

MANAGING MUTRASHMARI THROUGH AYURVEDIC DRUGS - III: KULATTHA + SHWET PARPATI

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ABSTRACT

This paper presents the findings of a clinical trial conducted in the suburbs of Jammu (Jammu & Kashmir State) to assess the efficacy of Kulatha+Shwet Parpati therapy– combination of a herb and a mineral compound, on a random sample of ten mutrashmari patients. The bench mark level of the study was reported by *Suden*.^[6] In all there were 12 calculi sites, of which 7 (58.3%) were in Kidney and 5 (41.7%) were in Ureter. Thus, Mutrashmari roga was primarily located in kidney and ureter organs of the sample patients. There were in all 12 ashmari sites, out of which 8 (66.7%) were uni-lateral and single, 1 site (16.7%) was multiple (double) but unilateral while the remaining 2 (16.6%) were bi-lateral and single in each kidney. Calculi were

classified into two size ranges namely < 4 mm & 4 – 8 mm. Further, if a patient was having calculi at more than one site, he was included in the study for his largest calculi size only. On **overall basis**, most of the calculi cases i.e. 90% were in the size range of 4 – 8 mm and the remaining 10% cases were in the range of < 4 mm. The therapy completely cured 5 (41.6%) of the cases. It markedly improved 3 (25.0%) cases and improved 3 (25.0%) of the cases. Only 1 (8.4%) cases did not show significant response to therapy. The **overall rating** of the therapy was 2.0. In all, there were 7 Kidney stones. Three stones (42.8%) were completely cured, 2 (28.6%) were markedly improved. The remaining two (28.6%) were improved towards curing. **Overall rating** of the therapy was 2.1. There were 5 Ureter stones. Two (40.0%) were cured. One (20.0%) each was markedly improved and improved respectively. The remaining 1 (20.0%) did not respond significantly to the therapy. **Overall rating** of the Therapy towards Ureter Stones was 1.8. All the three types of Ashmari viz. Kaphaja, Pittaja and Vataja were present in the study. **Kaphaja** was represented in 5 (50%) of the patients,

followed by 3 (30%) in **Pittaja** and 2 (20%) in **Vataja** Ashmari. There were 6 stones with Kaphaja Ashmari, out of which 3 (50.0%) were completely cured and the remaining 3 (50%) stones were improved. The therapy depicted good **overall rating** of 2.0. There were 3 stones of Pittaja Ashmari type and they were markedly improved, however, assessment of therapy was affected for want of adequate number of calculi though, the **overall rating** was 2.0. There were 3 stones with Vataja Ashmari, out of which 2 (66.7%) were completely cured, while the remaining one did not respond significantly to the therapy. The therapy depicted an **overall rating** of 2.0. On Ayurvedic parameters, the effect of Therapy was **highly significant** on Sevani Vedana (54.5%), Gomeda Prakasam (54.5%) and Nabhi Vedana (4.5%). The effect was **significant** on Sarudhiramutrata (75.0%) and on Mehan Vedana (55.6%). The effect, however remained non-significant on Basti Vedana (53.8%), Mutradhara Sanga (50.0%) and on Atiavila Mutrata (50.0). On Modern system parameters, the Therapy did not reveal its effect on Nausea & Vomiting. The effect was, however, **highly significant** on all the other Modern System parameters viz Haematuria (54.4%), on Tenderness in Renal angle (54.5%), Dysuria (47.4%) and on Pain (47.1%). The Post-therapy results in comparison to Pre-therapy results showed a decreasing trend in certain parameters while an increasing trend in others. All the parameters, however, remained within their **normal limits** both in the Pre & Post-therapy observations. K+SP therapy obtained an **Overall Success Rate** of 66.7% in mitigating the problems of Mutrashmari and removal/disintegration of calculi.

INTRODUCTION

Urinary calculi is emerging as a serious disease globally. About 12 percent population is affected by it. No country of the world is an exception, Scandinavian Countries, North Australia, British Isles, Mediterranean countries, Central Europe, Northern India, Pakistan and Saurashtra region, etc all are in the grip of this disease. Every year about 6 million Americans suffer from urinary stones.

Mutrashmari is a disease pertaining to mutravaha srothas which comes under **Basti** marma. Ashmari gets formed when vata dries up the mutra, sukra, pitta or kapha stored in the urinary bladder,^[10] leading to distention of bladder, severe pain in and around it, difficulty in micturation etc.^[4] Formation of Mutrashmari, according to Sushruta, is due to Srotovaigunya, resulting from Dusita Kapha localized in Basti, in conjunction with Pradusita Vata and Pitta, is responsible for the cause of Ashmari. Ayurvedic texts have described four types of urinary calculi: sleshmaashmari, pittaashmari, vataashmari, and sukraashmari.^[7] There are several

factors responsible for the formation of calculi.^[1,2,3,7,9,11] They are primarily classified into two categories: Unhealthy diet, and . Excessive physical activity.

Modern system of medicine has identified responsible factors.^[8] researched many procedures in this regard, but in spite of all these techniques, surgery in some form remains the treatment of choice, yet the recurrence is inevitable in about 60% of cases. It is, now well recognized that herbal drugs have proven effects like imuno-modulation, adapto-genic and antimuta-genic, and are safe remedies. The World Health Organization's Canberre conference in 1976, promoted the concept of 'Traditional' medicines for the developing countries.

In view of this, the present paper attempts to present the findings of a clinical trial conducted with a combination of two Ayurvedic drugs viz Kulattha+Shwet Parpati, known to be effective in mitigating the Mutrashmari roga.

MATERIALS AND METHODS

The materials and methods of this study have been extensively presented by *Suden*^[6] recently. It is very briefly sketched in the following:

A research experiment was planned to evaluate the efficacy of **Kulattha + Shwet Parpati** - a herb and a mineral compound in combination, each known to be effective against Ashmari, under suburbs of Jammu conditions (JIAR & R.S. Pura, Jammu & Kashmir State).

Treatment Details: 50ml decoction of Kulattha + 1 gm choorna of Shwet Parpati was given orally twice daily for 60 days with a follow up at every successive 15 days by an Ayurvedic doctor till the end of three months.

Statistical Design: The clinical trial was conducted as a Completely Randomised Design with 10 Mutrashmari patients as replications. The selection was made out of the patients coming to the OPD at RS Pura, District Hospital, for medical advice. The Mutrashmari patients (diagnosed **radiologically** and **microbiologically**) suffering from calculi of size less than 8 mm were randomly selected for the study. They were confirmed to be not suffering from other serious ailments like tuberculosis, asthma, etc. The following diagnostic tests were conducted before initiation and conclusion of the study : TLC, DLC, Hb and ESR; Blood urea, serum creatinine, fasting blood sugar, S. cholesterol; Presence of RBC, pus cells, epithelial cells, renal casts and crystals in urine; X-ray and ultrasonography of KUB region to

confirm the presence and measure of the size of calculi. The patients were in the range: 21-60 years of age.

To introduce objectivity into the signs and symptoms of a disease, the concept of **scoring** or **scaling** was adopted.

Subjective criteria: Assessment of Mutrashmari was done on a graded 5-point scale (0 – 4) of increasing symptom severity.

Pain degree score: 0 = No pain; 1 = Occasional pain, did not require treatment; 2 = Occasional pain but, required treatment; 3 = Constant dull ache, pain, required treatment; 4 = Severe constant pain, but did not show relief even after treatment.

Burning micturition degree score: 0 = Burning micturition; 1 = Occasional burning micturition; 2 = Occasional burning micturition, requiring treatment; 3 = Constant burning micturition requiring treatment; 4 = Constant severe burning micturition but no relief even after treatment.

Dysuria score: 0 = No dysuria; 1 = Occasional dysuria; 2 = Occasional dysuria requiring treatment; 3 = Constant dysuria requiring treatment; 4 = Constant severe dysuria but show no relief even after treatment.

Tenderness in renal angle score: 0 = No tenderness; 1 = Mild tenderness; 2 = Moderate tenderness; 3 = Severe tenderness; 4 = Acute tenderness.

Haematuria: 0 = No RBC/Hpf; 1 = 0–5 RBC/Hpf; 2 = 6–10 RBC/Hpf; 3 = 11–15 RBC/Hpf; 4 = >16 RBC/Hpf.

Pus cells: 0 = No pus cells/Hpf; 1 = 0–5 pus cells/Hpf; 2 = 6–10 pus cells/Hpf; 3 = 1–15 pus cells/Hpf; 4 = >16 pus cells/Hpf.

Criteria for Measuring Total Effect of a Therapy: For assessing the total effect of therapy viz. BT, AT (before, after treatment data), following 4-point graded scale was adopted for scoring the symptoms.

3=Cured: 76 - 100% relief:-

- Complete relief in subjective signs and symptoms.

- Absence of any calculus in urinary tract with radiological evidence.

2=Markedly Improved: 51 – 75% relief:-

- Relief in subjective signs and symptoms
- Downward movement or partial disintegration of calculi with radiological evidence.

1=Improved: 26 – 50% relief:-

- Relief in signs and symptoms
- Without any change in size of stone confirmed with radiological evidence.

0=Unchanged: 0 – 25% relief:-

- Relief in subjective sign and symptoms

Measurement of The Effect of Therapies: The Effect or Relief from a therapy is defined as follows:

Effect = (BT – AT),

Relief (%) = (Effect * 100) / BT,

Where BT and AT are the disease symptoms (scored or rated adopting an appropriate graded scale) before and after the therapy. These are in fact the weighted averages, especially in this paper.

Overall Rating = is the weighted average (in this article), weights being the observed scores, by adopting a suitable graded scale. This is an **excellent objective** method developed and used in this study. Similarly, other clinical symptoms were allotted the scores on the basis of severity. Some attributes were easily understandable in their presence (1) or absence(0). The results were also often presented as frequency, number, percentage etc. for better acceptance in these formats.

Statistical analysis: Proper statistical analysis of the data generated from the clinical trial was carried out while considering the Completely Randomized Design.

Specifically, the following analysis was carried out:

- **Chi-square test** was used to ascertain uniformity of allocation of sample cases.
- **Chi-square test** was also used to test the independence of different factors, groups, in a contingency table.

- **Chi-square test** was also used to test the homogeneity of row-factors or column-factors when the data could be expressed in the form of a contingency table.^[5]
- **CD (0.05) or CD (5%):** Critical difference at 5 % level of significance to test the significance of the difference between two means. It is, in fact a practical form of the *Student's t-test*.

Note: The tabulated value of **Chi-square [X^2 (degrees of freedom)]** are presented in the last cell of first row (for testing homogeneity of column values in a row) , and last cell of the first column (for testing homogeneity of row values in a column) or in the last cell of a table (for testing the independence of row-factor and column-factor in a contingency table), at 5 % level of significance, with degrees of freedom shown in the brackets, while the corresponding calculated chi-square values are in the last rows/columns.

RESULTS AND DISCUSSION

Sites of calculi: The Kulattha+Shwet Parpati (K+SP) therapy was replicated on 10 randomly selected Mutrashmari patients. In all there were 12 calculi sites, of which 7 (58.3%) were in Kidney and 5 (41.7%) were in Ureter (Table-1). Thus, Mutrashmari roga was primarily located in kidney and ureter organs of the sample patients. None of the registered (OPD) bladder stone patients met the inclusion criteria, particularly pertaining to the size of the calculi, so none of them could be inducted into this Clinical Trial.

Table-1: Number and Site of stones *					
Site	S	M	B	T	%
Kidney	5	1x2	0x2	7	58.3
Ureter	3	0x2	1x2	5	41.7
Total	8	1x2	1x2	12	-
*: S=Single & Unilateral, M=Multiple(double) & Unilateral, B=Bilateral & Single in each kidney, T=Total					

Uni-lateral and Bi-lateral stones: Out of 12 Ashmari sites 8 (66.%) were uni-lateral and single, 1 site (16.7%) was multiple (double) but unilateral while the remaining 2 (16.6%) were bi-lateral and single in each kidney (Table-1).

Size range of calculi: Calculi were classified into two size ranges namely < 4 mm & 4 – 8 mm. Further, if a patient was having calculi at more than one site, he was included in the study (Table–2) for his largest calculi size only. On **overall basis**, most of the calculi cases

i.e. 90% were in the size range of 4 – 8 mm and the remaining 10% cases were in the range of < 4 mm.

Size(mm)	No.	%
< 4 mm	1	10
4 – 8 mm	9	90

Major Complaints

A. Ayurvedic system: Information on a number of major Ayurvedic complaints was recorded. The results are presented in Table–3. **On overall basis**, Basti Vedana, Nabhi Vedana, Ati Avilamutrata, and Mutradhara Sanga were the most common problems prevalent in about 70–90% of the patients. Sevani Vedana and Gomeda Prakasam were common in 30% cases. While Sarudhira Mutrata, Mehan Vedana and Mutra Vikirana, Sasikitam, Visirnadhara, and Mrudanti Medhara were present in 20 % of the patients [Suden^[6]].

Effect on Mutrashmari: Results are presented in Table–3. The Kulattha+Shwet Parpati therapy completely cured 5 (41.6%) of the cases. It markedly improved 3 (25.0%) cases and improved 3 (25.0%) of the cases. Only 1 (8.4%) cases did not show significant response to therapy. The **overall rating** of the therapy was 2.0.

Grade of Cure	Kidney		Ureter		Total	
	No.	%	No.	%	No.	%
Cured	3	42.8	2	40.0	5	41.6
Markedly Improved	2	28.6	1	20.0	3	25.0
Improved	2	28.6	1	20.0	3	25.0
Unchanged	0	0.0	1	20.0	1	8.4
Total	7	100.0	5	100.0	12	100.0
Overall Rating	2.1	-	1.8	-	2.0	-

Effect of Kulattha + Shwet Parpati Therapy on Kidney Stones: In all, there were 7 Kidney stones. Three stones (42.8%) were completely cured, 2 (28.6%) were markedly improved. The remaining two (28.6%) were improved towards curing. **Overall rating** of the therapy was 2.1 (Table-3).

Effect of the Therapy on Ureter Stones: Results are reported in Table–3. There were 5 Ureter stones. Two (40.0%) were cured. One (20.0%) each was markedly improved and

improved respectively. The remaining 1 (20.0%) did not respond significantly to the therapy.

Overall rating of the Therapy towards Ureter Stones was 1.8.

Effect of the Therapy on Ashmari Types: All the three types of Ashmari viz. Kaphaja, Pittaja and Vataja were present in the study. The results are reported in Table-4. **Kaphaja** was represented in 5 (50%) of the patients, followed by 3 (30%) in **Pittaja** and 2 (20%) in **Vataja** Ashmari conforming to the Prakrti and Nidanās of the patients. This shows the dominance of **Kaphaja** type of Ashmari in the study area.

Type	No.	%
Kaphaja	5	50
Pittaja	3	30
Vataja	2	20

Kaphaja Ashmari: There were 6 stones with Kaphaja Ashmari, out of which 3 (50.0%) were completely cured and the remaining 3 (50%) stones were improved. The therapy depicted good **overall rating** of 2.0 (Table-5).

Pittaja Ashmari: There were 3 stones of Pittaja Ashmari type and they were markedly improved. Real assessment of Kulattha+Shwet Parpati therapy was, therefore affected for want of adequate number of calculi though, the **overall rating** was 2.0 (Table-5).

Vataja Ashmari: There were 3 stones with Vataja Ashmari, out of which 2 (66.7%) were completely cured, while the remaining one did not respond significantly to the therapy. The therapy depicted an **overall rating** of 2.0 (Table-5).

Grade of Cure	Kaphaja		Pittaja		Vataja		Total	
	No.	%	No.	%	No.	%	No.	%
Cured	3	50.0	0	0.0	2	66.7	5	41.6
Markedly Improved	0	0.0	3	100.0	0	0.0	3	25.0
Improved	3	50.0	0	0.0	0	0.0	3	25.0
Unchanged	0	0.0	0	0.0	1	33.3	1	8.4
Total	6	100.0	3	100.0	3	100.0	12	100.0
Overall Rating	2.0	-	2.0	-	2.0	-	2.0	-

Net Effect of Kulattha+Shwet Parpati Therapy

I. Ayurvedic Parametres: For indepth evaluation of Kulattha therapy, its effect was studied on the following 8 impotent Ayurvedic parametres associated with Ashmari (Table-6). The effect of a therapy was measured on each of these parametres, singly and collectively by the method described under Methodology.

1. Nabhi Vedana	5. Mutradhara Sanga
2. Basti Vedana	6. Sarudhiramutrata
3. Sevani Vedana	7. Gomeda Prakasam
4. Mehan Vedana	8. Atiavila Mutrata

Parametre	BT	AT	%	CD(5%)	Parametre	BT	AT	%	CD(5%)
Nabhi Vedana	2.0	1.1	4.5	0.56 ¹	Mutradhara Sanga	0.6	0.3	50.0	0.35 ^{ns}
Basti Vedana	1.3	0.6	53.8	0.76 ^{ns}	Sarudhiramutrata	0.8	0.2	75.0	0.60 ⁵
Sevani Vedana	1.1	0.5	54.5	0.38 ¹	Gomeda Prakasam	2.2	1.0	54.5	0.30 ¹
Mehan Vedana	0.9	0.4	55.6	0.37 ⁵	Atiavila Mutrata	0.6	0.3	50.0	0.35 ^{ns}

*: BT,AT:Before, treatment. Superscript 1, 5 indicate significant differences (BT-AT at 1 % & 5% P values respectively). Superscript ns indicate non-significant differences (BT-AT) at P=5%. The difference (BT-AT) which is less than CD (5%) value is non-significant (P>0.05).

The effect of Kulattha+ Shwet Parpati Therapy was **highly significant** on **Sevani Vedana** (54.5%), **Gomeda Prakasam** (54.5%) and **Nabhi Vedana** (4.5%) (Table-7). The effect was **significant** on **Sarudhiramutrata** (75.0%) and on **Mehan Vedana** (55.6%). The effect, however remained non-significan on **Basti Vedana** (53.8 %), **Mutradhara Sanga** (50.0 %) and on **Atiavila Mutrata** (50.0).

II. Modren Parametres: The performance of the therapies was evaluated on the 7 parametres of the modern system (Table-8).

1. Pain	5. Nausea & Vomiting
2. Burning Micturition	6. Fever
3. Haematuria	7. Tenderness in renal angle
4. Dysuria	-

Nausea & Vomiting and Fever parametres did not affect the sample cases. Therefore, they are excluded in the further presentation of results. The results are presented in Table-9. The effect was **highly significant** on all the Modren System parameters viz Haematuria (54.4%), on Tenderness in Renal angle (54.5%), Dysuria (47.4%) and on Pain (47.1%).

Parametre	BT	AT	%	CD (5%)
Pain	3.4	1.8	47.1	0.50¹
Burning Micturition	2.3	0.5	78.3	0.37¹
Haematuria	1.1	0.5	54.5	0.37¹
Dysuria	1.9	1.0	47.4	0.23¹
Tenderness in Renal angle	1.1	0.5	54.5	0.37¹

* : BT,AT: Before, After treatment. Superscript 1 indicates significant differences (BT-AT) at 1 % P values.

III. Effect of Kulattha+Shwet Parpati Therapy on Laboratory Investigations

The results for Hematological Bio-chemical and Urological Parameters are presented in the Table-10. The Post-therapy results in comparison to Pre-therapy results showed an increasing trend in certain parametres while a decreasing trend in the others. The parametres, however, remained within their **normal limits** both in the Pre & Post-therapy observations. But the extent of increase or decrease was statistically found to be non-significant ($P > 0.05$) in each case except **TLC count & S. calcium**. The magnitudes of increase or decrease of AT values over the corresponding BT values were very small and are, practically of little clinical significance.

Parametres	AT	BT	Increase or Decrease (%)	Parametres	AT	BT	Increase or Decrease (%)
Neutrophils*	58.8	57.0	-3.1	S. chloride	102	102	0.0
Lymphocytes*	33.3	31.7	-4.8	S. calcium	9.5	9.3	-2.1 P < 0.05
Eosinophils*	3.9	3.8	-2.6	S. phosphate	3.5	3.5	0.0
Monocytes*	6.3	6.6	+4.8	S. albumin	4.2	4.3	+2.3
TLC*	8010	8210	+2.5 P < 0.05	S. globulin	2.5	2.6	+4.0
ESR	19.8	17.7	-10.6	S. uric acid	4.7	4.7	0.0
Hb gm%	10.3	10.5	+1.9	F. Blood Sugar	88.4	91.5	+3.5
Blood Urea L	30.0	28.5	-5.0	pH	5.3	5.04	-4.0
S. creatinine	0.95	0.99	+4.2	RBC*	1.9	1.4	-26.3
S. cholesterol	198	194	-2.0	Pus Cells*	0.8	0.5	-37.5

*: Count.

Probable Mode of Action: The ingredients in these therapies are having specific mode of action due to the presence of different types of signs and symptoms described in Table-11.

Table 11: Probable Mode of Action of Ingredients of Kulattha & Shwet Parpati.

Vata	Pitta	Kapha	Dusya (Rasa– Mutra)	Agnimandya	Srotodusti	Mutravaha Srotodusti
Vedana Sthapana	Daha Prasamana	Bhedana	Mutrala	Deepana	Sanga	Mutrala
Vatanulomana	Trsahara	Sothahara	Mutra Virechaniya	Pachana	-	Mutra Virechaniya
Sulaprasamana	-	Medohara	-	-	-	-

The following properties of the Ayurvedic drugs Kulattha, Shwet Parpati explain their efficacy in the management of Mutrashmari.

The **Vatanulomana**, **Sothahara** and **Mutrala** properties of ingredients help to relieve pain and **Sthanika** Sotha.

- **Deepana** property of drugs helps to increase the **Agni**, which further check the formation of **Ama** at **Jatharagni** level itself.
- **Pachana** property of ingredients help in assimilation of drugs in the body in case of **Jatharagnimandya**.
- Stone might be dissolved due to the **Asmari Bhedana** or **Asmarihara** property of ingredients present in the herb and in the mineral compound.

CONCLUSION

Overall success rate of **Kulattha+Shwet Parpati therapy** remained at 66.7% [(Overall rating x 100/maximum grade point of the scale)=2.0 x 100/3]. Overall Complete Cure percentage remained at 41.6% while Failure percentage remained at 8.4%. Therefore, the combined therapy has been successful in mitigating the Mutrashmari to a significant extent, it may improve further if the treatment is prolonged for sometime more. So, it can be concluded that Kulattha+Shwet Parpati therapy possesses the properties regarding improvement, downward movement, disintegration and expulsion of stones and can produce almost total relief in sign and symptoms of both Ayurvedic and Modern systems of medicine of Mutrasmari. The present study, however could not present conclusive results regarding the Pittaja Ashmari for want of adequate data, therefore, more elaborate studies on this aspect stand indicated.

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