



Review Article

CONCEPT OF ASAYA, KOSTHA AND KOSTHANGA (SPLANCHNOLOGY) IN AYURVEDA

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ABSTRACT

The basic knowledge of an organ system is necessary to know the etio-pathogenesis, management and maintenance of health of an individual. Splanchnology is the study of visceral organs, which includes digestive, urinary, reproductive and respiratory systems, situated in the thoraco-abdominal-pelvic cavity. Concept of organs systems are highlighted in Ayurveda with three terminologies viz. *Asaya*, *Kostha*, *Kothanga*. *Asaya* is mentioned as *Aadhsthana* and *Riktasthana* which means cavities and blank spaces for lodging certain anato-physiological elements. They are 7 in numbers viz. *Vatasaya*, *Pittasaya*, *Shlesmasaya*, *Raktasaya*, *Amasya*, *Pakwasaya*, *Mutrasaya* and the *Garbhasaya* which are present in the thoracico-abdominal-pelvic cavity. *Mahasrota*, *Sariramadhya* and *Mahanimna* are the words mentioned in relation with *Kostha* which can be understood as gastro intestinal tract, middle part of the body and the pelvic cavity. *Nabhi*, *Hridaya*, *Kloma*, *Yakrita*, *Pleeha*, *Vrikka*, *Vasti*, *Purishadhara*, *Amasaya*, *Pakwasaya*, *Uttaraguda*, *Adharaguda*, *Kshudranata*, *Sthulantara* and *Vapavahana* are the *Kosthangas* which are interrelated organs of gastrointestinal tract and cardiovascular system, present in cavities of the middle part of the body. The hollow muscular organs and the structures present in thoraco-abdominal-pelvic cavity are collectively considered as *Asaya*, *Kostha* and *Kosthangas*. Therefore these 3 terminologies can be incorporated with splanchnology in modern science. In this work we tried to analyse the concept of splanchnology in Ayurveda in terms of *Asaya*, *Kostha*, *Kosthanga*. This will be helpful for better understanding and study of the topic in a single platform, and gives the glimpse of the morpho-physiological aspect of visceral organs mentioned in Ayurveda in a nutshell.

INTRODUCTION

Splanchnology is the study of viscera which includes the organs of digestive, respiratory, and urinary as well as reproductive systems^[1,2,3]. Viscera are the soft organs that are mainly situated in the thoracic, abdomen and pelvic cavities and fulfil the metabolism and maintain the life of species^[4].

The system is a collection of homogenous organs, which have a common function, development and they are connected to each other anatomically and communicate through Neuro-Endo-Immune super system (NEI)^[5,6]. In Ayurveda this concept can be understood with three terminologies i.e., *Asaya*, *Kostha*, *Kothanga*. Scattered references are available regarding *Asaya*, *Kostha*, *Kosthanga* in all classics, which are needed to study and understand from modern anatomical point of view in a concise form. In modern anatomy books the organs are studied systematically and their morpho-physiological aspects are described clearly. But in classical books there are scattered references in various places in relation with different contexts, which are needed to be studied in a single platform.

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MATERIALS AND METHODS

- The present study is designed to evaluate the concept of Splanchnology in Ayurveda in terms of *Asaya*, *Kostha* and *Kosthanga* from available classical references.
- Related references are studied and analysed from both Ayurvedic as well as modern Anatomical point of view.
- Different classical books, respective commentaries along with related text books of Ayurveda, and Modern Anatomy were taken as references for this study.
- Recent available electronics databases, journals and related websites were used as references for this study.

REVIEW AND DISCUSSION

Asaya

The term *Asaya* means lodge or house or place for lodging certain things. Almost in all Ayurvedic classics various references are available regarding *Asaya*.

According to Dalhana, *Asaya* means *Adhithana* and *Riktasthana* which indicate places, organ cavities and blank spaces for lodging certain anato-physiological elements like fatty substances, digestive enzyme as well as excretory products^[7]. Susruta mentioned 7 total numbers of *Asaya*. They are *Vatasaya*, *Pittasaya*, *Shlesmasaya*, *Raktasaya*, *Amasya*, *Pakwasaya*, *Mutrasaya* and the *Garbhasaya*. *Garbhasaya* is the extra *Asaya* present in female^[8]. According to Vagbhata, there are 7 *Asaya* which are seat, abode or receptacle of *Asrika* (blood), *Kapha* (mucoïd substances), *Ama* (semi digested food), *Pitta* (digestive enzyme), *Pakwa* (fully digested food), *Vayu* (gas) and *Mutra* (urine). He also included *Garbhasaya* as extra *Asaya* which is present in female^[9]. *Saptasaya* also mentioned in Astangahridaya along with one extra *Asaya* i.e., *Garbhasaya* that present in female. According to Astangahridaya, *Asaya* means “*Adhara*” which indicate receptacle for different body elements^[10].

Sarangadhar mentioned 7 total numbers of *Asaya* and their location in the thoraco-abdominal pelvic cavity. He described the anatomical positions and interrelations of these organs. He also mentioned 3 extra *Asaya*, the *Garbhasaya* and two *Stanasyas* which are present in female^[11,12].

In this context *Vatasaya* is the seat of *Vata* which can be considered as large intestine where gas forms or accumulates mostly in large intestine (colon) due to fermentation of food substances like carbohydrates, fibre, sugar etc., are not digested in small intestine. Similarly *Pittasaya* is the seat of *Pitta* which is located in the *Pakwamasayamadhya* which

means the region between large intestine and the stomach^[13]. From this reference it can be considered as the structure present in between stomach and umbilicus i.e. the small intestine. This is the place for digestive fire, and lodging the semi-digested food. *Shlesmasaya* is the seat for *Kapha*. It can be considered as lungs located in the *Urah* (chest) which is the seat of *Shlesma*. *Shlema* can be understood as the mucoïd substances which basically secreted from surface epithelium of airways as well as connective tissue layer present beneath the epithelium which contains seromucous glands. Other *Asayas* are *Amsaya* which is the location of *Ama* (semi-digested food), *Pakwasaya* is the location for digested food, and *Mutrasaya* is the space for *Mutra* i.e., urine. These structures can be correlated with stomach, large intestine and the urinary bladder respectively. The *Garbhasaya* is the extra *Asaya* in female which is the seat for *Garbha* i.e., fetus. This can be correlated with the uterus which is the hollow muscular organ for lodging and nourishing the growing fetus. Similarly the *Raktasaya* is the seat of *Rakta*. It can be understood as both spleen as well as liver because these are hematopoietic organs. They are responsible for haematopoiesis i.e., the production of all of the blood cellular components and plasma.

All these structures are stated emphasizing as spaces for lodging certain body elements like *Vata* (gas), *Pitta* (digestive enzyme), *Kapaha* (mucoïd substance), *Rakta* (blood) etc. Therefore they can be understood as viscera i.e., hollow muscular organ that lodging certain anato-physiological elements of the body.

Kostha

The general meaning of *Kostha* is cavity. Scattered references regarding *Kostha* are available in many Ayurvedic classical books. Acharya Caraka has mentioned three terminologies regarding *Kostha* which are *Mahasrota*, *Sariramadhya* and *Mahanimna*. These can be understood as gastrointestinal tract (GIT), the middle part of the body that includes thoracic as well as abdominal region and the pelvic cavity respectively^[14].

Susruta mentioned 8 numbers of *Kostha* which are *Amasthana*, *Agnisthana*, *Pakwasthan*, *Mutrasthan*, *Rudhirasthan*, *Hridaya*, *Unduka* and *Phupphusa*^[15]. *Amasthana* is the location for semi digested food, while *Agnisthana* is the location of digestive fire. On the other hand *Pakwasaya* is the location for digested food, *Mutrasaya* is the seat of urine and the *Rudhirasaya* is the location for blood. These all are digestive as well as the urinary systems related organs which can be understood as stomach, small intestine, large intestine, urinary bladder and the liver. The *Hridaya*, *unduka* and *Phuppusha* can be

considered on the basis of their locations and morphological point of view as heart, caecum and lungs respectively. All these structures are relating to respiratory system, circulatory system, as well as gastro-intestinal tract (GIT) and urinary system which are discussed under splanchnology in modern science.

Kostha also mentioned as *Abhyanatarogamarga* which indicates the involvement of diseases of various organs or viscera that are present within the cavities of the body. References like *Krurakostha*, *Mridukostha* and *Modhyakostha* are mentioned in relation with peristaltic movement or activity of GIT^[16,17]. Susruta also mentioned *Vatapurna Vostha*, *Kaphapurna Kostha* and *Sonitapurna Kosthavakshyam* in relation with involvement of *Marma* that present in the chest region^[18]. Here the term *Kostha* means for the thoracic cavity. The involved organs can be considered as the pleura as well as lungs. Sarangadhar mentioned the location of the different organs like *Phupphus* (lungs), *Pleeha* (spleen), *Yakrita* (liver) etc. along with their morphological description^[19].

From above discussion it has been clarified that *Kostha* are the interrelated organs of different systems like respiratory, circulatory, digestive as well as urinary and reproductive system of the body. In general it can also be understood as cavities present in the middle part of the body while in specific as the organs present in thoraco-abdominal cavity including the organs of the pelvic cavity.

Kosthanga

Acharya Charaka mentioned 15 numbers of *Kosthanaga* which are *Nabhi*, *Hridaya*, *Kloma*, *Yakrita*, *Pleeha*, *Vrikka*, *Vasti*, *Purishadhara*, *Amasaya*, *Pakwasaya*, *Uttaraguda*, *Adharaguda*, *Kshudranata*, *Sthulantara* and the *Vapavahana*.^[20]

The term *Nabhi* has different meaning in different context. It has got importance in Ayurveda which is sometime indicates region and sometimes as structure. For example it is the place or region where the pain appears as *Purvarupa* of *Atisara* and during the *Vatajachardi* (vomiting)^[21,22]. These references indicate *Nabhi* as a region. It is also mentioned as place for origination of *Hikka* (cough)^[23]. From this reference it can be understood as diaphragm because there is prominent involvement of diaphragm during coughing.

References of *Nabhi* mentioned in relation with fetal circulation and its enumeration i.e., single in number are directly indicated as umbilicus^[24]. Apart from the *Nabhi* the remaining *Kosthanga*s can also be correlated with different organs present in thoraco-abdominal pelvic cavities. Shape of the *Hridaya* is similar with lotus bud that facing downwards and it is present in *Vakshya* (thoracic cavity) in between two *Stanas* (breast)^[25,26]. Therefore *Hridaya* can be understood as heart from its location as well as morphological description. Similarly *Kloma* can be considered as pancreas, while *Yakrit*, *Pleeha*, *Vrikka* and *Vasti* can be correlated with liver, spleen, kidneys and the urinary bladder on the basis of their morphological description. The *Purishadhara* can be considered as sigmoid colon where normally faeces are stored or hold until ready to go for defecation. We have clarified *Amasaya* as the stomach, and the *Pakwasaya* as the large intestine^[27]. Length of the *Guda* is mentioned as four and half *Anguli* which can be incorporated with the length of both rectum and the anal canal collectively. There is also reference regarding *Gudavali* which we can correlate with sphincters of the anal canal^[28]. From all these statements the *Uttaraguda* and *Adharaguda* can be considered as rectum and the anal canal respectively. *Kshudrantra* can be understood as small intestine. While *Sthulantra* in general includes all parts of the large intestine including sigmoid colon but in this verse we can correlate specifically as ascending, transverse and descending colon because sigmoid colon has already considered as *Purishadhara*. Lastly the *Vapavahana* can be considered as the omentum where maximum fatty tissue deposition has seen in the abdominal region.

The concept of *Kosthanga* also mentioned by both the *Astangasamgraha* and *Astangahridaya* where they have included almost all the organs mentioned by Acharya Charaka^[29,30].

These are specific interrelated structures to perform specific functions like digestion, excretions and nourishment of the body and most of them are located in the thoracic, abdomen and the pelvic cavities.

From above discussion, we can summarise the concept of splanchnology with following illustration:

Diagram-1

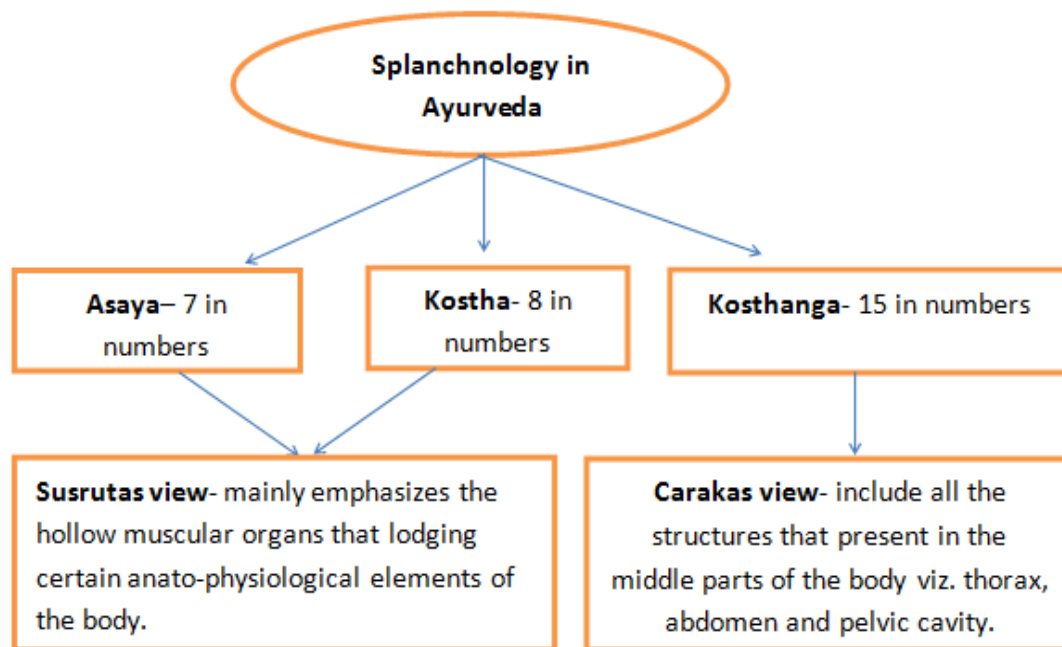


Diagram 1: Concept of Splanchnology in Ayurveda

As a whole the structures mentioned by different *Acharyas* which can be placed under splanchnology are presented in the table no 1.

Table 1: Structures Considered Under Splanchnology and Their Correlations with Modern Science

Caraka Samhita	Susruta Samhita	Asthanga Samgraha	Asthanga Hridaya	Kashyapa Samhita	Bhela Samhita	Modern Correlation
<i>Nabhi</i>	-	-	<i>Nabhi</i>	<i>Nabhi</i>	<i>Nabhi</i>	Umbilicus
<i>Hridaya</i>	<i>Hrid</i>	<i>Hridaya</i>	<i>Hridaya</i>	<i>Hridaya</i>	<i>Hridaya</i>	Heart
<i>Kloma</i>	-	-	<i>Kloma</i>	<i>Kloma</i>	<i>Kloma</i>	Pancreas
<i>Yakrita</i>	<i>Rudhirasthan</i>	<i>Yakrita</i>	<i>Yakrita</i>	<i>Yakrita</i>	<i>Yakrita</i>	Liver
<i>Pleeha</i>	<i>Rudhirasthan</i>	<i>Pleeha</i>	<i>Pleeha</i>	<i>Pleeha</i>	<i>Pleeha</i>	Spleen
<i>Vrikka</i>	<i>Mutrasthan</i>	<i>Vrikka</i>	<i>Vrikka</i>	<i>Vrikka</i>	<i>Vrikka</i>	Kidney
<i>Vasti</i>	<i>Mutrasthan</i>	<i>Vasti</i>	<i>Vasti</i>	<i>Vasti</i>	<i>Vasti</i>	Bladder
<i>Purishadhara</i>	<i>Unduka</i>	<i>Unduka</i>	<i>Unduka</i>	-	<i>Purishadhara</i>	Sigmoid colon
<i>Amasaya</i>	<i>Amasthan</i>	-	-	<i>Amasaya</i>	<i>Amasaya</i>	Stomach
<i>Pakwasaya</i>	<i>Pakwasthan</i>	-	-	<i>Pakwasaya</i>	-	Large Intestine
<i>Uttarguda</i>	-	-	-	<i>Guda</i>	<i>Uttarguda</i>	Rectum
<i>Adharaguda</i>	-	-	-	<i>Guda</i>	<i>Adharaguda</i>	Anus
<i>Kshudrantra</i>	-	<i>Antrani</i>	<i>Antra</i>	<i>Kshudrantra</i>	<i>Kshudrantra</i>	Small intestine
<i>Sthulantra</i>	-	<i>Antrani</i>	<i>Antra</i>	<i>Sthulantra</i>	<i>Sthulantra</i>	Large Intestine
<i>Vapabahana</i>	-	-	-	<i>Vapa</i>	<i>Vapabahana</i>	Omentum
-	<i>Pupphusa</i>	<i>Pupphusa</i>	<i>Pupphusa</i>	-	-	Lungs
-	-	-	<i>Dimbha</i>	-	-	Rectum
-	<i>Agnisthan</i>	-	-	-	-	Small intestine
-	<i>Garbhasaya</i>	<i>Garbhasay</i>	-	-	-	Uterus

CONCLUSION

After going through this study we can conclude that the concept of splanchnology is well known since *Samhita* periods in terms of *Asaya*, *Kostha*, and *Kosthanga*. They are discussed as interrelated structures i.e., as system which can be placed under digestive system, urinary system, respiratory system, circulatory system as well as reproductive and reticulo-endothelial system. They are mainly present in thoraco-abdominal pelvic cavity for digestion, metabolism, and excretion as well as for nourishment and sustenance of life. All the organs related to these systems are studied under the splanchnology in contemporary science.

Present study covers the glimpse of the concept of splanchnology in Ayurveda. It also shows the pathway of systematic study of different topics of *Rachana Sharir* in comparison and correlation with modern anatomy as well as with contemporary science. In this work we have given the base for future research to this specific area. Further thorough research in this specific topic is needed for better understanding and upgrading of the science in the field of applied aspect.

REFERENCES

1. Kiss Ferenc and Janos Szentágothai, Atlas of Human Anatomy, Pergamon London; Macmillan, New York, edition 2017, p50.
2. Henry Gray, editor-in-Chief- Stranding Susan, Gray's anatomy, the Anatomical basis of clinical practice, edition 40th 2008.
3. S Rayapati Jnanesh, Clinically oriented Anatomy, CBS Publishers and Distributors Pvt. Ltd. edition 2010, p1.
4. Bumeister V. I, Sulim L. G., Prykhodko O. O, A Splanchnology, cardiovascular and immune systems, Academic Council of Sumy State University, edition 2016, p10.
5. Understanding the 11 Body Organ Systems, Brouhard Rod, Sweigard Jenny, Cited February 16, 2022, available from: <https://www.Verywellhealth.com/organ-system-1298691>.
6. Human Body Organ Systems, Crosby Cassandra, Advocate Claims, Cited February 16, 2018, available from: <https://www.hillandpontton.com/human-body-organ-systems/>.
7. J.T Acharya and Narayan Ram, Sushrut Samhita, with Nibandhasangraha commentary of Shri Dalhanacharya, Chaukhamba surbharati prakashan, Varanasi, Reprint- 2014. Sarira Sthana 4/5, p54.
8. Prof. Murthy Srikantha K.R., Susruta Samhita, Sarira Sthana 5/8. Chaukhambha Orientalia, Varanasi, edition 2016, p80.
9. Prof. Murthy Srikantha K.R., Astanga Sangraha, Sarira Sthana 5/28,. Chaukhambha Orientalia, Varanasi, edition 2012, p65.
10. Prof. Murthy Srikantha K. R., Astanga Hridaya, Sarira Sthana 3/10, 11, Chaukhambha Krishnadas Academy, Varanasi, edition 2012, p395.
11. Prof. Murthy Srikantha K.R., Sarangadhar samhita, prathamkhanda 5/7, 8, 9, Chaukhambha Orientalia, Varanasi, edition 2016, p21.
12. Prof. Murthy Srikantha K.R., Sarangadhar samhita, prathamkhanda 5/10, Chaukhambha Orientalia, Varanasi, edition 2016, p21.
13. Prof. Murthy Srikantha K.R., Susruta Samhita, Sutra Sthana 21/6. Chowkhamba orientalia, Varanasi, edition 2019, p153.
14. Prof. Murthy Srikantha K.R., Caraka Samhita, Sutra Sthana 11/48, Chowkhamba S.S.O, Varanasi 2020, p228.
15. Prof. K.R. Srikantha Murthy, Susruta Samhita, Chikitsa Sthana 2/12. Chowkhamba orientalia, Varanasi, edition 2019, p30.
16. Prof. Murthy Srikantha K.R., Caraka Samhita, Sutra Sthana 11/48, Chowkhamba S.S.O, Varanasi, edition 2020, p228.
17. Chidre S. Madhumati, Dhimdhime R.S. et al, Maind, A critical review on kostha and its clinical significance, International Ayurvedic Medical Journal, November, 2018.
18. Prof. Murthy Srikantha K.R., Susruta Samhita, Sarira Sthana 6/25, Chowkhamba orientalia, Varanasi, edition 2019, p111.
19. Prof. Murthy Srikantha K.R., Sarangadhar samhita, prathamkhanda 5/43, 44, 45, Chaukhambha Orientalia, Varanasi, edition 2016, p24.
20. Sharma R.K. & Das B, Caraka Samhita, Sarira Sthana 7/10, Chowkhamba S.S.O, Varanasi, edition 2020, p454.
21. Sharma R.K & B Das, Caraka Samhita, Chikitsa Sthana 20/8, 9, Chowkhamba S.S.O, Varanasi, edition 2020, p463.
22. Sharma R.K. & Das B, Caraka Samhita, Chikitsa Sthana 28/27, Chowkhamba S.S.O, Varanasi, edition 2020, p27.
23. Prof. Murthy Srikantha K.R., Susruta Samhita, Uttar Sthana 50/12, Chowkhamba orientalia, Varanasi, edition 2019, p332.
24. Prof. Murthy Srikantha K.R., Susruta Samhita, Sarira Sthana 7/4, Chaukhambha Orientalia, Varanasi, edition 2016, p122.
25. Prof. Murthy Srikantha K.R., Susruta Samhita, Sarira Sthana 6/25, Chaukhambha Orientalia, Varanasi, edition 2016, p111.

26. Prof. Murthy Srikantha K.R., Susruta Samhita, Sarira Sthana 4/32, Chaukhambha Orientalia, Varanasi, edition 2016, p61.
27. Kumar Manoj, Kureel Manoj, Concept of Gastro Intestinal System in Ayurveda: a review article, World Journal of Pharmaceutical and Medical Research. 2020, 6(8), 145-148.
28. Prof. Murthy Srikantha K.R., Susruta Samhita, Nidan sthana 2/5, Chaukhambha Orientalia, Varanasi, edition 2016, p61.
29. Prof. Murthy Srikantha K.R., Astanga Sangraha, Sarira Sthana 5/28, Chaukhambha Orientalia, Varanasi, 2012, p65.
30. Prof. Murthy Srikantha K. R., Astanga Hridaya, Sarira Sthana 3/12, Chaukhambha Krishnadas Academy, Varanasi, edition 2012, p395.

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