

Clinical Study

Clinical Evaluation of The Role of *Shwadanstradi Ghana Vati* In The Management of Urolithiasis (*Mutrashmari*)

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Introduction

Ayurveda, the Indian system of medicine and meaning the science of life deals with the well being of mankind. The earliest description about the diseases affecting the urinary tract can be traced back as far as “*Atharvaveda*”. Mention about stones are found in *Rigveda*. *Acharya Vagbhatta* has classically divided the *Rogas* of *Mutravaha Srotas* into two categories

(i) **Mutra Atipravrittija** - condition in which there is an increase in frequency and quantity of urine e.g. *Prameha*.

(ii) **Mutra Apravrittija** - condition in which there is a decrease in frequency and quantity of urine or obstruction in the flow of urine e.g. *Ashmari*, *Mutrakricchra* and *Mutraghata*.

Acharya Charaka has advised medical management and *Acharya Sushruta* advised both conservative and surgical removal of stone. According to *Acharya Sushruta*, *Mutrashmari* is considered as one of the ‘*Mahagadas*’, may be due to its major complications such as hydronephrosis, renal failure and other symptoms of urinary system. *Acharya Sushruta* has explained in details the etiological factors, classification, symptomatology, pathology, complications and its management of *Mutrashmari* (Renal Calculus) in a most scientific manner.

Need of study:

Urolithiasis (*Mutrashmari*) is a global problem. It leads to urinary tract infection and other complications like hydronephrosis, hydroureter, pyonephrosis, renal failure etc. and subsequent damage to the renal architecture which is often irreversible, even after surgery, the recurrence rate is as high.

The modern techniques have been practically effective but, they are not free from complication,

drugs sensitivity, and toxicity of some of modern drugs. There is need for some alternative medical management. Surgery can only be a part of treatment, but not complete cure. To avoid the incidence of recurrence after surgical removal of stone and in search of an effective conservative treatment the present work has been undertaken.

Aims and Objectives

The current research work has been undertaken with following objectives -

- 1) Conceptual and clinical studies on a series of patient of Urolithiasis vis-à-vis *Mutrashmari*.
- 2) To assess the efficacy of “*Shwadanstradi Ghana Vati*” in the management of a series of patient of Urolithiasis (*Mutrashmari*).
- 3) To compare the efficacy of *Shwadanstradi Ghana Vati* in the management of Urolithiasis (*Mutrashmari*.) with another Ayurvedic Patent drug i.e. Tab Cystone
- 4) To develop the drug that is fast acting and cost effective in the management of Urolithiasis (*Mutrashmari*).

Materials and Methods

1. Selection of the Medicine

For the present study a compound medicine “*Shwadanstradi Kashaya*” mentioned in the treatment of *Ashmari* in the *Ayurvedic* classic *Chakradatta Ashmari Roga Chikitsa* has been selected. But people are reluctant to take *Ayurvedic* formulations in a decoction form; therefore it was decided to convert *Shwadanstradi Kashaya* into *Ghana Vati*.

श्वदंष्ट्रैण्डपत्राणि नागरं वरुणत्वचम्।

एतत् क्वाथवरं प्रातः पिबेदभ्ररीशभेदनम्॥ (p. n. 34/30)

Table No : I

Contents of *Shwadanstradi Ghana Vati*

Sr. No	Plants	Latin Name	Part used	Quantity
1.	<i>Gokshura</i>	<i>Tribulus terrestris</i>	Bark	1 Part
2.	<i>Eranda</i>	<i>Ricinus communis</i>	Leaves	1 Part
3.	<i>Shunthi</i>	<i>Zinziber officinalis</i>	Rhizome	1 Part
4.	<i>Varuna</i>	<i>Crataeva nurvala</i>	Bark	1 Part

2. Clinical Study

The study was conducted on 30 clinically and pathologically diagnosed patients of Urolithiasis (*Mutrashmari*). The selection of patients was made from the OPD/IPD of P.G.Deptt. of Kayachikitsa, Arogyashala and Bombaywala Hospitals of National Institute of Ayurveda, Jaipur, Rajasthan.

Criteria for Inclusion

1. Age between 20 years to 50 years.
2. Clinically diagnosed patients of all types of Urolithiasis (*Mutrashmari*).
3. Site-Patients with Urinary Calculus any where in the Urinary tract i.e. in the Kidney, Ureter or Bladder.
4. Size of the stone less than 10 mm.

Criteria for Exclusion

1. Age below 20 years and more than 50 years.
2. Renal failure.
3. Staghorn calculus.
4. Benign Prostatic Hypertrophy.
5. Urinary Stones of more than 10mm size.
6. Multiple Urinary Stones.
7. Patients with Urolithiasis (*Mutrashmari*) with Complications

Drug Schedule and Grouping

30 registered patients of Urolithiasis (*Mutrashmari*) were randomly divided in the following two groups-

Group A - 15 registered patients of Urolithiasis (*Mutrashmari*) were administered

Shwadanstradi Ghana Vati in the dose of 2 gms per day with simple water for 30 days.

Group B - 15 registered patients of Urolithiasis (*Mutrashmari*) were administered Tab Cystone in the dose of 2 gm per day with simple water for 30 days.

Out of 30 patients registered 28 completed the trial while 2 discontinued the treatment, one from each group.

Subjective Improvement:

All the patients under trial were seen for improvement in feeling of physical and mental well being.

Clinical Improvement:

Following signs and symptoms of *Mutrashmari* were looked into for any improvement after the course of therapy-

- Pain
- Pain during change of posture or jerks.
- Dysuria
- Burning micturition
- Tenderness at renal angle
- Pyuria
- Passing of crystals

Investigations

The following laboratory parameters were used before and after the course of the therapy for the assessment of any changes produced during and after the research.

- Urine analysis- R/M
- Hb gm%.
- Serum creatinine,
- Serum urea
- Ultrasonography

Observations and Results:

Majority of patients i.e 16 belonged to the age group of 21 - 30 years, predominantly Males 18

patients (60.00%), Married 20 patients (66.67%), Hindus 22 patients (73.33%), housewives and students 10 patients (33.33%), belonging to middle class 15 patients (50.00%), consuming vegetarian diet 20 patients (66.67%), with family history 26 patients (86.67%), *Madhyama Ahara Shakti* 22 patients (73.33%), with *Divaswapa* 17 patients (56.66%), having *Madhyama Koshta* 21 patients (70.00%), with *Mandagni* and *Vishmagni* 10 patients each (33.33%) and *Kapha Vata Prakriti* 15 patients (50.00%).

Table No : II

Showing the pattern of 'Clinical Recovery' in Registered patients of Urolithiasis (*Mutrashmari*)

Symptoms	Group A					Group B				
	n	% of relief	t value	p Value	Results	n	% of relief	t value	p Value	Results
Pain	14	75.00	7.77	<0.001	HS	13	70.00	6.56	<0.001	HS
Pain on Changing Postures/ Jerk	04	70.00	2.19	<0.05	S	06	80.00	2.91	<0.02	S
Dysuria	06	62.50	2.68	<0.02	S	08	90.90	3.23	<0.01	S
Burning Micturition	08	100.00	3.66	<0.01	S	05	85.71	2.48	<0.05	S
Tenderness	05	77.78	2.46	<0.05	S	07	81.81	3.22	<0.01	S

Table No : III

Showing the pattern of 'Changes in Investigations' in Registered patients of Urolithiasis (*Mutrashmari*)

Symptoms	Group A					Group B				
	n	% of relief	t value	p Value	Results	n	% of relief	t value	p Value	Results
Hb%	14	5.95	1.88	> 0.10	NS	14	1.59	0.81	> 0.10	NS
Sr. Urea	14	9.74	1.28	> 0.10	NS	14	10.53	2.08	> 0.05	NS
Sr. Creatinine	14	2.67	0.43	> 0.10	NS	14	2.70	0.39	> 0.10	NS
Turbidity of Urine	02	100	1.74	> 0.10	NS	-	-	-	-	-
RBCs in urine	03	100	1.88	> 0.05	NS	03	100	1.88	0.05	NS
Pus Cells in Urine	02	100	1.38	> 0.10	NS	-	-	-	-	-
Crystals in Urine	01	100	1.00	> 0.10	NS	02	100	1.47	> 0.10	NS

Table No : IV

Showing the pattern of 'Changes in Size of Stone' in Registered patients of Urolithiasis (*Mutrashmari*) in Group - A & Group - B

Symptoms	n	Mean		Diff.	% of Relief	SD ±	SE ±	“t” Value	P Value	Result
		BT	AT							
Group - A	14	2.64	0.71	1.93	72.97	1.43	0.38	5.01	<0.001	HS
Group - B	14	2.78	0.78	2.00	71.79	0.67	0.18	11.01	<0.001	HS

Table No : V

Effect of Therapy 'On Stones at Different Sites' in Group -A and Group - B

Groups	Site of Stone	n	Effect		
			Expelled	Decrease in size	Increase in size
Group - A	Kidney	09	07	01	01
	Ureter	04	03	01	-
	Bladder	-	-	-	-
	Urethra	01	01	-	-
Group - B	Kidney	12	06	06	-
	Ureter	02	02	-	-
	Bladder	-	-	-	-
	Urethra	-	-	-	-

Discussions

Subjective Improvements:

After the completion of clinical trial all the patients expressed a feeling of physical and mental well being.

Clinical Improvement:

Effect of therapy on symptoms: Effect of therapy in registered patients of Group A (*Shwadanstradi Ghana Vati*) showed statistically highly significant result in Pain from loin to groin ($p<0.001$), and significant improvement was found in Pain during change of Posture or Jerks ($p<0.05$), Dysuria ($p<0.02$), Burning Micturition ($p<0.01$) and Tenderness at Renal Angle ($p<0.05$) respectively. Where as in patients of Group B (Tab. Cystone) statistically highly significant results were observed in Pain from Loin to Groin ($p<0.001$), and significant

improvement was found in Pain during change of Posture or Jerks ($p<0.02$), Dysuria ($p<0.01$), Burning Micturition ($p<0.05$) and Tenderness at Renal Angle ($p<0.01$) respectively.

Effect of Therapy on Investigations: In both the Groups no significant result was found in hemoglobin percentage, Serum urea and Serum Creatinine, in routine Urine Analysis 100 % decrease was observed RBC, Turbidity of Urine, Pus Cells and Crystals in urine but was found statistically insignificant. In Hematological and Biochemical Parameters all the variations were noted within the normal range. So nothing can be concluded from the above mentioned data of these investigations in both the groups.

Effect of Therapy on Stone at Different Site and Size: In patients of Group A, 09 stones

were found in the Kidney, out of them 07 expelled out, 01 decreased in size, 01 increased in size after the completion of the therapy. Amongst 04 Ureteric Stones, 03 expelled out and 01 stone decreased in size and in Group B (Tab Cystone), of the 12 stones in the Kidney, 06 were expelled out and 06 decreased in size. Amongst 02 Ureteric stones both were expelled out after the course of therapy.

On comparing the overall effect of *Shwadanstradi Ghana Vati* is comparable to the effect of tab Cystone.

Probable Mode of Action *Shwadanstradi Ghana Vati*

All medicines taken in the combination of *Shwadanstradi Ghana Vati* are *Kapha Vata Shamaka*, which are the main *Doshas* that play a vital role in the pathogenesis of *Ashmari*.

The relief in Pain from loin to groin and on changing postures or on jerks may be due to the *Vata Shamaka*, *Vedanasthapana* and *Shulahara* properties of drugs.

Relief in Burning Micturition may be due to *Madhura Rasa* and *Madhura Vipaka* of *Gokshura*, *Eranda* and *Varuna*, and also due to *Sheeta Veerya* of *Gokshura*.

Properties such as *Mutrala*, *Vatanulomana*, *Mutravishodhana*, and *Shothahara* may be responsible to reduce *Sthanika Shotha* thereby reducing tenderness.

Deepana property of drugs helps to increase the *Agni*, which further check the formation of *Ama* at *Jatharagni* level itself.

Pachana property of ingredients helps in assimilation of drugs in the body in case of *Jatharagnimandya*.

The decrease in the size of stone or dissolution of the stone may be due to the *Ashmari Bhedana*, *Ashmarihara* and *Anulomana* properties of the drugs.

Conclusion

Following conclusions can be drawn from the current research project -

- The *Shwadanstradi Ghana Vati* and tab Cystone

has equal significant effect, but the trial drug contains less numbers of ingredients as compared to Tab Cystone which are cheap, easily available in market, non controversial and easy to prepare, making the medicine cost effective for the patients. On this basis it can said that *Shwadanstradi Ghana Vati* is more convenient to patients of Urolithiasis (*Mutrashmari*).

- *Shwadanstradi Ghana Vati* possesses ideal properties of disintegration and expulsion of stones and can help to reduce the sign and symptoms of Urolithiasis (*Mutrashmari*),
- Therefore it may be concluded that *Shwadanstradi Ghana Vati* may prove to be a potent drug in the management of patients of Urolithiasis (*Mutrashmari*).

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