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Ayurvedic management of renal calculus: A review article

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Abstract

Renal calculus is one of the most prevalent clinical diseases seen in clinical practice. Renal calculus is becoming more common in both industrialised and developing nations. This entity is considered complex, involving genetic, biochemical, and epidemiological aspects. The epidemiology of renal calculus may fluctuate in different parts of the world as a result of changes in key parameters, such as dietary habits and socioeconomic position. Acharya Sushruta has provided a detailed account of the urinary system and disorders associated with it. It is obvious from the research of ancient texts that urological issues remain a very significant component of medical science. Currently, different forms of therapies are accessible but they are very costly and only available in higher centres, and it is not possible to avoid recurring stone formation even after surgical intervention. It is therefore essential to find out an economical, efficient, readily accessible and acceptable treatment of Ashmari.

Keywords: Ayurveda, Ashmari, renal calculus

Introduction

मूत्रस्य कृच्छ्रेण महता दुःखेन प्रवृत्तिः मूत्रकृच्छ्रः। मा .नि/ .मूत्रकृच्छ्र/ १ टीका.^[1]

The most prevalent, broad, and ancient illness in the urinary tract is renal calculi. It is the third most prevalent urinary illness condition and is recurring in nature^[2]. Urinary stone tract disease is estimated to afflict over 10% of people in industrialised regions of the world^[3-4]. It is estimated that 12% of Indians suffer from urinary stones^[5]. According to epidemiological research, the prevalence is higher in men (12%) than in women (6%), peaks between the ages of 20 and 40 for both sexes, and then declines after the age of 50. Numerous causes, including a heated environment, food, metabolic diseases, elevated urine citrate, immobility, insufficient urine drainage, etc., are the cause of it^[6]. Calcium containing stones are the most common kidney stones (75-90%) followed by magnesium ammonium phosphate(struvite) (10-15%), uric acid (3-10%) and cystine (0. 5-1%)^[7]. *Mutrashmri*^[8] is a most painful and common disease of urinary system. Renal stone is resembled with *Ashmari*. In Ayurveda, *Ashmari* is one among the disease come under *Astamahagada*^[9-10] i. e., difficult to cure.

The Ayurvedic classical text Sushrut Samhita provides a comprehensive account of the process of stone formation, including its symptoms and management, as elucidated by Acharya Sushruta. According to Acharya Sushruta, there are four types of calculi that are classified based on their association with Kapha, Vata, Pitta, and Shukrajashmari^[11]. Shleshmashari is caused by the overconsumption of kapha-enhancing foods, which results in sediment accumulation below and around the bladder opening, leading to obstruction of the urinary passage. This obstruction causes pain in the form of grinding, tearing, and pricking sensations, and the bladder becomes heavy and cold^[12]. The combination of Kapha and Pitta results in the manifestation of hardness, proliferation, and subsequent blockage of the bladder's opening. This obstruction of the urinary tract leads to the onset of a painful sensation characterised by burning, sucking, and heating in the bladder, accompanied by Ushnavata^[13].

Etymology

The word "Ashmari" is derives from the root "Ashu" which has the meaning "Samghata". By adding the suffix "Mnin" and "Krit", it results in the derivation of the term "Ashmara". The suffix "Meesh" is added to give the significance of gender, so the term "Ashmari" is obtained.

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Definition

Ashma (stone) formation as substances within the urinary system is called Ashmari.

Synonyms: Ashmari, Ashmarih, Pathari, Stone, Gravel, Calculus, Calculi.

Etiopathogenesis In five steps in Ayurveda, which are Nidana, Purvaroop, Roopa, Upashaya and Samprapti, the manifestation of any disease is described. These are the five steps that help the doctor to reach a correct diagnosis.

Nidana

‘व्यायामतीक्ष्णौषधरुक्षमद्यप्रसंगनित्यद्रुतपृष्ठयानात् ।
आनूपमांसाध्यशनादजीर्णास्युर्मूत्रकृच्छ्राणि नृणां तथाऽष्टौ ॥’
- मा .नि/ .मूत्रकृच्छ्र/ १^[14]

Nidana includes all the factors of aetiology. Nidana’s knowledge is useful for proper diagnosis, disease prevention, and treatment. Acharya Sushruta has separately described Ashmari’s causative factors, while it was included under Mutrakrichchra by Charaka and Kashyapa. In people who are not regularly purified and indulge in unhealthy foods and activities, kapha becomes aggravated, combines with urine, reaches the urinary bladder, stays there and produces Ashmari.

According to Acharya Charaka: The factors responsible for the production of eight types of Mutrakrichchra including Ashmari are Ati vyayama, Tikshna, Aushadha, Ruksha sevana, Madya sevana, Drutaprishthayana, Aanupa mansa sevana, Matsya sevana, Adhyasana, Ajirna bhojan.

According to Acharya Kashyapa: Bharavahana on Kati and Skandha produces dysuria, which later causes the formation of Ashmari.

2. Purvaroop

Every disease must necessarily have certain signs and symptoms before it manifests in the body. The Purvaroop of Ashmari, according to Acharya Sushruta are. Basti peeda, Aruchi, Mutrakrichchra, Basti shirovedana, Mushka vedana, Shepha vedana, Jwara, Avasad, Basti gandhitva, Sandra mutra, and Avila mutra.

According to Ashtang Hridayam: Basti peeda, Aruchi, Mutrakrichchra, Jwara, Basti gandhitva, Asannadesh paritetirukta, and Basti Adhmana.

According to Ashtanga Sangraha: Basti peeda, Aruchi, Mutrakrichchra, Basti shirovedana, Mushka vedana, Shepha vedana, Jwara, Basti gandhitva, and Basti Adhmana.

According to Madhava Nidana: Basti peeda, Aruchi, Mutrakrichchra, Jwara, Basti gandhitva, Asannadesh paritetirukta, and Basti Adhmana^[15].

3. Roopa

When fully manifested, signs and symptoms are called Roopa, which are useful in diagnosing a manifested disease. The Roopa of Ashmari according to Acharya Sushruta are. Nabhi, Basti, Sevani and Mehana vedana, Mutra dharasang, Sarudhira mutra, Mutra vikirana, Gomeda Prakasham, Atyavilam, Sasiktam, and Dhavana- Plavana-Langhana Prishthayana-adhvagamana vedana^[16].

According to Acharya Charaka: Basti, Sevani, and Mehana vedana, Sarudhira mutra, Vishirnadhara, Mridanati medhra, Muhu sakaran Munchati Mehana, and Sukham Mehati Vyapyate.

According to Ashtang Hridayam: Nabhi, Basti, and Sevani vedana, Sarudhira mutra, Gomeda Prakasham, Vishirnadhara, Mutravarodha, and Sukham Mehati Vyapyate.

According to Ashtang Sangraha Nabhi, Basti, and Sevani vedana, Mutra dharasang, Sarudhira mutra, Gomeda Prakasham, Atyavilam, Sasiktam, and Dhavana-Plavana-Langhana- Prishthayanaadhvagamana vedana, and Sukham Mehati Vyapyate.

According to Madhava Nidana Nabhi, Basti, and Sevani vedana, Sarudhira mutra, Gomeda Prakasham, Vishirnadhara, Mutravarodha, and Sukham Mehati Vyapyate.

4. Upashaya-Anupashaya

The factors relieving disease signs and symptoms are called the Upashaya, while the factors aggravating the disease are called the Anupashaya^[17]. Upashaya is a disease-fighting guideline. In comparison to Ashmari, none of the Ayurvedic classics cited Upashaya and Anupashaya. Logically, however, Ashmari is a Kapha dominant disease, so all the steps leading to Kapha’s control can be regarded as Upashaya. Likewise, all measures vitiating Kapha can be regarded as Ashmari’s Anupashaya.

5. Samprapti

पृथङ्गलाः स्वैः कुपिता निदानैः सर्वेऽथवा कोपमुपेत्य बस्तौ ।
मूत्रस्य मार्गं परिपीडयन्ति यदा तदा मूत्रयतीह कृच्छ्रात् ॥’ - मा .
नि/ .मूत्रकृच्छ्र/ २^[18]

The method of manifestation of a specific disease is known as Samprapti. Through Samprapti, the Doshas, Dushyas, Srotodushti, Agni state etc. can be evaluated. “Samprapti Vighatanam evam Chikitsa” is another important aspect of Samprapti in Ayurvedic therapy. According to Acharya Sushruta Either vaatayukta kapha, pittayukta kapha or just kapha get aggravated in people who do not frequently go through shodhana processes and unhealthy diet. Then it reaches Basti, mixes with mutra and takes the form of an Ashmari^[19].

According to Acharya Charaka Acharya: Charaka shows Ashmari’s formation cycle with Gorochana’s instance. He suggests that when the Doshayukta mutra or Shukrayukta mutra reaches Basti, where they are dried up by Vayu and Pitta’s intervention, mutra is transformed into Ashmari.

According to Acharya Vagbhatta: Acharya Vagbhatta, like Acharya Charaka, outlined the development of Ashmari.

Type of Ashmari

The Ashmari disease was categorized into four kinds by Acharya Sushruta. 1. Shleshmashmari 2. Pittashmari 3. Vatashmari 4. Shukrashmari All the Acharyas have categorized Ashmari in the same fashion, except for Charaka i. e. over four different types. Acharya Charaka did not give Ashmari classification.

Sadhyata Asadhyata

Ashmari is regarded by Acharya Sushruta among Ashtamahagadas and Mahagadas is very hard to treat because in nature they are Asadhya. Ashmari's prognosis in kids is better due to the lower room that occupies lesion and decreased subcutaneous fat. Ashmari is a serious disease like the God of Death. It can be cured with drugs when freshly created and smaller in size, but needs surgical treatment at an advanced point.

Ashmari associated with complications and Arishta Lakshnas should be prevented. Upadrava Sharkara (urinary gravel), Sikata meha (diabetes variety) and Bhaskakya roga (Mutrashukra-like similarities mentioned in Sushruta Samhita-Uttara tantra's Mutraghaatpratishedhamadhyay) are all secondary Ashmari illnesses. Due to resemblance in form and symptoms, only Sharkara should be recognized as Ashmari itself. No particular upadras have been referenced by Ayurvedic classics other than Sushruta in relation to Ashmari except for Sharkara.

Arishta Lakshana According to Sushruta: If patients are inflamed with Nabhi and Vrishanas, serious pain and urine obstruction occurs and the Ashmari is linked with Sharkara or Sikata, it rapidly kills the patient.

Chikitsa

Ashmari can be managed in different ways

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

1. Aushadha Chikitsa Ashmari is known to be a fatal and serious illness. Rapid diagnosis and treatment of it is mandatory. At the Purvaroop stage itself, Acharya Sushruta has recommended to treat the disease. A newly formed Ashmari can be treated with medicines while surgical steps should be used to treat a large or chronic Ashmari.

Vatashmari Chikitsa: Ghrita is to be cooked with a decoction of Pashanabheda, Vasuka, Vashira, Ashmantaka Shatavari, Gokshura, Brihati, Kantakari, Brahmi (Kapotvanka), Artagala, Kacchaka, Ushira, Kubjaka, Vriksadini, Bhalluka, Varuna, Shaka-phala, barley, Kulattha, Kola and Kataka fruits, and with the Kalka that make up Ushakadi Gana's group. This Ghrita breaks down the Ashmari induced by Vata easily. Alkali, gruels, soups, decoction and milk well prepared with Vata-subduing drugs should also be recommended as food and beverages.

Pittashmari Chikitsa: Ghrita should be cooked with the decoction of Kusha, Kasa, Sara, Gundra, Itkat, Morata, Pashanabheda, Shatavari, Vidari, Shalimula, Trikantaka, Bhalluka, Patola, Patha, Pattura, Kuruntika, Punarnava and Shirisha; and the Kalka of Shilajatu, Madhuka, Indivara (blue lotus), Trapusha and Ervaruka. This Ghrita disintegrates the Pitta-caused Ashmari easily. Often recommended as food and drinks should be alkali, gruels, soups, decoction and milk properly prepared with above Pitta-subduing drugs.

Shleshmashmari Chikitsa: Ghrita of Goat's milk should be cooked with the decoction of Varunadi Gana, Guggulu, Cardamom, Harenu, Kutha, Bhadradi, Maricha, Chitraka and Devadaru and the Kalka of Ushakadi Gana. This Ghrita breaks up the Ashmari caused by Kapha easily. Often recommended as food and drinks should be alkali, gruels, soups, decoction and milk properly prepared with the above Kapha-subduing medicines.

Shukrashmari Chikitsa: Spontaneously brought down to the urinary passage a seminal concretion or gravel, it should be extracted through the same channel. The urethra should be cut open and a hook like instrument (Badisha shastra) or any other tool should be used to remove the stone if the passage does not eject it. The person must refrain from sexual intercourse, horseback riding or an elephant's back, diving, climbing on trees and up mountains and exchanging indigestible substances for one year.

2. Basti Chikitsa: All the Acharyas suggest Basti chikitsa in Ashmari. According to Sushruta When decoction of latex trees is delivered through a urethral bath, the calculus flushes out instantly along with the blood accumulated in the bladder.

3. Kshara Chikitsa: Acharya Sushruta has promoted the preparation of Kshara from the above medicines to prepare Ghrita. This Kshara removes calculus, abdominal swelling and urinary gravel. To dissolve urinary gravel, an alkali made from Tila, Apamarga, Kadali, Palasha and Yava paste should be taken with the sheep's urine. Patala and Karvira alkali should also be used.

a) Purvakarma

- In the first instance, the patient should be compensated by the use of the oleaginous material.
- Then the body channels of the patient are washed and drained with emetics and purgatives, so that all doshas are eliminated.
- After being sedated and massaged with oil, the patient is now given meal.
- After that Bali-pradaan, Mangal-paath, Swasti-vaachan karma is over.
- Collect all the tools and medicines listed in Agropaharaniya adhyay.
- The surgeon must inform the patient afterwards. Positioning of the patient A person with a strong body and not a nervous person should first be made to sit as high as the knee joint on a table. The patient should then be allowed to lie on his/her back on the table positioning in the lap of the attendant, the upper part of his/her body with his/her waist lying on an elevated cloth cushion. Then it is appropriate to contract the elbows and knee joints (of the patient) and bind them by ropes or straps. Pre-operative manipulation of the stone
- After positioning, the patient's umbilical region should be massaging with oil, then pressing down the left side of the umbilical region with a closed fist to bring down the stone.
- The surgeon should insert his lubricated index and middle finger into the rectum. Then the finger should be brought up to the perineum's raphe i. e. in the middle line to put the stone between the rectum and the penis when pushed to appear like an elevated granthi.

b) Pradhana karma

- On the left side of the perineum raphe, an incision should be made at the length of a barley-corn and with enough width to allow free stone egress.
- For the ease of the procedure, most experts recommend that the incision to be made on the right side of the perineum raphe.
- In removing the stone from its cavity, careful care should be taken to prevent it from breaking into pieces and

leaving any broken particles behind (inside the bladder). Even if a small particle is left behind then it again increases in size, therefore by the Agravakra yantra (curved forceps) it should be completely removed.

- For women, the uterus is adjacent to the urinary bladder, which is why the stone should be removed by making an oblique and upward incision, otherwise there would be a urine exuding ulcer will occur. During the procedure, any injury to Bastimukha would be attended in a male patient with the same case.
- Patient is fomented by sitting in a Droni after stone removal, which avoids the chance of blood accumulation in the bladder. However, if blood is accumulated in the bladder, a Pushpa-netra instrument should be used to administered decoction of latex trees into the bladder.

c) Pashchata karma

- A treacle solution is supplied to the patient for clearing the urinary tract, and the operated wound should be lubricated with honey and Ghrita after taking him out from the Droni.
- The patient should be given a yavagu boiled with drugs (which purify the urine) and combined with Ghrita for three consecutive days every morning and evening.
- After that, rice milk and a large amount of treacle are given to the patient for ten days (for urine and blood purification, as well as moistwound).
- After the lapse of ten days, the patient is made to share a diet (rice) with the soup of Jangala animals' flesh and the expressed citrus fruit juice.
- The patient's body is carefully administered sudation therapy either by oil or by liquid after that period. Then the wound with the decoction of latex trees should be cleaned.
- The wound is filled with pastes from, Rodhra, Madhuka Manjishtha and Prapundarika.
- The wound should be treated with medicated oil or ghrita prepared from the same substance together with Haridra. Precaution during Surgery In a situation where the stone is handled, the person drops down motionless with his head bent down and eyes fixed on the vacant stare like that of a dead man, no effort should be made to remove the stone. In such a scenario, the death is sure to follow. In the absence of such an event, the procedure should be continued.

As Sushruta explained the initial line of treatment Snehana^[20] as a major tool, here Avapidaka Snehana is one of the ideal choices of Snehana, as explained by Vagbhata in Astanga Hrudaya Sutrasthana 4th chapter "Rogaanutpaadaniya Adhyaya". The diseases in Adhonaabhogata Vata can be pacified by the administration of medicated ghee in Madhyama Matra - the quantity that digests within a period of 12 hours only. In two divided doses- One part of Ghee before food and the Second part after the proper digestion of formerly taken Ghee and Food. This mode of administration of Ghrita is known as 'Avapidaka sneha^[21]'. It helps in reducing the Vibhanda lakshanas, Mutrasanga, Adhmana, Atopa etc in turn helps in reducing the abdominal pressure. Followed by Sadyo Virechana can help to remove all vitiated Doshas from root and it will reduce the re-occurrence of calculi.

Virechana in Mootrashmari

- Gandarva Hastadi Eranda Taila can use as Nitya Virechana with small dosage with Ksheera. Dose fixation

after accessing Kosta of patient. After Shodhanartha Snehapana Virechana with Tilvala Gritha is indicated in Mootrashmari.

- Grithas like Varunadi, Shatavari, Trikantakadi etc. indicated in Mootrashmari can use for Shodhanartha Snehapana purpose. After assessment of Kosta, Virechana dose should fix.
- Abhayadi Modaka is another Yoga which is indicated in Mootrakricha.

Ingredients of Abhayadi Modaka

Abhaya, Mareecha, Shunti, Vidanga, Amlaki, Pippali, Pippli Moola, Tvak, Musta, each one part, Danthi - 2 part, Trivruth - 8 part, Sharkara, Madhu. Dosage - Karshapramana (12g)

Basthi Prayoga in Mootrashmari

Basti Chikitsa has important role in Ashmari Ashmariharayukta Nirooha or Snehika Basti is indicated in this condition. According to Astanga Hridaya for Uthara Basthi Kevala Snehana can use. Uthara Basthi with Varunadi Taila There is a reference of Uttara Basthi in classics for Mootrashmari. In Astanga Hridaya there is a direct use of Varunadya Tailam in the form of Anuvrasna Basthi for Mootrashmari Chikitsa. So, in clinical practice after Kosta Shodhana Varunadyam Taila can be given through Mootra Marga as Uthara Basthi. Other Ashmagna Taila and Grithas also can be used in Uttarabasthi.

Pathya-Apathya: Charaka Samhita Harita Samhita, Bhaishajya Ratnavali mentioned Ashmari's Pathyapathya, but it was not listed explicitly by Acharya Sushruta. Pathya: Useful in Ashmari are Langhana, Vamana, Virechana, Basti, Avagaha sweda. The recommended dietetic items are Yava, Kulattha, Purana Shali, Mudga, flesh of Krauncha bird, Yavakshara and all Vata Nashaka Aahara. Most of these items are Vatanulomana and Mutrala. Gokshura, Yavakshara, Varuna, Punarnava and Pashanabheda are also listed as medicine.

Apathya: According to Acharya Sushruta, for Ashmari Ativyayama (physical work or exercise), Adhyashana, Samashana, Sheeta, Snigdha, Guru, Madhura Aahara, defecation and micturition suppression and heavy diets are viewed as Apathya. For Ashmari, according to Acharya Charaka, Vyayam, Sandharana, Sushka, Ruksha, Pishtanna, Vaartaka seven, Vyavay, Kharjur, Shalook, Kapittha, Jambav, Bisma (kamal mool), Kashaya rasa sevana etc.

Discussion and Conclusion

Mutrashmari can be correlated with urolithiasis. It is one of the most common and painful diseases of urinary system. Acharya Sushruta has described the problem of Mutrashmari under ashtamahagada. Ashmari can grow in any part of mutravaha srotas. Based on the variation in the characteristic features of pain it is concluded that the nature of pain is depending on the location of the stone where it is lodged. Ayurvedic drugs has potential to act as antilithogenic by multiple actions such as diuretic, alteration of physiological pH, regulates crystalloid imbalance, antimicrobial activity, anti-inflammatory, analgesic activity and improve renal function. Even after surgery the formation of a subsequent stone does not stop. Thus for there is no drug or therapy known that would dissolve or fragment the stone in the system by changing the lithogenic potential of a particular

person. Hence in this aspect Ayurvedic drugs like Varuna, Punarnava etc are useful

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