



Review Article

NEUROLOGICAL UNDERSTANDING OF SHAD CHAKRA WITH SPECIAL REFERENCE TO VATA DOSHA

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ABSTRACT

*Chakra* are believed to be part of subtle body, thought to vitalize the physical and mental status of an individual. *Muladhara*, *Swadhishtana*, *Manipura*, *Anahata*, *Vishuddha* and *Ajna* are called *Shadchakra*. Ayurveda is based on *Tridosha Sidhantha*, in which *Vata Dosha* has prime control over all functions of body, renders *Prana* to livings. Functions and site of *Vata Dosha* and *Shad Chakra* are found to be identical in some constituents. The function of *Chakra* is to spin and draw in this universal life force energy to keep the spiritual, mental, emotional and physical health of the body in balance. *Prana Vata* is seen related with *Ajna Chakra*, *Udana Vata* with *Vishuddha Chakra*, *Vyana Vata* with *Anahata Chakra*, *Samana Vata* with *Manipura Chakra*, *Apana Vata* with *Muladhara* and *Swadhishtana Chakra* respectively. *Vata Dosha* prompts all types of actions, coordinates physical and mental activities, likewise *Chakra* modulate the flow of subtle energy. Movement of energy is vital to life and the energetic process in body is caused by nervous system. The autonomic and somatic nervous system is most relevant with action of *Chakra* dealing with involuntary and voluntary response of the body as per need.

**KEYWORDS:** Ayurveda, *Shadchakra*, *Vatadosha*, *Prana*, Nervous system.

INTRODUCTION

*Chakra* means as circling motion<sup>[1]</sup> or wheel commonly described as energy centers in the subtle body. The philosophical theories and models of *Chakra* as centers of energy were identified through mystical practice of yoga in ancient India<sup>[2]</sup>. Science of Ayurveda is entrenched on *Tridosha* theory in which *Vata* indeed the most fundamental and imperative *Dosha* for existence. *Vata* is considered as *Tantrayantradhara*, means that which adores *Tantra* and *Yantra*. *Tantra* indicates subtle body and *Yantram* indicates machine along with its parts in relation to physical body<sup>[3]</sup>. Awakening of *Chakra* is part of *Tantra yoga* which magnifies the physical, mental and spiritual health of an individual.

METHOD

Conceptual study carried out by reviewing ancient literatures like *Susruta samhita*, *Ashtanga hridaya*, *Siva Samhita*, *Hatha yoga Pradipika*, *Layayoga*, books related to *Chakra*, contemporary science, online resources and journals.

- Literary and critical analysis of *Vata dosha* from *Susruta Samhita*, *Ashtanga hridaya*, book related to *Tridosha* and articles from PubMed and Google Scholar.

- Literary review of *Shad Chakra* from *Siva samhita*, *Hathayoga pradipika*, *Layayoga*, *Nyasayoga*, various books related to *Chakra* and *Yoga Sastra*.
- Contemporary view on nervous system from tortora, other anatomy and physiology books.

Conceptual review

*Chakra* is a center of activity that receives, assimilates and expresses *Prana* or life force energy<sup>[4]</sup>. Subtle body has energy channels for controlling the flow of *Prana* and these channels are called *Nadi*, and the centers controlling them are known as *Chakra*<sup>[5]</sup>. Though the *Chakras* are situated in the subtle body, their influence extend to the gross and causal bodies<sup>[1]</sup>. *Shad chakra* are namely *Muladhara chakra*, *Swadhishtana Chakra*, *Manipura chakra*, *Anahata chakra*, *Vishuddha Chakra* and *Ajna Chakra*, located at various regions of the median plane from caudal to cranial via spinal cord and vice versa. The ancient *Yogic* interpretation of mind and concentration is fundamentally based on the *Chakra* organisation and its function which indicate the levels of spiritual consciousness and of absorptive concentration<sup>[6]</sup>. The awakening of these astral centers can only begin with the activation of *Kundalini Sakti* located in the root *Chakra*. In normal persons, this serpent fire is an unconscious, inert

mass, devoid of any initiating or substantiating power of its own. However, when fully awakened it reaches unspeakable heights, enlightening the soul and enabling man to obtain the highest knowledge of the universe<sup>[7]</sup>.

Ayurveda classics have delineated three categories of fundamental regulatory principles of the body, mind, and behaviour. These three categories, called *Dosha* are named *Vata*, *Pitta*, and *Kapha*. The category of *Vata dosha* responsible for cell division and cell signaling, movement at all levels of the physiology, excretion of wastes, cognition and also regulates the activities of *Kapha* and *Pitta*<sup>[8]</sup>. Hence *Vata* is the upholder or sustainer of structures and functions in the body. As per *Susruta Samhita*, *Vata* has two main functions i.e., *Gati* (movement) and *Gandhana* (knowledge)<sup>[9]</sup>. *Vata* causes all movements by stimulating the muscles. The movement in the body is expressed by contraction and relaxation of muscles and this can be considered as motor nervous system. The knowledge is acquired by perception through five sensory organs and can be regarded as sensory nervous system. *Vata dosha* is divided into 5 types namely *Pranavata*, *Udanavata*, *Vyanavata*, *Samanavata* and *Apanavata*. According to *Yoga* theory, *Prana* or vital energy is absorbed into the body through respiration or directly through the function of the *Chakra*. It is then distributed through the *Nadi* to all parts of the body, converting into different forms of *Pranic* energy appropriate for the various organs and tissues. *Sukshma prana* moves in the nervous system of the *Lingasarira* (astral body) and *Sthulaprana* moves in the nervous system of the gross physical body. Usually five varieties of *Prana* or *Vayu* are *Prana*, *Apana*, *Vyana*, *Samana*, and *Udana*<sup>[10]</sup>. As long as the *Vayu* remains in the body, that is called life. Death is when it leaves the body therefore *Vayu* must be retained, here *Vayu* indicates *Pranic* air, it moves throughout the body like waves of energy. It can be likened to an electromagnetic field where the energy is in constant motion<sup>[11]</sup>.

#### **Relation of Muladhara Chakra and Swadhishtana Chakra with Apanavata**

*Muladhara chakra* is situated in the region below the genitals and above the anus and is attached to the mouth of the *Sushumna*<sup>[12]</sup> which influences the excretory, reproductive organs and hormonal secretions<sup>[13]</sup>. It is said to be the base from which 3 main psychic channels or *Nadi* i.e., *Ida*, *Pingala*, *Sushumna* emerges and *Kundalini* lies dormant, like coiled serpent<sup>[14]</sup>. *Swadhishtana Chakra* is situated at base of *Linga* and two fingers width above *Muladhara chakra*. It is connected to the sacral plexus, urinary and reproductive organs<sup>[15]</sup>. The word *Apana* indicates lower most end, located in pelvis, urinary

bladder, penis which aid for the excretion of faeces and urine, ejection of semen, conduction of menstrual flow and to bear down the fetus at the time of delivery<sup>[16]</sup>.

#### **Relation of Manipura Chakra with Samanavata:**

*Manipura Chakra* is identified as situated in the region termed as *Mani* (navel). The *Tattva* of the *Manipura Chakra* is fire, an element closely related with awakening of *Kundalini*. In the physical body, the *Manipura* is said to be the center of the digestive fire also correlates with celiac plexus. *Manipura* influences the digestive process and *Prana*, then distribute *Prana* to the rest of body<sup>[17]</sup>. Similarly *Samanavata* is said to be located near the seat of *Agni*, moves in *Koshta*. It receives food, retains it till the digestion is completed and separates the *Sara* from *Kitta bhaga*<sup>[18]</sup>.

#### **Relation of Anahata Chakra with Vyanavata**

*Anahata Chakra* is said to be located in the area of the astral body which corresponds to the heart and is often referred to as the heart *Chakra*. However, in contrast to the small area occupied by the physical heart, the astral space of the *Anahata Chakra* is vast and formless<sup>[19]</sup>. It is associated with love and compassion, charity to others and forms of psychic healing. It is situated exactly in the center of *Chakra*, so it symbolizes overall balance between all modes of consciousness and the ultimate potential for individual and global transformation<sup>[20]</sup>. *Vyanavayu* being located in *Hridaya*, traverse throughout the body very swiftly, called *Mahajava* as it controls whole bodily movements and does *Rasa Rakta samvahana*. The circulation is effected by the force of regular contraction of the heart, hence proper nourishment of the body by *Rasa Dhatu* is dependent on function of heart<sup>[21]</sup>.

#### **Relation of Vishuddha chakra with Udana Vayu**

*Vishuddha Chakra* is said to be located in the throat closely correspond to thyroid gland and laryngeal nerve plexus. It is considered as the *Chakra* of purification, where purification of thought and *Karma* may take place, which filter out the poisons entered in the body<sup>[22]</sup>. It symbolizes pure consciousness and creativity. On a psychic level, it governs expression, inspiration in speech<sup>[23]</sup>. *Udana vata* located in *Uras*, moves in *Nasa*, *Nabhi*, *Gala*, and facilitates the functions of *Vakpravritti*, *Bala*, *Varna*, *Smriti kriya*. The verbal expression is the main function of *Udanavata*, situated on *Kantadesa* and other functions are accomplished by the effective respiratory function during the production of speech<sup>[24]</sup>.

### Relation of *Ajna chakra* with *Prana vata*

The word *Ajna* means to command thus, the *Ajna* is often termed the "command center". It is located between eyebrows at the point where the three major *Nadi* (*Ida*, *Pingala*, and *Sushumna*) merge to form a single passage. It also bears the name third eye and represents superior mental consciousness and considered as *Chakra* of mind<sup>[25]</sup>. *Pranavata* is responsible for all vital functions like respiration, heart rate and other vegetative functions. *Pranavata* is located in head, started to transverse in the region of oral cavity, nose, neck and chest for proper control and discharge of its functions. It regulates the sensory input and consciousness which belong to

*Manas* and *Buddhi* and is central in character and impulse reach respective higher centres<sup>[26]</sup>. *Prana* is the type of *Vayu* that ensures life to all creatures by its presence in the body and its departure causes death. The flow of energy known as *Prana*, is a continuous process which give vitality to the body. *Prana* is the sum of all energy that is manifested in the universe. Mind cannot operate without the help of *Prana*. Control of *Prana* means control of mind<sup>[27]</sup>. Latest science on the autonomic nervous system suggests analogies between current thinking on autonomic self-regulation with central self-regulatory structure and function of the subtle body<sup>[28]</sup>.

**Table 1: Locations of the five *Pranas* Given in *Upanishads* and Other Sources<sup>[29]</sup>**

Name of <i>Prana</i>	<i>Yoga Cudamani Upanishad</i>	<i>Shri jabala Darshana Upanishad</i>	<i>Shat-chakra-Nirupana Pandukapunchaka</i>	<i>Satyanaanada</i>
1. <i>Prana</i>	Heart	Constant movement in area b/w mouth and nose, at centre of navel, in heart	In heart	In b/w larynx and top of diaphragm
2. <i>Udana</i>	Pharynx	Upper and lower limbs	In throat	Above larynx
3. <i>Vyana</i>	Pervades entire body	Area b/w eyes and heels	Pervades whole body	Pervades whole body
4. <i>Samana</i>	Navel	Pervades whole body	Navel	b/w heart and navel
5. <i>Apana</i>	<i>Muladhara</i>	Works in large intestine, genitals, thighs and stomach; also at navel and in buttocks	Anus	Below navel

**Table 2: Relation between *chakra* and *vata* dosha types**

<i>Chakra</i>	<i>Dosha</i>	Location of <i>Chakra</i>	Location of <i>Dosha</i>	Function of <i>Chakra</i>	Function of <i>Dosha</i>
<i>Muladhara</i>	<i>Apana vata</i>	Pelvis	<i>Apanaga</i>	fear, sex anger	<i>Sukrapravritti</i> , excretion of urine, feces, <i>Artava</i> , expulsion of <i>Garbha</i>
<i>Swadhishtana</i>	<i>Apana vata</i>	Genital region	<i>Apanaga</i>	Emotion, sexual desire	<i>Sukrapravritti</i> , micturition, defecation, parturition
<i>Manipura</i>	<i>Samanavata</i>	<i>Nabhi</i>	<i>Agni sameepastha</i>	Enhances digestion	Helps digestion
<i>Anahata</i>	<i>Vyanavata</i>	<i>Hridaya</i>	<i>Hridaya</i>	Love, compassion	Cause movement, <i>Rasasamvahana</i>
<i>Vishuddha</i>	<i>Udanavata</i>	<i>Kanta</i>	<i>Uras</i>	Governs expression, Speech	Production of speech, improves <i>Bala</i> , <i>Varna</i> , <i>Smriti</i>
<i>Ajna</i>	<i>Prana vata</i>	<i>Shiras</i>	<i>Moordha</i>	Control of mind	Enlightens <i>Budhi</i> , <i>Hridaya</i> , <i>Indriya</i> , <i>Mana</i>

### Discussion

*Muladhara Chakra* represents neurovascular control of pelvic structures like rectum, uterus, urinary bladder and accessory organs of urogenital system situated in most caudal part of trunk. *Swadhishtana Chakra* is located at the base of penis and it is responsible for love and adoration including sexual desire. *Apanavata*, one of the life energy that helps in movement is stated to move through these regions like urinary bladder, hips, penis, testes, groin and thigh involved in function like ejaculation of

semen, excretion of urine, feces, and also delivering fetus. As per modern these functions are carried out by inferior hypogastric plexus with four divisions hang down from neural axis. Middle rectal plexus controls normal defecation. Vesical plexus has exclusive control of normal micturition. With regard to ejaculation of semen, menstruation which is controlled by hypothalamo-pituitary gonadal axis related with reproductive organs of male and female. Erection is caused by parasympathetic impulse that

passes from sacral portion of spinal cord to the penis. The location of both *Chakra* and *Apanavata* are said to be in urogenital region which facilitates the functions of *Sukra*, *Artava*, *Sakrit*, *Mootra*, *Garbha Nishkramana Kriya*.

*Manipura Chakra* is said to be the seat of fire and same is mentioned as seat of *Samanavata*. It stimulates *Antaragni* to digest food eaten in proper time and dose, leads to increase in life span. After the digestion is completed, it helps in separation of nutrients from residue. This function indicates the neural control of secretion of various digestive juices, an attribute of scretomotor parasympathetic control. The stimulation is probably mediated by both local cholinergic and long vagovagal reflex. The function of gastrointestinal tract in relation to digestion and absorption mentioned under *Samanavata* give relevance to enteric nervous system. The enteric nervous system otherwise called as "brain of the gut" consists of about 100 million neurons that extend from the oesophagus to the anus. The enteric nervous system interacts with the microbiome of the gut to modulate immune functioning and activity of the parasympathetic nervous system. Location and functions of *Manipura Chakra* and *Samanavata* are seen associated with each other.

*Anahata Chakra* is said to be located in *Hridaya* which is at centre of entire *Chakra* system and can be correlated as cardiac plexus. The *Anahata Chakra* is often referred to as the seat of love and its feeling is often related with heart. *Vyanavayu* is also said to be situated in *Hridaya*. Heart supplies oxygen rich blood, likewise *Vyanavata* helps for *Rasa Rakta samvahana* and this can be done by contraction of heart and blood vessels, thus *Vyanavata* pumps and pushout the blood from heart helps for circulating *Prana* all over the body. Sympathetic function in the medulla oblongata, and parasympathetic function in the hypothalamus and other cortical areas which is concerned with the control of heart. Hence *Anahatachakra*, *Vyanavayu* and autonomic nervous system are related with each other.

Location and function of *Vishuddha Chakra* and *Udanavata* looks analogous. In *Vishuddha Chakra* there is mention of inspiration of speech and which is located in neck. Functions of *Udanavata* are verbal expression, effort, stimulation, vitality and complexion and which is located in chest region. The act of verbal expression involves coordinated movements of respiratory, laryngeal, lingual, pharyngeal and labial muscles. The motor functions of these groups of muscles are controlled by facial, glossopharyngeal, vagus, spinal accessory and hypoglossal nerves. The development of speech is associated with neuro physiological correlates of

learning. From this we can understand that region and functions of *Vishuddha Chakra* and *Udanavayu* are interconnected with nervous system.

*Ajna Chakra* is called dwelling place of meditative ability. *Ajna Chakra* is often called as center of command or regulating centre on the basis of its applied physiological aspects. The hypothalamus representing circle of *Ajna Chakra* controls and integrates balancing activity of autonomic and endocrine system. *Pranavata* enlighten the *Buddhi*, *Mana* and sensory organs, while *Ajna Chakra* control the sense organs, assumption, consideration, memory, emotion, which represent the action of mind. Emotional behaviour is basically controlled by limbic system and hypothalamus is one of the central elements of limbic system. Location of *Pranavata* and *Ajna Chakra* are said to be in *Shiras* and main seat of *Pranavata* is *Murdha*, govern all the physiological functions by generating motor impulses after the integration of sensory impulse from all over body. Activity in the reticular system maintains the conscious alert that makes perception possible. Reticular formation influences over viscerovascular vegetative functions such as cardiac, vascular, respiratory, gastro intestinal and metabolic actions. It is seen clear that locations and functions of *Ajna chakra*, *Pranavata* and reticular formation are incorporated each other.

Peripheral nervous system connects brain and spinal cord to rest of body via nerve fibres. This system coordinates with *Chakra* in the median axis. Autonomic nervous system via *Chakra* deals with involuntary or autonomic response like regulation of body temperature, blood pressure, cardio respiratory rate, gastro intestinal motility rate and glandular secretion with master control by hypothalamus acting as master ganglion of autonomic nervous system in maintaining milieu interieur. The central axis of the body represented by brain with spinal cord and its paired nerves emerging enact the control of both sensory and motor activities of the whole body forming and communicating via peripheral nervous system. Where ever visceral control of activities are needed it helps in formation of plexus like cardiac, coeliac, renal, sacral, superior hypogastric etc and exhibit its control over respective function.

## CONCLUSION

*Vata dosha*, in the form of nervous impulses located in major regions like pelvic, genital, abdomen, chest, throat and head regulate the movement, inspiration, expiration, expulsion, propulsion, constriction, contraction, scretomotor functions which are in accordance with locations and functions of *Shad chakra*. By critically analysing the literatures,

it is evident that there is strong relation between *Shad chakra*, *Vata dosha* and nervous system. We could observe inter relation between *Muladhara*, *Swadhishtana* with *Apanavata* likewise *Manipura chakra* with *Samanavata*, *Anahata chakra* with *Vyanavayu*, *Vishuddha chakra* with *Udanavata* and *Ajna chakra* with *Pranavata*.

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### Cite this article as:

Jigisha.P.S, Uma B. Gopal, Remya.K.Simon, Sanchita. Neurological Understanding of Shad Chakra With Special Reference To Vata Dosha. International Journal of Ayurveda and Pharma Research. 2021;9(5):93-97.

**Source of support: Nil, Conflict of interest: None Declared**

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