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A comprehensive review on Urolithiasis an Ayurvedic perspective

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ABSTRACT

The priceless value of the kidney is not appreciated until the organ becomes affected with diseases or loss of function threatens the health of man. In the present era, life style and the working pattern of the person is showering varieties of diseases. Among which Urolithiasis is troubling the person, a lot. Urolithiasis is a very common condition in surgical practice. It occurs in people who are habituated for less intake of water and certain medications. Severe pain abdomen, vomiting, nausea, dysuria and retention of urine in some case seen in Urolithiasis. Urolithiasis can be co-related to *Mutrashmari* as described in Ayurvedic texts. Immense attention is to be given for understanding the disease manifestation. So this article is intended to analyze the *Nidana's*, *Samprapti* and *Lakshanas* of *Mutrashmari* critically for prevention and treatment of *Mutrashmari*.

Key words: *Mutrashmari*, *Urolithiasis*, *Nidana*, *Samprapti*, *Lakshanas*, *Chikitsa*, *Ayurveda*.

INTRODUCTION

In Ayurveda our Acharya's Charaka and Susruta have mentioned different diseases and its treatment modalities and different formulations from Vedic Kala. In Atharvaveda there is a reference regarding *Mutravarodha* due to *Ashmari*. Our Acharyas have mentioned the diseases like *Prameha*, *Mutrakricchra* and *Mutraghata*.

Our Acharya Susruta has described the *Ashmari* a separate disease and he has included in "*Ashta Mahagada*"^[1] and considered as *Yama* because it gives intolerable pain.

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Ashmari is one among the eight *Mahagadas* the reason is *Tridoshaja* in nature.

On the basis of prognosis the disease is *Daruna Vyadhi*.^[2]

When the disease is fatal it needs surgical intervention.

In contemporary medical science it is correlated with Urolithiasis. The process of forming stones in the kidney, bladder and Urethra. Urinary stones are a common cause of blood in the urine and pain in the abdomen, flank or groin.^[3] Urinary calculi occur around 1 in 20 people at some point of time in their life. The development of stones is related to decreased urine volume or increased excretion of stone forming components such as Calcium, Oxalate, Urate, Cysteine, Xanthine and phosphate. The stones form in the urine collecting area (pelvis) of the kidney and may range in size from tiny to staghorn stones the size of the renal pelvis itself.

Now, in present era there are many treatment modalities like conservative and Non-operative mechanical methods. The Conservative method like Hydrotherapy,

Operative (Non-invasive) treatment like- ESWL, PCNL, EHL, Laser lithotripsy.

But most of them fail in eradicating the root cause and therefore reoccurrence of disease occurs commonly. If we follow these procedures it has no effect on the pathogenesis behind the formation of calculus. Therefore all our Acharyas have mentioned various line of treatment for *Ashmari*. In Ayurvedic classics there are plenty of medicinal formulations and preparation are mentioned in treatment of *Mutrashmari*.

Drugs advised for *Mutrashmari* have *Ashmari Bhedana* property and are *Mutrala*, Anti-inflammatory, diuretic and anti Urolithic properties.

ASHMARI (UROLITHIASIS)

Ashmari is considered as one of the *Mahagada* by Sushruta, owing to its potentiality to disturb the urinary system as well as life of a person.

Etymology

The word *Ashmari* is derived from “*Ashma*” and ‘*Ari*’. ‘*Ashma*’ means stone or a gravel and ‘*Ari*’ means enemy which denotes ‘A stone like substance exerting great suffering to person like an enemy’.

According to *Shabdakalpadruma*^[4]

Ashma = Stone, Rati = to present

Synonyms: *Ashmari*, *Ashmari*, *Pathari*, *Stone gravel*, *calculus*, *calculi*.

Definition

Formation of *Ashma* (stone) like substances within the urinary system is called *Mutrashmari*. According to various texts, disease *Ashmari* can be defined as,

- *Ashmari Mutrakricchasyat*^[5] (Amarakosha)
- *Ashmari Mutrakricchha Bheda* (Ayurvedic Shabdakosha)
- *Mutra Vegdharana* leads to *Ashmari*^[6]

Nidana

According to Sushruta - There are two main *Nidanas* of *Ashmari*, *Ashamshodhana* and *Apathya Sevana*.^[7]

Ashamshodhanasheela

Who do not undergo *Shodhana* therapy are called as *Ashamshodhanasheela*. Acharya has mentioned specific *Shodhana* measures according to seasons as natural accumulation of *Doshas* take place like *Chaya* of *Vata*, *Pitta* and *Kapha* occur in *Greeshma*, *Varsha* and *Shishira Ritu* respectively.^[8]

Apathya Sevana

Due to *Apathya Sevana* vitiation of *Doshas* and *Kha-vaigunya* in *Mutravaha Srotas* takes place which leads to precipitation of vitiated *Doshas* in *Mutravaha Srotas* and formation of *Ashmari*.

According to Acharya Charaka

Acharya Charaka has not given separate chapter for the disease but explained it under the *Mutrakricchra Prakarana*.^[9] Hence the *Nidana* of both *Mutrakricchra* and *Ashmari* can be taken as same. They are *Vyayama*, *Tikshna Aushada*, *Ruksha Madhyasevana*, *Drutapristhayana*, *Anoopamamsa Sevana*, *Adhyasana* and *Ajeerna Bhojana*.^[10]

According to Vagbhatta

- *Snigdha Ahara Sevana*
- *Divaswapna*
- *Ajir nabhojana*
- *Madhura Ahara*
- *Adhyasana*

Purvarupa

According to Sushruta, the *Purvarupa* of *Ashmari* are – *Jvara*, *Bastipeeda*, *Aruchi*, *Mutrakricchra*, *Bastimushka*, *Shepha*, *Vedana*, *Krichaavasada*, *Basti Gandhatwa*.^[11]

Table 1: Purvarupa of Ashmari according to different Acharyas.

SN	Purvarupa	Su	A.H	A.S	M.N	B.P	Y.R
1.	<i>Basti Pida</i>	+	+	+	+	+	+
2.	<i>Aruchi</i>	+	+	+	+	+	+

3.	Mutrakrichhra	+	+	+	+	+	+
4.	Basti Sirovedana	+	-	+	-	-	-
5.	Mushka Vedana	+	-	+	-	-	-
6.	Sepha Vedana	+	-	-	-	-	-
7.	Jwara	+	+	+	+	+	+
8.	Avasada	+	-	-	-	-	-
9.	Bastigandhatwa	+	+	+	+	+	+
10.	Sandra Mutra	+	-	-	-	-	-
11.	Avila Mutra	+	-	-	-	-	-
12.	Basti Adhmana	-	+	+	+	-	-

Rupa

Table 2: Samanyarupa of Ashmari according to different Acharyas.

S N	Rupa	S u	C h	A. H	A. S	K. S	M. N	B. P	Y. R
1.	Nabhi Vedana	+	-	+	+	-	+	+	+
2.	Basti Vedana	+	+	+	+	-	+	+	+
3.	Sevani Vedana	+	+	+	+	-	+	+	+
4.	Mehana Vedana	+	+	-	-	-	-	-	-
5.	Mutrardharasanga	+	-	-	+	-	-	-	-
6.	Sarudhiramutra	+	+	+	+	-	+	+	+
7.	Mutra Vikirana	+	-	-	-	-	-	-	-
8.	Gomedakaprakasha	+	-	+	+	-	+	+	+
9.	Atyavila	+	-	-	+	-	-	-	-
10.	Sasikatham	+	-	-	+	+	+	+	+
11.	Dhavana	+	-	-	+	-	-	-	-

	Plavana Pristayana Ushna, Advagamana - Vedana								
12.	Vishirna Dhara	-	+	+	-	-	-	-	-
13.	Mrudhantimedra	-	+	-	-	-	-	-	-

Samprapti

According to Vagbhata, the sequential vitiation of *Dhatus* initiated by the vitiated *Doshas* due to *Nidana Sevana*, is termed as *Samprapti*.^[12]

According to Acharya Sushruta - It is possible to assess the *Doshas*, *Dushyas*, *Srotodushti* – *Khavaigunya*, state of *Agni* through *Samprapti*. In the persons who do not undergoes timely *Shodhana* procedures and use unwholesome diet, either *Tridosha* or *Kapha* gets aggravated and mixes with *Mutra*, enters into *Basti* and takes the shape of an *Ashmari*.^[13]

Acharya Sushruta, Charaka and Vagbhata have the similar opinion and have explained the process of *Ashmari* formation by citing different examples as mentioned below,

Sushruta's view - As clear water kept in a new pitcher gets muddy in due course of time, similarly calculus is formed in *Basti*.^[14]

Acharya Sushruta has given another example to explain the *Ashmari* formation. The way in which the air and electricity produced by thunders during rain freezes the water, similarly *Pitta* located in the bladder, in conjugation of *Vayu* consolidates *Kapha* to form *Ashmari*.^[15]

Charaka's view - Acharya Charaka illustrates the process of formation of *Ashmari* with the example of Gorochna. He says that *Mutra* is converted into *Ashmari* when the *Dosayukta Mutra* or *Shukrayukta Mutra* enters into *Basti*, where they are dried up by the action of *Vayu* and *Pitta*.^[16]

Vagbhata's View - Acharya Vagbhata has described *Ashmari* formation same as Acharya Charaka.^[17]

Samprapti Ghataka

- *Nidana* : Kapha, Vata Prakopaka
- *Dosha* : Kapha Pradhana Tridosha
- *Dushya* : Mutra
- *Srotas* : Mutravaha
- *Srotodushti* : Sanga
- *Agni* : Jatharagnimandya
- *Aama* : Jatharagni
- *Dosha Marga* : Koshtha, Shakha
- *Roga Marga* : Aabhyantara
- *Udbhava Sthana* : Pakvashaya (Apana Kshetra)
- *Adhishthana* : Basti (Mutravaha Srotas)

Classification of Ashmari

Acharya Sushruta has classified *Ashmari* into four types,^[18]

1. *Shleshmaja Ashmari*
2. *Vataja Ashmari*
3. *Pittaja Ashmari*
4. *Shukraja Ashmari*

All the Acharya's except Charaka have classified in the same manner. Acharya Charaka has described the *Mutrashmari* under *Mutrakricchra* and on the basis of consistency. He classified *Shukraja*, *Pittaja* and *Kaphaja* varieties as *Mridu Ashmari*, whereas *Vataja* variety of *Ashmari* is included under the *Kathina Ashmari*.

Table 3: Types of Ashmari according to different Acharyas.

SN	Ashmari	Su	Ch	A.H	A.S	M.N	B.P	Y.R
1.	<i>Sleshmaja</i>	+	-	+	+	+	+	+
2.	<i>Pittaja</i>	+	-	+	+	+	+	+
3.	<i>Vataja</i>	+	-	+	+	+	+	+
4.	<i>Shukraja</i>	+	-	+	+	+	+	+

- ***Shleshmaja Ashmari*** - This type of stone is white, slimy and big in size like a hen's egg (*Kukkutanda*) and having a colour of *Madhuka* flower.^[19]
- ***Pittaja Ashmari*** - The *Ashmari* is reddish, yellowish, black or honey like in colour and appear like *Bhallataka* seed.^[20]
- ***Vataja Ashmari*** - These types of stones are dusky in colour, hard, irregular, rough and nodular like *Kadamba* flower.^[21]
- ***Shukraja Ashmari*** - It occurs in adult only. It causing dysuria, scrotal swelling and lower abdominal pain. Its special characteristic feature is that it can easily crushed by handling itself.^[22]

Sadhya- Asadhyata

- In classics Acharya's have described about, *Ashtamahagadas* which are not easy to treat and they are not having good prognosis. As *Ashmari* is mentioned as one of them, it requires great attention for its cure. *Ashmari* is a disease as fatal as death.
- In children because of the smaller space occupying lesion and less fat in subcutaneous and perinephric region the prognosis is better.^[23]
- Early detected *Ashmari* can be treated with medicines because of its recent origin and small size, while a chronic *Ashmari* is difficult to cure and large *Ashmari* is also an indication for surgical treatment.
- *Ashmari* associated with complications, *Arishta Lakshanas* are to be avoided.
- *Ashmari* associated with *Sikatha Sarkara* (resembling small sand particles), having swelling of *Nabhi* and *Vrishana*, severe urinary obstruction and pain is considered to be one of the most serious condition which may lead even to death.

According to Acharya Sushruta it can be cured with drugs when newly formed and smaller in size,^[24] but in advanced stage it requires surgical treatment. *Ashmari* associated with complication and *Arishta Lakshanas* should be avoided.

Upadrava

Formation of *Mutra Sharkara* mentioned by Acharya Sushruta can be considered as one of the *Upadravas* of *Ashmari*.^[25] Otherwise none of Ayurvedic classic has mentioned a specific *Upadravas* in relation to *Mutrashmari*.

Chikitsa

Treatment of *Ashmari* can be one or more of the following four types;

1. *Aushadha Chikitsa*
2. *Basti Chikitsa*
3. *Kshara Chikitsa*
4. *Shastra Chikitsa*

Aushadha Chikitsa

Sushruta has advised to treat the disease in the *Purvarupa* stage itself. A newly formed *Ashmari* is curable with medicines while big or chronic calculi can be treated with surgical interventions only.

Different types of Ashmari Chikitsa

The different mentioned recipes are advised below,

- a) **Vataja Ashmari** : *Pashanabheda, Vasuka, Vashira, Ashmantaka Shatavari, Gokshura, Kulattha* and *Kataka* fruit, *Ushakaadi Gana*. *Ghrita* should be prepared from the decoction of the above drugs. This *Ghrita* destroys the *Ashmari* caused by *Vata*. *Yavagu, Yusha, Kwatha*, milk (preparations) and food prepared from these *Vata* alleviating groups of substances should be administered.^[26]
- b) **Pittaja Ashmari** : *Ghrita* should be prepared from the decoction of the following drugs - *Kusha, Kasha, Shara, Gundra, Itkata, Morata, Pashanabheda, Shalimula*. This recipe quickly disintegrates the calculi caused by *Pitta*. *Yavagu, Yusha, Kwatha, Kshara*, milk (preparations) and food prepared from these *Pitta* allying groups of substances should be administered.^[27]
- c) **Shleshmaja Ashmari** : Drugs of *Varunadi Gana, Guggulu, Harenu, Kushtha, Maricha, Chitraka* and *Ghrita* from goat's milk should be processed with

the decoction of above drugs to which the drug of *Ushakadi Gana* should be added. This recipe quickly destroys the calculi caused by *Kapha*. *Yavagu, Yusha, Kwatha, Kshara*, milk (preparations) and food prepared from these *Kapha* allying groups of substances should be administered.^[28]

- d) **Shukraja Ashmari** : If seminal concretions or gravel spontaneously coming into the urinary passage get impacted there, they should be removed through the natural passage. If this is not possible, the passage should be laid open and the concretions should be extracted by *Badisha Shastra* (a hook like instrument).^[29]

Basti Chikitsa

In this management, the decoction of latex trees administered through urethral douche, flushes out the calculus immediately along with the blood collected in the bladder.^[30] *Basti* treatment in *Mutrashmari* is indicated by all the Acharyas.^[31]

Kshara Chikitsa

Acharya Sushruta has advocated preparation of *Kshara (Til, Apamarga, Kadali, Palasha, Yava-Kalkajakshara)*.^[32] This *Kshara* destroys calculi, abdominal swelling (retention) and urinary gravel.

Shastra Chikitsa

Shastra Karma is indicated when the calculi are not curable by treatment with *Ghrita, Kshara*, decoctions, milk preparations and *Uttarabasti*. Operation should be considered as last resort and must be performed after proper consent.

Pathyaapathya

Pathya^[33]

- *Langhana, Vamana, Virechana, Basti, Avagaha Sweda* are useful in *Ashmari*.
- The dietetic items are *Yava, Kulattha, Purana Shaali, Mudga*, ginger, *Yava Kshara* and all the *Vata Shamaka Ahara*.
- These items are mostly *Vatanulomana* and *Mutrala*. Further it is mentioned to take

Gokshura, Yava Kshara, Varuna and *Pashanabheda* as medicine.

Apathya^[34]

Ativyayama (excessive practice), *Adhyashana, Samashana, Sheeta, Snigdha, Guru, Madhura Aahara, Vegavarodha* are treated as *Apathya* for *Ashmari*.

Diet: *Sushka Aahara, Kapitthya, Jamuna, Bisamrinala, Kashaya Rasa Sevana* etc. are also considered as *Apathya* for *Ashmari*.

Useful Recommendation in *Ashmari*;

- Cereals : Old rice (*Shaali*), *Yava*
- Pulses : *Kulattha*
- Vegetables : Cucumber, *Kushmanda, Chirabhat*, tender shoot of bamboo.
- Fruits : *Chirabhat, Amlavetasa*, Cucumber
- Fish and Meat : Meat of animals from any dry region, she tortoise.
- Food Preparation and Drinks : *Nimbu, Jeevente, Saindhava, Kulattha* soup, alcohol.
- Other Measures : Fasting, Emesis, induction of sweating, enema, hot water bath and purgation are advised.

DISCUSSION

Kapha Dosha is the main contributing factor in the pathogenesis of *Ashmari* i.e. binding the *Ashmari*. Usually when the urine gets stagnated in the urinary system, it tends to get concentrated and infected. Thus there is increased chance of calculi formation. Hence, the main line of treatment should be *Kaphahara, Srotoshodhana, Vata anulomana* especially *Apana Vayu Anulomana* proper maintenance of *Agni*, removal of excess waste material.

The drugs with *Katu, Tikta, Kashaya Rasa, Katu Vipaka* and *Ushna Virya* will do *Kapha Vata Shaman* which is the main *Dosha* in formation and also *Apana Vayu Shaman*.

Pain control is an important measure to be taken in *Mutrashmari*. Acute spasmodic or colicky pain results

when calculus moves downwards through the urinary tract or lodges at a certain junction.

Hematuria occurs due to injury to the urinary system by the projecting part. Drugs like *Amalaki, Mushkaka, Vibhitaki, Haritaki, Palasa, Simsipa* possess *Kashaya Rasa* which does the action of *Stambhana* thereby stopping or reducing haematuria, also *Amalaki* possesses *Sheeta Virya* which also does *Stambhana*.

The drugs, by their *Bhedana, Ashmarihara* and *Kaphahara Karmas* along with *Mutrala Karma*, are helpful to reduce the size of the *Ashmari* and expel it out from the body.

CONCLUSION

A proper understanding of etiological factors is important to prevent the occurrence of *Mutrashmari*, treat it at an individual patient and proper *Pathyapathya* with regular *Shodhana* on intervals can combat the *Mutrashmari*.

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