadham" explained by our great siddhar Yugimuni.

## CONCLUSION

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

The study on Narithalivadhham was carried out in the dissertation, giving importance to the characteristics of the disease like accumulation blood in knee joint cavity, hacking massive tender swelling, difficulty in movements, standing and rapid pulsation.

Diagnosis can be carried out by detailed history taking, classical clinical examination of siddha system, Via, Envagithervugal Including Neerkuri, Neikuri, Manikkadai nool and changes in seven physical constituents and three Humours.

This study on Narithalaivadhham may be correlates with haemarthrosis, which has given relevance to modern clinical entity.

**P.G. - NOI NAADAL DEPARTMENT**  
**GOVT. SIDDHA MEDICAL COLLEGE, PALAYAMKOTTAI.**

**A Study to DIAGNOSE “Narithalaivadham”through Siddha**

**Diagnostic Methodology**

**SELECTION PROFORMA**

1. O.P.No \_\_\_\_\_ 2. I.P. NO \_\_\_\_\_ 3. Bed No: \_\_\_\_\_ 4. S. No: \_\_\_\_\_ 5. Date: \_\_\_\_\_

6. Name: \_\_\_\_\_ 7. Age (Years): 

--	--

 8. Sex: 

M	F
---	---

9. Occupation: \_\_\_\_\_ 10. Income: \_\_\_\_\_ \ month

11. Address: .....  
.....  
.....

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

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

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

15. Family History:  
.....  
.....  
.....

**16. Habits****1.Yes****2.No**

- |                    |   |                            |                             |                            |
|--------------------|---|----------------------------|-----------------------------|----------------------------|
| 1. Betelnut chewer | : | <input type="checkbox"/>   | <input type="checkbox"/>    | _____                      |
| 2. Tea             | : | <input type="checkbox"/>   | <input type="checkbox"/>    | _____                      |
| 3. Coffee          | : | <input type="checkbox"/>   | <input type="checkbox"/>    | _____                      |
| 4. Alchocol        | : | <input type="checkbox"/>   | <input type="checkbox"/>    | _____                      |
| 5. Excercise       | : | <input type="checkbox"/>   | <input type="checkbox"/>    | _____                      |
| 6. Yoga            | : | <input type="checkbox"/>   | <input type="checkbox"/>    | _____                      |
| 7. Food habits     | : | V <input type="checkbox"/> | NV <input type="checkbox"/> | M <input type="checkbox"/> |

**17. GENERAL ETIOLOGY FOR NARITHALAI VATHAM****1. Yes****2.No**

- |                               |                          |                          |       |
|-------------------------------|--------------------------|--------------------------|-------|
| 1. Haemophilia                | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Trauma                     | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Rhumatoid arthritis        | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. In square playing          | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Heavy weight lifting       | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Improper yoga and exercise | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 6. Obecity                    | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 7. Ligament injury            | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 8. Starvation                 | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 9. Sleeping in day time       | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 10. Awakening in night time   | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**18. GENERAL EXAMINATION**

- |                      |   |                      |                      |                      |
|----------------------|---|----------------------|----------------------|----------------------|
| 1. Weight (kg)       | : | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| 2. Temperature (°F)  | : | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| 3. Pulse rate/minute | : | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| 4. Heart rate/minute | : | <input type="text"/> | <input type="text"/> | <input type="text"/> |

5. Respiratory rate/minute :

6. Blood pressure (mmHg) : .....

	<b>1. Yes</b>	<b>2.No</b>	
7. Pallor :	<input type="checkbox"/>	<input type="checkbox"/>	_____
8. Jaundice :	<input type="checkbox"/>	<input type="checkbox"/>	_____
9. Cyanosis :	<input type="checkbox"/>	<input type="checkbox"/>	_____
10. Lymphadenopathy :	<input type="checkbox"/>	<input type="checkbox"/>	_____
11. Pedal edema :	<input type="checkbox"/>	<input type="checkbox"/>	_____
12. Clubbing :	<input type="checkbox"/>	<input type="checkbox"/>	_____
13. Jugular venous pulsation :	<input type="checkbox"/>	<input type="checkbox"/>	_____

**19. VITAL ORGANS EXAMINATION**

	<b>1. Normal</b>	<b>2.Affected</b>	
1.Heart	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Lungs	<input type="checkbox"/>	<input type="checkbox"/>	_____
3.Brain	<input type="checkbox"/>	<input type="checkbox"/>	_____
4.Liver	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Kidney	<input type="checkbox"/>	<input type="checkbox"/>	_____
6. Spleen	<input type="checkbox"/>	<input type="checkbox"/>	_____
7. Stomach	<input type="checkbox"/>	<input type="checkbox"/>	_____



**SIDDHA SYSTEM OF EXAMINATION**  
**ENNVAGAI THERVUKAL**

**20. NAA**

1. Maa Padinthiruthal

a. Present  b. Absent

2. Niram

a. Karuppu  b. Manjal  c. Velluppu

3. Suvai

a. Pulippu  b. Kaippu  c. Inippu

4. Vedippu

a. Absent  b. Present

5. Vai neer ooral

a. Normal  b. Increased  c. Reduced

**21. NIRAM**

a. Karuppu  b. Manjal  c. Velluppu

**22. MOZHI**

a. Sama oli  b. Urattha oli  c. Thazhlntha oli

**23. VIZHI**

1. Niram

a. Karuppu  b. Manjal

c. Sivappu  d. Velluppu

2. Kanneer

a. Present  b. Absent

3. Erichchal

a. Present  b. Absent

4. Peelai seruthal

a. Present  b. Absent

## 24. MEI KURI

1. Veppam

a. Mitham       b. Migu       c. Thatpam

2. Viyarvai

a. Normal       b. Increased       c. Reduced

3. Thodu vali

a. Absent       b. Present

## 25. MALAM

1. Niram

a. Karuppu       b. Manjal   
c. Sivappu       d. Velluppu

2. Sikkal

a. Present       b. Absent

3. Sirutthal

a. Present       b. Absent

4. Kalichchal

a. Present       b. absent

5. Seetham

a. Present       b. Absent

6. Vemmai

a. Present       b. Absent

## 26. MOOTHIRAM

### A.NEER KURI

1. Niram

a. Venmai  b. Manjal  c. Crystal clear

2. Manam

a. Present  b. Absent

3. Nurai

a. Nill  b. Increased  c. Reduced

4. Edai (Ganam)

a. Normal  b. Increased  c. Reduced

5. Enjal (Alavu)

a. Normal  b. Increased  c. Reduced

### B.NEI KURI

1. Aravam  2. Mothiram

3. Muthu  4. Aravil Mothiram

5. Aravil Muthu  6. Mothirathil Aravam

7. Mothirathil Muthu  8. Muthil Aravam

9. Muthil Mothiram  10. Asathiyam

11. Mellena paraval

## 27. NAADI (KAI KURI)

### A.Naadi Nithanam

a.Kalam

1. Kaarkaalam  2. Koothirkaalam

3. Munpanikaalam  4. Pinpanikaalam

5. Ilavenirkaalam  6. Muthuvenirkaalam

b. Desam

- |            |                          |            |                          |              |                          |
|------------|--------------------------|------------|--------------------------|--------------|--------------------------|
| 1. Kulir   | <input type="checkbox"/> | 2. Veppam  | <input type="checkbox"/> | c.Vayathu    | <input type="checkbox"/> |
| 1. 1-33yrs | <input type="checkbox"/> | 2.34-66yrs | <input type="checkbox"/> | 3. 67-100yrs | <input type="checkbox"/> |

D.Udal Vanmai

- |            |                          |           |                          |           |                          |
|------------|--------------------------|-----------|--------------------------|-----------|--------------------------|
| 1. Iyyalbu | <input type="checkbox"/> | 2. Valivu | <input type="checkbox"/> | 3. Melivu | <input type="checkbox"/> |
|------------|--------------------------|-----------|--------------------------|-----------|--------------------------|

e.Vanmai

- |           |                          |           |                          |
|-----------|--------------------------|-----------|--------------------------|
| 1. Vanmai | <input type="checkbox"/> | 2. Menmai | <input type="checkbox"/> |
|-----------|--------------------------|-----------|--------------------------|

f.Panbu

- |               |                          |              |                          |                |                          |
|---------------|--------------------------|--------------|--------------------------|----------------|--------------------------|
| 1. Thannadai  | <input type="checkbox"/> | 2. Puranadai | <input type="checkbox"/> | 3. Illaittha   | <input type="checkbox"/> |
| 4. Kathithal  | <input type="checkbox"/> | 5. Kuthithal | <input type="checkbox"/> | 6. Thullal     | <input type="checkbox"/> |
| 7. Azhutthal  | <input type="checkbox"/> | 8. Padutthal | <input type="checkbox"/> | 9. Kalatthal   | <input type="checkbox"/> |
| 10. Munnookku | <input type="checkbox"/> | 11. Pinnokku | <input type="checkbox"/> | 12. Suzhalal   | <input type="checkbox"/> |
|               |                          |              |                          | 13. Pakkanokku | <input type="checkbox"/> |

**B.Naadi nadai**

- |                |                          |               |                          |               |                          |
|----------------|--------------------------|---------------|--------------------------|---------------|--------------------------|
| 1Vali          | <input type="checkbox"/> | 2. Azhal      | <input type="checkbox"/> | 3.Iyyam       | <input type="checkbox"/> |
| 4. Vali Azhal  | <input type="checkbox"/> | 5. Vali Iyyam | <input type="checkbox"/> | 6. Azhal Vali | <input type="checkbox"/> |
| 7 Azhal. Iyyam | <input type="checkbox"/> | 8. Iyyavali   | <input type="checkbox"/> | 9. Iyya Azhal | <input type="checkbox"/> |

**28. MANIKADAI NOOL (Viral Kadai Alavu )**

**29. IYMPORIGAL / IYMPULANGAL**

- |           | <b>1. Normal</b>         | <b>2.Affected</b>        |       |
|-----------|--------------------------|--------------------------|-------|
| 1. Mei    | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Vaai   | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Kan    | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Mookku | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Sevi   | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

### 30. KANMENTHIRIYANGAL / KANMAVIDAYANGAL

	1. Normal	2.Affected	
1.Kai	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Kaal	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Vaai	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Eruvai	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Karuvaai	<input type="checkbox"/>	<input type="checkbox"/>	_____

### 31.YAAKAI

1Vali	<input type="checkbox"/>	2. Azhal	<input type="checkbox"/>	3.Iyam	<input type="checkbox"/>
4. Vali Azhal	<input type="checkbox"/>	5. Vali Iyam	<input type="checkbox"/>	6. Azhal Vali	<input type="checkbox"/>
7 Azhal. Iyam	<input type="checkbox"/>	8. Iyavali	<input type="checkbox"/>	9. Iya Azhal	<input type="checkbox"/>

### 32. GUNAM

1. Sathuva Gunam	<input type="checkbox"/>	2.. Rajso Gunam	<input type="checkbox"/>	3.Thamo Gunam	<input type="checkbox"/>
------------------	--------------------------	-----------------	--------------------------	---------------	--------------------------

### 33. UYIR THATHUKKAL

#### A.Vali

	1. Normal	2. Affected	
1. Uyirkkaal (Praanan)	<input type="checkbox"/>	<input type="checkbox"/>	_____
2 Kelnokkukkaal (.Abaanan)	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Nadukkaal (Samaanan)	<input type="checkbox"/>	<input type="checkbox"/>	_____
4 Melnokkukkal (Udhaanan)	<input type="checkbox"/>	<input type="checkbox"/>	_____
5 Paravukkaal.(Viyaanan)	<input type="checkbox"/>	<input type="checkbox"/>	_____
6. Vaanthikkal (Naahan)	<input type="checkbox"/>	<input type="checkbox"/>	_____
7 Vizhikkaal (.Koorman)	<input type="checkbox"/>	<input type="checkbox"/>	_____
8 Thummikkaal (.Kirukaran)	<input type="checkbox"/>	<input type="checkbox"/>	_____
9. Kottavikkaal (Devathathan)	<input type="checkbox"/>	<input type="checkbox"/>	_____
10. Veeingukkaal (.Dhananjeyan)	<input type="checkbox"/>	<input type="checkbox"/>	_____

## B. Azhal

	1. Normal	2. Affected	
1 Aakkannal (.Anala pitham)	<input type="checkbox"/>	<input type="checkbox"/>	_____
2 Ollolithhee (Prasaka pitham)	<input type="checkbox"/>	<input type="checkbox"/>	_____
3 Vannayeri (Ranjaka pitham)	<input type="checkbox"/>	<input type="checkbox"/>	_____
4 Nokku Azhal (Aalosaka pitham)	<input type="checkbox"/>	<input type="checkbox"/>	_____
5 Aatralangi (Saathaka pitham)	<input type="checkbox"/>	<input type="checkbox"/>	_____

## C. Iyam

	1. Normal	2. Affected	
1. AliIyam (Avalambagam)	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Neerppi Iyam (Kilethagam)	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Suvaikaan Iyam ( Pothagam)	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Niraiyu Iyam (Tharpagam)	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Ondri Iyam (Santhigam)	<input type="checkbox"/>	<input type="checkbox"/>	_____

## 34. Udal Thathukkal

	1. Normal	2. Affected	
1. Saaram	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Shenneer	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Oon	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Kozhuppu	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Enbu	<input type="checkbox"/>	<input type="checkbox"/>	_____
6. Moolai	<input type="checkbox"/>	<input type="checkbox"/>	_____
7. Suronitham / Sukkilam	<input type="checkbox"/>	<input type="checkbox"/>	_____

### 35. Mukkutra Migu Gunam

#### I. Vali Migu Gunam

##### 1. Present

##### 2. Absent

1. Emaciation

2. Blackish discolouration of body

3. Desire to take hot food

4. Shivering of body

5. Abdominal distension

6. Constipation

7. Weakness

8. Weakness of sense organs

9. Giddiness

10. Sluggishness

#### II. Azhal Migu Gunam

##### 1. Present

##### 2. Absent

1. Yellowish discolouration of the skin

2. Yellowish discolouration of the eye

3. Yellowish discolouration of urine

4. Yellowish discolouration of faeces

5. Increased appetite

6. Burning sensation in the body

7. Insomnia

#### III. .Iyyam Migu Gunam

##### 1. Present

##### 2. Absent

1. Excessive salivation

2. Reduced activeness

3. Heaviness of the body

4. Whitish discoloration of the body

- |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|
| 5. Chillness of the body | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Reduced appetite      | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Cough                 | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Increased sleep       | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Sluggishness          | <input type="checkbox"/> | <input type="checkbox"/> |

**36. NOI UTRA KAALAM**

- |                   |                          |                     |                          |
|-------------------|--------------------------|---------------------|--------------------------|
| 1. Kaarkaalam     | <input type="checkbox"/> | 2. Koothirkaalam    | <input type="checkbox"/> |
| 3. Munpanikaalam  | <input type="checkbox"/> | 4. Pinpanikaalam    | <input type="checkbox"/> |
| 5. Ilavenirkaalam | <input type="checkbox"/> | 6. Muthuvenirkaalam | <input type="checkbox"/> |

**37. NOI UTRA NILAM**

- |            |                          |           |                          |             |                          |
|------------|--------------------------|-----------|--------------------------|-------------|--------------------------|
| 1. Kurinji | <input type="checkbox"/> | 2. Mullai | <input type="checkbox"/> | 3. Marutham | <input type="checkbox"/> |
| 4. Neithal | <input type="checkbox"/> | 5. Palai  | <input type="checkbox"/> |             |                          |

**38. Date of Birth**









**39. Time of Birth**

**40. Place of Birth**

**41. NATCHATHIRAM**

- |                 |                          |                   |                          |                  |                          |
|-----------------|--------------------------|-------------------|--------------------------|------------------|--------------------------|
| 1. Aswini       | <input type="checkbox"/> | 2. Barani         | <input type="checkbox"/> | 3. Karthikai     | <input type="checkbox"/> |
| 4. Rohini       | <input type="checkbox"/> | 5. Mirugaseeridam | <input type="checkbox"/> | 6. Thiruvathirai | <input type="checkbox"/> |
| 7. Punarpoosam  | <input type="checkbox"/> | 8. Poosam         | <input type="checkbox"/> | 9. Aayilyam      | <input type="checkbox"/> |
| 10. Makam       | <input type="checkbox"/> | 11. Pooram        | <input type="checkbox"/> | 12. Utthiram     | <input type="checkbox"/> |
| 13. Astham      | <input type="checkbox"/> | 14. Chithirai     | <input type="checkbox"/> | 15. Swathi       | <input type="checkbox"/> |
| 16. Visakam     | <input type="checkbox"/> | 17. Anusam        | <input type="checkbox"/> | 18. Kettai       | <input type="checkbox"/> |
| 19. Moolam      | <input type="checkbox"/> | 20. Pooradam      | <input type="checkbox"/> | 21. Utthiradam   | <input type="checkbox"/> |
| 22. Thiruvonam  | <input type="checkbox"/> | 23. Avittam       | <input type="checkbox"/> | 24. Sadayam      | <input type="checkbox"/> |
| 25. Poorattathi | <input type="checkbox"/> | 26. Utthirattathi | <input type="checkbox"/> | 27. Revathi      | <input type="checkbox"/> |
| 00. Not known   | <input type="checkbox"/> |                   |                          |                  |                          |



**42. RASI**

- |               |                          |              |                          |            |                          |
|---------------|--------------------------|--------------|--------------------------|------------|--------------------------|
| 1. Mesam      | <input type="checkbox"/> | 2.Rishabam   | <input type="checkbox"/> | 3.Midhunam | <input type="checkbox"/> |
| 4. Kadakam    | <input type="checkbox"/> | 5.Simmam     | <input type="checkbox"/> | 6.Kanni    | <input type="checkbox"/> |
| 7. Thulam     | <input type="checkbox"/> | 8.Viruchiham | <input type="checkbox"/> | 9.Dhanusu  | <input type="checkbox"/> |
| 10. Maharam   | <input type="checkbox"/> | 11.Kumbam    | <input type="checkbox"/> | 12.Meenam  | <input type="checkbox"/> |
| 00. Not known | <input type="checkbox"/> |              |                          |            |                          |

**43. JOINT EXAMINATION**

1. Size
- |           | Rt.   | Lt    |
|-----------|-------|-------|
| a. Upper  | _____ | _____ |
| b. Middle | _____ | _____ |
| c. Lower  | _____ | _____ |
2. Shape
- Rt .....  
Lt .....
3. Movements
- a. Flexion .....
- b. Extension .....
- c. Medial rotation .....
- d. Lateral rotation .....

## 44. INVESTIGATION

### A. BLOOD

1. TC (Cells/cumm) :
2. DC (%) : 1.P  2.L  3.E   
4. B  5.M
3. Hb (gms %) :  .
4. E.S.R. (mm/hr) : 1.1/2h  2.1hr  5.Blood
- Sugar (R) (mgs%) :
6. Bleeding time : \_\_\_\_\_
7. Cloting time : \_\_\_\_\_
8. Prothrombin time : \_\_\_\_\_
9. Clotting factors : \_\_\_\_\_
10. RA factor : \_\_\_\_\_

### B. URINE

1. Albumin : 0.Nil  1.Trace  2.+   
3.++  4.+++
- 2 Sugar : 0.Nil  1.Trace  2.+   
3.++  4.+++
3. Deposits
- |                    | 1. Yes                   | 2. No                    |       |
|--------------------|--------------------------|--------------------------|-------|
| A.Pus cells        | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| B.Epithelial cells | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| C.RBCs             | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| D.Crystals         | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

### C. MOTION TEST

- |                 |                          |                          |       |
|-----------------|--------------------------|--------------------------|-------|
| 1. Ova          | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Cyst         | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Occult Blood | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**45. X-Ray-knee joint**

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

**46. Doppler study**

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

**47. CT scan-knee joint**

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

**48. CLINICAL SYMPTOMS OF NARITHALAI VATHAM.**

	<b>1. Yes</b>	<b>2. No</b>	
1 Massive swelling in knee joint(like Jackal's head)	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Accumulation of blood in knee joint cavity	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Not able to stand in upright position	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Difficulty in movements of joints	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Rapid pulsation	<input type="checkbox"/>	<input type="checkbox"/>	_____

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