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UNDERSTANDING KALASHAREERA; ACROSS SAMHITAS AND ITS CLINICAL SIGNIFICANCE IN THE MODERN MEDICAL CONTEXT

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ABSTRACT

Kala Shareera is an important concept of Ayurveda anatomy which mainly discuss about layers or membranes of body. The medical science reported presence of many membranes in body which form envelope over the organs acting as shock absorbers. Kala as in modern medical science can be attributed to pleurae, pericardium, meninges enveloping lungs ,heart and brain respectively ,thereby lubricating and helping with their functions.The concept of Kala shareera is discussed over various classical texts including sushrutha samhita, ashtanga hridaya, ashtangasangraha, bhavaprakasha and sharngadhara samhita. As per Ayurveda Kala can be defined as a separator between Dhatu and Ashaya, they are seven types; Shleshmadhara Kala, Raktadhara Kala, Medodhara Kala, Shleshmadhara kala, Pureeshadhara kala, Pittadhara kala and Shukradhara kala. The anatomical knowledge of these all layers is very important; as they can provide informations to rule out origin of the disease, and its manifestations on different sites hence intensifying proper study and management of the disease.

INTRODUCTION

Several concepts are so unique to Susrutha that he has quoted it in further hierarchal compendiums. Kala Sharir is one of such topics which despite the fact being a miniscule structure, is described with supreme authority with location, enumeration, examples, and clinical utility. Kala is the term that is used in various meanings in classical texts meaning from the indistinct, unit of time, minute, membrane, etc., in the context of Sharir, it can be taken as a minute/membranous structure. Susrutha has described it after Twak in Garbha Vyakarana Adhayaya which illustrates minute structures in the sequence of organogenesis. The topic is supported with different examples from the environment/lifestyle to illuminate the idea and structure. Dalhana, the brilliant commentator of the compendium, also discusses different logical concepts and tries to give an exact explanation. They form the protective coating for Ashayas and Lines boundary between the Ashayas and Dhatus thus separating their entity .They produce Dhaturasa (essences of tissues) and Protect covering parts thus providing lubrications. Mucous act as a buffer to protect stomach from harmful action of acids.it provides support to holds vital parts of body.

Definition and swaroopa of kala by different acharyas

कलाः खल्वपि सप्त भवन्ति धात्वान्तरशयमर्यादाः (सु.शा)

यथा हि सारः काष्टेषु चिद्यमानेषु दृश्यते।

तथा हि धतुर्मांसेषु चिद्यमानेषु दृश्यते।।(सु. शा)

Kala is the layers or membranes present at the junction of dhatus (tissue)and ashayas (organ).It is classified as 7 according to the sites they are present. It is said to be as the essence that oozes out of the freshly cut wood.

Acharya Susrutha

According to SUSRUTHA SAMHITHA kala is a sheath or beholding membrane of visceral organ which is functional in nature, providing structural support. It is said to be Dhatwashayantara or partition between dhatu (tissue) and ashaya (organ).

Ashtanga Hridaya

Vagbhatacharya in Ashtanga hridaya mentions kala as that which seperates dhatu and ashaya.

Ashtanga Sangraha

In sangraha Acharya explains kala as the structural component of human body formed when moisture inside dhatus and ashayas is cooked by heat in those tissues.

Bhavaprakasha

H e has extensively described about kala but has not specified the position. He has mentioned kala as the kleda (moisture) present inside dhatus and ashayas which is cooked by its own dehoshma.

TYPES OF KALA

NAME	MODERN RELATION	APPLIED ASPECT
1. Mamsadhara Kala	Deep fascia, intermuscular septa.	Muscle membrane confers the tone, elasticity and normalcy of dhatu Holds the network of siras,snayus,dhamanis and srotas or which support the blood vessels
2. Raktadhara Kala	Endothelial lining of the blood vessels and sinuses In the liver and spleen p fascia, intermuscular septa	Membrane which is embedded in the mamsdharakala seen In pleeha and yakrit as splenic and hepatic cells for the circulation of blody fluids
3. Medodhara Kala	Omentum- Greater to lesser omentum. Mesentary - fold of peritoneum.	Membrane that holds fat tissue or form the fatty layer Seen as layerof adipose or fatty tissue of abdomen
4. Shleshmadhara kala	Synovial membrane of joints	Mucus layer between joints which provide lubrication and free movements of the joints Prevent shock and strain from repeated movement of the joints
5.Pureeshadhara kala	Mucous membrane of the colon and rectum	Membrane that hold or form pureesha
6. Pittadhara kala	Mucous membrane of the small intestine	Which facilitate complete digestion of semi digested food
7. Shukradhara kala	Mucous membrane of the seminal vesicle, vas deference etc. and tunic vaginalis in scrotum.	Membrane that holds or produce reproductive fluids

DISCUSSION

Kala is a membrane which protected by Snayus and secrete mucous; thus Snayu and Shleshma are considered as components of Kala. Kala is made up of essence of Dhatu and enveloped by Snaayu and Jarayu. Kala separates hollow or lumen of organ from its lining tissue, therefore mucous membrane of the hollow organs can be considered as Kala. It is interposing structure between Ashaya and its Dhatu.the body functions at the celluklar level the proper functioning of the wholw body at this level by ensuring the protection ,support,lubrication are done by the membranes and membranous fluids.kala is the thin membranous entity that lines the internal cavity of the ashayas.The process of formation of dhatus takes place in various stages,during the process of conversion of dhaturasa to dhatu kleda remains in between dhatu and ashaya this kleda is not converted in purva dhatu or utthara dhatu as it is remain in lesser quantity,due to minimum quantity it is called kala The layer that covers the body surfaces is termed as epithelium. Based on the genesis, epithelia are derived from all three layers, i.e., ectoderm, endoderm, and mesoderm of the early embryo. The epidermis, glandular tissue of the breast, cornea, and the junctional zones of the buccal cavity and anal canal is derived from the ectoderm. The epithelial lining of the alimentary canal and its glands, most of the respiratory tract, and the distal parts of the urogenital tract derive from the endoderm. The mesodermal derivatives include the epithelia of the kidney, the suprarenal (adrenal) cortex, and endocrine cells of the ovary and testis. Epithelia act as a selective barrier that facilitates, or inhibit the passage of substances, protect underlying tissues against dehydration, chemical, or mechanical damage; synthesize and secrete products into the spaces that they line also functions as sensory surfaces.[8] Epithelium with its underneath connective tissue can be detached as a single layer, which is known as a membrane. Here, if the surface of a membrane is moistened by mucous glands, it is called a mucous membrane or mucosa and when a similar layer is covered by mesothelium is called a serous membrane or serosa. The mucous membrane lines interior of hollow organs moistened by mucus, such as the intestines. The mucosa proper is made up of an epithelial lining having mucosal opening onto its surface, the underlying loose connective tissue, the lamina propria, and a slim layer of smooth muscle, the muscular mucosae, whereas serosa consists of a solitary layer of squamous mesothelial cells sustained by a core layering of loose connective tissue containing numerous blood and lymphatic vessels. The pleural, pericardial, and peritoneal cavities are lined by serosa. It is the first type of Kala; which is found inside the muscles and which allows the Siras (veins), Snayu (ligaments), and Dhamani (arteries) to spread their branches inside the muscles. It is the second type of Kala; which is present inside the Mamsa (muscles) within which Shonita (blood) is present, especially in Siras (veins) localized in Yakrit (liver) and Pleeha (spleen). third Kala and is present in the abdomen and small bones of all living beings) .the fourth type of Kala which is Kala present in all Sandhi (joints), especially moveable type. the fifth Kala, It is found in Pakvashaya (large intestine and rectum) within the abdominal cavity. This Kala extends from Yakrit (hepatic flexure) to the whole large intestine or the remaining segments of the large intestine which surround other viscera's of the

abdomen. This Kala separates the Kitta and Sarabhaga right from Unduk (cecum) It is the sixth type of Kala; which supports the four kinds of food and drinks pushed out from the Amashaya (stomach) and staying in the Pakvashaya (small and large intestine) It is the last and seventh Kala; which pervades the entire body in all living beings so the thorough knowledge of the kala and its structural component shelps elicit the impending disease and the criterias to be undertaken to manage the further progression of the disease or the damage that it has held within. The exact efficacy of Gyan Chaksu (intellectual visualization) and Upmana Pramana (comparative tools) can be seen in the description of Kala Sharir, which after centuries and series of discoveries of the microscope has got its place in now days world as a separate entity of epithelium/tissue/membrane in histology, a subunit of anatomy .After reviewing the literature from classical and contemporary thoughts, we can bring a hawk-eye view about Kala Sharir and its function in a much-summarized manner as follows.

CONCLUSION

Kala shareera forms the integral part of ayurveda anatomy which helps in identifying diseases at the early stage by diagnosing it in microlevel athereby establishing management from its root level. As the kala forms the membranes that covers the vital organs any dooshya it comprises is later on manifested as disease as such, so the deep understanding of kala or layers that surrounds visceral organ can augment the diagnostic procedure and ensure with proper management by considering srotas or channels to which these kalas are related to at specific sites.thus kala shareera gives a holistic approach towards the stages of disease and considerable treatment protocols to be undertaken as such.

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