



Review Article

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A REVIEW ON KALA SHARIR W.S.R TO ANATOMICAL CONSIDERATION OF PITTADHARA KALA

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ABSTRACT

Ayurveda, an ancient clinical science that is full of rich, insightful unique perspectives on human body, it provides detailed understanding of human body, its structure and function, one of the unique concept is about *Kala Sharir*. Word *Sharir* resembles to what is connected to the body and *Kala* resembles to the thin layers located in between body tissues (*Dhatus*) and cavities (*Ashayas*). These layers offer protection, support along with contributing to formation of various tissues. In Ayurveda, there are seven types of *Kala* each with a specific location and function particularly. The sixth *Kala* is *Pittadhara Kala*, which is arranged between "*Pakwamashaya*" and is comparable to the inner lining of small intestine, where digestion takes place. The accurate idea of *Kala* helps clinician to diagnose disease at appropriate level. This study has tried to explain this concept of *Kala* and *Pittadhara Kala* very transparently.

KEYWORDS-

Dhatus, Ashayas, Pittadhara Kala, Pakwamashaya.

INTRODUCTION

Kala Sharir is a very important part of Ayurvedic anatomy. It is a unique conceptual framework that deals with seven functional anatomical layers supporting and nourishing internal structures. In the fourth chapter of *Sharir Sthana*, *Acharya Shusruta* described first about definition, types and nature of *Kala*. It is the '*Dhatuashayantar Mariyada*', which means a thin limiting membrane that separates *Dhatus* (vital elements) and *Ashayas* (cavities that hold the vital elements) (1). It resembles to layers or structural base or sheaths in human body. He also explained the *Swaroop* of *Kala* as, on when cutting a wood, its pith gets visualized, similarly when a *Dhatu* is dissected, the musculature part, ligaments and membranous part are seen by removing the successive layers (2). The *Kala* is covered by muscular layer, spreaded as a membranous structure (*Snayu*), like *amniotic membrane* (*Jarayu*) and smeared by mucous (*Shleshma*) (3). *Acharya Shusruta* has mentioned seven types of *Kala* that are: *Mansdhara*, *Raktdhara*, *Medodhara*, *Shleshmodhara*, *Purishdhara*, *Pittadhara* and *Shukradhara Kala* (4). Each *Kala* is located at specific sites, anatomically, the sixth *Kala* is the *Pittadhara Kala* (5), situated between *Pakwashaya* and *Amashaya* also named as "*Grahani*" (6), it does *Dharan* of the "*Chaturviddha Annapanam*" i.e. *Aashita*, *Khadita*, *Peeta*, *Leha* brought from the stomach towards intestine (7) and promotes *Pachan* (due to the *Tej of Pitta*) and *Shoshan* of the "*Chaturviddha Annapanam*". The *Pittadhara Kala*, is the receptor of food and the seat of "*Jathargni*" - known as the digestive fire, it is responsible for causation of every disease due to this it becomes a very crucial concept in Ayurveda used under treatment modalities, for dietary recommendations and lifestyle practices. Therefore knowledge of *Kala Sharir* is very essential and has a very significant role in Ayurveda. It helps practitioners align health practices with natural cycles to promote overall wellbeing.

AIM AND OBJECTIVES

AIM

To review the Ayurvedic concept of *Kala Sharir* with special reference to anatomical consideration of *Pittadhara Kala*.

OBJECTIVES

1. To explore classical Ayurvedic references related to *Kala Sharir*.

2. To understand the concept of *Kala Sharir* and to co-relate it with from modern point of view.
3. To understand *Pittadhara Kala* and its crucial clinical importance.

MATERIAL AND METHODS

This study was conducted as a descriptive literary that was based on the classical Ayurvedic texts and Modern literature .

1. Primary sources included *Bruhatrayee* and *Laghutrayee* along with their commentaries by different Authors were consulted for conceptual and comparative study as well.
2. Secondary sources such as *Ayurveda Ka Vaigyanika Itihas*, *Sharir Rachana Vijnana* ,*Thatte's Sharira Rachana Vigyan* textbooks.
3. From modern point of view standard medical texts like BD Chaurasia's Human Anatomy, Moore's Clinically Oriented Anatomy, GRAY'S Anatomy ,Inderbir Singh's Human Histology, Netter Atlas of Human Anatomy, Cunningham's Manual of Practical Anatomy and Dissection, Manipal Manual of Anatomy and other books.
4. Published article in international ornational journals related to *Kala* and *Pittadhara Kala*, Pubmed etc.

METHODOLOGY

1. Conceptual Study-

Kala was first explained by *Acharya Shusruta* briefly in *Sharir Sthana*, chapter four- "*Garbhvyakaran Sharir*" in detail. It is the '*Dhatvyashayantar Maryada*' which is the limiting membrane between *Dhatu* and *Ashaya* .As per *Ashtang Sangraha* , the moisture that remains inside the space in *Dhatus* , gets prepared by the heat present in them and forms into a structure similar to which found in the wood and becomes covered with *Snayu* , *Shleshma* and *Jarayu*. It is known as *Kala* due to a very less quantity of *Rasa* and absence of *Dhatus*. It helps in holding, movement ,supporting ,absorption and providing lubrication in various parts of the body. According to *Astang Sangraha*, *Kala* is explained as *Kleda*,the moisture or fluid that stays in between *Dhatus*(tissues) and *Ashaya* (cavities or organs)(8) ,this *Kleda* goes through the process of maturation(*Pakwa*)through its intrinsic *Ushma*(heat).Over time, it becomes wrapped by *Shleshma*(Kapha),*Snayu*(ligaments) and *Jarayu*(membranes) forming a protective layer. It is called as *Kala* because it is formed by little quantity of *Rasa* and

absence of *Dhatu*. This whole process is relative to the way as woodsap and hardens and solidifies within a tree, that provides the structure and strength .Therefore the balance and the proper functioning of *Kala* is significant for maintaining the stability and health of the body's tissues and organs.

All *Acharyas* expressed the total number of *Kala* is seven, However according to *Acharya Sharangdhara* ,there are same *Kala* as per Shusruta, but in the 4th place of *Shleshmodhara Kala*, he expressed about Yakrut and Pleeha(9).

In *Parishad Sabdharth Shariram* the meaning of *Kala* is taken mainly by 3 types-

1. *Kala* as a membrane-In this concept *Kala* is understood as a protective membran ,consisting of fibrous ,serous and mucous membrane. These provide structural support and protection to organs,play a key role in facilitating essential bodily functions.Any disruptin in these membrane can lead to various disorders.
2. *Kala* as a body part- *Kala* is seen as representing various body parts or tissues, such as muscles, tendons and ligaments. Each of these *Kala* is crucial for the body's structural integrity, ensuring that the organs and tissues work in harmony to support movement, stability and overall function.
- 3.*Kala* as a *Guna* -It is a quality in the body, that explains a *Purusha* (individual) is composed of sixteen *Kala* .This influences the physical, mental and spiritual features of an individual that contributes their unique constitution (*Prakriti*).The balance of these *Kala* is helpful in maintaining body equilibrium ,as any imbalance can result into physical or mental disruptions.

2. COMPARATIVE STUDY-

KALA Types (As per Acharyas)	Involvement	Modern Co-relation
1.Mamsadara <i>Kala</i>	<i>Sira,Snayu,Dhamani, Strotas.</i>	Deepfascia , Intermuscular septa.
2.Raktadhara <i>Kala</i>	Involves <i>Sira</i> of <i>Yakruta</i> and <i>Pleeha</i> .	Endothelial lining of blood vessels and sinus in liver and spleen.
3.Medodhara <i>Kala</i>	Involves Abdomen &	Omentum,

	small bones.	deep fascia.
4.Shleshmadhara <i>Kala.</i> (<i>Yakruta and Pleeha</i>) -as per <i>Acharya Sharangadhara</i>	Involves all joints	Synovial membrane.
5.Purishdhara <i>Kala</i>	Involves <i>Pakwashaya</i>	Mucus membrane of colon and rectum.
6.Pittadhara <i>Kala</i>	Involves Stomach and Intestine	Mucus membrane of small intestine.
7.Shukradhara <i>Kala</i>	Involves <i>Sarva Shareera Vyapini.</i>	Mucus membrane of the vasiculae seminalis, vas deferens.

Literature Review of *Pittadhara Kala*

According to *Acharya Shusruta*, anatomically this is the sixth *Kala* that is situated between *Pakwashaya* and *Amashaya*, named as *Grahani*. It receives the semi-digested food from the stomach and holds it until complete digestion occurs, as it is the seat of *Jatharagni*, it manages all types of food that enters digestive tract through the mouth. The Ayurvedic classical texts mentioned "*Chaturviddha Annapanam*" i.e *Ashit* (chewed), *Khadit* (swallowed in chunks), *Peet* (drinkable), *Leed* (licked). All of these reaches "*Kshudrantra*" or small intestine and food is digested at correct time through *Pachak Pitta*, which represents digestive enzymes and metabolic fire. Because of this function, the term *Kostha* is used in relation to *Laghuantra* or *Kshudrantra* (small intestine), where the *Pittadhara Kala* exits (also known as *Grahani*).

According to Dhirendranath Banerjee- A good deal of function of small intestine has been described under term *Grahani*, the mucous membrane of the small intestine. The other name is *Pitthadhara Kala*.

According to Dr. Ranjeet Desai- It is the place where *Jatharagni* exits and helps in digestion of food, providing *Bala* to the body.

Modern Review of *Pittadhara Kala*

According to modern literature, *Kala* can be referred to a thin, protective lining that covers inner surfaces of organs, blood vessels and joint capsules. *Pittadhara Kala* is comparable to the mucous lining of the small intestine. The small intestine is the longest part of GI tract,

measuring about 6 meters, extending from pylorus to the ileocecal junction and divided into three parts-the fixed duodenum, jejunum and ileum. The small intestine is tightly packed with circular folds (Valves of Kerckring) covered with many tiny finger-like projections called villi that increases the absorption. Just beneath this, the lamina propria contains numeral intestinal glands, known as crypts of Likerkuhn, linked by goblet cells that helps in mucous secretion. Then comes muscularis mucosa, which is a thin layer of smooth muscle and helps create small local movements of the mucous membrane. Paneth cells, that are located at the base of crypts of Likerkuhn are crucial for innate immunity, maintaining the intestinal stem cell niche and regulating gut microbome by secreting digestive enzymes and enterocyte helps in absorption.

When we look at nature of *Mahasrotas*, which refers to the gastrointestinal tract, we see that it is made up of four basic layers**(10)**:

1. Mucosal Layer
2. Submucosal Layer
3. Muscular Layer
4. Serous or Fibrous outer layer

The serous or fibrous layer forms the outermost covering of the gastro-intestinal tract. Interestingly , when we compare the modern view of the *Mahastrotas* the GI tract with *Acharya Sushruta's* description of *Pittadhara Kala*, we see that they resemble each other closely, because of this strong similarity, the concept of *Pittadhara Kala* can be understood in light of what we know today about the gastro-intestinal system.

Similarly, the organ called *Grahani* , described by *Acharya Charaka* , appears to be the same structure that *Acharya Sushruta* refers to as *Pittadhara Kala*. In other words, both classical descriptions point to the same part of digestive system.

Discussion

This concept of *Kala Sharir* reflects the ancient ayurvedic understanding of microscopic and functional anatomical layers. *Pittadhara Kala* is located in the central digestive region, establishes it as the key anatomical site for metabolism. Its function align perfectly in the role of mucosal and sub-mucosal tissues containing secretory glands and digestive mechanisms. The conceptual overlap between *Pachakpitta* and digestive enzymes, gastric acid, hormonal

regulation and metabolic process indicates that ayurveda identifies functional units long before histology was developed. Any disturbance or damage to these layers can interfere with their normal function. Ayurvedic texts identify the region between Amasaya and Pakwasaya as Khudra-antra, which corresponds to the small intestine. Therefore, the most appropriate site for *Pittadhara Kala*, is from the distal end of the stomach up to the ileocecal junction. Modern anatomy shows similar processes occurring in the duodenum, supporting the classical description of the *Grahani* as the site of the *Pittadhara Kala*.

Hence, co-relating *Pittadhara Kala* with Gastro- intestine mucosal complex enhances understanding of digestive pathologies and supports a functional holistic view of metabolic disorders.

CONCLUSION

To improve medical diagnosis and understanding disease more accurately, a detailed study of *Kala Sharir* from both its structural as well as functional perspective in Ayurveda, along with modern scientific insights is very essential. Anatomically, *Pittadhara Kala*, extends from end of the stomach to the ileocecal junction (duodenum). Ayurveda explains that *Pachaka Pitta*, along with *Samana Vayu* and *Kledaka Kapha*, carries out digestion. *Kledak Kapha* helps food stick to the villi, while *Pachakagni* provides energy required for absorption. Any structural or functional disturbance in *Pittadhara Kala* weakens digestion and leads to “*Mandagni*”, which in turn produces “*Ama*”, considered the root cause of many diseases. Therefore, *Pittadhara Kala* plays a central role in digestion, absorption and metabolism. Its location and function is strongly parallel to the mucosal and sub-mucosal layers of the GI tract in modern anatomy. Understanding this concept deepens insight into Ayurvedic physiology, *Agni* related disorders and *Pitta* imbalance. A combined ayurvedic and modern approach can help improve diagnostic and therapeutic strategies for GI and metabolic conditions.

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