



A CONCEPTUAL STUDY OF ASSESSMENT OF DOSHAJ ASHMARI WITH SPECIAL REFERENCE TO UROLITHIASIS

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Article Received on 12/02/2020

Article Revised on 04/03/2020

Article Accepted on 25/03/2020

ABSTRACT

Urolithiasis is the third most common affliction of the urinary tract. In Ayurveda Urolithiasis is explained as Mutrashmari; which is considered as one among the Ashta Mahagada. The lakshanas of Mutrashmari explained in Ayurvedic texts resembles the signs and symptoms of Urolithiasis mentioned in the contemporary system of medicine. In Ayurvedic literatures the bheda of Mutrashmari is based on the lakshanas of Dosha and Ashma. In the same way, the classification of urolithiasis in western system of medicine is based on the symptoms, morphology, Location and chemical constitution of the calculus. This article is aimed at review on classification of Urolithiasis and Mutrashmari and comparing the same, which may help in accurate clinical diagnosis and treatment also.

KEYWORDS: Mutrashmari; Urolithiasis; Classification.

INTRODUCTION

Mutrashmari is correlated with urolithiasis^[1]. Urolithiasis is a most common affliction now a days. About 15% to 25% population is suffering from urinary calculi.^[2] The prevalence changes region to region and gender to gender.^[2] Various factors are responsible for this variation in prevalence rate. The incidence of urolithiasis is increasing day by day.

Ayurveda explains about *ashmari* in detail. '*Ashma*' means stone hence the word *ashmari* is used for the structures which resembles stone i.e. urinary stones. In the pathogenesis of *mutrashmari*, it is explained that *Ashmari* is formed in the urinary track, as a result of hyper concentration of urine.^[3] Primarily all the types of *ashmari* are *tridoshaj* but there is predominance of *kapha dosha* in the formation of *ashmari*. There are four main types of *ashmari* described in Ayurveda, out of which three are *doshaj* type of *mutrashmari* and one is *shukrashmari*.^[4]

There are several types of calculi; out of which four main types are calcium stones, composed largely of calcium oxalate or calcium oxalate mixed with calcium phosphate; another is so called triple stones or struvite stones, composed of magnesium ammonium phosphate; some are uric acid stones; and least made up of cystine. An organic mucoprotein matrix. Although there are many causes for the initiation and propagation of stones,

the most important determinant is an increased urinary concentration of the stones' constituents, such that it exceeds their solubility (supersaturation). A low urine volume in some metabolically normal patients may also favour supersaturation.^[5] The thorough understanding of aetiology, epidemiology and pathogenesis of urolithiasis is necessary so as to develop effective ayurvedic programme for diagnosis, treatment and prophylaxis of disease. This study is taken up to find out correlation between the types of *ashmari* and that of calculi on the basis of textual symptoms, signs, site of the calculus specific differences in the types of *doshaj ashmari*, their composition, site on the basis of investigation, and to find out objective parameter for the diagnosis and treatment of *doshaj ashmari*.

AIM

To correlate types of *doshaj ashmari* with special reference to urolithiasis.

OBJECTIVES

- 1) To study the signs and symptoms of *doshaj* types of *ashmari* from ayurvedic text
- 2) To study the signs and symptoms of various types of urinary calculi from classics
- 3) To correlate the types of *Doshaj ashmari* and various urinary calculi on the basis of signs and symptoms

MATERIAL AND METHODOLOGY

This is a conceptual review to correlate various types of *Doshaj ashmari* with various types of urinary calculi. Hence all the data collected is compilation of available references regarding *Mutrashmari* and Urinary calculus from ayurvedic as well as modern texts.

Correlation is done on the basis of signs and symptoms of *ashmari* and that of urinary calculus. That varies from type to type.

Review of Literature

Most of the classical texts of Ayurveda described *ashmari* in detail. Acharya sushruta explained *ashmari* in Sutra sthana, nidansthana and also in uttar tantra. Acharya Sushruta, Acharya Vagbhatta and Even Madhav nidan considered *ashmari* as an 'ashtamahagad' i.e. The diseases that are very hardly cured.^[6]

Etiological Factors^[7]

Sushruta explains the etiological factors of *ashmari* as those who avoid the *sanshodhan* of internal channels i.e. *strotas* and those who are engaged in having unwholesome dietary habits becomes the victim of *ashmari*.

Pathogenesis^[8]

Acharya Sushrut describes the pathogenesis of *Ashmari* in detail. He gives an example of water kept in earthen pot. As precipitates even in clear water which is kept for long time, sediments at the bottom of the pot; similarly, long stasis of urine in bladder (*mutravaha strotas*) acts as a precursor of urinary calculi.

All the types of *ashmari* are *tridoshaj* but mainly *kapha* predominant. The vitiated *kapha* along with *vata dosha* in *mutravaha strotas* leads to *ashmari* formation. There is reduction of watery part in urine due to saturation of *kapha dosha* in urine. This vitiated *kapha* gets harden forming *ashmari*.

Types of *Ashmari*^[9]

All the ayurvedic texts described four types of *ashmaris* as follows-

- 1) *Vataj*
- 2) *Pittaj*
- 3) *Shleshmaj*
- 4) *Shukrashmari*

1) *Vataj Ashmari*

Symptoms

It Occurs due to predominant *vata dosha*. There is severe pain, Dysuria, difficulty in expulsion of urine and stools. Typical type of pain is described as:

Mutrpratighaata teevara vedana (Retains urine and has severe pain), *Atyrth peedyamano* (Severe pain in groin region), *Dantan khadati* (quenches teeth), *Nabhim peedayati* (Pain at umbilical region), *Medhram mrudnati* (Squeezes penis because of pain), *Payum sprushyati* (Touches Anal orifice), *Vidahati* (Burning sensation in

penile region), *Vata mutra purishani kruchhren nisarati* (Painful micturition and defecation).

Morphological Dimensions

Shyava (Blackish in colour), *Parush* (Tough), *Vishama* (Irregular shape and size), *Khara* (Rough surface), *Kadamba pushpavat kantakachit* (Thorny; as that of *kadamba* flower)

2) *Pittaj Ashmari*

Symptoms

When *pitta* gets vitiated along with *kapha dosha*; *Pittaj ashmari* forms. The symptoms are *Mutrpratighaat* (Retention of urine), *Ushyate* (Burning Sensation in lower abdominal region), *Chushyate* (Sucking pain), *Dahyate* (Burning sensation), *Ushnavaat* (Burning sensation in *basti medhra* and *guda*).

Morphological Dimensions

Sarakta (Reddish in colour), *Peetawabhasa* (Yellowish), *Krushna* (Blackish), *Bhallatakasthi Pratibha* (Black and rough as that of Seed of *bhallataka*), *Madhuvarna* (Honey like colour)

3) *Shleshmaj Ashmari*

Symptoms

Mutrpratighatat dalyate (Cutting pain because of retention of urine), *Bhidyate* (Throbbing Pain), *Nistudyate* (Pricking pain), *Basti guru sheetashch bhavati* (Heaviness and coldness in Lower abdominal (*Basti*) region).

Morphological Dimensions

Shweta (White in colour), *Snigdha* (Smooth surface), *Mahati* (Relatively large in size), *Kukkutanda pratikasha* (White and smooth like egg), *Madhuka pushpa varna* (Pale yellow coloured like *madhuka* flowers).

Classification of Urinary calculus

There are different types of urinary calculus mentioned in contemporary science based on pathogenesis, based on composition and based on location.

1) Based on Pathogenesis^[10]

- a) Primary Stones
- b) Secondary stones

Primary Stones

Primary stones are those which appear apparently in healthy urinary track without any antecedent inflammation. These stones are usually formed in acid urine and usually consist of Calcium oxalate, uric acid, Urate, Cystine, Xanthine or Calcium Carbonate.

Secondary Stones

They are usually formed as a result of an inflammation. The urine is usually alkaline; urea splitting organisms are most often the causative factors. Calcium ammonium

magnesium phosphate is the main constituent of secondary stones.

2) Based on Composition^[11]

- a) Calcium Oxalate
- b) Phosphate Calculi
- c) Uric Acid or Urate Calculi
- d) Cystine Calculi
- e) Xanthine Calculus

a) Calcium Oxalate

Oxalate stones are irregular in shape and covered with sharp projections which tends to cause bleeding. The surface of the calculus discolours by altered blood. Calcium oxalate monohydrate stone is hard and radio dense.

b) Phosphate calculus

A phosphate calculus (Calcium phosphate obtained with ammonium magnesium phosphate) is smooth and dirty white. It tends to grow in alkaline urine. Especially when urea splitting proteus organism are present. As a result, the calculus may enlarge to most of the collecting system, forming a staghorn calculus even a very large staghorn calculus may be clinically silent for years until it signs its presence by haematuria, urinary infections or renal failure. Because they are large, phosphate calculi are usually eyes to see on radiographic films.

c) Uric acid and urate Calculus

Sometimes These are hard, smooth and often multiple. They vary from yellow to reddish brown and have an attractive, multifaceted appearance. Pure uric acid stones are radiolucent and appear on an excretion urogram as a filling defect, which can be mistaken for a transitional tumour of the upper urinary tract. The presence of uric acid stone is confirmed by CT. Most uric acid stones contain some calcium, so they cast a faint radiological shadow. In children, mixed stones of ammonium and sodium urate are somewhere found. They are yellow, soft and friable. They become radiopaque when contaminated with calcium salts.

d) Cystine Calculus

These uncommon stones appear in the urinary tract of patient with a congenital error of metabolism that lead to cystinuria. Hexagonal, translucent, white crystals of cystin appear only in acid urine. They are often multiple and may grow to form a cast of the collecting system. Pink or yellow when first removed, they change to a greenish colour when exposed to air. Cystin stones are radio-opaque because they contain sulphur and they are very hard.

e) Xanthine Calculus

They are extremely rare. They are smooth and round, brick red in colour, and show flagellation on cross section.

3) Based on Location^[12]

- 1) **Renal Calculus:** The patient will have extreme, sharp pain in loin that will not subside, blood in the urine, nausea and vomiting, cloudy or odorous urine, frequent urination, Burning micturition, fever and chills.
- 2) **Ureteric Calculus:** Radiating, colicky, agonising pain, rather constant ache in costo-vertebral area and flank, nausea and vomiting may be associated. Blood mixes urine urgency and frequency of urination and chills
- 3) **Vesical Calculus:** Increased frequency, Pain and discomfort at the end of micturition, terminal haematuria, dysuria, acute retention of urine
- 4) **Urethral Calculus:** In male, patient may experience a sudden stoppage of urine while urinating and thereby unable to empty the bladder. Dribbling also occurs, pain due to the stone in the urethra may be rather severe and may radiate to the glans penis.

In Females, the symptoms of urethral diverticulum with or without calculus are those of infection of lower urinary tract including frequency, dysuria, nocturia, pyuria and in rare, hematuria. Dyspareunia is a prominent symptom, Occasional discharge of pus through urethra may occur.

DISCUSSION

Thinking about the above review mentioned, one can correlate the types of *doshaj ashmari* with that of urinary calculi up to some extent.

Vataj ashmari has the characteristic features which resemble with the calcium oxalate calculi. Colour of *vataj ashmari* is *shyavavarna* while that of calcium oxalate has dark colour because of the haematuria. Surface of *vataj ashmari* is *parusha* and *khara* where that of calcium oxalate is hard and rough, margins are irregular with thorny projections like *vataj ashmari*.

Pittaj ashmari resembles uric acid, urate and cystine stones. *Pittaj ashmari* possesses *rakta*, *peet*, *Krishna* or *madhuvarna* while uric acid stones possess yellow or dark brown colour also shape of *pittaj ashmari* and uric acid stones resembles each other.

Kaphaj ashmari shows resemblance with Phosphate stones in colour, size and shape and also outer surface. *Kaphaj ashmari* is *Shweta*, *madhuvarna*, *sitavarna*, *madhukapushpa varna*, *Shukla varna* while phosphate stones are dirty white or yellow white in colour. *Kaphaj ashmari* and phosphate stones both are comparatively bigger in size, surface is smooth and shape is like hens egg.

Table: 1: Showing the similarity in morphological features^[13]

Sr. no.	Characteristics	Type of Ashmari-	Type of Calculus
		A) VATAJA	CALCIUM OXALATE STONES
1.	Colour	<i>Shyavavarna</i>	Calcium oxalate stones -causes haematuria resulting in deposition of blood over the stone, giving dark colour to the stone
2.	Surface	<i>Parusha & khara</i>	Hard with rough surface
3.	Edges	<i>Vishama</i>	Irregular
4.	Shape	Hard studded with thorns like <i>kadamba pushpa</i>	Calcium oxalate stones have sharp projections
		B) PITTAJA ASHMARI	URIC ACID, URATE OR CYSTINE CALCULUS
1.	Colour	<i>Rakta varna/ Peetavarna/ Krishnavarna/ Madhuvarna</i>	Yellowish/ Reddish Brown
2.	Shape	<i>Bhallatakasthi</i>	Hexagonal Shape
		C) KAPHAJ ASHMARI	PHOSPHATE STONES
1.	Colour	<i>Shweta/ Madhuvarna/ sitavarna/ Madhukapushpa varna/ Pingal/ Shukla varna</i>	Dirty white / Yellow white
2.	Size	<i>Mahati</i>	They grow bigger in size in major and minor calyces
3.	Surface	<i>Snigdha</i>	They are soft
4.	Shape	<i>Kukkutanda pratikasham</i>	They are round like hens egg.

On the basis of above discussion one can correlate *Vataj ashmari* with Calcium Oxalate, *Pittaj ashmari* with Uric acid, Urate and cystine stones and *Kaphaj ashmari* with Phosphate stones. Off course there is further scope to correlate them on experimental basis.

CONCLUSION

On the basis of above review, observations, and discussion, it can be concluded that *Vataj Ashmari* Resembles Calcium Oxalate stones, *Pittaj Ashmari* Resembles Uric Acid or Urate Stones and *Kaphaj Ashmari* resembles Phosphate Stones.

Further Scope of study: Off course there is a further scope to study **on experimental basis** whether *vataj ashmari* is calcium oxalate stone, *Pittaj Ashmari* is Uric acid or Urate stone and *Kaphaj Ashmari* is Phosphate Stones.

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