



# A CLINICAL STUDY ON TILADI KSHARA AND SWADANSTRADI KWATH IN THE MANAGEMENT OF MUTRASHMARI

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## ABSTRACT

In the context of India, Ashmari (urolithiasis) is prevalent, with an expectancy of 12% in a total population reported to be prone to urinary stones. Of this 12%, 50% of the population are severely affected by renal damage, which even leads to a loss of kidneys. However, due to variations in socio-economic status and geographic locations, the prevalence and incidence have changed in different regions over the years. Dietary habits (westernized dietary habits and less fluid intake), as well as climatic factors (hot temperature and many hours of exposure to sunshine) play a crucial role in the development of stones. Other diseases, especially metabolic syndrome, may also contribute to urinary tract stones. Detailed description of Ashmari is the specific contribution of Acharya Sushruta and he included it in the "Eight Mahagada". It may be owing to its potentiality to disturb the anatomy and physiology of urinary system.

Total 30 patients with classical signs and symptoms with confirmed diagnosis by USG of KUB were treated in two divided groups for 60 days. 15 patients were treated with TiladiKshara, 250mg 1 capsule twice daily orally, 15 patients were treated with *SwadanstradiKwath*, 24 ml twice daily orally. After completion of trial for 60 days, it was observed that TiladiKshara has provided highly significant relief in pain in abdomen, burning micturition, hematuria, dysuria, frequency micturition whereas *SwadanstradiKwath* has provided highly significant relief in pain in abdomen, burning micturition, hematuria, dysuria, frequency micturition. After careful observation it can be concluded that TiladiKshara possesses the properties to disintegration and expulsion of stone and can produce better relief in signs and symptoms of Ashmari than *SwadanstradiKwath*.

**Key words:** Mutrashmari, TiladiKshara, Swadanstradikwath, lithotriptic, diuretic ,alkalizer

## INTRODUCTION

In the present era, person are going away from the nature and inviting many diseases in the early stage of life due to disturbed lifestyle and global warming. Mutrashmari is one of them considered as grave disease due to its ashrya in marmasthana. Due to horridness of diseases it is considered under Mahagada. Mutrashmari is the 2nd most common diseases of urinary tract..Mutrashmariis aTridosaja vyadhi<sup>1</sup>, where the vitiated vata dries up the Mutra so the kapha present in mutra attains the form of Ashmari. The vishoshana of mutra refer to reduction in the volume of urine, thereforethe kapha present in mutra is supersaturated in basti thus help formation of mutrashmari<sup>2</sup>, characterized by NabhiVedana-BastiVedana-SevaniVedana-MehanaVedana, MutradharaSanga, SarudhiraMutrata, Sasikata etc<sup>3</sup>.Renal stone ratio in population male: female is 2:1<sup>4</sup>. The peak incidence is observed in 3<sup>rd</sup> to 5<sup>th</sup> decade of life. According to survey, theprevalenceofurinarycalculusis approximately3%to5%ingeneralpopulation.

Urolithiasis is problematic condition, especially with regards to its treatment, in all systems of modern medical sciences. In modern techniques, recurrence rate of urolithiasis is approx50%. The only rational treatment in this therapy is surgical removal of stone. But, does not stop the formation of stone. In Ayurved, a number of drug and formulation have been described that are very effective against urolithiasis, namely TiladiKshara, Swadanstradikwath etc.Kapha and ApanaVata are the two key pathological factors involved in the Samprapti of Mutrashmari; demands distinct remedy. During this clinical study, 30 no. of patients have been taken in two groups by simple random sampling method. All patients were registered from OPD/IPD of ShalyaTantra inShriKhudadaadDungajiAyurveda Hospital, Raipur (C. G.).

## MATERIAL & METHOD

The clinical study will be carried under the following divisions-

- 1). Clinical study of the efficacy of “TiladiKshara” in the management of Mutrashmari.
- 2). Clinical study of the efficacy of “TiladiKshara Along With SwadanstradiKwath” in the management of Mutrashmari.

**Study design:**

Simple random sampling technique - comparative clinical trial is adopted here under two groups. Total 30 patients, 15-15 patients in each group irrespective of sex is under taken in the study.

**Posology:**

1) TiladiKshara – 250 mg in two divided dose    2) Swadanstradikwath – 24 ml BD

**Study duration:** 21 days for each group with Follow up 15 days for 2 month

**Exclusion criteria:**

- Age –below 18 year &above 60 year
- Impaired renal function
- Size-more than 10 mm
- Patient with obstructive uropathy
- Suffering from major systemic diseases like DM, HTN, ulcerative colitis.
- Pyelonephritis.
- In pregnant women.
- Immediate surgical require.
- History of hypersensitivity to herbal drug/ Kshara.

**Inclusion criteria:**

- Patients who are diagnosed on the basis of sign and symptoms of Mutrashmari(Urolithiasis) described in Ayurveda&Modern science respectively
- Age-18 to 60 year
- Sex –both male& female
- Prakriti-All type of prakriti
- Habitat-urban & rural area selected
- Site –kidney ureter bladder (urinary system)
- Patients with the size of calculi less than 10mm.
- Evidence of Urolithiasis as per modern imaging techniques.

**ASSESSMENT OF RESULT:**

Results are assessed form subjective and objective parameters.

**Subjective parameters:**

- a) Pain
- b) Burning micturition
- c) Hematuria
- d) Dysuria
- e) Frequency of micturition

**Objective Parameters:**

- a) Size of calculus
- b) No. of calculus

**Grading:****Table no. 01 - Study design on Assessment grade for Subjective criteria**

S. no.	Study design on Assessment grade for Subjective criteria		
1.	Pain in abdomen	G <sub>0</sub>	Absent
		G <sub>1</sub>	Mild
		G <sub>2</sub>	Moderate
		G <sub>3</sub>	Severe
2.	Burning micturition	G <sub>0</sub>	No symptoms
		G <sub>1</sub>	Mild
		G <sub>2</sub>	Moderate
		G <sub>3</sub>	Severe
3.	Hematuria	G <sub>0</sub>	No RBCs/HPF
		G <sub>1</sub>	1-5 RBCs/HPF

		G <sub>2</sub>	6-10 RBCs/HPF
		G <sub>3</sub>	>10 RBCs/HPF
4.	Dysuria	G <sub>0</sub>	Absent
		G <sub>1</sub>	Mild
		G <sub>2</sub>	Moderate
		G <sub>3</sub>	Severe
5.	Frequency of micturition	G <sub>0</sub>	Absent
		G <sub>1</sub>	Mild
		G <sub>2</sub>	Moderate
		G <sub>3</sub>	Severe

### OBSERVATION & RESULT :

**Table No. 02: Age incidence**

Age (years)	No. of patients				Total	Percentage
	Group A		Group B			
	No. of patients	Percentage	No. of patients	Percentage		
11- 20	2	13.33%	1	6.67%	3	10%
21- 30	2	13.33%	3	16.67%	5	16.67%
31- 40	3	20%	7	46.67%	10	33.33%
41- 50	2	13.33%	3	20%	5	16.67%
51- 60	6	40%	1	6.67%	7	23.33%

**Table No. 03: Gender incidence**

Gender	No. of patients				Total	Percentage
	Group A		Group B			
	No. of patients	Percentage	No. of patients	Percentage		
Male	12	80%	12	80%	24	80%
Female	3	20%	3	20%	06	20%

**Table No. 04: Water intake**

Water intake	No. of patients				Total	Percentage
	Group A		Group B			
	No. of patients	Percentage	No. of patients	Percentage		
750ml-1500ml	8	55.33%	8	55.33%	16	53.33%
1500ml-2500ml	4	26.67%	5	33.33%	9	30%
>2500ml	3	20%	2	13.33%	5	16.67%

**Table No. 05: Size of calculus**

Size of calculus	No. of patients				Total	Percentage
	Group A		Group B			
	No. of patients	Percentage	No. of patients	Percentage		
1.0 – 5.0mm	11	73.33%	9	60%	20	66.67%
5.1 – 10mm	4	26.67%	6	40%	10	33.33%

**Table No. 06: Site of calculus**

Site of calculus	No. of patients				Total	Percentage
	Group A		Group B			
	No. of patients	Percentage	No. of patients	Percentage		
Renal	15	100%	14	93.33%	29	96.67%
Ureter	0	0	0	0	0	0
Reno-ureteric	0	0	1	6.67%	1	3.33%

**Table No. 07: Number of Calculus**

Number of Calculus	No. of patients				Total	Percentage
	Group A		Group B			
	No. of patients	Percentage	No. of patients	Percentage		
1	6	40%	10	66.67%	16	53.33%
2	9	60%	4	26.67%	13	43.33%
3	0	0	1	6.67%	1	3.33%

**Table No. 08: Chief complains in Mutrashmari**

Chief Complains	No. of patients				Total	%
	Group A		Group B			
	No. of patients	%	No. of patients	%		
Pain in abdomen	15	100%	15	100%	30	100%
Burning micturition	15	100%	15	100%	30	100%
Hematuria	10	66.67%	12	80%	22	73.33%
Dysuria	15	100%	15	100%	30	100%
Frequency micturition	15	100%	15	100%	30	100%

**Table 09: Percentage of relief of main sign and symptoms of 15 patients of Mutrashmari in Group 'A'**

S. No.	Sign and Symptoms	Before Treatment					After Treatment					% of Relief
		G <sub>0</sub>	G <sub>1</sub>	G <sub>2</sub>	G <sub>3</sub>	Total	G <sub>0</sub>	G <sub>1</sub>	G <sub>2</sub>	G <sub>3</sub>	Total	
01	Pain in abdomen	0	3	6	6	33	12	3	0	0	3	90.90%
02	Burning micturition	0	4	7	4	30	15	0	0	0	0	100%
03	Hematuria	5	5	5	0	15	15	0	0	0	0	100%
04	Dysuria	0	3	4	8	35	11	4	0	0	4	88.57%
05	Frequency of micturition	0	3	10	2	29	13	2	0	0	2	93.10%



**Table 10: Percentage of relief of main sign and symptoms of 15 patients of Mutrashmari in Group 'B'**

S. No.	Sign and Symptoms	Before Treatment					After Treatment					% of Relief
		G <sub>0</sub>	G <sub>1</sub>	G <sub>2</sub>	G <sub>3</sub>	Total	G <sub>0</sub>	G <sub>1</sub>	G <sub>2</sub>	G <sub>3</sub>	Total	
01	Pain in abdomen	0	2	7	6	34	11	4	0	0	4	88.23%
02	Burning micturition	0	4	8	3	29	14	1	0	0	1	96.55%
03	Haematuria	3	4	8	0	20	15	0	0	0	0	100%
04	Dysuria	0	3	4	7	32	11	4	0	0	4	87.5%
05	Frequency of micturition	0	2	4	8	34	11	4	0	0	4	88.23%

**Table No. 11: Statistical analysis showing the effect of therapy on various signs and symptoms in 15 patients of Mutrashmari in Group 'A'**

S N	Sign and Symptoms	Mean		% of Relief	S. D.	S. E.	t-value	p-value	Remark
		BT	AT						
1	Pain in abdomen	2.20	0.20	90.90%	0.75	0.19	10.24	0.00 (<0.001)	HS
2	Burning micturition	2.20	0.20	100%	0.75	0.19	10.24	0.00 (<0.001)	H S
3	Hematuria	1	0	100%	0.84	0.22	4.6	0.00 (<0.001)	H S
4	Dysuria	2.3	0.26	88.57%	0.79	0.20	10.02	0.00 (<0.001)	H S
5	Frequency of micturition	1.93	0.13	93.10%	0.56	0.14	12.43	0.00 (<0.001)	H S

**Table No. 12: Statistical analysis showing the effect of therapy on various signs and symptoms in 15 patients of Mutrashmari in Group 'B'**

S. No.	Sign and Symptoms	Mean		% of Relief	S. D.	S. E.	t-value	p-value	Remark
		BT	AT						
1	Pain in abdomen	2.26	0.26	88.23%	0.33	0.13	14.49	0.00 ( $<0.001$ )	H S
2	Burning micturition	1.93	0.07	96.55%	0.74	0.19	9.72	0.00 ( $<0.001$ )	H S
3	Hematuria	1.33	0.00	100%	0.82	0.21	6.3	0.00 ( $<0.001$ )	H S
4	Dysuria	2.1	0.26	87.5%	0.83	0.21	8.67	0.00 ( $<0.001$ )	H S
5	Frequency of micturition	2.27	0.33	88.23%	0.79	0.20	9.37	0.00( $<0.001$ )	H S

**Statistical Table No. 13: Effect of therapy on size of calculus in Mutrashmari in Group A**

Days	N	Mean		% of relief	SD	SE	t value	p value	Remark
		BT	AT						
60	15	4.17	1.22	70.74%	0.78	0.20	14.53	0.00 ( $<.001$ )	HS

**Statistical Table No. 14: Effect of therapy on size of calculus in Mutrashmari in Group B**

Days	N	Mean		% of relief	SD	SE	t value	p value	Remark
		BT	AT						
60	15	4.9	2.2	55.10%	0.91	0.23	11.63	0.00 ( $<.001$ )	<b>HS</b>

**Statistical Table No. 15: Effect of therapy on number of calculus in Mutrashmari in Group A**

Days	N	Mean		% of relief	SD	SE	t value	p value
		BT	AT					
60	15	1.6	0.93	41.67%	0.82	0.21	3.2	0.007

**Statistical Table No. 16: Effect of therapy on number of calculus in Mutrashmari in Group B**

Days	N	Mean		% of relief	SD	SE	t value	p value
		BT	AT					
60	15	1.4	1	28.57%	0.63	0.16	2.4	0.02

**Table No: 17 - COMPARATIVE STUDY OF RESULTS OF THERAPY IN GROUP-A AND GROUP-B**

S.N.	Sign and Symptoms	Group 'A'	Group 'B'
1.	Pain in abdomen	90.90%	88.23%
2.	Burning micturition	100%	96.55%
3.	Hematuria	100%	100%
4.	Dysuria	88.57%	87.5%
5.	Frequency micturition	93.10%	88.23%

pain in abdomen, burning micturition, hematuria, dysuria, frequency micturition

**Table No: 18- COMPARATIVE STUDY OF RESULTS OF THERAPY IN GROUP-A AND GROUP-B**

S.N.	Size & Number of calculus	Group 'A'	Group 'B'
1.	Size of calculus	70.74%	55.10%
2.	Number of calculus	41.67%	28.57%

### PROBABLE MODE OF ACTION

The ingredients of TiladiKsharaareTila, Apamrga, Yava, Kadli, Palsha<sup>5</sup>& ingredients of Swadanstradikwath are Shunthi, Eranda, Varun, Gokshur<sup>6</sup>. Tiladikshara and Swadanstradikwath is Tridosaharaas perdoshagnata.

The predominance of rasa in Tiladiksharaand Swadanstradikwath are Tikta, Kashaya, Madhura and Katu rasa. Tikta rasa is Aamshoshaka, Kaphachhedaka, Srotoshodhaka and Srotovivarnakari<sup>7</sup>, thus they decrease the causing factors i.e. Aama, dissociate kapha by dilating and clearing the srotasa they prevent further formation of Mutrashmari.Due to Kashaya and Madhura rasa of drugs helps to subside burning sensation<sup>8</sup>.Due to MadhuraVipaka which regenerates the necrosed tissue to remain equilibrium and process of kha-vaigunya makes the disease cured.According to qualities of Laghuguna, there is no collection of Kaphadosha in the body<sup>9</sup>. Due to Snigdthaguna, which produce lubrication and maintain the structural integrity of the tract through the promotion of lubrication<sup>10</sup>.

Acharya Sushruta has stated clearly in Sutra Sthana that Paneeya Ksharas indicated in Ashmari and Sharkara<sup>13</sup> as Ksharahas Shodhana, Ropana, Pachana, Darana, Lekhana and Vilayana<sup>14</sup> properties which facilitate Aam-pachana, reduction in size along with breakdown & expulsion of Mutrashmari.

Tiladi Kshara has alkaline nature so acted on Mutrashmari by changing Ph Value leads lowering the saturation of urine and helps dissolution of calculi. Kshara contains potassium which lowers the level of phosphate and carbonate in urine which are the causative factors in the formation of oxalate and carbonate stones<sup>15</sup>. Lithotripter action of ingredient drug reduce size of stone and pulverize the stone. Mutral property of Kshara help to increase intra luminal pressure results expulsion the stone and attributes the metabolic correction of serum and urinary electrolyte level.

Swadanstradi Kwath contains Gokshura, Varuna, Eranda, Shunthi. Gokshura Potassium nitrate rich in quantity which act as alkalizer. Lupeol is major constituents of Varun, Ethylene glycol in Shunthi and Eranda have antiurolithiatic activity. All drugs of Swadanstradi Kwath prevents stone formation due to anti lithogenic activity, anti crystallization property, decreases the urinary ph towards acidic, increase urine output.<sup>16</sup>

Hence, above all description clearly shows that use of Tiladi Kshara & Swadanstradi Kwath in Mutrashmari have excellent result in not only rid off from symptom but also expulsion of stone.

## **DISCUSSION:**

Mutrashmari is disease mentioned as one of the Ashtamahagada Due to difficult to cure, comes under Kaphapradhanatridoshajavyadhi in Ayurveda literature. The incidences of Urolithiasis are quite common among 3<sup>rd</sup> to 5<sup>th</sup> decade of life, As compare to females, males are predominant sufferers in case of Urolithiasis. Tiladi Kshara with Swadanstradi Kwath is herbo-mineral drug which is very simple, economic, safe and effective drug in low dose. Tiladi Kshara is Tridosahara, Amahara, Shothahara, Kaphanihsaraka, Stroto-shodhaka, Lekhana, Bhedana, Mutrala, Jwarahara, Ashmarinashanaproperties. Swadanstradi Kwath having Anulomana, Dipana, Hridya, Pachana, Vatakaphapaha, Ashmaribhedan, Mutrala properties.

In this study, it was found that, the lithotripter action of both the drugs was highly significant. Hence it can be employed in the cases of Mutrashmari. Pain in abdomen, burning micturition, dysuria, Hematuria, frequency of micturition are present as the chief complaints in most of the patients. Tenderness at renal angle, Pyuria, recurrent UTI and fever also present in few patients. All subjective parameters in trial group individually reduced effectively in this study and were statistically highly significant i.e. p-value < 0.001. In objective parameters in trial group tenderness at renal angle was reduced effectively. Stone in Group A is 46.67% expelled & 53.33% reduced in size while in Group B 26.67% expelled & 73.33% reduced in size. The study was conducted by administering the drug 21 days. The therapeutic uses, property and dose of the above preparation is systematically designed treatment help to give better result. During the study no any adverse effects are observed. It is recommended that along with the above Ayurvedic therapy, dietary management, and life style modification can be advised to the patient of Mutrashmari for the betterment of the life.

TiladiKshara with Swadanstradikwath gave better result compare to single use of Tiladikshara in the treatment of Mutrashmari. When TiladiKshara given with the combination of SwadanstradiKwath, synergetic action of Kshara (alkalizer) is enhanced and appreciating the results in disintegration and elimination of urinary stone (Mutrashmari) from urinary tract and gives relief from all symptom of Mutrashmari. So Group A (TiladiKshara & SwadanstradiKwath) found to be more effective comparison to Group B where single drug (TiladiKshara) was used.

## CONCLUSION:

Tiladikshara and Swadanstradikwath has definitely preventive effect on various aspect in the management of Urolithiasis. All the drugs of both preparation having the Vranaropana, Kaphaghna, Vatanulomana, Shothahara, Vedanasthapana, Raktastambhana, Jwaraghna, Agnimandya, Ashmarihara, Anaha, Lekhana and Mootrala properties.

Tiladikshara has alkaline nature so acted on Mutrashmari by changing Ph Value and lithotripter action of ingredient drug reduce size of stone and pulverize the stone. Mutral property of Kshara help to increase intra luminal pressure results expulsion the stone and attributes the metabolic correction of serum and urinary electrolyte level. All drugs of

SwadanstradiKwath prevents stone formation due to anti lithogenic activity, anti crystallization property, decreases the urinary pH towards acidic, increase urine output. But when SwadanstradiKwath is given combined with TiladiKshara, synergetic action of alkalizer is enhanced and appreciating the results in disintegration and elimination of urinary stone (Mutrashmari) from urinary tract and gives relief from all symptoms of Mutrashmari. So Group A (TiladiKshara & SwadanstradiKwath) found to be more effective compared to Group B where single drug (TiladiKshara) was used.

Hence, above all description clearly shows that use of TiladiKshara & SwadanstradiKwath in Mutrashmari have excellent results in not only rid off from symptoms but also expulsion of stone. It can be concluded from the above study the trial drug can be used successfully and safely in the patients.

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