**AYURVEDIC REVIEW**

***MOOTRASHMARI* (Urolithiasis):**

*Ashmari* (Urinary Stone) is known to mankind since times immemorial and it is one of the most common, extremely painful and distressing disease among the group of *Mootravaha srotas*. Since Veda Kala, the human beings are suffering from *Mootravaha Srotovikaras* in which *Mootrashmari* is an important one. The first scientific, comprehensive description and management of *Mootrashmari* was given by *Acharya* Sushruta which dates back to 1000-1500 B.C. *Acharya* Sushrutahas considered *Ashmari* as one of the *Ashtomahagada* (Eight dreadful diseases)and others owing to its potentiality to disturb the urinary system as well as life of a person if not treated timely. *Mootrashmari* formation is mainly due to *Sroto* *Vaigunya* which results from localization of *Dushita* *Kapha* alone in B*asti* or in conjunction with *Pradushita Vata and Pitta.* *Acharya* Sushruta has described *Ashmari,* its classification, symptomatology, etiological factors, pathology, medicinal and surgical management with complication of surgical procedures and prognosis.

**Etymology (*Nirukti*):**

Derivation of the word *Ashmari* is 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 stone” or stone like substance; means the formation and presentation of *Ashma* (stone) like substances.

*Ashma* = Stone

*Rati* = to present

- ‘अश्मानं राति ददाति या।[[1]](#endnote-1)’ – *Shabdakalpadruma*

**Definition:**

*Ashmari* means formation of *Ashma* (stone) like substances within the urinary system. According to various classical texts, *Ashmari* can be defined as –

* ‘तुल्यतामश्मना याति तस्मात्ताम् अश्मरीं विदुः।[[2]](#endnote-2)’ (*Shabdakalpadruma*).
* अश्मरी मूत्रकृच्छ्रात् स्यात्।[[3]](#endnote-3)(*Amarakosha*)
* अश्मरी मूत्रकृच्छ्रभेद।[[4]](#endnote-4) (*Ayurvedic* *Shabdakosha*)
* रोगमार्ग स्रोतांसि वा विशेषते मूत्रमार्ग सम्भूतम् पाषाणविशेषम्।[[5]](#endnote-5)

(*Ayurvedic* *Shabdakosha*).

**Synonyms:**

Sanskrit : *Ashmari*, *Ashmarih*

Hindi : *Patharee*

Gujrati : *Pathari*

English : Stone gravel, calculus, calculi

Latin : Calculus (singular), Calculi (plural)

**Etiopathogenesis:**

In Ayurveda, the manifestation of any disease is described by five steps and these are *Nidana*, *Purvaroopa*, *Roopa*, *Upashaya* and *Samprapti*. These are helpful to *Chikitsaka* (physicians / surgeons) to reach at final diagnosis[[6]](#endnote-6).

***NIDANA*:**

*Nidana* means responsible etiological factors of a disease. The knowledge of *Nidana* is necessary for the proper diagnosis, prevention and treatment of disease. Causative factors of *Ashmari* are separately described by *Acharya* Sushruta*,* while Acharya Charaka and Kashyap had included under *Mootrakrichchhra*.

**According to Sushruta *–***

There are many causative factors of *Ashmari*. Among them two main causative factorsi.e.*Asamshodhana and Apathya sevana.*

‘तत्रासंशोधनशीलस्यापथ्यकारिणः प्रकुपितः श्लेष्मा मूत्रसंपृक्तोऽनुप्रविश्य बस्तिमश्मरीं जनयति’।[[7]](#endnote-7)

***Asamshodhanasheela*:**

*Asamshodhanasheela* is a term used for a person who doesn’t go for *Shodhana* therapy. *Ancient Acharya* has mentioned specific *Shodhana* according to seasons where natural accumulation of *Doshas* take place for example *Chaya* of *Vata*, *Pitta* and *Kapha* occur in *Grishma*, *Varsha* and *Shishira* *Ritu* respectively in normal as well as in diseased condition[[8]](#endnote-8) and if these *Doshas* are not removed in this stage then it will further go in *Prakopa* and *Prashara* *Awastha* and finally to the *Bheda Awastha* of *Shat Kriyakala*, which is incurable. Due to the lack of proper *Shodhana* measures, the *Kitta* *Bhaga* of digested food and accumulated *Doshas* precipitate in the urinary system leading to the formation of *Ashmari*.

***Apathya Sevana*:**

 It means intake undesirable, unsuitable and unwholesome foods.

 Dietary intake and regimen had a direct relation with the formation of *Ashmari*. *Kapha* is a predominant *Dosha* in *Ashmari*. Therefore, diet and regimen, which increase *Kapha,* such as excessive intake of *Shita*, *Guru,* *Madhura and Snigdha Ahara*, *Diwaswapna*, irregular food habits etc. may vitiates *Kapha* leading to vitiation of other *Doshas* and produces *Khavaigunya* in *Mootravaha Srotasa.* Thiscauses precipitation of vitiated *Doshas* in *Mootravaha Srotasa* and finally *Ashmari* is formed.

**According to Charaka –**

*Acharya* Charaka has mentioned the *Nidana* of *Ashmari* under the topic of *Mootrakrichcha* and quoted it as:

 व्यायामतीक्ष्णौषधरुक्षमद्यप्रसङ्गनित्यद्रुतपृष्ठयानात्।

 आनूपमत्स्याध्यशनादजीर्णात् स्युर्मूत्रकृच्छ्रणि नृणामिहाष्टौ॥[[9]](#endnote-9)

* *Vyayama* (excessive excercise)
* *Tikshna* *Aushadha* (sharp medicines)
* *Ruksha* *Madya* *Sevana* (intake of alcohol)
* *Drutaprishthayana* (riding speedy animals)
* *Aanupamamsa* *Sevana* (eating meat)
* *Matsya* *Sevana* (eating fish)
* *Adhyashana* (excessive quantity of food)
* *Ajirna* *Bhojana* (undigested food)

All the above states *nidana* leads to eight types of *Mootrakrichcha (Vata, Pitta,Kapha .Tridoshaja, Ashmari janya , Sharakra Janya, Shukraja and Raktaja* )

**According to Vagbhatta*[[10]](#endnote-10)***

* *Snigdha Ahara Sevana* (intake of unctuous food)
* *Divaswapna* (sleeping during day time)
* *Ajirna* *Bhojana* (undigested food)
* *Madhura* *Ahara* (intake of sweet food)
* *Adhyashana* (excessive quantity of food)

**According to Kashyapa*[[11]](#endnote-11)***

*Acharya* Kashyapa has also described about the various *Nidanas* but despite of those *Nidanas* he also added one other *nidana* i.e.

* ***Bharavahana* on *Kati* and *Skandha***

Improper dietary intake and regimen has a direct connection with the formation of *Ashmari*. As seen clearly by above mentioned *Nidana* causes vitiation of *Kapha* D*osha*. *Kapha* is principal *Dosha* in the formation of *Ashmari*. So, the diet which increase *Kapha,* may cause *Ashmari*.

***PURVAROOPA (Prodromal Symptoms)*:**

*Purvaroopa* means prodromal symptoms, which gives an early clue to a physician to start the treatment in time. It also helpful in making diagnosis at the time of differential diagnosis and in management of the disease in the early stage. *Acharya* Charaka has not mentioned the *Purvaroopa* of *Ashmari.*

According to Sushruta, the *Purvaroopa* of *Ashmari* are–

तासां पूर्वरुपाणि ज्वरो बस्तिपीडारोचकौ

मूत्रकृच्छ्रं बस्तिशिरोमुष्कशेफसां वेदना

कृच्छ्रावसादो बस्तगन्धित्वं मूत्रस्येति॥

 यथास्ववेदनावर्णं दुष्टं सान्द्रमथाविलम्।

 पूर्वरूपेऽश्मनः कृच्छ्रान्मूत्रं सृजति मानवः॥[[12]](#endnote-12)

Following table manifests the *Purvarupa* of *Ashmari* as mentioned in different classics.

**Table 1: *Purvarupa* of *Ashmari***

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sr.****No.** | ***Purvarupa*** | **Su.** | **A.H.[[13]](#endnote-13)** | **A.S.[[14]](#endnote-14)** | **M.N.[[15]](#endnote-15)** | **B.P.[[16]](#endnote-16)** | **Y.R.[[17]](#endnote-17)** | **G.N.[[18]](#endnote-18)** |
| 1. | *Basti* *Pida* | + | + | + | + | + | + | + |
| 2. | *Aruchi* | + | + | + | + | + | + | + |
| 3. | *Mootrakŗichchhra* | + | + | + | + | + | + | + |
| 4. | *Basti* *Shirovedana* | + | - | + | - | - | - | - |
| 5. | *Mushka* *Vedana* | + | - | + | - | - | - | - |
| 6. | *Shepha* *Vedana* | + | - | + | - | - | - | - |
| 7. | *Jwara* | - | + | + | + | + | + | + |
| 8. | *Avasada* | + | - | - | - | - | - | - |
| 9. | *Basta* *Gandhitva* | + | + | + | + | + | + | + |
| 10. | *Sandra* *Mootra* | + | - | - | - | - | - | - |
| 11. | *Aavila* *Mootra* | + | - | - | - | - | - | - |
| 12. | *Asannadesha**Paritetiruka* | - | + | - | + | + | + | + |
| 13. | *Basti* *Aadhmana* | - | + | + | + | + | - | - |

***ROOPA*:**

In context to diseases, *Roopa* is a term used when signs and symptoms of a disease get fully appeared and are very specific to particular disease. However, the modern science differentiates the word signs which is known both to the patient and physician (e.g.swelling etc.) & symptoms which is known only to the patients (e.g.severity of pain etc.). In our classics, *Lakshana* (synonym of *Roopa)* is used for means by which a physician achieves his *Lakshya* of knowing the disease which symbolize the signs of a disease.

According to *Acharya* Sushruta *Roopa* of *Ashmari* are –

अथ जातासु नाभिबस्तिसेवनीमेहनेष्वन्यतमस्मिन् मेहतो वेदना मूत्रधारासङ्गः सरुधिरमूत्रता मूत्रविकिरणं गोमेदकप्रकाशमत्याविलं ससिकतं विसृजति धावनलङ्घनप्लवनपृष्ठयानोष्णाध्वगमनैश्चास्य वेदना भवन्ति।[[19]](#endnote-19)

Following table shows *Roopa* of *Ashmari* according to different classical texts.

**Table 2: *Roopa* of *Ashmari***

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sr.****No** | ***RUPA*** | **Su** | **Ch[[20]](#endnote-20)** | **AH[[21]](#endnote-21)** | **AS[[22]](#endnote-22)** | **Ha[[23]](#endnote-23)** | **KS[[24]](#endnote-24)** | **M[[25]](#endnote-25)** | **BP[[26]](#endnote-26)** | **YR[[27]](#endnote-27)** |
| 1 | *Nabhi Vedana* | **+** | **-** | **+** | **+** | **+** | **-** | **+** | **+** | **+** |
| 2 | *Basti Vedana* | **+** | **+** | **+** | **+** | **+** | **-** | **+** | **+** | **+** |
| 3 | *Sevani Vedana* | **+** | **+** | **+** | **+** | **+** | **-** | **+** | **+** | **+** |
| 4 | *Mehana Vedana* | **+** | **+** | **-** | **-** | **+** | **-** | **-** | **-** | **-** |
| 5 | *Mootradharasanga* | **+** | **-** | **-** | **+** | **-** | **-** | **-** | **-** | **-** |
| 6 | *SarudhiraMootra* | **+** | **+** | **+** | **+** | **-** | **-** | **+** | **+** | **+** |
| 7 | *Mootravikirana* | **+** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| 8 | *Gomedaprakasham* | **+** | **-** | **+** | **+** | **-** | **-** | **+** | **+** | **+** |
| 9 | *Atiavilum* | **+** | **-** | **-** | **+** | **-** | **-** | **-** | **-** | **-** |
| 10 | *Sasikatam* | **+** | **-** | **-** | **+** | **-** | **+** | **-** | **-** | **-** |
| 11 | *Dhavana, Plavana,**Langhana,**Prishtha-yana,**Adhvagamana**Vedana* | **+** | **-** | **-** | **+** | **-** | **-** | **-** | **-** | **-** |
| 12 | *Vishirnadhara* | **-** | **+** | **+** | **-** | **-** | **-** | **+** | **+** | **+** |
| 13 | *Mridnati Medhra* | **-** | **+** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| 14 | *Shakrita Munchati Mehate* | **-** | **+** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| 15 | *Mootrarodha* | **-** | **-** | **+** | **-** | **+** | **-** | **+** | **+** | **+** |
| 16 | *Sukham Mehati Vyapayat* | **-** | **+** | **+** | **+** | **+** | **-** | **+** | **+** | **+** |
| 17 | *Ati Mootratvam* | **-** | **-** | **-** | **-** | **-** | **+** | **-** | **-** | **-** |
| 18 | *Pratatam Roditi* | **-** | **-** | **-** | **-** | **-** | **+** | **-** | **-** | **-** |
| 19 | *Kasamana* | **-** | **-** | **-** | **-** | **-** | **+** | **-** | **-** | **-** |

Despiteofthese *Lakshanas* (Symptoms), *Acharya* Sushruta has also mentioned about ***Pratitooni*** (Intestinal colic) and ***Tooni*** (Renal colic) in *Nidanasthana* Chapter 1st *Vatvyadhinidan*.

The symptoms of ***Tooni*** are described as the pain which arises from the bowels or urinary system and radiates downwards and give rise to a bursting sensation in the regions of anus and genitals. This has been correlated to the colicky pain which occurs in case of urolithiasis.

According Acharya Sushruta:

मूत्रमार्गप्रवृत्ता सा सक्ता कुर्यादुपद्रवान् |

दौर्बल्यं सदनं कार्श्यं कुक्षिशूलमरोचकम् ||

पाण्डुत्वमुष्णवातं च तृष्णां हृत्पीडनं वमिम् |

These symptoms can be compared with symptoms of ureteric stone. Because the formation of *Mootra* takes palce in *Vrikka i.e.*kidney. So, the word *Mootramarga* can be understood as ureter.

***UPASHAYA – ANUPASHAYA*:**

The factors which give relief in the sign and symptoms of disease are called the *Upashaya*, while the factors that aggravate the disease is called *Anupashaya[[28]](#endnote-28)*. *Upashaya* is a guideline to conflict the disease. *Upashaya* consist *Aushadha, Ahara*, *Vihara* and all the supportive measures that helpful in the elimination of disease process. None of the Ayurvedic texts has described the *Upashaya* and *Anupashaya* of *Ashmari*. But logically *Ashmari* is a *Kapha* predominant disease, so all the measures which leads to the control of vitiated *Kapha* may be considered as *Upashaya*. Similarly, all the measures which revoke *Kapha* and all the *Nidanas* of *Ashmari* may be considered as *Anupashaya*.

***SAMPRAPTI*:**

*Samprapti* is evolutionary chain of any particular disease. It elucidates the different aspects starting from the origin to the manifestation of disease with rational thinking behind it. *Acharya* Vagbhatta has defined the *Samprapti* as the sequential vitiation of *Dhatu* initiated by the vitiated *Doshas* due to *Nidana* *Sevana[[29]](#endnote-29)*. In other words, it can be stated that the process which starts from *Sanchayavastha* of *Doshas* to the *Vyadhivyaktavastha* is called as *Samprapti*. It is possible to evaluate the *Doshas*, *Dushyas*, *Srotodushti* – *Khavaiguņya*, state of *Agni* etc. through *Samprapti*. “*Samprapti Vighatanam* *Eva* *Chikitsa*”is other importance of *Samprapti* in treatment process in Ayurveda.

**According to *Acharya Sushruta* –**

‘तत्रासंशोधनशीलस्यापथ्यकारिणः प्रकुपितः श्लेष्मा मूत्रसंपृक्तोऽनुप्रविश्य बस्तिमश्मरीं जनयति’।[[30]](#endnote-30)

The person who neglects to purify (*Samsodhana*) the *Srotas* of body, who has the habit of taking unwholesome (*Apathyakari*) foods, *Dosha* aggravated by its own exciting causes and travel into the *Basti* where it saturated with the urine and gives rise to the formation of *Ashmari* in *Basti*. So, an exuberance of deranged *Kapha Dosha* should be considered as the underlying cause of *Mootrashmari*.

In *Brihattrayi*, the process of *Ashmari* formation by giving different examples as described below-

**Sushruta’s view –**

 अप्सु स्वच्छा(स्था)स्वपि यथा निषिक्तासु नवे घटे।

 कालान्तरेण पङ्कः स्यादश्मरीसंभवस्तथा॥[[31]](#endnote-31)

As new pot filled with clear water gets muddy with due course of time, similarly *Ashmari* is formed in *Basti* when urine gets stagnant.

 संहन्त्यापो यथा दिव्या मारुतोऽग्निश्च वैद्युतः।

 तद्वद्बलासं बस्तिस्थमूष्मा संहन्ति सानिलः॥[[32]](#endnote-32)

Another example: The rain water freezes to snow or ice by effect of air and electricity produced by thunder, similarly *Pitta* situated in the *Basti*, in conjugation of *Vata* consolidates *Kapha* to form *Ashmari.*

**Charaka’s View –**

 विशोषयेद्बस्तिगतं सशुक्रं मूत्रं सपित्तं पवनः कफं वा।

 यदा तदाऽश्मर्युपजायते तु क्रमेण पित्तेष्विव रोचना गोः॥[[33]](#endnote-33)

Charaka has illustrated the process of *Ashmari* formation with the example of *Gorochana*. *Acharya* states that when the *Doshayukta* *Mootra* or *Shukrayukta* *Mootra* enters into *Basti* where they are dried up by the action of *Vata* and *Pitta* and gets transformed into *Ashmari*.

**Vagbhatta’s View –** Vagbhatta has mentioned formation of *Ashmari* same as *Acharya* Charaka*[[34]](#endnote-34).*

***SAMPRAPTI*:**

**Fig.1 – *Samprapti* of *Ashmari***

 *Asamshodhana, Apathya Sevana etc.*

*Khavaigunya* at

*Mootravaha Srotasa*

*Nidana*

*Vata+Kapha*

a

*Agnimandya*

*Aamotpatti*

a

*Vata+Kapha+Ama*

a

*Dosha Dushya Sammurchana*

*a*

*Khavaigunya at Basti*

a

 *Mootra Vishesha*

a

*Kaphaja*

*Vataja*

*Shukraja*

*Pittaja*

*Ashmari Nirmana*

*Upadrava*

*Mootra Sharkara*

*Sikatameha*

*Sanchaya*

*Prakopa*

*Prasara*

 *Sthanasamshraya*

 *Vyakti*

 *Bheda*

***SAMPRAPTI GHATAKA*:**

* *Nidana* : *Kapha*, *Vata* *Prakopaka*
* *Dosha* : *Kapha* *Pradhana* *Tridosha*
* *Dushya* : *Mootra*
* *Srotasa* : *Mootravaha*
* *Srotodushti* : *Sanga & Atipravritti*
* *Agni* : *Jatharagnimandya*
* *Dosha* *Marga* : *Koshtha*
* *Udbhava* *Sthana* : *Pakvashaya* (*Apana* *Kshetra*)
* *Roga* *Marga* : *Abhyantara*
* *Adhishthana* : *Mootravaha* *Srotasa*(*Basti*)

**CLASSIFICATION OF *ASHMARI*:**

*Acharya* Sushruta has given four types of the disease *Ashmari* which are as below,

 ‘चतस्रोऽश्मर्यो भवन्ति श्लेष्माधिष्ठानाः तद्यथा श्लेष्मणा वातेन पित्तेन शुक्रेण चेति’॥[[35]](#endnote-35)

Except Charakacharya*,* all the *Acharyas* has given same opinion for the classification of *Ashmari*. Charaka has described *Ashmari* on the basis of its consistency and mentioned under *Mootrakrichchh Vyadhi*. They included *Vataja* *Ashmari* under the *Kathina* *Ashmari*. whereas *Shukraja*, *Pittaja* and *Kaphaja* types as *Mridu* *Ashmari*. Classifications of *Ashmari* mentioned in different ancient texts are described as follows-

**Table 3: Classification of *Ashmari***

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S.N.** | **Types** | **Su.** | **Cha.[[36]](#endnote-36)** | **A.H.[[37]](#endnote-37)** | **A.S.[[38]](#endnote-38)** | **M.N.[[39]](#endnote-39)** | **B.P.[[40]](#endnote-40)** | **Sh.S.[[41]](#endnote-41)** | **Y.R.[[42]](#endnote-42)** |
| 1. | *Shleshmaja* | + | + | + | + | + | + | + | + |
| 2. | *Pittaja* | + | + | + | + | + | + | + | + |
| 3. | *Vataja* | + | + | + | + | + | + | + | + |
| 4. | *Shukraja* | + | + | + | + | + | + | + | + |

***Shleshmaja Ashmari*:**

It is formed through the action of deranged *Kapha* by excessive ingestion of *Kapha* *Pradhana* *Ahara.* The *Shleshmaja Ashmari* gets saturated with an excessive quantity and increases in size at the lower orifice of the bladder which obstructs the passage of the *Mootra*. Because of the obstructed urine flow, creates pressure on the bladder wall, it produces symptoms.

**Symptoms**: *Dalyate* (Bursting pain*, Bhidyate* (incising pain)*, Nistudyate eva Basti* (, cutting & pricking pain), *Shita & Guru Basti* (heaviness and cold sensation occur over the area of bladder)

**Feature of stone:** *Shweta* (White), *Snigdha* (slimy) and *Mahati* (large size), *Kukkutanda Pratikasha* (like a hen’s egg), *Madhuka pushpa Varna* (Colour like flower of *Madhuka longifolia*). [[43]](#endnote-43)

***Pittaja Ashmari*:**

The vitiated *Kapha* along with the deranged *Pitta* becomes hard and increases in size in the afore said ways and gets located in the *Basti* and obstructs the passage of the urine. Due to this, symptoms produced.

**Symptoms**: *Choosyate* (sucking type of pain)*, Dahyate* (seems as exposed to the heat of an adjacent fire, boiling with the energy of an alkaline solution, warmth), and *Pachyate eva Basti* (burning or throbbing pain is felt in the bladder region), symptoms of *Usnavata* (A type of *Mootraghata*)*.*

**Feature of stone:** *Sarakta* (Blood stained), *Peetaavbhasa* (yellowish) *Krushna* (black), *Bhallatakaasthi Pratima* (appears like seeds of *Semicarpas anacardium* L.f.), *Madhuvarna* (honey like color).[[44]](#endnote-44)

***Vataja Ashmari*:**

The vitiated *Kapha* along with the deranged *Vata* becomes solidified and increase in size in the afore said ways and gets located in the region of *Basti* and obstructs the passage of the *Mootra*. Due to this obstruction, it produces various types of pain as symptoms.

**Symptoms**: *Teevra Vedana* (extreme pain), Due to extreme pain, *Dantan Khadana* (gnashes his teeth), *Nabhi Peedana* (presses hisumbilical region), *Medhra Mrudana* (rubs the penis), *Paayu Sparsha* (touches the perineum), *Vishardhate* (patient cries out in agony), *Vidaha* (feels burning sensation) and *Vata-Mootra-Purisha Krichchhena Mehati* (passes flatus, urine and stool with difficulty while straining for micturition).

**Feature of stone:** *Shyava* (Blackish), *Parusha* (hard), *Vishama* (irregular), *Khara* (rough), *Kadamba Pushpavat Kantakachita (*full of spikes like flowers of *Neolamarckia cadamba* Roxb*.).* [[45]](#endnote-45)

**NOTE**: Often all these three types of *Ashmari* are formed in children specially because of small size of bladder and its thin musculature and also because of *Kapha* dominant *Ahara* and *Vihara* intake.

***Shukraja Ashmari*:**

In adults, only this type of *Ashmari* occurs due to the production of semen in their genital organs. Due to interrupted or excessive coitus, *Shukra* (semen) tends to dislodge from its natural receptacle in the body and is diverted into the wrong tract. The *Vayu* gathers up the fluid (*Shukra*) and deposits it at a place lying about the junction of the *Medhra* (penis) and *Vrushana* (scrotum) and dries up the humidity. The matter thus formed, condensed, and hardened is known as the *Shukra Ashmari* (seminal stone), which then obstructs the urine passage causing symptoms.

**Symptoms:** *Mootrakrichchha* (dysuria), *Basti Vedana* (bladder pain), V*rushana* *Shvayathu* (scrotal swelling).

 This type of *Ashmari* can easily be dissolved by applying mild pressure by hands over it[[46]](#endnote-46).

***SADHYA-ASADHYATA*:**

Sushrutahas considered *Ashmari* under *Ashtomahagada* (diseases which are very difficult to cure). In children the prognosis of *Ashmari* is better due to the smaller space occupying lesion and less subcutaneous fats[[47]](#endnote-47).

 अश्मरी दारुणो व्याधिरन्तकप्रतिमो मतः।

 औषधैस्तरुणः साध्यः प्रवृद्धश्छेदमर्हति॥[[48]](#endnote-48)

The *Ashmari* is a dreadful disease so, it can be as fatal as death itself. The *Ashmari* can be cured with drugs which is newly formed and small in size, but in chronic condition, it requires surgical intervention. The *Ashmari* which are associated with complication and *Arishta* *Lakshanas* should be not treat.

***UPADRAVA*:**

*Upadravas* of *Ashmari* are described by only *Acharya* Sushruta. The formation of *Mootra* *Sharkara*, which can be considered as one of the *Upadravas* of *Ashmari*. Otherwise, none of Ayurvedic classic has described *Upadrava* in context to *Ashmari*.

 शर्करा सिकता मेहो भस्माख्योऽश्मरिवैकृतम्।[[49]](#endnote-49)

In Sushruta Samhita *Sutrasthana* Chapter 33 *Avarniya* *Adhyaya*, Sushruta has mentioned *Ashmari* as an *Ashtomahagada*, he gave some exclusive features of *Ashmari* i.e.

1. *Prashunanabhivrushshna[[50]](#endnote-50)*
2. *Ruddha Mootram*
3. *Ruka*

***CHIKITSA*:**

In *Sushruta Samhita, Uttara Tantra*– 1/25 (*Netra Roga Chikitsa Adhyaya),* Sushrutahas stated that

 ‘ संक्षेपत क्रियायोगो निदानपरिवर्जवन ’ (सु. सां .उ .१/२५)

i.e.the best treatment is avoidance of causative factors as well as the best prophylaxis for any disorder i.e.prevention is better than cure.

But as it progresses, it requires medical as well as surgical treatment. The *Ashmari* management has been given as one or more of the following four types:-

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

*Ashmari* is mentioned as a fatal and grave disease. It is mandatory to diagnose and treat the disease in early stage. Sushruta has advised to start the treatment in the *Purvaroopa* stage of disease itself.

**Different types of *Ashmari Chikitsa* –**

1. ***Vataja Ashmari Chikitsa*:**

For treatment of *Vataja Ashmari* following mentioned formulations should be advised-

*Pashanabheda, Vasuka, Vashira, Ashmantaka, Shatavari, Gokshura, Bŗihati, Kantakari, Brahmi (Kapotvanka), Artagala, Ushira, Kubjaka, Vrikshadani, Bhalluka, Varuna*, fruits of *Shaka*, Barley, *Kulattha, Kola* and *Kataka fruit. Ghrita* should be prepared from the decoction of the above *Dravya* in which the drugs of the *Ushakadi Gana* can be added. This *Ghrita* quickly cure the *Ashmari* caused by *Vata*. *Kshara, Yavagu, Yusha, Kwatha,* milk preparations and food prepared from these *Vata* allaying groups of drugs should be given[[51]](#endnote-51).

1. ***Pittaja Ashmari Chikitsa*:**

For treatment of *Pittaja Ashmari* following mentioned formulations should be advised.,

*Kusha, Kasha, Shara, Gundra, Itkata, Morata, Pashanabheda, Shatavaree, Vidari, Shalimula, Trikantaka, Bhalluka, Patala, Patha, Pattura, Kuruntika, Punarnava* and *Shirisha,* in which *Shilajatu, Madhuka*, seeds of *Indivara* (blue lotus), *Trapusha* and seeds of *Ervaruka* etc. should be added. *Ghrita* should be prepared from the decoction of these drugs. This recipe quickly disintegrates the calculi caused by *Pitta*. *Kshara, Yavagu, Yusha, Kwatha,* milk (preparations) and food prepared from these *Pitta* allying groups of drugs should be given[[52]](#endnote-52).

1. ***Shleshmaja Ashmari Chikitsa*:**

 The decoction of drugs of *Varunadi Gana,**Guggulu, Ela, Harenu, Kushtha*, drugs of *Bhadradi* *Gana*, *Maricha, Chitraka* and *Devadaru, Ghrita*from goat’s milk should be processed by adding the drugs of *Ushakadi Gana.* The recipe quickly destroys the calculi caused by *Kapha*. *Kshara, Yavagu, Yusha, Kwatha,* milk preparations and food prepared from these *Kapha* allaying groups of substances should be given[[53]](#endnote-53).

1. ***Shukraja Ashmari Chikitsa*:**

If seminal concretions spontaneously coming into the urinary passage and get impacted that should be removed through the natural passage of urine. If this is not possible, the passage should be laid open and the concretions should be extracted by *Badisha* *Shastra* (a hook like instrument). After healing of wound, the patients should be advised to avoid coitus, horse riding, elephant chariot, mountain and tree climbing for one year. They should not swim in water and should avoid heavy meals[[54]](#endnote-54).

**Different classical formulations for *Ashmari[[55]](#endnote-55) –***

***Kwatha Kalpana–*** *Viratarvadi Kwatha, Shvadamshtradi Kwatha, Shunthyadi Kwatha, Shigrumooladi Kwatha, Varunadi Kwatha, ,Pashanabhedadi Kwatha, Nagaradi Kwatha* etc.

***Churna Kalpana –*** *Trikantakadi Churna, Pashanbhedadi Churna, Trapushabijadi Yoga* etc.

***Ghrita Kalpana –*** *Sharapanchamuladi Ghrita, Pashanabhedadi Ghrita, Varunadi Ghrita, Kushadya Ghrita, Kulatthadi Ghrita,* etc.

***Taila Kalpana –*** *Viratarvadi Taila, Varunadi Taila* etc.

***Rasa Aushadha –*** *Trivikrama Rasa, Pashanavajraka Rasa,* etc.

1. ***Basti Chikitsa*:**

Sushruta has advised *Uttarabasti* in the management of *Ashmari*.

 क्षीरवृक्षकषायस्तु पुष्पनेत्रेण योजितः।

 निर्हरेदश्मरीं तूर्णं रक्तं बस्तिगतं च यत्॥[[56]](#endnote-56)

*Acharya* Sushruta has states that the decoction of latex trees administered through urethral route which flushes out the *Ashmari* immediately along with the collected blood in the *Basti*. Almost all the *Acharyas* have indicated *Basti* treatment in *Ashmari[[57]](#endnote-57)*.

1. ***Kshara Chikitsa*:**

Sushruta has advocated *Kshara* preparation from the above mention drugs according to involvement of *Dosha* for preparing *Ghrita*. This *Kshara* destroys abdominal swelling, calculi, and urinary gravel.

 तिलापामार्गकदलीपलाशयवकल्कजः॥

 क्षारः पेयोऽविमूत्रेण शर्करानाशनः परः।

 पाटलाकरवीराणां क्षारमेवं समाचरेत्॥[[58]](#endnote-58)

*Kshara* prepared from the paste of ***Tila, Apamarga, Kadali, Palasha*** and ***Yava*** should be administered with sheep’s urine to destroy urinary gravel. *Kshara* prepared from *Patola* and *Karavira* should be used likewise.

1. ***Shastra Chikitsa*:**

 घृतैः क्षारैः कषायैश्च क्षीरैः सोत्तरबस्तिभिः।

 यदि नोपशमं गच्छेच्छेदस्तत्रोत्तरो विधिः॥[[59]](#endnote-59)

When the *Ashmari* is not amenable to treat with *Ghrita*, *Kshara*, *Kashay*a, *Ksheer* preparations and *Uttarabasti, Shastra* *Karma* is the ultimate treatment.

 कुशलस्यापि वैद्यस्य यतः सिद्धिरिहाध्रुवा।

 उपक्रमो जघन्योऽयमतः संपरिकीर्तितः॥

 अक्रियायां ध्रुवो मृत्युः क्रियायां संशयो भवेत्।

 तस्मादापृच्छय कर्तव्यमीश्वरं साधुकारिणा॥[[60]](#endnote-60)

 When success of expert surgeon’s is uncertain, in those cases surgery should be considered last option. When death is inevitable with non-operative treatment and a doubt is raised by surgery it should be considered as last resort. It should be carried out by the well-meaning surgical persons after taking the consent of the authorities as well as from patients.

The surgical process can be divided mainly into three steps –

1. ***Purvakarma*:**

First of all, patient should be given *Snehapana*, which will eliminate *Doshas* and body weight will be reduced. Patients should be oleated (*Abhyanga*), sudated (*Swedana*) and give *Anna* (food), then after having sacrificial offerings, patients should chant auspicious hymns, wishing welfare and collecting all things described in *Agropaharaniya* chapter, he should be reassured[[61]](#endnote-61).

**Positioning of the Patients:** The patient who is strong and is not nervous, should be laid flat with the upper part of his body resting on the lap of another person sitting on a knee high plank facing east the patient’s waist should be raised by cushions and his knees and ankles should be flexed and tied together by ropes or straps.

**Pre-operative manipulation of the stone:** After that, the left side of the well oleated umbilical region, pressure should be applied below the umbili by a fist until the stone comes down. The lubricated index and middle fingers, whose nails have been pared should be introduced into the rectum and brought below the perineal raphe. Thereafter, with manipulation the stone should be brought between the rectum and penis. Keeping the bladder tense and distended so as to obliterate the folds, the stone should be pressed hard by fingers so that they become prominent like a tumor.

1. ***Pradhana Karma*:**

Then an incision of about the stone size should be made of one barley width away from the perineal raphe on left side[[62]](#endnote-62). Some *Acharya* prefer the incision on the right side for the technical convenience. The precautions should be taken so that stone will not get broken or crushed. Even if a small particle is left behind it again increases in size, hence all particles should be removed completely by the *Agravakra* (curved forceps) *Shastra*. In females, as the uterus is situated very near to the urinary bladder posteriorly, the incision should be directed upwards; if this rule is violated, urine will discharge from the wound (*Mootrasravi* *Vraņa*). In males, an injury to *Mootrapraseka* (trigone of the bladder) may cause urine leakage.[[63]](#endnote-63) Except when the wound is made for the stone removal, an injury to the urinary bladder is not likely to heal. Patients with calculi, whose bladder has been torn into will never get well. An incision in the bladder should be made at only one place for the *Ashmari* removal. After removal, patient should be put in a tub of hot water to take sitz bath. So, the bladder does not get filled with blood.

However, if bladder gets filled up with blood, it should be irrigated using the decoction of the latex trees through a catheter. The following verse is translated here, “The decoction of the latex trees administered (as an irrigating fluid) via a catheter removes the stone and the blood from the bladder quickly”[[64]](#endnote-64).

1. ***Pashchata Karma*:**

After operation, for purification of the urinary tract, sufficient jaggery should be given to the patient. After that, patient should be taken out from the tub and *Madhu-Ghrita* should be applied on the wound and warm *Yavagu* (gruel) processed with urine purifying substances should be administered with *Ghrita* two times daily for 3 nights (a night implies 24 hours period). After three nights, milk with jaggery and small quantities of well cooked rice should be given for ten nights (so that the urine and blood may be purified and the wound may remain moist). Then, citrus fruits and juices prepared from wild animal’s meat should be given. Thereafter, sudation therapy either by oils or liquids should be given for ten nights. Then, patient’s wound should be washed by the decoction made up of latex trees Followed by application of paste of *Rodhra*, *Madhuka*, *Manjishtha* and *Prapaundarika*. Also *Taila* or *Ghrita* prepared from the same drugs along with *Haridra* should be applied over the wound.

In case of blood coagulation, it should be managed by bladder wash. If urine doesn’t came out from natural passage after 7 nights, then wound should be treated by fire cautery. When urine started to flow through natural passage patient should be treated with bladder wash, enema of medicated decoctions and oils prepared from the sweet and astringent drugs[[65]](#endnote-65).

***PATHYAPATHYA*:**

The *Ahara* and *Vihara* which cures the disease without causing another disease is called *Pathya*, and those *Ahara* and *Vihara* which aggravate the same disease with some complication is called *Apathya.* Sushruta has not described *Pathyapathya* of *Ashmari* directly, but *Charaka* *Samhita*, *Harita* *Samhita*, *Bhaishajya* *Ratnavali* have described *Pathyapathya* of *Ashmari*.

***Pathya[[66]](#endnote-66)*:**

*Langhana*, *Vamana*, *Virechana*, *Basti*, *Avagaha* *Sweda* are helpful in *Ashmari*. The dietetic items are *Yava*, *Kulattha*, *Purana* *Shali*, *Mudga*, flesh of *Krauncha* bird, ginger, *Tanduliyaka, Kushmanda, Yava* *Kshara* and all the *Vatanashaka* *Ahara* should be used. These all items are mostly *Vatanulomana* and *Mootrala*. Further, it is said to take *Gokshura*, *Yava* *Kshara*, *Varuna*, *Punarnava* and *Pashanabheda* as medicine.

***Apathya[[67]](#endnote-67)*:**

*Ativyayama* (excessive practice), *Adhyashana*, *Samashana*, *Shita*, *Snigdha*, *Guru*, *Madhura* *Ahara*, *Vegavarodha* are considered as *Apathya* for *Ashmari*. *Sushka* *Ahara*, *Kapittha*, *Jamuna*, *Bisamrinala*, dry dates, *Kashaya* *Rasa* *Sevana* etc. are also mentioned as *Apathya* for *Ashmari*.

**Useful Recommendation in *Ashmari*:**

* **Cereals:** *Yava*, *Shali*
* **Pulses:** *Kulattha*
* **Vegetables:** *Kushmanda*, cucumber, *Chirabhat*, tender shoot of bamboo.
* **Fruits:** Cucumber, *Chirabhat*, *Amlavetasa*.
* **Fish and Meat:** *Jangala Mamsa*, sea tortoise.
* **Food Preparation and Drinks:** *Jivanti*, *Nimbu*, *Saindhava*, *Asava-Arishta*.
* **Other Measures:** *Langhana* (fasting), *Vamana* (Therapeutic Emesis), *Swedana* (Induction of sweating), *Basti* (enema), *Avagaha* *sweda* (hot water bath) and *Virechana* (purgation) etc.

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