ISSN 2456-3110
Vol 4 · Issue 1
Jan-Feb 2019

Journal of Ayurveda and Integrated Medical Sciences

www.jaims.in

JAIMS

Charaka Publications

Indexed

Journal of
Ayurveda and Integrated Medical Sciences
ISSN 2456-3110
ISSN: 2456-3110 ORIGINAL ARTICLE Jan-Feb 2019

A clinical study on *Mulaka Kshara* in the management of *Moothrashmari* (Renal Calculi)

Dr. Jitender Kaushik,[1] Dr. Aakash Kembhavi[2]

[1]Post Graduate Scholar, [2]Professor & Guide, Dept. of Shalya Tantra, SGVVT'S SJG Ayurvedic Medical College and Hospital, Koppal, Karnataka, INDIA.

ABSTRACT

According to Ayurveda, *Moothrashmari* is a combined terminology which constitutes *Moothra* + *Ashmari. Ashmari* comprises of two words, i.e. *Ashma* and *Ari*, where *Ari* refers to the pain as given by an enemy, pain due to *Moothrashmari* is known as worse than that of labour pain. This disease is dreadful and hence considered one of the *Mahagada* by *Sushruta*, may be owing to its potentiality to disturb the anatomy and physiology of urinary system. Acc to modern the word renal calculus is derived from Latin language, according to which Renes means kidneys and calculi, means pebble or stone. It is a solid concretion or crystal aggregation formed in the kidneys from dietary minerals in the urine. Urinary stones are typically classified by their location in the kidney (nephrolithiasis), ureter (ureterolithiasis) or urinary bladder (systolithiasis) or by their chemical composition (calcium containing, uric acid, struvite or other compound). It is estimated that at least 10% of the industrial population of the world is affected by urinary tract stone. Thus the disease is a wide spread as it is old, particularly in countries with dry and hot climate. In India, approximately 5-7 million patients suffer from stone disease and at least 1/1000 of Indian population needs hospitalization due to this disease. *Kshara* is having *Lekhana, Bhedana, Pachana, Shodhana* and *Tridoshaghna* properties. Thus study "Effect of *Mulakakshara* in the management of the *Moothrashmari* (renal calculi)" is undertaken.

Key words: *Moothrashmari, Renal Stones, Ashmari, Kshara, Lekhana, Bhedana, Mulakakshara.*

INTRODUCTION

Moothrashmari is a combined terminology which constitute *Moothra + Ashmari.* There are a lot of references about *Moothra* in all over the Ayurvedic classics and in many of the old literature like Vedas and Puranas. Thousands of years ago *Acharya Sushruta* and *Charaka* identified the disease and named it as *Ashmari*. *Ashmari* comprises of two words, i.e. *Ashma* and *Ari*, where *Ashma* means stone and *Ari* means enemy, pain due to *Ashmari* is known as worse than that of labour pain. This disease is dreadful and hence considered to be one of the eighth most troublesome diseases (*Mahagada*) by Sushruta,[2] may be owing to its potentiality to disturb the anatomy and physiology of urinary system.

Mootrashmari is a disease of *Mootravaha Srotas* and according to *Sushruta* it is formed due to the drying up of *Kapha* because of the action of *Vata* and *Pitta*. *Acharya Sushruta* mentioned 4 types of the *Mootrashmari*. Depending upon the *Nidana* for which a particular *Dosha* gets vitiated and leads to that type of *Mootrashmari*. These are *Vatajashmari, Pittajashmari, Sleshmajashmari* and *Shukraja Ashmari. Sushruta, Charaka, Bhela* and *Harita* devoted separate chapter for *Ashmari*, where *Harita* says formation of *Ashmari* may be hereditary. All most all Acharyas described its *Nidana, Purvarupa, Roopa, Chikitsa* (*Aushadha* and *Shastra Karmas*) and

Address for correspondence:
Dr. Aakash Kembhavi
Professor & Guide, Dept. of Shalya Tantra, SGVVT'S SJG Ayurvedic Medical College and Hospital, Koppal, Karnataka, INDIA.
E-mail: drkembhavikpl@gmail.com

Submission Date: 12/12/2018 Accepted Date: 18/01/2019

Access this article online

Quick Response Code

Website: www.jaims.in

DOI: 10.21760/jaims.4.1.3

ISSN: 2456-3110 ORIGINAL ARTICLE Jan-Feb 2019

Upadrava and they mentioned that it is *Kasta Sadhya Vyadhi*. For same purpose so many *Yogas* of medicines have been explained in our ancient Ayurvedic literatures.

The word renal calculus is derived from Latin language, according to which Renes means kidneys and calculi means pebble or stone. It is a solid concretion or crystal aggregation formed in the kidneys from dietary minerals in the urine.[1]

Urinary stones are typically classified by their location in the kidney (nephrolithiasis), ureter (ureterolithiasis) or urinary bladder (systolithiasis) or by their chemical composition (calcium containing, uric acid, struvite or other compound).[2]

The medical management as a first line therapy in surgical condition is a specific feature of Ayurvedic *Shalya Tantra. Acharya Sushruta* has dealt in detail about the surgical therapy (*Chedana Karma*) for *Ashmari*, but in the beginning itself he says when *Ashmari* doesn't get subside by *Grutha, Kshara, Kshaya, Kshira* and *Uttarabasti* then the next treatment is *Chedana Karma.*[3]

Out of all the *Yantras, Upyantra, Shastras* and *Anushastras* and medicines the *Kshara* is the supreme, because it is most effective and acts immediately. Generally all the Kshara act as *Chedana*, *Bhedana* and *Lekhana Dravya*.[4] *Ksharas* are the best useful as the substitutes of surgical instruments, because they can be used freely on the patients who are *Shastra Bheeru* i.e. those who are afraid of operative procedures. Among them the *'Mulaka Kshara'* is one which mentioned by *Acharya Sushruta* for *Ashmari* which is not only hassle free to administer but also convenient to the patient, hence it is selected for the study.

Objective of the Study

To evaluate the efficacy of *Mulaka Kshara* in the management of *Moothrashmari* (Renal Calculi).

Materials and Methods

Study centre

The patient attending the OPD and IPD of the SJG Ayurvedic Medical College and Hospital, Koppal provided the material for the study.

Preparation of the drug

The formulation with their respective ingredients had been prepared in pharmacy section of S.J.G. Ayurvedic Medical College and Hospital, Koppal. The drug had been tested in the laboratory of the same college which showed that formulation prepared is non-toxic and fit to give to the patient.

Number of patients

Out of 45, only 30 patients of either sex fulfilled the inclusion criteria have been selected for the study.

Observations and Results

Present study is having a group of 30 patients and no one patient was left out the trial after assessing all the 45 patients. These 30 patients of *Moothrashmari* fulfilled the criteria of diagnosis and inclusive criteria were included as a group for the present study. All the patients were examined before and after the trial, according to the case sheet format given in the annexure. Both the subjective and objective criteria were recorded along with validation of disease state.

Table 1: Showing size of the stones in 30 patients of *Ashmari*.

Size of stone	No. of stones (33)	%
3mm	6	18.18
4 mm	7	21.21
5mm	9	27.27
6 mm	6	18.18
7mm	4	12.12
8mm	1	3.03

In size wise distribution of urinary calculi showed that among 33 stones, 6 (18.18%) stones are 3 mm size, 7 (21.21%) stones are 4 mm size, 9 (27.27%) stones are between 5 mm size, 6 (18.18%) stones are 6 mm size, 4 (12.12%) stones are between 7 mm size and 1 (3.03) stone has 8mm size.

ISSN: 2456-3110 ORIGINAL ARTICLE Jan-Feb 2019

Table 2: Showing number of stones in 30 patients of *Ashmari*.

No. of stones	No. of patients	%
Single	30	100
Multiple	0	0

Among 30 patients, all the 30 (100%) patients had only single stones no one has multiple stones.

Table 3: Showing sides of stones in urogenital system in 30 patients of *Ashmari*.

Incidence in urinary tract	No. of patients	%
Right	15	50
Left	12	40
Both	3	10

Side wise distribution of *Ashmari* showed that among 30 patients, 15 patients had Right side urinary calculi, 12 patients had left side urinary calculi thus total 27 (90%) patients had unilateral calculi and 3 (10%) patients had bilateral urinary calculi.

Result of the Trial Drug

Table 4: Effect of trial drug on subjective parameters

Parameters	BT (n)	AT (n)
Renal Pain	30	13
Nausea	28	4
Vomiting	13	1
Burning Micturation	25	1
Dysuria	19	1
Anorexia	15	2
n - no. of patients		

Before the treatment all patients (30) had renal pain with different intensity. After completion of the therapy, it was observed that 17 patients got complete relief from this symptom and 13 patients had the pain.

In 28 patients nausea was found but after the completion of therapy only 4 patients had complaint of nausea.

Before the treatment, 13 patients had vomiting. After taking these trial drugs, it was observed that only 1 patient had this problem.

Before the treatment, 25 patients had burning micturation. After taking these trial drugs, it was observed that only 1 patient had this problem.

Before the treatment 19 patients had dysuria. After completion of the therapy, it was observed that only 1 patient had this problem.

Before the treatment 15 patients had anorexia. After completion of the therapy, it was observed that only 2 patient had this problem.

Table 5: Effect on Reduction in number of stone

No. of Stone RUT		No.of Stone LUT	
BT	**AT**	**BT**	**AT**
18	5	15	8
RUT - Right urinary tract, LUT - Left urinary tract.			

Among 30 patients before the treatment there are 18 stones was present in right urinary tract. After the treatment only 5 stones are present, remaining 13 stones are expelled out after the treatment.

In Lt. Urinary tract there are 15 stones was present, but after the treatment only 8 stone remaining.

Table 6: Effect on Size of stones

Size of stone	No of calculi (BT)	Expelled (AT)	Reduction (AT)
3mm	6	6	-
4mm	7	7	-
5mm	9	6	3

ISSN: 2456-3110 ORIGINAL ARTICLE Jan-Feb 2019

6mm	6	-	6
7mm	4	1	3
8mm	1	-	1

As seeing the effect of therapy on the size of stone. It was found that there are total 33 stones present in 30 patients of different sizes, 6 stones were having 3 mm size, 7 were having 4 mm size, 9 were having 5 mm size and 6 were having 6 mm size. 4 were having 7mm size and only 1 has 8mm size. But after the treatment, it was noted that all the stones having 3 mm and 4 mm size has expelled out. Stones having 5 mm size are 9 in number out of which 6 stones are expelled out and remaining 3 shows reduction after the treatment, stones having 7 mm size are 4 in number out of which 1 was expelled out and remaining 3 shows reduction and stones having size 6 mm and 8 mm all are showing only reduction after the treatment.

Table 7: Overall efficacy of trail drug on no of stones

Effect of therapy	No. of Calculi (33)	%
Cured	20	60.60
Improved	13	39.39
Unchanged	0	0

As seeing the effect of therapy on the size of stone. It was found that there are total 33 stones present in 30 patients before treatment but after the treatment completed out of 33 stones, 20 (60.66%) stones are fully cured or expelled out and remaining 13 (39.39%) shows reduction in size of stones.

STATISTICAL ANALYSIS

Effect of therapy on subjective parameters

1. Effect of therapy severity on renal pain

Severity of Pain: Severity of pain was recorded as per the history given by the patient. Data was graded according to gradation index. Statistical analysis is made on the basis of data, collected before and after treatment by using Paired t- test.

Renal Pain	Mean		Reduction %	±SD	±SE	t	P
	BT	AT					
	1.97	0.50	74.58	0.51	0.09	15.83	<0.001

In the above table there is reduction in mean severity of Pain. By using paired t test before and after treatment it shows changes from 1.97 to 0.50 showing a 74.58 % of Reduction, we found that there is a highly significant effect of the therapy i.e. P<0.001.

2. Effect of therapy on nausea

Nausea was recorded as per the history given by the patient. Data was graded according to gradation index. Statistical analysis is made on the basis of data, collected before and after treatment by using Paired t- test.

Nausea	Mean		Reduction%	±SD	±SE	t	P
	BT	AT					
	0.93	0.13	85.71	0.41	0.07	10.77	<0.001

In the above table there is reduction in mean of nausea. By using paired t test before and after treatment it shows changes from 0.93 to 0.13 showing a 85.71 % of Reduction, we found that there is a highly significant effect of the therapy i.e. P<0.001.

3. Effect of therapy on vomiting

Vomiting was recorded as per the history given by the patient. Data was graded according to gradation index. Statistical analysis is made on the basis of data, collected before and after treatment by using Paired t- test.

Vomiting	Mean		Reduction %	±SD	±SE	t	P
	BT	AT					
	0.43	0.03	92.31	0.50	0.09	4.40	<0.001

ISSN: 2456-3110 **ORIGINAL ARTICLE** Jan-Feb 2019

In the above table there is reduction in mean of vomiting. By using paired t test before and after treatment it shows changes from 0.43 to 0.03 showing a 92.31% of Reduction, we found that there is a highly significant effect of the therapy i.e. P<0.001.

4. Effect of therapy on burning micturition

Burning micturation was recorded as per the history given by the patient. Data was graded according to gradation index. Statistical analysis is made on the basis of data, collected before and after treatment by using Paired t- test.

Burning micturation	Mean		Reduction %	±SD	±SE	t	P
	BT	AT					
	0.83	0.03	96.00	0.41	0.07	10.77	<0.001

In the above table there is reduction in mean of burning micturation. By using paired t test before and after treatment it shows changes from 0.83 to 0.03 showing a 96 % of Reduction, we found that there is a highly significant effect of the therapy i.e. p<0.001.

5. Effect of therapy on dysuria

Dysuria was recorded as per the history given by the patient. Data was graded according to gradation index. Statistical analysis is made on the basis of data, collected before and after treatment by using Paired t- test.

Dysuria	Mean		Reduction%	±SD	±SE	t	P
	BT	AT					
	0.63	0.03	94.74	0.50	0.09	6.60	<0.001

In the above table there is reduction in mean of dysuria. By using paired t test before and after treatment it shows changes from 0.63 to 0.03 showing a 94.74% of Reduction, we found that there is a highly significant effect of the therapy i.e. p<0.001.

6. Effect of therapy on anorexia

Anorexia was recorded as per the history given by the patient. Data was graded according to gradation index. Statistical analysis is made on the basis of data, collected before and after treatment by using Paired t- test.

Anorexia	Mean		Reduction%	±SD	±SE	t	P
	BT	AT					
	0.50	0.07	86.67	0.50	0.09	4.71	<0.001

In the above table there is reduction in mean of anorexia. By using paired t test before and after treatment it shows changes from 0.50 to 0.07 showing a 86.67% of Reduction, we found that there is a highly significant effect of the therapy i.e. p<0.001.

EFFECT OF THERAPY ON OBJECTIVE PARAMETERS

Effect of therapy on no. of stones

The symptom of no. of stone was recorded according to the gradation index. Data was collected and statistically analyzed.

No. of Stones (RUT)	Mean		Reduction %	±SD	±SE	t	P
	BT	AT					
	0.60	0.17	72.22%	0.50	0.09	4.71	<0.001

In this study, statistically also, we found that there is a highly significant effect of the therapy on no of stones of right urinary tract p<0.001 with reduction percentage 72.22%

No. of Stones (LUT)	Mean		Reduction %	±SD	±SE	t	P
	BT	AT					
	0.50	0.27	46.67%	0.43	0.08	2.97	<0.001

In this study, statistically also, we found that there is a significant effect of the therapy on no of stones of left urinary tract p<0.001 with reduction percentage

ISSN: 2456-3110 **ORIGINAL ARTICLE** Jan-Feb 2019

46.67% and the average reduction percentage of total no of stones is 59.4%

Effect of therapy on size of stone

Size of Stones (RUT)	Mean		Reduction %	±SD	±SE	t	P
	BT	AT					
	2.97	0.40	86.52%	2.30	0.42	6.11	<0.001

In this study, statistically also, we found that there is a high significant effect of the therapy on size of stones of right urinary tract p<0.001 with reduction percentage 86.52%.

Size of Stones (LUT)	Mean		Reduction %	±SD	±SE	t	P
	BT	AT					
	2.47	0.80	67.57%	1.75	0.32	5.22	<0.001

In this study, statistically also, we found that there is a high significant effect of the therapy on size of stones of left urinary tract p<0.001 with reduction percentage 67.57% and the average reduction percentage of total size of stones is 77.04%.

DISCUSSION

In the modern time, the dietic materials like fat foods, cold drinks, and food stuffs act as lithiogenic substances and may play a main part in the formation of *Moothrashmari*. The food materials like tea, strawberries, spinach, tomato, cabbage etc. are rich in oxalates, milk and ice-creams are rich in calcium and red meat, fish and pulses are rich in uric acid, may lead to stone formation accordingly. It is also reported that less fluid intake and holding of urination increase the concentration of stone forming substances in the urine and may be the causative factor of stone formation.

From the clinical study, 81.81% patients were found to be kidney stones, followed by 15% ureteric stones. Kidney stones may be more, as it is the first main organ of the urinary system. Chances of sedimentation of particles are more in it, as the filtration process takes placeover here, which may lead to stone formation. Ureteric stones are less because they are the secondary stones.

In the clinical study, it revealed that everybody was having renal pain as a chief complaint, followed by 93.33% (28) having nausea, 43.33 % (13) having vomiting, 83.33% (25) were having burning micturation, 63.33% (19) having dysuria 50% (15) anorexia as chief complaints. This is due to the presence of foreign particle i.e. stone in the body which may cause infection and pain. Moreover, fewer intakes of fluids also lead to micturation and complaints related to *Moothrashmari*.

Before the treatment all patients (30) had renal pain with different intensity. After completion of the therapy, it was observed that 17 patients got complete relief from this symptom and 13 patients had the pain. In 28 patients nausea was found but after the completion of therapy only 4 patients had complaint of nausea. Before the treatment, 13 patients had vomiting. After taking these trial drugs, it was observed that only 1 patient had this problem. Before the treatment, 25 patients had burning micturation. After taking these trial drugs, it was observed that only 1 patient had this problem. Before the treatment 19 patients had dysuria. After completion of the therapy, it was observed that only 1 patient had this problem. Before the treatment 15 patients had anorexia. After completion of the therapy, it was observed that only 2 patient had this problem. Among 30 patients before the treatment there are 18 stones was present in right urinary tract. After the treatment only 5 stones are present, remaining 13 stones are expelled out after the treatment. As seeing the effect of therapy on the size of stone. It was found that there are total 33 stones present in 30 patients of different sizes, 6 stones were having 3 mm size, 7 were having 4 mm size, 9 were having 5 mm size and 6 were having 6 mm size. 4 were having 7 mm size and only 1 has 8 mm size. But after the treatment, it was noted that all the stones having 3 mm and 4 mm size has expelled out. Stones having 5 mm size are 9 in number out of which 6 stones are expelled out and remaining 3 shows

ISSN: 2456-3110 ORIGINAL ARTICLE Jan-Feb 2019

reduction after the treatment, stones having 7 mm size are 4 in number out of which 1 was expelled out and remaining 3 shows reduction and stones having size 6 mm and 8 mm all are showing only reduction after the treatment. And only, 13 patients complaint of stone still there. It may be due to more intake of food items rich in calcium oxalate as Koppal grows tomatoes in higher number. Hence the intake could be more. the small sized and recently originated stones can be treated easily rather than the large stones.

CONCLUSION

Briefly this study suggests that the age group of third and fourth decades of life is more likely to get *Moothrashmari* in which male are more prone to this disease as compare to females. In the clinical study, it revealed that everybody was having renal pain as a chief complaint, followed by 93.33% (28) having nausea, 43.33 % (13) having vomiting, 83.33% (25) were having burning micturation, 63.33% (19) having dysuria 50% (15) anorexia and as associated complain 40% (12) patients complaint about the tenderness in renal angle. As this compound i.e. *Mulakakshara* were found to have highly significant effect in the management of the *Moothrashmari*. The study was conducted by administrating drug for 30 days, it was found that the main clinical features like renal pain, nausea, vomiting, burning micturation, dysuria, anorexia were reduced noticeably and out of 30 patients, 17 patients were free from the stone and 13 patients were left with the stones. Moreover, they found reduction in size of their stones.In nut shell, it can be concluded that the trial drug has shown encouraging symptomatic relief in most of the clinical features with expulsion of small sized stones. The reason of the patients left with the stone could be the less intake of fluid especially water and more intake of dietary food items which were rich in the calcium oxalates etc. like tomato, milk, ghee, tea leaves etc. Any person desirous to conduct research on the same topic should extending then duration of treatment for more fruitful result. As the study was conducted over a small sample, a similar study should be performed over a large sample for a longer period to get precise results.

REFERENCES

1. Kidney stone disease [Internet]. En.wikipedia.org. 2019 [cited 11 March 2019]. Available from: https://en.wikipedia.org/wiki/Kidney_stone
2. Kidney stone disease [Internet]. En.wikipedia.org. 2019 [cited 11 March 2019]. Available from: https://en.wikipedia.org/wiki/Kidney_stone
3. Sushruta A, Dalhanacharya A, Gayadasacharya A. Sushruta samhita. Sri DalhanaAcharya, Sri Gayadas Acharya, Vaidya Jadavaji Trikamaji Acharya, 2003 edition, Chaukhambha Sanskrit Sansthan, 1998;S.S.Chi 7/27,p.436
4. Sushruta A, Dalhanacharya A, Gayadasacharya A. Sushruta samhita. Sri DalhanaAcharya, Sri Gayadas Acharya, Vaidya Jadavaji Trikamaji Acharya, 2003 edition, Chaukhambha Sanskrit Sansthan, 1998;S.S.Su 11/3,p.45
5. Sushruta A, Dalhanacharya A, Gayadasacharya A. Sushruta samhita. Sri DalhanaAcharya, Sri Gayadas Acharya, Vaidya Jadavaji Trikamaji Acharya, 2003 edition, Chaukhambha Sanskrit Sansthan, 1998;S.S.Ni.3;p.276
6. Sushruta A, Dalhanacharya A, Gayadasacharya A. Sushruta samhita. Sri DalhanaAcharya, Sri Gayadas Acharya, Vaidya Jadavaji Trikamaji Acharya, 2003 edition, Chaukhambha Sanskrit Sansthan, 1998;S.S.Chi.7;p.435
7. Vagbhata V. Astanga Sangraha–with Shashilekha commentary by Indu, Edited by Dr. Shivaprasad Sharma, Varanasi: Chaukhamba Sanskrit series office, 2006;A.S.Su.5/23
8. Sainsbury JR. Bailey and Love's short practice of surgery. Oxford University Press, USA; 2004;p.1183-1190,
9. Harsh M. Textbook of pathology. Jaypee Brothers Medical Publishers (P) Ltd; 2010;p.514-517
10. Sushruta A, Dalhanacharya A, Gayadasacharya A. Sushruta samhita. Sri DalhanaAcharya, Sri Gayadas Acharya, Vaidya Jadavaji Trikamaji Acharya, 2003 edition, Chaukhambha Sanskrit Sansthan, 1998;p.S.S Su11/4

ISSN: 2456-3110 **ORIGINAL ARTICLE** Jan-Feb 2019

11. Vagbhata AH. Sarvanga Sundara Commentary of Arunadatta and Ayurveda Rasayana Commentary of Hemadri, edited by. Pandit Hari Sadasiva Sastri Paradikara Bhisagacharya, Choukambha Surabharati Prakashan, Varanasi, reprint. 2010;A.H.Su 30/4-8;p.353.
12. Vagbhata AH. Sarvanga Sundara Commentary of Arunadatta and Ayurveda Rasayana Commentary of Hemadri, edited by. Pandit Hari Sadasiva Sastri Paradikara Bhisagacharya, Choukambha Surabharati Prakashan, Varanasi, reprint. 2010;A.H.Su 30/4-8;p.353
13. Gogte, V. M. "Ayurvedic pharmacology and therapeutic uses of medicinal plants (Dravyagunavigyan), Bharatiya Vidya Bhavan (SPARC)." 2000;p.699-700
14. The Ayurvedic Pharmacopoeia of India, G.O.I, Ministry of Health and Family Welfare, Dept. of AYUSH, Part 1;2:128
15. Sastry JL, Chunekar KC. Dravyaguna vijnana. Edn. 2008; 602-603

How to cite this article: Dr. Jitender Kaushik, Dr. Aakash Kembhavi. A clinical study on Mulaka Kshara in the management of Moothrashmari (Renal Calculi). J Ayurveda Integr Med Sci 2019;1:12-19. http://dx.doi.org/10.21760/jaims.4.1.3

Source of Support: Nil, **Conflict of Interest:** None declared.

****