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# A Comparative Anatomical Analysis of Organ Position (AVAYAVA STHANA) In Ayurvedic and Modern Perspectives

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## ABSTRACT

Ayurveda, the timeless science of health and healing, presents a unique conceptualization of the human body's structure through detailed descriptions of *Avayava Sthana* (organ position) found in classical texts such as the *Sushruta Samhita*, *Charaka Samhita*, and *Ashtanga Hridaya*. These descriptions are often rooted in functional, doshic, and tridosha-balancing perspectives, emphasizing the physiological harmony rather than precise spatial localization. In contrast, modern anatomy, based on cadaveric dissection and empirical visualization, describes organ positions with quantitative precision and standardization.This review aims to critically analyze and compare the positioning of key internal organs—such as the *Hridaya* (heart), *Yakrit* (liver), *Pleeha* (spleen), *Basti* (urinary bladder), and *Phupphusa* (lungs)—from both Ayurvedic and contemporary anatomical viewpoints. The analysis highlights congruencies in central organ placement and functional interpretation, while also identifying discrepancies that may stem from methodological and philosophical differences. For instance, the *Hridaya* is described as located between the *Stana* (breasts) in Ayurveda, correlating with the mediastinal location in modern anatomy.The study also explores the significance of embryological development, doshic predominance, and *Srotas* (channels) theory in understanding organ positioning in Ayurveda. By bridging these perspectives, the review seeks to contribute to an integrative anatomical model that respects both the spiritual-functional orientation of Ayurveda and the structural accuracy of modern science.Such interdisciplinary insights can deepen our understanding of classical anatomical knowledge and support its relevance in modern clinical and educational contexts.

***Keywords:*** *Avayava, Sthana, Ayurvedic Anatomy, Organ Position, Modern Anatomy, Sushruta Samhita*

## 1. INTRODUCTION

The human body has been a subject of extensive study in both ancient and modern systems of medicine. Anatomical understanding, especially the positioning of internal organs (*Avayava Sthana*), is pivotal for accurate diagnosis, treatment, and surgical intervention. While modern anatomy has achieved high precision in the identification and localization of organs through cadaveric dissection, imaging, and histology, Ayurveda offers a functional, holistic, and observation-based approach to organ positioning rooted in ancient clinical practices and philosophical paradigms. Ayurvedic texts like *Sushruta Samhita*, *Charaka Samhita*, and *Ashtanga Sangraha* provide rich descriptions of various body parts, including internal organs, with contextual relevance to physiological and pathological functions [1–3]. These descriptions, though less quantified compared to modern anatomical data, reflect deep clinical acumen, surgical application, and an understanding of doshic balance. For instance, the location of the *Hridaya* (heart) is described as being situated in the thoracic cavity, between the two breasts (*Stana Madhya*), correlating broadly with its mediastinal position as per modern anatomical understanding [4]. Similarly, the *Yakrit* (liver) is located in the right side of the abdomen (*Udara*), consistent with its modern placement in the right hypochondrium [5]. However, Ayurveda does not rely solely on dissection for its anatomical insights. Instead, the knowledge was synthesized from live surgical experience, trauma management, observational studies, and theoretical derivations from the tridosha theory, pancha mahabhuta, and srotas systems [6]. The concept of *Srotas* (bodily channels) and the *Doshic*

predominance in different organs offers a functional model that complements the structural approach of modern medicine. This distinction is important in understanding how Ayurveda integrates anatomical knowledge with physiological, pathological, and therapeutic contexts.In contrast, modern anatomy is derived from systematic dissection, microscopy, embryology, and radiological methods, allowing exact localization, dimensions, and histological features of every organ. Organs are classified based on systems—digestive, respiratory, cardiovascular, nervous, musculoskeletal—and their positions are described in planes (axial, sagittal, coronal) and quadrants or regions (such as the epigastric or hypogastric regions of the abdomen) [7].

Comparative anatomical studies reveal both congruencies and deviations between the two systems. For example, Ayurveda considers *Basti* (urinary bladder) to be located in the pelvic region, which is anatomically correct; however, its functions are sometimes extended metaphorically to include broader urinary and metabolic actions [8]. Similarly, *Pleeha* (spleen) is described on the left side of the abdomen, which aligns with modern splenic location, but with differing functional emphasis, often connected with *Rakta Dhatu* and *Pitta* dosha [9]. Embryological explanations also diverge between the systems. Modern embryology traces the development of organs from germ layers, detailing the morphogenesis of organ systems. Ayurveda, on the other hand, explains organogenesis through the concept of *Garbha Sharira*, which includes the role of *Shukra*, *Shonita*, *Atma*, and *Panchamahabhuta* in fetal development [10].

Despite these differences, both traditions aim to understand the internal architecture of the body for practical application in health and disease management. The Ayurvedic approach emphasizes anatomical structures from a clinical and energetic point of view, focusing on maintaining equilibrium between bodily components. Modern anatomy offers detailed visual and structural data crucial for surgical precision and pathological identification.Therefore, studying *Avayava Sthana* from both Ayurvedic and modern perspectives is not only academically valuable but also essential for developing an integrative understanding of human anatomy. Such comparative analysis can enrich Ayurvedic education, bridge gaps between traditional and modern medicine, and enhance interdisciplinary communication among practitioners.This article attempts a comparative analysis of selected major internal organs, including the *Hridaya* (heart), *Yakrit* (liver), *Pleeha* (spleen), *Basti* (bladder), and *Phupphusa* (lungs), evaluating their anatomical descriptions from Ayurvedic texts and correlating them with modern anatomical standards. The review highlights areas of overlap, divergence, and complementary insight, ultimately advocating for a pluralistic model of anatomical understanding that honors both traditional wisdom and contemporary scientific rigor.

## 2. MATERIALS AND METHODS

A detailed qualitative analysis was performed by reviewing Ayurvedic classical texts—primarily Sushruta Samhita, Charaka Samhita, Ashtanga Hridaya, and Bhavaprakasha—and comparing descriptions with modern anatomical literature such as Gray's Anatomy, Netter's Atlas, and standard medical anatomy textbooks. Conceptual mappings and positional correlations were drawn, and a comparative evaluation was conducted.

## 3. CONCEPTUAL FRAMEWORK OF AVAYAVA IN AYURVEDA

Ayurveda identifies various organs (Avayavas) as structural and functional units of the human body. The term 'Avayava' refers to the part or organ formed by the assembly of multiple Dhatus (tissues) and functioning as a unit [11].

Sushruta categorized organs into Sthula (macroscopic) and Sukshma (microscopic) types. The macroscopic organs such as Hridaya (heart), Yakrit (liver), Pleeha (spleen), Phuphphusa (lungs), Vasti (urinary bladder), and Kloma (possibly pancreas or lung lobe) were given distinct positional references within the Sharira [Table 1].

**Textual Descriptions**

- **Hridaya**: Positioned between the two Phuphphusas and in the central thoracic cavity, described as the root of Rasavaha and Pranavaha Srotas [12].
- **Yakrit and Pleeha**: Described as flanking the Hridaya—Yakrit on the right, Pleeha on the left [13].
- **Vasti**: Located in the pelvic region, termed as Basti or urinary bladder, the root of Mutravaha Srotas [14].
- **Kloma**: Ambiguously placed near the Hridaya; some interpret it as the pancreas or accessory lobe of the lung [15].

**Table 1: Description of Selected Organs in Ayurvedic Texts and Their Anatomical Correlates**

| Ayurvedic Term | Location as per Ayurveda | Modern Anatomical Correlate | Functional Significance |
|---|---|---|---|
| **Hridaya** | Between the two *Phuphphusas* (lungs), in the thoracic cavity | Heart (mediastinum) | Root of *Rasavaha* and *Pranavaha Srotas* |

| Ayurvedic Term | Location as per Ayurveda | Modern Anatomical Correlate | Functional Significance |
|---|---|---|---|
| **Yakrit** | Right side of *Hridaya* | Liver (right hypochondrium) | Involved in *Rasa* and *Rakta Dhatu* metabolism |
| **Pleeha** | Left side of *Hridaya* | Spleen (left hypochondrium) | Associated with immune and blood-related functions |
| **Vasti** | Pelvic region | Urinary bladder | Root of *Mutravaha Srotas*; involved in urine storage and elimination |
| **Kloma** | Near *Hridaya* (varied interpretations) | Possibly pancreas, pleural lobe, or lymphoid organ | Linked to *Kapha* production and possibly digestion or respiration |

These anatomical narratives are embedded in functional frameworks rather than spatial precision.

## 4. MODERN ANATOMICAL DESCRIPTION OF ORGAN POSITIONING

Modern human anatomy describes organ positions using standard planes (sagittal, coronal, transverse), anatomical landmarks, and body cavities. Organs are classified based on systems—cardiovascular, digestive, respiratory, genitourinary, etc.

**Major Organs and Their Positions**

- **Heart**: Positioned in the middle mediastinum of the thoracic cavity, between the lungs, posterior to the sternum.
- **Liver (Yakrit)**: Right upper quadrant of the abdominal cavity, beneath the diaphragm, overlapping the stomach.
- **Spleen (Pleeha)**: Left upper quadrant, beneath the rib cage, posterolateral to the stomach.
- **Urinary Bladder (Vasti)**: Pelvic cavity behind the pubic symphysis.
- **Lungs (Phuphphusa)**: Flanking the mediastinum, filling the right and left pleural cavities.
- **Pancreas (Kloma?)**: Retroperitoneal, posterior to the stomach, spanning the left to right upper quadrant.

## 5. COMPARATIVE ANALYSIS

| Organ | Ayurvedic Term | Ayurvedic Description | Modern Anatomical Location | Correlation |
|---|---|---|---|---|
| Heart | Hridaya | Between lungs; root of Pranavaha Srotas | Middle mediastinum | Strong match |
| Liver | Yakrit | Right side of Hridaya | Right hypochondrium | Strong match |
| Spleen | Pleeha | Left side of Hridaya | Left hypochondrium | Strong match |
| Lungs | Phuphphusa | On both sides of Hridaya | Right and left thoracic cavity | Strong match |
| Urinary bladder | Vasti | Pelvic cavity, below Nabhi | True pelvis behind pubic symphysis | Strong match |
| Pancreas / Lung lobe | Kloma | Near Hridaya; unclear | Retroperitoneal or lung accessory lobe | Partially matched |

## 6. OBSERVATIONS

- Classical positions closely match visceral organ locations.
- Ayurvedic terms are more functionally aligned than locationally detailed.
- Positional references like ‘Nabhi Adha’ (below umbilicus) or ‘Urdhwa’ (above) are regionally accurate but lack standardization.

## 7. DISCUSSION

Ayurvedic anatomy, as delineated in classical texts such as *Sushruta Samhita* and *Charaka Samhita*, reflects a unique topographical and functional understanding of the human body. The descriptions are rooted in direct observation, clinical correlation, and surgical exploration, particularly prominent in *Sushruta Samhita*. The knowledge was systematically arranged to support practical applications, especially in diagnostics and interventions like *Agnikarma*, *Siravyadha*, *Basti*, and *Kshara Karma*.

One of the most illustrative examples of Ayurvedic anatomical insight is the description of *Hridaya* (heart). According to *Sushruta*, the Hridaya is situated between the two *Stanabhaga* (breasts), in the thoracic region. This positioning correlates well with the anatomical location of the heart in modern medicine, situated slightly to the left of the midline in the mediastinum. Furthermore, *Hridaya* is functionally associated with *Prana Vata*, *Sadhaka Pitta*, and *Avalambaka Kapha*, reflecting its involvement in circulation, respiration, and mental-emotional regulation. This tridoshic association aligns with the modern understanding of the heart's central role in circulatory dynamics and autonomic regulation.Additionally, Ayurvedic texts describe the liver (*Yakrit*) and spleen (*Pleeha*) in relation to the Hridaya. *Yakrit* is described as being located on the right side, while *Pleeha* is on the left—this correlates with modern anatomy where the liver occupies the right hypochondrium and the spleen lies in the left hypochondrium. These positional descriptions are consistent with present-day anatomical observations, indicating that ancient physicians had a considerable degree of empirical anatomical accuracy.

However, certain anatomical structures in Ayurveda, such as *Kloma*, pose interpretative challenges. The *Kloma* is variably described in classical texts, with no universally agreed-upon location or function. Some commentaries suggest it corresponds to the pancreas due to its association with *Kapha* and digestive functions, while others relate it to pleural structures or lymphoid tissues, possibly reflecting the thymus or associated thoracic nodes. This ambiguity arises from the symbolic and functional descriptions prevalent in Ayurvedic texts, which were less focused on structural morphology and more on physiological roles and systemic integration.

The Ayurvedic anatomical framework emphasizes *Karya-karana Siddhanta*—the cause-effect relationship between structure (*Sharira*) and function (*Karma*). The localization of organs was significantly influenced by their functional implications, especially in relation to *Dosha*, *Dhatu*, and *Srotas*. For instance, the understanding of abdominal organs is essential in diagnosing and managing conditions like *Udara Roga*, *Ashmari*, and *Mutraghata*. In these conditions, precise knowledge of the internal organ locations and their Srotas affiliations informs the therapeutic selection of *Basti*, *Urovasti*, and other Panchakarma interventions.Moreover, the anatomical descriptions in Ayurveda serve not only a diagnostic purpose but also a procedural one. Surgical techniques mentioned by *Sushruta*—like *Siravyadha* (venesection), *Kshara Sutra* (alkaline thread therapy), and various types of incisions and excisions—require a clear understanding of organ and vessel locations. For instance, the locations of *Sira* (veins) and *Dhamani* (arteries or pulsating channels) are discussed with respect to landmarks such as *Sandhi* (joints), *Marma* (vital points), and *Asthi* (bones), all of which are critical for avoiding iatrogenic injury during procedures.

In contrast, modern anatomical science provides a highly detailed and validated mapping of the human body, based on dissection, imaging techniques (MRI, CT, ultrasound), histopathology, and embryological tracing. The subdivision of the abdomen into nine regions and four quadrants allows clinicians to localize pathology accurately. Such precision is indispensable for modern diagnostic processes (e.g., identifying hepatic enlargement or splenic rupture) and surgical interventions like laparotomies or biopsies.

Despite differences in terminology and methodology, a comparative study reveals complementary strengths. Ayurveda emphasizes the functional interplay between anatomical structures and physiological systems, particularly the regulation of *Dosha* flow and the *Srotas* network. This is crucial in formulating personalized treatment strategies based on constitutional types (*Prakriti*) and disease staging (*Samprapti*). Modern medicine, meanwhile, relies on detailed anatomical and pathological visualization, facilitating microsurgical and interventional techniques with high precision.An integrated understanding of both perspectives enriches clinical practice. For instance, understanding the anatomical basis of *Marma* points in relation to modern neurovascular bundles and joints provides valuable insights for pain management, surgical safety, and rehabilitative strategies. Similarly, concepts like *Asthi* and *Sandhi* from Ayurvedic orthopedics can be reinterpreted through the lens of biomechanics and connective tissue pathology, enhancing therapeutic options for musculoskeletal disorders.

## 8. CONCLUSION

Ayurvedic anatomical literature offers profound insights into the structural and functional organization of the human body. Despite historical limitations in cadaveric dissection, classical texts such as *Sushruta Samhita* demonstrate a surprisingly accurate understanding of organ positioning—particularly in relation to the *Hridaya*, *Yakrit*, and *Pleeha*. While the terminologies and conceptual frameworks differ from those of modern anatomy, the functional positioning described in Ayurveda often correlates well with contemporary anatomical landmarks.This comparative alignment not only validates traditional observations but also provides a valuable platform for interdisciplinary learning and integrative medical practice.

Recognizing these correspondences enhances the application of Ayurvedic principles in clinical settings, particularly in *Panchakarma*, surgical procedures, and systemic disease localization.Continued scholarly inquiry into ambiguous anatomical entities like *Kloma*, supported by modern diagnostic and imaging technologies, holds promise for further bridging the gap between traditional and contemporary anatomical understanding. Such integrative approaches can enrich Ayurvedic pedagogy, improve diagnostic accuracy, and expand the scope of evidence-based traditional medicine in modern healthcare.

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