




**IJCRR**  
Section: Healthcare  
ISI Impact Factor  
(2019-20): 1.628  
IC Value (2019): 90.81  
SJIF (2020) = 7.893  
  
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# A Case Study on Management of Complex Renal Calculi (*Mutrashmari*) by Ayurvedic Formulation

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## ABSTRACT

**Introduction:** Kidney stone disease should be viewed as a systemic disorder, associated with hypertension, insulin resistance, chronic kidney disease and cardiovascular damage.

*Mutrashmari* (Renal calculi/ Kidney stones) is one among the *Ashtamahagada* (eight fatal conditions) and is *Kaphapradhan Tridoshaja Vyadhi*. It is correlated with urolithiasis. The prevalence of symptomatic urolithiasis is approximately 10 per cent in men and 5 per cent in women. Many treatment modalities have been introduced in medical sciences, but it is very costly and even the recurrence of production of stone cannot be prevented.

**Objectives:** To find out easily available, a cost-effective medicine to treat *Mutrashmari*. The available treatments options for prevention of stone recurrence can be divided into lifestyle interventions and pharmaceutical therapies.

**Case Presentation:** In the first follow-up; the patient informed the stone was expelled out through urine, and he experienced moderate pain and disturbance in the urine flow on 30th day. The patient got moderate relief from pain in the abdomen and did not experience dysuria.

**Conclusion:** Our present findings suggest that Chandraprabha Vati, Ayurvedic Formulation Tablet, Varunadi Kshaya is a safe and effective approach for the management of patients with renal stones.

**Key Words:** Renal calculi, *Mutrashmari*, *Shaman Chikitsa*, Ayurvedic formulation, Urolithiasis

## INTRODUCTION

Dietary and lifestyle changes represent an important strategy for the prevention of kidney stone recurrences and cardiovascular damage.<sup>1</sup> Stones that grow in the urinary tract (recognized as nephrolithiasis or urolithiasis) form when the urine becomes excessively supersaturated concerning a mineral, leading to crystal formation, growth, aggregation and retention within the kidneys.<sup>2</sup> Worldwide, approximately 80% of kidney stones are composed of calcium oxalate (CaOx) mixed with calcium phosphate (CaP). Stones composed of uric acid 9%, struvite 10% and cystine of 1% are common.<sup>3</sup>

Renal calculi (Kidney stones) are mineral densification in the renal calyces and pelvis that are found free or attached to the renal papillae.<sup>4</sup> In our country kidney stone comprise one of the commonest diseases. Pain due to kidney stones is

recognized as worse than that of labour pain. The information regarding *Ashmari*<sup>5</sup> is available in almost all *Samhita* of *Ayurveda*. In India, approximately 5-7 million patients suffer from stone disease<sup>6,7</sup> and at least one from 1000 patients of Indian population needs hospitalization due to kidney stone disease. Thus, the disease is as common as it is old, particularly in countries with hot and dry climate.<sup>8</sup> These are “stone belt regions”. The incidence of calculi varies as per geographical distribution, sex and age group. The reappearance rate is 60 to 80%. Males are more commonly affected than the female with their ratio is 4:3.<sup>9</sup> The incidence is higher in the age group between 30-45 years and incidence diminishes after the age of 50 years.

Many medicinal formulations mentioned in *Ayurvedic* literature for the management of *Mutrashmari*, are cost-effective,

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ISSN: 2231-2196 (Print)

ISSN: 0975-5241 (Online)

Received: 27.08.2020

Revised: 16.10.2020

Accepted: 13.11.2020

Published: 16.02.2021

devoid of complications and provide wide scope for the successful treatment of Urolithiasis. Formation of calcium oxalate stones has been found significantly reduced by a small reduction in urinary oxalate. Hence, oxalate-rich foods like cucumber, beetroot, spinach, soya bean, chocolate, popcorn, and sweet potato should be avoided. Many studies have established calcium restriction increase the risk of stone disease; therefore, dietary calcium restriction is not suggested. Fluid consumption and dietary improvements are effective steps in avoiding kidney stone recurrence. Several studies have shown that increasing urine volume to at least 2 L/day OR 2 lit/day will decrease stone disease recurrence by up to 40-50 per cent.<sup>10</sup> The consumption of fluids should primarily involve water. As tea and coffee contain oxalate, it is essential to add milk (which binds free oxalate) to them. Increasing the amount of urine, however, has a downside of lowering urinary citrate. The patient is given *Chandraprabha vati* which promotes strength and immunity, *Ayurvedic* formulation tablets which are used in urinary retention, dysuria, renal calculi, hematuria, and burning in urination due to acidic urine and *Varunadi Kashaya* which is capable of lithotriptic action, reducing pain intensity, dysuria and is also capable of reducing haematuria.

## MATERIALS AND METHODS

It is a single analysis of a case and the patient's informed consent is taken in his language.

### History of Present Illness

Before 4 months, a 36-year-old man was in a good state, then he started to complain of abdominal pain and it was discovered that the pain was sporadic and colicky and it was present on the right side of the abdomen, which radiated from the loin to the groin area; difficulty urinating normally at the start of pricking type urination; often burning micturition. These chief complaints are briefly mentioned in Tables 1 and 2.

### Demographic Details:

The patient aged 36 years (male) visited to our hospital on 05/10/2020.

OPD Registration no. 2010060014

**Table 1: Chief complaints with Duration**

Sr. No.	Complaints	Duration
1	Abdominal pain – radiating pain from loin to the groin region	4 months
2	Nausea with Vomiting on and off	2 month
3	Burning Micturition	2 month
4	Dysuria	1month
5	Feverish with mild rigours	15 days

**Table 2: Examination of the patient**

Pulse	70/min
Bp	110/70 mmHg
Respiratory rate	17/min
Temperature	98.7° F
Pallor	No pallor
Icterus	No icterus
Urine	Burning and painful micturition
Stool	Unsatisfactory bowel habits

### Treatment Advised

By analyzing the above pathogenesis of disease in this patient following *Shaman Chikitsa* treatment plan was prescribed (Table 3).

**Table 3: Intervention**

Sr. No.	Intervention	Dose	Time	Anupan	Duration
1	<i>Chandraprabha-vati</i>	500 mg BD	After meal	Water	For 30 days
2	<i>Ayurvedic Formulation Tablet</i>	2 tab TDS	After meal	Water	For 30 days
3	<i>Varunadi Kashaya</i>	3 t.s.f. BD	After meal	Luke-warm water	For 30 days

BD – twice a day, TDS – thrice a day

### Assessment of Patient

Overall assessment of the therapy was made based on the improvement in pain, *Mutra Pravrutti* and ultrasonography (USG) finding.

### Assessment parameter

#### Objective parameters

USG of KUB was done before (0 days) and after the intervention (30<sup>th</sup> Day) for the assessment of change in the size of urinary calculi.

#### Subjective parameter

The assessment was done before (0day) and after the intervention (30<sup>th</sup>day) based on grading of symptoms as follows.

### Assessment of the overall effect of therapy

The overall effect of the therapy was assessed by adopting the following criteria.

- **Complete Remission:** 100% relief in Chief complaints and absence of renal calculi in USG of KUB.
- **Marked improvement:** >75% and <100% improvements in chief complaints and decrease in size of the stone was recorded as a marked improvement.

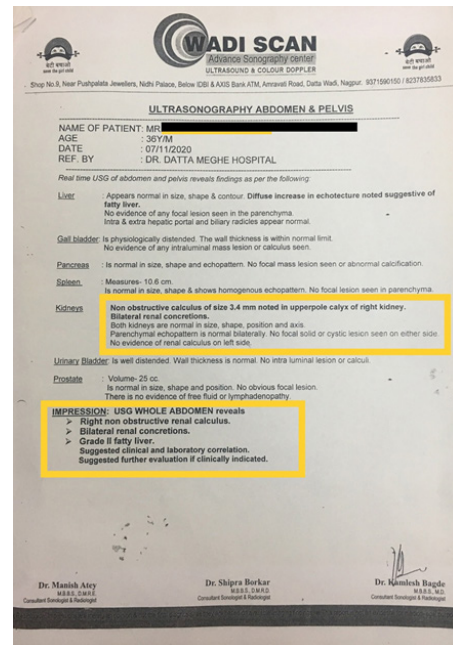
- **Moderate improvement:** <75% and >50% improvement in chief complaints and decrease in size of the stone was recorded as a moderate improvement.
- **Mild improvement:** <50% and >25% improvement in chief complaints and reduction in the size of the stone was considered as a mild improvement.
- **No improvement:** <25% improvement in chief complaint and reduction in the size of the stone was recorded as no improvement.

## RESULTS

In the first follow-up; the patient informed the stone was expelled out through urine, and he experienced moderate pain and disturbance in the urine flow on 30<sup>th</sup> day. The patient got moderate relief from pain in the abdomen and did not experience dysuria (Figure 1 and 2). Other assessment of before and after observation is mentioned in Table 4, 5 and 6 and Figure 1 and 2.

**Table 4: Assessment of Patient**

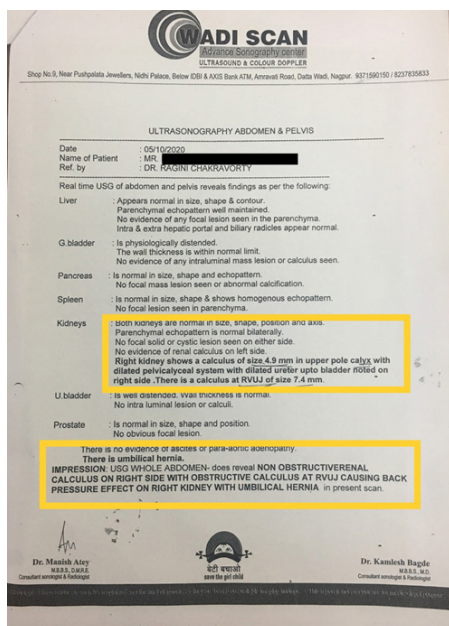
Complaints	Days	
	0 day [Pre-Treatment]	30 <sup>th</sup> day [Post-Treatment]
Abdominal Pain [ <i>bastishool</i> ]	Severe	Mild
Renal angle tenderness	Severe	Mild
Burning micturition [ <i>mutra-daha</i> ]	Severe	Mild
Generalized weakness	Moderate	Mild
Dysuria [ <i>mutrakruhra</i> ]	Moderate	Nil
Nausea and vomiting	Mild	Nil
Feverish	Mild	Nil



**Figure 2: USG Report - After Treatment.**

**Table 5: USG Findings**

Sr. No.	Date	Clinical Findings	USG (Ultrasonography) Findings
1	5 <sup>th</sup> October 2020	Generalized weakness Nausea/vomiting Burning micturition Dysuria Feverish	<ul style="list-style-type: none"> <li>• Right kidney shows Non-Obstructive renal calculus of size 4.9mm in upper pole calyx with dilated ureter up to bladder noted on right side</li> <li>• Obstructive calculus of size 7.4mm at RVUJ (Right Vesicoureteric Junction) causing back pressure effect on right kidney with umbilical Hernia</li> <li>• No evidence of renal calculus on the left side</li> </ul>
2	7 <sup>th</sup> November 2020	No complaints	<ul style="list-style-type: none"> <li>• Right kidney shows Non-Obstructive renal calculus of size 3.4mm in upper pole calyx</li> <li>• No evidence of dilated ureter up to bladder noted on right side</li> <li>• No evidence of Obstructive calculus of size 7.4mm at RVUJ which was seen on 05/10/2020</li> <li>• No back pressure effect on the right kidney, therefore, no evidence of Umbilical Hernia</li> <li>• No evidence of renal calculus on the left side</li> </ul>



**Figure 1: USG Report - Before Treatment.**

**Table 6: Investigation**

Sr. No.	Investigation	Before Treatment	After Treatment
1	Epithelial cells	7-9/hpf	1-2/hpf
2	Pus cells	8-10/	1-2
3	Erythrocytes	0-4 p.v.f.	0-4 p.v.f.
4	Urine colour	Turbid	Clear
5	ESR	38/ 1 sth	15/1 <sup>st</sup> h

## DISCUSSION

The intervention was found to be very effective in calculus of about 4.9mm in Right upper pole calyx and dilated ureter upto bladder noted on right side with obstructive calculus of size 7.4mm at RVUJ (Right Vesicoureteric Junction) causing back pressure effect on right kidney with umbilical Hernia. This combination of drugs found to be very effective in reducing the symptoms of *mutrashmarii. ebastishoola, mutrakrichrata and mutradaha* within 30 days.

*Chandraprabha Vati* is a potent anti-inflammatory Ayurvedic remedy used for the treatment of diseases of the urinary tract, kidney, pancreas, thyroid gland, bones and joints. 'Chandra' signifying 'moon' and 'Prabha' denoting 'glow', *Chandraprabha Vati* brings a glow to your body and promotes strength and immunity. Ayurvedic Formulation Tablet contains *Shilapushpa (Didymocarpuspedicellata)* 130mg, *Pasanabheda (Saxifagalulata Syn. Bergenia ligulata/ciliata)* 98 mg, *Manjishtha (Rubia cordifolia)* 32 mg, *Nagar-musta (Cyperus scariosus)* 32 mg, *Apamarga (Achyranthes Aspera)* 32 mg, *Gohija (Onosmabraceatum)* 32 mg, *Sahadevi (Vernonia cinerea)* 32 mg, *Shilajeet (Purified)* 26 mg, *Punarnava, Ushira, Shweta Parpati* and *HajarulyashoodBhasma* which is used in urinary retention, dysuria, renal calculi, hematuria, and burning in urination due to acidic urine.<sup>11</sup>

Varunadi Kshaya<sup>12</sup> is capable of lithotriptic action, reducing pain intensity, dysuria and is also capable of reducing haematuria. Many articles from the GBD study reflect on evidence of renal problems.<sup>13-16</sup> Several articles on different aspects of renal diseases were reported.<sup>17-20</sup> Jain et. al. reported a rare case of Kikuchi's Disease.<sup>21</sup> Few of the related articles were reported by Somani et. al.<sup>22</sup>, Aryal et. al.<sup>23</sup>, Aradhey et. al.<sup>24</sup>, Balwani et. al.<sup>25</sup>

The result revealed that with ayurvedic Shaman Chikitsa renal calculi can be healed and thus lithotripsy and other surgical procedures can be prevented. As a serious and difficult clinical problem, kidney stones are present. Medical treatment can help avoid recurrence and the expulsion of small (<10 mm) stones when used judiciously in combination with dietary steps. It's great that Non-Obstructive renal calculus of size 4.9mm in upper pole calyx got reduced to 3.4mm and obstructive calculus of size 7.4mm at RVUJ

(Right Vesicoureteric Junction) expelled out within 30 days of with this Ayurvedic Shaman Chikitsa. As it was causing back pressure effect on the right kidney and thus causing umbilical Hernia. So the patient also got relief from Umbilical Hernia. The patient is continued with the same treatment for the next 30 days. Till date, there is no need for patient to undergo any surgical intervention as well as no recurrence of symptoms. This study is the management of a single case study only. An attempt must be made for additional investigation of the effect of this *Shaman* therapy in a large population for establishing standard treatment protocol.

## CONCLUSION

The Chandraprabha Vati, Ayurvedic Formulation Tablet, Varunadi Kshaya can be safely and effectively carried out in patients of *Mutrashmari* with good results.

**Source of Funding:** Nil

**Conflict of Interest:** There are no conflicts of interest.

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