

A CONCEPTUAL STUDY OF MUTRAVAHA SROTOMULA

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ABSTRACT

Ayurveda is one of the world's oldest holistic healing therapies. It was developed thousands of years ago in India. *Dosha*, *Dhatu* and *Mala* are considered as the basis of our human body. Other than these structures, *Srotas* is another important entity that is the basis of the body. *Mutravaha Srotas* is the important one because the body's metabolism is based on the drainage of waste products by these *Srotas*. The Ayurvedic approach to urinary system is highly logical, conceptual and scientific. The pathology, clinical manifestation and restorative options in renal physiology are very well interconnected with fluid, blood and digestive system. Present study emphasises on the proper understanding of the concept of *Mutravaha Srotomula* in systematic and well organised manner, so as to understand the functions carried out by it, *Srotodushti* and *Srotoviddha* characters and the clinical importance of this *Srotomula*.

KEYWORDS: *Srotas*, *srotomula*, *Mutravaha Srotas*, *Srotodushti* and *Srotoviddha*.

INTRODUCTION

Purusha is called as the *Srotomaya*, because *Srotas* are present all over the body, and they are essential in maintaining the *Dosha*, *Dhatu* and *Mala*.^[1] The internal transport system of the body, represented by *Srotamsi* has been given a place of fundamental importance in Ayurveda- both in health and disease, which recent developments in the field of medicine have begun to emphasize.

Mutravaha Srotas is the important one because the body's metabolism is based on the drainage of waste products by these *Srotas*. The Ayurvedic approach to urinary system is highly logical, conceptual and scientific. The pathology, clinical manifestation 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 describes the differential approach towards nephrology and urology, but it also shows very close intermingled and integrated approach in dealing with etio-pathogenesis.

Each *Srotas* is said to associate with two organs that are termed as the *Srotomula*.^[2] It is the most vital part of the *Srotas* just like the root of the tree. Regarding *srotomula* Acharya Chakrapani has described it as "Mulam iti prabhava sthanam" means that *Mula* of a *Srotas* is the anatomical seat of the respective *Srotas*, the main seat of

pathology of that channel or the principle seat of manifestation of a disease pertaining to that particular *Srotas*.

The utility of the knowledge of sites of origin of channels is not directly described in *Samhitas*. As a tree is seriously affected by injury to its root, similarly, the channels of circulation in the human body are seriously affected when their *Srotomula* is injured. With this view, *Sushruta* has described symptoms due to the injury at the sites of origin of these channels of circulation. But whether these origins are to be treated in vitiations of *Srotas* (functional) or these are only organic parts, this is not very much clear from the classical description of the yesteryears.

Acharya *Sushruta* described the *Mutravaha srotomula* as 'Basti' and 'Medra'.^[3] Acharya *Charak* slightly differs regarding *Srotomula* and replaces 'Medra' by 'Vankshana'.^[4] Acharya *Vabghatta* follows *Charak* in this regard.^[5] So there are two concepts of *Mutravaha Srotomula* that should be figured out why the concepts of *Acharyas* are different.

In modern literature there is no such evidence of *Mutravaha srotomula* but only formation of urine and its excretion is described.^[6] So it is the matter of exploration and its correlation with modern literature vis-a-vis Ayurveda in reference to *Mutravaha srotomula*.

Present study emphasises on the proper understanding of the concept of *Mutravaha Srotomula* in systematic and well organised manner, so as to understand the functions carried out by it, Srotodushti and Srotoviddha characters and the clinical importance of this *Srotomula*.

AIM AND OBJECTIVES

Present work had been taken up with the idea of updating concepts of *Mutravaha srotomula* given by *Acharya Charak* and *Sushruta* and to make a comprehensive and conceptual study of *Mutravaha srotas* and their *mula* in view of modern and regional anatomy.

MATERIALS AND METHODS

This article is based on a review of *Ayurvedic* texts. Materials related to *Mutravaha Srotas and its Mula* have been collected from the main *Ayurvedic* texts i.e. *Charaka Samhita*, *Sushruta Samhita*, *Asthanga Hridaya* and available commentaries on these. We have also referred to the modern texts and searched various websites & reports to collect information on the relevant topics.

DISCUSSION

The school of *Acharya Charak* has considered two *Mula* of *Mutravaha Srotas* i.e. *Basti* (urinary bladder) and *Vankshan* (groin or inguinal region).^[7] Since this school belongs to the medicine therefore probably the surgical conditions of Nephro-urology have not been considered, and while considering the physiology of *Mutranirmana* one has to lay stress upon the pathology of this process. *Basti* acts as the temporary storehouse of urine. As the *Ayurvedic* literature suggests that the *Mutra* is formed in *Pakwashaya*, which dribbles down in *Basti* by the help of several *Mutravaha Nadis*, *Basti* is the region where *Mutra* accumulates.^[8]

The bladder neck is 2 to 3 cm long and its wall is composed of the detrusor muscle interlaced with a large amount of elastic tissue. The muscle in this area is known as internal sphincter. Its normal tone keeps the bladder neck and posterior urethra empty of urine and therefore prevents emptying of bladder until the pressure in the main parts of the bladder rises above a critical threshold. In normal state urinary bladder stores the urine.^[9]

Micturition reflex contraction cannot occur if the sensory nerve fibres from the bladder to the spinal cord are destroyed, thereby preventing the transmission of stretch signals from the bladder. In this condition the bladder control is lost. Instead of emptying periodically the bladder fills to capacity and overflows a few drops at a time through the urethra. This is called overflow incontinence.^[10] It can also be correlated with *Acharya Charak's* explanation of *Ati Srushtam* and *Alpam-alpam Mutrata* i.e. excessive or frequent urination.^[11]

The fourfold classification of *Srotodushti* explained by

Acharya Charak is considered as the basis of all pathological processes.^[12] If we see the *Atipravritti* and *Sanga* characters i.e. excessive flow and retention or obstruction; *Mutravridhhi* and *Mutrksahaya* can be clearly mentioned in *Ayurvedic* literature relating to *Basti* and *Bastitoda*.^[13] This shows that *Basti* is the main site of manifestation of characters in *Srotodushti*.

It can be easily understood that in the diseases like cystitis the main symptoms are increased frequency of urine, urgency and pain in supra-pubic region.^[14] These characters can be clearly correlated with the *lakshanas* of *Mutravaha Srotodushti* as explained by *Acharya Charak*. In cases of abacterial cystitis there is urethral discharge, which at the times clear, but in majority of cases it is purulent. Patient complains of frequency, urgency and burning sensation. Supra-pubic pain and discomfort is quiet often.^[15] These also explain characters like *Bahalam*, *Sashulam*, *Prakupitam*, *Alpam-alpam* as explained by *Acharya*.^[16]

In the cases of intra-peritoneal rupture of urinary bladder the patient often neither has any complain, nor he feels the desire to pass urine. There may be presence of severe bleeding with the inability to empty the bladder, as the nervous supply of bladder is also lost and there is also the presence of pelvic pain.^[17] There is dilatation and expansion of urinary bladder as explained by *Acharya Sushruta* in *Mutravaha Srotoviddha lakshanas*.^[18] It explains *Basti* acts as the main site of manifestation of both *Srotodushti* and *Srotoviddha* characters.

As observed by the description the word meaning of *Vankshana* is the groin or inguinal region. The inguinal region of the body, is located on the lower portion of the anterior abdominal wall, with the thigh inferiorly, the pubic tubercle medially, and the anterior superior iliac spine superolaterally. It is present in the pelvic cavity. The urinary bladder remains suspended by the various ligaments present in the pelvic cavity. The functional role of various vesicle ligaments are presumed to be supportive to the bladder. Most of the true ligaments are helpful for maintaining the proper position of the bladder, that have an essential role in the elimination of urine. Any traumatic injury or any surgical intervention may leads into rupture of these neurovascular structures supplying the walls of the urinary bladder, resulting the disturbance in its normal physiology.^[19]

The ureter can be normally split into two parts, abdominal and pelvic part. Every part is all about precisely the same length, about 12.5 cm. The lumen of the ureter is not consistent throughout and presents 3 constrictions at these sites- (i) At the pelviureteric junction where the renal pelvis joins the upper end of ureter. It's the upper most constriction, seen roughly 5 cm far from the hilum of kidney. (ii) At the pelvic brim where it crosses the common iliac artery. (iii) At the uretero-vesical junction (i.e., where ureter enters into the bladder). These constricted parts of the ureter are the

sites of arrest of ureteric calculi. In addition to above 3 sites of constrictions, 2 more sites of constrictions are described by the surgeons, 1 at juxtaposition of the vas deferens/broad ligament and other at the ureteric orifice.^[20]

In case of ureteric colic there is the radiation of the pain, the position of which suggests the position of arrest of stone in the ureter. When the stone is arrested high in the ureter, the pain passes from the loin to the groin along the distribution of the iliohypogastric and ilioinguinal nerves. When the calculus is in the lower third of the ureter, colic starts at the lower level and radiates to the testicles in the male, or labium majus in the female and to the medial aspect of the thigh as the pain is referred along the two branches of genitofemoral nerve. When the stone enters the intramural part of the ureter, the pain is referred to the tip of the penis in the male and symptom like strangury in both the sexes.^[21]

As it is seen that the important nerves involved in the pain sensation related with the ureteric colic are located in the region of groin in the pelvic cavity, it is the main site involved in the manifestation of diseases.

Vankshana i.e. Groin is the chief site for the inguinal lymph nodes. These nodes lie in the inguinal crease, a skin fold that forms where the lower limb joins the hipbone. There are two layers superficial and deep layer. In majority of cases in urinary tract infection that the frequency of urine increases with associated swollen lymph nodes. Groin pain may be present in cases of these infections due to the swollen inguinal lymph nodes. Groin pain is also a symptom that is associated with the other urinary problems like bladder calculus, herniation of bladder in inguinal canal, tumours of bladder and testicles and also in epididymitis. In cases of inguinal lymphadenopathy groin pain is a typical sign that may be due to any traumatic injury or infection of urinary bladder and urethra. *Vankshana* is the site for manifestation of characters in major urinary problems.

Male urethra is divided into three portions i.e. (i) prostatic urethra, where the prostate is situated and opens in urethra, (ii) membranous urethra, the portion between the prostate and the bulb of penis, (iii) spongy urethra, the portion which is contained in the corpus spongiosum of penis.^[22]

The benign prostatic enlargement is a disease process with a well-defined age incidence. Due to enlargement of prostate there is hesitancy in passing the urine, dysuria, increased frequency, urgency, retention of urine and in some extremely complicated cases haematuria may also be present. The secondary effects due to prostatic enlargement may be, changes in the urethra i.e. its normal shape is distorted, changes in urinary bladder i.e. due to chronic urinary retention the vesicle muscles becomes exhausted and bladder wall thickens that gradually becomes atonic and finally a stage of overflow

incontinence may set in. It also causes infection within the bladder or cystitis and calculus formation. Due to reflux of the urine into ureters, ascending infections reaches the kidney that may lead to the acute or chronic pyelonephritis, thus leading to the damage to renal functions and may cause anuria. In the early stages of prostatitis there is presence of increased libido but later on patient becomes impotent eventually.^[23]

The traumatic injuries to the urethra is of two types i.e. rupture of the bulbous part and the rupture of the membranous urethra. In the bulbous part rupture there is local pain in the perineum, bleeding per urethra and inability to pass urine. In the membranous rupture the bleeding occurs at the external urinary meatus and there is an inability to micturate. The complication of both types of injury may lead to the urethral stricture and urinary continence with impotency. Due to the stricture, stagnation of urine takes place in urinary bladder that causes cystitis. The ascending infection finally reaches the kidney and may cause anuria. Renal and vesicle calculus formation is also a serious drawback of this stricture.^[24] In this way *Medra* acts as the *Mula* of *Mutravaha Srotas* that acts as *Samchara*, *nivantraka* and *Abhivyakti sthana* for the characters of *Mutravaha Sroviddha lakshanas*.

CONCLUSION

1. *Srotamsi* constitute the internal transport system of the body. They relate especially to the finer channels of circulation and pathway.
2. *Mula* of the *Srotas* denoted by different *Acharyas* represents the clinical observation and approach to know the health and disease status of different *Srotas* as the *Srotodushti* and *Srotoviddha lakshanas* appear on *Mula*.
3. With the help of classical literature and modern anatomy as well as physiology, *Basti* can be considered as urinary bladder, although some opinions differ from this purview. *Vankshana* can be understood as the inguinal or groin region that is situated in the pelvic cavity. Similarly, *Medra* can be considered as penile urethra that is described by *Acharya Sushrut* as the *Mula* of *Mutravaha Srotas*.
4. *Basti* i.e. urinary bladder acts as the main site of storage of urine. Any physiological deformity or traumatic injury causes the vitiation in the normal functioning of bladder likewise in cystitis, bladder calculus, atonic bladder etc. The symptoms like increased urination, frequent urination, burning micturition, obstructed urination, thick urine etc that appears due to these clearly resembles the *Srothodusti* and *Srotoviddha lakshanas* as explained by *Acharya Charak* and *Sushrut*. In the cases of *Mutrakshaya* and *Mutravridhhi* explained by *Acharya Sushrut*, *Basti* acts as the chief site of manifestation of characters like *Bastitoda*.
5. Inguinal region is the chief location of inguinal lymph nodes. The structural deformities of the ligaments alter the normal functioning of urinary

bladder. Due to the diseases of urinary bladder or the relating structures swelling and inflammation of inguinal lymph nodes takes place that is associated with inguinal pain. It is also the main site of ureteric colic referred pain.

6. Diseases like benign prostatic enlargement or any traumatic injury to the urethra, causes the cessation of micturition, urgency, hesitancy and dysuria. This causes typical condition of increased libido and finally the subject becomes impotent. *Acharya Sushrut's viddha lakshanas of Mutravaha Srotas* has a clear correlation with the above-described conditions.
7. The *Mutravaha Srotodushti lakshanas* as explained by *Acharya Charak* are closely related to the infective causes like inflammation of urinary bladder and lymph nodes of inguinal region.

In few words, it can be said that *Mutravaha Srotas* with its *Mula* have been described for the purpose of the study of the pathology and clinical medicine involved in the treatment of urinary diseases. Our predecessors not only had a good knowledge about these diseases, but also they were aware of its clinical manifestation, pathogenesis and management modalities. *Ayurveda* is an ocean of deep and vast knowledge, but there may be some shallow regions, which should be explained with proper anatomical and physiological vision for the better advancement of clinical practices, as it is the need of present era. The topic needs further probing and research for more advanced diagnosis, prognosis and surgical interventions in near future.

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