

CONCEPT OF SROTAS WSR TO MOOTRAVAHA SROTAS: A REVIEW

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ABSTRACT

Background: Ayurveda is holistic science of life which is very ancient. Many siddhantas are explained in Ayurveda, srotas kalpana is one of them. The term srotas means canal or channels. The word srotas is applied to those body structures which are meant for transportation or secretion of material. As water in canal flows from one place to another, in the same manner, different types of body material flows in srotas from one place to another. The learned Ayurvedic Acharyas have described in detail about various bodily systems in relation to their Anatomy, Physiology and Pathology etc. The Mootravaha Srotas (Urinary system) is one of them, and meant for the formation and excretion of Mootra. **Aim & Objectives:** 1. To study and understand the srotas kalpana 2. To understand mootravaha srotas and urinary system in the light of ayurveda **Material and method:** Various Ayurvedic references, research articles to be studied. **Discussion:** Human body is a conglomeration of srotasa. It is a channel system of our body. Those from which sravana or flow of body substances take place.^[1] Mootravaha srotas or urinary system is one of the important solution for waste management. It eliminates the waste products outside the body, while efficiently conserving water and other valuable substances. Despite the no availability of microscope, vision of eminent scholars of ayurveda is so clear, the detail of urinary system in their text is highly appreciable. **Conclusion:** Being a system responsible for homeostasis of fluids in the body it also detoxifies the body by eliminating certain waste products through urine and thus Ayurveda has given prime importance to Mootravaha srotas (urinary system) and Srotogata Vikaras (urinary disorders). This review is proposed to upgrade the knowledge related to ayurvedic aspect of urinary system so as to prevent, diagnose and can treat the disorders of urinary system.

KEYWORDS: Srotas, Mootravaha srotas, urinary system, urinary disorder.

INTRODUCTION

Srotas are the channels of the body through which the materials needed for tissue building, nutrition and other nutrients flow from one corner of the body to the other, we can tell that the materials are transported through the channels from the place of production to place of need (Gangadhara).^[2]

- Vyutpatti (Etymology) of srotas: “sru sravana” the word srotas is derived from the Sanskrit root –sru. Meaning of ‘sru’ is to secrete, to permeate, to flow. The structure through which substance is either secreted or circulated or transported is called srotas.
- Nirukti (definition of srotas) – “sruvanat srotamsi” Body structure, through which secretion takes place is called as srotas. (c.su.30/12).

Srotas is body structure whose roots have cavity in it and it is different than sira and dhamani. After arising from cavitous structure, srotas spreads in the entire body for transportation of various substance.^[3]

Sira (vein), Dhamani (Arteries), Rasayani (lymphatics), Rasavahini (capillaries), Naḍi (Ducts), Pantha (passages), Marga (Tracts), sharirachidrani (openings), Samvritaasamvrita (open and blind passages), Sthana (Sites, locus), Ashayas (Spaces), Niketa (Resorts) etc are some synonyms given by Acharya Charaka which indicates macro and micro channels and pathway operating in the living body.^[4]

Moolasthana of srotas

Chakrapani has described Mulam as- “Mulamiti Prabhava Sthanam”

The srotas have their own moolasthanas or roots.^[5] Chakrapani mentioned moolasthanas of srotas as prabhavasthanas means the anatomical seat of respective srotas is the main seat of pathological changes of that channel, the principal seat of manifestation of disease, its be the focus of treatment.^[5]

Number of srotas in Human body: srotas are innumerable because every body constituent has its own srotas. Murti means shape. Cell of every organ has different shapes hence every cell should be termed as murtimanta bhavavishesha.

Following are the Srotas (channels) with their Moolasthanas

Name of Srotas	Charaka ^[7]	Suśruta ^[8]
1. Pranavaha	Hṛdya, MahaSrotas	Hṛdya, Rasvahini Dhamani
2. Udakavaha	Talu, Klom (oropharynx)	Talu, Klom
3. Annavaha	Āmasaya, Vamparshwa	Āmasaya, Annavaha Dhamani
4. Rasavaha	Hṛdya (Heart), Dash Dhamani	Hṛdya, Rasvaha Dhamani
5. Raktavaha	Yakṛt, Pliha	Yakṛt, Pliha, Raktavaha Dhamani
6. Māmsavaha	Twacha (Skin), Snayu	Twacha, Snayu, Raktavaha Dhamani
7. Medovaha	Vṛikka, Vapavahan	Vṛikka, Kaṭi
8. Asthivaha	Meda, Jaghan	Not consider
9. Majjavaha	Asthi, sandhi	Not consider
10. Shukravaha	Vṛuṣhaṇa, Śepha (Pudendum)	Vṛuṣhaṇa, Stana
11. Mutravaha	Vasti, Vankshaṇ	Vasti, Medhra
12. Puriṣavaha	Pakvashaya, Guda	Pakvashaya, Guda
13. Svedavaha	Not consider	Medomoola, Lomakoop
14. Ārtavavaha	Not consider	Garbhashaya, Ārtavavaha dhamani
15. Manovaha	Heart and Brain	Not consider

Summary of functions of srotas^[9]

1. Synthesis of dhatu- In srotas, these nutrients of dhatu are redigested by respective dhatwagni and transported into poshya dhatu. Each Srotas provides nutrition to their respective dhatu only with requisite quantities not others.

2. Srotas serves as conduit through which both prasada dhatu as well as mala dhatu (waste product or product of degradation) are transported, as structure through the pores of which nutrient and waste product pass to and from the sthaya dhatu. So Transportation of nutrients of dhatu and Excretion of waste products are important function of srotas.

3. Transformation (metabolism) of nutrients of dhatu So this is very clear that all the doshas, dhatus and malas are dependent on srotas for their formation, transportation and destruction.

Vitiation of srotas can lead to derangement in the stable dhatu as well as dhatu flowing through it also vitiation of one srotas can vitiate other srotas and dhatu.

E.g. 1. Disorders of liver (Root of Raktavaha srotas) always lead to disorders of rakta dhatu 2. vitiation of rasavaha srotas leads to vitiation of pranavaha srotas.

Acharya Sushruta explains two type of srotas i.e Bahirmukha and Antarmukha.^[6]

Charak has described thirteen gross channels, seven for seven dhatu, three for mala and two for intake of nutrient substances like food, water, air and one for regulation of water. Chakrapani have been explained separate srotas for mind it exists in entire body.^[7]

Sushruta has described eleven pairs of srotas same as Charaka but he has left out Asthivaha, Majjavaha and Svedavaha and included Artavavaha Srotas.

Review on Mootravaha srotas

In Ayurveda, the concept of the urinary system is explained under the mootravaha srotas. So it is necessary to know about each & every aspect regarding mootravaha srotas. Despite the no availability of microscope, vision of eminent scholars of ayurveda is so clear, the detail of urinary system in their text is highly appreciable. Urine formation, anatomy of urinary system and urinary disorders are explained in detail.

Atharva Veda, upon which the Ayurveda is based, has descriptions regarding the urinary organs such as "Gavini", "Basti", "Basti -Bila" with physiological aspects of Dharana and Poshana being ascribed to them. (Ath.V.1.1/3-6)

Charak samhita comprises sufficient but scattered matter related to anatomy, physiology and pathology of Mootravaha srotas as well as the diagnosis and treatment of its disorders.

Sushruta samhita is the pioneer work in the form of text in surgery, it has more descriptive explanation as far as the Anatomy & Physiology of the Mootravaha srotas is concerned. The Ashmari Nidana chapter has got scientific explanation regarding Basti and urine formation.

In Ayurvedic script, for every named strotasa, an organ governing its function is said to be its moola sthana. For mootravaha strotasa it is basti and two vankshana.^[10] Mootra is formed in pakwashaya and stored in basti.^[11] Basti is described as one of the pranayatana and in Trimarma as sadyopranahara marma by classical text.

The following is the short description of Mootravaha Samsthana given in ancient classics

1. Basti
2. Vrikka
3. Gavini
4. Mutrapraseka
5. Mootravaha Srotansi
6. Nadies
7. Dhamanis
8. Siras.

1. Basti-Its different meanings are, to cover, base, store house and reservoir. In Ayurvedic texts though no clear cut definition of Basti has been given, even then from the grammatical derivations, it can be defined as a store house which acts as a reservoir of urine. Basti has been accepted one among the Kosthangas,^[12] by all the Acharyas Sushruta states that Basti is surrounded by Nabhi, Kati, Muska, Guda, Vakshanas and Sepha.^[13]

The Basti is a hollow structure made by the Vayu entering in the combination of essence of Rakta, Kapha and Pitta. It has been said by all the Acharyas that Basti is derived from Matrija Bhava- the maternal constituents.^[14] The Basti is Alabu shaped and is fixed on all sides by Siras and Snayus according to Sushruta. He further adds that Basti is thin walled and has a single out let directed downwards.^[13]

2. Vrikka

No direct reference of Vrikka's relation to urine formation is found in either of the Ayurvedic classics. Acharya Sushruta has defined it as one of the koshtanga. Vrikka are two in numbers and are situated in the lumbar regions on either side in the posterior abdominal wall in Kostha.^[15] Like Basti, Vrikka is also a maternal contribution derived from essence of Rakta and Meda. So far as the function is concerned, Sarangdhara has considered the Vrikka's as the nourishers of the abdominal fats.^[16]

3. Gavini

They are two in number, situated one on each side of Basti, receiving Mootra from the antras and sending it further to the Mootrashaya. (Atharvaveda 1/3/6).

4. Mootrapraseka

Mootrapatha, Mootramarga, Mootrasrota are the synonyms. It is one among the eight important organs, which are to be protected from any injury at the time of performing surgery for Mootrashmari.^[17] It is the outlet of the Basti, Which is two Angulas in females and

Twelve Angulas in males. In male it carries both Mootra and Shukra, while in female only Mootra.

5. Mootravaha Srotas

According to Charaka, the definition of the word Srotas is 'Sravana Srotamsi' which means, where from something oozes out. On this way the channels which carry Mootra can be considered as Mootravaha Srotas. He says that Mootravaha Srotas has its origin from Basti and two Vankshanas, Whereas Sushruta believes Basti and Medhra as the roots of Mootravaha Srotas. Any trauma to this Mootravaha Srotamsi leads to acute retention of urine, distension of urinary bladder and painful erection of the penis, ultimately leading to death of the patients.^[18]

6. Mootravaha Nadis

Sushruta in chapter third Nidanasthana says that these are thousand in number and are situated in between Pakwashaya and Basti and their main function is to carry the Mootra from Pakwashaya to Basti, like the rivers fill the ocean with water. Acharya Vagbhatta is also having the same opinion.

7. Mootravaha Dhamanis

Sushruta while describing the Dhamanis has narrated one variety of Dhamani, termed as 'Adhogami Dhamani' which are meant for Sara-Kitta Vibhajana and to transport Mootra, Purisha Shukra, Artava, Apana Vata etc. downwards.^[19] These same Dhamanis taking part in the Sarakitta vibhajana process, out of which two are said to be the Mootravaha Dhamanis going to the Mutrabasti, the functions of which stated are Dharana and Yapan of Mootra and Basti. Dalhana further says that these are further divided into countless branches. (Su. Ni. 3/22)

8. Mootravaha Siras

There is no reference available with Brihatrayee about Mootravaha Siras. But Sharangadhara describes that the Maladrava of digeste food i.e. Mootra is transported to Basti by Siras. Adhamalla in his commentary on Sharangadhara says that the Siras are concerned with Aharajala transported to Basti through Mootravaha Siras.

According to the above mentioned materials, it can be concluded that above stated organs take an active part in the transportation of urine in one or the other way. So we find that Mootravaha Nadi, Dhamani and Siras have close relation with the urinary system.

Mutranirman Prakriya according to Ayurveda

Urine formation has a major role in human physiology. Kleda vahanam and basti purana are the functions of mootra.^[20] The vision of eminent scholars of ayurveda is so clear that the Mootra nirman (urine formation) is explained in detail.

Process of urine formation begins in pakwashaya. Purishadhara kala in pakwashaya seperates undigested

part of food into urine, faeces and vayu.^[21] The poshaka mootra which is separated from kitta is absorbed from pakvashaya and brought to basti in the following manner-As water in the river is drained into ocean continuously, in the same way urinary ducts(mootravaha nadi) from pakvashaya carry poshaka mootra to basti. Urinary ducts and their fine branches are spread in the abdominal cavity around pakvashaya and amashaya, which constantly drains poshaka mootra to basti. Basti purana(drainage of urine) is a continuous process which is compared with new ghata (earthen pot) immersed in water. When earthen pot is new, it is very porous, it is permeable to water easily. In the same manner, urine from urinary ducts enter basti, and basti gets filled with urine. Urine is continuously draining in the basti. When basti gets filled with urine, under the control of Apana vayu, urine is excreted.^[22]

The fact that urine is formed in kidneys has to be incorporated in Ayurveda. According to the new thoughts of researchers, poshaka mootra is formed in pakvashaya. This is then absorbed in blood and then in kidneys many metabolic waste products mix with poshaka mootra, and later on this mootra is transferred to basti by ureters. The process of micturition is controlled by Apana vayu.^[22]

DISCUSSION

Ayurveda is holistic science of life which is very ancient. Many siddhantas are explained in Ayurveda, srotas kalpana is one of them. The word srotas is applied to those body structures which provides platform for activities of other important bio-factors like three doshas, the seven dhatu, the oja, the agni, thought and emotions etc. Srotas helps to produce healthy tissues, provide longevity, immunity, strength and regularizes bodily activities.

The extent of Mootravaha srotas is large and hence the diseases under it are many. Vitiation of this Srotas can lead many pathological consequences like Diabetes mellitus, hypertension, general edema, and so on. Thus the detailed vision of ayurveda in this regard is important, without which the better understanding about the treatment part can't be develop.

So, it is the need of time to research on various aspects of Mootravaha-srotas with the advancement of modern technology in the light of Ayurvedic principles. This will facilitate the physician to take decisions accurately with respect to treatment and prognosis.

CONCLUSION

Thus from the above explanations, it becomes clear that our fore-fathers knew quite a lot about anatomy, physiology & pathology of human body, that they put up the descriptions in terms of simile to encompass the vast meaning. Being a system responsible for homeostasis of fluids in the body, urinary system also detoxifies the

body by eliminating certain waste products through urine and thus Ayurveda has given prime importance to Mootravaha srotas (urinary system) and Srotogata Vikaras (urinary disorders).

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 diseases like Hypertension, Diabetes mellitus. renal failure, nephropathy, urolithiasis etc.

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