

## BASIC PRINCIPLES AND PATHO-PHYSIOLOGY OF UROLITHIASIS

### (KALLADAIPPU) – A REVIEW ON SIDDHA LITERATURE

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#### ABSTRACT

*The Siddha system is a unique and historical medical system of south India with strong philosophical foundation behind its medical science. According to Siddhars, a healthy living indicates not only physical health but also social and spiritual well being which will remain as a tool to attain the “Éternal bliss.”Urolithiasis (Kalladaippu) is recognized as one of the painful diseases since ancient days and is still a major challenge to the physicians. The Siddha literature has a unique and vast descriptions about the etio-pathogenesis, diagnostic methods and treatment measures of Urolithiasis that can be individualized unlike the contemporary treatments. This article deals with the Siddha concepts on Urolithiasis and its symptomatology based on the three humoral theory with scientific facts on crystal formation. This review article also deals with brief objectives on the treatment measures that are offered by this long-established medical system.*

**KEYWORDS:** Siddha, Urolithiasis, Kidney Stone, Kalladaipu

**Received:** Apr 28, 2016; **Accepted:** May 20, 2016; **Published:** May 24, 2016; **Paper Id.:** TJPRC:IJAMRJUN201605

#### INTRODUCTION

According to the Siddha principle, the physical, physiological, intellectual and psychological components of a human body are constituted by some basic principles which are 96 in number. *Panchabootham* are the basic elements which are included as first section of 96 *thathuvams* in each and every bit of all the physical and subtle bodies i.e., the human body and the Universe. They are *Aagayam* (Space), *Kaal* (Air), *Thee* (Fire), *Neer* (Water), and *Mann* (Earth). The physiological units of the human body are listed as - the three uyir thathukkal that are vatham, pitham and kabam, which are formed by the combination of the five basic elements<sup>1</sup>. These elements govern the physio-biological and physio-pathological functions of our body and is responsible for all kinds of illnesses and sufferings of mankind.

Urolithiasis is one of the ancient diseases that has tormented mankind and nearly 5-15% of the population is affected world wide<sup>3</sup>. This incidence is higher in developing countries such as India with a large socio economic burden due to repeated medical, diagnostic and surgical procedures. Siddha literature describes Kalladaippu as a disease with sudden intermittent obstruction of urination, pain in the tip of the penis, burning sensation of the urethra, pain in the back of the hip and sides of the spinal cord and with passing of gravels in urine<sup>2</sup>. As per the Siddha medical dictionary, kalladaippu is defined as the large concretion of stone in the bladder or kidney calculus

or gravel which results in difficulty in passing urine<sup>3</sup>. This article deals with the etiology, pathogenesis and humoral alteration of Kalladaippu which in turn would pave way for the systematic treatment approach for the management of Urolithiasis in Siddha system of medicine.

### **Siddha Literatures on Kalladaippu**

In *Yugi vaidhya chinthamani 800*, one of the works of *Yugimunivar*, Kalladaippu is dealt under the chapter *Kalladaippuroga nithanam*. Yugi documented the sequential order of dissemination of knowledge of Kalladaippu from Lord *Siva* to till *Yugi* for the benefit of the people living in the world. There are literature evidences available in *Theran* and *Agathiyar* works which speaks about Kalladaippu<sup>4</sup>.

### **Three Biological Humours**

The 96 fundamental principles operating in human body is mainly conditioned by the three Humours, viz. *vaatham*, *pitham* and *kabham* called as *Uyir Thathukkal* (also called *Trithodam* or *Mukkutram*) and the seven physical constituents viz. *Saaram* (Plasma), *Senneer* (Blood), *Oon* (Muscle), *Konzhuppu* (Adipose tissue), *Enbu* (Bone), *Moolai* (Marrow) and *Sukkilam* (Reproductive tissue) called as *Udal Thathukkal*<sup>5</sup>.

### **Uyir Thathukkal (Vatham, Pitham and Kabam)**

The physiological function in the body is mediated by three Humours- *Vatham*, *Pitham*, and *Kabam*. Which are said to occupy the lower, middle and upper parts of the body respectively and maintain their integrity and function. *Vatham* is formed by the basic elements space and air. *Pitham* is formed by fire and *Kabam* is formed by earth and water. If these three functions normally, health is maintained.

*Vatham* occupies pelvis and rectum; *pitham* stomach and internal viscera and *Kabam* occupies lungs, throat and head. *Vatham* is concerned with the principle of propulsion, growth, neurological and intellectual functions of the body. *Pitham* is responsible for digestion, metabolism, secretions of enzymes and hormones, colouring of skin, temperature and mood regulation. *Kapham* is connected with the lubrication and moisture and reduction of heat and provision of physical strength and vigor<sup>5</sup>.

The Siddha medicine has been claimed to revitalize & rejuvenate the metabolic dysfunctions in organs that cause the disease and maintains the normalcy of the bio regulating forces namely *Vatham*, *pitham* & *kabam*<sup>6</sup>.

### **Urolithiasis and Role of Vatham**

*Vatham* is the most important bioregulating force among the three humours. As it is the main driving force of other two humours and the seven *Udal* thathus and excretion of all the waste products out of the body. Though the seat of *vatham* is below the naval, the organs such as the urinary bladder, intestine, pelvis, umbilicus, thigh, bone, skin, nerve endings, joints, musculature and hair root have the predominance of *vatham*. Among the 10 types of *vatham* namely *Pranan*, *Abanan*, *Viyanan*, *Uthanan*, *Samanan*, *Nagan*, *Koormn*, *Kirukaran*, *Devathathan* and *Dhananjeyan*, the “*Abana Vayu*” or the “*Abanan*” is of utmost importance as it is the downward regulating force for the excretion of feces, urine, flatus, semen, menstruation and parturition. When *abanan* is impaired, it results in the disease of bladder, Anorectal region, diseases of uterus and urinary diseases and Urolithiasis. In urolithiasis *abanan* is affected along with *pranan* and *viyanan* which are responsible for the painful symptoms of the disease<sup>7</sup>.

### Etiological Factors of kalladaippu as per Yugi

Yugi in his Vaidhya chinthamani describes about various etiological factors of Urolithiasis (Kalladaippu) such as seasonal influence (mudhuvetil and karkalam), Habiat (Neithal and mullai), excessive intake of foods with salty, sour and bitter taste and controlling the natural urges or reflexes such as urine and semen which are the constituents of Abana vayu that is responsible for the downward flow of vatham controlling these reflexes<sup>8</sup>.

### Classification of (Urolithiasis) Kalladaippu as per Siddha Texts

In *Yugi vaidhya chinthamani*, urological disorders are classified into two categories such as *Neerinaï perukkal noi*—where the urination will be in excess and *Neerinaï arukkal noi*—where as the urine output will be reduced. The disease Kalladaippu is placed under *Neerinaï arukkal noi* (Oligurial diseases) in the text “*Theran Karisal*. Based on the three dhosa theory Yugi classified Kalladaippu into four types such as Vatha Kalladaippu, Pitha Kalladaippu, Slethuma Kalladaippu and Thontha Kalladaippu<sup>8</sup>.

### Scientific Analysis of Siddha Pathology on Kalladaippu

Alterations in diet and lifestyle causes the vitiation of the Vatha humour for sufficiently enough time which can further cause the imbalance in either of the other two humours and hence *Pitham* is also deranged resulting in Urolithiasis (Figure 1). *Vali* is responsible for dryness and *Azhal* is responsible for the heat. Thus the urine is concentrated and thereby the crystal grows and aggregation takes place in the urinary passage. *Abanan* one the component of ten *Vayu*, is strongly responsible to expel the deposits that will be automatically washed out in urine. If *Abanan* is not strong enough, the deposited material will not be expelled and pave way for renal stones<sup>3</sup>.

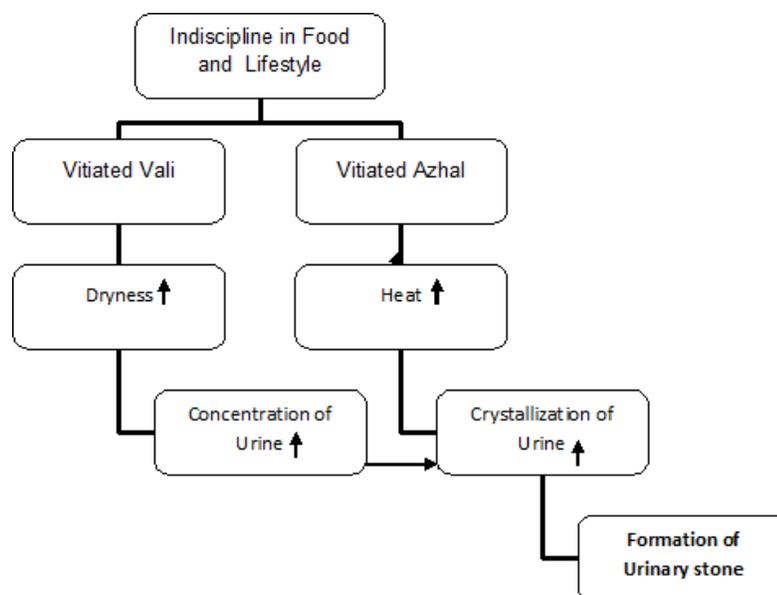


Figure 1: Siddha Pathology of Kalladaippu –Scientific Aspects

The derangement of components of vatham (*Abanan, Pranana, Vyana*) causes dryness, obstruction in the urinary passage. Moreover *Vatham* is responsible for maintenance of 14 reflexes including micturition. Therefore body pain, pricking pain in external genitalia and constipation seen in Urolithiasis (*Kalladaippu*) due to the altered *Vatham* humour. *Pitham* has direct link with urine as cited in the text “*pitham siruneeril adangum*”. Therefore the symptoms of excessive

perspiration, darkened yellow urine, reddened urine seen in Kalladaipu is due to elevated *pitham* humour. Decreased kapham humour prones the body constitution to dryness and heat which are the characters of vatham and pitham. All these derangements create the alterations in biochemical parameters of kidney function predisposing the individual to the symptoms of urolithiasis<sup>5</sup> as described in table 1 below.

Table 1

S. No	Affected Basic Principles	Symptoms of Kalladaippu
1.	<b>Iymboothangal (Five elements)</b> Vayu (Air) Thaeyu (Fire) Appu (Water)	Restlessness, swelling in organs, obstruction dryness, heat, burning sensation Increased heat, reddened urine
2.	<b>(Pentasensors)</b> <b>Iymporigal and Iyampulangal</b> Mei (Skin)	koocherithal (goosehair sensation)
3.	<b>Kanmenthiriyam/Kanmavidayam</b> <b>(Motor organs)</b> Eruvai	constipation
4.	<b>Dasavayu</b> Pranan Abanan Vyanan Thevathathan	Pain, burning sensation symptoms Regional supplying vayu
5.	<b>Aasayam</b> Salavasayam Malavasayam Sukkilavasayam	Oliguria Constipation Pain and burning sensation in external genitals

### Principles of Siddha Diagnosis in Uolithiasis

The Diagnostic methodology in Siddha system is unique as it is made purely on the basis of clinical observation of the physician. Siddhars investigate the cause of the disease, the signs and symptoms, complications if any, and anatomical (*udal kooru*) changes to arrive at a diagnosis of a disease. They examine both the body and the disease together to arrive at a conclusion regarding the condition or disease. They followed two paths called *Noi naadal*, in simple terms defined as the approach to the disease and *Noi mudal naadal*, which is the determination of etiology of the disease<sup>5</sup>. These diagnostic tools designed by Siddhars, that they can also determine the risk factor and help in early prediction of the illness. The following are the diagnostic methodologies of Uolithiasis in Siddha:

#### 1. Yakkai (Body constituent)

Pitha dominants and Vatha dominants are more prone

“*neerum uyarntha sivappagum*” –pitha rogi general characters

“*siruneer porumi kaduthu vizhum*”- vatha rogi general characters

#### 2. Naadi (Pulse diagnosis)

a. *Vathapitha thontham*

*Valinthathor Vatapithang kobitha*

*Vanthuperug kallaineer valia daithu - Yugi*

b. *Vatha naadi*

*“Neer kirichirangal, megam” - Sathaga naadi*

*“Malasalam porumi kattum” - Kaaviyathin naadi*

*“Siruthu siruneer veezhum” - Rathnachurukka naadi*

c. *Pitha naadi*

*“Pollatha paandudane sivantha neeraam” - Agathiar naadi*

d. *Vathapitha thontham*

*“Neeril sivappu malam pidithal urum thathunattam” - Sathaga naadi*

*“Siruneer sivanthu kaduthu veezhum” - Thirattu naadi*

e. *Vatha miguthiyudan Ushnam*

3. Udal thathu (Bio regulators)

*Saram (Plasma)*-affected (decreased condition-fatigue)

*Moolai (Marrow)*-affected (increased condition-oliguria)

*Venneer(Semen)*-affected(increased condition-urolithiasis)

4. Neerkuri (Examination of urine)

*“thayir neer pol izhiyum” - curd like urine*

5. Manikkadai (Wrist circumference)

9 ¼ “neer kaduthu siruthu irangum” - dysuria and stranguria

6 ¾ - prone to urolithiasis in 3 years of time

### **Line of Treatment Advocated as per the Siddha Principles**

In Siddha system, there are three kinds of line of treatment is adopted.<sup>12</sup> In Oppurai (Similar action) the cure for illness is employed by the drugs, which stimulates the symptoms similar to those of the disease. Etherurai (Opposite action) is encountered by those drugs which acts against the diseases and suppress the symptoms. Kalappurai (Mixed action) is by adopting the combination of both Oppurai and Ethirurai methods with care and strengthening the action of the drug or drugs of similar action or opposite action whichever required as per the condition of the disease.

In Urolithiasis, Vatham and Pitham are the two predominant factors which is responsible for the predisposition of stone formation either as individual factors or in combination with each other and at times in association with heat and dryness. So the treatment should be planned towards the settlement of the affected humours as primary goal and secondary objective with medication towards the target action at specific sites and tertiary target to strengthen the system for the prevention of the disease. Medications are to be given to settle down *Abanan* which is vitiated both internally and externally by heat and also to bring down the vitiated Vatham. Therefore medications with coolant property and

medications to trigger, support and restore the suppressed thaathu for normal functioning of the body are prescribed.

**Kazhichal marunthu** (Purgatives): Decoctions and medicated ghee with coolant properties are used to promote purgation to cleanse the colon bring about a balance of the impaired tridhoshams. Eg: Brammi nei –1 teaspoon daily<sup>3</sup>

#### **Kudineer Medicines – Decoctions**

- *Neermulli Kudineer*
- *Nerunjil Kudineer*
- *Sirupeelai Kudineer*

#### **Mathiraigal – Pills**

- *Kalludaikudori mathirai*
- *Jalotharimani mathirai*
- *Jalamanjari*

#### **Chunnam/Parpam**

- *Viraal meen thalaikkal parpam*
- *Vediuppu chunnam*
- *Palagarai Parpam*
- *Sangu parpam*
- *Silasathu parpam*
- *Nandukkal Parpam*

#### **Chenduram**

- *Vedi annabedhi*
- *Vediuppu chenduram*
- *Velli chenduram*
- *Rasa chenduram.*

#### **Diet**

Food plays a pivotal role in determining our daily health and state of mind. The fundamental principle of Siddha “Unavey marunthu” means that Food is medicine. Hence one could primarily aim to neutralize the abnormalities arising in body and mind through proper diet. In Urolithiasis the diet should focus on with the target to promote the urination, washout the urinary bladder and to expel the small stones and gravels from there. The Main course food prepared by using *Kuruvai /manakkathai* rice Greens and vegetables like Mullangi (Radish), Vasalai keerai (Spinach), Keeraihandu (Amaranth stem), Valaihandu (Bananapith), avarai(Bean), vendai (Ladies finger) etc., are advised for Kalladaippu patients<sup>3</sup>.

## CONCLUSIONS

Urolithiasis is one of the pressing concerns of the low and middle socio economic groups of India. The epistemology of Siddha is experiential, intuitive and holistic. The Humoral concepts of Urolithiasis critically analysed through this work may be useful to create scientific evidence of integrative methods and to justify the clinical decision making of diagnosis and therapeutics. The epistemologically sensitive research on the philosophy of Siddha on Urolithiasis may help to identify early predictors of Urolithiasis which may be used for prevention aspect. This review work on etio pathogenesis of Urolithiasis would also pave the way for identification of more individualized methods of treatment strategies.

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