

CORELATION OF MODERN PERSPECTIVE OF KALA SHARIR ACCORDING TO SAMHITAS WITH MODERN CONCEPT

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ABSTRACT

The concept of Kala is one of the unique and unexplained in the *Ayurveda*. This concept is explained by *Aacharya Sushrut* in *Sharirasthan* of *Sushrut Samhita*. There are seven *Kalas* are present inside the body situated below the skin. *Kalas* are covering between the *Dhatu* and *Aashay*. They can be recoquecnized by their structures and functions in the body. *Kalas* are one of the essential part of *Dhatu*. The specific *Kalas* are situated at specific site in the body. We can correlate the *Kala* with formative elements or cells. For better understanding of concept of *Kala* we need to study the *Ayurvedic samhitas* to conclude the *shloka*'s in proper way to clear knowledge.

KEYWORDS: *Kala, Embryology, Dhatu, Cell, Strotas.*

INTRODUCTION

|| *Kala khalwapi sapta bhawanti dhatwashayanter maryada*|| *su. Sha. 4/5* There are seven *Kalas* are present in the body and are situated at the extreme borders (forming encasement and support) of the different fundamental principles (*Dhatu*s) of the organism.^[1] *Kala* is one of the unique and unexplained concept in the *Ayurveda*. This concept is explained by *Aacharya Sushrut Sharirasthan* of *Sushrut Samhita*.

As the duramen or core of a piece of wood or stem becomes exposed to view by cutting into it, so the root principles (*Dhatu*s) of the body may be seen by removing the successivelayers

or tissues of its flesh. These Kalas are extensively supplied with *Snayus* (fibrous tissue) bathed in mucos and encased in membranous covering.^[2]

Aacharya Sushrut has explained the *Kalas* in the *Garbha-Vyakaranam Shariram* i.e. embryology. *Kalas* are explained in embryonic life, they are found to be functioning throughout the life. The concept of *Kalas* are also found in *Sarpavega Chikitsa Adhyaya of Kalpasthan* during the treatment of snake bite. So we can assume that *Kalas* are present and functioning in the body from the birth till to the death.

MATERIALS AND METHOD

Source of Data

During the study of *Kalas* various *Samhitas* along with their commentaries by different authors were referred. References from modern sciences were also used to correlate the concept of *Kala*. While studying about *Kala* through *Sushrut Sharirasthan*, the commentaries of different authors were critically studied to interpret and conclude about *Kala*.

Study Design

Literary study

The literature related to modern perspective of *kala sharir* according to the *Ayurved Samhitas* is explained as -

The development and formation of body are going on by these *Kalas*. The *Dhatus* and *Malas* are formed by the *Kalas* which are minute and invisible in the body. The *Kalas* are extremely minute particles invisible to the naked eyes, as are the cells in the human body. The *Kalas* are limitation of the *Dhatu Nirmitt Aashay*. Thus we can say that separation of *Dhatu* and *Aashay* i.e. covering between *Dhatu* and *Aashay* is *Kala*.^[3] The commentator *Indu* in his commentary describes *Dhatwashay* as the *Strotas*.^[4]

The process of formation of *Dhatu* takes place in many stages. In initial stage, *Dhatu* is in the form of liquid which is called as *Dhaturasa*. This *Dhaturasa* get converted into next *dhatu*. During this process some *Kleda* remains between *Dhatu* and *Aashay*. This *Kleda* i.e. *Dhaturasa shesh* or *vishesh* is not converted into *purva dhatu* (previous *dhatu*) or *utterdhatu* which is remain in very less quantity; due to minimum quantity they are called as *Kala*.^[5] Hence we can consider that *Kalas* are one of the most essential parts of the *Dhatu*. The activity or functions of *Kalas* results into the formation of *Dhatus*.^[6]

Kalas are covered by muscular layer spread as a membranous structure (*snayu*), amniotic membrane (*jarayu*) and *shleshma* (mucus).^[7] There are specific sites for specific *Kalas* from where blood, bile, synovial fluid, semen get secreted or formed by the *Kalas*.^[8]

Types of *Kalas*

1. *Mansadharakala*
2. *Raktadharakala*
3. *Medodharakala*
4. *Shleshmadharakal*
5. *Purishadharakala*
6. *Pittadharakala*
7. *Shukradharakala*

Co-relation and function of *Kalas*

1. *Mansadharakala* - The first *Kala* is called *Mansadhara* (fascia), in the contained flesh (bodily substance of the *Kala*) of *sira* (veins), *Snayu* (fibrous tissue), *Dhamani* (arteries) and other *strotas* (channels) are found to spread and branch out.^[9] It supports and protects *sira*, *snayu*, *dhamani*, *strotas*, etc. It is the formative elements of the flesh (*muscular tissue*).^[10]

2. *Raktadharakala*- The second *Kala* is called as *Raktadhara* (Vascular tissue of the blood vessels etc.) The is contained in these inside the flesh and specially in tha veins (*sira*) and in such viscera of the body as the liver and spleen.^[11] It helps in the formation and transmission of the blood.

3. *Medodharakala* – The third *Kala* is called as *Medodhara* (Adipose tissue). *Meda* (fat) is present in abdomen of all animals as well as in the cartilage (small bones). The fatty substance present in large bones is called *Majja* (Marrow).^[12] It acts as lubricants and provides protection to the underlying structures.

4. *Shleshmadharakala* - The fourth *Kala* is called *Shleshmadhara* (Synovial tissue) and it is present about all the bone-joints of animals.^[13] It secreats synovial fluid and lubricates the joints.

5. *Purishadharakala* – The fifth *Kala* is called as *Purishadhara* and being situated in the *Koshtha* (abdomen) serves to separate the faecal refuse in (*pakvashaya*) lower gut (from other ingested matters).^[14] i.e. waste products.

6. *Pittadharakala* – The sixth *Kala* is called as *Pittadhara*. It holds the four kind of solid and liquid foods (in the *pitta-sthanam* or biliary region) propelled from the stomach (*Aamashaya*

or *Grahani Nadi*) and on its way to the (*pakwashaya*) intestine for the proper action of the digestive juices upon it.^[15]

7. *Shukradharakala* – The seventh *Kala* is called as *Shukradhara* (semen bearing), which extends throughout the entire body of all living creatures.^[16] It secretes *shukra*. The group of cells of sertolii and the tubuli seminiferous of the testis which secretes semen.

DISCUSSION

We find the references about the *Kala* in Sushrut Samhita, Ashtangasangraha, Ashtangahrudaya and Sarangadhar Samhita. There is no reference about the *Kala* in Charak Samhita. But all of them only Sushrutacharya widely explained this unique and unexplained concept of *Kala* in their Sushrut Samhita in Garbhavyakaranam shariram adhyaya (Sharirasthan) and in Sarpavega Chikitsa adhyaya (Kalpasthan). All the aacharyas have explained seven *Kalas* which is similar to Sushrut Samhita but in Sarangadhar Samhita, the location of fourth *Kala* i.e. Shleshmadharakala is stated to be at Yakrut (liver) and Pleeha (spleen).^[17]

In the formation of dhatu process during embryonic life from the *beej* i.e. *shonit* and *shukra*, *Kleda* remains between *dhatu* and *aashaya* in very less quantity which is called as *Kala*. After the birth *Kalas* are considered to be protected by mucus coat or covered by muscular layer with or without thin film of serous spread over them. *Kalas* are considered as formative elements similar to the cells. So Formation, Protection, Secretion, Selection, Absorption, Transformation are the functions of *Kala* which are similar to the functions of the cell. so we can consider *Kalas* as formative elements similar to the cells.

CONCLUSION

In the process of formation of Dhatus and Malas the *Kalas* are present in minute particles. These are the membranes with special function. We can correlate the *Kalas* structurally with fascia, septum, fibrous membrane, mucous membrane or serous membrane but functionally *Kalas* are correlate with cells.

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