



EFFICACY OF NILAVEMBU KUDINEER FOR TREATING RENAL CALCULI: A CASE SERIES

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ABSTRACT

Background: Renal calculi is one of the most common medical condition presented in day to day clinical practice. With the prevalence of >10% and an expected recurrence rate of approximately 50% calculi has an important effect on health care system. Traditional Siddha Medicine holds numerous formulations for the management of renal calculi. On a scientific outlook, most of them may act as strong diuretics or lithotriptics. In traditional view, the pharmacology of a drug is well explained on six taste basis. The broad spectrum activity of a siddha formulation is purely concentered on this fundamental principle. Nilavembu Kudineer (NVK) is one among the clinically acclaimed polyherbal decoction formulation that is successfully given for treating calculus even though without an indicative statement. **Aim and Objective:** To present our experience with NVK, a polyherbal Siddha formulation on patients with urolithiasis. **Materials and methods:** Two patients who reported to National Institute of Siddha OPD presented with the complaints of renal calculi. Diagnosis was confirmed after clinical assessments and by imaging techniques. One with ureteric calculi another with renal as well as ureteric calculi were subjected to treatment by NVK. No other supportive therapies were advised except diet regulations. **Results and conclusion:** After 20 days of treatment, both cases had shown considerable symptomatic relief. Stone completely expelled in both cases; calculi which was smaller in size and located in distal end of ureter expelled within 20 days, but the other one took longer duration, but did not cause any flank pain, or any other marked symptoms due to PUJ obstruction or while the stone was getting expelled, after expulsion standard imaging techniques were used to confirm complete recovery of the condition.

KEY WORDS: Siddha medicine, Nilavembu kudineer, Renal calculi

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1. Introduction

Urinary stones affect 10-12% of the population in industrialized countries. The incidence of urinary stones have been increasing over the last year while the age of onset is decreasing. With the prevalence of >10% and an expected recurrence rate of approximately 50% calculi has an important effect on health care system. Once recurrent, the subsequent relapse risk is raised and the interval between recurrences is shortened. In modern medicine treatment and management approaches includes: stent placement, percutaneous nephrostomy, Extracorporeal Short Wave Lithotripsy (ESWL), Ureteroscopy, Anatomic nephrolithotomy and medical expulsive therapy.

In Siddha system of medicine calculi is termed as Kalladaippu and is divided into four varieties Vali, Azhal, Iyyam and Mukkutram. It is characterized by oliguria, dysuria, flank pain and presence of sand like calculi in urine. Line of treatment includes drugs that are lithotriptic, analgesic and diuretic in nature. In literature it is stated that if condition is not subsiding with internal medicines surgery is the next option.

The purpose of this paper is to share two nephrolithiasis cases with Nilavmbu Kudineer which is now being used in treatment of viral fevers, arthralgia, diabetes mellitus etc. Drug of choice was mainly based on taste based medication which is one among the mode of treatments in Siddha System of Medicine and is supported by anti-urolithiatic effect of *Andrographis paniculata*.

2. Materials and Methods

2.1 Study design: Case series

2.2 Study drug : Nilavembu Kudineer (NVK)

Dose: 5- 10 g choornam mixed with 60 ml of water boiled and reduced it to 30 ml

Duration: 48 days (with a drug holiday of 2 days after each five days).

2.3 Sample size: 2

2.4 Study place: Out Patient Department, National Institute of Siddha, Tambaram Sanatorium, Chennai – 47, Tamil Nadu, India.

2.5 Selection criteria:

Inclusion Criteria:

- Age 20 – 60 years,
- Patients with complaints and findings of renal calculi(confirmed with imaging techniques) reported at OP of Ayothidoss pandithar hospital

Exclusion Criteria:

- Patients with other systemic illness

2.6 METHODOLOGY

Patients with complaints of renal angle pain, oliguria, dysuria, history of calculi were examined , abdomen examined to rule out other acute abdomen conditions , naadi and other siddha diagnostic tests were carried out, to confirm diagnosis USG KUB or CT KUB was advised. After passing through inclusion and exclusion criteria patients were enrolled for study. After getting consent case record forms were filled medicine was issued for five days, progress was recorded on each visit and result confirmed by CT / USG , recorded and documented properly.

3. CASE REPORTS

Case presentation 1:

A 42 year old male presented to *Noi Naadal* department OPD with the complaints of pain in left flank radiating to the left groin. Vitals were normal and pain was insidious in onset. His medical history included a similar pain two year earlier which was diagnosed as renal calculi and underwent emergency Laser Lithotripsy. Diagnosis was confirmed by USG KUB (8-01-17)) (see table: 1, image 1.1). Trial drug was issued for five days. During each visit complaints were recorded vague loin to groin pain was there for first four weeks which gradually subsided. After 48 days of medication, patient became asymptomatic hence withdrawn medication. Symptoms reappeared after 6 months and imaging was again performed (see table 1, image 1.2). Patient was advised to consult urologist since the size was 11mm, its expulsion could be painful as well as there were chances to get lodged in bladder which may complicate the condition. Since he was not willing for allopathic medication patient was again advised to repeat the same medicine. Vague pain was there, for a week. No symptoms of oliguria, hematuria or dysuria were observed. After two months of regular treatment , stone expelled .To assure the complete expulsion of stone , patient was advised to take USG

KUB .Reports were taken on 22-12-17 (see table 1, image 1.3)which revealed complete clearance of calculi.

Case presentation 2

25 year old male came with the complaints of pain in right loin to groin region associated with and painful micturition since 3 days. CT whole abdomen confirmed diagnosis (see table 1, image 2.1). Patient was advised to take trial drug. After 4 days, pain got subsided but there was vague pain on 13th day and stone got expelled. To confirm complete expulsion and to assure no residual calculi is present in the bladder patient was advised to do CT (see table 1, image 2.2).

3. Results

Table 1: size and location of calculi before and after treatment

S.No	Before treatment	After treatment
Case no 1	3.8mm LP LK, 9mm upper ureter	After 6 months 11 mm in mid ureter Left side
Case No 2	4.8mm in Right distal ureter	Nil

(LP- Lower Pole, LK- Left Kidney)

Table 2: Efficacy of drug according to site of calculi

Presence of calculi	Before treatment	After treatment	% of efficacy
Renal	1	0	100%
Ureter	2 (one on each case)	0	100%
Total	3	0	100%

Table3: Efficacy of drug according to size of calculi

Size of calculi	No of calculi	Expelled	Efficacy in %
3.8mm lower pole	1	1	100%
9.6mm upper ureter	1	1	100%
4.8mm distal ureter	1	1	100%
Total	3	3	

As per the trial, both the patients who underwent treatment got complete recovery. For the case with calculi with a smaller size got expelled in short duration and the one with larger size needed more time to expel. There was no residual stone present in bladder, oliguria, hematuria or unbearable pain during the treatment period.

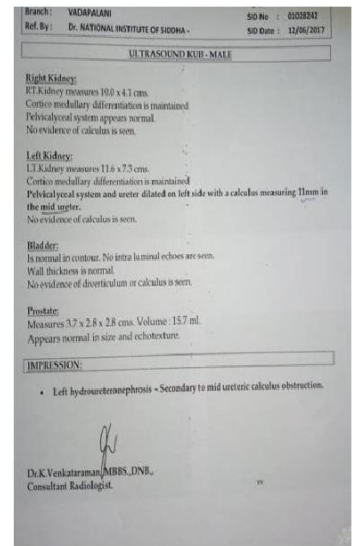
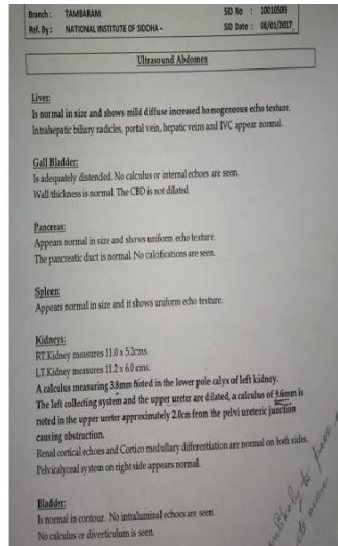


Image 1.1 Case 1 USG ABDOMEN – 8-1-17 Image 1.2 Case 1 USG KUB – 12-6-17

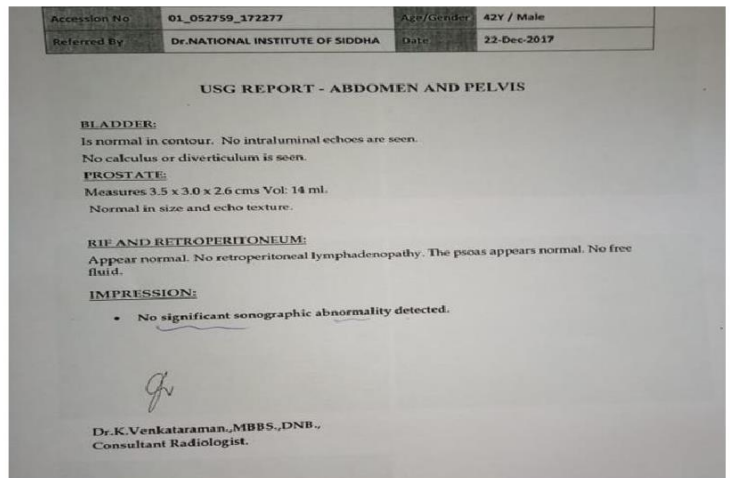


Image 1.3 Case 1 USG Abdomen and Pelvis – 22-12-17

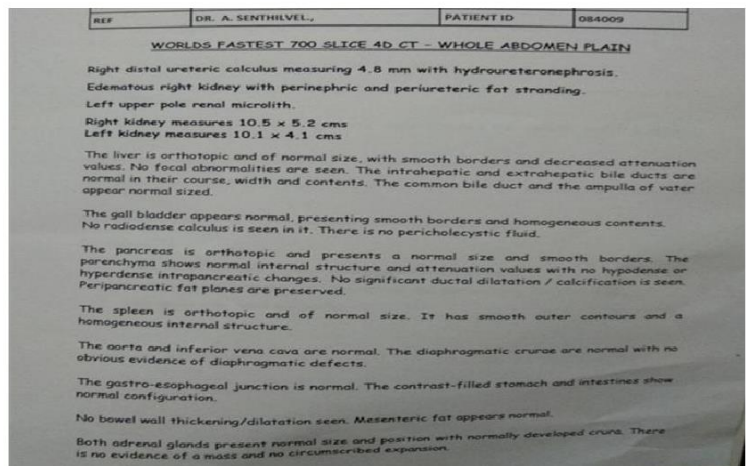


Image 2.1 case 2- CT whole abdomen before treatment.

Accession No	11_019909_181949	Age/Gender	25Y / Male
Referred By	Dr. LIONS CHARITABLE TRUST HOSPITAL	Date	02-Aug-2018

CT REPORT – ABDOMEN AND PELVIS (PLAIN)

TECHNIQUE: Volume scan of the whole abdomen was made from xiphisternum to pubis without administration of IV Contrast.

OBSERVATION:
Liver is normal in size and shows uniform density. No obvious focal lesion is seen. CBD is not dilated.

GB is normal in size. No radio-opaque calculus is seen.

Pancreas is normal in size and density. No calcification, obvious mass or peripancreatic fluid collection seen. The pancreatic duct is not dilated.

Spleen is normal in size and density.

Right kidney – mild prominence of right pelvicalyceal system and ureter.
 is normal in size. No calculus is seen. The vesico-ureteric junction appears normal.

Left kidney is normal in size. Pelvicalyceal system not dilated.
 Ureter is not dilated. No calculus is seen. The vesico-ureteric junction appears normal.

Both adrenals appear normal in size and shape.

There is no mass or lymphadenopathy seen in the retro peritoneum.

No free fluid is seen in the peritoneal cavity.

No obvious bowel wall thickening / dilatation seen. No evidence of acute appendicitis.

The **bladder** is normal. No evidence of diverticulum or calculus.

Prostate appears normal for the age.

Image 2.2 case 2 CT Abdomen and pelvis after treatment

4. Discussion

The accepted management of renal calculi ranges from observation to surgical removal of stone. Various factors like size of calculi, severity of symptoms, degree of obstruction, location of stone etc, influence the choice of intervention. Usually according to Modern Medicine stones larger than 5 mm needs surgical procedures. Medical expulsive therapy (MET) is there in modern medicine for treating ureteric calculi but only done when there is neither obstruction nor infection and the stone size not more than 8 mm ; by making use of NSAIDS for pain relief, antiemetics to reduce nausea and vomiting, calcium channel blockers to reduce ureteral smooth muscle spasm. Management of renal calculi depends on the size and location of the stones. Stones larger than 5 mm or stones that fail to pass spontaneously should be treated by some interventional procedures such as Extracorporeal shock wave lithotripsy (ESWL), Percutaneous nephrolithotomy etc. Unfortunately the propensity for stone recurrence is not altered by removal of stones with ESWL. In addition ESWL might show some significant side effects such as renal damage.

Here in this study *Siddha* poly herbal formulation is used for management of calculi which is more than 5mm in length, and it can be considered as a *Siddha* MET, because it is having analgesic, antiemetic , antispasmodic, urolithiatic activities hence it can be used as a drug in management of renal calculi.

Siddha system of medicine is having a unique mode of treatment that is taste based treatment, that is a particular herb(s) when made into a medicine will be having a particular taste which will be capable of alleviating an ailment. There are six taste as per Siddha concept.

Table 4: Taste and pancha bootha⁽⁵⁾ relation

Sweet	Earth+Water
Sour	Earth+Fire
Salt	Water+Fire
Bitter	Air+Space
Pungent	Air+Fire
Astringent	Earth+Air

Table 5: Description of components of NVK

S.No:	Ingredients	Taste	Pancha Bootham	Relevant pharmacological studies
1	Nilavembu(<i>Andrographis paniculata</i>)	Bitter	Air + Space	Renal protective, antiulcer, antihypertensive, spasmolytic, analgesic ⁽⁶⁾
2	Vetiver (<i>Vetiveria zizanoides</i>)	Sweet	Earth+Water	Anti-inflammatory, analgesic ⁽⁷⁾
3	Vilamichanver (<i>Plectranthus vettiveroides</i>)	Bitter	Air + Space	-----
4	Chandanathool (<i>Santalum album</i>)	Bitter	Air + Space	-----
5	Peippudal (<i>Trichosanthes cucumerina</i>)	Bitter	Air + Space	-----
6	Korai kizhangu (<i>Cyperus rotundus</i>) ^(8,9)	Astringent	Earth+Air	Anti-spasmodic
7	Chukku (<i>Zingiber officinale</i>) ⁽¹⁰⁾	Pungent	Fire +Air	Anti-emetic
8	Milagu (<i>Piper nigrum</i>) ⁽¹¹⁾	Bitter Pungent	Air + Space Fire +Air	Anti-bacterial
9	Parppadakam (<i>Mollugo cerviana</i>) ⁽¹¹⁾	Bitter	Air + Space	Anti-inflammatory

As per this taste concept bitter taste is having a combination of Air and Space bootham, the air and space combination is having an effect of increasing vatham. Vatham one among three doshas as per Siddha fundamentals is a combination of Air and Space , like that bitter taste is also having same combination so Bitter taste will increase vatham, abanan is one among the panchapranathivayus which is responsible for activities such as micturition it is a vayu that is responsible for downward movements. When a drug with bitter taste is given it will increase this abana vayu and it will lead to an increase in downward movement.

Here in Nilavembu kudineer among nine herbs six of them are having bitter taste hence it can increase the downward propulsion of abana vayu and might have helped in expulsion of stone.

Majority of renal calculi falls under calcium oxalate crystals and various herbs have been reported to inhibit calcium oxalate crystallization.

Reports are there supporting the study that is the anti urolithiatic effect is there for the plant *Andrographis paniculata* and it is due to the ability of plant to disintegrate and disrupt calcium oxalate calculi. The major bioactive component of *Andrographispaniculata* is Andrographolide which contribute the efficacy to the plant. Here in this study also renal stones got expelled which clinically proves above study Renal as well as ureteric calculi got expelled following the treatment.

5. Conclusion

Unfortunately the phytochemical characterisation of the herbs given is adequate the mode of action is not well defined and the sample size to prove the concept is not enough. So this may be considered as the baseline work and it is further suggested that more works should be done on this topic to make Siddha basic principle get documented. So that taste based mode of treatment can get more acceptance.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given their consent for their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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