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Review Article

A CRITICAL ANALYSIS OF SROTAS ACCORDING TO AYURVEDA

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ABSTRACT

Holistic biology of Ayurveda is based on Triguna, Tanmatra, Tridosha, Saptadhatu, Oja, Agni, Ama and Srotas. In Ayurveda Srotas plays a major role. Acharyas explained purusha as assumed to be made of innumerable Srotas. The equilibrium of dosha, dhathu and mala maintains health. To maintain continuity in the life cycle, these bodily elements have to be continuously regulated, nourished and replenished. Srotas are the channels or inner transport system of the body which is the site for the activities of other bodily elements like dosha, dhathu, mala, agni, etc. Ayurvedic Acharyas have described that the entire range of life processes in health and disease depends on integrity of the srotas system which is prone to lose its integrity due to out of order lifestyle and faulty food. In Ayurvedic classics the term Srotas is used as dynamic transport system of body-mind-spirit organization in addition to circulatory system. Among these some Srotas are micro and some are macro in structure and they adopt the same colour of particular dhathus of the body to which they belong. In Ayurvedic classics, it has been described that the entire range of life process in health and disease depends on the integrity of Srotas. Therefore the present article is an attempt to study the fundamental facts of Srotas.

Keywords: Ayurveda, channels, dhatu parinaman, pathways, poshyadhatu, Srotas, transport.

INTRODUCTION

Ayurvedic classics proclaim “Srotomayam hi shariram” means that living body is a channel system and/or is comprised of innumerable channels which are designed as inner transport system for divergent function, gross and subtle, biological and energetic. All dosha, dhathu and mala perform their functional activities with the help of these Srotas. It has been a practice since long, to recognize all the vyadhi laskhana. Body-mind-spirit organization has as many as Srotamsi the number of life factors operating in the life process- Yawantah Purushe Murtimanto Bhavavisheshah Tavantevasmin Srotasam Prakara Visheshah¹.

The body is divided into small units depending upon their chief function or structure. Each unit comprises of many avayavas (Organs) and each organ is made up of innumerable Srotas. Hence these units are generally called Srotas. Ordinarily the word Srotas is used as a generic term indicating all the macro and micro channels and pathways operating in the living organism. The word Srotas is derived from sanskrita root- “Sru- gatau” (Sru + tasi = srotas) which means moving, filtering, flowing, leaking, secreting etc.

Thus, they are the channels or pathways 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. In other words, materials are transported through these Srotas from the place of production to the place of need.

Charak has defined it as “Sravanata Srotamsi” means the structure through which sravanam takes place. Chakrapani has explained that Sravarnat means sravanam of rasadi poshya dhatu. The term Srotas means channels or systems in which some tissue is formed; some material is metabolized, secreted or transported. Charak has described that Srotamsi are channels which transport the dhatus (asthaya or poshya dhatu) which are subjected to transformation. According to Sushruta, those which carry or transport materials like Prana (Life element), Anna (Food), Vari (Water), Mamsa, Meda Dhathu are called Srotas. Charaka opines that there will be Parinamanapadyamanam” meaning undergoing transformation indicates that the channel carry such of the tissue elements as are undergoing transformation from their previous states. The channels of circulation do not carry the sthira (Stable) dhatus but only such of the mobile dhatus are carried by them.ⁱⁱⁱⁱ

Synonyms of Srotas

Analysis of several of its important synonyms showed that the word srotas is used as generic term indicating all macro and micro channels and pathways operating in the living body. Following are the synonyms- Sira (vein), Dhamani (arteries), Rasayani (lymphatics), Rasavahini (capillaries), Nadi (Tubular conduits), Pantha (passages), Sthana (sites, locus), Ashayas (repositeries), Niketa (resorts), Marga (pathways, tracts), Samvrita-asamvrita (open or blind passages), Sharir chidra (body orifices, openings)^{iv}

Structure / Characteristics^v

Srotas may be sthula (Gross/macros copic), Anu (Microscopic), Vrutta (Round), Deergha (Elongated) and Pratanasadrusha (Reticulated in nature). They are like lotus stalks, through them rasa nourishes the body. The colour and form of the Srotas is similar to the dhathu they support. Vagbhata considers two types of Srotas: Sthula (Perceptible) and Sukshma (Imperceptible). With today's technological advances, microscopic entities can be counted in sukshma Srotas, with extended perspective abilities. Charaka has very clearly said that all the biochemical molecules under metabolic process (Parinamapadyamanadhathus) are held and carried within the Srotas. These Srotas are the functional pathways for nutritive (Prasadhakya) and non-nutritive or waste (Malakhya) molecules.

Types of Srotas^{viii}

Through conceptually Srotas are innumerable, a certain number is assumed according to their specified functions. They are 13 in number according to Charaka and there are 11 pairs or 22 Srotas according to Sushruta who called them Yogavahi. Mainly Srotas is classified into two kinds, namely Bahya and Abhyantara Srotas Bahya Srotas or Bahirmukha Srotas in males are 9 in number and in females it is 12 in number. bahya Srotas are 2 nasa randhra, 2 karna randhra, 2 nayana randhra, 1 mehana randhra, 1 guda randhra, 1 vedana randhra. In females, 2 stana randhra and 1 rakthapatha. In addition to these gross material channels, some other important channels described are –

- **Manovaha Srotas** which carries impulses of thoughts and emotions.
- **Stanyavaha Srotas:** Channels which carry stanya (Breast Milk) are called Stanyavaha Srotas
- **Shabdavaha Srotas:** When aggravated Vata enters shabdavaha Srotas either alone or in association with Kapha, it produces Bhadiryā
- **Samjnavaha Srotas:** Channels which carry buddhi is called Samjnavaha Srotas.
- **Swaravaha Srotas:** Channels which carry shabda is called Swaravaha Srotas.

After going through these different Srotas, we can classify them into three groups

1. First three which are associated with the intake of environmental elements are Pranavaha Srotas (Carrier of life or air), Annavaha (Carrier of food), Udakavaha (Carrier of water)
2. Middle seven are the purveyors of Rasa (Plasma), Rakta (Blood), Mamsa (Muscle tissue), Meda (Fat), Asthi (osseous tissue), Majja (Bone marrow or brain tissue) and Shukra (Semen)
3. Last three channels are namely Swedavaha (Carrier of sweat), Mutravaha (Carrier of urine) and Purishavaha (Carrier of faeces) No separate Srotas has been described for the shareerika dosha.

Srotomoola

Srotomoola is the area of influence, Chakradatta describes Srotomoola as the area from which Srotas evolves or arises. It is similar to root of the tree. It is also Prabhavasthana means the anatomical

seat of respective Srotas .The main seat of Pathology of Srotas or are principal seat of manifestation of the diseases of that Srotas. The cause of morbidity of Srotas and the manifestations first strikes the moolasthanas of their respective Srotas. These moolasthanas can be categorized.

Function of Srotas

- 1) Grahana or sangrahana: Storage or collection
- 2) Sravana: secretes, oozing, discharge, exudates
- 3) Vahana: carry, conduction, transportation
- 4) Shoshana: Absorption, Assimilation
- 5) Nissarana: Elimination or excretion
- 6) Pachana: Digestion
- 7) Vivechana: Selectivity
- 8) Receptable
- 9) Diffusion
- 10) Perniation

Srotodushti

The causes of vitiation of doshas are improper food habits and their activities. The expression of such vitiation is through the manifestation of diseases. The same causes which lead to doshadushti and dhathodushti are responsible for the vitiation of Srotas i.e. srotodushti.

Srotodushti lakshanas

The main signs of the vitiation of the channels are

- 1) **Atipravrutti**: Increased flow or excess production of contents of the channel
- 2) **Sanga**: Obstruction or stagnation of the flow of content of the channel.
- 3) **Siragranthi**: Appearance of nodules in the channel
- 4) **Vimargagamana**: Diversion of the flow of the contents to an improper channel or flow in the path other than its own.

Mulam of srotas

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. The cause of morbidity of srotamsi and their manifestation, pertaining diseases has also been explained. The set of channels is apparently described as the major seat of diseases which can be clinically examined in a patient by physician for diagnostic purposes.

Following are the major gross channels^{viiiixxxixii}

Srotas	The Mulam
1- Pranavaha	Hridaya (Brain and heart), Mahasrotas
2- Udakavaha	Talu, Kloma (oropharynx)
3- Annavaha	Stomach, left flank
4- Rasavaha	Hridya (heart), ten dhamani
5- Mamsavaha	Ligament, skin
6- Medovaha	Kidneys, omentum
7- Asthivaha	Adipose tissue, Jaghan
8- Majjavaha	Bones, joints
9- Shukravaha	Testes, pudendum
10- Mutravaha	Urinary bladder, vankshanas (kidneys)
11- Purishvaha	Large intestine, rectum
12- Svedavaha	Adipose tissue, hair follicles
13- Artavavaha	Uterus, fallopian tubes
14- Manovaha	Hridaya (Heart and Brain)

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 water⁸. No separate srotamsi has been described for three sharirika dosh as they pervade. The entire body and move through different kind of srotamsi. Byadagi P.S. has correlated Vataavaha Sira as Vataavaha Srotas, Pittavaha Sira as Pittavaha Srotas, Kaphavaha Sira as Kaphavaha Srotas and Sarvavaha Sira as Sarvavaha Srotas.⁹ Manasika guna and Atma which are beyond from the sense of perception, the entire sentient body is their vehicle and field of operation. Sushruta has described eleven pairs of srotas same as Charaka but he has left out Asthivaha, Majjavaha and Svedavaha and included Artavavaha Srotas. Sushruta has excluded Dhamni and Sira from purview of Srotas.

Charak has described that they are spoken of dhamani because they pulsate, sira because they maintain the flow of rasa-rakta, as srotamsi because they permit oozing. C. Dwarikanath has explained that Hridaya (heart), dhamani (arteries), sira (veins) srotamsi (capillaries) are the component of a single vascular system which regulate the proper flow of blood and nutrition supply to and clearance of waste products from sthayi dhatu¹⁰. Charaka has described srotas mula or origin and symptomatology of pathological involvement of srotamsi in nija type of diseases (idiopathic or constitutional diseases as opposed to aagantuja or traumatic). While Sushruta has described srotamsi in the context of injuries (srotoviddha) as may inflict on their mula.

Thus Srotas is a multi-meaning term referring to a range of structures, functions and concepts in different context. From extreme gross to most subtle the term srotas could refer to whole body as a single complex srotas, each gross physiological system such as gastrointestinal system as one srotas, a single tubular structure like nephron, each single cell of the body or sub-cellular structures and membrane the receptor mechanism and networks, pathways carrying emotions and chetna. All these are the components of srotas system.¹¹ Swarnakar *et al.* has correlated the srotas with the complex pathways or channels of the nervous

system governed by vata for carrying out the functional and physiological activities of the human body. Nerve itself is a channel and it is spread throughout the body, like a climber plant. All the channels are governed by the flow of electrical current responsible for the development of the action potentials without which none of the fundamental activities of human will take place¹².

Functions of Srotamsi^{xiiiiv}

- Ayurvedic Acharyas have described that the entire range of life processes in health and disease depends on integrity of the srotas system.
- Srotas are the inner transport system of the body which provides platform for activities of other important bio-factors like three dosh, the seven dhatu, the oja, the agni, thought and emotions etc.
- Srotamsi are not only the passage or channels for flow of various substances but also Srotamsi are specific in their functions. Each Srotas provides nutrition to their respective dhatu only with requisite quantities not others^{13,14}.
- Transformation (metabolism) of poshya dhatu occurs in srotas.
- Srotas serves as conduit through which both prasada (nutrient) 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.
- All the dosh, dhatu and mala are dependent on srotas for their formation, transportation and destruction.

DISCUSSION

Ayurveda has given importance to Srotas for every Murthiman bhavas. Srotas are the channels different from sira and dhamani, which carries nutrients to the body organs and widely spreads all over the body. It also carries waste materials for the excretion from the body. Without Srotas, the physiological functions of the human body will not be possible. Every Srotas has two moolasthanas and function of these moolasthanas is to produce the elements which flow through the srotas. If moolasthana is defective, the srotas will be defective. But if srotas is defective, does not mean that moolasthana will also be defective. Pathological changes in the body are due to Sroto dushti, Srotosanga. Any imbalance in the srotas causes disease, so for the proper development of the human body, a proper functioning of Srotas is a must.

CONCLUSION

Srotas is merely a hollow channels or space. According to Charaka Acharya "Srotomayamayampurusha,, i.e they have seen the body in the form of Srotas. Human body consists of Multiple and innumerable Srotas. Srotas indicate all Macro and micro level descriptions pertaining to the exchange, transportation and excretion taking place in the human body. Srotas along with their moolasthana have been described for the purpose of the study of pathology and clinical medicine. Understanding the concept of Srotas and Srotovaigunya

facilitates the vaidya for treating diseases. As long as Srotas perform their normal function, body would be free from diseases. The srotas system plays a key role in physiology including pathophysiology and pharmacophysiology. Understanding the concept of srotamsi and srotovaiguny facilitates the Vaidya to take decisions accurately with respect to treatment and prognosis. As long as Srotas perform their normal function, body would be free from diseases.

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