



REVIEW ARTICLE

# A Critical Review of *Kalaa Shareera*

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## ABSTRACT

Reference of Kala Shareera is available in Sushruta Shareera sthana 4<sup>th</sup> chapter named as Garbhavyakaran shareera. Here Acharya explained in detail about the characters of this structure. This was established on the research after making several kind of dissection on cadavers. After such documentation the word came in to existence "Dhatvashayanatara maryada". Here an attempt is made to explain these references on the technique of cadaveric dissection so that the students may have an observable idea of such structures which are explained in sharrera sthana, and may be sensibly compared to the structures of contemporary Anatomy.

**Key Words** Kala, Anatomical structures

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## INTRODUCTION

त्वक्पर्यन्तस्य देहस्य यो अंगविनिश्चयः।

शल्यज्जाद्रतेनैषवर्ण्यते अनोषुकेषु चित्॥सुशा<sup>५</sup>/४६

Description of various parts of the body commencing with the skin cannot be attained apart from the shalyajnaana. Acharya Sushruta explained kalashareera after the tvacha description, so there is a clear idea of the kala with the other structures which he has observed during various dissection methods. The meaning of kala is the structure which separates the ashayas and dhatus. Majority of Kalas which are described can be compared to certain anatomical and may be demonstrated in the dissection theater, but some of them may require explanations pertaining to histology or may be understood by the functional aspects

.Microscopic evidence is the base for all the anatomical structures, but if we consider our Acharyas scientifically analyzed and explained these structures without the help of microscope or any other aids. And also they logically explained the anatomical as well as physiological role of such structures. We may consider these factors and make a try to demonstrate same to the students. So they will have the different perception of these structures. This kind of research can definitely give more justification of subjects which are explained in our science.

## Kala definition

तासां प्रथमामांसधरानाम, यस्यां मांसगतानां (मांसेवा)  
सिरास्नायुधमनीस्रोतसां  
प्रताना भवन्ति॥(सु.शा.४/८)2

REVIEW ARTICLE

यथाबिसमृणालानिविद्धन्तेसमन्ततः।

भूमौपङ्कउदकस्थानितथामांसेसिराआदयः॥(सु.शा.४/९)<sup>३</sup>

1] **Mamsadharakala** forms the deepest layer of Twak and covers the whole body providing vascular network. Superficial fascia and adipose tissue plane can be demonstrated as Masadharakala (figure 1). The dissection of subcutaneous plane shows the network of vessels in the adipose tissue plane which is comparable to the roots of water plants.

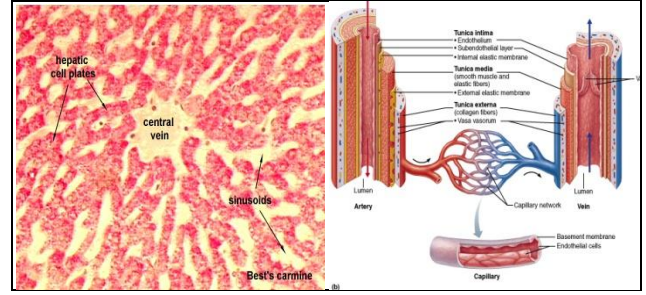


**Figure 1** Mamsadhara Kala (Superficial fascia Adipose Tissue)

2]द्वितीयारक्तधरामांसस्यआभ्यन्तरतः,  
तस्यांशोणितंविशेषतःचसिरासुयकृत्लीहोःच  
भवति (स्रवति)॥<sup>४</sup>

वृक्षद्यथाअभिप्रहताक्षीरिणःक्षीरम्आस्रवेत्।  
मांसात्एवक्षताक्षिप्रंशोणितंप्रसिच्यते॥(सु.शा.४/१०,११)<sup>५</sup>

2] The epithelial layers of the blood vessels, the hepatic cells, splenic cells and the entire haemopoeticsystem can be demonstrated as **Rakthadharakala**. (Microscopic structures) (figure 2 Epithelial layer of Blood vessels)



**Figure 2** Raktadhara Kala (Epithelial layer of Blood vessels)

3]तृतीयामेदोधरामेदोहिसर्वभूतानांउदरस्थम्अणुअस्थिषुचम  
हत्सुचमज्जाभवति॥

स्थूलअस्थिषुविशेषेणमज्जातुअभ्यन्तरआश्रितः।<sup>६</sup>

अथइतरेषुसर्वेषुसरक्तमेदउच्यते॥

शुद्धमांसस्ययःस्नेहःसावसापरिकीर्त्तिता॥(सु.शा.४/१२,१३)<sup>७</sup>

3] **Medodharakala** (figure 3) is popularly compared to adipose tissue. But subcutaneous layer of adipose tissue can be demonstrated as mamsadharakala. Whereas the abdominal fat tissue with omentum can be demonstrated as the anatomical base of medodharakala.--Omentum



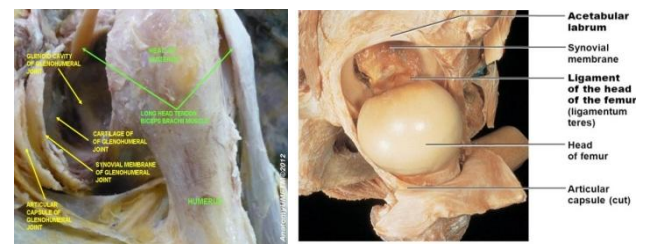
**Figure 3** Medodhrakala – Adipose tissue of Abdominal fat

4] चतुर्थीश्लेष्मधरा, सर्वसन्धिषु, प्राणभृतांभवति।

स्नेहअभ्यक्तेयथाहिअक्षेचक्रंसाधिप्रवर्त्तते।<sup>८</sup>

सन्ध्यःसाधुवर्त्तन्तेसंश्लिष्टाःश्लेष्मणातथा॥(सु.शा.४/१४,१५)<sup>९</sup>

4] Synovial membrane and the fluid (figure 4) can be demonstrated as **Shleshmadharakala** - Synovial Membrane



**Figure 4** Synovial membrane

REVIEW ARTICLE

5] पञ्चमीपुरीषधरानाम,  
याअन्तकोष्ठेमलम्अभिविभजतेपकाशयस्था ॥<sup>10</sup>  
यकृत्समन्तात्कोष्ठचतथाअन्ताणिसमाश्रिता।  
उण्डुकस्थविभजतेमलमलधराकला ॥(सु.शा.४/१६,१७)<sup>11</sup>

5] The large intestine as a whole and caecum in particular with their inner layers and the mechanism involved with segregation of essentials and non-essentials should be considered as **Pureeshadharaor Maladhara Kala. - Caecum.(figure 5)**

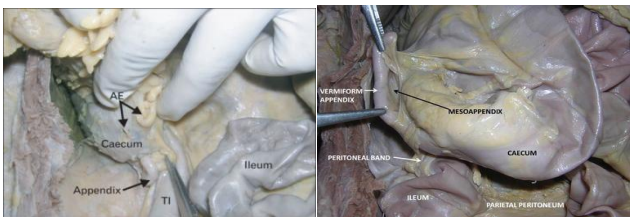


Figure 5 Caecum & Layers of Large Intestine

6] षष्ठीपित्तधरायाचतुर्विधंअन्नपानम्आशयात्प्रच्युतंपकाशयउ  
पस्थितंधारयति ॥<sup>12</sup>

अशितम्कशादितपीतलीढंकोष्ठगतंनृणाम्।  
तत्जीर्यतियथाकालंशोषितंपित्ततेजसा ॥(सु.शा.४/१८,१९)<sup>13</sup>  
साहिअन्तःअग्निअधिष्ठानंआमाशयात्पकाशयउन्मुखंअन्नंबलेन  
पिधायपित्ततेजसा  
शोषयतिपचितिततोअसौअन्नस्यग्रहणात्पुनःग्रहणीसज्ञा ॥(च.शा.  
.५)<sup>14</sup>

6] The stomach and duodenum, their inner layers and all the secretions including acids and digestive enzymes (gastric juice, hydrochloric acid, bile, pancreatic juice etc) draining into these organs should be considered as **Pittadhara Kala.(FIGURE06)**. Functional entities like secretions cannot be demonstrated in the mortuary.

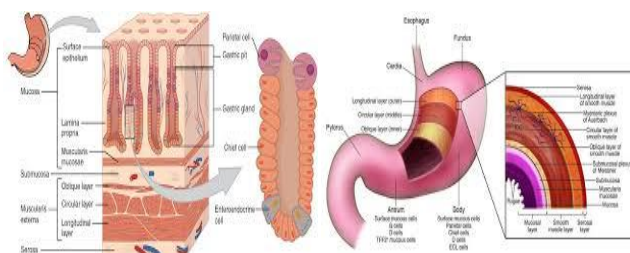


Figure 6 Stomach & Duodenum

7] सप्तमीशुक्रधरायासर्वप्राणिनांसर्वशरीरव्यापिनी ॥<sup>15</sup>  
यथापयसिसर्पिःतुगुडःचइक्षुरसेयथा।  
शरीरेषुतथाशुक्रंनृणांविध्यात्भिषकरः ॥(सु.शा.४/२०,२१)<sup>16</sup>

7] The **Shukradharakala** (figure 7) should be considered as the layers of testes in which semen is produced Shukra is not compared with semen but there is a subtle symphonic cascade effect occurring in the body during ejaculation is compared to the Shukradhatu.

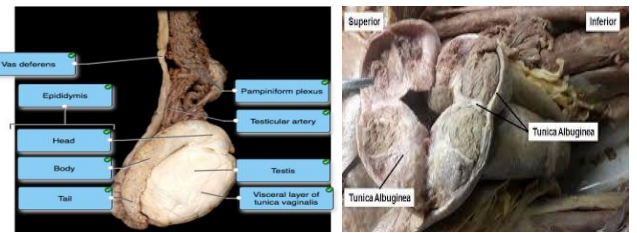


Figure 7 Layers of the testis

**Summary:**

शरीरेचैवशास्तेचद्रष्टार्थः स्यद्विशारदः।  
द्रष्टश्रुताभ्यांसंदेहमवापोह्याचरेक्त्रियाः ॥<sup>17</sup>  
नशक्यश्क्षुषाद्रष्टंदेहेसूक्ष्मतमोविभुः।  
द्रश्यतेःजानचक्षुर्भी ज्ञाचक्षुस्तपश्क्षुभिरेव च ॥<sup>18</sup>  
Acharya Sushruta has emphasized the method of dissection and the importance of dissection to understand the living anatomy. Perfect knowledge of anatomy is vital for practicing surgeons and also to the clinicians. Hence the conduction of dissection is mandatory for medical students as well as surgeons. Though dissection techniques may give the perception of the structure of various organs, the subtle consciousness in the body can be experienced with the eyes of knowledge.

The Compendium of Sushrutahas clearly mentions about the importance of dissection on the fact that, one who is intended to acquire definite knowledge of surgery should keenly



**REVIEW ARTICLE**

study the anatomy from the books as well as from  
the dissection.



## REVIEW ARTICLE

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