

**Research article****Role of *Paneeeya kshara* of certain indigenous formulation (*Anandayoga*) in the management of *Mootrashmari*.**

Manoj L. Sonaje *, **Dudhamal Tukaram Sambhaji¹**, **Dr Suresh Negalaguli²**,
Gupta Sanjay Kumar³, **Prof. Chaturbhuja Bhuyan⁴**

1. Assistant Professor, Dept. of Shalya Tantra, IPGT&RA, Jamnagar

2. Dean and HOD, Shalya Tantra, Alva's Ayurveda Medical College, Moodbidri, Karnataka

3. Reader, Dept. of Shalya Tantra, IPGT&RA, Jamnagar

4. Professor and Head, Dept. of Shalya Tantra, IPGT&RA, Jamnagar

Abstract

Ashmari (Urinary calculus) is the disease of *Mutravaha Srotas* (Urinary system) as described in *Sushruta Samhita*; which is included in the *Mahagada* (Incurable disorder). In modern urology practice the different methods for treatment of urinary calculus were developed due to its high recurrence. So the main aim of study was to treat as well as to avoid the recurrence in the *Mootrashmari*. In the study *kshara* was selected due to its multiple properties *Chedana* (Excision), *Bhedana* (Incision), *Lekhana* (Scraping), *Shodhana* (Cleaning), *Ropana* (Healing) etc. This *Anandayoga* [*paneeya Kshara* (oral alkali preparation)] contains extract of 5 ingredients, which were *Sesamum indicum*, *Achyranthus aspera*, *Butea frondosa*, *Musa sapientum* and *Embllica officinale*. Total 20 patients were treated with *Anandayoga* in extract form of 250mg capsule twice daily for 60 days.

After completion of the treatment it was found that all patients were free from abdominal pain, dysurea was relieved in 14 patients. Out of 24 stones, 16 stones had reduced in their size considerably and 8 stones remained unchanged in their size. Lastly it has been concluded that *kshara* of five ingredients (*Anandayoga*) showed good result in the treatment of *Mootrashmari* without untoward effect.

Keywords: *Anandayoga*, *Ashmari*, *Paneeeya kshara*, *Mahagada*, Urolithiasis.

Introduction:

Mootrashmari (Urinary calculus) is due to the drying up of *kapha dosha* because of the action of *vata* and *pitta dosha*.(1) Sushruta has considered as one among the *Ashtamahagadhas* (Eight incurable disorders) (1) which considered as very difficult to treat and bad in prognosis and can proceed to death with

lack of proper treatment.(1) In Ayurvedic classics *sharkara* (Gravels) is also an analogous condition like *Mootrashmari* in the form of *Upadrava* (Complication) and its prognosis is *Yapya* (bad).(1) While dealing with the management of the disease Sushruta stressed on drugs followed by *Ghrita* (Ghee), *Kshara* (Alkali) and surgical measures depending on the intensity of the condition.(1)

In contemporary science *Ashmari* can be correlated with Urolithiasis due to symptoms like pain, dysuria, hematuria, etc. (2) Abdominal pain drag not only patient's attention but also the inquisitiveness of the surgeon because of the mysterious nature of the abdominal

* Corresponding Author:

Dr. Manoj L. Sonaje
PhD Scholar, Dept of Shalyatantra,
IPGTRA, Gujarat Ayurved University,
Jamnagar – 361008
Email: manojsonaje@gmail.com
Phone: +91-9998468167



features considered as 'Pandora's magic box'. *Mootrashmari* is one among the cause for abdominal pain, which is most common.

The prevalence of Urolithiasis is approximately 2 to 3% in the general population and estimated lifetime risk of developing a kidney stone is about 7.7% for white males(3). Approximately 50% of patients with previous urinary calculi have recurrence within 10 years. Stone formation is 3 times more common in males than in females and occurrence is more often in adults than in elderly persons(4,5). There was a slight male preponderance. The male to female ratio was 1.5:1. But the observations made by Rajput PA et al; in Baluchistan was male to female ratio of 4:1, which shows a high male preponderance.(6) In addition, Urolithiasis occurs more frequently in hot, arid areas than in temperate regions. Stone formation is due to concentrated urine, deficiency of mucopolysaccharide, citrate etc. However the role of heredity, geographical condition and dietary factors also has their key role.

The main objective of the treatment of urolithiasis includes;

1. Fragmentation of the stone.
2. To evacuate by means of pressure of urine output.
3. To avoid its recurrence.
4. Management of complications.

Analgesics, anti spasmotic etc, provide only symptomatic relief, surgeries like Nephrolithotomy, ESWL, Cystostomy, Ureteroscopy, Cystoscopy, Dormia Basket, are some treatment procedures available in urology. (7) However these therapies are curative treatment of Urolithiasis but cannot avoid the pathogenesis behind the formation of stone. So recurrence of stone even after removal is becoming a great challenge and constant efforts are being made to evolve an effective treatment and prevent the recurrence. All those methods are very expensive too with their limitation.

Paneeya kshara (internal alkali preparation) has been indicated in the treatment of *Mootrashmari*.(1) Generally *Ksharas* has properties like *Chedana* (excision), *Bhedana* (Incision), *Lekhana* (Scraping), *Krimighna* (anti-helminthic), *Shodhana* (Cleaning), *Ropana* (healing), *Vilayana*, *Pachana* (Digestive) etc.(1) for effective removal of *Mootrashmari* these properties are very essential. It is the need of the hour to understand the disease and to find a best solution that not only treats the stipulation but also prevent the recurrence.

Aim & objective:

To evaluate the therapeutic efficacy of '*Anandyoga*' (*Paneeya kshara* of certain indigenous herbs) in the management of *Mootrashmari*

MATERIALS AND METHODS:

A) Study Design

Present study will be randomized, open, controlled clinical research at OPD/IPD levels with appropriate sample (n-20). The patients to be included in the clinical trial were allocated in a single group.

B) Source of Patients

Cases of *Mootrashmari* (Urolithiasis) were selected randomly irrespective of their Age, Sex, Religion, Occupation, Caste, Creed etc. and were randomly assigned in a single group, from OPD & IPD of Department of Shalyatantra Alva's Ayurveda Medical College & Hospital Moodbidri D.K Karnataka., during the period of 2007-2008.

Inclusion Criteria

- Patients presented with classical symptoms of *Mootrashmari*. (1)
- Patients having calculus below 20 mm in size.
- Age group between 20-60 years.



- The patients were randomly selected from OPD and IPD irrespective of sex, occupation, race, chronicity and socio-economical status.

Exclusion Criteria

- Patients who were contraindicated for *Paneya kshara*. (1)
- Patients below 20 years & above 60 years of age.
- Patients of *Shukrashmari*.
- Uncontrolled diabetes mellitus & hypertension.
- Systemic illness like TB, HIV etc.
- Patients with obstructive pathogenesis like BPH, urethral stricture, etc.
- Pregnant female patients.
- Patients associated with complication like pyonephrosis, Glomerulonephritis, Chronic Renal Failure (CRF)

Diagnostic Criteria

Diagnosis was made on the basis of clinical sign and symptoms, X-Ray KUB and USG findings.

Investigations

Blood examination

Hb%, TLC, DLC, ESR, Blood urea, Serum creatinine. (**Investigations were done for all the patients**)

Urine analysis (As per requirement)

Physical - Color, pH, specific gravity, reaction, sugar, albumin,
Microscopic - RBC, casts, crystals, epithelial cells and pus cells.

POSOLOGY:

Anandayoga preparation: (1)

- *Tila - Sesamum indicum*(8) - *Panchanga* (whole plant) - pH7.9
- *Apamarga - Achyranthus aspera*(9) - *Panchanga* (whole plant) - pH8.6
- *Palasha - Butea frondosa* (10) - *Kanda twaka* (bark) - pH 7.6

- *Kadali - Musa sapientum* (11) - *Kanda* (tuber) - pH 8.1
- *Amalaki - Emblica officinale* (12) - *Kanda* (trunk) - pH 6.9

The *Mrudu kshara* of above ingredients was prepared as explained in the *Sushruta Samhita*.(1) In this procedure 738 gms of *kshara* was obtained from 5 kg of mixed ash. Then that *kshara* was filled in the gelatin capsule having 250 mg weight.

Intervention

Drug - *Anandayoga* (*Paneya kshara* of five herbs)

Dose - 250 mg twice a day

Anupana - *Avimootra* (Urine of sheep) *Arka* (prepared with standard method of distillation) (13)

Time - 30 minutes before food.

Duration - 60 days.

Dos: Patients were advised to drink 4 - 5 liters of water per day.

Don'ts: Patients were advised to avoid milk, tomato, cauliflower, spinach, fish, meat, during the period of treatment.

Assessment criteria

The patient's response was assessed on subjective & objective parameters.

Subjective criteria:

Pain abdomen:

- a. Absence of pain abdomen - Grade 0 (no pain)
- b. Present but does not disturbs routine - Grade 1 (mild pain)
- c. Present, which disturbs routine - Grade 2 (moderate pain)
- d. Patient rolls on bed due to pain - Grade 3 (severe pain)

Pain abdomen :

(Response obtained in days)

- a. In between 01 – 15 days - Grade 4
- b. In between 16 – 30 days - Grade 3
- c. In between 31 – 45 days - Grade 2



- d. In between 46 – 60 days - Grade 1
e. Still persisting - Grade 0

Haematuria: (*Sarakta Mootrapravrutti*)
(Response obtained in days)

- a. In between 01 – 15 days - Grade 4
b. In between 16 – 30 days - Grade 3
c. In between 31 – 45 days - Grade 2
d. In between 46 – 60 days - Grade 1
e. Still persisting - Grade 0

Dysuria:

(Response obtained in days)

- a. In between 01 – 15 days - Grade 4
b. In between 16 – 30 days - Grade 3
c. In between 31 – 45 days - Grade 2
d. In between 46 – 60 days - Grade 1
e. Still persisting - Grade 0

Over all symptoms

- a. Absence of symptoms - Grade 0
b. With only one feature - Grade 1
c. With two features - Grade 2
d. With three features - Grade 3

Objective criteria:

Size of stone:

- a. No change in size - Grade 3 No response
b. Less than 25% of decrease in size - Grade 2 Poor
c. In between 25% to 50% of decrease size – Grade 1 Fair
d. More than 50% of decrease size - Grade 0 Good.

Observations:

Table 1: Age **n=20**

Age in years	No. of patients	Percentage
20 to 30	06	30 %
31 to 40	09	45 %
41 to 50	01	05 %
51 to 60	04	20 %

Table 2 - Gender: **n=20**

Gender	No of patients	Percentage
Male	12	60 %
Female	08	40%

Table 3 – Site of Urinary Calculi: **n=20**

Side	No. of patients	Percentage
Left	10	50 %
Right	07	35%
Bilateral	03	15 %

Table 4: Drinking water source of Patient: **n=20**

Drinking water Source of Patient	No. of patients	Percentage
Bore	08	40%
Well	05	25%
Municipal Water supply	07	35%

Table 5: Symptoms: **n=20**

Symptoms	No. of patients	Percentage
<i>Udarshool</i> (Pain in abdomen)	20	100%
<i>Savedana</i> (Dysuria)	14	70%
<i>Sarakta</i> (Haematuria)	00	00 %
<i>Sadaha</i> (Burning Micturition)	16	80%



Muhurmuhu (Frequent Micturition)	10	50%
----------------------------------	----	-----

Table 6: Size of the stone: n=20

Size of the stone	No. of Patients	Percentage
1.0 – 5.0 mm	03	15%
5.1 – 10.0 mm	13	65%
10.1– 15.0 mm	04	20%

Table 7: Urine pH n=20

Urine pH value	No. of patients	Percentage
6	04	20 %
7	15	75 %
8	01	05 %

Table 8: Nature of pain in abdomen n=20

Nature of Pain	No. of patients with %			
	Before treatment	%	After treatment	%
Severe	05	25%	00	00%
Moderate	12	60%	00	00%
Mild	03	15%	02	10%
No pain	00	00%	18	90%
Total	20	100%	20	100%

Table 9: Duration of pain in abdomen: n=20

Relief obtained in days	No. of patients	Percentage
1 – 15 days	12	60%
16 – 30 days	16	80%
31 – 45 days	17	85%
46 -60 days	20	100%

Table 10: Relief in Dysuria: n=20

Relief obtained in days	No. of patients	Percentage
1 - 15 days	2	14.2%
16 - 30 days	10	71.4%
31- 45days	14	100%
46 - 60 days	14	100%

Table 11: Effect on overall symptoms:

Symptoms	No. of patients	
	Before treatment	After treatment
5 symptoms present	07	00
4 symptoms present	06	00
3 symptom present	06	00
2 symptoms present	01	01
1 symptoms present	00	03
No symptoms	00	16

**Table 12: Effect on size of the stone:**

Reduction in size	No. of stones	Percentage
< 25 %	09	37.50%
25 – 50 %	03	12.50%
> 50 %	04	16.60%
No change	08	33.33%
Total	24	100%

Table 13: Statistical analysis of size of calculus:

Clinical feature	Days of Treatment	Mean	Standard Deviation	Mean Difference	t-value	P value	Result
Size of calculus	1 st day	8.49	2.69	1.5	4.2	0.001	P<0.001
	60 th day	6.93	3.36				

Table 14: Status of pH value:

Value of the pH	Before treatment	After treatment
8	1	0
7	15	19
6	4	1
Total	20	20

Table 15: Statistical significance:

Clinical features	Day of treatment	Mean	SD	z-value	p-value	Result
<i>Udarshool</i> (Pain in abdomen)	1 st day	2.1	0.640			P<0.5
	15 th day	1.5	0.512	-3.464	0.002	P<0.01
	30 th day	1.25	0.512	-3.9	0.001	P<0.01
	45 th day	0.85	0.444	-3.727	0.001	P<0.01
	60 th day	0.1	0.366	-4.029	0.001	P<0.01
<i>Savedana</i> (Dysuria)	1 st day	0.85	0.670			P<0.5
	15 th day	0.75	0.716	-1.414	0.157	P<0.01
	30 th day	0.25	0.444	-2.972	0.003	P<0.001
	45 th day	0	0	-3.494	0.001	P<0.001
	60 th day	0	0	-3.494	0.001	P<0.001
<i>Muhurmuhu</i> (Frequent Micturition)	1 st day	0.5	0.512	-1.000	0.317	P<0.5
	15 th day	0.45	0.510	-1.000	0.317	P<0.01
	30 th day	0.15	0.366	-2.646	0.008	P<0.01
	45 th day	0	0.0	-3.162	0.002	P<0.01
	60 th day	0	0.0	-3.162	0.002	P<0.01
<i>Sadaha</i> (Burning Micturition)	1 st day	1.4	0.940	-2.236	0.025	P<0.5
	15 th day	1.15	0.812	-2.236	0.025	P<0.5
	30 th day	0.85	0.745	-3.317	0.002	P<0.01
	45 th day	0.2	0.410	-3.619	0.001	P<0.001
	60 th day	0	0	-3.589	0.001	P<0.001



Discussion:

Male patients of age between 31 to 40 years were found more in the study. The study showed that the prevalence of the disease was more in persons who undergo sedentary occupation, protein rich diet and hyper caloric diet, which showed the nutritional factor strongly influence on disease as etiological factor. Out of the population 30% and 20 % were housewives and student respectively. In study high prevalence rate of *Ashmari* (Calculus) was seen in house wives and students due to their excessive burden of their work physically as well as mentally. Most of the patients were hard physical workers in nature.

Tradition and culture restrict people to be selective in their food and food stuff which may cause of such condition. Regular mixed and irregular mixed (vegetarian + non vegetarian) was 40% and 30 % respectively. Overall 70% non vegetarians' suffered from *Ashmari*. The water source also accompanied as predisposing factor here- among study group as 40% population had water source from Bore well (Table 4). The bore well is the commonest source of hard water (hyper mineral) contains 1 to 3 % calcium (14), 0.543 % phosphates and 0.244 % other minerals which generally precipitate this condition. Renal stones patients were more in number as the stone born in the kidney and having unilaterally. It was observed that there were 12 patients of *vataja ashmari* and 08 patients of *kaphaja ashmari*. The 12 stones were oxalates stone and 08 stones were predominant of phosphates, along with other minerals like calcium etc.

This yoga (formulation) contains 5 ingredients, which are *Tila panchaga*, *Apamarga panchanga*, *Palash kanda* (trunk or bark of trunk), *Kadali kanda* (tuber), *Aamalki kanda* (trunk). The yoga (formulation) was prepared by classical method; approximately 10% *kshara* obtained from total amount of ash. The

palasha kanda twaka had very low ash value up to 1% while other had 3 to 4 %, from well dried form. This yoga is mentioned with *Avimootra* (urine of sheep) as *Anupana*. Among all mentioned ashtamutras (Eight types of urines) only *Avimootra* has property of *pitta shamana*, due to its *tikta pradhana* rasa (13). *Avimootra* is not easy to consume therefore the *arka* (distillation) preparation is adopted to increase shelf life period also.

After completion of treatment course none of the patient had severe pain in abdomen; only two patients had pain in abdomen which was of mild nature. Dysuria was relieved in 14 patients. No one patient had hematuria prior treatment among 20 patients. Selected yoga (formulation) has *mootrala* (diuretic) effect so there will be increase in the intra luminal pressure. Because of this pressure stone expels as a whole from the urinary system or change its prior position. Hence the expulsion of the stone is due to the combined effect of following i.e.

- The drug might have acted on *ashmari* by changing the pH value.
- Due to the *mootrala* (diuretic) property of the drug.
- Due to the *kshara guna* (Alkaline in nature).

Out of 24 stones, 16 stones had reduced in their size considerably and 8 stones remained unchanged in their size (For assessment of Lithotripter action of drugs the reductions of size of stone or calculi were observed along with subjective parameters) after treatment. Statistically the reduction in size of the stone was show highly significant. Among these <25% reduction shows in 9 stone. 25 to 50% in 7 stones and >50% in 4 stones (Table-12). It showed that the drug had good response in regard to disintegration of the stone.

The normal pH of urine is range from 4.6 to 8 (15, 16, 17), which depends on the diet and other factors. Urine pH



plays an important role in the determination of either renal tubular acidosis, which may cause a pH below 5.5 (acidic urine). Acidic urine is associated with xanthine, cystine, uric acid and calcium oxalate stones where as alkaline urine (pH > 8) is associated with calcium carbonate, calcium phosphate, and magnesium phosphate stones. In the study it was found that 15 patients were with the urine pH 7, three patients with urine pH of 4, where as one patient was with the urine pH of 8 before the administration of the drug. After treatment, the urine pH was maintained to 7 in 19 patients irrespective of alkaline or acidic urine (Table-14). It showed that the medicine along with the diet restrictions might have maintained the urine pH.

No significant changes were observed in Laboratory investigations after treatment.

The alkaline nature of *Kshara* can be helpful to neutralize the hyper tonicity as well as acidity of urine itself. The *chedana* (Excision), *bhedana* (incision), *lekhana* (Scraping) properties had non invasive method of fragmentation of stone. The *shodhana* (Cleaning) and *ropana* (Healing) also are beneficial properties of *kshara* to deal with condition of lacerated mucosal surface of the urogenital tracks due to friction of spiky & nodular type of *Ashmari* (vatajashari/Oxalate). This disease commonly follows infection of urogenital tracks. *Shodhana* therapy also can be attributed in such conditions to relieve the infection.

Conclusion:

The study was concluded that the main features like abdominal pain, dysuria, burning micturation, size of the stone were reduced noticeably, so the action of the drug is encouraging in *Mootraashmari* (Urinary Calculus). The lithotryptic action of the *Anandayoga* was significant and the *yoga* (formulation) maintaining the acid-

base balance. There was no any untoward effect of the therapy.

References:

1. Yadavaji Trivkamji, Sushruta Samhita Dalhan commentary Nidan sthan 3/ 4, Reprint ed. Varanasi; Chaukhamba Subharati Prakashan; 2009.p.144,277, 279,436,46,45.
2. Bailey's and Love's, Short Practice of Surgery, 24rd Ed. Hodder Headline group; London and Oxford University, New York; p.1339p.
3. Michael J. Thun and Susan Schober, Urolithiasis in Tennessee: An Occupational Window into a Regional Problem. American Journal of Public Health. May, 1991; 81 (5); 587-591p.
4. Johnson, CM, Wilson, DM, O'Fallon, WM, Malek, RS, Kurland, LT, Renal stone epidemiology A 25-year study in Rochester, Minnesota. *Kidney Int* . 1979 16: 624-631p.
5. Hizbullah Jan, Ismail Akbar*, Haider Kamran*, Jehangir Khan. Frequency of Renal Stone Disease In Patients With Urinary Tract Infection J Ayub Med Coll Abbottabad 2008; 20(1) 60-62p.
6. Rajput PA, Saadat K, Khan Din S, Nawaz Haq MS. Present trend of urolithiasis in aluchistan: A single centreexperience. J Coll Phys Surg Pak. 2002;12 (10):615-22p.
7. Patrick C. Walsh, Alan B. Retik, E. Darracott Vaughan, Alan J. Wein, Campbell's Urology -Vol.- 3,W.B. Soundess Company, Tokyo 7th Edition 1992. 3347p.
8. Anonomous, Ayurvedic Pharmacopeia of India, Vol.4. Published by Govt. of India.143-145p.
9. Bapalal G. Vaidya, Nighantu Adarsha-2, Reprint ed. Varanasi; Chaukhamba Bharati Acadomy; 2005. p.304.
10. Acharya Priyavat Sharma, Dravyaguna VignyanVol-2, Reprint ed. Chaukhamba Bharati Acadomy; 2006. p..509.



11. Bapalal G. Vaidya. Nighantu Adarsha-2, Reprint ed. Varanasi, Chaukhamba Bharati Academy, 2005. 589p.
12. Anonomous, Ayurvedic Pharmacopeia of India, Vol.1 Published by Govt. of India. p 7-8.
13. R.K. Sharma, Bhagwan Dash, Charak Samhita- vol-I Sutra sthana-1/100, reprint ed. Varanasi; Chaukhamba Sanskrit Series; 2008.p.54.
14. Calcium and magnesium in drinking water: public health significance by World Health Organization. Dated 9.11.2010
15. Martín Hernández E, Aparicio López C, Alvarez Calatayud G, García Herrera MA, Vesical uric acid lithiasis in a child with renal hypouricemia. *An. Esp. Pediatr.* September, 2001; 55 (3); 273–276p.
16. Urine pH. MedlinePlus Medical Encyclopedia.<http://www.nlm.nih.gov/MEDLINEPLUS/ency/article/003583.htm>. Retrieved December 26,2009. Update Date: 8/7/2009 viewed 9.11.2010
17. Bazari H, Goldman L, Ausiello D, Approach to the patient with renal disease, *Cecil Medicine* 23rd ed. Philadelphia; Pa. Saunders Elsevier; 2007. chap 115
