

## A COMPARATIVE CLINICAL STUDY TO EVALUATE THE EFFICACY OF KOKILAKSHA PANEYYA KSHARA AND MULAKA PANEYYA KSHARA IN THE MANAGEMENT OF MUTRASHMARI WITH SPECIAL REFERENCE TO UROLITHIASIS

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### ABSTRACT

*Acharya Sushruta* is known as Father of Plastic Surgery. The branch *Shalya Tantra* gained more popularity during *Sushruta*'s period and the content of *Sushruta Samhita* is mainly surgery. The disease *Mutrashmari* is included one among *Ashtamahagada* by *Acharya Sushruta*. *Acharya Sushruta* described about surgery in *Pravridha avastha* of *Mutrashmari* detailly and also mentioned conservative measures before going for surgery. It is the recurrence nature of Urolithiasis which makes difficult for treatment. *Paneeya kshara* is a conservative therapy for the management of *Mutrashmari* (Urolithiasis) in *Taruna avastha*. A randomized clinical comparative study was conducted on 40 patients of *Mutrashmari* were selected from OPD and IPD of Shalya Tantra of Taranath Government Ayurvedic Medical College & Hospital, Ballari, they were divided into two equal groups. Patients of Group A were treated with trail drug i.e, *Kokilaksha Paneeya Kshara* and Group B were treated with standard drug i.e, *Mulaka Paneeya Kshara* with 20 patients in each group with *Punarnavadi Kashaya* as *Anupana*. Assessment was made on subjective parameters like Renal colic/Ureteric colic, Frequency of Micturition, Burning Micturition, Haematuria and objective parameters like Size of stone, Number of stone, Location of stone. Observations were made before and after the treatment. Assessment of Renal colic/Ureteric colic, Frequency of Micturition, Burning Micturition, Haematuria, Size of stone in Group A showed 100%, 71.4%,100%,100%, 31.15% improvement & in Group B 96.66%, 75%, 100%, 100%, 48.73% improvement respectively. The study showed that standard drug was more effective than the trial drug in the management of *Mutrashmari*.

**KEYWORDS:** *Mutrashmari*, *Kokilaksha paneeyakshara*, *Mulaka paneeyakshara*, *Punarnavadi Kashaya*.

### INTRODUCTION

The present era is an era of life style disorders as there is a drastic change in food pattern, physical activities, habits, stress, working, sleep pattern in which *Mutrashmari* is one among them. The prevalence of *Mutrashmari* is increasing across the world mainly due to sedentary life style, metabolic derangement, less intake of water and global climatic changes.

*Ashmari* is a *mutravahasrotovikara* in which there is formation of stone and is *Tridoshaja*, *Marmashrita*, *Shastra karma sadhya*, *Daruna* and is *Pranayatana adhishtana*, hence it has been considered as one among the '*Ashtamahagada*'.<sup>[1]</sup>

*Ashmari* can be correlated to Urolithiasis in Contemporary science. Urolithiasis means the process of formation of stones in the kidney, ureter, urinary bladder and/or urethra (urinary tract). High incidence of Urinary calculi is in 30-45 years of age group and incidence declines after the age of 50<sup>2</sup>. The prevalence of urinary stone is approximately 3 to 8% in general population.<sup>[3]</sup>

The management of calculi will be Conservative, Medical treatment, Non-Operative and Operative treatment.<sup>[4]</sup> Generally, 50% of patients have a re-occurrence within 10 years after treatment. In this situation there is desperate need to find conservative medicine which is cost effective without side effects and

to avoid recurrence.

Even though there are technological advances in the field of Medicine and Surgery, Conservative therapy still continues to be a solution for all reversible ailments. The Ayurvedic management of Ashmari includes oral medications like Ghrita, Paneeya kshara, Taila etc. This study was an attempt to manage Mutrashmari by Conservative therapy with Kokilaksha Paneeya Kshara and Mulaka Paneeya Kshara followed by Punarnavadi Kashaya as Anupana.

Kokilaksha,<sup>[5]</sup> Kshara is an unexplored drug in the management of Ashmari having Ashmarighna, Anulomana and Mutrala property. Due to its Madhura rasa, Sheeta veerya it could help in burning micturition and haematuria. Ayurvedic Formulary of India mentioned Mulaka,<sup>[6]</sup> kshara indicated in Mutrakrccha (dysuria), Ashmari (calculus). Punarnavadi Kashaya,<sup>[7]</sup> is an excellent formulation which having the properties of Mutrala, Kledahara which helps in flushing out calculi.

Hence the clinical study has been undertaken to evaluate Kokilaksha paneeya Kshara which is efficient in all lakshana of Mutrashmari and to find a best solution that not only treat the condition but also prevent the disease at primary levels, in comparison with Mulaka Paneeya Kshara along with Punarnavadi Kashaya as Anupana.

## OBJECTIVES OF STUDY

- To evaluate the efficacy of *Kokilaksha Paneeya Kshara* in the management of *Mutrashmari*.
- To evaluate the efficacy of *Mulaka Paneeya Kshara* in the management of *Mutrashmari*.
- To compare the efficacy of *Kokilaksha Paneeya Kshara* and *Mulaka Paneeya Kshara* in the management of *Mutrashmari*.

## MATERIALS AND METHODS

### Drug source

- Required raw materials were collected from authorized Ayurvedic stores, fields in association

**Table 1: Study design.**

| Groups  | No. of patients | Intervention              | Anupana             |
|---------|-----------------|---------------------------|---------------------|
| Group-A | 20              | Kokilaksha Paneeya Kshara | Punarnavadi Kashaya |
| Group-B | 20              | Mulaka Paneeya Kshara     | Punarnavadi Kashaya |

### Plan of Treatment

- Duration: 28 days
- Follow up: after completion of full course of treatment once in a month for consecutive three months
- Selected 40 patients of Mutrashmari are randomly divided into Group A and Group B containing 20 patients in each group.

with Dravyaguna Dept. Taranath Govt. Ayurvedic Medical College, Ballari.

- Necessary processing of raw materials and preparation of Kshara were made in association with Post graduate Dept. of Rasashastra and Bhaishajya Kalpana, Taranath Govt. Ayurvedic Medical College, Ballari.

### Clinical Source

40 patients diagnosed with Mutrashmari were selected from OPD and IPD of Taranath Govt. Ayurveda Medical College & Hospital, Ballari.

### Inclusion Criteria

- Patient with the clinical features of Urolithiasis like pain abdomen, burning micturition, haematuria
- Patient having age between 20-60 years
- Stone size: <10mm

### Exclusion Criteria

- Contraindication of *Paneeya Kshara*
- Immune compromised patients
- Suffering from moderate, severe hydronephrosis, staghorn calculi, impacted calculi, stone which is present on lower pole of kidney
- Suffering from other uncontrolled systemic diseases

Note: The pathological conditions mentioned in Exclusion criteria were ruled out after considering the features and required investigations.

### Investigations

The routine Haematological, Urine routine are carried out to exclude any other pathology.

- Confirmed by USG.

**Diagnostic Criteria:** Subjective parameters like Renal colic/Ureteric colic, Frequency of Micturition, Burning Micturition, Haematuria and Objective parameters like Size of stone, Number of stone, Location of stone are used.

**Assessment Criteria:** The patient's response was assessed based on subjective and objective parameters.

## Parameters

### Subjective Criteria

**Table 2: Renal colic/ Ureteric colic.**

|         |  |
|---------|--|
| Grade 0 | No pain (absence of pain abdomen)                  |
| Grade 1 | Mild pain (present, but does not disturbs routine) |
| Grade 2 | Moderate pain (present, which disturbs routine)    |
| Grade 3 | Severe pain (intolerable pain)                     |
| Grade 4 | Worst pain (patient rolls on bed)                  |

**Table 3: Frequency of micturition.**

|         |                               |
|---------|-------------------------------|
| Grade 0 | Micturition 1 to 3 times      |
| Grade 1 | Micturition 4 to 6 times      |
| Grade 2 | Micturition 7 to 9 times      |
| Grade 3 | Micturition more than 9 times |

**Table 4: Haematuria.**

|         |                    |
|---------|--------------------|
| Grade 0 | No Haematuria      |
| Grade 1 | Haematuria present |

**Table 5: Burning micturition.**

|         |                                 |
|---------|---------------------------------|
| Grade 0 | Absence of burning micturition  |
| Grade 1 | Presence of burning micturition |

### Objective Criteria

**Table 6: Size of stone.**

|         |          |
|---------|----------|
| Grade 0 | No stone |
| Grade 1 | 1-3 mm   |
| Grade 2 | 4-8 mm   |
| Grade 3 | 9-10 mm  |

- Number of stones
- Location of stones

## OBSERVATIONS

Among the 40 patients selected maximum patients 18 (45%) patients were in the age group of 20-30 years, 31 (77.5%) were Male patients, 29 (72.5%) were Hindu patients, 35 (87.5%) belonged to middle class, 10 (25%) was Businessmen, 10 (25%) were farmers, 30 (75%) were of mixed dietary habit, 25 (62.5%) had <2L water consumption.

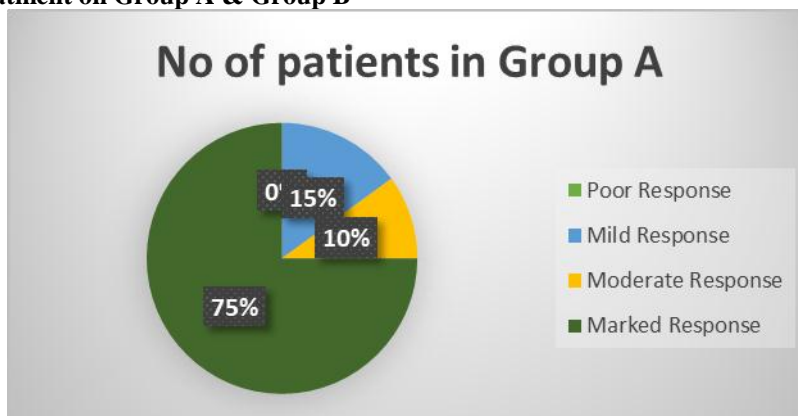
## RESULTS

The assessment parameters like Renal/Ureteric colic, Frequency of micturition, burning micturition and hematuria were subjected to **Friedman test** to compare within the groups and **Mann Whitney U test** to compare the values between the groups. Assessment parameter Size of stone was subjected to **Paired T test** to compare within the group and **Unpaired T test** to compare the values between the groups & draw the conclusion.

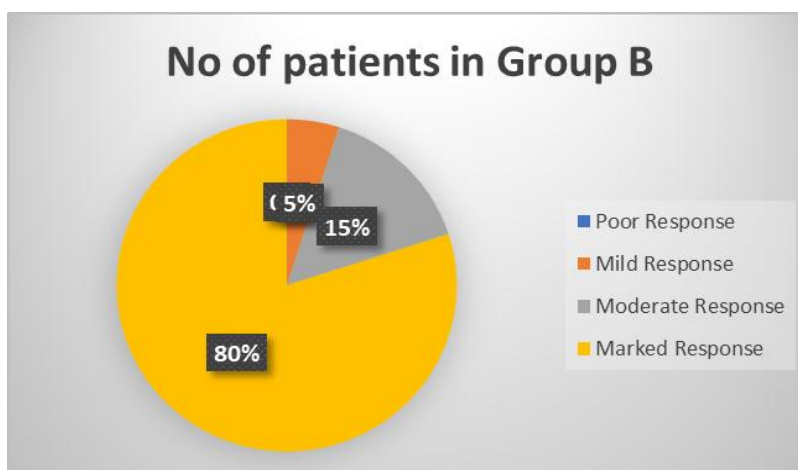
Table 7: Comparative effect of treatment on Group A &amp; Group B.

| Characteristics          | Group-A    |        |                      | Group-B    |        |                      |
|--------------------------|------------|--------|----------------------|------------|--------|----------------------|
|                          | Mean Score |        | Percentage of Relief | Mean Score |        | Percentage of Relief |
|                          | BT         | AT     |                      | BT         | AT     |                      |
| Renal/Ureteric colic     | 1.60       | 0.00   | 100%                 | 1.50       | 0.05   | 96.66%               |
| Frequency of micturition | 1.75       | 0.50   | 71.4%                | 2.00       | 0.50   | 75%                  |
| Burning micturition      | 0.60       | 0.00   | 100%                 | 0.50       | 0.00   | 100%                 |
| Haematuria               | 0.30       | 0.00   | 100%                 | 0.20       | 0.00   | 100%                 |
| Size of stone            | 6.3400     | 4.3650 | 31.15%               | 4.5350     | 2.3250 | 48.73%               |

## Overall effect of treatment on Group A &amp; Group B



Graph No. 1: Overall effect on Group A.



Graph No. 2: Overall effect on Group B.

## DISCUSSION

*Ashmari* is a *mutravaha sroto vikara* in which there is formation of stone, resulting in severe pain as much as caused by an enemy. The word *Ashmari* is derived from "ash" which has the meaning *sanghata*, and then by adding a suffix "man", the word is termed and the meaning is stone like substances. According to Acharya Sushruta it is a dreadful disease similar to *Antaka*, which is as fatal as the god of death himself. *Madhavakara* has also the same opinion.

The existence of kidney stones has been recorded since the beginning of civilization and lithotomy for the removal of stones is one of the earliest known surgical procedures.

The severity of pain makes the life of patient miserable. The patient dies if the surgery is not done in time. So, consent from king and guardian should take and perform surgery. The concept of informed consent explained before the surgery of *Mutrashmari* by great surgeon Acharya Sushruta.

## Probable mode of action

## ➤ In Ayurvedic view

## Paneeya Kshara

- ✓ Paneeya kshara which possesses properties like *chedana*, *lekhana*, *bhedana* and *mutrala* for facilitating the disintegration of urinary stones.
- ✓ Kshara having properties of *tridoshagna*, *bhedana*, *chedana*, *lekhana* acts on compact molecules of

stones and causes fragility which helps in fragmentation.

- ✓ Darana property of Kshara will helps in breakage of stone.
- ✓ Vilayana property of Kshara helps in dissolution and slow fragmentation of stone.
- ✓ Ropana property helps to heal lacerated mucosal surface of the urinary tract due to friction of spiky type of stone.
- ✓ Alkaline nature helps to maintain urine pH and corrects the metabolic disorder involved in the formation of urinary stones.

#### Kokilaksha

- ✓ Madhura and Tikta rasa cause Pittashamaka and Amla rasa causes Vatashamana thereby, reduces daha and vedana respectively.
- ✓ Pichchila, Sheeta and Snigdha guna cause Vranaropana and Khara guna of Vayu which is responsible for cumulative consolidation is countered by Pichchila and Snigdha guna.
- ✓ Madhura vipaka is responsible for Vata-pitta shamana thereby, it reduces specially vedana and daha.

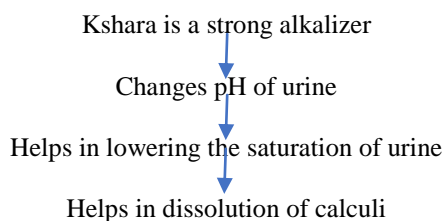
#### Mulaka

- ✓ Katu and Tikta rasa will act as Kaphahara, which is the upadana karana for Ashmari.
- ✓ Ushna virya will help for srotovivarana thus, act as mutrala and also help to counter sheeta guna (responsible for pain) thereby reduces vedana also.

#### ➤ In Modern view

##### ❖ Effect on urine pH

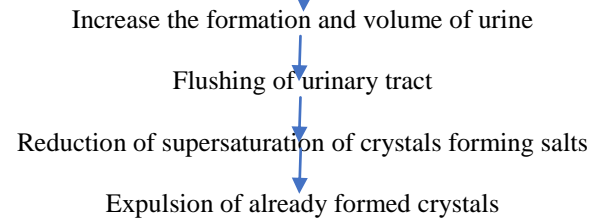
Urinary pH influences the formation and persistence of several types of crystals. Therefore, it is often useful to consider pH when interpreting crystalluria. Crystalluria is pH dependent, thus by changing urinary pH, dissolution of calculi can be attained.



##### ❖ Effect on urine volume

For formation of stone, many factors affect the urine formation such as altered glomerular filtration, tubular re-absorption and excretion.

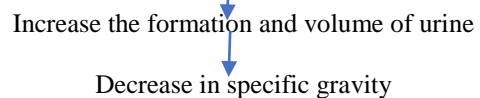
Kshara possesses diuretic property (due to presence of sodium, potassium salts)



##### ❖ Effect on specific gravity

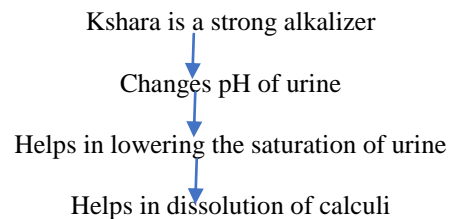
The first and most common cause reason for an increase in urine specific gravity is dehydration. The second reason is an increased secretion of anti-diuretic hormone.

Kshara possesses diuretic property



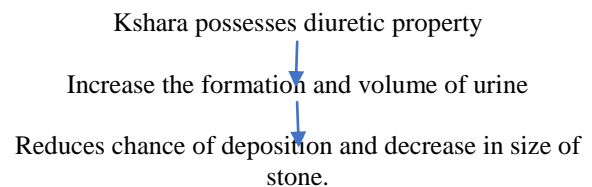
##### ❖ Effect on Calcium oxalate crystal in urine

Increased urinary calcium is a factor favoring the nucleation and precipitation of Calcium oxalate from urine and subsequent crystal growth. Calcium oxalate calculi form when urine has been persistently acidic.



##### ❖ Effect on uric acid, blood urea in urine

Urea, uric acid are the waste products which are excreted through urine, but due to presence of stone, there is an outflow of urine in urinary system and because of this reason GFR also decreases. Reduction in GFR leads to accumulation waste products, particularly nitrogenous substances such urea, uric acid in blood.



The high concentration of uric acid in urine favors the formation of calcium oxalate and uric acid stones. As an alkalizer the drug reduces the level of uric acid and formation of stone.

#### CONCLUSION

- That which resembles stones in *Mutravaha srotas* is called as *Ashmari*. According to *Acharya Sushruta* it is a dreadful disease similar to *Antaka*, which is as fatal as the god of death himself. *Mutrashmari*



can be correlated to Urolithiasis in contemporary science.

- *Mutrashmari* is *Tridoshaja*, *Marmashrita*, *Shastra karma sadhya*, *Daruna* and is *Pranayatana adhishtana*, hence it has been considered as one among the '*Ashtamahagada*' (8 grave diseases), which means it is difficult to cure.
- The highest incidence of calculi occurs between the ages of 20 to 50 years, male and female ratio is 3:1.
- The present study was conducted on 40 patients who were diagnosed with *Mutrashmari* (Urolithiasis) were randomly divided into 2 groups. Patients of Group A were treated with *Kokilaksha Paneeya Kshara* and Patients of Group B were treated with *Mulaka Paneeya Kshara*.
- *Anupana*: *Punarnavadi Kashaya*-20 ml, BD for both group
- *Pathya* and *apathya* advised to the patients.
- Duration: 28 days
- The effects of treatment in both the groups have shown statistically highly significant results (p value <0.001) in all subjective assessment parameters. The effects of treatment in between the groups have shown statistically non-significant. The effect of treatment of size of stone in Group A was significant and in Group B was highly significant. The effect of treatment on size of stone in between the groups have shown statistically non-significant.
- The percentage of improvement in Group A on Renal/Ureteric colic is 100%, on Frequency of micturition is 71.4%, on Burning micturition is 100%, on Haematuria is 100% and on size of stone is 31.15%.
- The percentage of improvement in Group B on Renal/Ureteric colic is 96.66%, on Frequency of micturition is 75%, on Burning micturition is 100%, on Haematuria is 100% and on size of stone is 48.73%.
- Overall results of treatment in Group A are 80.51% and in Group B it is 84.08%.
- ✓ *Mulaka Paneeya Kshara* is more efficacious than *Kokilaksha Paneeya Kshara* in the management of *Mutrashmari* with special reference to Urolithiasis.

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