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### A Clinical Study about Evaluation of the Efficacy of *Varunadi Kvatha* in the Management of *Mootrashmari* (Urinary Calculus)

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#### ABSTRACT

#### INTRODUCTION

There are several diseases with fatal consequences. *Mootrashmari* is one of them<sup>1</sup>. It is the third most common affliction of the urinary tract, exceeded only by UTI and BPH. This is a chronic disorder with acute and severe pain and if it is not managed by proper treatment, patient may face the fatal consequences. However, it is manageable with a proper treatment<sup>2</sup>. According to *sushrut samhita*, surgical treatment is not preferred method because even skilled surgeons may not get good success in the surgical treatment of *mootrashmari*<sup>3</sup>. According to *madhav nidan* all, the *doshas* are involved in the disease but based on predominance, the types of *mootrashmari* are described<sup>4</sup>.

#### MATERIALS AND METHODS

Total 31 patients having age between, 18-70 years with classical symptomatology and with verified USG for urolithiasis were registered. Patients were given *varunadi kvatha* 40ml with *yavakshar* as *prakshep dravya*, twice a day for 28 days. After 28 days, all the patients were assessed for change in their subjective as well as objective criteria.

#### RESULTS

As per results, in the subjective criteria patients showed 85% to 100% relief in symptomatology. In the objective criteria, urine routine and microscopic reports showed 96% to 100% improvement in all patients, while as per imaging method USG showed 72% to 100% improvement. Therefore, in overall assessment out of 31 patients, 30 patients got marked relief and 1 patient got moderate relief.

#### CONCLUSION

*Varunadi kvatha* with *yavakshar prakshep* have highly significant effect in the management of the patients with *mootrashmari* (urinary calculus).



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## KEYWORDS

*Clinical study, Mootrashmari, Varunadi kvatha, Yavakshar, USG*



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## INTRODUCTION

There are several diseases with fatal consequences. *Mootrashmari* is one of them<sup>5</sup>. This is a chronic disorder with acute and severe pain and if it is not managed by proper treatment, patient may face fatal consequences. However, it is manageable with proper treatment<sup>6</sup>. *Mootrashmari* is included in *ashtamahagada* due to its fatal nature<sup>7</sup>. According to *Ashtang hradaya, tarun* (primary urolithiasis without any systemic disease or any complication) must be treated with medical treatment but, for *pravruddha mootrashmari* (chronic with complications), the surgical management is preferred<sup>8</sup>. Description of *mootrashmari* is found in almost all *samhitas* of *Ayurved* as well as in *vedas*, either as a type of *mootrakruchhra* (as per *charak samhita*) or as a separate disease (as per *Sushruta samhita*). According to *sushruta samhita* surgical treatment is not preferred method because even skilled surgeons may not get good success in the surgical treatment of *mootrashmari*<sup>9</sup>. According to *madhava nidana* all, the *doshas* are involved in the disease but based on predominance, the types of *mootrashmari* are described<sup>10</sup>.

It is the third most common affliction of the urinary tract, exceeded only by UTI and BPH. The process of forming stone in

urinary tract i.e., kidney, bladder and ureter is referred to as 'urolithiasis'. When urine becomes supersaturated with insoluble materials due to increased excretion and/or because of extreme water conservation, crystals form and may grow and aggregate to form calculi<sup>11</sup>. Gujarat is covered in stone belt areas for the calcium stones. In Gujarat, particularly in *saurashtra* region, the incidence of disease urinary stone is very high due to high mineral content of water and hot climate. About 30% patients of urinary disorders are found suffering from urolithiasis. The chemical composition of urinary stones in children is similar to those found in adults. About one-half are calcium oxalate, calcium phosphate account for 15–25%, while 10–15% is mixed (calcium oxalate and calcium phosphate). The others are struvite (magnesium ammonium, phosphate) 15–30%, cysteine 6–10%, and uric acid 2–10 %<sup>12</sup>.

## AIMS AND OBJECTIVES

1. To establish efficacy of *varunadi kvathaa* with *yavakshar prakshep* in the patients with *mootrashmari* (Urinary stone)
2. To provide simple and effective measure to the patients with urinary stone, for the prevention and effective



management. Also, to prevent surgical intervention for it.

## MATERIALS AND METHODS

### SELECTION OF THE PATIENTS

All the patients were selected from O.P.D. of the P. D. Patel Ayurveda hospital, Nadiad, Gujarat. The patients were selected randomly irrespective of their gender, religion, occupation, and economical class etc.

### INCLUSION CRITERIA

1. Pain in the both, renal angle and loin region, radiating (referring) towards groin.
2. Burning micturition with or without pain.
3. Crystaluria.
4. Patients with age in between 18 to 70 years irrespective of gender, caste and region, etc.
5. Stone evident in USG and below or equal to the size of 8 mm.

### EXCLUSION CRITERIA

### TREATMENT PROTOCOLS

**Table1** Ingredients of *varunadi kvatha*:- *chakradatt ashmaryadhikar-29*  
(AFI – 4:22)(Ayush Department, Gov. of India)

No.	Classical Name & Latin name	Part use	Proportion
1.	<i>Varuna (Crataeva nurvala Buch.-Ham.)</i>	Stem bark	1 part
2.	<i>Shilabhed; "Pashanbhed" (Saxifraga ligulata Wall.)</i>	Root	1 part
3.	<i>Shunthi (Zingiber officinale Roscoe)</i>	Rhizome	1 part
4.	<i>Gokshur (Tribulus terrestris Linn.)</i>	Fruit	1 part
5.	<i>Yavakshar*</i>	<i>kshar</i>	1 gram

\**Prakshep dravya*:- *Yavakshar* (1gram)

### POSOLOGY:

**METHOD OF PREPARATION**<sup>13</sup>: - Patients were educated for the preparation of

Patients of urolithiasis having disease or/and under any medication that affects study, study drug moreover, its result or prognosis will be excluded.

- 1) Case of medical emergency or immediate surgical intervention.
- 2) Cases with severe hydronephrosis.
- 3) Severe hematuria.
- 4) Acute or chronic renal disease.
- 5) Acute retention of urine for more than 24 hours.
- 6) Hyperparathyroidism.
- 7) Developmental defects or structural abnormality of kidney.
- 8) Neoplastic conditions.
- 9) Endocrinal diseases
- 10) Stone size more than 8 mm.

### INVESTIGATIONS:

- a. Urine examination – Routine & Microscopic.
- b. USG (abdomen & pelvis).

*varunadi kvatha*. There were four plant ingredients in *varunadi kvatha*. 10 gms (2.5 gms for each ingredient) of *yavakuta churna*



(coarse powder) was boiled in 160 ml water till 40 ml of decoction remained. This is to be prepared twice and taken orally added with 1gm of *yavakshar*.

**NUMBER OF PATIENTS:** 31 patients were registered in each group.

**DOSE:-**Decoction of 40 ml twice a day. (Morning and evening, empty stomach)

**ROUTE OF ADMINISTRATION:** - Oral

**DURATION OF THE TREATMENT:** - 28 days

**ASSESSMENT:** All the patients were assessed before and after the main treatment period using functional grades for symptomatology as well as for urine routine microscopic examination and USG.

#### **CRITERIA FOR ASSESSMENT:-**

Patients will be assessed on the basis of relief in signs-symptoms, other imaging investigation and findings of laboratory on the basis of specially designed research proforma through scoring pattern.

#### **1) Subjective criteria:-**

**Table 2.1** Criteria for pain –

No.	Symptom	Score
1	No pain	0

**Table 3** Criteria for total improvement:-

Marked Improvement	Above 75% to 100% relief in sign and symptoms
Moderate Improvement	More than 50% to 75% relief in sign and symptoms
Mild Improvement	25% to 50% relief in sign and symptoms
Unchanged	Less than 25% relief in sign and symptoms

2	Bearable pain (1 or 2 times in 1 month)	1
3	Bearable pain occasionally (average 2 to 3 times /week)	2
4	Bearable pain Everyday	3

**Table 2.2** Criteria for burning micturition –

No.	Symptom	Score
1	No burning micturition	0
2	Burning micturition (1 or 2 times in 1 month)	1
3	Regular burning micturition (average 2 to 3 times /week)	2
4	Regular burning micturition everyday	3

**Table 2.3:** Criteria for hematuria –

No.	Symptom	Score
1	No Hematuria	0
2	Brown coloured urine	1
3	Bright red coloured urine	2

**Table 2.4:** Criteria for Frequency of micturition (in 24 hours)–

No.	Frequency	Score
1	Up to 6 times	0
2	7-9 times	1
3	10-12 times	2
4	>12 times	3

#### **2) Objective criteria:-**

##### **a) USG:**

- Size of stone (with the help of USG)
- Number of stones (with the help of USG)
- Concretion
- Hydro-nephrosis

##### **b) Urine (Routine and microscopic):**

Grade score were applied and assessed.



## RESULTS

**Table 4.1** Effect of *varunadi kvatha* on cardinal symptoms of 31 patients of *mootrashmari* (urinary calculus)

Signs and symptoms	Mean score			% Relief	Paired 't' test			
	BT*	AT**	D***		SD <sup>#</sup>	SE <sup>##</sup>	't'	P
Pain	03.74	00.48	03.25	87.06%	00.72	00.13	24.88	P<0.001
Burning micturition	02.45	00.12	02.32	94.73%	01.22	00.21	10.58	P<0.001
Hematuria	00.67	00.00	00.67	100.00%	01.27	00.22	02.95	P<0.001
Dysuria	02.83	00.16	02.67	94.31%	00.74	00.13	19.93	P<0.001
Frequency of micturition (In 24 hours)	01.22	00.00	01.22	100.00%	00.76	00.13	08.95	P<0.001

**Table 4.2** Effect of *varunadi kvatha* on associated symptoms of 31 patients of *mootrashmari* (urinary calculus)

Signs and symptoms	Mean score			% Relief	Paired 't' test			
	BT*	AT**	D***		SD <sup>#</sup>	SE <sup>##</sup>	't'	P
Nausea	02.64	00.22	02.41	91.46%	00.99	00.17	13.57	P<0.001
Vomiting	01.74	00.16	01.63	93.76%	01.32	00.23	06.85	P<0.001
Fever	00.22	00.03	00.19	85.71%	00.47	00.08	02.25	P<0.001
Weakness	02.19	00.32	01.87	85.29%	00.84	00.15	12.30	P<0.001
Constipation	01.16	00.12	01.03	88.88%	00.83	00.15	06.87	P<0.001

**Table 4.3** Effect of *varunadi kvatha* on clinical test of 31 patients of *mootrashmari* (urinary calculus)

No.	Clinical tests (Urine routine and microscopic)	Mean score			% Relief	Paired 't' test			
		BT*	AT**	D***		SD <sup>#</sup>	SE <sup>##</sup>	't'	P
1	Colour	00.09	00.00	00.09	100.00%	00.53	00.09	01.00	P<0.001
2	Appearance	00.09	00.00	00.09	100.00%	00.39	00.07	01.35	P<0.001
3	Reaction	00.80	00.03	00.77	96.00%	00.42	00.07	10.14	P<0.001
4	Albumin	00.25	00.00	00.25	100.00%	00.44	00.07	03.23	P<0.001
5	Pus Cells	00.06	00.00	00.06	100.00%	00.24	00.04	01.43	P<0.001
6	RBCs	00.09	00.00	00.06	100.00%	00.53	00.09	01.00	P<0.001

**Note:** In urine routine and microscopic examination urine sugar, epithelial cells, casts, crystals, specific gravity parameters were normal before and after the treatment, therefore they were not statistically analyzed.

**Table 4.4** Effect of *varunadi kvatha* on USG of 31 patients of *mootrashmari* (urinary calculus).

No.	Ultrasound-Sonography Results	Mean score			% Relief	Paired 't' test			
		BT*	AT**	D***		SD <sup>#</sup>	SE <sup>##</sup>	't'	P
1	No. of stones	02.00	00.48	01.48	74.41%	00.56	00.10	14.49	P<0.001
2	Size of stones	02.00	00.48	01.45	72.58%	00.56	00.10	14.23	P<0.001
3	Concretion	00.67	00.00	00.67	100.00%	00.47	00.08	07.93	P<0.001
4	Hydronephrosis	00.90	00.00	00.90	100.00%	00.30	00.05	16.73	P<0.001

BT\* = Before Treatment; AT\*\* = After Treatment; D\*\*\* = Difference; SD<sup>#</sup> = Standard Deviation; SE<sup>##</sup> = Standard Error

**Table 5** Overall effect of the treatment

Treatment effect	No. of patients	% of patients
Marked improvement	30	96.77
Moderate improvement	01	03.22



<b>Mild improvement</b>	00	00.00
<b>Unchanged</b>	00	00.00

## DISCUSSION

In this study, patients were treated with *varunadi kvatha* with *yavakshar prakshep* (Table1). All subjective parameters and objective parameters were acquired (Table2.1 to 2.4, 3). They were analyzed individually as well as a combined aspect by suitable statistical methods (Table4.1 to 4.4). Overall assessment suggests total effect of therapy as follows: Total 33 patients of urolithiasis were enrolled and out of them two patients left the research study against medical advice. Total 30 patients got marked relief, which suggest 75 to 100% relief from the symptomatology, abnormal laboratory investigations as well as from imaging report (Table5). One patient is from the group of moderate relief (Table5).

## CONCLUSION

These results suggest that proper application of *varunadi kvatha* with *yavakshar prakshep* along with *pathyapalan* can give significant to highly significant results in 28 days of OPD base therapy. Thus, we accepted alternate hypothesis and rejected null hypothesis as mentioned earlier.





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