

## A CRITICAL REVIEW ON ASHMARI (RENAL STONE)

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Article Received on 21/07/2022

Article Revised on 11/08/2022

Article Accepted on 01/09/2022

**ABSTRACT**

In *Samhita* period, *Sushruta*, the 'Father of surgery' has mentioned about Urinary stone under the heading of *Ashmari* in detail, including etiological factors, classification, symptomatology, pathology, complications and its management in a most scientific manner. *Ashmari* description is the specific contribution of *Acharya Sushruta* and he included it in the "*Astha Mahagada*" may be owing to its potentiality to disturb the anatomy and physiology of urinary system. Renal stone resembles with *Ashmari* in *Ayurveda*. '*Ashm*' means Stone and '*Ari*' means an enemy. So, it behaves like enemy for body.<sup>[1]</sup> The common management of Renal stone are Analgesics, Antispasmodic, Diuretic drugs and Hydration, Lithotripsy and various surgical procedures. But complication of surgery like Hematuria, Post-operative bleeding, Hematoma, Urinary leakage, Ureteric obstruction, etc., So there is always a need for conservative *Ayurvedic* management of *Ashmari* in view of avoiding complications.

**INTRODUCTION**

*Ashmari* is a disorder of *Mootravaha Srotas* (Urinary tract) which causes problems in many ways including passage of urine. The waste material when not dissolve completely in urine and hamper Urinary path then *Ashmari* may occur, which termed as stone in Modern science. The *Ashmari* (Urolithiasis/Renal stone) mainly sformed by Calcium may be due to the lack of citrate which dissolve waste product. The low level of Magnesium and Phosphate also lead to *Ashmari* (stone).<sup>[2]</sup> Renal calculi is the common problem due to changing life style. It is recurrent in nature and mostly occur in males than females. The cases of Renal calculi mostly seen at age of 20-40 year and decline with over 50 year. The factor of Renal calculi are high salt intake in diet, red meat, gout, excessive intake of drugs like Calcium, vitamin D, Dehydration, hot climate. take less water intake mostly those suffer from Kidney Stones. The type of Kidney stone are Calcium oxalate, Uric acid and Cystines. Mostly Calcium oxalate stone occur in 80% of population. Renal calculus can occur in both the sex at any age. Generally stones are found in Kidneys, Ureters and Urinary bladder. When confined to kidney, it presents the feature of renal calculus. It may pass down into the Ureter to become Ureteric calculus, reach the bladder to become a Vesical calculus or to be held up in the Urethra and become a Urethral calculus. From the study of Ancient surgical text *Sushruta samhita*, it becomes apparent that the Urological problems form an important part of medical science.<sup>[3]</sup>

**Nidana****As per acharya sushruta**

*Acharya Sushruta* has described the causative factors of *Ashmari* separately, these are-

- *Asamshodhanasheela*
- *Apathya Karinah*
- Excessive exercise
- Strong medicines
- *Ruksha Madyapana*
- Excessive intake of *Anupa - Mamsa*
- *Adhyashana*
- *Ajeerna-Aahar*<sup>[4]</sup>

**As per acharya charaka**

- *Ati Vyayama*
- *Tikshna Aushadha*
- *Ruksha Madhya Sevana*
- *Drutaprushtayana*
- *Anupamamsa Sevana*
- *Matsya Sevana*
- *Adhyashana*
- *Ajeerna Bhojana*<sup>[5]</sup>

**As per acharya vagbhatta**

- *Ajeerna-Aahar*
- *Adhyashana*
- *Snigdha Ahara Sevana*
- *Divaswapna* (Day sleep)
- *Madhura Ahara* (Consume of heavy, fatty & sweet food excessively)<sup>[6]</sup>

**Samprapti**

When the abnormal movement of *Vata (Pratiloma Gati)* is present, stagnation of urine in the system takes place. In *Asamshodhanasheela* i.e. persons, who do not undergo *Shodhana* treatment and who is 'Apathyakarinah' (uses unwholesome items) the *Shleshma Dosha* gets aggravated, which saturate the urine in the system. This saturated urine (*Shleshma Adhithana*) is the material cause (cementing substance) for the stone formation. Through urine the stone forming *Dosha – Vata, Pitta and Kapha* comes in the system. The process of "Añu Pravesha" (diffusion layer wise) takes place in the stagnated urine. *Doshas* with cementing

substances forms Urinary stone of that particular *Dosha*. In other words Formation of *Ashmari*, according to *Sushruta*, is due to *Srotovaigunya* resulting from *Dushita Kapha* localized in *Basti*, in conjunction with *Pradushita Vata* and *Pitta*.<sup>[7]</sup>

**Classification (As per ayurveda)****Four types**

- *Vatika*
- *Paitika*
- *Shlaishmika*
- *Shukraja*.<sup>[8]</sup>

S. No.	Features of Ashmari	
1	<i>Vataashmari</i>	Dusty, hard, irregular and rough stones nodular like <i>Kadamba</i> flower.
2	<i>Pittaashmari</i>	Reddish, yellowish, black or honey like in colour and appear like <i>Bhallataka</i> seed.
3	<i>Sleshmaashmari</i>	White, slimy, and big in size like a hen's egg ( <i>Kukkutanda</i> ) and having a colour of <i>Madhuka</i> flower.
4	<i>Sukraashmari</i>	Mainly found in adults, frequent coitus or coitus interruption. Dysuria, swelling and lower abdominal pain.

**Poorvaroopa**

1. *Basti Peedaa*
2. *Aruchi*
3. *Mootrakrichchhra*
4. *Basti Shirovedanaa*
5. *Mushka Vedanaa*
6. *Shepha Vedanaa*
7. *Jwara*
8. *Avasaada*
9. *Basta Gandhitva*
10. *Saandra Mootra*
11. *Aavila Mootra*
12. *Aasannadesha Paritetiruka*
13. *Basti Aadhmaana*<sup>[9]</sup>

**Roop**

1. *Naabhi Vedanaa*
2. *Basti Vedanaa*
3. *Sevani Vedanaa*
4. *Mehana Vedanaa*
5. *Mootradhaaraasanga*
6. *Sarudhiramootra*
7. *Mootravikirana*
8. *Gomedaprakaasham*
9. *Atiaavilum*
10. *Sasikatam*<sup>[10]</sup>

**Modern view**

According to modern science, formation of stone in the urinary tract is one of the main problem of urology. The exact cause and mechanism of the stone formation in urine is still obscure. But various factors like vitamin A deficiency, water intake, inadequate urinary drainage, Hyper Parathyroidism, etc, and different theories like stasis, infection etc.<sup>[11]</sup>

**Definition**

Urinary stones are aggregations of urinary crystalloids. Urinary calculus is a stone like body composed of urinary salts bound together by a colloid matrix or organic materials. It consists of a nucleus around which concentric layers of urinary salts are deposited.<sup>[12]</sup>

**Etiopathogenesis**

The cause agent responsible for Renal stone are diet, water, climate and geographic conditions. In India two belts of high index had been observed :-

One starts from mostly the North and extends to area in North West including Delhi, Agra and ends up in U.P, U.K.

**Age**

It is more common in between the age of 30-40 years.

**Sex**

The Male Female ratio is 41:25.

**Climate**

Hotter areas are more prone to stone formation because of extreme perspiration and fluid loss due to hot climate. Which causes to concentrated Urine and output may be diminished. So high environmental tempt is the factor of stone formation.

**Diet**

Highly rich protein diet. following factors may be responsible for the stone formation, viz-

- Vit A deficiency
- Low Water intake
- Inadequate urinary drainage
- Hyperparathyroidism (Absorption of Calcium increases)

- Stasis
- Infection etc.<sup>[13]</sup>

### Predisposing factors

#### Physical changes in urine

- Urinary pH
- Altered Urinary Crystalloids and Colloids
- Urinary magnesium and Calcium ratio.

### Pathogenesis

Stone formation requires concentrated Urine. Concentration depends on Urinary pH, ionic strength, solute concentration.

#### (a) Urinary pH

It may change dramatically during different physiological states of the body from relatively Acid Urine in first morning Urine to an alkaline tide noted after meals.

#### (b) Solute concentration

The greater the concentration of two ions, the more likely they are to be precipitated. Low ion concentration results in under saturation and increased solubility. As ion concentration increases their activity product reaches a specific point termed as the solubility product. Concentrations above this point are metastable and are capable of initiating crystal growth and heterogenous nucleation. As solutions become more concentrated, the activity product eventually reaches the formation product. Super-saturation levels beyond this point are unstable and spontaneous homogenous nucleation may occur there.<sup>[14]</sup>

### Classification as per modern science

The modern science described four types of Urinary calculi based on their chemical constitution and morphology:

- Calcium Calculus
- Uric Acid Calculus
- Cystine Calculus
- Mixed Calculus

The *Vatika*, *Paitika* and *Shlaishmika ashmari* can compare the Calcium oxalate, Uric acid and Phosphate calculi respectively.<sup>[15]</sup>

### Clinical features

Following are the clinical features of calculi found in different positions of calculi viz-

#### (1) Renal calculi

Renal calculi are such a common disease that about 50% patients present between the ages of 30 to 50 years. The male: female ratio is generally 4:3. The symptoms are variable and the diagnosis sometimes remains obscure until the stone is discovered on Radiography / Ultrasonography.

#### Silent calculus

Some stones, even large stag-horn calculi, cause no symptoms for long periods, during which there is

progressive destruction of the renal parenchyma. If the calculi are bilateral, uraemia may be the first indication of their presence, although secondary infection usually gives symptoms first.

### Fixed renal pain

Pain is the leading symptom of renal calculus in the majority (75%) of cases. If the stone is free and obstructs a calyx or pelvic - uretric junction (PUJ), there will be dull flank pain due to capsular and parenchymal tissue distention. Most of the patients with renal stone experience discomfort, dull pain in the renal region. Generally it occurs during the night or in early morning hours and usually affects the patients while at rest and may be worse during exercise and any physical activity. The pain is usually confined to the renal region, particularly in renal angles (costovertebral angle) posteriorly and in the corresponding hypochondrium anteriorly.<sup>[16]</sup>

### Other symptoms

- Fever
- Haematuria
- Pyuria
- Hydronephrosis

### Investigation

- Blood urea
- Serum creatinine
- Serum uric Acid
- Serum calcium
- Serum Phosphorus
- Urinary calcium
- CBC
- Urine-R
- X-ray (KUB)
- USG (KUB)

### Special investigations

- Intravenous Urography
- Retrograde pyelography
- Cystoscopy
- Computerized Tomography
- Radio-isotope method<sup>[17]</sup>

### Management

#### (1) Conservative treatment

It is advisable for a silent small calculus (<0.5 cm) residing in the renal pelvis or calyx which is producing negligible symptoms. The nature of the stone and its chemical composition are important factors in planning the details of treatment.

### General recommendations

#### Diet

- Normal vegetarian diet.
- Reduce fat and sugar consumption.
- Not more than 5 gm cooking salt and table salt daily.

**Fluid**

- 3.5 liters in 24 hours evenly spread over the day.
- Fruits and herbal teas.
- Cocoa and alcoholic drinks should avoid as much as possible.

**Mode of life**

- Frequent small meals.
- Avoid purgatives whenever possible (regulate the bowels by dietary, lubricant agents etc.)
- Adequate physical exercise.

**(2) Non-operative mechanical methods**

- (1) Ultrasonic Lithotripsy
- (2) Electrohydraulic Lithotripsy (EHL)
- (3) Extra corporeal Shockwave Lithotripsy (ESWL)
- (4) Percutaneous Nephrolithotomy (PCNL)
- (5) Lithoplaxy
- (6) Laser lithotripsy
- (7) Uretero -Renoscopy (URS)

**Complication**

- Haemorrhage
- AV fistula
- Ureteral obstruction
- Water intoxication
- Infection
- Skin bruising of Perirenal haematoma
- Urosepsis

**(3) Operative method**

- Pyelolithotomy
- Subcapsular Nephrolithotomy
- Nephrolithotomy
- Pyelo-nephrolithotomy
- Partial Nephrectomy
- Anatomic Nephrolithotomy
- Nephrectomy

**Indications**

- Stone in ureter having more than 0.5 cm size in diameter.
- Impaired kidney functions observed by I.V.P.

- Evidence of infection in obstructed renal tract which leads to pyrexia, tenderness, septicaemia etc.
- Impacted stone

**Contraindication for operation:**

- Primary Anaemia
- Leukemia
- Haemophilia
- Certain forms of central nervous disease
- Advanced renal or other neoplasia
- Advanced pulmonary tuberculosis
- Severe cardiac diseases
- Acute obstruction
- Acute renal infection

**Complications**

- Haemorrhage
- Urinary fistula
- Damage to pelvic organ
- Ureteric stenosis.<sup>[18]</sup>

**Chikitsa**

- Mainly two types of *Chikitsa* are mentioned in our *Ayurvedic* literature for every disease viz-
  - Samanya Chikitsa*
  - Vishesha Chikitsa*
- Here the *Samanya Chikitsa* is more supportive nature and does not cure the disorder completely but gives a little relief, where as the *Vishesha Chikitsa* is recommended after knowing about the type of disease, *Doshas* involved, status of *Dhatu*s etc.
- '*Nidana - Parivarjana*' is the main method of keeping one self free from the disease. As *Ashmari* is kapha predominant disorder, hence the measures aggravating *Kaphaj* factors are to be avoided and the treatment to control *Kapha* is to be followed.
- The below said is the treatment of choice in *Ashmari*.
  - *Basti Karama - Chikitsa*
  - *Kshara - Chikitsa*
  - *Shastra - Chikitsa*
  - *Aushadha Chikitsa*<sup>[19]</sup>

**Some important therapies recommended in *mootrashmari***

S. No.	Therapies	Effects
1	<i>Kaphaj Therapy</i>	<i>Kshara</i> act as diuretics, lithotriptic and alkalizer. <i>Palasa Kshara</i> , <i>Yava Kshara</i> and <i>Mulaka Kshara</i> are used in such therapy.
2	<i>Vataashari Treatment</i>	Decoction of following drugs: <i>Vasuka</i> , <i>Shatavari</i> , <i>Gokshura</i> , <i>Brahmi</i> , <i>Artagala</i> , <i>Kubjaka</i> , <i>Bhalluka</i> and <i>Varuna</i> destroys <i>Vataashmari</i> .
3	<i>Pittaashmari Treatment</i>	Decoction of <i>Kusha</i> , <i>Kasa</i> , <i>Sara</i> , <i>Satavari</i> , <i>Pashana Bheda</i> , <i>Trikantaka</i> , <i>Bhalluka</i> , <i>Patha</i> and <i>Kuruntika</i> .
4	<i>Sukraashmari Treatment</i>	Seminal concretions in urethra removed by the <i>Badisha</i> instrument.

**Pathya:** *Langhana*, *Vamana*, *Virechana*, *Basti*, *Avagaha Sweda* are useful in *Ashmari*. The dietetic items are *Yava*, *Kulattha*, *Purana Shali*, *Mudga*, *flesh of Krauncha*

bird, ginger, *Yava Kshara* and all the *Vatanashaka Ahara*. These items are mostly *Vatanulomana* and *Mutrala*. Further it is mentioned to take *Gokshura*, *Yava*

*Kshara, Varuna, Punarnava and Pashanabheda as medicine.*

**Apathya:** *Ativyayama* (Excessive practice), *Adhyasana*, *Samasana*, *Sheeta*, *Snigdha*, *Guru*, *Madhura Ahara*, *ve gavarodha*, are considered as *Apathya* for *Ashmari*. *Sushka Ahara*, *Kapittha*, *Jamun*, *Bismrunal*, *Kashaya Rasa Sevana* etc. are also considered as *Apathya* for *Ashmari*.<sup>[20]</sup>

#### Useful recommendation in *ashmari*

- **Cereals:** Yava, old rice (*Shali*)
- **Pulses:** *Kulattha*
- **Vegetables:** *Kushmanda*, cucumber, tender shoot of bamboo.
- **Fruits:** Cucumber, *Amlavetasa*.
- **Food Preparation and Drinks:** *Jivanti*, *Nimbu*, *Saindhava*, *Kulattha*.
- **Other measures:** *Vaman* (Emesis), *Langhan* (Fasting), induction of *Swedan* (Sweating, enema, hot water bath) and purgation etc. are advised.<sup>[21]</sup>

#### Yoga-Asana for preventing *ashmari*

*Yoga Asana* must be performed as per advice of experts-

- *Ushtra asana*
- *Uttanpadasana*
- *Pawanmuktasana*
- *Dhanur asana*

#### DISCUSSION

According to Modern science the formation of stone in Urinary system is one of the main problems of the Urology. The causes and mechanism of their formation is still obscure but various elements like age, sex, irregular food habit, metabolic disorders, sedentary life style, occupation, hydration status, nutritional deficiency, geography etc. may be responsible for the formation of stone. *Ashmari* might be correlated with Renal stone. It is most common painful disorder of Urinary system. *Acharya Sushruta* has mentioned about *Ashmari* in *Asthtamahagada*. Due to *Aharaja* and *Viharaja Nidana Sevana*, *Agnimandya* occurs and this *Agnimandya* leads to *Ama* formation, then *Srotavarodha* due to *Ama*, mainly *Mootravahasrotas*, then conjunction with vitiated *Kapha* individually or along with *Vata* and *Pita* is responsible to produce *Ashmari*. This is the basic pathological process. As the role responsible factor in the formation of *Ashmari* is *Agnimandya*. Hence the *Ayurvedic* drug like *Pashanabedha*, *Gokshura*, *Kulatha*, etc have the basic properties to inhibit the process of *Ashmari*.

#### CONCLUSION

The treatment of *Ashmari* (Renal stone) in *Ayurveda* basically includes herbal preparations. Most of the alkaline materials (*Kshara*) act as Diuretics, Lithotriptic, Alkalizer and Antispasmodic agents. Their pharmacological actions are shown to be effective in the management of the different symptoms of Urolithiasis. Example includes *Palasha Kshara*, *Yava Kshara* etc.

*Acharya Sushruta* advocated that medicated *Ghrta* made from drugs like *Varuna*, *Shigru*, *Agnimantha* etc is effective in relieving *Rupa* (Symptoms) of *Mootrashmari* (Urolithiasis). Hence the *Ayurveda* improves the quality of life by *Ahara-Viharha*. It is also pay vital role towards the management of disorder *Ashmari* (Renal stone).

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