

PHYSIOLOGICAL AND PATHOLOGICAL ASPECTS OF PRANVAHA SROTHUS WSR TO ITS MULA AND DUSTI

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ABSTRACT

Srothus (body channels) is considered as an important entity of the body and is responsible for the *Vahana* (secretion and transport) of *Dosha* (body humors), *Dhatu* (body tissue) etc. The body contains numerous channels through which the *Dhatu* (body tissue), *Doshas* (body humors) and *Malas* (metabolic byproducts) circulate, known as *Srothus* (body channels) in *Ayurveda*. *Pranavaha Srothus* (channels carrying prana) is given prime importance because it does *Pranavahan* (flow of prana) in body. The root of *Pranavaha Srothus* (channels carrying prana) is considered as *Hrudhaya* (heart) and *Mahasrothus* (gastro intestinal tract). The *Pranavaha Srothus* (channels carrying prana) originates from the heart and the alimentary tract and conduct Pranic force and vitality through the circulation system. The characteristic manifestation of the vitiation of *Pranavaha Srothus* (channels carrying prana) is too long or too restricted, aggravated, shallow or frequent breathing associated with sounds and pain. Considering *Vayu* (air) and *Anna* (food) as *Prana* (life); heart (*Hrudhaya*) which is responsible for pumping oxygenated (*Vayu-Prana*) blood throughout the body and Gastrointestinal tract (*Mahasrothus*) which is responsible for the ingestion, digestion, absorption of the food (*Anna-Prana*) can establish the *Mula* (root) of *Pranavaha Srothus* (channels carrying prana) as *Hrudhaya* (heart) and *Mahasrothus* (gastrointestinal tract). The respiratory abnormalities like too long or too restricted, aggravated, shallow or frequent breathing associated with sounds and pain etc types of problems seen in the conditions like various respiratory and cardiac related disorders. In malnutrition (leading to *Kshaya-Pranavaha Sroto Dusti Nidana*) and malabsorption (vitiating of *Mahasrothus*) cases also support in establishing that *Hrudhaya* (heart) and *Mahasrothus* (gastrointestinal tract) as the *Mulasthan* (root) of *Pranavaha Srothus* (channels carrying prana). Similarly *Srotomula* (root of channels) of each and every *Srothus* (body channels) should be analyzed along with its *Mula* (root).

Keywords: *Srothus, Pranavaha srothus, Hrudhaya, Mahasrothus*

INTRODUCTION

The concept of *Srothus* (body channels) is being widely described in the text of *Bruhat Trayi* in different context. The approach of *Charaka* and *Sushruta* towards *Srothus* is

different. *Acharya Charaka* has a Pathophysiological concept while *Acharya Sushruta* shares an anatomopathological concept in understanding the same.

The detailed description about *Srothus* (body channels) is present in all the fundamental texts of *Ayurveda*. The anatomical,

physiological as well as pathological concepts about *Srothus* (body channels) are broadly mentioned in *Ayurveda Samhitas*. *Charak* has described many facts about *Srothus* (body channels) in meaning the structure through which the *Srawanam Kriya* (function of transportation) takes place¹.

Sushrutha has described very well about the number kinds and functions of *Srothus* (body channels) in context of *Srotoviddha Laxanas* (symptoms of injury).as may have been inflicted on their *Moolas*(roots). Probably the mode of approach in this case is surgical in nature .He has mentioned eleven pairs of *Srothus* (body channels). *Sushruta* has also mentioned distinguishing features of *Srothus* (body channels) from *Sira* (vein) and *Dhamanies* (arteries)².

Acharya Charak has described the exact nature of the functions performed by *Srothus* (body channels) he has defined *Srothus*(body channels) as *Srawanat Srotamsi* meaning the structure through which the *Srawanam* (transportation) takes place. Further *Charak* has defined *Srothus* (body channels) as transporting passage of *Dhatu* (body tissue) undergoing transformation³

The term *Srothus* (body channels) means channel, it is derived from the Sanskrit root “*Sru Srawane*” meaning to exudates, to ooze, to filter and to permeate.

Charak observes “*Srotamsi* “serves as *Ayan Mukhas* to both the *Malakhya* and *Rasadakhya Dhatu*. The nourishment the different *Sthai Dhatu* (nourished dhatu) in adequate quantity is because of these *Srothus* (body channels). In the term *Ayanmukhani* and *Mala Prasadkhyanam Dhatunam*, the term former is composed of two words viz. *Ayan* and *Mukhani*. *Ayan* is derived from the root “*Vangatou*” meaning to go or to move

through which movement of materials take place.⁴

Acharya Charak’s definition of *Srothus* as “*Srawanat Srotamsi*” is also similar *Chakrapani Dutta*, in his commentary on the passage under reference, has interpreted the term *Ayanani* as the place of entry. The reference here is to the functions of *Srotamsi*, which in his view, serve twofold purposes viz. serve as conduits through which both *Prasada Dhatu*(nutrient) as well as *Mala Dhatu*(waste products and products of degradation) are transported. In other words, the channels of transport, entry and exit of both the *Poshak Dhatu* and *Malas* are not distinct. Different entities, that is to say, the channels, which serve as vehicles of transport of both *Prasad* and *Mala dhatu*, also serve the purpose of their egress and ingress. *Chakrapani* has made a different mention of the specificity of *Srotamsi*. He observes “*Srotamsi*” do not transport *Sthaye Dhatu* but only the *Dhatu* which are undergoing metabolic transformation.the *dhatu*, which are formed consecutively form the *Poshak Dhatu*, are the *Sthayi Dhatu*. The nutrient material of a particular *Dhatu* does not nourish it through a *Srothus* (body channels) other than its own, because of the location of *Poshya Dhatu* (nourishing dhatu), in different parts of the body.⁵

MORPHOLOGY AND STRUCTURE OF SROTHUS

Charak says that each *Srothus*(body channels) has colour similar to that *Dhatu* (body tissue) which is transported through it. *Srothus* (body channels) may be *Vritta* (cylindrical or tubular).*Sthula* or *Anu*, *Dirgha* (large),or *Pratan* (reticulated) in shape.⁶ *Acharya Vaghbhatta* also shares the same opinion.⁷ According to *Sushrut*, *Khani*

(pores) are found in the walls of *Dhamanies* (artery). Very much like the minute passages present in a stem of lotus through which they supply *Rasa* to all parts of the body.⁸

Vagbhatta has the same idea but he uses the term *Dwar* instead of *Khani* (pores). *Sushruta* has further cited that *Pratan* (reticulation) of *Srothus* (body channels) are found in *Mamsadhara Kala* (muscle tissue).⁹ He has further described that *Srothuses* (body channels) are channels, which have their origin in *khadantaram* i.e. an organ cavity, The *Hridaya* for example and spread throughout the body transporting *Rasadi Dhatus* (*Poshak Dhatus*). *Sushrut* excludes *Sira* (veins) and *Dhamani* (arteries) from *Srothus* (body channels) On the basis of external features *Srothus* (body channels) are limited in number, but if they are counted separately on the basis of their number then invisible *Srothus* (body channels) cannot be numerated like *Pranavaha*, *Mamsavaha* etc. *Srothuses* (body channels) are innumerable. In *Ayurvedic* classics, it is accepted that *Purush* (human) is a group of *Srothus* (body channels), but the only principle behind it that *Srothus* (body channels) are innumerable.

TYPES OF SROTHUS

According to *Charaka Samhitha*

Srothus (body channels) has the types as many as corporeal entities. Without *Srothus* (body channels) there is no existence of any corporeal entity. A human body is the aggravation of *Srothus* (body channels) because of their perderves and diffusiveness of the agents, which aggravate and pacify all *Dosas* (body humors). This is not the reason that which *Srothus* (body channels) belong to which they carry, nourish and where they are situated, all this is different from the *Srothus* (body channels) themselves. Others

state that *Srothus* (body channels) are innumerable because they are many in number where as some person's say that *Srothus* (body channels) are numerable.¹⁰

According to *Sushruta Samhitha*

Srothus respectively conveying the *Prana* (life), *Anna* (food), *Udaka* (liquid), *Rasa* (lymph), *Rakta* (blood), *Mamsa* (muscle), *Meda* (adipose tissue), *Purisha* (feces), *Shukra* (semen) and *Artava* (menstrual blood) naturally fall within the scope of *Shalya Tantra* (surgery). Many authorities assert that the *Srothus* (body channels) are innumerable and perform different functions in their different aspects.

According to *Astanga Samgraha*

Srothus are innumerable. *Acharya* further mentioned that *Purusha* (male) has nine *Bahirmukha Srothus*: two in eyes, nose and ears, one in mouth, in rectum, and in urethra. *Stree* (female) has three more *Srothus* (body channels) two in breasts and one in vagina. Other *Srothus* (body channels) is the place of life, which is thirteen in number i.e. *Prana* (life), *Udaka* (liquid), *Anna* (food), *Dhatu* (body tissue), and *Malas* (metabolic byproducts) carrying passage.

According to *Astanga Hridaya*

Astanga Hridaya gives the similar description as that of *Astanga Samgraha*.

Sroto Dushti Karanas, Lakshanas & treatment explained Charaka Samhitha

Pranavaha Srothus (channels carrying prana) get vitiated by fasting, suppression of natural urges, indulgence in ununctuous things, performance of exercise while hungry and such other harmful regimens. Increase or obstruction of flow of contents of the channels appearance of nodules in the channels and diversion of flow of contents to impro-

per channels- these are in general signs (results) of vitiation of channels. Therapies for the treatment of vitiation of Prana, are same as that of *Swasakriya*.¹¹

Sroto Viddha Laxanas explained by Sushruta Samhitha

Pranavaha Srothus (channels carrying prana) when injured symptoms such as crying with pain, bending of the body, delusion, loss of consciousness, giddiness and tremors or death manifest.¹²

Srotho Dushti explained by Charaka

The characteristic manifestations of vitiation of the channels are too long too restricted, aggravated, shallow or frequent respirations associated with sound and pain.

Pranavaha Srothus

Hridaya (heart) and *Maha Srothus* (gastrointestinal tract) are the sites of origin of the channels carrying *Pranavayu* (oxygen).¹³ Channels of passage of *Prana Vayu* are two their *Moolasthanas* are *Hridaya* and *Rasavahini Dhamani*. The characteristic manifestations of the vitiation of *Pranavaha Srothus* (channels carrying prana) are too long or too restricted, aggravated, shallow or frequent breathing associated with sounds and pain. Suppression of urges, indulgence in unctuous things, performance of exercise while hungry and such other harmful regimens which affect other *Srothus* (body channels) may lead to the vitiation of *Pranavaha Srothus* (channels carrying prana).¹⁴

Structural and functional aspects

The root of *Pranavaha Srothus* (channels carrying prana) is considered as the *Hrudhaya* (heart) and *Annavaha Srothus* (gastrointestinal tract). It means heart and gastrointestinal tract are the roots for the *Pranavahana*. In this context we can consider *Prana* as *Vayu*, even can consider *Prana* as *Anna*.

When *Vayu* resides in the body it is called as *Jeevana* and the exit of *Vayu* from the body is called as *Marana*. Hence *Vayu* is responsible all the *Karma* (function) taking place in the body and the *Chetana Anuvritti* is also is because of *Vayu*. *Hrudhaya* (heart) is an organ in which *Vyana Vata* is situated and it moves throughout the body and is responsible for all the *Karmas* (functions) in the body.

Anna (food) is considered as the *Prana* for *Prani* (living beings). *Mahasrothus* (gastrointestinal tract) is the one through which *Anna* (food) is ingested, digested, absorbed and waste products eliminated out. Hence for *Dhatu Poshana* (nourishment) by this *Anna* (*Prana*) *Mahasrothus* (gastrointestinal tract) is an important entity in which digestion and absorption takes place and *Dhatu poshana* (nourishment) is achieved in turn the *Chetana Anuvritti*. For the continuity of life *Vayu* and *Anna* are two important entities and the *Vahana* (transportation) of these entities starts from the *Hrudhaya* (heart) and *Mahasrothus* (gastrointestinal tract).

Pathological aspects¹⁵

In respiratory disorders like *Tamaka Swasa* (bronchial ashtama) etc the major symptom observed is the variation in the pattern of breathing. In malabsorption and malnutrition conditions also we can see various problems related to pattern of breathing.

Various abnormalities related to breathing pattern are: *Dyspnea* - Difficult or labored breathing, normally requiring considerable exertion by the patient. *Apnea* - Temporary cessation of Breathing. A period of apnea may last for 30-60 seconds. *Tachypnea* - Quick, shallow breathing. *Bradypnea* - Abnormally slow breathing. *Hypoventilation* - A state in which there is a reduced amount

of air entering the pulmonary alveoli. Hyperventilation- A state in which there is an increased amount of air entering the pulmonary alveoli. Stertorous Respiration- Breathing accompanied by abnormal snoring sounds. Cheyne Stokes Respiration- An irregular rhythmic breathing pattern that begins with slow, shallow respirations that increase in rate and depth and then gradually decline again. A period of apnea lasting 10-60 seconds follows, and the pattern then repeats itself. All these abnormalities are seen in various kinds of respiratory diseases and heart related diseases.

Malabsorption is a state arising from abnormality in absorption of food nutrients across the gastrointestinal tract. Weight loss can be significant despite increased oral intake of nutrients. Growth retardation, failure to thrive, delayed puberty in children, swelling or edema from loss of protein, anemia commonly from vitamin B12, folic acid and iron deficiency presenting as fatigue and weakness, muscle cramp from decreased vitamin D, calcium absorption also lead to osteomalacia and osteoporosis, bleeding tendencies from vitamin K and other coagulation factor deficiencies. Among these anemia is an most prominently seen. People with anemia suffer from feeling of weakness, or fatigue, general malaise, and sometimes poor concentration. They may also report dyspnea (shortness of breath) on exertion. In very severe anemia, the body may compensate for the lack of oxygen carrying capability of the blood by increasing cardiac output. The patient may have symptoms related to this, such as palpitations, angina (if pre-existing heart disease is present), intermittent claudication of the legs, and symptoms of heart failure. In severe anemia, there may be signs of a hyperdynamic circulation:

tachycardia (a fast heart rate), bounding pulse, flow murmurs, and cardiac ventricular hypertrophy (enlargement). There may be signs of heart failure.

Malnutrition is a medical condition caused by an improper or insufficient diet. There are various symptoms seen in this condition, regarding to cardio respiratory system Bradycardia, hypotension, reduced cardiac output, difficulty in breathing can be seen.

Malabsorption can be considered as the vitiation in the *Mahasrothus* and Malnutrition is an condition where the *Dhatu* are not getting proper *Poshana* leading to *Kshaya* which is the *Nidana* for *Pranavaha Sroto Dusti* and hence the respiratory abnormalities like too long or too restricted, aggravated, shallow or frequent breathing associated with sounds and pain etc types of Problems can be seen depending on the condition and cause.

CONCLUSION

Pranavaha Sroto Mula (root of pranavaha srothus) is *Hrudhaya* (heart) and *Mahasrothus* (gastrointestinal tract). *Prana* in this context can be considered as the *Vayu* (air) and *Anna* (food). *Vayu* is *sarvadehachara* (moves throughout the body) and is responsible for all the functions especially the *Vyana Vata* which is mainly situated in the *Hrudhaya* (heart) and moves throughout the body and is responsible for all the functions. *Ahara* (food) is responsible for the formation of *Dosha* (body humors), nutrition to *Dhatu* (body tissue) and formation of the *Ma-la* (metabolic byproducts).

Hence *Vayu* (air) and *Ahara* (food) are the two primary entities which are responsible for *Prana*. *Pranavaha Srothus* (channels carrying prana) can be considered as the main entity responsible for sustenance and continuity of life.

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