



ISSN 2456-3110

Vol 5 · Issue 2

Mar-Apr 2020

Journal of
**Ayurveda and Integrated
Medical Sciences**

www.jaims.in

JAIMS

An International Journal for Researches in Ayurveda and Allied Sciences



Charaka
Publications

Indexed

A thematic appraisal on *Srotas* in Ayurveda with relation to *Rasavaha Srotas Mulsthana* and its aspects with Cardiovascular System

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ABSTRACT

Dosha, Dhātu, Mala are considered as the basis of the human body. *Srotas* are the channels through which the conduction of the nutrients for the *Dhātu* is takes place frequently to maintain health. Acharya Charak has defined it as "*Sravanat Srotamsi*" means the structure through which *Sravanam* takes place. Acharya Sushruta describes *Srotas* as structures which originate from vacant spaces (hollow organs), spread throughout the body and purvey materials or elements. *Srotas* are the internal transport system of the body which provides assistance for activities of significant bio-factors like *Tridoshas*, seven *Dhātu*, the *Oja*, etc. *Hridaya* and *Dasha Dhamani* are considered as *Mulasthan* (originating place) of *Rasavaha Srotas*. Heart is the organ which is situated in middle mediastenum and pumps the blood throughout the body continuously. *Hridaya* is a material cause for storage and pumping action of *Rasadhatu* after that *Dasha Dhamani* transports that *Rasa Dhātu* through all corners of body. *Hridaya* can be justified as a *Mulasthan* with storage point of view and *Dasha Dhamani* as a *Mulasthan* with conduction standpoint. *Sira* and *Dhamani* along with *Hridaya* forms the foundation of cardiovascular system. In fact, the term 'vascular' in CVS comprises of *Sira* and *Dhamani* i.e. hollow and tubular structures.

Key words: *Rasavaha Srotas, Srotomula, Mulasthan, Dhamani.*

INTRODUCTION

Ayurveda is an ancient Indian practice of holistic medical care that centers on the symmetry of body, mind and soul. Our body, which undergoes steady and slow destruction, is an amalgamation of *Dosha* (vitiating factors or physical humors), *Dhātu* (tissue elements) and *Mala* (waste products) are the basic building essentials of the body. Their continuous and

proper flow in the body, to maintain health, requires hollow spaces or channels. The Ayurvedic classics proclaim that '*Srotomayam Hi Shariram*' meaning that the living physical body is a channel system and designed for comprised of innumerable channels in the body for circulation of various *Dhātu, Mala* and other inner transport system for divergent functions.^[1]

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Submission Date: 17/03/2020 Accepted Date: 22/04/2020

Access this article online

Quick Response Code



Website: www.jaims.in

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Ayurveda Organization, Vijayapur,
Karnataka (Regd) under the license CC-
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These channels are called as '*Srotas*' because they have '*Sravana*' (oozing) - allow materials to pass through them very slowly. *Srotas* are the channels of tissues undergoing transformation.^[2]

Sushruta describes *Srotas* as the structures which initiate from vacant spaces (hollow organs), spread throughout the body and spread constituents or elements in the body. They are apart from *Sira* (vein) and *Dhamani* (artery).^[3] Thus *Srotas* are the multi-meaning term referring to a range of structures, functions and concepts in different context.

CONCEPT OF SROTOMULA

Srotomula is the 'area of influence'. Chakradutta the commentator of Charaka, describes *Srotomula* or *Mulasthana* as the area from which *Srotas* evolves or arises (like root of the tree). This particular part of *Srotas* regulates and controls the functioning of the entire *Srotas*. Any infection of the root of *Srotas* affects the functioning and health of the entire *Srotas*.^[4] Acharya Charaka has used this term in meaning of *Karan* or *Adhara* (reason/base). In *Sushruta Samhita* and *Astanga Hridaya*, *Mula* word has been used as tracer, director or prob. Chakrapanidutta said that "*Mulamiti Prabhava Sthanam*" means that which originate (origin place). He has described *Mulam* as - "*Mulamiti Prabhava Sthanam*", meaning thereby that *Mula* of a *Srotas* is the anatomical seat of the respective *Srotas*.^[5]

Srotas, Sira and Dhamani

Structure in living being which instigates from unoccupied spaces (hollow organs) spread throughout the body and spreads constituents in the body are to be understood as *Srotas* (channels) and apart from *Sira* (vein) and *Dhamani* (artery).^[6] According to Acharya Charaka, *Srotas*, *Sira* (vein), *Dhamani*, *Rasavahini* (capillary), *Nadi* (duct), *Marga* (track), *Sariracchidra* (spaces inside the body), *Ashaya* and *Niketa* - these are the names attributed to various visible and invisible spaces inside the tissue elements of the body.^[7]

Heart (*Hridaya*) as *Srotasmulsthan*

Hridaya is produced from the essence of *Rakta* and *Kapha*.^[8] Acharya Charaka considers *Hridaya* to be one among the ten sites of *Prana* and *Marmatraya*.^[9] In this context the term *Hridaya* is not only signifies the organ heart but also extends chest or cardiac region.^[10] *Hridaya* (heart), *Dhamani* (arteries), *Sira* (veins) *Srotamsi* (capillaries) are the element of a single vascular system which control the proper flow of blood and nutrition supply and clearance of waste products from *sthayi Dhatu*.^[11] *Hridaya* and *Mahasrotas* have been considered as *Mulasthan* of *Pranavaha Srotas*. It is mentioned after explaining the

importance of the *Hridaya* and the substances related to it like *Ojas* etc. it can be considered as the functional unit of *Hridaya* (i.e. circulatory system).

Rasavaha Srotas

According to Charak and Vagbhatta - the *mula* of *Rasavaha Srotas* is *Hridaya* and related ten *Dhamanis*. *Dhatuvahasrotas* are called as *Abhyantara Pranas* of the body. In *Sutrasthana*, Charaka mentioned a chapter as *Arthedashamahamuliya* chapter in which he explained about the *Hridaya* regarding the importance, structures related to it and how to protect it from external and internal factors. Some people have related the ten *Dhamanis* as follows : 1) Right coronary artery 2) Left coronary artery 3) Superiorvena cava 4) Inferior vena cava 5) Pulmonary trunk 6) Aorta 7-10) Four pulmonary veins. Totally these 10 have been considered as ten *Dhamanis* as per some authors. As per *Sushruta* the *Mula Sthanas* are *Hridaya* and *Rasavahini Dhamani*. Here *Sushruta* has said that one *Lakshana* as extra than the *Pranavaha Srotas Viddha Lakshana* which is '*Shosha*' and the remaining all are same which are explained in *Pranavaha Srotas*. *Srotamsi* are the passage or channels for flow of various substances but also *Srotamsi* are specific in their functions which provides nutrition to their respective *Dhatu* of the body. *Srotas* serves as channel through which both *Prasada* (nutrient) *Dhatu* as well as *Mala Dhatu* (waste product of degradation) are elated, as structure through the pore's nutrient and waste product pass to and from the *Sthayi Dhatu*.^[12]

Mulam of Srotas

Mulsthan of any *Srotas* can logically considered as *Utpatti Sthana* of *Srotas* (originating point), *Vahana Sthana* (Conduction of *Srotas*), *Sangra Sthana* of *Srotas* along with *Naidanik* and *Chikitsa* point of view. Chakrapani has described *Mulam* as - "*Mulamiti Prabhava Sthanam*", meaning thereby that *Mula* of a *Srotas* is the anatomical seat of the respective *Srotas*, the main seat of the pathology of that channel, the principal seat of manifestation of disease.^[13] *Hridaya* and *Dasha Dhamani* have been considered as *Mulasthan* of *Rasavaha Srotas*. In this regard *Hridaya*

is the organ heart which is situated in middle mediastenum and pumps the blood throughout the body continuously. So, in this context, *Hridaya* is justified as a *Mulasthana* with storage point of view and *Dasha Dhamani* as a *Mulasthan* with conduction standpoint. This part of *Srotas* regulates and controls the functioning of the whole *Srotas*. *Chakradutta* explains this concept by illustrating the example of a Tree.^[14]

The roots are parts of the tree itself performing vital functions like regulating food and water supply to the rest of the tree. *Srotomula*, which are the roots of the *Srotas*, are the vital parts responsible for well-being of *Srotas* and thereby, the whole body, as body is nothing but conglomeration of *Srotas*.^[15]

Cardiovascular system in Ancient Science

Cardiovascular system has been very elaborately described in Brihatrayi and in their commentaries with a considerable amount of accuracy. *Sira* and *Dhamani* along with *Hridaya* forms the foundation of cardiovascular system. In fact, the term 'vascular' in CVS comprises of *Sira* and *Dhamani* i.e. hollow and tubular structures. Basically, the descriptions about cardiovascular system in Ancient Indian Science can be found in the contexts of *Hridaya*, *Sira*, *Dhamani*, *Rasa Dhatu*, *Rakta Dhatu*, *Vyana Vayu* etc. As per description "*Srotamsi*" are responsible for the movement of *Malakhya Dhatu* from *Poshya Dhatu*.^[16]

According Sharangadhara Samhita, *Samana Vayu* is responsible for re-entry of *Rasa* into *Hridaya*. So, *Rasa* nourishes the *Dhatu* in a circular fashion as described in Charaka and Astanga *Hridaya*. (Ca. Ci. 15/21" A. H. Sha.3/66).^[17]

Physiological concept of Cardiovascular System

Physiological process connected to the cardiovascular system includes of expulsion of *Rasa* from *Hridaya*, movement of *Rasa* in channels that ultimately result in nourishment of *Dhatu*, movement of waste products from *Dhatu* and factors that regulate all these processes. Acharya Sushruta has described that *Hridaya* is the organ that has activity of *Sankocha* and *Vikasa* in *Jagrata* and *Swapata* states (Su. Sha.

4/32).^[18] *Rasa* is ejected from *Hridaya* and circulates throughout body and from there it ultimately proceeds to *Hridaya* as like a closed circuit (Bhel. Sa. Su .20/3). This depicts the feature of CVS as a closed circuit. *Hridaya* itself gets importance as it is the root of *Pranavaha Srotas* and *Rasavaha Srotas* (Ca. Vi. 5/8).^[19] *Rasa* and *Rakta* are the first two *Dhatu*s in the sequence of seven *Dhatu*s and *Raktadhatu* is produced from the nutrient portion of *Rasadhatu*. The term *Rasa* is derived from "*Gatyarthak Rasadhatu*" depicting its meaning that it moves throughout day and night (Su. Su 14/13).^[20]

CONCLUSION

Srotas represent the inner transport system of the body in addition to that of circulatory System. The transport of biological fluids, physiological regulatory factors, nourishment of tissues, and bioavailability of medicaments depends on the integrity of *Srotamsi*. Our Acharyas had clear and profound empathetic of Cardiovascular System as it has been very elaborately described in Brihatrayi and in their commentaries with a considerable amount of accuracy which also relevant on today's modern science literature. Understanding the concept of *Srotas*, its *Mulsthana* facilitates the *Vaidya* to take decisions precisely with respect to treatment and prognosis of any disease.

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How to cite this article: Dr. Radheshyam Sharma. A thematic appraisal on Srotas in Ayurveda with relation to Rasavaha Srotas Mulsthana and its aspects with Cardiovascular System. J Ayurveda Integr Med Sci 2020;2:109-112.

Source of Support: Nil, **Conflict of Interest:** None declared.
