



CONCEPTUAL STUDY ON THE EFFICACY OF ARDRAKA KSHARA AND MULAKA KSHARA IN THE MANAGEMENT OF MUTRASHMARI VIS-À-VIS UROLITHIASIS

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ABSTRACT

Mutrashmari is a disease of *Mutravahasrotas*. It is one of the oldest diseases known to medicine. *Acharya Sushrutha* describes it as a *Daruna* and *kashta Sadhya vyadhi* and grouped it under *Ashta mahagada* owing to its potentiality to disturb or hamper the structure and functions of *Mutravaha srotas* (urinary system), it is termed as *Antaka Pratima*^[1] as it gives intolerable pain and it becomes fatal if not treated timely. In Contemporary Medical Science it is correlated to urolithiasis. It is estimated that 1-15% of individuals suffer from kidney stone formation at some point of time during their life time. The prevalence of kidney stones is about 12% worldwide, 6.5% in men and 5.1% in women.^[2] The treatment of Urolithiasis depends on size, position and type of calculi. However, these are expensive, invasive and need hospitalization, and may end up in complications.^[3] It is often a recurrent and a lifelong disease with a recurrence rate of 50% within 5-10 years and 75% within 20 years. In *ayurvedic classics* *Acharya Sushrutha* described use of kshara in taruna Avastha of *mutrashmari* as *kshara* destroys calculi with its *chedana, bhedana, lekhana ksharana* properties and prevents recurrence of the disease. Ardraka kshara^[4] and Mulaka kshara^[5] mentioned in Raja Nighantu under kshara dashaka prakarana, which are having *mutrala, ashmarighna, bhedana, shooleprashamana, shothahara, Vedana sthapana, vatanulomana, vishodhana, aamadoshahara* properties. Here we shall discuss about the role of ardraka kshara and mulaka kshara, its potential to disintegrate the stone and prevent its recurrence.

KEYWORDS: *Mutrashmari, Ardraka paneeyakshara, Mulaka paneeya kshara* Urolithiasis.

INTRODUCTION

Urolithiasis or nephrolithiasis, which is one of the oldest diseases known to medicine. It is a condition where urinary stones are formed in kidney, ureter, urinary bladder and or urethra with features like pain in renal angle, haematuria, and dysuria. Urinary calculus is a stone, like body composed of urinary salts bounded by colloid matrix of organic material.^[6] Due to its high prevalence in adults of working age kidney stone disease has a substantial impact on the individual and society and has become a public health issue. Increased kidney stone occurrence may be due to multiple environmental factors, including changes in lifestyle and dietary habits. Hence there is need of result oriented, cost effective and complication free treatment.

DISEASE REVIEW

Acharya Sushrutha has explained *Mutrashmari* as a separate disease entity. He states the causes as person who has not undergone *shodhana* (detoxification

therapies) and who indulges in unwholesome diet which aggravates kapha. The aggravated kapha enters basti mixes with urine and produces calculus. Major Dosha predominance of ashmari is kapha. General symptomatology of Ashmari are intense pain in naval region, Vasti (urinary bladder), perineal raphe and penis (medhra) during micturition, there may be obstruction of urinary flow. Increased kidney stone occurrence may be due to multiple environmental factors, including changes in lifestyle and dietary habits.

SAMPRAPTI^[7]

Apathya ahara, Asamshodhan Sheela



Tridosha prakopa predominantly kapha



Shleshma dushti in basti due to vitiated vata and pitta



dries up kapha due to its Ushna Guna in urinary bladder



Mixes with Mutra
 ↓
 Attains shape of gravel
 ↓
 Ashmari (supersaturation of urine)

MANAGEMENT OF MUTRASHMARI

The Ayurvedic approach to Mutrashmari integrates preventive, medicinal, and surgical management. While Aushadhi Chikitsa and Basti Karma help in early stages, Kshara Chikitsa plays a crucial role in dissolving stones. Surgical intervention remains the last resort when conservative treatments fail.

The treatment of Mutrashmari (urinary calculi) is classified into Samanya Chikitsa (general treatment) and Vishesha Chikitsa (specific treatment) as per Ayurvedic principles.

1. Samanya Chikitsa

The fundamental approach to treating Mutrashmari is Nidana Parivarjana (eliminating causative factors). Since Mutrashmari is predominantly a Kapha-related disorder, dietary and lifestyle habits that aggravate Kapha must be avoided. These include:

- Avoiding heavy, oily, and sweet foods that contribute to Kapha accumulation.
- Encouraging light, dry, and hot potency foods that help maintain balance.
- Drinking adequate fluids, especially herbal formulations with diuretic properties.
- Following a regulated lifestyle to prevent metabolic imbalances.

2. Vishesha Chikitsa

Mutrashmari, depending on its stage and severity, is managed through different treatment modalities:

A. Aushadhi Chikitsa (Medicinal Management)

In the early stages, medicinal therapy is emphasized to dissolve and expel the stone. The drugs used should have diuretic (Mutrala), antilithogenic (Ashmari Nashaka), and Kapha-pitta pacifying properties. Some commonly used formulations include:

- Varunadi Kwatha – Acts as antilithogenic, helps in breaking stones.
- Gokshuradi Guggulu – Reduces inflammation and improves urinary output.
- Punarnavadi Kwatha – Diuretic and anti-inflammatory.
- Shilajatu Rasayana – Enhances kidney function and prevents recurrence.

B. Basti Karma Chikitsa (Medicated Enema Therapy)

- Mutrabasti using herbal decoctions helps in breaking and expelling stones.
- Decoctions of Dashamoola, Varuna, Gokshura, and Punarnava are commonly used.
- Basti helps in balancing Vata Dosha, which is responsible for stone retention and pain.

C. Kshara Chikitsa (Alkaline Therapy)

Kshara, an extract prepared from alkali-rich herbs, is effective in dissolving and eliminating calculi. Acharya Sushruta has advocated the preparation of Kshara from:

- Tila (Sesamum indicum)
- Apamarga (Achyranthes aspera)
- Kadali (Musa paradisiaca – Banana plant)
- Palasha (Butea monosperma)
- Yava (Hordeum vulgare – Barley)

Administration

- The prepared Kshara should be taken with sheep's urine, as it enhances the litholytic effect.
- Kshara helps in breaking calculi, reducing abdominal swelling, and clearing urinary gravel.
- Among various types, Ardraka Kshara and Mulaka Kshara have shown strong antilithogenic and diuretic properties.

D. Shastra Chikitsa (Surgical Intervention)

When the stone becomes large and obstructive, surgical removal is the preferred approach. Acharya Sushruta has described four types of Mutrashmari (Vataja, Pittaja, Kaphaja, and Shukraja) and has suggested surgical intervention in chronic cases where medicinal treatments fail.

- Ashmari Bhedana (Lithotomy) – Incision and removal of stones.
- Mutrotsekana (Urethral dilatation) – In cases of severe obstruction.
- Uttara Basti (Retrograde medication instillation) – For recurrent cases.

Role of Ardraka Kshara and Mulaka Kshara in the Management of Mutrashmari

Ardraka kshara and Mulaka kshara are mentioned in Raja Nighantu under kshara dashaka prakarana:

शिशुः मूलकः पलाशो निम्बश्चित्रक आर्द्रकः ।

चिञ्चा इक्षुरपामार्गो मौचको दश क्षारकाः ॥ Raja Nighantu 22/57

The ten drugs classified as Kshara Dravyas (alkaline substances) are:

1. Shigru (Moringa oleifera)
2. Moolaka (Raphanus sativus - Radish)
3. Palasha (Butea monosperma)
4. Nimba (Azadirachta indica - Neem)
5. Chitraka (Plumbago zeylanica)
6. Ardraka (Zingiber officinale - Fresh Ginger)
7. Chinchā (Tamarindus indica - Tamarind)
8. Ikshu (Saccharum officinarum - Sugarcane)
9. Apamarga (Achyranthes aspera)
10. Mauchaka (Bassia latifolia)

These drugs having potent Kshara (alkaline) properties, are utilized in various therapeutic applications, including the management of conditions like Mutrashmari (urinary calculi) due to their Lekhana (scraping), Bhedana (breaking), and Mutrala (diuretic) actions.

MATERIALS AND METHODS**DRUG REVIEW**

1. ARDRAKA: Contains bioactive phytochemicals like zingiberene, curcumene and farnesene, gingerols, shogaols, paradols and zingerone which contributes to its anti-inflammatory, antimicrobial, antioxidant, antipyretic and analgesic effect.

Botanical name: *Zingiber officinale* Roscoe

Family name: zingiberaceae

Kula: haridra kula

Gana Vargikarana: Sushruta – Haritakyadi gana pippalyadi gana.

Charaka – shoolaprashamana and arshoghna gana

Synonyms: aushadha, mahaushadha, Nagar, Vishwabhashajam

Morphological description

Habitat: Ardraka is tropical and subtropical herbaceous plant that thrives in warm humid climates. Grown in Kerala, Karnataka, Tamil Nadu and North eastern states.

The ginger plant has a perennial, tuberous root or rhizome; The stems are erect, oblique, round, annual, and invested by the smooth sheaths of the leaves, 2 or 3 feet in height, yellow green flowers and thick tuberous rhizome.

Laterally compressed rhizomes are 7-15 cm long and 1-1.5 cm broad. About 1-3 cm long branches arise and terminate in depress scars or in undeveloped buds.

The flesh of the ginger rhizome can be yellow, white or red in color, depending upon the variety. It is covered with a brownish skin that may either be thick or thin, depending upon whether the plant was harvested when it was mature or young.

Phytoconstituents

Fresh ginger rhizome, contains gingerols as the major active components. The volatile oil components in ginger consists mainly of zingiberene (35%), curcumene (18%) and farnesene (10%). Non-volatile pungent compounds include gingerols, shogaols, paradols and zingerone that produce a 'hot' sensation in the mouth. The gingerols, a series of chemical homologs differentiated by the length of their unbranched alkyl chains, were identified as the major active components in the fresh rhizome. In addition, the shogaols, another homologous series and the dehydrated form of the gingerols are the predominant

pungent constituents in dried ginger. Paradol is similar to gingerol and is formed on hydrogenation of shogoal. Other constituent in addition is oleoresins.

Rasa panchaka

Rasa – Katu

Guna - Laghu, Snigdha

Virya - Ushna

Vipaka - Madhura

Doshakarma - Kaphavatahara (Vatahara because of Ushnavirya and Madhura vipaka. Kaphaharabeacause of Ushnavirya and Katu Rasa)

Karma (Actions)

Ardraka: Dipana, Pachana, Bhedana, Rocana, Vrishya, Swarya, Vibandhahara, Shulahara, Mutrala & Ashmarighna, Lekhana, shothahara.

Jihwa Shodhaka, Kanthashodhaka,

Shunthi: Dipana, Pachana, Vrishya, Swarya, Kasahara Shwasahara, Shulahara, Grahi. Ruchya, Hridya, Vibandhahara.

METHOD OF PREPERATION OF ARDRAKA PANEEYA KSHARA

Ardraka mula (*Zingiber officinale*) will be collected, washed and cut into small pieces.

It will be dried completely under the shade and later burnt and the ash is collected. Obtained ash will be allowed for cooling. For 1 part of ash 6 parts of water will be added and mixed well and it will be kept overnight. Next day morning supernatant liquid will be decanted and filtered through thick cloth. Filtering process will be repeated for 21 times. This liquid is subjected to heating in mand agni till all the water content gets evaporated leaving behind only solid salty white substance which will be deposited as flakes in the bottom of the vessel. This is known as Kshara. Then it will be grounded to a fine powder. Obtained Kshara will be stored in air tight glass container.



2. MULAKA KASHARA

Mulaka

Botanical name: Raphenus sativus Linn.

Family: Crucifera

Parts used: Mulakakanda (tuberous root)

Morphological Features

Habitat: It is a fresh whole plant, an annual herb, cultivated throughout India.

Root (Taproot): The most striking feature of Mulaka is its fleshy taproot, which serves as the primary storage organ.

Shape and Size: The taproot can vary from spherical or round (common in small radish varieties) to cylindrical or elongated (seen in larger or daikon-type radishes).

Exterior: The skin is usually smooth, with colors ranging from red, pink, or purple to white, depending on the variety.

Interior: The flesh is typically white, crisp, and juicy.

Leaves: are arranged in a basal rosette emerging from the taproot. The leaves are simple, often lobed or slightly pinnate, with a broad, flat structure.

They exhibit a prominent central vein and may have a slightly crinkled appearance. The leaves are bright green, contributing to the plant's overall vigor.

Flowers

Inflorescence: Radish plants produce small, cross-shaped flowers (a hallmark of the Brassicaceae family) that typically emerge in clusters (racemes) at the top of a flowering stalk.

Then is grounded to a fine powder. Obtained is stored in air tight glass container.



PREVIOUS RESEARCH ON ARDRAKA PANEEYA KSHARA AND MULAKA PANEEYA KSHARA^[8]

The research studies reviewed, highlight the significant role of Mulaka Kshara and other Paneeya Ksharas in the management of Mutrashmari. Key findings from the studies include:

1. Mulaka Kshara has been extensively studied for its efficacy in dissolving renal calculi and facilitating their expulsion, as seen in the works of Dr. Jitender Kaushik (2019) and Dr. Sujata B Wadder (2011).
2. Apamarga Paneeya Kshara, studied by Dr. Mohankrishna (2014) and Dr. Sachin Kapade

Organoleptic Properties

It has a sharp, pungent taste, which is attributed to its phytochemical constituents, this pungency (Katu rasa) is associated with its digestive and carminative properties.

Phytoconstituents: Fresh mulaka contains bioactive components like glucosinolates, isothiocyanates, phenolic compounds, flavonoids and other micronutrients. Which contribute to its antioxidant, antimicrobial, anti-inflammatory, anticancer properties.

Rasa panchakas

Rasa - Katu, Tikta

Guna - Laghu, Teekshna

Dosha Karma – Tridosahar

Karma - Deepana, Pachana, Svarya, Hradya,

Mutrala, Ashmaribhedana.

METHOD OF PREPERATION OF MULAKA PANEEYA KSHARA

All the panchangas of Mulaka (Raphenus sativus Linn) is collected, washed and cut into small pieces. It is dried completely under the shade and later burnt and the ash is collected. Obtained ash is allowed for cooling. For 1 part of ash 6 parts of water is added and mixed well and it will be kept overnight. Next day morning supernatant liquid will be decanted and filtered through thick cloth. Filtering process will be repeated for 21 times. This liquid is subjected to heating in mandagni till all the water content gets evaporated leaving behind only solid salty white substance which will be deposited as flakes in the bottom of the vessel. This is known as Kshara.

(2020), has been evaluated for its comparative effectiveness in treating Mutrashmari. Apamarga Yava Kshara was found to be effective when compared to Tilanalakshara in clinical trials.

3. Comparative efficacy studies by Dr. Anju G. Das (2019-2022) suggest that Kokilaksha Paneeya Kshara and Mulaka Paneeya Kshara have promising results in managing renal calculi, highlighting their lithotriptic and diuretic properties.

The studies collectively indicate that Paneeya Ksharas, including Mulaka Kshara, Apamarga Kshara, are

effective in managing Mutrashmari (urolithiasis) by promoting the dissolution and elimination of stones. Further comparative studies and larger clinical trials are necessary to establish standardized protocols for their use in Ayurvedic practice.

DISCUSSION

Renal calculi cause excruciating pain, making life miserable for patients. In Ayurveda, Mutrashmari is considered as antaka Pratima, dreadful as death itself. If untreated, kidney stones can lead to ureteral obstruction, recurrent urinary tract infections, and permanent kidney damage.

Kshara, with its alkalizing and diuretic properties, is effective in managing urolithiasis. It increases urinary pH, neutralizing acidity to prevent calcium oxalate and uric acid stone formation while aiding in stone dissolution. Its diuretic action enhances urine output, reducing solute concentration and flushing out debris, lowering the risk of crystal aggregation.

Additionally, Kshara decreases urine specific gravity, preventing solute precipitation and stone growth. It regulates calcium oxalate crystal formation by reducing urinary calcium saturation and uric acid levels, minimizing stone nucleation. With its dual effect of alkalization and diuresis, ardraka and mulaka Kshara serves as a powerful remedy for both preventing and dissolving renal calculi.

CONCLUSION

Kidney stone disease is a significant public health concern due to its high prevalence and recurrence rates, even after surgical intervention. With a 50% recurrence within 5–10 years and 75% within 20 years, effective long-term management is essential.

Kshara's ability to alter urine composition, enhance urine output, and minimize stone-forming factors makes it a valuable therapeutic option for urolithiasis.

Ardraka Kshara and Mulaka Kshara play a significant role in the management of urolithiasis due to their potent antilithogenic properties. Both exhibit diuretic effects, regulate urinary pH, maintain crystalloid balance, and possess antimicrobial, anti-inflammatory, and analgesic actions. These mechanisms aid in stone dissolution, prevent recurrence, and enhance renal function. Ardraka Kshara, specifically mentioned in Raja Nighantu for its efficacy in renal stone management, is chosen as the trial drug in this study to further explore its therapeutic potential. Its effects will be compared with Mulaka Kshara, which has already demonstrated 86.52% effectiveness in renal stone treatment in previous clinical studies.

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REFERENCES

1. Sushruta samhitha of Maharshi- sushruta, Edited with Ayurveda -tatva sandipik by Kaviraj Dr. Ambika dutta shastri Hindi commentary, Volume 1, chikitsa stana, 7th chapter, Chaukhamba Sanskrita samthan, Varanasi, sloka no-3, pg no 42.
2. Article- recent advances on the mechanism of kidney stone formation (review) published online on – June 11, 2021.
3. SRB's Manual of Surgery, By Shri Ram Bhat M, 4th edition, Jaypee Brothers Medical Publishers, 2013; 1092-1096.
4. Narahari Pandit, Raj Nighantu edited by Indradev Tripathi, Chaukhamba Krishnadas Academy, Varanasi, 2010; 666.
5. Dr. Anju G. Das-A Comparative clinical study to evaluate the efficacy of kokilaksha paneeya kshara and Mulaka paneeya kshara in the management of mutrashmari with special reference to Urolithiasis. TGAMC 2019-2022.
6. Bailey and Love's: Short practice of Surgery Edited by Norman S Williams, Christopher J.K.Bulstrode and P.Ronan O'Connell, Chapter 75, pg-1293, pp-1437, Edition 26 Year 2013.
7. Prof.K.R.Srikantha murthy, Susruta Samhita of Maharshi Sushruta, Vol-1, Varanasi; Chaukhamba Orientalia; 2012; 488.
8. A. Article- A comparative clinical study to evaluate the efficacy of kokilaksha kshara and mulaka kshara in the management of mutrashmari with special reference to urolithiasis. Published in 2022.
9. B. Dr. Jitender Kaushik, A clinical study on MulakaKshara in the management of Moothrashmari (Renal Calculi) Post Graduate Scholar, Dept. of Shalya Tantra, SGVVT'S SJG Ayurvedic Medical College and hospital Koppal Karnataka, 2019.
10. C. Dr. Sujata B Wadder- Effect of mulakakshara in the management of mutrashmari, Post Graduate Scholar, Department of Shalya tantra, SDM college of ayurveda, Hassan, 2011.
11. D. Dr.Mohankrishna – Efficacy of apamarga paneeyakshara in the management of mutrashmari. Post Graduate Scholar. SDM ayurveda Medical College, 2014.
12. E. Dr. Sachin Kapade– A controlled clinical study to evaluate the effectiveness of Apamarga Yava kshara Against Tilanalakshara in the management of Mutrashmari W.S.R.TO Urolithiasis. GAMC Bangalore, 2020.
13. F. Dr. Anju G. Das-A Comparative clinical study to evaluate the efficacy of kokilaksha paneeya kshara and Mulaka paneeya kshara in the management of mutrashmari with special reference to Urolithiasis. TGAMC 2019-2022.