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Clinical and Therapeutic insights into Mutra Ashmari (Urinary Calculi) in Ayurvedic medicine

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Abstract

The Ayurveda traditional medical system of India is essentially influenced by the Sanskrit language which is not only the language, but also the philosophical and epistemological basis of the knowledge system. The major classical Ayurvedic texts, the Charaka Samhita and the Sushrata Samhita are written in Sanskrit, and within their vocabulary lie rich metaphysical, physiological and ethical connotations. The importance of Sanskrit to Ayurveda is however rarely addressed in modern literature despite its crucial role particularly as contemporary translation-based approaches towards Ayurveda evolve into vernacular translations and English ones.Mutra Ashmari, commonly known as urinary calculi or kidney stones, is a prevalent urological disorder characterized by the formation of crystalline concretions within the urinary tract. This condition is recognized and extensively documented in Ayurvedic medicine, where it is attributed to the imbalance of doshas, particularly Vata, Pitta, and Kapha. The objective of this abstract is to provide an overview of the pathogenesis, clinical manifestations, and Ayurvedic therapeutic approaches to managing Mutra Ashmari. A comprehensive review of classical Ayurvedic texts, such as Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya, was conducted to gather information on the etiology, symptoms, and treatment modalities for Mutra Ashmari. Contemporary scientific literature was also reviewed to correlate traditional practices with modern understandings of urinary calculi with a case study. Analgesic properties found in Shunthi Agnimantha, Hingu and Yavakshara among other ingredients, aid in the relief of renal and ureteric colic.

Key words : *Mutrashmari, Urolithiasis,* urinary calculi.

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Mutrashmari[5] is the term for the substance that forms like stones inside the mutravahasrotas. Mutrashmari is regarded as one of the Ashta Mahagada[3] in ayurvedic literature. The majority of Mutrashmari's symptoms and indicators are similar to those of urolithiasis. It ranks as the third most prevalent urinary tract ailment. There are roughly 1-2 incidences per 1000 people on an annual basis. The male to female ratio is 3:1, meaning that men are affected more frequently than women. Calculi typically occur between the ages of 30 and 50, and they frequently recur[9]. The current scientific paradigm for treating urolithiasis is flush therapy for stones up to 5 mm. For larger stones, more sophisticated techniques such as extracorporeal shock wave lithotripsy (ESWL) and operative methods like percutaneous nephrolithotomy (PCNL), extended pyelolithotomy, pyelo nephrolithotomy, partial nephrectomy, and nephrectomy are performed[6]. However, there are a number of shortcomings with these methods. They are costly and frequently result in complications like blood vessel damage, intestinal damage, and sepsis[8]. Numerous herbal remedies mentioned in ayurvedic literature for the management of mutrashmari are affordable, risk-free, and offer a broad range of options for the effective treatment of urolithiasis.[1] The medications of these yogas include ash-maribhedana and mutrala characteristics. The Ayurvedic formulationShunthyadichurna mentioned in Gada-nigraha[6] is explicitly suggested in Mutrashmari. It also has the action of kapha-vatapradhanatridoshahara. The reason these two medications were chosen together is that mutrashmari is a krichrasadhyavyadhi and a chirakari. In order to assess thes impact of Shunthyadi Churna in the management of Mutrashmari, the current study was conducted.

The patients were inadvertently chosen from the Hospital's IPD and OPD. 40 patients in total, ranging in age from 16 to 70, who met the diagnostic criteria for the illness were signed up for the research. Six individuals withdrew from the trial, leaving 35 patients who were divided into a single group for analysis. Data was gathered in accordance with the case sheet proforma.

Study design : The study was aclinical study with preandposttestdesign. Inclusion Criteria

- Patients between the age group of 16 to 70 yrs were selected for the study, irre-spectiveofgender.
- Patientswithorwithouttheclinicalfeatures of Mutrashmari, diagnosed tobe having urinary calculi by USG of KUB were included forthestudy.

Exclusion Criteria :

- Individuals with renal disorders, such as renal failure, severe hydronephrosis, pyonephrosis, and renal tumors, were not accepted.
- Co-morbidity of urinary system obstructive illnesses such as bladder neck contracture, meatal stenosis, urethral stricture, and CA ureter was not included.

Diagnostic Criteria

Objective criteria

USG–Showing presence of calculi

Subjective Criteria

1. Basti Shoola
2. Saraktamutrata
3. Mutradaha
4. Mutradhara sanga
5. Mutrakrichrata

Investigations :

- Blood-HB%, TC, DC, ESR, RBS.
- Urine- Microscopy, sugar, albumin.
- Specificinvestigation-Ultrasonography of Kidney, uretera and bladder.

Intervention :

- Shunthyadichurna– shunthi, agnimantha, pashanabheda, varunatwak, gokshura, abhaya, aragvadaphala kashaya -30ml with 1gms of equal quantity of shuddha hingu,

Table-1. Gradation index

Sl.No.	Subjective parameter	Grading
1.	**Bastishoola**N one Occasionally Mild Mode rate Severe	S_0 S_1 S_2 S_3 S_4
2.	**Mutra daha** None Occasionally Mild Moderate Severe	D_0 D_1 D_2 D_3 D_4
3.	**Mutradhara sanga** None Occasionally Mild Moder ate Severe	D_0 D_1 D_2 D_3 D_4
4.	**Saraktamutrata**N one Occasionally Mild Mode rate Severe	S_0 S_1 S_2 S_3 S_4
5.	**Mutrakrichrata** None Occasionall Mild Moderate Severe	M k_0 M k_1 M k_2 M k_3 M k_4

Five of the 40 individuals who were enrolled in the current trial stopped receiving intervention at various points during the clinical investigation. Three patients stopped the intervention before it was finished because their symptoms subsided before it did, two patients were unable to finish the course of the intervention due to their work schedules, and one patient stopped after one week of the intervention for unspecified reasons.

Therefore, the clinical trial involving 35 study participants served as the basis for these observations. After the study was over, the data were analyzed using a case sheet that was specifically created for it. Assessments of subjective and objective criteria were conducted both before and after the intervention on the 0th and 31st days.Assessments of subjective and objective criteria were conducted both before and after the intervention on the 0th and 31st day.

Table-2. Bastishoola

Bastishoola	Before intervention		After intervention	
	Noof patients	Valid Percent	Noof patients	Valid Percent
No Bastishoola	3	11.2	28	80.0
Occasional Bastishoola	1	3.2	5	14.3
Mild Bastishoola	1	1.0	2	5.7
Moderate Bastishoola	11	34.4	0%	0.0
Severe Bastishoola	19	50.2	0%	0.0
Total	35	100.0	35	100.0

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Contingency Coefficient	.655	.000

Table-3. Bastishoola

Mutradaha	Before intervention		After intervention	
	No of patients	Valid Percent	No of patients	Valid Percent
No *Mutradaha*	17	46.7	34	97.1
Occasional *Mutradaha*	1	3.9	1	2.9
Mild *Mutradaha*	1	5.3	0	0.0
Moderate Mutradaha	11	33.2	0	0.0
Severe Mutradaha	5	11.2	0	0.0
Total	35	100.0	35	100.0

Symmetric measures			
		Value	Approximate Significance
Nominal by nominal	Contingency coefficient	.539	.000

Table-4. Mutradhara sanga

Mutradhara sanga	Before intervention		After intervention	
	No of patients	Valid Percent	No of patients	Valid Percent
No Mutradhara sanga	23	65.7	33	94.3
Occasional Mutradhara sanga	0	0.0	1	2.9
Mild Mutradhara sanga	1	2.9	0	0.0
Moderate Mutradhara sanga	9	25.7	1	2.9
Severe Mutradhara sanga	2	5.7	0	0.0
Total	35	100.0	35	100.0

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Contingency Coefficient	.364	.016

Table-5. Saraktamutrata

	Before intervention		After intervention	
Sarakta mutrata	No of patients	Valid Percent	No of patients	Valid Percent
No Saraktamutrata	33	95.2	35	100
Occasional Saraktamutrata	1	2.9	0	0.0
Mild Saraktamutrata	1	2.9	0	0.0
Moderate Saraktamutrata	0	0.0	0	0.0
Severe Saraktamutrata	0	0.0	0	0.0
Total	35	100.0	35	100.0

		Value	Approximate Significance
Nominal by Nominal	Contingency Coefficient	.126	.324

Their sulton sarak tamutrata showed statistically non-significant result with P value 0.314.

Table-6. Showing the results on mutra krichrata

	Before intervention		After intervention	
Mutrakrichrata	No of patients	Valid Percent	No of patients	Valid Percent
No *Mutrakrichrata*	19	53.3	35	100.0
Occasional Mutrakrichrata	1	1.0	0	0.0
Mild Mutrakrichrata	2	5.7	0	0.0
Moderate Mutrakrichrata	9	25.7	0	0.0
Severe Mutrakrichrata	5	14.3	0	0.0
Total	35	100.0	35	100.0

Symmetric Measures			
		Value	Approximate Significance
Nominalby Nominal	Contingency Coefficient	.469	.000

Table-7. Showing the results on mutradharasanga

	Before intervention		After intervention	
Mutradhara sanga	No of patients	Valid Percent	No of patients	Valid Percent
No Mutradhara sanga	23	65.7	33	94.3
Occasional Mutradhara sanga	0	0.0	1	2.9
Mild Mutradhara sanga	1	2.9	0	0.0
Moderate Mutradhara sanga	9	25.7	1	2.9
Severe Mutradhara sanga	2	5.7	0	0.0
Total	35	100.0	35	100.0

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Contingency Coefficient	.385	.016
Nof Valid Cases		70	

The result on mutradharasanga showed statistically significant result with P value 0.016.

Table-8. Showing the results on saraktamutrata

	Before intervention		After intervention	
Saraktamutrata	No of patients	Valid Percent	No of patients	Valid Percent
No Saraktamutrata	34	97.1	35	100
Occasional Saraktamutrata	1	2.9	0	0.0
Mild Saraktamutrata	0	0.0	0	0.0
Moderate Saraktamutrata	0	0.0	0	0.0
Severe Saraktamutrata	0	0.0	0	0.0
Total	35	100.0	35	100.0

Table-9. Statistical Interpretation

		Value	Approximate Significance
Nominal by Nominal	Contingency Coefficient	.120	.314

There sulton Saraktamutrata showed statistically non-significant result with P value 0.314.

Table-10. Showing the results on mutrakrichrata

	Before intervention		After intervention	
Mutrakrichrata	No of patients	Valid Percent	No of patients	Valid Percent
No *Mutrakrichrata*	17	49.6	35	100.0
Occasional Mutrakrichrata	2	5.7	0	0.0
Mild Mutrakrichrata	2	5.7	0	0.0
Moderate Mutrakrichrata	9	25.7	0	0.0
Severe Mutrakrichrata	5	14.3	0	0.0
Total	35	100.0	35	100.0

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Contingency Coefficient	.447	.000

Table-11. Assessment of overall effect of Intervention

Over all improvement of Treatment	No of patients	Valid percent
Complete remission	15	43.8
Marked improvement	8	22.4
Moderate improvement	8	22.4
Mild improvement	2	5.7
No improvement	2	5.7
Total	35	100.0

Table-12. Statistical Interpretation

	Overall
Chi-Square	16.176
df	3
Asymptotic Significance	.004

The results on assessment showed statistically highly significant result with p value .004 (p>0.050).

According to the current study, patients between the ages of 30 and 50 had a higher incidence of urolithiasis. Males were more affected than females; the study's ratio nearly matches the male-to-female ratio (3:1) mentioned in the text. This could be because men's androgens have an impact on plasma oxalate concentration and renal calcium oxalate deposition, which are higher in men[12]. In terms of occupation, it was more common in labourers since they are more likely to become dehydrated due to excessive perspiration. Higher prevalence was seen in the impoverished because they typically have lower levels of hygiene, which makes their surroundings more vulnerable to infection, and this is one of the reasons urolithiasis forms. Animal protein, which is high in calcium oxalate, phosphate, and purine, puts non-vegetarians and patients with mixed eating habits at risk for developing calcium calculi. This study confirms this observation, as the majority of patients had mixed eating habits.

Probable mode of action of Shuntyadi Choorna.

Analgesic properties found in Shunthi, Agnimantha, Hingu[11] and Yavakshara, among other ingredients, aid in the relief of renal and ureteric colic. Certain drugs, such as Varuna[10] and Pashanabheda[2], have urolithic properties, which aid in breakdown of calculi. Haritaki[4], Gokshura[1,4] and Aravada have antimicrobial properties that aid in lowering urinary tract infections. Due to its diuretic properties, Gokshura aids in the expulsion of calculus. The majority of ShunthyadiChurna's medications have ash-maribhedana, shoolahara, and mutrala qualities. Furthermore, it possesses kapha-vatahara activity. As a result, this formulation's dosha pratyaneeka and vyadhipratyaneeka properties work against Mutrashmari.

It was discovered that the intervention was more effective in calculus up to 8 mm in

diameter. The treatment plan worked for both single and multiple calculi. Additionally, it was discovered that the intervention worked well in calculus of all locations, but it worked best in calculus of the ureter and vesicoureteral junction. It was discovered that the intervention was more effective in calculus up to 8 mm in diameter. The treatment plan worked for both single and multiple calculi. Additionally, it was discovered that the intervention worked well in calculus of all locations, but it worked best in calculus of the ureter and vesicoureteral junction.

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