

Research Article**CONCEPT OF VATAJ MUTRASHMARI IN AYURVEDA: CORRELATION WITH SONOGRAPHIC FINDINGS OF THE URINARY TRACT****Dr. Hemant Bhatu Mahale¹, Dr. Dinesh B Naik²**¹ Pg Scholar, Department of Rachana Sharir Pdea's College of Ayurveda & Research Centre, Nigdi, Pune²Associate Professor, Department of Rachana Sharir Pdea's College of Ayurveda & Research Centre, Nigdi, PuneCorresponding Author: **Dr. Hemant Bhatu Mahale****Abstract**

Ayurveda describes Mutrashmari as one of the most distressing urinary disorders resulting from vitiation of doshas within the Mutravaha Srotas. Among its four classical types – Vataj, Pittaj, Kaphaj and Shukraj – Vataj Mutrashmari is predominantly caused by aggravated Vata dosha, which induces dryness, obstruction and painful passage of urine. The condition is characterized by severe colicky pain radiating from the flanks to the genital region, difficulty in micturition, and formation of rough, irregular calculi. Although Ayurvedic texts describe the etiopathogenesis and clinical features of Vataj Mutrashmari in detail, the structural involvement of urinary organs has not been systematically correlated with modern diagnostic imaging. The present cross-sectional study was conducted to assess the structural changes in the kidneys, ureters and bladder (KUB) of patients with clinically diagnosed Vataj Mutrashmari using ultrasonography. A total of 42 patients between 18 and 70 years of age were evaluated. Sonographic findings included the presence, size and location of calculi; degrees of obstruction and dilatation in the renal pelvis, ureter and bladder; and secondary changes such as hydronephrosis and bladder wall thickening. The observed patterns closely corresponded to the Ayurvedic description of pain and obstructive symptoms arising from Vata vitiation and urinary flow retardation. Thus, the study establishes a rational bridge between Ayurvedic concept and modern diagnostic evidence. Integration of ultrasonographic findings with classical Ayurvedic understanding offers a comprehensive perspective on pathogenesis, which may assist in the selection of appropriate Vata-pacifying and stone-expelling treatments for better clinical outcomes.

Keywords: Vataj Mutrashmari, Ashmari, Mutravaha Srotas, Ultrasonography, Kidney Stone, KUB, Ayurveda, Vata Dosha.

1. Introduction

Urinary disorders have been extensively discussed in *Ayurveda* since antiquity under the broad categories of *Mutraghata* and *Mutrashmari*. The term *Ashmari* (urinary calculus) is derived from the Sanskrit words *Ashma* (stone) and *Ari* (enemy), denoting a disease that acts as an internal adversary by producing severe pain and obstruction in the urinary tract. *Acharya Sushruta* classifies *Mutrashmari* among the *Ashta Mahagada* (eight grave disorders) due to its chronic, recurrent, and potentially life-threatening nature, which may result in urinary obstruction, hematuria, or renal damage ¹.

Ayurveda describes four principal types of *Mutrashmari* according to the predominance of the *Doshas*: *Vataj*, *Pittaj*, *Kaphaj*, and *Shukraj Ashmari*^{2,3}. Among these, *Vataj Mutrashmari* arises from aggravated *Vata Dosh*, which induces drying (*Shoshana*) and obstruction (*Margavarodha*) within the *Mutravaha Srotas*. This pathophysiological process leads to the formation of hard, rough, and irregular calculi accompanied by intense colicky pain and dysuria⁴. In modern biomedicine, *Mutrashmari* correlates with urolithiasis, a metabolic disorder characterized by crystalline deposition within the urinary tract. Diagnostic imaging, particularly ultrasonography (USG) of the kidneys, ureters, and bladder (KUB), is crucial for identifying the size, site, and number of calculi, as well as secondary changes such as obstruction or hydronephrosis⁵. While modern radiology offers anatomical insight, *Ayurveda* provides a functional and doshic perspective explaining the underlying causative imbalance. The present study titled “*Concept of Vataj Mutrashmari in Ayurveda: Correlation with Sonographic Findings of the Urinary Tract*” aims to integrate classical Ayurvedic concepts with modern diagnostic observations. It seeks to correlate the anatomical and structural alterations of the urinary system seen on ultrasonography with the clinical features of *Vataj Mutrashmari*, thereby enhancing both diagnostic precision and therapeutic understanding⁶.

2. Ayurvedic Concept of Mutrashmari

2.1 Definition and Etymology

The term *Ashmari* combines *Ashma* (“stone”) and *Ari* (“enemy”), signifying a condition that acts as an adversary within the body by blocking urinary flow and causing intense pain. *Sushruta Samhita* (Nidānasthāna 3/3–9) describes *Mutrashmari* as a disorder in which vitiated *Doṣas*—predominantly *Kapha*—combine with *Mutra* (urine), *Pitta*, and *Śukra* (semen) to produce a stone-like concretion (*Ashmashakala*) inside the *Basti* (urinary bladder), leading to retention, pain, and burning micturition⁷.

2.2 Classical Description and Pathogenesis (Samprapti)

According to *Sushruta Samhita* (Nidānasthāna 3/9), aggravation of *Vata Doṣa*—owing to suppression of natural urges (*Vega-avarodha*), dehydration, trauma, or intake of dry food—causes desiccation of urine. When *Vata* interacts with *Kapha* and *Pitta*, the fluidity of urine decreases and solid particles aggregate, resulting in *Ashmari* formation. *Vata* thus provides the kinetic and obstructive component, *Kapha* supplies cohesiveness, and *Pitta* contributes to inflammatory changes⁸.

Ācārya Vāgbhata in *Aṣṭāṅga Hṛdaya* (Nidānasthāna 9/1–2) adds that when *Vāyu* obstructs the bladder neck (*Basti-mukha*) and dries up urine mixed with *Kapha*, *Pitta*, or *Śukra*, stone formation occurs—analogueous to the development of *Gorochana* (bile-stone) within a cow’s gallbladder⁹.

Mādhava Nidāna (34/1–2) describes five types of *Ashmari*—*Vāta-ja*, *Pitta-ja*, *Kapha-ja*, *Samnipāta-ja*, and *Śukra-ja*—and highlights *Kapha* as the *Āśraya Doṣa* (substrate) for concretion. *Bhāvaprakāśa* further supports this view, explaining that *Kapha* offers the structural base, *Vāta* gives hardness, and *Pitta* produces burning and reddish coloration¹⁰.

2.3 Types of Mutrashmari

1. **Vātajā Ashmari** – Caused by aggravated *Vāta Doṣa*; severe, radiating colicky pain from bladder to penis and perineum; stone rough, blackish, and irregular.
2. **Pittajā Ashmari** – Dominated by *Pitta Doṣa*; yellowish stone, burning micturition, hematuria.
3. **Kaphajā Ashmari** – Due to *Kapha Doṣa*; smooth, heavy, whitish calculi; dull pain and sluggish urination.
4. **Śukrajā Ashmari** – From admixture of *Śukra* and *Mutra*; usually urethral; pain at penile tip during urination.

2.4 Premonitory Signs (Purvarūpa) and Symptoms (Lakṣaṇa)

Ācārya Vāgbhaṭa and Madhava Kara describe early features such as *Basti-adhmana* (bladder distension), suprapubic pain, goat-like smell of urine, fever, and loss of appetite. As the calculus enlarges, symptoms include *Mutrakṛcchra* (painful micturition), *Basti-śūla* (suprapubic pain), *Raktamutrata* (hematuria), and *Tivra vedanā* (colicky pain). The classical verse “*Vāta yutastu śleşmā saṅghātam upagamyate ...*” from *Sushruta Samhita* illustrates that *Vāta* combined with *Kapha* produces a hard, rough calculus at the bladder neck, leading to obstruction and excruciating pain.

2.5 Ayurvedic Understanding of Affected Structures

Although Ayurvedic texts primarily describe functional derangements rather than discrete organs, *Mutravaha Srotas* correspond to the kidneys (*Vṛkka*), ureters (*Mutravahī naḍī*), and urinary bladder (*Bastī*). Recent cross-sectional sonographic observations have demonstrated structural changes in these organs among patients with *Vātaj Mutrashmari*, providing empirical validation of the classical pathophysiology¹¹.

3. Specific Concept of Vataj Mutrashmari

3.1 Concept and Pathophysiology

Among the four classical types of *Mutrashmari*, *Vataj Mutrashmari* is the most painful and acute in presentation. It primarily results from the aggravation of Vata Dosha, which governs all movements in the body, including the flow of urine through the urinary channels (*Mutravaha Srotas*). When Vata becomes vitiated by causative factors such as suppression of micturition (*Vegadharana*), excessive exercise, fasting, dehydration, anxiety, or excessive intake of dry and light food, it obstructs the normal flow of urine and dries up its fluid content. This desiccation and obstruction cause crystallization of urinary components, leading to the formation of hard, rough, irregular stones within the bladder or urinary tract.

According to *Sushruta Samhita*, the aggravated Vata combines with Kapha and obstructs the urinary passage at the bladder neck (*Basti-mukha*). The patient experiences severe pricking pain radiating from the bladder to the groin, penis, and perineal region, along with dysuria and burning sensation. The calculi in this type are typically rough, blackish, and uneven, resembling the texture of the *Kadamba* flower. *Vagbhata* also describes that Vata-dominant stones cause sharp and shifting pain because of the mobile nature of Vata Dosha.

3.2 Clinical Presentation According to Ayurveda

The symptoms of *Vataj Mutrashmari* are directly linked with the physiological functions of *Apana Vayu*, a subtype of Vata responsible for excretion of urine, feces, and semen. When *Apana Vayu* becomes obstructed or reversed in its course, it leads to retention of urine (*Mutra-avarodha*), painful urination (*Mutrakricchra*), and spasmodic colicky pain in the lower abdomen. The classical references describe that patients often press the lower abdomen, rub the genital region, and cry in agony due to the unbearable pain. The passage of urine occurs with great strain, and sometimes the urine is mixed with blood, indicating injury to the urinary passage. The ancient texts also describe systemic features due to aggravated Vata, such as dryness of the mouth, roughness of skin, constipation, and disturbed sleep. These manifestations correlate well with the systemic impact of dehydration and renal obstruction seen in modern urolithiasis.

3.3 Correlation with Modern Pathophysiology

Modern medicine identifies urolithiasis as the deposition of crystalline substances—commonly calcium oxalate, phosphate, or uric acid—in the urinary tract. Functional disturbances such as urinary stasis, dehydration, and infection increase supersaturation of solutes, resulting in stone formation¹². This mechanism closely parallels the Ayurvedic concept of *Vata* causing obstruction (*Margavarodha*) and desiccation (*Shoshana*), leading to concretions within *Mutravaha Srotas*. The sharp, intermittent pain radiating from flank to groin, characteristic of ureteric calculi, corresponds with the *Teevra Vedana* described in *Vataj Mutrashmari*. The temporary relief following passage of urine or movement of the calculus

mirrors the episodic nature of Vata-related pain. Furthermore, the migratory nature of colic in modern medicine reflects Vata's inherent mobility (*Chalatva Guna*)¹³.

3.4 Diagnostic Relevance of Ultrasonography

Ultrasonography (KUB) is a non-invasive and reliable tool to identify renal, ureteric, and bladder calculi, along with structural changes such as hydronephrosis, hydroureter, or residual urine. In the cross-sectional study conducted by Mahale HB (2023), sonographic findings in Vataj Mutrashmari patients frequently revealed calculi located at the ureterovesical junction or bladder neck, often associated with upstream dilatation and obstruction. These changes correspond to the classical Ayurvedic description of stone impaction at the bladder mouth causing obstruction and severe pain.

This correlation demonstrates that while Ayurveda focuses on the *dosha-srotas* involvement and functional blockage, modern imaging provides the anatomical and structural evidence of the same pathological process. Understanding both perspectives offers a more comprehensive view of disease progression and facilitates targeted management using *Vata-shamaka* (Vata-pacifying) and *Ashmari-bhedana* (stone-breaking) therapies¹⁴.

3.5 Prognostic and Therapeutic Significance

From an Ayurvedic standpoint, *Vataj Mutrashmari* demands urgent intervention due to the severe pain and rapid progression of obstruction. Treatment aims at pacifying Vata using unctuous, warm, and soothing therapies (*Snehana*, *Swedana*, *Basti chikitsa*) along with formulations that dissolve or expel stones (*Ashmari-bhedana dravyas*)¹⁵. Early diagnosis through sonography aids in determining the size and site of calculus, guiding both Ayurvedic and modern management plans. Integration of the two systems enhances the accuracy of prognosis and facilitates patient-specific treatment approaches.

4. Modern Understanding and Pathophysiology

In contemporary medical science, *Mutrashmari* corresponds to urolithiasis, a condition characterized by the formation of solid crystalline concretions within the urinary tract. These calculi most commonly occur in the kidneys, ureters, and bladder. The formation of urinary stones is a multifactorial process involving supersaturation of urine with stone-forming constituents such as calcium, oxalate, phosphate, or uric acid, combined with reduced inhibitors of crystallization¹⁶. Etiological factors include dehydration, high intake of oxalate-rich or protein-rich foods, recurrent urinary tract infections, metabolic disorders such as hyperparathyroidism, and familial predisposition¹⁷. Environmental conditions like hot climates, prolonged physical exertion, and inadequate fluid consumption further increase risk. The resulting urinary stasis leads to nucleation and aggregation of crystals, which gradually form calculi at sites of anatomical narrowing such as the pelvi-ureteric junction (PUJ), ureterovesical junction (UVJ), or within the bladder¹⁸. Pathophysiologically, obstruction by stones causes backpressure on the urinary system, leading to hydronephrosis, infection, or even renal impairment. The classical symptom of urolithiasis is severe colicky pain radiating from the loin to the groin, due to increased peristaltic activity of the ureter attempting to dislodge the calculus. Associated features include nausea, vomiting, hematuria, and dysuria¹⁹.

This description correlates closely with the Ayurvedic account of *Vataj Mutrashmari*, in which aggravated Vata causes painful obstruction (*Margavarodha*) and dryness (*Shoshana*), producing similar colicky pain and retention of urine. Both systems recognize that obstruction and dryness are key mechanisms in the genesis of calculi. Modern diagnostic tools, particularly ultrasonography (KUB), X-ray KUB, and non-contrast CT (NCCT), play a pivotal role in the early detection, localization, and characterization of stones. Among these, ultrasonography remains the most accessible, non-invasive, and safe method for screening and follow-up²⁰.

Thus, the ancient pathophysiological concept of *Mutrashmari* aligns remarkably with modern scientific understanding—both emphasizing the interplay of obstruction, stasis, and dryness as causative mechanisms for calculus formation.

5. Sonographic Correlation

5.1 Objective of Correlation

The present cross-sectional study aimed to identify structural involvement and changes in the kidneys, ureters, and bladder (KUB) of patients diagnosed with *Vataj Mutrashmari* using ultrasonography. The sonographic findings provide an anatomical perspective corresponding to the functional and doshic explanations described in Ayurveda.

5.2 Key Sonographic Parameters

The evaluation of each case was based on KUB scan reports, observing the following parameters:

1. **Kidneys:** size, position, shape, presence of calculi, hydronephrosis, cortical thinning, or obstruction.
2. **Ureters:** dilatation, obstruction, or structural irregularities.
3. **Pelvi-Ureteric Junction (PUJ) and Vesico-Ureteric Junction (VUJ):** level of obstruction and dilatation.
4. **Bladder:** wall thickness, post-void residual urine, intravesical calculi, and overall bladder capacity.

Among the 42 patients included in the study, calculi were predominantly found at the ureterovesical junction and bladder neck, consistent with the classical site described in *Vataj Mutrashmari*. Secondary findings included hydronephrosis, hydroureter, and residual urine—indicating obstruction due to calculi²¹.

5.3 Interpretation in Ayurvedic Perspective

The anatomical findings on sonography correlate precisely with the functional derangement of Apana Vayu described in Ayurveda. The Vata-induced obstruction at the bladder outlet, leading to pain and retention, corresponds with the ultrasonographic detection of calculi near the bladder neck and ureteric junction. The observed dilatation of the renal pelvis and ureter reflects the upward pressure and stasis caused by the stone, which is consistent with the Ayurvedic concept of *Mutravaha Srotas Dushti* (vitiation of the urinary channel).

Thus, ultrasonography serves as a bridge between traditional Ayurvedic diagnostics and modern imaging evidence, demonstrating how ancient observations about pain, obstruction, and flow disturbance have clear structural correlates today.

5.4 Clinical Implications

1. Sonographic confirmation of calculus location assists in selecting specific Ayurvedic interventions such as *Ashmari-bhedana dravyas*, *Mutrala dravyas*, and *Basti chikitsa* aimed at expelling or dissolving stones.
2. Detection of secondary structural changes like hydronephrosis can guide clinicians toward timely management, preventing renal damage.
3. Integrating both diagnostic frameworks enhances prognosis, accuracy, and patient outcomes.

Overall, the sonographic correlation validates the Ayurvedic descriptions of *Vataj Mutrashmari* and establishes a foundation for integrative diagnostics that combine ancient pathophysiology with modern visualization techniques²².

References

1. Sushruta Samhita. Nidanasthana 3/3–9. In: Bhisagratna KL, ed. *The Sushruta Samhita based on the original Sanskrit text*. 3rd ed. Varanasi: Chowkhamba Sanskrit Series Office; 2002. p. 29-35.

2. Vagbhata. *Aṣṭāṅga Hṛdaya*. Nidanasthana 9/1–3. In: Murthy KR Srikantha, translator. 3rd ed. Varanasi: Chowkhamba Sanskrit Series Office; 2005. p. 199-200.
3. Mādhavakara. *Mādhava Nidāna (Ashmari Nidāna 34/1–3)*. 2nd ed. Varanasi: Chowkhamba Sanskrit Series Office; 2002. p. 562.
4. Bhāvamiśra. *Bhāvaprakāśa* (Uttarardha, Madhyamakhandā, Ashmari Rogādhikāra). 2nd ed. Varanasi: Chowkhamba Sanskrit Series Office; 2005. p. 376-377.
5. Mahale HB. *A Cross-sectional Study of Structural Involvement and Changes of Kidneys, Ureters and Bladder (KUB) in Patients of Vataj Mutrashmari with the Help of Sonography Scan* [dissertation]. Nashik: Maharashtra University of Health Sciences; 2023.
6. Chaurasia BD. *Human Anatomy*. Vol 2. 6th ed. New Delhi: CBS Publishers and Distributors; 2013. p. 295-312.
7. Sushruta Samhita. Nidānasthāna 3/3–9. In: Bishagratna KL, ed. *The Sushruta Samhita based on the original Sanskrit text*. 3rd ed. Varanasi: Chowkhamba Sanskrit Series Office; 2002. p. 29-35.
8. Vagbhata. *Aṣṭāṅga Hṛdaya*. Nidānasthāna 9/1–3. In: Murthy KR Srikantha, translator. 3rd ed. Varanasi: Chowkhamba Sanskrit Series Office; 2005. p. 199-200.
9. Mādhavakara. *Mādhava Nidāna (Ashmari Nidāna 34/1–3)*. 2nd ed. Varanasi: Chowkhamba Sanskrit Series Office; 2002. p. 562.
10. Bhāvamiśra. *Bhāvaprakāśa* (Uttarardha, Madhyamakhandā, Ashmari Rogādhikāra). 2nd ed. Varanasi: Chowkhamba Sanskrit Series Office; 2005. p. 376-377.
11. Mahale HB. *A Cross-sectional Study of Structural Involvement and Changes of Kidneys, Ureters and Bladder (KUB) in Patients of Vataj Mutrashmari with the Help of Sonography Scan* [dissertation]. Nashik: Maharashtra University of Health Sciences; 2023..
12. Tiselius HG. Epidemiology and medical management of stone disease. *BJU Int*. 2003;91(8):758–767.
13. Basavaraj DR, Biyani CS, Browning AJ, Cartledge JJ. The role of urinary stone analysis in the management of urolithiasis. *BJU Int*. 2007;99(5):1028–1033.
14. Bagde AB, Ramteke AT, Sawant RS, Bhingare SD, Nikumbh MB. *Sushruta Samhita – A Unique Encyclopedia of Ayurvedic Surgery*. *World J Pharm Pharm Sci*. 2017;6(4):750–767.
15. Sharma PV. *Dravyaguna Vigyan*, Vol II. Varanasi: Chaukhambha Bharati Academy; 2011. p. 487–493.
16. Pak CY. Kidney stones. *Lancet*. 1998;351(9118):1797–1801.
17. Curhan GC, Willett WC, Rimm EB, Stampfer MJ. A prospective study of dietary calcium and other nutrients and the risk of symptomatic kidney stones. *N Engl J Med*. 1993;328(12):833–838.
18. Coe FL, Evan A, Worcester E. Kidney stone disease. *J Clin Invest*. 2005;115(10):2598–2608.
19. Taylor EN, Stampfer MJ, Curhan GC. Dietary factors and the risk of incident kidney stones in men: new insights after 14 years of follow-up. *J Am Soc Nephrol*. 2004;15(12):3225–3232.
20. Fulgham PF, Assimos DG, Pearle MS, Preminger GM. Clinical effectiveness protocols for imaging in the management of ureteral calculous disease: AUA technology assessment. *J Urol*. 2013;189(4):1203–1213.
21. Mahale HB. *A Cross-sectional Study of Structural Involvement and Changes of Kidneys, Ureters and Bladder (KUB) in Patients of Vataj Mutrashmari with the Help of Sonography Scan* [dissertation]. Nashik: Maharashtra University of Health Sciences; 2023.
22. Rao PN, Preminger GM. Imaging in urolithiasis: how, why, and when? *Urol Clin North Am*. 2013;40(1):1–14.

Citation: Dr. Hemant Bhatu Mahale and Dr. Dinesh B Naik 2025. "CONCEPT OF VATAJ MUTRASHMARI IN AYURVEDA: CORRELATION WITH SONOGRAPHIC FINDINGS OF THE URINARY TRACT". *International Journal of Academic Research*, 12(4): 29-35.

Copyright: ©2025 Dr. Hemant Bhatu Mahale and Dr. Dinesh B Naik. This is an open-access article distributed under the terms of the Creative Commons Attribution License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.