

Efficacy of Novel Herbal Formulation in Efficacy of Novel Herbal Formulation in Conservative Management of Mutrashmari (Urolithiasis) - A Case Report

Case Report

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Abstract

Introduction: *Mutrashmari* is a result of extensive processes that include a series of reactions that lead to the production of any urinary stone, i.e., a result of an unbalance of calculi producers and regulators in the kidney. The urinary calculi need surgical intervention and that may include side effects and recurrence. Aims and Objective: This study is having aim to find out the efficacy of herbal formulation in *mutrashmari* (urinary Calculi) Case Presentation: The patient of 26 years having *Udarashoola* (pain in abdomen) with *mutrakruchata* since 2 months and *Saraktamutrata* (red color urine) since 15 days. Material and methods: Classical textbooks, articles, online journals were referred. The raw material was taken from Institute level. Observation and Results: Results were obtained by Subjective and Objective Criteria on basis of signs and symptoms of *mutrashmari*. Discussion: The herbal formulation (*Gokshura*, *Kulathha*, *Punarnava panchanga*, *Pashanabhed* leaves) a unique combination was selected. This combination has *Shoolagna* (analgesic), *Ashmari nashaka*, *Mutravardhaka* (diuretics). In the case report, an attempt was taken to investigate the combined effects of herbal formulation, dietary modifications, and dietary regimen with regard to removal of urinary stone and prevention from any further complication. Results: This study shows effective result of herbal formulation in 8 mm urinary calculi within 1 month with no recurrence till one year.

Key Words: *Mutrashmari*, Urolithiasis, Herbal formulation, *Gokushura*, *Punarnava*.

Introduction

According to *Acharya Sushruta*, body is based on three basic pillars i.e. "Tristhuna" - *Dosha*, *Dhatu* and *Mala*. Among those the *malas* are produced as result of *Pachana Kriya* (digestion and metabolism) of food and eliminated from the body through their respective channels. *Mootra* is one of the *Drava Malas* for which a specialized production and excretion system is present in our body and is called as "*Mootravaha Strotas*." "*Mootrashmari*" is the one of the most common disorder of the *Mootravaha Strotus*. (1) *Acharya Sushruta* has mentioned it as *ashtamahagada* and *antakapratima*. (2) *Madhavkara* also mentioned it as "*Yamopama*" which means-"The god of death".

Explanation regarding aetiopathogenesis, classification, clinical features, prognosis and treatment modalities are given in detail. In Ayurveda, many *kalpas* with *Ashmaribhedaka* properties have been mentioned.

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(3) *Sushrutacharya* said that in *tarunavasta mootrashmari* is *oushadhasadya* and in *pravruddhavasta chedana* should be done. (4)

Prevalence rate of urolithiasis varies according to geographical distribution, sex and age and more commonly seen in subjects residing in countries with dry and hot climate. Urolithiasis occurs more commonly between 3rd and 5th decades in both sex and rarely occurs after 5th decade. The prevalence rate of urolithiasis is 45-48%. In India, 5 to 7 million people in hot belt suffer from urinary calculus. (5)

Urolithiasis is splitted as uro -urine, lithos-stone which means formation of calculi in the urinary system. The main theory for calculi formation is super saturation, insufficiency of calculi inhibitors such as mucopolysaccharides, vitamin A deficiency. Although, Regional conditions, food habits, heredity may have contributed in formation of calculi. *Mootrashmari* can be correlated with urinary calculus. A calculus is a concretion usually composed of inorganic materials formed in urinary system, due to imbalance between promoters and inhibitors of crystallization in urine. It presents with clinical features like renal pain, ureteric colic, dysuria, hematuria and presence of calculus. (6)

The management of the urinary calculi varies depending upon size, position of calculus etc. Conservative management includes hydro treatment,

therapies that using alpha-antagonist, ESWL and Dormia basket procedure. Hydrotherapy is contemporary method for painful non-obstructive renal and ureteric calculi especially for ureteric calculi. Results of hydrotherapy is not always beneficial for patients and requires hospitalization. Other diuretics like thiazides is having adverse effect like nausea, diarrhea, headache. These are the factors which stimulate us for the study. Surgical management such as Nephrectomy, Nephrostomy, Pyelolithotomy etc. However, all these managements aim at expulsion of existing urinary calculus, but don't break the cycle in the recurrence of calculi. Nonsurgical and surgical management has their own advantage. Although surgical management has become increasingly tolerable, conservative management and prevention is always desirable, advisable, easily obtainable and feasible. (7)

In this present clinical study, a *Ayurvedic Kwath* is selected for the management of *Mutrashmari*. Thus the study was conducted to find out effective, economical and safe conservative management. In Ayurveda, there are many drugs which breaks the stone and flush out, *Pashanbheda*, *Gokshura*, *Punarnavaa*, *kulatha* are of them. Small sized stones require little pressure to crushing and flushing which is given by these drugs. It acts by increasing GFR and increase in amount of urine formation. With this idea, to evaluate significance of efficacy of *Ayurvedic Kwatha* this study has been taken.

Case History

The patient of 26 years having *Udarashoola*, *mutrakruchata* (difficulty in urination), *Mutra pravrutti samaya vedana* (pain while passing urine) since 2 months and *Saraktamutrata* (red color urine), nausea, loss of appetite, difficulty in defecation generalized weakness since 15 days.

He was having 3 episodes of abdomen pain (colicky type on umbilical to left side of flank) with nausea and vomiting. First episode of came 45 days ago which last for 2 hours. The patient was shouting because of severe pain. For that patient take painkillers and antispasmodic medicines. Then second episode of abdomen pain came 1 month ago then he visited general physician, Injection Diclofenac 2cc IM was given and got temporary relief. Patient was advised for ultrasound-abdomen and pelvis and on 30 July 2021 was diagnosed with ureteric calculus (8mm). He was taking medicines by a general physician but having no relief. The symptoms get more aggravated after few days. Later he observed hematuria and intermittent fever on and off after few days and for which he came to our hospital for further ayurvedic management.

Past History

No history of any other diseases.

Intake of calcium supplement diet was more like milk and eggs.

In Drug history, he was taking tab urimax 0.4mg once a day at night time, Tab Drotin 40mg twice a day after food.

Examination

Asthavidha Pariksha: Nadi – 74/min, *Mala-Samyaka* 1 time/day, *Mutra- Mutrakruchta*, 8-9 times/day and 2-3 times/night, *Jivha- Saama*, *Shabda-Spashta*, *Druka- Prakruta*, *Akruti- madhyama*

Per abdomen examination - Mild tenderness was observed over left renal angle (radiating pain), No any other deformities.

Ultrasonography of the Abdomen-pelvic region on 30th July 2021, and impression was left kidney: 118mm* 50mm. Echodensity visualized in mid ureter of size 8 mm with dilated ureter and P.C. system.

Final diagnosis - *Vataja Ashmari* (left ureteric Stone)

Vataja Ashmari due to *vata* predominant symptoms such as *mutra pravrutti vedana* (pain while passing urine), *Mutrapurisha kruchata* (difficulty while urination, difficulty while defecation), *Nabhi Pidayati* (Abdominal pain around umbilical region to left side of flank), loss of appetite, colicky pain in abdomen.

Materials and Methods

Materials

- All Aurvedic classical literature and modern literature.
- Selection of patient: Single known case of *Mutrashmari* of age 25 years was taken
- Informed Consent
- Raw materials and instruments for drug preparation was taken from *Rasashala* of the Mahatma Gandhi Ayurved College Hospital and Research Center, Wardha and by researcher with natural source.

Method of preparation

- *Kulatha* was Soaked in water overnight
- Raw drugs such as *Punarnava panchanga*, *Pashanbhed* leaves, *Gokshura kantakaphala* and *Kulatha* was crused with help of *Khalwa Yantra* and make *kalka* (paste)
- 800 ml water added and heated on mild frame which was reduced to 1/4th part
- 200ml Kwath was prepared
- Dose: 200 ml thrice a day orally.(8)

Figure 1: Raw Drug preparation



Figure 2: Kwath Preparation



Samprapti

In *asamshodhana sheela* and *apathyakari* persons the *prakupita kapha* and *mootra* combines to stay in *basti* to form *Ashmari*. (9)

According to *Dalhana* the process of *upasnehana* is facilitated by *sampeeda kledana*.

Samprapti ghatakas

- *Dosha*: Vata pradhana Tridoshaja
- *Dushya*: Mootra
- *Agni*: Vishamagni
- *Srotus*: Mootravaha srotus
- *Udbhava sthana*: Amashaya and pakvashaya

- *Sanchara sthana*: Amashayapakvashayagata siras,mootravaha srotus
- *Adhistana*: Mootravaha srotus and Basti
- *Vyakta sthana*: Mootravaha srotus and basti
- *Dustiprakara*: Sanga
- *Rogamarga*: Madhyama
- *Vyadhi Swabhava*: Chirkari
- *Sadhyasadhyata*: Kruchrasadhyata, Sastrasadhyata.(9)

Method for Assessment

Subjective Criteria

Parameters	Gradation				
	0	1	2	3	4
<i>Shool-Pain (VAS Scale)</i>	No pain	Intermittent	Continuous pain	Severe pain (cannot relieve after treatment)	
<i>Sadaha Mutrapravrutti - Burning Micturition</i>	Absent	Intermittent	Constant	Severe	
<i>Sashoola Mutrata - Dysuria</i>	Absent	Present			
<i>Dribbling</i>	Absent	Present			
<i>Sarakta Mutrapravrutti- Hematuria: microscopic urine examination</i>					
RBC/Hpf	No	0 – 5	6 – 10	11 – 15	>16
Pus cells/Hpf	Absent	0 – 5	6 – 10	11 – 15	>16

Objective

1. USG (Abdomen and Pelvis)
2. Sr.creatinine
3. Urine routine & microscopic

Treatment Plan

Treatment Given	Drugs taken	Dose	Route	Anupana	Duration
<i>Ashmarinashaka, Mutrala dravya</i>	<i>Gokshura Kantakaphala, Kulathha, Punarnava panchanga, Pashanabhed leaves</i>	Thrice a day After food	Oral	-	1 month
<i>Udara Shoolagna</i>	<i>Shankhavati</i>	2 Tablets Twice a day After food	Oral	With lukewarm water	SOS (when required)

Herbal formulation (*Gokshura, Kantakaphala, Kulathha, Punarnava panchanga, Pashanabhed leaves*) was prepared in Institute and given to patient for 1 month. Patient was advised to drink plenty of water with more amount of liquid food items. Advised not to consume the calcium rich food items. The patient was asked to follow *pathya apanya* in daily routine.

Pathya

Ahara: *Shashtikashaliv* (Navara Rice), *Raktashali* (Red Rice), *Yava* (Barley), *Kulatha* (Horse Gram), *Purana Kushmand Phala* (White Gourd), *Ardraka* (Ginger), *Gokshura* (Puncture vine), *Yavashooka* (Ash of Barley), *Shyamaka* (Jungle Rice),

Varuna (Water), *Krounchmamsaras and vari* (Bird meat juice).

Vihara: *Langhana* (Fasting), *Avagaha sweda* (Sitz Bath)

Therapies: *Vamana* (Emesis), *Virechana* (Purgation), *Basti* (Enema).

Apathyas

Ahara: *Shushka, Rooksha pistanna sevana* (Dry, high carbohydrate food), *Virudha Bhojana* (Antagonistic food), *Karjura* (date), *Shaluka* (Jack fruit), *Kapitha* (wood apple), *Jambu* (Rose apple) etc.

Vihara: *Divaswapna* (Day sleep), *vegadharana* (Suppression of urges), *Ativyayama* (excessive exercise) and *Atimaithuna* (Excessive sexual intercourse).

Observations and Results

Table 1: Subjective parameters according to signs and symptoms of *Mutrashmari*

Subjective Parameters	Day-0 (30/07/2020)	Day-15 (15/08/2020)	Day-30 (1/09/2020)	Day-90 (1/11/2020)
<i>Shool-Pain</i>	2	1	0	0
<i>Sadaha Mutrapravrutti-Burning Micturition</i>	2	1	0	0
<i>Sashoola Mutrata-Dysuria</i>	2	1	0	0
<i>Dribbling</i>	0	0	0	0
<i>Saraktamutra Pravrutti Hematuria</i>	1	0	0	0

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Objective Parameters

Table 2: USG reports

Scanning Date	Clinical features	Impression
Before Treatment		
30/07/2021 (Day 0)	Pain abdomen (severe), Dysuria and Haematuria	left kidney : 118mm* 50mm. Echodensity visualized in mid ureter of size 8 mm with dilated ureter and P.C. system
After Treatment		
1/08/2021 (Day 1)	Ayurvedic treatment was started to the patient for <i>Mutrashmari</i>	
20/08/2020 (Day 20)	Pain abdomen (Mild)	Left kidney normal in size Echodensity visualized in lower ureter just proximal to V.U. Junction of size 8 mm with dilated proximal ureter and P.C. System
Follow-up (Day 30) 1/09/2020	No any complaints USG was done after 30 days because patient was having no symptoms since 7 days.	Essentially normal study
Follow-up (Day 90) 1/11/2020	No any complaints	Essentially normal study

Figure 3: USG Report- 30/07/20

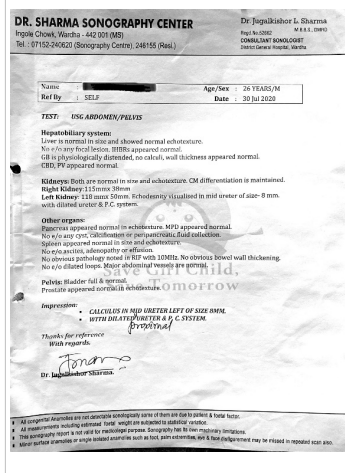


Figure 4: USG Report- 20/08/20

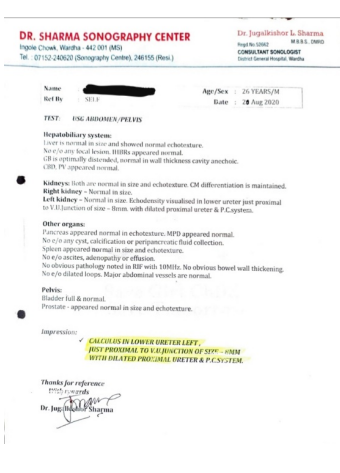


Figure 5: USG Report- 01/09/20

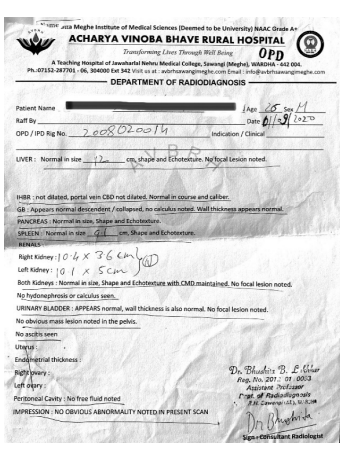


Figure 6: USG Report-1/11/20

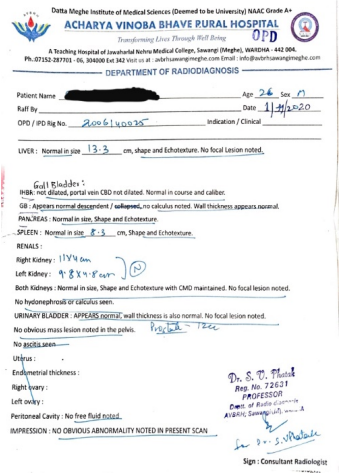


Table 3: Blood and Urine test reports

Blood and Urine Reports	Before treatment (30/07/22)	After treatment On 30 th Day (1/09/2020)
Hemoglobin	12.10 g/dl	12.80 g/dl
ESR	16 mm/1 st hour	14 mm/1 st hour
Sr. Creatinine	1.12 mg/dl	0.96 mg/dl
Urine (physical, chemical and microscopic)	4-6 pus cells, PH- 7.2 (slightly alkaline), other parameters normal	0-1 pus cell, PH- Normal range 6.4, other parameters normal

Discussion

Urinary stone is major problem in the most of common people. Surgical treatment had many complication, chances of recurrence and many other side effects. To overcome these problem Herbal formulation was prepared by combination of best Ayurvedic drugs. The findings were noted on basis of subjective and objective parameters before and after treatment to evaluate results.

Table 4: Showing mode of action of drugs

Drug	Part Used	Karya	Properties
Pashanbheda (11)	Patra	Ashmarighna, bhedana, bastishodhan, mutra-virechaniya, Rakta-pittashamaka	Anti-inflammatory, diuretic
Kulatha (12)	Bija	Kapha-vatahara, Vidahi, Sweda-sangrahaka, Medohara, Sara	Diuretic
Punarnava (13)	Panchanga	Deepana, Shulagna, Ruchya, Kshara, Raktapradaradoshagna, Mutrala	Dysuria, Calculi, recurrent UTI
Gokshura (14)	Kantakaphala	Krichraghna, Sheetala, balakruta, anilhara, Ashmari, Bruhana, agnikrita, Tridoshashamana	Diuretic, urinary calculi

Ayurvedic drugs taken for research was *Pashanbhed*, *kulatha*, *Punarnava* and *Gokshura*. *Pashan bhed* acts as best diuretics which helps the calculi to flow out of the urinary system. *Punarnava* acts as analgesic and diuretics. The pathogenesis of calculi is due to acidic urine. It is having Vitamin B which helps to breaking the stone. Therefore, formation of alkaline urine helps to removal of calculi. (15) *Kulatha* having property of *Kapha- Vatahara* which helps to breakdown *samprapti* of *ashmari*. It is rich in vitamin A and inhibits phosphorus which helps to cure the urinary stone. (16) *Gokshura* is one of best acting drug in urinary calculi. This novel herbal formulation used in *ashmari* include which act as best diuretic, analgesic and helps in expulsion of urinary calculi.

During his first follow up, the signs and symptoms were decreased. According to USG report on 20/08/20 and reveals presence ureteric 8mm Stone. The report shows that herbal formulation was effective to patients and the mid ureteric stone shifted to the lower end of ureter. Also there was relief in symptoms of *mutrashmari* after treatment. He was asked to continue medications and follow up after 15 days.

Patient came with USG report on 1 September 2020 on his 2nd follow up. There was no obvious impression of any abnormality. The report conclude that calculus is expelled out within a month by Ayurvedic treatment. The ayurvedic treatment proves significant result on urinary stone. There was no signs and symptoms observed by the patient. Patient was advised to have wholesome diet as explained and drink plenty of water daily.

Patient came on 1st November 2020 after 2 months, there was not any single complain by the patient having normal urine flow. The USG report shows normal finding. There was no evidence of urinary calculi. He was advised to take plenty of water and good wholesome diet as explained. There was no recurrence of urinary calculi to the patient and no any other related symptoms was observed.

Conclusion

Based on the findings of this study, it can be said that Ayurvedic formulation offered in *Ashmari* patient was significant relief, especially in terms of reducing pain, dysuria, and elimination of calculi. As a result, it is effective at providing *Mootrashmari* patients with relief. No recurrence was recorded by the patients within the 3 months because he advised to drink enough fluids and follow a diet plan to stay hydrated and reduce the likelihood of urinary super saturation with salts that might cause stones.

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