



CONCEPT OF MOOTRAVAHASTROTAS W.R.F TO URINARY SYSYTEM"

Dr Mukund D Bamnikar

HOD(professore) Swasthavritta dept, R A Podar Ayu medical college, worli, mumbai18,Maharashtra,India.

Dr. Manjiri Palnitkar Bhende

Associate professor, Swasthavritta dept, R A Podar Ayu medical college, worli, mumbai18,Maharashtra,India.

Dr Bansode Sheetal,

P G Scholar, Swasthavritta dept, R A Podar Ayu medical college, worli, mumbai18,Maharashtra,India.

ABSTRACT

The holistic approach towards health and disease is the major strength of this science. It has gained a lot of acceptance and appreciation around the globe. To meet the expectations of the scientific community at every level, it is important that the system is explained to the modern world in the language and the terminology they understand. Urinary system of human body is explained in various ayurveda text books. Urine formation has a major role in human physiology. Despite the no availability of microscope, vision of apta jana (eminent scholars) of ayurveda is so clear, the detail of urinary system in their text is highly appreciable. Mootra nirman (urine formation), brikka sanrachna (anatomy of urinary system) and mutra roga (urinary disorders) are explained in detail. Knowledge of ayurveda in this aspect not only provide the better understanding about the urinary system but also open the new door in management of various incurable renal diseases like renal failure, nephropathy, urolithiasis etc.

KEYWORDS

Mutravaha Srotas, Anatomy & pathophysiology of mutravaha srotas(urinary system)

INTRODUCTION

has emerged as a new hope for the world in terms of its usefulness in treating various diseases with minimal adverse effects. The holistic approach towards health and disease is the major strength of this science. It has gained a lot of acceptance and appreciation around the globe. To meet the expectations of the scientific community at every level, it is important that the system is explained to the modern world in the language and the terminology they understand. At the same time, if anatomy and physiology of excretory system is clear, it will be helpful for the Ayurvedic physicians to understand the pathological conditions of this system of the body and their effective treatment. has presented a very brief description about the structure and function of the excretory system. It has only mentioned the existence of the structures which may be responsible for functions of excretion The Ayurvedic approach to urinary system is highly logical, conceptual and scientific. The pathology, clinical manifestations and restorative options in renal physiology are very well interconnected with fluid, blood and digestive system. The urinary physiology described in Ayurveda does not only describe the differential approach toward nephrology and urology, it also shows a very close intermingled and integrated approach in dealing with etio-pathogenesis. The syndromic conditions and their pathological explanations described in this framework over three thousand years ago in Ayurvedic classics show an outstanding clinical acumen of ancient physicians. As such there is no clear cut and well defined description about the structure and the function of the excretory system in Ayurvedic texts. Scattered references do appear which make mention to the structures involved in excretion. On basis of present day knowledge of anatomy of this system we know that the major structures involved are the Kidneys, Ureters and the Urinary bladder and Urethra¹. Ayurvedic concept regarding anatomy of these structures is quite limited and very much scattered. Physiology of this system is also not very clear in Ayurvedic texts. Kidneys and Urinary bladder have been clearly mentioned by the names Vrikka and Basti respectively. are found. Various diseases have been described in Ayurvedic texts in relation to the excretory system, therefore it will be useful to understand the structure and the function this system for better understanding of the diseases.

AIM

The aim of this study is to present a compilation and collection in order to develop the overall understanding of urinary system, its functional anatomy and patho-physiology in the light of ayurveda.

REVIEW OF LITERATURE

RACHANA SHARIR- functional anatomy

The description of anatomy of excretory system in Ayurvedic literature is very crude and miniature. Term Vrikka has been derived from vrikkadane, which means 'to take'. While explaining the urinary system, Sushruta has not mentioned the vrikka in relation to the basti. There is description that mutravaha nadis or dhamanis carry drava mala from pakwashaya to basti where it percolates in drops in a pool of urine i.e. basti. Charak and Sushrut has also mentioned that Vrikka are internal organs and are two in number. The relation of vrikka and mutrashaya has been mentioned while describing seven ashayas and the organs related to the ashayas⁶. It has been mentioned that there exist two vrikka in human body, one on the left side and the other one on the right side. The shape of the vrikkas has been mentioned to be near round⁸. The symptoms of vrikka vidradhi suggest that vrikkas are situated in the back part of the abdomen in the koshtha in the lumbar region⁹. The vrikkas have been told to be the root of medovaha srotas. Nourishment of the abdominal fat is the function of vrikka.

Ayurveda describes the Mutravaha Srotas as the most fundamental element of urinary tract, In the context of 13 different types of micro-channels or srotasa of the body. As stated by Sushrut, mootravaha srotas are the paired structures and their moola are Basti and Medhra whereas Charak has mentioned Basti and Vankshana as their moola (root of origin). Vagabhatt supported Charak in this regard. According to Charak abnormalities of these srotas are responsible for voiding too much urine, abnormal composition of urine and occasional or frequent passing of thick urine associated with pain. In the texts, description of the following anatomical structures is given in relation to urinary system.

1). Brikka- The two kidneys are described as 'Pratyanga' and 'Koshthanga', which are considered as the moola of fatty channels. Embryologically, Brikkas takes their origin from the chief proportion of blood and fat. Kidneys are also responsible for the

nutrition of abdominal fatty tissues.

2. Mutra Vaha Srotas- The following structures are as the main working unit in the renal system.

A. Mutravaha Srotansi – These are the tabulated channels of kidney which have a clay pot like globular structure on their most proximal end. The process of *nisyandana* or filtration takes place here similar to as the clay pot mechanism explained in *Ayurveda*.

B. Mutra Vahi Dwe - two major hollow tubes or channels of urinary transport comparing the two *ureters* to flow the urine from both the kidneys to urinary bladder.

C. Mutra Srota i.e., the single main excretory tract i.e. urethra for exteriorization of urine.

All these structures have their close affinity to maintain the excretory system of body. The very strong relation of each and every unit, from micro to macro channels, enables the body to excrete harmful substances in the form of urine. *Srotas* is the name of the channels of all sizes which are solely responsible for smooth flow of various biological substances in our body to Perform transportation and proper functioning.

The comparison of pores of clay pot with channels or *srotasa* and shape of clay pot with Bowman's capsule present the ancient analogy to understand the function and relation of whole urinary system in a very easy pattern is highly remarkable. The *Srotas* system is responsible for formation, circulation, excretion and transportation of biological fluids, nutrients, metabolites, bodily wastes and also medicaments whenever used.

3. Mootra vaha nadi

As stated by *Sushrut*, *mootravaha nadi* are situated in between the *amashaya*, *pakwashaya* and *basti*. These *nadis* have thousands of minute openings which are very small to visualize. This function is *mootra nisyandana* (urine filtration), continuously whether in state of awakening or sleep, also drain the urine into *basti* and keep it moist or filled with urine in the same manner as river drain water into ocean.

4) Mootra vaha Dhamani

Dhamanis are basically of three types, depending upon the direction of their course. One type is *adhogami dhamani*, which are ten in the numbers. Each variant again sub-divides into three in between *amashaya* and *pakwashaya*, thus total thirty in the number. *Adhogami dhamanis* transport *vata*, *mootra*, *purish*, *shukra*, *artava* etc, downward the pelvic cavity. Two *dhamanis* which run toward *mootra basti* are termed as *mootravaha dhamani*. The function of *mootravaha dhamani* is said to be *dharana* and *yapana* of *mootra* and *basti*.

5) Mootra vahini sira

The description of *mootra vahini sira* is available in *Ashtanga Hridaya*, where these are regarded as minute channels carrying the *mootra* to *basti*. These *mootra vahini sira* open in the lateral sides of *basti* and fill the *basti* with *mootra* continuously by the process of *nisyandana*. *Sharangdhar* has emphasized that these *mootra vahini sira* carry aqueous part of *mala drava* of digested food to *basti*.

6) Basti – *Basti* is portrayed as one of the *Ashaya*, called '*mootrashaya*'. Its description is widely available in *ayurveda*. It is mainly elaborated in the context of *dosha-dushya*, *marma*, panch karma, *stri roga* etc. This is said to be the organ of vital importance. *Basti* is one among of the three *marma* and considered as *sadyo pranahara marma*. That is why the term '*Pranayatana*' is given to bladder by *Sushruta*. It is said to be a major seat of more or less all urinary diseases described in *Ayurveda*. The urinary bladder is thin walled, alabu shape (gourd-shaped) urinary reservoir located in the pelvis. The main function of *Basti* is to store the formed urine. *Maladhara* is another term for *Basti* 6. At some places the word, *Basti* is used also to indicate the entire urinary tract; kidney-ureter-

bladder- urethra. The upper part of urinary bladder i.e. the fundus of bladder is termed as *Basti-Shirsa* and is sometimes counted separately because of its distinct structure and function than the lower part of the urinary bladder. Two muscle are present in *basti-shirsha* According to *Sushrut*, *Basti* is adhomukha 18 i.e. its outlet is directed downwards. Same is true for the urinary bladder, at lower end or the neck of which the urethra is connected.

Sthana- Basti is considered as a *Koshthang*. According to *Charak*, *basti* is situated between the *sthoool-gud* (rectum), *mushka* (scrotum), *seevani* (perineal raphe) and *shukravaha nadi*. *Sushrut* explained the situation of *basti* in *gudasthi vivara* (pelvic cavity) and is surrounded by different structures like *nabhi*, *prishtha*, *kati*, *mushka*, *guda*, *vankshana*, *shepha*. *Sushrut* referred *basti* as a thin membranous organ covered with the network of *sira* and *snayu* having single opening which is directed downwards.

7) Mutra- Praseka or Mutra-Srota signifies the urethra, mainly its penile part.

8) Asthila is the glandular structure found in male, around the bladder neck comparing the Prostate. The term '*Paurushah*' is given by *Sushrut* in the description of urinary tract anatomy. *Gananath Sen* says that *Paurusha* is the specific gland located at *bastimoola*.

KRIYA SHARIR- formation of urine

Ayurvedic physiology encompasses the phenomena of urine formation right from the process of digestion of food and its absorption, especially absorption of water (precursor of urine) from the *Pakwashaya* i.e. the Colon, up to the constant micro filtration of urine from blood through the *Mutravaha Srotas* i.e. *Nephrons*, leading further down to its collection in *Basti* i.e. urinary bladder through the *Mutravahi Dwe* i.e. the two *ureters* and micturition through *Mutra- Praseka* i.e. urethra 5. Presumably *Ayurvedic* physiology presupposes that the process begins right from the gut and *bloodcirculation* because unless the water i.e. the *Udak* absorbed from the large gut and the metabolite wastes yielded by the circulating blood reach the filtering *Srotas* system, the urine cannot form. Hence the kidney as urine forming organ is in a continuum with the precursor structures viz. *GIT* and *CVS*. As we now know, the kidney is the most vascular organ of the body and it works as filter for the blood. Thus the *Ayurvedic* physiology depicts three phases of urine formation namely:-

- 1) *Udak* i.e. water or precursor of urine.
- 2) *Kleda* i.e. the excreted bodily wastes.
- 3) *Mutra* i.e. the fully formed urine located in *Basti* (bladder).

This phenomenon refers to the fact that when the food is digested the digested material along with the ingested water (*Udak*) trickle down to the lower gut, gets absorbed in circulation gets loaded with metabolic wastes (*Kleda*), passes to the *Mutravaha Srotansi* i.e. *Nephrons* in the *Basti* (kidney) and further after filtration (*Nisyandana*) the outcome (*Mutra* / urine) gets collected in the *Basti* or the urinary bladder for final *micturition*. *Urinary* micro-channels present in *Pakwashaya*, continuously fill the urinary bladder with urine, similar to the nonstop filling of sea with many small rivers. Each channel has thousands of microscopic openings. Process of filtration of toxic substances in *nephrons* is similar to the seeping of water from the pores of clay pot. This process of urine formation undergoes day and night continuously.

SAMPRAPTI- pathology

The urinary disorders are solely pathological variant of *srotas* dysfunction and fractional disturbances of *Dosha* and *Dushya*. Common causes of deformity of urinary channels are drinking water, eating food and indulge in coitus, while there is urge of maturation. Disorders of urinary system lead to the signs like excessive urination, increased frequency of micturition, deformed urine, scanty, viscous and frequent urination with pain.

The detailed classification of urinary dysfunctions in texts of *ayurveda* includes 20 syndromes or diseases namely, 8 *Mutrakricchras* i.e. *dysureas* and 13 kinds of *Mutraghatas* i.e.

suppressions and *retentions* of urine. *Vagbhatt* also includes 20 types of *Prameha* or Diabetic conditions in the province of *Mutraroga* or urinary diseases. These 40 *quantifiable* variants form the clinical pathology system in *Ayurveda*. These clinical conditions are categorized below:-

1. *Mutra-ati-Pravrittija Mutraroga* or Polyureas:20 types of *Prameha* or Diabetes
2. *Mutra-a-pravrittija Mutraroga* or Dysureas, Obstructive uropathies, Urolithiasis, Oligoureas, Anureas.

The different clinical entities described under different categories in Ayurveda are procured below with nearest modern correlates which exhibit a high degree of clinical association.

I). Mutrakricchra or Dysurias (8 types)

1. *Vatika Mutrakricchra* i.e. Neurogenic or traumatic dysurea or acute sterile urinary colic.
2. *Paittika Mutrakricchra* i.e. Acute Urinary Tract Infection
3. *Kaphaja Mutrakricchra* i.e. Sub-acute Urinary tract infection.
4. *Sannipataja Mutrakricchra* i.e. Acute or chronic Urinary tract infection.
5. *Abhighataja Mutrakricchra* i.e. Traumatic or Surgical Dysureas.
6. *Sakritaja Mutrakricchra* i.e. Constipational Dysurea.
7. *Ashmarija Mutrakricchra* i.e. Calculus Dysurea.
8. *Shukraja Mutrakricchra* i.e. Dysurea due to seminal stagnation.

2)Ashmari or Urolithiasis (4 types) :- On the basis of clinical features, analysis of chemical and morphological properties of stones and variation in the nature of curability of the condition, the Ashmaris are grouped into four kinds, simulating as below:

1. *Vataja* i.e. uric acid stones.
2. *Pittaja* i.e. calcium oxalate, uric acid and cystine stones.
3. *Kaphaja* i.e. Calcium phosphate stones.
4. *Shukraja* i.e. seminal stagnation also contributes in formation of urinary stones.

3)Mutraghata i.e. Suppression and Retention of urine (13 types)

(A) Retention of Urine

1. *Vutakundalika* i.e. Neurogenic bladder¹⁰.
2. *Vatavasti* similar to the above.
3. *Mutrotsanga* i.e. Stricture of urethra.
4. *Mutrathara* or distended urinary bladder.
5. *Mutrathita* or incontinence of urine.
6. *Vastikundala* i.e. Atonia of urinary bladder.
7. *Asthila* i.e. enlarged Prostate.
8. *Mutra-granthi* i.e. internal urinary bladder neck obstruction.
9. *Usna-vata* i.e. Pyogenic cysto-urethritis.
10. *Mutra-Sukra* i.e. seminal stagnation.
11. *Vid-vighata* simulates severe constipation and rectovesical fistula.

(B) Suppression of Urine

12. *Mutra sada* i.e. Oliguric Renal Failure.
13. *Mutra kshaya* i.e. Anuric Renal Failure.

DISCUSSION AND CONCLUSION

In few words, it can be summarized that urinary diseases, which are considered as a morbid condition, are treatable with *ayurveda*. Our predecessors not only had a good knowledge about these diseases, but also they were aware of its clinical manifestations, pathogenesis and management modalities. The detailed anatomical and physiological vision of *ayurveda* in this regard is important, without which the better understanding about the treatment part can't be develop. The huge knowledge of urinary medicines and surgical procedures, present in *Ayurveda* can definitely bring out a revolutionary change in modern discipline of medical science. *Ayurvedic* concept regarding anatomy of these structures is quite limited and very much scattered. Physiology of this system is also not very clear in *Ayurvedic* texts. Kidneys and Urinary bladder have been clearly mentioned by the names *Vrikka*

and *Basti* respectively. No specific mention has been made of *ureters* and the *urethera*. Terms like *mutravahi nadi* and *dhamani* are found. Various diseases have been described in *Ayurvedic* texts in relation to the excretory system, therefore it will be useful to understand the structure and the function this system for better understanding of the diseases.

REFERENCES

1. Sushruta, Sushruta Samhita, Ayurveda Tatvasandipika Hindi Commentary, by Kaviraja Ambika Datta Shastri.17th ed.2003, Su.Sharira. 4/30, Varanasi: Chaukhambha Sanskrita Sansthana.
2. Pt. Sarangdhar, Sharangdhar Samhita, Dipika Hindi Commentary, by Dr. Brahmanand Tripathi, Revised ed.2013, Sarangdhar poorva khand 5/84, Varanasi: Chaukhambha Subharti Prakashan.
3. Sushruta, Sushruta Samhita, Ayurveda Tatvasandipika Hindi Commentary, by Kaviraja Ambika Datta Shastri.17th ed.2003, Su.Nidana 3/21-23, Varanasi: Chaukhambha Sanskrita Sansthana.
4. Sushruta, Sushruta Samhita, Ayurveda Tatvasandipika Hindi Commentary, by Kaviraja Ambika Datta Shastri.17th ed.2003, Su.Sharira 9/7, Varanasi: Chaukhambha Sanskrita Sansthana.
5. Pt. Sarangdhar, Sharangdhar Samhita, Dipika Hindi Commentary, by Dr. Brahmanand Tripathi, Revised ed. 2013, Sarangdhar poorva khand 6/10-11, Varanasi: Chaukhambha Subharti Prakashan.
6. Sushruta, Sushruta Samhita, Ayurveda Tatvasandipika Hindi Commentary, by Kaviraja Ambika Datta Shastri.17th ed.2003, Su.Nidana 3/18-20, Varanasi: Chaukhambha Sanskrita Sansthana.
7. Sanskrita Sansthana. Sushruta, Sushruta Samhita, Ayurveda Tatvasandipika Hindi Commentary, by Kaviraja Ambika Datta Shastri.17th ed.2003, Su.Sharira 5/47, Varanasi: Chaukhambha Sanskrita Sansthana.
8. Charaka, Charaka Samhita, Vidyotani Hindi Commentary, by Pandit Kashinath Shastri. Revised edition 2007. Ch. Vimana 5/20.,Varanasi: Chaukhambha Sanskrita Sansthana.
9. Charaka, Charaka Samhita, Vidyotani Hindi Commentary, by Pandit Kashinath Shastri. Revised edition 2007. Ch. Vimana 5/7., Varanasi: Chaukhambha Sanskrita Sansthana.