NEUROLOGICAL UNDERSTANDING OF SHAD CHAKRA WITH SPECIAL REFERENCE TO VATA DOSHA

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ABSTRACT

Chakras 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 Shadchakras. The ancient Yantram and Tantrayantradhara Dosha Ayurveda is based on Tridosha Siddhanta, in which Vata Dosha has prime control over all functions of body, renders Prana to livings. Functions and site of Vata Dosha and Shad Chakras 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 Shadchakra 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 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. Science of Ayurveda is entrenched on Tridosha theory in which Vata Dosha is 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. Awakening of Chakra is part of Tantra yoga which magnify 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, Layyogga, 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, Layyogga, Niyasayoga, 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. 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 Chakras. Though the Chakras are situated in the subtle body, their influence extend to the gross and causal bodies. Shad chakras 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. 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[7].

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[8]. 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)[9]. 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, Udavata, 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. Sukshmaprana moves in the nervous system of the Lingasarira (astral body) and Stholaprana moves in the nervous system of the gross physical body. Usually five varieties of Prana or Vayu are Prana, Apana, Vyana, Samana, and Udana[10]. 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[11].

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[12] which influences the excretory, reproductive organs and hormonal secretions[13]. 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[14]. 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[15]. 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[16].

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[17]. 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[18].

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[19]. 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[20]. Vyanavaya 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[21].

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[22]. It symbolizes pure consciousness and creativity. On a psychic level, it governs expression, inspiration in speech[23]. 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[24].

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\(^{[25]}\). *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\(^{[26]}\). *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\(^{[27]}\). 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\(^{[28]}\).

### Table 1: Locations of the five Pranas Given in Upanishads and Other Sources\(^{[29]}\)

| Name of Prana | Yoga Nadi | Upanishad | Shri jabala Darshana Upanishad | Satyananada |
|---------------|-----------|-----------|--------------------------------|-------------|
| 1. Prana      | Heart     | Mouth     | Not mentioned                  | In heart    |
| 2. Udana      | Pharynx   | Upper     | Not mentioned                  | Above larynx|
| 3. Vyana      | Pervades  | Area      | Not mentioned                  | Pervades whole body |
| 4. Samana     | Navel     | Whole     | Not mentioned                  | Navel       |
| 5. Apana      | Muladhara | Works     | Not mentioned                  | Anus        |

### Table 2: Relation between chakra and vatadosha types

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

### 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
pass from sacral portion of spinal cord to the penis. The location of both Chakra and Apanavata are said to be in uro genital 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 scetomotor 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. Vyanavaya 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 Buddh, 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 influence over viscero vascular 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, secretomotor functions which are in accordance with locations and functions of Shad chakra. By critically analysing the literatures,
it is evident that there are strong relation between \textit{Shad chakra, Vata dosha} and nervous system. We could observe inter relation between \textit{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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