ABSTRACT

Mutrashmari is a disease of Mutravaha strotas. According to Sushruta Mutrashmari is formed as a result of drying of kapha because the action of vata and pitta. Mutrashmari word constitute of two words; mutra and ashmari. Ashmari is a disease in which there is formation of stone resulting in severe pain. The present study is planned to evolve an effective conservative treatment by Ayurvedic approach to avoid surgical intervention. The line of treatment is not only to eliminate or to remove the urinary stones but also meanwhile avoid the recurrence of disease. The present study is Randomized, Single blind, Prospective, Comparative clinical trial, which includes two groups. Group ‘A’ and Group ‘B’ with sample size 60. Two important formulations, “Badarashma pishti” and “Kshar parpati” mentioned in classical Ayurvedic texts were selected for the study. The results showed that Badarashma pishti and Kshar parpati both are effective in management of Mutrashmari. Small sized calculus easily expelled within duration of 45 days. Large sized calculus reduced in its size but require longer duration of treatment to expel out completely. Badarashma pishti is found more effective in disintegration and expulsion of calculus.

Keywords: Mutrashmari, Urolithiasis, Badarashma pishti, Kshar parpati.

INTRODUCTION

Mutrashmari is a disease of Mutravaha strotas. According to Sushruta Mutrashmari is formed as a result of drying of kapha because the action of vata and pitta. Mutrashmari word constitute of two words; mutra and ashmari. Ashmari is a disease in which there is formation of stone resulting in severe pain. The disease is categorized as a Mahagada and include in ‘Ashtamahagada’ by Sushruta.

Urolithiasis is a condition, where urinary stones are formed. They are found localized anywhere in the urinary tract. Urinary stones are typically classified by their chemical composition (cal-
cium containing, struvite, uric acid, phosphate, cystine, xanthine, indigo). In humans, calcium oxalate is a major constituent of most of the urinary stones. Approximately 2% of population experiences the disease in lifetime. It is more commonly seen in males than females, with peak incidence in second and third decades of life. Today’s developing world has given mankind a vicious lifestyle with excessive physical and mental stress. It is supplemented by unnatural food habits like fast food. These factors lead to disturbed bowel habits with irregular timings, less water intake, suppression of natural urges, constantly sitting work and improper sleep time table. As a result of all these factors, rise in many diseases including urinary disorders is seen.

The treatment of urolithiasis with small size urinary stones is usually treated with hydrotherapy. The large sized stones are removed with surgical intervention. Advance techniques like Percutaneous nephrolithotomy and Extracorporeal shock wave lithotripsy are non invasive, but these techniques may prove disadvantageous. Moreover, these techniques are expensive and available at limited places, therefore not accessible to common man. Urinary stones have a peculiar tendency of recurrence, despite of their surgical removal. Therefore surgery is not the complete treatment of urinary stones.

The present study is planned to evolve an effective conservative treatment by Ayurvedic approach to overcome the above described problems and to avoid surgical intervention. The line of treatment is not only to eliminate or to remove the urinary stones but also meanwhile avoid the recurrence of disease.

In Ayurvedic texts, several numbers of drugs and formulations are mentioned, “Badarashma pishti” mentioned in Rasamrutam as well as Siddha yog sangraha and “Kshar parpati” mentioned in Siddha yog sangraha are selected for the present study.

**AIM:** To find out a simple, harmless, conservative and effective method to treat Mutrashmari

**OBJECTIVES**

- To evaluate the effect of Badarashma pishti in management of Mutrashmari.
- To evaluate the effect of Kshar parpati in management of Mutrashmari.
- To evaluate the effect of Badarashma pishti and Kshar parpati in management of Mutrashmari.

**MATERIALS AND METHODS**

**PLACE OF STUDY**

Patients who reported to OPD and IPD of Hospital are carefully selected on the basis of diagnostic, inclusive criteria.

**CONSENT**

A well informed written consent of all patients included in my study is taken before starting treatment.

**TYPE OF STUDY**

The present study is Randomized, Controlled, Single blind, Prospective, Comparative clinical trial, which includes two groups. Group ‘A’ and Group ‘B’.

**SAMPLE SIZE**

SIXTY (60)

GROUP ‘A’ – 30

GROUP ‘B’ – 30

**DRUG USED**

GROUP A – BADARASHMA PISHTI

GROUP B – KSHAR PARPATI
INCLUSIVE CRITERIA
- Patients having age in between 15 – 60 years.
- Patients of either sex will be taken.
- Patients of all types of Mutrashmari except Shukrashmari.
- Patient having calculus size upto 12 mm anywhere in the urinary tract.
- Stone numbers 1-3.

EXCLUSIVE CRITERIA
- Pregnant and lactating mother.
- Renal calculus size greater than 12 mm.
- Chronic kidney disease.
- Stag Horn calculus.
- AIDS, Tuberculosis, Hypertension, Diabetes Mellitus, Cardiac pathologies, etc.

INVESTIGATIONS
- Blood – Hb %
  - WBC
  - TLC
- ESR
- Sr. Creatinine, BUN
- Urine – Routine and Microscopic
- USG – Abdomen + Pelvis
- If necessary X-ray KUB and IVP

CRITERIA FOR ASSESSMENT
1. Size of stone
   Size of stone is directly measured through Ultrasoundography.

2. Pain in abdomen
   Visual analogue pain scale

   Figure 1: Visual analogue pain scale

   Table 1: Visual analogue pain scale gradation
<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Doesn’t disturb routine</td>
<td>Disturbs routine</td>
<td>Patient rolls on the bed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   - Grade 0  No pain.
   - Grade I  Present but doesn’t disturb routine (mild pain).
   - Grade II Present which disturbs routine (moderate pain).
   - Grade III Patient rolls on the bed due to pain (severe pain).

3. DYSURIA
   - Grade 0  Absent of pain during micturition.
   - Grade I  Mild pain during micturition.
   - Grade II Moderate pain during micturition.
   - Grade III Severe pain during micturition.

4. HAEMATURIA
   - Grade 0  Absence of RBCs in urine.
   - Grade I  Microscopic haematuria.
   - Grade II Macroscopic haematuria.

DOSAGE
**Badarashma pishiti:** 500 mg TDS orally
*Anupan:* Water
*Sevan kala:* Before food

**Kshar parpati:** 500 mg TDS
*Anupan:* Water
*Sevan kala:* After food
DURATION OF TREATMENT: 45 days

FOLLOW UP: After every 15 days

METHOD OF PREPARATION:

BADARASHMA PISHTI

Drugs required
Shodhita Badarashma.
Gulab jala.

Preparation
Badarashma pishti was prepared by taking shodhita Badarashma churna in clean, dry khalwa yantra and by adding sufficient quantity of Gulab jala and carrying out Mardana for three days.

KSHAR PARPATI

OBSERVATIONS

Burning micturition

Figure 2: Follow up graph of burning micturition

Table 2: Mean score of burning micturition on follow up

<table>
<thead>
<tr>
<th></th>
<th>At first checkup</th>
<th>At 15th day</th>
<th>At 30th day</th>
<th>At 45th day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>0.233</td>
<td>0.033</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Group B</td>
<td>0.300</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3: Unpaired t test for burning micturition

<table>
<thead>
<tr>
<th>Burning micturition</th>
<th>Mean difference</th>
<th>Standard error</th>
<th>Unpaired t score</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.033</td>
<td>0.033</td>
<td>0.993</td>
<td></td>
</tr>
</tbody>
</table>
Table 4: Follow up of patients having burning micturition

<table>
<thead>
<tr>
<th>No. of patients</th>
<th>Before treatment</th>
<th>After 15th day</th>
<th>After 30th day</th>
<th>After 45th day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Group B</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Burning micturition is associated symptom present in 4 patients in group A and 5 patients in group B. Out which in all the patients’ symptom is subsided at the end of 15th day of treatment. It suggests that both the groups are equally effective in controlling Burning micturition, while action of group A is better than that of group B.

Haematuria

Figure 3: Graph of haematuria before and after treatment

Table 5: Mean score of haematuria on follow up

<table>
<thead>
<tr>
<th>Mean score</th>
<th>Haematuria</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before treatment</td>
</tr>
<tr>
<td>Group A</td>
<td>0.133</td>
</tr>
<tr>
<td>Group B</td>
<td>0.167</td>
</tr>
</tbody>
</table>

Table 6: Follow up of patients having haematuria

<table>
<thead>
<tr>
<th>No. of patients</th>
<th>Before treatment</th>
<th>After 15th day</th>
<th>After 30th day</th>
<th>After 45th day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Group B</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Haematuria is associated symptom present in 4 patients in group A and 5 patients in group B. Out which in all the patients symptom is subside after 15th day of the treatment. It suggests that both the groups are equally effective in controlling haematuria.
**Dysuria**

**Figure 4:** Graph of dysuria before and after treatment

![Graph showing dysuria before and after treatment](image)

<table>
<thead>
<tr>
<th>Mean score</th>
<th>Dysuria before treatment</th>
<th>Dysuria after treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>0.067</td>
<td>0</td>
</tr>
<tr>
<td>Group B</td>
<td>0.100</td>
<td>0</td>
</tr>
</tbody>
</table>

**Table 7:** Mean score of dysuria on follow up

<table>
<thead>
<tr>
<th>No. of patients</th>
<th>Before treatment</th>
<th>After 15th day</th>
<th>After 30th day</th>
<th>After 45th day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Group B</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Dysuria is associated symptom present in 2 patients in group A and 3 patients in group B. Out of which in all the patients symptom is subside after 15th day of the treatment. It suggests that both the groups are equally effective in controlling Dysuria.

**Pain**

**Figure 5:** Graph of pain on follow up

![Graph showing pain on follow up](image)
Table 9: Mean score of pain on follow up

<table>
<thead>
<tr>
<th>Mean score</th>
<th>Pain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>At first check-up</td>
</tr>
<tr>
<td>Group A</td>
<td>3.367</td>
</tr>
<tr>
<td>Group B</td>
<td>3.633</td>
</tr>
</tbody>
</table>

Table 10: Unpaired t test for pain

<table>
<thead>
<tr>
<th>Pain</th>
<th>Mean difference</th>
<th>Standard error</th>
<th>Unpaired t score</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>At 15th day</td>
<td>0.134</td>
<td>0.266</td>
<td>0.501</td>
<td>0.617</td>
</tr>
<tr>
<td>At 30th day</td>
<td>0.2</td>
<td>0.170</td>
<td>1.178</td>
<td>0.244</td>
</tr>
<tr>
<td>At 45th day</td>
<td>0.233</td>
<td>0.144</td>
<td>1.613</td>
<td>0.112</td>
</tr>
</tbody>
</table>

The table shows the statistical analysis for Pain, where t-score shows the difference is not statistically significant after every follow up. It suggests that both the groups are equally effective in controlling Pain in Urolithiasis.

Number of calculus

Table 11: Mean score of number of calculus before and after treatment

<table>
<thead>
<tr>
<th>Mean score</th>
<th>Number of calculus</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before treatment</td>
</tr>
<tr>
<td>Group A</td>
<td>1.567</td>
</tr>
<tr>
<td>Group B</td>
<td>1.800</td>
</tr>
</tbody>
</table>

Table 12: Unpaired t test for number of calculus

<table>
<thead>
<tr>
<th>Number of calculus</th>
<th>Mean difference</th>
<th>Standard error</th>
<th>Unpaired t score</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.700</td>
<td>0.207</td>
<td>3.371</td>
<td>0.0013</td>
<td></td>
</tr>
</tbody>
</table>

The table shows the statistical analysis for Number of calculus where t-score shows the difference is very significant at the end of study. It suggests that group A is more effective than group B in expulsion of calculus.
**Size of calculus**

**Figure 7:** Graph of size of calculus before and after treatment

![Graph of size of calculus before and after treatment](image)

**Table 13:** Mean score of size of calculus before and after treatment

<table>
<thead>
<tr>
<th></th>
<th>Size of calculus (in mm.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before treatment</td>
</tr>
<tr>
<td>Group A</td>
<td>8.333</td>
</tr>
<tr>
<td>Group B</td>
<td>9.933</td>
</tr>
</tbody>
</table>

**Table 14:** Unpaired t test for size of calculus

<table>
<thead>
<tr>
<th>Size of calculus</th>
<th>Mean difference</th>
<th>Standard error</th>
<th>Unpaired t-score</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.024</td>
<td>1.059</td>
<td>2.856</td>
<td>0.0059</td>
<td></td>
</tr>
</tbody>
</table>

The table shows the statistical analysis for size of calculus where t-score shows the difference is very significant at the end of study. It suggests that group A is more effective than group B in reducing size of calculus.

**DISCUSSION**

The patients attended in this study are from rural area. This particular region can be considered as *Jangal desh*. The atmosphere of here is hot and dry. Most of the people coming in hospital are from poor economical class, they are mostly farmers and labourer. The people from this area suffer from crisis of water supply every year. In summer season it is difficult to get drinking water also. Main source of water is bore well, which is hard water. As people are unaware about their health, they drink water without purification or filtration. They also do not afford packaged drinking water. Most of the patients come to hospital only at their extreme presentation of the disease, so it becomes challenging for the physician to treat such patients.

The main reasons behind formation of stone I have found is drinking hard water, excessive exertion which causes dehydration, hot and dry climate and unawareness of patients about their health. It is also noticed that, all the patients drink tea and most of the male patients are addicted to tobacco chewing and a few to drinking alcohol, which might be the associated cause.

According to modern Science of Medicine, the treatment of urolithiasis with small size is usually with hydro-therapy. The large sized stones are removed with surgical intervention. Advanced techniques like PCNL and ESWL are non-invasive, but these techniques may prove disadvantageous. Moreover these techniques are expensive and available at limited places, therefore not accessible to common man. Urinary
stones have a peculiar tendency of recurrence, despite of their surgical removal. Therefore surgery is not the complete treatment of urinary stones.

By adopting Prakrutivighata principle, the line of treatment is not only to eliminate or to remove the urinary stones but also meanwhile avoid the recurrence of disease.

- Maximum numbers of patients are seen between the age group of 21 to 30 (33% i.e. 20 out of 60).
- Sex wise distribution showed that out of 60 patients, 36 were male (60%) and 24 were females (40%).
- Out of 60 patients, 63% are vegetarian and 37% are non-vegetarian.
- Observation showed that 18(30%) patients were housewives, 13(21.7%) were students, 10(16%) were farmers, 5(8.3%) were labourer, 4(6.7%) were businessman, 2(3.3%) were driver and 8(13.3%) patients from other professions.
- Distribution according to site of calculus showed that 83.13% patients had calculus at calyx and pelvis of the kidney, 16.83% calculus found in ureter. Out of all kidney calculus, maximum numbers of stones (69%) were found in mid pole and pelvo-ureteric junction. Out of all ureteric calculus, maximum number of calculus (82.35%) seen in lower pole and uretero-vesicular junction.
- The major symptom I have found in all the patients is pain. Along with that 11 patients had burning micturition, 9 patients had haematuria and 4 patients had dysurea.
- It was found that, in 30 patients of group A total 45 number of calculus noted, out of which 37 calculi were found in kidney and 8 calculi in ureter. Out of 37 kidney stones of group A, 31(84%) are expelled out and size of 6(16%) stones are reduced, whereas all the ureteric calculi were expelled out.
- In 30 patients of group B, total 56 numbers of calculus were noted. Out of which 47 were in kidney and 9 in ureter. Out of 47 kidney stones of group B, 20(42.5%) expelled out and size of 22(47%) stones reduced, 2 stones remained unchanged, size of one stone increased and even 2 new calculi formed. All the ureteric calculus expelled out.
- Out of 2 patients from group B there was incidence of newly formation of stones. This may be due to investigational error or because of poor water intake during the treatment of Kshar parpati which may cause super saturation of urine.
- It is observed that, Badarashma pishti and Kshar parpati both are effective in management of Mutrashmari.
- Badarashma pishti is more effective than Kshar parpati in management of Mutrashmari.
- Small sized calculus easily expelled within duration of 45 days.
- Large sized calculus reduced in its size but require increasing the duration of treatment to expel out completely.
- Kshar parpati having diuretic property more than that of Badarashma pishti.
- Badarashma pishti more effective in chemo-lysis and expulsion of calculus.
- Both drugs may have anti-inflammatory property.
- The drugs in combination will give better results.
- Use of Ashmarihar kwath or any mutral kwath as Anupan may enhance the action of drugs.
- No adverse effect or complications were observed during the course of treatment.
• In acute condition *Kshar parpati* is effective in relieving pain.

**Probable mode of action of Badarashma pishti:**
• Though *Badarashma pishti* is called *ashmarighna* in many Unani and Ayurvedic texts, the exact mode of action is not explained anywhere.
• *Rasa dravyas* are *vyadhipratyanik*. Action of *Rasa dravyas* is not due interference in *dosha* and *dushya*. It acts directly on disease.
• *Badarashma* is a *parthiv dravya*. The action of *parthiv dravya* is due to its *khar guna*. As the action of *khar guna* is *lekhan*, *Badarashma* disintegrates the stone and expelled out due to its *mutral* action.
• *Shodhan* of *Badarashma* is done in *Mulak swaras*. *Mulak* is *Kshariya dravya*. It enhances the *chhedan* and *Bhedan* properties of *Badarashma*.
• *Bhavana* with *Gulab jal* is given in the *pishti* formation. Due to *sheet guna* of *gulab* it soothes the urinary tract and improves burning micturition.

**Probable mode of action of Kshar parpati:**
• On the basis of the subjective and objective parameters, *Kshar parpati* is found effective to minimise the symptoms of *mutrashmari*.
• *Kapha* and *Vata* plays major role in the formation of *Mutrashmari*. As *doshaghnata* of *Kshar parpati* is *Kaphavataghna*, its action is to normalise vitiated *doshas*.
• *Laghu*, *ruksha guna* of *Kshar parpati* reduces the chances of nidus formation as well as growth of stone.
• *Ksharan* action of *Kshar parpati* helps in eroding *ashmibhut kapha*.
• *Kshar parpati* have *mutral* and *anuloman* as well as *ashmarighna* property which helps in reducing hydronephrosis and hydroureter.
• *Sheeta guna* of *Kshar parpati* gives soothing effect to urinary tract resulting in reducing burning micturition.
• Due to soothing effect and *mutral* property it is effective in dysuria.
• *Kshar parpati* acts as a diuretic, so along with that more water intake is required, otherwise dehydration may occur, resulting in super saturation of urine.
• Further detailed in vitro and in vivo studies should be needed discovering the mechanism of action of *Kshar parpati* and *Badarashma pishti*.
• The clinical studies involving a larger population of patients will be necessary to fully explain and confirm the results obtained in the present study.

**CONCLUSION**

The drugs, *Badarashma pishti* and *Kshar parpati* both are effective in management of *Mutrashmari*. *Badarashma pishti* is more effective than *Kshar parpati* in management of *Mutrashmari*. Small sized calculus easily expelled within duration of 45 days. Large sized calculus reduced in its size but require longer duration of treatment to expel out completely. *Kshar parpati* is having diuretic property more than that of *Badarashma pishti*. *Badarashma pishti* is more effective in disintegration and expulsion of calculus. Both drugs may have anti-inflammatory, analgesic property. The drugs in combination may give better results. No adverse effect or complications were observed during the course of treatment.

**REFERENCES**

1. Acharya Vagbhat, Ashtang Hridayam - Nirmala commentary edited by Dr. Brahmanand Tripathi, Reprint edition, Chauk-
hambha Sanskrit Pratishthan, Varanasi. 2011; Nidan sthan 9, P. 488- 490.


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