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## **ANATOMICAL CONSIDERATIONS ON SIRA IN AYURVEDA WITH SPECIAL REFERENCE TO SUSHRUTASAMHITA: A REVIEW**

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### **Abstract**

The Sushrutasamhita is one of the three great treatises (Brihatrayi) of Ayurveda representing mainly the school of surgery. Sushrutasamhita as the best one in Sharira. Sushruta has clarified the details such as distinction among sira, dhamani and srotas. The termsira, in one place reflects a meaning of blood vessels while at other place, it means nerve. In such condition it is very difficult to know doubtlessly about it like Modern Anatomy. Therefore, it requires great research work to get a clear concept. Aims and objectives- 1) To search and find out the references in relation to sira in Sushrutasamhita. 2) To understand the concept of sira in Sushrutasamhita and correlate with Modern Anatomy. Methods: - Ancient Ayurvedic classics were consulted and compiled references out of them for said subject to elaborate as well as to understand the process of sira in Sushrutasamhita. Important observations: - Scattered references are available in Sushrutasamhita and Modern Anatomy texts regarding sira.

**Key words:** *Sira, Dhamani, Artery, Vein, Sushruta, Srotas*

## Introduction

The *Sushrutasamhita* is one of the three great treatises (*Brhatrayi*) of *Ayurveda* representing mainly the school of surgery. *Sushrutasamhita* is the best one in *Sharira* (*śārire Sushrutaḥśreṣṭhaḥ*). Anatomy being the basis of surgery probably it was necessary for *Sushruta* to deal anatomical details before preparing for surgery. It is also possible that the knowledge of Anatomy got more advanced during the period of *Sushruta*.

Anatomy was derived from the dissection of animals during sacrifices. In *Brahmanas* and *Kalpasutras*, we find names of a number of organs which are similar in human body. *Sushruta* was the first scholar scientist who described the method of the dissection of human cadaver and emphasised on the importance of dissection in study of Anatomy (1). Though it was also crude it may be taken as a historical landmark in the development of Anatomy in India and a clear step of advancement in the knowledge of Anatomy. That's why he is regarded as the father of Anatomy and the *Sushrutasamhita* as the best one in *Sharira*. Dr.B.G.Ghanekar says *Sharira* of his is the best and not lost, but it is only difficult to interpret.

“*Sira Shariram*” and “*Sira vedhyavidhiShariram*” are specifically unique. But the term *sira*, in one place reflects a meaning of blood vessels while at other place, it means nerve. In such condition it is very difficult to know doubtlessly about it like Modern Anatomy.

### Aims and objectives-

- 1) To search and find out the references in relation to *sira* in *Sushrutasamhita*.
- 2) To understand the concept of *sira* in *Sushrutasamhita* and correlate with Modern Anatomy.

### **Materials and Methods:**

The Literary material related to sira has been collected from Different sthans (parts) of Sushrutasamhita and Modern Anatomy books like Chaurasia General Anatomy, Gray's Anatomy etc. critically reviewed and correlated with modern terms.

### **Discussion:**

It is said that the word sira derived from the Vedic term hira. The term hira is described as blood carrying channel towards the heart (2). Ayurvedic acharyas has used an anatomical term sira, which is one of the controversial term (structure). It is used to represents tubular structure, to carry material such as Rasa & Rakta and it is one of the synonyms of srotas (3). Sushruta has clarified the details such as distinction among sira, dhamani and srotas. In 9th chapter of Sharirasthana "Dhamani Shariram Vyakaranam" Sushruta speaks more clearly, he says that "some says that there is no difference among sira, dhamini and srotas, as dhamini and srotas are only siravikara. This is not correct. Dhamini and srotas are the entities other than sira." (4)

Sushruta has given the 4 reasons for differentiation of these three structures. These are (5)

1) Vyanjanayatvat (different features) –

By difference in features sira are of various colours like crimson red, white, blue and red. Whereas there is no such differentiation in dhaminis and Srotas.

2) Mulasanniyamat (originating point) –

By originating point original sira are

40, whereas dhamanis and srotas are 24 and 22 respectively.

3) Karmavisesyat (specific functions) – By specific functions sira by their contractility and dilatory property, supply nutrition to the body. Dhamanis

carry sensation of sound, vision, taste, smell etc., while Srotas carry air, water, food, rasa etc.

4) Agamcca (scriptural authority) –By scriptural authority, treatises of Ayurveda have mentioned sira, dhamani and srotas separately at many places. Hence dhamani and srotas are different from sira.

These structures look similar because (6)

1. Parasparasannikarshata (mutual proximity) –Sira, dhamani and srotas are lies very close in the body. Veins and arteries along with their branches are found side by side closely, in all the parts of the body.

2. Sadhrusyagama (similar authority)- Due to the transport of the rasa, there is no distinct difference between sira, dhamani and srotas. In Ayurveda, these three terms are used for each other inter changeable. Veins and arteries are identical because all these are hollow tubes.

3. Sadhrusya karma (similar function) – Common function of these three structures are transport of doshas and dhatus. Along with functional similarity, there is also some anatomical similarity. All these three structures are elements of akash (ether).

4. Sukshamat (minuteness) –Due to its minute nature the differentiation is difficult.

### **Sira Marma:**

The word Marma has been used in the classical as well as non-classical books. It is as old word as Vedas. It seems that Acharyas have described the regional anatomy in relation to surface anatomy of Marma. The word Marma means vital spot in the body. According to Dalhana, the commentator of Sushrutasamhita, Marma is that spot where if any injury or trauma is made, causes death(17). According to Sushruta Marma is the vital spot in the body where confluence of mans (muscles), sira (blood vessels), snayu (ligaments), asthi

(bones) and sandhi (joints) present. In these places prana resides specially by nature, therefore any trauma on any one of these Marmas invariably causes death (18). Total numbers of Marmas are 107. According to structure he was classified Marmas into 5 types. In this one variety is Sira Marma, these are 41. These are-

Niladhamani-4

Matrika-8

Srngataka-4

Apanga-2

Sthapani-1

Phana-2

Stanamula-2

Apalapa-2

Apastambha-2

Hridaya-1

Nabhi-1

Parsvasandhi-2

Brhati-2

Lohitaksha-4

Urvi-4

The main symptoms of Marma injuries are bleeding and unconscious. In this context Sushruta said that – “there are four types of siras in the body. They generally lie in the site of Marmas and supply nutrition to snayu (ligaments), asthi (bones), mans (muscles), and thus maintain the body. When Marmas are injured the vayu is increased and encircles the siras, it causes severe pain. Because of this, pain consciousness is gradually lost” (19). Here sira is the structure that gives nutrition to the body and maintains the body. Same point is noted in Modern science every structure in the body receives blood supply for nutrition and nerve supply for motor and sensory functions.

Every structure is supplied by neurovascular bundle; it contains artery, vein and nerve. In siramarma concept all these structures are considered under the term of sira.

### **Conclusion:**

The term Sira stands for channels through which substances or physical forces flow. In general, this term stands for blood vessels, even though Sushruta has also used it in the sense of nerves (vatavahasiras). In modern Anatomy the VatavahaSiras can be put under the arteries and nerves. The PittavahaSiras can be accepted as veins and KaphavahaSiras can be considered as lymphatic channels and RaktavahaSiras are correlated with capillaries of the body. Modern correlation of four types of siras -

In Vatavahasiras seeing the colour arunavarna

(crimson red) and character filled with vayu (pulsation) denotes that in Modern Anatomy these two are characters of artery. If see the function maintaining the intellect and sense organs suggests that in Modern science these functions are generally performed by nervous system.

In Pittavahasiras seeing the colour neela varna (blue), it suggests that in Modern science veins are blue in colour because these carry deoxygenated blood.

In Ayurvedic classics the nervous system has not been described but the functions of the nervous system have been described through the blood vessels. The vayu which circulates in the blood vessels has been held responsible for performing the functions of nervous system. So it seems that Sushruta includes the nervous network in the vascular system. So the word Sira is correlated with the blood vessels and lymphatics is not farfetched and fanciful.

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