REVIEW ARTICLE ON MUTRAVAHA SROTAS

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ABSTRACT

In Ayurveda the concept of formation of Sharir is stated as ‘Dosha Dhatu Mala Mulam Hi Shariram’. As the Doshas and Dhatus nourishes our body, in the same manner the Mala and their function holds the Sharir. Dhatus and Mala are made up and carried out by Srotas. Srotas means anatomical structures for the transportation of Prana, Dosha, Dhatu and Mala. They are differentiated depending upon their number, perceptibility and Sthanabheda. According to Sthanabheda there are 13 Antarmukha Srotas and Mutravaha Srotas is one of them. As per classical Ayurvedic texts Vasti and Medhra are Mulasthana of Mutravaha Srotas. Acharyas have different opinions regarding Mulasthana, meaning from where almost all the activities of that particular Srotas takes place and also which is affected most during pathological manifestation. Therefore it is the need to study the fundamental aspects of Mutravaha Srotas. Aim of this study to evaluate the anatomical and physiological aspect of Mutravaha Srotas.

KEYWORDS: Mutravaha Srotas, Vasti, Mutra nirmana.

INTRODUCTION

The unit of the body is cell and each organ is aggregate of the different cells held together by intercellular material having identical function and anatomy. The life of cell is maintained through regular nutritional supply, the oxidation of final metabolic products and excretion of wastes. About 60% of the adult human body is fluid i.e. intercellular and extracellular fluid, and this fluid is maintained throughout the life by a special mechanism k/a haemostatic mechanism. All organs and tissues of the body perform functions that help to maintain these constant conditions such as the kidneys, maintain the constant ion concentrations and the gut.
provides nutrients and lungs provides oxygen required by the cells. The passage of the blood through the kidneys removes most substances from the plasma that is unwanted by the cells which include different end products of the metabolism and excessive ions of the metabolic product. The excretory system and urine formation appear to be far distant in classical Ayurvedic description. There are various terms found in Ayurvedic literature regarding urine formation, its transportation, storage and excretion but out of them only few which are of immediate important may be discussed here viz. Mutravaha Srotas, Mutravaha Dhamani, Nadi, Vasti.

REVIEW OF LITERATURE

1. Mutravaha Srotas and its moolasthan

The word “Moola” denotes either the beginning or the root, which means ‘the cause of the subject matter’. According to Acharya Sushurta, the moola of Mutravaha Srotas are Vasti and Medhra[1], while Acharya Charka has considered Mutravaha Srotas as Vasti and Vankshana.[2]

**Vasti**: Vasti is developed by maternal contribution (Matrajabhava) derived from the essence of ‘Rakta’ and ‘Kapha’.[3] Vasti is a thin walled, Alabu (gourd) shaped organ, and reservoir of Mutra situated in Gudaasthi Vivara (pelvic cavity) covered with the network of Sira and Snayu having single opening which is directed downwards. Vasti is surrounded by Nabhi, Prishtha, Kati, Mushka, Guda, Vankshana and Shefa. Vasti is one among of the three Marma (Hridaya, Vasti, and Shira) and stated as Sadhyo Pranhara Marma. That is why the term “Pranayatana” is given to Vasti by Acharyas.[4]

2. Functions of Mutravaha Srotas

Mutravaha Srotas is very important Srotas for excretion of waste product as Mutra. Mutra is a dravrupi Kitta produced as result of Aharapaka and the function of Mutra is to clear the ‘Kleda’ out of the body.[5]

3. Mutra Nirmana Prakriya

Minute structures or ducts meant for transportation i.e. Nadi arising from Pakvashaya. They instantly replenish the Vasti and keep it moist with that waste product of the system in the same manner as rivers carry their contributions of water in the ocean. These passages or ducts are found to take their origin from hundreds of branches, which are not visible to the naked
eyes, or account of their extremely attenuated structures and carry whether in a state of sleep or wakening.

The Mutra from below the region of the Amashaya (stomach) in to the Vasti keeping it filled with this important fluid of the body, just as new pitcher, immersed up to its neck in a vessel full of water is filled by transudation through its lateral pores.

The Vayu in the Vasti, coursing in the natural downward direction, helps the full of complete emission of urine.\textsuperscript{[6]}

4. Mutravaha Dhamani
Adhogami Dhamanis are carrying the Vata, Mutra, Purisha, Shukra and Aartava etc downwards. Certain functions are attributed to them, in the region of Pittashaya one of them is the separation (Vivechan) of Mutra, Purisha and Sweda. Functions of Mutravaha Dhamanis are Dharana and Yapana of Mutra.\textsuperscript{[7]}

5. Modern review of urinary system
The urinary system consists of the kidneys, ureters, bladder and the urethra. The purpose of the urinary system is to eliminate waste from the body, regulate blood pressure and control levels of electrolytes and metabolites. Each kidney consists of functional units called nephrons. The circulating metabolic end products pass along with blood to the glomerulas through the afferent arteriole and then leave through the efferent arteriole. The glomerulas is a network of upto 50 parallel branching and anastomosing capillaries covered by epithelial cells and enclosed into the “Bowman’s Capsule”. The pressure of the blood in the glomerulas cause the fluid to filter in Bowman’s capsule and from here the fluid flows in to the proximal tubule that lies in cortex of the kidneys along with glomerulas. The fluid filtering through the glomerulas into the Bowman’s capsule is called “Glomerular filtrate” and the membrane of glomerular capillaries is called glomerular membrane. The permeability of these membranes is 100-105 times as great as usual capillaries. The tremendous permeability of the glomerular membrane is caused by the special structure viz. thousands of small holes called “Fenestration”. The 99% of its water and varying amount of its solutes are normally reabsorbed into the vascular system and small amount of some substances are also secreted into the tubules, the remaining tubular water and dissolved substances to become urine. This indicates the definition of urine is actually achieved at distal tubule where the rearrangement
of fluid is done. The anatomical level and site for urine formation is Bowman’s capsule to distal tubule.\textsuperscript{[8, 9]}

**DISCUSSION**

- The discussion regarding Vasti, leads to urinary bladder which is reservoir of urine, collecting urinary fluid through Mutravaha Nadis. Medhra leads the penile part of urethra in male and in females it is co-related with urethral part which takes part to excrete out Mutra only.
- Acharya Sushurta has laid down the example of earthen pitcher probably just to define the permeability of the glomerular membrane which is greater than usual capillaries inspite of a number of layers. Sravana Kriya and oozing of the substances occur in Glomerulas and a term “Ayanamuka” is similar to Srotamsi which is interpreted a gate for the ‘To and Fro’ movement. So ‘Mutravaha Srotamsi’ can be very well compared with ‘Glomerulas’ with special reference to Ayanamukha.
- Regarding Mutravaha Dhamani, these are arteries which are concerned to tuft of Bowman’s capsule and are only related to urine filtration.
- Regarding Mutravaha Nadis, they are the channels through which water is carried to blood circulation from large gut under osmolarity pressure gradient.
- Mutra does not actually represent Urine in Pakvashaya, but it indicates the precursor-substances or the liquid portion of Kitta which in course of time, is to be converted into Mutra on reaching Vasti. The ‘Mutra Nirmana Prakriya’ solely depends upon the absorption of water through Mahasrotas particular Pakvashaya. In other words, Pakvashaya acts as switch or regulator for Mutra Nirmana. Therefore classical books have considered Pakvashaya as an important structure regarding Mutra Nirmana.

**CONCLUSION**

The different terms such as Mutravaha Dhamanis, Srotas and Nadis clearly reveal that Ayurvedic Acharyas very well knew about the excretory mechanism.

**REFERENCES**


8. Gray’s anatomy edited by Susan standring; 41 editions, Elsevier; 2016 section 8, chapter 74-75.