



**A REVIEW ON CO-RELATION OF LASIKA TANTRA IN AYURVEDA AND
LYMPHATIC SYSTEM IN MODERN ANATOMY**

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ABSTRACT

Ayurveda, is the ancient science which deals with diseases not only upto its treatment but deals with its root causes and treatment of that particular causative factor. Priorly *Ayurveda* science was somewhat ignored by people not communicated properly since a few centuries. An extensive description about *Lasika* is available in *Ayurvedic* literature but the correlative interpretation and applied aspect of *Lasika* with latest up to date modern parameters is not available. The advancing age of information technology demands the classical ancient *Ayurveda* to be communicated, interpreted and correlated in term of existing knowledge for international debate. Modern Anatomy describes circulatory fluids are two types' viz-blood and lymph. *Rasa* word is meant for digested part of food or *Aahar rasa*. In this *Saumya aahar rasa* is one part of *Aahar rasa*, which concerned to the *Lasika*. This *Rasa/ Lasika* circulated through *Kaphavaha Siras* and nourish the different body parts. Through this review article I am going to elaborate the concept of *Lasikatantra* in *Ayurveda* and in comparison with lymphatic system in modern anatomy through various aspects.

KEYWORDS: *Rasa, Lasika, Kapha, Lymph, Lymph Vessel, lasika tantra, lymphatic system.*

INTRODUCTION

In *Ayurveda* lymph is considered as *Lasika* and lymph carrying vessels are called *Lasika vahini* or *Rasayani* or *Rasavahini*^[6] The *Saumya rasa* is considered as *lasika*. According to *Vagbhata* in *Ashtanga Hrudayam* the channels attached to *Hrudaya* and they carry *Oja* along with *Rasa* within the body are called *Sira*.^[4,16] Acharya *Sushruta* has classified the *Siras* into four types i.e *Vatavaha, Pittavaha, Kaphavaha* and *Raktavaha Siras*^[2] In this *Kaphavaha Siras* are normally carries the *Lasika*. Modern science also accepted this lymph is the circulating fluid other than blood, which is carried by lymphatic vessels. The present article aims to elaborate the concept of *Lasika* in *Ayurveda* and in comparison with modern anatomy in various aspects.

REVIEW OF LITERATURE

Ayurveda views

According to *Ayurveda Lasika* is defined as "*Lasatiti Lasika*". Etymology meaning of 'Lasati' the derivative of word *Lasika* is a viscous substance^[7] Elsewhere some other *Acharyas* have mentioned it as saliva. As mentioned: "*Lalayam Piccilakhyata Lasika Lasika Tatha*". Some *Acharyas* considered that the viscous transparent discharge released from the skin in case of abrasions due to injury to the skin is called *Lasika*.^[11] As

we know that epidermis does not contain blood vessels and it is nourished by the lymph. Further, the *Lasika* is defined as the fluid flowing out from the fomented *Mamsa* by the effect of *Pitta*.^[3]

Some *Acharyas* have mentioned it as *Rakta-Rasa* while others call it by different names as *Lasika, Jala, Ambu* etc.^[5] Some *Acharyas* described it as *Updhatu* of *Rasa* whether some call it as *Mala* of *Rasa*.^[10]

Acharya Caraka has mentioned it in *Dushyas* of *Kusta* as "*Tvak Mamsa Sonita Lasika*"-*Lasika* is the liquid and is found in between *Mamsa* and *Tvak*. In the context of *Hastimeha* he said that the *Vata* carries *Lasika* into the *Mutrasaya*.^[8]

While discussing *Rasa dhatu* in *Ayurveda*, it is called "*Rasatiti Rasaha*". Which means *Rasa* is a substance, which circulates entire time in the body. This mobility of *Rasa dhatu* is responsible for the nourishment, growth, maturity and proper functioning of *Sharira*.^[9] Therefore there is no doubt that how important is *Rasa* for the human body or *Sharira*.

According to *Sushruta Kaphavaha Siras* are *Gaurya* (white), *Sita* (cold) and *Sthira* (stable) and functions of

these *Siras* are lubrication of the body, stability/strength of the joints, increasing strength of the body and such other activities, when aggravated, *Kapha* accumulates in its own *Sira*, then many diseases of *Kapha* origin develop in the body.^[14]

Acharya Vagbhata has described that those which are white in colour (*Gaurya*), smooth (*Snigdha*), stable (*Sthira*) and cold to touch are carrying blood mixed with *Kapha*.^[11]

Modern views

LYMPHATIC SYSTEM

The lymphatic system is a closed system of lymph channels or lymph vessels, through which lymph flows. It is parallel to venous system and allows the lymph flow from tissue spaces toward the blood. The lymphatic system contributes to homeostasis by draining interstitial fluid as well as providing the mechanisms for defense against disease.^[13]

The lymphatic system consists of a fluid called lymph, vessels called lymphatic vessels that transport the lymph, a number of structures and organs containing lymphatic tissue, and red bone marrow, where stem cells develop into the various types of blood cells, including lymphocytes. It assists in circulating body fluids and helps defend the body against disease-causing agents.^[14]

DISCUSSION

After the process of digestion, the ingested food is transformed into two types of *Rasas*:

1. *Agneya rasa*
2. *Saumya rasa*.

Here *Rasa* word is meant for digested part of food or *Aahar rasa*.^[9] Out of these two types of *Aahar Rasas* one is concerned to the lymphatic system.

* *Agneya Rasa*

This *Rasa* is formed after the digestion of the portion of ingested food which includes *Agni Mahabhuta*.^[19] This may be understood as the protein portion in the ingested food. This *Rasa* is also absorbed by the intestinal villi but this time the absorbents are the venous capillaries. These venous capillaries eventually end up in the portal vein and afterwards this *Rasa* is moved to the liver and then to cardio-vascular system onwards for the circulation to the whole body.

*. *Saumya Rasa*

This *Rasa* is formed after the digestion of the portion of ingested food which includes *Jala & Prthivi Mahabhuta*. This may be understood to be the fat portion in the ingested food. This digested material is named as chyle. This is milky whitish in colour and is absorbed by the lymphatics or *Rasayani* present in the intestinal villi. Being milky in colour these lymphatics are also called as lacteals or *Payasvinis*. This is further carried to the cisterna chyli or *Rasaprapa* and then ultimately is carried by the left lymphatic duct i.e. thoracic duct (*Rasakulya*)

to the cardio-vascular system through subclavian vein onwards for the circulation to the whole body.^[15]

**Rasayani*

Rasayani means *Rasa + Ayani*. *Rasa* or lymph is meant for the fluid carried away to the cardio-vascular system through an alternative channel from the cellular level and *Ayani* or lymphatic vessel means the channels which transport that fluid to the cardiovascular system.

Acharya Sushruta in *Sharirasthana* 5th and 9th chapters described the *Rasavahini* in the context of *Srotas*, as they are the roots of *Srotas*.^[17] *Acharya Charaka* has considered *Rasayani* and *Rasavahini* as synonyms of *Srotas*.^[20]

The portion of plasma which becomes the tissue fluid can be called "*Aap dhatu*" of the body, lymph which is formed from the tissue fluid can be called as *Lasika* and the lymphatics and *Lasika vahini* and the entire lymphatic system as *Lasika jaala*. The terms *Rasayani* and *Rasavahini* mentioned in *Ayurveda* texts may be used to denote the thoracic duct and right lymphatic ducts strictly.^[22]

Here plasma (including the interstitial fluid and lymph) would appear to be the analogue of the *Rasa Dhatu* described in *Ayurveda*. It is seen from *Sushruta Samhita* that the term *Rasa* is derived from the *Sanskrit* root '*Rasa*' -to go, and, the *Rasa dhatu* of the body is so called, because of the fact that, it continuously flows through and permeates every vital principle of an animated organism. In addition, it is the *Rasa dhatu*, the analogue of plasma, which is the source of all body secretions.^[23]

Some *Ayurveda* authors in present era has considered *Kaphavaha Siras* can be lymphatic channels of the body. *Kaphavaha Siras* are white in colour and carries *Kapha* along with *Rakta*.

In the body lymphatics are lymph carrying channels. Lymph is clear fluid. These vessels are white in colour. If consider the colour of lymphatics are similar structures of *Kaphavaha Siras*. Other qualities like *Snigdha* and *Sthira* also suggests the same. Lymphatics are parallel structures to the veins and structure of these vessels is similar to veins. The functions of these *Siras* are carried by *Kapha*.^[24]

The *Sthana* of *Tarpaka Kapha* is *Siras*. The *Karma* of this *Kapha* is by virtue of *Snehana* and *Tarpana* qualities nourish and soothes the *Indriyas*.^[25] *Dalhana* stated that "*Sneha* is *Mastaka Majja* and *Tarpaka Kapha*, by nourishing these structures enables the *Indriyas* to perform their specific functions". The *Indriyas* are the sense organs.

The fluid system present in the *Siras* and nearest analogue to *Tarpaka Kapha* is the cerebrospinal fluid

(CSF). CSF is produced by choroid plexuses of ventricles of the brain. The CSF acts as a medium through which the nourishing materials and metabolites pass into the nerve cell and out of them. The blood-brain barrier protects the brain from the noxious irritants, by probably maintaining the consistency of the environment of the neurons. The supportive and defence function of the CSF will definitely facilitate the normal functioning of the brain and the sensory perception through the respective sense organs.^[21]

On the basis of the above explanation Rasayanis are the modes of transport. Somewhere it is named as *Sira* and elsewhere as *Dhamani*. Somewhere it is called as *Srotas* & again elsewhere it is called as *Rasavahini*, *Nadi* or *Marg*. Similarly, *Rasayani* word is also used as a mode of transport which carries the lymph or *Rasa*. It carries two types of *Rasa*. One which is absorbed from the intestinal villi i.e. chyle and on the other hand this carries the watery substance which is derived from the cellular level as an alternative channel of impure blood towards the heart. Here it is correlated with modern system of medicine that *Rasa* is meant as plasma/lymph and *Rasa vahini* is meant as lymphatics.

CONCLUSION

1. According to *Ayurveda Ahara rasa* i.e. as per modern science end product of metabolism is of two types i.e. *Saumya rasa* and *Agneya rasa*.
2. The *Saumya rasa* is considered as *Lasika*. Which can be co-relate with lymphatic fluid. It is circulated in *Kaphavaha Siras* or *Rasavahini* and which gives nourishment of the *dhatu*s.
3. Here *Rasa* is meant as Plasma/lymph and *Rasavahini* or *Kaphavaha Siras* is meant as lymphatic vessels according to the modern system of medicine.
4. So we can say *lasika tantra* in *Ayurveda* and lymphatic system can be co-related for more evidences and clearance of some concepts further study should be done regarding the subject.

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