

Study the efficacy of *Mushkadi kshara* in the management of *Mutrashmari* w.s.r to Renal stone

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Abstract

Last century in the history of human being witnessed really rapid development in every sphere of life. Tremendous advancements in technology led us to better understanding of all fields of science including medicine. With the help of an encapsulated miniature video camera entire G.I. tract can be video graphed. With the aid of telemedicine and teleconferences a patient far away from a specialist surgeon can be operated upon. But every coin has two sides. The same technology made us realize that there is another darkerside too. In modern science, kidney stone is removed by open surgery. Open surgery is very painful; especially post-surgery. It requires longer hospitalization, pain, post-operative complication, injury to vital organ, reoccurrences of the stone and also economical expenses. *Mushkadi Kshara* is an *Ayurvedic* formulation which contains purified extracts of multiple herbs. It will promote the expulsion of stone by its *Mootral* and *Bhedana* properties. It is a non-surgical procedure, easy to consumption with breaking of pathology which is beneficial to prevent reoccurrences and minimum expenditure. Hence it can be proved as most affordable and convenient non surgical treatment modalities in the developing countries which can provide relevant treatment modalities in health science. *Mushkadi Kshara* will be taken in capsule form because Kshara having Bitter and salty taste so it will be unpleasant for the patients in the form of churna. *Kshara* is Hygroscopic in nature so will be kept in air-tight container to prevent its Hygroscopic Properties. So present study designed entitled “**Study the efficacy of *Mushkadi kshara* in the management of *Mutrashmari* w.s.r to Renal**

stone. “The present study designed as prospective randomized control single blind clinical trial.60 patients of *Mutrashmari* will be selected & randomly categorized in to 2 groups, each of comprising 30 Patients.and following hypothesis should be considered.*Mushkadi kshara* acts as a *Mootrala&Bhedana* properties in management of *Mutrashmari*.w.s.r.to Renal Stone.Result of present study shows significant results in *Mutrashmari* to cure as well as prevent reoccurrences of the condition.

Introduction

Ayurveda, the ancient science of life is one of the pride and wealth of India. It dealt with many dreaded disease of *Mutravahasrotas*.*Acharya sushruta*, the pioneer in the art and science of surgery has described widely and comprehensively about *Ashmari* along with its classification, symptomatology, etiology, pathology, complications and its management. This is the proof for the depth of knowledge of the *Acharya* on the subject of urinary disorders as a whole.*Acharya sushruta* has described *purvarupa* of *Ashmari* as pain at urinary bladder, testicles ,penis ,internal urethral orifice, Anorexia,difficulty in urination, urine smell like goat, and fever.

Ashmari is one of the most common disorder of the *Mutravahasrotas*. This disease is dreadful and hence considered one of the ‘*Mahagadas*’ by *Sushruta* owing to disturb the anatomy and physiology of urinary system .That means it is very difficult to cure this diseases.*Sushruta* explained surgery as the last choice of treatment, if it is not curable. According to him, Death is confirmatory and even after surgery. It is not sure that the disease is 100% curable.so it is better to go through the medicinal treatment rather than surgery.

Recently, the eating habits and life style of people has drastically changed from those of previous generation. Living in a busy and highly sophisticated community greatly affects habits of the people like inadequate intake of water, fast food consumption, irregular motions and inadequate urinary drainage, leads to a problem like renal stones. The others factors responsible for renal stone are high rich protein diet, Vit-A deficiency, hyperparathyroidism, infection, concentrated urine,deficiency of stone inhibiting substances like mucopolysaccharides , citrate and geographical area specially hot climate and also those having occupation of high temperature etc. However hereditary and

imbalance of electrolytes such as calcium, phosphates, oxalates, magnesium also play a key role in formation of renal calculus.

In modern science there are many treatment modalities for urinary calculus like-extra corporeal shock wave lithotripsy (ESWL), Percutaneous nephro lithotomy (PCNL)[7] URS& Laser etc having their merits and demerits. But these procedures are very costly limited to urban areas only and not suitable in developing countries because above treatment not prevent reoccurrences of the stone that means above procedure not working on the pathogenesis of renal stone.

The time is ripe to expand and propagate Ayurveda, especially in the fields, where it has stronghold.there are many such areas, where Ayurveda is superior to other systems of medicine.

Ayurveda can contribute to the problematic situation where majority of the cases can be managed by medicines. The ancient classics of *Ayurveda* have quoted several drugs one of them is *MushkadiKshara* which will acts on renal stone by its *Mootrala* and *Bhedana* properties.

Principles of *MutrashmariChikitsa* stated that treatments modalities useful one after another after unsuccessful result of previous treatment modalities. According to *Sushruta* surgical intervention of *Mutrashmari* shows fatal complications and not easily acceptable by common people in the society's. As well as surgical procedure for *Mutrashmari* expect permission of superior responsible person related to the patient .That means final outcomes of surgical procedure are mostly unsuccessful and also turn in to dangerous complications including untreatable complications and death.*Sushruta*, the pioneer of surgery also give more emphasis on non surgical modalities in the management of *Mutrashmari* like *Bheshja*, *Ghruta*, *Kshara*, *Kashaya*, *Kshira* and *Uttarbasti*. Among all these modalities *KsharaChikitsa* is more beneficial due to its multiple properties like *Mootral*, *Bhedana*, *Panchana*, *Tridoshghana*, *Anulomana*, *Darana*, *Sukshmagami*, *Apunarbhava* and economical with easy consumption. So keeping above factors in mind we have selected the line of treatment as *KsharaChikitsa* entitled “**Study the efficacy of *Mushkadi Kshara* in the management of *Mutrashmari* w.s.r to renal stone**”.

Preparation of trial Drug

Table no.1-*Mushkadi Gana*-there are 12 contents mentioned by *Acharya Sushruta*.

Drug name	Family	Scientific name	Rasa	Virya	Vipaka	Karma
<i>Mushka</i>	Oleaceae	Schrebra swietenoides	<i>Katu, Tikta</i>	<i>Usna</i>	<i>Katu</i>	<i>Mootral</i>
<i>Palasha</i>	Leguminosae	Butea monosperma	<i>Katu, Tikta, Kasay</i>	<i>Usna</i>	<i>Katu</i>	<i>Mootral</i>
<i>Dhava</i>	Combretaceae	Anogeissus latifolia	<i>Kasay</i>	<i>Sheeta</i>	<i>Katu</i>	<i>MutRasangrahaniya</i>
<i>Chitrak</i>	Plumbaginaceae	Plumbago zeylanica	<i>Katu</i>	<i>Usna</i>	<i>Katu</i>	<i>Jvaraghna</i>
<i>Madan</i>	Rubiaceae	Randia spinosa	<i>Tikta, Kasay, Madhur, Katu</i>	<i>Usna</i>	<i>Katu</i>	<i>Vedanasthapanana</i>
<i>Kutaj</i>	Apocynaceae	Halorrhena antidysenterica	<i>Kasaya, Tikta</i>	<i>Sheeta</i>	<i>Katu</i>	<i>Shulahara</i>
<i>Simsampa</i>	Leuminosae	Dalbergia sisoo	<i>Kasaya</i>	<i>Usna</i>	<i>Katu</i>	<i>Mootral</i>
<i>Haritaki</i>	Combretaceae	Terminalia chebula	<i>PanchaRasa (except lavan)</i>	<i>Usna</i>	<i>Madhur</i>	<i>Ashmarinahanam</i>
<i>Bibhitaki</i>	Combretaceae	Terminalia belirica	<i>Kasaya</i>	<i>Usna</i>	<i>Madhura</i>	<i>Bhedana</i>
<i>Amalaki</i>	Euphorbiaceae	Emblica officinalis	<i>Pancarasa (alavana)</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Mootrala</i>
<i>Arka</i>	Asclepiadaceae	Calotropis procera	<i>Katu, tikta</i>	<i>Usna</i>	<i>Katu</i>	<i>Bhedana</i>
<i>Snuhi</i>	Euphorbiaceae	Euphorbia neriifolia	<i>Katu</i>	<i>Usna</i>	<i>Katu</i>	<i>Vednasthapanana</i>

Mushkadi Kshara Nirman Vidhi

The stems of fully developed *Muskadi yoga* plants were cropped and cut them into small pieces and dried completely, and then all dried pieces were burned and converted to ash. Then ash was collected and filtered through fine sieve. After that as per the ratio (1:6) described in *Samhita* the cleaned water was added in ash in a big size aluminium vessel. The mixture was stirred well and put for settle down of ash at the base of vessel.

After 24 hours the saturated water was filtered in another vessel with four fold white cotton cloth. The settle down ash at the base of container was thrown away. The process of filtration was done daily for 21 days, finally the clear liquid was obtained which was evaporated on low flame with continuous stir, and at the end of the process whitish coloured *Kshara* was obtained. The obtained *Kshara* was dried in sunlight and grinded in mixture and converted into fine powder and kept in an air tight jar.

MushakadiKshara is in crystal form having greyish to white colour. It is salty in test and is odourless; its aqueous solution yields the reaction characteristics of potassium. When exposed to the atmosphere become moist and therefore should be kept in air tight bottles.

Material and Methods

Selection of The Patients

In present study patients of *Mutrashmari*(renal stone) will be selected from the OPD/IPD of department of *Shalya Tantra* deptS.V.N.H.T.Ayurved college Rahuri, Maharashtra. An informed written consent of patient will be taken after clinical history and examination in detail with the help of research Proforma as prepared for the study.

Inclusion Criteria:

- Patient willing to participate in the study.
- Calculi present in kidney.
- Calculi less than 10mm.
- Age between 16-70 yrs.
- Patient with sign and symptoms described in *Granthas*.
- Both the sexes will be included.

Exclusion Criteria:

- Age below 16 and above 70 yrs.

- Calculi more than 10mm.
- Stone present at the site other than the kidney
- Stone in pelvic-ureter junction.
- The patients suffering from systemic disease such as AIDS, Tuberculosis, Diabetes mellitus, Hepatitis-B, Malignancy, Vericose ulcer, Deep vein thrombosis, Arterial ulcer , Neurogenic ulcer, Leprosy, Pregnancy, Acute & Chronic renal failure, Jaundice & cirrhosis of liver.

Place Of Work: OPD and IPD of *Shalya Tantra* department, S.V.N.H.T.Ayurved college Rahuri, Maharashtra.

Consent:Informed written consent of every patient will be taken before the treatment.

Research Proforma: After registration of the patient for research study specially prepared research Performa will be fill up with respect to history, physical and clinical examination and investigation.

Intervention

Group A- (experimental group)

In this group 30 patients of *Mutrashmari*(renal stone) will be given capsule of *Mushkadi Kshara* .

Packing : 500mg in each capsule

Dose : 1gm BD After Meal

Route Of Administration : Oral

Anupan : Water

Duration Of Treatment : 30 Days

Visiting Schedule : 0, 7, 15, 30th days

Group B-(control group)

In this group 30 patients of *Mutrashmari*(renal stone)will be given Flavoxate 200mg OD for 30 days

After 30 days patients will be subjected for follow up to routine investigation and treatment.

Tab. Urikind 200 mg

Pharmacological name- Flavoxate

Company- Mankind Pharma

Dosages- 200mg OD after meal

Duration of treatment: 30 days

Follow up study: 0, 7th, 15th,30thdays

Pathayapathya:-Pathayapathya was given according to Ayurvedic texts and modern medical science for both groups.

Do:- patient were advised to drink 4-5 liters of water per day.

Don't:- patient were advised to avoid tomato,cauliflower,spinach, fish,meat,during the period treatment.

Management of non responding to treatment & complications:

After complete regime of treatment the patients who will not respond to the treatment will be shifted on appropriate treatment. If any complication occurs, it will be recorded and treated by appropriately.

Laboratory Investigation

- Hemoglobin percentage
- Total WBC count.
- Differential count.
- Erythrocyte sedimentation rate
- Blood sugar level.
- Sr. Creatinine.
- urine PH
- Urine sugar.
- Urine albumin.
- Urine microscopic examination.
- Plain X-Ray KUB.
- USG For Abdomen.

Effect of Therapies

In the present study, 66 patients were registered out of which 6 patients left treatment against medical advice. Remaining of 60 patients completed the full course of the treatment. They were categorized into two groups and studied as follows ,

Mushkadi Kshara (Group – A : Experimental Group)**Table no. 2: Effect of therapy on clinical features (Acc. to Ayurveda) in 30 patients of *Mutrashmari***

Clinical Features	Mean		%	S.D.	S.E.	't'	P
	B.T.	A.T.					
Nabhi Vedana	2.14	1.08	54.55	0.69	0.23	4.60	<0.001
Basti Vedana	1.37	0.62	53.85	0.72	0.36	2.99	<0.001
Sevani Vedana	1.17	0.60	45.45	0.63	0.27	2.54	<0.001
Mehan Vedana	0.80	0.40	50.00	0.70	0.22	1.81	<0.05
Mutradhara	3.5	1.90	45.71	0.80	0.25	6.40	<0.001
Sanga							
Sarudhira	0.60	0.40	67.34	0.59	0.26	2.50	<0.05
Mutrata							
Gomeda	0.50	0.18	65.71	0.54	0.17	2.22	<0.05
Prakasam							
Ati	2.08	0.70	45.00	0.99	0.41	3.85	<0.001
Avilamutrata							

Urikind (Group – B : Control Group)**Table no. 3: Effect of therapy on clinical features (Acc. to Ayurveda) of 30 patients of *Mutrashmari*.**

Clinical Features	Mean		%	S.D.	S.E.	't'	P
	B.T.	A.T.					
Nabhi Vedana	2.30	1.60	32.63	0.63	0.27	2.54	<0.001
Basti Vedana	1.96	0.78	54.82	0.72	0.45	3.90	<0.001
Sevani Vedana	0.70	0.36	46.70	0.56	0.34	1.27	<0.001
Mehan Vedana	0.39	0.13	69.00	0.57	0.27	1.67	<0.05
Mutradaara	1.28	0.52	64.84	0.72	0.29	2.39	<0.001
Sanga							
Sarudhira	0.83	0.34	64.67	0.59	0.24	2.17	<0.05
Mutrata							
Gomeda	0.50	0.10	80.00	0.84	0.27	1.48	<0.05
Prakasam							
Ati Avilamutrata	1.46	1.23	47.50	0.60	0.32	2.63	<0.001

Table 4: Effect of MushkadiKsharatherapy on urine analysis of 30 patients of Mutrashmari

Findings	(Group A) Mean score		% relief	S.D. (±)	S.E. (±)	‘t’	P
	B.T.	A.T.					
R.B.C.	1.97	1.10	54.0	1.18	0.39	3.13	<0.001
Pus cells	1.64	0.76	56.32	0.89	0.19	4.33	<0.001
Crystals	0.52	0.34	51.33	0.39	0.19	1.20	<0.05

Effect of therapy on urine analysis :-After completion of the therapy ofMushkadiKshara for one months, its effect on the clinical features were

observed as presented in table. Table shows that the mean score on the **RBC of Urine** 30 patients, before treatment was 1.97, which has been reduced to 1.10 after the treatment. The percentage of relief observed is 54.00 %, and the result is statistically highly significant (H.S) P < 0.001.

The initial mean score on the **Pus cell of Urine** 30 patients, before treatment was 1.64, which has been reduced to 0.76 after the treatment. The percentage of relief observed is 56.32 %, and the result is statistically highly significant (H.S) P < 0.001.

The initial mean score on the **Crystals of Urine** 30 patients, before treatment was 0.52, which has been reduced to 0.34 after the treatment. The percentage of relief observed is 31.33 %, and the result is statistically highly significant (H.S) P < 0.05.

Table 5:Effect of Urikindtherapy on urine analysis of 30 patients of Mutrashmari

Findings	(Group B) Mean score		% relief	S.D. (\pm)	S.E. (\pm)	't'	P
	B.T.	A.T.					
R.B.C.	0.32	0.17	31.50	0.45	0.19	1.19	<0.05
Pus cells	0.66	0.50	25.25	0.40	0.16	1.17	<0.05
Crystals	0.30	0.18	16.50	0.78	0.30	1.02	<0.05

:-After completion of the therapy of Urikind for one months, its effect on the clinical features were

observed as presented in table. Table shows that the mean score on the **RBC of Urine** 30 patients, before treatment was 0.32, which has been reduced to 0.17 after the treatment. The percentage of relief observed is 31.50 %, and the result is statistically insignificant (H.S) $P > 0.05$.

The initial mean score on the **Pus cell of Urine** 30 patients, before treatment was 0.66, which has been reduced to 0.50 after the treatment. The percentage of relief observed is 25.25 %, and the result is statistically insignificant (H.S) $P > 0.05$.

The initial mean score on the **Crystals of Urine** 30 patients, before treatment was 0.30, which has been reduced to 0.18 after the treatment. The percentage of relief observed is 16.50 %, and the result is statistically in significant (H.S) $P > 0.05$.

Probable mode of action of Mushakadi Kshara compound

For the manifestation of the disease '*Ashmari*' the '*Kaphadosha*' is the main factor, which contribute the nucleus for the pathogenesis.

It is also a known fact, that when the urine becomes stagnated in the urinary system for long time, it gets concentrated and infected. Thus there is more chance yielding for 'Stone formation'. For that, the main motto of the treatment must be *Kaphahara*, *Lekhana* and *Mutrala* (Diuretic).

The formulation taken for the study is indicated in '*AshmariChikitsa*' by the *Aacharya Sushruta* ' by the name *Mushkadi Kshara* '.

The compound possess all the needful actions like *Kaphahara*, *Lekhana* and *Mutrala*. The five ingredients of the compound pacify *Kapha dosha* by virtue of their *Ushna Virya* and also shows "*Lekhana*" property due to *Ushna Virya*.

Thus in total this formulation has the capacity to disintegrate the pathogenesis of the disease '*Ashmari*' and due to its diuretic action it flushes out the disintegrated '*Ashmari*' by the process of diuresis.

Conclusion

- The addiction of tea, alcohol and coffee were recorded in the patients of this study. These observations suggest that tea, alcohol and coffee being rich in oxalates are the predisposing factor of the *Mutrashmari*.
- There are more chances of *Mutrashmari* formation in the persons having kapha dominant prakriti.
- Mehana vedana, Gomedaka prakasha and Sarudhiramutrata in group A.
- Treated group-A (*Mushkadi Kshara*) was found to have highly significant effect on pain, burning micturition, haematuria, dysuria, nausea and vomiting and fever and local irritation.
- The importance of *Kshara* in therapeutics as well as in pharmaceutical Procedure inspired us to explore the historical uses of kshara in view to establish its importance as well as to get its clues for future scopes. In nut shell, it can be concluded that the trial compound (*Mushkadi Kshara*) has shown encouraging symptomatic relief in most of the clinical features with expulsion of small sized stones.

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PHOTOGRAPH



Ingredients Of Mushkadi Kshara Cut Pieces Of Ingredients



Burn Process Of Ingredients

Burn Process



Ash after burn

Filtration of ash



Ksharodak

Crystals Of Mushkadi Kshara



Fine Powder Of Mushkadi Kshara

Packing Of Mushkadi Kshara

