COMPREHENSIVE REVIEW OF SROTAS IN AYURVEDA AND ITS IMPORTANCE IN SHARIR

Dr. Sona Rani¹*, Dr. Sunil Kumar Yadav² and Dr. Jaivardhan Singh³

¹P. G. Scholar, Dept. of Sharir Rachana, NIA, Jaipur.
²Assistant Professor, Dept. of Sharir Rachana, NIA, Jaipur.
³P. G. Scholar, Dept. of Shalya Tantra, NIA, Jaipur.

ABSTRACT

Ayurveda is the most ancient of all medical sciences which has withstood the ravages of time and still blooming steadily and gaining prime attention. For proper understanding of this science we must have knowledge of its basic principles. Sharir is one of them and it is conglomeration of innumerable structures called Srotas (micro and macro channels). The word “Srota” has been derived from the word root “Su Sravane” meaning to ooze, to exude, to filter, to permeate. According to the context “Dosha Dhatu Mala Mulam He Shariram” human body is composed of Dosha, Dhatu and Mala. These building components of Sharir are continuously circulates throughout the body by micro and macro channels. These channels are Akash Mahabhuta dominant structures. The state of equilibrium of Dhatu is health and its disequilibrium is termed as disease. Healtheir condition is all depends on unvitiated condition of Srotas. All the Srotas are apparently described as the major seat of diseases. So, for normal functioning of the body it is essential that these channels, both micro and macro should be intact. So in this article we emphasize on Review on concept of Srotas in Ayurveda and its importance in Sharir.

KEYWORDS: Channels, Dosha, Dhatu, Sharir, Srotas.

INTRODUCTION

According to Acharya Charaka “Sravanaat Srotansi”¹ means through which sravana or flow of the body substances take place. So it can be defined as the channels through which the conduction of the nutrients for the Dhatu is take place regularly. During the process of Uttroottar Dhatu Utpatti Kram, circulating Dhatus are transformed from the first to the last
tissue layer (i.e Ras to Sukra).\textsuperscript{[2]} In this way each Dhatu has two aspects – one for nutrition for its own tissue layer and substance for the next developing Dhatu. The vitiation, depletion and maintenance of existed bodily structures are not possible without Srotas\textsuperscript{[3]} and manifestation of a disease occurs in the body as a result of the defective Srotas of the body. Hence any defect of Srotas must be corrected, for the restoration of normal health.

**AIM AND OBJECTIVE**

- To understand concept of Srotas in detail by review of literature.
- To understand their importance in Sharir

**MATERIAL AND METHOD**

- Review of Ayurvedic literature from Ayurvedic classics including relevant commentaries.
- Other print media, online information, journals, books, magazines etc.

**Concept of Srotas in Ayurveda classics**

In Charaka Samhita, Acharya Charaka mainly focussed the Srotas on physiological basis whereas Shushruta described the Srotas on Anatomical basis.\textsuperscript{[4]} The frame work of human body is maintained by Saptadhatu. These are transported to each and every part of the body through channel called Srotas. The body contains numerous channels through which the Dhatus, Doshas and Malas circulate, known as Srotas in Ayurveda.

**Etymology of Srotas**

According to Damodar Sharma Gour, the term ‘Srotas’ is derived from the root 'Sru' (Gatyarthak) Dhatu and ‘Asrun’ suffix; ‘Srotas’ means the hollow structures for circulation of substances in the body.

According to Gangadhar Rai Srotas are so called because they pose as the Rasaadi Sravapaths. Now the term Srava means release of something. Thus Srotas is a pathway for the released Rasa etc. probably after their production.

**Definition of Srotas**

According to Acharya Charaka the channels of circulation carry the Dhatus (tissue elements or their constituents) undergoing transformation to their destination are called Srotas.\textsuperscript{[5]} According to Chakarapani, the channels which transport the poshaka Dhatu to the Poshya, are called Srotas.
According to Sushruta Srotas that which originates from vacant spaces (hollow organ) spread throughout the body and purveys materials are to be understood as Srotas (channel) and apart from Sira and Dhamani.[6] According to Dalhan commentary those which carry or transport materials like Prana, Anna, Vari, Mamsa, Meda etc. are called Srotas. Kaviraja Haranachandra, commentator of Sushruta Sharira, has opined that Srotas are formed by the clear, thin, soft membranes which are very minute that they cannot be seen from the eyes. Acharaya Sharangadhara has also described Manovahi Srotas separately.

According to Bhavmishra Srotas are defined as the channels through which Manas, Prana, Anna, Paniya, Dosha, Dhatu, Updhatu, Mala, Mutra etc. circulate throughout the body. These are innumerable in number and can’t count.[7] The description of Srotas in Bhava Prakasha is according to Sharangadhara. He has also applied term Randhra for presenting Bahirmukha Srotas.

Parayaya (synonyms) of Srotas
According to Acharya Charaka Srotas, Sira, Dhamani, Rasayani, Rasavahanai, Nadi, Pantha, Marga, Sharircchidra, Ashaya, Niketa these are the names attributed to various visible and invisible spaces inside the Dhatu (tissue elements) of the body.[8] Acharya Charaka stated these Parayaya according to their function and structures and also stated that Sira, Dhamani & Srotas are the same. Acharya Sushruta stresses that Sira, Dhamani & Srotas are not the same.

Vagbhata has added “Kshaya”, “Jivitayatna” & “Dvarani” as other synonyms of Srotas.[9] In the Vividhasitapitiya Adhyaya the term “Ayanamukha” has been used by Charaka & is explained by Chakrapanidatta.

Swarup (structure) of Srotas
According to Charaka, Srotas have the same colour to that of Dhatu they carry; they are Tubular, Vritta, either large or small in size and either straight or reticulated in shape.[10,11] Purusha cannot exist without the organisation of Srotas because of their prevasion all over the body and aggressors and alleviator of Dosha.[12]

Vagbhatta has described Srotas along with Sira and Dhamani in both the text Ashtanga Sangraha and Ashtanga Hridaya. The orifices of the Srotas are small, spread long and far, like those in the Vismranala (lotus stalk), through which Rasa (nutrient tissue) spreading to
the entire body\textsuperscript{[13]} while \textit{Sushruta} stated that pores like \textit{Vismranala}, are present in the \textit{Dhamani}.

\textbf{Classification of Srotas}

1. Innumerable and Numerable.
2. \textit{Drushya} (perceptible) and \textit{Adrushya} (imperceptible).
3. \textit{Bahirmukha Srotas} and \textit{Antarmukha Srotas}.

Out of such innumerable, \textit{Charaka} has described 13 main \textit{Srotas} in the 5 chapter of \textit{Vimansthana} depending upon their origin and abnormality produced in them on vitiation. These are \textit{Pranvaha}, \textit{Annavaha}, \textit{Udakvaha}, \textit{Rasavaha}, \textit{Raktavaha}, \textit{mamsavaha}, \textit{Medavaha}, \textit{Asthivaha}, \textit{Majjavaha}, \textit{Sukravaha}, \textit{Mutravaha}, \textit{Purishavaha}, \textit{Swedavaha}. \textit{Charaka} added one more \textit{Srotas} in \textit{Garbhavyakaran}, which is \textit{Artavavaha Srotas}.

\textit{Acharya Sushruta} has described 22 or 11 pairs of \textit{Srotas} and called them \textit{Yogvahi}, he listed them on the basis of clinical signs and symptoms related to trauma or injury to particular \textit{Srotas}.\textsuperscript{[14]} He didn’t mentioned \textit{Asthivaha}, \textit{Majjavaha}, \textit{Swedavaha Srotas}. In this context, \textit{Dalhana Acharya} comments that the \textit{Mula} of \textit{Majjavaha Srotas} is \textit{Asthi} and the \textit{Mula} of \textit{Asthi} and \textit{Svedavaha Srotas} is \textit{Meda} which is present all over the body. So, it will be very difficult to define the prognosis of any disease in case of any deformity occur in their \textit{Mula Sthan}. But As \textit{Sushruta Samhita} is \textit{Shalya Pardhan} so it is not as so much importance as in \textit{Charaka Samhita}.

In the same way according to \textit{Astang Hridaya Srotas} are of two types, i.e.(1) \textit{Bahya Srotas} (external orifice, channel): In male \textit{Bahya Srotas} are nine in number i.e. – two in the nose, two in the ears, two in the eyes, one of the anus, one of the mouth and one of the urethra. In women there are three more \textit{Srotas} two in breasts and one of the passage of blood.\textsuperscript{[15]}(2) \textit{Abhyantra Srotas} (internal channel): \textit{Srotas} function as the base of life in the body. These are 13 in numbers. They are, one each of \textit{Prana}, the \textit{Dhatu} (the seven basic tissue), the \textit{Mala} (the three chief wastes), \textit{Ambu} and \textit{Annavaha Srotas}.\textsuperscript{[16]}

According to \textit{Sharangadhara} the body has ten \textit{Randhra} (orifice) viz. one in each of the eyes, nose and ears; one in urethra, one of the anus, one of the mouth and the tenth is in the head. Women have three more; one each in the breasts and the third in the uterus. There are
innumerable minute pores in the skin.[17] According to Kashyapa Srotas are two types Sukshma and Mahana. Sukshma Srotas are Nabhi and Romakoopa.[18]

**MULSTHANA OF SROTAS**

Mulsthana is the site of formation, storage or elimination of Bhava Padartha of that Srotas is take place. Chakrapani has described Mulam as “Mulamiti Prabhava Sthanam”[19] meaning that Mula of a Srotas is the area from which Srotas evolves or arises (similar to the root of tree). This part of Srotas regulates and controls the function of the entire Srotas. Any abnormality in the root of Srotas affects the entire Srotas. Hence, due consideration has to be given to the root of the Srotas in the treatment of any pathology of the Srotas. Chakradutta explains this concept by illustrating the example of a tree. 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 Mulasthana is injured. With this end in view, Sushruta has described symptoms due to the injury at the sites of origin of these channels of circulation.[20]

Determination of mulasthana of Srotas[21]

1. **Sangraha Sthana** (Mulasthana related with storage).
2. **Vahana Sthana** (Mulasthana related with conduction).
3. **Utpatti Sthana** (Mulasthana related with origin point of view).
4. **Naidanic Drishtikon** (Mulasthana related with diagnostic point of view).
5. **Chikitsatmak Drishtikon** (Mulasthana related to clinical point).

<table>
<thead>
<tr>
<th>No</th>
<th>Name</th>
<th>Srotomula</th>
<th>Srotomula</th>
<th>Srotomula</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Charaka(ch.vi.5/16)</td>
<td>Sushruta(su.sha.9/12)</td>
<td>Vagbhatta(As.s.sh.6/25)</td>
</tr>
<tr>
<td>1</td>
<td>Pranavaha</td>
<td>Hridaya, Maha Srotas</td>
<td>Hridaya, Rasavahi dhamani</td>
<td>Hridaya, Maha Srotas</td>
</tr>
<tr>
<td>2</td>
<td>Annavaha</td>
<td>Amashaya, Vamaparshwa</td>
<td>Amashaya, Annavahi dhamani</td>
<td>Amashaya, vamaparshwa</td>
</tr>
<tr>
<td>3</td>
<td>Udakavaha</td>
<td>Talu, Kloma</td>
<td>Talu, kloma</td>
<td>Talu, Kloma</td>
</tr>
<tr>
<td>4</td>
<td>Rasavaha</td>
<td>Hridaya, Dashadhramani</td>
<td>Hridaya, Rasavahidhamani</td>
<td>Hridaya, Dashadhhamani</td>
</tr>
<tr>
<td>5</td>
<td>Raktavaha</td>
<td>Yakrut, Pleeha</td>
<td>Yakrut, Pleeha</td>
<td>Yakrut, Pleeha</td>
</tr>
<tr>
<td>6</td>
<td>Mamsavaha</td>
<td>Snayu, Twak</td>
<td>Snayu, Twak</td>
<td>Snayu, Twak</td>
</tr>
<tr>
<td>7</td>
<td>Medovaha</td>
<td>Vrukka, Vapavahan</td>
<td>Kati, Vrukka</td>
<td>Vrukka, Mamsa</td>
</tr>
<tr>
<td>8</td>
<td>Asthivaha</td>
<td>Meda, Jaghan</td>
<td>Meda, Jaghan</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Majavaha</td>
<td>Asthi, Sandhi</td>
<td>Prava, Asthi</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Sukravaha</td>
<td>Vrushana, Shefah</td>
<td>Stana, Vrushana</td>
<td>Mushka, Majja</td>
</tr>
<tr>
<td>11</td>
<td>Mutravaha</td>
<td>Basti, Vankshana</td>
<td>Basti, Medhra</td>
<td>Basti, Vankshan</td>
</tr>
<tr>
<td>12</td>
<td>Purishavaha</td>
<td>Pavashaya, Sihulaguda</td>
<td>Pavashaya, Guda</td>
<td>Pavashaya, Sihulaguda</td>
</tr>
<tr>
<td>13</td>
<td>Swedavaha</td>
<td>Meda, Romkupa</td>
<td>Meda, Romkupa</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Artavavaha</td>
<td></td>
<td>Garbhhashaya, Artavavahi dhamani</td>
<td></td>
</tr>
</tbody>
</table>
Hetu (Causes) of Srotodusti

Acharya Charaka states that the food and regimens that promote the aggravation of Dosha and go contrary to the well-being of Dhatus (tissue elements) vitiate the channels. The Lakshan and Nidana of Srotodushti which are stated by Vagabhatta is alike the presentation of Charaka. These getting vitiated by indulgence in unsuitables (food and activities) give rise to disease, when unvitiated these make for health.\[22,23\]

Lakshan of Srotodusti

Ayurveda believes that fundamental causes of disease of Srotas are Atipravritti (increase flow of the contents of the channels), Sanga (obstruction of the flow of the contents of the channel), Siragranthi (Appearance of nodules in the channels) and Vimarga Gamana (diversion of the flow of the contents to improper channels).\[24,25\] It is obvious that transportation and exchange of substances is responsibility of Srotas.

Arunadatta has illustrated the phenomenon of Atipravritti with the example of an excessive flow of urine (Bahumutrata) as in Prameha, Atisar and Sanga with the example of Mutrakricha and the voiding of small quantity of faeces at frequent intervals or to the retention of it as in Udavarta.

Vyadhi utpatti Sthana and Samprapti

The concept of Srotas has been most widely explained in Ayurveda in regard to the disease process.

The concept of Srotas can be understood by the example of well-planned house in which there are two types of pipeline system-one system for inlet of fresh water and other for outlet of the waste products. If any blockage of these drainage systems of pipelines can result problem; in the same way any occlusion in Srotas can lead to disease. When these Srotas does proper work it is indication of easy and healthy life. When Dosha get aggravated by use of improper digestion foods and activities first and vitiated the Koshtthagni leading to improper digestion, production of Aama and improperly processed Rasa Dhatu. At the same time (aggravation of Dosha) abnormal changes take place even in the Dhatu (tissue) and their Srotas this is called Srotodushti or Kha vaigunya. Sroto vaigunya plays an important role for the Sammurchhana of Dosha & Dhatu at a particular as a disease manifest inside the body. Due to khavaigunya, Dosha & Dhatu (Dushya) Sammurchhana takes place to form the Samprapti of the disease inside the body. One vitiated Srotas effects the other Srotas.
Importance of Srotas in Sharir

1. *Srotas* carry the *Dhatus* elements & their constituents undergoing transformation to their destination.

2. *Rasa, Mana, Prana, Anna, Udaka, Vata, Pitta, Kapha, Rasa, Rakta, Mamsa, Meda, Asthi, Majja, Shukra Dhatu, Stanyadi Updhatu, Mala, Mutra & Purisha* are transported in the body through *Srotas*.

3. Development & nourishment of different *Bhavas* of the body is not possible without *Srotas*.

4. Affliction of these channels leads to the vitiation of the tissue elements residing there or passing through them, vitiation of one lead to the vitiation of the other. The vitiated channels and *Dhatus* (tissue elements) on their part vitiate other channels and *Dhatu* respectively. Because of their vitiating nature, *Dosha* viz. *vata, pita and kapha* are responsible for the vitiation of all of them (channels and tissue elements).

DISCUSSION

The human body is built by conglomeration of *Srotas*. They represent the internal transport system of the body. According to *Sushruta Srotas* that which originates from vacant spaces, (hollow organ) spread throughout the body and purveys materials are to be understood as *Srotas* (channel). *Rasavahini, Pantha, Marga, Sharirchhidra* etc. These *Paryaya* show their function and structures. *Srotas* can be correlated to capillary, lymphatics, lactiferous ducts, intercellular spaces. These all structures are hollow and carry substances from one site to another site of the body. All the cells have their internal circulatory system which is managed by endoplasmic reticulum inside the cells. This internal system of cells should also be considered in the same category of the *Srotas*. Cell membrane is made up of lipids and proteins and is semipermeable allowing some substances to pass through it and excluding other. However, its permeability also varies because it contains numerous regulated ion channels and other transport protein that can change the amount of substances moving across it. Capillaries have pores in the endothelial cells (60-80nm in diameter) that allow small molecules and limited amounts of protein to diffuse. At gap junction, the intercellular space narrows from 25 to 3 nm and they permit substances to pass between the cells without entering the ECF. The diameter of the channel is normally about 2nm, which permits the passage of ions, sugars, amino acids and other solutes. The biophysical knowledge adds to it that *Srawana Karma* includes filtration, osmosis, diffusion and conduction.
CONCLUSION

Any hollow channel or space carrying *Poshaka Dhatu* to the *Sthayi Dhatu* by *Srawana Karma* and excrete *Mala* from the body can be considered as *Srotas*. Normal functioning of these *Srotas* maintains health and their abnormal functioning results in disease in the body due to (*Srotodusti*) vitiation of *Srotas*. It may be functionally identified by its specific functional structure through which to and fro exchange takes place.

*Srotas* can be considered by capillary, intercellular spaces, gap junction, lymphatics, lactiferous ducts, ion channels etc.

REFERENCES


