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Anatomical, physiological and pathological concept of srotas sharir

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Abstract

The subject which deals with understanding of body and its part in present era is the “*Racana Śārīra*” (anatomy) which forms the base for understanding the whole concept of *Āyurveda* that’s why the subject forms the most important part of basic course of the medical sciences. The principles of *Āyurveda* which are interwoven with basic concept of life have significant value even in the life of modern era and one cannot deny implacability of these principles so, in this paper we will discuss about different aspects of srotas sharir i.e. rachana of srotas or how they formed, Kriya through srotas, dusti nidan of srotas, pathology through srotas and importance of srotas for this discussion we will go through different texts and journals.

Keywords: Ayurveda, srotas, sharir, principles

Introduction

Āyu (life) is defined as conjunction of body, mind, soul and senses. Each has been given due importance in maintenance of health and prevention of diseases [1]. Among these, body is given the utmost importance as it is the chief aspect on which all other things are based that’s why *Ācārya Caraka* had stated “Leaving everything else, one should maintain the body, because everything available in the world is due to this body, if it got destroyed nothing can be achieved from this world².” *Āyurveda* is being chiefly a medical science laid emphasis on proper understanding of the body

Srotas in vedās, ūpanishad and srīmad bhāgavad gītā [2-4].

Originally four main books of *Vedic* spirituality existed known as *R̥gveda*, *Sāmaveda*, *Yajurveda* and *Atharvaveda*.

Vedās are the most ancient literature of the world. The terms which are used to describe the *Srotas* in various hymns of *Vedas* are *Srotoayana*, *Panthāna*, *Dhamanyaḥ*, *Sirā*, *Nādī* or *Khānī* these all words seems to be applied in sense of the organs predominantly constituted by *Ākāśa Mahābhūta*.

Hirā: This word stands for *Sirā*.

Saptakhānī and Navdvār: These terms indicate external openings of body *Sapt Khānī* includes both-ears, eyes, nostrils and mouth and including anus and urinary aperture they become *navdvār*

Srota: All *Srotas* in the body keep on oozing continuously like a origin of water fall.

Derivation of Term Srotas [5]

The term *Srotas* is originated from the two main sanskrit roots 'sru' *gatau* (*Srawatīti Srugatau*) + *Sruribhayam sut* (*Asun sut cha*) *gatau dhātu* contains the verb "move" and adjoining *sut dhātu* represents entity *asun* i.e. *prāṇa*, which is the first and chief entity to move in living body therefore the word indicate the meaning that, *srotas* is the channel of body, which provide room for locomotion for its concerning entity.

Definition of Srotas [6-7].

- *Srotas* is that structure which forms, transforms and transport the nutrients.
- *Srotas* is that path, which provides the direction, for its undertaken content towards particular destination.
- *Srotas* is that structure, which has a property of, exuding, oozing, filtering and to permeate the body fluids.

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Svarūpa of Srotas [8]

Color: similar to their concern *Dhātu*.

Shape: circular, Sketchy or atomic.

Structure:

1. Srotas is very complicated or subtle, almost like interlocked tendrils of creeper.
2. It is like pore or aperture.
3. It is like a opening.

Synonyms of Srotas [6, 9-10]

Ācārya Caraka has mentioned the various synonyms of *Srotas*/names of various hollow structures like *srotas*

1. *Srotāmsi* – the structures which are providing the room for the free movement of *Prāṇa*, *Anna*, *Udaka* etc. in living body
2. *Sirā*²⁸ – the structure which provide sliding or gliding movement of *Vāta*, *Pitta*, *Kapha* etc.
3. *Dhamanī* is structure, which has an ability to pulsate.
4. *Rasavāhinī* and *Rasāyanī*- both the terms are having almost similar meaning i.e. these are the vascular

structures, which propagate propagates the *rasa* inside them.

5. *Nādī* – *Nādī* word is derived from the root *Nād*, which means "flow"
6. *Pantha* – *Panthāna* – *Pantha* literary means, Passage or *mārga*
7. *Mārga* – it carries same meaning like *Pantha*.
8. *Śārira chidra* – Means body orifices or openings.
9. *Saṁvrtāsāṁvritāni* – Means ducts with or without constrictions.
10. *Āśaya* – resting place, storage of traces, propensities, accumulations, permeation, traces, repository, reservoir.
11. *Niketa* – This word means the residing place.

Conflict: About Srotas, Sirā & Dhamanī [8-10]

Right from the beginning there was a conflict regarding the structure of three things in the body, some *Ācārya* says that there is no any difference in *Sirā*, *Dhamanī Srotas*, they are the only synonyms of each other.

But *Ācārya Caraka* has given different *Nirukti* of *Sirā*, *Dhamanī* and *srotas*. While *Caraka's* most reliable commentator *Cakrapāni Datta* says three of them are the only names, indicating synonyms of each other nothing else.

Table 1: Showing differences between *Sirā*, *Dhamanī* & *Srotas* [9-10]

S. No.	Character	<i>Sirā</i>	<i>Dhamanī</i>	<i>Srotas</i>
1	Colour	<i>Sirā</i> carrying <i>Tridoṣa</i> and <i>Rakta</i> retain orange, bluish, white and red colour respectively.	<i>Dhamanī</i> carrying <i>śabda sparśa</i> etc, are colourless in nature.	Every <i>Srotas</i> acquires the colour of its own content.
2	Number	<i>Mūla Sirā</i> are 40	<i>Dhamanī</i> are 24	<i>Srotas</i> are 22
3	Action	It carry outs all basic functions of <i>Tridoṣa</i>	It does all special sensory functions	It carry outs all the basic functions of <i>Sapta dhātu</i> and <i>Prāṇa</i> , <i>Anna</i> and <i>Udaka</i>

Embryology of Srotas (Utpatti or Development of Srotas)

Caraka says that atomic and sketchy, both types of *Srotas* are the derivatives of *Ākāśa Mahābhūta* [6].

In *Sutra Sthāna*, *Caraka* says *vāta* is responsible for architecture of all kind of *Srotas* in body [9].

Classification of Srotas

Number of *Srotas*: some believes that there are infinite and according to some these are definite in number. Classify and enumerate them, according to their place of origin along with their signs of vitiation and gives the definite number i.e.13 their names as followed [6],

1. *Prāṇavaha srotas*
2. *Udaka vaha srotas*
3. *Anna vaha srotas*
4. *Rasa vaha srotas*
5. *Rūdhir vaha srotas*
6. *Mañs vaha srotas*
7. *Medavaha srotas*
8. *Asthī vaha srotas*
9. *Majjā vaha srotas*
10. *Śukra vaha srotas*
11. *Mūtra vaha srotas*
12. *Purīṣa vaha srotas*
13. *Svedavaha srotas*

Ācārya Suśruta mentions merely 11 divisions of *Srotas* because surgeons are concerned only with these [6]. *Suśruta* do not mention *Asthivaha*, *Majjāvaha* and *Svedavaha Srotas*.

- *Prāṇavaha Srotas*
- *Annavaha Srotas*

- *Udakavaha Srotas*
- *Rasavaha Srotas*
- *Raktavaha Srotas*
- *Māmsavaha Srotas*
- *Medovaha srotas*
- *Śukravaha srotas*
- *Mutravaha srotas*
- *Purīṣavaha srotas*
- *Ārtavavaha srotas*

Acharya Sushrut drops out *Asthivaha*, *Majjavaha* and *Svedavaha Srotas*, dalhan explains this by saying, though these *srotas* exist, these are not mentioned here since treatment of injury to these are beyond the scope of *salya tantra*.

Terms Mūla in Classics [11-14]

The terms *Mūla* has different meanings in *Vedās* and *Āyurveda*. Some references are given below:

- a) **Halāyudha Kośa:** The term *mūla* is originated from the word 'moo' like-moo+moo-shakyavibhyh klh itī klh mūlah.
- b) **Mahābhārata:** This term is used as *Āddyam* (origin or starting) in *Mahābhārat*.
- c) **Mārkaṇḍeya Purāna:** *Mūla* is also used as 'Nikunja' and *Antikam* (finish or last part).
- d) **Śabda Kalpadrum:** The term *mūla* is used as 'mūla ka Ropane' and 'ka mūlayati Veriksan Lokah'. Thus the term *mūla* is used for meaning of planting (rooting) of tree.

e) **Caraka Samhitā:** Caraka has used this term in context of achievement of four *puruṣārtha*, he says that health is the prime and basic factor to achieve them. *Mūlam* = *kāran cakrapāṇi* (*Ādhār* = base).

f) **Suśruta Samhitā and Aṣṭāṅg Hṛdaya:** In this texts *mūla* word has been used as tracer, director or prob.

g) **Cakrapāṇi Dutta:** In his commentary the term *mūla* is used as origin place. He said that "*Mūlamiti Prabhavasth ānam*", means that which originate.

Table 2: Showing main *Srotas* and their *Mūla* [6, 9]

Name of <i>Srotas</i>	<i>Mūla</i>		
	<i>Caraka</i> (Ca. Vi. 5/7)	<i>Vāgbhaṭṭa</i> (A.S. Īa. 6/34-50)	<i>Suśruta</i> (Su.Īa. 9/12)
<i>Prāna Vaha Srotas</i>	<i>Hṛdaya and Mahā Srotas</i>	<i>Hṛdaya and Mahā Srotas</i>	<i>Hṛdaya and Rasa vāhi Dhamanī</i>
<i>Anna Vaha Srotas</i>	<i>Āmāśaya and Vāma Prrśva</i>	<i>Āmāśaya and Vāma Pārśva</i>	<i>Āmāśaya and Anna vāhi Dhamanī</i>
<i>Udak Vaha Srotas</i>	<i>Tālu and Kloma</i>	<i>Tālu and Kloma</i>	<i>Tālu and Kloma</i>
<i>Rasa Vaha Srotas</i>	<i>Hṛdaya and Ten Dhamanī</i>	<i>Hṛdaya and Ten Dhamanī</i>	<i>Hṛdaya and Rasavāhi Dhamanī</i>
<i>Rakta Vaha Srotas</i>	<i>Yakṛt and Plihā</i>	<i>Yakṛt and Plihā</i>	<i>Yakṛt, Plihā and Rakta vāhi Dhamanī</i>
<i>Māmsa Vaha Srotas</i>	<i>Snāyu and Twaka</i>	<i>Snāyu and Tvaka</i>	<i>Snāyu, Tvaka and RaktaVāhiDhamanī</i>
<i>Medo Vaha Srotas</i>	<i>Vṛkka and Vapāvahana</i>	<i>Vṛkka and Māmsa</i>	<i>Kati and Vṛkka</i>
<i>Asthi Vaha Srotas</i>	<i>Meda and Jaghan pradeśa</i>	<i>Meda and Jaghan pradeśa</i>
<i>Majjā Vaha Srotas</i>	<i>Asthi and Sandhi</i>	<i>Asthi and Parva</i>
<i>Śukra Vaha Srotas</i>	<i>Vṛṣaṇa and Śepha</i>	<i>Stana, Muṣka and Majjā</i>	<i>Stana and Vṛṣaṇa</i>
<i>Mūtra Vaha Srotas</i>	<i>Basti and Vanṅsaṇa</i>	<i>Basti and Vanṅsaṇa</i>	<i>Basti and Meḍhara</i>
<i>Purīṣ Vaha Srotas</i>	<i>Pakv āśaya and Sthūla Guda</i>	<i>Pakvāśaya and Sthūla āntra</i>	<i>Guda (anus) and Pakvāśaya</i>
<i>Sveda Vaha Srotas</i>	<i>Meda and Loma Kūpa</i>	<i>Meda and Loma Kūpa</i>
<i>Ārtava Vaha Srotas</i>	<i>Garbhāśaya and Ārtavavāhi Dhamanī</i>

Physiology of *Srotas* [6]

Vāta, *Pitta*, *Kapha* move all over the body hence all the channels of the body cater to their needs for movement. Similarly, factors which are beyond sensory perception. Like mind etc. move and are located only in the sentient portion of the body. As long as these channels of circulation perform their normal function, the body is free from disease.

Srotodusti Nidan [6]

Food & regimens that promote the aggravation of *dosas* & go contrary to the well-being of *dhatu* vitiate the channels.

Srotoduṅṭi (Pathology through *Srotas*) [6, 14, 15]

The *Srotas* are very important in the *Vyādhi*, when the vitiated *Doṣas* taking *Āśraya* in any *Srotas* circulate in the body then they are not capable of causing a *roga*. But the place where the *Srotoduṅṭi* has taken place the *doṣas* obstruct at that place to cause *Vyādhi*.

When the *Sanchaya* of the *Doṣas* takes place at the same time the "*Kha vaiguṇya*" occurs in *srotas* because the *Srotas* carrying the *Rasa Dhātu* is also affected due to increase in *rasa* for example; when the food having greater quantity of *Snigdha guna* is taken, it causes increase in *Kapha Doṣa* and with the *Sancaya* of *Kapha Doṣa*, it causes *snigdhatā* in the whole body.

In this way the *Sneha* forms the coating in the *Srotas* and vitiation of their structure. When the vitiated *Doṣa* reach there, they cause genesis of *Vyādhi*.

When *Doṣaja āhāra-vihāra* is taken then *Sancaya* of *Doṣas* takes place. These *Sanchit doṣas* vitiate the *Srotas*, and this vitiation takes place in the *Ākāśya* or *kha bhāga*. This can be explained in this way, the nutritive channels of *Dhātu* are known as *srotas*. When increase in the *Dhātus* takes place it causes vitiation of *Srotas* by which the passage of *Srotas* become narrow.

In this way only if the *rūksha guṇa* are causes the *sanchaya* of *Vāta* then the *kha bhāga* of *srotas* increases. The increase

in the *kha* part or flow of *dhātu* in *srotas* or the deposition of foreign materials here and there in the *kha bhāga* etc. is due to *kha vaiguṇya* in *srotas*. When the vitiated *doṣas* circulate in the whole body then the stage of *vikṛti* or *srotoduṅṭi* takes place and causes *roga*, there only and not anywhere else. This stage is known as *Sthānsamsraya Avasthā* or it is also known as *Doṣa-Dushya samūrccnā*.

The above reference states that *Srotoduṅṭi* cannot takes place without *Kha vaiguṇya*. *Ācārya Caraka* comments when *Srotoduṅṭi* takes place it also causes *Duṣṭi* of the *Doṣas* as well as *dhātus* residing in the *Srotas*.

By the *Duṣṭi* of the *Srotas* and the residing *Dhātus* in the *Srotas*, it causes vitiation of the other *Srotas* and *Dhātus*, also vitiation in one *Srotas* or *Dhātu* causes vitiation in other *Srotas* or *Dhātus*. All the *Srotas* and *Dhātus* get vitiated only through the three *Doṣas Vāta, Pitta* and *Kapha*.

General Features of *Srotoduṅṭi* [14, 15]

Increase or obstruction of the flow of the contents of the channels, appearance of nodules in the channels and diversion of flow of the contents to the improper channels. These are in general signs of vitiation of these channels.

1. **Atipravṛtti:** When the *Srotas* are hyperactive, during healthy state, it is termed as *Atipravṛtti* for example, the normal respiratory rate (inspiratory – expiratory phase) of *Prāṇavaha srotas* is 16 to 20/min. If it excess of this, it constitutes *Atipravṛtti*. Increase in heartbeat, excessive movements of intestines, excessive formation of urine and stools- all indicates *Atipravṛtti* of respective *Srotas*.

2. **Saṅga:** Partial or complete obstruction in the normal functioning of the *srotas* e.g. in fever state due to obstruction of sweat glands. Sweat is not secreting resulting in non-perspiration. In stomach disease, due to obstruction of *Annavaha Srotas*. In disease of the *Śoṭha*, due to obstruction of *Rasavaha Srotas*, there is swelling of skin and subcutaneous tissues. Obstruction of *Mūtravaha srotas* causes *Aśmarī* and *Mūtrakṛccha*.

- Srotogranthi (Sirāgranthi):** Some specific *srotas* and the related organs show pathological changes in the form of enlargement, or altered structure e.g. *Ślīpada*, *Valmīkgranthi*, *Arbuda*, *Vidradhi*, *Gulma* etc.
3. **Vimārg gaman:** It means abnormal flow of *Tridoṣa*. When the flow in the *srotas* of *Tridoṣa* is abnormal, for e.g. *Vamana* is the upward movement of *Annavaha srotas*, *Udāvarta*, *Mūdhagarbha* are also example.

The above said four cause of *Srotoduṣṭi* can occur singly or in combination resulting in diseases. Each disease may show single or multiple types of *Srotoduṣṭi*.

Obstruction of *Srotas* (*Srotosaṅga*) causes various clinical signs and symptoms for many diseases, *Saṅga* of *Srotas* has been found to be the main cause. That's why the origin of all disease has been described as due to obstruction of *Srotas*.

In majority of instances, obstruction is the main cause of illness. This is followed in order of frequency, *Atipravṛtti*, *Srotogranthi*, and lastly *Vimārga gaman*.

- Due to *Atipravṛtti* of the particular *srotas*, in many cases there occur *Dhātu* obstruction (Necrosis) and sometimes enlargement of *Dhātus* (hypertrophy of tissues). *Srotosaṅga* and *Srotogranthi* however cause hypertrophy of tissue only. The *Vimārgagaman* causes only abnormal function of *Srotas*. From the above description it is evident that *Srotoduṣṭi* is the main cause of disease in any individual and the aim of any treatment should be to prevent *Srotovaiguṇya* or *Srotoduṣṭi* because it is the root cause of any illness.

Importance of *Srotas* ^[4]

A Physician who is well acquainted with all aspects of the entire body & all the disease manifested there will be rarely commit Mistake, in treatment.

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