

**“A STUDY OF CLINICAL AND LABORATORY PROFILE OF
MUTRASHMARI WITH SPECIAL REFERENCE TO UROLITHIASIS
AND ITS MANAGEMENT WITH VRIKKASHOOLANTAKA VATI”**

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ABSTRACT

Introduction: Mutrashmari is associated with agonizing pain over nabhi, basti, sevani and medhra during micturition, sudden stoppage of urine flow, blood stained urine, twisting and splitting of urine, aggravation of pain during running etc. Among all the urological problems, most painful condition is mutrashmari. The pathogenesis of the disease can be understood from the fact that it is grouped under the eight grave diseases-ashtamahagada. Aims: To evaluate the efficacy Vrikkashoolantaka Vati in the management of Urolithiasis. To study the pathogenesis of urolithiasis according ayurvedic and modern view. To find out an effective, economic and simplified management of the disease. Materials and Method: Patients included in the study from attended the O.P.D. and I.P.D. of Rajiv Gandhi Govt. Post Graduate

Ayurvedic College & Hospital Paprola, Distt. Kangra (H.P.). In the present study, total 46 patients of Mutrashmari were treated with Vrikkashoolantaka vati orally, in a dose of 500mg twice daily for 45 days. Results: Total 85 calculi observed in 46 patients. Overall effect of trial showed 32.94% calculi were expelled out, decreased in size of calculi in 31.77%, increase in size in 04.70% and 32.94% having shown no change in sizes of calculi. Conclusion: Vrikkashoolantaka Vati has shown promising symptomatic relief in most of the clinical symptoms with expulsion of ureteric stones.

KEYWORDS: Mutrashmari, Urolithiasis, Vrikkashoolantaka vati.

INTRODUCTION

Ashma=Stone Rati=to present; means the stone like presentation.

Mootrashmari is one of the graves disease described by acharaya sushruta.^[1] Acharya sushruta has described widely and comprehensively about the mutrashmari with its classification, symptomatology, etiology, pathology, complications and its management. In texts of Ayurveda, the mechanism is clearly mentioned i.e. srotovaigunya from vitiated kapha localised in basti in conjunction with vitiated vata and pitta is responsible for the formation of calculus.^[2]

As even by keeping clear water in a new pitcher, mud settles down in course of time, likewise calculus is produce. As wind and atmosphere heat solidifies rain water, likewise heat (pitta) associated with vata solidifies kapha situated in bladder.^[3]

Mechanism of stone formation is explained on the basis of the degree of supersaturation of the ions forming the stone particularly calcium, phosphate, oxalates and urate etc. and the concentration of inhibitors in the urine; the stone grows as more and more crystals are deposited around the nidus.^[4] Renal stones have afflicted humans for millennia. From the ancient study, it becomes evident that the urological problems remain a very important part of the medical science. It is the third most common affliction of the urinary tract, exceeded only by UTI and BPH.^[5] With its multifactor etiology and high rate of recurrences, urinary tract stone disease provides a medical challenge. There is thus a pressing need to prevent this disease and its recurrence. In the modern medical science surgical procedures remains the only treatment of choice which holds the disadvantage of high expenditure, side effects and recurrence. In this dire situation, there is need to find out alternative course of medicine which is appropriate, effective and inexpensive to treat Mutrashmari with no side effects. Indication for the surgical management has mentioned along with a note of caution regarding its complication and doubt for success.^[6] Even though Mutrashmari is Kashta sadhya, line of treatment should not only the elimination or to remove the disease but also it avoids the recurrence by Prakriti vighatana.

To avoid the incidence of recurrence after surgical removal of stone and in Search of an effective conservative treatment the present work “A Study of clinical and laboratory profile of Mutrashmari with special reference to Urolithiasis and its management with Vrikkashoolantaka Vati” has been undertaken. This dissertation work is an attempt to manage Mutrashmari by medicinal management.

Aim of research work

- i. To evaluate the efficacy Vrikkasholantaka Vati in the management of Urolithiasis.
- ii. To study the pathogenesis of urolithiasis according ayurvedic and modern view.
- iii. To find out an effective, economic and simplified management of the disease.

MATERIALS AND METHODS

Diagnosis is made on the basis of special history Performa prepared for the trial in relation to Mutrashmari (Urolithiasis). Patients were observed recorded before and after the trial schedule. This research work was approved by the Institutional Ethics Committee- (Human) of Rajiv Gandhi Govt. Post Graduate Ayurvedic College & Hospital, Paprola, Distt. Kangra, Himachal Pradesh No.20/2012 on dated 15.05.2012.

Study of literature

The scattered references pertaining to Mutrashmari were compiled from classical Ayurvedic modern text along with latest researches conducted in Ayurvedic Institutes.

Clinical study

It was carried out only in a single trial group. Total 50 patients of Mutrashmari fulfilling all the inclusion criteria were registered from O.P.D/I.P.D of the Rajiv Gandhi Govt. Post Graduate Ayurvedic College & Hospital, Paprola, Distt. Kangra, Himachal Pradesh. All the patients were screened with respect to symptoms, signs, sonological investigations, urine analysis, hematological and biochemical studies.

Inclusion criteria

- i. Patients of either sex, age 18-65 years
- ii. Single or Multiple calculi having size ≤ 15 mm each in any part of urinary system
- iii. Patients who are not interested to undergo for surgery and those who are unfit for surgical intervention.

Exclusion criteria

- i. Patients with known metabolic/endocrinal disorders.
- ii. Patients with impaired renal function or any severe complication.
- iii. Patients with evidence of malignancy.
- iv. Patients with poorly controlled diabetes mellitus.
- v. Patients on prolonged (≥ 6 weeks) medication with corticosteroids, antidepressants, anticholinergics or any other drug that may have an influence on the outcome of study.

- vi. Patients with serious hepatic disorders.
- vii. Patients with severe pulmonary dysfunction.

Drug regimen

- ❖ The present study has been carried out with **Vrikkashoolantaka Vati**^[7]
- ❖ Dose : Two tablet (500mg) orally twice a day
- ❖ Duration of therapy : 45 days



Fig. No. 1

Ingredients of Vrikkashoolantaka Vati

Table No. 1

Sr.No.	Sanskrit Name	Botanical Name	Part Used	Proportion
1	Sauvarchal Lavana	Black salt		1/8th
2	Sajjikshara	Mixture of potassium salt		1/8th
3	Yavakshara	Potassi carbonans		1/8th
4	Navsadar	Ammonium chloride		1/8th
5	Tankana	Borax /Sodium borate		1/8th
6	Hingu	Ferula Narthex	Niryasa	1/8th
7	Akarakarabha	Phyllanthus acmeela	Root	1/8th
8	Piperamint	Mentha piperata	Extract	1/8th
9	Ghrithkumari	Aloe vera	Swarasa	Bhavanarth

Table -2 Rasa-Panchaka of contents of Vrikkashoolantaka Vati

Sr.	Name	Rasa	Guna	Virya	Vipaka	Doshaghnta
1	Sauvarchal Lavana ^[8]	Lavana Katu	Laghu, Sukshma, Vishad, Ushna, sugandhi ^[9]	Ushna	Katu	Kaphavataghna
2	Sajjikshara ^[10]	Katu	Laghu, Ruksha, Tikshna, Ushna ^{[10][12]}	Ushna	Katu	Kaphavataghna ^[10]
3	Yavakshara ^[11]	Katu	Snigdha, Sukshma, Laghu, Sara, Tikshna, Ushna ^{[11][12]}	Ushna	Katu	Kaphavataghna ^{[11][13]}
4	Navsadar ^[14]	Lavana	Snigdha Sukshma Laghu Saaraka Tikshna ^{[12][14]}	Ushna	Madhur	Tridoshaghna ^[14]

5	Tankana ^[15]	Katu	Ruksha, Sara, Tikshna ^[12]	Ushna	Katu	Kaphaghna ^[16]
6	Hingu ^[17]	Katu	Snigdha, Laghu, Sara, Tikshna ^{[17][18]}	Ushna	Katu	Kaphavataghna ^[18]
7	Akarakarabha	Katu	Ruksha, Tikshna ^[19]	Ushna	Katu	Kaphavataghna ^[19]
8	Piperamint	Katu	Laghu, Ruksh, Tikshna	Ushna	Katu	Kaphavataghna
9	Ghritkumari ^[20]	Tikta	Guru, Snigdha, Pischila	Sheeta	Madhur	Pittaghna

Criteria for Assessment

The effect of treatment was assessed in relation to improvement in overall clinical signs and symptoms on the basis of grading and scoring System.

Based on various investigations like urine, blood, biochemical Examination, x-ray (K.U.B.), U.S.G. (K.U.B.) done before and after the treatment.

Subjective criteria

On the basis of symptoms of the disease Mutrashmari- Urolithiasis

- | | |
|---|-----|
| a) No Pain | = 0 |
| Occasional pain requiring no treatment | = 1 |
| Occasional pain, require treatment | = 2 |
| Constant dull pain, require treatment | = 3 |
| Constant severe pain, require treatment but did not show any relief | = 4 |
| b) No burning micturition | = 0 |
| Occasional burning micturition, require no treatment | = 1 |
| Occasional burning micturition, which require treatment | = 2 |
| Constant burning micturition, require treatment | = 3 |
| Constant severe burning micturition, require treatment but did not show any improvement | = 4 |
| c) No dysuria | = 0 |
| Occasional dysuria, require no treatment | = 1 |
| Occasional dysuria, require treatment | = 2 |
| Constant dysuria, require treatment | = 3 |
| Constant severe dysuria, require treatment but not shown any relief | = 4 |
| d) No tenderness | = 0 |
| Mild tenderness | = 1 |
| Moderate tenderness | = 2 |

Severe tenderness	= 3
Very severe tenderness	= 4
e) No R.B.C. / HPF	= 0
0-5 R.B.C./HPF	= 1+
6-10 R.B.C. / HPF	= 2++
11-15 R.B.C. / HPF	= 3+++
> 16 R.B.C./HPF	= 4++++
f) No pus cells	= 0
0-5 pus cells	= 1+
6-10 pus cells	= 2++
11-15 pus cells	= 3+++
> 16 pus cells	= 4++++

Overall results were adjusted in terms of percentage relief obtained in all symptoms of each patient.

❖ Cured	-	100% relief
❖ Markedly improved	-	> 75% relief
❖ Moderately Improved	-	> 50% ≤ 75% relief
❖ Improved	-	> 25% ≤ 50% relief
❖ Unimproved	-	≤ 25% relief

RESULTS

In the present study, total 50 patients were registered out of which 46 patients completed the study and 04 patients did not complete the whole duration of the trial.

Majority of patients were reported in the age groups of 18-29 i.e. 32.61% followed by 30-41 they have 28.27% patients. Majority of patients were males i.e. 67.40%.

Majority of patients i.e. 27 patients (58.70%) were consuming a mixed diet. As per prakriti wise distribution majority of patients i.e. 21 patients (45.65%) were of Vata-Kaphaja Prakriti, 19 patients (41.30%) were of Vata- Pittaja Prakriti and 6 patients (13.05%) were of Pitta-Kaphaja Prakriti.

The predominance of Agni mandya was found in maximum patients i.e. 58.70%.

Maximum number of patients were observed with single calculus i.e. 56.52% followed by multiple calculi 43.48%.

Maximum number of patients were suffering from kidney stone i.e. 73.91% followed by ureteric stone i.e. 15.22% & the rest having stones in both kidney & ureter i.e. 10.87%.

In the present study radiological character of stone showed 60.87% were opaque followed by 32.61% were very opaque and remaining were dull appearance in character and 56.52% had irregular outline margin followed by 36.96% had smooth outlined margin and remaining 6.52% had mulberry pattern.

The maximum numbers of patients i.e. 63.04% patients had Vataja type of Ashmari, while 30.44% patients were having Kaphaja type of Ashmari and rest 6.52% patients were having Pittaja type of Ashmari.

Considering the Hetu of the Ashmari it was observed that all the patients i.e. 100% were Asamshodhanasheela and were used to Apathya Sevana, 76.09% were habituate to take Madhura Ahara, 69.65% were habituate to take Guru Ahara, 58.69% used Mamsa and Adhyashana, 52.17% used to take Divaswapa, followed by 45.65% were doing Ajeerna Sevana, Snigdha Ahara, then 41.30 % patients were using Tikshana Ushana Ahara, Visamasana, Mutra Vegavarodha. 32.61% were taking Sheeta Ahara, 19.57% patients were doing Ativyayama and 10.87% were habituate to take alcohol and 4.35% patients were taking matsya mansa. Maximum no of patients i.e. 71.74% patients used to drinks water less than 3 liters.

Table No-3 Statistical Analysis Showing Effect of Therapy on Various Sign and Symptoms

Sr. No	Sign Symptom	Mean		% Diff.	S.D	S.E±	't'	p
		BT	AT					
1.	Pain (Nabhi & Basti Vedana)	2.15	0.78	63.72	0.88	0.13	10.58	<0.001
2.	Burning Micturation	1.92	0.67	65.10	0.91	0.15	8.63	<0.001
3.	Dysuria (Mutradhara Sanga)	1.84	0.55	70.10	0.87	0.14	9.17	<0.001
4.	Tenderness at renal angle (SevaniVedana)	1.40	0.65	53.57	0.72	0.16	4.68	<0.001
5.	Hematuria (SarudhiraMutrata)	1.92	0.17	91.15	0.87	0.25	7.00	<0.001
6.	Pyuria (Ati avilamutrata & Gomeda Prakasham)	1.78	0.00	100	0.80	0.15	11.54	<0.001

Table No- 4 Effect of therapy on Haematological and Bio-chemical Profile

Effect of the drug on Ashmari	No. calculus	Percentage
Decrease in size of calculus	27	31.77
Increase in size of calculus	4	04.70
No change in size of calculus	26	30.59
calculus expelled out	28	32.94

Table No- 5 Overall effect of therapy on total number of Calculi in 46 trial patients

Sr. No	Blood Investigations	Mean		% Diff.	S.D	S.E±	't'	p
		BT	AT					
1.	Haemoglobin	11.47	11.64	1.48	0.41	0.06	2.71	<0.01
2.	T.L.C	6696	6502	4.39	1030.73	151.97	1.27	>0.05
3.	ESR	7.78	6.83	12.21	4.80	0.71	2.58	>0.05
4.	Polymorphs	63.00	62.78	0.35	4.48	0.66	0.33	>0.05
5.	Lymphocyte	32.93	33.43	1.52	4.55	0.67	0.75	>0.05
6.	Monocyte	1.24	1.43	15.32	0.65	0.09	2.03	>0.05
7.	Eosinophil	2.83	2.28	19.44	2.18	0.32	1.69	>0.05
8.	FBS	82.17	82.54	0.45	18.01	2.65	1.39	>0.05
9.	S. Urea	28.76	28.17	2.05	7.27	1.07	0.55	>0.05
10.	S. Creatinine	0.78	0.74	5.13	0.21	0.03	1.48	>0.05

Table No-6 Effect of therapy on site of the stones

Site of Stone	Total No. of Stones	% of Reduced Stone	% of increased size	% of unchanged Stone	% of Expelled Stones
Kidney	73	31.77%	4.70%	30.59%	21.92%
Ureter	12	0	0	0	100%

Table No- 7 Overall effects of the therapy

Sr. No.	Assessment	No. of Patients	%age
1.	Cured	20	43.48
2.	Markedly Improved	5	10.87
3.	Moderately Improved	13	28.26
4.	Slightly Improved	6	13.04
5.	Unimproved	2	04.35

DISCUSSION

The scoring was given to the signs and symptoms, based upon the severity. The assessment was carried out before treatment and after treatment to evaluate the effects of therapy. Results obtained were also statistically analysed and mean percentage of relief, S.D., S.E. and "t" value by using the paired "t" test was calculated.

Maximum number of patients were observed with single calculus i.e. 56.52%.

Maximum 69.44% patients were found to be of renal stones in the present study this is due to the fact that nidus formation takes place at tip of renal papillae. This nidus anyhow dislodged

from kidney then it came to ureteric and vesical. Kidneys are the main organ of urinary system, so chances of sedimentation of particles are more in it as the filtration process takes place over here which may lead to stone formation.

All the patients i.e. 46 were having the pain (100%) and 84.78% patients were having burning micturition, 82.61%, 58.96%, 43.47% and 26.09% patients were having dysuria, hematuria pyuria, and tenderness at renal angle respectively. Manifestations of symptoms indicate the stage at which the patients approached for treatment. Pain, burning micturition and Dysuria being a common general symptoms manifesting early in the course of illness and hematuria and urgency indicate the more advanced stage.

DISCUSSION ON RESULT OF THE TRIAL

In the present study total 46 patients had 85 stones out of which 73 stones were in kidney and 12 stones were in ureter. Thus after the completion of trial 100% ureteric calculus were expelled out. While 21.92% renal stones were expelled out.

The drug proved to be highly significant statistically ($P < 0.001$) relief in Pain (Nabhi & Basti Vedana) (63.72%), Burning micturition (65.10%), Dysuria (Mutradhara Sanga) (70.10%), Tenderness in renal angles (SevaniVedana) (53.57%), hematuria (SarudhiraMutrata) (91.15%) and Pyuria (Ati avilamutrata & Gomeda Prakasham) (100%).

Hemoglobin of patients were within the normal limit both before and after the treatment and statistically significant. TLC, DLC, ESR FBS, blood urea, serum creatinine were within normal limits both before and after the therapy and statistically insignificant changes were observed in these values after the completion of therapy.

Out of 46 patients, 20 patients (43.48%) were cured and became asymptomatic with respect to symptomatology and laboratory parameters. 5 patients (10.87%) were markedly improved with $\geq 75\%$ relief in clinical features. 13 patients (28.26%) were moderately improved with $\geq 50\%$ relief as far as symptomatology was concerned and. 6 patients (13.03%) showed slight improvement and There were 2 patients (04.35%) were unimproved.

Total 85 calculi observed in 46 patients. Overall effect of trial showed 32.94% calculi were expelled out, decreased in size of calculi in 31.77%, increase in size in 04.70% and 32.94% having shown no change in sizes of calculi.

DISCUSSION ON MODE OF ACTION OF DRUG

In the pathogenesis of mutrashmari the kapha dosha plays important role, which contribute the nidus for its formation along with vata and pitta.^[21] Vitiated apanavayu is responsible for the pain, dysuria etc. whereas saturnine pitta dosha causes burning micturition, Hematuria which are the main symptoms found in patients of urolithiasis.^[22] The formulation taken for the study possess all the necessitating actions as the main ingredient of the compound, The 'Vrikkashoolantaka Vati' comprises of nine drugs including bhavana dravya, out of which seven drugs are possessing Katu Rasa and Ushna Veerya. By virtue of these properties they may act as Ashmaghna due to Lekhana Karma and stop the further growth of the stones by blocking the main etiological factor i.e. Kapha. In addition Hingu and Ghritkumari is known for its 'Mutrala-karma' and this drug have four kshara dravya which also have 'Lekhana-Karma'.

Hingu and Akarakara have Shoolaghna and Vednasthapana properties.^[23,24] So in total the compound may act as Lekhana, Mutrala and Shoolaghna. Thus it may relieve colic pain, reduce the size of stone and may flush it out during the process of micturition.

CONCLUSION

It can be concluded that indicated hypo-functioning of Agni otherwise termed as Mandagni is largely responsible for the formation of Ama, which vitiate the Kapha dosha which is the chief pathogenic factor of the disease.

The drug "Vrikkashoolantaka Vati" was found to have significant effect on pain, burning micturition and dysuria & also in decreasing sizes of stones due to its lithotryptic action. Drug has also significant effect on the signs/symptoms due to its anti-inflammatory, antispasmodic actions. It also helps in flushing out of calculus of small sizes mainly ureteric calculus due to its diuretic effects. It is hoped that observation made will be helpful to further studies in this regard and prove beneficial to mankind.

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