

## A REVIEW ARTICLE ON MAMSADHARA KALA

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## ABSTRACT

*Kala* is unique ayurvedic concept explained by *Acharaya Sushruta* in *Sushruta Samhita*. *Acharya Sushruta* while explaining the detailed development of body parts in *Garbhavyakaran sharin* Chapter of *sharir sthan* mentioned the concepts of *kala* *Acharya Sushruta* has explained *sapta kales* in *Sharir Sankhya vyakarana* Chapter along with its significant definition. While, Considering the *Ashaya* they had also thought of the linings making internal walls of *Ashays*, designating them as *kala*. *Kala* has been recognised as inner most limiting lining of *Dhatu* & *Ashraya* Among the *sapta kala*, *Mamsadhara kala* is one described by *Acharya Sushruta* & other *Acharyas*. *Mamsadhara kala* is the network of *Sira*, *Snayu*, *dhamani* & *srotas*. *Acharya Sushrut* has compared the description with *lotus*. *Mamsadhana Kala* provides anatomical supports and forms the protective sheath covering these delicate structures. *Mamsadhara kala* Can be consider as Inter muscular septa.

**KEYWORDS:** *Kala*, *Mamsadhara kala*, Intermuscular Septa.

## INTRODUCTION

*Kala* is an anatomical structure described in classical text they are the inner lining of various body viscera. *Kala* regarded as restricting membrane that exists between *Dhatu* and *Aashraya*. The term *Kala* denotes a *Guna* or attribute and describes the psychological component. *Achary Sushrut* was the first who described *Kala*. He defined *Kala* as

'*Dhatvashyaantar Maryada*<sup>[1]</sup> means Kala are Limiting structure between Dhatu and Aashaya the formation of Kala has been explained by Acharya Vagbhata in *Astanga Samgraha* first time. According to *Astanga Samgraha*, the moisture (*Kleda*) that stays inside the *Dhatu* and *Aashaya* is too cooked creates structure similar to those found in wood which is called as colour the structure covered with *snayu u slesma and Jarayu*.<sup>[2]</sup>

## AIM

To determine the anatomical consideration of *Mansadhara kala* in modern science.

## MATERIAL AND METHOD

1. Ayurvedic Samhita (*Brihat trayi* and *Laghu trayi*)
2. Journal, Research paper, Articles on Kala
3. Gray's Anatomy, Human Anatomy (B.D. Chaurasia)

## Review of Literature

In Sushruta Samhita, the term *Kala* is used in both context for time as well as membrane.

In *Astanga Samgraha*, Acharya Vagbhata described *Kala* in detail, he explain the definition and types of *kala*.

In *Astanga Hridaya*, Acharya described *Kala* in detail. In *Bhavprakash*, he described definition, Swaroop, and types of *kala*.<sup>[3]</sup> Acharya Dalhan Says that *Kala* remains indistinct when grossly viewed. There is an existence can be curtailed by means of obtained outcome of individual separate dhatu. There are seven types of *kala*<sup>[4]</sup> are.

1. *Mamsadhara Kala*
2. *Raktadhara Kala*
3. *Medodhara Kala*
4. *Shleshmadhara Kala*
5. *Pureeshdhara Kala*
6. *Pittadhara Kala*
7. *Shukradhara Kala*

These seven types of *Kala* are highly specific membrane present in highly specific sites where they separate different types of cavities formed specific body tissue.

## Utpatti of Kala

According to *Astanga Sangraha*, little quantity of *Rasa* and essence of *dhatu* formed *kala*. *Astanga Hridaya* mentioned that *Kleda* between *Dhatu* and *Ashaya Paak* by *Sharir Ushma* takes part in *Kala* Formation.<sup>[5]</sup> In *Sharangdhar Samhita*, Moisture present in between the *dhatu*s and *Ashaya* Cooked by *Sharir Ushma* results in Formation of *Kala*.<sup>[6]</sup> In *Bhavprakash*, *Kleda* inside *dhatu*, *Ashaya* and *Dhatvantara Paak* by heat of Body.<sup>[7]</sup>

कलाः खल्वपि सप्त भवन्ति धात्वाशयान्तरमर्यादाः॥ (S.Sha. 4/5)

Seven *Kala* also appears as structure intervention between *Dhatu* (*rasa*, *rakta* etc) and their seat *ashayas*. Here *dhatu* also denotes *doshas* and *malas* as they too support the body. *Ashaya* can be correlated with empty space present inside the organ. Whatever the matter stored in that empty space based on that its nomenclature is done like *Mutashaya*, *Aamashaya* etc. There are seven *Dhatu* in the body. *Ashaya* are formed from these *dhatu* only.

## Mamsdhara Kala

*Mamsdhara Kala* is one the seven *kala* or first *kala* in *kala Sharir* explained by *Acharya*.<sup>[8]</sup> *Mamsdhara kala* provide the support and forms a protective shield covering on the delicate structure.

“*Taasaam Prathama Mamsadhara naam yasyaam maamsa gataanaam, sira, snayu, dhamanee srotasaam prataanna bhawanti*”. (S.Sha.4/8)

*Kala* is explained simply- the stalk as lotus flower in the mud and its branches to spread all around in the surrounded area in the same pattern *sira*, *dhamnis*, *snayu* and *srotas* by taken the support of *kala* spread and nourish the *mamsa*. According to the chronology formation of tissue (*Rasa-rakta-mamsa-meda-asthi-majja-shukra*)<sup>[9]</sup> *mamsadhara kala* should have been explained after *rasa* and *raktadhara kala*. But *Rasa* and *Rakta* are passing through *sira* and *dhamnis* which are embedded in the *mamsa*. the substance of *mamsadhara* should be split to find or to see the *raktadhara kala*. According to this, *mamsadhara kala* described as first *kala* in *kala sharir*. *Mamsadhara kala* provide the anatomical support & forms a protective shield covering the delicate structure. *Rasa* & *Rakta* are passing through the *siras* & *dhamnis* which in turn are embedded in the substance of *mamsa*.

In this kala the network of *sira*, *snayu*, *dhamani* and *srotas* are spread. Dhatu can be seen when the *mamsa* is cut open. This can be compared with a cut portion of the wood known as medulla.<sup>[10]</sup> Kala is that part which is covered by *snayu*. It is enveloped by *slesma* or mucoid material. This is also form of *rasa* or *rakta*.

### Modern Aspect

The term kala is used for membrane- this may be fibrous, mucous and serous. Specific kala present in the specific organ.

**Membrane** – A thin layer of tissue, serving to line an organ, lines may body cavities or divides a space or organ. Epithelial membrane of the body are- mucous, serous, cutaneous membrane or skin. Mucous membrane-the moist, inner lining of some organ and body cavity, glands in the mucous membrane make mucus. Serous membrane- a smooth tissue membrane lining the contents and inner wall of body cavities. It covers the organ situated within the cavity. It has two layers- parietal and visceral. Parietal layer which is attached to wall of cavity. Visceral layer which attached to organ inside the cavity. Space between parietal and visceral layer filled with serous fluid to allow lubricating sliding movements. Cutaneous membrane- it refers to the layer of the skin but not relevant in term of kala.

**Fascia**- A thin sheath of connective tissue that surrounds and hold blood vessel, bone, nerve fibre and muscle in place. Fascia can be classified as – superficial and deep fascia. Superficial fascia- it is formed directly under the skin and superficial adipose layer.

**Deep fascia**- it surrounds bones, muscles, nerve and blood vessels. Deep fascia tends to be highly vascularized and contain well developed lymphatic channels. It is composed of collagenous fibres. Deep fascia is dense irregular connective tissue that lines body wall and limbs and hold muscles.

**Septa**- it is the modification of deep fascia. The intermuscular septa may separate muscle or group of muscles with different actions, development histories and interventional septa modification. Anatomically, it can be corelated with deep fascia or intermuscular septa that separate the muscles from underlying structure. Septum provide additional surface for attachment of muscle and provide plane along which nerve and vessels can travel. Arm is divided into anterior and posterior compartment by deep fascia which are called medial and lateral intermuscular septum. Medial septum pierced by ulnar nerve and superior ulnar

collateral artery. Lateral septum pierced by radial nerve and radial collateral artery. Medial and lateral intermuscular septum of arm ensure that the muscles are continued within anterior and posterior compartment.

## DISCUSSION

*Kala* is an anatomical structure describe in classical text, *acharya Sushruta* has described that *kala* is the structure in the form of lining for limitation between *dhatu* and *dhatwashaya* and they are seven in number. The anatomy of lining in the body Can be understood with the form of wood. When we cut, open in transverse section, the covering is ring like demarcation inside the wood. Here, *dhatu* means that which does the *Dharan Karma* (which holds). *Kala* overlapped by *Snayu*, *Jarayu*, *Sleshma* cover different types of organs.

According to this, *kala* can be taken as tough fibrous membrane, mucous membrane, serous membrane. *Mamsadhara kala* is explained in our classic as it is the first *kala*. In this *kala* network of *sira*, *snayu*, *dhamni* and *srotas* are spread. *Acharyas* has compared this description with lotus stalk situated in the muddy water gets in the soil. Here, *mamsa* is the main media to receive the nutrient from the artery and remove the metabolic waste through vein and venous system. So according to modern point of view, the connective tissue, which surround the muscle and protect, it has to be understood as *mamsadhara kala*, here the deep fascia is dense irregular connective tissue that lines the body and hold muscle and carries nerve, blood vessels, lymphatics vessels and fill the space between muscles. So, by this discussion we can conclude that the *mamsadhara kala* in anatomy is intermuscular septa which is a deep fascia.

## CONCLUSION

*Kala* is generally said for the membraneous connective tissue or structure which holds the muscles. *Mamsadhara kala* should be consider as intermuscular septa which fulfils the classical criteria.

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