

Review



EXPLORING PHYSIO-ANATOMICAL SIMILARITIES BETWEEN THE MULADHARA CHAKRA AND THE INFERIOR HYPOGASTRIC PLEXUS: EVIDENCE FROM A CADAVERIC STUDY.

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ABSTRACT :

Introduction: The concept of *Chakras*, particularly the *Muladhara Chakra*, is well-established in *yogic* and tantric literature. Traditionally described as an energy center located at the base of the spine, the *Muladhara Chakra* is associated with physiological functions such as excretion, reproduction, and foundational vitality. Despite extensive spiritual interpretations, limited attempts have been made to correlate its anatomical basis using modern science. **Objective:** This study aims to identify the anatomical equivalent of the *Muladhara Chakra*, with a specific focus on its correlation with the inferior hypogastric plexus and its sub-plexuses. **Materials and Methods:** A comprehensive review of classical tantric literature and modern anatomical texts was undertaken. Additionally, dissection of six cadavers was conducted at the Department of *Sharira Rachana*, Govt. Ay. College & Hospital, Patna. Anatomical landmarks corresponding to the traditional location of the *Muladhara Chakra* were identified, followed by detailed superficial and deep dissections. Observations were compared with descriptions found in both ancient scriptures and contemporary literature. **Results:** The anatomical location and triangular configuration of the inferior hypogastric plexus closely resemble descriptions of the *Muladhara Chakra*. The four petals (*Dalas*) of the Chakra—*Vama*, *Sama*, *Shama*, and *Shhama*—were found to align with four major pelvic sub-plexuses: the uterine, vaginal (or seminal), vesical, and middle rectal plexuses. This supports the hypothesis that the inferior hypogastric plexus serves as the anatomical basis for the *Muladhara Chakra*. **Conclusion:** The study provides a scientific perspective on the anatomical identity of the *Muladhara Chakra*, correlating it with the inferior hypogastric plexus and its four subdivisions. While these findings offer a new layer of anatomical understanding to ancient *yogic* knowledge, further multidisciplinary studies are recommended to explore other attributes and functional aspects of the *Chakra*.

KEYWORDS: *Ayurveda*, *Chakra*, *Muladhara*, dissection, hypogastric plexus

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1. INTRODUCTION:

In classical literature, the term *Chakra* refers to "wheels of light," which serve as energy centers within the human body. These centers facilitate the movement of energy in and out, regulating various types of energy such as physical, mental, emotional, and spiritual. According to traditional beliefs, there are seven primary Chakras aligned along the spinal column, each performing distinct functions. These *Chakras* are considered to be psychic centers of the astral body, each governing a group of physiological and psychological activities. From an anatomical perspective, *Chakras* are thought to correlate with nerve plexuses, each responsible for different bodily functions based on their area of innervation. These plexuses are often described as radiating outward like spokes of a wheel.[1]

Overview of the *Muladhara Chakra*

The *Muladhara Chakra* is traditionally believed to be located in the triangular region between the anus and the genitalia.[2] It is connected to the base of the *Sushumna* (spinal cord) and is positioned below the genitals and above the anus. The *Chakra* is depicted with four crimson-colored petals, each bearing a Sanskrit syllable—*Vama*, *Sama*, *Shama*, and *Shhama*—which are described as having a golden glow.[3] Situated at the base of the spine, this *Chakra* is believed to form a cluster of nerve plexuses surrounding the *Sushumna*. It is thought to represent the anatomical region of the pelvic organs, such as the rectum, uterus, bladder, and testes,[4] suggesting that its physical location may correspond to the mid-perineal area.[5]

The *Muladhara Chakra* is also associated with *Apana Vayu*, the energy responsible for downward bodily functions like excretion of urine, feces, semen, and childbirth.[6–8] These same roles are described in ancient yogic texts like *Shat Chakra Nirupana*. [9] From a modern anatomical viewpoint, similar functions are managed reflexively by the pelvic plexuses, particularly the inferior hypogastric plexus.[10]

The goal of this study is to identify the anatomical equivalent of the *Muladhara Chakra* as described in traditional texts, supported by a comprehensive literature review and cadaveric dissection. Additionally, a thorough review of contemporary anatomical studies was conducted to clarify the correlation between ancient concepts and modern neuroanatomy.

Objectives

- To identify the precise anatomical location of the *Muladhara Chakra* in the human body.
- To correlate the four petals of the *Muladhara Chakra* with the sub-plexuses of the inferior hypogastric plexus.

2. MATERIALS AND METHODS:

Materials

The following materials were utilized in the study:

1. Classical and contemporary literature
2. Six human cadavers
3. Dissection instruments

Methods

Literature Review: To explore the structural anatomy of the *Muladhara Chakra*, an extensive review of classical Ayurvedic texts and modern anatomical literature was performed. Relevant data concerning the *Chakra's*

structure, function, and anatomical positioning were systematically collected and categorized.

Cadaveric Dissection: Dissection was carried out on six cadavers in the dissection hall of the Department of *Sharira Rachana*, Govt. Ayurvedic College & Hospital, Patna. Preliminary markings were made on each cadaver to denote the suspected location of the *Muladhara Chakra* in both the abdominal and pelvic regions. Dissections followed established protocols from both Ayurvedic and modern anatomical references, including the works of Acharya Sushruta,[11] *Cunningham's Manual of Practical Anatomy*, [12] and *Human Anatomy* by B.D. Chaurasia.[13]

Both superficial and deep layers were carefully dissected to study the anatomical structures present in the identified regions. The data collected from literary sources were then correlated with findings from the dissections to draw conclusions regarding the anatomical identity of the *Muladhara Chakra*.

3. OBSERVATIONS

Physiological Correlation (Based on Literary Review)

The inferior hypogastric plexus represents the sacral component of the parasympathetic nervous system and plays a central role in regulating reflexive physiological functions such as the excretion of feces, urine, semen, childbirth, and the performance of reproductive activities. These functions are mediated through its four primary subdivisions: uterine, vaginal, rectal, and vesical plexuses. Ancient texts attribute these same physiological roles to the *Muladhara Chakra*.

The presiding deity of the *Muladhara Chakra*, as mentioned in the Upanishads, is Dakini. Based on the

characteristics described in these texts, Dakini symbolizes the transmission of sensory impulses through neuronal plexuses—essentially acting as a conduit for sensory information. This interpretation aligns Dakini with sensory afferent pathways, particularly those related to reflex arcs. Therefore, Dakini may represent the peripheral ganglionic cells that receive parasympathetic afferent input via the sacral nerves from all four petals or sub-plexuses of the *Muladhara Chakra*. [14]

Anatomical Correlation (Based on Cadaveric Dissection):

Cadaveric dissection revealed that the anatomical location of the inferior hypogastric plexus closely aligns with the traditional location of the *Muladhara Chakra* [Figure 1]. Structurally, the inferior hypogastric plexus appeared nearly triangular in shape, which corresponds with descriptions of the *Muladhara Chakra*'s triangular form. [15]

Furthermore, the dissection identified four major sub-plexuses emerging from the inferior hypogastric plexus—namely the rectal, vesical, spermatic/uterine, and prostatic/vaginal plexuses. These innervate key pelvic organs and can be compared with the four *Dalas* (petals) of the *Muladhara Chakra* as described in traditional texts. This comparison supports the hypothesis that the four petals of the *Muladhara Chakra* represent these subsidiary divisions of the inferior hypogastric plexus [Table 1].

4. DISCUSSION

Based on the observations, it can be inferred that the *Sushumna* (spinal cord) serves as the central axis for all Chakras within the human body. The *Muladhara Chakra*,

in particular, appears to have a strong anatomical correlation with the **inferior hypogastric plexus**.

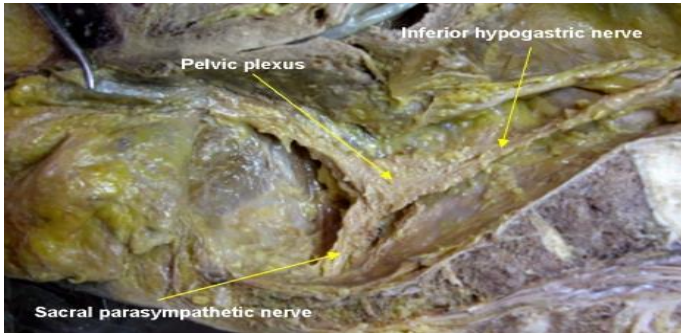


Figure 1: Inferior hypogastric plexus

A comparative analysis between classical descriptions of the *Muladhara Chakra* and modern anatomical findings suggests that each petal (*Dala*) of the *Chakra* corresponds to one of the sub-plexuses of the inferior hypogastric plexus. These findings are supported by several authoritative sources and anatomical studies.

Correlations from Literature:

Table 1: A summary of various scholars' views on the association between the four petals of the *Muladhara Chakra* and corresponding nerve plexuses.

Petals (Dala)	Correlated Plexus	Mauroy et al. [18]	Dr. Athawale & Drishtartha Shariram [16]	Dr. Mahendra [17]	Joshi BC [19]	Present Author's View
Vam	Hemorrhoidal Plexus	Inferior hemorrhoidal plexus	Inferior hemorrhoidal plexus	Inferior hemorrhoidal plexus	Middle hemorrhoidal plexus	Middle hemorrhoidal plexus
Sam	Vesical Plexus	Vesical plexus	Vesical plexus	Vesical plexus	Vesical plexus	Vesical plexus
Sham	Uterine/Spermatic Plexus	Spermatic/uterine plexus	Spermatic/uterine plexus	Uterine plexus	Cavernous nerves	Spermatic/uterine plexus
Shham	Prostatic/Vaginal Plexus	Prostatic/vaginal plexus	Prostatic/vaginal plexus	Vaginorectal plexus	Prostatic/vaginal plexus	Prostatic/vaginal plexus

This comparative table illustrates that multiple anatomical experts and Ayurvedic scholars have independently aligned specific pelvic plexuses with the petals of the *Muladhara Chakra*. Despite slight variations in terminology or subdivision, there is a significant consensus regarding the following associations:

- **Vam Dala** correlates most frequently with the hemorrhoidal plexus, involved in rectal innervation.

- **Sam Dala** is consistently associated with the vesical plexus, which innervates the urinary bladder.
- **Sham Dala** is linked to the uterine or spermatic plexus, involved in reproductive function.
- **Shham Dala** corresponds to the prostatic or vaginal plexus, contributing to both reproductive and excretory activities.

These correlations not only support the anatomical representation of the *Muladhara Chakra* as the inferior

hypogastric plexus but also reinforce the idea that traditional yogic knowledge may reflect a deep, intuitive understanding of neuroanatomy. Such interpretations bridge the conceptual gap between ancient spiritual texts and contemporary anatomical science.

The inferior hypogastric plexus and the *Muladhara Chakra* both exhibit a triangular structure, a finding that aligns with the observations made by Mauroy et al. Functionally, the inferior hypogastric plexus may be considered the central axis or axle of the *Muladhara Chakra*, conceptualized as a wheel. It serves as a distinct neuro-endo-vascular complex located within the pelvic region, playing a vital role in governing, regulating, and coordinating all pelvic functions. These functions are mediated through its network of smaller plexuses that supply various pelvic organs.

The four petals (*Dalas*) of the *Muladhara Chakra* — *Vama, Sama, Shama, and Shhama*—can be anatomically correlated with the four sub-plexuses of the inferior hypogastric plexus: the uterine plexus, vaginal plexus, middle rectal plexus, and vesical plexus.

5. CONCLUSION

While previous research has provided comprehensive descriptions of the *Muladhara Chakra* from a traditional perspective, the present study offers anatomical and scientific insights into its possible physical location. Findings suggest that the *Muladhara Chakra* may correspond anatomically to the inferior hypogastric plexus, which lies on either side of the superior hypogastric plexus.

Furthermore, the four petals (*Dalas*) of the *Muladhara Chakra* appear to align with the four key pelvic sub-

plexuses: the uterine plexus, vaginal (or seminal) plexus, vesical plexus, and the middle rectal plexus. The triangular configuration of the inferior hypogastric plexus observed during dissection also mirrors the traditional triangular depiction of the *Muladhara Chakra*.

Although these findings provide preliminary anatomical correlations, further in-depth studies are necessary to explore additional characteristics and deeper functional significance of the *Muladhara Chakra*.

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