**RESEARCH PAPER**

# A Case Study on Karkotimoolayoga in the Management of Mutrashmari (Urolithiasis)

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***ABSTRACT***

Mutrashmari is one of the classical Ayurvedic descriptions of urinary stone disease and is traditionally placed among conditions that are difficult to cure because of severe pain, obstruction, recurrence, and the possibility of surgical intervention. In contemporary terminology it is correlated with urolithiasis, a disorder characterized by formation of calculi within the renal pelvis, ureter, urinary bladder, or urethra. The present paper documents a single case of sonographically confirmed left-sided urinary calculus managed with Karkotimoolayoga, a Karkotimoola-based Ayurvedic intervention, with radiological follow-up. Objective: To present a structured case study on the clinical application of Karkotimoolayoga in Mutrashmari and to evaluate the outcome using before- and after-treatment ultrasonography. Materials and Methods: This was a single-patient observational case report. Mrs. XYZ, 32 years, female, was evaluated for Mutrashmari/urolithiasis. Baseline ultrasound abdomen and pelvis dated 02-Feb-2026 reported a left-sided 9.3 mm calculus at the proximal ureter/left renal region. The patient received Karkotimoolayoga under clinical supervision along with conservative pathya-apathya guidance, hydration advice, and follow-up monitoring. A repeat ultrasound dated 17-Feb-2026 reported that both kidneys showed no renal calculus and the final impression was no abnormality detected. Results: A radiological change from a 9.3 mm calculus to non-visualization of calculus was documented within the follow-up interval. The available post-treatment photograph also documented a small expelled calculus-like concretion. No invasive procedure was recorded in the provided case material. Conclusion: This case suggests that Karkotimoolayoga may have a useful supportive role in selected uncomplicated Mutrashmari cases, especially where the stone burden is small to moderate and close clinical monitoring is possible. However, because this is a single case report, the observation cannot be generalized without controlled clinical studies, standardized dosing, biochemical evaluation, stone analysis, and longer recurrence follow-up.

**Key words:** Karkotimoolayoga; Karkotimoola; Mutrashmari; Urolithiasis; renal calculus; Ayurveda; case report.

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**Conflict of interest:** None.

## Introduction

Urolithiasis is a common disorder of the urinary system in which dissolved urinary constituents crystallize and aggregate to form calculi within the kidneys or urinary tract. It may present with flank or loin pain, dysuria, burning micturition, hematuria, nausea, urinary frequency, recurrent urinary tract infection, or may remain asymptomatic until detected by imaging. Modern understanding attributes stone formation to supersaturation of urine, nucleation, growth, aggregation and retention of crystals, usually in the setting of low urine volume, increased urinary excretion of calcium, oxalate, phosphate or uric acid, or reduced crystallization inhibitors such as citrate and magnesium [5-8]. Calcium oxalate stones are the most common variety worldwide, but uric acid, calcium phosphate, struvite, cystine and mixed stones are also encountered [5,7].

Global epidemiological studies indicate that stone disease has increased substantially during the last few decades due to climatic factors, dietary transition, obesity, metabolic syndrome, reduced fluid intake and sedentary lifestyles

[12, 13]. Urolithiasis has also become a recurrent and economically important condition, as many patients require repeated emergency visits, imaging, analgesics, medical expulsive therapy, endourological procedures, or long-term metabolic prevention [9-11]. Current urological guidelines emphasize prompt diagnosis, relief of obstruction and infection, individualized imaging, conservative management where appropriate, and recurrence prevention through adequate urine volume and metabolic correction [9-11].

In Ayurveda, Mutrashmari is described as a disease of Mutravaha Srotas and is included among Ashtamahagada by classical authorities because of its painful and obstructive nature [1, 2]. The term is derived from Mutra (urine) and Ashmari (stone-like concretion), reflecting the formation of a hard obstructive body in the urinary passage. Classical descriptions include features such as Basti-peeda, Mutrakrichra, Mutradaha, Mutra-sanga, Vedana in the urinary region, and occasional passage of gravel or sand-like material. Sushruta described the pathogenesis of Ashmari with predominance of Kapha along with Vata and Pitta involvement, where vitiated Dosha and Dushta Mutra promote accumulation, concretization and obstruction within the urinary tract [1, 2].

The Ayurvedic approach to Mutrashmari aims not only at symptomatic relief but also at correction of underlying Dosha imbalance, facilitation of Mutra-pravritti, reduction of obstruction, and prevention of recurrence. Drugs described as Mootrala, Ashmaribhedana, Kaphahara, Vatanulomana, Shothahara and Vedanasthapana are commonly selected based on the clinical stage and strength of the patient [2-4]. Several modern clinical and experimental studies have evaluated Ayurvedic or herbal preparations for urolithiasis, including formulations containing Palasha Kshara, Ashmarihara Kwatha, Gokshura, Varuna, Kulattha and other stone-modulating herbs [15-19]. These studies suggest potential mechanisms such as increased urine output, reduction in crystal aggregation, anti-inflammatory activity, analgesic action and modulation of urinary crystallization parameters.

Karkotimoola is generally correlated with the root/tuberous component of Momordica dioica or related regional Karkotaki/Karkotaka identities in Ayurvedic and ethnomedicinal usage. Momordica dioica has been reported to contain flavonoids, saponins, alkaloids, glycosides, phenolics and triterpenoids, with pharmacological actions such as antioxidant, anti-inflammatory, analgesic, antimicrobial and renal-protective properties [20]. Although direct clinical literature on Karkotimoolayoga in Mutrashmari is limited, its traditional use, phytochemical profile and the broader evidence base on plant-based antiurolithiatic interventions justify documentation of carefully monitored clinical observations. The present case study is therefore written to document the management of a sonographically confirmed case of urolithiasis in Mrs. Arusha Bhansali with Karkotimoolayoga, using before- and after-treatment USG evidence.

## 1. Aim and Objectives

Aim: To evaluate and document the clinical outcome of Karkotimoolayoga in the management of Mutrashmari correlated with urolithiasis in a single patient.

Objectives: (1) To present the Ayurvedic and modern diagnostic basis of the case; (2) to document the treatment protocol and follow-up observations; (3) to compare before- and after-treatment USG findings; and (4) to discuss the probable mode of action of Karkotimoolayoga in the context of Mutrashmari and urolithiasis.

## 2. Literature Review

Classical Ayurvedic literature describes Mutrashmari as a pathological event that begins with derangement of Mutravaha Srotas. Vitiated Kapha is considered the principal factor in the formation of a compact, stone-like mass, whereas Vata contributes to pain, obstruction and movement of the calculus through narrow passages. Pitta involvement produces burning, discoloration of urine and inflammatory features [1, 2]. The disease therefore requires a therapeutic approach capable of breaking the cycle of srotorodha, pain, inflammation and crystallization.

Modern pathophysiology provides a biochemical explanation for many of these observations. Stones form when urine becomes supersaturated with lithogenic substances, allowing crystal nucleation and growth. Low fluid intake and high urinary concentration increase supersaturation, while hypercalciuria,

hyperoxaluria, hyperuricosuria, hypocitraturia, infection and urinary stasis increase the risk of calculus formation. Randall's plaques, tubular epithelial injury, oxidative stress and inflammation have been proposed as important contributors to crystal retention and recurrence [5,7,8]. These mechanisms correspond broadly with the Ayurvedic emphasis on Dushti, Srotorodha, Shotha and deranged Mutra formation.

Conservative management is considered when stone size, location and patient condition permit observation or medical expulsion. Contemporary guidelines recommend urgent intervention when there is obstruction with infection, renal impairment, uncontrolled pain, solitary kidney compromise or failure of conservative management [9-11]. In uncomplicated small ureteric stones, hydration, analgesia and follow-up imaging may be used with clinical judgment. This creates a rational clinical space for integrative observational studies where Ayurvedic interventions are used under appropriate monitoring and referral criteria.

Recent studies on Ayurvedic and plant-based interventions indicate potential clinical relevance. Kumari and Dudhamal reported an open-labelled placebo-controlled trial in which Palasha Kshara with Ashmarihara Kwatha showed improvement in chief complaints and stone-related outcomes in Mutrashmari [15]. Patankar et al. reported a randomized double-blind placebo-controlled study of a polyherbal formulation in patients with asymptomatic renal calculi, observing improvement in pain score, reduction in stone surface area and higher expulsion rate in the treatment group [19]. Experimental studies on Tribulus terrestris, Gokhru fractions, and combinations of Dolichos biflorus with Crataeva nurvala provide pharmacological support for antiurolithiatic, diuretic and crystal-modulating activity of selected traditional herbs [16-18].

Karkotimoolayoga has not been as extensively studied in formal urolithiasis trials; hence, publication of well-documented case reports is important. Case reports cannot establish efficacy, but they can record clinical plausibility, generate hypotheses, and guide future prospective studies. The strength of the present case lies in pre- and post-treatment USG documentation and visible expulsion evidence, while its limitations include absence of stone analysis, limited biochemical parameters, incomplete symptom scoring, and short follow-up duration.

## 3. Materials and Methods

### 3.1 Study Design

This manuscript is a single case study/case report based on clinical observation, radiological investigation and follow-up documentation. It is descriptive in nature and does not involve randomization, blinding, control group allocation or inferential statistical comparison. The paper has been structured in a standard case-report format with tables, radiological figures, photographic documentation, graphs and discussion.

### 3.2 Case Setting and Consent

The case was managed on an outpatient basis under Ayurvedic clinical supervision in Pune, Maharashtra. The patient details and radiological images were used for manuscript preparation. Written informed consent for publication of clinical data, images and sonography reports should be obtained and preserved before journal submission. All personal details may be anonymized if required by the target journal.

**Patient information**

| SN | Demographic details | Observation |
|---|---|---|
| 1 | Name | XYZ |
| 2 | Age/Sex | 32 years/Female |
| 3 | Clinical correlation | Mutrashmari correlated with urolithiasis |
| 4 | Baseline imaging date | 02-Feb-2026 |
| 5 | Follow-up imaging date | 17-Feb-2026 |
| 6 | Relevant baseline finding | Left-sided 9.3 mm calculus at proximal ureter/left renal region |
| 7 | Follow-up finding | No renal calculus; no abnormality detected |

**Table 1: Demographic and case identification details**

### 3.3 Chief clinical concern

The patient was evaluated for suspected urinary calculus/Mutrashmari. The provided investigation record documents a left-sided 9.3 mm calculus on baseline ultrasonography. Detailed day-wise symptom scores, urine routine microscopy and serum biochemical parameters were not visible in the uploaded clinical documents; therefore, this manuscript gives primary emphasis to radiological confirmation and follow-up outcome. For final journal submission, the treating physician should insert the original OPD symptom grades, pain score, urinary complaints, and laboratory values if available.

| SN | Clinical element | Status in available records |
|---|---|---|
| 1 | Radiological diagnosis before treatment | Left renal/proximal ureter calculus measuring 9.3 mm |
| 2 | Pain score | To be inserted from OPD record, if available |
| 3 | Burning micturition/dysuria | To be inserted from OPD record, if available |
| 4 | Hematuria/urine microscopy | Not available in uploaded material |
| 5 | Renal function test | Not available in uploaded material |
| 6 | Stone analysis | Not available; photographic evidence of expelled calculus present |

**Table 2: Chief clinical concern and data availability**

### 3.4 Diagnostic assessment

The primary diagnostic tool used in this case was ultrasound of abdomen and pelvis. On 02-Feb-2026, the USG report documented a left-sided 9.3 mm calculus at the proximal ureter/left renal region, with the final impression of left renal calculus. The follow-up USG report dated 17-Feb-2026 documented that both kidneys showed no renal calculus, with final impression of no abnormality detected. The two USG reports provide the main objective evidence for baseline diagnosis and post-treatment outcome.

| Investigation | Before treatment: 02-Feb-2026 | After treatment: 17-Feb-2026 |
|---|---|---|
| Liver/gall bladder/pancreas/spleen | No significant abnormality recorded | No significant abnormality recorded |
| Kidneys | Right kidney 9.2 x 3.2 cm; left kidney 9.3 x 3.7 cm; left kidney showed 9.3 mm calculus at proximal ureter | Right kidney 9.2 x 3.2 cm; left kidney 9.3 x 3.7 cm; both kidneys showed no renal calculus |
| Urinary bladder | Well distended; no wall thickening; no intraluminal lesion | Well distended; no wall thickening; no intraluminal lesion |
| Uterus/ovaries | Uterus and ovaries within normal sonographic limits | Uterus and ovaries within normal sonographic limits |
| Other findings | No free fluid in pouch of Douglas; no ascites | No free fluid in pouch of Douglas; bowel loops gaseous; no ascites |
| Impression | Left renal calculus | No abnormality detected |

**Table 3: Comparative USG findings before and after treatment**

### 3.5 Ayurvedic assessment

On Ayurvedic grounds, the case was interpreted as Mutrashmari involving Mutravaha Srotas. The baseline sonographic evidence of calculus provided the structural correlate of Ashmari. In the classical framework, Kapha contributes to concretion and solidity, Vata contributes to obstruction, movement and pain, and Pitta may participate in burning, inflammatory changes and altered urine quality [1-3]. The intervention was therefore selected with an intention to support Mutra-virechana, Vatanulomana, Kaphahara action, reduction of local inflammation, and possible facilitation of calculus expulsion.

| Assessment parameter | Probable interpretation |
|---|---|
| Vyadhi | Mutrashmari |
| Srotas involved | Mutravaha Srotas |
| Predominant Dosha | Kapha-Vata involvement; Pitta may be associated if burning/inflammation is present |
| Dushya | Mutra, Kleda and local tissues of urinary tract |
| Srotodushti | Sanga/Srotorodha with crystallization and obstruction |
| Udbhavasthana | Mutravaha Srotas/Basti-pradesha |
| Vyaktasthana | Left renal/proximal ureter region as documented on USG |
| Therapeutic principle | Mootrala, Ashmaribhedana-like, Vatanulomana, Kaphahara, Shothahara and Vedanasthapana support |

Table 4: Ayurvedic diagnostic interpretation

### 3.6 Intervention: Karkotimoolayoga

Karkotimoolayoga was administered as the principal Ayurvedic intervention under supervision. Because the uploaded material did not contain a legible prescription sheet, the exact dose, frequency and preparation method must be confirmed from the treating physician before final publication. The present draft records the formulation category, route, duration and therapeutic intent without inventing undocumented dose details. The follow-up interval between baseline and repeat USG was 15 days.

| SN | Intervention component | Description |
|---|---|---|
| 1 | Principal formulation | Karkotimoolayoga (Karkotimoola-based Ayurvedic formulation churn ) |
| 2 | Route | Oral administration |
| 3 | Dose | 3gm bd |
| 4 | Kaal | Apanakal |
| 5 | Anupana | Go dugdha |
| 6 | Duration documented by imaging follow-up | 02-Feb-2026 to 17-Feb-2026 |
| 7 | Supportive advice | Adequate hydration, avoidance of excessive salty/spicy/oxalate-rich incompatible diet, and clinical follow-up |
| 8 | Monitoring | Repeat USG abdomen and pelvis; clinical observation for pain, urinary symptoms and possible expulsion |
| 9 | Referral criteria | Fever, anuria, severe colic, hydronephrosis, rising creatinine, uncontrolled vomiting or emergency symptoms |
| 10 | Lakshana | i).Udarshula ( pain in abdomen)<br>ii).Sarakta mutrapravrutti ( Hematuria)<br>ii).Sashoola mutrapavrutti ( Hematuria) |

**Table 5: Treatment given and supportive management**

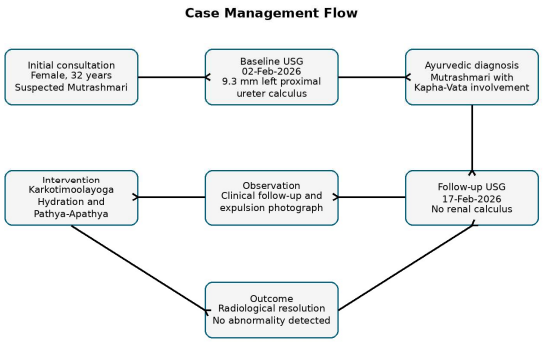



**Figure 1: Case management flow from baseline USG to follow-up outcome**

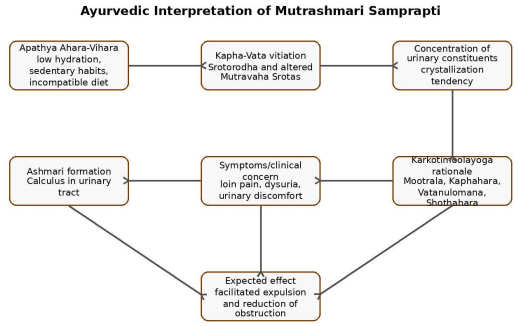



**Figure 2: Ayurvedic interpretation of Mutrashmari Samprapti and therapeutic rationale**

## 4. Results

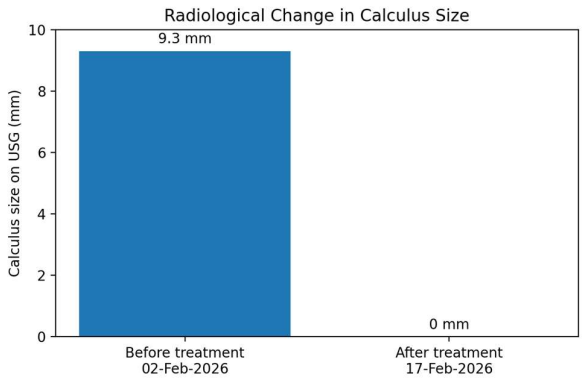
The primary outcome in this case was sonographic change in calculus status. On 02-Feb-2026, ultrasound abdomen and pelvis reported a 9.3 mm calculus on the left side. On 17-Feb-2026, repeat ultrasound reported that both kidneys showed no renal calculus, and the radiological impression was no abnormality detected. The change from a measurable calculus to non-visualization on follow-up imaging is the strongest objective result in the available case material.

The photographs supplied with the case show a small yellowish-brown to dark calculus-like concretion collected after treatment. Although visual inspection cannot replace laboratory stone analysis, the image supports the clinical narrative of passage of a stone-like material. Stone analysis by infrared spectroscopy or crystallographic methods would be ideal in future cases to determine calcium oxalate, uric acid, phosphate, cystine or mixed composition.

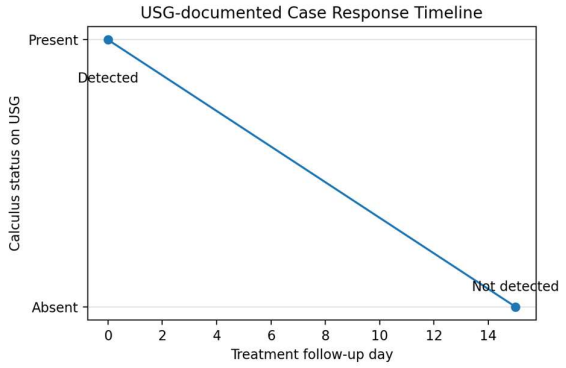
No adverse event, hospitalization, surgical intervention or emergency complication was documented in the material supplied for manuscript preparation. The patient's follow-up USG did not show hydronephrosis, intraluminal bladder lesion or residual renal calculus. These findings are clinically relevant but should be interpreted cautiously because a single case cannot rule out spontaneous passage, variability in imaging, or other confounding factors.

| Outcome variable | Before treatment | After treatment | Interpretation |
|---|---|---|---|
| USG calculus size | 9.3 mm | 0 mm/not visualized | Complete sonographic resolution |
| USG impression | Left renal calculus | No abnormality detected | Favorable radiological change |
| Kidney dimensions | Right 9.2 x 3.2 cm; Left 9.3 x 3.7 cm | Right 9.2 x 3.2 cm; Left 9.3 x 3.7 cm | No adverse dimensional change recorded |
| Bladder finding | Well distended, no lesion | Well distended, no lesion | No bladder abnormality detected |
| Other abdominal findings | No ascites/free fluid | No ascites/free fluid; gaseous bowel loops | No clinically alarming USG finding recorded |

**Table 6: Observation and result**




**Graph 1: Reduction in USG-documented calculus size from baseline to follow-up**




**Graph 2: Timeline of radiological response during the observation period**

### 4.1 Radiological and Photographic Documentation

The following images have been incorporated as case documentation. For journal submission, patient consent and anonymization requirements should be checked according to the editorial policy of the selected journal.

VIJAYA PH DIAGNOSTIC CENTRE

Years of Legacy, Accuracy and Trust

Ground Floor, Aston Plaza, Sr No. 56,62,63,Katraj Road, Ambegaon, Pune - 411046.

TEST REPORT

| | | | | | |
|---|---|---|---|---|---|
| Name | : | MRS.ARUSHA BHANSALI | Registered on | : | 02-Feb-2026 10:40 |
| Age/Gender | : | 32 Years/Female | Released on | : | 02-Feb-2026 10:50 |
| Registration ID | : | 2026811513 | Printed on | : | 02-Feb-2026 11:50 |
| Ref. By | : | DR.D.L SHINDE | Regn Centre | : | PH-AMBEGAON-623 |

DEPARTMENT OF RADIOLOGY [redacted]
ULTRASOUND OF ABDO

| | | |
|---|---|---|
| Liver | : | Normal in size and shows homogenous echotexture. No focal or diffuse pathology seen. There is no evidence of obvious intra or extrahepatic biliary dilatation. CBD and portal vein appear normal. |
| Gall Bladder | : | Physiologically distended and shows no wall thickening. No obvious intraluminal lesion seen. |
| Pancreas | : | Normal in size, shape and echopattern. No calcifications, duct dilatation seen. |
| Spleen | : | Normal in size (9.2 cm), shape and echopattern. |
| Kidneys | : | Right kidney : 9.2 x 3.2 cm; Left kidney : 9.3 x 3.7 cm<br>Left kidney shows 9.3mm calculus at proximal ureter |
| Urinary Bladder | : | Well distended. No wall thickening seen. No obvious intraluminal lesion seen. |
| Uterus | : | Size : 3.7 x 3.5 x 7 cm.<br>Anteverted. Normal in size, shape and echotexture.<br>Endometrial thickness measures 5.9 mm.<br>Cervix appears normal.<br>**Ovaries:** Right ovary : 1.9 x 1.6 cm Left ovary :2.1 x 1.6 cm; Both ovaries are normal in size, shape and echotexture |
| Other Findings | : | No free fluid in Pouch of Douglas.<br>No ascites. |
| Impression | : | **LEFT RENAL CALCULUS** |

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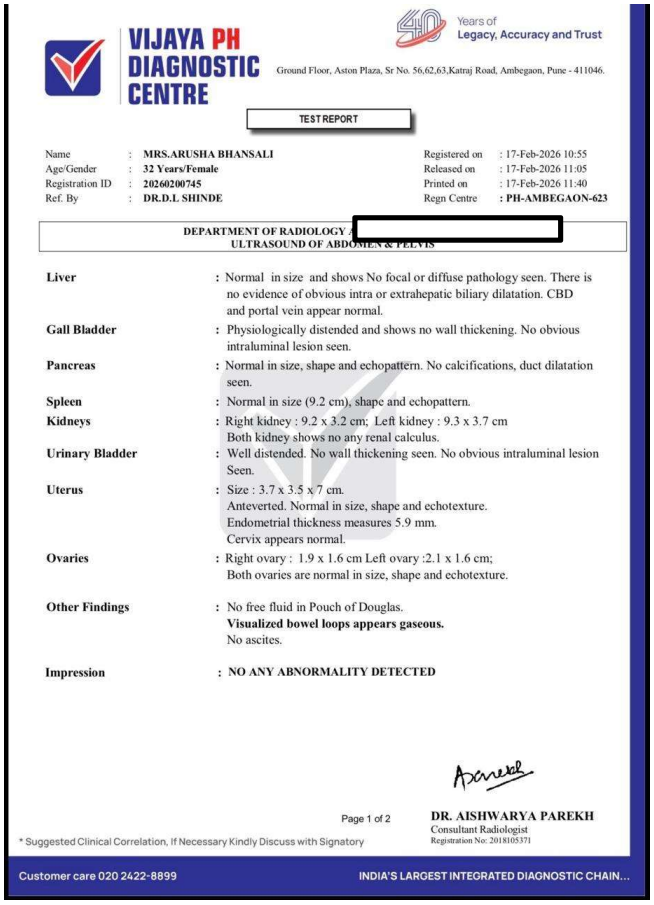
* Suggested Clinical Correlation, If Necessary Kindly Discuss with Signatory

Customer care 020 2422-8899 INDIA'S LARGEST INTEGRATED DIAGNOSTIC CHAIN...

**Figure 3: Before-treatment USG abdomen and pelvis report dated 02-Feb-2026 showing left renal calculus**



VIJAYA PH DIAGNOSTIC CENTRE

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Ground Floor, Aston Plaza, Sr No. 56,62,63,Katraj Road, Ambegaon, Pune - 411046.

TEST REPORT

| | | | | | |
|---|---|---|---|---|---|
| Name | : | MRS.ARUSHA BHANSALI | Registered on | : | 17-Feb-2026 10:55 |
| Age/Gender | : | 32 Years/Female | Released on | : | 17-Feb-2026 11:05 |
| Registration ID | : | 2026020745 | Printed on | : | 17-Feb-2026 11:40 |
| Ref. By | : | DR.D.L SHINDE | Regn Centre | : | PH-AMBEGAON-623 |

DEPARTMENT OF RADIOLOGY [redacted]
ULTRASOUND OF ABDOMEN & PELVIS

| | | |
|---|---|---|
| Liver | : | Normal in size and shows No focal or diffuse pathology seen. There is no evidence of obvious intra or extrahepatic biliary dilatation. CBD and portal vein appear normal. |
| Gall Bladder | : | Physiologically distended and shows no wall thickening. No obvious intraluminal lesion seen. |
| Pancreas | : | Normal in size, shape and echopattern. No calcifications, duct dilatation seen. |
| Spleen | : | Normal in size (9.2 cm), shape and echopattern. |
| Kidneys | : | Right kidney : 9.2 x 3.2 cm; Left kidney : 9.3 x 3.7 cm<br>Both kidney shows no any renal calculus. |
| Urinary Bladder | : | Well distended. No wall thickening seen. No obvious intraluminal lesion Seen. |
| Uterus | : | Size : 3.7 x 3.5 x 7 cm.<br>Anteverted. Normal in size, shape and echotexture.<br>Endometrial thickness measures 5.9 mm.<br>Cervix appears normal. |
| Ovaries | : | Right ovary : 1.9 x 1.6 cm Left ovary :2.1 x 1.6 cm;<br>Both ovaries are normal in size, shape and echotexture. |
| Other Findings | : | No free fluid in Pouch of Douglas.<br>**Visualized bowel loops appears gaseous.**<br>No ascites. |
| Impression | : | NO ANY ABNORMALITY DETECTED |

Page 1 of 2

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**Figure 4: After-treatment USG abdomen and pelvis report dated 17-Feb-2026 showing no renal calculus and no abnormality detected**

**Figure 5: Photographic documentation of expelled calculus-like material after treatment**

**Figure 6: Close-up photograph of expelled calculus-like material**

## 5. Discussion

The present case shows a favorable radiological outcome in a 32-year-old female with left-sided urinary calculus treated with Karkotimoolayoga. Baseline USG showed a 9.3 mm calculus, while follow-up USG showed no renal calculus. This may suggest stone passage, fragmentation with elimination, or non-visualization after migration. The photograph of expelled stone-like material supports passage, although chemical analysis was not done.

This case is important because it includes objective before-and-after imaging, not only symptomatic relief. However, USG may miss small or distal ureteric stones; therefore, CT or urological review may be required if symptoms persist [9-11].

Ayurvedically, the case may be understood as Mutrashmari, involving Kapha-related stone formation, Vata-related obstruction and pain, and possible Pitta involvement in burning or inflammation [1-3]. Karkotimoolayoga was used to clear Mutravaha Srotas, promote Mutra-pravritti, reduce Kapha aggregation, pacify Vata, and support inflammatory balance.

Plant-based antiurolithiatic agents may act by increasing urine output, modifying urinary pH, inhibiting crystal formation and aggregation, reducing oxidative stress, and controlling inflammation [16-19]. Karkotimoola, commonly linked with Momordica dioica, contains flavonoids, saponins, alkaloids, phenolics, and triterpenoids with reported antioxidant, anti-inflammatory, and analgesic activity [20]. However, direct clinical validation is required.

Other Ayurvedic and herbal preparations have shown antiurolithiatic potential, including Palasha Kshara with Ashmarihara Kwatha [15], Gokhru fractions and Tribulus terrestris [17,16], and Dolichos biflorus with Crataeva nurvala [18]. These findings support herbal approaches but cannot be directly applied to Karkotimoolayoga without specific studies.

Hydration and diet may also influence the outcome. Adequate fluid intake reduces urinary supersaturation [9,14], while high sodium, animal protein, refined sugar, high-oxalate foods, low dietary calcium, and metabolic factors may increase recurrence risk [7,8,14]. Ayurvedic Pathya-Apathya also supports proper hydration and avoidance of heavy, dry, salty, and aggravating foods.

## 6. Probable Mode of Action of Karkotimoolayoga

The probable mode of action may be explained through an integrative Ayurvedic and biomedical framework. Ayurvedically, Karkotimoolayoga may be considered to act through Mootrala, Kaphahara, Vatanulomana, Shothahara and Vedanasthapana effects, thereby improving urinary flow, reducing obstruction-related discomfort and supporting expulsion of Ashmari. Biomedically, the reported phytoconstituents of Momordica dioica and related traditional plants, including flavonoids, saponins, phenolics and triterpenoids, may plausibly support antioxidant, anti-inflammatory and smooth passage mechanisms [20]. Some antiurolithiatic herbs have demonstrated inhibition of calcium oxalate crystallization, improved urine output and reduction of biochemical stone promoters in experimental settings [16-18]. However, direct mechanistic studies on Karkotimoolayoga are required before making firm pharmacological claims.

| Ayurvedic action | Possible clinical relevance in Mutrashmari | Modern explanatory correlate |
|---|---|---|
| Mootrala | Promotes Mutra-pravritti and urinary flushing | Increased urinary volume may reduce supersaturation |
| Kaphahara | Reduces solidifying/concretion tendency | May correspond to reduced aggregation and mucus-like retention tendency |
| Vatanulomana | Relieves obstruction-related pain and facilitates downward movement | May support ureteric passage and reduction of spasm |
| Shothahara | Reduces local | Anti- |

| | | |
|---|---|---|
| | inflammatory component | inflammatory and antioxidant phytochemical activity |
| Ashmaribhedana-like support | Helps disintegration/passage of calculus | Potential inhibition of nucleation, growth and aggregation of crystals |

**Table 7: Probable mode of action**

## 7. Clinical Applicability and Safety Considerations

The present case indicates that Karkotimoolayoga may be considered as a supportive, non-invasive Ayurvedic therapeutic option in carefully selected cases of uncomplicated Mutrashmari where the patient is clinically stable and has no evidence of renal failure, fever, urinary sepsis, anuria, persistent vomiting, or uncontrolled severe pain. In contemporary urological practice, stone size, site, degree of obstruction, renal function, infection status, and patient preference are important determinants of management; therefore, Ayurvedic intervention should be planned only after appropriate clinical and radiological assessment [7-10]. In the present case, the patient was evaluated using ultrasonography before and after therapy, and clinical observation was maintained throughout the treatment period. Such objective documentation improves the reliability of case reporting and allows a clear comparison between baseline disease status and post-treatment outcome.

Safety monitoring is particularly important in urolithiasis because spontaneous stone migration can occasionally precipitate acute colic, haematuria, urinary tract infection, hydronephrosis, or obstructive uropathy. Accordingly, patients receiving conservative or Ayurvedic management should be advised to report warning symptoms immediately, including high-grade fever with chills, severe non-relieving flank pain, reduced urine output, gross haematuria, recurrent vomiting, or features suggestive of systemic illness. Basic investigations such as urine routine microscopy, renal function tests, and repeat ultrasonography may be added depending on clinical need. Adequate hydration, correction of dietary triggers, avoidance of excessive salt and animal protein intake, and patient education regarding recurrence prevention should accompany drug administration because stone disease is a recurrent metabolic disorder rather than merely an isolated mechanical event [12-14].

## 8. Implications for Future Research

Future studies on Karkotimoolayoga in Mutrashmari should move beyond isolated case documentation and adopt prospective observational studies or controlled clinical trial designs. A standard protocol may include predefined inclusion criteria based on stone size and site, exclusion of complicated calculi, baseline urine analysis, serum creatinine, ultrasonography or non-contrast computed tomography where indicated, pain scoring, dysuria grading, urine frequency assessment, rescue analgesic requirement, and post-treatment follow-up for recurrence. The primary outcome may be complete stone clearance or reduction in calculus size, while secondary outcomes may include relief in Vedana, Mutrakriccha, Mutradaha, improvement in urinary flow, changes in crystalluria, and reduction in recurrence-promoting dietary or lifestyle factors. This approach would allow a more objective comparison between Ayurvedic parameters and biomedical endpoints [8-11].

Standardization of the formulation is also essential. Future publications should clearly describe the botanical identity of Karkoti or Karkotimoola used, part employed, authentication method, collection source, processing method, dose, Anupana, frequency, duration, diet restrictions, and co-interventions. Phytochemical profiling and quality-control testing would improve reproducibility and reduce variability between batches. Experimental work on anti-crystallization, anti-nucleation, anti-aggregation, smooth-muscle-relaxant, anti-inflammatory, antioxidant, and diuretic mechanisms may help explain how the formulation influences stone passage or dissolution. Similar research on Gokshura, Varun, Kulattha, and other Ashmarihara drugs suggests that a combination of diuretic,

crystallization-inhibitory, and urinary tract protective actions may be relevant in Ayurvedic management of urolithiasis [15-19]. Properly designed follow-up studies may therefore help establish the therapeutic scope, limitations, and safety profile of Karkotimoolayoga in evidence-based Ayurvedic urolithiasis care.

## 9. Limitations of Study

• This is a single case report without a control group; causality cannot be established.
• Exact prescription details, dose, frequency and preparation method were not available in the uploaded material and must be confirmed from the treating physician before submission.
• Laboratory parameters such as urine routine microscopy, serum creatinine, uric acid, calcium, phosphate and urine pH were not available.
• The expelled material was not subjected to chemical stone analysis.
• The follow-up period was short; recurrence prevention requires longer observation.
• Ultrasound is operator-dependent and may miss small residual ureteric calculi; further imaging is required if symptoms recur.

### 9.1 Patient Perspective

The patient reportedly completed the Ayurvedic treatment and follow-up sonography without any documented complication in the available material. A signed patient perspective statement may be added after obtaining written consent.

### 9.2 Ethical Consideration

The case should be submitted for publication only after obtaining written informed consent from the patient for use of clinical information, USG reports and photographs. If the target journal requires anonymization, the patient name, registration number and identifying details should be masked in the final images.

### 9.3 Source of Support

Nil.

### 9.4 Conflict of Interest

None declared.

## Conclusion

This single case study documents the management of sonographically confirmed Mutrashmari/urolithiasis with Karkotimoolayoga in XYZ Baseline USG dated 02-Feb-2026 showed a 9.3 mm left-sided calculus, while repeat USG dated 17-Feb-2026 showed no renal calculus and reported no abnormality detected. Photographic evidence of an expelled calculus-like material was also available. The outcome suggests that Karkotimoolayoga, along with appropriate clinical monitoring and supportive pathya-apathya measures, may be useful in selected uncomplicated cases of Mutrashmari. Nevertheless, this observation should be interpreted as a case-level association and not as conclusive evidence. Future prospective studies should include standardized dose documentation, biochemical investigations, stone analysis, validated symptom scores, adverse event monitoring and recurrence follow-up to establish safety and reproducibility.

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