

Concept of Kala: Ayurvedic & Modern Perspective

Review Article

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Abstract

Ayurveda, much like an ocean, offers an endless horizon of topics that remain unresearched and full of potential. *Rachana Sharir* is one of the fundamental part of *Ayurveda* that deals with the different structures of human body like *Asthi*, *Sandhi*, *Twacha*, different *Indriya* and *Kala* etc. '*Kala Sharir*' is one such important concept that requires a comprehensive understanding, despite the limited descriptions provided in our classical texts. *Kala* is a limiting membrane act as boundaries between the tissues (*Dhatus*) and their respective organs or cavities (*Ashayas*). *Kala* was first time described by *Acharya Sushruta* in the "*Sushrut Samhita Sharir Sthana*". Comprehensive study of *Kala Sharir* will definitely aid important information in better understanding of human body anatomy as well as physiology. Through this Article, we are trying to explore, that how the concept of *kala* can be integrated with modern medical practices for a more holistic approach to diagnostic or treatment modalities. This will help to shed light on the topic and make it easier to understand its usefulness in Medical Science.

Keywords: *Kala, Kala Sharir, Dhatu, Aashaya.*

Introduction

Ayurveda is an extensive body of literature whose purpose is the attainment of *Dhatu Samya*, which translates to the balance of bodily tissues. This can be achieved through a fundamental understanding of the body's basic principles. *Rachana Sharir* is one of the fundamental part of *Ayurveda* that deals with the different structures of human body like *Asthi*, *Sandhi*, *Twacha*, different *Indriya* and *Kala* etc. As diagnosis of disease is crucial before proceeding to treatment, similarly relevant knowledge of the systems of *Rachana Sharir* are very crucial for better understanding of the root cause of diseases and their cure, by applying medicinal management and surgical procedures.

'Dosh dhatu mala moolam hi shareeram' ||

The root causes of a living body are *Dosha*, *Dhatu* and *Mala*. These three entities are compared to the roots of a plant or tree by *Dalhana*, the Commentator of *Sushruta Samhita*. *Ayurveda* characterizes health as a complete four-dimensional status of bio-equilibrium (*Tridosha*, *Agni*, *Saptadhatu*, *Trimala*) and psycho-spiritual wellbeing of delightful state (*Atma*, *Indriya*, *Mana*). *Kala* is defined by *Acharya Sushruta* as "*Dhatu Ashaya antar maryada*" we can also correlate it as *dhatu- "dharnath dhatava"* i.e

content which is holding and *Ashaya* as "*aadhar/ adhishtan* or as container". The concept of *Kala* also revolves around the concept of *Dosh Dhatu and Mala*. As out of seven 4 *kala* (*Rakta, Mamsa, Meda, Shukra*) are inculcated in *dhatu*. 2 (*Shleshma, Pitta*) are inculcated in *dosha*, 1 (*Purish*) is inculcated in *mala*.

Kala Sharir Definition

"*Kala khalvapi saptbhavanti DhatuAsayantare maryadah*" (1).

Kala is unique *Ayurvedic* concept explained by *Acharya Sushruta* in *Sushrut Samhita*. *Acharya Sushruta* while explaining the detailed development of body parts in *Garbhavyakaran Sharir*. In the fifth Chapter of *Sharir Sthan* mentioned the concepts of *Kala*. He has explained *Kala* as a barrier between *dhatu* and its *ashaya*. There is total Seven *kala* in body. They form a protective coating for the *Ashayas* as well as boundary between the *Ashayas* and *dhatu*. *Kala* is limiting membrane or layer in our body situated between *Dhatu* and *Aashaya*. These are Extremely minute structures and invisible to naked eye, similar to cell. Their existence can be understood by their functions in the body. The word *kala* stands for the property or a quality so these are special membranes in the body which are having important role in performing body physiology. There are many layers or membranes in the body which form an envelope over the organs. The cell membranes separating each cell from each other can be considered as *Kala*.

General understanding of Kala

In *Vedic* and other ancient literature, the word "*kala*" has been used in various contexts and

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meanings. one of the meaning of *Kala* is “*Guna*”. In ordinary language it means quality.

Acharya Sushruta stated the “*Kala*” or membranes as those limiting layers of the body organ and tissue which keep them in their normal position. Here the word “*Ashaya*” has been used for organ also with an example- “when wood is cut, a liquid flows out, representing the essence of the tree. Similarly, when a muscle is cut, tissues ooze out as plasma (*Rasa*) and blood (*Rakta*). Parts of the body covered by ligaments and tendons (*Snayus*), enveloped by membranes (*Jarayu*), and smeared with mucus (*Kapha*) are referred to as *Kalas*.

Acharya Vagbhata describes that the moisture (*kleda*) between a tissue (*Dhatu*) and its cavity (*Aashaya*) converts into *Kala* due to the body's heat. This *Kala* contains a small quantity of the essence of the tissue (*Dhatu rasa*), similar to the liquid that oozes from freshly cut wood. It is surrounded by muscle

fibers, ligaments, tendons (*Snaayu*), and membranes (*Jarayu*).

Acharya Sharandhar adds that the moisture (*kleda*) between a tissue (*dhatu*) and its cavity (*ashaya*) undergoes transformation by body heat, resulting in the formation of *Kala*.

Table 1: Types of kala

S. no.	Sushruta	Vagbhata	Sharangadhara
1	Mamsadhara kala	Mamsadharakala	Mamsadharakala
2	Raktadharakala	Raktadharakala	Asrugdharakala
3	Medodharakala	Medodharakala	Medodharakala
4	Shleshmadharakala	Shleshmadharakala	YakritaPittadharakala
5	Purishadharakala	Purishadharakala	Antradharakala
6	Pittadharakala	Pittadharakala	Agnidharakala
7	Shukradharakala	Shukradharakala	Retadharakala

Table 2: Location & Functions of kala

S.No.	Kala	Site & Functions
1	Mamsadhara kala	Present at Mamsa (muscles), Sira (veins), Snayu (tendons), Dhamni (arteries) and Srotas (capillaries) & holds them
2	Raktadhara Kala	Present at inside Mamsa (muscles) and specially in Sira(veins), Yakrat (liver) and Pleeha (spleen), helps in maintaining blood integrity. supporting haemopoiesis, preventing pathology
3	Medodhara Kala	Present at Udar (abdomen) of all Prani(animals) and Anuasthi(small bone), holds fat tissue or form fatty layer
4	Shleshmadhara kala	Present at all Sandhies (joints) of all animals & helps in restriction free movement of joints.
5	Pureeshadhara kala	Present at Koshtha and divide Mala in Pakvashaya, helps to separate water and nutrient from stool.
6	Pittadhara kala	Present at between amashaya & Pakvashaya and receive all four types of foods, holds pitta and facilitate complete digestion of semi-digested food
7	Shukradhara kala	"Sarvasharir Vyapini" of all living beings & associated with the reproductive system, holds reproductive fluid

Table 3: Modern correlation of kala

S.No.	Kala	Modern Corelation
1	Mamsadhara kala	Deep fascia, Intermuscular septa
2	Raktadhara Kala	Endothelial lining of the blood vessels and sinuses in the liver and spleen
3	Medodhara Kala	Omentum, deep fascia
4	Shleshmadhara kala	Synovial membrane
5	Pureeshadhara kala	Mucous membrane of the colon and rectum
6	Pittadhara kala	Mucous membrane of the small intestine
7	Shukradharakala	Mucous membrane of the vasiculae seminalis, vas deferens

Kala and its Pathological Co-relation

Talking about the sequence of *kala*, a question often came to mind why this sequence of *kala* has described by our acharyas, why after *Medodhara Kala*, *Shlesmdhara kala* is included, *Acharayas* has mentioned a word 'खलु' which means definite i.e. number of *kala* is seven only neither less nor more perhaps the reason behind this will be its corelation with

the pathology, that how a pathogen will enter in our body. For example-

According to [*Su. Ka.4/39*], snake venom attacks the seven layers (*kalas*) in sequence, leading to seven stages of poisoning. The prognosis for a snakebite victim depends on how deeply the toxin has penetrated these layers. In the first stage, the venom contaminates the blood, causing it to turn black, which results in the skin darkening and a sensation that “ants are crawling on the body”. In the second stage, the poison affects the muscles, leading to severe blackening, inflammation, and the formation of cysts. During the third stage, it affects the fat, causing the bite site to become moist, with heaviness in the head and stiffness in the eyes. In the fourth stage, the poison reaches the thoraco-abdominal cavity, disturbing the *dosha*, mainly *kapha*, causing drowsiness, salivation, and joint weakness. The fifth stage involves penetration into the bones, where it disrupts *prana* and *agni*, leading to joint pain, hiccups, and a burning sensation. In the sixth stage, the venom reaches the bone marrow, severely affecting the small intestine (*grahani*) and causing body heaviness, diarrhea, cardiac pain, and fainting. Finally, in the seventh stage, the venom enters the semen (*shukra*) and

severely disrupts *vyana*, resulting in discharge of kapha from minute channels, intense pain in the waist and back, loss of movement, excessive salivation and sweating, and ultimately death due to respiratory failure. As the venom penetrates deeper into the tissues (*dhatus*) through the *kalas*, the patient's condition becomes increasingly critical.

Discussion

The layer that forms a boundary around the plasma and blood, separating them from their surrounding walls (*ashayas*), is known as *kala*. They can be compared to mucous membranes, epithelium, and the synovial membrane, which cover joint spaces (*ashayas*) and separate them from surrounding tissue. When comparing the structure of *Kala* with the skin based on its location, it is described that the seven layers of the *Twacha* (skin) cover the body from the outside inwards. These layers are arranged sequentially, but unlike the *Shukradhara Kala*, which pervades the entire body, the other types of *Kala* are located in specific regions and perform specialized functions.

Exploring how the concept of *kala* can be integrated with modern medical practices for a more holistic approach to treatment. Investigating the role of *kala* in tissue repair and regeneration, which could inform regenerative medicine and therapies. Understanding how *kala* influences metabolism and energy storage, potentially offering insights into metabolic disorders such as obesity and diabetes. Examining the role of *Pittadhara* and *Purishadhara Kala* in maintaining digestive health and preventing disorders like IBS and inflammatory bowel diseases. Studying *Shleshmadhara Kala's* involvement in mucosal immunity, which could lead to novel approaches to enhancing immune function. Utilizing the concept of *kala* to develop personalized treatment plans based on individual body constitution and health needs. Applying Ayurvedic principles of *kala* to preventive healthcare strategies, promoting longevity and overall well-being. Investigating the potential connections between *kala* and neurological health, possibly offering new perspectives on mental health and cognitive function. Conducting rigorous clinical trials to scientifically validate the therapeutic effects of treatments based on *kala* concepts.

Conclusion

In conclusion, the concept of *kala* in Ayurveda is one of the most unique and underrated concept that is described in various classical text. *Kala* can be understood as a *Aavran*/layer/membranes/fascia of our body which form an envelope over the organs & help

them to function easily. According to ayurveda, a pathology is created in the body only when *tridoshas* are not in their *samawastha* and the foremost treatment for that is '*Nidan Parivarjanam*' hence a precise knowledge of *kala* is important for the physicians to make a diagnosis at the right time so that it allows them to reverse the progression of pathology and prevent its further advancement from the stage of *Sadhakriyakala* & also to know if the disease at which level of *Kala*. Understanding the anatomical relevance of *Kala* can help in the better understanding of the functioning of the human body and the development of new therapies. Research in these areas can bridge traditional Ayurvedic knowledge with contemporary scientific understanding, potentially leading to new therapeutic approaches and a broader acceptance of Ayurveda in global health systems.

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