

**A CLINICAL STUDY ON MUTRASHMARI****Jyoti<sup>1</sup>, Gajanana Hegde<sup>2</sup>**

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**ABSTRACT**

Mutrashmari is one of the prime disease affecting mutravaha srotas (urinary system) involving the basti marma (bladder). Majority of signs and symptoms of the disease Mutrashmari resembles with that of Urolithiasis. It is the third most common affliction of the urinary tract with increased rate of recurrence. In Urolithiasis surgery will be the choice many a times, though they are useful, have limitations in various aspects. They are expensive and involve considerable amount of risk. Considering this situation it is relevant to search for an alternative management, which is both effective and economical. Various measures are described in Ayurveda for the management of Mutrashmari. Hence this study was taken up for the effective management of Mutrashmari vis-à-vis Urolithiasis. Present study was conducted on 35 patients, who were administered with the combination of Shunthyadi churna and Badarashma pishti, for the duration of 30 days. Out of 35 patients, maximum 16 patients had complete remission, 8 patients had marked improvement, 8 patients had moderate improvement, 2 patients had mild improvement and 1 patient had no improvement. Overall results on reduction in symptom and size of calculi showed statistically highly significant result at the end of intervention with P value of 0.003.

**Keywords:** *Mutrashmari, Urolithiasis, Shunthyadi churna, Badarashma pishti*

**INTRODUCTION**

The formation of stone like substance within the mutravaha srotas is called as Mutrashmari<sup>1</sup>. In ayurvedic literatures Mutrashmari is considered as one among the Ashta Mahagada<sup>2</sup>. Majority of signs and symptoms of the disease Mutrashmari resembles with that of Urolithiasis. It is the third most common affliction of the urinary tract. The annual incidence is about 1-2 cases per 1000 people. Men are more commonly affected than female with a male to female ratio of 3:1. The peak age for developing calculi is between 30-50yrs, and recurrence is com-

mon<sup>3</sup>. The treatment principle of urolithiasis in contemporary science is flush therapy in case of stones up to 5mm, in larger stones the advanced procedures like ESWL(Extracorporeal shock wave lithotripsy) and operative procedures like PCNL(Percutaneous nephrolithotomy), Pyelolithotomy, Nephrolithotomy, Extended pyelolithotomy, Pyelo nephrolithotomy, Partial nephrectomy, Nephrectomy are done<sup>4</sup>. But these procedures have limitations in various aspects. They are expensive and many a times leads to complications such as injury to colon, injury to blood vessels and sepsis<sup>5</sup>. On the other

hand, many medicinal formulations mentioned in ayurvedic literature for the management of Mutrashmari, are cost effective, devoid of complications and provide wide scope for the successful treatment of Urolithiasis. The Ayurvedic formulations Shunthyadi churna mentioned in Gadanigraha<sup>6</sup> and Badarashma pishti (hajarul yahud pishti) mentioned in Rasamritam<sup>7</sup> are specifically indicated in Mutrashmari and the drugs of these yogas possess ashmaribhedana and mutrala properties. In addition to this it has kapha-vata pradhana tridosahara action. These two drugs were selected in combination because; mutrashmari is a chirakari and krichra sadhya vyadhi. Hence the present study was undertaken as an attempt to evaluate the combined effect of Shunthyadi churna and Badarashma pishti in the management of Mutrashmari.

#### **MATERIALS AND METHODS**

In the present clinical study, Badarashma was procured from Abdul Ravoof pansari, unani & ayurvedic herbal shop, mandimohalla, Mysore. Badarashma pishti was prepared as per the classical method in GAMC pharmacy, Mysore. Ingredients of Shunthyadi churna were procured and prepared by Abdul Ravoof pansari, unani & ayurvedic herbal shop, mandimohalla, Mysore. The patients were incidentally selected from the OPD and IPD of Government Ayurveda Medical College Hospital, Mysore, India. Total 41 patients between the age group of 16 to 70 years, fulfilling the criteria for the diagnosis of the disease were registered for the study. Out of which 6 patients dropped out and the study was conducted on remaining 35 patients who were assigned into single group. Data was collected as per the proforma of the case sheet.

#### **OBJECTIVE OF THE STUDY**

To evaluate the combined effect of Shunthyadi churna and Badarashma pishti in the management of Mutrashmari vis-à-vis Urolithiasis

**Study design:** The study was a clinical study with pre and post test design.

#### **Inclusion criteria**

- Patients between the age group of 16 to 70 yrs were selected for the study, irrespective of gender.
- Patients with or without the clinical features of Mutrashmari, diagnosed to be having urinary calculi by USG of KUB were included for the study.
- Both fresh and treated cases were taken for the study.
- Patients with solitary or multiple urinary calculi irrespective of location and size were included for the study.
- Patients of Urolithiasis with mild to moderate hydronephrosis were selected for the study.

#### **Exclusion Criteria**

- Patients suffering from renal pathologies like renal failure, severe hydronephrosis, pyonephrosis and renal tumors were excluded.
- Co-morbidity of obstructive diseases of urinary system like urethral stricture, CA ureter, CA prostate, meatal stenosis and bladder neck contracture were excluded.
- Pregnant & Lactating women were excluded.
- Patients of Urolithiasis with other major systemic disorders such as tuberculosis, uncontrolled diabetes which interfere with the treatment were excluded.

#### **Diagnostic Criteria**

##### **Objective criteria**

USG of KUB – Showing presence of calculi.

This was considered as the primary criteria for diagnosis.

**Subjective criteria**

- Basti Shoola (pain in abdomen or flanks)
- Sarakta mutrata (haematuria)
- Mutra daha (burning micturition)
- Mutradhara sanga (obstruction in the flow of urine)
- Mutrakrichrata (difficulty in micturition).

These symptoms were considered as the secondary criteria for diagnosis.

**Investigations**

- Blood – HB%, TC, DC, ESR, RBS.
- Urine – Microscopy, sugar, albumin.
- Specific investigation -Ultrasonography of Kidney, ureter and bladder(USG of KUB).

**Intervention**

- Shunthyadi churna – shunthi, agnimantha, pashanabheda, varunatwak, gokshura, abhaya, aragwada phala kashaya -30ml with 1gms of equal quantity of shuddha hingu,

yavakshara and saindhava lavana churna, thrice daily, before food, for 30 days.

- Badarashma pishti – 500mg, twice daily before food with honey, for 30 days.

**Statistical analysis**

Data was collected before and after intervention and was statistically analysed for the improvement in symptoms and change in size of calculi, using Contingency coefficient test, paired sample t test, Chi square test and Descriptive statistics using SPSS for windows software.

**Assessment parameter:**

**Objective parameter**

USG of KUB was done before (0<sup>th</sup> day) and after intervention (31<sup>st</sup> day) for the assessment of change in size of urinary calculi.

**Subjective parameter**

Assessment was done before (0<sup>th</sup> day) and after intervention (31<sup>st</sup> day) based on grading of symptoms as follows.

**Table No 1: Showing Gradation Index:**

Sl. No.	Subjective parameter	Grading
1.	<b>Basti shoola</b>	
	None	BS <sub>0</sub>
	Occasionally	BS <sub>1</sub>
	Mild	BS <sub>2</sub>
	Moderate	BS <sub>3</sub>
2.	<b>Mutra daha</b>	
	None	Md <sub>0</sub>
	Occasionally	Md <sub>1</sub>
	Mild	Md <sub>2</sub>
	Moderate	Md <sub>3</sub>
	Severe	Md <sub>4</sub>

3.	<b>Mutradhara sanga</b> None Occasionally Mild Moderate Severe	Mds <sub>0</sub> Mds <sub>1</sub> Mds <sub>2</sub> Mds <sub>3</sub> Mds <sub>4</sub>
4.	<b>Sarakta mutrata</b> None Occasionally Mild Moderate Severe	Srm <sub>0</sub> Srm <sub>1</sub> Srm <sub>2</sub> Srm <sub>3</sub> Srm <sub>4</sub>
5.	<b>Mutrakrichrata</b> None Occasionally Mild Moderate Severe	Mkr <sub>0</sub> Mkr <sub>1</sub> Mkr <sub>2</sub> Mkr <sub>3</sub> Mkr <sub>4</sub>

**Assessment of overall effect of therapy:**

Overall effect of the therapy was assessed in terms of complete remission, marked improvement, moderate improvement, mild improvement and no improvement by adopting the following criteria.

- **Complete Remission:** 100% relief in Chief complaints and absence of calculi in USG of KUB.
- **Marked improvement:** More than 75% and less than 100% improvement in chief complaints and reduction in size of stone was recorded as marked improvement.
- **Moderate improvement:** Less than 75% and more than 50% improvement in chief complaints and reduction in size of stone was recorded as moderate improvement.
- **Mild improvement:** Less than 50% and more than 25% improvement in chief complaints and reduction in size of stone was considered as mild improvement.
- **No improvement:** less than 25% improvement in chief complaints and re-

duction in size of stone was recorded as no improvement.

**OBSERVATIONS AND RESULTS**

**General observation**

In the present study totally 41 patients were registered, out of which 6 patients discontinued intervention at different levels of the clinical study. 3 patients discontinued as the symptoms relieved before the intervention completed, 2 patients could not complete the course of intervention because of their occupational schedules and another 1 patient discontinued after one week of intervention for unknown reasons.

Thus these observations were based on the clinical trial on 35 patients registered in the study. The data was collected in the case sheet specially designed for the present study and were analysed after the completion of the study.

In the present study out of 35 patients, 20(57.14%) patients belonged to 30-50 years of age group with 28(80%) male population, 11(31.42%) patients were belonging to poor family and were labours.

In the present study, 26 (74.28%) cases were freshly detected, with Chronicity below 1 month in 24(68.57%) patients. It was observed that, 31 (88.57%) patients had mixed type of food habit, 20(57.14%) patients had the habit of excess consumption of tea – coffee, 20(57.14%) patients had the history of water intake less than 1.5 litres, 10(28.57%) patients had the history of withholding of micturition urge. It was observed that, 19(54.28%) patients had unilateral calculus, 20(57.14%) patients had multiple calculi. In the present sample of patients, the size of calculi ranged from minimum of 3mm to maximum of 17mm. Majority of cases

developed calculi more than 4mm in diameter and multiple in number. More number of calculi was seen in the kidneys followed by vesico-ureteric junction (VUJ). It was observed that the calculus in vesico-ureteric junction and Ureter were expelled faster. The number of the calculus was considerably reduced in many of the patients. The main symptom basti shoola was reduced in maximum number of patients in the mid of intervention itself, which was quite encouraging.

Subjective parameters and objective parameters were assessed before intervention (0th day) and after intervention (31<sup>st</sup> day).

**Table 2: Showing the results on Basti shoola**

Basti shoola	Before intervention		After intervention	
	No of patients	Valid Percent	No of patients	Valid Percent
No Basti shoola	4	11.4	28	80.0
Occasional Basti shoola	1	2.9	5	14.3
Mild Basti shoola	0	0.0	2	5.7
Moderate Basti shoola	12	34.3	0%	0.0
Severe Basti shoola	18	51.4	0%	0.0
Total	35	100.0	35	100.0

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Contingency Coefficient	.655	.000
N of Valid Cases		70	

The result on basti shoola showed statistically highly significant result with P value 0.000.

**Table No 3: Showing the Results on Mutradaha**

Mutradaha	Before intervention		After intervention	
	No of patients	Valid Percent	No of patients	Valid Percent
No Mutradaha	16	45.7	34	97.1
Occasional Mutradaha	1	2.9	1	2.9
Mild Mutradaha	2	5.7	0	0.0

Moderate Mutradaha	12	34.3	0	0.0
Severe Mutradaha	4	11.4	0	0.0
Total	35	100.0	35	100.0

Symmetric Measures			
		Value	Approximate Significance
<b>Nominal by Nominal</b>	<b>Contingency Coefficient</b>	.509	.000

The result on mutradaha showed statistically highly significant result with P value 0.000.

**Table No 4: Showing the Results on Mutradharasanga**

Mutradharasanga	Before intervention		After intervention	
	No of patients	Valid Percent	No of patients	Valid Percent
No Mutradharasanga	23	65.7	33	94.3
Occasional Mutradharasanga	0	0.0	1	2.9
Mild Mutradharasanga	1	2.9	0	0.0
Moderate Mutradharasanga	9	25.7	1	2.9
Severe Mutradharasanga	2	5.7	0	0.0
Total	35	100.0	35	100.0

Symmetric Measures			
		Value	Approximate Significance
<b>Nominal by Nominal</b>	<b>Contingency Coefficient</b>	.385	.016
<b>N of Valid Cases</b>		70	

The result on mutradharasanga showed statistically significant result with P value 0.016.

**Table No 5: Showing the Results on Saraktamutrata**

Saraktamutrata	Before intervention		After intervention	
	No of patients	Valid Percent	No of patients	Valid Percent
No Saraktamutrata	34	97.1	35	100
Occasional Saraktamutrata	1	2.9	0	0.0
Mild Saraktamutrata	0	0.0	0	0.0
Moderate Saraktamutrata	0	0.0	0	0.0
Severe Saraktamutrata	0	0.0	0	0.0
Total	35	100.0	35	100.0

Symmetric Measures
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		Value	Approximate Significance
<b>Nominal by Nominal</b>	<b>Contingency Coefficient</b>	.120	.314
<b>N of Valid Cases</b>		70	

The result on saraktamutrata showed statistically non-significant result with P value 0.314.

**Table No 6: Showing the Results on Mutrakrichrata**

<b>Mutrakrichrata</b>	<b>Before intervention</b>		<b>After intervention</b>	
	<b>No of patients</b>	<b>Valid Percent</b>	<b>No of patients</b>	<b>Valid Percent</b>
No <i>Mutrakrichrata</i>	19	54.3	35	100.0
Occasional <i>Mutrakrichrata</i>	0	0.0	0	0.0
Mild <i>Mutrakrichrata</i>	2	5.7	0	0.0
Moderate <i>Mutrakrichrata</i>	9	25.7	0	0.0
Severe <i>Mutrakrichrata</i>	5	14.3	0	0.0
Total	35	100.0	35	100.0

<b>Symmetric Measures</b>			
		Value	Approximate Significance
<b>Nominal by Nominal</b>	<b>Contingency Coefficient</b>	.478	.000
<b>N of Valid Cases</b>		70	

The result on mutrakrichrata showed statistically highly significant result with P value 0.000.

**Table No 7: Showing the Results on Number of calculus Before and After Intervention**

<b>Stone Number</b>	<b>Before intervention</b>		<b>After intervention</b>	
	<b>No of patients</b>	<b>Percentage</b>	<b>No of patients</b>	<b>Percentage</b>
Single	15	42.9	14	40.0
Two stones	9	25.7	13	37.1
Three stones	7	20.0	4	11.4
Four stones	4	11.4	4	11.4
Nil	0	0.0	0	0.0
Total	35	100.0	35	100.0

<b>Symmetric Measures</b>			
		Value	Approximate Significance
<b>Nominal by Nominal</b>	<b>Contingency Coefficient</b>	.479	.000
<b>N of Valid Cases</b>		70	

The result on number of calculi showed statistically highly significant result with P value 0.000.

**Table No 8: Showing the Results on location of calculus Before and After Intervention**

<b>Location</b>	<b>Before intervention</b>		<b>After intervention</b>	
	<b>No of</b>	<b>Percentage</b>	<b>No of</b>	<b>Percentage</b>

	stones		stones	
No locations	0	0.0	33	56.9
Upper calyx	13	18.6	6	10.3
Mid calyx	20	28.6	5	8.6
Lower calyx	18	25.7	8	13.8
Renal pelvis	3	4.3	1	1.7
Pelvi-ureteric junction (PUJ)	2	2.9	1	1.7
Upper ureter	3	4.3	0	0.0
Lower ureter	2	2.9	0	0.0
Bladder neck	8	11.4	3	5.2
Vesico-ureteric junction (VUJ)	1	1.4	0	0.0
Vesicle	0	0.0	1	1.7
<b>Total</b>	<b>70</b>	<b>100.0</b>	<b>70</b>	<b>100.0</b>

The result on change in location of calculi showed statistically highly significant result with P

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Contingency Coefficient	.560	.000
N of Valid Cases		128	

value 0.000.

**Table No 9: Showing the Results on Size of Stone Before and After Intervention**

	Before Intervention		After Intervention	
	No of stones	Percentage	No of stones	Percentage
Nil	0	0.0	41	58.6
< 4 mm	9	12.9	3	4.3
4-6 mm	28	40.0	15	21.4
6-8 mm	18	25.7	4	5.7
8-10 mm	9	12.9	3	4.3
> 10 mm	6	8.6	4	5.7
<b>Total</b>	<b>70</b>	<b>100.0</b>	<b>70</b>	<b>100.0</b>

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Contingency Coefficient	.548	.000
N of Valid Cases		140	

The result on reduction in size of calculi showed statistically highly significant result with P value 0.000.

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	B_Size	5.9971	70	2.75770	.32961
	A_Size	2.5043	70	3.62369	.43311
Paired Samples Test					
		Paired Differences	t	df	Sig. (2-tailed)



		Mean	Std. Deviation			
Pair 1	B_Size - A_Size	3.49286	2.57286	11.540	69	.000

The average size of stone before the intervention was **5.9971** mm which came down to **2.5043** mm after the intervention, mean of stone size before and after intervention is **3.49286**. As the data was in pairs, paired T-test was also applied. The result on reduction in size of calculi showed statistically highly significant result with P value 0.000.

**Assessment of objective parameter:**

**Table No 10: Showing the Assessment of Objective parameter**

Assessment of Objective	No of patients	Valid percent
Complete remission	16	45.7
Marked improvement	3	8.6
Moderate improvement	8	22.8
Mild improvement	3	8.6
No improvement	5	14.3
Total	35	100.0

	Size
Chi-Square	13.383
df	6
Asymptotic Significance	.008

The result on assessment of the objective parameter showed statistically significant result with p value 0.008

**Assessment of subjective parameter:**

**Table No 11: Showing the Assessment of Subjective parameter**

Assessment of subjective	No of patients	Valid percent
Complete remission	28	80
Marked improvement	4	11.4
Moderate improvement	2	5.7
Mild improvement	1	2.9
No improvement	0	0.0
Total	35	100.0

	Symptom
Chi-Square	43.343
df	4
Asymptotic Significance	.000

The results on assessment of the subjective parameter showed statistically highly significant result with p value .000

**Table No 12: Showing Assessment of Overall effect of Intervention**

Overall improvement of Treatment	No of patients	Valid percent
Complete remission	16	45.7
Marked improvement	8	22.8
Moderate improvement	8	22.8
Mild improvement	2	5.7
No improvement	1	2.8
Total	35	100.0

	OVERALL
Chi-Square	16.687
df	3
Asymptotic Significance	.003

In the present study, overall assessment of the therapy was done based on reduction in symptoms and size of calculi. Out of 35 patients, maximum 16 (45.7%) patients had complete remission, 8 (22.8%) patients had marked improvement, 8 (22.8%) patients had moderate improvement, 2(5.7%) patients had mild improvement and 1(2.8%) patient had no improvement.

Overall results on reduction in symptom and size of calculi showed statistically highly significant effect at the end of intervention with P value of 0.003.

### DISCUSSION

The incidence of urolithiasis is more in patients between 30-50years<sup>8</sup> of age the same is observed in the present study. Males were more affected than females, the ratio in this study almost correlates with the male – female ratio (3:1) mentioned in the text, which may be due to higher mean of plasma oxalate concentration and kidney calcium oxalate deposition, which are influenced by androgens in men<sup>9</sup>. Occupation wise it was more common in labourers, as they are prone to dehydration because of excess sweating. Higher incidence was observed in poor, as people from lower socio economic group often have poor standards of hygiene and this creates an environment susceptible for

infection and this is one of the causes for the formation of urolithiasis. Non-vegetarians or the patients with mixed food habit are at higher risk for developing calculi due to intake of animal protein which is rich in calcium oxalate, phosphate and purine, the same is observed in this study, as maximum number of patients had mixed type of food habit.

The individuals who had the habit of withholding of urge and less water intake were prone to develop urinary calculi which may be as a result of increased concentration and retention of urine, which leads to increased precipitation of urinary salts. People who are habituated to the intake of tea-coffee and milk are prone to develop hypercalcemia and hence have high risk of developing Mutrashmari, the same is observed in the present study.

### Probable mode of action of drugs in reducing symptoms and size of calculi

#### Shunthyadi churna

Ingredients of Shunthyadi churna like Shunthi<sup>10, 11</sup>, Agnimantha<sup>12</sup>, Hingu<sup>13</sup> and Yavakshara have analgesic property, which helps in reducing renal and ureteric colic. Drugs like Varuna<sup>14</sup>, Pashanabheda<sup>15</sup> have urolithic property there by helps in

disintegration of calculi. Haritaki<sup>16</sup>, Gokshura<sup>17</sup> and Aragvada<sup>18</sup> have antimicrobial action, which helps in reduction of infection in the urinary tract. Gokshura<sup>19</sup> has diuretic property, there by helps in expulsion of calculus. Most of the drugs of Shunthyadi churna possess ashmaribhedana, shoolahara and mutrala properties. In addition to this it has kaphavatahara action. Thus, this formulation acts against Mutrashmari by virtue of its dosha pratyaneeka and vyadhi pratyaneeka property.

### **Badarashma pishti<sup>20</sup>**

Mutrala property of this drug helps in flushing the calculi. Analgesic effect of this drug helps in reducing basti shoola. The ashmarihara/ litholitic property of this drug helps in disintegration of calculi. Pitahara property of this drug helps in maintaining the pH of urine. Anti inflammatory action of this drug reduces the inflammation, caused due to impaction of calculi anywhere in the urinary tract. Immunomodulatory effect of this drug arrests the infection and prevents the formation of calculi due to recurrent urinary tract infection (UTI). Thus, this formulation acts against Mutrashmari by virtue of its vyadhi pratyaneeka property.

### **CONCLUSION**

The intervention was found to be more effective in calculus upto 8mm in diameter. The treatment protocol was effective in single as well as multiple calculi. The intervention was also found to be effective in calculus of all locations but was more effective in calculus of ureter and vesico-ureteric junction (VUJ). This combination of drugs found to be very effective in reducing the symptoms of mutrashmari i.e basti shoola, mutrakrichrata, mutradaha, saraktamutrata and mutradhara sanga.

Overall assessment of the intervention revealed that Out of 35 patients, maximum 16 (45.7%) patients had complete remission, 8 (22.8%) patients had marked improvement, 8 (22.8%) patients had moderate improvement, 2(5.7%) patients had mild improvement and 1(2.8%) patient had no improvement. Overall results on reduction in symptom and size of calculi showed statistically highly significant effect at the end of intervention with P value of 0.003.

With the obtained results it can be concluded that the Shunthyadi churna and Badarashma pishti can be safely and effectively carried out in patients of Mutrashmari with good results.

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