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Critical study of *Mamsadhara Kala*

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ABSTRACT

Every concept of Ayurveda has its own importance. There are many concepts mentioned in the classics are scientific and worth understanding in modern words. Among these concepts *Acharya Sushruta* mentioned *Sapta Kalas* in the body. While considering upon the *Ashaya* they had also thought of the linings making internal walls of the *Ashaya*, designating them as *Kala*. They presented it in a very silent way. Among the *Sapta Kala*, *Mamsadhara Kala* is one described by *Sushruta* and other *Acharyas*. There are 3 layers of connective tissue which extended from the deep fascia and protects and give strength to the skeletal muscle. They are epimysium, perimysium and endomysium, they may extend beyond the muscle fiber to form tendons. So by this we can understand the *Mamsadhara Kala* in gross anatomy, i.e. fascia or deep fascia and in the histological level it can be taken as Endomysium. So the collection and comprehensive review of information regarding *Mamsadhara Kala* becomes significant. Hence to unravel and accumulate the hidden scientific information about *Mamsadhara Kala*, in different resources and its structure and function on common parlance, presents intended research work has been undertaken and planned to carry out.

Key words: *Kala, Mamsadhara Kala, Muscle, Connective tissue, Epimysium.*

INTRODUCTION

The Ayurveda is science of life. It not only deals with curative aspect but it also explains about preventive and spiritual aspect. So in this science there are many theories generally related to all the above aspect. Here we are mainly dealing with the *Shareera Rachana* point of view.

Shareera Rachana is one of the fundamental science in which there are many topics explained on like *Asthi*, *Sandhi Shareera*, *Sira*, *Dhamani*, *Srotas Shareera* and totally seven number of *Kalas* have been explained by

our *Acharyas*. For the definition of *Kalas*, *Acharya Sushruta* has given beautiful example that how we get an layer by layer of tree when we take a transverse section like this the *Kala* is present in our body. Whatever the explanation is given cluster form or in nutshell form. So here we have selected *Kala Shareera* among the many topics, here an attempt is made to understand the *Kala* topic of the ancient traditional science in relation to the today's modern allied medical science, so that it can be helpful for our day today clinical practice and to the academic.

Defination of Kala

Kala are the marginal lining limit between *Dhatus* and *Ashayas*,^[1] so that the bodily components like *Rasa*, *Rakta*, *Mamsa* etc. are not been mixed with each other this is possible because of *Kala*. The skin envelopes the whole body and it protects the body from external environment. In the same way the internal structures of the body are going to be covered by the *Kala*, So that they can be protected and to carry out their respective functions.

It means a wooden block is been cut in transverse section in same way, the *Dhatu* can be seen when

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Mamsa is cut open.^[2] There are seven *Kalas* in body, they are *Mamsadhara Kala*, *Raktadhara Kala*, *Medodara Kala*, *Slesmadhara Kala*, *Purishadhara Kala*, *Pittadhara Kala* and *Sukradhara Kala*.

Mamsadhara Kala

In this very first *Kala* is *Mamsadhara Kala*, in which the network of *Sira*, *Snayu*, *Dhamani* and *Srotas* are spreaded. *Sushruta* explains, it is just like the vein lying in *Mamsadhara Kala* and is spreaded all over just like a lotus stalk situated in the muddy water and spreads in the soil.^[3]

Derivation of the word Mamsa

The word *Mamsa* is derived from root *MANGNA*, the meaning of this, to measure or which can be able to measure, it is the first *Dhatu* which becomes and get a shape and structure which can be easily measured. The formation of *Mamsa* is from *Rakta*, some portion of *Rakta* becomes solid by the effect of *Vayu*, *Teja* and *Jala*, it get a mass then it is named as *Mamsa*.

Function of Mamsa

Mamsa Dhatu nourishes and gives strength to the body. And also it nourishes the next *Dhatu* i.e. *Meda*. *Dalhana* in his commentary on *Sushruta Samhita* says that the combination of *Mamsatantu* and its parts, forms a compact mass, *Mamsa Dhatu* if these parts are get separated is called *Peshi*, *Adhara* means that which holds, keep, supports, wears, sustains and preserves etc.^[4] *Dhatu* means that which is responsible for supporting action of body, that may be *Dehya Dharana* or *Dehya Poshana*, *Ashaya* means the hollow structure in which some material takes the shelter and are named depending upon their contents or function ex; *Amashaya*, *Pakwashaya*.

Muscle

By the term muscle we understand as mouse like form (musculers, dim. L=mus meaning mouse). And the term is so applied because some muscles resembles a mouse in gross appearance and the tail of the mouse presumably corresponds to the tendon of muscle.

Membrane

Thin layer of tissue that covers the surface, lines a cavity, or divides a space or organs, are flat sheets of

pliable tissue that cover or line a part of body. The combination of an epithelial layer and an underlying connective tissue layer constitutes and epithelial mucus membrane, serous membrane and the cutaneous membrane of skin.

Connective tissue components

Connective tissue surrounds and protects muscle tissue. A fascia is a sheet or broad band of fibrous connective tissue that supports and surrounds muscles and other organs of the body. The superficial fascia (or subcutaneous layer) separates muscle from skin. It is composed of areolar connective tissue and adipose tissue provides a pathway for nerves, blood vessels and lymphatic vessels to enter and exit muscles. Deep fascia is dense irregular connective tissue that lines the body wall and limbs and holds muscles with similar functions together. Deep fascia allows free movement of muscles, carries nerves, blood vessels and lymphatic vessels and fills spaces between muscles.

Three layers of connective tissue extend from the deep fascia to further protect and strengthen skeleton muscle. The outermost layer, encircling the whole muscle, is the epimysium. The epimysium, perimysium, and endomysium all are continuous with the connective tissue that attaches skeletal muscle to other structures, such as bone or another muscle.

DISCUSSION

Acharya Sushruta has opinioned that *Kalas* are the structures in the form of linings for limitations between *Dhatu* and *Dhatwashaya* and they are seven in numbers. Further it is also been said that the anatomy of lining in the body can be understood with the form of the wood when we cut open in transverse section, in which the coverings are ring like demarcation inside the wood can be observed. So according to modern point of view membranous connective tissue can be understood, which is going to be present in between *Dhatu* and *Ashaya*.

Here *Mamsa* can be understood as a muscle, usually the skeletal muscles. So as per *Sushruta* the *Mamsadhara Kala* is the first in the series of *Kala*

Shareera and it is also said that there is presence of network of *Siras*, *Dhamani*, *Snayu* and *Srotas*, which are been spreaded. *Sushruta* has compared this description with lotus stalk situated in the muddy water gets in the soil. Here *Mamsa* is a main media to receive the nutrient from the artery system of blood and remove the metabolic waste products through venous system which is main characteristic features of living being. So according to modern point of view the connective tissue, which surrounds the muscle and protects it has to be understood as *Mamsadhara Kala*, here the fascia is a sheet or broad band of fibrous connective tissue that supports and surround the muscle. Deep fascia is tense irregular connective tissue, which allows free movements of muscles, carries nerve blood vessels, lymphatic vessels and fills the space between muscles. There are three layers of connective tissue which extended from the deep fascia and protects and give strength to the skeleton muscle. They are epimysium, perimysium and endomysium, they may extend beyond the muscle fiber to form tendons. So by this we can understand the *Mamsadhara Kala* in gross anatomy, i.e. fascia or deep fascia and in the histological level it can be taken as Endomysium.

CONCLUSION

Kalas are the specialized lining limits of the organ and the system in the body. *Kala* is generally said for the membranous connective tissue structure which holds the muscle. *Mamsadhara Kala* should be consider as an extensive specialized membrane, which facilitates the environmental suitability and to carry out muscular activities. Grossly we can understand as

fascia or the connective tissue in related to muscle and microscopically we can take it as a Endomysium.

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