

MUTRASHMARI (UROLITHIASIS): AN AYURVEDIC AND CONTEMPORARY REVIEW OF CONCEPT, PATHOGENESIS AND INTEGRATIVE MANAGEMENT

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ABSTRACT

Mutrashmari, described in Ayurveda as the formation of ashma (stone) within the mutravaha srotas, closely corresponds to urolithiasis of modern medicine. Acharya Sushruta lists Ashmari among the Ashtamahagada, the eight diseases that are difficult to cure, and devotes separate chapters to its nidana and chikitsa. Urolithiasis is among the commonest urological disorders, affecting roughly one in ten people during their lifetime, and is notorious for recurrence even after successful surgical or endoscopic clearance. The classical texts attribute Ashmari to vitiated Kapha, which is dried and consolidated in the basti by Vata and Pitta, much as sediment is left behind when water evaporates. Four types are described: Vataja, Pittaja, Shleshmaja and Shukraja. Management follows a graded approach: nidana parivarjana, shodhana, aushadha with mutrala and ashmarihara drugs, kshara, basti and, when these

fail, shastrakarma. This review compiles the classical and contemporary understanding of Mutrashmari, offers a tentative correlation between the Ayurvedic types and the chemical composition of stones, and discusses the probable mode of action of commonly used formulations, with emphasis on prevention of recurrence.

KEYWORDS: *Mutrashmari, Ashmari, Urolithiasis, Mutravaha srotas, Varunadi kwatha, Kshara.*

INTRODUCTION

Urinary calculus disease is one of the oldest known afflictions of humankind. In the Ayurvedic framework the word Ashmari is derived from ashma, meaning stone, and denotes a condition in which a hard concretion develops in the urinary tract, most commonly in the basti. Ashmari is counted among the Ashtamahagada because of its tendency to cause severe pain, obstruction of urine and, if neglected, serious complications. Although Ashmari is described as Tridoshaja, Kapha is regarded as the principal dosha responsible for its formation.

Contemporary epidemiological data indicate that about 10 to 12 percent of the world population develops a urinary stone at some point in life, with a higher incidence in men and in hot, dry climates. The recurrence rate is about 50 percent within five to ten years if no preventive measures are adopted. Modern interventions such as extracorporeal shock wave lithotripsy (ESWL), ureteroscopy and percutaneous nephrolithotomy remove existing stones effectively but do not by themselves correct the underlying metabolic and dietary tendency. This gap makes the Ayurvedic emphasis on nidana parivarjana, shodhana and long-term pathya-based management particularly relevant.

The functions of the mutravaha srotas, namely the formation, transport and elimination of mutra, are governed chiefly by Apana Vayu. Any impairment of Apana Vayu therefore disturbs the urinary system, and correction of Apana Vayu is a central therapeutic principle in Mutrashmari.

AIM AND OBJECTIVES

- To review the concept of Mutrashmari in the Brihatrayi, Laghutrayi and related texts.
- To correlate the Ayurvedic types of Ashmari with the types of urinary calculi described in modern medicine.
- To summarise the Ayurvedic management of Mutrashmari and the probable mode of action of important formulations.

MATERIALS AND METHODS

Classical references were collected from Sushruta Samhita, Charaka Samhita, Ashtanga Hridaya, Madhava Nidana, Sharangadhara Samhita and Bhaishajya Ratnavali, along with their principal commentaries. Modern literature was reviewed from standard textbooks of surgery and urology and from published clinical guidelines. The material was analysed and

organised under the headings of nirukti, nidana, samprapti, purvarupa, rupa, bheda, upadrava, sadhyasadyata and chikitsa.

REVIEW OF LITERATURE

Nirukti and Synonyms

Ashmari literally means a stone-like (ashmavat) hard mass. When the concretions are fine and powdery they are called Sikata (gravel or sand), and when somewhat larger and granular they are called Sharkara. Mutrashmari is the term used for stones located in the urinary tract: kidney, ureter, bladder and urethra.

Nidana (Etiology)

The causes may be considered under the following headings.

- **Aharaja:** Intake of Kapha-aggravating food such as excess of sweet, cold, heavy, oily and curd-based articles, and irregular, unwholesome eating habits.
- **Viharaja:** Sedentary habits, daytime sleep, and repeated suppression of natural urges, particularly mutravega.
- **Shodhana-abhava:** Failure to perform the seasonal and therapeutic shodhana, so that vitiated Kapha accumulates and finds its way to the basti. Sushruta specifically names asamshodhana as a cause.
- **Shukra-related:** Charaka explains that Shukra in the basti, dried by Vata along with Pitta or Kapha, forms Ashmari, comparable to the formation of Gorochana in the gall bladder of a cow.

From the modern standpoint, the risk factors include low urine volume from inadequate fluid intake, hypercalciuria, hyperoxaluria, hyperuricosuria, hypocitraturia, urinary tract infection with urease-producing organisms, urinary stasis or anatomical obstruction, hyperparathyroidism, gout, renal tubular acidosis, diet rich in animal protein, salt and oxalate, and a hot occupational environment.

Samprapti (Pathogenesis)

According to Sushruta, Kapha vitiated by faulty diet, lifestyle and absence of shodhana reaches the basti. There, Vata and Pitta act upon it, drying and consolidating it into a stone. Chakrapani offers a useful analogy: just as water in the atmosphere is dried by wind and heat, Kapha in the basti is dried by Vata and Pitta. Vata provides the drying and hardening action, Pitta provides the heat, and Kapha provides the form and bulk. In this sense every Ashmari is

Tridoshaja, but Kapha is the substrate.

Modern pathophysiology describes stone formation as the result of urinary supersaturation with stone-forming salts, nucleation, crystal growth and aggregation, and retention of crystals at the renal papilla or in the collecting system. Deficiency of inhibitors such as citrate, magnesium and nephrocalcin further favours stone formation. The common ground between the two views is that a sticky, heavy substrate (Kapha) and a consolidating, desiccating influence (Vata and Pitta) correspond to supersaturated, concentrated urine in which crystals aggregate. The srotodushti type is sanga (obstruction) in the mutravaha srotas.

Purvarupa (Prodromal Features)

Sushruta describes the premonitory features as discomfort in the basti, scrotum and penis, turbid or concentrated urine, urine with a goat-like odour, loss of appetite, mild fever and difficulty in micturition. Early recognition at this stage allows treatment before the stone has matured.

Rupa (Clinical Features)

The established features are severe pain in the nabhi, basti, sevani and medhra, especially during micturition, interrupted or spraying stream, hematuria, passage of sikata, and aggravation of pain on running, jumping, swimming, riding or even walking. Urine is sometimes clear like gomeda (a gemstone) when the stone obstructs the passage. These features correspond to renal or ureteric colic, dysuria, hematuria and a characteristic stop-start stream of vesical calculus.

Bheda (Types) and Tentative Correlation

Sushruta describes four types. A tentative correlation with the chemical types of stones is given in Table 1. This correlation is based on the described colour, surface and shape and on the associated symptoms. It should be treated as indicative and not as exact, and it can be validated only by stone analysis.

Table 1: Types of Ashmari and tentative modern correlation.

Type	Morphology described	Dominant dosha features	Probable modern counterpart
Vataja	Rough, spiky (kantakachita), irregular, hard; resembling kadamba flower	Severe pain, dysuria, straining, teeth-grinding and groaning	Calcium oxalate (spiculated, mulberry) stone
Pittaja	Reddish, blackish, yellowish or honey-coloured; like bhallataka seed	Burning, hematuria, warm sensation in the basti	Uric acid / urate stone (also cystine in part)
Shleshmaja	Large, smooth, white or honey-coloured; like hen's egg	Dull, pricking pain with heaviness of the basti	Calcium phosphate / struvite stone
Shukraja	Arises from retained shukra; breaks up when pressed	Pain and swelling of basti and testes, dysuria	Seminal / prostatic concretion (no exact equivalent)

Upadrava and Sadhyasadhyata

Complications described include obstruction of urine (baddha mutra), swelling of the scrotum, severe pain, hematuria and, in neglected cases, loss of life. Newly formed stones in a patient who is strong and free from complications are curable by medicines and kshara, whereas established large stones, or those with upadrava, may require shastrakarma. The prognosis is poor when complications are present, in keeping with the modern understanding that obstruction with infection can progress to pyonephrosis, sepsis and renal failure.

Modern Classification of Urinary Calculi**Table 2: Modern classification of urinary calculi (approximate figures).**

Stone type	Approx. incidence	Radiology and character	Associated risk factors
Calcium oxalate	60-75%	Radio-opaque; spiculated or smooth	Hypercalciuria, hyperoxaluria, low urine volume, low citrate
Calcium phosphate	10-15%	Radio-opaque; smooth	Hyperparathyroidism, renal tubular acidosis, alkaline urine
Struvite (triple phosphate)	10-15%	Radio-opaque; staghorn common	Urease-producing urinary infection, neurogenic bladder, obstruction
Uric acid	5-10%	Radiolucent on plain film	Acidic urine, gout, diabetes, chronic diarrhoea, high purine intake
Cystine	Less than 1%	Faintly radio-opaque; hexagonal crystals	Inherited defect of renal tubular transport

Management (Chikitsa)

The guiding principle is that prevention is as important as cure: nidana parivarjana, followed

by shodhana, shamana, and only then surgical removal if required. Sushruta advises that treatment should begin even at the purvarupa stage, and that the first three lines of treatment (aushadha, basti and kshara) should be tried before shastrakarma.

1. Nidana Parivarjana and Pathya

Kapha-aggravating food and habits are avoided, and the patient is advised adequate fluid intake, regular exercise and avoidance of mutravega-dharana. Table 3 summarises the dietary and lifestyle advice described in the texts.

Table 3: Pathya and apathya in Mutrashmari.

	Pathya (to be followed)	Apathya (to be avoided)
Ahara	Yava, purana shali rice, mudga, kulattha, kushmanda, cucumber, jangala mamsa rasa, warm water, coconut water	Excess of dry (shushka) and pistanna articles, heavy and cold food, excess salt, curd at night, very sour and astringent items taken in excess
Vihara	Langhana, avagahasweda, moderate exercise, timely evacuation of urine	Ativyayama, excess vyavaya, mutravega-dharana, day sleep, sedentary habits

2. Shodhana

Before shamana, the patient is prepared with snehana and swedana, followed by shodhana according to the predominant dosha: vamana for Kapha predominance, virechana for Pitta predominance and niruha basti for Vata predominance.

3. Aushadha Chikitsa

Sushruta describes drugs and groups according to the dosha involved. For Vataja Ashmari, drugs such as Pashanabheda, Vasuka, Ashmantaka, Gokshura, Brihati, Kantakari, Varuna and Kulattha are advised. For Pittaja Ashmari, Kusha, Kasha, Ikshumula, Vidari, Shatavari, Pashanabheda, Gokshura and the drugs of Varunadi gana are used. For Kaphaja Ashmari, Varunadi gana, Guggulu, Ela, Kushtha, Devadaru, Haridra, Maricha and Chitraka are recommended, administered as kshara, peya, kshira, yavagu or kwatha. Commonly used formulations include Varunadi kwatha, Pashanabhedadi kwatha, Gokshuradi guggulu, Chandraprabha vati, Shweta parpati, Yavakshara and Apamarga kshara.

4. Kshara Chikitsa

Kshara prepared from Apamarga, Yava, Palasha, Tila and Kadali, or from the drugs of Varunadi gana, is described for Ashmari. Its ushna, tikshna, chedana and bhedana properties are believed to help in fragmentation and expulsion of the stone. Kshara is administered with

a suitable vehicle such as *avi mutra*, *kshira* or water, and should be used with caution in patients with a *pitta-prakriti*, peptic disease or weak digestion.

5. Basti Chikitsa

Anuvasana and niruha basti prepared from *Kshiravriksha*, *Kakolyadi gana* and *Varunadi dravyas* correct *Apana Vayu* and facilitate downward movement of the stone. *Uttarabasti* is also described, especially for clearing blood and remnants from the bladder after surgery, although it demands skilled hands and a sterile technique.

6. Shastrakarma

When the above measures fail, *Sushruta* describes the removal of the stone through a perineal approach (*vesicolithotomy*) in the lithotomy position, with detailed instructions for *purvakarma*, *pradhana karma* and *paschat karma*. The stone is to be extracted whole and not crushed, since fragments left behind are believed to cause recurrence. *Paschat karma* includes warm-water immersion, *yavagu*, wound care with *Kshiravriksha* decoction, and *basti*. Prolonged avoidance of coitus, riding and strenuous activity is advised after healing. This is a remarkable early description of lithotomy, with attention to asepsis, haemostasis and post-operative care. In present-day practice, such cases are managed by ESWL, ureteroscopic lithotripsy or percutaneous nephrolithotomy, and Ayurvedic management is used as an adjunct and for prevention of recurrence.

Contemporary Management in Brief

Small stones (about 5 mm or less) in the distal ureter often pass spontaneously with hydration, analgesia and medical expulsive therapy with alpha-blockers. Larger or obstructing stones require ESWL, ureteroscopy or percutaneous nephrolithotomy. Prevention includes a urine output of about 2 to 2.5 litres per day, reduced salt and animal protein, normal dietary calcium, potassium citrate for hypocitraturia, thiazides for hypercalciuria and allopurinol or urinary alkalinisation for uric acid stones.

DISCUSSION

The classical description and the modern view agree on the main points: *Ashmari* is a disease of *sanga* in the *mutravaha srotas*, it forms in concentrated and stagnant urine, its natural history is recurrence if causes persist, and a staged approach is best. In Ayurvedic terms, *Vata-Kapha* predominance with *Pitta* as the consolidating factor is the usual picture, and therefore therapy should combine *Vata-Kapha shamana*, *mutrala* (diuretic) action,

ashmarihara action and Apana Vayu anulomana.

Probable mode of action of important agents is discussed below. These are hypotheses drawn from the properties (rasa, guna, virya, vipaka) and from the limited experimental literature, and they need to be tested in controlled clinical studies.

- **Varunadi kwatha:** Its main ingredients, such as Varuna (*Crataeva nurvala*), Shatavari, Chitraka, Bilva and Kantakari, have katu-tikta rasa and ushna virya, and act as Kapha-Vatahara, medohara and deepana. Varuna is regarded as the foremost drug for Ashmari and Mutrakricchra, and experimental work suggests it reduces oxalate deposition in the kidney.
- **Pashanabheda:** Pashanabheda (*Bergenia ligulata*), as the name implies, is credited with stone-breaking action, and experimental studies indicate antilithiatic and diuretic activity. It is useful in Vataja and Pittaja types.
- **Gokshuradi guggulu:** Gokshura (*Tribulus terrestris*) is mutrala and ashmarihara, while Guggulu is Vatahara, lekhana and bhedana. Together they promote urine flow and are used in dysuria and calculi.
- **Kshara (Yava, Apamarga):** The alkaline, ushna and tikshna kshara is believed to cause chedana and bhedana of the stone matrix, and to modify urinary pH. Because of its caustic nature it should be used in appropriate dose, duration and anupana.

Equally important is the role of ahara-vihara. Adequate fluids, Kapha-pacifying diet and avoidance of suppression of natural urges can lower the risk of recurrence in the same way as modern advice on urine volume and diet. A combined strategy, using modern intervention to relieve acute obstruction and Ayurvedic management for shodhana, shamana and prevention, appears the most rational approach and merits well-designed clinical trials with stone analysis, imaging follow-up and metabolic profiling as outcome measures.

CONCLUSION

Mutrashmari is a Kapha-predominant, Tridoshaja disease with Vata and Pitta playing consolidating roles, and corresponds largely to urolithiasis. Early diagnosis, nidana parivarjana, shodhana, appropriate use of mutrala and ashmarihara drugs, kshara and basti form the Ayurvedic strategy, and shastrakarma is reserved for established or complicated cases. A tentative correlation suggests that Vataja Ashmari resembles calcium oxalate stones, Pittaja resembles uric acid stones and Kaphaja resembles phosphate stones. The Ayurvedic approach holds promise in expulsion of small stones, relief of symptoms and prevention of

recurrence, and the formulations discussed offer a useful base for future clinical and experimental research.

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