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An etiopathological study of *Mootra-Ashmari* with special reference to Urolithiasis: A Literary Review

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ABSTRACT

Mootra-Ashmari is a disease of urinary tract which causes problems in many ways including passage of urine. The waste material when not dissolve completely in urine and obstruct urinary path then *Mootra-Ashmari* may occur which is termed as renal calculi/urolithiasis/nephrolithiasis in modern medical sciences. As per *Sushruta Samhita*, *Ashmari* is included in *Ashtamahagada* due to its fatal nature. Description of *Ashmari* is found in almost all *Samhitas* of *Ayurveda* for e.g. either as a type of *Mootraghata* (*Acharya Charaka*) or as a separate disease (*Acharya Sushruta*). *Ashmari* is one of the most common disorders of *Mootravaha Srotasa*. It is *Kaphapradhana Tridoshaja Vyadhi*. *Pathya-Apathya* is an important factor in *Mootra-Ashmari*. Urinary stones frequently occur worldwide. Prevalence rate of 1-5% are reported in Asia, 12% in India. it is very much important to prevent occurrence of the disease because of the dreadful complications caused by *Mootra-Ashmari* and its high chances of recurrence.

Key words: *Mootra-Ashmari*, *Urolithiasis*, *Renal Calculi*.

INTRODUCTION

Mootra-Ashmari is a state in which a structure like a stone is developed in *Basti*. This structure is generated by the solidification of *Shukra*, *Vata*, *Pitta*, and *Kapha*, caused by the *Ushma Guna* of *Pitta* combined with *Shoshana Karma* of *Vayu*, and is then further covered by *Dosha*. *Ashtamahagada* includes *Mootra-Ashmari*,

indicating the seriousness of the illness. *Acharya Charaka* has mentioned *Basti* and *Vankshana* is the root of *Mootravaha Shrotasa*.

Nirukti of Ashmari^[1]

पाषाण प्रस्तर ग्रावोपलास्मानः शिलादृषत् ॥..... अमरकोष

Ashmari word originates from *Ashma* word.

Ashma = *Patthar* (Stone)

Ashmari = Hard like a stone

Vyutpatti of Ashmari^[2]

अश्मानं रति ददाति या - *Shabdakalpadruma*

Ashma = Stone

Rati = to present

The world *Ashmari* is derived from *Ash* by applying the rule *Annebhyo Drishyate* and then by adding a suffix *Man*, the suffix denotes the quality of noun by which the word is synthesized and meaning to the word a

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stone or stone like substance; means the formation and presentation of *Ashma* (stone) like substances.

AIM AND OBJECTIVES

1. To study the literary review of *Mootra-Ashmari* according to *Ayurvedic Samhitas* and modern medical science.
2. To understand the *Ayurvedic* concepts of *Nidana*, *Poorvaroopo*, *Lakshana*, *Upashaya*, and *Samprapti* of *Mootra-Ashmari*.

MATERIALS AND METHODS

All textual references of *Mootra-Ashmari* are collected from the *Ayurvedic* classics in the library of Govt. P.G. *Ayurvedic* College and Hospital Chaukaghat, Varanasi, Uttar Pradesh.

Nidana^[4,6]

Nidana includes all the etiological factors. The knowledge of *Nidana* is helpful for the proper diagnosis, prevention of disease and treatment also. *Sushruta* has described the causative factors of *Ashmari* separately.

The process of urinary calculi formation as described by *Acharya Sushruta* is as follows-

तत्रासंशोधनशीलस्यापथ्यकारिणः प्रकुपितः श्लेष्मा
मूत्रसम्पृक्तोऽनुप्रविश्य बस्तिमश्मरीं जनयति॥ (सु०नि०3/4)

When an individual who neglects to cleanse (*Samsodhana*) the internal channels of his organs or is in the habit of taking *Mithyaahaar-Vihaar* like *Apathyakari* then vitiated *Shleshma* mixed with *Bastigatamootra* entered in *Basti* form *Mootra-Ashmari*. Here, it becomes saturated with the stone forming substances and provides rise to the formation of concretion or gravels to pass through the urine. So, an abundance of vitiated *Shleshma Dosha* should be taken in to consideration because the underlying cause of *Mootra-Ashmari*.

According to *Acharya Charaka*^[6]

व्यायामतीक्ष्णौषधरूक्षमद्यप्रसङ्गनित्यद्रुतपृष्ठयानात् ।

आनूपमत्स्याध्यशनादजीर्णात् स्युर्मूत्रकृच्छ्राणि नृणामिहाष्टौ
॥च.चि.26/32

Ati Vyaayaama, *Teekshna Aushadha*, *Ruksha Madya Sevana*, *Drutaprishtayaana*, *Aanoopamaamsa Sevana*, *Matsya Sevana*, *Adhyashana*, *Ajeerna Bhojana*.

According to *Vagbhata*

Snigdha Aahaara Sevana, *Divaswapna*, *Ajeerna Bhojana*, *Madhura Aahaara*, *Adhyashana*.

Poorvaroopo^[9]

According to *Madhav Nidana*

Bastyaadhmanam (distension of the urinary bladder), *Aasandesesu Parito Atiruja* (severe pain around bladder), *Mutre Bastasagandhatwam* (uriferous odour due to dribbling), *Mutrakrichchhra* (dysuria), *Jwara* (fever), *Aruchi* (anorexia)

As per *Acharya Sushruta*

Bastipeeda, *Arochaka*, *Mutrakrichchhra*, *Bastishiromushkashephasa* *Vedana*, *Jwara*, *Bastigandhatwam*.

Roopa^[4]

According to *Acharya Sushruta* - Common symptoms of *Mootra-Ashmari* are *Mahati Vedana* in *Nabhi*, *Basti Sevani* and *Mehana* during urination, *Mootradharasanga*, haematuria, *Mootravikirana*, *Gomedakaprakasha* like clear urine, urine mixed with gravel. Pain occurs during running, crossing, swimming, riding and walking.

According to *Acharya Vagbhata* - *Ruja Nabhi-Basti-Sevani-Medhra* (pain in the perineum and neck of the bladder which radiates to the back down the thighs, but is especially noticed at the end of the penis immediately after micturition), *Visheernadhara Mutra*, *Saraktata* (haematuria), *Mutradhara Sanga* (sudden ceasing of flow of urine), *Sasiktam Mutram Visrajati* (passing of gravels).

Bheda^{[4],[5]}

चतस्रोऽश्मर्यो भवन्ति; श्लेष्माधिष्ठानाः; तद्यथा- श्लेष्मणा, वातेन, पित्तेन, शुक्रेण चेति ॥(सु०नि० 3/3)

- 1) *Vataja* 2) *Pittaja* 3) *Kaphaja* 4) *Shukrashmari*

Characters	Vataja ^[5]	Pittaja ^[5]	Kaphaja ^[5]
Shape	Kadamba Pushpavat Kantakachita	Bhallatakasthi Pratima, Ashmatulya, Samsthana	Kukkutand Prateekasha, Shweta, Snigdha
Colour	Shyava Varna	Madhu Varna Sarakta,Peetav bhasita,Krishna	Madhuka Pushpa Varna (Su) Madhu Varna (A.H)
Lakshana	Teevra Vedana, Patient bites his teeth, presses umbilicus, frequently rubs penis, touches anus, passes flatus, feels burning sensation while passing urine, wind, urine and feces are excreted with difficulty	Ushyta, Chushyata Dahyata and Pachyata type pain in the bladder.	Dalana, Bhedana and Todana type of pain. Bladder becomes Guru and Sheeta.
Modern correlation	Calcium oxalate stones	Uric acid stone	Phosphate stone

Shukrashmari^[5]

The stone developed in seminal vesicle due to suppression of Shukra. If Shukra Vega is suppressed it takes Vimargagamana and lodged in between Medhra and Vrishana. At this stage Vata dries up the Shukra and Shukrashmari is formed. It is compared to Spermolith.

Clinical features of Shukraja Ashmari^[5]

Shukraja Ashmari exhibits symptoms such as painful urination, discomfort in the Basti and Vrishana, Swayathu in Vrishana, etc.

Clinical features of Sharkara (gravel)^[10]

Gravel, sand, or ash-like substances in the urine are the cause of altered appearances of urinary calculi. Urinary

calculi and gravel share similarities in terms of discomfort. The stone come out with urine when the Vayu is favourable and the calculi are tiny.

Complication of Sharkara^[10]

Those (gravel) get stuck up on their passage through the urethra and produce complications such as weakness, lethargy, emaciation, pain in the flanks, dislike for food, pallor, Usna-Vata (cysto-urethritis), thirst, pain in the pericardium and vomiting.

Samprapti^[4,7]

Acharya Sushruta gave two examples of how Ashmari forms: when clear water is kept in a new pitcher, slush forms over time. Similarly, stone forms in Basti from urine after sometime, and rainwater solidifies to form hail stones by the action of air and fire of electricity. Similarly, in Basti Vata Pitta mixed with urine to form Ashmari by binding the Kapha.^[4]

According to Acharya Charaka when the Vayu covers the mouth of the bladder and dries up the urine, then urine gets mixed with Pitta, Kapha, and Shukra giving rise to the formation of Ashmari just as Gorochana gets formed Pitta in the body of Gau.^[7]

Samprapti Ghataka

- Nidana : Kapha, Vaata Prakopaka
- Dosha : Kapha Pradhaana Tridosha
- Dooshya : Mootra
- Shrotasa : Mootravaha
- Shrotodushti : Sanga
- Agni : Jatharaagnimaandya
- Aama : Jatharaagni
- Dosha Maarga : Koshtha, Shaakha
- Roga Maarga : Aabhyaantara
- Udbhava Sthaana : Pakvaashaya
- Adhishthaana : Basti (Mootravaha Shrotasa)

Upashaya - Anupashaya

The factors which relieve the signs and symptoms of a disease are called the Upashaya, where as the factors

that provoke the disease is called *Anupashaya*. *Upashaya* is a guideline to combat the disease. It consists not only *Aushadha* but also *Aahaara*, *Vihaara* and all the supportive measures that take part in the elimination of disease process. None of the *Ayurvedic* classics has mentioned the *Upashaya* and *Anupashaya* in relation to *Ashmari*. But logically *Ashmari* is a *Kapha* dominant disease, so all the measures leading to the control of *Kapha* may be considered as *Upashaya*. Similarly, all the measures that vitiate *Kapha* and all the *Nidan*s of *Ashmari* may be considered as *Anupashaya* of *Ashmari*.

Pathya-Apathya^[13]

	Pathya	Apathya
Aahar	<i>Yava, Kulattha, Puran Shali, Madya. Andaras, Puran Kushmand and Lata, Gokhura, Varun Saag, Aadraka, Pashanbheda, Yavakshar, Renuka, Shalparni.</i>	<i>Amla, Vistambhi Aahar, Ruksha, Guru Anna Paan, Viruddha Anna Paan Sewan</i>
Vihar	<i>Basti Karma, Vamana, Virechan, Langhan, Swedan, Avagahan, Ambu Sevan</i>	<i>Mutra Vega Vidharan, Shukra Vega Vidharan</i>

Modern view of Mootra-Ashmari^[15]

According to modern this is known as Urolithiasis/Nephrolithiasis. Renal stone or calculus or lithiasis is one of the most common diseases of the urinary tract. It occurs more frequently in men than in women. Urinary calculus is a stone-like body composed of urinary salts bound together by a colloid matrix of organic materials. It consists of nucleus around which concentric layers of urinary salts are deposited.

Etiology^[14]

- **Dietetic- Vitamin A deficiency:** It causes desquamation of epithelium which acts as a nidus for stone formation.
- **Climate:** In hot climate urinary solutes will increase with decrease in colloids, which leads to

chelation of solute with calcium forming a nidus for stone.

- **Citrate level in urine (300-900 mg/24 hours):** maintains the calcium phosphate and carbonate in soluble state and any decrease in citrate level in urine causes stone formation.
- **Infection in kidney:** Urea splitting organisms commonly cause stone formation. i.e., E.coli, Staphylococcus, Streptococcus, Proteus.
- **Prolonged immobilisation** causes decalcification of bones and so hypercalciuria leading to stone formation.
- **Hyperparathyroidism** causes hypercalciuria causing multiple bilateral stones or often bilateral nephrocalcinosis (5%).
- **Hyperoxaluria** as a result of altered glycine metabolism.
- **Cystinuria (Autosomal recessive)**
- **Stasis:** due to obstruction to urine flow.
- **Medullary sponge kidney.**
- **Randall’s plaque theory** is erosion and deposition of urinary salts as Randall’s plaque at the apex of renal papillae.
- **Carr’s postulates states** that minute concretions called as microliths normally develop in the subendothelial part of the tubule which will be carried away as particles by renal lymphatic network vessels. If these lymphatics are blocked, microliths enlarge and act as a nidus for stone formation.
- **Others:** Sarcoidosis, myelomatosis, gout, idiopathic hypercalciuria, hypervitaminosis D, neoplasms on treatment, hypomagnesuria (Mg++ in urine acts as complexing agent and prevents nucleation normally).
- **Renal tubular acidosis:** commonly calcium phosphate stone (10%).

Types of renal calculi^[15]: Two major groups- 1.Primary stones, 2.Secondary stones

- Primary stones** are those which appear in apparently healthy urinary tract without any antecedent inflammation. These stones are usually formed in acid urine. These stones usually consist of calcium oxalate, uric acid, urates, cystine, xanthine or calcium carbonate.
- Secondary stones** are usually formed as the result of inflammation. The urine is usually alkaline. As urea splitting organisms are most often the causative organisms. Triple phosphates (mixed/struvite/staghorn), amorphous phosphates, ammonium urate, phosphates stones.

Sign and Symptoms

Renal calculi are known to cause severe pain and Symptoms of renal calculi may occur only when the stone begins to move towards the ureters. This severe pain is termed as renal colic, seen only on one side of your abdomen and in men, pain may radiate to the groin region.

Other symptoms renal calculi include:

- Vomiting
- Nausea
- Foul-smell urine
- Fever with Chills
- Frequent urination
- Blood in urine sample (red, pink, or brown urine) - hematuria
- Urinating small amounts of urine.

Investigation

- CBC, Sr. Creatinine, Blood Urea
- Kidney function test
- X-ray KUB, CT Scan
- USG Abdomen with KUB

DISCUSSION

Acharya Sushruta considered *Ashmari* as a grave disease (*Astamahagada*).^[3] In modern science, it can be correlated with renal stone. Pain is the most typical

presenting sign of a stone. Similar to calcium oxalate stones, tiny, moving calculi in *Vataja Ashmari* induce periodic colicky discomfort, or renal pain. *Pittaja Ashmari* is comparable to uric acid stones and hyperconcentration of fluids associated with inflammation and haematuria. The stone's large size and dull anguish are reminiscent of *Kaphaja Ashmari*. It is comparable to calculi of phosphate. Among the *Samanya Lakshana*^[5] are *Mahati Vedana* in *Nabhi*, *Basti Sevani* and *Mehana* during urination, *Mootradharasanga*, haematuria, *Mootravikirana*, *Gomedakaprakasha* like clear urine, urine mixed with gravel. Pain occurs during running, crossing, and swimming, riding and walking. In ancient times, *Ashmari* was diagnosed only on the basis of the *Lakshana* but in present era it's tough to make a diagnosis based just on clinical findings. The diagnosis process in use now is limited to imaging methods, such as radiography, CT scanning, ultrasound, and so on, which have improved the disease's diagnostic potential.

CONCLUSION

When there is a stone or calculus in the urinary system, it is called urolithiasis. The existence of stone in the *Mutravahashrotas* is known as *Mootra-Ashmari*. *Mootra-Ashmari* is under the category of eight grave illnesses (*Astamahagada*)^[3] that *Acharya Sushruta* brought up. There are extrinsic as well as intrinsic causes of urolithiasis. As *Asamshodhanasheela*, *Mutravegarodha*, and *Shukra Vegarodha* are the main causes of it, according to various *Acharyas*. All other *Acharyas*, with the exception of *Charaka*, spoke about *Vishesha Purvarupa* of *Mutrashmari*. *Samprapti* and *Rupa* are described in length in the classics. Urolithiasis is classified on the basis of size, X-ray characteristics, aetiological basis, stone composition and origin. Primary stones include oxalate calculi, uric acid stones, cystine calculi, xanthine calculi, and indigo calculi. Examples of secondary stones are phosphate and mixed stones. Treatment recommendations include surgery and conservatory management.

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