



Review Article

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THE CONCEPT OF KALA SHARIR & IT'S ANATOMICAL APPLIED ASPECT – A REVIEW ARTICLE

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ABSTRACT

Introduction- The study of the human body's structures, such as its bones, joints, sensory organs, and skin, is known as anatomy. A grasp of anatomy is necessary to comprehend illnesses and the medical and surgical methods used to treat them. The notion of Kala is a special and significant one in the ancient Indian medical system known as Ayurveda. Acharya Sushruta expounded on it in the Sushrut Samhita. **Methodology-** Using internet databases like PubMed, Scopus, and Google Scholar, a comprehensive study of the classic literature on anatomy, Ayurveda, and the idea of Kala was carried out. The information was analysed and combined to give a thorough rundown of the subject. **Findings-** The idea of Kala is defined as a restricting layer or membrane that is located between Aashaya (cavities that contain the vital components) and Dhatu (vital elements). The body has seven Kala, each of which has a purpose that may be comprehended. These are incredibly small particles that resemble cells and can be thought of as unique bodily membranes that are crucial to the operation of human physiology. **Conclusion-** In Ayurveda, the idea of Kala is distinct and significant, with application to both anatomy and physiology. Gaining knowledge about Kala can aid with improving comprehension of illnesses and medical interventions. New understanding of how the human body works and the creation of novel treatments may result from more study in this field.

Keywords- Kala, Aashaya Limiting membrane, Pittadhara, Purisha Dhara etc.

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INTRODUCTION

A comprehensive understanding of Rachna Sharir is vital for any Vaidya aspiring to become a skilled physician. (Ch.sha.6/19). Upon examining the Ayurvedic books, we come across several notions like Tridosha, Dhatus, Malas, Kloma, Marma, Kala, and so on that we are unable to correlate or understand with contemporary science.¹ We must study the passages carefully, together with their commentary, and analyze the Shlokas to come to a conclusion in order to comprehend these ideas in light of Ayurvedic science. One of the ideas that contemporary science is yet unable to explain is kala.²

Acharya Sushruta expounded on the significance and originality of the Ayurvedic idea of Kala in the Sushrut Samhita. The word Kala, which comes from a Pali-English dictionary, denotes a solitary part, part of the total, or a little component of something.³ The restricting membrane or layer known as Kala is said to be located between Dhatu, or vital elements, and Aashaya, or cavities that contain the vital components. The body is made up of seven Kala, which are the essential components or substrata of the elements. These consist of semen, urine, bile, phlegm, blood.⁴ Even though Ayurveda Sharir describes a number of terminologies, including Kandara, Kurcha, Mansarajju, Sanghat, and Simanta, Kala sharir has not yet been shown to have any recognized therapeutic value. On the other hand, comprehending the idea of Kala can help us understand how the human body works and help us find novel treatments.⁵ Our goal in writing this paper is to provide readers a thorough grasp of the Ayurvedic concept of Kala, as well as its physiological and anatomical significance and therapeutic consequences.

METHODOLOGY

A review of several classical works, such as Charaka Samhita, Sushruta Samhita, Ashtanga Sangrah, Ashtanga Hridaya, Bhav prakasha, and Sharangadhara Samhita, was one of the study's resources and methodologies. A review of evidence-based materials was also conducted, including books, journals, and data-based information from contemporary literature. Since Kala Sharir was the study's main focus, journals, publications, online

content, and earlier research papers on the topic as well as modern anatomical literature—particularly those pertaining to histology—were also evaluated. The purpose of this examination of the literature and resources was to enhance comprehension of Kala Sharir and its significance within the Ayurvedic framework.

CONCEPT OF KALA

According to the literature study, Kala Sharir is a notion that is discussed in a number of traditional Ayurvedic works, such as the Sharangadhara Samhita, Susrutha Samhita, Ashtanga Sangraha, Ashtanga Hridaya, and Bhav prakasha. In these works, the word "Kala" has several connotations, such as minute, membrane, unclear, and unit of time.⁶ When we talk about Kala in the context of Sharir, we're talking about a thin membrane that divides the essential parts from the holes that contain them. The inside lining of these cavities is known as Kala, and the important components are housed in these cavities. The multiple-stage process of Dhatu creation is also explained in the literature.⁷

Dhatu is first a liquid known as Dhaturasa, which is then changed into the next Dhatu.⁸ A little amount of Kleda, known as Kala, stays between Dhatu and Ashaya during this process; it is not transformed into the preceding or subsequent Dhatu. The layer of muscle covering Kala is mucous-covered (Shleshma), resembles an amniotic membrane (Jarayu), and is dispersed like a membranous structure (Snayu).⁹ Amniotic membrane indicates barrier/selective permeability, membrane structure indicates structural support, and mucus indicates lubrication and feeding. Susrutha has substituted the terms Asthidhara and Majjadhara for Purishadhara and Pittadhara Kala, respectively, in her explanation of how the Visa shifts from one Kala to another. According to the research, Kala Sharir has not yet been proven to have any clinically significant effects.¹⁰

THE SEVAN KALA

As per Ayurvedic medicine, the inner linings of different bodily cavities and tissues are known as the seven Kala, or limiting membranes. The Ayurvedic scholar Sushrut defined Kala as structures resembling sheaths that are encased in mucoid substance, or Shleshma.

Mucous membranes are the term used to describe these structures in contemporary anatomy. The layer of cells covering bodily cavities and tissue surfaces that open to the outer world is called the epithelium.¹¹ Epithelium develops from all three germinal cells in an embryological manner. Internal cavities and the proximal lining of the urogenital tract, such as the pericardial, pleural, and peritoneal cavities, are lined with mesothelial cells. Lymphatic and blood arteries are lined by endothelium.

ACCORDING TO ACHARYA SUSHRUTA ABOUT KALA

1. **Mamsadhara Kala:** This Kala has a network of veins, fibrous tissue, and arteries. It has been compared to anatomical images of a lotus stem found in murky water.
2. **Raktadhara Kala:** This Kala resembles the endothelium lining of arteries, veins, and lymphatics. The Rakta Dhara Kala helps blood to flow through blood arteries, and it is housed in all blood producing and hemopoietic organs such as the liver and spleens.¹²
3. **Medodhara Kala:** This Kala promotes the Meda, or fat. Fat is located in the belly or peritoneal sac, and Sushrut has discovered two forms of Meda: Sarakta Meda (red bone marrow) in short bones and Peeta Meda (yellow bone marrow) in long bones.
4. **Shleshmadhara Kala:** This Kala is found in the synovial membrane and almost every joint. It has been compared to the lubricant in a wheel axis, which allows the wheel to move freely. Similarly, Shleshma and the Shleshmadhara Kala allow all bone joints to move freely along their respective axes. The synovial membrane is lubricated with synovial fluid.
5. **Purishdhara Kala:** This Kala, which supports faeces, may be found in the large intestine, rectum, and abdominal cavity. This membrane divides Kitta and Sara Bhag directly from the Unduk (caecum) and stretches from the liver to the whole large intestine.¹³
6. **Pittadhara Kala:** This Kala has the four forms of food intake that reach the intestine: Asit, Khadit (swallowed), Peeta (druk-liquid), and Leedh (licked). These are digested and absorbed over time by the activity of pitta, or digestive enzymes. The Pittadhara Kala is found in the Laghu Antra (small intestine), which Sushrut also refers to as "Grahani."
7. **Shurkadhara Kala:** The final and seventh Kala recognized by Sushrut is Shurkadhara Kala, which functions throughout the body in all living beings. Shukra is utilized for estrogenic

and androgenic hormones that circulate throughout the body. They have been compared to sugarcane juice and ghee found in milk. As these components cannot be detected separately in milk, Shukra in the form of hormones cannot be extracted from the body, but its effects may be seen.

APPLIED ASPECT OF KALA SHARIR

Kala	Dhatu	Applied aspect
Mamsa Dhara Kala	Mamsa, Rasa Dhatu	As previously said, all Dhatu have tone, flexibility, and functional normality because to this physical holding membrane.
Rakta Dhara Kala	Rasa, Rakta Dhatu	Its optimal function may be in charge of the regular circulation of bodily fluids and is characterized as occurring inside the Mamsdhara Kala, in the liver, and in circulating veins.
Medodhara Kala	Meda Dhatu	Because it is located in the belly and tiny bones, it may be connected to conditions affecting the body's soft tissues and regions where fat accumulates.
Shleshma Dhara Kala	Meda, Majja, Dhatu	Synovial fluid is necessary for all joints to function properly; this can be connected to this Kala
	Asthi Dhatu with	Since Asthi's bones are supposed to have originated at this Kala, treating Asthi ailments

Purish Dhara Kala	its Upadhatu	would involve taking medications that affect this, Kala.
Pittadhara Kala	Majja Dhatu (organs related to Majja Dhatu; Nervous system, Eyes, Brain)	Since Majja is said to have originated at this Kala's location, medicine that acts at this location will be necessary to treat Majja Dhatu's illnesses.
Sukra Dhara Kala	Rasa, Rakta, Shukra, Oja	It is connected to the cellular level nutrition supply to every region of the body, hence in order to boost one's energy and stamina, one must address this, Kala.

DISCUSSION

The Seven Kala are linked to the anatomical structures listed below: It is thought that deep fascia and intermuscular septa are connected to the first Kala, Mansadhara Kala. This makes sense because these tissues are in charge of giving the body's muscles and organs support and protection. Next is Rakta Dhara Kala, which is associated with the liver and spleen's endothelium, which lines blood arteries and sinuses. This Kala is connected to the control and movement of blood throughout the body.¹⁴ It is believed that the omentum and deep fascia are connected to the third Kala, known as Medodhara Kala. These tissues are crucial for the body's ability to store fat and stay warm.

Next, we have Shleshmadhara Kala, the fourth Kala, which is related to the synovial membrane. This membrane, which covers the joints, lessens wear and tear and friction. Purishdhara Kala, the fifth Kala, is said to be associated with the mucous membrane of the colon and the rectum. This membrane aids in the body's absorption of nutrients and water from waste products. The small intestine's mucous membrane is connected to Pittadhara

Kala, the sixth Kala. Nutrients from meals are absorbed by this membrane and transferred into the circulation. Last but not least is Shukradhara Kala, which is said to have something to do with the mucous membrane of the seminalis, vas deferentia, and other reproductive organs. This Kala is linked to sexual vigor and fertility.¹⁵

All things considered, the Seven Kala offer an intriguing perspective on the relationship between the body's energy centers and the structures that sustain and govern them. These theories offer an insightful viewpoint on the human body and its operations, even if they may not be supported by science.

CONCLUSION

Kala Sharir provides us with vital knowledge on the body's layers and membranes, which are involved in several vital bodily processes. Ayurveda states that illnesses may only arise when Doshas pollute or vitiate tissues. Therefore, it is crucial for doctors to have a comprehensive understanding of Kala in order to diagnose patients at the appropriate time and determine whether the illness is at the Kala level. Gaining insight into the anatomical and physiological significance of Kala can aid in improving comprehension of how the human body functions and in the creation of novel therapeutic approaches. We may get understanding of its applied aspect by referring to the distinct concepts of Ayurveda regarding its relationship with various Dhatus and its genesis.

CONFLICT OF INTEREST -NIL

SOURCE OF SUPPORT- NONE

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