

Concept of Srotas with Special Prominence of Pranavaha Srotas: A Review

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ABSTRACT

Srotamsi is defined as the passages through which the various Dhatus (tissues) that are undergoing the process of metabolic transformation are transported. ¹In Ayurvedic classics, the term Srotas is used as a dynamic inner transport system of body-mind-spirit organization in addition to the circulatory system. Srotas are the channel or structure through which Sravanam karma i.e., flowing, moving, oozing and permeation of different constituents and nutrients of the body takes place. There are many numbers and types of Srotas mentioned by different Acharyas. Acharya Charaka had explained Srotas as a medicinal view while Acharya Sushrut had explained Srotas according to surgical aspect. According to Acharya Caraka, it is to be noted that Srotamsi is structurally similar to their corresponding tissues. They are of different shapes, such as circular, elongated and reticular.² According to Acharya Susruta, those channels which originate in hollow organs, spread throughout the body, and purvey materials - are to be understood as Srotamsi ³ But Pranavaha Srotas is the first & important Srotas, which carry Prana all over the body. It is related to the heart, lungs, and other structures like the pulmonary artery and pulmonary vein, which have been explained as vital air inhaled and also the vital energy of the body responsible for each and every activity of a living being.

Keywords: Srotas, Prana, Pranavaha srotas, Udakavaha srotas, Respiratory System

INTRODUCTION

The Prana Vayu is an utterly essential component of the Pranavaha srotas. It is said that 'stroto aium purusha' which means the human body is made up of so many srotas, but for clarification and understanding various functions of srotas are mentioned by Acharya Sushruta and Acharya Charaka.

Understanding Prana and Pranavaha Srotas:

In the textbooks, the term 'Prana' has been used in different contexts such as ten locations of Prana ⁴ and twelve types of Prana.⁵

'Prana' also means breathe as it has been described as an attribute of Atma. ⁶ It is also a subtype of Vayu. ⁷ In the context of Marma too, the term Prana has been used to describe the vital force situated at a specific site.⁸ The Prana has also been used as a synonym of Vayu.⁹ In the context of Pranavaha Srotas, Acharya Cakrapani gives the following explanation: Pranavaha Srotas stands for that Srotas which transports a specific subtype of Vayu, called 'Prana Vayu'.¹⁰ It is actually based on this subtype of Vayu that the Pranavaha Srotas has derived its name. Thus, the knowledge of Prana Vayu will give insights related to Pranavaha Srotas.¹¹

Functions of Prana Vayu:

It is situated in the head. Other active sites of Prana Vayu are the chest and throat. It controls and regulates intellectual functions, sensory and motor activities, cardiovascular functions, mental processes, and activities such as spitting, belching, respiration, and deglutition.¹² Therefore, 'Pranavaha Srotas' stands for the system concerned with the activities of Prana Vayu. The Head is the region where all Prana's are situated and all the sensory and motor activities are controlled from. That is why the head is called the most superior (important) organ of the body.¹³ All sensory organs along with their Pranavaha Srotamsi are basically situated in the head region in a fashion similar to the connection between the Sun-rays and the Sun.¹⁴

Respiratory Physiology in Ayurveda:

A detailed explanation of respiratory physiology is not found in most of the classical textbooks of Ayurveda, however, some verses explaining the fundamental understandings of the subject are found scattered here and there. Sarngadhara Samhita is one such textbook where some explicit explanation of the process of respiration has appeared in clear terms for the first time. Acharya Sarngadhara has explained that the Prana Vayu situated at Nabhi (umbilicus), after reaching the proximity of the Heart, comes out through the throat to consume a nectar-like substance called Visnupadamrta that is dispersed in the atmosphere. After consuming this nectar of atmosphere, it re-enters the body speedily and thereafter, nourishes the whole body, Jiva, and also Jatharagni.¹⁵ The location of Prana Vayu

has been explained as Murdha (head) by earlier authors such as Acharya Caraka and Acharya Vagbhata. Acharya Adhamalla, while commenting on the above verse has explained that the Prana Vayu is located in the entire body because Nabhi is surrounded by the blood vessels known as Sirah and through these vessels, Prana moves everywhere.¹⁶ Jiva is a synonym for Rakta.¹⁷ This is the reason why 'Jivana' (to deliver Jiva) is the primary function of Rakta.¹⁸ Therefore, the explanation above describes the process of consumption of a vital entity distributed in the external atmosphere for the purpose of nourishment of blood and other tissues through the act of respiration. Further, a few scholars have described that the attributes of 'external Prana' are similar to those of 'internal Prana'. This is further supportive of the physiology of respiration.¹⁹

Pranavaha Srotodusti (Pathological Manifestations in Pranavaha Srotas):

The following symptoms have been recorded to be associated with the pathological status of Pranavaha Srotas: abnormally rapid breathing reduced breathing rate, abnormal breathing pattern, abnormally shallow breathing, abnormally deep breathing, and breathing associated with abnormal sounds, and, painful breathing.²⁰ It may be noted that all these symptoms are indicative of an abnormal rate or rhythm of respiration.

Physiological Concepts of Respiratory Systems Along with the Connecting References from the Relevant Ayurveda Literature.

Physiological System	Parallels in Ayurveda	Explanation
Respiratory System	Pranavaha srotas and Udakavaha srotas	The physiology of the respiratory system has been described in Ayurveda under two different Srotamsi: Udakavaha Srotas and Pranavaha Srotas. The Mula of Udakavaha Srotamsi is 'Kloma' ²¹ which is an organ situated on the right side of the heart. Todarmalla, in his commentary on Ashtanga Hridaya, has stated that Kloma is equivalent to Phupphusa (Lung). ²² The role of the lungs in the maintenance of water and electrolyte balance is very crucial. They form an important route for water output from the body and based on this function, the term Udakavaha Srotas becomes relevant to indicate lungs. Features like dryness in the oral cavity, throat, and lower respiratory tract have been described as being produced in the pathological involvement of Udakavaha Srotas. Thus, Udakavaha srotas are responsible for the chemical regulation of respiration through water homeostasis and acid-base balance, whereas, Pranavaha srotas are responsible for the neuronal control of respiration along with the gaseous exchange.

DISCUSSION AND CONCLUSION

It may be concluded from the above discussion that the concept of Srotas, in all its different contextual meanings, is still relevant in the present scenario of biomedical advances and might give further insights into the physiological understandings, if revisited. In the context of respiratory physiology, it can be said that the neuronal control of respiration (its rate and rhythm) falls under the purview of Pranavayu and Pranavaha Srotas whereas the chemical control of respiration, acid-base balance, and, water and electrolyte balance - fall under the purview of Udakavaha Srotas.

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